

General Operation

The continuously variable transmission (CVT) is an electronically controlled automatic transmission with drive and driven pulleys, steel belt, and new transmission fluid (HCF-2). The CVT provides non-stage speeds forward and non-stage speeds reverse. The entire unit is positioned in line with the engine.

Transmission

The torque converter consists of a pump, a turbine, and a stator assembly in a single unit. The torque converter cover is connected to the engine crankshaft and turns as the engine turns. Around the outside of the torque converter is a ring gear which meshes with the starter drive gear when the engine is being started. The entire torque converter assembly serves as a flywheel, transmitting power to the transmission input shaft. The transmission has four parallel shafts: the input shaft, the drive pulley shaft, the driven pulley shaft, and the final drive shaft. The input shaft is connected to the torque converter turbine, and integrates the forward clutch on the drive pulley shaft end. The drive pulley shaft and the driven pulley shaft consist of movable and fixed face pulleys. Both pulleys are linked by the steel belt. The input shaft includes the forward clutch. The drive pulley shaft includes the drive pulley. The input shaft is connected with the drive pulley shaft by the forward clutch hub/sun gear, and by the ring gear, the planetary pinion gears, and the sun gear. The planetary carrier is positioned between the ring gear and the sun gear, and engaged with the planetary pinion gears. The driven pulley shaft includes the driven pulley (with the park gear). The secondary drive gear is splined to the driven pulley shaft. The final drive shaft is positioned between the secondary drive gear and the final driven gear. The final drive shaft integrates the secondary driven gear and the final drive gear which serves to change the rotational direction of the drive and driven pulley shafts, because the drive pulley shaft and the driven pulley shaft rotate the same direction. When the input shaft is joined with the drive pulley shaft by engaging the forward clutch or the reverse brake, power is transmitted through the input shaft, the drive pulley shaft, the driven pulley shaft, to the final drive shaft provide drive.

Electronic Control

The electronic control system consists of the transmission control module (TCM), sensors, and solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The TCM is located in the engine compartment.

Hydraulic Control

The hydraulic control system is controlled by the TCM, the transmission fluid pump, and the valves and the solenoid valves in the valve body. The transmission fluid pump is driven by the engine turns. The transmission fluid pump drive sprocket is connected to the stator shaft, turns as the engine turns, and drives the transmission fluid pump driven sprocket by the transmission fluid pump drive chain. The transmission fluid pump supplies hydraulic pressure to the hydraulic circuit. Fluid from the transmission fluid pump passes to the various control valves, the drive/driven pulleys, the forward clutch, and the reverse brake.

Shift Control

To shift pulley ratio, the TCM controls shift solenoid valve B, the CVT drive pulley pressure control solenoid valve, the CVT driven pulley pressure control solenoid valve, the CVT clutch pressure control solenoid valve, and the CVT lock-up clutch control solenoid valve while receiving input signals from various sensors and switches located throughout the vehicle. The TCM actuates the CVT drive pulley pressure control solenoid valve and the CVT driven pulley pressure control solenoid valve to change drive and driven pulley pressures. The drive pulley pressure is applied to the drive pulley, and the driven pulley pressure is applied to the driven pulley, and pulley ratio is changed to their effective ratio.

Lock-Up Mechanism

The lock-up mechanism of the torque converter clutch operates in D position/mode, S position/mode, and L position/mode, at transmission fluid temperature exceeding 68 °F (20 °C). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the transmission fluid pump. As this takes place, the input shaft and the drive pulley shaft rotate as the same as the engine crankshaft. Together with hydraulic control, the TCM optimizes the timing of the lock-up mechanism. When shift solenoid valve B is turned ON by the TCM, shift solenoid valve B pressure switches lock-up ON and OFF. The CVT lock-up clutch control solenoid valve controls the volume of lock-up.

Gear Selection

The shift lever has following position/mode;

Position/Mode	Description
P: PARK	Front wheels locked; the parking brake pawl engages with the park gear on the driven pulley. The forward clutch disengages.
R: REVERSE	The reverse brake engages, and it locks with the planetary carrier to the transmission housing.
N: NEUTRAL	The forward clutch disengages.
D: DRIVE	Transmission automatically adjusts to keep the engine at the best rpm for driving under all conditions. The lock-up mechanism operates in this position/mode. The WOT Step Shift Mode* operates in this position/mode.

*: When accelerating and the engine speed reaches the maximum while the accelerator pedal is depressed deeply and the vehicle is driving at high speed, the CVT system switches the gear shift method to provide an automatic transmission-like multistage gear shift.

Position/Mode	Description
S: SPORT	Transmission automatically adjusts to keep the engine at a higher rpm than in D position/mode driving conditions for sport driving. The lock-up mechanism operates in this position/mode. The WOT Step Shift Mode* operates in this position/mode.
L: LOW	For engine braking and power for climbing; the transmission shifts into the lowest pulley ratio. The lock-up mechanism operates in this position/mode.

*: When accelerating and the engine speed reaches the maximum while the accelerator pedal is depressed deeply and the vehicle is driving at high speed, the CVT system switches the gear shift method to provide an automatic transmission-like multistage gear shift.

Starting the engine is possible only the transmission is in P or N position/mode because of a neutral-safety switch.

Shift Position Indicator

The shift position indicator in the gauge control module shows which shift lever position/mode has been selected without having look down at the console.

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transmission-like multistage gear shift.

Position/Mode		Description
D: DRIVE	Without paddle shifter	Transmission automatically adjusts to keep the engine at the best rpm for driving under all conditions. The lock-up mechanism operates in this position/mode. The WOT Step Shift Mode* operates in this position/mode.
	With paddle shifter	Transmission automatically adjusts to keep the engine at the best rpm for driving under all conditions. It is also equipped with the D-paddle shift mode that allows the transmission to be shifted manually to lower or higher ratios with the steering wheel-mounted paddle shifters under certain conditions. The number of the selected ratio is displayed in the shift indicator. The lock-up mechanism operates in this position/mode. The WOT Step Shift Mode* operates in this position/mode.
S: SPORT	Sport driving mode (non-stage speeds)	Transmission automatically adjusts to keep the engine at a higher rpm than in D position/mode driving conditions for sport driving. The lock-up mechanism operates in this position/mode. The WOT Step Shift Mode* operates in this position/mode.
	S-paddle shift mode (1st through 7th) (With paddle shifter)	The transmission can be manually shifted from 1st through 7th using the steering wheel-mounted paddle shifters. The selected ratio position is displayed in the shift indicator. In this mode, the vehicle can also start off in 1st gear, upshift automatically through the ratios during acceleration, and then downshift automatically when decelerating to a stop. The lock-up mechanism operates in this position/mode. The WOT Step Shift Mode* operates in this position/mode.
L: LOW (Without paddle shifter)		For engine braking and power for climbing; the transmission shifts into the lowest pulley ratio. The lock-up mechanism operates in this position/mode.

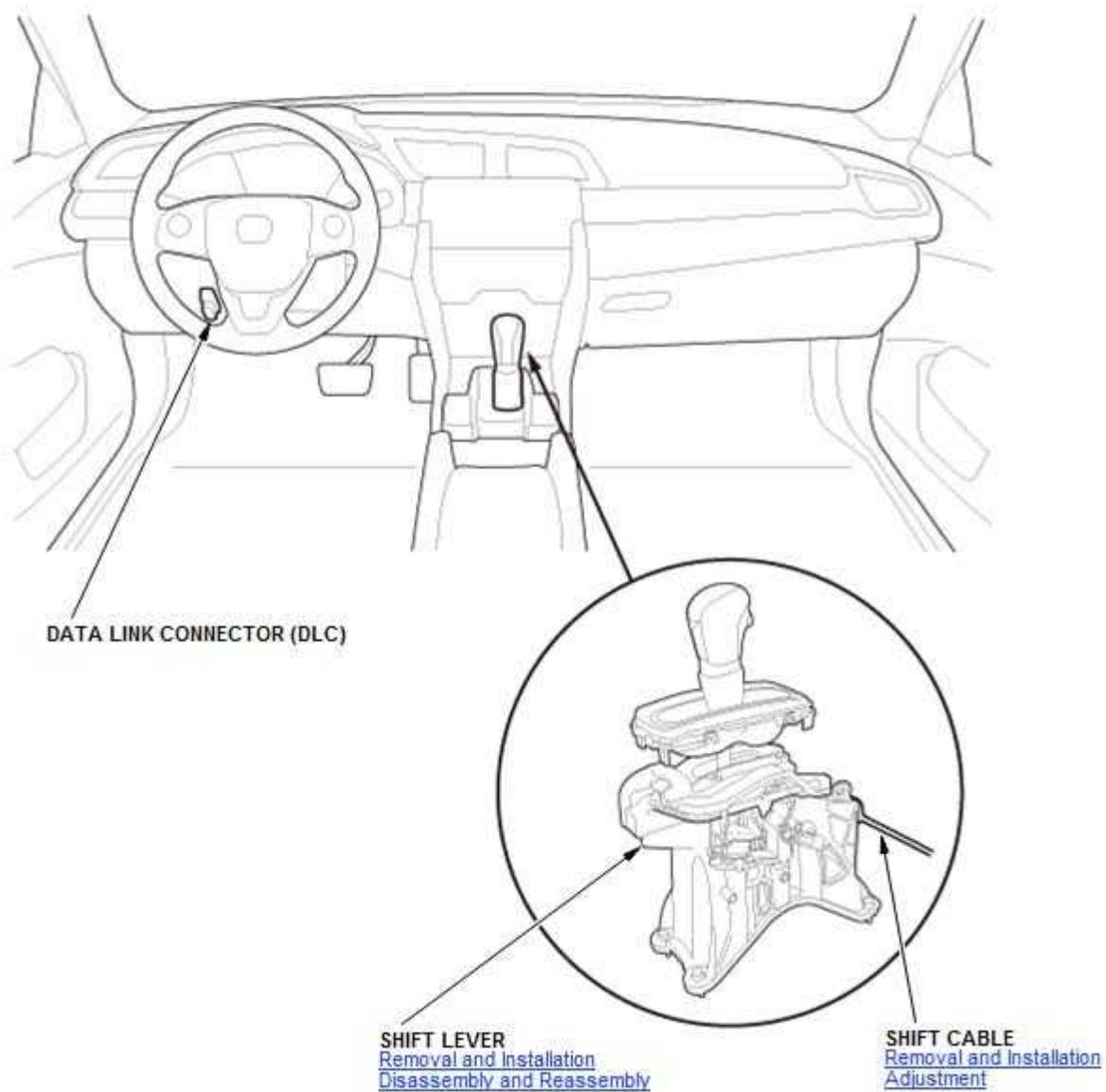
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Starting the engine is possible only the transmission is in P or N position/mode because of a neutral-safety switch.

Shift Position Indicator

The shift position indicator in the gauge control module shows which shift lever position/mode has been selected without having to look down at the console.

CVT System Component Location Index



This illustration shows type A shift lever.

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Behind Transmission Fluid Pan

CVT CLUTCH PRESSURE CONTROL SOLENOID VALVE
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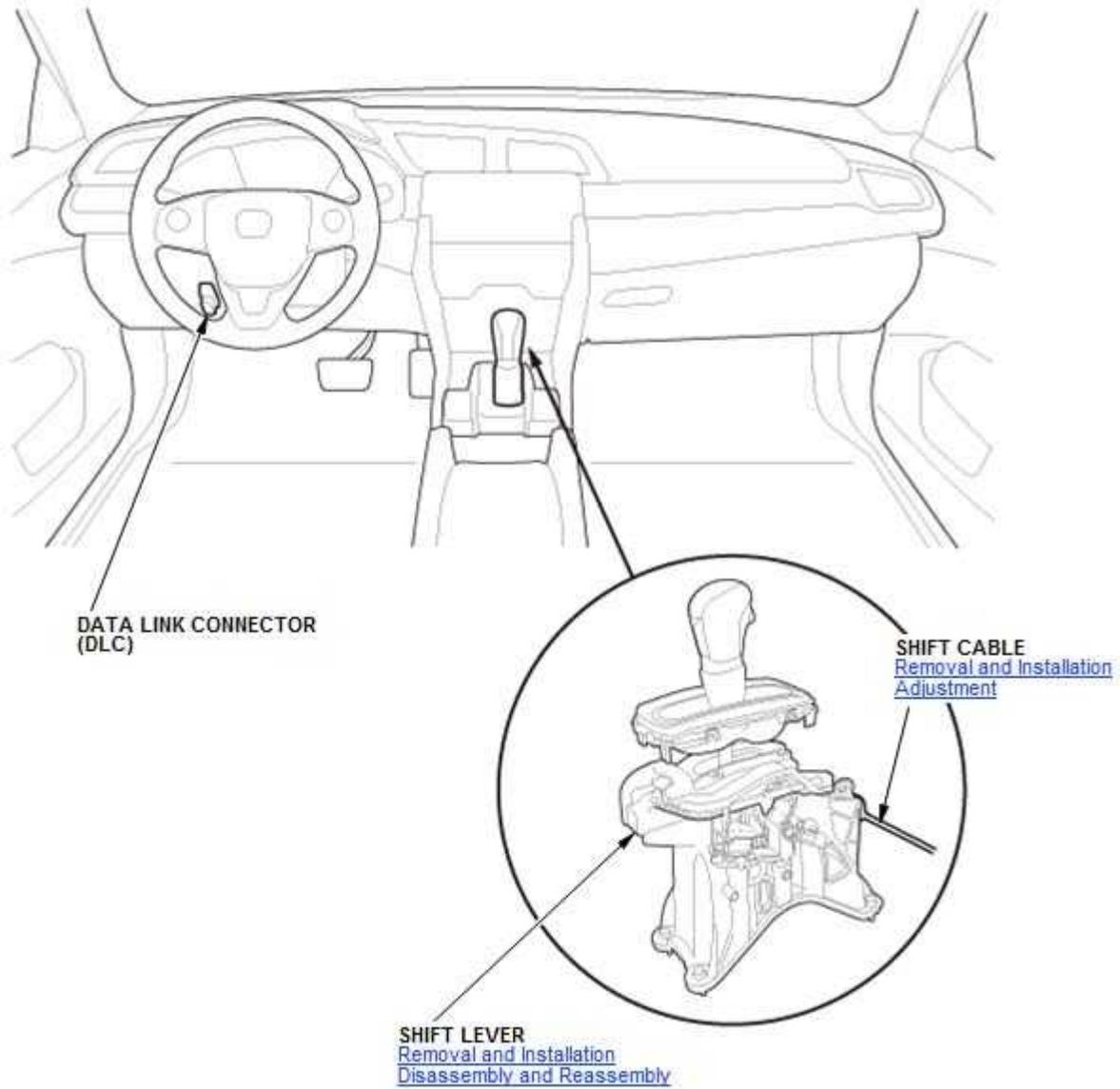
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Forward Clutch, Reverse Brake, Planetary Gear Train, and Pulleys

Forward Clutch

The forward clutch is the hydraulic-actuated clutch, and engages and disengages the sun gear. When hydraulic pressure is introduced into the forward clutch drum, the forward clutch piston moves. This presses the friction discs and the steel plates together, locking them so they do not slip. Power is then transmitted through the engaged clutch pack to the forward clutch hub/sun gear. Likewise, when hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the sun gear to spin independently on the forward clutch, transmitting no power. The forward clutch is integrated with the input shaft, and located at the end of the drive pulley shaft. The forward clutch is supplied with hydraulic pressure by a circuit connected to the internal hydraulic circuit.

Reverse Brake

The reverse brake is the hydraulic-actuated brake, and engages and disengages the planetary carrier with the transmission housing. When hydraulic pressure is introduced into the reverse brake piston cavity, the reverse brake piston moves. This presses the friction discs and the steel plates together, locking them so the planetary carrier locks. Power from the forward clutch drum and the ring gear is then transmitted through the planetary pinion gears and the sun gear. Likewise, when hydraulic pressure is bled from the reverse brake piston cavity, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the planetary carrier to free from the reverse brake, transmitting no power. The reverse brake is mounted in the transmission housing. The reverse brake is supplied with hydraulic pressure by a circuit connected to the internal hydraulic circuit.

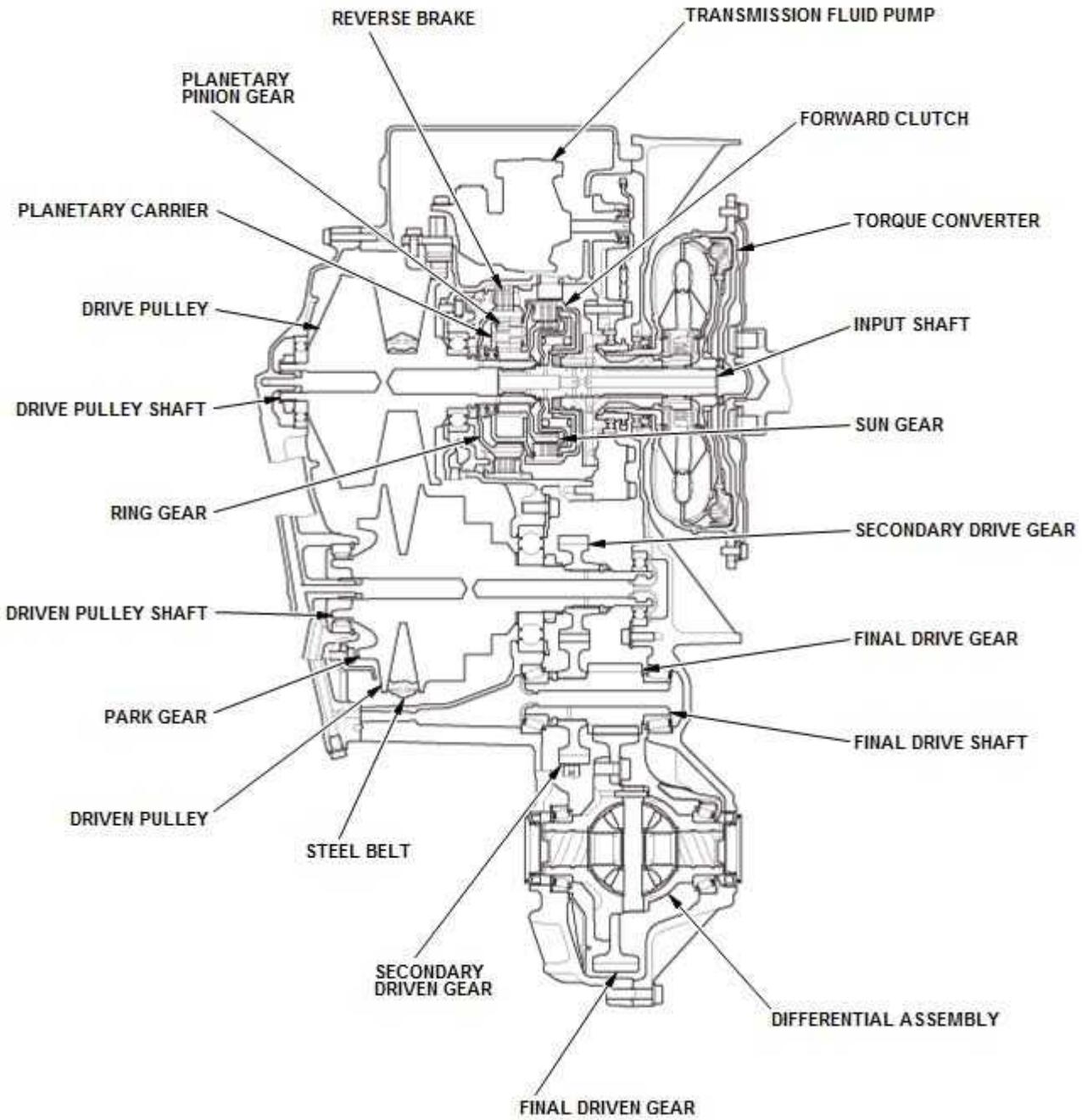
Planetary Gear Train

The planetary gear train is only used for switching the rotational direction of the pulley shafts in R. The planetary gear train consists of the sun gear, the planetary pinion gears, the planetary carrier, and the ring gear. The sun gear is connected to the drive pulley shaft by the splines. The planetary pinion gears are installed on the planetary carrier. The planetary carrier assembly is located on the drive pulley shaft, the carrier is mounted in the reverse brake, and the pinion gears are engaged with the sun gear. The ring gear is connected with the forward clutch drum, and engaged with the planetary pinion gears. In R, the reverse brake locks the planetary carrier, and the ring gear drives the planetary pinion gears to rotate. The pinion gears drive the sun gear in the reverse direction from the rotational direction of the input shaft. The engine power from the input shaft drives the sun gear and the drive pulley shaft via the forward clutch drum, the ring gear, and the planetary pinion gears.

Pulleys

The drive pulley and the driven pulley consist of a movable face and a fixed face, and the effective pulley ratio changes with engine speed. The drive pulley and the driven pulley are linked by the steel belt. To achieve a high pulley ratio; low speed range, high hydraulic pressure works on the movable face of the driven pulley and reduces the effective diameter of the drive pulley, and lower hydraulic pressure works on the movable face of the drive pulley to eliminate the steel belt slippage. To achieve a low pulley ratio; high speed range, high hydraulic pressure works on the movable face of the drive pulley and reduces the effective diameter of the driven pulley, and lower hydraulic pressure works on the movable face of the driven pulley to eliminate the steel belt slippage.

Transmission Cutaway View



Forward Clutch, Reverse Brake, Planetary Gear Train, and Pulleys

Forward Clutch

The forward clutch is the hydraulic-actuated clutch, and engages and disengages the sun gear. When hydraulic pressure is introduced into the forward clutch drum, the forward clutch piston moves. This presses the friction discs and the steel plates together, locking them so they do not slip. Power is then transmitted through the engaged clutch pack to the forward clutch hub/sun gear. Likewise, when hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the sun gear to spin independently on the forward clutch, transmitting no power. The forward clutch is integrated with the input shaft, and located at the end of the drive pulley shaft. The forward clutch is supplied with hydraulic pressure by a circuit connected to the internal hydraulic circuit.

Reverse Brake

The reverse brake is the hydraulic-actuated brake, and engages and disengages the planetary carrier with the transmission housing. When hydraulic pressure is introduced into the reverse brake piston cavity, the reverse brake piston moves. This presses the friction discs and the steel plates together, locking them so the planetary carrier locks. Power from the forward clutch drum and the ring gear is then transmitted through the planetary pinion gears and the sun gear. Likewise, when hydraulic pressure is bled from the reverse brake piston cavity, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the planetary carrier to free from the reverse brake, transmitting no power. The reverse brake is mounted in the transmission housing. The reverse brake is supplied with hydraulic pressure by a circuit connected to the internal hydraulic circuit.

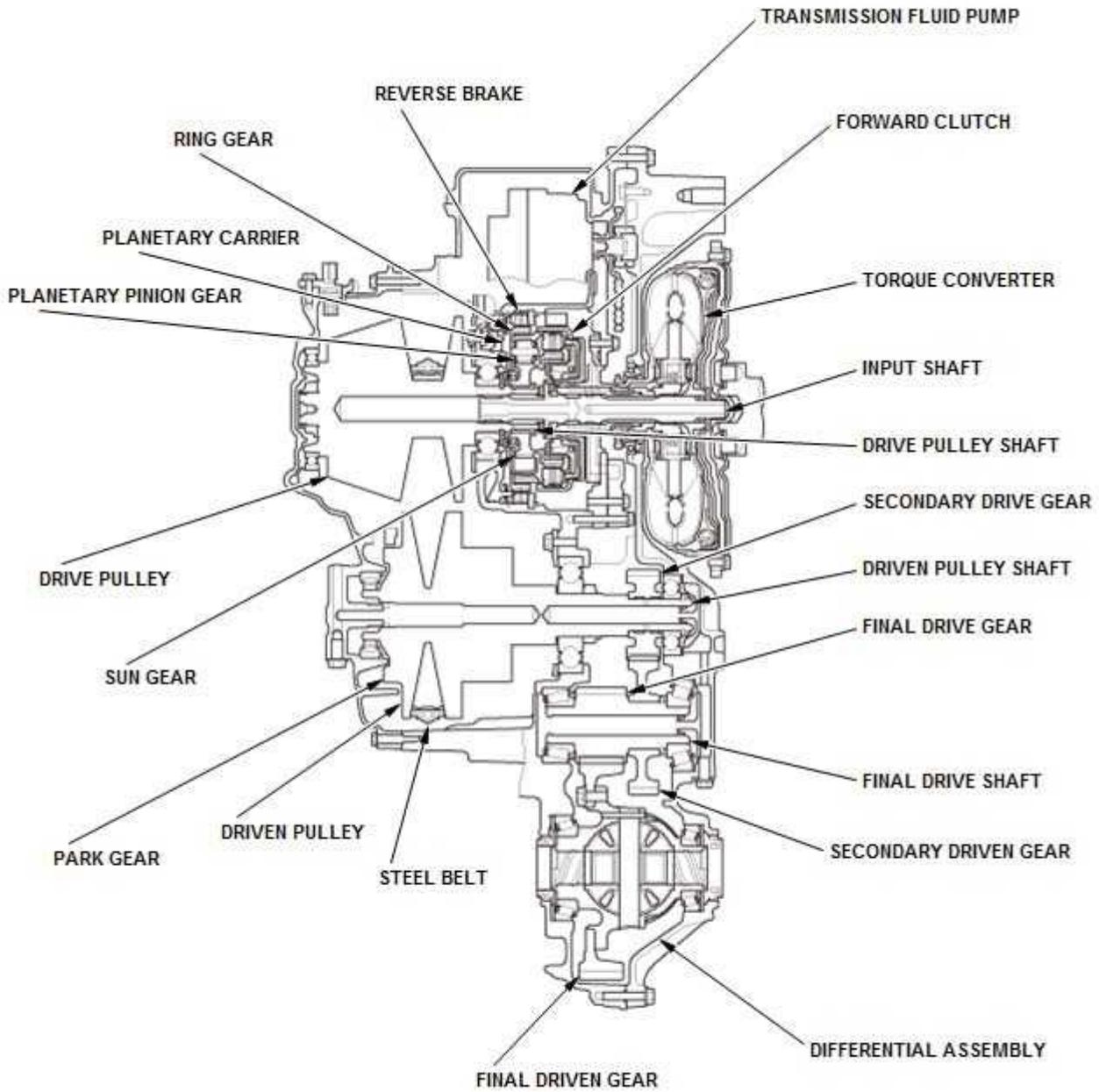
Planetary Gear Train

The planetary gear train is only used for switching the rotational direction of the pulley shafts in R. The planetary gear train consists of the sun gear, the planetary pinion gears, the planetary carrier, and the ring gear. The sun gear is connected to the drive pulley shaft by the splines. The planetary pinion gears are installed on the planetary carrier. The planetary carrier assembly is located on the drive pulley shaft, the carrier is mounted in the reverse brake, and the pinion gears are engaged with the sun gear. The ring gear is connected with the forward clutch drum, and engaged with the planetary pinion gears. In R, the reverse brake locks the planetary carrier, and the ring gear drives the planetary pinion gears to rotate. The pinion gears drive the sun gear in the reverse direction from the rotational direction of the input shaft. The engine power from the input shaft drives the sun gear and the drive pulley shaft via the forward clutch drum, the ring gear, and the planetary pinion gears.

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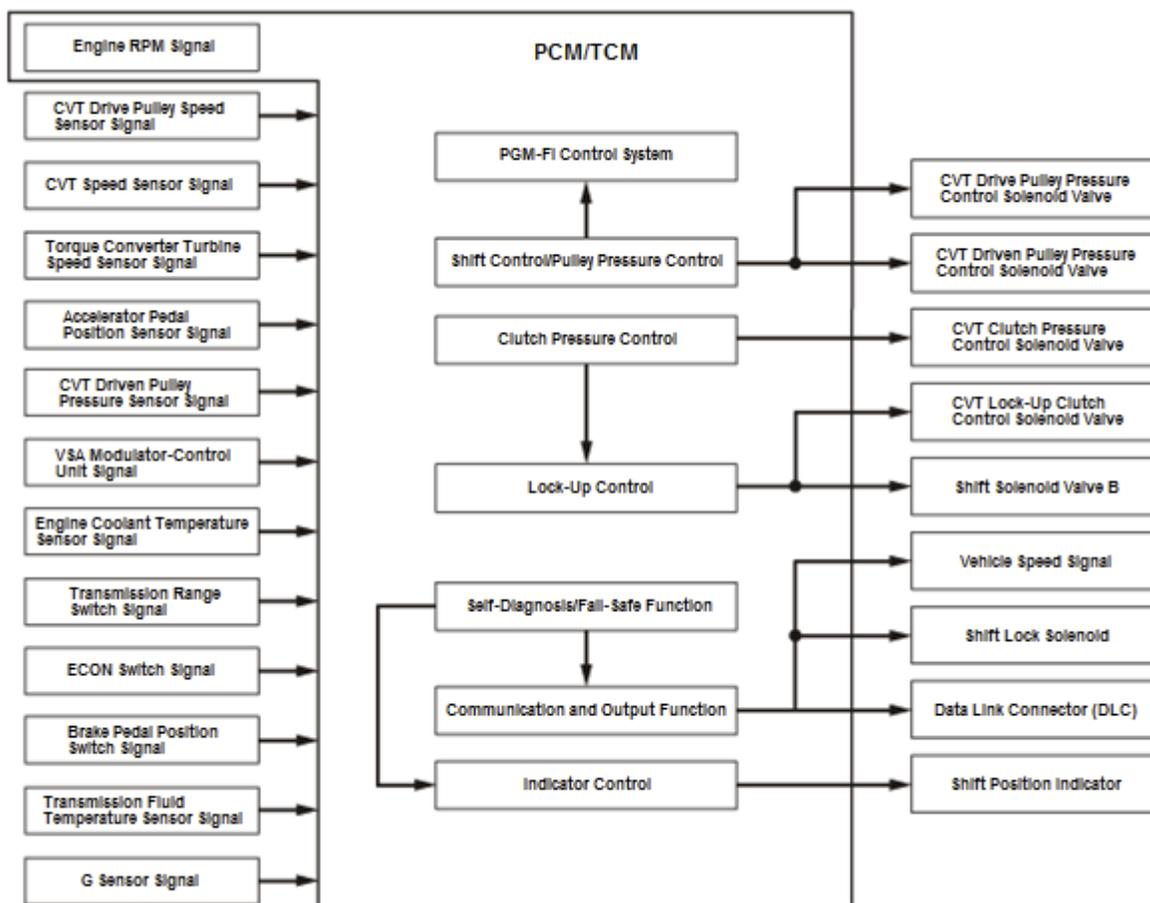


Electronic Control System

Functional Diagram

The electronic control system consists of the TCM, the PCM, sensors, switches, and solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions.

The TCM receives input signals from the sensors and the other control units, processes data, and outputs signals for the engine control system and the CVT control system. The CVT control system includes the shift control, the pulley pressure control, the clutch pressure control, the lock-up control, and the indicator control. The TCM switches the shift solenoid valve and the CVT pulley pressure control solenoid valves to control shifting position and lock-up torque converter clutch.

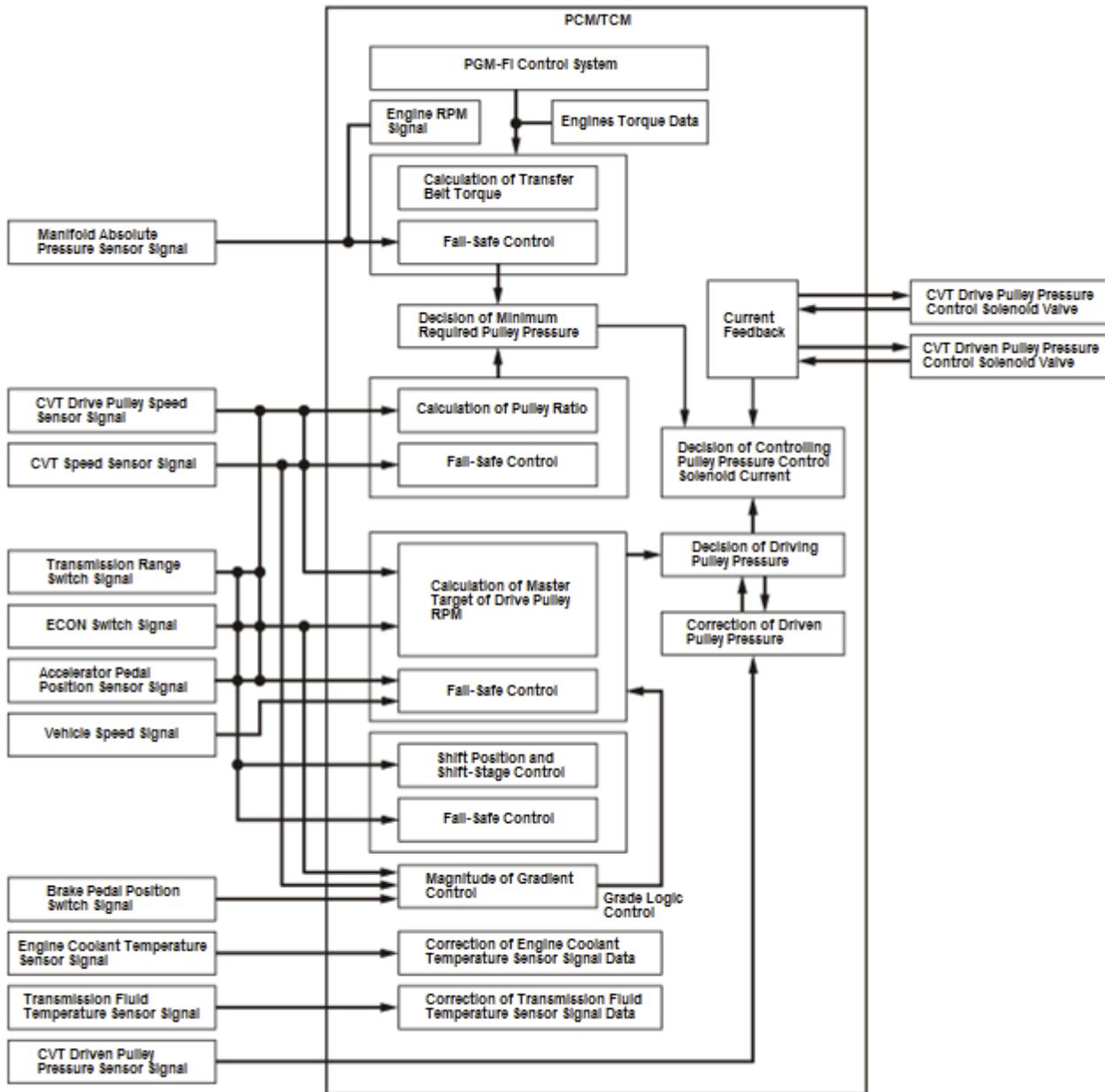


Shift Control/Pulley Pressure Control

To reduce the steel belt slippage and increase the steel belt life, the TCM calculates signals from sensors and switches, and actuates the pulley pressure control solenoid valves to maintain optimum pulley pressure. When the pulley ratio is high (low vehicle speed), high hydraulic pressure works on the movable face of the driven pulley and reduces the effective diameter of the drive pulley, and lower hydraulic pressure works on the movable face of the drive pulley to eliminate the steel belt slippage. When the pulley ratio is low (high vehicle speed), high hydraulic pressure works on the movable face of the drive pulley and reduces the effective diameter of the driven pulley, and lower hydraulic pressure works on the movable face of the driven pulley to eliminate the steel belt slippage.

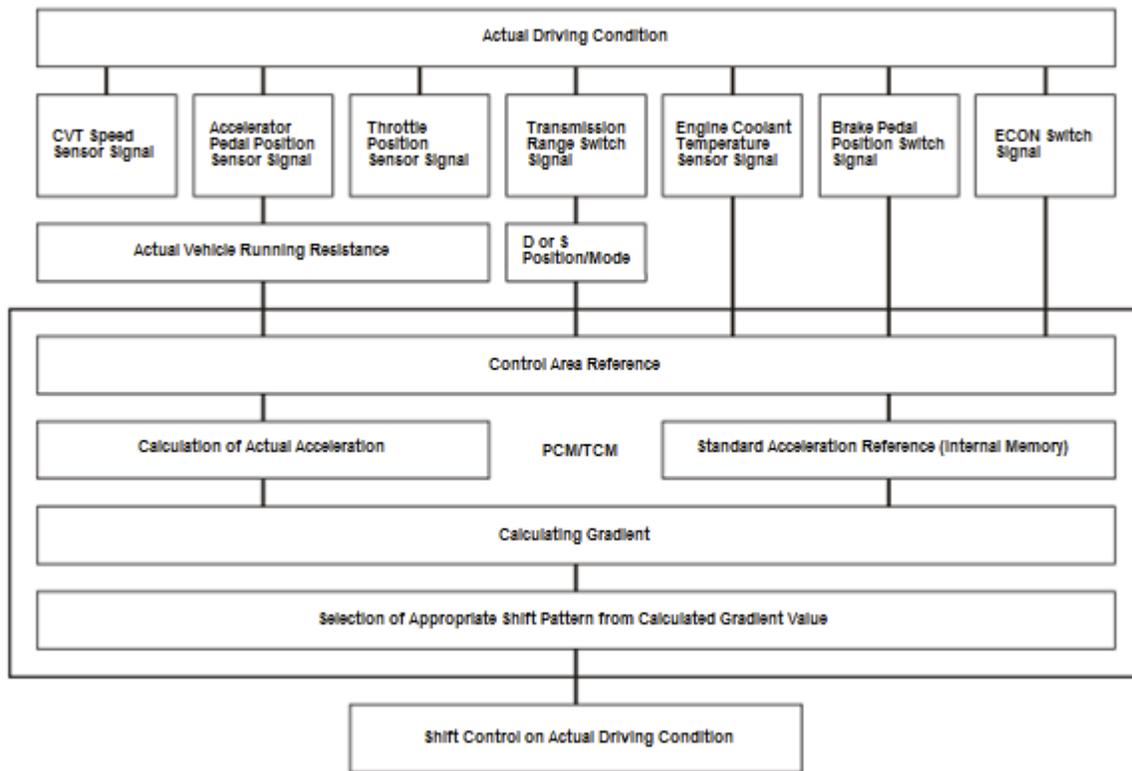
The TCM compares actual driving conditions with programmed driving conditions to control shifting, and it instantly determines a drive pulley ratio from various signals sent from sensors and switches. The TCM activates the CVT drive pulley pressure control solenoid valve and the CVT driven pulley pressure control solenoid valve to control pulley pressure to the pulleys.

The shift control includes the grade logic control and the shift-hold control.



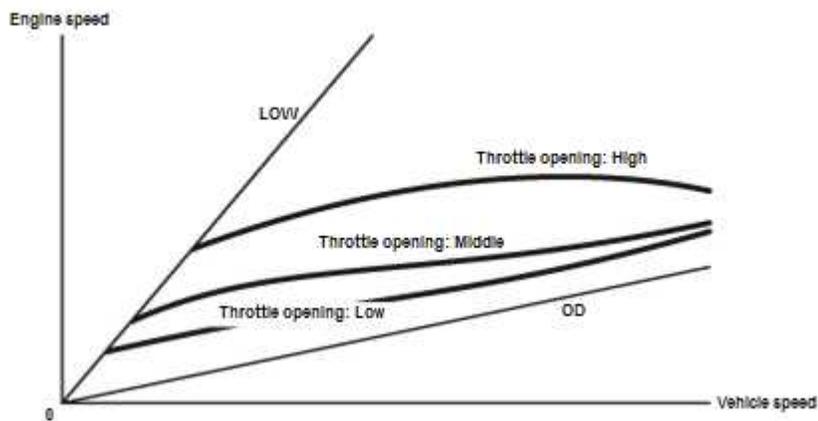
Shift Control - Grade Logic Control

The grade logic control system has been adopted to control shifting in D position/mode and S position/mode. The TCM compares actual driving conditions with memorized driving conditions, based on the input signal from the various sensors and switches, to control shifting while the vehicle is ascending or descending a slope.



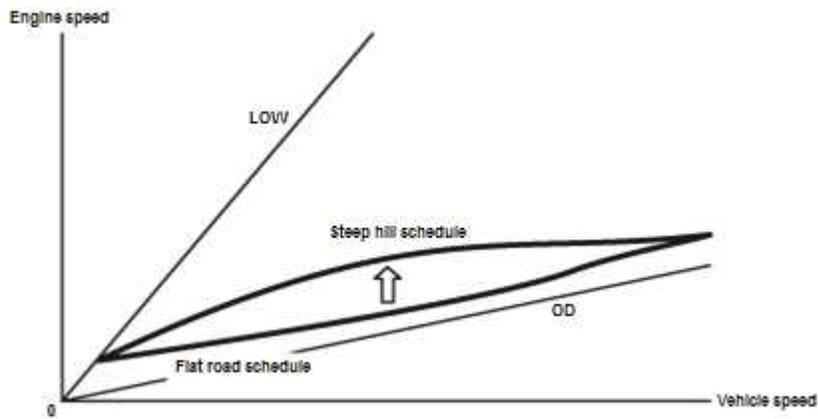
Grade Logic Control: Ascending Control

When the TCM determines that the vehicle is climbing a hill in D position/mode or S position/mode, the system selects the most suitable shift schedule according to the magnitude of a gradient, so the vehicle can run smooth and have more power when needed.



Grade Logic Control: Descending Control

When the TCM determines that the vehicle is going down a hill in D position/mode or S position/mode, the system selects the most suitable shift schedule according to the magnitude of a gradient, so the vehicle can run smooth in combination with engine braking.

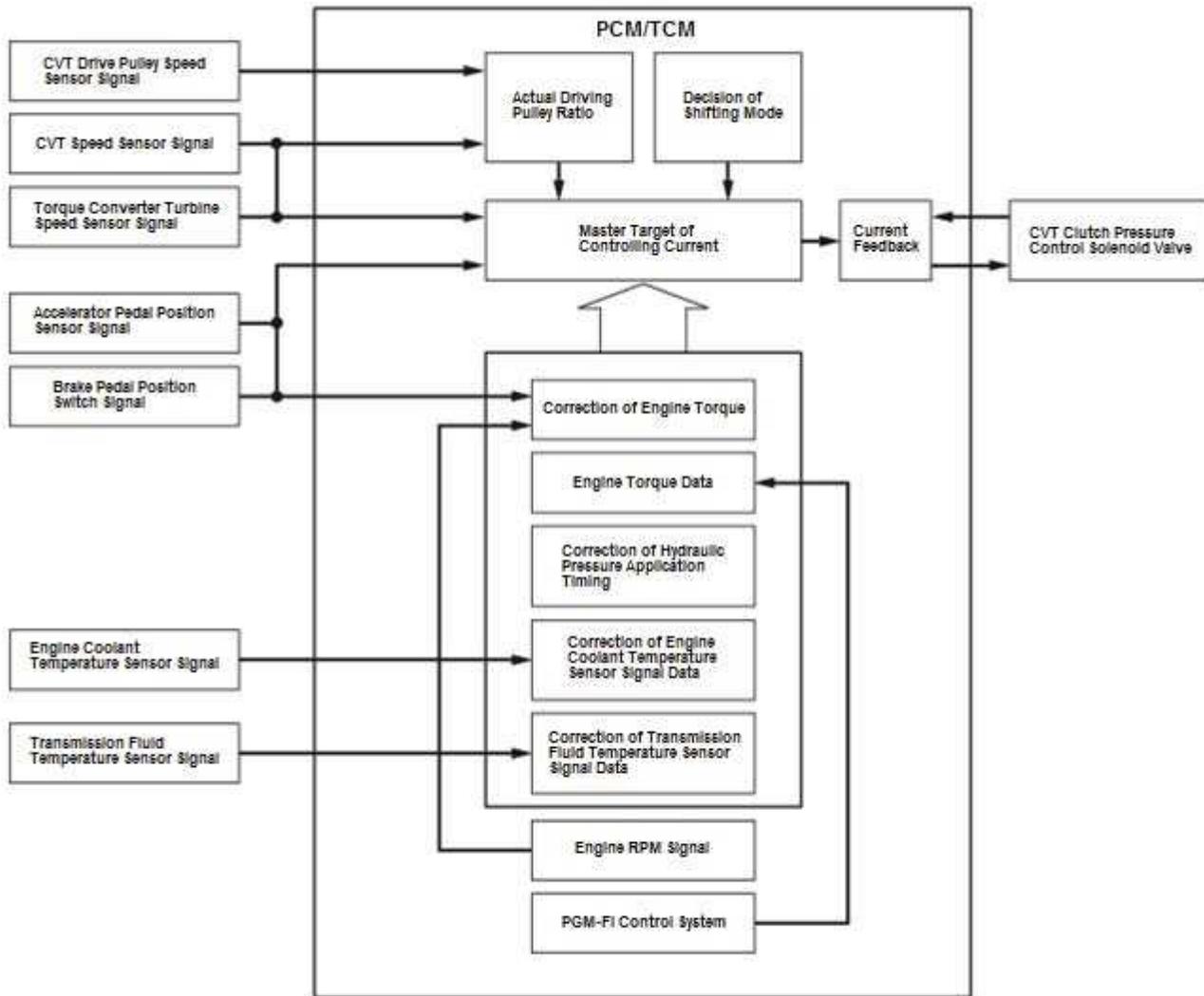


Shift-Hold Control

When negotiating winding roads, the throttle is suddenly released and the brakes are applied, as is the case when decelerating at the entrance of a corner, Shift-Hold Control keeps the transmission in its current (lower) ratio as it negotiates the corner and accelerates out. When the vehicle is driven aggressively on a winding road, the TCM will keep the engine speed on a higher-than-normal setting, so the vehicle can run smooth and have more power. The transmission will resume the normal setting after the TCM determines that normal driving has resumed.

Clutch Pressure Control

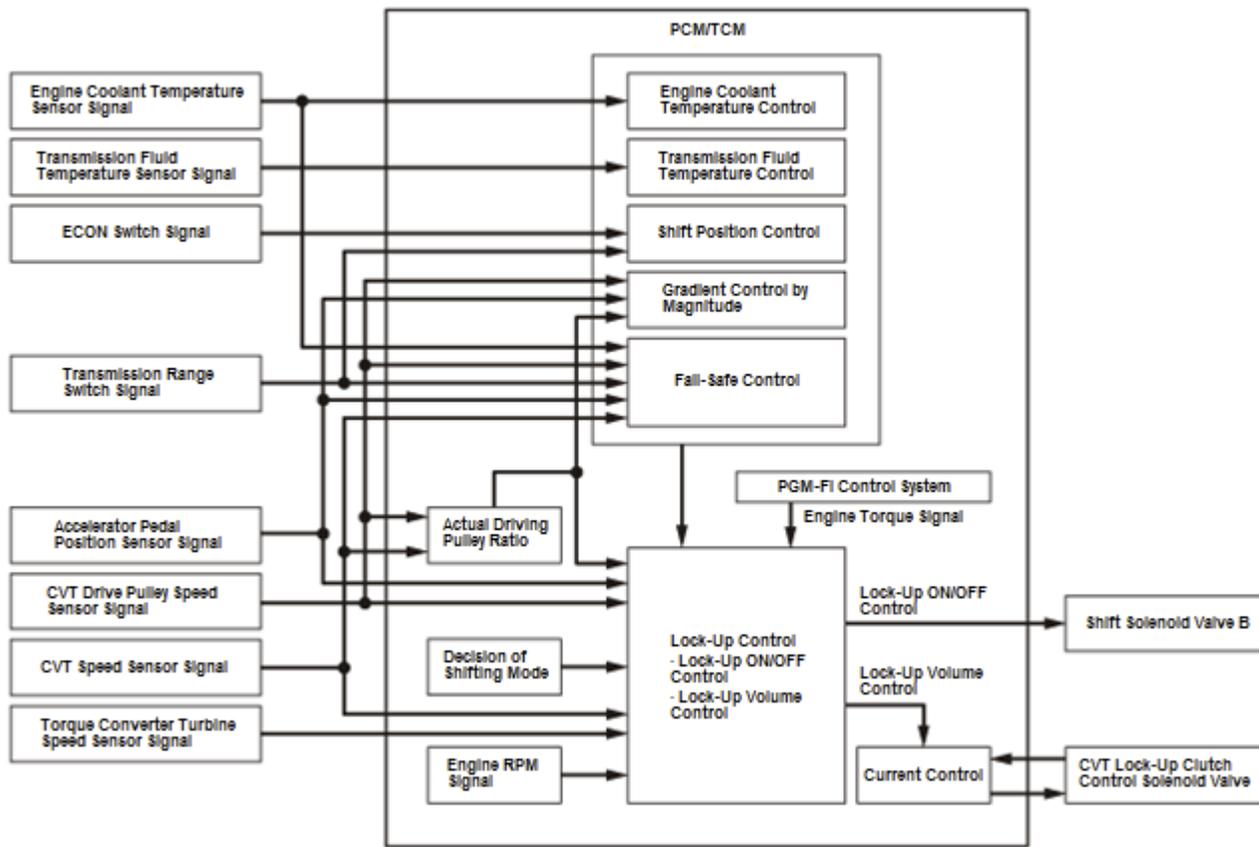
The TCM actuates the CVT clutch pressure control solenoid valve to control forward clutch pressure and reverse brake pressure. When the transmission is in-gear, forward clutch pressure and reverse brake pressure regulated by the CVT clutch pressure control solenoid valve engage and disengage the forward clutch and the reverse brake smoothly. The TCM receives input signals from the various sensors and switches, processes data, and outputs current to the CVT clutch pressure control solenoid valve.



Lock-Up Control

Shift solenoid valve B controls hydraulic pressure to lock-up ON and OFF. The TCM actuates shift solenoid valve B and the CVT lock-up clutch control solenoid valve to start lock-up. The CVT lock-up clutch control solenoid valve applies and regulates hydraulic pressure to control the volume of the lock-up.

The lock-up mechanism operates in D position/mode, S position/mode, and L position/mode, at transmission fluid temperature exceeding 68 °F (20 °C).

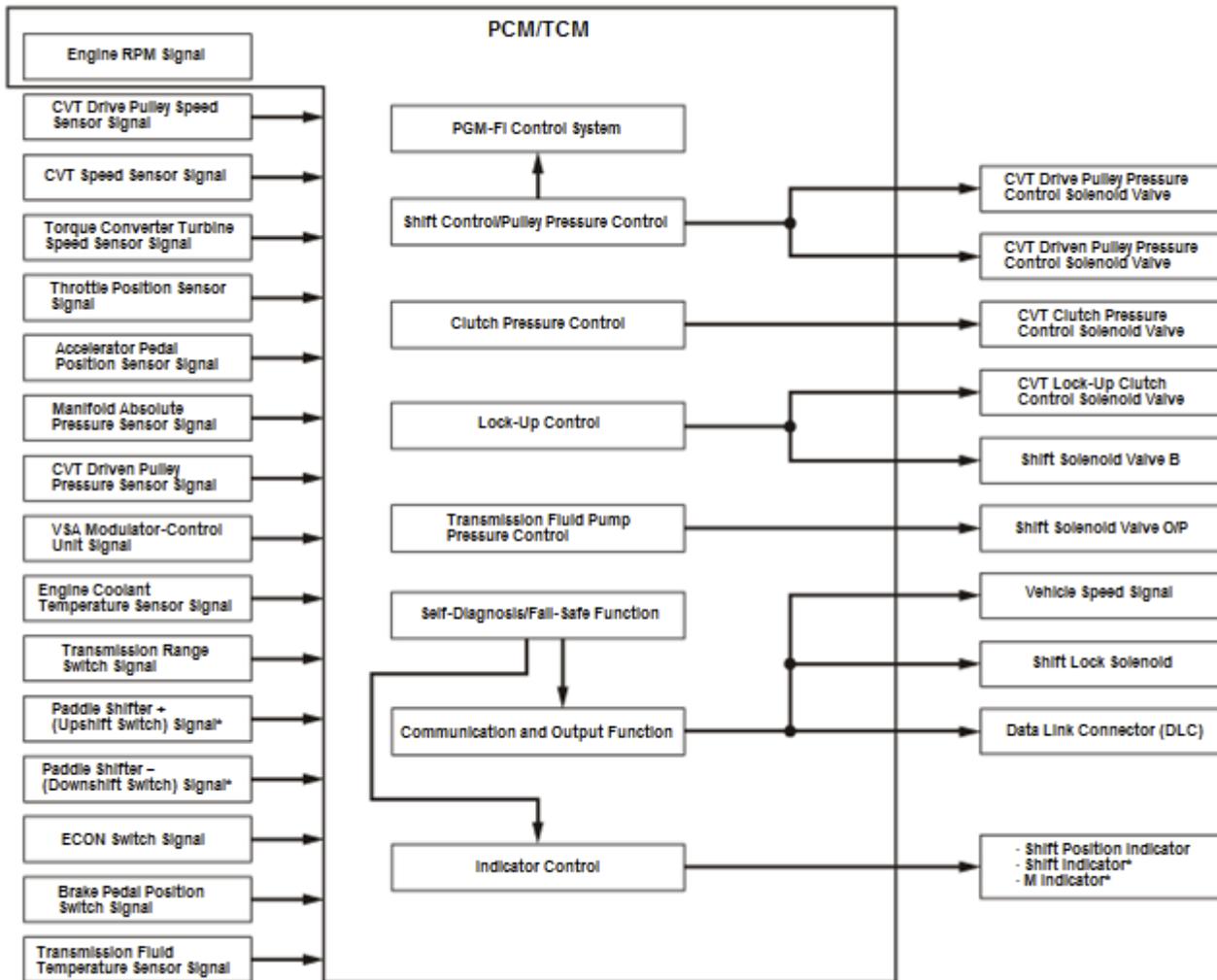


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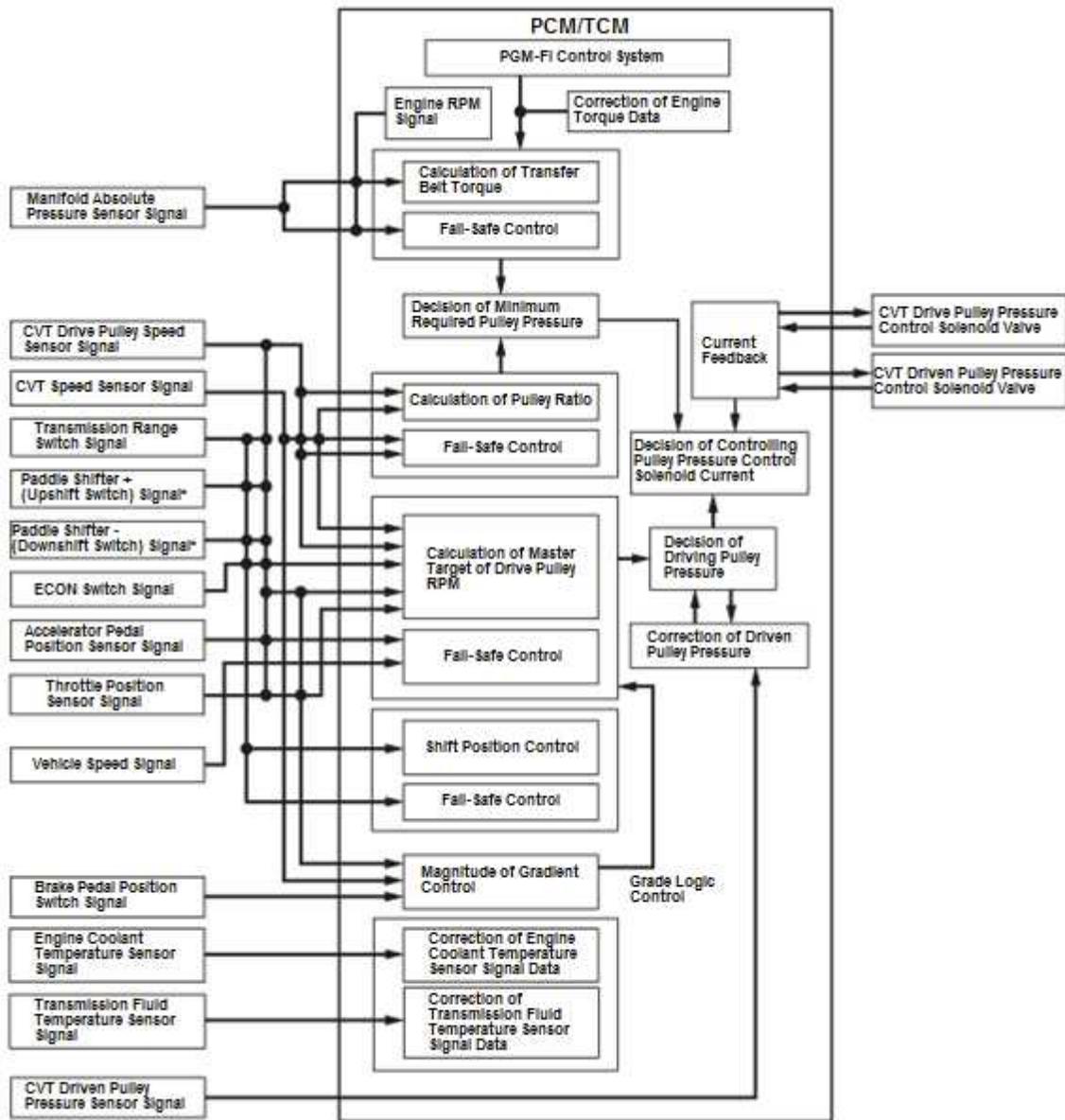


* With Paddle Shifter

Shift Control/Pulley Pressure Control

To reduce the steel belt slippage and increase the steel belt life, the TCM calculates signals from sensors and switches, and actuates the pulley pressure control solenoid valves to maintain optimum pulley pressure. When the pulley ratio is high (low vehicle speed), high hydraulic pressure works on the movable face of the driven pulley and reduces the effective diameter of the drive pulley, and lower hydraulic pressure works on the movable face of the drive pulley to eliminate the steel belt slippage. When the pulley ratio is low (high vehicle speed), high hydraulic pressure works on the movable face of the drive pulley and reduces the effective diameter of the driven pulley, and lower hydraulic pressure works on the movable face of the driven pulley to eliminate the steel belt slippage. The TCM compares actual driving conditions with programmed driving conditions to control shifting, and it instantly determines a drive pulley ratio from various signals sent from sensors and switches. The TCM activates the CVT drive pulley pressure control solenoid valve and the CVT driven pulley pressure control solenoid valve to control pulley pressure to the pulleys.

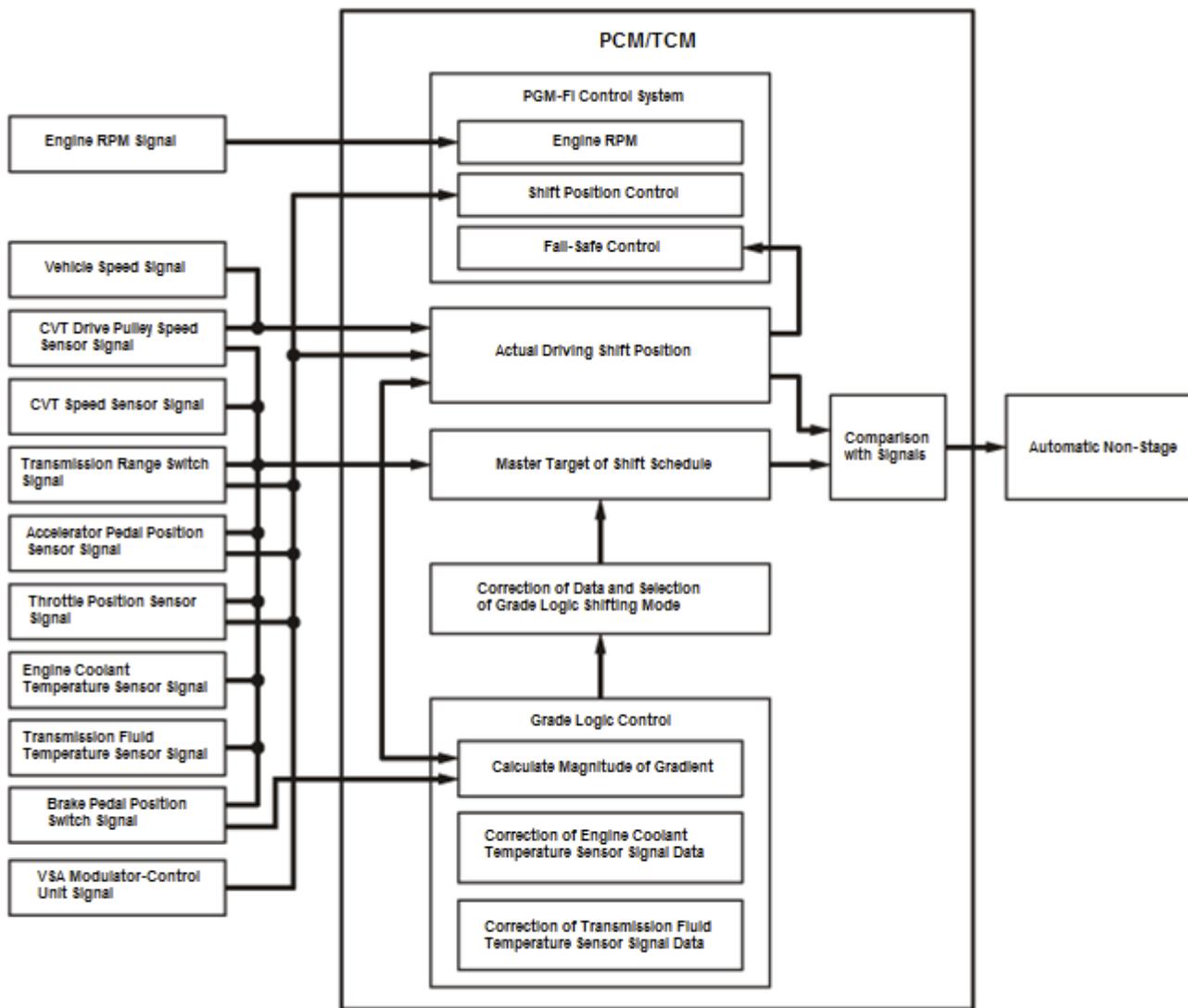
The shift control includes the grade logic control and the shift-hold control.



* - With Paddle Shifter

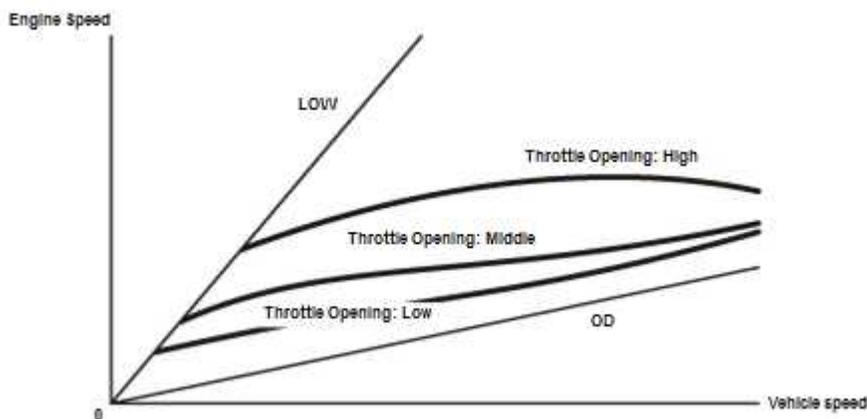
Shift Control - Grade Logic Control

The grade logic control system has been adopted to control shifting in D position/mode and S position/mode. The TCM compares actual driving conditions with memorized driving conditions, based on the input signal from the various sensors and switches, to control shifting while the vehicle is ascending or descending a slope.



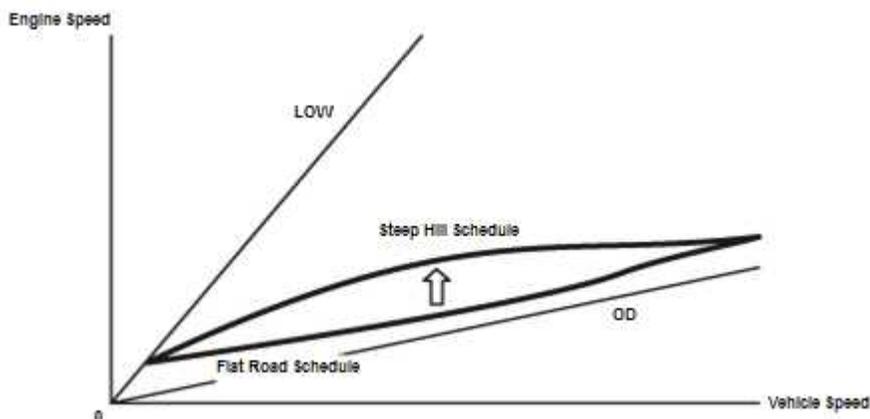
Grade Logic Control: Ascending Control

When the TCM determines that the vehicle is climbing a hill in D position/mode or S position/mode, the system selects the most suitable shift schedule according to the magnitude of a gradient, so the vehicle can run smooth and have more power when needed.



Grade Logic Control: Descending Control

When the TCM determines that the vehicle is going down a hill in D position/mode or S position/mode, the system selects the most suitable shift schedule according to the magnitude of a gradient, so the vehicle can run smooth in combination with engine braking.

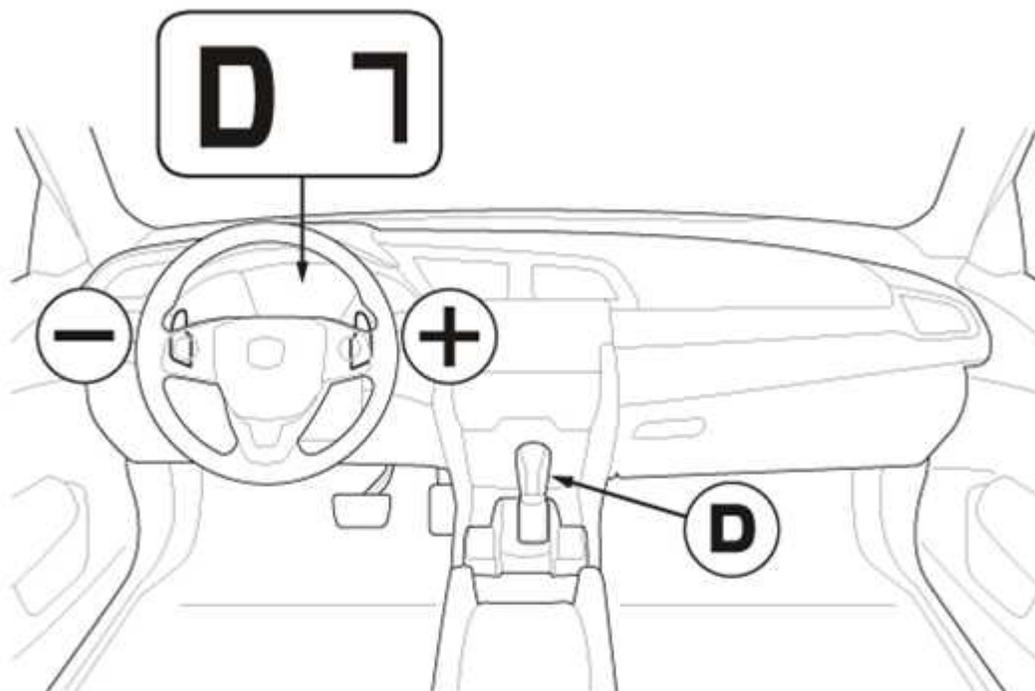


Shift-Hold Control

When negotiating winding roads, the throttle is suddenly released and the brakes are applied, as is the case when decelerating at the entrance of a corner, Shift-Hold Control keeps the transmission in its current (lower) ratio as it negotiates the corner and accelerates out. When the vehicle is driven aggressively on a winding road, the TCM will keep the engine speed on a higher-than-normal setting, so the vehicle can run smooth and have more power. The transmission will resume the normal setting after the TCM determines that normal driving has resumed.

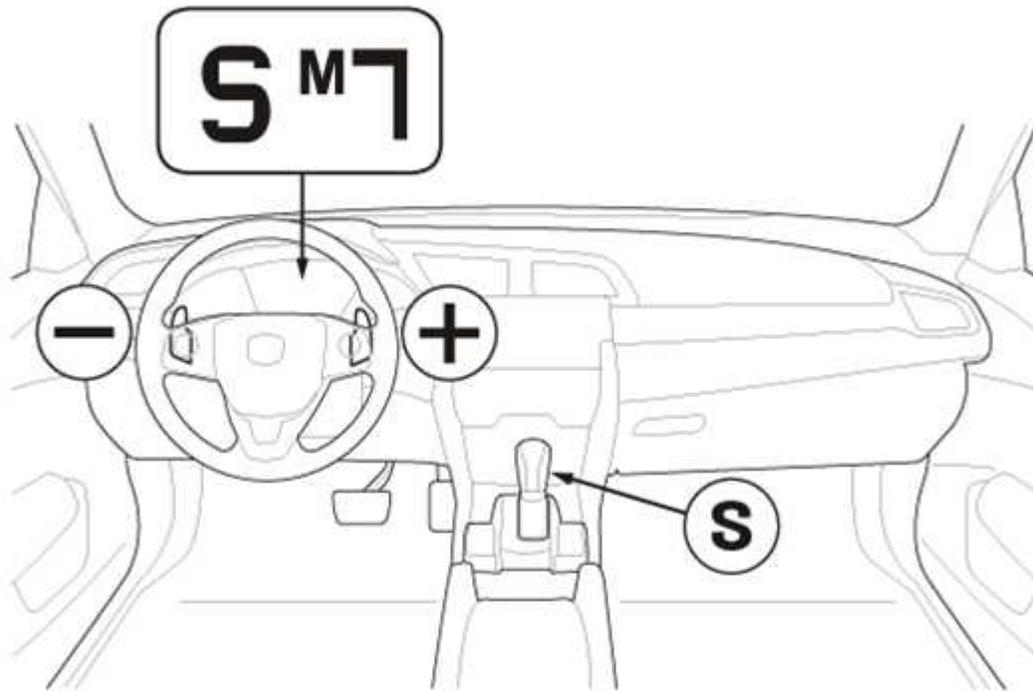
Shift Control - D-Paddle Shift Mode (With paddle shifter)

When the transmission is switched into the D-paddle shift mode by pressing steering wheel-mounted paddle shifters while driving in D position/mode, the transmission can shift into a lower speed stage by pressing the paddle shifter - (downshift switch), and it can shift into a higher speed stage by pressing the paddle shifter + (upshift switch). When the transmission shifts into a lower or a higher speed stage by pressing the paddle shifters, the shift indicator in the gauge control module displays the number of currently-selected stage. This number of the speed stage goes off when the transmission downshifts automatically, or when the transmission upshifts automatically while coasting. The D-paddle shift mode is canceled when the paddle shifter + (upshift switch) is held for several seconds or when the TCM detects a steady cruise.



Shift Control - S-Paddle Shift Mode (With paddle shifter)

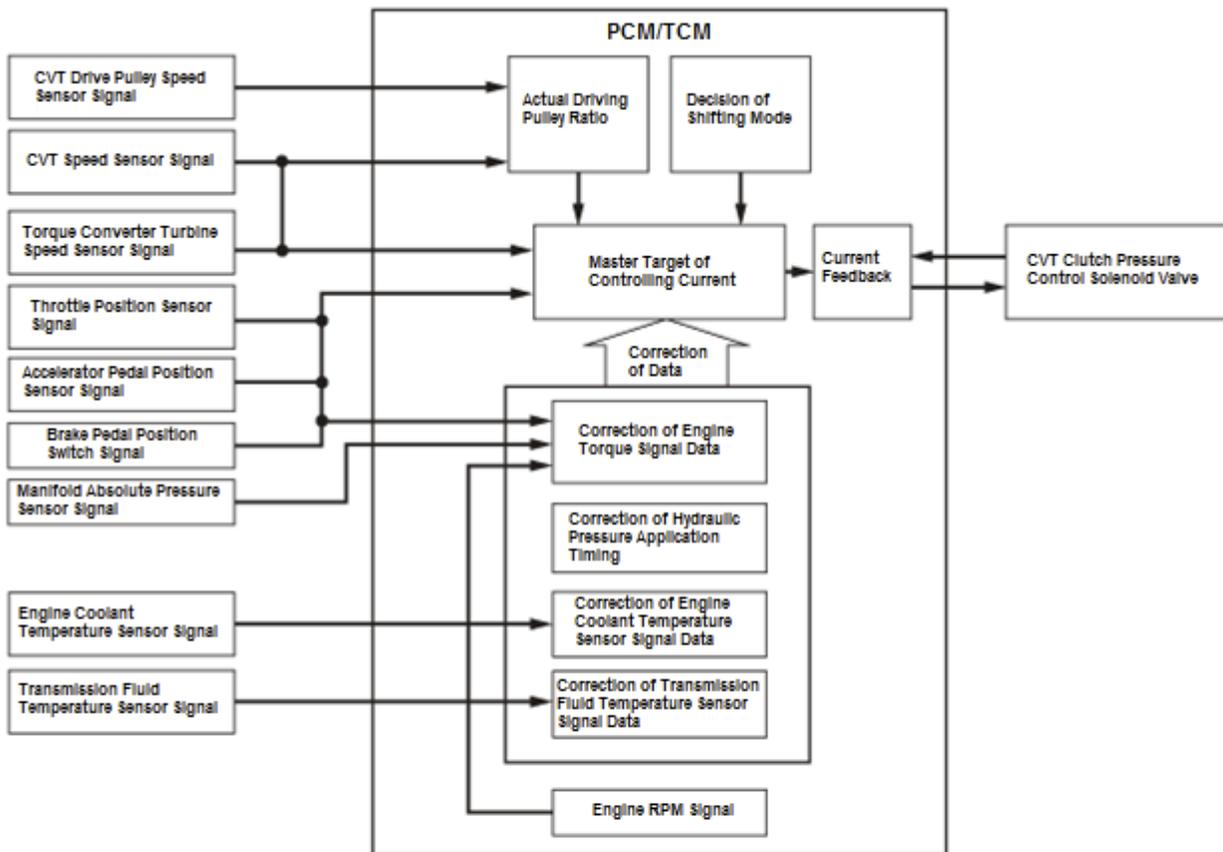
There are two shifting modes in S position/mode: sport driving mode and S-paddle shift mode. In S position/mode with the sport driving mode, the transmission automatically adjusts to keep the engine at a higher rpm than D position/mode setting, and steering wheel-mounted paddle shifters are ready to be activated to switch to the S-paddle shift mode. In the sport driving mode, the shift indicator and the M indicator in the gauge control module do not come on. When the paddle shifter + (upshift switch) or the paddle shifter - (downshift switch) is pressed, the sport driving mode is canceled and the S-paddle shift mode comes into operation. The shift indicator displays the number of the selected speed stage, and the M indicator comes on. In the S-paddle shift mode, the driver can shift up and down manually from 1st through 7th speed stage by using the paddle shifters, much like a manual transmission. The paddle shifters are installed on the back of the steering wheel, and the driver can shift speed stages by pressing the paddle shifters without taking either hand off the steering wheel. In the S-paddle shift mode, the transmission must be shifted up and down by pressing the paddle shifters. However, the transmission cannot downshift and stays in the current stage if the paddle shifter - (downshift switch) is pressed while the vehicle is coasting at a speed that would cause the engine to over-rev by downshifting the transmission, and the shift indicator blinks the number of the selected stage several times, then returns to the number of the current stage. If the vehicle speed reaches an appropriate speed while the shift indicator is blinking the number of the selected stage, the transmission downshifts and the shift indicator displays the selected stage. The transmission also cannot upshift and stays in the current stage if the paddle shifter + (upshift switch) is pressed while driving below an appropriate upshifting speed, the shift indicator blinks the number of the selected stage several times, then returns to the number of the current stage. If the vehicle speed reaches an appropriate upshift speed while the shift indicator is blinking the number of the selected stage, the transmission upshifts and the shift indicator displays the selected stage. This mode has automatic upshifting areas to prevent engine over-revving, and downshifting areas so the vehicle can run smoothly with more power to cope with upcoming acceleration. When coasting, the transmission downshifts to the next lower stage if the vehicle slows down to the programmed speed, or by pressing the brake pedal. When the transmission decelerates to a stop, the transmission shifts to 1st stage automatically. The transmission can be shifted to 2nd stage by pressing the paddle shifter + (upshift switch) while the vehicle is stopped, and the vehicle can start off in 2nd stage. The S-paddle shift mode is canceled when the paddle shifter + (upshift switch) is held for several seconds or when moving the shift lever to any position/mode other than S position/mode.



Clutch Pressure Control

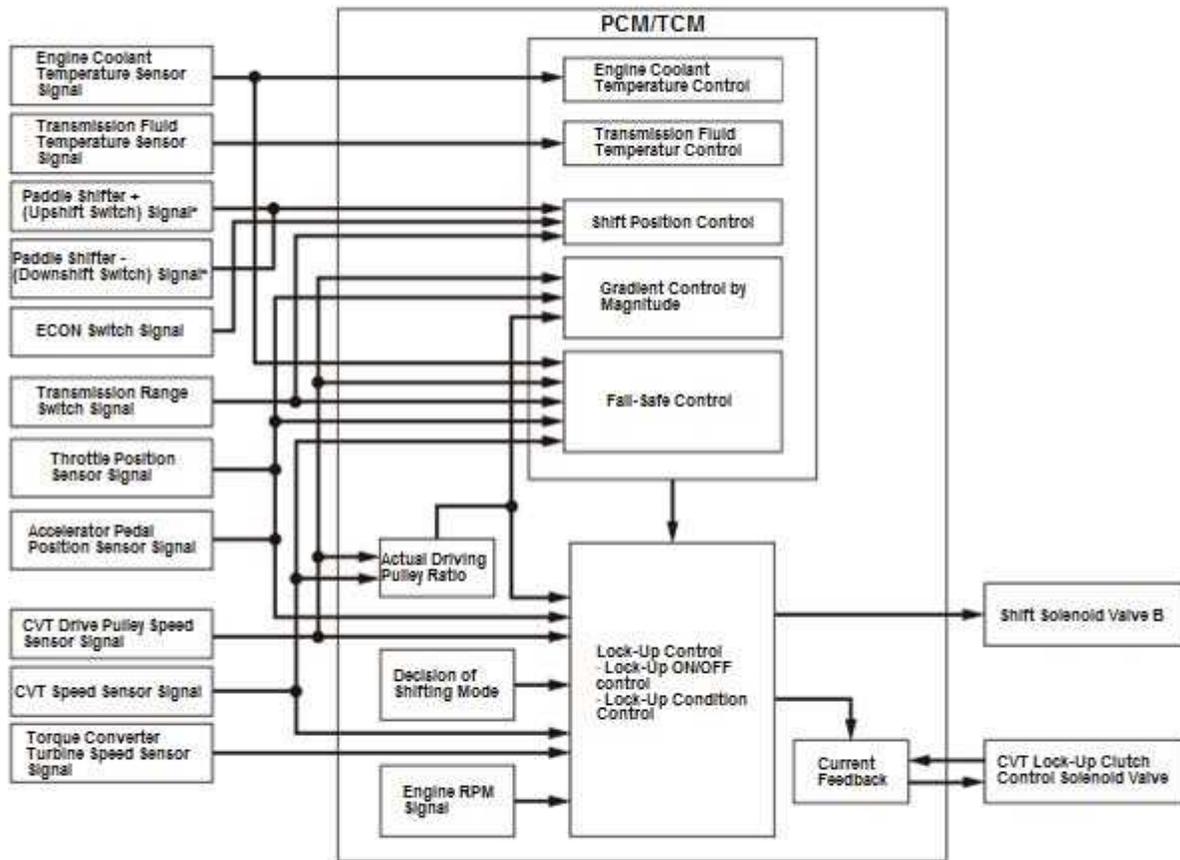
The TCM actuates the CVT clutch pressure control solenoid valve to control the forward clutch pressure and the reverse brake pressure. When the transmission is in-gear, the forward clutch pressure and the reverse brake pressure regulated by the CVT clutch pressure control solenoid valve engage and disengage the forward clutch and the reverse brake smoothly.

The TCM receives input signals from the various sensors and switches, processes data, and outputs current to the CVT clutch pressure control solenoid valve.



Lock-Up Control

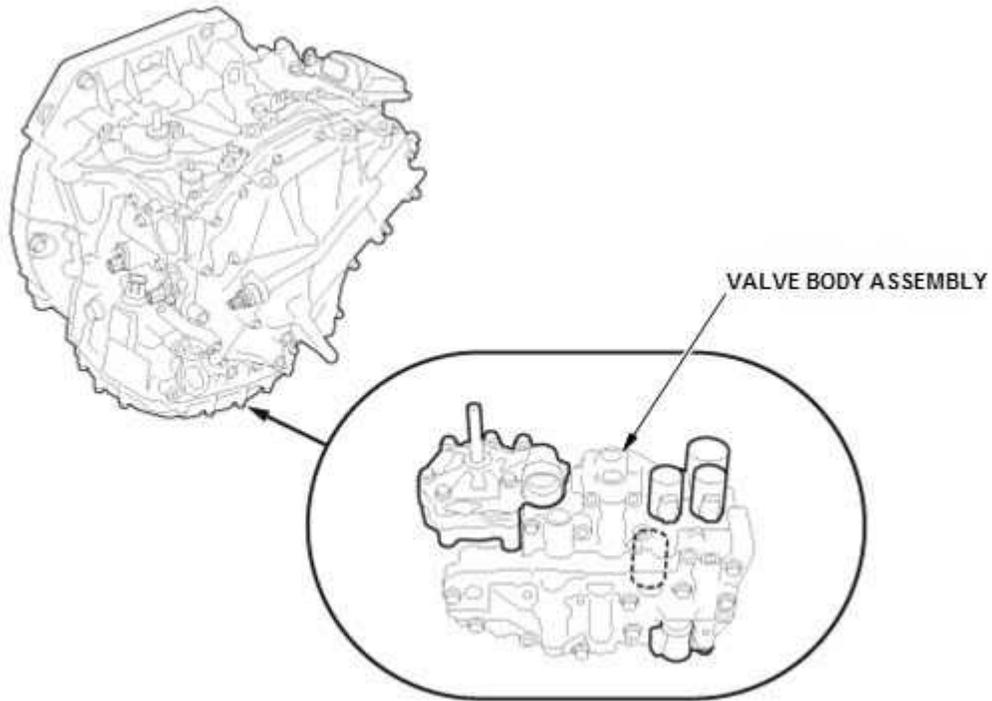
Shift solenoid valve B controls hydraulic pressure to lock-up ON and OFF. The TCM actuates shift solenoid valve B and the CVT lock-up clutch control solenoid valve to start lock-up. The CVT lock-up clutch control solenoid valve applies and regulates hydraulic pressure to control the volume of the lock-up. The lock-up mechanism operates in D position/mode, S position/mode, and L position/mode (without paddle shifter), at transmission fluid temperature exceeding 68 °F (20 °C).



* With Paddle Shifter

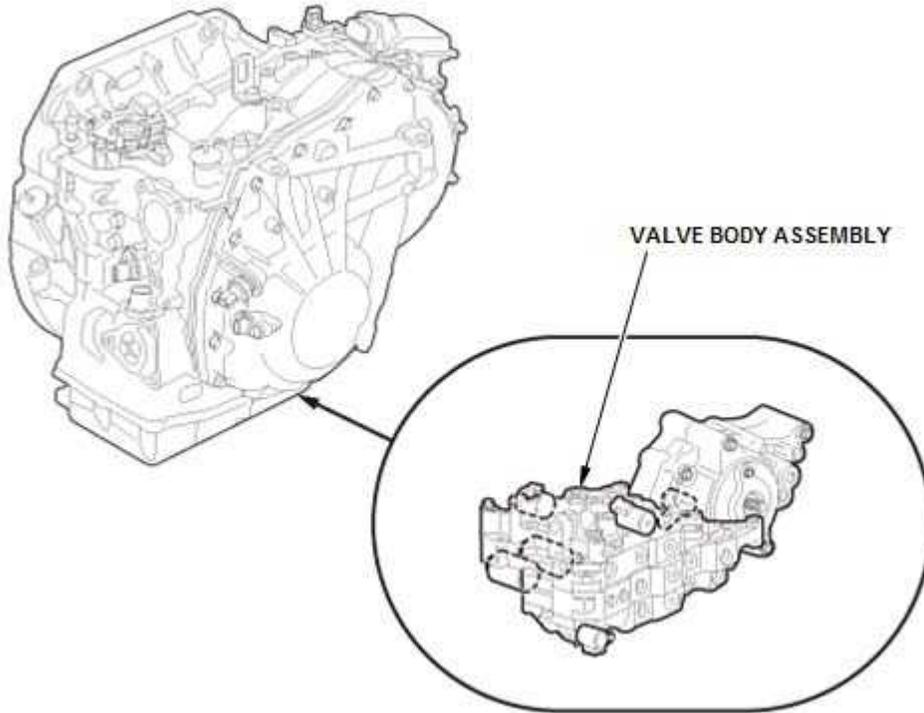
Hydraulic Controls

The hydraulic control system is controlled by the TCM, the transmission fluid pump, and the valves and the solenoid valves in the valve body. The transmission fluid pump is driven by the engine turns. The transmission fluid pump drive sprocket is connected to the stator shaft, turns as the engine turns, and drives the transmission fluid pump driven sprocket by the transmission fluid pump drive chain. The transmission fluid pump supplies hydraulic pressure to the hydraulic circuit. Fluid from the transmission fluid pump passes to the various control valves, the drive/driven pulleys, the forward clutch, and the reverse brake.

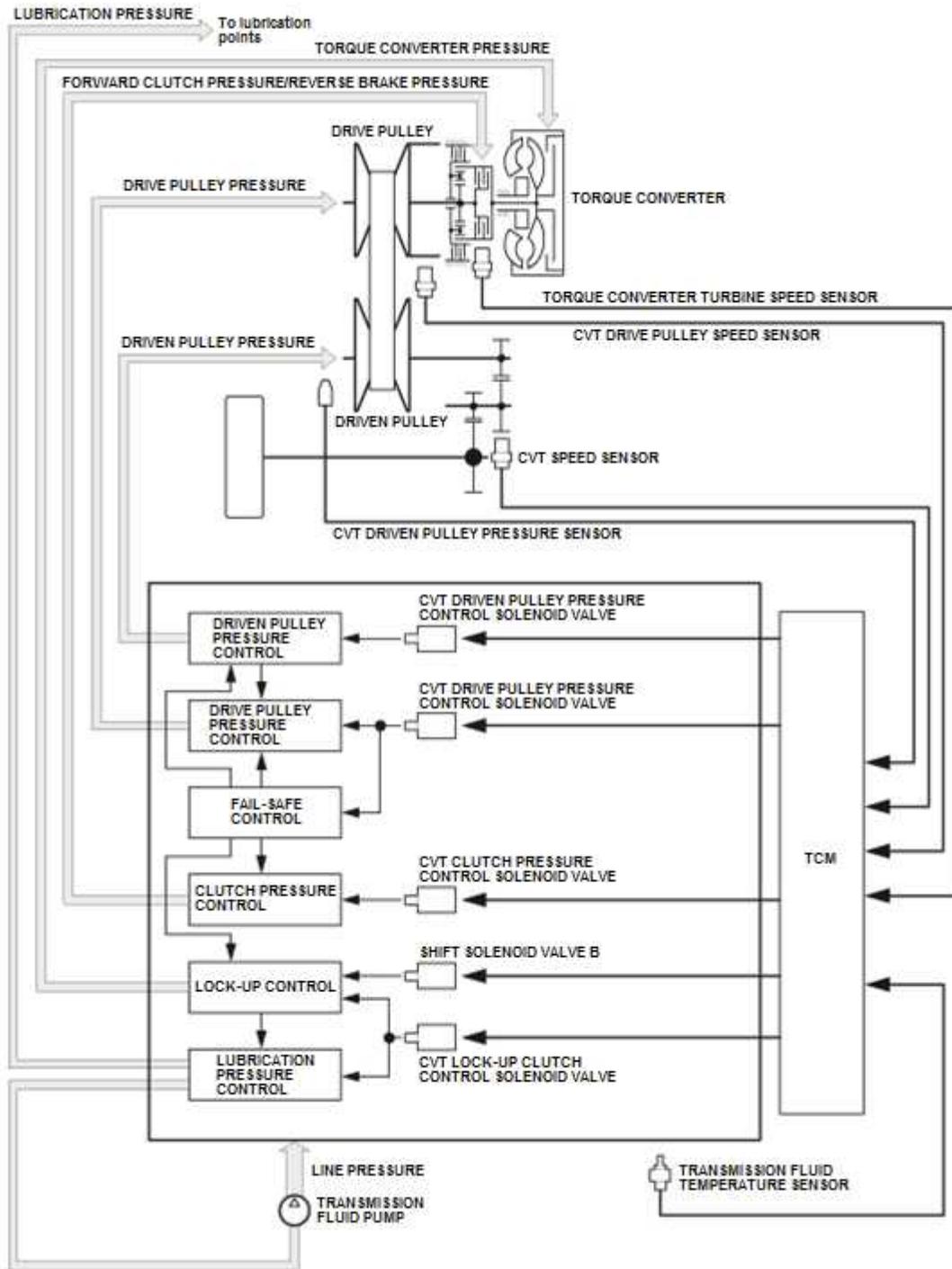


Hydraulic Controls

The hydraulic control system is controlled by the TCM, the transmission fluid pump, and the valves and the solenoid valves in the valve body. The transmission fluid pump is driven by the engine turns. The transmission fluid pump drive sprocket is connected to the torque converter housing, turns as the engine turns, and drives the transmission fluid pump driven sprocket by the transmission fluid pump drive chain. The transmission fluid pump supplies hydraulic pressure to the hydraulic circuit. Fluid from the transmission fluid pump passes to the various control valves, the drive/driven pulleys, the forward clutch, and the reverse brake.

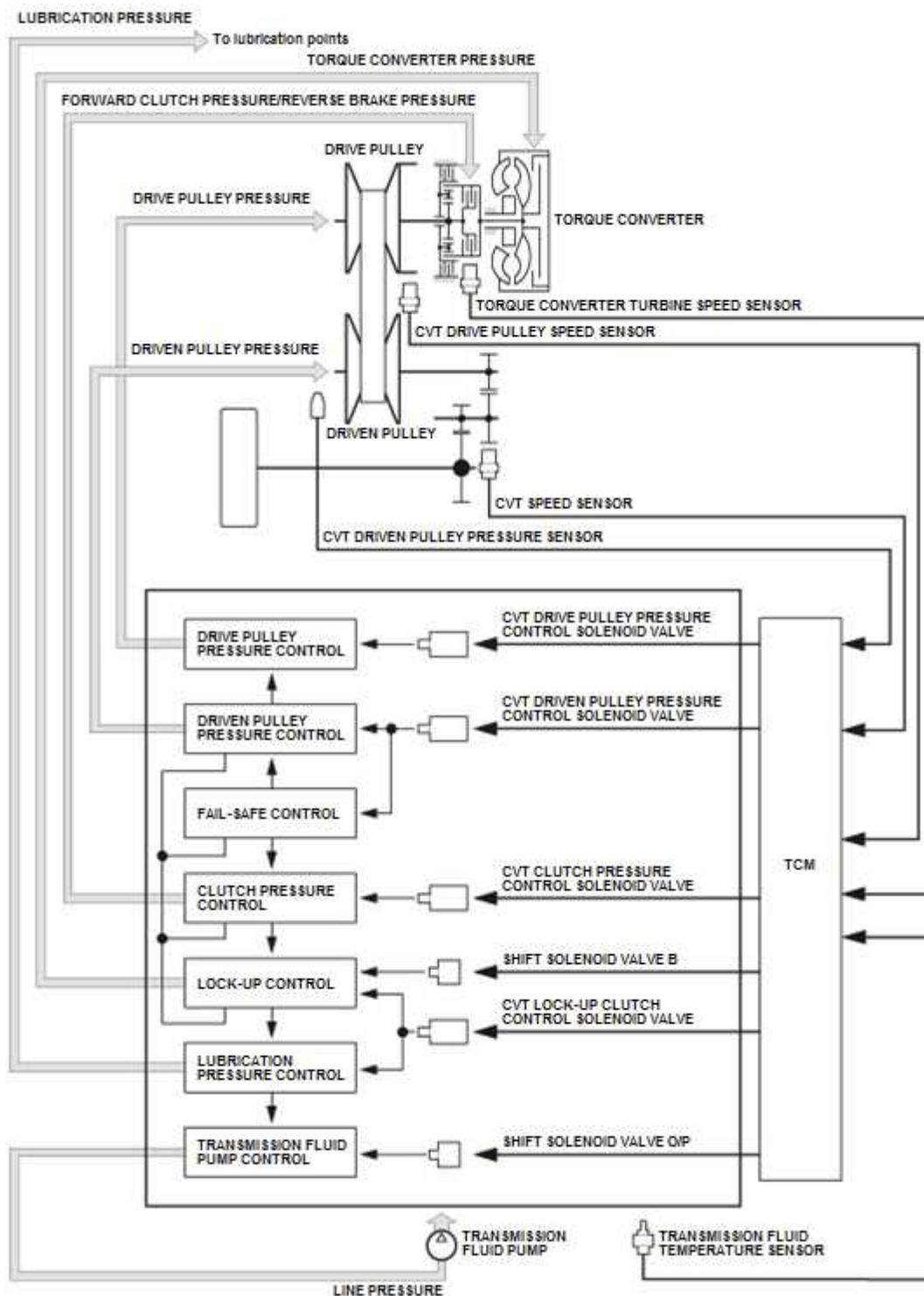


Hydraulic Flow



Hydraulic Flow

Hydraulic Pressure Flow Circuit Diagram



Lock-Up System

The lock-up mechanism of the torque converter clutch operates in D position/mode, S position/mode, and L position/mode, at transmission fluid temperature exceeding 68 °F (20 °C). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the transmission fluid pump. As this takes place, the input shaft and the drive pulley shaft rotate as the same as the engine crankshaft. Together with hydraulic control, the TCM optimizes the timing of the lock-up mechanism. When shift solenoid valve B is turned ON by the TCM, shift solenoid valve B pressure switches lock-up ON and OFF. The CVT lock-up clutch control solenoid valve controls the volume of lock-up.

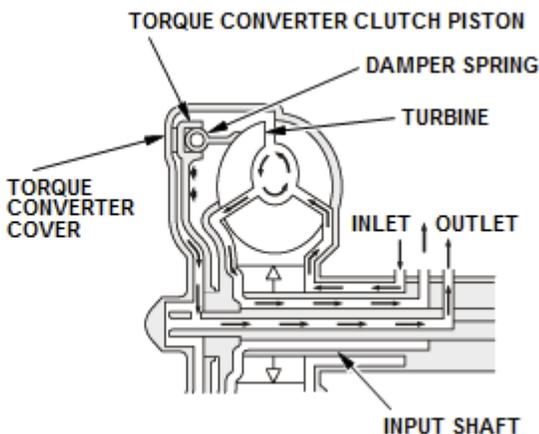
Torque Converter Clutch Lock-Up ON (Engaging Torque Converter Clutch)

Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entering from the chamber between the pump and the stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; torque converter clutch lock-up ON, and the input shaft rotates at the same as the engine.

Power flow

The power flows by way of:

- Engine
- ↓
- Drive plate
- ↓
- Torque converter cover
- ↓
- Torque converter clutch piston
- ↓
- Damper spring
- ↓
- Turbine
- ↓
- Input shaft



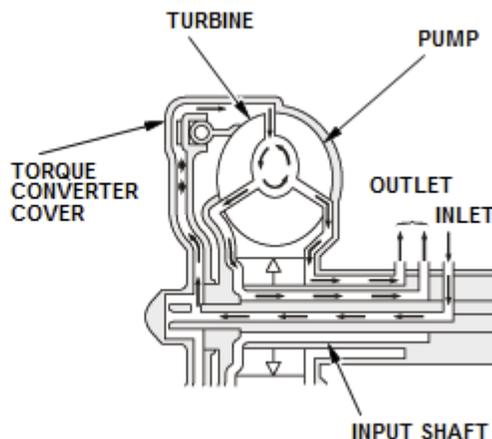
Torque Converter Clutch Lock-Up OFF (Disengaging Torque Converter Clutch)

Fluid entered from the chamber between the torque converter cover and the torque converter clutch piston passes through the torque converter and goes out from the chambers between the turbine and the stator, and between the pump and the stator. As a result, the torque converter clutch piston moves away from the torque converter cover, and the torque converter clutch lock-up is released; torque converter clutch lock-up OFF.

Power flow

The power flows by way of:

- Engine
- ↓
- Drive plate
- ↓
- Torque converter cover
- ↓
- Pump
- ↓
- Turbine
- ↓
- Input shaft



Lock-Up System

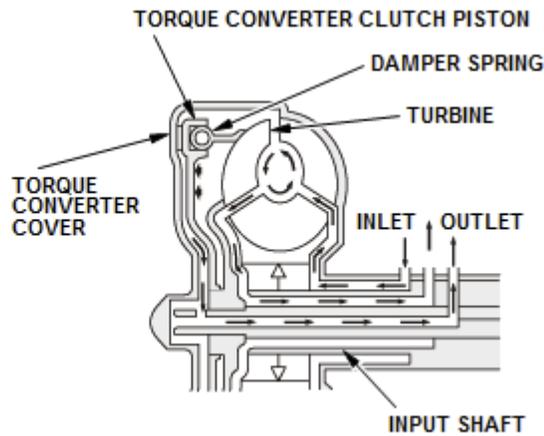
The lock-up mechanism of the torque converter clutch operates in D position/mode, S position/mode, and L position/mode, at transmission fluid temperature exceeding 68 °F (20 °C). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the transmission fluid pump. As this takes place, the input shaft and the drive pulley shaft rotate as the same as the engine crankshaft. Together with hydraulic control, the TCM optimizes the timing of the lock-up mechanism. When shift solenoid valve B is turned ON by the TCM, shift solenoid valve B pressure switches lock-up ON and OFF. The CVT lock-up clutch control solenoid valve controls the volume of lock-up.

Torque Converter Clutch Lock-Up ON (Engaging Torque Converter Clutch)

Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entering from the chamber between the pump and the stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; torque converter clutch lock-up ON, and the input shaft rotates at the same as the engine.

Power flow

The power flows by way of:

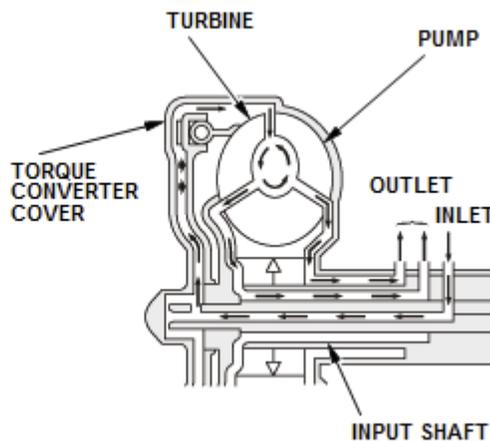
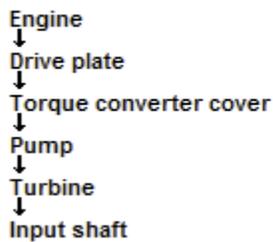


Torque Converter Clutch Lock-Up OFF (Disengaging Torque Converter Clutch)

Fluid entered from the chamber between the torque converter cover and the torque converter clutch piston passes through the torque converter and goes out from the chambers between the turbine and the stator, and between the pump and the stator. As a result, the torque converter clutch piston moves away from the torque converter cover, and the torque converter clutch lock-up is released; torque converter clutch lock-up OFF.

Power flow

The power flows by way of:



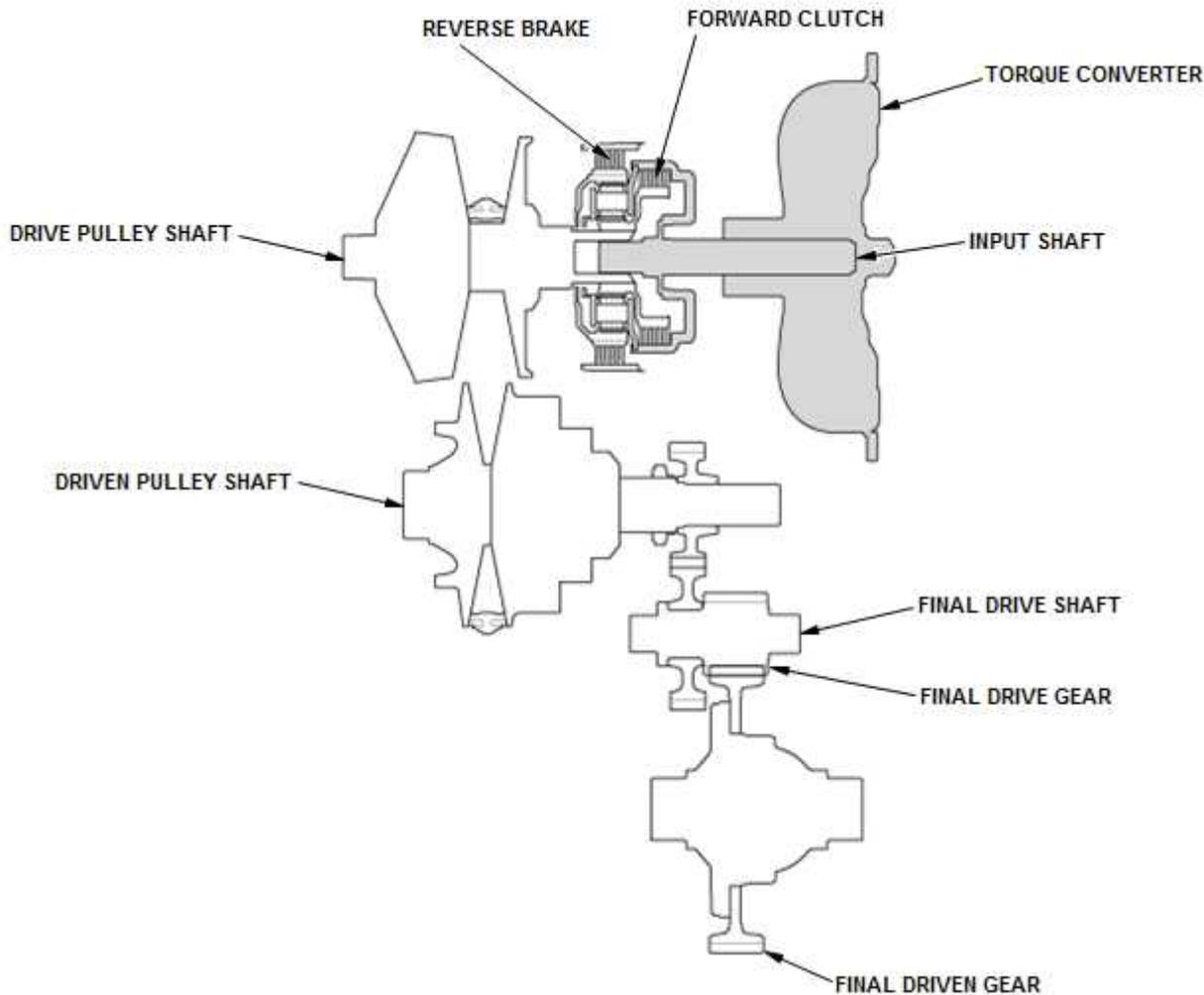
Power Flow

P Position

Hydraulic pressure is not applied to the forward clutch and the reverse brake. Power is not transmitted to the secondary drive gear. The driven pulley is locked by the park pawl interlocking the park gear.

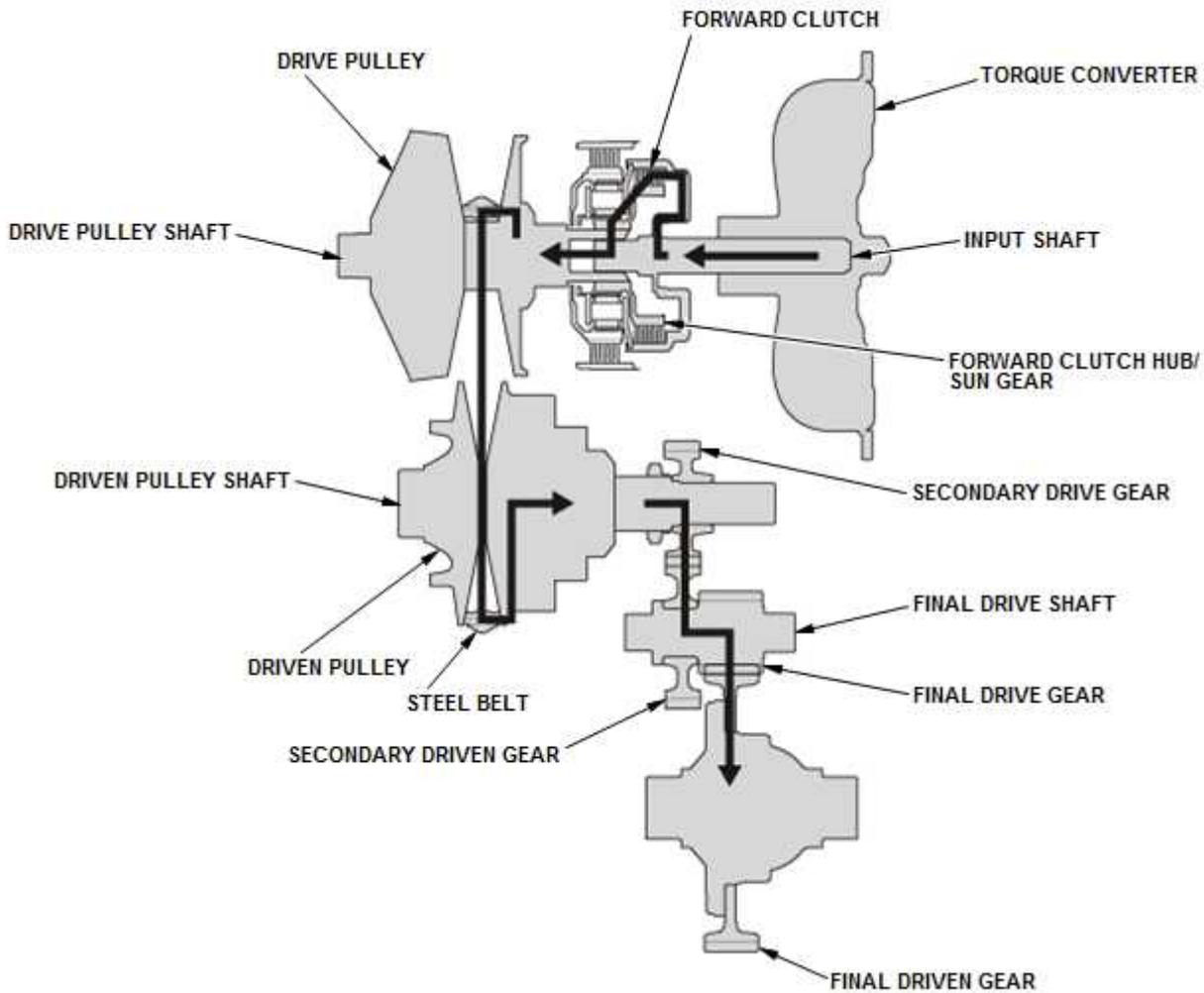
N Position

Engine power transmitted from the torque converter drives the input shaft, but hydraulic pressure is not applied to the forward clutch and the reverse brake. Power is not transmitted to the drive pulley shaft.



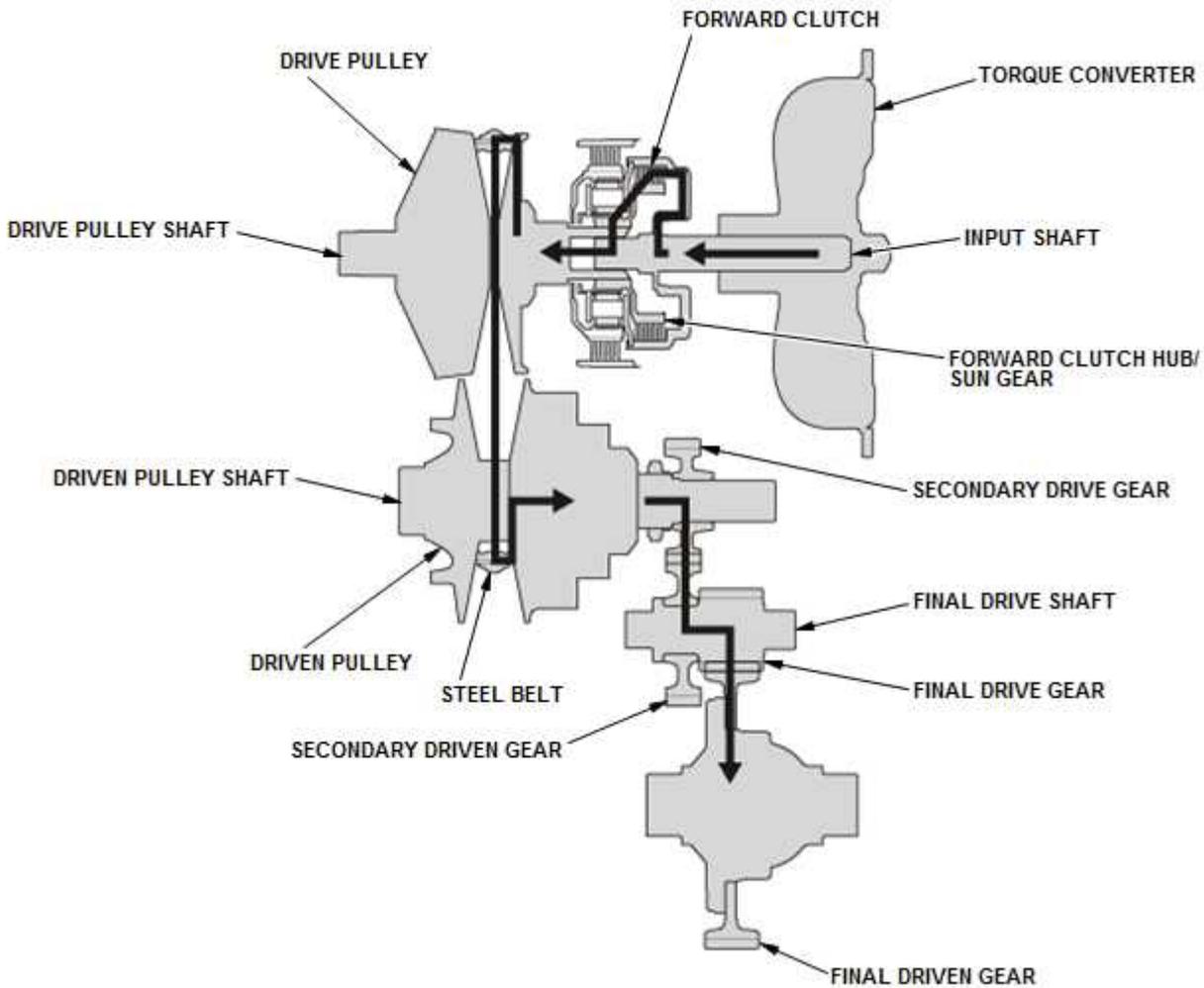
Low Speed Range

- Hydraulic pressure is applied to the forward clutch, then the forward clutch engages the forward clutch hub/sun gear with the drive pulley shaft.
- The drive pulley shaft drives the driven pulley shaft linked by the steel belt.
- The driven pulley shaft drives the secondary driven gear via the secondary drive gear.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.
- At low speed range; pulley ratio high, the drive pulley receives lower pressure than driven pulley received pressure, the drive pulley applies the small-pulley-diameter to the steel belt.



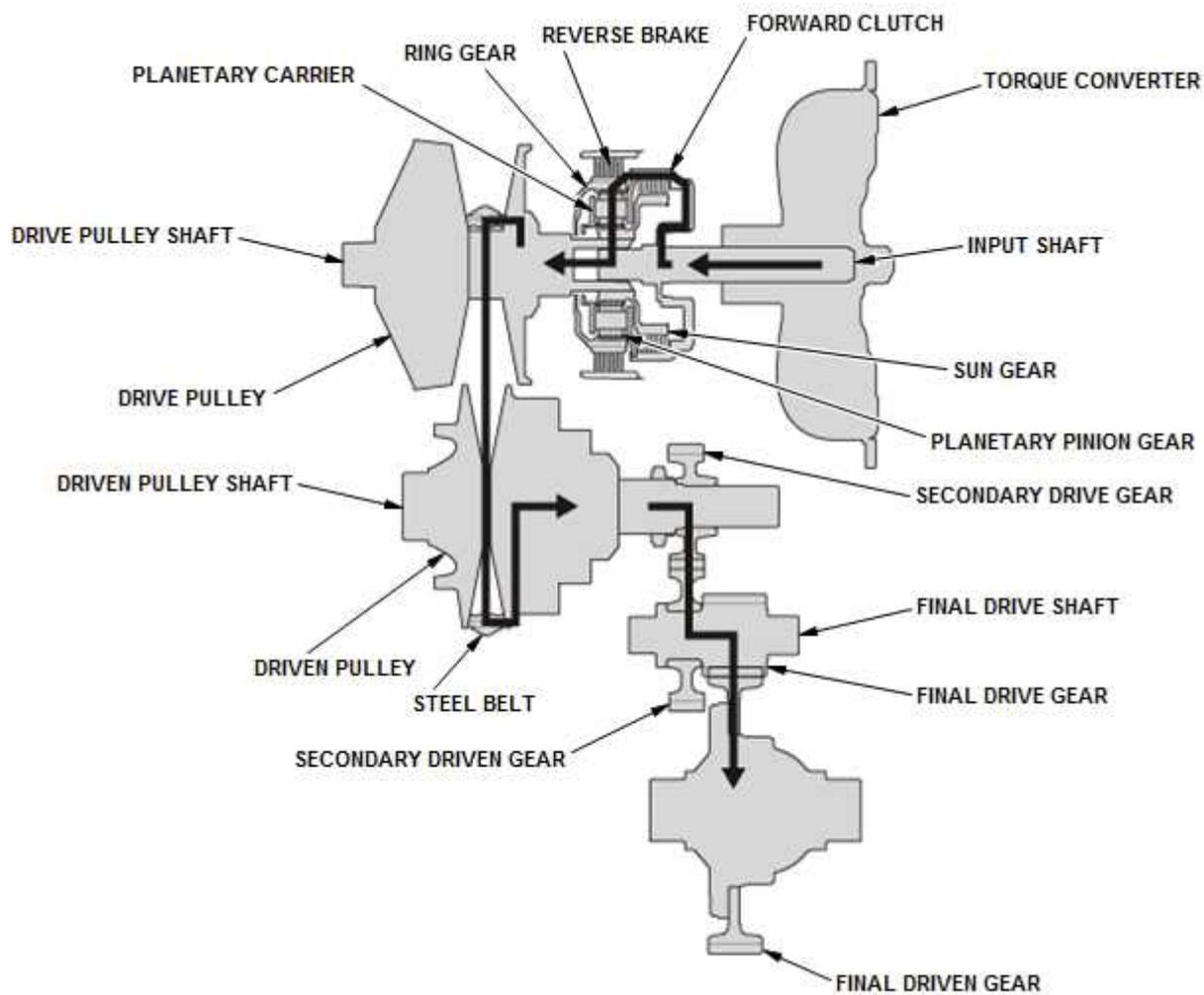
High Speed Range

- Power flow to the final driven gear is the same as at the low speed range.
- As the vehicle speed is increased, drive pulley pressure is increased by the CVT drive pulley pressure control solenoid valve, and driven pulley pressure is decreased by the CVT driven pulley pressure control solenoid valve.
- At high speed range; pulley ratio low, the drive pulley receives higher pressure than driven pulley received pressure, the drive pulley applies the large-pulley-diameter to the steel belt.



R Position

- Hydraulic pressure is applied to the reverse brake, and the planetary carrier locks with the reverse brake.
- The ring gear joined with the forward clutch drum and the input shaft drives the sun gear via the planetary pinion gears.
- The sun gear rotates in the reverse direction from the input shaft rotational direction, and drives the drive pulley shaft.
- The drive pulley shaft drives the driven pulley shaft linked by the steel belt.
- The driven pulley shaft drives the secondary driven gear via the secondary drive gear.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



CVT System Description - Power Flow

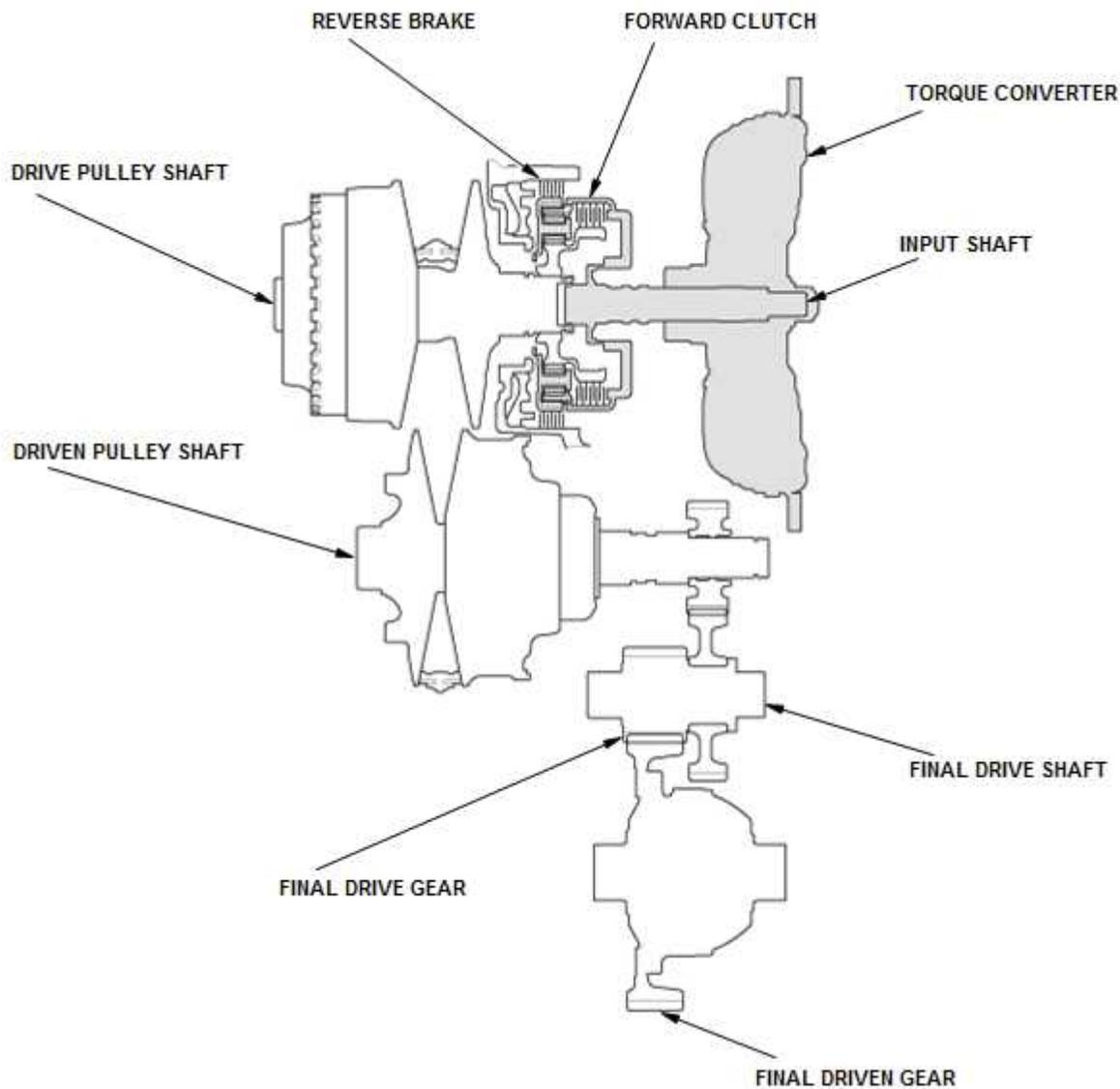
Power Flow

P Position

Hydraulic pressure is not applied to the forward clutch and the reverse brake. Power is not transmitted to the secondary drive gear. The driven pulley is locked by the parking brake pawl interlocking the park gear.

N Position

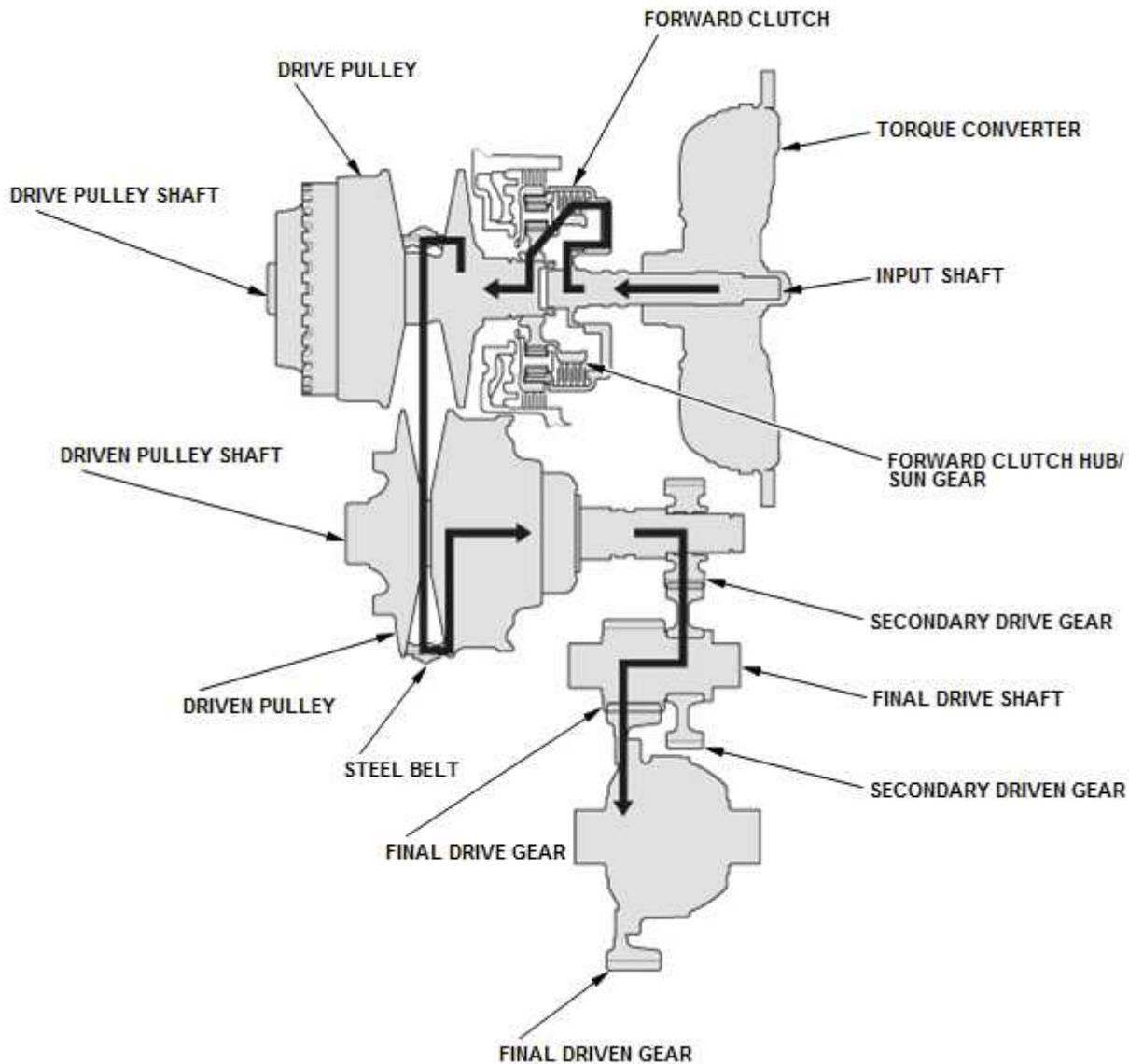
Engine power transmitted from the torque converter drives the input shaft, but hydraulic pressure is not applied to the forward clutch and the reverse brake. Power is not transmitted to the drive pulley shaft.



Low Speed Range

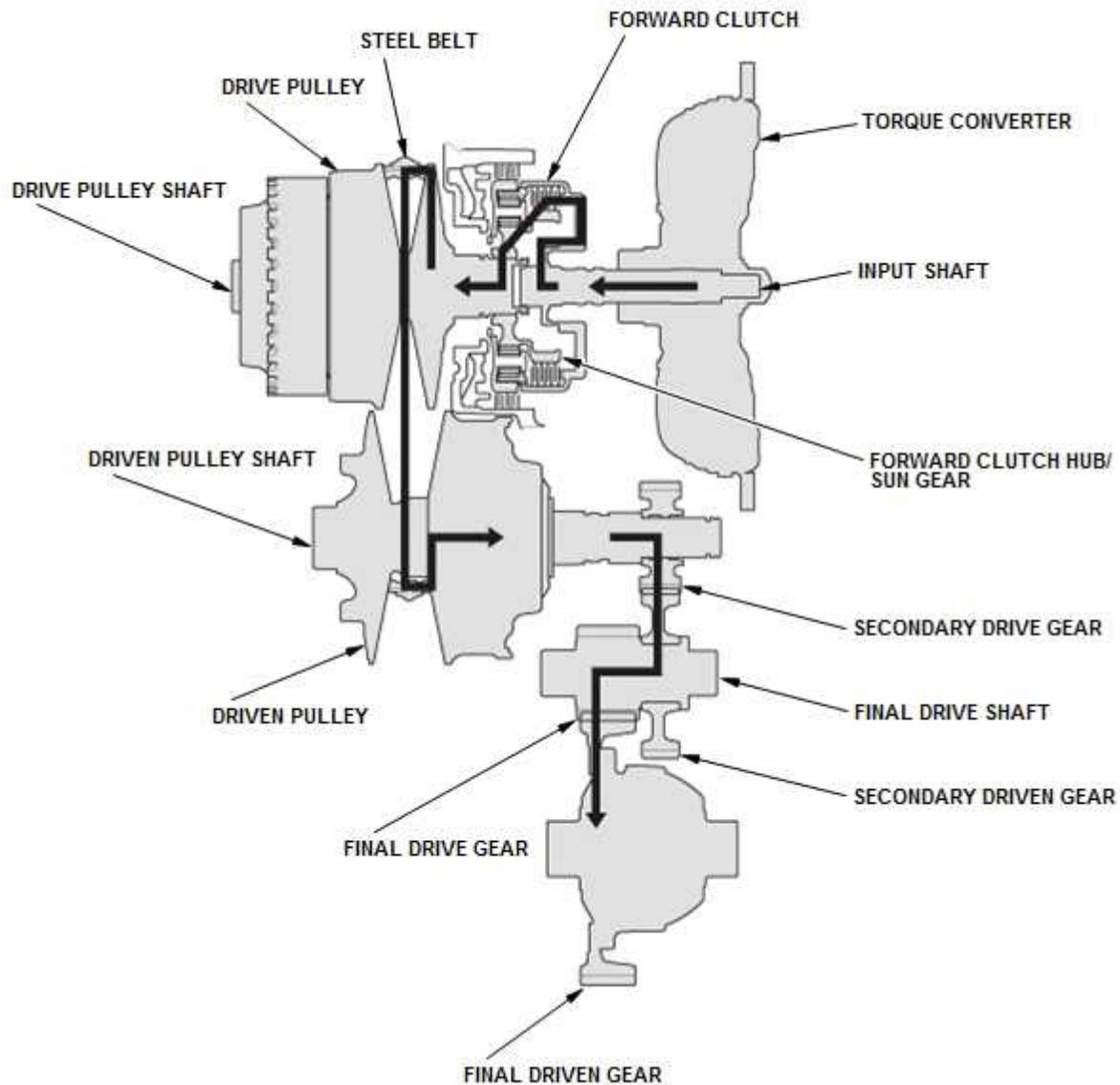
- Hydraulic pressure is applied to the forward clutch, then the forward clutch engages the forward clutch hub/sun gear with the drive pulley shaft.
- The drive pulley shaft drives the driven pulley shaft linked by the steel belt.
- The driven pulley shaft drives the secondary driven gear via the secondary drive gear.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.

- At low speed range; pulley ratio high, the drive pulley receives lower pressure than driven pulley received pressure, the drive pulley applies the small-pulley-diameter to the steel belt.



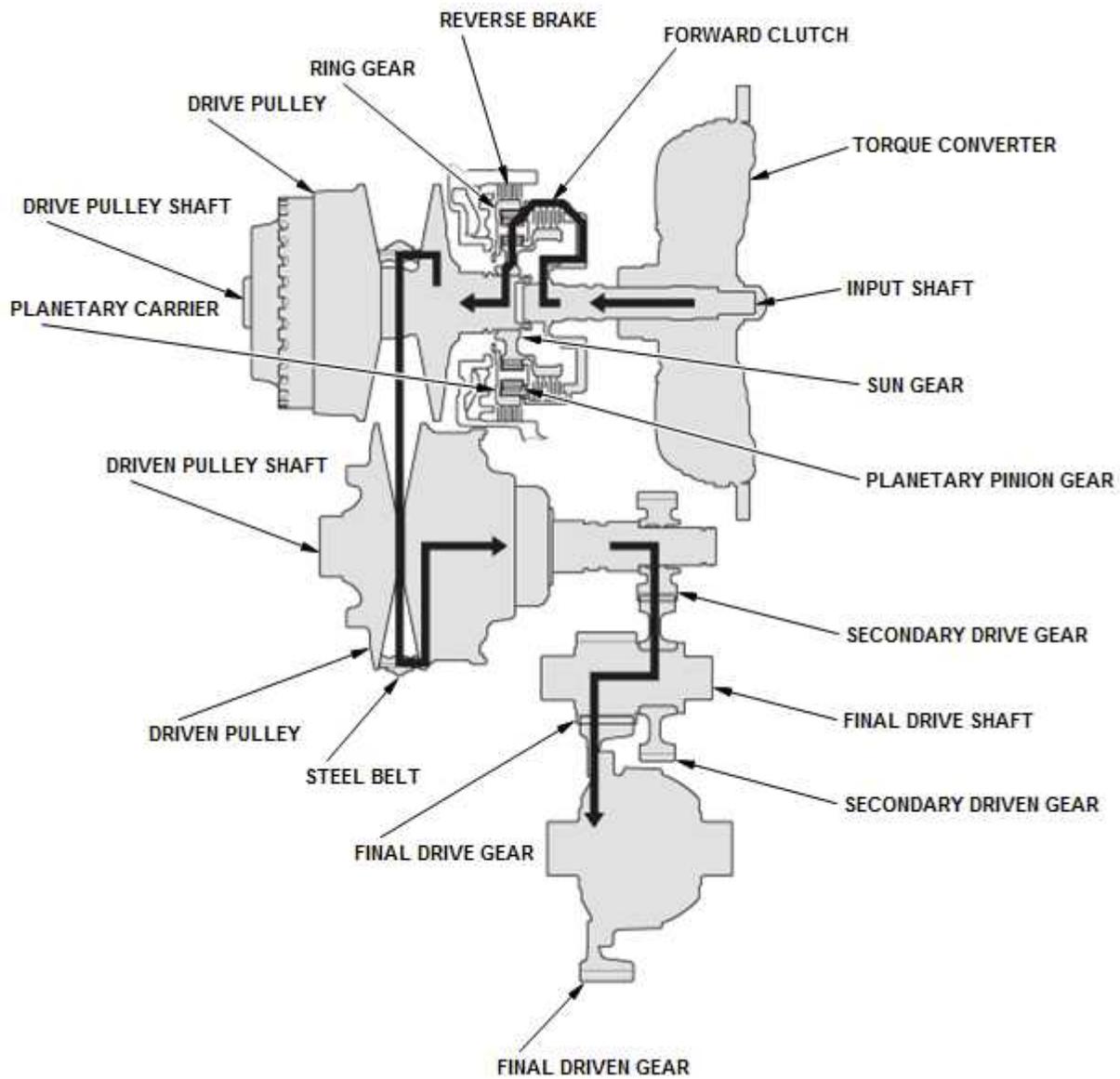
High Speed Range

- Power flow to the final driven gear is the same as at the low speed range.
- As the vehicle speed is increased, the drive pulley pressure is increased by the CVT drive pulley pressure control solenoid valve, and the driven pulley pressure decreased by the CVT driven pulley pressure control solenoid valve.
- At high speed range; pulley ratio low, the drive pulley receives higher pressure than driven pulley received pressure, the drive pulley applies the large-pulley-diameter to the steel belt.



R Position

- Hydraulic pressure is applied to the reverse brake, and the planetary carrier locks with the reverse brake.
- The ring gear joined with the forward clutch drum and the input shaft drives the sun gear via the planetary pinion gears.
- The sun gear rotates in the reverse direction from the input shaft rotational direction, and drives the drive pulley shaft.
- The drive pulley shaft drives the driven pulley shaft linked by the steel belt.
- The driven pulley shaft drives the secondary driven gear via the secondary drive gear.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



CVT System Description - Shift Lock System

NOTE: There are two types of shift levers; type A and B.

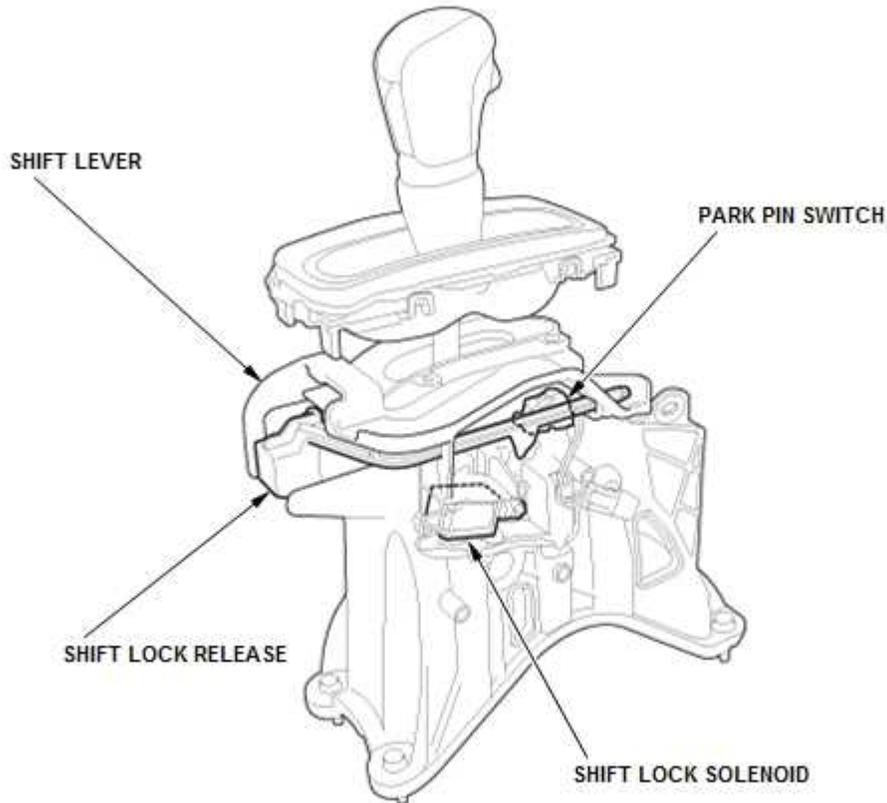
Shift Lever

The shift lever is a floor positioned straight 5 positions/modes (P, R, N, D, S) type (with paddle shifter) or 6 positions/modes (P, R, N, D, S, L) type (without paddle shifter).

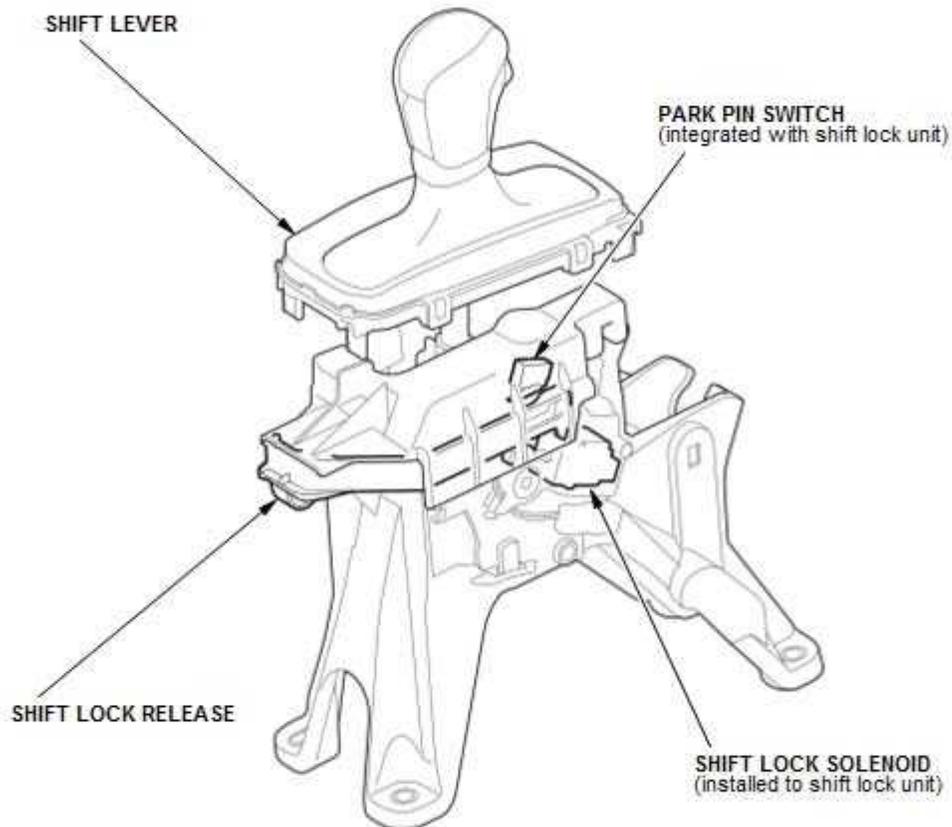
The shift lever consists of a shift lock solenoid, a park pin switch, and a shift lock release.

The park pin switch is used by the body control module to determine if the vehicle is in the P position/mode as part of the key interlock system.

Type A



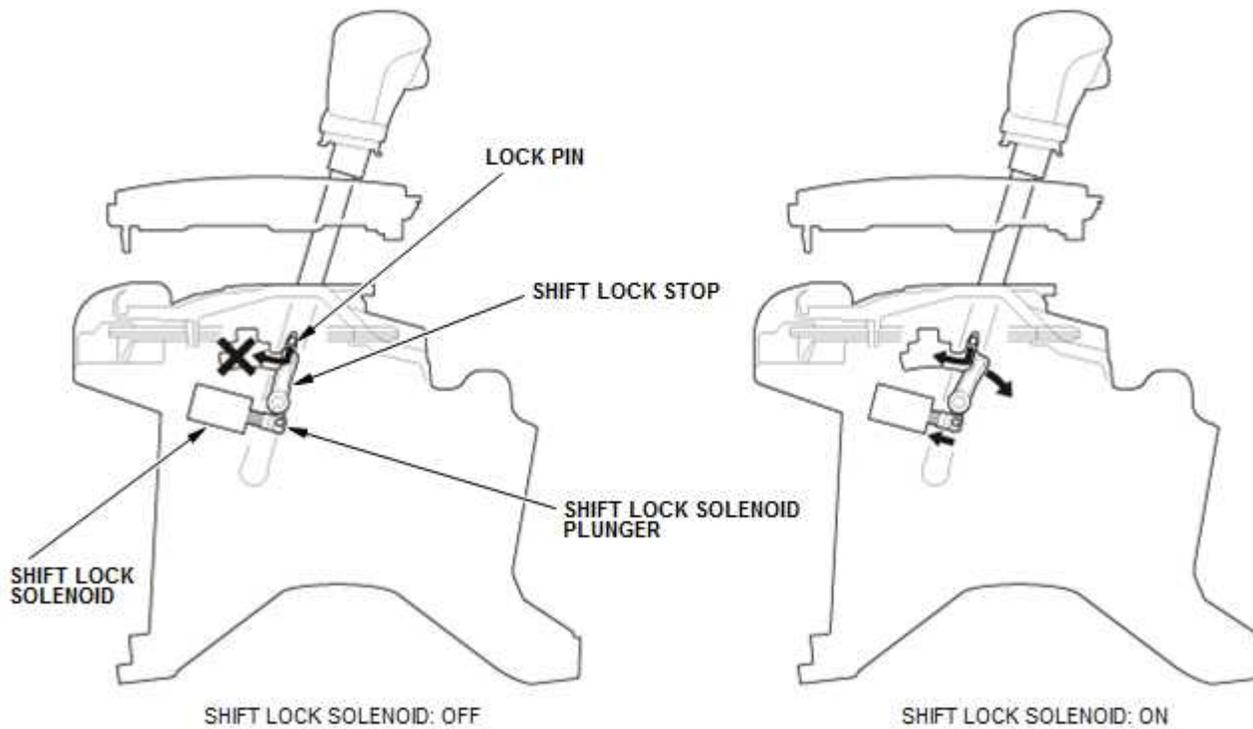
Type B



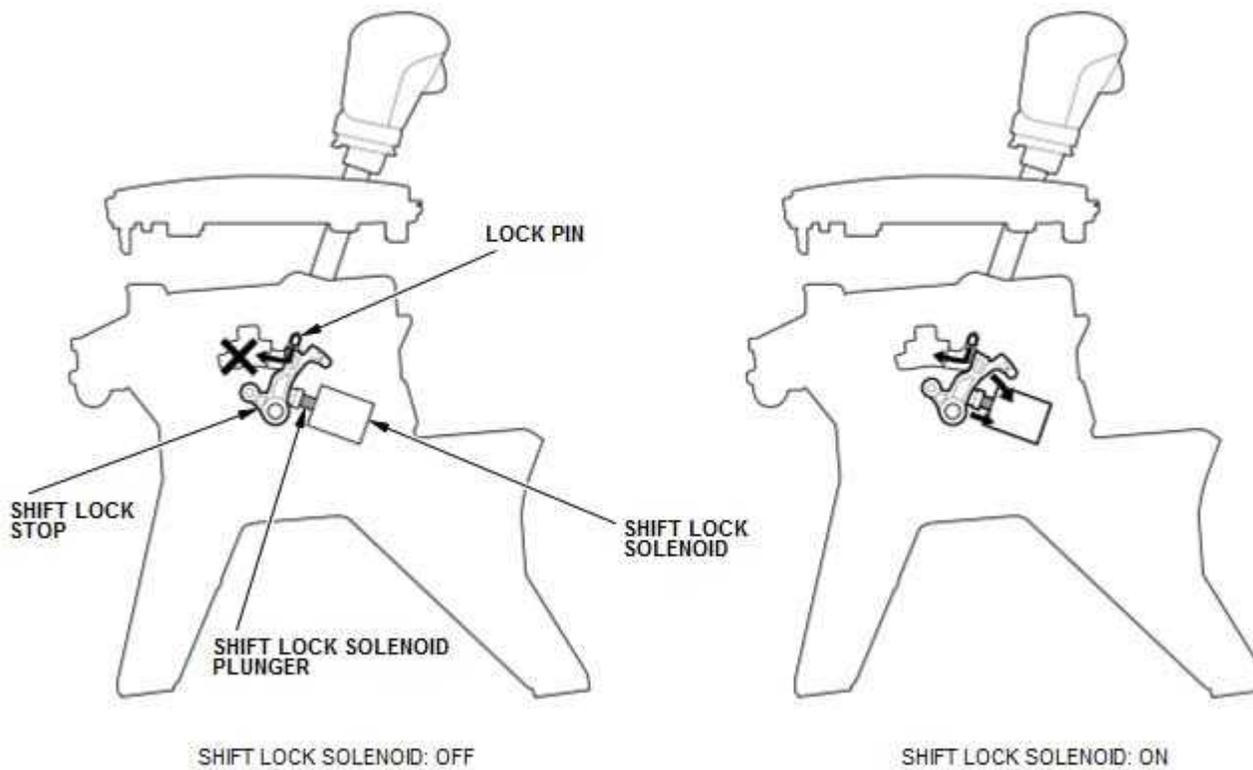
Shift Lock System

The shift lock system prevents the shift lever from moving unless certain conditions are met. The shift lock solenoid is normally OFF. After starting the engine in P position/mode, the shift lock stop prevents the shift lever from moving to any other positions/modes from P position/mode. When the brake pedal is pressed and the accelerator pedal is not pressed, the TCM commands the shift lock solenoid ON; the shift lock solenoid plunger in the shift lock solenoid pulls the shift lock stop to release the lock pin. Pressing the shift lever button allows the shift lever to move to any other positions/modes. When the brake pedal and the accelerator pedal are pressed at the same time, the TCM does not command the shift lock solenoid ON and the shift lock system remains locked.

Type A



Type B

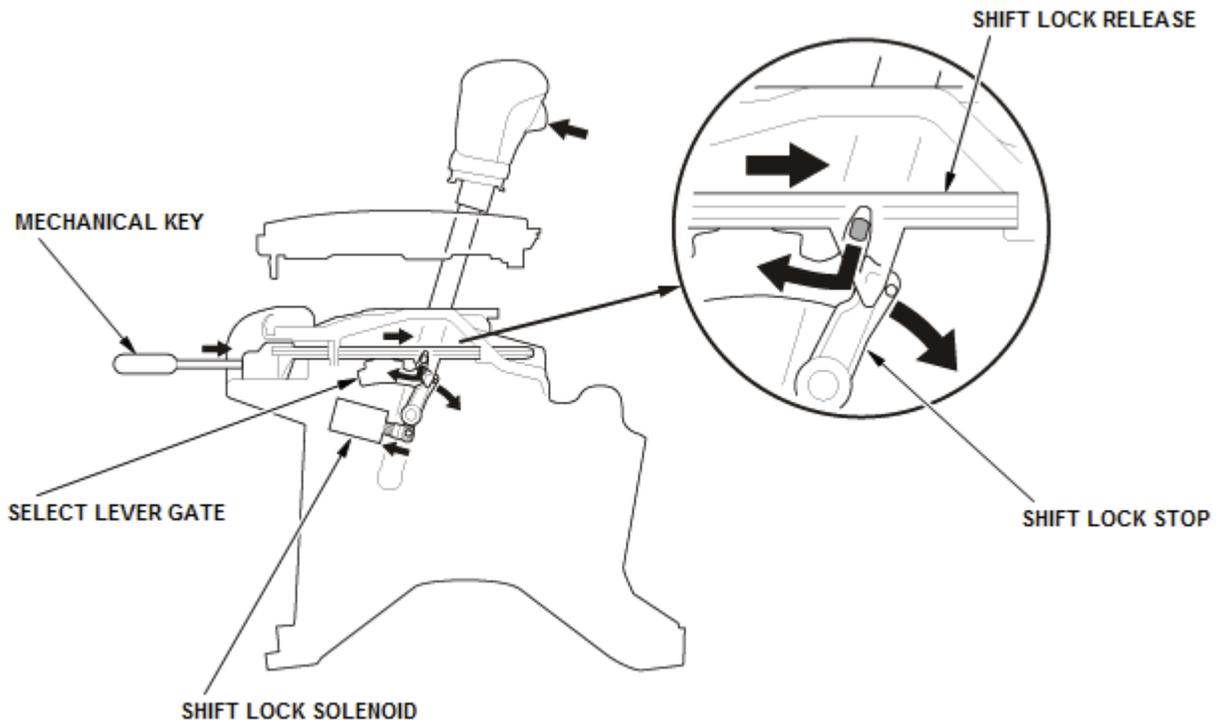


Shift Lock Release

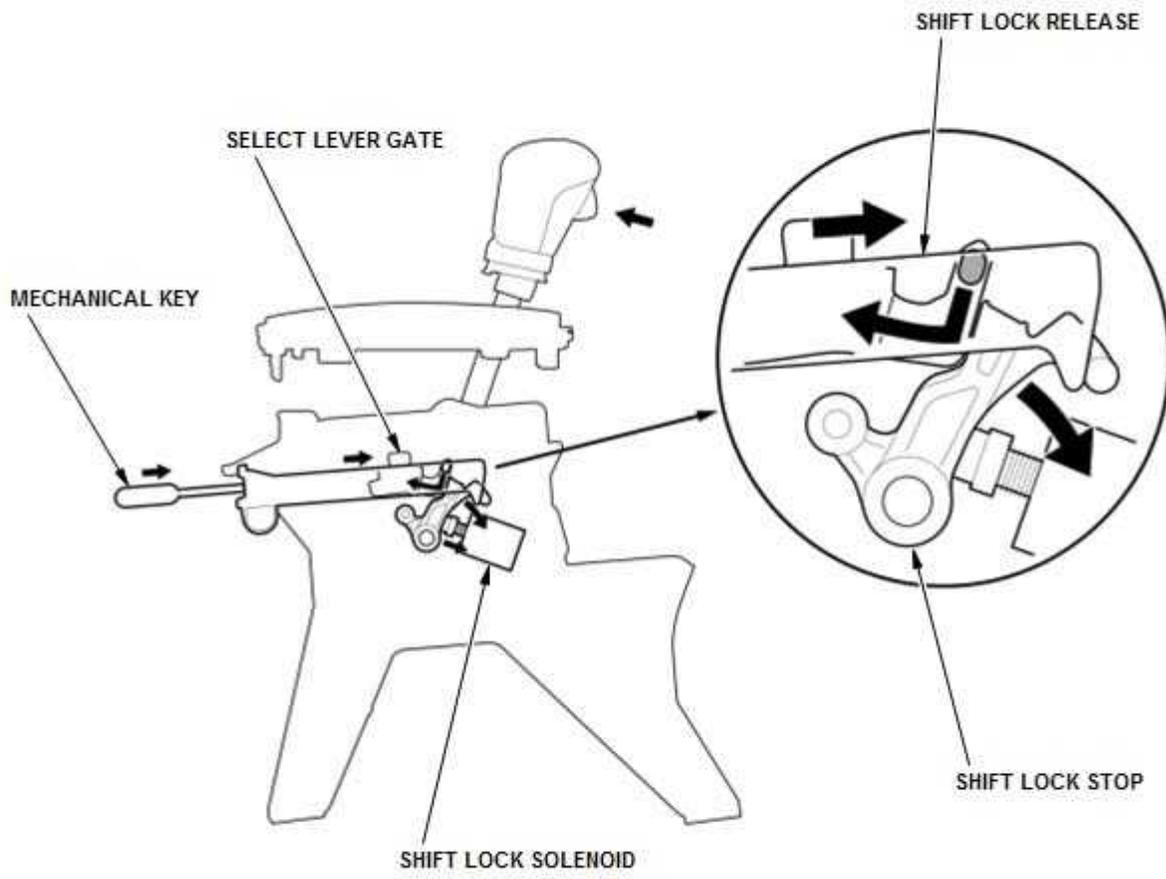
When the shift lock system does not operate due to mechanical or electrical problems, you can unlock the shift lock temporarily by

inserting the mechanical key into the shift lock release slot and pressing the shift lock release. When the shift lock release is pressed, the shift lock stop releases the lock pin, and the shift lever can move to any other positions/modes.

Type A



Type B

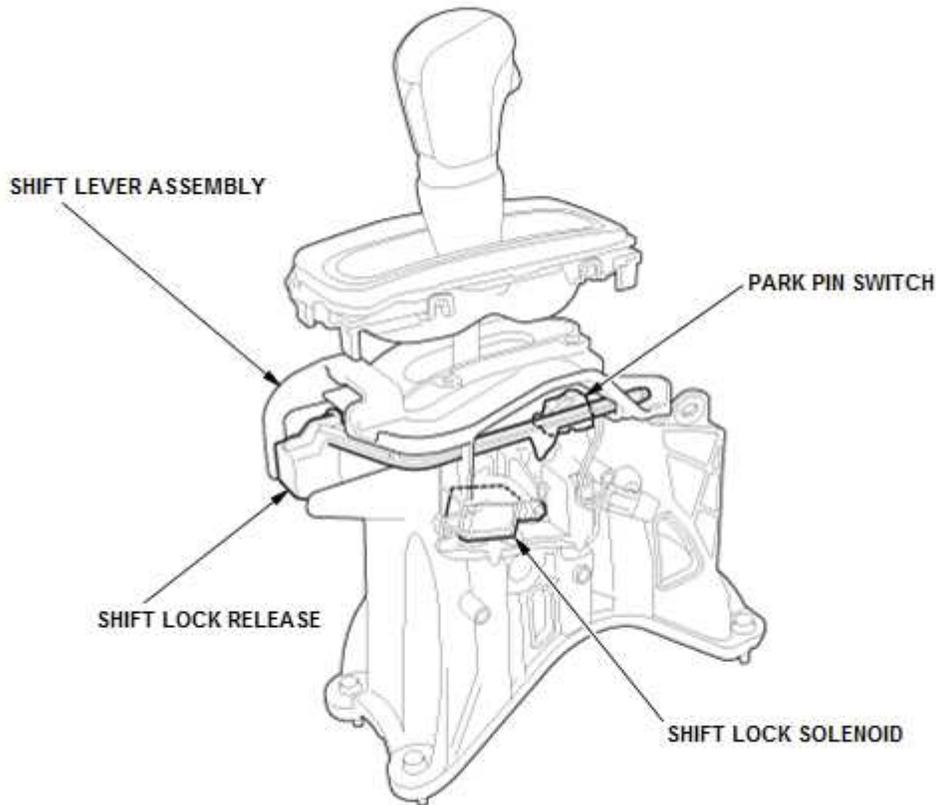


Shift Lever Assembly

The shift lever is a floor positioned straight 6 positions/modes (P, R, N, D, S, L) type.

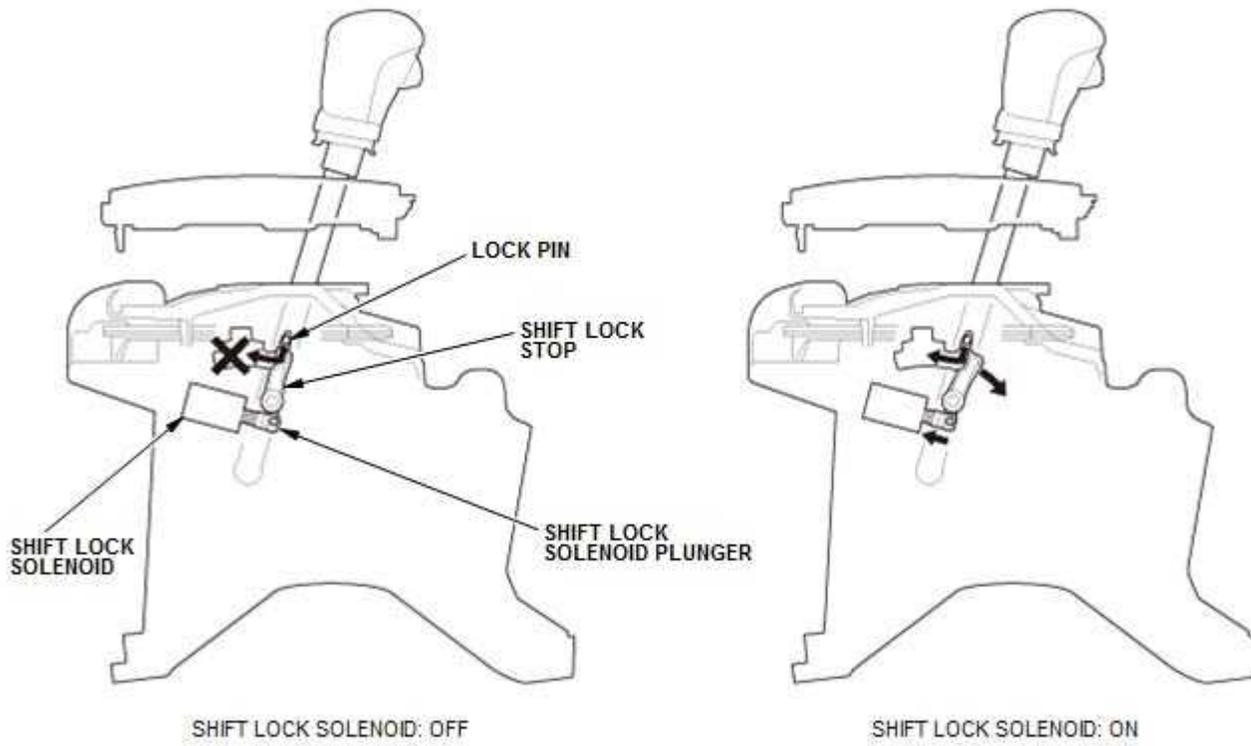
The shift lever assembly consists of a shift lock solenoid, a park pin switch, and a shift lock release.

The park pin switch is used by the body control module to determine if the vehicle is in the P position/mode as part of the key interlock system.



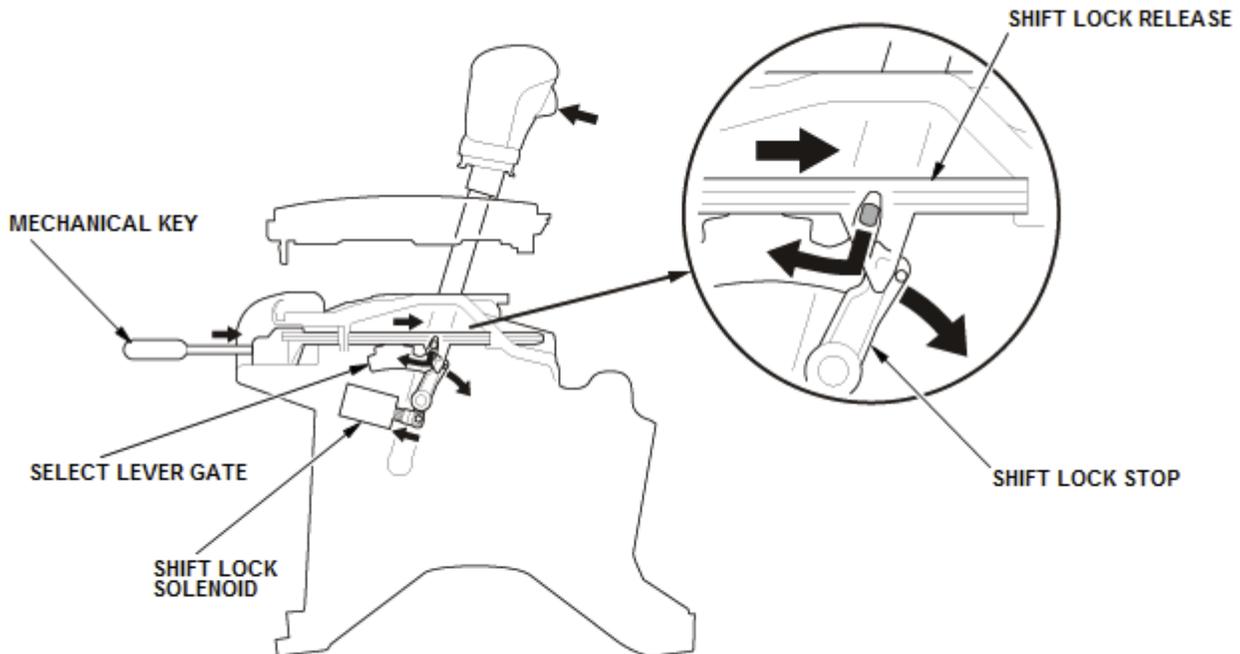
Shift Lock System

The shift lock system prevents the shift lever from moving unless certain conditions are met. The shift lock solenoid is normally OFF. After starting the engine in P position/mode, the shift lock stop prevents the shift lever from moving to any other positions/modes from P position/mode. When the brake pedal is pressed and the accelerator pedal is not pressed, the TCM commands the shift lock solenoid ON; the shift lock solenoid plunger in the shift lock solenoid pulls the shift lock stop to release the lock pin. Pressing the shift lever button allows the shift lever to move to any other positions/modes. When the brake pedal and the accelerator pedal are pressed at the same time, the TCM does not command the shift lock solenoid ON and the shift lock system is locked.



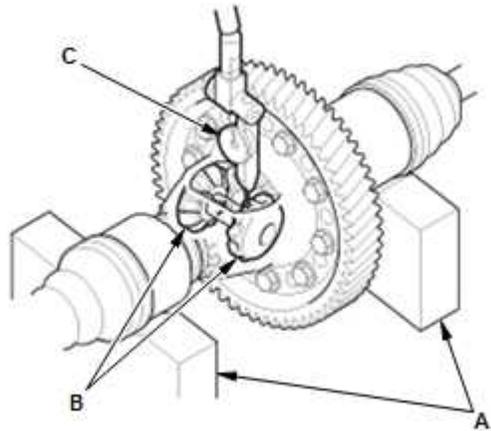
Shift Lock Release

When the shift lock system does not operate due to mechanical or electrical problems, you can unlock the shift lock temporarily by inserting the mechanical key into the shift lock release slot and pressing the shift lock release. When the shift lock release is pressed, the shift lock stop releases the lock pin, and the shift lever can move to any other positions/modes.



Inspection

1. Differential Backlash - Inspect



1. Install both axles into the differential, then place the axles on V-blocks (A).

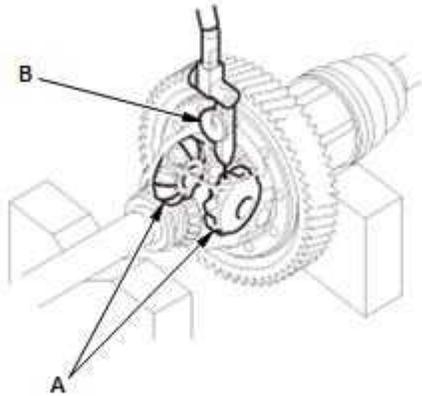
2. Check the backlash of the pinion gears (B) using a dial indicator (C).

Standard: 0.05—0.15 mm (0.0020—0.0059 in)

3. If the backlash is out of the standard, [replace the differential carrier](#).

Inspection

1. Differential Backlash - Inspect



1. Install the driveshaft and the intermediate shaft on the differential, then place the axles on V-blocks.
2. Check the backlash of the pinion gears (A) using a dial indicator (B).

Standard: 0.05 – 0.15 mm (0.0020 – 0.0059 in)

3. If the backlash is out of the standard, [replace the differential carrier](#).

CVT Differential Carrier Bearing Preload Inspection

Special Tool Required

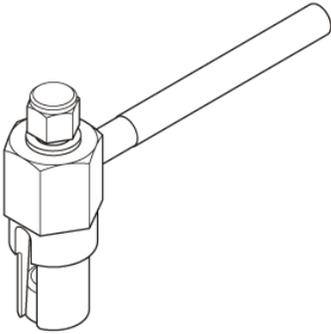
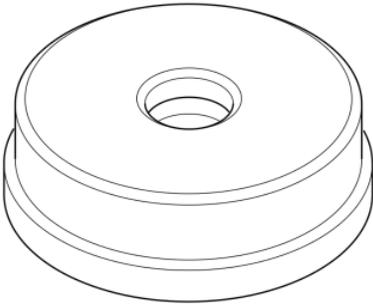
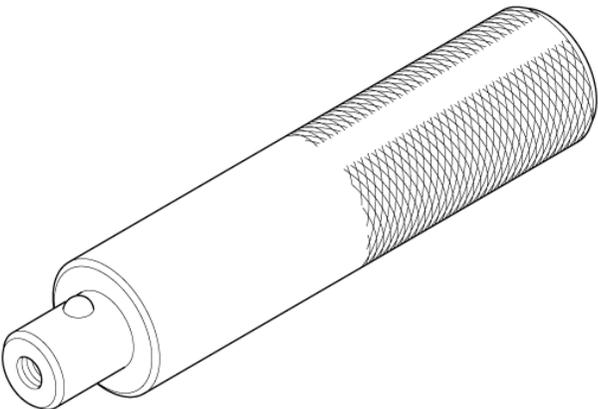
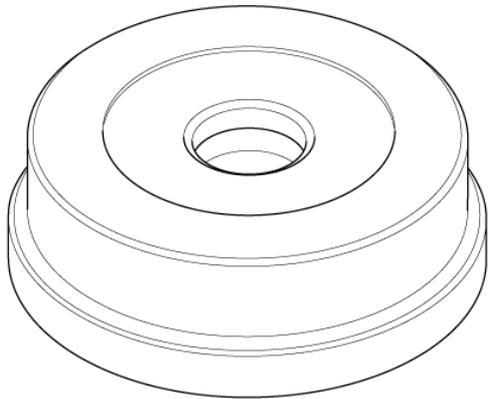
Image	Description/Tool Number
 A technical drawing of a preload inspection tool. It features a hexagonal base with a central threaded hole, a side handle, and a vertical shaft with a locking mechanism.	Preload Inspection Tool 070AJ-5T0A100
 A technical drawing of a bearing driver attachment, which is a circular, flanged metal component with a central hole.	Bearing Driver Attachment, 62 x 68 mm 07746-0010500
 A technical drawing of a driver handle, a long cylindrical metal rod with a knurled grip section and a threaded end.	Driver Handle, 15 x 135L 07749-0010000

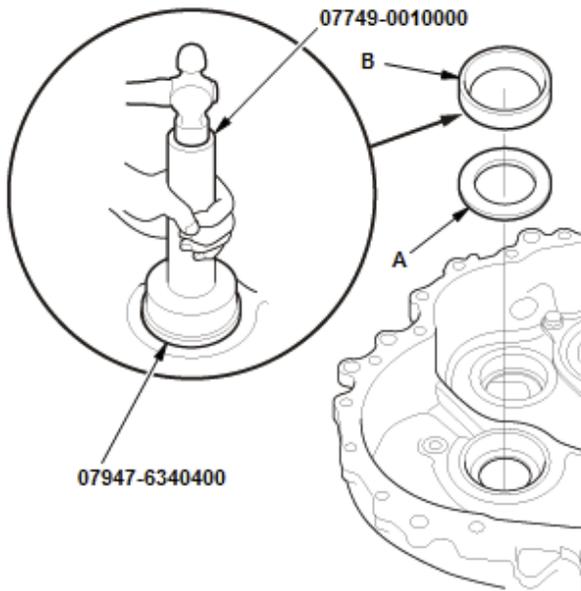
Image	Description/Tool Number
	Bearing Driver Attachment, 62 x 64 mm 07947-6340400

Inspection

NOTE:

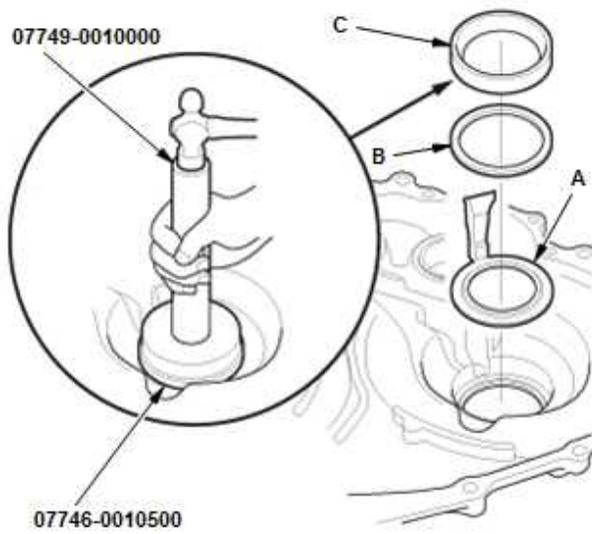
- If the transmission was disassembled, the differential carrier tapered roller bearing preload must be adjusted.
- Apply a light coat of clean transmission fluid on all parts before installation.

1. Differential Carrier Tapered Roller Bearing Outer Race - Install (Transmission Housing Side)



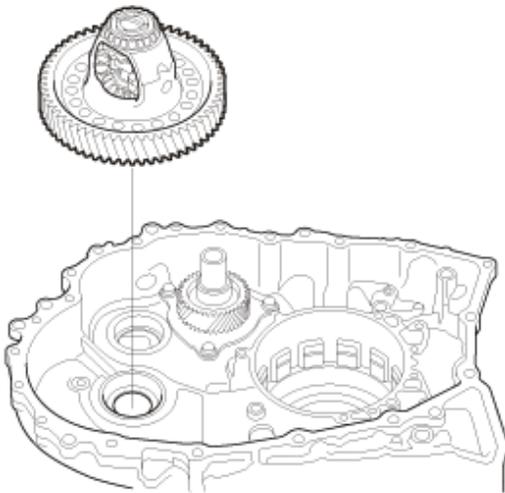
1. Install the spacer (A).
2. Install the differential carrier tapered roller bearing outer race (B) until it bottoms using the 15 x 135L driver handle and the 62 x 64 mm bearing driver attachment.

2. Differential Carrier Tapered Roller Bearing Outer Race - Install (Torque Converter Housing Side)

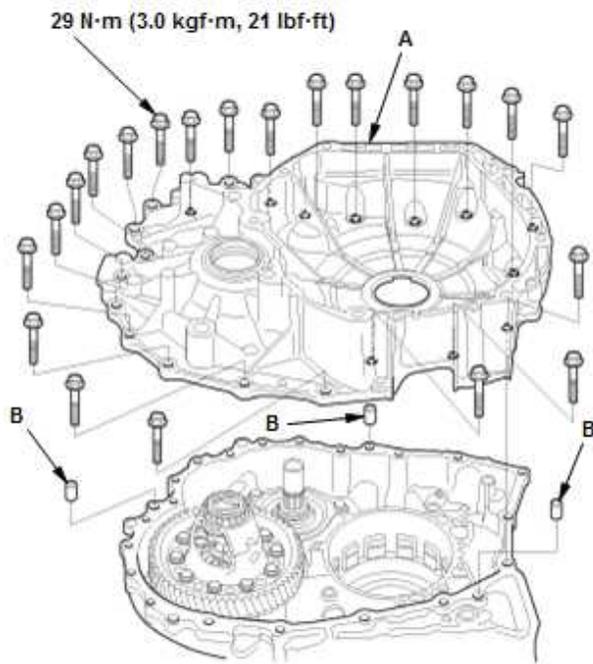


1. Install the oil guide plate (A) and the 68 mm thrust shim (B).
2. Install the differential carrier bearing outer race (C) until it bottoms using the 15 x 135L driver handle and the 62 x 68 mm bearing driver attachment so there is no clearance between the bearing outer race, the 68 mm thrust shim, the oil guide plate, and the torque converter housing.

3. Differential Assembly - Install

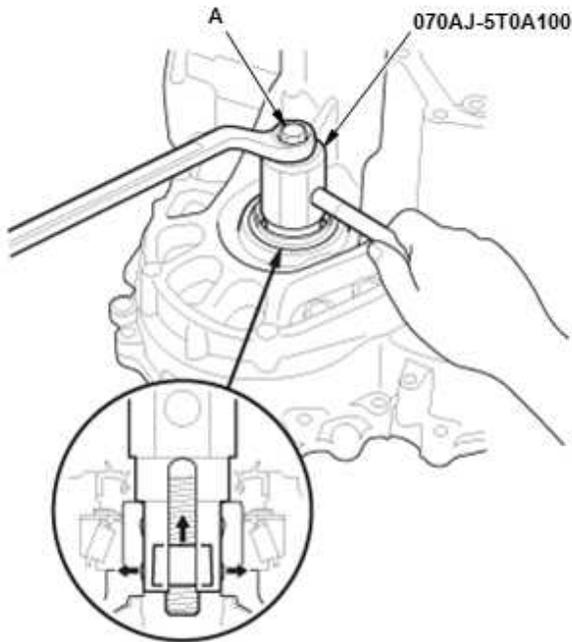


4. Torque Converter Housing - Install



1. Install the torque converter housing (A) with the dowel pins (B), and tighten the bolts in a crisscross pattern in at least two steps.

5. Differential Carrier Tapered Roller Bearing Preload - Inspect



1. Install the preload inspection tool.
2. Press the preload inspection tool gradually by tightening the bolt (A).
3. Rotate the differential assembly in both directions to seat the bearings.

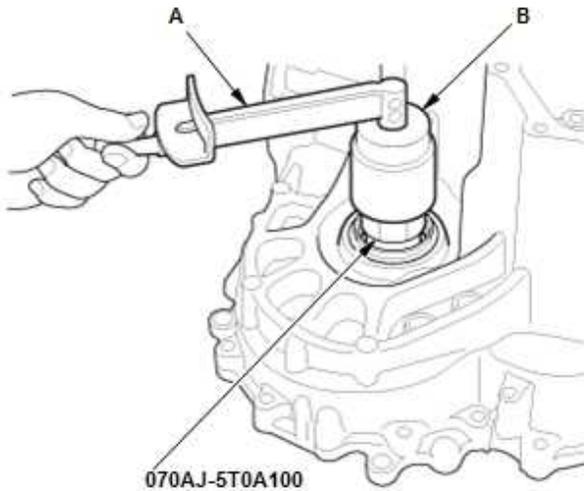
4. Measure the starting torque using the preload inspection tool, a torque wrench (A), and a socket (B).

NOTE: Measure the starting torque at normal room temperature in both directions.

Standard:

New Bearing: 1.25 – 1.65 N·m (12.7 – 16.8 kgf·cm, 11.0 – 14.6 lbf·in)

Reused Bearing: 0.95 – 1.35 N·m (9.7 – 13.8 kgf·cm, 8.4 – 12.0 lbf·in)



5. If the measurement is out of the standard, remove the 68 mm thrust shim, and measure its thickness, then select a suitable 68 mm thrust shim.

NOTE:

- To increase the starting torque, increase thickness of the 68 mm thrust shim.
- To decrease the starting torque, decrease the thickness of the 68 mm thrust shim.
- Do not use more than two thrust shims to adjust the starting torque.

68 mm Thrust Shim

No.	Thickness
A	1.075 mm (0.04232 in)
B	1.100 mm (0.04331 in)
C	1.125 mm (0.04429 in)
D	1.150 mm (0.04528 in)
E	1.175 mm (0.04626 in)
F	1.200 mm (0.04724 in)
G	1.225 mm (0.04823 in)
H	1.250 mm (0.04921 in)
I	1.275 mm (0.05020 in)
J	1.300 mm (0.05118 in)
K	1.325 mm (0.05217 in)
L	1.350 mm (0.05315 in)
M	1.375 mm (0.05413 in)
N	1.400 mm (0.05512 in)
O	1.425 mm (0.05610 in)
P	1.450 mm (0.05709 in)
Q	1.475 mm (0.05807 in)
R	1.500 mm (0.05906 in)
S	1.525 mm (0.06004 in)
T	1.550 mm (0.06102 in)
U	1.575 mm (0.06201 in)

No.	Thickness
V	1.600 mm (0.06299 in)
W	1.625 mm (0.06398 in)
X	1.650 mm (0.06496 in)
Y	1.675 mm (0.06594 in)
Z	1.700 mm (0.06693 in)
0A	1.725 mm (0.06791 in)

6. Install a selected 68 mm thrust shim, then recheck the starting torque.

CVT Differential Carrier Bearing Preload Inspection

Special Tool Required

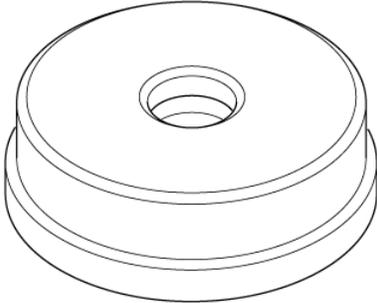
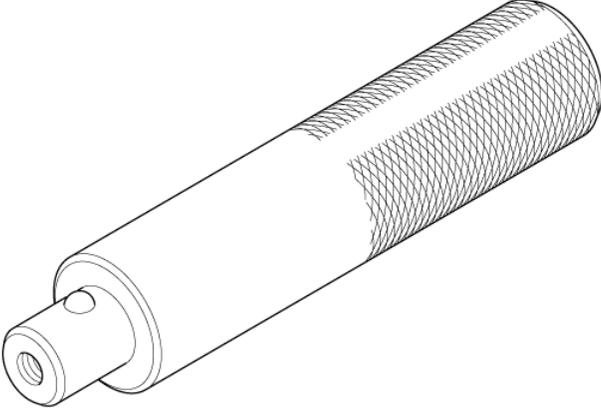
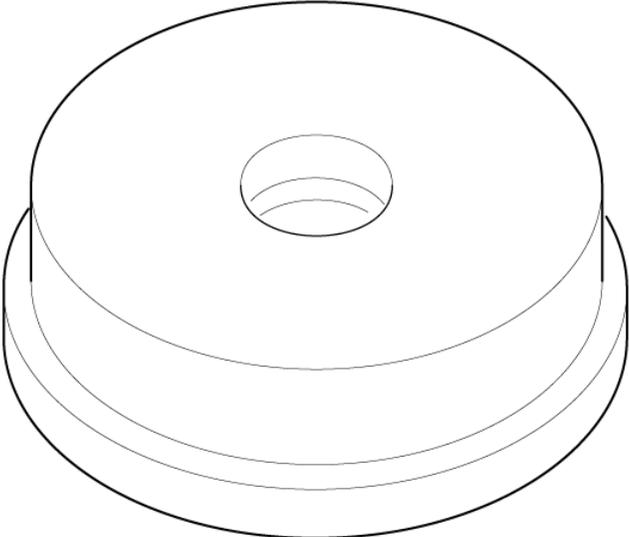
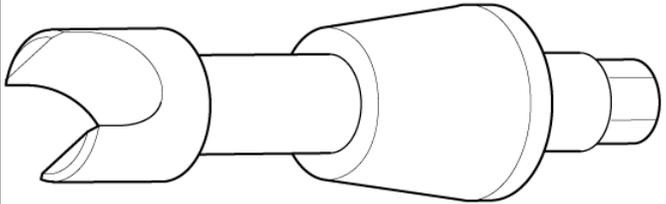
Image	Description/Tool Number
	Bearing Driver Attachment, 72 x 75 mm 07746-0010600
	Driver Handle, 15 x 135L 07749-0010000
	Attachment, 78 x 90 mm 07GAD-SD40101

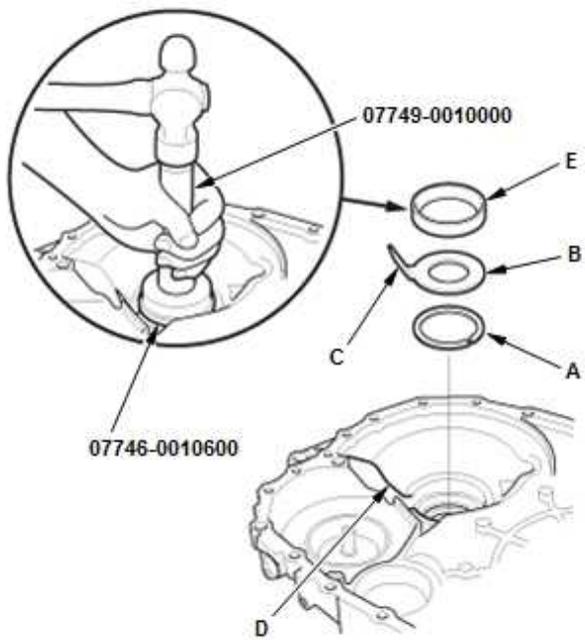
Image	Description/Tool Number
	Preload Inspection Tool 07HAJ-PK40201

Inspection

NOTE:

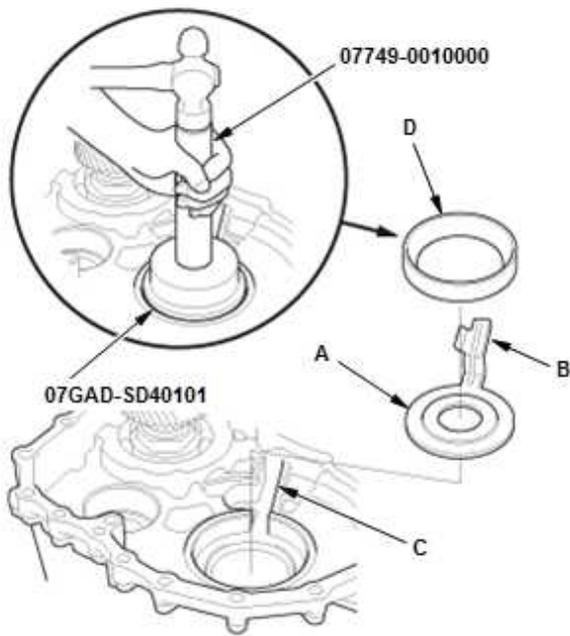
- If the transmission was disassembled, the differential carrier tapered roller bearing preload must be adjusted.
- Apply a light coat of clean transmission fluid on all parts before installation.

1. Differential Carrier Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Install



1. Install the 76 mm thrust shim (A).
2. Install the 41 x 76.2 x 1 mm spacer (B) by aligning the tab (C) with the groove (D).
3. Install the differential carrier tapered roller bearing outer race (E) using the 15 x 135L driver handle and the 72 x 75 mm bearing driver attachment so there is no clearance between the bearing outer race, the 41 x 76.2 x 1 mm spacer, the 76 mm thrust shim, and the torque converter housing.

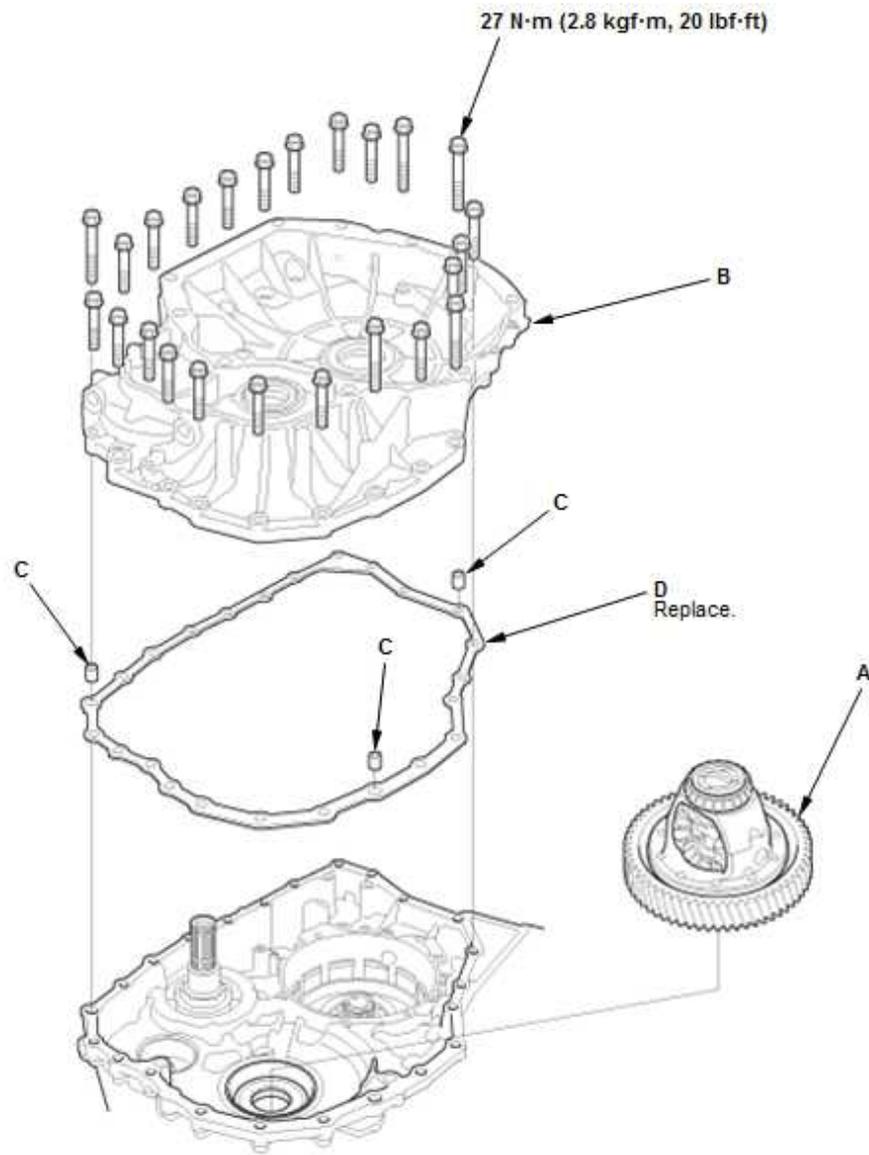
2. Differential Carrier Tapered Roller Bearing Outer Race (Transmission Housing Side) - Install



1. Install the 41 x 92 x 1 mm spacer (A) by aligning the tab (B) with the groove (C).
2. Install the differential carrier tapered roller bearing outer race (D) using the 15 x 135L driver handle and the 78 x 90 mm attachment so there is no clearance between the bearing outer race, the 41 x 92 x 1 mm spacer, and the transmission housing.

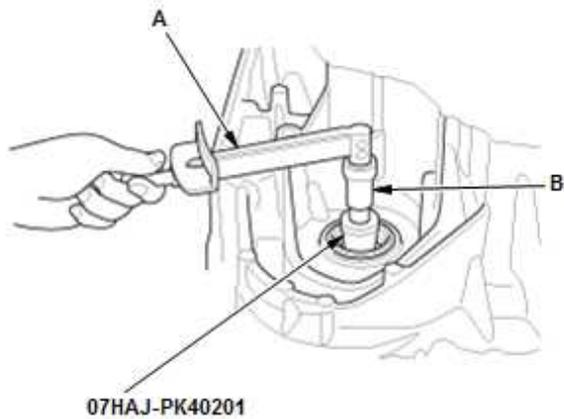
3. Torque Converter Housing - Install

1. Install the differential assembly (A).



2. Install the torque converter housing (B) with the dowel pins (C) and a new gasket (D), and tighten the bolts in a crisscross pattern in at least two steps.

4. Differential Carrier Tapered Roller Bearing Preload - Inspect



1. Rotate the differential assembly in both directions to seat the bearings using the preload inspection tool.
2. Measure the starting torque using the preload inspection tool, a torque wrench (A), and a socket (B).

NOTE: Measure the starting torque at normal room temperature in both directions.

Standard

New Bearing:

1.35–3.07 N·m (13.8–31.3 kgf·cm, 12.0–27.2 lbf·in)

Reused Bearing:

1.06–2.78 N·m (10.8–28.3 kgf·cm, 9.4–24.6 lbf·in)

3. If the measurement is out of the standard, remove the 76 mm thrust shim, and measure its thickness.
4. Select a new 76 mm thrust shim.

NOTE:

- To increase the starting torque, increase thickness of the 76 mm thrust shim.
- To decrease the starting torque, decrease the thickness of the 76 mm thrust shim.
- Changing the 76 mm thrust shim to the next size will increase or decrease starting torque about 0.3–0.4 N·m (3–4 kgf·cm, 2–3 lbf·in).
- Do not use more than two thrust shims to adjust the starting torque.

Type A 76 mm Thrust Shim

No.	Thickness
A	1.575 mm (0.06201 in)
B	1.625 mm (0.06398 in)
C	1.675 mm (0.06594 in)
D	1.725 mm (0.06791 in)
E	1.775 mm (0.06988 in)
F	1.825 mm (0.07185 in)
G	1.875 mm (0.07382 in)
H	1.925 mm (0.07579 in)
I	1.975 mm (0.07776 in)
J	2.025 mm (0.07972 in)
K	2.075 mm (0.08169 in)
L	2.125 mm (0.08366 in)
M	2.175 mm (0.08563 in)
N	2.225 mm (0.08760 in)
O	2.275 mm (0.08957 in)
P	2.325 mm (0.09154 in)
Q	2.375 mm (0.09350 in)
R	2.425 mm (0.09547 in)

No.	Thickness
S	2.475 mm (0.09744 in)
T	2.525 mm (0.09941 in)
U	2.575 mm (0.10138 in)
V	2.625 mm (0.10335 in)
W	2.675 mm (0.10531 in)
X	2.725 mm (0.10728 in)
Y	2.775 mm (0.10925 in)
Z	2.825 mm (0.11122 in)
0A	2.875 mm (0.11319 in)
0B	2.925 mm (0.11516 in)
0C	2.975 mm (0.11713 in)
0D	3.025 mm (0.11909 in)

Type B 76 mm Thrust Shim

No.	Thickness
0A	1.550 mm (0.06102 in)
0B	1.600 mm (0.06299 in)
0C	1.650 mm (0.06496 in)
0D	1.700 mm (0.06693 in)
0E	1.750 mm (0.06890 in)
0F	1.800 mm (0.07087 in)
0G	1.850 mm (0.07283 in)
0H	1.900 mm (0.07480 in)
0I	1.950 mm (0.07677 in)
0J	2.000 mm (0.07874 in)

Type C 76 mm Thrust Shim

No.	Thickness
S	2.050 mm (0.08071 in)
T	2.100 mm (0.08268 in)
U	2.150 mm (0.08465 in)

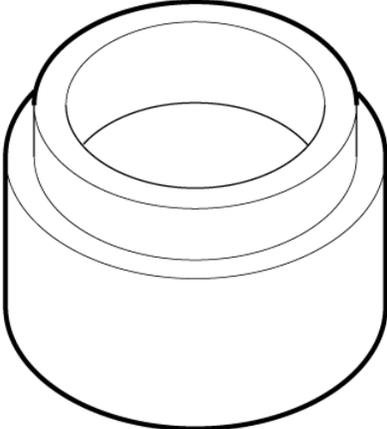
Type D 76 mm Thrust Shim

No.	Thickness
A	2.200 mm (0.08661 in)
B	2.250 mm (0.08858 in)
C	2.300 mm (0.09055 in)
D	2.350 mm (0.09252 in)
E	2.400 mm (0.09449 in)
F	2.450 mm (0.09646 in)
G	2.500 mm (0.09843 in)
H	2.550 mm (0.10039 in)
I	2.600 mm (0.10236 in)
J	2.650 mm (0.10433 in)
K	2.700 mm (0.10630 in)
L	2.750 mm (0.10827 in)
M	2.800 mm (0.11024 in)
N	2.850 mm (0.11220 in)
O	2.900 mm (0.11417 in)
No.	Thickness
P	2.950 mm (0.11614 in)
Q	3.000 mm (0.11811 in)
R	3.050 mm (0.12008 in)

5. Install a selected 76 mm thrust shim, then recheck the starting torque.

CVT Differential Carrier Disassembly and Reassembly

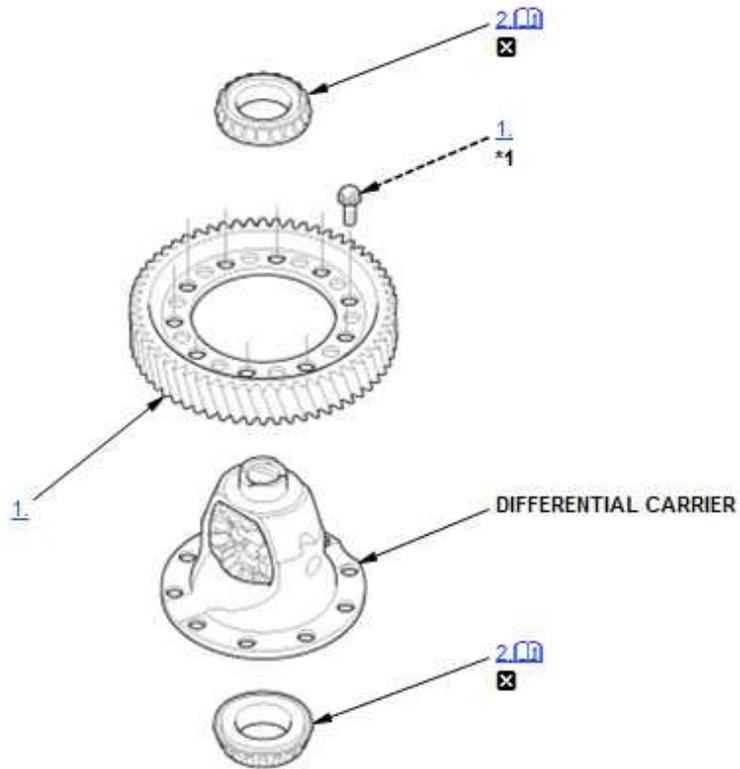
Special Tool Required

Image	Description/Tool Number
	Installer Attachment 40 mm 07LAD-PW50601

Disassembly

NOTE:

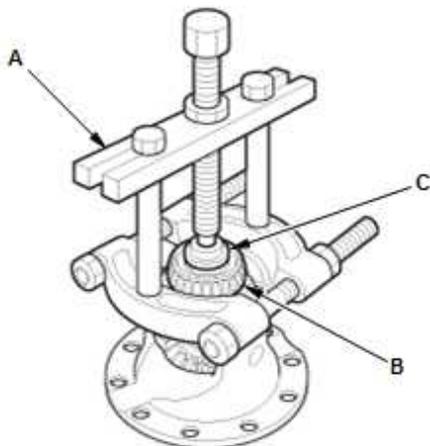
-  Where icon is shown, click for further information.
- The carrier bearing and the carrier bearing outer race should be replaced as a set.



	Detailed information, notes and precautions
	Replace
*1	Left-hand threads

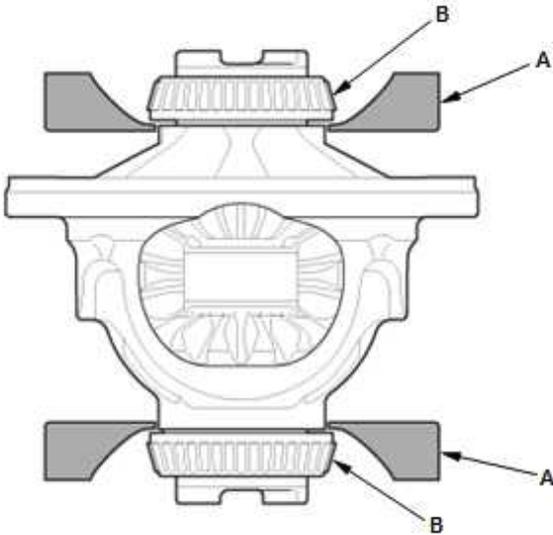
1. Final Driven Gear - Remove

2. Differential Carrier Tapered Roller Bearing - Remove



1. Set a commercially available bearing puller (A) under the carrier bearings (B) as shown.
2. Remove the carrier bearings using the commercially available bearing puller and a commercially available spacer (C).

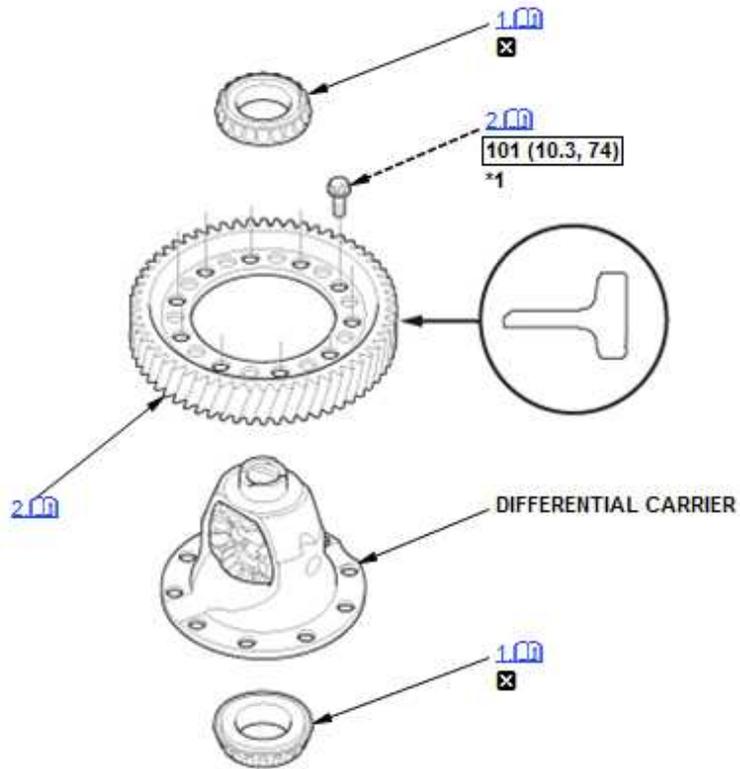
This illustration shows transmission housing side.



Reassembly

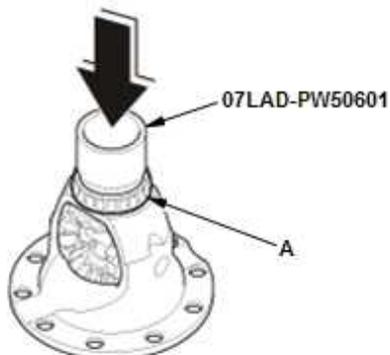
NOTE:

-  Where icon is shown, click for further information.
- The carrier bearing and the carrier bearing outer race should be replaced as a set.
- [Adjust the carrier bearing preload](#) after replacing the carrier bearing and the carrier bearing outer race.
- Apply a light coat of clean transmission fluid on all parts before installation.



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace
*1	Left-hand threads

1. Differential Carrier Tapered Roller Bearing - Install



1. Install the carrier bearings (A) until it bottoms using the 40 mm installer attachment and a press.

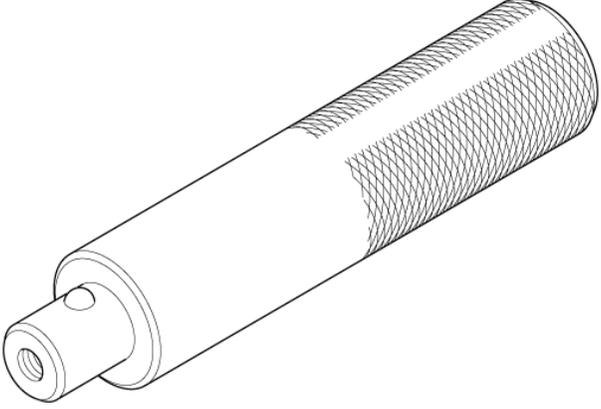
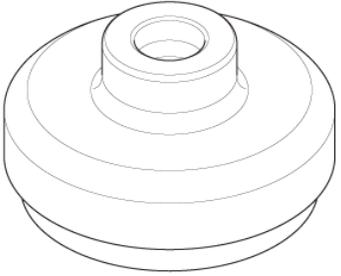
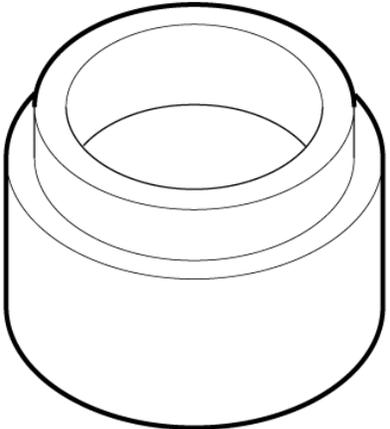
This illustration shows transmission housing side.

2. Final Driven Gear - Install

NOTE: Tighten the final driven gear bolts to the specified torque in a crisscross pattern in at least two steps.

CVT Differential Carrier Disassembly and Reassembly

Special Tool Required

Image	Description/Tool Number
 A cylindrical metal tool with a threaded section on one end and a smooth section on the other.	Driver Handle, 15 x 135L 07749-0010000
 A circular metal attachment with a central hole and a flange.	Oil Seal Driver Attachment, 66 mm 07MAD-SP00100
 A cylindrical metal attachment with a flange.	Installer Attachment 40 mm 07LAD-PW50601

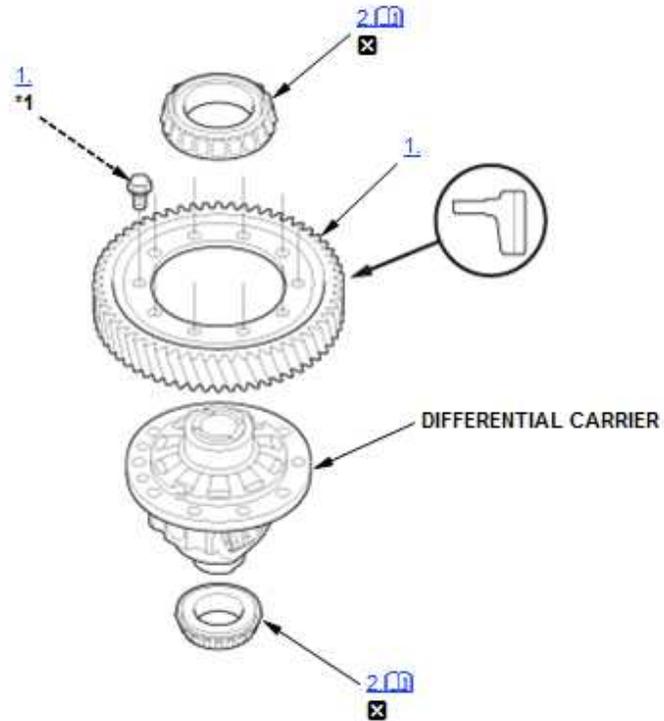
cardiagn.com

Disassembly

NOTE:

-  Where icon is shown, click for further information.
- The bearing and the bearing outer race should be replaced as a set.

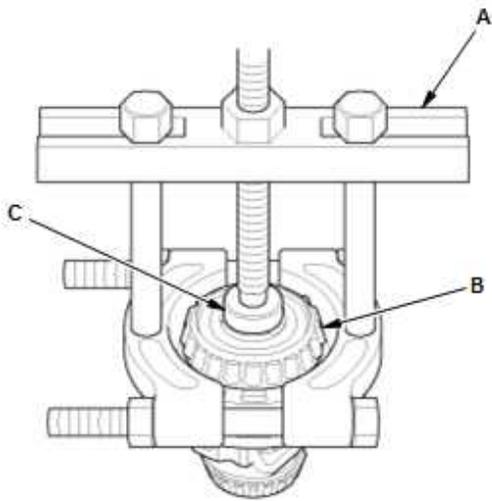
1



	Detailed information, notes and precautions
	Replace
*1	Left-hand threads

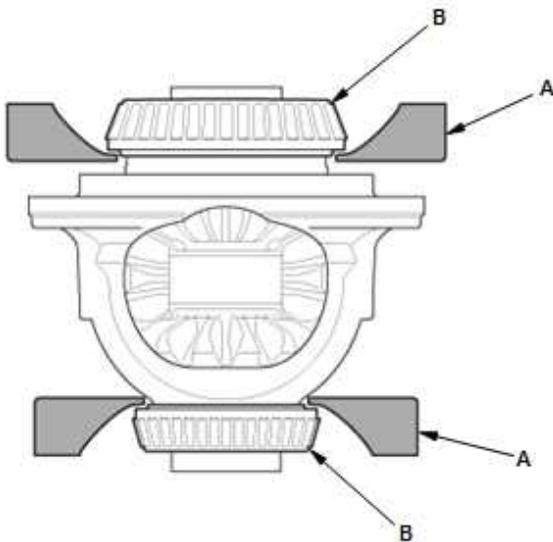
1. Final Driven Gear - Remove

2. Differential Carrier Tapered Roller Bearing - Remove



1. Set a commercially available bearing puller (A) under the differential carrier tapered roller bearings (B) as shown.
2. Remove the bearings using the commercially available bearing puller and a commercially available spacer (C).

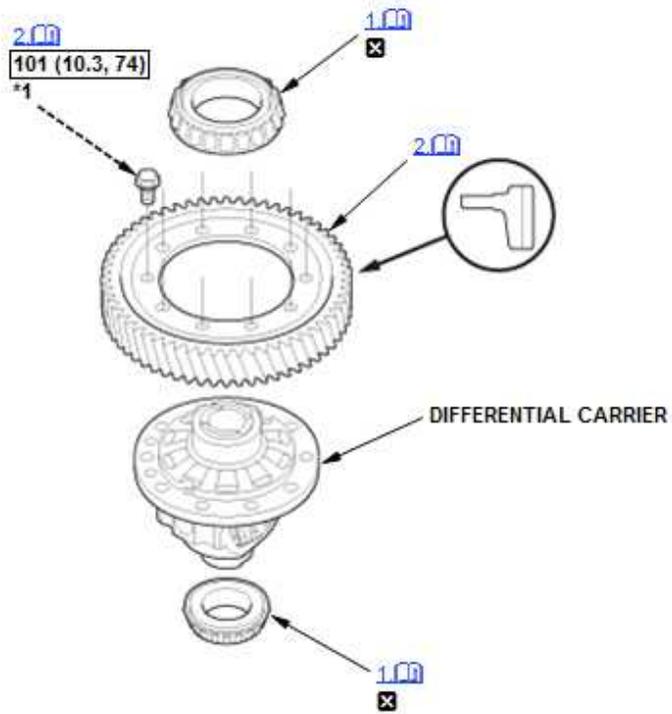
This illustration shows transmission housing side.



Reassembly

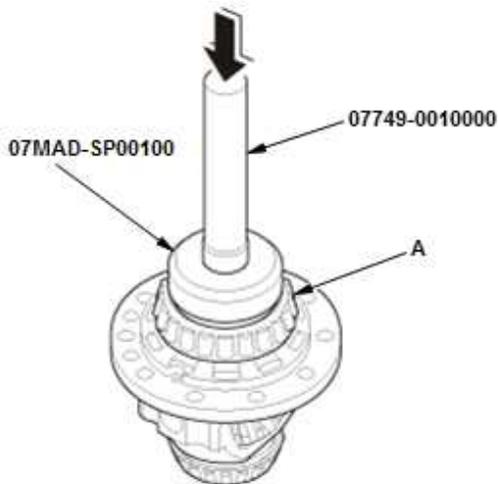
NOTE:

-  Where icon is shown, click for further information.
- The bearing and the bearing outer race should be replaced as a set.
- [Adjust the differential carrier tapered roller bearing preload](#) whenever the bearing and the bearing outer race are replaced.
- Apply a light coat of clean transmission fluid on all parts before installation.



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace
*1	Left-hand threads

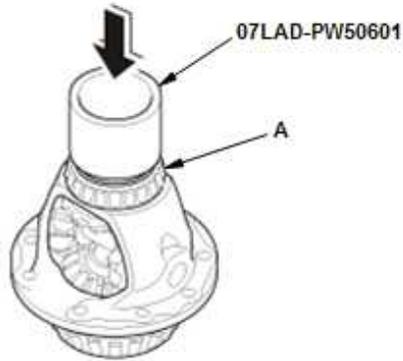
1. Differential Carrier Tapered Roller Bearing - Install



Transmission Housing Side

1. Install the differential carrier tapered roller bearing (A) until it bottoms using the 15 x 135L driver handle, the 66 mm oil seal driver attachment, and a press.

Torque Converter Housing Side



2. Install the differential carrier tapered roller bearing (A) until it bottoms using the 40 mm installer attachment and a press.

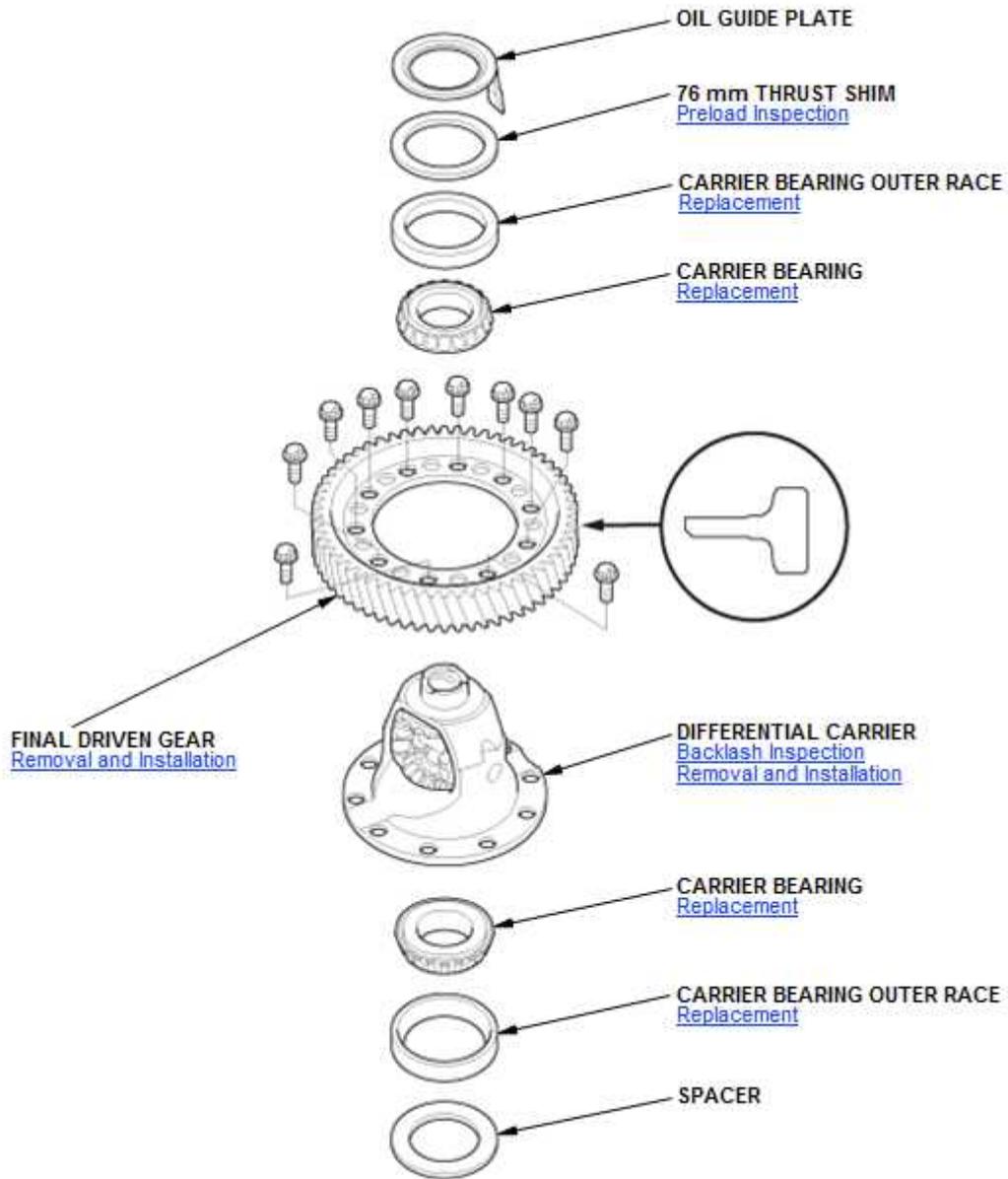
2. Final Driven Gear - Install

NOTE:

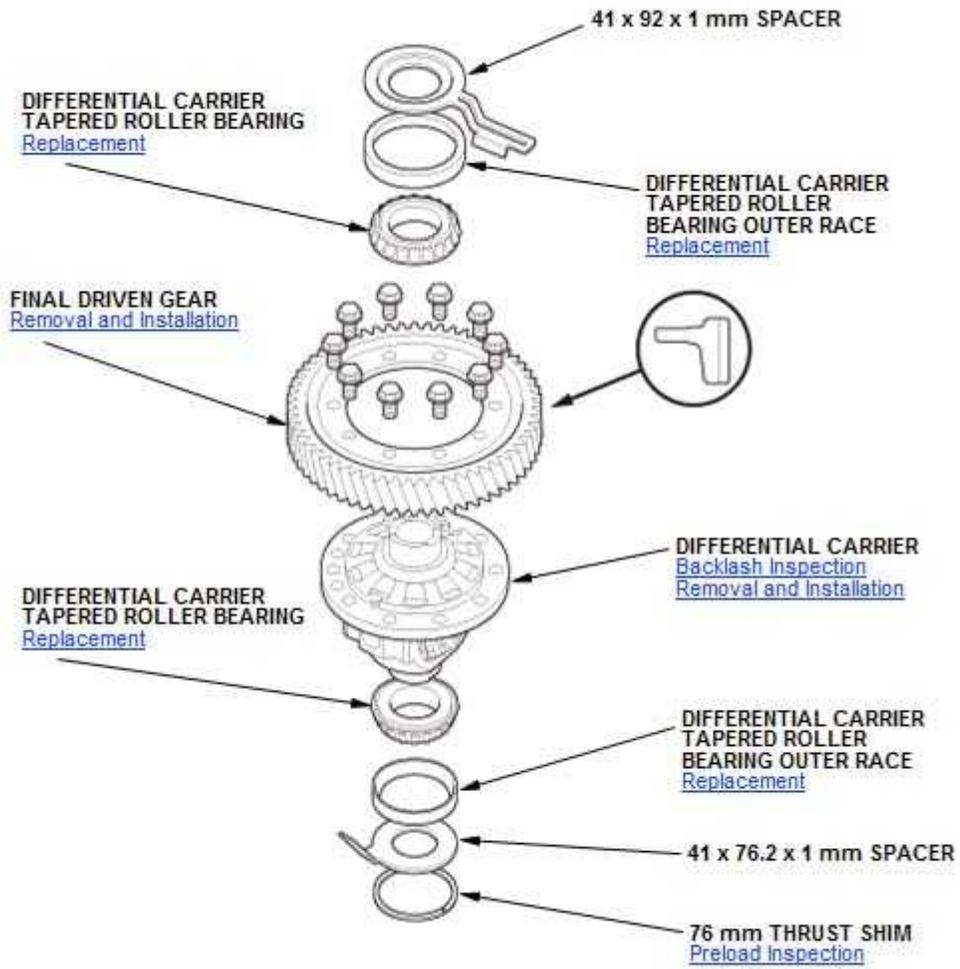
- Tighten the final driven gear bolts to the specified torque in a crisscross pattern in at least two steps.
- Make sure the final driven gear is installed in the correct direction.
- Make sure to assemble the final drive shaft and the final driven gear correctly (Combination A or B) as shown in the chart if either one of them or both are to be replaced. Correct combinations of the shaft and gear can be identified by the presence or the absence of the groove as shown in the chart.

	Final Drive Shaft	Final Driven Gear
Combination A (With Groove)		
Combination B (Without Groove)		

CVT Differential Component Location Index



CVT Differential Component Location Index



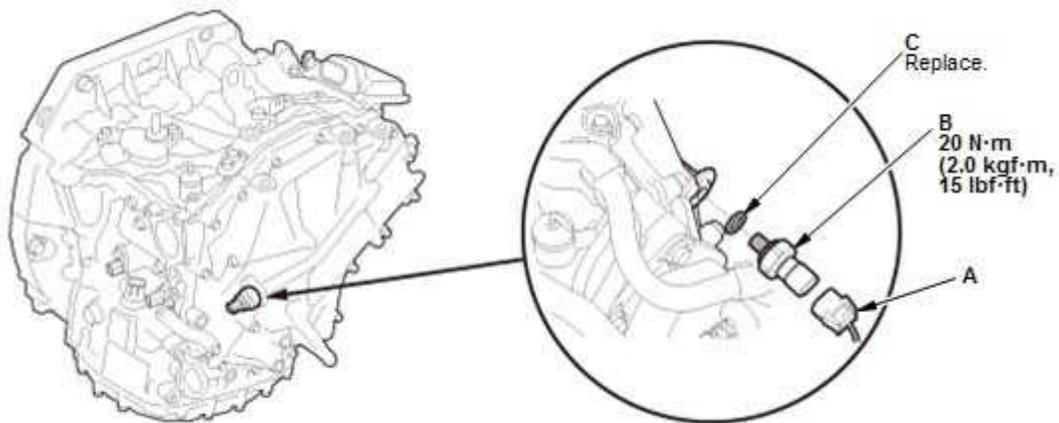
Removal/Installation

NOTE: Keep all foreign particles out of the transmission.

1. Air Cleaner - Remove

2. CVT Driven Pulley Pressure Sensor - Remove

1. Disconnect the connector (A).



2. Remove the CVT driven pulley pressure sensor (B) with the sealing washer (C).

NOTE: Be careful not to damage the plastic part.

3. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Be sure to use a new sealing washer.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

4. TCM - Reset (Only for Replacing CVT Driven Pulley Pressure Sensor)

NOTE: This procedure is not required, if the CVT driven pulley pressure sensor and the TCM are replaced simultaneously.

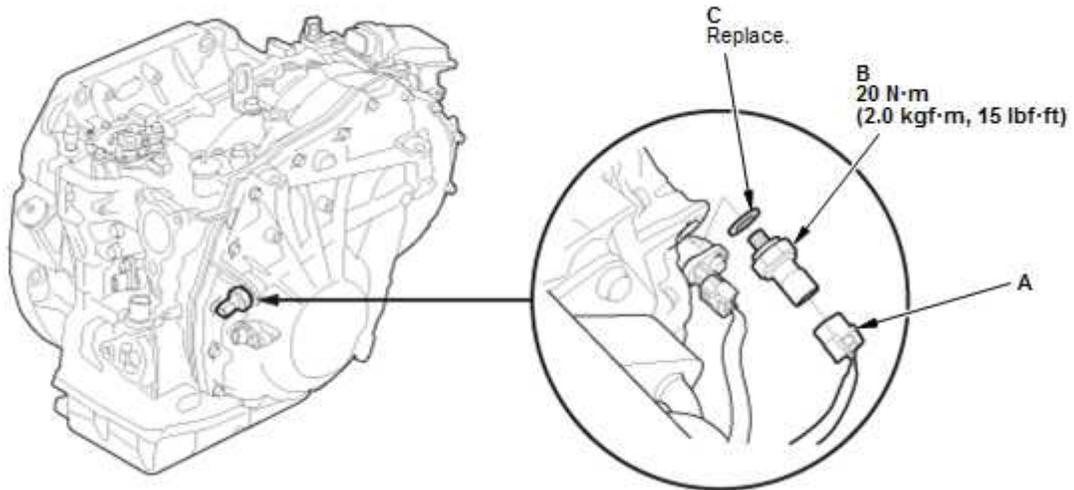
Removal/Installation

NOTE: Keep all foreign particles out of the transmission.

1. Air Cleaner - Remove

2. CVT Driven Pulley Pressure Sensor - Remove

1. Disconnect the connector (A).



2. Remove the CVT driven pulley pressure sensor (B) with the sealing washer (C).

NOTE: Be careful not to damage the plastic part.

3. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

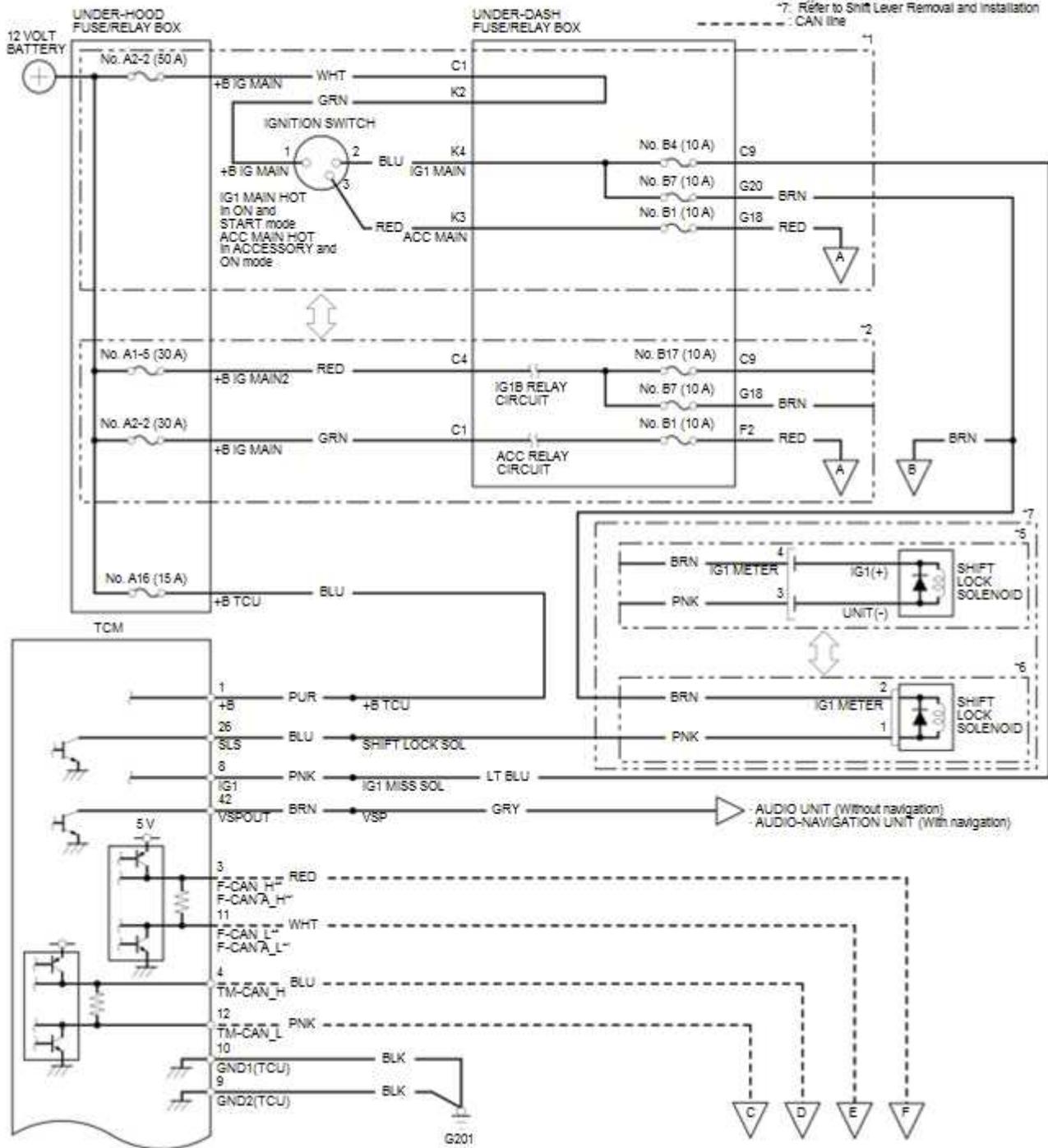
- Be sure to use a new sealing washer.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

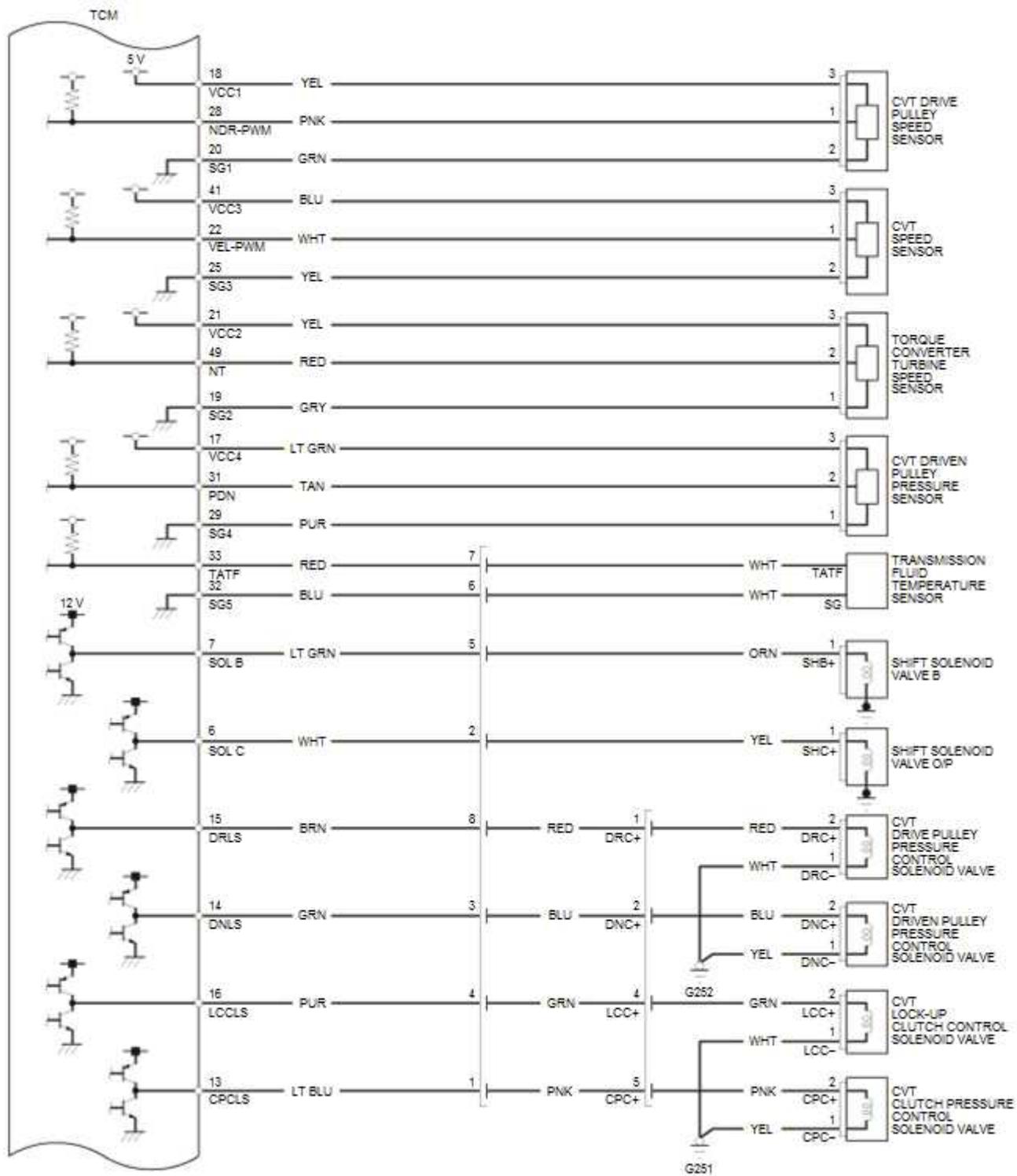
4. TCM - Reset (Only for Replacing CVT Driven Pulley Pressure Sensor)

NOTE: This procedure is not required, if the CVT driven pulley pressure sensor and the TCM are replaced simultaneously.

CVT Electronic Control System Circuit Diagram

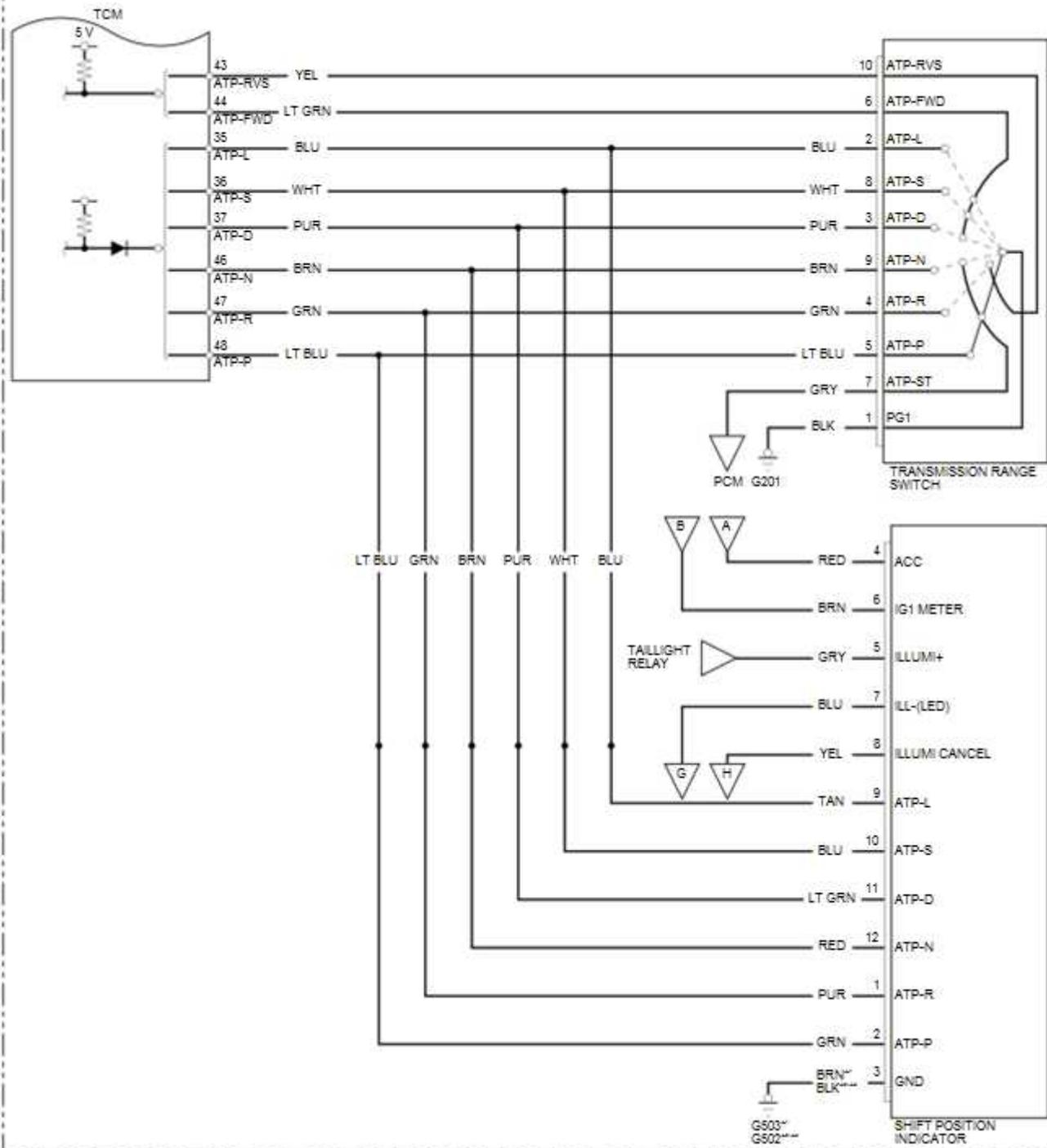
- *1: Without keyless access system
- *2: With keyless access system
- *3: Without CAN gateway
- *4: With CAN gateway
- *5: Type A shift lever
- *6: Type B shift lever
- *7: Refer to Shift Lever Removal and Installation
CAN line



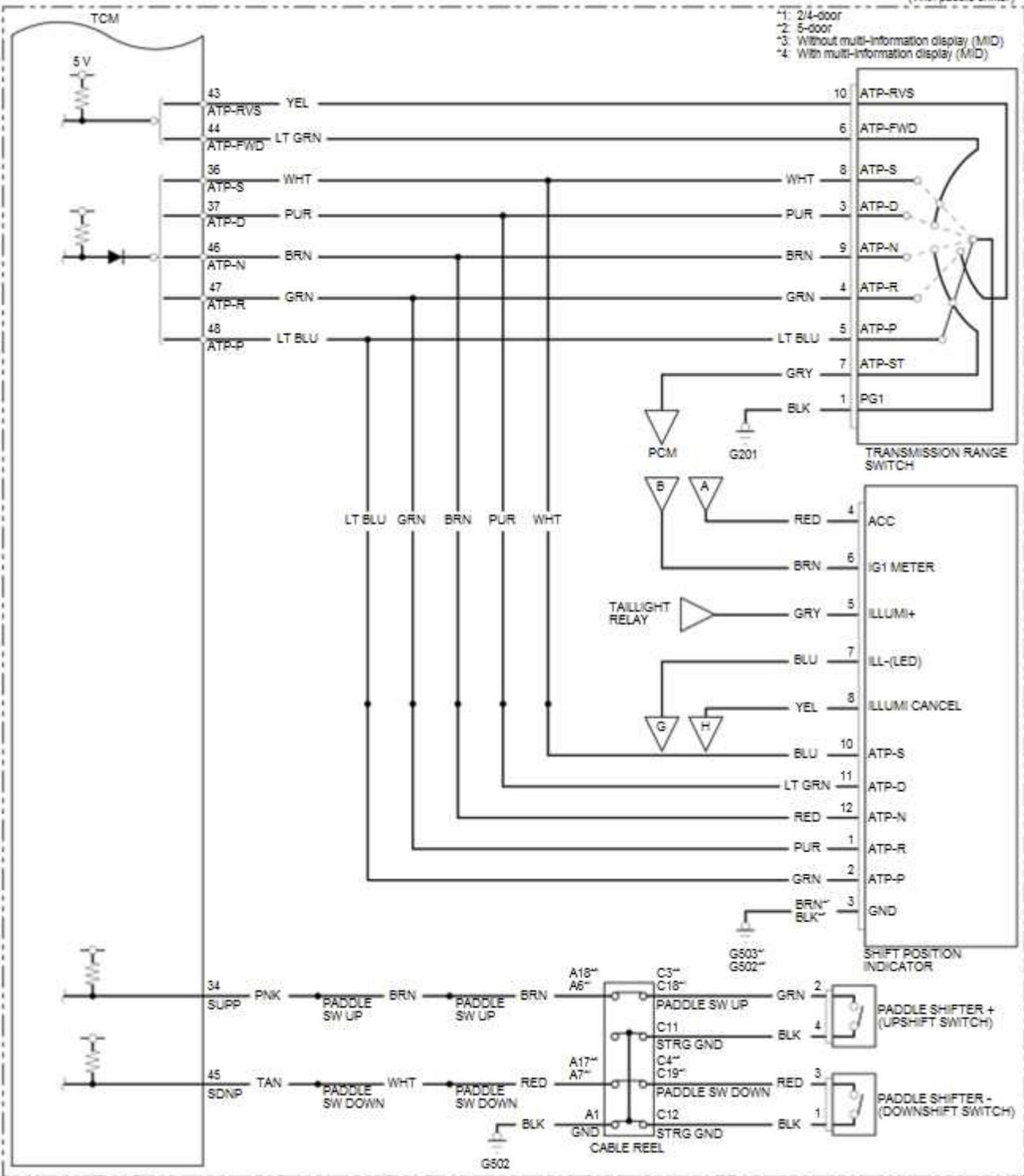


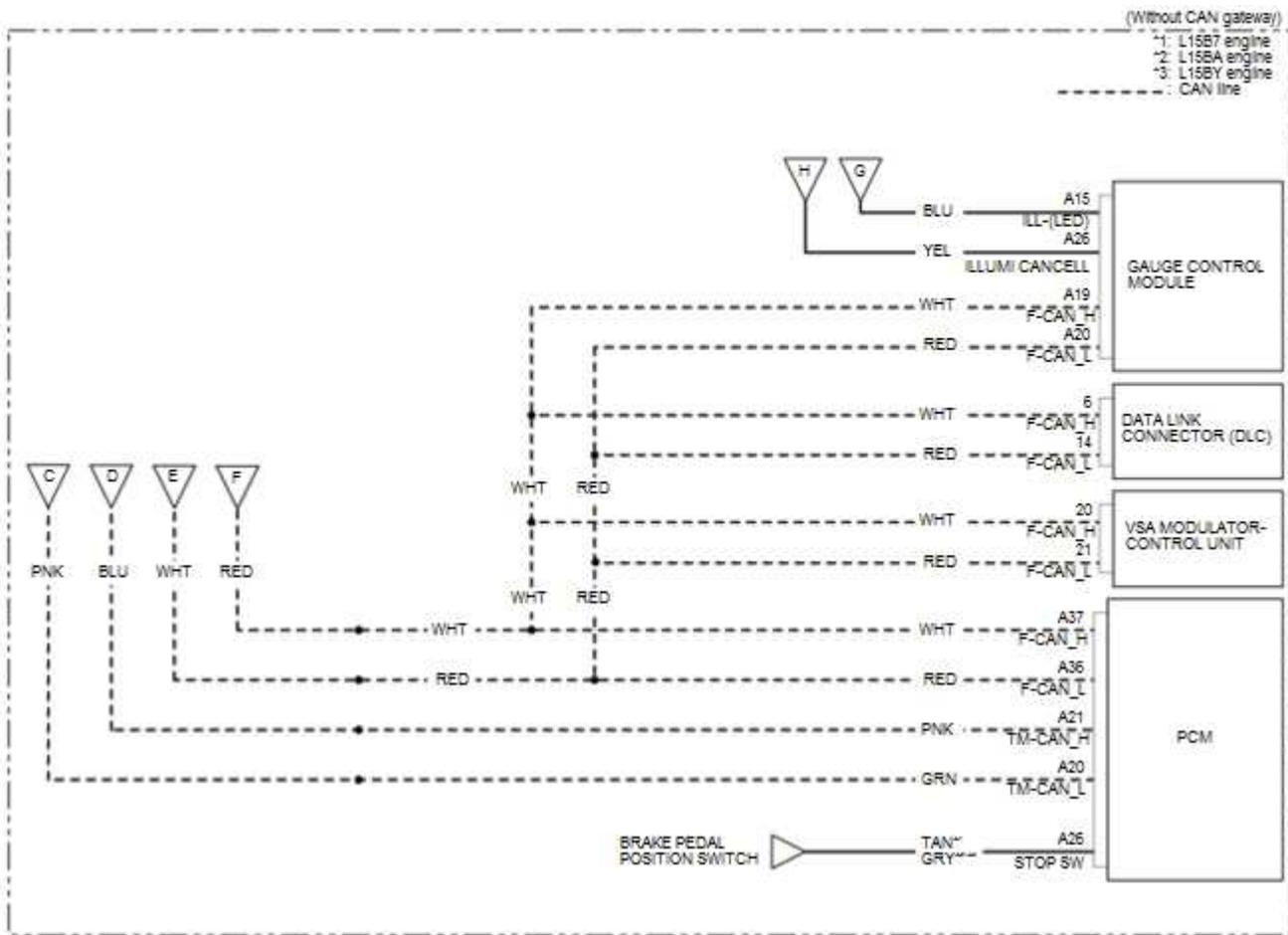
(Without paddle shifter)

- 1. L15B7 engine
- 2. L15BA engine
- 3. L15BY engine

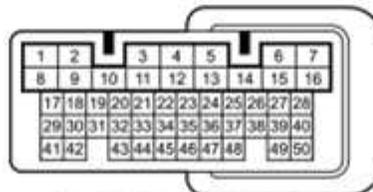


(With paddle shifter)

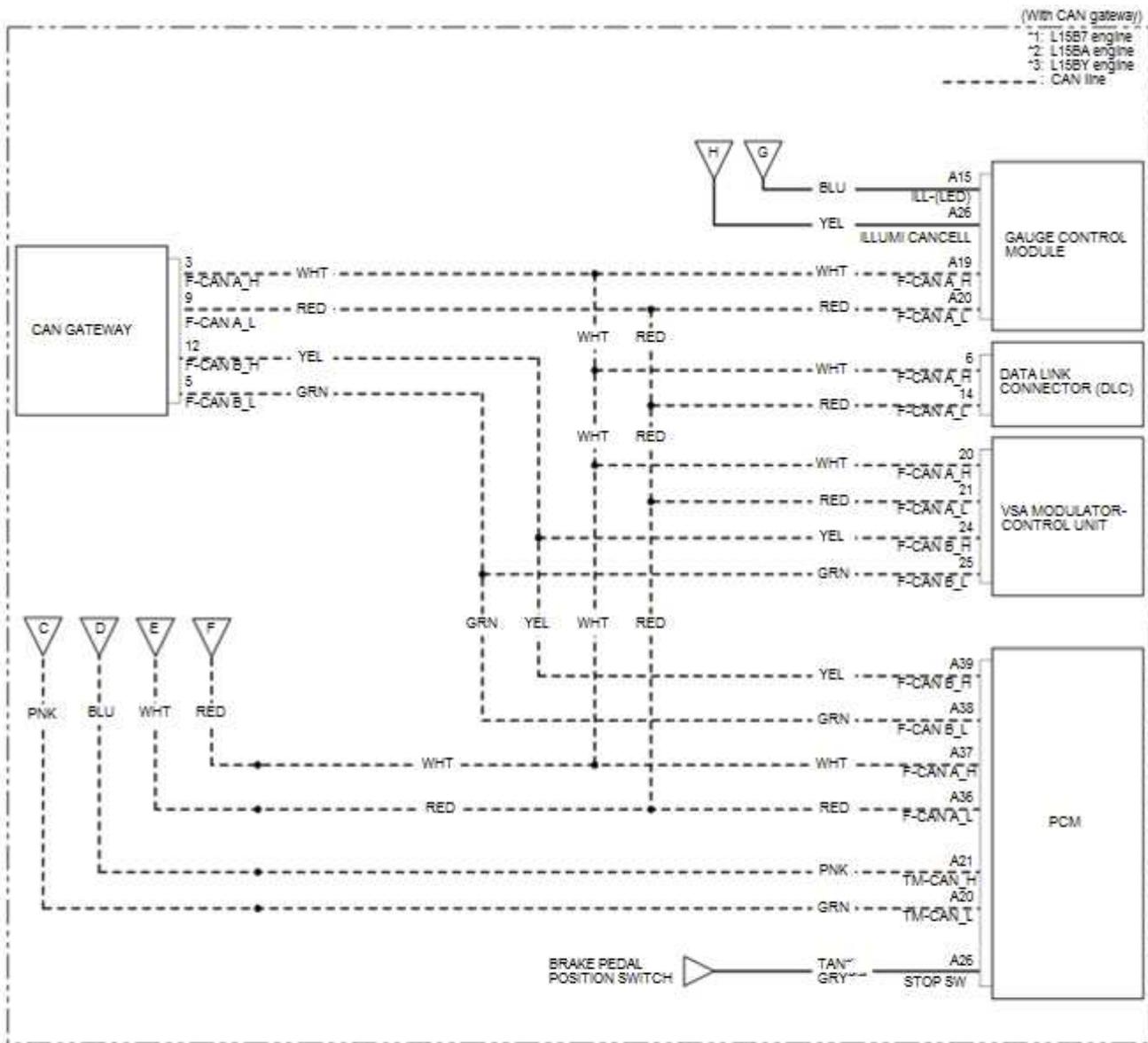




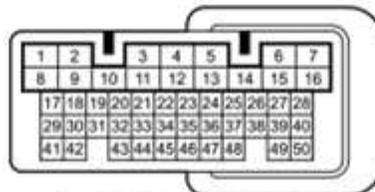
TCM 50P Connector Terminal Location



Terminal side of female terminals

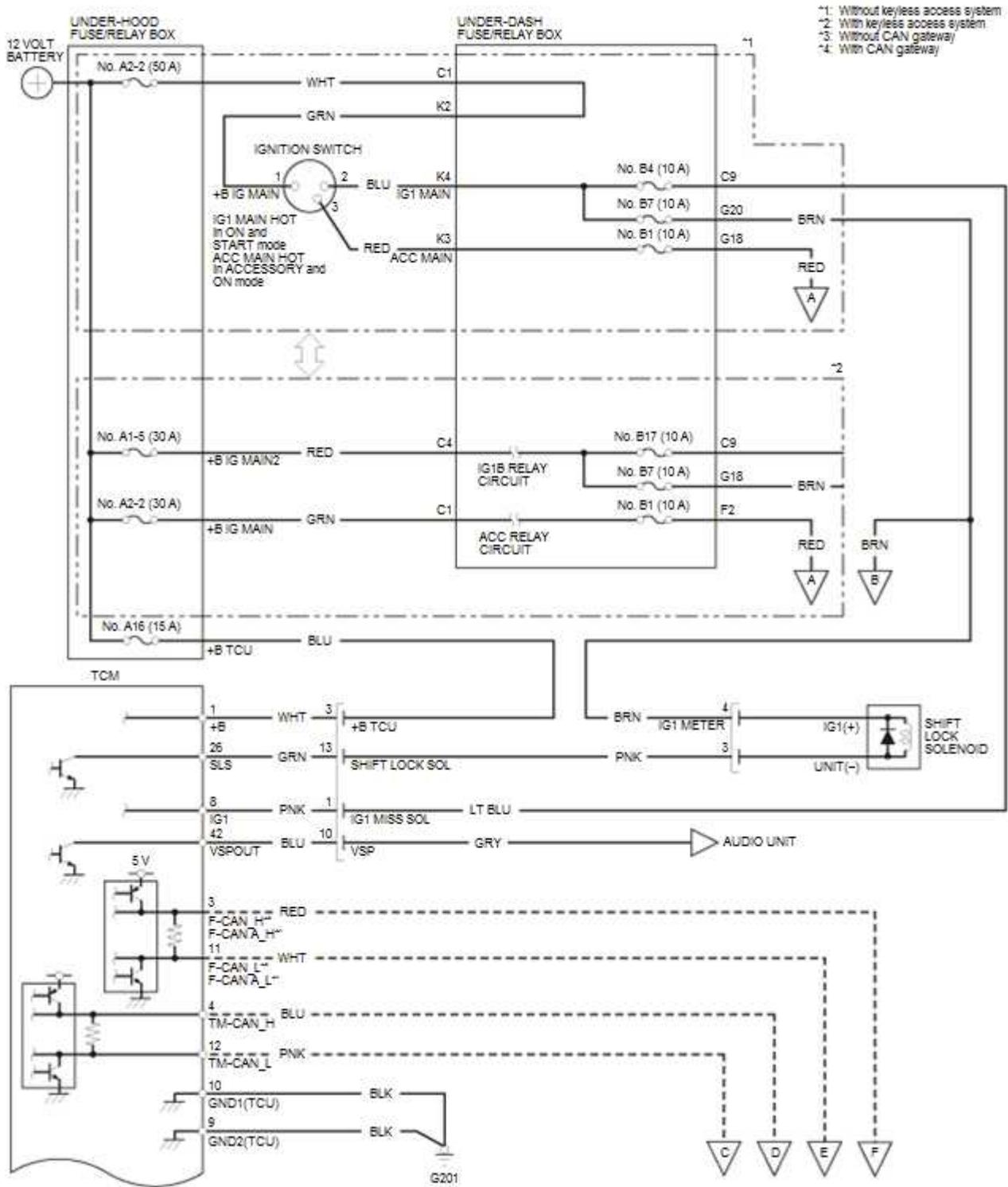


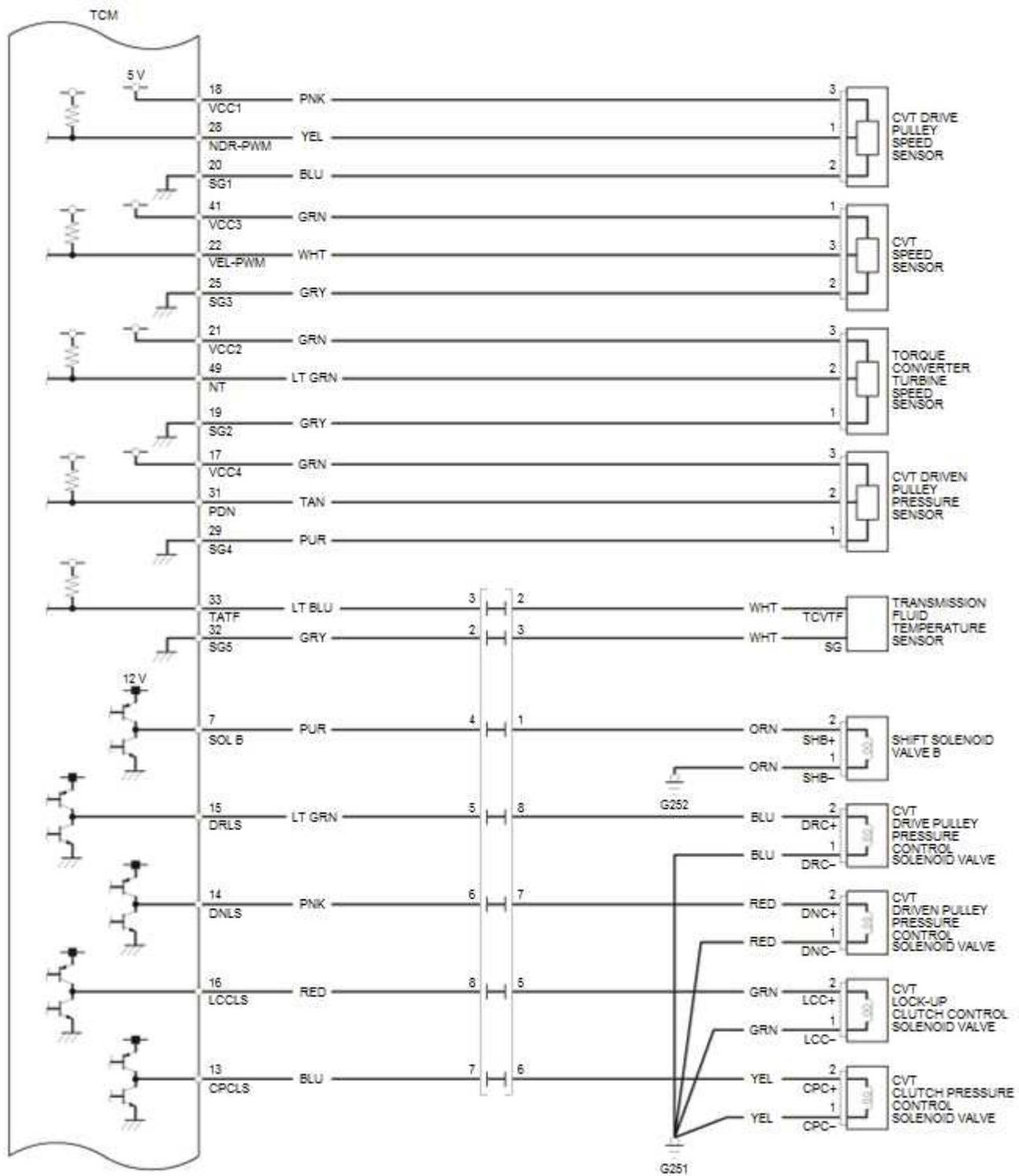
TCM 50P Connector Terminal Location



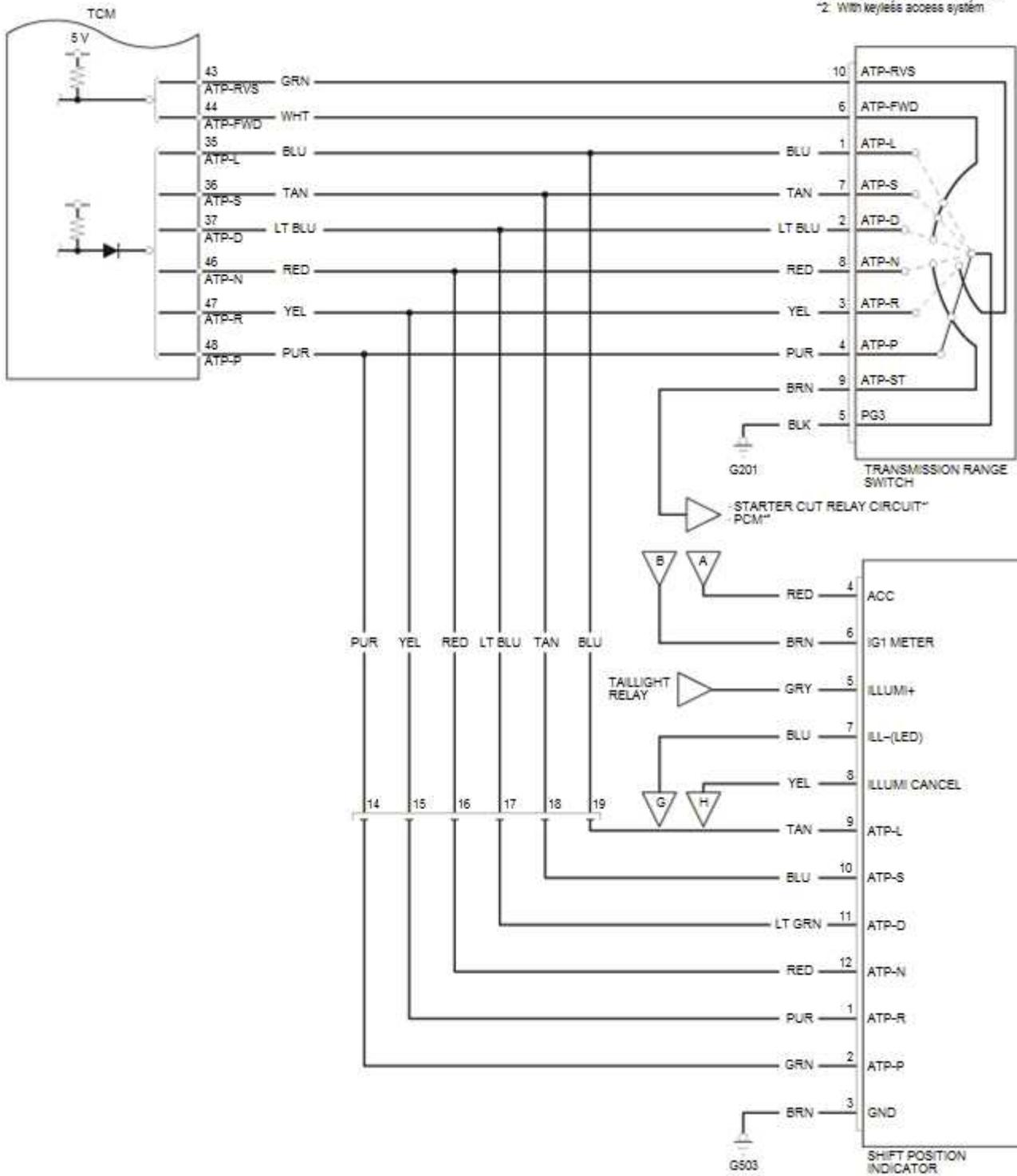
Terminal side of female terminals

CVT Electronic Control System Circuit Diagram

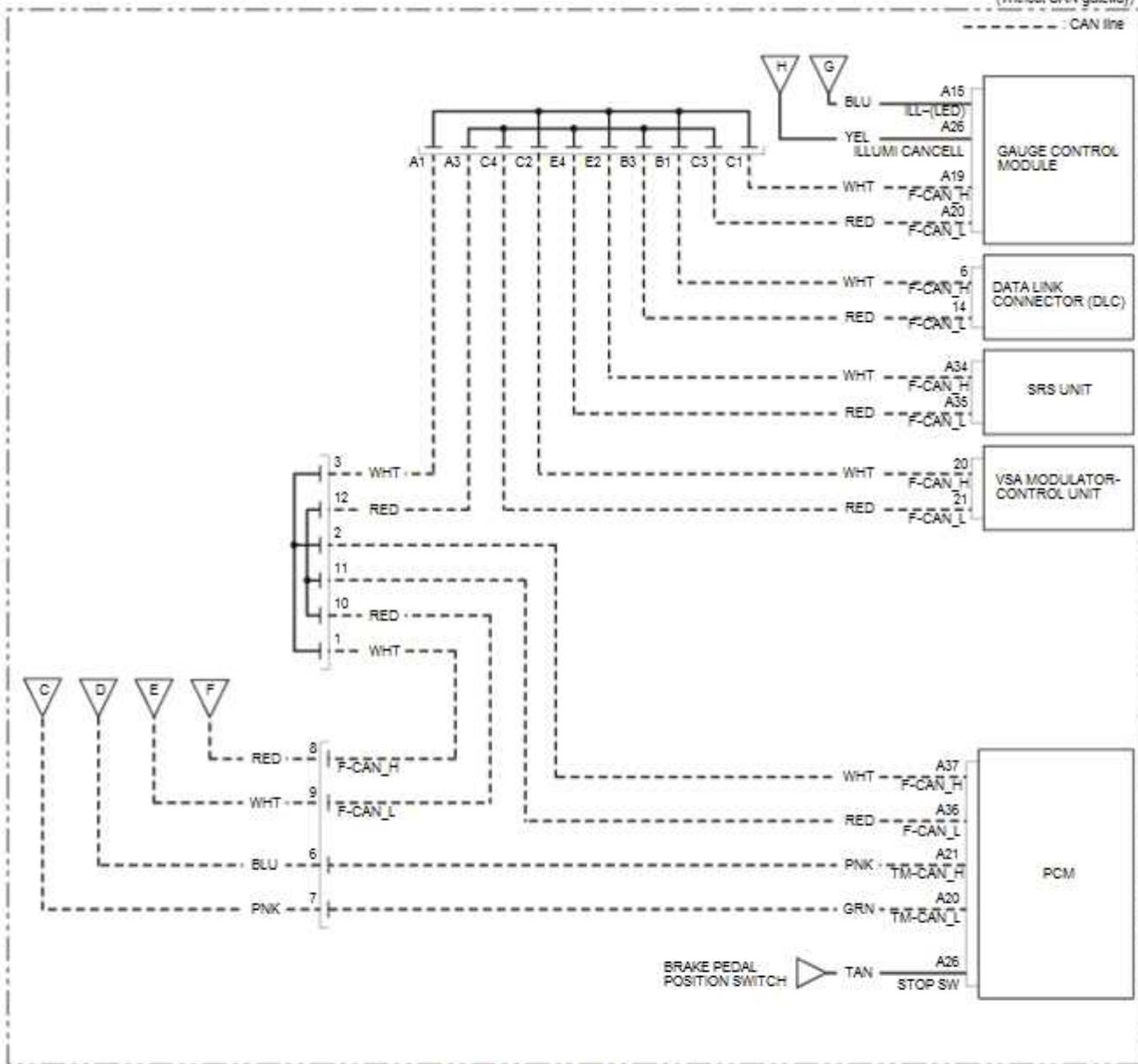




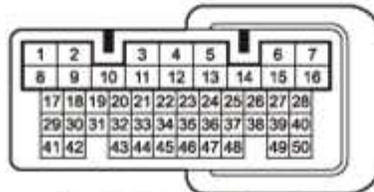
*1: Without keyless access system
 *2: With keyless access system



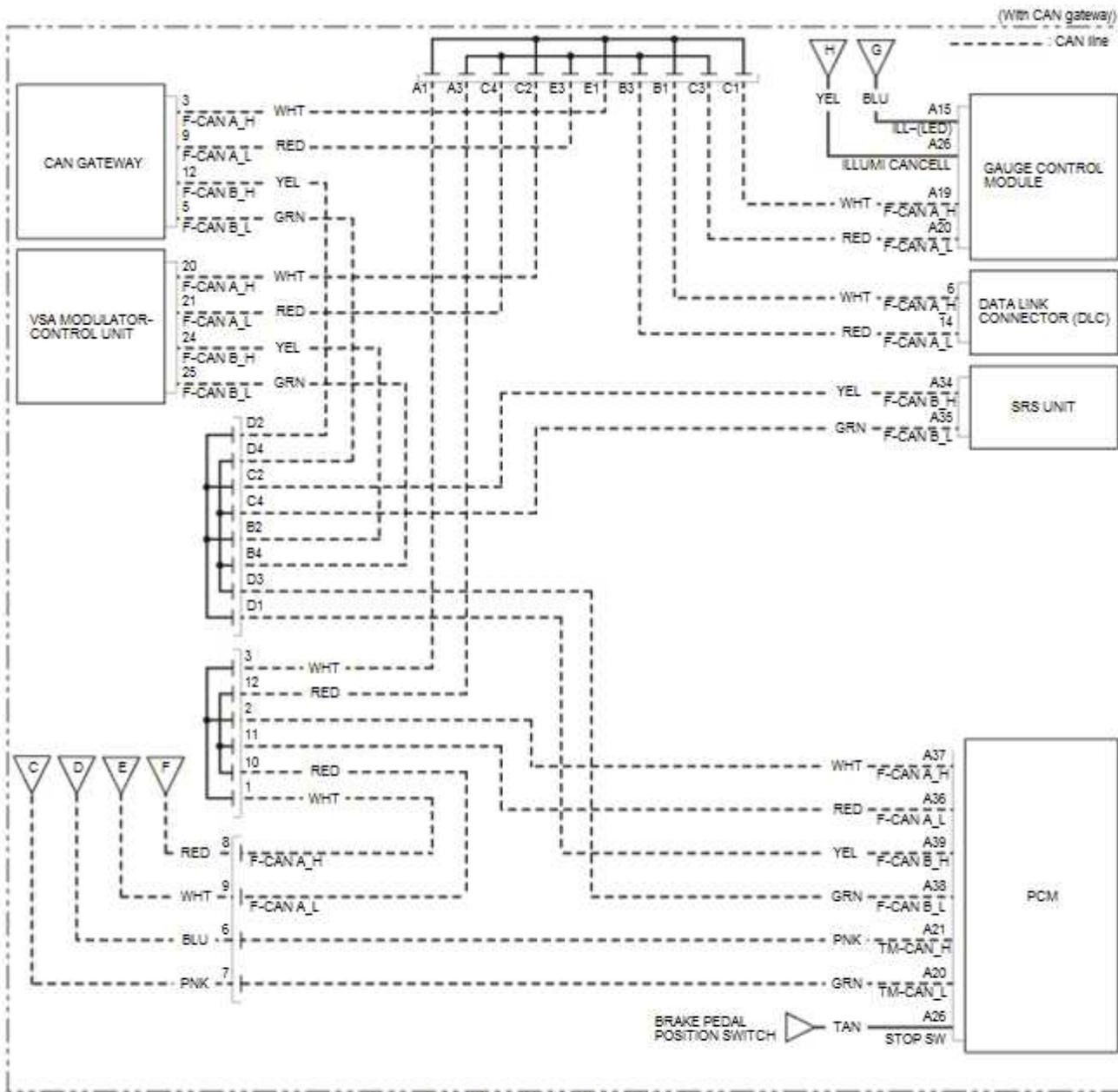
(Without CAN gateway)



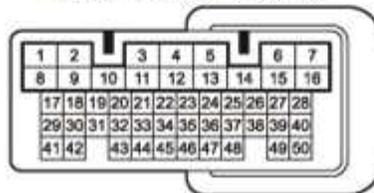
TCM Connector Terminal Location



Terminal side of female terminals



TCM Connector Terminal Location



Terminal side of female terminals

CVT Oil Seal Replacement

Special Tool Required

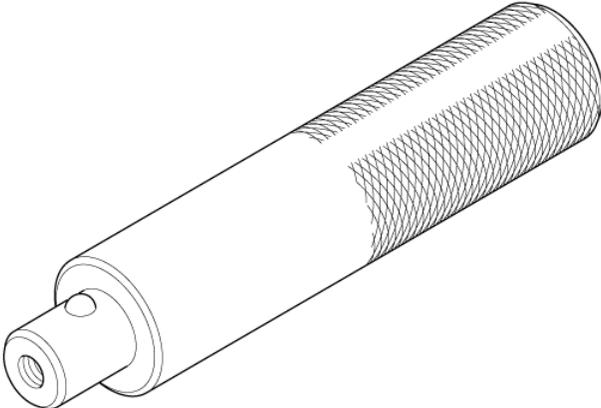
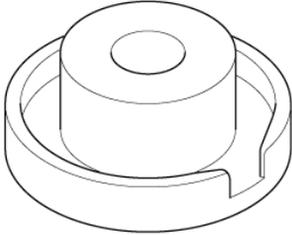
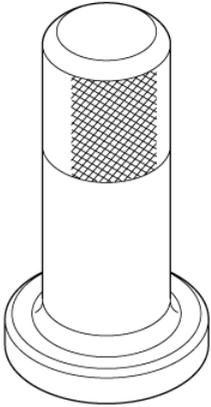
Image	Description/Tool Number
 A technical drawing of a cylindrical metal attachment. It features a central bore with a chamfered edge and a wider, slightly flared outer section at the bottom.	Attachment, 22 x 24 mm 07746-001A800
 A technical drawing of a long, cylindrical driver handle. One end has a threaded section with a hexagonal nut-like shape, and the other end is slightly tapered.	Driver Handle, 15 x 135L 07749-0010000
 A technical drawing of an oil seal driver attachment. It consists of a central cylindrical component mounted on a larger, circular base with a hook-like protrusion on one side.	Oil Seal Driver Attachment, 58 mm 07JAD-PH80101

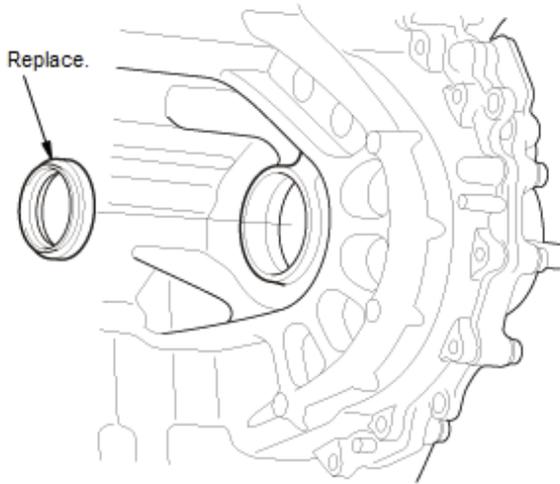
Image	Description/Tool Number
	Oil Seal Driver, 65 mm 07JAD-PL9A100

Replacement

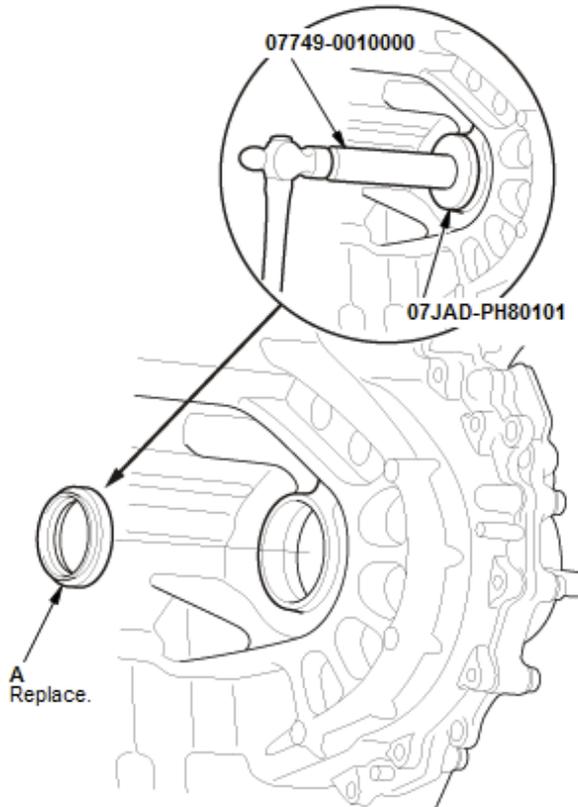
NOTE: Keep all foreign particles out of the transmission.

Left Differential Oil Seal

1. Vehicle - Lift
2. Engine Undercover - Remove
3. Transmission Fluid - Drain
4. Left Driveshaft Inboard Joint - Disconnect
5. Left Differential Oil Seal - Remove



6. Left Differential Oil Seal - Install



1. Install the left differential oil seal (A) flush with the transmission housing using the 15 x 135L driver handle and the 58 mm oil seal driver attachment.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.

7. Left Driveshaft Inboard Joint - Connect

8. Transmission Fluid - Refill

9. Engine Undercover - Install

Right Differential Oil Seal

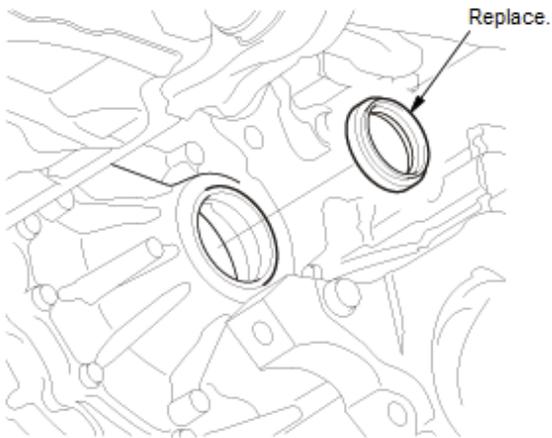
1. Vehicle - Lift

2. Engine Undercover - Remove

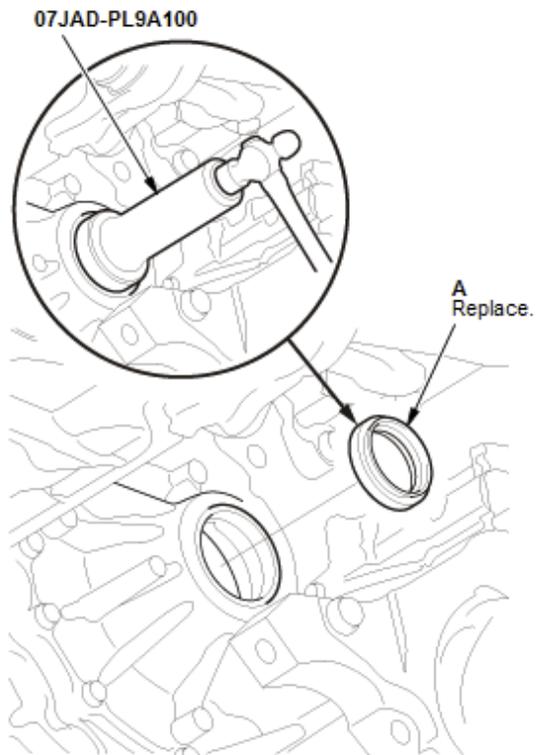
3. Transmission Fluid - Drain

4. Right Driveshaft Inboard Joint - Disconnect

5. Right Differential Oil Seal - Remove



6. Right Differential Oil Seal - Install



1. Install the right differential oil seal (A) flush with the torque converter housing using the 65 mm oil seal driver.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.

7. Right Driveshaft Inboard Joint - Connect

8. Transmission Fluid - Refill

9. Engine Undercover - Install

Control Shaft Oil Seal

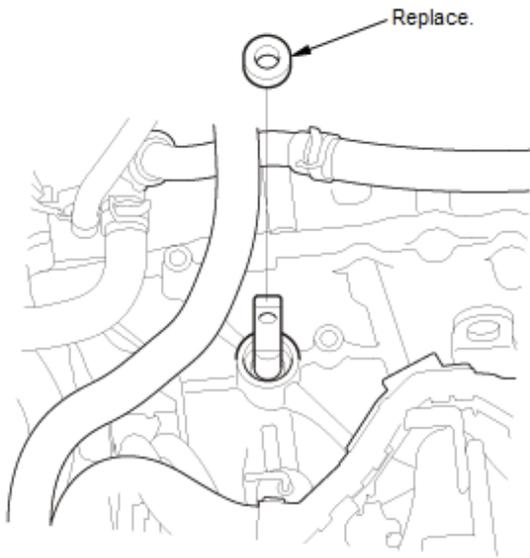
1. Air Cleaner - Remove

2. Shift Cable (Transmission Side) - Disconnect

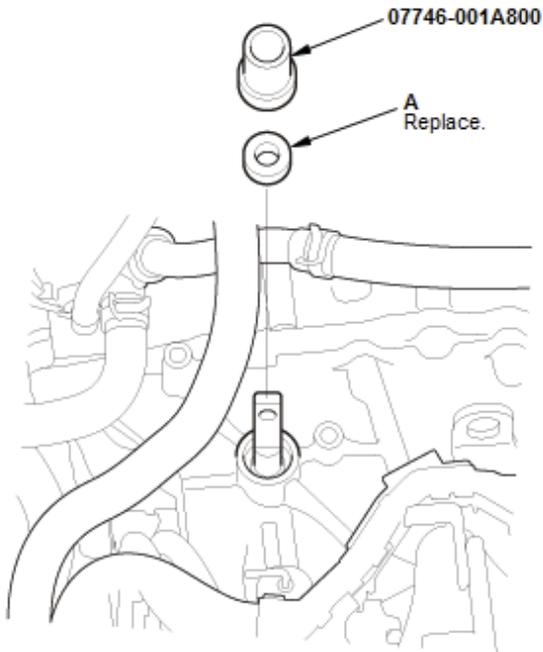
3. Control Lever - Remove

4. Transmission Range Switch - Remove

5. Control Shaft Oil Seal - Remove



6. Control Shaft Oil Seal - Install



1. Install the control shaft oil seal (A) flush with the transmission housing using the 22 x 24 mm attachment.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.

7. Transmission Range Switch - Install

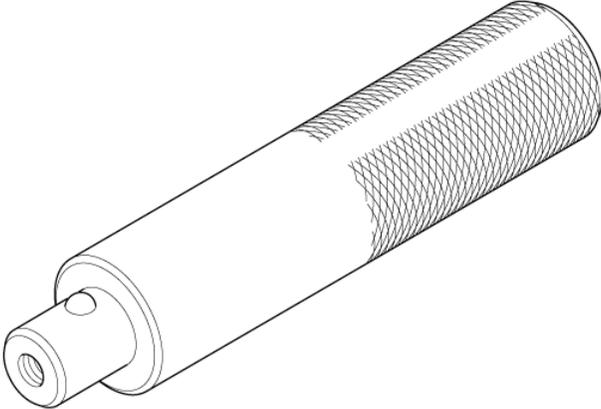
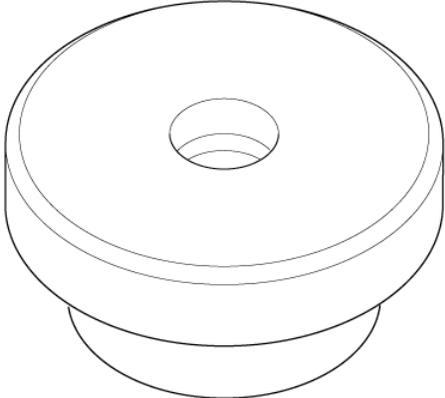
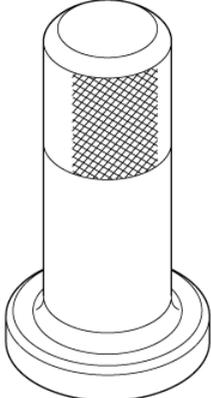
8. Control Lever - Install

9. Shift Cable (Transmission Side) - Connect

10. Air Cleaner - Install

CVT Oil Seal Replacement

Special Tool Required

Image	Description/Tool Number
	Driver Handle, 15 x 135L 07749-0010000
	Oil Seal Driver Attachment 07GAD-PG40100
	Oil Seal Driver, 65 mm 07JAD-PL9A100

cardiagn.com

Replacement

NOTE: Keep all foreign particles out of the transmission.

Left Differential Oil Seal

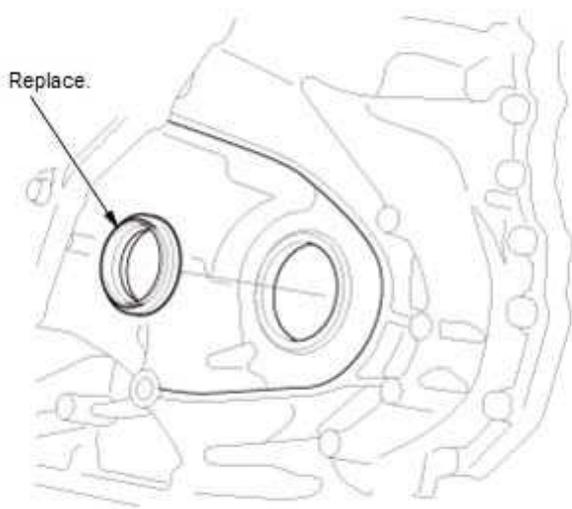
1. Vehicle - Lift

2. Engine Undercover - Remove

3. Transmission Fluid - Drain

4. Left Driveshaft Inboard Joint - Disconnect

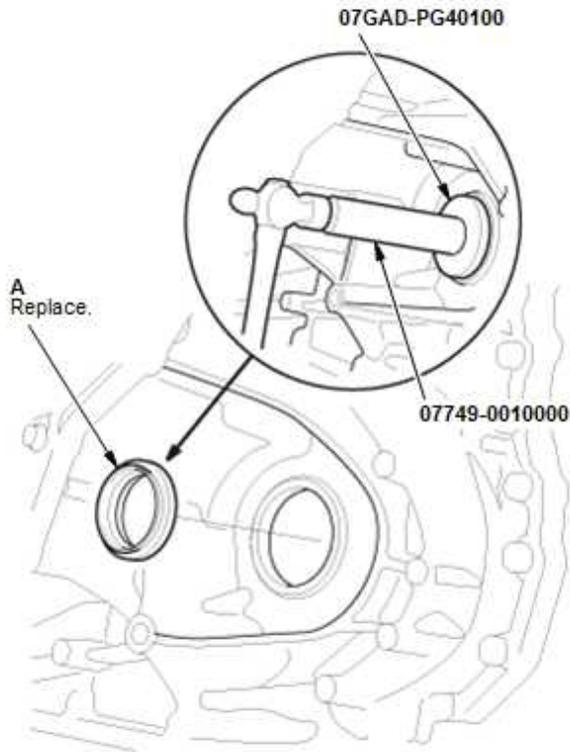
5. Left Differential Oil Seal - Remove



6. Left Differential Oil Seal - Install

1. Install the left differential oil seal (A) flush with the transmission housing using the 15 x 135L driver handle and the oil seal driver attachment.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.



7. Left Driveshaft Inboard Joint - Connect

8. Transmission Fluid - Refill

9. Transmission Fluid Level - Check

10. Engine Undercover - Install

Right Differential Oil Seal

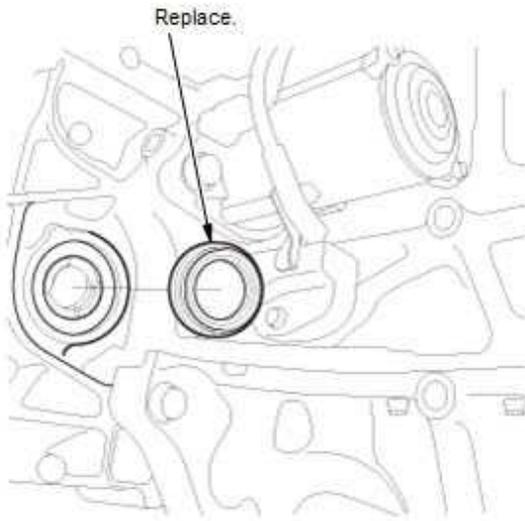
1. Vehicle - Lift

2. Engine Undercover - Remove

3. Transmission Fluid - Drain

4. Intermediate Shaft - Remove

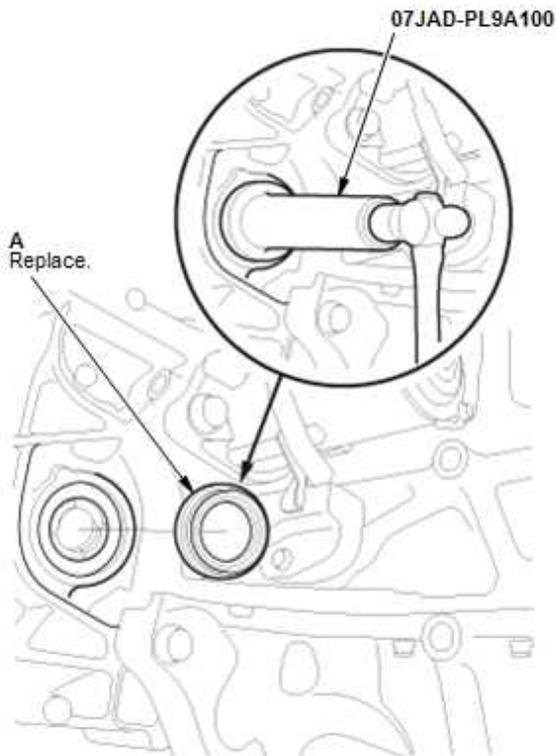
5. Right Differential Oil Seal - Remove



6. Right Differential Oil Seal - Install

1. Install the right differential oil seal (A) flush with the torque converter housing using the 65 mm oil seal driver.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.



7. Intermediate Shaft - Install

8. Transmission Fluid - Refill

9. Transmission Fluid Level - Check

10. Engine Undercover - Install

CVT Pressure Test

Special Tool Required

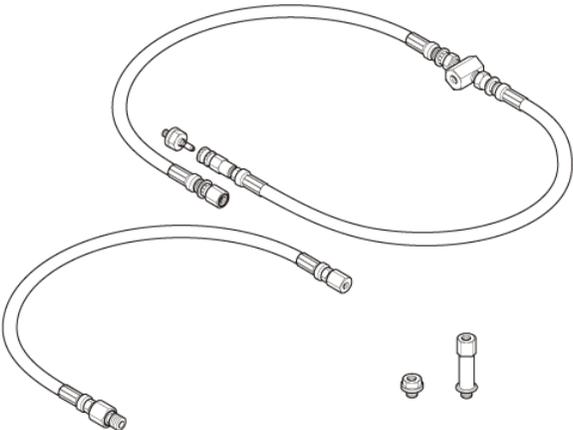
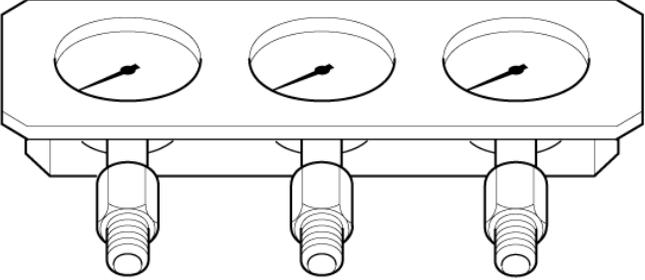
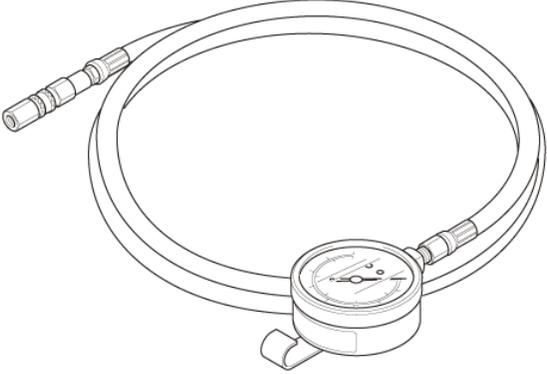
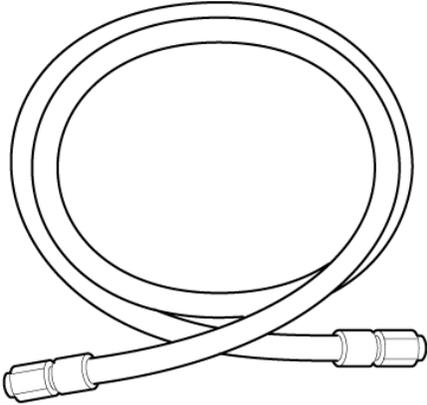
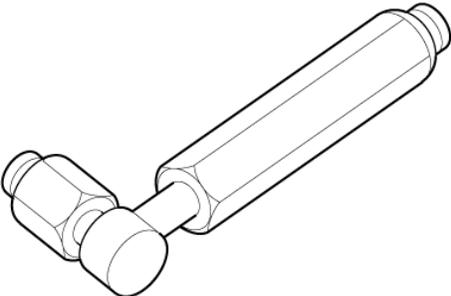
Image	Description/Tool Number
 A technical drawing of a pressure gauge adapter. It consists of a long, flexible hose with a multi-pin connector at one end and a single-pin connector at the other. Two smaller components, a nut and a pin, are shown separately below the main assembly.	Pressure Gauge Adapter 070AJ-RT4A101
 A technical drawing of an A/T Oil Pressure Gauge Set. It features a rectangular base with three circular gauge faces, each with a needle. Below the gauges are three threaded ports for connection.	A/T Oil Pressure Gauge Set 07406-0020400 or 07406-0020401
 A technical drawing of an A/T High Pressure Gauge. It shows a circular gauge with a needle, mounted on a base. A long, flexible hose is attached to the top of the gauge, ending in a multi-pin connector.	A/T High Pressure Gauge 07AAJ-PLYA100

Image	Description/Tool Number
	A/T Pressure Hose, 2,210 mm 07MAJ-PY4011A
	A/T Pressure Adapter 07MAJ-PY40120

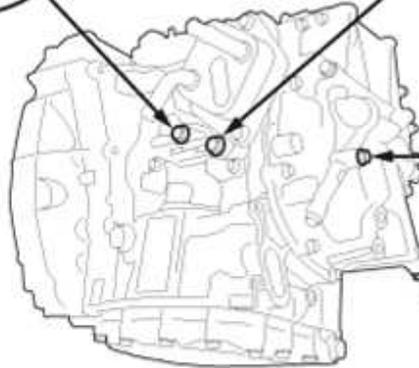
Exploded View

1. Pressure Inspection Port - Exploded View

Pressure Inspection Port - Exploded View

FORWARD CLUTCH PRESSURE
INSPECTION PORT

REVERSE BRAKE PRESSURE
INSPECTION PORT



DRIVEN PULLEY PRESSURE
INSPECTION PORT



DRIVE PULLEY PRESSURE
INSPECTION PORT

Test

NOTE:

- Check for DTCs. If any DTCs are stored, troubleshoot and clear them first.
- Do not allow dust or other foreign particles to enter the port while installing the A/T oil pressure gauge.
- Be sure to check the transmission fluid level after each pressure test. When installing or removing the A/T oil pressure gauge, transmission fluid may run out of the inspection ports.
- Do not test pressure for more than 10 seconds at a time.
- Do not move the shift lever while raising the engine speed.
- Disable the VSA by pressing the VSA OFF button.
- VSA DTC(s) may come on during the test-drive. If the VSA DTC(s) come on, clear the DTC(s) after testing is done with the HDS.

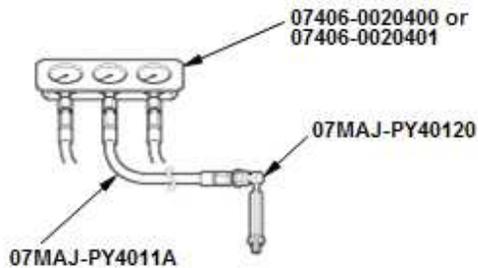
1. Vehicle - Lift

2. Engine Undercover - Remove

3. Engine Undercover Lid - Remove

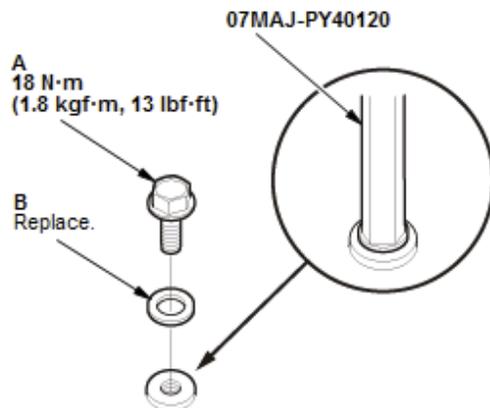
4. Transmission Fluid Level - Check

5. Forward Clutch Pressure - Test



1. Assemble the pressure gauge; install the 2,210 mm A/T pressure hose and the A/T pressure adapter to the A/T oil pressure gauge set.

2. Remove the sealing bolt (A) with the sealing washer (B).



3. Install the pressure gauge to the forward clutch pressure inspection port.
4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
5. Shift the transmission to D position/mode.
6. Measure the forward clutch pressure at the engine idling while firmly pressing the brake pedal.

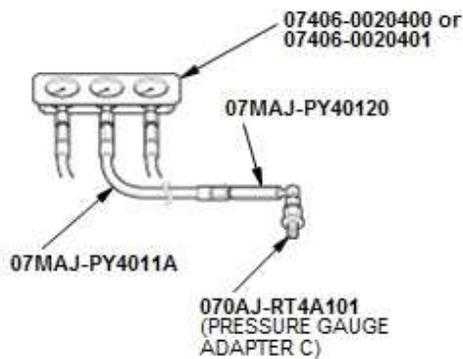
Pressure	Standard
Forward clutch	390—880 kPa (3.98—8.97 kgf/cm ² , 56.6—127.6 psi)

- Turn the engine off.
- If the forward clutch pressure is out of the standard, refer to the problem and probable causes listed in the table.

Problem	Probable causes
No or low forward clutch pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● Valve body assembly defective ● CVT clutch pressure control solenoid valve defective ● Forward clutch defective

- Remove the pressure gauge.
- Install the sealing bolt with a new sealing washer to the forward clutch pressure inspection port.

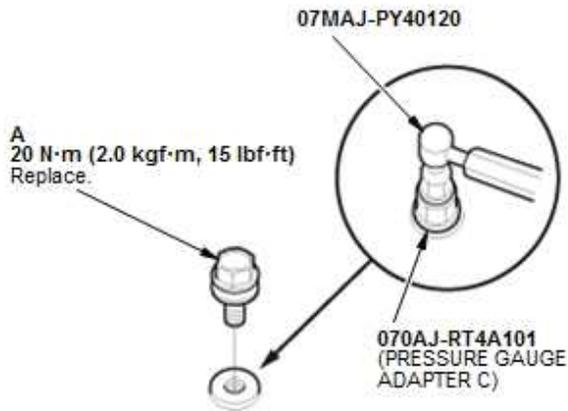
6. Reverse Brake Pressure - Test



- Assemble the pressure gauge; install the 2,210 mm A/T pressure hose, the A/T pressure adapter, and pressure gauge adapter C to the A/T oil pressure gauge set.

NOTE: Pressure gauge adapter C is a component of the pressure gauge adapter (070AJ-RT4A101).

- Remove the sealing bolt (A).



3. Install the pressure gauge to the reverse brake pressure inspection port.
4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
5. Shift the transmission to R position/mode.
6. Measure the reverse brake pressure at engine idling while firmly pressing the brake pedal.

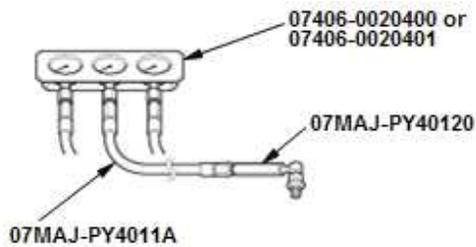
Pressure	Standard
Reverse brake	390—880 kPa (3.98—8.97 kgf/cm ² , 56.6—127.6 psi)

7. Turn the engine off.
8. If the reverse brake pressure is out of the standard, refer to the problem and probable causes listed in the table.

Problem	Probable causes
No or low reverse brake pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● Valve body assembly defective ● CVT clutch pressure control solenoid valve defective ● Reverse brake defective

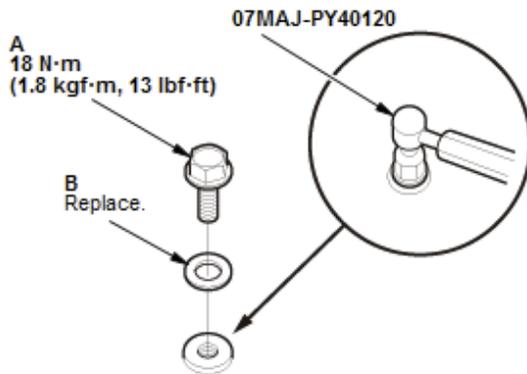
9. Remove the pressure gauge.
10. Install a new sealing bolt to the reverse brake pressure inspection port.

7. Drive Pulley Pressure - Test



1. Assemble the pressure gauge; install the 2,210 mm A/T pressure hose and the A/T pressure adapter to the A/T oil pressure gauge set.

2. Remove the sealing bolt (A) with the sealing washer (B).



3. Install the pressure gauge to the drive pulley pressure inspection port.
4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
5. Shift the transmission to N position/mode.
6. Measure the drive pulley pressure at engine idling while firmly pressing the brake pedal.

Pressure	Standard
Drive pulley	590–1,140 kPa (6.02–11.62 kgf/cm ² , 85.6–165.3 psi)

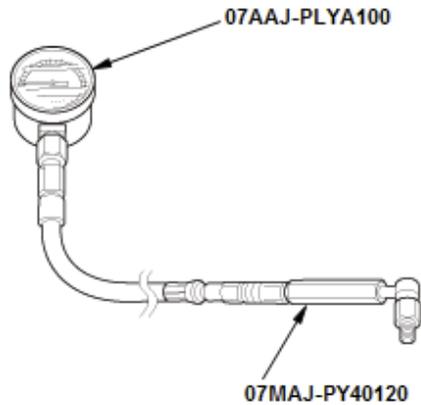
7. Turn the engine off.
8. If the drive pulley pressure is out of the standard, refer to the problems and probable causes listed in the table.

Problems	Probable causes
No or low drive pulley pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● Valve body assembly defective ● CVT drive pulley pressure control solenoid valve defective
Drive pulley pressure too high	<ul style="list-style-type: none"> ● Valve body assembly defective ● CVT drive pulley pressure control solenoid valve defective

9. Remove the pressure gauge.

10. Install the sealing bolt with a new sealing washer to the drive pulley pressure inspection port.

8. Driven Pulley Pressure - Test

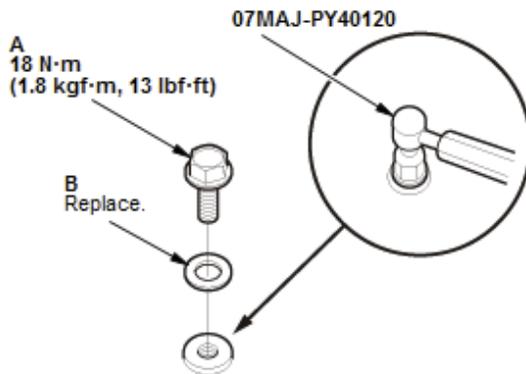


NOTE:

- Driven pulley pressure may be above 3,308 kPa (33.73 kgf/cm², 479.8 psi) when there is a transmission problem that causes the TCM to go into fail-safe mode.
- When troubleshooting, you must use the A/T high pressure gauge to measure driven pulley pressure.

1. Assemble the pressure gauge; install the A/T pressure adapter to the A/T high pressure gauge.

2. Remove the sealing bolt (A) with the sealing washer (B).



3. Install the pressure gauge to the driven pulley pressure inspection port.

4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).

5. Shift the transmission to N position/mode.

6. Measure the driven pulley pressure at engine idling while firmly pressing the brake pedal.

Pressure	Standard
Driven pulley	850–1,400 kPa (8.67– 14.28 kgf/cm ² , 123.3–203.1 psi)

7. Turn the engine off.

8. If the driven pulley pressure is out of the standard, refer to the problems and probable causes listed in the table.

Problems	Probable causes
No or low driven pulley pressure	<ul style="list-style-type: none">● Transmission fluid pump defective● Valve body assembly defective● CVT driven pulley pressure control solenoid valve defective
Driven pulley pressure too high	<ul style="list-style-type: none">● Valve body assembly defective● CVT driven pulley pressure control solenoid valve defective

9. Remove the pressure gauge.

10. Install the sealing bolt with a new sealing washer to the driven pulley pressure inspection port.

9. Transmission Fluid Level - Check

10. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

CVT Pressure Test

Special Tool Required

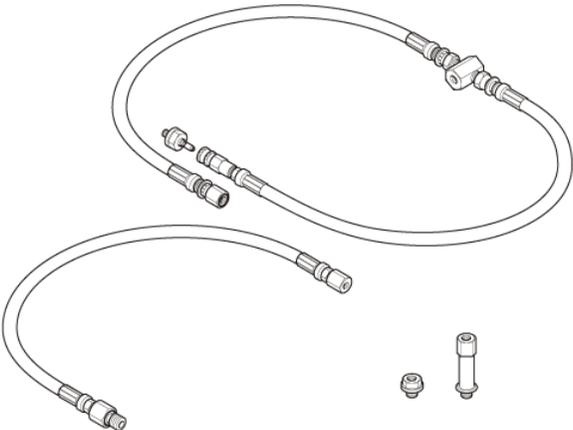
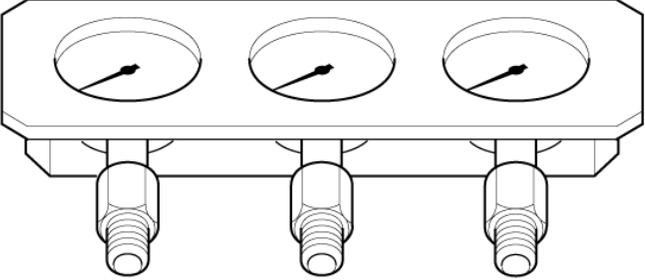
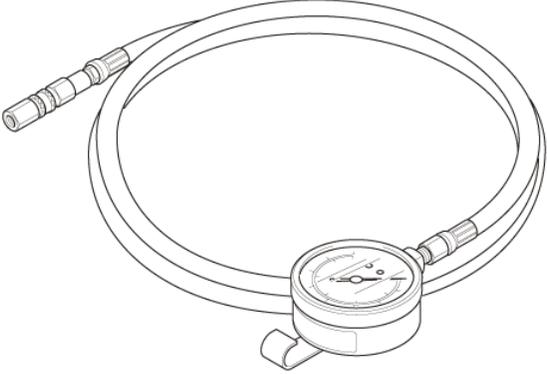
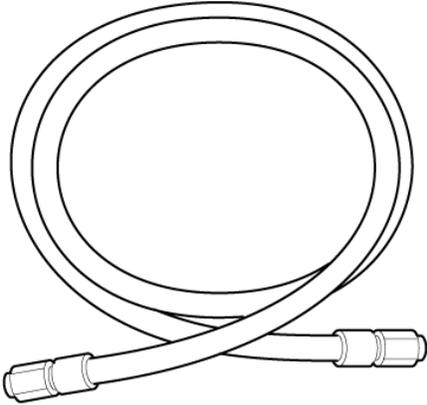
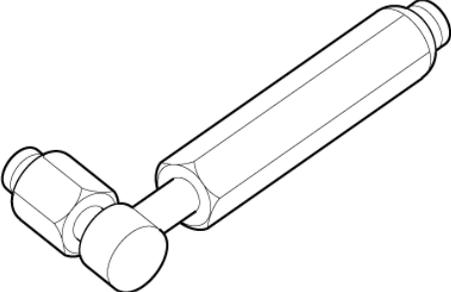
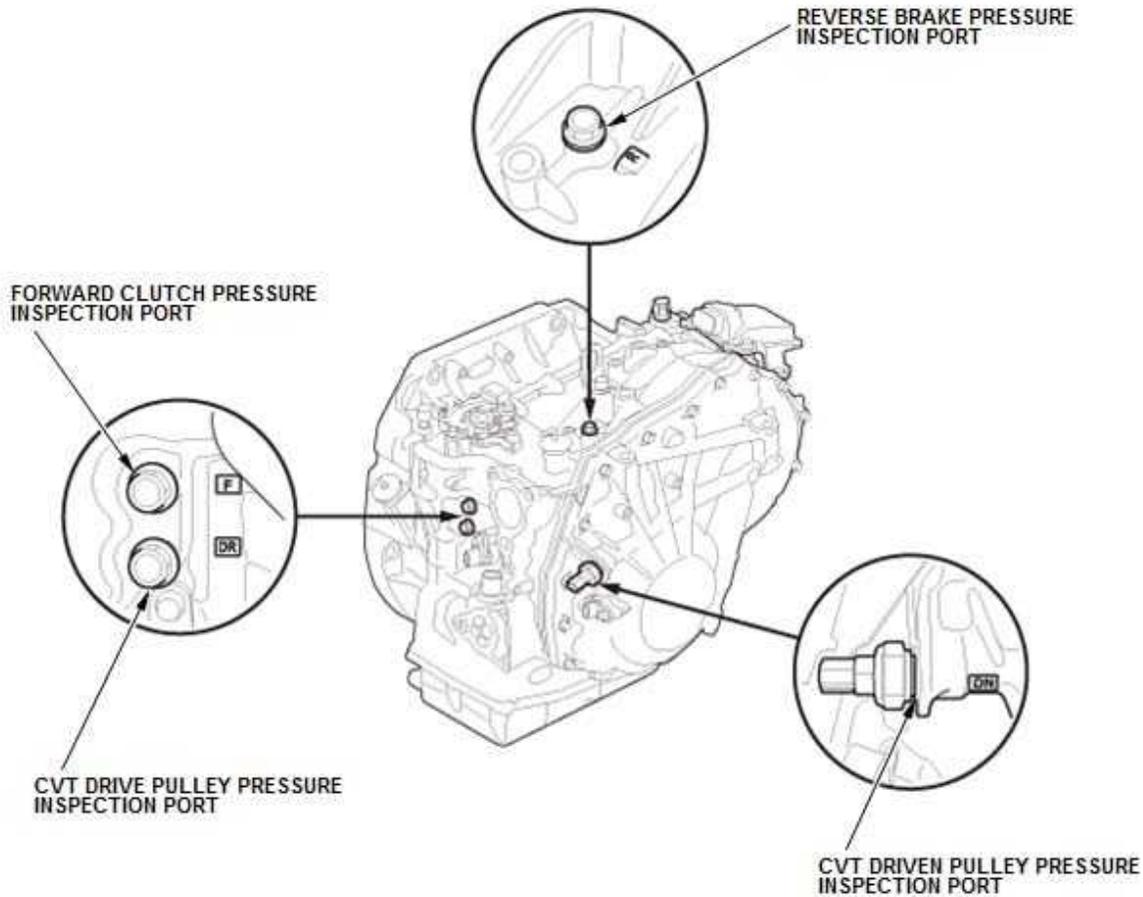
Image	Description/Tool Number
 A technical drawing of a pressure gauge adapter. It consists of a long, flexible hose with a multi-pin connector at one end and a single-pin connector at the other. Two smaller components, a nut and a pin, are shown separately below the main assembly.	Pressure Gauge Adapter 070AJ-RT4A101
 A technical drawing of an A/T Oil Pressure Gauge Set. It features a rectangular base with three circular gauge faces, each with a needle. Below the gauges are three threaded ports for connection.	A/T Oil Pressure Gauge Set 07406-0020400 or 07406-0020401
 A technical drawing of an A/T High Pressure Gauge. It shows a circular gauge with a needle and a scale, connected to a flexible hose with a multi-pin connector at the end.	A/T High Pressure Gauge 07AAJ-PLYA100

Image	Description/Tool Number
 A technical line drawing of a coiled pressure hose. The hose is shown in a loose coil with two connectors at the ends. Each connector has a cylindrical body with a hexagonal base and a central opening.	A/T Pressure Hose, 2,210 mm 07MAJ-PY4011A
 A technical line drawing of a pressure adapter. It consists of a long, cylindrical body with a hexagonal base. One end of the body has a connector that fits into the hose connector shown in the previous image.	A/T Pressure Adapter 07MAJ-PY40120

Exploded View

1. Pressure Inspection Port - Exploded View

Pressure Inspection Port - Exploded View



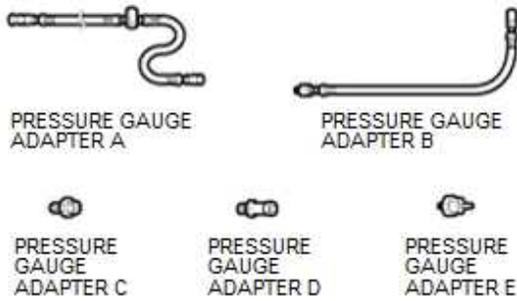
Test

NOTE:

- [How to read the torque specifications.](#)
- Check for DTCs. If any DTCs are stored, troubleshoot and clear them first.
- Do not allow dust or other foreign particles to enter the port while installing the A/T oil pressure gauge.
- Be sure to check the transmission fluid level after each pressure port test. When installing or removing the A/T oil pressure gauge, transmission fluid may run out of the pressure inspection ports.
- Do not test pressure for more than 10 seconds at a time.
- Do not move the shift lever while raising the engine speed.
- Disable the VSA by pressing the VSA OFF button.
- VSA DTC(s) may come on during the test-drive. If the VSA DTC(s) come on, clear the DTC(s) after testing is done with the HDS.

1. A/T Oil Pressure Gauge - Set

**PRESSURE GAUGE ADAPTER
070AJ-RT4A101**



- When testing the oil pressure at each inspection port, select a suitable adapter from the following table, and connect each adapter to the A/T oil pressure gauge.

Inspection port	Tool
Forward clutch pressure	Pressure gauge adapter B
Inspection port	Tool
CVT drive pulley pressure	Pressure gauge adapter B
CVT driven pulley pressure	<ul style="list-style-type: none"> ● Pressure gauge adapter A ● Pressure gauge adapter E
Reverse brake pressure	Pressure gauge adapter B

2. Vehicle - Lift

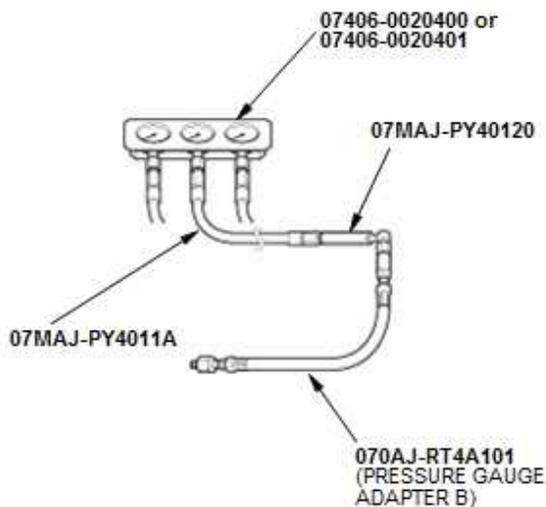
3. Engine Undercover - Remove (Without Engine Undercover Lid)

4. Engine Undercover Plate - Remove (With Engine Undercover Lid)

5. Engine Undercover Lid - Remove (With Engine Undercover Lid)

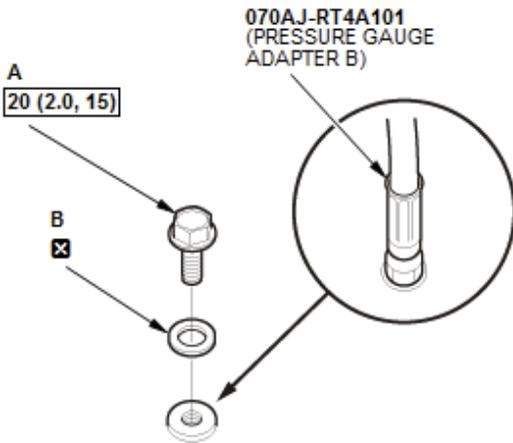
6. Transmission Fluid Level - Check

7. Forward Clutch Pressure - Test



- Assemble the pressure gauge; install the 2,210 mm A/T pressure hose, the A/T pressure adapter, and pressure gauge adapter B to the A/T oil pressure gauge set.

2. Remove the sealing bolt (A) with the sealing washer (B).



3. Install the pressure gauge to the forward clutch pressure inspection port.
4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
5. Shift the transmission to D position/mode.
6. Measure the forward clutch pressure at the engine idling while firmly pressing the brake pedal.

Pressure	Standard
Forward clutch	450–730 kPa (4.59–7.44 kgf/cm ² , 65.3–105.9 psi)

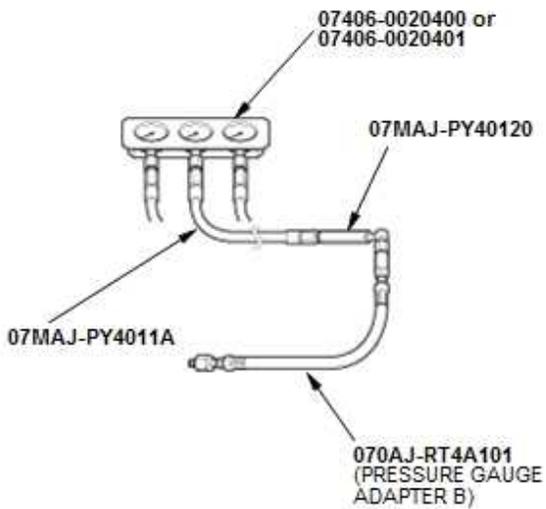
7. Turn the engine off.
8. If the forward clutch pressure is out of the standard, refer to the problem and probable causes listed in the table.

Problem	Probable causes
No or low forward clutch pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● CVT clutch pressure control solenoid valve defective ● Forward clutch defective ● Valve body assembly defective ● Manual valve body defective

9. Remove the pressure gauge.
10. Install the sealing bolt with a new sealing washer to the forward clutch pressure inspection port.

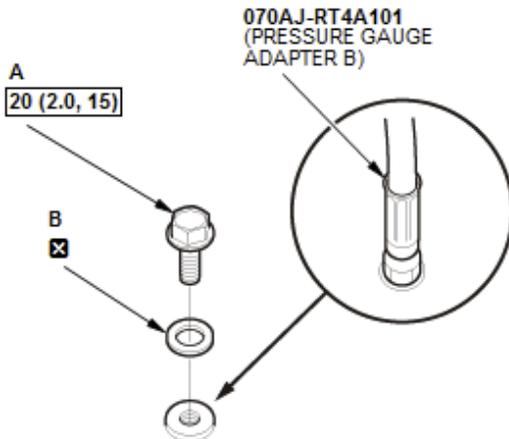
NOTE: Do not reuse the old sealing washer.

8. CVT Drive Pulley Pressure - Test



1. Assemble the pressure gauge; install the 2,210 mm A/T pressure hose, the A/T pressure adapter, and pressure gauge adapter B to the A/T oil pressure gauge set.

2. Remove the sealing bolt (A) with the sealing washer (B).



3. Install the pressure gauge to the CVT drive pulley pressure inspection port.
4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
5. Shift the transmission to N position/mode.
6. Measure the CVT drive pulley pressure at engine idling while firmly pressing the brake pedal.

Pressure	Standard
CVT drive pulley	260—540 kPa (2.65—5.51 kgf/cm ² , 37.7—78.3 psi)

7. Turn the engine off.
8. If the CVT drive pulley pressure is out of the standard, refer to the problems and probable causes listed in the table.

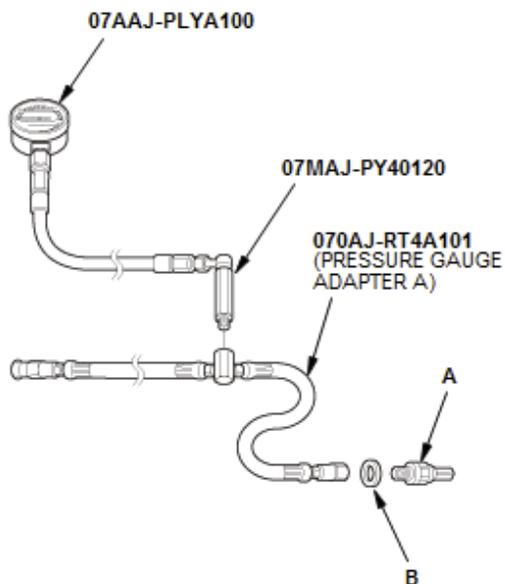
Problems	Probable causes
No or low CVT drive pulley pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● CVT drive pulley pressure control solenoid valve defective ● Valve body assembly defective
CVT drive pulley pressure too high	<ul style="list-style-type: none"> ● CVT drive pulley pressure control solenoid valve defective ● Valve body assembly defective

9. Remove the pressure gauge.

10. Install the sealing bolt with a new sealing washer to the CVT drive pulley pressure inspection port.

NOTE: Do not reuse the old sealing washer.

9. CVT Driven Pulley Pressure - Test

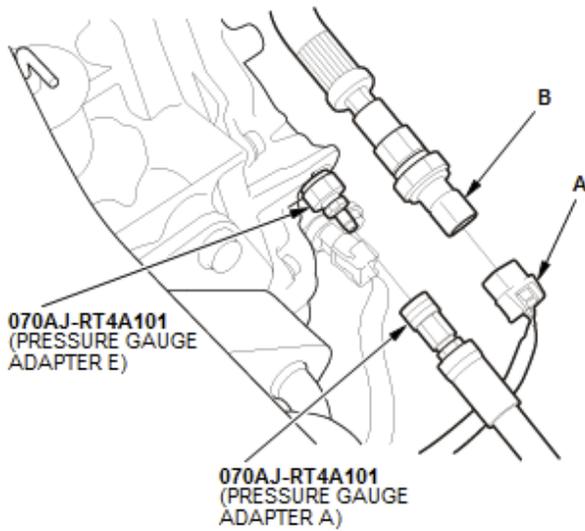


NOTE:

- CVT driven pulley pressure may be above 3,740 kPa (38.14 kgf/cm², 542.4 psi) when there is a transmission problem that causes the TCM to go into fail-safe operation.
- When troubleshooting, you must use the A/T high pressure gauge to measure the CVT driven pulley pressure.

1. [Remove the air cleaner.](#)
2. [Remove the CVT driven pulley pressure sensor \(A\).](#)
3. Temporarily install the CVT driven pulley pressure sensor with the sealing washer (B) to pressure gauge adapter A.
4. Assemble the pressure gauge; install the A/T high pressure gauge and the A/T pressure adapter to pressure gauge adapter A.

5. Install pressure gauge adapter E (quick connector) to the CVT driven pulley pressure inspection port.



6. Install the pressure gauge to pressure gauge adapter E (quick connector).
7. Connect the connector (A) to the CVT driven pulley pressure sensor (B).
8. Temporarily install the air cleaner.
9. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
10. Shift the transmission to N position/mode.
11. Measure the CVT driven pulley pressure at engine idling while firmly pressing the brake pedal.

Pressure	Standard
CVT driven pulley	490—900 kPa (5.00—9.18 kgf/cm ² , 71.1—130.5 psi)

12. Turn the engine off.
13. If the CVT driven pulley pressure is out of the standard, refer to the problems and probable causes listed in the table.

Problems	Probable causes
No or low CVT driven pulley pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● CVT driven pulley pressure control solenoid valve defective ● Valve body assembly defective
CVT driven pulley pressure too high	<ul style="list-style-type: none"> ● CVT driven pulley pressure control solenoid valve defective ● Valve body assembly defective

14. Remove the air cleaner.
15. Disconnect the connector from the CVT driven pulley pressure sensor.

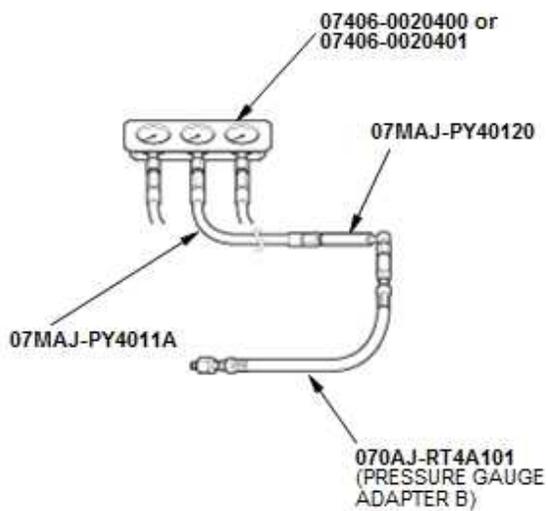
16. Remove the pressure gauge and pressure gauge adapter E (quick connector).

17. Remove the CVT driven pulley pressure sensor.

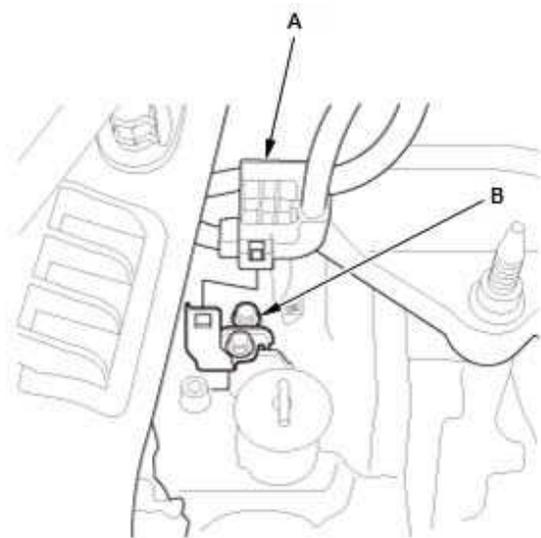
18. [Install the CVT driven pulley pressure sensor.](#)

19. [Install the air cleaner.](#)

10.Reverse Brake Pressure - Test



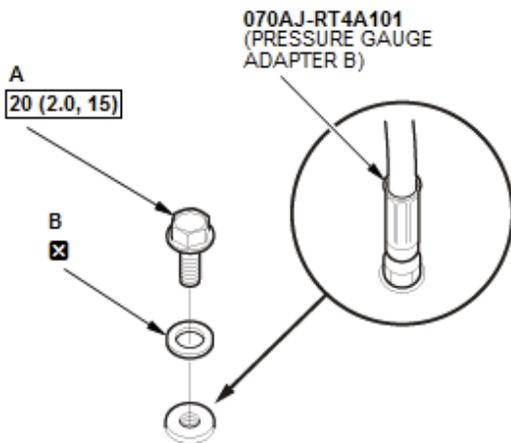
1. Assemble the pressure gauge; install the 2,210 mm A/T pressure hose, the A/T pressure adapter, and pressure gauge adapter B to the A/T oil pressure gauge set.



2. [Remove the air cleaner.](#)

3. Remove the harness cover (A) in front of the reverse brake pressure inspection port (B).

4. Remove the sealing bolt (A) with the sealing washer (B).



5. Install the pressure gauge to the reverse brake pressure inspection port.
6. Temporarily install the air cleaner.
7. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
8. Shift the transmission to R position/mode.
9. Measure the reverse brake pressure at engine idling while firmly pressing the brake pedal.

Pressure	Standard
Reverse brake	50—440 kpa (0.51—4.49 kgf/cm ² , 7.3—63.8 psi)

10. Turn the engine off.
11. If the reverse brake pressure is out of the standard, refer to the problem and probable causes listed in the table.

Problem	Probable causes
No or low reverse brake pressure	<ul style="list-style-type: none"> ● Transmission fluid pump defective ● CVT clutch pressure control solenoid valve defective ● Reverse brake defective ● Valve body assembly defective ● Manual valve body defective

12. Remove the air cleaner.
13. Remove the pressure gauge.
14. Install the sealing bolt with a new sealing washer to the reverse brake pressure inspection port.

NOTE: Do not reuse the old sealing washer.

15. [Install the air cleaner.](#)

11. Transmission Fluid Level - Check

12. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

CVT Road Test

Test

1. HDS - Connect

2. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).

3. Vehicle - Road Test

1. Park the vehicle on level ground.
2. Apply the parking brake, and block all four wheels.
3. Shift the transmission to D position/mode while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.
4. Repeat step 3 in all positions/modes.
5. Prepare the HDS and the MVCI to take a SNAPSHOT (refer to the HDS user's guide for more details if needed):
 - Set the Trigger Type to Parameter.
 - Adjust the Parameter setting to APP Sensor A (V) above 1.1 V.
 - Set the Record Time to 60 seconds.
 - Set the Trigger Point to (Negative) - 30 seconds.
6. Find a suitable level road.
7. When you are ready to do the test, press OK on the HDS.
8. Accelerate quickly until APP Sensor A (V) reads 1.2 V. Maintain a steady throttle at 1.2 V until the vehicle reaches a reasonable speed, then slow the vehicle, and come to a stop.
9. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary, and repeat step 8.
10. Adjust the parameter setting to 2.2 V.
11. Test-drive the vehicle again. Accelerate quickly until APP Sensor A (V) reads 2.3 V. Maintain a steady throttle at 2.3 V until the vehicle reaches a reasonable speed, then slow the vehicle, and come to a stop.
12. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary, and repeat step 11.

13. Accelerate quickly until the accelerator pedal is to the floor. Maintain a steady pedal until the vehicle reaches to reasonable speed, then slow to a stop, and save the snapshot.

14. Review each snapshot individually, and compare APP Sensor A (V), the Vehicle Speed, and the Engine Speed to the following table:

D Position/Mode

APP Sensor A (V)	Vehicle Speed	Engine Speed
1.2 V	25 mph (40 km/h)	800–1,400 rpm
	37 mph (60 km/h)	850–1,450 rpm
	62 mph (100 km/h)	1,380–1,980 rpm
2.3 V	25 mph (40 km/h)	2,280–2,880 rpm
	37 mph (60 km/h)	2,450–3,050 rpm
	62 mph (100 km/h)	2,800–3,400 rpm
4.5 V	25 mph (40 km/h)	4,300–4,900 rpm
	37 mph (60 km/h)	5,300–5,900 rpm
	62 mph (100 km/h)	6,300–6,900 rpm

S Position/Mode

APP Sensor A (V)	Vehicle Speed	Engine Speed
1.2 V	25 mph (40 km/h)	1,920–2,520 rpm
	37 mph (60 km/h)	2,400–3,000 rpm
	62 mph (100 km/h)	2,940–3,540 rpm
2.3 V	25 mph (40 km/h)	2,380–2,980 rpm
	37 mph (60 km/h)	2,620–3,220 rpm
	62 mph (100 km/h)	3,120–3,720 rpm
4.5 V	25 mph (40 km/h)	4,300–4,900 rpm
	37 mph (60 km/h)	5,300–5,900 rpm
	62 mph (100 km/h)	6,300–6,900 rpm

L Position/Mode

APP Sensor A (V)	Vehicle Speed	Engine Speed
1.2 V	25 mph (40 km/h)	2,300–2,900 rpm
	37 mph (60 km/h)	3,040–3,640 rpm
	62 mph (100 km/h)	3,900–4,500 rpm
2.3 V	25 mph (40 km/h)	2,640–3,240 rpm
	37 mph (60 km/h)	3,040–3,640 rpm
	62 mph (100 km/h)	3,900–4,500 rpm
4.5 V	25 mph (40 km/h)	4,300–4,900 rpm
	37 mph (60 km/h)	5,300–5,900 rpm
	62 mph (100 km/h)	6,300–6,900 rpm

15. Park the vehicle on an upward slope (about 16 degrees), apply the parking brake, and shift the transmission to P position/mode. Release the brake; the vehicle should not move.

NOTE: Always use the parking brake to hold the vehicle when stopped on an incline. Depending on the grade of the incline, the vehicle could roll if the brake is released.

CVT Road Test

Test

1. HDS - Connect

2. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).

3. Vehicle - Road Test

1. Park the vehicle on level ground.
2. Apply the parking brake, and block all four wheels.
3. Shift the transmission to D position/mode while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.
4. Repeat step 3 in all positions/modes.
5. Prepare the HDS and the MVCI to take a SNAPSHOT (refer to the HDS user's guide for more details if needed):
 - Set the Trigger Type to Parameter.
 - Adjust the Parameter setting to APP Sensor A (V) above 1.1 V.
 - Set the Record Time to 60 seconds.
 - Set the Trigger Point to (Negative) - 30 seconds.
6. Find a suitable level road.
7. When you are ready to do the test, press OK on the HDS.
8. Accelerate quickly until APP Sensor A (V) reads 1.2 V. Maintain a steady throttle at 1.2 V until the vehicle reaches a reasonable speed, then slow the vehicle, and come to a stop.
9. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary, and repeat step 8.
10. Adjust the parameter setting to 2.2 V.
11. Test-drive the vehicle again. Accelerate quickly until APP Sensor A (V) reads 2.3 V. Maintain a steady throttle at 2.3 V until the vehicle reaches a reasonable speed, then slow the vehicle, and come to a stop.
12. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary, and repeat step 11.

13. Accelerate quickly until the accelerator pedal is to the floor. Maintain a steady pedal until the vehicle reaches reasonable speed, then slow to a stop, and save the snapshot.

14. Review each snapshot individually, and compare APP Sensor A (V), the Vehicle Speed, and the Engine Speed to the following table:

APP Sensor A (V)	Position/Mode	Vehicle Speed	Engine Speed
1.2 V	D	25 mph (40 km/h)	900–1,500 rpm
		37 mph (60 km/h)	900–1,500 rpm
		62 mph (100 km/h)	1,410–2,010 rpm
	S	25 mph (40 km/h)	1,800–2,400 rpm
		37 mph (60 km/h)	2,120–2,720 rpm
		62 mph (100 km/h)	2,900–3,500 rpm
	L*	25 mph (40 km/h)	2,717–3,317 rpm
		37 mph (60 km/h)	3,380–3,980 rpm
		62 mph (100 km/h)	4,135–4,735 rpm
2.3 V	D	25 mph (40 km/h)	1,740–2,340 rpm
		37 mph (60 km/h)	1,900–2,500 rpm
		62 mph (100 km/h)	2,450–3,050 rpm
	S	25 mph (40 km/h)	2,290–2,890 rpm
		37 mph (60 km/h)	2,640–3,240 rpm
		62 mph (100 km/h)	3,200–3,800 rpm
	L*	25 mph (40 km/h)	2,717–3,317 rpm
		37 mph (60 km/h)	3,380–3,980 rpm
		62 mph (100 km/h)	4,135–4,735 rpm
4.5 V	D	25 mph (40 km/h)	3,950–4,550 rpm
		37 mph (60 km/h)	5,100–5,700 rpm
		62 mph (100 km/h)	5,700–6,300 rpm
	S	25 mph (40 km/h)	3,950–4,550 rpm
		37 mph (60 km/h)	5,100–5,700 rpm
		62 mph (100 km/h)	5,700–6,300 rpm
	L*	25 mph (40 km/h)	3,950–4,550 rpm
		37 mph (60 km/h)	5,100–5,700 rpm
		62 mph (100 km/h)	5,700–6,300 rpm

*: Without paddle shifter

15. With paddle shifter: Test-drive the vehicle with the S-paddle shift mode, and compare the Speed Stage, the Vehicle Speed, and the Engine Speed to the following table:

S Position/Mode with S-Paddle Shift Mode (With Paddle Shifter)

Speed Stage	Vehicle Speed	Engine Speed
1st	25 mph (40 km/h)	3,700–4,300 rpm
	37 mph (60 km/h)	5,220–5,820 rpm
2nd	25 mph (40 km/h)	2,340–2,940 rpm
	37 mph (60 km/h)	3,660–4,260 rpm
3rd	25 mph (40 km/h)	1,732–2,332 rpm
	37 mph (60 km/h)	2,748–3,348 rpm
	62 mph (100 km/h)	4,780–5,380 rpm
4th	25 mph (40 km/h)	1,284–1,884 rpm
	37 mph (60 km/h)	2,076–2,676 rpm
	62 mph (100 km/h)	3,660–4,260 rpm

Speed Stage	Vehicle Speed	Engine Speed
5th	25 mph (40 km/h)	967–1,567 rpm
	37 mph (60 km/h)	1,600–2,200 rpm
	62 mph (100 km/h)	2,867–3,467 rpm
6th	37 mph (60 km/h)	1,226–1,826 rpm
	62 mph (100 km/h)	2,244–2,844 rpm
7th	62 mph (100 km/h)	1,751–2,351 rpm

16. Park the vehicle on an upward slope (about 16 degrees), apply the parking brake, and shift the transmission to P position/mode. Release the brake; the vehicle should not move.

NOTE: Always use the parking brake to hold the vehicle when stopped on an incline. Depending on the grade of the incline, the vehicle could roll if the brake is released.

Test

NOTE: Keep all foreign particles out of the transmission.

Solenoid Valve Resistance Check

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

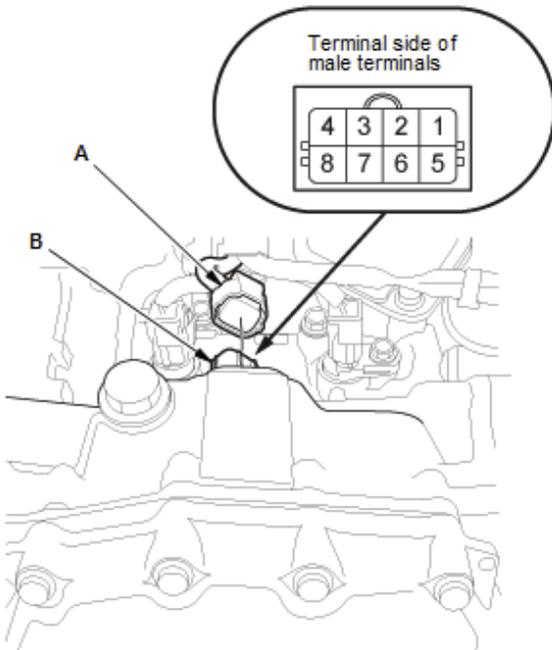
3. Engine Undercover Lid - Remove

4. Solenoid Valve - Resistance Check

1. Disconnect the connector (A).

NOTE:

- To prevent damage, cover the connector using a shop towel.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.



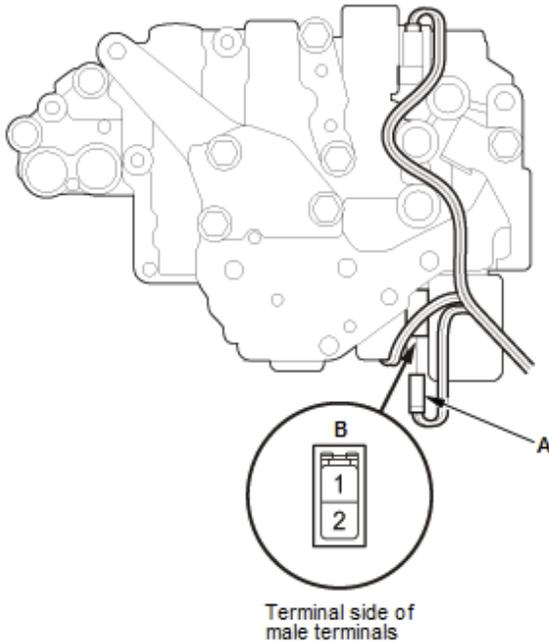
2. Measure the resistance between the connector (B) terminal and body ground according to the table.

- If the resistance is within the standard, the test is complete, and install all removed parts.
- If the resistance is out of the standard, check the solenoid valve operation.

Solenoid valve	Terminal	Standard Resistance
CVT clutch pressure control solenoid valve	No. 7	4.6—6.3 Ω
CVT drive pulley pressure control solenoid valve	No. 5	4.6—6.3 Ω
CVT driven pulley pressure control solenoid valve	No. 6	4.6—6.3 Ω
CVT lock-up clutch control solenoid valve	No. 8	4.6—6.3 Ω
Shift solenoid valve B	No. 4	8.9—12.2 Ω

CVT Clutch Pressure Control Solenoid Valve

1. CVT Clutch Pressure Control Solenoid Valve - Operation Check



1. [Remove the valve body assembly.](#)
2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.
 - If a clicking sound is heard, repair or replace the solenoid wire harness.
 - If no clicking sound is heard, [replace the CVT clutch pressure control solenoid valve.](#)

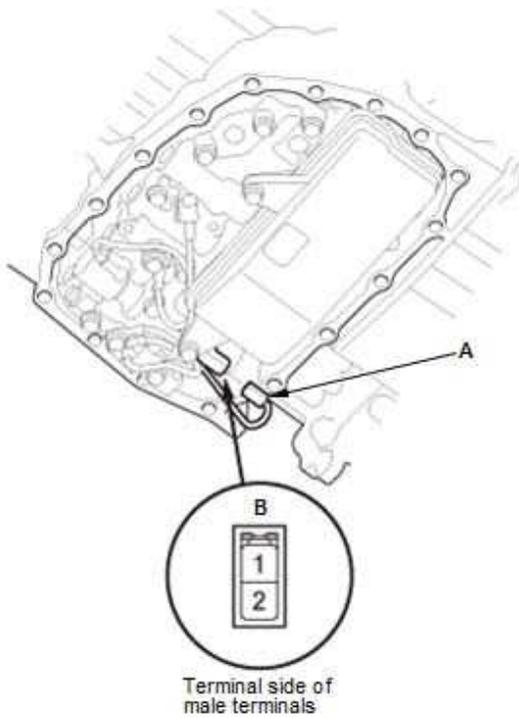
2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

CVT Drive Pulley Pressure Control Solenoid Valve

1. CVT Drive Pulley Pressure Control Solenoid Valve - Operation Check



1. [Remove the transmission fluid pan.](#)

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extended periods of time.

2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.

- If a clicking sound is heard, repair or replace the solenoid wire harness.
- If no clicking sound is heard, [replace the CVT drive pulley pressure control solenoid valve.](#)

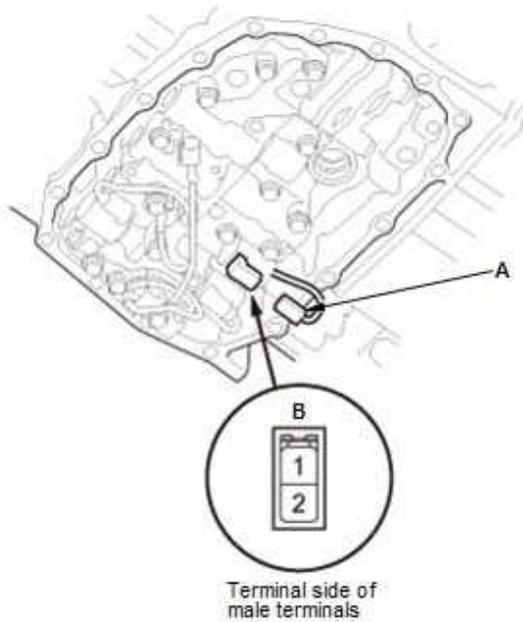
2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

CVT Driven Pulley Pressure Control Solenoid Valve

1. CVT Driven Pulley Pressure Control Solenoid Valve - Operation Check



1. [Remove the transmission fluid pan.](#)

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

2. [Remove the transmission fluid strainer.](#)

3. Disconnect the connector (A).

4. Connect a jumper wire from the positive battery terminal to connector (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.

- If a clicking sound is heard, repair or replace the solenoid wire harness.
- If no clicking sound is heard, [replace the CVT driven pulley pressure control solenoid valve.](#)

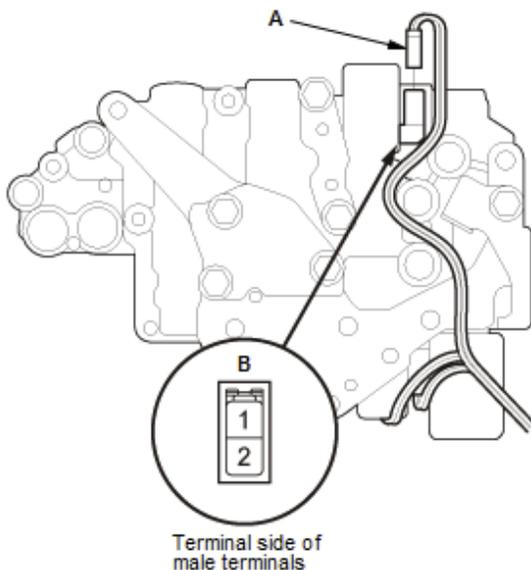
2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

CVT Lock-Up Clutch Control Solenoid Valve

1. CVT Lock-Up Clutch Control Solenoid Valve - Operation Check

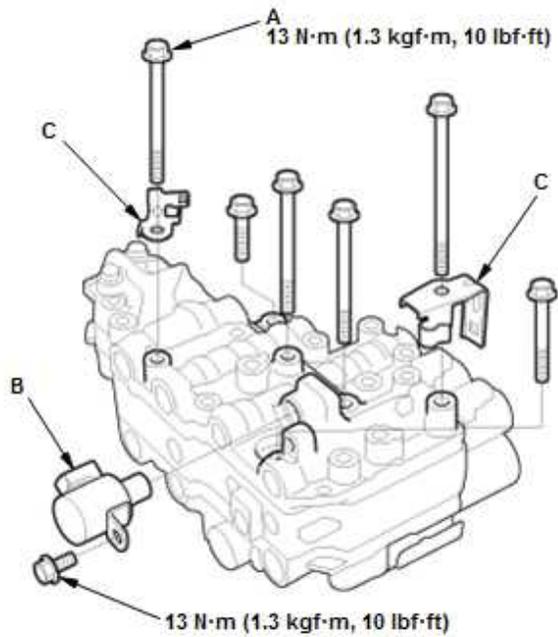


1. [Remove the valve body assembly.](#)

2. Disconnect the connector (A).

3. Connect a jumper wire from the positive battery terminal to connector (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.

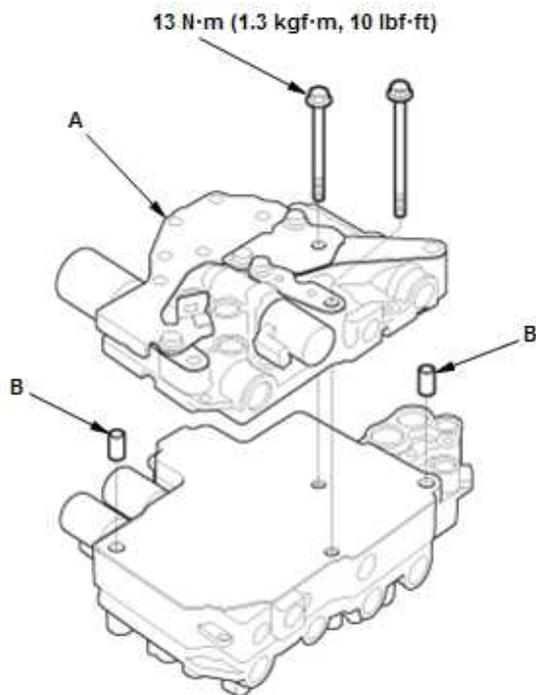
- If a clicking sound is heard, go to the next step.
- If no clicking sound is heard, [replace the CVT lock-up clutch control solenoid valve.](#)



4. [Remove the valve body assembly.](#)

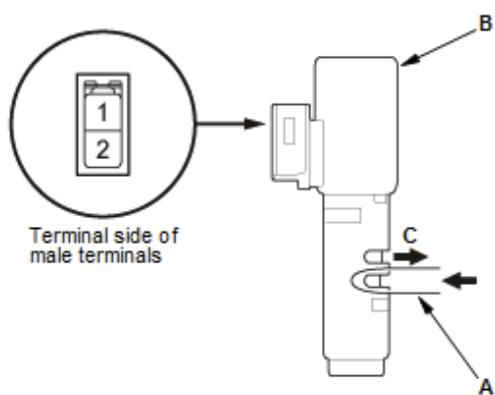
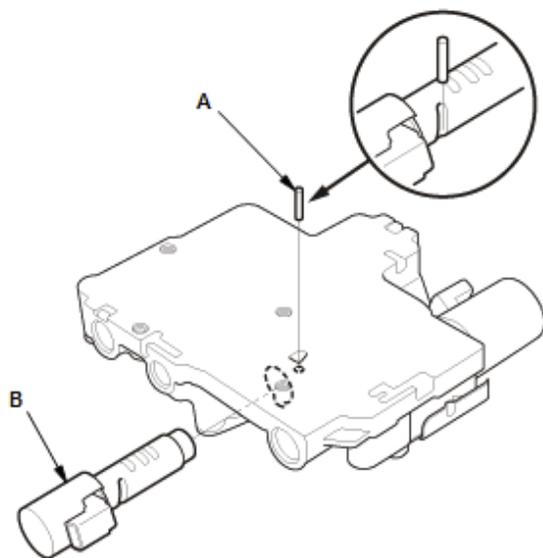
5. Remove these parts in the following order.

- 1. Shift solenoid valve B
- 2. Bolts (A)
- 3. Harness clamp brackets (C)



6. Remove the secondary valve body (A) with the dowel pins (B).

7. Remove the lock pin (A), then remove the CVT lock-up clutch control solenoid valve (B).



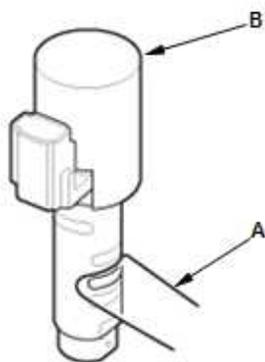
8. Connect a tube (A) to the CVT lock-up clutch control solenoid valve (B).

9. Connect a jumper wire from the positive battery terminal to connector terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1. Blow air into the tube (A).

- If the air goes out of the port (C), go to the next step.
- If the air does not go out of the port (C), [replace the CVT lock-up clutch control solenoid valve](#).

10. Disconnect the jumper wires. Blow air into the tube.

- If the air goes out of the port (C), [replace the CVT lock-up clutch control solenoid valve](#).
- If the air does not go out of the port (C), repair or replace the solenoid wire harness.



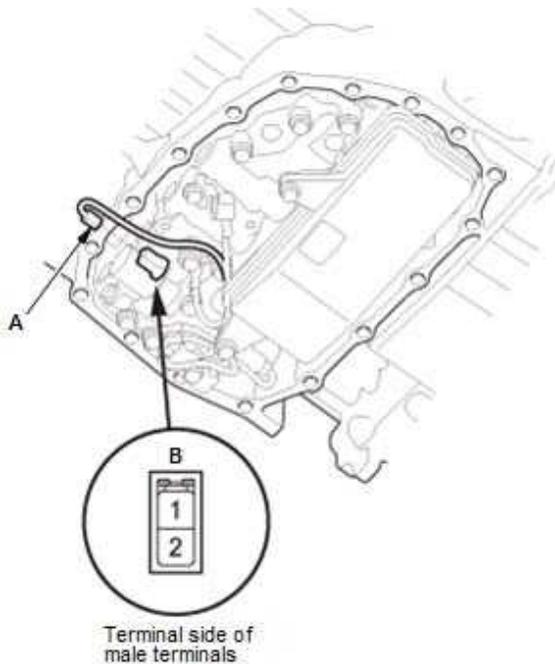
2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Shift Solenoid Valve B

1. Shift Solenoid Valve B - Operation Check



1. [Remove the transmission fluid pan.](#)

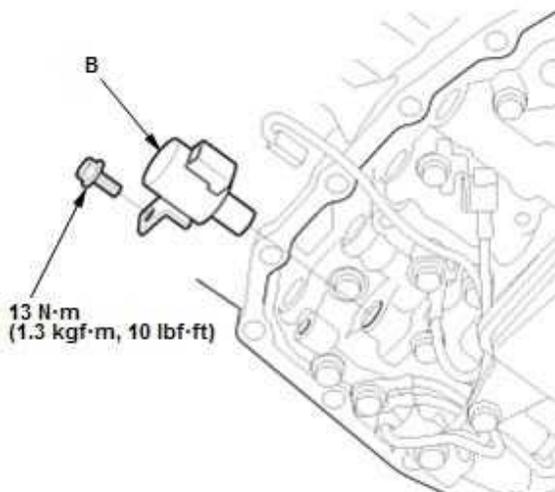
NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

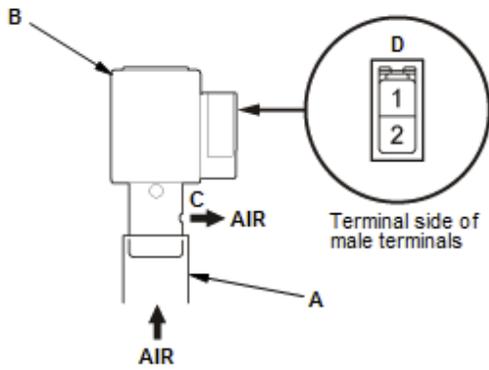
2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.

- If a clicking sound is heard, go to the next step.
- If no clicking sound is heard, [replace shift solenoid valve B.](#)

4. Remove shift solenoid valve B.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.





2. All Removed Parts - Install

5. Connect a tube (A) to shift solenoid valve B.
6. Blow air into the tube.
 - If the air goes out of the port (C), go to the next step.
 - If the air does not go out of the port (C), [replace shift solenoid valve B.](#)
7. Connect a jumper wire from the positive battery terminal to connector (D) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.
8. Blow air into the tube.
 - If the air goes out of the port (C), [replace shift solenoid valve B.](#)
 - If the air does not go out of the port (C), repair or replace the solenoid wire harness.

1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Test

NOTE: Keep all foreign particles out of the transmission.

Solenoid Valve Resistance Check

1. Vehicle - Lift

2. Engine Undercover - Remove (Without Engine Undercover Lid)

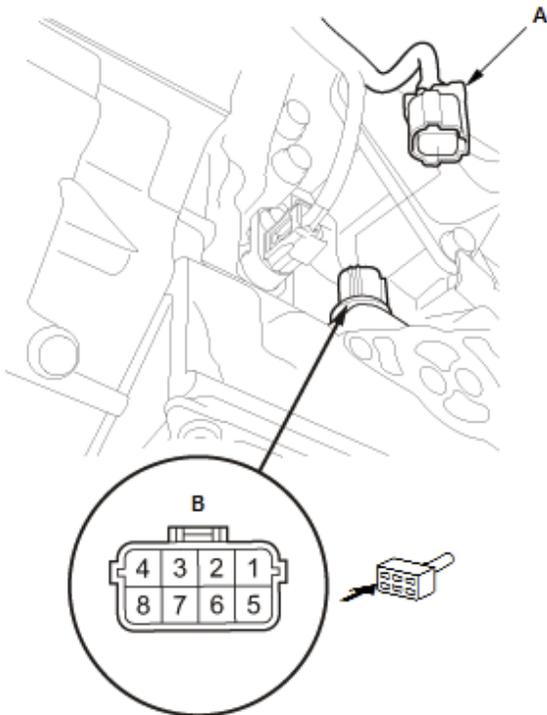
3. Engine Undercover Plate - Remove (With Engine Undercover Lid)

4. Engine Undercover Lid - Remove (With Engine Undercover Lid)

5. **Solenoid Valve - Resistance Check**

1. Disconnect the connector (A).

NOTE: To prevent damage, cover the connector using a shop towel.



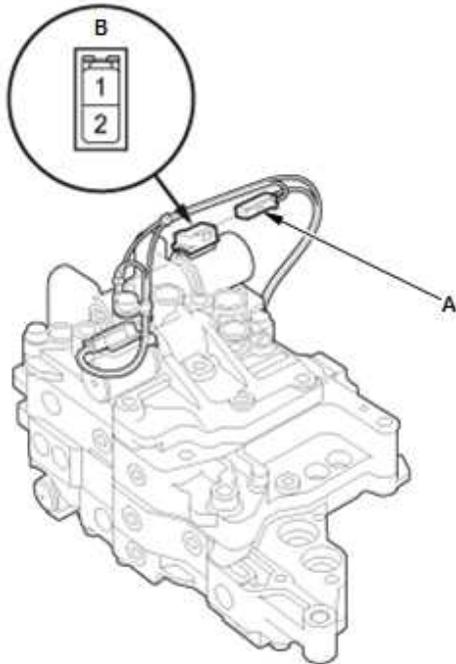
2. Measure the resistance between the connector (male terminals) (B) terminal and body ground according to the table.

- If the resistance is within the standard, the test is complete, and install all removed parts.
- If the resistance is out of the standard, check the solenoid valve operation.

Solenoid valve	Terminal	Standard Resistance
CVT clutch pressure control solenoid valve	No. 1	4.7—5.9 Ω
CVT drive pulley pressure control solenoid valve	No. 8	5.0—6.3 Ω
CVT driven pulley pressure control solenoid valve	No. 3	5.0—6.3 Ω
CVT lock-up clutch control solenoid valve	No. 4	5.0—6.3 Ω
Shift solenoid valve B	No. 5	10.6—13.5 Ω
Shift solenoid valve O/P	No. 2	10.6—13.5 Ω

CVT Clutch Pressure Control Solenoid Valve

1. CVT Clutch Pressure Control Solenoid Valve - Operation Check



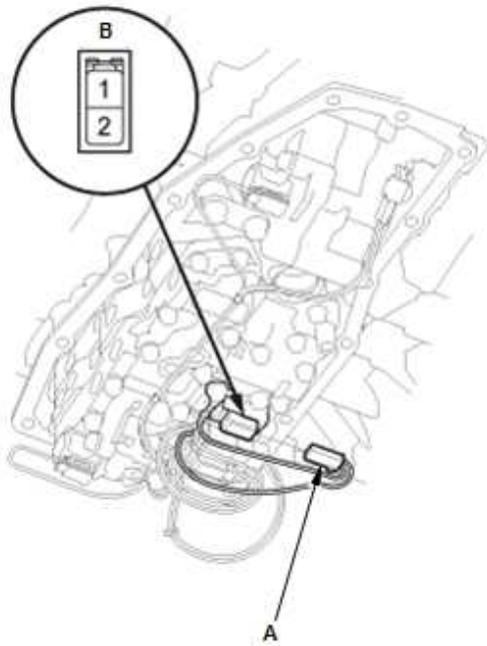
1. [Remove the valve body assembly.](#)
2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (male terminals) (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.
 - If a clicking sound is heard, repair or replace the solenoid wire harness.
 - If no clicking sound is heard, [replace the CVT clutch pressure control solenoid valve.](#)

2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

CVT Drive Pulley Pressure Control Solenoid Valve

1. CVT Drive Pulley Pressure Control Solenoid Valve - Operation Check



1. [Remove the transmission fluid pan.](#)

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

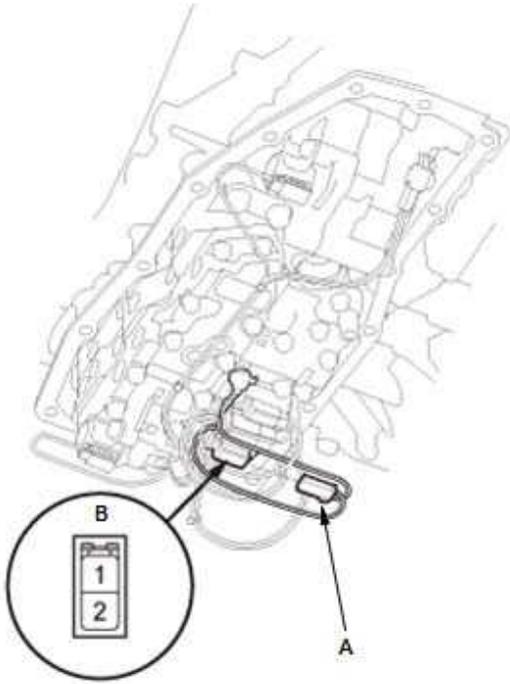
2. [Remove the transmission fluid strainer.](#)
3. Disconnect the connector (A).
4. Connect a jumper wire from the positive battery terminal to connector (male terminals) (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.
 - If a clicking sound is heard, repair or replace the solenoid wire harness.
 - If no clicking sound is heard, [replace the CVT drive pulley pressure control solenoid valve.](#)

2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

CVT Driven Pulley Pressure Control Solenoid Valve

1. CVT Driven Pulley Pressure Control Solenoid Valve - Operation Check



1. [Remove the transmission fluid pan.](#)

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extended periods of time.

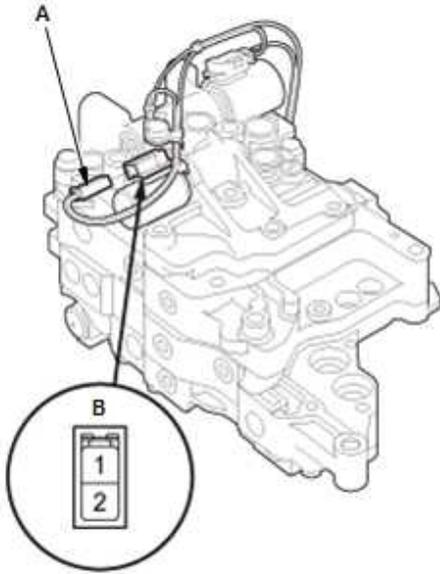
2. [Remove the transmission fluid strainer.](#)
3. Disconnect the connector (A).
4. Connect a jumper wire from the positive battery terminal to connector (male terminals) (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.
 - If a clicking sound is heard, repair or replace the solenoid wire harness.
 - If no clicking sound is heard, [replace the CVT driven pulley pressure control solenoid valve.](#)

2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

CVT Lock-Up Clutch Control Solenoid Valve

1. CVT Lock-Up Clutch Control Solenoid Valve - Operation Check



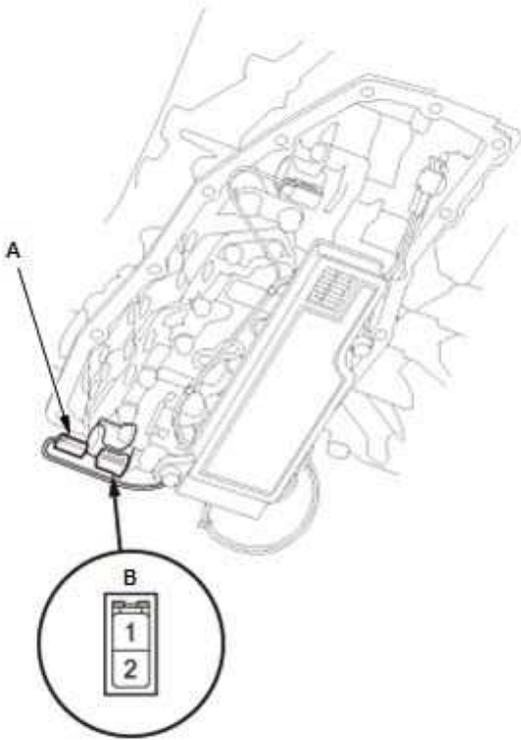
1. [Remove the valve body assembly.](#)
2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (male terminals) (B) terminal No. 2, and connect another jumper wire from the negative battery terminal to connector terminal No. 1.
 - If a clicking sound is heard, repair or replace the solenoid wire harness.
 - If no clicking sound is heard, [replace the CVT lock-up clutch control solenoid valve.](#)

2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

Shift Solenoid Valve B

1. Shift Solenoid Valve B - Operation Check



1. [Remove the transmission fluid pan.](#)

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

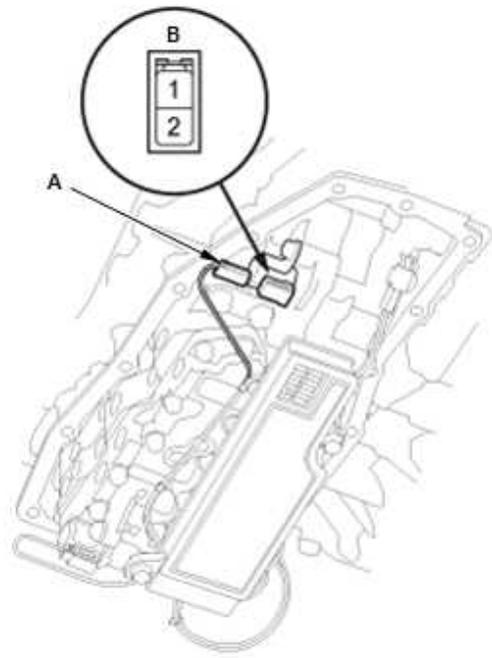
2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (male terminals) (B) terminal No. 1, and connect another jumper wire from the negative battery terminal to the solenoid valve body.
 - If a clicking sound is heard, repair or replace the solenoid wire harness.
 - If no clicking sound is heard, [replace shift solenoid valve B.](#)

2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

Shift Solenoid Valve O/P

1. Shift Solenoid Valve O/P - Operation Check

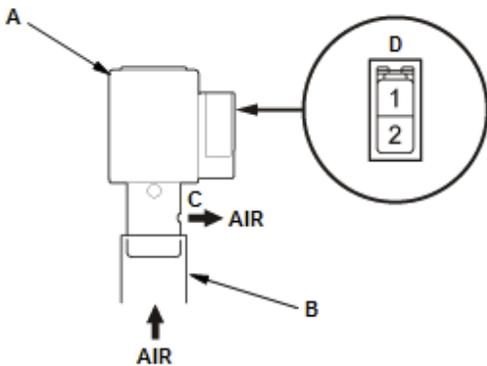


1. [Remove the transmission fluid pan.](#)

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extended periods of time.

2. Disconnect the connector (A).
3. Connect a jumper wire from the positive battery terminal to connector (male terminals) (B) terminal No. 1, and connect another jumper wire from the negative battery terminal to the solenoid valve body.

- If a clicking sound is heard, go to the next step.
- If no clicking sound is heard, [replace the shift solenoid valve O/P.](#)



4. [Remove the shift solenoid valve O/P \(A\).](#)

5. Connect a tube (B) to the shift solenoid valve O/P.

6. Blow air into the tube.

- If the air goes out of the port (C), go to the next step.
- If the air does not go out of the port (C), [replace the shift solenoid valve O/P.](#)

7. Connect a jumper wire from the positive battery terminal to connector (male terminals) (D) terminal No. 1, and connect another jumper wire from the negative battery terminal to the solenoid valve body.

8. Blow air into the tube.

- If the air goes out of the port (C), [replace the shift solenoid valve O/P.](#)
- If the air does not go out of the port (C), repair or replace the solenoid wire harness.

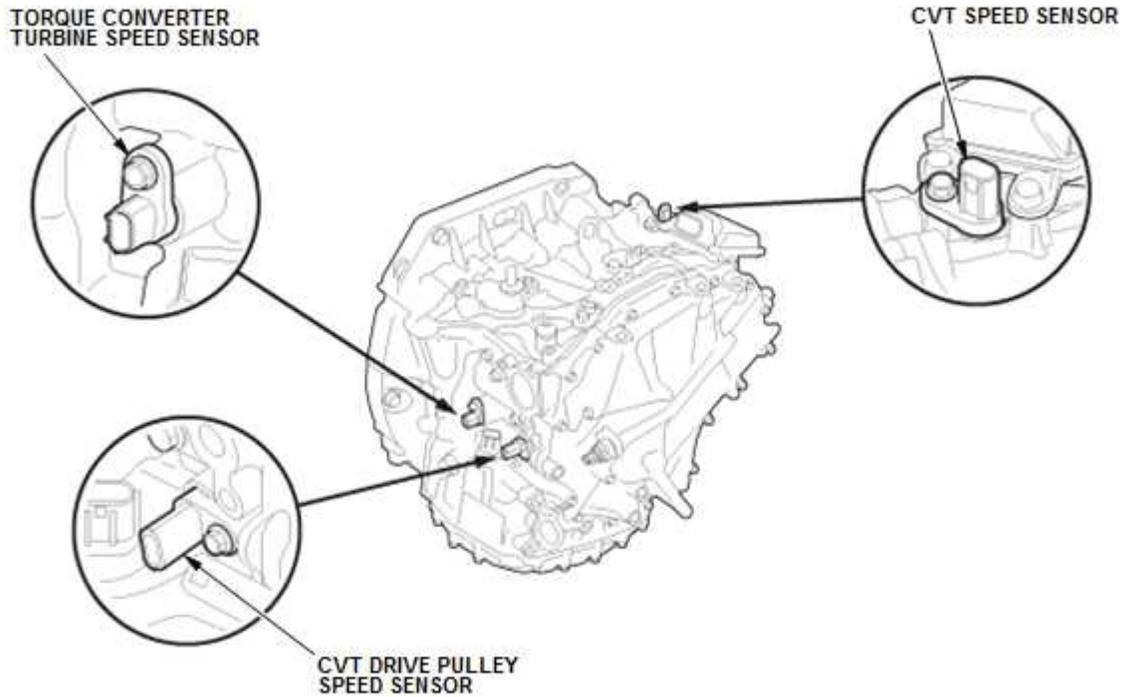
2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

Exploded View

1. Speed Sensor - Exploded View

Speed Sensor - Exploded View

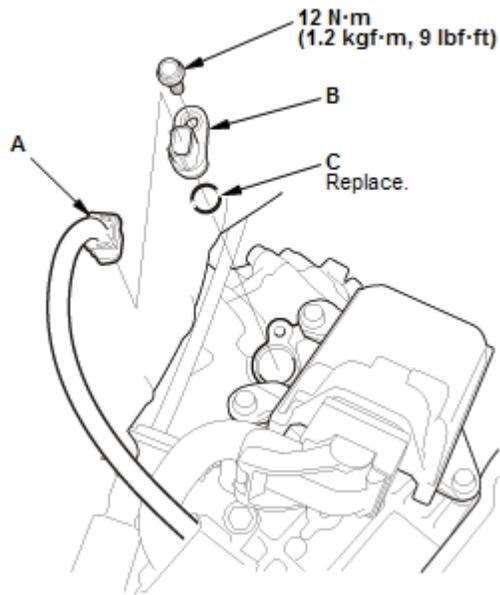


Removal/Installation

NOTE: Keep all foreign particles out of the transmission.

CVT Speed Sensor

1. Air Cleaner - Remove
2. Intake Air Duct - Remove
3. CVT Speed Sensor - Remove



1. Disconnect the connector (A).
2. Remove the CVT speed sensor (B) with the O-ring (C).

4. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Be sure to use a new O-ring which should be applied a light coat of clean transmission fluid before installation.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

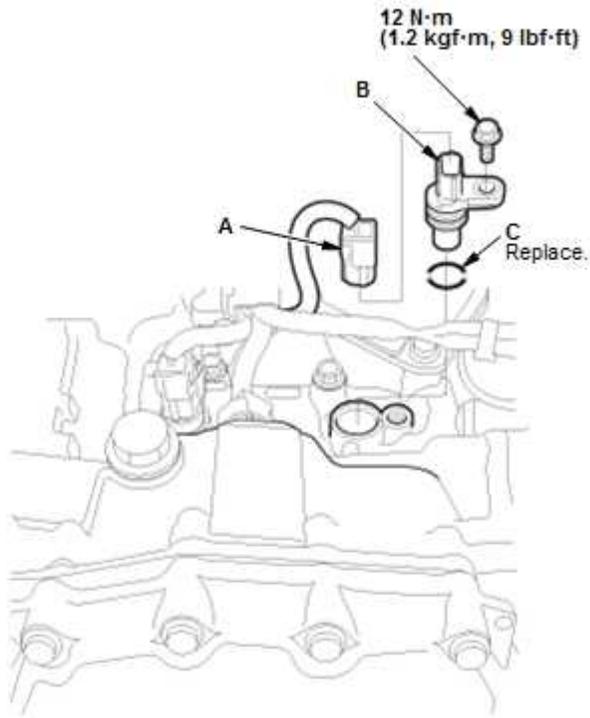
CVT Drive Pulley Speed Sensor

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine Undercover Lid - Remove

4. CVT Drive Pulley Speed Sensor - Remove



1. Disconnect the connector (A).
2. Remove the CVT drive pulley speed sensor (B) with the O-ring (C).

5. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Be sure to use a new O-ring which should be applied a light coat of clean transmission fluid before installation.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

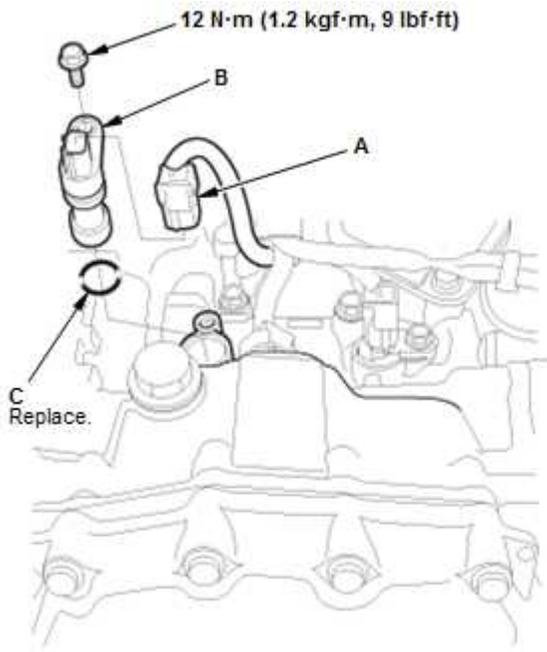
Torque Converter Turbine Speed Sensor

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine Undercover Lid - Remove

4. Torque Converter Turbine Speed Sensor - Remove



1. Disconnect the connector (A).
2. Remove the torque converter turbine speed sensor (B) with the O-ring (C).

5. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

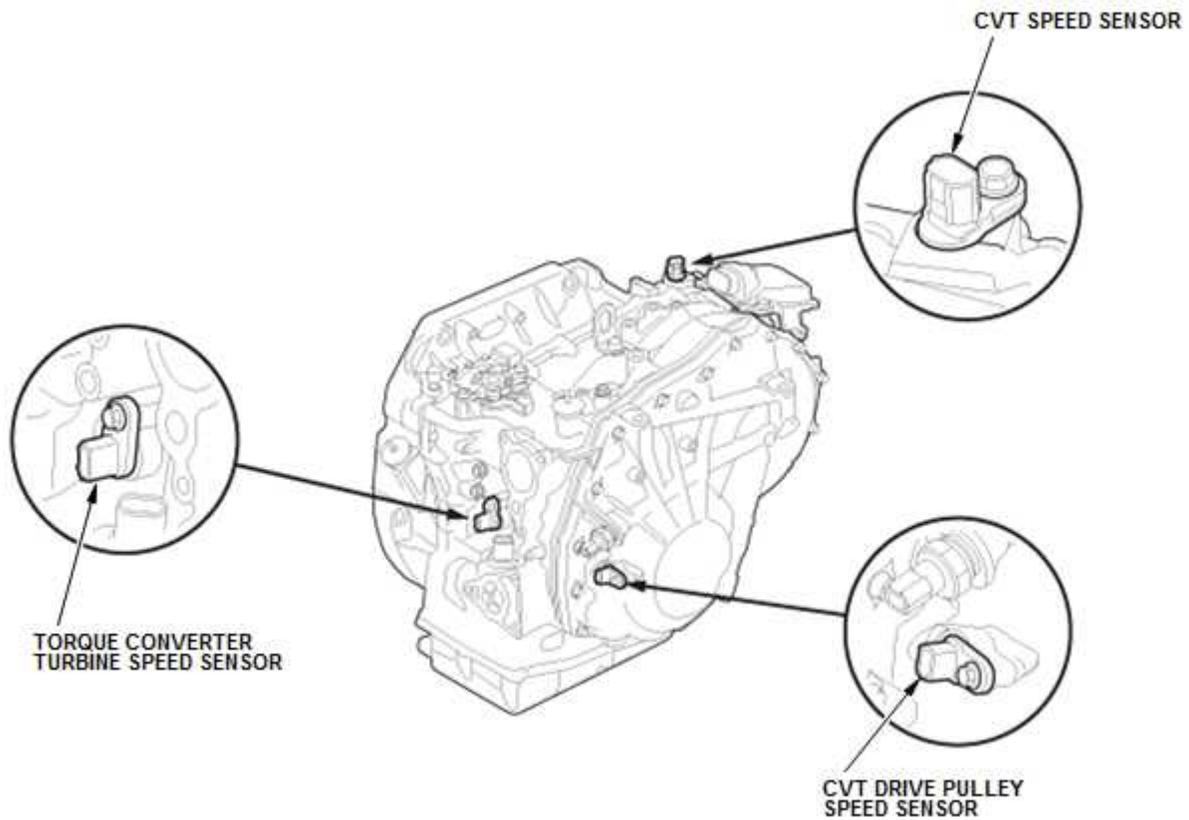
NOTE:

- Be sure to use a new O-ring which should be applied a light coat of clean transmission fluid before installation.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Exploded View

1. Speed Sensor - Exploded View

Speed Sensor - Exploded View



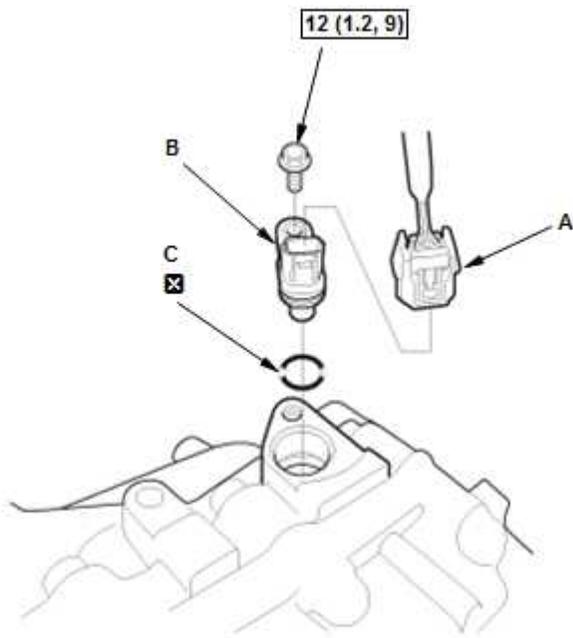
Removal/Installation

NOTE:

- [How to read the torque specifications.](#)
- Keep all foreign particles out of the transmission.

CVT Speed Sensor

1. CVT Speed Sensor - Remove



1. Disconnect the connector (A).
2. Remove the CVT speed sensor (B) with the O-ring (C).

2. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

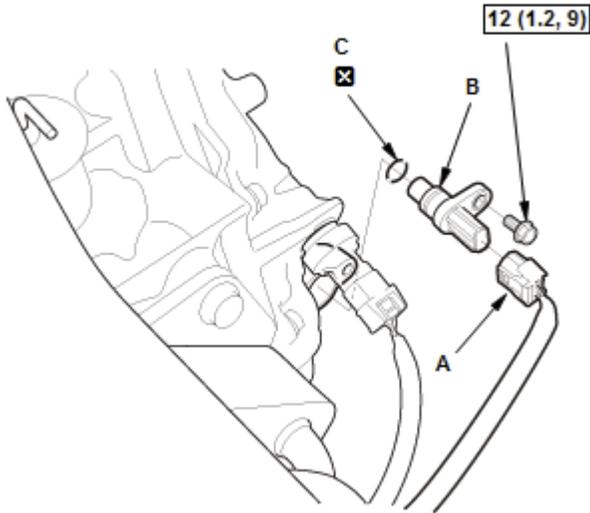
NOTE:

- Be sure to use a new O-ring which should be applied a light coat of clean transmission fluid before installation.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

CVT Drive Pulley Speed Sensor

1. Air Cleaner - Remove

2. CVT Drive Pulley Speed Sensor - Remove



1. Disconnect the connector (A).
2. Remove the CVT drive pulley speed sensor (B) with the O-ring (C).

3. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Be sure to use a new O-ring which should be applied a light coat of clean transmission fluid before installation.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Torque Converter Turbine Speed Sensor

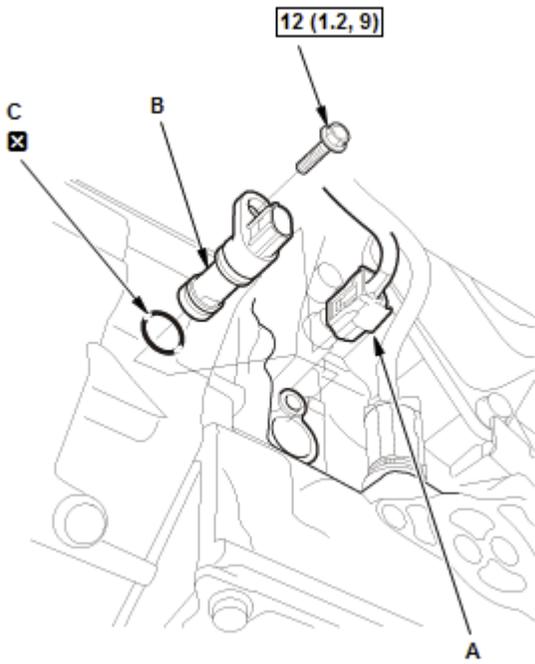
1. Vehicle - Lift

2. Engine Undercover - Remove (Without Engine Undercover Lid)

3. Engine Undercover Plate - Remove (With Engine Undercover Lid)

4. Engine Undercover Lid - Remove (With Engine Undercover Lid)

5. Torque Converter Turbine Speed Sensor - Remove



1. Disconnect the connector (A).
2. Remove the torque converter turbine speed sensor (B) with the O-ring (C).

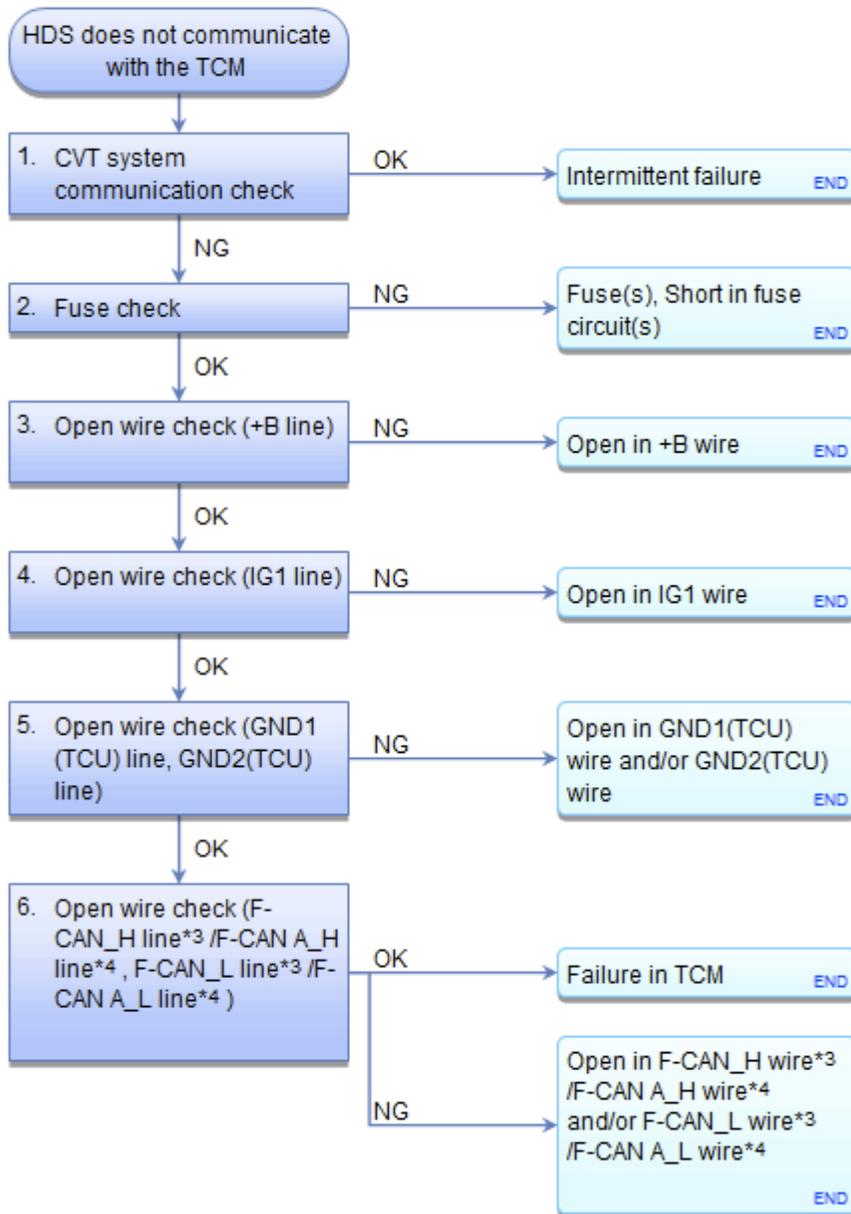
6. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Be sure to use a new O-ring which should be applied a light coat of clean transmission fluid before installation.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

CVT Symptom Troubleshooting - HDS does not communicate with the TCM



HDS does not communicate with the TCM

NOTE:

- Information marked with an asterisk (*1) applies to the model not equipped with keyless access system, and an asterisk (*2) applies to the model equipped with keyless access system.
- Information marked with an asterisk (*3) applies to the model not equipped with CAN gateway, and an asterisk (*4) applies to the model equipped with CAN gateway.

1. CVT system communication check:

- 1. [Connect the HDS to the DLC.](#)
- 2. Turn the vehicle to the ON mode.
- 3. Check the Mode Menu of the CVT system with the HDS.

Does the HDS show the Mode Menu of the CVT system?

YES The CVT system communication is OK. Intermittent failure, the system is OK at this time.■

NO Go to step 2.

2. Fuse check:

-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Check the following fuses.

Fuse	No. A16 (15 A)
Location	Under-hood fuse/relay box

Fuse	No. B4 (10 A)* ¹ No. B17 (10 A)* ²
Location	Under-dash fuse/relay box

Are the fuses OK?

YES The fuses are OK. Reinstall the fuses, then go to step 3.

NO Replace the No. A16 (15 A) fuse and/or the No. B4 (10 A) fuse*¹/No. B17 (10 A) fuse*², and recheck. If the fuse(s) blows again, repair a short to ground in the No. A16 (15 A) fuse circuit and/or the No. B4 (10 A) fuse*¹/No. B17 (10 A) fuse*² circuit.■

3. Open wire check (+B line):

-1. Disconnect the following connector.
TCM 50P connector

-2. Measure the voltage between test points 1 and 2.

Test condition	Vehicle OFF (LOCK) mode TCM 50P connector: disconnected
Test point 1	TCM 50P connector No. 1
Test point 2	Body ground

Is there battery voltage?

YES The +B wire is OK. Go to step 4.

NO Repair an open in the +B wire between the under-hood fuse/relay box and the TCM.■

4. Open wire check (IG1 line):

-1. Turn the vehicle to the ON mode.

-2. Measure the voltage between test points 1 and 2.

Test condition	Vehicle ON mode TCM 50P connector: disconnected
Test point 1	TCM 50P connector No. 8
Test point 2	Body ground

Is there battery voltage?

YES The IG1 wire is OK. Go to step 5.

NO Repair an open in the IG1 wire between the under-dash fuse/relay box and the TCM.■

5. Open wire check (GND1(TCU) line, GND2(TCU) line):

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Check for continuity between test points 1 and 2.
Test condition Vehicle OFF (LOCK) mode
 TCM 50P connector: disconnected
Test point 1 [TCM 50P connector No. 9](#)
 [TCM 50P connector No. 10](#)
Test point 2 Body ground

Are there continuity?

YES The GND1(TCU) wire and the GND2(TCU) wire are OK. Go to step 6.

NO Repair an open in the GND1(TCU) wire and/or the GND2(TCU) wire between the TCM and ground (G201), or repair poor ground (G201).■

6. Open wire check (F-CAN_H line*³/F-CAN A_H line*⁴, F-CAN_L line*³/F-CAN A_L line*⁴):

- 1. Check for continuity between test points 1 and 2.
F-CAN_H wire*³/F-CAN A_H wire*⁴
Test condition Vehicle OFF (LOCK) mode
 TCM 50P connector: disconnected
Test point 1 DLC (16P) No. 6
Test point 2 [TCM 50P connector No. 3](#)

- F-CAN_L wire*³/F-CAN A_L wire*⁴**
Test condition Vehicle OFF (LOCK) mode
 TCM 50P connector: disconnected
Test point 1 DLC (16P) No. 14
Test point 2 [TCM 50P connector No. 11](#)

DLC (16P)



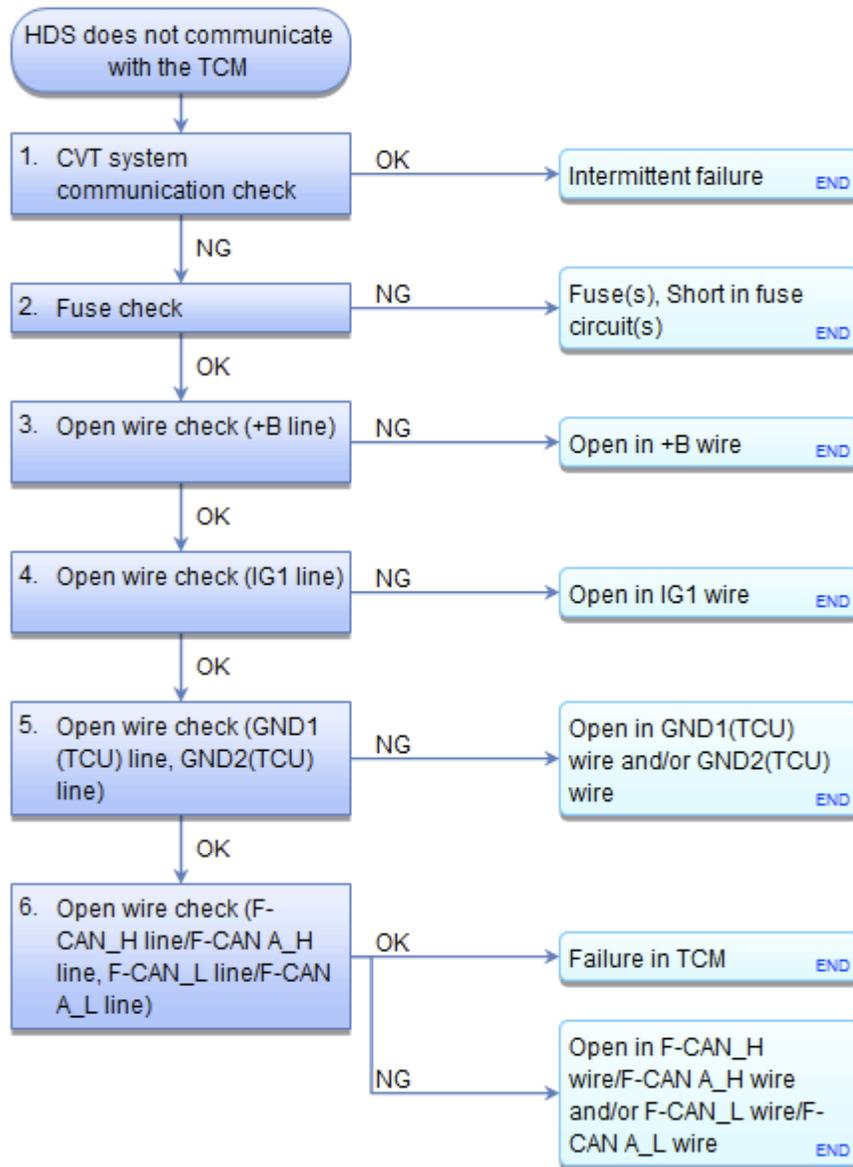
Terminal side of female terminals

Is there continuity?

YES The F-CAN_H wire*³/F-CAN A_H wire*⁴ and the F-CAN_L wire*³/F-CAN A_L wire*⁴ are OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■

NO Repair an open in the F-CAN_H wire*³/F-CAN A_H wire*⁴ and/or the F-CAN_L wire*³/F-CAN A_L wire*⁴ between the DLC and the TCM.■

CVT Symptom Troubleshooting - HDS does not communicate with the TCM



HDS does not communicate with the TCM

NOTE:

- Information marked with an asterisk (*1) applies to the model not equipped with keyless access system, and an asterisk (*2) applies to the model equipped with keyless access system.
- Information marked with an asterisk (*3) applies to the model not equipped with CAN gateway, and an asterisk (*4) applies to the model equipped with CAN gateway.

1. CVT system communication check:

- 1. [Connect the HDS to the DLC.](#)
- 2. Turn the vehicle to the ON mode.
- 3. Check the Mode Menu of the CVT system with the HDS.

Does the HDS show the Mode Menu of the CVT system?

YES The CVT system communication is OK. Intermittent failure, the system is OK at this time.■

NO Go to step 2.

2. Fuse check:

-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Check the following fuses.

Fuse	No. A16 (15 A)
Location	Under-hood fuse/relay box

Fuse	No. B4 (10 A)* ¹
	No. B17 (10 A)* ²
Location	Under-dash fuse/relay box

Are the fuses OK?

YES The fuses are OK. Reinstall the fuses, then go to step 3.

NO Replace the No. A16 (15 A) fuse and/or the No. B4 (10 A) fuse*¹/No. B17 (10 A) fuse*², and recheck. If the fuse(s) blows again, repair a short to ground in the No. A16 (15 A) fuse circuit and/or the No. B4 (10 A) fuse*¹/No. B17 (10 A) fuse*² circuit.■

3. Open wire check (+B line):

-1. Disconnect the following connector.
TCM 50P connector

-2. Measure the voltage between test points 1 and 2.

Test condition	Vehicle OFF (LOCK) mode TCM 50P connector: disconnected
Test point 1	TCM 50P connector No. 1
Test point 2	Body ground

Is there battery voltage?

YES The +B wire is OK. Go to step 4.

NO Repair an open in the +B wire between the under-hood fuse/relay box and the TCM.■

4. Open wire check (IG1 line):

-1. Turn the vehicle to the ON mode.

-2. Measure the voltage between test points 1 and 2.

Test condition	Vehicle ON mode TCM 50P connector: disconnected
Test point 1	TCM 50P connector No. 8
Test point 2	Body ground

Is there battery voltage?

YES The IG1 wire is OK. Go to step 5.

NO Repair an open in the IG1 wire between the under-dash fuse/relay box and the TCM.■

5. Open wire check (GND1(TCU) line, GND2(TCU) line):

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Check for continuity between test points 1 and 2.
Test condition Vehicle OFF (LOCK) mode
 TCM 50P connector: disconnected
Test point 1 [TCM 50P connector No. 9](#)
 [TCM 50P connector No. 10](#)
Test point 2 Body ground

Are there continuity?

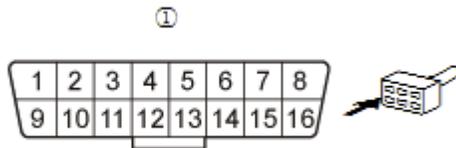
YES The GND1(TCU) wire and the GND2(TCU) wire are OK. Go to step 6.

NO Repair an open in the GND1(TCU) wire and/or the GND2(TCU) wire between the TCM and ground (G201), or repair poor ground (G201).■

6. Open wire check (F-CAN_H line*³/F-CAN A_H line*⁴, F-CAN_L line*³/F-CAN A_L line*⁴):

- 1. Check for continuity between test points 1 and 2.
F-CAN_H wire*³/F-CAN A_H wire*⁴
Test condition Vehicle OFF (LOCK) mode
 TCM 50P connector: disconnected
Test point 1 DLC (16P) (female terminals) No. 6: ①
Test point 2 [TCM 50P connector No. 3](#)

- F-CAN_L wire*³/F-CAN A_L wire*⁴**
Test condition Vehicle OFF (LOCK) mode
 TCM 50P connector: disconnected
Test point 1 DLC (16P) (female terminals) No. 14: ①
Test point 2 [TCM 50P connector No. 11](#)



Is there continuity?

YES The F-CAN_H wire*³/F-CAN A_H wire*⁴ and the F-CAN_L wire*³/F-CAN A_L wire*⁴ are OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■

NO Repair an open in the F-CAN_H wire*³/F-CAN A_H wire*⁴ and/or the F-CAN_L wire*³/F-CAN A_L wire*⁴ between the DLC and the TCM.■

CVT Symptom Troubleshooting Index

NOTE: Do an all DTC check with the HDS, and troubleshoot any DTCs first before following the repair procedures listed in the index.

Symptom	Probable cause(s)	Notes
With the vehicle in the ON mode, the shift position indicator displays an improper indication, or it never displays at all	<ul style="list-style-type: none"> ● TCM defective ● F-CAN communication line error ● Gauge control module defective ● Transmission range switch defective ● Transmission range switch circuit ● Shift cable broken or out of adjustment ● Control pin broken ● Control shaft, roller, detent lever, and detent spring worn or damaged 	<ul style="list-style-type: none"> ● Check the F-CAN communication line. ● Check the F-CAN communication line by using the gauge control module self-diagnostic function. ● Inspect the transmission range switch. ● Inspect the open or short in the wire between the TCM and transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the control shaft, roller, detent lever, and detent spring for wear or damage.
Shift lever cannot be moved from P position/mode while pressing on the brake pedal	<ul style="list-style-type: none"> ● Shift lock solenoid defective ● Shift lock solenoid control circuit ● Shift lock mechanism defective ● Transmission range switch defective ● Transmission range switch circuit ● Brake pedal position switch circuit ● Brake pedal position switch defective ● Accelerator pedal position sensor circuit ● Accelerator pedal position sensor defective ● Throttle body defective 	<ul style="list-style-type: none"> ● Test the shift lock solenoid. ● Troubleshoot the shift lock system circuit. ● Inspect the transmission range switch. ● Inspect the APP sensor signal. ● Check the throttle body.
HDS does not communicate with the TCM	<ul style="list-style-type: none"> ● DLC circuit error ● TCM defective 	<ul style="list-style-type: none"> ● Troubleshoot the TCM communication circuit. ● Troubleshoot the DLC circuit.
Engine does not start	<ul style="list-style-type: none"> ● Shift cable broken or out of adjustment ● Control pin broken ● Transmission range switch defective or out of adjustment ● Drive plate worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check for a loose shift cable at the shift lever and the control lever. ● Inspect the transmission range switch. ● Inspect the drive plate for wear and damage. If the drive plate is worn or damaged, replace it. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Engine runs, but vehicle does not move in any positions/modes	<ul style="list-style-type: none"> ● Low transmission fluid (HCF-2) level ● Transmission range switch defective or out of adjustment ● Engine output low ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Input shaft assembly worn or damaged ● Secondary drive/driven gear worn or damaged ● Final driven gear worn or damaged ● Sun gear worn or damaged ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Control lever worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Manual valve worn or damaged ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Transmission fluid pump drive chain or transmission fluid pump drive/driven sprocket worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Inspect the transmission range switch. ● Adjust the engine output. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the secondary drive/driven gear for wear and damage. ● Check the final driven gear for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the control shaft, roller, detent lever, and detent spring for wear or damage. ● Check the control lever for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the manual valve for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the transmission fluid pump drive chain and the transmission fluid pump drive/driven sprocket for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Vehicle does not move in D, S, or L positions/modes	<ul style="list-style-type: none"> ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Engine output low ● Forward clutch defective ● Reverse brake piston defective ● Sun gear worn or damaged ● Manual valve worn or damaged ● Valve body assembly defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Adjust the engine output. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Vehicle does not move in R position/mode	<ul style="list-style-type: none"> ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Planetary carrier worn or damaged ● Sun gear worn or damaged ● Ring gear worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier seized, worn, or damaged ● Manual valve worn or damaged ● Valve body assembly defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the planetary carrier for wear and damage. If the planetary carrier is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the ring gear for wear and damage. If the ring gear is worn or damaged, replace it and also check the planetary carrier and the reverse brake for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the stator shaft for wear and damage.
Engine stalls when shifted to D position/mode from N position/mode	<ul style="list-style-type: none"> ● Engine output low ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Engine stalls when shifted to R position/mode from N position/mode	<ul style="list-style-type: none"> ● Engine output low ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Forward clutch defective ● Planetary carrier worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier seized, worn, or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Check the planetary carrier for wear and damage. If the planetary carrier is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
No shift to higher or lower ratio	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Poor acceleration	<ul style="list-style-type: none"> ● TCM defective ● CVT drive pulley speed sensor defective ● Engine output low ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the CVT drive pulley speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Adjust the engine output. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Engine revs up abnormally high while driving, and no acceleration	<ul style="list-style-type: none"> ● TCM defective ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Transmission fluid pump drive chain or transmission fluid pump drive/driven sprocket worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the transmission fluid pump drive chain and the transmission fluid pump drive/driven sprocket for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Excessive shock when accelerating and decelerating	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
No engine braking	<ul style="list-style-type: none"> ● TCM defective ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Vehicle does not creep on a flat road in D, S, or L positions/modes	<ul style="list-style-type: none"> ● TCM defective ● CVT drive pulley speed sensor defective ● Engine output low ● Low transmission fluid (HCF-2) level ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the CVT drive pulley speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Adjust the engine output. ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Vehicle moves in N position/mode, shift cable is properly adjusted	<ul style="list-style-type: none"> ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Spring retainer/return spring assembly defective ● Thrust needle bearing on input shaft assembly seized, worn, or damaged ● Manual valve worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust needle bearing on the input shaft assembly for seize, wear, and damage. If the thrust needle bearing is seized, worn, or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the manual valve for wear and damage. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Late shift after shifting to D position/mode from N position/mode, and return to N position/mode	<ul style="list-style-type: none"> ● TCM defective ● Torque converter turbine speed sensor defective ● Low transmission fluid (HCF-2) level ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Transmission fluid strainer or CVTF warmer strainer clogged ● Forward clutch defective ● Manual valve worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the torque converter turbine speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Check the transmission fluid (HCF-2) level. ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage.
Late shift after shifting to R position/mode from N position/mode, and return to N position/mode	<ul style="list-style-type: none"> ● TCM defective ● Torque converter turbine speed sensor defective ● Low transmission fluid (HCF-2) level ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Transmission fluid strainer or CVTF warmer strainer clogged ● Reverse brake defective ● Reverse brake piston defective ● Manual valve worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the torque converter turbine speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Check the transmission fluid (HCF-2) level. ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Unstable engine speed	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● CVT drive pulley pressure control solenoid valve defective ● CVT driven pulley pressure control solenoid valve defective ● CVT clutch pressure control solenoid valve defective ● CVT lock-up clutch control solenoid valve defective ● Shift solenoid valve B defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Inspect the CVT solenoid valve. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Excessive shock when starting off	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Transmission fluid strainer or CVTF warmer strainer clogged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Valve body assembly defective ● Joint pipes defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage.
Vibration in all positions/modes	<ul style="list-style-type: none"> ● Engine output low ● Input shaft assembly worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Excessive idle vibration in R, D, S, or L positions/modes	<ul style="list-style-type: none"> ● TCM defective ● Engine output low ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Thrust washer on planetary carrier seized, worn, or damaged ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust washer on the planetary carrier for seize, wear, and damage. If the thrust washer is seized, worn, or damaged, replace it and adjust the clearance with the thrust shim. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Excessive idle vibration in N and P positions/modes	<ul style="list-style-type: none"> ● TCM defective ● Engine output low ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Noise from transmission in N and P positions/modes	<ul style="list-style-type: none"> ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Thrust needle bearing on input shaft assembly seized, worn, or damaged ● Planetary carrier worn or damaged ● Sun gear worn or damaged ● Ring gear worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier seized, worn, or damaged ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump 	<ul style="list-style-type: none"> ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust needle bearing on the input shaft assembly for seize, wear, and damage. If the thrust needle bearing is seized, worn, or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the planetary carrier for wear and damage. If the planetary carrier is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the ring gear for wear and damage. If the ring gear is worn or damaged, replace it and also check the planetary carrier and the reverse brake for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly.
Noise from transmission in D, S, or L positions/modes	<ul style="list-style-type: none"> ● Input shaft assembly worn or damaged ● Secondary drive/driven gear worn or damaged ● Final driven gear worn or damaged ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Parking pawl spring worn or damaged 	<ul style="list-style-type: none"> ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the secondary drive/driven gear for wear and damage. ● Check the final driven gear for wear and damage. ● Check the control shaft, roller, detent lever, and detent spring for wear or damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the parking pawl spring for wear and damage.

Symptom	Probable cause(s)	Notes
Noise from transmission in R position/mode	<ul style="list-style-type: none"> ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Spring retainer/return spring assembly defective ● Thrust needle bearing on input shaft assembly seized, worn, or damaged ● Planetary carrier worn or damaged ● Sun gear worn or damaged ● Ring gear worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier seized, worn, or damaged ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Parking pawl spring worn or damaged 	<ul style="list-style-type: none"> ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust needle bearing on the input shaft assembly for seize, wear, and damage. If the thrust needle bearing is seized, worn, or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the planetary carrier for wear and damage. If the planetary carrier is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the ring gear for wear and damage. If the ring gear is worn or damaged, replace it and also check the planetary carrier and the reverse brake for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Check the control shaft, roller, detent lever, and detent spring for wear or damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the parking pawl spring for wear and damage.

Symptom	Probable cause(s)	Notes
Stall speed high	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Stall speed low	<ul style="list-style-type: none"> ● TCM defective ● Engine output low ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Judder when starting off	<ul style="list-style-type: none"> ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Transmission fluid strainer or CVTF warmer strainer clogged ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage.

Symptom	Probable cause(s)	Notes
Shift lever does not operate smoothly	<ul style="list-style-type: none"> ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Control lever worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Manual valve worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the control shaft, roller, detent lever, and detent spring for wear or damage. ● Check the control lever for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the manual valve for wear and damage. ● Check the stator shaft for wear and damage.
Transmission will not shift into P position/mode, or transmission cannot shift out of P position/mode	<ul style="list-style-type: none"> ● TCM defective ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Control lever worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Park gear worn or damaged ● Parking pawl spring worn or damaged ● Manual valve worn or damaged ● Valve body assembly defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the control shaft, roller, detent lever, and detent spring for wear or damage. ● Check the control lever for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the park gear for wear and damage. ● Check the parking pawl spring for wear and damage. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the stator shaft for wear and damage.
Torque converter clutch does not disengage; engine stalls easily	<ul style="list-style-type: none"> ● Shift solenoid valve B defective ● CVT lock-up clutch control solenoid valve defective ● Torque converter clutch piston defective ● Valve body assembly defective 	<ul style="list-style-type: none"> ● Inspect shift solenoid valve B. ● Inspect the CVT lock-up clutch control solenoid valve. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage.

CVT Symptom Troubleshooting Index

NOTE: Do an all DTC check with the HDS, and troubleshoot any DTCs first before following the repair procedures listed in the index.

Symptom	Probable cause(s)	Notes
With the vehicle in the ON mode, the shift position indicator displays an improper indication, or it never displays at all	<ul style="list-style-type: none"> ● F-CAN communication line error ● Gauge control module defective ● TCM defective ● Transmission range switch defective or out of adjustment ● Transmission range switch circuit ● Shift cable broken or out of adjustment ● Control pin broken ● Control shaft, roller, detent lever, and detent spring worn or damaged 	<ul style="list-style-type: none"> ● Check the F-CAN communication line. ● Check the F-CAN communication line by using the gauge control module self-diagnostic function. ● Inspect the transmission range switch. ● Inspect the open or short in the wire between the TCM and transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the control shaft, roller, detent lever, and detent spring for wear and damage.
Shift lever cannot be moved from P position/mode while pressing on the brake pedal	<ul style="list-style-type: none"> ● Shift lock solenoid defective ● Shift lock solenoid control circuit ● Shift lock mechanism defective ● Transmission range switch defective ● Transmission range switch circuit ● Brake pedal position switch circuit ● Brake pedal position switch defective ● Accelerator pedal position sensor circuit ● Accelerator pedal position sensor defective ● Throttle body defective 	<ul style="list-style-type: none"> ● Test the shift lock solenoid. ● Troubleshoot the shift lock system circuit. ● Inspect the transmission range switch. ● Inspect the APP sensor signal. ● Check the throttle body.
When you press the paddle shifter, the transmission does not upshift/downshift (With paddle shifter)	<ul style="list-style-type: none"> ● A problem in the paddle shifter circuit ● Paddle shifter defective ● TCM defective 	<ul style="list-style-type: none"> ● Troubleshoot the paddle shifter circuit. ● Test the paddle shifter.
M indicator does not come on even though the paddle shifter is operated in the S-paddle shift mode. (With paddle shifter)	<ul style="list-style-type: none"> ● F-CAN communication line error ● Gauge control module defective ● TCM defective 	<ul style="list-style-type: none"> ● Check the F-CAN communication line. ● Check the F-CAN communication line by using the gauge control module self-diagnostic function.
HDS does not communicate with the TCM	<ul style="list-style-type: none"> ● DLC circuit error ● TCM defective 	<ul style="list-style-type: none"> ● Troubleshoot the TCM communication circuit. ● Troubleshoot the DLC circuit.
Engine does not start	<ul style="list-style-type: none"> ● Shift cable broken or out of adjustment ● Control pin broken ● Transmission range switch defective or out of adjustment ● Drive plate worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check for a loose shift cable at the shift lever and the control lever. ● Inspect the transmission range switch. ● Inspect the drive plate for wear and damage. If the drive plate is worn or damaged, replace it. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Engine runs, but vehicle does not move in any positions/modes	<ul style="list-style-type: none"> ● Low transmission fluid (HCF-2) level ● Transmission range switch defective or out of adjustment ● Engine output low ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Input shaft assembly worn or damaged ● Secondary drive/driven gear worn or damaged ● Final driven gear worn or damaged ● Sun gear worn or damaged ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Control lever worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Manual valve worn or damaged ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Transmission fluid pump drive chain or transmission fluid pump drive/driven sprocket worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Inspect the transmission range switch. ● Adjust the engine output. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the secondary drive/driven gear for wear and damage. ● Check the final driven gear for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the control shaft, roller, detent lever, and detent spring for wear and damage. ● Check the control lever for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the manual valve for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the transmission fluid pump drive chain and the transmission fluid pump drive/driven sprocket for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Vehicle does not move in D, S, or L positions/modes	<ul style="list-style-type: none"> ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Engine output low ● Forward clutch defective ● Reverse brake piston defective ● Sun gear worn or damaged ● Manual valve worn or damaged ● Valve body assembly defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Adjust the engine output. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Vehicle does not move in R position/mode	<ul style="list-style-type: none"> ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Reverse brake defective ● Reverse brake piston defective ● Planetary carrier assembly worn or damaged ● Sun gear worn or damaged ● Ring gear worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier assembly seized, worn, or damaged ● Manual valve worn or damaged ● Valve body assembly defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the planetary carrier assembly for wear and damage. If the planetary carrier assembly is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the ring gear for wear and damage. If the ring gear is worn or damaged, replace it and also check the planetary carrier assembly and the reverse brake for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier assembly for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the stator shaft for wear and damage.
Engine stalls when shifted to D position/mode from N position/mode	<ul style="list-style-type: none"> ● Engine output low ● Reverse brake defective ● Reverse brake piston defective ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Engine stalls when shifted to R position/mode from N position/mode	<ul style="list-style-type: none"> ● Engine output low ● Forward clutch defective ● Planetary carrier assembly worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier assembly seized, worn, or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Check the planetary carrier assembly for wear and damage. If the planetary carrier assembly is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier assembly for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
No shift to higher or lower ratio	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Poor acceleration	<ul style="list-style-type: none"> ● TCM defective ● CVT drive pulley speed sensor defective ● Engine output low ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the CVT drive pulley speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Adjust the engine output. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Engine revs up abnormally high while driving, and no acceleration	<ul style="list-style-type: none"> ● TCM defective ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Transmission fluid pump drive chain or transmission fluid pump drive/driven sprocket worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the transmission fluid pump drive chain and the transmission fluid pump drive/driven sprocket for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Excessive shock when accelerating and decelerating	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
No engine braking	<ul style="list-style-type: none"> ● TCM defective ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Vehicle does not creep on a flat road in D, S, or L positions/modes	<ul style="list-style-type: none"> ● TCM defective ● CVT drive pulley speed sensor defective ● Engine output low ● Low transmission fluid (HCF-2) level ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the CVT drive pulley speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Adjust the engine output. ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Vehicle moves in N position/mode, shift cable is properly adjusted	<ul style="list-style-type: none"> ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Spring retainer/return spring assembly defective ● Thrust needle bearing on input shaft assembly seized, worn, or damaged ● Manual valve worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust needle bearing on the input shaft assembly for seize, wear, and damage. If the thrust needle bearing is seized, worn, or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the manual valve for wear and damage. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Late shift after shifting to D position/mode from N position/mode, and return to N position/mode	<ul style="list-style-type: none"> ● TCM defective ● Torque converter turbine speed sensor defective ● Low transmission fluid (HCF-2) level ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Transmission fluid strainer or CVTF warmer strainer clogged ● Forward clutch defective ● Manual valve worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the torque converter turbine speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Check the transmission fluid (HCF-2) level. ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage.
Late shift after shifting to R position/mode from N position/mode, and return to N position/mode	<ul style="list-style-type: none"> ● TCM defective ● Torque converter turbine speed sensor defective ● Low transmission fluid (HCF-2) level ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Transmission fluid strainer or CVTF warmer strainer clogged ● Reverse brake defective ● Reverse brake piston defective ● Manual valve worn or damaged ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the torque converter turbine speed sensor for wear and damage, and also check the O-ring for wear and damage. ● Check the transmission fluid (HCF-2) level. ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage.

Symptom	Probable cause(s)	Notes
Unstable engine speed	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Transmission fluid strainer or CVTF warmer strainer clogged ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● CVT drive pulley pressure control solenoid valve defective ● CVT driven pulley pressure control solenoid valve defective ● CVT clutch pressure control solenoid valve defective ● CVT lock-up clutch control solenoid valve defective ● Shift solenoid valve B defective ● Shift solenoid valve O/P defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Inspect the CVT solenoid valve. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Excessive shock when starting off	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Transmission fluid strainer or CVTF warmer strainer clogged ● Pulley pressure feed pipe defective ● Forward clutch defective ● Reverse brake defective ● Reverse brake piston defective ● Valve body assembly defective ● Joint pipes defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the pulley pressure feed pipe and the sealing ring for wear and damage. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage.
Vibration in all positions/modes	<ul style="list-style-type: none"> ● Engine output low ● Input shaft assembly worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Excessive idle vibration in R, D, S, or L positions/modes	<ul style="list-style-type: none"> ● TCM defective ● Engine output low ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Thrust washer on planetary carrier assembly seized, worn, or damaged ● Valve body assembly defective ● Joint pipes defective ● Solenoid wire harness worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust washer on the planetary carrier assembly for seize, wear, and damage. If the thrust washer is seized, worn, or damaged, replace it and adjust the clearance with the thrust shim. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Inspect the solenoid wire harness for open and short. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Excessive idle vibration in N and P positions/modes	<ul style="list-style-type: none"> ● TCM defective ● Engine output low ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Noise from transmission in N and P positions/modes	<ul style="list-style-type: none"> ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Thrust needle bearing or thrust shim on input shaft assembly seized, worn, or damaged ● Planetary carrier assembly worn or damaged ● Sun gear worn or damaged ● Ring gear worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier assembly seized, worn, or damaged ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump 	<ul style="list-style-type: none"> ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the thrust needle bearing and the thrust shim on the input shaft assembly for seize, wear, and damage. If the thrust needle bearing or the thrust shim are seized, worn, or damaged, replace them and also check the related part of the input shaft assembly for wear and damage. ● Check the planetary carrier assembly for wear and damage. If the planetary carrier assembly is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the ring gear for wear and damage. If the ring gear is worn or damaged, replace it and also check the planetary carrier assembly and the reverse brake for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier assembly for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly.

Symptom	Probable cause(s)	Notes
Noise from transmission in D, S, or L positions/modes	<ul style="list-style-type: none"> ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Input shaft assembly worn or damaged ● Secondary drive/driven gear worn or damaged ● Final driven gear worn or damaged ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Parking pawl spring worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Check the secondary drive/driven gear for wear and damage. ● Check the final driven gear for wear and damage. ● Check the control shaft, roller, detent lever, and detent spring for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the parking pawl spring for wear and damage.

Symptom	Probable cause(s)	Notes
Noise from transmission in R position/mode	<ul style="list-style-type: none"> ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Spring retainer/return spring assembly defective ● Secondary drive/driven gear worn or damaged ● Final driven gear worn or damaged ● Thrust needle bearing or thrust shim on input shaft assembly seized, worn, or damaged ● Planetary carrier assembly worn or damaged ● Sun gear worn or damaged ● Ring gear worn or damaged ● Thrust needle bearing or thrust washer on planetary carrier assembly seized, worn, or damaged ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Parking pawl spring worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the secondary drive/driven gear for wear and damage. ● Check the final driven gear for wear and damage. ● Check the thrust needle bearing and the thrust shim on the input shaft assembly for seize, wear, and damage. If the thrust needle bearing or the thrust shim are seized, worn, or damaged, replace them and also check the related part of the input shaft assembly for wear and damage. ● Check the planetary carrier assembly for wear and damage. If the planetary carrier assembly is worn or damaged, replace it and also check the planetary carrier pinion gears, the reverse brake, and the drive pulley shaft splines for wear and damage. ● Check the sun gear for wear and damage. If the sun gear is worn or damaged, replace it and also check the planetary carrier pinion gears, the forward clutch, and the drive pulley shaft splines for wear and damage. ● Check the ring gear for wear and damage. If the ring gear is worn or damaged, replace it and also check the planetary carrier assembly and the reverse brake for wear and damage. ● Check the thrust needle bearing and the thrust washer on the planetary carrier assembly for seize, wear, and damage. If the thrust needle bearing or the thrust washer are seized, worn, or damaged, replace them and adjust the clearance with the thrust shim. ● Check the control shaft, roller, detent lever, and detent spring for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the parking pawl spring for wear and damage.

Symptom	Probable cause(s)	Notes
Stall speed high	<ul style="list-style-type: none"> ● TCM defective ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Forward clutch defective ● Input shaft assembly worn or damaged ● Reverse brake defective ● Reverse brake piston defective ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Inspect the clearance between the forward clutch end-plate and the top disc. If the clearance is out of tolerance, replace the input shaft assembly. ● Inspect the input shaft assembly for wear and damage. If the input shaft assembly is worn or damaged, replace it and also check the related part of the input shaft assembly for wear and damage. ● Inspect the reverse brake piston and the O-rings. Check the spring retainer/return spring assembly for wear and damage. Inspect the clearance between the reverse brake end-plate and the top disc. If the clearance is out of tolerance, inspect the reverse brake discs and reverse brake plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the reverse brake end-plate. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Stall speed low	<ul style="list-style-type: none"> ● TCM defective ● Engine output low ● Valve body assembly defective ● Joint pipes defective ● Stator shaft worn or damaged ● Torque converter assembly defective ● Torque converter ring gear worn or damaged ● Transmission assembly and drive plate installation defective 	<ul style="list-style-type: none"> ● Adjust the engine output. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage. ● Check the stator shaft for wear and damage. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly.
Judder when starting off	<ul style="list-style-type: none"> ● Low transmission fluid (HCF-2) level ● Transmission fluid (HCF-2) deteriorated ● Transmission fluid strainer or CVTF warmer strainer clogged ● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump ● Valve body assembly defective ● Joint pipes defective 	<ul style="list-style-type: none"> ● Check the transmission fluid (HCF-2) level. ● Check the transmission fluid (HCF-2) condition. If necessary, replace the transmission fluid (HCF-2). ● Check the transmission fluid strainer and the CVTF warmer strainer for debris. If the transmission fluid strainer or the CVTF warmer strainer is clogged, find the damaged components that caused debris. ● Check the transmission fluid pump for wear and damage. If the transmission fluid pump is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage. ● Check the joint pipes and O-rings for wear and damage.

Symptom	Probable cause(s)	Notes
Shift lever does not operate smoothly	<ul style="list-style-type: none"> ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Control lever worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Manual valve worn or damaged ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the control shaft, roller, detent lever, and detent spring for wear and damage. ● Check the control lever for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the manual valve for wear and damage. ● Check the stator shaft for wear and damage.
Transmission will not shift into P position/mode, or transmission cannot shift out of P position/mode	<ul style="list-style-type: none"> ● TCM defective ● Drive pulley, driven pulley, pulley shaft, steel belt, and pulley related parts worn or damaged ● Transmission range switch defective or out of adjustment ● Shift cable broken or out of adjustment ● Control pin broken ● Control shaft, roller, detent lever, and detent spring worn or damaged ● Control lever worn or damaged ● Parking brake pawl and parking shaft worn or damaged ● Park gear worn or damaged ● Parking pawl spring worn or damaged ● Manual valve worn or damaged ● Valve body assembly defective ● Stator shaft worn or damaged 	<ul style="list-style-type: none"> ● Check the drive pulley, the driven pulley, the pulley shafts, the steel belt, and pulley related parts for wear and damage. If there are worn or damaged, replace the transmission housing assembly. ● Inspect the transmission range switch. ● Check for a loose shift cable at the shift lever and the control lever. ● Check the control shaft, roller, detent lever, and detent spring for wear and damage. ● Check the control lever for wear and damage. ● Check the parking brake pawl and the parking shaft for wear and damage. If the parking brake pawl or the parking shaft are worn or damaged, replace them and also check the park gear for wear and damage. ● Check the park gear for wear and damage. ● Check the parking pawl spring for wear and damage. ● Check the manual valve for wear and damage. ● Check the valve body assembly for wear and damage. ● Check the stator shaft for wear and damage.
Torque converter clutch does not disengage; engine stalls easily	<ul style="list-style-type: none"> ● Shift solenoid valve B defective ● CVT lock-up clutch control solenoid valve defective ● Torque converter clutch piston defective ● Valve body assembly defective 	<ul style="list-style-type: none"> ● Inspect shift solenoid valve B. ● Inspect the CVT lock-up clutch control solenoid valve. ● Inspect the torque converter assembly for wear and damage. If the torque converter assembly is worn or damaged, replace it as an assembly. ● Check the valve body assembly for wear and damage.

CVT System DTC Troubleshooting Index

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and [review the General Troubleshooting Information](#).

DTC ^{*(1)}	Shift Position Indicator	MIL 	Detection Item
P0501 (36) ^{*(2)}	Blinks	ON	CVT Speed Sensor Circuit Range/Performance
P0502 (36) ^{*(2)}	Blinks	ON	CVT Speed Sensor Circuit Open/Short
P0600 (94) ^{*(2)}	Blinks	ON	Serial Communication
P0602 (0)	OFF	ON	Boot Mode(Programming Error)
P062F (0) ^{*(2)}	Blinks	ON	TCM Internal Control Module Error
P0641 (183) ^{*(2)}	Blinks	ON	Sensor Reference Voltage 1 Circuit Malfunction
P0651 (184) ^{*(2)}	Blinks	ON	Sensor Reference Voltage 2 Circuit Malfunction
A06A8 (0) ^{*(2)}	Blinks	ON	Internal VCC Power Malfunction
P0705 (5) ^{*(2)}	Blinks	ON	Transmission Range Switch Multiple Shift Position Input
P0706 (6) ^{*(2)}	OFF	ON	Transmission Range Switch Open
P0710 (28) ^{*(2)}	Blinks	ON	CVT Fluid Temperature Sensor (Out of Range)
P0711 (28) ^{*(2)}	Blinks	ON	CVT Fluid Temperature Sensor (Range/Performance)
P0712 (28) ^{*(2)}	Blinks	ON	CVT Fluid Temperature Sensor (Short)
P0713 (28) ^{*(2)}	Blinks	ON	CVT Fluid Temperature Sensor (Open)
P0714 (28) ^{*(2)}	Blinks	ON	CVT Fluid Temperature Sensor (Intermittent Failure)
P0716 (52) ^{*(2)}	Blinks	ON	Input/Turbine Speed Sensor "A" Circuit Range/Performance
P0717 (52) ^{*(2)}	Blinks	ON	Input/Turbine Speed Sensor "A" Circuit No Signal
P0741 (40)	Blinks	ON	Torque Converter Clutch Circuit Performance or Stuck OFF
P0746 (104)	Blinks	ON	CVT Drive Pulley Pressure Control Solenoid Valve Stuck OFF
P0777 (105)	Blinks	ON	CVT Driven Pulley Pressure Control Solenoid Valve Stuck ON
P0780 (100) ^{*(3)}	Blinks	ON	Shift Error
P0792 (34) ^{*(2)}	Blinks	ON	Intermediate Shaft Speed Sensor "A" Circuit Range/Performance
P0793 (34) ^{*(2)}	Blinks	ON	Intermediate Shaft Speed Sensor "A" Circuit No Signal
P0796 (106)	Blinks	ON	Pressure Control Solenoid Valve "C" Performance or Stuck OFF
P0797 (106)	Blinks	ON	Pressure Control Solenoid Valve "C" Stuck ON
P0842 (56) ^{*(2)}	Blinks	OFF	Transmission Fluid Pressure Sensor/Switch "A" Circuit Low
P0843 (56) ^{*(2)}	Blinks	OFF	Transmission Fluid Pressure Sensor/Switch "A" Circuit High
P0962 (38) ^{*(2)}	Blinks	ON	CVT Drive Pulley Pressure Control Valve Circuit Low
P0963 (38) ^{*(2)}	Blinks	ON	CVT Drive Pulley Pressure Control Valve Circuit High
P0966 (39) ^{*(2)}	Blinks	ON	CVT Driven Pulley Pressure Control Valve Circuit Low
P0967 (39) ^{*(2)}	Blinks	ON	CVT Driven Pulley Pressure Control Valve Circuit High
P0970 (50) ^{*(2)}	Blinks	ON	Pressure Control Solenoid "C" Control Circuit Low
P0971 (50) ^{*(2)}	Blinks	ON	Pressure Control Solenoid "C" Control Circuit High
P0976 (8) ^{*(2)}	Blinks	ON	Shift Solenoid Valve "B" Circuit Low

DTC ^{*(1)}	Shift Position Indicator	MIL 	Detection Item
P0977 (8) ^{*(2)}	Blinks	ON	Shift Solenoid Valve "B" Circuit High
P1717 (62) ^{*(2)}	Blinks	OFF	Transmission Range Switch ATP RVS Switch (Open or Short)
P1840 (36)	Blinks	OFF	CVT Speed Sensor Circuit Forward Rotation Range/Performance
P1841 (36)	Blinks	OFF	CVT Speed Sensor Circuit Reverse Rotation Range/Performance
P1844 (34)	Blinks	OFF	CVT Input Shaft Speed Sensor Circuit Forward Rotation Range/Performance
P1845 (34)	Blinks	OFF	CVT Input Shaft Speed Sensor Circuit Reverse Rotation Range/Performance
P1855 (58) ^{*(2)}	OFF	OFF	Inclination Sensor Circuit Range/Performance
P1890 (42)	Blinks	OFF	CVT Speed Control System
P1898 (100)	Blinks	ON	CVT Drive Pulley Pressure Control Valve Stuck ON or CVT Driven Pulley Pressure Control Valve Stuck OFF
P1899 (100)	Blinks	ON	CVT Drive Pulley Pressure Control Valve Stuck OFF or CVT Driven Pulley Pressure Control Valve Stuck ON
P2715 (102)	Blinks	ON	Pressure Control Solenoid "D" Stuck On
P2720 (51) ^{*(2)}	Blinks	ON	Pressure Control Solenoid "D" Control Circuit Low
P2721 (51) ^{*(2)}	Blinks	ON	Pressure Control Solenoid "D" Control Circuit High
U0029 (107) ^{*(2)}	Blinks	ON	F-CAN Malfunction (F-CAN Bus OFF)
U0038 (121) ^{*(2)}	Blinks	ON	TM-CAN Malfunction (TCM-PCM)
U0100 (107) ^{*(2)}	Blinks	ON	F-CAN Malfunction (TCM - FI Control Module)
U0122 (107) ^{*(2)}	Blinks	OFF	Lost Communication With Vehicle Dynamics Control Module
U0151 (107) ^{*(2)}	Blinks	OFF	Lost Communication With SRS Unit
U0155 (107) ^{*(2)}	Blinks	OFF	Lost Communication With Gauge Control Module
U0302 (129)	Blinks	ON	PGM-FI System and A/T System Program Version Mismatch

NOTE:

* (1): The DTC in parentheses is the flash code the shift position indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.

* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

* (3): This code is stored whenever DTCs P1898 and P1899 are detected.

CVT System DTC Troubleshooting Index

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and [review the General Troubleshooting Information](#).

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P2721 (51) ⁽²⁾	Blinks	ON	Pressure Control Solenoid "D" Control Circuit High
P2817 (108)	Blinks	OFF	Shift Solenoid Valve O/P (Pressure Control Solenoid "H") Stuck Off
P2818 (108)	Blinks	OFF	Shift Solenoid Valve O/P (Pressure Control Solenoid "H") Stuck On
P281D (57) ⁽²⁾	Blinks	OFF	Shift Solenoid Valve O/P (Pressure Control Solenoid "H") Control Circuit Low
P281E (57) ⁽²⁾	Blinks	OFF	Shift Solenoid Valve O/P (Pressure Control Solenoid "H") Control Circuit High
U0029 (107) ⁽²⁾	Blinks	ON	F-CAN Malfunction (F-CAN Bus OFF)
U0038 (121) ⁽²⁾	Blinks	ON	TM-CAN Malfunction (TCM-PCM)
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*⁽³⁾: This code is stored whenever DTCs P1898 and P1899 are detected.

CVT Transmission Disassembly and Reassembly

Special Tool Required

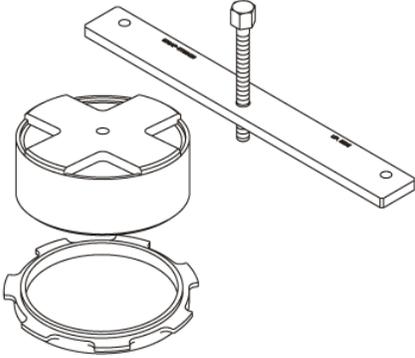
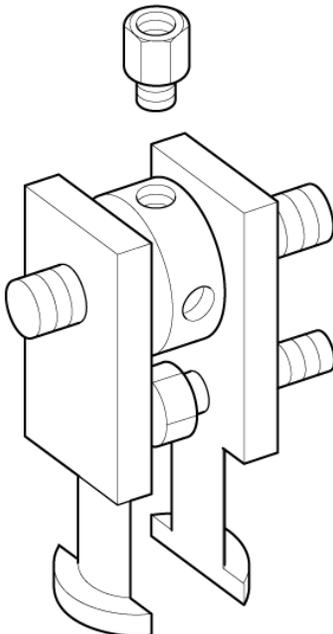
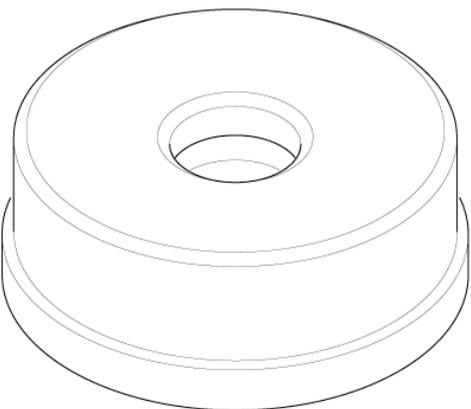
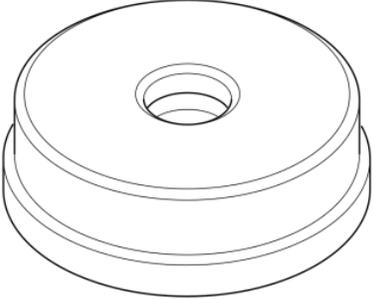
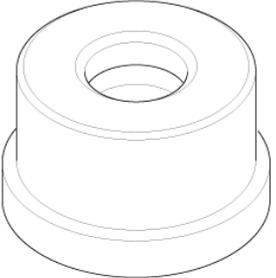
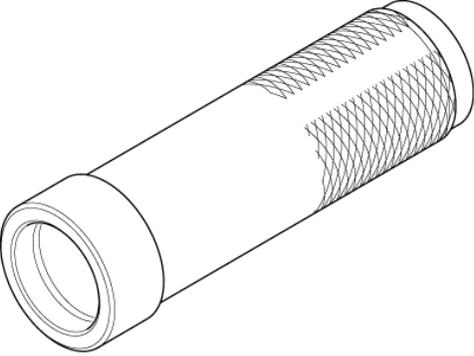
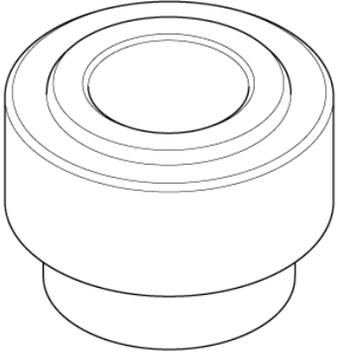
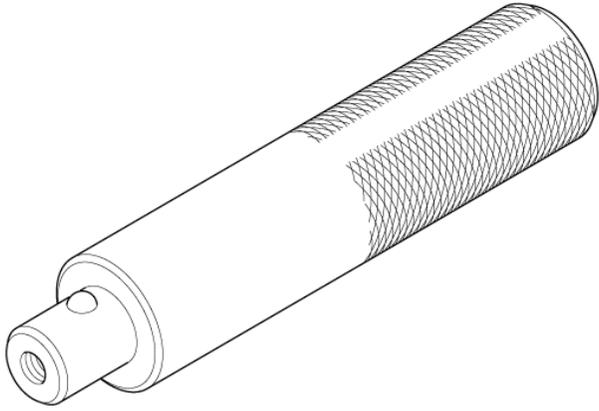
Image	Description/Tool Number
 A technical line drawing of a reverse brake spring compressor set. It consists of a cylindrical metal housing with a cross-shaped internal structure, a matching outer ring, and a long metal bar with a threaded end and a hole at the other end.	Reverse Brake Spring Compressor Set 070AF-5T0A100
 A technical line drawing of an adjustable bearing puller. It features a central threaded rod with a conical tip, a central block with a hole, and two side blocks with threaded ends. A curved hook is attached to the bottom of the central block.	Adjustable Bearing Puller, 25—40 mm 07736-A01000B*
 A technical line drawing of a bearing driver attachment. It is a cylindrical metal component with a central hole and a flange on one end.	Bearing Driver Attachment, 52 x 55 mm 07746-0010400

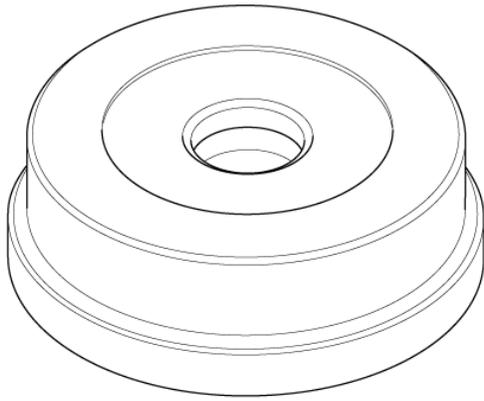
Image	Description/Tool Number
	Bearing Driver Attachment, 62 x 68 mm 07746-0010500
	Attachment, 22 x 24 mm 07746-001A800
	Driver Handle, 40 mm I.D. 07746-0030100
	Bearing Driver Attachment, 30 mm I.D. 07746-0030300

Image

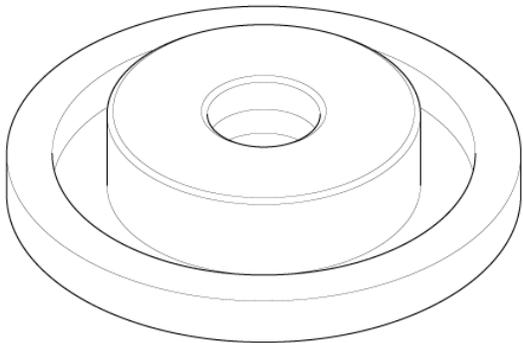
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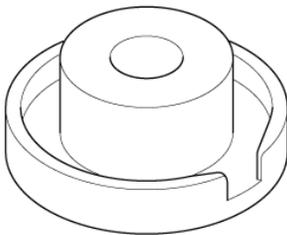
Driver Handle, 15 x 135L 07749-0010000



Bearing Driver Attachment, 62 x 64 mm 07947-6340400



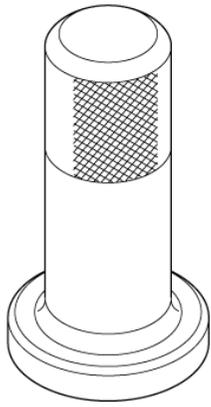
Oil Seal Driver Attachment, 71.5 mm 07GAD-SE00100



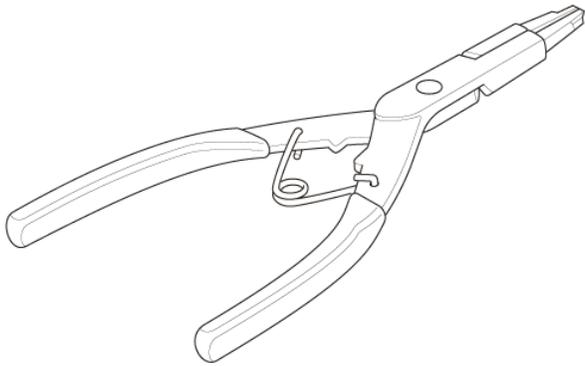
Oil Seal Driver Attachment, 58 mm 07JAD-PH80101

Image

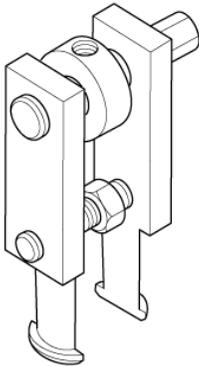
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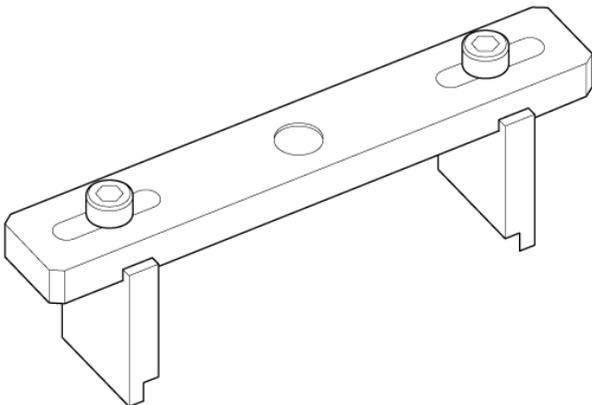
Oil Seal Driver, 65 mm 07JAD-PL9A100



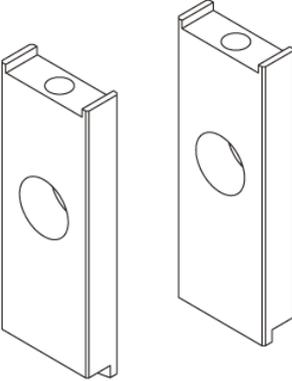
Snap Ring Pliers 07LGC-0010100



Adjustable Bearing Puller, 45–75 mm 07YAC-0010102*



Clutch Compressor Attachment 07ZAE-PRP0100

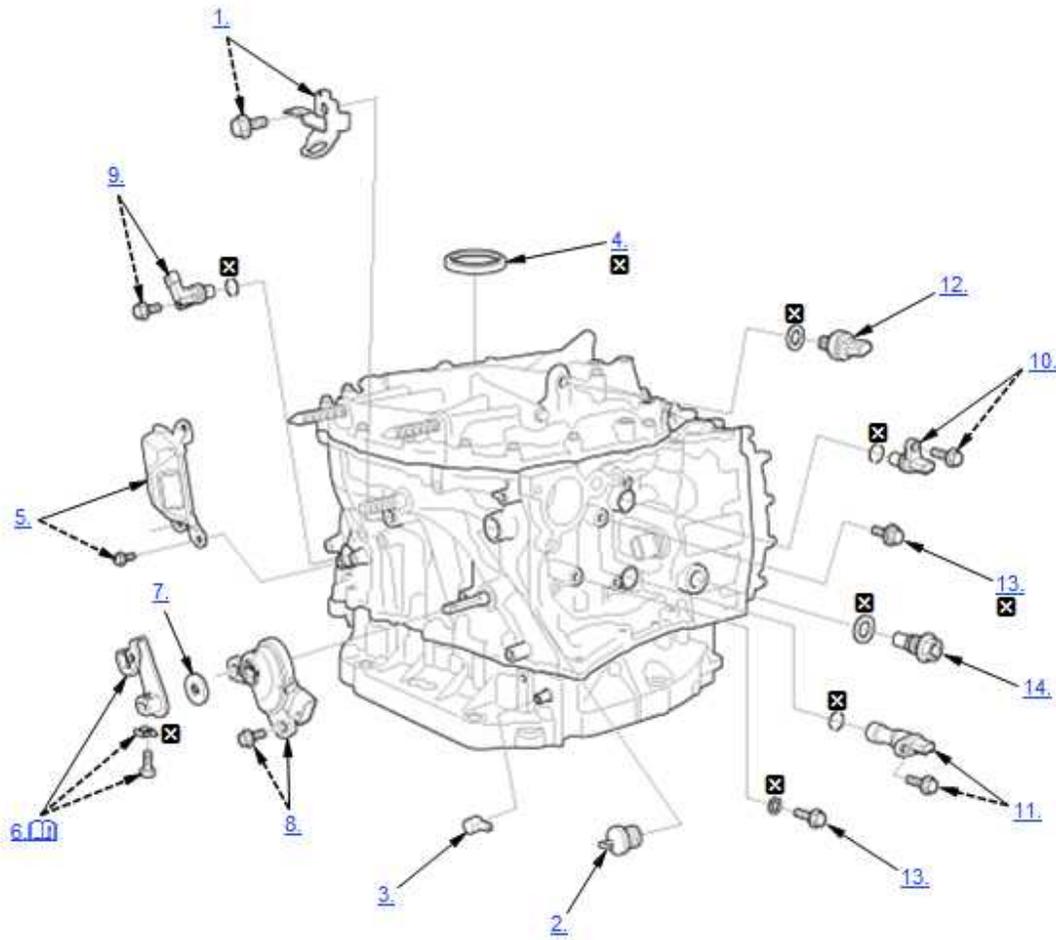
Image	Description/Tool Number
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*: This tool must be used with a commercially available 3/8"-16 slide hammer.

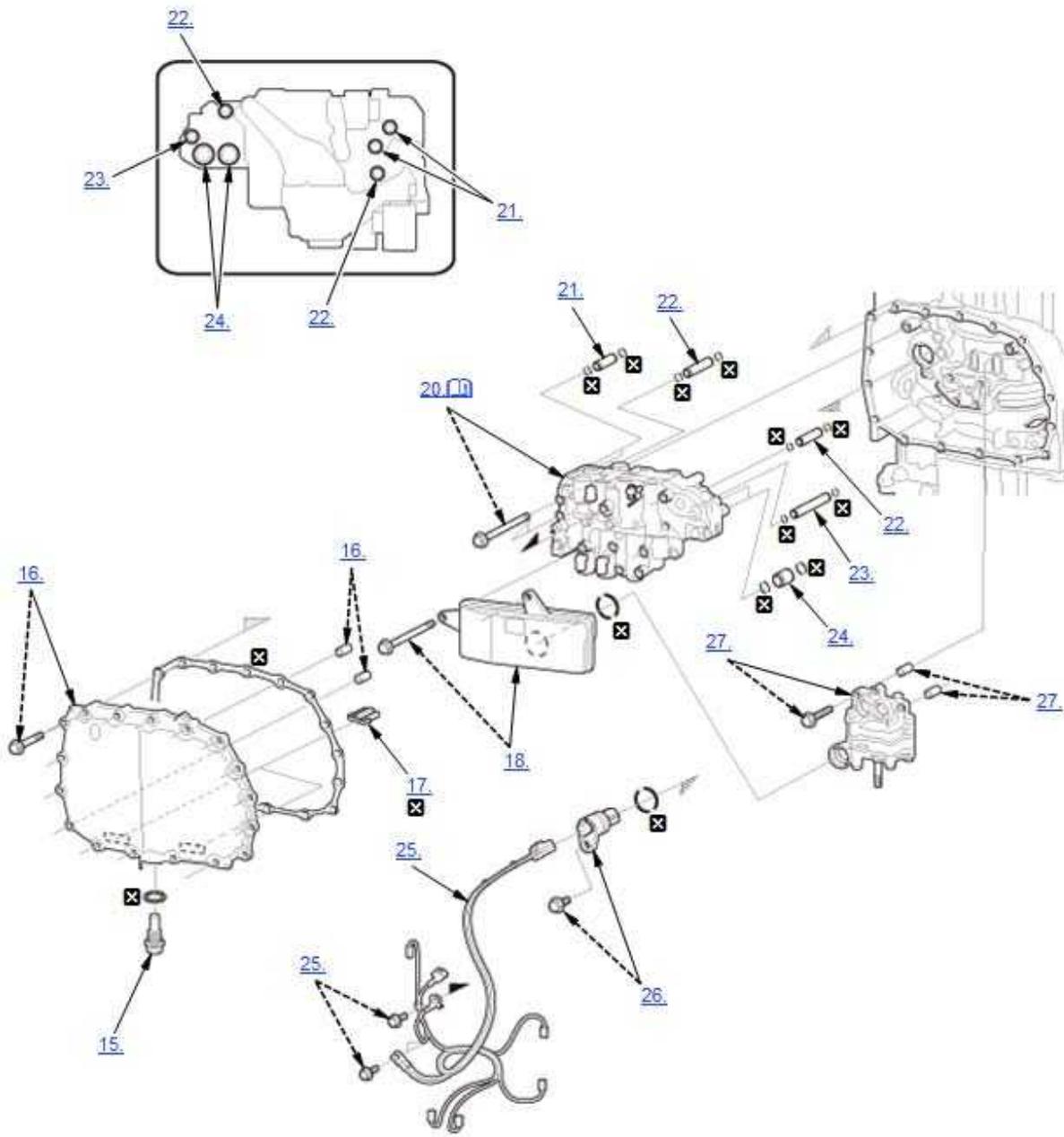
Disassembly

NOTE:

-  Where icon is shown, click for further information.
- Mark or place all removed parts in order in a parts rack so they can be reassembled in their original places.
- Keep all foreign particles out of the transmission.

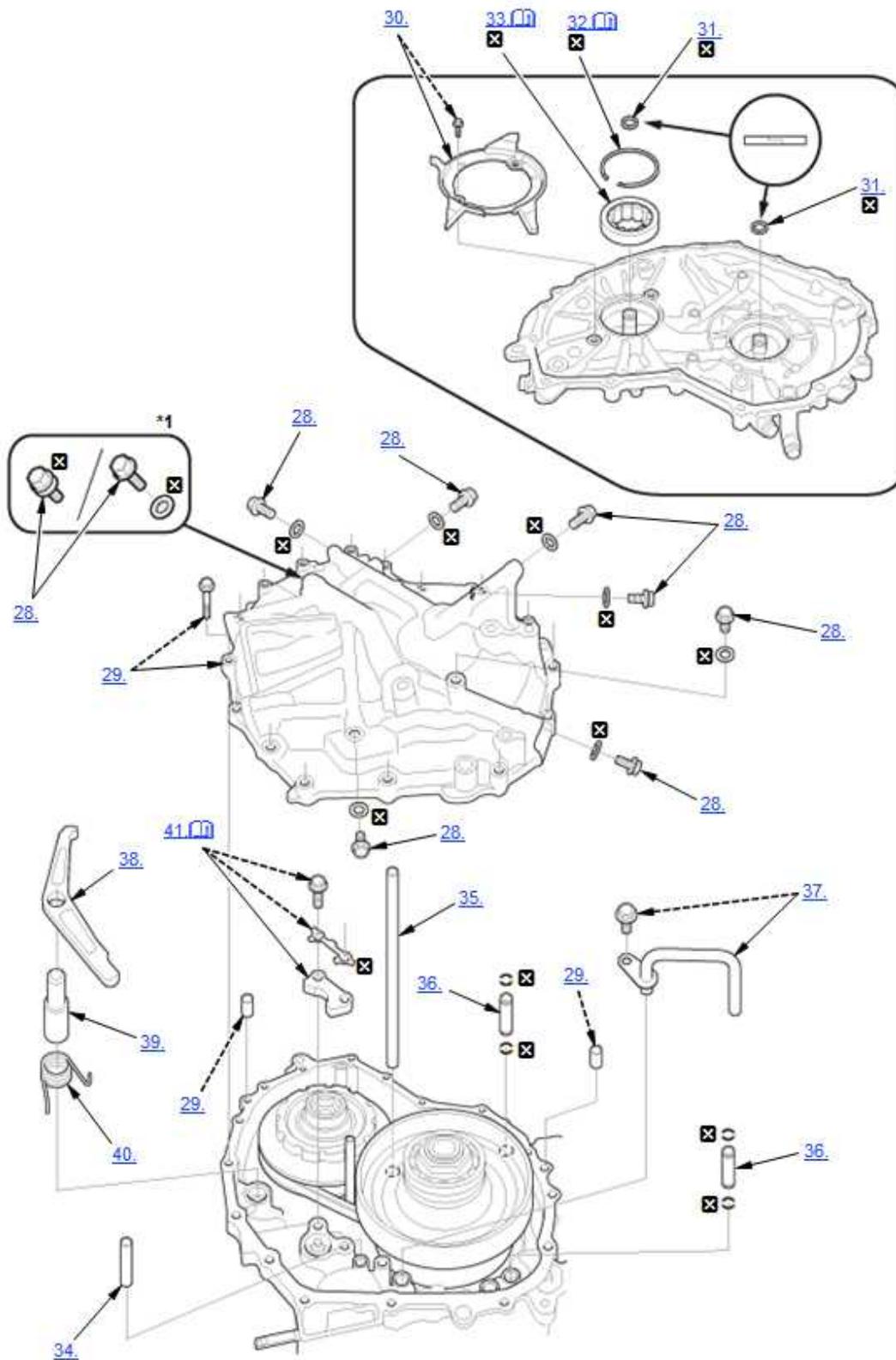


	Detailed information, notes and precautions
	Replace

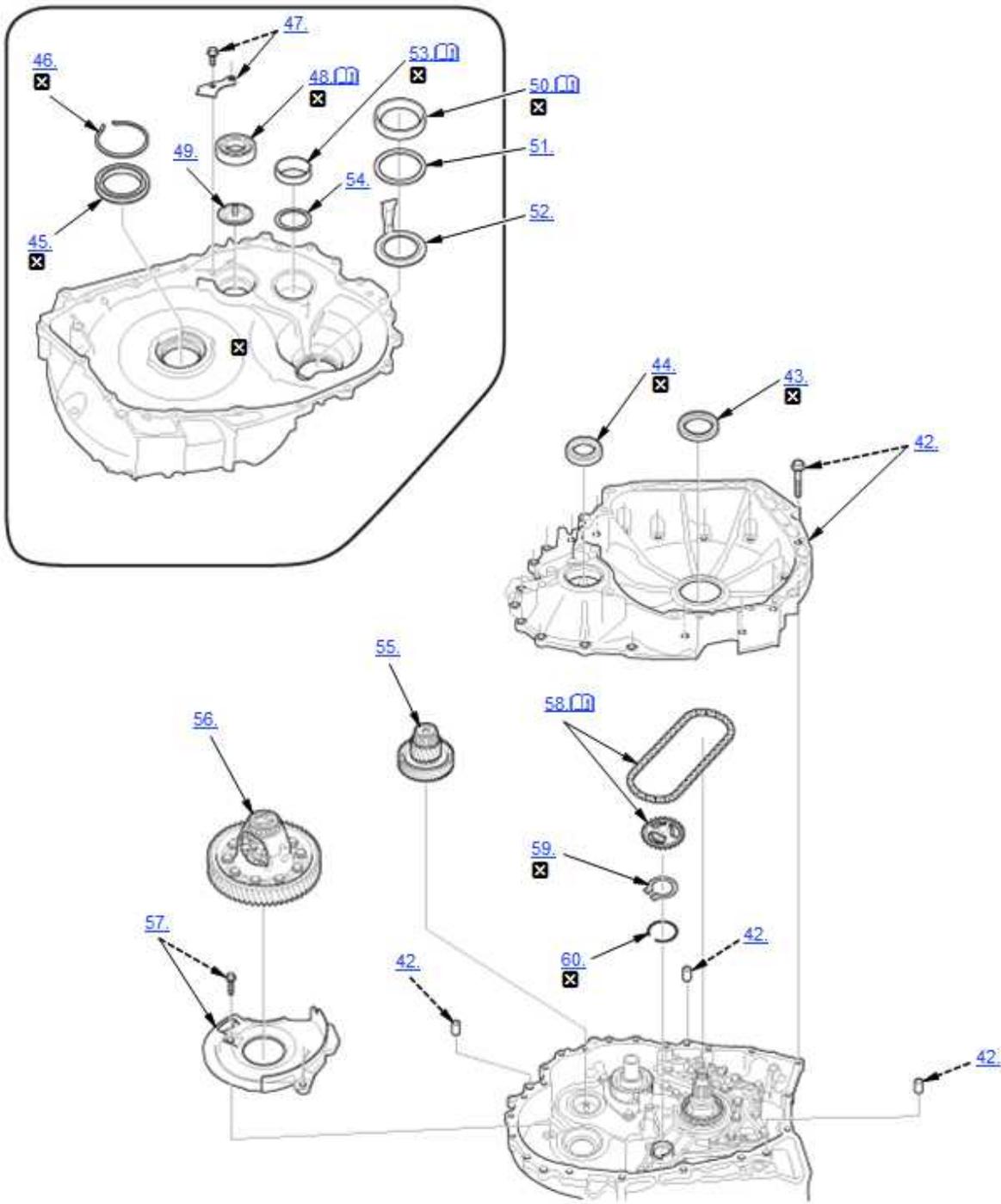


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	Detailed information, notes and precautions
	Replace

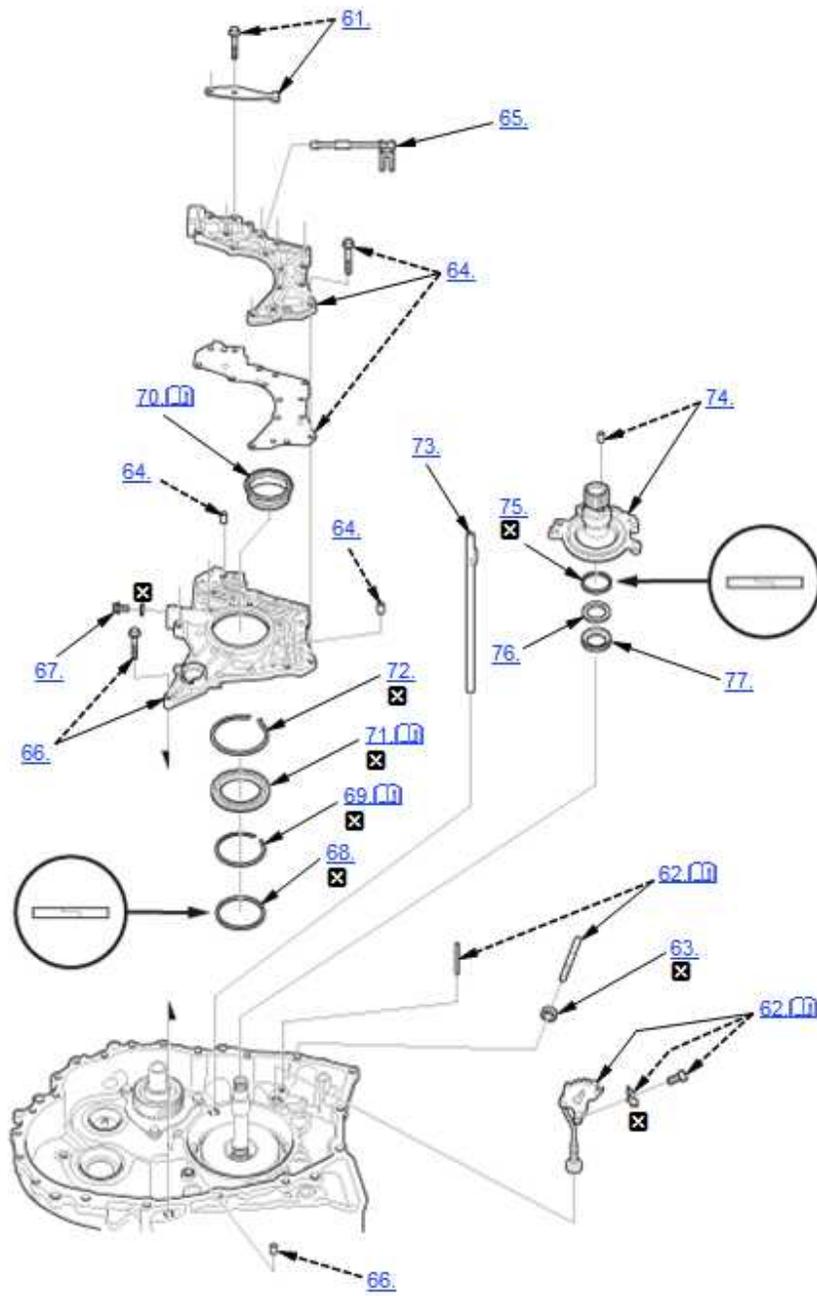


	Detailed information, notes and precautions
	Replace
*1	Selective use <ul style="list-style-type: none"> ● Integrated washer ● Separated washer

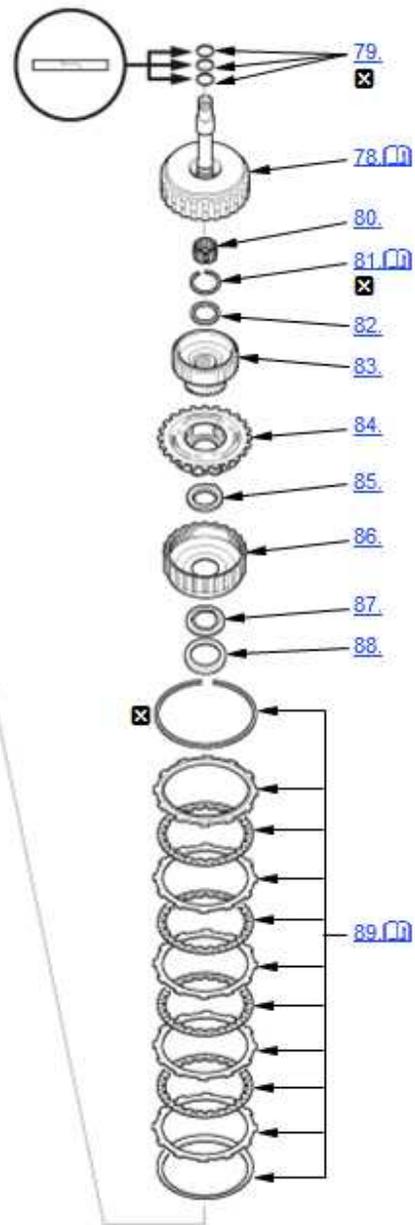
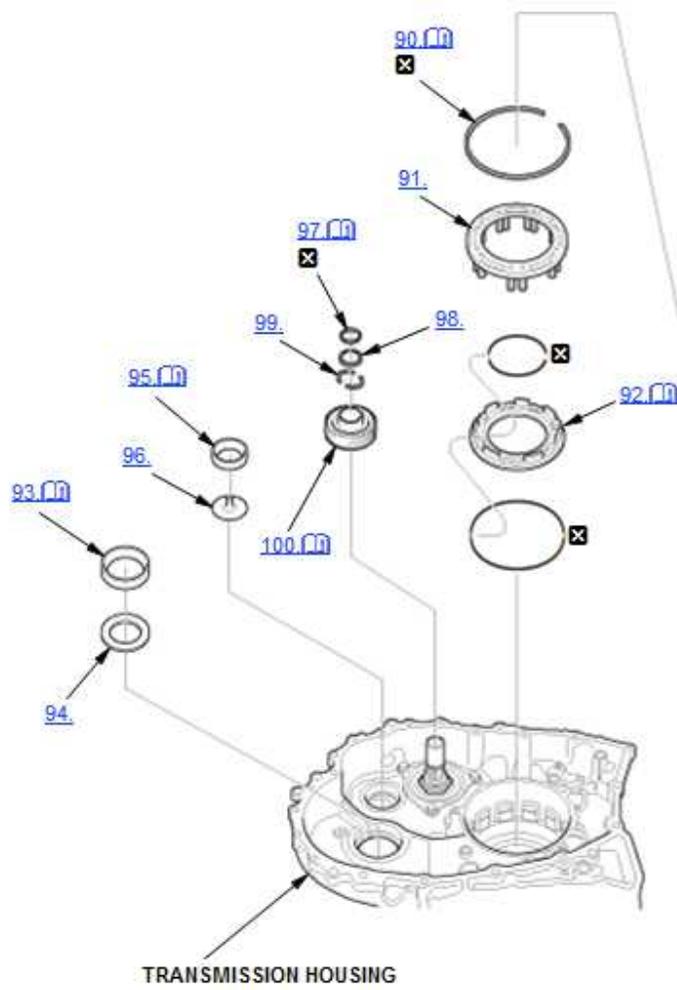


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	Detailed information, notes and precautions
	Replace



	Detailed information, notes and precautions
	Replace



	Detailed information, notes and precautions
	Replace

1. Transmission Hanger - Remove

2. Filler Cap - Remove

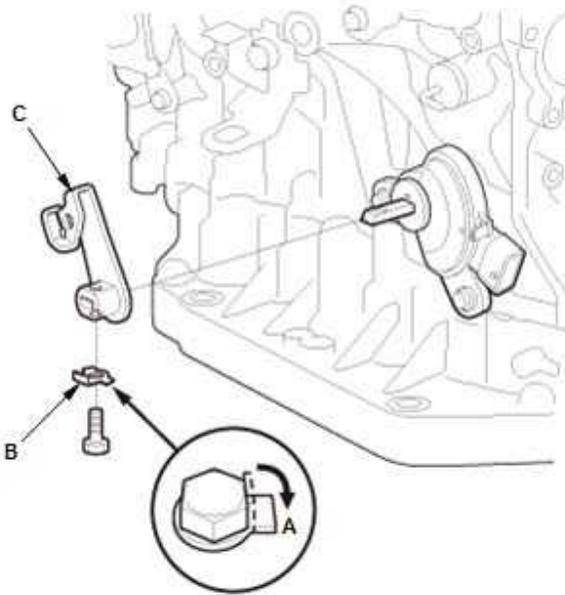
3. Breather Cap - Remove

4. Left Differential Oil Seal - Remove

5. TCM - Remove

6. Control Lever - Remove

1. Pry down the lock tab (A) of the lock washer (B), then remove the control lever (C).



7. Control Shaft Cover - Remove

8. Transmission Range Switch - Remove

9. CVT Speed Sensor - Remove

10. CVT Drive Pulley Speed Sensor - Remove

11. Torque Converter Turbine Speed Sensor - Remove

12. CVT Driven Pulley Pressure Sensor - Remove

13. Sealing Bolt - Remove

14. Filler Plug - Remove

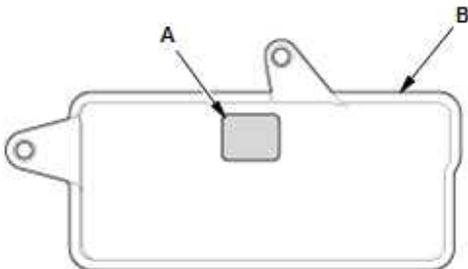
15. Drain Plug - Remove

16. Transmission Fluid Pan - Remove

17. Magnet - Remove

18. Transmission Fluid Strainer - Remove

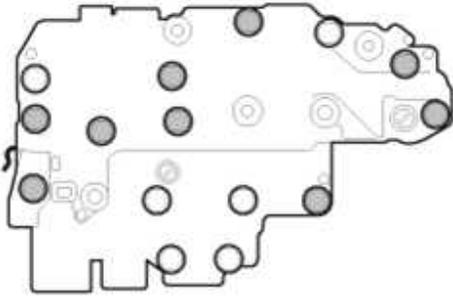
19. Transmission Fluid Strainer - Check



1. Clean the inlet opening (A) of the transmission fluid strainer (B) thoroughly with compressed air.
2. Check that it is in good condition and that the inlet opening is not clogged.
3. Test the strainer by pouring clean transmission fluid through the inlet opening, and replace it if it is clogged or damaged.

20. Valve Body Assembly - Remove

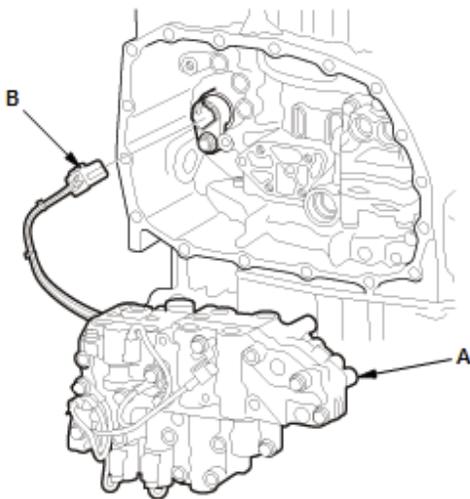
1. Remove the valve body assembly mounting bolts.



- : BOLTS TO BE REMOVED
- : BOLTS NOT TO BE REMOVED

2. Remove the valve body assembly straightly (A) and disconnect the connector (B).

NOTE: Be careful not to damage the solenoid wire harness.



21. 10.9 x 29 mm Pipe - Remove

22. 10.9 x 48 mm Pipe - Remove

23. 10.9 x 75.5 mm Pipe - Remove

24. 18 x 21 mm Pipe - Remove

25. Solenoid Wire Harness - Remove

26.Solenoid Wire Harness Connector - Remove

27.Transmission Fluid Pump - Remove

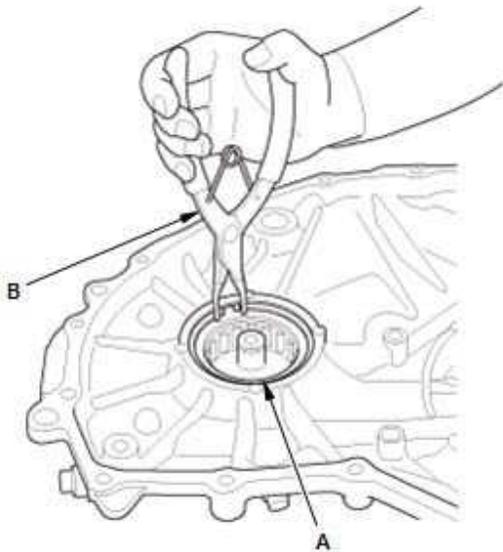
28.Sealing Bolt - Remove

29.End Cover - Remove

30.End Cover Plate - Remove

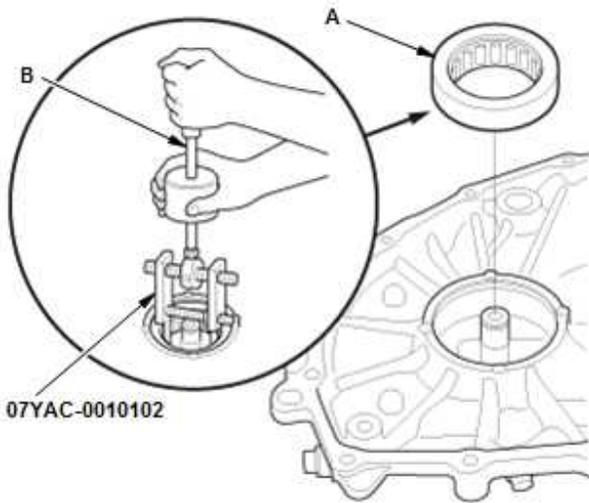
31.16 mm Sealing Ring - Remove

32.Snap Ring - Remove



1. Remove the snap ring (A) using commercially available snap ring pliers (B).

33.Driven Pulley Shaft Bearing (End Cover Side) - Remove



1. Remove the driven pulley shaft bearing (A) using the 45–75 mm adjustable bearing puller and a commercially available 3/8"-16 slide hammer (B).

34.8 x 52.2 mm Pipe - Remove

35.8 x 244 mm Pipe - Remove

36.10.9 x 48 mm Pipe - Remove

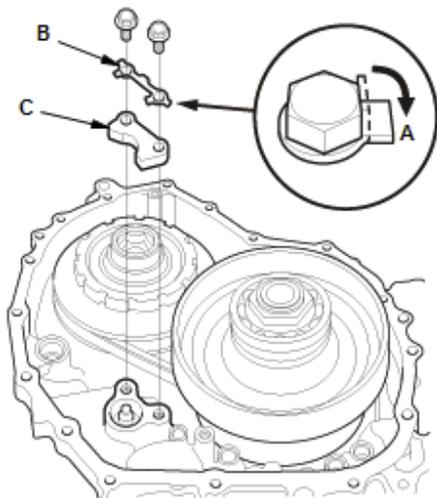
37. Cooler Pipe - Remove

38. Parking Brake Pawl - Remove

39. Parking Shaft - Remove

40. Parking Pawl Spring - Remove

41. Parking Brake Rod Holder - Remove



1. Pry down the lock tabs (A) of the lock washer (B).

2. Remove the parking brake rod holder (C).

42. Torque Converter Housing - Remove

43. Input Shaft Oil Seal - Remove

44. Right Differential Oil Seal - Remove

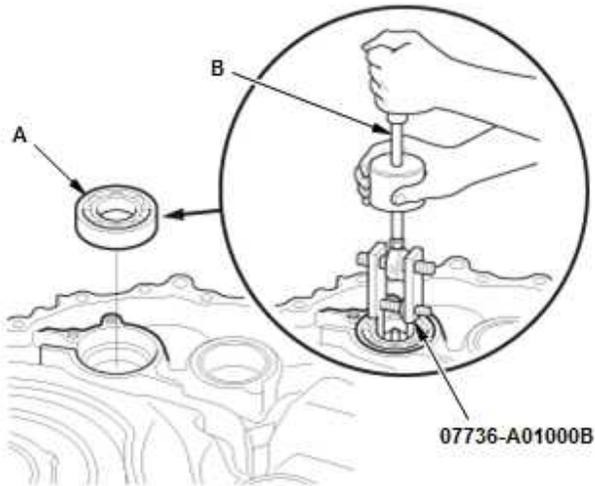
45. Input Shaft Bearing - Remove

46. Snap Ring - Remove

47. Bearing Set Plate - Remove

48. Driven Pulley Shaft Bearing (Torque Converter Housing Side) - Remove

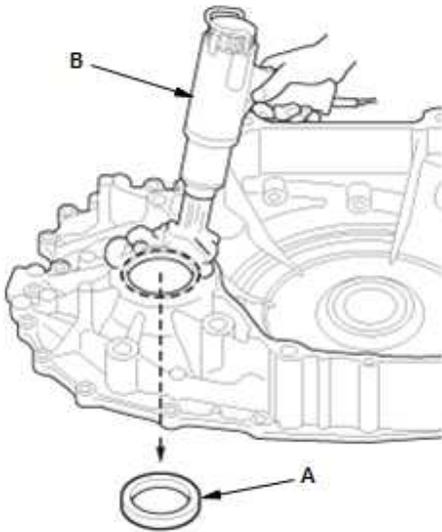
1. Remove the driven pulley shaft bearing (A) using the 25–40 mm adjustable bearing puller and a commercially available 3/8"-16 slide hammer (B).



49. Oil Guide Plate - Remove

50. Differential Carrier Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Remove

1. Remove the differential carrier tapered roller bearing outer race (A) by heating the torque converter housing to about 212 °F (100 °C) using a heat gun (B).

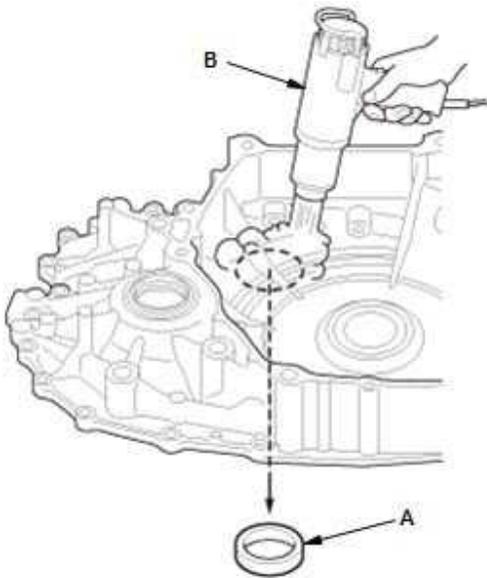


NOTE: Do not heat the torque converter housing more than 212 °F (100 °C).

51. 68 mm Thrust Shim - Remove

52. Oil Guide Plate - Remove

53. Final Drive Shaft Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Remove



1. Remove the final drive shaft tapered roller bearing outer race (A) by heating the torque converter housing to about 212 °F (100 °C) using a heat gun (B).

NOTE: Do not heat the torque converter housing more than 212 °F (100 °C).

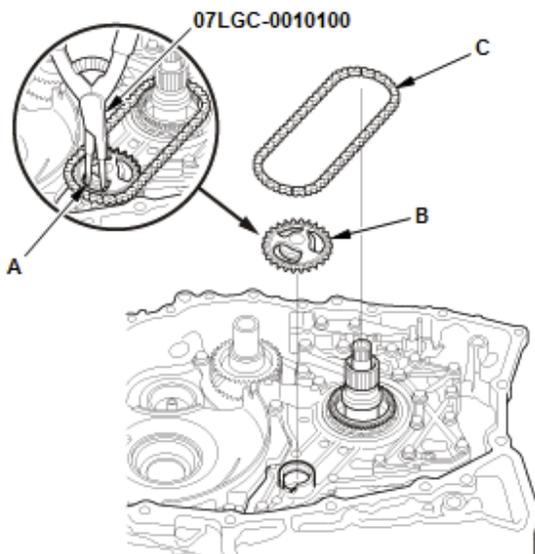
54.51 mm Thrust Shim - Remove

55.Final Drive Shaft Assembly - Remove

56.Differential Assembly - Remove

57.Baffle Plate - Remove

58.Transmission Fluid Pump Driven Sprocket and Transmission Fluid Pump Drive Chain - Remove



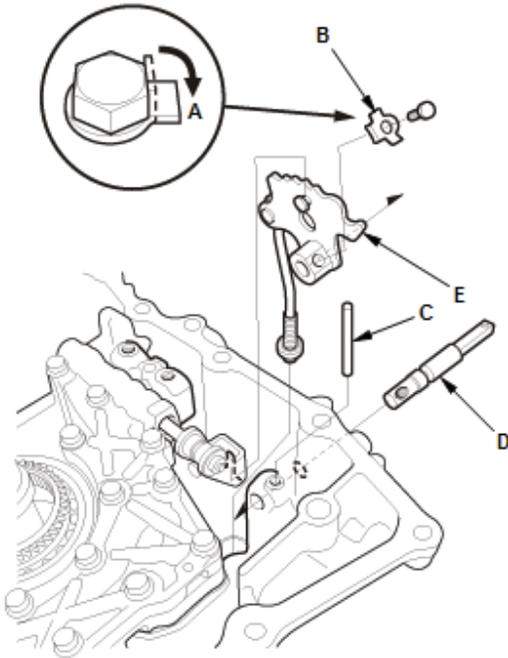
1. While expanding the snap ring (A) using the snap ring pliers, remove the transmission fluid pump driven sprocket (B) and the transmission fluid pump drive chain (C).

59. Snap Ring - Remove

60.Snap Ring - Remove

61.Detent Spring - Remove

62.Control Shft and Detent Lever - Remove



1. Pry down the lock tab (A) of the lock washer (B).
2. Remove the roller (C), then remove the control shaft (D).
3. Remove the detent lever (E).

63.Control Shaft Oil Seal - Remove

64.Manual Valve Body - Remove

65.Manual Valve - Remove

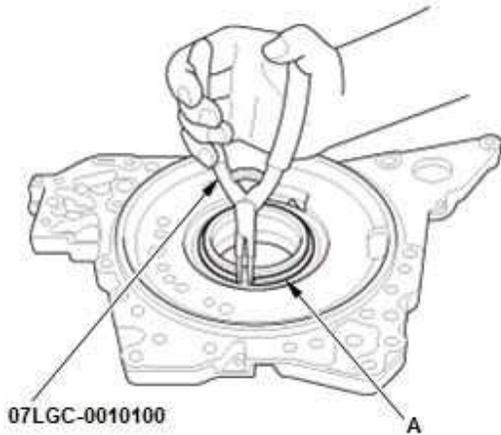
66.Stator Shaft Flange - Remove

67.Sealing Bolt - Remove

68.56.7 mm Sealing Ring - Remove

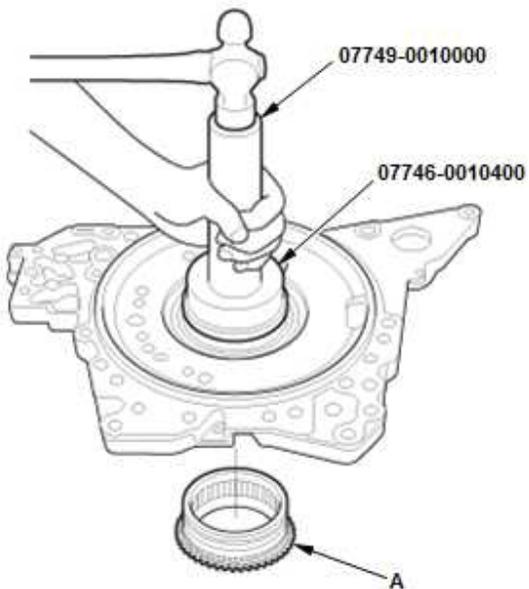
69. Snap Ring - Remove

1. Remove the snap ring (A) using the snap ring pliers.

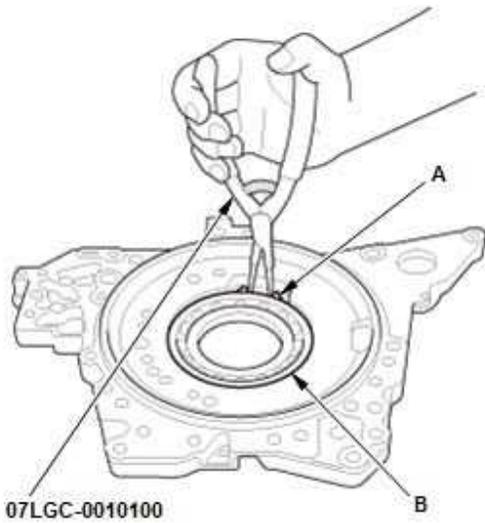


70. Transmission Fluid Pump Drive Sprocket - Remove

1. Remove the transmission fluid pump drive sprocket (A) using the 15 x 135L driver handle and the 52 x 55 mm bearing driver attachment.



71. Transmission Fluid Pump Drive Sprocket Bearing - Remove



1. While expanding the snap ring (A) using the snap ring pliers, remove the transmission fluid pump drive sprocket bearing (B).

72.Snap Ring - Remove

73.Lubrication Pipe - Remove

74.Stator Shaft - Remove

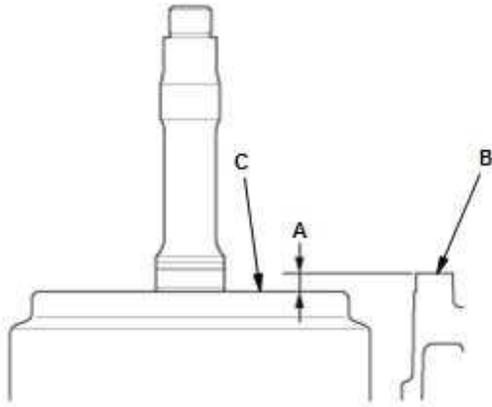
75.42.3 mm Sealing Ring - Remove

76.26 x 38.8 mm Thrust Shim - Remove

77.26 x 40.8 x 3.2 mm Thrust Needle Bearing - Remove

78.Input Shaft Assembly - Remove

NOTE: Note the depth (A) between the surface of the transmission housing (B) and the clutch guide (C). The recorded value of the depth will be the standard one when installing the input shaft assembly.



79.22.2 mm Sealing Ring - Remove

80.16 x 20 x 16.8 mm Needle Bearing - Remove

81. Snap Ring - Remove

1. Remove the snap ring (A) using the snap ring pliers.



82.33 x 40 mm Thrust Shim - Remove

83. Sun Gear - Remove

84. Planetary Carrier - Remove

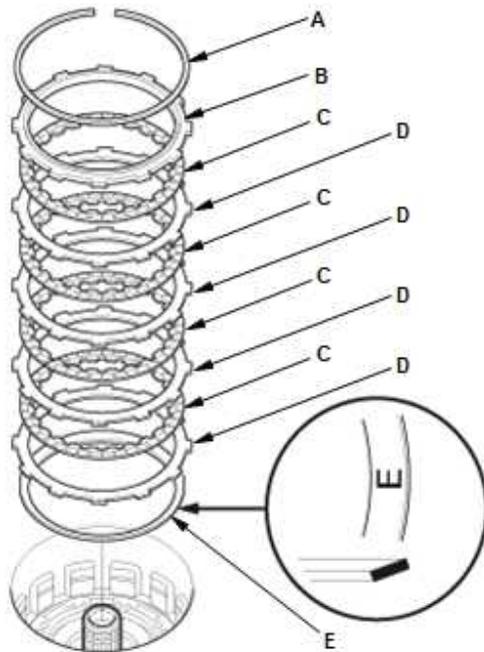
85.37 x 53.1 x 3 mm Thrust Needle Bearing - Remove

86. Ring Gear - Remove

87.33.5 x 53 x 1 mm Thrust Washer - Remove

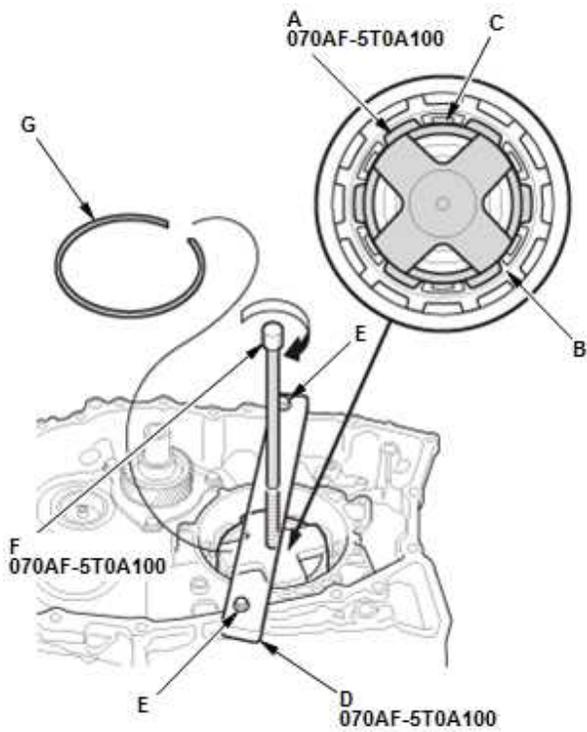
88.40 x 54 x 6 mm Collar - Remove

89.Reverse Brake - Remove



1. Remove the snap ring (A).
2. Remove the reverse brake end-plate (B).
3. Remove the reverse brake discs (C) and the reverse brake plates (D).
4. Remove the disc spring (E).

90.Snap Ring - Remove



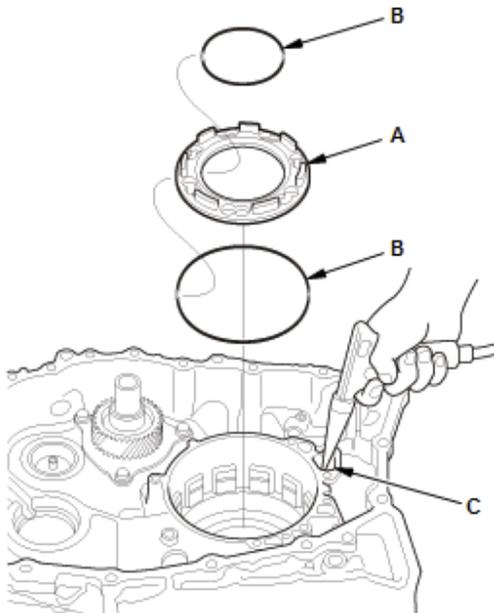
1. Put the reverse brake spring compressor attachment (A) on the spring retainer/return spring assembly (B).

NOTE: Be sure the attachment is set over the return springs, not on the reverse brake piston (C).

2. Install the reverse brake spring compressor plate (D) with facing the UP mark to the upside using bolts (E).
3. Make sure that the reverse brake spring compressor bolt (F) is properly installed on the dent in the surface of the reverse brake spring compressor attachment.
4. Compress the return springs using the reverse brake spring compressor until the snap ring securing the spring retainer/return spring can be removed.
5. Remove the snap ring (G), then remove the reverse brake spring compressor.

91. Spring Retainer/Return Spring Assembly - Remove

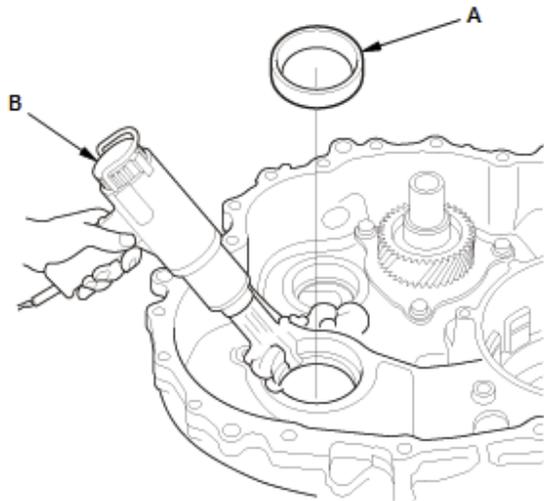
92. Reverse Brake Piston - Remove



1. Remove the reverse brake piston (A) with the O-rings (B), while applying air pressure to the reverse brake pressure circuit hole (C).

NOTE: Cover the hydraulic circuit hole using a shop towel to prevent scatter of the transmission fluid.

93. Differential Carrier Tapered Roller Bearing Outer Race (Transmission Housing Side) - Remove

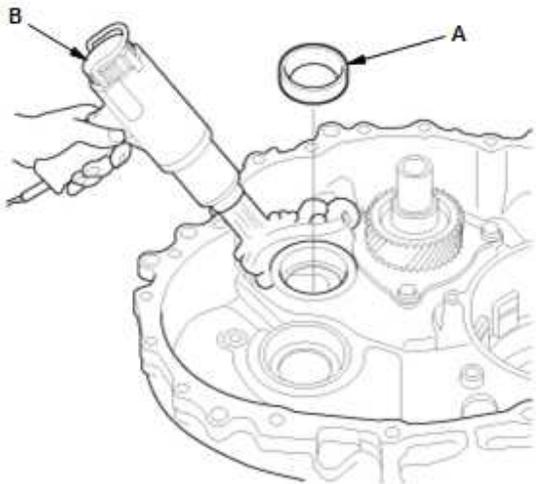


1. Remove the differential carrier tapered roller bearing outer race (A) by heating the transmission housing to about 212 °F (100 °C) using a heat gun (B).

NOTE: Do not heat the transmission housing more than 212 °F (100 °C).

94. Spacer - Remove

95. Final Drive Shaft Tapered Roller Bearing Outer Race (Transmission Housing Side) - Remove



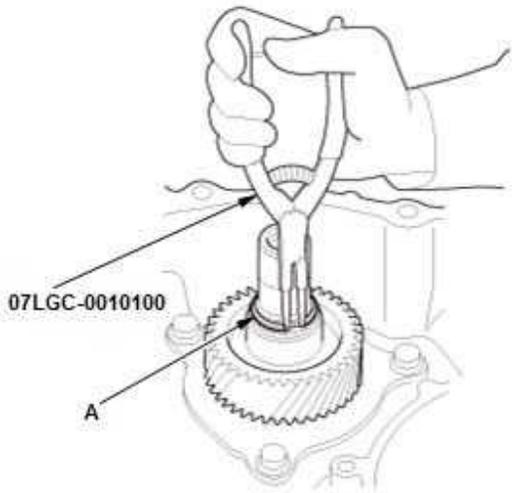
1. Remove the final drive shaft tapered roller bearing outer race (A) by heating the transmission housing to about 212 °F (100 °C) using a heat gun (B).

NOTE: Do not heat the transmission housing more than 212 °F (100 °C).

96. Oil Guide Plate - Remove

97. Snap Ring - Remove

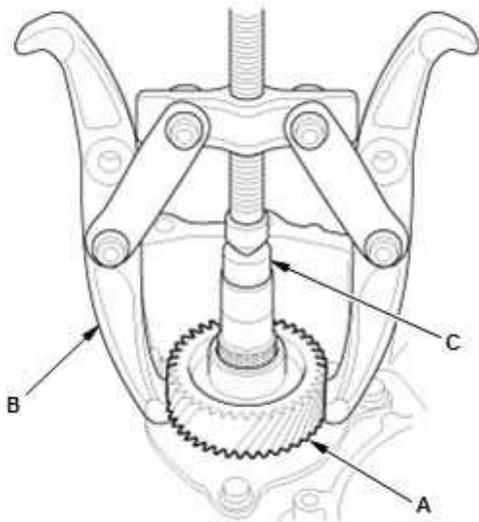
1. Remove the snap ring (A) using the snap ring pliers.



98. Cotter Retainer - Remove

99. 25.5 mm Cotter - Remove

100. Secondary Drive Gear - Remove



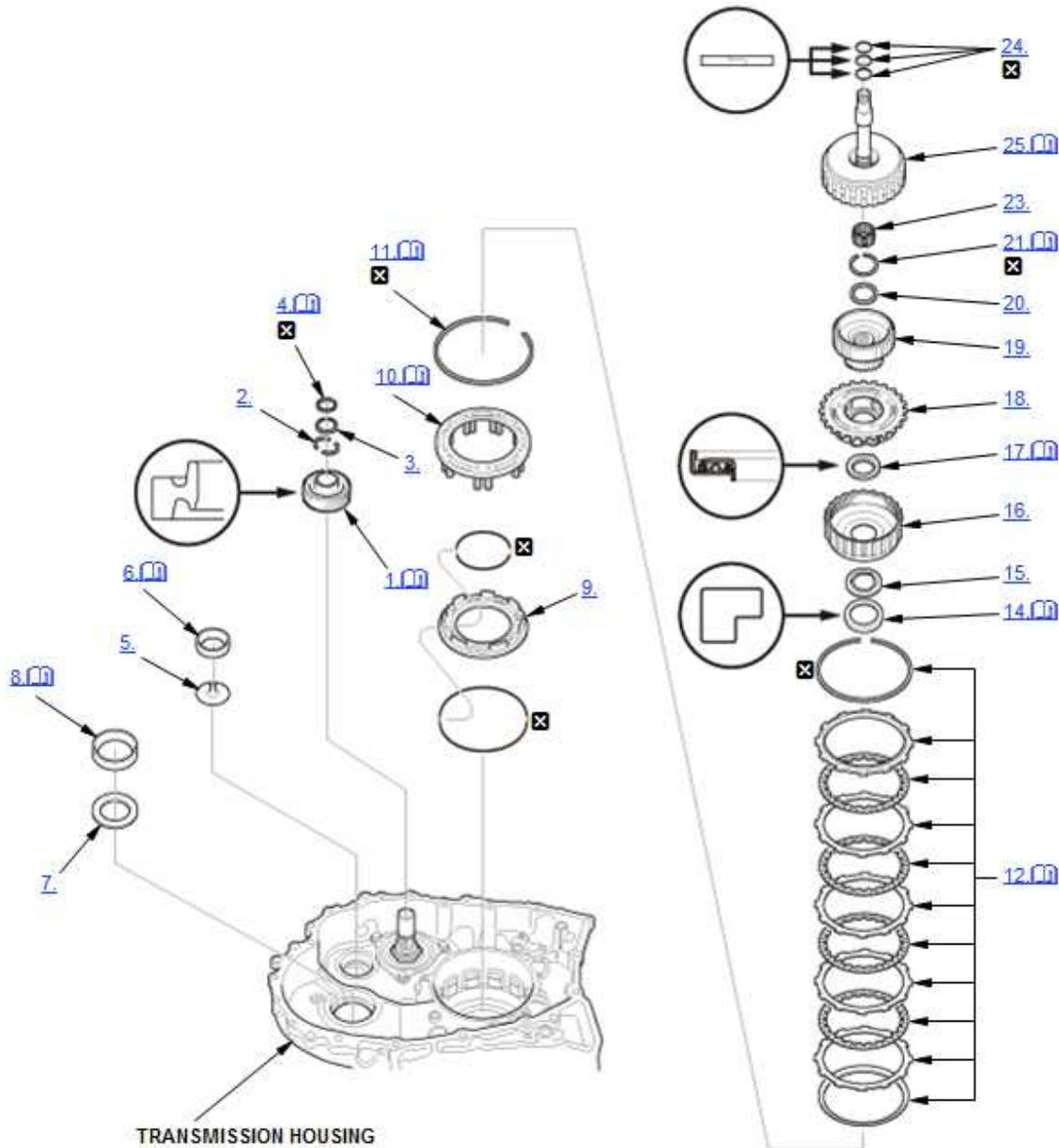
1. Remove the secondary drive gear (A) using a puller (B) and a commercially available spacer (C).

Reassembly

NOTE:

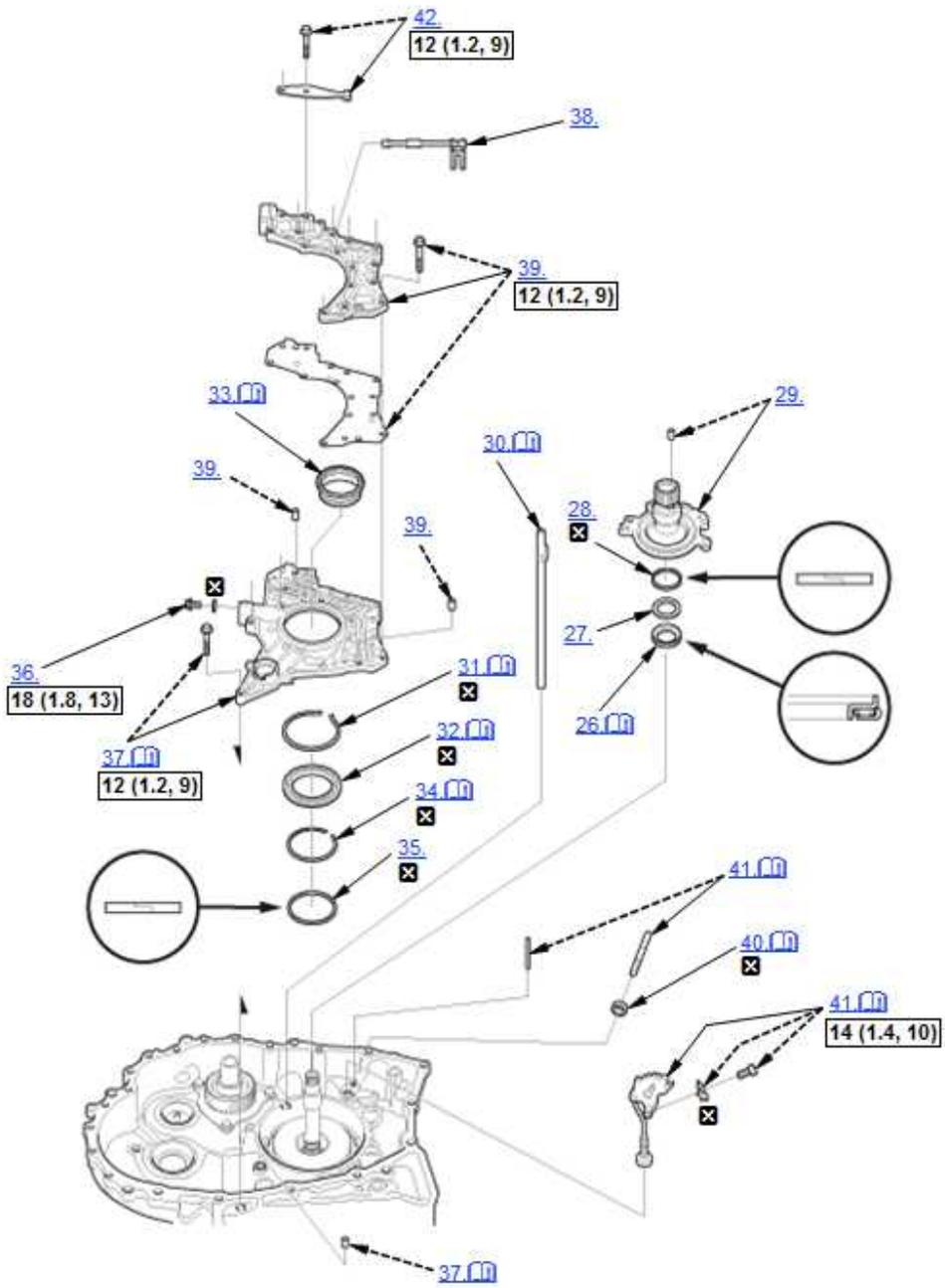
-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.
- When you reassemble the transmission, apply a light coat of clean transmission fluid on all oil seals, O-rings, bearings, and shaft splines. Also soak the forward clutch assembly and the reverse brake discs, in clean transmission fluid for at least 30 minutes prior to installation.
- Be careful not to damage the O-rings.

1



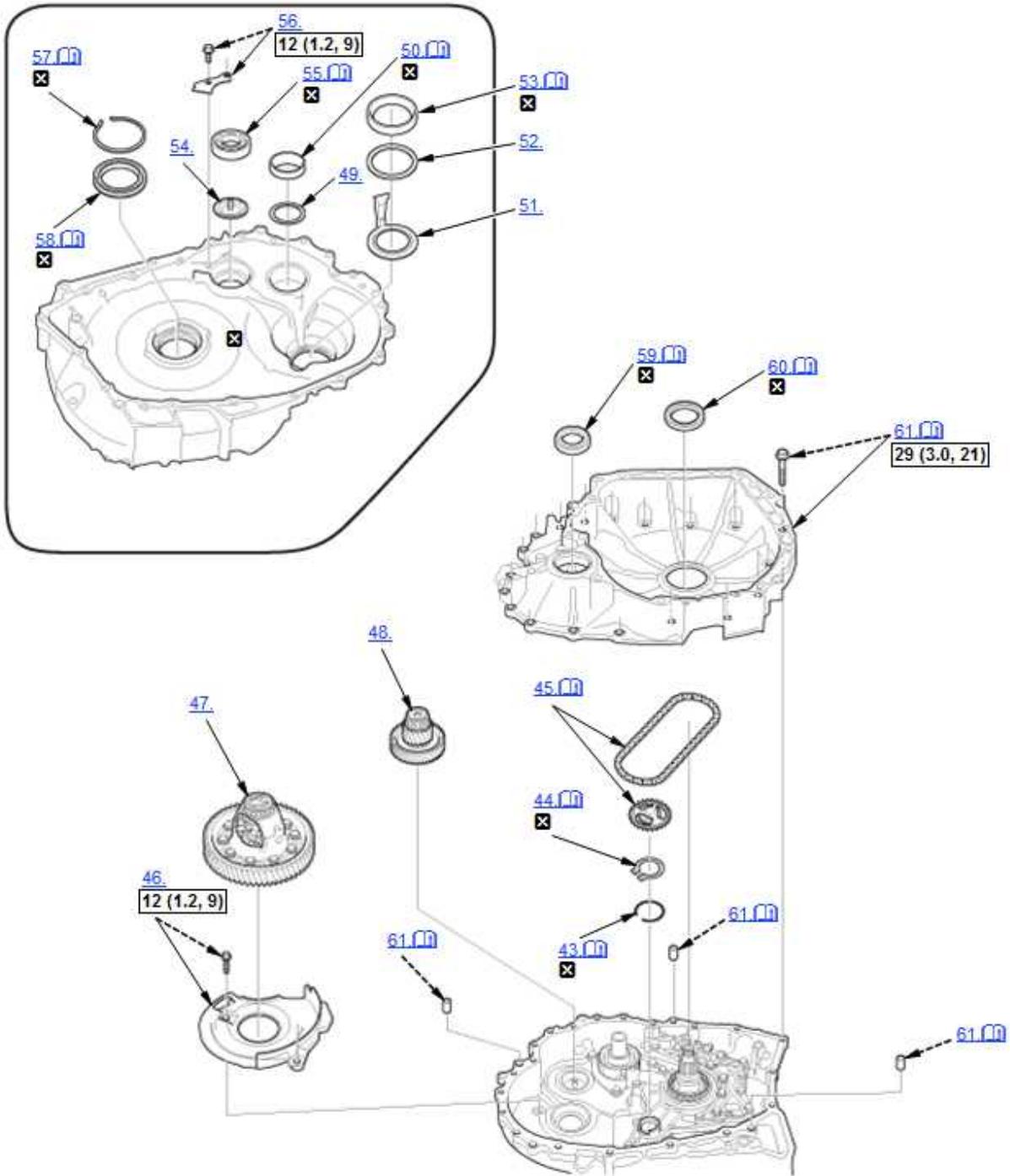
cardiagn.com

	Detailed information, notes and precautions
	Replace

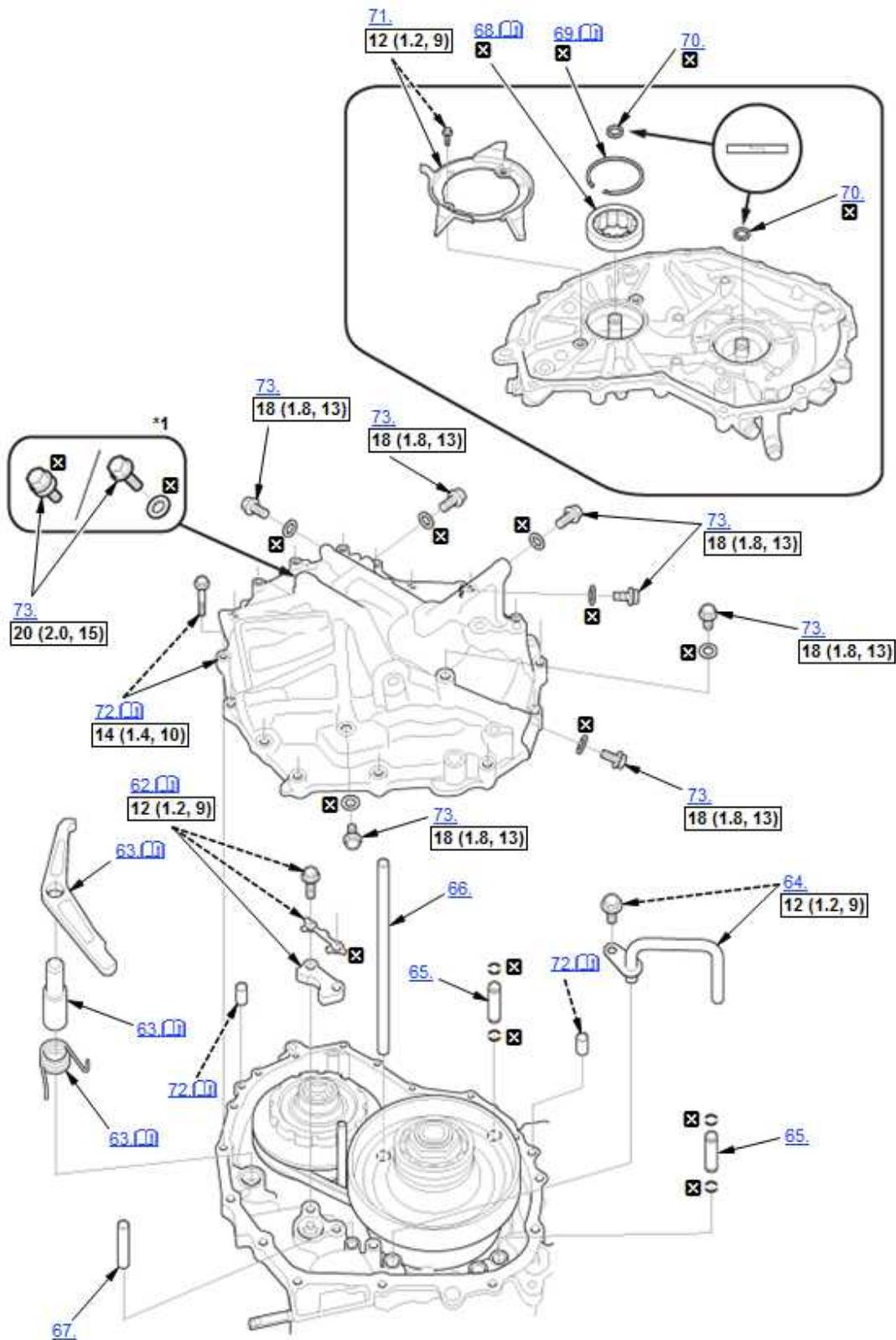


cardiagn.com

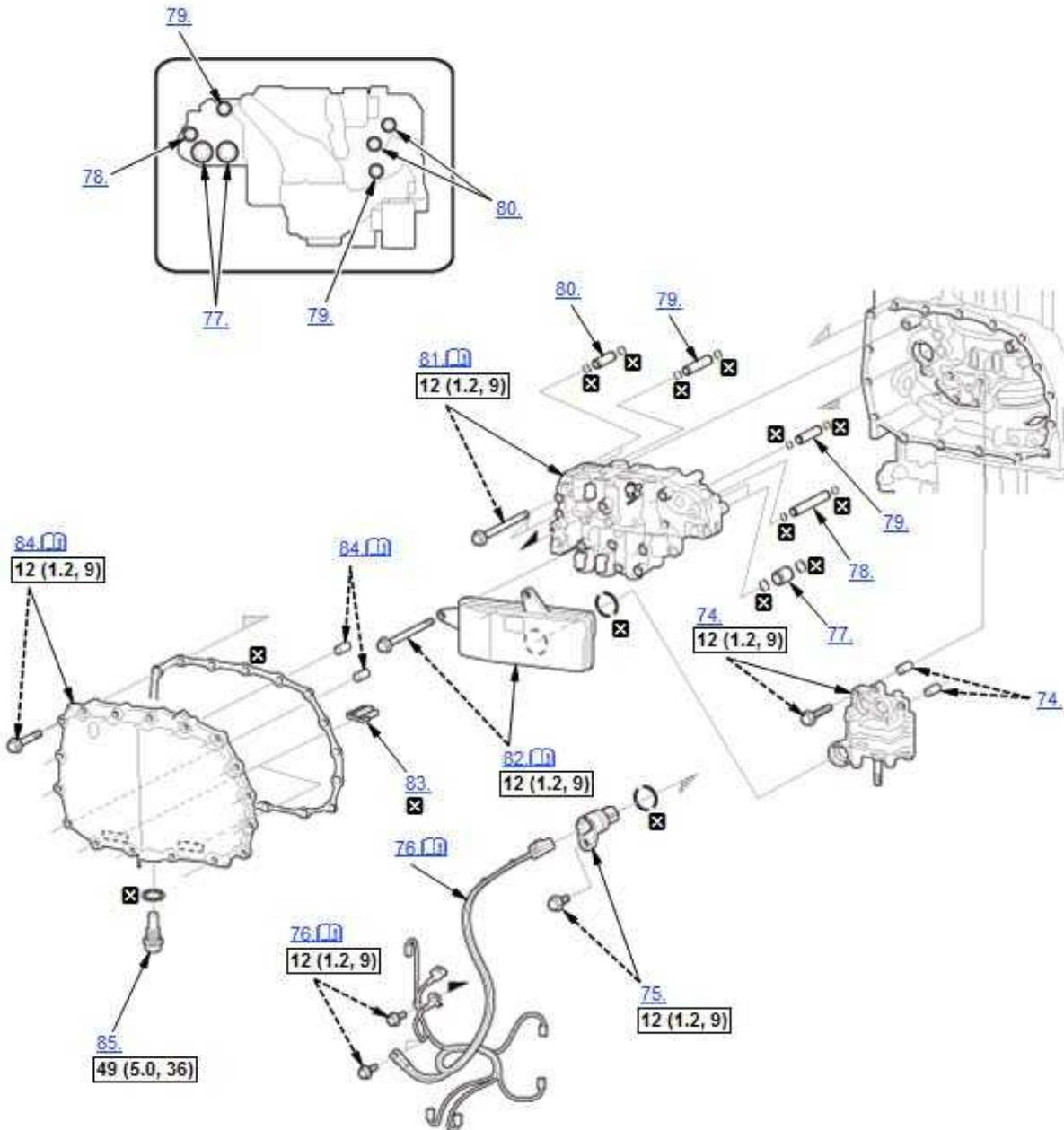
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace



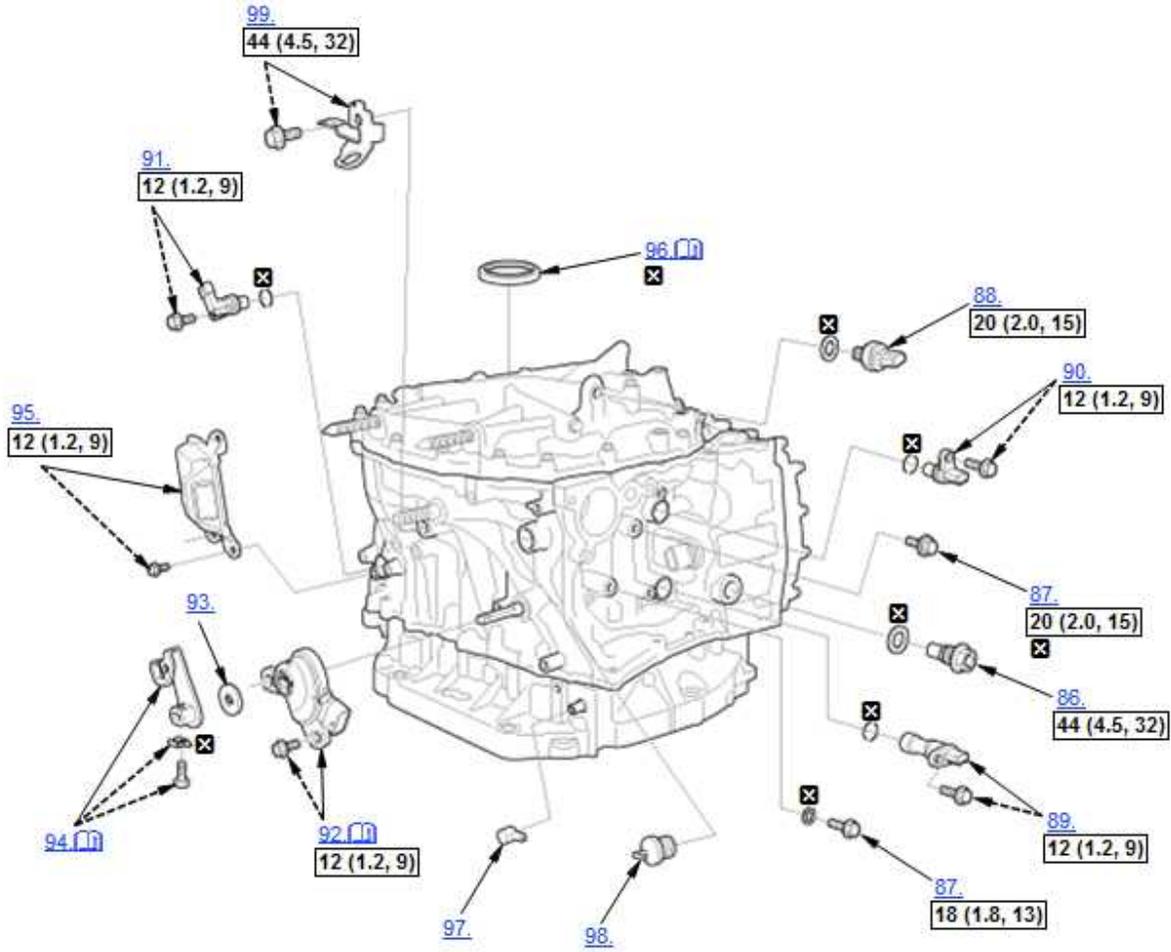
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace
*1	Selective use <ul style="list-style-type: none"> ● Integrated washer ● Separated washer



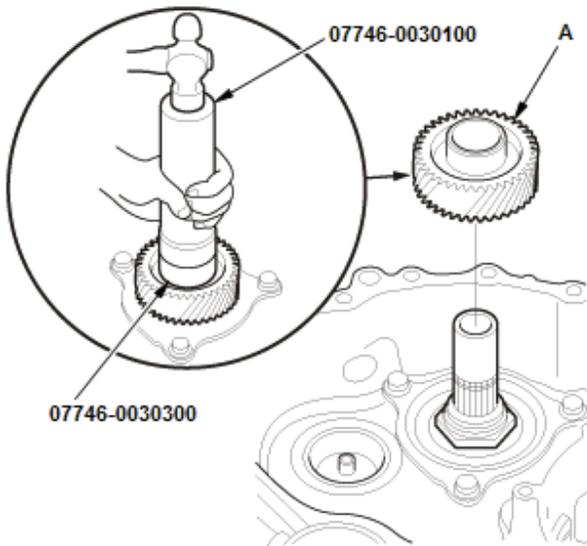
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Secondary Drive Gear - Install

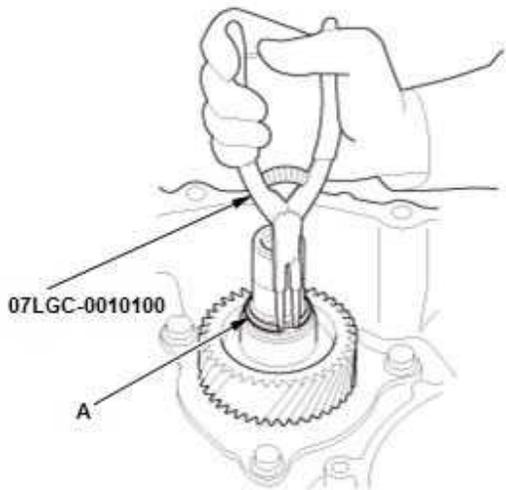
1. Install the secondary drive gear (A) as shown using the 40 mm I.D. driver handle and the 30 mm I.D. bearing driver attachment.



2. 25.5 mm Cotter - Install

3. Cotter Retainer - Install

4. Snap Ring - Install



1. Install the snap ring (A) using the snap ring pliers.

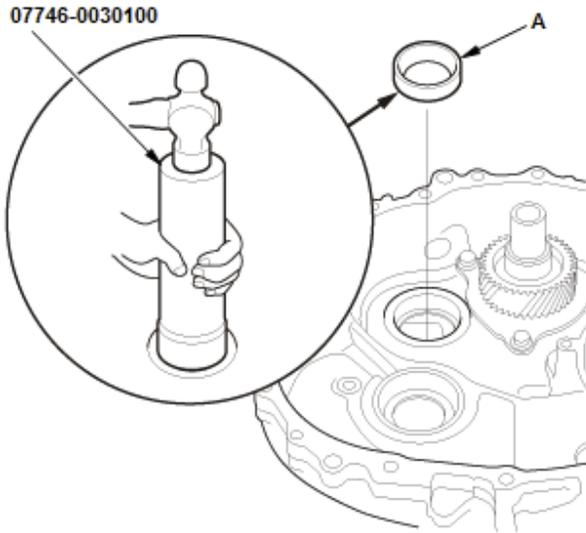
NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

5. Oil Guide Plate - Install

6. Final Drive Shaft Tapered Roller Bearing Outer Race (Transmission Housing Side) - Install

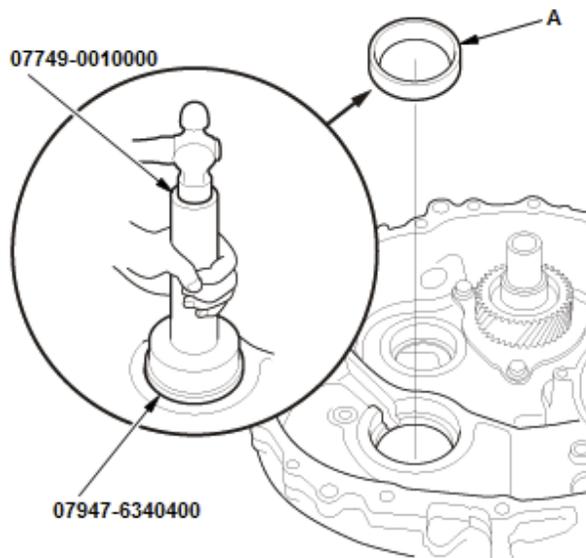
1. Install the final drive shaft tapered roller bearing outer race (A) until it bottoms using the 40 mm I.D. driver handle.



7. Spacer - Install

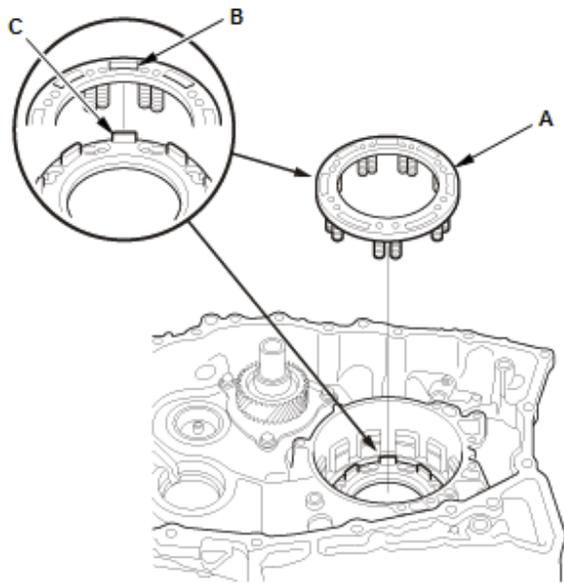
8. Differential Carrier Tapered Roller Bearing Outer Race (Transmission Housing Side) - Install

1. Install the differential carrier tapered roller bearing outer race (A) until it bottoms using the 15 x 135L driver handle and the 62 x 64 mm bearing driver attachment.



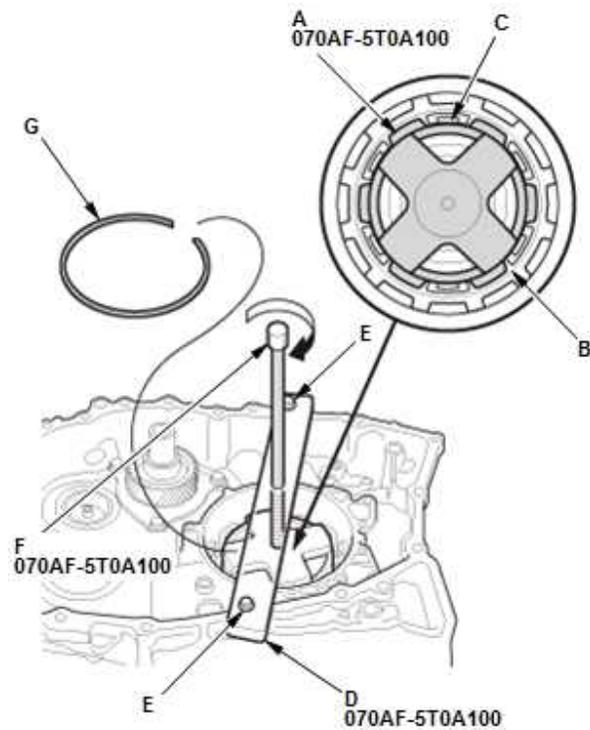
9. Reverse Brake Piston - Install

10. Spring Retainer/Return Spring Assembly - Install



1. Install the spring retainer/return spring assembly (A) by aligning their holes (B) with the bosses (C).

11. Snap Ring - Install



1. Put the reverse brake spring compressor attachment (A) on the spring retainer/return spring assembly (B).

NOTE: Be sure the attachment is set over the return springs, not on the reverse brake piston (C).

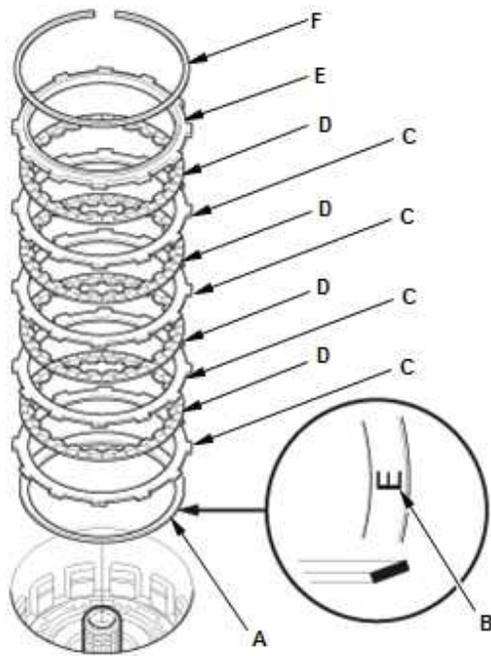
2. Install the reverse brake spring compressor plate (D) with facing the UP mark to the upside using bolts (E).
3. Make sure that the reverse brake spring compressor bolt (F) is properly installed on the dent in the surface of the reverse brake spring compressor attachment.
4. Compress the return springs using the reverse brake spring compressor until the snap ring securing the spring retainer/return spring can be installed.
5. Install the snap ring (G).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

6. Remove the reverse brake spring compressor.

12. Reverse Brake - Install



1. Install the disc spring (A).

NOTE: Be sure to install the disc spring with the indented mark (B) facing the upward.

2. Starting with the reverse brake plate (C), alternately install the reverse brake plates and the reverse brake discs (D).

3. Install the reverse brake end-plate (E) with the flat side toward the top disc.

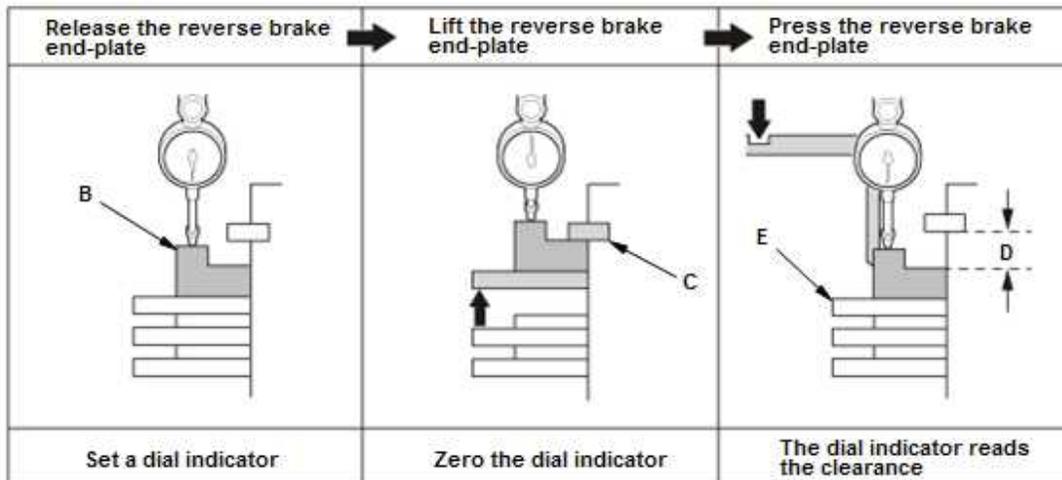
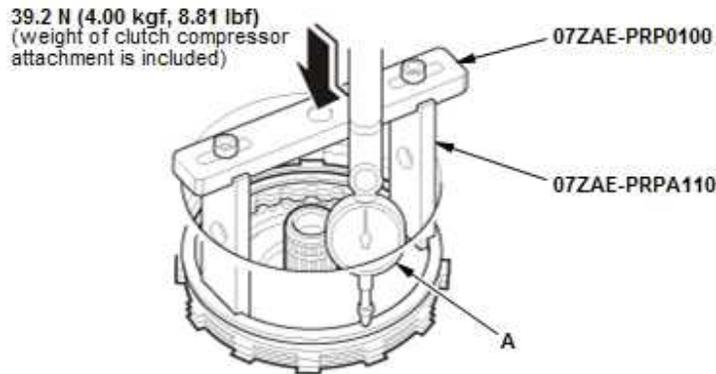
4. Install the snap ring (F).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

13. Reverse Brake End-Plate Thrust Clearance - Inspect

1. Set a dial indicator (A) on the reverse brake end-plate (B).



2. Zero the dial indicator with the reverse brake end-plate is lifted up to the snap ring (C).
3. Release the reverse brake end-plate.
4. Put the clutch compressor attachment and the 64 mm clutch compressor attachment on the reverse brake end-plate.
5. Press the clutch compressor attachment down with 39.2 N (4.00 kgf, 8.81 lbf) (the weight of the clutch compressor attachment is included) using a force gauge, and read the dial indicator.
6. The dial indicator reads the clearance (D) between the reverse brake end-plate and the top disc (E). Take measurements in at least three places, and use the average as the actual clearance.

Standard: 1.0– 1.2 mm (0.039– 0.047 in)

7. If the clearance is out of the standard, remove the reverse brake end-plate and select a suitable one.

Reverse Brake End-Plate

No.	Thickness
1	3.6 mm (0.142 in)
2	3.7 mm (0.146 in)
3	3.8 mm (0.150 in)
4	3.9 mm (0.154 in)
5	4.0 mm (0.157 in)
6	4.1 mm (0.161 in)
7	4.2 mm (0.165 in)
8	4.3 mm (0.169 in)
9	4.4 mm (0.173 in)
10	4.5 mm (0.177 in)
11	4.6 mm (0.181 in)
12	4.7 mm (0.185 in)
13	4.8 mm (0.189 in)
14	4.9 mm (0.193 in)
15	5.0 mm (0.197 in)

8. Install a selected reverse brake end-plate, then recheck the clearance.

14.40 x 54 x 6 mm Collar - Install

NOTE: Make sure the 40 x 54 x 6 mm collar is installed in the correct direction.

15.33.5 x 53 x 1 mm Thrust Washer - Install

16. Ring Gear - Install

17. 37 x 53.1 x 3 mm Thrust Needle Bearing - Install

NOTE: Make sure the 37 x 53.1 x 3 mm thrust needle bearing is installed in the correct direction.

18. Planetary Carrier - Install

19. Sun Gear - Install

20. 33 x 40 mm Thrust Shim - Install

21. Snap Ring - Install



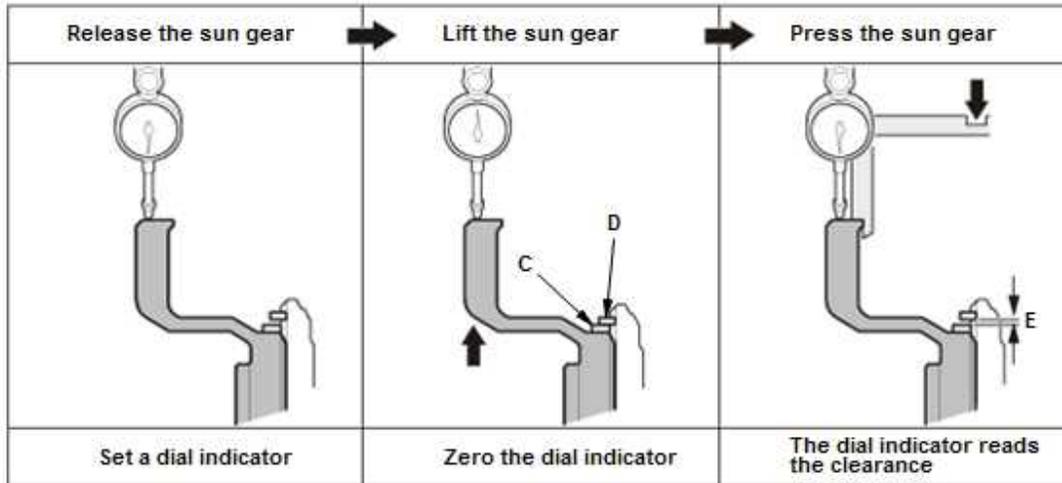
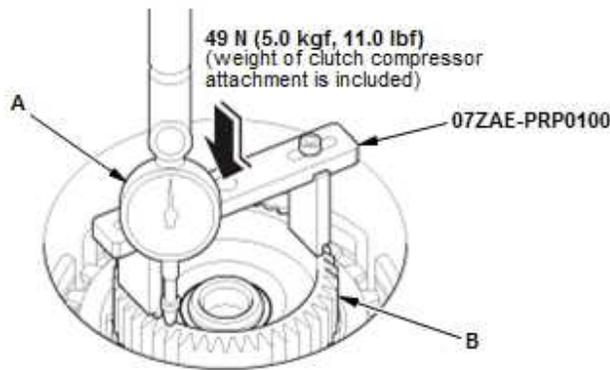
1. Install the snap ring (A) using the snap ring pliers.

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

22. Sun Gear Thrust Clearance - Inspect

1. Set a dial indicator (A) on the sun gear (B).



- Zero the dial indicator with the sun gear is lifted up to the 33 x 40 mm thrust shim (C) contact the snap ring (D).
- Release the sun gear.
- Put the clutch compressor attachment on the sun gear.
- Press the clutch compressor attachment down with 49 N (5.0 kgf, 11.0 lbf) (the weight of the clutch compressor attachment is included) using a force gauge, and read the dial indicator.
- The dial indicator reads the clearance (E) between the sun gear and the 33 x 40 mm thrust shim. Take measurements in at least three places, and use the average as the actual clearance.

Standard: 0.04 – 0.09 mm (0.0016 – 0.0035 in)

- If the clearance is out of the standard, remove the 33 x 40 mm thrust shim and select a suitable one.

33 x 40 mm Thrust Shim

No.	Thickness
0A	1.16 mm (0.0457 in)
0B	1.19 mm (0.0469 in)
0C	1.22 mm (0.0480 in)
0D	1.25 mm (0.0492 in)
0E	1.28 mm (0.0504 in)
A	1.31 mm (0.0516 in)
B	1.34 mm (0.0528 in)

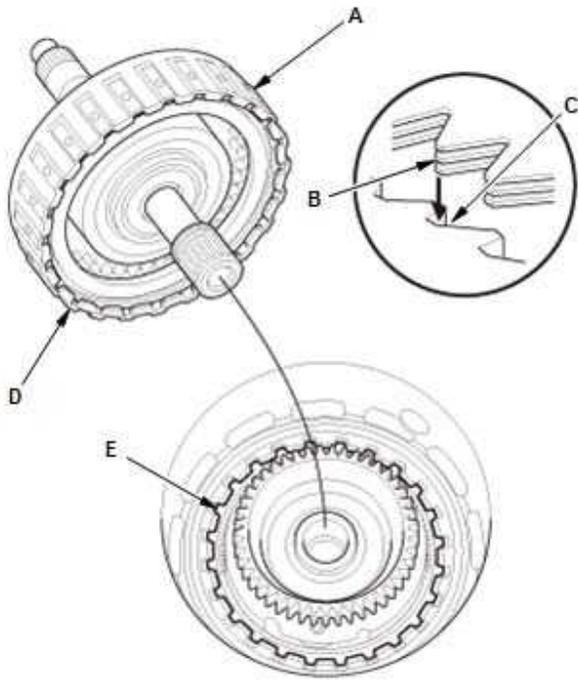
No.	Thickness
C	1.37 mm (0.0539 in)
D	1.40 mm (0.0551 in)
E	1.43 mm (0.0563 in)
F	1.46 mm (0.0575 in)
G	1.49 mm (0.0587 in)
H	1.52 mm (0.0598 in)
I	1.55 mm (0.0610 in)
J	1.58 mm (0.0622 in)
K	1.61 mm (0.0634 in)
L	1.64 mm (0.0646 in)
M	1.67 mm (0.0657 in)
N	1.70 mm (0.0669 in)
O	1.73 mm (0.0681 in)
P	1.76 mm (0.0693 in)
Q	1.79 mm (0.0705 in)
R	1.82 mm (0.0717 in)
S	1.85 mm (0.0728 in)

8. Install a selected 33 x 40 mm thrust shim, then recheck the clearance.

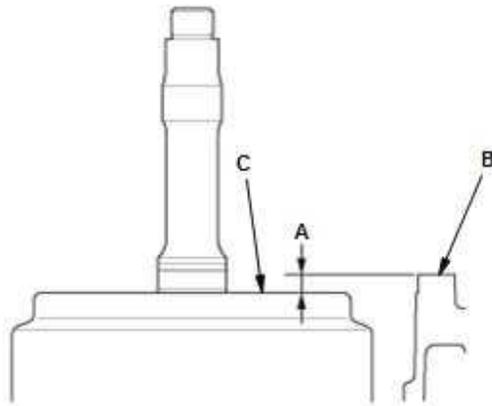
23.16 x 20 x 16.8 mm Needle Bearing - Install

24.22.2 mm Sealing Ring - Install

25.Input Shaft Assembly - Install



1. Install the input shaft (A) by aligning the clutch discs (B) with the sun gear (C), and aligning the clutch guide (D) with the ring gear (E).



2. Measure the depth (A) between the surface of the transmission housing (B) and the clutch guide (C), then make sure the measured value of the depth is within the recorded value when removing.

26.26 x 40.8 x 3.2 mm Thrust Needle Bearing - Install

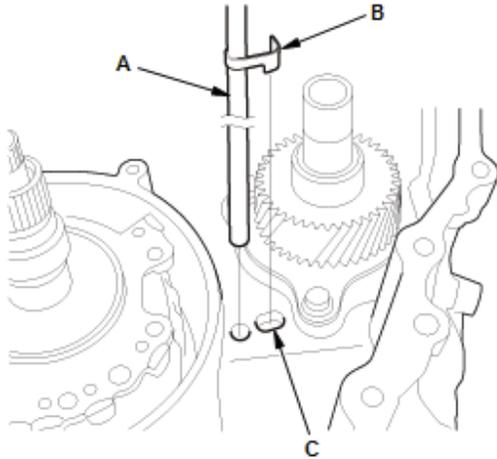
NOTE: Make sure the 26 x 40.8 x 3.2 mm thrust needle bearing is installed in the correct direction.

27.26 x 38.8 mm Thrust Shim - Install

28.42.3 mm Sealing Ring - Install

29. Stator Shaft - Install

30. Lubrication Pipe - Install



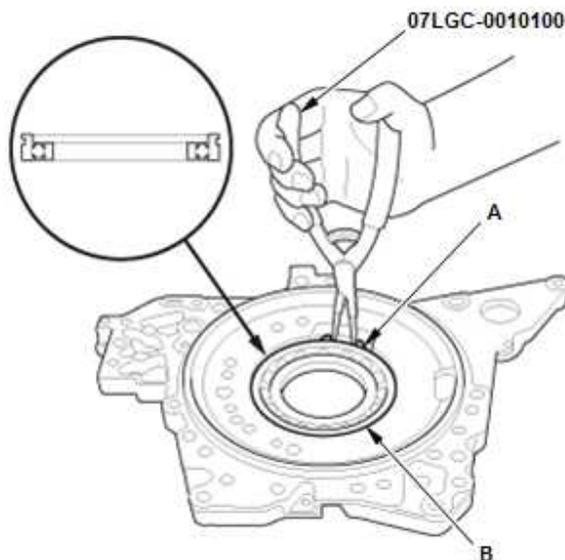
NOTE: Be sure to install the lubrication pipe (A) by aligning the guide tab (B) with the guide hole (C).

31. Snap Ring - Install

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

32. Transmission Fluid Pump Drive Sprocket Bearing - Install

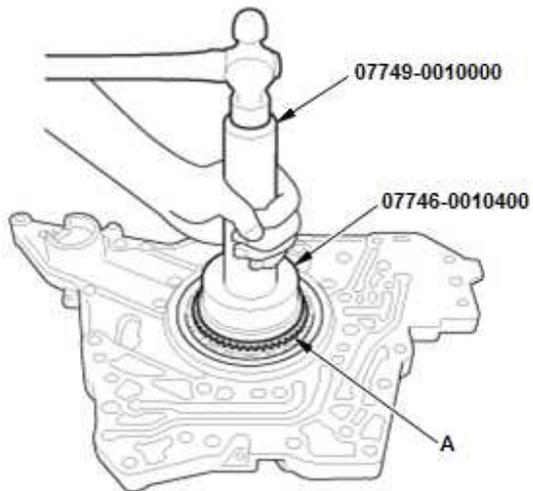


1. While expanding the snap ring (A) using the snap ring pliers, install the transmission fluid pump drive sprocket bearing (B) as shown.

NOTE:

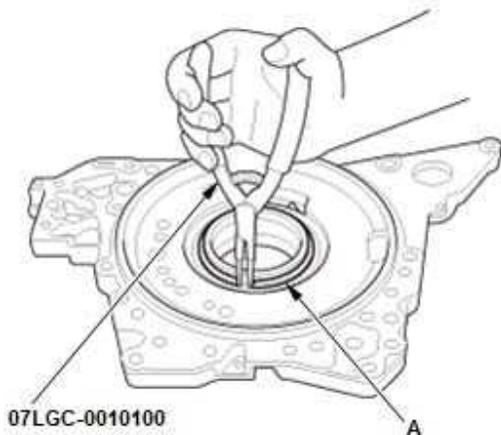
- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

33. Transmission Fluid Pump Drive Sprocket - Install



1. Install the transmission fluid pump drive sprocket (A) until it bottoms using the 15 x 135L driver handle and the 52 x 55 mm bearing driver attachment.

34. Snap Ring - Install



1. Install the snap ring (A) using the snap ring pliers.

NOTE:

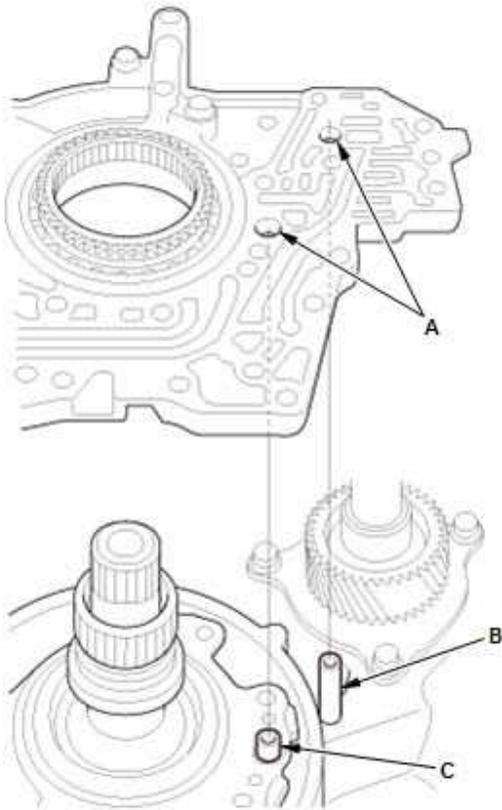
- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

35. 56.7 mm Sealing Ring - Install

36. Sealing Bolt - Install

37. Stator Shaft Flange - Install

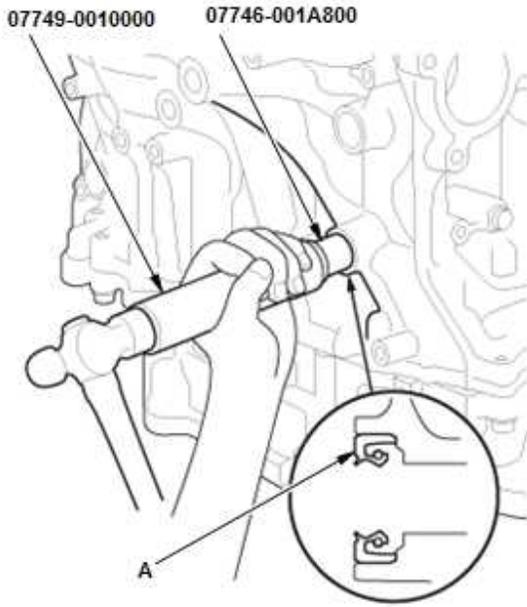
NOTE: Align the holes (A) of the stator shaft flange with the lubrication pipe (B) and the dowel pin (C) when installing the stator shaft flange.



38. Manual Valve - Install

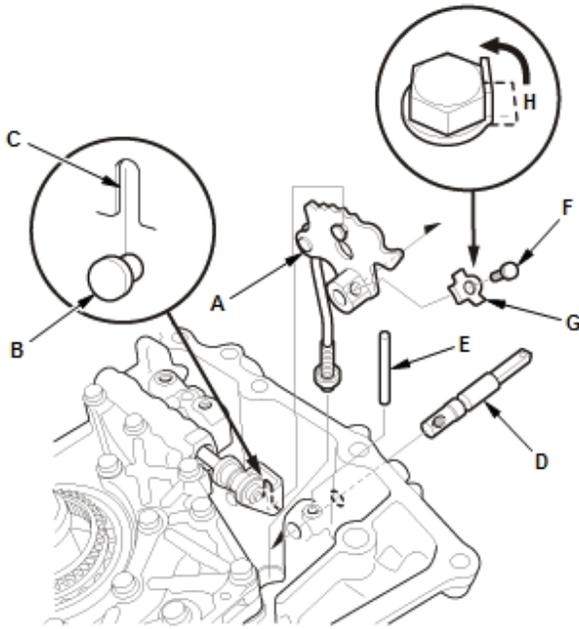
39. Manual Valve Body - Install

40. Control Shaft Oil Seal - Install



1. Install the control shaft oil seal (A) flush with the transmission housing using the 15 x 135L driver handle and the 22 x 24 mm attachment.

41. Control Shaft and Detent Lever - Install



1. Install the detent lever (A) by aligning the guide tab (B) of the detent lever with the opening (C) of the manual valve.
2. Install the control shaft (D) into the transmission housing and the detent lever, then install the roller (E) to secure the control shaft.
3. Secure the control shaft and the detent lever with the mounting bolt (F) and the lock washer (G).
4. Pry up the lock tab of the lock (H) washer against the bolt head.

42. Detent Spring - Install

43. Snap Ring - Install

NOTE:

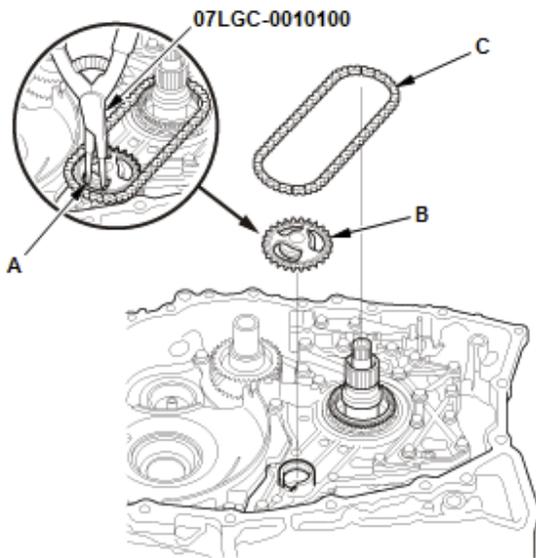
- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

44. Snap Ring - Install

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

45. Transmission Fluid Pump Driven Sprocket and Transmission Fluid Pump Drive Chain - Install



1. While expanding the snap ring (A) using the snap ring pliers, install the transmission fluid pump drive sprocket (B) and the transmission fluid pump drive chain (C).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

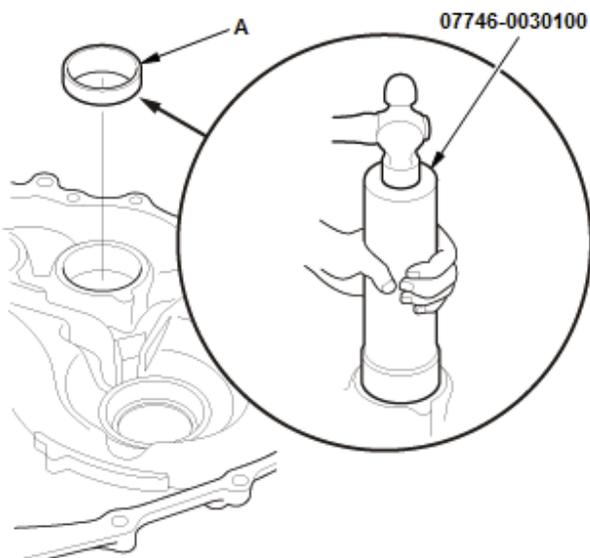
46. Baffle Plate - Install

47. Differential Assembly - Install

48. Final Drive Shaft Assembly - Install

49. 51 mm Thrust Shim - Install

50. Final Drive Shaft Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Install

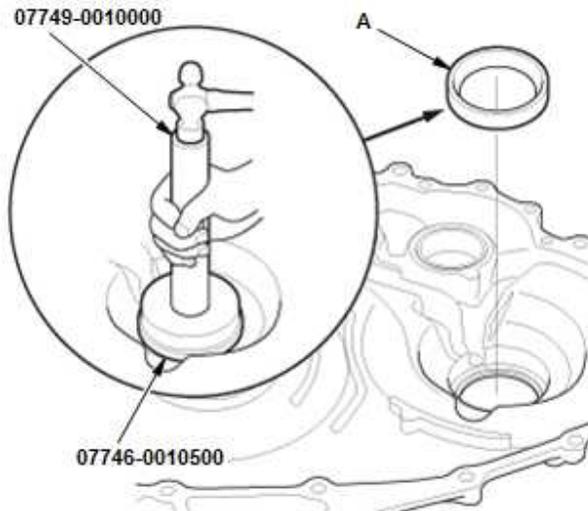


1. Install the final drive shaft tapered roller bearing outer race (A) until it bottoms using the 40 mm I.D. driver handle so there is no clearance between the bearing outer race, the 51 mm thrust shim, and the torque converter housing.

51.Oil Guide Plate - Install

52.68 mm Thrust Shim - Install

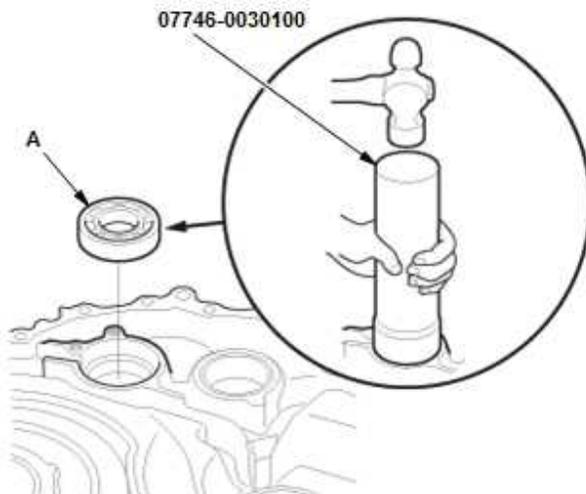
53. Differential Carrier Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Install



1. Install the differential carrier bearing outer race (A) until it bottoms using the 15 x 135L driver handle and the 62 x 68 mm bearing driver attachment so there is no clearance between the bearing outer race, the 68 mm thrust shim, the oil guide plate, and the torque converter housing.

54. Oil Guide Plate - Install

55. Driven Pulley Shaft Bearing (Torque Converter Housing Side) - Install



1. Install the driven pulley shaft bearing (A) until it bottoms using the 40 mm I.D. driver handle.

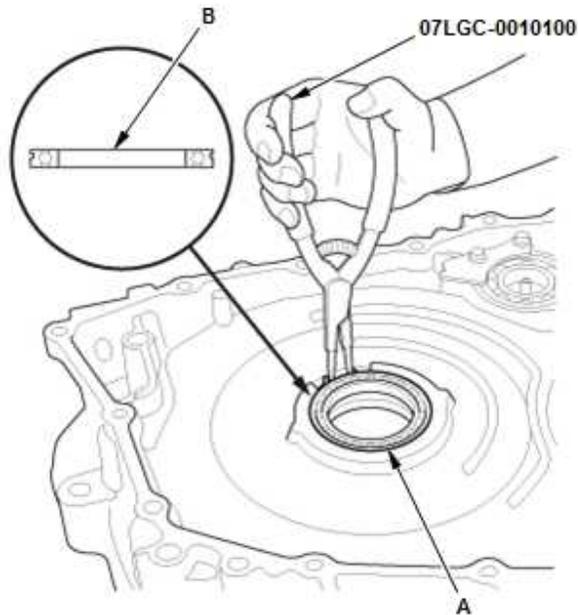
56. Bearing Set Plate - Install

57.Snap Ring - Install

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

58.Input Shaft Bearing - Install

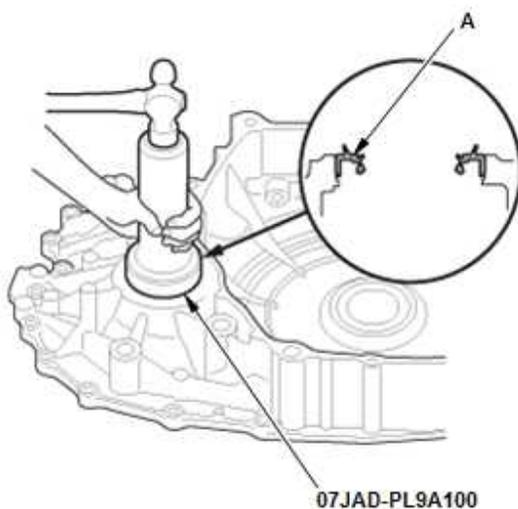


1. While expanding the snap ring (A) using the snap ring pliers, install the torque converter housing bearing (B) as shown.

NOTE:

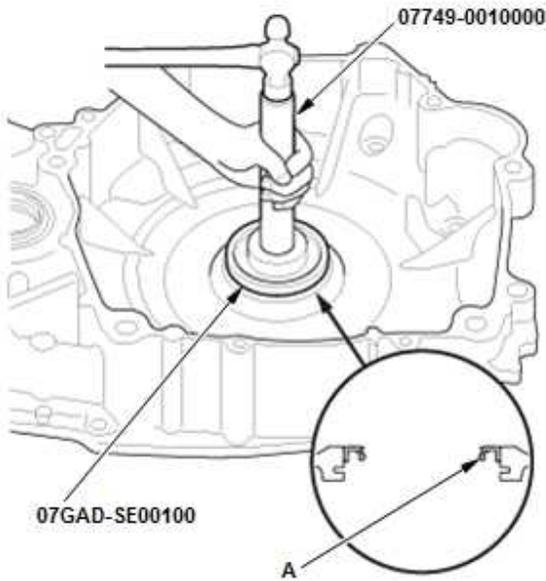
- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

59.Right Differential Oil Seal - Install



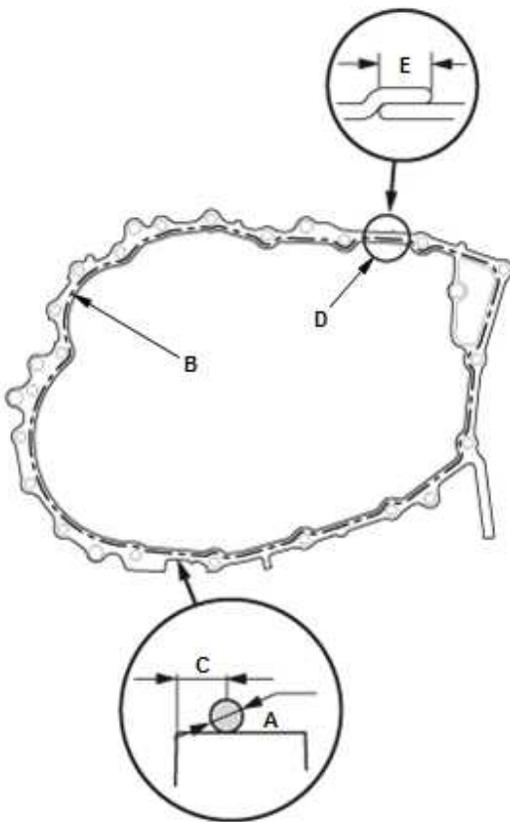
1. Install the right differential oil seal (A) flush with the torque converter housing using the 65 mm oil seal driver.

60.Input Shaft Oil Seal - Install



1. Install the input shaft oil seal (A) flush with the torque converter housing using the 15 x 135L driver handle and the 71.5 mm oil seal driver attachment.

61. Torque Converter Housing - Install



NOTE: Do the following procedure whenever installing the parts.

1. Remove all of the old liquid gasket from the mating surfaces of the transmission housing and the torque converter housing, the bolts, and the bolt holes.
2. Clean and dry the mating surfaces of the transmission housing and the torque converter housing.
3. Apply liquid gasket (Honda Genuine Liquid Gasket 5460H) to the transmission housing surface and to the inside edge of the threaded bolt holes. Install the component within 4 minutes of applying the liquid gasket.

NOTE:

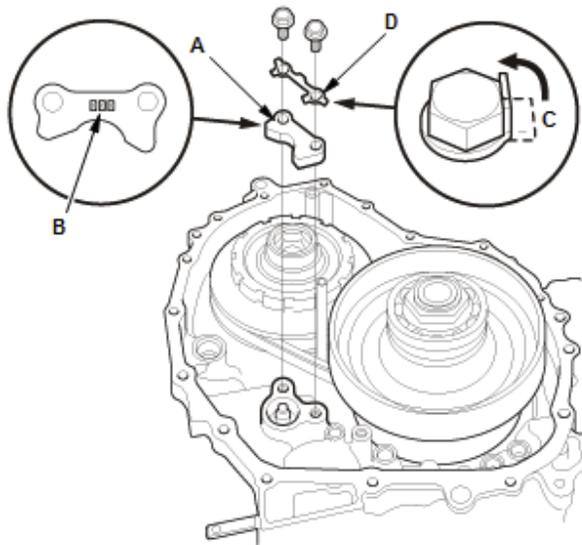
- Apply a 1.5 mm (0.059 in) diameter bead (A) of the liquid gasket along the broken line (B) which is 3.9 mm (0.154 in) (C) from the chamfering surface of the transmission housing inner side.
- Do not apply any liquid gasket to the bolt hole.
- Apply the liquid gasket all around as shown. When the bead is arriving at the end point (D), overlap the liquid gasket for 10–15 mm (0.39–0.59 in) (E).
- The torque converter housing must be installed within 4 minutes. If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.
- Do not touch the applied liquid gasket face.

4. Install the torque converter housing with the dowel pins, and tighten the bolts in a crisscross pattern in at least two steps.

NOTE:

- Wait for at least 1 hour before filling the transmission with transmission fluid.
- Do not run the engine for at least 3 hours after installing the torque converter housing.

62. Parking Brake Rod Holder - Install



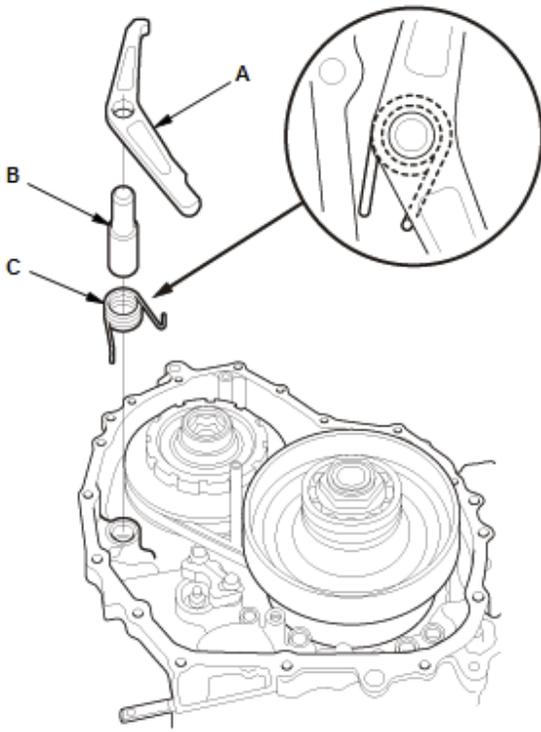
1. Install the parking brake rod holder (A).

NOTE: Be sure to install the parking brake rod holder with the letter (B) facing the upward.

2. Pry up the lock tabs (C) of the lock washer (D) against the bolt head.

63. Parking Brake Pawl, Parking Shaft, and Parking Pawl Spring - Install

1. Install the parking brake pawl (A) with the parking shaft (B) and the parking pawl spring (C) as shown.



64. Cooler Pipe - Install

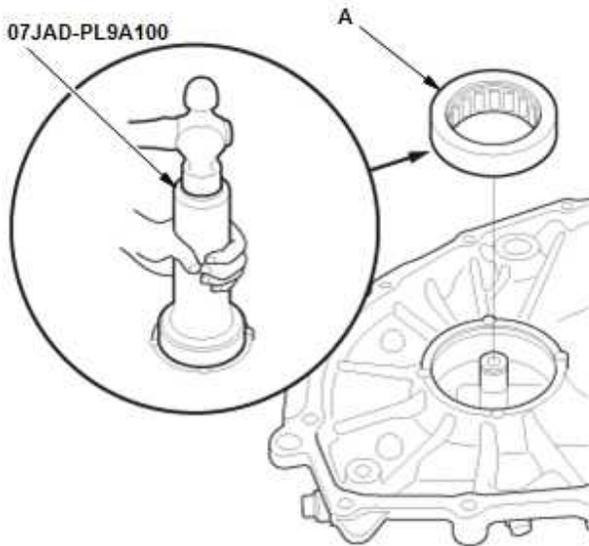
65. 10.9 x 48 mm Pipe - Install

66. 8 x 244 mm Pipe - Install

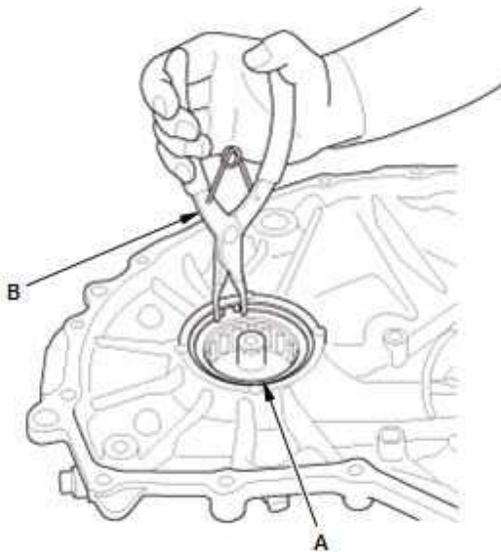
67. 8 x 52.2 mm Pipe - Install

68. Driven Pulley Shaft Bearing (End Cover Side) - Install

1. Install the secondary shaft bearing (A) using the 65 mm oil seal driver.



69. Snap Ring - Install



1. Install the snap ring (A) using commercially available snap ring pliers (B).

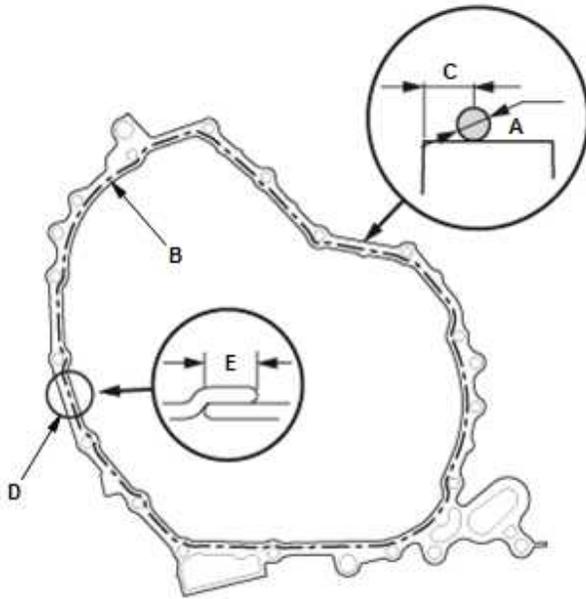
NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

70.16 mm Sealing Ring - Install

71. End Cover Plate - Install

72. End Cover - Install



NOTE: Do the following procedure whenever installing the parts.

1. Remove all of the old liquid gasket from the mating surfaces of the transmission housing and the end cover, the bolts, and the bolt holes.
2. Clean and dry the mating surfaces of the transmission housing and the end cover.
3. Apply liquid gasket (Honda Genuine Liquid Gasket 5460H) to the transmission housing surface and to the inside edge of the threaded bolt holes. Install the component within 4 minutes of applying the liquid gasket.

NOTE:

- Apply a 1.5 mm (0.059 in) diameter bead (A) of the liquid gasket along the broken line (B) which is 3.9 mm (0.154 in) (C) from the chamfering surface of the end cover inner side.
 - Do not apply any liquid gasket to the bolt hole.
 - Apply the liquid gasket all around as shown. When the bead is arriving at the end point (D), overlap the liquid gasket for 10–15 mm (0.39–0.59 in) (E).
 - The end cover must be installed within 4 minutes. If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.
 - Do not touch the applied liquid gasket face.
4. Install the end cover with the dowel pins, and tighten the bolts in a crisscross pattern in at least two steps.

NOTE:

- Wait for at least 1 hour before filling the transmission with transmission fluid.
- Do not run the engine for at least 3 hours after installing the end cover.

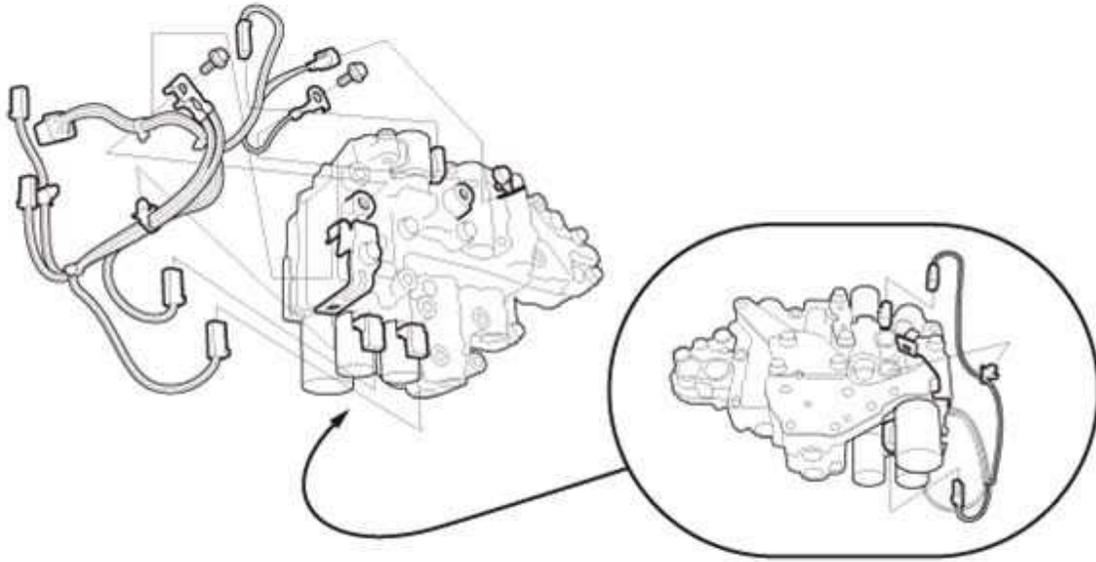
73. Sealing Bolt - Install

74. Transmission Fluid Pump - Install

75. Solenoid Wire Harness Connector - Install

76. Solenoid Wire Harness - Install

Solenoid Wire Harness Location



77.18 x 21 mm Pipe - Install

78.10.9 x 75.5 mm Pipe - Install

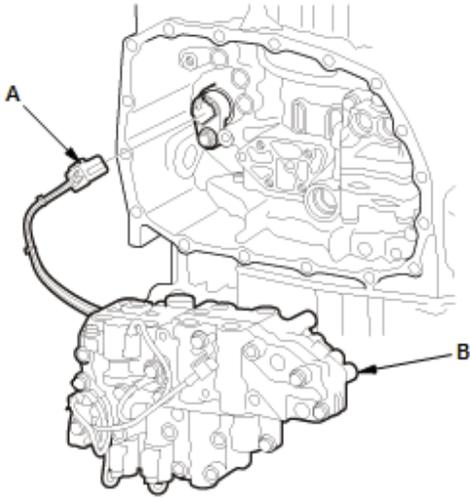
79.10.9 x 48 mm Pipe - Install

80.10.9 x 29 mm Pipe - Install

81.Valve Body Assembly - Install

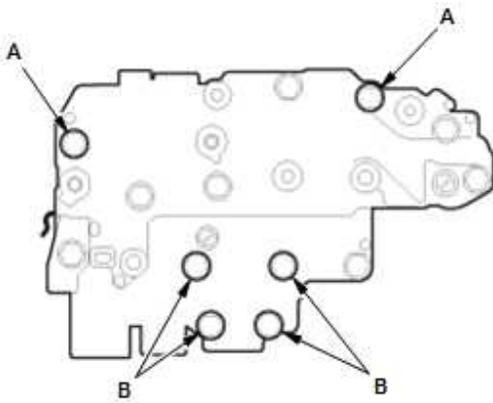
1. Connect the connector (A) and install the valve body assembly (B) straightly.

NOTE: Do not pinch the solenoid wire harness.



2. Install the valve body assembly mounting bolts.

Bolt	Length
A	90 mm (3.54 in)
B	65 mm (2.56 in)



82. Transmission Fluid Strainer - Install

NOTE: Do not pinch the solenoid wire harness.

83. Magnet - Install

84. Transmission Fluid Pan - Install

NOTE: Do not pinch the solenoid wire harness.

85. Drain Plug - Install

86. Filler Plug - Install

87. Sealing Bolt - Install

88. CVT Driven Pulley Pressure Sensor - Install

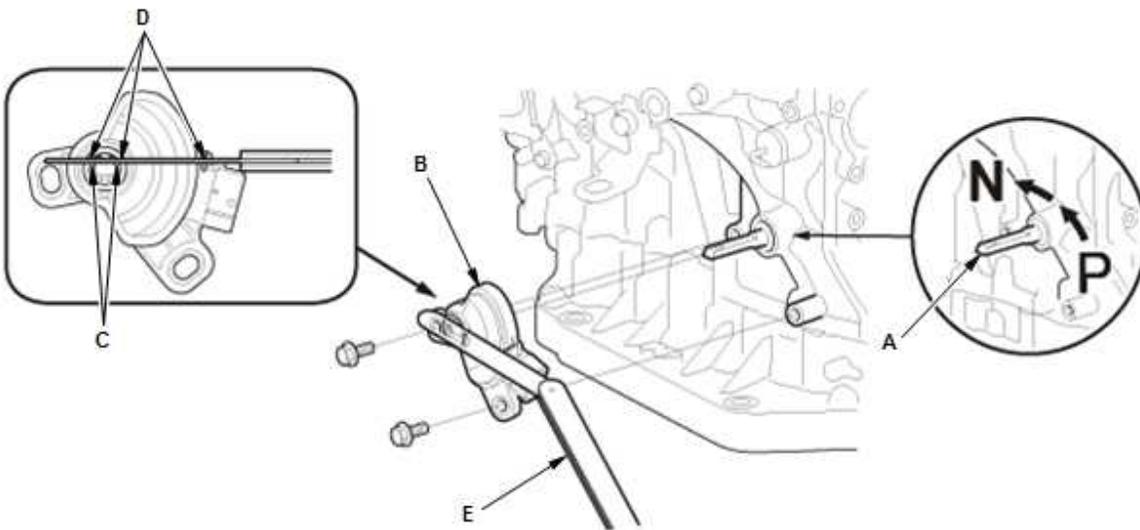
89. Torque Converter Turbine Speed Sensor - Install

90. CVT Drive Pulley Speed Sensor - Install

91. CVT Speed Sensor - Install

92. Transmission Range Switch - Install

1. Turn the control shaft (A) to the P position, then turn it back two clicks to the N position.



2. Set the transmission range switch (B) to the N position. Align the cutouts (C) on the rotary-frame with the N positioning cutouts (D) on the transmission range switch, then put a 2.0 mm (0.079 in) feeler gauge blade (E) in the cutouts to hold the transmission range switch in the N position.

NOTE: Be sure to use a 2.0 mm (0.079 in) feeler gauge blade or equivalent to hold the transmission range switch in the N position.

3. Loosely install the transmission range switch gently on the control shaft while holding it in the N position with the 2.0 mm (0.079 in) feeler gauge blade.
4. Tighten the bolts on the transmission range switch while you continue to hold the N position.

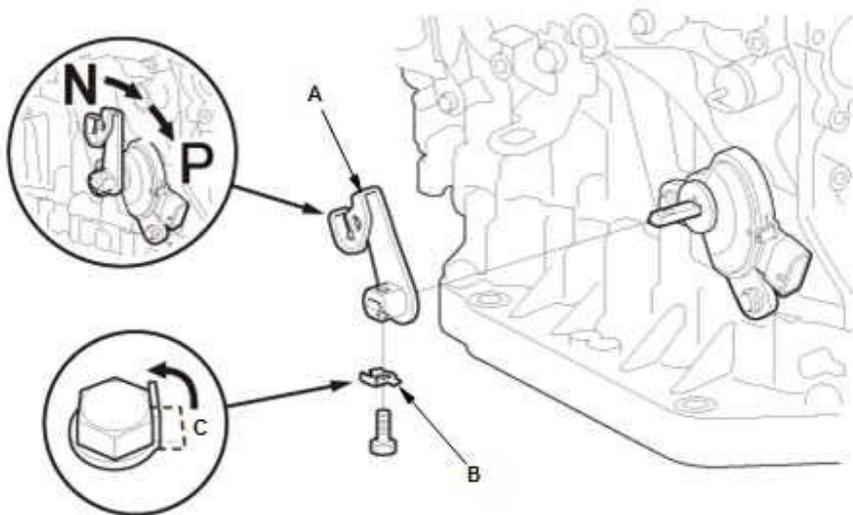
NOTE: Do not move the transmission range switch when tightening the bolts.

5. Remove the feeler gauge.

93. Control Shaft Cover - Install

94. Control Lever - Install

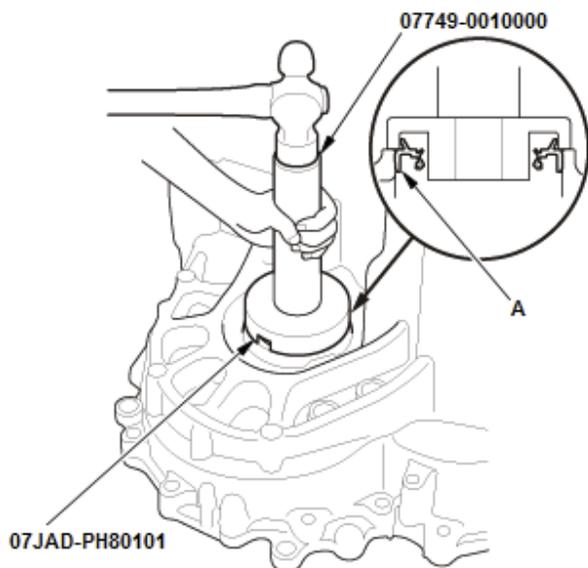
1. Install the control lever (A) with the lock washer (B).



2. Pry up the lock tab (C) of the lock washer against the bolt head.
3. Turn the control lever to the P position.

95. TCM - Install

96. Left Differential Oil Seal - Install



1. Install the differential oil seal (A) flush with the transmission housing using the 15 x 135L driver handle and the 58 mm oil seal driver attachment.

97. Breather Cap - Install

98. Filler Cap - Install

99. Transmission Hanger - Install

CVT Transmission Disassembly and Reassembly

Special Tool Required

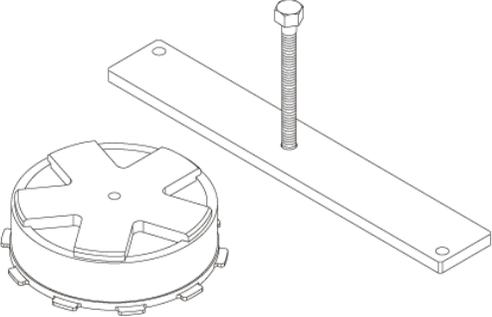
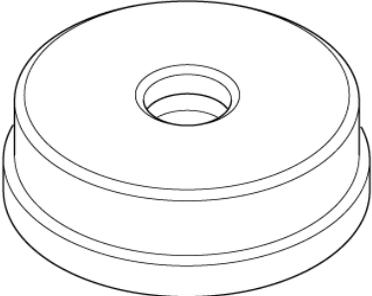
Image	Description/Tool Number
 A technical line drawing of a reverse brake spring compressor set. It consists of a circular, multi-lobed metal component with a central hole and a surrounding ring of teeth. Next to it is a long, thin rectangular metal bar with a threaded hole at one end and a hexagonal nut at the other.	Reverse Brake Spring Compressor Set 070AF-RJ2A100
 A technical line drawing of a bearing driver attachment. It is a cylindrical metal component with a central hole and a flange on one side.	Bearing Driver Attachment, 72 x 75 mm 07746-0010600
 A technical line drawing of a small cylindrical metal attachment. It has a central hole and a flange on one side, similar in design to the bearing driver attachment but smaller.	Attachment, 22 x 24 mm 07746-001A800

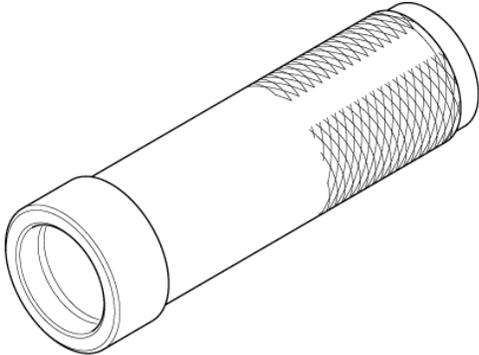
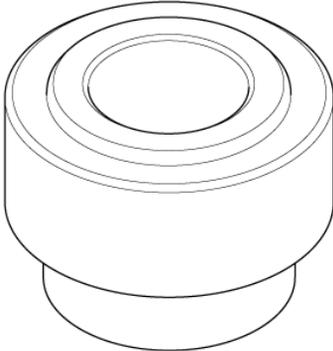
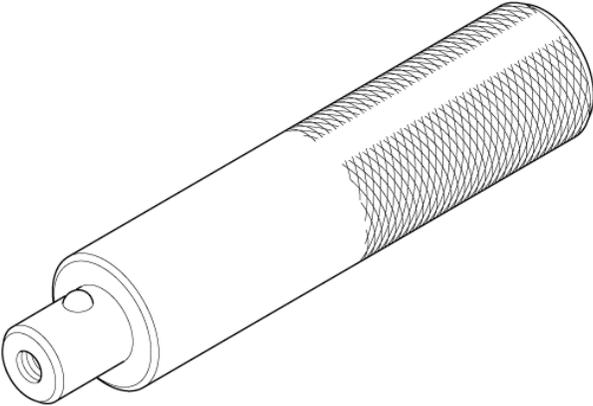
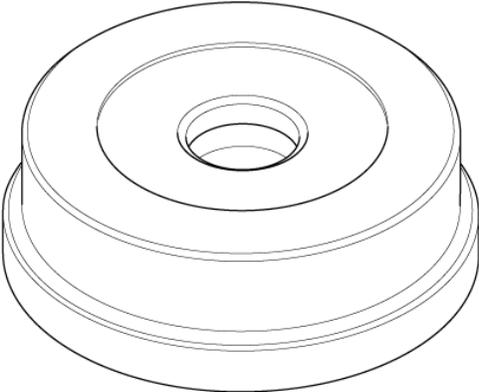
Image	Description/Tool Number
	<p>Driver Handle, 40 mm I.D. 07746-0030100</p>
	<p>Bearing Driver Attachment, 30 mm I.D. 07746-0030300</p>
	<p>Driver Handle, 15 x 135L 07749-0010000</p>
	<p>Bearing Driver Attachment, 62 x 64 mm 07947-6340400</p>

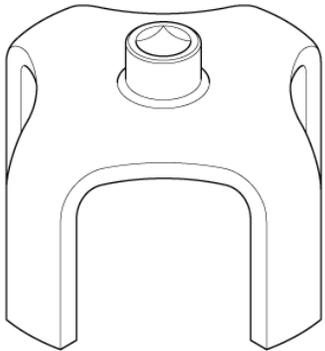
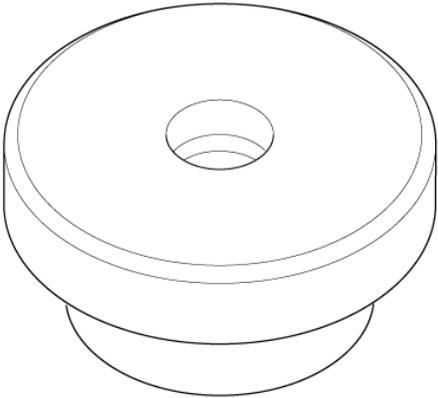
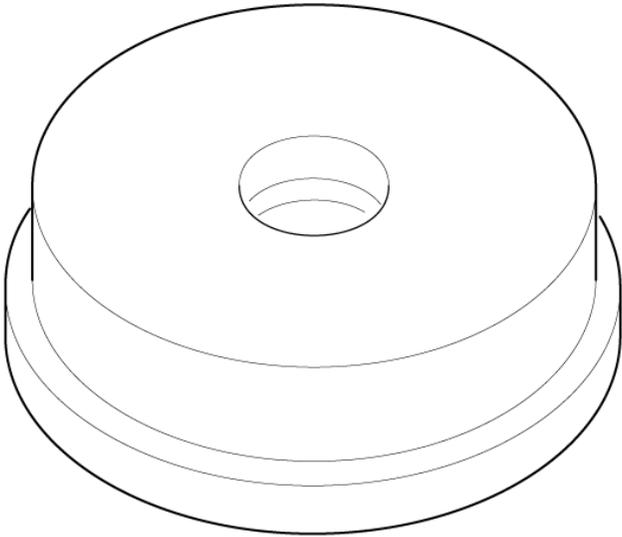
Image	Description/Tool Number
	Fuel Sender Wrench 07AAA-S0XA100
	Oil Seal Driver Attachment 07GAD-PG40100
	Attachment, 78 x 90 mm 07GAD-SD40101

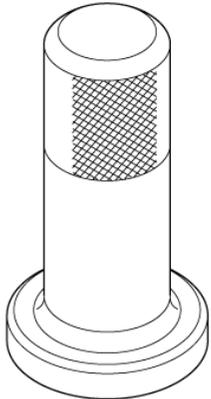
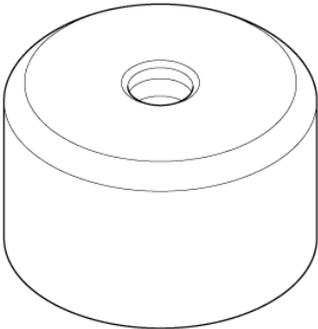
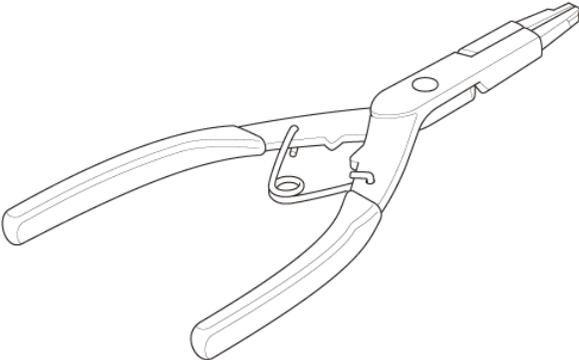
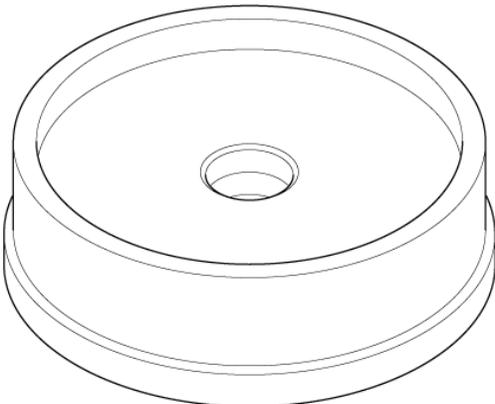
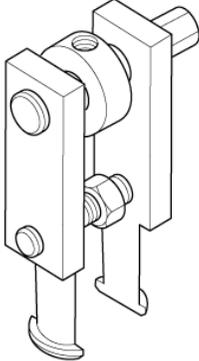
Image	Description/Tool Number
 A technical drawing of an oil seal driver. It consists of a cylindrical shaft with a textured, knurled section near the top. The shaft is mounted on a circular base with a flange.	Oil Seal Driver, 65 mm 07JAD-PL9A100
 A technical drawing of a cylindrical attachment. It has a central hole and a slightly recessed top surface.	Attachment, 70 mm 07LAD-PW50500
 A technical drawing of a pair of snap ring pliers. The tool has two long, curved handles and a central mechanism with a hook and a spring for gripping and adjusting snap rings.	Snap Ring Pliers 07LGC-0010100
 A technical drawing of a bearing driver attachment. It is a wide, shallow cylindrical ring with a central hole and a slightly raised outer edge.	Bearing Driver Attachment, 78 x 80 mm 07NAD-PX40100

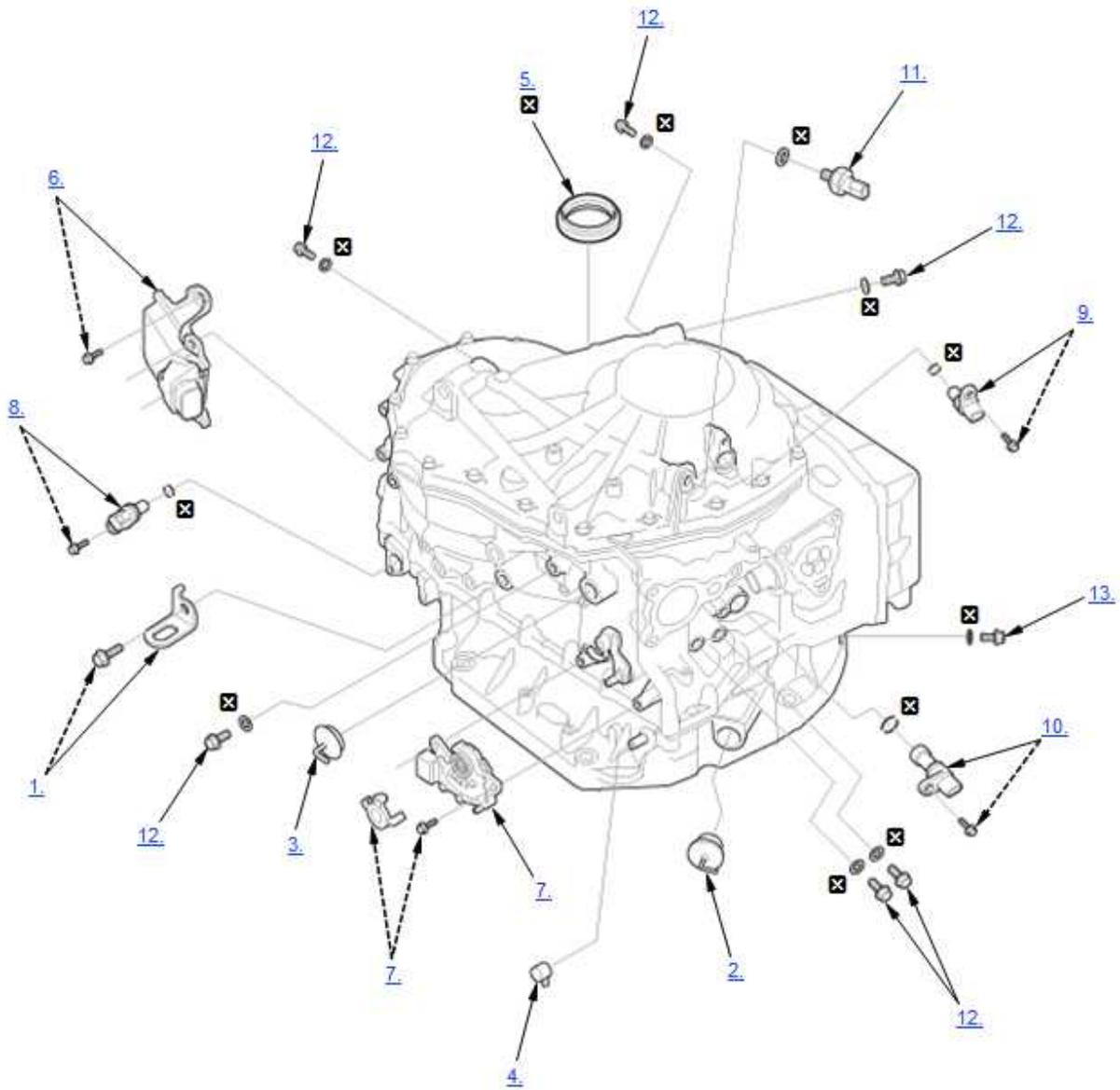
Image	Description/Tool Number
	Adjustable Bearing Puller, 45 – 75 mm 07YAC-0010102*

*: 07YAC-0010102 must be used with a commercially available 3/8"-16 slide hammer.

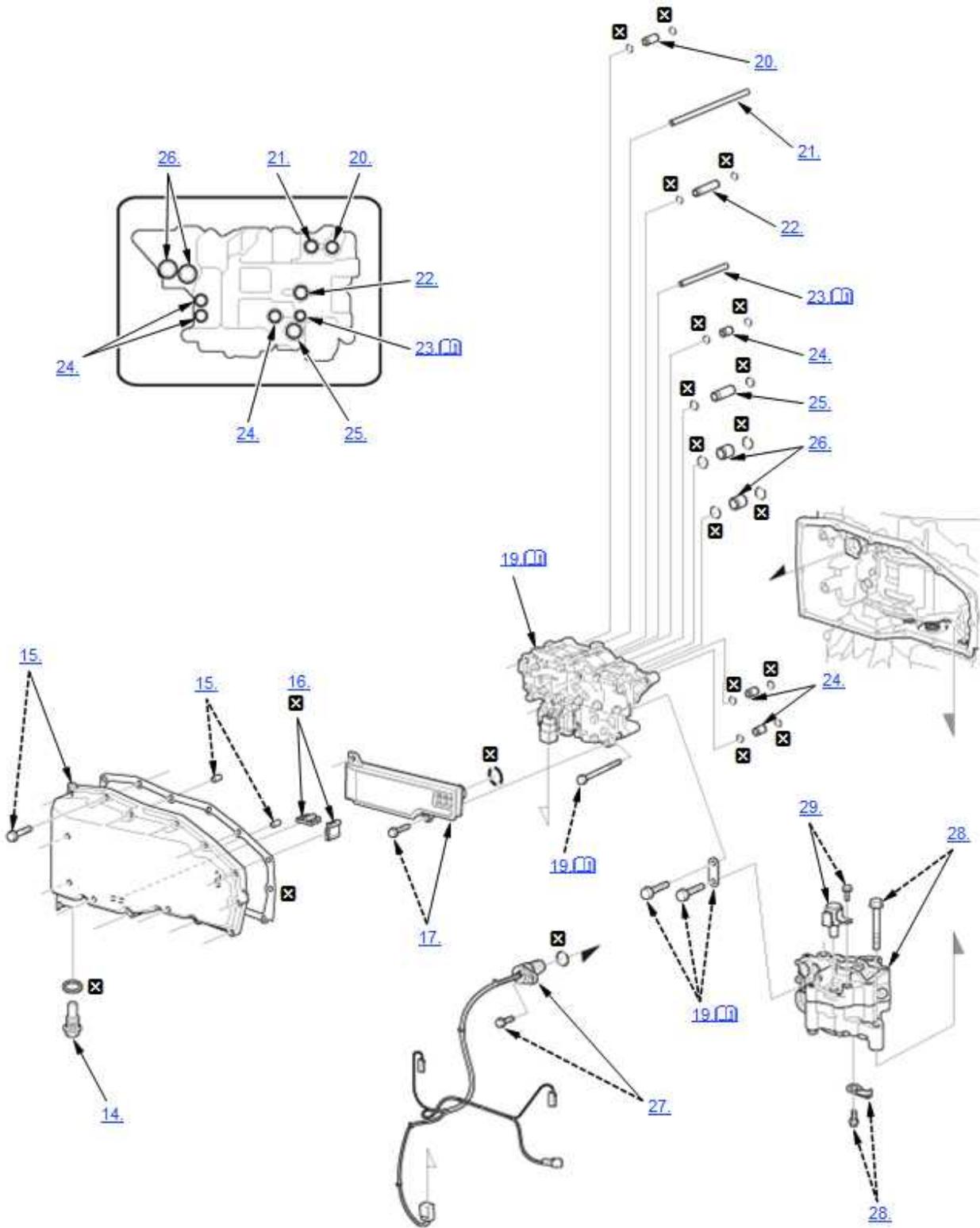
Disassembly

NOTE:

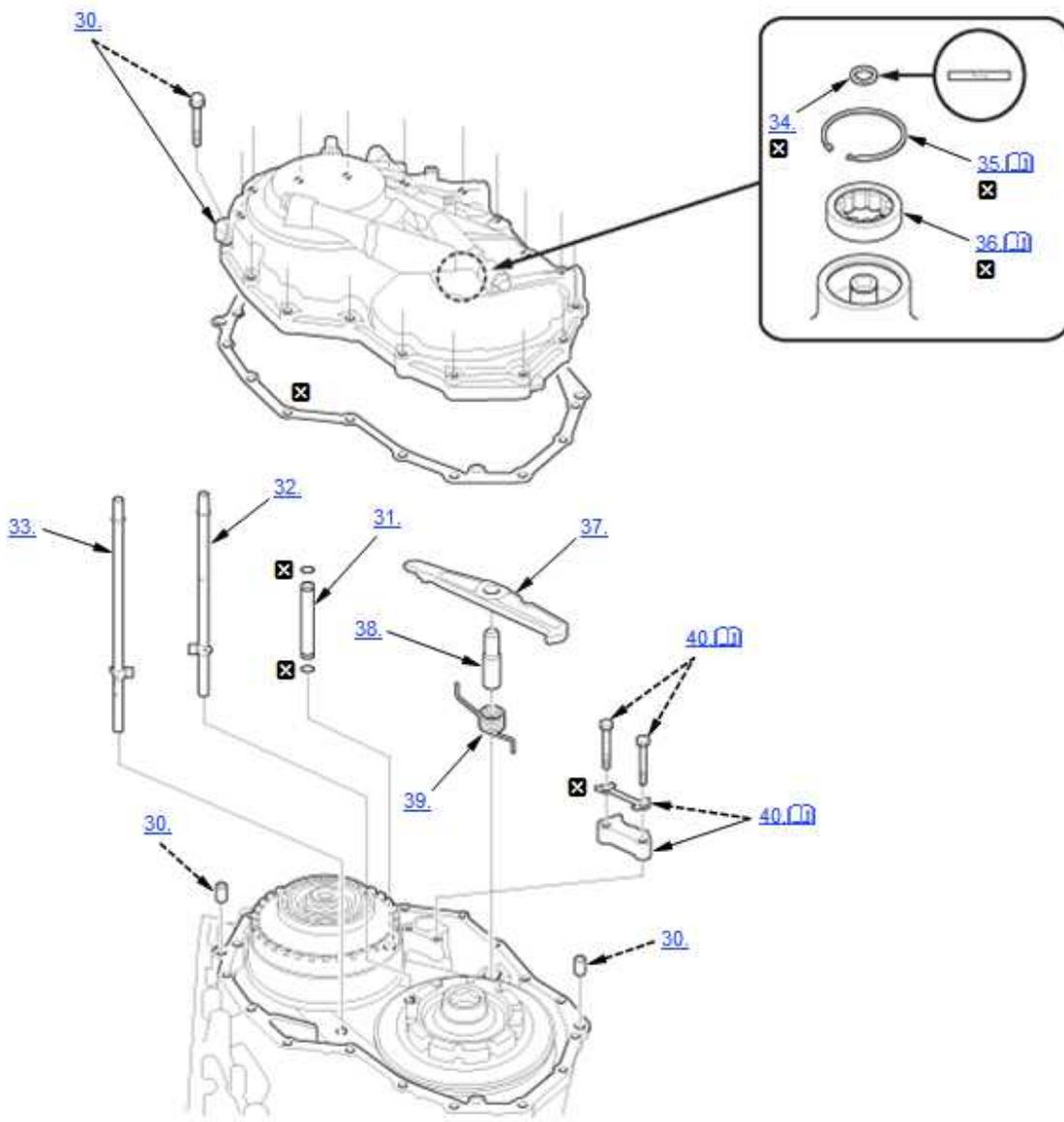
-  Where icon is shown, click for further information.
- Mark or place all removed parts in order in a parts rack so they can be reassembled in their original places.
- Keep all foreign particles out of the transmission.

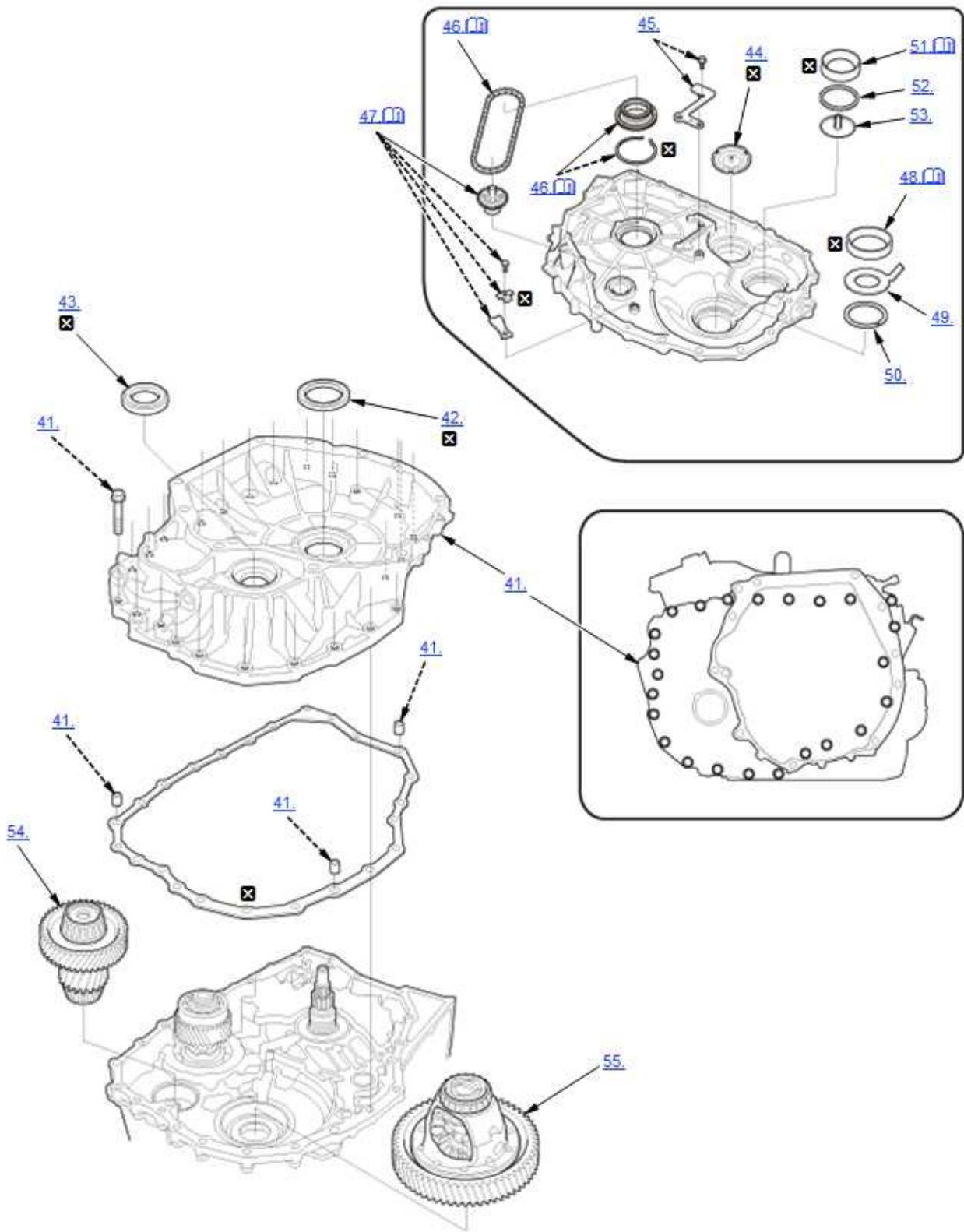


	Replace
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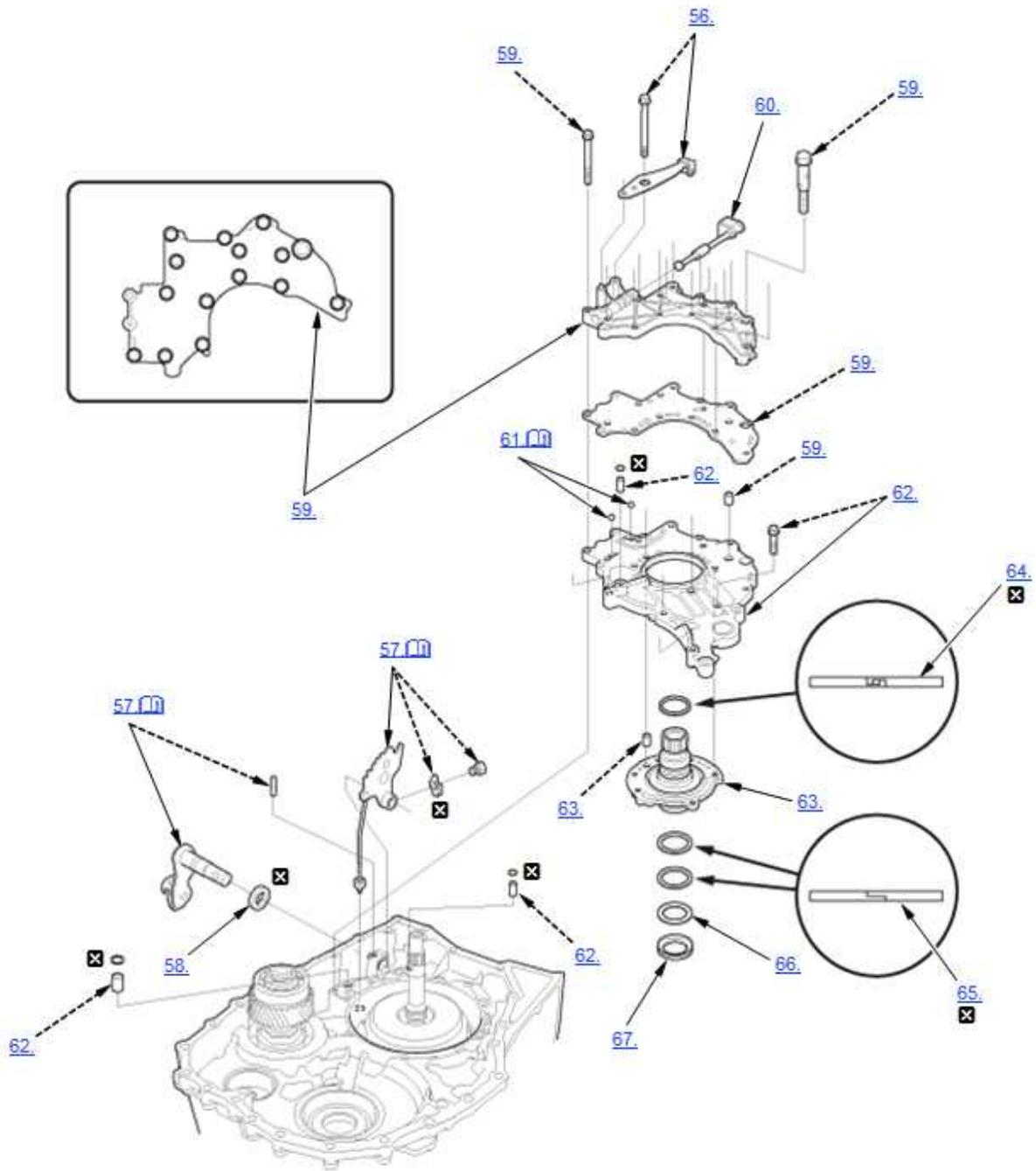


	Detailed information, notes and precautions
	Replace

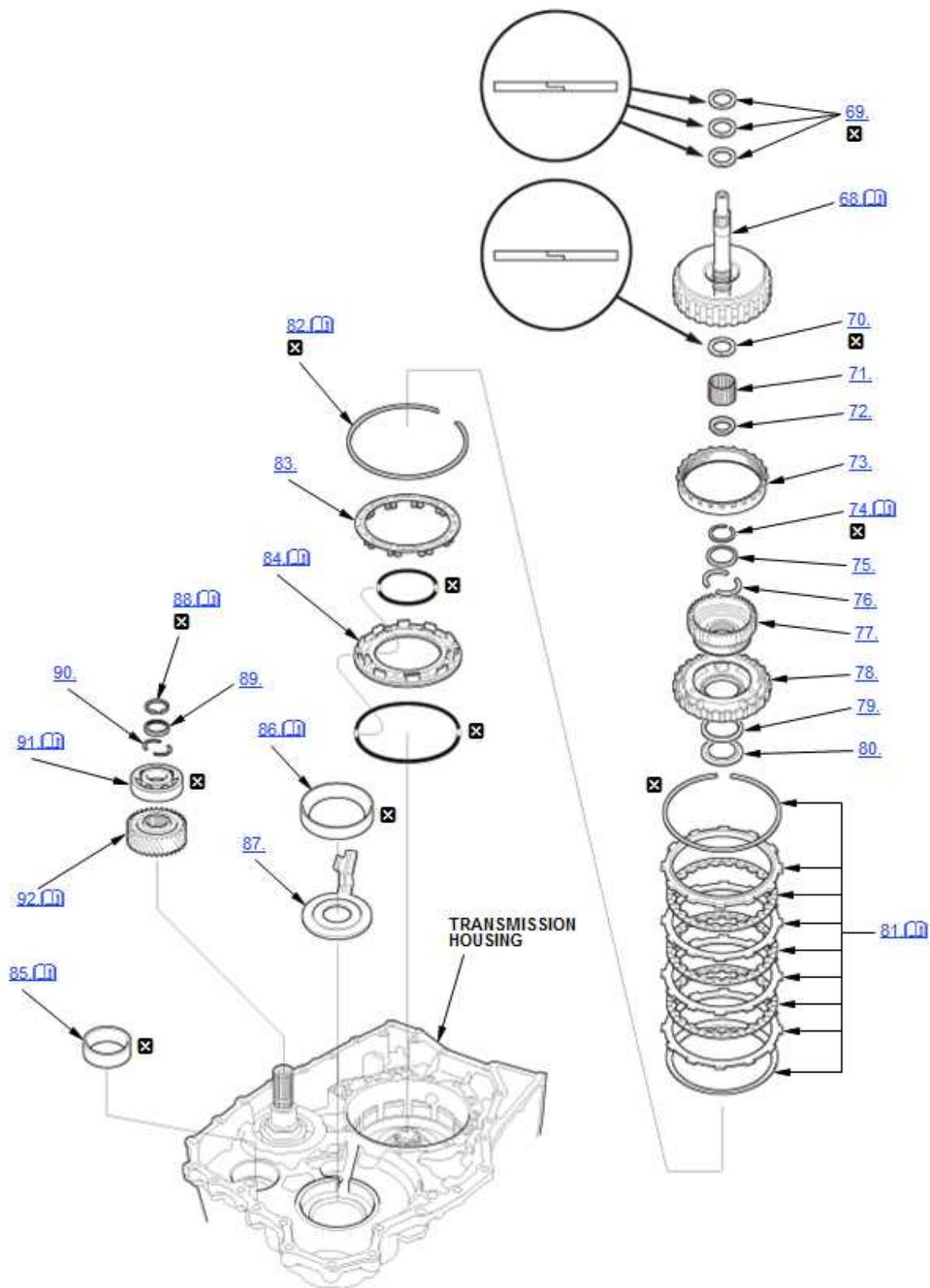




	Detailed information, notes and precautions
	Replace



	Detailed information, notes and precautions
	Replace



	Detailed information, notes and precautions
	Replace

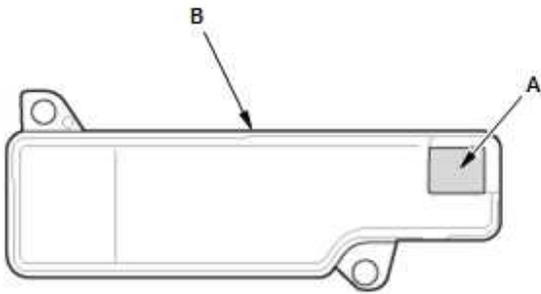
1. Transmission Hanger - Remove

2. Filler Cap A - Remove
3. Filler Cap B - Remove
4. Breather Cap - Remove
5. Left Differential Oil Seal - Remove
6. TCM - Remove
7. Transmission Range Switch - Remove
8. CVT Speed Sensor - Remove
9. CVT Drive Pulley Speed Sensor - Remove
10. Torque Converter Turbine Speed Sensor - Remove
11. CVT Driven Pulley Pressure Sensor - Remove
12. Sealing Bolt - Remove
13. Check Bolt - Remove
14. Drain Plug - Remove
15. Transmission Fluid Pan - Remove

16. Magnet - Remove

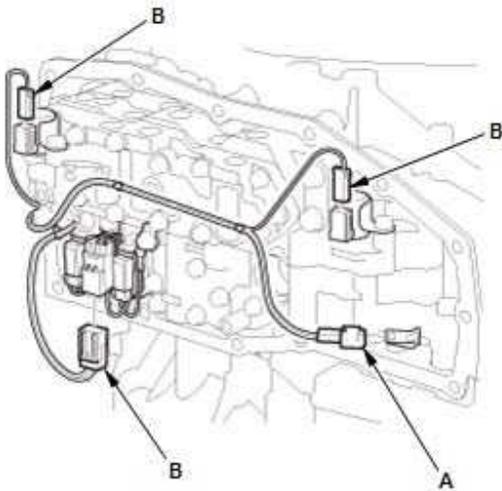
17. Transmission Fluid Strainer - Remove

18. Transmission Fluid Strainer - Check

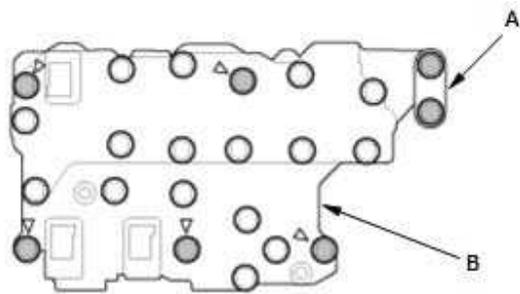


1. Clean the inlet opening (A) of the transmission fluid strainer (B) thoroughly with compressed air.
2. Check that it is in good condition and that the inlet opening is not clogged.
3. Test the strainer by pouring clean transmission fluid through the inlet opening, and replace it if it is clogged or damaged.

19. Valve Body Assembly - Remove



1. Remove the transmission fluid temperature sensor (A).
2. Disconnect the connectors (B).



- : BOLTS TO BE REMOVED
- : BOLTS NOT TO BE REMOVED

3. Remove the guide plate (A).

4. Remove the valve body assembly (B) straightly.

NOTE:

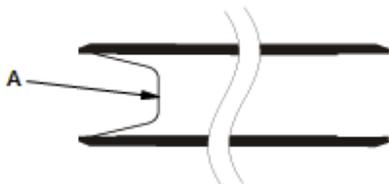
- Do not remove the bolts with no ▽ marked on.
- Check that the valve body assembly is free of solenoid wire harness A.
- Be careful not to damage solenoid wire harness A.

20. 10.9 x 26 mm Pipe - Remove

21. 8 x 133.5 mm Pipe - Remove

22. 12 x 56.7 mm Pipe - Remove

23. Joint Pipe - Remove



NOTE: Be careful not to drop the filter (A).

24. 10.9 x 18.5 mm Pipe - Remove

25. 14.3 x 36.2 mm Pipe - Remove

26. 18 x 18 mm Pipe - Remove

27. Solenoid Wire Harness A - Remove

28. Transmission Fluid Pump - Remove

29. Shift Solenoid Valve O/P - Remove

30. End Cover - Remove

31. 12 x 89 mm Pipe - Remove

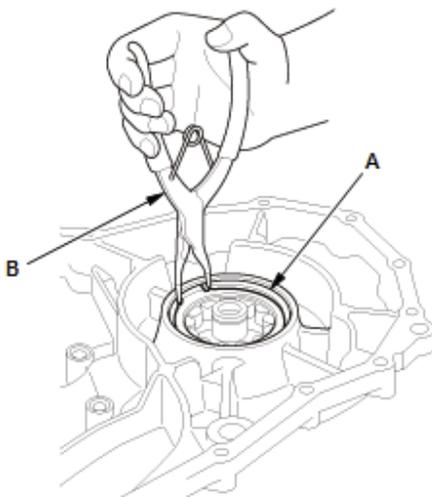
32. Lubrication Pipe D - Remove

33. Lubrication Pipe E - Remove

34. 22 mm Sealing Ring - Remove

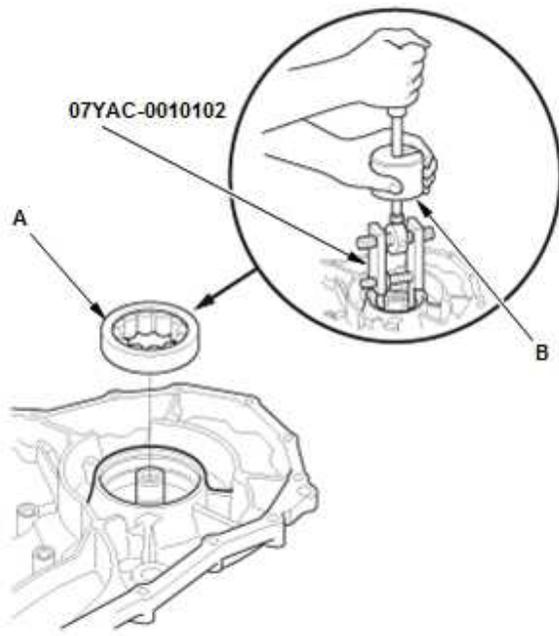
35. Snap Ring - Remove

1. Remove the snap ring (A) using commercially available snap ring pliers (B).



36. Driven Pulley Shaft Bearing (End Cover Side) - Remove

1. Remove the driven pulley shaft bearing (A) using the 45–75 mm adjustable bearing puller and a commercially available 3/8"-16 slide hammer (B).

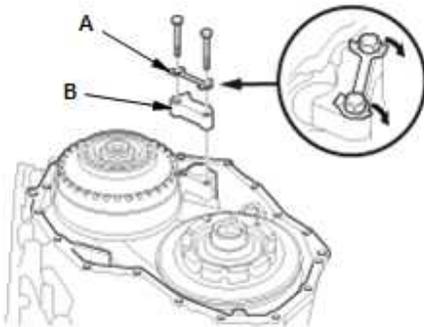


37. Parking Brake Pawl - Remove

38. Parking Shaft - Remove

39. Parking Pawl Spring - Remove

40. Parking Brake Rod Holder - Remove



1. Pry down the lock tabs of the lock washer (A).
2. Remove the parking brake rod holder (B) with the lock washer.

41. Torque Converter Housing - Remove

42. Input Shaft Oil Seal - Remove

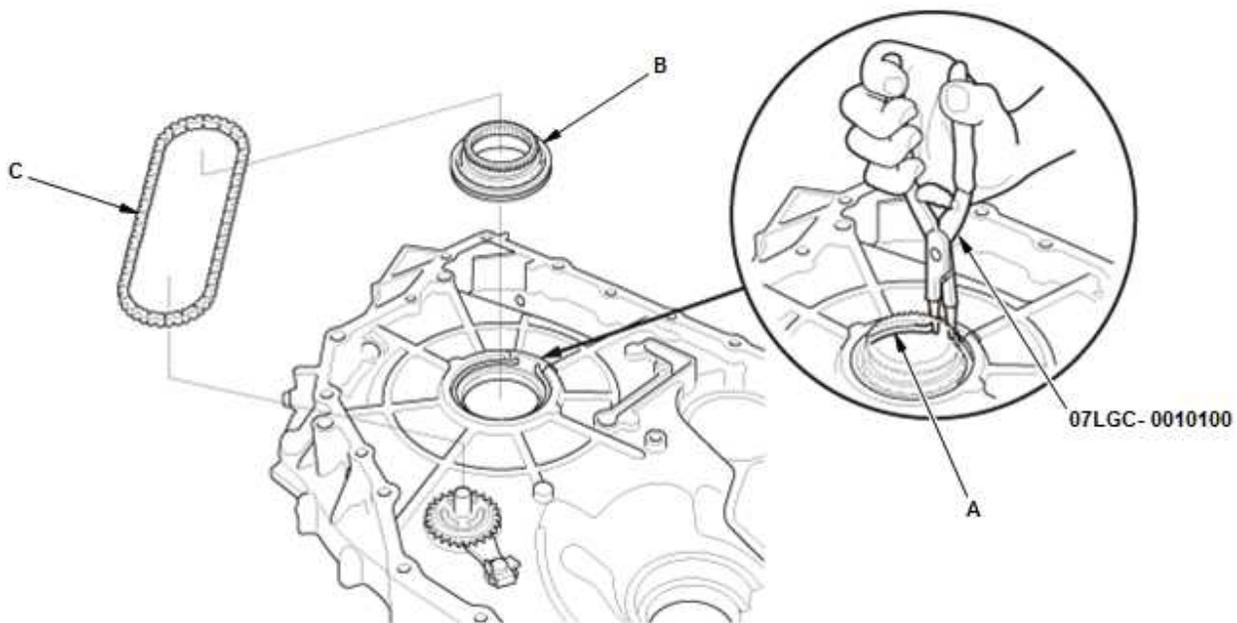
43. Right Differential Oil Seal - Remove

44. Oil Guide Plate - Remove

45. Lubrication Plate - Remove

46. Transmission Fluid Pump Drive Sprocket and Transmission Fluid Pump Drive Chain - Remove

1. While expanding the snap ring (A) using the snap ring pliers, remove the transmission fluid pump drive sprocket (B) and the transmission fluid pump drive chain (C).



2. Remove the snap ring.

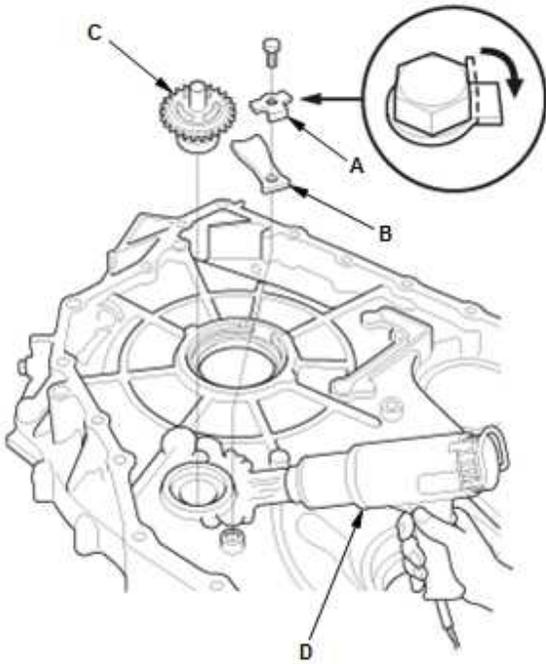
47. Transmission Fluid Pump Driven Sprocket - Remove

1. Pry down the lock tab of the lock washer (A).

2. Remove the bearing set plate (B).

3. Remove the transmission fluid pump driven sprocket (C) by heating the torque converter housing to about 212 °F (100 °C) using a heat gun (D).

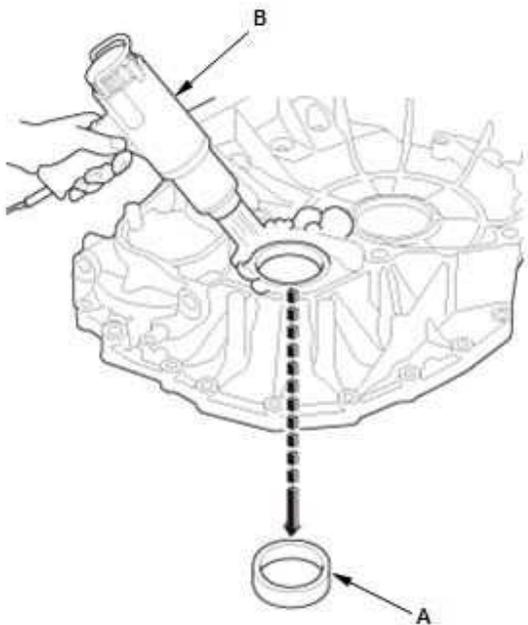
NOTE: Do not heat the torque converter housing more than 212 °F (100 °C).



48. Differential Carrier Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Remove

1. Remove the differential carrier tapered roller bearing outer race (A) by heating the torque converter housing to about 212 °F (100 °C) using a heat gun (B).

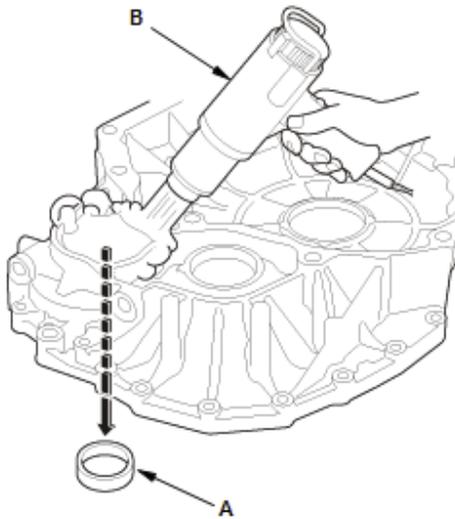
NOTE: Do not heat the torque converter housing more than 212 °F (100 °C).



49. 41 x 76.2 x 1 mm Spacer - Remove

50. 76 mm Thrust Shim - Remove

51. Final Drive Shaft Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Remove



1. Remove the final drive shaft tapered roller bearing outer race (A) by heating the torque converter housing to about 212 °F (100 °C) using a heat gun (B).

NOTE: Do not heat the torque converter housing more than 212 °F (100 °C).

52. 80 mm Thrust Shim - Remove

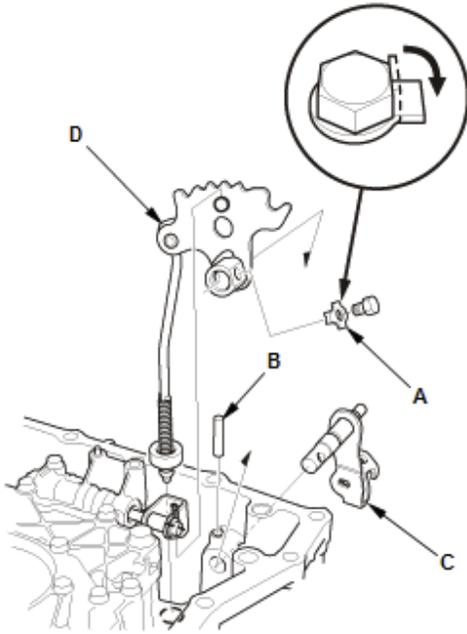
53. Oil Guide Plate - Remove

54. Final Drive Shaft Assembly - Remove

55. Differential Assembly - Remove

56. Detent Spring - Remove

57. Control Shaft and Detent Lever - Remove



1. Pry down the lock tab of the lock washer (A).
2. Remove the roller (B).
3. Remove the control shaft (C) and the detent lever (D).

58. Control Shaft Oil Seal - Remove

59. Manual Valve Body - Remove

60. Manual Valve - Remove

61. Check Ball - Remove

NOTE:

- Be careful not to drop the check balls.
- Do not use a magnet to remove the check balls, it may magnetize the check balls.

62. Stator Shaft Flange - Remove

63. Stator Shaft - Remove

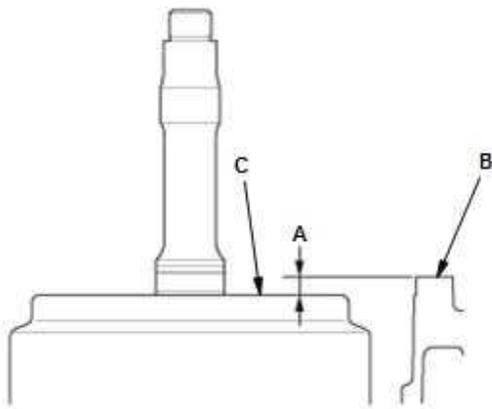
64. 40 mm Sealing Ring - Remove

65.47 mm Sealing Ring - Remove

66.32 x 42 mm Thrust Shim - Remove

67.29.55 x 45 x 3.62 mm Thrust Needle Bearing - Remove

68.Input Shaft Assembly - Remove



NOTE: Note the depth (A) between the surface of the transmission housing (B) and the clutch guide (C). The recorded value of the depth will be the standard one when installing the input shaft assembly.

69.27 mm Sealing Ring - Remove

70.24 mm Sealing Ring - Remove

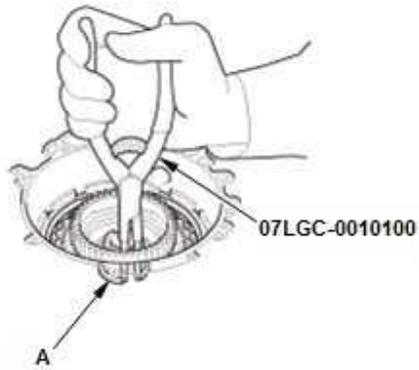
71.20 x 24 x 17 mm Needle Bearing - Remove

72.24.5 x 39.1 x 3.2 mm Thrust Needle Bearing - Remove

73.Ring Gear - Remove

74.Snap Ring - Remove

1. Remove the snap ring (A) using the snap ring pliers.



75. Cotter Retainer - Remove

76. 32.5 mm Cotter - Remove

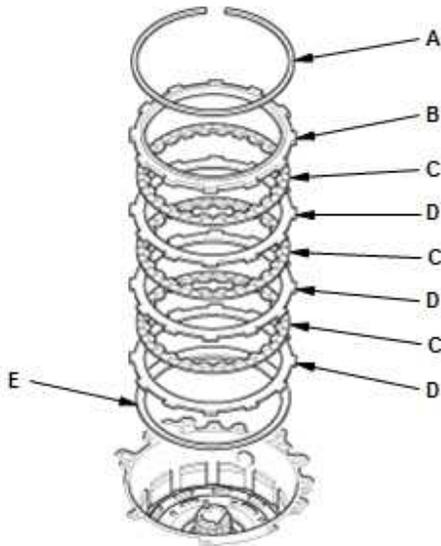
77. Sun Gear - Remove

78. Planetary Carrier Assembly - Remove

79. 50 x 65 x 3 mm Thrust Washer - Remove

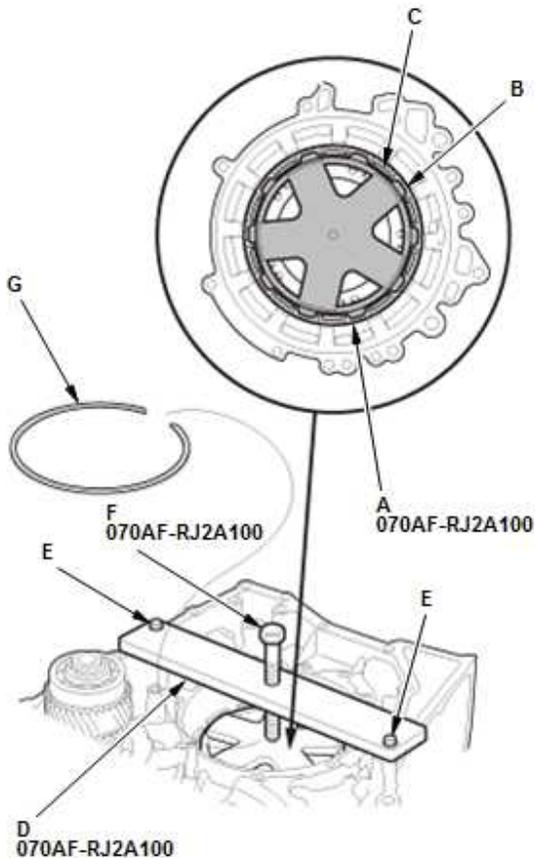
80. 40 x 63 x 5.5 mm Washer - Remove

81. Reverse Brake - Remove



1. Remove the snap ring (A).
2. Remove the reverse brake end-plate (B).
3. Remove the reverse brake discs (C) and the reverse brake plates (D).
4. Remove the disc spring (E).

82. Snap Ring - Remove



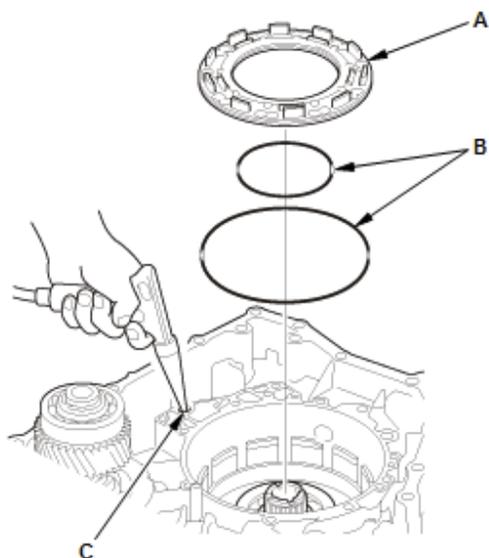
1. Put the reverse brake spring compressor attachment (A) on the spring retainer/return spring assembly (B).

NOTE: Be sure the attachment is set over the return springs, not on the reverse brake piston (C).

2. Install the reverse brake spring compressor plate (D) with facing the UP mark to the upside using bolts (E).
3. Make sure that the reverse brake spring compressor bolt (F) is properly installed on the dent in the surface of the reverse brake spring compressor attachment.
4. Compress the return springs using the reverse brake spring compressor until the snap ring securing the spring retainer/return spring can be removed.
5. Remove the snap ring (G).
6. Remove the reverse brake spring compressor.

83. Spring Retainer/Return Spring Assembly - Remove

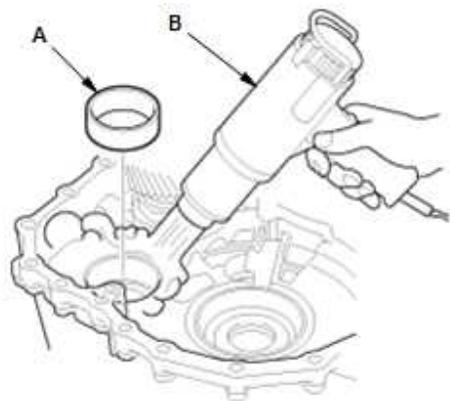
84.Reverse Brake Piston - Remove



1. Remove the reverse brake piston (A) with the O-rings (B) while applying air pressure to the reverse brake hydraulic circuit hole (C).

NOTE: Cover the hydraulic circuit hole using a shop towel to prevent scatter of the transmission fluid.

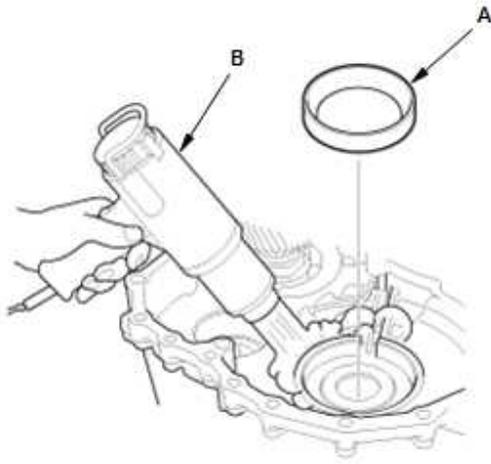
85.Final Drive Shaft Tapered Roller Bearing Outer Race (Transmission Housing Side) - Remove



1. Remove the final drive shaft tapered roller bearing outer race (A) by heating the transmission housing to about 212 °F (100 °C) using a heat gun (B).

NOTE: Do not heat the transmission housing more than 212 °F (100 °C).

86.Differential Carrier Tapered Roller Bearing Outer Race (Transmission Housing Side) - Remove



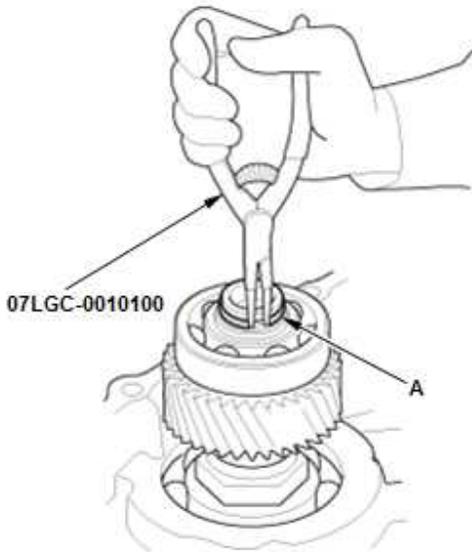
1. Remove the differential carrier tapered roller bearing outer race (A) by heating the transmission housing to about 212 °F (100 °C) using a heat gun (B).

NOTE: Do not heat the transmission housing more than 212 °F (100 °C).

87.41 x 92 x 1 mm Spacer - Remove

88.Snap Ring - Remove

1. Remove the snap ring (A) using the snap ring pliers.

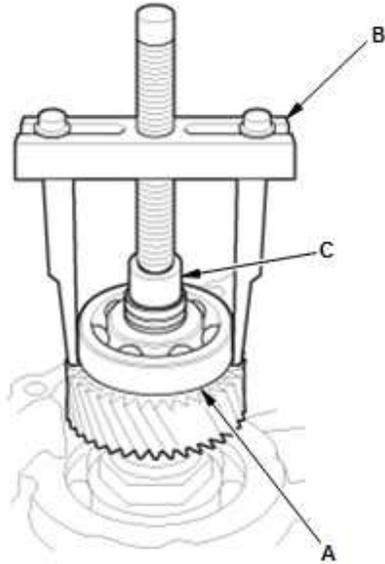


89.Cotter Retainer - Remove

90.25.5 mm Cotter - Remove

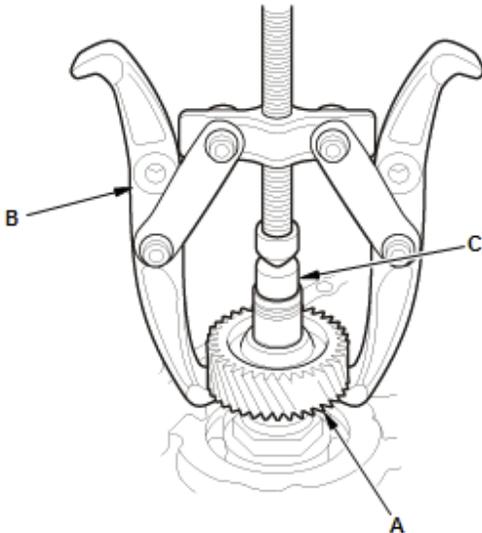
91.Driven Pulley Shaft Bearing (Transmission Housing Side) - Remove

1. Remove the driven pulley shaft bearing (A) using a commercially available bearing puller (B) and a commercially available spacer (C).



92. Secondary Drive Gear - Remove

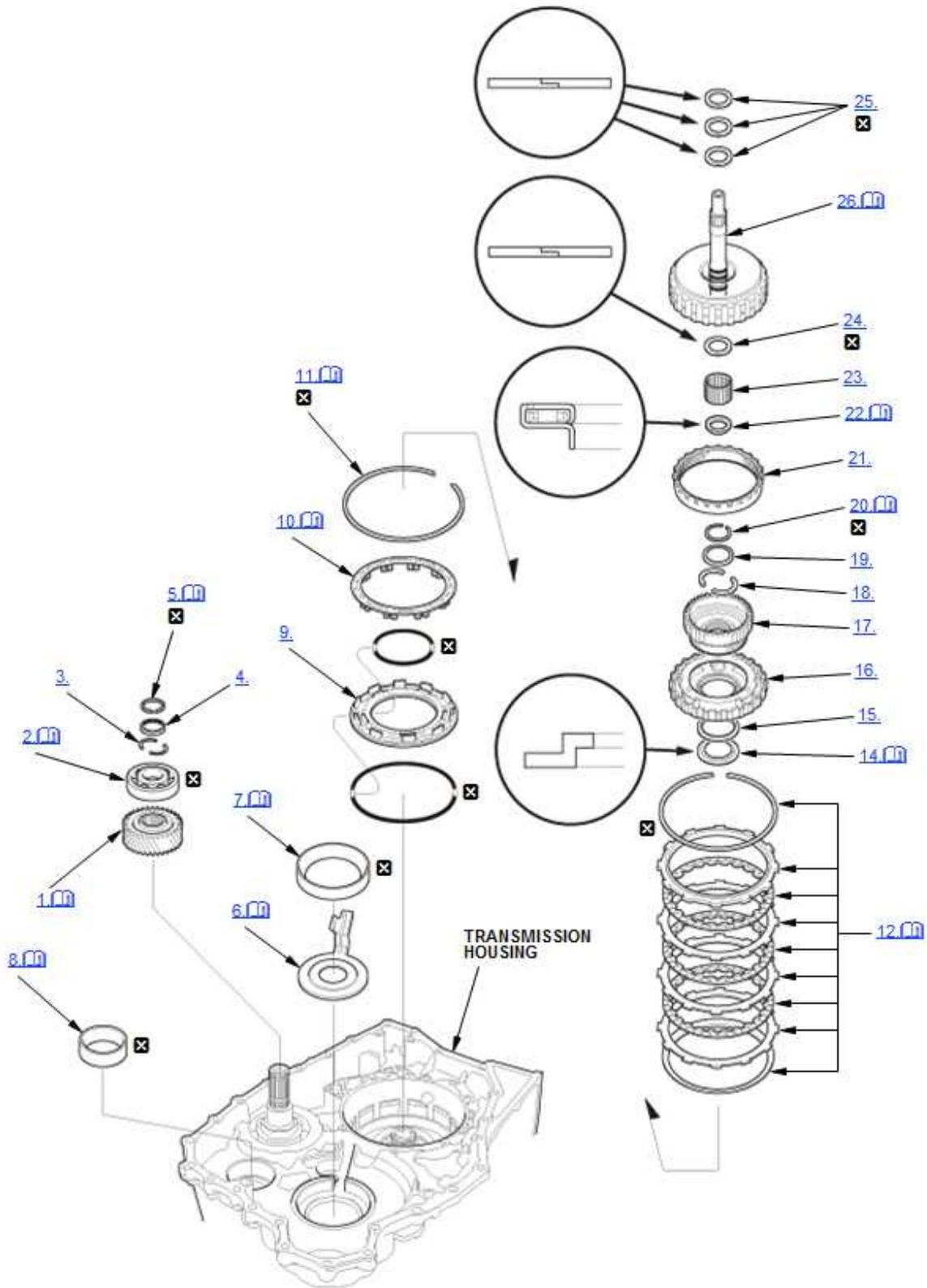
1. Remove the secondary drive gear (A) using a commercially available bearing puller (B) and a commercially available spacer (C).



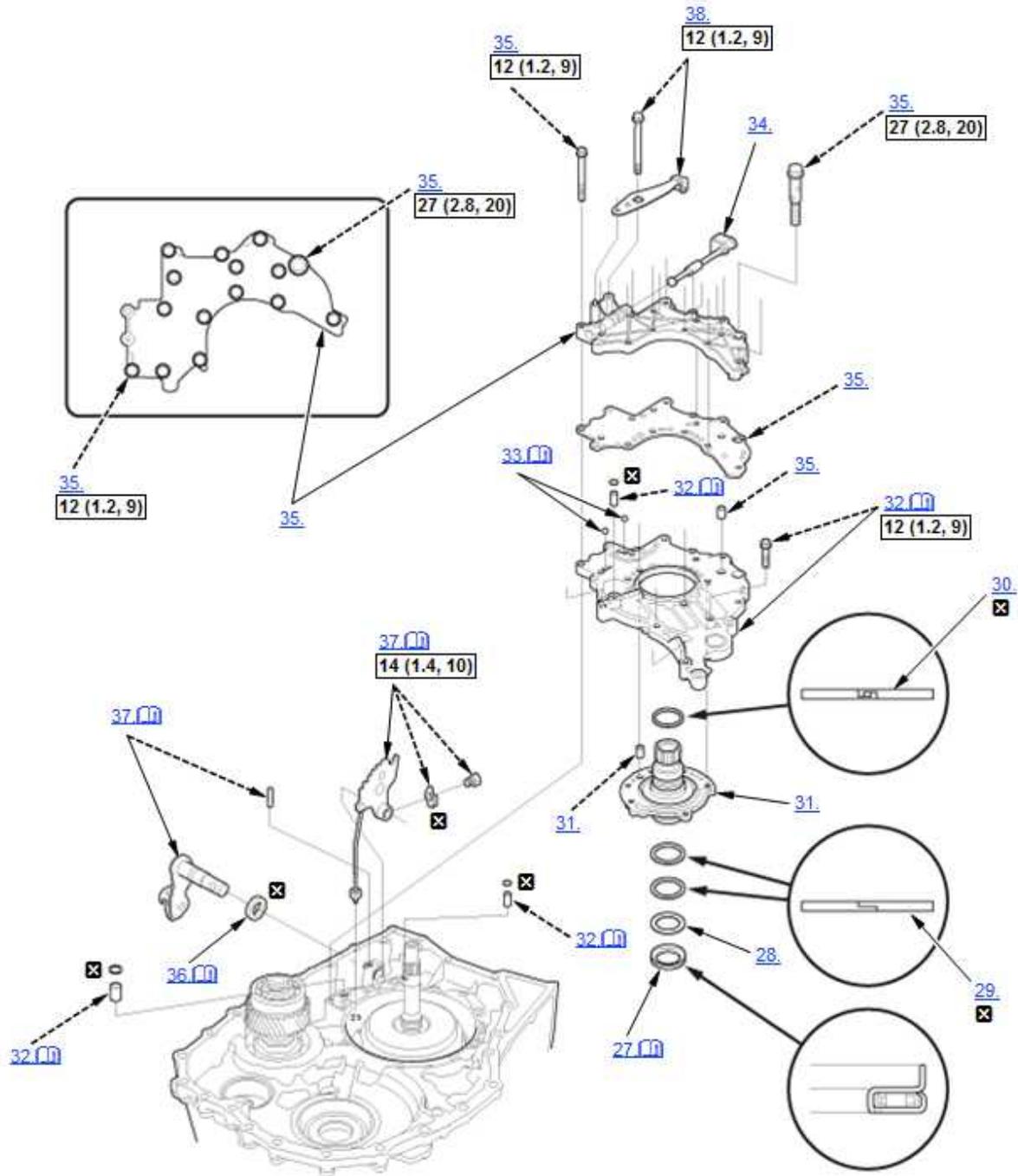
Reassembly

NOTE:

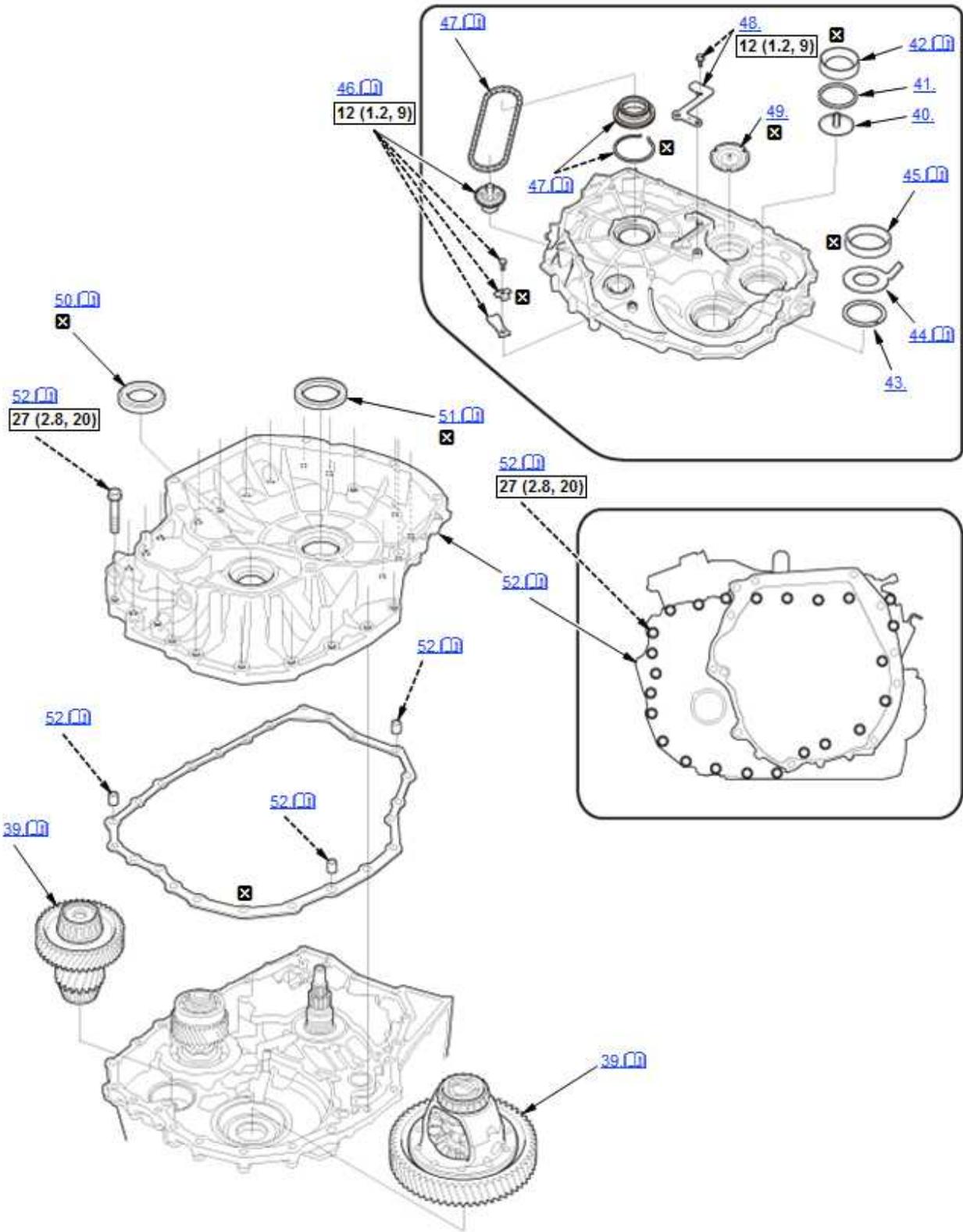
-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.
- When you reassemble the transmission, apply a light coat of clean transmission fluid on all oil seals, O-rings, bearings, and shaft splines. Also soak the forward clutch assembly and the reverse brake discs, in clean transmission fluid for at least 30 minutes prior to installation.
- Be careful not to damage the O-rings.



	Detailed information, notes and precautions
	Replace



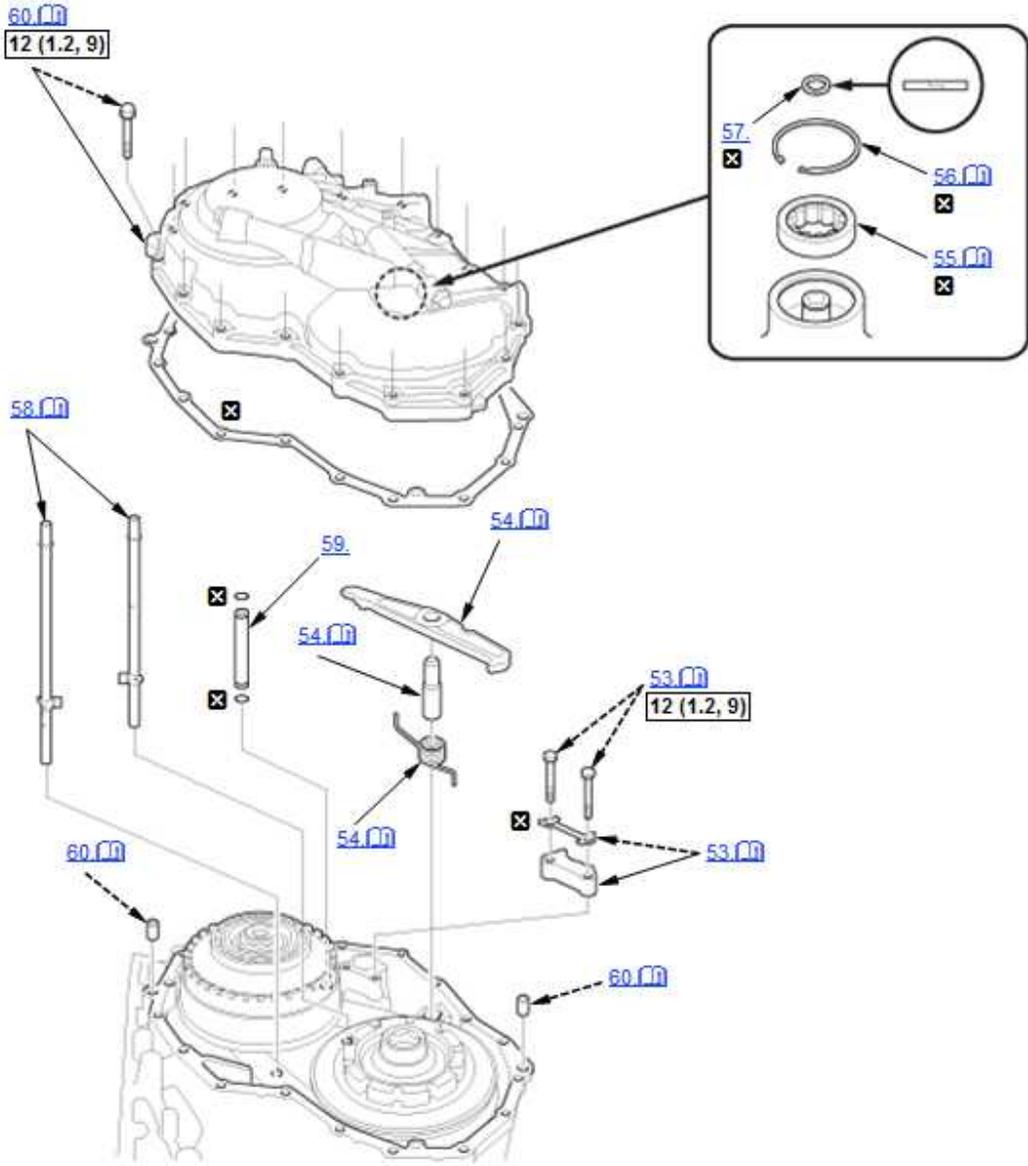
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)

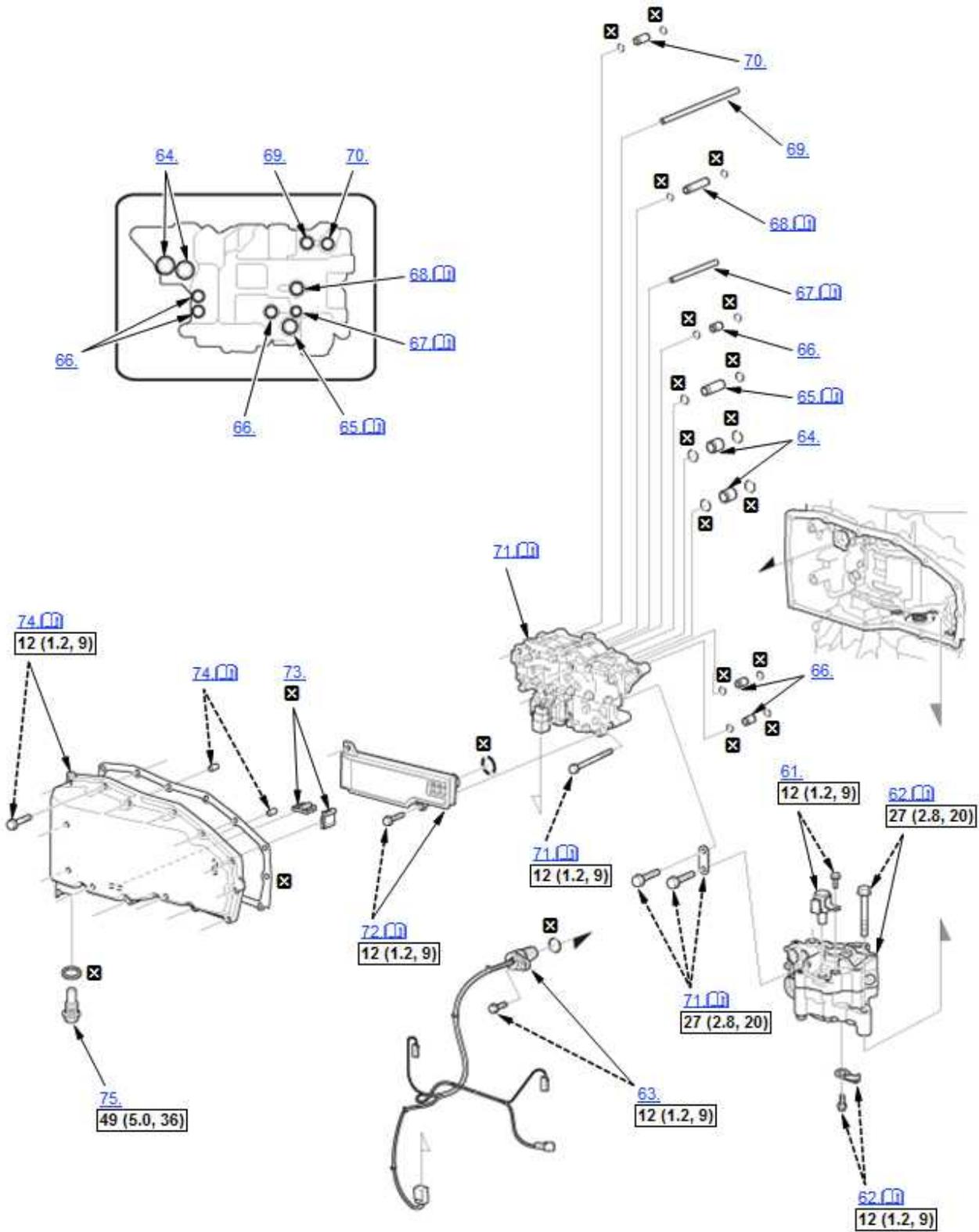
✘	Replace
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4

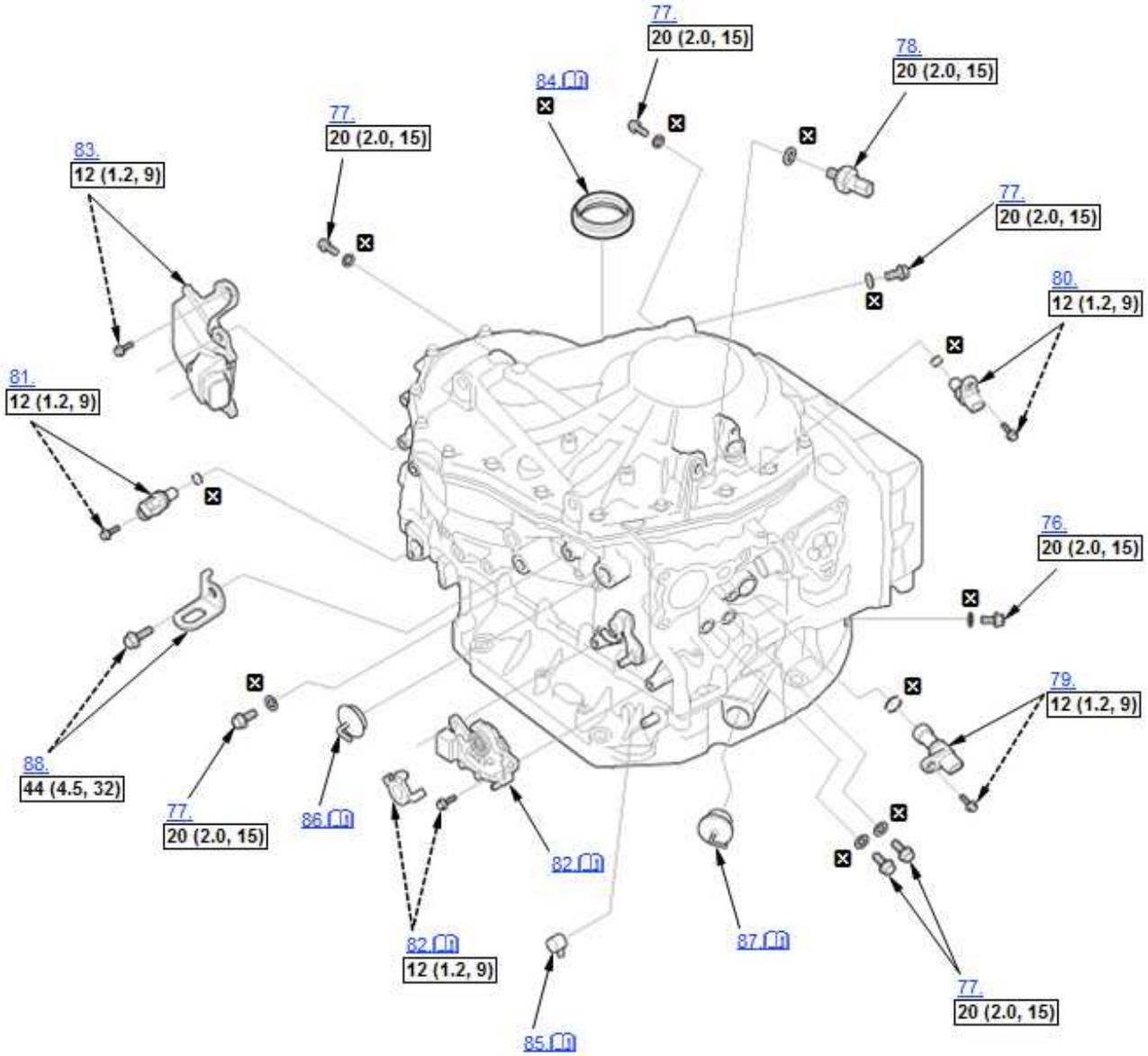


	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

5



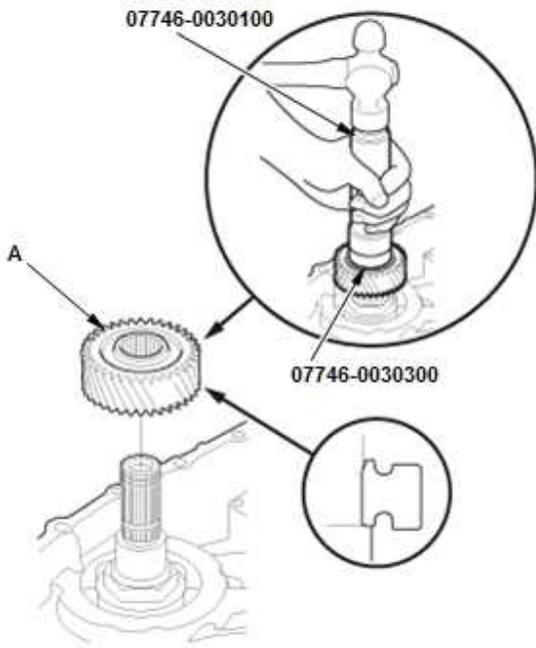
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace



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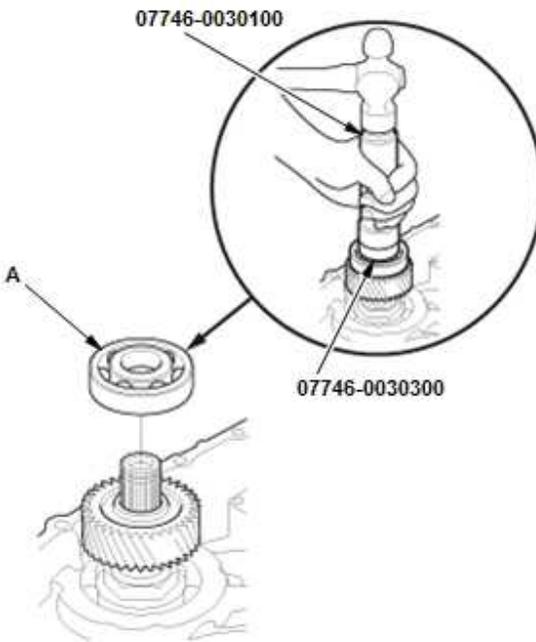
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Secondary Drive Gear - Install



1. Install the secondary drive gear (A) until it bottoms in the direction shown using the 40 mm I.D. driver handle and the 30 mm I.D. bearing driver attachment.

2. Driven Pulley Shaft Bearing (Transmission Housing Side) - Install



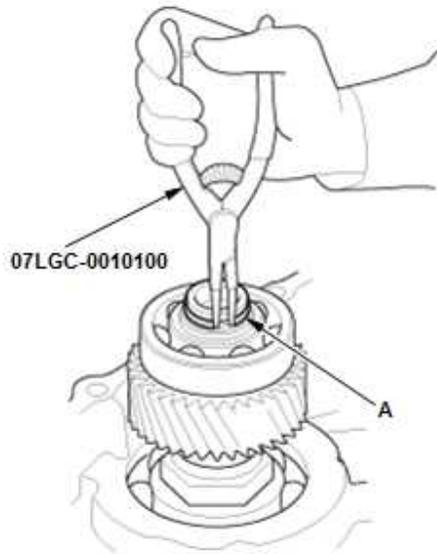
1. Install the driven pulley shaft bearing (A) until it bottoms using the 40 mm I.D. driver handle and the 30 mm I.D. bearing driver attachment.

3. 25.5 mm Cotter - Install

4. Cotter Retainer - Install

5. Snap Ring - Install

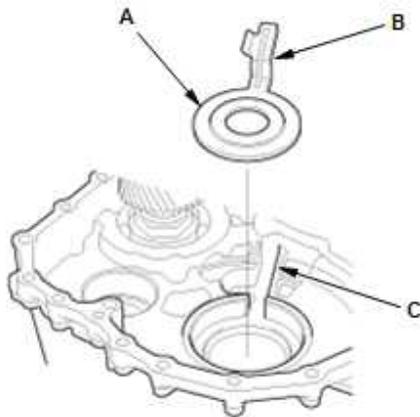
1. Install the snap ring (A) using the snap ring pliers.



NOTE:

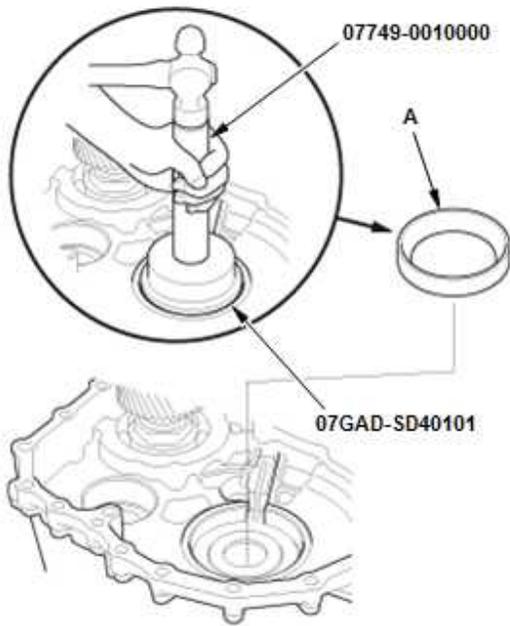
- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

6. 41 x 92 x 1 mm Spacer - Install



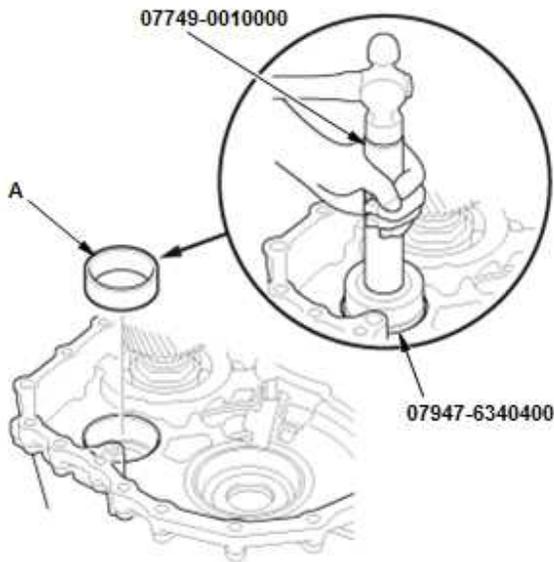
1. Install the 41 x 92 x 1 mm spacer (A) by aligning the tab (B) with the groove (C).

7. Differential Carrier Tapered Roller Bearing Outer Race (Transmission Housing Side) - Install



1. Install the differential carrier tapered roller bearing outer race (A) using the 15 x 135L driver handle and the 78 x 90 mm attachment so there is no clearance between the bearing outer race, the 41 x 92 x 1 mm spacer, and the transmission housing.

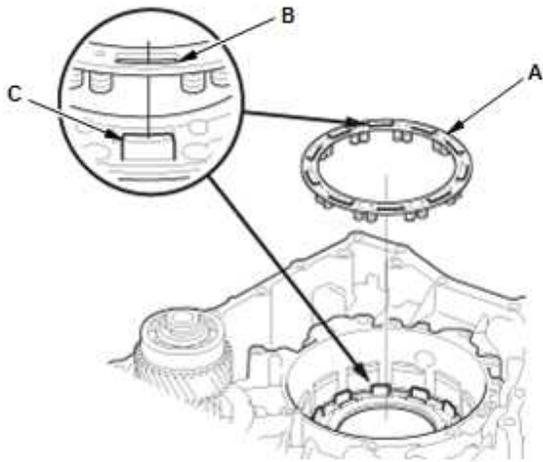
8. Final Drive Shaft Tapered Roller Bearing Outer Race (Transmission Housing Side) - Install



1. Install the final drive shaft tapered roller bearing outer race (A) until it bottoms using the 15 x 135L driver handle and the 62 x 64 mm bearing driver attachment.

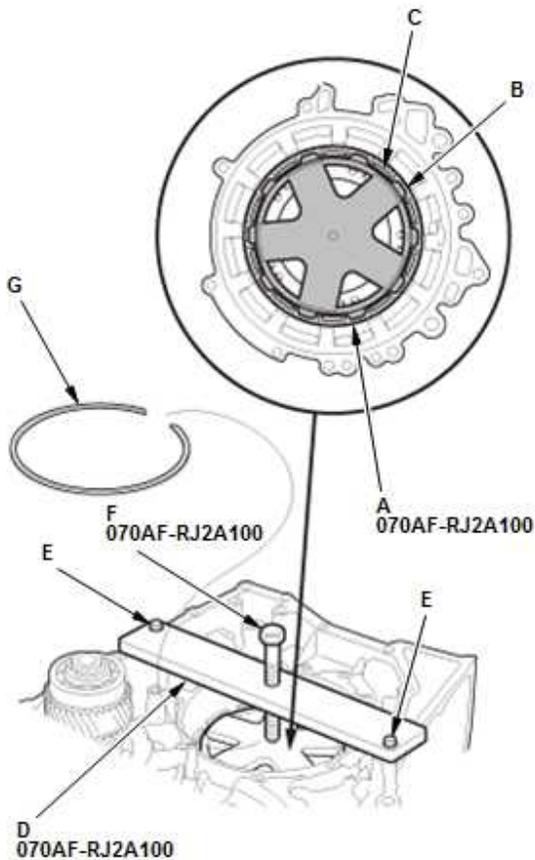
9. Reverse Brake Piston - Install

10. Spring Retainer/Return Spring Assembly - Install



1. Install the spring retainer/return spring assembly (A) by aligning their holes (B) with the bosses (C).

11. Snap Ring - Install



1. Put the reverse brake spring compressor attachment (A) on the spring retainer/return spring assembly (B).

NOTE: Be sure the attachment is set over the return springs, not on the reverse brake piston (C).

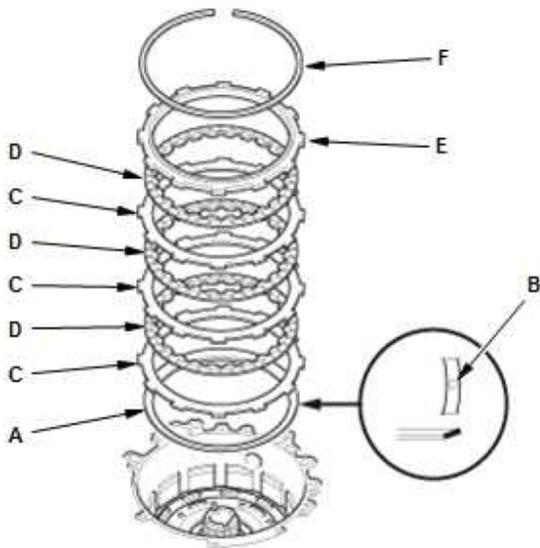
2. Install the reverse brake spring compressor plate (D) with facing the UP mark to the upside using bolts (E).
3. Make sure that the reverse brake spring compressor bolt (F) is properly installed on the dent in the surface of the reverse brake spring compressor attachment.
4. Compress the return springs using the reverse brake spring compressor until the snap ring securing the spring retainer/return spring can be installed.
5. Install the snap ring (G).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

6. Remove the reverse brake spring compressor.

12. Reverse Brake - Install



1. Install the disc spring (A).

NOTE: Be sure to install the disc spring with the indented mark (B) facing the upward.

2. Starting with the reverse brake plate (C), alternately install the reverse brake plates and the reverse brake discs (D).

3. Install the reverse brake end-plate (E) with the flat side toward the top disc.

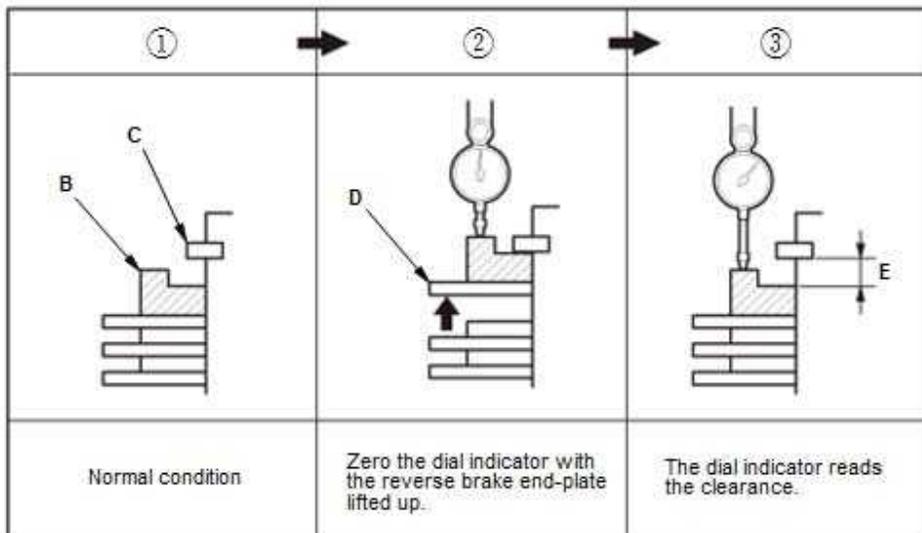
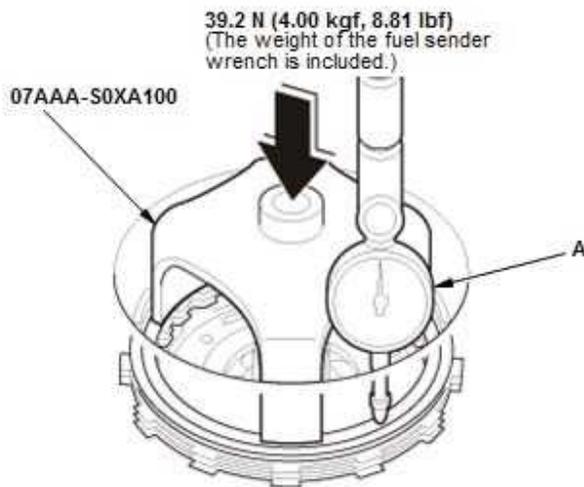
4. Install the snap ring (F).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

13. Reverse Brake Clearance - Adjust

1. Set a dial indicator (A) on the reverse brake end-plate (B).



2. Zero the dial indicator with the reverse brake end-plate lifted up to the snap ring (C) by lifting the top disk (D) up.
3. Release the top disk.
4. Put the fuel sender wrench on the reverse brake end-plate.
5. Press the fuel sender wrench down with 39.2 N (4.00 kgf, 8.81 lbf) (the weight of the fuel sender wrench is included) using a force gauge, and read the dial indicator.
The dial indicator reads the clearance (E) between the reverse brake end-plate and the top disc.

NOTE: Take measurements in at least three places, and use the average as the actual clearance.

Standard: 0.9 – 1.1 mm (0.035 – 0.043 in)

6. If the clearance is out of the standard, remove the reverse brake end-plate, and measure its thickness.

7. Select a new reverse brake end-plate.

Reverse Brake End-Plate

No.	Thickness
2	4.6 mm (0.181 in)
3	4.7 mm (0.185 in)
4	4.8 mm (0.189 in)
5	4.9 mm (0.193 in)
6	5.0 mm (0.197 in)
7	5.1 mm (0.201 in)
8	5.2 mm (0.205 in)
9	5.3 mm (0.209 in)
10	5.4 mm (0.213 in)
11	5.5 mm (0.217 in)
12	5.6 mm (0.220 in)
13	5.7 mm (0.224 in)
14	5.8 mm (0.228 in)
15	5.9 mm (0.232 in)
16	6.0 mm (0.236 in)
17	6.1 mm (0.240 in)
18	6.2 mm (0.244 in)

8. Install a selected reverse brake end-plate, then recheck the clearance.

14. 40 x 63 x 5.5 mm Washer - Install

NOTE: Make sure the 40 x 63 x 5.5 mm washer is installed in the correct direction.

15. 50 x 65 x 3 mm Thrust Washer - Install

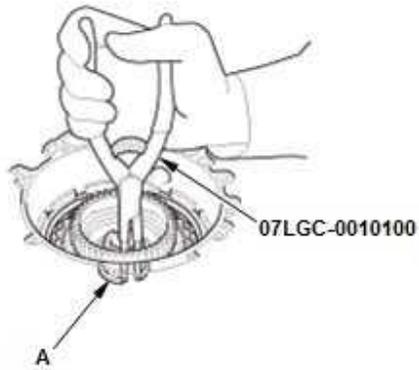
16. Planetary Carrier Assembly - Install

17. Sun Gear - Install

18. 32.5 mm Cotter - Install

19. Cotter Retainer - Install

20. Snap Ring - Install



1. Install the snap ring (A) using the snap ring pliers.

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

21. Ring Gear - Install

22. 24.5 x 39.1 x 3.2 mm Thrust Needle Bearing - Install

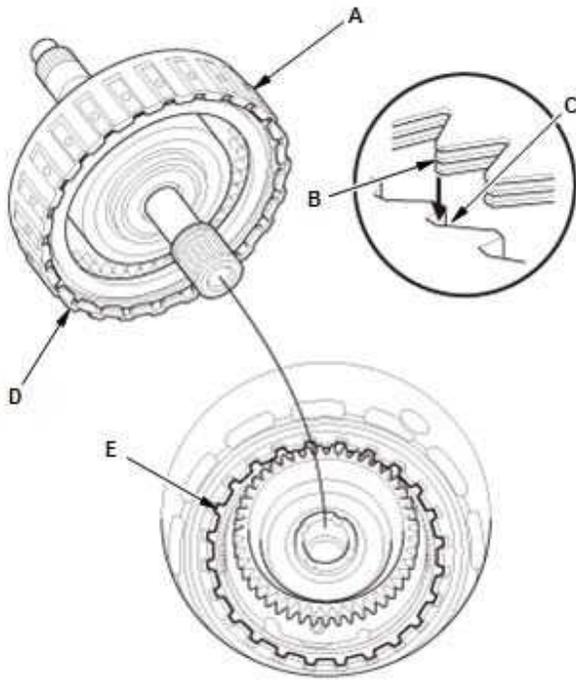
NOTE: Make sure the 24.5 x 39.1 x 3.2 mm thrust needle bearing is installed in the correct direction.

23. 20 x 24 x 17 mm Needle Bearing - Install

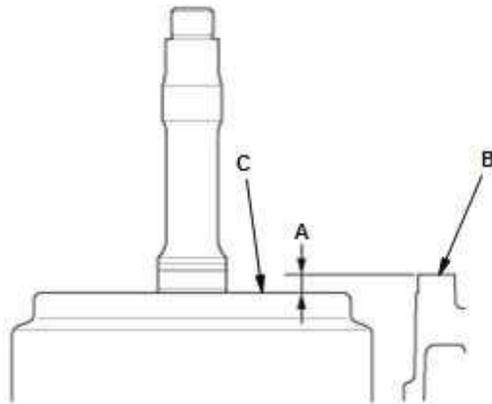
24. 24 mm Sealing Ring - Install

25. 27 mm Sealing Ring - Install

26. Input Shaft Assembly - Install



1. Install the input shaft assembly (A) by aligning the clutch discs (B) with the sun gear (C), and aligning the clutch guide (D) with the ring gear (E).



2. Measure the depth (A) between the surface of the transmission housing (B) and the clutch guide (C), then make sure the measured value of the depth is within the recorded value when removing.

27.29.55 x 45 x 3.62 mm Thrust Needle Bearing - Install

NOTE: Make sure the 29.55 x 45 x 3.62 mm thrust needle bearing is installed in the correct direction.

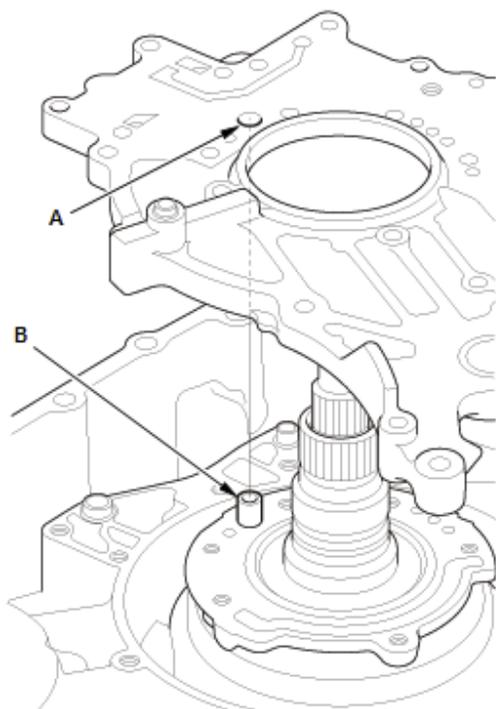
28.32 x 42 mm Thrust Shim - Install

29.47 mm Sealing Ring - Install

30. 40 mm Sealing Ring - Install

31. Stator Shaft - Install

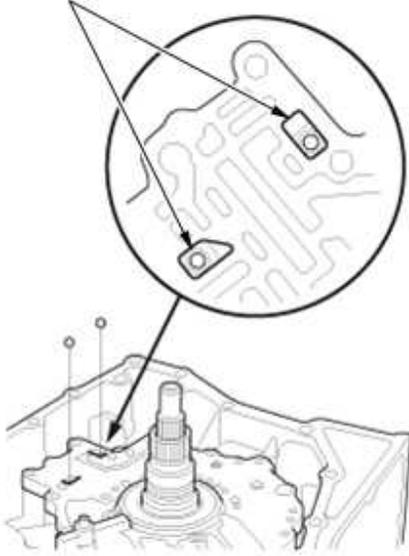
32. Stator Shaft Flange - Install



NOTE: Align the hole (A) of the stator shaft flange with the dowel pin (B) of the stator shaft when installing the stator shaft flange.

33. Check Ball - Install

CHECK BALL MOUNTING HOLES



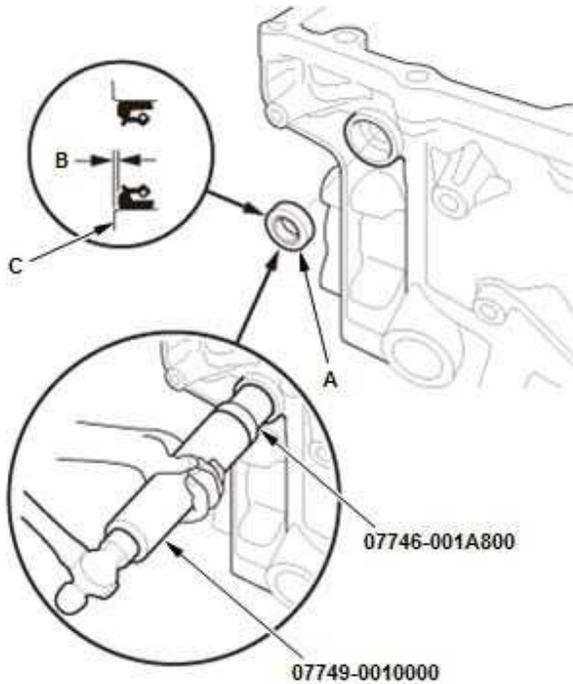
NOTE:

- Be careful not to drop the check balls.
- Do not use a magnet to install the check balls, it may magnetize the check balls.

34. Manual Valve - Install

35. Manual Valve Body - Install

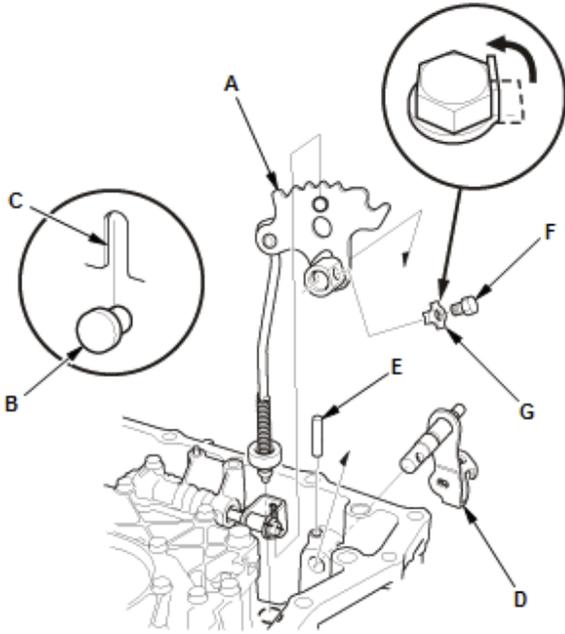
36. Control Shaft Oil Seal - Install



1. Install the control shaft oil seal (A) to a depth (B) of 0.5–1.5 mm (0.020–0.059 in) below the transmission housing surface (C) using the 15 x 135L driver handle and the 22 x 24 mm attachment.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.

37. Control Shaft and Detent Lever - Install

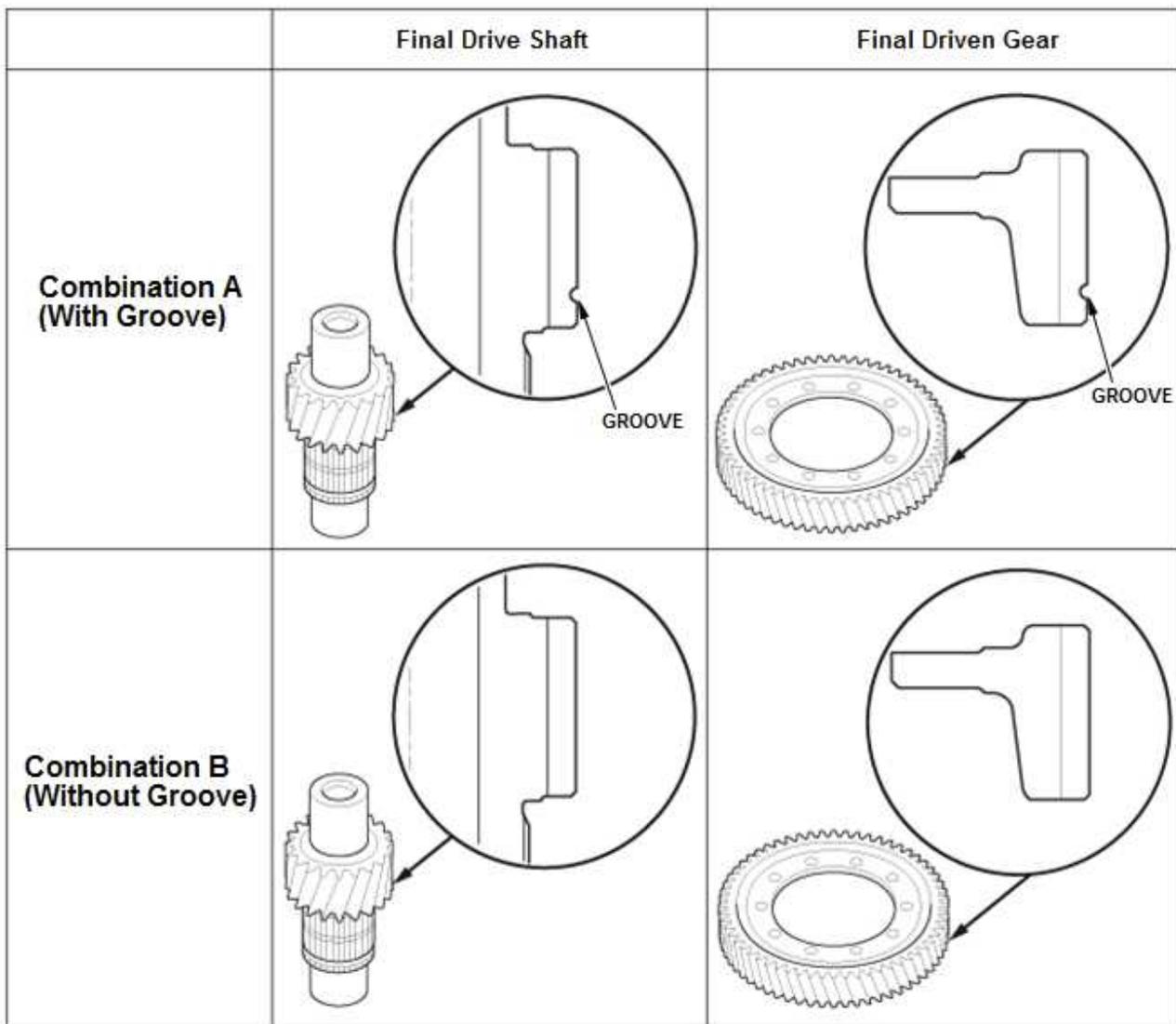


1. Install the detent lever (A) by aligning the guide tab (B) of the detent lever with the opening (C) of the manual valve.
2. Insert the control shaft (D) into the transmission housing and the detent lever, then install the roller (E).
3. Secure the control shaft and the detent lever with the mounting bolt (F) and the lock washer (G).
4. Pry up the lock tab of the lock washer.

38. Detent Spring - Install

39. Differential Assembly and Final Drive Shaft Assembly - Install

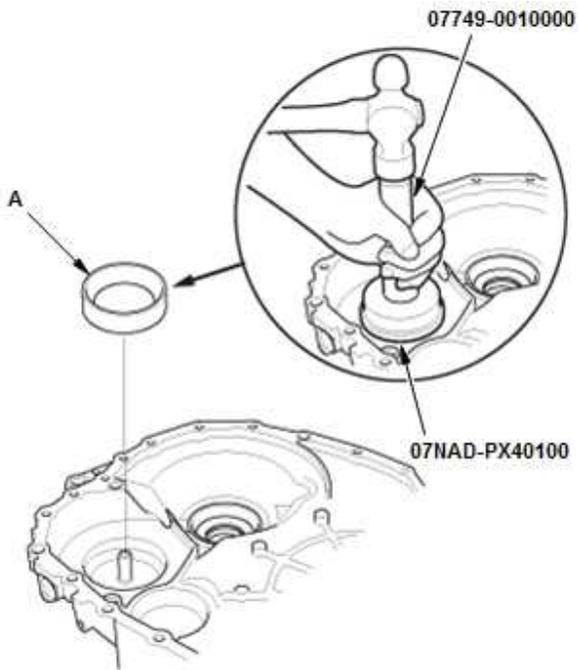
NOTE: Make sure to assemble the final drive shaft and the final driven gear correctly (Combination A or B) as shown in the chart if either one of them or both are to be replaced. Correct combinations of the shaft and gear can be identified by the presence or the absence of the groove as shown in the chart.



40. Oil Guide Plate - Install

41. 80 mm Thrust Shim - Install

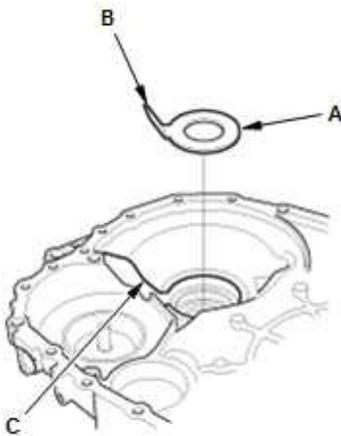
42. Final Drive Shaft Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Install



1. Install the final drive shaft tapered roller bearing outer race (A) using the 15 x 135L driver handle and the 78 x 80 mm bearing driver attachment so there is no clearance between the bearing outer race, the 80 mm thrust shim, the oil guide plate, and the torque converter housing.

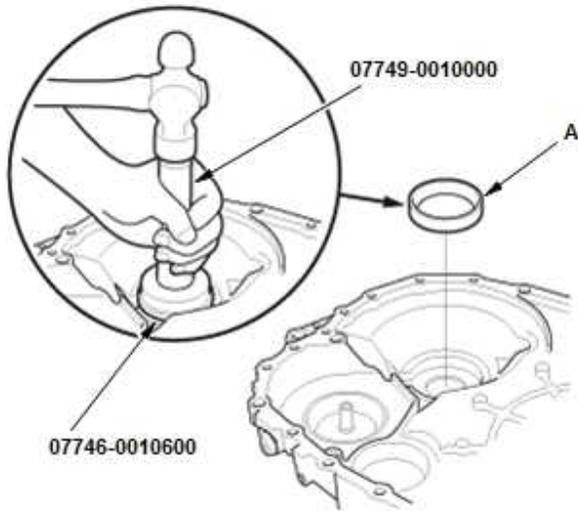
43.76 mm Thrust Shim - Install

44.41 x 76.2 x 1 mm Spacer - Install



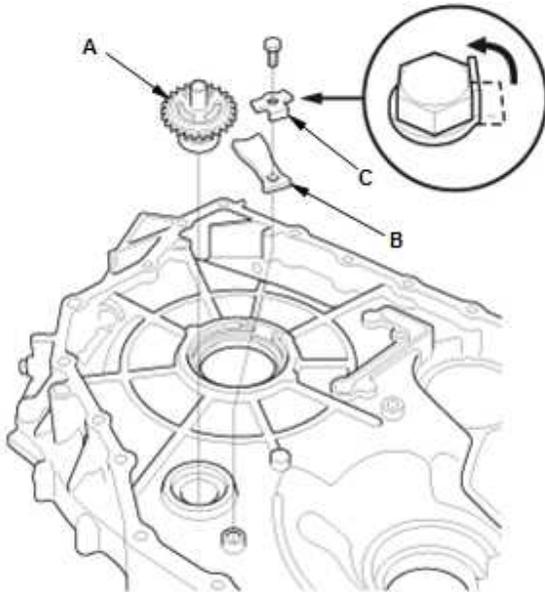
1. Install the 41 x 76.2 x 1 mm spacer (A) by aligning the tab (B) with the groove (C).

45. Differential Carrier Tapered Roller Bearing Outer Race (Torque Converter Housing Side) - Install



1. Install the differential carrier tapered roller bearing outer race (A) using the 15 x 135L driver handle and the 72 x 75 mm bearing driver attachment so there is no clearance between the bearing outer race, the 41 x 76.2 x 1 mm spacer, the 76 mm thrust shim, and the torque converter housing.

46. Transmission Fluid Pump Driven Sprocket - Install



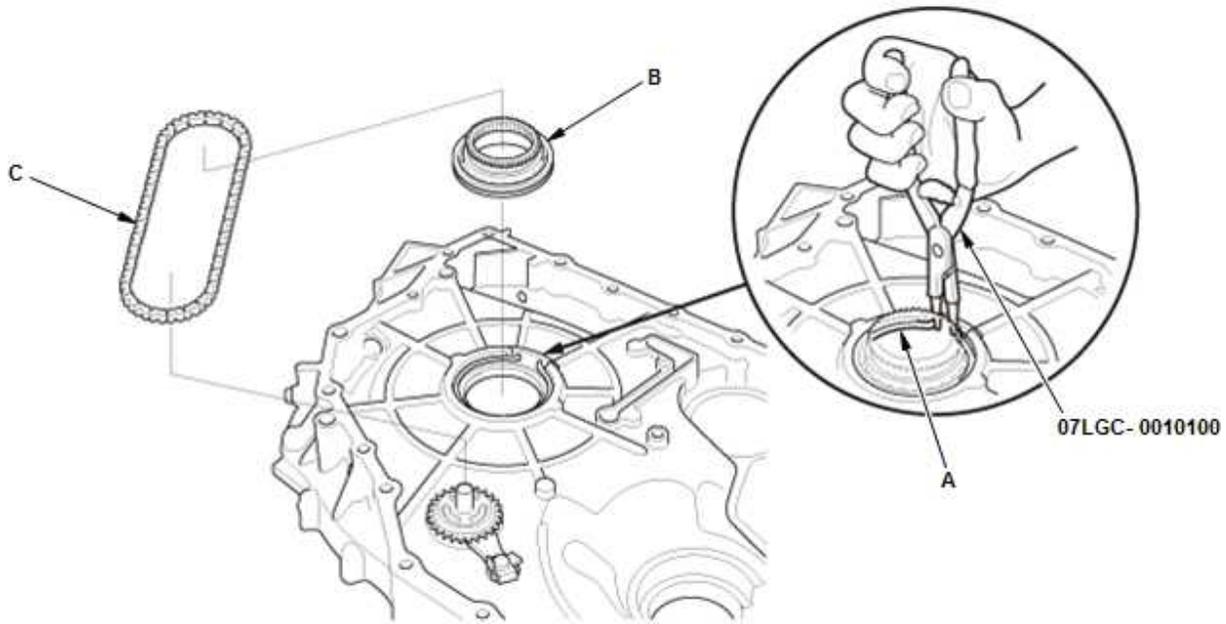
1. Install the transmission fluid pump driven sprocket (A).
2. Install the bearing set plate (B) with the lock washer (C).
3. Pry up the lock tab of the lock washer.

47. Transmission Fluid Pump Drive Sprocket and Transmission Fluid Pump Drive Chain - Install

1. Install the snap ring (A).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.



2. While expanding the snap ring using the snap ring pliers, install the transmission fluid pump drive sprocket (B) and the transmission fluid pump drive chain (C).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

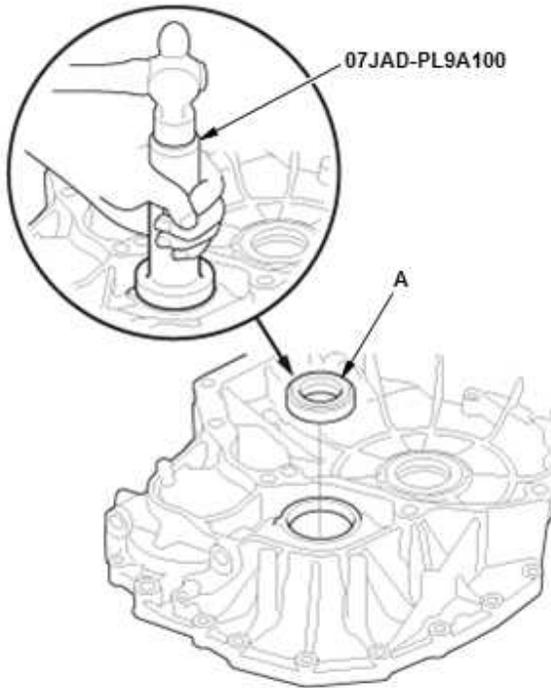
48. Lubrication Plate - Install

49. Oil Guide Plate - Install

50. Right Differential Oil Seal - Install

1. Install the right differential oil seal (A) flush with the torque converter housing using the 65 mm oil seal driver.

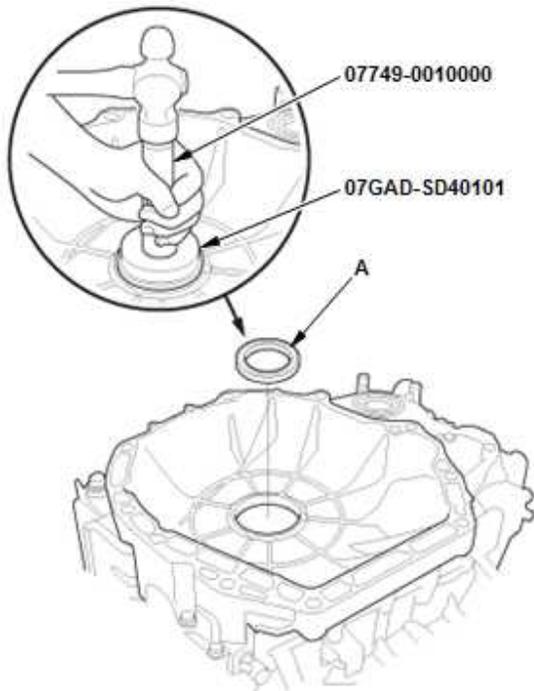
NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.



51. Input Shaft Oil Seal - Install

1. Install the input shaft oil seal (A) flush with the torque converter housing using the 15 x 135L driver handle and the 78 x 90 mm attachment.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.

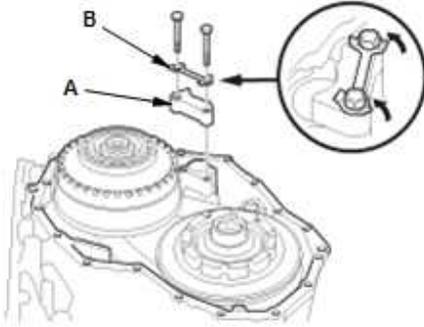


52. Torque Converter Housing - Install

NOTE:

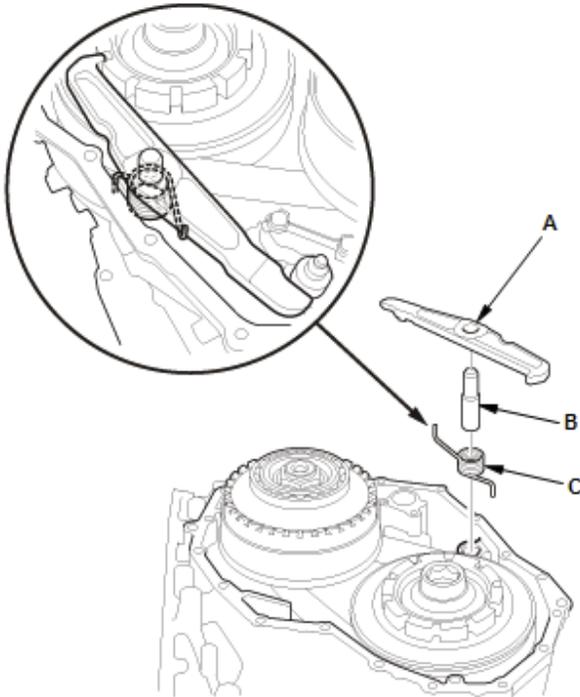
- Tighten the torque converter housing mounting bolts in a crisscross pattern in at least two steps.
- Be careful not to drop the oil guide plate.

53. Parking Brake Rod Holder - Install



1. Install the parking brake rod holder (A) with the lock washer (B).
2. Pry up the lock tabs of the lock washer.

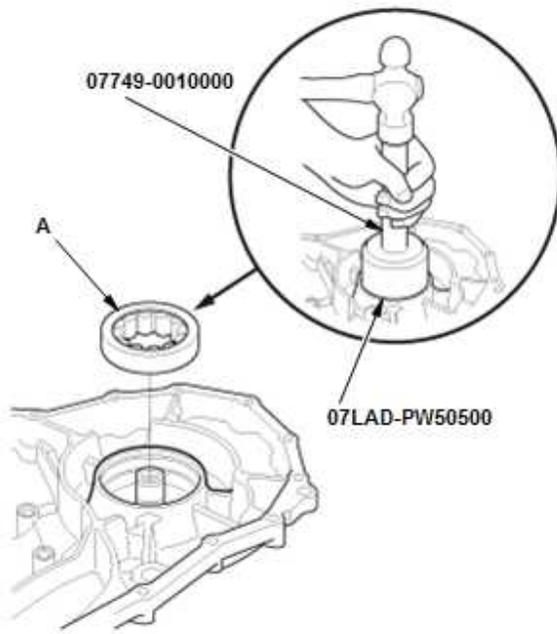
54. Parking Brake Pawl, Parking Shaft, and Parking Pawl Spring - Install



1. Install the parking brake pawl (A), the parking shaft (B), and the parking pawl spring (C) as shown.

55. Driven Pulley Shaft Bearing (End Cover Side) - Install

1. Install the driven pulley shaft bearing (A) until it bottoms using the 15 x 135L driver handle and the 70 mm attachment.

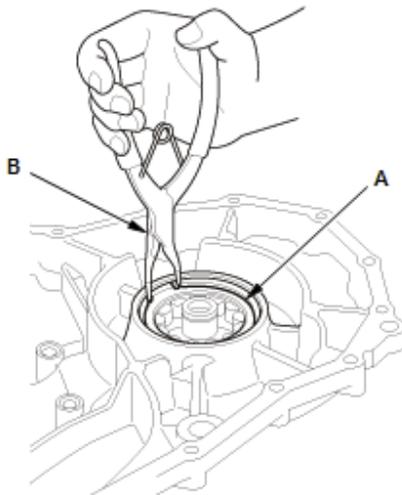


56. Snap Ring - Install

1. Install the snap ring (A) using commercially available snap ring pliers (B).

NOTE:

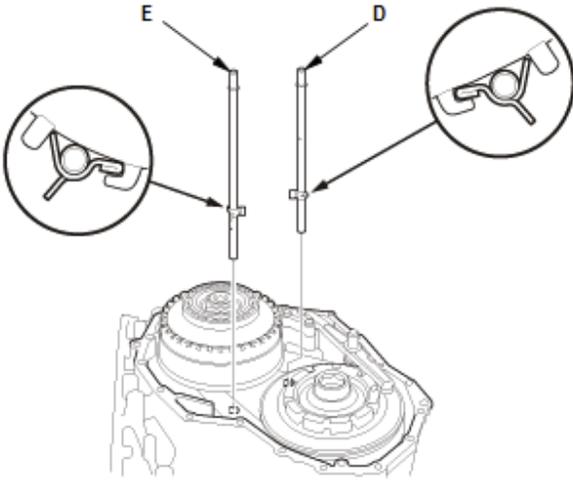
- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.



57.22 mm Sealing Ring - Install

58. Lubrication Pipe D and E - Install

1. Install lubrication pipes D and E as shown.



59.12 x 89 mm Pipe - Install

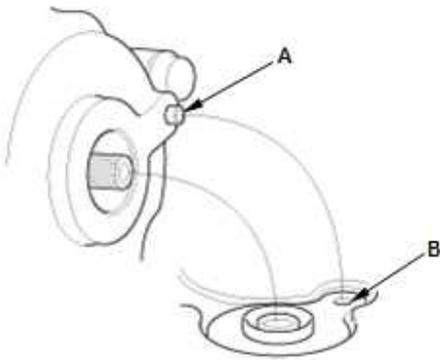
60. End Cover - Install

NOTE: Tighten the end cover mounting bolts in a crisscross pattern in at least two steps.

61. Shift Solenoid Valve O/P - Install

62. Transmission Fluid Pump - Install

NOTE: Align the guide pin (A) of the transmission fluid pump with the guide hole (B) of the stator shaft flange.



63. Solenoid Wire Harness A - Install

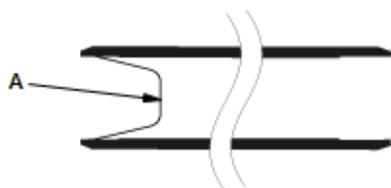
64.18 x 18 mm Pipe - Install

65. 14.3 x 36.2 mm Pipe - Install

NOTE: You can install the pipe regardless of its direction.

66. 10.9 x 18.5 mm Pipe - Install

67. Joint Pipe - Install



NOTE:

- The joint pipe has the filter (A). The filter end should face the valve body assembly side.
- Be careful not to drop the filter.

68. 12 x 56.7 mm Pipe - Install

NOTE: You can install the pipe regardless of its direction.

69. 8 x 133.5 mm Pipe - Install

70. 10.9 x 26 mm Pipe - Install

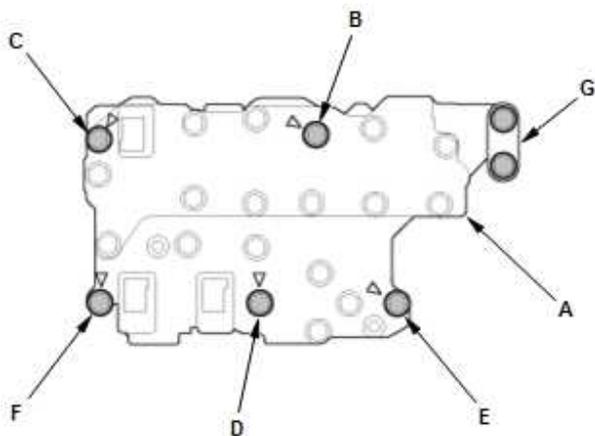
71. Valve Body Assembly - Install

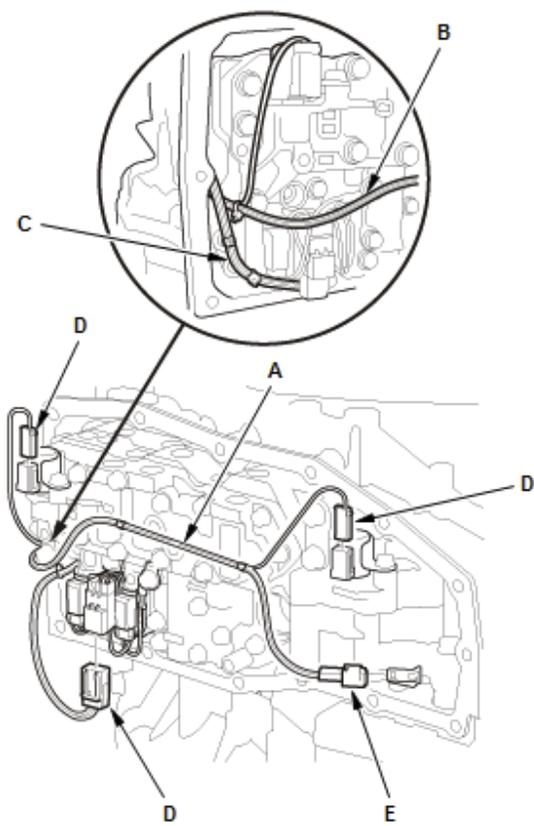
1. Install the valve body assembly (A) straightly.

NOTE: Do not pinch solenoid wire harnesses A and B.

Bolt	Length
B	90 mm (3.54 in)
C	80 mm (3.15 in)
D	65 mm (2.56 in)
E	55 mm (2.17 in)
F	40 mm (1.57 in)

2. Install the guide plate (G).





3. Make sure each branch of solenoid wire harness A goes through the appropriate location, especially as shown, one (B) must be located to the inside from the other (C).
4. Connect the connectors (D).
5. Install the transmission fluid temperature sensor (E).

72. Transmission Fluid Strainer - Install

NOTE: Do not pinch solenoid wire harnesses A and B.

73. Magnet - Install

74. Transmission Fluid Pan - Install

NOTE:

- Tighten the transmission fluid pan mounting bolts in a crisscross pattern in at least two steps.
- Do not pinch solenoid wire harnesses A and B.

75. Drain Plug - Install

76. Check Bolt - Install

77. Sealing Bolt - Install

78. CVT Driven Pulley Pressure Sensor - Install

79. Torque Converter Turbine Speed Sensor - Install

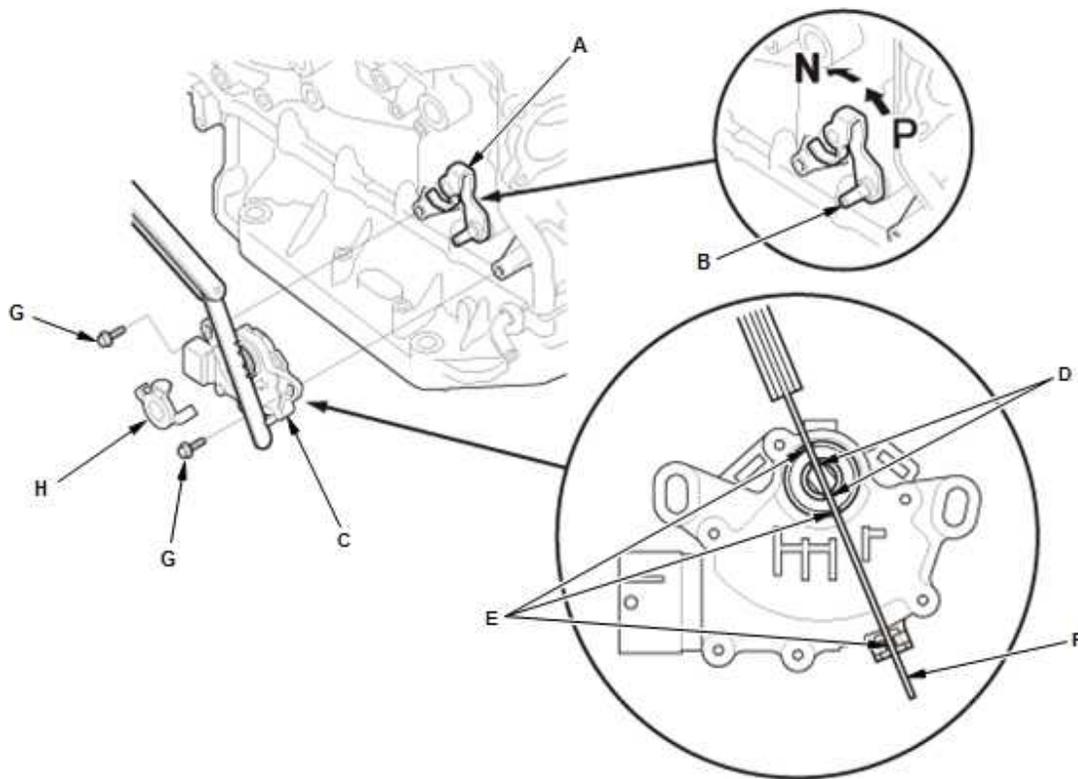
80. CVT Drive Pulley Speed Sensor - Install

81. CVT Speed Sensor - Install

82. Transmission Range Switch - Install

1. Turn the control lever (A) to the P position.

NOTE: Do not use the control shaft (B) to adjust the shift position. If the control shaft tips are squeezed together, it will cause a faulty signal or position due to play between the control shaft and the transmission range switch.



2. Turn the control lever back two clicks to the N position.

3. Set the transmission range switch (C) to the N position. Align the cutouts (D) on the rotary-frame with the N positioning cutouts (E) on the transmission range switch, then put a 2.0 mm (0.079 in) feeler gauge blade (F) in the cutouts to hold the transmission range switch in the N position.

NOTE: Be sure to use a 2.0 mm (0.079 in) feeler gauge blade or equivalent to hold the transmission range switch in the N position.

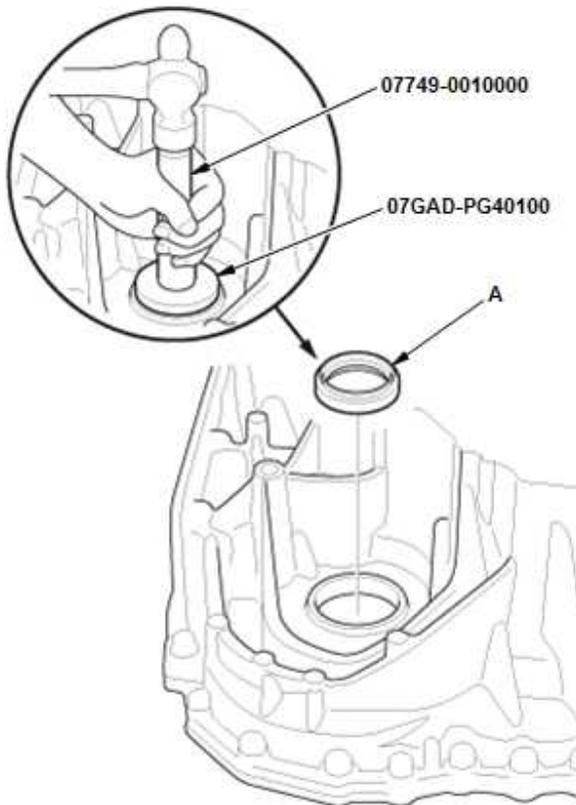
4. Loosely install the transmission range switch gently on the control shaft while holding it in the N position with the 2.0 mm (0.079 in) feeler gauge blade.
5. Tighten the bolts (G) on the transmission range switch while you continue holding the N position.

NOTE: Do not move the transmission range switch when tightening the bolts.

6. Remove the feeler gauge.
7. Install the control shaft cover (H).

83.TCM - Install

84.Left Differential Oil Seal - Install



1. Install the left differential oil seal (A) flush with the transmission housing using the 15 x 135L driver handle and the oil seal driver attachment.

NOTE: Before installation, apply a light coat of clean transmission fluid to the surface both of the press-fit and the lip that are on the oil seal.

85.Breather Cap - Install

NOTE: Be sure to install the suction hole of the breather cap to the torque converter side.

86. Filler Cap B - Install

NOTE: Turn the lever toward the front of the vehicle, and install it.

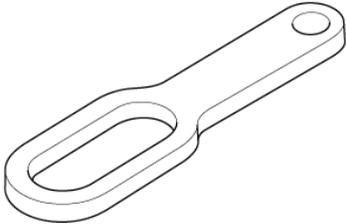
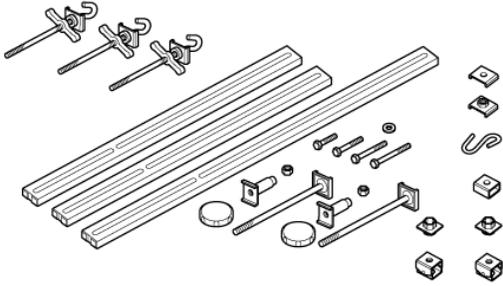
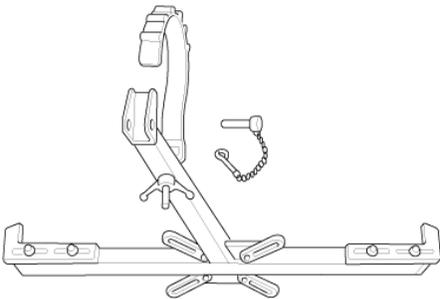
87. Filler Cap A - Install

NOTE: Turn the lever toward the front of the vehicle, and install it.

88. Transmission Hanger - Install

CVT Transmission Removal and Installation

Special Tool Required

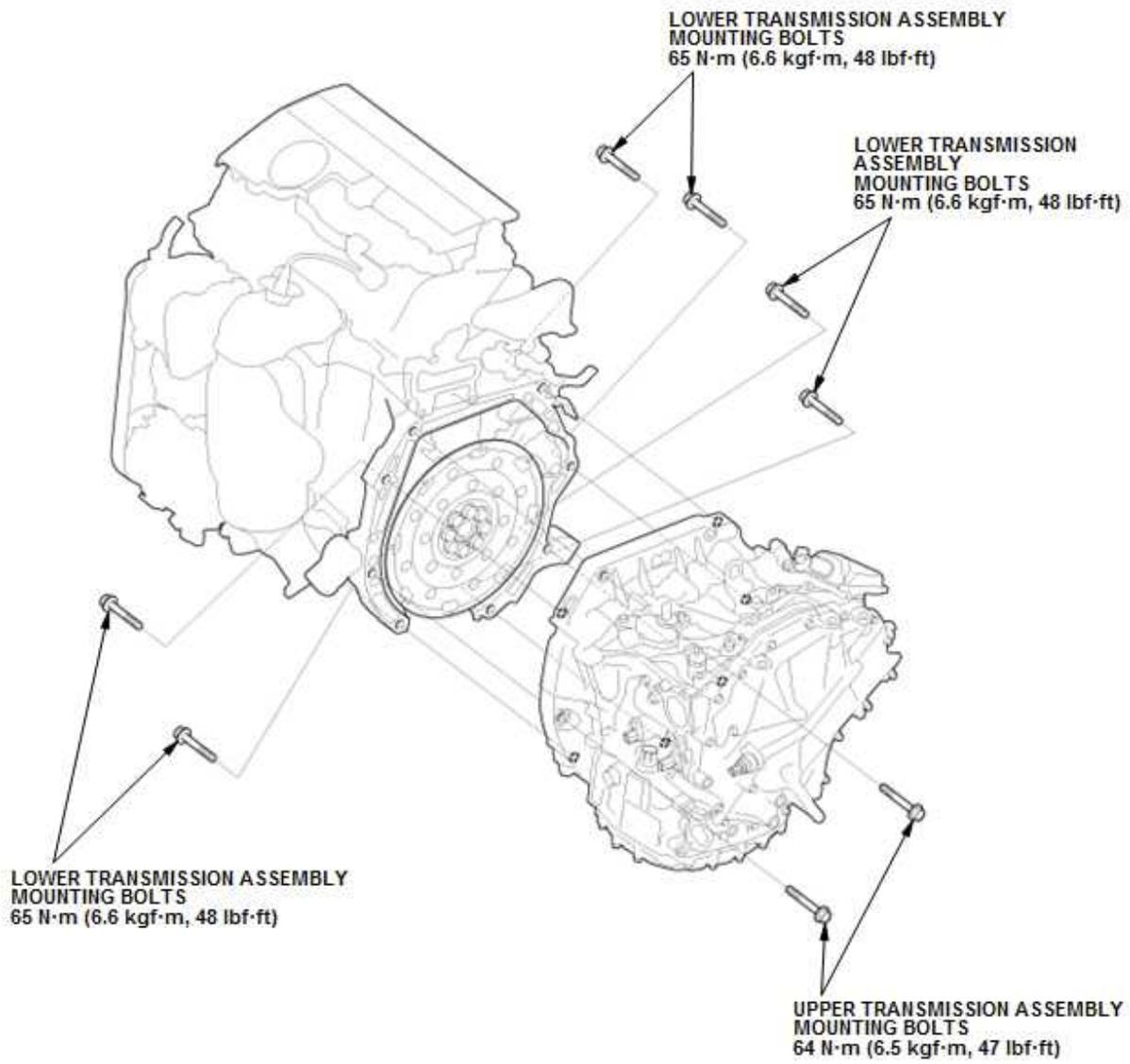
Image	Description/Tool Number
	Universal Lifting Eyelet 07AAK-SNAA120
	Engine Support Hanger, A and Reds AAR-T1256*
	Subframe Adapter VSB02C000016*

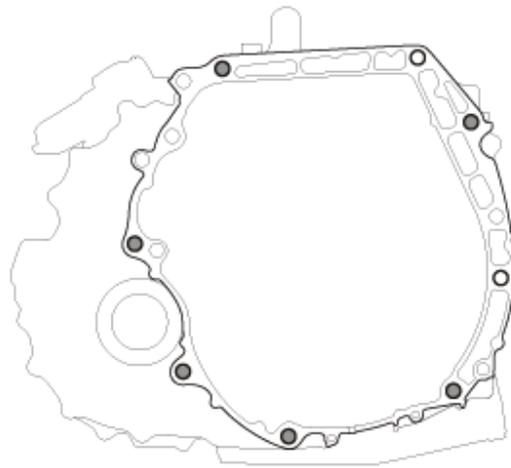
*: Available through the Honda Tool and Equipment Program 888-424-6857.

Exploded View

1. Transmission Assembly Mounting Bolt - Exploded View

Transmission Assembly Mounting Bolt - Exploded View





● : ENGINE SIDE

○ : TRANSMISSION SIDE

Removal

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Keep all foreign particles out of the transmission.
- Special tool Reds engine support hanger AAR-T1256 must be used with the side engine mount installed.

1. Vehicle - Lift Set

2. Engine Undercover - Remove

3. Engine Undercover Lid - Remove

4. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

5. Transmission Fluid - Drain

6. Vehicle - Lift Down

7. Steering Joint - Disconnect

NOTE: Hold the steering wheel with the steering wheel holder tool.

8. Front Wheel - Remove (Both Sides)

9. Front Grille Cover - Remove

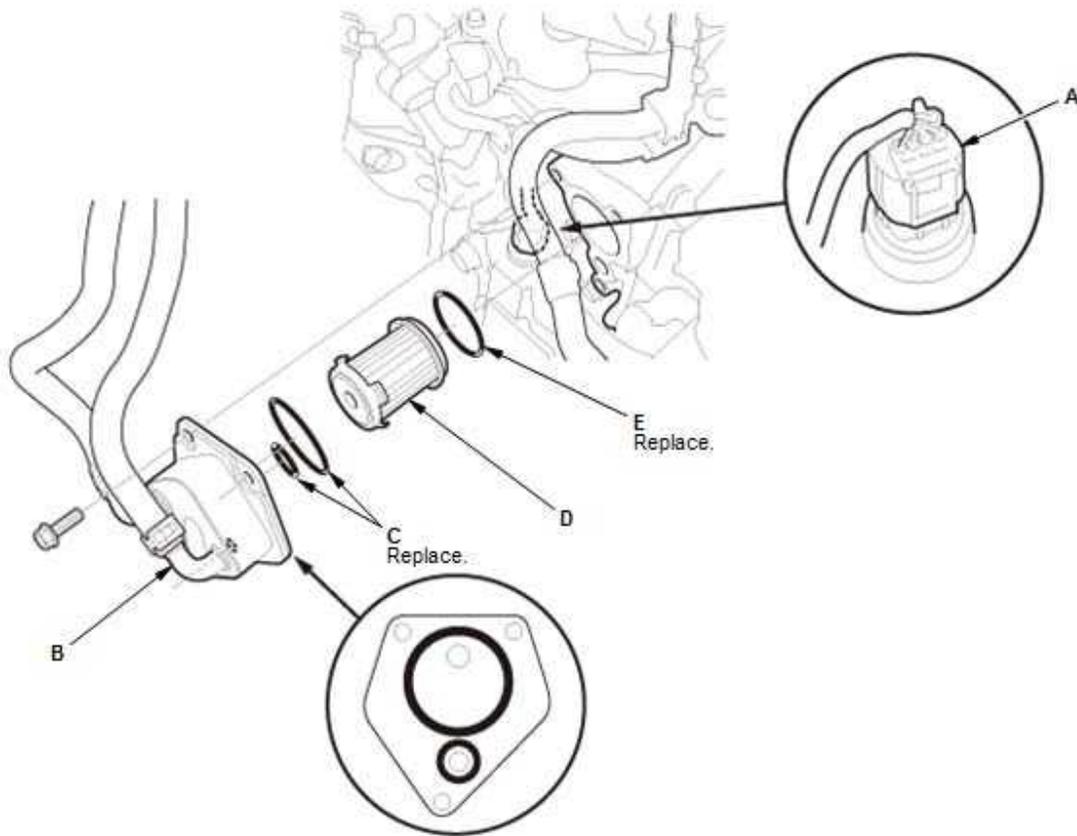
10. Air Cleaner - Remove

11. 12 Volt Battery - Remove

12. 12 Volt Battery Base - Remove

13. CVTF Warmer - Remove

1. To prevent damage, cover the connector (A) located under the CVTF warmer (B) using a shop towel.



2. Remove the CVTF warmer with the O-rings (C) without disconnecting the CVTF warmer hoses.

NOTE: The CVTF warmer is aluminum part. Be careful not to damage the CVTF warmer.

3. Put plastic bag over the CVTF warmer, then swing it out of the way.
4. Remove the CVTF warmer strainer (D) with the O-ring (E).
5. Clean the CVTF warmer strainer if necessary. Replace the CVTF warmer strainer, if it is clogged or damaged.

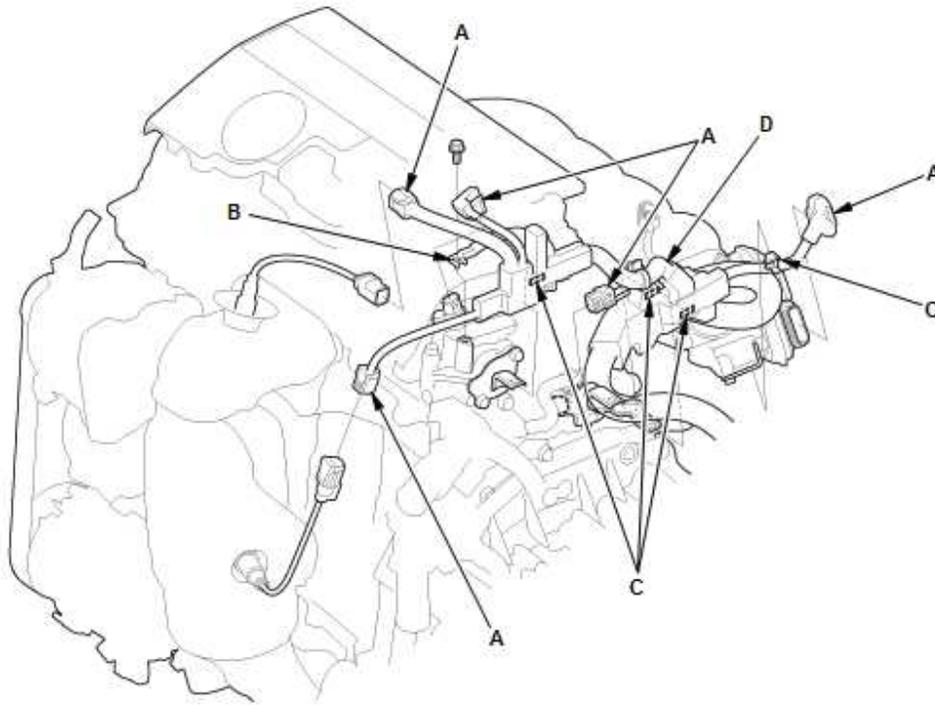
NOTE:

- Do not use compressed air to clean the CVTF warmer strainer.
- Soak the CVTF warmer strainer thoroughly in transmission fluid.

14. EVAP Canister Purge Valve - Remove

15. Engine Wire Harness - Remove

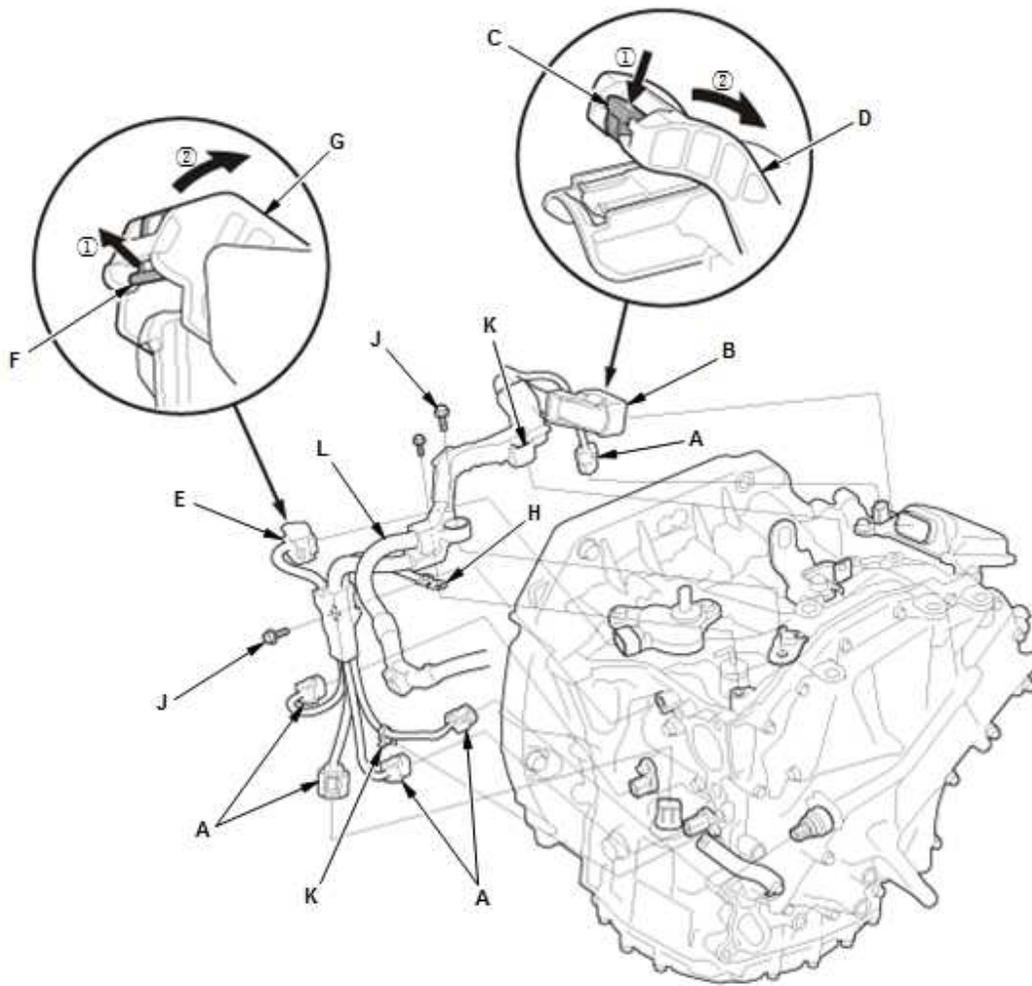
1. Disconnect the connectors (A).



2. Remove the ground cable (B).
3. Remove the harness clamps (C), then swing the engine wire harness (D) out of the way.

16. TCM Harness - Remove

1. Disconnect the connectors (A).



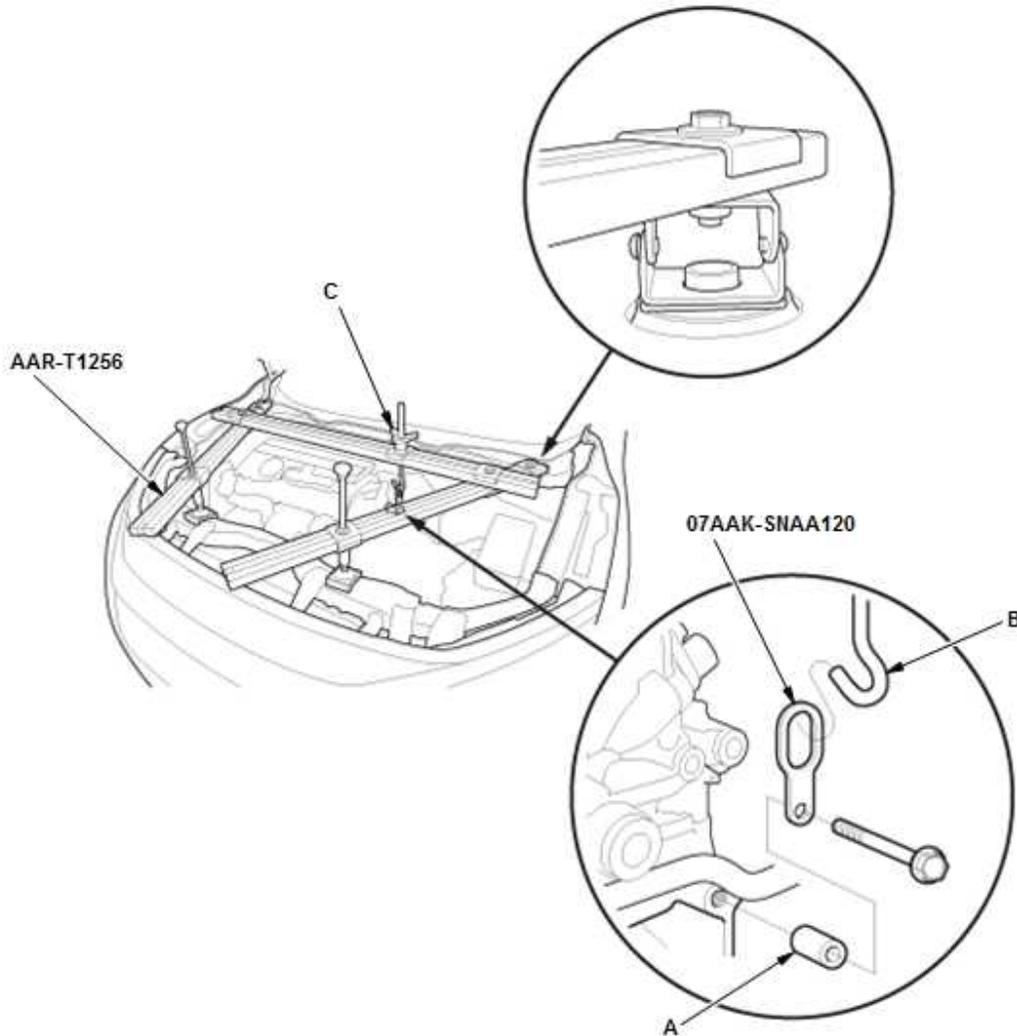
2. Disconnect the connector (B) by pushing the lock (C) and pulling the lever (D) in the numbered sequence shown.
3. Disconnect the connector (E) by pulling the lock (F) and the lever (G) in the numbered sequence shown.
4. Remove the ground cable (H).
5. Remove the harness cover mounting bolts (J).
6. Remove the harness clamps (K), then swing the TCM harness (L) out of the way.

17. Shift Cable (Transmission Side) - Remove

18. Engine Support Hanger - Install

NOTE: Be careful when working around the windshield.

1. Remove the front damper caps.



2. Install the universal lifting eyelet with an about 50 mm (2.00 in) commercially available spacer (A).
3. Install the engine support hanger onto the vehicle as shown.
4. Attach the hook (B) to the slotted hole in the universal lifting eyelet.
5. Tighten the wing nut (C) by hand, and lift and support the engine/transmission.

19. Upper Transmission Assembly Mounting Bolt - Remove

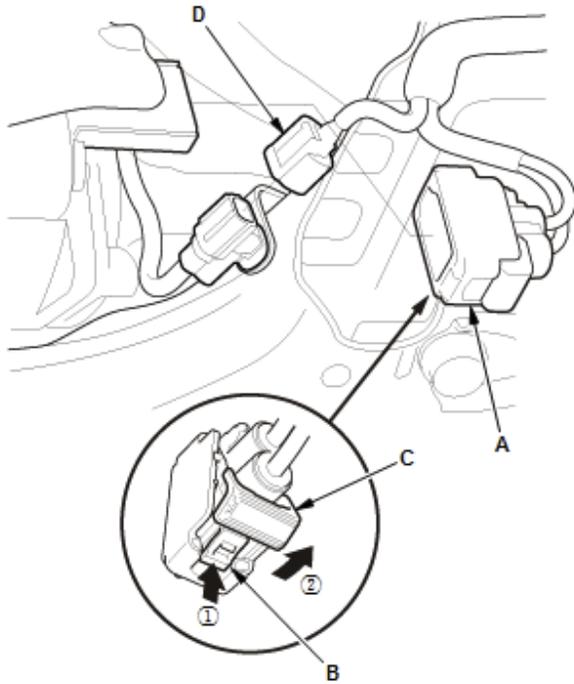
NOTE: Refer to the Exploded View as needed during this procedure.

20. Transmission Mount - Remove

21. **Vehicle - Lift Up**

22. **Exhaust Pipe A - Remove**

23. **Connector (EPS Subharness) - Disconnect**



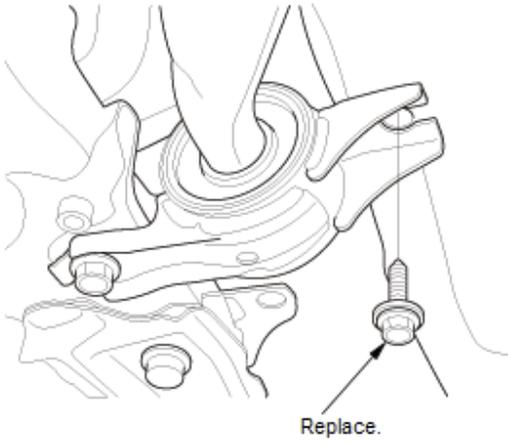
1. Disconnect the connector (A) by pushing the lock (B) and pulling the lever (C) in the numbered sequence shown.
2. Disconnect the connector (D).

24. **Tie-Rod End Ball Joint - Disconnect (Both Sides)**

25. **Lower Stabilizer Link Ball Joint - Disconnect (Both Sides)**

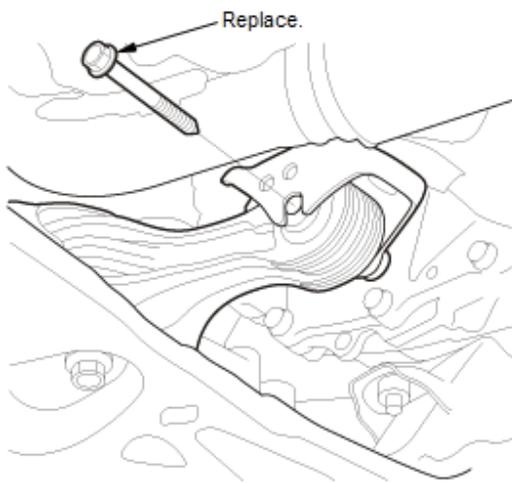
26. **Lower Arm Ball Joint - Disconnect (Both Sides)**

27. **Lower Arm Mounting Bolt - Remove (Both Sides)**

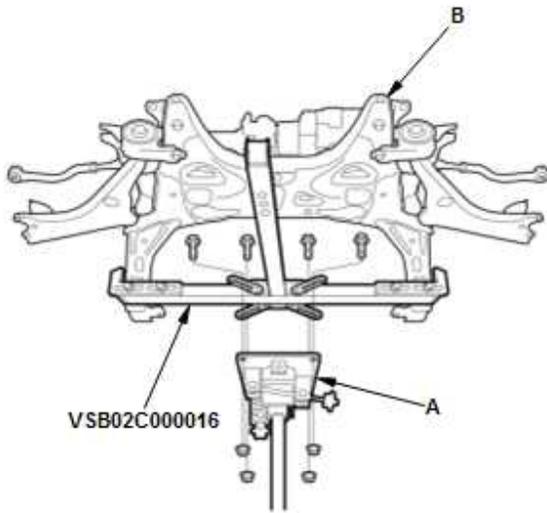


28. Front Brace - Remove

29. Torque Rod Mounting Bolt - Remove



30. Front Subframe - Remove

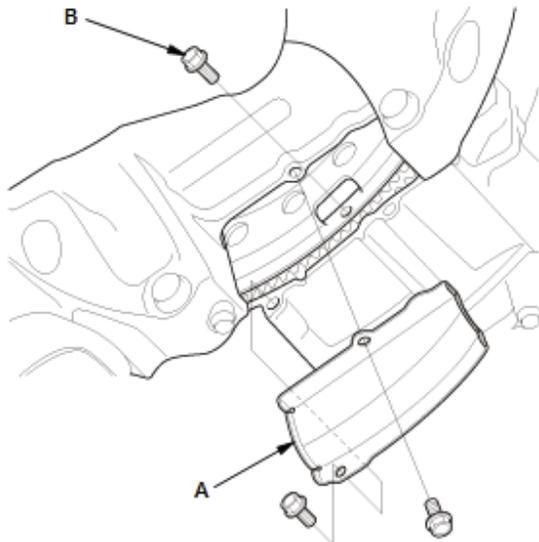


1. Set the subframe adapter (VSB02C000016) on a transmission jack (A), line up the slots in the arms with the bolt holes on the corner of the jack base, and tighten the bolts.
2. Attach the subframe adapter to the front subframe (B).
3. [Remove the front subframe.](#)

31. Transmission - Support

1. Support the transmission with the transmission jack.

32. Drive Plate - Disconnect



1. Remove the torque converter cover (A).
2. Remove eight torque converter bolts (B) while rotating the crankshaft pulley.

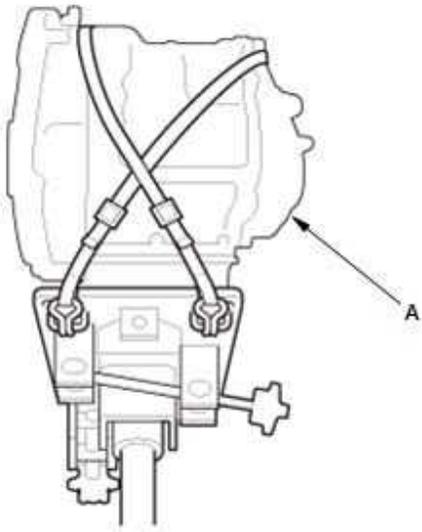
33. Driveshaft Inboard Joint - Disconnect (Both Sides)

NOTE: Secure the driveshaft to the body with a nylon strap on both sides.

34. Lower Transmission Assembly Mounting Bolt - Remove

NOTE: Refer to the Exploded View as needed during this procedure.

35. Transmission - Remove

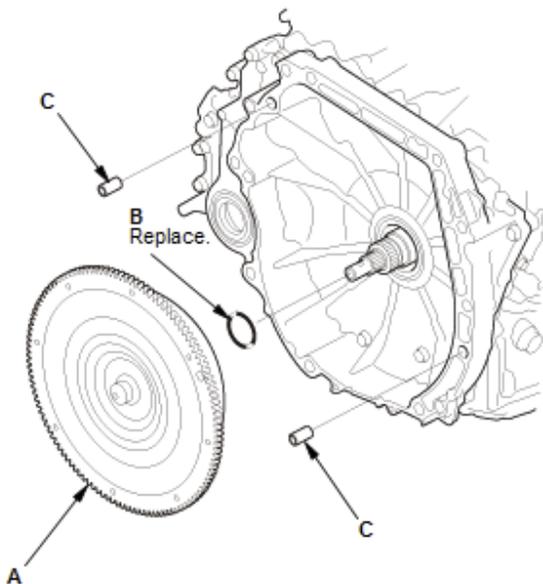


1. Check once again that the transmission (A) is free of hoses and electrical wiring.
2. Hold the transmission on the transmission jack.
3. Lower the transmission by loosening the wing nut of the engine support hanger, and tilt the engine just enough for the transmission to clear its end from the side frame.
4. Slide the transmission away from the engine, then remove it from the vehicle.

NOTE: Be careful not to drop the torque converter.

5. Lower the transmission carefully.

36. Torque Converter - Remove



1. Remove the torque converter (A) with the O-ring (B).
2. Remove the dowel pins (C).

37. Harness Bracket - Remove

1. If necessary, remove the harness brackets.



38. Drive Plate - Inspect

1. Inspect the drive plate, and [replace it if it is damaged](#).

Installation

NOTE:

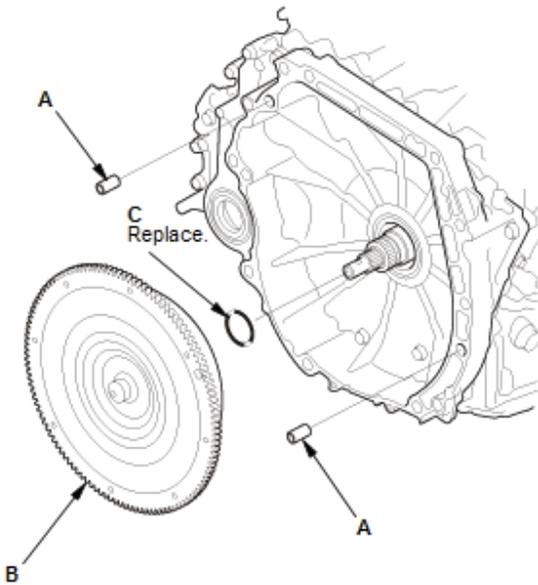
- Use fender covers to avoid damaging painted surfaces.
- Keep all foreign particles out of the transmission.
- Apply a light coat of clean transmission fluid on all O-rings before installation.
- When connecting the connector, check for corrosion, dirt, or oil, and clean or repair if necessary.

1. Harness Bracket - Install



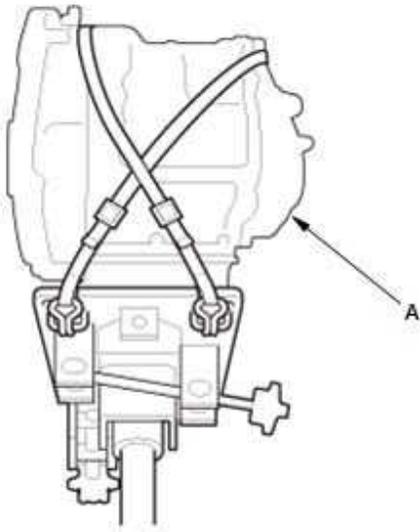
2. Torque Converter - Install

1. Install the dowel pins (A).
2. Install the torque converter (B) with a new O-ring (C).



3. Transmission - Install

NOTE: Make sure the torque converter is fully engaged on the input shaft, the stator shaft, and the transmission fluid pump drive sprocket. Failure to do so will result in severe transmission or engine damage.



1. Hold the transmission (A) on a transmission jack, and raise it to engine level.

NOTE: Be careful not to drop the torque converter.

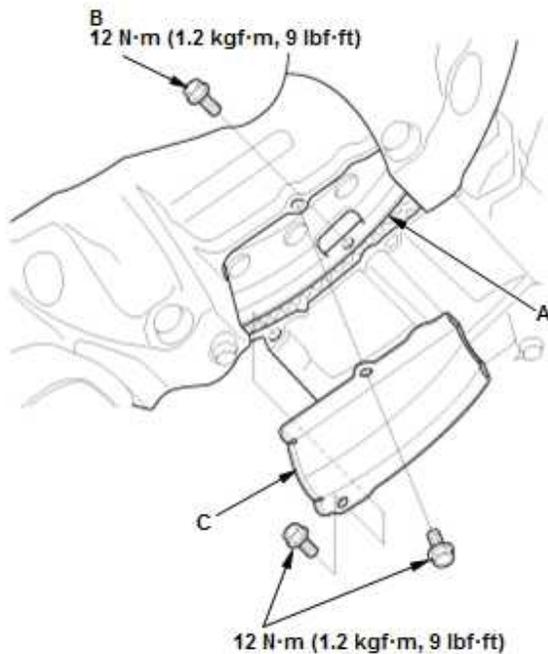
2. Attach the transmission to the engine.

4. Lower Transmission Assembly Mounting Bolt - Install

NOTE: Refer to the Exploded View as needed during this procedure.

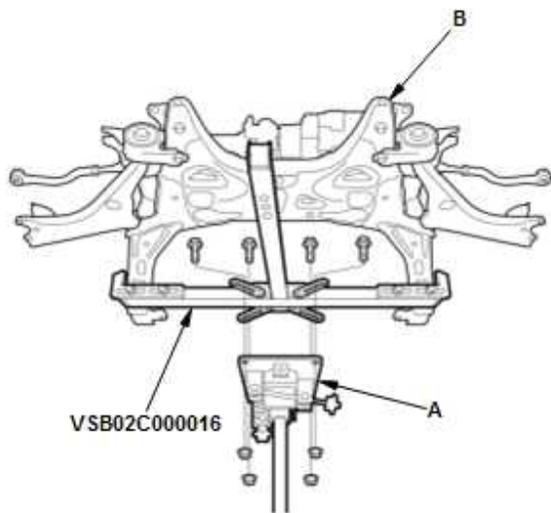
5. Driveshaft Inboard Joint - Connect (Both Sides)

6. Drive Plate - Connect



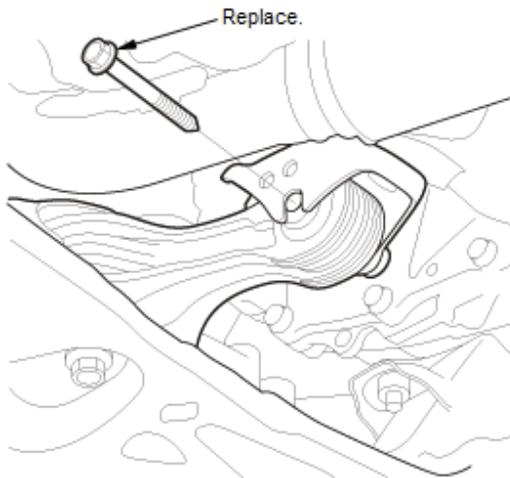
1. Attach the drive plate (A) to the torque converter with eight torque converter bolts (B).
2. Rotate the crankshaft pulley as necessary to tighten the bolt to half of the specified torque, then to the final torque, in a crisscross pattern.
3. Check that the crankshaft rotates freely.
4. Install the torque converter cover (C).

7. Front Subframe - Install



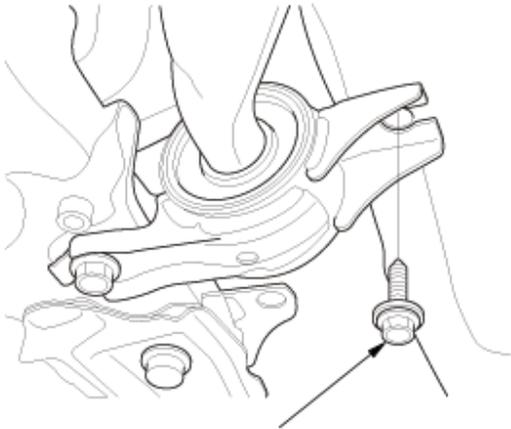
1. Set the subframe adapter (VSB02C000016) on a transmission jack (A), line up the slots in the arms with the bolt holes on the corner of the jack base, and tighten the bolts.
2. Attach the subframe adapter to the front subframe (B).
3. [Install the front subframe.](#)

8. Torque Rod Mounting Bolt - Loosely Install



9. Front Brace - Install

10. Lower Arm Mounting Bolt - Install (Both Sides)



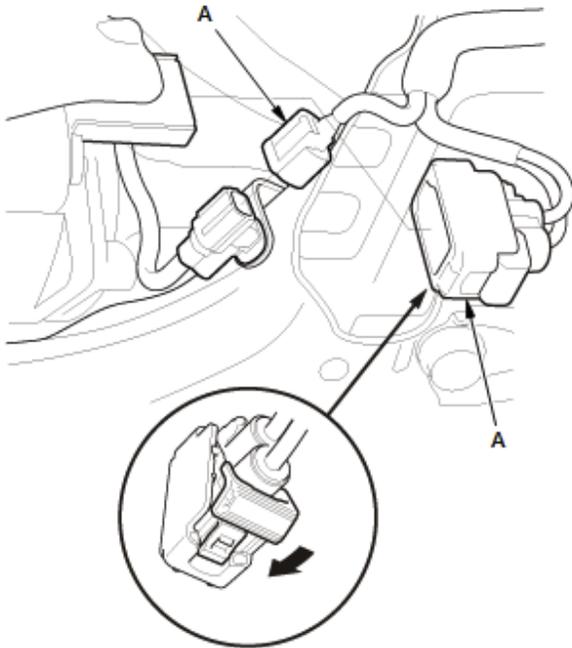
93 N·m (9.5 kgf·m, 69 lbf·ft)
Replace.

11. Lower Arm Ball Joint - Connect (Both Sides)

12. Lower Stabilizer Link Ball Joint - Connect (Both Sides)

13. Tie-Rod End Ball Joint - Connect (Both Sides)

14. Connector (EPS Subharness) - Connect



1. Connect the connectors (A), and make sure they are fully seated.

15. Exhaust Pipe A - Install

16. Vehicle - Lift Down

17. Transmission Mount - Loosely Install

18. Upper Transmission Assembly Mounting Bolt - Install

NOTE: Refer to the Exploded View as needed during this procedure.

19. Engine Support Hanger - Remove

1. Remove the engine support hanger and the universal lifting eyelet.
2. Install the front damper caps.

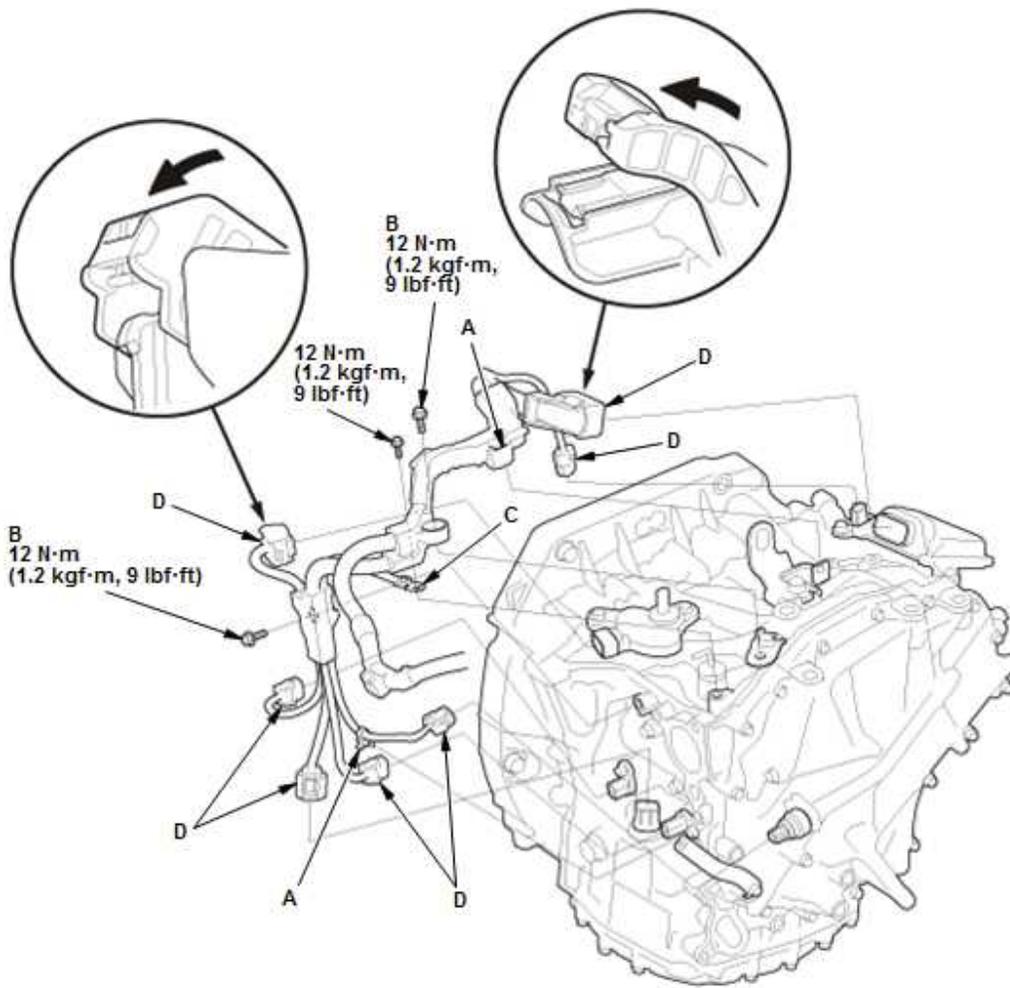
20. Engine/Transmission Mount - Tightening Procedure

21. Shift Cable (Transmission Side) - Install

NOTE: Be sure to [adjust the shift cable](#) after installing the shift cable.

22. TCM Harness - Install

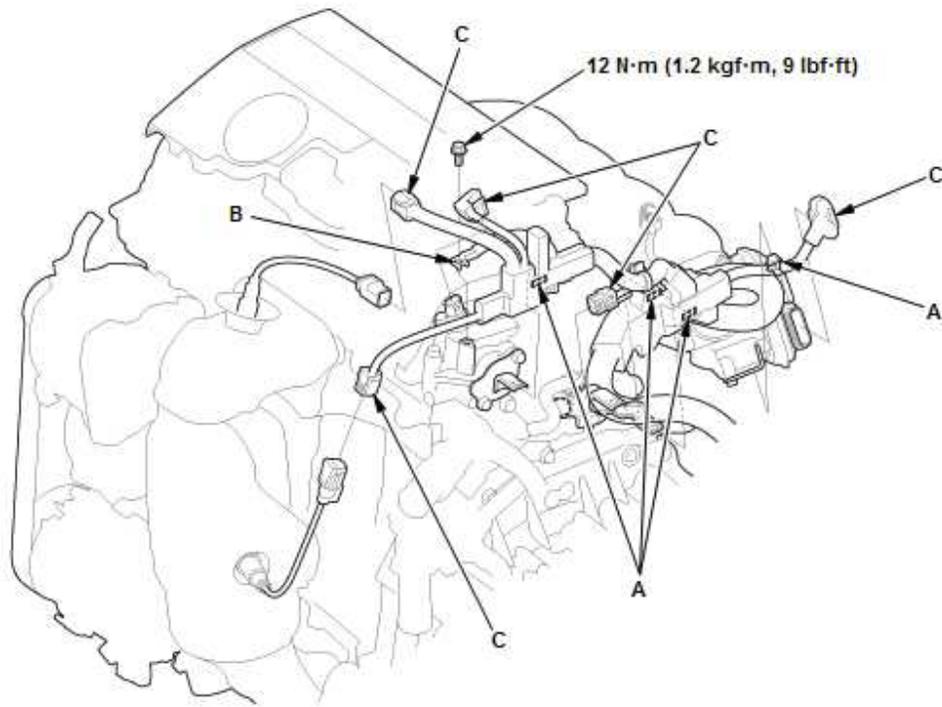
1. Install the harness clamps (A).



2. Install the harness cover mounting bolts (B).
3. Install the ground cable (C).
4. Connect the connectors (D), and make sure they are fully seated.

23. Engine Wire Harness - Install

1. Install the clamps (A).

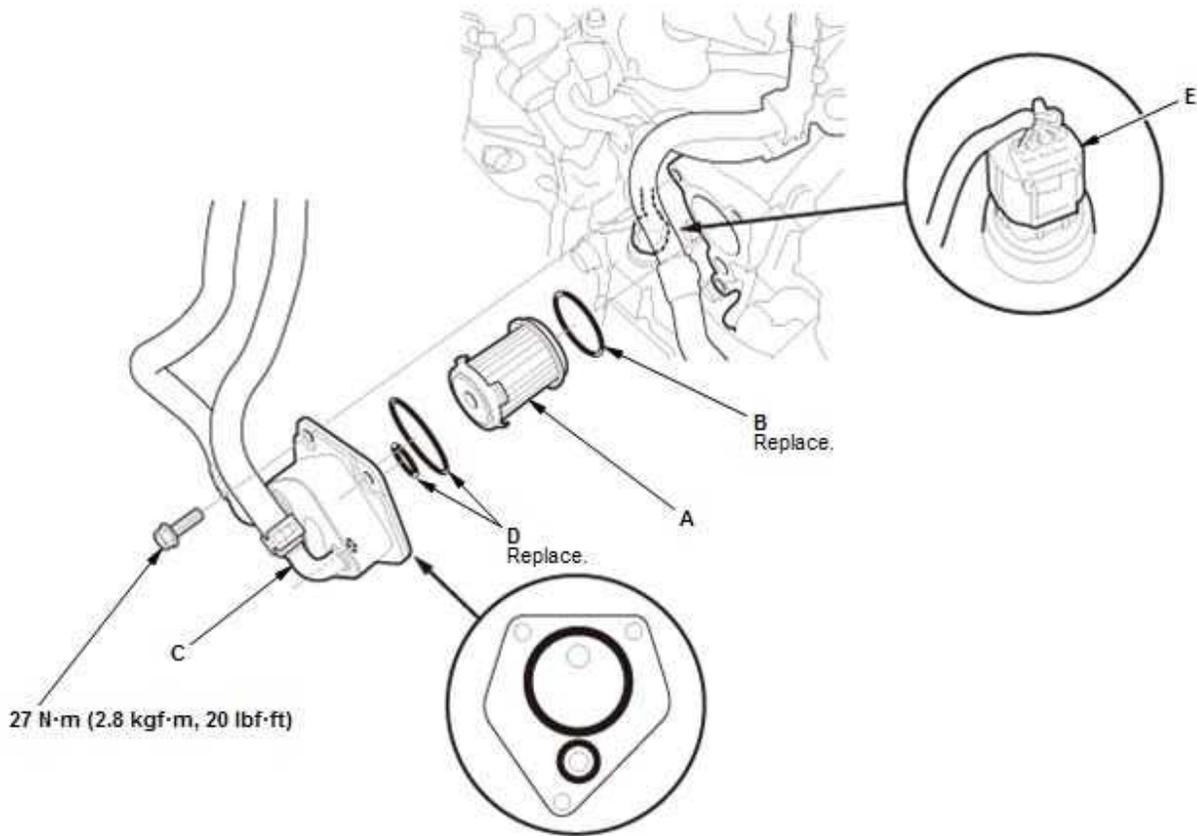


2. Install the ground cable (B).
3. Connect the connectors (C).

24. EVAP Canister Purge Valve - Install

25. CVTF Warmer - Install

1. Install the CVTF warmer strainer (A) with a new O-ring (B) in the direction shown.



2. Install the CVTF warmer (C) with new O-rings (D).

NOTE:

- The CVTF warmer is aluminum part. Be careful not to damage the CVTF warmer.
- Make sure the O-rings are firmly installed in the grooves.
- Check the connector (E) for corrosion, dirt, or oil, and clean or repair if necessary.

26. 12 Volt Battery Base - Install

27. 12 Volt Battery - Install

28. Air Cleaner - Install

29. Front Grille Cover - Install

30. Front Wheel - Install (Both Sides)

31. Steering Joint - Connect

32. Transmission Fluid - Refill

33. Transmission - After Install Check

1. Make sure all four wheels to rotate freely.
2. Turn the vehicle to the ON mode.
3. Move the shift lever to each position, and check that the shift position indicator follows the shift lever operation.
4. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

5. Check the shift lever operation.
6. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

34. Engine Undercover Lid - Install

35. Engine Undercover - Install

36. TCM - Reset (Only for Replacing Transmission)

NOTE: This procedure is not required, if the transmission and the TCM are replaced simultaneously.

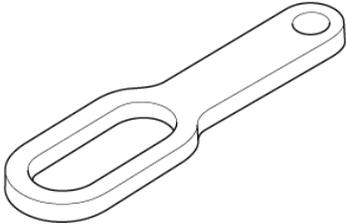
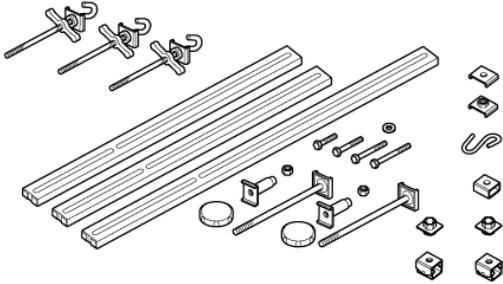
37. Front Wheel Alignment - Check

38. VSA Sensor Neutral Position - Memorize

39. Vehicle - Road Test

CVT Transmission Removal and Installation

Special Tool Required

Image	Description/Tool Number
	Universal Lifting Eyelet 07AAK-SNAA120
	Engine Support Hanger, A and Reds AAR-T1256*
	Subframe Adapter VSB02C000016*

*: Available through the Honda Tool and Equipment Program 888-424-6857.

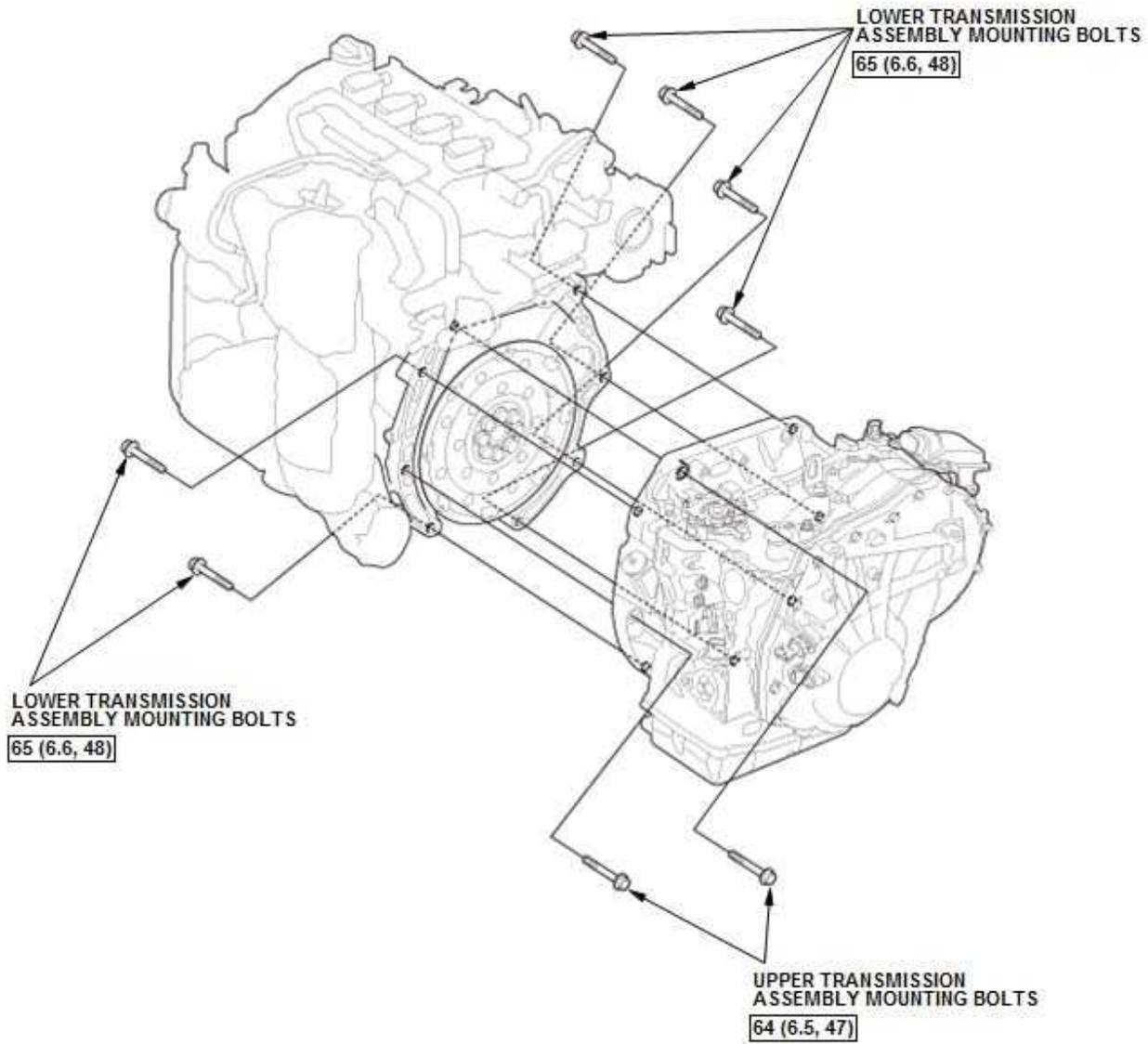
Exploded View

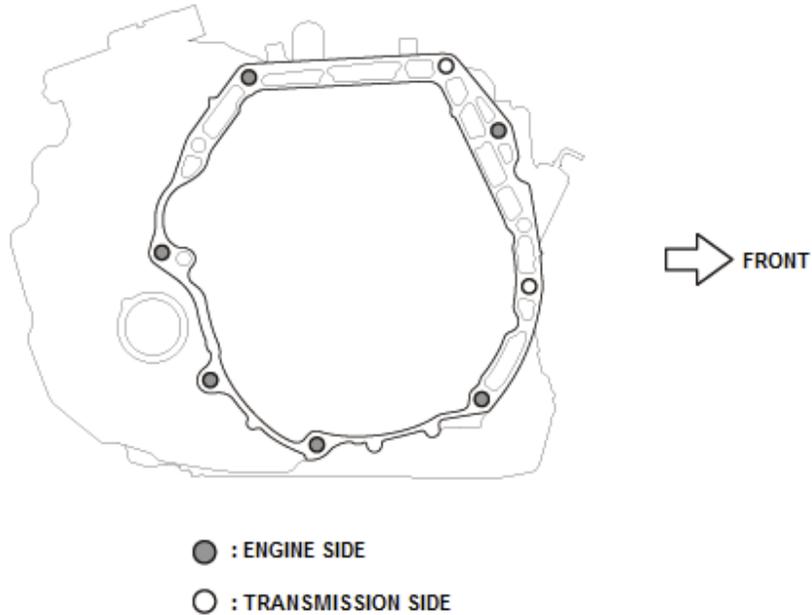
cardiagn.com

NOTE: [How to read the torque specifications.](#)

1. Transmission Assembly Mounting Bolt - Exploded View

Transmission Assembly Mounting Bolt - Exploded View





Removal

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Keep all foreign particles out of the transmission.
- Special tool Red's engine support hanger AAR-T1256 must be used with the side engine mount installed.

1. Vehicle - Lift Set

2. Engine Undercover - Remove

3. Engine Undercover Lid - Remove (With Engine Undercover Lid)

4. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

5. Transmission Fluid - Drain

6. Vehicle - Lift Down

7. Steering Joint - Disconnect

NOTE: Hold the steering wheel with the steering wheel holder tool.

8. Front Wheel - Remove (Both Sides)

9. Front Grille Cover - Remove

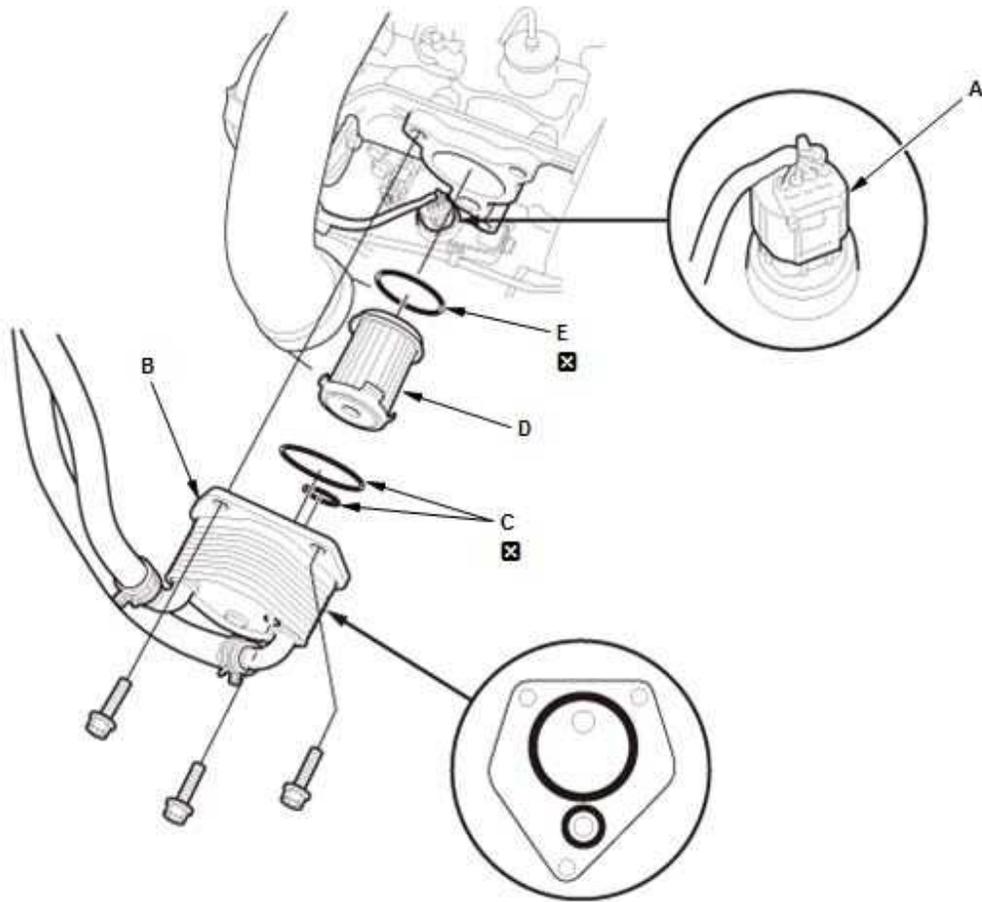
10. Air Cleaner - Remove

11. 12 Volt Battery - Remove

12. 12 Volt Battery Base - Remove

13. CVTF Warmer - Remove

1. To prevent damage, cover the connector (A) located under the CVTF warmer (B) using a shop towel.



2. Remove the CVTF warmer with the O-rings (C) without disconnecting the CVTF warmer hoses.

NOTE: The CVTF warmer is aluminum part. Be careful not to damage the CVTF warmer.

3. Put plastic bag over the CVTF warmer, then swing it out of the way.
4. Remove the CVTF warmer strainer (D) with the O-ring (E).
5. Clean the CVTF warmer strainer if necessary. Replace the CVTF warmer strainer, if it is clogged or damaged.

NOTE:

- Do not use compressed air to clean the CVTF warmer strainer.
- Soak the CVTF warmer strainer thoroughly in transmission fluid.

14. Intake Air Duct E - Remove

15. Intake Air Duct F - Remove

16. Engine Wire Harness - Remove

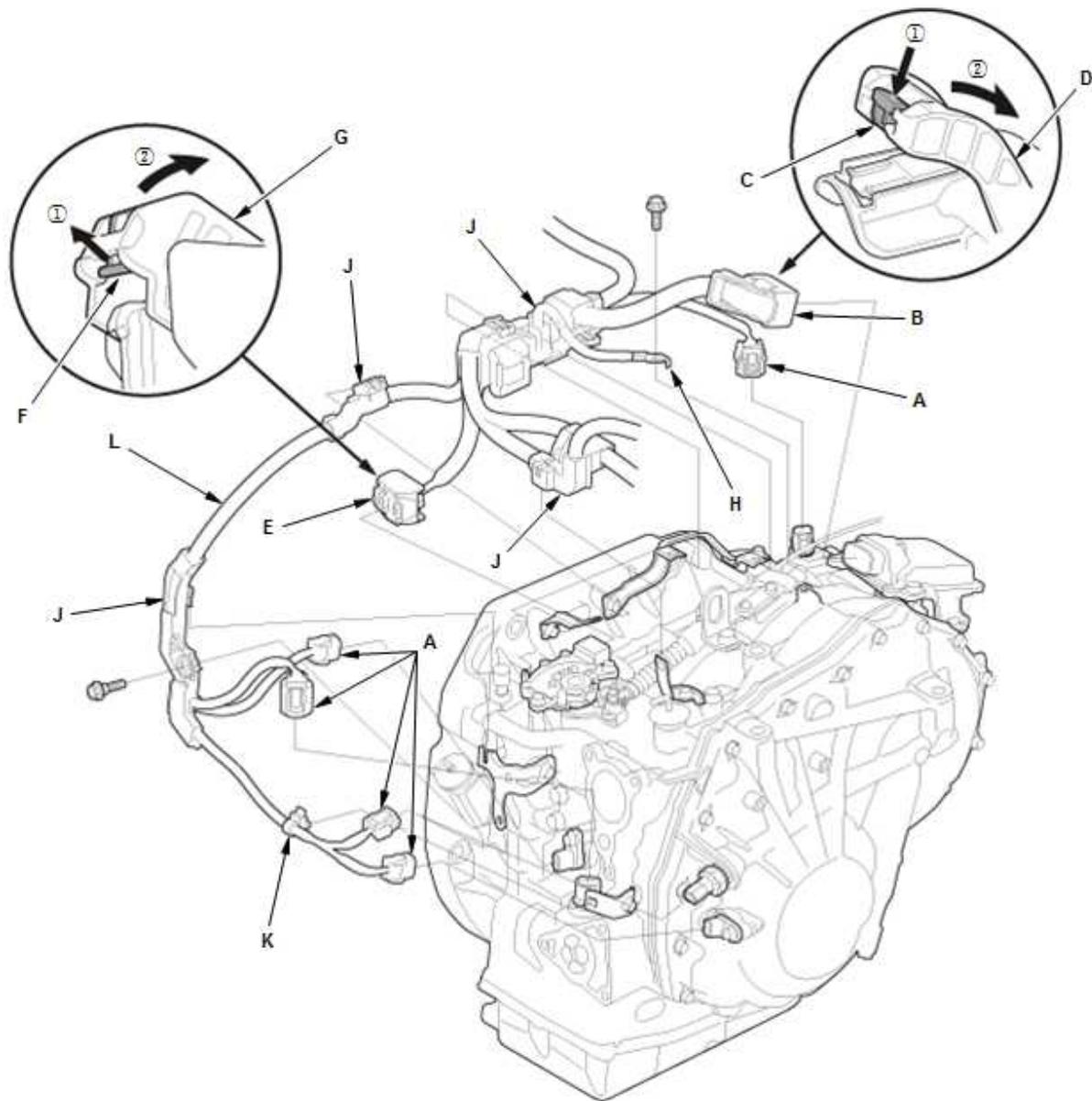
1. Disconnect the connectors (A).



2. Remove the ground cables (B).
3. Remove the harness covers (C) and the harness brackets (D), then swing the engine wire harness (E) out of the way.

17.TCM Harness - Remove

1. Disconnect the connectors (A).



2. Disconnect the connector (B) by pushing the lock (C) and pulling the lever (D) in the numbered sequence shown.
3. Disconnect the connector (E) by pulling the lock (F) and the lever (G) in the numbered sequence shown.
4. Remove the ground cable (H).
5. Remove the harness covers (J) and the harness clamp (K), then swing the TCM harness (L) out of the way.

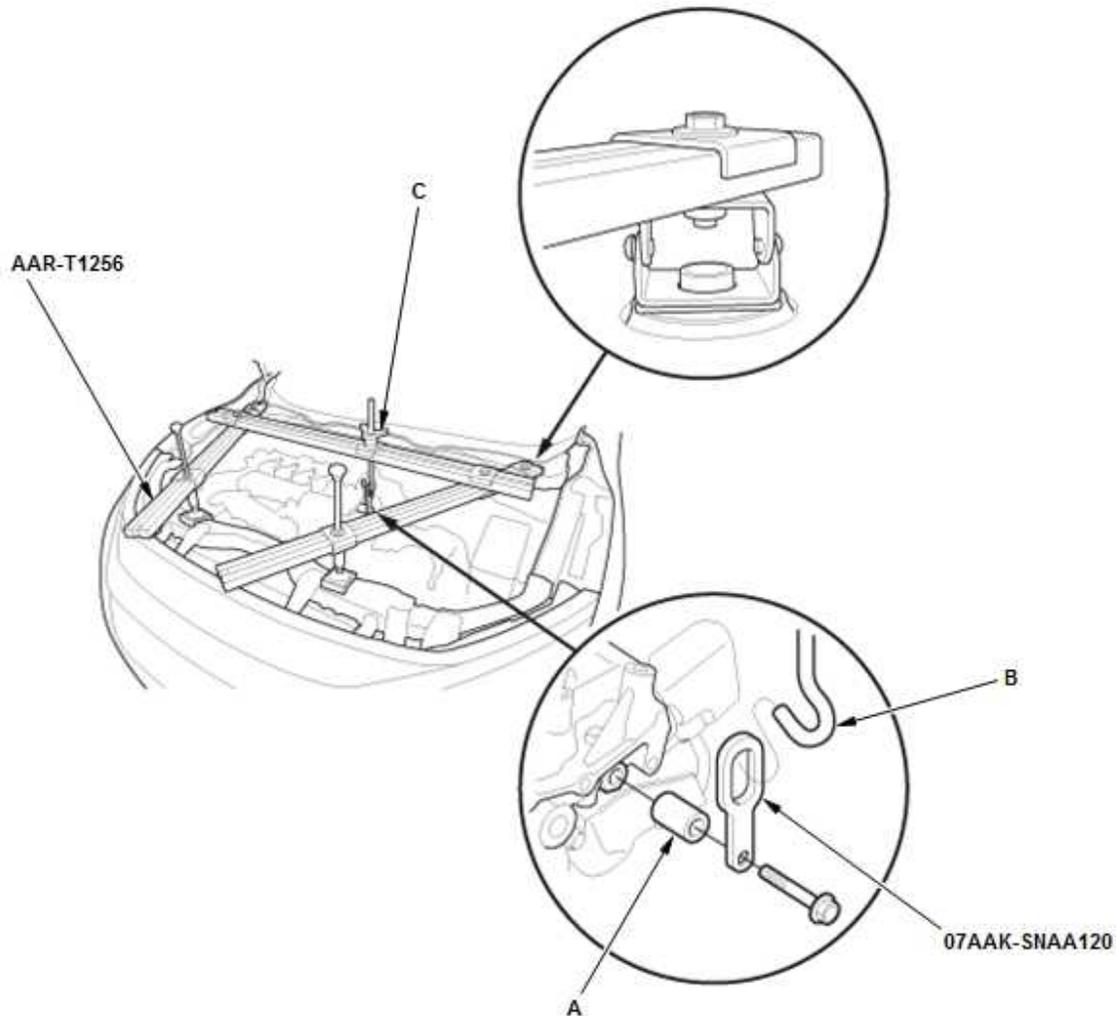
18. Shift Cable (Transmission Side) - Remove

19. Intake Manifold Bracket - Remove

20.Engine Support Hanger - Install

NOTE: Be careful when working around the windshield.

1. Remove the front damper caps.



2. Install the universal lifting eyelet with an about 50 mm (2.00 in) commercially available spacer (A).
3. Install the engine support hanger onto the vehicle as shown.
4. Attach the hook (B) to the slotted hole in the universal lifting eyelet.
5. Tighten the wing nut (C) by hand, and lift and support the engine/transmission.

21.Upper Transmission Assembly Mounting Bolt - Remove

NOTE: Refer to the Exploded View as needed during this procedure.

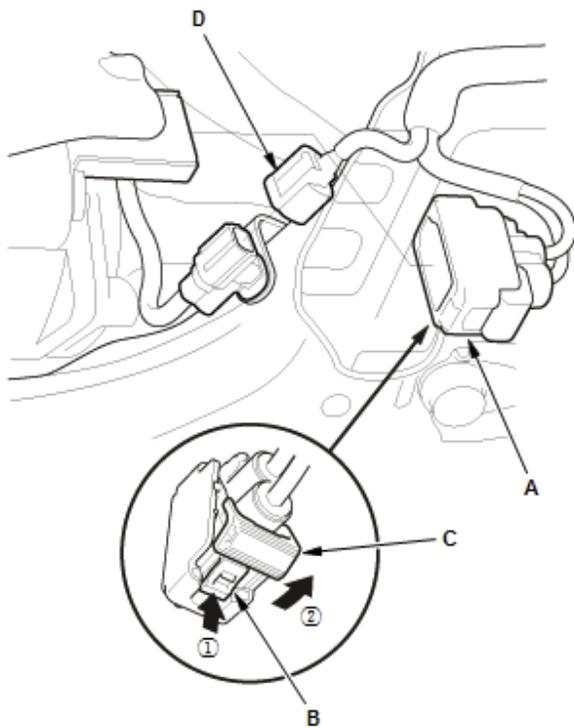
22. Transmission Mount - Remove

23. Vehicle - Lift Up

24. Front Floor Brace - Remove (With Front Floor Brace)

25. Exhaust Pipe A - Remove

26. Connector (EPS Subharness) - Disconnect



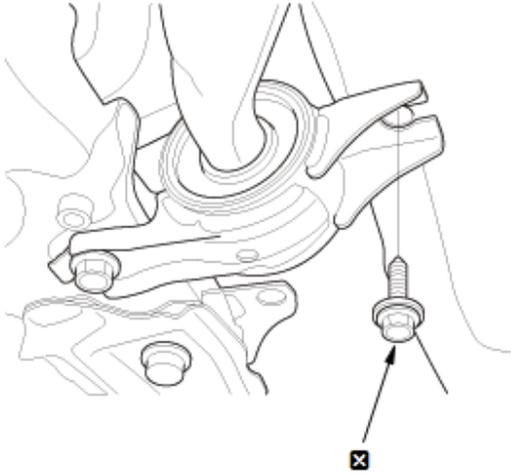
1. Disconnect the connector (A) by pushing the lock (B) and pulling the lever (C) in the numbered sequence shown.
2. Disconnect the connector (D).

27. Tie-Rod End Ball Joint - Disconnect (Both Sides)

28. Lower Stabilizer Link Ball Joint - Disconnect (Both Sides)

29. Lower Arm Ball Joint - Disconnect (Both Sides)

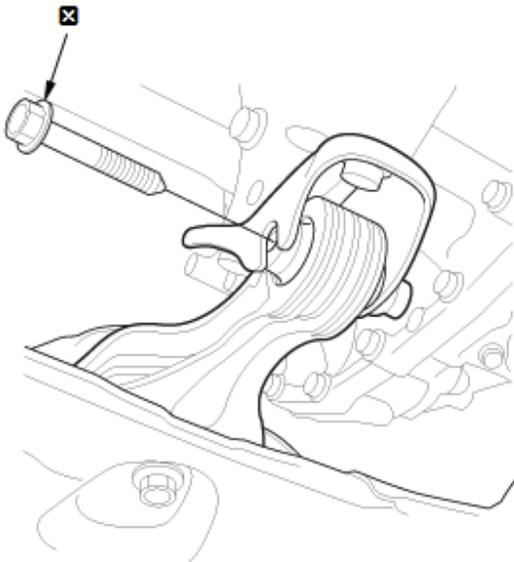
30. Lower Arm Mounting Bolt - Remove (Both Sides)



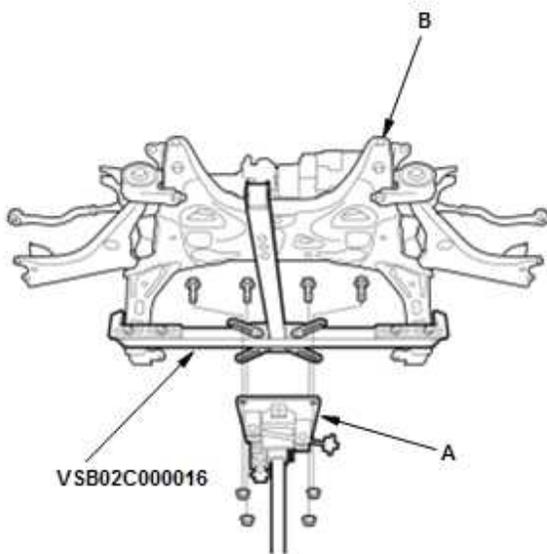
31. Front Brace - Remove

32. Intake Air Resonator - Remove

33. Torque Rod Mounting Bolt - Remove



34. Front Subframe - Remove

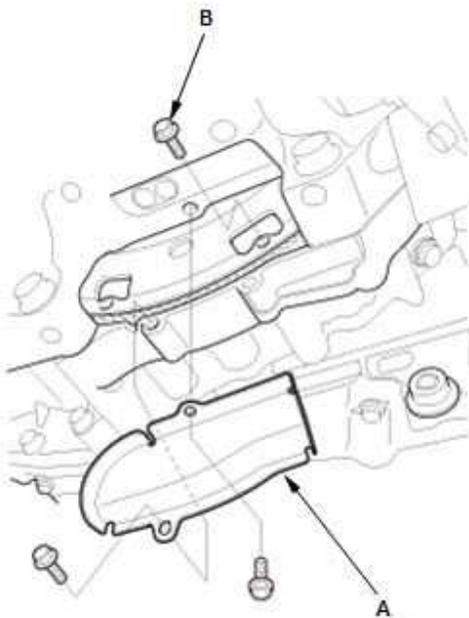


1. Set the subframe adapter (VSB02C000016) on a transmission jack (A), line up the slots in the arms with the bolt holes on the corner of the jack base, and tighten the bolts.
2. Attach the subframe adapter to the front subframe (B).
3. [Remove the front subframe.](#)

35. Transmission - Support

1. Support the transmission with the transmission jack.

36. Drive Plate - Disconnect



1. Remove the torque converter cover (A).
2. Remove eight torque converter bolts (B) while rotating the crankshaft pulley.

37. Driveshaft Inboard Joint - Disconnect (Both Sides)

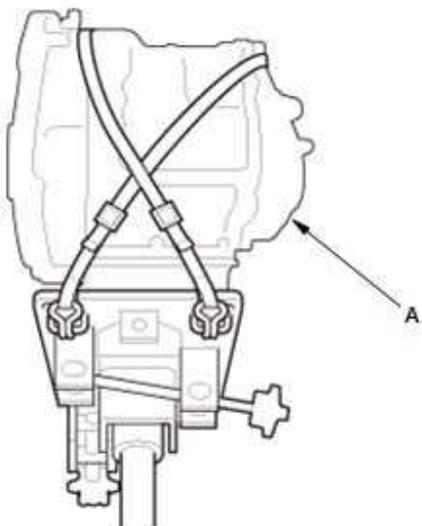
NOTE: Secure the driveshaft to the body with a nylon strap on both sides.

38. Intermediate Shaft - Remove

39. Lower Transmission Assembly Mounting Bolt - Remove

NOTE: Refer to the Exploded View as needed during this procedure.

40. Transmission - Remove

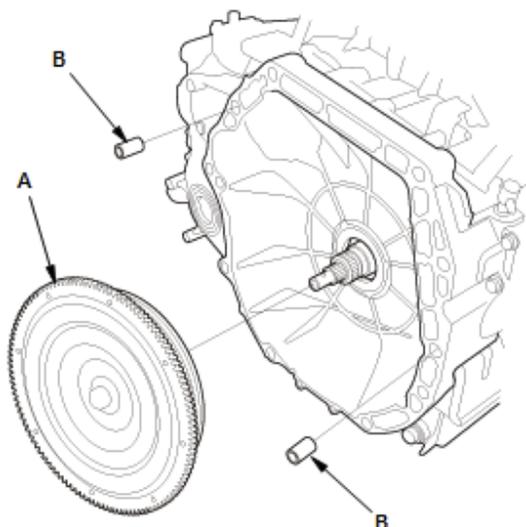


1. Check once again that the transmission (A) is free of hoses and electrical wiring.
2. Hold the transmission on the transmission jack.
3. Lower the transmission by loosening the wing nut of the engine support hanger, and tilt the engine just enough for the transmission to clear its end from the side frame.
4. Slide the transmission away from the engine, then remove it from the vehicle.

NOTE: Be careful not to drop the torque converter.

5. Lower the transmission carefully.

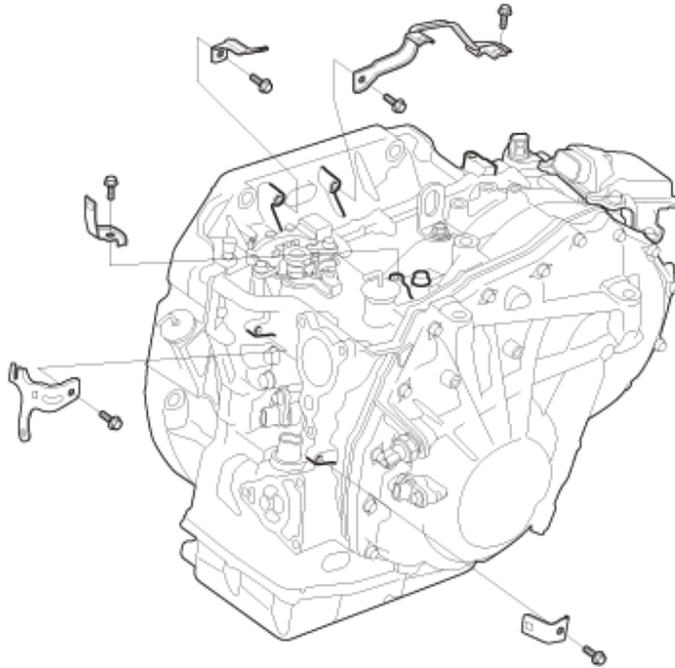
41. Torque Converter - Remove



1. Remove the torque converter (A).
2. Remove the dowel pins (B).

42. Harness Bracket - Remove

1. If necessary, remove the harness brackets.



43. Drive Plate - Inspect

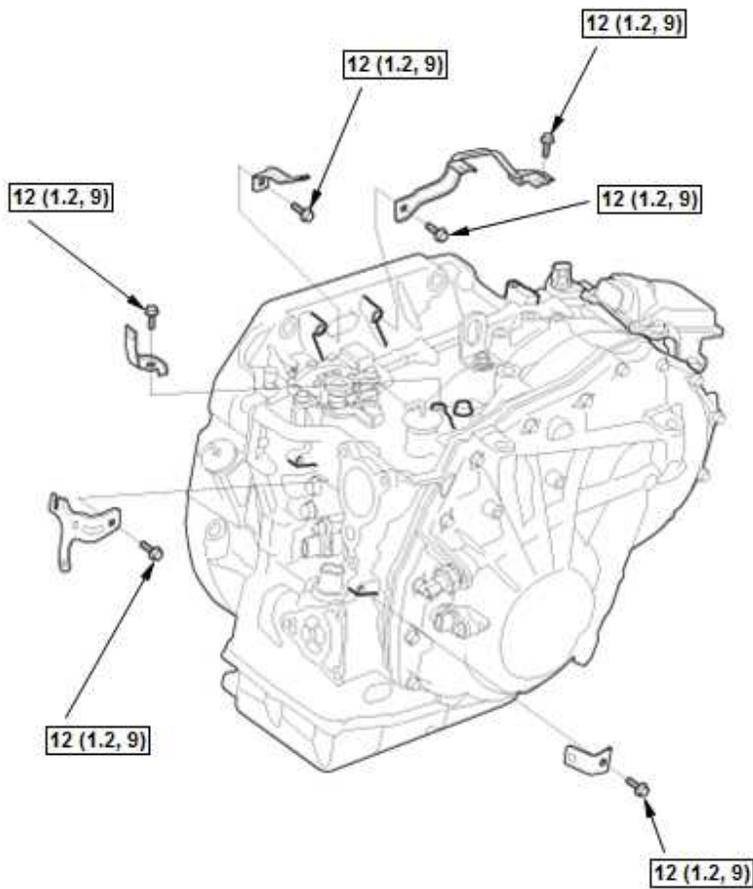
1. Inspect the drive plate, and [replace it if it is damaged](#).

Installation

NOTE:

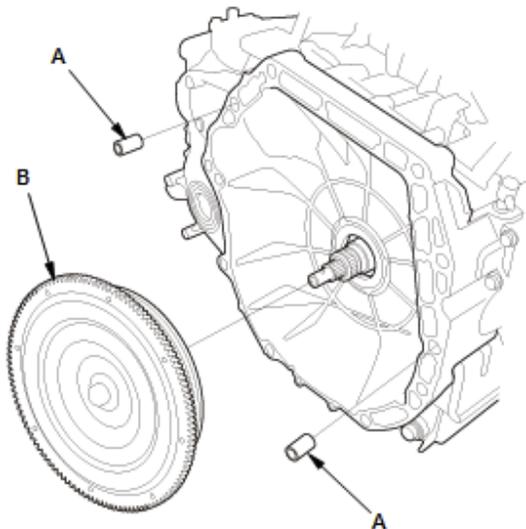
- [How to read the torque specifications](#).
- Use fender covers to avoid damaging painted surfaces.
- Keep all foreign particles out of the transmission.
- Apply a light coat of clean transmission fluid on all O-rings before installation.
- When connecting the connector, check for corrosion, dirt, or oil, and clean or repair if necessary.

1. Harness Bracket - Install



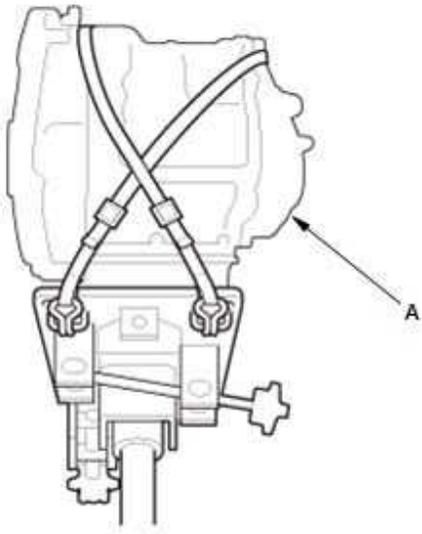
2. Torque Converter - Install

1. Install the dowel pins (A).
2. Install the torque converter (B).



NOTE: Make sure the torque converter is fully engaged on the input shaft, the stator shaft, and the transmission fluid pump drive sprocket. Failure to do so will result in severe transmission or engine damage.

3. Transmission - Install



1. Hold the transmission (A) on a transmission jack, and raise it to engine level.

NOTE: Be careful not to drop the torque converter.

2. Attach the transmission to the engine.

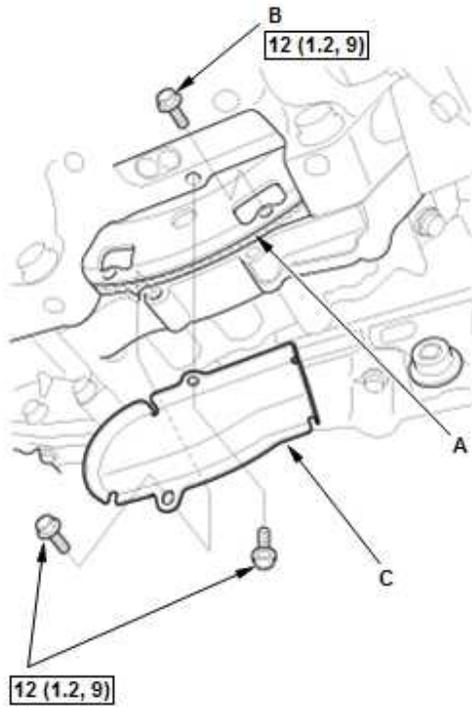
4. Lower Transmission Assembly Mounting Bolt - Install

NOTE: Refer to the Exploded View as needed during this procedure.

5. Intermediate Shaft - Install

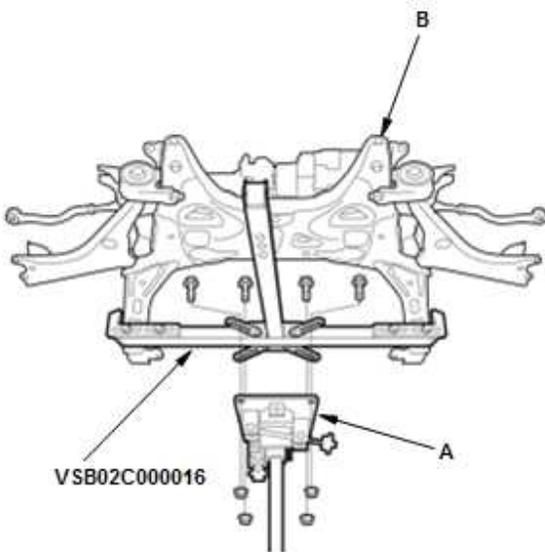
6. Driveshaft Inboard Joint - Connect (Both Sides)

7. Drive Plate - Connect



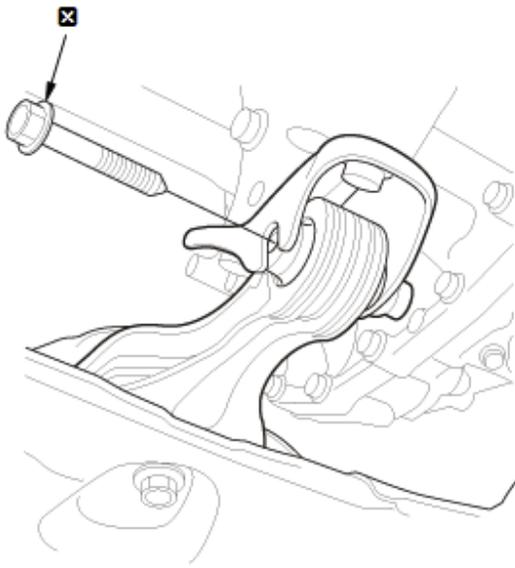
1. Attach the drive plate (A) to the torque converter with eight torque converter bolts (B).
2. Rotate the crankshaft pulley as necessary to tighten the bolt to half of the specified torque, then to the final torque, in a crisscross pattern.
3. Check that the crankshaft rotates freely.
4. Install the torque converter cover (C).

8. Front Subframe - Install



1. Set the subframe adapter (VSB02C000016) on a transmission jack (A), line up the slots in the arms with the bolt holes on the corner of the jack base, and tighten the bolts.
2. Attach the subframe adapter to the front subframe (B).
3. [Install the front subframe.](#)

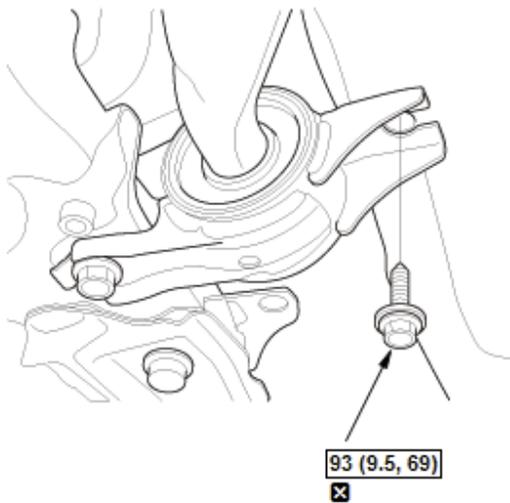
9. Torque Rod Mounting Bolt - Loosely Install



10. Intake Air Resonator - Install

11. Front Brace - Install

12. Lower Arm Mounting Bolt - Install (Both Sides)

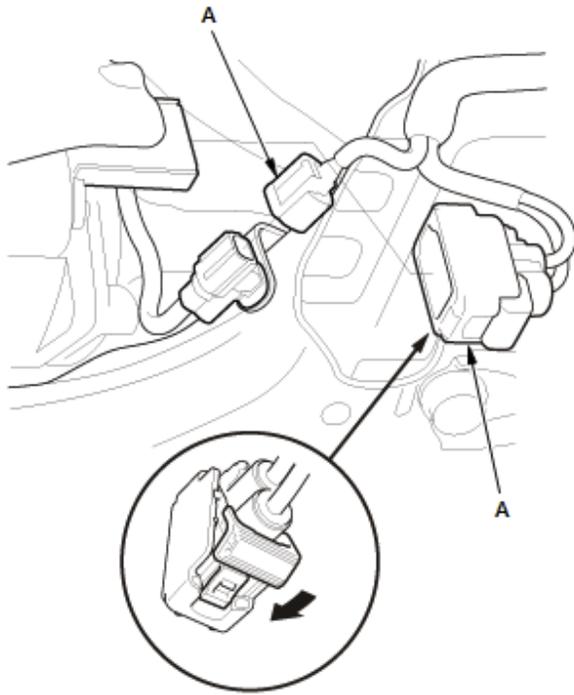


13. Lower Arm Ball Joint - Connect (Both Sides)

14. Lower Stabilizer Link Ball Joint - Connect (Both Sides)

15. Tie-Rod End Ball Joint - Connect (Both Sides)

16. Connector (EPS Subharness) - Connect



1. Connect the connectors (A), and make sure they are fully seated.

17. Exhaust Pipe A - Install

18. Front Floor Brace - Install (With Front Floor Brace)

19. Vehicle - Lift Down

20. Transmission Mount - Loosely Install

21. Upper Transmission Assembly Mounting Bolt - Install

NOTE: Refer to the Exploded View as needed during this procedure.

22. Engine Support Hanger - Remove

1. Remove the engine support hanger and the universal lifting eyelet.
2. Install the front damper caps.

23. Engine/Transmission Mount - Tightening Procedure

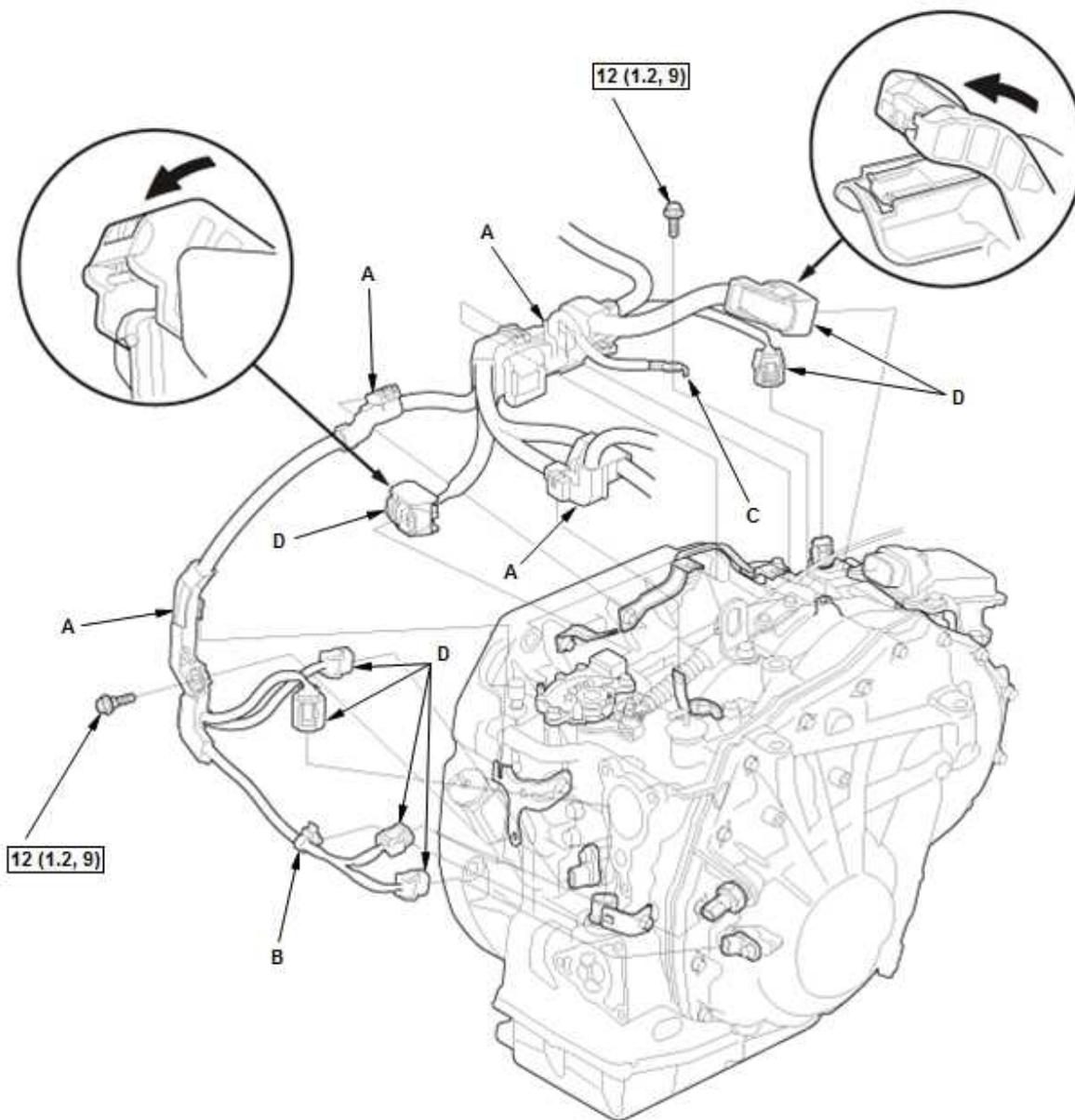
24. Intake Manifold Bracket - Install

25. Shift Cable (Transmission Side) - Install

NOTE: Be sure to [adjust the shift cable](#) after installing the shift cable.

26. TCM Harness - Install

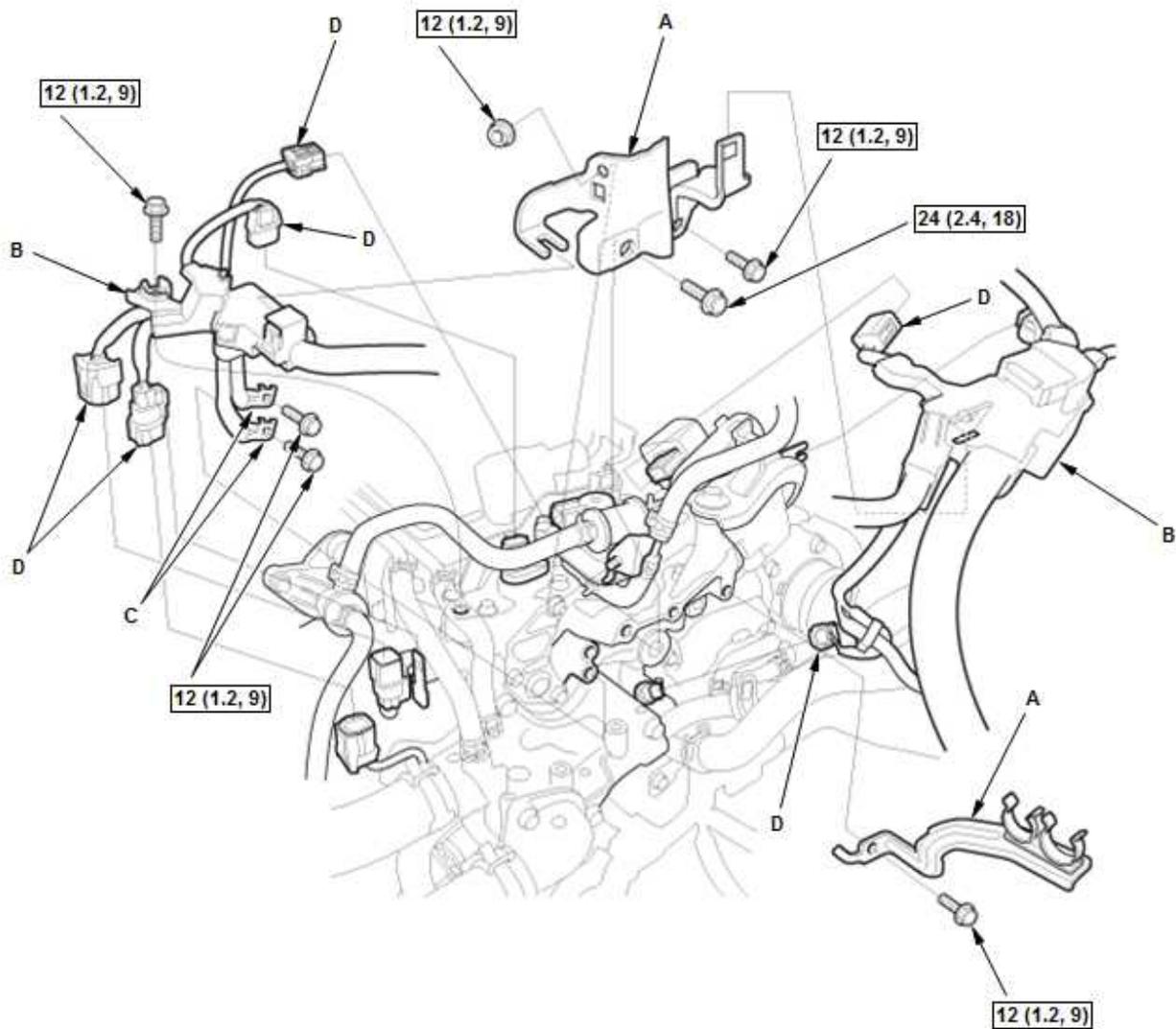
1. Install the harness covers (A) and the harness clamp (B).



2. Install the ground cable (C).
3. Connect the connectors (D), and make sure they are fully seated.

27. Engine Wire Harness - Install

1. Install the harness brackets (A) and the harness covers (B).



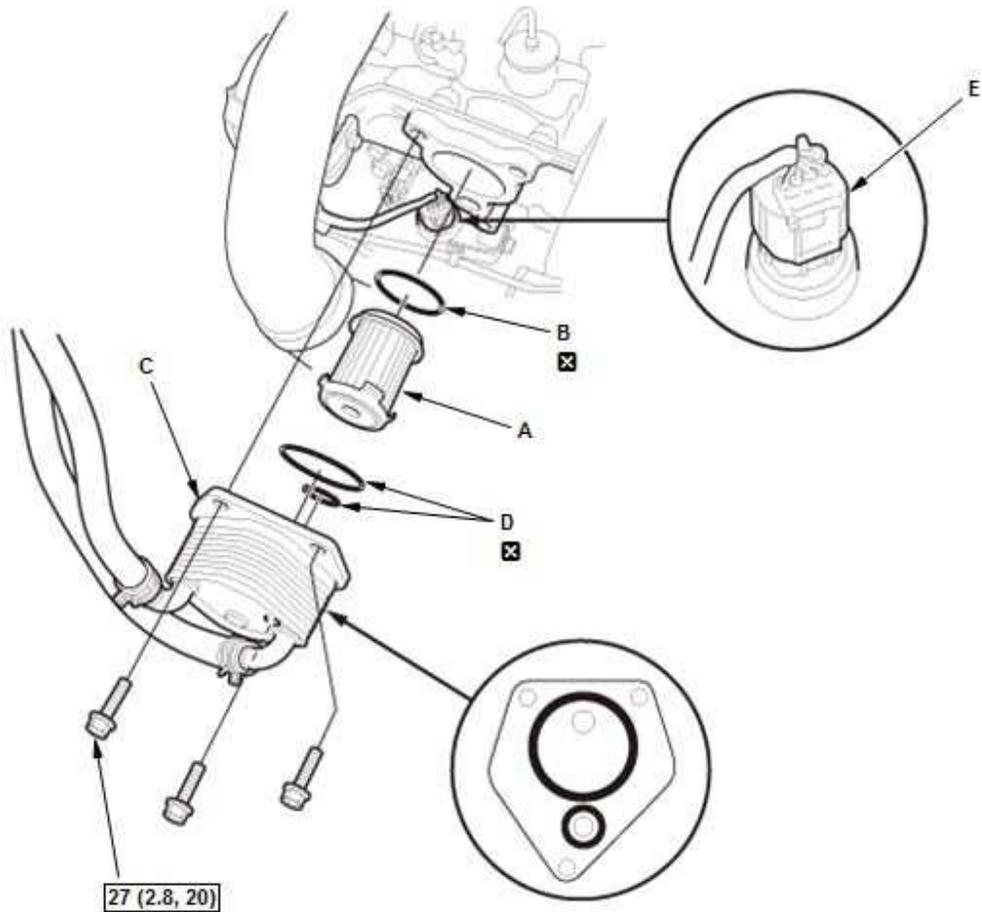
2. Install the ground cables (C).
3. Connect the connectors (D).

28. Intake Air Duct F - Install

29. Intake Air Duct E - Install

30. CVTF Warmer - Install

1. Install the CVTF warmer strainer (A) with a new O-ring (B) in the direction shown.



2. Install the CVTF warmer (C) with new O-rings (D).

NOTE:

- The CVTF warmer is aluminum part. Be careful not to damage the CVTF warmer.
- Make sure the O-rings are firmly installed in the grooves.
- Check the connector (E) for corrosion, dirt, or oil, and clean or repair if necessary.

31.12 Volt Battery Base - Install

32.12 Volt Battery - Install

33. Air Cleaner - Install

34. Front Grille Cover - Install

35. Front Wheel - Install (Both Sides)

36. Steering Joint - Connect

37. Transmission Fluid - Refill

38. Transmission Fluid Level - Check

39. Transmission - After Install Check

1. Make sure all four wheels to rotate freely.
2. Turn the vehicle to the ON mode.
3. Move the shift lever to each position, and check that the shift position indicator follows the shift lever operation.

4. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

5. Check the shift lever operation.
6. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

40. Engine Undercover Lid - Install (With Engine Undercover Lid)

41. Engine Undercover - Install

42. TCM - Reset (Only for Replacing Transmission)

NOTE: This procedure is not required, if the transmission and the TCM are replaced simultaneously.

43. Front Wheel Alignment - Check

44. VSA Sensor Neutral Position - Memorize

45. Vehicle - Road Test

CVTF Warmer Hose Removal and Installation

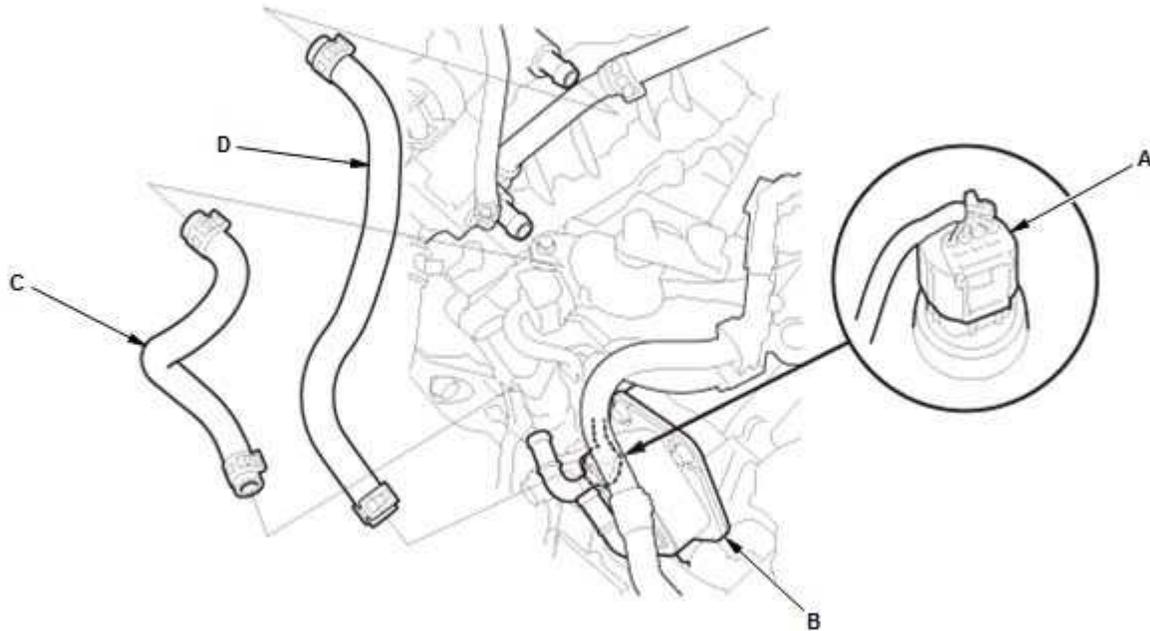
Removal

1. Engine Coolant - Drain

2. Air Cleaner - Remove

3. CVTF Warmer Hose - Disconnect

1. To prevent damage, cover the connector (A) located under the CVTF warmer (B) using a shop towel.



2. Disconnect the CVTF warmer inlet hose (C) and outlet hose (D).

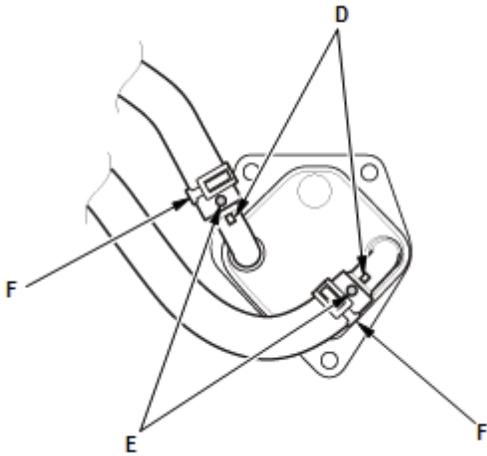
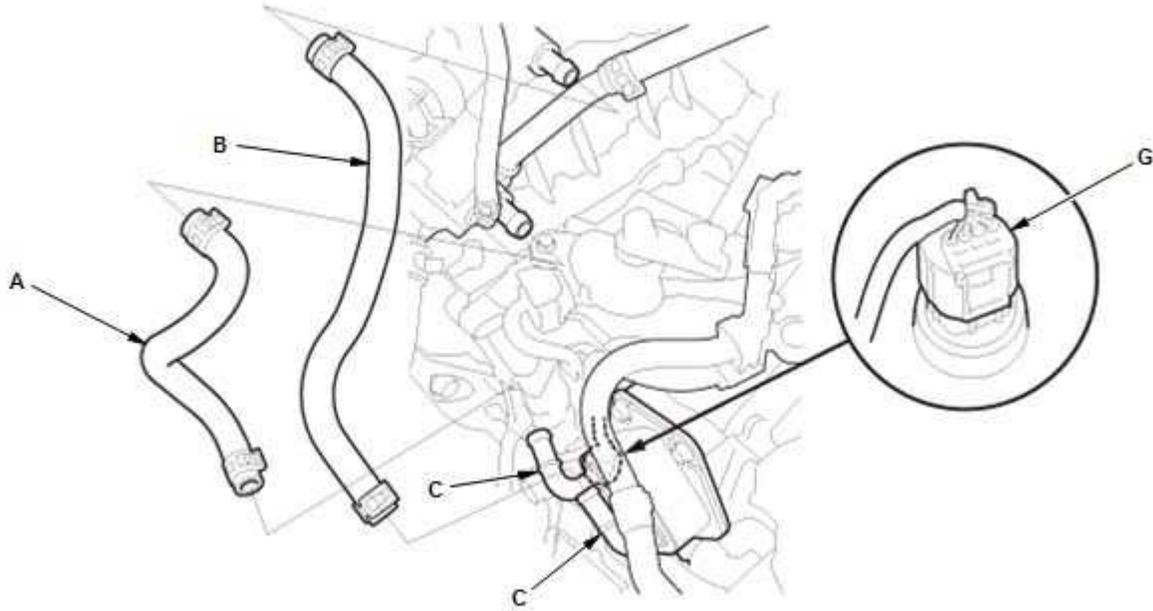
NOTE: When disconnecting/connecting the hoses, do not bend the warmer pipes excessively, or they will be damaged or deformed.

Installation

1. CVTF Warmer Hose - Connect

1. Connect the CVTF warmer inlet hose (A) and outlet hose (B) to each bulge (C) of the CVTF warmer lines by aligning the paint marks (D) on the lines with the paint marks (E) on the hose ends.

NOTE: When disconnecting/connecting the hoses, do not bend the warmer pipes excessively, or they will be damaged or deformed.



2. Secure the CVTF warmer hoses with the clamps (F).

NOTE:

- When securing the clamps, make sure they do not interfere with the surrounding parts.
- Check the connector (G) for corrosion, dirt, or oil, and clean or repair if necessary.

2. Air Cleaner - Install

3. Engine Coolant - Refill

CVTF Warmer Hose Removal and Installation

Removal

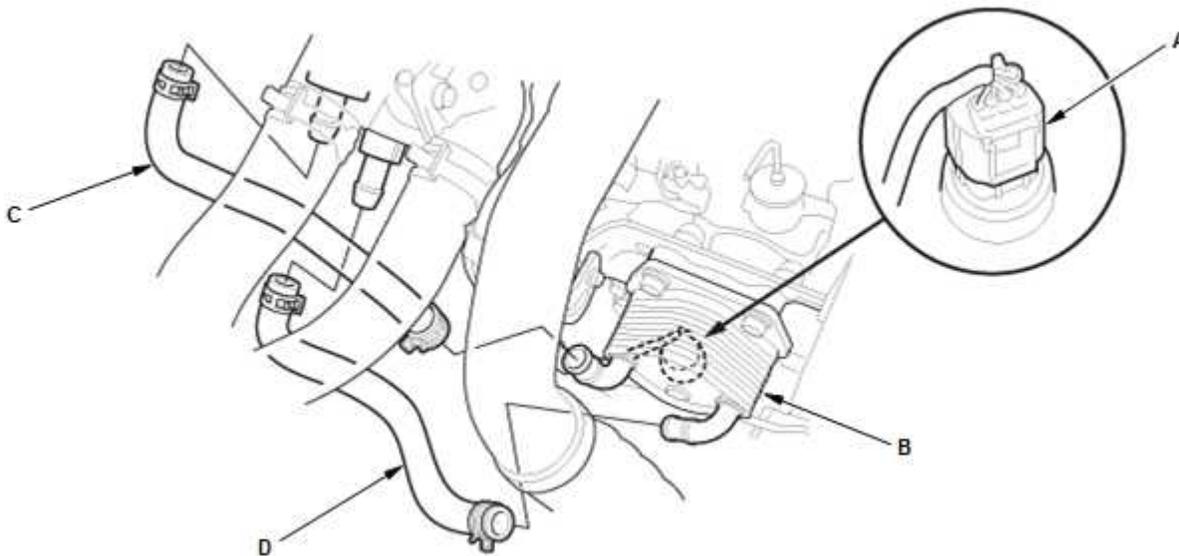
1. Engine Coolant - Drain

2. Air Cleaner - Remove

3. Intake Air Duct - Remove

4. CVTF Warmer Hose - Disconnect

1. To prevent damage, cover the connector (A) located under the CVTF warmer (B) using a shop towel.



2. Disconnect the CVTF warmer inlet hose (C) and outlet hose (D).

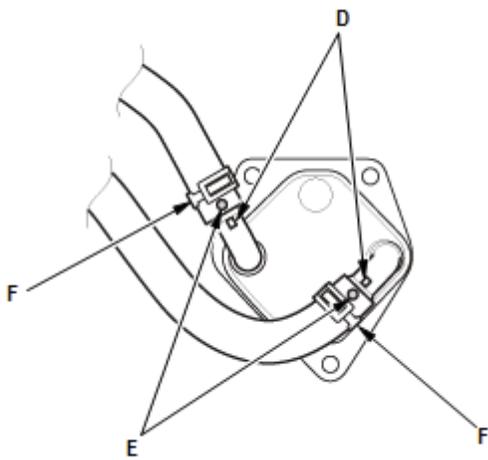
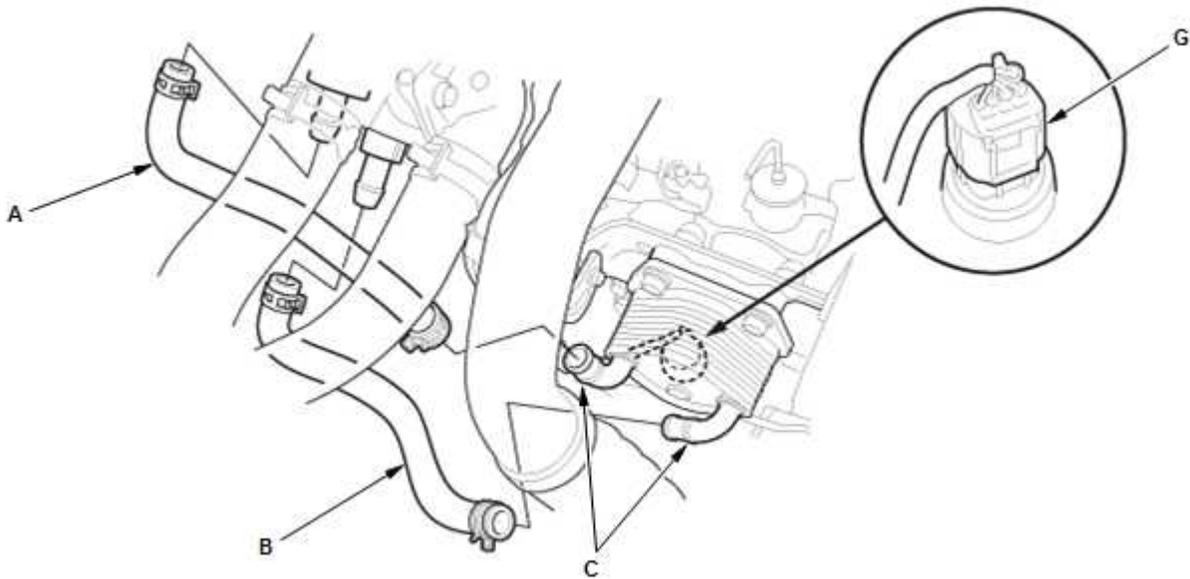
NOTE: When disconnecting/connecting the hoses, do not bend the warmer pipes excessively, or they will be damaged or deformed.

Installation

1. CVTF Warmer Hose - Connect

1. Connect the CVTF warmer inlet hose (A) and outlet hose (B) to each bulge (C) of the CVTF warmer lines by aligning the paint marks (D) on the lines with the paint marks (E) on the hose ends.

NOTE: When disconnecting/connecting the hoses, do not bend the warmer pipes excessively, or they will be damaged or deformed.



2. Secure the CVTF warmer hoses with the clamps (F).

NOTE:

- When securing the clamps, make sure they do not interfere with the surrounding parts.
- Check the connector (G) for corrosion, dirt, or oil, and clean or repair if necessary.

2. Intake Air Duct - Install

3. Air Cleaner - Install

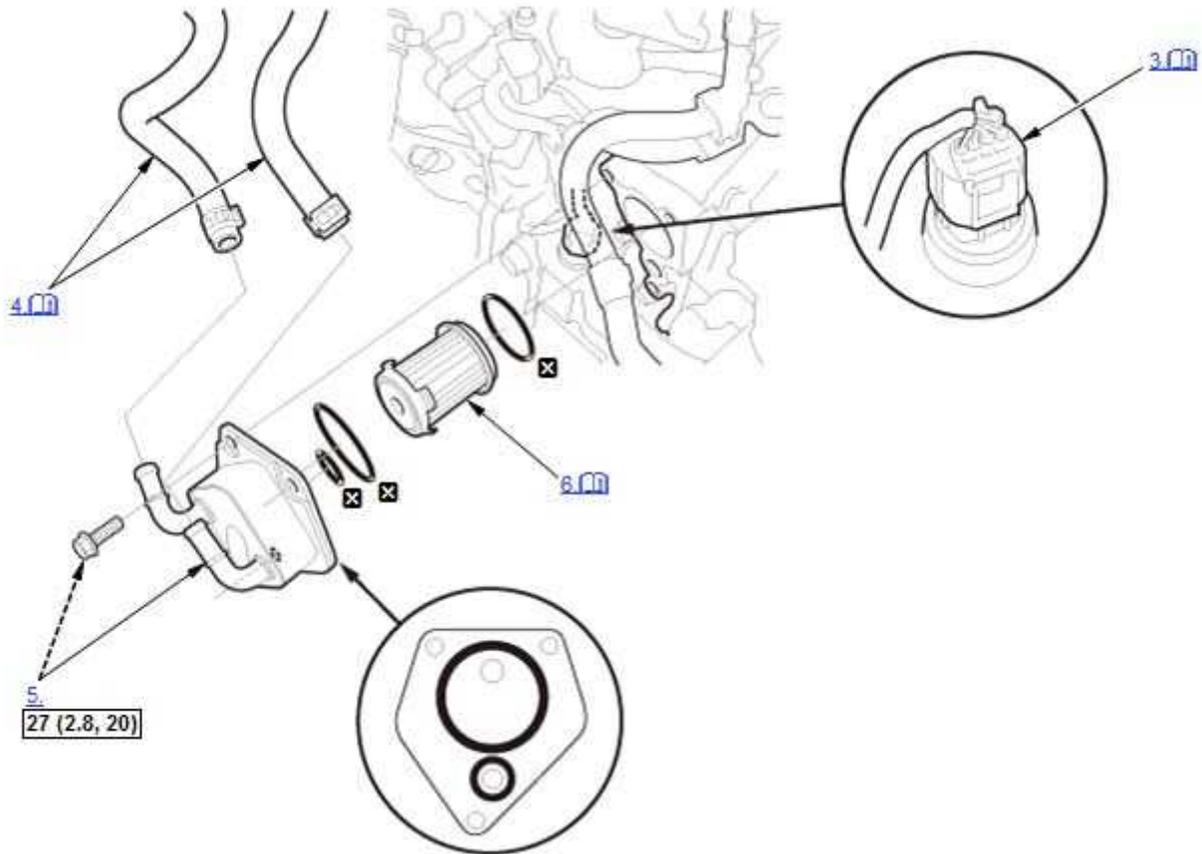
4. Engine Coolant - Refill

Removal/Installation

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.

1



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Engine Coolant - Drain

2. Air Cleaner - Remove

3. Connector (Solenoid Wire Harness) - Cover

NOTE: To prevent damage, cover the connector located under the CVTF warmer using a shop towel.

4. CVTF Warmer Hose - Disconnect

NOTE: When disconnecting/connecting the hoses, do not bend the warmer pipes excessively, or they will be damaged or deformed.

5. CVTF Warmer - Remove

6. CVTF Warmer Strainer - Remove

1. Clean the CVTF warmer strainer if necessary. Replace the CVTF warmer strainer, if it is clogged or damaged.

NOTE:

- Do not use compressed air to clean the CVTF warmer strainer.
- Soak the CVTF warmer strainer thoroughly in transmission fluid.

7. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Apply a light coat of clean transmission fluid on all O-rings before installation.
- Make sure the O-rings are firmly installed in the grooves.
- Make sure the CVTF warmer strainer is installed in the correct direction.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.
- [If necessary, add transmission fluid to the proper level.](#)

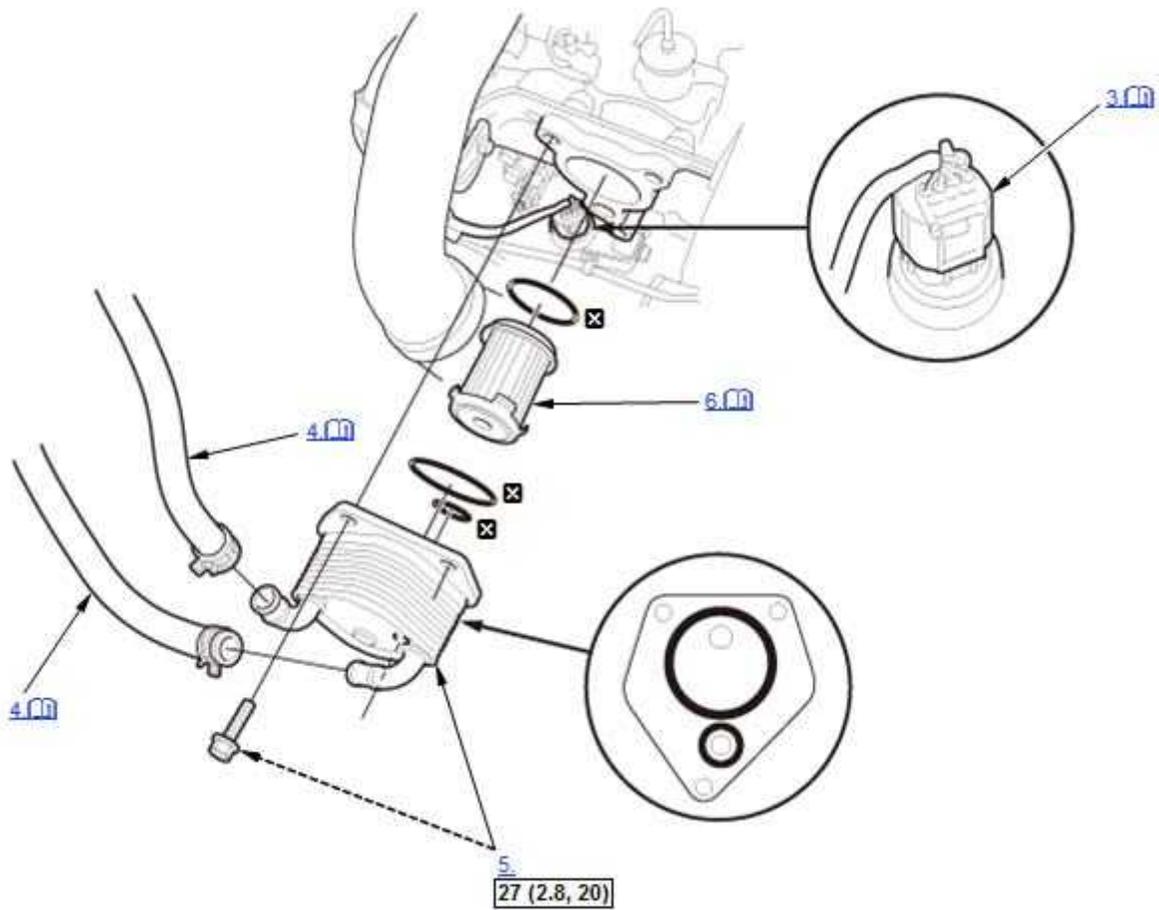
8. Engine Coolant - Refill

Removal/Installation

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.

1



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Engine Coolant - Drain

2. Air Cleaner - Remove

3. Connector (Solenoid Wire Harness A) - Cover

NOTE: To prevent damage, cover the connector located under the CVTF warmer using a shop towel.

4. CVTF Warmer Hose - Disconnect

NOTE: When disconnecting/connecting the hoses, do not bend the warmer pipes excessively, or they will be damaged or deformed.

5. CVTF Warmer - Remove

6. CVTF Warmer Strainer - Remove

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- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.
- [If necessary, add transmission fluid to the proper level.](#)

8. Engine Coolant - Refill

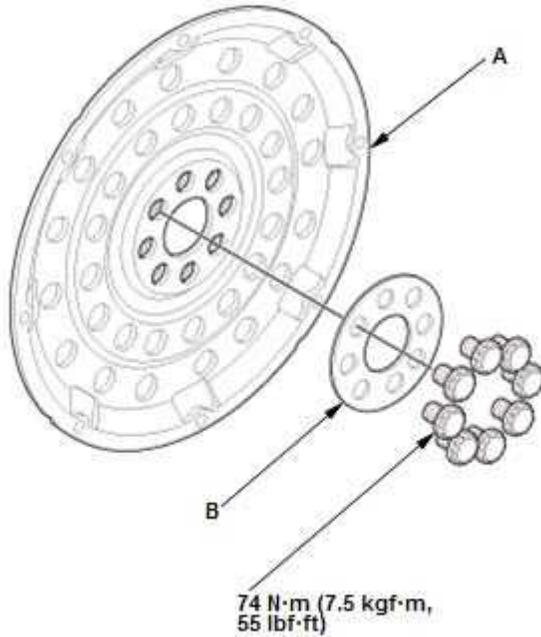
Drive Plate Removal and Installation

Removal/Installation

1. Transmission - Remove

2. Drive Plate - Remove

1. Remove the drive plate (A) with the washer (B).



3. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Tighten eight bolts in a crisscross pattern in at least two steps.

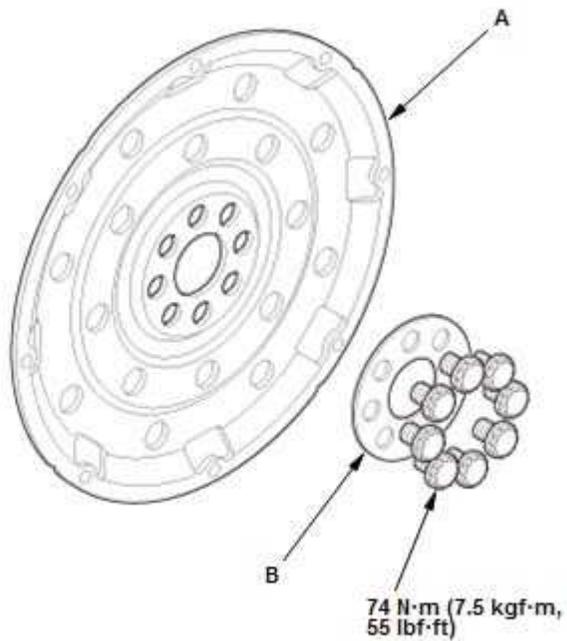
Drive Plate Removal and Installation

Removal/Installation

1. Transmission - Remove

2. Drive Plate - Remove

1. Remove the drive plate (A) with the washer (B).



3. All Removed Parts - Install

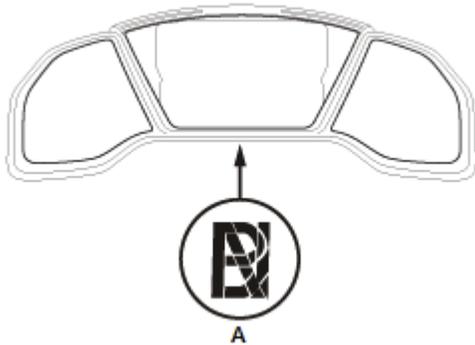
1. Install the parts in the reverse order of removal.

NOTE: Tighten eight bolts in a crisscross pattern in at least two steps.

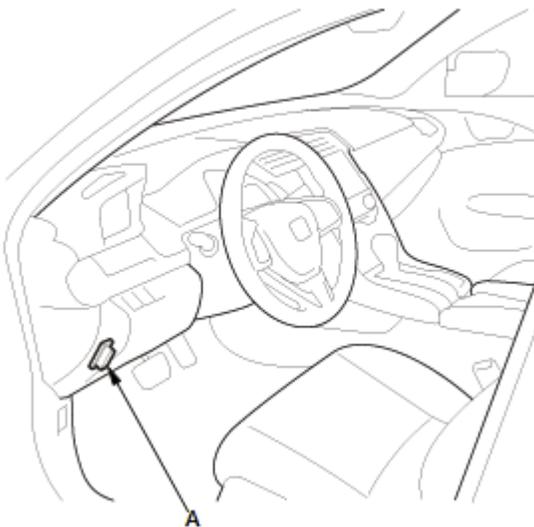
How to Troubleshoot the CVT System

How to Check for DTCs with the Honda Diagnostic System (HDS)

When the transmission control module (TCM) senses an abnormality in the input or output systems, the shift position indicator (A) in the gauge control module will usually blink as shown.



When the Honda Diagnostic System (HDS) is connected to the data link connector (DLC) (A) located under the driver's side of the dashboard, and then the vehicle is turned to the ON mode, and the appropriate menu is selected, it will indicate the diagnostic trouble code (DTC).



If the shift position indicator or the malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Turn the vehicle to the OFF (LOCK) mode.
2. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)
3. Turn the vehicle to the ON mode.
4. Make sure the HDS communicates with the vehicle. If it does not, [go to the DLC circuit troubleshooting](#).
5. Check for Pending or Confirmed DTCs with the HDS.

- Record the freeze data and the on-board snapshots for all PGM-FI DTCs and A/T DTCs.
- If there is a PGM-FI DTC, first check the PGM-FI system as indicated by the DTC.
- Clear the DTC and the data.
- Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data or the on-board snapshot, and then recheck for the DTC. If the A/T DTC returns, go to the indicated DTC's troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

Symptom Troubleshooting Versus DTC Troubleshooting

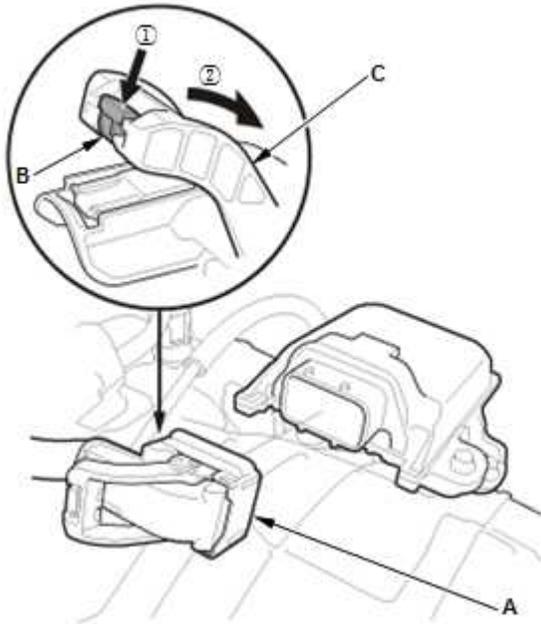
Some symptoms will not set DTCs or cause the shift position indicator to blink. If the MIL was reported ON or the shift position indicator has been blinking, check for DTCs. If the vehicle has an abnormal symptom, and there are no DTCs stored, do the symptom troubleshooting. Check the list of probable cause(s) for the symptom, in the sequence listed, until you find the problem.

How to Troubleshoot Circuits at the TCM Connector

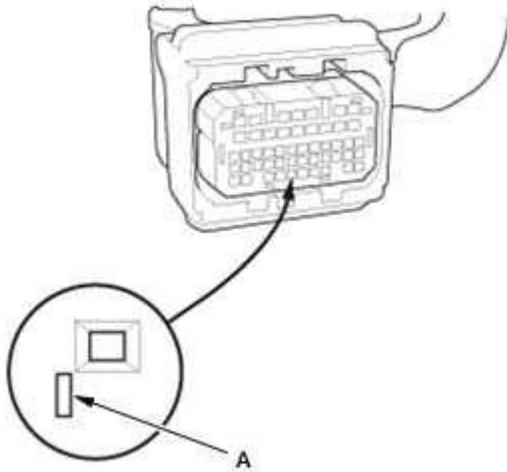
Special Tools Required

Male Pin Probe 07ZAJ-RDJA110

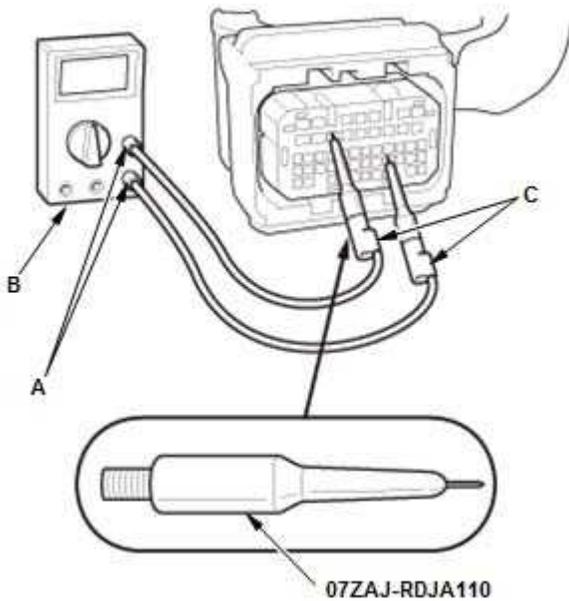
- [Remove the intake air duct F.](#)
- Disconnect the connector (A) by pushing the lock (B) and pulling the lever (C) in the numbered sequence shown.



- When diagnosis/troubleshooting is done at the TCM connector, use the terminal test port (A) above the terminal you need to check.



4. Connect one side of the patch cord terminals (A) to a commercially available digital multimeter (B), and connect the other side of the terminals (C) to the pin probe male.



5. Gently contact the pin probe (male) at the terminal test port from the terminal side. Do not force the tips into the terminals.

NOTICE

- For accurate results, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause or eventually lead to poor or intermittent electrical connections.

Clear A/T DTCs Procedure

1. [Connect the HDS to the DLC.](#)
2. Clear the DTC(s) on the HDS screen.

OBID Status

The OBD STATUS shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on-board diagnosis is successfully completed.
- FAILED: The on-board diagnosis has completed but failed.
- NOT COMPLETED: The on-board diagnosis was running but is out of the enable conditions of the DTC.

How to End a Troubleshooting Session (required after any troubleshooting)

NOTE: [Reset the TCM](#) with the HDS while the engine is stopped.

1. Turn the vehicle to the OFF (LOCK) mode.
2. Turn the vehicle to the ON mode, and wait for 30 seconds.
3. Turn the vehicle to the OFF (LOCK) mode, and disconnect the HDS from the DLC.
4. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
5. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 31 mph (50 km/h) or under the same conditions as those indicated by the freeze data.

Failure Reproduction Technique

NOTE: Follow these rules while the vehicle is raised on a lift for the test-drive

- In case of the vehicle speed below 31 mph (50 km/h): Disable the VSA by pressing the VSA OFF button.
- In case of the vehicle speed above 31 mph (50 km/h): [Enter the VSA maintenance mode](#).
- VSA DTC(s) may come on when test-driving on a lift. If the VSA system sets a DTC(s), clear the DTC(s) with the HDS.

Self-Diagnosis

If the TCM detects the failure of a signal from a sensor, a switch, a solenoid valve, or from another control unit, it stores a Pending or Confirmed DTC. Depending on the failure, a DTC is stored in either the first or second drive cycle. When a Confirmed DTC is stored, the TCM blinks the shift position indicator and/or turns on the MIL by a signal sent to the gauge control module via F-CAN.

- One Drive Cycle Detection Method:
When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit, the TCM stores a Pending or Confirmed DTC for the failure and blinks the shift position indicator and/or turns on the MIL immediately.
- Two Drive Cycle Detection Method:
When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit in the first drive cycle, the TCM stores a Pending DTC. The shift position indicator and the MIL do not turn on at this time. If the failure continues in the second drive cycle, the TCM stores a Confirmed DTC and blinks the shift position indicator and/or turns on the MIL.

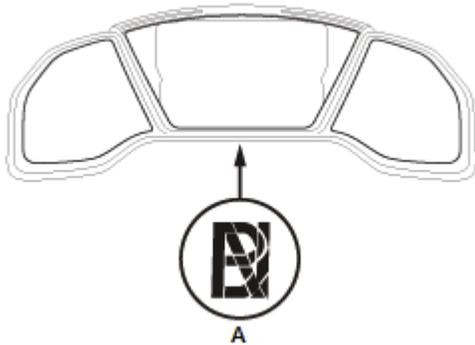
Fail-Safe Function

When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit, the TCM ignores that signal and substitutes a pre-programmed value for that signal to allow the CVT to continue operating. This causes a DTC to be stored and the shift position indicator to blink and/or the MIL to come on. The transmission may not shift normally during fail-safe operation. Do not run the test-driving diagnosis when the MIL is ON, or the shift position indicator is blinking.

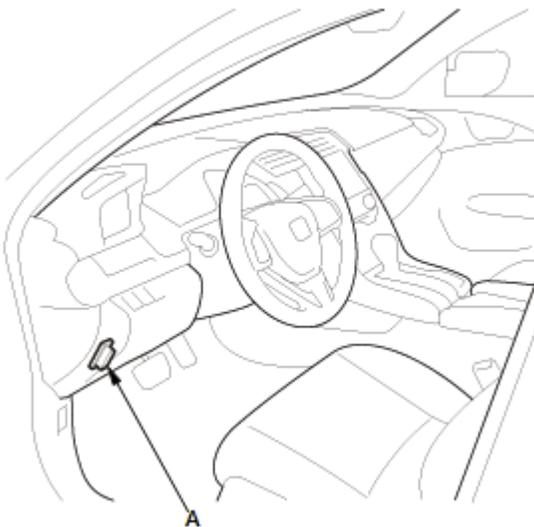
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- Record the freeze data and the on-board snapshots for all PGM-FI DTCs and A/T DTCs.
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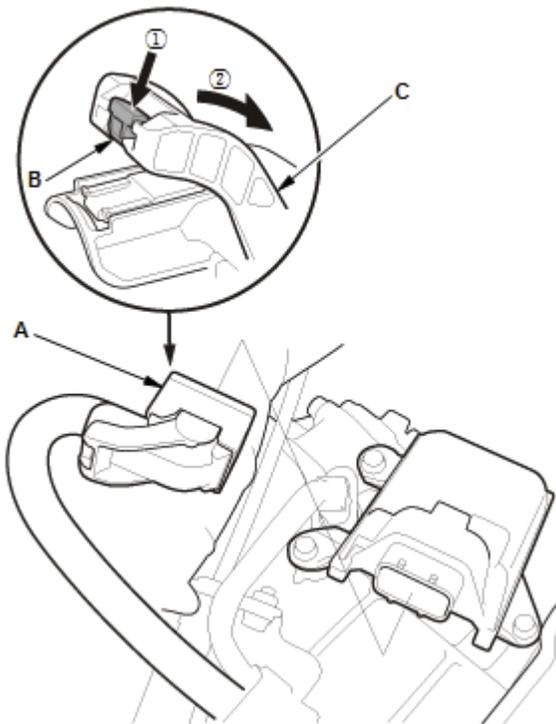
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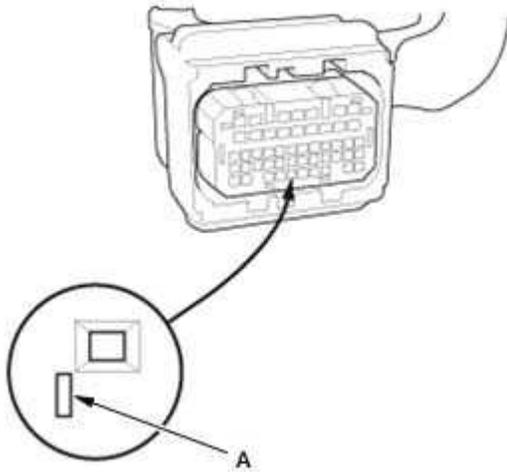
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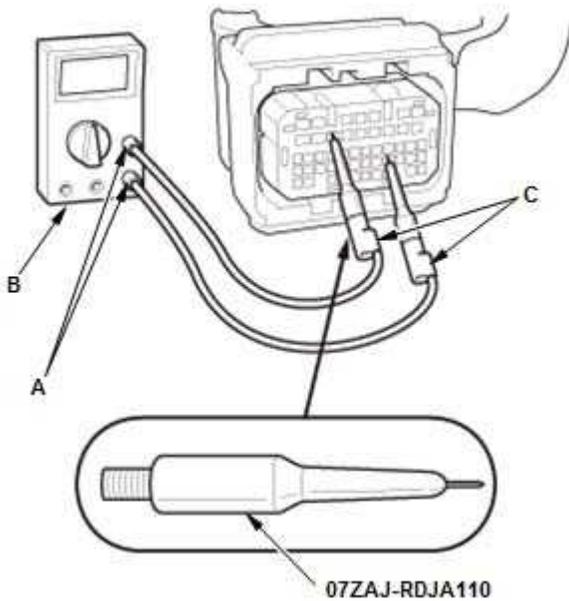
- Disconnect the connector (A) by pushing the lock (B) and pulling the lever (C) in the numbered sequence shown.



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- One Drive Cycle Detection Method:

When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit, the TCM stores a Pending or Confirmed DTC for the failure and blinks the shift position indicator and/or turns on the MIL immediately.

- Two Drive Cycle Detection Method:

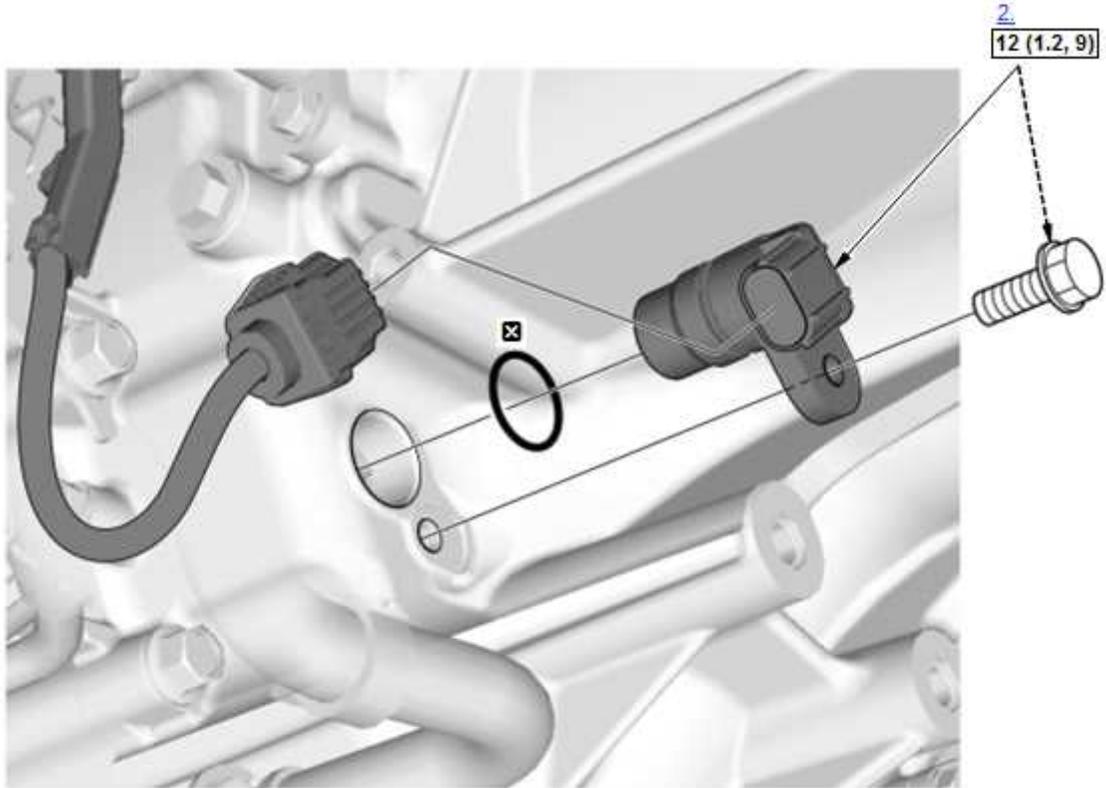
When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit in the first drive cycle, the TCM stores a Pending DTC. The shift position indicator and the MIL do not turn on at this time. If the failure continues in the second drive cycle, the TCM stores a Confirmed DTC and blinks the shift position indicator and/or turns on the MIL.

Fail-Safe Function

When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit, the TCM ignores that signal and substitutes a pre-programmed value for that signal to allow the CVT to continue operating. This causes a DTC to be stored and the shift position indicator to blink and/or the MIL to come on. The transmission may not shift normally during fail-safe operation. Do not run the test-driving diagnosis when the MIL is ON, or the shift position indicator is blinking.

Removal/Installation

1



<input type="checkbox"/>	Torque: N·m (kgf·m, lbf·ft)
<input checked="" type="checkbox"/>	Replace

1. **Engine Undercover Plate - Remove**

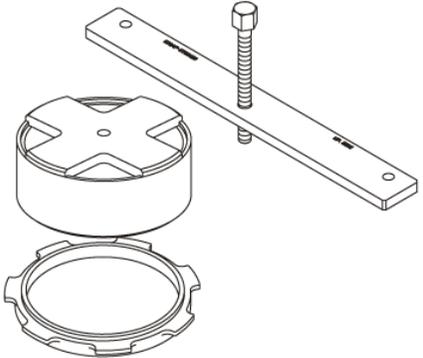
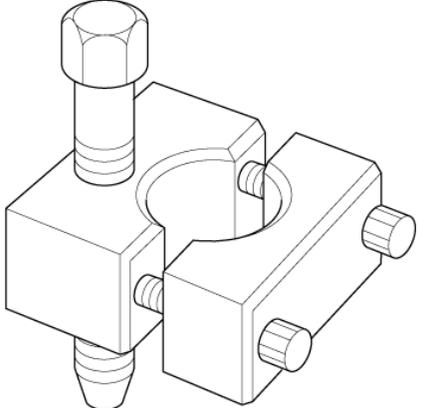
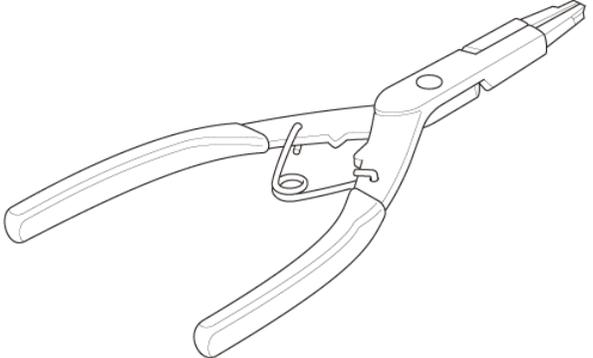
2. **Input Shaft (Mainshaft) Speed Sensor - Remove**

3. **All Removed Parts - Install**

1. Install the parts in the reverse order of removal.

Input Shaft Thrust Clearance Adjustment

Special Tool Required

Image	Description/Tool Number
 A technical line drawing of a reverse brake spring compressor set. It consists of a cylindrical outer shell with a cross-shaped internal structure, a matching inner cap, and a long metal rod with a threaded end and a small circular feature.	Reverse Brake Spring Compressor Set 070AF-5T0A100
 A technical line drawing of a mainshaft holder. It is a rectangular metal block with a central circular opening. It features a large hexagonal nut on top, a threaded rod on the left side, and two adjustment knobs on the right side.	Mainshaft Holder 07GAJ-PG20110
 A technical line drawing of a pair of snap ring pliers. The tool has long, curved handles and a specialized end with a hook and a spring mechanism designed for gripping and adjusting snap rings.	Snap Ring Pliers 07LGC-0010100

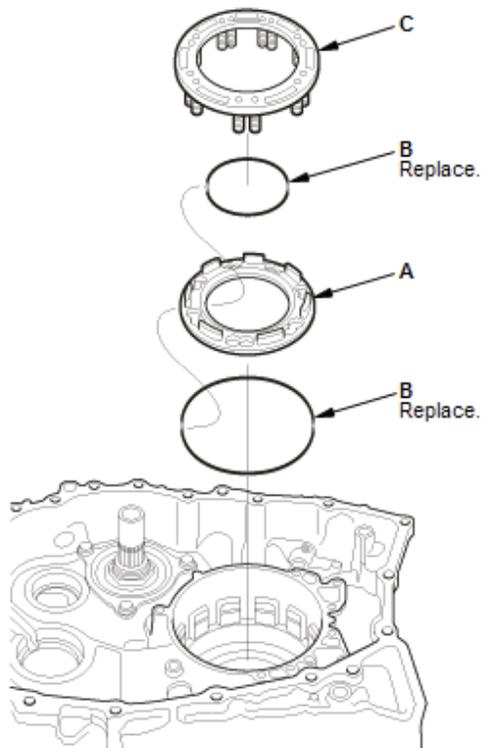
cardiagn.com

Adjustment

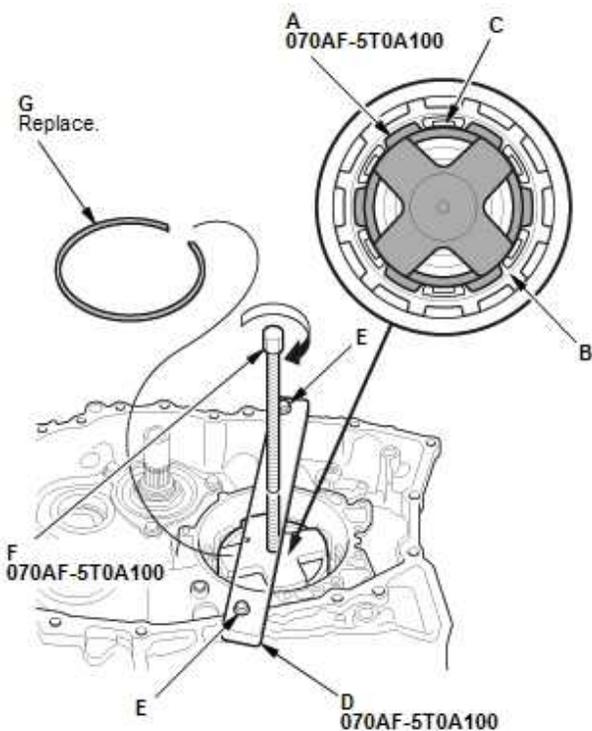
NOTE:

- If the transmission was disassembled, the input shaft thrust clearance must be adjusted.
- Apply a light coat of clean transmission fluid on all parts before installation.

1. Input Shaft Thrust Clearance - Adjust



1. Install the reverse brake piston (A) with new O-rings (B).
2. Install the spring retainer/return spring (C).



3. Put the reverse brake spring compressor attachment (A) on the spring retainer/return spring assembly (B).

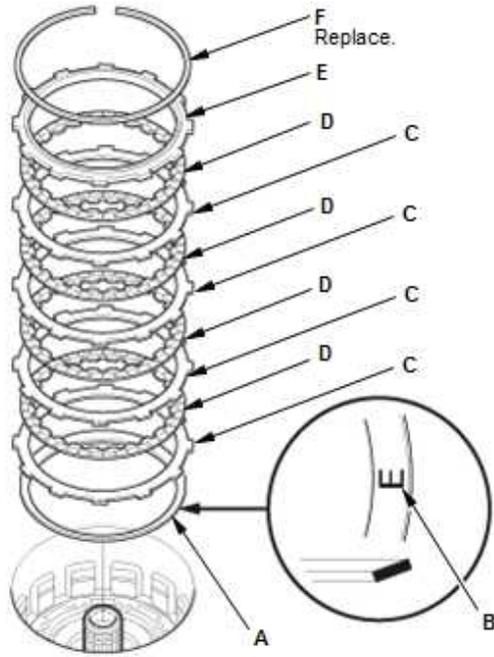
NOTE: Be sure the attachment is set over the return springs, not on the reverse brake piston (C).

4. Install the reverse brake spring compressor plate (D) with facing the UP mark to the upside using bolts (E).
5. Make sure that the reverse brake spring compressor bolt (F) is properly installed on the dent in the surface of the reverse brake spring compressor attachment.
6. Compress the return springs using the reverse brake spring compressor until the snap ring securing the spring retainer/return spring can be installed.
7. Install a new snap ring (G).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

8. Remove the reverse brake spring compressor.



9. Install the disc spring (A).

NOTE: Be sure to install the disc spring with the indented mark (B) facing the upward.

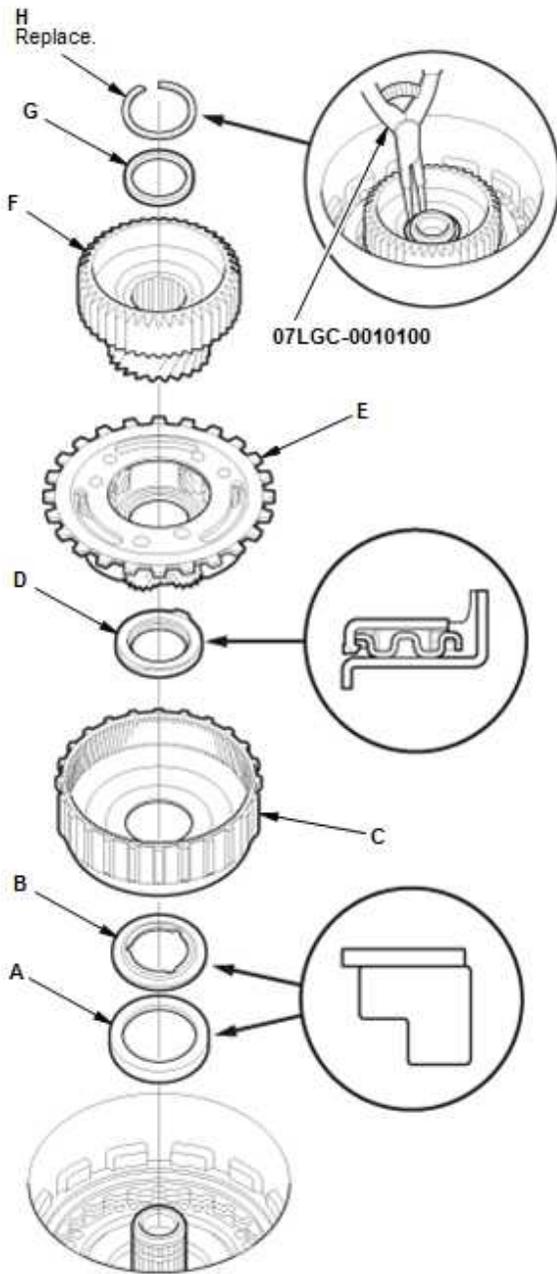
10. Starting with the reverse brake plate (C), alternately install the reverse brake plates and the reverse brake discs (D).

11. Install the reverse brake end-plate (E) with the flat side toward the top disc.

12. Install a new snap ring (F).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.



13. Install the collar (A), the thrust washer (B), and the ring gear (C) as shown.

14. Install the thrust needle bearing (D) and the planetary carrier (E) as shown.

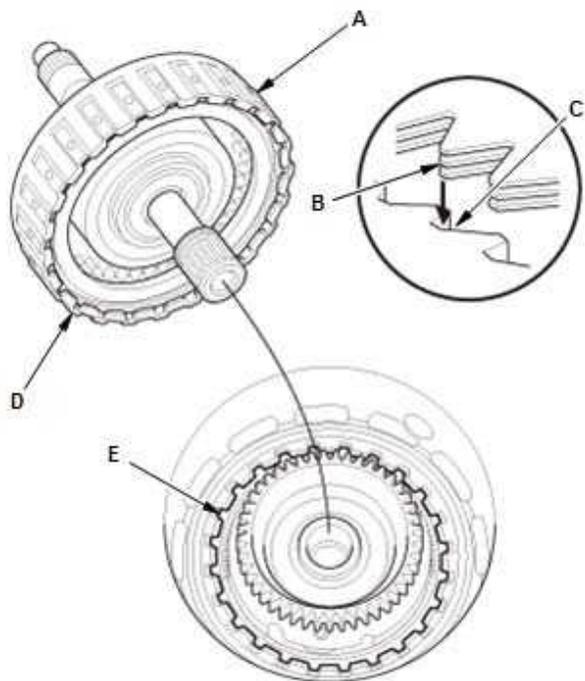
15. Install the sun gear (F) and the 33 x 40 mm thrust shim (G).

16. Install a new snap ring (H) using the snap ring pliers.

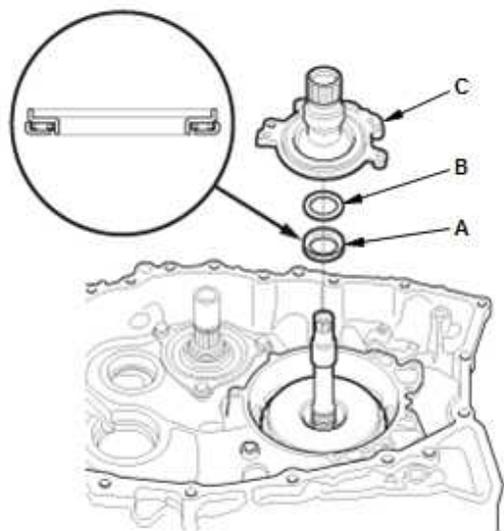
NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

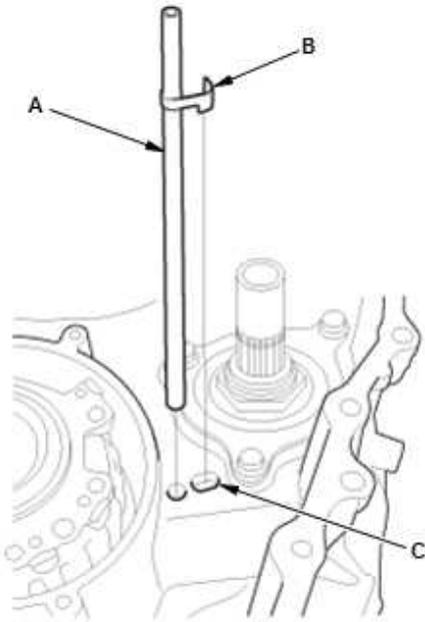
17. Install the input shaft assembly (A) by aligning the clutch discs (B) with the sun gear (C), and aligning the clutch guide (D) with the ring gear (E).



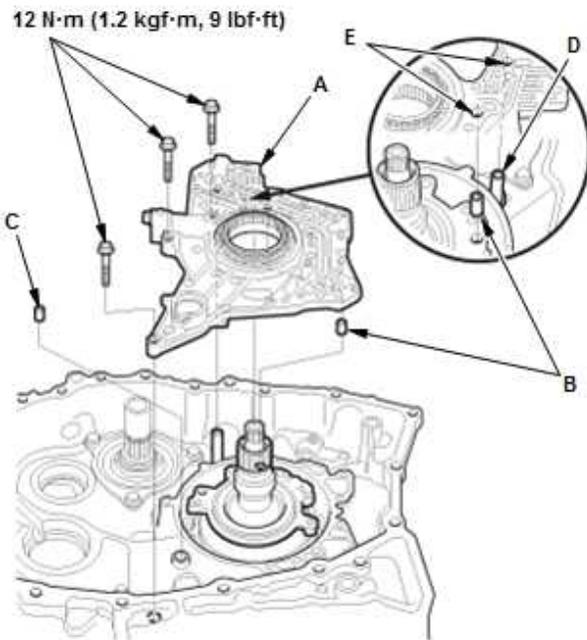
18. Install the thrust needle bearing (A), the 26 x 38.8 mm thrust shim (B), and the stator shaft (C) as shown.



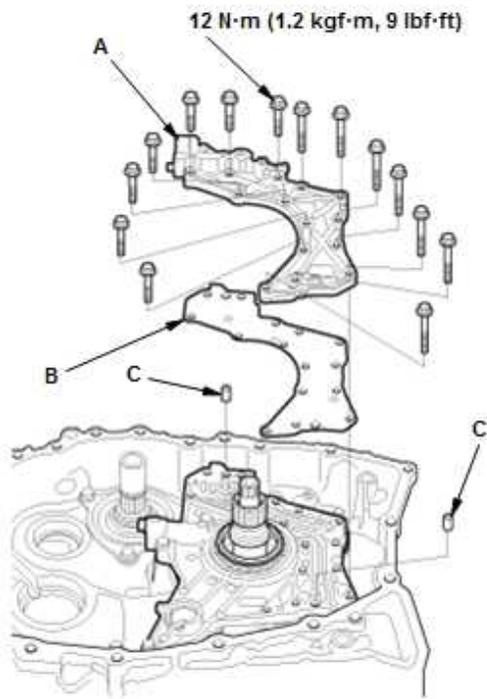
19. Install the transmission fluid lubrication pipe (A) by aligning the guide tab (B) with the guide hole (C).



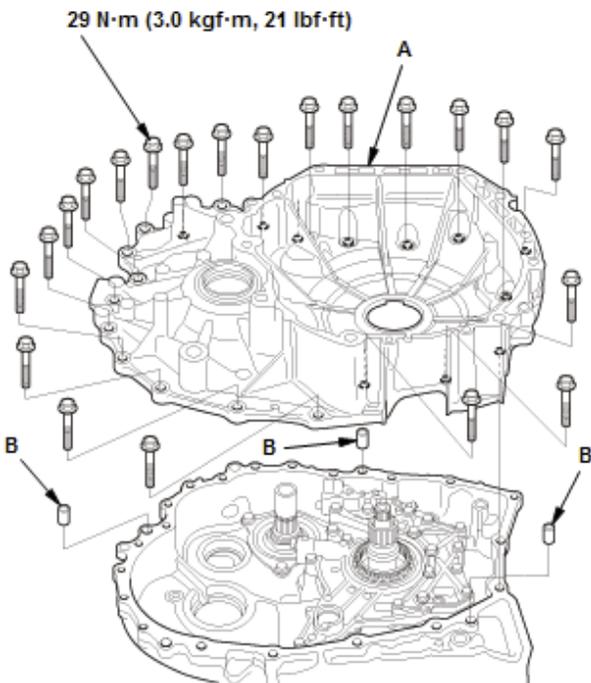
20. Install the stator shaft flange (A) with the dowel pins (B) (C) by aligning the transmission fluid lubrication pipe (D) and the dowel pins (B) with the mounting holes (E).



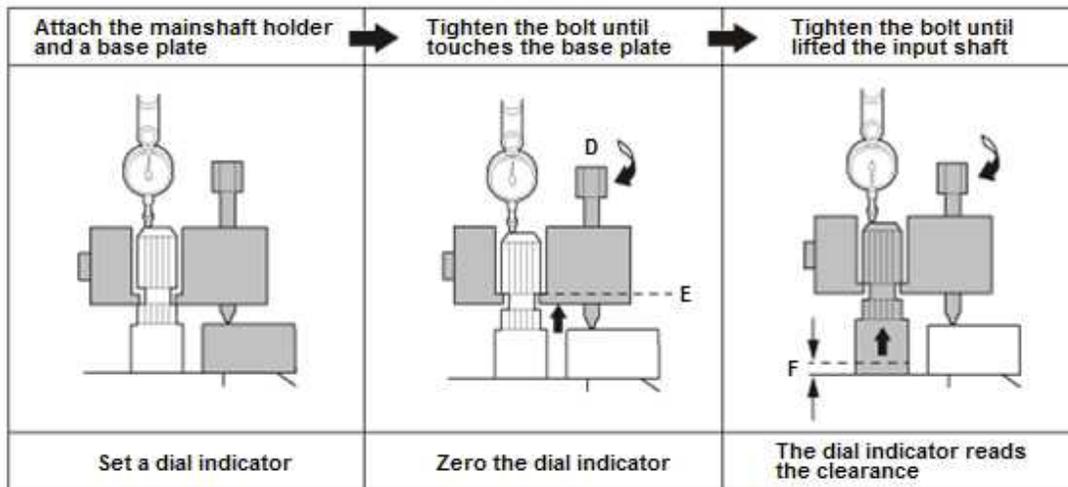
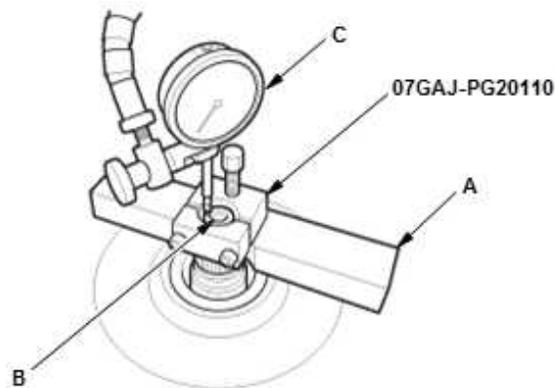
21. Install the manual valve body (A) with the separator plate (B) and the dowel pin (C).



22. Install the torque converter housing (A) with the dowel pins (B), and tighten the bolts in a crisscross pattern in at least two steps.



23. Attach the mainshaft holder and a base plate (A) to the input shaft (B) as shown.



24. Set a dial indicator (C) on the tip of the input shaft.

25. Tighten the mainshaft holder bolt (D) until it touches the base plate (E), then zero the dial indicator.

26. Measure the input shaft thrust clearance (F) by tightening the mainshaft holder bolt to lift the input shaft up.

NOTE:

- Do not tighten the mainshaft holder bolt after the needle of the dial gauge stops moving. Applying more pressure with the mainshaft holder bolt could damage the transmission.
- Take measurements in at least three places, and use the average as the actual clearance.

Standard: 0.52–0.80 mm (0.0205–0.0315 in)

27. If the clearance is out of the standard, remove the 26 x 38.8 mm thrust shim, and measure its thickness.

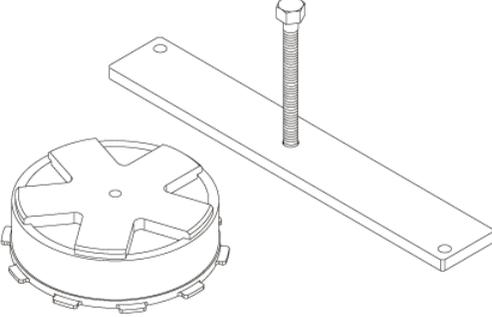
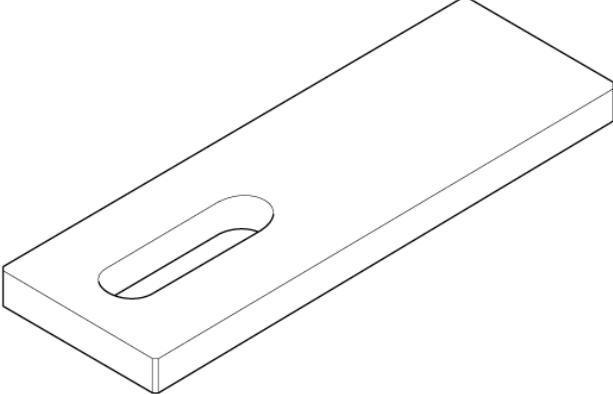
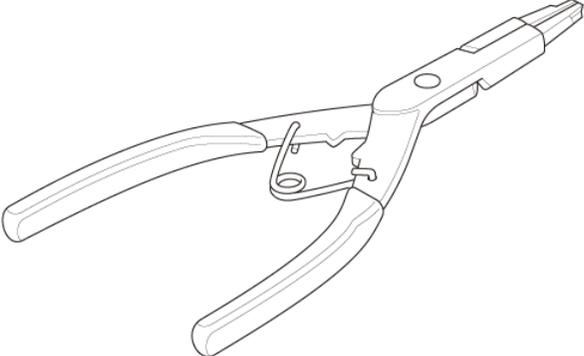
26 x 38.8 mm Thrust Shim

No.	Thickness
A	1.40 mm (0.0551 in)
B	1.65 mm (0.0650 in)
C	1.90 mm (0.0748 in)
D	2.15 mm (0.0846 in)
E	2.40 mm (0.0945 in)

28. Install a selected 26 x 38.8 mm thrust shim, then recheck the thrust clearance.

Input Shaft Thrust Clearance Adjustment

Special Tool Required

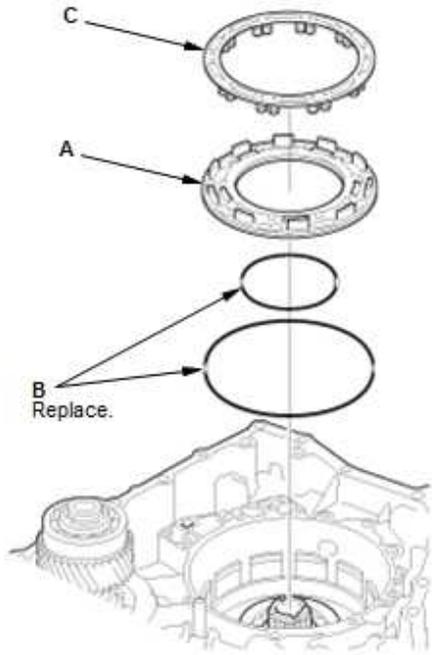
Image	Description/Tool Number
 A technical line drawing of a reverse brake spring compressor set. It consists of a circular, multi-lobed metal ring with a central hole and a long, flat metal bar with a threaded hole at one end and a small hole at the other. A bolt is shown inserted into the threaded hole of the bar.	Reverse Brake Spring Compressor Set 070AF-RJ2A100
 A technical line drawing of a magnet stand base. It is a rectangular metal plate with a U-shaped cutout on one of the longer sides.	Magnet Stand Base 07979-PJ40001
 A technical line drawing of a pair of snap ring pliers. The tool has two long, curved handles and a central mechanism with a small hook and a spring.	Snap Ring Pliers 07LGC-0010100

Adjustment

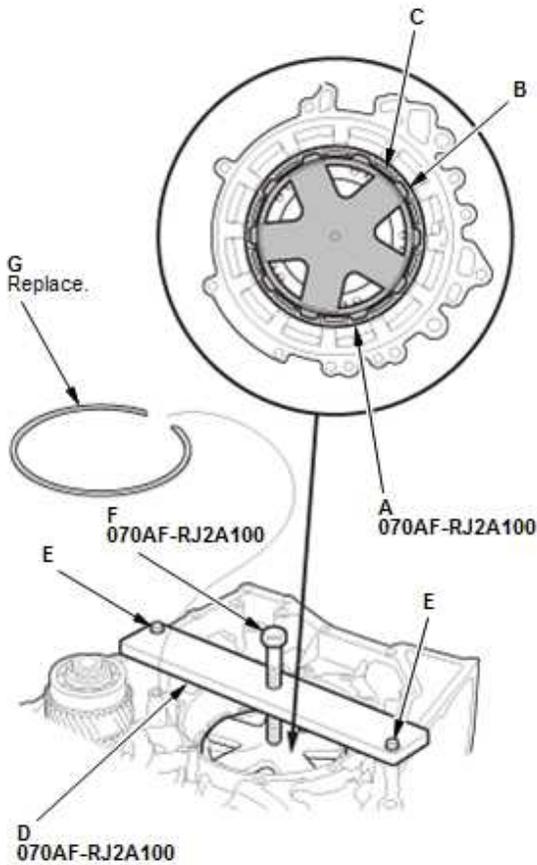
NOTE:

- If the transmission was disassembled, the input shaft thrust clearance must be adjusted.
- Apply a light coat of clean transmission fluid on all parts before installation.

1. Reverse brake piston - Install



1. Install the reverse brake piston (A) with new O-rings (B).
2. Install the spring retainer/return spring assembly (C).



- Put the reverse brake spring compressor attachment (A) on the spring retainer/return spring assembly (B).

NOTE: Be sure the attachment is set over the return springs, not on the reverse brake piston (C).

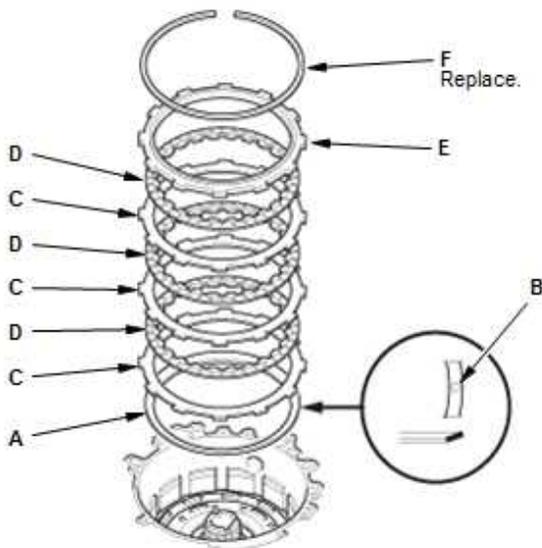
- Install the reverse brake spring compressor plate (D) with facing the UP mark to the upside using bolts (E).
- Make sure that the reverse brake spring compressor bolt (F) is properly installed on the dent in the surface of the reverse brake spring compressor attachment.
- Compress the return springs using the reverse brake spring compressor until the snap ring securing the spring retainer/return spring can be installed.
- Install a new snap ring (G).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

- Remove the reverse brake spring compressor.

2. Reverse Brake - Install



- Install the disc spring (A).

NOTE: Be sure to install the disc spring with the indented mark (B) facing the upward.

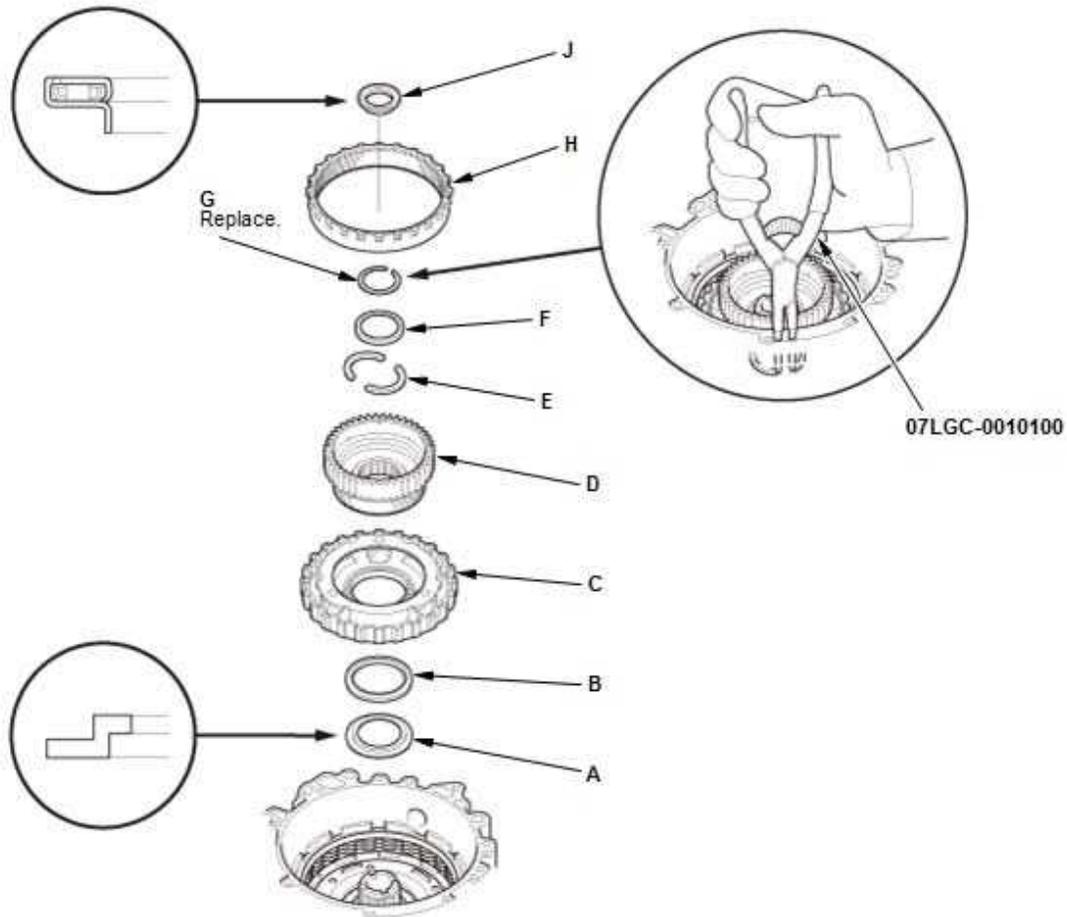
- Starting with the reverse brake plate (C), alternately install the reverse brake plates and the reverse brake discs (D).
- Install the reverse brake end-plate (E) with the flat side toward the top disc.
- Install a new snap ring (F).

NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

3. Planetary Carrier Assembly - Install

1. Install the 40 x 63 x 5.5 mm washer (A) in the direction shown.



2. Install these parts in the following order:

- 1. 50 x 65 x 3 mm thrust washer (B)
- 2. Planetary carrier assembly (C)
- 3. Sun gear (D)
- 4. 32.5 mm cotter (E)
- 5. Cotter retainer (F)

3. Install a new snap ring (G) using the snap ring pliers.

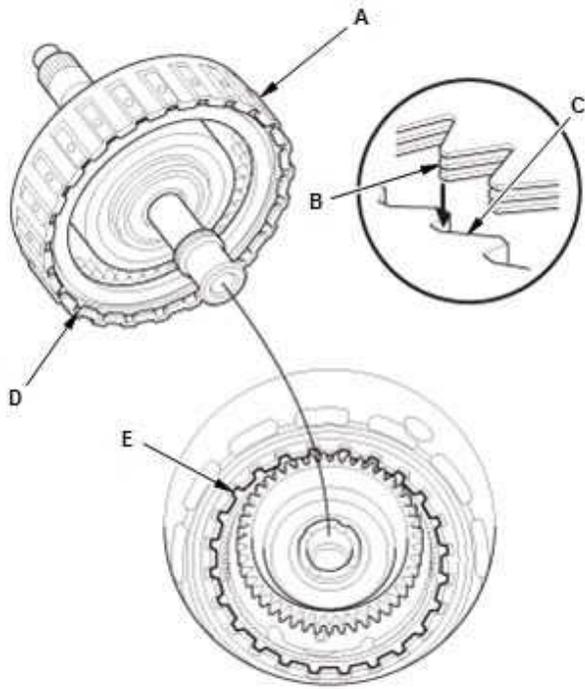
NOTE:

- Be careful not to deform the snap ring by opening/closing it excessively.
- Make sure the snap ring is firmly installed in the groove.

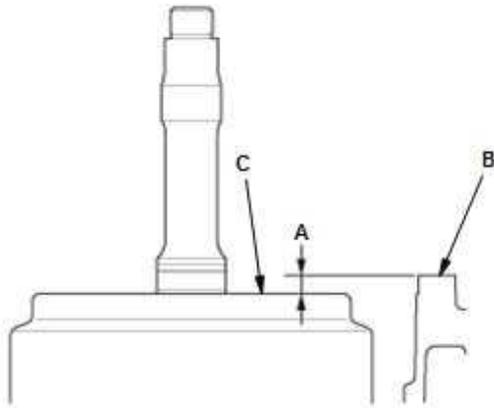
4. Install the ring gear (H).

5. Install the 24.5 x 39.1 x 3.2 mm thrust needle bearing (J) in the direction shown.

4. Input Shaft Assembly - Install

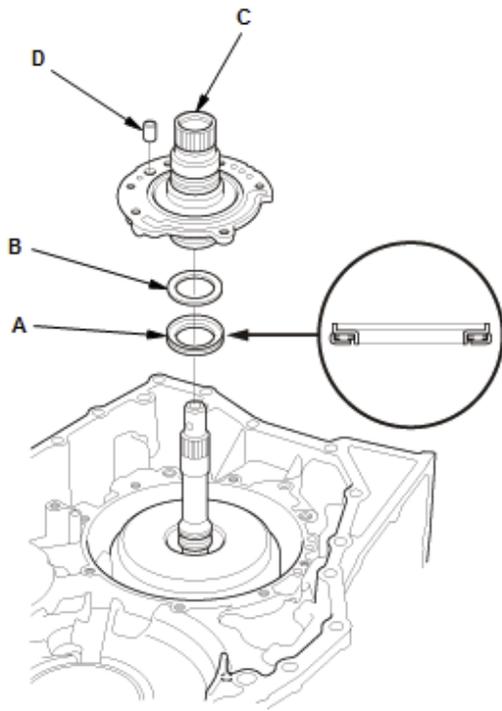


1. Install the input shaft assembly (A) by aligning the clutch discs (B) with the sun gear (C), and aligning the clutch guide (D) with the ring gear (E).



2. Measure the depth (A) between the surface of the transmission housing (B) and the clutch guide (C), then make sure the measured value of the depth is within the recorded value when removing.

5. Stator Shaft - Install



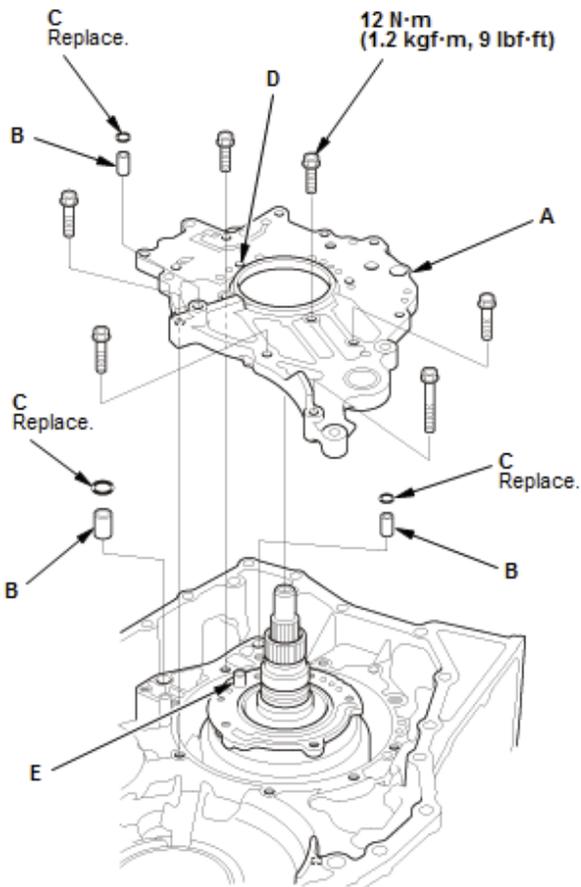
1. Install the 29.55 x 45 x 3.62 mm thrust needle bearing (A) in the direction shown.

2. Install the 32 x 42 mm thrust shim (B).

NOTE: If you install a new 32 x 42 mm thrust shim, use the same thickness shim as the old one, or use the 2.10 mm (0.0827 in) thickness of the 32 x 42 mm thrust shim.

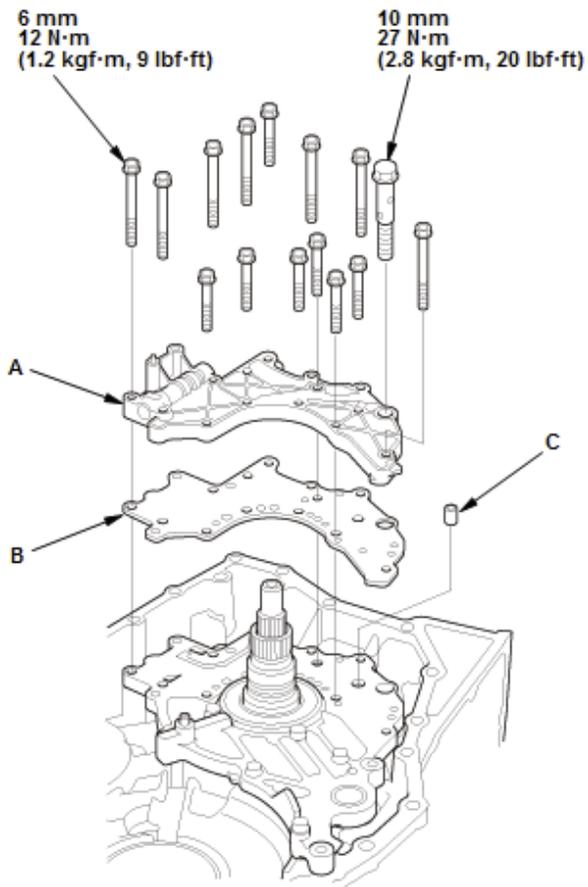
3. Install the stator shaft (C) with the dowel pin (D).

6. Stator Shaft Flange - Install



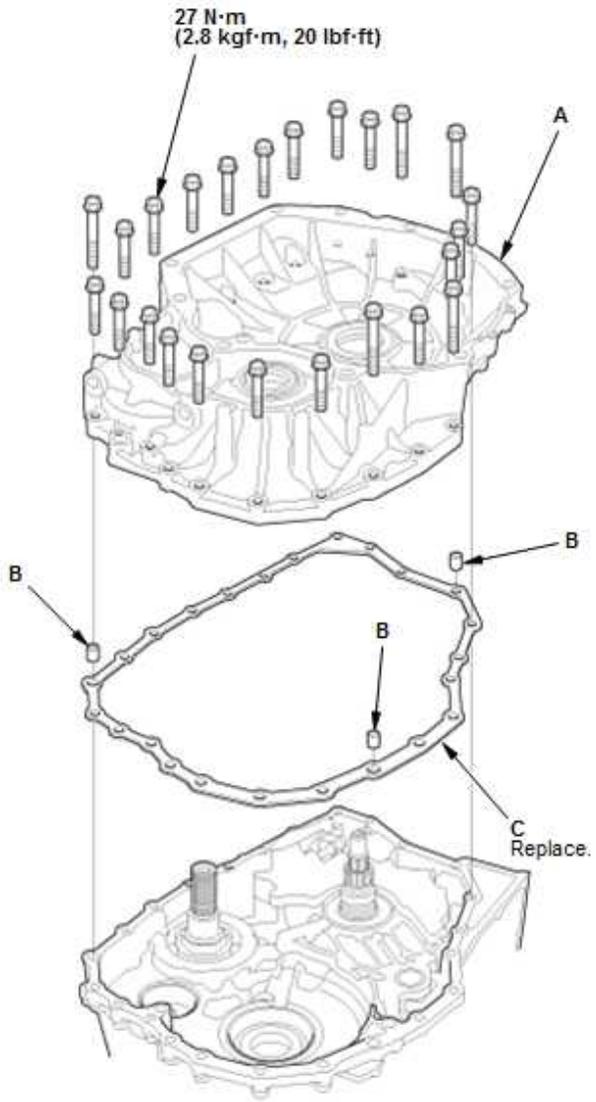
1. Install the stator shaft flange (A) with the dowel pins (B) and new O-rings (C) by aligning the hole (D) of the stator shaft flange with the dowel pin (E) of the stator shaft.

7. Manual Valve Body - Install



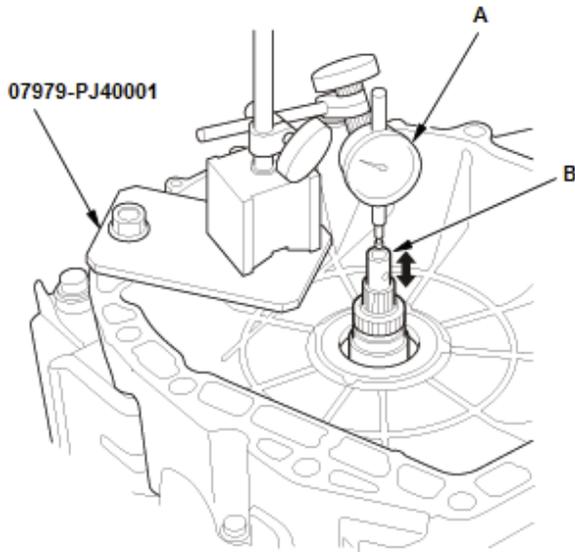
1. Install the manual valve body (A) with the separator plate (B) and the dowel pin (C).

8. Torque Converter Housing - Install



1. Install the torque converter housing (A) with the dowel pins (B) and a new gasket (C), then tighten the bolts in a crisscross pattern in at least two steps.

9. Input Shaft Thrust Clearance - Adjust



1. Install the magnet stand base as shown.
2. Set a dial indicator (A) on the tip of the input shaft (B).
3. Zero the dial indicator.
4. Measure the input shaft thrust clearance by lifting the input shaft up.

NOTE: Take measurements in at least three places, and use the average as the actual clearance.

Standard: 0.15 – 0.25 mm (0.0059 – 0.0098 in)

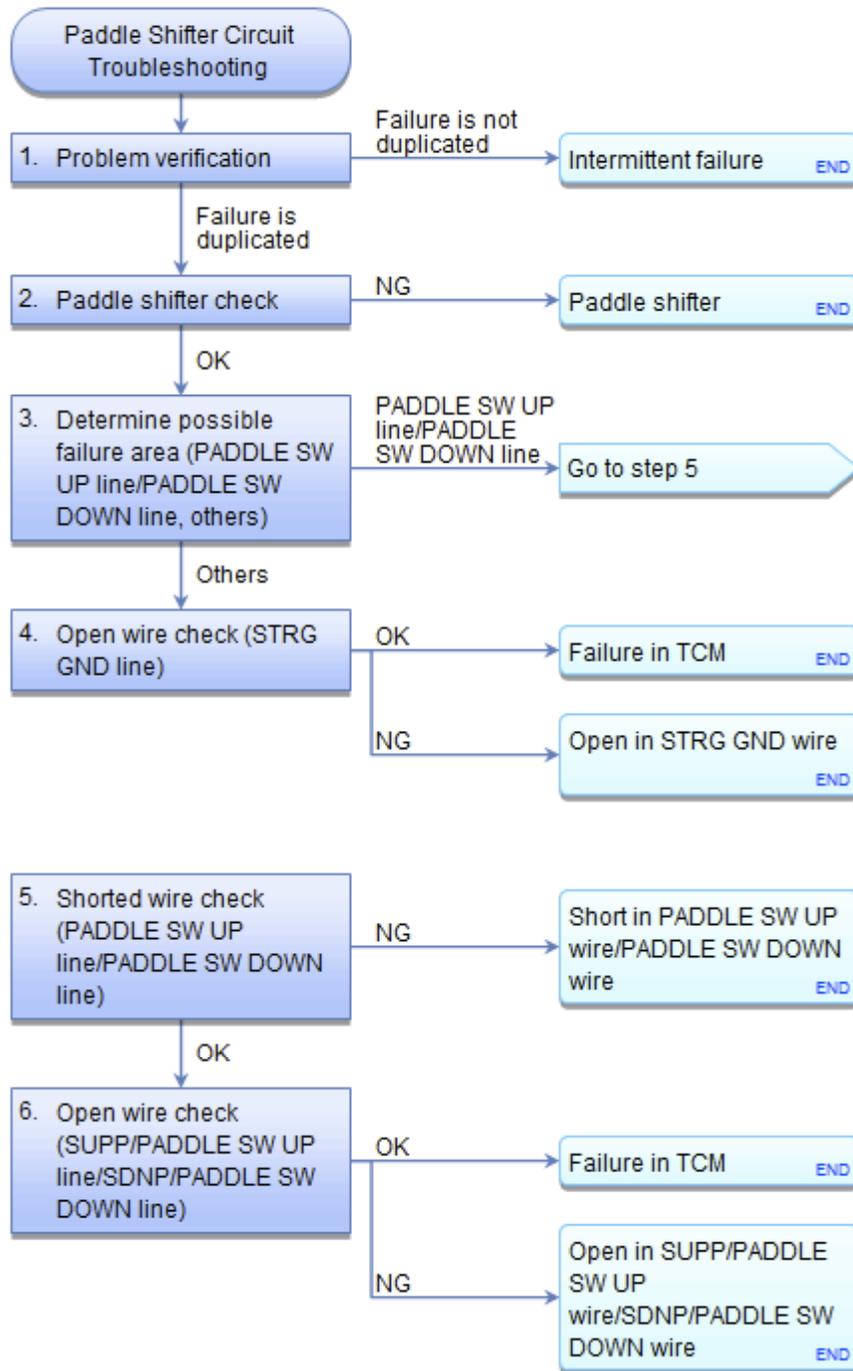
5. If the clearance is out of the standard, remove the 32 x 42 mm thrust shim, and measure its thickness.
6. Select a new 32 x 42 mm thrust shim.

32 x 42 mm Thrust Shim

No.	Thickness
A	1.65 mm (0.0650 in)
B	1.70 mm (0.0669 in)
C	1.75 mm (0.0689 in)
D	1.80 mm (0.0709 in)
E	1.85 mm (0.0728 in)
F	1.90 mm (0.0748 in)
G	1.95 mm (0.0768 in)
H	2.00 mm (0.0787 in)
I	2.05 mm (0.0807 in)
J	2.10 mm (0.0827 in)
K	2.15 mm (0.0846 in)
L	2.20 mm (0.0866 in)
M	2.25 mm (0.0886 in)
N	2.30 mm (0.0906 in)
O	2.35 mm (0.0925 in)
P	2.40 mm (0.0945 in)
Q	2.45 mm (0.0965 in)
R	2.50 mm (0.0984 in)
S	2.55 mm (0.1004 in)
T	2.60 mm (0.1024 in)

7. Install a selected 32 x 42 mm thrust shim, then recheck the clearance.

Paddle Shifter Circuit Troubleshooting



Paddle Shifter Circuit Troubleshooting

SRS components are located in this area. [Review the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

NOTE: Information marked with an asterisk (*1) applies to the paddle shifter + (upshift switch) circuit, and an asterisk (*2) applies to the paddle shifter - (downshift switch) circuit.

1. Problem verification:

- 1. [Connect the HDS to the DLC.](#)
- 2. Turn the vehicle to the ON mode.

- 3. Check the parameter(s) below with the HDS when repeatedly pressing and releasing the paddle shifter.

Signal	Current conditions	
	Values	Unit
Upshift Switch (ST)		
Downshift Switch (ST)		

Is ON indicated when you are pressing the paddle shifter and OFF with the paddle shifter released?

YES Intermittent failure, the system is OK at this time.■

NO The failure is duplicated. Go to step 2.

2. Paddle shifter check:

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. [Remove the paddle shifter.](#)
- 3. [Test the paddle shifter.](#)

Is the paddle shifter OK?

YES The paddle shifter is OK. Go to step 3.

NO [Replace the paddle shifter.](#)■

3. Determine possible failure area (PADDLE SW UP line*1/PADDLE SW DOWN line*2, others):

- 1. Connect the following connector.
Cable reel connector C (20P)
- 2. Turn the vehicle to the ON mode.
- 3. Measure the voltage between test points 1 and 2.
Test condition Vehicle ON mode
Paddle shifter + (upshift switch) 4P connector*1: disconnected
Paddle shifter - (downshift switch) 4P connector*2: disconnected
Test point 1 Paddle shifter + (upshift switch) 4P connector No. 2*1
Paddle shifter - (downshift switch) 4P connector No. 3*2
Test point 2 Body ground

PADDLE SHIFTER + (UPSHIFT SWITCH) 4P CONNECTOR
PADDLE SHIFTER - (DOWNSHIFT SWITCH) 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES Go to step 4.

NO Go to step 5.

4. Open wire check (STRG GND line):

-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Check for continuity between test points 1 and 2.

Test condition	Vehicle OFF (LOCK) mode Paddle shifter + (upshift switch) 4P connector*1: disconnected Paddle shifter - (downshift switch) 4P connector*2: disconnected
Test point 1	Paddle shifter + (upshift switch) 4P connector No. 4*1 Paddle shifter - (downshift switch) 4P connector No. 1*2
Test point 2	Body ground

**PADDLE SHIFTER + (UPSHIFT SWITCH) 4P CONNECTOR
PADDLE SHIFTER - (DOWNSHIFT SWITCH) 4P CONNECTOR**



Wire side of female terminals

Is there continuity?

YES The STRG GND wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#). ■

NO Repair an open in the STRG GND wire between the paddle shifter and ground (G502), or repair poor ground (G502). ■

5. Shorted wire check (PADDLE SW UP line*1/PADDLE SW DOWN line*2):

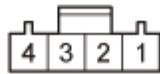
-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Disconnect the following connector.
TCM 50P connector

-3. Check for continuity between test points 1 and 2.

Test condition	Vehicle OFF (LOCK) mode Paddle shifter + (upshift switch) 4P connector*1: disconnected Paddle shifter - (downshift switch) 4P connector*2: disconnected TCM 50P connector: disconnected
Test point 1	Paddle shifter + (upshift switch) 4P connector No. 2*1 Paddle shifter - (downshift switch) 2P connector No. 3*2
Test point 2	Body ground

**PADDLE SHIFTER + (UPSHIFT SWITCH) 4P CONNECTOR
PADDLE SHIFTER - (DOWNSHIFT SWITCH) 4P CONNECTOR**



Wire side of female terminals

Is there continuity?

- YES Repair a short to ground in the PADDLE SW UP wire*¹/PADDLE SW DOWN wire*² between the paddle shifter and the TCM.■
- NO The PADDLE SW UP wire*¹/PADDLE SW DOWN wire*² is not shorted. Go to step 6.

6. Open wire check (SUPP/PADDLE SW UP line*¹/SDNP/PADDLE SW DOWN line*²):

-1. Check for continuity between test points 1 and 2.

Test condition	Vehicle OFF (LOCK) mode Paddle shifter + (upshift switch) 4P connector* ¹ : disconnected Paddle shifter - (downshift switch) 4P connector* ² : disconnected TCM 50P connector: disconnected
Test point 1	Paddle shifter + (upshift switch) 4P connector No. 2* ¹ Paddle shifter - (downshift switch) 4P connector No. 3* ²
Test point 2	TCM 50P connector No. 34 * ¹ TCM 50P connector No. 45 * ²

**PADDLE SHIFTER + (UPSHIFT SWITCH) 4P CONNECTOR
PADDLE SHIFTER - (DOWNSHIFT SWITCH) 4P CONNECTOR**



Wire side of female terminals

Is there continuity?

- YES The SUPP/PADDLE SW UP wire*¹/SDNP/PADDLE SW DOWN wire*² is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■
- NO Repair an open in the SUPP/PADDLE SW UP wire*¹/SDNP/PADDLE SW DOWN wire*² between the paddle shifter and the TCM.■

Paddle Shifter Removal and Installation

Removal/Installation

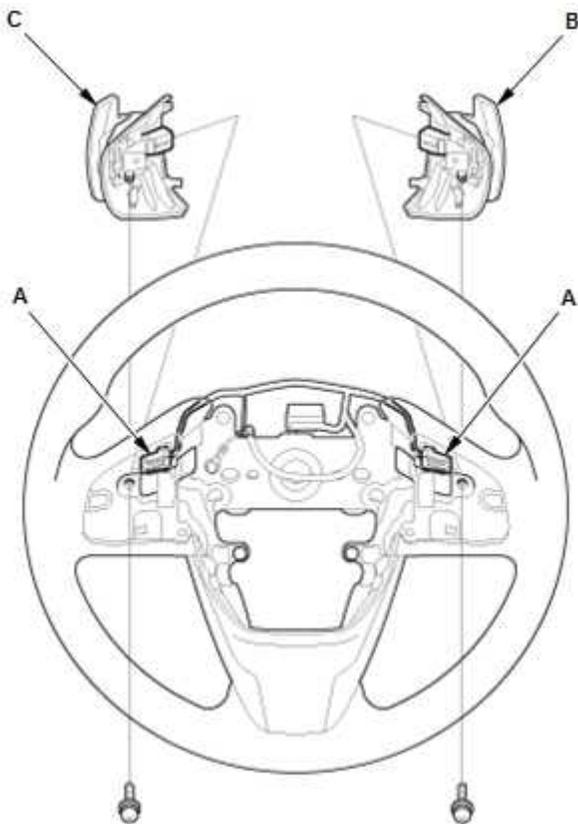
SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

1. Steering Wheel - Remove

2. Steering Wheel Rear Cover - Remove

3. Steering Wheel Trim - Remove

4. Paddle Shifter - Remove



1. Disconnect the connectors (A).
2. Remove the paddle shifter + (upshift switch) (B) and the paddle shifter - (downshift switch) (C).

5. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

6. VSA Sensor Neutral Position - Memorize

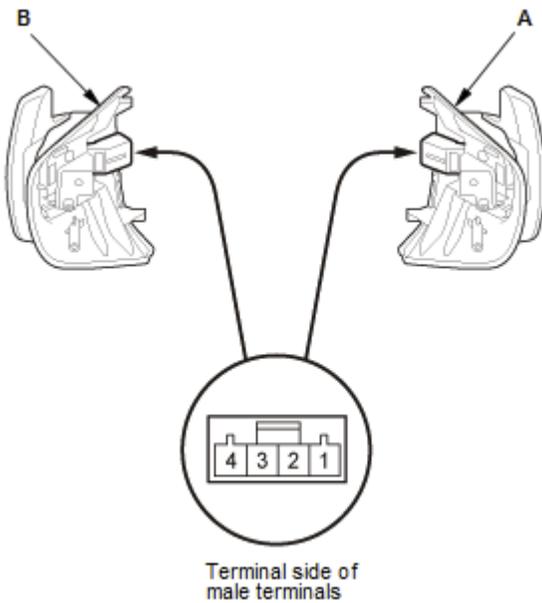
Paddle Shifter Test

Test

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

1. Paddle Shifter - Remove

2. Paddle Shifter - Test



1. Check the paddle shifter + (upshift switch) (A) and the paddle shifter - (downshift switch) (B) according to the table.

Paddle Shifter + (Upshift Switch)

Terminal Position	1	2	3	4
PRESSED		○	—	○
RELEASED				

○—○ = Continuity check

Paddle Shifter - (Downshift Switch)

Terminal Position	1	2	3	4
PRESSED	○		○	
RELEASED				

○—○ = Continuity check

- If the result is not as specified, [replace the paddle shifter + \(upshift switch\) and/or the paddle shifter - \(downshift switch\)](#).

3. All Removed Parts - Install

- Install the parts in the reverse order of removal.

Shift Cable Adjustment

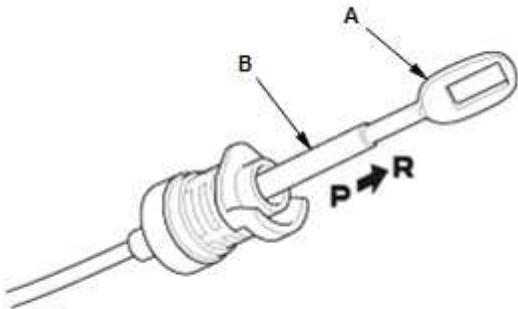
Adjustment

NOTE: Do not bend the shift cable excessively.

1. Center Console - Remove

2. Shift Cable (Shift Lever Side) - Remove

3. Shift Cable - Adjust



1. Push the shift cable (A) until it stops, then release it.

NOTE: Do not hold the shift cable guide (B) to adjust the shift cable.

2. Pull the shift cable back one step from the P position so that the shift position is in R.
3. Turn the vehicle to the ON mode.
4. Check that the R indicator comes on.
5. Turn the vehicle to the ACCESSORY mode.

4. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

5. Shift Cable - After Adjust Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever through all positions/modes, and verify the transmission range switch matches with the shift position indicator.
3. Shift the transmission to P position/mode, and check that the shift lock works properly.
4. Push the shift lock release, and check that the shift lever releases. Also check that the shift lever locks when it is

shifted back to P.

5. Check that the back-up lights come on when the transmission is in R position/mode.
6. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

7. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, adjust the shift cable again.

Shift Cable Adjustment

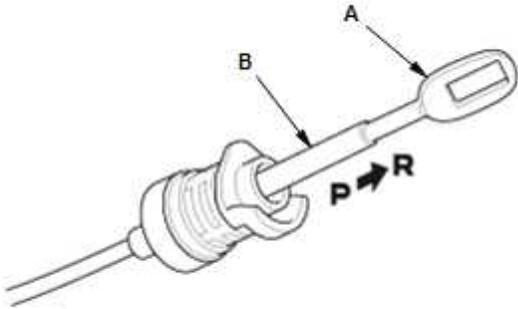
Adjustment

NOTE: Do not bend the shift cable excessively.

1. Center Console - Remove

2. Shift Cable (Shift Lever Side) - Disconnect

3. Shift Cable - Adjust



1. Push the shift cable (A) until it stops, then release it.

NOTE: Do not hold the shift cable guide (B) to adjust the shift cable.

2. Pull the shift cable back one step from the P position so that the shift position is in R.
3. Turn the vehicle to the ON mode.
4. Check that the R indicator comes on.
5. Turn the vehicle to the ACCESSORY mode.

4. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

5. Shift Cable - After Adjust Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever through all positions/modes, and verify the transmission range switch matches with the shift position indicator.
3. Shift the transmission to P position/mode, and check that the shift lock works properly.
4. Push the shift lock release, and check that the shift lever releases. Also check that the shift lever locks when it is

shifted back to P.

5. Check that the back-up lights come on when the transmission is in R position/mode.
6. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

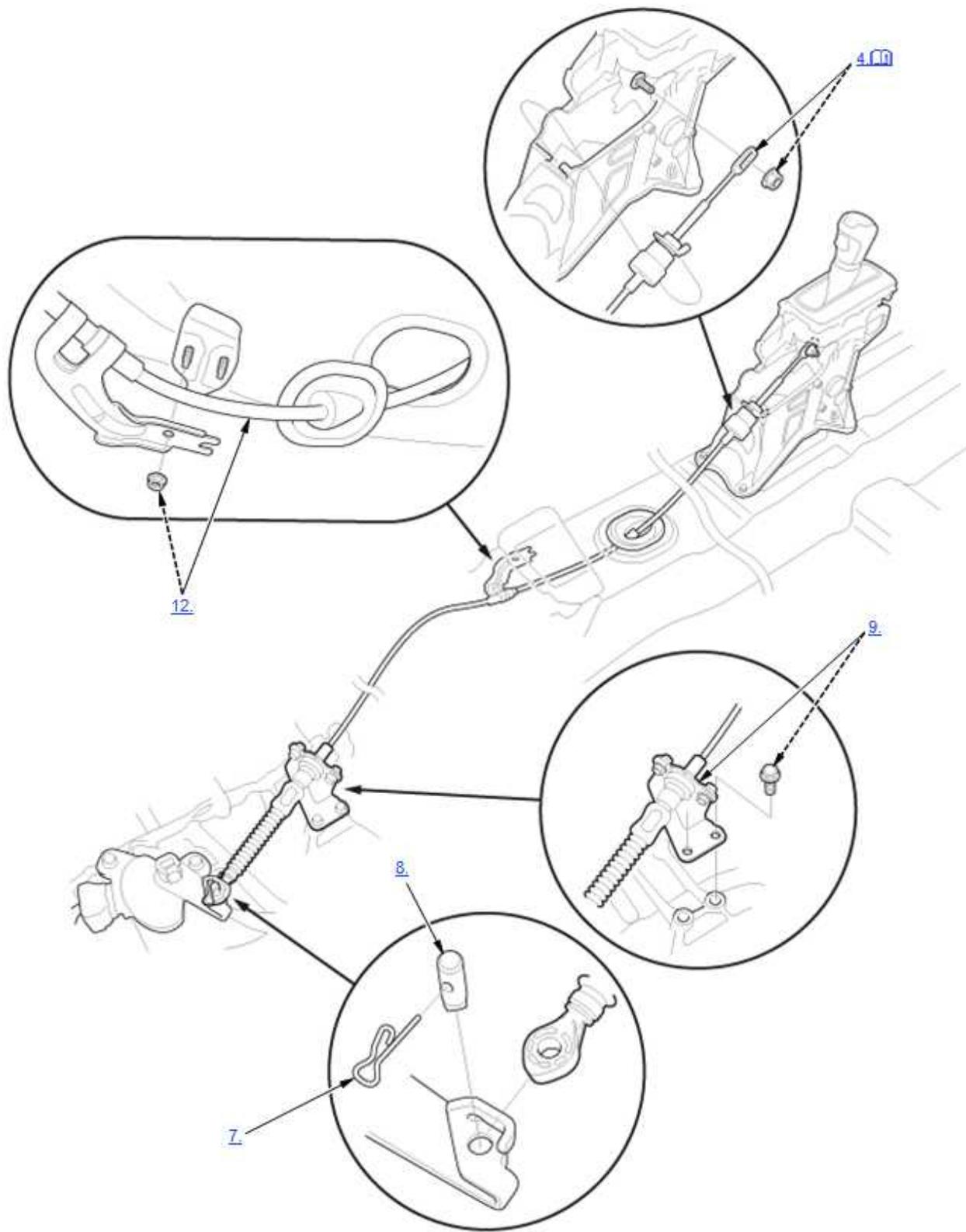
7. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, adjust the shift cable again.

Removal

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

NOTE:

-  Where icon is shown, click for further information.
- Do not bend the shift cable excessively.



Detailed information, notes and precautions

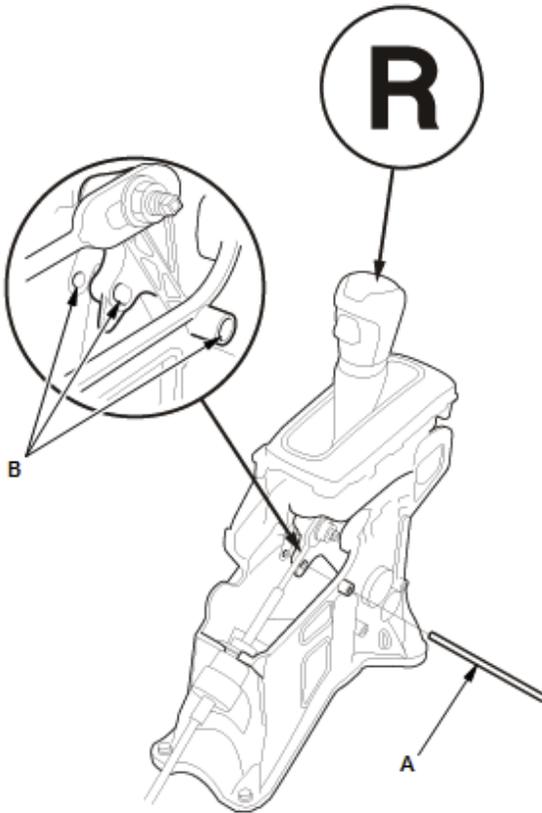
1. Vehicle - Lift

2. Center Console - Remove

3. Shift Lever - Position

1. Insert a 6.0 mm (0.236 in) pin (A) into the positioning holes (B) with the shift lever in R position/mode.

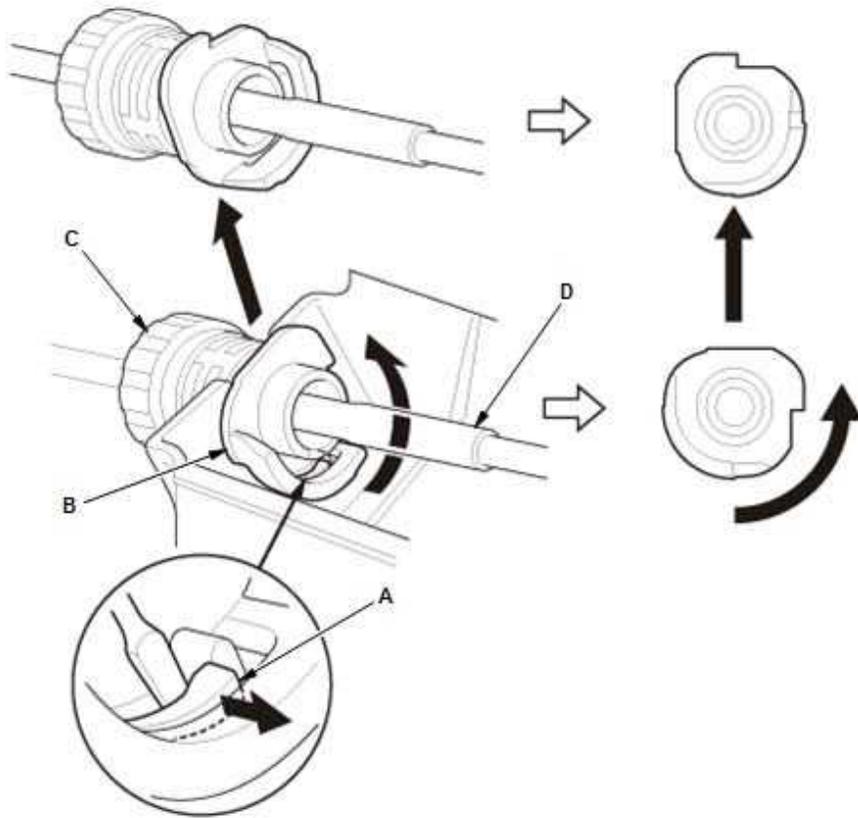
NOTE: Use only a 6.0 mm (0.236 in) pin with no burrs.



4. Shift Cable (Shift Lever Side) - Remove

NOTE:

- While expanding the lock tab (A), rotate the socket holder retainer (B) counterclockwise until it stops, then remove the socket holder (C).
- Do not remove the shift cable by pulling the shift cable guide (D).



5. Air Cleaner - Remove

6. Intake Air Duct - Remove

7. Lock Pin - Remove

8. Control Pin - Remove

9. Shift Cable Bracket - Remove

10. Engine Undercover - Remove

11. Heat Shield (Exhaust Pipe A) - Remove

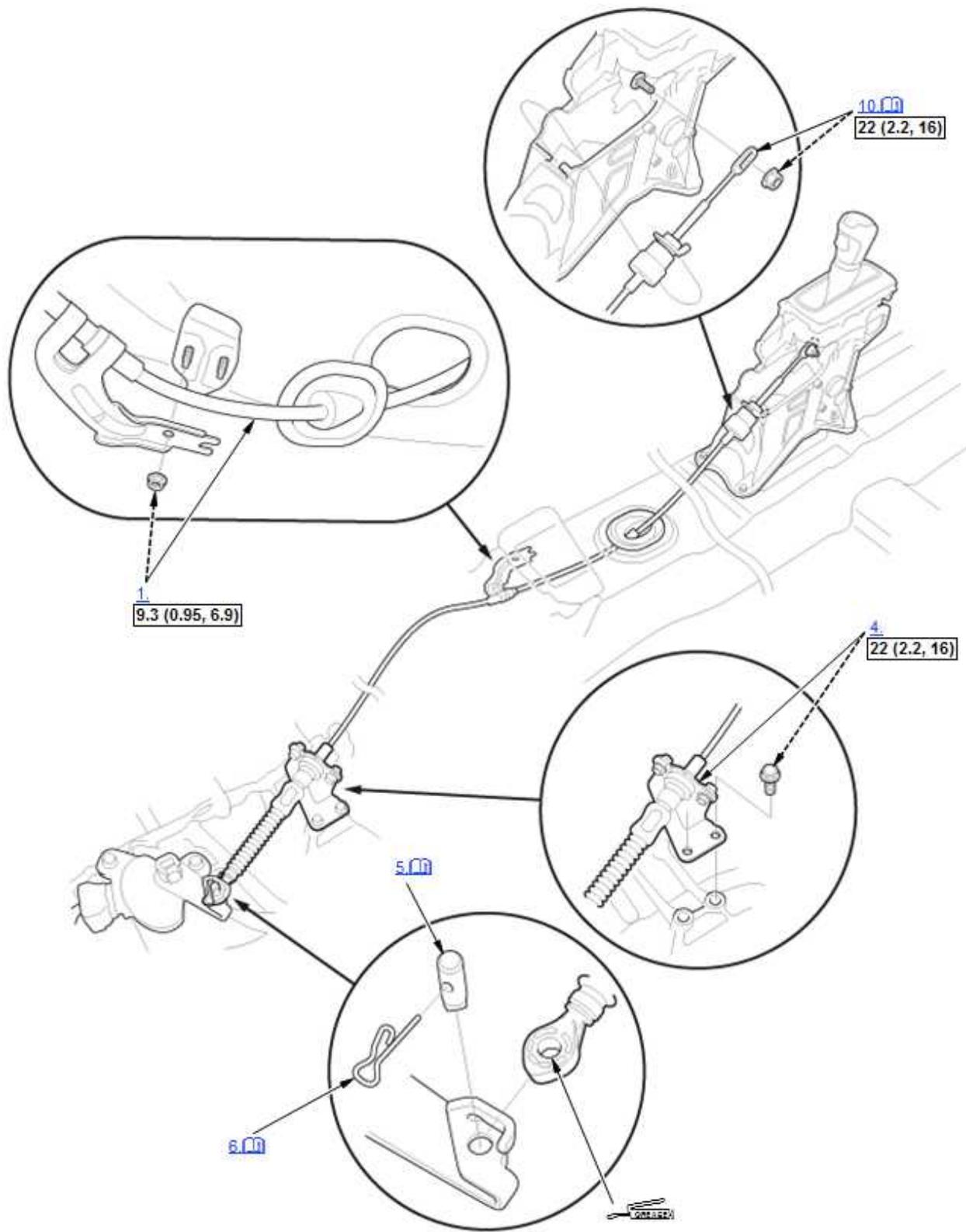
12. Shift Cable (Under Side) - Remove

Installation

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

NOTE:

-  Where icon is shown, click for further information.
- Do not bend the shift cable excessively.



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Apply molybdenum grease to inner surface of hole.

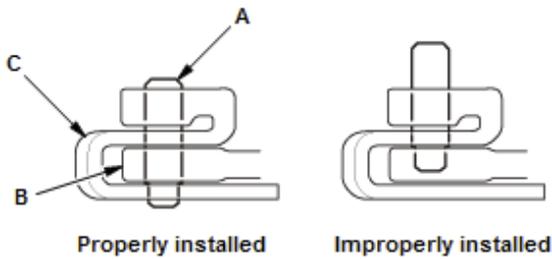
1. Shift Cable (Under Side) - Install

2. Heat Shield (Exhaust Pipe A) - Install

3. Engine Undercover - Install

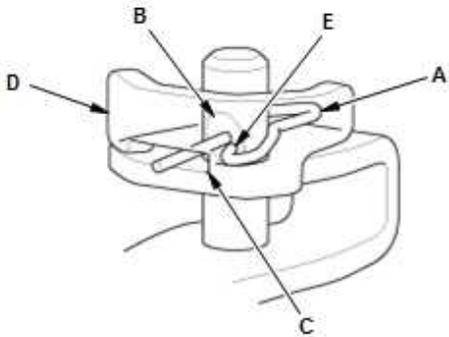
4. Shift Cable Bracket - Install

5. Control Pin - Install



NOTE: Make sure the control pin (A) is inserted through the shift cable end (B) and fully seated on the control lever (C).

6. Lock Pin - Install



NOTE: Make sure the lock pin (A) is inserted through the control pin hole (B) to the opening (C) of the control lever (D) so that the hooked end (E) of the lock pin locks into the control pin hole.

7. Intake Air Duct - Install

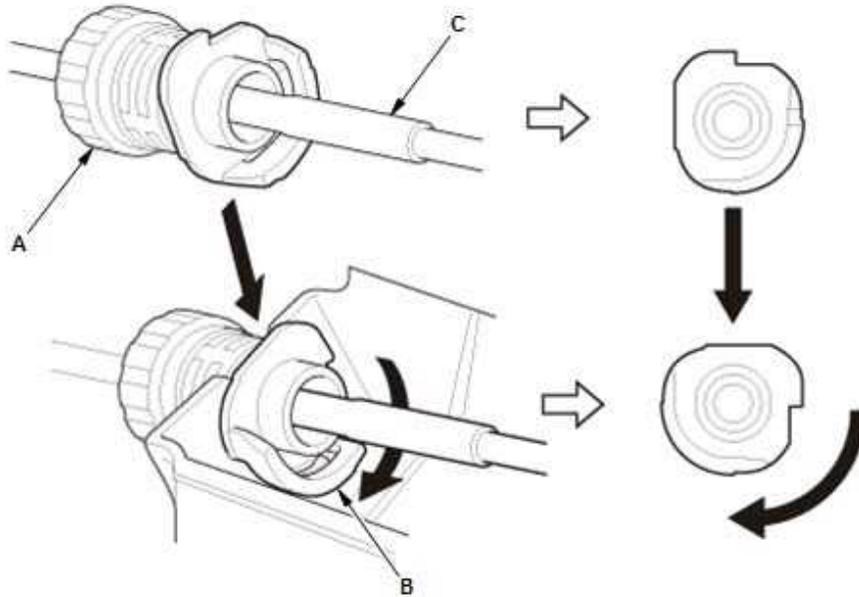
8. Air Cleaner - Install

9. Shift Cable - Adjust

10. Shift Cable (Shift Lever Side) - Install

NOTE:

- Install the socket holder (A), then rotate the socket holder retainer (B) clockwise until it stops.
- Do not install the shift cable by holding the shift cable guide (C).



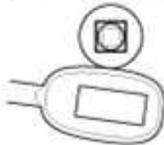
Properly installed:
Cable end rides on the bottom of the mounting stud.



Improperly installed:
Cable end out of position with the mounting stud.



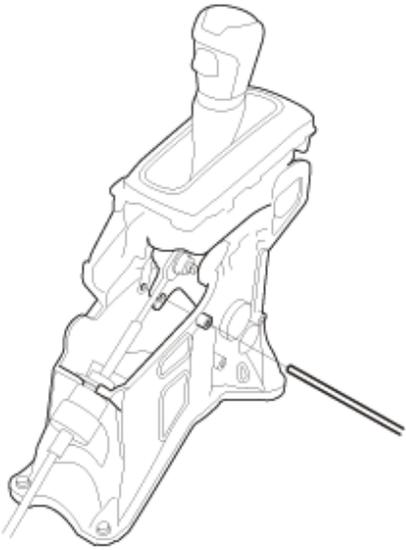
Improperly installed:
Cable end out of alignment with the mounting stud.



NOTE: Make sure the shift cable end (A) is properly installed on the mounting stud (B).

- If the cable end is out of position with the mounting stud, remove the shift cable from the shift cable bracket, then reinstall the cable end over the mounting stud before reinstalling the shift cable to the shift cable bracket. Do not install the shift cable end on the mounting stud with the shift cable installed on the shift cable bracket.
- If the shift cable end does not ride at the bottom of the mounting stud, rotate the stud to align the square fitting with the hole.

11. 6.0 mm (0.236 in) Pin - Remove



12. Center Console - Install

13. Shift Cable - After Install Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever through all positions/modes, and check that the shift position indicator follows the shift lever operation.
3. Shift the transmission to P position/mode, and check that the shift lock works properly.
4. Push the shift lock release, and check that the shift lever releases. Also check that the shift lever locks when it is shifted back to P.
5. Check that the back-up lights come on when the transmission is in R position/mode.
6. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

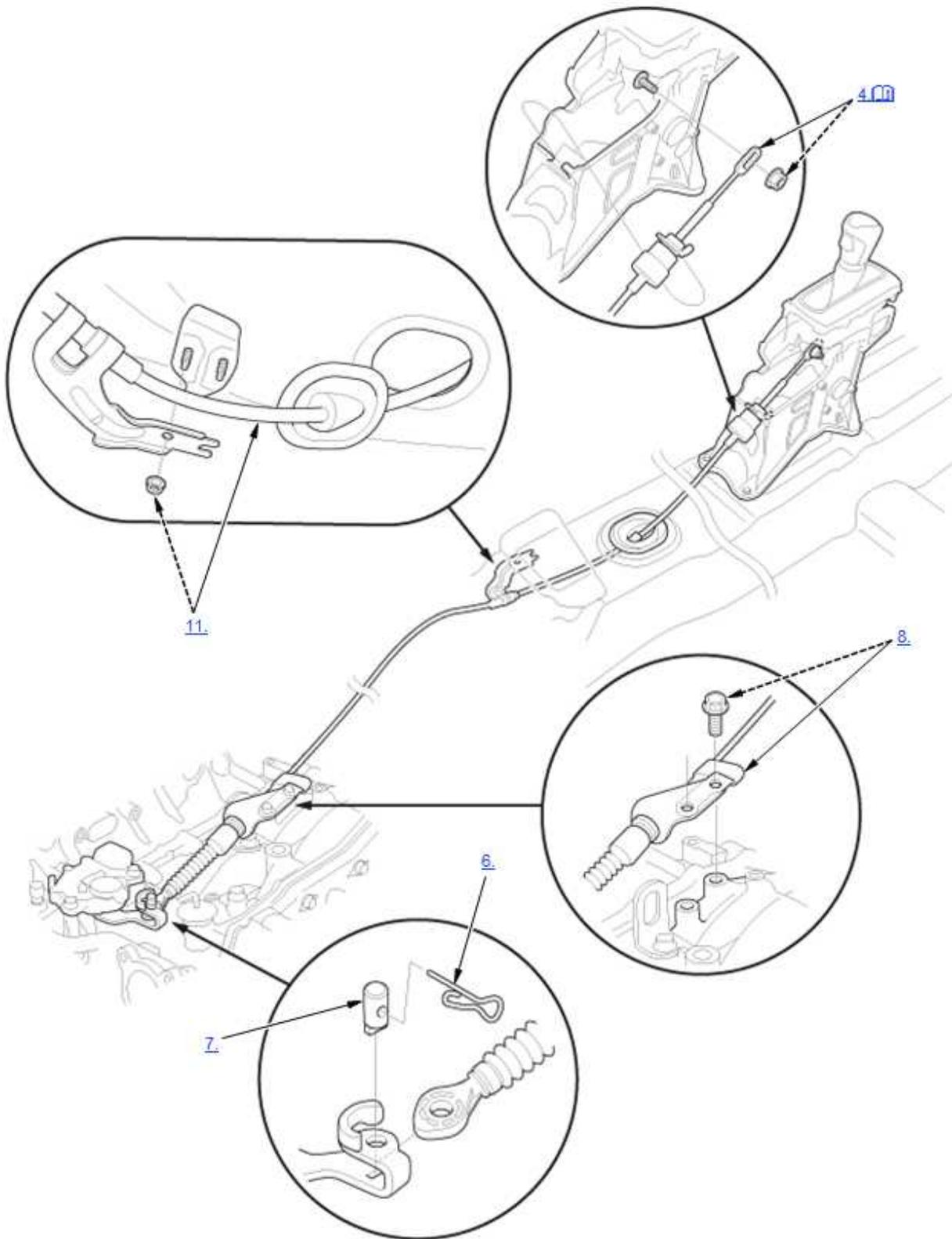
7. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

Removal

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

NOTE:

-  Where icon is shown, click for further information.
- Do not bend the shift cable excessively.



Detailed information, notes and precautions

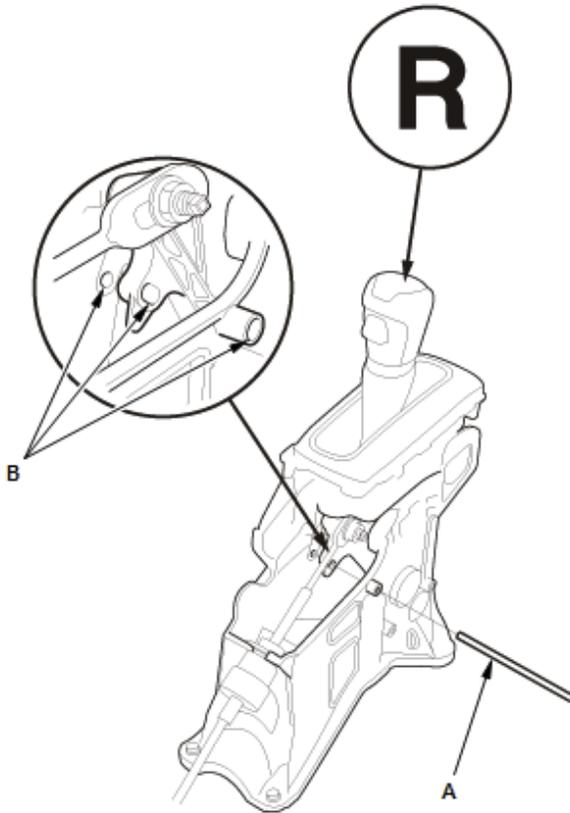
1. Vehicle - Lift

2. Center Console - Remove

3. Shift Lever - Position

1. Insert a 6.0 mm (0.236 in) pin (A) into the positioning holes (B) with the shift lever in R position/mode.

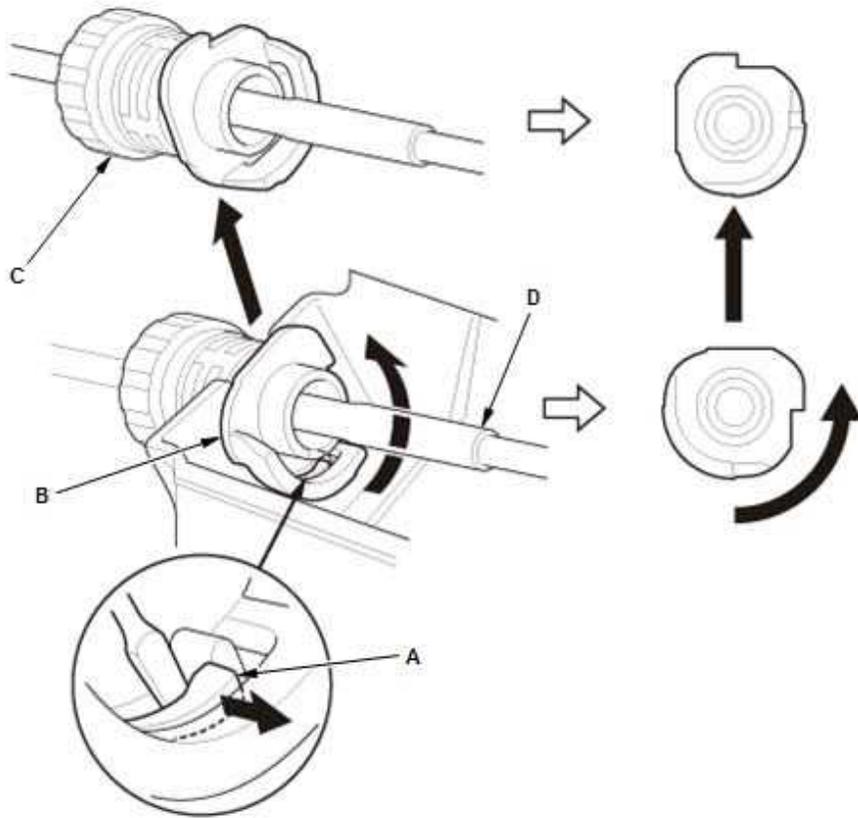
NOTE: Use only a 6.0 mm (0.236 in) pin with no burrs.



4. Shift Cable (Shift Lever Side) - Remove

NOTE:

- While expanding the lock tab (A), rotate the socket holder retainer (B) counterclockwise until it stops, then remove the socket holder (C).
- Do not remove the shift cable by pulling the shift cable guide (D).



5. Air Cleaner - Remove

6. Lock Pin - Remove

7. Control Pin - Remove

8. Shift Cable Bracket - Remove

9. Engine Undercover - Remove

10. Heat Shield (Exhaust Pipe A) - Remove

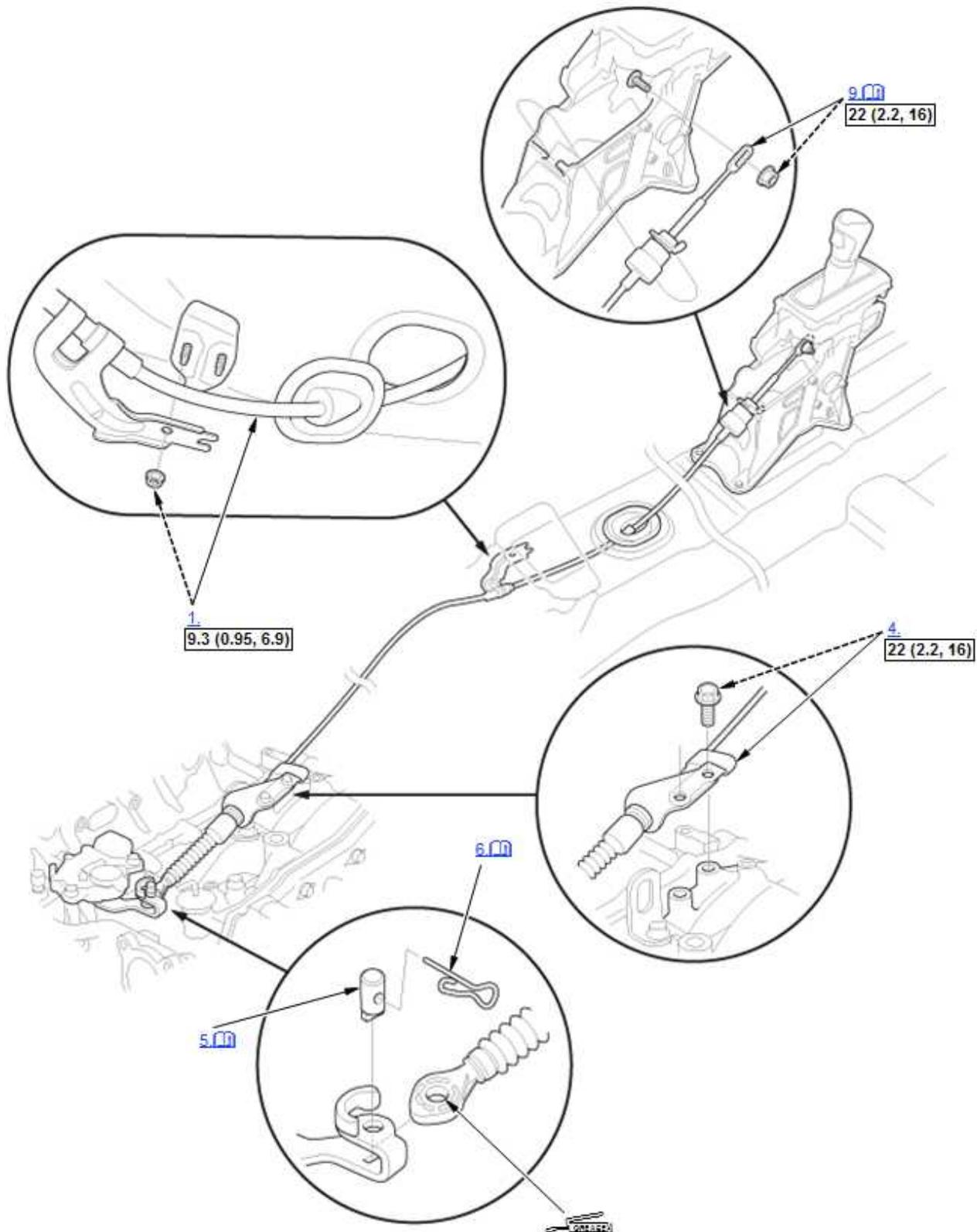
11. Shift Cable (Under Side) - Remove

Installation

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

NOTE:

-  Where icon is shown, click for further information.
- Do not bend the shift cable excessively.



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Apply molybdenum grease to inner surface of hole.

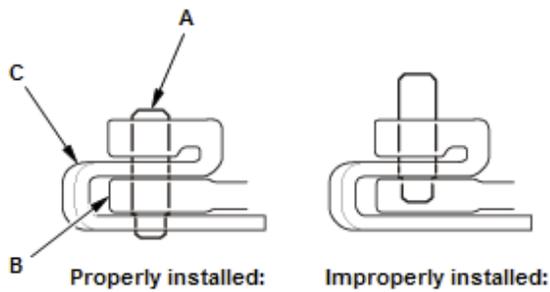
1. Shift Cable (Under Side) - Install

2. Heat Shield (Exhaust Pipe A) - Install

3. Engine Undercover - Install

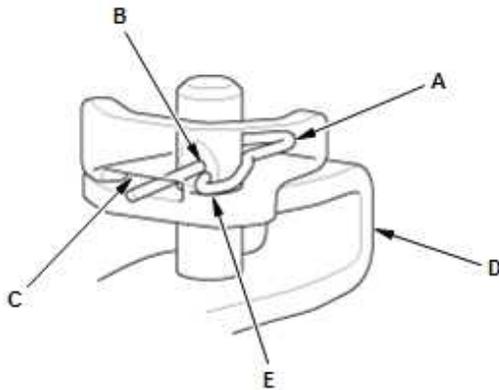
4. Shift Cable Bracket - Install

5. Control Pin - Install



NOTE: Make sure the control pin (A) is inserted through the shift cable end (B) and fully seated on the control lever (C).

6. Lock Pin - Install



NOTE: Make sure the lock pin (A) is inserted through the control pin hole (B) to the opening (C) of the control lever (D) so that the hooked end (E) of the lock pin locks into the control pin hole.

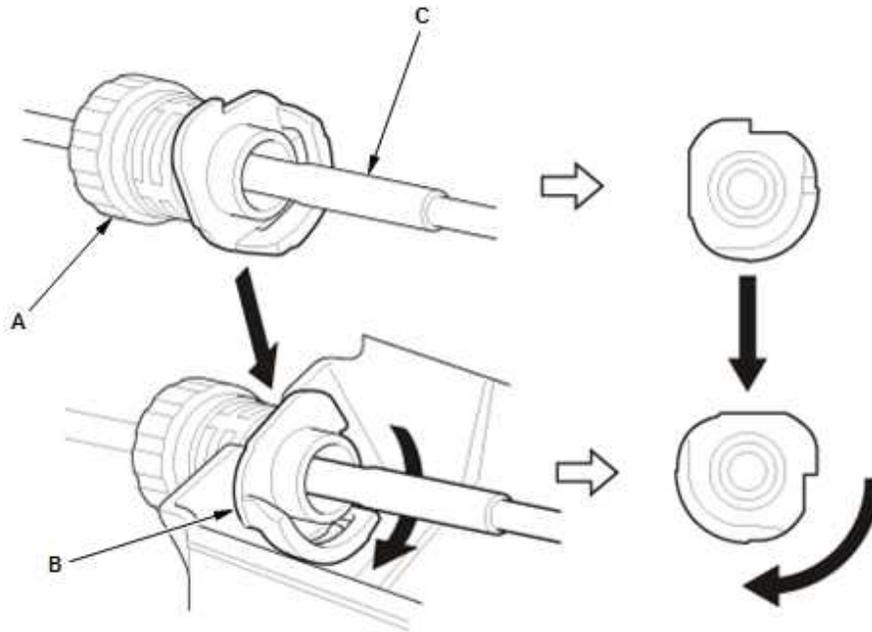
7. Air Cleaner - Install

8. Shift Cable - Adjust

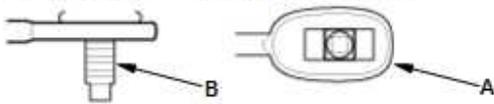
9. Shift Cable (Shift Lever Side) - Install

NOTE:

- Install the socket holder (A), then rotate the socket holder retainer (B) clockwise until it stops.
- Do not install the shift cable by holding the shift cable guide (C).



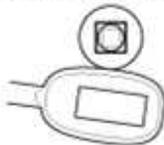
Properly installed:
Cable end rides on the bottom of the mounting stud.



Improperly installed:
Cable end out of position with the mounting stud.



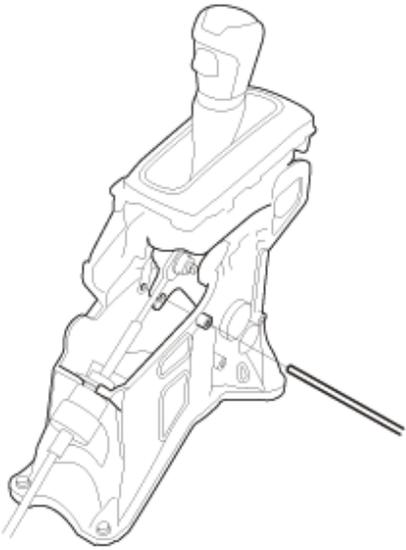
Improperly installed:
Cable end out of alignment with the mounting stud.



NOTE: Make sure the shift cable end (A) is properly installed on the mounting stud (B).

- If the cable end is out of position with the mounting stud, remove the shift cable from the shift cable bracket, then reinstall the cable end over the mounting stud before reinstalling the shift cable to the shift cable bracket. Do not install the shift cable end on the mounting stud with the shift cable install on the shift cable bracket.
- If the shift cable end does not ride at the bottom of the mounting stud, rotate the stud to align the square fitting with the hole.

10.6.0 mm (0.236 in) Pin - Remove



11. Center Console - Install

12. Shift Cable - After Install Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever through all positions/modes, and check that the shift position indicator follows the shift lever operation.
3. Shift the transmission to P position/mode, and check that the shift lock works properly.
4. Push the shift lock release, and check that the shift lever releases. Also check that the shift lever locks when it is shifted back to P.
5. Check that the back-up lights come on when the transmission is in R position/mode.
6. Start the engine.

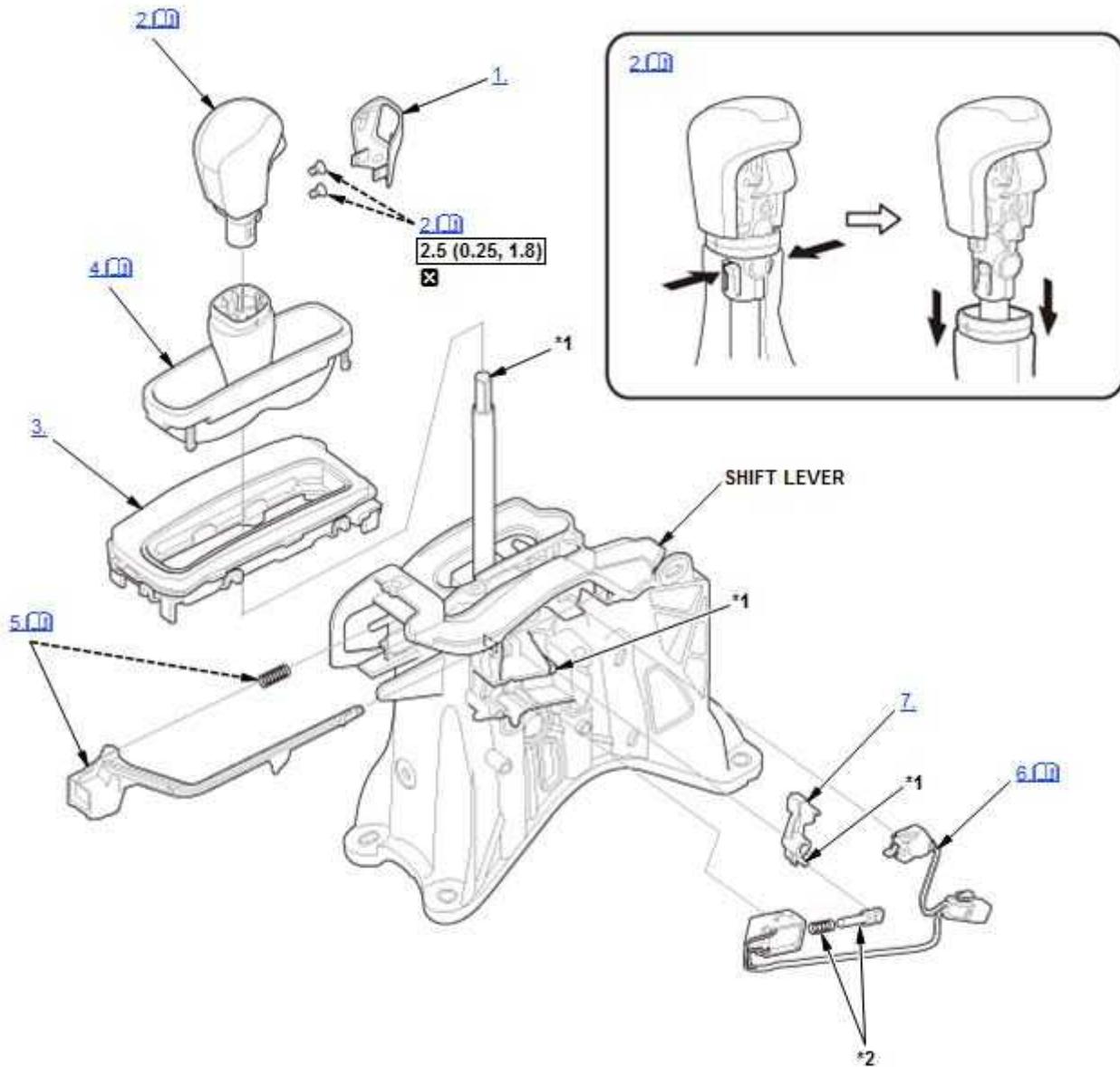
NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

7. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

Disassembly/Reassembly

NOTE:  Where icon is shown, click for further information.

1



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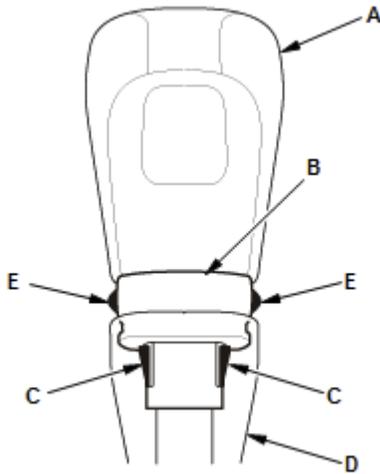
Detailed information, notes and precautions

<input type="text"/>	Torque: N·m (kgf·m, lbf·ft)
<input checked="" type="checkbox"/>	Replace

*1	Do not wipe off special grease applied in advance.
*2	Component of shift lock solenoid

1. Front Cover - Remove

2. Shift Lever Knob - Remove



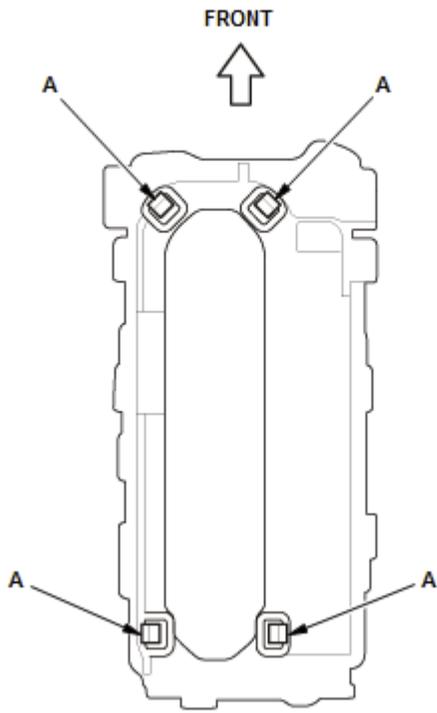
NOTE:

- Before removing the shift lever knob (A), slip the shift lever boot ring (B) out of the shift lever knob.
- The shift lever knob has two lock tabs (C) in the shift lever boot (D) located under the shift lever boot ring ribs (E). To prevent damage of the shift lever knob and the shift lever boot ring, be sure to grasp the lock tabs while slipping the shift lever boot ring.

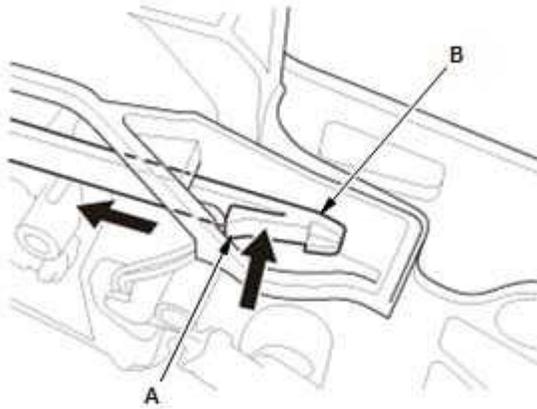
3. Shift Position Indicator Panel - Remove

4. Shift Lever Boot - Remove

NOTE: While releasing the lock tabs (A), remove the shift lever boot.



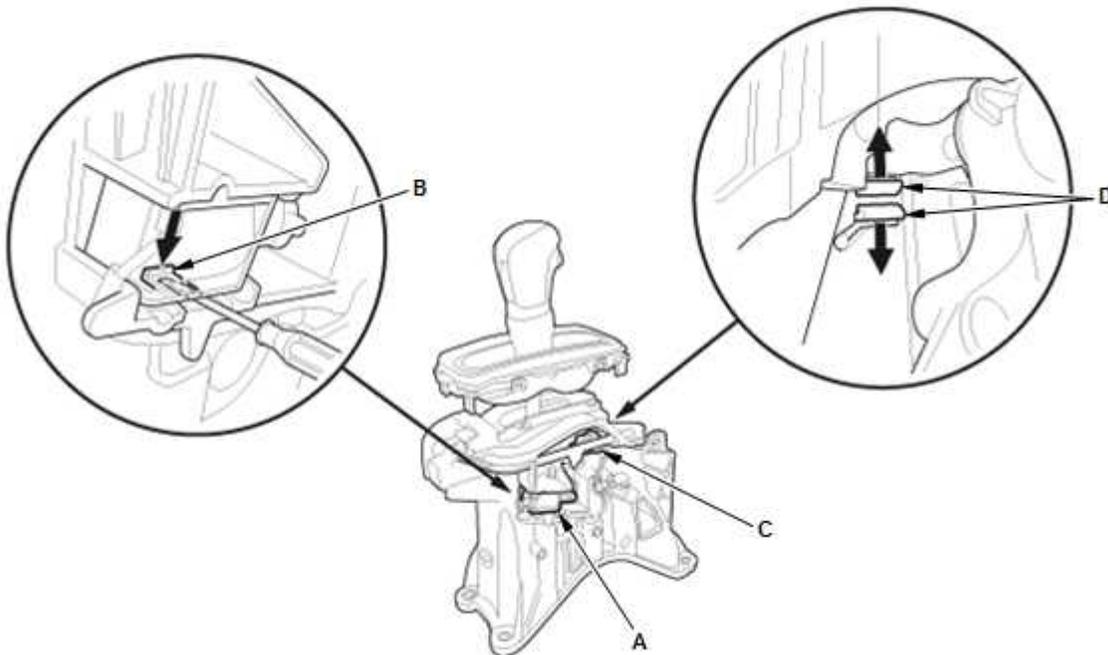
5. Shift Lock Release - Remove



NOTE: While pressing the lock tab (A), remove the shift lock release (B).

6. Shift Lock Solenoid/Park Pin Switch - Remove

1. Remove the shift lock solenoid (A) by expanding the lock tab (B).



2. Remove the park pin switch (C) by expanding the lock tabs (D).

7. Shift Lock Stop/Stop Cushion - Remove

8. All Removed Parts - Install

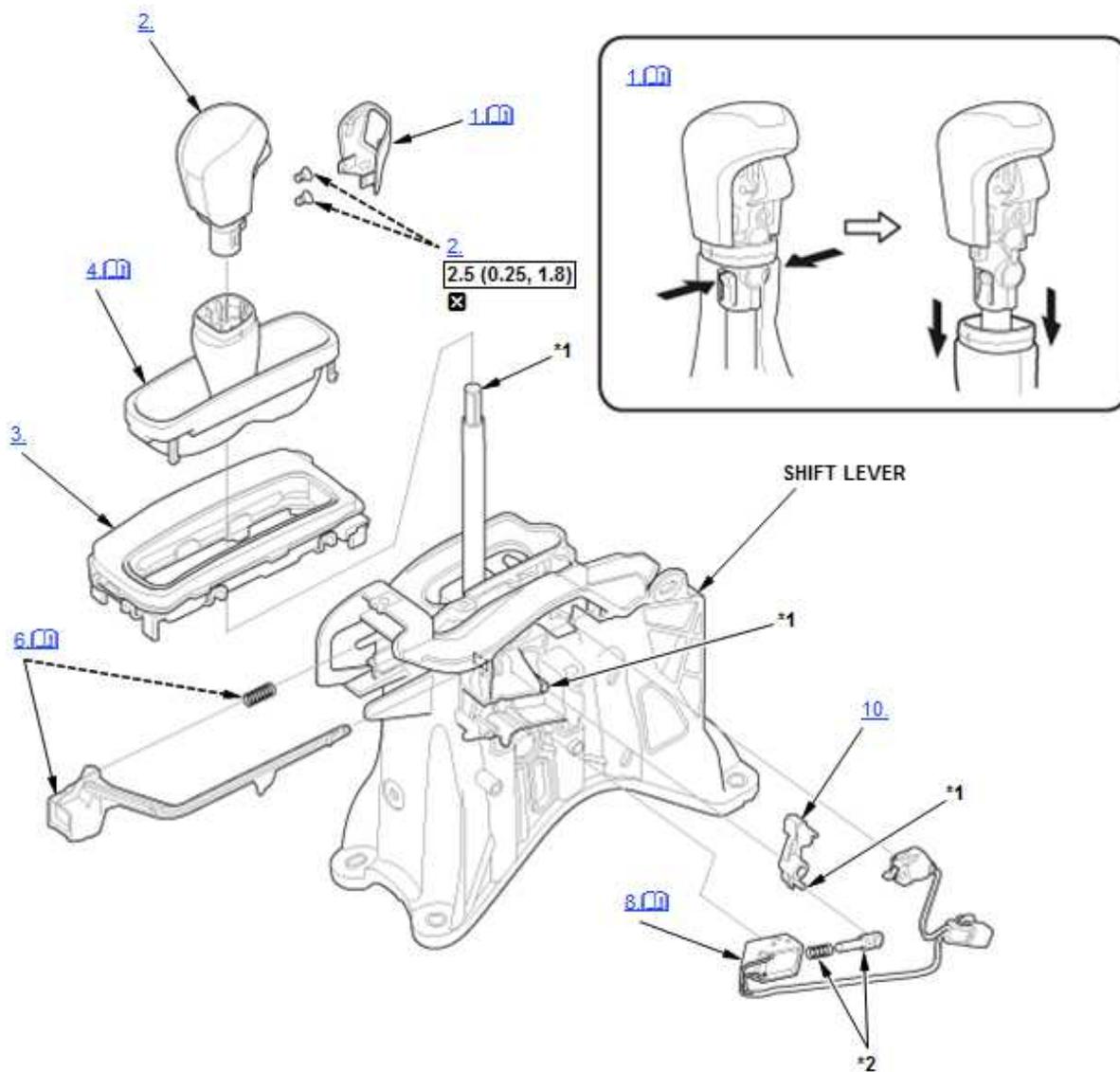
1. Install the parts in the reverse order of removal.

Disassembly/Reassembly

NOTE:

-  Where icon is shown, click for further information.
- There are two types of shift levers; type A and B. [Refer to the CVT System Description - Shift Lock System for more details.](#)
- Type B: The park pin switch and the shift lock unit are not available separately. Replace them as a set.

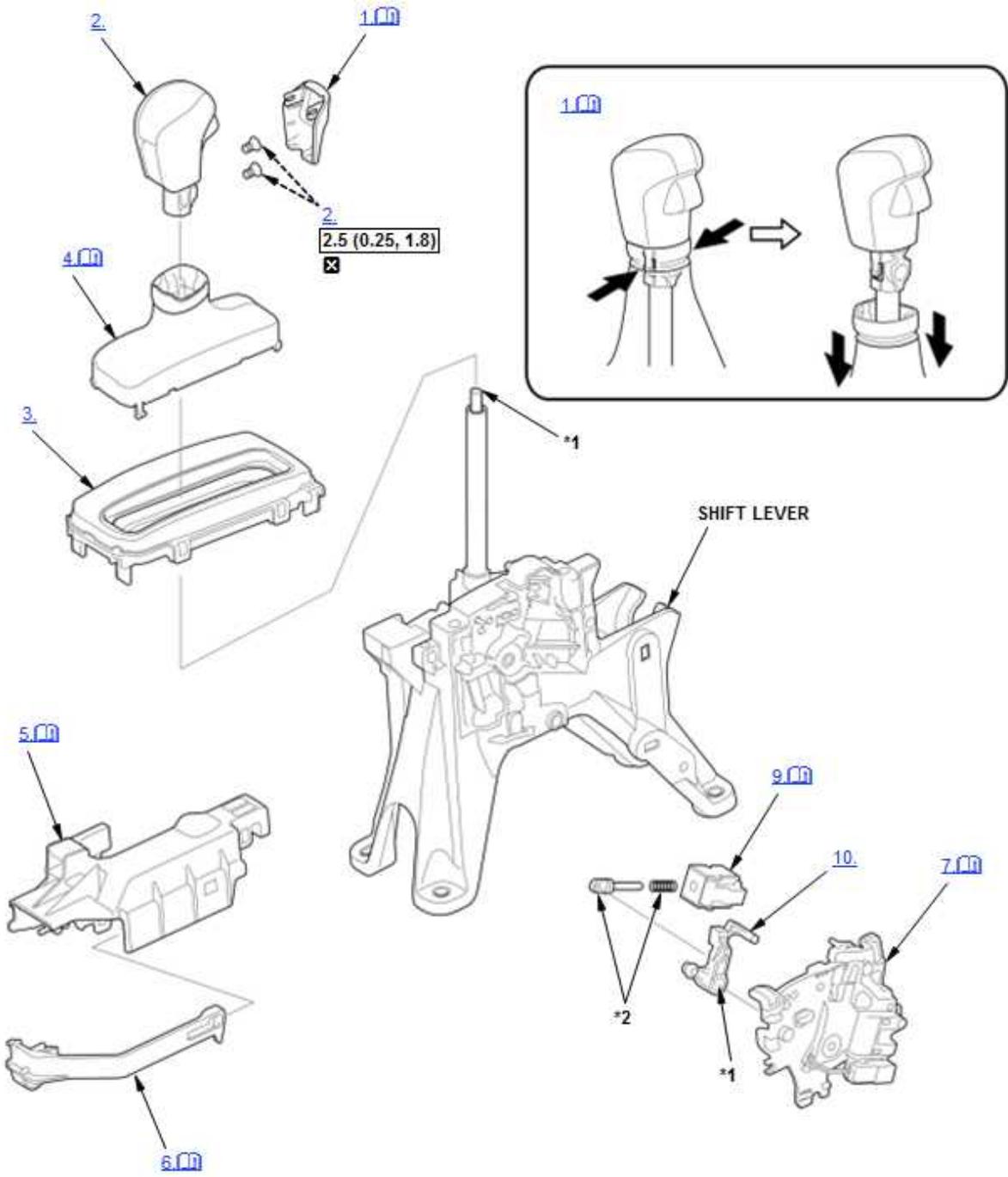
1
Type A



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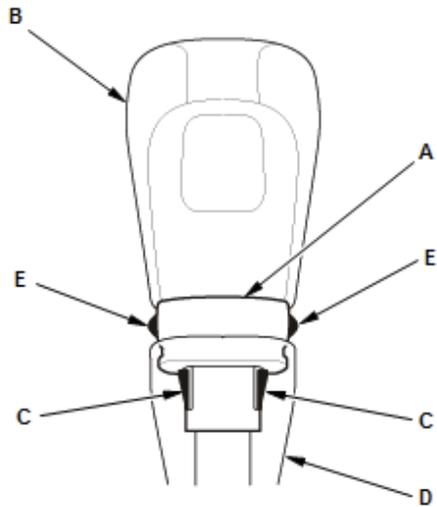
	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace
*1	Do not wipe off special grease applied in advance.

2
Type B



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace
*1	Do not wipe off special grease applied in advance.
*2	Component of shift lock solenoid

1. Front Cover - Remove



NOTE:

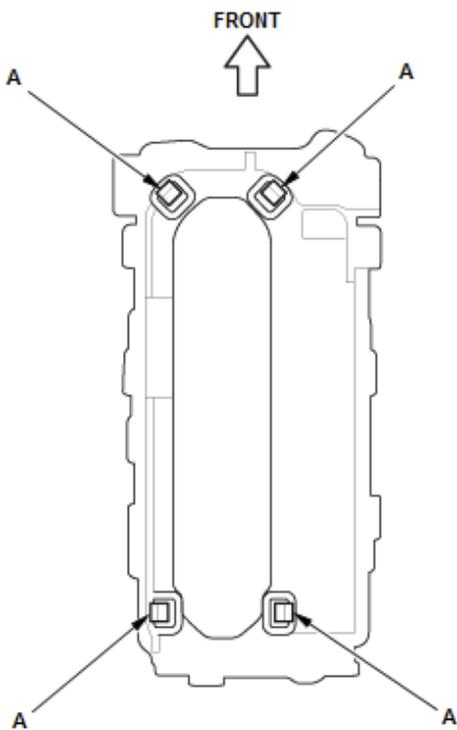
- Before removing the front cover, slip the shift lever boot ring (A) out of the shift lever knob (B).
- The shift lever knob has two lock tabs (C) in the shift lever boot (D) located under the shift lever boot ring ribs (E). To prevent damage of the shift lever knob and the shift lever boot ring, be sure to grasp the lock tabs while slipping the shift lever boot ring.

2. Shift Lever Knob - Remove

3. Shift Position Indicator Panel - Remove

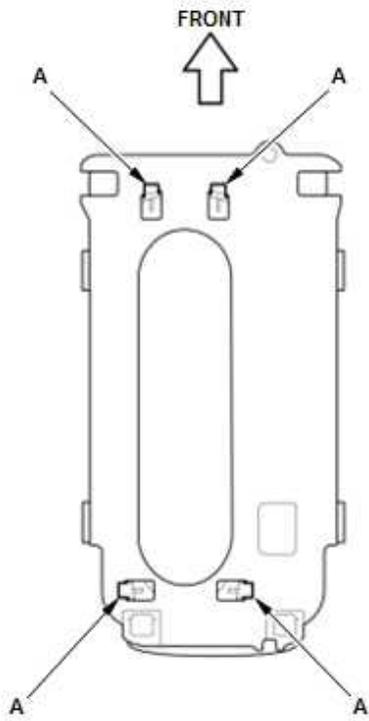
4. Shift Lever Boot - Remove

Type A



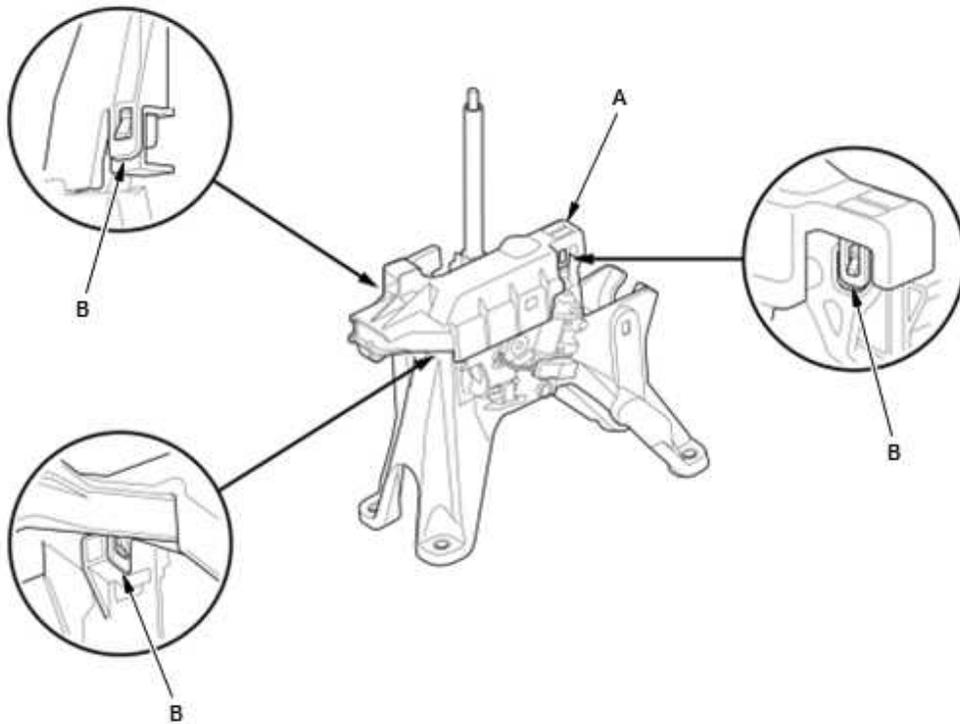
1. While releasing the lock tabs (A), remove the shift lever boot.

Type B



5. Release Holder - Remove (Type B)

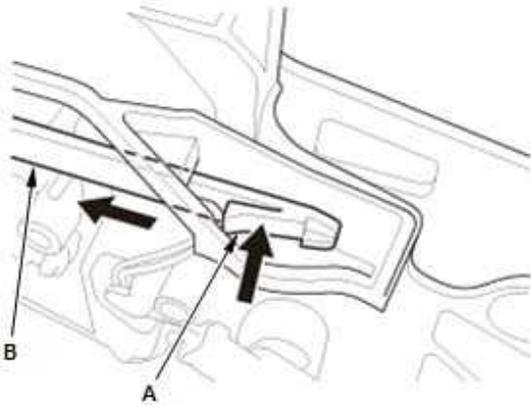
1. Remove the release holder (A) by expanding the lock tabs (B).



6. Shift Lock Release - Remove

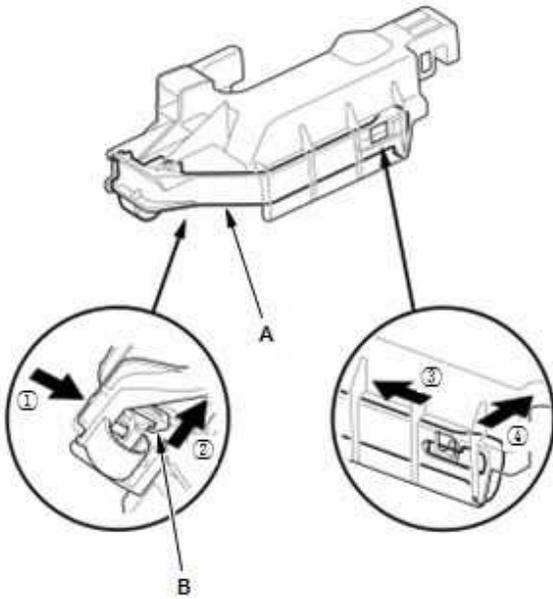
Type A

1. While pressing the lock tab (A), remove the shift lock release (B).

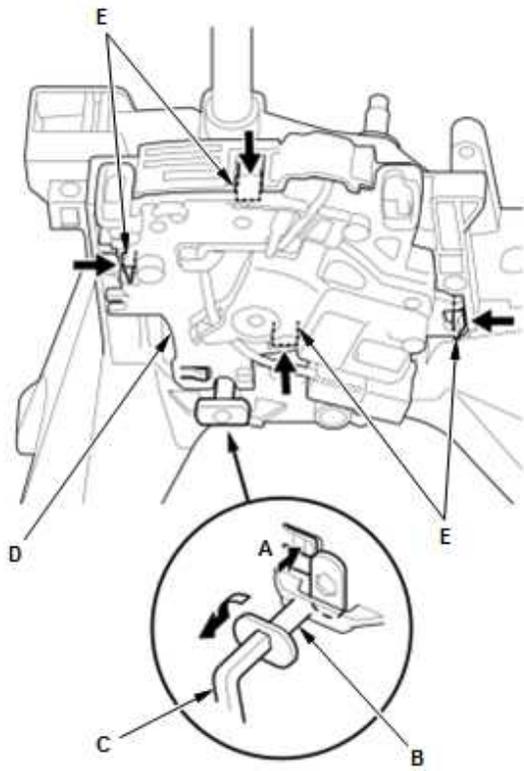


Type B

1. Remove the shift lock release (A) in the following order:
 - 1. Press the shift lock release and release the lock tab (B) in the numbered sequence shown.
 - 2. Slide the shift lock release and release it in the numbered sequence shown.



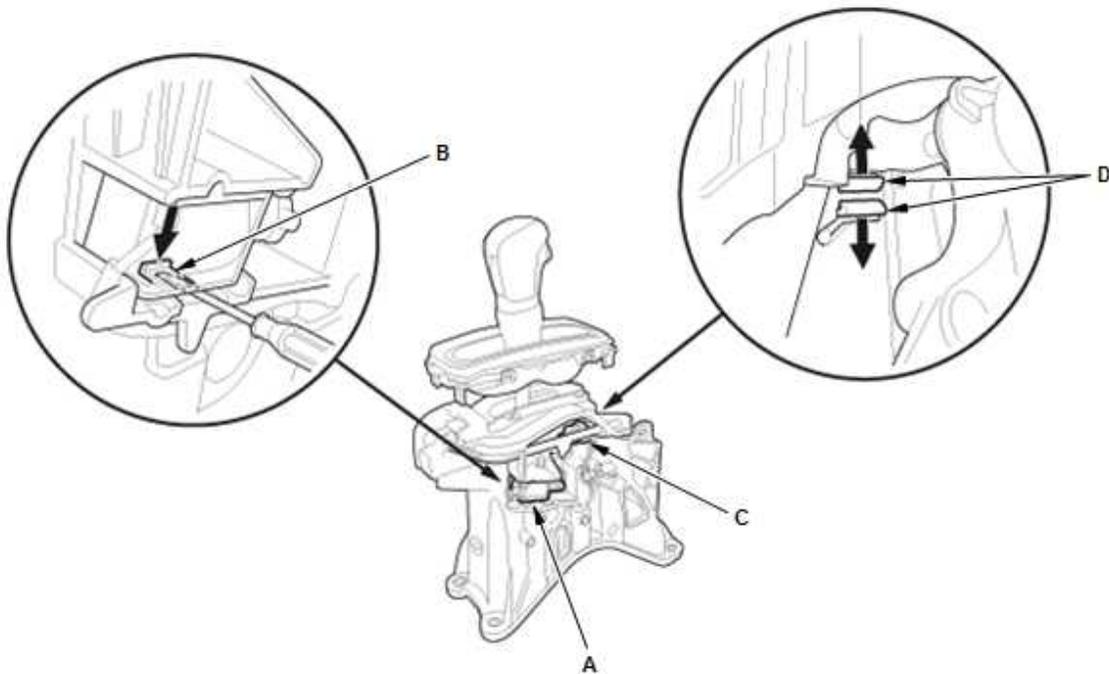
7. Shift Lock Unit - Remove (Type B)



1. Release the lock tab (A) and turn the pivot pin (B) counterclockwise using a hex wrench (C) as shown, and pull it.
2. Remove the shift lock unit (D) while releasing four lock tabs (E).

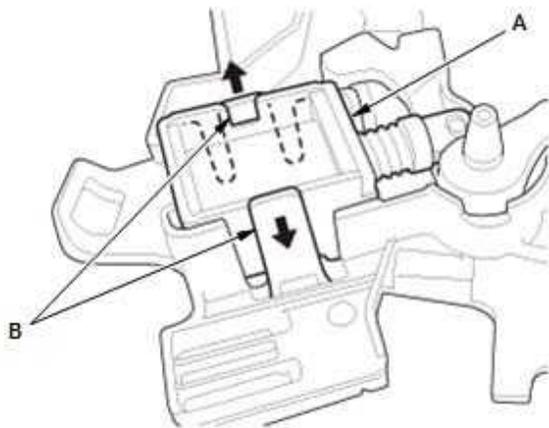
8. Shift Lock Solenoid/Park Pin Switch - Remove (Type A)

1. Remove the shift lock solenoid (A) by expanding the lock tab (B).



2. Remove the park pin switch (C) by expanding the lock tabs (D).

9. Shift Lock Solenoid - Remove (Type B)



1. Remove the shift lock solenoid (A) by expanding the lock tabs (B).

10. Shift Lock Stop/Shift Lock Stop Cushion - Remove

11. All Removed Parts - Install

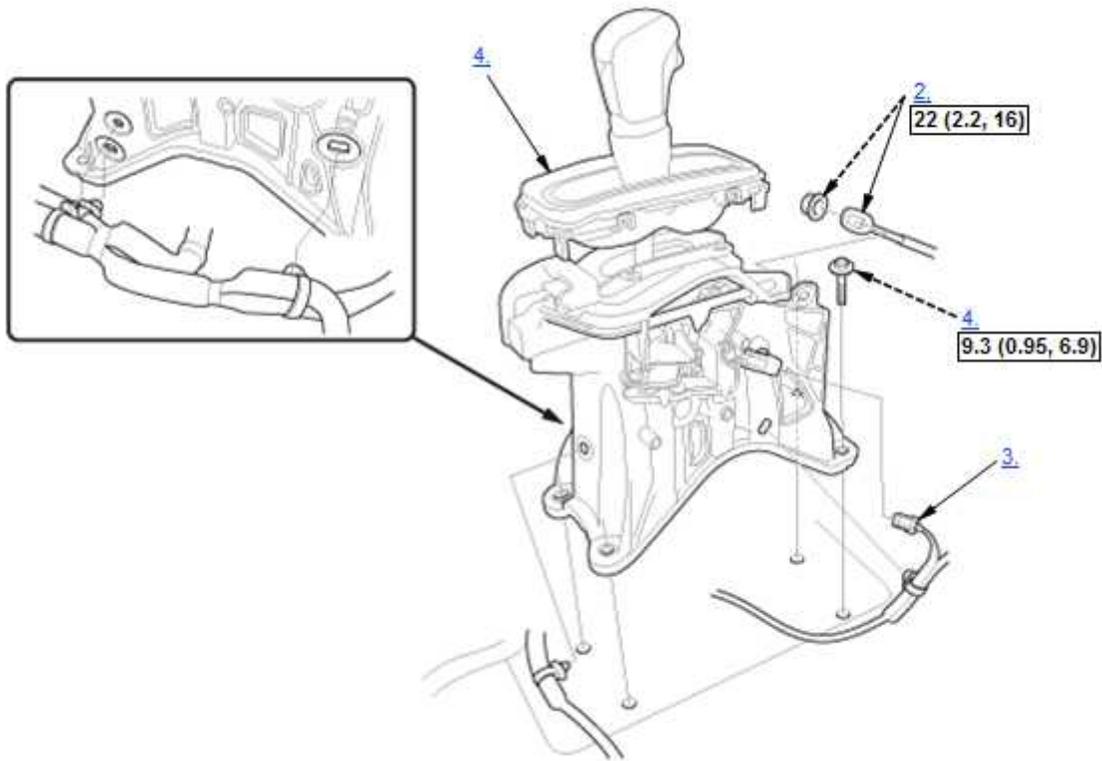
1. Install the parts in the reverse order of removal.

Shift Lever Removal and Installation

Removal/Installation

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

1



	Torque: N·m (kgf·m, lbf·ft)
--	-----------------------------

1. **Center Console - Remove**

2. **Shift Cable (Shift Lever Side) - Remove**

3. **Connector (Shift Lever) - Disconnect**

4. **Shift Lever - Remove**

5. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Be sure to [adjust the shift cable](#) before installing the shift cable.

6. Shift Lever - After Install Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever to each position, and check that the shift position indicator follows the shift lever operation.
3. Shift the transmission to P position/mode, and check that the shift lock works properly.
4. Push the shift lock release, and check that the shift lever releases. Also check that the shift lever locks when it is shifted back to P.
5. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

6. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

Shift Lever Removal and Installation

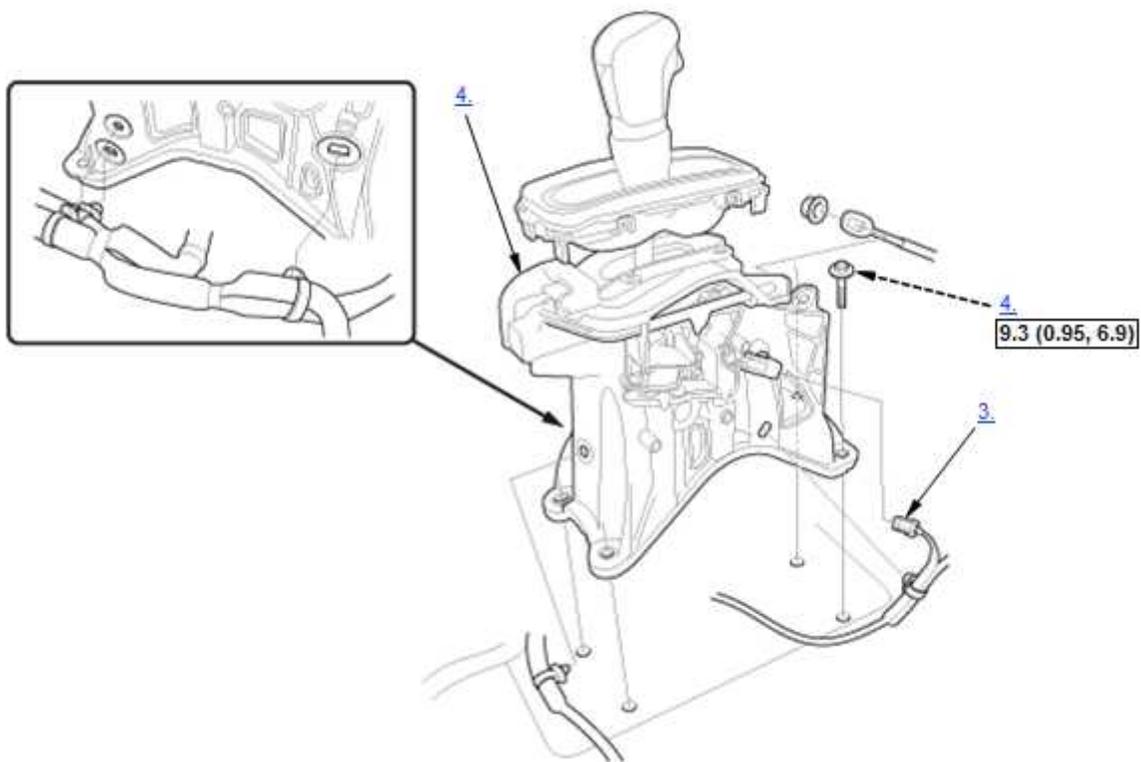
Removal/Installation

SRS components are located in this area. Review [the SRS component locations](#) and [the precautions and procedures](#) before doing repair or service.

NOTE: There are two types of shift levers; type A and B. [Refer to the CVT System Description - Shift Lock System for more details.](#)

1

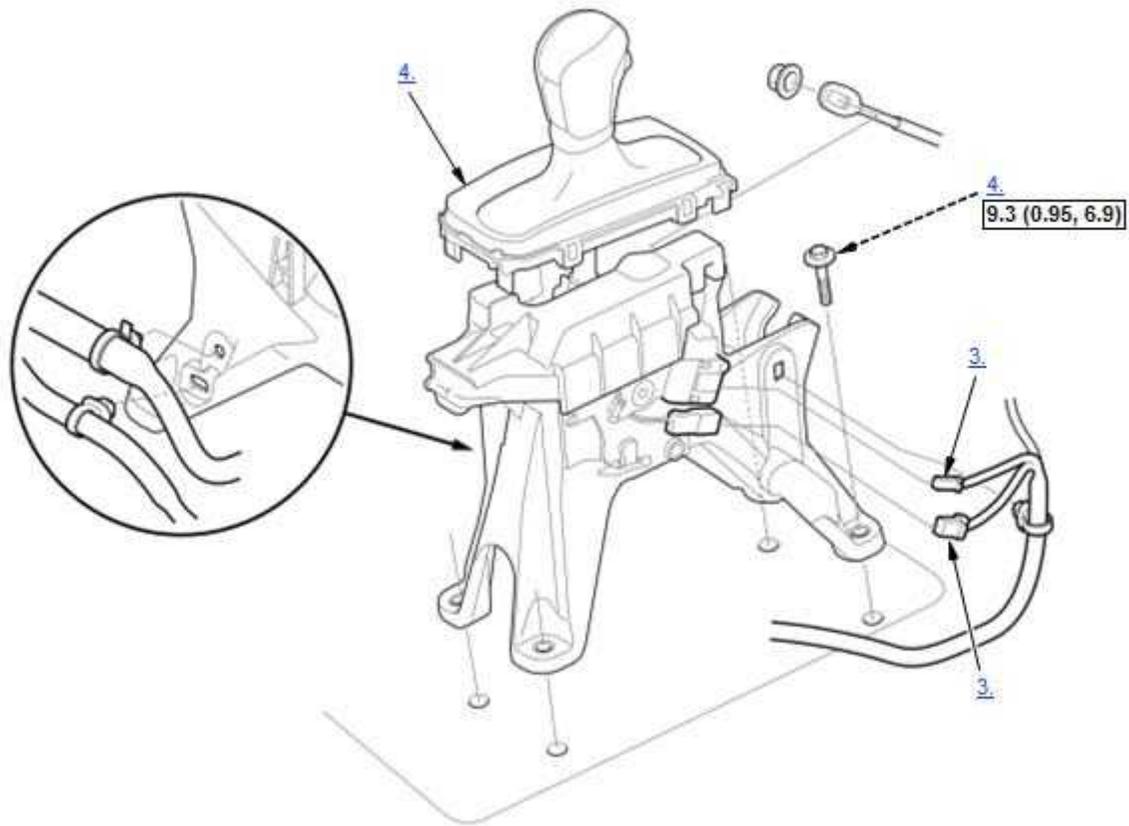
Type A



	Torque: N·m (kgf·m, lbf·ft)
--	-----------------------------

2

Type B



	Torque: N·m (kgf·m, lbf·ft)
--	-----------------------------

1. **Center Console - Remove**

2. **Shift Cable (Shift Lever Side) - Remove**

3. **Connector (Shift Lever) - Disconnect**

4. **Shift Lever - Remove**

5. **All Removed Parts - Install**

1. Install the parts in the reverse order of removal.

6. **Shift Cable - Adjust**

7. Shift Lever - After Install Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever to each position, and check that the shift position indicator follows the shift lever operation.
3. Shift the transmission to P position/mode, and check that the shift lock works properly.
4. Push the shift lock release, and check that the shift lever releases. Also check that the shift lever locks when it is shifted back to P.
5. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

6. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

Shift Lock Solenoid Test

Test

1. HDS - Connect

2. Shift Lock Solenoid - Test

1. Select the Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.
2. Check that the shift lever can be moved out of P position/mode when the Shift Lock Solenoid is ON. Move the shift lever back to P position/mode, and check that it locks when the Shift Lock Solenoid is OFF.
3. Check that the shift lock releases when the shift lock release is pushed, and check that it locks when the shift lock release is released.
4. If the shift lock solenoid does not work properly, [go to the shift lock system circuit troubleshooting](#).

Shift Lock Solenoid Test

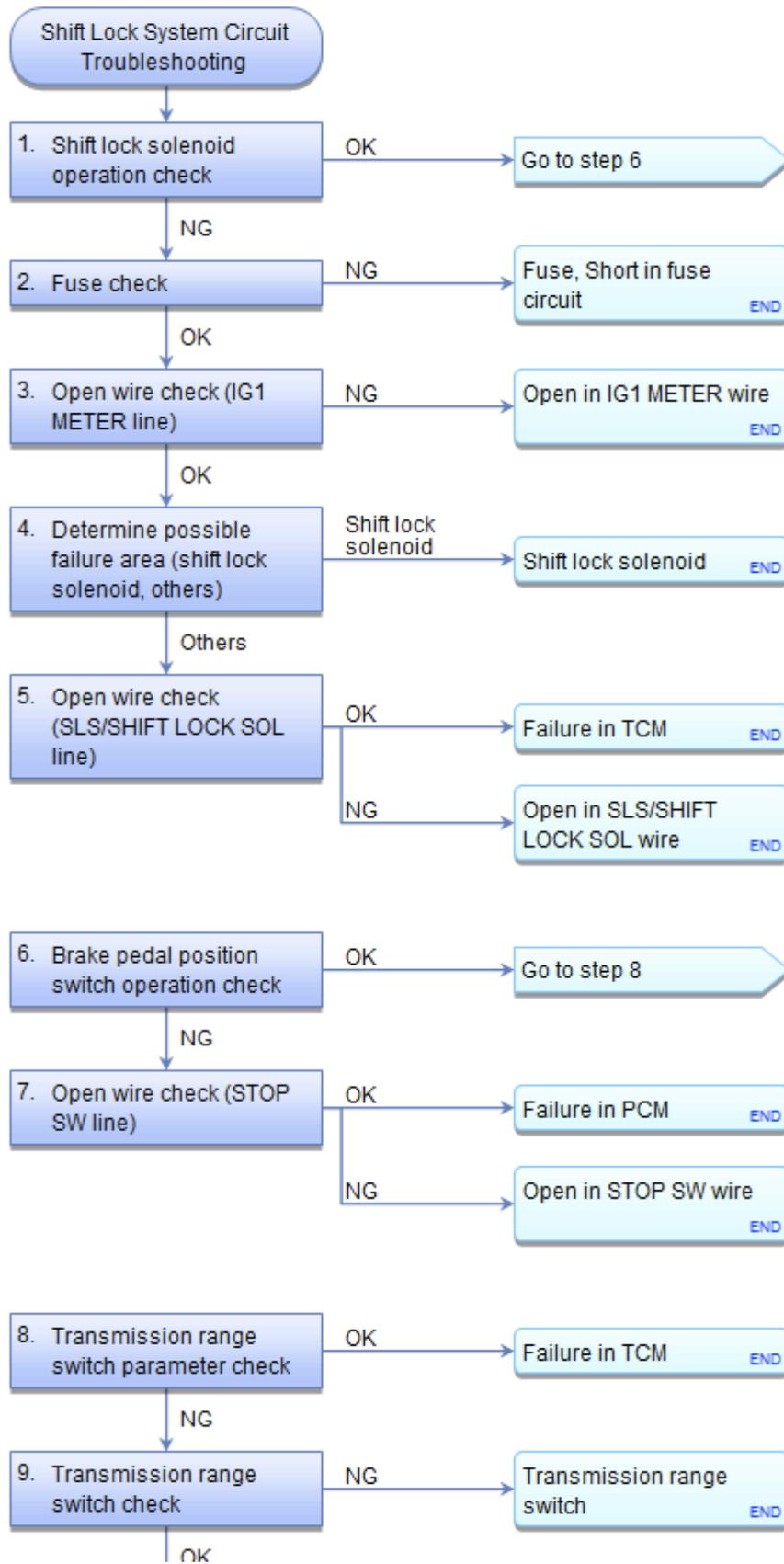
Test

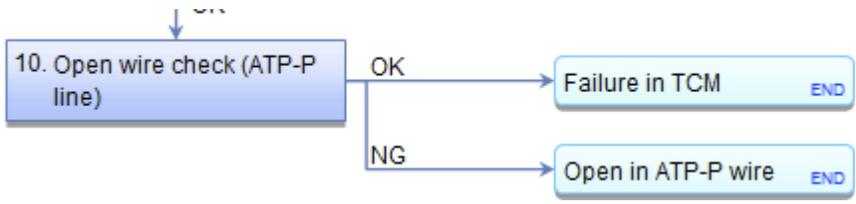
1. HDS - Connect

2. Shift Lock Solenoid - Test

1. Select the Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.
2. Check that the shift lever can be moved out of P position/mode when the Shift Lock Solenoid is ON. Move the shift lever back to P position/mode, and check that it locks when the Shift Lock Solenoid is OFF.
3. Check that the shift lock releases when the shift lock release is pushed, and check that it locks when the shift lock release is released.
4. If the shift lock solenoid does not work properly, [go to the shift lock system circuit troubleshooting](#).

Shift Lock System Circuit Troubleshooting





Shift Lock System Circuit Troubleshooting

NOTE: Check for PGM-FI DTCs and CVT DTCs. If any DTCs are present, troubleshoot those first.

PGM-FI System

DTC Description	Confirmed DTC	Pending DTC

CVT System

DTC Description	Confirmed DTC	Pending DTC	Freeze Frame

DTC (All DTCs)

1. Shift lock solenoid operation check:

- 1. [Connect the HDS to the DLC.](#)
- 2. Turn the vehicle to the ON mode.
- 3. Select the Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.

Shift Lock Solenoid Test

Does the shift lock solenoid work properly?

YES The shift lock solenoid is OK. Go to step 6.

NO Go to step 2.

2. Fuse check:

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Check the following fuse.

Fuse	No. B7 (10 A)
Location	Under-dash fuse/relay box

Is the fuse OK?

YES The fuse is OK. Reinstall the fuse, then go to step 3.

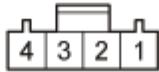
NO Replace the No. B7 (10 A) fuse, and recheck. If the fuse blows again, repair a short to ground in the No. B7 (10 A) fuse circuit.■

3. Open wire check (IG1 METER line):

- 1. Disconnect the following connector.
Shift lever 4P connector
- 2. Turn the vehicle to the ON mode.
- 3. Measure the voltage between test points 1 and 2.

Test condition	Vehicle ON mode
	Shift lever 4P connector: disconnected
Test point 1	Shift lever 4P connector No. 4
Test point 2	Body ground

SHIFT LEVER 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES The IG1 METER wire is OK. Go to step 4.

NO Repair an open in the IG1 METER wire between the shift lock solenoid and the No. B7 (10 A) fuse in the under-dash fuse/relay box.■

4. Determine possible failure area (shift lock solenoid, others):

-1. With the transmission in P position/mode, press the brake pedal.
NOTE: Do not press the accelerator pedal.

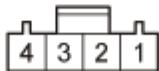
-2. Measure the voltage between test points 1 and 2.

Test condition Vehicle ON mode
Shift lever 4P connector: disconnected

Test point 1 Shift lever 4P connector No. 3

Test point 2 Shift lever 4P connector No. 4

SHIFT LEVER 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES [Check the shift lock mechanism](#). If the mechanism is OK, [replace the shift lock solenoid](#).■

NO Go to step 5.

5. Open wire check (SLS/SHIFT LOCK SOL line):

-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Disconnect the following connector.
TCM 50P connector

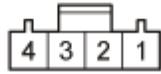
-3. Check for continuity between test points 1 and 2.

Test condition Vehicle OFF (LOCK) mode
Shift lever 4P connector: disconnected
TCM 50P connector: disconnected

Test point 1 Shift lever 4P connector No. 3

Test point 2 [TCM 50P connector No. 26](#)

SHIFT LEVER 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES The SLS/SHIFT LOCK SOL wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■

NO Repair an open in the SLS/SHIFT LOCK SOL wire between the shift lock solenoid and the TCM.■

6. Brake pedal position switch operation check:

- 1. Check the parameter(s) below with the HDS while pressing the brake pedal.

Signal	Threshold		Current conditions	
	Values	Unit	Values	Unit
Brake Switch	ON			

Do the current condition(s) match the threshold?

YES The brake pedal position switch is OK. Go to step 8.

NO If the brake lights come on, go to step 7. If the brake lights do not work, repair faulty brake light circuit.

7. Open wire check (STOP SW line):

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Jump the SCS line with the HDS, and wait more than 1 minute.

SCS Short

- 3. Disconnect the following connector.
PCM connector A (50P)
- 4. Measure the voltage between test points 1 and 2.
Test condition Vehicle OFF (LOCK) mode
PCM connector A (50P): disconnected
Test point 1 [PCM connector A \(50P\) No. 26](#)
Test point 2 Body ground

Is there battery voltage while pressing the brake pedal and about 0 V when the pedal is released?

YES The STOP SW wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good PCM](#), then recheck. If the symptom goes away and the PCM was substituted, [replace the original PCM](#).■

NO Repair an open in the STOP SW wire between the PCM and the brake pedal position switch.■

8. Transmission range switch parameter check:

- 1. Shift the transmission to P position/mode.
- 2. Check the parameter(s) below with the HDS.

Signal	Threshold		Current conditions	
	Values	Unit	Values	Unit
A/T P Switch	ON			

Do the current condition(s) match the threshold?

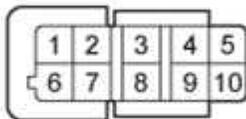
YES The transmission range switch is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■

NO Go to step 9.

9. Transmission range switch check:

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Disconnect the following connector.
Transmission range switch 10P connector
- 3. Connect terminals A and B with a jumper wire.
Terminal A Transmission range switch 10P connector No. 4
Terminal B Body ground

TRANSMISSION RANGE SWITCH 10P CONNECTOR



Terminal side of female terminals

- 4. Turn the vehicle to the ON mode.
- 5. Check the parameter(s) below.

Signal	Threshold		Current conditions	
	Values	Unit	Values	Unit
A/T P Switch	ON			

Do the current condition(s) match the threshold?

YES [Replace the transmission range switch.](#)■

NO The transmission range switch is OK. Go to step 10.

10. Open wire check (ATP-P line):

-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Remove the jumper wire.

-3. Disconnect the following connector.
TCM 50P connector

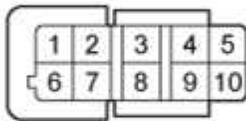
-4. Check for continuity between test points 1 and 2.

Test condition Vehicle OFF (LOCK) mode
 Transmission range switch 10P connector: disconnected
 TCM 50P connector: disconnected

Test point 1 Transmission range switch 10P connector No. 4

Test point 2 [TCM 50P connector No. 48](#)

TRANSMISSION RANGE SWITCH 10P CONNECTOR



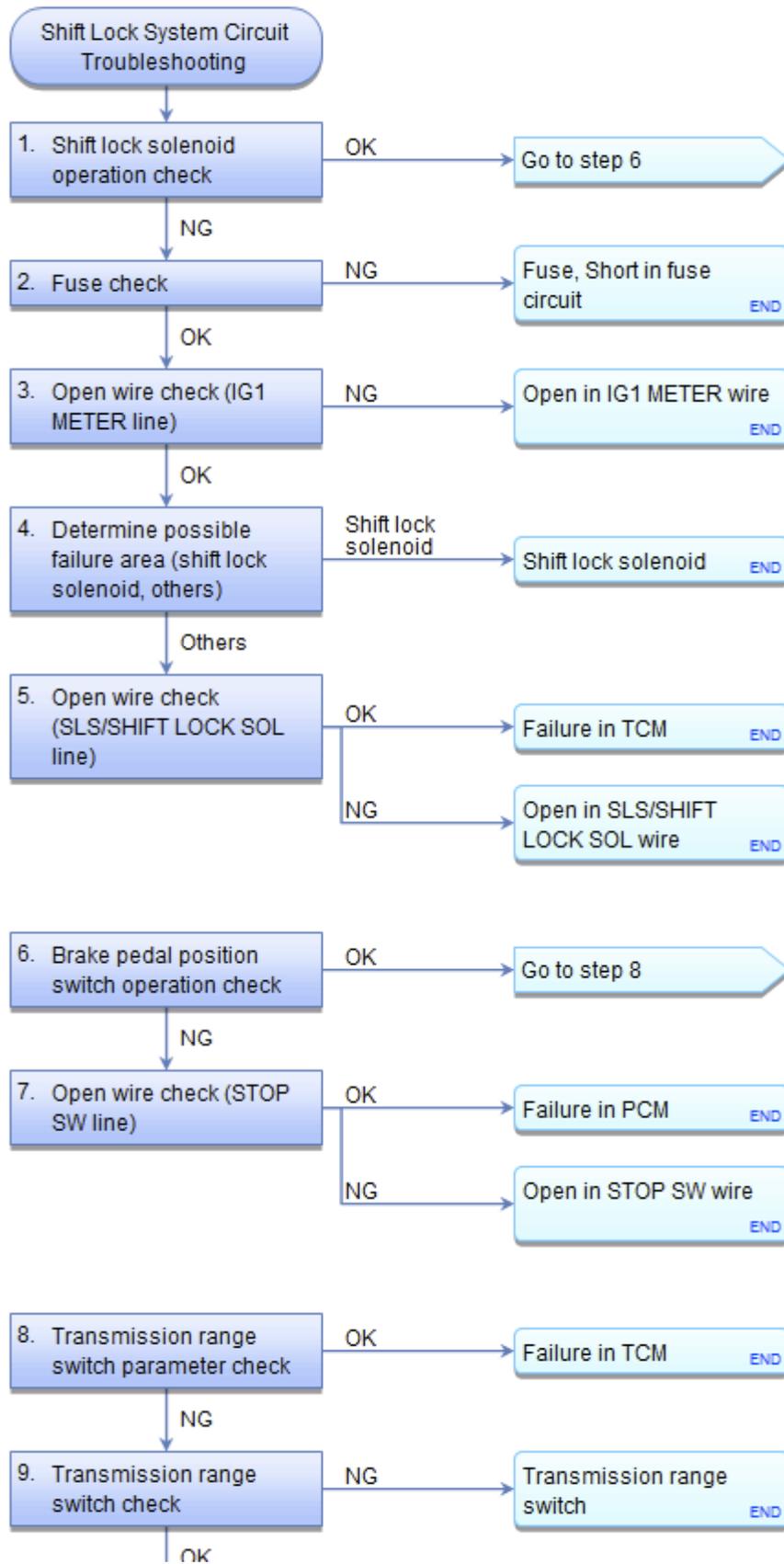
Terminal side of female terminals

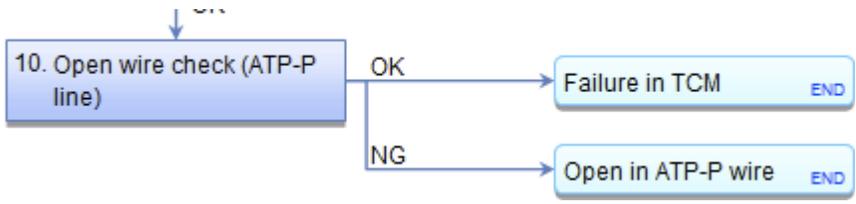
Is there continuity?

YES The ATP-P wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM.](#)■

NO Repair an open in the ATP-P wire between the transmission range switch and the TCM.■

Shift Lock System Circuit Troubleshooting





Shift Lock System Circuit Troubleshooting

NOTE:

- Check for PGM-FI DTCs and CVT DTCs. If any DTCs are present, troubleshoot those first.
- There are two types of shift levers, Type A and B. [Refer to the Shift Lever Removal and Installation for more details.](#)

PGM-FI System

DTC Description	Confirmed DTC	Pending DTC

CVT System

DTC Description	Confirmed DTC	Pending DTC	Freeze Frame

DTC (All DTCs)

1. Shift lock solenoid operation check:
 - 1. [Connect the HDS to the DLC.](#)
 - 2. Turn the vehicle to the ON mode.
 - 3. Select the Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.

Shift Lock Solenoid Test

Does the shift lock solenoid work properly?

YES The shift lock solenoid is OK. Go to step 6.

NO Go to step 2.

2. Fuse check:

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Check the following fuse.
Fuse [No. B7](#)

Is the fuse OK?

YES The fuse is OK. Reinstall the fuse, then go to step 3.

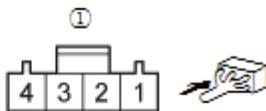
NO Replace the No. B7 fuse, and recheck. If the fuse blows again, repair a short to ground in the No. B7 fuse circuit. ■

3. Open wire check (IG1 METER line):

- 1. Disconnect the following connector.
Shift lever 4P connector (Type A shift lever)
Shift lock solenoid 2P connector (Type B shift lever)
- 2. Turn the vehicle to the ON mode.

- 3. Measure the voltage between test points 1 and 2.

Test condition	Vehicle ON mode Shift lever 4P connector: disconnected (Type A shift lever) Shift lock solenoid 2P connector: disconnected (Type B shift lever)
Test point 1	Shift lever 4P connector (female terminals) (Type A shift lever) No. 4: ① Shift lock solenoid 2P connector (female terminals) (Type B shift lever) No. 2: ②
Test point 2	Body ground



Is there battery voltage?

YES The IG1 METER wire is OK. Go to step 4.

NO Repair an open in the IG1 METER wire between the shift lock solenoid and the under-dash fuse/relay box.■

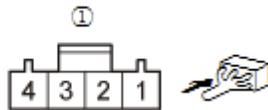
4. Determine possible failure area (shift lock solenoid, others):

- 1. With the transmission in P position/mode, press the brake pedal.

NOTE: Do not press the accelerator pedal.

- 2. Measure the voltage between test points 1 and 2.

Test condition	Vehicle ON mode Shift lever 4P connector: disconnected (Type A shift lever) Shift lock solenoid 2P connector: disconnected (Type B shift lever)
Test point 1	Shift lever 4P connector (female terminals) (Type A shift lever) No. 3: ① Shift lock solenoid 2P connector (female terminals) (Type B shift lever) No. 1: ②
Test point 2	Shift lever 4P connector (female terminals) (Type A shift lever) No. 4: ① Shift lock solenoid 2P connector (female terminals) (Type B shift lever) No. 2: ②



Is there battery voltage?

YES [Check the shift lock mechanism](#). If the mechanism is OK, [replace the shift lock solenoid](#).■

NO Go to step 5.

5. Open wire check (SLS/SHIFT LOCK SOL line):

-1. Turn the vehicle to the OFF (LOCK) mode.

-2. Disconnect the following connector.
TCM 50P connector

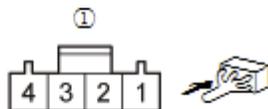
-3. Check for continuity between test points 1 and 2.

Test condition Vehicle OFF (LOCK) mode
Shift lever 4P connector: disconnected (Type A shift lever)
Shift lock solenoid 2P connector: disconnected (Type B shift lever)
TCM 50P connector: disconnected

Test point 1 Shift lever 4P connector (female terminals) (Type A shift lever) No. 3: ①

Shift lock solenoid 2P connector (female terminals) (Type B shift lever) No. 1: ②

Test point 2 [TCM 50P connector No. 26](#)



Is there continuity?

YES The SLS/SHIFT LOCK SOL wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■

NO Repair an open in the SLS/SHIFT LOCK SOL wire between the shift lock solenoid and the TCM.■

6. Brake pedal position switch operation check:

- 1. Check the parameter(s) below with the HDS while pressing the brake pedal.

Signal	Threshold		Current conditions	
	Values	Unit	Values	Unit
Brake Switch	ON			

Do the current condition(s) match the threshold?

YES The brake pedal position switch is OK. Go to step 8.

NO If the brake lights come on, go to step 7. If the brake lights do not work, repair faulty brake light circuit.

7. Open wire check (STOP SW line):

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Jump the SCS line with the HDS, and wait more than 1 minute.

SCS Short

- 3. Disconnect the following connector.
PCM connector A (50P)
- 4. Measure the voltage between test points 1 and 2.
Test condition Vehicle OFF (LOCK) mode
PCM connector A (50P): disconnected
Test point 1 [PCM connector A \(50P\) No. 26](#)
Test point 2 Body ground

Is there battery voltage while pressing the brake pedal and about 0 V when the pedal is released?

YES The STOP SW wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good PCM](#), then recheck. If the symptom goes away and the PCM was substituted, [replace the original PCM](#).■

NO Repair an open in the STOP SW wire between the PCM and the brake pedal position switch.■

8. Transmission range switch parameter check:

- 1. Shift the transmission to P position/mode.
- 2. Check the parameter(s) below with the HDS.

Signal	Threshold		Current conditions	
	Values	Unit	Values	Unit
A/T P Switch	ON			

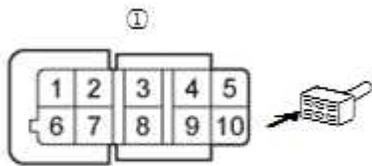
Do the current condition(s) match the threshold?

YES The transmission range switch is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#). ■

NO Go to step 9.

9. Transmission range switch check:

- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Disconnect the following connector.
Transmission range switch 10P connector
- 3. Connect terminals A and B with a jumper wire.
Terminal A Transmission range switch 10P connector (female terminals) No. 5: ①
Terminal B Body ground



- 4. Turn the vehicle to the ON mode.
- 5. Check the parameter(s) below.

Signal	Threshold		Current conditions	
	Values	Unit	Values	Unit
A/T P Switch	ON			

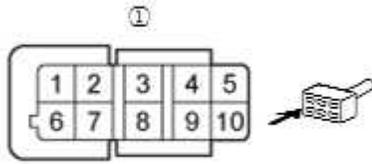
Do the current condition(s) match the threshold?

YES [Replace the transmission range switch](#). ■

NO The transmission range switch is OK. Go to step 10.

10. Open wire check (ATP-P line):

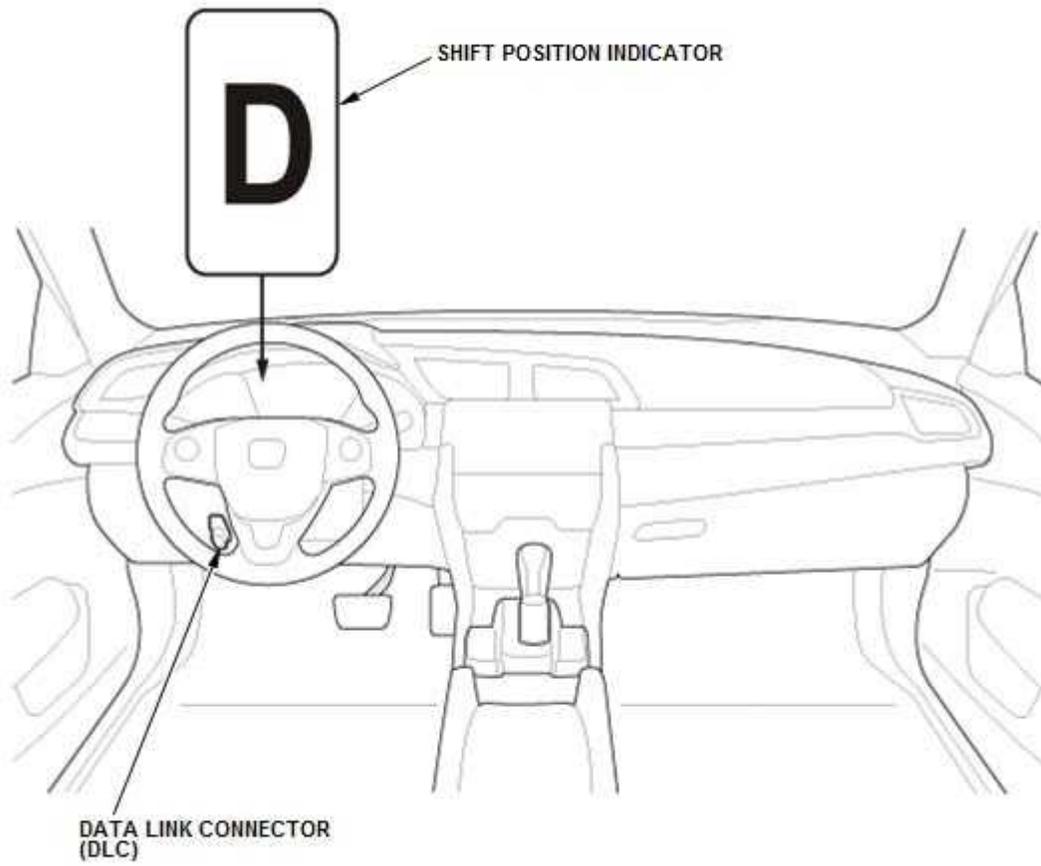
- 1. Turn the vehicle to the OFF (LOCK) mode.
- 2. Remove the jumper wire.
- 3. Disconnect the following connector.
TCM 50P connector
- 4. Check for continuity between test points 1 and 2.
Test condition Vehicle OFF (LOCK) mode
 Transmission range switch 10P connector: disconnected
 TCM 50P connector: disconnected
Test point 1 Transmission range switch 10P connector (female terminals) No. 5: ①
Test point 2 [TCM 50P connector No. 48](#)

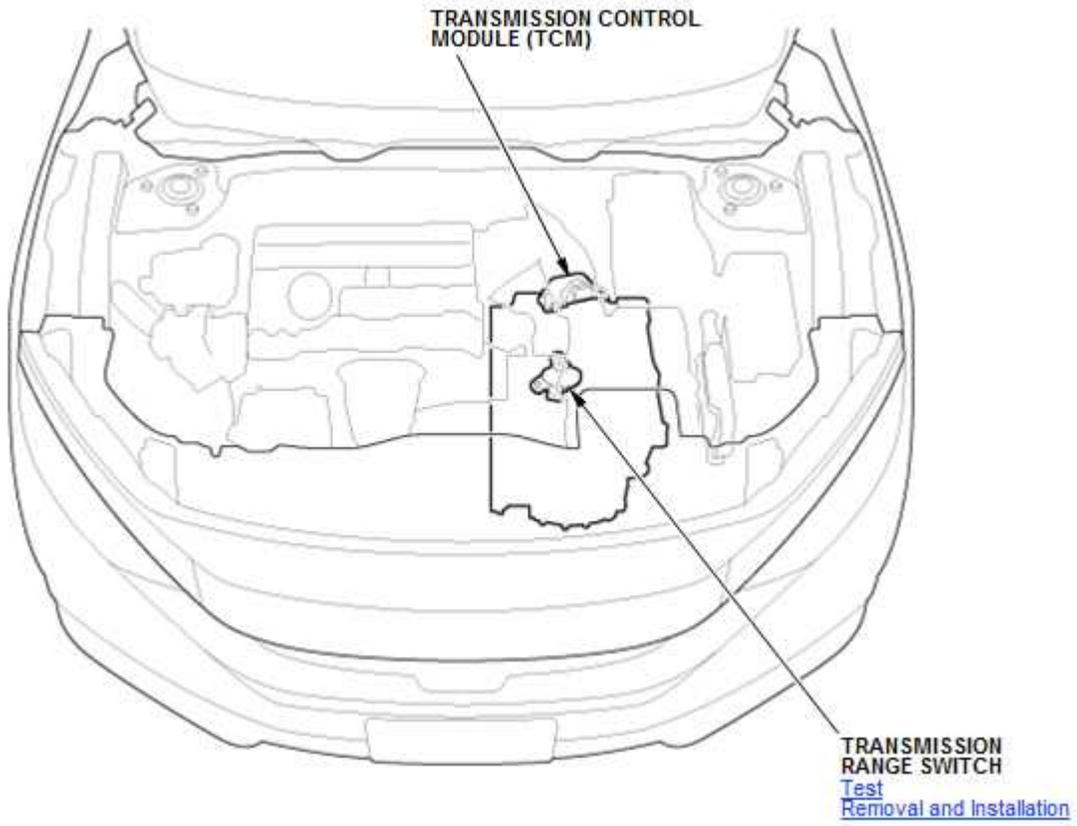


Is there continuity?

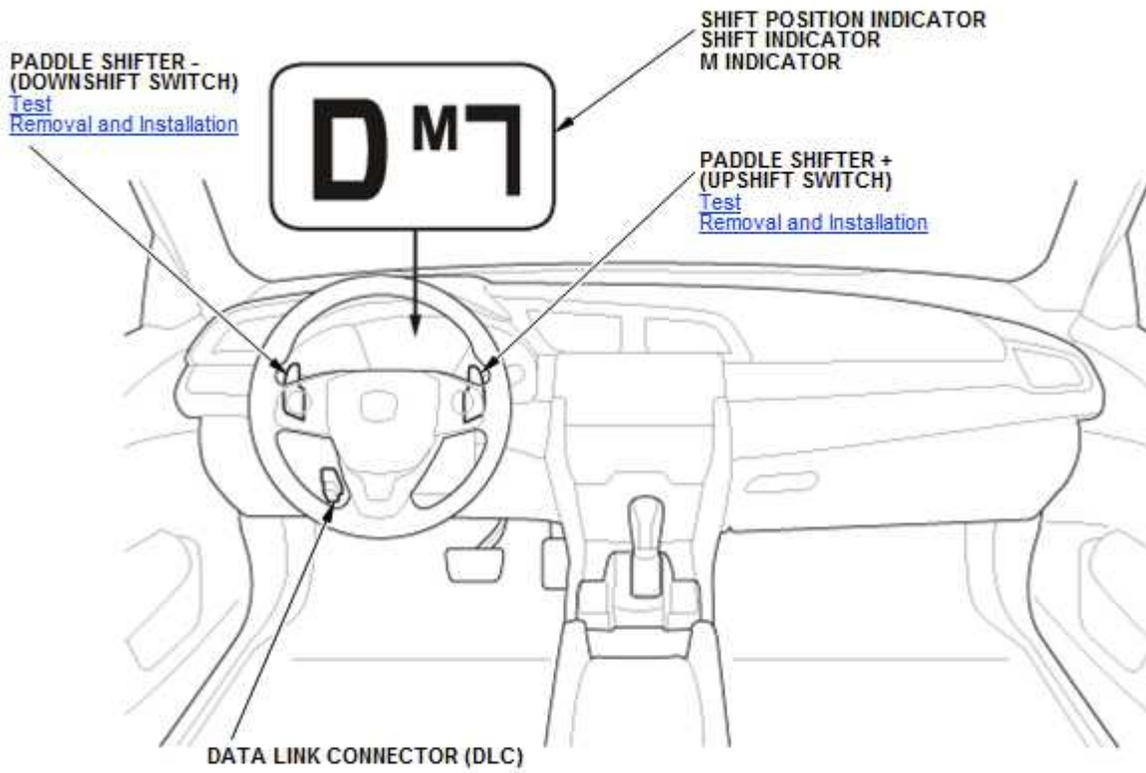
- YES The ATP-P wire is OK. Check for any authorized service information related to the DTCs or symptoms you are troubleshooting, or [substitute a known-good TCM](#), then recheck. If the symptom goes away and the TCM was substituted, [replace the original TCM](#).■
- NO Repair an open in the ATP-P wire between the transmission range switch and the TCM.■

Shift Position Indicator Component Location Index



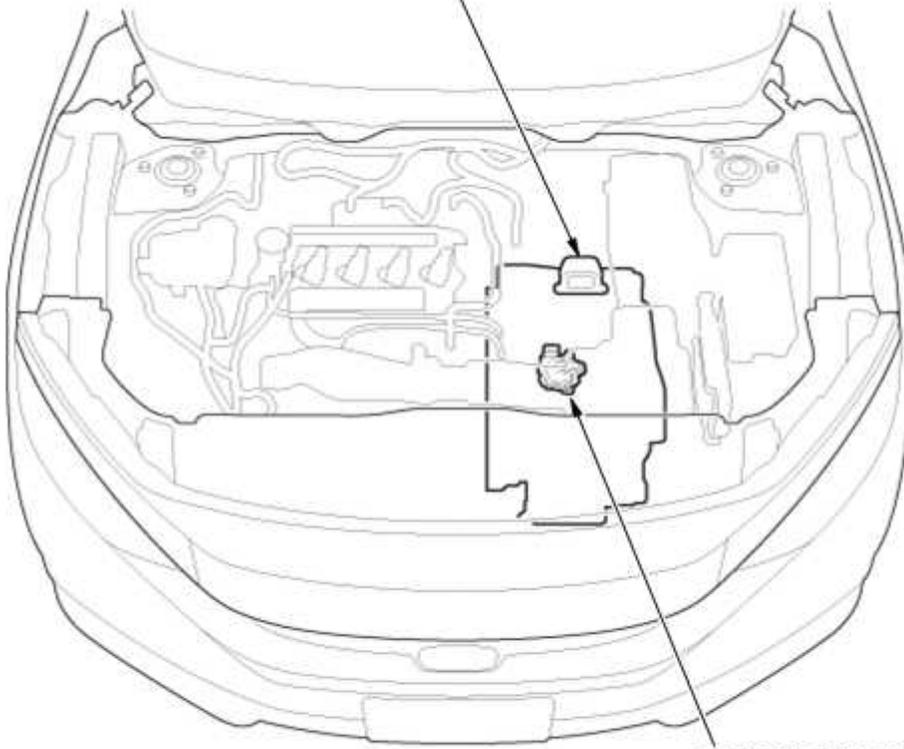


Shift Position Indicator Component Location Index



This illustration shows model equipped with paddle shifter.

TRANSMISSION CONTROL
MODULE (TCM)



TRANSMISSION RANGE SWITCH
[Test](#)
[Removal and Installation](#)

Shift Solenoid Valve O/P Removal and Installation

Removal/Installation

NOTE: Keep all foreign particles out of the transmission.

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine - Warm Up

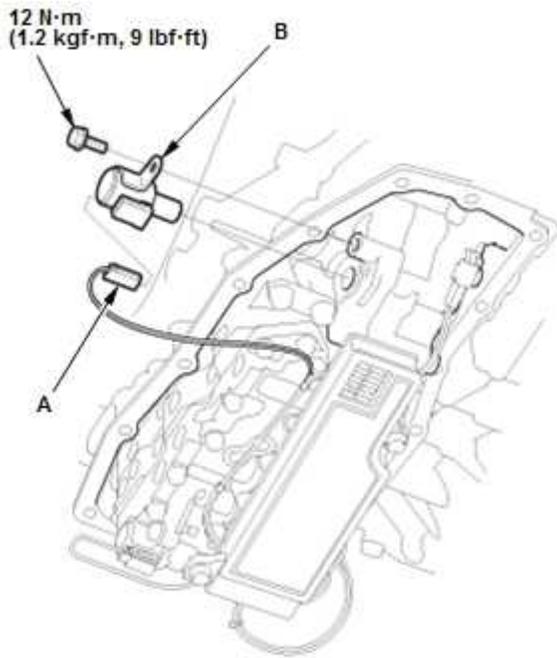
1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain

5. Transmission Fluid Pan - Remove

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

6. Shift Solenoid Valve O/P - Remove



1. Disconnect the connector (A).
2. Remove the shift solenoid valve O/P (B).

7. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

8. Transmission Fluid - Refill

9. Transmission Fluid Level - Check

Stall Speed Test

Test

1. Transmission Fluid Level - Check

2. HDS - Connect

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).

4. Stall Speed - Test

NOTE:

- Do not test stall speed for more than 10 seconds at a time.
- Record the engine speed at 6 to 8 seconds after pressing the accelerator pedal. Higher engine speed will be indicated for 5 seconds.
- Stall speed tests should be used for diagnostic purposes only.
- The stall speed should be the same in all positions/modes.
- Do not test stall speed with a pressure gauge installed.

1. Apply the parking brake, and block all four wheels.
2. Make sure the A/C switch is OFF.
3. Shift the transmission to D position/mode while pressing the brake pedal firmly, then press the accelerator pedal for 6 to 8 seconds, and note the engine speed.

NOTE: Do not move the shift lever or remove your foot off the brake pedal, while raising the engine speed.

4. Allow 2 minutes for cooling, then repeat the test in the all positions/modes.

Stall Speed rpm

Specification: 2,200 rpm

Service Limit: 1,950—2,350 rpm

5. If any of the stall speeds are out of the service limit, refer to the problems and probable causes listed in the table.

Problems	Probable Causes
Stall speed rpm high	<ul style="list-style-type: none">● Low transmission fluid level● Transmission fluid deteriorated● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump● Torque converter assembly defective● Forward clutch assembly defective

Problems	Probable Causes
	<ul style="list-style-type: none"> ● Input shaft worn or damaged ● Reverse brake defective ● Valve body assembly defective ● Lubrication pipe defective ● Stator shaft defective ● TCM defective
Stall speed rpm low	<ul style="list-style-type: none"> ● Torque converter assembly defective ● Valve body assembly defective ● Lubrication pipe defective ● Stator shaft defective ● Engine output low ● TCM defective

Stall Speed Test

Test

1. Transmission Fluid Level - Check

2. HDS - Connect

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).

4. Stall Speed - Test

NOTE:

- Do not test stall speed for more than 10 seconds at a time.
- Record the engine speed at 6 to 8 seconds after pressing the accelerator pedal. Higher engine speed will be indicated for 5 seconds.
- Stall speed tests should be used for diagnostic purposes only.
- The stall speed should be the same in all positions/modes.
- Do not test stall speed with a pressure gauge installed.

1. Apply the parking brake, and block all four wheels.
2. Make sure the A/C switch is OFF.
3. Shift the transmission to D position/mode while pressing the brake pedal firmly, then press the accelerator pedal for 6 to 8 seconds, and note the engine speed.

NOTE: Do not move the shift lever or remove your foot off the brake pedal, while raising the engine speed.

4. Allow 2 minutes for cooling, then repeat the test in the all positions/modes.

Stall Speed rpm

Specification: 2,550 rpm

Service Limit: 2,400— 2,700 rpm

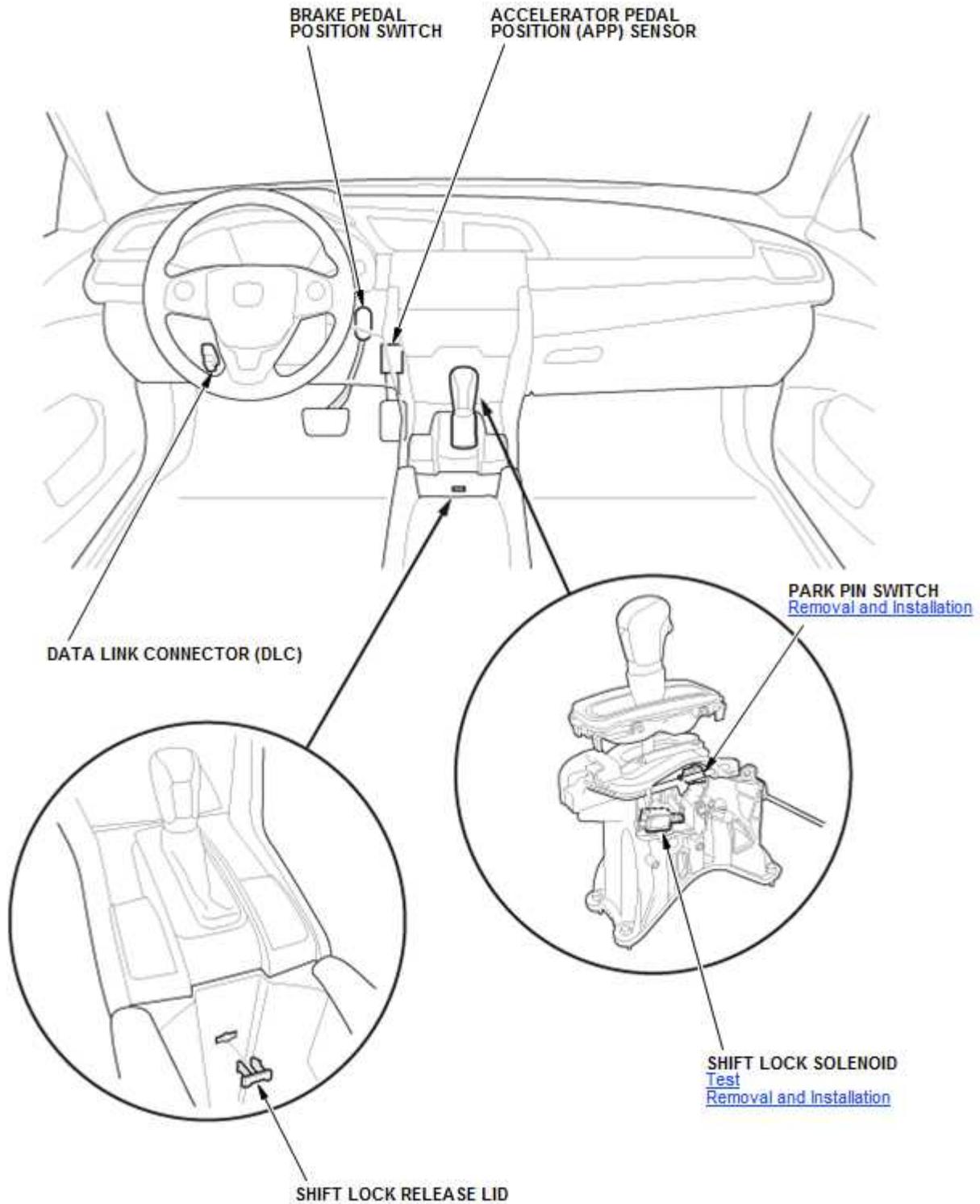
5. If any of the stall speeds are out of the service limit, refer to the problems and probable causes listed in the table.

Problems	Probable Causes
Stall speed rpm high	<ul style="list-style-type: none">● Low transmission fluid level● Transmission fluid deteriorated● Transmission fluid pump worn, binding, or foreign material in transmission fluid pump● Torque converter assembly defective● Forward clutch assembly defective

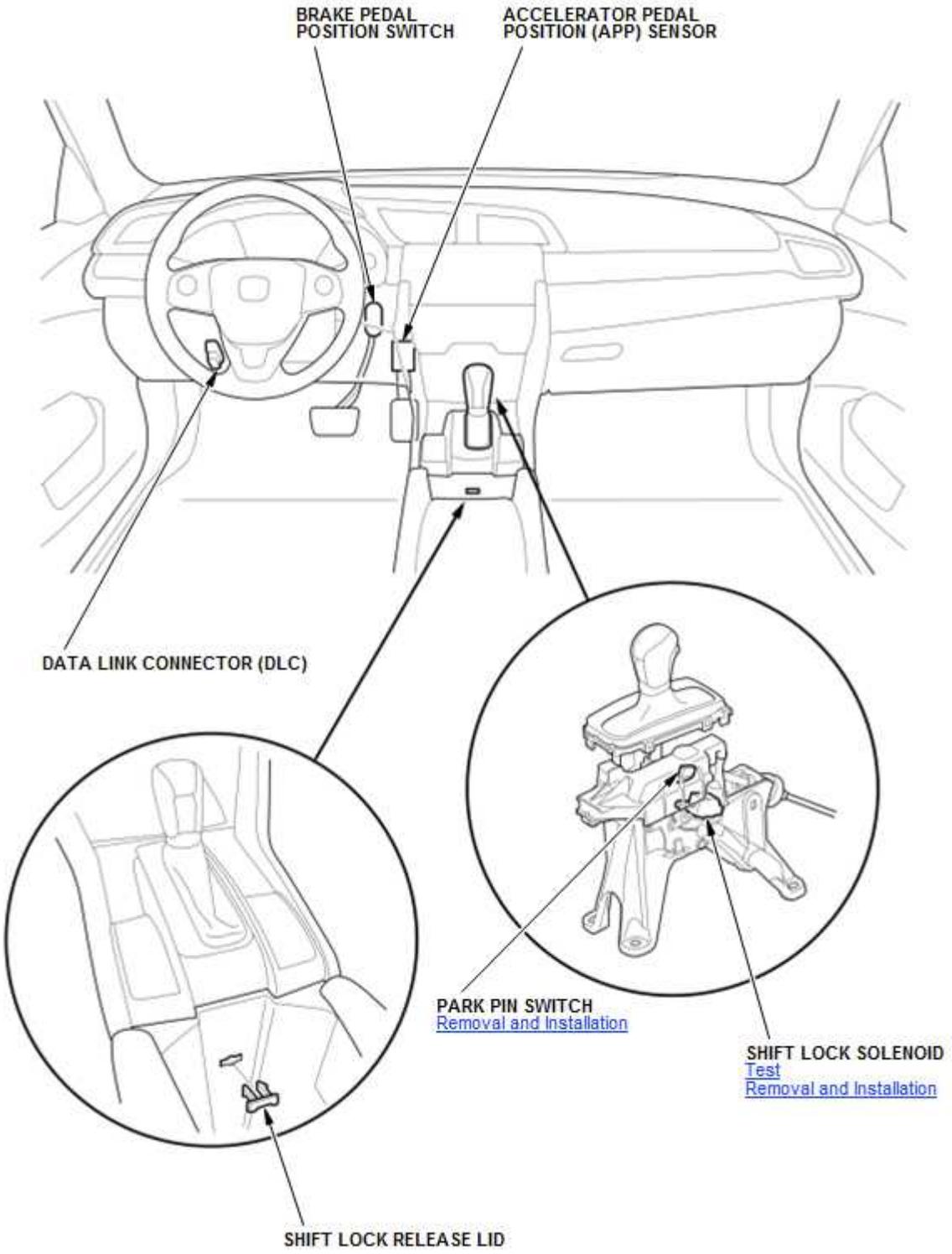
Problems	Probable Causes
	<ul style="list-style-type: none"> ● Input shaft worn or damaged ● Reverse brake defective ● Valve body assembly defective ● Lubrication pipe defective ● Stator shaft defective ● TCM defective
Stall speed rpm low	<ul style="list-style-type: none"> ● Torque converter assembly defective ● Valve body assembly defective ● Lubrication pipe defective ● Stator shaft defective ● Engine output low ● TCM defective

A/T Interlock System Component Location Index

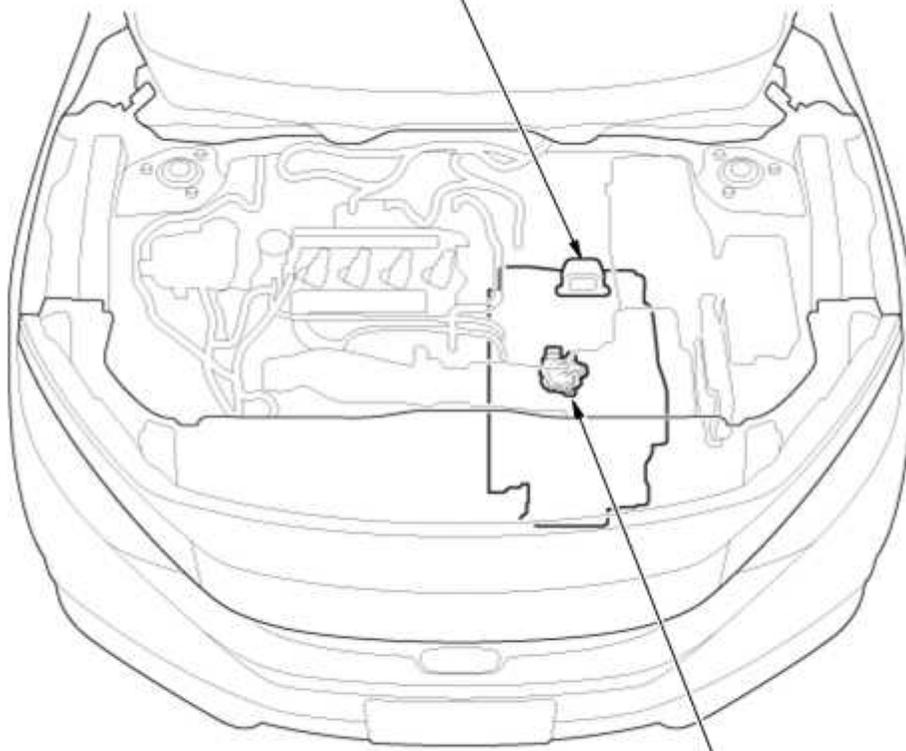
Type A Shift Lever



Type B Shift Lever

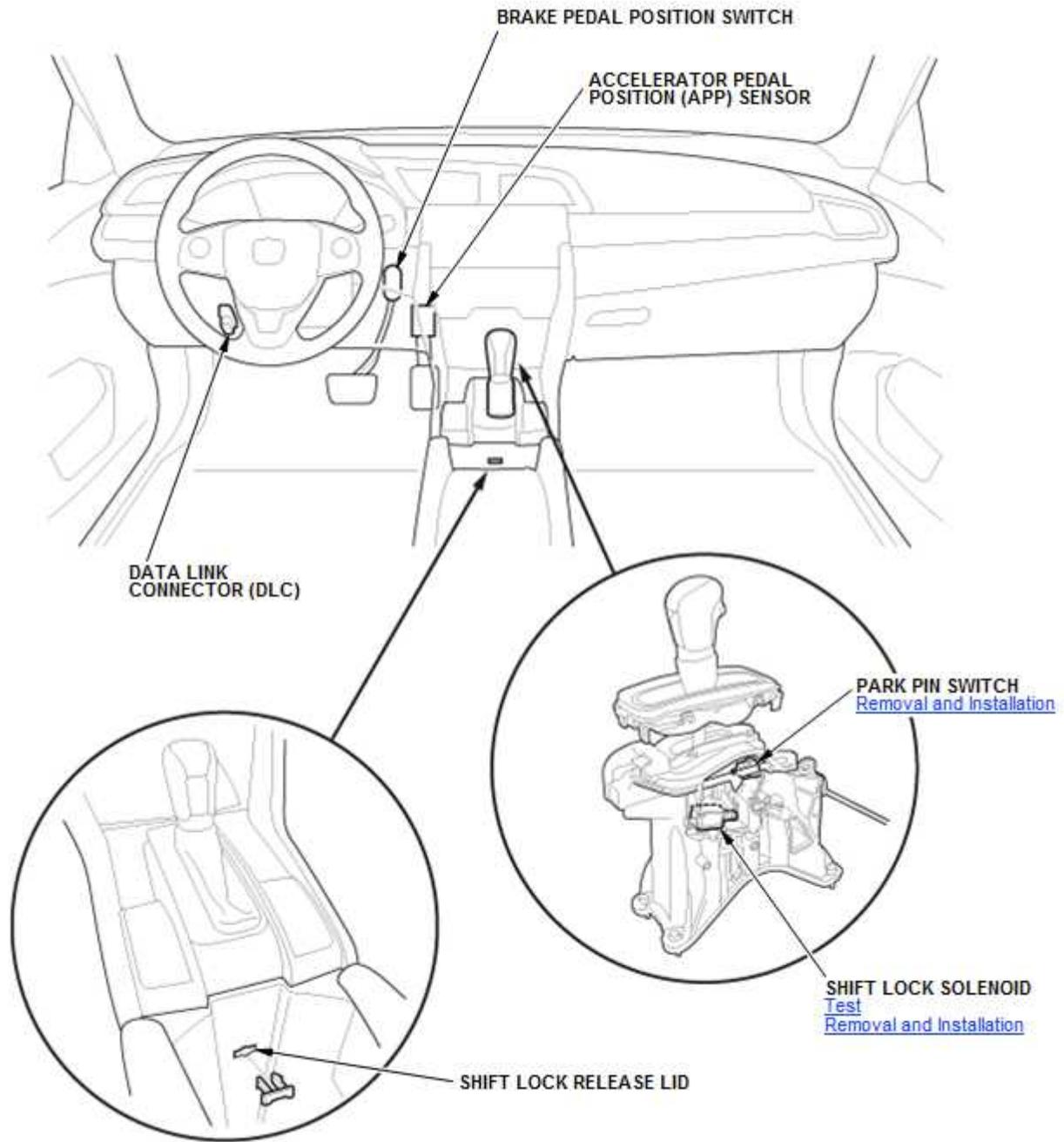


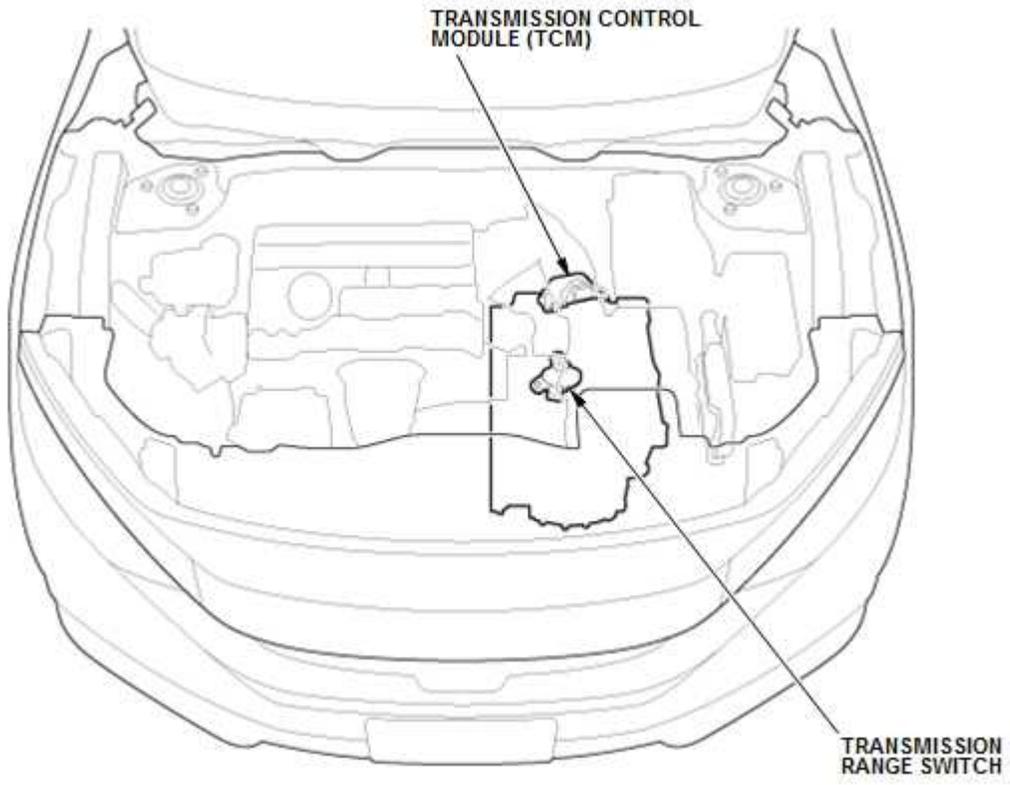
TRANSMISSION CONTROL
MODULE (TCM)



TRANSMISSION RANGE SWITCH

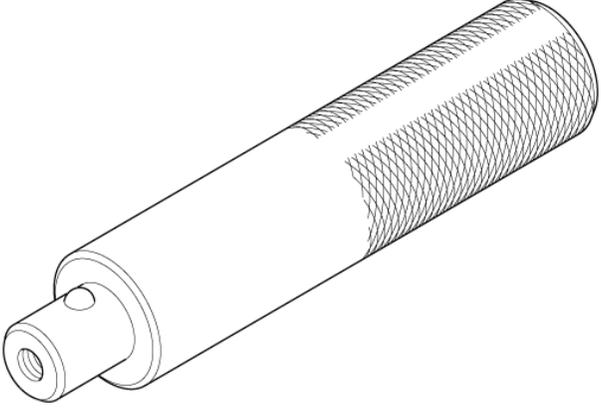
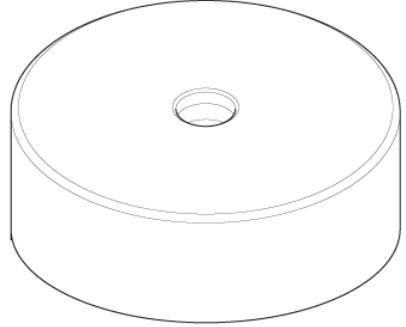
A/T Interlock System Component Location Index





Transmission End Crankshaft Oil Seal Replacement - In Car

Special Tool Required

Image	Description/Tool Number
	Driver Handle, 15 x 135L 07749-0010000
	Oil Seal Driver Attachment, 92 mm 070AD-5R00100

Replacement

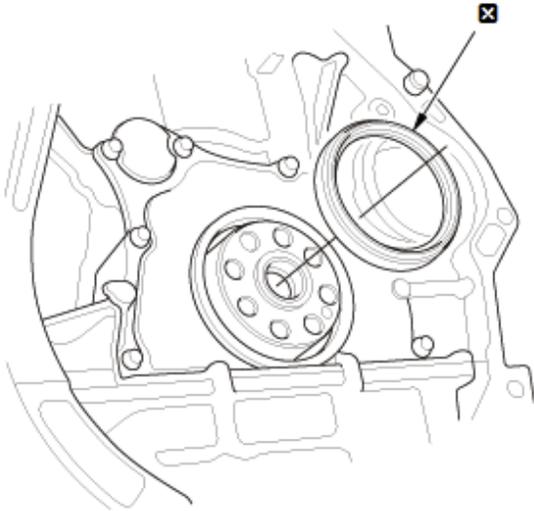
1. Transmission - Remove

- [M/T](#)
- [CVT](#)

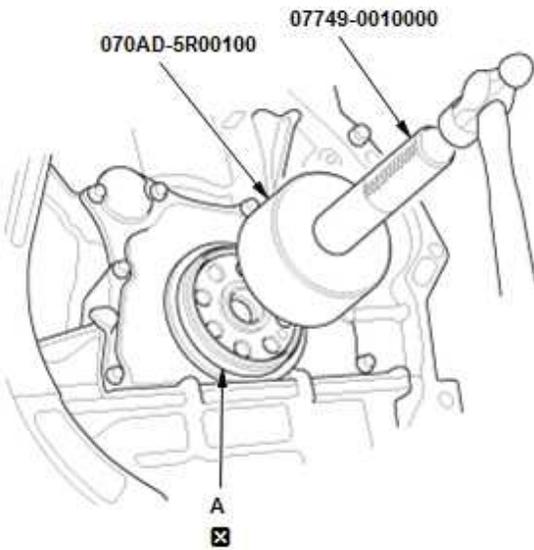
2. Pressure Plate, Clutch Disc, and Flywheel - Remove (M/T)

3. Drive Plate - Remove (CVT)

4. Transmission End Crankshaft Oil Seal - Remove

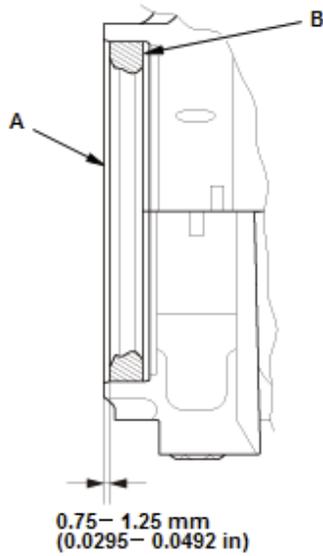


5. Transmission End Crankshaft Oil Seal - Install



1. Clean and dry the transmission end crankshaft oil seal housing.
2. Apply a light coat of new engine oil to the crankshaft and to the lip of the new transmission end crankshaft oil seal.
3. Use the driver handle, 15 x 135L and the oil seal driver attachment, 92 mm to drive a new transmission end crankshaft oil seal (A) squarely into the oil seal case to the specified installed height.
4. Clean the excess oil off the crankshaft, and check that the oil seal lip is not distorted.

5. Measure the distance between the oil seal case (A) and the transmission end crankshaft oil seal (B).



Oil Seal Installed Height:
0.75- 1.25 mm (0.0295- 0.0492 in)

6. Drive Plate - Install (CVT)

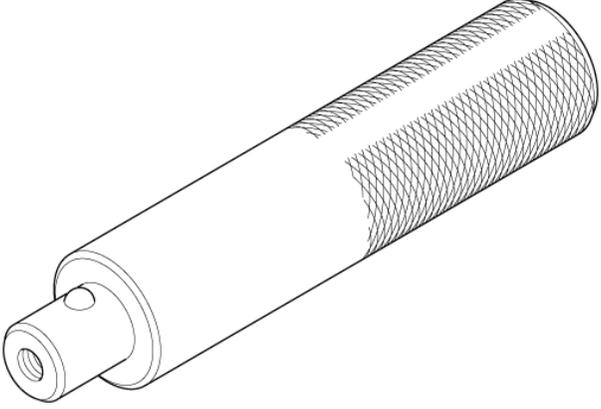
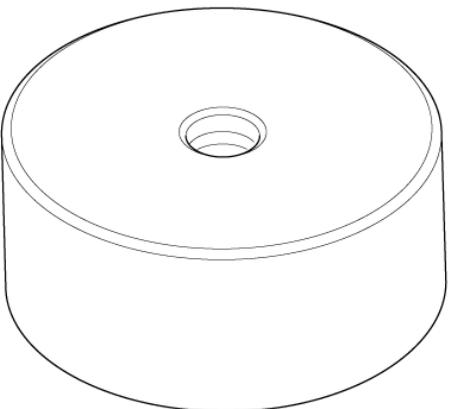
7. Pressure Plate, Clutch Disc, and Flywheel - Install (M/T)

8. Transmission - Install

- [M/T](#)
- [CVT](#)

Transmission End Crankshaft Oil Seal Replacement - In Car

Special Tool Required

Image	Description/Tool Number
	Driver Handle, 15 x 135L 07749-0010000
	Oil Seal Driver Attachment, 96 mm 07ZAD-PNAA100

Replacement

NOTE: Unless otherwise indicated, illustrations used in the procedure are for K20C2 engine.

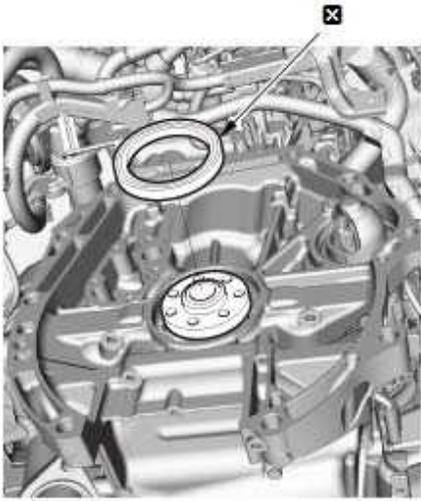
1. Transmission - Remove

- [M/T](#)
- [CVT](#)

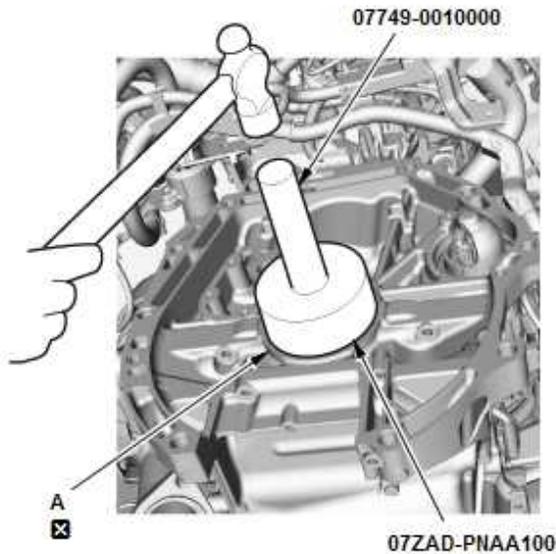
2. Drive Plate - Remove (CVT)

3. Pressure Plate, Clutch Disc, and Flywheel - Remove (M/T)

4. Transmission End Crankshaft Oil Seal - Remove



5. Transmission End Crankshaft Oil Seal - Install



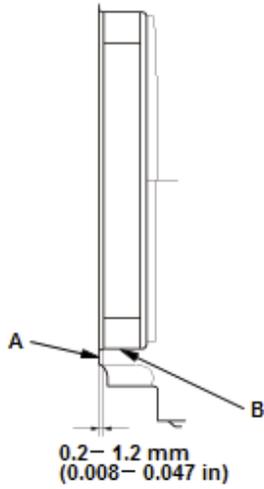
1. Clean and dry the transmission end crankshaft oil seal housing.
2. Apply a light coat of new engine oil to the crankshaft and to the lip of the new transmission end crankshaft oil seal.
3. Use the driver handle, 15 x 135L and the oil seal driver attachment, 96 mm, to drive a new transmission end crankshaft oil seal (A) squarely into the engine block to the specified installed height.

4. Measure the distance between the lower block (A) and transmission end crankshaft oil seal (B).

Oil Seal Installed Height:

0.2 – 1.2 mm (0.008 – 0.047 in)

5. Clean the excess oil off the crankshaft, and check that the transmission end crankshaft oil seal lip is not distorted.



6. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

Transmission Fluid (HCF-2) Level Check

Check

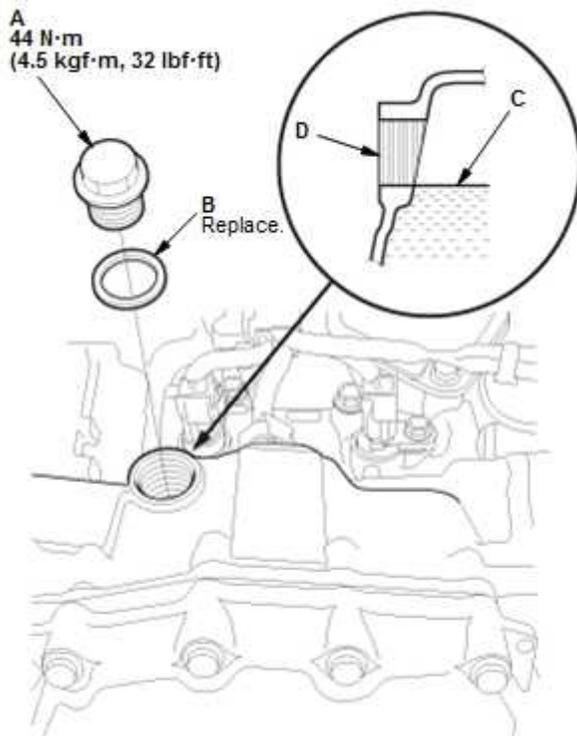
NOTE:

- Keep all foreign particles out of the transmission.
- Check the transmission fluid level after the shift lever operation without spending too much time.

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Transmission Fluid Level - Check



1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. While pressing the brake pedal firmly, shift in turn the transmission to P→R→N→D→S→L→S→D→N→R→P position/mode, and wait for at least 3 seconds to each position/mode.
3. Turn the engine off.
4. Remove the filler plug (A) with the sealing washer (B).

NOTE: Be careful not to burn yourself by the hot part.

5. Make sure the transmission fluid is at the proper level (C).

NOTE: If the fluid level is below the proper level, check for fluid leaks at the transmission and the fluid lines. If a problem is found, fix it before filling the transmission with transmission fluid.

6. If necessary, add the transmission with the recommended fluid into the filler plug hole (D) until transmission fluid overflows. Always use Honda HCF-2 Continuously Variable Transmission Fluid.
7. Reinstall the filler plug with a new sealing washer.

4. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

Transmission Fluid (HCF-2) Level Check

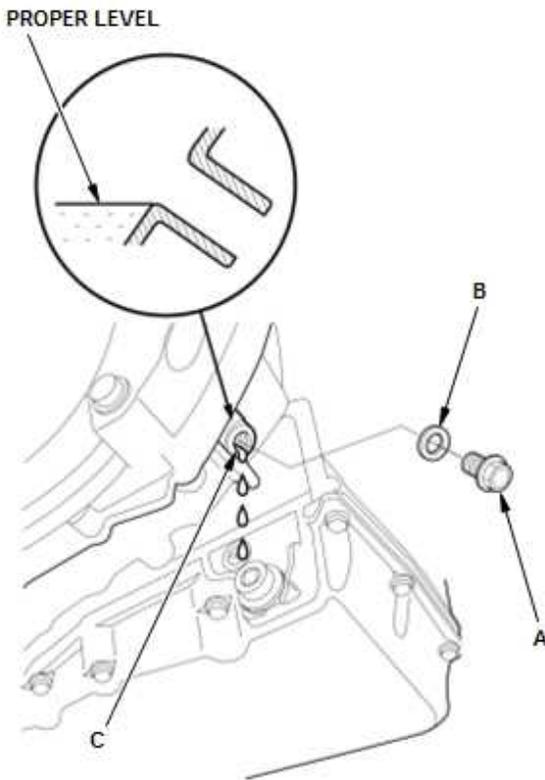
Check

NOTE: Keep all foreign particles out of the transmission.

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Transmission Fluid Level - Check



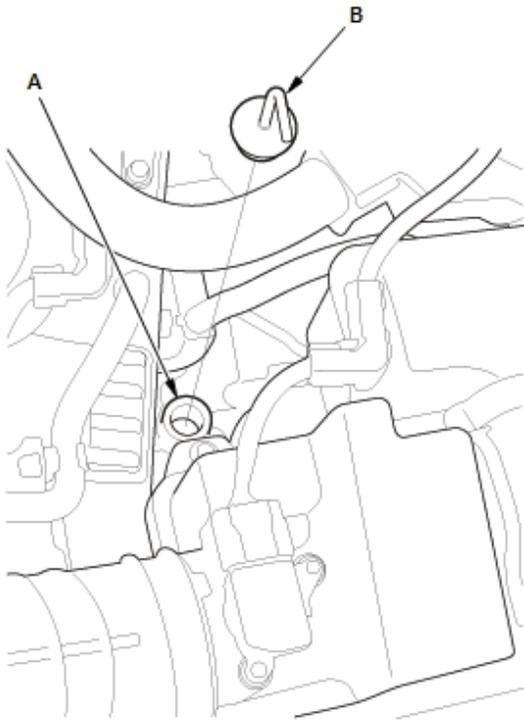
NOTE:

- Be careful not to burn yourself by the hot part.
- Do the transmission fluid level check immediately, after the shift lever operation.

1. Start the engine.
2. While pressing the brake pedal firmly, shift in turn the transmission to P→R→N→D→S→L→S→D→N→R→P position/mode (without paddle shifter)/P→R→N→D→S→D→N→R→P position/mode (with paddle shifter), and wait for at least 3 seconds to each position/mode.
3. Turn the engine off.
4. Remove the check bolt (A) with the sealing washer (B).
5. Check the transmission fluid level at the check hole (C).

NOTE: The transmission fluid is at the proper level if the transmission fluid is dripping from the check hole gradually.

- If the transmission fluid is dripless from the check hole, check for transmission fluid leaks at the transmission, the transmission fluid pan, the transmission fluid hoses, and the transmission fluid lines. If a problem is found, fix it before filling the transmission with transmission fluid, then go to step 3-6.
 - If the transmission fluid is flowing out of the check hole, go to step 3-12.
6. Temporarily install the check bolt with the sealing washer.



7. Lower the vehicle.

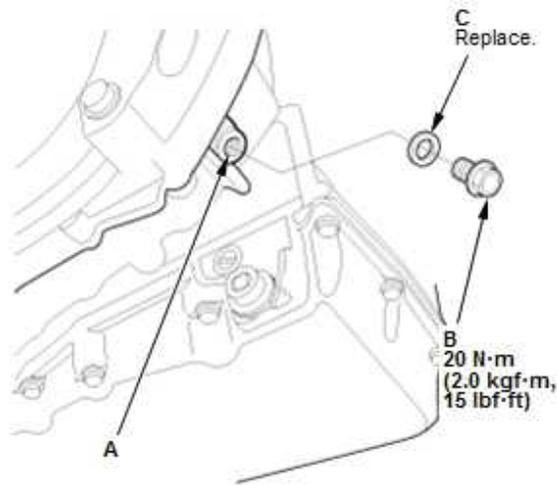
8. Remove filler cap B.

9. Refill the transmission with the recommended fluid into the filler hole (A) at the suitable amount. Always use Honda HCF-2 Continuously Variable Transmission Fluid.

NOTE: Using the wrong type of fluid will damage the transmission.

10. Install filler cap B with the lever toward the front of the vehicle.

11. Go to step 3-1, then recheck.



12. Wait until the transmission fluid is dripping from the check hole (A) gradually.

13. After checking the transmission fluid level, install the check bolt (B) with a new sealing washer (C).

4. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

Transmission Fluid (HCF-2) Replacement

Replacement

NOTE: Keep all foreign particles out of the transmission.

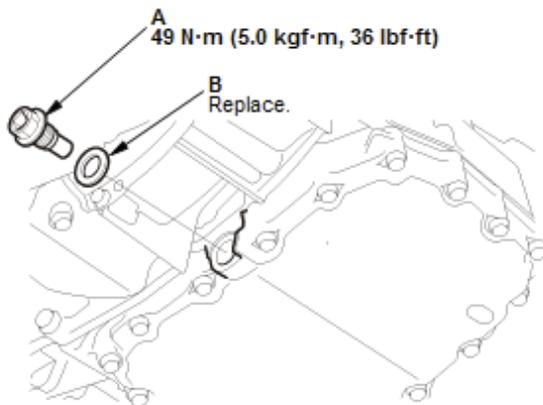
1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain



1. Remove the drain plug (A) with the sealing washer (B), and drain the transmission fluid for at least 5 minutes.

NOTE:

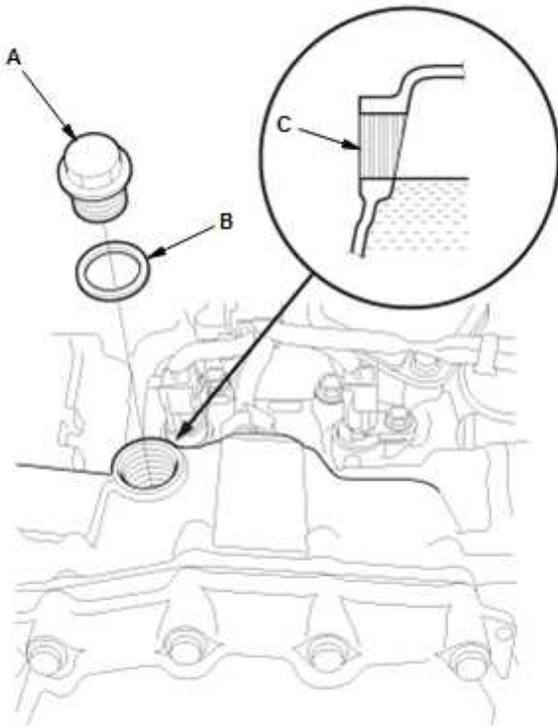
- Be careful not to burn yourself by the hot part.
- Remove metal particles from the magnetic surface of the drain plug.

2. Reinstall the drain plug with a new sealing washer.

5. Transmission Fluid - Refill

1. Remove the filler plug (A) with the sealing washer (B).

NOTE: Be careful not to burn yourself by the hot part.



2. Refill the transmission with the recommended fluid into the filler plug hole (C) until transmission fluid overflows. Always use Honda HCF-2 Continuously Variable Transmission Fluid.

NOTE: Using the wrong type of fluid will damage the transmission.

Transmission Fluid (HCF-2) Capacity:

3.5 L (3.7 US qt) at change

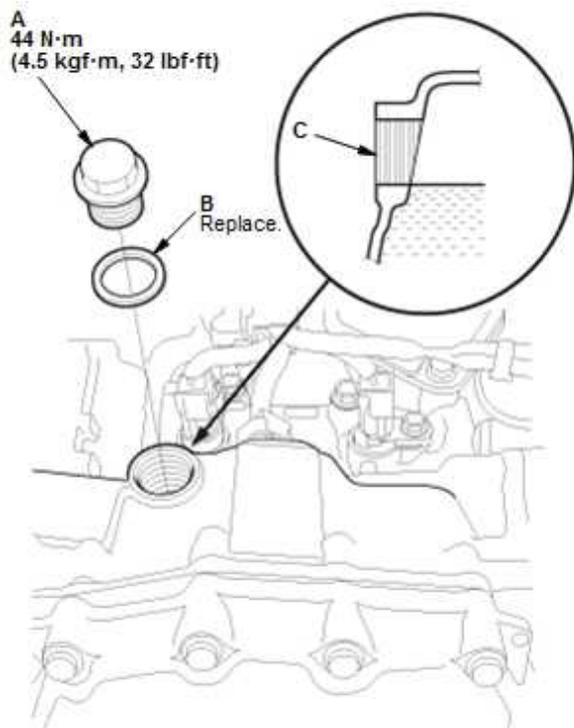
4.3 L (4.5 US qt) at oil pan, valve body assembly, and transmission fluid pump removal, installation, and replacement*

5.8 L (6.1 US qt) at overhaul

NOTE: *Reference transmission fluid (HCF-2) capacity when working time is 30 minutes. The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

3. Temporarily install the filler plug with the sealing washer.

6. Transmission Fluid - Add



NOTE: Add transmission fluid after the shift lever operation without spending too much time.

1. Lower the vehicle.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
3. While pressing the brake pedal firmly, shift in turn the transmission to P→R→N→D→S→L→S→D→N→R→P position/mode, and wait for at least 3 seconds to each position/mode.

4. Turn the engine off.
5. Remove the filler plug (A) and the sealing washer (B).

NOTE: Be careful not to burn yourself by the hot part.

6. Add the transmission with the recommended fluid into the filler plug hole (C) until transmission fluid overflows. Always use Honda HCF-2 Continuously Variable Transmission Fluid.
7. Reinstall the filler plug with a new sealing washer.

7. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

8. Maintenance Minder - Reset (With Maintenance Minder System)

1. If the Maintenance Minder required to replace the transmission fluid, [reset the Maintenance Minder with the gauge \(see "Resetting the Maintenance Minder"\)](#). If the Maintenance Minder did not require to replace the transmission fluid, [reset the Maintenance Minder with the HDS \(see "Resetting the Individual Maintenance Items"\)](#).

Transmission Fluid (HCF-2) Replacement

Replacement

NOTE: Keep all foreign particles out of the transmission.

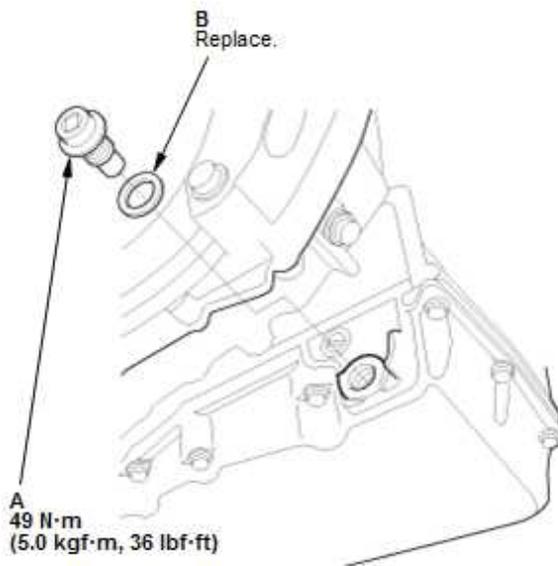
1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain



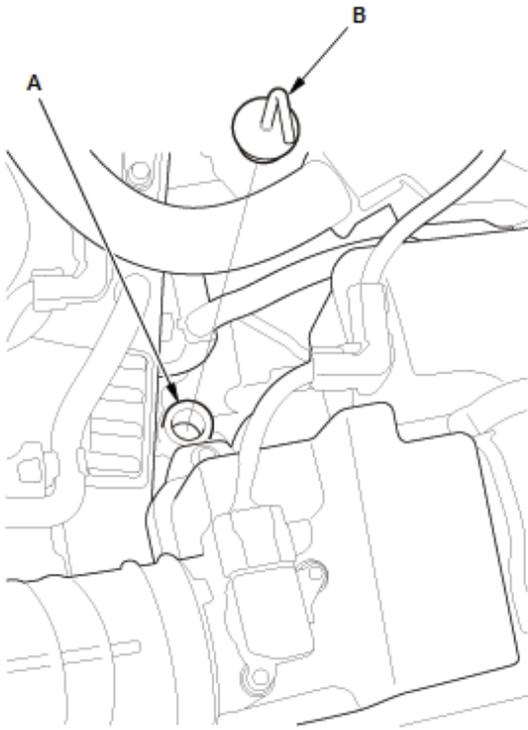
1. Remove the drain plug (A) with the sealing washer (B), and drain the transmission fluid for at least 5 minutes.

NOTE:

- Be careful not to burn yourself by the hot part.
 - Remove metal particles from the magnetic surface of the drain plug.
2. Reinstall the drain plug with a new sealing washer.

5. Transmission Fluid - Refill

1. Lower the vehicle.



2. Remove filler cap B.
3. Refill the transmission with the recommended fluid into the filler hole (A). Always use Honda HCF-2 Continuously Variable Transmission Fluid.

NOTE: Using the wrong type of fluid will damage the transmission.

Transmission Fluid (HCF-2) Capacity:

3.7 L (3.9 US qt) at change

5.8 L (6.1 US qt) at oil pan, valve body assembly, and transmission fluid pump removal, installation, and replacement*

7.6 L (8.0 US qt) at overhaul

NOTE: *Reference transmission fluid (HCF-2) capacity when working time is 20 minutes. The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

4. Install filler cap B with the lever toward the front of the vehicle.

6. Transmission Fluid Level - Check

7. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

8. Maintenance Minder - Reset (With Maintenance Minder System)

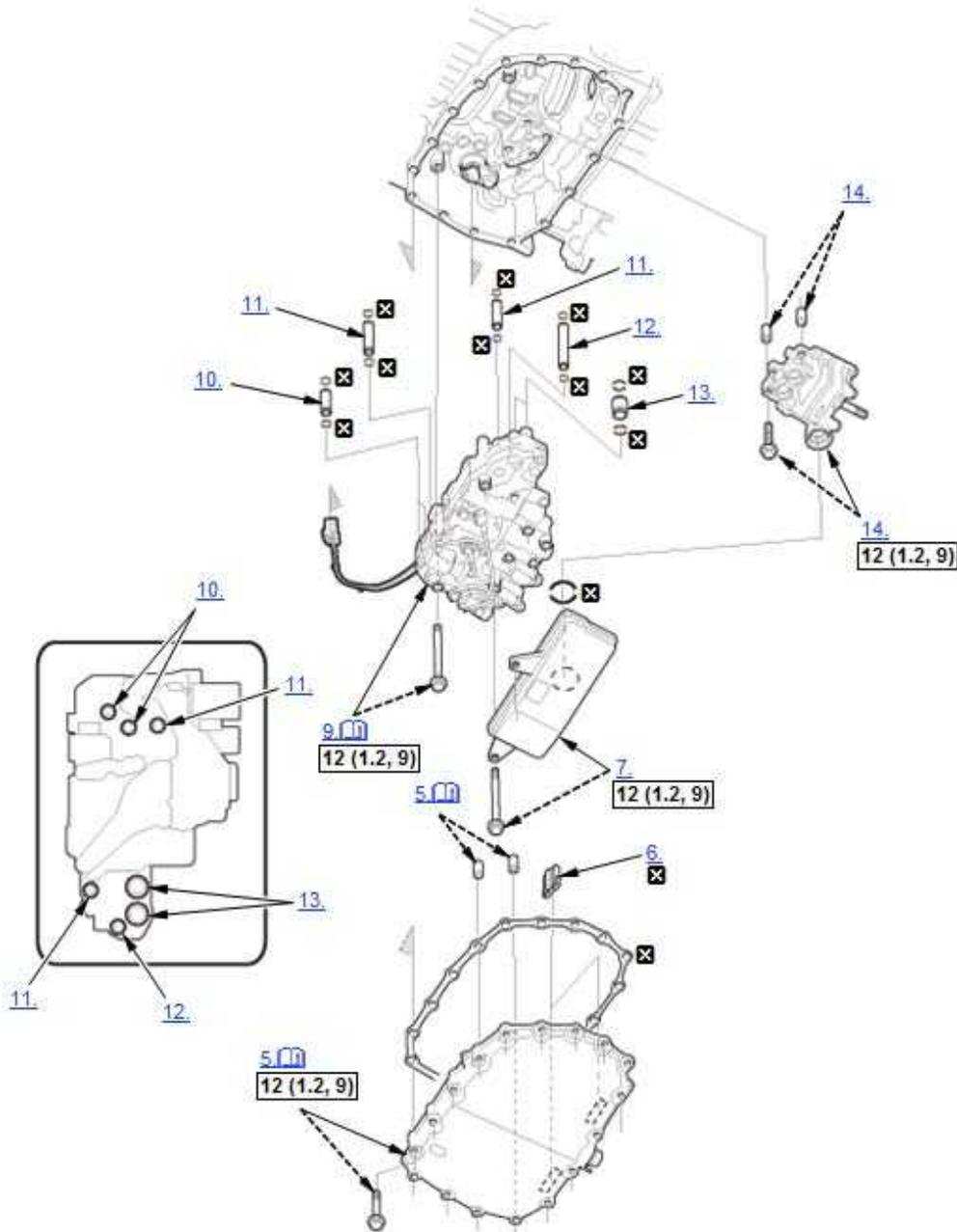
1. If the Maintenance Minder required to replace the transmission fluid, [reset the Maintenance Minder with the gauge \(see "Resetting the Maintenance Minder"\)](#). If the Maintenance Minder did not require to replace the transmission fluid, [reset the Maintenance Minder with the HDS \(see "Resetting the Individual Maintenance Items"\)](#).

Removal/Installation

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.

1



<input type="checkbox"/>	Torque: N·m (kgf·m, lbf·ft)
<input checked="" type="checkbox"/>	Replace

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain

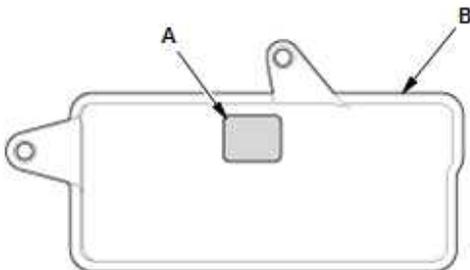
5. Transmission Fluid Pan - Remove

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

6. Magnet - Remove

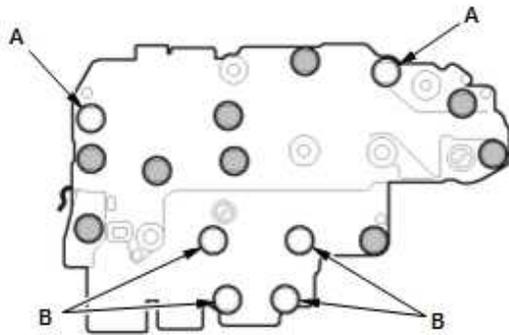
7. Transmission Fluid Strainer - Remove

8. Transmission Fluid Strainer - Check



1. Clean the inlet opening (A) of the transmission fluid strainer (B) thoroughly with compressed air.
2. Check that it is in good condition and that the inlet opening is not clogged.
3. Test the strainer by pouring clean transmission fluid through the inlet opening, and replace it if it is clogged or damaged.

9. Valve Body Assembly - Remove



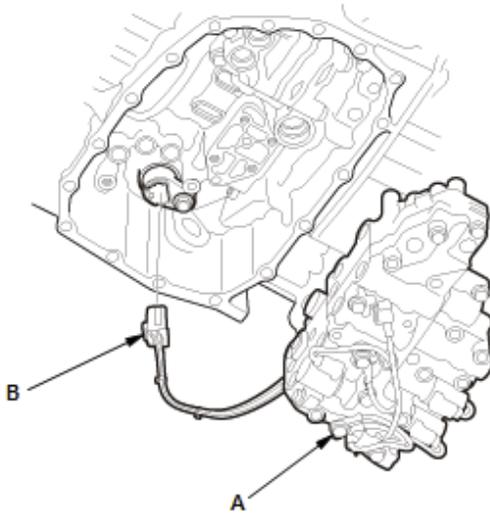
- : BOLTS TO BE REMOVED
- : BOLTS NOT TO BE REMOVED

1. Remove the valve body assembly mounting bolts.

Bolt	Length
A	90 mm (3.54 in)
B	65 mm (2.56 in)

2. Remove the valve body assembly (A) straightly and disconnect the connector (B).

NOTE: Be careful not to damage the solenoid wire harness.



10. 10.9 x 29 mm Pipe - Remove

11. 10.9 x 48 mm Pipe - Remove

12. 10.9 x 75.5 mm Pipe - Remove

13. 18 x 21 mm Pipe - Remove

14. Transmission Fluid Pump - Remove

15. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Apply a light coat of clean transmission fluid on all O-rings before installation.
- Be careful not to damage the O-rings.
- Do not pinch the solenoid wire harnesses.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

16. Transmission Fluid - Refill

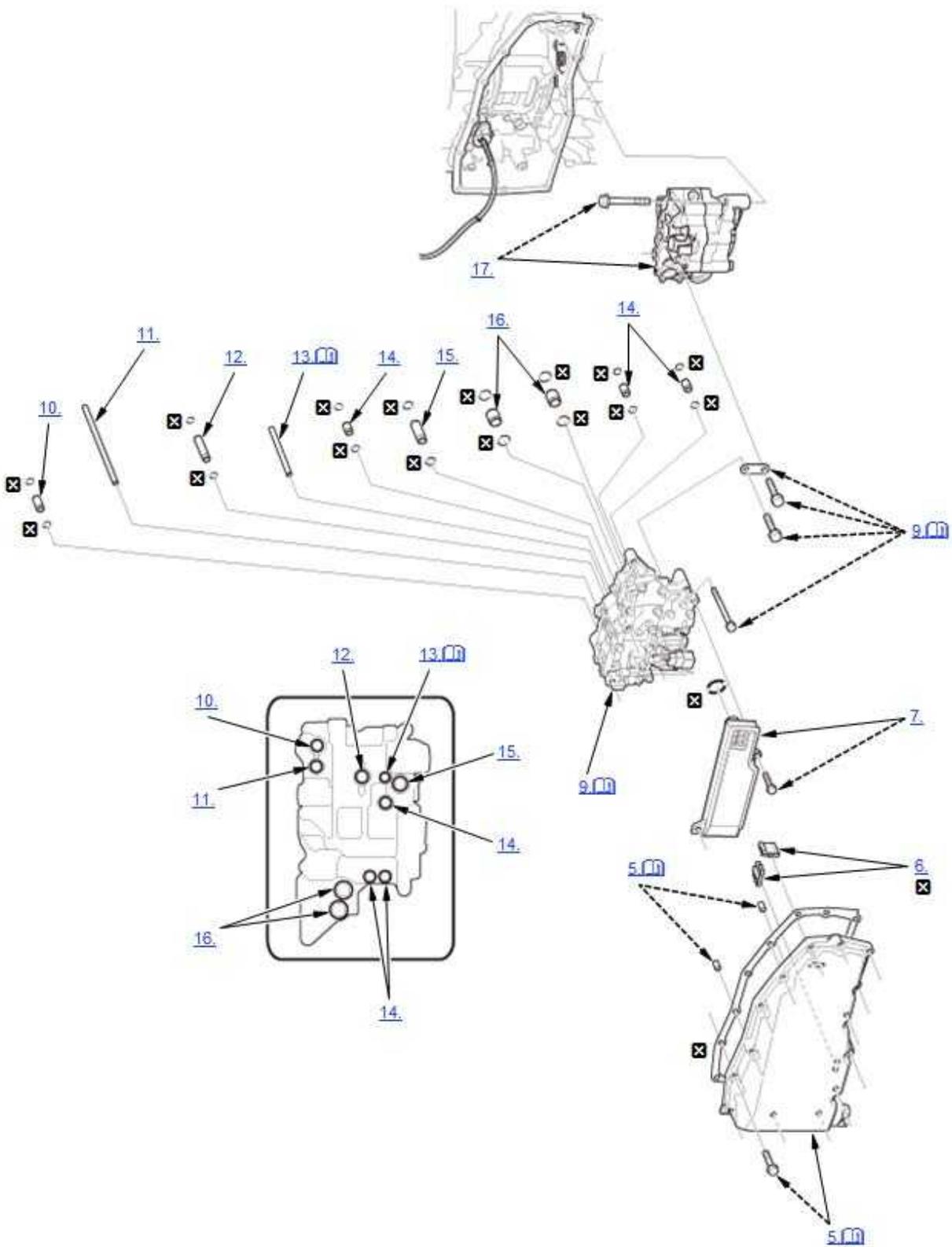
17. TCM - Reset (Only for Replacing Transmission Fluid Pump and/or Valve Body Assembly)

NOTE: This procedure is not required, if the TCM, and the transmission fluid pump and/or the valve body assembly are replaced simultaneously.

Removal

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.



1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain

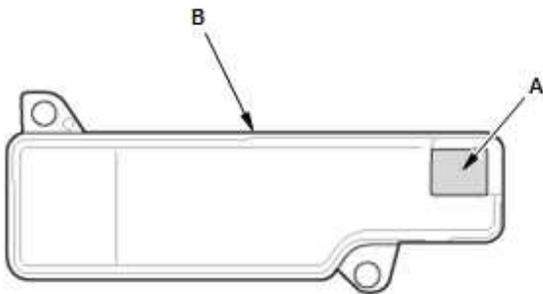
5. Transmission Fluid Pan - Remove

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

6. Magnet - Remove

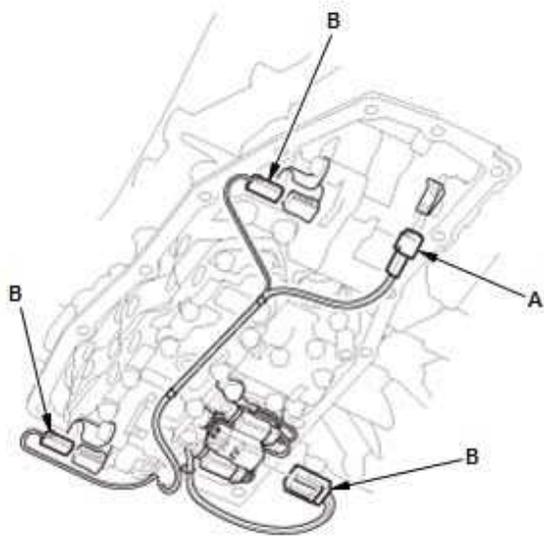
7. Transmission Fluid Strainer - Remove

8. Transmission Fluid Strainer - Check

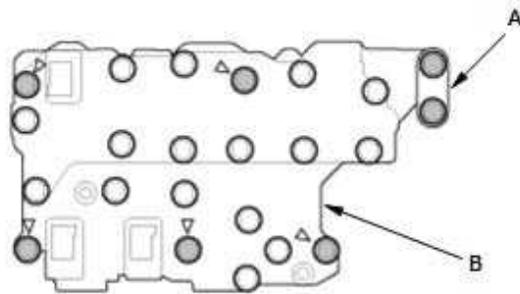


1. Clean the inlet opening (A) of the transmission fluid strainer (B) thoroughly with compressed air.
2. Check that it is in good condition and that the inlet opening is not clogged.
3. Test the strainer by pouring clean transmission fluid through the inlet opening, and replace it if it is clogged or damaged.

9. Valve Body Assembly - Remove



1. Remove the transmission fluid temperature sensor (A).
2. Disconnect the connectors (B).



3. Remove the guide plate (A).
4. Remove the valve body assembly (B) straightly.

NOTE:

- Do not remove the bolts with no ▽ marked on.
- Check that the valve body assembly is free of solenoid wire harness A.
- Be careful not to damage solenoid wire harness A.

- : BOLTS TO BE REMOVED
- : BOLTS NOT TO BE REMOVED

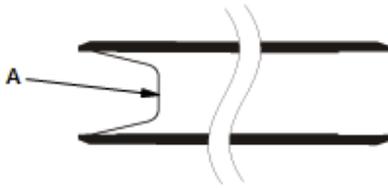
10.10.9 x 26 mm Pipe - Remove

11.8 x 133.5 mm Pipe - Remove

12.12 x 56.7 mm Pipe - Remove

13.Joint Pipe - Remove

NOTE: Be careful not to drop the filter (A).



14. 10.9 x 18.5 mm Pipe - Remove

15. 14.3 x 36.2 mm Pipe - Remove

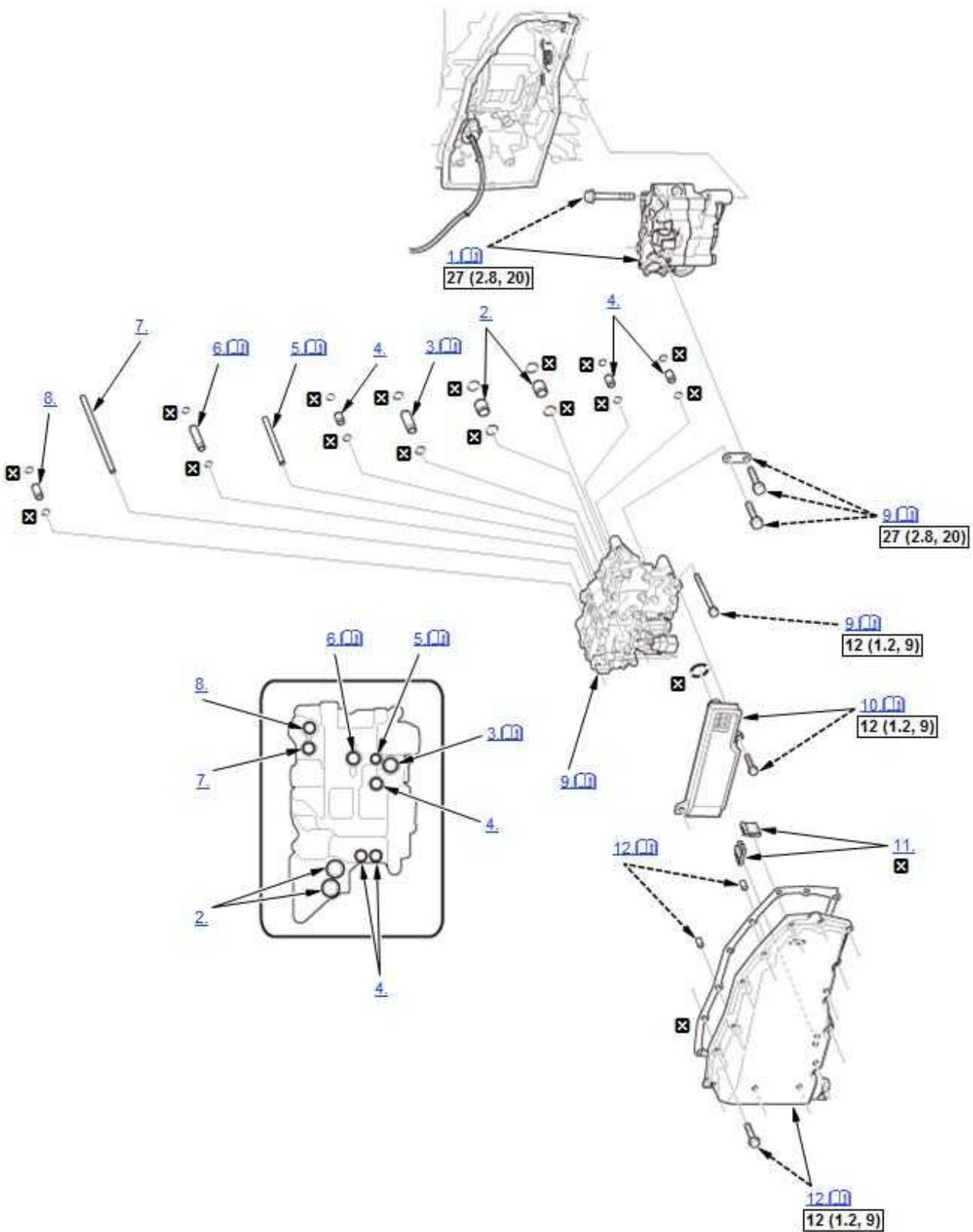
16. 18 x 18 mm Pipe - Remove

17. Transmission Fluid Pump - Remove

Installation

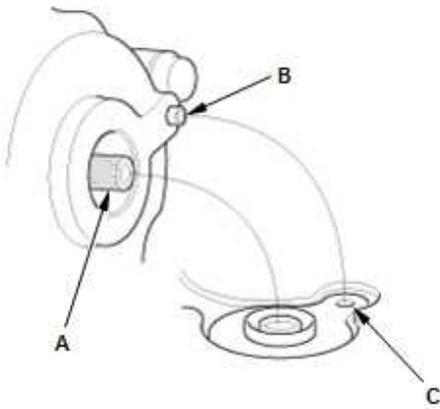
NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.
- Apply a light coat of clean transmission fluid on all O-rings before installation.
- Be careful not to damage the O-rings.



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Transmission Fluid Pump - Install



NOTE:

- Apply transmission fluid to the transmission fluid pump shaft splines (A).
- Align the guide pin (B) of the transmission fluid pump with the guide hole (C) of the stator shaft flange.

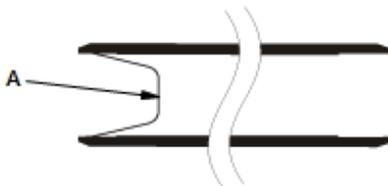
2. 18 x 18 mm Pipe - Install

3. 14.3 x 36.2 mm Pipe - Install

NOTE: You can install the pipe regardless of its direction.

4. 10.9 x 18.5 mm Pipe - Install

5. Joint Pipe - Install



NOTE:

- The joint pipe has the filter (A). The filter end should face the valve body assembly side.
- Be careful not to drop the filter.

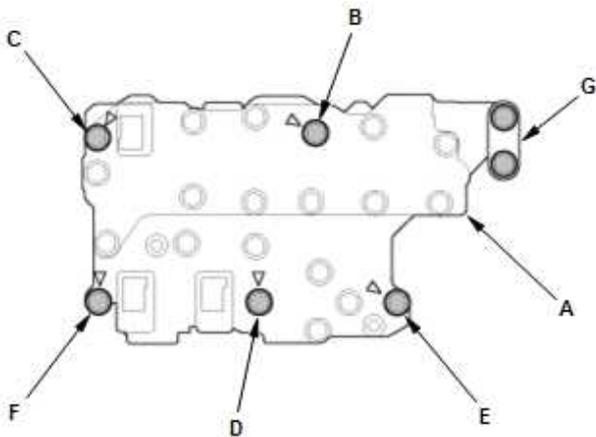
6. 12 x 56.7 mm Pipe - Install

NOTE: You can install the pipe regardless of its direction.

7. 8 x 133.5 mm Pipe - Install

8. 10.9 x 26 mm Pipe - Install

9. Valve Body Assembly - Install

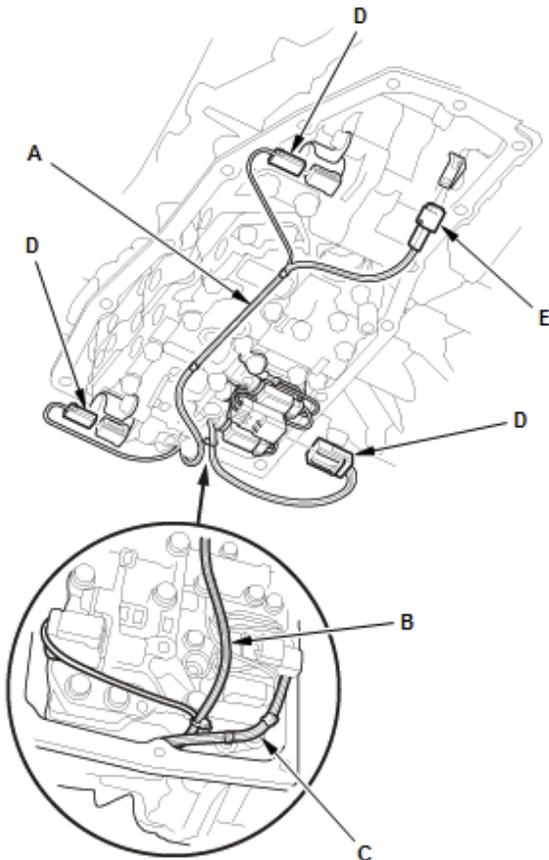


1. Install the valve body assembly (A) straightly.

NOTE: Do not pinch solenoid wire harnesses A and B.

Bolt	Length
B	90 mm (3.54 in)
C	80 mm (3.15 in)
D	65 mm (2.56 in)
E	55 mm (2.17 in)
F	40 mm (1.57 in)

2. Install the guide plate (G).



3. Make sure each branch of solenoid wire harness A goes through the appropriate location, especially as shown, one (B) must be located to the inside from the other (C).

4. Connect the connectors (D).

5. Install the transmission fluid temperature sensor (E).

10. Transmission Fluid Strainer - Install

NOTE: Do not pinch solenoid wire harnesses A and B.

11. Magnet - Install

12. Transmission Fluid Pan - Install

NOTE:

- Tighten the transmission fluid pan mounting bolts in a crisscross pattern in at least two steps.
- Do not pinch solenoid wire harnesses A and B.

13. Transmission Fluid - Refill

14. Transmission Fluid Level - Check

15. Engine Undercover Plate - Install

16. TCM - Reset (Only for Replacing Transmission Fluid Pump and/or Valve Body Assembly)

NOTE: This procedure is not required, if the TCM, and the transmission fluid pump and/or the valve body assembly are replaced simultaneously.

Transmission Fluid Temperature Sensor Test

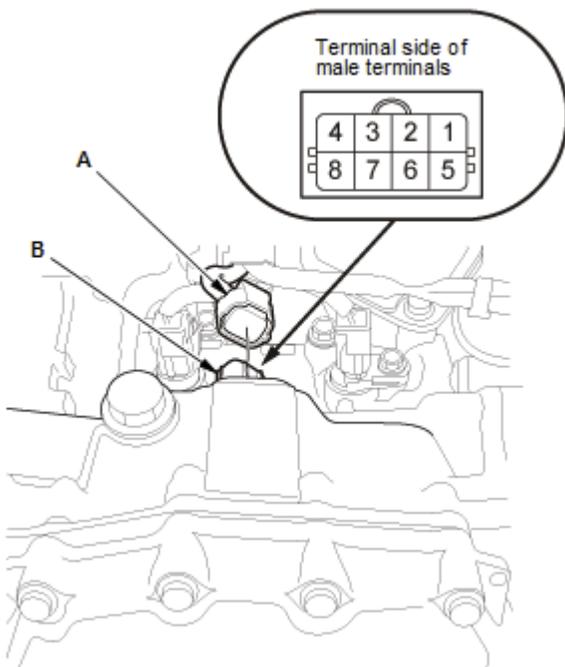
Test

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine Undercover Lid - Remove

4. Transmission Fluid Temperature Sensor - Test



1. Disconnect the connector (A).

NOTE: To prevent damage, cover the connector using a shop towel.

2. Measure the transmission fluid temperature sensor resistance between connector (B) terminals No. 2 and No. 3.

Standard: 50 Ω – 25 k Ω

- If the resistance is within the standard, the test is complete.
- If the resistance is out of the standard, [replace the transmission fluid temperature sensor.](#)

5. All Removed Parts - Install

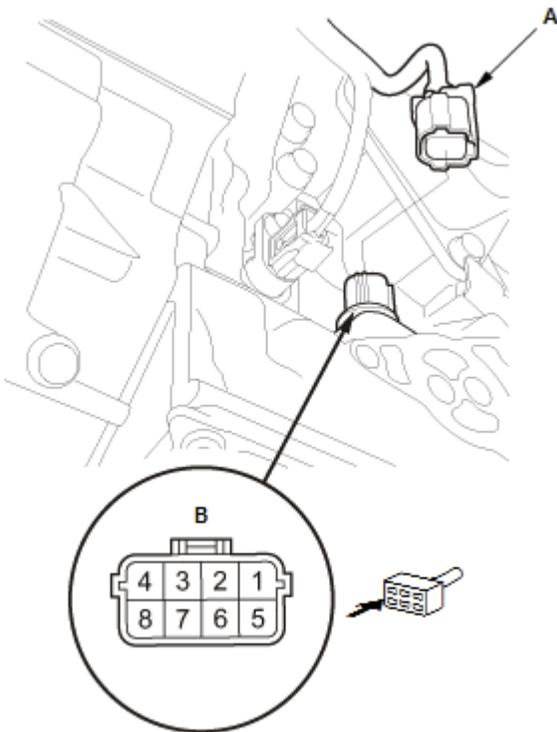
1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Transmission Fluid Temperature Sensor Test

Test

1. Vehicle - Lift
2. Engine Undercover - Remove (Without Engine Undercover Lid)
3. Engine Undercover Plate - Remove (With Engine Undercover Lid)
4. Engine Undercover Lid - Remove (With Engine Undercover Lid)
5. **Transmission Fluid Temperature Sensor - Test**



1. Disconnect the connector (A).

NOTE: To prevent damage, cover the connector using a shop towel.

2. Measure the resistance between connector (male terminals) (B) terminals No. 6 and No. 7.

Standard: 50 Ω – 25 k Ω

- If the resistance is within the standard, the test is complete.
- If the resistance is out of the standard, [replace the transmission fluid temperature sensor](#).

6. **All Removed Parts - Install**

1. Install the parts in the reverse order of removal.

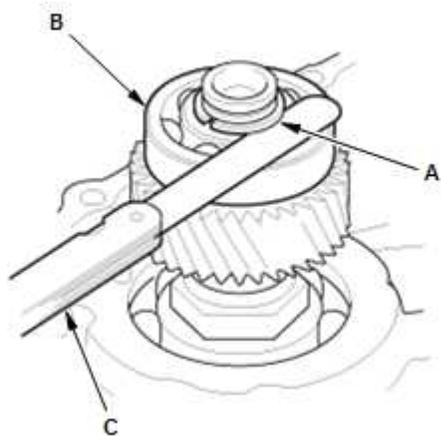
NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Adjustment

1. Secondary Drive Gear - Install

2. Driven Pulley Shaft Bearing (Transmission Housing Side) - Install

3. Driven Pulley Shaft Thrust Clearance - Adjust



1. Clean the cotter groove of the driven pulley shaft.
2. Install the 25.5 mm cotters (A).
3. Measure the clearance between the 25.5 mm cotters and the driven pulley shaft bearing (B) using a feeler gauge (C).

NOTE: Take measurements in at least three places, and use the average as the actual clearance.

Standard: 0–0.13 mm (0–0.005 in)

4. If the clearance is out of the standard, remove the 25.5 mm cotters, and measure its thickness.
5. Select new 25.5 mm cotters.

25.5 mm Cotters

No.	Thickness
A	2.9 mm (0.114 in)
B	3.0 mm (0.118 in)
C	3.1 mm (0.122 in)
D	3.2 mm (0.126 in)

6. Install the selected 25.5 mm cotters, then recheck the clearance.

Transmission Mount Removal and Installation

Removal/Installation

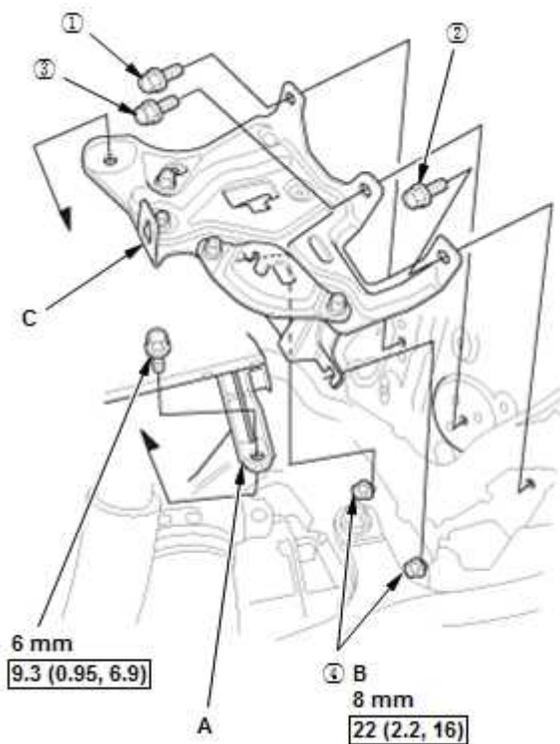
NOTE: [How to read the torque specifications.](#)

1. Engine Undercover Plate - Remove

2. Air Cleaner - Remove

3. 12 Volt Battery - Remove

4. 12 Volt Battery Base - Remove



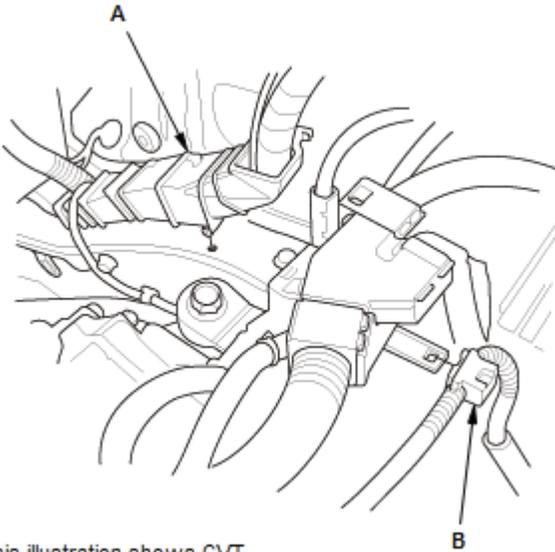
1. Remove the harness holder (A).

2. Loosen the bolts (B).

3. Remove the 12 volt battery base (C).

NOTE: When installing the 12 volt battery base, tighten the mounting bolts in the numbered sequence shown.

5. Harness Holder - Remove



This illustration shows CVT.

1. Remove the harness holder (A).
2. CVT: Remove the harness clamp (B).

6. Intake Air Duct E - Remove (CVT)

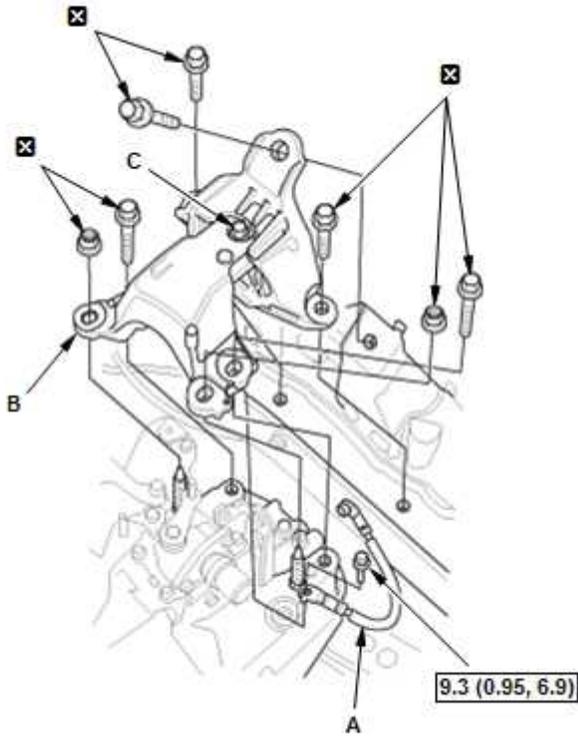
7. PCM - Remove

8. Transmission - Support

1. Lift and support the transmission with a jack and a wood block under the transmission.

9. Transmission Mount - Remove

M/T

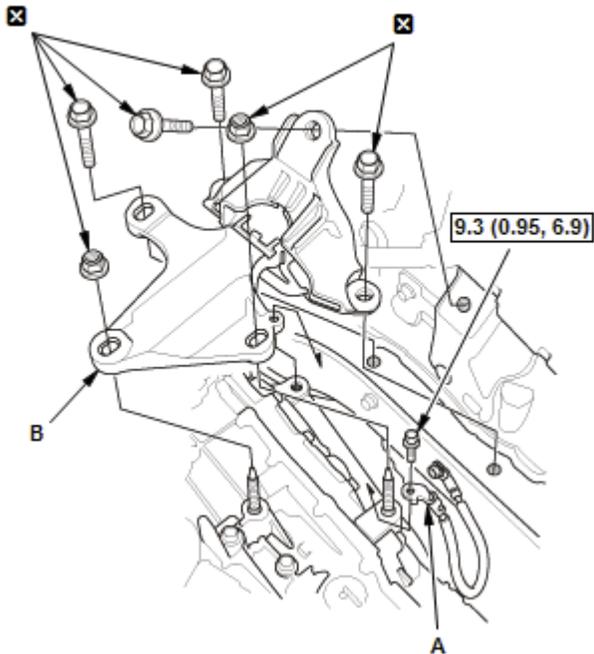


1. Remove the ground cable (A).

2. Remove the transmission mount (B).

NOTE (M/T): Do not remove the bolt (C) from the transmission mount. If the bolt is removed, the transmission mount must be replaced as an assembly.

CVT



10.All Removed Parts - Install

1. Install the parts in the reverse order of removal.

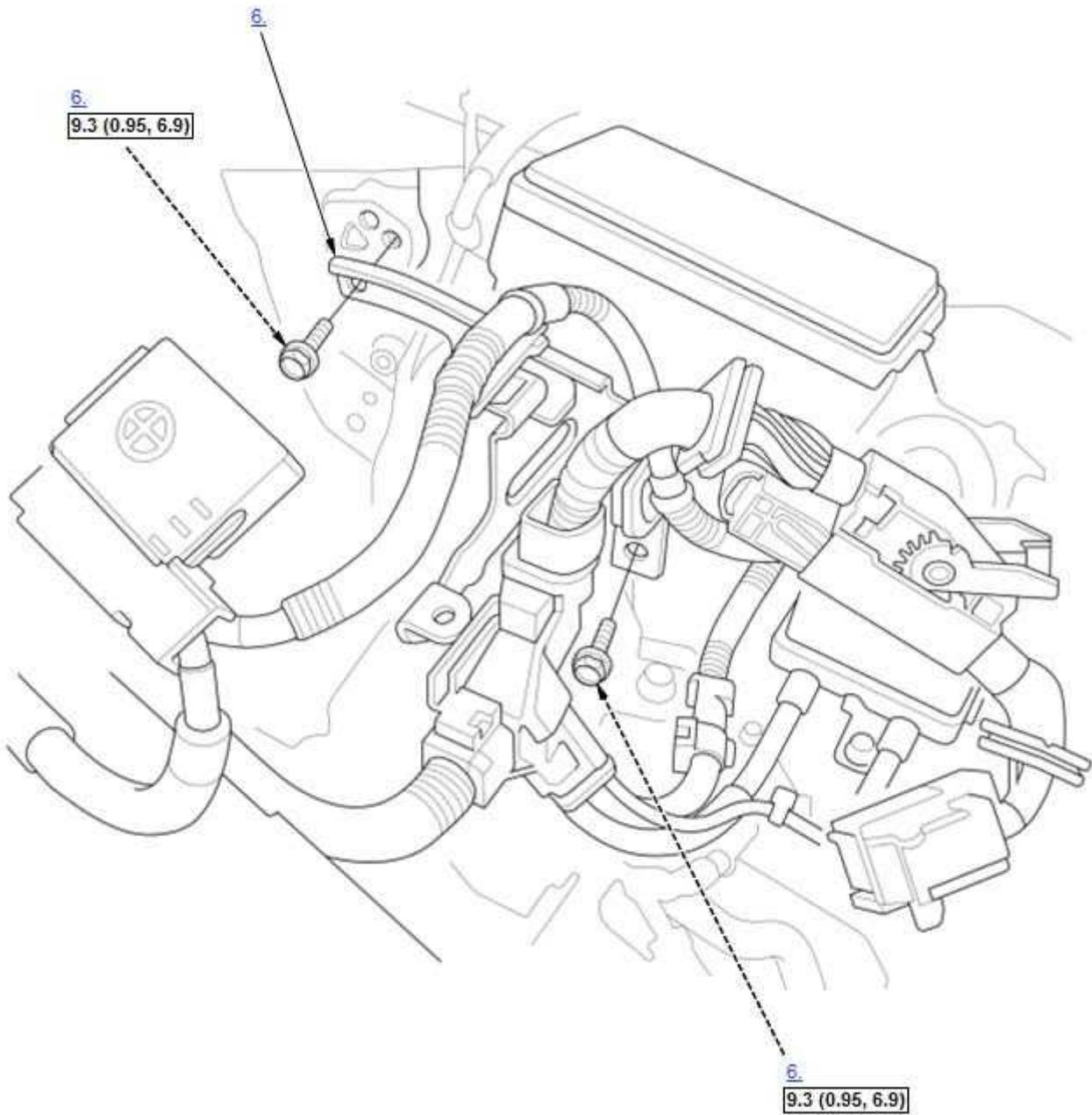
NOTE: [Do the mounts tightening procedure before tightening all of the mounts' bolts and nuts.](#)

Transmission Mount Removal and Installation

Removal/Installation

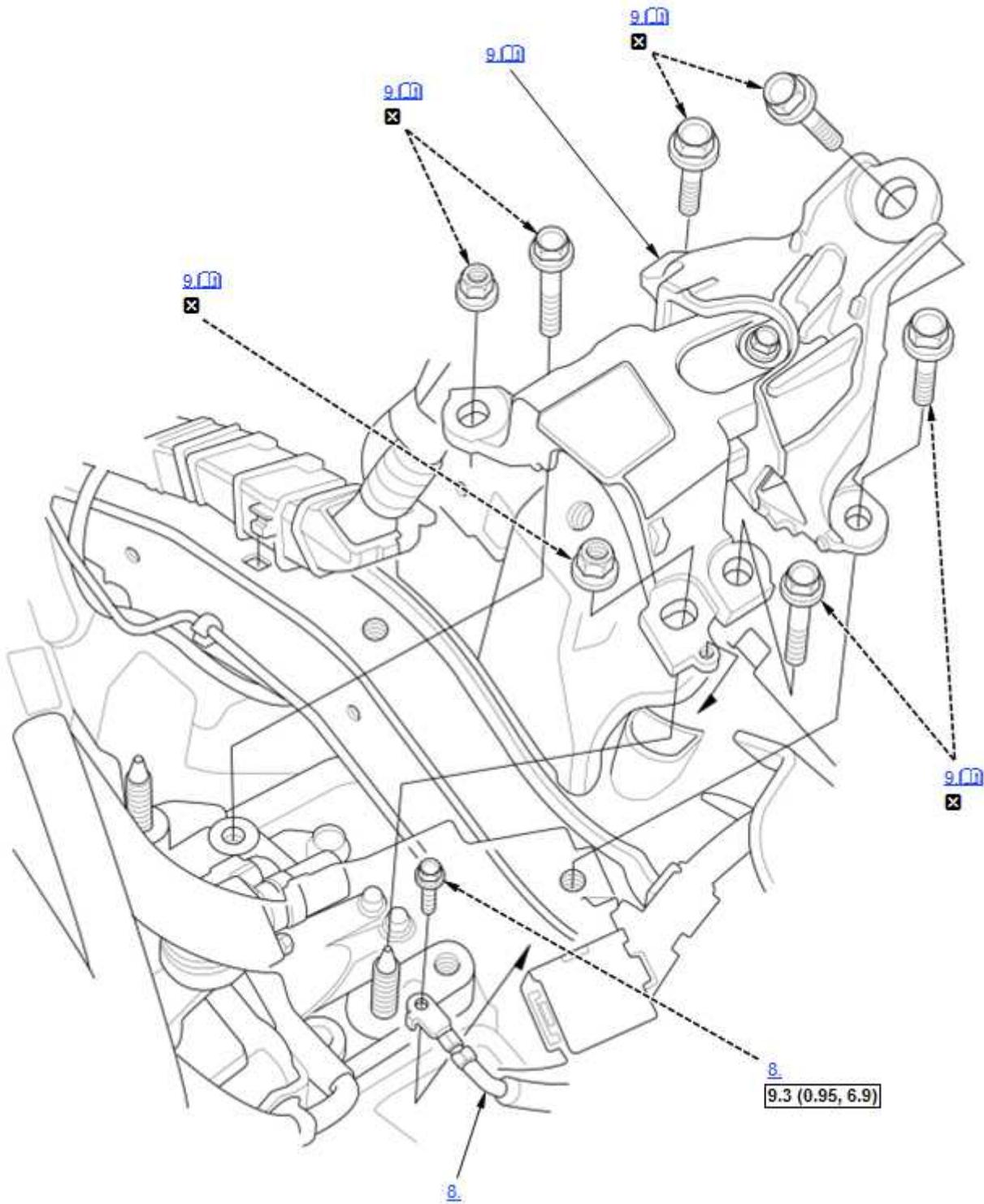
NOTE:

-  Where icon is shown, click for further information.
- [Do the mounts tightening procedure before tightening all of the mounts' bolts and nuts.](#)



cardiagn.com

	Torque: N·m (kgf·m, lbf·ft)
--	-----------------------------



	Detailed information, notes, and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Engine Undercover Plate - Remove

2. Air Cleaner - Remove

3. 12 Volt Battery - Remove

4. PCM Assembly - Remove

5. 12 Volt Battery Base - Remove

Note for installation

Tighten the mounting bolts in the numbered sequence shown.

- When installing the 12 volt battery base, tighten the mounting bolts in the following numbered sequence.

⑤→⑥→⑦→⑧

- If disassemble the 12 volt battery base during removal, tighten the mounting bolts in the following numbered sequence.

①→②→③→④→⑤→⑥→⑦→⑧

6. Harness Bracket - Move

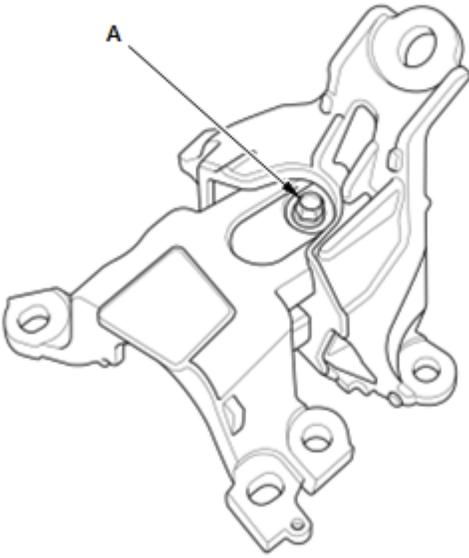
7. Transmission - Support

1. Lift and support the transmission with a jack and a wood block under the transmission.

8. Ground Cable - Remove

9. Transmission Mount - Remove

NOTE: Do not remove the bolt (A) from the transmission mount. If the bolt is removed, the transmission mount must be replaced as an assembly.



10.All Removed Parts - Install

1. Install the parts in the reverse order of removal.

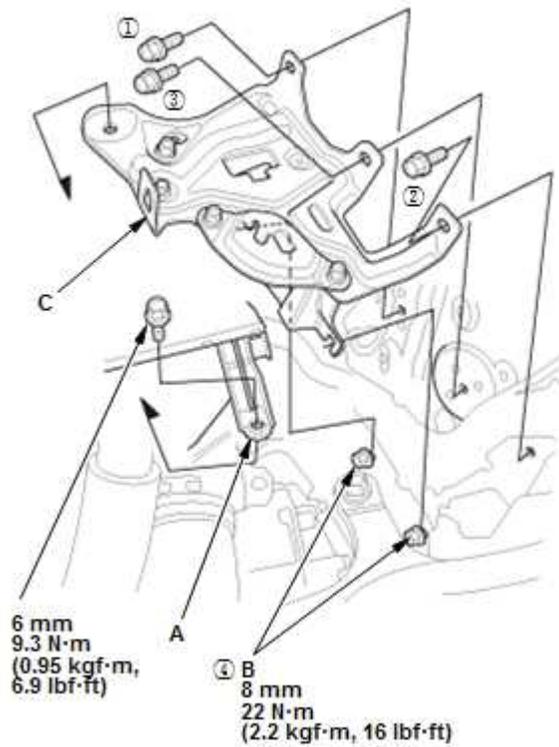
Removal/Installation

1. Engine Undercover Plate - Remove

2. Air Cleaner - Remove

3. 12 Volt Battery - Remove

4. 12 Volt Battery Base - Remove



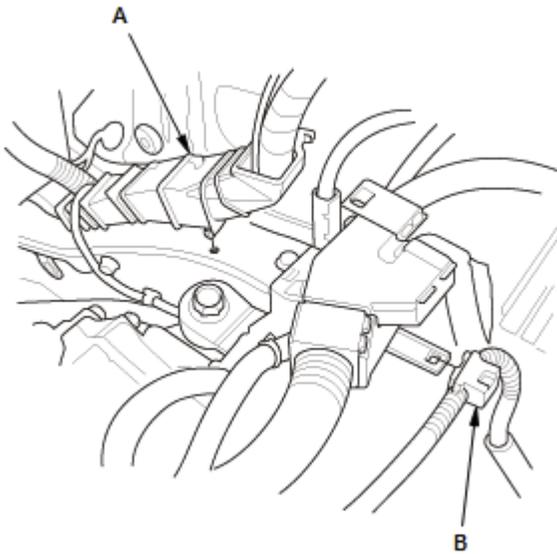
1. Remove the harness holder (A).

2. Loosen the bolts (B).

3. Remove the 12 volt battery base (C).

NOTE: When installing the 12 volt battery base, tighten the mounting bolts in the numbered sequence shown.

5. Harness Holder and Harness Clamp - Remove



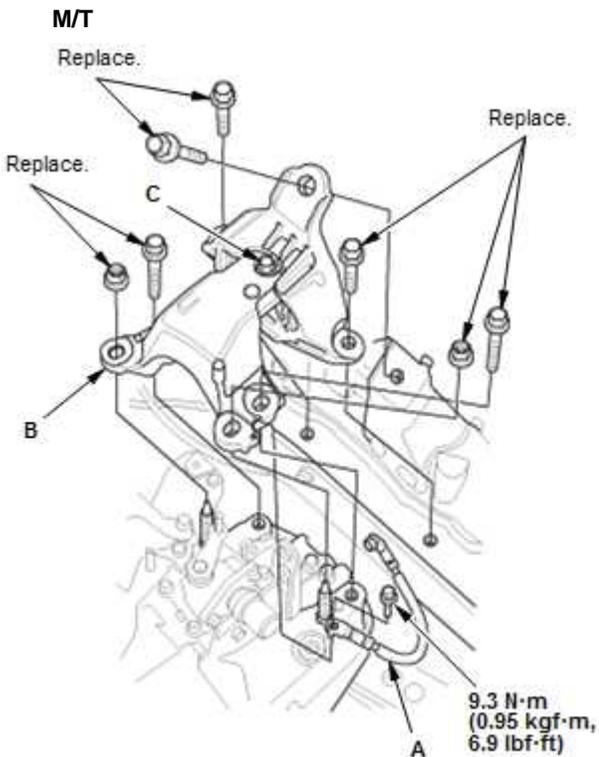
1. Remove the harness holder (A).
2. CVT: Remove the harness clamp (B).

6. PCM - Remove

7. Transmission - Support

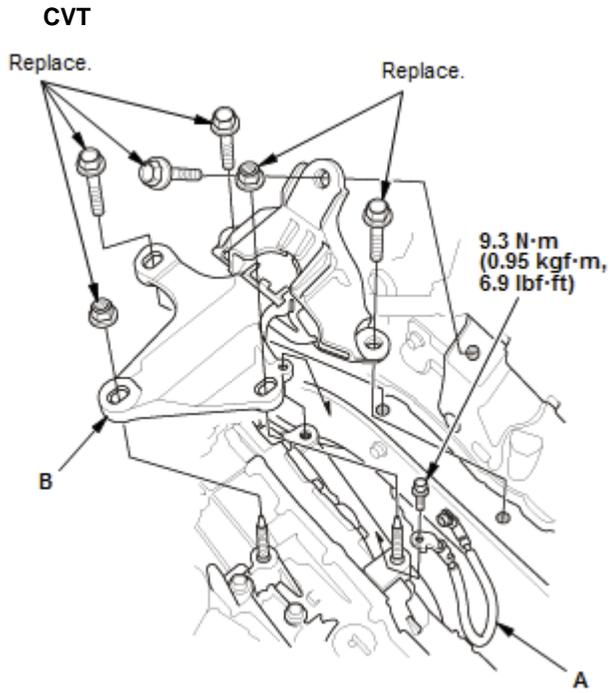
1. Lift and support the transmission with a jack and a wood block under the transmission.

8. Transmission Mount - Remove



1. Remove the ground cable (A).
2. Remove the transmission mount (B).

NOTE (M/T): Do not remove the bolt (C) from the transmission mount. If the bolt is removed, the transmission mount must be replaced as an assembly.



9. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: [Do the mounts tightening procedure before tightening all of the mounts' bolts and nuts.](#)

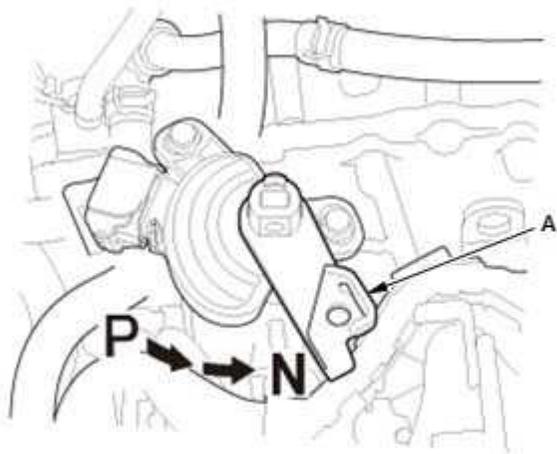
Transmission Range Switch Removal and Installation

Removal

1. Air Cleaner - Remove

2. Shift Cable (Transmission Side) - Disconnect

3. Control Lever - Position

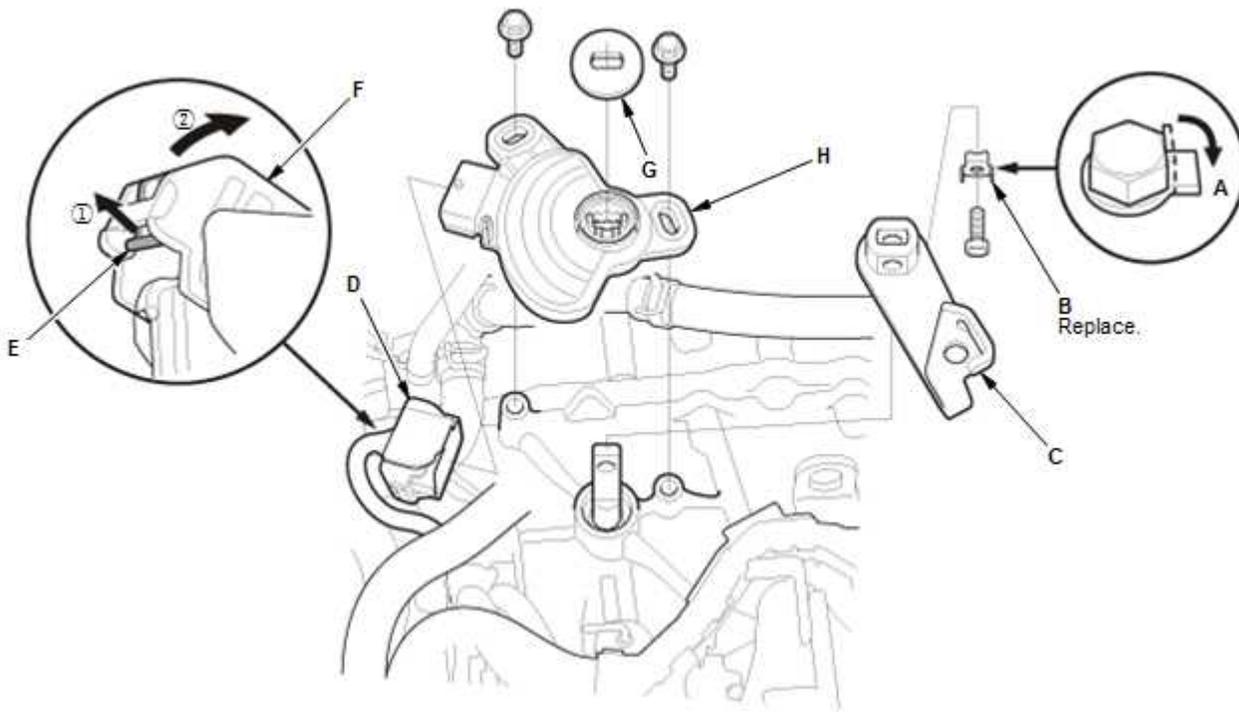


1. Apply the parking brake.

2. Turn the control lever (A) to the P position, then turn it back two clicks to the N position.

4. Transmission Range Switch - Remove

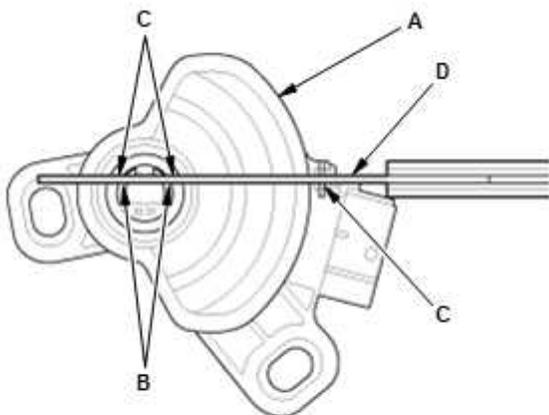
1. Pry down the lock tab (A) of the lock washer (B).



2. Remove the control lever (C) and the lock washer.
3. Disconnect the connector (D) by pulling the lock (E) and the lever (F) in the numbered sequence shown.
4. Remove the control shaft cover (G).
5. Remove the transmission range switch (H).

Installation

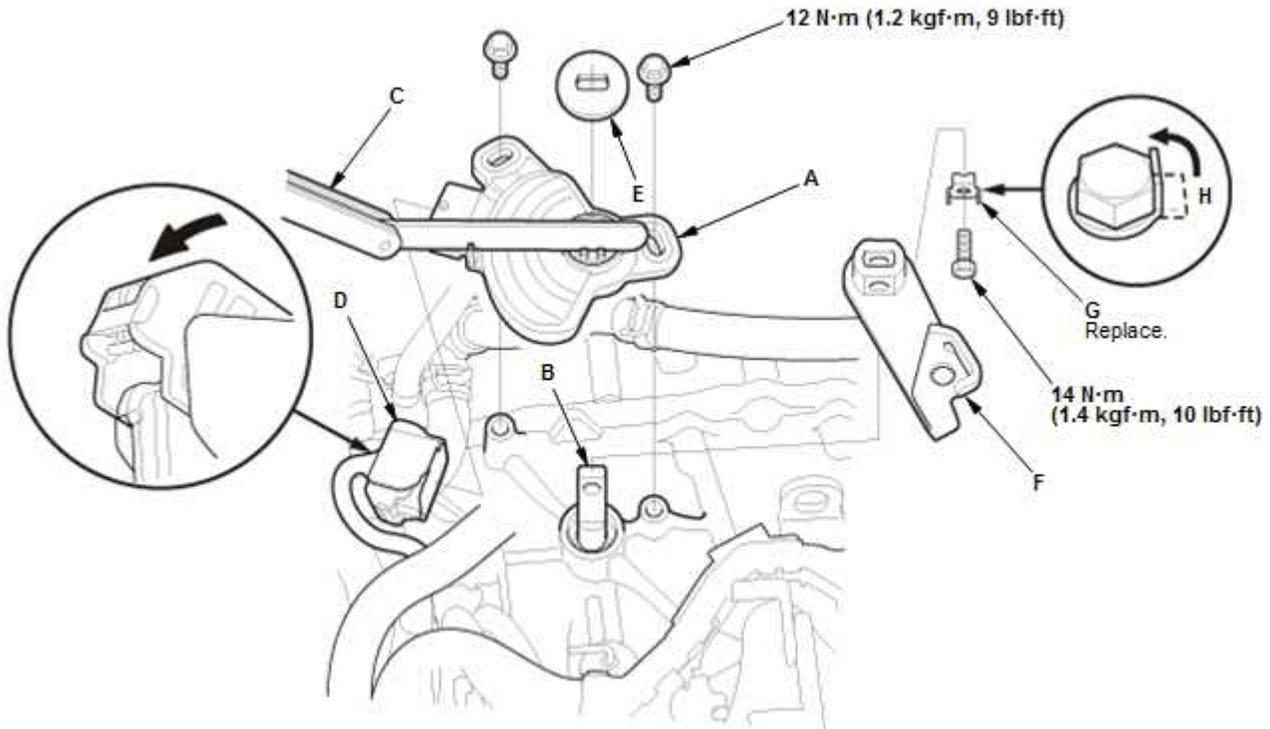
1. Transmission Range Switch - Install



1. Set the transmission range switch (A) to the N position. Align the cutouts (B) on the rotary-frame with the N positioning cutouts (C) on the transmission range switch, then put a 2.0 mm (0.079 in) feeler gauge (D) in the cutouts to hold the transmission range switch in the N position.

NOTE: Be sure to use a 2.0 mm (0.079 in) feeler gauge or equivalent to hold the transmission range switch in the N position.

2. Install the transmission range switch (A) gently on the control shaft (B) while holding it in the N position with the 2.0 mm (0.079 in) feeler gauge (C).



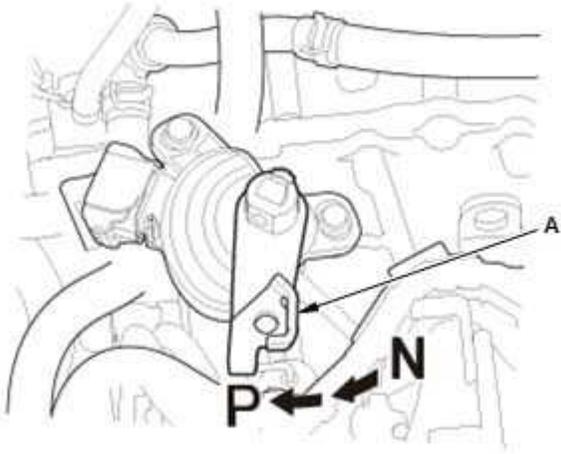
3. Tighten the bolts on the transmission range switch while you continue holding the N position.
4. Remove the feeler gauge.
5. Connect the connector (D), and make sure it is fully seated.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

6. Install the control shaft cover (E).
7. Install the control lever (F) as shown.
8. Secure the control lever with a new lock washer (G), then pry up the lock tab (H) of the lock washer against the bolt head.

2. Control Lever - Position

1. Turn the control lever (A) to the P position.



3. Shift Cable (Transmission Side) - Connect

4. Shift Cable - Adjust

5. Air Cleaner - Install

6. Transmission Range Switch - After Install Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever through all positions/modes, and check that the shift position indicator follows the shift lever operation.
3. Start the engine.

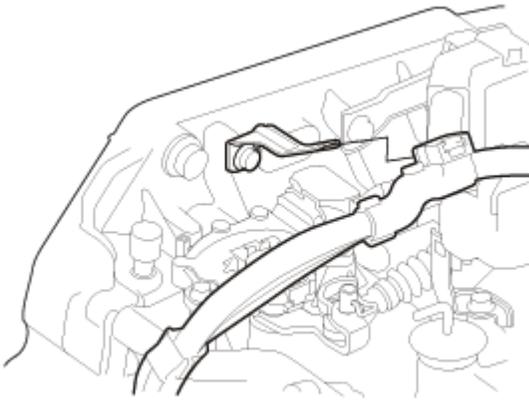
NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

4. Check that the back-up lights come on when the transmission is in R position/mode.
5. Make sure the vehicle is turned to the OFF (LOCK) mode with the shift lever in P position/mode. If it does not, [adjust the shift cable](#) again.

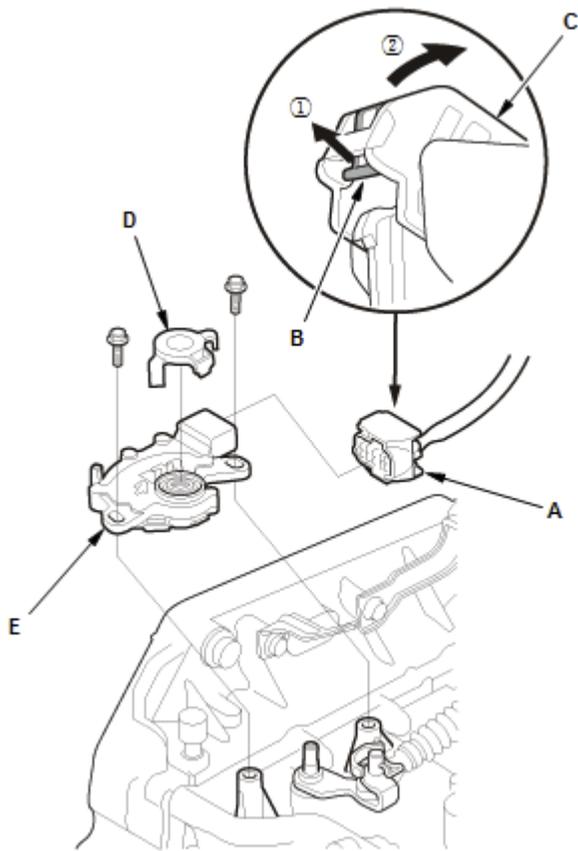
Transmission Range Switch Removal and Installation

Removal

1. Air Cleaner - Remove
2. Intake Air Duct E - Remove
3. TCM Harness - Remove



4. Transmission Range Switch - Remove



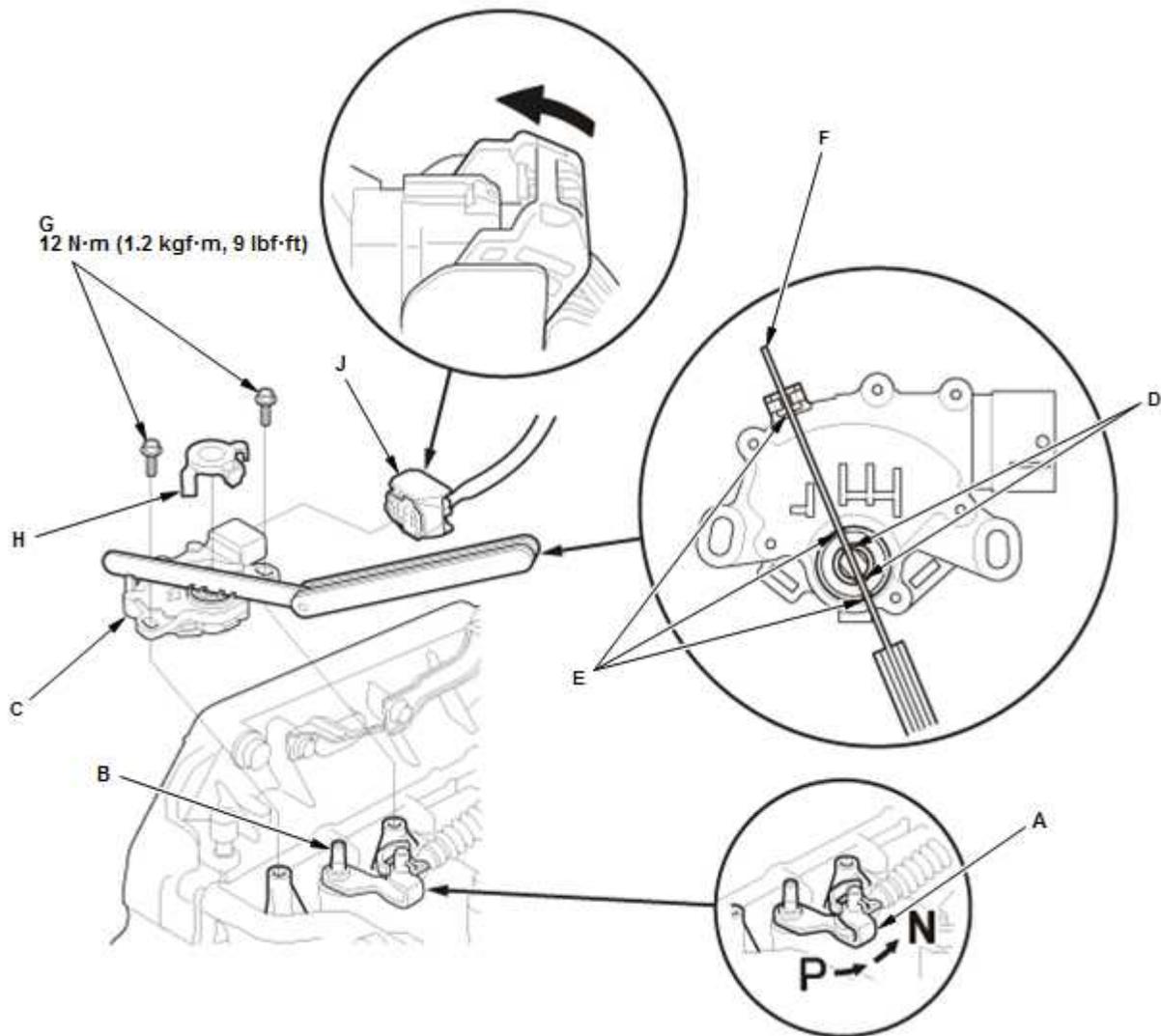
1. Disconnect the connector (A) by pulling the lock (B) and the lever (C) in the numbered sequence shown.
2. Apply the parking brake.
3. Shift the transmission to N position/mode.
4. Remove the control shaft cover (D).
5. Remove the transmission range switch (E).

Installation

1. Transmission Range Switch - Install

1. Make sure the control lever (A) is in the N position. If necessary, move the control lever to the N position.

NOTE: Do not use the control shaft (B) to adjust the shift position. If the control shaft tips are squeezed together, it will cause a faulty signal or position due to play between the control shaft and the transmission range switch.



2. Set the transmission range switch (C) to the N position. Align the cutouts (D) on the rotary-frame with the N positioning cutouts (E) on the transmission range switch, then put a 2.0 mm (0.079 in) feeler gauge blade (F) in the cutouts to hold the transmission range switch in the N position.

NOTE: Be sure to use a 2.0 mm (0.079 in) feeler gauge blade or equivalent to hold the transmission range switch in the N position.

3. Loosely install the transmission range switch gently on the control shaft while holding it in the N position with the 2.0 mm (0.079 in) feeler gauge blade.

4. Tighten the bolts (G) on the transmission range switch while you continue holding the N position.

NOTE: Do not move the transmission range switch when tightening the bolts.

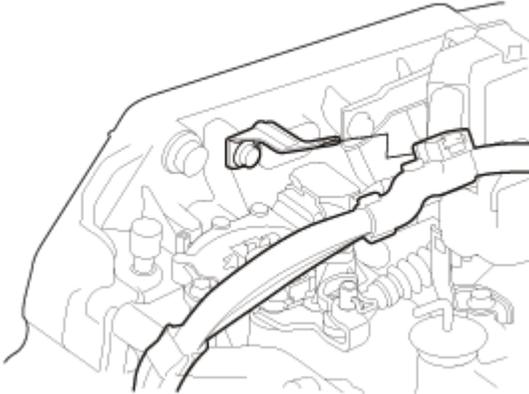
5. Remove the feeler gauge.

6. Install the control shaft cover (H).

7. Connect the connector (J), and make sure it is fully seated.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

2. TCM Harness - Install



3. Intake Air Duct E - Install

4. Air Cleaner - Install

5. Transmission Range Switch - After Install Check

1. Turn the vehicle to the ON mode.
2. Move the shift lever through all positions/modes, and check that the shift position indicator follows the shift lever operation.
3. Start the engine.

NOTE: Check that the engine starts in P or N position/mode, and does not start in any other positions/modes.

4. Check that the back-up lights come on when the transmission is in R position/mode.

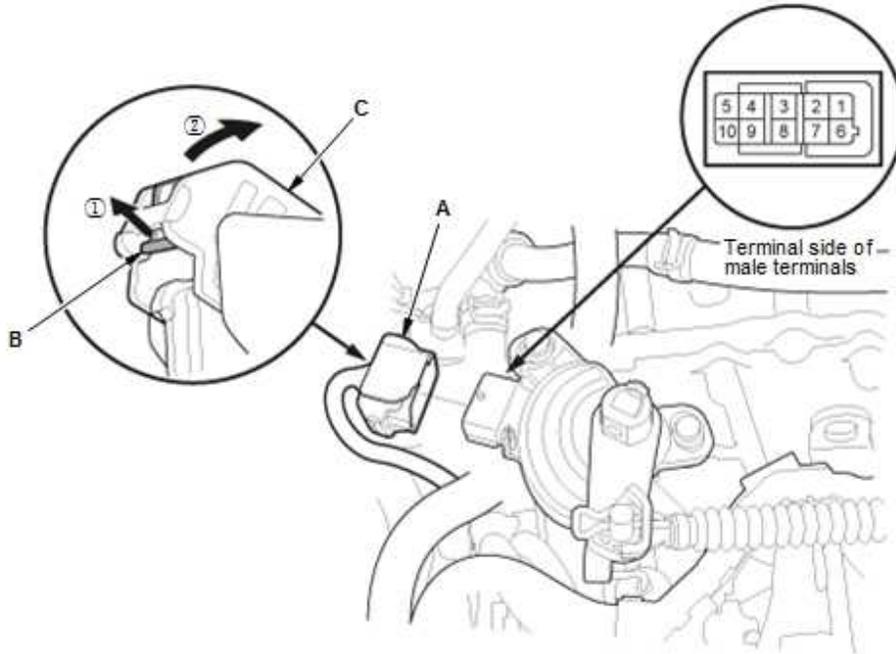
Transmission Range Switch Test

Test

1. Air Cleaner - Remove

2. Transmission Range Switch - Test

1. Disconnect the connector (A) by pulling the lock (B) and the lever (C) in the numbered sequence shown.



2. Check for continuity between the terminals at the transmission range switch side. There should be continuity between the terminals in the following table for each transmission range switch position.

- If the test results are OK, the transmission range switch test is finished.
- If there is no continuity between any terminals, check the transmission range switch installation. If the switch installation is OK, [replace the transmission range switch](#).

Terminal Position	1	2	3	4	5	6	7	8	9	10
P				○	○	○	○	○	○	
R			○	○	○	○	○	○	○	○
N					○	○	○	○	○	
D		○	○	○	○	○				
S					○	○	○			
L	○	○	○	○	○	○				

3. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

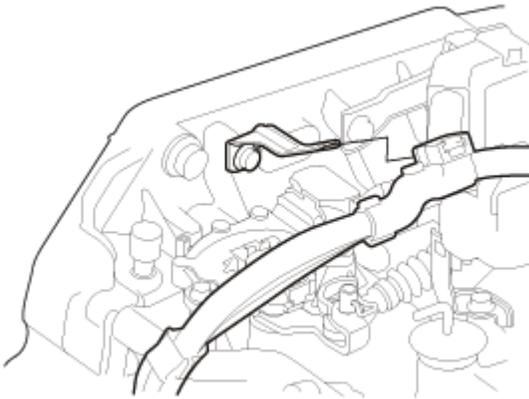
Transmission Range Switch Test

Test

1. Air Cleaner - Remove

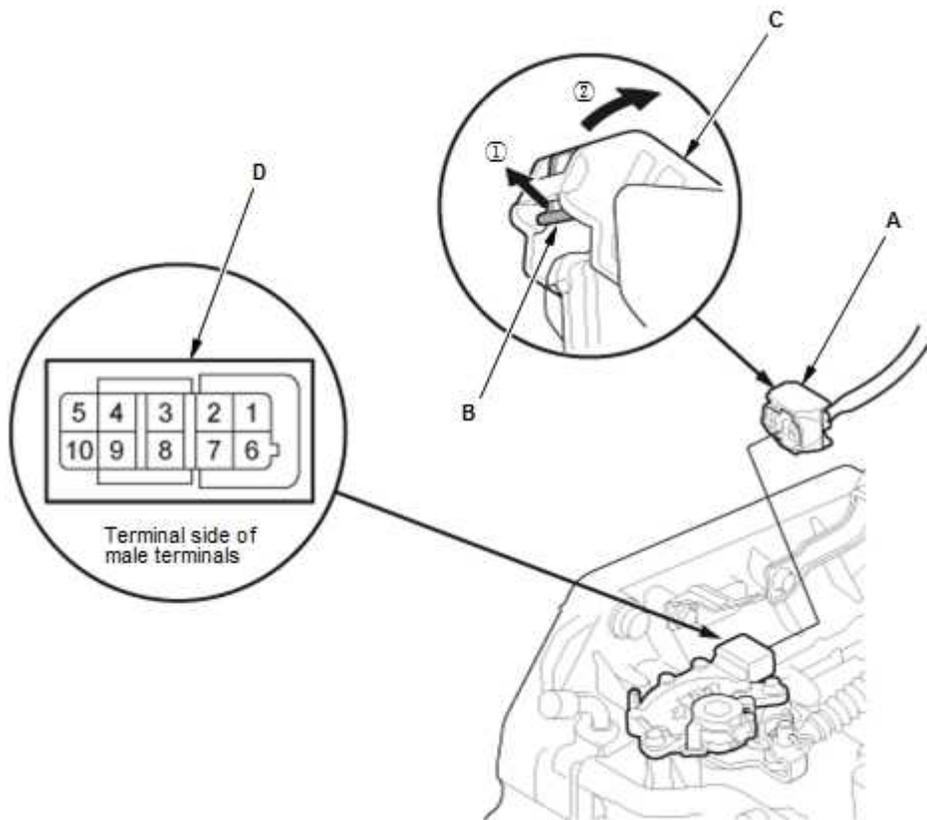
2. Intake Air Duct E - Remove

3. TCM Harness - Remove



4. **Transmission Range Switch - Test**

1. Disconnect the connector (A) by pulling the lock (B) and the lever (C) in the numbered sequence shown.



Terminal Position	1	2	3	4	5	6	7	8	9	10
P	○				○		○			
R	○			○						○
N	○						○		○	
D	○		○			○				
S	○					○		○		
L*	○	○				○				

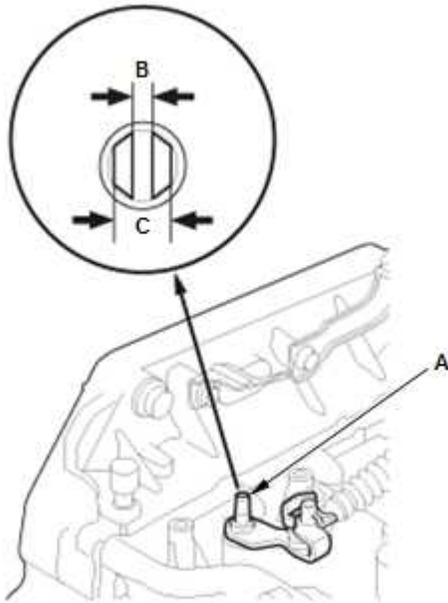
*: Without paddle shifter

2. Check for continuity between the terminals at the connector (D). There should be continuity between the terminals in the table for each transmission range switch position.

- If the test results are OK, the transmission range switch test is finished, and install all removed parts.
- If there is no continuity between any terminals, check the transmission range switch installation. If the switch installation is OK, go to step 5.

5. Transmission Range Switch - Remove

6. Control Shaft End Clearance - Check



1. Check the end of the control shaft (A).

Control Shaft Specification

End Gap (B): 1.8–2.0 mm (0.071–0.079 in)

Width (C): 6.1–6.2 mm (0.240–0.244 in)

- If the measurement at the end of the control shaft is within the specification, [replace the transmission range switch](#).
- If the measurement is out of the specification, repair the control shaft end, and recheck the transmission range switch continuity.

7. All Removed Parts - Install

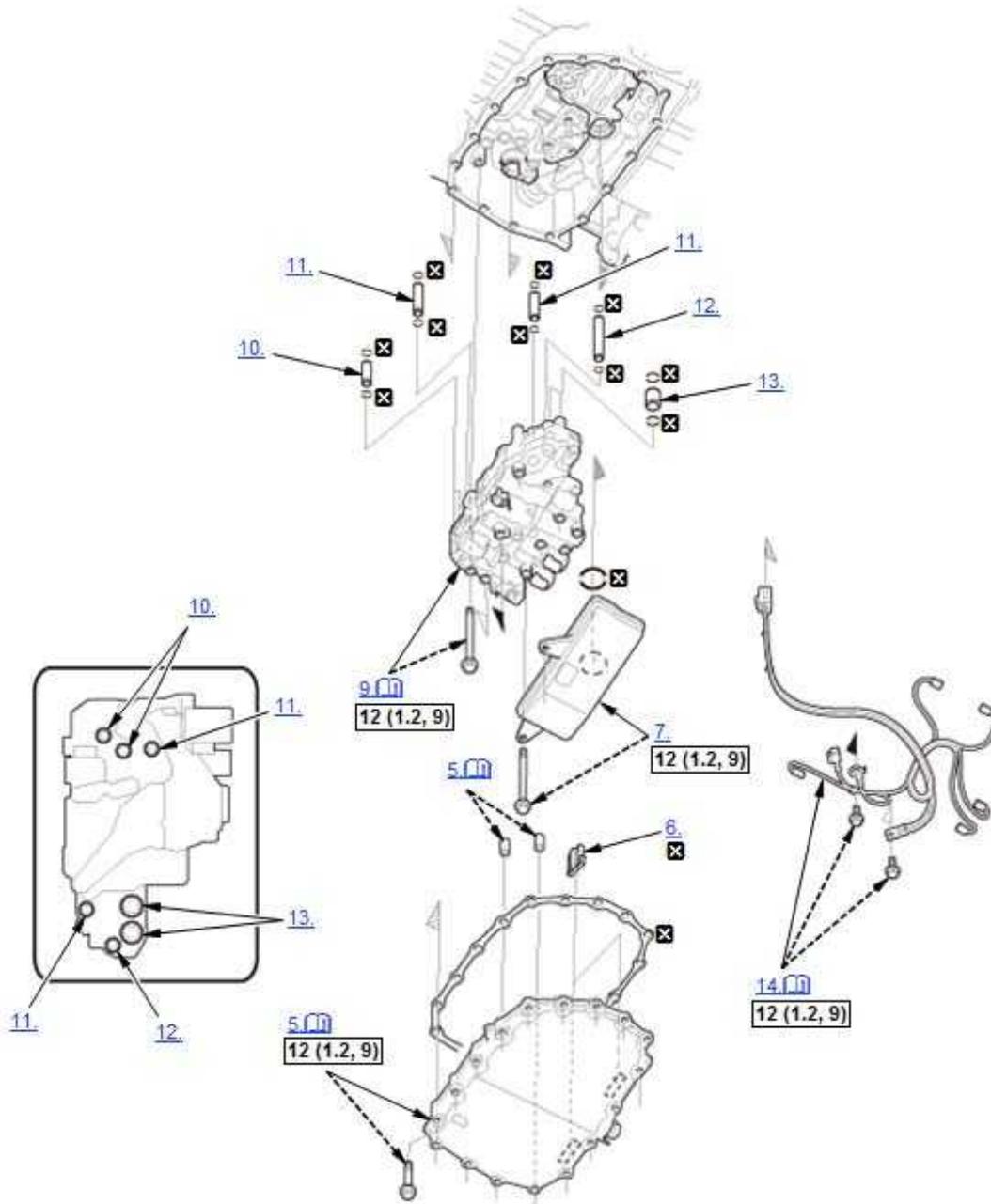
1. Install the parts in the reverse order of removal.

NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

Removal/Installation

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.
- The solenoid wire harness and the transmission fluid temperature sensor are not available separately. Replace them as a set.
- The valve body assembly and the following parts are not available separately. Replace them as a set.
 - CVT clutch pressure control solenoid valve
 - CVT drive pulley pressure control solenoid valve
 - CVT driven pulley pressure control solenoid valve
 - CVT lock-up clutch control solenoid valve
 - Shift solenoid valve B



	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Vehicle - Lift

2. Engine Undercover Plate - Remove

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain

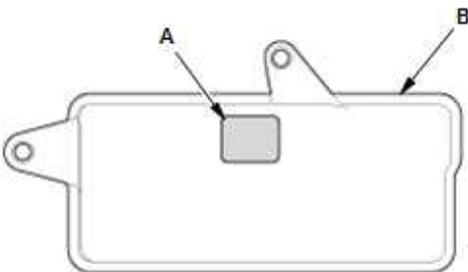
5. Transmission Fluid Pan - Remove

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

6. Magnet - Remove

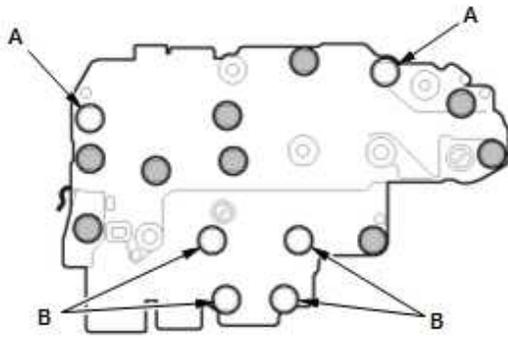
7. Transmission Fluid Strainer - Remove

8. Transmission Fluid Strainer - Check



1. Clean the inlet opening (A) of the transmission fluid strainer (B) thoroughly with compressed air.
2. Check that it is in good condition and that the inlet opening is not clogged.
3. Test the strainer by pouring clean transmission fluid through the inlet opening, and replace it if it is clogged or damaged.

9. Valve Body Assembly - Remove



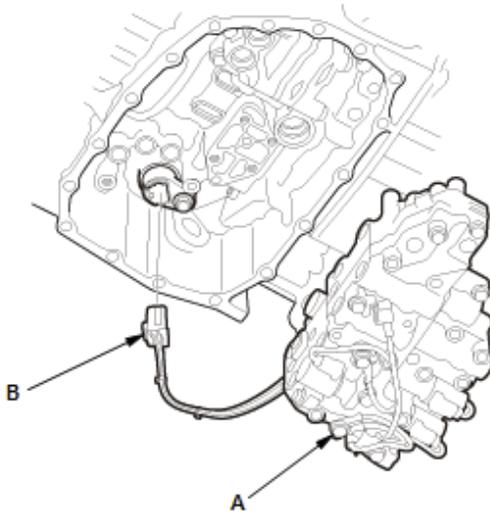
- : BOLTS TO BE REMOVED
- : BOLTS NOT TO BE REMOVED

1. Remove the valve body assembly mounting bolts.

Bolt	Length
A	90 mm (3.54 in)
Bolt	Length
B	65 mm (2.56 in)

2. Remove the valve body assembly (A) straightly and disconnect the connector (B).

NOTE: Be careful not to damage the solenoid wire harness.



10. 10.9 x 29 mm Pipe - Remove

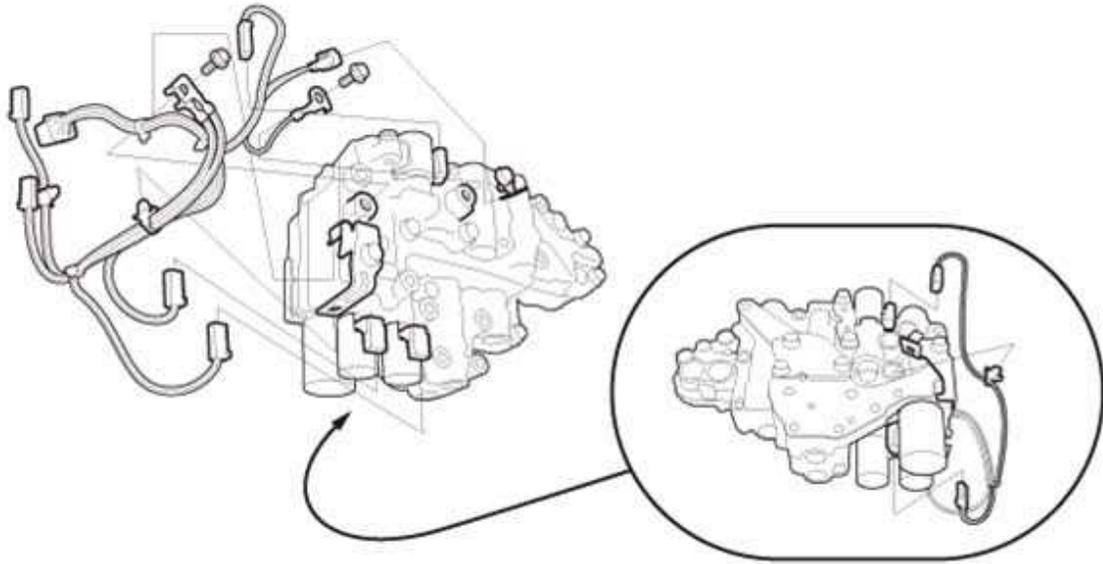
11. 10.9 x 48 mm Pipe - Remove

12. 10.9 x 75.5 mm Pipe - Remove

13. 18 x 21 mm Pipe - Remove

14. Solenoid Wire Harness - Remove

Solenoid Wire Harness Location



15. All Removed Parts - Install

1. Install the parts in the reverse order of removal.

NOTE:

- Apply a light coat of clean transmission fluid on all O-rings before installation.
- Be careful not to damage the O-rings.
- Do not pinch the solenoid wire harnesses.
- Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

16. Transmission Fluid - Refill

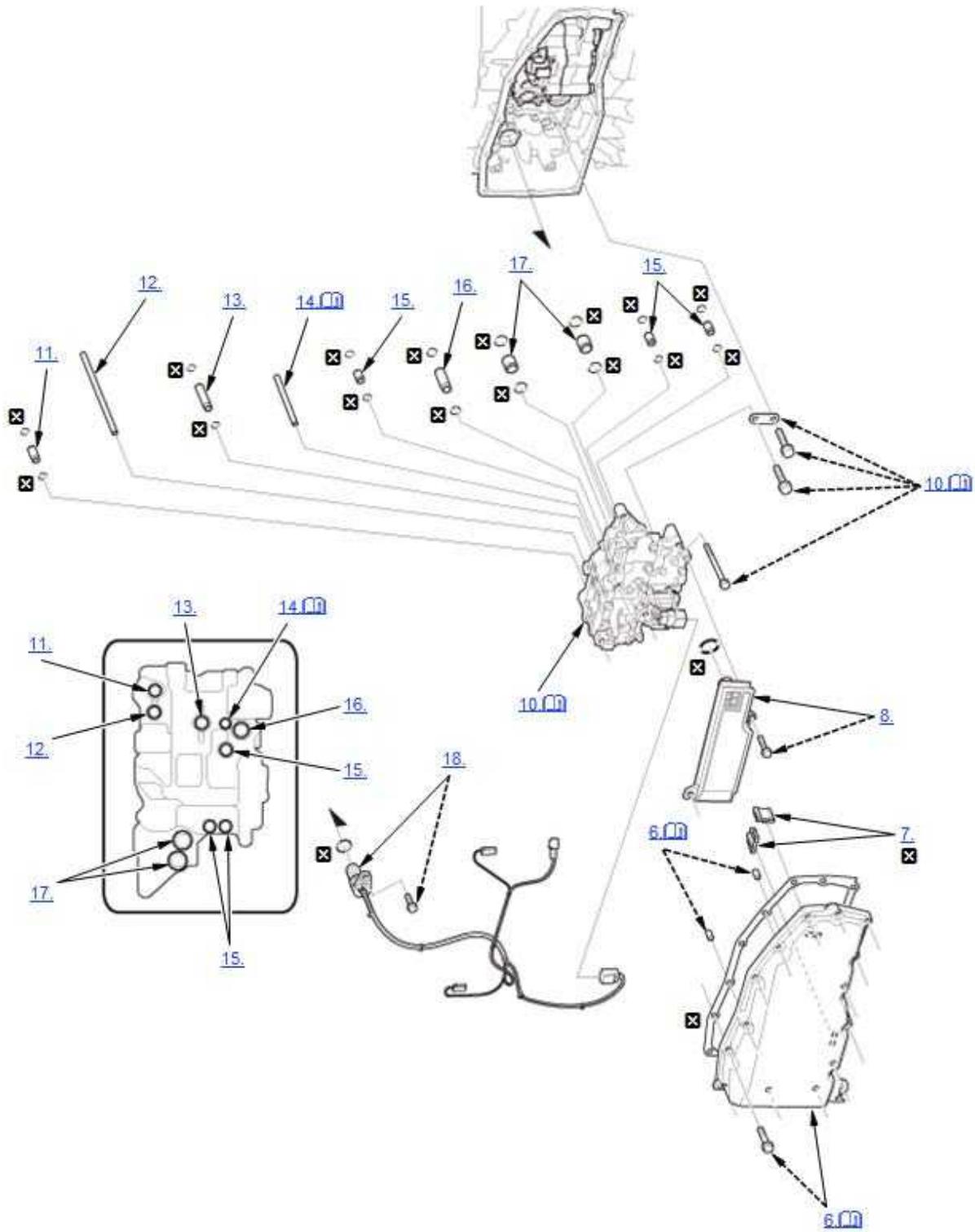
17. TCM - Reset (Only for Replacing Valve Body Assembly)

NOTE: This procedure is not required, if the valve body assembly and the TCM are replaced simultaneously.

Removal

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.
- Solenoid wire harness A and the transmission fluid temperature sensor are not available separately. Replace them as a set.
- The valve body assembly and the following parts are not available separately. Replace them as a set.
 - CVT clutch pressure control solenoid valve
 - CVT drive pulley pressure control solenoid valve
 - CVT driven pulley pressure control solenoid valve
 - CVT lock-up clutch control solenoid valve
 - Shift solenoid valve B
 - Solenoid wire harness B



	Detailed information, notes and precautions
	Replace

1. Vehicle - Lift

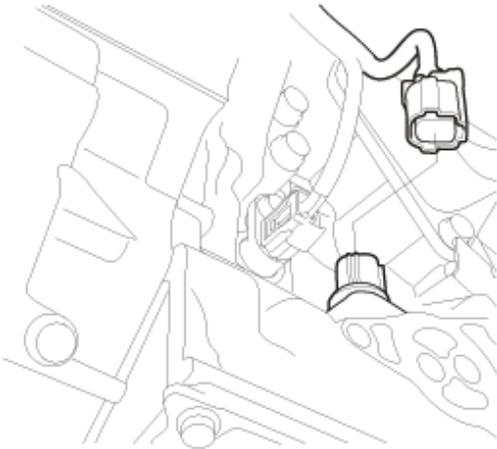
2. Engine Undercover Plate - Remove

3. Engine - Warm Up

1. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on twice).
2. Turn the engine off.

4. Transmission Fluid - Drain

5. Connector (Solenoid Wire Harness A) - Disconnect



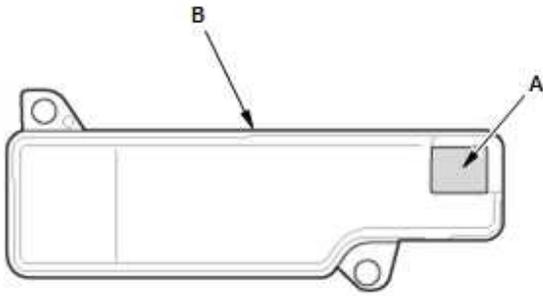
6. Transmission Fluid Pan - Remove

NOTE: The actual transmission fluid (HCF-2) capacity will vary from the specified capacity based on the length of time the transmission fluid pan is off the transmission. Avoid leaving the transmission fluid pan off for extend periods of time.

7. Magnet - Remove

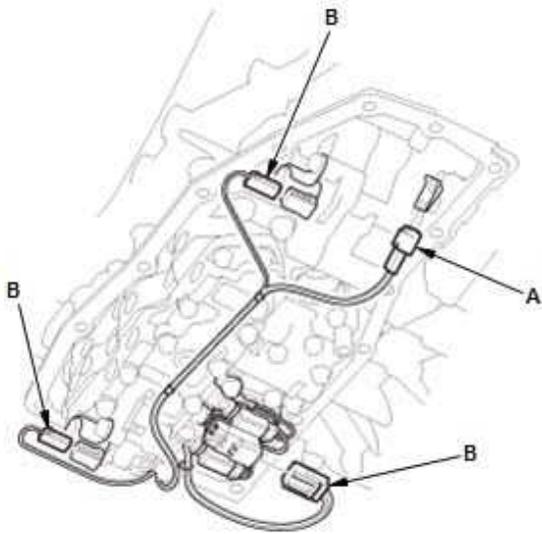
8. Transmission Fluid Strainer - Remove

9. Transmission Fluid Strainer - Check

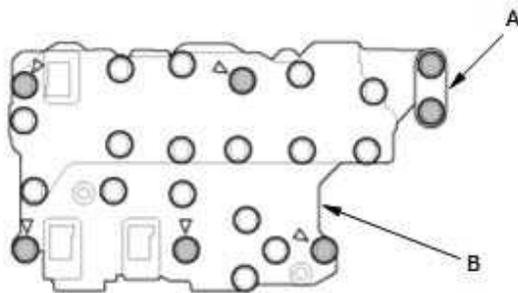


1. Clean the inlet opening (A) of the transmission fluid strainer (B) thoroughly with compressed air.
2. Check that it is in good condition and that the inlet opening is not clogged.
3. Test the strainer by pouring clean transmission fluid through the inlet opening, and replace it if it is clogged or damaged.

10. Valve Body Assembly - Remove



1. Remove the transmission fluid temperature sensor (A).
2. Disconnect the connectors (B).



3. Remove the guide plate (A).
4. Remove the valve body assembly (B) straightly.

NOTE:

- Do not remove the bolts with no ▽ marked on.
- Check that the valve body assembly is free of solenoid wire harness A.
- Be careful not to damage solenoid wire harness A.

- : BOLTS TO BE REMOVED
- : BOLTS NOT TO BE REMOVED

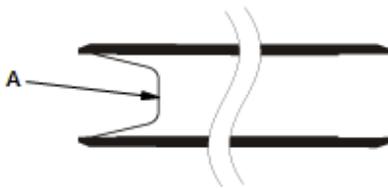
11. 10.9 x 26 mm Pipe - Remove

12. 8 x 133.5 mm Pipe - Remove

13. 12 x 56.7 mm Pipe - Remove

14. Joint Pipe - Remove

NOTE: Be careful not to drop the filter (A).



15. 10.9 x 18.5 mm Pipe - Remove

16. 14.3 x 36.2 mm Pipe - Remove

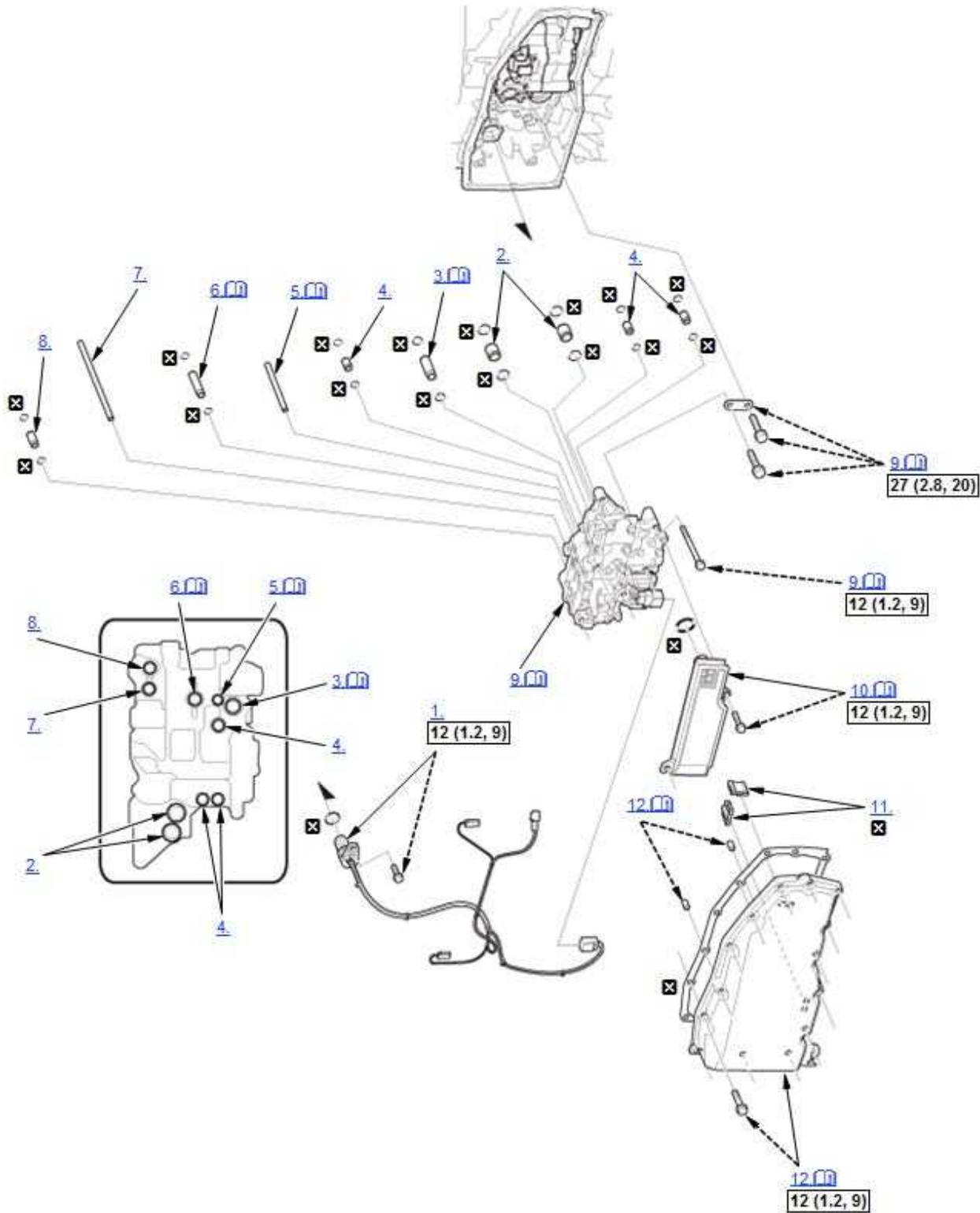
17. 18 x 18 mm Pipe - Remove

18. Solenoid Wire Harness A - Remove

Installation

NOTE:

-  Where icon is shown, click for further information.
- Keep all foreign particles out of the transmission.
- Apply a light coat of clean transmission fluid on all O-rings before installation.
- Be careful not to damage the O-rings.
- Solenoid wire harness A and the transmission fluid temperature sensor are not available separately. Replace them as a set.
- The valve body assembly and the following parts are not available separately. Replace them as a set.
 - CVT clutch pressure control solenoid valve
 - CVT drive pulley pressure control solenoid valve
 - CVT driven pulley pressure control solenoid valve
 - CVT lock-up clutch control solenoid valve
 - Shift solenoid valve B
 - Solenoid wire harness B



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	Detailed information, notes and precautions
	Torque: N·m (kgf·m, lbf·ft)
	Replace

1. Solenoid Wire Harness A - Install

2. 18 x 18 mm Pipe - Install

3. 14.3 x 36.2 mm Pipe - Install

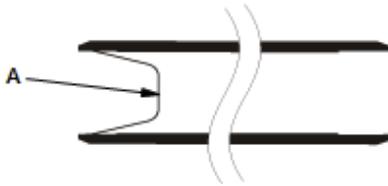
NOTE: You can install the pipe regardless of its direction.

4. 10.9 x 18.5 mm Pipe - Install

5. Joint Pipe - Install

NOTE:

- The joint pipe has the filter (A). The filter end should face the valve body assembly side.
- Be careful not to drop the filter.



6. 12 x 56.7 mm Pipe - Install

NOTE: You can install the pipe regardless of its direction.

7. 8 x 133.5 mm Pipe - Install

8. 10.9 x 26 mm Pipe - Install

9. Valve Body Assembly - Install

1. Install the valve body assembly (A) straightly.

NOTE: Do not pinch solenoid wire harnesses A and B.

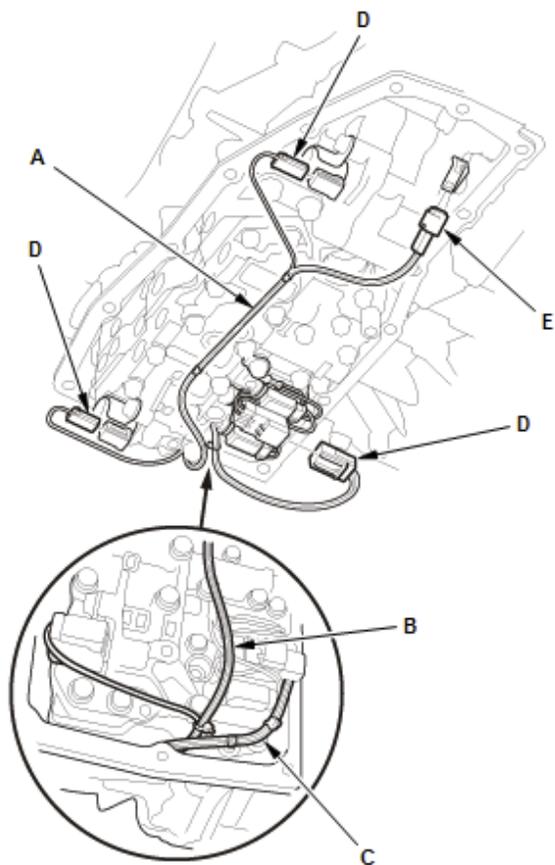
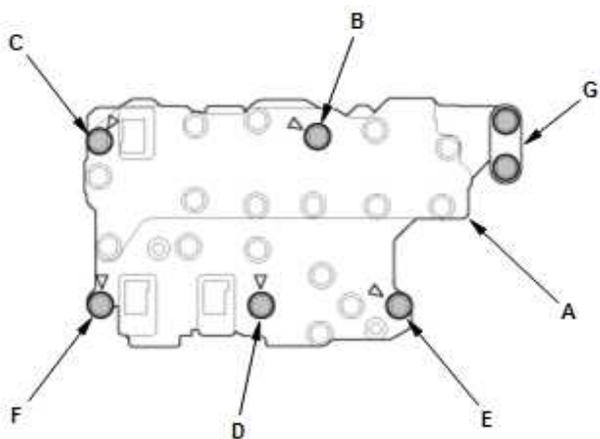
Bolt	Length
B	90 mm (3.54 in)
C	80 mm (3.15 in)
D	65 mm (2.56 in)
E	55 mm (2.17 in)
F	40 mm (1.57 in)

2. Install the guide plate (G).

3. Make sure each branch of solenoid wire harness A goes through the appropriate location, especially as shown, one (B) must be located to the inside from the other (C).

4. Connect the connectors (D).

5. Install the transmission fluid temperature sensor (E).



10. Transmission Fluid Strainer - Install

NOTE: Do not pinch solenoid wire harnesses A and B.

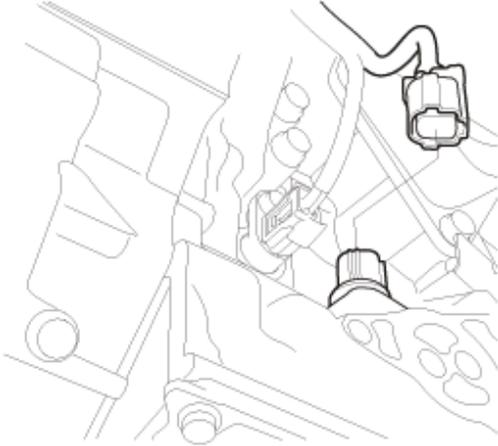
11. Magnet - Install

12. Transmission Fluid Pan - Install

NOTE:

- Tighten the transmission fluid pan mounting bolts in a crisscross pattern in at least two steps.
- Do not pinch solenoid wire harnesses A and B.

13. Connector (Solenoid Wire Harness A) - Connect



NOTE: Check the connector for corrosion, dirt, or oil, and clean or repair if necessary.

14. Transmission Fluid - Refill

15. Transmission Fluid Level - Check

16. Engine Undercover Plate - Install

17. TCM - Reset (Only for Replacing Valve Body Assembly)

NOTE: This procedure is not required, if the valve body assembly and the TCM are replaced simultaneously.