TECHNICAL SERVICE BULLETIN

SB-17-022 COE AISIN TRANSMISSION REPAIR PROCEDURE

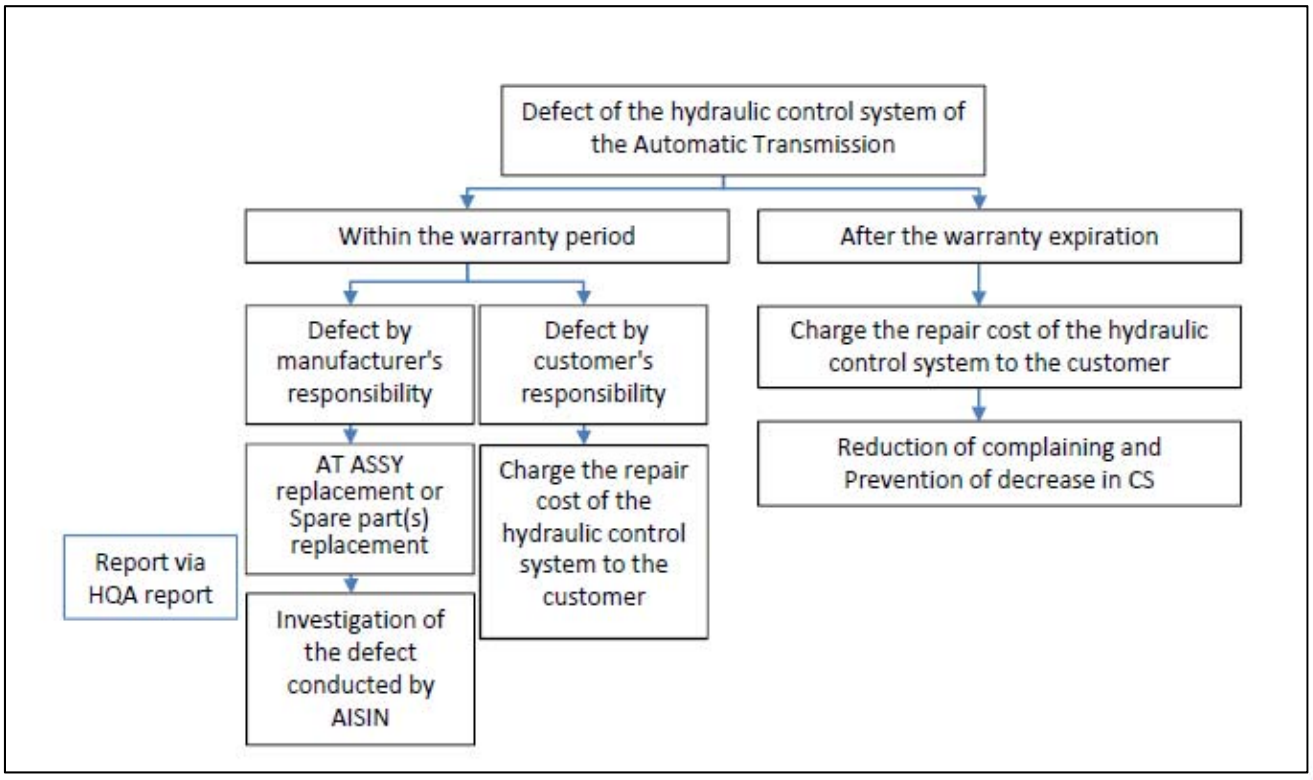
GROUP: 0-GENERAL
BULLETIN NO: SB-17-022
DATE: 7-14-2017

SUBJECT VEHICLES: 13MY-18MY Cab Over Engine (COE) Trucks equipped with an AISIN transmission.

Note: This technical service bulletin is provided as technical information and is not authorization for a warrantable repair.

OVERVIEW:
The procedures below are a repair workflow and replacing the valve body parts for the AISIN transmission.

REPAIR WORKFLOW:



(2) List of DTC Codes

DTC Code	Diagnosis monitor code	Inspection item	Spare parts to be replaced
P0706	44	Abnormality in D range pressure	1. WIRE, TO SOLENOID. 2. PSW8.
P0710	38	Oil temperature sensor No.1 system failure	1. WIRE, TO SOLENOID.
P0730	37	Abnormal gear ratio	1. SOL1 (in case of S1 operation failure) 2. SOL2 (in case of S2 operation failure) 3. SOL3 (in case of S3 operation failure) 4. AT ASSY (in case of SL1 operation failure) 5. AT ASSY (in case of SL2 operation failure)
P0746	31	Control valve No.1 system failure	1. WIRE, TO SOLENOID. 2. PSW1 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
P0748	25	Abnormality in linear solenoid No.1	1. WIRE, TO SOLENOID.
P0751	45	Shift valve 1 system failure	1. WIRE, TO SOLENOID. 2. PSW3 and SOL1 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
P0756	46	Shift valve 2 system failure	1. WIRE, TO SOLENOID. 2. PSW and SOL2 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
P0761	47	Shift valve 3/4 system failure	1. WIRE, TO SOLENOID. 2. PSW and SOL3 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
	48	Shift valve 3/4 system failure	1. WIRE, TO SOLENOID. 2. PSW6 and SOL3 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
P0776	32	Control valve 2 system failure	1. WIRE, TO SOLENOID. 2. PSW2 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
P0973	62	Shift solenoid 1 system failure [Low]	1. WIRE, TO SOLENOID. 2. SOL1 NOTE: Replace the SOL1 in case that the resistance value measured is not within the standard value.
P0974	62	Shift solenoid 1 system failure [High]	1. WIRE, TO SOLENOID. 2. SOL1 NOTE: Replace the SOL1 in case that the resistance value measured is not within the standard value.
P0976	63	Shift solenoid 2 system failure [Low]	1. WIRE, TO SOLENOID. 2. SOL2 NOTE: Replace the SOL2 in case that the resistance value measured is not within the standard value.
P0977	63	Shift solenoid 2 system failure [High]	1. WIRE, TO SOLENOID. 2. SOL2 NOTE: Replace the SOL2 in case that the resistance value measured is not within the standard value.
P0979	64	Shift solenoid 3 system failure [Low]	1. WIRE, TO SOLENOID. 2. SOL3 NOTE: Replace the SOL3 in case that the resistance value measured is not within the standard value.
P0980	64	Shift solenoid 3 system failure [High]	1. WIRE, TO SOLENOID. 2. SOL3 NOTE: Replace the SOL3 in case that the resistance value measured is not within the standard value.
P0985	65	Hydraulic control solenoid system failure [Low]	1. WIRE, TO SOLENOID. 2. SOL4 NOTE: Replace the SOL4 in case that the resistance value measured is not within the standard value.
P0986	65	Hydraulic control solenoid system failure [High]	1. WIRE, TO SOLENOID. 2. SOL4 NOTE: Replace the SOL4 in case that the resistance value measured is not within the standard value.
P2716	28	Pressure control solenoid system failure	1. WIRE, TO SOLENOID.
P2757	33	Control valve 3 system failure	1. WIRE, TO SOLENOID. 2. PSW7 (in case of PSW failure) NOTE: Replace the PSW and WIRE, TO SOLENOID together because the bullet terminal of the PSW can not be reused.
P2759	27	Abnormality in linear solenoid 3	1. WIRE, TO SOLENOID.

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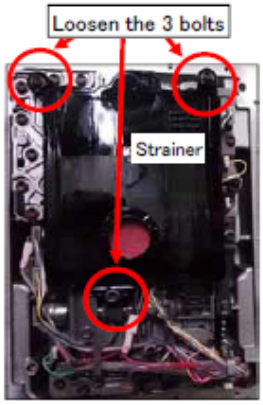
Procedure Manual for Removing the Valve Body Parts

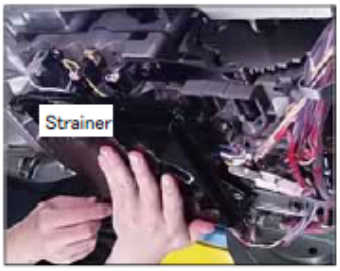
1. Remove the oil pan
   (1) Remove the bolts of the oil pan from the AT case.
   (2) Remove the oil pan.

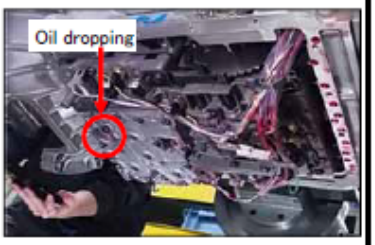
【CAUTION】
1) Make sure to stop the vehicle on a flat surface in order to do the work.
2) Put a container under the transmission in order to catch ATF dropping when removing the oil pan.

2. Remove the strainer
   (1) Loosen the 3 bolts of the strainer.
   (2) Remove the last bolt while holding the strainer with your hand.
   Be careful about oil dropping from the valve body when removing the strainer.



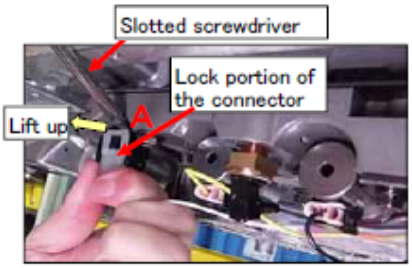
Remove the last bolt while holding the strainer with your hand.

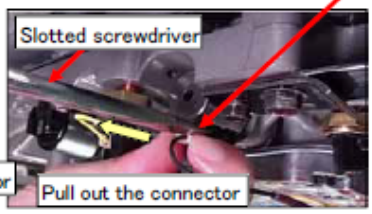




3. Unplug the connectors from linear solenoids and shift solenoids.
   A. Unplug each connectors from Linear Solenoid: SLT1, SLT2, SLT3, SLT4 in the following manner.
   (1) Insert a slotted screwdriver into the connector of a linear solenoid.
   (2) Lift up the lock portion of the connector with the slotted screwdriver.
   (3) Pull out the connector downward.

   B. Unplug each connectors from Shift Solenoid: SOL1, SOL2, SOL3, SOL4, Oil temperature sensor, Oil pressure switch: PSW4, PSW5 in the following manner.
   (1) Push the lock portion of a shift solenoid connector with the slotted screwdriver.
   (2) Pull out the connector.





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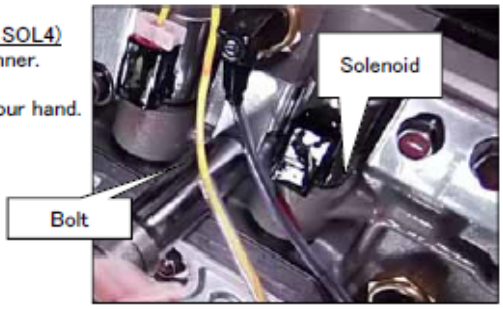
4. Unplug the oil pressure switch connector.

Pull out the connector downward while holding the rubber portion of the connector with your fingers.

【CAUTION】
1) If the bullet terminal of the oil pressure switch has come off, do NOT reuse its WIRE, TO SOLENOID.
2) Use a new WIRE, TO SOLENOID when you reassemble the valve body.

5. Remove the shift solenoids (SOL1, SOL2, SOL3, SOL4)

Remove each shift solenoid in the following manner.
(1) Loosen the bolt of a shift solenoid.
(2) Remove the bolt and the solenoid with your hand.



6. Remove the oil pressure switch.

(1) Loosen the oil pressure switch with a tool.
(2) Remove it with your hand.

【CAUTION】
1) Be careful NOT to damage the terminal.
2) Be careful about dropping oil when removing the oil pressure switch.
3) Be careful NOT to let the cover fall off.

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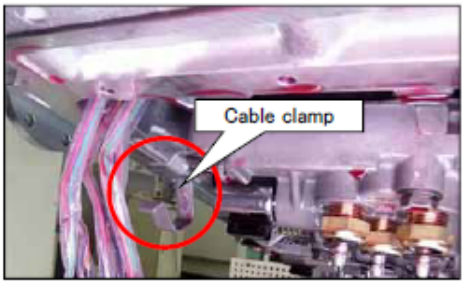
7. Remove the WIRE, TO SOLENOID harnesses from the cable clamp.
Open the cable clamp and remove the harnesses.

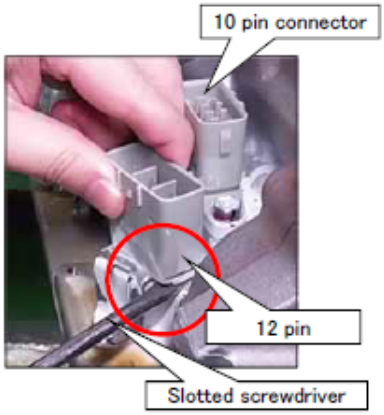


8. Remove the WIRE, TO SOLENOID from the AT case
(10 pin connector, 12pin connector)
(1) Remove the bolt of the WIRE, TO SOLENOID.

(2) Insert a slotted screwdriver into the gap between the connector and the AT case.

(3) Remove the connector after lifting it up with the slotted screwdriver.

【CAUTION】
1) When pulling out the harnesses from the AT case, pull them out one by one to prevent disconnection of the harnesses.
2) Be careful NOT to damage the AT case.



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Procedure Manual for Installing the Valve Body Parts

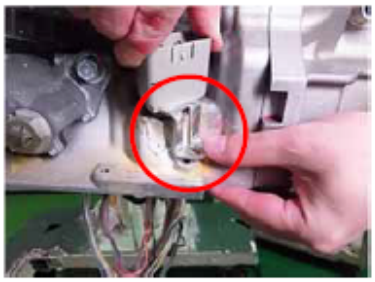
1. Insert the WIRE, TO SOLENOID ASSY(A-1, 10 pin) into the hole of the case.

【CAUTION】
1) Insert the connectors into the hole one by one.
2) 2 or more cables cannot be inserted all at once.
3) Use a New WIRE, TO SOLENOID ASSY.

2. Apply grease to the O-ring of the WIRE, TO SOLENOID ASSY (A-1, 10pin) connector, and securely put it into the case.

【CAUTION】
1) Make sure that the bolt fitting portion of the connector is touching the AT case.

3. Insert the WIRE, TO SOLENOID ASSY(A-2, 12 pin) into the hole of the case in the same manner as the above No.1 (A-1, 10 pin).



4. Install each WIRE, TO SOLENOID ASSY(A-1,-2) to the case with fitting bolts by tightening them with the specified torque below.

【Tightening Torque】
WIRE, TO SOLENOID(A-1,-2) : 8(6.4～9.6)Nm

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5. Temporarily install the SWITCH ASSY, PRESSURE (C-1, -2) 【PSW】 to the correct position.

【CAUTION】
1) There are two types of PSW (C-1, -2). There are 6 PSWs in total on the lower side of the valve body.
2) Make sure that there is a rubber cover on each PSW.

6. Install the SWITCH ASSY, PRESSURE (C-1, -2) to the case with bolts by tightening them with the specified torque below.

【CAUTION】
1) There are two types of PSW. Make sure to tighten them with the correct tightening torque.
2) Use a deep type socket, etc. to prevent the damage of the terminals when tightening them.

【Tightening Torque】
SWITCH ASSY, PRESSURE (C-1) : 4.4 (3.9～4.9) Nm
SWITCH ASSY, PRESSURE (C-2) : 8.5 (7.5～9.5) Nm

7. Install the SOLENOID ASSY, TRANSMISSION (B-1 or -2) to the valve body.

【CAUTION】
1) There is just one type of solenoid. However, there are solenoids used for 12V and 24V for each part no. of the Automatic Transmission.
2) Align the solenoid bracket hole(s) and the valve body screw hole(s).

8. First, temporarily tighten the SOLENOID ASSY, TRANSMISSION (B-1 or -2) with your fingers. And then, tighten it with the specified torque.

【Tightening Torque】
SOLENOID ASSY, TRANSMISSION (B-1 or -2) : 10.0 (8.0～12.0) Nm

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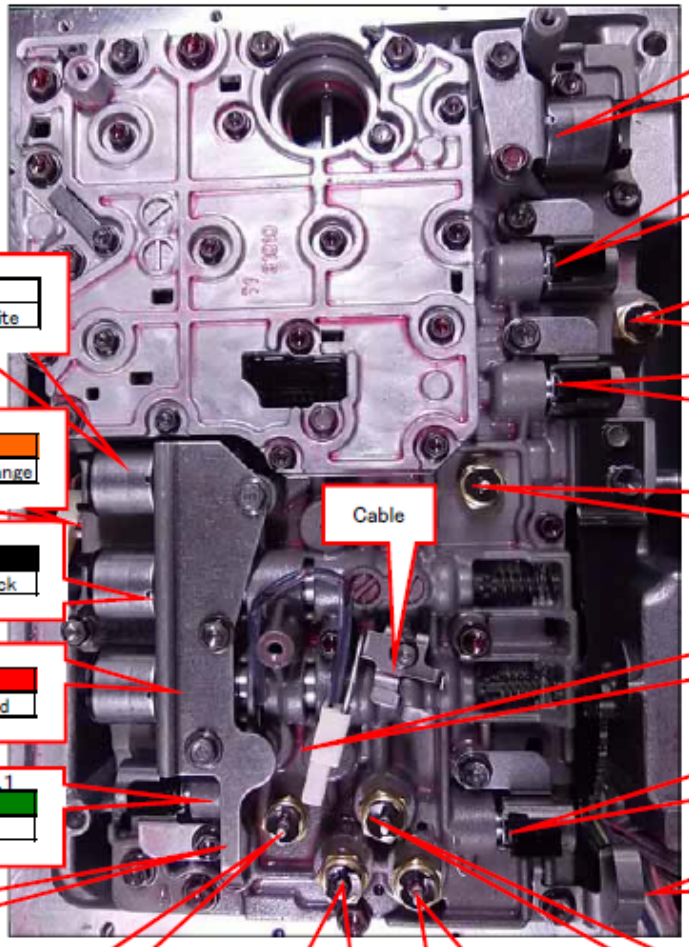
WIRE, TO SOLENOID Wiring Order

for each part name, color of the connectors, wiring order



9. Insert the WIRE, TO SOLENOID ASSY (A-1, -2) into each clamp, and then put it into the connector.

【CAUTION】

1) Looking at the above list to check the colors of the harnesses, make sure to connect the connectors in the wiring order.
2) After connecting those, check that the cables and connectors are connected without applying any excessive stress.
3) Make sure that the connectors other than PSW are securely connected and locked.
4) Before putting the connectors into PSW, ensure that a rubber cover of the PSW is put.
5) Do NOT reconnect the connectors of the PSW.
6) Make sure to connect the connectors into PSW until they reach the rubber cover of PSW.
7) Be sure to clamp the covered part of the harnesses.

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10. Put all harnesses of WIRE, TO SOLENOID ASSY (A-1, -2) into the connectors, and close the clamps according the photo on the right.

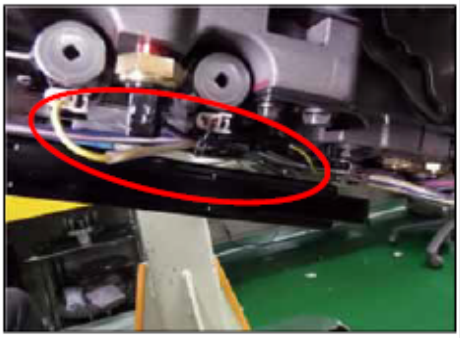
11. Install the STRAINER ASSY, OIL (D)

【CAUTION】
1) Use a new STAINER ASSY,OIL (D).
2) Check that there is no scratch on the o-ring.
3) Install it after applying ATF to the o-ring at the strainer intake to be installed to the valve body.
4) Make sure to align 3 bolt fitting portions of the strainer and the ones of the valve body.

12. Install the BOLT, FLANGE, TRANSMISSION (E-6) to the STRAINER ASSY, OIL (D) by tightening the bolts with the specified torque using a torque wrench.

【CAUTION】
1) First, temporarily tighten the bolt with your fingers.
2) After temporarily tightening the bolt, check that the harnesses are in positions and not caught in the valve body.

【Tightening Torque】
STRAINER ASSY, OIL (D) : 10.0 (8.0～12.0) Nm



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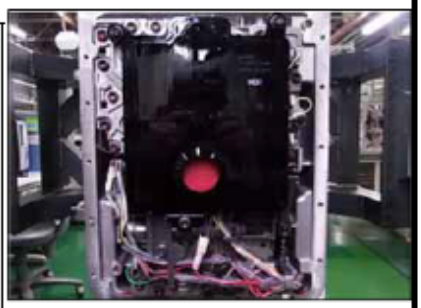
13. Install the oil pan to the AT case.



【CAUTION】
1) Check that the harnesses are in positions and not caught in the oil pan fitting face.
2) Make sure that there is no oil attaching to the oil pan fitting face.
3) Make sure that there is no foreign material in the oil pan.
4) After checking that a magnet of the oil pan has no foreign material, install the magnet to the initial position.
5) After temporarily tighten the bolts of the oil pan, do NOT tighten them at one time with the specified torque, but tighten them in three or four times.
6) Tighten the drain plug with the specified torque using a torque wrench after installing the oil pan.

【Tightening Torque】
Oil pan : 8.0 (6.4～9.6) Nm
Drain plug : 27. 0 (22.0～32. 0) Nm

14. Things to do after the installation
(1) Inject ATF and adjust the oil level.
(2) Do the initial learning.
(3) After test driving, check that no diagnosis code comes out.
If the same diagnosis code(s) still comes out or the failure(s) gets worse, replace the transmission assy.

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LIST OF AISIN SPARE PARTS

A465				
Parts No.	**Parts Name**	**Qty/Parts No.**	**Qty/Unit**	**Note**
8229137030	WIRE, TO SOLENOID	1	1	10 pin type If it disconnected from hydraulic switch , this parts have to replace .
8229137040	WIRE, TO SOLENOID	1	1	12 pin type If it disconnected from hydraulic switch , this parts have to replace .
8542037020	SOLENOID ASSY, TRANS	1	4	For 12V
8338037040	SWITCH ASSY, PRESSUR	1	3	PT 1/8 If hydraulic switch was replaced , it have to replace with A-1
8338037050	SWITCH ASSY, PRESSUR	1	3	PT 1/4 If hydraulic switch was replaced , it have to replace with A-1
3533037010	STRAINER ASSY, OIL	1	1	
9011906A05	BOLT, W/WASHER	1	1	
9010506341	BOLT, WASHER BASED H	1	3	
9010506340	BOLT, FLANGE	1	3	
9161160616	BOLT, W/WASHER	1	2	

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