

Technical Service Bulletin (TSB)

K1 Clutch Snap Ring Repair

REFERENCE:	TSB: 21-002-23 REV. B GROUP 21 - Transmission and Transfer Case	Date:	August 19, 2023	REVISION:	21-002-23 REV. A
VEHICLES AFFECTED:	2019 - 2023 (DD) RAM 3500 Cab Chassis 2019 - 2023 (DP) RAM 4500/5500 Cab Chassis 2019 - 2023 (D2) RAM 3500 Pickup This bulletin applies to vehicles built on or before December 01, 2022 (MDH 1201XX) equipped with a 6SPD Auto Aisin AS69RC HD Transmission (Sales Code DF2) or a 6SPD Auto Aisin AS66RCHD Trans (Sales Code DF3). For 2019 - 2021 MY vehicles, this TSB only applies to vehicles that have had a complete NEW transmission replaced between 02/01/2022 and 12/18/2022.			MARKET APPLICABILITY: ☒ NA ☐ SA ☐ EE ☐ MEA ☐ IAP ☐ CH	
CUSTOMER SYMPTOM:	Customers may experience a Malfunction Indicator Lamp (MIL) illumination. Upon further investigation, a technician may find the following Diagnostic Trouble Code (DTC) has been set: - P0731-00 - Gear 1 Shift Incorrect Ratio (This DTC will set during a key cycle and shifting into Drive). Customers may also comment on the following: - The transmission will not shift into/or out of 1st - 4th gears. 5th and reverse gears are still available.				
CAUSE:	The K1 clutch snap ring dislodged, resulting in loss of torque transfer for lower gears 1, 2, 3 and 4.				

This bulletin supersedes Technical Service Bulletin (TSB) 21-002-23 REV. A, date of issue March 08, 2023, which should be removed from your files. All revisions are highlighted with ****asterisks**** and include a parts table and repair procedure note.

This Technical Service Bulletin (TSB) has also been released as a Rapid Service Update (RSU) 23-065, date of issue March 08, 2023. All applicable RSU VINs have been loaded. To verify this RSU service action is applicable to the vehicle, use VIP or perform a VIN search in DealerCONNECT/Service Library. All repairs are reimbursable within the provisions of warranty. This RSU will expire 18 months after the date of issue.

NOTE: The RSU portion of this TSB covers only Un-Sold VINs, with Sales Code DF2.

REPAIR SUMMARY:

This bulletin involves replacing the K1 clutch drum snap ring and possibly the K1 input shaft drum sub-assembly.

CLAIMS DATA:

Labor Operation No:	Labor Description	Skill Category	Labor Time
21-00-0A-90	K1 Clutch / Input Shaft Assembly - Inspect and Replace Snap Ring (3 - Highly Skilled)	2 - Transmission and Transfer Case	4.4 Hrs.
21-00-0A-91	K1 Clutch / Input Shaft Assembly - Inspect and Replace Sub-Assembly (3 - Highly Skilled)	2 - Transmission and Transfer Case	4.6 Hrs.

OPTIONAL LOPS:

Labor Operation No:	Labor Description	Skill Category	Labor Time
21-00-0A-62	Two Piece Propeller Shaft Equipped (3 - Highly Skilled)	2 - Transmission and Transfer Case	0.2 Hrs.
21-00-0A-61	Skid Plate Equipped (3 - Highly Skilled)	2 - Transmission and Transfer Case	0.3 Hrs.
21-00-01-69	DEF Equipment 2500-3500 4x4 pick-up only (3 - Highly Skilled)	2 - Transmission and Transfer Case	0.6 Hrs.
21-00-0A-60	4x4 Equipped (3 - Highly Skilled)	2 - Transmission and Transfer Case	1.2 Hrs.

DIAGNOSIS:

Using a Scan Tool (wiTECH) with the appropriate Diagnostic Procedures available in DealerCONNECT/Service Library, verify all related systems are functioning as designed. If DTCs or symptom conditions, other than the ones listed above are present, record the issues on the repair order and repair as necessary before proceeding further with this bulletin.

If a customer's VIN is listed in VIP or your RSU VIN list, perform the repair. If any vehicle not on the VIN list exhibits the symptom/condition or DTC, perform the repair.

SPECIAL TOOLS/EQUIPMENT:

Description	Ref. No.	Notes
wiTECH or Equivalent	—	
End-Play Tool Set	8266B	
Dial Indicator	C-3339A	
Slide Hammers	C-3752	
Puller Adapters	9981	

SPARE PARTS REQUIRED FOR ALL REPAIRS:

Qty	Part No.	Description	Notes
6	06511777AA	Bolt, Hex Head - M12 X 1.50 X 17.80 – Torque Converter to Flexplate - DIESEL	
6	06508406AA	Bolt, Torque Converter to Flexplate - GAS	
(AR)	06506497AA	Bolt, Front Or Rear Driveshaft	Use StarParts to determine applicability by VIN
(AR)	06509166AA	Bolt, Front Or Rear Driveshaft	Use StarParts to determine applicability by VIN
(AR)	05019061AB	MOPAR® High Temp Grease	
(AR)	05189966AD	ASRC ATF (Quart)	See Caution

CAUTION! A unique transmission fluid has been developed for this transmission. This fluid is **NOT** compatible with ATF+4 or any other current FCA US LLC transmission fluid. For specifics about this unique fluid see Fluids, Lubricants And Genuine Parts.

SPARE PARTS REQUIRED FOR DISLODGED SNAP RING:

Qty	Part No.	Description	Notes
1 (AR)	68637534AA	K1 Clutch Kit, Automatic Transmission - Input - DIESEL	A New Snap Ring is already installed in the K1 Clutch Assembly included in the kit.
1 (AR)	68637535AA	K1 Clutch Kit, Automatic Transmission - Input - GAS	A New Snap Ring is already installed in the K1 Clutch Assembly included in the kit.

NOTE: **If a failure has occurred or symptoms are present, complete the repair using the K1 Clutch Kit. Do not use the Clutch Kits for proactive repairs.**

SPARE PARTS REQUIRED IF SNAP RING NOT DISLODGED (RSU/PROACTIVE FIX):

Qty	Part No.	Description	Notes
1 (AR)	68269568AB	K1 Clutch Snap Ring	
4 (AR)	68253940AA	Ring, Input Shaft Seal - DIESEL	
4 (AR)	68269569AA	Ring, Input Shaft Seal - GAS	
1 (AR)	68019782AA	Ring, Torque Converter Lock-Up Seal	
1 (AR)	68244579AA	O-Ring, Transmission Oil Pump	
1 (AR)	68244638AA	Gasket, Oil Pump	
1 (AR)	68085955AA	Gasket, Drain Plug	

SPARE PARTS REPLACED ONLY IF NECESSARY:

Qty	Part No.	Description	Notes
(AR)	68456960AA	K1 Clutch Hub	Replace Only If Necessary
(AR)	68253813AB	Race, K1 Thrust Bearing Number Two	Replace Only If Necessary
(AR)	68253770AA	Roller, K1 Thrust Bearing Number Two	Replace Only If Necessary
(AR)	68254056AB	K2 Clutch Hub	Replace Only If Necessary
(AR)	68253772AA	K2 Thrust Bearing Number Three	Replace Only If Necessary
(AR)	68253814AA	Race, Selectable Thrust Bearing - 0.81 mm - Diesel	Replace Only If Necessary
(AR)	68253815AA	Race, Selectable Thrust Bearing - 1.10 mm - DIESEL	Replace Only If Necessary
(AR)	68253816AA	Race, Selectable Thrust Bearing - 1.60 mm - DIESEL	Replace Only If Necessary
(AR)	68269548AA	Race, Selectable Thrust Bearing - 0.81 mm - GAS	Replace Only If Necessary
(AR)	68269549AA	Race, Selectable Thrust Bearing - 1.10 mm - GAS	Replace Only If Necessary
(AR)	68269550AA	Race, Selectable Thrust Bearing - 1.60 mm - GAS	Replace Only If Necessary

REPAIR PROCEDURE:

1. Remove the transmission discarding the torque converter bolts. Refer to the detailed service procedures available in DealerConnect/Service Library under: 21 - Transmission and Transfer Case / Automatic - AS69RC / Removal. **Or** refer to the detailed service procedures available in DealerConnect/Service Library under: 21 - Transmission and Transfer Case / Automatic - AS66RC / Removal.
2. Place the transmission manual shift lever into the park lock position.
3. Plug all openings and clean the exterior of transmission with a water soluble solvent, or a pressure washer.
4. Remove oil pan drain plug (Fig. 1) and drain fluid from transmission pan. Discard drain plug gasket.

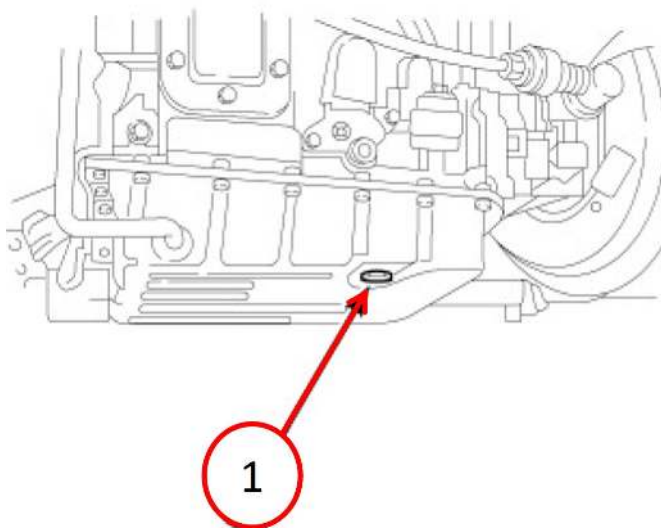


Fig. 1
Oil Pan Drain Plug

1 - Transmission Oil Drain Plug

WARNING! Be certain the transmission is secure when removing the torque converter, the torque converter is very heavy. Failure to follow these instructions may result in personal injury or may be fatal.

5. Remove the torque converter from the transmission (Fig. 2) .

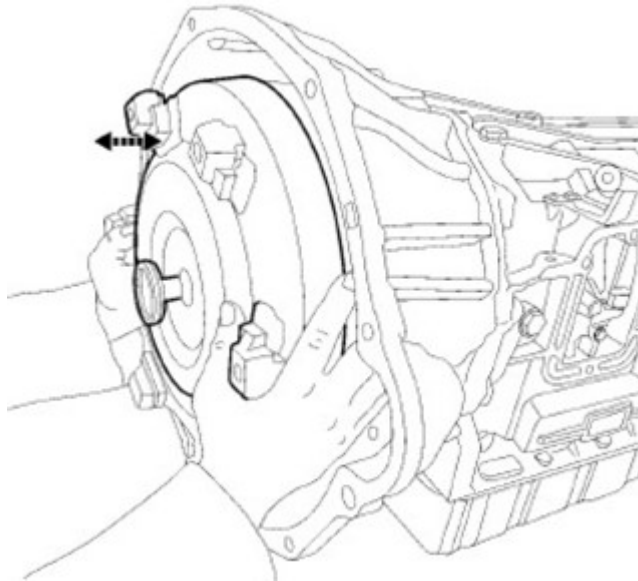


Fig. 2
Removing Torque Converter

NOTE: Gear train end play is a critical pre-disassembly check to help determine the condition of the transmission. An end play reading greater than specification (larger gap) indicate that a bearing or thrust plate is either missing, worn or has disintegrated, in which case there will be debris in the transmission oil pan.

6. Using Adapter Socket, End Play 8266-22 and the handle from End-Play Tool Set 8266B and Dial Indicator C-3339A, measure and record the input shaft end-play (Fig. 3) .

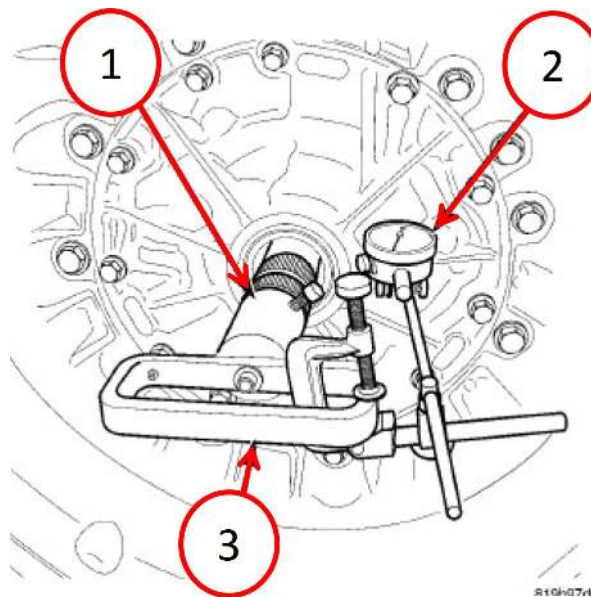


Fig. 3
Recording The Input Shaft End-Play

- 1 - 8266-22
- 2 - 8266B
- 3 - C-3339A

NOTE: Support the bottom of the transmission case before removing the torque converter housing.

7. Remove the bolts securing the torque converter housing to the transmission case and remove the housing (Fig. 4) .

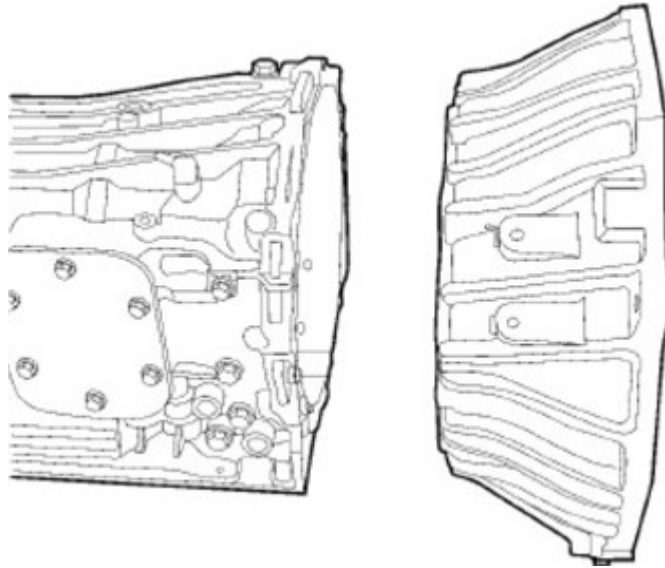


Fig. 4

Torque Converter Housing And Transmission Case

8. Remove the bolts securing the oil pump to the transmission case and use Slide Hammers C-3752 with adapters 9981 to remove the oil pump assembly from the transmission spline (Fig. 5) .

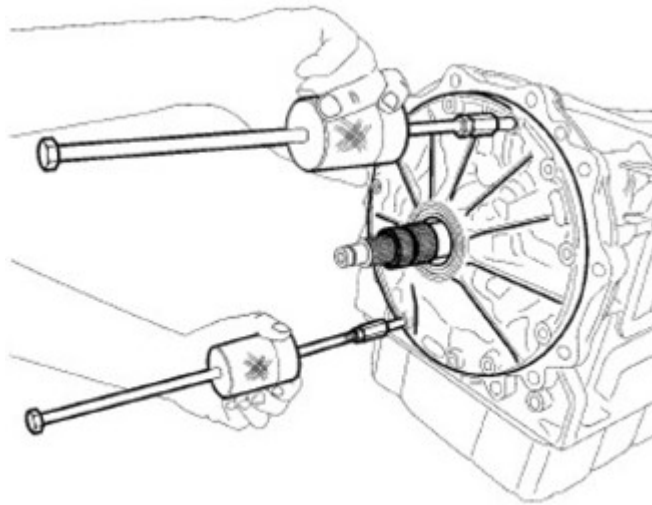


Fig. 5

Slide Hammers C-3752 And 9981 Adapters

9. Remove the input shaft assembly with the K1 and K2 clutch assemblies attached ([Fig. 6](#)) .

NOTE: If the K1 snap ring has become dislodged, the K1 clutch assembly will not come out as a complete unit.

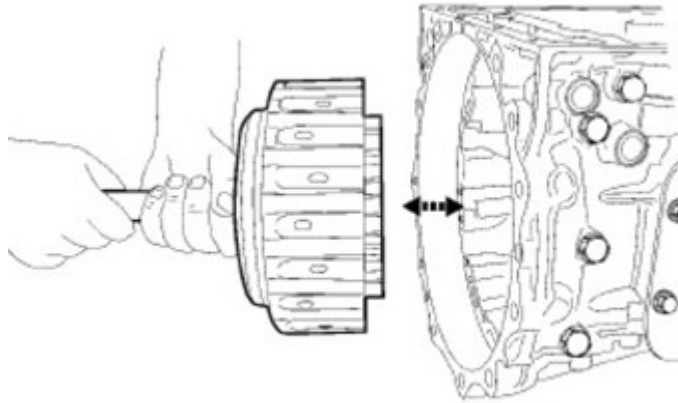


Fig. 6
K1 And K2 Clutch Assemblies

NOTE: **If a failure has occurred or symptoms are present, complete the repair using the K1 Clutch Kit. Do not use the Clutch Kits for proactive repairs.**

10. Is the K1 snap ring dislodged ([Fig. 7](#)) ?

- YES>>> Proceed to [Step 12](#).
- NO>>> Proceed to [Step 11](#) - Snap Ring Replacement Procedure.

NOTE: A K1 snap ring dislodge will result in some loose clutch discs/plates remaining inside K2 clutch hub upon removal of the K2 and K1 clutch assemblies.

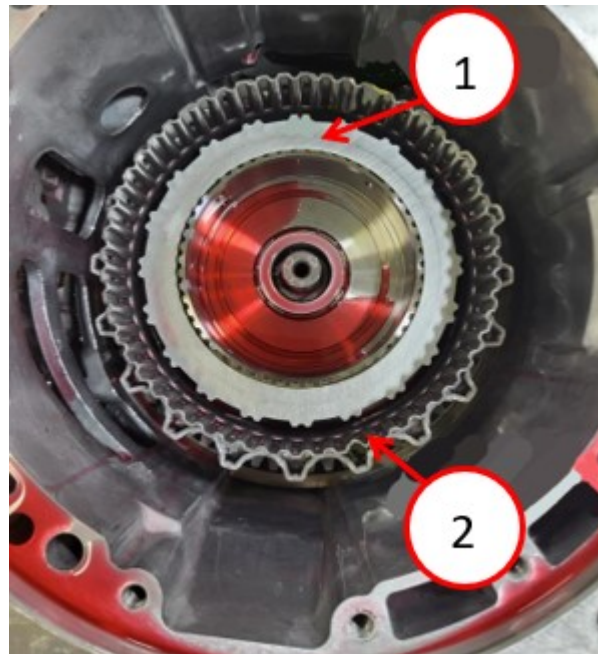


Fig. 7
K1 Snap Ring Dislodged

11. SNAP RING REPLACEMENT PROCEDURE:

- a. Remove the installed Snap Ring from K1 Clutch Assembly Drum.
- b. Replace the snap ring in K1 Drum with replacement P/N 68269568AB snap ring. Be sure to install so that the snap ring ends are covered in the groove by drum "teeth" (Fig. 8) (**not installed such that the ends are in open spaces of the groove**).
- c. Proceed to [Step 22](#).

NOTE: The K1 snap ring should be fully seated inside K1 drum groove. The K1 clutch pack should remain inside the K1 assembly (Fig. 8) .

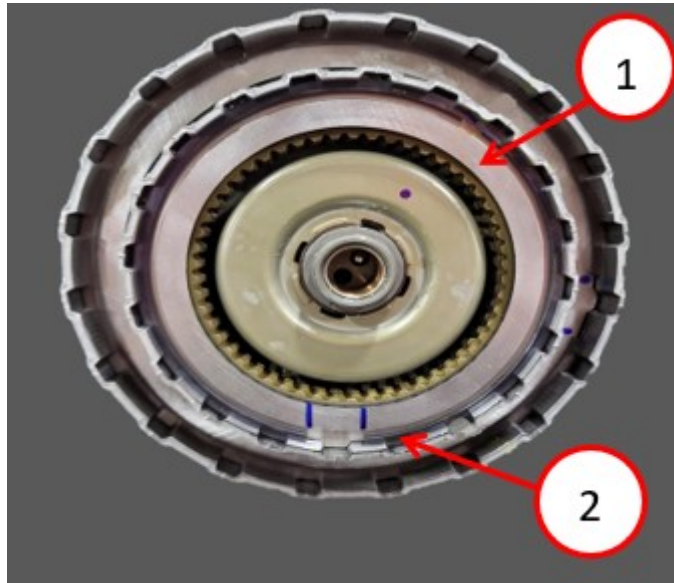


Fig. 8

Underside View Of K1 Snap Ring Correctly Seated

- 1 - K1 Clutch Pack
2 - K1 Snap Ring
-

12. Remove the K2 clutch assembly and the selectable input shaft end-play thrust bearing number one and thrust washer from the K1 clutch/input shaft assembly (Fig. 9) .

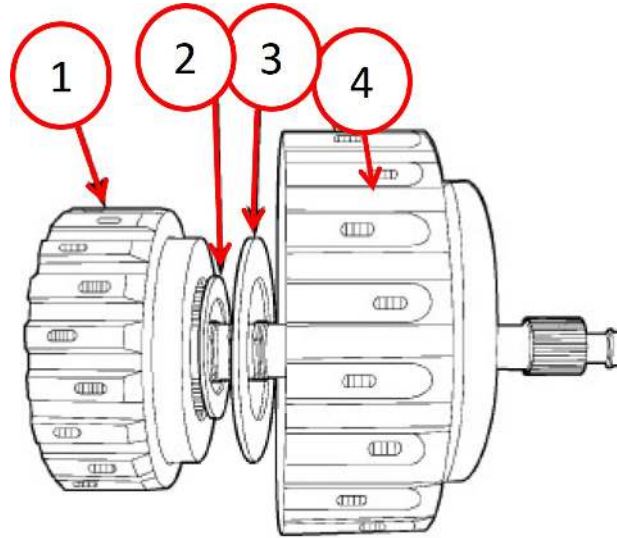


Fig. 9
K1 And K2 Clutch Assemblies

- 1 - K1 Clutch/Input Shaft Assembly
 - 2 - Thrust Bearing Number One
 - 3 - Thrust Washer
 - 4 - K2 Clutch Assembly
-

13. Remove and inspect the K1 clutch hub (Fig. 9) and (Fig. 10) .

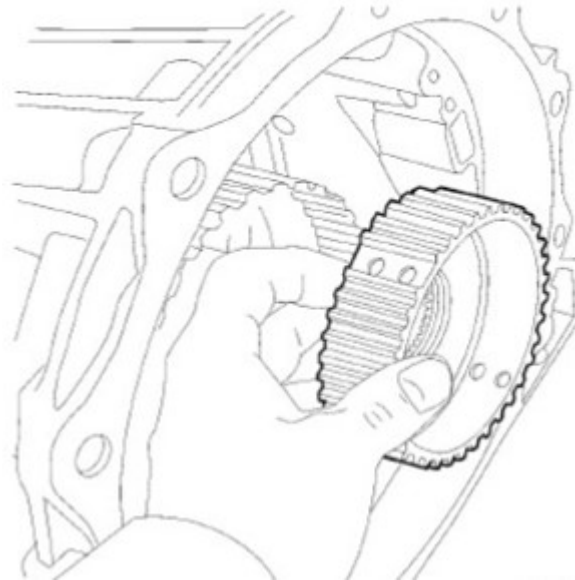


Fig. 10
K1 Clutch Hub

14. Remove and inspect the K1 thrust bearing number two (Fig. 11) .



Fig. 11
K1 Thrust Bearing Number Two

15. Remove and inspect the K2 clutch hub (Fig. 12) .



Fig. 12
K2 Clutch Hub

16. Remove and inspect the K2 thrust bearing number three.

CAUTION! When installing the thrust washers and bearings be certain they are oriented correctly to the transmission component. A thrust bearing must be installed correctly or transmission failure may occur.

NOTE: Apply trans jel or petroleum jelly to all slide portions, rolling contacts surfaces, thrust surfaces etc. to prevent burnout during initial operation. Lubricate O-rings and O-ring seals with MOPAR® ASRC ATF. Soak all friction discs in MOPAR® ASRC ATF for at least two hours before assembly of clutch packs.

NOTE: The input shaft end-play clearance is adjusted by means of a selectable thrust bearing race located between the K1 and the K2 clutch pack retainers.

17. Lubricate with trans jel or petroleum jelly and install K2 thrust bearing number three (Fig. 13) .



Fig. 13
K2 Hub Thrust Bearing Number Three

18. Install the K2 clutch hub into the transmission case (Fig. 12) .
19. Lubricate with trans jel or petroleum jelly and install K1 thrust bearing number two into K1 Clutch Hub (Fig. 11) .

NOTE: Bearing/race are separate pieces and they are depicted and described as one Thrust Bearing.

20. Install the K1 clutch hub and thrust bearing into the transmission case (Fig. 10) .
21. Apply trans jel or petroleum jelly onto the new input shaft seal rings and install the K2 clutch assembly onto the new K1 clutch/input shaft assembly with the original selectable input shaft end-play thrust bearing number one and thrust washer in place (Fig. 9) .

NOTE: The K2 clutch assembly and the K1 clutch/input shaft assembly must be fully seated onto the transmission case.

NOTE: The kit contains three NEW selectable input shaft end play thrust bearing number one options. Use as necessary to achieve the input shaft end play clearance.

22. Install the K2 clutch assembly and the K1 clutch/input shaft assembly into the transmission case (Fig. 6) .

NOTE: Be certain the input shaft seal rings are in place as well as the seal ring on the oil pump hub.

23. Lubricate with trans jel or petroleum jelly and install the nylon thrust washer onto the oil pump (Fig. 14) .

NOTE: The nylon thrust washer is keyed to the oil pump (Fig. 14) .

NOTE: Two pin punches inserted through the oil pump mounting holes will aid in the installation of the oil pump (Fig. 14) .

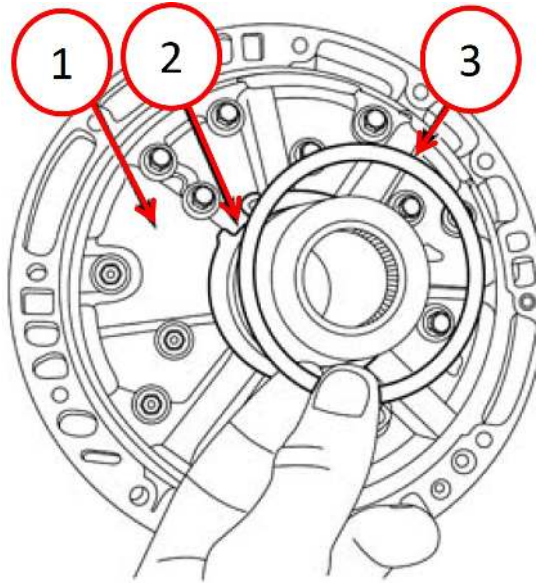


Fig. 14
Oil Pump Assembly

- 1 - Oil Pump
2 - Nylon Thrust Washer
3 - Input Shaft Seal Ring

24. Lubricate and install the new oil pump O-ring with MOPAR ASRC ATF.

NOTE: Be sure that sealant is cleaned from the threads of the oil pump.

25. Install the oil pump with a **NEW** gasket onto the transmission case (Fig. 15) .

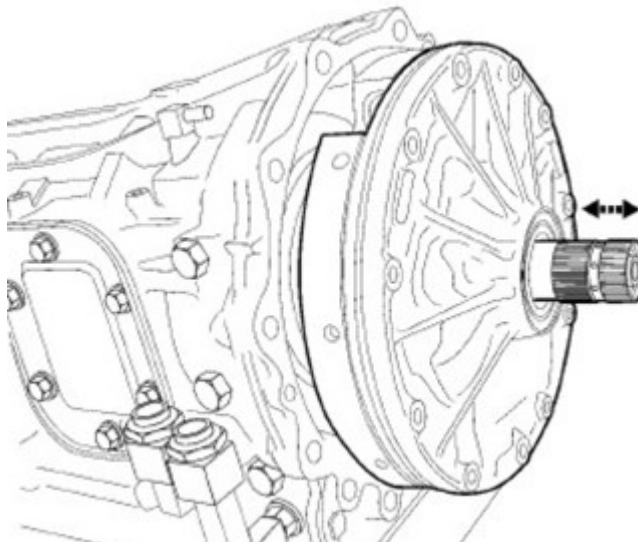


Fig. 15
Oil Pump Assembly On Transmission Spline Shaft

26. Apply a light coating of MOPAR thread sealant onto the oil pump bolts and install the bolts. Tighten the bolts in a crisscross pattern to 21 N·m (15.5 ft. lbs.).

NOTE: The input shaft end-play clearance is adjusted by means of the selectable number one thrust bearing race. The Thrust Washer is nonselectable.

27. Install the Dial Indicator Set C-3339A with Input Shaft Spline Socket, End Play 8266-22 and Handle 8266-8, to check the input shaft end-play clearance. The input shaft end-play clearance for both 2WD and 4WD is 0.50 - 0.90 mm (0.019 - 0.035 in.). **If the clearance is not within tolerance choose the correct selectable thrust bearing race.**

NOTE: The following dimensions below are at time of production.

- Bearing race number one = 0.81 mm (0.031 in.).
 - Bearing race number two = 1.10 mm (0.043 in.).
 - Bearing race number three = 1.60 mm (0.063 in.).
 - End-play spec = 7.62 mm – 22.8 mm (0.300 – 0.900 in.).
28. Assemble and disassemble as necessary to achieve the input shaft end-play clearance.
29. Remove the Dial Indicator set up.
30. Install the torque converter housing to the transmission case.
31. Install the torque converter housing bolts and tighten to 64 N·m (47 ft. lbs.).

WARNING! Be certain the transmission is secure when installing the torque converter, the torque converter is very heavy. Failure to follow these steps may result in personal injury, or may be fatal.

32. Install new torque converter lock-up seal located at the nose of the K1 input shaft.
33. Apply trans jel or petroleum jelly onto the torque converter lock-up seal and torque converter hub seal.
34. Install the torque converter onto the input shaft while applying inward pressure and rotating back and forth at the same time in order to align the input shaft splines and the two teeth on the oil pump drive gear (Fig. 2) .
35. Install a C-clamp or similar device to secure the torque converter into the torque converter housing.
36. Using a new gasket, install the transmission oil pan drain plug (Fig. 1) .
37. Using new torque converter bolts, install the transmission. Refer to the detailed service procedures available in DealerConnect/Service Library under: 21 - Transmission and Transfer Case / Automatic - AS69RC / Installation. **Or** refer to the detailed service procedures available in DealerConnect/Service Library under: 21 - Transmission and Transfer Case / Automatic - AS66RC / Installation.
38. Using wiTECH, perform a Quick Learn Procedure.

POLICY:

Reimbursable within the provisions of the warranty.

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