



FREE

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WEBINAR

Dodge TorqueFlite[®] 8 (ZF8)

A Look Inside of the Torque Converter
& Transmission

ZF8 Webinar Series Part 2 of 2

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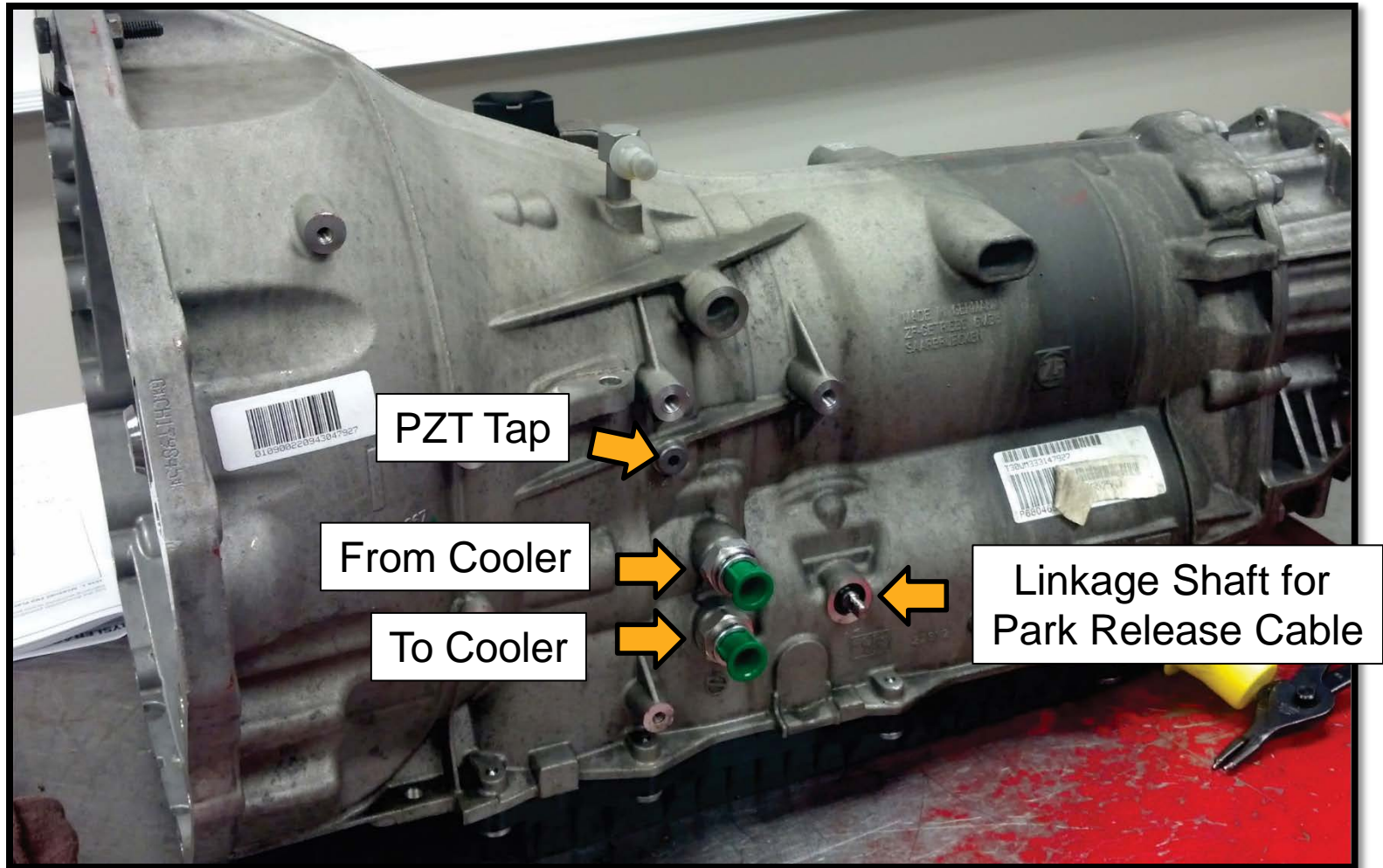
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Dodge TorqueFlite[®] 8 (ZF8)
Case & Torque Converter
Components

External Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components



External Component ID

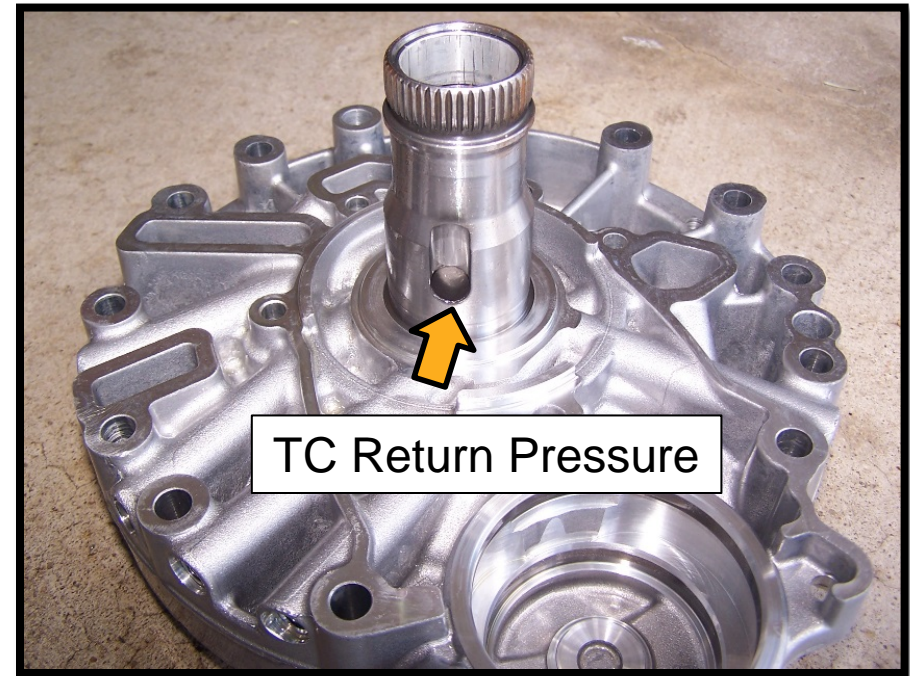
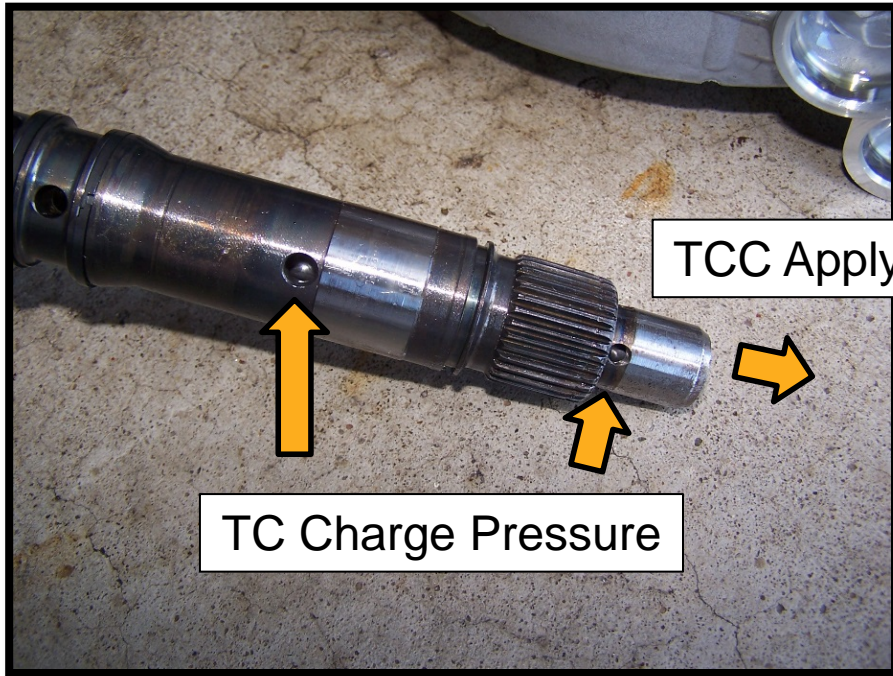
TorqueFlite® 8 (ZF8) Case & Torque Converter Components



TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

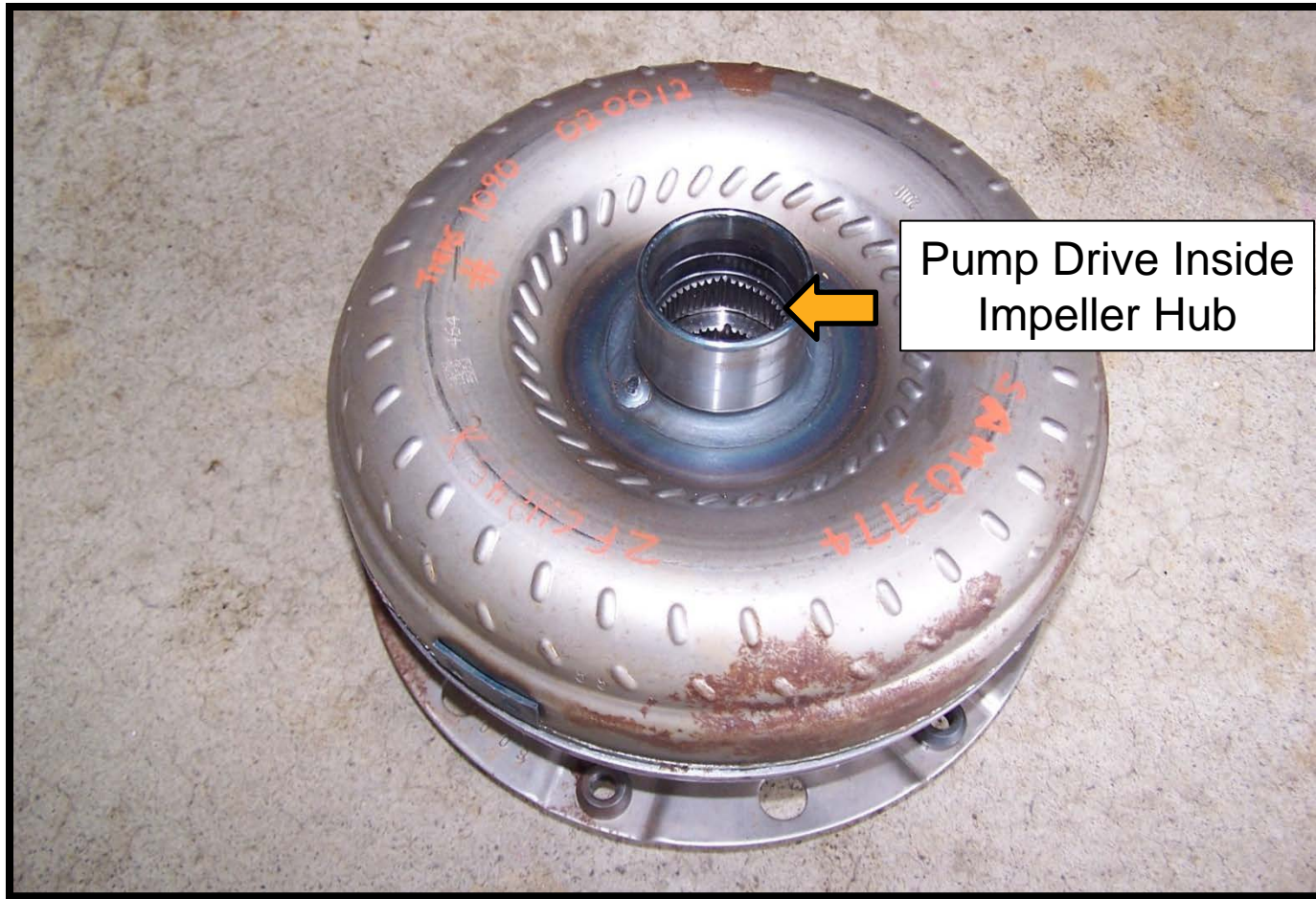
3-Path Torque Converter Oil Circuit Passage ID



NOTE: BMW application shown.

TC Disassembly & Component ID

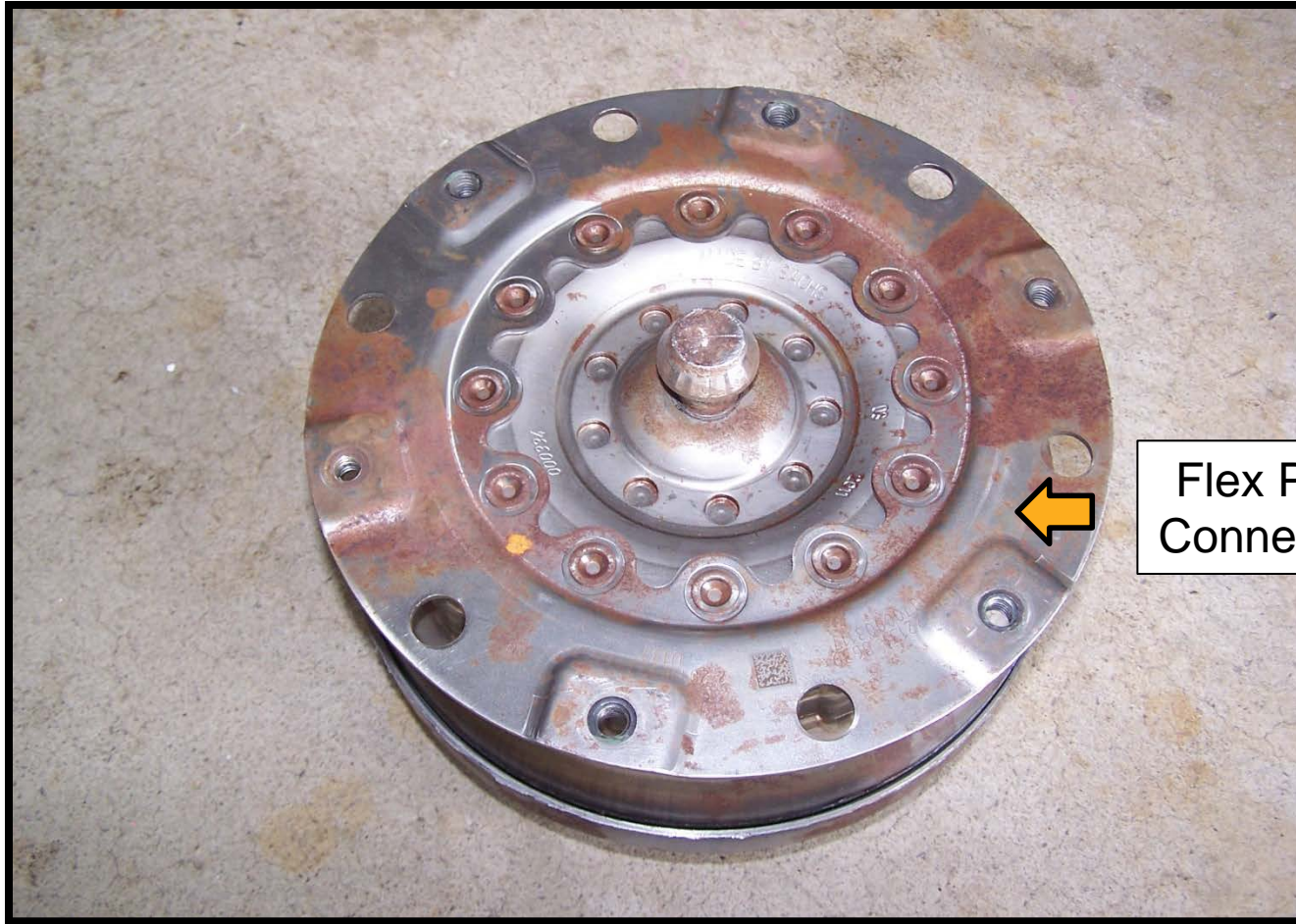
TorqueFlite® 8 (ZF8) Case & Torque Converter Components



NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

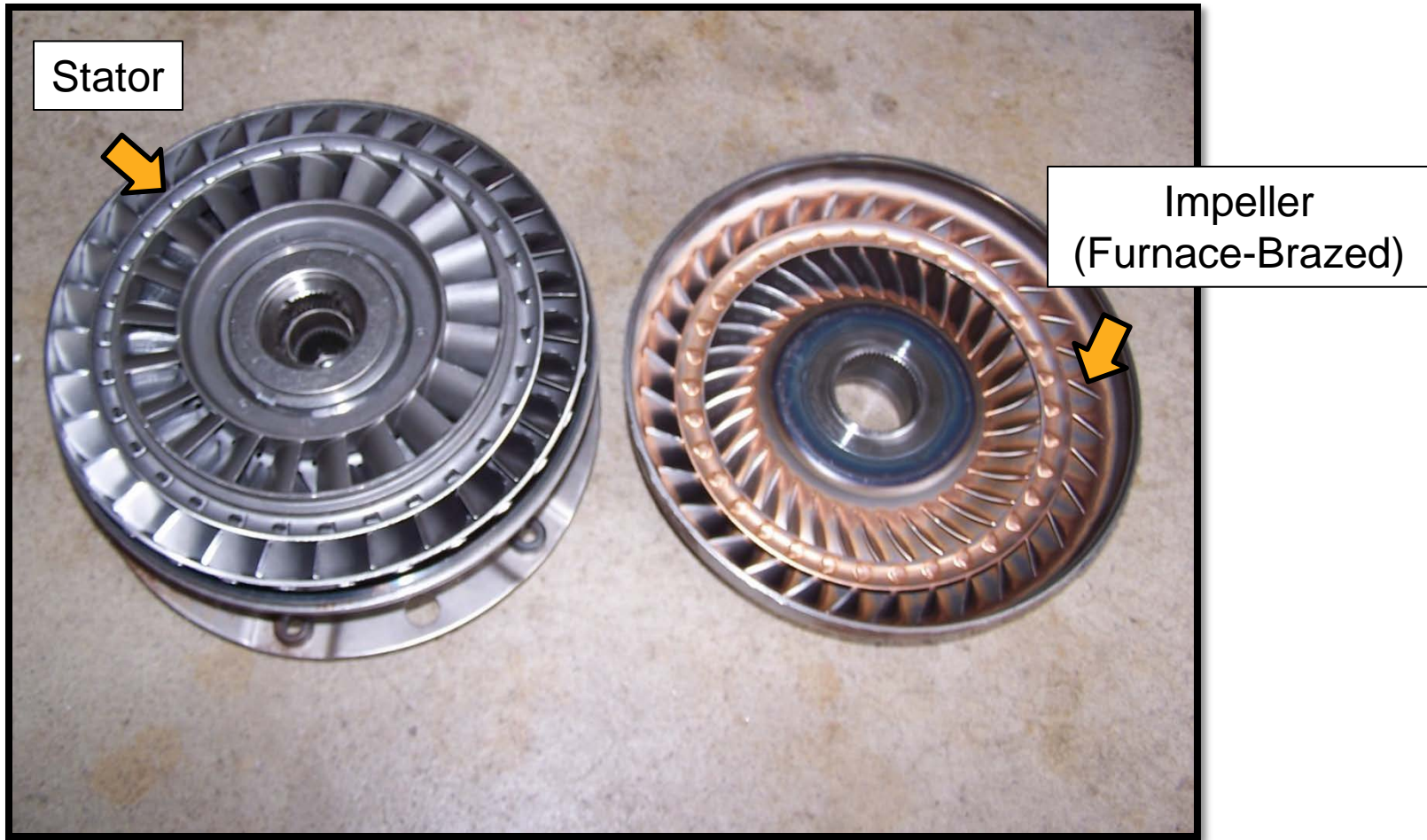


Flex Plate Adapter
Connected to Cover

NOTE: BMW application shown.

TC Disassembly & Component ID

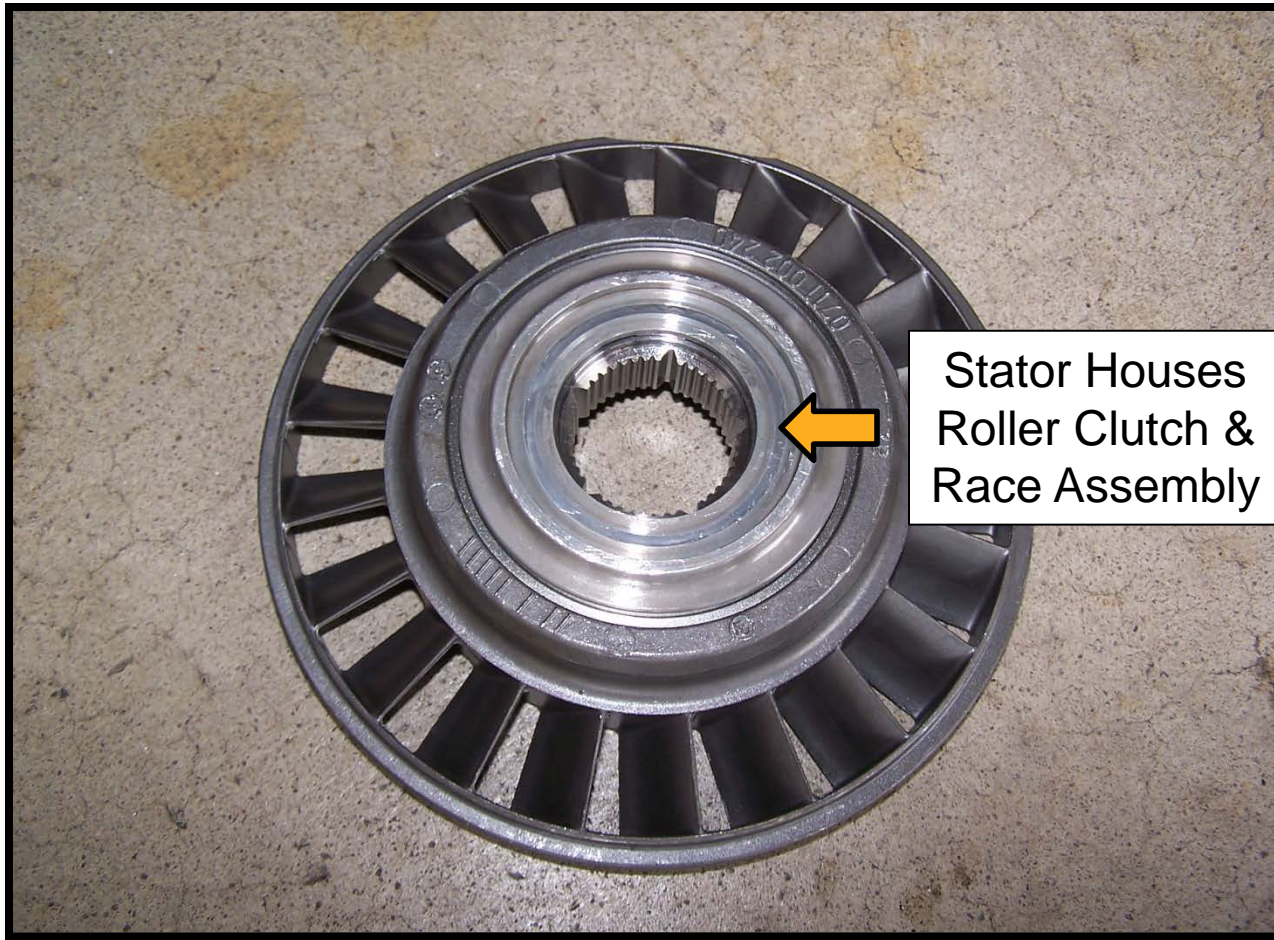
TorqueFlite[®] 8 (ZF8) Case & Torque Converter Components



NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components



NOTE: BMW application shown.

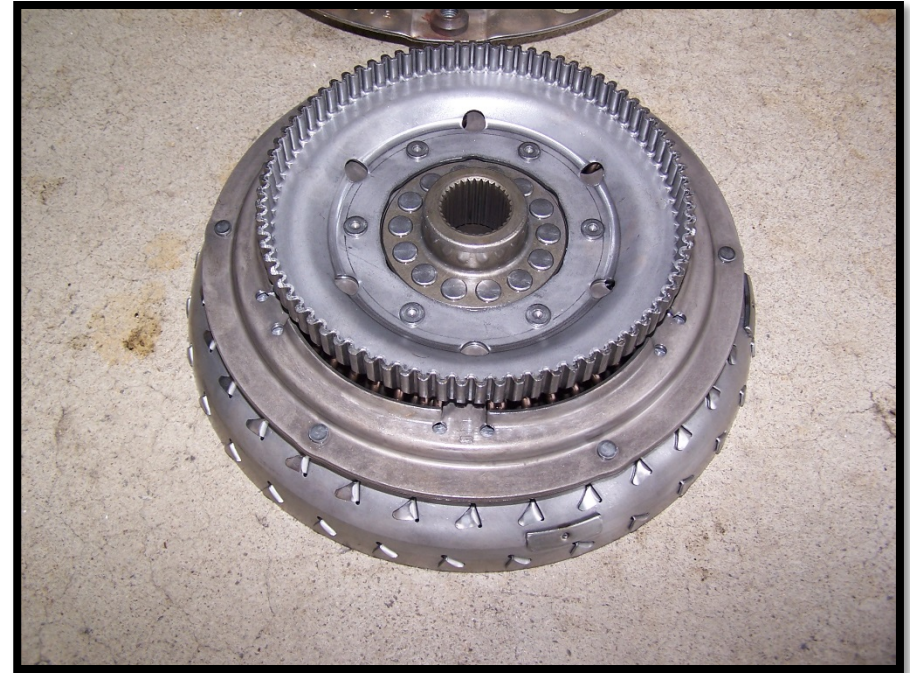
TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

Turbine



Rear View

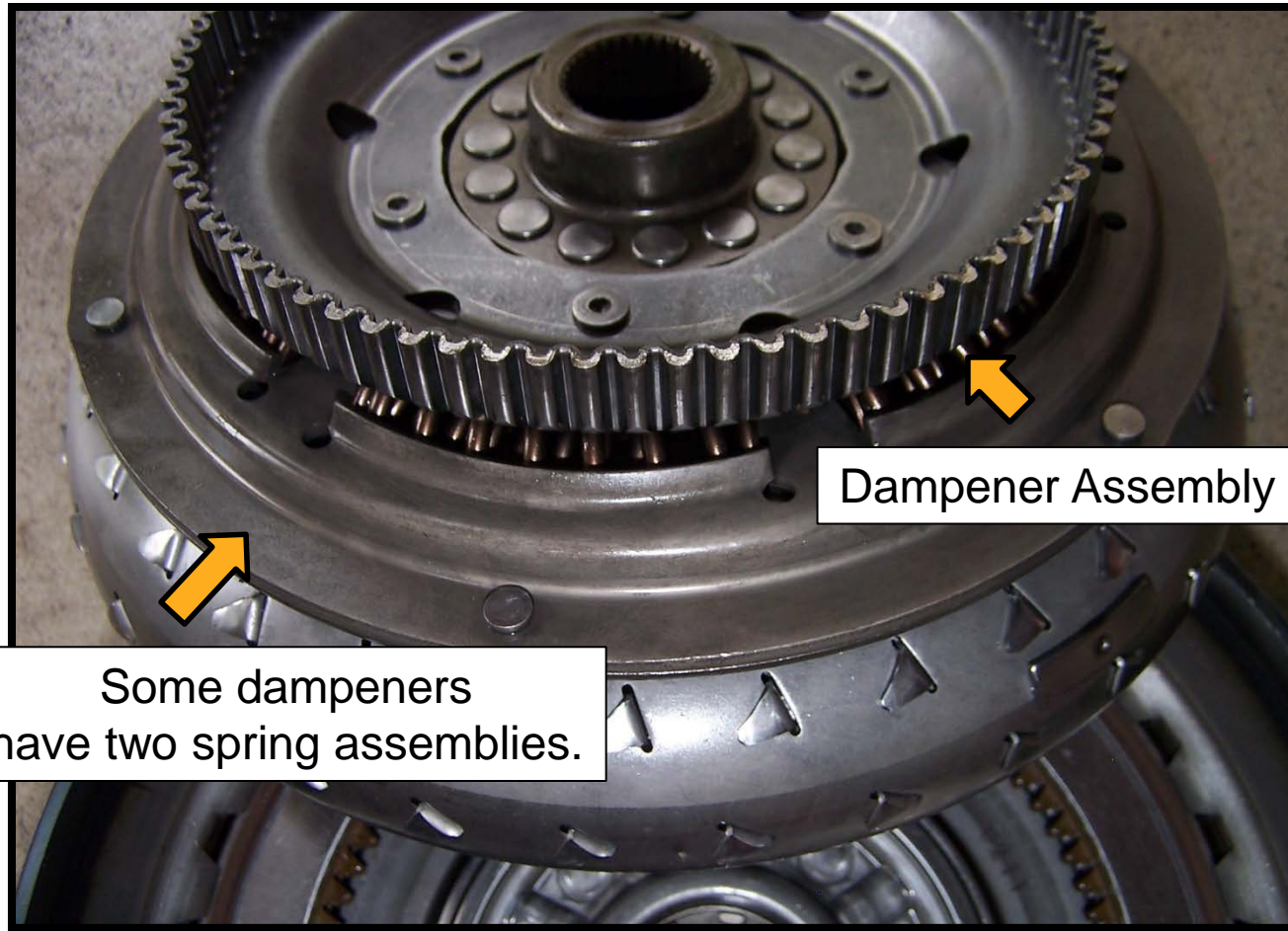


Front View

NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

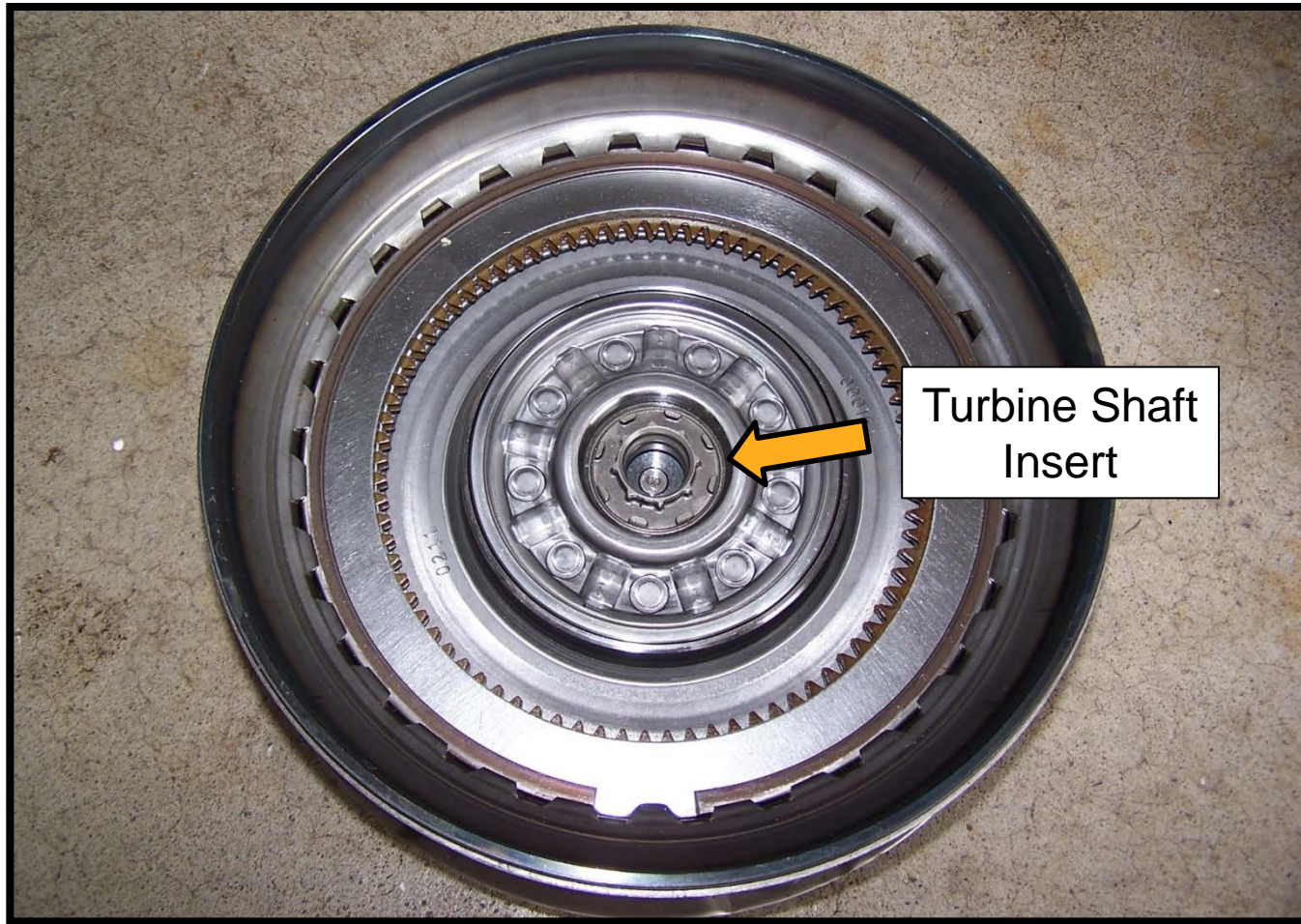


NOTE: There are numerous design dampeners between vehicle manufacturers and engine sizes, including a Speed Adaptive vibration dampener and Dodge's torsional turbine dampener, which houses an additional spring assembly.

NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components



NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

Turbine Shaft Insert Closeup



The insert has external compound finger joint sealing ring and an O-ring on the I.D.
The thrust washer below is relief cut for TCC apply pressure feed.

NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

TC Clutch Assembly



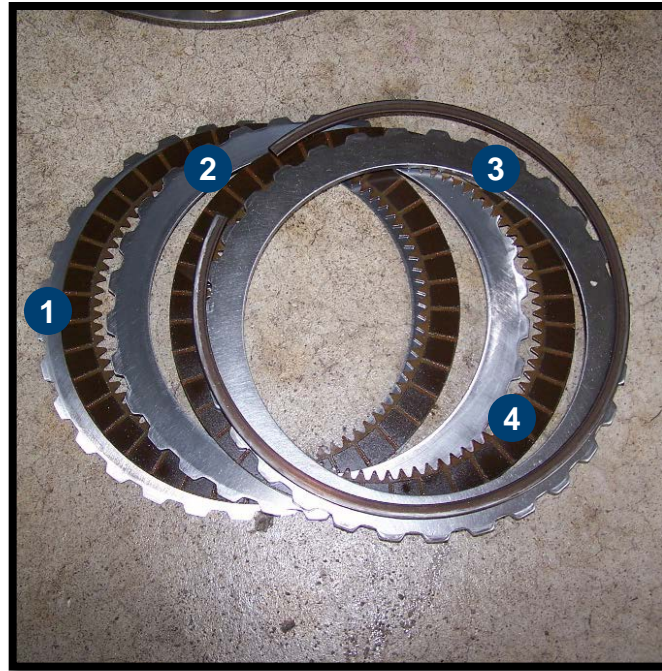
NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

Two Frictions, Two Steels, One Pressure Plate & Snap Ring

1. **Sonnax Clutch Plate**
ZF-CP-10S
2. **Sonnax Clutch Plate**
ZF-CP-9S
3. **Sonnax Clutch Plate**
ZF-CP-11P
4. **Sonnax Friction Plate**
ZF-CP-8F



Rear View



Front View

NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

TCC Piston Removed

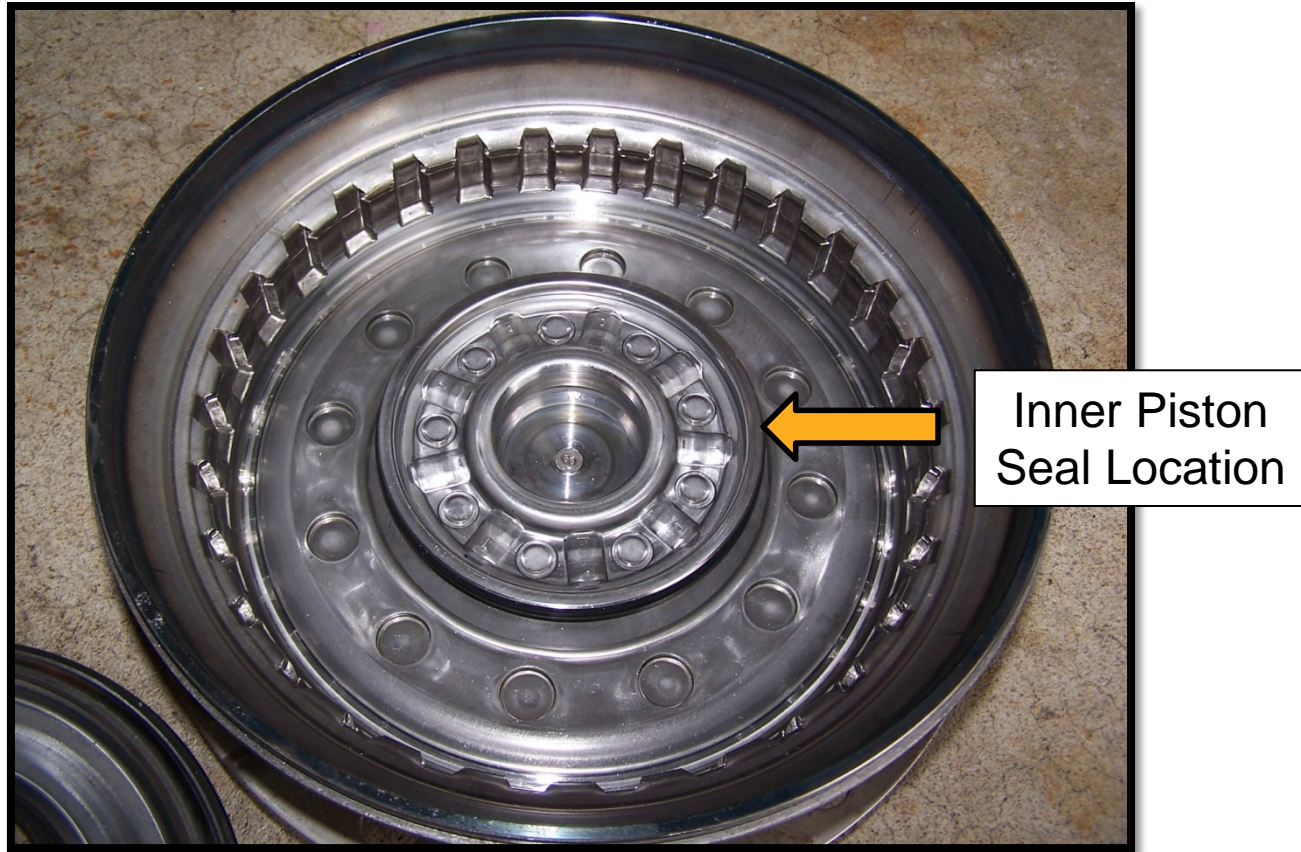


NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

Torque Converter Cover

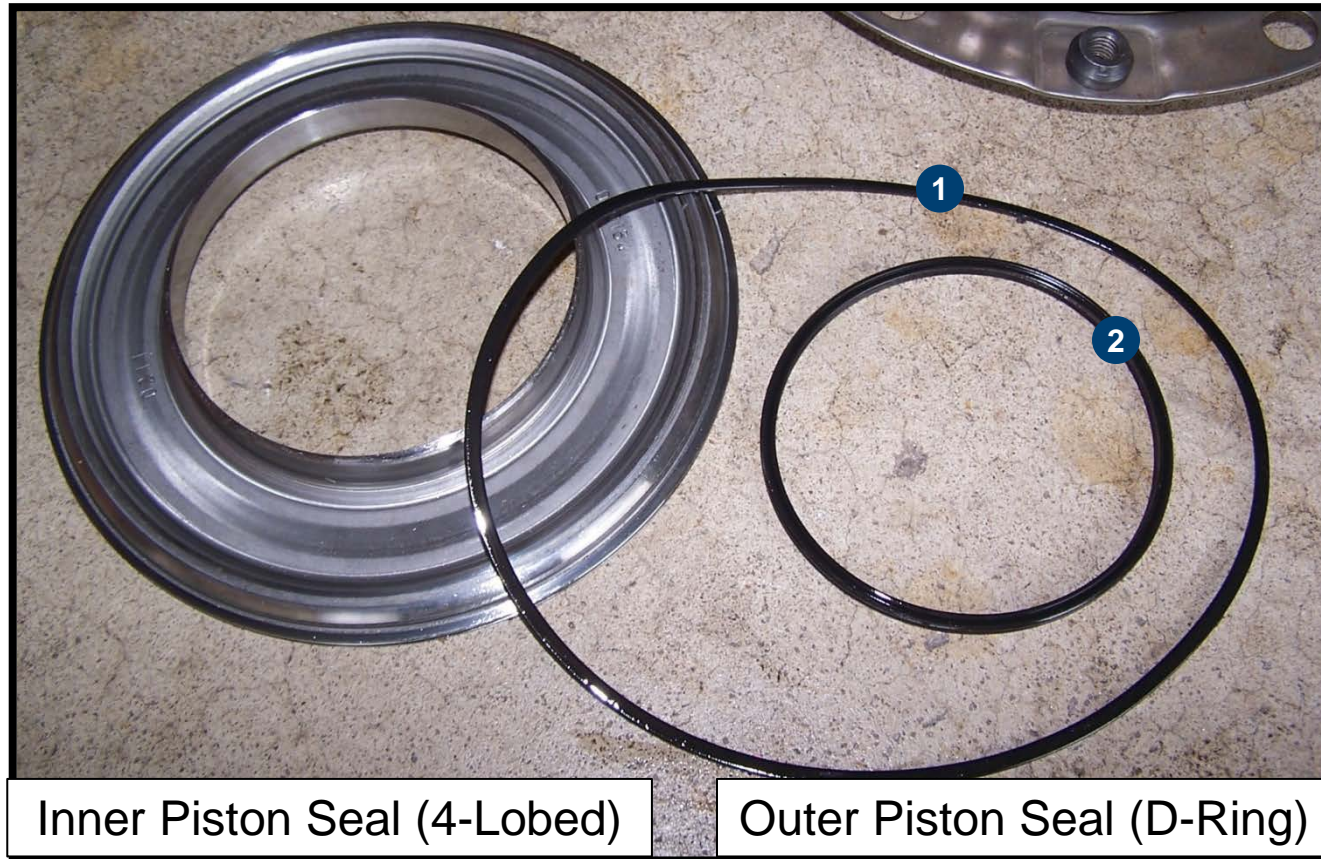


NOTE: BMW application shown.

TC Disassembly & Component ID

TorqueFlite® 8 (ZF8) Case & Torque Converter Components

TCC Piston Seal ID



1. Sonnax
Outer Seal
ZF-O-3V
2. Sonnax
Inner Seal
ZF-O-4V

Inner Piston Seal (4-Lobed)

Outer Piston Seal (D-Ring)

NOTE: BMW application shown.

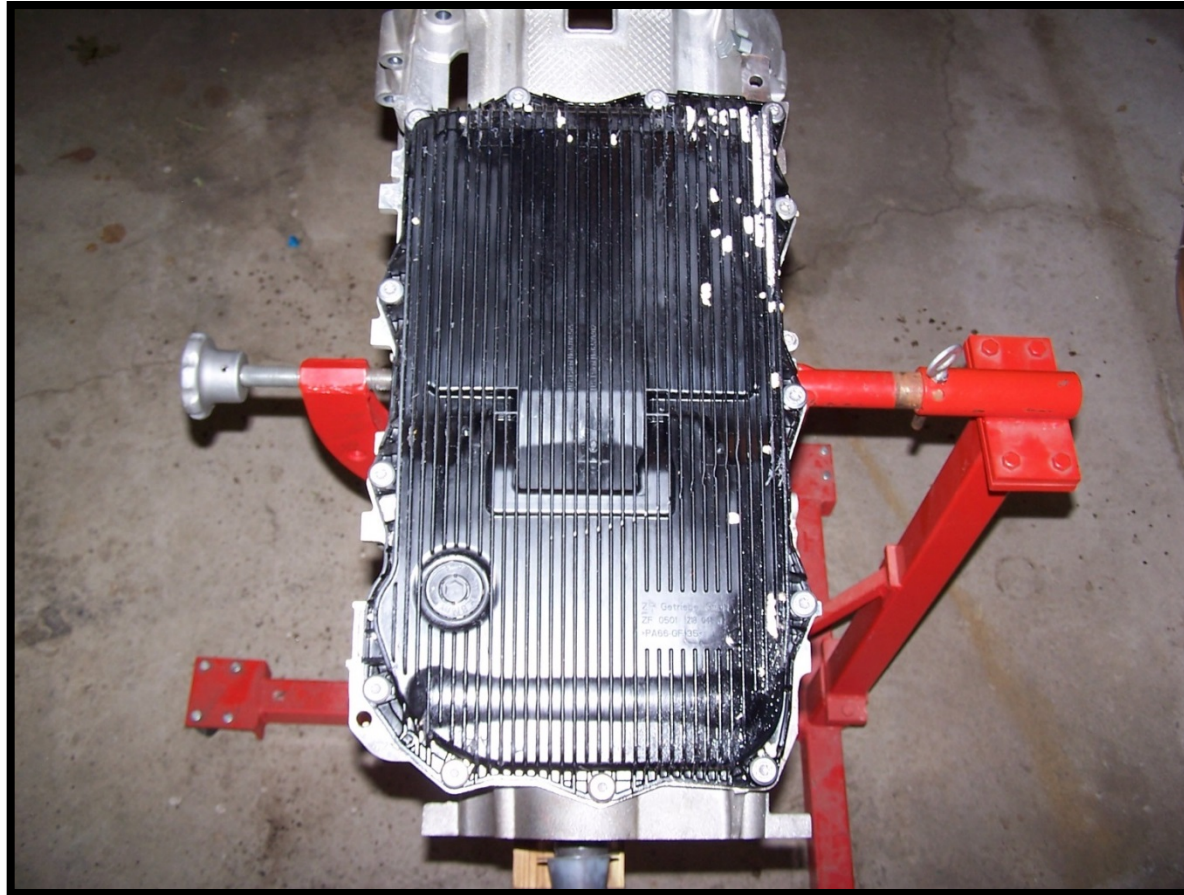


Dodge TorqueFlite[®] 8 (ZF8)
Transmission Disassembly
& Component ID

Composite Pan Disassembly

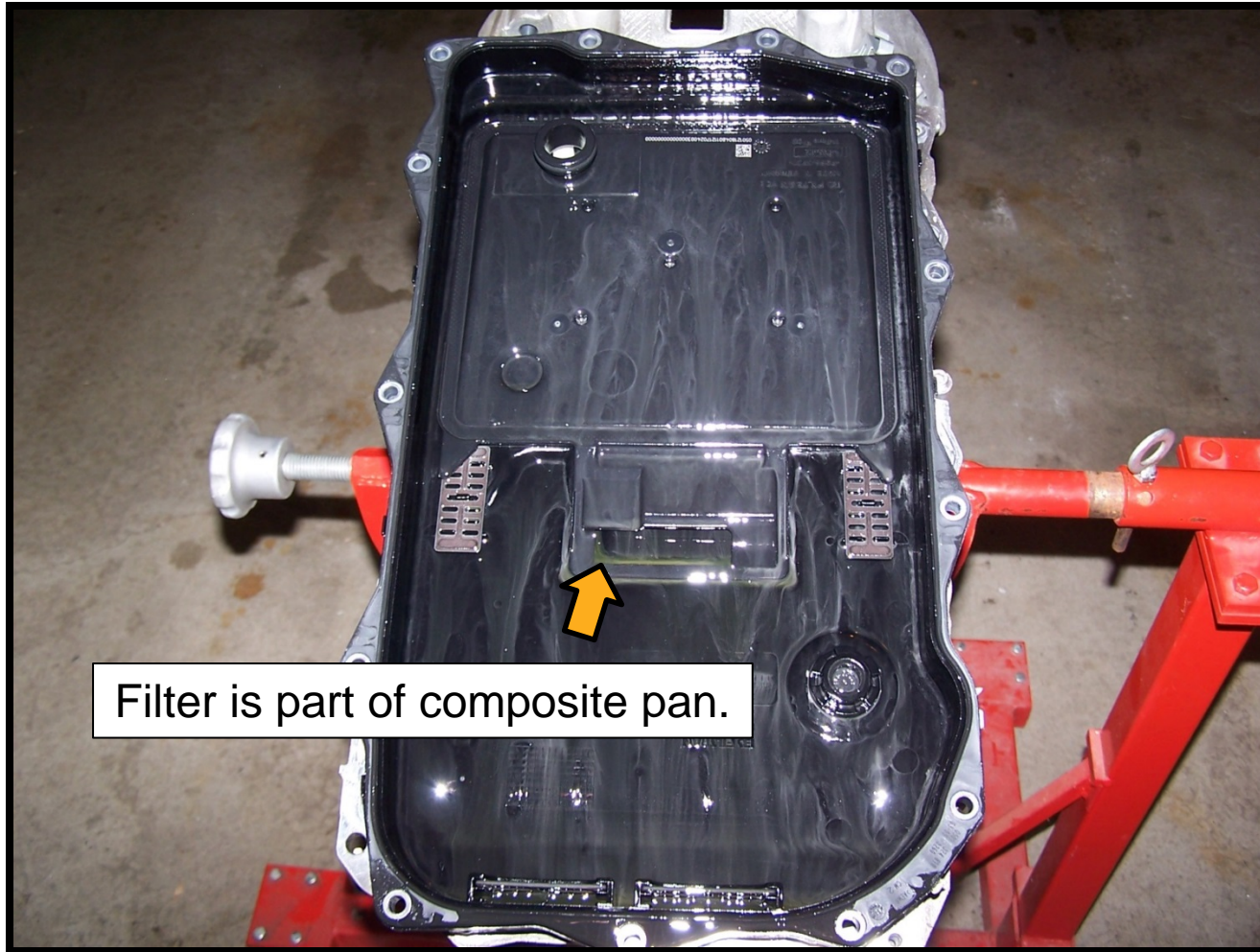
TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID

Remove 13 bolts and composite pan.



Composite Pan Disassembly

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID



Filter is part of composite pan.

Composite Pan Disassembly

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID

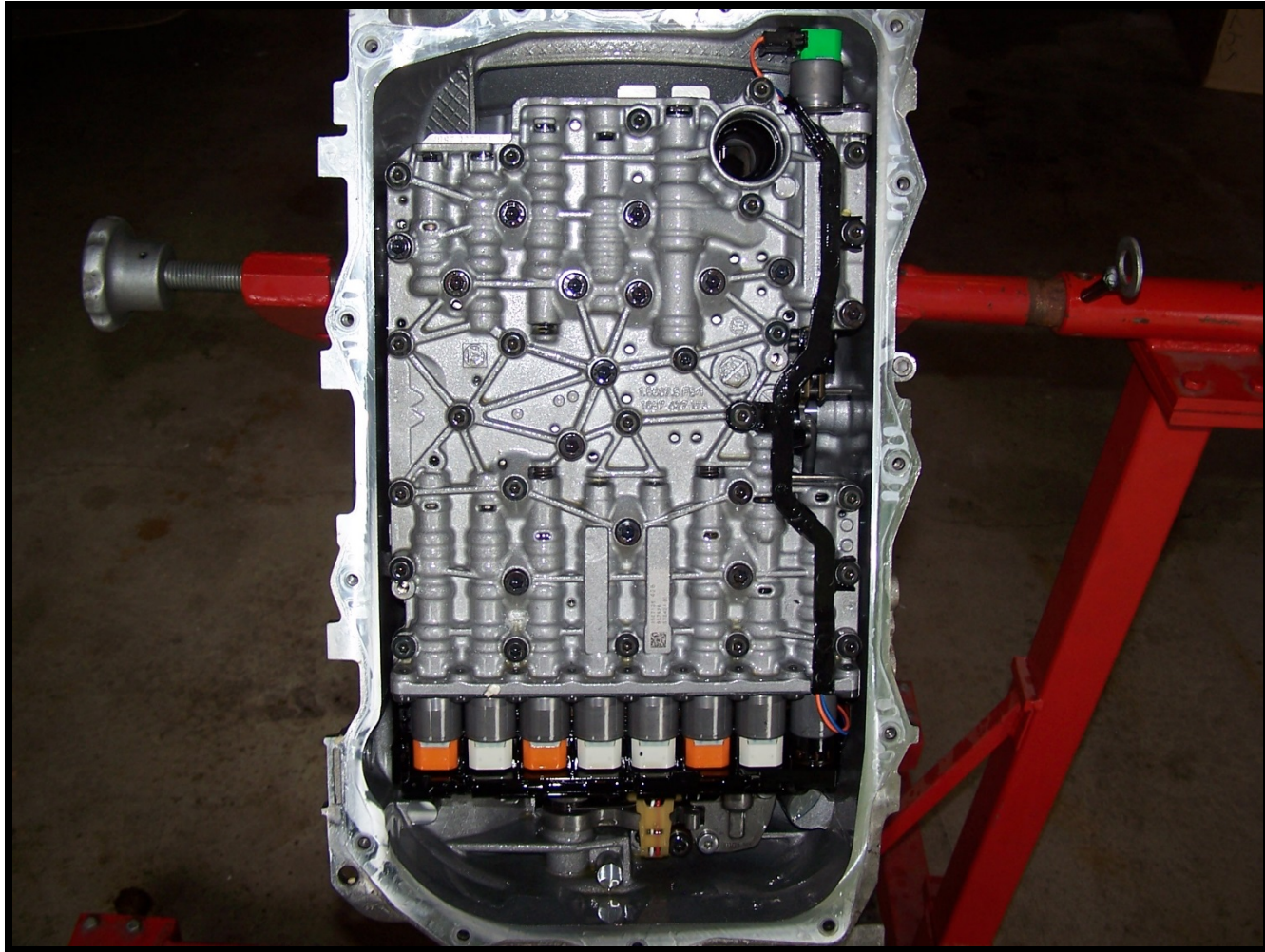


Suction Port
& O-Ring



Valve Body & Mechatronic Removal

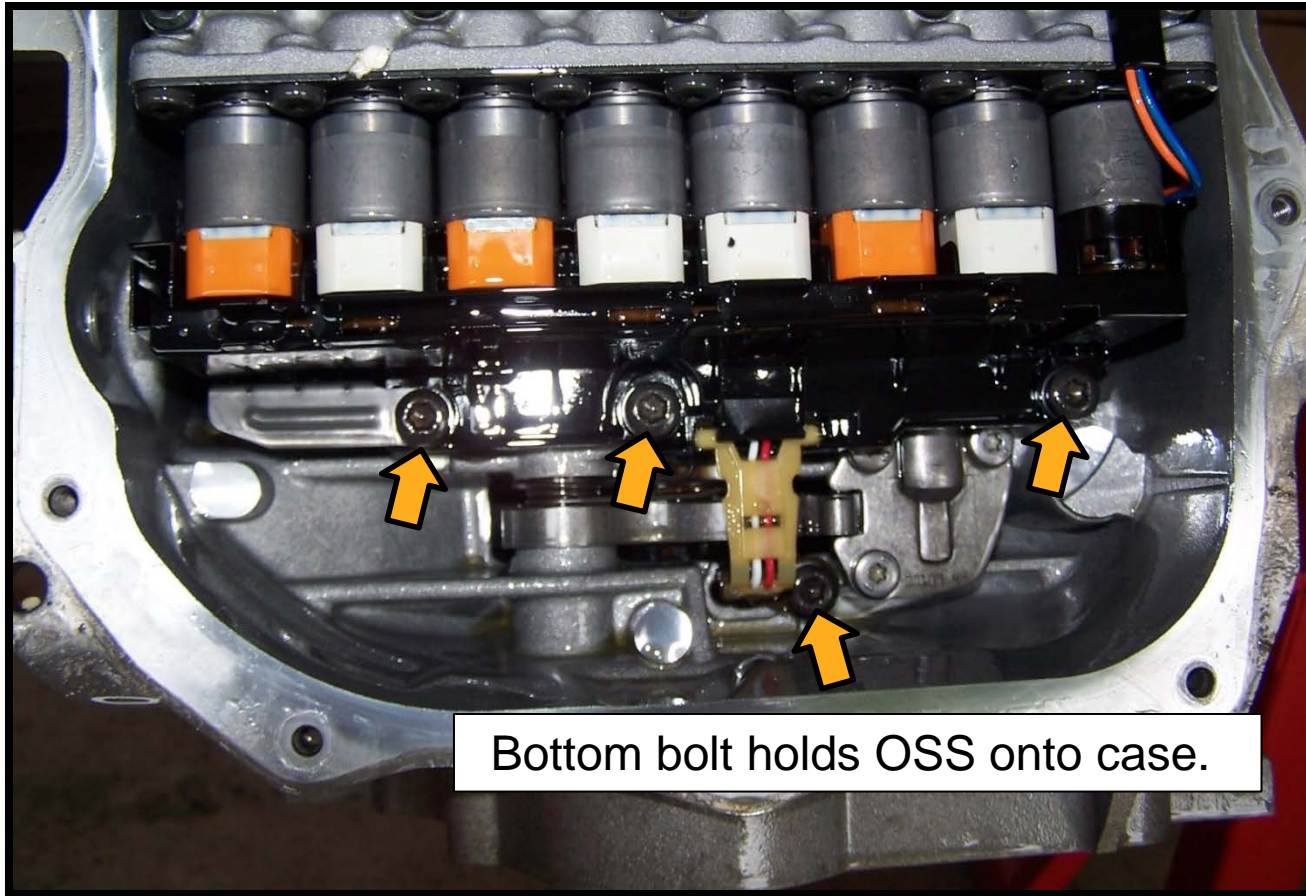
TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID



Valve Body & Mechatronic Removal

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID

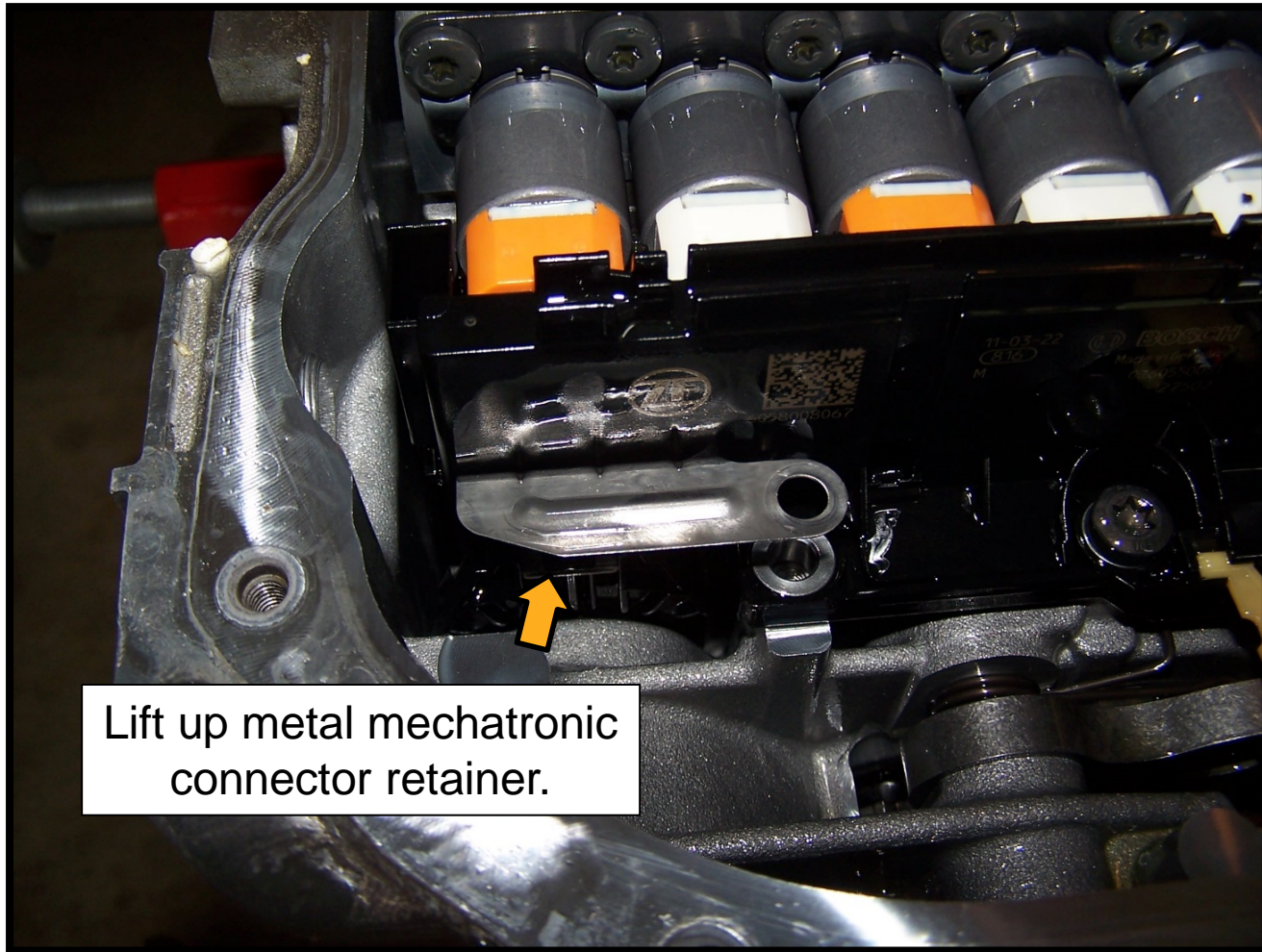
Remove four bolts.



Bottom bolt holds OSS onto case.

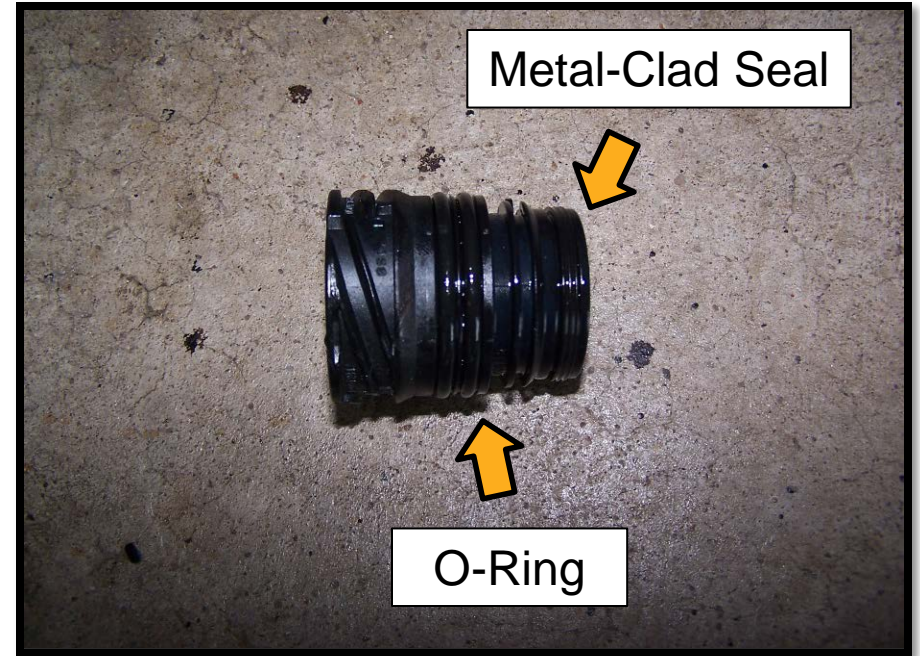
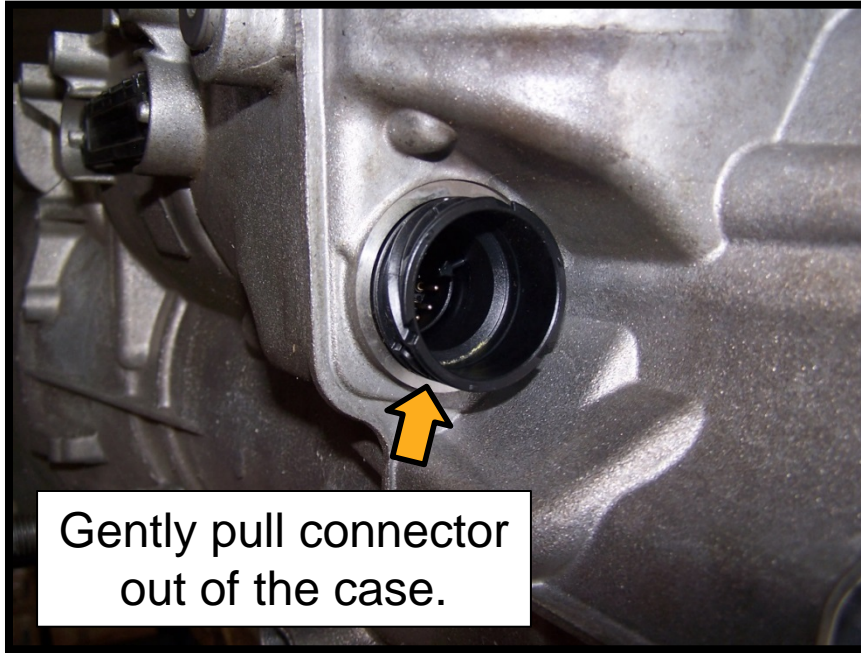
Valve Body & Mechatronic Removal

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID



Valve Body & Mechatronic Removal

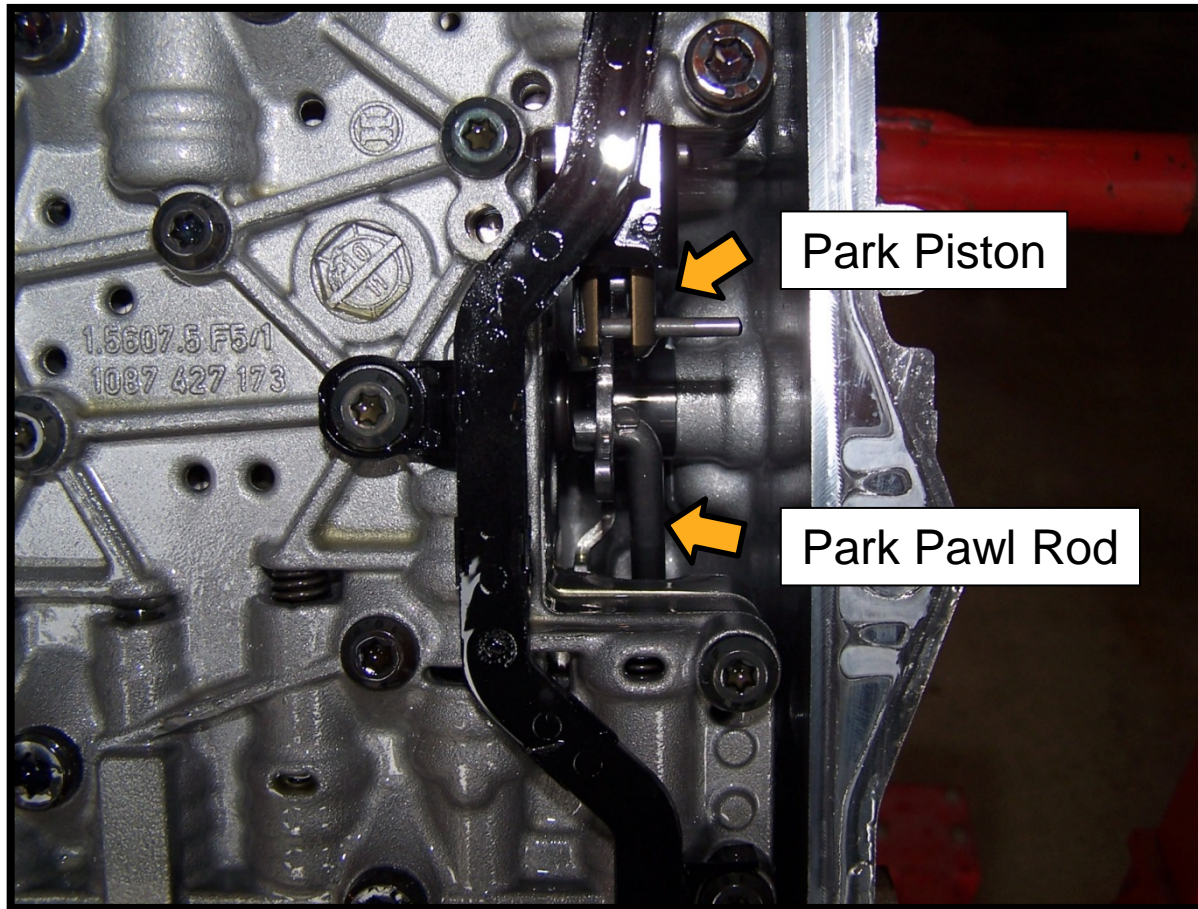
TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID



Valve Body & Mechatronic Removal

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID

The park piston will lift out of the park rod when the valve body is removed.



Valve Body & Mechatronic Removal

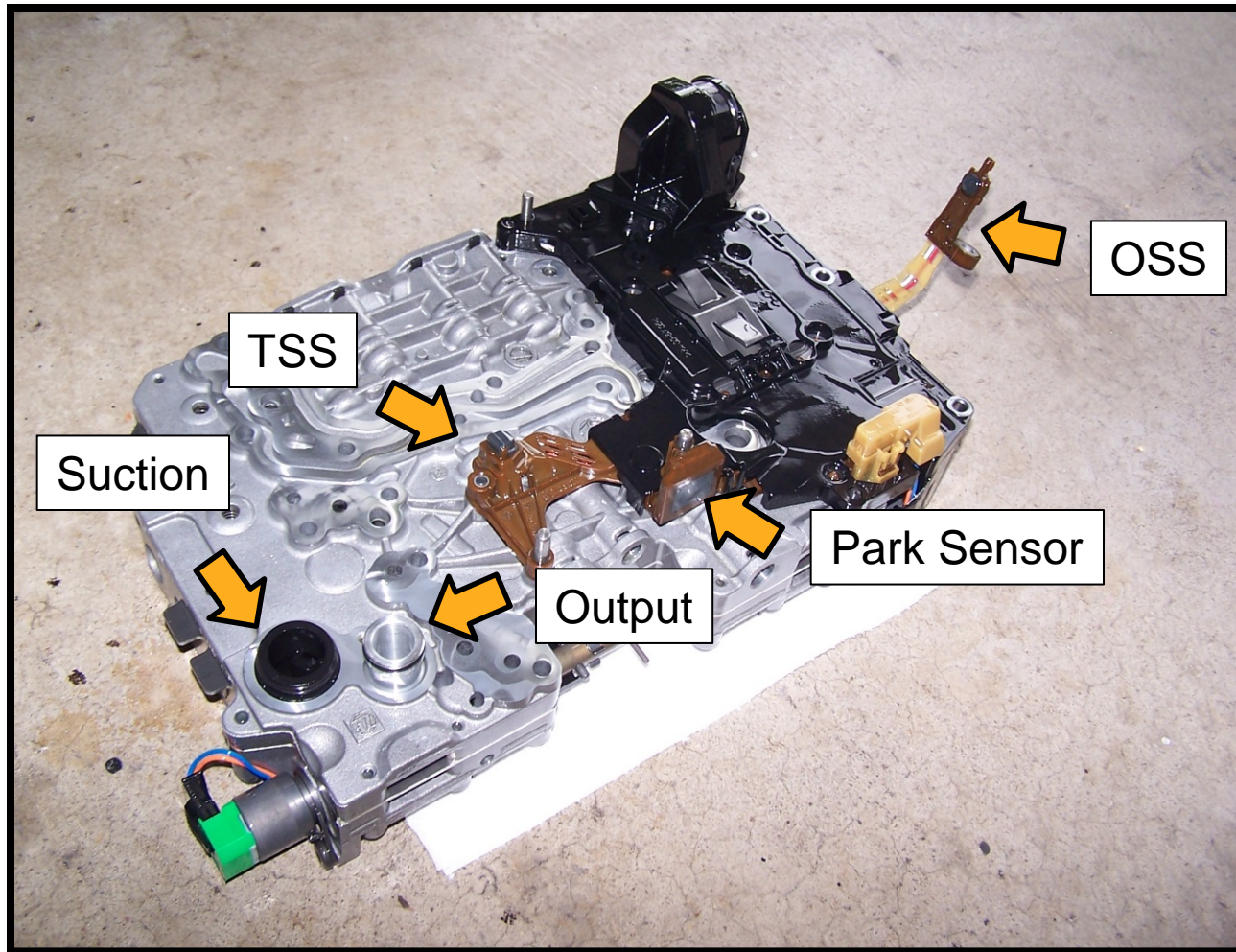
TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID

Remove 14 T40 Torx® bolts.



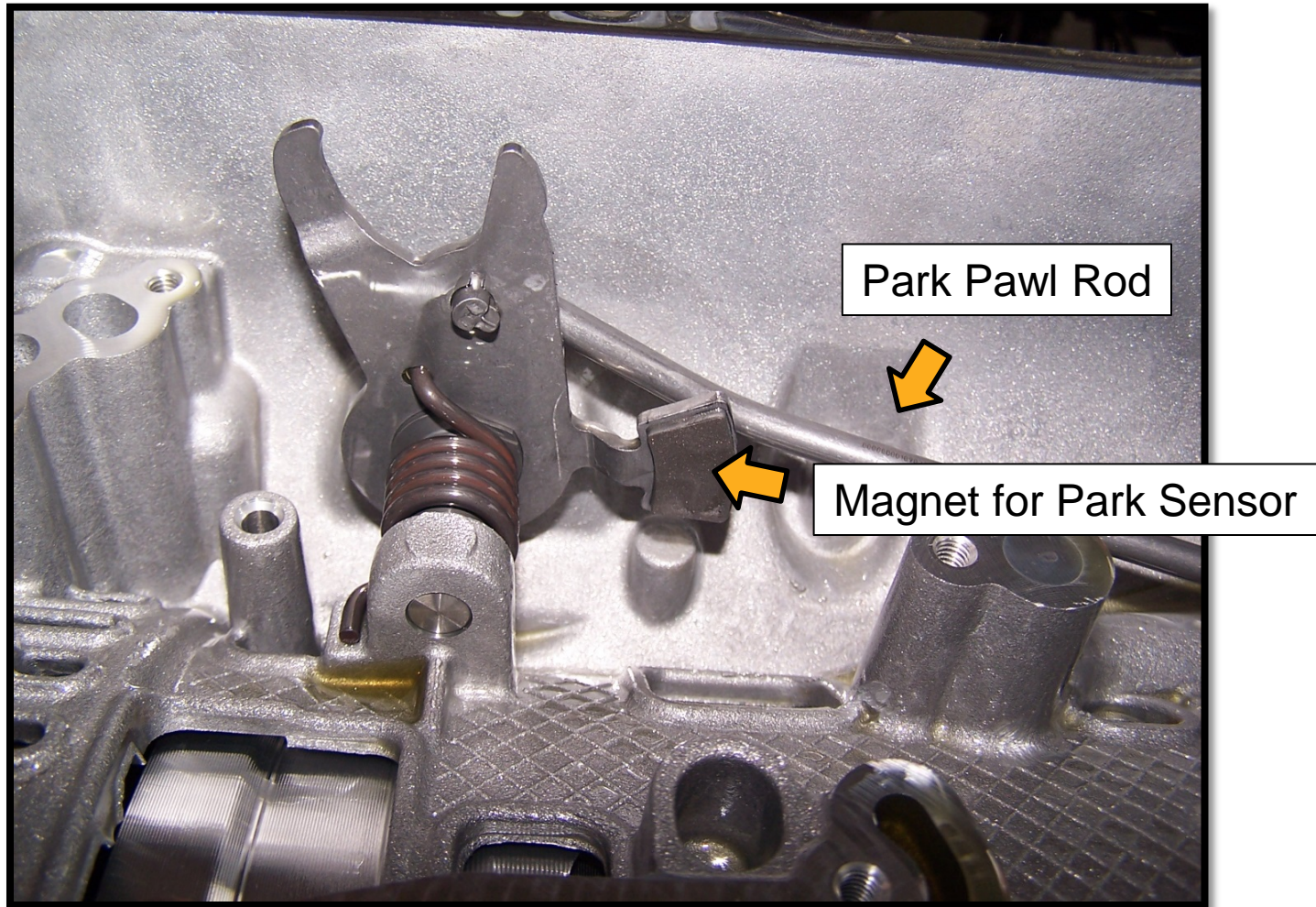
Valve Body & Mechatronic ID

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID



Valve Body & Mechatronic ID

TorqueFlite® 8 (ZF8) Transmission Disassembly & Component ID



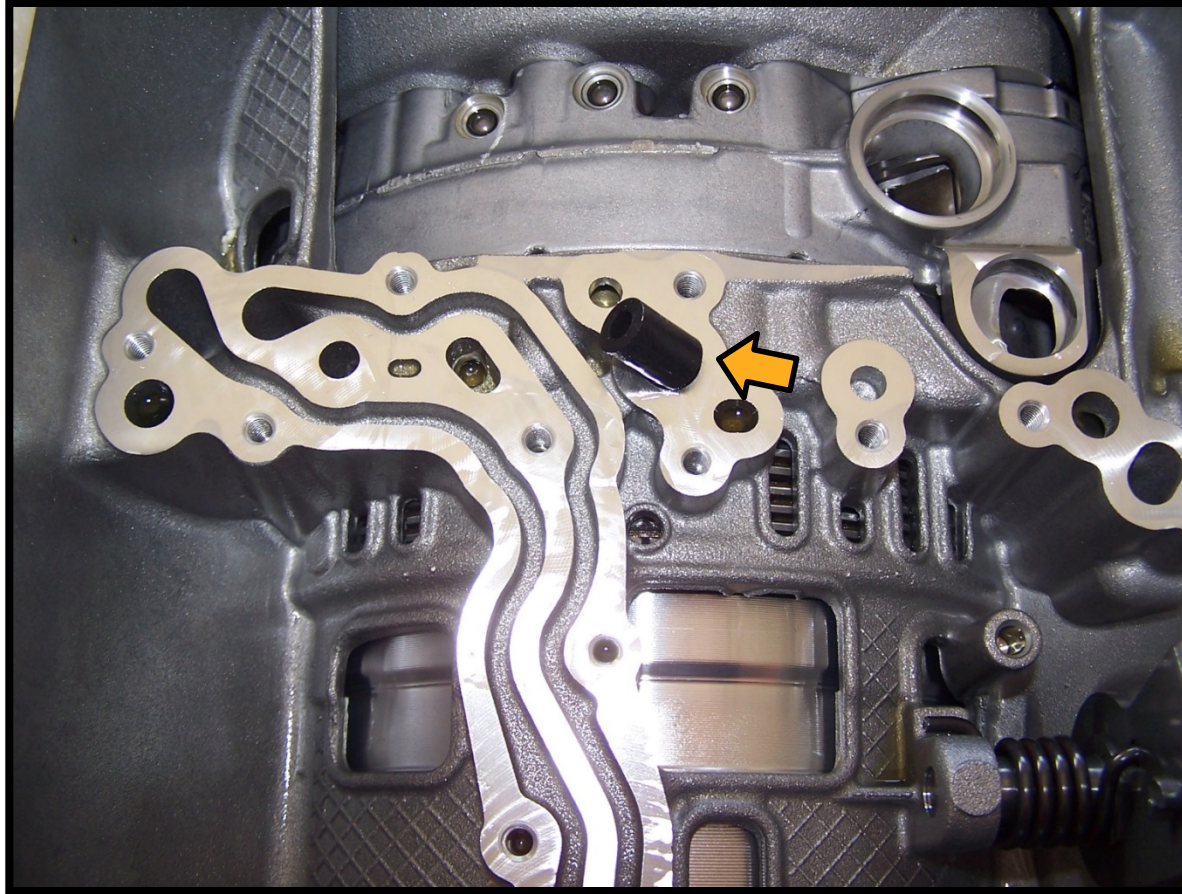


Dodge TorqueFlite[®] 8 (ZF8)
Transmission Internal Component
Disassembly & ID

Pump Assembly Removal

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

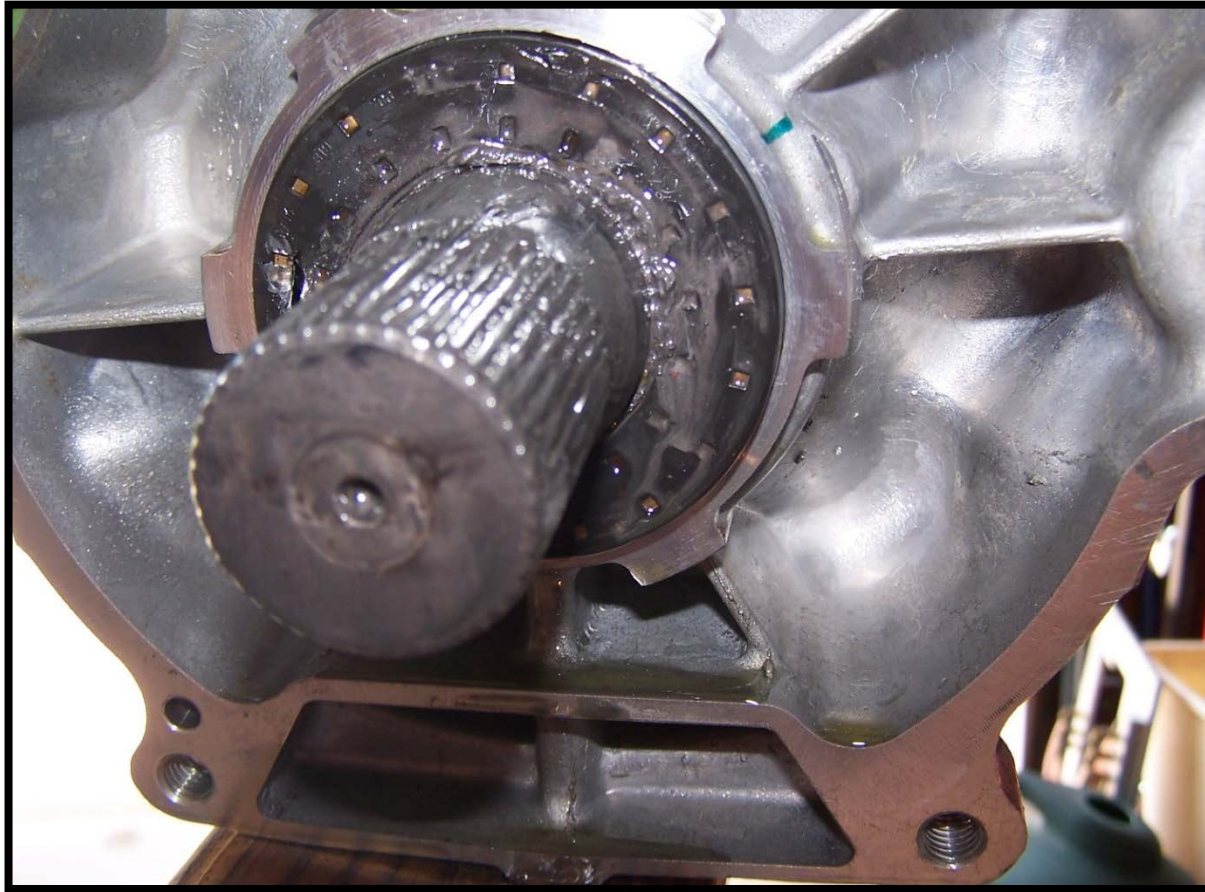
Remove B release rubber feed tube.



Pump Assembly Removal

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

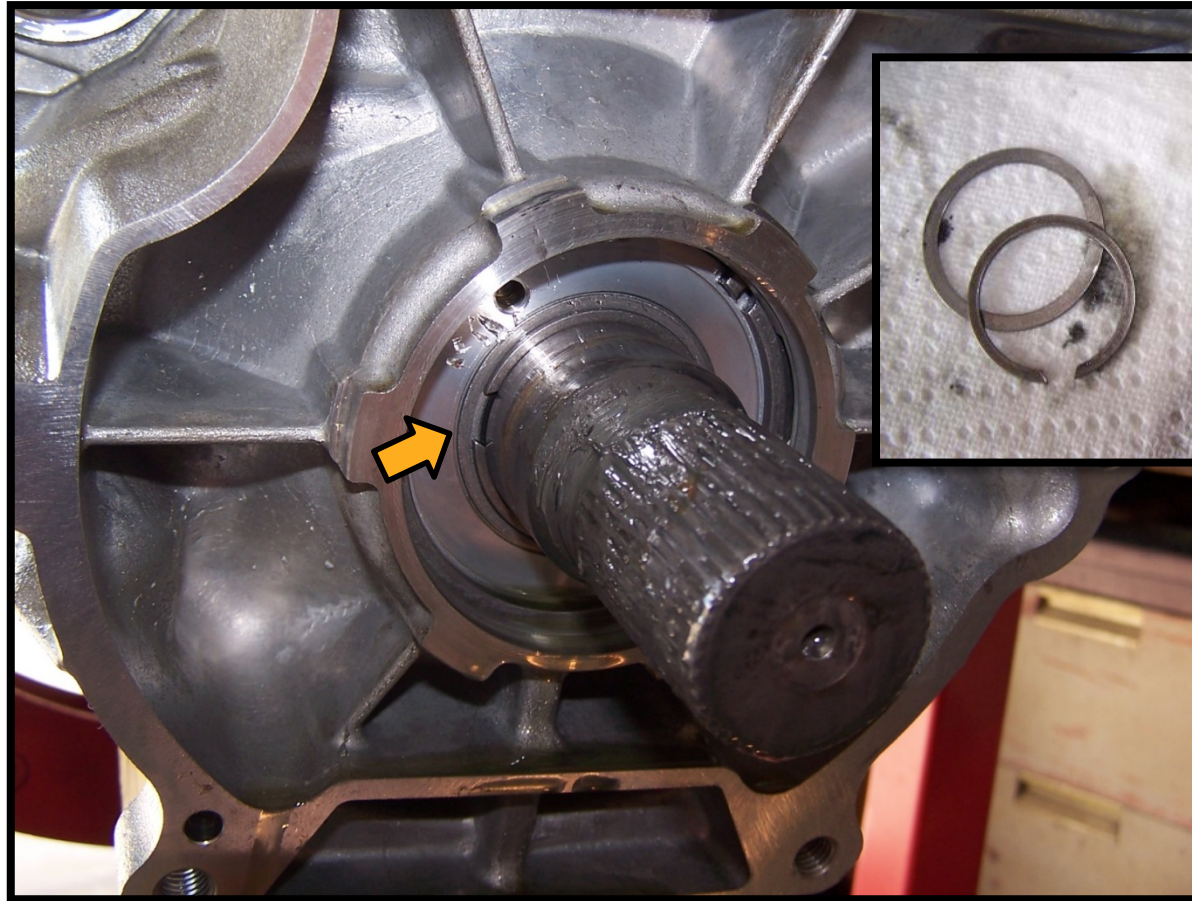
Remove output shaft metal-clad seal.



Pump Assembly Removal

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove retaining snap ring and shim.

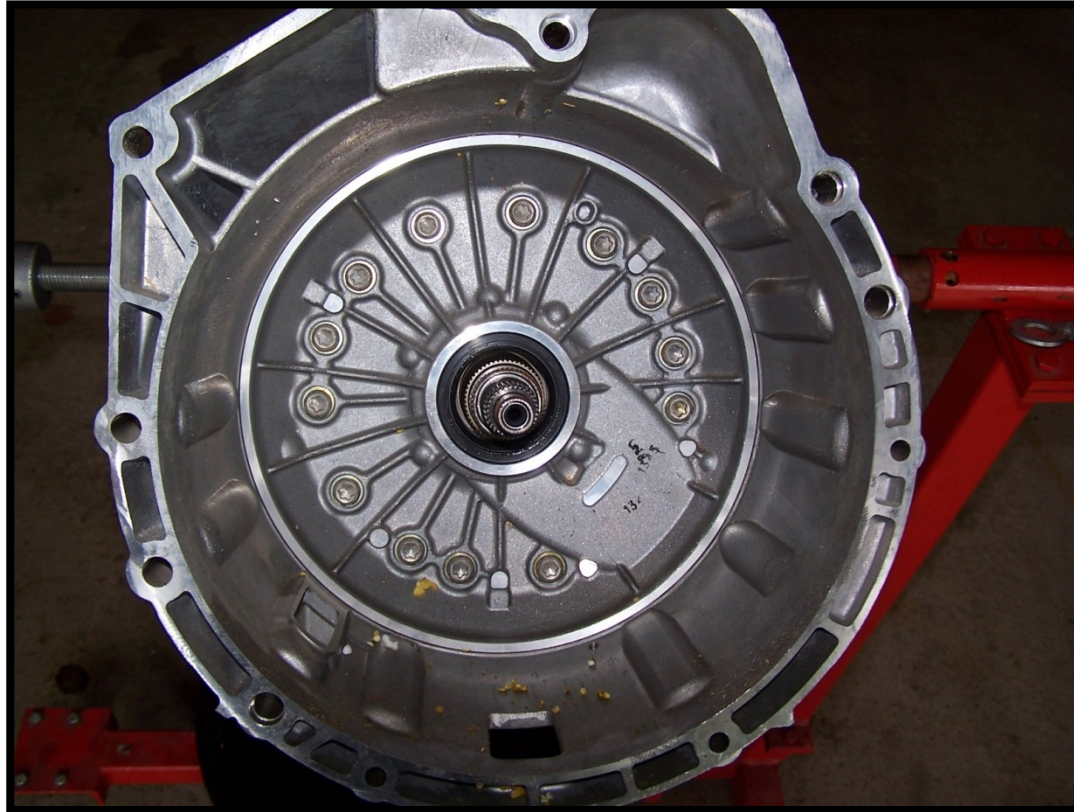


Retaining Snap
Ring Shim &
Output Shaft
Seal

Pump Assembly Removal

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove 13 pump assembly T50 Torx® bolts.

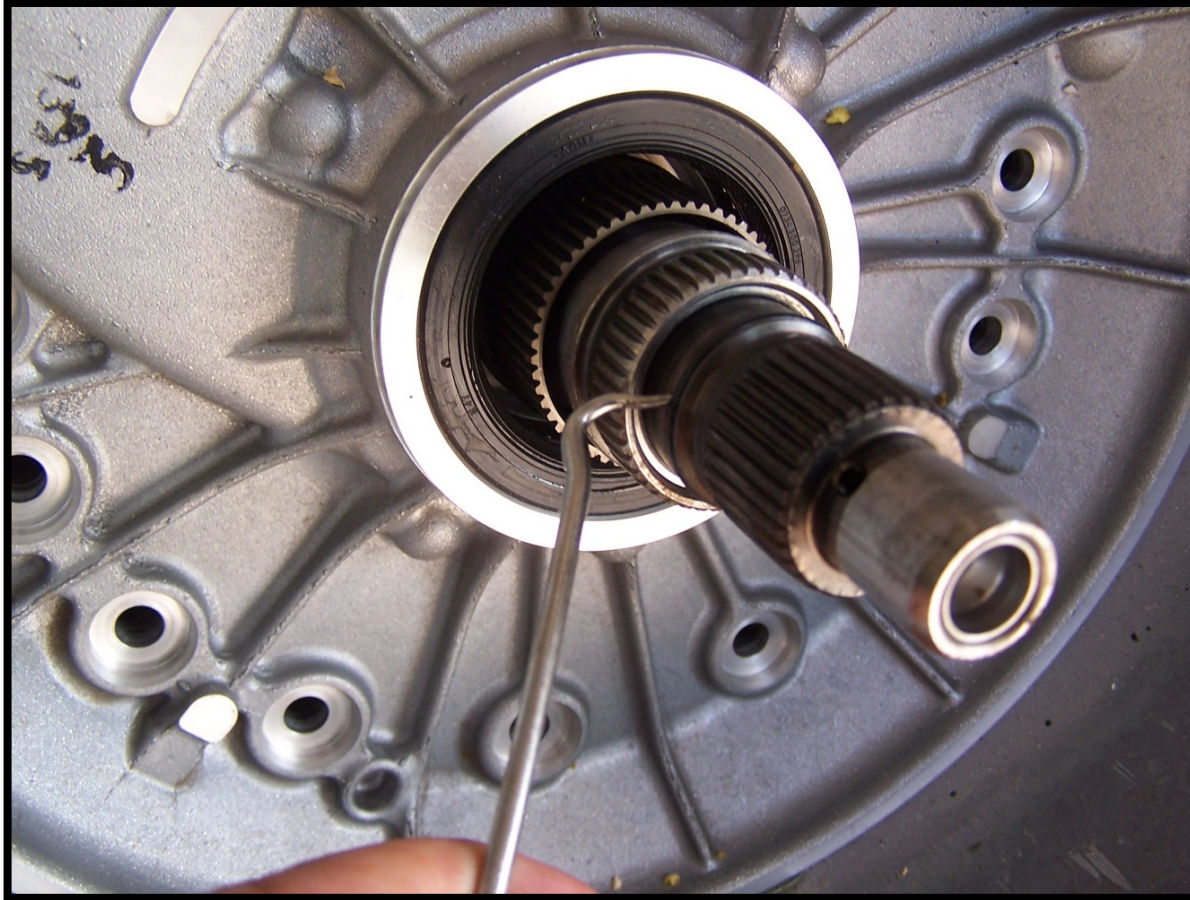


NOTE: These are aluminum bolts with metal-clad seals. They must be replaced.

Pump Assembly Removal

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

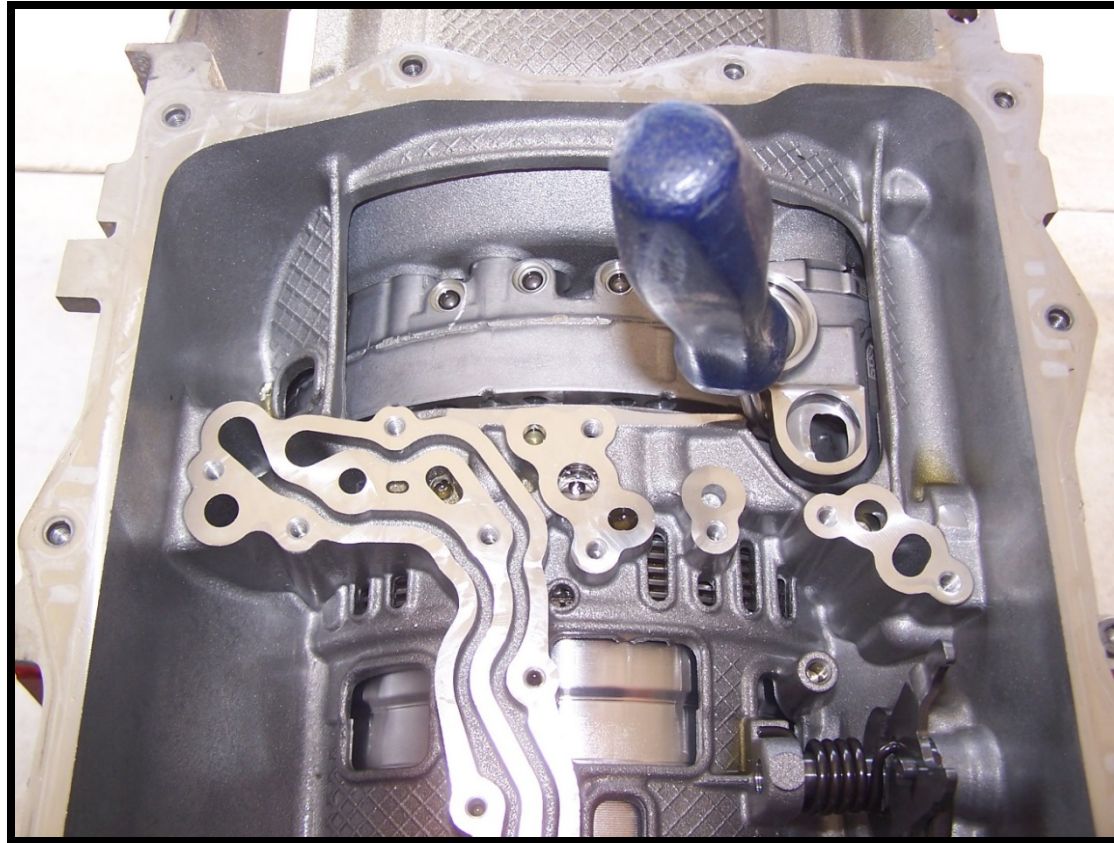
Remove turbine shaft O-ring.



Pump Assembly Removal

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

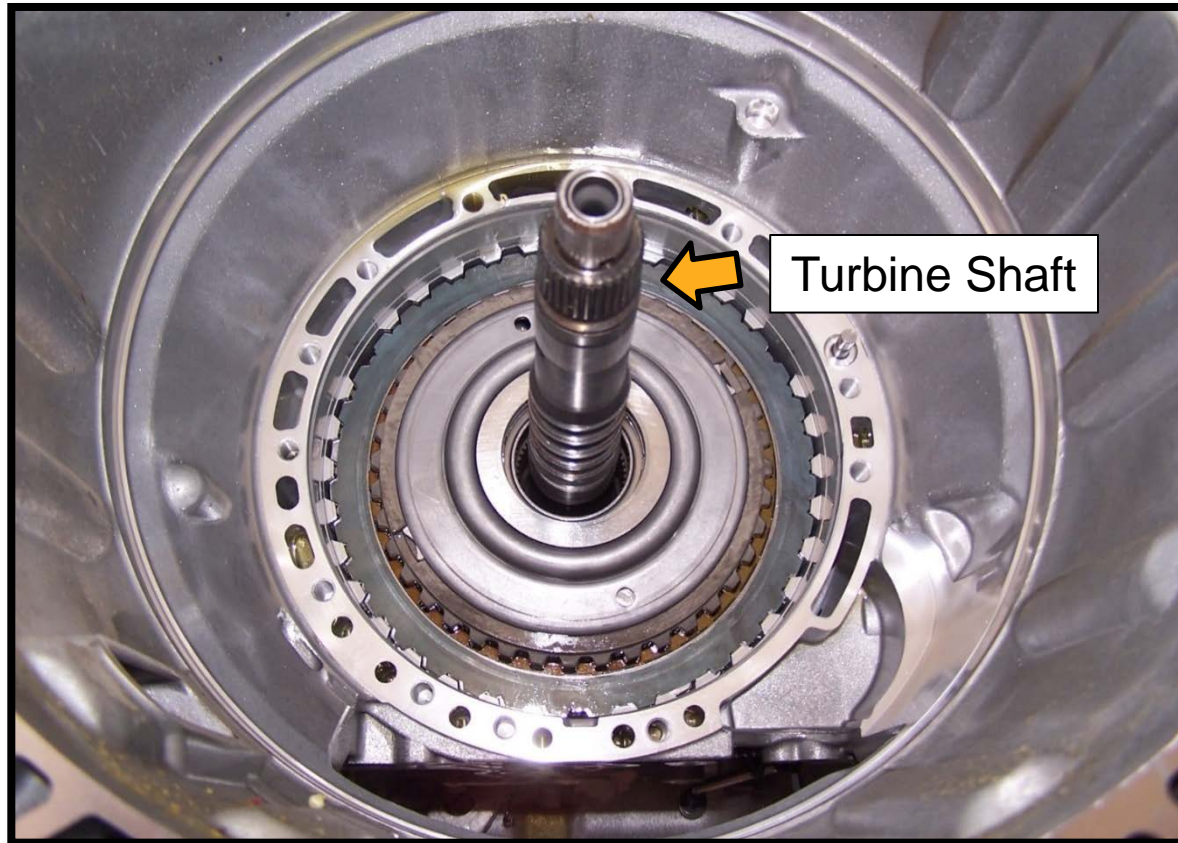
Gently pry pump out of case near the suction and output ports on the pump (this takes little effort). Do not pry in the sealing surfaces of the case and pump.



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

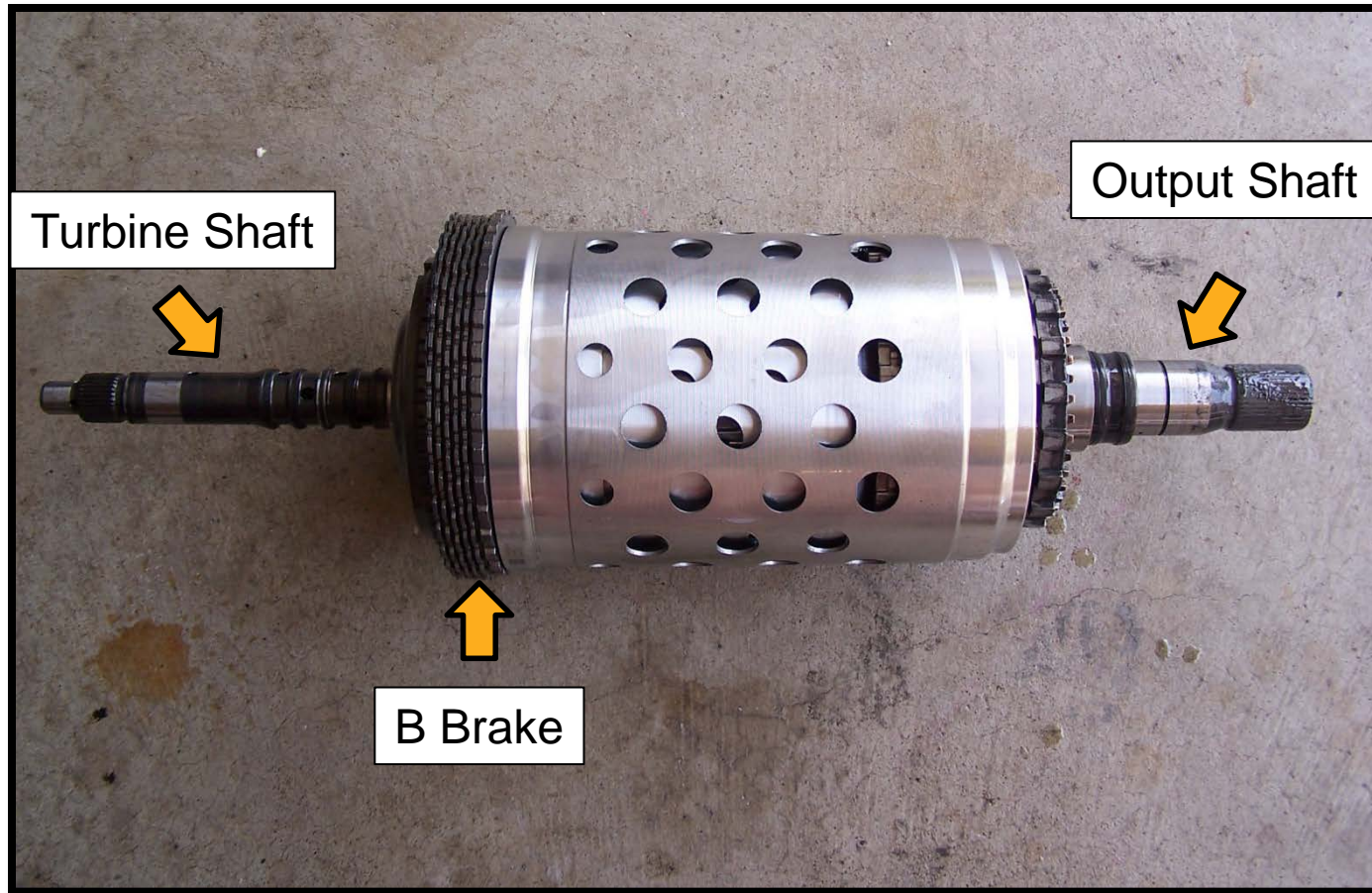
After the pump assembly is removed, grab the turbine shaft and the complete internal components will come out vertically from the case.



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

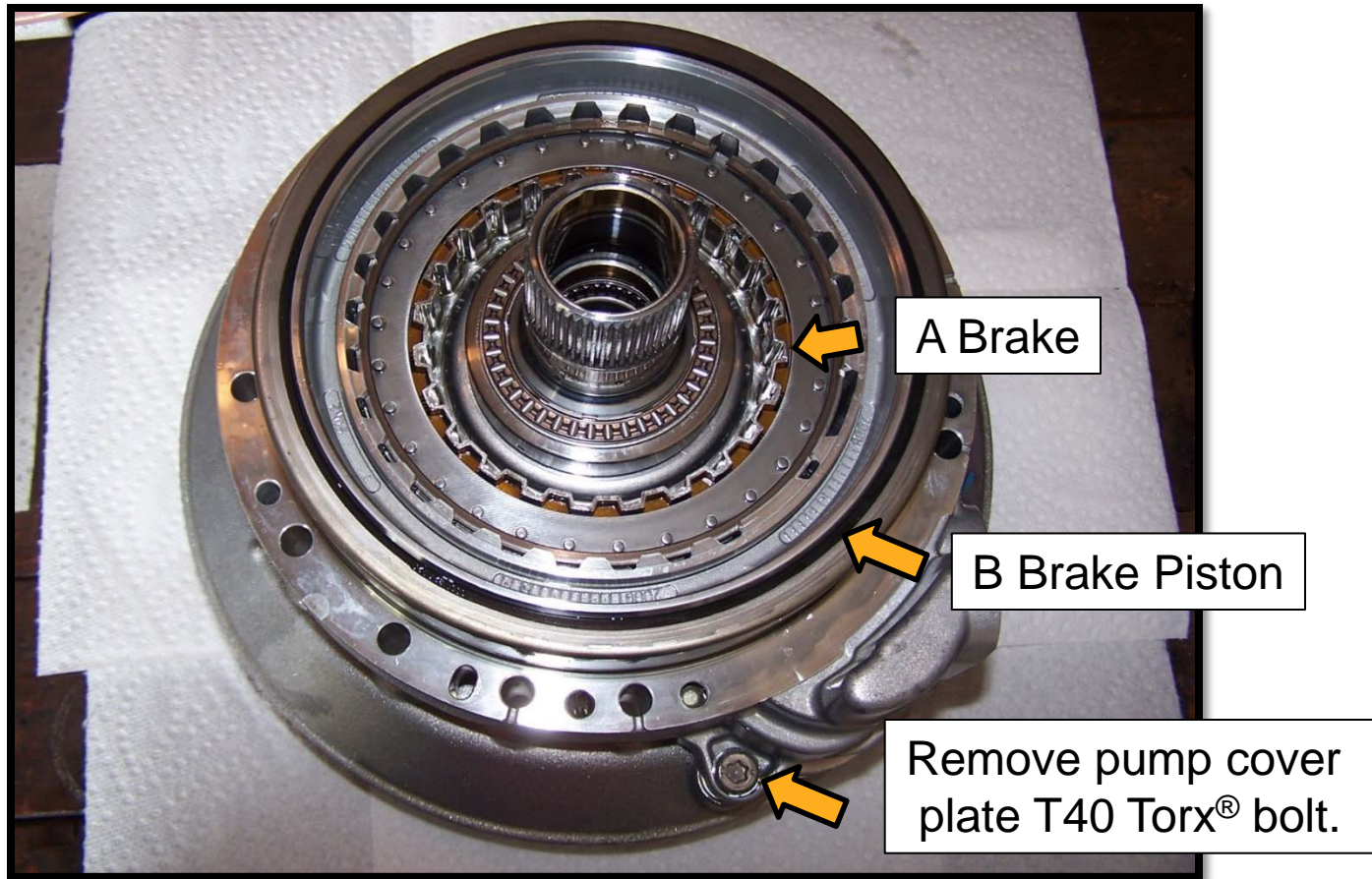
Complete Internal Components



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

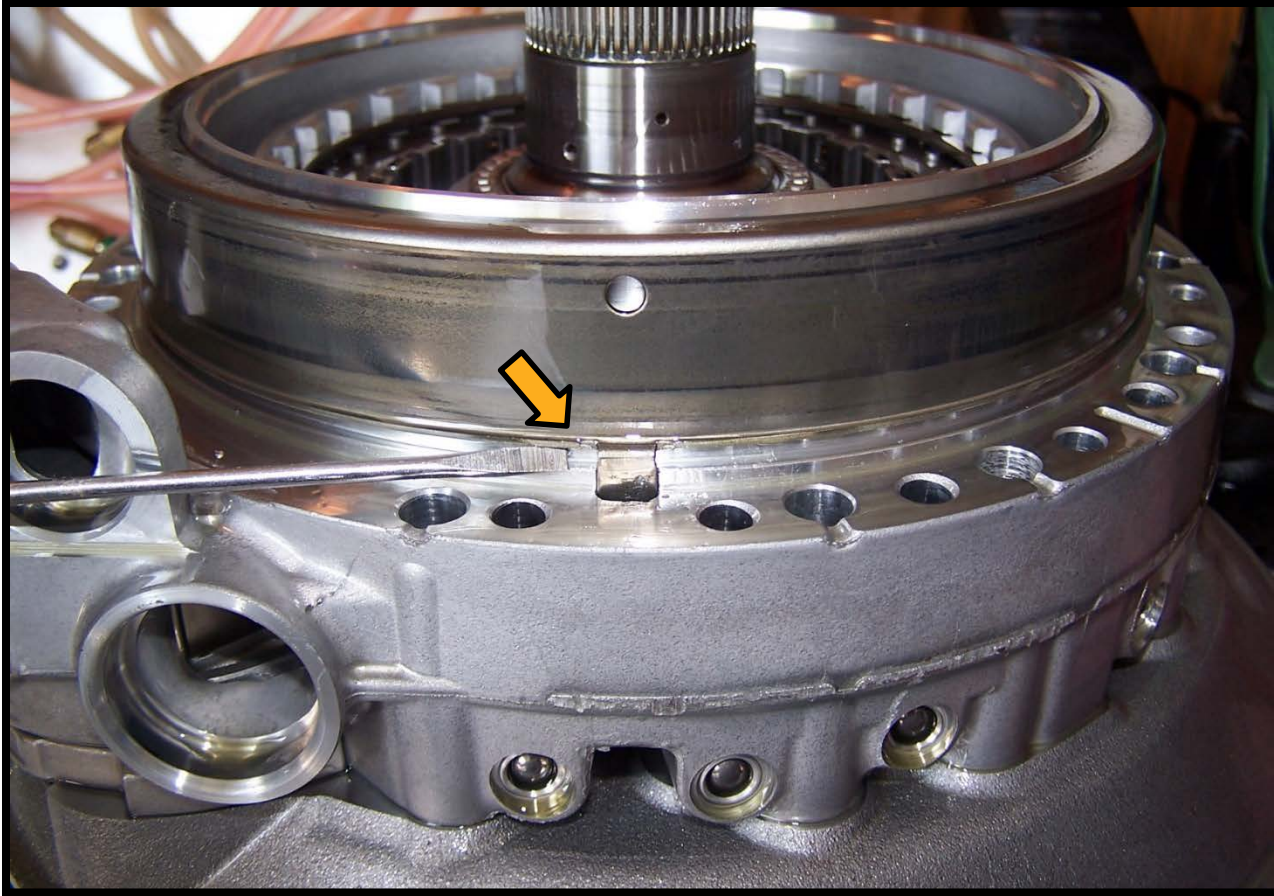
Pump, A Brake & B Brake Piston Disassembly



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

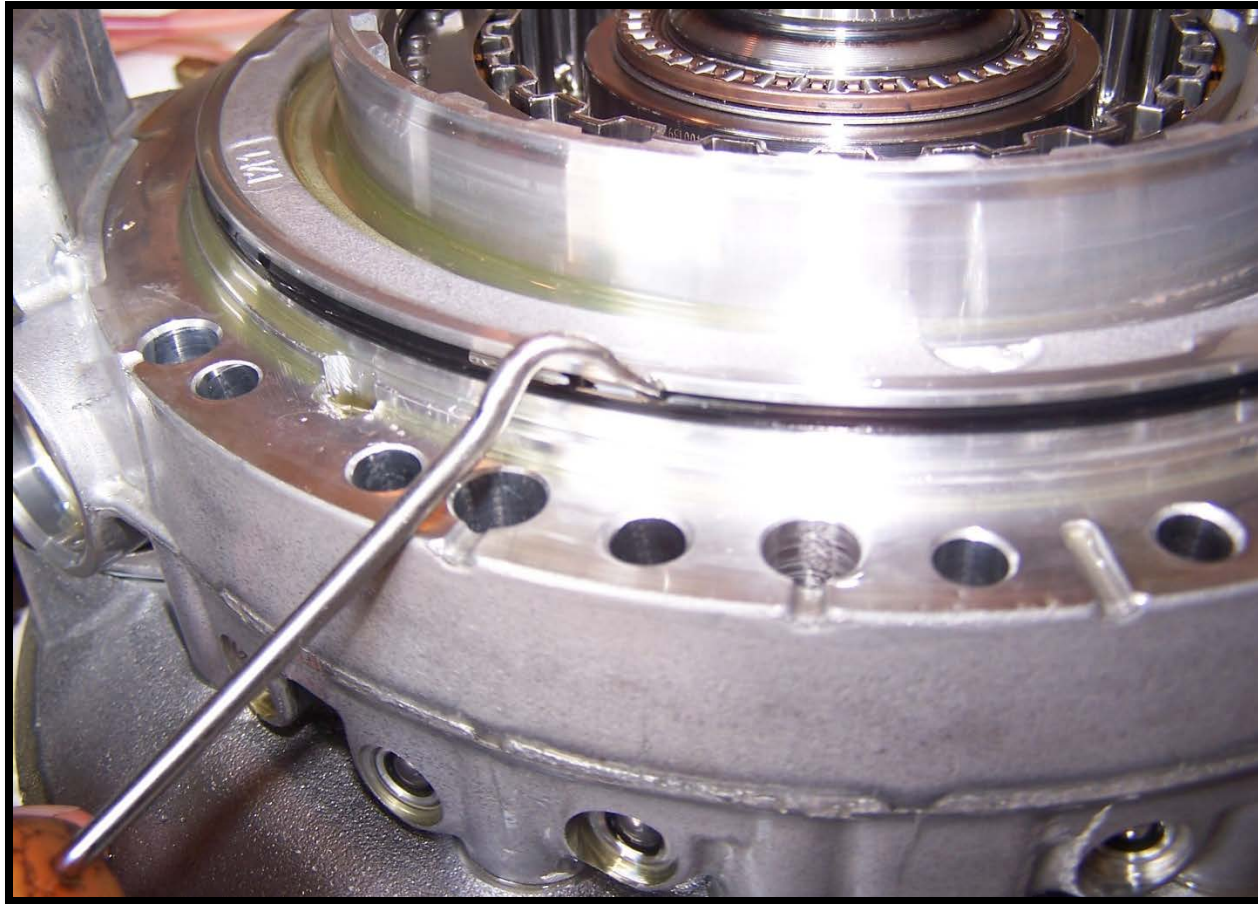
Gently pry up the steel B release housing and the B piston will come up with it.



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

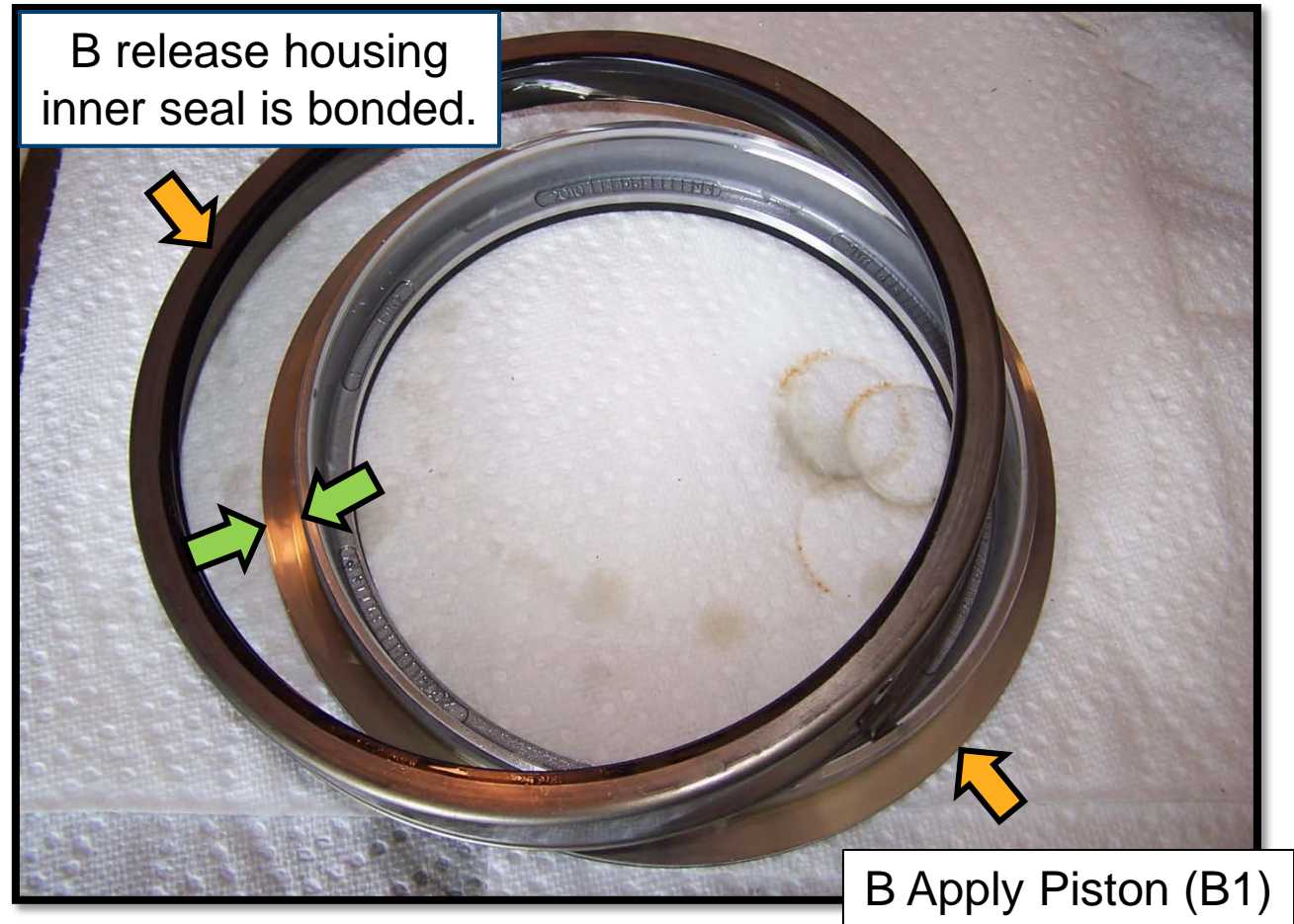
B Release Housing Outer Seal



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

The B release circuit (B2) controls the release rate of the B brake (area between the two green arrows).



NOTE: The B brake received a return spring assembly in 2014 and is not used on all models.

Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

A Brake Hub



A Brake Assembly



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove half-moon retainers from A piston return spring.



NOTE: A modified Forward ring gear from 4R/5R55 works here.

Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

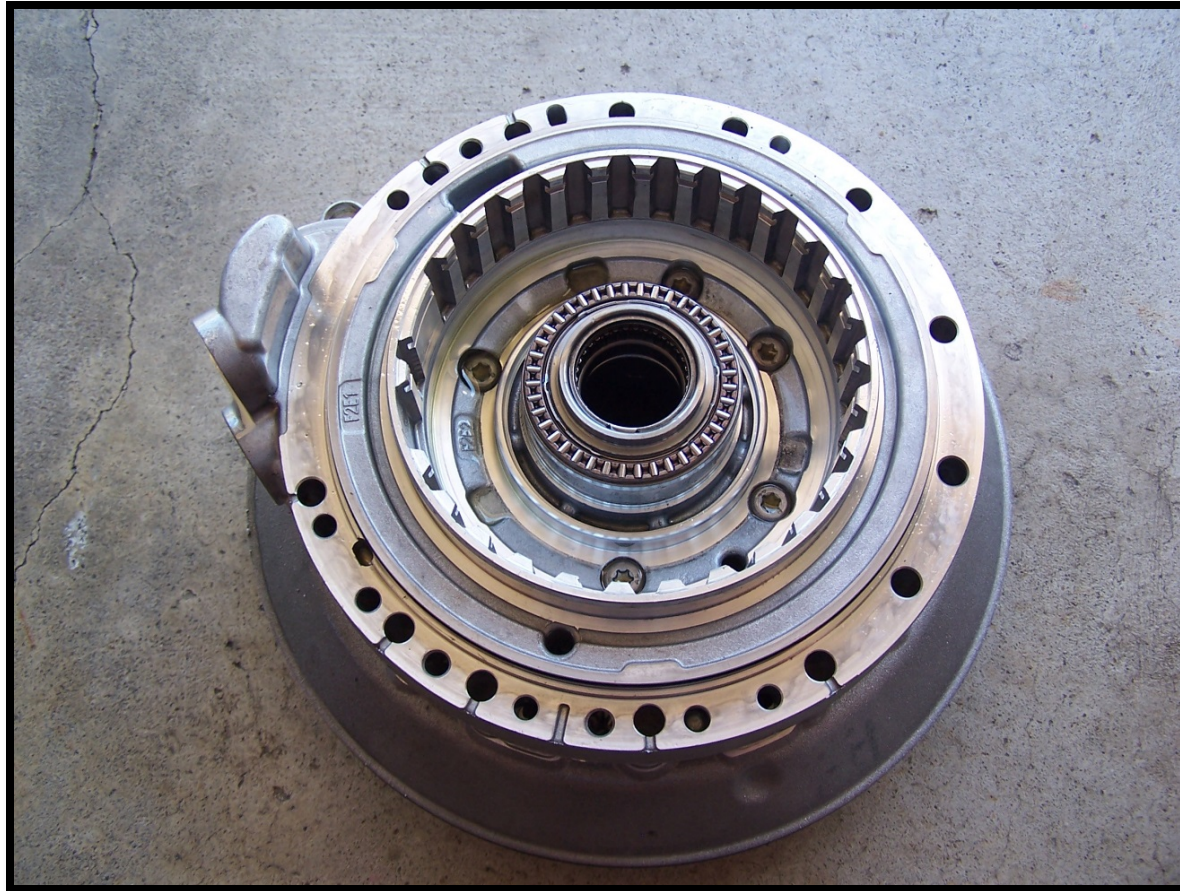
Remove retainers, return spring and A piston.



Pump & Brake Disassembly

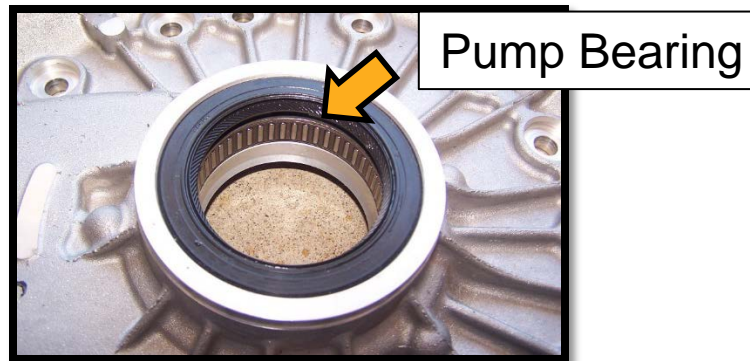
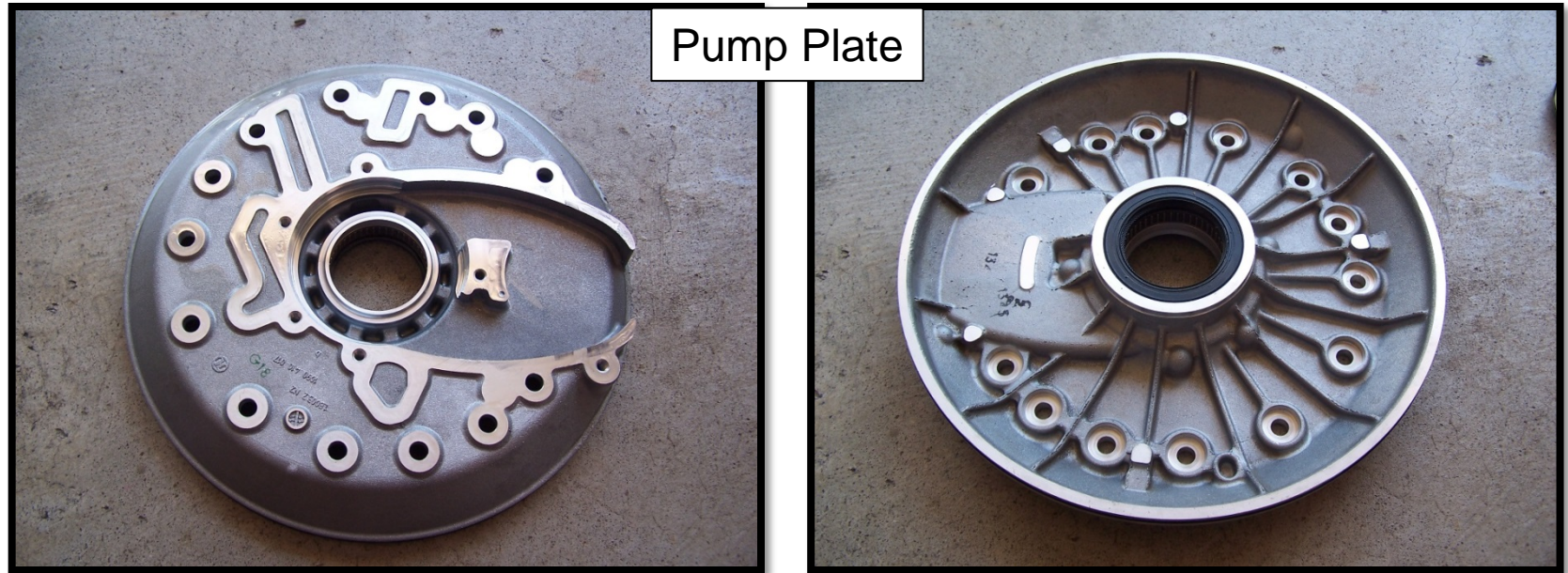
TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove six remaining pump plate retaining T40 Torx® bolts (aluminum).



Pump & Brake Disassembly

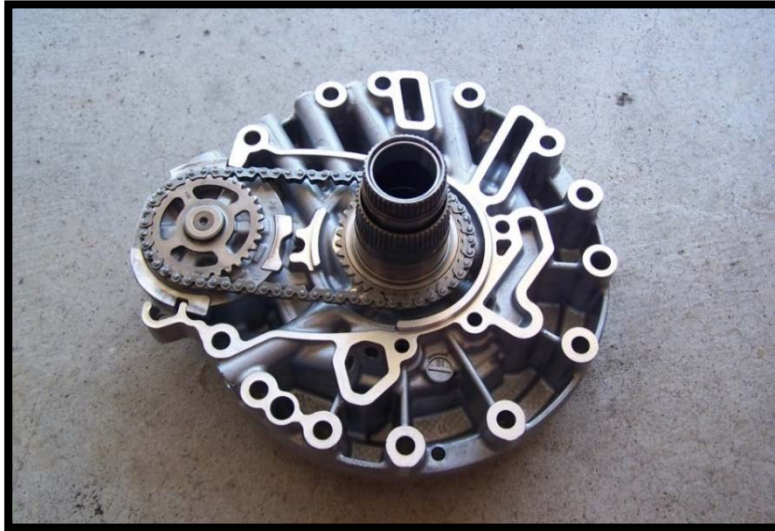
TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID



Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove pump from pump cover.



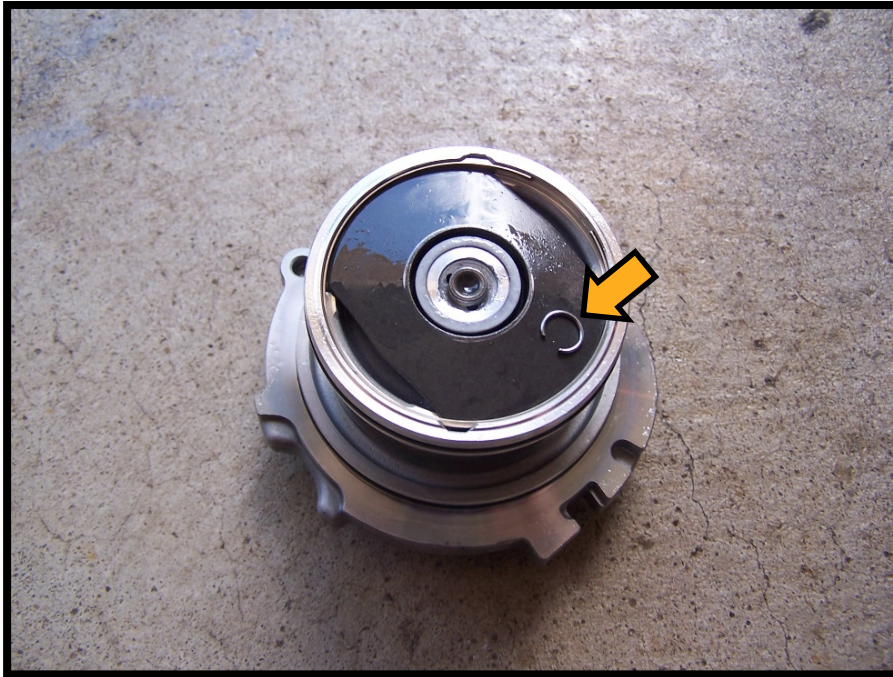
Pump is slightly overdriven.



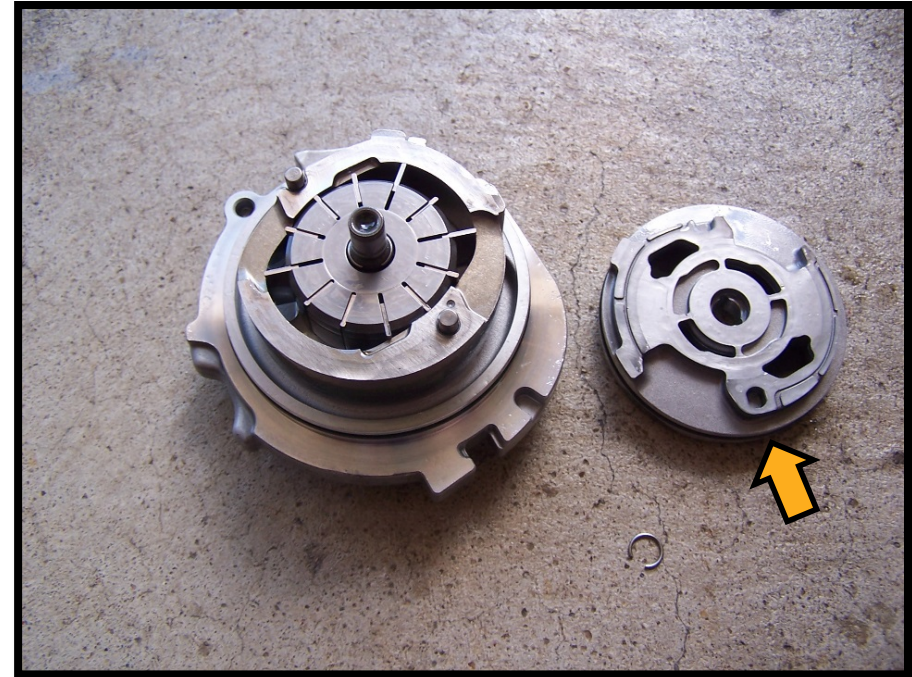
Pump & Brake Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

High-Efficiency Vane-Type Pump



Remove retainer clip from pump driveshaft.

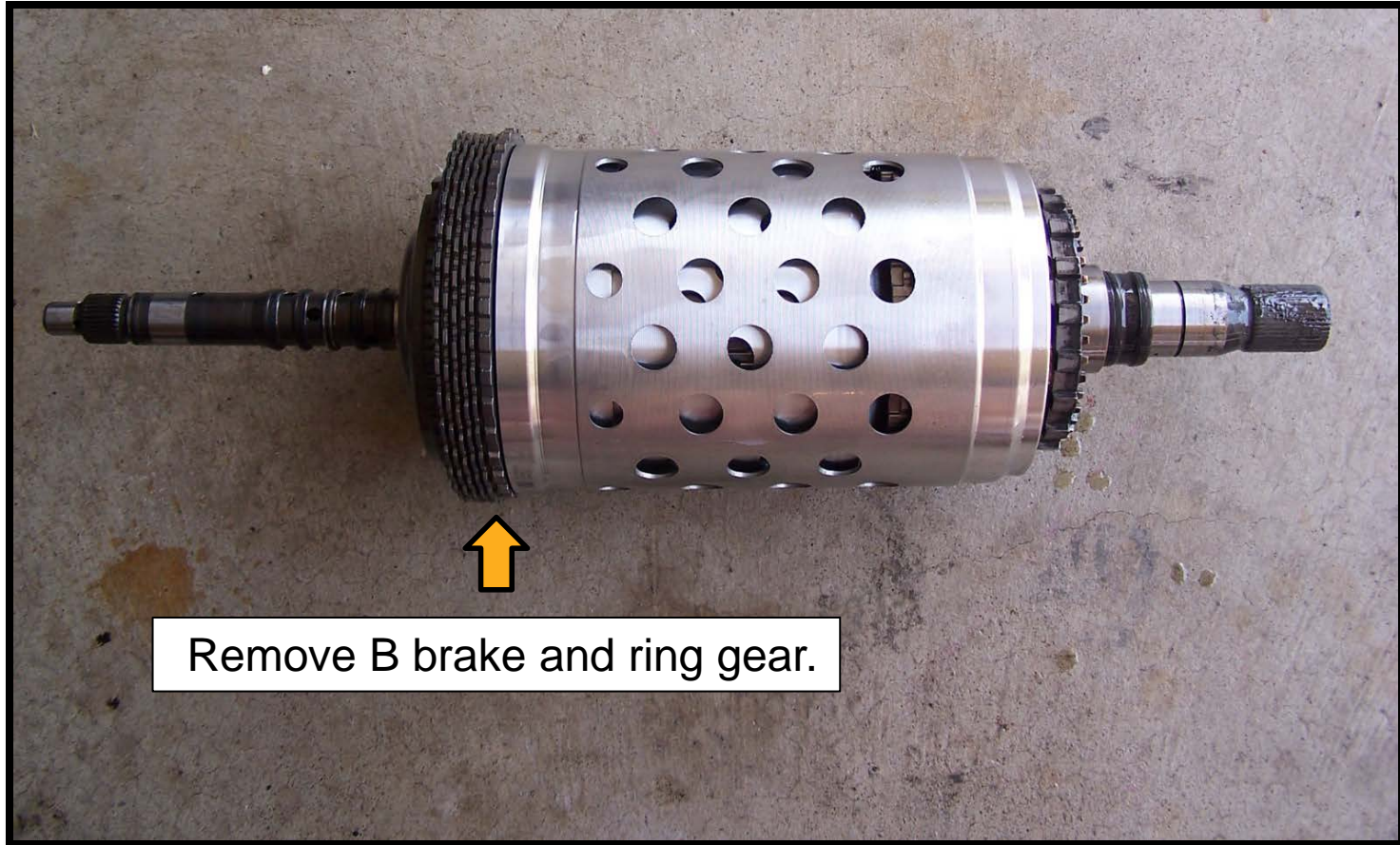


Remove cover.

Planetary Disassembly

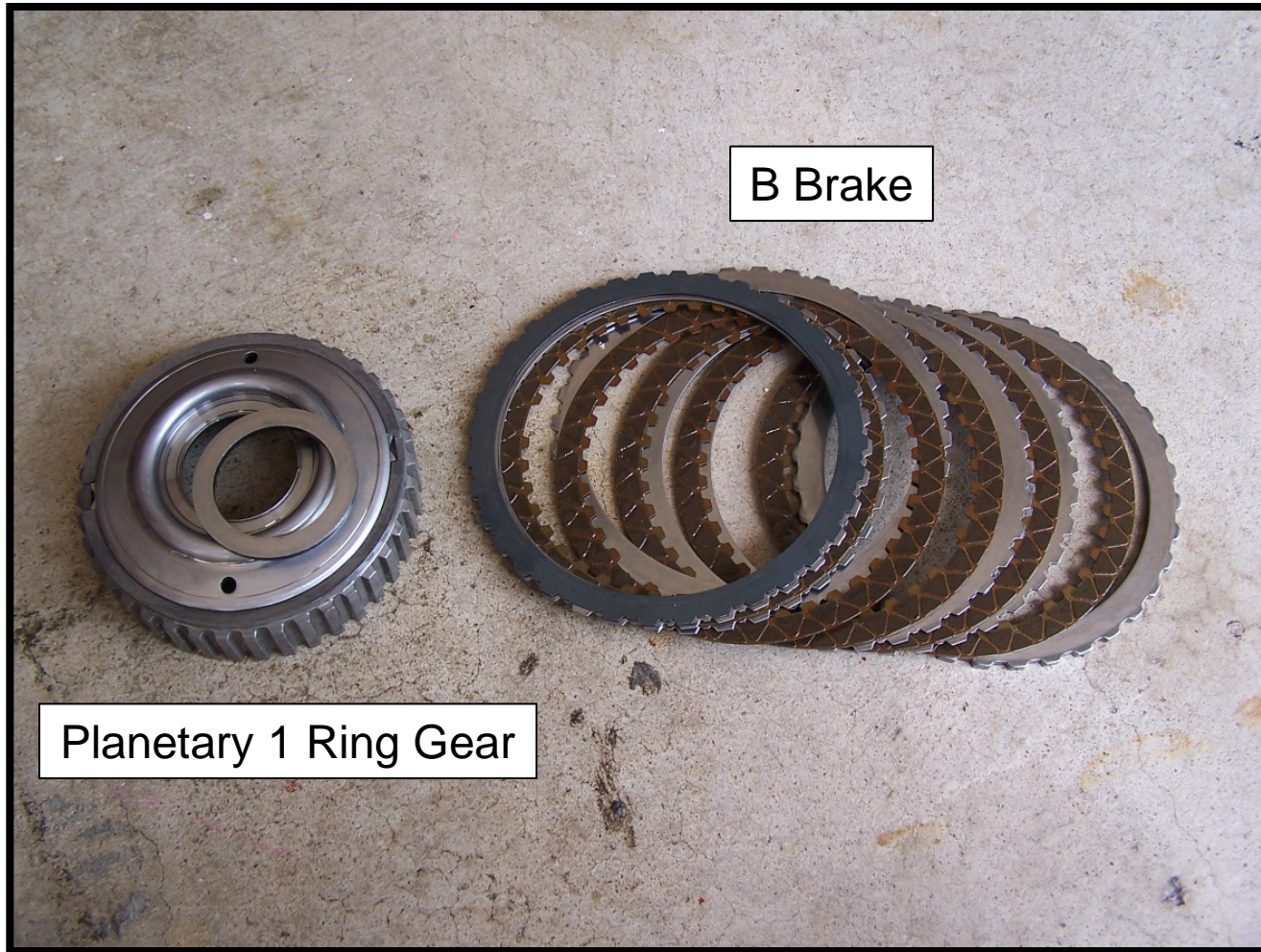
TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Internal Component Disassembly



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Stand the assembly in a fixture or vice to disassemble.

A support ring must be used so the aluminum connecting shell is not damaged during snap ring removal.



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Stand the assembly in a fixture or vice to disassemble.

Remove snap ring to remove planetary 1 carrier.

Support ring is made from an E4OD intermediate piston turned on the I.D.



Tool Availability

ZF8HP70-90: ZF Part # AA00 558 209

ZF8HP45: ZF Part # AA00 558 210

Chrysler Tool Part # 10378

Also available from Adapt-A-Case

Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Planetary 1 Carrier & Snap Ring Removed



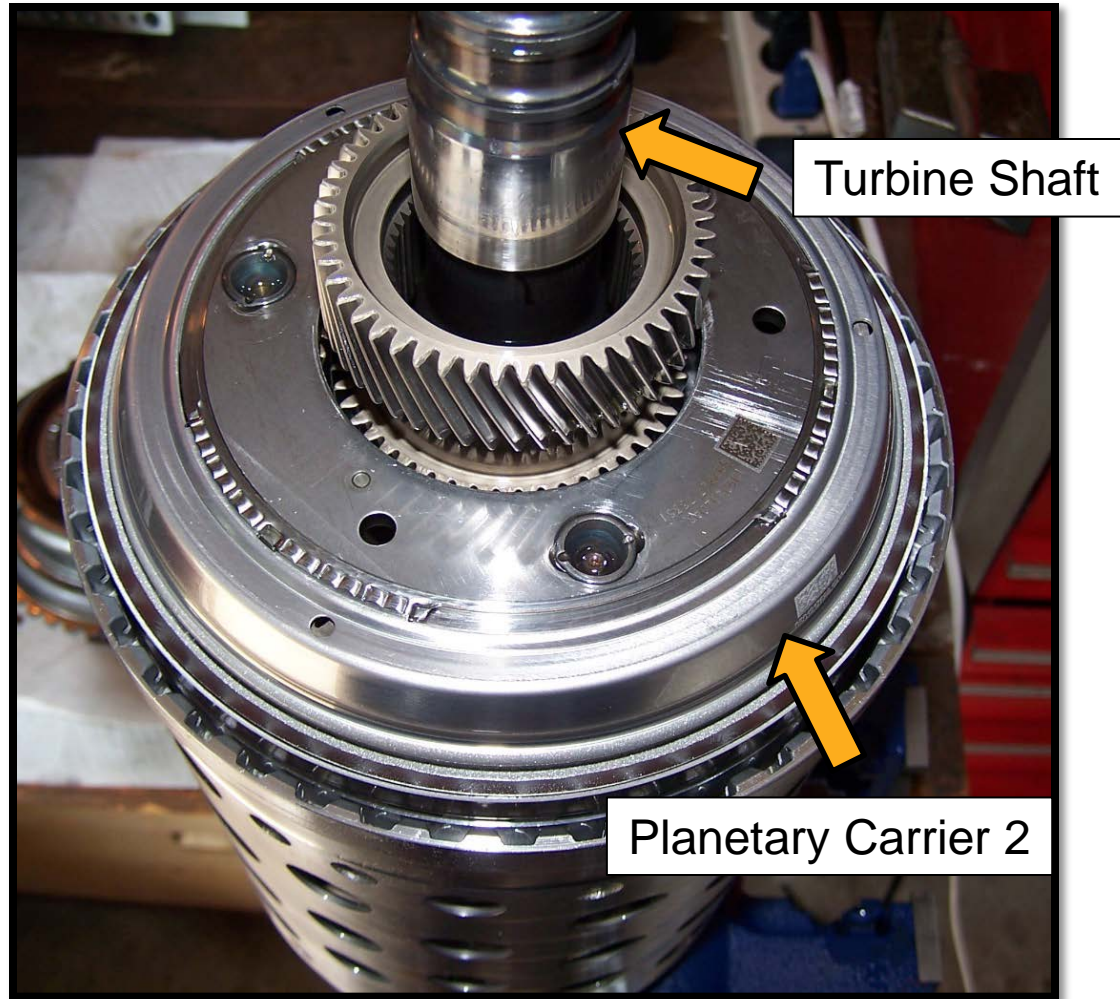
Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove turbine shaft and double sun gear.

Sun gear is used for both planetary 1 and 2.

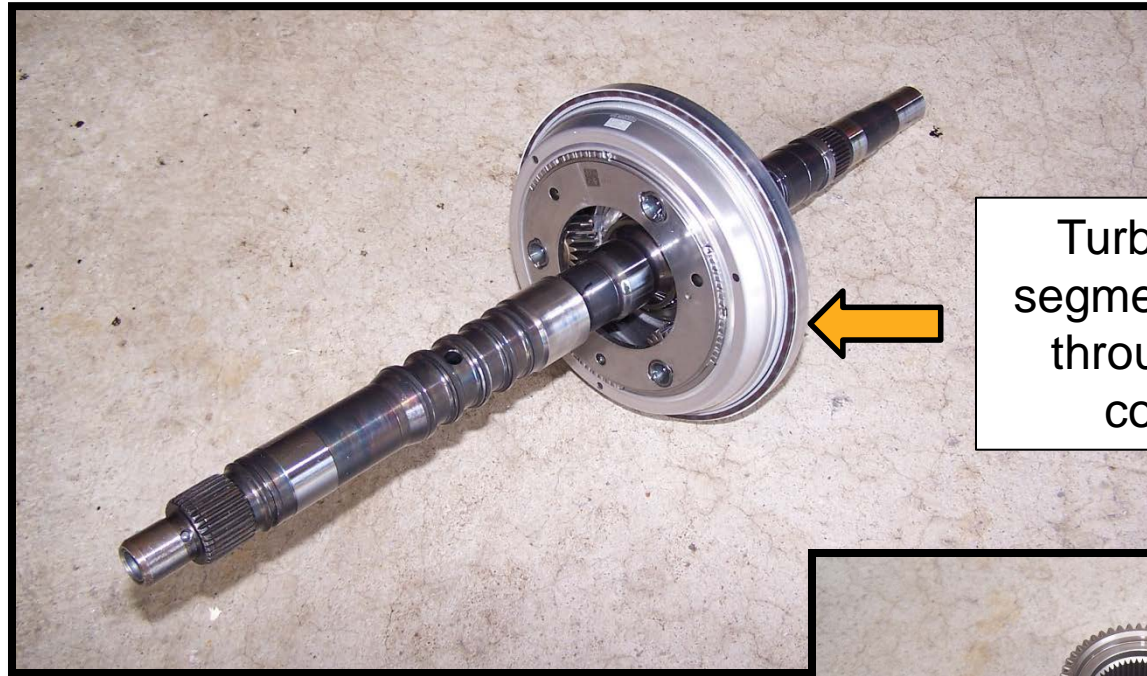
Turbine shaft is splined to planetary carrier 2.



Planetary Disassembly

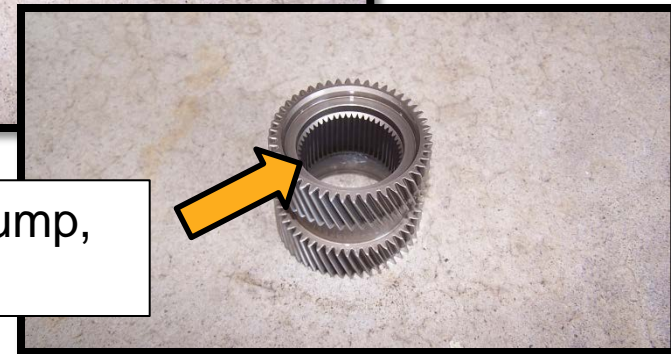
TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Turbine Shaft/Planetary 2 Carrier Removed



Turbine sensor reads segmented magnetic ring through the aluminum connecting shell.

Sun gear internal spline goes toward pump, connects to A brake hub.



Planetary Disassembly

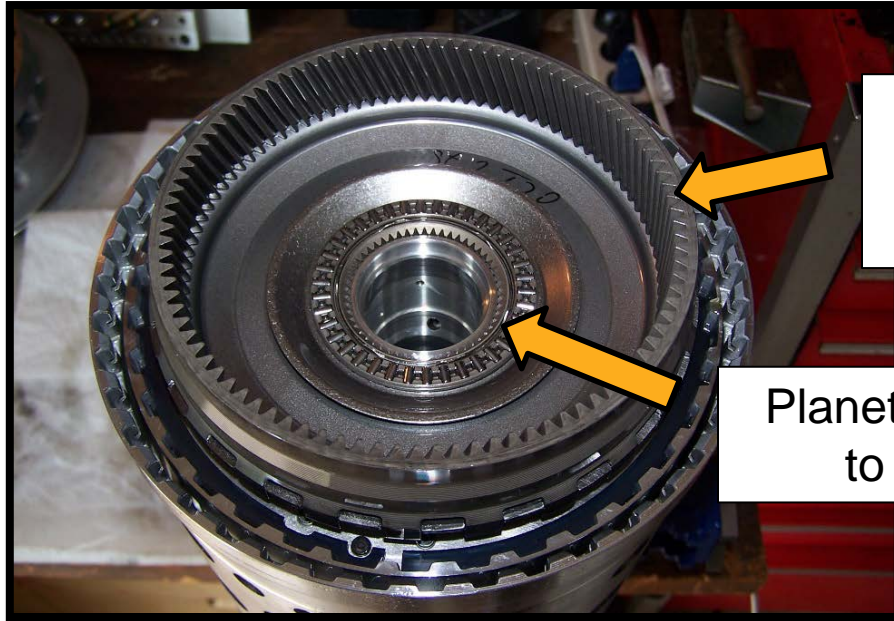
TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Turbine shaft is splined to the planetary carrier 2.



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID



Remove planetary 2 ring gear.

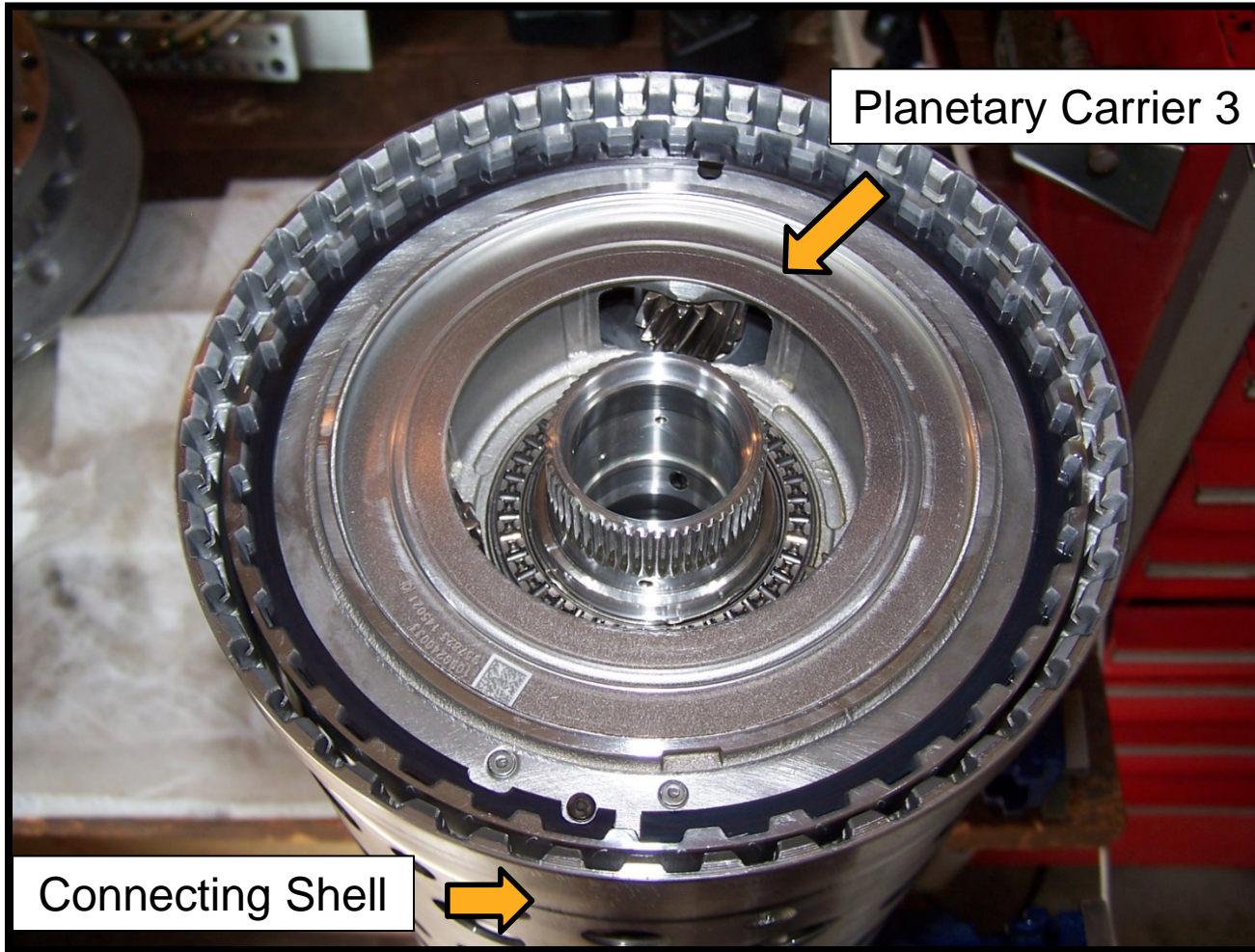
Planetary 2 ring gear is splined to the E clutch housing.

Planetary 2 ring gear is connected to planetary 3 sun gear.



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID



Remove planetary 3 carrier and housing from connecting shell.

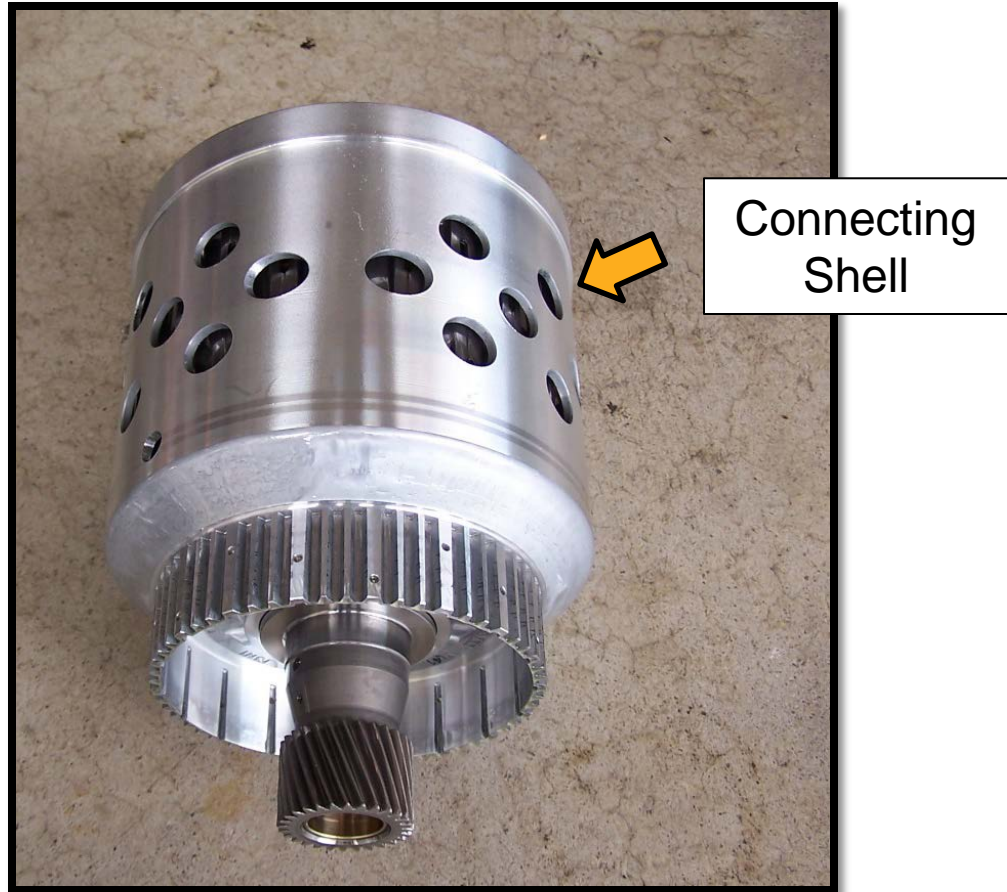
NOTE: The connecting shell houses the ring gear for planetary 4. We will come back to this at the end of the presentation.

Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Planetary 3 Carrier & Housing Removed

This assembly houses the planetary 3 carrier and ring gear, the E and C clutch assemblies, planetary 4 sun shell and sun gear. The connecting shell is the hub for the D clutch.

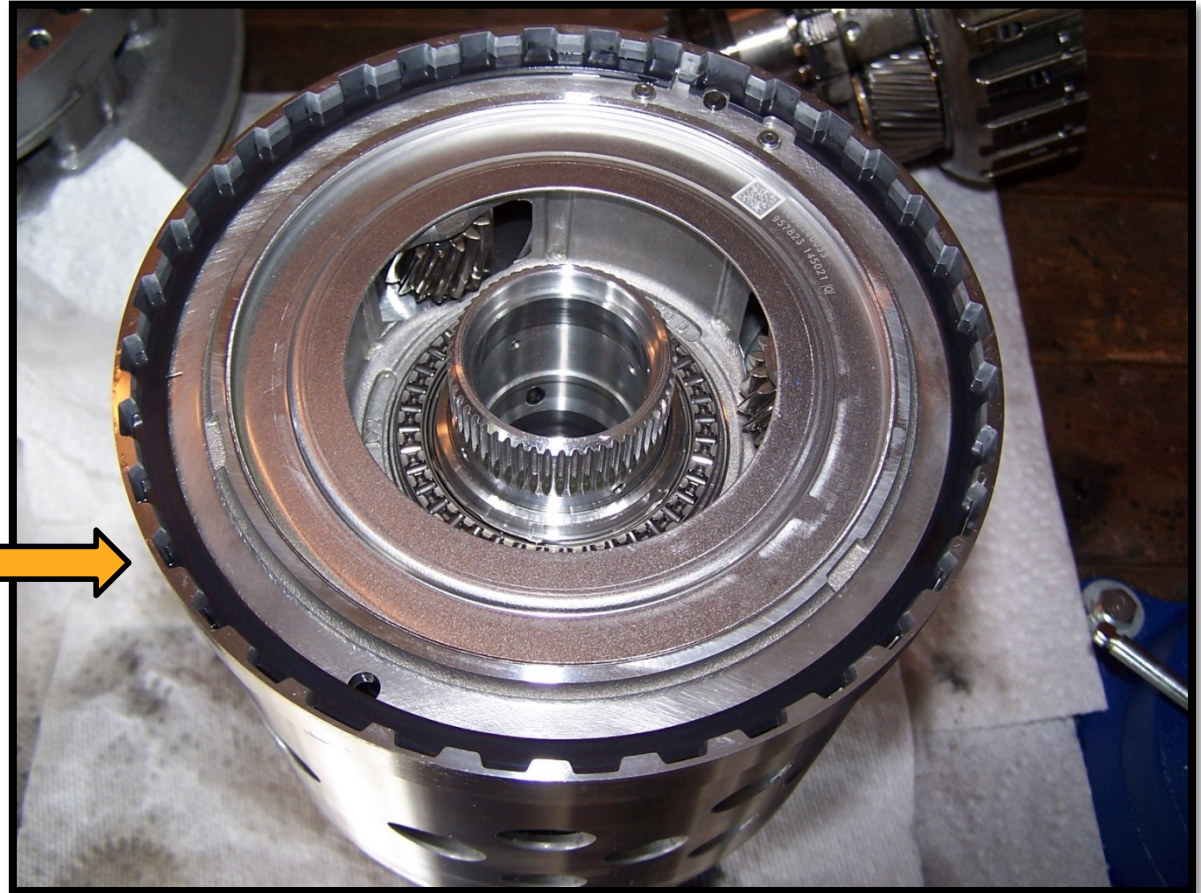


Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Planetary Carrier, E & C Clutch Removal

A support ring must be used to remove the snap ring or the connecting shell can be damaged.



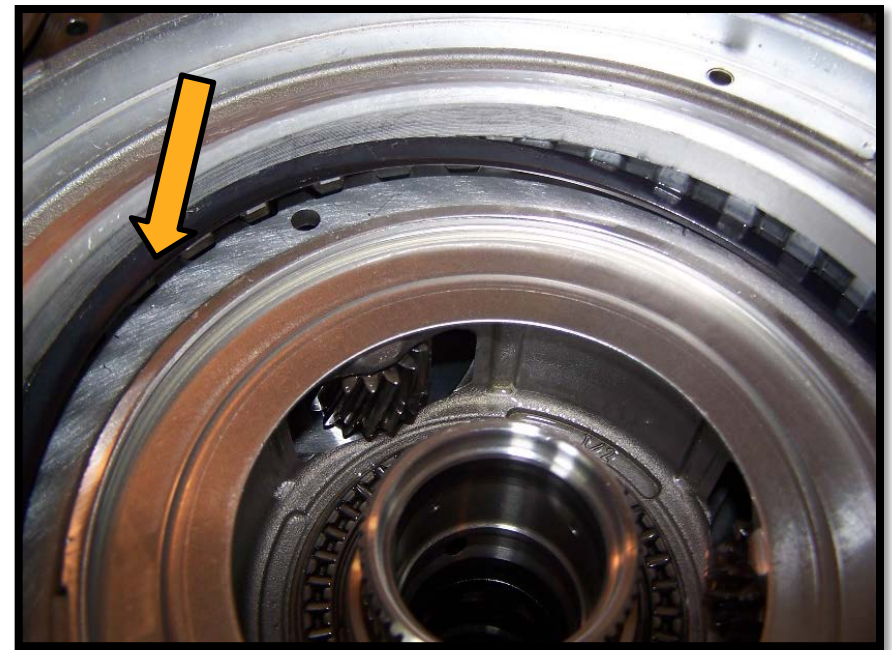
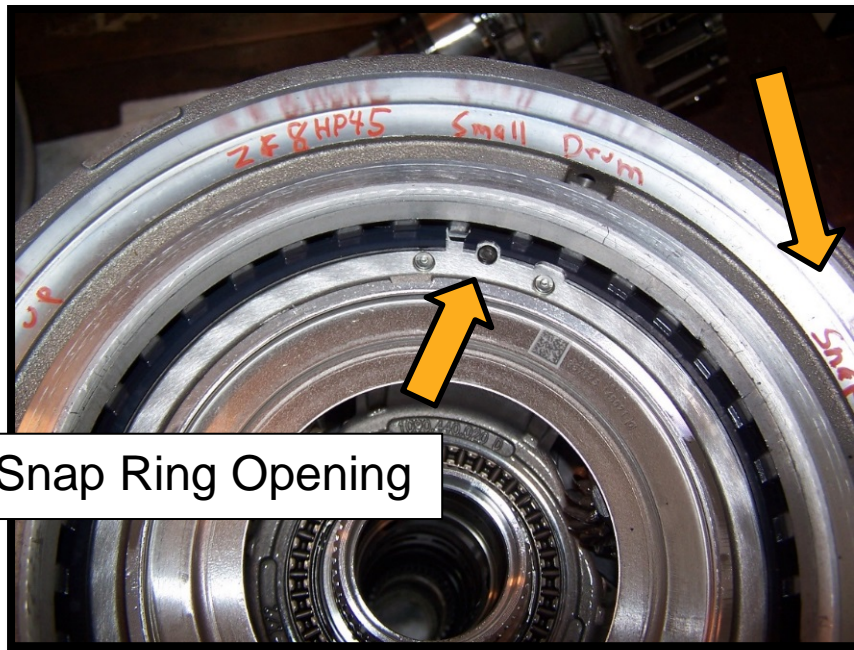
Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Planetary 3 Carrier Snap Ring Removal

Install support ring here.
A 4th/Intermediate E4OD housing
turned on the I.D. works here.

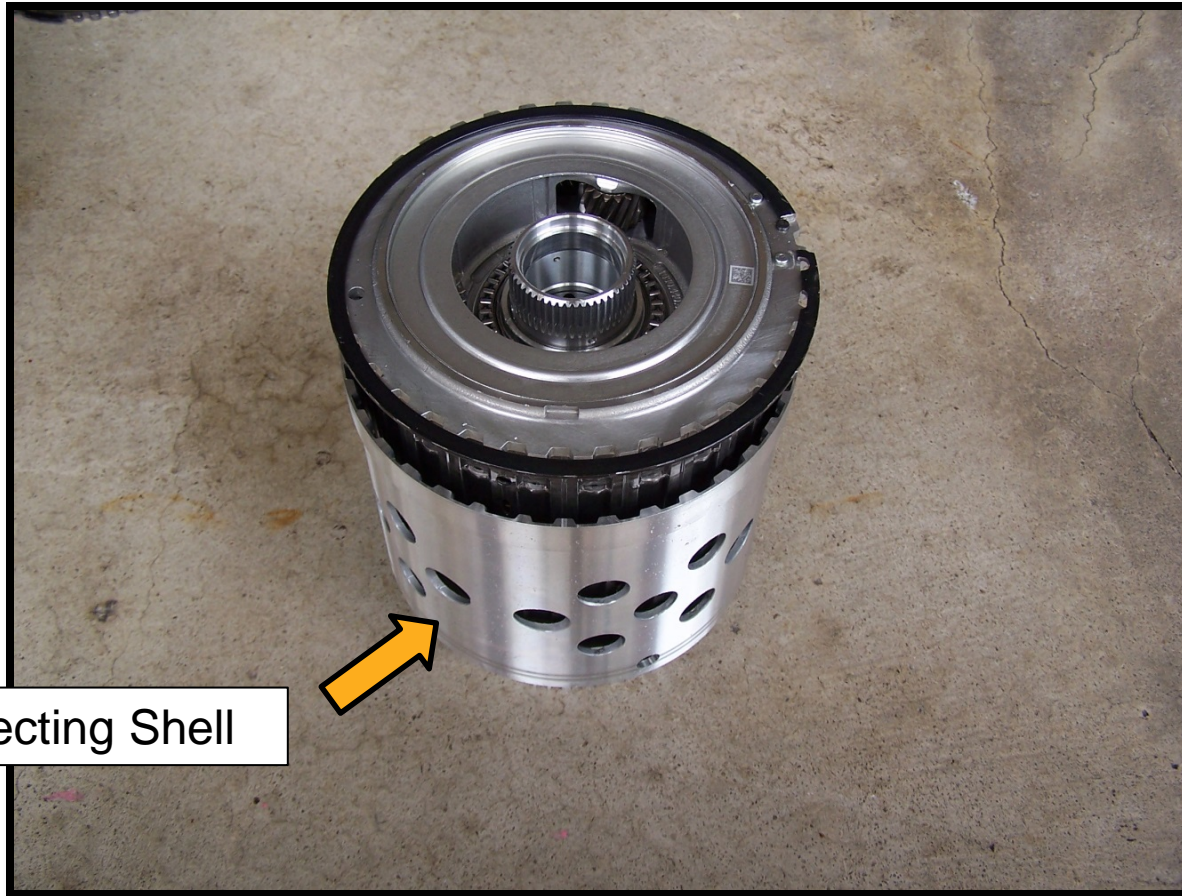
Remove the snap ring opposite
the opening as there are two stands
that prevent removal.



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

The connecting shell will drop once the snap ring is removed.



Connecting Shell

Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Planetary Carrier 3 Removed



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

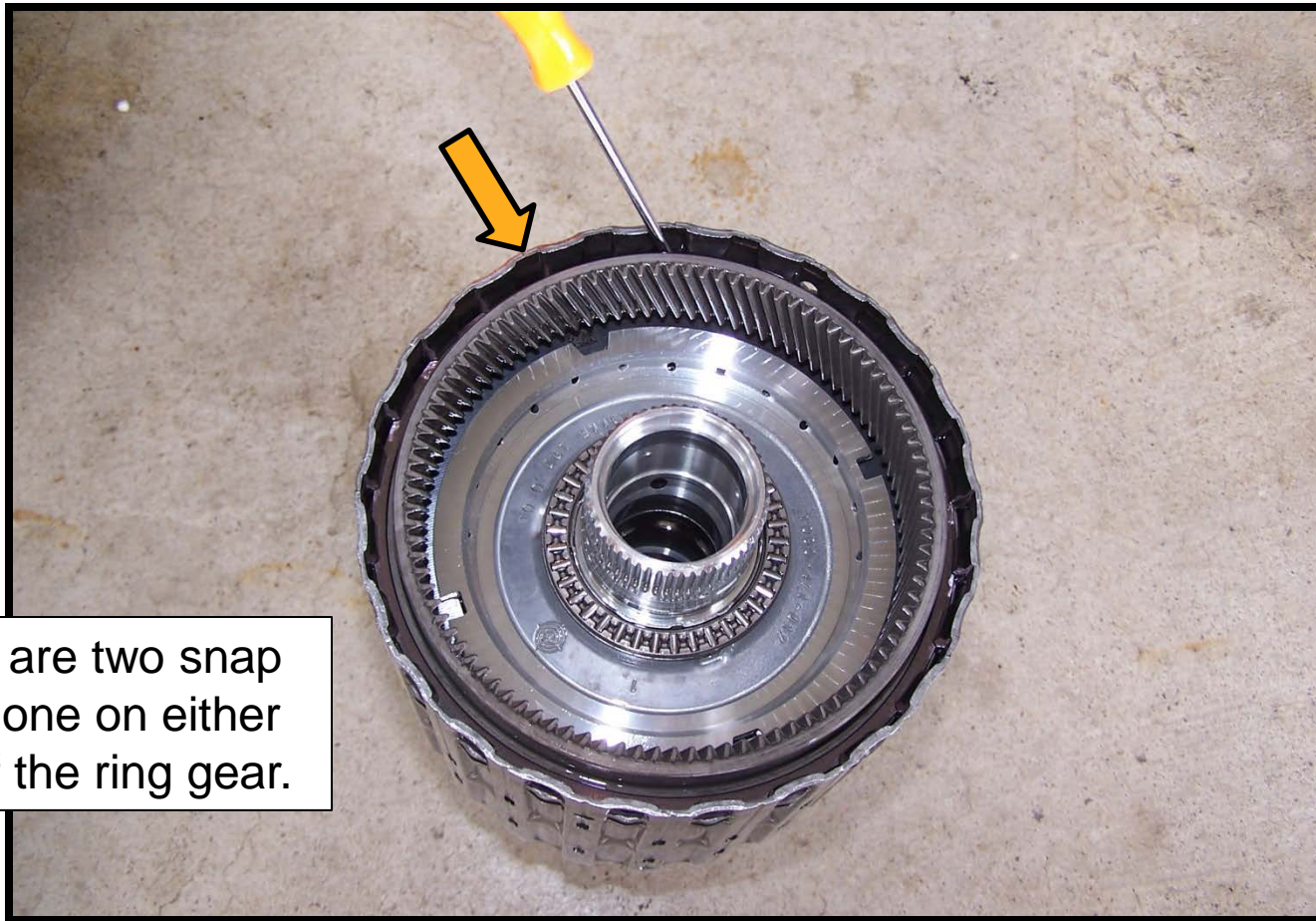
Remove sun shell assembly from connecting shell.



Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove planetary 3 ring gear from sun shell.



There are two snap rings, one on either side of the ring gear.

Planetary Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

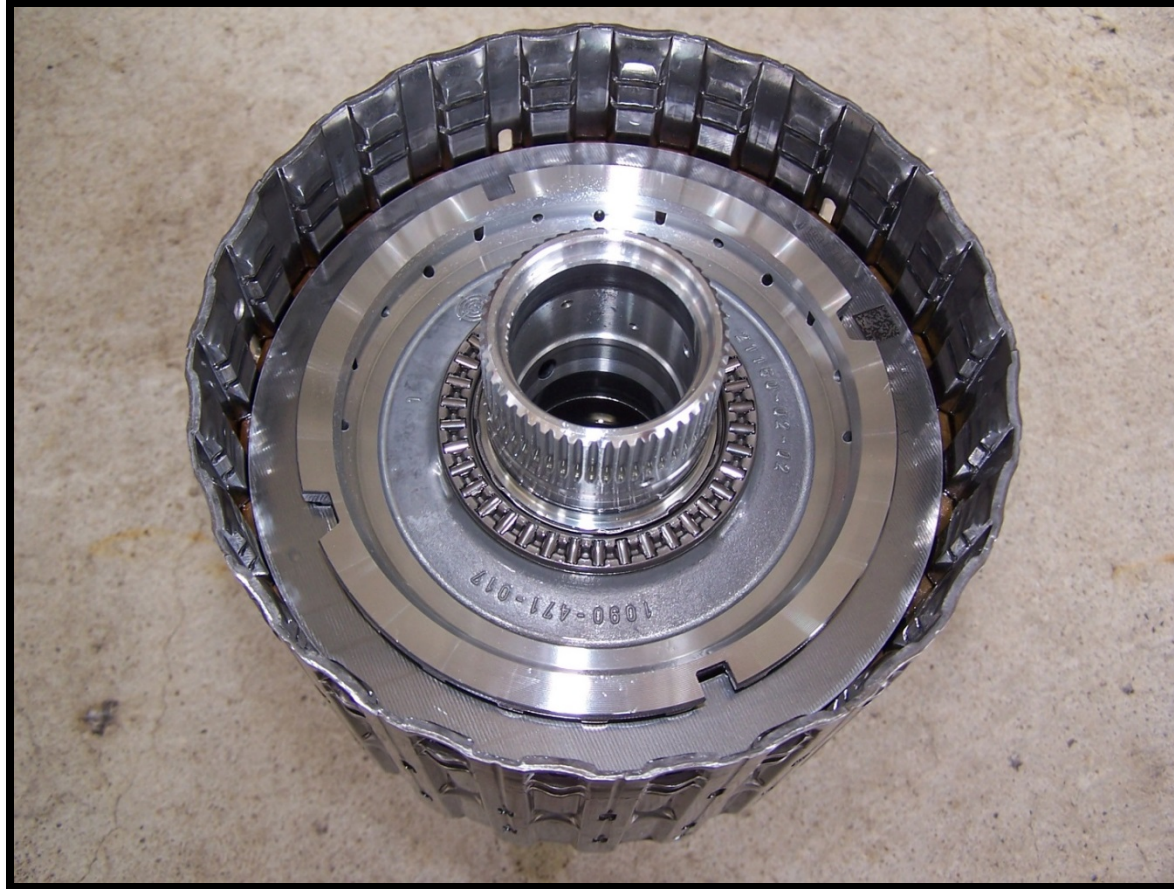
Planetary 3 Ring Gear & Snap Rings Removed



Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove E clutch drum.

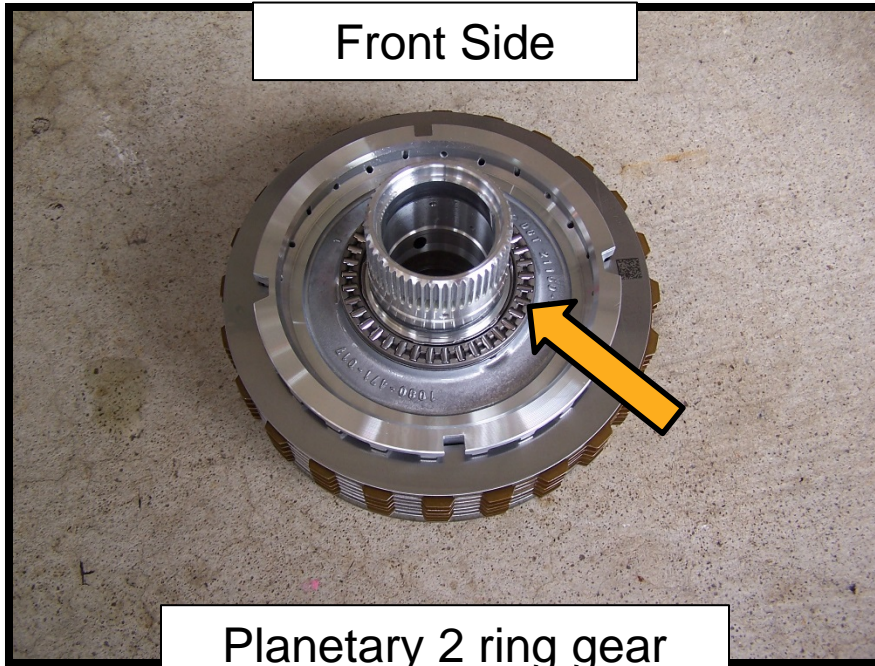


Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

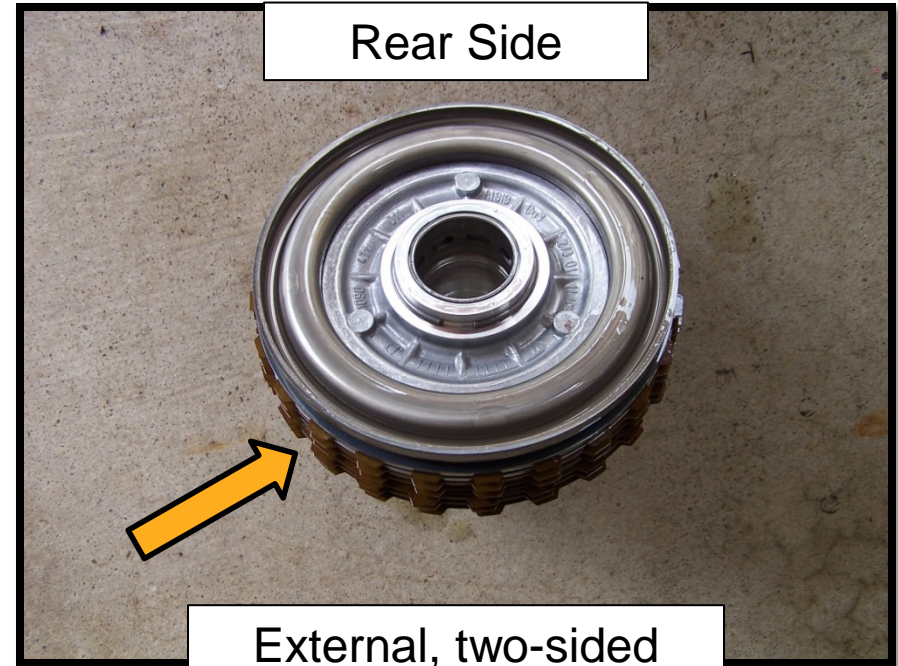
E Clutch Drum

Front Side



Planetary 2 ring gear is splined to the E clutch housing.

Rear Side



External, two-sided clutch plates connect to I.D. of sun shell.

Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

E Clutch Disassembly



Remove round snap ring.

Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove E clutch apply/balance piston.

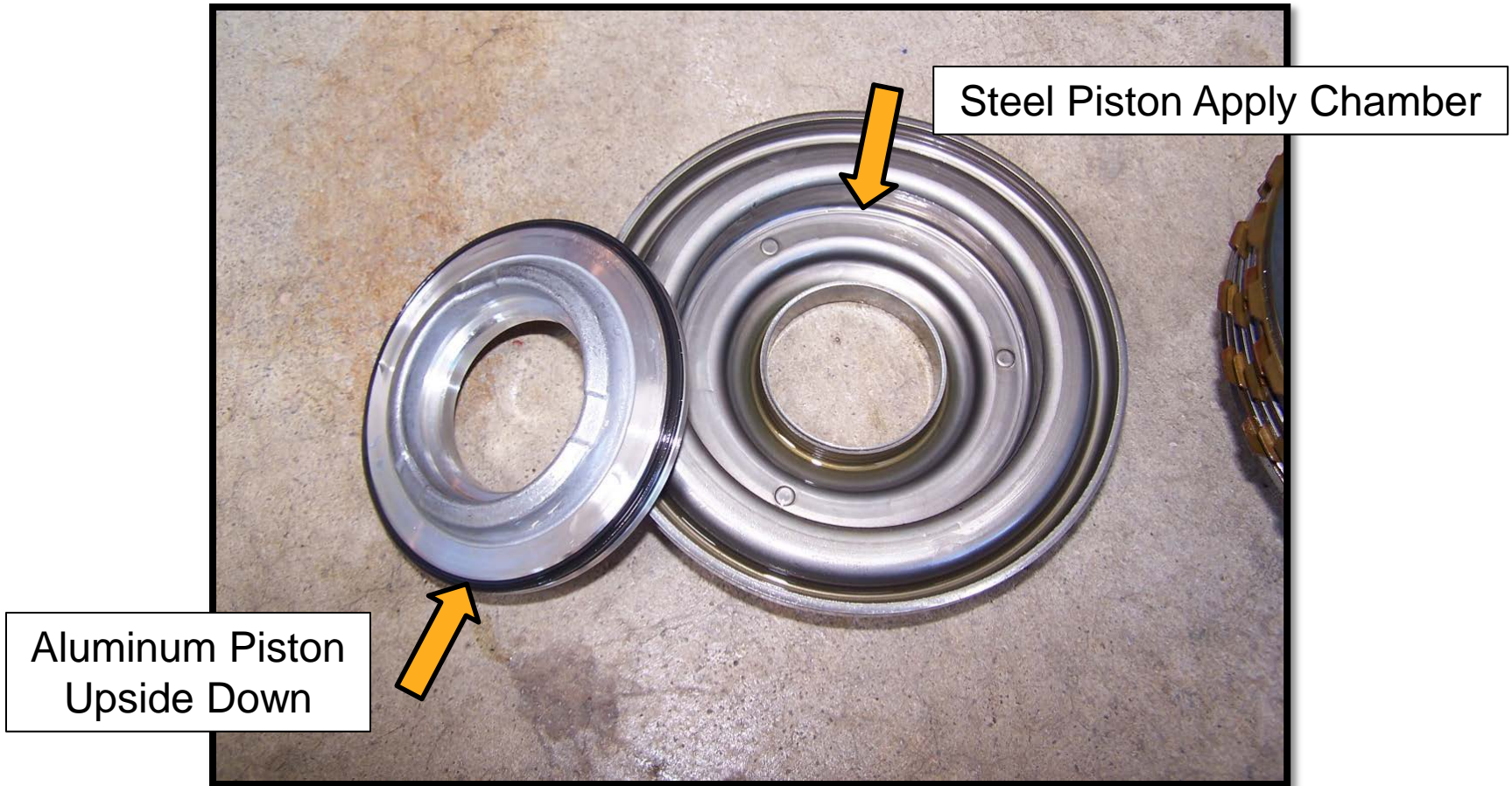
Aluminum piston seals apply chamber in steel piston.



Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

E Clutch Apply/Balance Piston



Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

E Clutch Balance Circuit



ID of E Clutch Drum



Bottom of the E Clutch Piston
(Bonded Side)

Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

E Clutch Plates



Thick Steel Plate

Cushion Plate

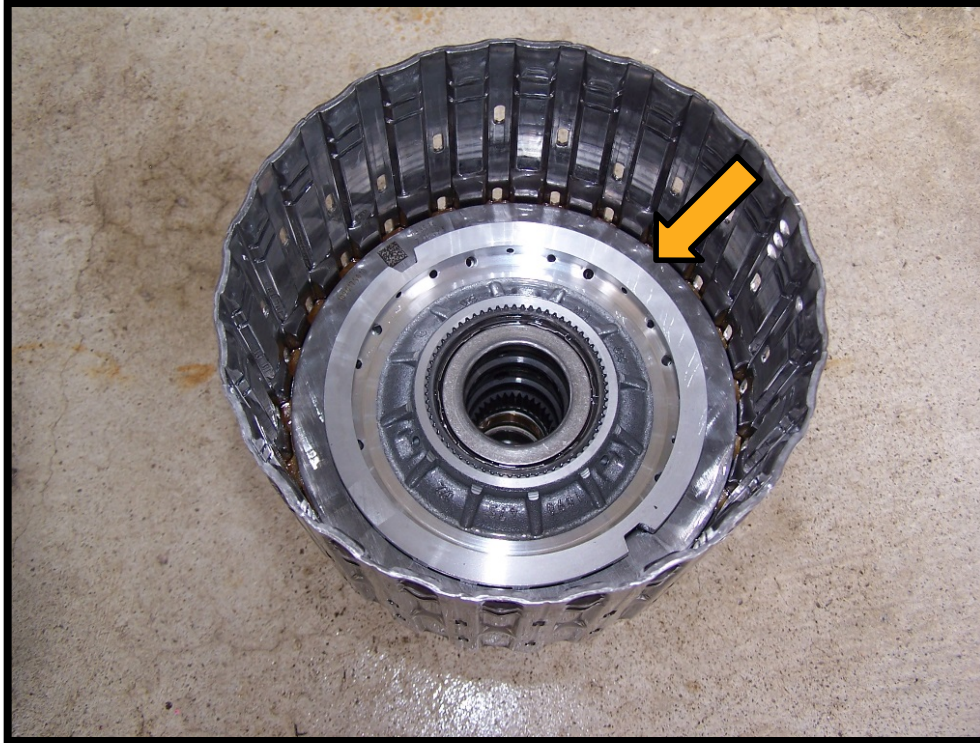
External, two-sided clutch plates connect to I.D. of sun shell.

Internal steel plates connect to E drum.

Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Remove C clutch drum from sun shell.

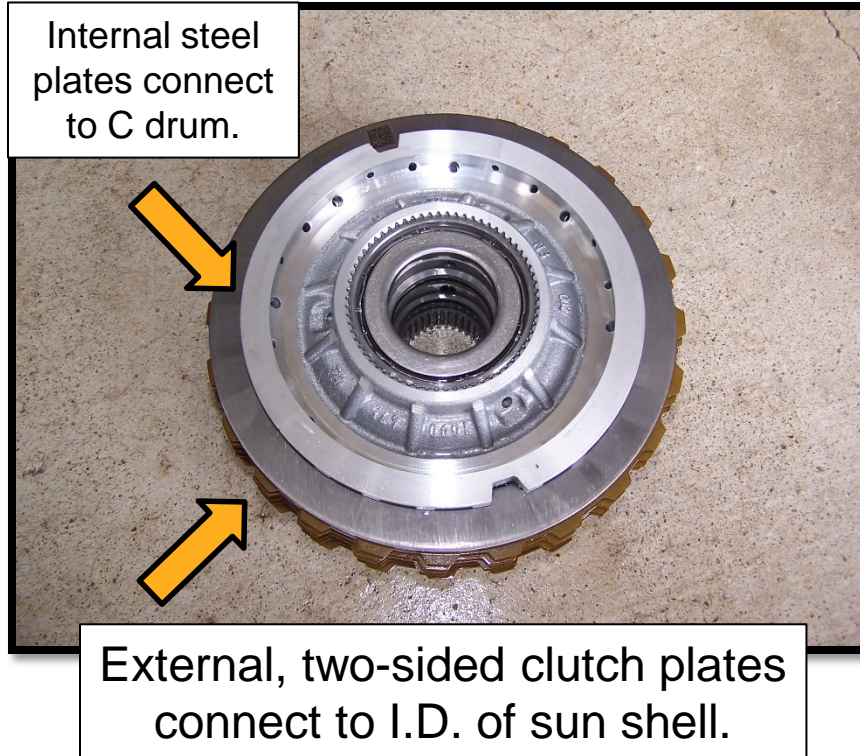


Empty Sun Shell

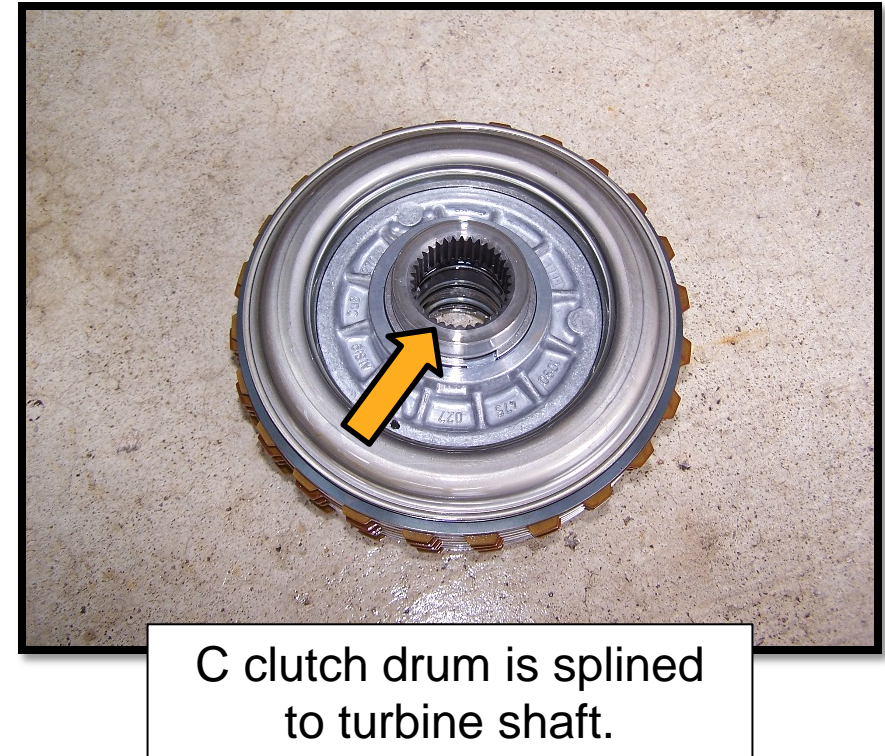
Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

C Clutch Drum Front View



C Clutch Drum Rear View



The C clutch piston assemblies are set up like the E clutch with the apply circuit on one side and the balance circuit on the I.D. of the C clutch drum.

Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

Connecting Shell



Connecting shell houses planetary 4 ring gear.

Planetary 4 Carrier



Planetary 4 carrier is connected to the D clutch and the output shaft.

Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

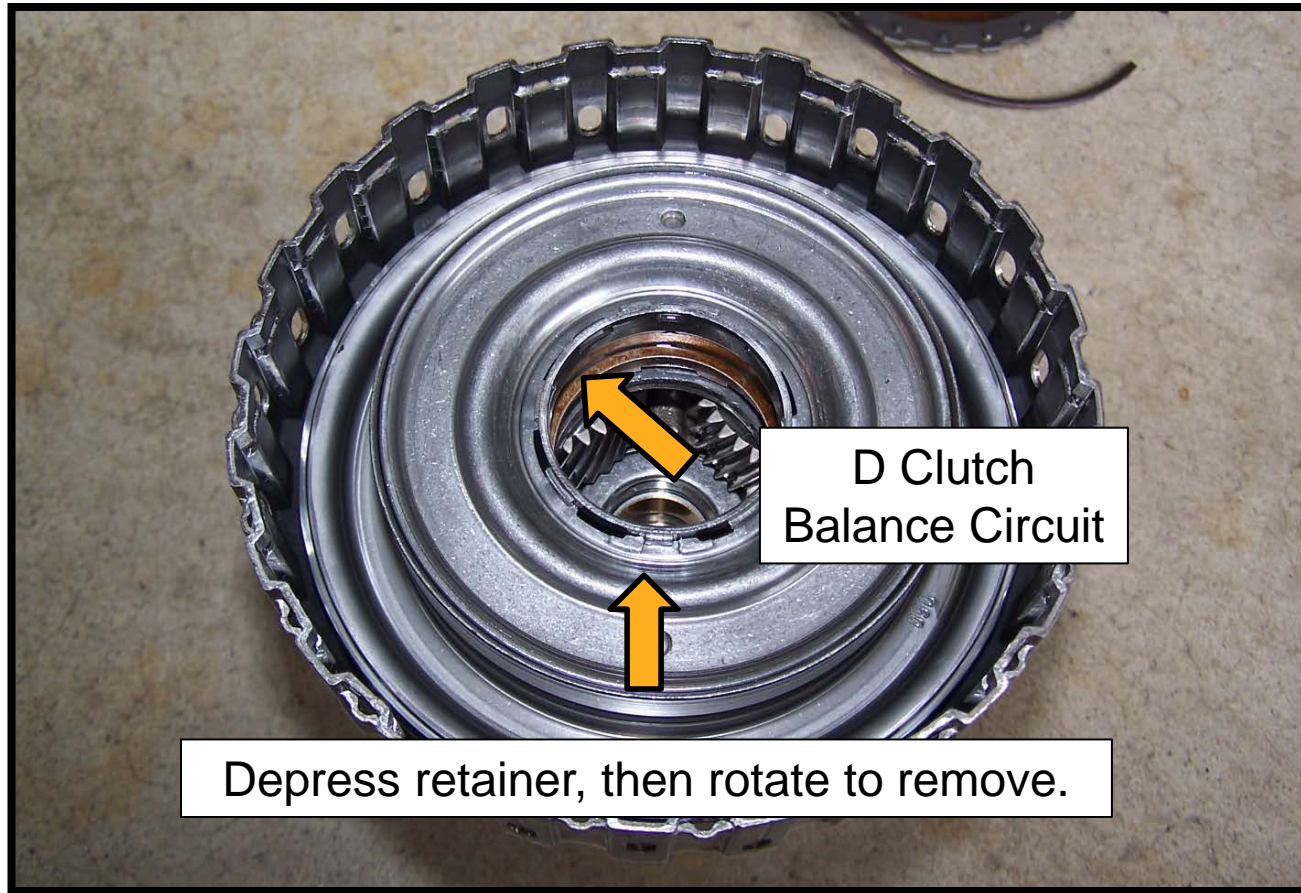
D Clutch Assembly



Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

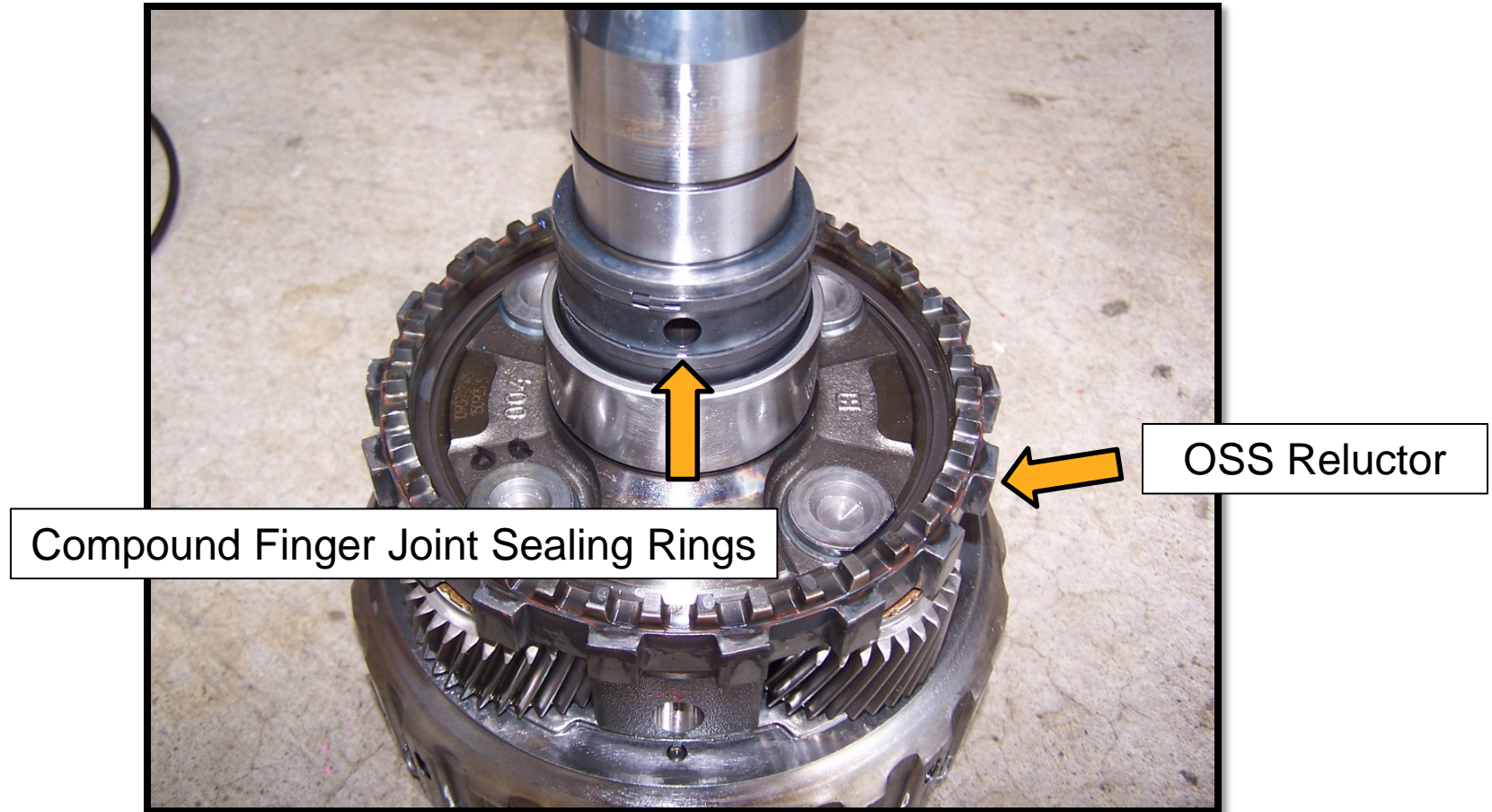
D Clutch Spring Retainer



Clutch Disassembly

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

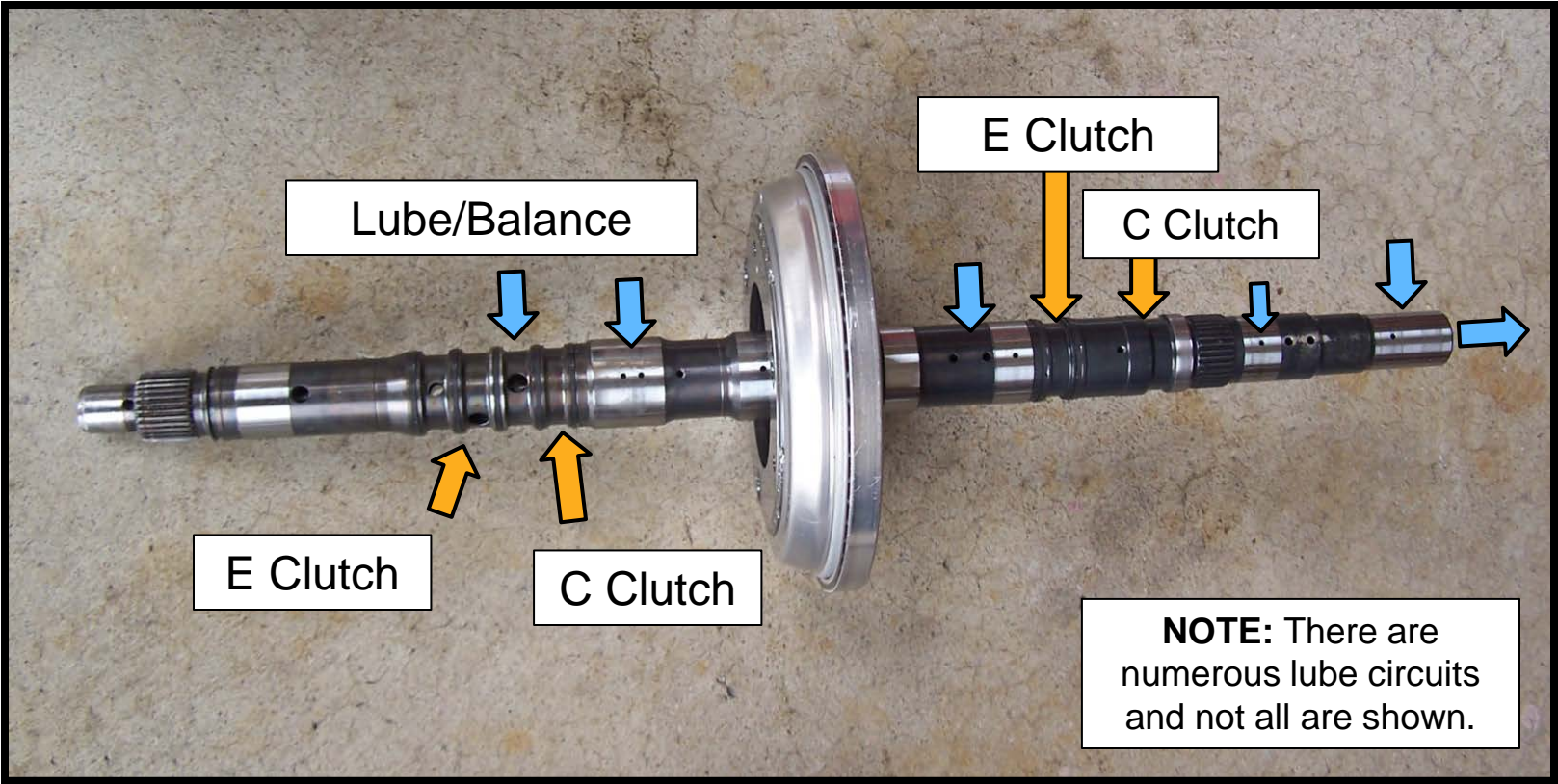
D Clutch Apply Passage



Turbine Shift Passage ID

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

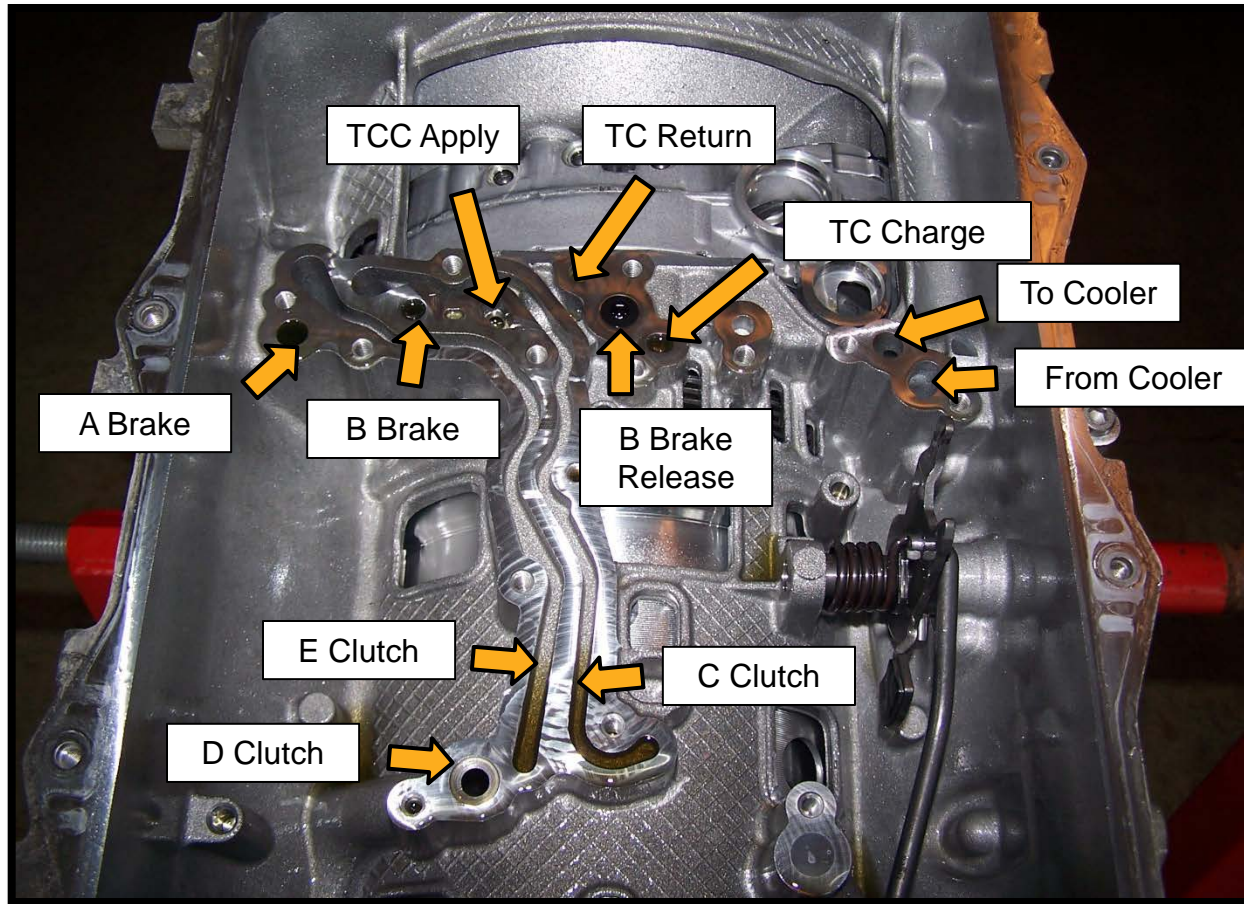
For Clutches & Balance Circuits



Case Passage ID

TorqueFlite® 8 (ZF8) Transmission Internal Component Disassembly & ID

D Clutch apply passage goes through the case to a sleeve that feeds the D clutch.



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