

6R80 (2015-Later), 6R100 ZIP KIT®

PART NUMBER **6R80L-6R100-ZIP**

IDENTIFICATION GUIDE

Valve Body Identification

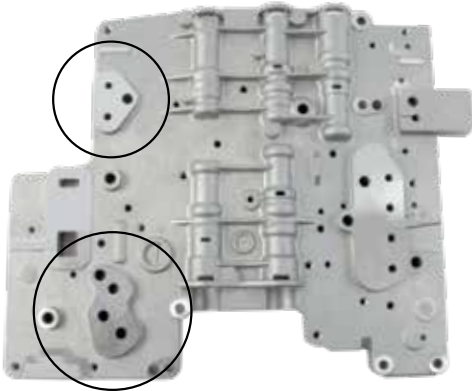
Valve components differ between Generation 1 (ZF6HP19/26/32), Ford 6R60, 6R75, 6R80 (2009-2014), 6R80 (2015-Later), 6R100, and Generation 2 (ZF6HP21/28/34) valve bodies. Please use this identification guide to determine which application you have to ensure correct ZIP Kit and valve kits are selected for your rebuild.

Generation 1 (ZF6HP19, 26 & 32), Ford 6R60, 6R75, 6R80 (2009)

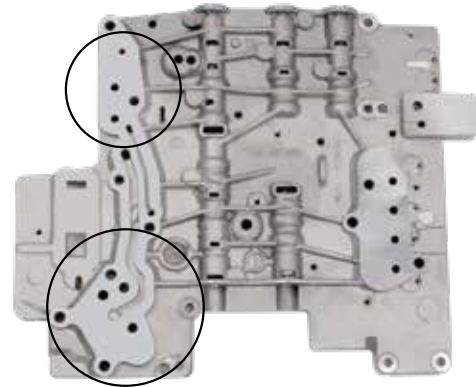
Generation 2 (ZF6HP21, 28 & 34)

1. IDENTIFY CASTING

1st Generation Case Side, Includes 19, 26 & 32

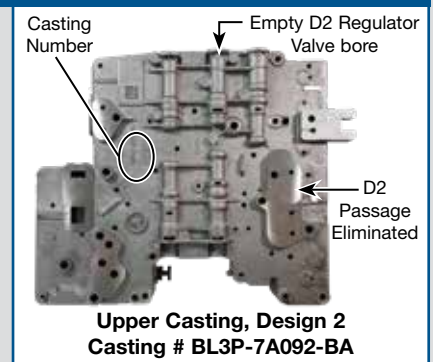
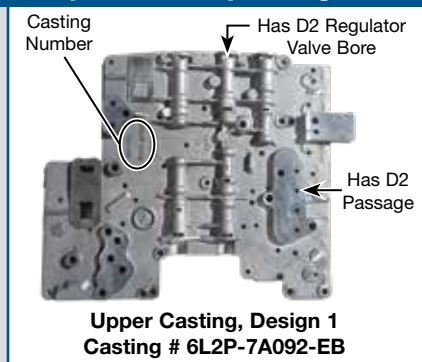
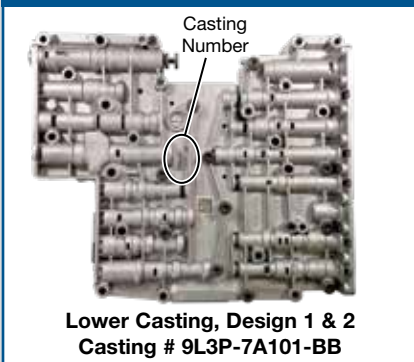


2nd Generation Case Side, Includes 21, 28 & 34

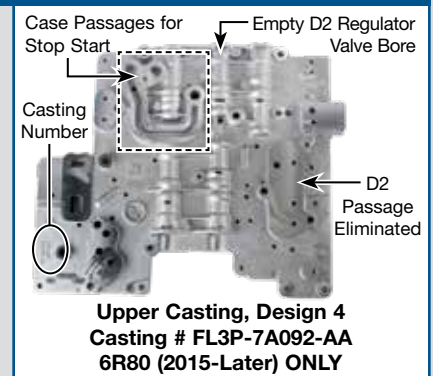
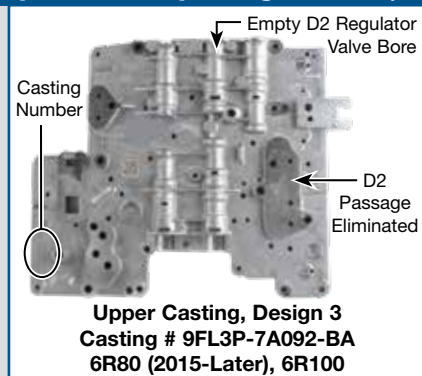
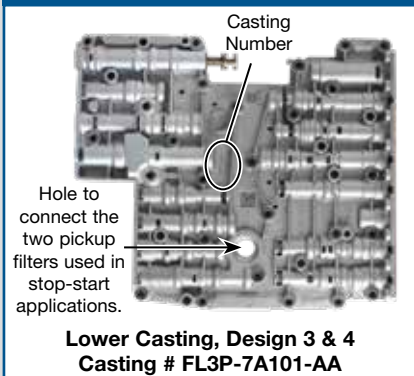


Note: ZF applications will have casting numbers beginning with 1068.
Ford applications will have 'Ford' or 'FoMoCo' casting emblem.

6R80 (2009-2014): Designs 1 & 2



6R80 (2015-Later) Designs 3 & 4, 6R100



2. IDENTIFY SOLENOIDS



**ZF6HP19/26/32 (Gen. 1),
Ford 6R60, 6R75,
ZF6HP21/28/34 (Gen. 2)**
Blue & Yellow Connectors



6R80 (2009)
Black & brown connectors in most locations.
SSE solenoid has clear connector and
white snout **2009-2011**



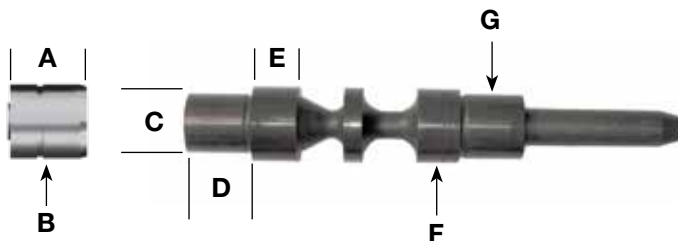
6R80 (2010-Later), 6R100
Clear connectors with black & brown snouts
in most locations. SSE solenoid has
clear connector and grey snout.
Solenoids are banded (1-5) for flow rate.

IMPORTANT: Place solenoids back into
the original locations for shift quality
and quick adapts.

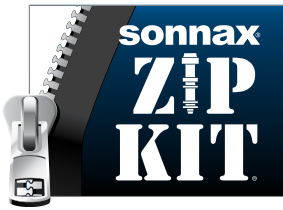
3. VERIFY PR VALVE & SLEEVE



There are different sizes of pressure regulator valves and sleeves.
These CANNOT be interchanged!



Application	A	B	C	D	E	F	G
ZF6 Gen. 1, 6R60, 6R75, 6R80 ('09-'14)	.645"	.629" Dia.	.495" Dia.	.568"	.378"	.629" Dia.	.550" Dia.
ZF6 Gen. 1 w/053 Separator Plate	.725"	.657" Dia.	.511" Dia.	.649"	.378"	.657" Dia.	.586" Dia.
ZF6 Gen. 2	.804"	.629" Dia.	.511" Dia.	.725"	.418"	.629" Dia.	.562" Dia.
6R80 ('15-Later), 6R100	.645"	.629" Dia.	.511" Dia.	.568"	.378"	.629" Dia.	.550" Dia.



6R80 (2015-Later), 6R100 ZIP KIT®

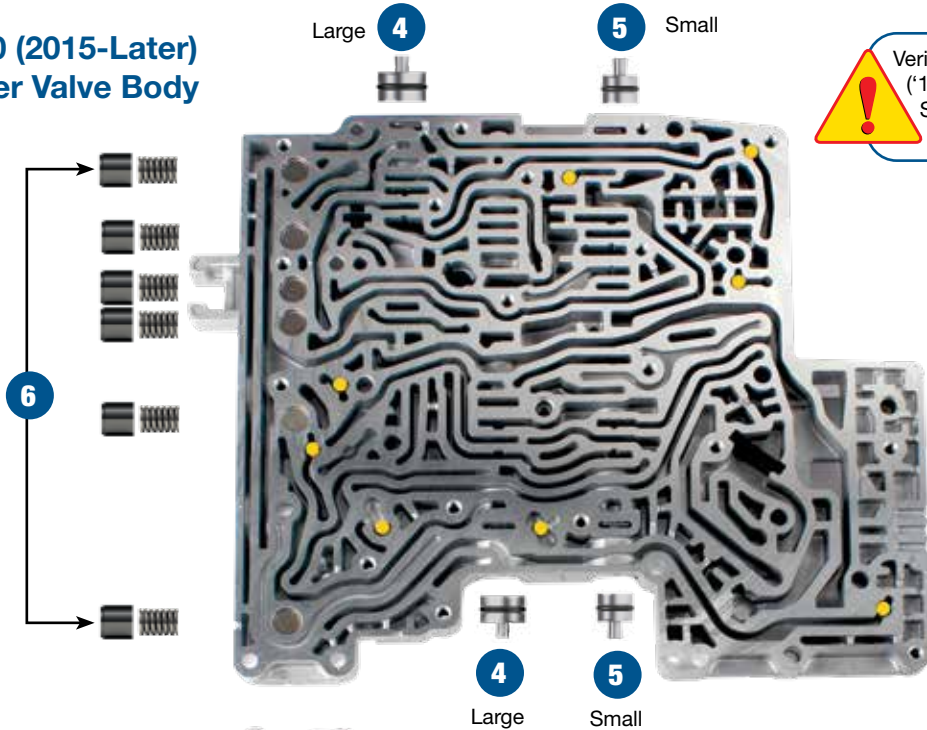
PART NUMBER 6R80L-6R100-ZIP

QUICK GUIDE

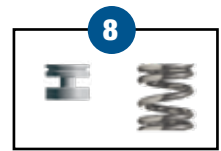
Parts are labeled here in order of installation. See other side of sheet for details on kit contents.

INSTALLATION DIAGRAM

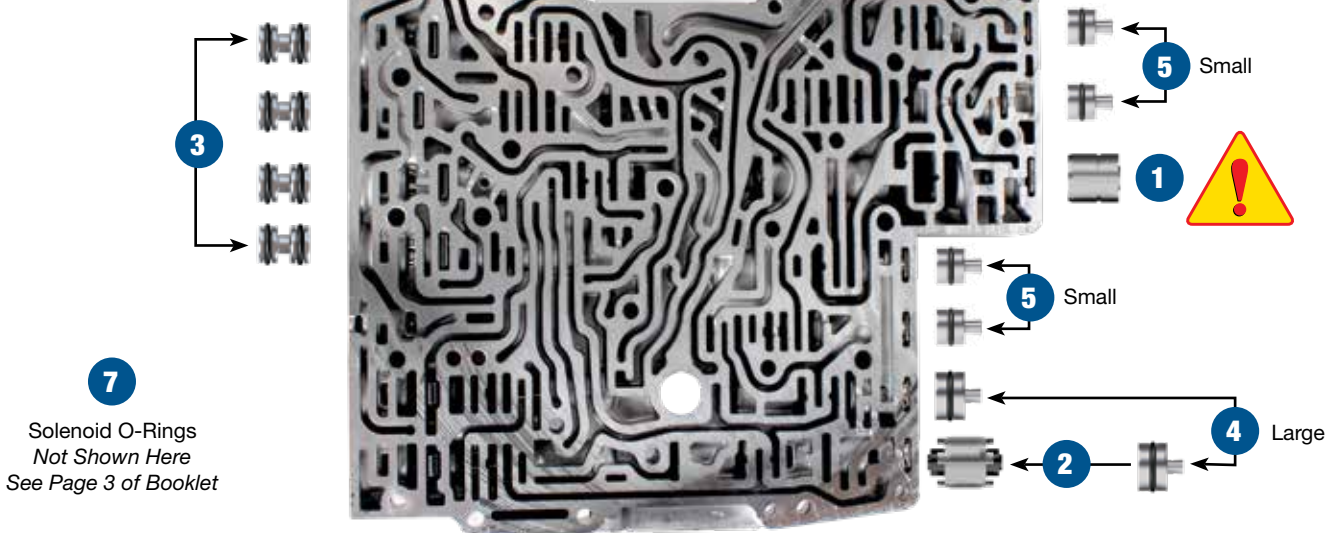
6R80 (2015-Later)
Upper Valve Body



Verify valve body is a 6R80 ('15-later) or 6R100 design. See separate identification guide for details.



6R80 (2015-Later)
Lower Valve Body



In addition to general rebuilding tips and technical information, the technical booklet included in this kit contains vacuum testing and additional repair options for higher mileage units or for repairing specific complaints which are beyond the scope of this kit.

Kit Contents & Installation Steps



NOTE: Some packaging pockets are pre-packaged and fit multiple Zip Kits, so may be marked with various application information.

Step 1 Replace OE Sleeve



CAUTION: Verify OE pressure regulator valve and sleeve measurements. See separate Identification Guide for details.

Packaging Pocket 1

- Sleeve (.629" dia. x .645" length)

Step 2 Replace OE Sleeve & Valve

Packaging Pocket 2

- Valve
- Sleeve

Step 3 Replace Internal OE End Plugs



NOTE: Insert the internal end plug with the hole facing outboard.

Packaging Pocket 3

- Internal End Plugs (4)
- O-Rings (11) 3 Extra

Step 4 Replace Large OE End Plugs

Packaging Pocket 4

- End Plugs, Large (4)
- O-Rings, Large (6) 2 Extra

Step 5 Replace Small OE End Plugs

Packaging Pocket 5

- End Plugs, Small (6)
- O-Rings, Small (9) 3 Extra

Step 6 Replace OE Pistons

Packaging Pocket 6

- Accumulator Pistons (6)
- Matching Springs (6)

Step 7 Replace OE Solenoid O-Rings

Packaging Pocket 7

- O-Rings, Size 12 x 2mm thick, Smaller (4) 1 Extra
- O-Rings, Size 13.5 x 2mm thick, Larger (4) 1 Extra
- O-Rings, Size 11 x 1.5mm thick, Larger (8) 2 Extra
- O-Rings, Size 15.60 x 1.78mm thick, Larger (1)
- O-Rings, Size 12.95 x 1.69mm thick, Larger (1)



NOTE: See page 3 in the technical booklet included with this Zip Kit for details on replacement solenoid O-ring locations.

Step 8 Vacuum Testing

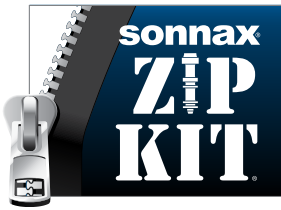
Packaging Pocket 12

- Testing Spring
- Testing End Plug



NOTE: See page 4 in the technical booklet included with this Zip Kit for instructions on how to vacuum test valve body castings with these two parts.

NOTE: The parts listed here may be protected by patent number 8,794,108.



6R80 (2015-Later), 6R100 ZIP KIT®

PART NUMBER 6R80L-6R100-ZIP

INSTALLATION & TESTING BOOKLET

Valve Body Identification

This Zip Kit **6R80L-6R100-ZIP** is designed for Ford 6R80 (2015-later) and 6R100 applications only. Separate Zip Kits **ZF6-6R60-ZIP** for ZF6HP19, ZF6HP26, ZF6HP32 (Generation 1) units without an 053 plate, and Ford 6R60, 6R75, 6R80 (2009-2014), **ZF6-Gen2-ZIP** for ZF6HP21, ZF6HP28, ZF6HP34 (Generation 2), and **ZF6-053-ZIP** for ZF6HP19, ZF6HP26, ZF6HP32 (Generation 1) units with an 053 separator plate are available. See separate identification guide for details.

Cautions Electronics

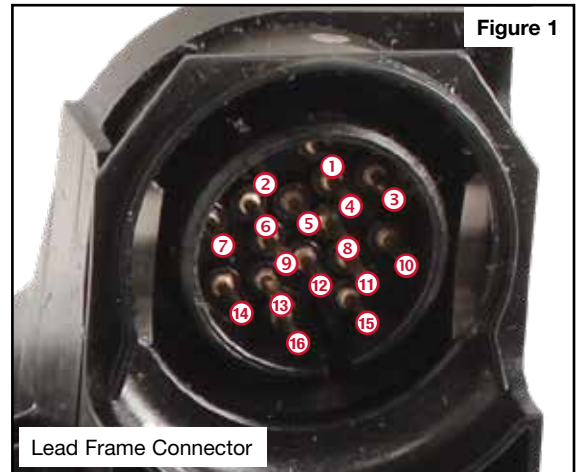
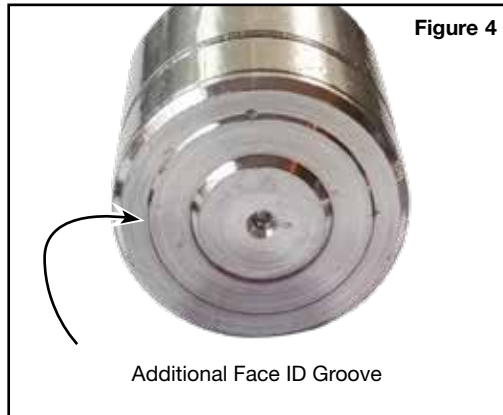
Do not use an Ohm meter with more than .6 voltage supply. The TCM is capable of limited solenoid adaptation without reprogramming. After any service, resetting adapts/clearing KAM is suggested. In many instances, solenoids can be replaced with new OE or with qualified used. Original solenoids, if reused, should be returned to their same location due to a learned flow rate by the TCM. Make every effort to avoid mixing up the solenoids for best and quickest computer adapts.

Solenoid Ohm values can be checked through the 16 pin connector (Figure 1, 2 & 3).

Visual Identification

The 6R80 (2015-later) has gone through numerous design changes. Reference the separate identification guide to ensure this Zip Kit is being installed into a 6R80 (2015-later) or 6R100 valve body.

The 6R80 (2015-later) and 6R100 can also be identified by the groove that is visible on the pressure regulator sleeve (Figure 4).



Connector Pin Description

Figure 2

Pin #	Description
1	Turbine Shaft Speed Sensor
2	Not Used
3	TCC Solenoid Control
4	Transmission Range Sensor
5	Signal Return
6	Transmission Fluid Temperature
7	Ignition Voltage
8	Shift Solenoid A Control E Control "SSE"
9	Shift Solenoid A Control "SSA"
10	Shift Solenoid D Control "SSD"
11	Transmission Range Sensor
12	Battery Voltage (TSS and OSS)
13	Shift Solenoid C Control "SSC"
14	Shift Solenoid B Control "SSB"
15	Output Shaft Speed Sensor
16	Pressure Control Solenoid A "PCA"

Case Connector OHM Chart

Figure 3

Pin #s	Component	OHM Valve
3 & 7	TCC Solenoid	5.5 Ohms
5 & 6	Transmission Fluid Temperature	30k @ 68° - drops w/temp increase
8 & 7	Shift Solenoid E Control "SSE"	18 Ohms
9 & 7	Shift Solenoid A Control "SSA"	5.5 Ohms
10 & 7	Shift Solenoid D Control "SSD"	5.5 Ohms
13 & 7	Shift Solenoid C Control "SSC"	5.5 Ohms
14 & 7	Shift Solenoid C Control "SSB"	5.5 Ohms
16 & 7	Pressure Control Solenoid A "PCA"	5.5 Ohms

Torque Specifications

Mechatronic-to-Case or Valve Body Halves Bolts 8Nm/71 in-lb	Metal Oil Pan to Case 14Nm/10 ft-lb	Output Shaft Flange Nut 60Nm/44 ft-lb	Pump Bolts to Case 10Nm/89 in-lb
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Clearance & Endplay

Rear Unit Endplay (flanged output) 0.15-0.35mm/.006-.013"	Input Shaft Endplay 0.2-0.4mm/.008-.015"
---	--

Clutch clearance and material is critical (refer to OE clutch travel specifications). These have fluid balanced clutch pistons.

Fluid

Ford 6R60 has Hex head fill plug in front corner of the case. Dipstick lives within this plug. **NOTE: Thermal element must open (88°C, 190°F) to purge cooler before verifying fluid level!**

Complete Fill Required 9.5 qt./9 ltr.	Service Fill Approx. 4.2 qt./4 ltr.	Ford Fluid XT-6-QSP, Mercon SP
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Drive-Cycle Relearn

Ford requires six light throttle up and coastdown shift cycles (after obtaining 80°C/175°F) for a partial relearn.

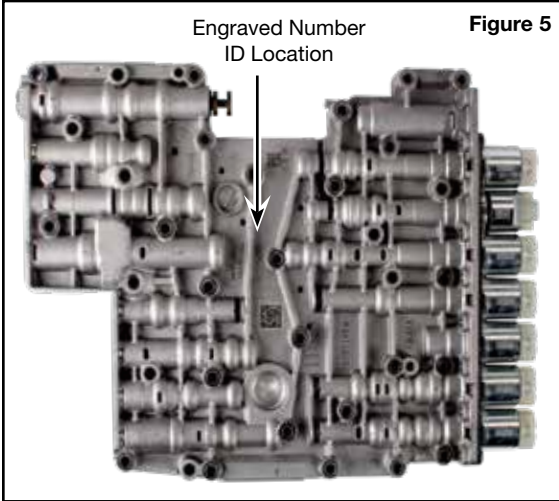


Figure 5

Technical Tips

Reprogramming

The number engraved on the 6R80 valve body is the 13 digit calibration number. 2010-later do not have a TCM internal to the transmission. The number engraved on the valve body (**Figure 5**) also will be on the tag that is on the driver side of the transmission near the bell housing. Note: If the valve body is changed, the number will need to be programmed into the PCM for correct calibration. This calibration number helps the PCM set adapt quicker. The number indicates which band number solenoids are in which positions on the valve body.

Transmission Specifications & Reassembly Tips

The valve body-to-case, pump in/out adapter seal must be replaced on every valve body R-R (**Figure 6**). The overall seal height on these vary depending on application. Make sure you have the correct size.

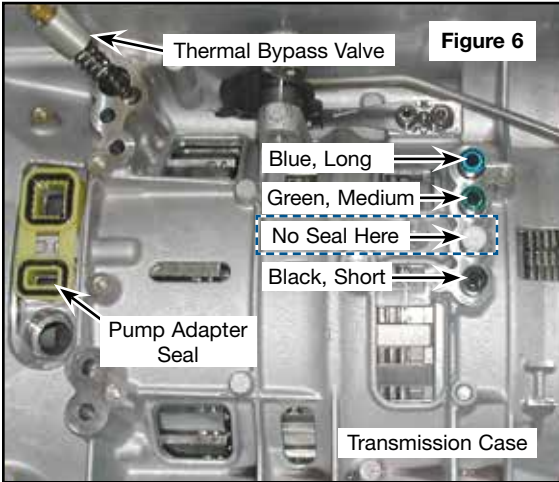


Figure 6

There are three valve body-to-case center support seals. The longest (blue) resides next to the manual linkage, medium (green) next to it. The shortest one (black) is furthest from the linkage (**Figure 6**).

The Ford 6R80 thermal bypass valve lives in the front corner, between case and valve body. The spring installs into the case, followed by the thermal valve – small tip end up.

Zip Kit Instructions

1. Valve Body Removal from Case

- a. Press release tab and lift connector retainer (**Figure 7**).
- b. Pull connector sleeve out of case.
- c. Remove 10 or 11 bolts to drop valve body from case (**Figure 8**).

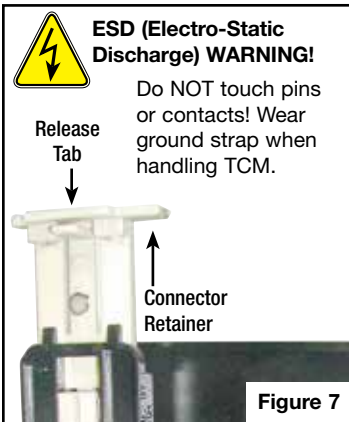


Figure 7

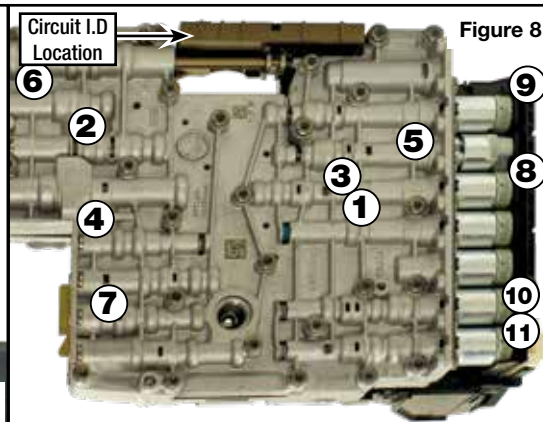


Figure 8

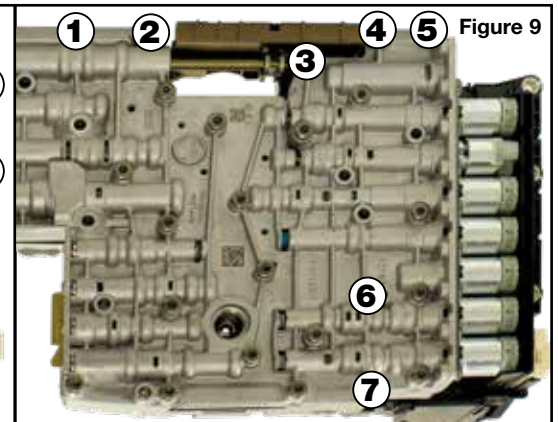


Figure 9



Figure 10



Figure 11

2. Valve Body Disassembly

- Remove seven bolts to remove TCM from valve body (Figure 9).
- Remove TCM (Figure 10).
- Pry valve body halves from separator plate where indicated (Figure 11).

NOTES: The separator plate has a bonded gasket which may delaminate during disassembly (Figure 12). If any damage or delamination to the gasket is present, a new Sonnax separator plate should be used.

These separator plates are specifically calibrated.

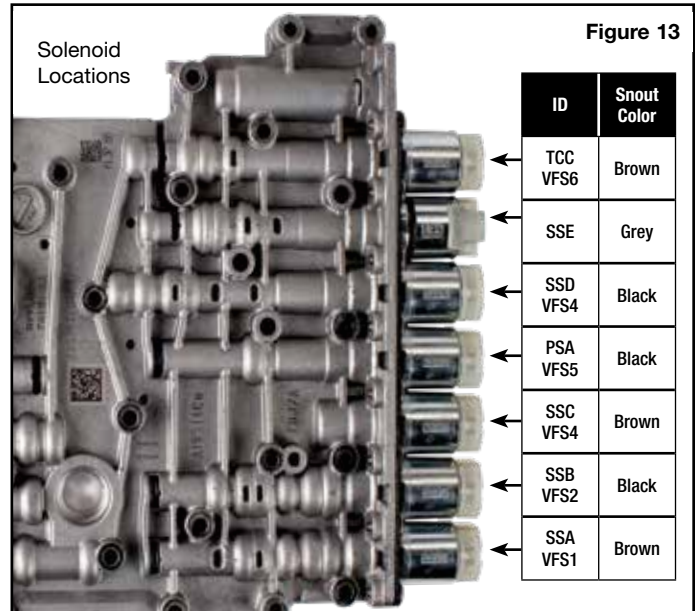
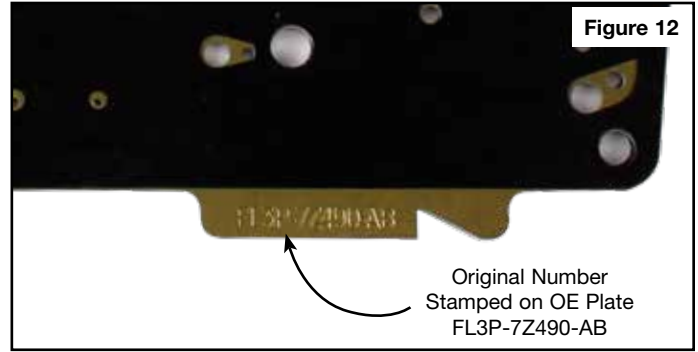
The part number for the plate can be identified by converting the engineering number FL3P to FL3Z (Figure 12). This converted FL3P TO FL3Z-7Z490-AB can be purchase from Ford parts.

There are different part numbers for these plates based on vehicle application. Be sure to verify the number on the plate you are working on. This part number can also be supersceded to another number which typically changes the last two digits or the suffix.

3. Installation

Install Zip Kit parts as shown on diagram of separate quick guide sheet included in this Zip Kit. The locations of the replacement solenoids O-rings are shown at left (Figure 13). For additional solenoid information see Solenoid O-Ring Sizes and Solenoid Function charts (Figures 14–16) of this booklet.

NOTE: Sonnax recommends vacuum testing critical wear areas not covered by this kit to determine whether additional Sonnax parts are required (see pages 4–5).



Ford 6R80 (2015-Later), 6R100

Figure 15

Solenoid O-Ring Sizes			
Connector Color	Snout Color	O-Ring Size	Outboard O-Ring Size
Tan/Clear	Brown	11mm x 1.5 mm	12mm x 2mm
Tan/Clear	Black	11mm x 1.5 mm	13.5mm x 2 mm
Tan/Clear (2012-Later)	Gray	12.95mm x 1.69 mm	15.60mm x 1.78mm

Ford 6R80 (2015-Later), 6R100

Figure 16

Solenoid Function				
Snout Color	Location	Output	Resistance at 68° (20°C)	Function
Brown	SSA, SSC, TCC, VFS1, CFS3, VFS6	0 psi @ 0 mA	5.05 ohms	1 – A Clutch; 3 – C Brake; 6 – TCC
Black	SSB, SSD, PCA, VFS2, VFS4, VFS5	67 psi (4.6 bar) at 0 mA	5.05 ohms	2 – B Clutch; 4 – D & E Clutch; 6 – EPC
Gray ('12-Later)	SSE/SS1	Open/Closed	18 ohms	Solenoid Multiplex/ Drive Enable Valve

NOTE: 2010–Later 6R80 solenoids are banded. It is important to install the same band number back into the OE location on the valve body.

Solenoid Types

Figure 14



Critical Wear Areas & Vacuum Test Locations



NOTE: OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear and Sonnax parts are noted for replacement.

Lower Valve Body • 6R80 (2015-Later) Shown



For specific vacuum test information, refer to individual part instructions included in kits and available at www.sonnax.com.

Solenoid Pressure Regulator Valve

- Flare/Harsh shifts
- Wrong gear starts TCC slip
- Harsh upshifts/downshifts
- Delayed Forward/Reverse
- Solenoid performance codes
- Gear ratio codes

Replace with **Sonnax Part No. 95740-17K**
Requires F-95740-TL17 & VB-FIX

Test 2: Test this port with valve in regulating position. Block valve inboard with enclosed testing spring.

Use Testing Spring

Vacuum test these plugs at the retainer slot. This checks both diameters of the plug.

End Plugs

- Inconsistent shift quality
- Replace with **Sonnax Part No. 95740-25K***

NOTE: Insert internal end plugs with hole facing outboard.

Clutch A Control Pressure Regulator Valve

- Downshift bind-ups • 4-5 Shift concerns
- Flare shifts • Delayed/Harsh Forward
- Excess clutch overlap & clutch distress
- Pressure control out-of-range codes

Replace with **Sonnax Part Nos. 95740-09K** Oversized Clutch A Control Valve Kit
95740-21K* Clutch A Control Boost Valve Kit
95740-09K Requires F-95740-TL8 & VB-FIX

Test Together

Test 1: In Rest

Clutch E Control Pressure Regulator Valve

- Excess clutch overlap & clutch distress
- Pressure control out-of-range codes
- 3-2 Harsh • Downshift bind-ups
- 1-2 Bind-up • Coastdown Neutral

Replace with **Sonnax Part No. 95740-08K**** Requires F-95740-TL8 & VB-FIX

Bypass Clutch Control Regulator Valve

- TCC codes • Excess TCC slip • Cycling RPM
- Flare/Harsh shifts • Low TCC release pressure
- Rough idle in Reverse • Overheated converter

Replace with **Sonnax Part No. 95740-13K** Requires F-95740-TL13 & VB-FIX

Ensure that valve spool is centered in location to test.

Main Pressure Regulator Valve

- Poor shift quality • Flare/Harsh shifts
- Erratic line pressure • Delayed/No Reverse

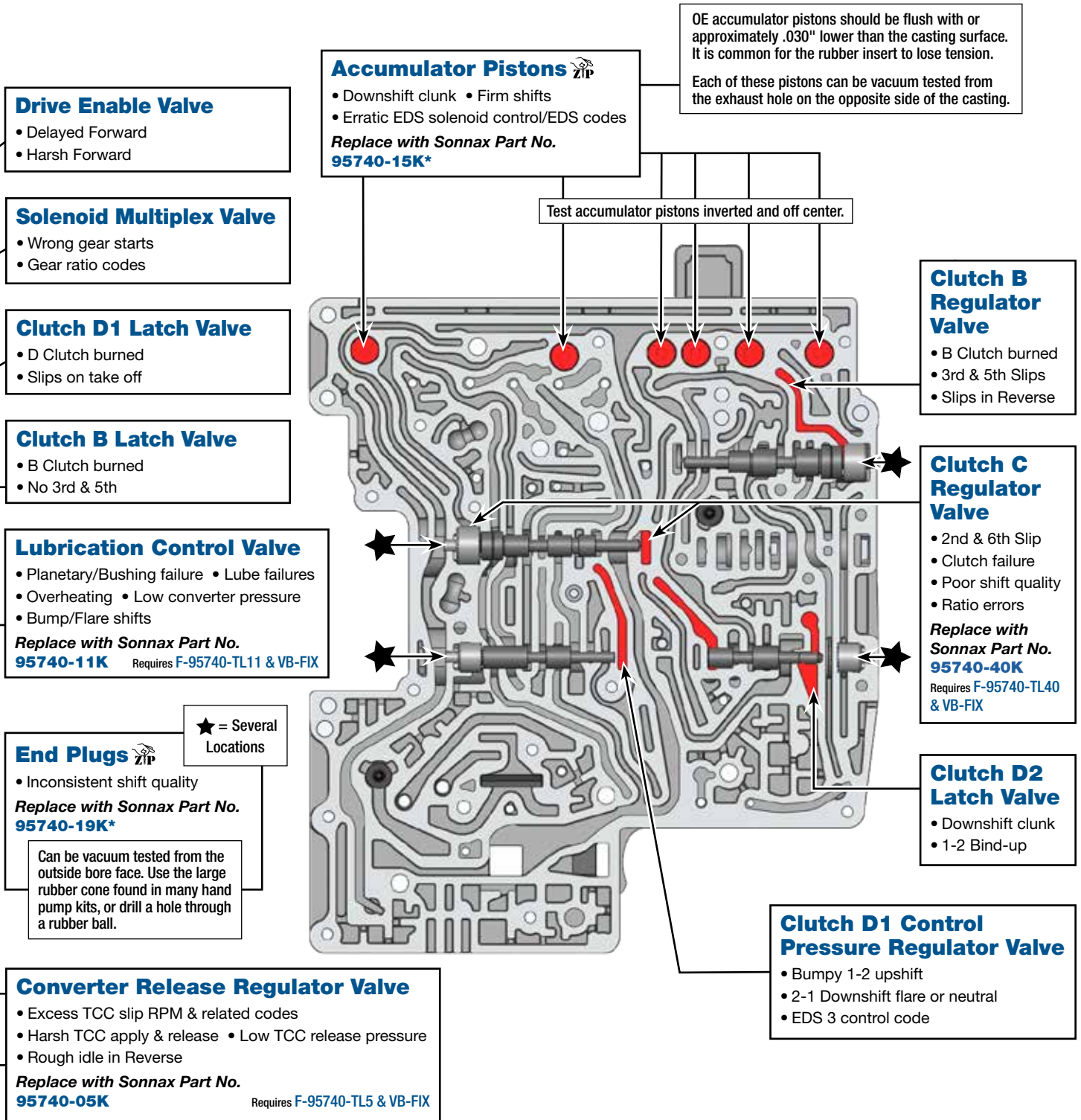
Replace with **Sonnax Part Nos. 95740-46K** Oversized PR Valve Kit
95740-44* Pressure Regulator Sleeve
95740-46K Requires F-95740-TL & VB-FIX

Test 1: In Rest

Test 2: Test this port with valve in inverted position. Hold valve and spring in place with enclosed testing end plug.

Use Test End Plug

Upper Valve Body • 6R80 (2015-Later) Shown



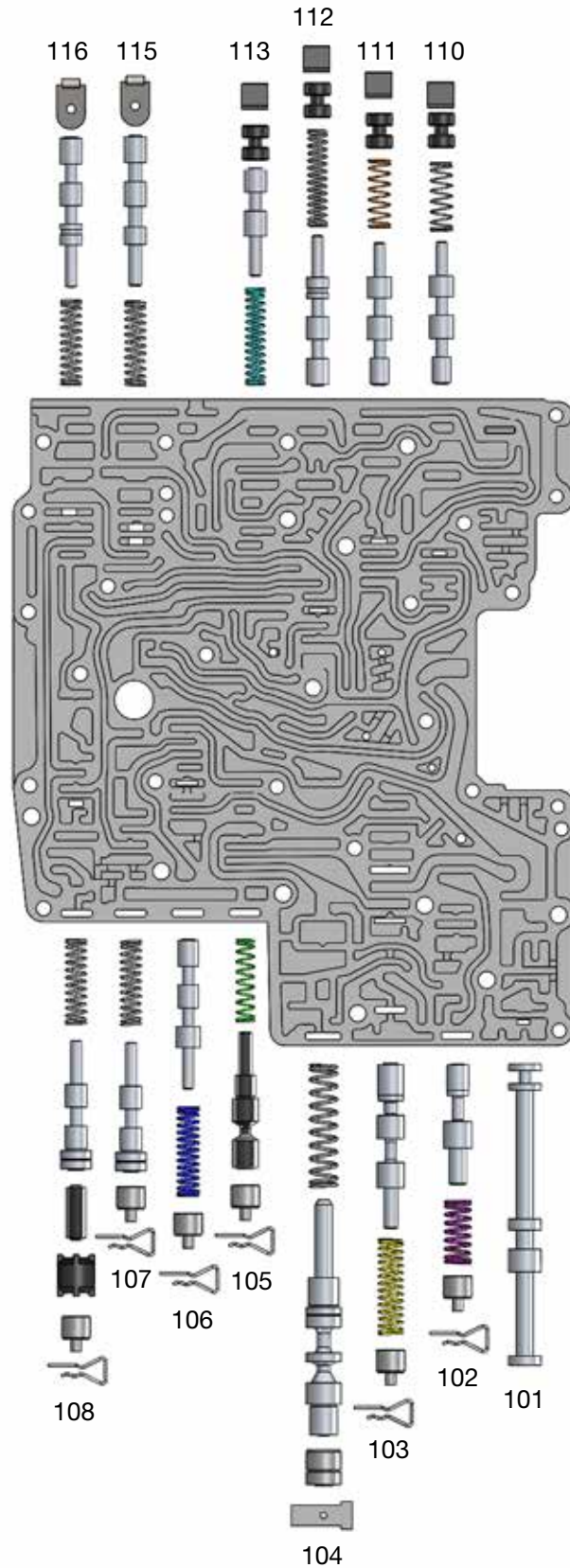
Part numbers with an asterisk () are included in this Zip Kit. Other part numbers are available separately.

OE Exploded View

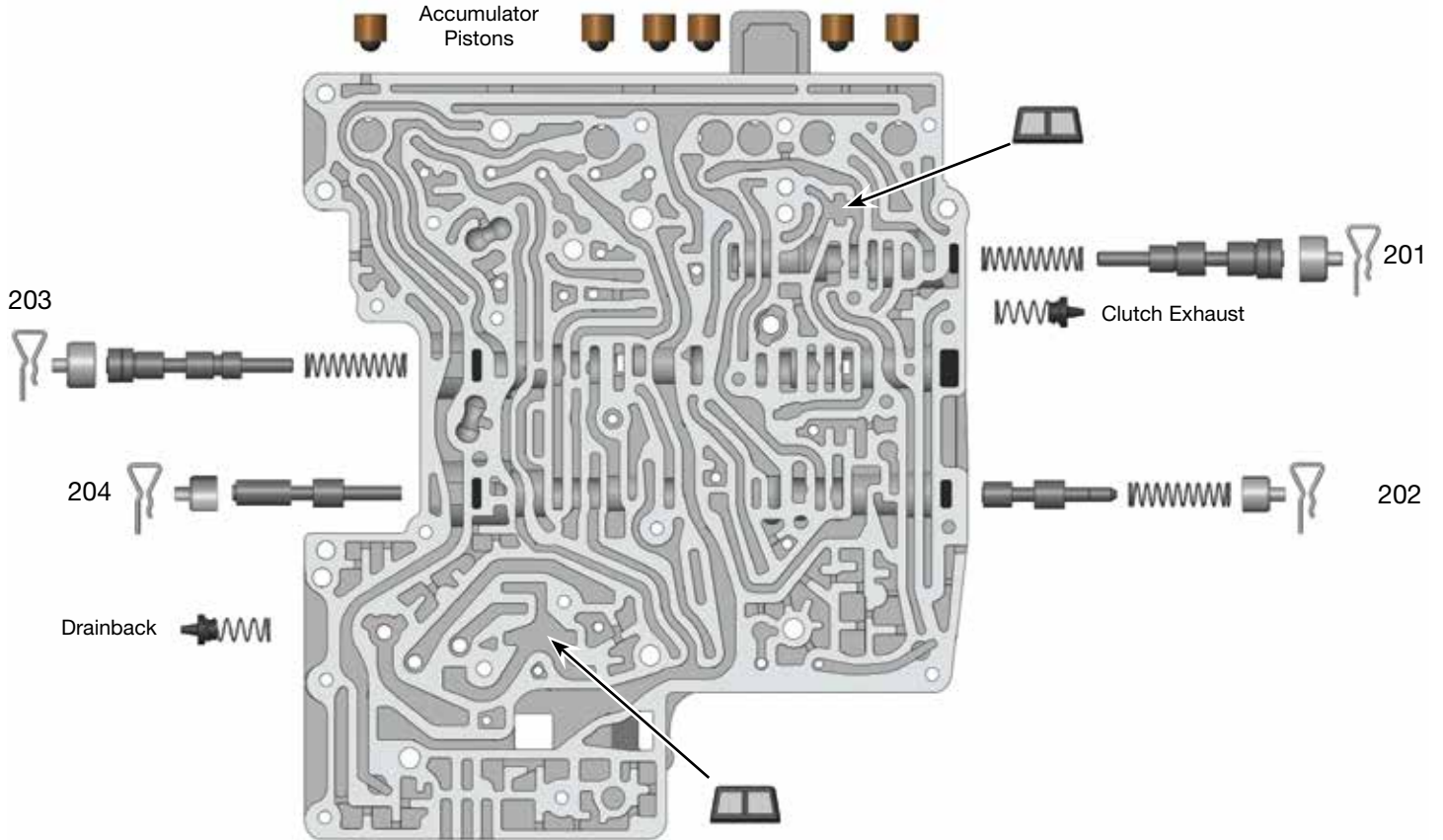
Lower Valve Body • 6R80 (2015-Later) Shown

NOTE: Depending upon vehicle application, the OE springs shown may not be present.

Lower Valve Body Descriptions	
I.D. No.	Description
101	Manual Valve
102	Lubrication Control Valve
103	Converter Release Regulator Valve
104	Main Pressure Regulator Valve
105	Bypass Clutch Control Regulator Valve
106	Clutch E Latch Valve
107	Clutch E Control Pressure Regulator Valve
108	Clutch A Control Pressure Regulator Valve
110	Solenoid Multiplex Valve
111	Drive Enable Valve
112	Clutch D1 Latch Valve
113	Solenoid Pressure Regulator Valve
115	Clutch B Latch Valve
116	Clutch A Latch Valve



Upper Valve Body • 6R80 (2015-Later) Shown



Upper Valve Body Descriptions

I.D. No.	Description
201	Clutch B Regulator Valve
202	Clutch D2 Latch Valve
203	Clutch C Regulator Valve
204	Clutch D1 Control Pressure Regulator Valve



Zip Valve™

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Best-in-Class, Drop-In Repairs for Common Shift Problems

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- Easy-to-install components, with quality & performance that can't be beat
- Wide range of choices, from single valves to comprehensive Zip Kits



Overcome Chronic Transmission Problems

Cutting-edge features like added seals, sleeves and extended lands address the root cause of hydraulic problems, so you can fix, rather than mask, chronic problems.

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Aluminum Valves
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