

Transmission Type... ZF 5HP-19 FL/FLA

Rebuilder's Kwik
Reference Guide



Clutch Clearances

Clutch A .....	.068-.080"	.....	Snap Ring
Clutch B .....	.025-.037"	.....	Snap Ring
Clutch C .....	.064-.076"	.....	Snap Ring
Clutch D .....	.090-.102"	.....	Snap Ring
Clutch E .....	.070-.082"	.....	Snap Ring
Clutch F .....	.075-.087"	.....	Snap Ring
Clutch G .....	.060-.072"	.....	Snap Ring

Adjusted By:

Torque Specifications

Pump to Intermediate Plate	
Pump To Case	7.4 Ft. Lbs.
Guide Plate	
Wiring Harness	
Overdrive Support	
Valve Body (6mm Bolts)	6 Ft. Lbs.
Valve Body (5mm Bolts)	3.7 Ft. Lbs.
Stator Shaft to Pump	7.4 Ft. Lbs.
Pump Cover to Pump Body (Large Bolts)	7.4 Ft. Lbs.
Pump Cover to Pump Body (Small Bolts)	3.7 Ft. Lbs.
Valve Body to Case	6 Ft. Lbs.
Filter	3.7 Ft. Lbs.
Pan	7.4 Ft. Lbs.
Differential Side Cover	17 Ft. Lbs.
Speedometer Housing	17 Ft. Lbs.
Axle Flange	18.5 Ft. Lbs.
C Clutch Cylinder to Pump Body	3.7 Ft. Lbs.
Rear Gear Cover (5HP19FL)	17 Ft. Lbs.
Intermediate Housing to Transmission Case (5HP19FLA)	17 Ft. Lbs.
Transfer Housing to Intermediate Housing (5HP19FLA)	17 Ft. Lbs.
Vibration Damper to Transfer Housing (5HP19FLA)	17 Ft. Lbs.
Output Flange Bolt (5HP19FLA)	18.5 Ft. Lbs.

Unit Endplays

Location

Selective

Pinion Gear .000-.002	Under Case Side Bearing Race	Shim
Helical Gear .000-.002	Under Case Side Bearing Race	Shim
Intermediate Gear Preload .001-.003	Under Case Side Bearing Race	Shim
Differential Carrier Preload	Under Differential Side Cover Carrier Bearing Race	Shim
Input Shaft .006-.014"	On Top of B Clutch Drum	Shim
Output Shaft .006-.014"	On Top of Output Shaft Rear Thrust Bearing	Shim
Pinion Depth	Between Pinion Gear and Lower Pinion Bearing	Shim
Ring Gear Backlash .010-.014	Under Differential Carrier Bearing Races	Shim

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Clutch Application Chart

Gear		Clutch "A"	Clutch "B"	Clutch "E"	Clutch "F"	Brake "C"	Brake "D"	Brake "G"	Sprag Low
Reverse			Applied				Applied	Applied	
Neutral								Applied	
D	1st	Applied						Applied	Applied
	2nd	Applied				Applied		Applied	
	3rd	Applied			Applied	Applied			
	4th	Applied		Applied	Applied				
	5th			Applied	Applied	Applied			
2	1st	Applied					Applied	Applied	Applied*
D	5-4 accel.	Applied*		Applied	Applied	Applied*			
*Component is Activated according to driving conditions.									

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Solenoid Application Chart

Gear		Shift Solenoids			Pressure Regulator Solenoids			
Solenoid ID		MV1	MV2	MV3	EDS 1 (EPC)	EDS 2	EDS 3	EDS 4 (TCC)
Reverse		On			On		On	
Neutral		On	On		On		On	
D	1st	On	On		On		On	
	2nd	On	On		On	On	On	
	3rd		On		On	On		On*
	4th				On			On*
	5th	On		On	On	On		On*
2	1st	On			On		On	
Drive	5-4	On		On	On	On		On*
*Component is activated according to driving conditions.								

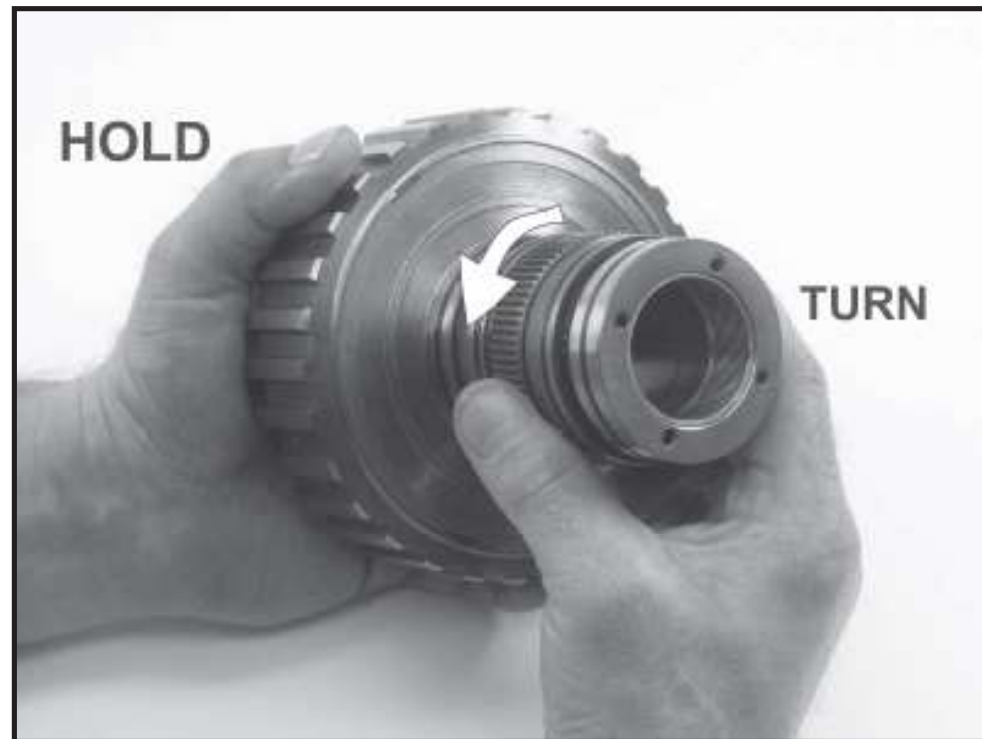
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Sprag Rotation

Low Sprag

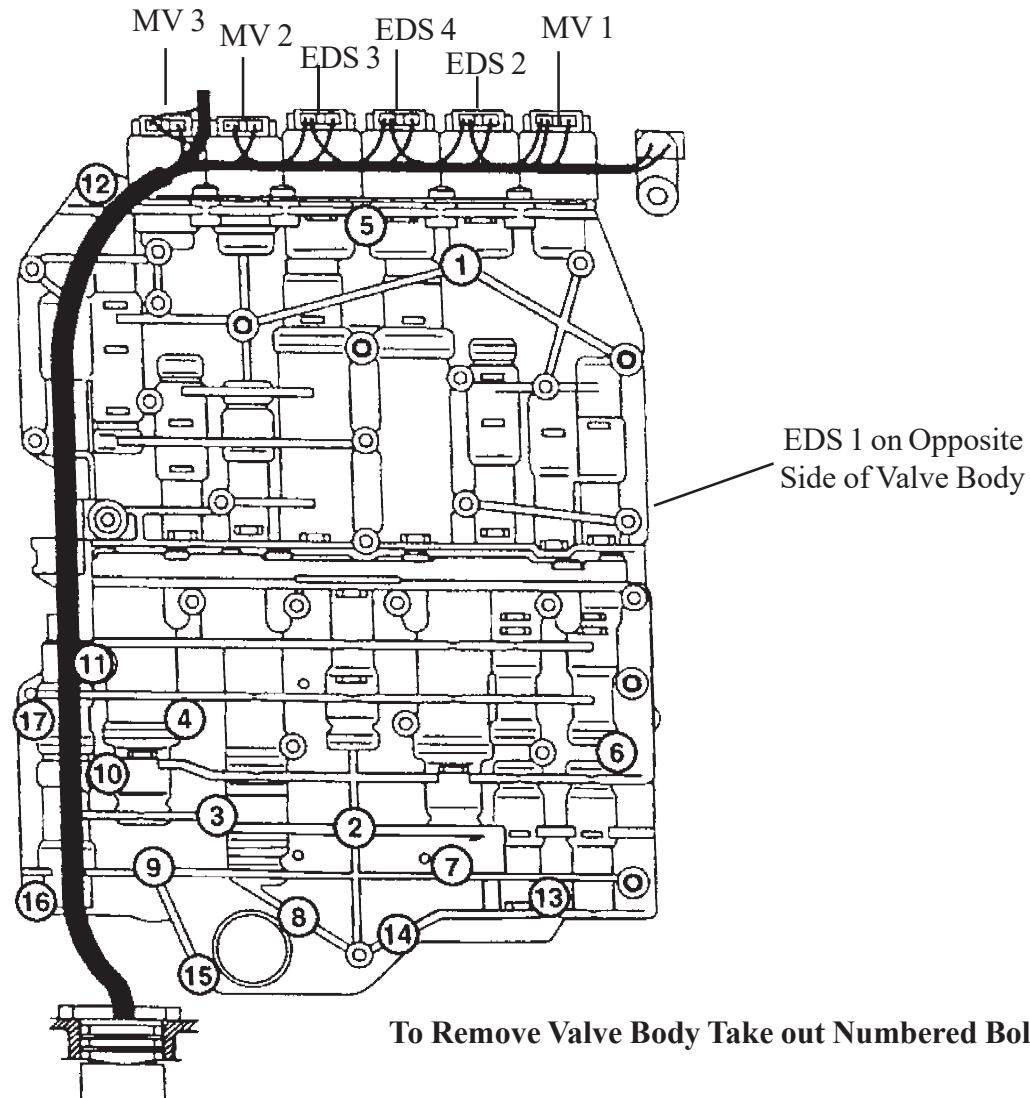


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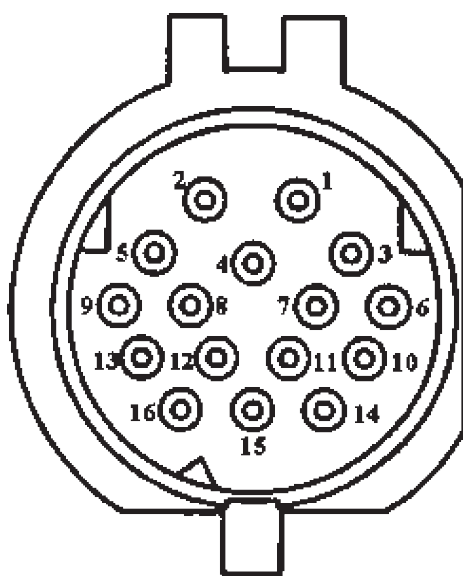
Valve Body Bolts



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Solenoid & Harness Information (Continued)

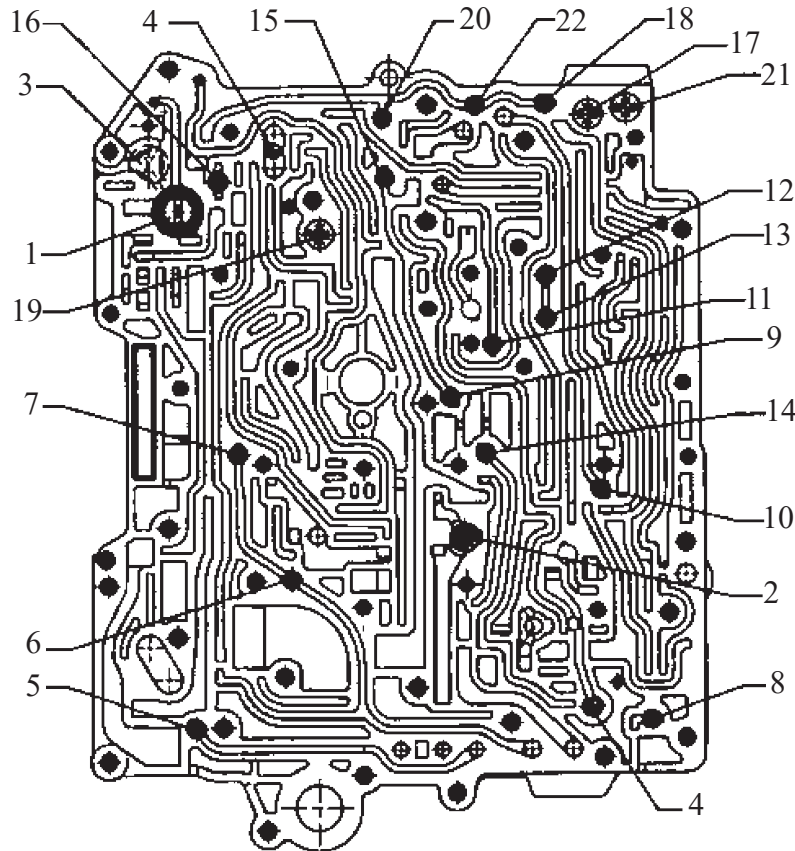


Solenoid	Case Connector Pin Numbers		Resistance
	-	+	
MV 1	8	12	25 - 35 Ohms
MV 2	9	12	25 - 35 Ohms
MV 3	4	12	25 - 35 Ohms
EDS 1	2	12	6 - 8 Ohms
EDS 2	3	12	6 - 8 Ohms
EDS 3	7	12	6 - 8 Ohms
EDS 4	11	12	6 - 8 Ohms

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5HP19 FL/FLA Audi/VW (Version 1) Porsche All

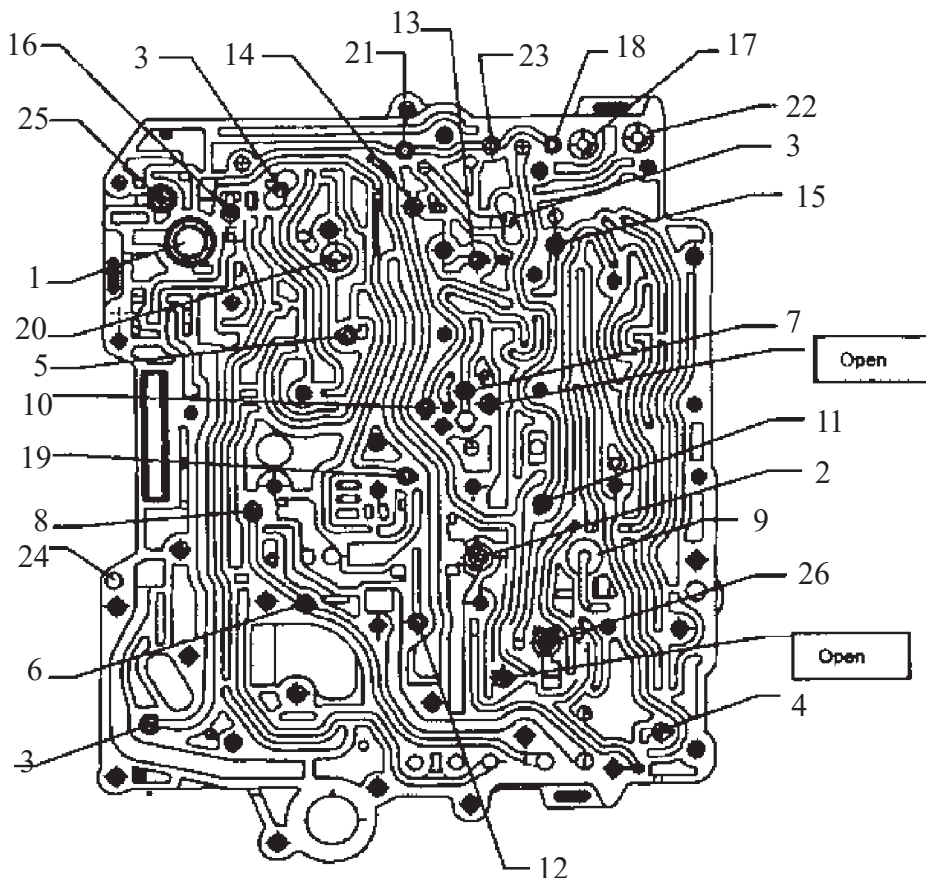


Position #	Description	Position #	Description
1	Screen	12	Orifice (solid)
2	Check Valve	13	Orifice, 0.6 mm
3	Check Valve	14	Orifice, 1.2 mm
4	Check Balls	15	Orifice, 1.7 mm
5	Orifice, 1.9 mm	16	Orifice, 1.0 mm
6	Orifice, 1.7 mm	17	Damper Piston
7	Orifice, 1.2 mm	18	Orifice, 1.0 mm
8	Orifice, 2.5 mm	19	Damper Piston
9	Orifice, 1.0 mm	20	Orifice, 1.0 mm
10	Orifice, 2.5 mm	21	Damper Piston
11	Orifice, 1.0 mm	22	Orifice, 1.0 mm

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5HP19 FL/FLA Audi/VW (Version 2)



Position #	Description	Position #	Description
1	Screen	14	Orifice, 1.4 mm
2	Check Valve w/spring	15	Orifice (solid)
3	Checkballs	16	Orifice, 1.0 mm
4	Orifice, 2.5 mm	17	Damper Piston
5	Orifice, 1.7 mm	18	Orifice, 1.0 mm
6	Orifice, 1.7 mm	19	Orifice, 1.2 mm
7	Orifice, 0.8 mm	20	Damper Piston
8	Orifice, 1.2 mm	21	Orifice, 1.0 mm
9	Orifice, 1.9 mm	22	Damper Piston
10	Orifice, 1.2 mm	23	Orifice, 1.0 mm
11	Orifice, 2.5 mm	24	Alignment Pin
12	Orifice, 1.0 mm	25	Valve w/spring
13	Orifice, 1.2 mm	26	Valve w/spring