

Transmission Fluid Temperature Sensor Specifications

Temperature	Temperature	Minimum Resistance	Nominal Resistance	Maximum Resistance	Signal
°F	°C	Ω	Ω	Ω	Volts
-40	-40	90636	100707	110778	5.00
-22	-30	47416	52684	57952	4.78
-4	-20	25809	28677	31545	4.34
14	-10	14558	16176	17794	3.89
32	0	8481	9423	10365	3.45
50	10	5104	5671	6238	3.01
68	20	3164	3515	3867	2.56
86	30	2013	2237	2461	1.80
104	40	1313	1459	1605	1.10
122	50	876	973	1070	3.25
140	60	600	667	734	2.88
158	70	420	467	514	2.56
176	80	299	332	365	2.24
194	90	217	241	265	1.70
212	100	159	177	195	1.42
230	110	119	132	145	1.15
248	120	89.9	99.9	109.9	0.87
266	130	69.1	76.8	84.5	0.60
284	140	53.8	59.8	65.8	0.32
302	150	42.5	47.2	51.9	0.00

Fastener Tightening Specifications

Fastener Tightening Specifications

Description of Usage	Ref No.*	Qty	Size	Specification	
				Metric	English
Auxiliary Fluid Pump Check Valve	227	1	--	25.5 N·m	18.8 lb ft
Auxiliary Trans Fluid Pump Bolts	131	4	--	5.8 N·m	51 lb in
Auxiliary Pump Pipe Bolts	132	3	--	25 N·m	18 lb ft
Auxiliary Fluid Pump Outlet Pipe	229	1	--	22.5 N·m	16.6 lb ft
Bottom Pan to Case	81	12	M6x1.0x19.0	12 N·m	106 lb in
Channel Plate to Case	8	2	M6x1.0x63.0	14 N·m	124 lb in
Channel Plate to Case	25	6	M6x1.0x28.0	12 N·m	106 lb in
Channel Plate to Driven Sprocket Support	25	2	M6x1.0x28.0	14 N·m	124 lb in
Detent Spring Assembly to Channel Plate	805	1	M6x1.0x19.0	12 N·m	106 lb in
Drive Sprocket Support Assembly to Case	53	6	M6x1.0x17.0	12 N·m	106 lb in
Flywheel Cover Bolt	--	--	--	10 N·m	89 lb in
Input Speed Sensor to Case	15	1	M6x1.0x15.0	12 N·m	106 lb in
Intermediate 4th Servo Cover to Case	25	3	M6x1.0x28.0	12 N·m	106 lb in
Line Pressure Plug to Case	48	1	1/8-27NPTF	12 N·m	106 lb in
Lo/Reverse Servo Cover to Case	25	3	M6x1.0x28.0	12 N·m	106 lb in
Oil Level Control Plug to Case	65	1	1/8-27NPTF	12 N·m	106 lb in
Oil Tube Assembly To Case	81	2	M6x1.0x19.0	12 N·m	106 lb in
Oil Tube Assembly to Forward Clutch	81	1	M6x1.0x19.0	12 N·m	106 lb in
Oil Tube Assembly to Lo/Reverse Servo Cover	81	1	M6x1.0x19.0	12 N·m	106 lb in
Output Shaft Speed Sensor to Case	61	1	M6x1.0x16.0	12 N·m	106 lb in
Pipe to Case Bolts	132	3	M8x1.25x25.0	25 N·m	18 lb ft
Pump to Case	9	1	M6x1.0x103.0	12 N·m	106 lb in
Pump to Channel Plate	8	1	M6x1.0x63.0	12 N·m	106 lb in
Pump to Channel Plate	12	6	M6x1.0x90.0	12 N·m	106 lb in
Pump to Side Cover Bolt	131	4	M8x1.25x30.0	25 N·m	18 lb ft
Retainer Clip Bolts	133	2	M4x0.7	4.5 N·m	40 lb in
Shift Control Knob Retaining Screw	--	--	--	4 N·m	35 lb in
Side Cover to Case	3	10	M8x1.25x28.0	28 N·m	22 lb ft
Side Cover to Case (Stud)	4	1	M8x1.25x28.0	28 N·m	22 lb ft
Spacer to Driven Sprocket Support	20	2	M6x1.0x70.0	14 N·m	124 lb in
TCM Bracket Bolt	--	--	--	10 N·m	89 lb in
TFP Switch Assembly to Case	12	2	M6x1.0x90.0	14 N·m	124 lb in
TFP Switch to Channel Plate	16	3	M6x1.0x51.0	14 N·m	124 lb in

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TFP Switch to Channel Plate	8	1	M6x1.0x63.0	14 N·m	124 lb in
Torque Converter to Flywheel Bolt	--	--	--	62 N·m	46 lb ft
Transaxle Brace Bolts	--	--	--	53 N·m	39 lb ft
Transaxle Left Side Mount Upper Nuts and Bolts	--	--	--	50 N·m	37 lb ft
Transaxle Mount Bolts	--	--	--	90 N·m	66 lb ft
Transaxle Mount Bracket to Frame Nut	--	--	--	50 N·m	37 lb ft
Transaxle Mount Through Bolt	--	--	--	90 N·m	66 lb ft
Transaxle Range Switch Bolt	--	--	--	20 N·m	15 lb ft
Transaxle Range Switch Lever Nut	--	--	--	35 N·m	26 lb ft
Transaxle Shift Control Nut	--	--	--	25 N·m	18 lb ft
Transaxle to Engine Bolt					
2.4 L	--	--	--	75 N·m	55 lb ft
3.5 L	--	--	--	90 N·m	66 lb ft
Transaxle to Engine Oil Pan Bolt	--	--	--	72 N·m	53 lb ft
Transmission Fluid Cooler Hose Pipe-to-Radiator Fittings	--	--	--	38 N·m	28 lb ft
Transmission Fluid Cooler Hose Pipe-to-Transaxle Nut	--	--	--	9 N·m	80 lb in
Valve Body to Case	9	2	M6x1.0x103.0	14 N·m	124 lb in
Valve Body to Case	12	5	M6x1.0x90.0	14 N·m	124 lb in
Valve Body to Channel Plate	16	5	M6x1.0x51.0	14 N·m	124 lb in
Wiring Harness Clip to Case	15	1	M6x1.0x15.0	12 N·m	106 lb in
* Reference Number refers to the callout number on the disassembled view.					

Transmission General Specifications

Name	Hydra-Matic® 4T45-E
RPO Codes	MN5 - 4T45-E
Production Location	Windsor, Ontario, Canada
Vehicle Platform	Z
Engine/Transmission	
Usage	
Transmission Drive	Transverse Mounted Front Wheel Drive
Maximum Engine Torque	290 N·m (215 lb ft)
Maximum Shift Speed	1-2 6,500 RPM
	2-3 6,500 RPM
	3-4 6,500 RPM
1st Gear Ratio	2.960:1
2nd Gear Ratio	1.626:1
3rd Gear Ratio	1.000:1
4th Gear Ratio	0.681:1
Reverse	2.143:1
Torque Converter Size - Diameter of Torque Converter Turbine	245 mm
Pressure Taps	Line Pressure
Transmission Fluid Type	DEXRON® VI
Transmission Fluid Capacity - Approximate	Bottom Pan Removal: 6.6 L (7.0 qts)
	Complete Overhaul: 9.0 L (9.5 qts)
	Dry: 12.2 L (12.9 qts)
Transmission Type: 4	Four Forward Gears
Transmission Type: T	Transverse Mount
Transmission Type: 45	Product Series
Transmission Type: E	Electronic Controls
Position Quadrant	P, R, N, Overdrive, 3, 2, 1
Case Material	Die Cast Aluminum
Transmission Weight Dry	75.1 kg (165.6 lb)
Transmission Weight Wet	85.5 kg (188.5 lb)
Maximum Trailer Towing Capacity	487 kg (1,000 lb)

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Maximum Gross Vehicle Weight (GVW)		1,826 kg (4,100 lb)
Ratios		
Chain	Final Drive	Effective - Overall
32/38	3.05	3.63
35/35	3.29	3.29
35/35	3.05	3.42

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Fluid Capacity Specifications

Fluid Capacity Specifications (4T45-E)

Application	Specification	
	Metric	English
Bottom Pan Removal	6.6 liters	7.0 quarts
Complete Overhaul	9.0 liters	9.5 quarts
Dry	12.2 liters	12.9 quarts
Measurements are approximate.		

Range Reference

Range	Park / Neutral	Reverse	D				3			2			1	
Gear	N	R	1st	2nd	3rd	4th	1st	2nd	3rd	1st	2nd	3rd**	1st	2nd***
1-2 Shift Solenoid	ON	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
2-3 Shift Solenoid	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
2nd Clutch	--	--	--	A	A*	A*	--	A	A*	--	A	A*	--	A
2nd Roller Clutch	--	--	--	H	O	--	--	H	O	--	H	O	--	H
Int./4th Band	--	--	--	--	--	A	--	--	--	--	A	--	--	A
Reverse Clutch	--	A	--	--	--	--	--	--	--	--	--	--	--	--
Coast Clutch	--	--	--	--	--	--	A	A	A	A	A	A	A	A
Input Sprag	--	--	H	H	H	O	H	H	H	H	H	H	H	H
Direct Clutch	--	--	--	--	A	A	--	--	A	--	--	A	--	--
Forward Clutch	--	--	A	A	A	A*	A	A	A	A	A	A	A	A
Lo/Rev Band	A	A	--	--	--	--	--	--	--	--	--	--	A	--
Lo Roller Clutch	--	--	H	O	O	O	H	O	O	H	O	O	H	O

- | A = Applied
- | H = Holding
- | O = Overrunning
- | ON = The solenoid is energized
- | OFF = The solenoid is de-energized
- | * = Applied with no load
- | ** = Manual SECOND-THIRD gear is only available above approximately 100 km/h (62 mph)
- | *** = Manual FIRST-SECOND gear is only available above approximately 60 km/h (37 mph)
- | Manual FIRST-THIRD gear is also possible at high vehicle speed as a safety feature

Shift Solenoid Valve State and Gear Ratio

Shift Solenoid Valve State and Gear Ratio (4T45-E)

Gear	1-2 SS Valve	2-3 SS Valve	Gear Ratio
1	ON	OFF	2.96:1
2	OFF	OFF	1.62:1
3	OFF	ON	1.00:1
4	ON	ON	0.68:1
P, R, N	ON	OFF	2.14:1

Shift Speed

		1-2 Shift @ + / - 3 mph			2-3 Shift @ + / - 4 mph			3-4 Shift @ + / - 5 mph			Downshifts @ + / - 4 mph			TCC Apply 3rd Gear
% of TPS		12.5	25	50	12.5	25	50	12.5	25	50	4-3 Coast	3-2 Coast	2-1 Coast	10 %
Model	Engine RPO													
EPJ	LZ4	12	15	28	20	25	47	40	44	86	34	14	9	27
EWJ	LE5	10	13	25	17	22	42	38	40	77	33	13	8	25
DAJ	LAT	9	14	29	14	25	52	41	48	75	36	11	6	27

Transmission Fluid Pressure Manual Valve Position Switch Logic

TFP Manual Valve Position Switch Logic

Range Signal	A	B	C
Park/Neutral	HI	HI	HI
Reverse	HI	HI	LOW
Drive	HI	LOW	HI
Invalid	HI	LOW	LOW

LOW = 0 volts

HI = Ignition voltage

Base Operating Conditions: Engine Idling

Transmission Range Switch Logic

Transmission Range Switch Logic

Gear Selector Position	Signal A	Signal B	Signal C	Signal P
Park (P)	LOW	HI	HI	LOW
Reverse (R)	LOW	LOW	HI	HI
Neutral (N)	HI	LOW	HI	LOW
Drive (D)	HI	LOW	LOW	HI
Intermediate (I)	LOW	LOW	LOW	LOW
Low (L)	LOW	HI	LOW	HI
HI = Ignition voltage				
LOW = 0 volts				

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Line Pressure

Pressure Control Solenoid Current - Amp	Approximate Line Pressure	
	Metric	English
0.00	990.70-1177.71 kPa	143.69-170.71 psi
0.10	978.16-1171.21 kPa	141.87-169.87 psi
0.20	951.96-1146.80 kPa	137.07-166.33 psi
0.30	898.94-1115.98 kPa	130.38-161.86 psi
0.40	828.34-1064.07 kPa	120.14-154.33 psi
0.50	742.77-998.77 kPa	107.73-144.86 psi
0.60	623.70-918.38 kPa	90.46-133.20 psi
0.70	486.15-810.96 kPa	70.51-117.62 psi
0.80	342.95-686.03 kPa	49.74-99.50 psi
0.90	282.82-555.51 kPa	41.02-80.57 psi
0.95	282.82-488.49 kPa	41.02-70.85 psi
1.00	282.82-424.30 kPa	41.02-61.54 psi
1.05	282.82-367.70 kPa	41.02-53.33 psi
1.10	282.82-339.64 kPa	41.02-49.26 psi

Component Resistance

Component	Pass Through Pins	Resistance 20°C (68°F)	Resistance 100°C (212°F)	Resistance to Ground (Case)
1-2 Shift Solenoid Valve	A, E	19-24 ohms	24-31 ohms	Greater than 250 K ohms
2-3 Shift Solenoid Valve	B, E	19-24 ohms	24-31 ohms	Greater than 250 K ohms
Torque Converter Clutch Pulse Width Modulation Solenoid Valve	T, E	10-11 ohms	13-15 ohms	Greater than 250 K ohms
Pressure Control Solenoid Valve	C, D	3-5 ohms	4-7 ohms	Greater than 250 K ohms
*Transmission Fluid Temperature (TFT) Sensor	L, M	3106-3923 ohms	164-190 ohms	Greater than 20 M ohms
Automatic Transmission Input (Shaft) Speed Sensor	S, V	625-725 ohms	750-835 ohms	Greater than 10 M ohms
Automatic Transmission Output (Shaft) Speed Sensor	A, B	1500-1750 ohms	1750-1900 ohms	Greater than 10 M ohms
Automatic Transmission Floor Shift Control	C, F	8200-8300 ohms	NA	Greater than 10 M ohms
Automatic Transmission Floor Shift Control with upshift switch depressed	C, F	4370-4470 ohms	NA	Greater than 10 M ohms
Automatic Transmission Floor Shift Control with downshift switch depressed	C, F	1450-1550 ohms	NA	Greater than 10 M ohms
* <i>Important:</i> The resistance of this device is necessarily dependent on the temperature. Therefore the resistance will vary far more than any other device.				

End Play Specifications

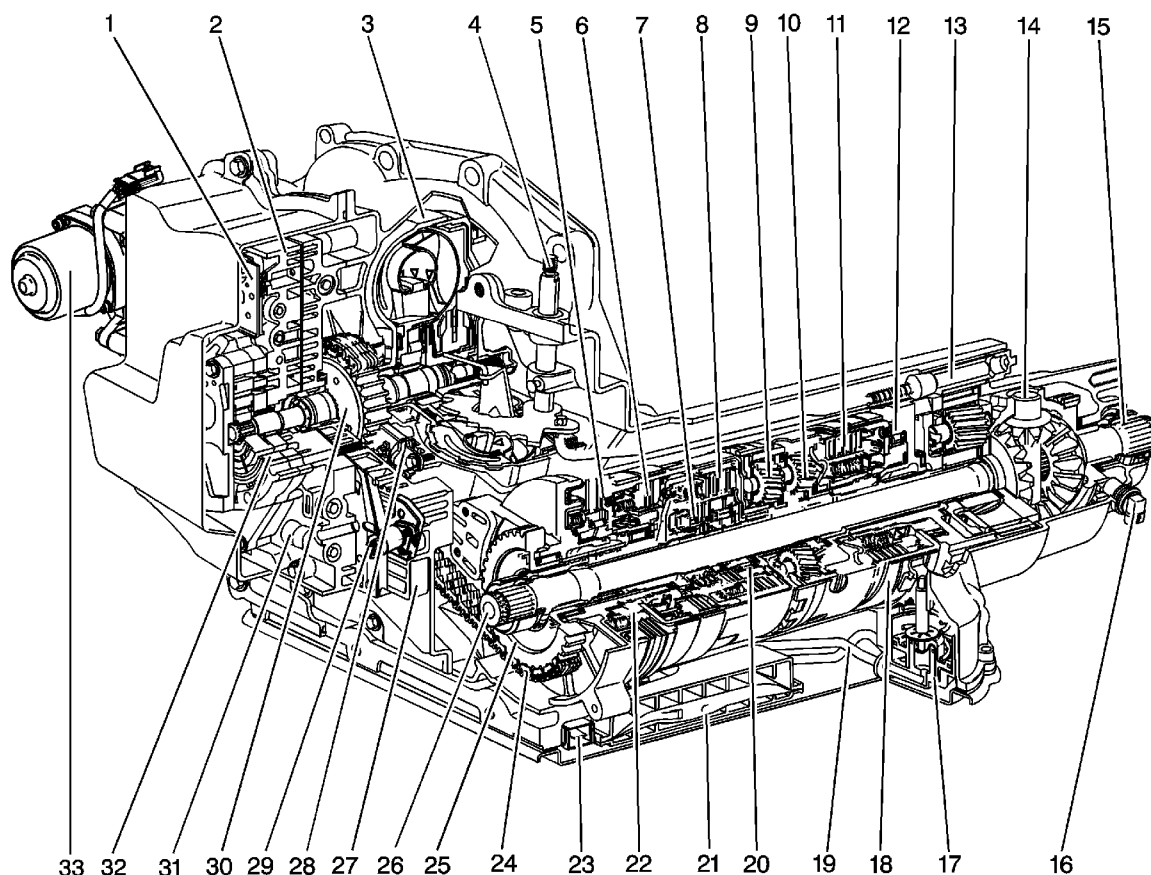
End Play Specifications (Selective Washer Table)

Recorded Measurement	Washer Selection	Washer Dimension
100.40-100.70 mm (3.952-3.964 in)	Brown	1.50-1.60 mm (0.059-0.062 in)
100.71-100.99 mm (3.965-3.975 in)	Grey	1.80-1.90 mm (0.070-0.075 in)
101.00-101.29 mm (3.976-3.987 in)	Natural	2.09-2.19 mm (0.082-0.086 in)
101.30-101.59 mm (3.988-3.999 in)	Black	2.39-2.49 mm (0.094-0.098 in)
101.60-101.88 mm (4.00-4.011 in)	Orange	2.68-2.78 mm (0.105-0.109 in)
101.89-102.18 mm (4.012-4.022 in)	Violet	2.98-3.08 mm (0.117-0.121 in)
102.19-102.48 mm (4.023-4.034 in)	Yellow	3.28-3.38 mm (0.129-0.133 in)
102.49-102.77 mm (4.035-4.046 in)	Red	3.57-3.67 mm (0.140-0.144 in)
102.78-103.07 mm (4.047-4.058 in)	Green	3.87-3.97 mm (0.152-0.156 in)

Clutch Plate Selection Specifications

Broadcast Codes	Quantity	
	Steel	Fiber
CKJ	6	6
BBJ	6	6
BAJ	6	6
EVJ	6	6
EBJ	7	5
EPJ	6	6
EHJ	7	5
FWJ	7	5
ELJ	6	6
EWJ	6	6
THJ	6	6

Transmission Major Components

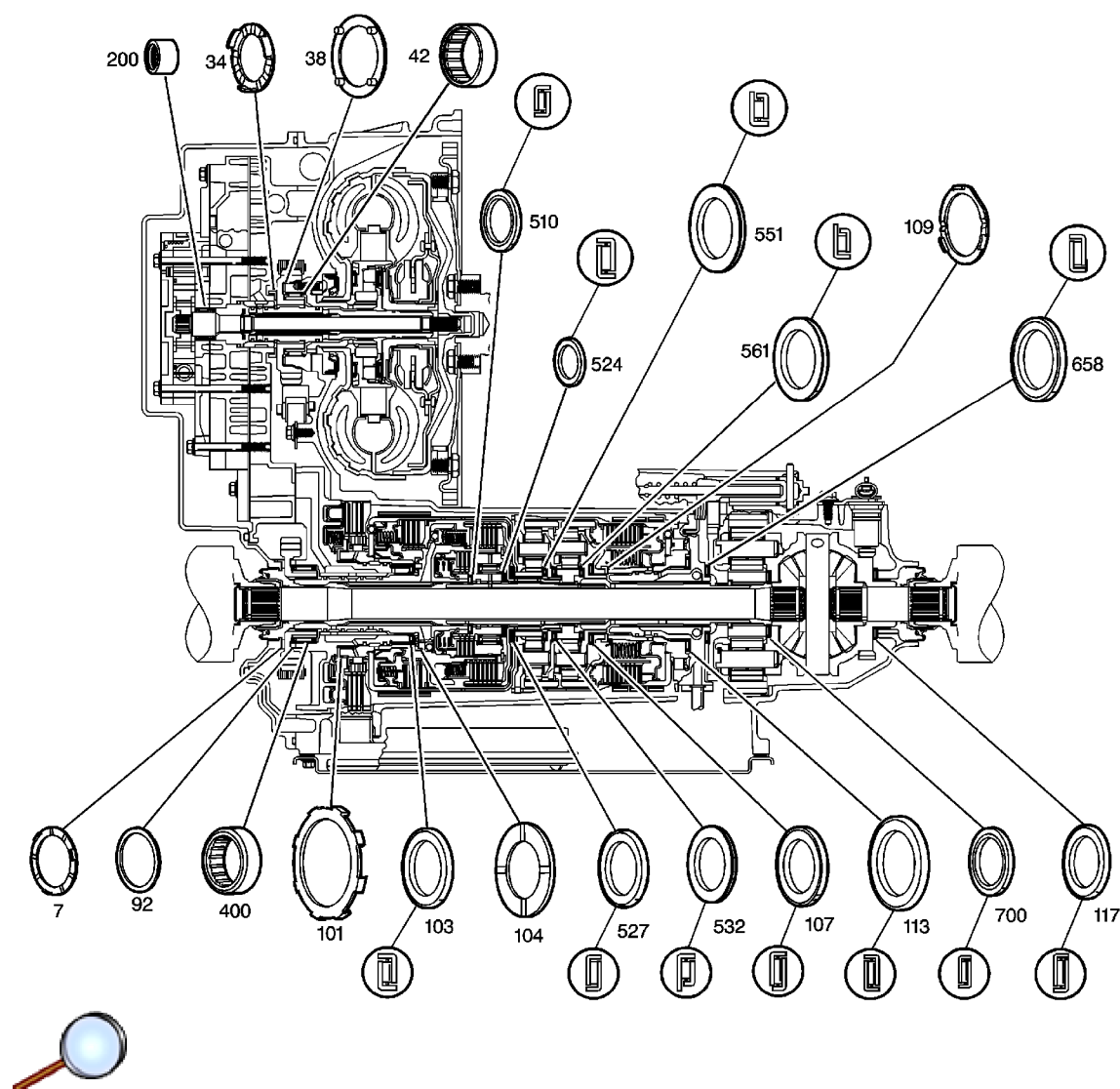


- (1) TFP Manual Valve Position Switch Assembly
- (2) Control Valve Body Assembly
- (3) Torque Converter Assembly
- (4) Manual Shaft and Detent Lever Assembly
- (5) 2nd Clutch
- (6) Reverse Clutch
- (7) Coast Clutch
- (8) Direct Clutch
- (9) Reaction Planetary Gear Set
- (10) Input Planetary Gear Set
- (11) Forward Clutch

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- (12) Lo Roller Clutch
- (13) Parking Lock Actuator Assembly
- (14) Differential and Final Drive Assembly
- (15) Output Stub Shaft
- (16) Output Speed Sensor
- (17) Lo/Reverse Servo Assembly
- (18) Lo/Reverse Band
- (19) Oil Feed Tube Assembly
- (20) Input Sprag Clutch Assembly
- (21) Oil Filter Assembly
- (22) 2nd Roller Clutch
- (23) Oil Level Control Valve
- (24) Drive Link Assembly
- (25) Driven Sprocket
- (26) Output Shaft
- (27) Channel Plate Assembly
- (28) Input Speed Sensor
- (29) 4-3 Solenoid
- (30) Drive Sprocket
- (31) Control Valve Body Assembly
- (32) Oil Pump Assembly
- (33) Auxiliary Pump

Bushings, Bearings and Washers

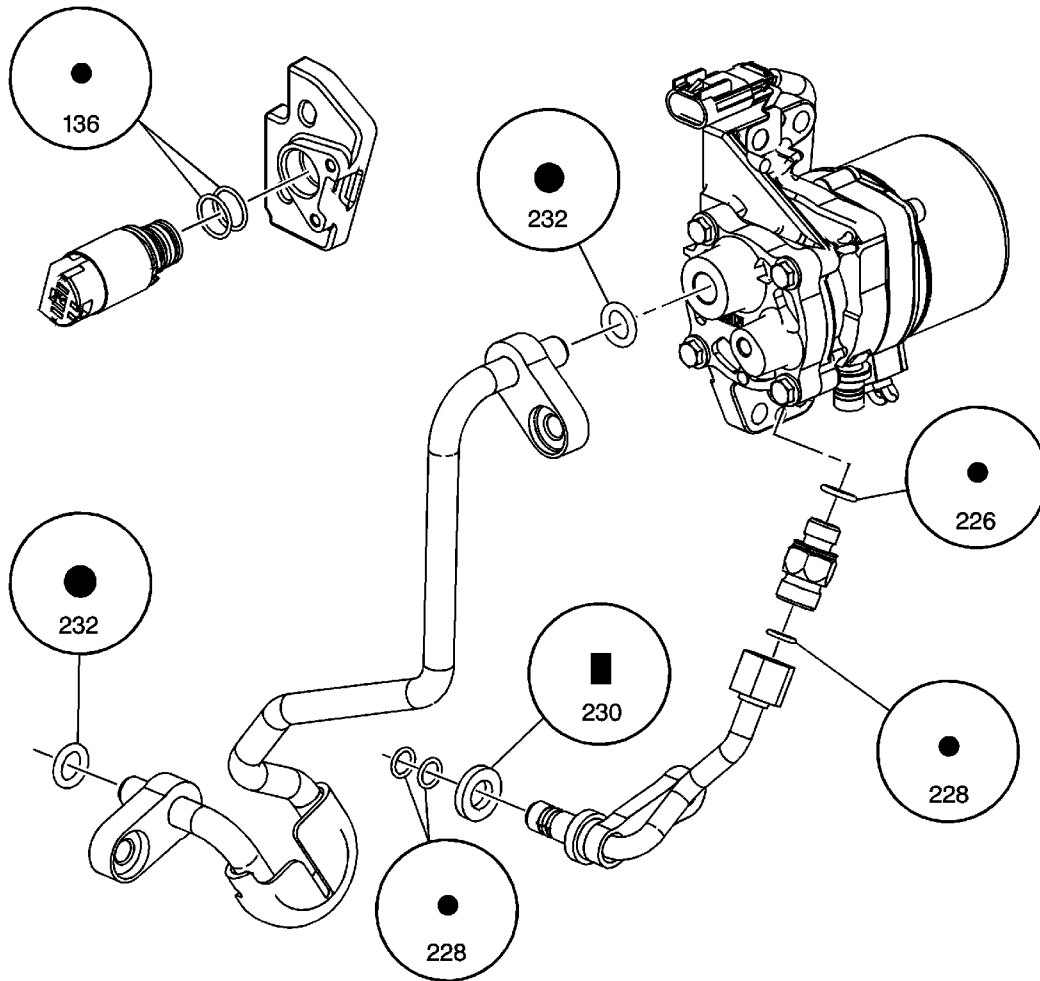


- (7) Thrust Washer (Side Cover to Driven Sprocket)
- (34) Thrust Washer (Channel Plate to Drive Sprocket)
- (38) Thrust Washer (Drive Sprocket to Support)
- (42) Drive Sprocket Support Bearing
- (92) Thrust Washer (Driven Sprocket to Support)
- (101) Thrust Washer (Support to Reverse Input Clutch)
- (103) Thrust Bearing
- (104) Selective Thrust Washer
- (107) Thrust Bearing
- (109) Thrust Washer

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(113) Thrust Bearing
(117) Thrust Bearing
(200) Oil Pump Bearing and Seal Assembly
(400) Driven Sprocket Support Bearing
(510) Thrust Bearing
(524) Thrust Bearing
(527) Thrust Bearing (Carrier Shaft to Shell)
(532) Thrust Bearing (Reaction Carrier to Sun Gear)
(551) Thrust Bearing
(561) Thrust Bearing
(658) Thrust Bearing (Forward Support to Park Gear)
(700) Thrust Bearing

Seals - L4 Hybrid



- (136) 4-3 Downshift On/Off Solenoid Seal -- L4 Hybrid
- (226) A/Trans Auxiliary Fluid Pump Check Valve Seal
- (228) A/Trans Auxiliary Fluid Pump Outlet Pipe Seal
- (228) A/Trans Auxiliary Fluid Pump Outlet Pipe Seal
- (230) A/Trans Auxiliary Fluid Pump Outlet Pipe Spacer
- (232) A/Trans Auxiliary Fluid Pump Inlet Pipe Seal
- (232) A/Trans Auxiliary Fluid Pump Inlet Pipe Seal