

	6	On	Off	Off	On	On	On	On/Off	On/Off
	7	Off	Off	On	On	On	On	On/Off	On/Off
	8	Off	On	Off	On	On	On	On/Off	On/Off
	9	Off	On	On	Off	On	On	On/Off	On/Off
	10	Off	On	On	On	Off	On	On/Off	On/Off
M1	1	On	On	Off	On ^a	On	Off	Off	On/Off
M2	2	On	On	On	On	Off	Off	Off	On/Off

- On to reduce frictional losses from a released clutch, but does not contribute to powerflow.

Clutch Plate Quantity

Clutch	Number of Friction Plates	Number of Steel Plates	Number of Separating Springs	Number of Apply Plates	Number of Pressure Plates
A clutch (1, 2, 3, 4, 5, 6, M1, M2, R)	3	2	3	1	1
B clutch (2, 8, 9, 10, M1, M2, R)	5	4	5	1	1
C clutch (2, 3, 4, 5, 7, 9, 10, M2)	5	5	-	-	1
D clutch (2, 3, 4, 6, 7, 8, 10, M2, R)	6	6	-	-	1
E clutch (1, 3, 5, 6, 7, 8, 9, M1)	5	4	-	1	1
F clutch (4, 5, 6, 7, 8, 9, 10, R)	4	4	-	-	1

Clutch Clearance

Clutch	Specifications
A clutch	0.020 â€” 0.048 in (.51 â€” 1.22 mm)
B clutch	0.052 â€” 0.069 in (1.31 â€” 1.74 mm)
C clutch	0.025 â€” 0.062 in (.64 â€” 1.57 mm)
D clutch	0.024 â€” 0.068 in (.61 â€” 1.73 mm)
E clutch	0.034 â€” 0.077 in (.86 â€” 1.96 mm)
F clutch	0.021 â€” 0.051 in (.53 â€” 1.3 mm)

Transmission Front End Clearance

Transmission	Specifications
RWD Vehicles	0.007 â€” 0.016 in (.17 â€” .41 mm)

Four-Wheel Drive (4WD) vehicles	0.002 â€”0.011 in (.05 â€”.29 mm)
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A Clutch Selective Apply Plate Chart

Part Number	Apply Plate Thickness
HL3P-7A406-AB	0.161 â€”0.169 in (4.1 â€”4.3 mm)
HL3P-7A406-BB	0.173 â€”0.181 in (4.4 â€”4.6 mm)
HL3P-7A406-CB	0.185 â€”0.193 in (4.7 â€”4.9 mm)
HL3P-7A406-DB	0.197 â€”0.205 in (5 â€”5.2 mm)
HL3P-7A406-EB	0.209 â€”0.217 in (5.3 â€”5.5 mm)

B Clutch Selective Snap Ring Chart

Part Number	Snap Ring Thickness
HL3P-7M157-AA	0.089 â€”0.093 in (2.25 â€”2.35 mm)
HL3P-7M157-BA	0.100 â€”0.104 in (2.55 â€”2.65 mm)
HL3P-7M157-CA	0.112 â€”0.116 in (2.85 â€”2.95 mm)
HL3P-7M157-DA	0.124 â€”0.128 in (3.15 â€”3.25 mm)
HL3P-7M157-EA	0.136 â€”0.140 in (3.45 â€”3.55 mm)
HL3P-7M157-FA	0.148 â€”0.152 in (3.75 â€”3.85 mm)

C Clutch Selective Snap Ring Chart

Part Number	Snap Ring Thickness
HL3P-7H076-AA	0.059 in (1.5 mm)
HL3P-7H076-BA	0.067 in (1.7 mm)
HL3P-7H076-CA	0.075 in (1.9 mm)
HL3P-7H076-DA	0.083 in (2.1 mm)
HL3P-7H076-EA	0.091 in (2.3 mm)

D Clutch Selective Snap Ring Chart

Part Number	Snap Ring Thickness
HL3P-7B421-AA	0.071 in (1.8 mm)
HL3P-7B421-BA	0.079 in (2 mm)
HL3P-7B421-CA	0.087 in (2.2 mm)

HL3P-7B421-DA	0.094 in (2.4 mm)
HL3P-7B421-EA	0.102 in (2.6 mm)
HL3P-7B421-FA	0.110 in (2.8 mm)

E Clutch Selective Pressure Plate Chart

Part Number	Pressure Plate Thickness
HL3P-7B066-AB	0.083 â€” 0.087 in (2.1 â€” 2.2 mm)
HL3P-7B066-BB	0.091 â€” 0.094 in (2.3 â€” 2.4 mm)
HL3P-7B066-CB	0.098 â€” 0.102 in (2.5 â€” 2.6 mm)
HL3P-7B066-DB	0.106 â€” 0.110 in (2.7 â€” 2.8 mm)
HL3P-7B066-EB ^a	0.114 â€” 0.118 in (2.9 â€” 3 mm)
HL3P-7B066-FB	0.122 â€” 0.126 in (3.1 â€” 3.2 mm)
HL3P-7B066-GB	0.130 â€” 0.134 in (3.3 â€” 3.4 mm)
HL3P-7B066-HB	0.138 â€” 0.142 in (3.5 â€” 3.6 mm)

- Also used for the E clutch apply plate

F Clutch Selective Snap Ring Chart

Part Number	Snap Ring Thickness
HL3P-7P174-AA	0.059 in (1.5 mm)
HL3P-7P174-BA	0.067 in (1.7 mm)
HL3P-7P174-CA	0.075 in (1.9 mm)
HL3P-7P174-DA	0.083 in (2.1 mm)
HL3P-7P174-EA	0.091 in (2.3 mm)
HL3P-7P174-FA	0.098 in (2.5 mm)

Selective Fit Shim Chart RWD Vehicles

Selective Fit Shim Part Number	Selective Fit Shim Thickness
7A527	0.120 â€” 0.124 in (3.05 â€” 3.15 mm)
7A527	0.126 â€” 0.130 in (3.2 â€” 3.3 mm)
7A527	0.132 â€” 0.136 in (3.35 â€” 3.45 mm)
7A527	0.138 â€” 0.142 in (3.5 â€” 3.6 mm)
7A527	0.144 â€” 0.148 in (3.65 â€” 3.75 mm)
7A527	0.150 â€” 0.154 in (3.8 â€” 3.9 mm)
7A527	0.156 â€” 0.159 in (3.95 â€” 4.05 mm)
7A527	0.161 â€” 0.165 in (4.1 â€” 4.2 mm)

7A527	0.167 â€“0.171 in (4.25 â€“4.35 mm)
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Selective Fit Shim Chart Four-Wheel Drive Vehicles

Selective Fit Shim Part Number	Selective Fit Shim Thickness
7A527	0.132 â€“0.136 in (3.35 â€“3.45 mm)
7A527	0.138 â€“0.142 in (3.5 â€“3.6 mm)
7A527	0.144 â€“0.148 in (3.65 â€“3.75 mm)
7A527	0.150 â€“0.154 in (3.8 â€“3.9 mm)
7A527	0.156 â€“0.159 in (3.95 â€“4.05 mm)
7A527	0.161 â€“0.165 in (4.1 â€“4.2 mm)
7A527	0.167 â€“0.171 in (4.25 â€“4.35 mm)

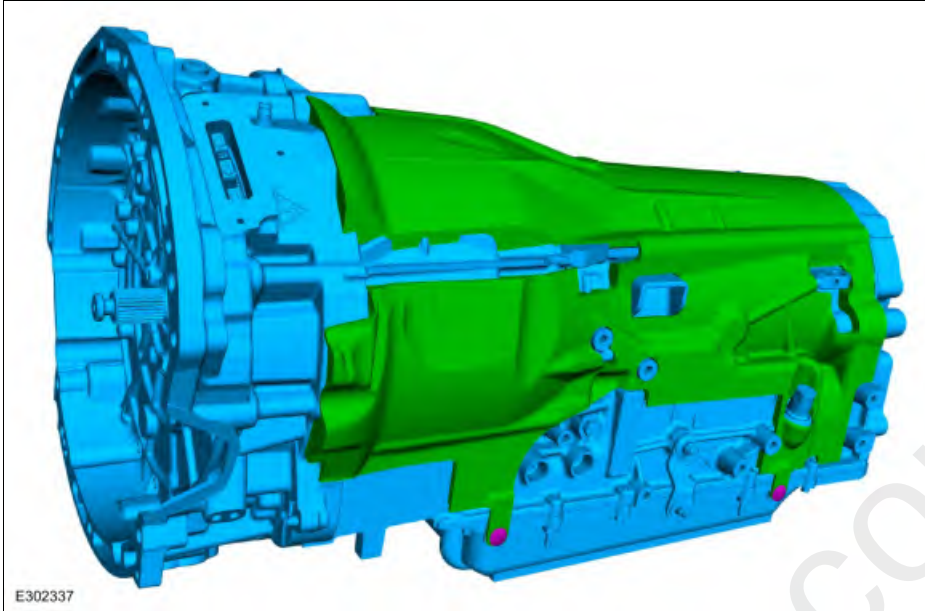
Gear Ratio Chart

Gear	Ratio
1st	4.69:1
2nd	2.98:1
3rd	2.14:1
4th	1.76:1
5th	1.52:1
6th	1.27:1
7th	1:1
8th	0.85:1
9th	0.68:1
10th	0.63:1
Reverse	4.86:1

Description and Operation

Transmission Description - Overview

Overview



The 10R80 MHT automatic transmission is a hybrid 10-speed electronically controlled transmission with a main control valve body unit with 8 solenoids, a transmission fluid auxiliary pump containing 1 solenoid, and a torque converter. Gear selection is achieved by the control of transmission fluid to operate various internal clutches. The PCM operates the electrical components and provides control of gear selection, shift pressure and torque converter slip. The SOBDMC controls the hybrid drive unit functions.

This transmission includes:

- Hybrid drive unit with a electric motor and a integral disconnect clutch
- Torque converter with an integral converter clutch
- Electronic shift and pressure controls
- Four planetary gearsets
- Two multi-disc holding clutches
- Four multi-plate drive clutches
- One one way holding clutch
- Main control valve body unit
- Transmission fluid auxiliary pump

The main control consists of a valve body assembly with solenoids inside the transmission and is controlled by a PCM. The PCM operates the electrical components to provide refined engagement feel, shift feel, and shift scheduling.

Engine power reaches the transmission by a torque converter with an integral clutch. The 10 forward gears and one reverse gear are obtained from 4 planetary gearsets.

Identification Tags

Identification Tag Location