

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Backup Lamp Switch	44 N·m	32 lb ft
Bearing Lock Plate Bolt	11.3 N·m	100 lb in
Clutch Release Cylinder Bolts	16.5 N·m	12 lb ft
Clutch Release Cylinder Piping Bolt	8.5 N·m	75 lb in
Drain Plug	37 N·m	27 lb ft
Fill Plug	37 N·m	27 lb ft
Front Case to Middle Case Bolts	40 N·m	29 lb ft
Shift Control Lever Bracket Bolts	21 N·m	15 lb ft
Middle Case to Rear Case Bolts	40 N·m	29 lb ft
Oil Trough Bolts	8.5 N·m	75 lb in
Rear Case to Housing Extension Bolts	29 N·m	21 lb ft
Reverse Idler Shaft Bolt	28 N·m	20 lb ft
Service Hole Plug	39.2 N·m	29 lb ft
Shift Fork Bolts	19.5 N·m	14 lb ft
Shift and Select Lever Bolt	33.3 N·m	24 lb ft
Shift Shaft Detent Plug	24.5 N·m	18 lb ft
Speed Sensor Bolt	8 N·m	71 lb in

Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Case to Case	Sealant	89020326	89021188
Service Hole Plug	Pipe Sealant	12346004	10953480
Shift and Select Lever Bolt	Threadlocker	12345382	10953489
Shift Fork Bolts	Threadlocker	12345382	10953489
Shift Shaft Detent Plug	Pipe Sealant	12346004	10953480
Transmission Fluid	SAE 75W-90 (GL-5)	88862475	88862476

Lubrication Specifications

Application	Specification	
	Metric	English
Manual Transmission Fluid		
GL-5 SAE 75W-90	1.8 liters	1.9 quarts
GM P/N 88862475 (Canadian P/N 88862476)		

Transmission Clearance Specifications

Table 1: [Gear Axial Clearance](#)

Table 2: [Gear Radial Clearance](#)

Table 3: [Output Shaft](#)

Table 4: [Input Shaft Bearing Journals - Minimum Diameter](#)

Table 5: [Countershaft Bearing Journals - Minimum Diameter](#)

Table 6: [Synchronizer Blocker Ring to Gear - Minimum Clearance](#)

Table 7: [Synchronizer Sleeve to Shift Fork - Maximum Clearance](#)

Gear Axial Clearance

Application	Standard Clearance Metric	Standard Clearance English
1st Countershaft Gear	0.10-0.43 mm	0.0039-0.0169 in
2nd Countershaft Gear	0.10-0.43 mm	0.0039-0.0169 in
3rd Gear	0.09-0.52 mm	0.0035-0.0204 in
4th Gear	0.12-0.38 mm	0.0047-0.0150 in
6th Gear	0.20-0.49 mm	0.0079-0.0193 in
Reverse Countershaft Gear	0.125-0.375 mm	0.0049-0.0148 in
Reverse Idler Gear	0.10-0.55 mm	0.0039-0.0216 in

Gear Radial Clearance

Application	Standard Clearance Metric	Standard Clearance English
1st Countershaft Gear	0.015-0.067 mm	0.0006-0.0026 in
2nd Countershaft Gear	0.015-0.067 mm	0.0006-0.0026 in
3rd Gear	0.015-0.067 mm	0.0006-0.0026 in
4th Gear	0.015-0.067 mm	0.0006-0.0026 in
6th Gear	0.015-0.065 mm	0.0006-0.0025 in
Reverse Countershaft Gear	0.015-0.065 mm	0.0006-0.0025 in
Reverse Idler Gear	0.015-0.050 mm	0.0006-0.0020 in

Output Shaft

Application	Specification	
	Metric	English
Runout - Maximum	0.136 mm	0.0053 in
Flange Thickness - Maximum	11.3 mm	0.4449 in

Input Shaft Bearing Journals - Minimum Diameter

Application	Specification	
	Metric	English
3rd Gear	44.985 mm	1.7710 in
4th Gear	44.985 mm	1.7710 in

6th Gear	41.985 mm	1.6529 in
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Countershaft Bearing Journals - Minimum Diameter

Application	Specification	
	Metric	English
1st Countershaft Gear Bearing	47.985 mm	1.8891 in
2nd Countershaft Gear Bearing	53.985 mm	2.1254 in
Reverse	44.985 mm	1.7710 in
Reverse Idler Gear	27.937 mm	1.0999 in

Synchronizer Blocker Ring to Gear - Minimum Clearance

Application	Specification	
	Metric	English
1st, 2nd	0.88 mm	0.035 in
3rd	0.8 mm	0.031 in
4th, 5th, 6th	0.7 mm	0.027 in
Reverse	0.9 mm	0.035 in

Synchronizer Sleeve to Shift Fork - Maximum Clearance

Application	Specification	
	Metric	English
1st/2nd	0.35 mm	0.014 in
3rd/4th, 5th/6th, Reverse	0.84 mm	0.033 in

1st and 2nd Gear Synchronizer Retaining Ring Specifications

Mark	Thickness (mm)	Thickness (in)
A	2.28-2.33	0.0898-0.0917
B	2.33-2.38	0.0917-0.0937
C	2.38-2.43	0.0937-0.0957
D	2.43-2.48	0.0957-0.0976
E	2.48-2.53	0.0976-0.0996
F	2.53-2.58	0.0996-0.1016
G	2.58-2.63	0.1016-0.1035

3rd and 4th Gear Synchronizer Retaining Ring Specifications

Mark	Thickness (mm)	Thickness (in)
A	1.80-1.85	0.0709-0.0728
B	1.85-1.90	0.0728-0.0748
C	1.90-1.95	0.0748-0.0768
D	1.95-2.00	0.0768-0.0787
E	2.00-2.05	0.0787-0.0807
F	2.05-2.10	0.0807-0.0827
G	2.10-2.15	0.0827-0.0846

5th Gear Synchronizer Retaining Ring Specifications

Mark	Thickness (mm)	Thickness (in)
A	2.10-2.15	0.0827-0.0846
B	2.15-2.20	0.0846-0.0866
C	2.20-2.25	0.0866-0.0886
D	2.25-2.30	0.0886-0.0906
E	2.30-2.35	0.0906-0.0925
F	2.35-2.40	0.0925-0.0945
G	2.40-2.45	0.0945-0.0965

Countershaft Front and Rear Bearing Retaining Ring Specifications

Mark	Thickness (mm)	Thickness (in)
A	2.35-2.40	0.0925-0.0945
B	2.40-2.45	0.0945-0.0965
C	2.45-2.50	0.0965-0.0984
D	2.50-2.55	0.0984-0.1004
E	2.55-2.60	0.1004-0.1024
F	2.60-2.65	0.1024-0.1043
G	2.65-2.70	0.1043-0.1062
H	2.70-2.75	0.1062-0.1083
J	2.75-2.80	0.1083-0.1102
K	2.80-2.85	0.1102-0.1122
L	2.85-2.90	0.1122-0.1142
M	2.90-2.95	0.1142-0.1161

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Document ID: 1492294

Input Shaft Bearing Retaining Ring Specifications

Mark	Thickness (mm)	Thickness (in)
A	2.65-2.70	0.1043-0.1062
B	2.70-2.75	0.1062-0.1083
C	2.75-2.80	0.1083-0.1102
D	2.80-2.85	0.1102-0.1122
E	2.85-2.90	0.1122-0.1142
F	2.90-2.95	0.1142-0.1161

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6th Gear Retaining Ring Specifications

Mark	Thickness (mm)	Thickness (in)
A	2.07-2.12	0.0815-0.0835
B	2.12-2.17	0.0835-0.0854
C	2.17-2.22	0.0854-0.0874
D	2.22-2.27	0.0874-0.0894
E	2.27-2.32	0.0894-0.0913
F	2.32-2.37	0.0913-0.0933