

Manual Transmission - Overview

Overview

The Tremec TR-4050 transmission has 5 synchronized forward speeds and 1 synchronized reverse speed. The TR-4050 transmission has the following features:

- An integral clutch housing
- An aluminum main case
- The mainshaft with 2 tapered roller bearings. Mainshaft end play is controlled by a selective shim located behind the front bearing retainer
- The countershaft with 2 tapered roller bearings. The countershaft end play is controlled by a selective shim located behind the rear bearing retainer
- A countershaft that is serviced as an assembly
- Is synchronized in all gears
- All gears are bevel cut
- All gears, including reverse, turn on needle or roller bearings
- Single-piece shaft forks with moly-coated pads
- Provisions for mounting a Power Take-Off (PTO)

The function of the transmission is to move the vehicle from a rest position to motion. This is done by transferring the engine torque to the rear wheels. The transmission uses gears to adapt the torque to the demands of load and road conditions. It matches engine power to vehicle needs.

This power is delivered from the engine flywheel to the transmission. The power is transmitted through a driver-operated clutch, which allows for engagement and disengagement of the engine to the transmission.

The transmission input shaft receives the power when the clutch is engaged. It is transferred through the input shaft to the drive gear. Torque is transferred to the countershaft drive gear and is delivered along the countershaft to all the countershaft gears. Torque is then transferred to the engaged mainshaft gear. The transmission then uses a system of mainshaft gears to change the speed and torque relationship between the engine crankshaft and the transmission output shaft.

Transmission Identification

All TR series transmissions are identified by the model and serial number. This information is on the transmission identification tag and affixed to the transmission case. Do not remove or destroy the transmission identification tag. The model number designations for a TR-4050 transmission are as follows:

- TR means a Tremec-designed transmission
- 40 is the maximum input torque capacity in tens of lb-ft or 400 lb-ft of input torque capacity
- 5 is the number of gears
- 0 is the design level

Transmission Gear Ratio

The TR-4050 transmission has 5 forward speeds and 1 reverse speed. The gear ratios are as follows:

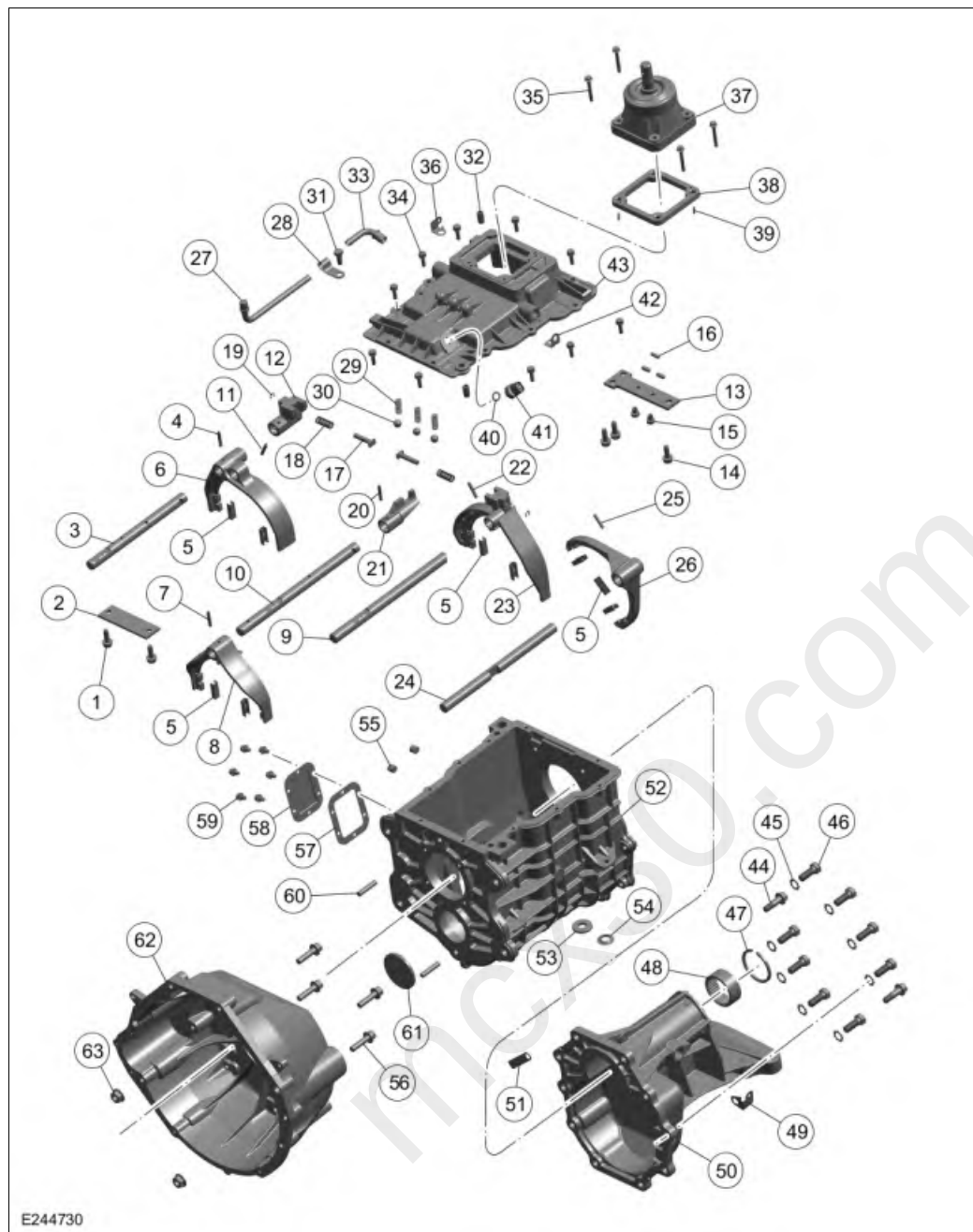
Gear	Gear Ratio
First	5.8:1
Second	2.94:1
Third	1.61:1
Fourth	1.00:1
Fifth	0.77:1
Reverse	5.60:1

NOTICE: Additives and friction modifiers are not recommended for use in Tremec transmissions. Damage to internal components may occur.

Lubrication

Change lubricant at specified service intervals, use only recommended types and grades.

Transmission Assembly – Housings

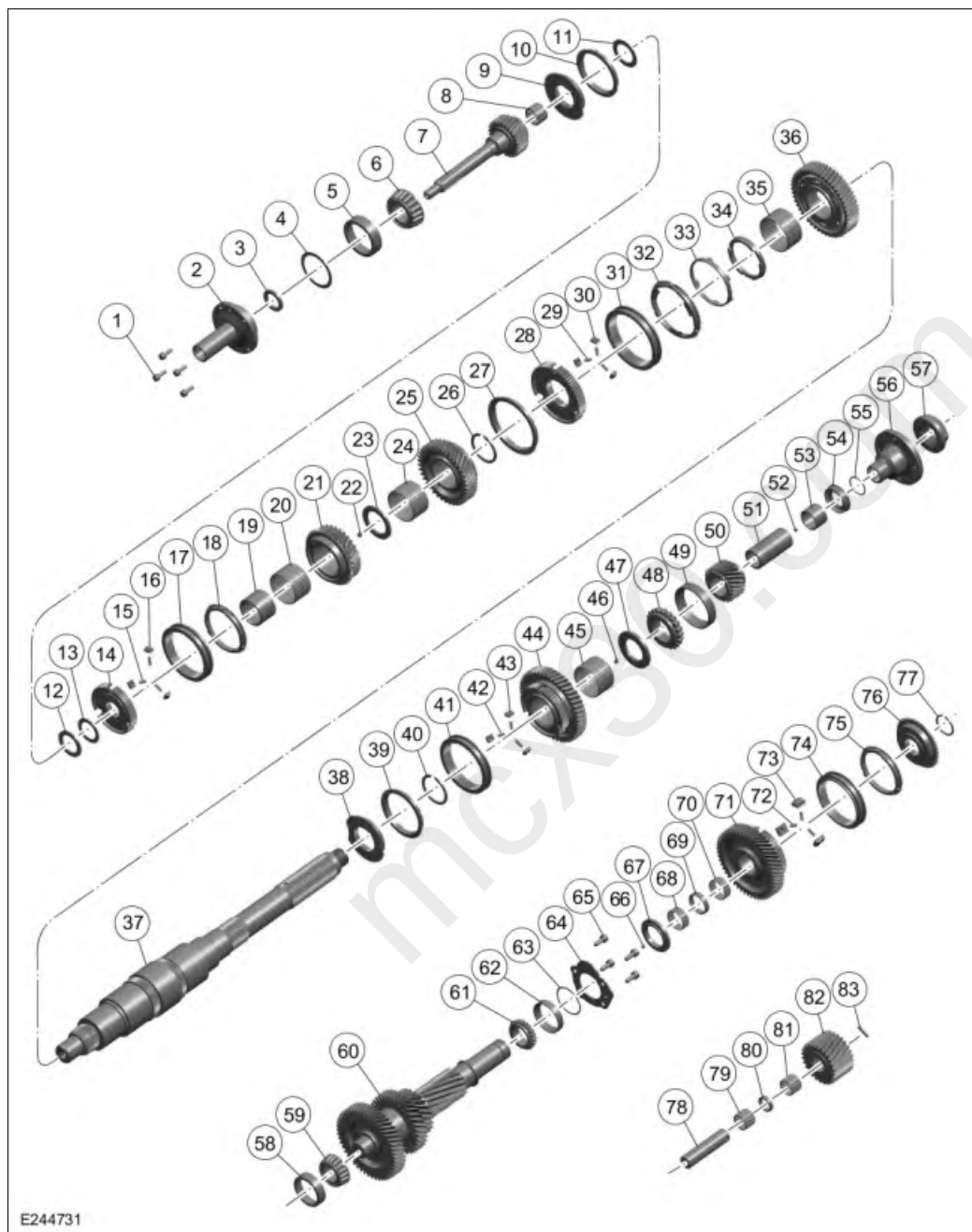


Item	Description
1	Front shift bar support bracket bolt (2 required)
2	Front shift bar support bracket
3	1st/2nd shift rail
4	Roll pin
5	Shift fork inserts
6	Shift fork (1st and 2nd)
7	Roll pin
8	Shift fork (3rd and 4th)
9	5th shift rail
10	3rd/4th shift rail
11	Roll pin

12	1st/2nd shift gate
13	Rear shift bar support bracket
14	Front shift bar support bracket bolt (3 required)
15	Shift Interlock support bolts
16	Interlock pin
17	1st-2nd and 5th-reverse plunger
18	Plunger spring
19	Plunger retainer
20	Roll pin
21	3rd/4th shift gate
22	Shift fork (5th and reverse) roll pin
23	Shift fork (5th and reverse)
24	5th/reverse shift rail
25	Roll pin
26	Shift fork (5th)
27	Vent hose
28	Vent hose support bracket
29	Detent spring
30	Shift rail detent
31	Vent hose support bracket bolt
32	Dowel pins
33	Vent hose connector
34	Shift control housing bolt (10 required)
35	Shift lever (lower) bolt (4 required)
36	Retainer clip
37	Shift lever (lower)
38	Shift lever spacer
39	Shift lever pin
40	Reverse lamp switch seal
41	Reverse lamp switch
42	Retainer
43	Shift control housing
44	Extension housing bolt (2 required)
45	Lock washer (8 required)
46	Extension housing bolt (8 required)
47	Extension housing bearing snap ring
48	Extension housing bearing
49	Retainer
50	Extension housing
51	Identification tag
52	Transmission main case
53	Magnet
54	Magnet retainer
55	Fill/drain plug
56	Main case-to-clutch housing bolt
57	Power Take-Off (PTO) cover seal

58	PTO cover
59	PTO cover bolt (6 required)
60	Main case-to-clutch housing studs (2 required)
61	Main case front seal
62	Clutch housing
63	Main case-to-clutch housing nuts (2 required)

Transmission Assembly – Geartrain



Item	Description
1	Front bearing retainer bolt (4 required)
2	Front bearing retainer
3	Front bearing retainer seal
4	Input shaft shim
5	Input shaft bearing cup
6	Input shaft roller bearing
7	Input shaft

8	Front bearing
9	Clutch cone
10	Synchronizer ring
11	Thrust washer
12	Thrust washer bearing
13	Thrust washer
14	Synchronizer hub, 3rd and 4th
15	Synchronizer spring
16	Synchronizer hub insert
17	Synchronizer collar
18	Synchronizer ring
19	3rd gear bushing
20	Roller bearing
21	Mainshaft 3rd gear
22	Ball bearing
23	Thrust washer
24	Roller bearing
25	Mainshaft 2nd gear
26	Snap ring
27	Synchronizer ring
28	Synchronizer hub, 1st and 2nd gear
29	Synchronizer spring
30	Synchronizer hub insert
31	Synchronizer collar
32	Synchronizer ring
33	Synchronizer intermediate ring
34	Synchronizer inner ring
35	1st gear roller bearing
36	Mainshaft 1st gear
37	Mainshaft
38	Clutch cone
39	Synchronizer ring
40	Snap ring
41	Synchronizer collar
42	Synchronizer spring
43	Synchronizer hub insert
44	Mainshaft reverse gear
45	Roller bearing
46	Ball bearing
47	Thrust washer
48	Roller bearing
49	Roller bearing cup
50	Mainshaft 5th gear
51	Front yoke spacer
52	Ball bearing
53	Rear yoke spacer

54	Output shaft seal
55	Transmission flange O-ring
56	Transmission flange
57	Flange retainer nut
58	Countershaft front bearing cup
59	Countershaft front roller bearing
60	Countershaft
61	Countershaft rear roller bearing
62	Countershaft rear bearing cup
63	Countershaft shim
64	Rear bearing retainer
65	Rear bearing retainer bolt (4 required)
66	Ball bearing
67	Thrust washer
68	Roller bearing
69	Roller bearing spacer
70	Roller bearing
71	Synchronizer hub, 5th gear
72	Synchronizer spring
73	Synchronizer hub insert
74	Synchronizer collar
75	Synchronizer ring
76	Clutch cone
77	Snap ring
78	Reverse idler shaft
79	Reverse idler bearing
80	Reverse idler bearing spacer
81	Reverse idler bearing
82	Reverse idler gear
83	Roll pin