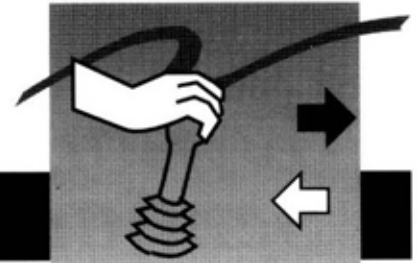


Spicer Medium-Duty Transmissions

By Mike Weinberg
Contributing Editor



Up To Standards

Several issues back we discussed the most popular Fuller medium-duty truck transmission. This is a huge repair market, and in this article we will take a look at the most common Spicer medium-duty units. Found to a large degree in Ford and International trucks, there is a large volume of these units on the road and you should be looking for ways to bring this work into your shop.

Spicer considers medium-duty transmissions those capable of handling between 420 and 650 ft/lbs of torque. Spicer changed model designations starting in 1987, so to avoid identification problems, the interchanges are listed below:

Previous Model Designation

- CM4054-A
- CM4054-D
- CM4954-A
- CM4954-D

New Model Designation

- ES42-5A
- ES42-5D
- ES52-5A
- ES52-5D

The new model designations' first two numbers indicate the torque rating times 10. Example: 42 x 10 = 420 ft/lbs. The models we are discussing here are all 5 speeds, with 2nd through 5th gears synchronized and 1st and Reverse non-synchronized. The Charts 1 and 2 give ratios and specifications.

Lubrication

Lubrication is specified as SAE 30, 40 or 50 heavy-duty motor oil for operation above zero degrees. The best all-around lube for all temperature operating conditions

General Application Guidelines	
GVW:	50,000 lbs. on highway 35,000 lbs. on/off highway
HP Range	To 185 HP
RPM Range	To 4000 RPM
Engine Types:	Mid-range diesel Gas

Specifications

Gear Ratios					
Models ES42-5A, 4064-A			Models ES42-6D, 4064-D		
Gear	Ratio	%Step	Gear	Ratio	%Step
1	7.22	—86	1	7.22	—86
2	3.88	—75	2	3.88	—75
3	2.21	—56	3	2.21	—76
4	1.42	—42	4	1.26	—26
5	1.00		5	1.00	
R	7.22		R	7.22	

Specifications for ES42-5 and 4054 Series Models ES42-5A, ES42-5D, 4064-A, 4054-D

- Speeds**5 forward/1 reverse
- Torque Capacity**420 ft/lbs (569 n-m)
- Length**2596 with deep bell
..... .24.21 shallow bell
- Weight**188 lbs. (85 kg) Gas version
..... .200 lbs. (91 kg) Diesel version
- Clutch Housing**SAE No. 2. Apron front
..... .available for gas
- Clutch**13" single or 2-plate,
..... .14" single plate, push or pull
- Yoke or Flange**1480, 1550, 1610 series
- Input Shaft**1 1/2", 1 3/8", 1 3/4 available
- Oil Capacity**12 pints (5.7 liters)
- Brake**Optional mounting
- Speedometer Drive**Provision in the rear bearing cap for installation
- Power Take-Off**S.A.E. standard 6 bolt, right and left
- P.T.O. Drive Speed**490 rpm per 1000 rpm engine speed

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General Application Guidelines

GVW: 60,000 lbs.
HP Range 160-210
Governed
RPM Range 2200-3800
Engine Types: Lower hp diesel and mid-range gas engines

Specifications

Gear Ratios					
Models ES62-5A, 4854-A			Models ES52-5D, 4954-D		
Gear	Ratio	%Step	Gear	Ratio	%Step
1	7.25	— — —82	1	7.25	— — —82
2	3.98	— — —78	2	3.98	— — —78
3	2.23	— — —55	3	2.23	— — —73
4	1.44	— — —44	4	1.29	— — —29
5	1.00		5	1.00	
R	7.25		R	7.25	

Specifications for ES42-5 and 4054 Series Models ES42-5A, ES42-5D, 4064-A, 4054-D

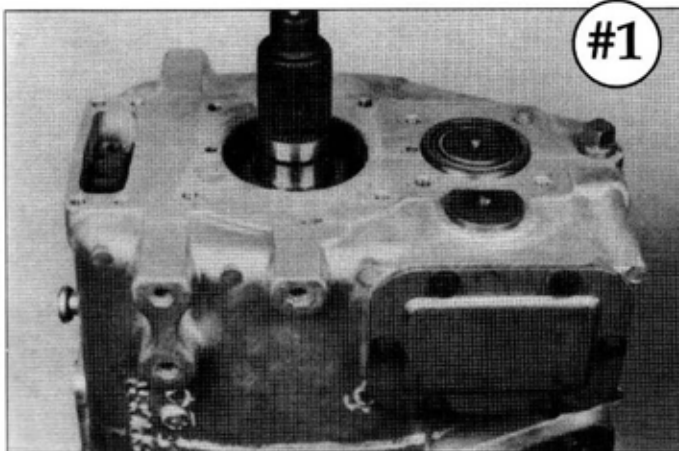
Speeds 5 forward/1 reverse
Torque Capacity 520 ft/lbs
Length* 27.045" (687mm) deep bell
 25.30" (643mm) shallow bell
Weight 240 lbs. (108.9 kg) diesel version
Clutch Housing SAE No. 2. Apron front
 available for gas
Clutch 13" or 14" push or pull single
 or 2-plate
Companion Flanges 1480 & 1550
End Yokes 1480, 1550 & 1610
Input Shaft 1 3/8", 1 1/2", 1 3/4 available
Oil Capacity 13 pints (6.16 liters)
Brake Optional mounting
Speedometer Drive Provision in the rear bearing cap for installation
Power Take-Off Standard 6 bolt, left & right side,
 countershaft PTO mount optional
P.T.O. Drive Speed 477 rpm per 1000 rpm engine speed
 *From bellhousing facing to end of splines on output shaft

Up To Standards

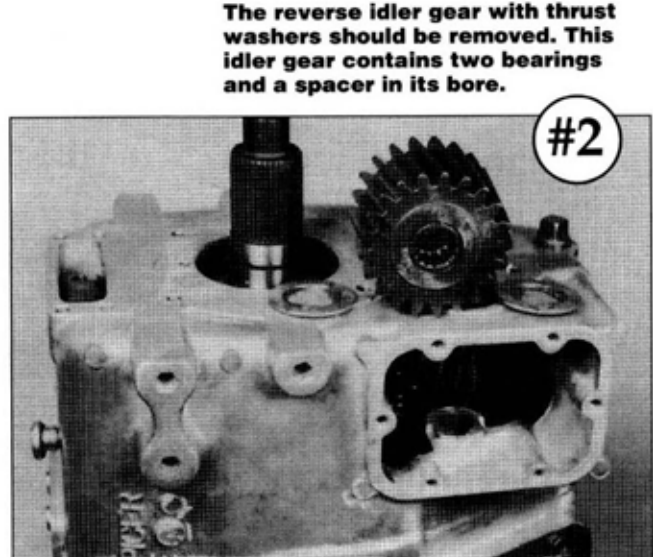
is Synthetic 30 or 50 W engine oil meeting API-SF or API-CD specifications.

Rebuilding these units poses no special challenge, but you will need a service manual for proper teardown and overhaul procedures and clearance specs. The case is a two-part unit with a detachable extension housing and removable top shift tower, with the detent parts under the shift tower in the rear case half. After removing the output yoke, shift tower, detent springs, balls and sleeves, stand the unit up on the bellhousing. Remove the extension housing, the output bearing, the reverse idler cover (which appears to be a rear-mounted PTO cover) and the rear countershaft bearing cover. Do not lose the c/s adjustment shims under that cover. Insert a metric bolt and large washer into the reverse idler gear shaft and pry it out of the case (See Figure 1). Remove the reverse idler and thrust washer through the idler hatch (See Figure 2). Remove the case-attaching bolts and lift off the rear case. Remove the reverse gear with

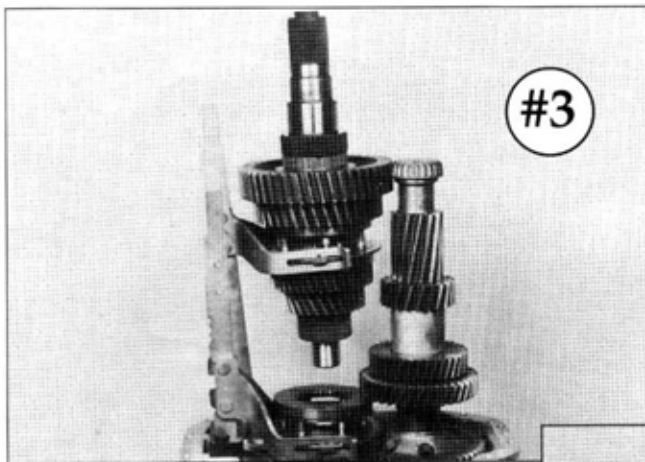
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After removing the idler-gear cover, insert a metric capscrew with a prying fixture into the reverse idler shaft.



The reverse idler gear with thrust washers should be removed. This idler gear contains two bearings and a spacer in its bore.



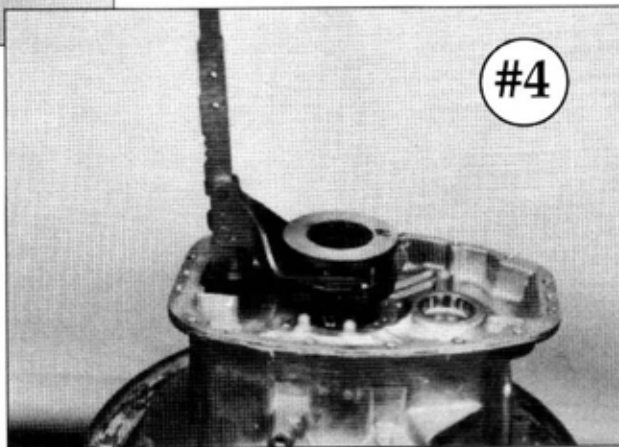
Lift the mainshaft sub-assembly away from the 4th-5th synchronizer.

bearing and thrust washer, the rear shift rail-support bracket, 1st and Reverse clutch collar and shift fork. Now, the mainshaft assembly and 2-3 shift fork can be lifted off the case. Note that the 4-5 synchro assembly will remain on the input shaft (See Figure 3). Remove the countershaft and then the 4-5 synchro assembly and shift fork (See Figure 4).

Up To Standards

The input gear now can be removed and all the parts thoroughly cleaned and inspected prior to quoting the cost of repair. Don't forget to index your synchro assemblies so that they can be reassembled properly.

The pictures used here point out the value and importance of having a good service manual for the



units on which you are working. Don't bet your reputation and bank book on a lucky guess. **TD**

Remove the countershaft sub-assembly.

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