

SECTION 08-01 Clutch/Pressure Plate

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VEHICLE APPLICATION

F-150, F-250, F-350, F-Super Duty Chassis Cab and Bronco Equipped with Manual Transmission

DESCRIPTION AND OPERATION

Clutch System

The clutch is a single-plate, dry friction clutch disc (7550) with a diaphragm-style spring clutch pressure plate (7563). The clutch disc has a splined hub which attaches the clutch disc to the transmission input shaft (7017). A diaphragm spring is located between two fulcrum rings riveted to the clutch cover. The clutch operating mechanism consists of either a clutch release hub and bearing (7548), clutch release lever and external clutch slave cylinder, or an internal concentric clutch slave cylinder.

Other internal clutch parts are a transmission input shaft pilot bearing mounted in the crankshaft (6303) which supports the end of the input shaft. Bearings are designed for long life and require no lubrication.

NOTE: The clutch disc and clutch pressure plate for diesel engine-equipped vehicles is 310mm (12 inches).

DIAGNOSIS AND TESTING

Clutch/Pressure Plate

Refer to Section 08-00.

REMOVAL AND INSTALLATION

Disc and Pressure Plate

SPECIAL SERVICE TOOL(S) REQUIRED

Description	Tool Number
Clutch Coupling Tool	T88T-70552-A

Removal

1. Disconnect the battery negative cable.
2. Remove external clutch slave cylinder or hydraulic line quick disconnect on concentric clutch slave cylinder applications, using Clutch Coupling Tool T88T-70552-A.

3. Remove clutch release lever, if equipped.
4. Remove dust cover, if equipped.
5. Remove the transmission (7003) from the vehicle. Refer to appropriate section in Group 07.
6. Mark the assembly position of clutch pressure plate (7563) and cover to flywheel (6375) if the original clutch components are to be installed.
7. Remove clutch pressure plate, cover assembly and clutch disc (7550) from flywheel. Remove the transmission input shaft pilot bearing only if replacement is needed.

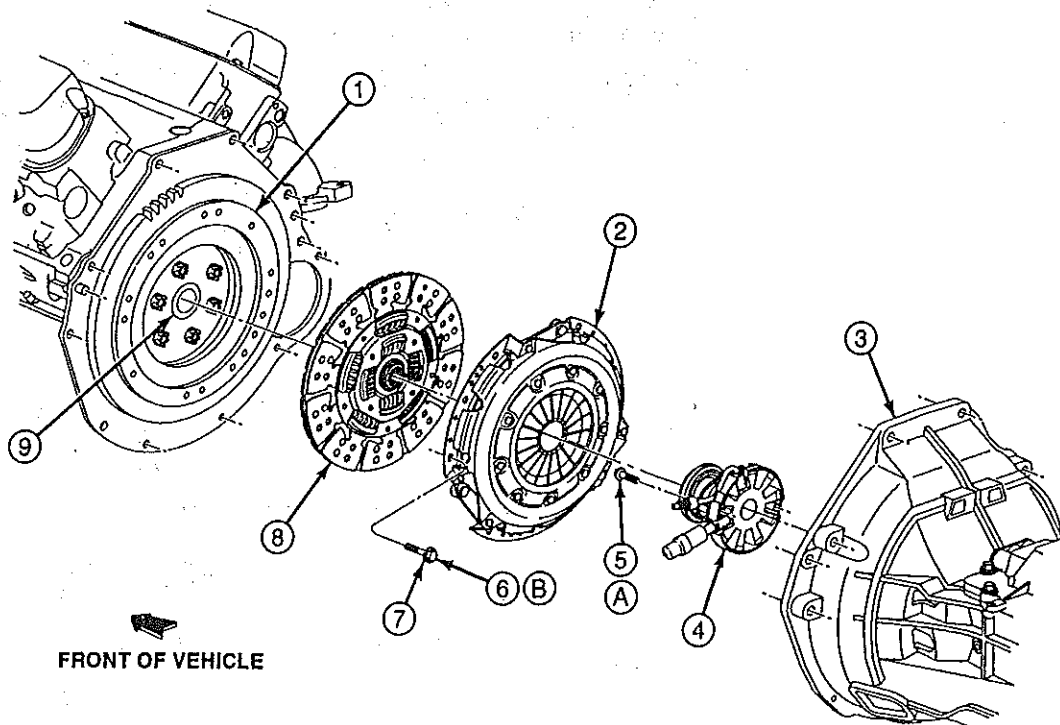
REMOVAL AND INSTALLATION (Continued)

Installation

CAUTION: The 7.3L cover assembly bolt is 5/16 inch x 18 x 0.75 inch while the 7.5L MFI cover bolt is 5/16 inch x 18 x 0.92 inch. The 0.92-inch bolt cannot be used with the dual mass flywheel because it will extend beyond the inner surface of the secondary flywheel and interfere with the primary flywheel. Only the 0.75-inch cover bolt can be used with the dual mass flywheel.

1. Position clutch disc on flywheel so Truck Clutch Alignment Shaft D79T-7550-A or equivalent can enter clutch transmission input shaft pilot bearing to align disc.
2. Position clutch pressure plate and cover assembly on flywheel.
3. Align clutch pressure plate and clutch disc, and install the retaining bolts that fasten assembly to flywheel.
4. If installing original clutch components, use the location marks made during removal. Tighten the retaining bolts to specifications. Refer to Specifications at the end of this section.
5. On 7.3L diesel and 7.5L gasoline engines (6007), clean and lubricate the following:
 - a. transmission main drive gear bearing retainer (7050)
 - b. bearing hub bore and install on the main drive gear bearing retainer
6. Install the transmission. Refer to appropriate section in Group 07.
7. Position clutch release lever, if equipped, into clutch release hub and bearing (7548) and align with clutch release lever stud. Push upward on clutch release lever until snapped into position.
8. Install clutch release lever dust shield (7513), if equipped.
9. Install the external clutch slave cylinder (7.3L or 7.5L engine), or attach hydraulic tube quick connect fitting (4.9L, 5.0L or 5.8L engine).
10. **NOTE:** When the battery (10655) has been disconnected and reconnected, some abnormal drive symptoms may occur while the powertrain control module (PCM)(12A650) relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 miles) or more to relearn the strategy.
Connect battery negative cable.
11. Operate vehicle to check clutch operation.

Clutch Installation, F-150, F-250, F-350, Bronco with 4.9L, 5.0L (Mazda R2 Transmission) and 5.8L Engines (ZF Light-Duty)



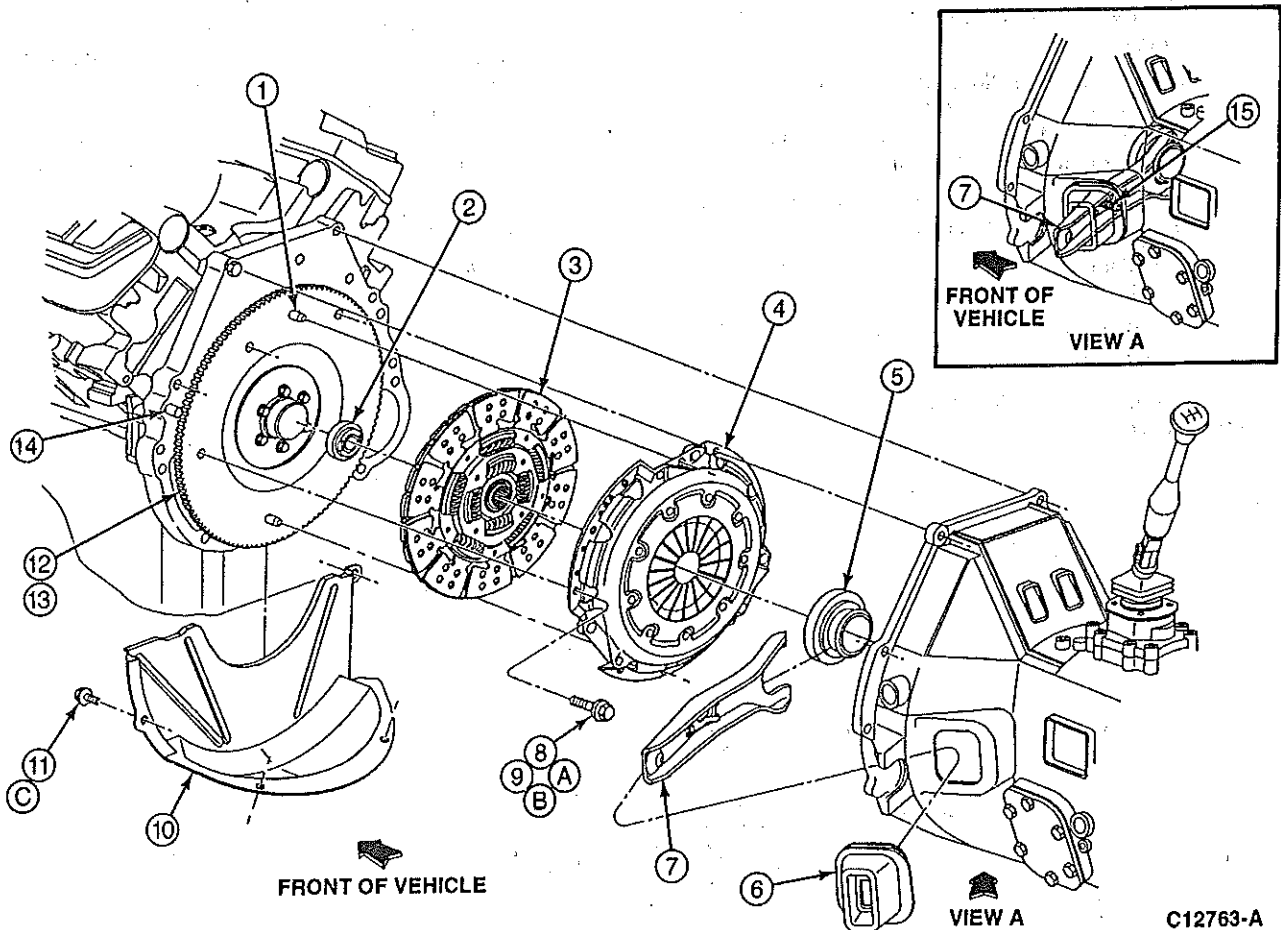
REMOVAL AND INSTALLATION (Continued)

Item	Part Number	Description
1	6375	Flywheel
2	7563	Clutch Pressure Plate
3	7003	Transmission
4	7A508	Clutch Slave Cylinder
5	N605907-S101	Bolt, M8-1.25 x 30
6	387299-S2	Bolt, 3/8-16 x .97 (11-Inch)

(Continued)

Item	Part Number	Description
7	34792-S2	Washer
8	7550	Clutch Disc
9	7118	Transmission Input Shaft Pilot Bearing
A	—	Tighten to 19-26 N·m (14-19 Lb-Ft)
B	—	Tighten to 30-40 N·m (22-30 Lb-Ft)

Clutch Installation, F-250 HD, F-350 and F-Super Duty Chassis Cab with 7.3L Diesel Engine and 7.5L (460 CID) V-8 Engine (ZF Heavy-Duty)



Item	Part Number	Description
1	—	Flywheel Dowel (Part of 6477)
2	7118	Transmission Input Shaft Pilot Bearing
3	7550	Clutch Disc
4	7563	Clutch Pressure Plate

(Continued)

Item	Part Number	Description
5	7548	Clutch Release Hub and Bearing
6	7513	Clutch Release Lever Dust Shield
7	7515	Clutch Release Lever
8	391070-S100	Bolt, 5/16 x 18 x .75 (8 Req'd) (7.3L)

(Continued)

REMOVAL AND INSTALLATION (Continued)

Item	Part Number	Description
9	389572-S2	Bolt, 5/16 x 18 x .92 (8 Req'd) (7.5L)
10	7007	Engine Rear Plate
11	56519-S2	Bolt, 5/16 x 18
12	6477	Flywheel, 7.3L
13	6375	Flywheel, 7.5L
14	6397	Flywheel Housing to Block Dowel, 7.5L

(Continued)

Item	Part Number	Description
15	7B602	Clutch Release Lever Stud
A	—	Tighten to 26-35 N·m (19-26 Lb·Ft) (7.3L)
B	—	Tighten to 19-26 N·m (14-19 Lb·Ft) (7.5L)
C	—	Tighten to 11-15 N·m (8-11 Lb·Ft)

Flywheel, 4.9L Engine**Removal**

1. Remove the transmission (7003). Refer to Section 07-03A or Section 07-03B.
2. Remove the clutch pressure plate (7563) and clutch disc (7550). Refer to Disc and Pressure Plate in the Removal and Installation portion of this section.
3. NOTE: To check flywheel face runout, refer to Section 08-00. To replace the flywheel ring gear, refer to Ring Gear, Flywheel, in the Removal and Installation portion of this section.

Remove the engine flywheel attaching bolts and remove the flywheel (6375).

Installation

1. Follow removal procedures in reverse order.
2. Coat the threads of the engine flywheel attaching bolts with Pipe Sealant with Teflon® D8AZ-19554-A or equivalent meeting Ford specification ESR-M18P7A or WSK-M26350-AZ, and install the bolts.
3. Tighten in an opposing pattern to 102-115 N·m (75-85 lb-ft).

3. Remove the engine flywheel attaching bolts and remove the flywheel (6375).

Installation

1. Coat the threads of the engine flywheel attaching bolts with oil-resistant Threadlock® and Sealer E0AZ-91554-AA or equivalent meeting Ford specification ESE-M4G204-A (Type II). Position the flywheel on the crankshaft flange. Install and tighten the bolts in sequence across from each other to 102-115 N·m (75-85 lb-ft).
2. Install the clutch pressure plate, clutch disc and transmission.

Flywheel, 5.0 and 5.8L Engines**Removal**

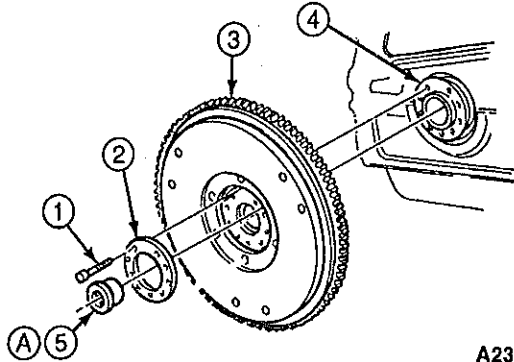
1. Remove the transmission (7003), clutch pressure plate (7563) and clutch disc (7550).
2. To check flywheel face runout, refer to Section 08-00. To replace a flywheel ring gear, refer to Ring Gear, Flywheel, in the Removal and Installation portion of this section.

Flywheel, Dual Mass, 7.3L Engine**Removal**

1. Remove the transmission and integral clutch housing. Refer to Section 07-03B.
2. Remove the clutch pressure plate (7563) and clutch disc (7550). Refer to Disc and Pressure Plate in the Removal and Installation portion of this section.
3. Check flywheel runout and ring gear. To check flywheel runout, refer to Section 08-00. To replace ring gear, refer to Ring Gear, Flywheel, in the Removal and Installation portion of this section.
4. Remove two engine flywheel attaching bolts and install two guide studs to help support the dual mass flywheel during removal.

REMOVAL AND INSTALLATION (Continued)

5. Remove the remaining eight engine flywheel attaching bolts and flywheel.



A23370-B

Item	Part Number	Description
1	6379	Flywheel Attaching Bolt (10 Req'd)
2	6A366	Flywheel Reinforcing Plate
3	6477	Flywheel
4	—	Crankshaft Flange (Part of 6303)
5	7118	Transmission Input Shaft Pilot Bearing
A	—	Tighten to 121 N·m (89 Lb·Ft)

Installation

1. With the two guide studs installed, install the flywheel.
2. Install the reinforcement ring and eight engine flywheel attaching bolts. Tighten bolts to 121 N·m (89 lb-ft).
3. Remove the two guide studs and install the remaining two engine flywheel attaching bolts. Tighten bolts to 121 N·m (89 lb-ft).
4. Install the clutch pressure plate and clutch disc.
5. Install the transmission (7003). Refer to Section 07-03B.

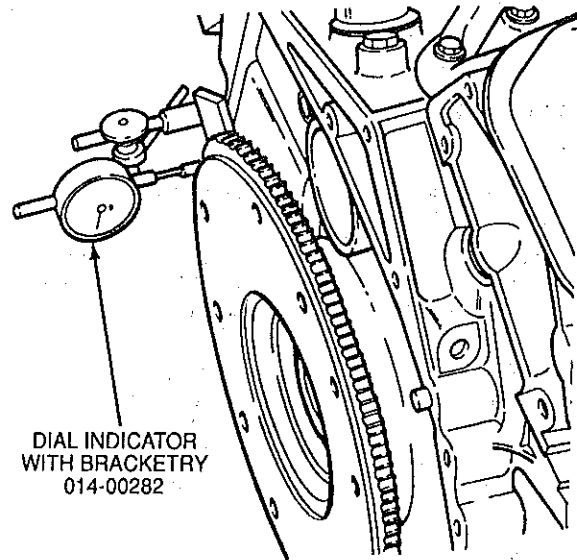
Flywheel, 7.5L Engine**Removal**

1. Remove the transmission (7003) from vehicle. Refer to Section 07-03B. Remove clutch assembly. Remove the engine flywheel mounting bolts and remove flywheel (6375) from the crankshaft (6303).

2. Refer to Section 03-00 for inspection.

Installation

1. Install flywheel on crankshaft. Install the mounting bolts. Tighten to 102-115 N·m (75-85 lb-ft).
2. Check engine flywheel runout and engine flywheel ring gear runout using Rotunda Dial Indicator with Bracketry 014-00282 or equivalent. Refer to Section 08-00. Refer to Ring Gear, Flywheel, in the Removal and Installation portion of this section if necessary to replace flywheel ring gear.

DIAL INDICATOR
WITH BRACKETRY
014-00282

A24015-A

3. Install clutch disc and pressure plate.
4. Install transmission assembly into vehicle. Refer to Section 07-03B.

Transmission Input Shaft Pilot Bearing**SPECIAL SERVICE TOOL(S) REQUIRED**

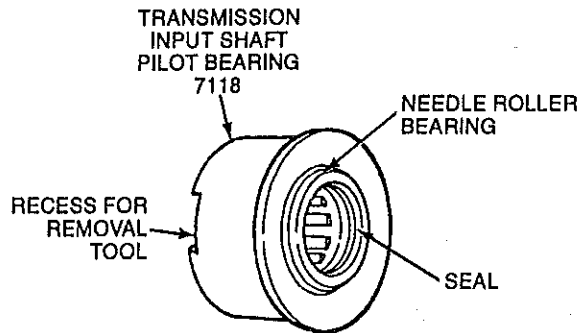
Description	Tool Number
Impact Slide Hammer	T59L-100-B
Puller	T58L-101-B
Pilot Bearing Replacer	T74P-7137-A
Clutch Aligner	T71P-7137-H

Removal

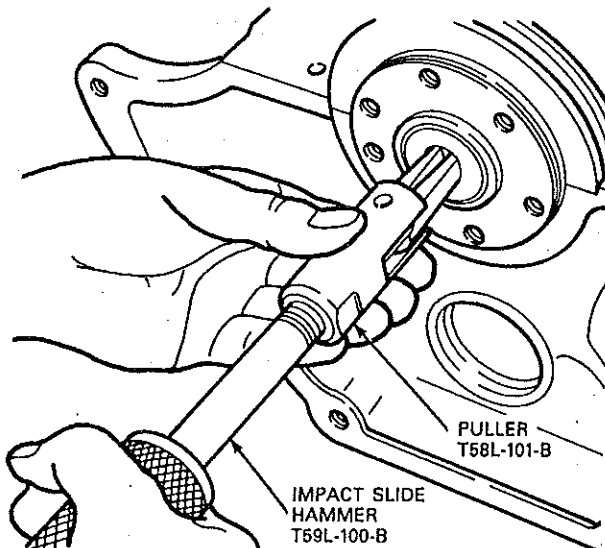
1. Remove the transmission (7003), clutch pressure plate (7563) and clutch disc (7550). Refer to Section 07-03A or Section 07-03B.

REMOVAL AND INSTALLATION (Continued)

2. Using Impact Slide Hammer T59L-100-B and Puller T58L-101-B, remove transmission input shaft pilot bearing (7118).



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C7029-C

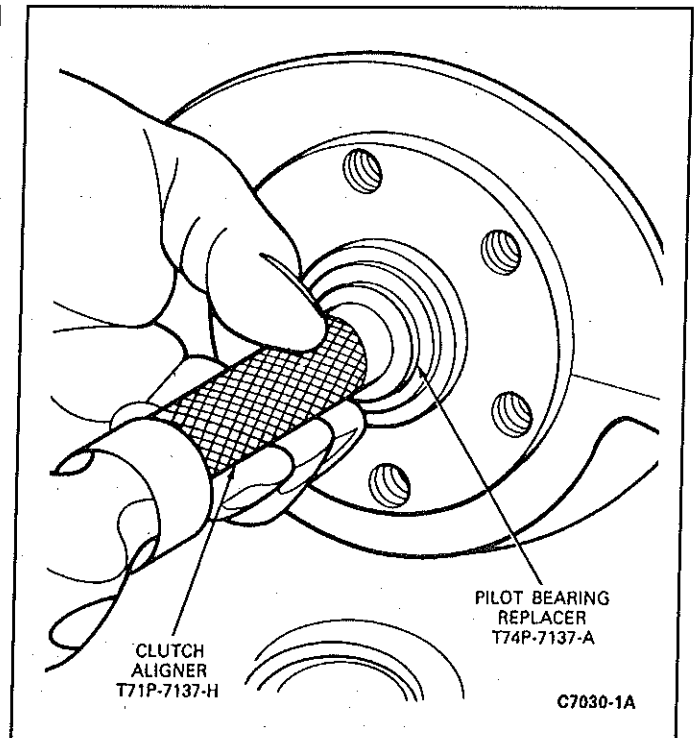
Installation

NOTE: The transmission input shaft pilot bearing can only be installed with the seal end of the transmission input shaft pilot bearing facing the transmission. The transmission input shaft pilot bearing and seal are pregreased and do not require additional lubrication. A new transmission input shaft pilot bearing must be installed whenever a transmission input shaft pilot bearing is removed.

1. **NOTE:** Do not damage the transmission input shaft pilot bearing while inserting input shaft (7017) into transmission input shaft pilot bearing during installation of transmission.

Using Pilot Bearing Replacer T74P-7137-A and Clutch Aligner T71P-7137-H, install the transmission input shaft pilot bearing with seal facing transmission so adapter is not cocked.

2. Install clutch pressure plate, clutch disc and transmission.



C7030-1A

Clutch Release Hub and Bearing

Refer to Section 08-02.

Clutch Release Lever

Refer to Section 08-02.

Ring Gear, Flywheel**Removal**

1. Remove transmission (7003). Refer to Section 07-03A or Section 07-03B.
2. Remove flywheel.
3. To replace a damaged or worn ring gear, heat the ring gear with a blow torch on the engine side of the gear, and knock it off the flywheel. **Do not hit the flywheel when removing the ring gear.**

Installation

1. **CAUTION:** Do not heat any portion of the gear to a temperature higher than 278°C (500°F). If this limit is exceeded, the hardness will be removed from the ring gear teeth.

Heat the new ring gear evenly until the gear expands enough to slip onto the flywheel. Make sure the gear is seated properly against the shoulder.

2. Install flywheel.
3. Install transmission. Refer to Section 07-03A or Section 07-03B.

CLEANING AND INSPECTION**Clutch/Pressure Plate**

Refer to Section 08-00.

ADJUSTMENTS**Clutch**

Refer to Section 08-00.

SPECIFICATIONS**PRESSURE PLATE AND CLUTCH DISC SPECIFICATIONS**

Specifications	4.9L I-6 EFI Below 8,500 Lbs. GVWR/5.0L V-8 EFI	4.9L I-6 EFI Over 8,500 Lbs. GVWR	5.8L V-8 EFI	7.3L V-8 Diesel	7.5L V-8 EFI
Disc Assembly:					
Outside Diameter (Approx.) mm (In.)	280 (11.0)	280 (11.0)	294 (11.6)	310 (12.2)	312 (12.3)
Inside Diameter (Approx.) mm (In.)	198 (7.8)	198 (7.8)	210 (8.3)	190 (7.5)	200 (7.9)
Facing Area Sq. cm (Sq. In.)	616 (95.5)	616 (95.5)	665 (103.1)	943 (146.1)	896 (138.8)
Facing Thickness (Ea.) mm (In.)	3.30 (.130)	3.30 (.130)	3.30 (.130)	3.50 (.138)	3.30 (.130)
Compressed Thickness mm (In.)	7.60 (.300)	7.60 (.300)	7.60 (.300)	7.60 (.300)	7.60 (.300)
Lining Material	Woven Non-Asbestos	Woven Non-Asbestos	Woven Non-Asbestos	Woven Non-Asbestos	Woven Non-Asbestos
No. Torsion Springs and Color Code Identification	4 — Plain, Inner 4 — Plain, Outer	4 — Plain, Inner 4 — Plain, Outer	4 — Plain, Inner 9 — Plain, Outer	None ^a	5 — Plain, Inner 5 — Plain, Outer
Pressure Plate:					
Color Code Identification (Cover)	Green	Green	None	None	None
Pressure Spring	Belleville	Belleville	Belleville	Belleville	Belleville
Type (Plate)	Belleville	Belleville	Belleville	Belleville	Belleville
Total Plate Pressure Kg (Lbs.)	918 (2022)	918 (2022)	918 (2022)	1278 (2817)	1060 (2338)

a 5 — Plain, Inner, 5 — Red, Outer with F-Super Duty only.

FLUID SPECIFICATIONS

Application	Description	Specifications	Ford Specification Number
Clutch Master Cylinder	High-Performance Brake Fluid	C6AZ-19542-AA or BA or Equivalent DOT 3	ESA-M6C25-A

LUBRICANT SPECIFICATIONS



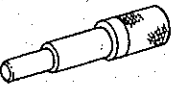
Application	Description	Part Number	Ford Specification Number
4.9L Engine Flywheel Attaching Bolts	Pipe Sealant with Teflon [®]	D8AZ-19554-A or equivalent that meets Ford specification	WSK-M26350-AZ and ESR-M18P7A
5.0L, 5.8L, 7.3L Engine Flywheel Attaching Bolts	Threadlock [®] and Sealer	EOAZ-19554-AA or equivalent that meets Ford specification	ESE-M4G204-A — Type II WSK-M2G315-A5 — Type II
Clutch Release Lever Stud	Premium Long-Life Grease (Molybdenum Disulfide Type)	C1AZ-19590-BA	ESA-M1C75-B
Clutch Release Lever	Premium Long-Life Grease (Molybdenum Disulfide Type)	C1AZ-19590-BA	ESA-M1C75-B
Bearing Bore and Carrier Clutch Release	Premium Long-Life Grease	XG-1-C or -K or equivalent	ESA-M1C75-B

SPECIFICATIONS (Continued)

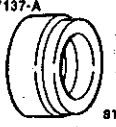
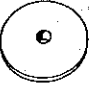

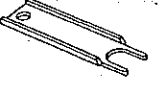
TORQUE SPECIFICATIONS F-150, F-250, F-350 and Bronco with 4.9L, 5.0L (Mazda R2 Trans.) and 5.8L (ZF Light Duty) Engines		
Description	N·m	Lb·Ft
Clutch Pressure Plate Bolt	30-40	22-30
Concentric Slave Cylinder Bolt	19-26	14-19
Flywheel Attaching Bolts	102-115	75-85

TORQUE SPECIFICATIONS F-250 HD, F-350 and F-Super Duty Chassis Cab with 7.3L Diesel Engine and 7.5L (460 CID) V-8 Engine (ZF Heavy-Duty)		
Description	N·m	Lb·Ft
Clutch Pressure Plate Bolt, 7.5L	19-26	14-19
Rear Engine Cover Plate Bolt	11-15	8-11
Clutch Pressure Plate, 7.3L Diesel Engine	26-35	19-26
Flywheel Attaching Bolts, 7.5L Engine	102-115	75-85
Flywheel Attaching Bolts, Diesel Engines	121	89

SPECIAL SERVICE TOOLS/EQUIPMENT

SPECIAL SERVICE TOOLS REQUIRED	
Tool Number/Description	Illustration
T58L-101-B Puller	 T58L-101-B
T59L-100-B Impact Slide Hammer	 T59L-100-B
T71P-7137-H Clutch Aligner A .582-Inch Dia. B .903-Inch Dia.	 T71P-7137-H

(Continued)

SPECIAL SERVICE TOOLS REQUIRED (Cont'd)	
Tool Number/Description	Illustration
T74P-7137-A Pilot Bearing Replacer	 T74P-7137-A 8T1045-A
T83T-6701-A Rear Crankshaft Seal Replacer	 T83T-6701-A
T83T-6701-B Rear Crankshaft Seal Pilot	 T83T-6701-B
T88T-70522-A Clutch Coupling Tool	 T88T-70522-A

SPECIAL SERVICE TOOLS DESIRED	
Tool Number	Description
D79T-7550-A	Truck Clutch Alignment Shaft

ROTUNDA EQUIPMENT	
Model	Description
014-00282	Dial Indicator with Bracketry