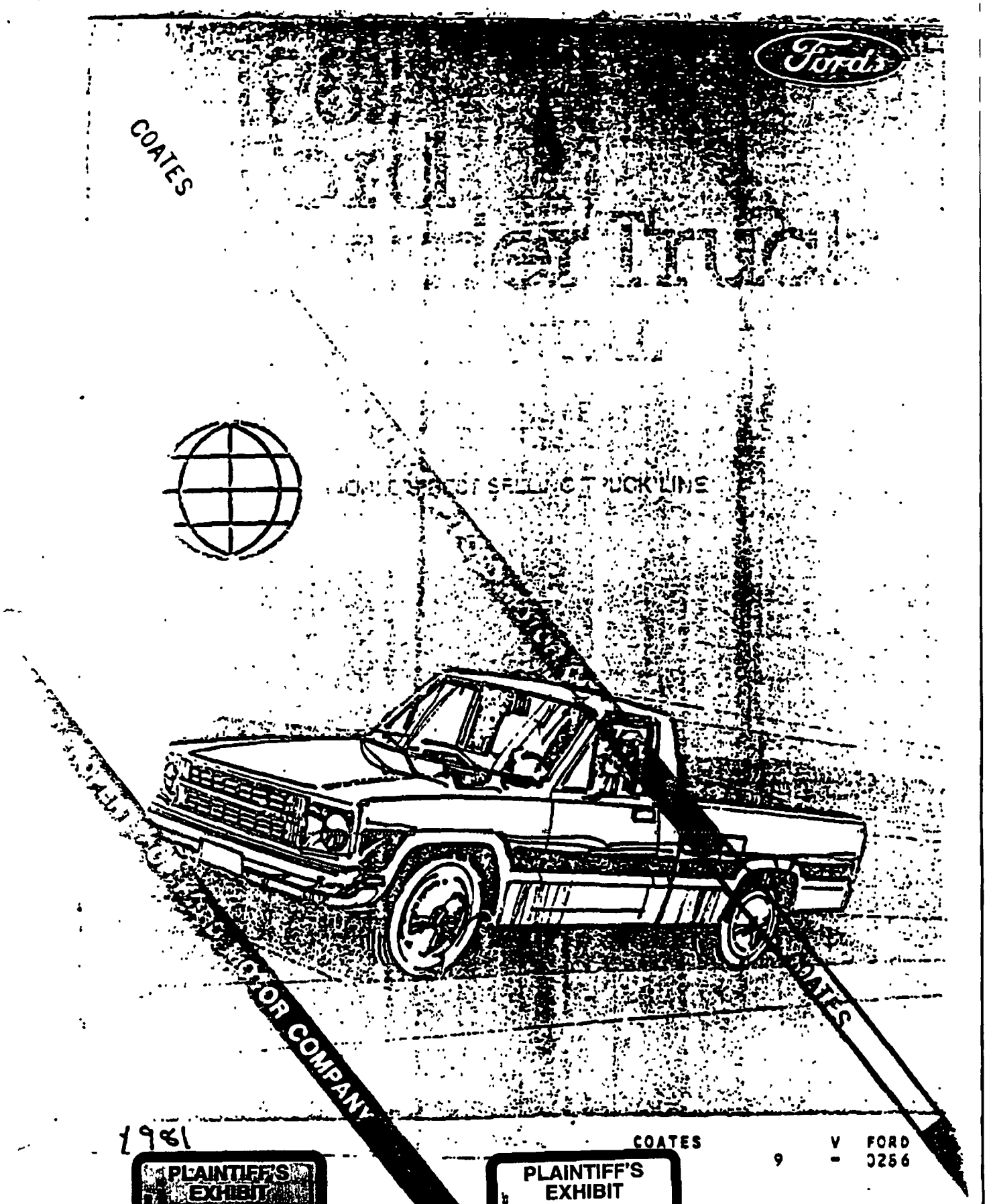

SCF-FORD-3003

ALL MODELS

Inspection

1. With the transmission and clutch release bearing removed, install the indicator pilot tool shown in Fig. 1.
2. Clean the face of the flywheel housing bolt bosses and remove all burrs, nicks, and paint from the mating surfaces.
3. Install the dial indicator on the pilot and adjust the holder so the button contacts a circumference just inside of the transmission mounting holes.
4. Push the flywheel forward to remove crankshaft end play. Set the dial indicator to read zero.
5. Remove the spark plugs to release compression.
6. Holding the engine crankshaft in the forward position, turn the crankshaft through one revolution. The indicator should return to zero after one revolution if no end play has affected the reading.
7. Note the indicator reading and mark the maximum point of runout (positive reading) on the face of the housing (Fig. 1).
8. Position the dial indicator to check bore alignment (Fig. 1). The bore must be clean and free of burrs, nicks, and paint.
9. Pull the crankshaft through one revolution. Note the indicator and mark the maximum point of runout (positive reading) on the face of the housing.
10. Remove the indicator from the crankshaft and the housing.

If bore runout exceeds 0.015 and face runout exceeds 0.010, and positive readings occur at more than 90 degrees to each other, the housing should be removed for cleaning and deburring and the dowels should be checked for proper alignment. If cleaning of the mating surfaces and deburring of the starter plate or housing will not bring the assembly to specification, replace the housing.

CLEANING AND INSPECTION

CLUTCH

Release Bearing

Wipe all oil and dirt off the release bearing. The bearing is prelubricated and should not be cleaned with solvent.

On all models except Pinto and Mustang, inspect the bearing retainer for loose spring clips and rivets.

Inspect the release bearing assembly for burrs which may cause the assembly to drag on the transmission bearing retainer. If burrs are found, inspect the transmission input shaft bearing retainer for evidence of scoring. Polish out burrs and scoring with a crocus pad.

Apply a thin film of lithium base grease (C3VY-19586 A) to the bearing retainer, both sides of the release lever fork where it contacts the release bearing hub and retaining springs, and to the release bearing surface that contacts the pressure plate fingers.

Carefully fill the grease groove inside the bearing hub with the lithium base grease (no polyethylene). Be sure to clean all excess grease from the bore of the bearing hub, excess grease will be forced into the spline by the transmission input shaft bearing retainer and will contaminate the clutch disc. Also, care must always be exercised when applying lubricants to the release bearing, release bearing hub and the release lever fork, as excessive lubricant would contaminate the clutch disc.

Hold the bearing inner race and [illegible] the outer race while applying [illegible]. If rotation is rough or noisy, [illegible] bearing.

[illegible] bearing wear is usually caused by [illegible] clutch release bearing free play [illegible] clutch pedal does not return [illegible] stop. If the clutch linkage does [illegible] enough free travel, the release [illegible] constantly touch the release [illegible] whenever the engine is running.

Misalignment between the engine and transmission can cause release bearing failure. Other symptoms of misalignment are transmission jumping out of gear (especially third gear), drive line vibration, excessive wear in the pilot bearing, scrubby pedal feel, excessive clutch disc spin time resulting in gear [illegible] and excessive transmission gear [illegible].

Pressure Plate and Cover

[illegible] the surface of the pressure plate [illegible] marks, scores, and ridges. Generally, pressure plate resurfacing is not recommended, but minor burn marks, scores and ridges can be removed. While resurfacing, be sure to maintain the flatness of the pressure plate. If it is badly heat-checked, warped or deeply scored, replace the pressure plate and cover assembly. Clean pressure plate and flywheel surfaces with [illegible] solvent, such as alcohol to be sure the surfaces are free from any oil film. [illegible] use cleaners with petroleum base, [illegible] not immerse the pressure plate in [illegible].

If a substantial difference in [illegible] wear exists, the heavily worn fingers [illegible] binding. Replace the pressure plate.

On all models except Pinto and Mustang, the pressure plate should be lubricated with a lithium base grease between the driving lugs and the edges of the pressure plate openings as shown in Fig. 2. Depress the pressure plate fingers fully, apply the lubricant, and then move the fingers up and down until the lubricant is worked in. Do not apply excessive lubricant.

Clutch Disc

Inspect the clutch disc facings (Fig. 3) for oil or grease. Eliminate the source of any oil or grease before replacing the disc.

Any excessive amount of lubricant in the pilot bushing or release bearing hub will find its way to the disc facings. Too much lubricant in the transmission or a plugged transmission vent will force the transmission lubricant out the input shaft and onto the disc facings. Also, rear main bearing oil seal leaks or oil leaks from the flywheel mounting bolts can contaminate the clutch disc.



FIG. 2 Pressure Plate Lubrication Points

Inspect the clutch disc (Fig. 3) for worn or loose facings, distortion, loose [illegible] at the hub, and for broken springs. [illegible] loose enough to rattle will not [illegible] noise when the car is operating. [illegible] the disc assembly if any of these defects are present. Be especially careful when installing a new disc to avoid dropping it or contaminating it with oil or grease.

Pilot Bearing (Bushing)—All Models Except Pinto and Mustang

Check the fit of the clutch pilot bushing in the bore of the crankshaft. The bushing should be pressed firmly and squarely into the crankshaft, and should not be loose. A pilot bushing that is

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FIG. 3 Installing Clutch Disc

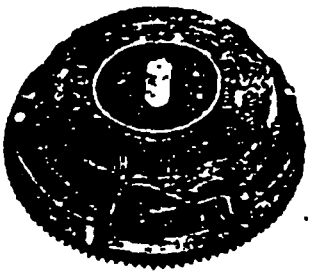

FIG. 4 Installing Clutch Cover and Pressure Plate

5. Install the transmission as detailed in Part 16-21.

RELEASE LEVER AND BEARING

Removal

1. The clutch release lever (Fig. 1) is held on the release lever ball pivot by means of a spring clip. To remove the lever, disconnect the release collar spring (Fig. 1) and pull the lever off the pivot.
2. Remove the release lever, boot and release bearing.
3. Inspect the clutch parts as detailed in this Part.

Installation

1. Apply a thin film of lubricant to the input shaft bearing retainer portion of the clutch housing.
2. Apply lubricant to the pivot bolt and drive the release lever onto the pivot. Apply a thin film of lubricant to the release lever where it contacts the release bearing hub. Install the release bearing and hook the release collar spring.
3. Install the release lever boot.
4. Apply a thin film of lubricant to the face of the release bearing.
5. Check to be sure that the release bearing hub slides freely on the input shaft bearing retainer.

CLUTCH HOUSING

The clutch housing contains the transmission input shaft bearing seal and also is used to control end play in the input shaft assembly. Instructions for replacement of the clutch housing are given in the Sub-Assemblies Section of Part 16-21.

CLEANING AND INSPECTION

RELEASE BEARING

Wipe all oil and dirt off the release bearing. The bearing is prelubricated and should not be cleaned with solvent.

Inspect the release bearing assembly for burrs which may cause the assembly to drag on the transmission bearing retainer. Any such burrs should be cleaned up with fine crocus cloth. If burrs are found, inspect the the transmission input shaft bearing retainer for evidence of scoring. Any scoring should be polished out with crocus cloth. Coat the bearing retainer with a thin film of Molyoenum disulfide lithium grease. Prior to release bearing installation, apply a light film of molyoenum disulfide lithium grease or equivalent on both sides of the release lever fork where it contacts the release bearing hub and retaining springs. Carefully fill the grease groove inside the bearing hub with molyoenum disulfide lithium grease (no polyethylene). Clean all excess grease from the bore of the bearing hub. Excess grease will be forced onto the spline by the transmission input shaft bearing retainer and will contaminate the clutch disc. Also, care must be exercised when applying lubricants to the release bearing, release bearing hub and the release lever fork to avoid excessive grease from contaminating the clutch disc.

Hold the bearing inner race and rotate the outer race while applying pressure to it. If the bearing rotation is rough or noisy, replace the bearing.

Most release bearing failures are caused by improper clutch release bearing free play setting or inadequate clutch pedal return. If the clutch linkage does not have enough free travel, the release bearing will constantly touch the release fingers and will spin whenever the engine is running.

Release bearing failure can be caused by the release lever contact points being out of plane. Check the wear on the release bearing assembly where the release lever contacts it.

If one side of the assembly shows more wear than the other, the release lever is bent out of plane, or is not centering on the bracket on the flywheel housing.

Misalignment between the engine and transmission can cause release bearing failure. Other symptoms of misalignment are transmission jumping out of gear, driveline vibration, excessive wear in the pilot bushing, excessive clutch disc spin time resulting in gear clash, and excessive transmission gear wear.

PRESSURE PLATE AND COVER

Check the diaphragm spring and cover for wear or damage.

Inspect the surface of the pressure plate for warpage, burn marks, scores, or ridges. Generally, pressure plate resurfacing is not recommended. However, minor burn marks, scores, or ridges may be removed. During the resurfacing process, the flatness of the pressure plate must be maintained. If the pressure plate is badly heat-checked or deeply scored, replace the pressure plate and cover assembly. Clean pressure plate and flywheel surfaces with a suitable solvent, such as alcohol to be sure the surfaces are free from any oil film. Do not use cleaners with petroleum base, and do not immerse the pressure plate in the solvent.

CLUTCH PLATE WEAR

Inspect the clutch plate for wear, release vehicle on a hoist. Actuate the clutch pedal all the way and check the stroke of the release rod in the release cylinder (Fig. 5). If the stroke is less than 5mm, replace the clutch plate.

CLUTCH DISC (OUT OF VEHICLE).

Inspect the clutch disc facings for oil or grease. Eliminate the source of any oil or grease before replacing the disc. Any excessive amount of grease in the pilot bearing or release bearing hub will find its way to the disc facings. Too much lubricant in the transmission or a plugged transmission vent will force the transmission lubricant out the input shaft and onto the disc facings. Also, rear main bearing oil seal leaks or oil leaks from the flywheel mounting bolts can contaminate the clutch disc.

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