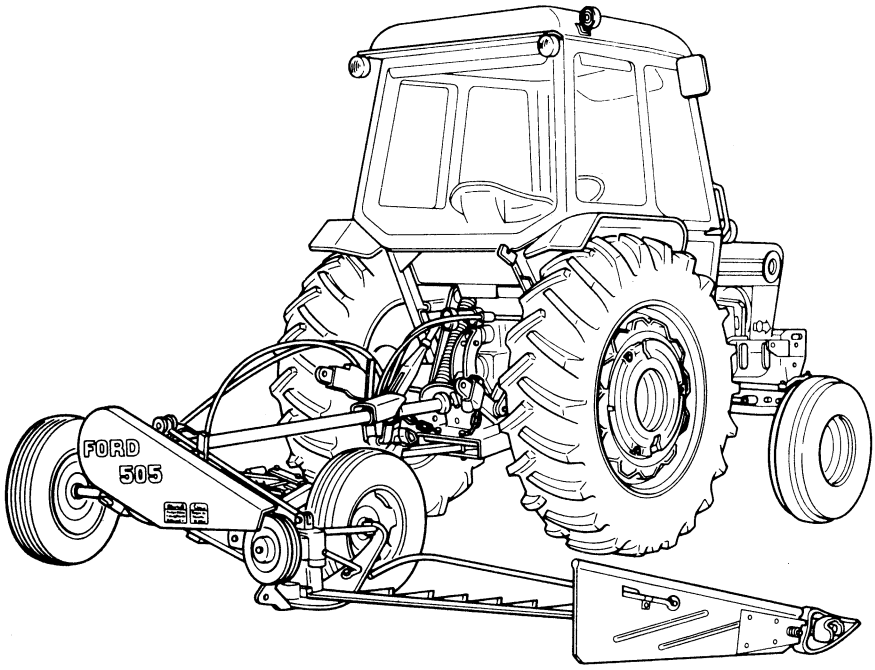
FORD SERIES 505 MOWER



REPAIR MANUAL

Reprinted

CONTENTS

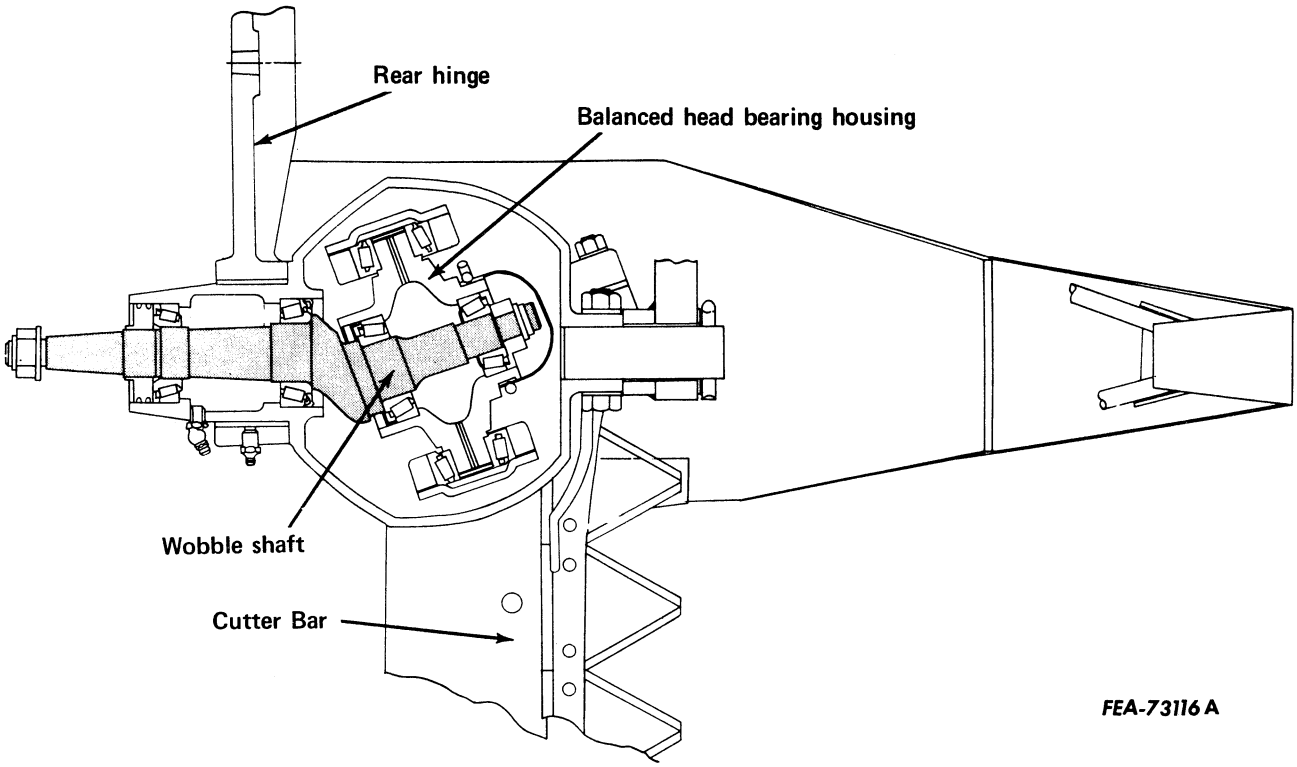
SPECIFICATIONS

Strokes per minute	
540 PTO RPM	—
900 RPM pulley	1800
1000 RPM pulley	2000
Stroke length	2-5/8 inches
Balanced head bearing housing end play in balance yoke	
Bearing housing - part no. H458953 R2	.006 to .007 inch
Bearing housing - part no. H458953 R3	.003 to .004 inch
Wobble shaft end play:	
In wobble shaft housing	.0015 to .002 inch
In balanced head bearing housing	.003 to .005 inch
Wobble shaft assembly runout (gauge block measurement)	.014 inch maximum
Pivot pin protrusion	.015 to .048 inch
Yoke and knife arm clearance	.010 inch minimum

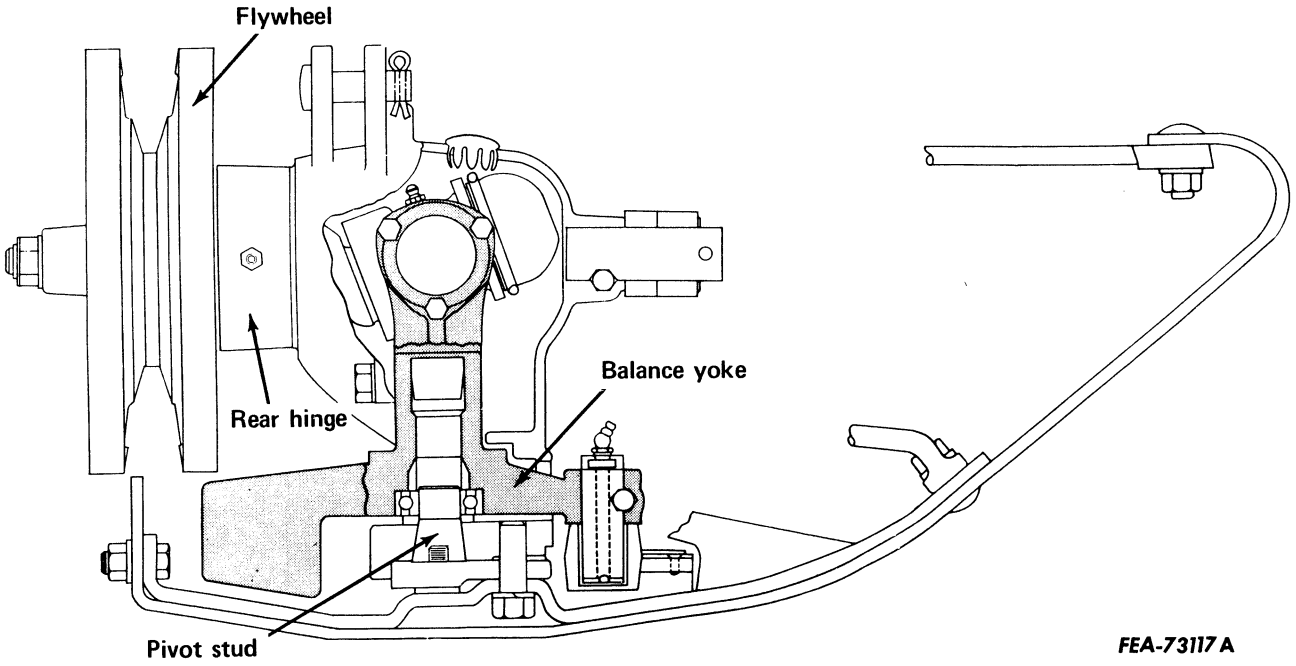
SPECIAL TORQUES

Yoke bearing capscrews	10 to 11 ft. lb.
Front hinge pin lock bolt	120 ft. lb.
Drive housing capscrews	85 to 95 ft. lb.
Flywheel lock nut	150 ft. lb.
Mounting capscrews	155 to 175 ft. lb.
Knife pin bolt	85 to 95 ft. lb.

GENERAL DESCRIPTION



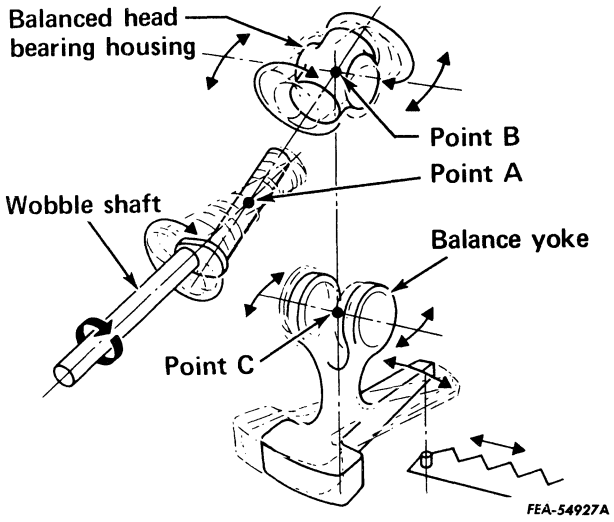
Illust. 1. Cutaway view of the balanced head knife drive



Illust. 2. Cutaway view of the balanced head knife drive

The balanced head knife drive is a high speed, counterbalanced unit. The elimination of the pitman type drive allows higher operating speeds, and therefore more efficient cutting.

The knife drive head mounts directly on the mower cutter bar and pivots with it, enabling the cutter bar to operate at any desired angle.



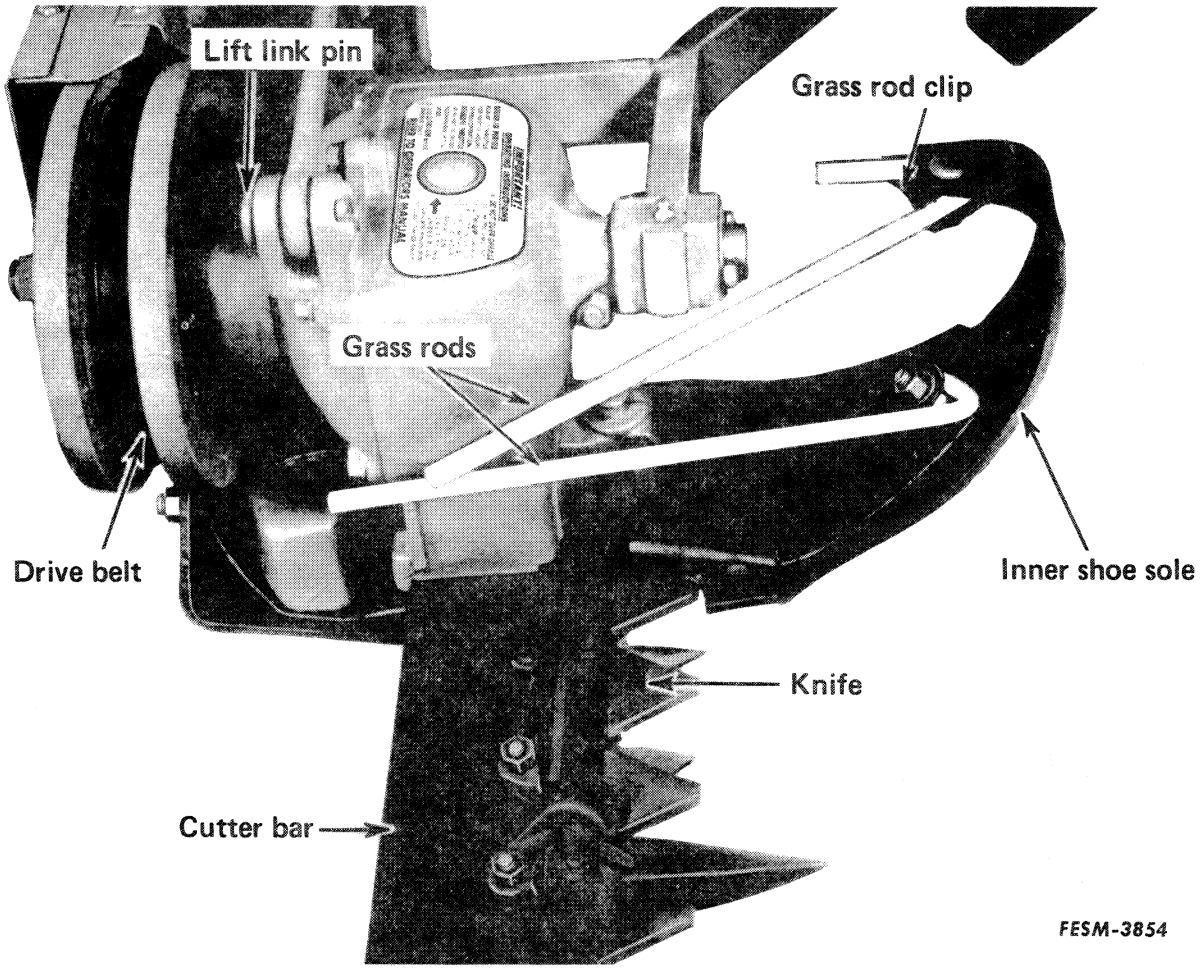
Illust. 3. Principles of operation.

Power is transmitted to the assembly by a belt drive to the wobble shaft flywheel. Rotary motion of the wobble shaft is changed to oscillating motion at the cutter bar.

When the balanced knife drive is in operation, points "A", in the wobble shaft, "B" in the bearing housing, and "C" in the balance yoke, are a common point which remains motionless. See Illust. 3. All motion within the drive assembly pivots about this common point.

When points "A", "B" and "C" are one common point, performance and service will be satisfactory. Strict adherence to the reassembly procedure is necessary to locate the pivot points within runout limitations.

MOWER KNIFE DRIVE REMOVAL



Illust. 4. Knife drive mounting.

1. Position the cutter bar on a flat surface, and disconnect the lift link pin. See Illust. 4

2. Remove the drive belt. See Illust. 4.

3. Remove the knife pin.

CAUTION: Remove the knife from the cutter bar for safety.

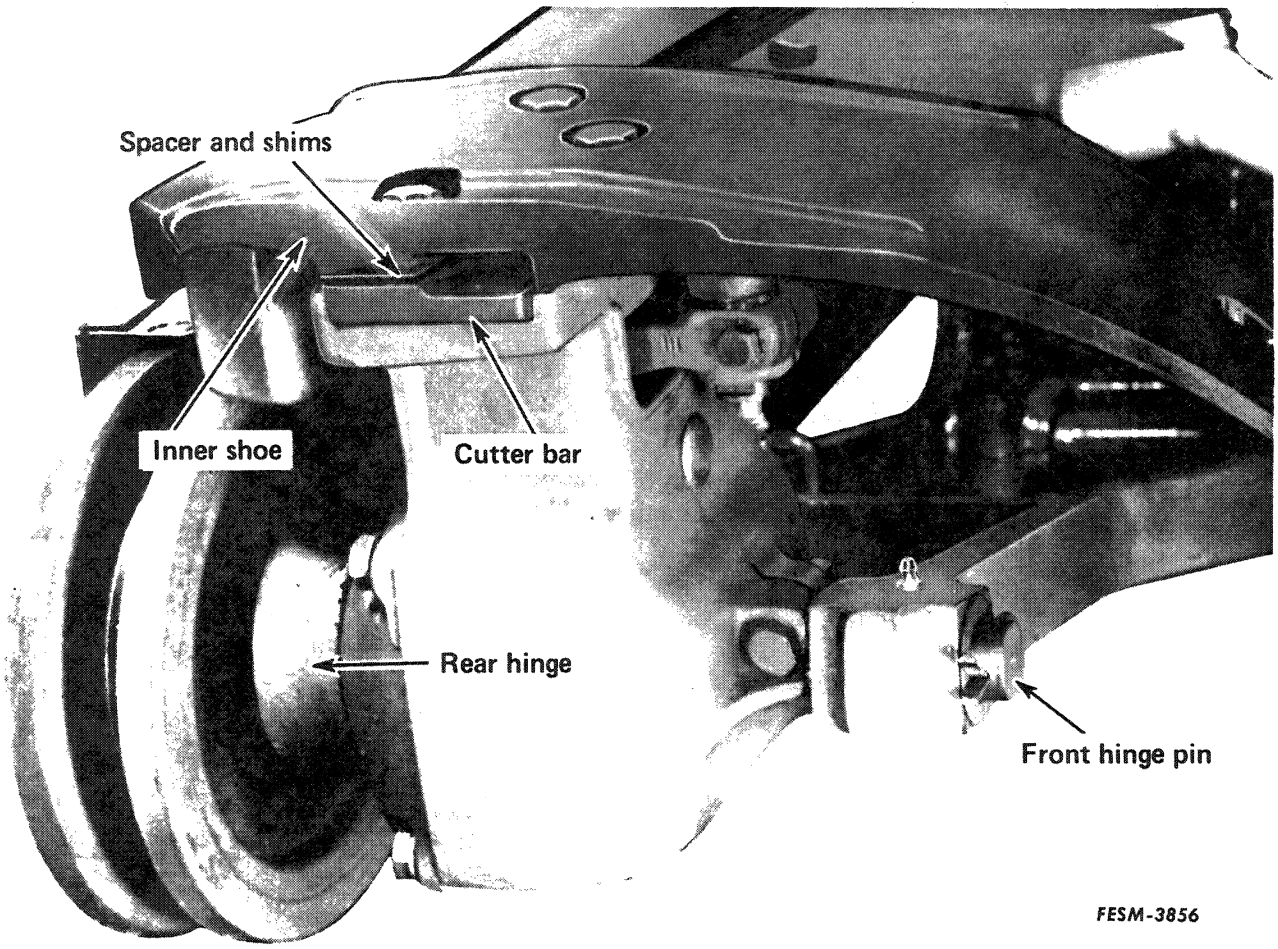
4. Fold the cutter bar over the mower frame, and support the outer end so that it will not drop when the inner end is unbolted from the drive assembly.

5. Remove the inner shoe sole. See Illust. 4.

6. Remove the inner shoe and cutter bar. See Illust. 6.

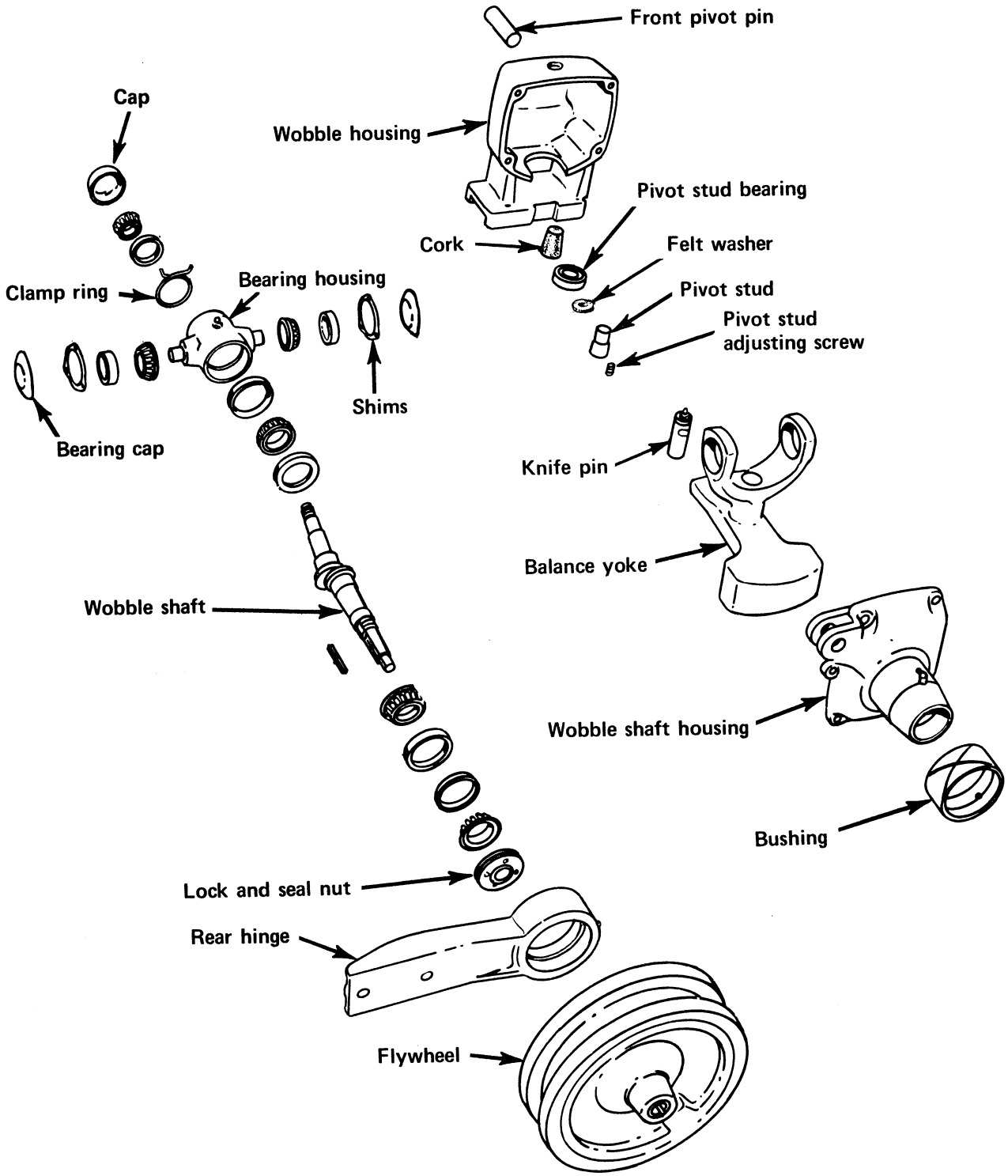
7. Disconnect the front and rear hinges. See Illust. 6.

8. Remove the drive assembly.

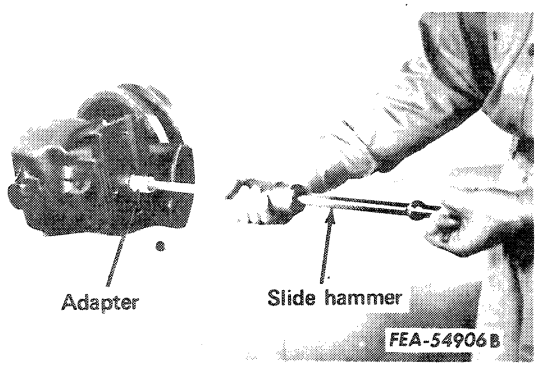


Illust. 6. Inner shoe and cutter bar mounting.

DISASSEMBLY



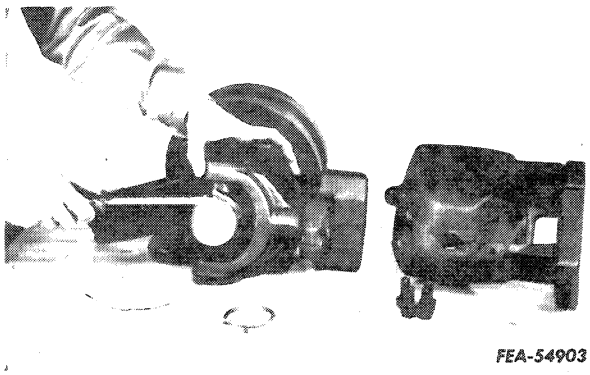
Illust. 7. Balanced head knife drive



Illust. 8. Removing the pivot stud.

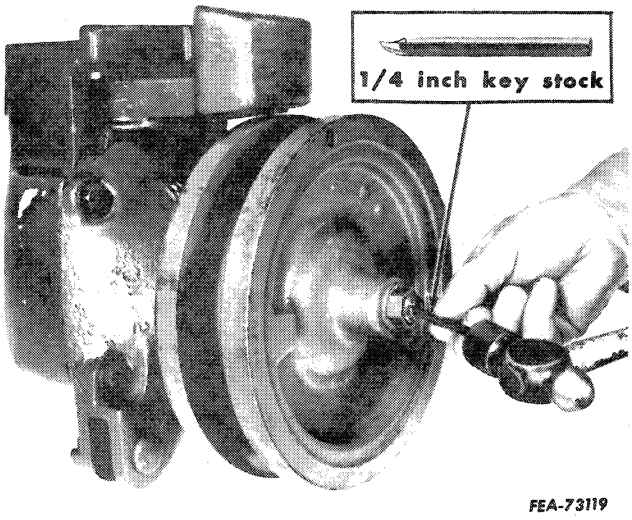
1. Remove the Allen screw from the pivot stud, and remove the stud using a slide hammer with an adapter or equivalent. See Illust. 8.

2. Separate the housings and thoroughly clean all parts.



Illust. 9. Removing the crankshaft bearing housing cap.

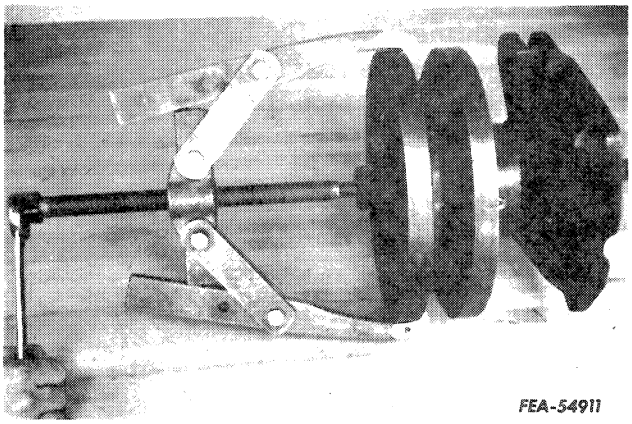
3. Remove the crankshaft bearing housing cap and discard it. See Illust. 9.



Illust. 10. Unstaking the flywheel locknut.

4. Unstake and remove the flywheel lock nut. Remove the washer. Be careful not to damage the threads. See Illust. 10.

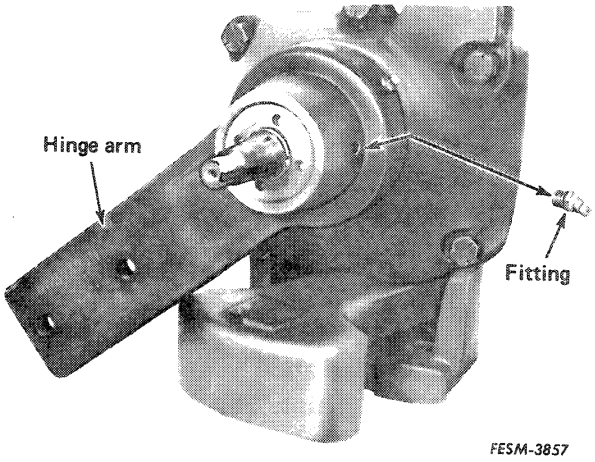
NOTE: An unstaking tool can be made from 1/4 inch key stock or an Allen wrench. See Illust. 10.



Illust. 11. Removing the flywheel.

5. Remove the flywheel. See Illust. 11.

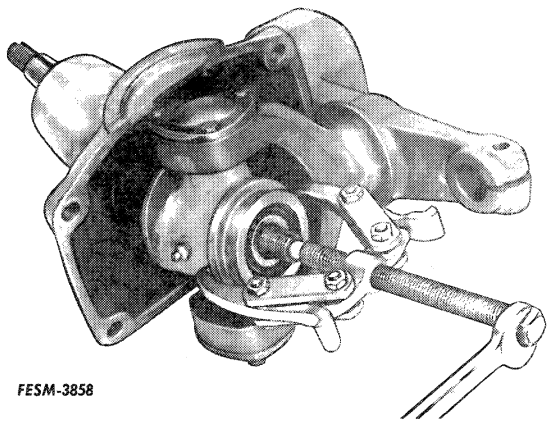
NOTE: It may be necessary to tap the puller screw with a hammer to loosen the flywheel.



Illust. 12. Flywheel removed.

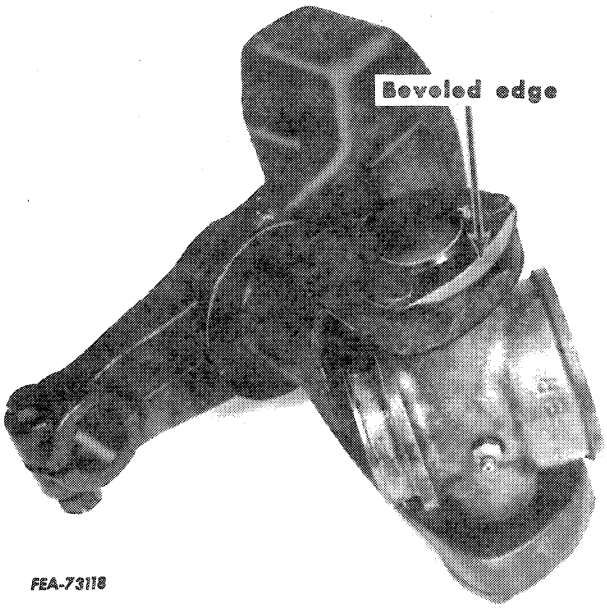
6. Remove the grease fitting from the wobble shaft housing, and remove the rear hinge arm if so equipped. See Illust. 12.

7. Unstake and remove the lock nut from the balanced head bearing housing end of the wobble shaft and discard it. Be careful not to damage the threads.



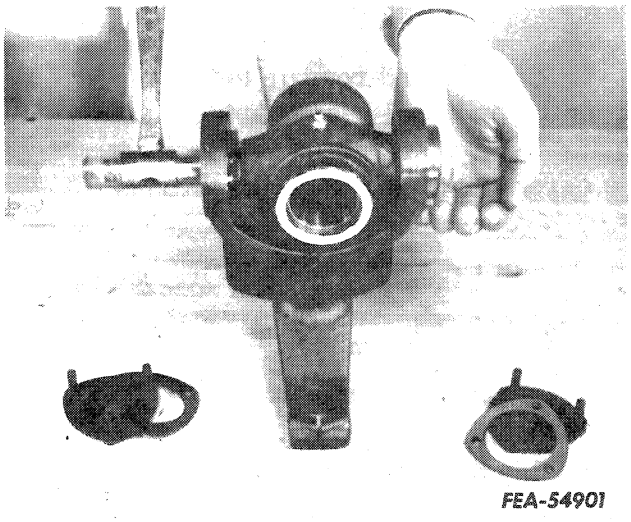
Illust. 13. Removing the balanced head bearing housing.

8. Remove the balanced head bearing housing from the wobble shaft. See Illust. 13.



Illust. 14. Bearing cap position.

9. Remove the balance yoke bearing caps and shims. Note the beveled edge on the caps and the location of shims for reassembly. See Illust. 14.

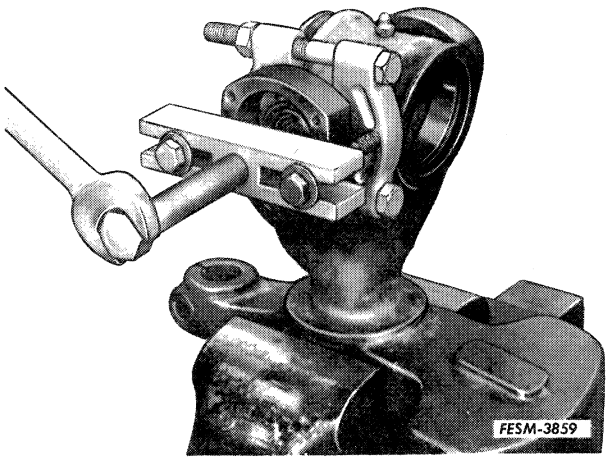


Illust. 15. Removing the balance yoke bearing cups.

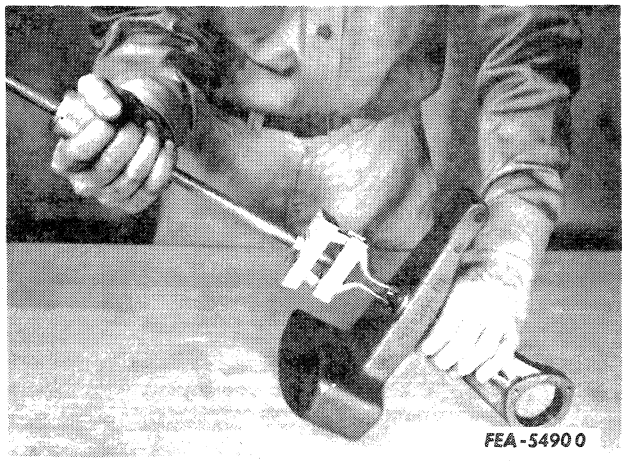
10. Drive gently against each bearing trunnion to remove the balance yoke bearing cups. See Illust. 15.

11. Remove the balance yoke bearings with a puller. See Illust. 16. Discard the seals.

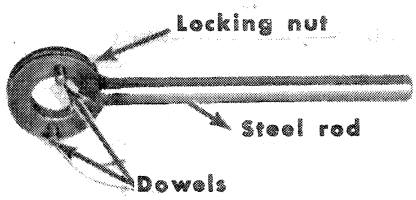
12. If they are to be replaced, remove the bearing cups from the balanced head bearing housing.



Illust. 16. Removing the balance yoke bearings.



Illust. 17. Removing the pivot stud bearing.



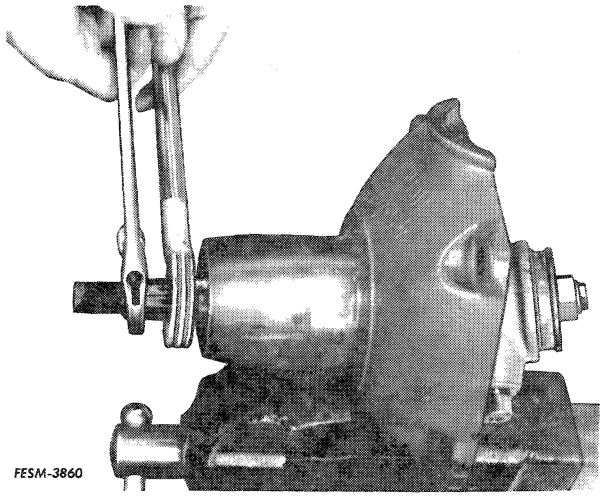
Step 1. Drill or ream the threaded hole in the locking nut to 1-3/16 inch diameter.

Step 2. Install two 1/4-inch dowels into opposite holes in the locking nut. Dowels should extend out approximately 5/8 inch from face of nut. Weld dowels in position.

Step 3. Weld a 5/8-inch diameter by 8-inch length steel rod to the locking nut.

FEA-73120

Illust. 18. Lock and seal nut tool.



Illust. 19. Removing the wobble shaft lock and seal nut.

13. If it is to be replaced, remove the pivot stud bearing from the balance yoke. See Illust. 17.

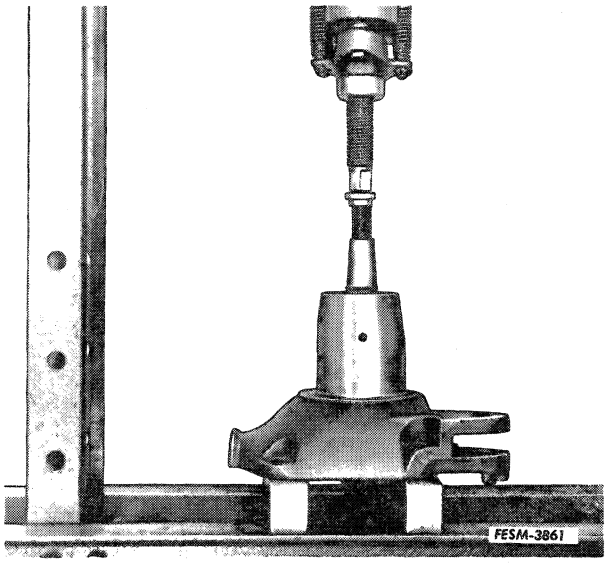
14. Unstake and remove the wobble shaft lock and seal nut using a spanner wrench or tool as shown in Illust. 18. Use an adjustable wrench on the flywheel key and shaft to prevent the shaft from turning. See Illust. 19.

15. Press the wobble shaft from the wobble shaft housing. See Illust. 20.

16. If they are to be replaced, remove the wobble shaft inner bearings.

NOTE: Service wobble shafts are supplied with the inner bearings, both lock nuts, and the lock and seal nut.

17. If they are to be replaced, remove the bearing cups from the wobble shaft housing.



Illust. 20. Removing the wobble shaft.

INSPECTION AND REPAIR

1. Inspect bearings and bearing cups for wear and damage.

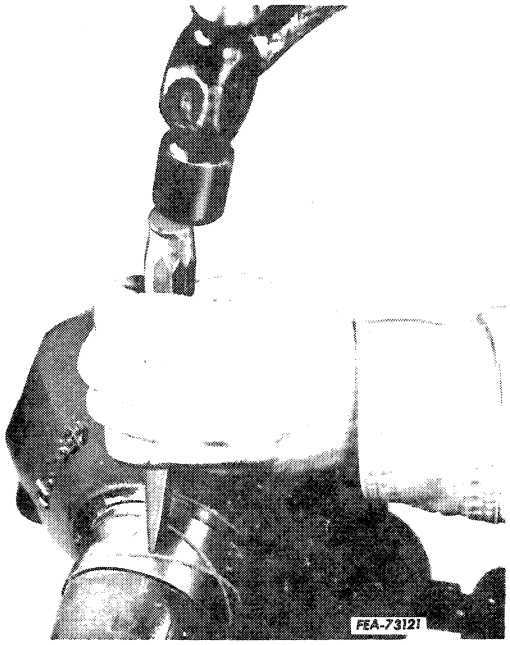
2. Examine bearing cup bores for wear and damage.

3. Inspect the wobble shaft for cracks and signs that the bearing races have turned on the shaft.

4. Replace worn and damaged parts. Replace bearings in pairs.

5. If necessary, replace the rear hinge bushing as follows:

(a) Spread the old bushing, using a dull chisel, and remove it. See Illust. 21.



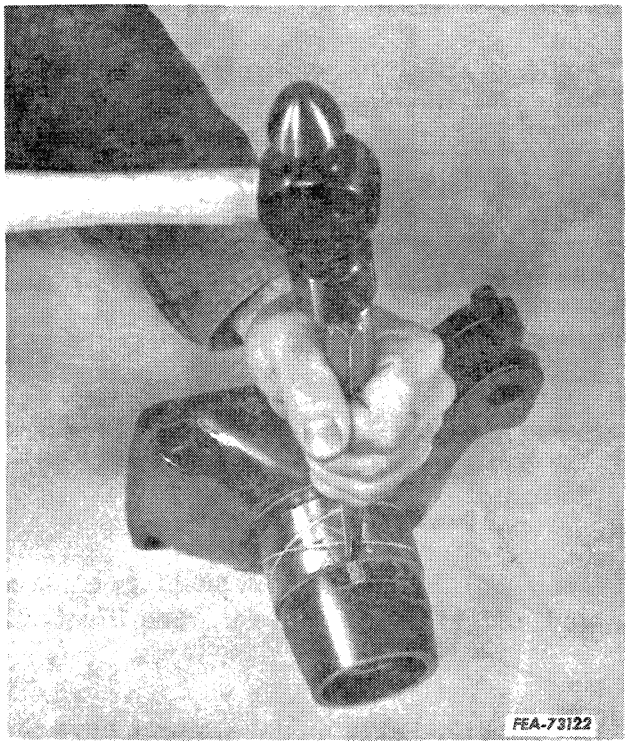
Illust. 21. Spreading the hinge bushing

Illust. 22. Staking hole location.

(b) If the wobble shaft housing does not have a staking slot for staking the hinge bushing, drill two 1/4 inch holes, 3/16 inch deep, 180 degrees apart, centered at the outer edge of the bushing. See Illust. 22.

IMPORTANT: Do not drill through the housing.

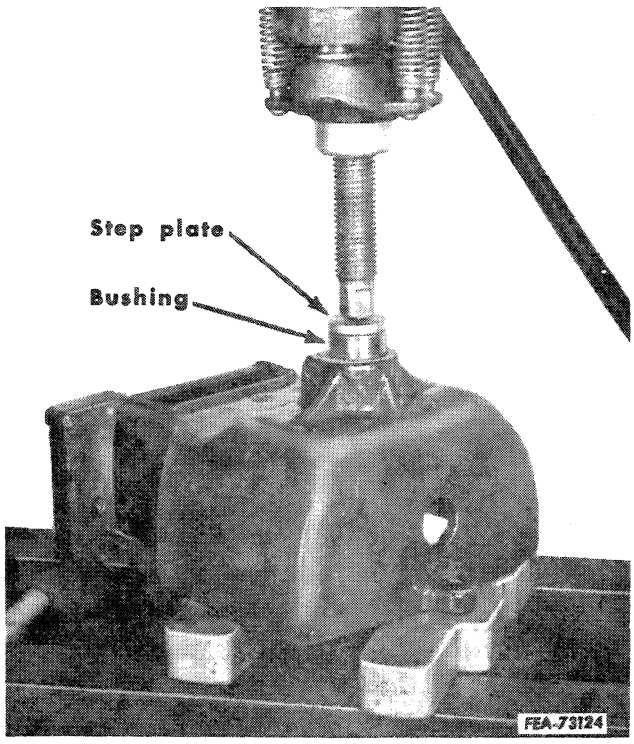
(c) Heat the new bushing with a heat or flood lamp and install it on the housing.



Illust. 23. Staking the bushing.

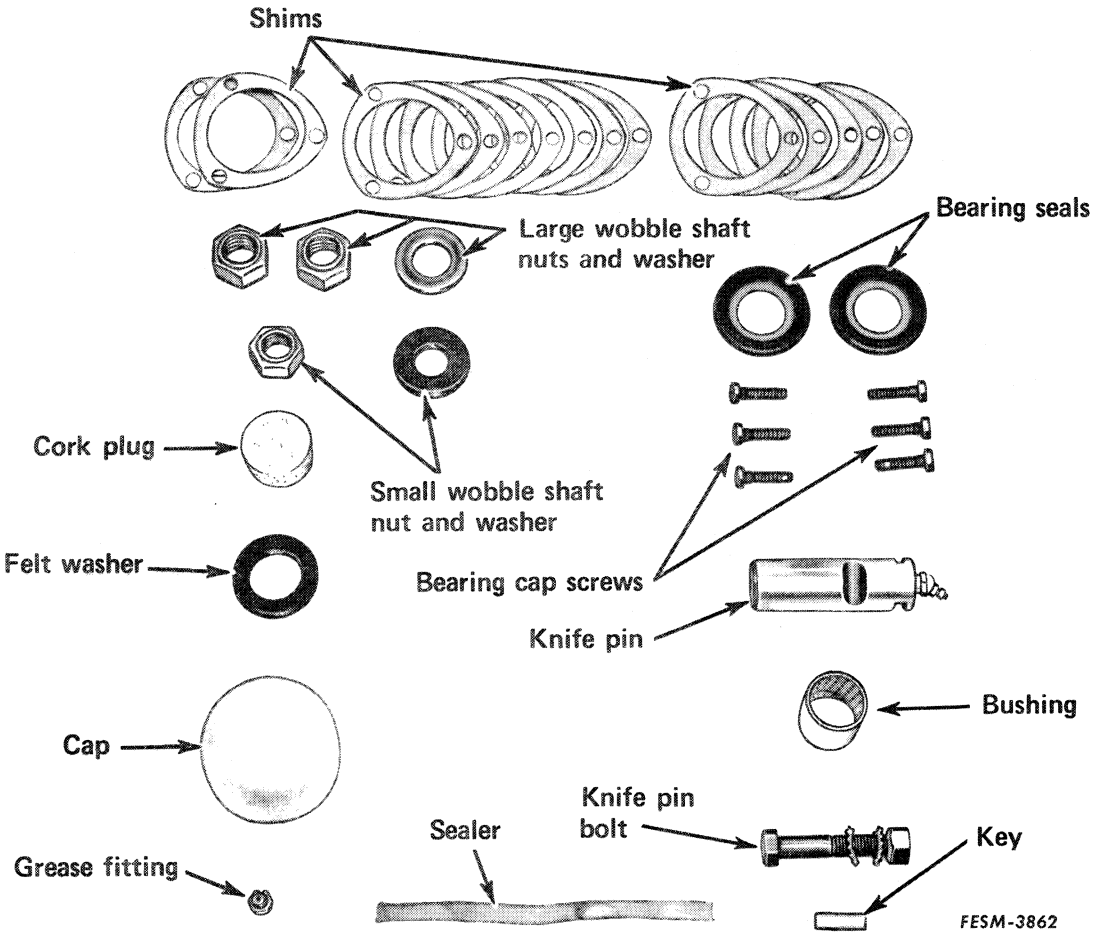
(d) Stake the hinge bushing to the wobble shaft housing in the slot or holes provided. See Illust. 23.

6. Inspect the front hinge pin for looseness. If the pin is loose due to enlargement of the pin bore, drill the bore to 1-3/8 inches and install bushing Ford part no. H458900R1 flush with the inner face of the housing. See Illust. 24. Cut the bushing to the proper length.



Illust. 24. Installing the hinge pin bushing.

7. Inspect the lift pin bore for wear. If necessary, restore the bore by the addition of filler metal (fusion welding) and redrill to 49/64 inch.



Illust. 26. Service package H479342R93.

A service package, part no. H479342R93, is available through Ford Service Parts for all balanced head knife drives. See Illust. 26.

NOTE: Bearings and the lock and seal nut are not included in service package H479342R93.

Wobble Shaft

Service wobble shafts include inner sealed bearings, both lock nuts, and the lock and seal nut.

1. Heat the wobble shaft inner bearings to approximately 200°F., using a heat or flood lamp.

IMPORTANT: Heating the bearings is necessary to prevent scoring the shaft during installation; but a temperature in excess of 200°F will damage the neoprene grease seals.