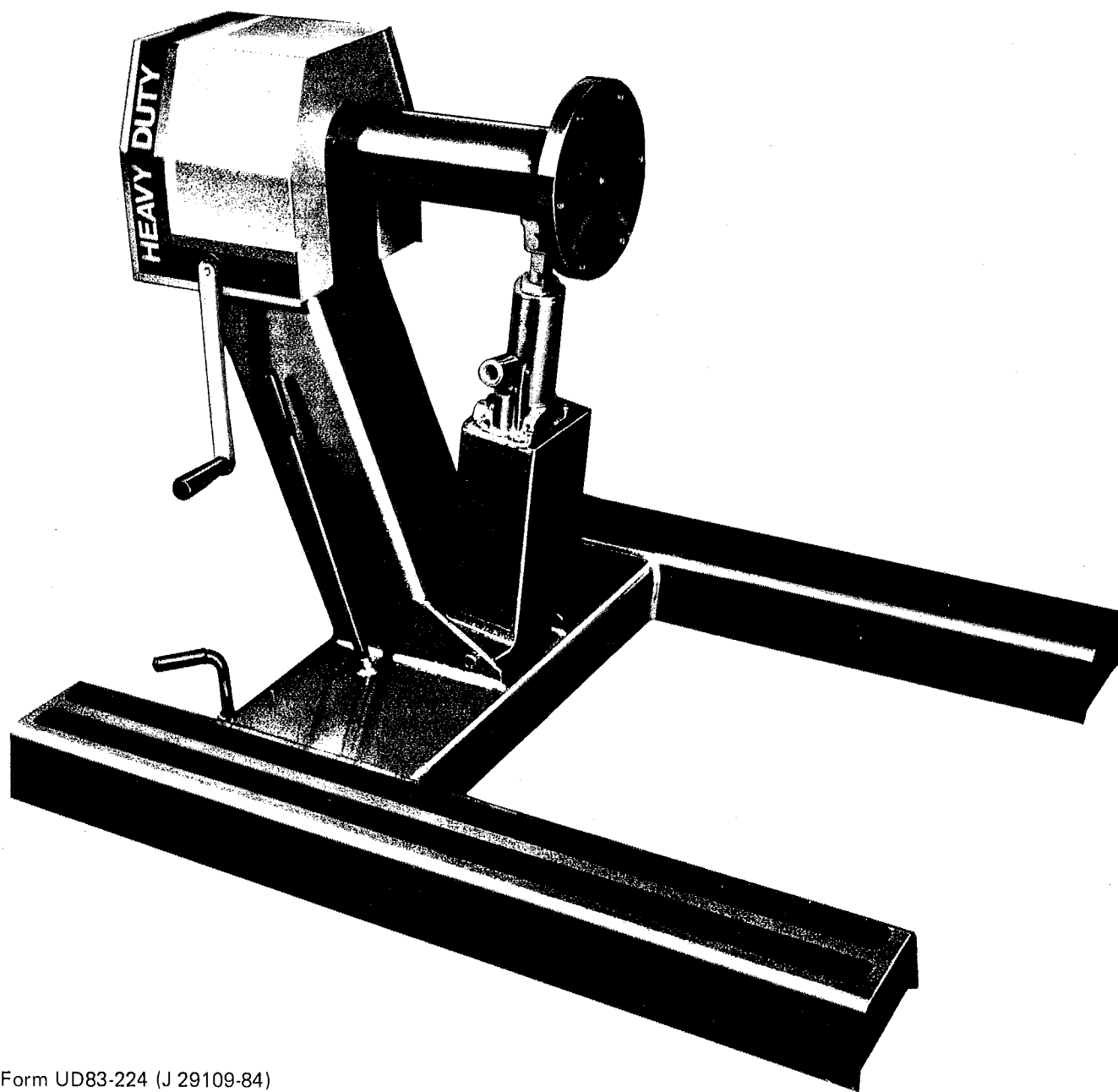


J 29109 UNIVERSAL ENGINE STAND

INSTRUCTION & PARTS MANUAL



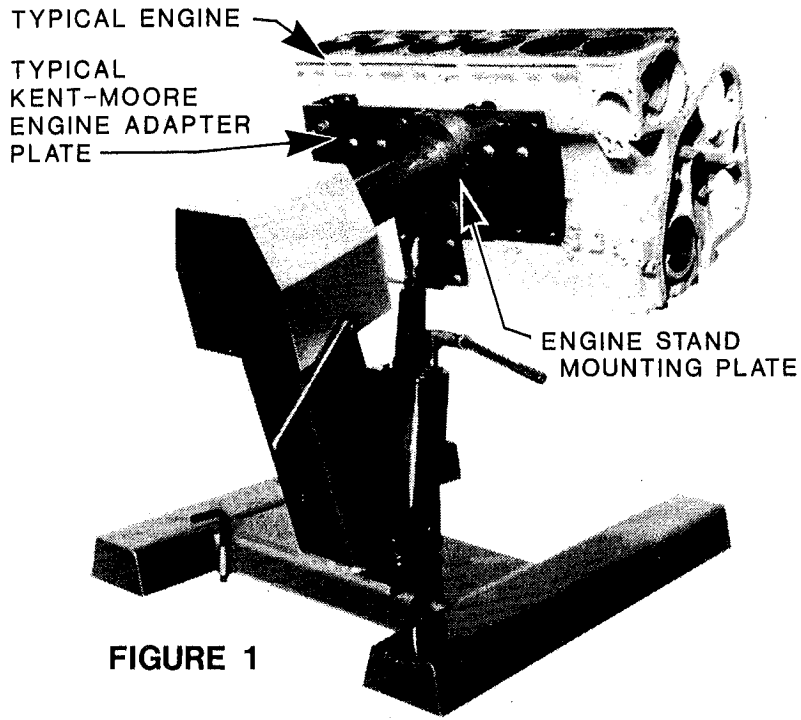


FIGURE 1

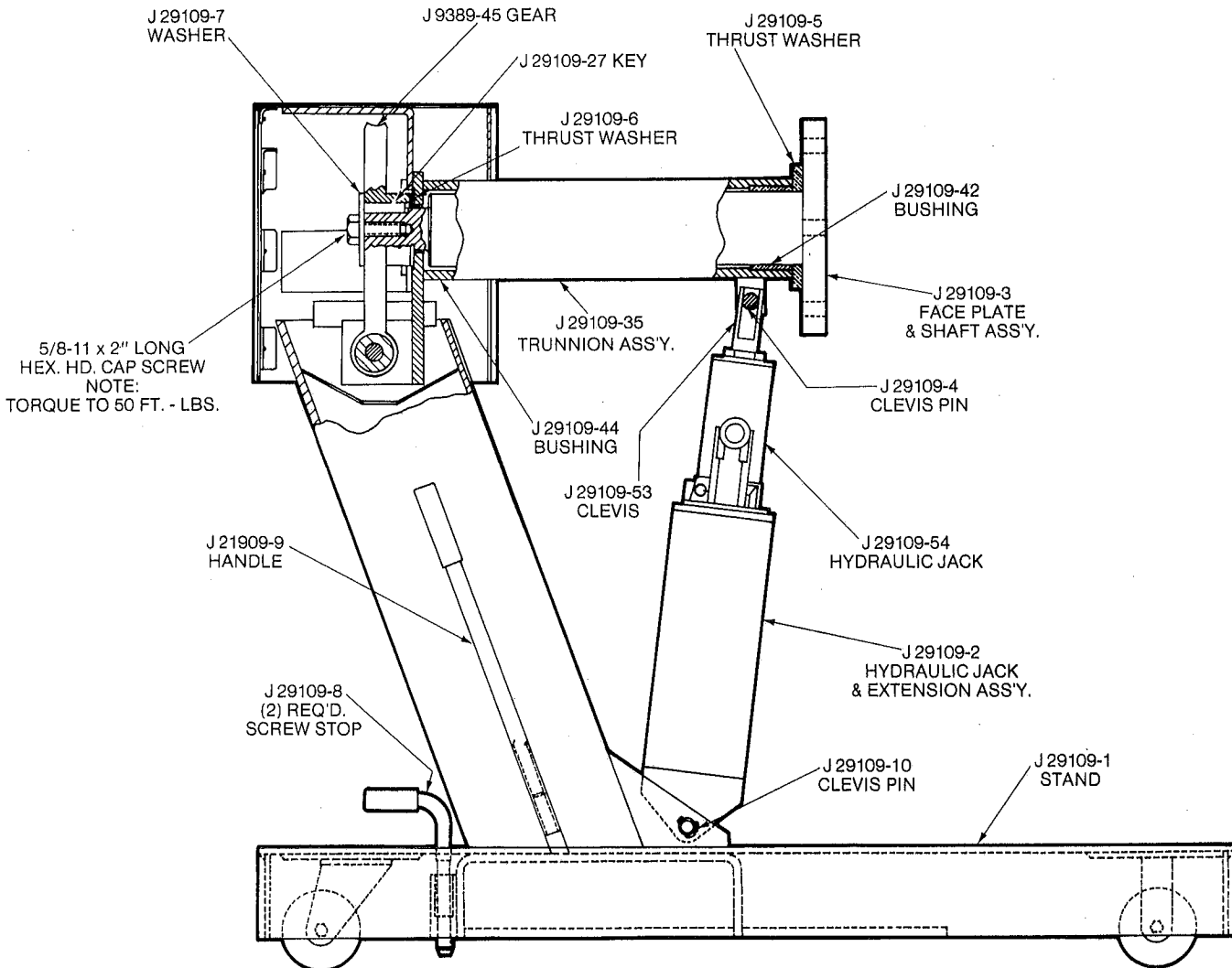


FIGURE 2

ENGINE TO STAND MOUNTING

1. Refer to the appropriate engine manufacturer's maintenance manual, for proper mounting location, on engine being mounted. (Note: Certain engine components may have to be removed, prior to adapter plate mounting.)
2. Mount the adapter plate to the engine, using recommended hardware. (Note: Use only Kent-Moore approved adapter plates.)
3. Using a safe lifting device, lift the engine (with adapter plate mounted) to align the six (6) threaded holes in the adapter plate, with the six (6) holes in the engine stand mounting plate. (Note: The engine stand mounting plate may require rotating for proper alignment. See figure 1.)
4. Fasten plates together using six (6) hex head cap screws.

INSTRUCTIONS FOR DISASSEMBLY AND ASSEMBLY OF ENGINE STAND HEAD

DISASSEMBLY OF MAIN SHAFT AND GEAR ASSEMBLY (SEE FIGURES 2 & 3)

1. Remove six (6) # 10-24 x 1/2 long hex socket flat head cap screws and remove back cover (J 29109-73).
2. Remove one (1) 1/4-20 x 3/4" long flat socket head cap screw from J 29109-13 Handle and remove Handle.
3. Remove 5/8-11 x 2" long hex head cap screw and J 29109-7 Washer.
4. From the front of the stand, carefully pull out on the face plate of the J 29109-3 Face Plate and Shaft Assembly and remove Shaft Assembly from trunnion. **CAUTION! J 9789-45 GEAR MUST BE SUPPORTED DURING REMOVAL FROM J 29109-35 TRUNNION ASSEMBLY.** (J 9389-45 Gear is keyed to J 29109-3 Shaft.)
5. Remove Key, J 29109-27.
6. Remove six (6) 1/4-20 x 1/2" long hex head cap screws from J 29109-16 Hood and remove Hood.
7. Remove oil from reservoir.
8. Inspect J 29109-44 and J 29109-42 Bushings, J 29109-5 Thrust Washer and replace if necessary.

ASSEMBLY OF MAIN SHAFT AND GEAR ASSEMBLY (SEE FIGURE 2)

1. Assemble J 29109-5 Thrust Washer to J 29109-3 Faceplate and Shaft Assembly.
2. Apply light oil to J 29109-44 and J 29109-42 Bushings.
3. Slide J 29109-3 Faceplate and Shaft Assembly into J 29109-35 Trunnion Assembly.
4. Assemble J 29109-6 Thrust Washer to J 29109-3 Shaft and back out Shaft until the Thrust Washer is barely engaged on the shaft.

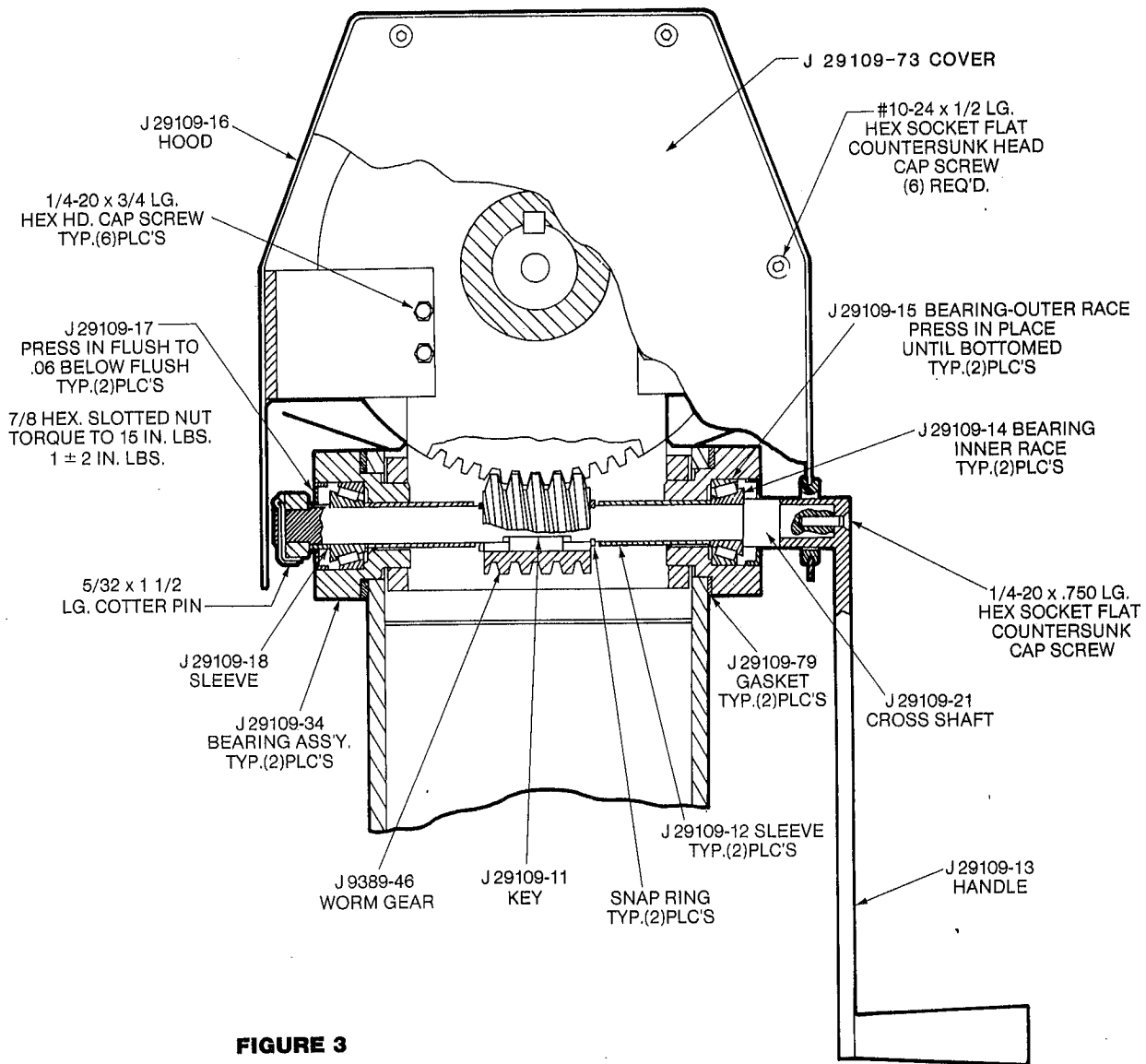


FIGURE 3

5. Position J 9389-45 Gear on J 9389-46 Worm Gear and slide J 29109-3 Shaft back in position through the J 9389-45 Gear.
6. Drive in J 29109-27 Key.
7. Install J 29109-7 Washer and 5/8 hex nut to the J 29109-3 Shaft and torque to 50 ft. lbs.
8. Add SAE 80-90 multi-purpose gear lube to partially immerse J 9389-46 Worm Gear.
9. Align J 29109-73 Back Cover and assemble with six (6) #10-24 x 1/2 long hex socket flat head cap screws.

CROSS SHAFT DISASSEMBLY (SEE FIGURE 3)

1. Remove 5/32 x 1-1/2" long cotter pin from 7/8 hex slotted nut.
2. Remove 7/8 hex slotted nut from J 29109-21 Cross Shaft. (Note: It may be necessary to hold Cross Shaft by square end [using crank] to prevent turning.)
3. Remove J 29109-34 Bearing Assembly, which contains J 29109-17 Seal, J 29109-15 Outer Bearing Race, and J 29109-14 Inner Bearing Race. J 29109-18 Sleeve will also be removed from the J 29109-21 Shaft. (Note: Removal of J 29109-34 Assembly may require jiggling as it slides from Shaft.)
4. Remove J 29109-79 Gasket from either J 29109-34 Assembly or from Stand. (Note: Gasket may fall down on J 29109-21 Cross Shaft. Remove Gasket from Shaft and discard.)
5. Remove J 29109-77 Shim(s) which should fall down on J 29109-21 Shaft, after removal of J 29109-34 Assembly. Remove and retain Shim(s) for re-assembly. Identify Shim(s) as "Left Side".
6. Remove J 29109-12 Sleeve and the snap ring which retains J 9389-46 Worm Gear.
7. While supporting J 9389-46 Worm Gear and J 29109-35 Trunnion Assembly, slide the Cross Shaft and Bearing Assembly to the right and remove it from the Stand. (Note: J 29109-77 Shim(s) will fall down in oil reservoir - remove and retain for re-assembly. Identify Shim(s) as "Right Side".)
8. As in Step 4, remove J 29109-79 Gasket from either J 29109-34 Assembly, J 29109-21 Shaft, or the Stand. Discard Gasket.
9. Remove Snap Ring on J 29109-21 Shaft and remove J 29109-12 Sleeve.
10. Separate J 29109-21 Shaft from J 29109-34 Bearing Assembly.
11. Inspect all J 29109-14 Bearing Inner Race, J 29109-15 Outer Race and J 29109-17 Seal. Replace if necessary.

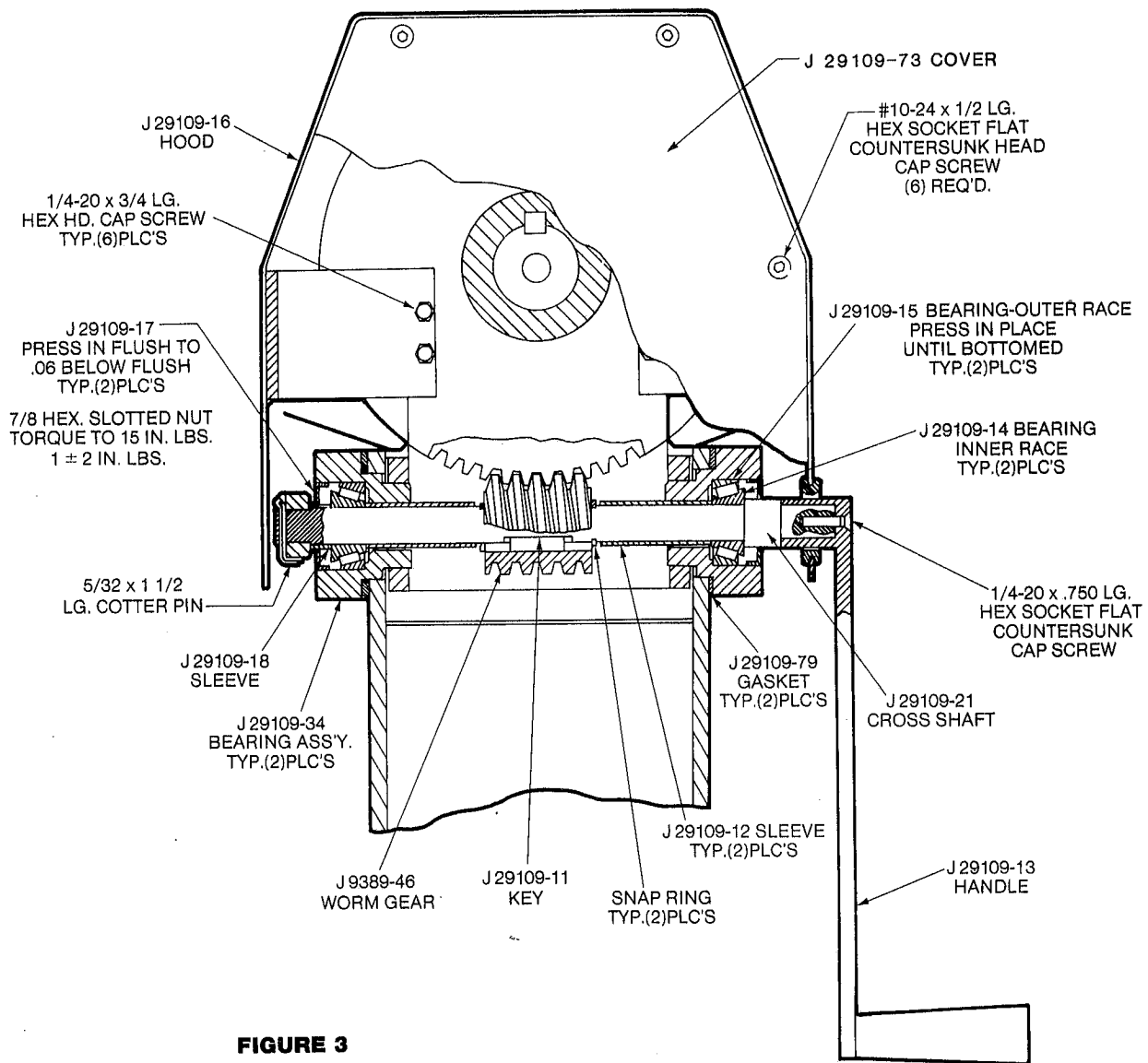


FIGURE 3

CROSS SHAFT ASSEMBLY (SEE FIGURE 3)

1. Place J 29109-79 Gasket on J 29109-34 Bearing Assembly and install J 29109-21 Shaft in J 29109-34 Assembly.
2. Assemble J 29109-12 Sleeve on J 29109-21 Shaft, and install Snap Ring.
3. Raise Trunnion Assembly J 29109-4, to align J 29109-34 Bearing Assembly, with hole in J 29109-1 Stand.
4. Making certain that J 29109-79 Gasket is in place (see Step 1 above), place J 29109-77 Shim(s). (Removed in Step 5 - Cross Shaft disassembly) and identified "Right Side", in position, and assemble J 29109-34 Bearing Assembly and J 29109-21 Shaft Assembly, in J 29109-1 Stand.
5. Assemble J 9389-46 Worm Gear to J 29109-21 Shaft and install the Snap Ring and J 29109-12 Sleeve.
6. Install J 29109-79 Gasket on J 29109-34 Bearing Assembly.
7. Place J 29109-77 Shim(s) (Removed in Step 7 - Cross Shaft disassembly), and identified "Left Side", in position and assemble J 29109-34 Assembly over J 29109-12 Sleeve on J 29109-21 Shaft.
8. Assemble J 29109-18 Sleeve on J 29109-21 Shaft.
9. Install 7/8 Hex Slotted Nut to J 29109-21 Shaft and torque to 15 inch pounds (\pm 2 inch pounds), while holding square end of J 29109-21 Shaft, with J 29109-13 Handle.
10. Install 5/32" x 1-1/2" long Cotter Pin. (Tighten Nut if necessary to alignment of Cotter Pin with slotted Nut and hole in shaft).

ASSEMBLE RING GEAR, HOOD AND BACK COVER TO STAND (SEE FIGURES 1 & 2)

1. Position J 29109-16 Hood and assemble to Stand with six (6) 1/4 - 20 hex head cap screws.
2. Assemble J 29109-6 Bronze Thrust Washer to J 29109-3 Shaft and back out Shaft until Thrust Washer is barely engaged on Shaft. Position J 9389-45 Gear on J 9389-46 Worm Gear and slide Shaft back in position, then drive in J 29109-27 Key.
3. Install J 29109-7 Washer and 5/8 hex nut to Trunnion Shaft and torque to 50 foot pounds.
4. Add SAE 80 to 90 weight multi-purpose gear lube to partially immerse worm gear.
5. Align J 29109-73 Back Cover and assemble with six (6) #10-24 x 1/2 long hex socket flat head cap screws.

INSTRUCTIONS TO DISASSEMBLE AND ASSEMBLE HYDRAULIC JACK ASSEMBLY

DISASSEMBLE HYDRAULIC JACK ASSEMBLY (SEE FIGURE 2) _____

1. Remove one (1) 5/32 x 1-1/2" long cotter pin and J 29109-4 Clevis Pin, which connects J 29109-2 Jack Assembly to J 29109-35 Trunnion Assembly. (CAUTION: BOTH J 29109-2 AND J 29109-35 WILL BE FREE TO SWING DOWN.)
2. Remove three (3) 3/8-16 socket head cap screws from base of J 29109-54 Hydraulic Jack.
3. Remove J 29109-53 Acme Threaded Clevis from Jack by turning counter-clockwise. Inspect Clevis and replace if necessary.

NOTE: See Separate instructions for servicing Hydraulic Jack.

ASSEMBLE HYDRAULIC JACK ASSEMBLY (SEE FIGURE 2) _____

1. Assemble J 29109-54 Jack to J 29109-2 Stand with three (3) 3/8-16 socket head cap screws.
2. Thread J 29109-53 Clevis into J 29109-54 Jack.
3. Position J 29109-53 Clevis with the yoke of J 29109-35 Trunnion Assembly, and install J 29109-4 Clevis Pin. Secure with one (1) 5/32 x 1-1/2 long cotter pin.

INSTRUCTIONS FOR DISASSEMBLY AND ASSEMBLY OF ENGINE STAND TRUNNION (SEE FIGURES 2 & 3) _____

1. To remove J 29109-35 Trunnion Assembly from J 29109-1 Stand, follow steps 1 through 6 of Disassembly of Engine Stand Head.
2. Follow Steps 1 through 10 of Cross Shaft Disassembly.
3. Remove J 29109-5 Thrust Washer from J 29109-3 Face Plate and Shaft Assembly.
4. Remove 5/32 x 1-1/2 long cotter pin from J 29109-4 Clevis Pin and remove Clevis Pin.
5. Inspect J 29109-44 and J 29109-42 Bushings and J 29109-5 Thrust Washer. Replace if necessary.

ASSEMBLY OF TRUNNION _____

1. Follow Steps 1 through 10 of Cross Shaft Assembly.
2. Position J 29109-53 Clevis Pin with yoke of J 29109-35 Trunnion Assembly and install J 29109-4 Clevis Pin.
3. Secure with one (1) 5/32 x 1-1/2 long cotter pin.

SERVICE PARTS LIST

PART NUMBER	DESCRIPTION	NUMBER REQUIRED
J 29109-4	CLEVIS PIN	1
J 29109-5	THRUST WASHER	1
J 29109-6	THRUST WASHER	1
J 29109-7	WASHER	1
J 29109-8	SCREW STOP	2
J 29109-9	HANDLE	1
J 29109-10	CLEVIS PIN	1
J 29109-11	KEY (WORM GEAR)	1
J 29109-12	SLEEVE	2
J 29109-13	HANDLE	1
J 29109-14	BEARING-INNER RACE	2
J 29109-15	BEARING-OUTER RACE	2
J 29109-17	SEAL	2
J 29109-18	SLEEVE	1
J 29109-21	CROSS SHAFT	1
J 29109-27	KEY (MAINSHAFT)	1
J 29109-34	BEARING HOUSING	2
J 29109-42	BUSHING	1
J 29109-44	BUSHING	1
J 9389-45	GEAR	1
J 9389-46	WORM GEAR	1
J 29109-53	ACME THREADED CLEVIS	1
J 29109-79	GASKET	2
NPN	RUBBER GROMMET	1

MODEL CF59 HYDRAULIC JACK GENERAL MAINTENANCE AND OPERATING INSTRUCTIONS

With reasonable care, the Century-Fox Hydraulic Jack will give a long life of service. Depending on the amount of usage, some vital parts may have to be replaced periodically. Contact the nearest Century-Fox service station in your area for replacement parts and/or repair service.

IMPORTANT: Do not overload the Jack above the rated capacity.
Prevent "side-loading" - make sure load is centered.
Do not push or tilt load off from the Jack.

NOTE: A Jack may become "airbound" in transit, or due to being upset, in which case the Jack will fail to raise. Remedy this situation by extending the Ram manually opening the release valve, (25), and then pushing the Ram down, thus expelling air which may have entered the system.

1. **OIL:** Jack should always be filled with oil to filler hole level. Filler hole (2) is located on reservoir tube approximately 2/3 the way up the tube. Oil level should be checked with the Ram fully retracted and the Jack standing in the upright position. Make sure no dirt or other foreign matter enters the reservoir while checking oil level and refilling. **IMPORTANT:** Use only Century-Fox Hydraulic Jack Oil.

2. **PUMP PISTON:** Oil leakage around pump piston (19) while the Jack is under load, or short ram stroke, is an indication the pump piston cup (23) needs replacement. To make this replacement, first remove the pin rings (13 & 14) and pull out pins (18 & 24). Remove packing nut (20) and pull out piston. Remove piston cup and backing washer (23 & 24) and snap on a new set. Snap off piston from rod and replace nylon wiper. Make sure piston chamber is clean, dip piston in oil and tap piston in Jack. Replace packing nut and tighten down. Replace pins and handle socket.

3. **RELEASE VALVE:** If Jack fails to lift the load, hold the load, or the ram stroke is short, the Release Valve (25) may need cleaning or replacement. To make this determination, remove the release valve by loosening release valve pack nut (28). Packing (26) and washer (27) may remain in the valve chamber when

screw is removed, but these should also be removed so that the release valve chamber may be inspected and cleaned thoroughly. Check the valve seat for nicks and the point of the release screw for scratches and damage. If old release screw is reinstalled in the Jack, it is recommended that new packing be used. New release screws are shipped complete with packing.

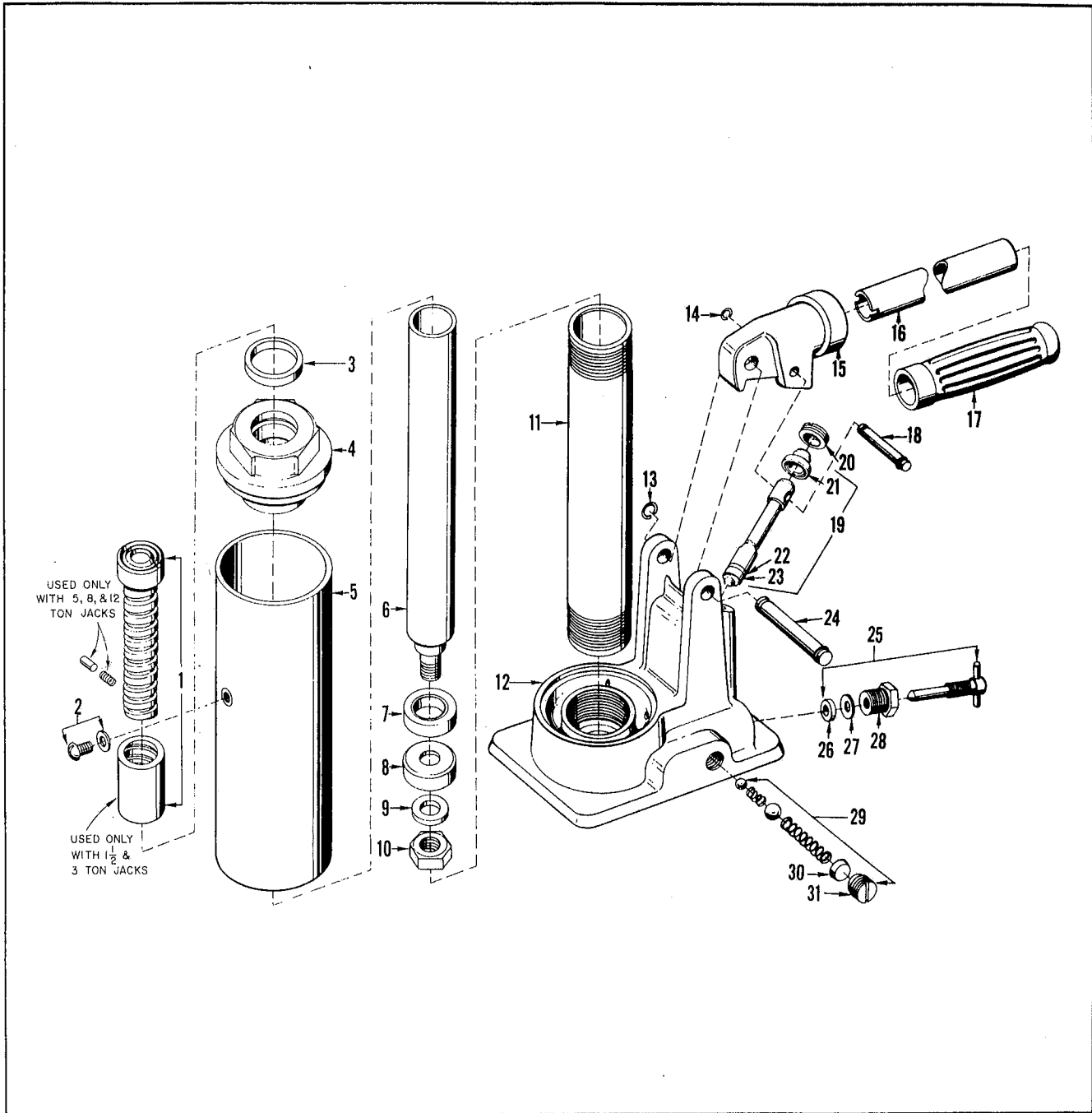
4. **PUMP VALVES:** Pump valves (29) and valve seats must be clean and in good condition at all times. This is the most critical area of a Hydraulic Jack. Failure to develop necessary Hydraulic pressure may be the result of a piece of dirt on the edge of a valve seat, a damaged or corroded ball, or defective spring. Valves may be inspected by removing the pump valve plug (31) and valve seal (30). The springs and balls are removed by tipping the Jack on its side so that balls and springs drop out. Make sure no pressure is in the system prior to removing the pump valves by first opening the release valve. Valve chamber should be inspected for dirt and contamination. The valve seats should be given particular attention for damage or dirt. Balls and springs should be free of dirt, corrosion, nicks, notches, or other forms of damage. Reassemble valve components, replacing defective parts, in order shown in the illustration on the reverse side, i.e., (a) small ball - (b) small spring - (c) large ball - (d) large spring - (e) valve seal, and (f) valve plug. Valve seal should be installed using special tool SS-12.

5. **RAM CUP:** If the ram (6) lowers under load, it is an indication of oil leaking past a worn, damaged, or defective ram cup (8). Check the condition of the Ram Cup by removing the top nut (4) and extracting the Ram (6) from the Cylinder (11). While the Ram is removed from the Cylinder, the Cylinder should be checked for scoring or any other damage.

Before reassembly, remove old shellac from top of reservoir tube (5). Top of reservoir tube should then be brushed with shellac, and top nut (4) installed securely.

6. **EXTENSION SCREW:** Replace a damaged extension screw (1) by placing the ram in a soft-jaw vise, fully extending the screw, and tapping the screw gently to dislodge the locking pin. New extension screw may be reinstalled immediately.

MODEL CF 59 HYDRAULIC JACK REPAIR PARTS LIST



Item numbers shown above are only for your convenience in locating the part on the parts list. When ordering, always specify the PART NUMBER – not the item number – and give complete name of part and model number of jack. If the length of the part is shown on the parts list, verify it with the old part. If different, state exact length and diameter of old part.

HYDRAULIC JACK REPAIR PARTS LIST

	MODEL CF-59
	Part No.
1. Extension Screw Assembly	12759
2. Filler Scr. & Wshr. (or) Filler Plug	25620
3. *Quad Ring	20725
4. Top Nut	13128
5. Reservoir Tube	13170
6. Ram Assembly	12730
Backing Washer (Not Shown)	
7. Spacer	13210
8. *Cup	13290
9. Retainer	13260
10. Hex Jam Nut	18960
11. Cylinder	13145
12. Base w/Pump Valves	60361
13. Pin Ring	12415
14. *Pin Ring	12415
15. Handle Socket	60373
16. Handle Assembly	9595
17. Handle Grip	9330
18. *Pin	60288
19. *Piston Assembly	61180
20. Packing Nut	60599
21. Nylon Wiper	60621
22. B.U. Washer	5945
23. U Cup	3910
24. Pin	10860
25. Release Screw Assembly	8020
26. Packing	4520
27. Washer	6230
28. Nut	1290
29. *Pump Valves	80346
30. Seal	11520
31. Plug	11855
32. Decal (Not Shown)	55451
33. Kit (Not Shown) Includes all *items plus SS-12 Tool.	80738