



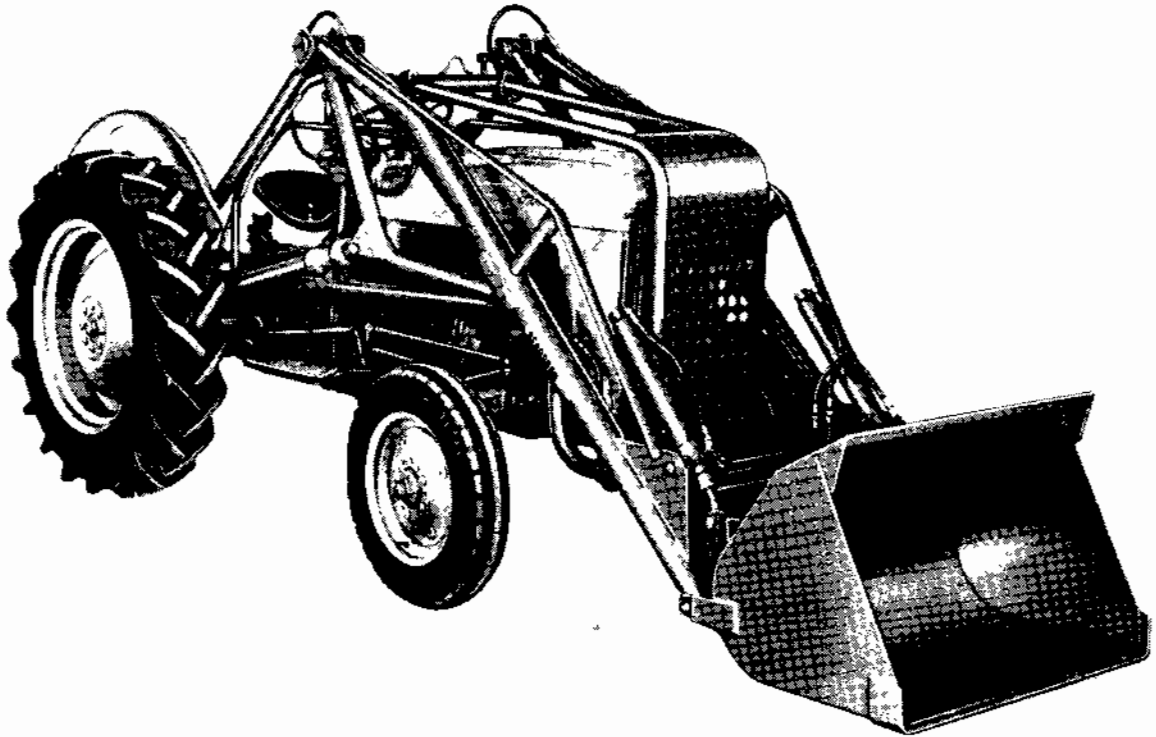
DEARBORN

# INDUSTRIAL LOADER

MODELS 19-70 & 19-71



## ASSEMBLY AND OPERATING INSTRUCTIONS



The Dearborn Industrial Loader was designed for you and your operator. In it you will find top loading performance and rugged low-cost service, and for your operator, maximum convenience and ease of control.

Top performance is provided by its high lift and high capacity, longer bucket over-hang and close-coupled design. Rugged, low-cost service because of tubular construction, two cylinder bucket control, full circulating hydraulic system for lower oil temperatures and an independent, tractor mounted pump for a positive, dependable hydraulic drive even under most adverse conditions.

Your operator will have maximum comfort and ease of operation because of full vision, convenient controls and ample elbow room, all combined with the easy maneuverability of the Ford Tractor.

For additional performance and versatility, other Dearborn Implements can be used on your Ford Tractor without removing your loader. Implements such as blades, scoops or subsoilers are easily operated by your effective Ford Tractor Hydraulic System.

The Dearborn Industrial Loader is available in two models. The Model 19-71 Loader is designed for use on the NAA Ford Tractor, and the Model 19-70 Loader is designed for the 8N Ford Tractor.

This manual contains instructions for the installation and operation of both models. The installation procedure is, for the most part, the same for both loaders.

Read this manual carefully and keep it available for ready reference.

TRACTOR AND IMPLEMENT DIVISION

*Ford Motor Company*

BIRMINGHAM, MICHIGAN

[www.ntractorclub.com](http://www.ntractorclub.com)

# INDUSTRIAL LOADER

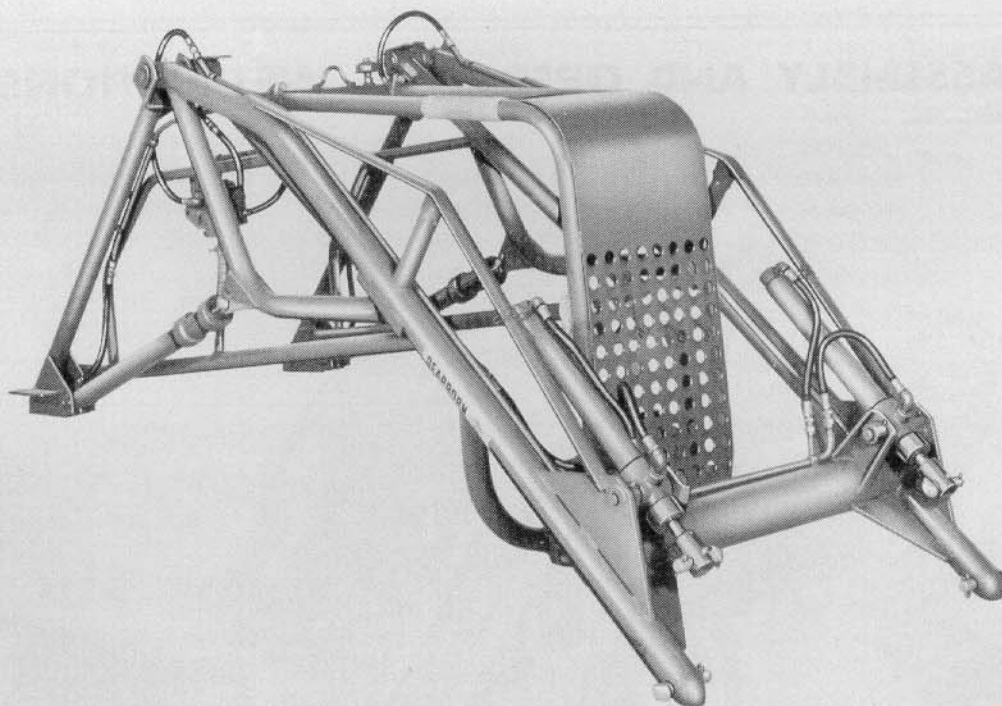


Figure 1

Dearborn Industrial Loader Bundled for Shipment

## SHIPPING INFORMATION

The Dearborn Industrial Loader, Model 19-71 (for the NAA Ford Tractor), is shipped complete in one bundle as Bundle No. 19-71. A burlap bag wired to the loader contains the parts listed below. One each of these parts is shown in Figure 2.

Item No.	Description	No. Required
1.	Bolt, Hex Hd. $\frac{5}{8}$ -11 x $6\frac{1}{2}$ "	4
	Lockwasher, $\frac{5}{8}$ "	4
	Nut, $\frac{5}{8}$ "-11	4
2.	Bolt, Hex Hd. $\frac{5}{8}$ -11 x $1\frac{1}{2}$ "	4
	Lockwasher, $\frac{5}{8}$ "	4
	Nut, $\frac{5}{8}$ "-11	4
3.	Bolt, Hex Hd. $\frac{1}{2}$ -20 x $1\frac{1}{2}$ "	1
	Lockwasher, $\frac{1}{2}$ "	1
4.	Bolt, Hex Hd. $\frac{5}{8}$ -20 x $1\frac{1}{2}$ "	1
	Lockwasher, $\frac{5}{8}$ "	1
5.	Morflex Coupling Assembly	1
6.	Woodruff Key	1
7.	Flat Washer, $\frac{5}{8}$ "	1
8.	Shaft, Drive $\frac{3}{4}$ " x $9\frac{3}{16}$ "	1
9.	Capscrew, Slotted Hd.	1
10.	Capscrew, Hex Hd. $\frac{7}{16}$ -14 x $1\frac{1}{4}$ "	4
	Lockwasher, $\frac{7}{16}$ "	4
11.	Drive Plate Assembly	1
12.	Control Valve Lever Bundle	1

The Model 19-70 Industrial Loader (for the 8N Ford Tractor) is shipped in the same manner as the Model 19-71. The contents of the burlap bag are the same as those listed above, except for Items 4, 7 and 10 which are not included. The following additional parts are shipped with the Model 19-70 Loader, but are not shown.

Description	No. Required
Adaptor Sheave	1
Pin, Dowel $\frac{1}{4}$ " x $\frac{3}{4}$ "	1
Lockwasher, Internal	1
Screws, Allen Hd. $\frac{1}{4}$ -28 x 1"	4
Lockwasher, $\frac{1}{4}$ "	4
Pin, Tractor Front Axle	1
Bolt, Hex Hd. $\frac{3}{8}$ -16 x $1\frac{1}{4}$ "	2
Lockwasher, $\frac{3}{8}$ "	2
Nut, $\frac{3}{8}$ "	2

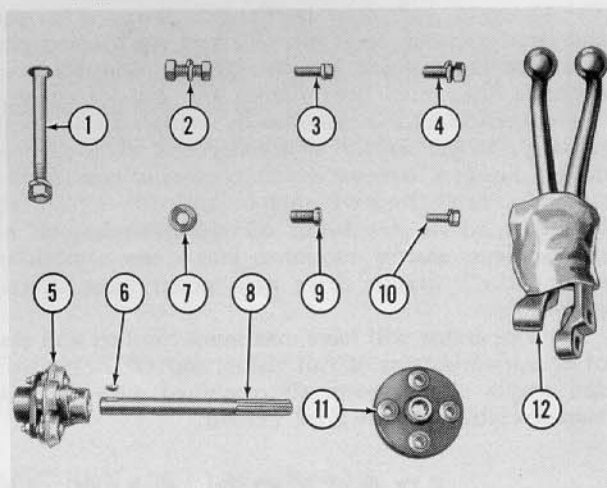


Figure 2  
Contents of Burlap Bag

# INDUSTRIAL LOADER

## DEALER'S RESPONSIBILITY

It is the responsibility of the Ford Tractor Dealer to assemble this loader, mount it on the tractor and to instruct the owner in its operation, care and maintenance.

## ASSEMBLY PROCEDURE

The loader can easily be installed on the tractor by two men using a chain fall or other suitable hoist. However, certain work must be done on the tractor itself before the loader is mounted in place.

The tractor should be equipped with heavy duty front wheels (Part No. 8N-1015-B2) and 6:00 x 16 heavy duty tires (sold separately). The tractor rear wheels should be set at a minimum distance of 56 inches. Consult your Tractor Operator's Manual for the wheel setting procedure.

1. Open the burlap bag and lay out the parts to facilitate assembly.
2. Attach the drive plate (2), Figure 4, to the tractor crankshaft pulley (1) as follows:

**NOTE:** Refer to Step Three below when installing the Model 19-70 Loader pump drive plate on the 8N Ford Tractor

- a. Remove the crankshaft ratchet nut and four cap screws and lockwashers from the engine crankshaft. The crankshaft ratchet nut has a right hand thread. Be careful not to move the crankshaft pulley after removing the cap screws, so as to maintain hole alignment.
- b. Fit the flatwasher (1), Figure 3, on the special cap screw (2), and install the cap screw in place of the crankshaft ratchet nut which was removed. To prevent loosening, tighten this cap screw with a square shank screw driver and wrench.
- c. Place the four  $\frac{7}{16}$ " x  $1\frac{1}{4}$ " cap screws and lockwashers in the drive plate (3), Figure 3.
- d. Position the assembly on the front of the crankshaft pulley (1), Figure 4, by working it through the opening (4) on the right side of the engine suspension plate (5). Caution must be taken to position the drive plate without dropping the cap screws (3) from the drive

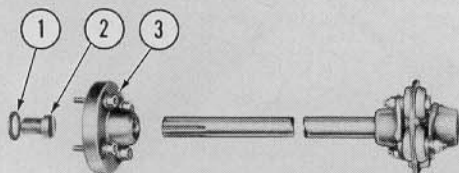


Figure 3

Drive Plate and Pump Drive Shaft

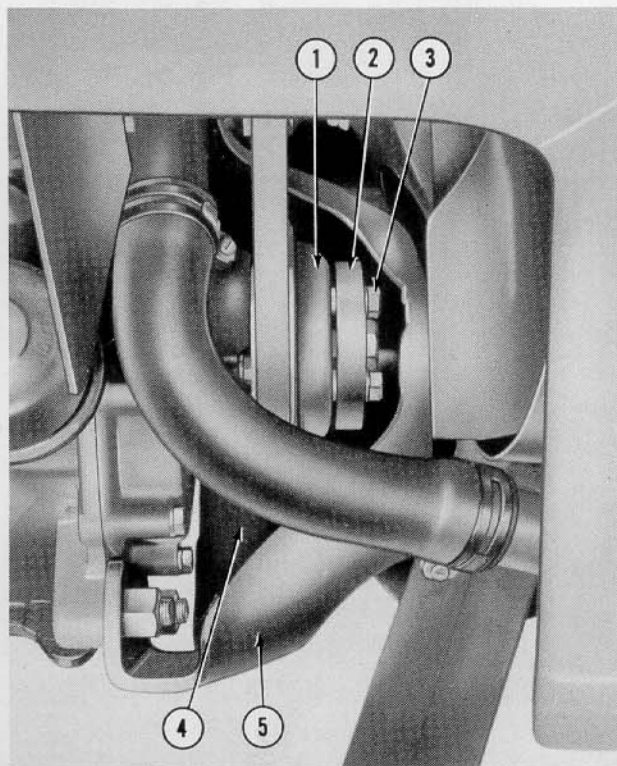


Figure 4

Pump Drive Plate Installed

- e. Use a thin wrench to tighten the cap screws (3), Figure 4.
  - f. Remove the radiator grille from the tractor.
3. Install the adaptor sheave for the Model 19-70 Industrial Loader on the front end of the 8N Ford Tractor engine crankshaft as follows:
    - a. Remove the tractor hood, radiator grille and radiator from the tractor. (See Tractor Operator's Manual for this procedure.)
    - b. Place a jack (4), Figure 5, under the engine crankcase so that the head of the jack is about four inches back from the front of the crankcase. Raise the jack until it touches the crankcase.
    - c. Remove the six bolts which hold the front end of the crankcase (1), Figure 5, to the tractor front axle support (3), and then jack the engine up as shown in Figure 5. The axle assembly and wheels may raise somewhat as the engine is jacked up. If this happens, push the axle assembly down until the wheels rest on the floor.

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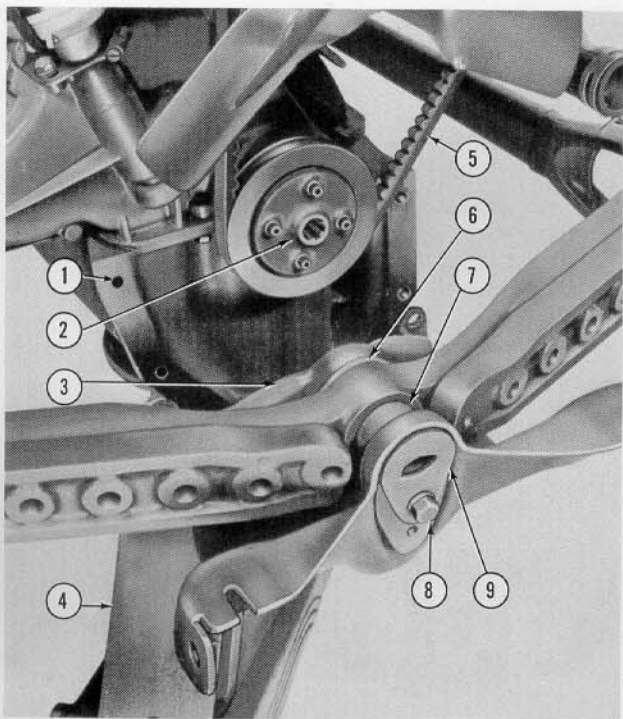


Figure 5

Adaptor Sheave Installed (Model 19-70)

d. Remove the fan belt (5) Figure 5.

**NOTE:** On tractors prior to Model No. 8N-263844, it is necessary to remove the distributor cap in order to remove the fan belt pulley.

e. Remove the fan belt pulley. The crankshaft nut which holds the pulley to the tractor crankshaft has a right hand thread.

f. Install the new adaptor sheave (2), Figure 6, on the end of the tractor crankshaft. Be sure the keyway (1) on the sheave (2) fits over the key on the crankshaft. Then drill a  $\frac{1}{4}$ " hole  $\frac{7}{8}$ " deep into the pulley and tractor crankshaft through the pilot hole (3), Figure 6. Clean the hole out and insert the  $\frac{1}{4}$ " x  $\frac{3}{4}$ " dowel pin (4). Fit the internal lockwasher (5), on the special cap screw (6) and turn the cap

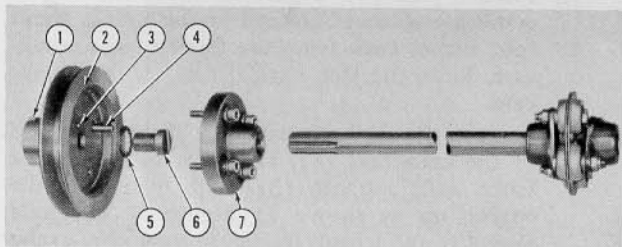


Figure 6

Adaptor Sheave and Pump Drive Shaft (Model 19-70)

screw into the sheave. Position the drive plate (7), Figure 6, on the sheave as shown at (2), Figure 5, and secure it in place with the four Allen head screws and lockwashers provided.

- g. Replace the fan belt and adjust it for proper tension.
  - h. Remove the cap screw (8), Figure 5. Raise or lower the jack slightly until the axle pin (9), can easily be removed from the tractor. Remove the washers (6) and spacer (7) as the pin (9) is pulled out.
  - i. Insert the new axle pin through the axle, repositioning the washers (6), Figure 5, and the spacer (7) on the pin as it is installed.
  - j. Lower the jack to align the holes and reattach the crankcase to the front axle support assembly with the original six bolts.
  - k. Install the tractor radiator and remount the hood.
4. Mount the loader on the tractor as follows. The procedure is the same for either model.
    - a. Clean the mounting bracket guide (9), Figure 7, thoroughly with emery cloth.

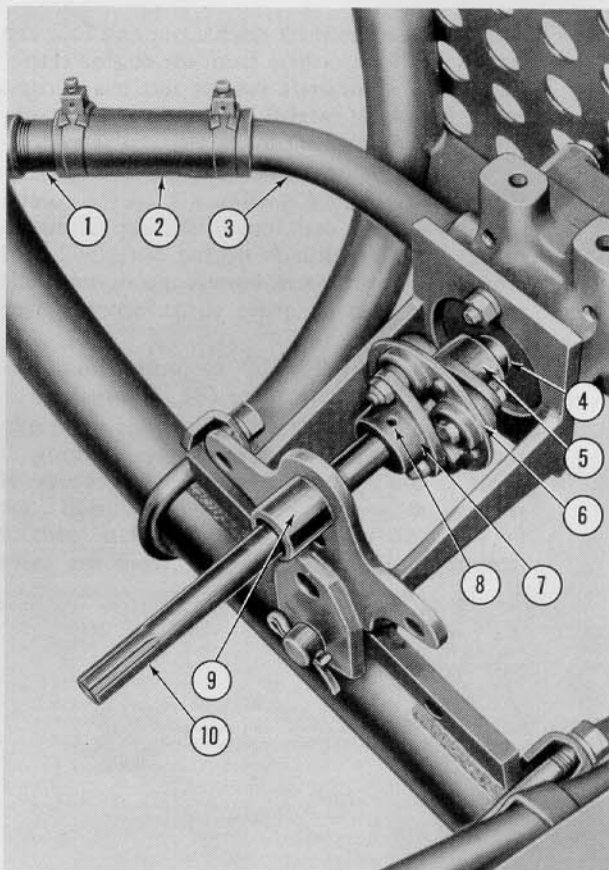


Figure 7

Coupling and Drive Shaft Installed on Loader



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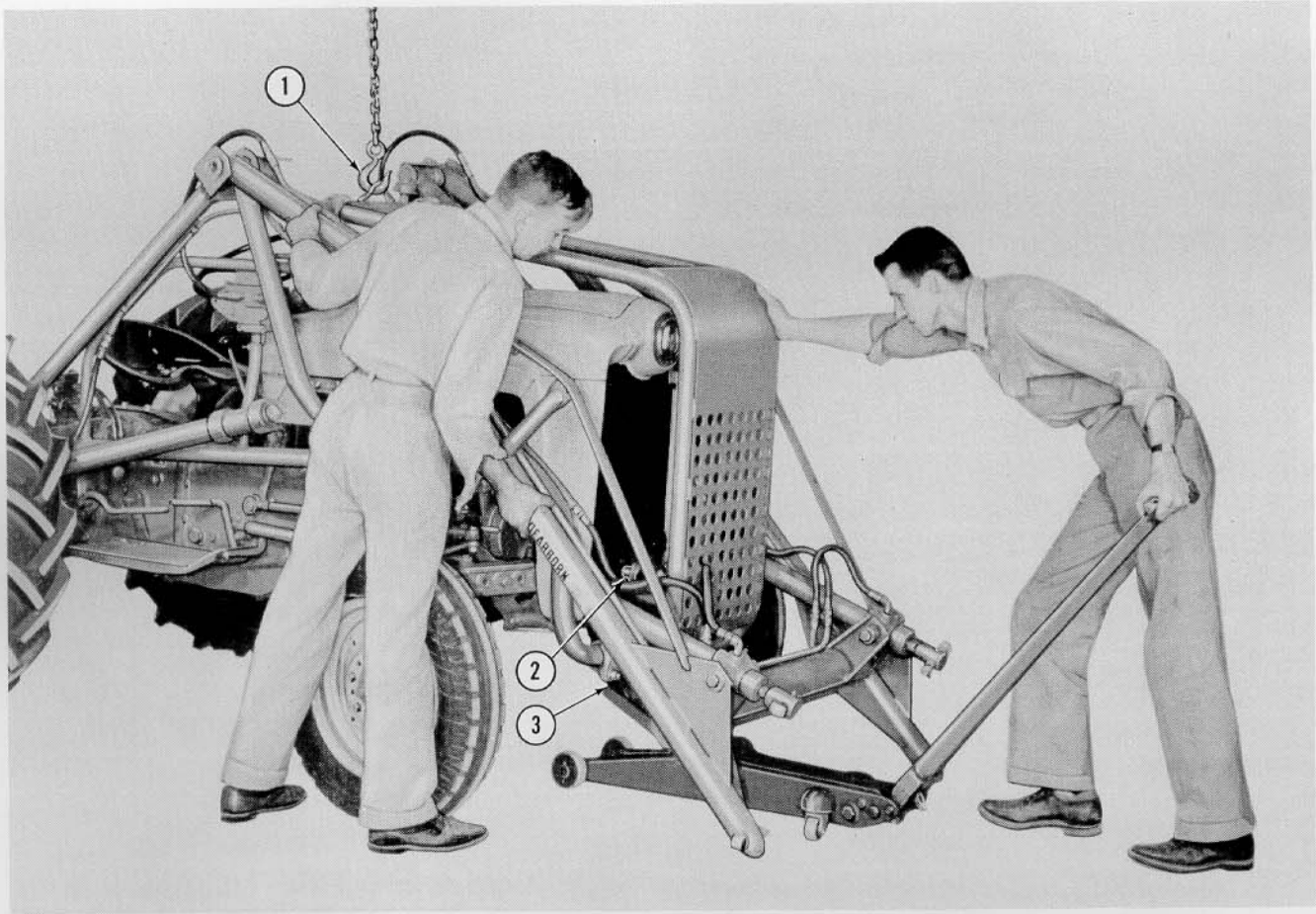


Figure 8

## Mounting the Loader on the Ford Tractor

- b. Position the Morflex coupling (6), Figure 7, with flanges attached, inside the pump mounting bracket. With the Woodruff key in place, insert the drive shaft (10) through the guide (9) and tap the shaft lightly into the flange (7), until the Woodruff key is fully engaged, with the shaft end  $\frac{1}{8}$ " short of being flush with the flange face. Secure the shaft by tightening the Allen screw (8).
- c. Position the flange (5), Figure 7, on the pump shaft (4), but do not tighten the set screw at this time.
- d. Using a chain fall (1), Figure 8, or other suitable hoist, raise the loader and position it over the tractor as shown.
- e. Place a jack under the loader main frame as shown at (3). Raise the front end of the loader carefully, until the pump drive shaft and the guide are properly aligned with the hole in the tractor axle pivot pin and the splined drive hub. (See (2), Figure 8.)

**CAUTION:** Work slowly and carefully to prevent damage to the exposed tractor radiator.

- f. When the mounting bracket (4), Figure 9, is properly seated, insert the  $\frac{1}{2}$ " x  $1\frac{1}{2}$ " bolt and lockwasher (1) and the  $\frac{5}{8}$ " x  $1\frac{1}{2}$ " bolt and lockwasher (2). Tighten securely.

**NOTE:** When installing the Model 19-70 Loader on the 8N Ford Tractor, attach the bracket with the  $\frac{1}{2}$ " x  $1\frac{1}{2}$ " lockwasher and bolt (1), Figure 9. Then, using the hole (3) on each side of the bracket as a guide, drill two  $\frac{7}{16}$ " holes through the front axle support assembly. Bolt the mounting bracket to the front axle support assembly with the two  $\frac{3}{8}$ " x  $1\frac{1}{4}$ " bolts, lockwashers and nuts provided.

- g. Attach the rear end of the loader to the tractor rear axle housing with the four heat treated, round-head bolts, lockwashers and nuts provided. Insert the bolts through the front set of holes on the Model 19-70 Loaders and through the rear set of holes on Model 19-71 Loaders.
- h. Install each tractor fender on the loader with

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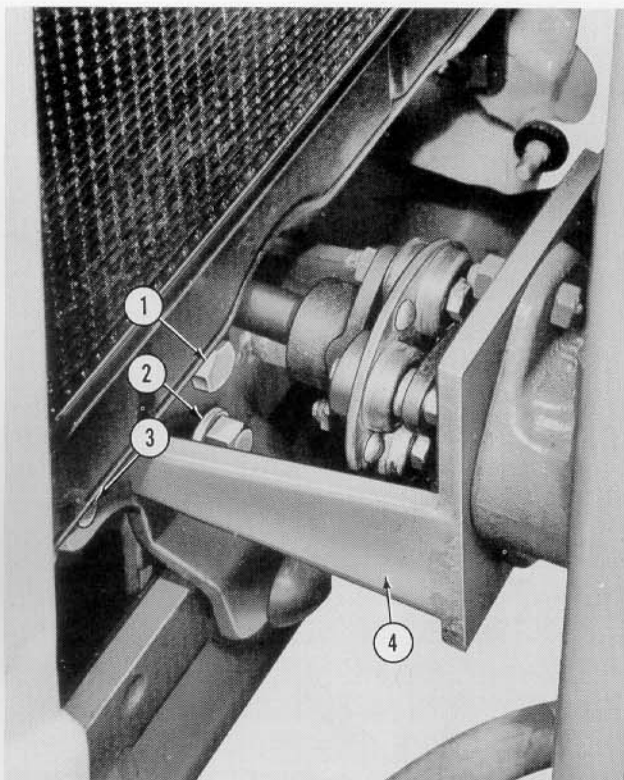


Figure 9  
Front End of Loader Attached

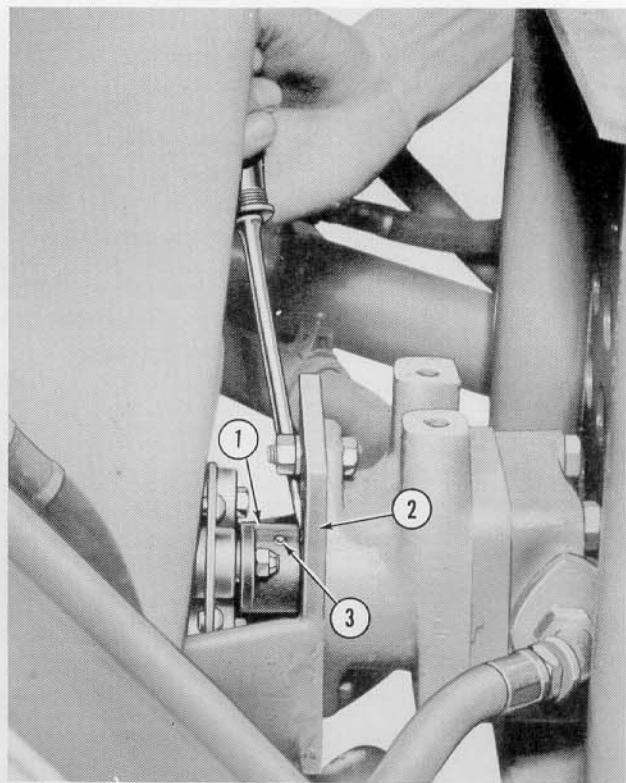


Figure 10  
Seating the Splined Drive Shaft

the two  $\frac{5}{8}$ " x  $1\frac{1}{2}$ " bolts, lockwashers and nuts provided.

- i. Insert a screw driver between the flange (1), Figure 10, and the mounting bracket (2) as shown. Pry the coupling and drive shaft back until the splined end of the shaft is firmly seated in the drive plate, then tighten the Allen screw (3) securely.
5. Reinstall the tractor radiator grille (Model NAA Tractors only) as follows:
  - a. Find the exact center line of the tractor radiator grille and mark as shown at (1), Figure 11.
  - b. With a hacksaw, make two cuts exactly  $2\frac{5}{8}$ " from the center line, and extending to the height shown. Bend the metal back and forth until it breaks off, then hammer the edge over as shown. When the cut is completed, the opening should be  $5\frac{1}{4}$ " wide as shown at (2), Figure 11.
  - c. Insert the grille between the tractor hood and the loader bumper (See (1), Figure 13) and reinstall on the tractor with the bolts and nuts provided.
6. Install the levers on the loader control valve as follows:
  - a. Remove the masking material and paint from the exposed ends of the valve spools. Do not use a tool that will scratch or score the spools.

- b. Attach the control levers (1), Figure 12, to the valve spools with the linkage (2). Make sure that the levers are positioned as shown in Figure 12, then insert the pivot pin (3) through the control mounting bracket (4) and the control levers. Secure with the cotter pins provided.

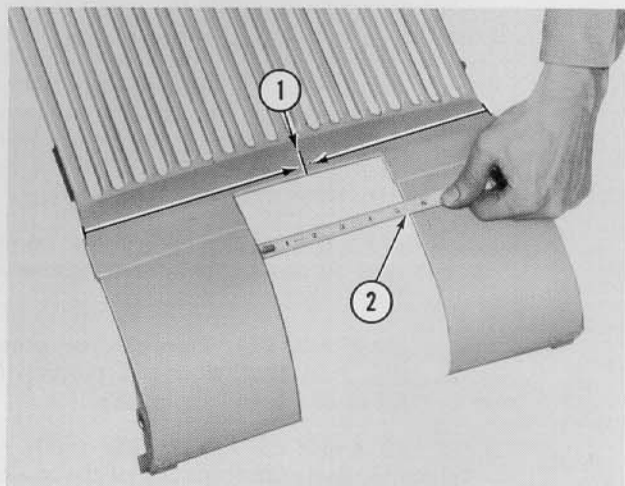


Figure 11  
Re-installing the Radiator Grille (Model NAA Tractors Only)

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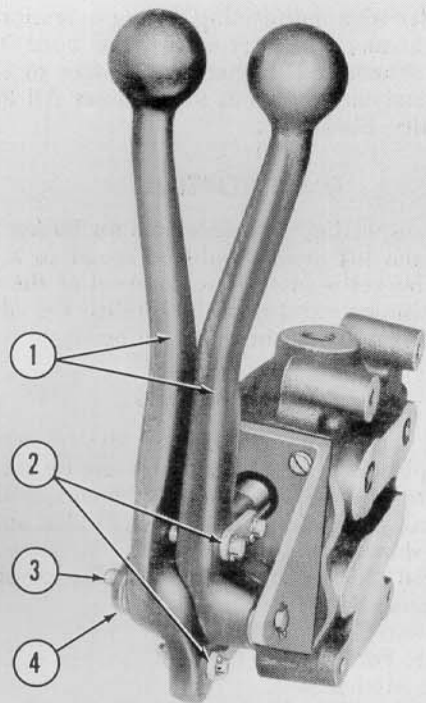


Figure 12

Levers Attached to Control Valve

7. Attach the Model 19-44 Material Bucket (sold separately) to the loader in the following manner.

**NOTE:** The bucket can be installed more easily when the loader is operative. Flush and fill the loader reservoir as directed in the section on **HYDRAULIC FLUID**.

- a. Position the bucket as shown and secure to the loader lift arms with the two long pivot pins (2), Figure 13, and cotter pins provided.
  - b. Attach each cylinder ram to the bucket with two pivot pins (3), Figure 13, and the cotter pins provided. The lubrication fittings on the rams should be turned up as shown.
8. Add weight to the tractor rear tires with a calcium chloride solution as outlined in the Tractor Operator's Manual, or by the use of wheel weights. The additional weight recommended is from 600 to 1200 pounds.

## HYDRAULIC FLUID

Before filling the loader with hydraulic fluid, flush out the reservoir with kerosene or hydraulic fluid as follows:

- a. Remove the drain plug from the loader main frame.
- b. Remove the hose section (2), Figure 7, by loosening the screw clamps.
- c. Place a drain pan under the drain hole and the dis-

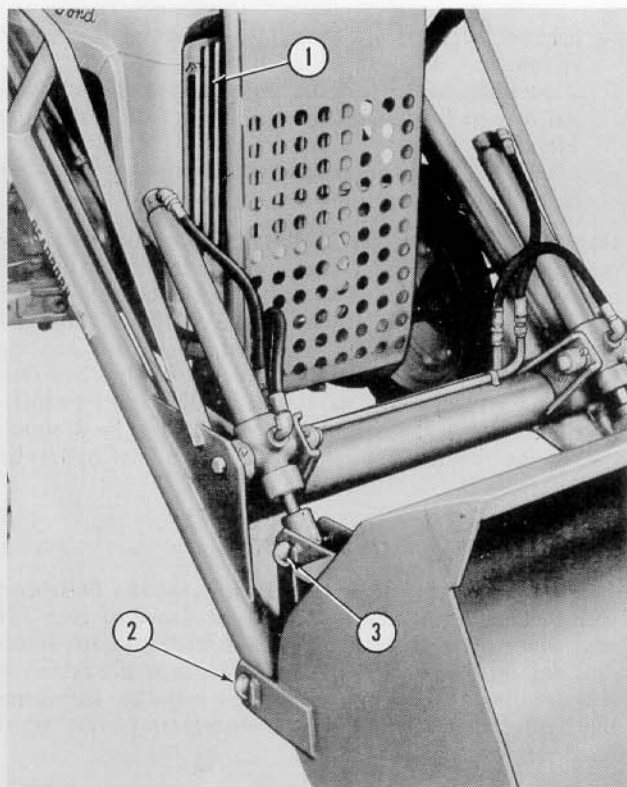


Figure 13

Bucket Assembly Attached

connected hose section to catch the discharged kerosene or hydraulic fluid.

- d. Attach one end of a length of hose to the pipe (3), Figure 7. Place the other end in the hydraulic fluid or kerosene to be used for flushing.
- e. Start the tractor engine and flush the reservoir thoroughly.

**CAUTION:** The pump should be operated only at low speed and under no load.

- f. Replace the drain plug in the loader frame and flush through the frame outlet (1), Figure 7. Reattach the hose (2), Figure 7, and retighten the clamps securely.

Fill the loader hydraulic fluid reservoir as follows:

- a. Use approximately five (5) gallons of hydraulic fluid, per Ford Specification M-4864-D. For cold weather operation (Below  $-10^{\circ}$  F.), dilute the hydraulic fluid with 2 to 8 quarts of kerosene for quiet pump operation. See your local Ford Tractor Dealer.
- b. Remove the 1" filler plug located on the upper right side of the frame.
- c. Fill the reservoir with approximately four (4) gallons of fluid.
- d. Replace the filler plug.
- e. Operate the loader for about 15 minutes with the



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bucket installed in order to bleed air from the system.

- f. Add additional hydraulic fluid (approximately one gallon) to fill the frame completely and install the filler plug tightly.
- g. Check all pipe connections and hydraulic lines for loose or leaking joints.

**IMPORTANT:** After the loader has been operated for approximately 25 hours, the reservoir should be flushed out as directed above. This will clean out any particles of foreign material which may have been loosened during loader operation. The hydraulic fluid may be used again if it is carefully filtered through a lint-free cloth. After 500 hours or 1 year of operation (whichever is shorter), the loader reservoir should be drained, the system flushed and again filled with new hydraulic fluid.

## LUBRICATION

There are eight grease gun fittings on the Dearborn Industrial Loader; one on the pivot sleeve of each lift arm, one on the piston shaft of each hydraulic lift cylinder, one on the rear end of each hydraulic lift cylinder, and one on the ram of each bucket cylinder. Lubricate the loader immediately after assembly and every eight hours of operation thereafter.

## OPERATION

The Dearborn Industrial Loader should be operated at moderate tractor speeds to avoid bucket spillage and loss of control. Excessive operating speeds are dangerous and may cause unnecessary strain. The tractor engine speed should be 1200 to 1500 R.P.M. and the tractor operated in second gear.

The loader lift arms are raised by pulling the inner valve lever to the rear and lowered by pushing the same lever forward. To dump the bucket, pull the outer valve lever to the rear. To return the bucket to its operating position, push forward on the outer valve lever. Both levers may be pushed forward together, so that the lift arm will lower and the bucket will return simultaneously. The loader operation is sufficiently fast for complete action during a normal amount of tractor maneuvering.

Drive straight into the pile when crowding a load into the bucket. Do not overtax the loader and tractor by trying to fill the bucket while turning. When loading from a pile of material, keep the surrounding area clean to maintain better traction and more efficient operation. The best procedure is to load from a wall of material so that it will break away and fall into the bucket for maximum fill on each load. Load the bucket with short, forward thrusts and raise the lift arms a little each time. Do not try to fill the bucket with one thrust into the material, as this results in less efficiency and causes unnecessary strain on the loader and the tractor. DO NOT, under any circumstances, use the top edge of the material bucket as a dozer blade. An Angle Dozer Blade (Model 19-2) is available for use

on the loader when performing dozing operations. The Industrial Loader does not utilize the Ford Tractor Hydraulic System and it, therefore, is free to be used for other implements such as the Danuser All Purpose Blade, Utility Blade, etc.

## TRANSPORTING

When transporting the loader with the bucket loaded or empty, the lift arms should be raised to a height where the bucket is just below the level of the tractor hood. Maximum stability and visibility are obtained when the lift arms are in this position.

## ATTACHMENTS

A wide variety of attachments, ideally suited for industrial purposes, are available for use on the Dearborn Industrial Loader. These attachments, which are sold separately by your Ford Tractor Dealer, are listed below and shown in Figure 14.

Material Bucket, Model 19-44. (See cover illustration)

Snow and Grain Bucket, Model 19-45.

Manure Fork, Model 19-46.

Crane, Model 19-69.

The Adaptor Unit, Model 19-54, Figure 14, permits installation of the following equipment:

Angle Dozer Blade, Model 19-2.

Blade Snow Plow, Model 19-3.

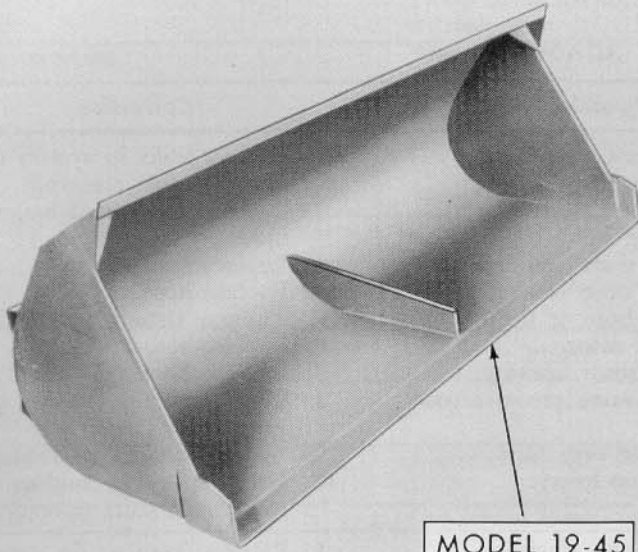
A Fender Bracket Kit (Part No. 194447) is available for use on the NAA tractor. This kit permits installation of tractor fenders with a rear wheel tread of 52 inches if desired or when dual 11-28 rear tractor tires are being used. The brackets are easily attached over the rear mounting plates of the loader.

## OPERATIONAL MAINTENANCE

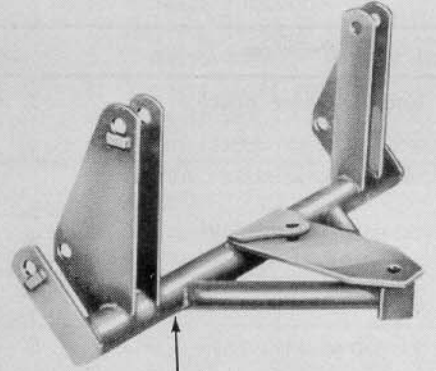
1. Check the level of fluid in the loader system daily and maintain the proper level as directed in the section on HYDRAULIC FLUID.
2. Have hydraulic fluid leaks serviced promptly to avoid loss of fluid and damage to the system.
3. Lubricate the loader as directed above.
4. Remove the breather cap from the loader and rinse in kerosene after every fifty hours of operation, or more frequently if operating under extremely dusty conditions. After rinsing, dip the breather in hydraulic fluid and reinstall.
5. When not in use, clean the exposed parts of the control valve spools, cylinder rods, and drive shaft, and coat with rust preventive.
6. Store the loader in a clean, dry place if possible.
7. Use Dearborn Sprayon Touch-up Enamel as necessary to prevent rust and to maintain the appearance of the loader.
8. Your Ford Tractor Dealer stocks genuine Ford Tractor and Dearborn Equipment repair parts. For high quality and accurate fit, insist on genuine Ford Tractor and Dearborn Equipment repair parts.



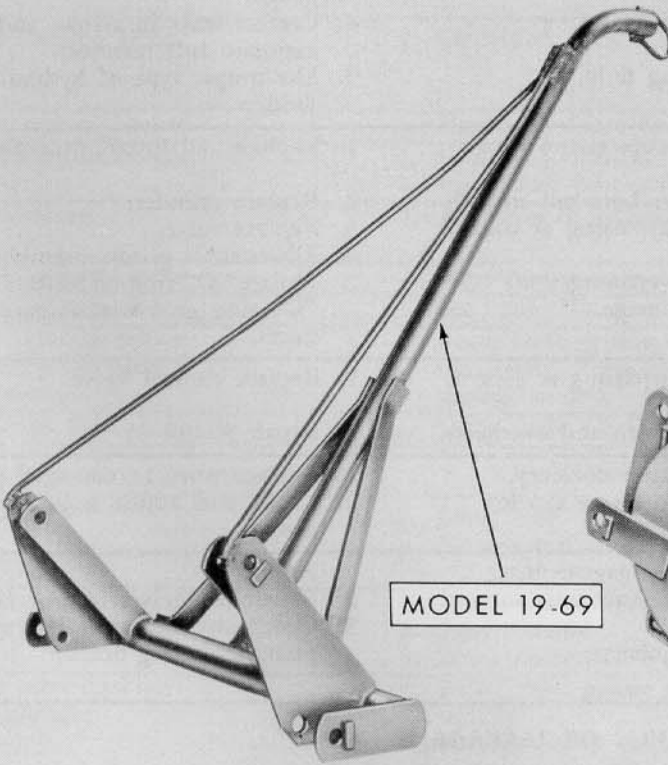
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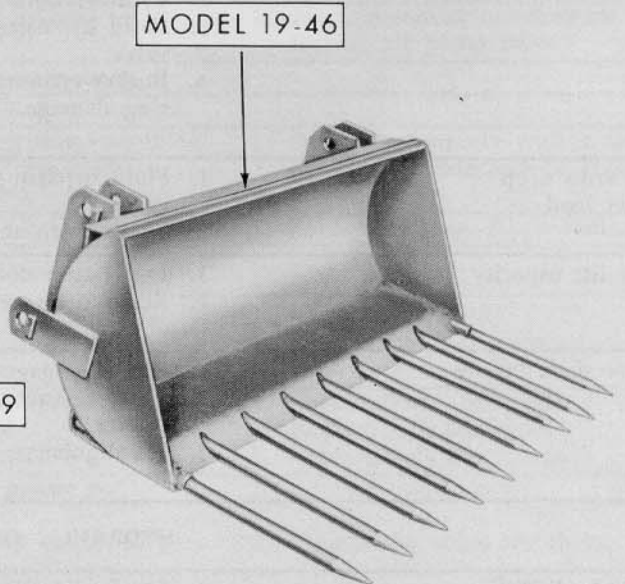
MODEL 19-45



MODEL 19-54



MODEL 19-69



MODEL 19-46

Figure 14

# DEARBORN INDUSTRIAL LOADER

## TROUBLE SHOOTING

The following material on trouble shooting is presented to aid the operator in quickly recognizing operational problems, their general cause and the remedy.

### LOADER

<i>Problem</i>	<i>Possible Cause</i>	<i>Correction</i>
Pump and/or valve noisy	<ol style="list-style-type: none"><li>1. Cavitation caused by low fluid level.</li><li>2. Cavitation caused by foaming fluid.</li><li>3. Pump shaft seal leaks.</li><li>4. Intake hose leaks.</li><li>5. Intake hose or fittings loose.</li><li>6. Broken rotor.</li><li>7. Worn rotor housing.</li><li>8. Relief valve pressure too high.</li><li>9. Breather very dirty.</li><li>10. Fluid too heavy.</li></ol>	<ol style="list-style-type: none"><li>1. Correct leaks in system and maintain full reservoir.</li><li>2. Use proper type of hydraulic fluid.</li><li>3. Replace seals.</li><li>4. Replace hose.</li><li>5. Tighten clamps and fittings.</li><li>6. Replace rotor.</li><li>7. Replace housing.</li><li>8. Check and adjust using pressure gauge.</li><li>9. Remove and rinse clean.</li><li>10. Use proper type fluid or thin for low temperature operation.</li></ol>
Slow or erratic rate of lift	<ol style="list-style-type: none"><li>1. Low pump efficiency.</li><li>2. Valve spools not properly centered.</li><li>3. Relief pressure too low.</li><li>4. Low fluid level.</li><li>5. Foaming fluid.</li></ol>	<ol style="list-style-type: none"><li>1. Replace worn or damaged parts.</li><li>2. Adjust valve spools.</li><li>3. Check and adjust with pressure gauge.</li><li>4. Correct leaks in system and maintain full reservoir.</li><li>5. Use proper type of hydraulic fluid.</li></ol>
Bucket drops under load	<ol style="list-style-type: none"><li>1. Piston cups cut, worn or loose.</li><li>2. Cylinder bore not smooth.</li><li>3. Fluid bypassing at control valve.</li><li>4. Bucket cylinder shaft "O" ring damage.</li></ol>	<ol style="list-style-type: none"><li>1. Replace and install properly.</li><li>2. Replace cylinder.</li><li>3. Replace valve.</li><li>4. Disassemble piston assembly and replace "O" ring on shaft. Check "O" ring groove and spacer for burrs.</li></ol>
Lift arms drop under load	<ol style="list-style-type: none"><li>1. Fluid bypassing at control valve.</li><li>2. Pump worn and overheats.</li></ol>	<ol style="list-style-type: none"><li>1. Replace control valve.</li><li>2. Repair pump.</li></ol>
Low lift capacity	<ol style="list-style-type: none"><li>1. Low pump efficiency.</li><li>2. Relief pressure too low.</li></ol>	<ol style="list-style-type: none"><li>1. Replace worn or damaged parts.</li><li>2. Check and adjust with pressure gauge.</li></ol>
Drive shaft failure	<ol style="list-style-type: none"><li>1. Partial engagement.</li><li>2. Tractor front axle support failure.</li><li>3. Misalignment.</li></ol>	<ol style="list-style-type: none"><li>1. Adjust.</li><li>2. Repair or replace.</li><li>3. Check installation of hub and pump mounting bracket.</li></ol>

### HYDRAULIC OIL LEAKAGE

Cylinder "O" rings	<ol style="list-style-type: none"><li>1. Cut in installation.</li><li>2. Rough or burred cylinder O.D.</li><li>3. Cylinder tube undersize causing extrusion.</li></ol>	<ol style="list-style-type: none"><li>1. Replace "O" rings.</li><li>2. Remove sharp edges with crocus cloth and replace ring.</li><li>3. Replace tube.</li></ol>
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<i>Problem</i>	<i>Possible Cause</i>	<i>Correction</i>
Pump "O" rings	<ol style="list-style-type: none"> <li>1. Cut in assembly.</li> <li>2. Pump cover not tight causing extrusion.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace rings.</li> <li>2. Torque to 70 foot lbs.</li> </ol>
Cylinder packings	<ol style="list-style-type: none"> <li>1. Worn packing lip.</li> <li>2. Damaged in assembly.</li> <li>3. Cut by a burr or scored rod.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace packing.</li> <li>2. Replace packing.</li> <li>3. Remove burr or replace rod.</li> </ol>
Pump seals	<ol style="list-style-type: none"> <li>1. Shaft burred or scored.</li> <li>2. Worn seals.</li> <li>3. Abrasives in system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace shaft and seal.</li> <li>2. Replace seal.</li> <li>3. Flush system as recommended.</li> </ol>
Valve seals	<ol style="list-style-type: none"> <li>1. Paint ring or masking tape on spindle.</li> <li>2. Score or rough finish on spindle.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove paint or tape and replace seals.</li> <li>2. If feasible, smooth with crocus cloth, or replace valve.</li> </ol>

## PUMP

Rotor embedded with metal particle—body galled.	<ol style="list-style-type: none"> <li>1. Insufficient lubrication.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use proper type hydraulic fluid.</li> </ol>
Rotor, body and/or pressure plate scored or scratched	<ol style="list-style-type: none"> <li>1. Abrasives or dirt in system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Flush as recommended.</li> </ol>
Pump cover plate broken	<ol style="list-style-type: none"> <li>1. Cap screws loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace and torque to 70 ft. lbs. Check "O" ring for extrusion.</li> </ol>
Pump burst	<ol style="list-style-type: none"> <li>1. High pressure.</li> <li>2. Obstruction in line.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check relief valve with pressure gauge and adjust.</li> <li>2. Check hose and line for obstruction.</li> </ol>
Rotor housing (ring) ridged	<ol style="list-style-type: none"> <li>1. Cavitation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check fluid level—type of hydraulic fluid. Check for leaks at pump intake.</li> </ol>
Rotor segment broken	<ol style="list-style-type: none"> <li>1. Vanes too loose in slots.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace rotor.</li> </ol>
Vanes worn prematurely to taper	<ol style="list-style-type: none"> <li>1. Cavitation—low fluid level.</li> <li>2. Insufficient lubrication.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check fluid level—type of fluid.</li> <li>2. Replace vanes—inspect ring.</li> </ol>
Vanes scored	<ol style="list-style-type: none"> <li>1. Abrasives in system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Flush system as recommended. Inspect all pump parts.</li> </ol>
Pump shaft seal leaks	<ol style="list-style-type: none"> <li>1. See pump seal leakages.</li> </ol>	
"O" rings extruded	<ol style="list-style-type: none"> <li>1. See Pump "O" ring leakages.</li> </ol>	
Pump will not deliver pressure even when appears O.K.	<ol style="list-style-type: none"> <li>1. Rotor housing ring assembled incorrectly. Pressure plate spring omitted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Assemble properly with arrow pointing in direction of crankshaft rotation.</li> </ol>
Premature bearing failure	<ol style="list-style-type: none"> <li>1. Drive shaft misalignment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace bearing. Align shaft.</li> </ol>

## VALVE

Levers stick	<ol style="list-style-type: none"> <li>1. Lever binds against frame.</li> <li>2. Valve spool binds.</li> </ol>	<ol style="list-style-type: none"> <li>1. Assemble correctly.</li> <li>2. Disassemble and inspect for dirt or scoring.</li> </ol>
Bypass fluid in neutral	<ol style="list-style-type: none"> <li>1. Spools pitted by corrosion.</li> <li>2. Spools scored.</li> <li>3. Bores damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace body and spools.</li> <li>2. Replace body and spools.</li> <li>3. Replace body and spools.</li> </ol>
Relief valve does not hold pressure	<ol style="list-style-type: none"> <li>1. Relief valve gasket not sealing.</li> <li>2. Foreign object holds valve open.</li> <li>3. Pressure setting too low.</li> <li>4. Burred or scored relief piston or seal.</li> <li>5. Broken relief spring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace copper gasket.</li> <li>2. Disassemble valve and clean.</li> <li>3. Check pressure with gauge and adjust.</li> <li>4. Remove burr with crocus cloth or replace assembly.</li> <li>5. Replace spring.</li> </ol>



*Here are some of the implements in the Dearborn Equipment Line:*

MOLDBOARD PLOWS	SPRING SHANK CULTIVATORS	SWEEP RAKES
DISC PLOWS	RIGID SHANK CULTIVATORS	SIDE DELIVERY RAKES
TILLERS	FIELD CULTIVATORS	HAY BALERS
TWO-WAY PLOWS	ROTARY HOES	FORAGE HARVESTERS
ONE-WAY PLOWS	BUSTER PLANTERS	SCOOPS
MIDDLEBUSTERS	CORN PLANTERS	MANURE SPREADERS
TANDEM DISC HARROWS	CORN PICKERS	BLADES
SPRING TOOTH HARROWS	CORN HARVESTERS	SCRAPERS
BUSH & BOG HARROWS	FRONT & REAR LOADERS	WAGONS
SUBSOILERS	COMBINES	POST HOLE DIGGERS
GRAIN DRILLS	MOWERS	DISC RIDGERS
LIME & FERTILIZER SPREADERS	CRANES	SNOW PLOWS

**For Further Information . . .**

**SEE YOUR LOCAL FORD TRACTOR DEALER**

## **EQUIPMENT WARRANTY**

FORD MOTOR COMPANY warrants all parts (other than pneumatic tires, inner tubes and batteries) of equipment bearing the trade-mark "Dearborn" to the original purchaser from Company, for a period of six (6) months from the date of delivery thereof to the original purchaser at retail, to be free from defects in workmanship and material under normal use and service. The obligation of Company under this warranty shall be limited to shipment, without charge, to the original purchaser from Company, of the part or parts of such Dearborn equipment intended to replace the part or parts acknowledged by Company to be defective in workmanship or material. This warranty is in lieu of all other warranties, expressed or implied, and of all obligations or liabilities on the part of Company, and it neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with workmanship or material of equipment bearing the trade-mark "Dearborn" or any part thereof. This warranty shall not apply to any Dearborn equipment, or any part thereof, which has been damaged in any accident, or by fire, flood, or Act of God, or abused or misused, or which has been altered elsewhere than at the place of manufacture, or in which the original purchaser thereof at retail, has used or allowed to be used, parts not made or supplied by Company. Company reserves the right at any time to make changes in the design, materials and/or specifications of equipment bearing the trade-mark "Dearborn" and/or accessories therefor, without thereby becoming liable to make similar changes in equipment bearing the trade-mark "Dearborn" and/or accessories therefor, previously manufactured.

**TRACTOR AND IMPLEMENT DIVISION**

*Ford Motor Company*

**BIRMINGHAM, MICHIGAN**