PACKING FRONT WHEEL BEARINGS
(Two Piece Seal)

Packing Interval ---------- 1000 Hours

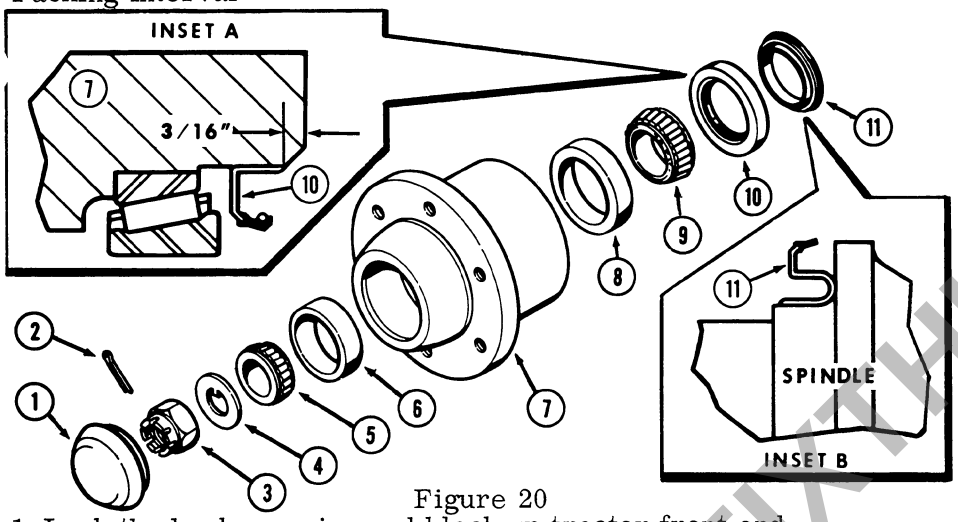


Figure 20

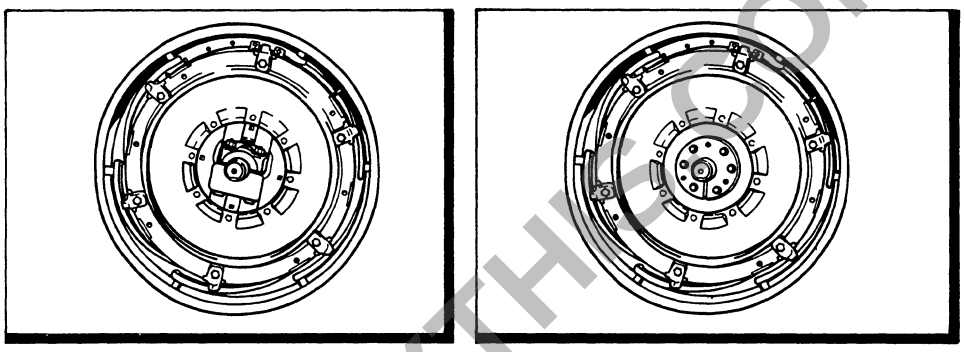
1. Lock the brakes, raise and block up tractor front end.
2. Remove the hub cap (1), cotter pin (2), slotted adjusting nut (3) and thrust washer (4).
3. Remove the outer bearing cone (5) and pull the wheel hub (7) off the spindle containing bearing cups (6) and (8), cone (9) and outer half of seal (10).
4. Remove the inner half of seal (11) from spindle.
5. Remove the inner cone (9), bearing cups (6) and (8) and outer seal half (10) from hub. Inspect the bearing cups and cones. Replace if worn or damaged.
6. Clean the bearings, inside of hub and spindle.
7. Pack each bearing with No. 2 wheel bearing grease. Make sure the space around each roller is filled.
8. Install the bearing cups (6) and (8) if they were removed, inner bearing cone (9) and new outer seal half (10) into hub until the outer seal half inner edge is 3/16" below the inner hub face. See Inset A.
9. Install a new inner seal half (11) onto the spindle with the curved face inward. See Inset B. Lubricate the seal surfaces with No. 2 wheel bearing grease.
10. Install outer cone (5) into the hub (7) and install the hub assembly onto the spindle.
11. Install the thrust washer (4) and slotted adjusting nut (3). Carefully tighten the nut (3) against the thrust washer (4) until the pressure of the nut causes a noticeable drag while the hub and wheel is turned. Back off nut 1/8 of a turn or until the next slot in the nut lines up with the hole in the spindle. Check for end play. If end play is noted, tighten until end play is gone.
12. Lock the slotted adjusting nut (3) with a new cotter pin (2) and reinstall the hub cap (1).

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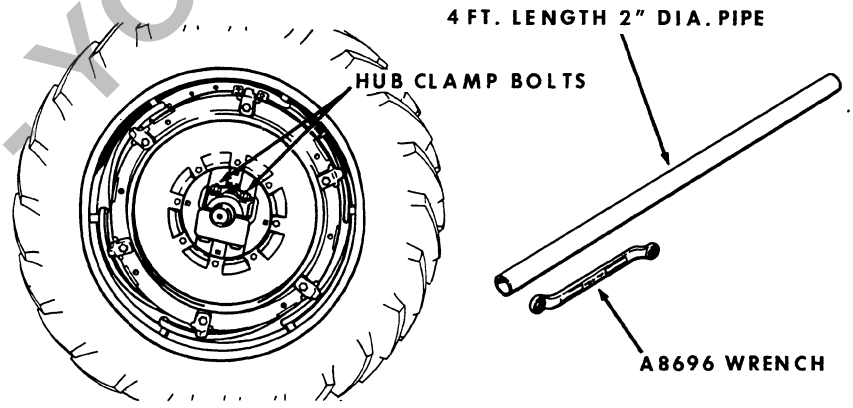
REAR WHEEL HUB ADJUSTMENT AND BOLT TORQUES

Clamp Type Hub **Tapered Bushing Hub**



Clamp Type Hub

IMPORTANT To secure an even clamping force between the rear wheel hubs and keyed axle, the four hub clamp bolts must be tightened properly whenever the rear wheels are removed or are adjusted for tread spacing.



The hub clamp bolts must be tightened using a torque wrench or a box wrench with a 4 ft. length of 2" inch pipe.

The box wrench can be ordered from your Authorized Case Dealer under part number A8696.

By sliding the pipe all the way onto the box wrench, the average person can apply the proper torque. All four bolts on each hub must be torqued equally in three increments - (1) 70 to 80 ft. lbs., (2) 150 to 160 ft. lbs. (3) 360 to 400 ft. lbs.

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(Refer to Figure 21)

1. AMBER WARNING LAMP SWITCH - Turn clockwise to the "ON" position. The amber warning lamp must be "turned on" whenever the tractor is operated on a public road, day or night.

2. AMBER WARNING LAMP FLASHER - Located underneath the LH side of the instrument panel.

3. KEY SWITCH - Three position combination switch with removable key "OFF", "RUN" and "HEAT" positions, tractor cannot be started without key.

4. LIGHT SWITCH - Turn switch to "BRIGHT" position for headlights. Turn switch to "DIM" position to dim headlights when approaching oncoming traffic. Turn switch to "CULT" position for cultivator lights. **NOTE** Instrument panel, gear shift indicator lamp and rear light stay lit in all positions.

5. FUEL GAUGE - Indicates how much fuel is in the tank. Fuel gauge needle normally rests on empty when the key switch is off.

6. SPEEDOMETER - Indicates the travel speed in miles per hour. Convenient indication of travel speed for planting or other operations where speed must be accurately determined.

7. ENGINE TEMPERATURE GAUGE - The gauge needle will indicate between 160°-204°F. on gauge when the engine is operating at normal temperature. When using a proper operating pressure cap, the engine temperature can rise to 230°-240°F.

8. ENGINE OIL PRESSURE WARNING LIGHT - The oil pressure warning light will light when the key switch is turned to the RUN position and should go off when the engine starts. If the warning light remains on, or goes on during operation, it is an indication of no oil pressure or very low pressure. STOP THE ENGINE AND INVESTIGATE THE CAUSE.

9. GENERATOR WARNING LIGHT - The generator warning light will light when the key switch is turned to the RUN position and should go off when the engine starts. If the warning light does not go off when the engine starts and is running, it is an indication that the battery is discharging and the generator is not supplying current. STOP THE ENGINE AND CHECK FOR THE CAUSE. If the warning light flickers when the engine is at low idle, the battery, generator or regulator may not necessarily require servicing. However, if the warning light remains on when the engine speed is increased, stop the engine immediately and check for the cause.

10. STARTER BUTTON- Turn key to "RUN" position and press starter button to start engine.

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451 Diesel Engine

SPECIFICATIONS

General

Type ---------- 6 Cylinder, 4 Cycle, Valve-In-Head Diesel Engine.
Firing Order ---------- 1-5-3-6-2-4
Bore ---------- 4-3/8 Inches
Stroke ---------- 5 Inches
Piston Displacement ---------- 451 Cubic Inches
Compression Ratio ---------- 15 to 1
Cylinder Sleeves ---------- Removable Wet Type
No Load Governed Engine Speed ---------- 2150 RPM
Rated Engine Speed ---------- 2000 RPM
Engine Idling Speed ---------- 600 RPM
*Valve Tappet Clearance (Intake and Exhaust) ---------- .020 Inch Hot
Cold Weather Starting Aid ---------- Electric Manifold Heater
Diesel Fuel Recommendation ---------- Number 2 Diesel Fuel
Air Cleaner ---------- Dry Type

*Hot Settings Are Made At Low Idle After the Engine Has Operated At Thermostat Control Temperature For At Least Fifteen Minutes.

Piston and Connecting Rods

Number of Compression Rings ---------- 3
Number of Oil Rings ---------- 1
Piston Pins ---------- Full Floating Type
Connecting Rod Bearings ---------- Replaceable Precision Steel Back, Copper - Lead Alloy Liners.

Main Bearings

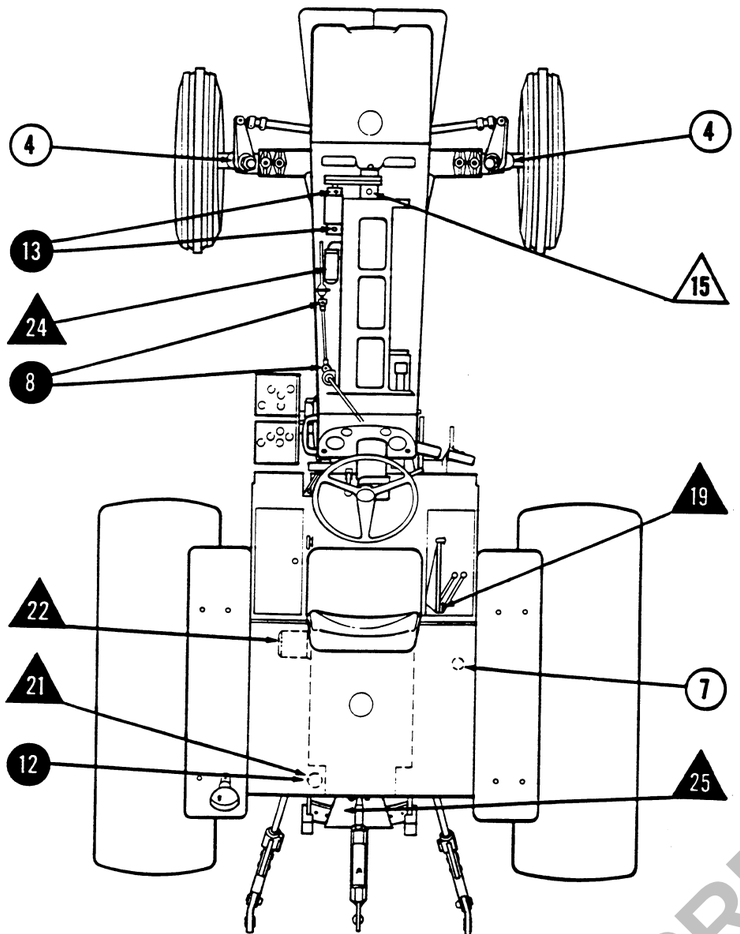
Number of Bearings ---------- 7
Type of Bearings ---------- Replaceable Precision Steel Back, Copper - Lead Alloy Liners.

Engine Lubricating System

Oil Pressure ---------- 40 to 50 Pounds with Engine Warm and Operating at Rated Engine Speed.

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REF. NO.	LUBRICATION POINTS	NO. OF POINTS	GREASE	DRAIN	CHECK	CLEAN	CHANGE OIL (Few Drops)	FREQUENCY
1	Front Axle Pivot	1	▒					○ 10 HOURS OR DAILY
2	Radius Rod Pivot	1	▒					
3	Front Axle Drag Link Pivot (If Equipped)	3	▒					
4	King Pins	2	▒					
5	Engine Oil Dipstick	1		▒				
6	Pre-Cleaner and Air Cleaner Cups*	2		▒				
7	Fuel Tank Water Trap	1		▒				
8	Steering Shaft Supports	2	▒					● 60 HOURS OR WEEKLY
9	Drawbar Roller	1	▒					
10	R.H. & L.H. Lift Links (On Crank Type Only)	2	▒					
11	Power Steering Reservoir Dipstick	1			▒			
12	Transmission - Hydraulic Dipstick	2			▒			
13	Generator	2					▒	
14	Brake Pedals	2	▒					△ 120 HOURS
15	Fan Shaft Bearing*	1	▒					
16	Brake Pedal Cross Shaft	1	▒					
17	Turnbuckle Link (If Equipped with Fittings)	2	▒					
18	Engine Oil Drain**	1		▒				
19	Hydraulic Control Levers	2	▒					
20	Clutch Throwout Bearing	1	▒					
21	Transmission - Hydraulic Breather***	1				▒		
22	Trans. - Hyd. Return Filter (If So Equipped)*	1					▒	▲ 240 HOURS
23	Transmission - Hydraulic Inlet Filter*	1					▒	
24	Engine Oil Filter	1					▒	
25	Belt Pulley Breather and Oil Level**	2			▒	▒		
26	Front Wheel Bearing Grease (One Piece Seal)***	2					▒	□ 500 HOURS
27	Belt Pulley Oil Drain**	1		▒				
28	Power Steering Reservoir Filter*	1					▒	
29	Transmission - Hydraulic Oil Drain	3		▒				■ 1000 HOURS OR YEARLY
30	Front Wheel Bearing Grease (Two Piece Seal)***	2					▒	
31	Air Cleaner Element*	1					▒	

*2 Strokes - Do Not Overlubricate. Do Not Use Water Pump Grease
**See Page 21 for Run-In Oil Drain
***More Often in Dusty Conditions

*Refer to Pages 22 thru 29 for complete Filter Service Instructions
**Refer to Page 51
***Clean, Repack and Adjust. Refer to Page 29 and 30

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operating instructions

RUN -IN -PROCEDURE

Careful attention must be given to proper Run-In-Procedure. Piston rings and cylinder sleeves can be seriously damaged in a new engine if "run-in" instructions are not followed. The following procedure is recommended.

Load

For the 1st 50 hours, operate the engine at full throttle using one gear lower than normal field operation. Do not "baby" the engine. but do not "lug" it. Engine must not be "lugged" down below its rated engine speed.

No Load

When the engine is not operating under load, but the operator wishes to keep the engine running, keep the radiator shutters (if so equipped) closed sufficiently to maintain correct operating temperature. Place the throttle control lever 2/3 open (approximately 1500 RPM). Do not idle the engine.

Crankcase Oil

Case Tractors are shipped from the factory with a special "run-in" oil in the crankcase. After the first 20 hours of operation, drain this oil while the engine is hot and replace it with fresh oil, Change the crankcase oil at the recommended 120 hour intervals thereafter. DO NOT DRAIN SPECIAL RUN-IN OIL UNTIL THE ENGINE HAS BEEN OPERATED 20 HOURS.

Change crankcase oil filter after first 20 hours of operation and each 240 hours of operation thereafter. Install only a new Genuine Case Filter element.

Clutch Adjustments

During the first 50 to 150 hours of operation, it may be necessary to adjust both traction and PTO clutches several times until the drive plate facings have "run-in". Failure to do so can cause serious clutch damage.

Transmission - Hydraulic Filters

Change filters after the first 20 hours of operation and each 240 hours thereafter.

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OPERATING CONTROLS AND INSTRUMENTS

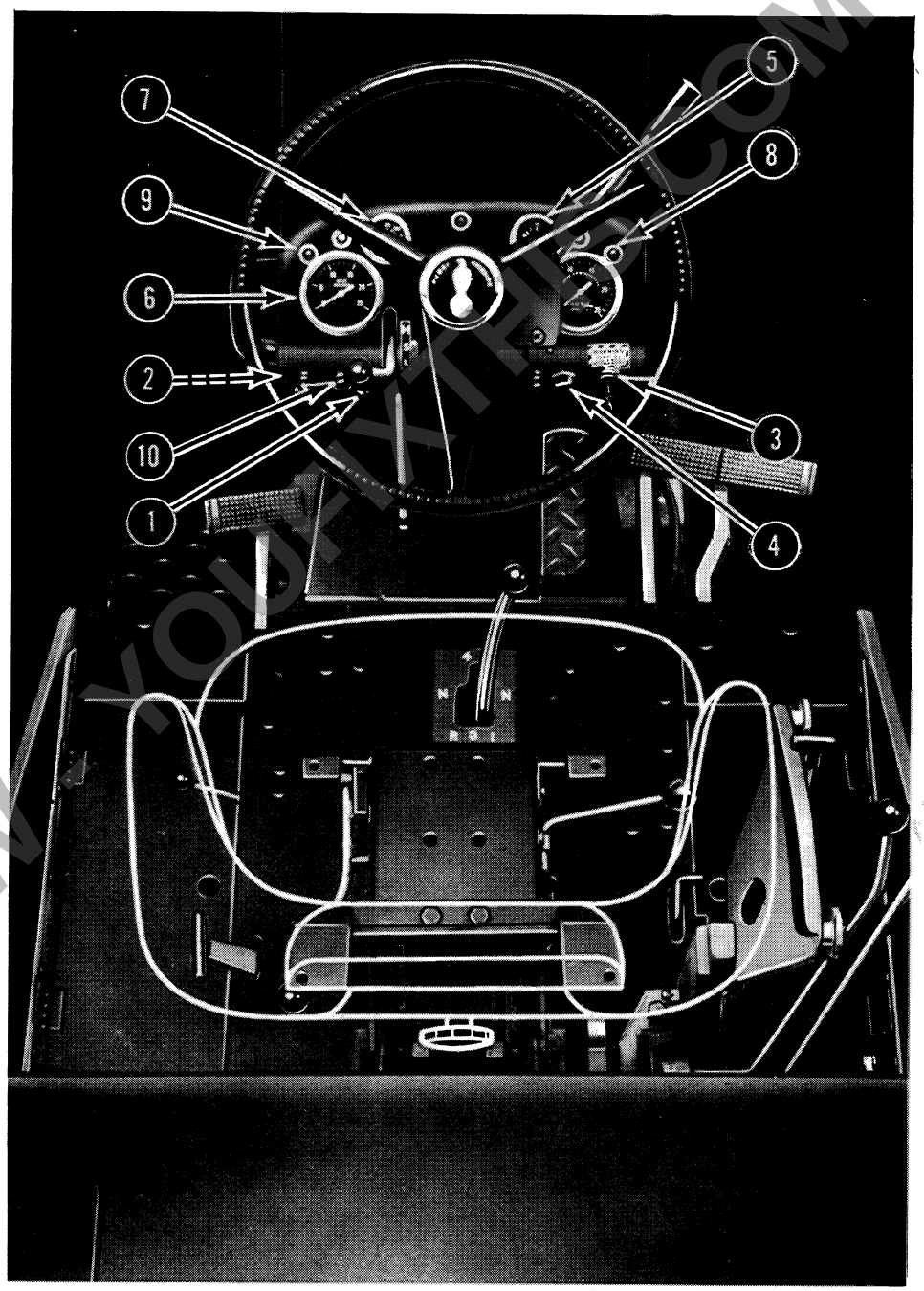


Figure 21

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CASE DRAFT-O-MATIC HYDRAULIC SYSTEM

Case Draft-O-Matic hydraulic system is a Category II three point hitch system that provides both position control and Draft-O-Matic control of soil engaging implements.

Implement Identifying Dimensions	Category I* Implement	Category II** Implement
Diameter of hitch pins	7/8"	1-1/8"
Distance between shoulders of hitch pin	26-7/8"	32-1/2"
Gap in top of mast	1-3/4"	2-1/16"
Diameter of holes in top of mast	3/4"	1"

*Category I implements can be used with your Tractor by installing 3 reducer bushings provided with your Tractor.

**Category II implements require no special bushings with your Tractor.

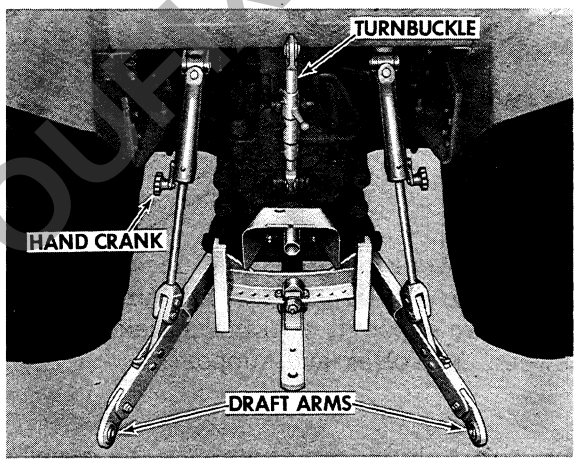


Figure 40

The Quadrant Lever is provided for raising and lowering mounted implements and also for selecting the desired working depth of soil engaging implements.

RAISING - Pull the quadrant lever upward to raise a mounted implement. **NOTE** There is an adjustable raise stop on the quadrant that can be adjusted to act as a stop for the desired raise position, Figure 41. This stop must never be removed and the lever must never by-pass this stop or serious damage to the pump may result.

LOWERING - Push the quadrant lever downward to lower a mounted implement. **NOTE** Refer to Draft-O-Matic Control for positioning of the adjustable TWO POSITION LOWERING STOP.

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