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MANUAL PREVIEW

Minneapolis Moline

Operator's Manual

M-670

Operator's Manual

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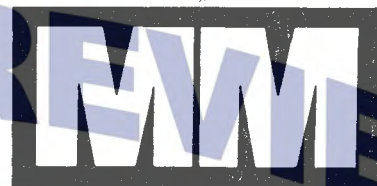
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OPERATOR'S MANUAL

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MANUAL PREVIEW



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M-670 TRACTORS

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MINNEAPOLIS-MOLINE, INC.
HOPKINS, MINNESOTA



SPEEDS (MPH at 1600 engine rpm and 15.5-38 tires)

Gear	2-Wheel Drive	
	High range	Low range
1st	3.01	1.57
2nd	4.59	2.40
3rd	6.13	3.22
4th	7.49	3.93
5th	16.82	8.71
Rev.	4.59	2.40

BELT PULLEY

Size	12 in. diameter, 7 in. face
Speed	993 rpm, 3120 fpm at 1366 rpm engine speed

MISCELLANEOUS

Spark plug gap		
Gasoline		.022-.025"
LP-Gas		.014-.016"
Spark plug torque		
		32-38 ft-lbs.
Distributor point gap		
		.013-.019"
Cylinder head bolt torque		
Gasoline and LP-Gas (all nuts)		170-175 ft-lbs.
Diesel		
9/16" studs		130-135 ft-lbs.
5/8" studs		170-175 ft-lbs.
Connecting rod bolt torque		
		70-75 ft-lbs.
Crankshaft bolt torque		
9/16" bolt		100-105 ft-lbs.
11/16" bolt		195-205 ft-lbs.
Energy cell torque		
		100 ft-lbs.
Injection nozzle torque		
		14-16 ft-lbs.
Intake valves		
Gasoline and LP-Gas	Cold	Warm Idle
	.012	.010
Diesel	.012	.010
Exhaust valves		
Gasoline and LP-Gas	Cold	Warm Idle
	.028	.022
Diesel	.020	.018
Timing (Use No. 1 mark in camshaft gear)		
Diesel Fuel		9° BTDC
Gasoline (at 1200 RPM)		11° BTDC
LP-Gas (at 1200 RPM)		10° BTDC

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3-Point Hitch Linkage

The 3-point hitch linkage is fully adjustable. Use the upper link to change the pitch of an implement, or for fore-and-aft leveling of an implement. Use the right-hand lifting rod for lateral leveling and height adjustments.

To adjust the right-hand lifting rod, merely turn the crank in the desired direction to properly level the implement being used. The spring-loaded detent will automatically lock the crank every 1/4 turn when the operator is not using the crank for leveling the implement.

The lifting yokes have holes and slots (Fig. 31) to use when connecting the yokes to the pull links. Pin the pull link to the lifting yoke through the hole in the yoke when using the hydraulic lift to control the operating depth of an implement, or when it is desirable to have rigid mounting.

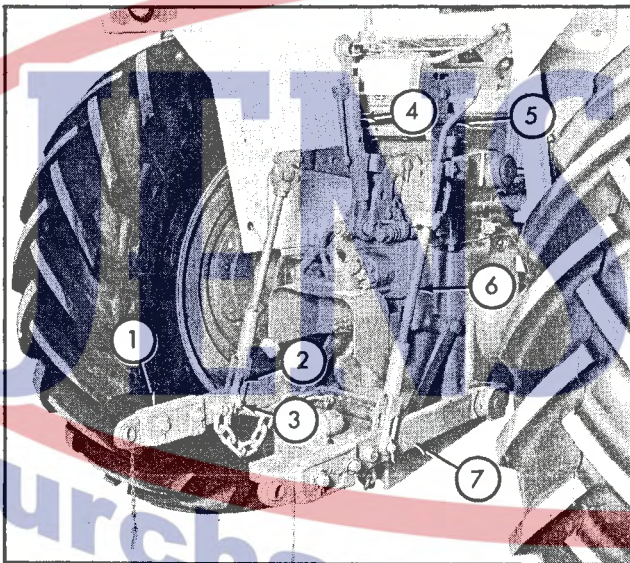


Fig. 31

1. Flexible pull link end
2. Slot in yoke
3. Hole in yoke
4. Turnbuckle
5. Crank
6. Lift rod
7. Pull link

Generally speaking, when using gage wheels to control the operating depth of an implement, or when rigid mounting is not desirable (such as with disc harrows), pin the pull links to the yokes through the slots. The slots allow a certain amount of up-and-down movement to compensate for twisting action that may occur between the tractor and the implement, and from one side of the implement to the other side.

When pinning the pull links to the yokes through the slots, or holes, adjust the lift rods so the hitch sockets are not more than 35 inches or less than 32 inches from the ground

when the hitch is in the fully raised position. This will insure the use of the full range of lift and will also prevent excessive transport heights. After lengthening the lift rods, remember to level the implement.

Stabilizer Bars

Stabilizer bars are available to prevent sidesway of certain 3-point implements. These bars are available for both Category I and Category II implements. When using stabilizer bars, attach them to the hitch pins of the implement before connecting the 3-point hitch pull links to the hitch pins. After completing the 3-point hitch connections, raise the implement slightly, bring the front ends of the stabilizer bars together, and pin them to the stabilizer hinge. Do not use limit chains to prevent sway when using the stabilizer bars; leave the chains slack.

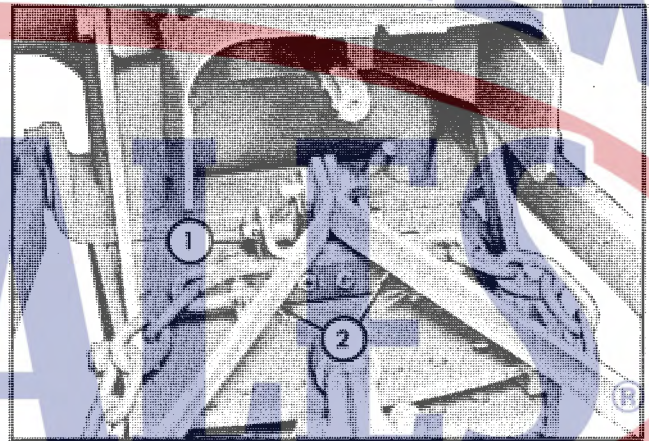


Fig. 32

1. Stabilizer hinge
2. Stabilizer bars

Implement Mast

To insure satisfactory implement performance, the height of the upper-link mounting point in the implement mast must be 18 inches above the implement hitch pins when using the implement on standard-type tractors; the height of the upper-link mounting point in the implement mast must be 22 inches above the pins when using universal-type tractors. Most 3-point hitch implements have two mounting points, one at the 18-inch level, and one at the 22-inch level. On plows, and other implements not having the two mounting points, use a mast extension when mounting the implement on a universal-type tractor. Use the bushing in the center hole in the extension.

Attaching Implements to the 3-Point Hitch

The 3-point hitch on tractors so equipped, features flexible pull link ends, shown in Fig. 31, which simplify attaching and detaching implements.

When hitching an implement, remove the front pins in the cast iron end pieces and allow the ends to pivot upward as shown in Fig. 33.

IMPORTANT: DO NOT OPEN OR LOOSEN EITHER AIR VENT WHILE THE ENGINE IS RUNNING, OR AIR WILL BE SUCKED INTO THE SYSTEM.

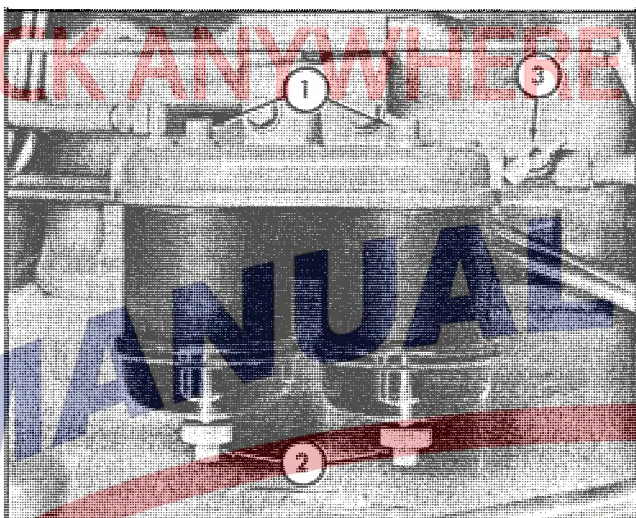


Fig. 62

1. Air vent screws
2. Drain plugs
3. Shut-off valve

Normally, no further bleeding of the system will be necessary. However, if air has entered the pump or lines, loosen the connectors to the injection nozzles. Turn the engine over with the starting motor to bleed any remaining air from the pump and lines. Tighten the connections to 35 foot-pounds as each line is bled.

At the beginning of each day's operation, loosen the drain plugs at the bottom of the filters and drain off any accumulation of water or foreign material that has settled out during the night.

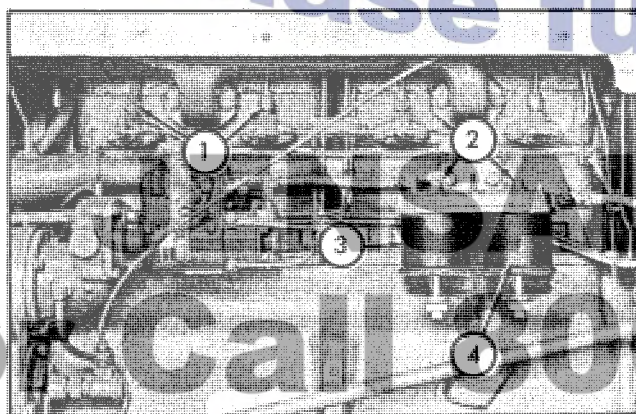


Fig. 63

1. Crack here only if necessary
2. Air vent screws
3. Final filter
4. Primary filter

Fuel Injection Pump

The injection pump has few rotating parts, and is lubricated by the filtered diesel fuel that it pumps, so it is relatively trouble free. If the injection system is not operating properly, check all the other components (filters, energy cells, nozzle, fuel, etc.), before removing the pump. See the appropriate section in this manual.

If all other components of the system are eliminated as a source of trouble, and it is determined that the pump is faulty, remove it as follows:

- a. Shut off the fuel supply. Clean the pump, fuel lines, and the area around and above the pump thoroughly to prevent the entrance of dirt into the system.
- b. Remove the timing cover on the side of the pump. Turn over the engine until the pump timing marks line up, as shown in Fig. 64.

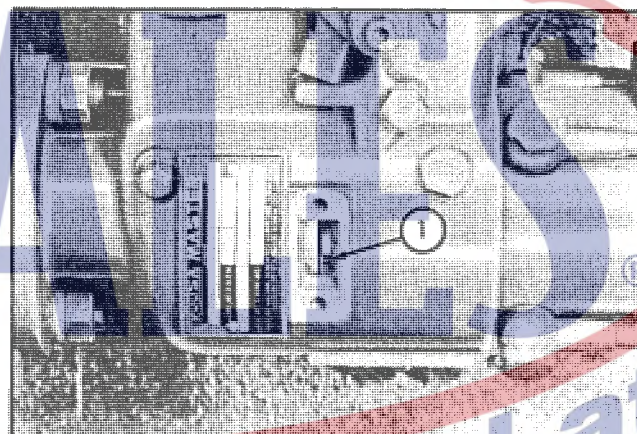


Fig. 64

1. Timing marks
- c. Disconnect all fuel lines from the pump. Cover or plug all openings immediately. Use caps or plugs designed for this purpose - DO NOT USE MASKING, CELLOPHANE OR FRICTION TAPE. Diesel fuel will dissolve the gum on the tape, and this gummy mixture could enter the system and foul the precision working parts.

IMPORTANT: DO NOT DISTURB ANY OF THE SEALS ON THE PUMP. IF ANY OF THE SEALS ARE BROKEN, THE WARRANTY IS VOIDED.

- d. Disconnect the throttle linkage.
- e. Remove the 4 cap screws holding the mounting plate to the engine. DO NOT REMOVE THE MOUNTING PLATE FROM THE PUMP FLANGE.
- f. Withdraw the pump slowly and straight to the rear. If the pump is cocked while it is being removed, the

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