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MM-S-R IND

OPERATION &
MAINTENANCE
MANUAL

MANUAL PREVIEW



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Model

R

INDUSTRIAL
TRACTOR

Minneapolis-Moline Company, Minneapolis 1, Minnesota, U.S.A.

MINNEAPOLIS-MOLINE "R" INDUSTRIAL TRACTOR

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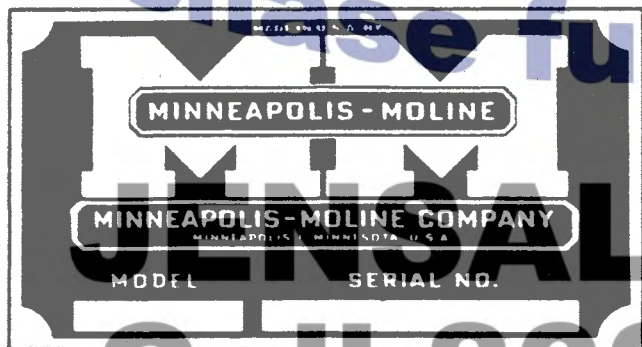
SERIAL NUMBER LOCATION

Below are sample Model and Serial No. plates found on the tractor and the tractor engine.

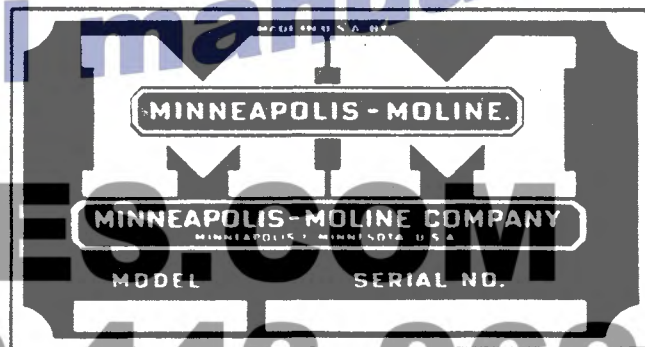
To have the Model and Serial No. of the tractor and engine easily accessible, write the numbers ap-

pearing on them in the spaces provided below.

Include the Model and Serial No. of the tractor and the engine when any parts are ordered, or in any correspondence concerning the tractor or the engine.



TRACTOR NUMBER



ENGINE NUMBER

Stamped on the plate riveted to the right side of the transmission case.

Stamped on the plate riveted to the right side of the engine crankcase.

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AIR CLEANER

Make United
Type Oil Wash

BELT PULLEY

Pulley Speed (Governed under load) 1000 RPM
Belt Speed 3200 Ft. Per Min.
Pulley Diameter 12 1/4 Inches
Pulley Face 6 Inches

CAPACITIES (U. S. Measure)

Air Cleaner Cup 1 Pint
Crankcase (Engine) 7 Quarts
Fuel Tank 14 Gals.
Gasoline Starting Tank 1 Gal.
Transmission & Differential Case 18 Quarts
Cooling System 13 1/2 Quarts

CARBURETOR

Make Marvel-Schebler
Size 7/8 Inch

CLUTCH

Size 10 Inch
Make Rockford
Type Dry Plate Spring Loaded
Rated Torque 205 lbs.-ft.

ENGINE

Make MM
Model EE
Cylinders 4
Piston Displacement 165.1 Cu. In.
Bore & Stroke 3 3/8 x 4
Governed Speed
No Load 1650 RPM
Under Load 1500 RPM
Valve Clearance (Operating Temp)
Exhaust Valves010
Intake Valves008
Valve Clearance (Cold Engine)
Exhaust Valves018
Intake Valves010
Crankcase Ventilation Fan Blast Scavenging

FOOT BRAKES

Location Rear Axle Shaft
Type Double Disc
Size 8 Inch
Make Lambert

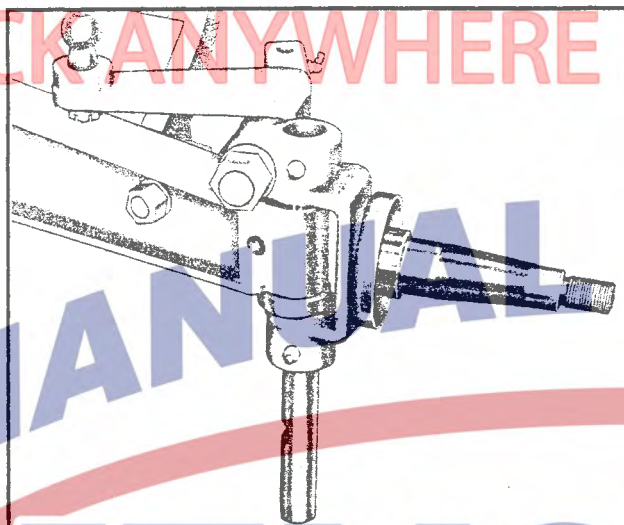


FIG. 22 KNUCKLE PIN REMOVED

PRESS OR DRIVE THE OLD BUSHINGS FROM THE KNUCKLE AND PRESS THE NEW ONES IN. MAKE CERTAIN THAT THE HOLE IN THE BUSHING LINES UP WITH THE GREASE FITTING HOLE. REAM THE BUSHING SO THAT THE KNUCKLE PIN HAS A FREE TURNING FIT. CHECK THE THRUST BEARING FOR WEAR AND REPLACE IF NECESSARY. REASSEMBLE THE PARTS ON THE AXLE AND MAKE CERTAIN THAT THE OPEN SIDE OF THE THRUST BEARING FACES DOWN (FIG. 24).

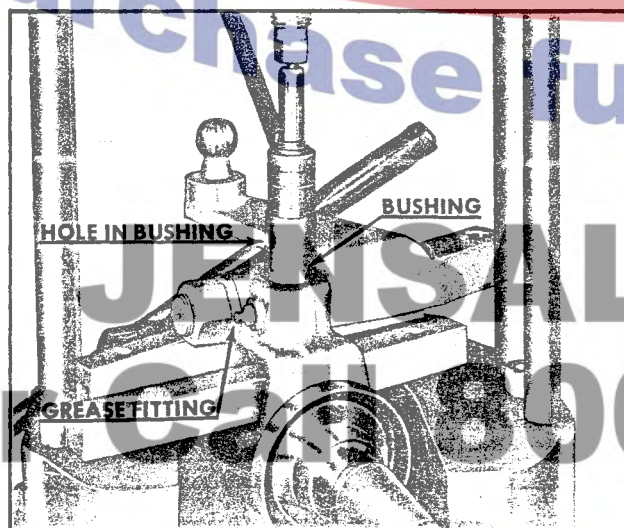


FIG. 23 PRESSING BUSHING

CHALK THE TAPER PIN TO DETERMINE IF IT CONTACTS THE KNUCKLE PIN CORRECTLY. THIS IS VERY IMPORTANT AS THE KNUCKLE PIN MUST BE

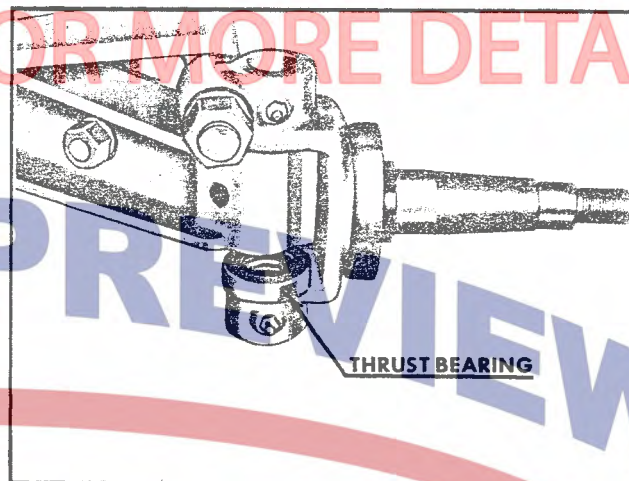


FIG. 24 REPLACING THRUST WASHER

HELD SECURELY IN PLACE AT ALL TIMES. IF THE TAPER PIN DOES NOT CONTACT THE KNUCKLE PIN CORRECTLY IT WILL BE NECESSARY TO REAM THE TAPERED HOLE IN THE AXLE AND USE A LARGER PIN. A NUMBER 10 OR 11 TAPER PIN CAN BE USED.

AXLE KING PIN

IF REPLACEMENT OF THE AXLE KING PIN OR BUSHING BECOMES NECESSARY IT CAN BE DONE IN THE FOLLOWING MANNER. RAISE THE TRACTOR ONLY ENOUGH TO TAKE THE WEIGHT OFF THE PIN, REMOVE THE REAR COTTER KEY AND DRIVE THE PIN OUT FROM THE REAR. RAISE THE TRACTOR UP TO CLEAR THE AXLE AND DRIVE THE OLD BUSHING OUT. PRESS OR DRIVE THE NEW BUSHING IN AND REAM IT SO THAT THE PIN WILL HAVE A FREE TURNING FIT (FIG. 25).



FIG. 25 KING PIN AND BUSHING

MINNEAPOLIS-MOLINE "R" INDUSTRIAL TRACTOR

FACTORY STANDARD LIMITS FOR CRANK PIN JOURNALS ARE 2.6250-2.6245 INCHES.

FACTORY STANDARD LIMITS FOR THE REAR MAIN BEARING JOURNAL ARE 3.0000-2.9995 INCHES.

BEARING INSERTS FOR THE CONNECTING RODS AND THE REAR MAIN BEARING ARE AVAILABLE IN .0025 AND .005 INCH UNDERSIZES FOR REPLACEMENTS IF THE JOURNALS HAVE NOT BEEN REGROUND.

UNDERSIZE BEARINGS ARE AVAILABLE FOR REGROUND SHAFTS IN .020 AND .040 INCH.

THE CORRECT GRINDING LIMITS FOR REGROUNDING THE CRANKSHAFT ARE AS FOLLOWS:

.020 UNDERSIZE ROD BRG.	2.6050-2.6045
.040 UNDERSIZE ROD BRG.	2.5850-2.5845
.020 UNDERSIZE REAR MAIN	2.9800-2.9795
.040 UNDERSIZE REAR MAIN	2.9600-2.9595

BEFORE REPLACING THE REAR MAIN BEARING CAGE OR THE TIMING GEAR AND INNER FRONT MAIN BEARING RACE, REMOVE THE PLUGS FROM THE OIL LINES IN THE CRANKSHAFT AND THOROUGHLY CLEAN THE LINES (FIG. 87).

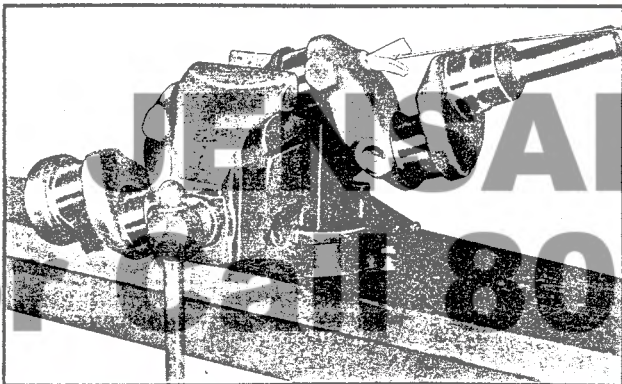


FIG. 87 CLEANING OIL LINES

PRESS THE TIMING GEAR ONTO THE CRANKSHAFT WITH THE TIMING MARK FACING THE REAR OF THE SHAFT. THE INNER RACE FOR THE FRONT MAIN BEARING MAY THEN BE PRESSED ONTO THE SHAFT.

REASSEMBLE THE REAR MAIN BEARING CAGE ON THE CRANKSHAFT AND REPLACE THE OIL SEAL. REPLACE THE OIL SEAL WITH THE SHARP EDGE TOWARD THE ENGINE. CAREFULLY SLIP THE SEAL OVER THE CRANKSHAFT SO AS NOT TO DAMAGE THE SHARP

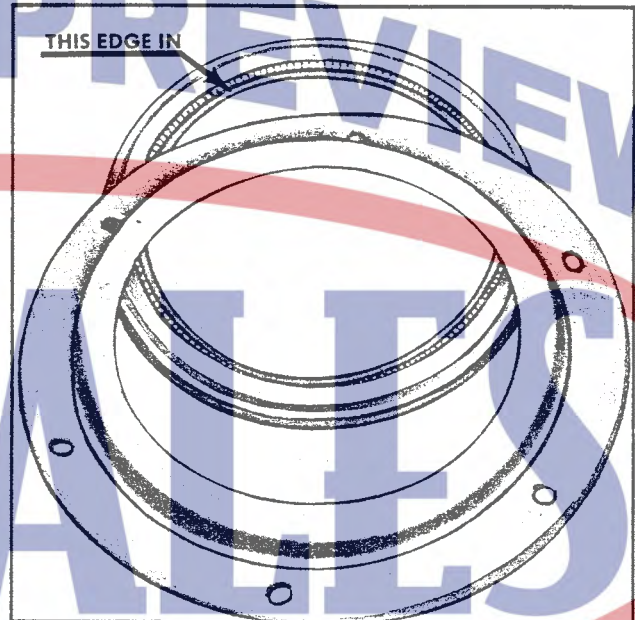


FIG. 88 OIL SEAL

EDGE. REPLACE THE RETAINER AND USE A NEW GASKET. AFTER REPLACING THIS ASSEMBLY, CHECK THE END CLEARANCE BETWEEN THE REAR MAIN BEARING AND THE CRANKSHAFT. THE CLEARANCE SHOULD BE .003 TO .004 INCH (FIG. 89).

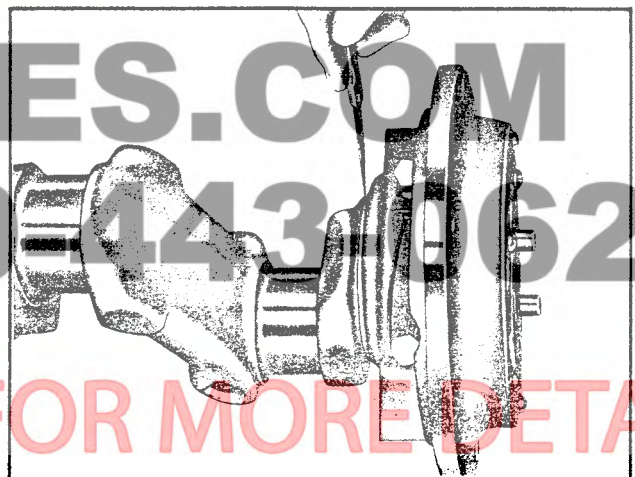


FIG. 89 END CLEARANCE

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