



J.I. Case

Service Manual

1090, 1170 & 1175

Volume 1 of 2

Service Manual

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CA-S-1090 ETC

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GENERAL SPECIFICATIONS 1090 TRACTORS

SERIAL NUMBERS

The Model and Serial Numbers are stamped on a plate located on the outside and to the lower left hand side of the firewall, Figure 1. The Engine Number is stamped on a plate located to the rear right hand side of the engine block, Figure 2. The Transmission Serial Number is stamped on a plate located on the right hand side of the transmission in front of the brake housing, Figure 3.

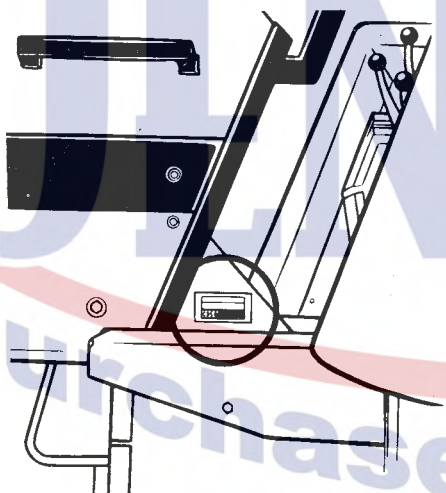


Figure 1

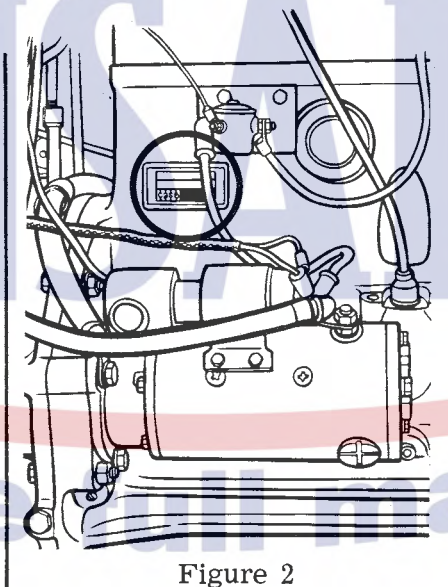


Figure 2

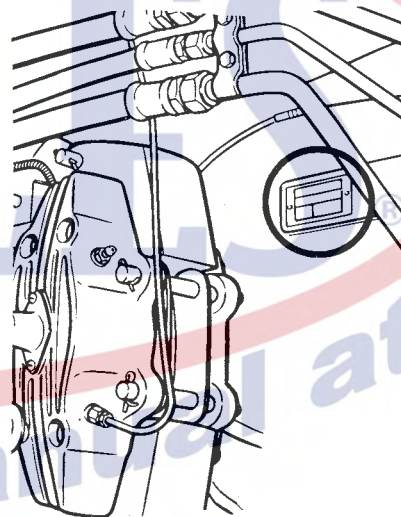


Figure 3

General

DIESEL ENGINES

Type	6 Cylinder, 4 Stroke Cycle, Valve-in Head.
Firing Order	1-5-3-6-2-4
Bore	4-3/8 Inches
Stroke	5 Inches
Piston Displacement	451 Cubic Inches
Compression Ratio	16.5 to 1
Cylinder Sleeves	Removable Wet Type
No Load Governed Speed	2160 RPM
Rated Engine Speed	2000 RPM
Engine Idling Speed	725 RPM
*Valve Tappet Clearance (Exhaust)	(Hot) .020 Inch
	(Cold) .025 Inch
(Intake)	(Hot and Cold) .015 Inch

*Hot Settings Are Made After The Engine Has Operated at Thermostat Controlled Temperature For At Least Fifteen Minutes.

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1090 AND 1170 TRACTORS

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4. Remove the fuel pump drive gear cover (1) and gasket, Figure 5.

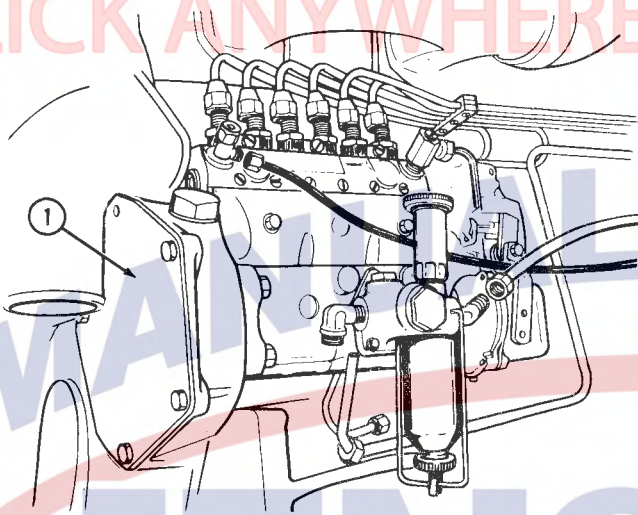


Figure 5

5. Remove the fuel pump drive gear (3) and capscrews (4), Figure 6. Inspect the drive gear for visual damage or excessive wear. Remove the pump mounting nuts (5) and remove the fuel pump (6) from timing gear cover (7).

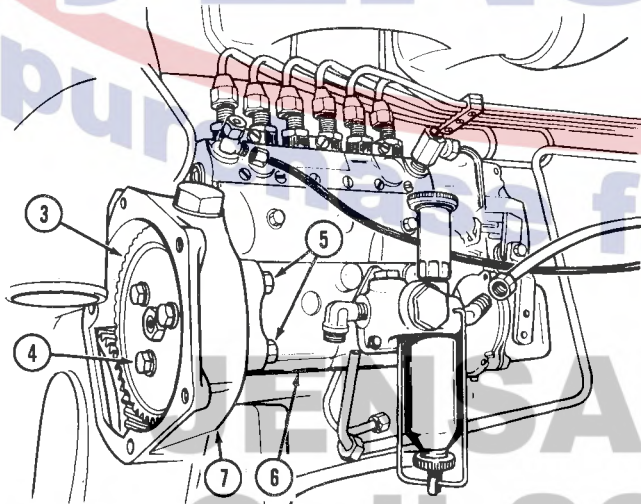


Figure 6

6. Remove the pump drive hub retaining nut (8) and lockwasher (9), Figure 7. Using a bolt on type puller, remove the drive hub (10) from the fuel pump shaft (11). Remove the drive hub key (12), if it shows signs of excessive wear. If the timing pointer (14) is bent or damaged, remove the retainer screws (15) and pointer (14). Remove and discard "O" ring (16).

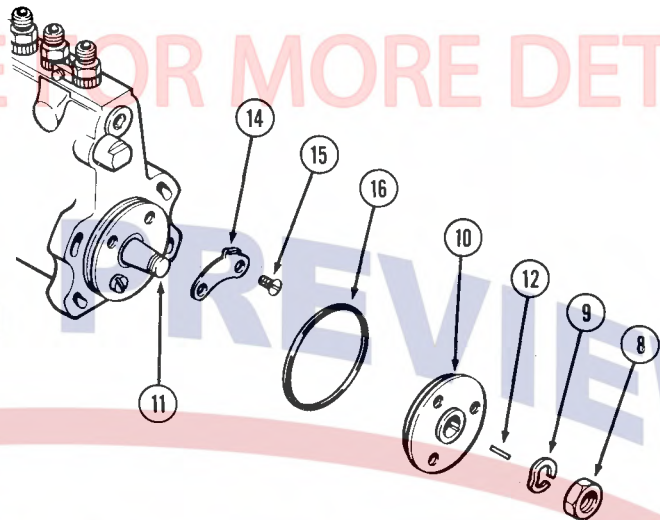


Figure 7

7. Install timing pointer (14) and screws (15), Figure 7, and tighten 60 to 72 inch lbs. Install new "O" ring (16), drive hub key (12) and drive hub (10).
8. Install lockwasher (9) and drive hub retainer nut (8). Tighten nut 43 to 50 ft. lbs.

INSTALLATION AND TIMING

IMPORTANT If the engine has been cranked after the pump was removed, repeat steps 2 and 3 on Page 32-3. The timing adjustments must be exact because as little as one degree off may affect the engine performance.

1. When installing the injection pump, align the mark on the drive hub (17) with the mark on the pump timing pointer (18), Figure 8.

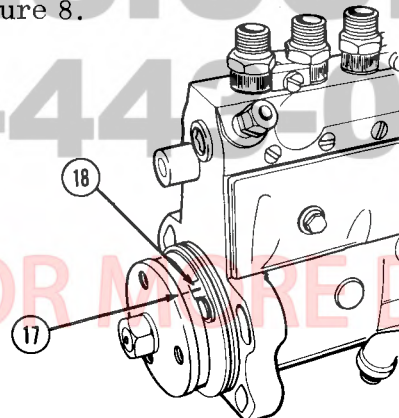


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SPECIFICATIONS

Pilot operated relief valve setting	Cranking PSI	Main Relief PSI
770	1100 to 1300	1350 to 1550
870	1100 to 1300	1350 to 1550
970	1500 to 1700	1700 to 1900
1070	1700 to 1900	1900 to 2100
1090	1850 to 2050	2050 to 2250
1170	1850 to 2050	2050 to 2250

NOTE See page 44-6 for the spring specifications

Special Torques

Valve end cover bolts	35 to 40 ft. lbs.
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SPECIFICATIONS

Draft Control rod assembly pre-adjusted to	3-13/16"
Draft-O-Matic control valve spool travel	1/32"
Draft arms free travel at top of lift	1-1/2"
Draft-O-Matic and Hand Lever Pull.	12-15 lbs.
Rockshaft RH bushing I.D.	2.3745"
Rockshaft L.H. bushing I.D.	2.747"
Rockshaft oil clearance	.002" to .005"

Spring Specifications

Control valve spring specifications refer to Page 45-20

Special Torques

Link "H" to draft control shaft bolt	15 to 18 ft. lbs.
Draft-O-Matic control rod assembly to piston rod arm and link "F" bolts	15 to 18 ft. lbs.
Draft-O-Matic control valve to rockshaft housing bolts	15 to 18 ft. lbs.
Rockshaft housing cover bolts.	15 to 18 ft. lbs.
Rockshaft piston rod retainer bolts	35 to 40 ft. lbs.
Piston rod arm set screws	40 to 50 ft. lbs.
Cam lock bolts	250 to 300 ft. lbs.
Lower sensing rod to vertical draft sensing shaft bolt.	15 to 18 ft. lbs.
Lower sensing rod rear jam nut	40 to 50 ft. lbs.

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WITH

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Steering Wheel Retaining Nut	30-35 Ft. Lbs.
Steering Wheel Lock Knob Nut	17-21 Ft. Lbs.
Manual Steering Pump	
Steering Shaft to Body Clearance	.006" Max.
Rotor to Stator Clearance	.007" Max.
Vane Height	.250" Min.
Vane spring free height	.076" Min.

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Special Torques

Power shift valve cover bolts	25 to 30 ft. lbs.
Tube fitting locknuts	4 to 6 ft. lbs.
Retard needle hex nuts	5 to 7 ft. lbs.
Test port pipe plugs	7 to 10 ft. lbs.
Pilot valve plugs	13 to 15 ft. lbs.
Shuttle valve plug	17 to 20 ft. lbs.
Inching spool plug	17 to 20 ft. lbs.
Selector spool retainer cover bolts	7 to 9 ft. lbs.
Reverse lockout plug	22 to 25 ft. lbs.
Power Shift housing rear nuts	400 to 485 ft. lbs.
Drilled plugs (oil tubes)	150 in. lbs. more than thread torque.
C-3 hub to oil distributor hub capscrews	9 to 11 ft. lbs.
C-2 thru C-3 hub capscrews (use locktite)	45 to 50 ft. lbs.
C-1 and C-4 carrier bolts	45 to 54 ft. lbs.
Torque limiter bolts	80 to 90 ft. lbs.

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Input drive and PTO shaft end play	.010" to .020"
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SPECIFICATIONS

PTO hand lever adjustment	5 Lbs. pull at lever
Free travel of "Case" flow divider valve spool	.75"
Clutch plates used on 770-870 tractors	4 each
Clutch plates used on 970-1070 and 1090 tractors	6 each
Clutch plates used on 1170 tractors	7 each

Special Torques

Second idler shaft retaining bolt (Jay-Loc Type).	50-60 ft. lbs.
PTO shield stud nuts	25-40 ft. lbs.
Hydraulic pick-up tube bolts	17-20.5 ft. lbs.

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MECHANICAL SHIFT

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SPECIFICATIONS

Clutch Free Pedal	1-1/8"
Center of Pedal Pad to firewall	8-5/16"
14" Clutch Release lever screw to face of pressure plate.	2.099"
15" Clutch Release lever screw to face of pressure plate.	2.276"

	Clutch Pedal Return Spring	14" Clutch Cover Springs	15" Clutch Cover Springs
Free Length	3.4"	2.5"	2.84"
Spring O.D.	1"	1.10" to 1.13"	1.365" to 1.385"
No. of Coils	18	9	8.5
Spring Rate at length of	62.75 to 69.25 lbs. 5.16"	145 to 155 lbs. 1.531"	190 to 200 lbs. 1.94"

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SPECIFICATIONS

Brake free pedal	Approximately 3/4"
Brake tube nuts	13 to 15 ft. lbs. torque
Brake fitting bolts	30 to 33 ft. lbs. torque
Brake pedal shoulder bolts	80 to 95 ft. lbs. torque

Spring Description	Free Length	No. of Coils	O.D.	Rate in Lbs.	At Length
Pressure Control (19)	.566"	6	.375"	9.1 to 9.6	.396"
Pressure Control (45)	.590"	7.75	.315"	4.8 to 5.8	.506"
Pressure Regulating (13)	.665"	6	.594"	7.5 to 9.5	.54"
Pressure Relief (30)	1.25"	5	.985" to 1.115"	119 to 145	.781"
Influx Pressure (inner) (42)	.969"	7	.555"	52.5 to 68.5	.812"
Influx Pressure (outer) (43)	1.25"	5	.985" to 1.115"	119 to 145	.781"
Sump Relief Valve (38)	.78"	6	.375"	1.0 to 1.2	.58"
Sump Relief Valve (44)	.654"	8	.437"	.31 to .37	.60"
Brake Piston (21)	.65"	6	.437"	15.1 to 17.1	.40"
Boost Spool (29)	1.75"	10	.438"	8.1 to 9.9	1"

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Specifications

Parking brake cam lever return spring specifications:

Free Length	6.05" to 6.24"
Spring O.D.	.74" to .75"
Spring Rate	39 to 43 lbs. at length of 9.5"

Special Torques

Caliper Brake cylinder torque nut	70 ft. lbs.
Caliper Brake cylinder bolts	80 to 90 ft. lbs.
Parking Brake housing bolts	30 ft. lbs.

REPLACING PARKING BRAKE LININGS

(Refer to Figure 1)

Removal

Replace both LH and RH parking brake linings at the same time when the lining thickness is down to 1/8".

Decrease the tension on the brake cables by turning the hand lever knurled knob (9) counter-clockwise until the cable anchor pin (10) is at the bottom of its travel. Back off adjusting

nut (6) several turns.

Remove the brake lever return spring (1). Remove inner cotter pin (2) and pull out brake pin (3). Swing the parking brake up and rearward off the brake disc. Remove the retaining springs (4) and slide out the lining pads (5).

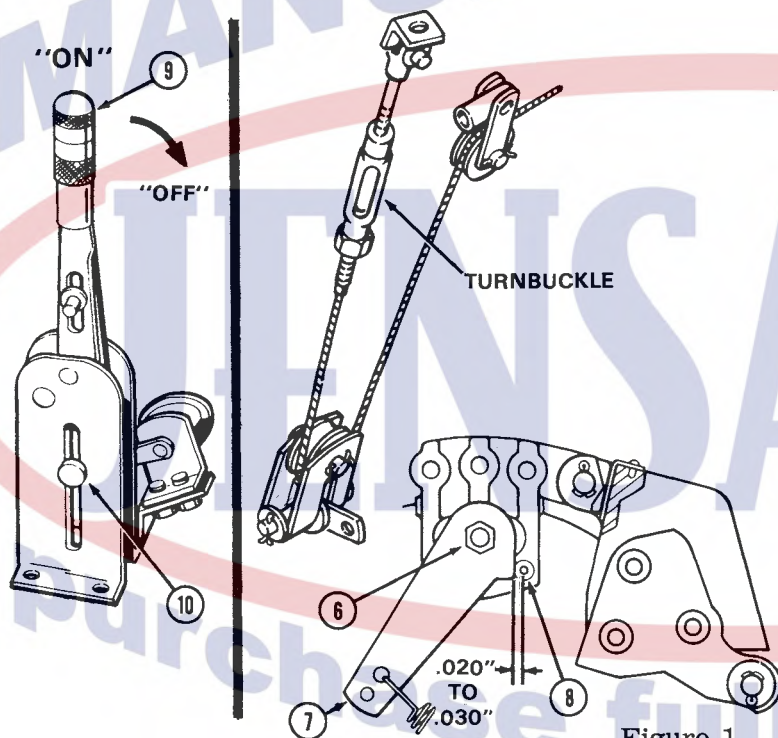


Figure 1

Installation

Install new brake lining pads (5), making sure they slide in as far as possible and retain with springs (4).

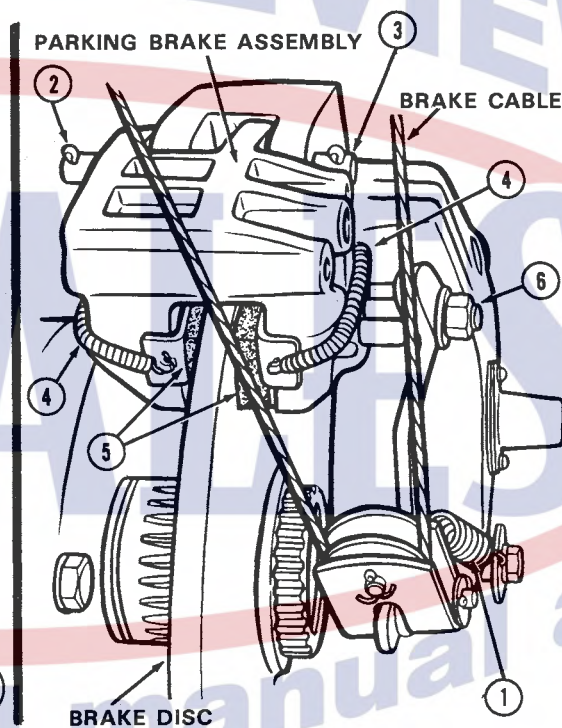
Lower the brake assembly down over the brake disc so the pads straddle the brake disc.

Install the brake pin (3), cotter pin (2) and lever return spring (1). Make sure the brake cables track in the pulleys before making the following adjustments.

Adjust the turnbuckle to obtain .020" to .030"

clearance between the cam lever (7) and stop pin (8). Insert a .004" feeler gauge between the lining pad (5) and brake disc. Tighten adjusting nut (6) until the feeler gauge can be pulled out with a slight drag.

Move the hand lever to the "ON" position. If the parking brake does not lock the brake disc, move hand lever to the "OFF" position and turn the knurled knob (9) clockwise several turns. Again move the hand lever to the "ON" position. Repeat this adjustment until the parking brake does lock the brake disc.



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(ALSO DIFFERENTIAL CROSS-SHAFT LUBRICATION)

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Specifications

Power Shift Input to output ratio

(1) Low 1.67 to 1

(2) Intermediate 1.25 to 1

(3) High 1 to 1

(R) Reverse 1 to 1

Power Shift Clutches Operating oil pressure 180 to 200 PSI

Power Shift Lubrication Operating oil pressure 55 to 65 PSI

Section

191

AIR CONDITIONING

HOW IT WORKS

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