

CLICK ANYWHERE FOR MORE DETAILS



MANUAL PREVIEW

White
Service Manual
2-150

purchase full manual at
Service Manual

JENSALES.COM
or Call 800-443-0625



CLICK ANYWHERE FOR MORE DETAILS

THIS IS A MANUAL PRODUCED BY JENSALES INC. WITHOUT THE AUTHORIZATION OF
WHITE OR IT'S SUCCESSORS. WHITE AND IT'S SUCCESSORS
ARE NOT RESPONSIBLE FOR THE QUALITY OR ACCURACY OF THIS MANUAL.

TRADE MARKS AND TRADE NAMES CONTAINED AND USED HEREIN ARE THOSE OF OTHERS,
AND ARE USED HERE IN A DESCRIPTIVE SENSE TO REFER TO THE PRODUCTS OF OTHERS.

WH-S-2-150

CLICK ANYWHERE FOR MORE DETAILS

TABLE OF CONTENTS

BASE PAN, OIL COOLER, PUMP AND FILTER

Design Improvements	23
Oil Cooler	27
Pan And Pump	23, 24, 25, 26

CAMSHAFT AND GEAR CASE

29

COOLING SYSTEM

Coolant Heater	69
Coolant Pump	69, 70, 71
Fan And Pulley	72
General	67
Manifolds	71
Operation	67, 68, 69, 70
Radiator	69
Thermostat	69

CYLINDER BLOCKS, CONNECTING RODS AND PISTONS

31, 32

CYLINDER HEADS

Cover	17
Cylinder Head And Valves	18, 19, 20
Rocker Arm Shaft Assembly And Push Rods	17
Stud Nut Torque Sequence	21
Valve Clearance Adjustment	17

DIESEL FUEL SYSTEM

Bleeding Fuel System	50
Energy Cells	54, 55
Filter	50
Fuel Tanks	49, 50
General	49
Injection Pump	49, 63, 64, 65
Injectors D451	49, 51, 52, 53, 54
Injectors D585	49, 55, 56, 57, 58, 59, 60, 61, 62, 63

FLYWHEEL, CRANKSHAFT AND CRANKCASE

33

GENERAL SERVICE

Compression Test	9
Engine Break-in	9
Engine Removal, Installation	10
Oil Pressure Test	9

CLICK ANYWHERE FOR MORE DETAILS

GOVERNOR - LP GAS ENGINES 43, 44, 45

LP GAS FUEL SYSTEM

Carburetor	35, 36, 37, 38
Fuel Filter	35, 40, 41
General	35
Regulator	35, 38, 39, 40
Troubleshooting	35

LUBRICATION

General	11
Operation	11, 12, 13, 14, 15
Recommendations	12
Specifications	1

SPECIFICATIONS

Adapter Housing - Distributor Or Injection Pump	1
Camshaft	2
Carburetor	35
Connecting Rod Bearings	2
Connecting Rods	2
Cooling System	67
Crankshaft	3
Crankshaft Lip-Type Oil Seal	3
Crankshaft Main Bearings	3
Cylinder Block	3
Cylinder Head	3, 4
Diesel Fuel	49
Flywheel With Ring Gear	4
Fuel Injectors	49
General	1
Governor	4, 43
Injection Pump	49
Lubrication	1
Oil Pump	4, 5
Piston Pin Bushing	5
Piston Pins	5
Piston Rings	6
Pistons	5
Push Rods	6
Regulator	35
Rocker Arm Shaft	6
Rocker Arms	6
Torque Wrench Values	8
Valve Guides	7
Valve Lifters	8
Valve Springs	7
Valves	6, 7

TIMING - LP GAS ENGINES 47, 48

MANUAL PREVIEW

JENSALES

purchase full manual at

JENSALES.COM

or Call 800-443-0625

CLICK ANYWHERE FOR MORE DETAILS

CRANKSHAFT

	LP GAS		DIESEL	
	425C	504B	D451	D585
End Play Controlled By	Flanged Rear Main Bearing			
End Play		0.006-0.010		0.008-0.012
Number of Main Bearings		4		
Main Bearing Journal Diameter		2.9120-2.9110		3.499-3.498
Connecting Rod Journal Diameter		2.9120-2.9115		3.499-3.498
Max Journal Out-of-Round or Taper		0.0003		
Max Main Bearing Journal Length				
Front		2.688		2.531
2nd, 3rd		2.870-2.880		2.433-2.443
4th		3.501-3.503		3.128-3.130
Connecting Rod Journal Length		2.502-2.505		2.197-2.200
Main Bearing Cap Bolt Size		5/8, 3/4		
Maximum Allowable Shaft Misalignment		0.004		
Flywheel Mounting Flange Runout		0.002		

CRANKSHAFT MAIN BEARINGS

Type	Replaceable Shell, Precision
Material	Steel Back, Plated
Manner of Adjustment	None
Running Clearance	0.0014-0.0044 0.0017-0.0042
Undersize	0.002, 0.010, 0.020, 0.030, 0.040
Bearing Shell Width - Rear	3.495-3.492 3.120-3.117
Intermediate	2.303-2.293 2.00
Front	2.078-2.068 2.00
Crankcase Bore	3.124-3.125 3.8015-3.802

CRANKSHAFT LIP-TYPE OIL SEAL

Distance Front of Seal to Front of Cover	0.248
--	-------

CYLINDER BLOCK

Bore	4.251-4.252	4.626-4.627	4.376-4.377	4.7545-4.7535
------	-------------	-------------	-------------	---------------

CYLINDER HEAD

Type	Overhead Valve
Material	Cast Alloy Iron
Construction	1 Piece, 3 Heads Per Engine, 4 Valves Per Head
Cap Screw Size	5/8
Stud Size	5/8
Number of Cap Screws	9/16, 5/8
Number of Studs	27 27 15, 21 24

CLICK ANYWHERE FOR MORE DETAILS

CLICK ANYWHERE FOR MORE DETAILS

impurities in fuel accumulating on valve and seat which prevents proper valve closing. High pressure valve seldom leaks when liquid fuel is used, but may need replacing after a long period of operation. A leaking high pressure valve can best be detected with a pressure gauge as shown in figure 1. Pressure should remain at specified setting while engine is running. If pressure increases after engine is stopped, it indicates a leak in high pressure valve or gasket.

High pressure valve can be removed for repair or replacement without removing regulator by first closing liquid and vapor fuel valves if open. Disconnect fuel line from inlet fitting; then, refer to applicable portion of disassembly and assembly discussions.

REMOVAL

With engine running, close all valves at tank and let engine stop from lack of fuel. Drain cooling system, disconnect fuel and coolant lines and remove regulator from support. Separate elbows and nipple from regulator.

INSTALLATION

Install elbows and nipple in regulator that are required for fuel and coolant line connection. Position regulator on support and secure with attaching hardware. Connect fuel and coolant lines and fill cooling system.

Before attempting to start engine, test fuel line connections for leaks. Slowly open vapor fuel valve on fuel tank to allow gas pressure to pass into system. Depress primer button on regulator for a few seconds to allow gas to pass into and through regulator and carburetor.

Apply a soapy water or equivalent solution to fuel line connections. Bubbles at any connection indicates a leak which must be eliminated before starting engine.

After cooling system is refilled and engine started, remove plug at top of regulator to allow trapped air to escape.

DISASSEMBLY

Remove two screws in brass inlet fitting (Fig. 4) and carefully withdraw fitting, gasket and high pressure valve assembly. Remove pivot pin to separate valve lever and fitting.

Mark front cover and body for reassembly in same

position; then, remove cover screws. Carefully remove cover, low pressure diaphragm, and gasket. Remove primer cover from front cover.

While holding cover, (cover is under spring tension), remove high pressure diaphragm cover screws. Remove cover, spring, and diaphragm assembly. Check that bleed hole in cover is open. Remove screw to separate diaphragm assembly components (Fig. 5).

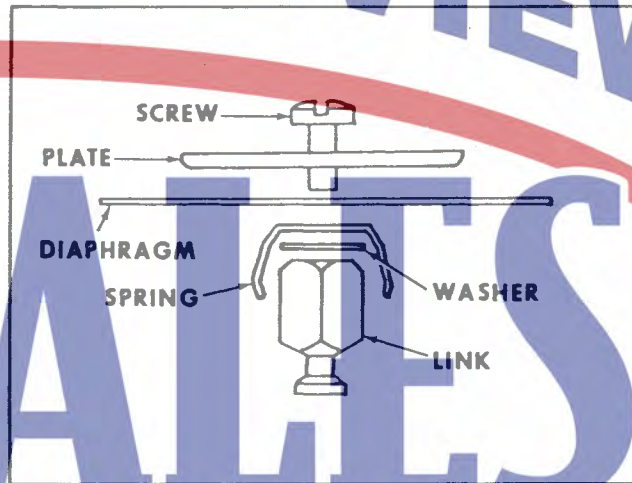


Fig. 5 Diaphragm Assembly Components

While holding lever, (lever is under spring tension), and spring, remove two screws holding pin for low pressure lever. Compound lever does not have to be removed.

Further disassembly of regulator is not required unless there is evidence of leaks between primary and secondary bodies, or between rear cover and body. Gaskets used at these locations are usually not defective and seldom require replacement.

INSPECTION

Wash all parts in clean solvent and dry with compressed air. Inspect all parts for wear, damage, or distortion and discard any questionable items.

Although diaphragms, gaskets, and valve seats may appear satisfactory for re-use, it is advisable to discard them and install new parts.

IMPORTANT: DO NOT USE GASKET SEALING COMPOUND ON GASKETS OR DIAPHRAGMS.

Planetary Gear Carrier (Refer To Fig. 29)

NOTE: Refer to Unit Disassembly and Assembly discussions for removal and installation of planetary carrier drive gear thrust bushing.

If replacement is necessary, pull roller bearing from planetary carrier drive gear.

Remove cap screws and lock washers from planetary gear carrier and separate carrier from drive gear.

Remove planetary pin snap rings from carrier.

Remove planetary gear pins from carrier and remove planetary gears and bearings from carrier. If replacement is necessary, pull bearings from gears.

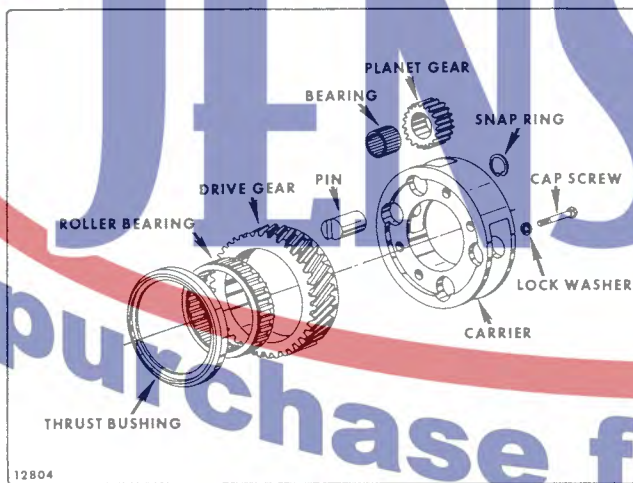


Fig. 29 — Planet Gear Carrier And Drive Gear

Planet Drive Gear Support, Overdrive Clutch Housing, Overdrive Clutch and Sun Gear Shaft (Refer To Fig. 30)

Separate planet drive gear support and sun gear shaft assembly from overdrive clutch assembly.

Separate planet drive gear support from sun gear shaft. Remove sealing ring from support.

Remove sealing rings, sprag clutch, clutch spacer, and clutch needle bearing from sun gear shaft.

Remove clutch plates and separator plates, clutch retainer, piston return springs, thrust washer, and piston return plate. Remove clutch piston from overdrive clutch housing using air pressure.

Remove piston teflon sealing rings and O-rings from grooves on piston inner and outer diameters.

Pull output shaft oil seal from rear of overdrive clutch housing.

Remove output shaft bearing snap ring from groove in overdrive clutch housing.

If replacement is necessary, press output shaft bearing from overdrive clutch housing.

IMPORTANT: DO NOT REMOVE BEARING UNLESS REPLACEMENT IS NECESSARY AS IT MAY BE DAMAGED DURING REMOVAL.

Remove O-rings from overdrive clutch housing.



Fig. 30 — Overdrive Clutch And Sun Gear Shaft Components



Fig. 13 Protractor and Adapter Plug



Fig. 14 Protractor and Adapter Plug Installed



Fig. 15 Remote Valve Manifold and Valve Restrictors

QUICK CHECK

Quick check of hydraulic system can be made by installing protractor and adapter plug (Fig. 13) on yoke pintle as shown in Figure 14. Install $3/8" \times 1/4"$ brass reducer bushing and 5000 lb. pressure gauge at pressure control valve (Fig. 4). Install loop line as shown in Figure 2. Hydraulic system must be kept free of contaminants; however, following analysis allows mechanic to partially troubleshoot hydraulic system without having tractor in an exceptionally clean area since disassembly is kept to a minimum.

1. Note number of degrees at pointer on protractor when engine is shut off. At this position, yoke is in full pumping stroke.
2. Start and operate tractor at rated load speed with all control valves in neutral. Pressure gauge should indicate specified system pressure. If pressure is not correct, see Troubleshooting Guide. If pressure is correct, note number of degrees protractor has moved from shutoff position. Yoke angle should change 15-16 degrees. It requires 1-2 degrees of yoke angle from neutral position to make up normal system leakage. If yoke angle is less than 15-16 degrees from shutoff position, one or more hydraulic system components has an excessive leak. Refer to Leakage Tests stated earlier in Troubleshooting section.
3. Open restrictors at remote valve manifold and valves (Fig. 15). Move control lever rearward and allow oil to flow freely through remote lift circuit and loop line.

While operating unit at rated load speed under these conditions, yoke angle should move to full pumping stroke (same location as shutoff position).

Pressure reading should be reduced to priority valve pressure (approximately 1500 psi).

If pressure is not reduced, there may be restriction in lift circuit causing pump to compensate and yoke will not reach its full pumping angle. Check break-away couplers, remote control valve and plumbing for restrictions.

Yoke angle may not be in full pumping stroke because oil in system may contain air. Pump will de-stroke because of resultant fluid energy of small air bubbles being compressed. Yoke and pressure gauge needle will oscillate rapidly, hydraulic system will be noisy. Check pump, suction lines, cooling system and oil level for possibility of air entering system.

4. Reduce engine speed to 800 rpm. Open remote control valve and allow oil to flow through lift circuit. Priority valve pressure can be checked and adjusted to 1500 psi. It is important to complete items 1 through 3 before attempting to adjust priority valve pressure to eliminate possibility of adjusting pressure incorrectly.

CLICK ANYWHERE FOR MORE DETAILS

INDEX

Breakaway Couplings	74, 75
Compensator - Hydraulic Pump	25
Adjustment	26
Assembly	26
Disassembly	26
Inspection	26
Draft Control Actuating Assembly - Category II Hitch	49
Adjustment	50
Assembly and Installation	50
Removal and Disassembly	49
Draft Control Actuating Assembly - Category III Hitch	51
Adjustment	52, 53
Assembly and Installation	52
Removal and Disassembly	51
Draft Control Hydraulic Cylinder - Category II Hitch	45
Piston	45
Removal and Installation	45
Safety Valve	45
Adjustment	45
Overhaul	45
Draft Control Hydraulic Cylinder - Category III Hitch	
Overhaul	47, 48
Removal and Installation	47
Safety Valve	48
Adjustment	48
Overhaul	48
Draft Control Unit	37
Adjustment - Draft Sensitivity	39
Adjustment - Lift Arm	43
Draft Input Shaft Removal and Installation	46
External Cylinder Removal and Installation	43
Internal Cylinder Removal and Installation	42, 43
Operation	37
Reservoir Removal and Installation	39
Restrictor Valve - Early Model Unit	44
Restrictor Valve - Late Model Unit	44
Rocker Shaft Removal and Installation	40
Servo Valve and Manifold Removal and Installation	41, 42
Three-Point Hitch Control Lever Shaft Removal and Installation	41

CLICK ANYWHERE FOR MORE DETAILS

General (System Operation) 1

Hoses 74

Hydraulic Pump 21

Compensator 25, 26

Operation 22, 23

Overhaul 24, 25

Removal and Installation 23

Oil Cooler 19

Oil Cooler Pump 17

Adjustment and Test 17

Overhaul 19

Removal and Installation 18

Pressure Control Valve 27

Adjustment 29

Disassembly and Assembly 30, 31

Operation 28, 29

Removal and Installation 29

Servicing 29

Remote Hydraulic Cylinders and Connections 69

Disassembly and Assembly - 3-1/2-inch Cylinder 70, 71

Disassembly and Assembly - 4-inch Cylinder 72, 73

Specifications 69

Remote Cylinder Control Valves 63

Manifold 68

Operation 64, 65

Servicing Float Valve 66

Servicing Pressure Detent Valve 67, 68

Service Tools 13

Servo Valve 33

Operation - Early Model Unit 33

Operation - Late Model Unit 35

Overhaul - Early Model Unit 34

Overhaul - Late Model Unit 36

Removal and Installation 41, 42

Specifications 3, 4

Testing and Troubleshooting 5

Brake Valve 11

Filter 6

Hydraulic Pump 7

Pressure Control Valve 7, 8, 9

PTO Valve 11

Quick Check 12

Reservoir 6

Servo Valve 10

Steering Control Unit 10

CLICK ANYWHERE FOR MORE DETAILS

MANUAL PREVIEW

GENSALES®

purchase full manual at

GENSALES.COM

or Call 800-443-0625

CLICK ANYWHERE FOR MORE DETAILS

Three-Point Hitch - Category II	55
Attaching Implement	56
Classes of Implements	55
Draft Sensitivity Adjustment	57
Overhaul	57
Specifications	55

Three-Point Hitch - Category III	59
Attaching Implement	60
Classes of Implements	59
Draft Sensitivity Adjustment	61
Overhaul	61
Specifications	59

Torque Chart	2
--------------	---

Troubleshooting Guide	13, 14, 15, 16
-----------------------	----------------

MANUAL PREVIEW

JENSALES®

purchase full manual at

JENSALES.COM
or Call 800-443-0625

CLICK ANYWHERE FOR MORE DETAILS