



**J. I. Case**

**Service Manual**

**580**

**Construction King  
Tractor, Loader & Backhoe  
Volume 1 of 2**

**JENSALES.COM**

**or Call 800-443-0625**



THIS IS A MANUAL PRODUCED BY JENSALES INC. WITHOUT THE AUTHORIZATION OF  
J.I. CASE OR IT'S SUCCESSORS. J.I. CASE 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.

**CA-S-580CK TLB**

**Service Manual**

## 580CK LOADER-BACKHOE AND FORKLIFT TABLE OF CONTENTS

SERIES/SECTION	SECTION NO.	FORM NO.
<b>1 GENERAL</b>		
Specifications for 188 Dynaclone Diesel and 159 Powr-Torq Gasoline Engines .....	C	9-77011
<b>2 ENGINES</b>		
Cylinder Head and Valves - 148, 159, 188 and 201 Spark Ignition Engines .....	2013	9-80512
Cylinder Head and Valves - 188 Diesel Engines .....	2014	9-80473
Engine Block Assemblies - 188G, 159G, 148G Spark Ignition Engines .....	2023	9-76995
Engine Block Assembly - 188D Diesel Engine .....	2024	9-77005
<b>3 FUEL SYSTEM</b>		
Fuel System and Filters - 188D Diesel Engine .....	3010	9-78785
Fuel System and Filters - 188G Spark Ignition Engine .....	3110	9-79065
Roosa Master Model DB Fuel Injection Pump .....	3012	9-78795
Roosa Master Fuel Injectors .....	3013	9-78806
Model 267 Series Zenith Carburetor .....	3033	9-77016
CAV Fuel Injectors .....	I	9-75492
Adjusting the 580 Diesel Construction King Throttle Linkage .....	I, Sup. 1	9-77541
Adjusting the 580 Gasoline Construction King Governor and Throttle Linkage .....	N, Sup. 1	9-77521
<b>4 HYDRAULICS</b>		
Hydraulic Testing .....	III	9-72562
Equipment Pump .....	IV	9-72562
Control Valves .....	V	9-72562
Hydraulic Cylinders .....	VI	9-72562
Break-Away Couplings and Portable Hydraulic Cylinders .....	4019	9-74197
Remote Hydraulic Valves .....	D	9-75521
<b>5 STEERING</b>		
Power Steering Oil Filter .....	42	9-80991
Power Steering Pump and Hand Pump .....	52	9-80611
Steering Control Valve .....	53	9-80671
Steering Cylinders and Adjustment .....	54	9-80622
Steering Axle and Wheel Bearings .....	55	9-80632
<b>6 POWER TRAIN</b>		
Torque Converter - Power Shuttle Hydraulic Pump .....	43	9-80601
Torque Converter, Power Shuttle Countershaft, Control Valve and Adjustments .....	61	9-80761
Rockford Clutch Power Shuttle Clutch Pack .....	62	9-80651
Four Speed Transmission and Final Drive .....	65	9-80641
Mechanical Shuttle .....	66	9-80771
Dual Range Assembly .....	67	9-80781
11 Inch Traction Clutch .....	68	9-80792
Hydraulic Pump (For Draft-O-Matic System) .....	DD	9-77061

**SERIES/SECTION**

**SECTION NO.**

**FORM NO.**

<b>6</b>	<b>POWER TRAIN (Continued)</b>		
	Draft-O-Matic Hydraulic System, Valve, Rockshaft Assembly . . . . . R		9-77081
	Power Shuttle (Converter Dump in Neutral Circuit) Prior to Tractor Serial No. 8314666 . . . . . 4S		9-77122
	Power Shuttle (Converter Charged in Neutral Circuit) Tractor Serial No. 8314666 and after . . . . . 4S		9-78102
	Standard Power Take-Off . . . . . 6S		9-77141
	Independent Power Take-Off . . . . . 7S		9-77151
	11 Inch Torque Converter, Before Tractor Serial No. 8314666 . . . . . X		9-77162
	11 Inch Torque Converter, Serial No. 8314666 and after . . . . . X		9-78091
	Power Shuttle Linkage Adjustment . . . . .		9-78540
	Summary of Power Shuttle Adjustments . . . . .		9-77951
<b>7</b>	<b>BRAKES</b>		
	Differential Brakes, Differential Lock and Parking Brake . . . . . 74		9-80691
<b>8</b>	<b>ELECTRICAL</b>		
	Wiring Diagrams - 580 Loader Backhoe . . . . .		9-77171
	Electrical System - Generator Charging System, Cranking Motor . . . F		9-77023
	Distributor Ignition . . . . . 83		9-74625
	Starting or Cranking Motors . . . . . 8012		9-75366
	Battery Servicing and Testing . . . . . 8013		9-75377
	Prestolite Alternator System . . . . . 8014		9-75399
	Wiring Diagram - 580 Forklift, Spark Ignition . . . . .		9-77991
	Wiring Diagram - 580 Forklift, Diesel . . . . .		9-77971
<b>9</b>	<b>MOUNTED EQUIPMENT</b>		
	Loader . . . . . I		9-72562
	Backhoe . . . . . II		9-72562
	Miscellaneous Tractor Components . . . . . VII		9-72562
	Forklift . . . . .		9-72581
<b>10</b>	<b>TROUBLESHOOTING</b>		
	Hydraulic Testing - Torque Converter, Power Shuttle . . . . . 101		9-80982
	Hydrostatic Power Steering . . . . . 151		9-80801
	Torque Converter, Rockford Power Shuttle . . . . . 162		9-80481

**JENSALES.COM**

**or Call 800-443-0625**

**CLICK ANYWHERE FOR MORE DETAILS**

CLICK ANYWHERE FOR MORE DETAILS

MANUAL PREVIEW

**Section**

**2013**

**CYLINDER HEAD AND VALVES**

**148, 159, 188 AND 201  
SPARK IGNITION ENGINES**

JENSALES®

purchase full manual at

**TABLE OF CONTENTS**

Specifications .....	2,3
Special Torques .....	3
Checking Compression Pressure .....	4,5
Cylinder Head and Components	
(148 and 159) .....	6-9
(188 and 201) .....	10-13
Rocker Arm Assembly	
(148 and 159) .....	14,15
(188 and 201) .....	16,17
Cylinder Head Assembly	
(148 and 159) .....	18,19
(188 and 201) .....	20,21
Inspection of Valves, Guides, Head and Springs .....	22,23
Refacing Intake and Exhaust Valves .....	24
Grinding Intake and Exhaust Valve Seats .....	25
Locating Top Dead Center and Tappet Adjustments .....	26

JENSALES.COM  
call 800-443-0625

CLICK ANYWHERE FOR MORE DETAILS

CLICK ANYWHERE FOR MORE DETAILS

# Section 2023

## ENGINE BLOCK ASSEMBLIES

### 201G, 188G, 159G, 148G SPARK IGNITION ENGINES

#### TABLE OF CONTENTS

Camshaft, Bushings and Lifters .....	18-21
Crankshaft, Bearings, Liners and Oil Pump .....	32-35
Cylinder Sleeves - Deglazing .....	25
Cylinder Sleeves - Honing .....	26
Cylinder Sleeves - Inspection .....	24
Engine Lubrication .....	8,9
Flywheel, Oil Pan, Seal Retainer and Oil Filter .....	10-13
Locating Top Dead Center .....	40
Oil Pump .....	36,37
Pistons and Cylinder Sleeves - Inspection .....	27
Pistons, Rings, Sleeves and Connecting Rods - Assembly .....	28-31
Pistons, Rings, Sleeves and Connecting Rods - Disassembly, Inspection .....	22
Special Torques .....	7
Specifications .....	2-6
Timing Gear Cover, Gear and Water Pump .....	14-17
Thermostat and Fan Belt .....	38,39

CLICK ANYWHERE FOR MORE DETAILS

## PISTONS AND CYLINDER SLEEVES

### Inspection

- Using a micrometer, measure the diameter of the piston across the thrust faces at the bottom of the pistons, perpendicular to the piston pin hole, Figure 17. If this measurement is less than 3.9340" (201G), 3.8090" (188G), 3.4983" (159G) or 3.3735" (148G), replace the pistons.

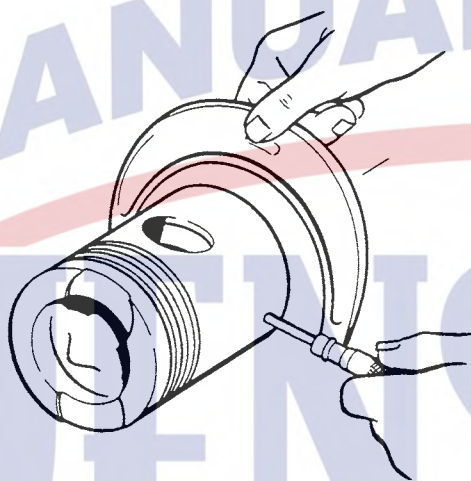


Figure 17

**IMPORTANT:** When checking the measurements of the pistons and sleeves, the parts should be at or close to 70° Fahrenheit.

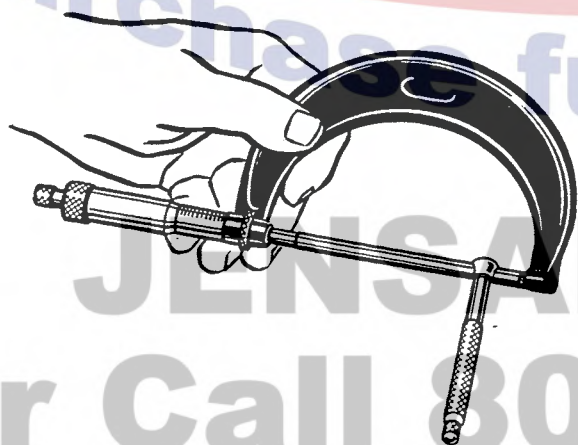


Figure 18

- Using an inside micrometer or a cylinder bore gauge Figure 18, check the sleeve bore for out of roundness. Check crosswise and lengthwise to the engine block just below the top ring location at its upper most travel. If the out of roundness exceeds .005", the sleeves should be replaced.

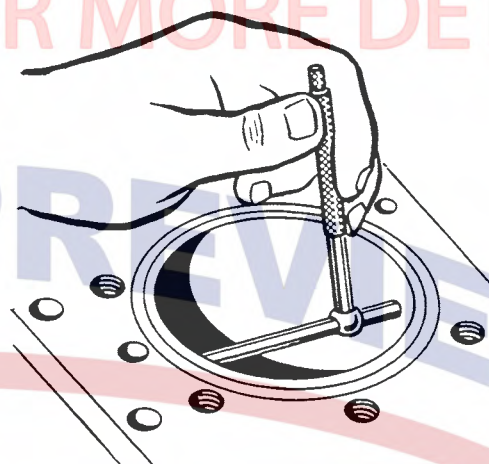


Figure 19

Check the cylinder sleeves for wear. If the sleeve I.D. is greater than 3.9445" (201G), 3.8195" (188G), 3.5078" (159G) or 3.3815" (148G), when checked at any point in the sleeve, it must be replaced.

- Using an inside micrometer, cylinder bore gauge or a taper gauge, Figure 20, check the sleeve diameter just below the top ring location at its upper most travel and at several points down the length of the sleeve.

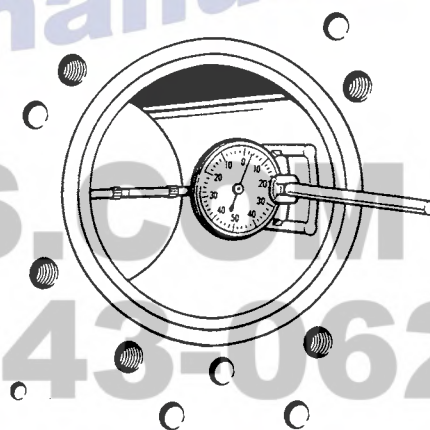


Figure 20

Subtracting the smallest reading from the largest reading will give the amount of taper. If the taper is more than .001", replace sleeve.

## TABLE OF CONTENTS

Camshaft, Bushings and Lifters .....	22-25
Crankshaft, Bearings, Liners and Oil Pump .....	36-39
Cylinder Sleeves - Deglazing .....	29
Cylinder Sleeves - Honing .....	30
Cylinder Sleeves - Inspection .....	28
Engine Lubrication .....	8,9
Flywheel, Oil Pan, Seal Retainer and Oil Filter .....	10-13
Locating Top Dead Center .....	44
Oil Pump .....	40,41
Pistons and Cylinder Sleeves - Inspection .....	31
Pistons, Rings, Sleeves and Connecting Rods - Assembly .....	32-35
Pistons, Rings, Sleeves and Connecting Rods - Disassembly, Inspection .....	27
Special Torques .....	7
Specifications .....	3-6
Timing Gear Cover, Gear and Integral Water Pump .....	14-17
Timing Gear Cover, Gear and Separate Water Pump .....	18-21
Thermostat and Fan Belt .....	42,43

**JENSALES**  
purchase full manual at

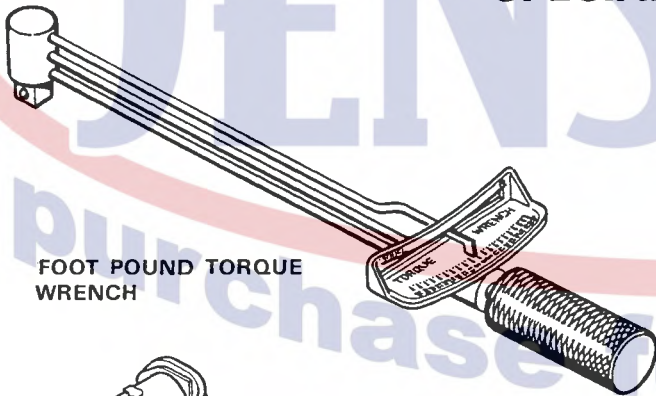
**JENSALES.COM**  
**or Call 800-443-0625**

CLICK ANYWHERE FOR MORE DETAILS

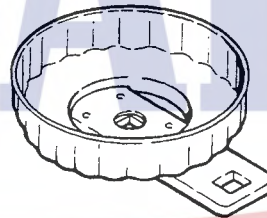
## TABLE OF CONTENTS

SPECIAL TOOLS .....	2
SPECIFICATIONS .....	3
SPECIAL TORQUES .....	3
GENERAL INFORMATION .....	4
FUEL PUMP REMOVAL .....	5-8
Pump Drive Shaft Removal .....	9,10
Pump Drive Shaft Installation .....	11,12
FUEL PUMP INSTALLATION .....	13-20
Checking Pump Gear Backlash .....	21,22
Replacing Pump Inlet Filter .....	23-25
ENGINE SPEED .....	26
Checking Engine Speed .....	26
ENGINE SPEED ADJUSTMENTS .....	27
No Load Governed Speed .....	27
Low Idle Speed Adjustment .....	28

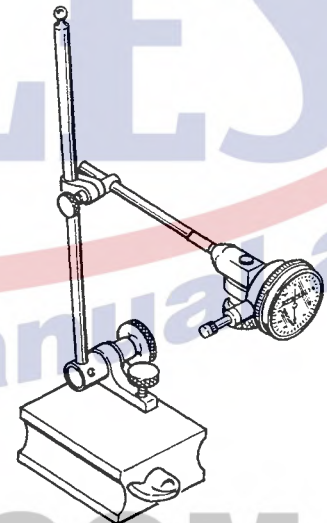
### SPECIAL TOOLS



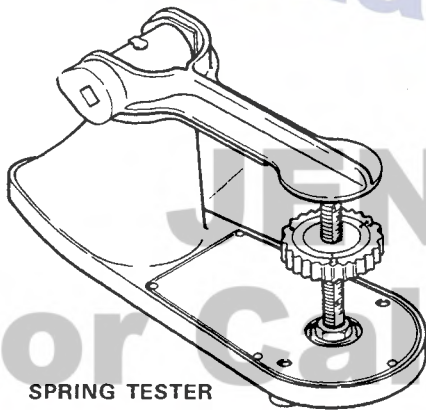
FOOT POUND TORQUE  
WRENCH



FILTER WRENCH  
A64761



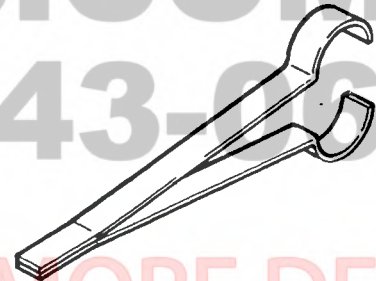
DIAL INDICATOR



SPRING TESTER



SLEEVE TOOL CD322



SEAL COMPRESSION TOOL CD331

CLICK ANYWHERE FOR MORE DETAILS

CLICK ANYWHERE FOR MORE DETAILS



# TABLE OF CONTENTS

FUEL INJECTORS .....	I-4 thru I-19
Description .....	I-4
Operating Principles .....	I-4
Special Tools .....	I-5
Isolating Faulty Injectors .....	I-6
Removing Injectors .....	I-6
Installing Injectors .....	I-7
Nozzle Test Stand .....	I-8
Preparing Test Stand for Operation .....	I-9
Testing Injectors .....	I-9
Correcting Opening Pressure and Leakage .....	I-10
Setting Opening Pressure .....	I-10
Testing and Correction of Faulty Nozzles .....	I-11
Testing for Correct Spray Pattern .....	I-12
Tools Required .....	I-13
Removing Nozzle Assembly .....	I-13
Disassembling Nozzle Assembly .....	I-14
Cleaning Nozzle Assembly .....	I-15 thru I-17
Cleaning Nozzle Holder .....	I-18
Assembling and Adjusting Injectors .....	I-19

CLICK ANYWHERE FOR MORE DETAILS

PREVIEW

JENSALES®

purchase full manual at

JENSALES.COM

or Call 800-443-0625

CLICK ANYWHERE FOR MORE DETAILS

## Disassembling Nozzle Assembly

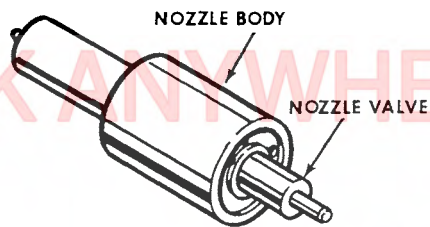


Figure I-15

1. Usually the nozzle valve can easily be pulled out of the nozzle body with the fingers, Figure I-15. In some cases, however, it may be necessary to soak the nozzle assembly in carbon solvent, such as Bendix Speed Clene, Figure I-16, before removal is possible. Place clean soft rag or felt pad in the bottom of the solvent container to prevent the polished surfaces of the nozzle from coming into contact with the metal container. Do not place any other parts in the container.



Figure I-16

2. **Do not Attempt to Drive the Valve out or Pull it out with Pliers.** You will damage it beyond repair. Prevent the polished surfaces of the nozzle body from coming into contact with any hard substances.

Nozzles that cannot be readily disassembled after soaking in carbon solvent should be placed in the CD-534 Hydraulic Nozzle Extractor, Figure I-17. The CD-534 Hydraulic Nozzle Extractor can be installed on either the Bacharach or American Bosch Nozzle test stand. The nozzle extractor utilizes the hydraulic pressure developed by the nozzle test stand to force the nozzle valve out of the nozzle body.

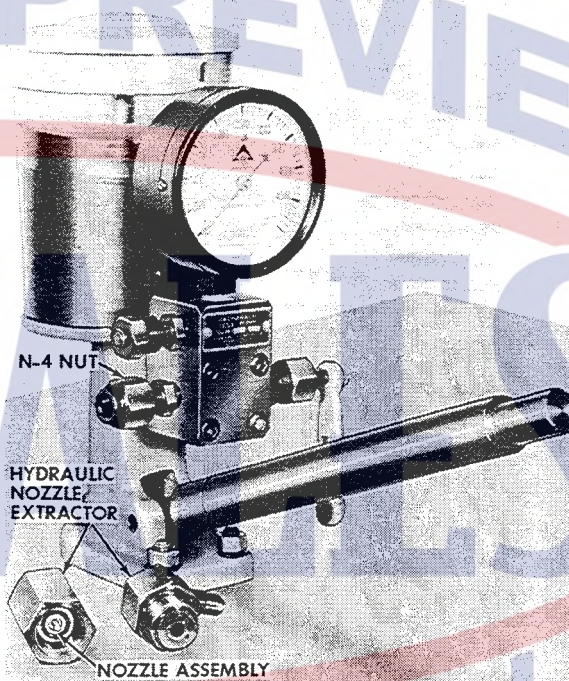


Figure I-17

To use the CD-534 Nozzle Extractor on a Bacharach Test Stand:

- a. Remove N-1 connector tube and N-7 Nut from test stand.
- b. Install the stuck nozzle assembly in the extractor, Figure I-17.
- c. Install the nozzle extractor on the test stand, Figure I-18.
- d. Operate the test stand hand lever and build up pressure in the nozzle extractor to free stuck nozzle valve. A free nozzle will be indicated by a sudden pressure drop on the test stand pressure gauge.

## TABLE OF CONTENTS

TRUBLE SHOOTING A SLUGGISH OR NON-OPERATING HYDRAULIC SYSTEM . . . . .	3
Equipment Hydraulics/Engine Stall Test . . . . .	3
TRUBLE SHOOTING CHART . . . . .	4
Oil Supply Problems . . . . .	4
Pump Problems . . . . .	4
Control Valve Problems . . . . .	5-6
Cylinder Problems . . . . .	6-7
Backhoe Problems . . . . .	7-8
Hose or Fitting Problems . . . . .	8
TRUBLE SHOOTING WITH A FLOWMETER . . . . .	9
Instructions for Conducting the Pump Test . . . . .	10
Instructions for Conducting Tee Test . . . . .	13
TESTING SECONDARY RELIEF VALVES WITH HAND PUMP . . . . .	19
Pressure Specifications . . . . .	20
Backhoe Relief Valves . . . . .	20
Loader Relief Valves . . . . .	21
3 Point Hitch . . . . .	21
Hand Pump Test Procedures . . . . .	22
TESTING RELIEF VALVES WITH A PRESSURE GAUGE . . . . .	24
ADJUSTING RELIEF VALVES . . . . .	26
Loader Main Relief Valve . . . . .	26
Loader Secondary Relief Valves . . . . .	26
Backhoe Secondary Relief Valves . . . . .	26
Backhoe Swing Crossover Valves . . . . .	26

**TABLE OF CONTENTS**

HYDRAULIC PUMP USED BEFORE BACKHOE SERIAL NO. 4176351 ..... 3

    Specifications ..... 3

    Removal ..... 5

        Disassembly ..... 5

        Assembly ..... 7

        Testing and Installing Pump ..... 8

HYDRAULIC PUMP USED AFTER SERIAL NO. 4176351 ..... 10

    Specifications ..... 11

    Removal ..... 11

    Disassembly ..... 11

HYDRAULIC PUMP FOR 3 POINT HITCH ONLY ..... 14

    Specifications ..... 14

    Removal ..... 14

    Disassembly ..... 14

    Assembly ..... 16

CLICK ANYWHERE FOR MORE DETAILS

MANUAL PREVIEW

JENSALES®

purchase full manual at

**JENSALES.COM**  
**or Call 800-443-0625**

CLICK ANYWHERE FOR MORE DETAILS

## TABLE OF CONTENTS

LOADER CONTROL VALVE .....	3
Specifications .....	3
Servicing Loader Control Valve .....	4
Removal .....	4
Disassembly .....	4-6
Assembly .....	7-10
Installation .....	10
Operation .....	11-16
BACKHOE CONTROL VALVE .....	17
Specifications .....	17
Servicing Backhoe Control Valve .....	18
Removing Control Valve .....	19
Regeneration Check Valve .....	19-20
Regeneration Spool .....	20
Valve Sections and Spools .....	20-22
Load Check Valves .....	22
Secondary Relief Valves .....	22-23
Crossover Relief Valves .....	24
Assembling Valve Sections .....	24-25
U.S. AND METRIC TORQUE SPECIFICATIONS (Hydraulic Fittings) .....	25
Operating Principles .....	26-31
3 POINT HITCH CONTROL VALVE .....	32
Specifications .....	32
Servicing the Control Valve .....	33
Removal .....	33
Disassembly .....	33-35
Assembly .....	35-38
Installation .....	38

## TABLE OF CONTENTS

SPECIFICATIONS .....	3
GROUP 1 CYLINDERS .....	4
Glands .....	4
Servicing Group 1 Cylinders .....	6
Removal .....	6
Disassembly .....	6
Assembly .....	8
U.S. AND METRIC TORQUE SPECIFICATIONS .....	9
GROUP 2 CYLINDERS .....	10
Glands .....	12
Servicing Group 2 Cylinders .....	12
Removal .....	12
Disassembly .....	12
Assembly .....	12-14
GROUP 3 CYLINDERS .....	15
Servicing Group 3 Cylinders .....	15
Removal .....	15
Disassembly .....	15
Assembly .....	17
Installation .....	17
GROUP 4 CYLINDERS .....	19
Servicing Group 4 Cylinders .....	19
Removal .....	19
Disassembly .....	19
Assembly .....	19

CLICK ANYWHERE FOR MORE DETAILS

# Section 4019

## BREAK-AWAY COUPLINGS AND PORTABLE HYDRAULIC CYLINDERS

### TABLE OF CONTENTS

Break-away couplings .....	4019-2
ASAE Standard Break-away Couplings .....	4019-4
3-1/4" x 8" and 4" x 8" Hydraulic cylinders with mechanical stop .....	4019-6
3-1/4" x 8" and 4" x 8" hydraulic cylinders with hydraulic and collar locking limit stop .....	4019-8
3-1/4" x 8" and 4" x 8" hydraulic cylinders with hydraulic and clamp type locking limit stop .....	4019-10
Portable cylinder jack pad and base .....	4019-12

**JENSALES.COM**  
**or Call 800-443-0625**

CLICK ANYWHERE FOR MORE DETAILS

# TABLE OF CONTENTS

INTRODUCTION . . . . .	D-2
OIL FLOW . . . . .	D-2 thru D-9
Spools Neutral . . . . .	D-2
Lower Spool Rearward - Upper Spool Forward . . . . .	D-4
Lower Spool Forward - Upper Spool Rearward . . . . .	D-6
Lower Spool Forward - Upper Spool Neutral . . . . .	D-8
REMOVAL - DISASSEMBLY - INSPECTION - ASSEMBLY - INSTALLATION . . . . .	D-10
SPECIFICATION . . . . .	D-12

## INTRODUCTION

The remote hydraulic control valves are located on the top of the torque tube cover. The "stack up" of two valves can be used with two double acting, one double acting or one single acting and one double acting cylinders. The single acting cylinder can only be used with the bottom valve by removing a plug from the manifold as described under oil flow on Page D-8. When a single acting cylinder is used the upper valve must always be in the neutral position to allow the return oil to return to sump for the lower valve and cylinder to operate.

If two hydraulic remote valves are used with the Draft-O-Matic Valve, the oil supply is always through the lower valve to the upper valve and then to the Draft-O-Matic valve, back through the filter and into the reservoir. Therefore, each system works independently with the oil demands of the remote valve with the least resistance at the portable cylinder being filled first. The remote valve with the greater resistance second and Draft-O-Matic third.

The valves are made up of two major components:

The valve bodies are cast in one piece and are cored and drilled to provide for both inlet and return oil. Cored and drilled passages also direct the oil to and from the cylinders and back to the reservoir.

The valve spools contain lands and grooves to obtain metering control of the load. The spools control and direct the flow of pressurized oil to and from the portable cylinders as well as re-directing the oil back to the reservoir. The spools are three position spools, Extend, Neutral and Retract. The spools are moved manually by the operator to either the extend or retract positions and are automatically returned to neutral by a centering spring.

The Drop Check Valve function is to prevent hydraulic oil from flowing back to the pump as the spools are moved from or through the neutral positions.

The Hydraulic Pump is located under and mounted to the torque tube cover. The pump operates continuously when the engine is running and is driven by the power train. For servicing of the pump refer to Section "R" Draft-O-Matic.

## OIL FLOW

(Refer to Figure D-1)

### Hand Levers Neutral-Spools Neutral

With both valve spools in the neutral positions, the oil from the pump comes up through the torque tube cover, into the lower valve. The oil then flows around the groove in the lower spool to the upper valve. The oil coming into the upper valve flows around the groove in the upper spool into the valve cover. From the valve cover the oil flows out through the Draft-O-Matic system, back through the oil filter into the reservoir.



# Section

# 61

## TORQUE CONVERTER, POWER SHUTTLE COUNTER-SHAFT, CONTROL VALVE AND ADJUSTMENTS

### TABLE OF CONTENTS

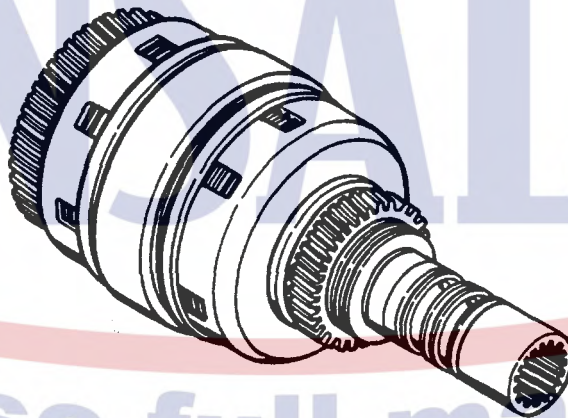
Torque converter removal .....	61-2
Converter and lubrication oil regulator valve .....	61-2
Torque converter .....	61-4
Power shuttle control valve .....	61-6
Countershaft and gears .....	61-8
Power shuttle removal - installation .....	61-10
Power shuttle adjustments	
Clutch pedal linkage .....	61-11
Shuttle spool linkage .....	61-12
Control lever linkage .....	61-13

# Section

# 62

## ROCKFORD CLUTCH

## POWER SHUTTLE CLUTCH PACK



### TABLE OF CONTENTS

Force piston, housing and shaft .....	62-2
Forward and reverse clutch packs .....	62-4
Forward and reverse clutch drums .....	62-6

CLICK ANYWHERE FOR MORE DETAILS

# Section

# 65

## FOUR SPEED TRANSMISSION

## AND FINAL DRIVE

### TABLE OF CONTENTS

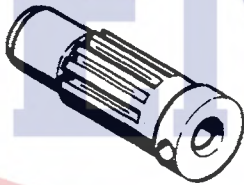
Specifications .....	65-2
Special torques .....	65-2
<b>Power Trains</b>	
Eight speed dual range .....	65-3
Eight speed shuttle .....	65-4
Four speed shuttle .....	65-5
Power shuttle-torque converter .....	65-6
General Inspection .....	65-7
General assembly .....	65-7
Shifting Sequence .....	65-7
Transmission housing .....	65-8
Pinion shaft .....	65-10
Reverse idler gear (not used with shuttle) .....	65-12
Differential .....	65-14
Main drive shaft .....	65-18
Flanged axle .....	65-20
Keyed axle .....	65-22
Gear shift cover .....	65-24
Adjustments .....	65-30

## TABLE OF CONTENTS

INTRODUCTION .....	68-3
TRACTION CLUTCH Removal-Disassembly-Inspection .....	68-4
TRACTION CLUTCH Assembly-Installation .....	68-6
RELEASE LEVER ADJUSTMENT .....	68-6
MAIN DRIVE SHAFT Removal-Disassembly-Inspection .....	68-8
Assembly-Installation .....	68-10
CLUTCH LINKAGE ADJUSTMENT Suspended Pedal .....	68-12
Floor-mounted Pedal .....	68-13

### SPECIAL TOOLS

The special clutch adjusting tool G15048 is used with the special splined gauge, with 21 splines.



A37956 GAUGE



G15048 TOOL

This special sleeve, A38461, is used to protect the seal when installing the bearing carrier.



A38461 TOOL

These tools and the gauge are available through service parts supply, J I Case Co.

## TABLE OF CONTENTS

SPECIFICATIONS . . . . .	R-2
INTRODUCTION . . . . .	R-3
GENERAL . . . . .	R-4
OPERATION OF LOAD DEPTH CONTROL SENSING LINKAGE . . . . .	R-6
OIL FLOW DIAGRAMS . . . . .	R-8 thru R-15
Holding Position . . . . .	R-8
Lifting Position . . . . .	R-10
Lowering Position . . . . .	R-12
Floating Position . . . . .	R-14
DRAFT-O-MATIC COMPONENTS . . . . .	R-16 and R-17
DISASSEMBLY AND INSPECTION OF THE VALVE . . . . .	R-18
ASSEMBLY OF THE VALVE . . . . .	R-20
DISASSEMBLY, INSPECTION AND ASSEMBLY OF THE ROCKSHAFT HOUSING . . . . .	R-22
VALVE LOWERING PISTON ADJUSTMENT . . . . .	R-24
DRAFT-O-MATIC ADJUSTMENTS . . . . .	R-26

### SPECIFICATIONS

Control Valve Flow Divider Valve . . . . .	Valve Spool in Slow Speed Lift 4 GPM Valve Spool in High Speed Lift 10 GPM
Type of Oil . . . . .	Case TCH Oil.

**JENSALES.COM**

**or Call 800-443-0625**

**CLICK ANYWHERE FOR MORE DETAILS**

# TABLE OF CONTENTS

INTRODUCTION .....	4S-3
HOW IT WORKS	
Power Clutches Disengaged .....	4S-4
Engaging the Forward Clutch .....	4S-6
Engaging the Reverse Clutch .....	4S-8
SHUTTLE CONVERTER CONTROL VALVE .....	4S-10
POWER SHUTTLE	
Removal and Installation .....	4S-12
POWER SHUTTLE COUNTERSHAFT .....	4S-14
POWER SHUTTLE	
Disassembly and Inspection .....	4S-16
Assembly .....	4S-18 thru 4S-21
BRAKE ADJUSTMENT .....	4S-22
CLUTCH LINKAGE ADJUSTMENT .....	4S-22
SHUTTLE SPOOL ADJUSTMENT .....	4S-23
SHUTTLE AND CONVERTER OIL PUMP PRESSURE CHECKS .....	4S-24
CLUTCH PRESSURE CHECK .....	4S-24

**NOTE** CASE CORPORATION reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

# TABLE OF CONTENTS

INTRODUCTION .....	4S-3
HOW IT WORKS	
Power Clutches Disengaged .....	4S-4
Engaging the Forward Clutch .....	4S-6
Engaging the Reverse Clutch .....	4S-8
SHUTTLE CONVERTER CONTROL VALVE .....	4S-10
POWER SHUTTLE	
Removal and Installation .....	4S-12
POWER SHUTTLE COUNTERSHAFT .....	4S-14
POWER SHUTTLE	
Disassembly and Inspection .....	4S-16
Assembly .....	4S-18 thru 4S-21
BRAKE ADJUSTMENT .....	4S-22
CLUTCH LINKAGE ADJUSTMENT .....	4S-22
SHUTTLE SPOOL ADJUSTMENT .....	4S-23
SHUTTLE AND CONVERTER OIL PUMP PRESSURE CHECKS .....	4S-24
CLUTCH PRESSURE CHECK .....	4S-24

**NOTE** The CASE CORPORATION reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

# TABLE OF CONTENTS

## PTO ASSEMBLY

Removal and Installation . . . . . 7S-3

## PTO CLUTCH

Disassembly and Inspection . . . . . 7S-4

## PTO CLUTCH

Assembly . . . . . 7S-6

## INPUT SHAFT AND CLUTCH DRUM

Disassembly, Inspection and Assembly . . . . . 7S-8

## PTO CLUTCH ADJUSTMENT

7S-10

MANUAL PREVIEW

JENSALES®

purchase full manual at

**JENSALES.COM**  
**or Call 800-443-0625**



**TABLE OF CONTENTS**

INTRODUCTION ..... X-3

HOW IT WORKS .....

Power Clutches Disengaged ..... X-4

Engaging the Forward Clutch ..... X-6

Engaging the Reverse Clutch ..... X-8

TORQUE CONVERTER REGULATOR VALVE ..... X-10

SPLITTING AND REMOVAL ..... X-12

DISASSEMBLY - INSPECTION - ASSEMBLY ..... X-14

CONVERTER AND SHUTTLE OIL PUMP PRESSURE CHECKS..... X-16

TORQUE CONVERTER PRESSURE CHECK..... X-16

CLICK ANYWHERE FOR MORE DETAILS

MANUAL PREVIEW

JENSALES®

purchase full manual at

**JENSALES.COM**

**or Call 800-443-0625**

NOTE The CASE CORPORATION reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

CLICK ANYWHERE FOR MORE DETAILS

# TABLE OF CONTENTS

INTRODUCTION .....	X-3
HOW IT WORKS .....	
Power Clutches Disengaged .....	X-4
Engaging the Forward Clutch .....	X-6
Engaging the Reverse Clutch .....	X-8
TORQUE CONVERTER REGULATOR VALVE .....	X-10
SPLITTING AND REMOVAL .....	X-12
DISASSEMBLY - INSPECTION - ASSEMBLY .....	X-14
CONVERTER AND SHUTTLE OIL PUMP PRESSURE CHECKS.....	X-16
TORQUE CONVERTER PRESSURE CHECK.....	X-16

CLICK ANYWHERE FOR MORE DETAILS

MANUAL PREVIEW

JENSALES®

purchase full manual at

JENSALES.COM

or Call 800-443-0625

**NOTE** The CASE CORPORATION reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

CLICK ANYWHERE FOR MORE DETAILS

## TABLE OF CONTENTS

INTRODUCTION . . . . .	F-2
BATTERIES . . . . .	F-2
CRANKING MOTORS AND SOLENOIDS . . . . .	F-5
REGULATORS . . . . .	F-6
GENERATORS . . . . .	F-8
DISTRIBUTORS, COIL AND TIMING . . . . .	F-10
SPARK PLUGS . . . . .	F-16

### INTRODUCTION

Section F contains the specifications and wiring diagrams necessary to diagnose and make minor adjustments on the electrical components on the Case Wheel Tractors.

All major adjustments and overhaul of electrical components should be performed by an Authorized Electrical Service Station (Delco-United Motors Service or Auto-Lite Service Stations) where specialized equipment and trained personnel are available.

DO NOT ATTEMPT EVEN MINOR ELECTRICAL ADJUSTMENTS WITHOUT THE AID OF PROPER TEST EQUIPMENT

**NOTE** Gas engines before Serial No. 8233766 and Diesel engines before Serial No. 8232882 used a positive grounded system. These Serial Numbers and after use a negative grounded system.



### BATTERY SERVICE AND INSPECTION

**IMPORTANT** Working with storage batteries all exposed metal surfaces are "live". Never lay a metal object on top of a battery as a short circuit may result. Sparks or open flame must be kept away from batteries due to the presence of explosive gas in and around the batteries while they are being charged or in use.

The sulfuric acid or electrolyte present in a battery is very harmful to your eyes, skin and clothing. If contact is made with it, wash it with a weak solution of baking soda and water. This will neutralize the acid.

#### Visual Inspection

Check the battery terminals and cables for dirty or corroded conditions which will cause high resistance, resulting in undercharged batteries and very poor cranking speed.

The battery tray, holddown terminals and cable ends must be cleaned when contaminated with baking soda and water. This will help to prevent self discharge of batteries. After cleaning and drying a thin coating of vasoline, light cup grease or paint will help prevent contamination.

A cracked or leaking battery case will let the electrolyte leak out and cause damage to the equipment, a battery in this condition should be replaced. When just the top sealing compound is leaking the battery can be resealed.

Vent holes in the filler caps should always be kept open to let the battery gases escape. Never remove battery caps except to add water.

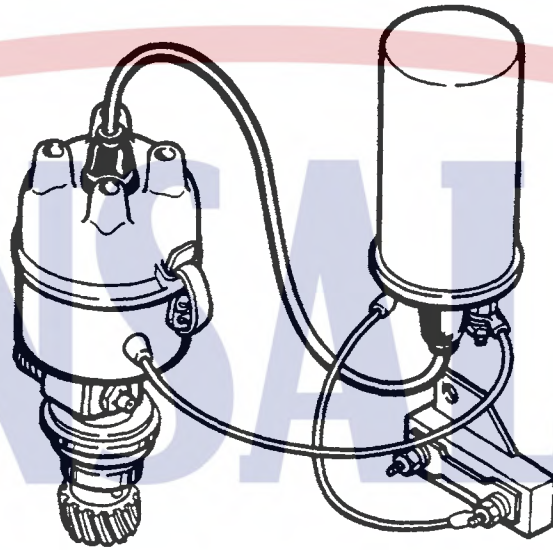
The electrolyte level should be checked each week. Never let the level drop to a point where the plates are exposed. Pure or distilled water should only be added when the electrolyte level is low. DO NOT OVERFILL, refer to Figure F-1.

Normal water consumption would be approximately 1 oz. every 60 hours of operation. If it is greater, either the case is leaking or regulator is overcharging and must be adjusted.

# Section

# 83

## DISTRIBUTOR IGNITION SYSTEMS



### TABLE OF CONTENTS

Distributors, Introduction .....	83-2
Contact Points .....	83-4
Cap .....	83-6
Rotor .....	83-6
Coil Polarity .....	83-6
Distributor Static and Running Ignition Timing .....	83-7
Spark Plugs, Specifications .....	83-8
Heat Range .....	83-9
Electrode Condition .....	83-10
High Tension Spark Plug and Coil Leads .....	83-11
Checking Ignition Coil Resistor .....	83-12
Distributor Specifications .....	83-13
Ignition Coil Specifications .....	83-13
Static and Running Ignition Timing Chart .....	83-14

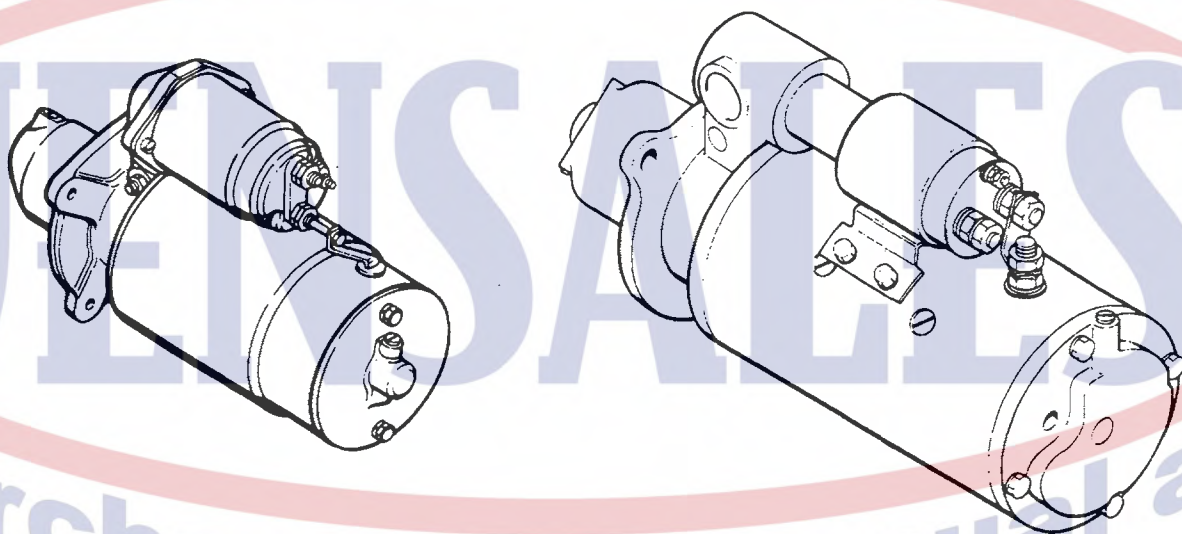
Rec. Form 9-74625

PRINTED  
IN  
U.S.A.

# Section

# 8012

## STARTING OR CRANKING MOTORS



### TABLE OF CONTENTS

General Starter Inspection .....	8012-2
Starter No Load Test .....	8012-4
Field Coil Tests .....	8012-5
Armature Tests .....	8012-6
Checking Pinion Clearance .....	8012-8
Solenoid Switch Tests .....	8012-9
Starter or Cranking Motor Specifications - Delco-Remy .....	8012-10
Solenoid Specifications - Delco-Remy .....	8012-10
Starter or Cranking Motor Specifications - Prestolite .....	8012-11
Solenoid Specifications - Prestolite .....	8012-11

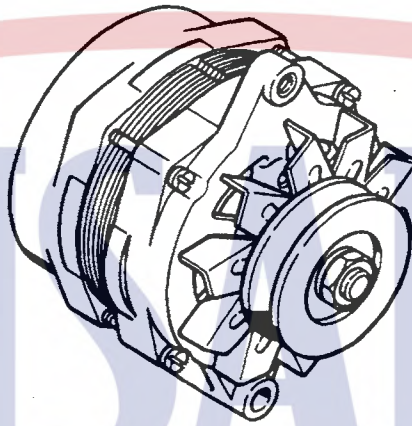
CASE CORPORATION

Rac. 9-75366

PRINTED IN U.S.A.

# Section 8014

## PRESTOLITE ALTERNATOR SYSTEMS



### TABLE OF CONTENTS

Prestolite Alternator Charging Systems .....	8014-2
Precautions to be observed when Servicing the Systems .....	8014-4
Prestolite Alternator .....	8014-4
Rotor Inspecting and Testing .....	8014-6
Testing Rectifier Diodes .....	8014-7
Stator Ground and Open Tests .....	8014-7
Checking Alternator Resistor .....	8014-8
Regulator Output Test .....	8014-9
Alternator Output Test .....	8014-10
Alternator Specifications .....	8014-11
Voltage Regulator Specifications .....	8014-11

## TABLE OF CONTENTS

HYDRAULIC SPECIFICATIONS .....	3
LOADER HYDRAULICS WITH DROTT BUCKET .....	4
LOADER HYDRAULICS WITH DUAL CYLINDER 4-in-1 BUCKET .....	5
HYDRA-LEVELING CIRCUIT .....	6
CHECKING AND ADJUSTING MAIN RELIEF VALVE SETTING .....	7
RETURN-TO-DIG .....	7
Adjustment of Bucket Position .....	8
Adjusting Latch Engagement .....	8
REMOVING LOADER FROM TRACTOR .....	9
Removing Loader to Service Tractor .....	9
Removing Loader to Use Tractor as Drawbar Unit .....	10
STANDARD BUCKET .....	11
Cutting Edge Removal and Replacement .....	11
Replacing Teeth .....	13
Replacing Tooth Shanks .....	13
DROTT BUCKET .....	14
Clam Cutting Edge Removal and Replacement .....	14
4-in-1 BUCKET WITH DUAL CYLINDERS .....	16
Clam Cutting Edge Removal and Replacement .....	16
Blade Cutting Edge Removal and Replacement .....	16
HYDRAULIC SYSTEM .....	18
Reservoirs .....	18
Hydraulic System Filter .....	19
Cleaning Hydraulic System .....	19
LUBRICATION .....	21
Lubrication Points .....	21
Recommended Lubricant .....	21

## TABLE OF CONTENTS

HYDRAULIC DIAGRAM FOR STANDARD BACKHOE . . . . .	3
HYDRAULIC DIAGRAM FOR HYDRAULIC EXTENDABLE BACKHOE . . . . .	4
HYDRAULIC DIAGRAM FOR SIDE SHIFT BACKHOE . . . . .	5
BOOM LOCKOUT . . . . .	6
Boom Lockout Hydraulic Diagram . . . . .	6
Operation . . . . .	6
Serving the Lockout Valve . . . . .	7
SIDE SHIFT LOCKING SYSTEM . . . . .	9
Locking the Sliding Frame . . . . .	9
Trouble Shooting . . . . .	9
Servicing Hydraulic Locking System . . . . .	10
Control Valve . . . . .	10
Locking Cylinders . . . . .	11
UNCOUPLING BACKHOE FROM TRACTOR . . . . .	12
COUPLING BACKHOE TO TRACTOR . . . . .	13
DISASSEMBLING THE BACKHOE . . . . .	14-15
ASSEMBLING THE BACKHOE . . . . .	16-17
REMOVAL AND INSTALLATION OF SWING TOWER . . . . .	18
SERVICING THE BUSHINGS . . . . .	20
Lower Pivot Bushings . . . . .	20
Cylinder and Structural Member Bushings . . . . .	20
SERVICING BUCKET EDGES AND TEETH . . . . .	22-25
CONTROL TOWERS . . . . .	26-29
EXPLODED VIEW OF BACKHOE WITH FABRICATED CYLINDER ANCHORS . . . . .	30
EXPLODED VIEW OF BACKHOE WITH CAST CYLINDER ANCHORS . . . . .	31
BOOM, DIPPER AND BUCKET HYDRAULICS WITH FABRICATED CYLINDER ANCHORS . . . . .	32
BOOM, DIPPER AND BUCKET HYDRAULICS WITH CAST CYLINDER ANCHORS . . . . .	33
EXPLODED VIEW OF HYDRAULICALLY EXTENDABLE DIPPER ARM . . . . .	34
HYDRAULICS FOR EXTENDABLE DIPPER ARM . . . . .	35
EXPLODED VIEW OF STANDARD BACKHOE STABILIZERS AND MOUNTING FRAME . . . . .	36
STANDARD BACKHOE SWING AND STABILIZER CYLINDER HYDRAULICS . . . . .	37
EXPLODED VIEW OF SIDE SHIFT MOUNTING FRAME . . . . .	38
SIDE SHIFT SWING, STABILIZER AND LOCKING CYLINDER HYDRAULICS . . . . .	39
U.S. AND METRIC TORQUE SPECIFICATIONS . . . . .	40



## TABLE OF CONTENTS

RETURN-TO-DIG .....	3
Operation .....	3
Adjustment of Bucket Position.....	3
ANTI-ROLLBACK.....	4
Adjustment .....	4
STANDARD BUCKET.....	5
Cutting Edge Removal and Replacement .....	5
Tooth Shank Removal and Replacement .....	5
Tooth Replacement .....	6
4-IN-1 BUCKET .....	6
Clam Cutting Edge Removal and Replacement.....	6
Blade Cutting Edge Removal and Replacement .....	6
REMOVING LOADER FROM TRACTOR .....	8
Removing Loader to Service Tractor .....	8
Removing Loader to Use Tractor as Drawbar Unit .....	9
EXPLODED VIEWS .....	10
Control Lever Installation .....	10
Exploded View of Loader .....	11
Basic Hydraulics.....	12
Lift, Hydra-Leveling and Tilt Cylinder Hydraulics .....	13
4-in-1 Bucket Hydraulics .....	14
4-in-1 Bucket Hydraulics, Loader Frame .....	15

**or Call 800-443-0625**

**CLICK ANYWHERE FOR MORE DETAILS**

**TABLE OF CONTENTS**

COUNTERWEIGHTS ..... 3-5

MOLDBOARD ..... 5

LOGGING AND PALLET FORKS ..... 6

3 POINT HITCH ..... 7

    Removal ..... 7

    Installation ..... 7

    Checking and Adjusting Main Relief Valve Pressure Setting ..... 8

    3 Point Hitch Hydraulic Diagram, Loader/Backhoe Models ..... 9

    3 Point Hitch Hydraulic Diagram, Drawbar Models ..... 10

U.S. AND METRIC TORQUE SPECIFICATIONS ..... 11

CLICK ANYWHERE FOR MORE DETAILS

MANUAL PREVIEW



purchase full manual at

**JENSALES.COM**  
**or Call 800-443-0625**

CLICK ANYWHERE FOR MORE DETAILS

# TABLE OF CONTENTS

INTRODUCTION . . . . .	3
DEFINITION OF "RIGHT HAND, LEFT HAND, FRONT, REAR" . . . . .	3
SPECIFICATIONS . . . . .	4
4000 lb. Mast . . . . .	4
5000 lb. Mast . . . . .	6
Tire Specifications . . . . .	7
Hydraulic Specifications . . . . .	8
Tractor Speeds . . . . .	8
SERIAL NUMBER . . . . .	9
LUBRICATION . . . . .	9
HYDRAULIC SYSTEM--GENERAL INFORMATION . . . . .	10
Schematic Illustration . . . . .	10
Reservoir, Reservoir Breather . . . . .	11
Checking, Draining, Filling Reservoir . . . . .	11
Filter . . . . .	12
Filter Condition Indicator . . . . .	13
SERVICING THE HYDRAULIC PUMP . . . . .	13
REAR COUNTERWEIGHT . . . . .	20
TROUBLE SHOOTING WITH A "FLOWMETER" . . . . .	21
Pump Test . . . . .	22
"Tee" Test . . . . .	23
Check Sheet . . . . .	26
CONTROL VALVE . . . . .	27
TESTING MAIN RELIEF VALVE WITH PRESSURE GAUGE . . . . .	33
FLOW CONTROL VALVE . . . . .	34
SERVICING DOUBLE ACTING CYLINDERS . . . . .	34
REPLACING PIVOTAL BUSHINGS . . . . .	39
MAST LIFT HYDRAULIC CYLINDERS . . . . .	40
Removing and Installing Packing . . . . .	40
Bleeding . . . . .	42
Removal and Installation of Cylinder . . . . .	42
SERVICING THE MAST . . . . .	43
Fork Backing Plates . . . . .	43
Carriage Roller Assemblies . . . . .	43
Chain Guide Wheels . . . . .	45
Disassembly of Mast Channels . . . . .	48
Wear Plates . . . . .	49
Adjusting Mast Chains . . . . .	50
Brake Adjustments . . . . .	50
Clutch Adjustment . . . . .	51
DISASSEMBLED VIEWS OF ATTACHMENTS AND TRACTOR COMPONENTS . . . . .	54
Side Shifter Used With 4000 lb. Mast . . . . .	52
Side Shifter Used With 5000 lb. Mast . . . . .	53
Subframe and Counterweight . . . . .	54
Foot Pedals and Linkage . . . . .	55
Lever Installation for Control Valve, Clutch, Shuttle, and Dual Range . . . . .	56
Logging Clamps Installation . . . . .	57
Loader Bucket Installation . . . . .	58
HYDRAULIC SYSTEM TROUBLE SHOOTING CHART . . . . .	60

**Section**

**151**

**HOW IT WORKS**

**HYDROSTATIC POWER STEERING**

**JENSALES®**

purchase full manual at

**JENSALES.COM**

**TABLE OF CONTENTS**

Introduction .....	151-2
Oil flows	
Right turn - Engine running .....	151-4
Left turn - Engine running .....	151-6
Right turn - Engine not running .....	151-8
Left turn - Engine not running .....	151-10

CLICK ANYWHERE FOR MORE DETAILS

CLICK ANYWHERE FOR MORE DETAILS

**Section**

**162**

**HOW IT WORKS**

**TORQUE CONVERTER**

**WITH ROCKFORD POWER SHUTTLE**

**TABLE OF CONTENTS**

Introduction	162-2
Torque Converter .....	162-3
Power Shuttle .....	162-4
Neutral .....	162-6
Forward .....	162-8
Reverse .....	162-10
Clutch pedal depressed (dumped) .....	

**JENSALES.COM**

**or Call 800-443-0625**

Rac. Form 9-80481

CASE CORPORATION

PRINTED  
IN  
U.S.A.