DC SERIES

COMPACTION PRODUCTS

Operating and Maintenance Manual

SPARTAN EQUIPMENT®

TABLE OF CONTENTS

2. C H E C K LIS T

2.1 CUSTOMER'S FILE

PRE-DELIVERY

After the compaction plate has been completely setup and attached to the host machine, inspect the following. Check off each item after the prescribed action is taken.

Check that:

- No parts of the unit have been damaged in shipment. Check for things such as dents and loose or missing parts; correct or replace components as required.
- All bolts and fasteners are in place and tightly secured.
- The oil level is at the proper level in the gear box.
- All decals are in place and securely attached.
- The serial number of your unit is recorded in the space provided on this page.
- Then, test run the unit while checking that all components are operating correctly.

I acknowledge that the procedures were performed on this unit as outlined above

DEALERSHIP NAME

DEALER REPRESENTATIVE'S NAME

DATE CHECKLIST FILLED OUT

SERIAL NUMBER

DELIVERY

The following checklist is an important reminder of the valuable information that **MUST** be passed on to the customer at the time the unit is delivered. check off each item as you explain it to the customer.

- Give the customer his operators manual. Instruct him to be sure to read and completely understand its contents **BEFORE** operating the unit.
- Explain and review with him the **SAFETY** information in this manual.
- Explain that regular cleaning and lubrication are required for proper operation and long life. Review with him the lubrication information in this manual.
- Explain and review with him the service & maintenance information in this manual.
- Completely fill out the owner's registration, including the customer's signature and return it to the manufacturer.

I acknowledge that the above points were reviewed with me at the time of delivery.

CUSTOMER'S SIGNATURE

DATE DELIVERED

2. C H E C K LIS T

2.2 DEALER'S FILE COPY

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CUSTOMER'S SIGNATURE

DATE DELIVERED

3. I N T ROD U C T ION

The **DC SERIES COMPACTION PLATES** are designed as an attachment machine for use on host machines, such as skidsteer loaderloaders, loader backhoe's, and mini excavator's. The information contained in this manual refers only to the compaction machine. Information regarding the valves used to control oil flow to the compaction attachment can be found in the host machines manual or the power pack installation manual if the host machine is so equipped.

The information contained within is provided to assist you in preparing, adjusting, maintaining and servicing your machine. More importantly, this manual provides an operating plan for safe and proper use of your machine. Major points of safe operation are detailed in the safety chapter of this manual. Refer to the table of contents for an outline of this manual.

Modem machinery has become more sophisticated and, with that in mind, you must read and understand the contents of the manual **COMPLETELY** and become familiar with your new machine before attempting to operate it.

Terms such as "right" and "left" as used in the manual, are as though the reader is sitting in the host machine's operator seat and facing the attachment.

Throughout this manual, information is provided which is set in bold type and introduced by the word NOTE. Be sure to read carefully and comply with the message or directive given. Following this information will improve your operating or maintenance efficiency, help you to avoid costly breakdowns or unnecessary damage, and extend the life of your machine.

The manufacturer and Society of Automotive Engineers have adopted this **SAFETY ALERT SYMBOL** to pinpoint characteristics that, if not properly followed, can create a safety hazard. When you see this symbol in this manual or on the unit itself, you are reminded to **BE ALERT! YOUR SAFETY IS INVOLVED!**

The manufacturer reserves the right to make changes or improvements in the design or construction of any part without the obligation to install such changes on any unit previously delivered.

4. S P E C I F I CAT ION S

DC SERIES

MODEL	STANDARD PLATE WIDTH
DC3500	12 INCHES (300mm)
DC5000	16 INCHES (400mm)
DC6000	18 INCHES (458mm)
DC6500	24 INCHES (610mm)
DC8000	73 INCHES (1854mm)
DCT8000	73 INCHES (1854mm) (with Tilt)

MAXIMUM TILT ANGLE	15° left & right for DCT8000 Only

WEIGHT *	
DC3500	320 lbs. (145 kg)
DC5000	550 lbs. (250 kg)
DC6000	600 lbs. (272 kg)
DC6500	760 lbs. (345 kg)
DC8000	975 lbs. (442 kg)
DCT8000	1260 lbs. (572 kg)

* Weights are for fully hydraulic compaction plates equipped for use on skidsteer loader's, backhoe loader's, and compact excavator's, and are approximate due to optional equipment.

5. SAFETY

BEFORE YOU ATTEMPT TO OPERATE THIS EQUIPMENT, READ AND STUDY THE FOLLOWING SAFETY INFORMATION. IN ADDITION, MAKE SURE THAT EVERY INDIVIDUAL WHO OPERATES OR WORKS WITH THIS EQUIPMENT IS FAMILIAR WITH THESE SAFETY PRECAUTIONS.

The manufacturer always takes the operator and their safety into consideration when designing machinery. Guards are provided on exposed moving parts for the operator's protection, however, some areas cannot be guarded or shielded in order to assure proper operation. **In** addition, the operator's manual and decals on the machine itself warn you of further danger and should be read and observed closely.

The **SAFETY ALERT SYMBOL** above means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! It** stresses an attitude of **"HEADS UP"** for safety and can be found throughout this operator's manual and on the unit itself.

REMEMBER: The careful operator is the best operator. Most accidents are caused by human error. Certain precautions must be observed to prevent the possibility of injury or damage.

Please read the rules listed below for safe operation **BEFORE** you operate this equipment.

Use of words **CAUTION, WARNING, or DANGER,** herein and on the machine itself, signal three degrees of hazard.

CAUTION is used for general reminders of good safety practices or to direct attention to unsafe practices.

WARNING is used to denote a specific potential hazard.

DANGER is used to denote the most serious specific potential hazard.

5.1 MANDATORY SAFETY SHUTDOWN

Work of any type on machinery is always more dangerous when the machine is operating. **BEFORE** cleaning, lubricating, or servicing this unit, the following **MANDATORY SAFETY SHUTDOWN PROCEDURE** should **ALWAYS** be followed:

1. Move host machine's propulsion control to the neutral position and idle engine down.

2. Shut off compaction plate.

3. Position compaction plate so that it is completely resting on the ground or floor.

4. Engage the host machine's hand brake.

5. With the host machine's throttle in the slow idle position, shut the engine off and remove the ignition key.

6. Relieve hydraulic pressure by moving the auxiliary hydraulic flow and cylinder control levers in both directions.

ONLY when you have taken these precautions can you be sure it is safe to proceed. Failure to follow the above procedures could lead to death or serious bodily injury!

Some diagrams used herein may show door(s), guard(s), or shield(s) open or removed for illustration purposes **ONLY! BE SURE** that all door(s), guard(s), and shield(s) are in their proper position(s) and securely attached **BEFORE** operating the compaction plate!

Read and observe **ALL** safety information and decals on the host machine and compaction plate **BEFORE** operating the unit! In addition, familiarize yourself with **ALL** of the safety devices and periodically check that they are functioning properly!

Refer to the safety chapter of the host machine's operator manual and observe **ALL** safety recommendations set forth in that manual!

BE SURE to raise the compaction plate clear of the ground **BEFORE** attempting to traverse it sideways!

CAREFULL Y inspect **ALL** hydraulic hoses and connections on a routine basis; **NEVER** use your hand, escaping fluid under pressure can cause serious injury!

BE SURE to exercise the **MANDATORY SAFETY SHUT DOWN PROCEDURE BEFORE** proceeding to do any work on the compaction plate!

BE SURE the compaction plate is properly placed in the "Service Position" and resting on the ground, **BEFORE** attempting to work on it.

BEFORE transporting the compaction plate, **BE SURE** to raise the unit completely clear of the ground and tum it off.

ALWAYS wear safety glasses with side shields, when striking metal against metal! In addition, it is recommended that a softer (non-chip) material be used to cushion the blow. Failure to heed could result in serious injury to the eye(s) or other parts) of the body!

ALWAYS wear proper clothing and covering when working with or on the compaction plate!

DO NOT attempt to move the compaction plate sideways while it is on the ground!

DO NOT attempt to work on the plate or host machine with the hydraulics live! **BE SURE** to relieve the hydraulic pressure, by shutting down the engine and moving all control levers **BEFORE** attempting to disconnect any hoses or **BEFORE** proceeding to remove the compaction plate from the host machine.

DO NOT treat the compaction plate like a bucket, it can be damaged by contact with solid objects, as well as upset the stability of the host machine!

REMEMBER! It is the owner's responsibility for communicating information on the safe use, proper operation, and maintenance of this machine with any user!

6. OPERATION

6.1 FOREWORD

The plate must be attached to a host machine equipped to provide the necessary hydraulics and operational controls. As there are many different host machines available, this manual will only deal with the generic operation of the plate. Anyone attempting to attach and operate the plate must first have the knowledge and skill of operating the host machine's controls. Information regarding the host machine's controls and attaching procedure is found in the host machine's operators manual or from its authorized dealer.

6.2 ATTACHING TO AND DETACHING FROM A HOST

6.2.1 SKIDSTEER LOADER

Drive the skidsteer up to the quick attach of the DC8000 plate and connect up the quick-tach. Exercise the **MANDATORY SAFETY SHUTDOWN PROCEDURE** before proceeding. After installing hydraulic quick couplers compatible with your skidsteer to the two main hoses, connect them to the hydraulic outlets assuring that the hose connected to the "P" port of the motor goes to the pressure outlet. For the optional electro-hydraulic tilt on the DCT8000, connect wiring to a skidsteer accessory rocker switch or order optional switch.

IMPORTANT: Be sure the boom arms are all the way down and the bucket dump rolled all the way back when adjusting the tilt feature on the DC8000!

6.2.2 LOADER BACKHOE & COMPACT EXCAVATOR

Position backhoe/excavator to pick up the plate with the quick coupler, if the unit is so equipped, or to pin to the boom. Exercise the **MANDATORY SAFETY SHUTDOWN PROCEDURE** before proceeding. After installing hydraulic quick couplers compatible with your loader backhoe, or mini excavator's hydraulic couplers, connect them to the hydraulic outlets assuring that the hose connected to the "P" port of the motor goes to the pressure outlet.

The DC3500 plate is intended for the compact excavators up to 7000 gvw, and recommended hydraulic flow is 10-11 gpm. Flow adjustment is set on your compaction plate by a pre-set flow valve. The DC5000 plate is intended for the compact excavators over 7000 gvw with auxiliary hydraulic flows from 14 through 20 gpm.

The DC6000 and DC6500 plates are intended for loader backhoe's and small to medium sized excavators up to 30,000 gvw, and auxiliary hydraulic flows from 16 through 26 gpm. It is recommended that the Spartan auxiliary hydraulic wet kit be used on your loader backhoe,
and that flow be set @ 18 gpm for the DC6000 and DC6500.

6.3 PREPARING TO COMPACT

Check the surface to be compacted. The standard plate for each model can be used to compact dirt, sand, gravel, & asphalt. If a different application is required, contact Spartan for special attachments.

NOTE: Use of improper equipment may damage plate.

Determine the required tilt angle fore and aft or left and right of the plate, in regard to the host machine.

When it is safe to do so, start the host machine's engine and ensure that the plate is touching the ground. Tum on the plate and check the shaker motion. In skidsteer, backhoe, or excavator operation, only forward and reverse travel should be used.

Increase engine RPM, with the shaker turning. You can now make necessary adjustments to the tilt angle of the plate.

REMEMBER! The shaker mayor may not be turning to make any hydraulic adjustments.

The tilt angle of the DCT8000 series is adjusted by simply actuating the tilt cylinder or by turning the manual screw jack.

NOTE: Backhoe/Excavator machines do not include the tilt option.

If the DC8000 plate does not have a tilt cylinder or screw jack, and if you want to tilt the machine manually, loosen the four cap screws in the upper and lower tilt adjustment slots and remove the fifth cap screw. Manually set tilt angle required and retighten the cap screws. When you re-level this machine, always remember to reinstall the fifth capscrew.

6.4 STARTING THE OPERATION

Position the plate over the desired starting place. With the plate turned on, and the host machine's engine at required rpm, slowly lower the plate to the surface to be compacted until the weight of the plate is resting on the ground. Continue to exert down pressure rolling the dump forward on a skidsteer or front end loader, or by forcing down the boom on a backhoe/excavator to assure sufficient pressure for stable operation. NOTE: Applying excess down pressure with a loader backhoe/excavator boom does not mean that the material will be compacted any faster. Only apply sufficient pressure and make sure that the host machine remains stable and let the plate do its work. For example, the front wheels of the skidsteer can be raised 2-3 inches *(SO-7Smm)* off the surface but the rear wheels of a loader backhoe or the tracks on an excavator should remain firmly on the ground.

There are three factors that govern the extent to which soil/material can be compacted:

1. The type of soil or material and its compactability.
2. The moisture content of the soil or material being compacted
3. The type of compacting effort, which in this case is vibration, not pressing or ramming.

Vibratory machines are distinguished by their low amplitude (vertical distance traveled) and their high frequency of blows per minute (2000 rpm eccentric shaft rotation.).

Each rotation of the eccentric shaft generates a stress wave which travels into the ground. This vibration sets the soil particles in motion. The soil breaks down and the particles are rearranged. As the particles rearrange themselves, they force out the air and moisture trapped between them and fill the voids.

6.5 ENDING THE COMPACTION OPERATION

Stop advancing the plate. Idle host machine engine, tum the plate off, and raise the plate off the work area. DO NOT transport the plate with it turned on.

CAUTION: When using compaction plates, periodic observation must be made of the transmission oil temperature indicator on the host machine. Hydraulic oil may overheat, depending on ambient temperature and duty cycle of the machine. If indicator comes on, shut off plate and allow host machine to idle until the hydraulic temperature falls below 180^0 F. Damage to machine may occur if these instructions are not followed.

7. DAILY MAINTENANCE

CAUTION: NEVER attempt to do any maintenance to the compaction plate while it is running. Exercise the MANDATORY SAFETY SHUTDOWN PROCEDURE **BEFORE** proceeding.

NOTE: Careful attention to the daily maintenance routines will go a long way toward ensuring efficient plate operation.

1. At the start of each day, check over the plate for any wear or tear on the rubber isolators.

2. Check tilt plates on DC8000 and DCT8000 for lubrication. Clean away any dust or dirt and apply oil to these areas.

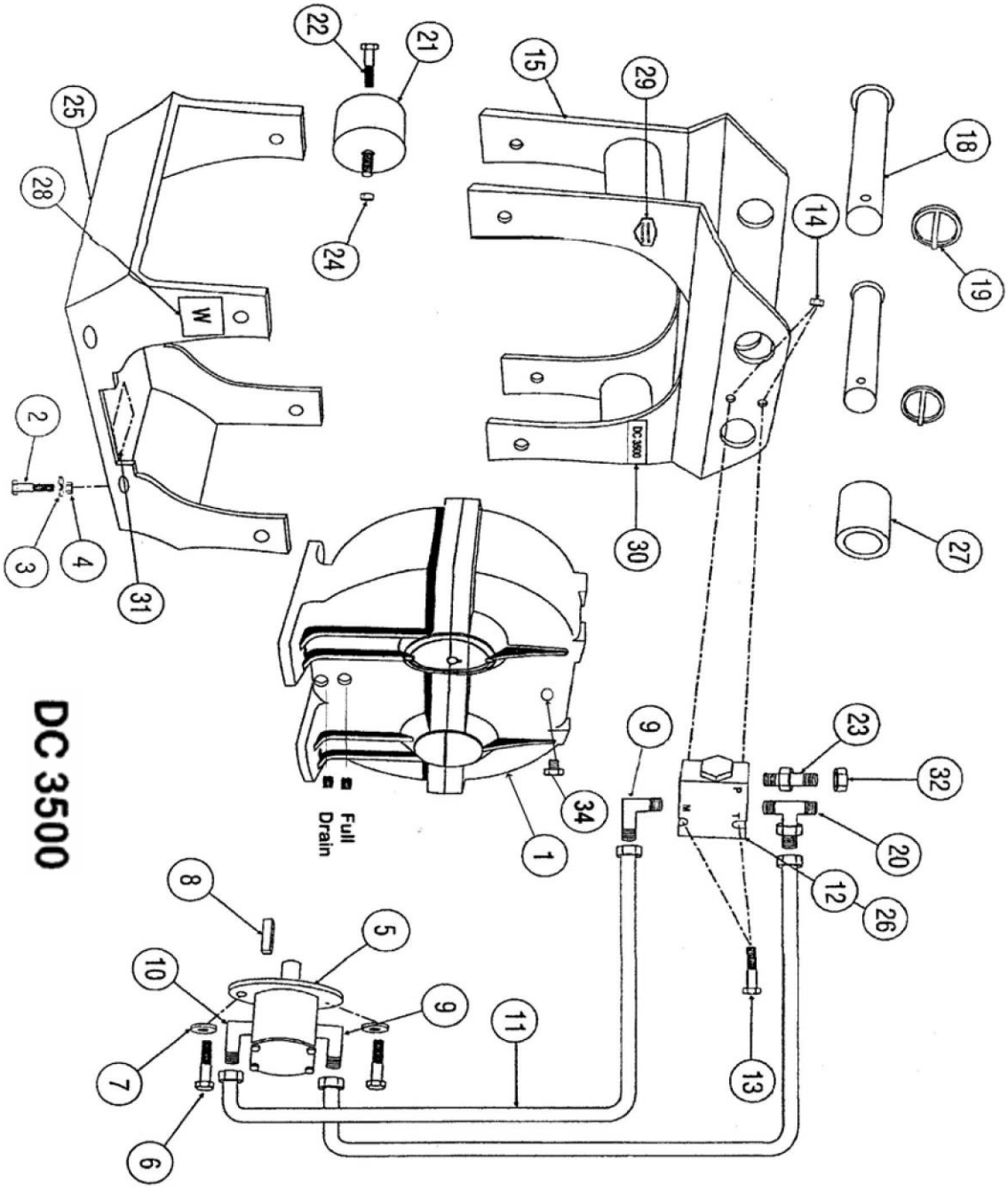
3. Check gearbox oil level daily by removing level plug. If oil level is low, add a good grade of 80 w 90 gear oil to proper level. Make sure plug is replaced and tightened.

4. Using the correct size wrenches, retighten any loose hardware. **BE SURE** to check gear box and rubber isolators regularly.

5. Inspect for any loose hydraulic fittings or damaged hoses; retighten or replace as required.

WARNING: NEVER use your hands to check for hydraulic leaks. Escaping fluid under pressure can cause serious injury! If injured by escaping fluid, see a doctor at once. If proper medical treatment is **NOT** administered **IMMEDIATELY,** serious infection or reaction can develop.

6.



DC 3500 COMPACTION PLATE C-19925
PARTS LIST

ITEM	*PIN*	DESCRIPTION	QTY
1	C-19926	Shaker Gear Box	1
2	51A-0818	HHCS 112 - 20 x 2 114	4
3	18C-08	Washer 112 Flat	4
4	31C-08	Nut Lock 112 - 20	4
5	C-19937	Hydraulic Motor 20.16	1
5	C-19927	Hydraulic Motor 20.20	1
6	50D-0710	SHCS 7/16 - 14 x 1 114	2
7	14C-06	Washer 7/16 Flat	2
8	C-21082	Key 3/16 x	1
9	ll1B-1212	90° Fitting - Return	2
10	ll1B-1210	90° Fitting - Pressure	1
11	55550	Hose 32"	2
12	C-21105	Flow Control & Relief Block	1
12	56051	Seal Kit Flow Valve	AR
12	54546	Check Valve CV12	1
12	56212	Flow Valve EP 1 0	AR
13	50A-0524	HHCS 5/16 - 18 x 3"	2
14	30C-05	Nut Lock 5/15 - 18	2
15	C-20090	Upper Weld Assy. After SIN	1
15	C-19930	Upper Weld Assy. Before SIN	1
16	C-20095	Pin 30mm	AR
17	C-20096	Pin 35 mm	AR
18	C-20097	Pin 40 mm	AR
19	C-20089	Click Pin	2
20	ll1D-1212	O-Ring Run Tee	1
21	C-19928	Isolator	4
22	51A-0810	HHCS 112 - 13 x 1	4
23	ll1E-1212	Connector M.M.	1
24	31C-08	Nut 112 - 13 Lock	4
25	C-19929	Lower Weld Assy. 12"	1
26	C-21106	11 GPM Orifice	AR
27	C-20099	40 mm Spacer Material	1
28	80440	Decal - Warning	2
29	C-21087	Decal - Logo 4"	2
30	C-21089	Decal - Model	2
31	C-21094	SIN Plate	1
32	110E-12	JIC #12 Cap	2
33	55640	Hyd Motor Seal Kit	AR
33	55641	Hyd Motor Shaft Seal Only	AR
34	56086	Vent	AR

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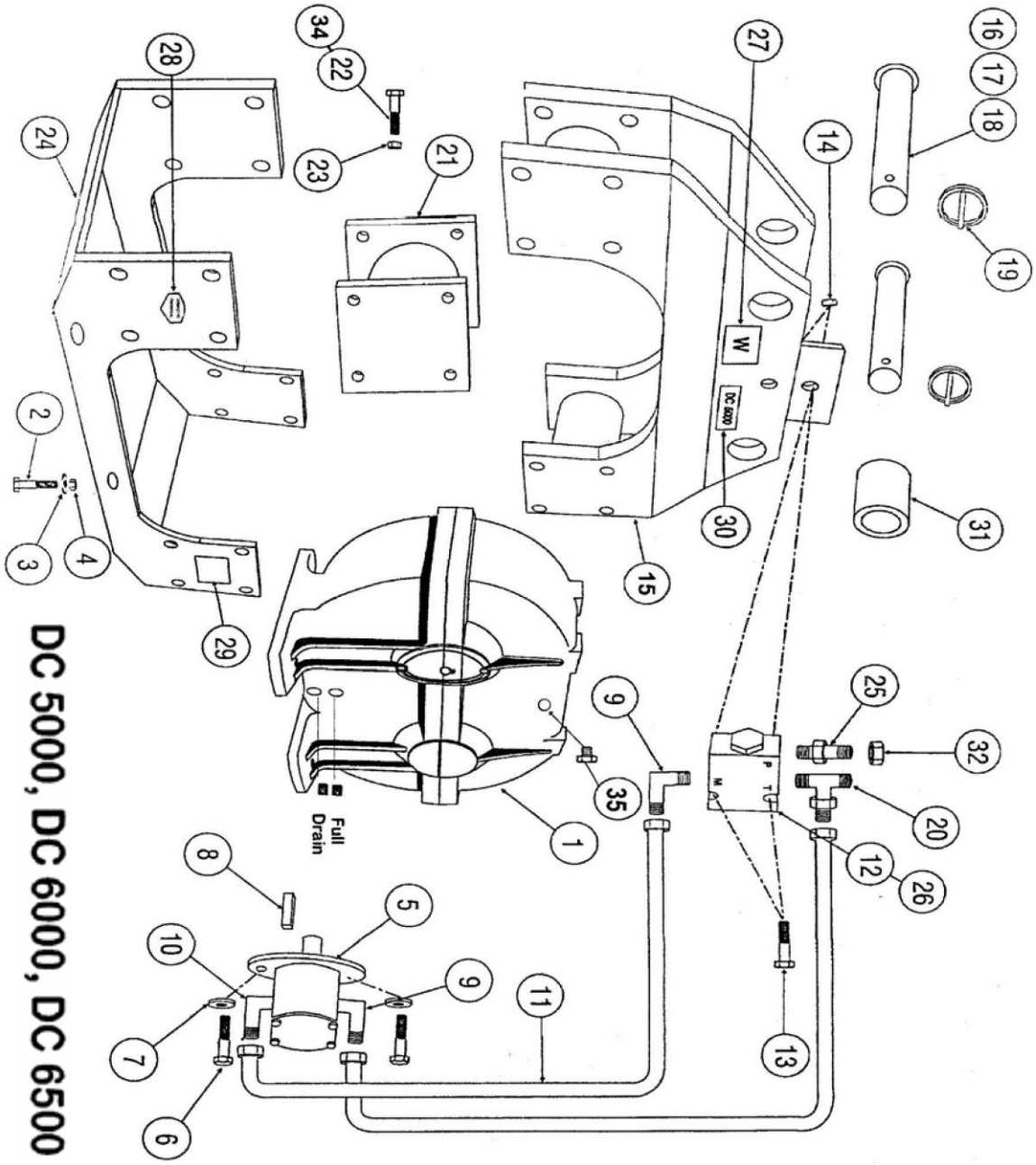
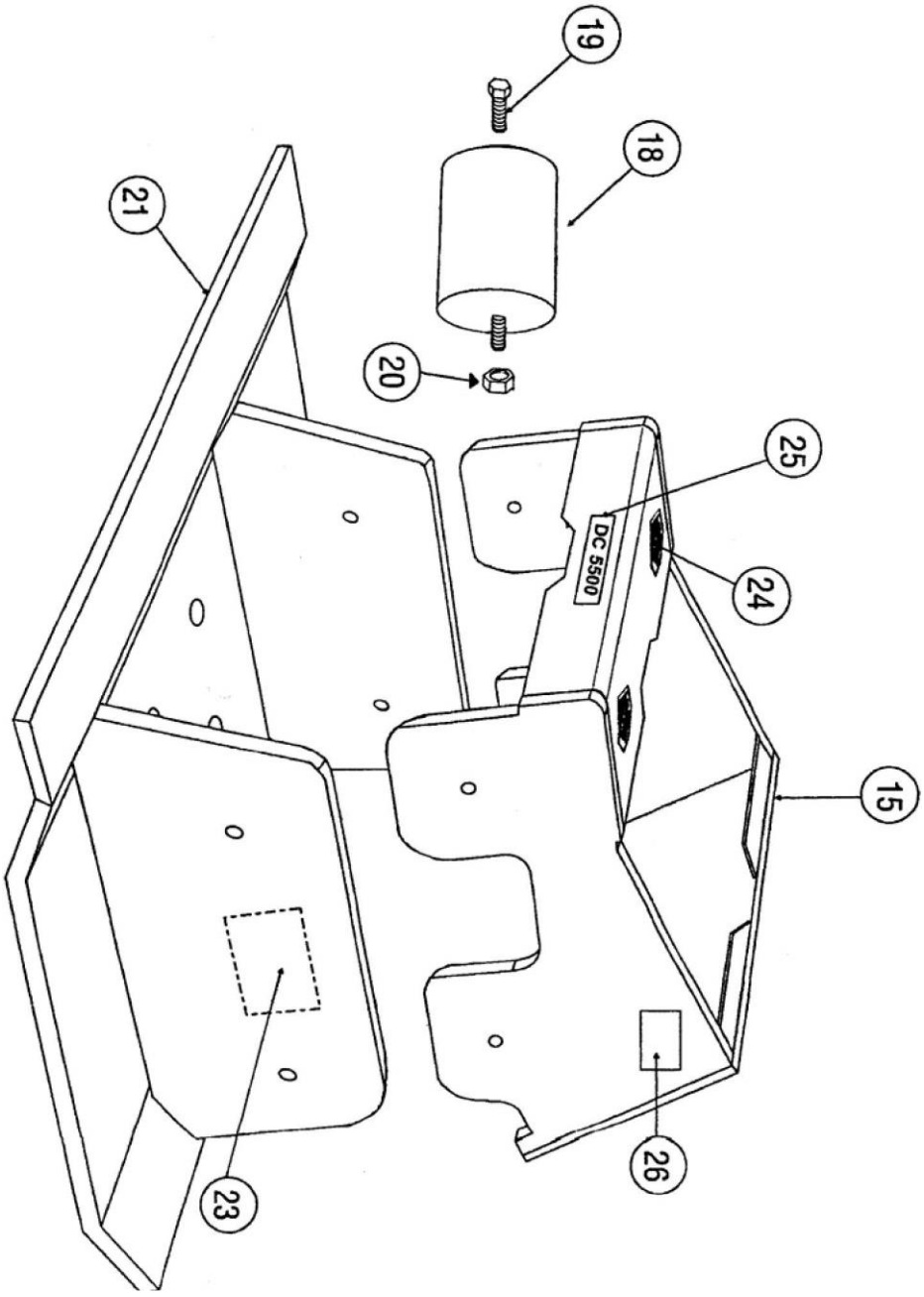


DC5000, DC6000, & DC6500 COMPACTION PLATE PARTS LIST

ITEM	*PIN*	DESCRIPTION	QTY
1	C-19961	Shaker Gear Box	1
2	51A-0818	HHCS 112 - 20 x 2 114	4
3	14C-08	Washer Flat 112	4
4	31C-08	Nut Lock 112 - 20	4
5	C-19962	Hydraulic Motor 20.25	AR
5	C-19938	Hydraulic Motor 20.31	AR
6	50D-071O	SHCS 1116 - 14 x 1 114	2
7	14C-07	Washer 7/16 Flat	2
8	C-21082	Key 3/16 x	2
9	I11B-1212	90° Fitting - Return	2
10	11IB-121O	90° Fitting - Pressure	1
11	C-21086	Hose Jl2F Swivel Nut (35")	2
12	C-21105	Flow Control/Relief Block	1
12	56051	Seal Kit Flow Valve	AR
12	54546	Check Valve CV12	1
12	56212	Flow Valve EPlO	AR
13	50A-0526	HHCS 5/16 - 18 x 3 114	2
14	30C-05	Nut Nylok 5/16 - 18	2
15	C-21038	Upper Weld Assy. DC5000	AR
15	C-20030	Upper Weld Assy. DC6000	AR
15	C-19958	Upper Weld Assy. DC6500	AR
16	C-21083	Pin 35mm	AR
17	C-21084	Pin40mm	AR
18	C-21085	Pin 45mm	AR
19	C-21099	Click Pin	2
20	IllD-1212	0- Ring Run Tee	1
21	C-19963	Isolator	4
22	50D-0812	HHCS 112 - 13 x 1 112"	16
23	30C-08	Nut, 112 - 13" Nylock	32
24	C-20026	Lower Weld Assy 16"	1
24	C-19986	Lower Weld Assy. 24"	1
25	l11E-1212	Adapter Str HC/SAE	AR
26	C-21107	14 GPM Orifice (.205)	AR
26	C-21108	18 GPM Orifice (.240)	AR
27	80440	Decal-Warning	2
28	C-21088	Decal-Logo (6")	2
29	C-21090	Decal-DC5000	AR
29	C-21091	Decal-DC6000	AR
29	C-21092	Decal-DC6500	AR
30	C-21093	SIN Plate	1
31	C-19989	45mm ID Pipe	AR
32	IlOE-12	HC #12 Cap	2
33	55640	Hyd. Motor Seal Kit	AR
33	55641	Hyd Motor Shaft Seal Only	AR
34	50A-0814	HHCS 112 - 13 x 1 3/4	16
35	56086	Vent	AR



DC 5500 FRAME COMPONENTS

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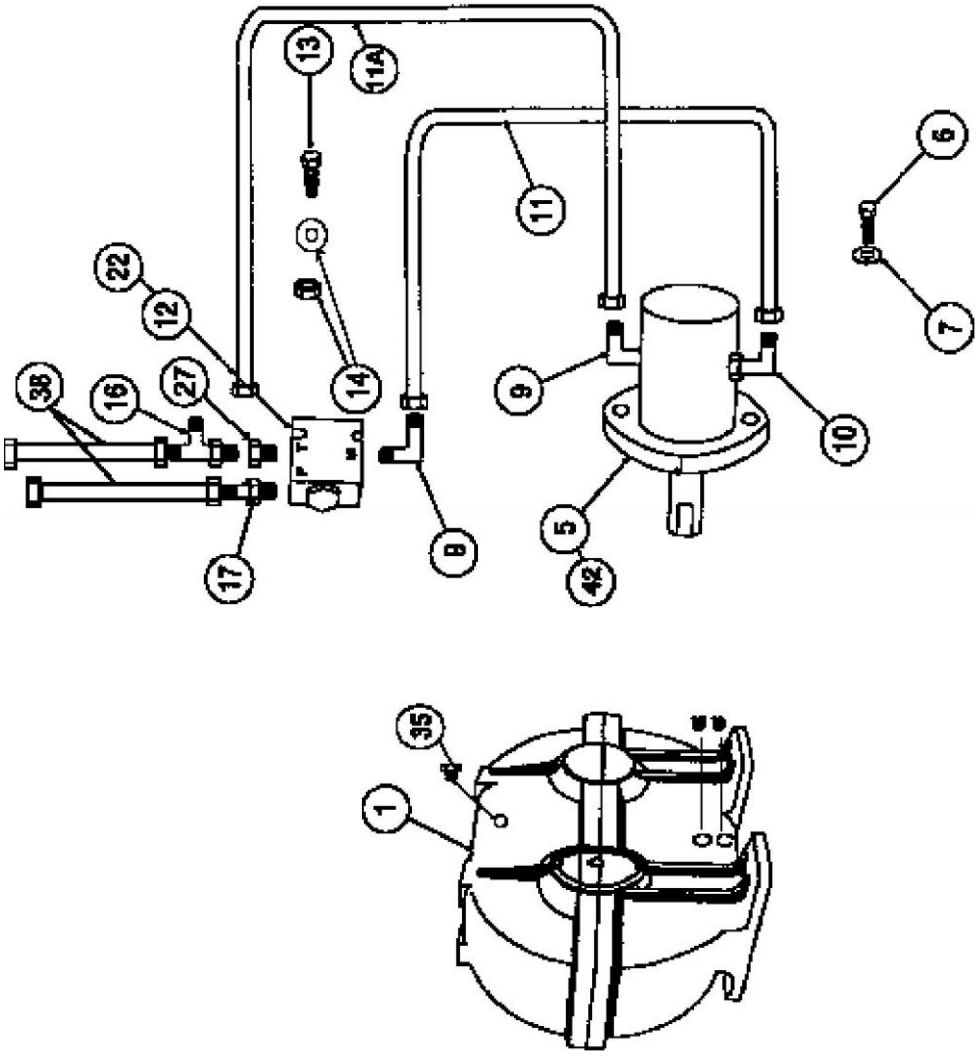
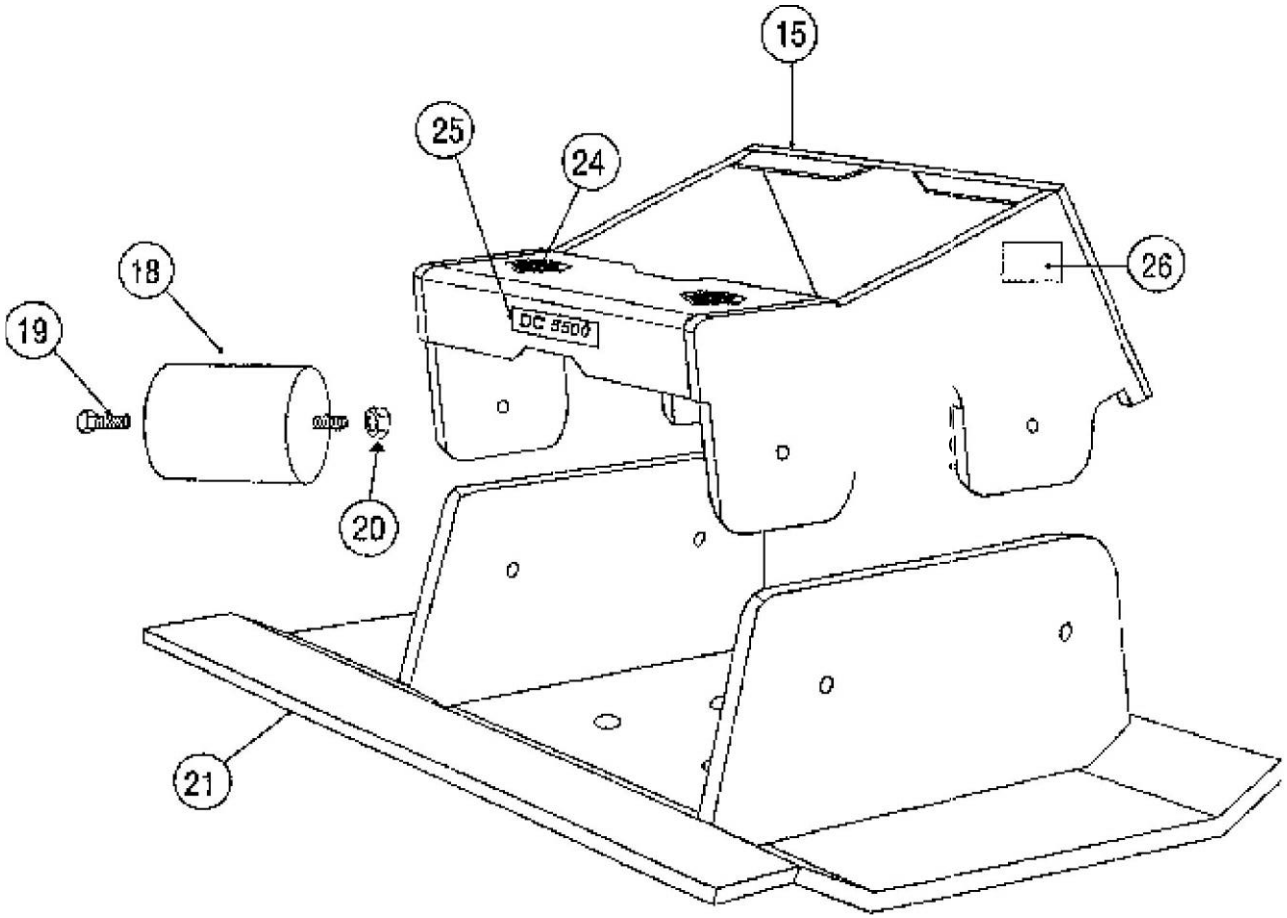


DC5500 HYDRAULICS COMPONENTS

DC5500 COMPACTION PLATE PARTS LIST

ITEM	*PIN*	DESCRIPTION	QTY
1	C-19961	Shaker Gear Box	1
2	51A-0818	HHCS 112 - 20 x 2 114	4
3	14C-08	Washer 112 FW	4
4	31C-08	Nut 112 - 20 Nylok	4
5	C-19927	Hydraulic Motor	1
6	50D-0710	SHCS 7/16 - 14 x 1 114	2
7	14C-07	Washer 7/16 Flat	2
8	C-21082	Key 3/16	1
9	ll1B-0812	90° Fitting - Return	2
10	ll1B-0810	90° Fitting - Pressure	1
11	55944	Hose Pressure 112 x 28"	1
llA	55945	Hose Return 112 x 30"	1
12	C-21105	Flow Control/Relief Block	1
12	56051	Seal Kit Flow Valve	AR
12	54546	Check Valve CV12	1
12	56212	Flow Valve EP 1 0	AR
13	50A-0426	HHCS 114 - 2- x 3 114	2
14	30C-05	Nut 5/16 Lock	2
14	14C-05	Washer Flat	2
15	C-19965	Upper Weld Assy	1
16	IIID-0808	112" Run Tee	1
17	ll1E-0810	112" O-Ring 112" JIC Adapter	1
18	C-19963	Isolator	4
19	51A-0810	HHCS 112 - 20 x 1 114	4
20	31C-08	112" - 20 Nylok Nut	4
21	C-19964	Lower Weld Assy	1
22	C-21065	16 gpm Orifice (.213)	1
24	C-21088	Decal - Logo (6")	2
25	C-21095	Decal- DC5500 Model	1
26	C-21094	Pin Plate	1
27	IIG-1208	Reducer	1
33	55033	Seal Kit Cylinder	AR
35	56086	Vent	AR
38	55943	Hose 1I2x50	2
42	55523	Hyd Motor Seal Kit	AR
42	55641	Motor Shaft Seal Only	AR



DC 5500 FRAME COMPONENTS

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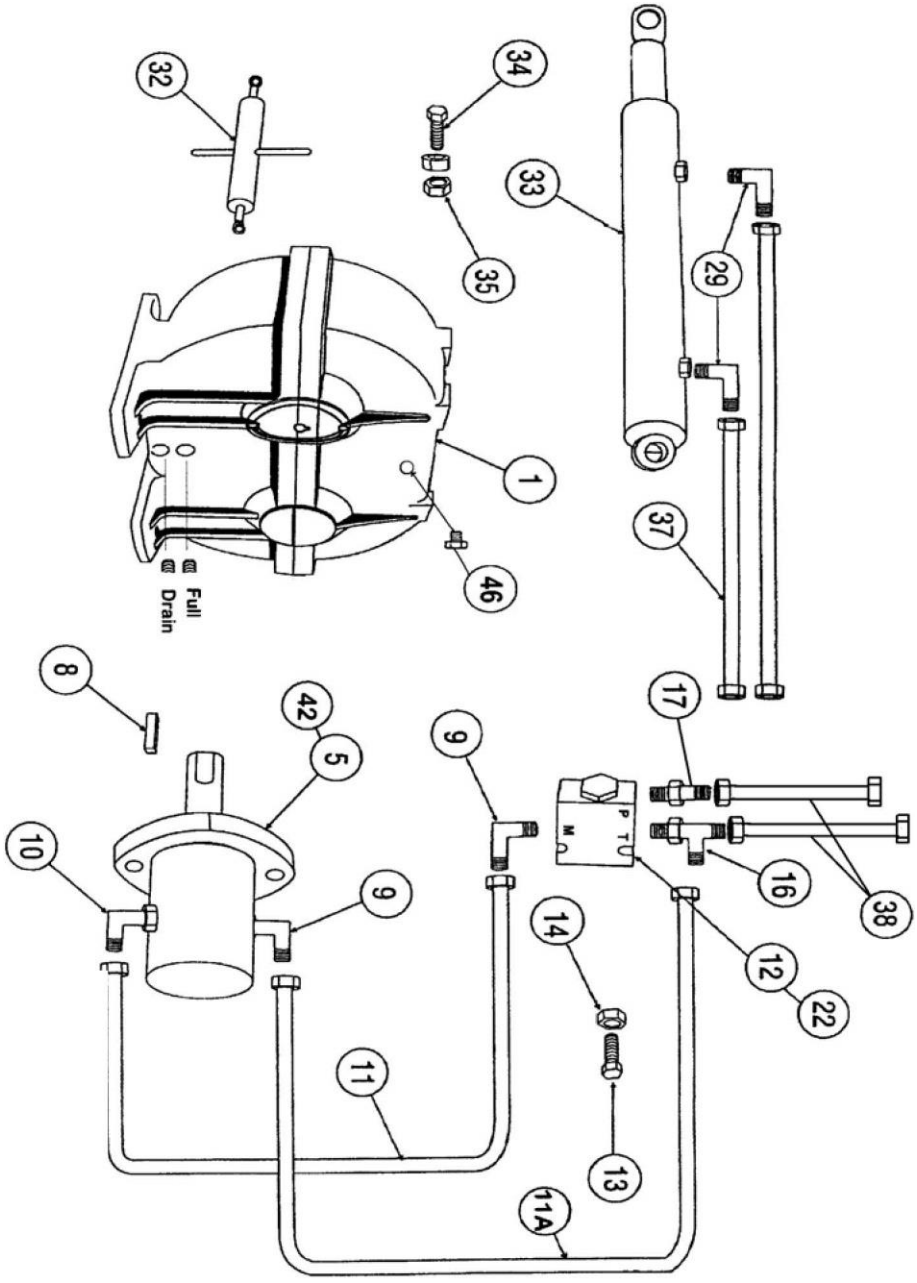

DC8000 HYDRAULIC COMPONENTS

DC8000 COMPACTION PLATE PARTS LIST

ITEM	P/N	DESCRIPTION	QTY
1	C-19961	Shaker Gear Box	1
2	50A-0818	HHCS 1/2 - 20 x 2 1/4	4
3	14C-08	Washer 1/2 Flat	4
4	31C-08	Nut 1/2 - 20 Nylok	4
5	C-19962	Hydraulic Motor	1
6	50D-0712	SHCS 7/16 - 14 x 1 1/2	2
7	14C-07	Washer 7/16 Flat	2
8	C-21082	Key 3/16	1
9	111B-1212	90° Fitting - Return	2
10	111B-1210	90° Fitting - Pressure	1
11	55543	Hose Pressure 3/4 x 28"	1
11A	55544	Hose Pressure 3/4 x 30"	1
12	C-21105	Flow Control/Relief Block Assy	1
12	56051	Seal Kit Flow Valve	AR
12	54546	Check Valve CV12	1
12	56212	Flow Valve EP10	AR
13	50A-0426	HHCS 1/4 - 20 x 3 1/4"	2
14	30C-04	Nut 5/16" Lock	2
15	C-19965	Upper Weld Assy.	1
16	111D-1212	3/4" Swivel Nut Run Tee	1
17	111E-1212	3/4 O-Ring 3/4 JIC Connector	1
18	C-19963	Isolator	4
19	50A-0812	HHCS 1/2 - 13 x 1 1/2	32
20	30C-08	1/2"-13 Nylok Nut	32
21	C-19964	Lower Weld Assy.	1
22	C-21065	16 gpm Orifice (.213)	1
23	80440	Decal-Warning	2
24	C-21088	Decal-Logo (6")	2
25	C-21095	Decal-DC8000 Model	1
26	C-21094	Pin Plate	1
27	C-19966	Standard Hitch Frame	1
27	C-19967	Deluxe Hitch w/Tilt	OPT
28	C-21072	Level Gauge	1
29	110R-0404	1/4 JIC x 1/4 pipe mm	OPT(2)
30	54235	L.H. Tilt Cyl. Mtd.	OPT(1)
31	54204	R.H. Tilt Cyl. Mtd.	OPT(1)
32	55462	Turn Buckle	OPT(1)
33	54066	Tilt Cylinder	OPT(1)
33	55033	Seal Kit Cylinder	AR
34	50A-1228	HHCS 3/4 - 10 x 3 1/2	2
35	30C-12	3/4-10 Nylock Nut	2
36	54991	Cyl. Bushing	OPT(2)
37	C-21103	Hose 1/4 x 60	OPT
38	55900	Hose 3/4x72	2
39	55688	Bolt 1 1/4" (S/N 80136 & Up)	1
40	55689	Nut 1 1/2"	1
41	55690	Washer 1 1/4"	1
42	55640	Hyd Motor Seal Kit	AR
42	55641	Hyd Motor Shaft Seal Only	AR
43	50A-1020	HHCS 5/8 - 11 x 2 1/2GD8	4
44	52165	Washer	4
45	30C-10	5/8 - 11 Nylok Nut	4
46	56086	Vent	AR

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