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HYDRAULIC POWER SYSTEMS, INC.

VIBRATORY PILE DRIVING EQUIPMENT

MODEL 300
OPERATORS, MAINTENANCE AND PARTS MANUAL

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SECTION 1- GENERAL INFORMATION

1.1 Warranty

HYDRAULIC POWER SYSTEMS, INC. hereby warrants that the is free from defects in material and workmanship attributable to **HYDRAULIC POWER SYSTEMS, INC.** under normal use and service for a period of ninety (90) days from date of delivery of such machine.

THE EXCLUSIVE REMEDY OF THE BUYER UNDER THIS WARRANTY is the repair or replacement, without charge, of any defective part or parts of this machine as long as buyer notifies HYDRAULIC POWER SYSTEMS, INC. by registered mail of such defect within seventy-five (75) days from the date of delivery of this machine.

Any part or parts claimed to be defective must be shipped to the HYDRAULIC POWER SYSTEMS, INC. factory at 1203 Ozark, North Kansas City, Missouri 64116, transportation prepaid. The HYDRAULIC POWER SYSTEMS, INC. acceptance of any part so shipped shall not be deemed an admission that the part is defective, and if HYDRAULIC POWER SYSTEMS, INC. finds that any part returned is not defective, such part shall be reshipped to the Buyer at Buyer's expense.

THE BUYER'S SOLE AND EXCLUSIVE REMEDY AGAINST HYDRAULIC POWER SYSTEMS, INC. UNDER THIS WARRANTY shall be for the REPAIR OR REPLACEMENT of defective parts as provided above. THE BUYER AGREES THAT NO OTHER REMEDY, INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSONS OR PROPERTY OR OTHER INCIDENTAL OR CONSEQUENTIAL LOSS SHALL BE AVAILABLE TO THE BUYER.

THE SOLE PURPOSE OF THE STIPULATED EXCLUSIVE REMEDY shall be to provide the Buyer with free repair or replacement of defective parts in the manner provided herein. This EXCLUSIVE REMEDY shall not be deemed to fail of its essential purpose so long as HYDRAULIC POWER SYSTEMS, INC. is willing and able to repair or replace defective parts in the prescribed manner.
THE BUYER SHALL NOT BE REQUIRED TO DELIVER A DEFECTIVE PART TO HYDRAULIC POWER SYSTEMS, INC. IF:

(1) The part was destroyed as a result of its defect in any part covered in the warranty,

AND

(2) HYDRAULIC POWER SYSTEMS, INC. is reasonably satisfied that the part was defective at the time of sale.

If both of these conditions are met, HYDRAULIC POWER SYSTEMS, INC. shall replace the part in the same manner provided herein as if the Buyer had delivered it to HYDRAULIC POWER SYSTEMS INC. at its factory.
THIS WARRANTY SHALL NOT APPLY to any machinery which has suffered abuse, misuse, neglect or accident or to any machinery which has been altered so as to affect its ability or reliability, (except where such alteration has been accomplished with the prior written consent of HYDRAULIC POWER SYSTEMS, INC.) or which has been repaired in any way by the Buyer without the prior written consent of HYDRAULIC POWER SYSTEMS, INC. or which has been negligently installed by the Buyer.
WARNING: THIS PRODUCT IS NOT TO BE USED IN ANY FASHION DIFFERENT FROM THAT WHICH BUYER HAS ADVISED SELLER SHALL BE ITS INTENDED USE. NO WARRANTY CONVEYED HEREIN SHALL APPLY TO A USE OTHER THAN THAT WHICH BUYER HAS INDICATED TO SELLER AT THE TIME OF PURCHASE.

SELLER DOES NOT WARRANT PRODUCTS MANUFACTURED BY OTHER MANUFACTURERS WHICH MAY BE USED IN THE ASSEMBLY OF THE TOTAL PRODUCT SOLD BY SELLER, BUYER'S SOLE REMEDY AS TO PRODUCTS MANUFACTURED BY OTHERS SHALL BE PURSUED WITH SUCH OTHER COMPONENT PRODUCT MANUFACTURERS.

THE BUYER EXPRESSLY UNDERSTANDS THAT HYDRAULIC POWER SYSTEMS, INC. HAS MADE NO EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, IMPLIED OR EXPRESSED WARRANTIES FOR MERCHANTABILITY OR FITNESS, OTHER THAN THE EXPRESSED WARRANTY SET FORTH ABOVE. THE SELLER, HEREBY, DISCLAIMS ALL OTHER EXPRESSED WARRANTIES, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER IMPLIED WARRANTIES.

Any oral statements made by any person about the machine described in the Agreement DO NOT CONSTITUTE WARRANTIES and are not part of this Agreement. The entire Agreement between the parties hereto is embodied in this writing. This writing constitutes the final expression of the parties' Agreement, and it is a COMPLETE AND EXCLUSIVE STATEMENT of the terms of that Agreement. All oral or written agreements between the parties made prior to the execution of this Agreement are hereby merged herein. This Agreement SHALL NOT BE MODIFIED OR ALTERED in any way other than by a writing, signed by the parties to this Agreement, their successors or authorized agents, and this Agreement SHALL NOT BE VARIED, SUPPLEMENTED, QUALIFIED, EXPLAINED, OR INTERPRETED BY ANY PRIOR COURSE OR DEALING BETWEEN THE PARTIES OR BY ANY USAGE OF TRADE.

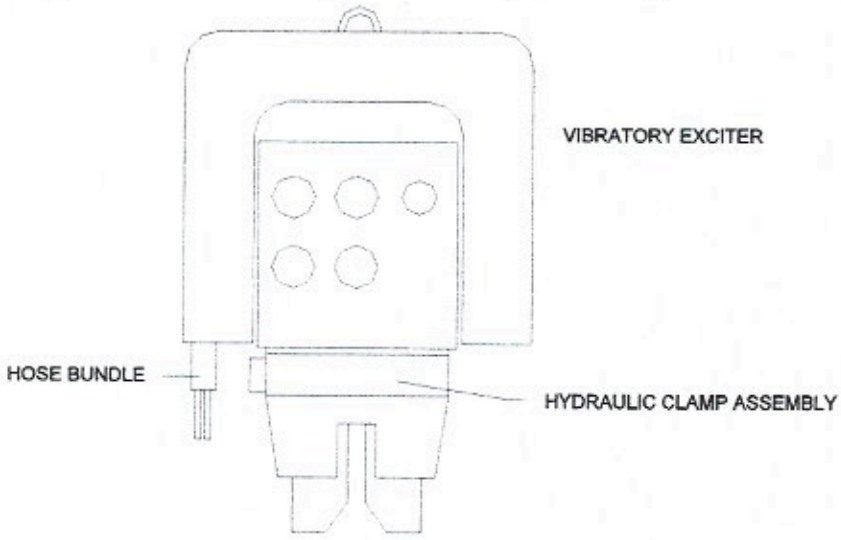
HYDRAULIC POWER SYSTEMS, INC.
1203 Ozark
North Kansas City, Missouri 64116

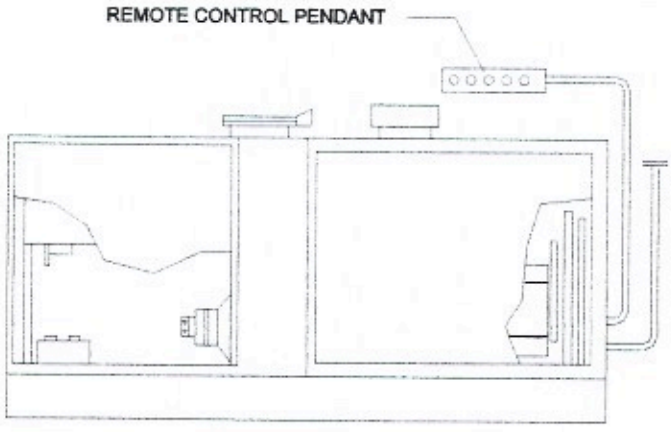
SECTION 1- GENERAL INFORMATION

1.2 - Model 300 Vibratory Exciter with Power Unit

The **H.P.S.I. Model 300 Vibratory Pile Hammer** is designed for the installation and removal of a variety of types of piling. It utilizes high-speed directional vibration and customized hydraulic clamping accessories.

The Model 300 consists of five main parts: A **vibratory exciter**; A **hydraulic clamp** assembly suitable for driving or pulling a particular type of pile; A **hydraulic hose bundle** 150 feet in length; And is driven by a **diesel hydraulic power unit, and remote control pendant** that operates the hydraulic pumps and motors as well as providing pressure for the hydraulic clamp assembly.





DIESEL HYDRAULIC POWER UNIT

SECTION 1- GENERAL INFORMATION - continued

1.2 - Model 300 Vibratory Exciter with Power Unit

1.2.1 - Vibratory Exciter

The vibratory exciter head consists of four gears turning four eccentric weights driven by a Hydraulic Motor at a rate of 1600 vibrations per minute.

All eccentrics are timed to cancel the side forces and sum the up and down forces of the eccentric weights to create the amplitude necessary to drive or pull the pile.

The vibration of the exciter case is isolated by the use of 12 rubber suppressors and provides for a maximum line pull of 45 tons of extracting force.

1.2.2 - Diesel Hydraulic Power Unit

The 300 diesel hydraulic power unit is equipped with a Caterpillar 3406 Diesel Engine with a rated output of 400 H. P. The power unit is mounted on a skid type fuel tank base and is equipped with full engine and hydraulic instrumentation inside the fully enclosed unit. A 30 foot remote control air operated pendant is standard on the Model 300 and allows the operator to move around for the best view of the worksite.

1.2.3 - Hydraulic Hose Bundle

The 300 unit is also equipped with a 150 foot hydraulic hose bundle, standard, consisting of three 50 foot sections.

1.2.4 - Hydraulic Clamp Assembly

Various hydraulic clamp types are available for various types of piling. Consult the factory or your nearest Factory Authorized Representative for the particular clamp assembly required for your application.

1.2.5 - Remote Control Pendant

The vibratory exciter is operated by a hand-held, remote control pendant. The pendant control buttons stop and start the vibration, closes and opens the hydraulic clamp.

SECTION 2- SAFETY

2.1 Important Safety Information

Most accidents involving product operation, maintenance and repair are caused by a failure to observe basic safety rules and precautions. An accident can often be avoided by recognizing potentially hazardous situations before the situation occurs. A person must always be alert to potential hazards. This person should also have the necessary training, skills, and tools to perform these functions properly.

WARNING: IMPROPER OPERATION AND/OR MAINTENANCE OF THIS PRODUCT CAN BE EXTREMELY DANGEROUS AND COULD RESULT IN SERIOUS INJURY OR DEATH.

DO NOT OPERATE, MAINTENANCE, OR PERFORM ANY REPAIRS ON THIS PRODUCT UNTIL YOU HAVE READ AND UNDERSTOOD THE OPERATION, MAINTENANCE AND REPAIR INFORMATION IN THIS MANUAL.

SAFETY PRECAUTIONS AND WARNINGS ARE ALSO PROVIDED ON THE PRODUCT. IF THESE HAZARD WARNINGS ARE NOT HEEDED, SERIOUS BODILY INJURY OR DEATH COULD OCCUR TO YOU OR OTHER PERSONS.

HYDRAULIC POWER SYSTEMS INC. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by H.P.S.I. is used, you must first determine that it is in no way dangerous for you and others in the vicinity. Concern for the safety of the product should also be taken into consideration. You should ensure that the unit will not be damaged or made unsafe by the particular operation, maintenance, or repair procedures you choose.

SECTION 2- SAFETY - continued

The information, specifications, and illustrations in this publication are on the basis of information available at the time it was written. The specifications, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service given to the product. Obtain the complete and most current information before starting any job. H.P.S.I. dealers have the most current information available. For the name of the nearest FACTORY AUTHORIZED REPRESENTATIVE contact HYDRAULIC POWER SYSTEMS INC. at (816) 221-4774.

2.2 - Standard Safety Procedures

WARNING !!

NEVER START ENGINE WITH THE GOVERNOR LINKAGE DISCONNECTED.

INSTALL GUARDS OVER ALL EXPOSED ROTATING PARTS.

ALWAYS STOP ENGINE BEFORE ADJUSTING OR REPAIRING ENGINE HYDRAULIC POWER UNIT.

DO NOT WEAR LOOSE CLOTHING WHEN WORKING NEAR ENGINE OR EXCITER.

ALWAYS WEAR PROTECTIVE GLASSES, CLOTHING, HEADGEAR, RESPIRATOR, ETC. WHEN CONDITIONS REQUIRE THEM.

NEVER INSPECT ENGINE COOLING SYSTEM WHILE UNIT IS RUNNING.

IF EQUIPPED WITH JACKET WATER COOLING SYSTEM, REMOVE COOLANT FILLER CAP SLOWLY TO RELIEVE PRESSURE THAT MAY HAVE BUILT UP DURING OPERATION. **NEVER REMOVE CAP WHILE ENGINE IS HOT OR OPERATING. STEAM FROM COOLING SYSTEM COULD CAUSE SERIOUS INJURY.**

EXTINGUISH ALL OPEN FLAMES INCLUDING CIGARETTES OR OTHER BURNING SUBSTANCES WHILE REFUELING UNIT AND WHEN SERVICING BATTERIES.

SECTION 2- SAFETYSECTION 2- SAFETY - continued

2.2 - Standard Safety Procedures - continued

EXTINGUISH ALL OPEN FLAMES INCLUDING CIGARETTES OR OTHER BURNING SUBSTANCES WHILE CHECKING BATTERY ELECTROLYTE LEVEL. BATTERIES GIVE OFF FLAMMABLE FUMES.

ELECTROLYTE SOLUTION IS AN ACID. CONTACT WITH EXPOSED SKIN WILL CAUSE SERIOUS INJURY. ALWAYS WEAR PROTECTIVE GEAR WHEN REFILLING AND HANDLING ELECTROLYTE SOLUTION.

POWER UNIT MUST HAVE PROPER VENTILATION TO INSURE SAFE AND EFFICIENT OPERATION.

NEVER ATTEMPT REPAIRS YOU DO NOT UNDERSTAND. ALWAYS FOLLOW MANUAL INSTRUCTIONS.

ALWAYS REPAIR AND/OR REPLACE BROKEN OR DAMAGED PARTS BEFORE OPERATION. USE OF INCORRECT TOOLS IN OPERATION AND REPAIR SITUATIONS CAN FURTHER INCREASE RISKS TO MACHINERY AND OPERATORS.

REMOVE ALL TOOLS, ELECTRICAL CORDS, AND OTHER LOOSE ITEMS FROM THE POWER UNIT AND VIBRATORY EXCITER PRIOR TO USE.

DISPOSE OF WASTE OIL AND OTHER WASTE PRODUCTS SAFELY. ALWAYS WIPE UP SPILLED OIL, COOLANT, FUEL, ETC.

SAFELY DISPOSE OF CONTAMINATED RAGS AND CONTAINERS. NEVER LEAVE IN OR ON THE POWER UNIT CONTAINER. NEVER STORE FLAMMABLE LIQUIDS NEAR THE POWER UNIT OR EXCITER.

INSULATE ALL ELECTRICAL CONNECTIONS AND DISCONNECTED WIRES.

DISCONNECT AND TAPE THE BATTER GROUND LEAD BEFORE WORKING ON THE ENGINE TO PREVENT ACCIDENTAL IGNITION.

WHEN RIGGING THE VIBRATOR A STEEL WIRE ROPE SLING MUST BE CONNECTED TO THE LIFTING PIN OR SHACKLE OF THE VIBRATION SUPPRESSOR. THE REQUIRED STRENGTH OF THIS SLING DEPENDS ON THE CAPACITY OF THE CRANE AND THE WORK TO BE DONE. A SAFETY FACTOR OF 5 IS RECOMMENDED.

SECTION 3 - INTRODUCTION

3.1 - Specifications

H.P.S.I MODEL 300 VIBRATORY PILE HAMMER SPECIFICATIONS

EXCITER

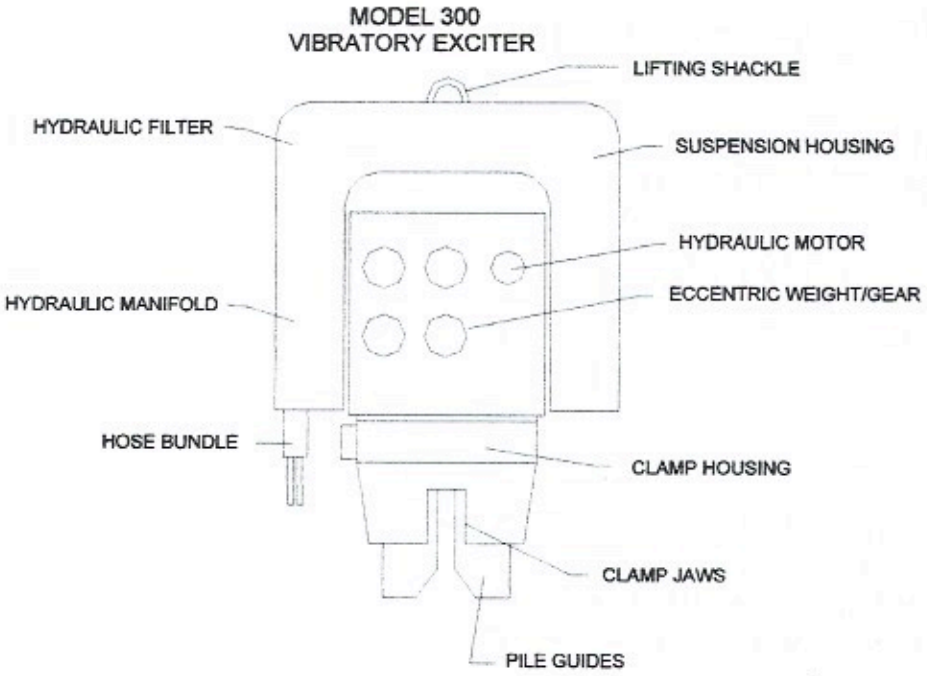
ECCENTRIC MOVEMENT, IN. LBS.	3000
FREQUENCY, C.P.M.	1600
DYNAMIC FORCE, TONS	109
AMPLITUDE, INCHES	.80
MAXIMUM LINE PULL, TONS	45
PILE CLAMPING FORCE, TONS	150
SUSPENDED WEIGHT, LBS.	10850
WIDTH,. INCHES	95
THROAT WIDTH, INCHES	14
OVERALL LENGTH, INCHES	99

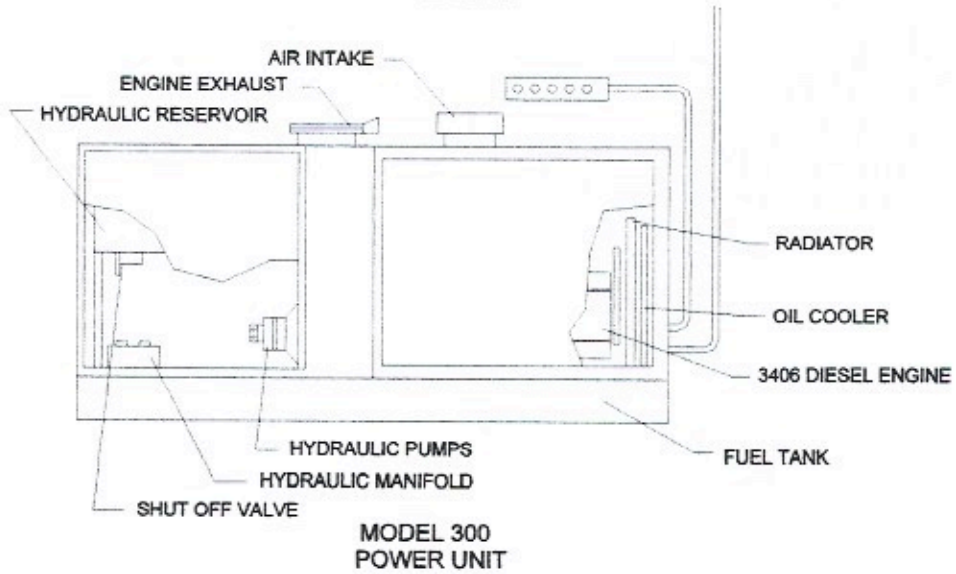
POWER PAC

CATERPILLAR #3406 DIESEL ENGINE, RATED H.P.	400
HYDRAULIC FLOW, G.P.M.	115
MAXIMUM DRIVE PRESSURE, P.S.I.	5000
MAXIMUM CLAMP PRESSURE, P.S.I.	5000
WEIGHT, LBS.	11500
LENGTH, INCHES	144
WIDTH, INCHES	60
HEIGHT, INCHES	95
REMOTE PENDANT, 30 FOOT	AIR
SHEET METAL ENCLOSURE	STANDARD

SECTION 3 - INTRODUCTION SECTION 2 - SAFETY - continued

3.2 - General Overview





MODEL 300
POWER UNIT

MAINTENANCE SECTION

SECTION 4 - MAINTENANCE

4.1 - Daily Maintenance

1) Make a "walk-around" inspection of the Power Unit and the Vibratory Exciter. Taking a few minutes to recognize and correct minor discrepancies can prevent major repairs at a later date.

2) Measure the crankcase oil lever. The oil level must be between ADD and FULL marks on the dipstick. Refer to the Caterpillar Oil capacities and specifications located on the engine or in the manual for recommended oil types and capacities.

3) Inspect the coolant level. The level must be to the bottom of the radiator filler neck.

4) All guards must be in place. Repair or replace any guards that are missing or damaged.

5) Check the level of the hydraulic oil in the hydraulic sight gauge located on the side of the hydraulic reservoir. Add as needed per the hydraulic oil specifications located in Section 4.5.1 of this manual.

6) Visually check all hydraulic hoses and fittings for any visible signs of oil leaks and correct if necessary.

7) Visually inspect all bolts, pins and fasteners used in mounting the sheet metal enclosure, radiator brackets, oil coolers, hydraulic manifold, hydraulic reservoir and any other visible components.

8) Check all nuts, bolts and visible fasteners for any necessary or required maintenance. Replace any missing or faulty nuts, bolts, fasteners or components as necessary.

9) Check the condition of the two Fixed Jaw bolts, P/N 33044, and replace if loose, cracked or broken prior to using the Exciter.

10) Check the condition of the Movable Jaw Pin, P/N 33040, and replace if loose, cracked or broken prior to using the Exciter.

11) Check the condition of the Movable Jaw, P/N 32040, for any possible cracks or damage and replace prior to using the Exciter.

SECTION 4 - MAINTENANCE SECTION 2 - continued

4.1 - Daily Maintenance - continued

12) Upon lifting the 300 Exciter to a free-hanging position, check the lever of the gear oil in the sight glass located in the lower left hand corner of the case. Try to position the case as level as possible to achieve the most accurate measure possible.

13) Check the condition of all Vibration Dampeners, P/N 33036, and replace should any damage or extensive wear be present before using the Exciter.

14) Grease the Clamp Piston Rod, P/N 32042, by using a grease gun and applying grease to the two alimite fittings located on the sides of the Clamp Housing, This should be done at least two times a day.

4.2 - General Maintenance

4.2.1 - Power Unit

1) Perform all Caterpillar maintenance requirements per the Operation and Maintenance Manual.

2) At 250 hours, replace the pre-charge filter elements, P/N 33119 located at the rear of the engine opposite the instrument panel side of the Power Unit. See the dirt indicator float levels on the side of the filter housing. Replace the elements before the dirt indicators are in the red area. Check the condition of the hydraulic elements with the engine running at maximum R.P.M. to obtain an accurate reading.

3) Replace the Hand Pump Filter located on the Hydraulic Reservoir next to the Hand Pump every 6 months or earlier if conditions exist.

4) Replace the Hydraulic Oil as necessary due to any contamination by foreign materials such as water, dirt, mixtures of incompatible Hydraulic Oils, or any other substance that cannot be removed by means of the Filter Elements.

5) Replace the Desigant Material located in the Midland Air Dryer once a year or every 500 hours of operation, whichever comes first.

SECTION 4 - MAINTENANCE - continued

4.2.2 - Vibratory Exciter

1) Check the Exciter Case gear lube level for signs of moisture or extreme heat. Replace if either condition is evident.

2) Replace Gear Oil every 3 months or 250 hours, whichever comes first.

3) Run the Exciter at least once a month to maintain lubrication of pumps, Eccentric Bearings, and other vital parts.

4) Replace the Exciter Motor Filter Element located in the top of the Suspension Housing with **ONLY** the factory replacement P/N 33022, after 250 hours of operation. Should the hydraulic system be subjected to any premature contamination, change earlier. **DO NOT** replace with paper type elements. These elements will collapse and require a serious and costly repair.

5) Replace all missing or damaged bolts, nuts or fasteners immediately and prior to starting or using the Vibratory Exciter.

6) Replace any damaged hoses on the Exciter or the Hose Bundle when any evidence of potential failure exist.

7) Repair any oil leaks from the Exciter Case as soon as evidence exist of leaks to ensure that the Gear Case does not run low or without Gear Oil.

8) Replace gear oil immediately after any unauthorized use.

9) Turn exciter from stored side down to stored side up when exciter is stored for extended periods of time. It is not necessary to start unit with dry bearings in the exciter case.

SECTION 4 - MAINTENANCE - continued

4.3 - Maintenance Schedule

4.2.2 - Power Unit

ITEM	AS NEEDED	100 HOURS	250 HOURS	500 HOURS
Engine Oil				
Engine Oil Filter				
Engine Air Filter				
Engine Coolant				
Diesel Fuel				
Hydraulic Oil				
Hydraulic Filters				
Pump Drive				
Hand Pump Filter				
Air Dryer Desigant				

4.2.3 - Vibratory Exciter Unit

ITEM	AS NEEDED	100 HOURS	250 HOURS	500 HOURS
Gear Lube				
Clamp Grease				
Motor Filter				
Fasteners				
Hoses				
Clamp Jaws				

*1 - Service per Caterpillar Operations and Maintenance Manuals.

SECTION 4 - MAINTENANCE - continued

4.4 -Torque Specifications

1) Proper torque applied to all the fasteners and bolts on a Vibratory Exciter greatly reduces systematic problems and frequent repairs. It is therefore extremely important that the following chart be followed with as much precision as possible.

2) All torque specs are for lubricated threads. It is recommended that oil be used to lubricate threads on all fasteners to assure proper torque. **DO NOT USE "ANTI-SEIZE" IN ANY AREA OPEN TO THE GEAR BOX OF THE EXCITER.**

THE USE OF LOCTITE WILL ACHIEVE THE SAME LUBRICATION AS "LUBRICATED TORQUE VALVES".

3) Listed below are the major fasteners used in the assembly of the **H.P.S.I. MODEL 260 VIBRATORY HAMMER.** For any information regarding the fasteners used on this product, please consult the factory.

SIZE	TYPE	REQUIRED TORQUE
3/8"	16 SOCKET-HEAD GRADE 8	59 FT./LBS.
1/2"	13 HEX-HEAD GRADE 8	107 FT./LBS.
1/2"	13 SOCKET-HEAD GRADE 8	144 FT./LBS.
5/8"	11 HEX-HEAD GRADE 8	212 FT./LBS.
3/4"	10 HEX-HEAD GRADE 8	376 FT./LBS.
3/4"	10 NUT GRADE 8	188 FT./LBS.
3/4"	10 SOCKET-HEAD GRADE 8	500 FT./LBS.
1"	8 HEX-HEAD GRADE 8	909 FT./LBS.
1"	8 SOCKET-HEAD GRADE 8	1044 FT./LBS.
1"	8 LOCK NUT	455 FT./LBS.
1 3/4"	5 HEX-HEAD GRADE 8	(*1)

*1 - The achievement of the proper torque value on this bolt might exceed the average capacity of an ordinary torque wrench. Use the "turn of the nut" method to tighten bolt properly.

4) 1 3/4" clamp bolts may be tightened by hand or hammer wrench as torque values exceed normally available tolerances. Tighten daily or as needed.

SECTION 4 - MAINTENANCE - continued

4.5 -Fluids and Filters Specifications

4.5.1 - Lubricants

Power Unit Engine Oil - Refer to Caterpillar Operation and Maintenance Manual or engine manufacturers specs.

Power Pac Pump Drive Gear Oil - Conoco SAE 85W-140
Hydraulic Oil - Units are shipped with Chevron Clarity AW46, unless otherwise designated by customer. Check for oil type "E" or label located on the hydraulic tank. Conventional hydraulic oils also acceptable but may not be EPA or coast guard approved for spillage. The following are approved substitutes to the hydraulic system:

Texaco Rando HD-46
Mobil DTE-15
Exxon-Univis P-32
Conoco 46

Exciter Gear Case Oil - Units are shipped with Texaco Meropa 220 Gear Oil. The following are approved substitutes:

Mobil SCH-634 Gear Oil*
Shell Omala 75*

*NOTE: WHEN ADDING GEAR OILS IT IS ADVISABLE TO MAINTAIN THE SAME GEAR OILS RATHER THAN MIXING DIFFERENT TYPES OF OILS. SOME OILS, ALTHOUGH COMPATIBLE WITH THE DESIGN OF THIS MACHINE, MAY NOT BE COMPATIBLE WITH OTHER TYPES OF GEAR OIL.

Hydraulic Clamp Grease - NLGI No. 2 or equal

4.5.2 - Fuels

Diesel Fuel - See Caterpillar Operation and Maintenance Manual or engine manufacturer specifications.

4.5.3 - Coolants

Diesel Engine Radiator - See Caterpillar Operation and Maintenance Manual or engine manufacturer specifications.

SECTION 4 - MAINTENANCE - continued

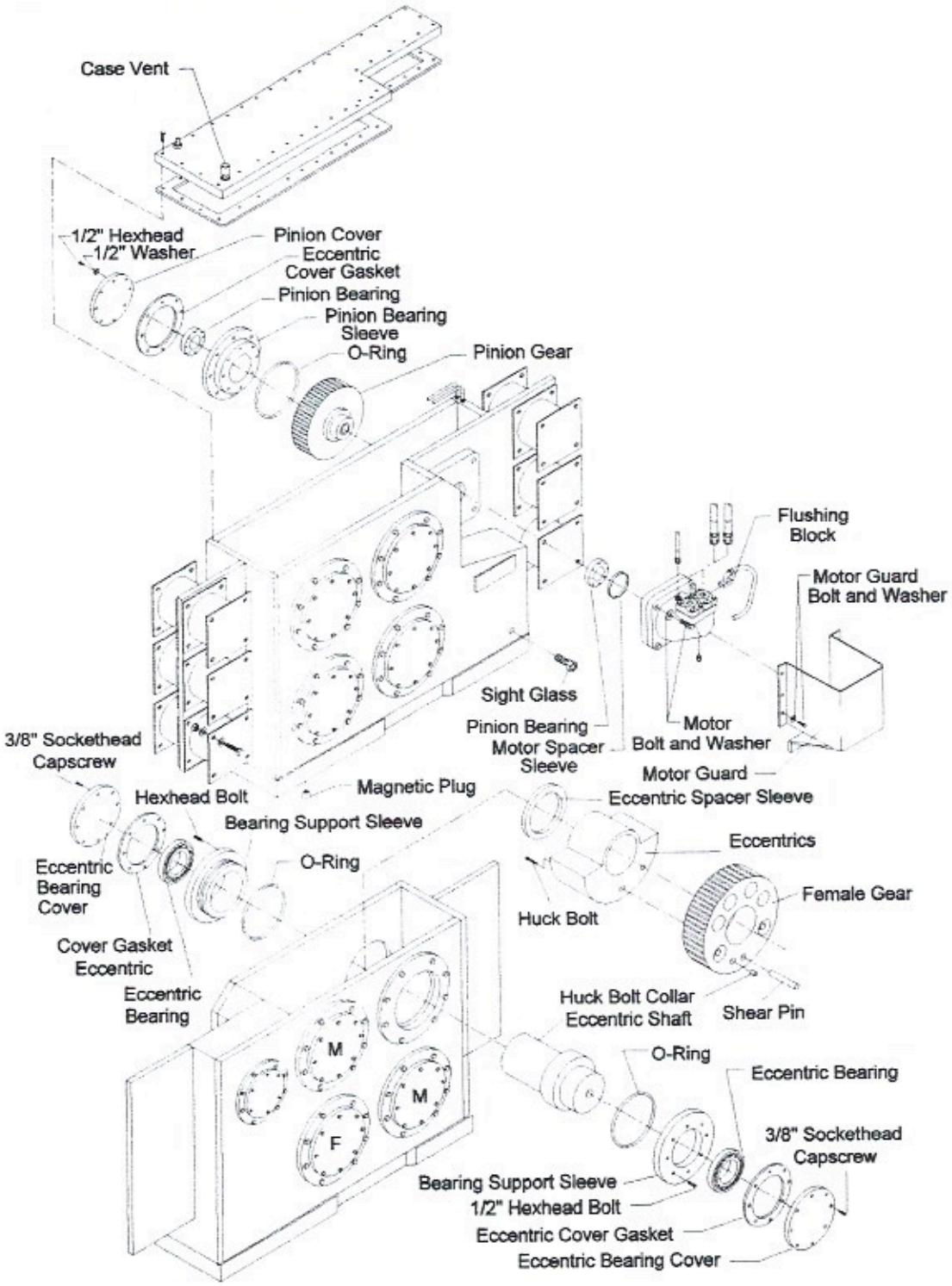
4.5 -Fluids and Filters Specifications - continued

4.5.4 - Filters

SERIAL # HPS-_____
ENGINE MODEL _____
ENGINE SERIAL # _____
ENGINE ARRANGEMENT #_____
Engine Oil Filter - _____
Engine Primary Fuel Filter - _____
Engine Fuel Filter -_____
Engine Air Filter - _____
Hydraulic Power Pac Pre-Charge Filters - Parker Element #932410, HPSI P/N 00849
Spin On Hand Pump Filter - Gresen FSP - 107, HPSI P/N 33184
Vibratory Exciter Motor Filter - MP #HPSI320 - 2A10AH, HPSI P/N 33022 (No Substitutions)

SECTION 4 - MAINTENANCE - continued

4.6 - Disassembly of Exciter Case



SECTION 4 - MAINTENANCE - continued

4.6 - Disassembly of Exciter Unit

Thoroughly steam clean vibratory exciter. Disconnect hydraulic hose bundle from brake valve manifold and hose block.

4.6.1 - REMOVE CLAMP HOUSING

1) Remove clamp guard.

2) Remove clamp hoses from case.

3) Remove the 8 - 1-3/4" bolts on the clamp.

4.6.2 - REMOVE SUSPENSION HOUSING

1) Remove suspension stop bolts and nuts. Lower suspension stop blocks from suspension housing.

2) Remove motor guard.

3) Remove the motor hose and clamp hoses from the motor and exciter case. Install plugs in the motor port to avoid contamination.

4) Remove the outer shear fender bolts and nuts from both sides of suspension.

5) Raise suspension from exciter case.

4.6 - Disassembly of Exciter Unit - continued

4.6.3 - DISASSEMBLY OF EXCITER CASE

1) Thoroughly steam clean exciter case before any disassembly or removal of gear case cover or bearing covers.

2) Drain gear lube from exciter case into clean container by removing magnetic plug from bottom of exciter case (approximately 6 gallons) DO NOT RE-USE GEAR OIL. Clean container is for oil sample testing only.

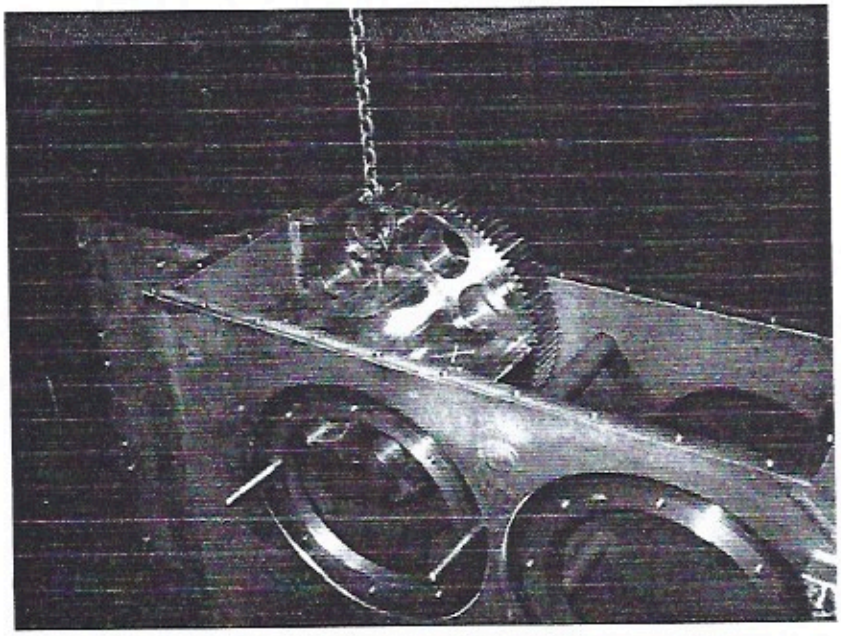
3) Remove gear case cover bolts and gear case cover to expose exciter gear case .

4) Remove motor from exciter case.

5) Remove eccentric bearing covers and pinion bearing cover.

6) To remove eccentric gear assemblies, remove bearing support sleeve bolts from bearing support sleeves.

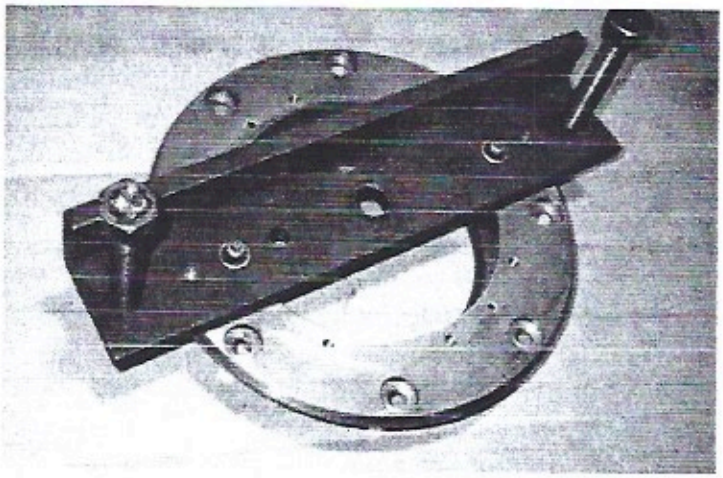
7) Eccentric gear assembly to be removed must be supported by over head crane as bearing support sleeves are being removed.



4.6 - Disassembly of Exciter Unit - continued

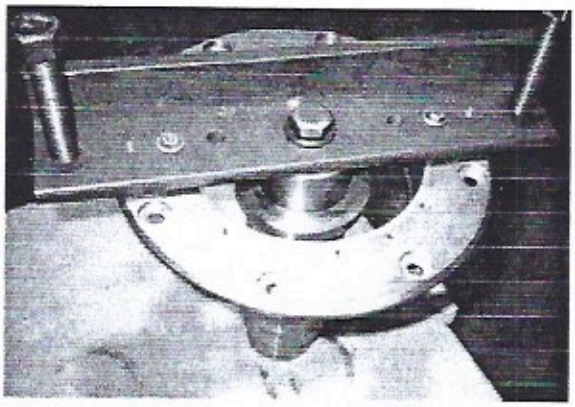
4.6.3 - DISASSEMBLY OF EXCITER CASE - continued

8) To remove bearing support sleeves, use bearing sleeve/shaft removal puller (as shown below).



4.6.4 - REMOVAL OF ECCENTRIC SHAFTS

1) Attach sleeve/shaft removal tool to threaded end of shaft. Shaft shoulder only allows removal from one side of case.



It is recommended that the shaft be supported during removal because of excessive weight. Retrieve shaft spacer and inner race as shaft is removed.

NOTE: ECCENTRIC ASSEMBLIES ARE FITTED WITH SHAFT SPACERS AT FACTORY FOR END PLAY TOLERANCES. It is necessary to retain the origi nal eccentric shaft and spacer as a set to ease reassembly.

4.6 - Disassembly of Exciter Unit - continued

4.6.4 - REMOVAL OF ECCENTRIC SHAFTS - continued

2) Raise eccentric assembly out of case and store with original shaft and spacer.

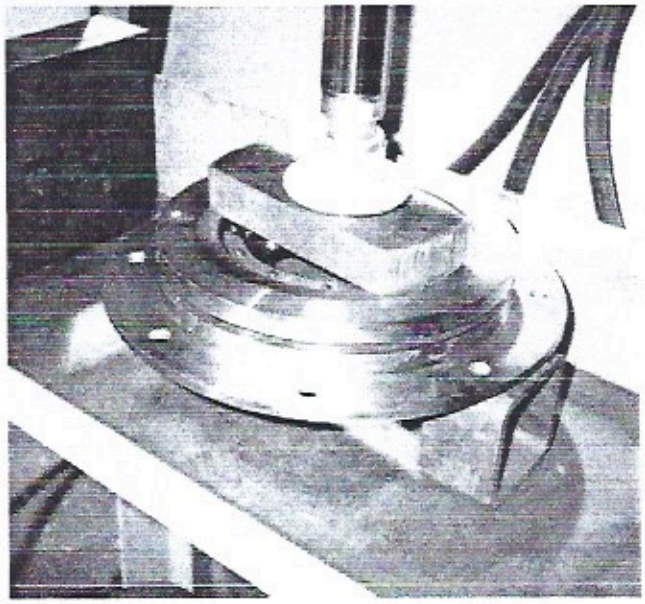
3) Remove shaft inner race from shoulder side of shaft very lightly heating and tapping race. DO NOT REUSE HEATED RACES OR BEARINGS.

4) Remove pinion bearing support sleeve in same manner as eccentric sleeves, by using HPSI puller. Pinion gear must also be supported during removal of pinion bearing spacer sleeves and pinion bearings.

5) Remove pinion bearings and motor spacer sleeve by LIGHTLY tapping with small rubber mallet on the outer race only.

4.6.5 - REMOVAL AND REPLACEMENT OF ECCENTRIC BEARINGS INTO BEARING SUPPORT SLEEVES

1) Using HPSI bearing press pilot, press bearings out of support sleeves.

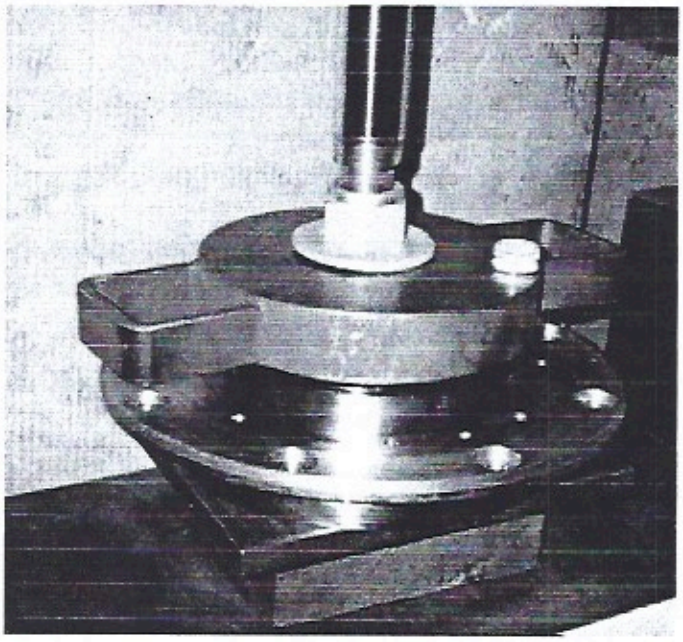


2) Thoroughly clean the bearing support sleeve and visually inspect for any damage.

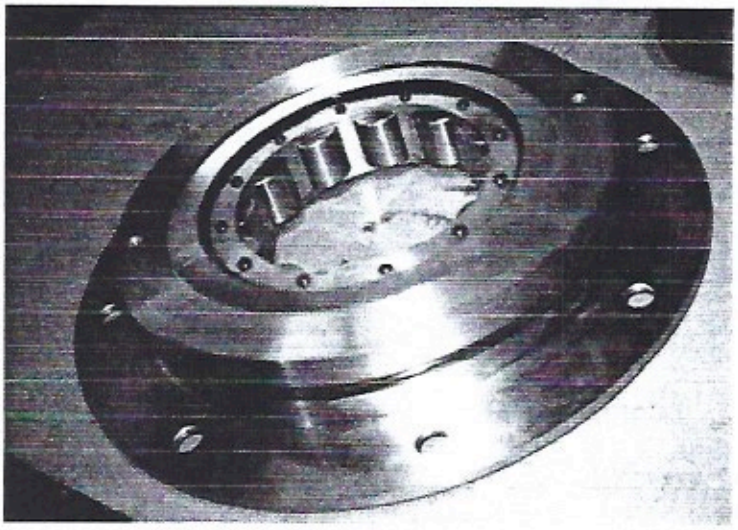
4.6 - Disassembly of Exciter Unit - continued

4.6.5 - REMOVAL AND REPLACEMENT OF ECCENTRIC BEARINGS INTO BEARING SUPPORT SLEEVES - continued

3) Reinstall with new eccentric bearings per factory specification utilizing bearing press. DO NOT INSTALL WITH HAMMER OR MALLET!



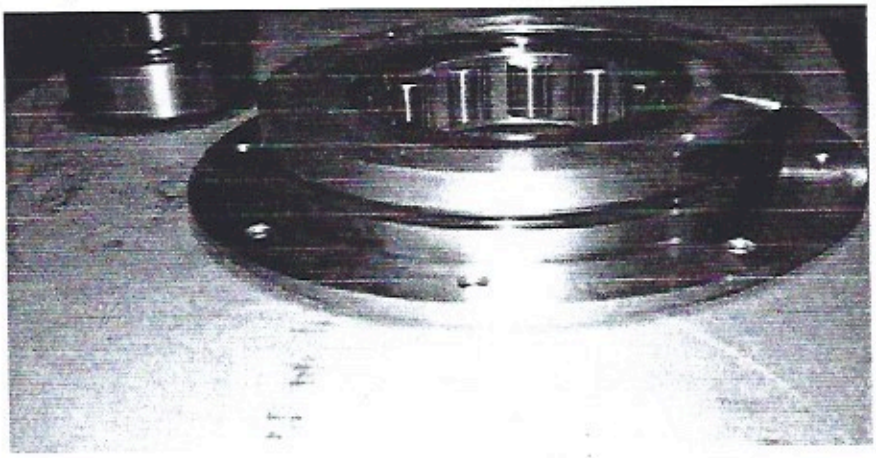
4) Visually inspect the gap between the bearing sleeve lip and the outer bearing race to verify bearing is seated properly.



4.6 - Disassembly of Exciter Unit - continued

4.6.5 - REMOVAL AND REPLACEMENT OF ECCENTRIC BEARINGS INTO BEARING SUPPORT SLEEVES - continued

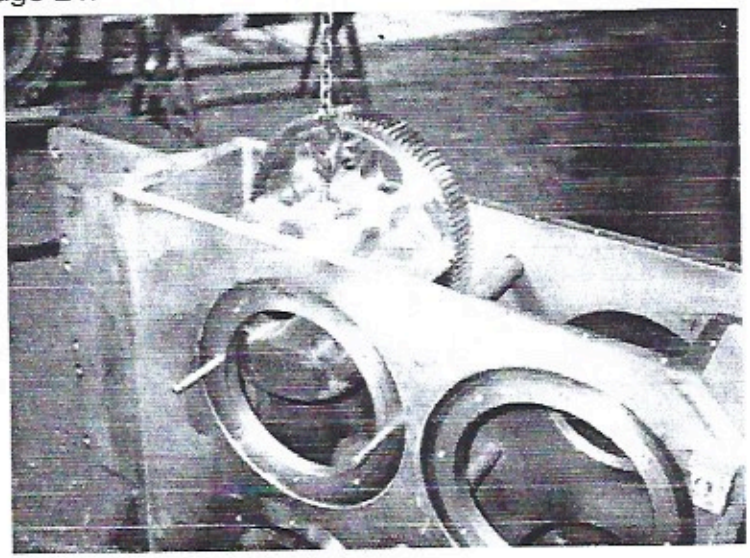
5) Replace bearing sleeve o-rings with factory type o-rings only (high temperature).



4.6.6 - REASSEMBLY

1) Thoroughly steam clean inside of gear case. Inspect for any loose material inside the box.

2) Lower eccentric/gear assembly into gear case to original location. Male and female gears must be positioned properly. See location on exploded view section 4.6 page 21.



4.6 - Disassembly of Exciter Unit - continued

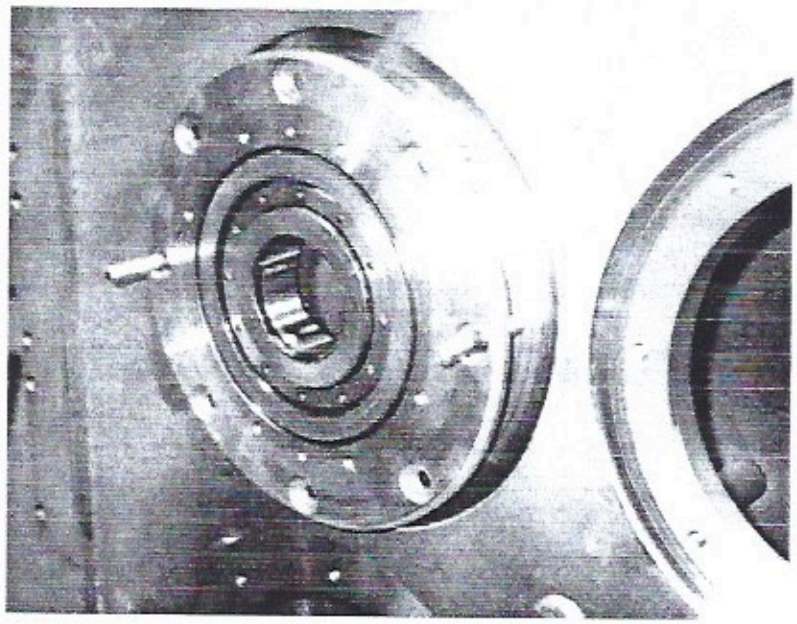
4.6.6 - REASSEMBLY - continued

3) Reinstall eccentric shaft into original location.

4) Reinstall original shaft spacer sleeve while maintaining shoulder on opposite side tightly against gear/eccentric assembly.

5) Install inner races on shaft. Maintain tightness of shoulders on both ends to obtain proper end play on shaft assembly after final assembly.

6) Using a top and bottom dowel, install bearing support sleeve into case. Locate oil drain ports, top and bottom, to allow proper oil circulation.

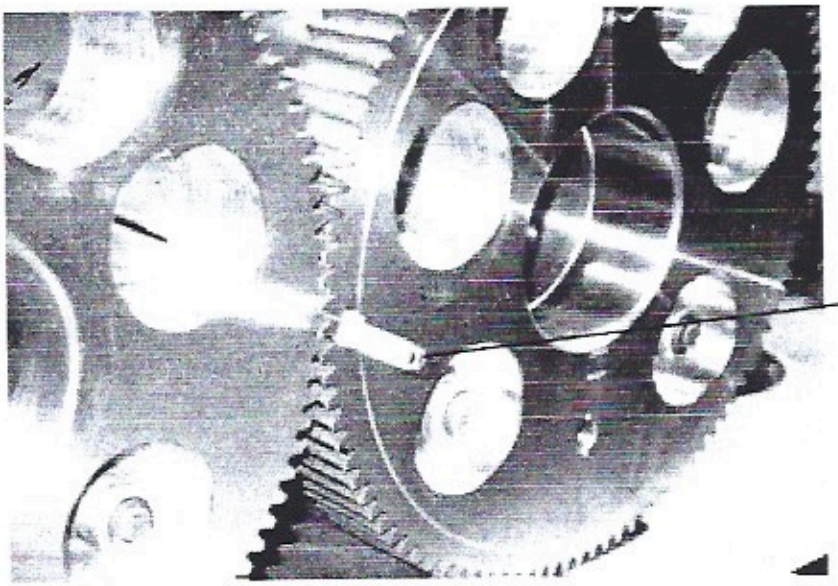


Pull bearing sleeve into case by tightening bolts in a star pattern, lightly, one at a time until the sleeve is fully pulled into the case. DO NOT OVER-TIGHTEN, AS DAMAGE TO THE CASE THREADS MAY OCCUR. Properly torque all bolts per specifications. Improperly torque bolts or bolts installed without flat washers WILL break under vibration. Use Loctite on all fasteners.

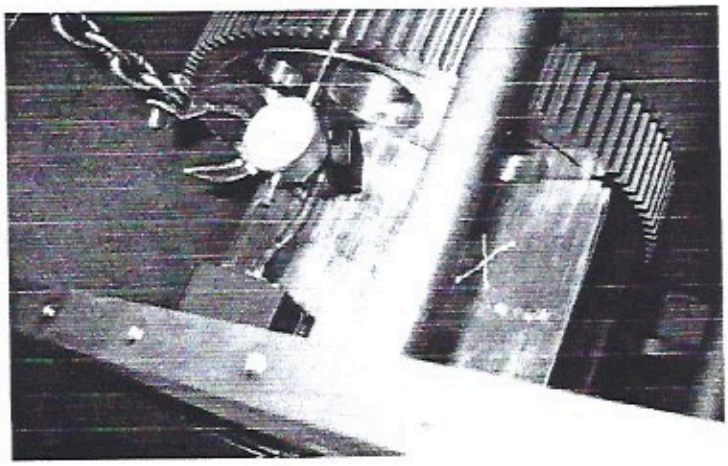
4.6 - Disassembly of Exciter Unit - continued

4.6.6 - REASSEMBLY - continued

7) Backlash between gears is recommended to be .016". Use of a feeler gauge on at least two sides showing equal backlash, will help verify that all components are round. Consult factory for backlash of less than .015" or greater than .018" for approval.



8) To verify end play on the shaft assembly, use a dial indicator to measure total travel from one side of the case to the other. Position indicator at zero with assembly pushed to one side. Move assembly firmly to the opposite side of the case. Should end play be below .025" or exceed .040", consult factory.



4.6 - Disassembly of Exciter Unit - continued

4.6.6 - REASSEMBLY - continued

9) Install new pinion bearing into pinion bearing sleeve. Replace o-ring. Position pinion gear into case. Pull pinion bearing sleeve into case in same manner as eccentric bearing sleeves.

10) Replace pinion bearing cover without gasket to hold bearing in place.

11) Install motor side pinion bearing into case. Locate far enough into case to allow initial installation of motor spacer sleeve.

12) Locate dial indicator into pinion gear area and tighten spacer ring until .025" to .040" end play has been achieved.

13) Remove pinion cover and reinstall with proper gasket. Torque bolts to proper tightness.

14) Install all bearing covers with factory gaskets. Tighten bolts to proper torque.

15) Fill gear case to proper level (middle of sight-glass) with gear oil.

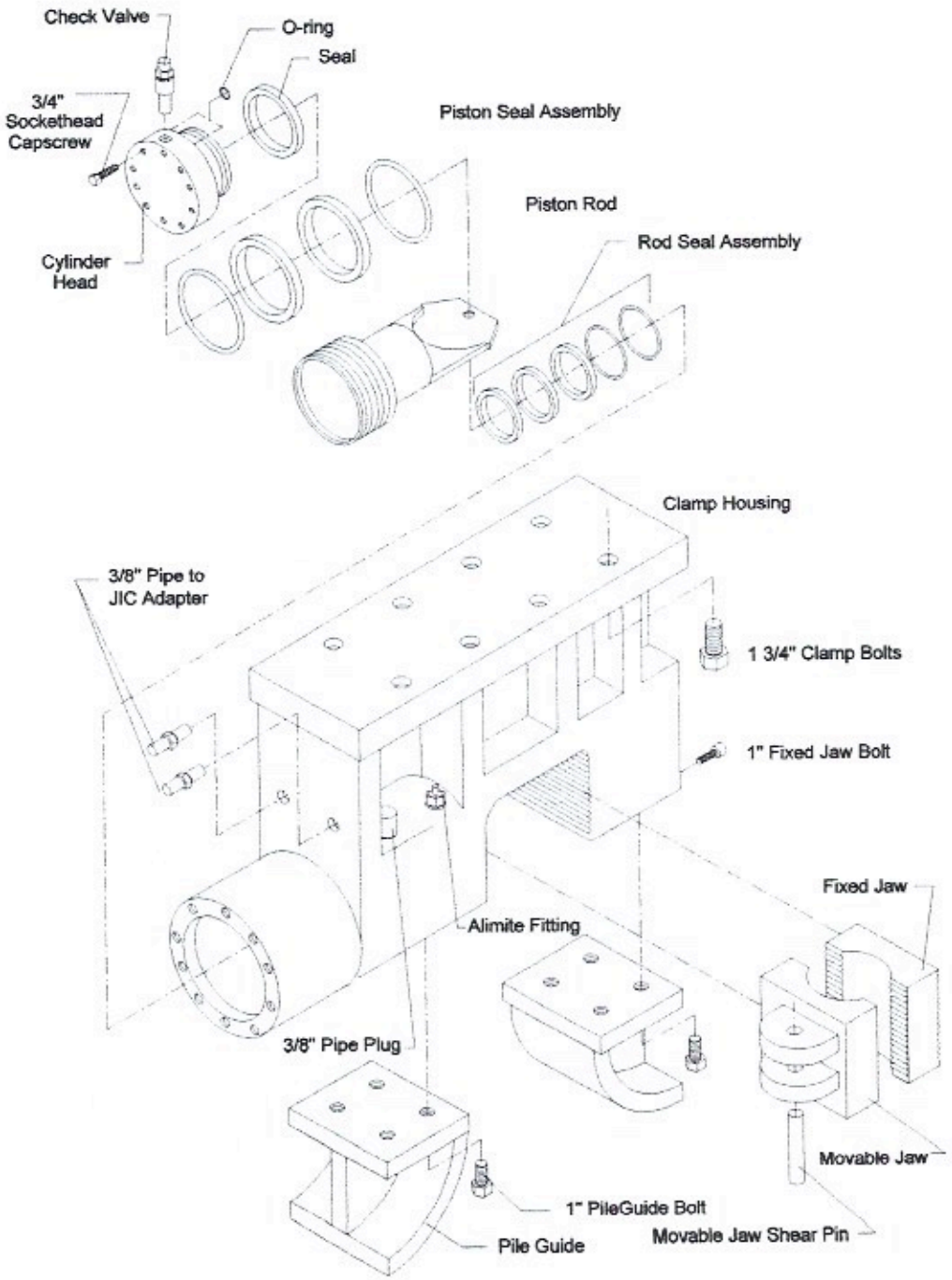
16) Install gear case cover with new gasket. Tighten to proper torque.

NEVER ALLOW BOLTS OR TOOLS TO BE SET AROUND THE OPEN TOP OF THE GEAR BOX. TOTAL GEAR/BEARING FAILURE WILL OCCUR DUE TO FOREIGN OBJECTS FALLING INTO THE OPEN GEARBOX!

SECTION 4 - MAINTENANCE CONTINUED

4.7 - Movable Jaw Replacement

4.7.1 - Exploded View of Parts



SECTION 4 - MAINTENANCE CONTINUED

4.7 - Movable Jaw Replacement

4.7.2 - Jaw Replacement

1) Remove the two fixed jaw bolts and fixed jaw.

2) Remove the movable Jaw pin by driving the pin down to expose the pin toward the top of the jaw. It may be necessary to remove the top half of the shear pin with a cutting torch to allow driving out the remaining portion of the shear pin.

3) Replace with new movable jaw and jaw pin. Start the movable jaw pin by partially driving the pin into the lower ear of the jaw. Then position the jaw on the end of the clamp piston rod. Complete driving the pin into the ear of the jaw and until the pin is driven 3/4" into the ear of the jaw.

NOTE: NEVER REUSE A MOVABLE JAW SHEAR PIN. REPLACE WITH A NEW PIN ANY TIME THE JAW IS REMOVED.

4.7.3 - Rebuilding the Model 300 Clamp Cylinder.

1) Remove jaws as outlined in section 4.7.2

2) Verify that there is **NO PRESSURE** on the clamp piston. To release the check valve located in the cylinder head of the clamp, loosen the lock nut and turn in the adjustment screw (clockwise) as far as possible.

3) Remove the socket head cap screws from the cylinder head of the clamp. Remove the cylinder head by installing two 1/2" bolts into the threaded holes located in the end of the cylinder head. By tightening these bolts, the head will pull away from the clamp allowing removal of the cylinder head.

4) Install a 3/4" lifting eye into the exposed end of the piston rod. It is much easier to raise the rod with the clamp positioned so that the rod is vertical and an overhead crane can be used to lift the rod from the clamp housing.

5) Remove all the seals from both the piston rod and the inside bore of the clamp.

SECTION 4 - MAINTENANCE CONTINUED

4.7 - Movable Jaw Replacement

4.7.3 - Rebuilding the Model 300 Clamp Cylinder - continued

6) Steam clean the clamp housing to remove all chance of contamination.

7) Inspect and remove any loose metal. Install new seals into the clamp housing.

8) Clean and replace piston head seals and wear rings.

9) Install piston into clamp housing while observing that seals are properly located as the piston goes into the housing.

10) The use of a rubber mallet may be necessary to locate the piston down into the cylinder. The top of the piston should be positioned approximately 2" down into the cylinder.

11) After replacing the cylinder head seal and o-rings, reinstall the cylinder head. Special notice should be given to the seal and o-ring to insure proper postioning as the head is being installed.

12) To tighten the cylinder head, install all the socket head cap screws and slowly pull down the head in a star fashion untin the head is flush with the clamp housing. Proper torque should be used as well as loctite on the bolts to avoid the loosening of the bolts and damage to the two o-rings located on the face of the cylinder head.

13) Replace the cylinder check valve with a factory preset valve rated at 1000 psi.

14) Replace the jaws as described in 4.7.2

WARNING !!

WARNING! NEVER REMOVE THE 3/8" PIPE PLUG FROM THE CYLINDER AREA OF THE CLAMP HOUSING. 5000 PSI MAY BE ON THIS PLUG. NEVER REMOVE THE CYLINDER CHECK VALVE WITHOUT RELEASING CLAMP PRESSURE.

SECTION 5 - OPERATION

5.1 - Connecting the Hydraulic Hoses

5.1.1 - Connection of the Hydraulic Hoses between the Power Pack & Exciter

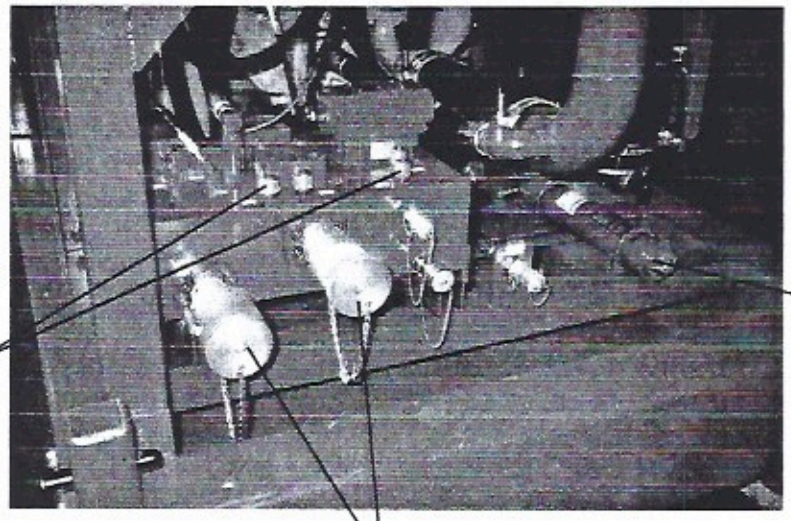
1) The Power Pack must be shut down during the connection of the hydraulic hoses.

2) The Vibrator Exciter and Power Pack are connected with quick-disconnect couplers.

3) Open faucet valves located on the tip on the manifold to relieve pressure.

4) Clean quick disconnects with a lint free cloth and cleaning fluid before making the connections.

5) Make sure the couplers are fully hand tight. Do not use wrenches or hammers to avoid damaged internal parts of the quick disconnects.

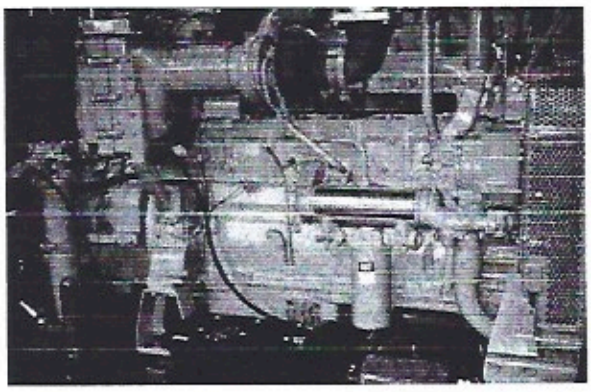


6) Close all four faucet valves prior to starting the engine.

SECTION 5 - OPERATION

5.2 - Pre-Start of Power Pack

5.2.1 - Power Unit



1) Perform required periodic maintenance before starting the engine. Make a "walk-around" inspection of the power unit. Often it can only take a few moments to correct minor discrepancies which can prevent major repairs at a later date.

2) Measure the crankcase oil level. The oil level must be between the ADD and FULL marks on the dipstick. Refer to the Caterpillar Oil capacities and specifica-tions located on the engine for recommended oil types and capacities.

3) Inspect the air cleaner service indicator. If the red piston is locked in the raised position, service the air cleaner.

4) All guards must be in place. Repair or replace all guards that are damaged.

5) Check the level of the hydraulic oil in the hydraulic sight gauge located on the side of the hydraulic reservoir. Add as needed per the hydraulic oil specification located in Section 4.5 Fluids and Filter Specifications.

6) Visually check all hydraulic hoses and fittings for any visible signs of oil leaks.

7) Open faucet valves located on the top of the manifold to relieve any existing pressure on the Quick Disconnects prior to attaching the Hoses Bundle. See Section 5.1.1 Connecting the Hydraulic Hoses between the Power Pack and the Exciter.

SECTION 5 - OPERATION - continued

5.2 - Pre-Start of Units

5.2.1 - Power Unit

8) Clean the Quick Disconnects both on the Hose Bundle and the Power Unit prior to connecting the fittings together.

9) Be certain that the main shut-off valve located on the bottom of the hydraulic reservoir is in the open position. Failure to open this valve prior to starting the engine will result in major and costly pump damage.

10) Connect all five of the Quick Disconnect fittings from the Hose Bundle to the matching Quick Disconnects on the Hydraulic Manifold located behind the rear door of the Power Unit. (See 5.1.1 Connecting the Hydraulic Hoses.)

11) Be certain that both faucet valves have been closed after attaching the quick disconnects together. Failure to close these valves will result in low or no clamp pressure and low or no drive pressure.

12) Visually inspect all bolts, pins and fasteners used in mounting the sheet metal enclosure, radiator brackets, oil coolers, hydraulic manifold, hydraulic reservoir and any other visible components.

13) To start the power pack refer to the Section "Starting Unit" 5.3.1 Power Unit. Let the Power Unit run for at least 15 minutes prior to starting the exciter.

5.2.2 - Vibratory Exciter

1) The Model 260 has been designed to utilize a McKissick P/N S-2140-80 ton lifting shackle for the lifting of the Exciter. It is important that this Shackle is properly installed per the manufacturer's specifications and instructions, and that all of their safety recommendations and warnings are carefully followed.

2) Check all nuts, bolts, and visible fasteners for any necessary or required maintenance. Replace any missing or damaged nuts, bolts, fasteners or components as necessary.

3) Check all hydraulic hoses and fittings for any visible leaks, cracks, loose fittings or bolts and repair or replace as necessary prior to use.

SECTION 5 - OPERATION - continued

5.2 - Pre-Start of Units - continued

5.2.2 - Vibratory Exciter - continued

4) Check the condition of the two Fixed Jaw Bolts, P/N 33044 and replace if loose, cracked or broken prior to use.

5) Check the condition of the Movable Jaw Pin, P/N 33040 and replace if broken, damaged or missing prior to use.

6) Check the condition of the Movable Jaw, P/N 32040, for any possible cracks or damage and replace if necessary prior to use.

7) Upon lifting the 260 Vibratory Exciter to an upright and free-hanging posi tion, check the oil level in the Exciter Gear Box by looking into the glass sight gauge located in the left hand corner of the exciter case. The oil level should be approximately on half the way up into the sight glass.

NOTE: DO NOT OVERFILL EXCITER GEAR CASE. EXTREME HEAT IS PRO-DUCED AND DAMAGE TO THE EXCITER WILL OCCUR AS WELL AS LOSS OF PERFORMANCE OF THE EXCITER.

8) Add any necessary Gear Oil through the Filler Plug located in the Gear Case Cover, per the gear oil specification contained in Section 4.5, page 19 of this manual.

9) Check the Gear Case for any leaks of gear oil and correct any leaks prior to use as necessary.

10) Check the condition of all Vibration Dampeners, P/N 33036 and replace should any damage be present prior to use.

11) Grease the Alimite fitting located on the sides of the Clamp Housing before initial use and twice daily.

12) Visually inspect all bolts, pins and fasteners used in mounting the sheet metal enclosure, radiator brackets, oil coolers, hydraulic manifold, hydraulic reservoir and any other visible components.

SECTION 5 - OPERATION - continued

5.3 - Starting Units

5.3.1 - Power Unit

1) After performing inspections, read the Caterpillar Operation and Maintenance Manual available with your unit. Should this manual not be with the unit, contact your Authorized Factory Representative, H.P.S.I., or your nearest Caterpillar dealer.

2) Do not start the diesel engine if the temperature of the Hydraulic oil is below 0 degrees F. Refer to the combination Sight/Temp Gauge located on the side of the Hydraulic Reservoir tank.

3) Should the environment for your application be in subzero climates, consult the factory for the installation and availability of in-tank heaters which operate on 110 volt, 40 AMP service. These heaters provide 3KW of power for warming the hydraulic oil before use.

4) Turn the Master Key Switch to the "on" position. (When facing the instrument panel, the Master Key Switch is located on the lower right, above the starter.)

5) Position the throttle handle located on the 30' Remote Pendant to the approximate center position.

6) Start the Diesel Engine by turning the Start Switch located on the Instrument Panel to the Start position. Upon starting the diesel engine, release the switch and it will return to the run position.

7) As soon as the Diesel Engine has started, return the throttle on the Remote Pendant to the Idle position. Repeat this sequence should the engine die.

8) Allow for the Diesel Engine to idle for 5 to 10 minutes or until the water temperature begins to rise and the hydraulic oil temperature has come up to above 60 degrees F.

9) Do not operate the unit at full speed until the hydraulic oil exceeds 60 degrees F.

10) If the hydraulic oil temperature will not exceed 60 degrees, adjust the engine speed to 1600 R.P.M. and "Free Hang" run the exciter by pushing the Start button located on the Remote Control Pendant.

SECTION 5 - OPERATION - continued

5.3 - Starting Units - continued

5.3.1 - Power Unit - continued

CAUTION: Close the Clamp Jaws with a steel plate between teeth before running the Exciter in the "Free hanging" position. See Section 5.2.2 for further instructions.

CAUTION: Do Not override the automatic shutdown safety features for Oil Pressure, Water Temperature, High Hydraulic Oil Temperature or any other Safety feature on this machine. To do so is to risk the components and void the warranty of the unit as well as the personal safety of yourself and others.

5.3.2 - Vibratory Exciter

1) The Vibratory Exciter functions are controlled by the use of the 30' Remote Pendant which is a standard feature on this model. Position the Power Unit in such a way as to enable the clearest visual contact for the Remote Pendant Operator between the Power Unit Instrument Panel and the location in which the Exciter is to be used.

2) After completing the necessary aspects of Sections 5.1 and 5.2, increase the throttle to the maximum R.P.M.

3) To clamp the pile, position the Exciter on the pile to be driven or extracted and push the Clamp Closed button on the Remote Control Pendant. Check the Clamp Pressure Gauge to assure that the pressure is being maintained on the pile.

CAUTION: DO NOT begin to pull until the clamp pressure has reached adequate pressure to hold the pile.

SECTION 5 - OPERATION - continued

5.3 - Starting Units - continued

5.3.2 - Vibratory Exciter

4) Without pulling on the Exciter, push the Start button on the Remote Pendant and allow the Exciter to come up to speed, After a few seconds, if extracting, beginning to pull up on the Exciter slowly as the pile begins to extract from the ground. If driving the pile, let the pile run to the desired depth.

CAUTION: It is recommended that a safety cable always be attached to both the pile and a non-vibrating portion of the hammer, in the event that the hydraulic clamp looses clamp pressure.

5) The 260 Exciter is equipped with a Load Indicator Placard that indicates the maximum allowable pull on the Exciter. The **maximum load should not be exceeded**; because failure of the shear fender may occur.

6) Never un-clamp the pile from the Exciter when the Exciter is vibrating.

5.4 - Stopping Units

1) To stop the Vibratory Exciter , Push the stop button located on the Remote Pendant. DO NOT reduce the engine speed while the Exciter is coming to stop.

2) With the Diesel Engine R.P.M. still at maximum, un-clamp the pile as safely as allowable.

3) The Diesel Engine R.P.M. may now be reduced to a suitable speed to allow for proper systems cooling as necessary. During extream driving, it is necessary to leave engine at maximum available R.P.M. to allow the proper cooling between pile.

4) After the Hydraulic Oil and Diesel Engine temperatures have been allowed to cool, reduce the Diesel Engine speed to idle and turn the Engine Start Switch to the OFF position.

SECTION 5 - OPERATION - continued

5.4 - Stopping Unit - continued

CAUTION: Never leave the Vibratory Exciter clamped to a pile unattended by the operator and crew for any reason. Although the clamp is protected with a check valve to maintain pressure for short periods of interruptions, it is not designed to maintain pressure without the Power Unit providing pressure for any extended length of time.

5) Be certain that both the Key Switch and the toggle switch are in the off position at the end of any overnight or prolonged shutdown of the unit.

5.5 - Setting System Relief Valves and Pressures

5.5.1 - Charge Pump Relief

The V-J5 Ful-Flow relief valve is mounted on the outlet side of the charge pump. The V-J5 relief valves have been set at 175 P.S.I. at the factory. If however, you need to set relief follow these steps:

1) Push the emergency stop button so that the engine will not start, which could cause personal injury.

2) Remove acorn nut on relief valve. Loosen the lock nut on adjusting screw.

3) Crank the engine until at least 50 P.S.I. is showing on charge pressure gauge. Do not let the engine start until you have at least 50 P.S.I. reading on the charge pressure gauge.

4) Turn the adjusting screw IN to increase pressure and OUT to decrease the pressure. Pull emergency stop button OUT and let engine start. Screw IN adjusting screw until gauge reads 175 P.S.I. at idle and approximately 200 P.S.I. full throttle.

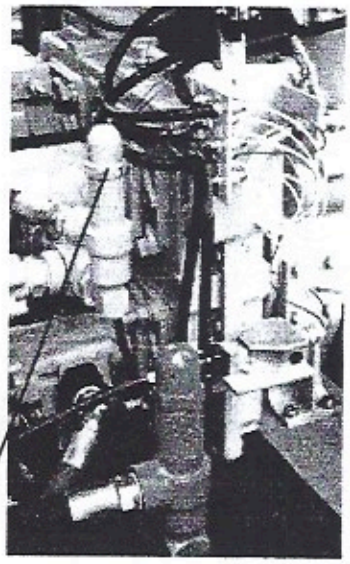
5) Tighten lock nut on adjusting screw, and put the acorn nut back on and tighten.

See Picture next page.

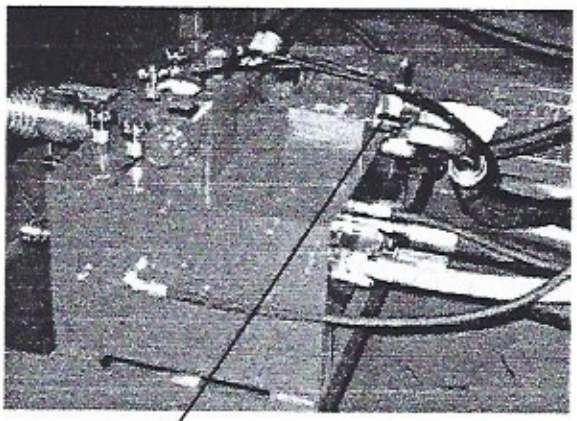
SECTION 5 - OPERATION - CONTINUED

5.5 - Setting System Relief Valves and Pressures - continued

5.5.1 - Charge Pump Relief - continued



FUL-FLOW RELIEF VALVE



DRIVE PRESSURE RELIEF

5.5.2 - Drive Pressure Relief

The Rexroth relief valve for Drive pressure is located on the hydraulic manifold. Make sure that the relief is backed out before starting the engine.

1) Remove plastic cap on relief screw. There is a locking ring and a lock nut on the adjusting screw. Turning the adjusting screw OUT decreases pressure and turning the screw IN increases the pressure.

2) Start engine and shift main control valve with the exciter disconnected.

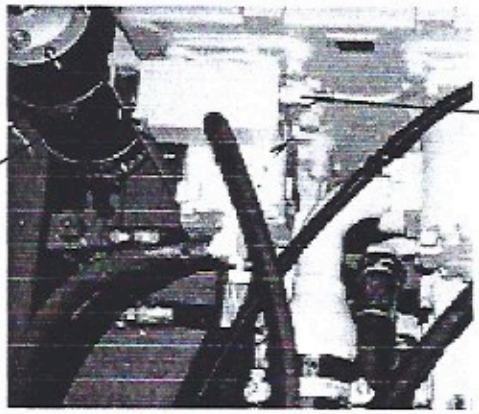
3) Slowly turn in relief while watching drive pressure gauge. Relief setting for Model 300 is 5000 P.S.I.

4) When you have reached the proper setting of relief, lock the lock nut and locking ring. Put the plastic cap back in place.

SECTION 5 - OPERATION

5.5 - Setting System Relief Valves and Pressures - continued

5.5.2 - Drive Pressure Relief - continued



5.3 - Clamp Pump Pressure

To make the compensator adjustment, it is necessary for the clamp pressure relief valve to be set first. Turn the pressure compensators adjustment until it stops. Slowly turn the clamp pump relief in until the gauge reads 5,400 P.S.I. The relief must be set higher than the compensator pressure.

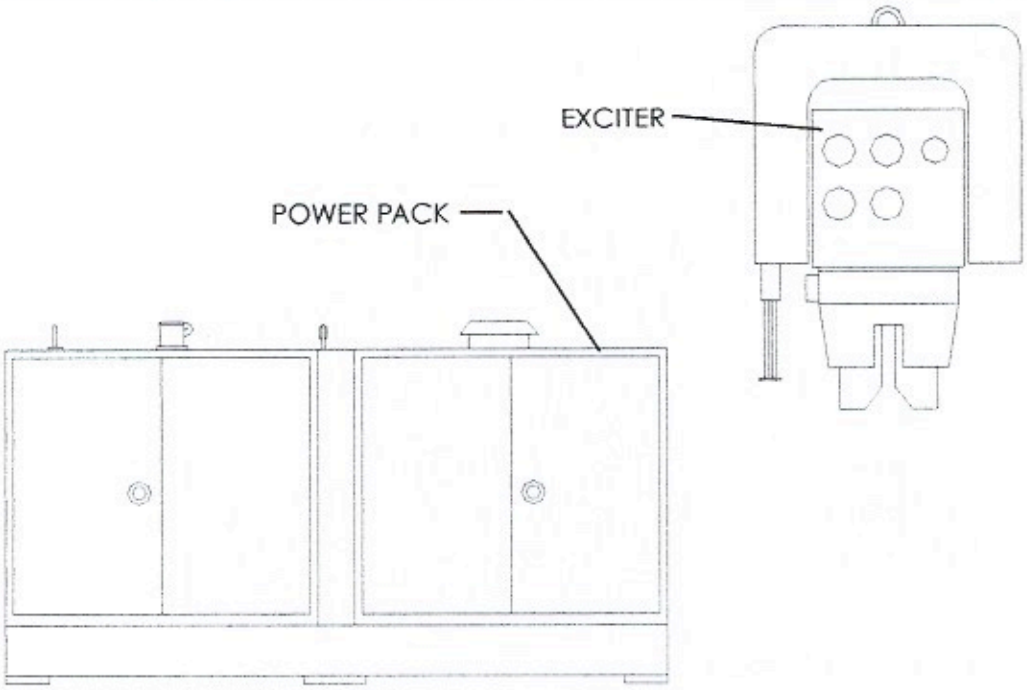
5.5.4 - Setting Clamp Pump Flow

The best way to set the flow is with the aid of a flow meter. However, the flow can be set by turning the adjustment IN 3 to 3 1/2 turns after the adjusting screw comes in contact with spring. This will give about 11-12 G.P.M. The maximum volume stop when backed out all the way OUT will give about 17-19 G.P.M.

5.5.5 - Soft Start Accumulator

Soft start nitrogen accumulator pre-charged to 3000 P.S.I. for proper performance. It is advisable to have accumulator serviced by qualified hydraulic or industrial gas representative.

CAUTION: IT IS NECESSARY FOR ONLY TRAINED PERSONNEL TO PER FORM PRESSURE ADJUSTMENTS TO THE HYDRAULIC SYSTEM. CONSULT YOUR AUTHORIZED FACTORY REPRESENTATIVE FOR ASSISTANCE.



SECTION 6 - TROUBLESHOOTING

NOTE: The following information may be useful in aiding qualified individuals in determining and correcting many common problems. However, not all circumstances can be foreseen nor all minor mistakes covered. Please consult your Factory Authorized Representative or H.P.S.I for any detailed information not covered in this manual.

6.1 - Power Unit

6.1.1 - Engine Will Not Start

1) Faulty battery. → Test, and recharge or replace if necessary.

2) Master ON/OFF switch. → Verify that it is in the ON position.

3) Master Circuit Breaker. → Reset if necessary. Red button on electrical box - out to run.

4) Fuel pressure too low. → Prime fuel pump.

SECTION 6 - TROUBLESHOOTING - continued

6.1 - Power Unit

6.1.1 - Engine Will Not Start - continued

5) Oil pressure too low. → Check oil level.

6) Hot hydraulic oil shutdown. → If engine has shut down during hard driving, high hydraulic oil temperatures may have activated the safety shutdown of the Diesel Engine. Allow the unit to cool for several minutes before attempting to restart. Follow basic starting procedures once engine is again operating.

6.1.2 - Throttle Will Not Operate

1) Verify that air is being delivered to the diaphragm on the engine throttle. → Replace diaphragm if air is available at the valve.

2) Refer to Remote Pendant, Section **6.2.1**.

6.2 - Vibratory Exciter

6.2.1 - Remote Pendant Does Not Function Properly

1) Check air pressure at the receiver tank. → If no pressure exists, consult your Caterpillar Manual or Dealer for service on the compressor or regulator.

NOTE: One of the easiest and fastest ways to verify the air system of leaks is to start the engine and let it run for a few minutes to build up pressure, then completely shut down and listen for air leaks.

2) Check air pressure at the Remote Pendant Box. → If air pressure does not exist at this point, check for broken lines or faulty connections between the Receiver Tank and the Remote Pendant unit.

SECTION 6 - TROUBLESHOOTING - continued

6.2.2 - Specific Functions of Remote Pendant Do Not Operate Properly

1) Check air supply to Remote Pendant. → Verify that pressure is available to the air hose manifold in the Power Pac.

2) Verify that air pressure is present at the inlet port of the valve which is not functioning. If so, → replace the push-button of the nonworking function to correct if air is determined to be going to the button and not being discharged from the button.

6.2.3 - Hydraulic Clamp Will Not Close

1) Verify that clamp pressure is available. → Push the Clamp Open button and observe the Clamp Pressure gauge located on the instrument panel in the Power Unit. If pressure is not indicated on the gauge, consult your Dealer or the Factory for repair or replacement of the Clamp Pump or Relief Valve.

2) Check quick disconnects to be sure that they are tightened properly. → To verify this simply remove and reconnect both.

3) Bleed air from the Clamp Cylinder and lines. → Slightly crack the JIC Swivel fittings located on the bottom of the Exciter Case.

4) Check Clamp Pressure Gauge and verify pressure is available at the manifold in the unit. → This is accomplished by pushing the Clamp Closed button on the Remote Pendant. (Refer to Section 6.2.1 regarding Pendant operation prior to proceeding.) If pressure is not evident on the gauge, consult your dealer or H.P.S.I for more information regarding the setting of the relief valve or the pressure of the Clamp Pump.

6.2.4 - Hydraulic Clamp Will Not Open

1) CHECK THAT FAUCET VALVES ARE **CLOSED** ON THE HYDRAULIC MANIFOLD LOCATED INSIDE THE POWER PAC. (These valves relieve oil pressure from the lines, allowing oil to return to the hydraulic reservoir bypassing the system. They also relieve pressure during the installation and removal of the quick disconnects.)

2) Check the Quick Disconnects. → Verify that they are properly tightened. Remove and retighten to insure proper alignment.

SECTION 6 - TROUBLESHOOTING - continued

3) Check Remote Pendant and air connections as outlined in **6.2.1**.

CAUTION: TO RELEASE THE PRESSURE CAPTURED INSIDE THE HYDRAULIC CYLINDER, CAREFULLY LOOSEN THE LOCK NUT ON THE RELIEF VALVE (PART #33047, ON THE MODEL 300 CLAMP CYLINDER, EXPLODED DIAGRAM PAGE). NEXT SCREW IN THE STEM WITH AN ALLEN WRENCH UNTIL IT IS AS TIGHT AS POSSIBLE. MAKE SURE THAT THE NUT DOES NOT RETIGHTEN AS YOU DO THIS, ALLOWING PRESSURE TO BE MAINTAINED IN THE CYLINDER. AFTER TURNING IN THE STEM, THE PRESSURE AND LOAD SHOULD BE RELEASED FROM THE CLAMP.

4) To adjust the pressure of the Clamp Cylinder Check Valve located on the Hydraulic Clamp Cylinder, turn the stem portion of the valve all the way in and turn outward two and one half turns. Tighten the lock nut securely in this position.

6.2.5 - Hammer Will Not Vibrate

1) Remove and inspect the Quick Disconnects. → Confirm that the fittings are open by visually observing the line which appears in the small holes located on the female portion of the Quick Disconnects.
replacement of the main drive pump or the setting of the pressure relief.

2) → Verify that the faucet valves are tight on the hydraulic manifold located in the Power Pac. These are installed for the purpose of relieving the pressure on the Quick Disconnects during the installation and removal of the hydraulic hoses.

3) Check the Drive Pressure on the Instrument Panel of the Power Pac. → If the gauge does not indicate pressure, contact your Dealer or the H.P.S.I.

4) Check the Hydraulic Motor on the Exciter Case for any damage. → Replace if evidence of damage exists.

5) → Replace the Brake Valve located in the Exciter Manifold in the Suspension Housing.

6) → Inspect the Remote Pendant for air-related problems as outlined in the Remote Pendant Section **6.2.1**

SECTION 6 - TROUBLESHOOTING - continued

6.2.6 - Hammer Runs At Slow Speed

1) Check faucet valves located on the hydraulic manifold. → Verify that they are in the **CLOSED** position. THESE VALVES ARE ONLY FOR THE RELEASE OF PRESSURE ON THE SYSTEM DURING THE INSTALLATION AND REMOVAL OF THE QUICK DISCONNECTS.

2) Check the security of the Quick Disconnects. → Remove and reinstall to assure the proper alignment of the valves inside the quick disconnect.

3) Check the soft start accumulator precharge. This can be performed by observing the drive pressure gauge upon start up of exciter. The pressure should climb from 0 to 3000 very quickly and then gradually climb higher. The exciter will start slowly, sometimes violently shaking the crane boom should this precharge be below 3000 P.S.I.

4) Check the pre-charge pressure indicated on the Charge Pressure Gauge located in the Power Pac of the Hydraulic Filter Canister. → This Pressure should indicate between 170 and 185 P.S.I.. with the Engine R.P.M. at 1500. Consult your Dealer or H.P.S.I for repairs if this pressure is not evident.

5) Check the drive pressure when the hammer is in the free hanging mode. → If the pressure indicated on the Drive Pressure Gauge located in the Power Pac is above 2500 P.S.I., then check the Exciter Gear Box for excessive oil or oil which appears to be contaminated with Hydraulic Oil. This is an indication of a damaged shaft seal in the Hydraulic Motor on the Exciter. Replacement will be necessary before operation resumes.

6.2.7 - Hammer Will Not Stop

1) → Shut down Power Pac by turning off the Key Switch located on the Engine Unit.

2) → Verify that air supply is working as outlined in the Remote Pendant Sections.

PARTS SECTION

SECTION 7 - DIAGRAM OF PARTS

7.1 - Exciter Gear Case

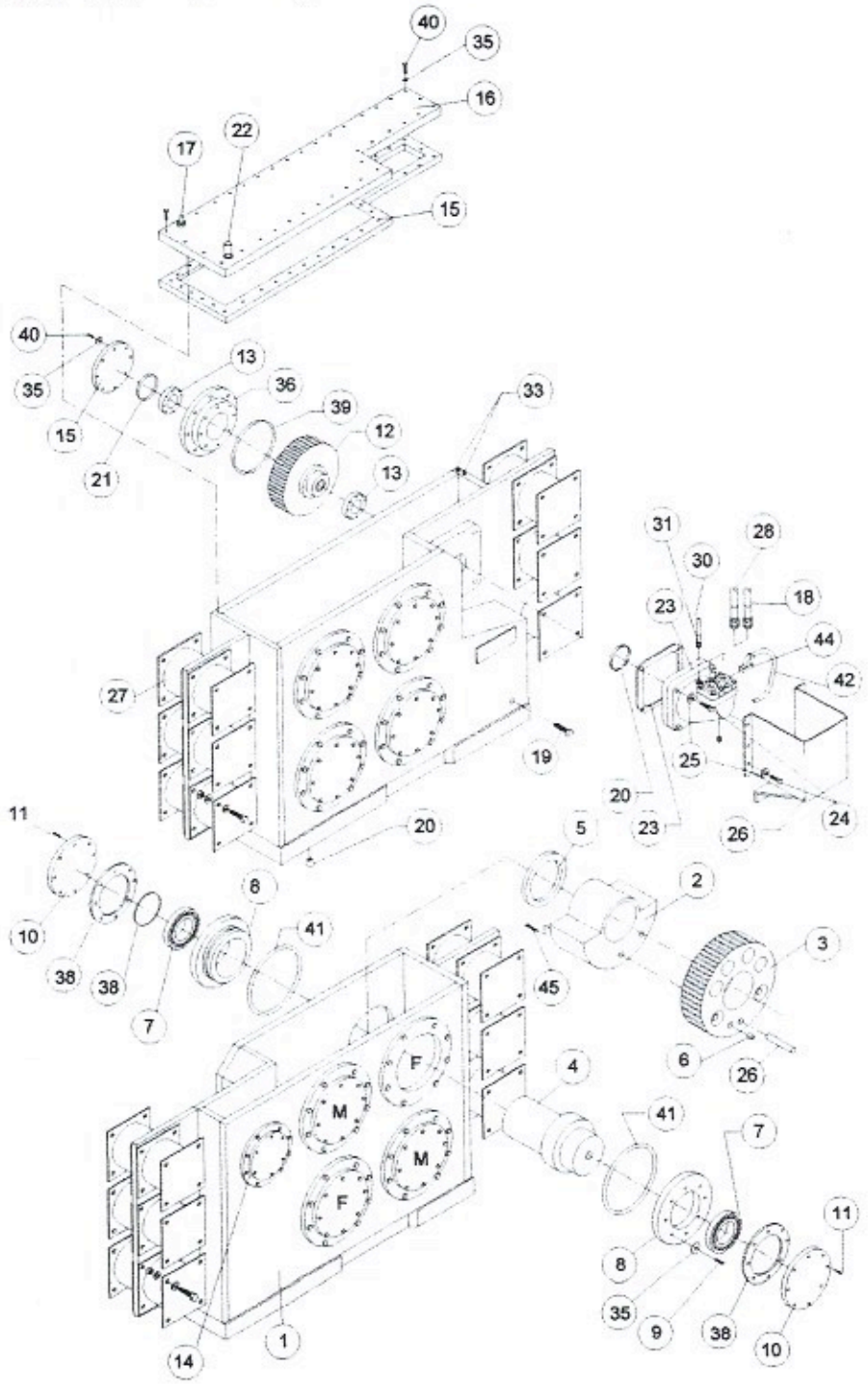
7.1.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	32320	Exciter Gear Case
2	4	32308	Eccentrics
3	2	32335	Eccentric Gears - Female
4	4	32018	Eccentric Shafts
5	4	33047	Eccentric Shaft Spacer
6	8	33002	Huck Bolt Collars
7	8	33096	Eccentric Bearings
8	8	32026	Bearing Support Sleeve
9	64	33147	Bolt - 1/2"-13 x 1" Long
10	8	32007	Eccentric Cover
11	64	33004	Bolt - 3/8"-16 x 1" Long
12	1	32312	Pinnion Gear
13	2	33005	Pinnion Bearing
14	1	32021	Pinnion Bearing Cover
15	1	32347	Gear Case Cover Gasket
16	1	32006	Gear Case Cover
17	1	33074	Oil Fill Plug
18	1	33314	1 1/4 Motor Hose Manifold to Motor 92" O.A.L.
19	1	33007	Sight Gauge
20	1	33008	Magnetic Plug
21	1	33099	Pinion Cover Gasket
22	1	33010	Case Vent
23	1	33308	Rexroth 180 Motor
24	4	33012	Bolt - 3/4"-10 x 2" Long
25	4	33013	3/4" Flat Washers
26	1	32306	Motor Guard
27	12	33036	Shear Fender
28	2	33315	1 1/4" Motor Hose (Hydraulic Filter to Motor) 67"
29	4	00196	1 1/4" Flange Kit
30	2	33316	3/4" Case Drain Hose, 94"
31	1	33018	3/4" Motor Case Drain Adapter
32	1	32348	"D" Mount Motor Gasket
33	4	33269	3/8" Pipe/JIC Adapter
34	2	32336	Eccentric Gear - Male
35	96	33146	1/2" Flatwasher
36	1	32311	Pinion Bearing Sleeve
37	1	33114	Pinion Bearing Sleeve O-ring
38	8	33097	Eccentric Cover Gasket
39	1	33319	Pinion Bearing Support Ring O-ring
40	22	33003	Gear Case Cover Bolt 1/2" x 1 1/4" Long
41	8	33114	Eccentric Bearing Support Sleeve O-ring
42	1	33319	1/4" Flushing Hose
43	4	33040	Shear Pin
44	1	33309	Main Flange w/Flushing orifice
45	8	33001	Huck Bolt
46	2	33133	3/8" SAE O-ring to JIC Adapter

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.1 - Exciter Gear Case

7.1.2 - Exciter Gear Case - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

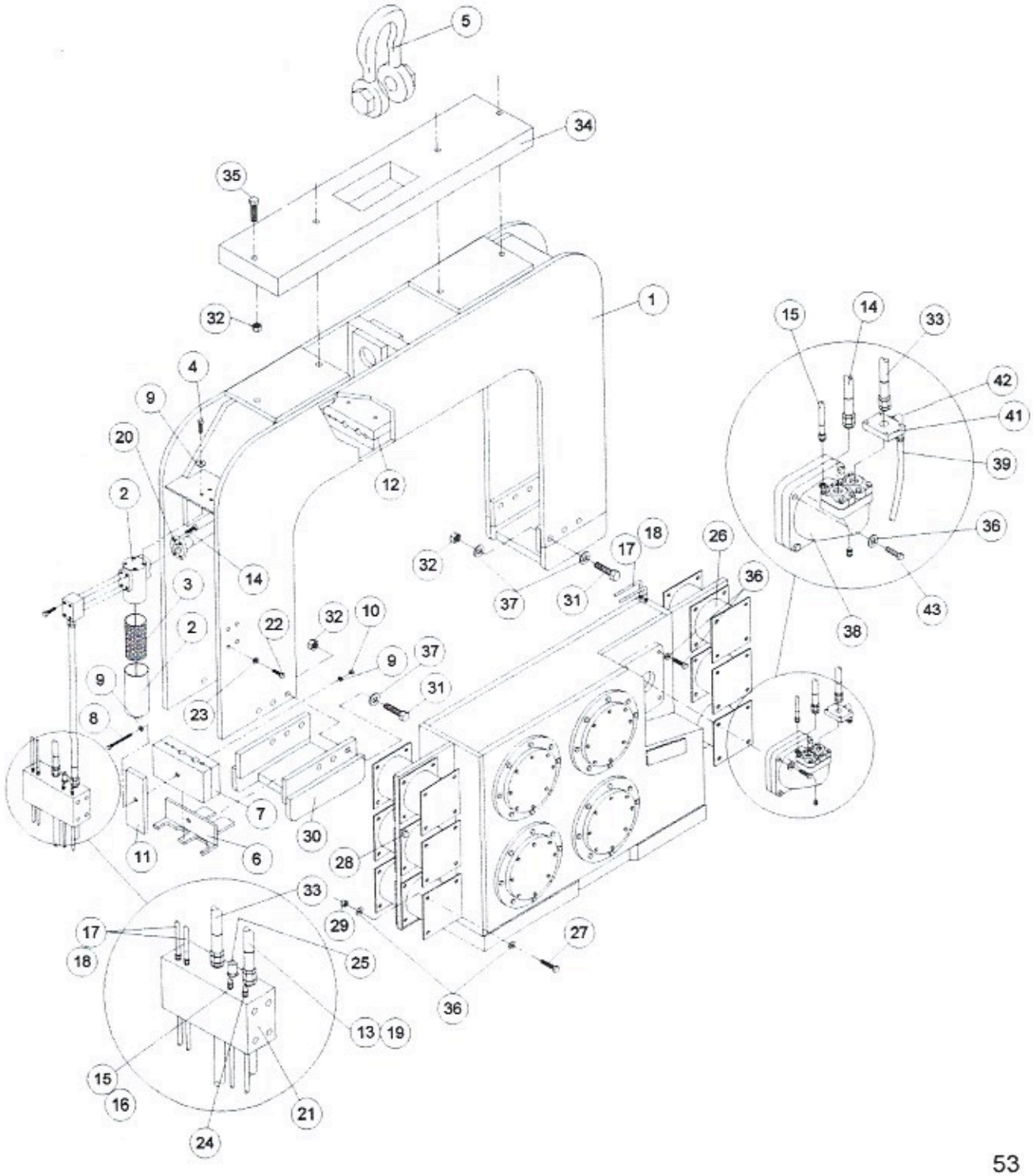
7.2 - Vibration Suppressor

7.2.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	32322	Suppressor Housing
2	1	33021	Hydraulic Filter
3	1	33022	H.P. Filter Element
4	4	33023	Bolt 1/2"-13 x 1 3/4" Long
5	1	33072	McKissick Shackle
6	1	32251	Hose Bracket
7	1	32180	Nylon Inserts-Set Only
8	1	33318	Bolt 1/2"-13 x 6" Long
9	1	33146	1/2" Flatwasher
10	1	33120	1/2" Hex Head Nut
11	1	32251	Retainer Plate
12	2	32380	1 1/4" Flange Kit Upper Hose Block
13	1	33025	1 1/4" Pressure Hose 20 1/2"(Manifold to Filter)
14	1	33315	1 1/4" Pressure Hose 67" (Filter to Hydraulic Motor)
15	1	33316	1/2" Case Drain Hose 91" (Manifold to Motor)
16	2	33028	3/4" Pipe/JIC Adapter 2404-12-8
17	2	33029	3/8" Clamp Hose 94" (Manifold to Case)
18	4	33379	1/2" Pipe to 3/8" J.I.C. 2404-6-8
19	3	33030	1 1/4" Pipe/JIC Adapter 2404-20-20
20	1	00196	1 1/4" Flange Kit
21	1	32046	Brake/Relief Manifold
22	4	33032	Bolt 5/8"-11 x 1 3/4" Long
23	4	33033	5/8" Flat Washer
24	1	33034	Relief Valve - 3/4" NPT
25	1	33035	Brake Valve
26	12	33036	Vibration Suppressor
27	48	33037	Bolt 3/4"-10 x 2 1/2" Long
28	24	33038	Bolt 3/4"-10 x 2 3/4" Long
29	72	33039	3/4" Hex-Head Nut
30	2	32328	Suspension Stop Block
31	12	33006	Bolt 1" -8 x 3 1/2" Long
32	12	33075	1" Lock Nut
33	1	33314	1 1/4" Return Hose (Manifold to Motor)
34	1	32069	Bias Weights
35	4	33121	1" Bias Weight Bolt
36	144	33013	3/4" Flatwasher
37	24	33137	1" Flatwasher
38	1	33011	Volvo F11 - 15 Motor
39	1	33017	1/4" Flushing Hose, 17" O.A.L.
40		33287	260 Pigtail Set Complete include 13, 14, 15, 17, 33, 39.
41	33	33309	Flushing Block
42	1	33122	Flushing Orifice
43	4	33012	3/4" x 2" Motor Bolt
44	1	32380	Upper Hose Block

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.2.2 - Vibration Suppressor - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.3 - Model 300 - 300 Universal Sheeting Clamp

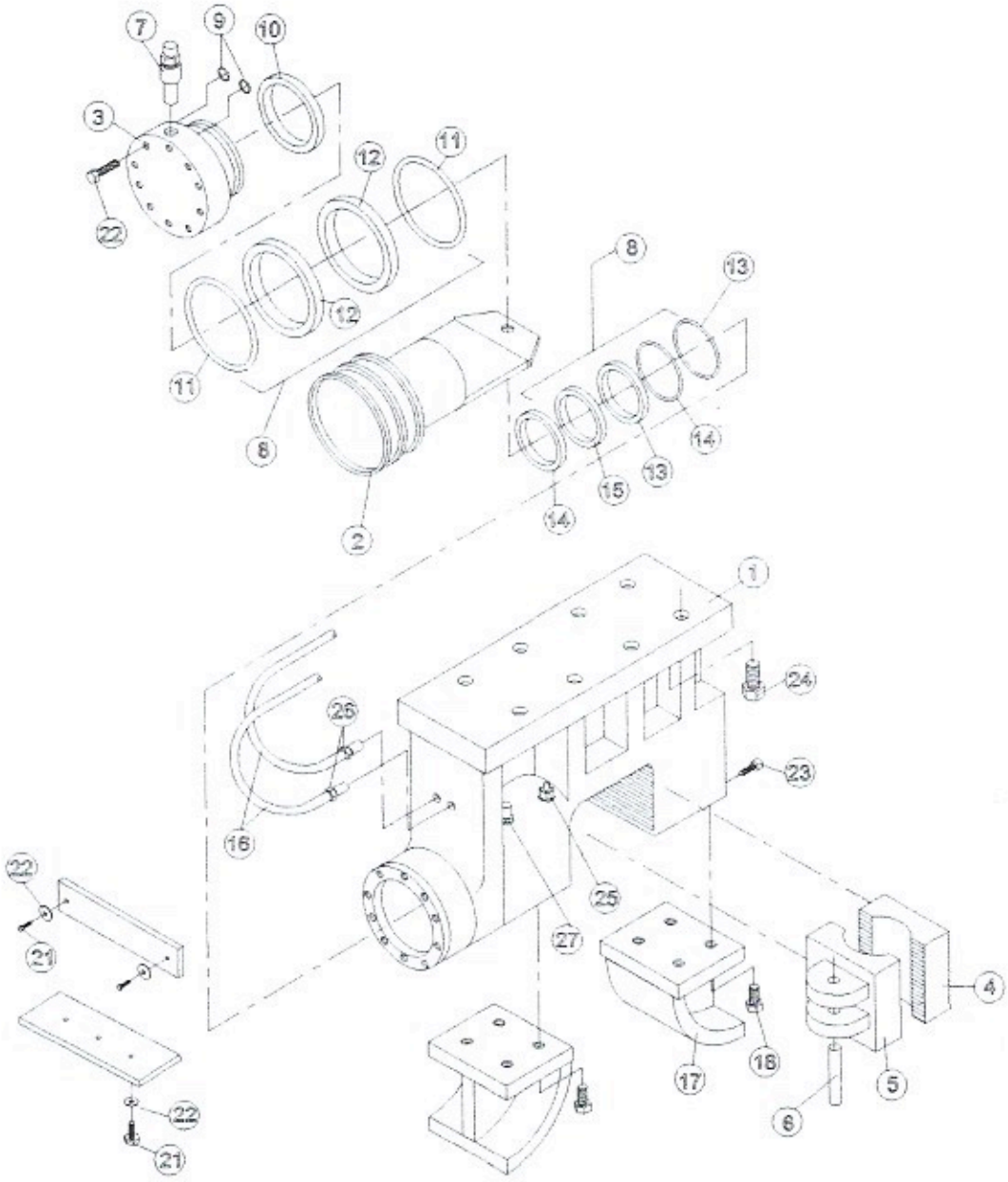
7.3.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	32009	Clamp Housing
2	1	32042	Piston Rod
3	1	32041	Cylinder Head
4	1	32039	Fixed Jaw
5	1	32040	Movable Jaw
6	1	33040	Movable Jaw Pin
7	1	33041	Check Valve
8	2	33216	O-Ring Seals
9	2	33079	2-207 O-rings
10	1	33078	Cylinder Head Seal
11	2	33126	Piston Seal
12	2	33127	Piston Wear Rings
13	2	33081	Piston Rod Dirt Wiper
14	2	33124	Piston Rod Wear Rings
15	1	33123	Rod Seal
16	2	33048	3/8" Clamp Hose - 20" OAL
17	2	32055	Pile Guide (Manifold to Housing)
18	8	33084	1 x 1 3/4" Long, Hex-Head
19	6	33013	3/4" Washers
20	1	32329	Clamp Guard
21	6	33012	3/4" x 2" Clamp Guard Bolts
22	10	33043	3/4"-10 x 3" Long Socket Head Cap Screw
23	2	33044	1"-9 x 5" Long, Fixed Jaw Bolt
24	8	33009	1 3/4" x 5" Clamp Bolt
25	2	33047	Alimite Grease Fitting
26	2	33269	3/8" NPT/JIC Adapter
27	1	33268	3/8" NPT High Pressure Plug

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.3 - Model 300 - 300 Universal Sheeting Clamp

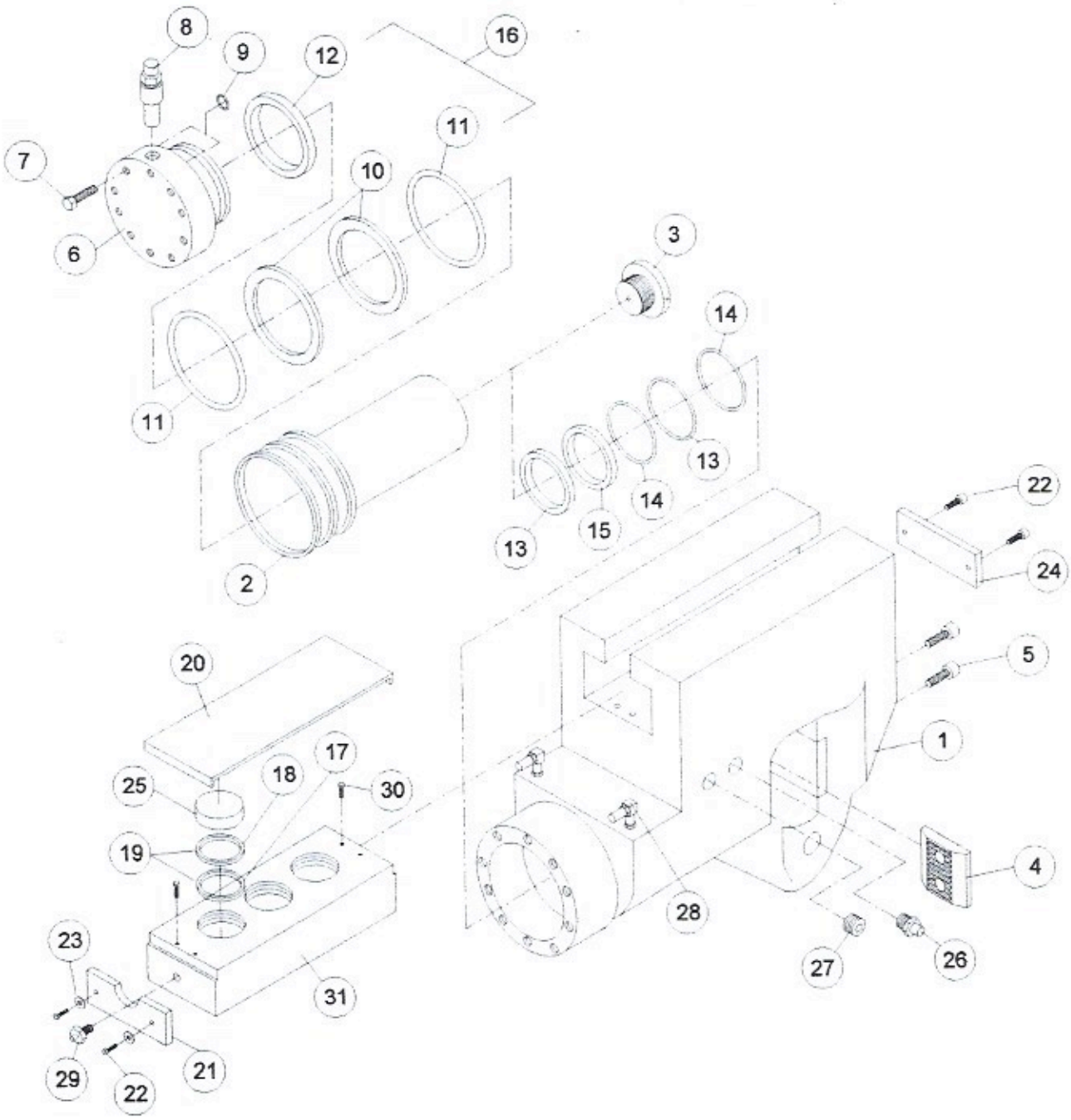
7.3.2 - Model 300 - 300 Universal Sheeting Clamp - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.4 - Model 300 - 100 Ton Caisson Clamp

7.4.2 - Model 300 - 100 Ton Caisson Clamp - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.4 - Model 300 - 100 Ton Caisson Clamp

7.4.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	33097	Caisson Clamp Housing only
2	1	33130	100 Ton Clamp Piston
3	1	33110	Movable Jaw
4	1	33101	Fixed Jaw
5	2	33044	1" x 5" Sockethead Capscrew
6	1	33047	Clamp Cylinder Head
7	10	33043	3/4" x 3" Sockethead Capscrew
8	1	33041	Cylinder Check Valve
9	2	33079	2-207 O-ring
10	2	33131	Piston Wear Rings
11	2	33130	Piston Seals
12	1	33078	Cylinder Head Seal
13	2	33129	Rod Bearing
14	2	33123	Rod Dirt Wiper
15	1	33128	Rod Pressure Seal
16	1	33219	Cylinder Seal Kit Complete Including 9,10,11,12,13, 14,15 and 16.
17	3	33212	Piston Pressure Seal
18	3	33213	Piston Dirt Wiper
19	1	33218	Seal Kit Including 17 and 18.
20	1	32107	Pressure Plate
21	1	32435	Keeper Plate
22	4	33012	3/4" x 2" Hexhead Bolt
23	4	33013	3/4" Flatwasher
24	1	32436	Keeper Plate
25	3	32106	Hydraulic Lock Pinion
26	1	33047	Alimite Fitting
27	1	33268	3/8" HDT High Pressure Plug
28	1	33134	3/8" - 90 Degree SAE to JIC Adapter
29	1	33133	3/8" - SAE to JIC Adapter
30	4	33214	3/4" X 2" Sockethead Capscrew
31	1	32108	Caisson Lock Piston Block

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.5- Model 300 - Caisson Beam

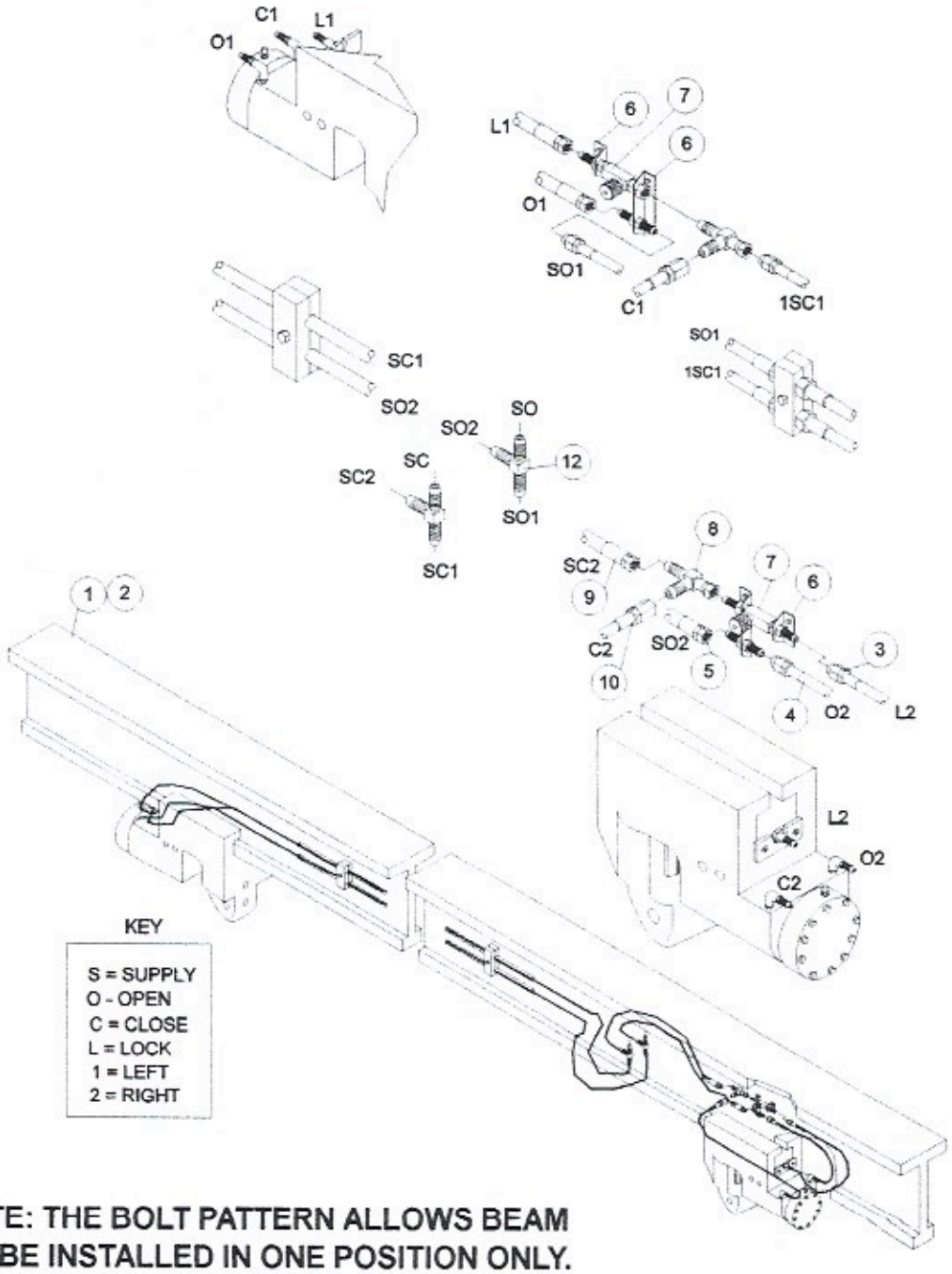
7.5.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	32349	10' Caisson Beam
2	1	32189	7" Caisson Beam
3	2	33380	3/8" Hose - Right and Left Hydraulic Lock
4	1	33381	3/8" Hose - Right and Left Clamp Open
5	1	33382	3/8" Hose - Supply Open Right
6	2	32196	Check Valve Mounting Bracket
7	2	33221	3/8" Check Valve for Hydraulic Lock
8	2	33383	3/8" Tee Adapter
9	1	33384	3/8" Hose - Supply Closed
10	2	33385	3/8" Hose - Right and Left Clamp Closed
11	3	33386	3/8" Hose Clamp Kits
12	2	33387	3/8" Tee Adapter

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.5- Model 300 - Caisson Beam

7.5.2 - Model 300



NOTE: THE BOLT PATTERN ALLOWS BEAM TO BE INSTALLED IN ONE POSITION ONLY.

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.6 - Brake Valve Manifold

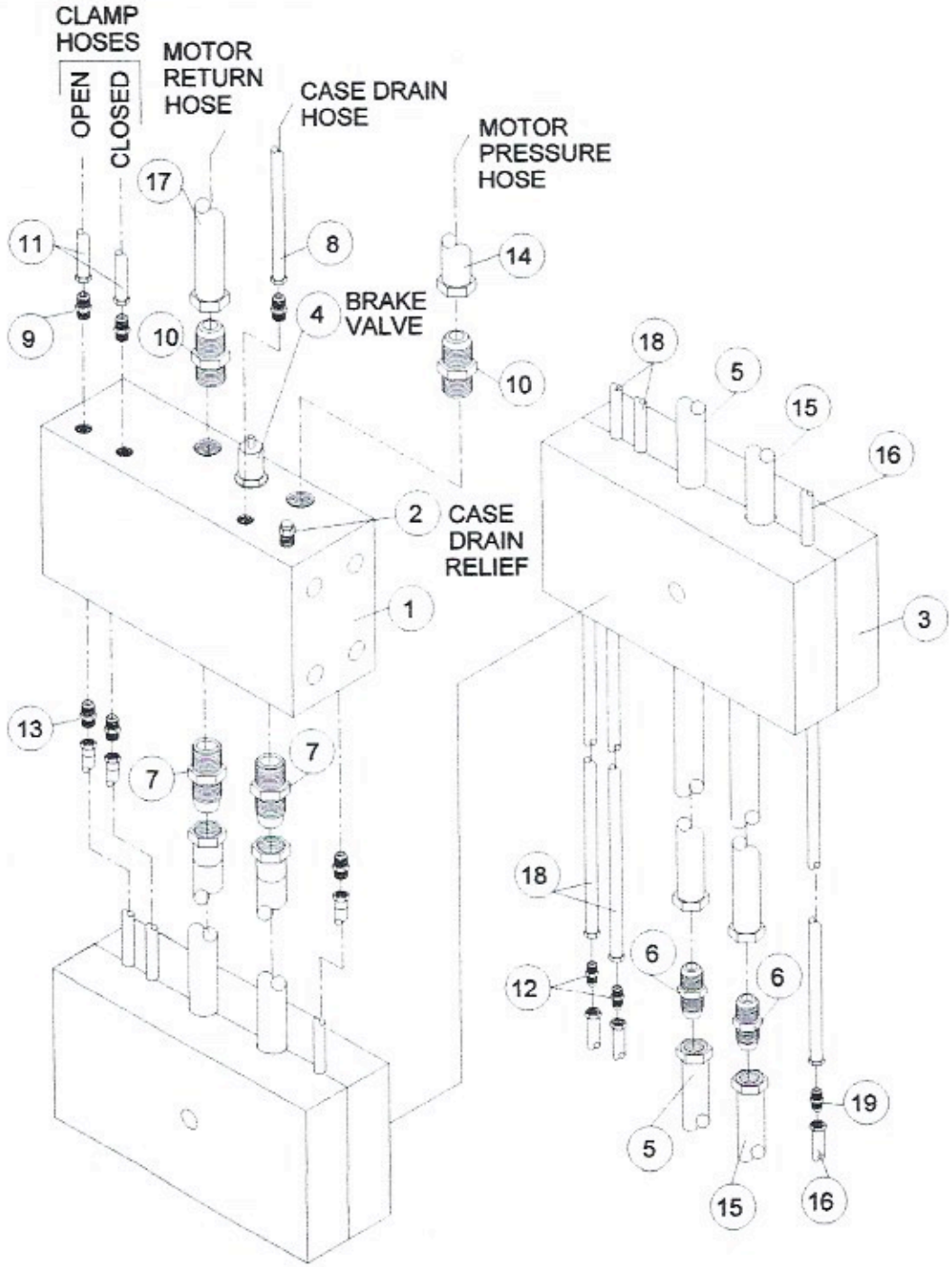
7.6.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	32046	Brake Valve Manifold
2	1	33034	Case Drain Relief Valve
3	1	32180	Nylon Inserts
4	1	33035	Brake Valve
5	3	33051	1 1/2" Return x 50'
6	2	33052	1 1/2" Male JIC Adapter
7	2	33022	1 1/4" Pipe/ 1 1/2" JIC Adapter
8	1	33316	1/2" Case Drain x 90" Long
9	2	33379	1/2" Pipe to 3/8" JIC Adapter
10	2	33030	1 1/4 Pipe to JIC Adapter
11	2	33029	3/8" Clamp Hose x 94' Long
12	6	33056	1/2" JIC Adapter
13	2	33020	1/2" Pipe/JIC
14	1	33025	1 1/4" Pressure Hose 20 1/2" (Manifold to JIC Adapter)
15	3	33409	1 1/2" Drive x 50'
16	3	33053	3/4" x 50' Case Drain Hose
17	1	33314	1 1/4" Motor Return Hose
18	6	33055	1/2" x 50" High Pressure Clamp Hose
19	3	33054	3/4" Male JIC Adapter

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.6 - Brake Valve Manifold

7.6.2 - Brake Valve Mainfold - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.7 - Hydraulic Manifold

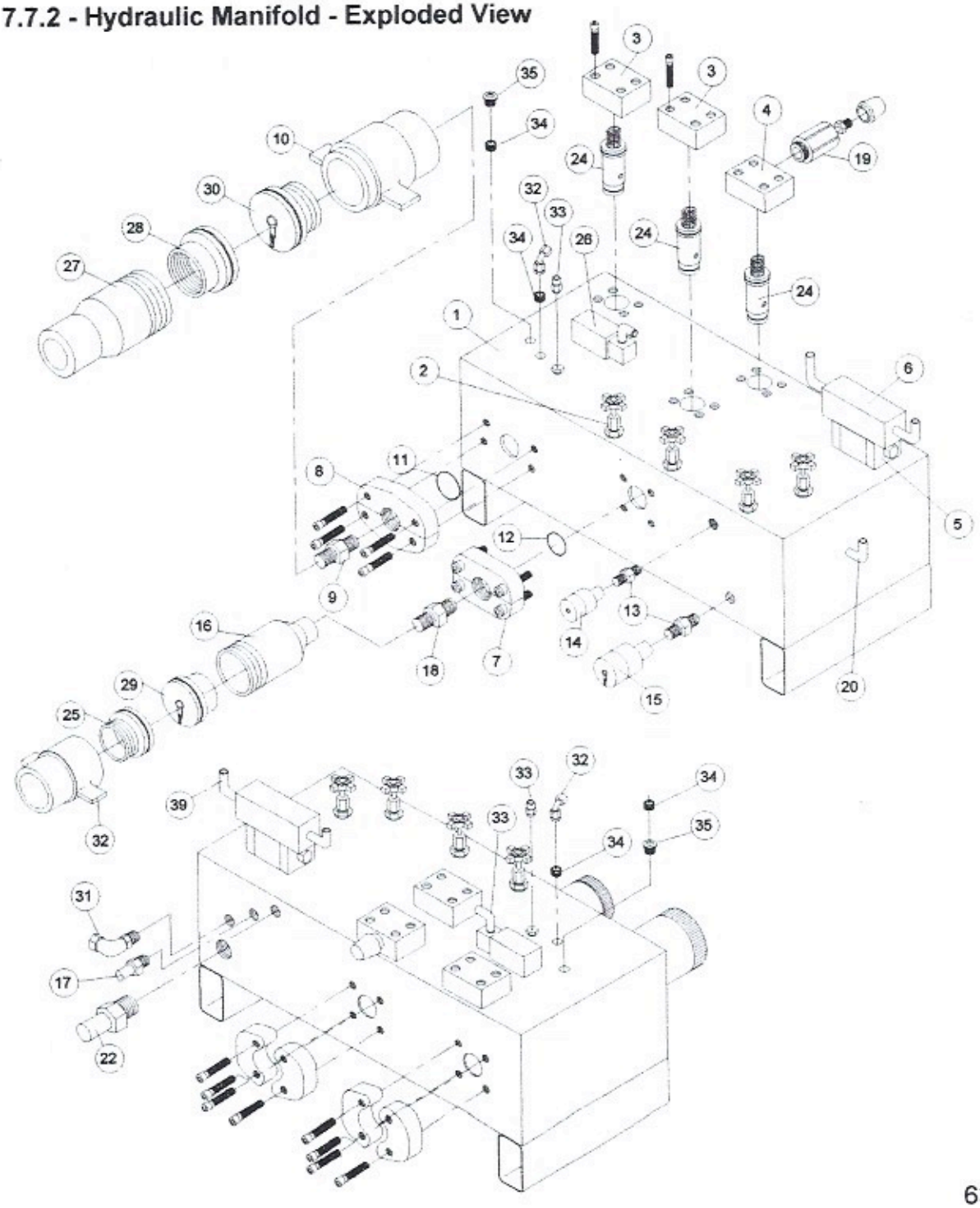
7.7.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	33093	Hydraulic Manifold
2	4	33094	Faucet Valves
3	2	00443	Rexroth Logic Element Cover
4	1	00442	Drive Pressure Relief Valve Body
5	1	00447	Dual Crossover Relief Clamp Check Valve
6	1	00446	Clamp Circuit Directional Control Valve
7	1	00459	1 1/4" Flange to Pipe Thread Adapter
8	1	00207	1 1/2" Flange to Pipe Thread Adapter
9	1	33335	1 1/2" Male Pipe Adapter
10	1	33063	1 1/2" Female Quick Disconnect
11	1	33344	1 1/2" O-ring
12	1	33345	1 1/4" O-Ring
13	2	33346	1/2" O-ring to JIC Adapter
14	1	00402	1/2" Male Quick Disconnect
15	1	00401	1/2" Female Quick Disconnect
16	1	33062	1 1/2" Male Quick Disconnect
17	1	00434	Clamp Pressure Main Relief Valve
18	1	33347	1 1/4" Male SAE to Male Pipe Adapter
19	1	00441	Pressure Relief Logic Element
20	1	33336	90 Degrees Pressure Guage Fitting
21	3	33350	Bolt Kit
22	1	33348	1/4" SAE to JIC Adapter - Clamp Guage Port
23	1	33337	Drive Pressure Relief Valve
24	2	00440	Rexroth Logic Element
25	1	33338	Dust Cover for 1 1/2" Female
26	1	00449	Air Piloted Drive Pressure Control Valve
27	1	33062	1 1/2" Male Quick Disconnect
28	1	33090	Dust Cover for 1 1/2" Male Quick Disconnect
29	1	33090	Dust Cover for 1 1/2" Male Quick Disconnect
30	1	33338	Dust Cover for 1 1/2" Female Quick Disconnect
31	1	33340	3/4" SAE to JIC 90 Degree Adapter
32	1	33063	1 1/2" Female Quick Disconnect
33	3	33343	90 Degree Fittings
34	1	33341	SAE Plug
35	1	33342	Orifice
36	1	33349	1/4" SAE Plug

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.7 - Hydraulic Manifold

7.7.2 - Hydraulic Manifold - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.8- Power Unit Replacements Parts

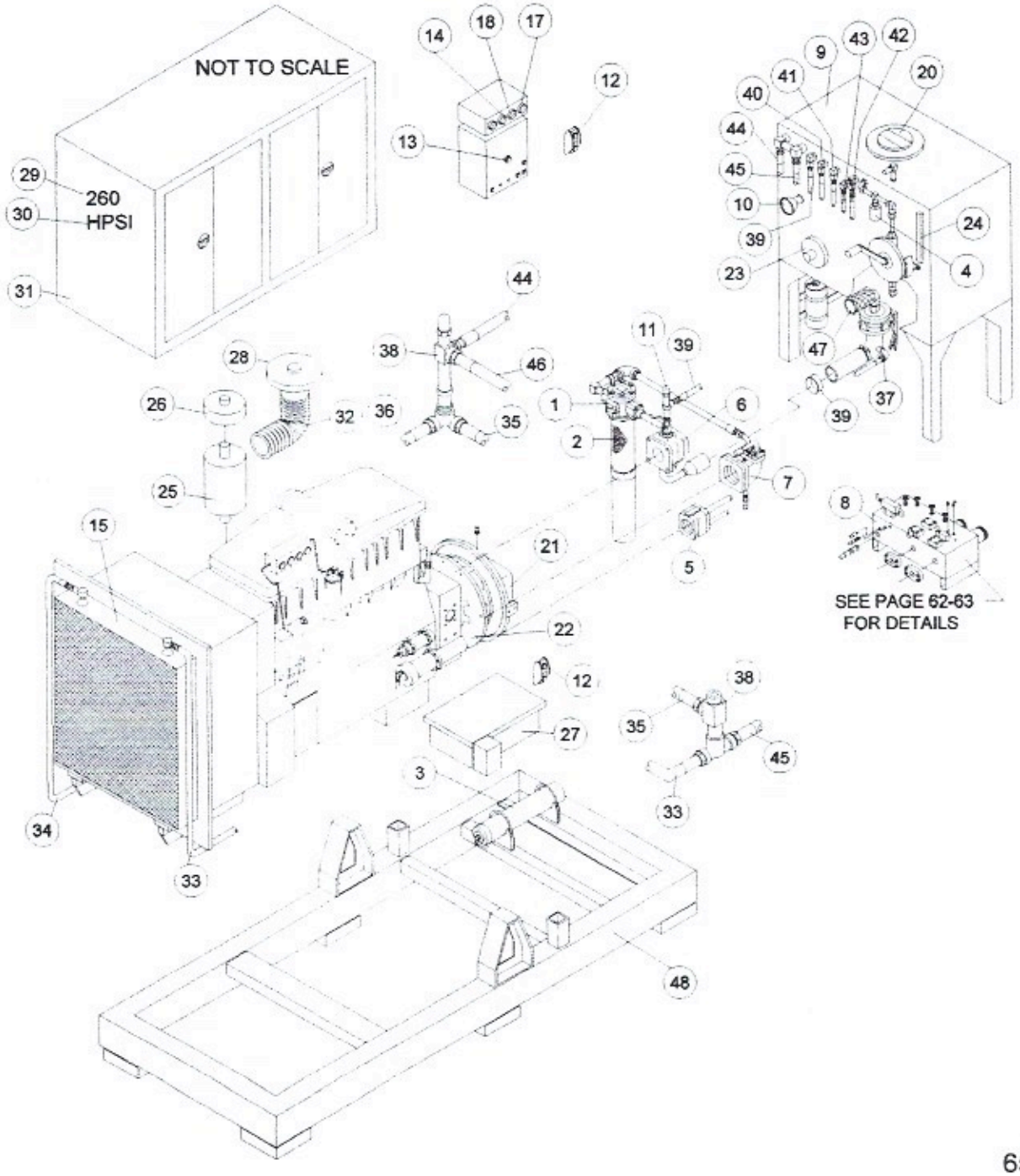
7.8.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	33356	Filter Housing W/Bypass
2	1	33119	Parker Filter Element
3	1	33236	Accumulator
4	1	33184	Spin-on Oil Filter Element
5	1	33238	5000 P.S.I. Clamp Pump
6	1	33355	Pre-charge Pump
7	1	33307	Rexroth 180 Drive Pump
8	1	33093	Hydraulic Manifold
9	1	33197	Hydraulic Reservoir
10	1	00523	Temperature Gauge
11	1	33235	Precharge Relief Valve
12	1	33242	Start/Run Switch
13	1	33243	EMERGENCY SHUT DOWN SWITCH
14	1	33244	0-600 Drive Pressure Gauge
15	1	33245	300 Oil Cooler
16	1	33237	Fulflow Cooler Relief Valve
17	1	33195	0-400 Pre-charge Pressure Gauge
18	1	33194	0-6000 Clamp Pressure Gauge
19	1	33194	0-6000 Drive Pressure Gauge
20	1	33109	16" Tank Cover
21	1	33353	Pump Drive Housing
22	1	33352	Flywheel Drive Plate
23	1	33354	110V. 3000 W. Tank Heater (optional)
24	1	33240	Oil Level Site Gauge
25	1	33359	Exhaust Muffler
26	1	33360	5" Rain Cap
27	2	33361	8D-12V. Battery
28	1	33362	5" Air Intake Hood
29	1	33178	"300" Logo
30	1	33133	"HPSI" Logo
31	1	33388	300 Enclosure
32	1	33389	Air Intake Flexible Hose
33	1	33363	Lower Cooler Supply Hose
34	1	33364	Lower Cooler Return Hose
35	1	33365	Manifold to Cooler
36	1	33366	Cooler Relief to Tank
37	1	33367	Clamp Suction
38	1	33368	Thermostat Control Valve
39	1	33369	Main Suction Hose
40	1	33370	Tank to Exciter Case Drain
41	1	33371	Tank to Internal Manifold Case Drain
42	1	33372	Tank to Clamp Pump
43	1	33373	Tank to Drain on Manifold Pump
44	1	33374	Tank to Cooler Bypass Tank
45	1	33375	Tank to Cooler Thermostat Valve
46	1	33376	Manifold Relief Valve Return
47	1	33377	Suction Strainer
48	1	33105	Skid Fuel Tank

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.8- Power Unit Replacements Parts

7.8.2 - Power Unit Replacement Parts - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.9- 260 Remote Control Pendant

7.9.1 - Bill Of Materials

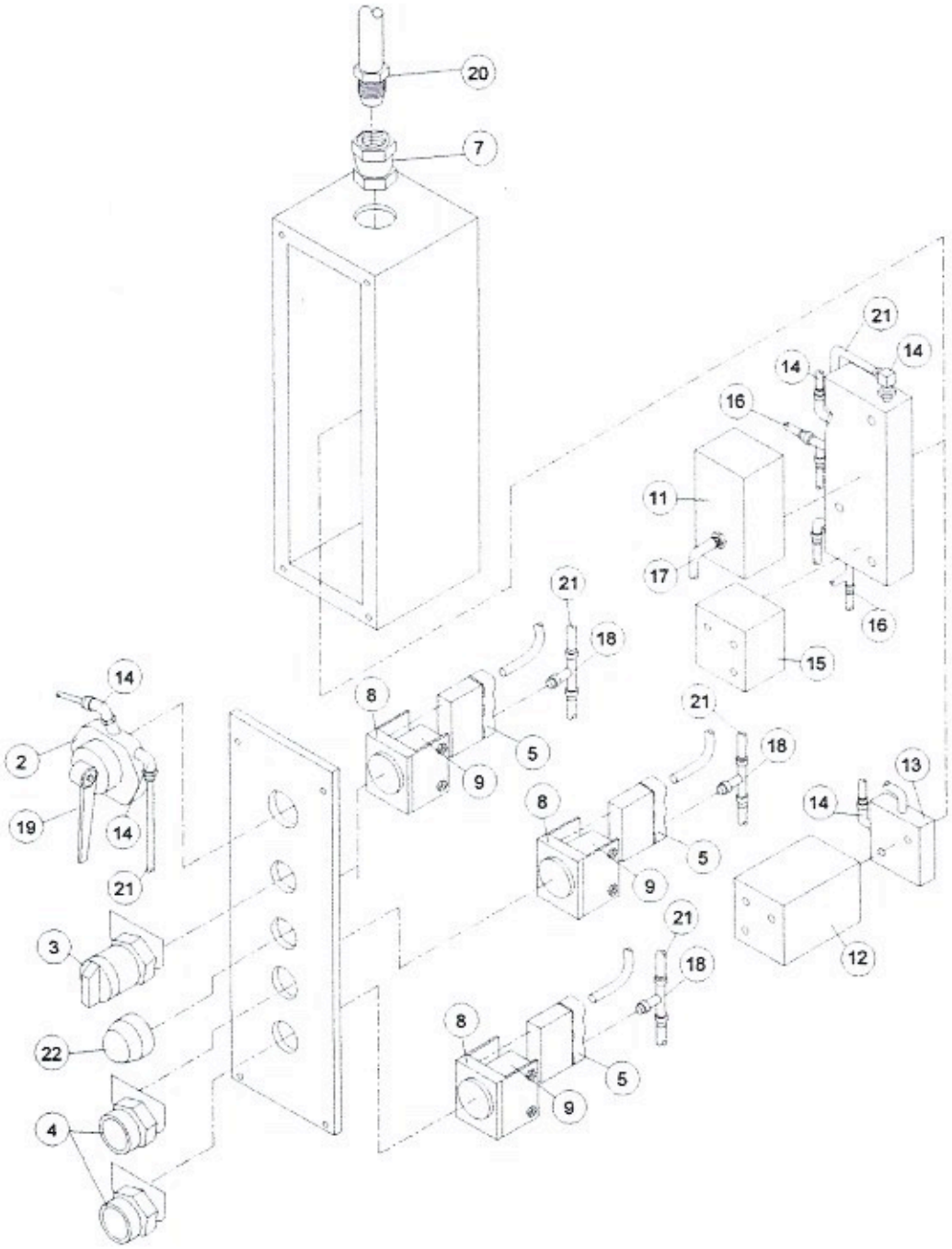
ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	33191	Remote Pendant Complete w/Logic
2	1	33228	Throttle Control Assembly
3	1	33230	On/Off Switch Only
4	2	33222	Clamp Button Kit
5	1	33231	Air Valve Body
6	1	33390	Remote Box Only
7	1	33226	Swivel Nut
8	3	33232	Mounting Bracket
9	3	33233	Spacer
10	1	33378	Faceplate
11	1	33224	Flipflop Element
12	1	33225	Time Delay
13	1	33391	Time Delay Base
14	5	33393	Pipe to Snap Lock 90 Degree Fitting
15	1	33223	Not Element
16	1	33394	SAE to Snap Lock Tee
17	1	33395	SAE to Snap Lock Tee
18	3	33396	Snap Lock Tee
19	1	33397	Throttle Handle Kit
20	1	33398	30' Air Hose Cover
21	1	33399	5/16" Air Tubing
22	1		Wink Light (Optional)

NOTE: See Section 7.11 Page 75 for Airline Schematic.

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.9- 260 Remote Control Pendant

7.9.2 - 260 Remote Control Pendant - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.10- Hydraulic Schematic - Model 300 Vibro Hammer & Power Pack

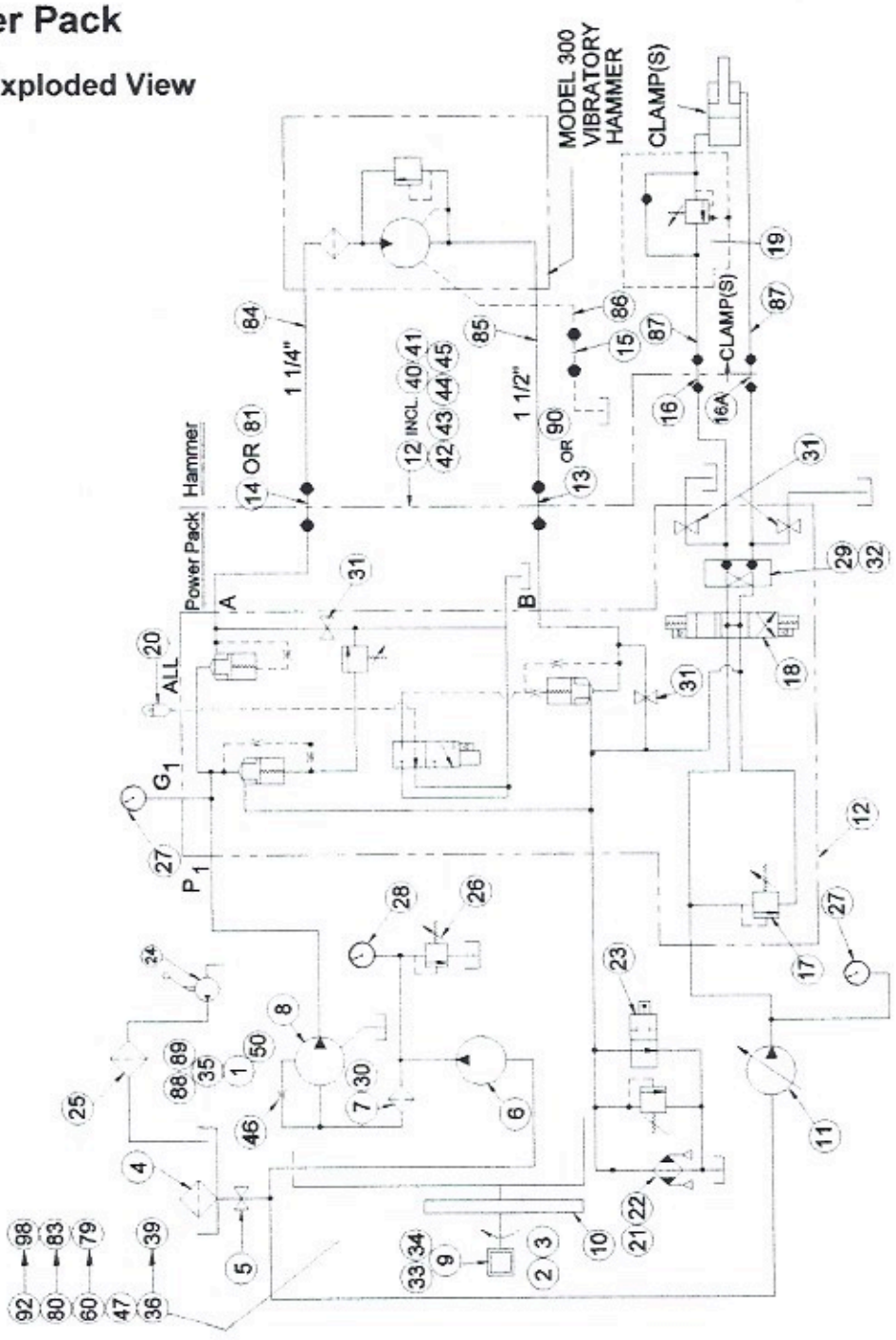
7.10.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	33106	Hydraulic Reservoir
2	1	33105	Tubing Skid/60 Gal. Tank
3	1	33351	Enclosure
4	1	33257	4" Suction Strainer
5	1	33357	4" Shut-Off Valve
6	1	00681	Precharge Pump
7	1	33356	Precharge Filter
8	1	33007	Main Drive Pump
9	1	3406	Caterpiller Diesel Engine
10	1	33353	Pump Drive 1:1.I4 Increase
11	1	33283	Clamp Pump
12	1	33093	Manifold
13	1	33062	Return Quick Disconnect Set
14	1	33062	Supply Quick Disconnect Set
15	1	33065	Case Drain Quick Dis connect
16	2	33069	Clamp Quick Disconnect
17	1	00434	Clamp Main Relief
18	1	00446	Clamp Control Valve
19	1	33041	Clamp Check Valve
20	1	33235	Soft Start Accumulator
21	1	33245	Cooler W/Mounting Kit
22	1	33235	Precharge Relief
23	1	33368	Thermal Valve
24	1	33359	Hand Pump
25	1	33184	Hand Pump Filter
26	1	33235	Ful Flow Relief 60 psi
27	2	33194	Nosohok 0-6000 Gauge
28	1	33195	Nosohok 0-400 Gauge
29	1	00447	Rexroth Crossover Pilot Relief
30	1	33342	Orifice

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.10 - Hydraulic Schematic - Model 300 Vibro Hammer & Power Pack

7.10.1 - Exploded View



SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.11- Air Schematic - Remote Control & Pendant - Vibro Power Pack

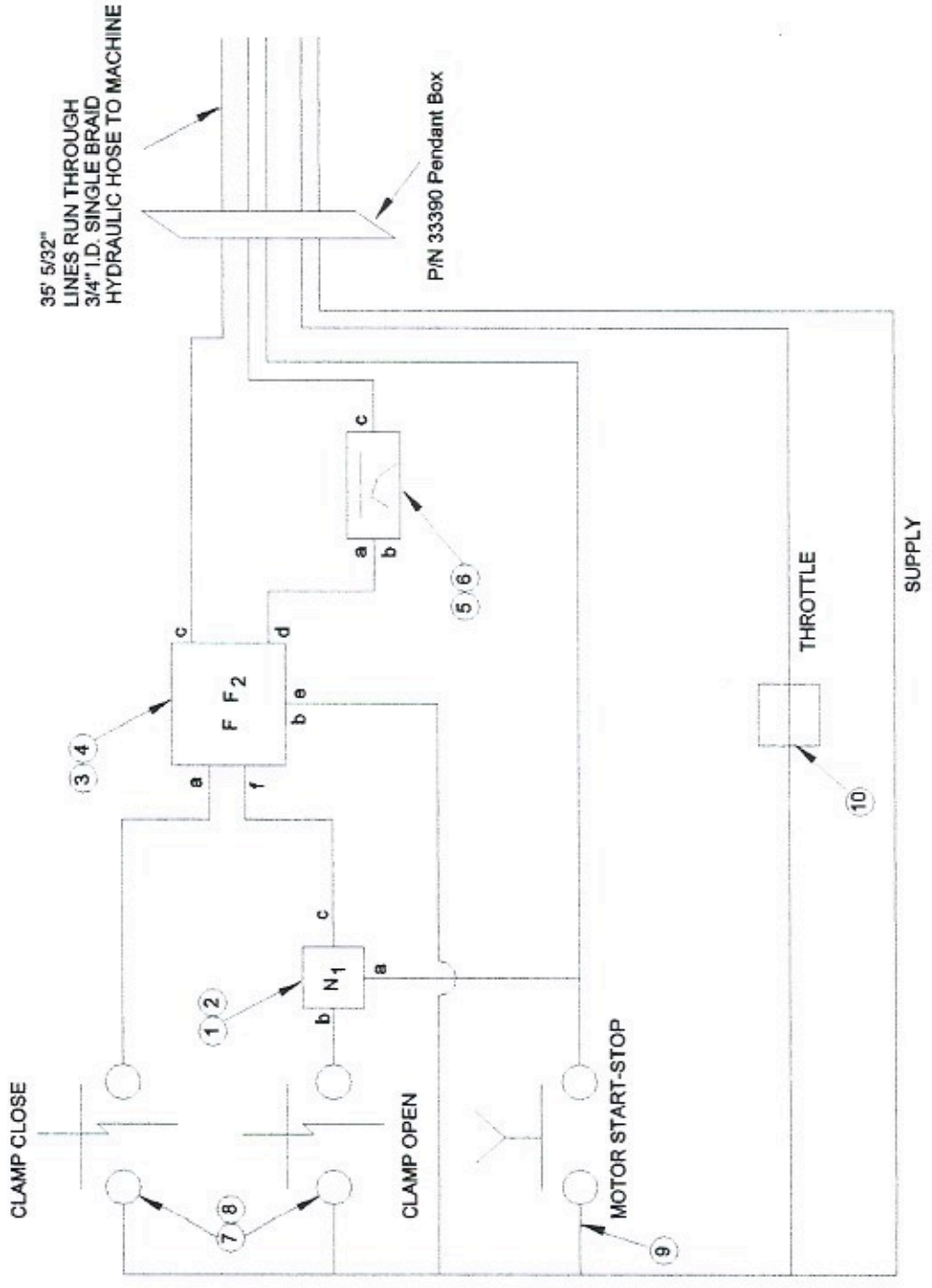
7.11.1 - Bill Of Materials

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1	1	33223	Aro Not Element
2	1	59387	Aro Base
3	1	33224	Aro Flip Flop Element
4	1	33391	Aro Base
5	1	33225	Aro Adjustment Pulse Element
6	1	33391	Aro Base
7	1	33222	Aro Push Button
8	1	33231	Aro Valve Kit
9	1	33230	On/Off Switch Only
10	1	33185	Williams Air Throttle Valve

SECTION 7 - DIAGRAM OF PARTS - CONTINUED

7.11- Air Schematic - Remote Control & Pendant - Vibro Power Pack

7.11.1 - Exploded View



NOTES

PLACARD SECTION

SECTION 8 - PLACARDS AND SAFETY SIGNS

CLAMP

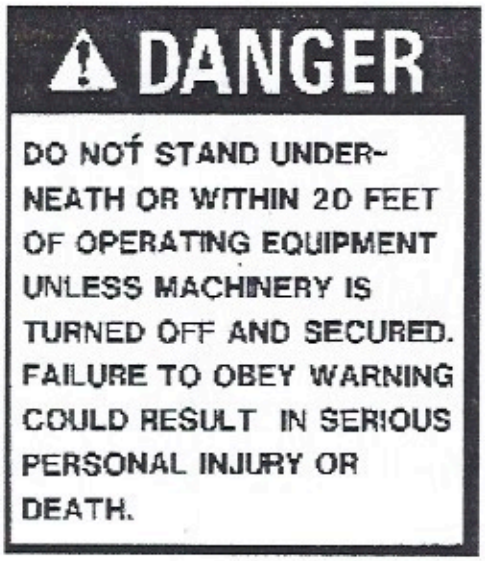
NO. 2 DIESEL FUEL

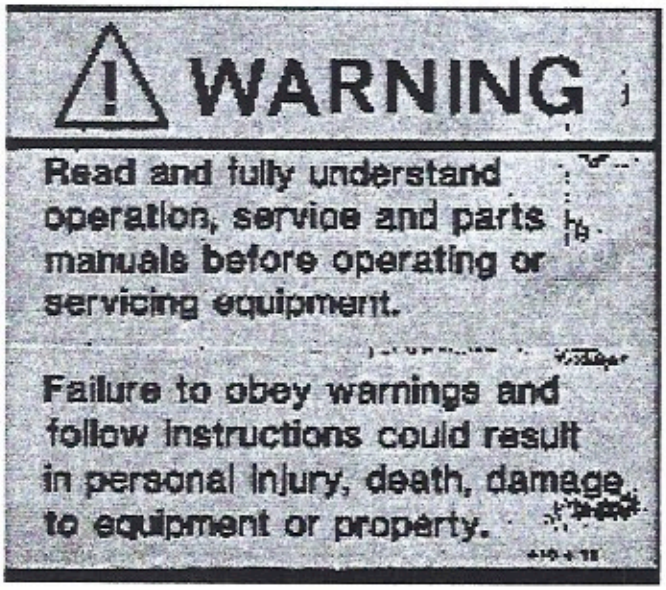
MOBIL AW 46

CHARGE

SECTION 8 - PLACARDS AND SAFETY SIGNS - CONTINUED

SECTION 8 - PLACARDS AND SAFETY SIGNS - CONTINUED



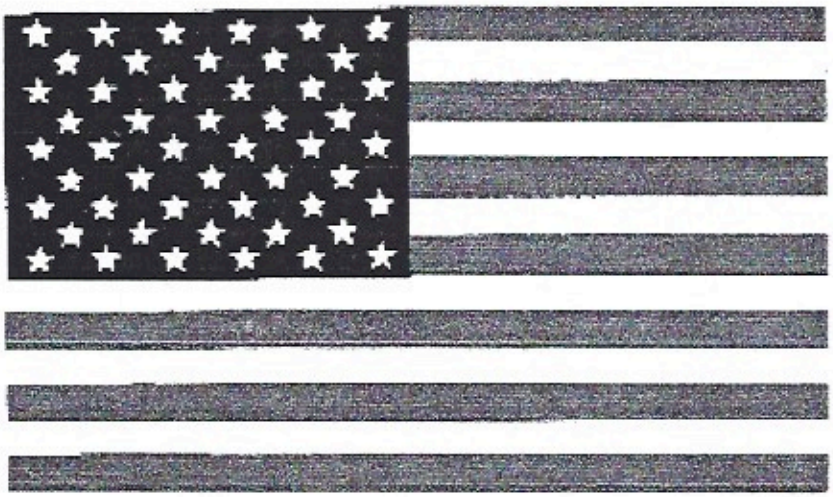


SECTION 8 - PLACARDS AND SAFETY SIGNS - CONTINUED

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.



MADE IN AMERICA

SECTION 8 - PLACARDS AND SAFETY SIGNS - CONTINUED

BEFORE STARTING

1. CHECK TO MAKE SURE MAIN HYDRAULIC RESERVOIR VALVE IS IN THE "ON" POSITION OR "DOWN" POSITION. PUMP DAMAGE WILL RESULT IF ENGINE IS STARTED WHEN CLOSED.

2. CLOSE "PRESSURE BLEED-OFF" FAUCET VALVES, (4) LOCATED ON TOP OF HYDRAULIC MANIFOLD. DAMAGE TO CLAMP JAWS WILL RESULT IF NOT IN THE CLOSED POSITION DURING OPERATION OF EXCITER.

3. TO AVOID NEEDLESS FIELD SERVICE CHARGES, **MAKE SURE YOUR QUICK DISCONNECTS ARE PROPERLY SEATED AND FULLY ENGAGED.** MOST MALFUNCTIONS OF HYDRAULICS ARE DUE TO IMPROPERLY CONNECTED QUICK DISCONNECTS.

HYDRAULIC POWER SYSTEMS INC.
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NORTH KANSAS CITY, MISSOURI 64116
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