OPERATING AND MAINTENANCE MANUAL

J&M MODEL 815

VIBRATORY PILE DRIVER/EXTRACTOR

WITH MODEL 570D POWER PACK

Serial Numbers: 174135 & Above

J&M FOUNDATION EQUIPMENT

SPECIALIZING IN PILE DRIVING EQUIPMENT

OM-815/570-1095

Model 815
Vibratory Driver/Extractor

PREFACE

This manual was prepared to acquaint the owner, operator and serviceman with the operation and maintenance of the vibratory driver/extractor. We suggest that this manual be carefully studied before operating or undertaking any maintenance work on the unit.

This manual is organized into two major categories.

The first category is for routine OPERATING INSTRUCTIONS of the unit and includes a GENERAL DESCRIPTION section, which presents a basic explanation of the driver/extractor and some of its specifications. The MAINTENANCE AND ADJUSTMENT section should be referred to periodically for normal servicing of equipment. All machines and equipment require systematic, periodic inspection and maintenance, if they are to perform satisfactorily, over a long period of time. The driver/extractor is primarily a vibrating machine and if not given the best of care, or if improperly used and maintained, it is self-destructive. Therefore, the unit should receive at least the same care and maintenance as other high quality construction equipment.

The second category is for parts reordering and it includes both a PARTS LIST and a pictorial drawing of the assembly, for easier determination of the required part. Refer to the ORDERING PARTS section of the PARTS LIST for more specific procedures regarding parts ordering. Adherence of the listed procedures will insure receipt of the required part(s) with the minimal amount of delay or error.

Model 815
Vibratory Driver/Extractor

WARRANTY

J&M FOUNDATION EQUIPMENT STANDARD WARRANTY

J&M Foundation Equipment (J&M) warrants new products sold by it to be free from defects in material or workmanship for a period of 90 days after date of delivery to the first user and subject to the following conditions:

J&M's obligation and liability under this WARRANTY is expressly limited to repairing or replacing, at J&M's option, any parts which appear to J&M, upon inspection, to have been defective in material or workmanship. Such parts shall be provided at no cost to the user, at the business establishment of J&M or the authorized J&M distributor of the product, during regular working hours. This WARRANTY shall not apply to component parts or accessories of products not manufactured by J&M and which may carry the warranty of the manufacturer thereof, or to normal maintenance (such as engine tune-up) or to normal maintenance parts (such as oil filters). Replacement or repair parts installed in the product covered by this WARRANTY are warranted only for the remainder of the warranty, as if such parts were original components of said product. J&M COMPANY MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS, FOR ANY PARTICULAR PURPOSE.

J&M's obligation under this WARRANTY shall not include any transportation charges, cost of installation, duty, taxes or any other charges whatsoever, or any liability for direct, indirect, incidental, or consequential damage of delay. If requested by J&M, products or parts for which a warranty claim is made are to be returned, transportation prepaid to J&M. Any improper use, including operation after discovery of defective of worn parts, operation beyond rated capacity, substitution of parts not approved by J&M or any alteration or repair by others in such manner as in J&M's judgement affects the product materially and adversely, shall void this WARRANTY.

NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGE IS MADE IN WRITING AND SIGNED BY AN OFFICER OF J&M.

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OPERATING INSTRUCTIONS (CONTINUED)

PARTS LIST

Model 815
Vibratory Driver/Extractor

I. GENERAL DESCRIPTION

A. GENERAL

The J&M Model 815 is a variable-frequency vibratory pile driver/extractor designed to drive and extract sheet, pipe, timber and concrete piles, caisson pipe and H, I and wide-flange beams.

The Model 815 operates in a frequency range of 800 to 1600 vibrations per minute to provide maximum pile penetration rates in a wide variety of soils. The unit has an eccentric moment of 4000 inch-pounds and operates with an amplitude of 1/2 to 1 inch.

The vibratory driver unit consists of two major components. (1) The vibrator with attached clamp and(2) the power unit with remote control pendant.

I. GENERAL DESCRIPTION

B. VIBRATOR

The vibrator consists of two major components. (1) The vibration case and (2) the vibration suppressor.

The vibration case contains eight eccentric weights which rotate in a vertical plane to create vibration. The eccentric weights are driven by two hydraulic motors The vibration suppressor contains eight rubber elastomers to isolate the vibration case from the crane line . The suppressor is designed for a maximum line pull of 4 0 tons during extraction.

C. HYDRAULIC CLAMP

Three types of hydraulic clamps are available for the Model 815 vibrator. The Model 126 universal clamp head will drive and extract most types of sheet piling, 14" H.beams, and wide flange beams. The Model 127 Z-pile clamp is designed especially for single Z-sheets. It will also handle Z-pile doubles. The Model 80 caisson clamps are used in pairs with either the 7-foot or 11-foot caisson beam to drive and extract pipe from 15" ID to 132" OD.

D. POWER UNIT

The Model 815 vibrator is power by the J&M Model 570 power pack. The 570 power pack is powered by a Caterpillar 3408TA diesel engine. The engine develops 503 HP at 2100 RPM.

Three hydraulic hoses, 150 feet in length, connect the power unit to the hydraulic motors on the vibrator. Two other hydraulic hoses run from the power unit to the hydraulic clamp.

I. GENERAL DESCRIPTION

E. REMOTE-CONTROL PENDANT

The vibrator is operated by a hand-held remote control pendant. The pendant has two, two-way switches and an indicator light. One switch (VIBRATOR SWITCH) starts and stops vibration. The other switch (CLAMP SWITCH) closes and opens the hydraulic clamp. The light indicates that adequate clamping pressure exists for vibration to begin. Note: Controls are duplicated on the control panel in case the pendant is damaged. (See pg.III-6, Section E-e)

F. SPECIFICATIONS

1. Constant improvement and engineering progress make it necessary that we reserve the right to make specification changes without notice.

2. MODEL 815 VIBRATOR (with hydraulic clamp)

Type.....Hydraulic
Eccentric Moment....4000 In-lbs.
Frequency.....800-1600 VPM
Amplitude.....1/2"-1"
Pile Clamping Force....20 Tons
Max. Line Pull for
Extraction.....40 Tons
Suspended Weight with 126
Clamp.....16,700 lbs.
Length **[L]**.....96 in.
Width **[W]**.....28 in.
Throat Width **[T]**.....12 in.
Height with Clamp **[HH]**..122 in.
Height without clamp **[H]**...95 in.

3. MODEL 570 POWER UNIT

Type.....Diesel
Engine.....CAT 3408TA
Horsepower (2100 RPM).....503
Weight.....14900 lbs.
Length **[l]**.....154 in.
Width **[w]**.....60 in.
Height **[h]**.....90 in.

Model 815
Vibratory Driver/Extractor

II. PREPARATION FOR OPERATION

A. GENERAL

When unloading and unpacking the vibratory driver, use extreme care. For your protection, make a thorough inspection of the unit immediately on delivery. In case of any damage or shortage, notify the transit agent at once and have the delivering carrier make a notation on the freight bill.

B. SAFETY PRECAUTIONS

Safety is basically common sense. There are standard safety rules, but each situation has its own peculiarities which can not always be covered by rules. Therefore, your experience and common sense will be your best guide to safety. Be ever watchful for safety hazards and correct deficiencies promptly.

Use the following safety precautions as a general guide to safe operations:

1. When operating in a closed area, pipe exhaust fumes outside. Continued breathing of exhaust fumes may be fatal.

2. When servicing batteries, do not smoke or use an open flame in the vicinity. Batteries generate explosive gas during charging. There must be proper ventilation when charging batteries.

3. When filling fuel tank, do not smoke or use open flame in the vicinity.

4. Be extremely careful when using a carbon tetrachloride fire extinguisher in a closed area as it produces toxic vapor. Provide adequate ventilation before entering a closed area where carbon tetrachloride has been used.

5. Never adjust or repair the unit while it is in operation.

II. PREPARATION FOR OPERATION

B. SAFETY PRECAUTIONS (CONTINUED)

6. Never operate the diesel engine with the governor linkage disconnected to control the fuel rack.

7. Remove all tools and electrical cords beforestarting.

8. Store oily rags in containers.

9. Never store flammable liquids near the engine.

REMEMBER, SAFETY IS EVERYONE'S BUSINESS.

C. RIGGING OF VIBRATOR

A steel wire rope sling must be connected to the lifting pin of the vibration suppressor. The required strength of this sling depends on the capacity of the crane and the work to be carried out. A safety factor of five is recommended. Several turns of a smaller diameter cable will usually last longer than one turn of a larger diameter cable.

D. CONNECTION OF HYDRAULIC CLAMP

The vibrator is usually shipped with the hydraulic clamp already attached.

If the clamp is not attached, it will be necessary to attach it to the bottom of the vibrator. Orient the clamp to the vibrator with the clamp cylinder end (movable jaw) at the same end of the vibrator at which the hose chute is mounted. All eight (1.5-6UN x 5.00) bolts must be in place and torqued to approximately 2800 ft.lbs. To do this place a pipe over the end of the Allen wrench to provide a six-foot lever arm. Have two men tighten each bolt.

For caisson work, the caisson beam must be attached to the bottom of the vibrator and tightened as above. Then slide the clamps into position on the caisson beam.

II. PREPARATION FOR OPERATION

E. CONNECTION OF HYDRAULIC HOSES

1. Connection of hoses at power unit.

   a. The vibrator and hydraulic clamp are connected to the power unit by five hydraulic hoses (Fig. 1).

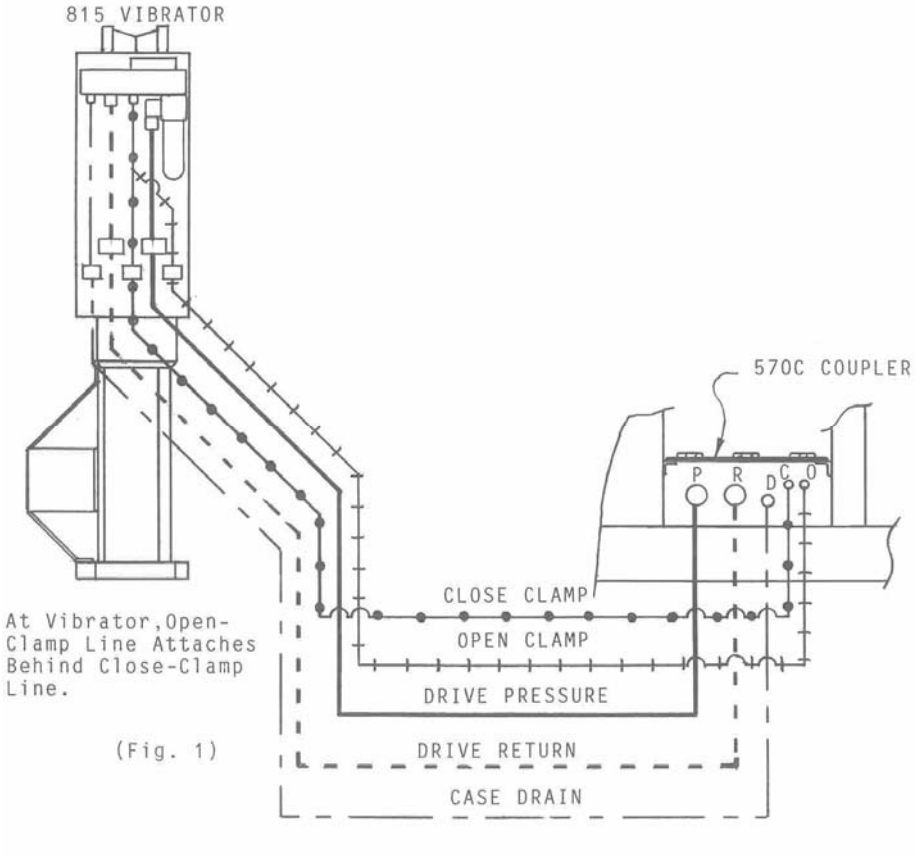
   CAUTION: The power unit must be shut down during connection of the hydraulic hoses.

   b. The hoses connect to the power unit with quick-disconnect couplers. The host couplers are arranged to insure correct connections at the power unit. See the diagram (Fig. 1) below for correct hose connection.

   c. Clean couplers with a lint-free cloth before making connections.

   d. Make sure that the couplers are fully run up. They should be fully hand tight. Do not use wrenches to tighten.

   e. Tighten the set screws on the two large couplers.



(Fig. 1)

II. PREPARATION FOR OPERATION

E. CONNECTION OF HYDRAULIC HOSES (CONTINUED)

2. Connection of hoses at vibrator.

a. The vibrator is usually shipped with the hoses attached to the vibrator. If the hoses have been shipped separately, they must be connected in the field. Fig. 1 on the previous page shows the correct arrangement of the five hoses connecting the power unit to the vibrator.

CAUTION: Starting the vibrator with the hoses reversed will result in low power or possible ruptured hoses.

b. The vibrator is usually shipped with the hydraulic clamp and hoses attached. If the clamp has been shipped separately, the two hoses connecting the clamp to the vibrator must be connected. Fig. 2 shows the correct arrangement of these hoses.For caisson clamps, four hoses must be connected. The two connections on the opposite end of the vibrator are reversed from the positions shown on the drawing below.The clamp connections are the same.

II. PREPARATION FOR OPERATION

F. BLEEDING HYDRAULIC CLAMP HOSES

1. When the vibrator and hydraulic clamp are shipped with all hoses attached (between vibrator and clampand five main hoses connected to the vibrator), thehoses are usually full of fluid and may be used immediately. However, if any of the clamp hoses are connected at the jobsite or if air is present in hoses, they must be bled prior to operation.

2. Read SECTION III - OPERATING INSTRUCTIONS.

3. Start and warm up the diesel engine in accordance with SECTION III-C - STARTING AND WARMING UP ENGINE.

4. With the engine warmed-up and running at 1200 RPM, loosen the close-clamp line at the hydraulic clamp. Turn the clamp switch on the remote-control pendant to CLOSE. Wait until fluid flows from the connec-tion at the hydraulic clamp. When fluid flows with-out air, tighten the connection.

5. After the line has been bled, alternately turn the clamp switch to CLOSE and OPEN to insure that the clamp is working properly. It may be necessary to bleed the line more than once. The open-clamp line may also require bleeding.

G. FILLING VIBRATOR PRESSURE HOSE

1. The vibrator is usually shipped with the vibrator hydraulic hoses full of fluid and the unit may be used immediately. However, if the pressure hose has been removed from the vibrator, the hose should be allowed to fill with hydraulic fluid prior to fullspeed operation.

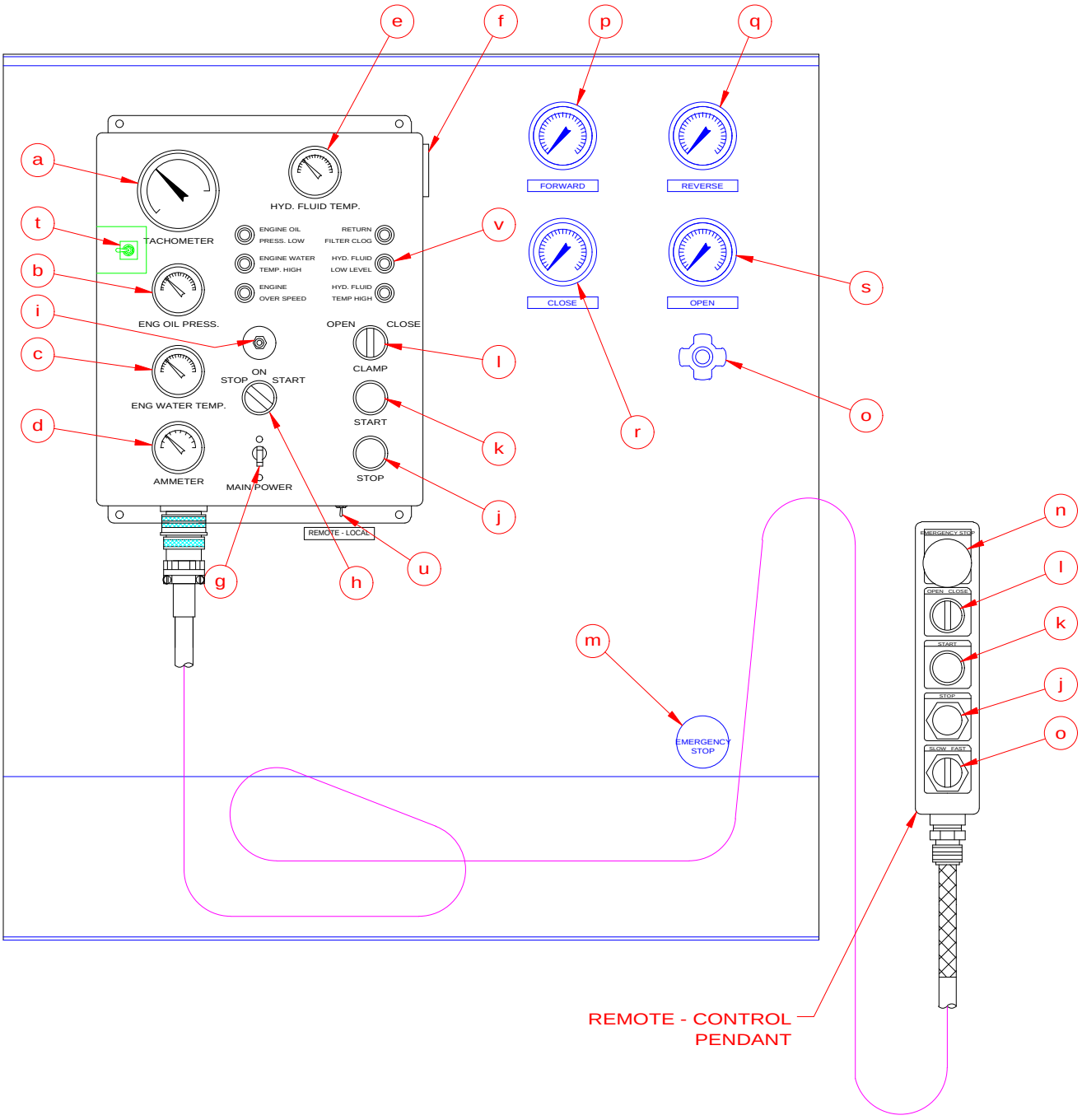
2. Read SECTION III - OPERATING INSTRUCTIONS.

3. Start and warm up the diesel engine in accordance with SECTION III-C - STARTING AND WARMING UP ENGINE.

4. With the engine warmed up and running at 1800 RPM,the pressure hose will fill with hydraulic fluid in about ten minutes. Wait ten minutes for this to occur. Do not press the START button on the control pendant.

III. OPERATING INSTRUCTIONS

CONTROL PANEL WITH REMOTE CONTROL-PENDANT



(Fig. 1)

III. OPERATING INSTRUCTIONS

A. COMPLETION OF SET-UP AND MAINTENANCE

1. Complete all preparation as described in Section II.

2. Read Section IV - MAINTENANCE AND ADJUSTMENTS and perform any required maintenance.

B. CONTROL PANEL

1. The control box (Fig. 1, page III-1) at the side of the power pack contains the controls and gages for the diesel engine,vibrator,and the OPERATION AND MAINTENANCE INSTRUCTIONS.

2. Control panel contains the following controls,gages and shutdown indicators.

   a. Engine Tachometer
   b. Engine Oil Pressure Switch Gage
   c. Engine Water Switch Gage
   d. Engine Ammeter
   e. Hydraulic Fluid Temperature Switch Gage
   f. Engine Hour Meter
   g. Main Power Switch - ON-OFF Switch & Cir. Breaker
   h. Engine - ON-OFF-START - Switch for Diesel Engine
   i. Engine Shutdown Reset Button - over ride button for engine shutdown switch. Must be held in until oil pressure exceeds 30 PSI.
   j. Vibrator Stop Button
   k. Vibrator Start Button - with clamp light.
   l. Clamp Switch - open - close.
   m. Emergency Stop - pull out to stop engine.
   n. Emergency Stop - push to stop engine.
   o. Engine Throttle
   p. Pressure Gage - Forward
   q. Pressure Gage - Reverse
   r. Pressure Gage - Close Clamp
   s. Pressure Gage - Open Clamp
   t. Vibrator - Auger Switch
   u. Remote - Local Switch
   v. Shutdown indicator lights (6)

1. Engine Oil Pressure shutdown indicator - comes on if engine has been shut down automatically due to engine oil pressure being low.
2. Engine Water Temperature shutdown - comes on if engine has been shutdown automatically due to engine water overheating.
3. Engine Overspeed shutdown indicator - comes on if engine has been shut down automatically due to the engine being run at excessively high RPM'S.

III. OPERATING INSTRUCTIONS

B. CONTROL PANEL (CONTINUED)

4. Filter Clogged shutdown indicator - comes on if engine has been shut down automatically due to the hydraulic fluid return filter being clogged.
5. Hydraulic Fluid Level Low shutdown indicator comes on if engine has been shut down automatically due to low hydraulic fluid level in the reservoir.
6. Hydraulic Fluid Temperature High shutdown indicator - comes on if engine has been shut down automatically due to high hydraulic fluid temperature.

3. The Operating & Maintenance Instructions on the control box door are there as reminders only. They are not complete and not intended to substitute for a through understanding of the Operators Manual.

III. OPERATING INSTRUCTIONS

C. STARTING AND WARMING UP ENGINE

1. Before starting the engine, read the CATERPILLAR OPERATION GUIDE carefully. Follow the engine starting, operating and maintenance procedures in that manual.

2. The diesel engine should not be started if the temperature of the hydraulic fluid is below 0 deg F. If ambient temperatures below 0 deg. F are anticipated, an immersion heater for the hydraulic fluid is available. Consult J&M for details.

3. Turn the MAIN POWER switch on the control panel to on.

4. Pull out the ENGINE THROTTLE about half way. Pressing the button on the end of the throttle allows rapid throttle adjustment. Turning the throttle allows fine adjustment. BE sure the EMERGENCY STOP knob is fully pushed in.

5. Turn the ENGINE START switch to START. Press and hold the SHUTDOWN RESET in until engine oil pressure exceeds 30 PSI.

6. Adjust the throttle until the engine is running at 1500 RPM and allow to warm up five minutes. After the engine is warmed up, adjust throttle so engine runs at 2300 RPM's under no load. The engine should hold 2100 RPM's under load.

7. Allow the temperature of the hydraulic fluid to come up to at least 30 deg. before starting the vibrator.

D. WARMING HYDRAULIC FLUID

1. The vibrator should not be operated at full speed if the temperature of the hydraulic fluid is below 60 deg. F. The HYDRAULIC FLUID COLD light on the control panel will be on if fluid temperature is below 60 deg. F.

2. If temperature is below 60 deg. F, set the engine at 1500 RPM and press the START button on the control pendant to start the vibrator. Allow the vibrator to run until the temperature of the hydraulic fluid exceeds 60 deg. F.

III. OPERATING INSTRUCTIONS

D. WARMING HYDRAULIC FLUID (CONTINUED)

3. When the engine is warmed up and hydraulic fluid temperature is at least 60 deg. F, full speed operation may begin.

4. The hydraulic fluid temperature is maintained within acceptable limits by the Hydraulic Temperature Fluid Switch Gage. Fluid temperature should never exceed 160 deg.F. The engine will automatically shut down if fluid temperature exceeds 160 deg. F.

CAUTION: Do not operate the vibrator if hydraulic fluid temperature exceeds 160 deg. F as this may damage hydraulic components.

E. OPERATION OF REMOTE-CONTROL PENDANT

1. The operation of the vibratory driver is controlled by the remote-control pendant. The pendant is connected to the control cabinet with 50 feet of elec trical cable to permit operation from any advantageous position near the vibrator.

2. The pendant has two control buttons, a two way switch, and an indicator light.

   a. To Clamp to Pile:

      Position vibratory driver on pile. Turn the clamp switch on the pendant to CLOSE. The CLAMP light (Start Button) on the pendant will come on when the hydraulic clamp has achieved adequate pressure to permit vibration to begin. The light should normally come on in a few seconds.

   b. To Start Vibration:

      Press the START button (lighted).

   CAUTION: Do not press the START button until the CLAMP light comes on, indicating adequate clamping pressure.

III. OPERATING INSTRUCTIONS

E. OPERATION OF REMOTE-CONTROL PENDANT (CONTINUED)

c. To Stop Vibration:

Press the STOP button.
The vibrator will stop vibration in a few seconds. If the STOP button does not stop the vibrator, turn the MAIN POWER switch on the control panel to OFF.

d. To unclamp from pile.

Turn the CLAMP switch to OPEN to release the hydraulic clamp so that the vibrator can be removed from the pile. Hold the CLAMP switch in the OPEN position for approximately 10 seconds or until a visual check shows the jaws to be fully open.

CAUTION: Do not turn the switch to OPEN until a visual check indicates that vibration has stopped.

e. If the remote control pendant is damaged or the pendant line is cut, you may still operate the vibrator by using the control switches on the control panel. (See Fig. 1 on page III-1 itemsJ, K, L). To activate these switches, find the toggle switch on the bottom of the control panel, labeled "REMOTE-LOCAL". Turn the switch to LOCAL and the switches on the control panel will be functional, and the remote control pendant will be disabled.

F. CHANGING FREQUENCY

1. In order to provide maximum flexibility in achieving optimum pile penetration and extraction rates, the frequency of the vibratory driver is adjustable.

2. The frequency can be varied from 600 to 1600 vibrations per minute by changing engine speed. Engine speed is changed with the ENGINE THROTTLE on the control panel. Vibration frequency corresponds to engine speed according to the table shown on page III-7.

III. OPERATING INSTRUCTIONS

F. CHANGING FREQUENCY (CONTINUED)

ENGINE RPM	VIBRATOR VPM
2300	1600
2010	1400
1730	1200
1440	1000
1150	800
860	600

G. SHUT DOWN

1. Stop the vibrator.
2. Allow the diesel engine to run for five minutes at 1100 RPM.
3. Reduce speed to low idle for about thirty seconds.
4. Check engine crankcase oil level while engine is idling.
5. Stop the engine by turning the ENGINE START switch to OFF.
6. Turn MAIN POWER switch to OFF.
7. CAUTION:If the diesel engine is shut down while the vibrator is clamped to a pile, the clamp check valve will keep the vibrator clamped to the pile. However, system leakage could result in a loss of clamp pressure. Therefore, it is not recommended to leave the vibrator clamped to a pile when the diesel engine is not running.

IV. MAINTENANCE AND ADJUSTMENTS

A. GENERAL

Preventive maintenance includes normal servicing that will keep the vibratory driver, clamp, and power unit in peak operating condition and prevent unnecessary trouble from developing. This servicing consists of periodic lubrication and inspection of the moving parts and accessories of the unit.

Lubrication is an essential part of protective maintenance, controlling to a great extent the useful life of the unit. Different lubricants are needed and some components in the unit require more frequent lubrication than others. Therefore, it is important that the instructions regarding types of lubricants and frequency of their applications be closely followed.

To prevent minor irregularities from developing into serious conditions that might involve shut-down and major repair, several other services or inspections arerecommended for the same intervals as the periodic lubrications. The purpose of these services or inspections is to assure the uninterrupted operation of the unit.

Thoroughly clean all lubrication fittings, caps, filler and level plugs and their surrounding surfaces beforeservicing. Prevent dirt from entering with lubricants and coolants. The intervals given in the schedule are based on normal operation. Perform these services,inspections, etc., more often as needed for operation under abnormal or severe conditions.

B. DAILY

1. Check the entire unit prior to and during set-up each day or at the beginning of each shift.

2. Prior to starting the power unit or at the beginning of each shift, check the following items:

   a. Visibly inspect all bolts, nuts and screws including the bolts fastening the hydraulic clamp to the vibration case to insure they are tight. IMPORTANT: vibration loosens bolts check carefully.
   b. Tighten bolts holding gripping jaws in hydraulic clamp.
   c. Grease plunger in hydraulic clamp with any good multi-purpose grease.
   d. Check the oil level in the vibration case and add oil if required. The oil level should be in the middle of the sight glass. Change oil if milky or contaminated.
   e. Check the fluid level in the hydraulic reservoir and refill if necessary.

   CAUTION: It is absolutely imperative that no dirt or other impurities be permitted to contaminate the hydraulic fluid. Any contamination will drastically shorten the life of the high-pressure hydraulic system.

IV. MAINTENANCE AND ADJUSTMENTS

B. DAILY (CONTINUED)

f. Visually check all hoses for signs of damage or cuts that might cause hose failure during operation. Be sure all connections are tight, especially the quick-disconnect couplers.
g. Visually inspect all suppressor elastomers.
h. Electrical components need no maintenance except periodic wiping with a clean, dry, lint-free cloth to remove dust.
i. Perform all daily (10 Service Meter Units) maintenance checks and lubrication in the CATERPILLAR OPERATION GUIDE. For the J&M Model 570 power unit, the HOUR METER on the control panel may be considered to read Caterpillar's "Service Meter Units".

3. After engine start-up, check the following:

a. Check all hydraulic hoses for leaks. Make sure they hang freely with no kinks.
b. Check both pumps and all hydraulic manifolds for leaks.
c. Check the filter indicators. The filter on the vibrator may be checked at any time. The return filters on the power unit must be checked with the diesel engine running at full speed.

C. 125 HOURS (125 Service Meter Units)

1. Drain and refill the vibration case.

2. Perform all maintenance checks and lubrication indicated in the Caterpillar OPERATION GUIDE.

D. 250, 500 HOURS and Other

1. See Caterpillar OPERATION GUIDE.

2. After the first 500 hours, drain and replace the lubricant in the multi-pump drive, there after change every six months.

E. ANNUALLY

1. Have the hydraulic fluid tested by a local hydraulic service center. Replace if required.

2. See Caterpillar OPERATION GUIDE.

V. MAINTENANCE AND ADJUSTMENTS

F. SEVERE CONDITIONS

1. The service intervals specified are based on normal operating conditions. Operation under unusual conditions require some adjustments in servicing intervals.

2. When the average temperature is above 80 deg. F or below -10 deg. F, reduce service intervals to one- half of those specified in Sections C through E.

3. When operating in the presence of dust or sand, reduce service time intervals by one- half of those specified.

4. When operating in excess of twelve hours per day, reduce service time intervals by one-half of those specified.

5. When operating in air with high salt or moisture, the servicing intervals need not usually be changed. However, the unit should be inspected weekly to determine if additional servicing be required. Also, have hydraulic fluid tested quarterly.

6. During stand-by or inactive period, the servicing intervals may be twice those specified above. The unit should be exercised every week. also, r efer to the Caterpillar OPERATION GUIDE.

IV. MAINTENANCE AND ADJUSTMENTS

G. LUBRICATION

1. Crankcase (Diesel Engine)

a. Follow the engine manufacturer's maintenance schedule and the lubricating oil specifications outlined in the CATERPILLAR OPERATION GUIDE.
b. The lubricant shall meet the performance requirements of API Service Classifications CD or MIL-L-2104C.
c. New engines are shipped with ASHLAND 400M+HDT 15W-40 but the following multi-grade crankcase oils are recommended for use or replacement in normal operation (10 deg. F to 90 deg. F) (-12 deg. C to 32 deg. C).

AMOCO	- 15W-40	300
ARCO	- 15W-40	Fleet S3 Plus
BORON (BP)	- 15W-40	Vanellus C Extra
CHEVRON	- 15W-40	Delo 400
CITGO	- 15W-40	C500 Plus
CONOCO	- 15W-40	Fleet Supreme
EXXON	- 15W-40	XD3
GULF	- 15W-40	Super Duty Plus
MOBIL	- 15W-40	Delvac Super
PHILLIPS	- 15W-40	Super HD II
SHELL	- 15W-40	Rotella T
SUN	- 15W-40	Sunfleet Super C
TEXACO	- 15W-40	Ursa Super Plus
UNION	- 15W-40	Guardol
VALVOLINE	- 15W-40	All Fleet

d. For operation in extreme sub-zero climate, refer to the CATERPILLAR OPERATION GUIDE Crankcase Lubricating Oils or contact the nearest Caterpillar representative.

2. Vibration Case

The fluid level is easily read through the sight glass located at the lower center of the vibration case opposite the motor side. Lubricating oil may be added when necessary, through either of the holes in the vibration case top plate after removing the 1" pipe plugs. To drain the case, remove a 3/4" pipe plug at either end of the base plate. Tilt the case for complete drainage.

IV. MAINTENANCE AND ADJUSTMENTS

G. LUBRICATION (CONTINUED)

3. Multi-Pump Drive Adapter

The fluid level is easily checked by removing the 1/4 hex head pipe plug on the right side of the multi-pump drive adapter.Lubricating oil should be to this level. If low,lubricating oil may be added by removing the 1/2 socket head pipe plug located on the left side of the Multi-pump Drive Adapter. Draining the lubricating oil may be done by removing the 1/2 socket head pipe plug on the bottom of the Multi-pump Drive Adapter.

4. The preferred lubricating oil for J&M vibration cases and multi-pump drive adapters is “High Moly oil (Shaffer 268). Longer intervals between fluid changes and fewer maintenance hours spent on mechanical service can generally be realized with this fluid.

Therefore, whenever the "first preferred" oil is not available, or desired, and an alternate fluid is selected, it will be necessary to test and/or change the oil at shorter intervals.

Extensive tests have indicated that the use of Shaffer 268 results in cooler operation and extended bearing and gear life.

The vibration case and multi-pump drive adapter lubricant installed at the factory is SHAFFER 268 but the following gear lubes may be used when changing lubricants:

FIRST Preference Group :
- SHAFFER 268

SECOND Preference Group(Natural Petroleum Base):
- MOBIL SHC-634
- BORON Gearep 140
- CHEVRON Gear Comp. NL460
- CITGO Premium MP 85W-140
- CITGO Standard MP 85W-140
- GULF Lub 85W-140 Lub 85W-140
- PHILLIPS SMP 85W-140
- SHELL Omala 460 Omala 460
- SUN Sunep 1110

IV. MAINTENANCE AND ADJUSTMENTS

G. LUBRICATION (CONTINUED)

THIRD Preference Group (Natural Petroleum Base):

AMOCO Perma Gear EP140
ARCO Pennant NL 460
CONOCO EP 460
EXXON Spartan EP 460
PHILLIPS AP 140
TEXACO Meropa 460
UNION MP 85W-140
VALVOLINE Gear Lub 85W-140

SHAFFER 268 Lubricant is available from J&M in five gallon cans. See SECTION VIII - ORDERING PARTS, page VIII-48

5. Hydraulic System

To maintain the maximum operating efficiency in the precision parts of the hydraulic system, it is extremely important to eliminate factors which can cause breakdowns or unsatisfactory performance in the system. Among the most common of these factors are rust, corrosion, contamination and products of oil deterioration. Most problems can be minimized or avoided simply by maintaining a disciplined preventive maintenance program.

Some simple steps to follow as part of that program are:

a. Keep stored oil dry and clean at all times and always store in clean containers.
b. Always clean tools, spouts, lids, funnels, etc. when used in conjunction with the transfer of oil.

c. Never put dirty oil into the hydraulic system. Use only clean, uncontaminated oil of the types recommended below. Never return to the system any fluid which has leaked out.

NOTE: Foreign material in the hydraulic system can drastically effect the life and operation of many hydraulic component parts.

d. Clean or replace filter elements at the first indication that they are dirty or ineffective.

Mixing of different manufacturers' hydraulic fluid is not recommended. However, it can be done if the fluids are miscible (contain the same base and additive). It may be necessary to contact an oil supplier to determine this.

IV. MAINTENANCE AND ADJUSTMENTS

G. LUBRICATION (CONTINUED)

New power units are shipped with CHEVRON Clarity AW46 hydraulic oil. This oil exceeds the requirements of both the E.P.A. and U.S. Fish and Wildlife Service for non-toxicity and is inherently biodegradable. Adding any other oil from the list that follows, will contaminate the Clarity oil and the system will no longer be environmentally friendly.

Should the customer choose to use an alternate oil, the following recommendations may be used when replacing fluid in the hydraulic system.

FIRST Preference Group:
- CHEVRON Clarity AW46
- MOBIL DTE-15
- SUN 2105

SECOND Preference Group:
- ARCO Duro AW32
- CHEVRON Hydraulic AW32
- PHILLIPS Magnus A32
- SHELL Tellus 32

THIRD Preference Group:
- BORON Energol HLP32
- CITGO All-Temp HD
- CONOCO Super 32
- EXXON Nuto H32
- GULF Harmony 32AW
- SUN Sunvis 805 MG
- TEXACO Rando HD AZ32
- UNION Unax AW32

Whenever fluids from the second preference group are used, it is necessary to test the oil more often to insure that viscosity remains within recommended limits while in service. Using fluids from the third preference group requires even a more discerning inspection than use of fluids from the second group. Third Group oils may be used when temperature variations are less than those listed below.

The recommended fluids were chosen based on the hydraulic system operating temperature range being 5 deg. F (-15 deg. C) (cold [ambient[start-up to 160 deg. F (71 deg. C) (maximum operating).

IV. MAINTENANCE AND ADJUSTMENTS

G. LUBRICATION (CONTINUED)

When operating in arctic conditions, it is recommended to use an immersion heater to pre-heat the oil prior to starting . Contact J&M for other arctic operating procedures. It may also be necessary in extremely cold or hot climates to use a different viscosity oil which is better adapted to adverse conditions. Contact the nearest oil supply representative for suggested procedures.

CHEVRON Clarity AW46 hydraulic fluid is available from J&M in five gallon cans. See SECTION VIII - ORDERING PARTS, page VIII-48

H. DRAINING AND FILLING HYDRAULIC FLUID RESERVOIR

1. The Hydraulic reservoir is drained by removing a plug on the bottom of the reservoir.

2. The hydraulic reservoir is filled by the manual pump mounted on the back (engine side) of the reservoir. All fluid is pumped to the reservoir through the returned filter (F2) to insure no dirt enters the hydraulic system.

I. CHANGING HYDRAULIC RETURN FILTER ELEMENT

1. The return filters are located in the hydraulic reservoir below the Control Panel.

2. To remove elements, remove the two hex nuts and carriage bolts from the clamp halves. Remove clamp halves and cover plug. (Note: Approximately one gallon of hydraulic fluid will be lost.)

3. Remove the bypass valve and spring assembly from filter housing. Remove and separate the two elements. Save the plastic element connector.

4. Clean filter housing interior and all component parts with a lint-free rag.

5. Check Clamp seal for damage. Lubricate with multi-purpose grease.

6. Install two new elements on filter connector,slide element assembly into housing. Be sure inner most element engages tube in back of housing

7. Replaced bypass valve and spring assembly.

CAUTION: Failure to install support springs could result in element collapse with subsequent damage to oil cooler and/or filter housing.

8. Replace cover plug and clamp halves, tighten two nuts.

9. Repeat for second filter.

IV. MAINTENANCE AND ADJUSTMENTS

J. CHANGING VIBRATOR HYDRAULIC FILTER ELEMENT

1. The vibrator filter is located behind the hose guard at the end of the vibration suppressor.

2. Remove the two screws at the bottom of the hose guard and rotate the guard upward to expose the filter.

3. Unscrew the filter can. It Should be firmly hand tight.

4. Remove the old filter element and insert the new element.

5. Remove the O-ring and check it for cuts and nicks. Replace if damaged. Lubricate with multi-purpose grease.

6. Screw in the filter can with the new element until it is firmly hand tight.

7. Reset dirt indicator button.

8. Replace hose guard.

IV. MAINTENANCE AND ADJUSTMENTS

K. BOLT TORQUE INFORMATION

Torque, in foot-pounds, is determined by the length of the wrench handle (in feet) multiplied by the weight (or force in pounds) applied at the end of the handle. For example, if the wrench is one foot long and five pounds of force is applied at the end of the handle, the total torque applied would be five foot pounds. A six inch wrench would require ten pounds of force to obtain five foot pounds of torque.

Proper use of the torque wrench is important. To obtain the listed torques, a steady pull should be exerted to the handle until the desired torque is reached.

The following torque specifications apply to the bolts from the component assemblies listed. Whenever any of these bolts, are replaced, the given torque specifications should be adhered to.

VIBRATION SUPPRESSOR		Page VIII-7 & 9
Item 28, 60	3/8"-16	48 Ft/Lbs
Item 6, 12, 14, 26, 48 58, 78, 86	1/2"-13	119 Ft/Lbs
Item 3, 39, 67	5/8"-11	233 Ft/Lbs
Item 35, 42, 46	3/4"-10	417 Ft/Lbs
VIBRATION CASE		Page VIII-11
Item 37	14mm	119 Ft/Lb
Item 4	1/2"-13	119 Ft/Lbs
Item 7	3/4”-10	417 Ft/Lb
CLAMP BODY		Page VIII-36
Item 18	1-1/2"-6	2800 Ft/Lbs

V. HYDRAULIC CIRCUITRY (REFERENCE:HYDRAULIC SCHEMATIC PG V-4)

A. HYDRAULIC CLAMP

With the diesel engine running, hydraulic fluid is taken from the reservoir by the clamp pump (P2). The clamp pump flow returns to the reservoir if the clamp switch on the pendant has not been moved.

Turning the clamp switch on the control pendant to CLOSE activates the CLAMP CONTROL VALVE (V1). Hydraulic fluid is directed to the CLOSE CLAMP side of the hydraulic CYLINDER (CYL) in the hydraulic clamp. The clamp closes. Clamping pressure is indicated by the Clamp Pressure Gage (GA-3). When clamping pressure reaches approximately 4500 PSI, the CLAMP PRESSURE SWITCH (PS-1) deactivates the CLAMP CONTROL VALVE (V1), which directs the flow from the clamp pump to the reservoir. Pressure at the clamp is maintained by the CLAMP CHECK VALVE (CV5). If clamping pressure falls below 4200 PSI, the CLAMP PRESSURE SWITCH activates the CLAMP CONTROL VALVE to restore pressure.

Turning the clamp switch on the control pendant to OPEN activates the CLAMP CONTROL VALVE (V1). Hydraulic fluid is directed to the OPEN CLAMP side of the hydraulic cylinder. The pressure in the OPEN CLAMP line opens the CLAMP CHECK VALVE (CV5). The clamp opens. Pressure in the OPEN CLAMP line is indicated by the clamp pressure gage (GA-4).

Pressure in the clamping circuit is limited to 4800 PSI by the CLAMP RELIEF VALVE (RV2). The quick-disconnect couplers (QD3 & QD4) permit de-coupling of the clamp hoses at the power unit.

B. VIBRATOR DRIVE

With the diesel engine running, hydraulic fluid is taken from the reservoir by the DRIVE PUMPS (P1).Fluid pressure opens the cartridges CA1, CB1 and vents the hydraulic fluid back to the reservoir through the RETURN FILTER (F2), if the vibrator button has not been pushed.

Pushing the START button, on the control pendant, activates the FORWARD SOLENOID on the CONTROL VALVE (V2). By blocking the pilot flow from cartridges CB1 and CB2, the CONTROL VALVE (V2) causes these cartridges to close, thus directing pump flow to the VIBRATOR MOTORS (M).

V. HYDRAULIC CIRCUITRY

B. VIBRATOR DRIVE (CONTINUED)

Full motor speed is reached within a few seconds and the motor drive pressure is indicated by GAGE (GA - 1). Maximum drive pressure is limited to approximately 4800 PSI by the FORWARD RELIEF VALVE (RV1). The FORWARD RELIEF VALVE (RV1), if opened by over pressure, permits a small pilot flow from cartridges (CB1 AND CA2). This pilot flow causes cartridges (CB1 and CA2) to partially open and allows some or all of the pump flow to return to the reservoir. Flow to the motors is filtered by VIBRATOR FILTER (F3).Fluid returning from VIBRATOR MOTORS (M) open cartridge CB2 and returns to the reservoir through COOLER VALVE (V3) and RETURN FILTER (F2). Cartridge CB2 opens easily because its pilot flow is "vented" by BRAKE VALVE (RV4). BRAKE VALVE (RV4) is held open by pressure coming from the motor drive FORWARD system. Case drain fluid from the motors returns to the reservoir. Case drain pressure is limited to 50 PSI by the CASE DRAIN RELIEF VALVE (RV3).

Pushing the STOP button on the control pendant, de-energizes the CONTROL VALVE (V2) and "vents" (open) cartridges CA1,CB2, And CB1. Oil returning from the motors, during this "braking" period, re-closes cartridge CA2 by applying pressure through shuttle valve CC2. BRAKE VALVE RV4, now closed, blocks pilot flow from cartridge CB2, and causes it to apply back pressure to the motor return flow while the vibrator is stopping. The BRAKE VALVE RV4 limits back pressure to 1000 PSI. which can be monitored on PRESSURE GAGE GA-2.

Hydraulic fluid temperature is regulated by the COOLER VALVE (V3). When fluid temperature is below 100 deg. F, V3 directs the flow directly to the reservoir through FILTER (F2). When fluid temperature exceeds 100 deg. F, COOLER VALVE (V3) directs flow through the HEAT EXCHANGER (HE) before it enters the reservoir, through FILTER (F2). Excessive pressure in the HEAT EXCHANGER (HE) is prevented by CHECK VALVE (CV-2), which bypassed excess flow and limits pressure to 65 PSI.

The quick-disconnect couplers (QD1, QD2, and QD5) permit de-coupling of the drive and case drain hoses at the power unit.

V. HYDRAULIC CIRCUITRY

C. OTHER

Returning fluid is filtered by the RETURN FILTER (F2). The return FILTER CHECK VALVE (CV1 and CV3) prevents fluid loss from the reservoir when the filter elements are removed.

A manual PUMP (MP) is provided to fill the hydraulic reservoir. A CHECK VALVE (CV4) prevents loss of fluid from the reservoir back through this pump.

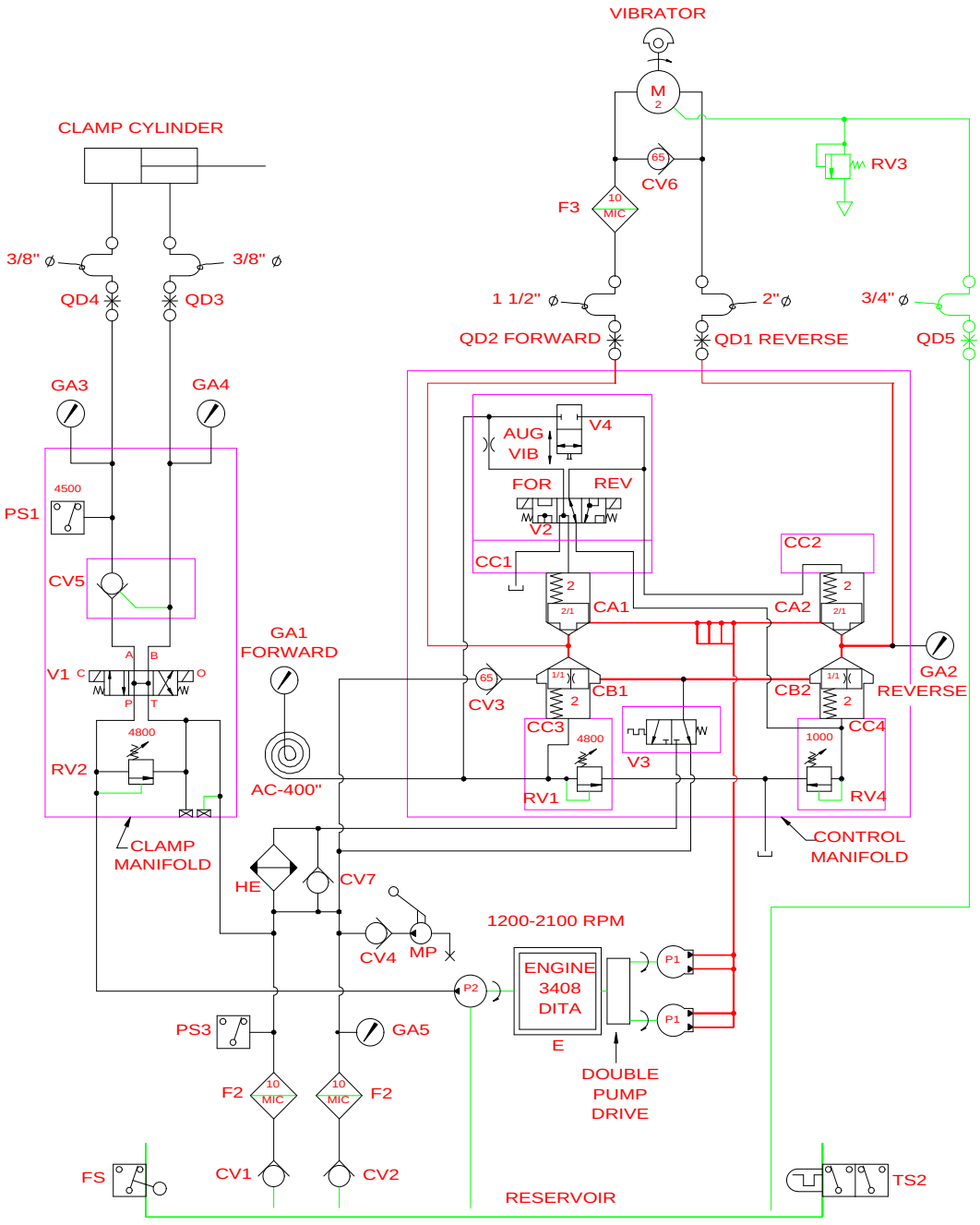
Temperature of the fluid in the reservoir is continually sampled by the hydraulic fluid Temperature Switch Gage (TS-2), which shuts down the diesel engine if the fluid temperature exceeds 160 deg. F.

If the temperature of the hydraulic fluid is above 100 deg. F, the fluid returning from the motors is directed to the heat exchanger (HE) by the cooler valve (V3). The heat exchanger check valve (CV2) insures flow through the heat exchanger and provides relief if the exchanger would become clogged. If fluid temperature is below 100 deg. F,fluid is directed to by-pass the heat exchanger by the cooler valve.

Motor cavitation is prevented in the braking operation by the CHECK VALVE (CV6).

Extra Long ACCUMULATOR HOSE (AC) in pilot system expands as pressure increases. The additional pilot flow causes (CA2) to produce a smooth acceleration of VIBRATOR MOTOR (M).

V. HYDRAULIC CIRCUITRY D. HYDRAULIC SCHEMATIC

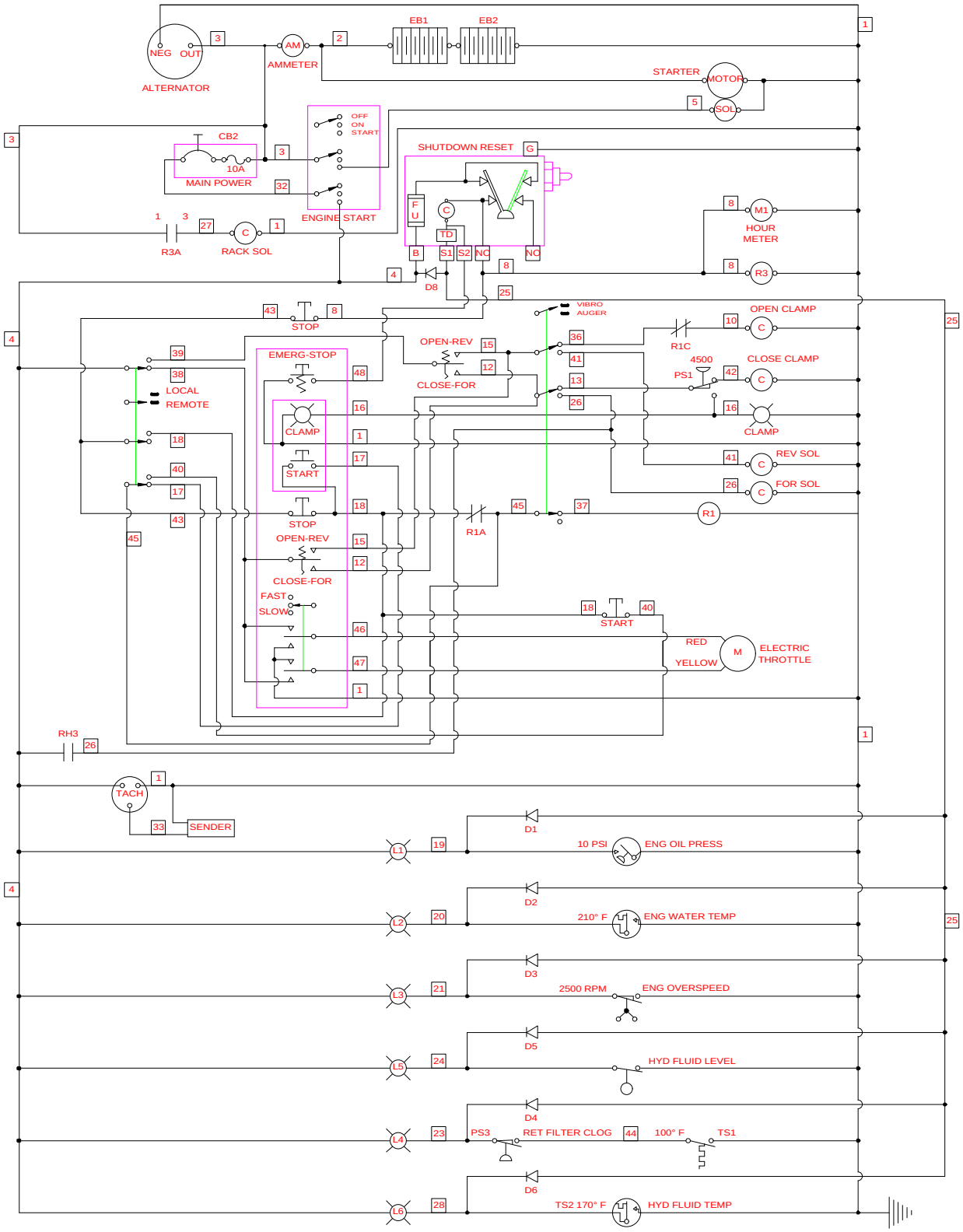


V. HYDRAULIC CIRCUITRY

E. HYDRAULIC COMPONENTS LIST

Notation	Description	Part Number	Page Number
AC	Accumulator Hose	110680	VIII-28
CA1 & 2	Cartridge A (2)	110624	VIII-35
CB1 & 2	Cartridge B (2)	110622	VIII-35
CC1	Cartridge Cover	110530	VIII-35
CC2	Cartridge Cover	110546	VIII-35
CC3	Cartridge Cover	110606	VIII-35
CC4	Cartridge Cover	110544	VIII-35
CV2	Check Valve	130339	VIII-35
CV4	Manual Pump Check Valve	100451	VIII-27
CV5	Clamp Check Valve	110149	VIII-37
CV6	Check Valve - Vibrator	110731	VIII-9
CYL	Hydraulic Clamp Cylinder		
E	Diesel Engine	110375	VIII-26
F2	Return Filter (2)	810481	VIII-28
	CV1&3 Return Filter Check Valve		
F3	Vibrator Filter	110281	VIII-7
FS	Float Switch	100314	VIII-28
GA-1-4	Pressure Gage	110600	VIII-29
GA-5	Filter Indicator Gage	100775	VIII-28
HE	Heat Exchange	100551	VIII-26
M	Motor (2)	110999	VIII-11
MP	Manual Pump	100447	VIII-27
V1	Valve (Auger-Vibro)	100654	VIII-35
P1	Drive Pump	110490	VIII-28
P2	Clamp Pump	110401	VIII-29
PS-1	Clamp Pressure Switch	810033	VIII-37
PS-3	Pressure Switch	100602	VIII-30
QD1	Vibrator Reverse Disconnect	110690	VIII-29
QD2	Vibrator Forward Disconnect	110692	VIII-30
QD3	Clamp Open Disconnect	100777	VIII-27
QD4	Clamp Close Disconnect	100245	VIII-27
QD5	Case Drain Disconnect	400095	VIII-27
RV1	Forward Relief Valve	100632	VIII-35
RV2	Clamp Relief Valve	100898	VIII-37
RV3	Case Drain Relief Valve	100032	VIII-7
RV4	Reverse Relief Valve	100630	VIII-35
TS-2	Temperature Switch	110640	VIII-19
VI	Clamp Control Valve	110147	VIII-37
V2	Control Valve	810519	VIII-35
V3	Cooler Valve	110628	VIII-35

VI. ELECTRICAL CIRCUITRY ELECTRICAL SCHEMATIC



VI. ELECTRIC CIRCUITRY (REFERENCE:ELECTRICAL SCHEMATIC PG VI-1)

A. STARTING DIESEL ENGINE

The engine batteries (EB1, EB2) provide 24-volt current to start the diesel engine. With the MAIN POWER (CB-2) switch on, turning the ENGINE START switch to START energizes the start motor solenoid (SOL) and turns over the diesel engine. IF fuel is available, the diesel engine will start.

B. STOPPING DIESEL ENGINE

Turning the ENGINE START switch to OFF de-energizes the fuel pump RACK SOLENOID which shuts off the fuel supply to the diesel engine. The engine stops.

C. SAFETY CONTROL SYSTEM

A system of safety controls shut off the fuel supply, thereby stopping the diesel engine in the event that any one of six malfunctions occur. The heart of the safety system is the SHUTDOWN RESET which is closed during normal operations (button in), thereby providing current to the fuel relay (R3). With the fuel relay energized, a set of contacts (R3A) close energizing the RACK SOLENOID and turning on the fuel supply. With the SHUTDOWN RESET closed (button in) power is provided to the vibrator start circuitry.

As mentioned above, the SHUTDOWN RESET is closed during normal operation. If the SHUTDOWN RESET is opened, the fuel relay (R3)is de-energized, contacts RA3 open, resulting in the RACK SOLENOID being de-energized thereby shutting off the fuel supply and stopping the diesel engine. The SHUTDOWN RESET opens when its timing delay coil (TD) is energized. The timing delay coil may be energized by any of the following devices.

1. Engine Oil Pressure Gage - if pressure is below 10 PSI, the contacts of the gage will be closed providing current to energize the timing delay coil (TD) and to turn on the indicator light (L1). On start-up, the button on the SHUTDOWN RESET (on the control panel) must be held in until the oil pressure exceeds 30 PSI.

2. ENGINE WATER TEMPERATURE GAGE - If water temperature exceeds 210 deg. F, the contacts of the gage will close energizing the timing delay coil (TD) and turning on the indicator light (L2).

3. Engine Overspeed Switch - if the engine overspeeds, the overspeed switch will close , energizing the timing delay coil (TD) and turning on indicator light (L3).

VI. ELECTRICAL CIRCUITRY

C. SAFETY CONTROL SYSTEM (CONTINUED)

4. Return Filter Switch - if the hydraulic return filter is clogged, the return filter switch (PS-3) will close energizing the timing delay coil (TD) and turning on the indicator light(L4).

5. Hydraulic Fluid Level Switch - if the hydraulic fluid level is low, the hydraulic fluid switch will close energizing the timing delay coil (TD) and turning on indicator light (L5).

6. Hydraulic Fluid Temperature Gage - if the temperature of the hydraulic fluid exceeds 160 deg. F, the hydraulic fluid temperature gage switch will close, energizing the timing delay coil (TD) and turning on indicator (L6).

A diode (D1-D6) on each malfunction switch limits the flow of direct current to prevent multiple lights coming on. Another diode (D8) prevents arcing in the malfunction switches.

D. CLOSING HYDRAULIC CLAMP

With the diesel engine running, turning the clamp switch (OPEN-CLOSE) on the control pendant to CLOSE energizes the close-clamp solenoid (CLOSE-SOL.). This operates the clamp control hydraulic valve and closes the clamp.

When the pressure in the close-clamp hydraulic circuit reaches 4500 PSI, the pressure switch (PS-1) opens and de-energizes the close-clamp solenoid and turns on the CLAMP LIGHTS on the control pendant and control panel.If close-clamp pressure falls below 4200 PSI, the pressure switch closes and re-energizes the close-clamp solenoid to rebuild pressure. The CLAMP LIGHTS go out. When pressure returns to 4500 PSI, The pressure switch opens de-energizing the close-clamp solenoid and turns on the CLAMP LIGHTS.

E. OPENING HYDRAULIC CLAMP

With the diesel engine running, turning the clamp switch (OPEN-CLOSE) to OPEN energizes the open-clamp solenoid
(OPEN SOL.). The clamp opens.

VI. ELECTRICAL CIRCUITRY

F. STARTING THE VIBRATOR

With the diesel engine running, pressing the START button on the control pendant energizes the start relay coil (R1). Start relay contacts (R1-A) close and keep the relay coil energized until the STOP button is de- pressed. A second set of start relay contacts (R1-B) close and energizes the FORWARD SOLENOID on the Control Valve. The Control Valve sends hydraulic fluid to the vibrator motors. The motors start. A third set of contacts (R1-C) opens to prevent the OPEN SOLENOID being energized to open the hydraulic clamp head while the vibrator is running.

G. STOPPING THE VIBRATOR

With the diesel engine running, pressing the STOP button on the control pendant de-energizes the start relay coil (R1). The start relay contacts (R1-B) open and de-energize the FORWARD SOLENOID. The Control Valve stops the flow of hydraulic fluid to the vibrator motors. The motors stop. The start relay contacts (R1-C) close to allow the OPEN SOLENOID to be energized when the OPEN clamp button is pressed.

H. OTHER

The ammeter (AM) indicates charging amperes. The tachometer generator (TACH GEN) powers the tachometer (TACH) to indicate engine speed. The Hour meter (M1) indicates the engine operating hours.

Duplicate vibrator and clamp switches are located on the control pendant and on the control panel. Turning the LOCAL-REMOTE switch to LOCAL activates only the clamp and vibrator switches located on the control panel. Turning the LOCAL-REMOTE switch to REMOTE only permits operation of the clamp and vibrator from the control pendant.

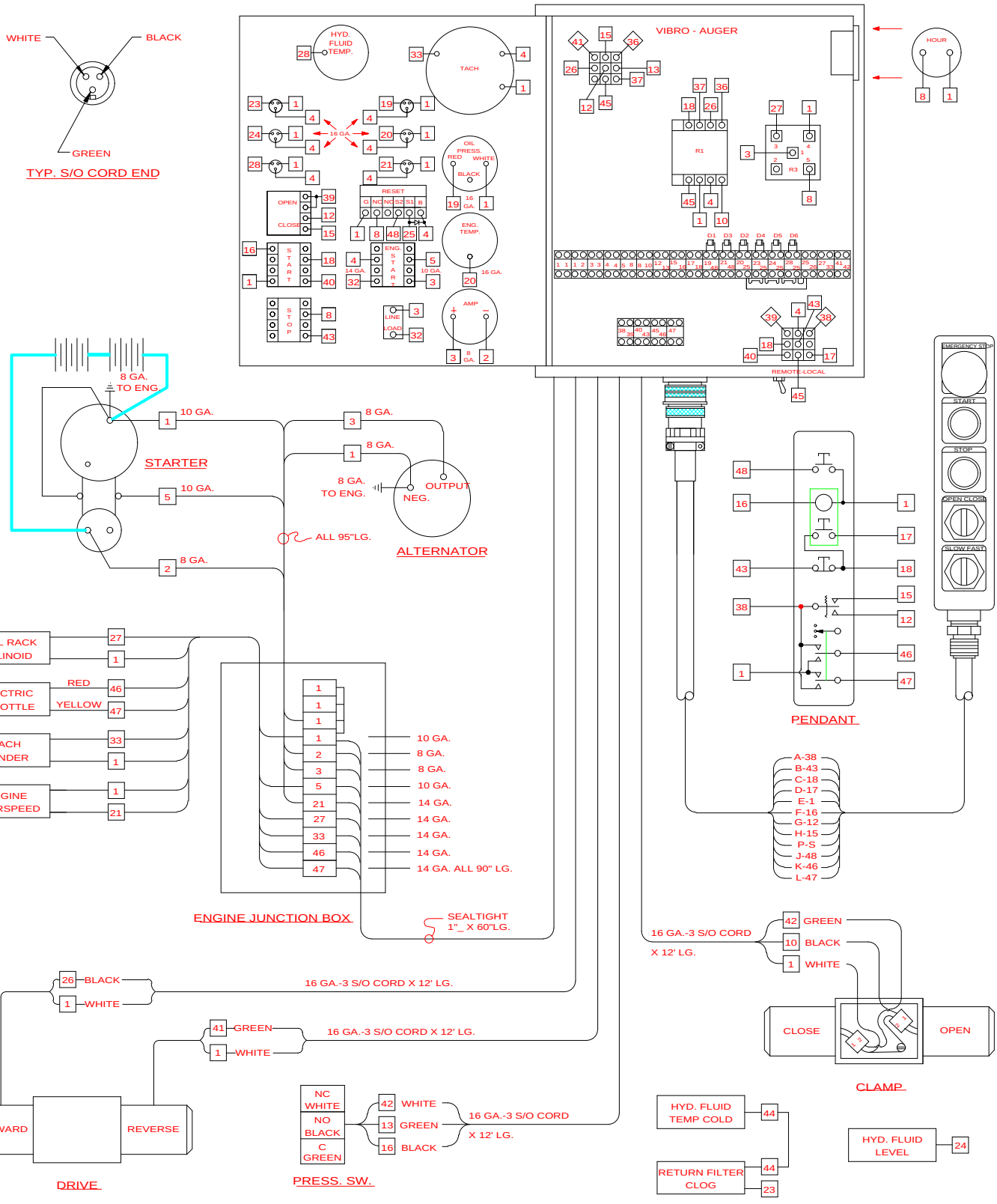
The 570 Power Unit may also be used to drive an J&M Auger or other Bi-directional Hydraulic Motors. By turning the VIBRO-AUGER switch to the AUGER position , the Clamp OPEN-CLOSE switch will become a FORWARD- REVERSE switch for the auger. The Vibro START and STOP buttons will be disabled.

VI.ELECTRICAL CIRCUITRY

I. ELECTRICAL COMPONENTS LIST

Notation	Reference	Part Number	Page Ref.
ALTERNATOR	ALTERNATOR	See Cat.	Parts Book
AMMETER	AMMETER	110371	VIII-19
CB-2	MAIN POWER SWITCH	400141	VIII-19
CLAMP LIGHT (2)	CLAMP LIGHT	110598	VIII-19
CLOSE SOL	CLOSE-CLAMP SOLENOID	110147	VIII-37
D1-D7	DIODE	100413	VIII-19
EB-1 , EB-2	ENGINE BATTERY	100529	VIII-24
ENG. OIL PRESS.	ENGINE OIL PRESSURE GAGE AND SWITCH	100329	VIII-19
ENG. START	ENGINE START SWITCH	110615	VIII-19
ENG. WATER TEMP.	ENGINE WATER TEMPERATURE GAGE AND SWITCH	110697	VIII-19
ENG. OVERSPEED	ENGINE OVERSPEED SHUT-DOWN SWITCH	110972	VIII-30
FLUID LEVEL(FS)	HYD FLUID LEVEL SWITCH	100314	VIII-28
FOR.SOLENOID	FORWARD SOLENOID	810519	VIII-35
HOURMETER (M1)	HOUR METER	100343	VIII-19
HYD.FLUID TEMP	HYD FLUID TEMPERATURE SWITCH GAGE	110640	VIII-19
L-1 , L-6	SHUTDOWN INDICATOR LIGHT	100355	VIII-19
OPEN/CLOSE (2)	CLAMP SWITCH (OPEN/CLOSE)	130155	VIII-19 & 23
OPEN SOL	OPEN-CLOSE SOLENOID	110147	VIII-37
PS-1CLAMP	PRESSURE SWITCH	810033	VIII-37
R1	START RELAY COIL	110584	VIII-19
R1-A,B,C	START RELAY CONTACTS	110584	VIII-19
R3	RACK SOL. RELAY COIL	110604	VIII-19
R3A	RACK SOL. RELAY CONTACTS	110604	VIII-19
REMOTE-LOCAL	REMOTE-LOCAL SWITCH	140361	VIII-19
RET FIL CLOG	RETURN FILTER CLOGGED SWITCH	100602	VIII-27
REVERSE SOL.	REVERSE SOLENOID	810519	VIII-35
SHUTDOWN RESET	ENGINE SAFETY SHUTDOWN	110456	VIII-19
STARTVIBRATOR	START BUTTON	110589	VIII-19 & 23
STOPVIBRATOR	STOP BUTTON	100363	VIII-19 & 23
TACH	TACHOMETER	110650	VIII-19
SENDER	ENGINE TACH GENERATOR	130467	VIII-27

VI. ELECTRICAL CIRCUITRY J. ELECTRICAL LAYOUT



Model 815
Vibratory Driver/Extractor

VII. GENERAL DATA

A. ABBREVIATIONS

The abbreviations shown below are used throughout the parts lists and various other parts of the manual.

ASM.	Assembly
BHCS	Button Head Cap Screw
Cyl.	Cylinder
DC	Direct Current
FHCS	Flat Head Cap Screw
FLCS	Flanged Head Cap Screw
HC	High Collar
HHCS	Hex Head Cap Screw
HHPP	Hex Head Pipe Plug
HSSS	Hex Socket Set Screw
Hyd.	Hydraulic
Lg.	Long
mm	Millimeter
Mtg.	Mounting
NPT.	National Pipe Thread
PHMS	Phillips Head Machine Screw
P/N	Part Number
Qty.	Quantity
RHMS	Round Head Machine Screw
Sch.	Schedule
SHCS	Socket Head Cap Screw
SHPP	Socket Head Pipe Plug
SHSS	Socket Head Shoulder Screw
S/N	Serial Number
Sol.	Solenoid

B. SCREWS AND BOLTS

1. Practically all connections on the unit are made with socket head (Allen) cap screws. These high-strength screws are available at most industrial supply houses.
2. Screws and bolts are designated in the PARTS LIST in abbreviated form. (Refer to sub-section A, above, for specific abbreviations.) Listed below is a typical screw description:
   .5 - 13 UNC x 1.50 LG SHCS .5 = Diameter
   13 UNC = Threads Per Inch
   1.50 LG = Length
   SHCS = Screw Type Abbreviation
3. Some screws or bolts require a specific torque when replacing. For identification of these bolts and a more thorough understanding of torque, refer to page VIII-42.

VII. GENERAL DATA

C. SERIAL NUMBER LOCATIONS

1. The following J&M vibratory units are serial numbered separately:

   a. Vibrator
   b. Power unit
   c. Piling clamps
   d. Caisson beams
   e. 90 deg. clamp adapter

2. In addition to the serial number plate itself (on vibrators, power units and clamps), the serial number is stamped into each unit in one or more places as follows:

   a. Vibrator stamped twice - once on top right side of suppressor housing, once on bottom lip of vibration case on right side of motors' side.

   b. Power unit stamped twice - once on control panel side of unit at right corner of reservoir, once on sub-base inside door below hex-key rack.

   c. Model 126B universal clamp is stamped three times - once between the cylinder and pile guide, once above the grease fitting, and once on the flange of the cylinder housing.

   d. Model 127 Z-Pile clamp stamped twice- once in front of cylinder guard, once in back opening of pile guide.

   e. Model 80 caisson clamp stamped twice - once by the lifting eye, once by the adjusting screw .

   f. Caisson beams are stamped three times - once on top center, once in center of both sides of flange.

   g. 90 deg. clamp plate stamped twice - once on top center, once on side.

VIII. ORDERING PARTS

A. PROCEDURE

1. When ordering parts, be sure to include the model and serial number of the unit or component. The serial number may be located by referring to SECTION VII, SERIAL NUMBER LOCATION. Confirm all telephone orders immediately to avoid duplicating shipment.

2. ORIGINAL EQUIPMENT; Where component serial numbers are given, these apply only to equipment and components originally furnished with the unit. Where equipment has been changed or upgraded these numbers may not be an adequate description.

3. SHIPMENT; State to whom shipment is to be made and method of shipment desired, otherwise our own judgement will be used.

4. SHORTAGES; Claims for shortages or errors should be made immediately upon receipt of parts. No responsibility will be assumed for delay, damage or loss of material while in transit. Broken, damaged or lost material should be refused or a full description made of damage or loss to the carrier agent on the freight or express bill.

5. RETURN OF PARTS; If for any reason you desire to return parts to the factory or to any distributor from whom these parts were obtained, you must first secure permission to return the parts. Shipping instructions will be given along with this permission. A ten percent handling charge must be assessed against the returned shipment unless an error is made by the factory or by the distributor when filling your order.

VIII. ORDERING PARTS

B. FITTING DESCRIPTION KEY

FITT 2 L - 16 M 12 J 00 0 - 00L 0 0 0 1

SELECTOR INDEX
2 - INCH FITTING
9 - METRIC FITTING

CONFIGURATION OR SHAPE OF FITTING
S - STRAIGHT FITTING
L - 90 Deg. ELBOW
V - 45 Deg. ELBOW
T - TEE
C - CAP
P - PLUG
U - UNION
X - CROSS
(FOURTH END FITT'G REQ'D.)

FIRST END SIZE
* IN 1/16THS OF AN INCH
(INDEX 2)
IN MILLIMETERS (INDEX 9)
SEE GENERAL SPECIFICATION
SHEET FOR SEQUENCE OF ORDER

FIRST END FITTING STYLE
SEE FITTING STYLE SELECTOR
CHART SC-1

SECOND END SIZE
IF APPLICIABLE - SEE
FIRST END SIZE

SECOND END FITTING STYLE
IF APPLICABLE - SEE
FIRST END FITTING STYLE

THIRD END SIZE
IF APPLICABLE - SEE
FIRST END SIZE

THIRD END FITTING STYLE
IF APPLICABLE - SEE
FIRST END SIZE

* EXCEPTIONS

90 = 10"	96 = 6"
92 = 12"	98 = 8"
94 = 14"	99 = NON CODE SIZE

LENGTH CODE
(ELBOWS & NIPPLES)
__L - LONG (ELBOW)
__X - EXTRA LONG (ELBOW)
__C - CLOSE (NIPPLE)

PIPE NIPPLES (LONG) ONLY
IN DEC. INCHES FOR INDEX 2
050 = 5.0 INCHES
105 = 10.5 INCHES

IN MILLIMETERS FOR INDEX 9
120 = 12.0 MILLIMETERS
084 = 8.4 MILLIMETERS

FOURTH END SIZE & FITTING STYLE
(CROSSES ONLY)
SEE FIRST END FITTING SIZE OR
END STYLE

INSTALLATION AID OR STYLE OF HEAD
0 - NOT APPLICABLE
H - REGULAR HEX
Q - SQUARE HEAD (EXT.)
R - SQUARE HEAD (INT.)
S - HEX HEAD (INT SOCKET)
T - HEX HEAD (EXT.)

PRESSURE RATING
0 - NONE
1 - 125 LB.
3 - SCH 40
4 - SCH 80

SPECIAL NOTATIONS

MATERIAL
1 - CARBON STEEL
2 - BRASS
4 - STAINLESS STL
5 - AAR MAL IRON
6 - MALEABLE IRON
8 - FORGED STEEL

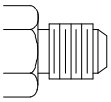
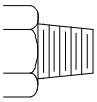
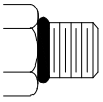
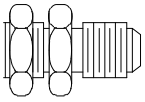
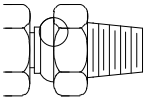
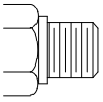
VIII. ORDERING PARTS

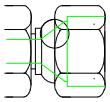
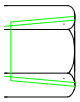
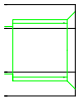
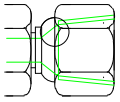
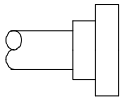
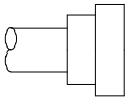
B. FITTING DESCRIPTION KEY (CONTINUED)

FITTING STYLE SELECTOR CHART

SC-1

FOR END FITTING STYLE SELECTION

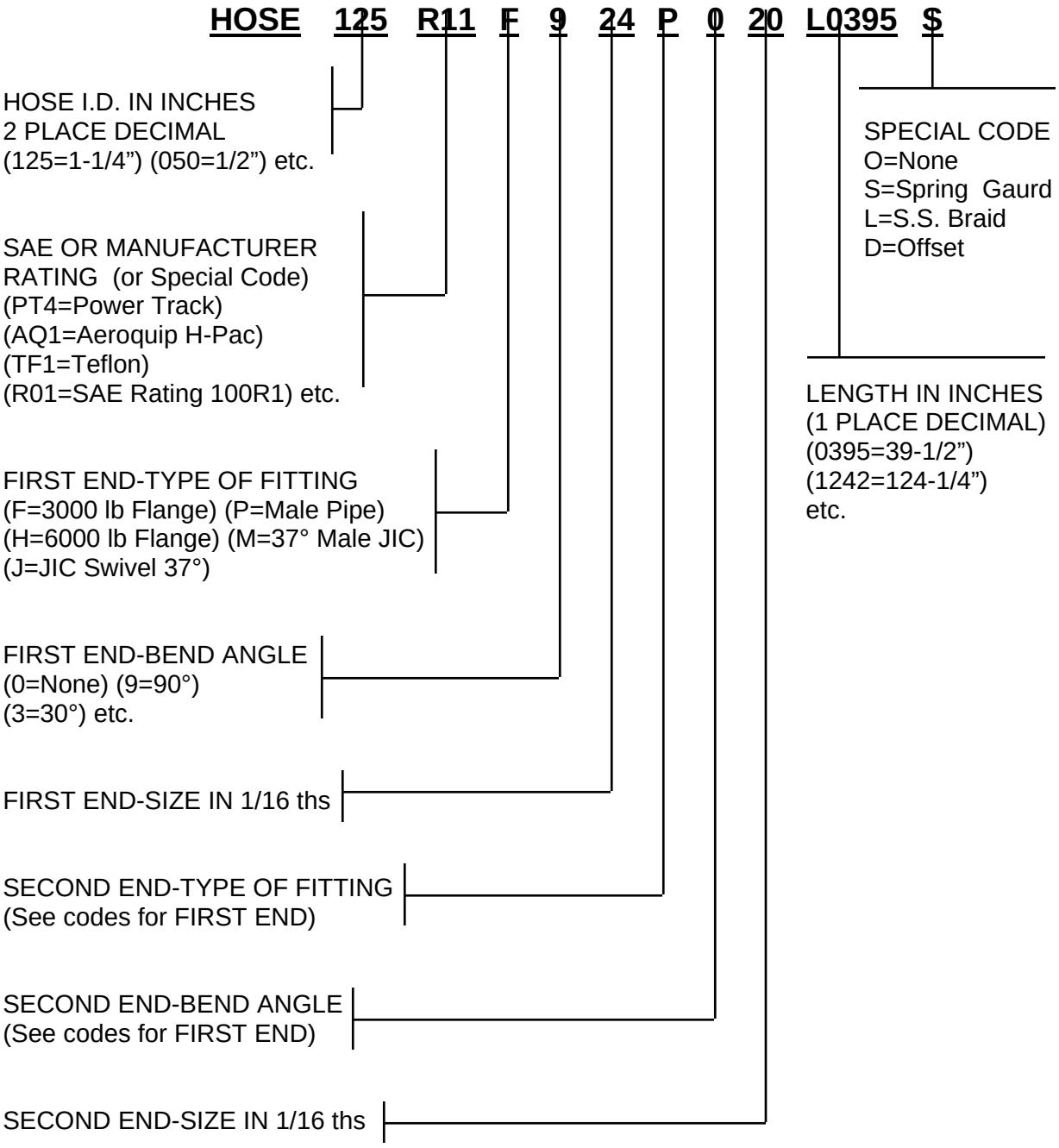
M		JIC MALE 37 Deg. FLARE
P		MALE PIPE NPT
R		S.A.E. MALE 0-RING (& ADJUSTABLE)
B		JIC MALE 37 Deg. FLARE BULKHEAD
D		MALE PIPE NPT SWIVEL
S		B.S.P. MALE PIPE

J		JIC FEMALE 37 Deg. FLARE (& SWIVEL)
Q		FEMALE PIPE NPTF
K		S.A.E. FEMALE O-RING
N		FEMALE PIPE NPSM-SWIVEL
F		SPLIT FLANGE 3000 PSI. CODE 61
H		SPLIT FLANGE 6000 PSI. CODE 62

VIII. ORDERING PARTS

C. HOSE DESCRIPTION CODE

The HOSE DESCRIPTION CODE is a 24 digit number enabling easier and quicker identification whenever a hose replacement is desired. The key below explains the structure of the coded number in detail.



VIII. ORDERING PARTS

D. PARTS IDENTIFICATION

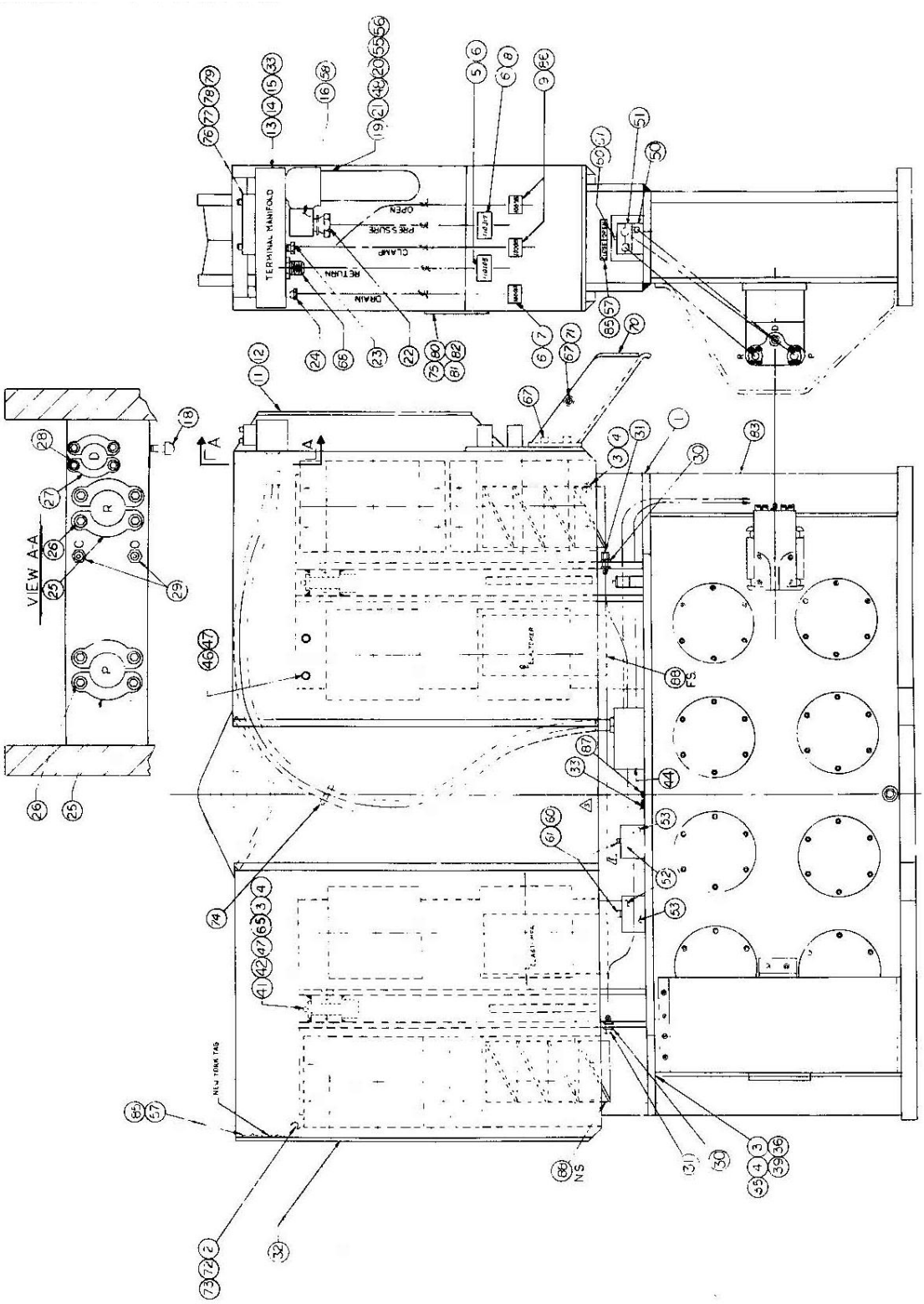
1. Parts lists and drawings are included on the following pages for the equipment components shown below:

   a. VIBRATION SUPPRESSOR 800057
   b. VIBRATION CASE 810085
   c. DISTRIBUTION BLOCK 810087
   d. HOSE ASSEMBLIES-INTERCONNECTING 800053
   e. POWER UNIT - ENCLOSURE 810151
   f. CONTROL BOX 810451
   g. POWER UNIT - INTERNAL 800127
   h. JUNCTION BOX 810145
   i. CONTROL MANIFOLD 810447
   j. CLAMP MANIFOLD 810449
   k. MODEL 126B UNIVERSAL CLAMP 800327
   l. CLAMP EXTENSION-10FT. 800423
   m. 90 DEG. ADAPTER 800049
   n. CAISSON BEAM-7 FT. 800045
   o. CAISSON BEAM-11 FT. 800163
   p. MODEL 80B CAISSON CLAMP w/ WEDGE LOCK 800047
   q. MODEL 80B CAISSON CLAMP w/ HYDRO LOCK 800413
   r. MODEL 127 Z PILE CLAMP 800041
   s. MODEL 127 Z CYLINDER 810175
   t. PENDANT EXTENSION CABLE 800059

2. The spare parts list SECTION VIII - RECOMMENDED SPARE PARTS contains spare parts which may be very useful in keeping down-time to a minimum, especially in remote or secluded job sites where unforeseen communication problems could cause delay of the delivery of an awaited part.

   These RECOMMENDED SPARE PARTS may be ordered beforehand, individually or as a package group as shown in the PARTS LIST.

VIBRATION SUPPRESSOR 800057



VIBRATION SUPPRESSOR 800057

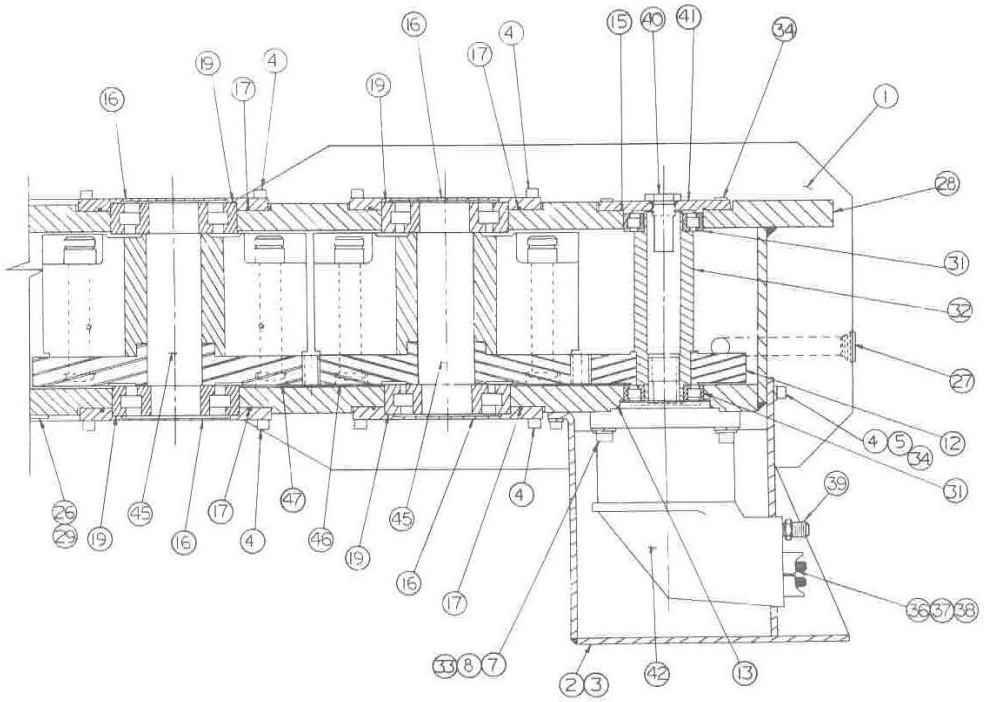
Item	Part Number	Qty.	Description
1	100002	1	Vibration Case Adapter
2	100003	8	Elastomer
3	100005	37	.625-11UNCx1.75 LG.SHCS
4	100007	58	.625 Lock Washer
5	110105	1	Hose Clamp
6	100011	6	.5-13UNCx2.00 LG.SHCS
7	100013	1	Hose Clamp
8	110317	1	Hose Clamp
9	100015	2	Hose Clamp
10	100814	1	Sealant
11	100019	1	Coupler Guard
12	100021	4	.5-13UNCx1.50 LG.SHCS
13	110733	1	Terminal Manifold
14	100025	4	.5-13UNC x 4.50 LG SHCS
15	100027	12	.50 Hi-Collar Lockwasher
16	110273	1	Manifold Block
18	100032	1	Relief Valve (RV3)
19	110281	1	Filter (F3)
20	110113	1	Filter Element
21	110119	2	#225-O-Ring
22	110115	1	FITT2S-24P24N000_000H001
23	100041	2	FITT2S-06P06N000-000H001
24	100043	1	FITT2S-12P12N000-000H001
25	100596	4	Split Flange Half (#24)
26	100119	8	.5-13UNC x 1.25 LG SHCS
27	100049	2	Split Flange Half (#12)
28	100051	4	.375-16UNC x 1.00 LG SHCS
29	100053	2	FITT2S-06M06R000-000H001
30	100055	4	FITT2S-06M06B000-000H001
31	100057	4	FITT2C-06J000000-000H001
32	100059	1	Suppressor Housing
33	100063	3	FITT2P-16P000000-000S007
35	400545	14	.75-10UNC x 3.00 LG SHCS
36	100069	14	.75 Lock Washer
39	400157	22	.625-11UNC x 2.75 LG SHCS
41	100074	2	Stop Block
42	100773	6	.625-11UNC x 4.25 LG SHCS
44	810087	1	Distribution Block
46	100085	38	.625-11UNC x 2.25 LG SHCS
47	100086	38	.625-11UNC Esna Nut

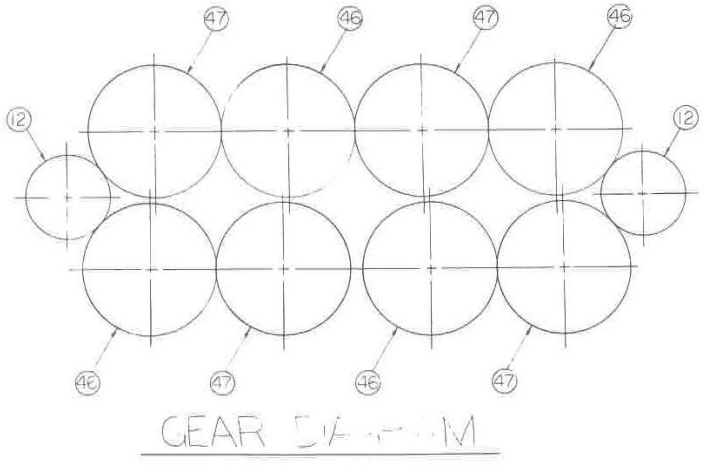
Model 815
Vibratory Driver/Extractor

VIBRATION SUPPRESSOR (Continued) 800057

Item	Part Number	Qty.	Description
48	100084	4	.5-13UNC x 5.0 LG SHCS
50	100817	2	Hose Clamp Bracket
51	100819	2	Double Hose Clamp
52	100821	2	Gang Hose Clamp
53	100823	2	Adapter Bracket
55	110215	1	#239-O-Ring
56	110217	1	#239-Back-Up Washer
57	110275	1	Label Group
58	100829	4	.5-13UNC x 3.50 LG SHCS
60	100827	10	.375-16UNC x 3.50 LG SHCS
61	400149	10	.375 Lock Washer
66	100915	4	Stop Block Plate
67	100575	6	.625-11UNC x 1.25 LG SHCS
68	110269	1	FITT2S-32M24P000-000H001
70	110381	1	Hose Guide
71	110383	1	Hose Guide Rod
74	130243	11	Tie Down
75	400277	2	J&M Logo Plate
76	110723	1	Check Valve Body
77	110731	1	Check Valve (CV6)
78	110735	4	.5-13UNC x 2.50 LG SHCS
79	100097	2	#214-O-Ring
80	110627	28	- Logo Plate
81	110629	21	- Logo Plate
82	110514	25	- Logo Plate
83	810085	1	Transmission Case
85	130381	10	Rivet
86	130117	4	.375-16UNC x 1.50 LG SHCS
87	100423	1	FITT2P-08P000000-000S007
88	100991	4	Load Gage Decal

VIBRATION CASE 810085



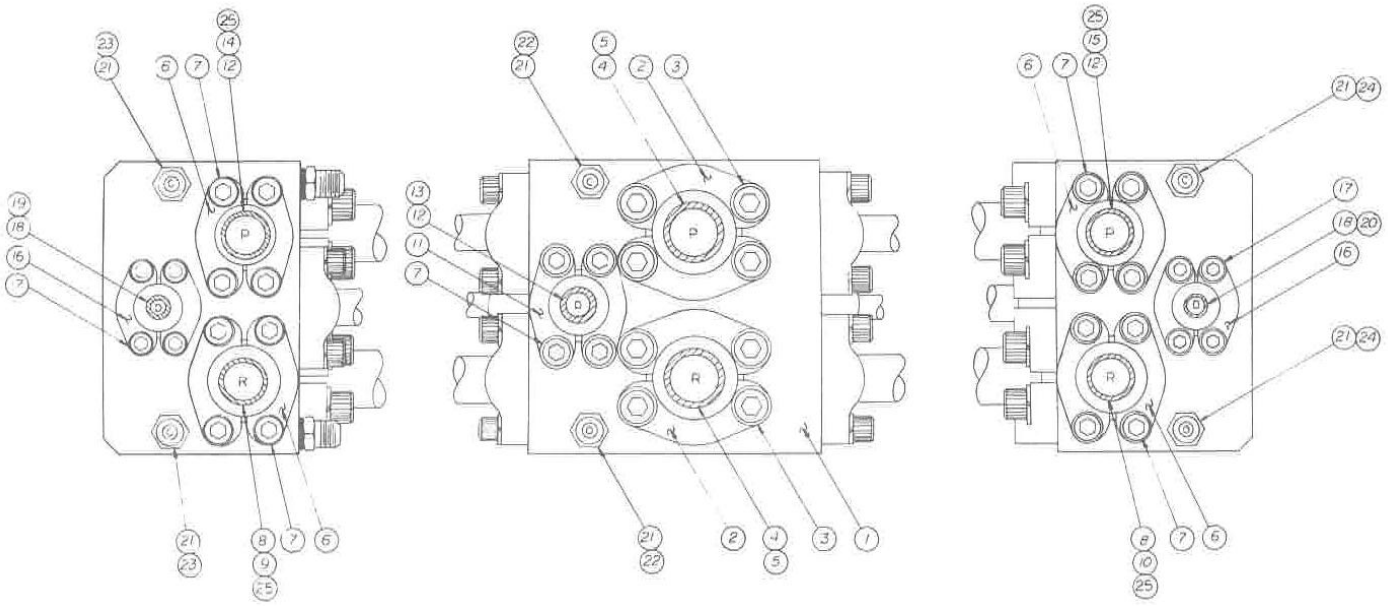


GEAR DIAGRAM

VIBRATION CASE 810085

Item	Part Number	Qty.	Description
1	810083	1	Vibration Case
2	110073	1	Left Motor Guard
3	110075	1	Right Motor Guard
4	100119	124	.5-13UNC x 1.25 LG. SHCS
5	100121	28	.5 Lock Washer
7	100067	8	.75-10UNC X 2.25 LG SHCS
8	100589	8	.75 Flat Washer
12	110185	2	Motor Gear
13	110195	2	#163-O-Ring
15	110197	2	#159-O-Ring
16	100165	16	Bearing Cover
17	100167	16	#266-O-Ring
19	100169	16	Roller Bearing
26	100185	1	Sight Gage
27	100187	2	FITT2P-12P000000-000S0M7
28	100720	1	Gasket
29	100735	3	Oil (Gallon)
31	110191	4	Roller Bearing
32	110187	2	Splined Shaft
33	100069	8	.75 Lock Washer
34	100483	8	.5 Flat Washer
36	810309	8	#20 Split Flange Half
37	110995	16	14mm x 55mm SHCS
38	110997	16	14mm Lock Washer
39	110984	2	FITT2S-12S08M000-000H0F1
40	810229	2	Centrifugal Breather
41	110855	2	Bearing Cap
42	110999	2	Drive Motor (M)
45	150003	8	Eccentric Shaft
46	810411	4	Eccentric Gear Asm.
47	810415	4	Eccentric Gear Asm.

DISTRIBUTION BLOCK 810087

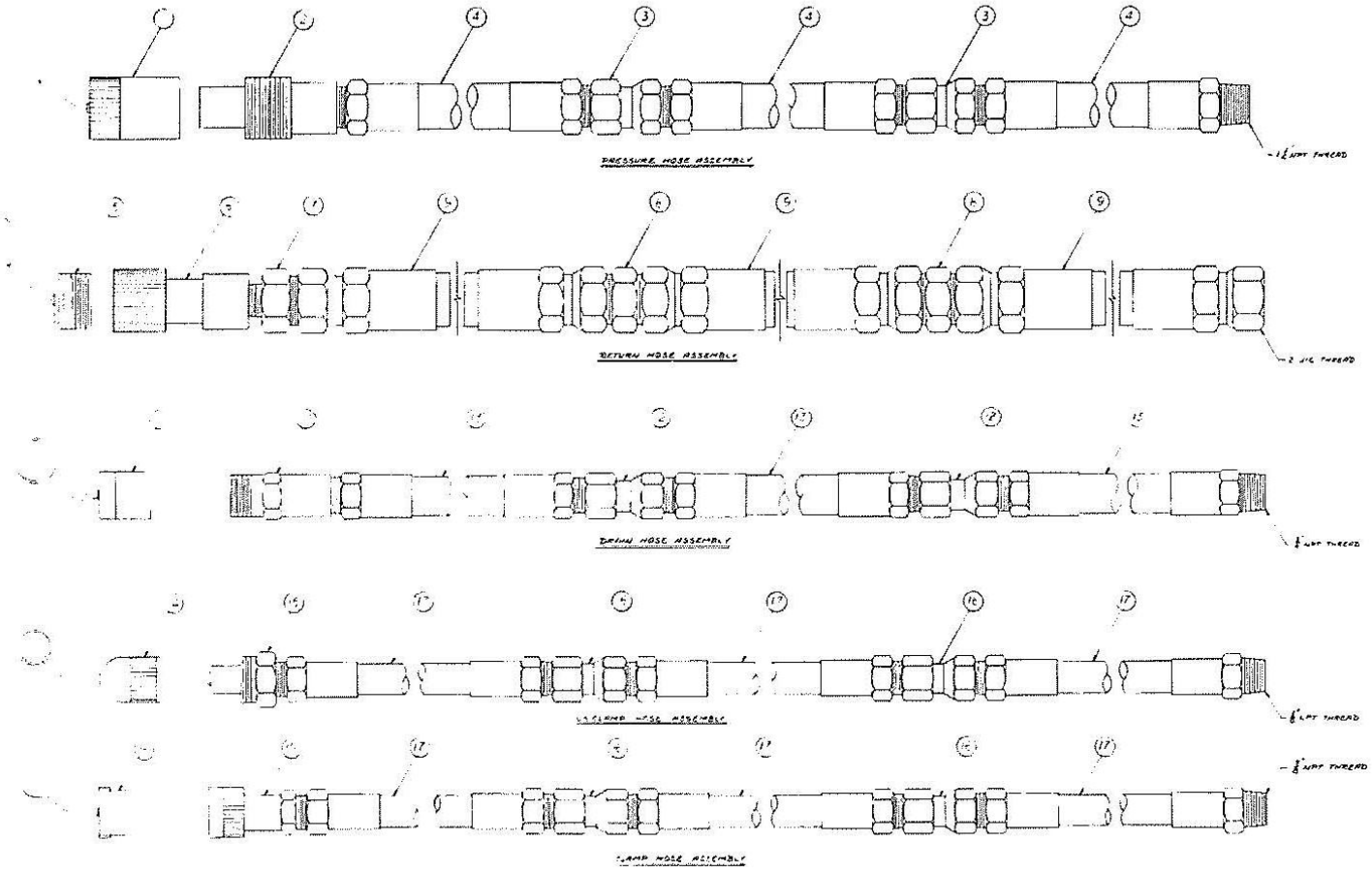


VIEWED FROM MOTOR SIDE OF VIBRATOR

DISTRIBUTION BLOCK 810087

Item	Part Number	Qty.	Description
1	110121	1	Distribution Block
2	100596	4	Split Flange Half (#24)
3	100119	8	.5-13UNC x 1.25 LG SHCS
4	110119	4	#225-O-Ring
5	110123	2	HOSE150PT4F024F024L0875S
6	100089	8	Split Flange Half (#16)
7	100051	20	.375-16UNC x 1.00 LG SHCS
8	100091	4	#219-O-Ring
9	110992	1	HOSE100R01F016H920L0660S
10	110988	1	HOSE100R01F016H920L0500S
11	100049	2	Split Flange Half (#12)
12	100097	2	#214-O-Ring
13	100099	1	HOSE075R01F012F012L0880S
14	110994	1	HOSE100R10F016H920L0690S
15	110990	1	HOSE100R10F016H920L0530S
16	100103	4	Split Flange Half (#8)
17	100105	8	.312-18UNC x 1.00 LG SHCS
18	100107	2	#210-O-Ring
19	110329	1	HOSE050R01F008J908L0660S
20	110327	1	HOSE050R01F008J908L0500S
21	100053	6	FITT2S-06M06R000-000H001
22	100111	2	HOSE038R02J006J006L0875S
23	110633	2	HOSE038R02J006J006L0370S
24	100108	2	HOSE038R02J006J006L0200S
25	100037	4	#222-O-Ring

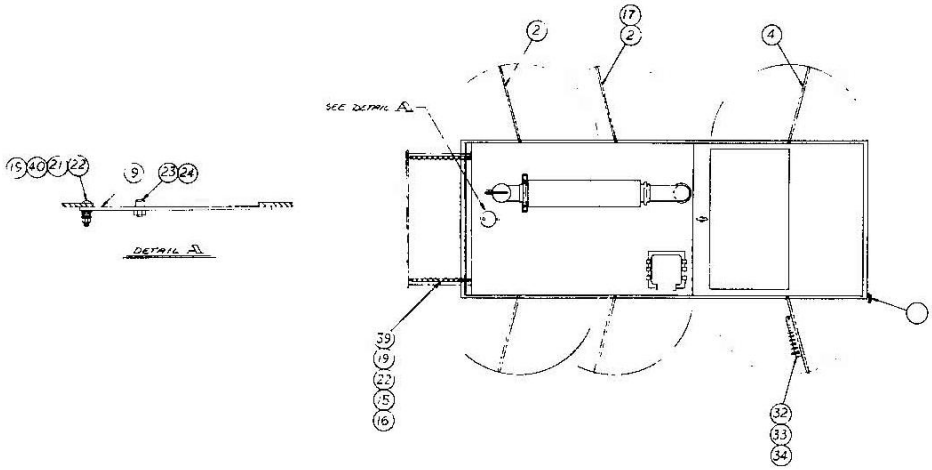
HOSE ASSEMBLIES - INTERCONNECTING 800053

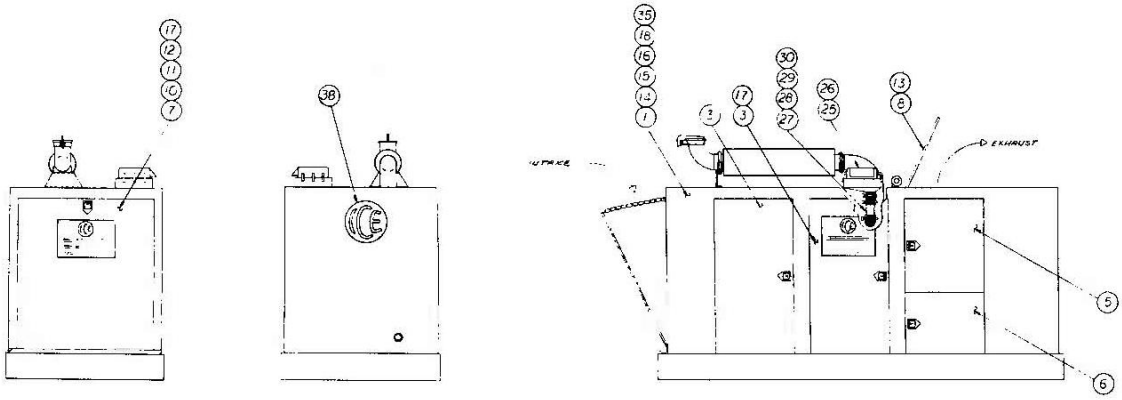


HOSE ASSEMBLIES - INTERCONNECTING 800053

Item	Part Number	Qty.	Description
1	110955	1	Dust Cap (1-1/2)
2	110690	1	Male Disconnect (1-1/2)
3	110139	2	FITT2S-24Q24N000-000H001
4	110141	3	HOSE150PT4P024P024L60000
5	110957	1	Dust Plug (1-1/2)
6	110692	1	Female Disconnect (1-1/2)
7	110269	1	FITT2S-32M24P000-000H001
8	110271	2	FITT2S-32M32M000-000H001
9	110970	3	HOSE200R02J032J032L60000
10	400253	1	Dust Cap (3/4)
11	400251	1	Male Disconnect (3/4)
12	100243	2	FITT2S-12Q12N000-000H001
13	100241	3	HOSE075R02P012P012L62000
14	100257	1	Dust Cap (3/8)
15	100245	1	Male Disconnect (3/8)
16	100249	4	FITT2S-06Q06N000-000H001
17	100247	6	HOSE038R02P006P006L62000
18	100737	1	Dust Plug (3/8)
19	100777	1	Female Disconnect (3/8)
	130243	20	Rubber Tie Down

POWER UNIT ENCLOSURE 810151

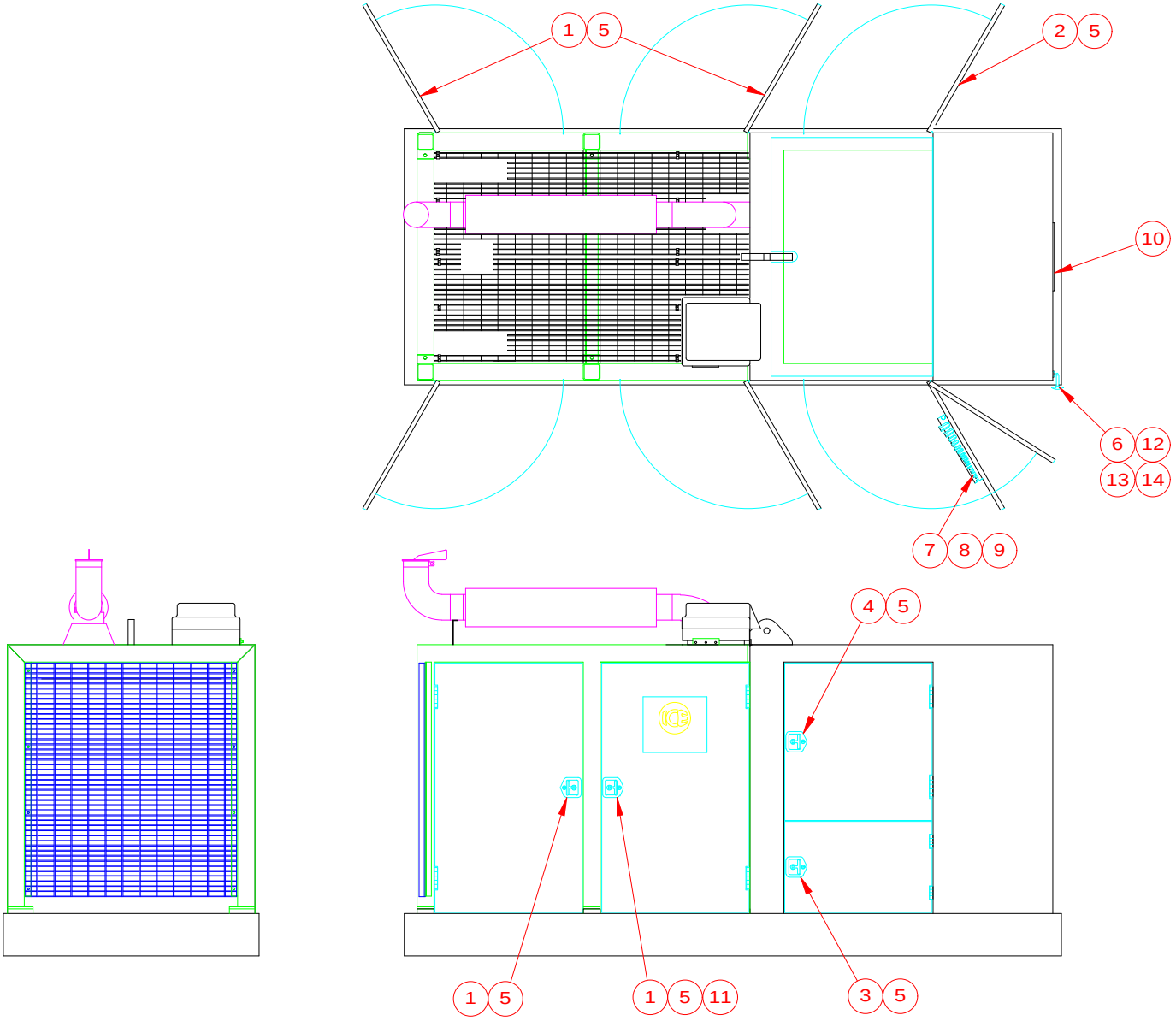




POWER UNIT ENCLOSURE 810151

Item	Part Number	Qty.	Description
1	110305	1	Unit Cover
2	110299	2	Cover Door
3	110301	2	Cover Door
4	110303	1	Cover Door
5	110311	1	Cover Door
6	110313	1	Cover Door
7	110363	1	Intake Door
8	110307	1	Exhaust Door
9	100761	1	Water Fill Door
10	100271	2	Shoulder Bolt
11	100273	2	.625-11UNC Hex Nut
12	100007	2	.625 Lock Washer
13	100277	1	Exhaust Door Clip
14	100105	15	.312-18UNC x 1.00 LG SHCS
15	100287	19	.312 Lock Washer
16	100289	12	.312-18UNC Hex Nut
17	100290	3	J&M Decal
19	100309	5	.312-18UNC x 1.00 LG BHCS
21	100797	5	.312-18UNC Esna Nut
22	100293	20	.312 Flat Washer
23	100648	1	.375-16UNC x .88 LG SHCS
24	100535	1	.375-16UNC Hex Nut
25	110421	1	Air Cleaner Cover
26	110423	1	Air Cleaner Element
27	110425	1	Air Intake Sleeve
28	110427	1	Air Intake Tube
29	110429	1	Air intake Elbow
30	110431	2	Band Clamp
32	100600	1	Hex Key Rack
33	810045	1	Hex Key Group
34	100651	1	24 Volt Test Light
37	110221	1	Control Door Latch
38	400277	1	J&M Logo Plate
39	110881	72	Chain (inches)
40	110847	2	.375 Spring Washer
41	100834	10	5" Door Hinge
42	100466	7	3" Door Hinge

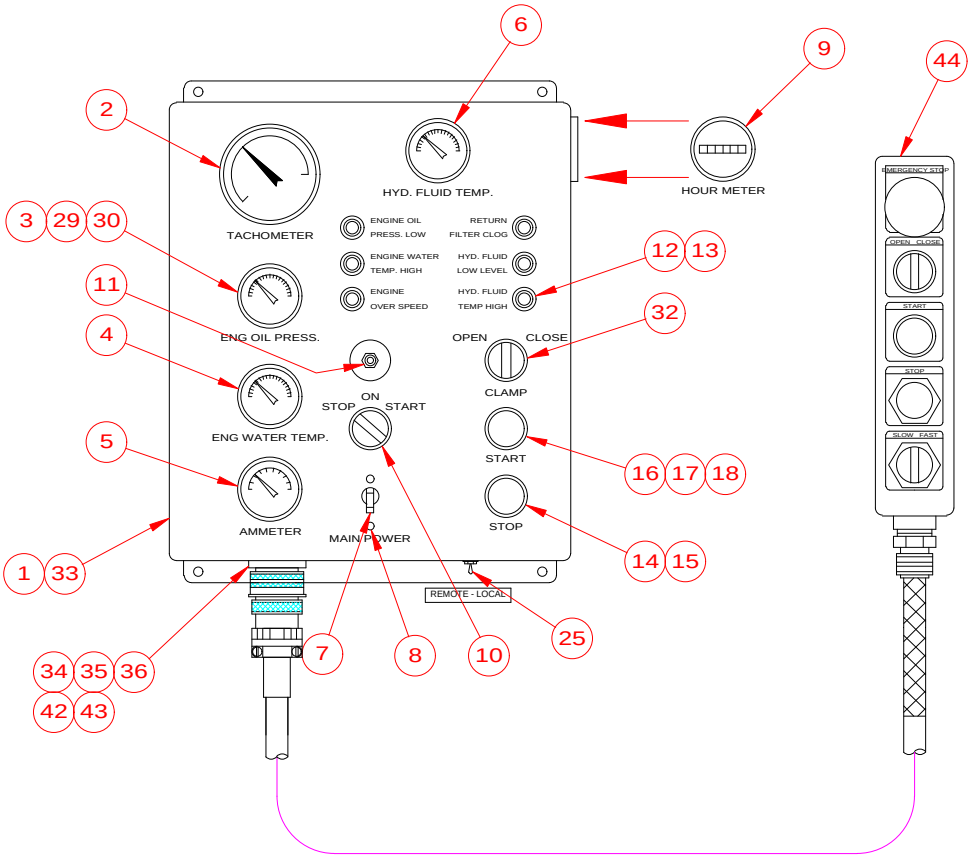
POWER UNIT ENCLOSURE 810641

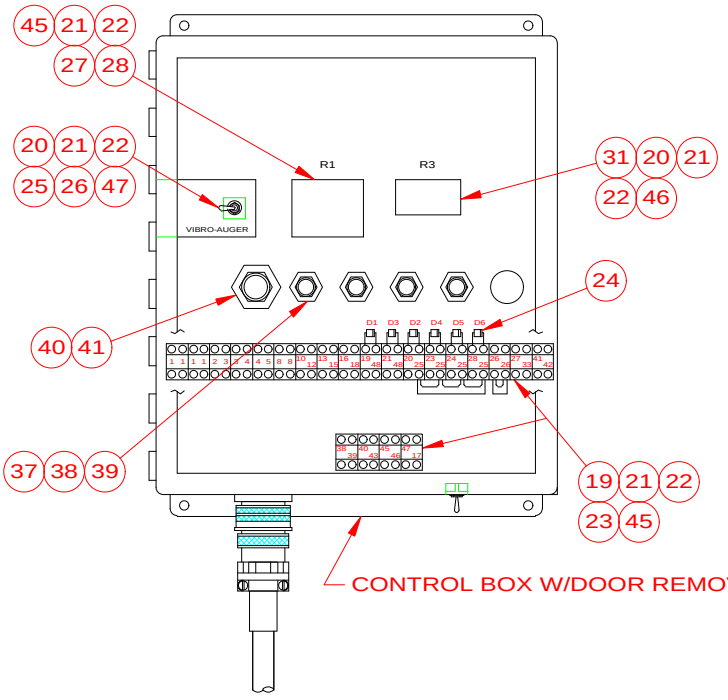


POWER UNIT ENCLOSURE 810641

Item	Part Number	Qty.	Description
1	110424	4	Cover Door
2	110422	1	Cover Door
3	110420	1	Cover Door
4	110418	1	Cover Door
5	100834	14	5” Door Hinge
6	300671	2	#10 Flat Washer
7	100600	1	Hex Key Rack
8	810045	1	Hex Key Group
9	100651	1	24 V Test Light
10	400277	1	I C E Logo Plate
11	100290	2	I C E Decal
12	110221	1	Door Hold Down
13	110861	2	10-32 x .50 LG PHMS
14	400161	2	#10 Lock Washer

CONTROL BOX ASSEMBLY 810451





CONTROL BOX ASSEMBLY 810451

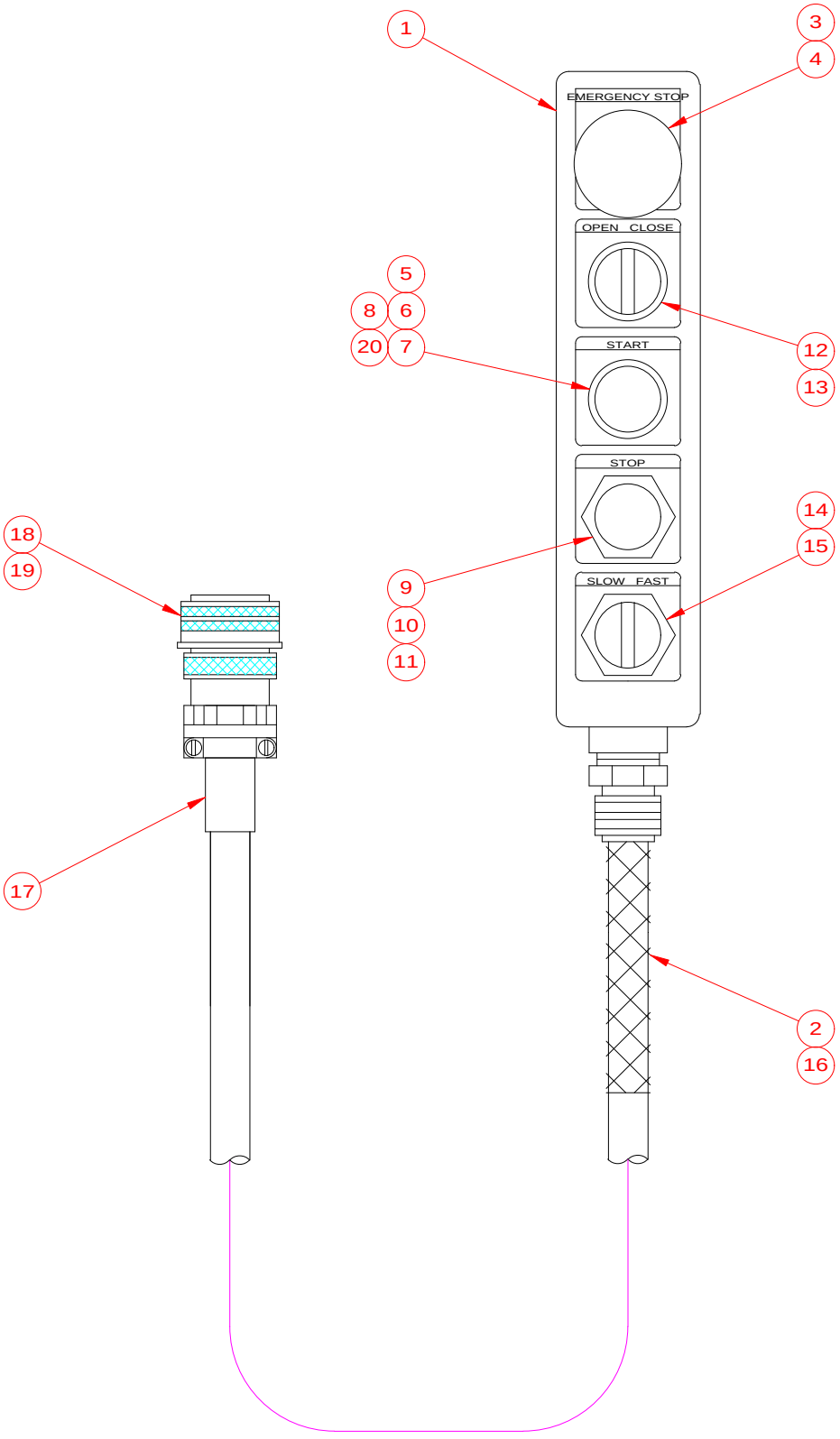
Item	Part Number	Qty.	Description
1	110652	1	Control Box
2	110650	1	Tachometer (570)
3	100329	1	Oil Pressure Gauge
4	110697	1	Water Temperature Gage
5	110371	1	Ammeter
6	110640	1	Hydraulic Temp. Gauge (TS-2)
7	400141	1	Circuit Breaker 10 A (CB-2)
8	100331	2	#6-32 X .25 Lg BHCS
9	100343	1	Hour Meter (M1)
10	110615	1	Start Switch
11	110456	1	Murphy Switch
12	100355	6	Dialight, Test
13	130305	6	Warning Light Bulb
14	100363	1	Pushbutton
15	100365	1	Rubber Dust Cap-Red
16	110598	1	Start Button (w/ Clamp Light)
17	110594	1	Guard
18	110596	1	Lens
19	110569	17	Terminal Mtg. Channel / In
20	110861	1	10-32 X .5 Lg.PHMS
21	400163	11	#10-32 Hex Nut
22	400161	11	#10 Lock Washer
23	110567	22	Terminal Block
24	100413	7	Diode
25	140361	2	Toggle Switch
26	100572	1	Toggle Switch Bracket
27	140281	4	Relay Mtg. Track / In.
28	110584	1	Relay (R1)
29	110415	11	.250 Oil Pressure Tube / Ft
30	100333	1	FITT2L-04E02Q000-000H002
31	110604	1	Relay (R3)
32	130155	1	Switch
33	810455	1	570C Label Group
34	110763	1	Female Amphenol Insert
35	100397	1	Amphenol Receptacle
36	110754	4	#6-32 X .375 Lg RHMS
37	100853	4	90 Deg S/O Comp. Fitting
38	110843	4	.5 Locknut
39	110841	4	.5 Plastic Bushing
40	110693	11	1" 90 Deg Comp. Fitting

Model 815
Vibratory Driver/Extractor

CONTROL BOX ASSEMBLY 810451

Item	Part Number	Qty.	Description
41	110839	1	1” Plastic Bushing
42	110696	4	#6 Lock Washer
43	110694	4	#6-32 Hex Nut
44	800395	1	570-950 Pendant Asm.
45	110649	7	#10-32 X .375 LG PHMS
46	300671	2	#10 Flat Washer
47	140345	1	Channel Bracket

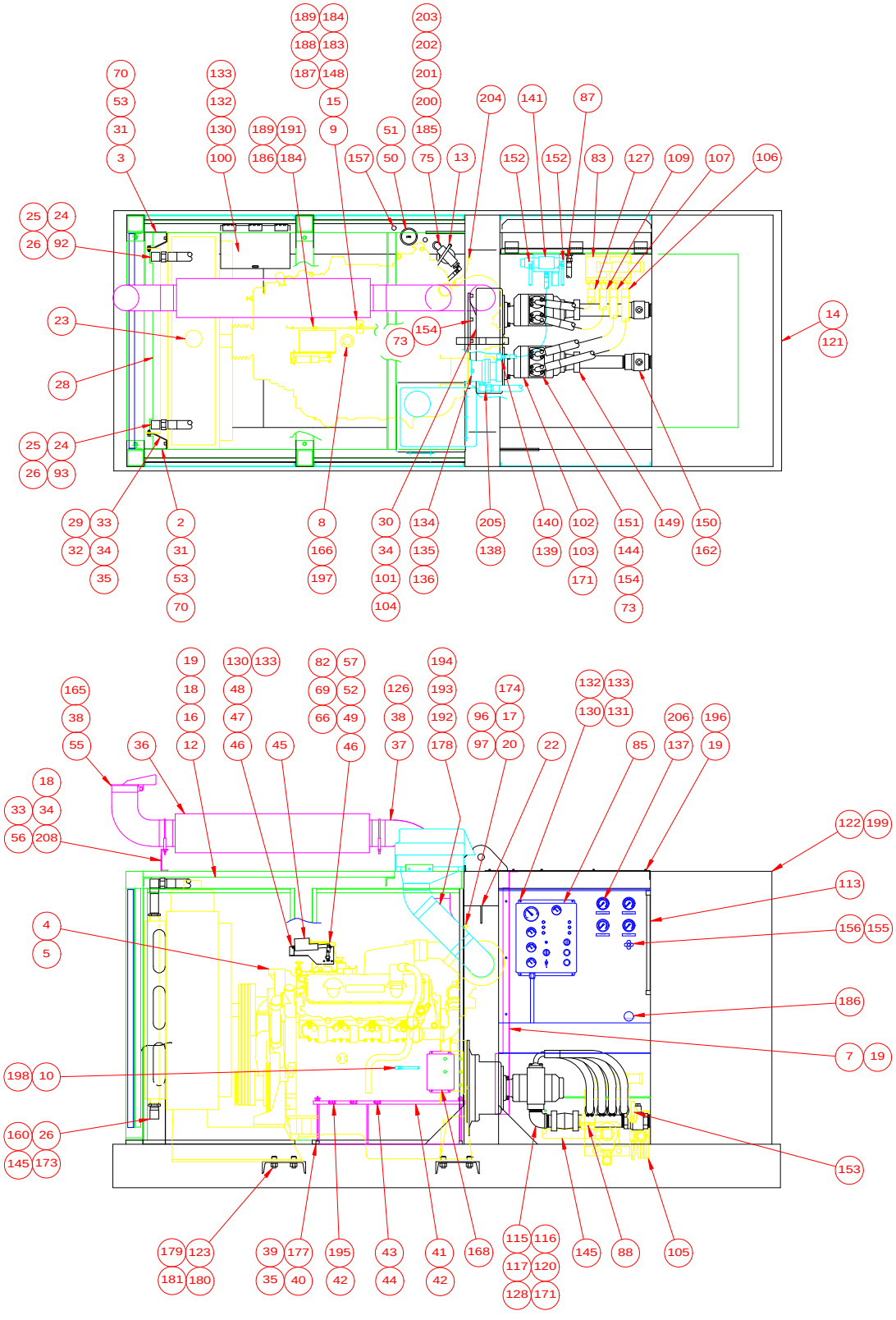
570-950 PENDANT ASSEMBLY 800395



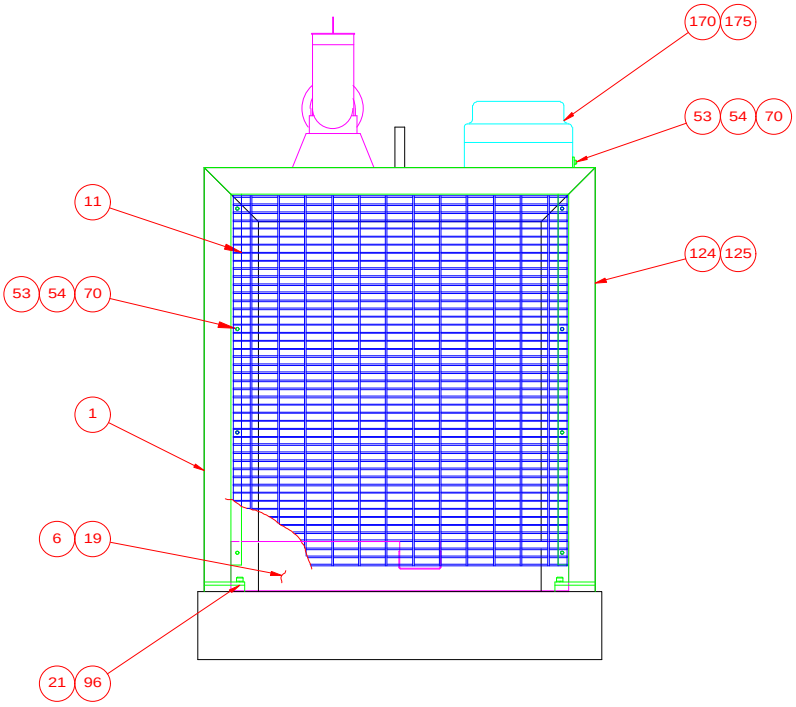
570-950 PENDANT ASSEMBLY 800395

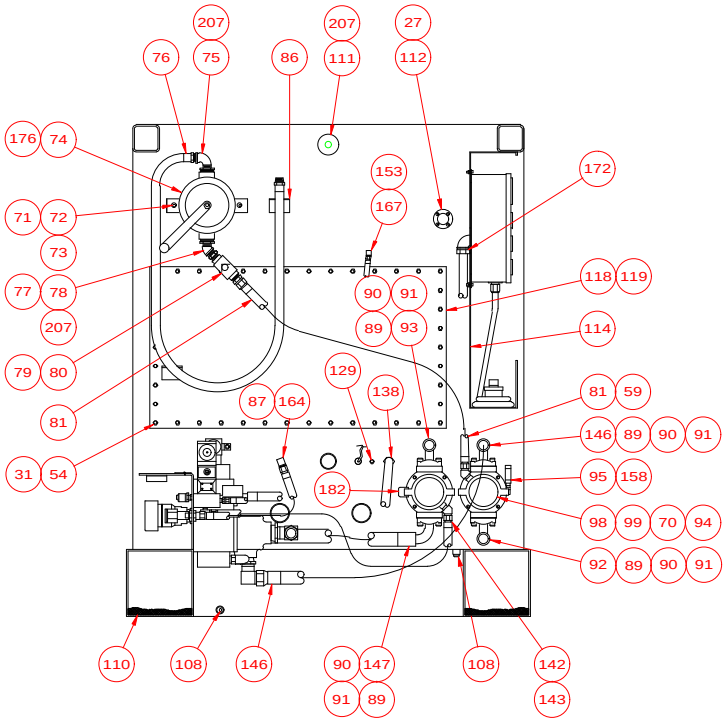
Item	Part Number	Qty.	Description
1	130505	1	Pendant Box
2	110603	1	1.0 Strain Relief
3	130507	1	Emergency Stop Button
4	130509	1	Emergency Stop Label
5	110598	1	Start Button (w/ Clamp Light)
6	110594	1	Guard
7	110596	1	Lens
8	100407	1	Start Nameplate
9	100363	1	Pushbutton
10	100405	1	Stop Nameplate
11	100365	1	Rubber Dust Cap-Red
12	130155	1	Switch
13	100401	1	Open / Close Nameplate
14	100566	1	Switch
15	100562	1	Slow-Fast Nameplate
16	100560	50	Pendant Cable / Ft
17	100375	1	Strain Relief-Amphenol
18	110761	1	Male Amphenol Insert-Plug
19	100395	1	Amphenol Plug
20	130305	1	Warning Light Bulb

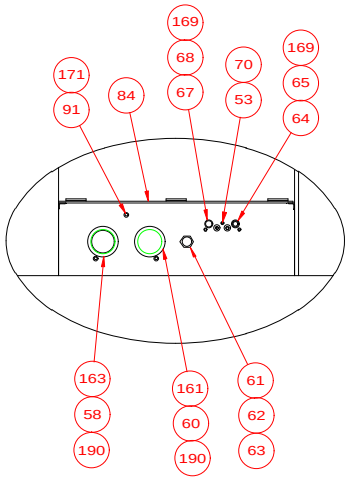
POWER UNIT-INTERNAL (side and top views) 800127



POWER UNIT-INTERNAL 800127







COUPLER PANEL DETAIL

(end view and coupler panel)

POWER UNIT-INTERNAL 800127

Item	Part Number	Qty.	Description
1	810639	1	Unit Cover Frame Asm.
2	110400	1	Left Air Baffle
3	110402	1	Right Air Baffle
4	110375	1	Diesel Engine
5	400247	44	Engine Oil/Quart
6	110398	1	Bottom Air Baffle
7	110405	1	Exhaust Shield
8	110447	1	Tack Drive Adapter
9	400161	2	#10 Lock Washer
10	110369	1	FITT2S-06P04Q000-000H001
11	110442	1	Intake Grill
12	110388	1	Right Roof Grating
13	110203	1	FITT2S-04M04P000-000H001
14	810641	1	570E P.U. Enclosure
15	110647	1	Throttle Bracket
16	110386	1	Left Roof Grating
17	100273	4	.625-11 Hex Nut
18	100398	10	Saddle Clip
19	110830	35	.25 X 2 in. Hex Tex Screw
20	110510	1	Exhaust Adapter
21	100575	6	.625-11 x 1.25 LG SHCS
22	110655	1	Cable Bracket
23	100726	15	Antifreeze/Gal
24	110443	2	FITT2L-24M24Q000-0000001
25	110437	2	FITT2S-24P24P000-0550301
26	100547	3	FITT2S-32P24Q000-000H306
27	110564	4	.25-20 x 2.25 LG RHMS
28	100551	1	Heat Exchanger
29	110297	2	Oil Cooler Bracket
30	100648	8	.375-16 X.875 LG SHCS
31	400151	50	.375 Flat Washer
32	100105	10	.312-18 X 1.0 LG SHCS Locwel
33	100289	10	.312-18 Hex Nut
34	100287	20	.312 Lock Washer
35	100293	22	.312 Flat Washer
36	110504	1	Muffler
37	110346	1	Exhaust Elbow (6"x90)
38	100297	4	Exhaust Pipe Clamp
39	400231	2	Hold Down Stud
40	100831	2	.312 Wing Nut

POWER UNIT-INTERNAL 800127

Item	Part Number	Qty.	Description
41	810653	1	Dual Battery Hold Down
42	100529	2	Battery
43	110390	1	2/0 x 14"LG. Jumper Cable
44	110755	1	Battery Cable-15
45	110460	1	Electric Actuator(24v)
46	100422	3	.25-20 UNC Esna Nut
47	110454	1	Electric Throttle Bracket
48	110163	1	.25-20 X 3.5 LG SHCS
49	110448	1	Adjustable Link
50	100417	1	FITT2C48Q000000-0000306
51	100419	1	Petcock
52	110827	1	10-32 x .75 BHCS S.S.
53	400149	24	.375 Lock Washer
54	100535	55	.375 -16 Hex Nut
55	110506	1	Muffler Outlet Elbow
56	110342	1	Muffler Support
57	400163	1	#10-32 Hex Nut
58	110957	1	1.5 Dust Plug
59	110641	1	FITT2V-12M08P000-0000001
60	110955	1	1.5 Dust Cap
61	100387	1	FITT2S-12P12B000-000H001
62	400095	1	.75 Female Disconnect
63	400121	1	.75 Dust Plug
64	100245	1	.375 Male Disconnect
65	100257	1	.375 Dust Cap
66	810617	1	Modified Throttle Arm
67	100777	1	.375 Female Disconnect
68	100737	1	.375 Dust Plug
69	100631	1	.25-20 X 2.0 LG SHCS
70	100051	32	.375-16 X 1.0 LG SHCS Locwel
71	100439	2	.437-X1.75 LG SHCS
72	400153	2	.437 Flat Washer
73	100443	30	.437 Lock Washer
74	100447	1	Hand Pump
75	110377	2	FITT2L-16P16Q000-0000306
76	400215	1	HOSE100R01P016P016L08400
77	110385	1	FITT2V-16P16Q000-0000306
78	100449	1	FITT2S-16P16P000-000H001
79	100451	1	Check Valve
80	300119	1	FITT2S-16P12M000-000H001

POWER UNIT-INTERNAL800127

Item	Part Number	Qty.	Description
81	100941	1	HOSE075R01J012J012L04400
82	100595	1	.25-20 X 1.25 LG SHCS
83	810447	1	570D Control Manifold Asm.
84	110406	1	Coupler Panel
85	810451	1	570D Control Box Assembly
86	110379	2	Hose Bracket
87	130201	1	HOSE075R01J012J012L04000
88	130205	1	HOSE019R01J004J004L09000
89	100596	8	#24 Split Flange Half
90	110119	4	2-225 O-Ring
91	100119	19	.5-13 X 1.25 LG SHCS Locwel
92	110467	1	HOSE150R01J024F924L16600
93	110469	1	HOSE150R01J024F924L14300
94	110511	8	Seal Washer
95	100775	1	Visual Indicator
96	100007	10	.625 Lock Washer-Medium
97	110225	4	.625-11 X 1.5 LG BHCS
98	810481	2	Filter Assembly
99	810117	4	K10 Element Assembly
100	100558	1	Tool Box
101	110488	1	Double Pump Drive Adapter
102	110490	2	570D Drive Pump
103	100614	8	.5-13 UNC x 1.50 LG HHCS
104	100735	2	Transmission Oil/Gal
105	110680	1	HOSE019RO1J004J004L40000
106	110474	1	HOSE100PT4F016F920L04350
107	110476	1	HOSE100PT4F016F920L04100
108	100423	3	FITT2P-08P000000-000S007
109	110478	1	HOSE100PT4F016F920L04000
110	100725	55	Diesel Fuel/Gal
111	100455	1	Breather
112	100314	1	Float Switch
113	110355	1	Level Gauge
114	110408	1	Control Box
115	100946	2	MFP Flange
116	400379	2	2-232 O-Ring
117	100011	8	.5-13 X 2.0 LG SHCS
118	110289	1	Reservoir Cover Plate
119	110365	1	Cover Gasket
120	100962	2	FITT2L-40P40Q000-0000306

POWER UNIT - INTERNAL 800127

Item	Part Number	Qty.	Description
121	810143	1	570E Fuel Subbase Asm.
122	110287	1	Reservoir (570E)
123	400069	8	.75-10 x 2.0 LG SHCS
126	110348	1	Exhaust Elbow (6"x45)
127	110480	1	HOSE100PT4F016F920L03900
128	130119	2	FITT2S-40P000000-0450301
129	110590	1	Hydraulic Temperature Switch
130	100557	8	.25-20 x .75 LG SHCS
131	100598	4	.25-20 Hex Nut
132	100597	6	.25 Flat Washer
133	100559	4	.25 Lockwasher
134	110401	1	Clamp Pump
135	100513	2	.5-13 X 1.5 LG SHCS
136	100027	2	.5 Hi-Collar Lock Washer
137	110600	4	0-6000 PSI Gage
138	110831	1	HOSE100R01P016J016L07000
139	100787	1	FITT2L-08M08R000-000H001
140	110470	1	HOSE050PT4J008J008L03500
141	810449	1	570C Clamp Manifold Assembly
142	300481	1	FITT2L-12M08P000-0000001
143	110019	1	HOSE075R01J012J012L04800
144	100037	4	2-222 O-Ring 70 Duro
145	110586	1	HOSE150R01JO24J024L12900
146	110780	1	HOSE150RO1J024F924L04900
147	110588	1	HOSE150R01F924J024L02150
148	110676	2	Cotter Pin .093 x 1.0 LG
149	130139	2	2.5 Flexible Coupling
150	400117	2	Stop Cock
151	100045	8	#20 Split Flange Half
152	130207	2	HOSE019R01J004J004L10000
153	100228	1	HOSE038R02J006J006L0610S
154	100462	28	.437-14 UNC x 1.25 LG HHCS
155	110479	1	Throttle Clevis
156	110417	1	Engine Throttle
157	120523	2	Fuel Base Magnet
158	100838	1	FITT2L-02P04Q000-00L0001
159	110909	1	.75 X 15 LG Pipe SCH40
160	100588	1	FITT2L-24M24P000-0000001
161	110690	1	1.5 Male Disconnect
162	110464	2	FITT2S-40P000000-1400301

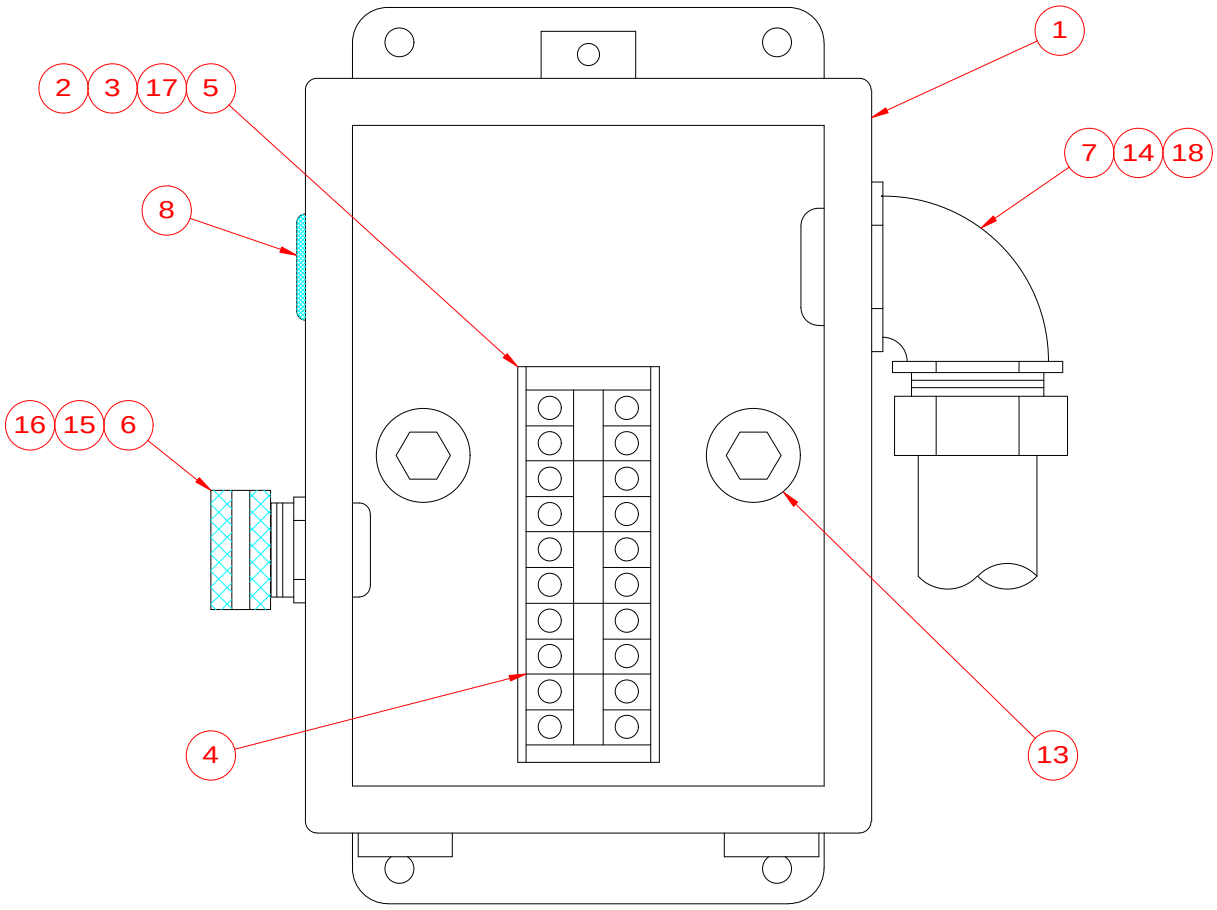
POWER UNIT - INTERNAL 800127

Item	Part Number	Qty.	Description
163	110692	1	1.5 Female Disconnect
164	100489	1	FITT2L-12M12P000-0000001
165	110695	1	Rain Cap
166	110631	1	2-117 O-Ring 90 Duro Poly
167	140581	1	FITT2L-06M04P000-0000001
168	810145	1	570 Engine Junction Box
169	110794	2	FITT2S-06P06P000-000H001
170	110421	1	Air Cleaner Cover
171	100121	19	.5 Lock Washer Medium
172	110231	4	S/O Cord 12' LG
173	130243	1	Rubber Tie Down
174	110753	1	Exhaust Gasket
175	110423	1	Air Cleaner Element
176	130091	1	Pump Mounting Bracket
177	110767	2	Hold Down Block
178	110410	1	Air Intake Elbow (45 deg.)
179	100589	8	.75 Flat Washer
180	100069	8	.75 Lock Washer Medium
181	100587	8	.75-10 Hex Nut
182	100602	1	Pressure Switch
183	110861	2	10-32 x .5 LG. PHMS
184	100429	2	Throttle Cable Seal
185	110819	1	Suction Filter Tube
186	100345	1	Engine Stop Cable
187	110960	1	Shim
188	110962	1	Clamp
189	110964	2	Pivot
190	110392	2	FITT2S-24R24P000-000H001
191	110966	1	Shut-Down Arm
192	110427	1	Air Intake Tube/Ft.
193	110429	1	Air Intake Elbow
194	110431		46" Band Clamp
195	100537	1	Battery Cable-24"
196	110416	1	Top Cover
197	110972	1	Over Speed Switch
198	110871	1	FITT2V-04P04E000-000H002
199	140415	385	Hydraulic Fluid/Gal
200	120423	1	Water Separator
201	120425	1	FITT2S-16P16P000-1200301
202	100715	1	FITT2S-16P06Q000-000H001

POWER UNIT - INTERNAL 800127

Item	Part Number	Qty.	Description
203	400227	1	FITT2L-06M06P000-0000001
204	100408	1	Magnetic Pick-Up(300-570)
205	100783	1	FITT2L-16M16R000-000H001
206	100321	4	FITT2L-04M04Q000-0000001
207	110089	2	FITT2S-20P16Q000-000H001
208	100396	2	.312-18 X 1.50 LG. SHCS

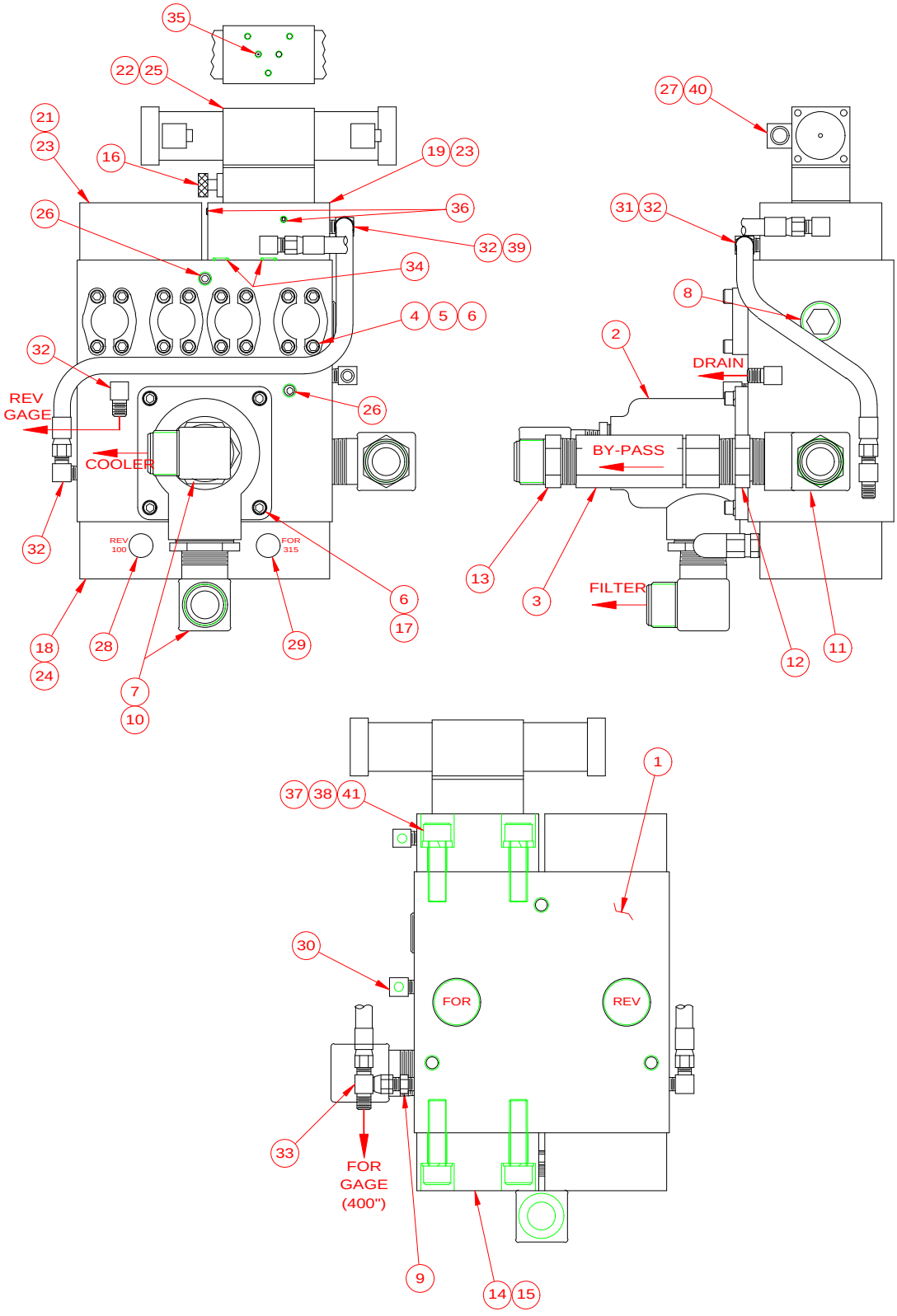
JUNCTION BOX 810145



JUNCTION BOX 810145

Item	Part Number	Qty.	Description
1	110699	1	Junction Box
2	400161	2	#10 Lock Washer
3	400163	2	10-32 Hex Nut
4	110567	5	Terminal Block
5	110569	1	Terminal Mounting Channel
6	100855	1	Straight Wire Connector
7	110693	1	90 Deg. Connector
8	110701	1	Grommet
13	140227	2	.625-11 X 2.00 SHCS
14	110839	1	Plastic Bushing (1.0)
15	110843	1	Lock Nut (.5)
16	110841	1	Plastic Bushing (.5)
17	110649	2	10-32 x .375 Lg PHMS
18	110845	1	Lock Nut (1.0)

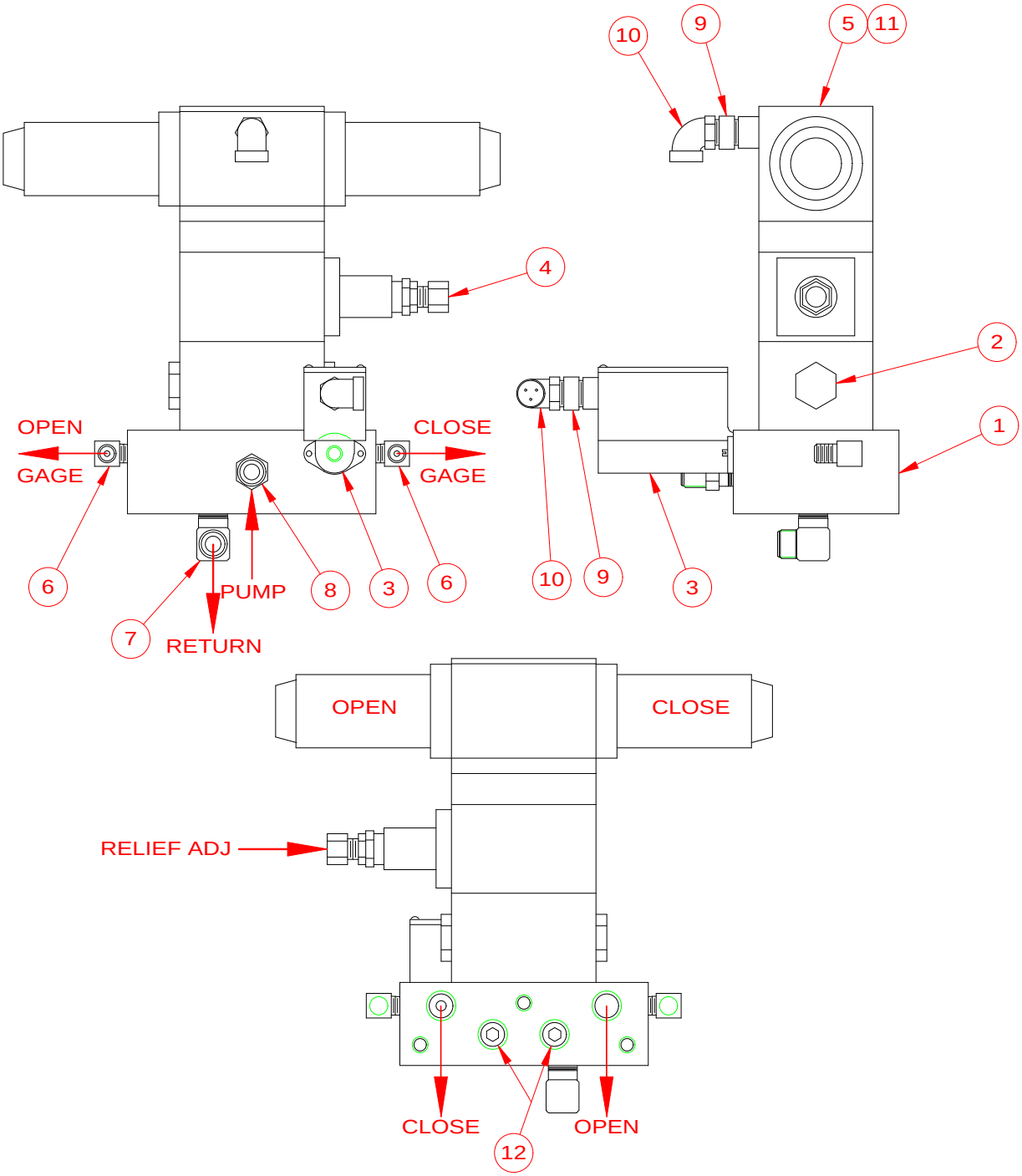
CONTROL MANIFOLD ASSEMBLY 810447



CONTROL MANIFOLD ASSEMBLY 810447

Item	Part Number	Qty.	Description
1	110516	1	Manifold Block
2	110628	1	Cooler Valve (V-3)
3	130339	1	Check Valve (CV-2)
4	100089	8	#16 Split Flange Half
5	100091	4	#219-O-Ring
6	100143	20	.375-16UNC x 1.25 Lg SHCS
7	100588	2	FITT2L-24M24P000-0000001
8	110055	1	FITT2P-20P000000-000S007
9	110203	1	FITT2S-04M04P000-000H001
10	100547	2	FITT2S-32P24Q000-000H001
11	100446	1	FITT2L-24P24Q000-000H001
12	110037	1	FITT2S-24P24P000-000H001
13	100565	1	FITT2S-24P24M000-000H001
14	400039	12	.75-10UNC x 2.75 Lg SHCS
15	100069	12	.75 Lock Washer
16	100654	1	Sandwich Shut-Off Valve (V-4)
17	400149	4	.375 Lock Washer
18	110544	1	Cartridge Cover (CC4)
19	110530	1	Cartridge Cover (CC1)
20	110546	1	Cartridge Cover (CC2)
21	110606	1	Cartridge Cover (CC3)
22	100650	4	.25-20UNC x 4.5 LG, SHCS
23	110624	2	Cartridge A (CA1-2)
24	110622	2	Cartridge B (CB1-2)
25	810519	1	Modified Spool Valve (V-2)
26	100845	2	FITT2P-04P000000-000S007
27	100990	2	Electrical Connector
28	100630	1	Reverse Cartridge (100)
29	100632	1	Forward Cartridge (315)
30	140581	1	FITT2L-04P06M000-0000001
31	100149	1	HOSE025R02J004J004L01900
32	100145	4	FITT2L-04M04P000-0000001
33	100556	1	FITT2T-04M04M04J-0000001
34	110602	2	#111-O-Ring
35	140387	1	Orifice
36	100646	2	FITT2P-02P000000-000S007
37	100067	4	.75-10 X 2.50LG SHCS Lockwel
38	400727	4	.75 Hi-Collar Lock Washer
39	100719	1	HOSE025R02J004J004L03000
40	110237	2	Straight S/O Cord Adapter
41	110616	1	.25 X .625 LG Roll Pin

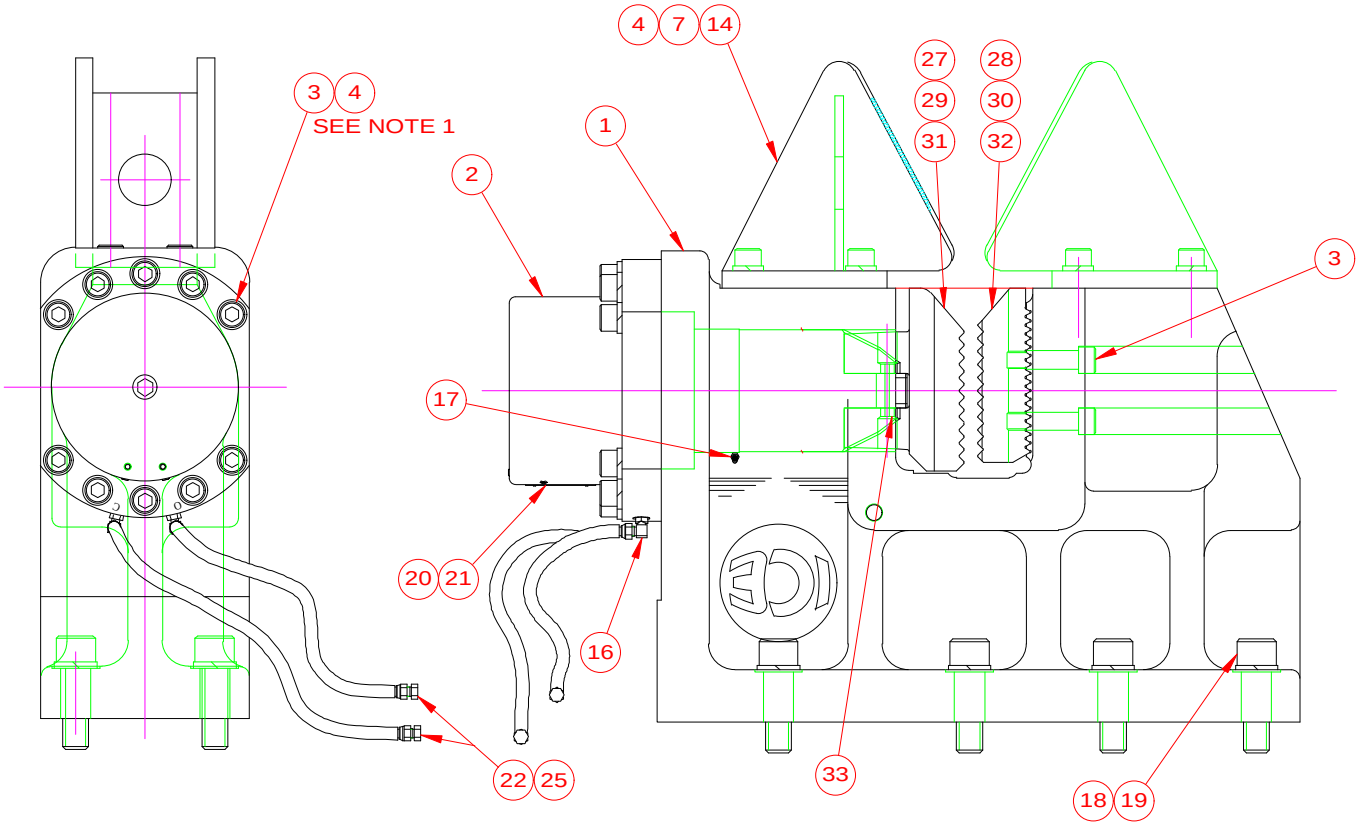
CLAMP MANIFOLD ASSEMBLY 810449

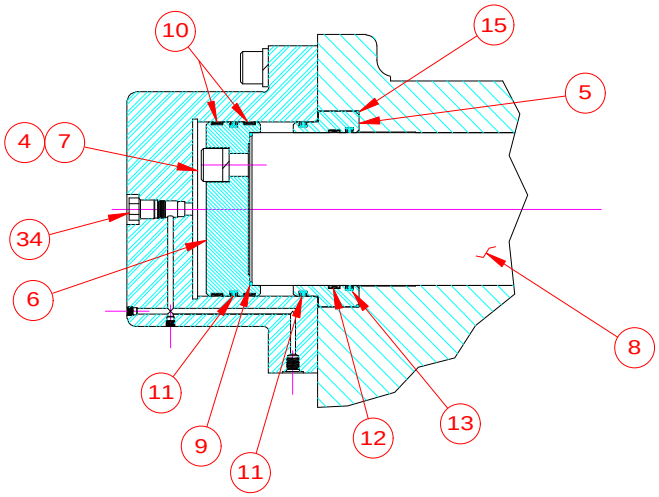


CLAMP MANIFOLD ASSEMBLY 810449

Item	Part Number	Qty.	Description
1	110642	1	Manifold Block
2	110149	1	Check Valve (CV-5)
3	810033	1	Pressure Switch (PS-1)
4	100898	1	Relief Valve (RV2)
5	110147	1	4-way Solenoid Valve (V-1)
6	140539	2	FITT2L-04M02P000-0000001
7	110632	1	FITT2L-12M06P000-000H001
8	110630	1	FITT2S-08M06P000-000H001
9	110885	1	Conduit Adapter
10	110235	1	90 deg. S/O Cord Adapter
11	110634	4	.25 - 20 UNC x 7.50 LG SHCS
12	400213	2	FITT2P-06P000000-000S007

Model 815
Vibratory Driver/Extractor





NOTE:
1. TORQUE 1.00 SOCKET HEAD

NOTE 1: TORQUE 1.00 SOCKET HEAD CAP SCREWS TO 1009 FT-LB

CYLINDER DETAIL

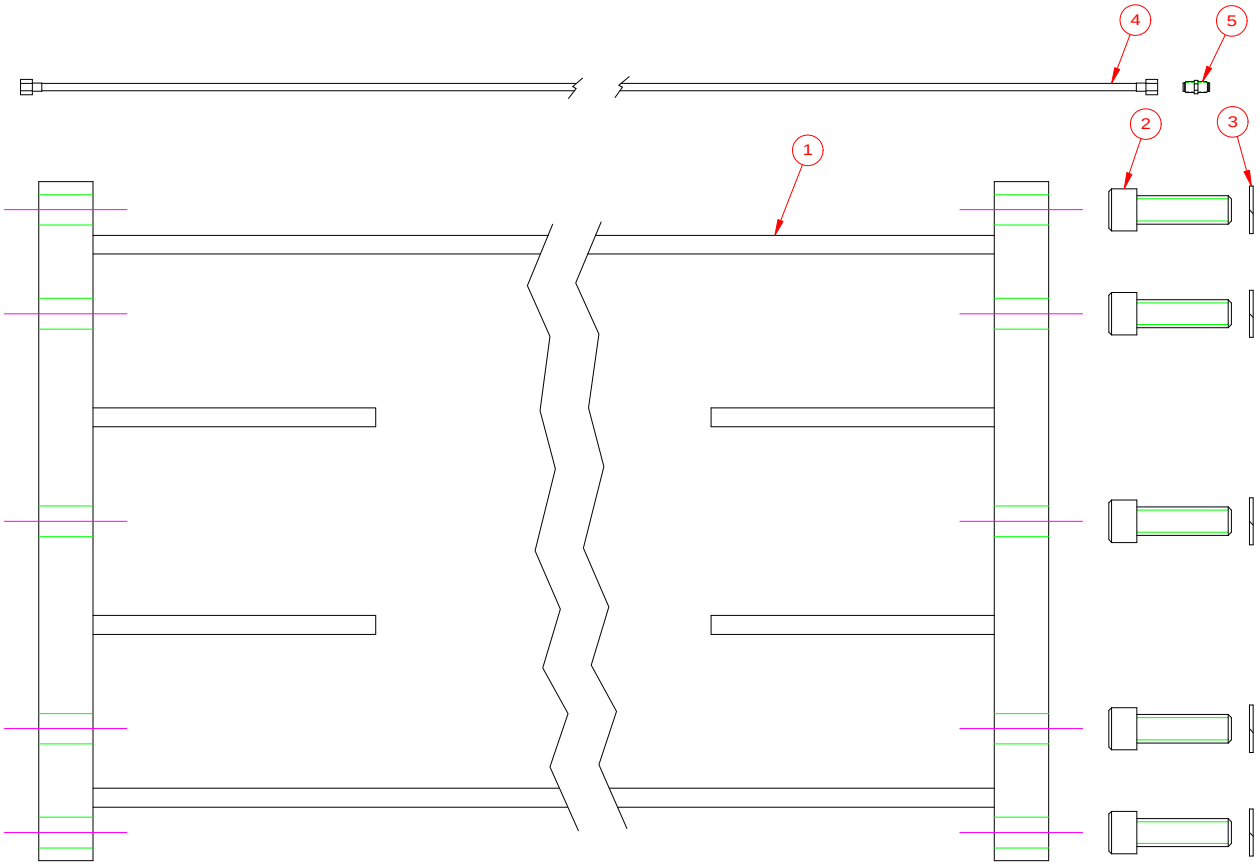
1. Remove item 2 (cylinder) by removing items 3 & 4 (socket cap screws & washers).
2. Remove items 4 & 7 from item 6 (piston_.
3. Inspect item 9 (o-ring). Make sure it is not damaged. Replace if necessary, using Parker O-ring lube.
4. Re-install items 5 & 7. Use Permatex Red #262 thread locker (or equal) per suppliers instructions. Torque item 7 to proper specs.
5. Re-install item 2 (cylinder). Torque item 3 to proper spec.

126B CLAMP ASSEMBLY (OPTIONAL) 800327

Item	Part Number	Qty.	Description
1	810493	1	126B Clamp Body Asm.
2	810491	1	Welded Cylinder
3	100212	12	1-8UNC x 4.0 LG. SHCS
4	100209	19	1" Lock Washer
5	120567	1	Rod End Cap
6	120569	1	Piston
7	100213	7	1-8UNC x 2.50 LG. SHCS
8	120575	1	Cylinder Rod
9	120347	1	#261-O- Ring (Note)
10	120285	2	Piston Bearing (Note)
11	120283	2	Piston Seal (Note)
12	120555	1	Rod Bearing (Note)
13	120553	1	Rod Seal (Note)
14	100983	1	Pile Guide
15	120401	1	2-269 O-Ring 90 Duro (Note)
16	130057	1	FITT2L-06M06R000-000H001
17	100229	1	Grease Fitting
18	100193	8	1.5-6UNC x 5.0 LG. SHCS
19	100195	8	1.5 Lock Washer
20	120365	1	Clamp Label
21	130381	4	Rivet
22	100111	2	HOSE038R02J006J006L0875S
25	100230	2	FITT2P-06M000000-000T001
26	810515	1	126B Seal Kit
27	810495	1	Universal Movable Jaw
28	110515	1	Universal Fixed Jaw
29	810497	1	H-Beam Movable Jaw
30	110541	1	H-Beam Fixed Jaw
31	810499	1	DS-Movable Jaw
32	110419	1	DS-Fixed Jaw
33	130449	1	Spiral Roll Pin
34	120629	1	Holding Valve

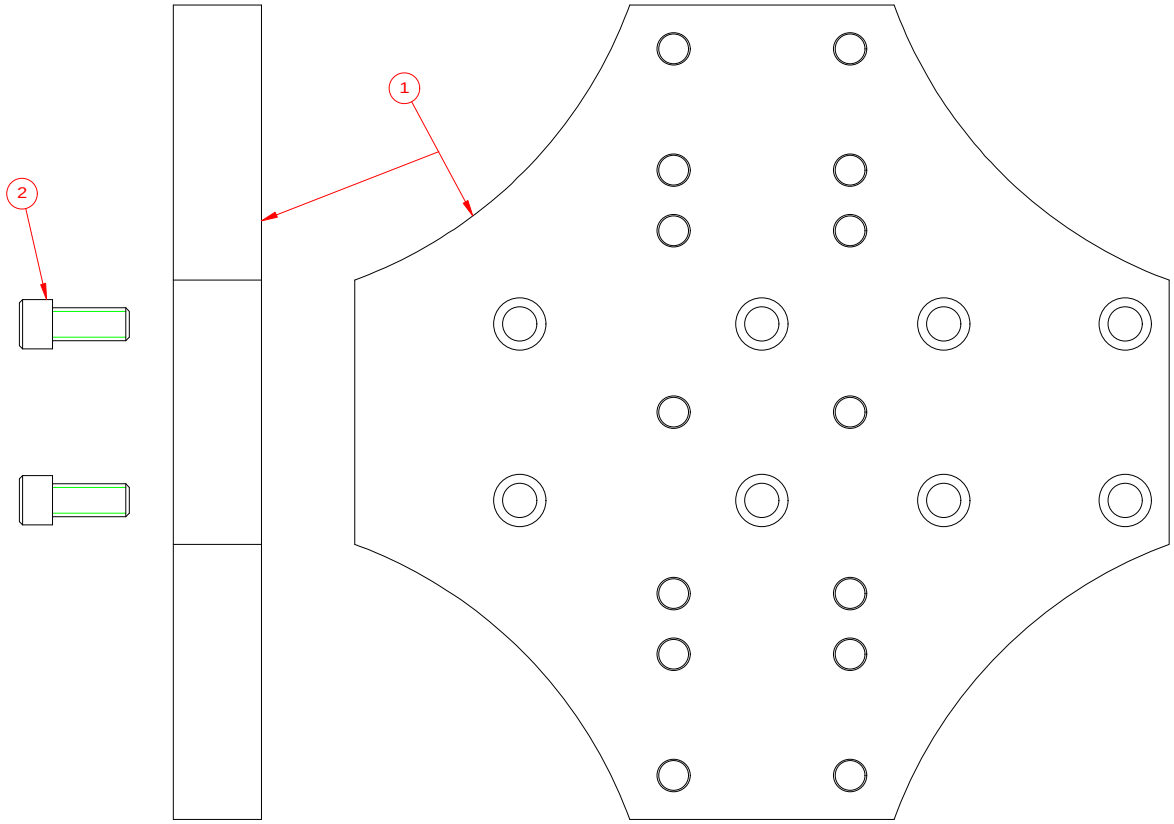
Note; Included in 126B Seal KIt

CLAMP EXTENSION - 10 FOOT (OPTIONAL) 800423



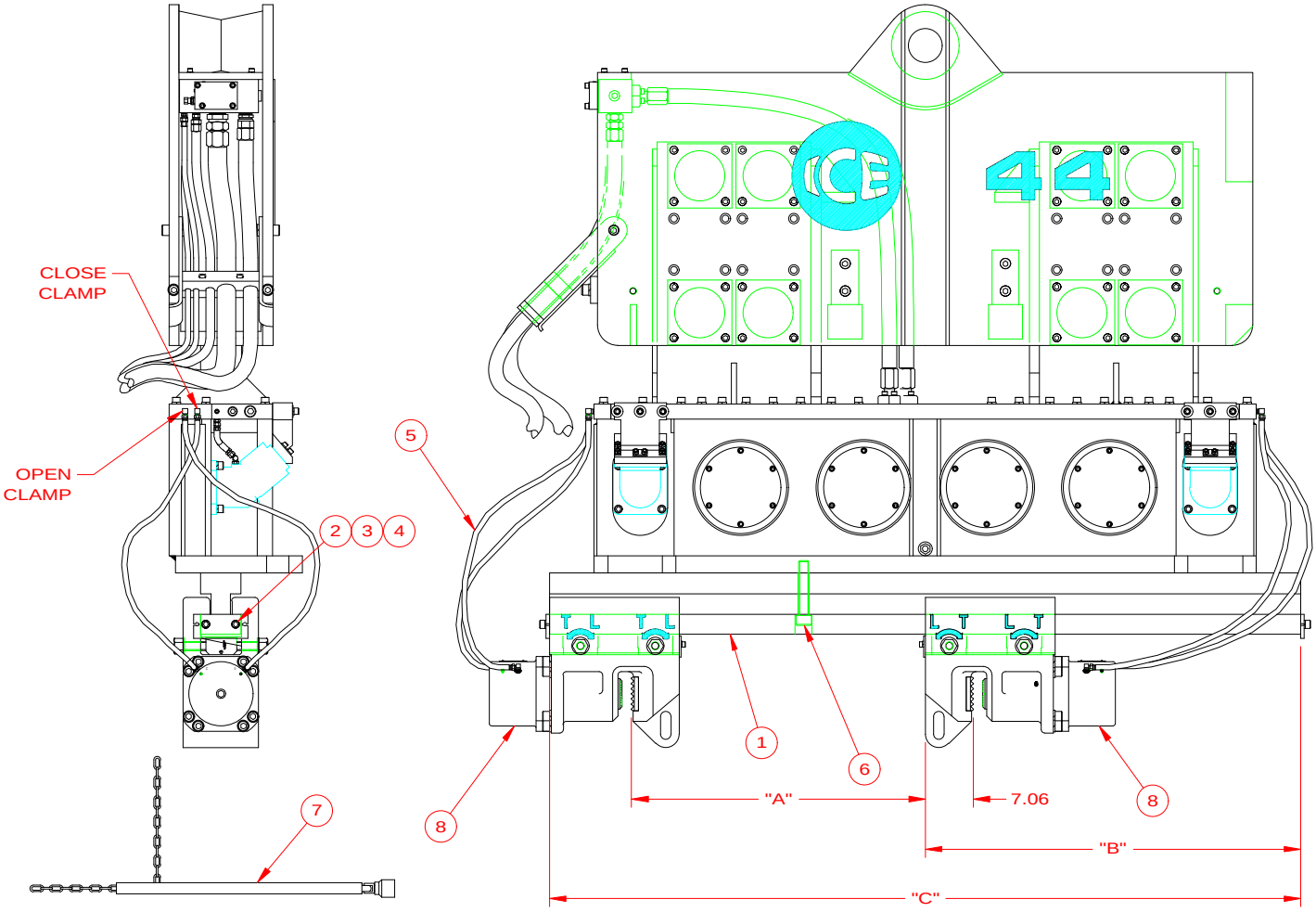
Item	Part Number	Qty.	Description
1	810655	1	10' Extension
2	100193	10	1.50-6UNC x 5.00 LG. SHCS
3	100195	10	1.50 Lock Washer
4	120193	2	HOSE038R02J006J006L1320S
5	120081	2	FITT2S-06M06M000-000H001

90 Deg. CLAMP ADAPTER (OPTIONAL)800049



Item	Part Number	Qty.	Description
1	120083	1	90 deg. Clamp Adapter
2	120077	8	1.50-6UNC x 3.50 LG SHCS

CAISSON BEAM - 7 FOOT (OPTIONAL) 800477
11 FOOT (OPTIONAL)800479



7’ Caisson Beam (800477) - Shown
11’Caisson Beam (800479) - Similar

	A	B	C
7’ Beam	42.00	55.00	110.00
11’ Beam	71.75	84.00	168.00

CAISSON BEAM - 7 FOOT (OPTIONAL) 800477

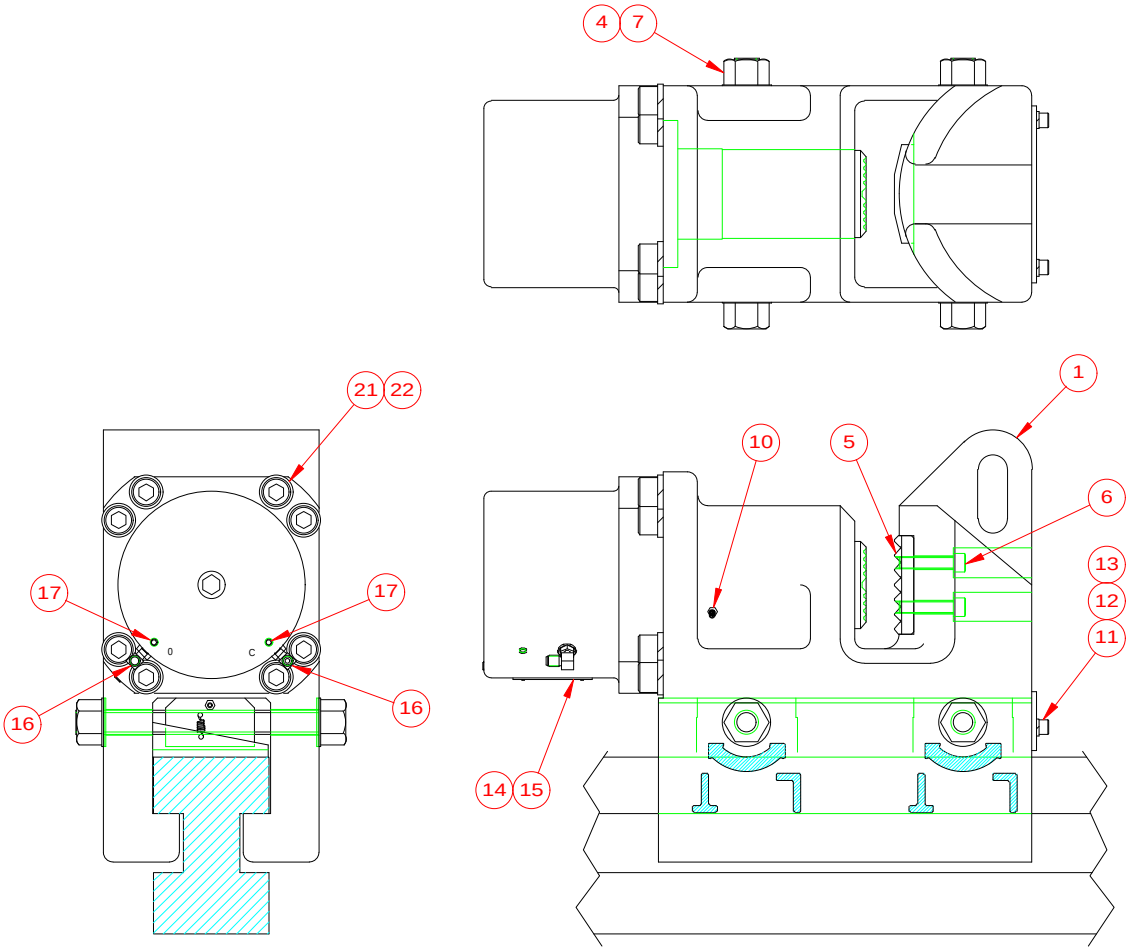
Item	Part Number	Qty.	Description
1	120001	1	7' Caisson Beam
2	120011	2	Clamp Stop
3	400069	4	.75-10UNC x 2.00 Lg SHCS
4	100069	4	.75 Lock Washer
5	100228	4	HOSE038R02J006J006L0610S
6	120007	15	1.50-6UNC x 8.00 Lg SHCS
7	810173	1	Adjustment Tool
8	800047	2	#80 Caisson Clamp Asm. (Note)
11	100230	4	FITT2P-06M000000-000T001

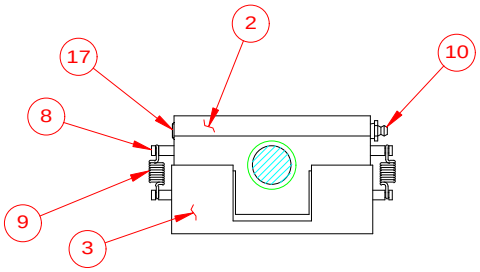
CAISSON BEAM - 11 FOOT (OPTIONAL) 800479

Item	Part Number	Qty.	Description
1	810251	1	11' Caisson Beam
2	120011	2	Clamp Stop
3	400069	4	.75-10UNC x 2.00 Lg SHCS
4	100069	1	.75 Lock Washer
5	120009	4	HOSE038R02J006J006L0960S
6	100193	14	1.50-6UNC x 5.00 Lg SHCS
7	810173	1	Adjustment Tool
8	800047	2	#80 Caisson Clamp Asm. (Note)
11	130219	14	1.50 Lock Washer Hi-Collar
12	100230	4	FITT2P-06M000000-000T001

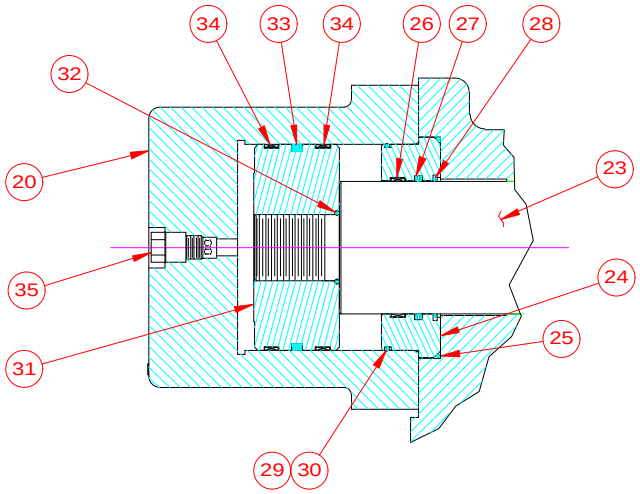
Note: Not part of Caisson Beam Asm.

MODEL 80B CAISSON CLAMP (OPTIONAL) w/ WEDGE LOCK 800047





WEDGE LOCK DETAIL



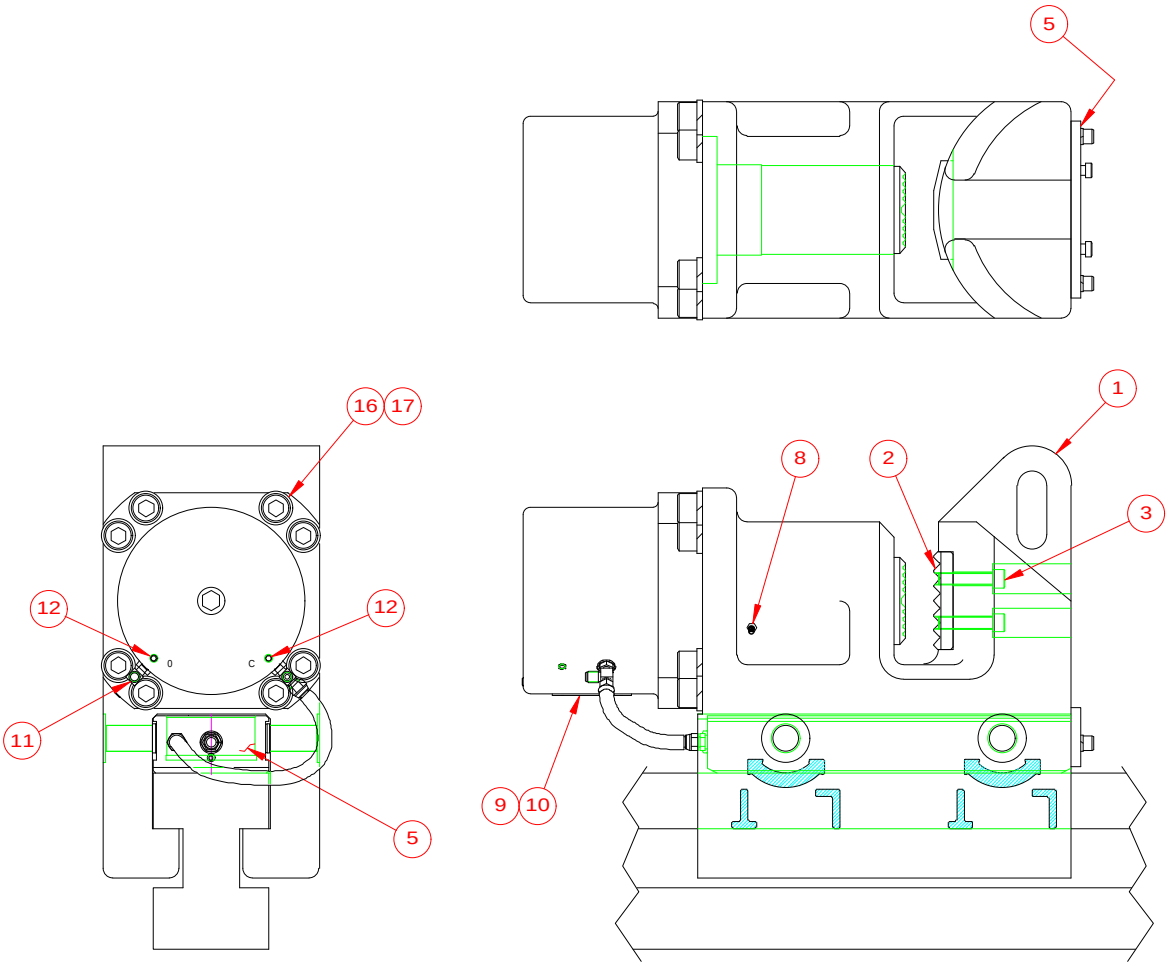
CYLINDER DETAIL

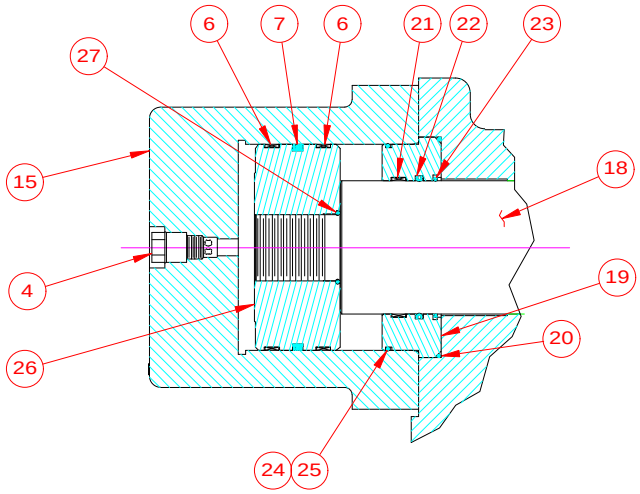
MODEL 80B CAISSON CLAMP (OPTIONAL) w/ WEDGE LOCK 800047

Item	Number	Qty.	Description
1	810061	1	Clamp Body
2	120101	2	Wedge
3	120103	2	Lock
4	810109	2	Screw Asm.
5	120107	1	Fixed Jaw
6	400157	2	.625-11UNC x 2.75 Lg. SHCS
9	120115	4	Spring
10	100229	3	Grease Fitting
11	120119	1	Wedge Guard
12	100119	2	.5-13UNC x 1.25 Lg. SHCS
13	100121	2	.5 Lockwasher
14	120159	1	Clamp Label
15	130381	4	Rivet
16	130057	2	FITT2L-06M06R000-000H001
17	100646	7	FITT2P-02P000000-000S007
20	120621	1	Cylinder
21	100212	8	1.0-8UNC x 4.00 Lg. SHCS
22	100209	8	1.0 Lockwasher
23	120631	1	Cylinder Rod
24	120623	1	Rod End Cap
25	120100	1	263-O-Ring (Note)
26	120627	1	Rod Bearing (Note)
27	120625	1	Rod Seal (Note)
28	120345	1	Rod Wiper (Note)
29	120347	1	#261-O-Ring (Note)
30	120349	1	#261-Back-up Ring (Note)
31	120313	1	Piston
32	120281	1	#140-O-Ring (Note)
33	120357	1	Piston Seal (Note)
34	120355	2	Piston Bearing (Note)
35	120629	1	Holding Valve
36	810611	1	80B Seal Kit

Note: Included in Model 80B Seal Kit.

MODEL 80B CAISSON CLAMP (OPTIONAL) w/ HYDRO LOCK 800413





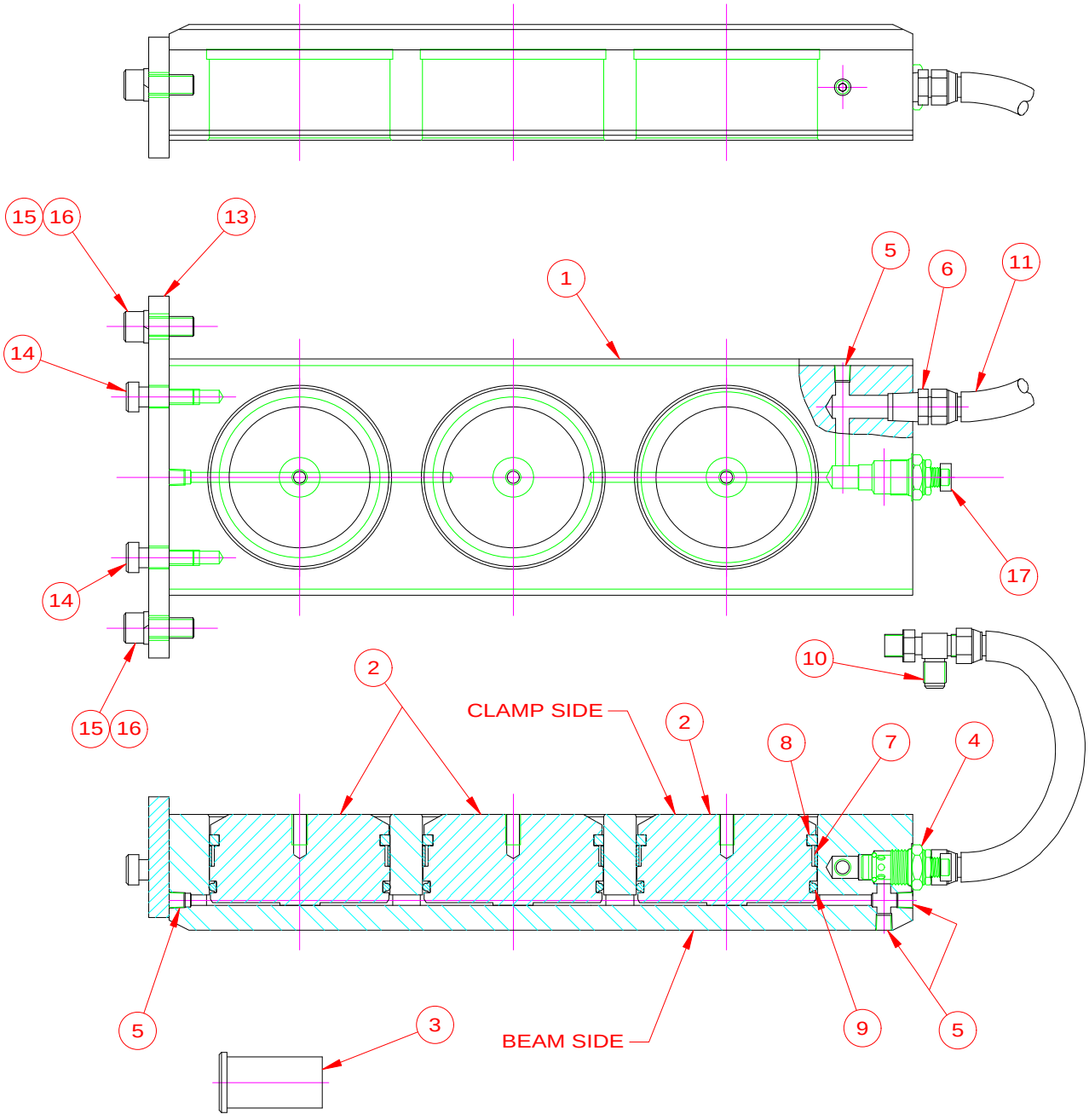
CYLINDER DETAIL

MODEL 80B CAISSON CLAMP (OPTIONAL) w/HYDRO LOCK 800413

Item	Number	Qty.	Description
1	810061	1	Caission 80 Clamp Body Cast.
2	120107	1	Jaw
3	400157	2	.625-11 x 2.75 LG SHCS
4	120629	1	Holding Valve Cartridge
5	800399	1	Lock Body Asm.
6	120355	2	Piston Bearing (Note)
7	120357	1	Piston Seal (Note)
8	100229	1	Grease Fitting
9	120159	1	80 S/N Plate
10	130381	4	Rivet
11	130057	1	FITT2L-06M06R000-000H001
12	100646	5	FITT2P-02P000000-000S007
15	120621	1	80B Cylinder
16	100212	8	1.0-8 X 4 Lg SHCS Locwel
17	100209	8	1.0 Lockwasher Medium
18	120631	1	Cylinder Rod (80 B)
19	120623	1	Rod End Cap (80 B)
20	120100	1	2-263 O-Ring 90 Duro (Note)
21	120627	1	Rod Bearing (80 B) (Note)
22	120625	1	Rod Seal (80 B) (Note)
23	120345	1	Rod Wiper (Note)
24	120347	1	2-261 O-Ring 90 Duro (Note)
25	120349	1	261 Back-Up Ring (Note)
26	120313	1	Piston - 80, 216, WPH
27	120281	1	2-140 O-Ring (Note)
28	810611	1	#80B Seal Kit

Note: Included in Model 80B Seal Kit.

HYDRO LOCK (OPTIONAL) 800399



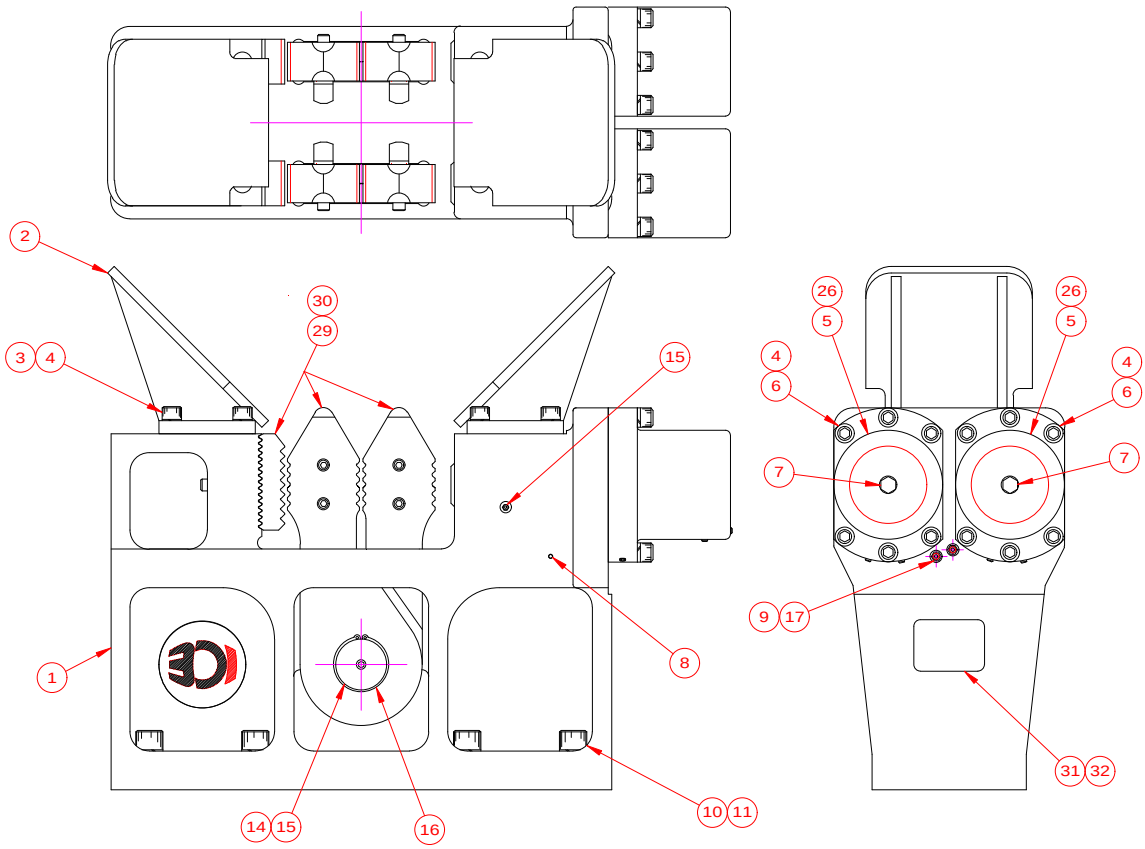
HYDRO LOCK (OPTIONAL) 800399

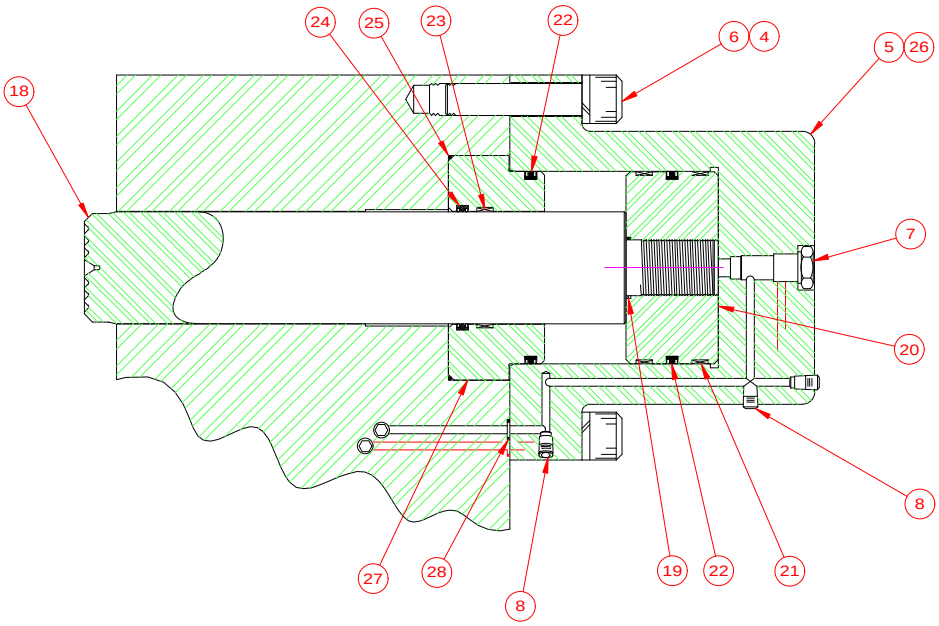
Item	Number	Qty.	Description
1	120639	1	Lock Body
2	120641	3	Piston
3	120643	4	Button
4	120651	1	Lock Body Holding Valve
5	100646	4	FITT2P-02P000000-000S007
6	400203	1	FITT2S-06M06P000-000H001
7	120645	3	Piston Bearing
8	120649	3	Piston Wiper
9	120647	3	Piston Seal
10	120655	1	FITT2T-06R06M06M-0000001
11	120657	1	HOSE038RO2J006J006L0090C
13	120653	1	L.B. Retainer Plate
14	140143	2	.5 X .75 LG SCHS Shoulder
15	100119	2	.5-13 X 1.25 LG SCHS Locwel
16	100121	2	.5 Lockwasher Medium
17	120731	1	Support Ring

INSTALLATION PROCEDURE

Remove Elbow on CLOSE side of the Cylinder and replace with Tee. Connect hose from Lock Body to Cylinder. Position Clamps on Beam to suit your Piling. Shut Holding Valve Item 4 by turning CW, CLOSE Clamp to Energize HYDRO LOCK. To reposition Clamp on Beam Open Holding Valve Item 4 by turning CCW, and OPEN Clamp to release HYDRO LOCK.

MODEL 127B Z-PILE CLAMP (OPTIONAL) 800041





CYLINDER ASSEMBLY DETAIL

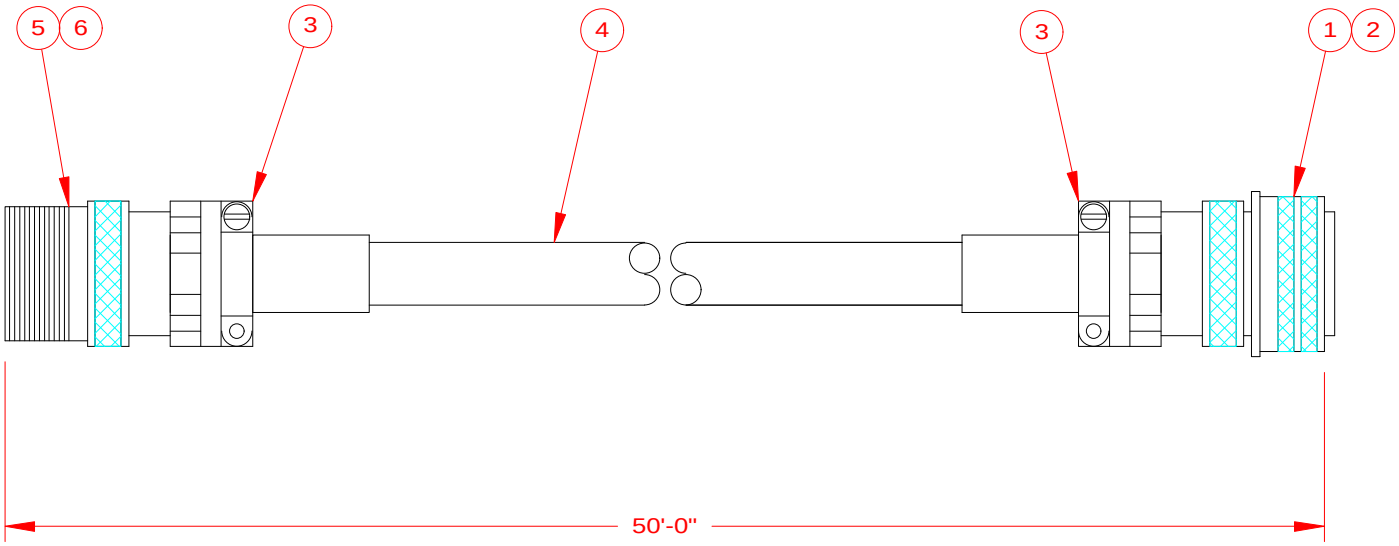
MODEL 127B Z-PILE CLAMP (OPTIONAL) 800041

Item	Part Number	Qty.	Description
1	810059	1	127 Z CLAMP BODY CASTING
2	120677	2	PILE GUIDE
3	100213	8	1.0-8 X 2.5 LG SHCS LOCWEL
4	100209	20	1.0 LOCKWASHER MEDIUM
5	120659	2	127B CYLINDER
6	100212	12	1.0-8 X 4 LG SHCS LOCWEL
7	120629	2	HOLDING VALVE CARTRIDGE
8	100646	10	FITT2P-02P000000-000S007
9	100053	2	FITT2S-06MO6R000-000H001
10	100193	8	1.5-6 X 5.0 LG SHCS
11	100195	8	1.5 LOCKWASHER EXTRA HEAVY
14	120155	1	SHAFT
15	100229	4	GREASE FITTING
16	120191	2	RETAINER RING
17	100111	2	HOSE038R02J006J006L0875S
18	120663	2	CYLINDER ROD(127B)
19	120239	2	2-132 O-RING (Note 1)
20	120241	2	PISTON-127
21	120243	4	PISTON BEARING (Note 1)
22	120245	4	PISTON SEAL (Note 1)
23	120665	2	ROD BEARING (Note 1)
24	120667	2	ROD SEAL (Note 1)
25	120347	2	2-261 O-RING 90 DURO (Note 1)
26	810629	2	127B Z SEAL KIT
27	120661	2	ROD END CAP(127B)
28	110602	4	111 0-RING (Note 1)
29	800419	1	12" MULTI-GRIP JAW SET (Note 2)
30	800417	1	13" MULTI-GRIP JAW SET (Note 2)
31	120181	1	127 S/N PLATE
32	130381	4	RIVET

Note 1 : Included in Model 127B Seal Kit.
Note 2 : Not part of Final Assembly.

Model 815
Vibratory Driver/Extractor

PENDANT EXTENSION CABLE - 50' (OPTIONAL) 800059



Item	Part Number	Qty.	Description
1	120169	1	Amphenol Cable Jack
2	110763	1	FemaleAmphenol Insert
3	100375	2	Strain Relief - Amphenol
4	100560	50	Pendant Cable / Ft
5	100395	1	Amphenol Plug
6	110761	1	Male Amphenol Insert-Plug

VIII.ORDERING PARTS

E. MISCELLANEOUS ACCESSORIES

1. TOOLS

Part Number	Qty.	Description
100651	1	24-Volt Test Light
100653	1	Set of Allen Wrenches - Includes All Wrenches Shown Below:
100655		(1) 1/16" Allen Wrench - Long Arm
100691		(1) 5/64" Allen Wrench - Long Arm
100659		(1) 3/32" Allen Wrench - Long Arm
100661		(1) 7/64" Allen Wrench - Long Arm
100663		(1) 1/ 8" Allen Wrench - Long Arm
100665		(1) 9/64" Allen Wrench - Long Arm
100667		(1) 5/32" Allen Wrench - Long Arm
100669		(1) 3/16" Allen Wrench - Long Arm
100671		(1) 7/32" Allen Wrench - Long Arm
100673		(1) 1/ 4" Allen Wrench - Long Arm
100657		(1) 5/16" Allen Wrench - Long Arm
100675		(1) 3/ 8" Allen Wrench - Long Arm
100677		(1) 7/16" Allen Wrench - Long Arm
100679		(1) 9/16" Allen Wrench - Long Arm
100683		(1) 5/ 8" Allen Wrench - Long Arm
100685		(1) 3/ 4" Allen Wrench - Long Arm
100687		(1) 7/ 8" Allen Wrench - Short Arm
100689		(1) 1" Allen Wrench - Short Arm

2. BULK

Part Number	Qty.	Description
810013	5 GAL	Hydraulic Fluid
810011	5 GAL	Vibration Case Lubricant
100726	1 GAL	Coolant/Anti-Freeze
100298	1 GAL	I C E Green Paint
100299	1 GAL	Primer

VIII. ORDERING PARTS

E. MISCELLANEOUS ACCESSORIES (Continued)

3. 815 HOSE GROUP KIT-INTERNAL 850053

Item	P/N	Qty.	Description	Page Ref.
5	110123	2	HOSE150PT4F024F024L0875S	VIII-12
9	110922	1	HOSE100R01F016H920L0660S	VIII-12
10	110988	1	HOSE100RO1F016H920L0500S	VIII-12
13	100099	1	HOSE075R02F012F012L0880S	VIII-12
14	110994	1	HOSE100R10F016H920L0690S	VIII-12
15	110990	1	HOSE100R10F016H920L0530S	VIII-12
19	110329	1	HOSE050R01F008J908L0640S	VIII-12
20	110327	1	HOSE050RO1F008J908L0481S	VIII-12
22	100111	2	HOSE038R02J006J006L0875S	VIII-12
23	110633	2	HOSE038R02J006J006L0370S	VIII-12
24	100108	2	HOSE038R02J006J006L0200S	VIII-12

4. 570D HOSE GROUP KIT-INTERNAL 850111

Item	P/N	Qty.	Description	Page Ref.
76	400215	1	HOSE100R01P016P016L08400	VIII-25
81	100941	1	HOSE075R01J012J012L04400	VIII-25
87	130201	1	HOSE075R01J012J012L04000	VIII-24
88	130205	3	HOSE019R01J004J004L09000	VIII-24
92	110467	1	HOSE150R01J024F924L16600	VIII-25
93	110469	1	HOSE150R01J024F924L14300	VIII-24
105	110680	1	HOSE019R01J004J004L40000	VIII-24
106	110474	1	HOSE100PT4F016F920L04350	VIII-24
107	110476	1	HOSE100PT4F016F920L04100	VIII-24
109	110478	1	HOSE100PT4F016F920L04000	VIII-24
127	110480	1	HOSE100PT4F016F920L03900	VIII-24
138	110831	1	HOSE100R01P016J016L07000	VIII-25
140	110470	1	HOSE050PT4J008J008L03500	VIII-24
143	110019	1	HOSE075R01J012J012L04800	VIII-25
145	110586	1	HOSE150R01J024J024L12900	VIII-24
146	110780	1	HOSE150R01F924J024L04900	VIII-25
147	110588	1	HOSE150R01F924J024L02050	VIII-25
152	130207	2	HOSE019R01J004J004L10000	VIII-24
153	100228	1	HOSE038R02J006J006L06100	VIII-25

VIII. ORDERING PARTS

E. MISCELLANEOUS ACCESSORIES (CONTINUED)

5. 815/570D O-RING KIT 850109

P/N	Qty.	Description
110602	3	#111-O-Ring
110197	2	#159-O-Ring
110195	2	#163-O-Ring
100107	2	#210-O-Ring
100097	4	#214-O-Ring
100091	8	#219-O-Ring
100037	8	#222-O-Ring
110119	10	#225-O-Ring
400379	2	#232-O-Ring
100167	16	#266-O-Ring

6. CYLINDER SEAL KITS

MODEL 126B CLAMP CYLINDER 800327 Refer to page VIII-37

Item	P/N	Qty.	Description
9	120347	1	#261-O-Ring
10	120285	2	Piston Bearing
11	120283	2	Piston Seal
12	120555	1	Rod Bearing
13	120553	1	Rod Seal
34	120401	1	#269-O-Ring

MODEL 80B CLAMP CYLINDER 800047 Refer to page VIII-43

Item	P/N	Qty.	Description
25	120100	1	#263-O-Ring
26	120627	1	Rod Bearing
27	120625	1	Rod Seal
28	120345	1	Rod Wiper
29	120347	2	#261-O-Ring
30	120349	2	#261-Back-up Ring
32	120281	1	#140-O-Ring
33	120357	1	Piston Seal
34	120355	2	Piston Bearing

VIII. ORDERING PARTS

F. RECOMMENDED SPARE PARTS

VIBRATION SUPPRESSOR 800057 Refer to page VIII-6

Item	P/N	Qty.	Description
2	100003	2	Elastomer
20	110113	1	Filter Element
21	110119	2	#225-O-Ring
55	110215	1	#239-O-Ring
56	110217	1	#239-Back-Up Washer
79	100097	2	#214-O-Ring

VIBRATION CASE 810085 Refer to page VIII-10

Item	P/N	Qty.	Description
13	110195	2	#163-O-Ring (Bearing)
15	110197	2	#159-O-Ring (Motor)
17	100167	16	#266-O-Ring
--	110605	2	Motor Shaft Seal
26	100185	1	Sight Gage

HOSE ASSEMBLIES-INTERCONNECTING 800053 Refer to page VIII-14

Item	P/N	Qty.	Description
4	110141	1	HOSE150PT4P024P024L60000
9	110970	1	HOSE200R02J032J032L60000
13	100241	1	HOSE075R02P012P012L62000
17	100247	2	HOSE038RO2P006P006L62000

POWER UNIT - INTERNAL 800127 Refer to page VIII-24

Item	P/N	Qty	Description
90	110119	4	#225-O-Ring
99	810117	4	Filter Element Assembly
106	110474	1	HOSE100PT4F016F920L04350
107	110476	1	HOSE100PT4F016F920L04100
109	110478	1	HOSE100PT4F016F920L04000
127	110480	1	HOSE100PT4F016F920L03900
140	110470	1	HOSE050R09J008J908L03500
144	100037	4	#222-O-Ring
---	110423	1	Air Cleaner Element

VIII. ORDERING PARTS

F. RECOMMENDED SPARE PARTS (CONTINUED)

DISTRIBUTION BLOCK 810087 Refer to page VIII-12

Item	P/N	Qty	Description
4	110119	4	#225-O-Ring
8	100091	4	#219-O-Ring
12	100097	2	#214-O-Ring
18	100107	2	#210-O-Ring
25	100037	4	#222-O-Ring

MODEL 126B CLAMP 800327 Refer to page VIII-38

Item	P/N	Qty.	Description
16	130057	1	FITT2L-06M06R000-0000001
18	100193	8	1.5-6UNC x 5.00 LG. SHCS
19	100195	8	1.5 Lock Washer
22	100111	2	HOSE038R02J006J00620875S
26	810515	1	126B Seal Kit
27	810495	1	Universal Movable Jaw
28	110515	1	Universal Fixed Jaw
29	810497	1	H-Beam Movable Jaw
30	110541	1	H-Beam Fixed Jaw
31	810499	1	DS-Movable Jaw
32	110419	1	DS-Fixed Jaw
33	130449	1	Spiral Roll Pin

MODEL 127B Z-PILE CLAMP 800041 Refer to page VIII-50

Item	P/N	Qty.	Description
9	100193	8	1.50-6UNC x 5.00 LG SHCS
10	100195	8	1.50 Lock Washer
17	100111	1	HOSE038R02J006J006L0875S
26	810629	1	127B Seal Kit

VIII. ORDERING PARTS

F. RECOMMENDED SPARE PARTS (CONTINUED)

MODEL 80 CAISSON CLAMP w/WEDGE LOCK 800047 Refer to page VIII-44

Item	P/N	Qty.	Description
4	810109	1	Screw Assembly
5	120107	1	Fixed Jaw
6	400157	2	.625-10UNC x 2.75 LG SHCS
16	130057	2	FITT2L-06M06R000-000H001
35	120629	1	Holding Valve
36	810611	1	Model 80B Seal Kit

MODEL 80 CAISSON CLAMP w/HYDRO LOCK 800413 Refer to page VIII-46

Item	P/N	Qty.	Description
2	120107	1	Jaw
3	400157	2	.625-10UNC x 2.75 LG SHCS
4	120629	1	Holding Valve
11	130057	2	FITT2L-06M06R000-000H001
28	810611	1	Model 80B Seal Kit

HYDRO LOCK 800399 Refer to page VIII-48

Item	P/N	Qty.	Description
3	120643	4	Button
4	120651	1	Holding Valve
6	400203	1	FITT2S-06M06P000-000H001
7	120645	3	Piston Bearing
8	120649	3	Piston Wiper
9	120647	3	Piston Seal
10	120655	1	FITT2T-06R06M06M-0000001
11	120657	1	HOSE038R02J006J006L0090C
14	140143	2	.5 x .75 LG SHCS Shoulder
15	100119	2	.5-13 x 1.25 LG SHCS Locwel
17	120731	1	Support Ring

G. CYLINDER INSTALLATION INSTRUCTIONS AND ASSEMBLY PROCEDURES

1. Assemble cylinder to clamp using grease and extreme care to prevent damage to O-rings.
2. Lubricate the tie rod threads with "NEVER SEIZE" and install hardened washers.
3. Install tie rod nuts "finger tight" against the cylinder head.
4. Torque the rod nuts in the sequence shown in Fig.1 per each of the four steps shown in the table. (Ft/Lbs.)
5. Scribe a line on a convenient point of the nut and cylinder head as shown in Fig. 2.
6. Turn the nuts an additional number of 1/12th turns as shown in the last column of the table.
7. Tighten the tie rod nuts in the sequence shown in Fig.1 with a 2/12ths maximum turn per each sequence.

CLAMP MODEL	BORE	TORQUE PER FIG.1 SEQUENCE FT/LBS.				TURNS
		STEP 1	STEP 2	STEP 3	STEP 4	IN 12ths
125/126	8"	30	60	125	250	5
216	7"	25	50	100	200	5
127	6"	20	80	250	480	0
80	7"	25	50	100	200	5
254	12"	30	60	125	250	7

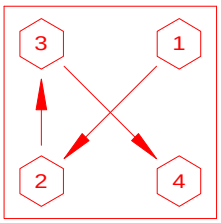


Fig. 1

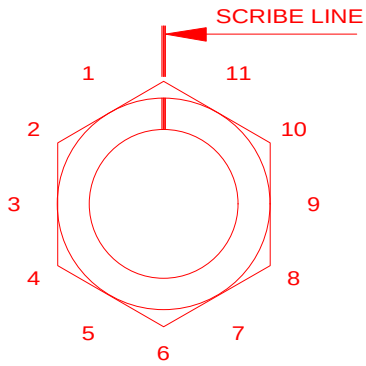


Fig. 2

H. RECOMMENDED TIGHTENING TORQUE

Nominal Screw Size	Nominal Socket Size	Tightening Torque Ft/lbs.	Nominal Screw Size	Nominal Socket Size	Tightening Torque Ft/lbs.
#10-24	5/32	6 Ft/lbs.	#10-32	5/32	6 Ft/lbs.
1/4-20	3/16	13 Ft/lbs.	1/4-28	3/16	15 Ft/lbs.
5/16-18	1/4	27 Ft/lbs.	5/16-24	1/4	30 Ft/lbs.
3/8-16	5/16	48 Ft/lbs.	3/8-24	5/16	55 Ft/lbs.
7/16-14	3/8	77 Ft/lbs.	7/16-20	3/8	86 Ft/lbs.
1/2-13	3/8	119 Ft/lbs.	1/2-20	3/8	133 Ft/lbs.
5/8-11	1/2	234 Ft/lbs.	5/8-18	1/2	267 Ft/lbs.
3/4-10	5/8	417 Ft/lbs.	3/4-16	5/8	467 Ft/lbs.
7/8-9	3/4	676 Ft/lbs.	7/8-14	3/4	742 Ft/lbs.
1-8	3/4	1,009 Ft/lbs.	1-12	3/4	1,126 Ft/lbs.
1-1/4-7	7/8	1,600 Ft/lbs.	1-1/4-12	7/8	1,800 Ft/lbs.
1-1/2-6	1	2,800 Ft/lbs.	1-1/2-12	1	3,000 Ft/lbs.

NOTE: These values are for Socket head cap screws only. Button heads, Flat heads and Set screws have different values. Check the Allen Hand Book for correct torque specifications.