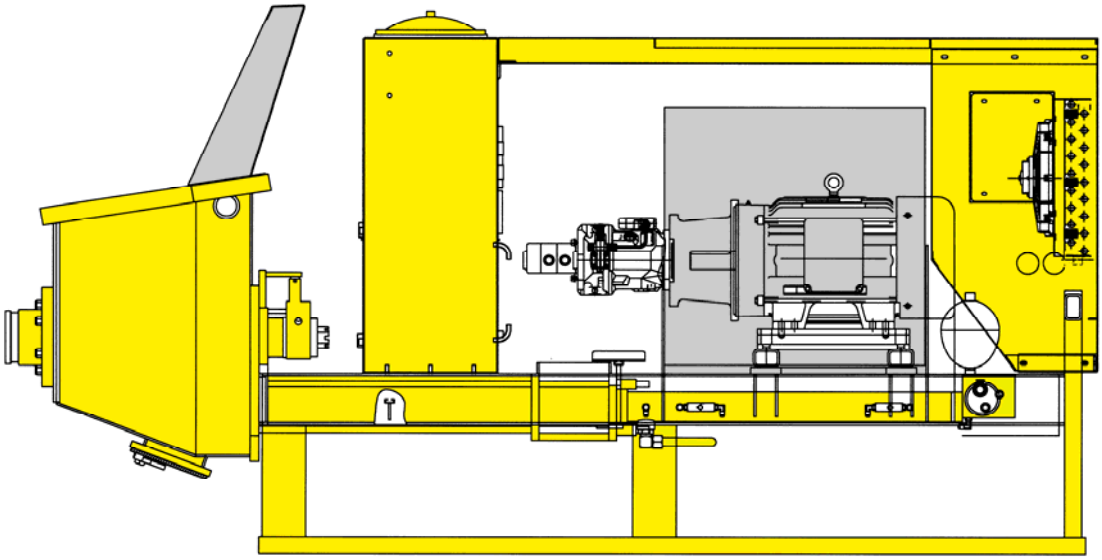
OPERATION, MAINTENANCE AND PARTS MANUAL

SKID MOUNTED CONCRETE PUMP

02 MODEL *A30HP-SKE*



REED, provides this manual for the guidance of all owners, operators and servicing personnel in order to obtain the longest possible trouble-free service. It contains data, specifications, warranty, schematics, operating instructions, lubrication procedures, maintenance procedures, illustrated parts breakdown, vendor information, service bulletins, and safety rules.

Serial No.: _____

Date Delivered: _____

Customer: _____

NOTE: Additional copies of this manual **(P/N: BW10283-S)** maybe obtained through the ***REED*** Parts Department.

FIRST EDITION: 08/06/2008

STARTING SERIAL NUMBER: 3.08.1.2827

REED, *Technical Publications* • A Member of the Shea Family of Companies
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A30HP TRAILER MOUNTED CONCRETE PUMP
WARRANTY

REED warrants each new A30HP Trailer Mounted Concrete Pump to be free of defects in material and workmanship under normal use and service for a period of one year from date of delivery based on the following conditions:

- One (1) year or 1200 pumping hours whichever comes first.

The **WARRANTY** is issued **ONLY** to the **INITIAL USER**. The warranty period begins when the product is delivered to the initial user or when first put into service, whichever occurs first. Said warranty is void if the machine is subject to misuse, neglect, accident or abuse.

REED'S obligation under this warranty is limited to correcting without charge, at its factory, any parts or parts thereof which shall be returned to its factory, transportation prepaid and upon ***REED'S*** examination proves to have been originally defective. Correction of such defects by repair or replacement shall constitute fulfillment of all obligations to the initial user. This warranty does not include labor or transportation charges unless specifically identified and authorized in writing by ***REED***. Nor does the warranty apply to any unit upon which repairs or unauthorized alterations have been made.

This warranty does not apply to normal maintenance service or to normal replacement of certain machine parts which are subject to normal wear (such as concrete cylinders and wear components, valve mechanisms, delivery systems, hopper grate, etc.) ***REED*** makes no warranty in respect to trade accessories or outside vendor components, such being subject to the warranties of their respective manufacturers.

THIS IS A LIMITED WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. In no event shall ***REED*** be made liable for incidental, general or consequential damage, loss or any expense directly or indirectly related and resulting from use or lack of use caused by delay in delivery, parts failure, or any other causes associated with the product use. No person, firm or corporation is authorized to assume for ***REED*** any other liability in connection with the sale of ***REED*** products.

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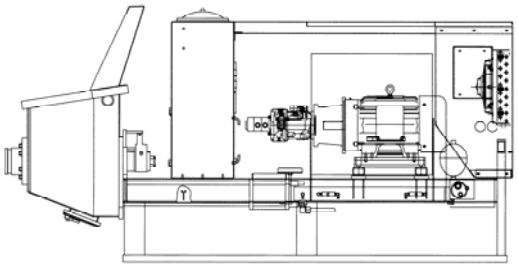
INTRODUCTION

A major factor in the minds of the operators and maintenance personnel should be use of the machine in a **SAFE** and **PROFICIENT** manner. This can only be accomplished by having a better understanding of the operation and maintenance of the **ROCK MASTER *02 MODEL A30HP* SKID MOUNTED CONCRETE PUMP**.



This manual (Part Number: **BW10283-S**) is provided to assist in accomplishing this goal. It is considered to be a **VALUABLE** tool for our **CUSTOMERS**. It includes an Operation Section, General Maintenance/Repair Procedures and Illustrated Parts Section. Everyone involved with the operation, maintenance and repair of the machine should be given and should take the opportunity to **READ** and thoroughly **UNDERSTAND** all sections of this manual. It is in their **BEST INTEREST** to do so.

The manual covers and is applicable to a **STANDARD EQUIPPED MACHINE**. Depending on the circumstances, it is possible some machines may be supplied with various options and specialized equipment. ***REED*** has tried to incorporate in the manual the appropriate data for these machines. If by chance, service information is not found, it is suggested you contact the ***REED* SERVICE DEPARTMENT** who will forward the proper information if available.

All product descriptions, illustrations and specifications found throughout this manual were in effect at the time the manual was released for printing. It should be noted ***REED* RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN OR TO MAKE ADDITIONS TO OR IMPROVEMENTS IN THE PRODUCT WITHOUT IMPOSING ANY OBLIGATIONS UPON ITSELF TO INSTALL THEM ON PRODUCTS PREVIOUSLY MANUFACTURED.**

NOTE

If you have not yet done so, please record the SERIAL NUMBER of your 01 MODEL A30HP on the cover page of this manual. Throughout this manual, reference may be made to the serial number. When talking to our SERVICE DEPARTMENT or ORDERING PARTS, use of the serial number will assist us in giving prompt and accurate response and service.

PRODUCT DESCRIPTION

The ***REED 02 MODEL A30HP*** is a skid mounted concrete pump. It's operation encompasses the use of hydraulic and electrical systems employing related components for the specific purpose to pump wet concrete through a delivery system of pipes and hoses. The machine is of rugged construction and durable design enabling the unit to pump even the harshest mixes within it's published ratings and specifications.

The main power source for operation of the concrete pump is provided by use of a Electric Motor rated at 460 volts,60 cycle.3-phase and having a horsepower rating of 50HP at 1750 RPM. The electric motor is used to drive a direct connected a hydraulic gear pump. The front section of hydraulic gear pump is used to provide and meet the hydraulic requirements for operation of the pump's material cylinders. The rear section of hydraulic gear pump is used to shift the swing tube and operate the optional remixer if so equipped.

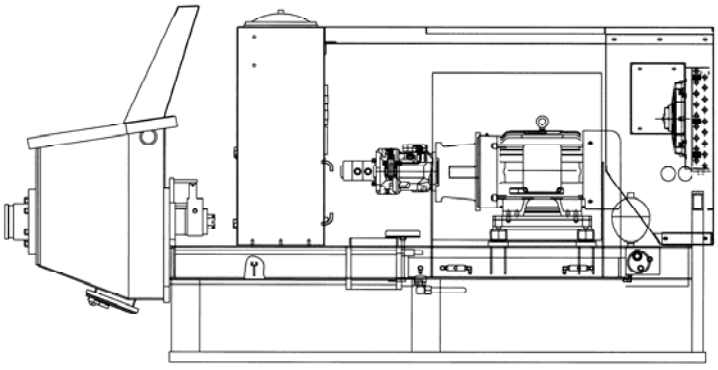
The ***02 MODEL A30HP*** utilizes a swing tube design delivery system. This system incorporates two (2) material cylinders, powered by two (2) hydraulic cylinders that operate alternately. With concrete material in the hopper and the pump operating, one material cylinder retracts which causes the concrete to be sucked or drawn back inside the cylinder tube. At full retraction of the cylinder, a sensor located in the splash box generates a signal. The signal is sent to the hydraulics and electrics of the swing tube circuit, which directs hydraulic fluid to the shift cylinder causing the swing tube to shift over to the fully loaded material cylinder. The piston of the loaded material cylinder is now driven forward, pushing the concrete out through the swing tube and into the delivery lines. The shifting from one cylinder to the other cylinder continuously takes place, providing a continuous flow of material through the delivery piping system. The hopper has a capacity of 10 cu ft. (283L) and the material cylinders are 5" inches (127mm) in diameter with a 5 inch (127mm) outlet.

All functions for operation of the concrete pump can be accomplished from the controls located on the right side of the unit. A hand held remote unit is also provided that enables the pump to be started-stopped away from the unit up to a distance of 100 feet (30m).

SPECIFICATIONS

PERFORMANCE	U.S.	METRIC
• Maximum Theoretical Output	30yd^3/hr	23m^3/hr
• Maximum Pressure	903 PSI	62 Bar
• Maximum Rated Strokes/Min.	40/Min.	40/Min.

TECHNICAL DATA	U.S.	METRIC
• Material Cylinders (Dia x Lgth)	5" x 30"	127 x 762mm
• Hydraulic Cylinders (Dia x Lgth)	2.75" x 30"	70 x 762mm
• Variable Volume Control	0-Full	0-Full
• Swing Tube	5" x 5"	127 x 127mm
• Standard Hopper Capacity	10 ft^3	283 L
• Outlet Diameter	5"	127mm
• Main Hydraulic System Type	Open Loop	Open Loop
• Main Hydraulic System Pressure	3000 PSI	207 Bar
• Hydraulic Tank Capacity	50 gal	190 L
• Engine Horsepower	50 hp	37 kw
• Fuel Tank Capacity	-	-
• Overall Length	126"	3200mm
• Overall Width	47 1/2"	1206mm
• Overall Height	64"	1626mm
• Weight(approx.)	3100lbs	1426Kgs



Maximum performance data shown above will vary depending on slump, mix design, pipeline diameter and job site conditions. Maximum output and pressure cannot be achieved simultaneously.

SAFETY AWARENESS AND PRECAUTIONS

The ***REED 02 MODEL A30HP*** pump unit is only to be used for the purpose of pumping concrete or other material of a plastic consistency through an arrangement of delivery pipeline or hoses to the designated placement site.

All personnel assigned to operate, repair or troubleshoot the ***02 MODEL A30HP*** must be thoroughly familiar with this Technical Manual (**P/N: BW10283-S**). For the protection of yourself and others around you, it is of utmost importance that the **WORK** is done **SAFELY**. One of the best ways to accomplish this is to fully **UNDERSTAND** and **KNOW** the job you do. If there is any doubt about that what you are doing is **UNSAFE**, even marginally, obtain assistance from other trained/qualified personnel.

During operation, troubleshooting or repair, problems may arise or be encountered that seem singular but may in fact be due to several causes. These need to be sorted out and identified before proceeding with the task at hand. The information contained in this technical manual can be used to assist in the safest and best manner of operating and repairing the ***02 MODEL A30HP***. However **YOU** and **ONLY YOU**, must take the initiative to make yourself thoroughly familiar with the contents of this manual.

Because your job is to operate the equipment does not prevent you from focusing some attention on the maintenance and troubleshooting aspect of the unit. Just being aware of some tell-tell signs, unusual noises or the ability to make a tweak here or there may enable you to complete the pumping job instead of shutting down and losing all that concrete.

ADVISORY LABEL LOCATION

Cautionary signal word (Warning-Caution) may appear in various locations throughout this manual. Information accented by one of these signal words must be observed to minimize the risk of personal injury to service personnel, or the possibility of improper service methods which may damage the pump or render it unsafe. Additional Notes are utilized to emphasize areas of procedural importance and provide suggestions for ease of repair. The following definitions indicate the uses of these use of these advisory labels as they appear throughout the manual:

⚠ CAUTION

Directs attention to unsafe practices, which could result in damage to equipment and possible subsequent personnel injury or death if proper precautions are not taken.

⚠ *WARNING*

Direct Attention to unsafe practices, which could result in personnel injury or death if proper precautions are not taken.

NOTE

An operating procedure, practice, condition, etc., which is essential to emphasize.

--------T H I N K S A F E T Y -------- T H I N K S A F E T Y --------

No matter how often it is said or pointed out, there are people who have a tendency to **IGNORE** safe operation until it becomes too **LATE**. Don't be this type of person. Keep **SAFETY** utmost in your mind.

The following points out some pretty **COMMON** conditions and situations that you might encounter at one time or another**. BE ALERTED** to these and try to **PREVENT** the inevitable. They may seem simple but are often the **MOST OVERLOOKED**.

- Use only qualified operators who know the machine
- Use only qualified maintenance personnel who understand the systems
- Wear protective equipment and helmets
- Keep work area clear of unauthorized personnel
- Level skid on uneven terrain or slopes
- Do not operate pump in traffic lanes. Always place cones and barricades around the skid mounted concrete pump
- Don't clean, lubricate or make adjustments while unit is in operation.
- Keep safety decals and operation instructions legible

- Do not alter or disconnect safety devices
- Maintain specified tire pressure (Trailer Mounted Only)
- Report items that need attention or require service

⚠ *WARNING*

BETTER SAFE THAN SORRY - DON'T TAKE CHANCES THAT COULD CAUSE INJURY TO YOU AND/OR OTHERS

- Never **REMOVE** the hopper grill cover when the pump is in **OPERATION**. It protects against accidental contact with the agitator and other moving parts inside the hopper.
- Never enter the hopper with any parts of your body. It is a **DANGER** area and physical **INJURY** can occur even if the engine is shutdown.
- The concrete delivery system should not be **OPENED** without relieving the pressure. This can be done by reversing the pump and pumping backwards.
- Hydraulic oil systems can be dangerous. Know the circuit you are repairing, it may contain high pressure and injury could occur. If in doubt, stop the machine and allow sufficient time for the oil pressure to zero. Check system pressure gauge.
- Do not pour material into the hopper without having grate in place. Operator must monitor material being dumped into the hopper, keeping a watchful eye out for unmixed or dry material, sticks, pieces of metal and other foreign objects.

YOUR SAFETY IS OUR UTMOST CONCERN
AND YOUR RESPONSIBILITY

SAFETY ALERT DECALS

D A N G E R ------ C A U T I O N ------ W A R N I N G decals are designed for your protection. They are placed at appropriate areas on the machine to be constant reminders of the ever-present dangers. Know and adhere to the information they provide.


WARNING
Keep hands out of hopper and valve assembly. See operation manual if access is required.
ADVERTENCIA
No meta las manos a la tolva o válvula. Consulte el manual de operación si necesita tener acceso.
Do not paint over this label/No pintar encima de esta etiqueta
800917


WARNING
Stay off hopper grates.
ADVERTENCIA
Manténgase alejado de la rejilla que cubren la tolva.
Do not paint over this label/No pintar encima de esta etiqueta
800918


WARNING
Do not operate at pressures exceeding the rating of the entire material delivery system.
ADVERTENCIA
No utilizar a presiones que excedan la presión nominal de todo el material de la linea de entrega.
Do not paint over this label/No pintar encima de ésta etiqueta
800921


WARNING
Before opening a blocked pipeline, relieve pressure by reversing pump. See manual.
ADVERTENCIA
Alivie la presión antes de destapar una tubería bloqueada, invirtiendo para ello la bomba. Vea el manual.
Do not paint over this label/No pintar encima de ésta etiqueta
800922


SAFETY
MANUAL
⚠WARNING
Do not operate this machine without training. Understand the warnings in safety manuals and on decals.
⚠ ADVERTENCIA
No use esta maquinaria sin estar capacitado. Entienda las advertencias de los manuales de seguridad y de las calcomanías.
Do not paint over this label/No pintar encima de ésta etiqueta
800925


ADVERTENCIA ⚠WARNING
Do not paint over this label/No pintar encima de ésta etiqueta
800929A


⚠ WARNING
This machine is remote controlled and may start at any time. Stop engine before servicing unit.
⚠ ADVERTENCIA
Esta máquina funciona a control remoto y puede ponerse en marcha en cualquier momento. Apagar el motor antes de realizar el mantenimiento.
Do not paint over this label/No pintar encima de ésta etiqueta
800924


⚠ WARNING
Crushing hazard. Clear area when activating outriggers.
⚠ ADVERTENCIA
Peligro de aplastamiento. Despeje el área antes de activar los estabilizadores.
Do not paint over this label/No pintar encima de ésta etiqueta
800919


INSTRUCCIONES DE SEGURIDAD SAFETY INSTRUCTIONS
Recommended hand signals
Señales de mano recomendadas
(2 golpecitos)
(2 taps)
1. START PUMP SPEED UP
2. SLOW PUMP DOWN
3. STOP PUMP
4. LITTLE BIT
5. RELIEVE PRESSURE
6. ADD WATER 4-GALLONS
7. ALL DONE CLEAN UP
1. PRENDER LA BOMBA ACELERAR
2. BAJAR VELOCIDAD A LA BOMBA
3. PARAR LA BOMBA
4. UN POCO
5. ALIVIAR LA PRESIÓ
6. AÑADIR AGUA 4-GALONES
7. TERMINADO LIMPIAR
Do not paint over this label/No pintar encima de éta etiqueta
803235


MEMBER AMERICAN CONCRETE PUMPING ASSOCIATION
800931


DIESEL FUEL
ONLY


HYDRAULIC OIL

OPERATOR QUALIFICATIONS

Making the choice for an operator is a vital decision as it affects safety and productivity. The ***02 MODEL A30HP*** has been thoroughly inspected and tested by the ***REED*** Quality Control Department prior to shipment. The design of the unit incorporates several built-in safety features and also allows for an average skilled person to readily become proficient in the safe operation of the ***02 MODEL A30HP***. The unit is a pressurized material pump and can be potentially **DANGEROUS** in the hands of **UNTRAINED OR CARELESS OPERATORS**.

Knowing the characteristics of the machine and function of the controls are important to **SAFE**, **PROPER OPERATION** and **USE**.

It is the responsibility of all users to read and comply with the following rules and information designed to promote **SAFETY** and **UNDERSTANDING** of the ***02 MODEL A30HP*** concrete pump.

- The first requirement for any user/operator is to obtain a thorough understanding of the operating characteristics and limitations of the machine. This should not be overlooked regardless of their prior experience with similar type equipment.
- Only **QUALIFIED TRAINED** personnel who have been authorized must be allowed to operate the ***02 MODEL A30HP***. A Qualified Trained Operator is one who has **READ** and **UNDERSTOOD** the instructions in this manual and is thoroughly familiar with the operating characteristics and limitations of the machine.
- Individuals who cannot **READ** and **UNDERSTAND** the signs, warnings, notices and operating instructions that are part of the job, in the language in which it is printed **MUST NOT BE ALLOWED** to operate the ***02 MODEL A30HP***.
- Know and follow all cautions, warnings and operating instructions on the machine.
- Repair and adjustments must only be made by **QUALIFIED TRAINED** personnel.
- No modification is to be made to the machine without prior written consent of the ***REED*** Customer Service Department.
- Attach a **SIGN-OFF** sheet on the unit to enable the operator to report any damage, defects, problems or accidents to his work supervisor.
- Understand and **OBEY** all applicable Local and Government statutes and regulations applying to safe operation and use of material pumping machines.

AN UNKNOWING OPERATOR IS AN UNSAFE OPERATOR
AND A SORRY OPERATOR

PRE-OPERATION INSPECTION

The **CONDITION** of the unit prior to start-up is a very **IMPORTANT** factor as it directly affects the operator's safety as well as those around him. It should be a common practice that the operator performs a general inspection of the ***02 REED MODEL A30HP*** before each day's operation.

The purpose of the operator's inspection is to keep the equipment in **PROPER** working condition and to **DETECT** any sign of malfunction during normal operations between scheduled maintenance checks.

DOWNTIME is **COSTLY** and can possibly be prevented by taking a few minutes prior to start-up to do a thorough walk-around inspection. This inspection must be performed each day before the unit is operated. Report any damage or faulty operation immediately. Attach a sign, if need be, at the control panel which states ------ **DO NOT OPERATE** ------. Repair any discrepancies before use.

Some major items to be considered for your inspection include the following:

1. OVERALL MACHINE CONDITION

- External structural damage
- Wheel lug nuts missing or loose
- Brake line wiring, connection
- Condition of tires, pits, tears, cuts, inflation
- Decals, placards, warning signs
- Missing, broken or damaged parts
- Remote switch & cable condition
- Gauges, Throttle control

2. HYDRAULIC SYSTEM

- Loose or damaged hoses, tubing, fittings

- Hydraulic leaks
- Hydraulic fluid level
- Cleanliness of fluid, filter condition indicator
- Hydraulic valves and control levers
- Hydraulic cylinders

3. HOPPER

- Grate in place not damaged
- Swing tube connection
- Shift cylinders condition
- Outlet Connection

4. ELECTRICAL

- Frayed or broken wires or loose connections
- Condition of switches, lights, connections
- Instruments and gauges - condition

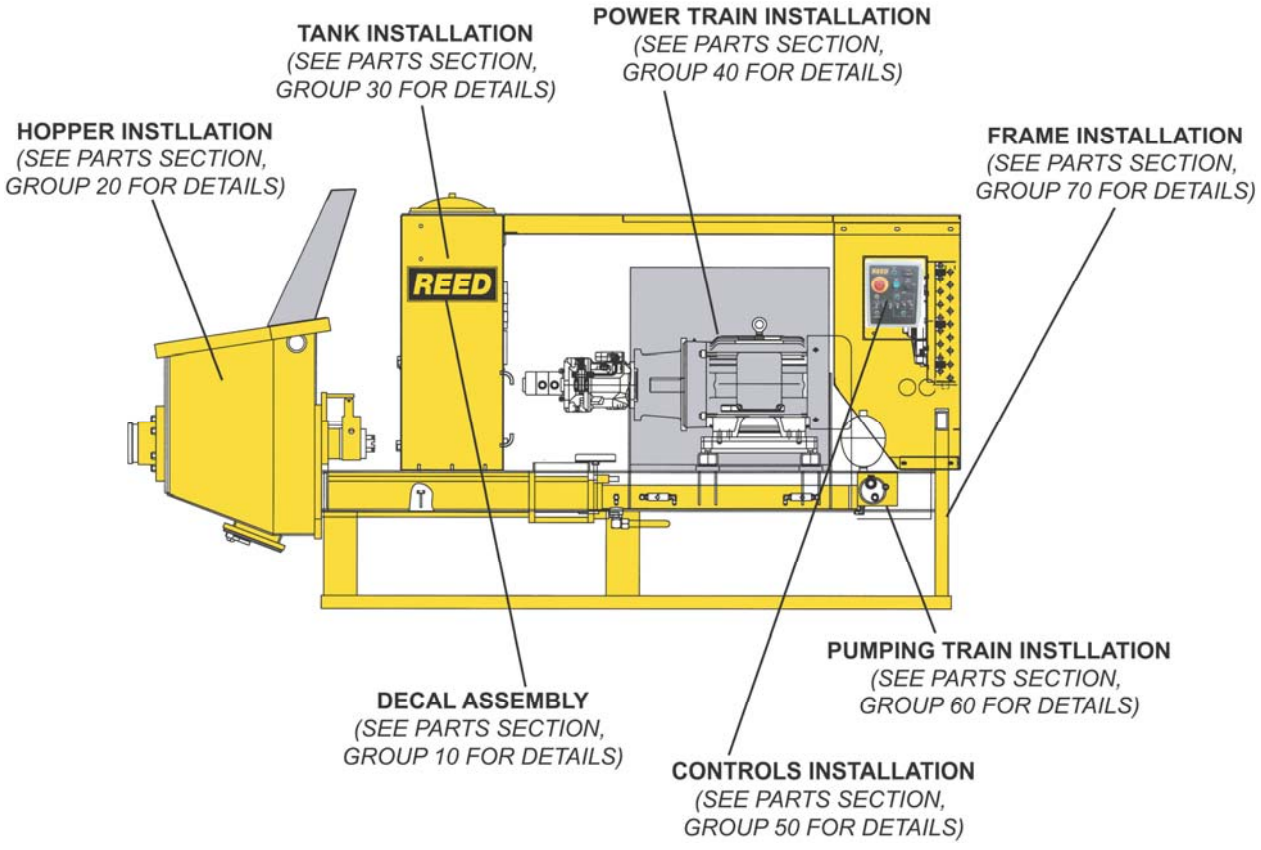
⚠ CAUTION

Defective components, structural damage, missing parts or equipment malfunctions, jeopardize the SAFETY of the operator and other personnel and can cause extensive damage to the machine. A poorly MAINTAINED machine can become the greatest OPERATIONAL HAZARD you may encounter.

GETTING ACQUAINTED
(UNIT FAMILIARIZATION)

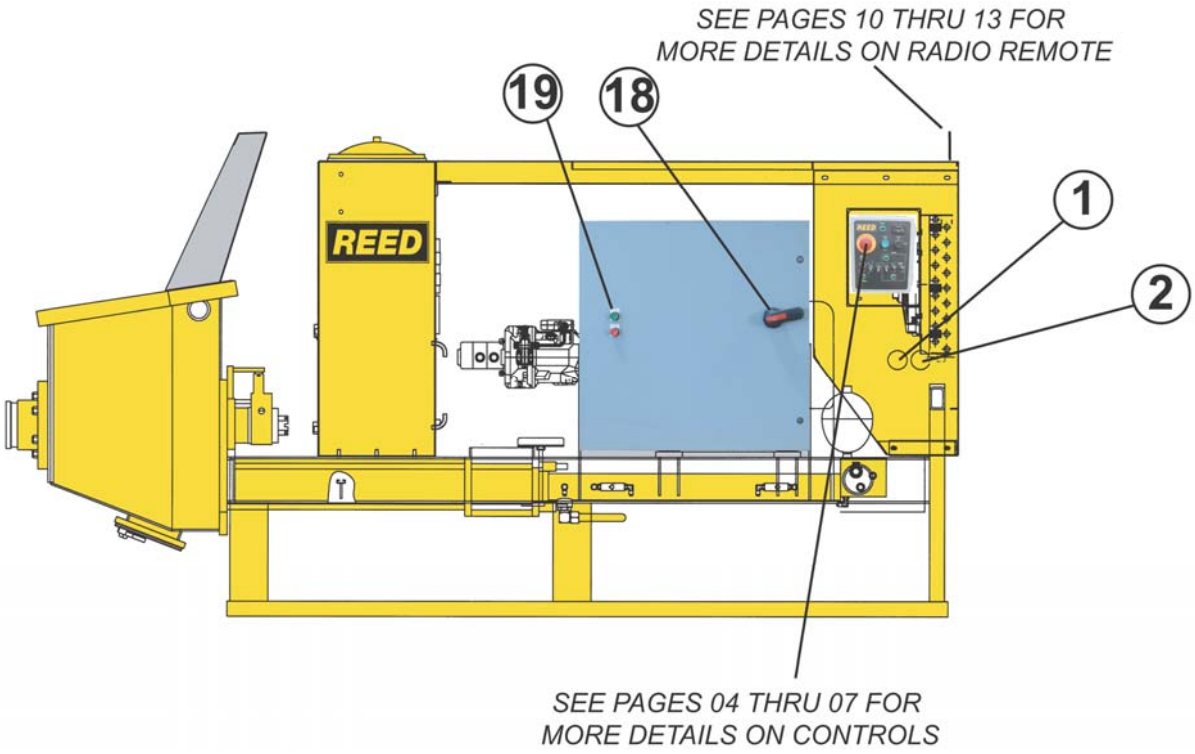
As previously indicated, it is important from a **SAFE** operational standpoint that you, the **OPERATOR**, know your machine. This means the function of each control as to what happens when it is activated, how it might interact with other functions and any limitations, which might exist. A **GOOD UNDERSTANDING** of the controls and capabilities will enhance operation and assure maximum operating and efficiency and **SAFETY**.

These next few pages will assist you in GETTING ACQUAINTED with the ***MODEL A30HP SKE*** concrete pump. Carefully study these.



CONTROL FAMILIARIZATION

The controls for operation of the ***MODEL A30HP*** SKE can be found and are located on the right (curb) side of the machine. A control box is provided and contains all the main function instruments, switches, and indicators. Hydraulic gauges are on right portion of control box. Each location or panel is dedicated to the operation of certain functions. These are noted herein:



1. PRESSURE GAUGE – 6000 PSI

This hydraulic pressure gauge is used to indicate the main system hydraulic pressure being applied to the hydraulic cylinder pistons of **CYL A OR CYL B** on the forward stroke.

2. PRESSURE GAUGE – 3000 PSI

This hydraulic pressure gauge is used to indicate the hydraulic pressure of the swing tube shift accumulator circuit.

3. EMERGENCY STOP

This is an emergency switch and is used to shut down the pump in an emergency situation. It is of the push-pull type. Depress **PUSH** knob in to **STOP** operation. **PULL** knob out to **REACTIVATE** system. **NOTE – The HORN/RESET must be switched one time to restart pump operation.** If pump **ON** switch is **ON** it must be reset to **OFF** first.

4. CONTROL ON INDICATOR

This is a green indicator light, when lit denotes power is being supplied to control box.

5. HOURMETER

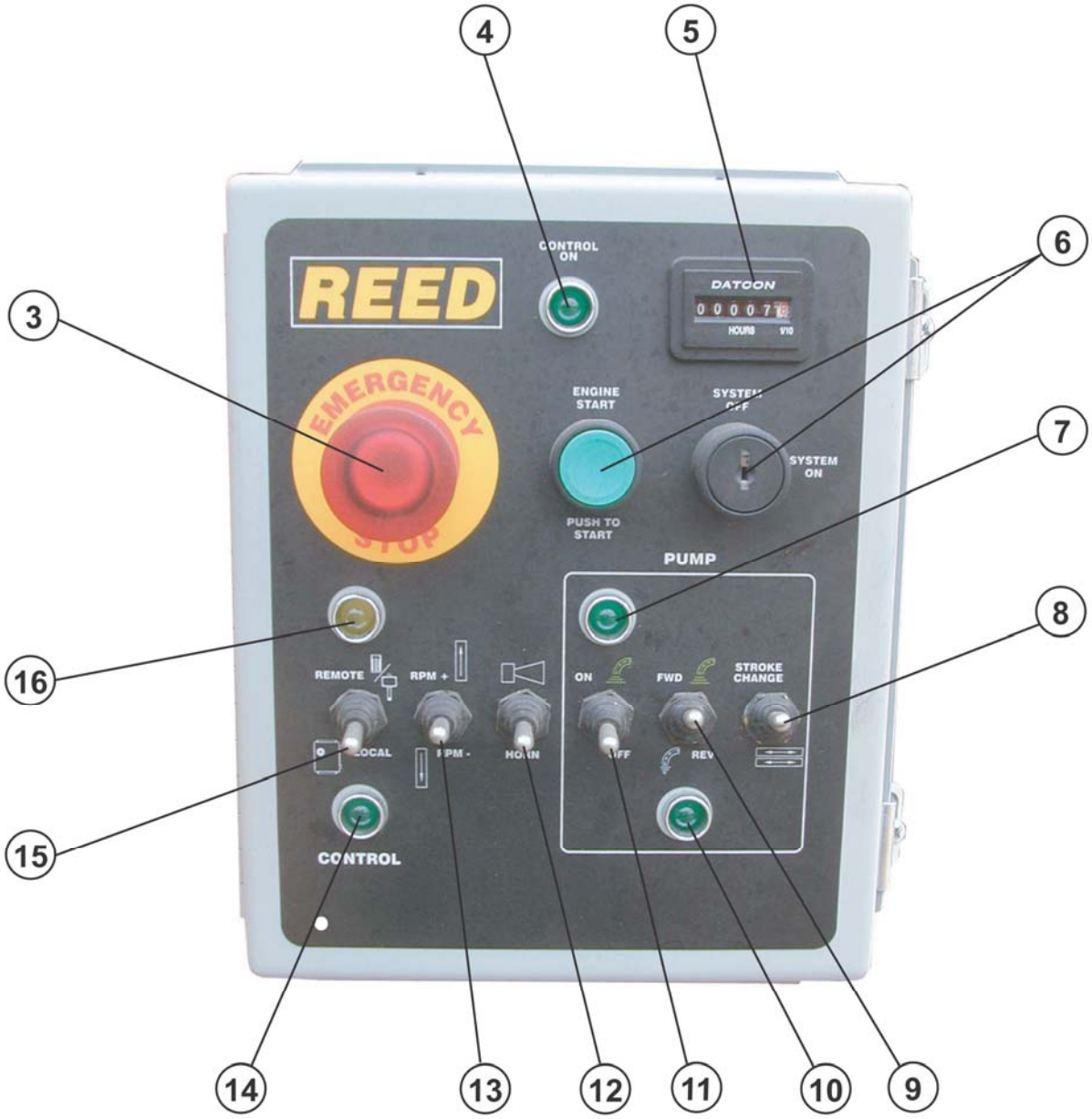
This instrument is used to record the number of hours the electric system has been activated. The hourmeter becomes operational when the ignition key is **ON**.

6. ENGINE START SWITCH

This is a two (2) position key switch that is used to control the engine. Turn key to **FAR RIGHT** position to engage starter; and then push **ENGINE START** button to start the engine, key will put switch in **SYSTEM ON** position. To shut down engine, turn the key counter-clockwise to **SYSTEM OFF** position.

7. PUMP ON INDICATOR LIGHT

This green light, located above the switch is used, when lit, to indicate the pump is on.


4
5
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3
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16
8
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14
13
12
11
10
9
REED
CONTROL ON
DATCON
HOURS
EMERGENCY
STOP
ENGINE START
PUSH TO START
SYSTEM ON
PUMP
REMOTE
RPM +
ON
FWD
STROKE CHANGE
LOCAL
RPM -
OFF
REV
CONTROL

8. STROKE CHANGE SWITCH

This is a two (2) position spring return switch and has two functions. One is a momentary toggle to change stroke from one side to the other to help clear a possible line plug. The other function is when the switch is held **DOWN** and allow for end of stroke. High pressure check or in the instance of equalizing the stroking pistons. The allowance of the spring return sets the machine back in forward stroke.

9. PUMP DIRECTION FORWARD AND REVERSE SWITCH

This is a two (2) position toggle switch and is used to control the cycle direction of the concrete pump. Move toggle to **UP** position to activate **FORWARD** cycling. Move toggle in **DOWN** position for **REVERSE** cycling.

10. PUMP REVERSE INDICATOR LIGHT

This green light, located below the switch is used, when lit, to indicate **REVERSE** pump operation.

11. PUMP ON OFF SWITCH

This is a two (2) position toggle switch and is used to control the concrete pump. Move toggle to **UP** position to activate **PUMP-ON.** Move toggle in **DOWN** position to turn **PUMP-OFF.**

12. HORN / RESET

This is a momentary toggle switch and is used to activate the **HORN** and reactivate the control and pump circuit after the machine has been shut down using the **EMERGENCY STOP** switch. Once the emergency stop has been depressed it will be necessary to pull out on the **EMERGENCY STOP** switch and move toggle of **HORN/RESET** switch momentary to **RESET** position and sound horn.

13. THROTTLE CONTROL

This is a three (3) position spring centered switch and is used to adjust the engine RPM. Toggle **UP** to **INCREASE** engine speed. Toggle **DOWN** to **DECREASE** engine speed. Speed of engine will be retained as set until reset.

14. INDICATOR LIGHT GREEN

This green light, located below the switch is on when the **LOCAL** condition is selected.

15. CONTROL SWITCH

This is a two (2) position toggle switch and is used to select the pump control location. Move toggle to **LOCAL** to enable operation of concrete pump from main stationary panel. Move toggle to **REMOTE** for operation using the remote control.

16. INDICATOR LIGHT YELLOW

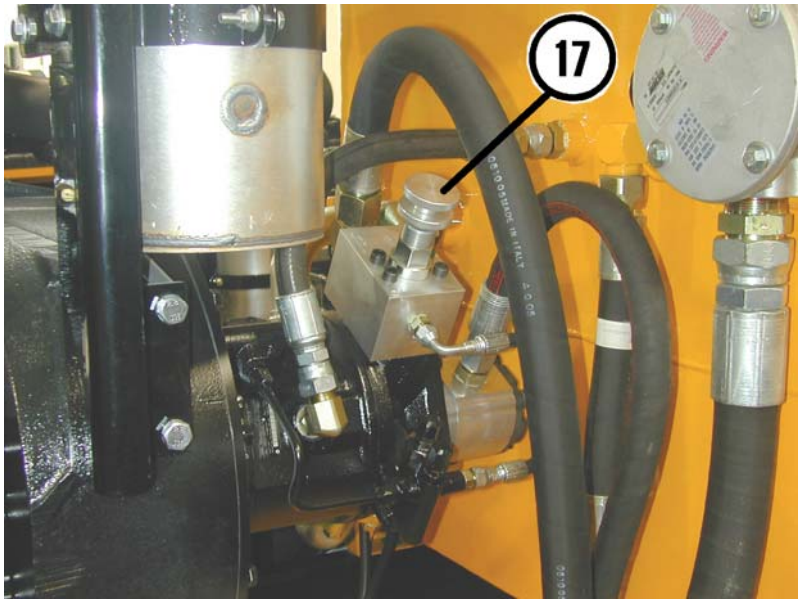
This yellow light, above the switch is on when the **REMOTE** condition.

17. VOLUME CONTROL

This control is installed on the main hydraulic pump, just forward of the hydraulic tank. It is used to adjust volume output of the material cylinders which in turn is controlled by the output of the hydraulic pump. Turning knob **COUNTERCLOCKWISE** will **INCREASE** volume, turning knob **CLOCKWISE** will **DECREASE** volume.

⚠ *WARNING*

DO NOT VARY THE PUMP OUTPUT BY VARYING ENGINE SPEED.

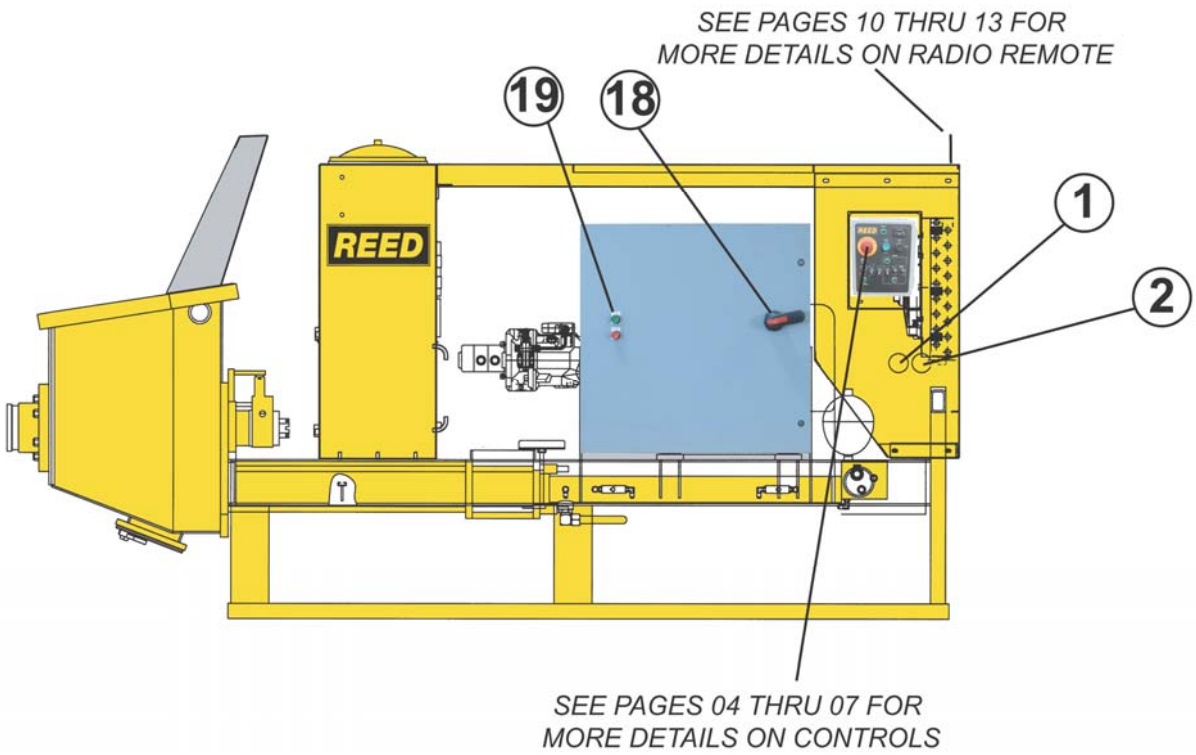


18. MAIN POWER CONTROL

This is two (2) position switch used to control energizing the main electrical hi-voltage system. Turn handle to **ON** position to activate system from the external source.

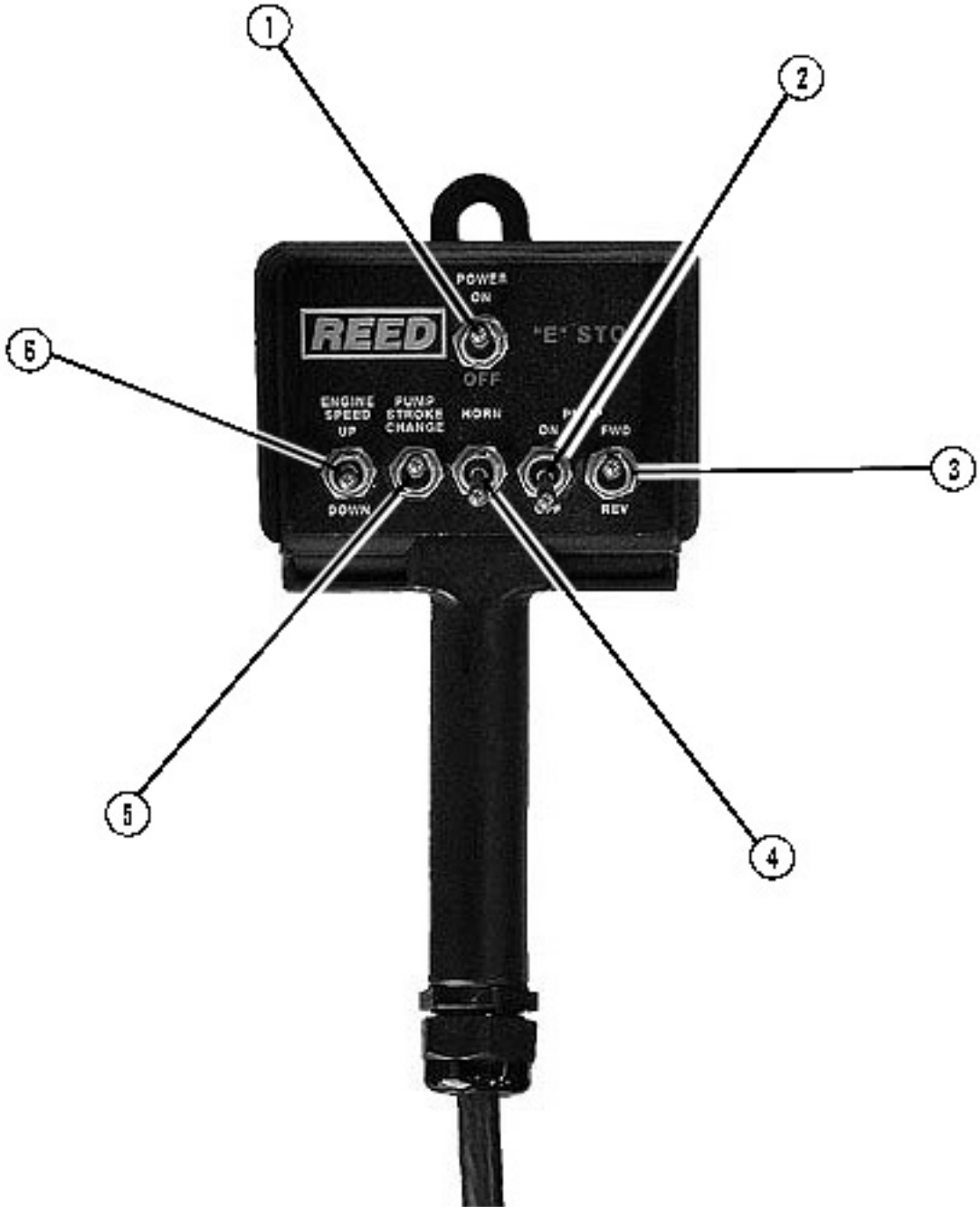
19. MOTOR CONTROL SWITCH

Two (2) push button switches are provided and are used to control the 460V electric motor. To **START** motor, **PUSH** green button and hold until motor starts, then release button. To **STOP** motor, **PUSH** red button and until motor stops, then release.



REMOTE CONTROL FAMILIARIZATION

A remote control pistol grip console is provided and is used to enable the operation of the concrete pump away from the immediate vicinity of the unit. The remote is equipped with an umbilical cord that plugs into the side of the main control box. The console consists of the following functions:



1. POWER ON OFF / E-STOP SWITCH

This is a three (2) position maintained toggle switch. This **STOP** switch is used to shut down the pump cycle in an **EMERGENCY** situation. Move toggle in **DOWN** position in to **STOP** operation of pump cycling. Move toggle to **UP** position to **REACTIVATE** system.

2. PUMP ON OFF SWITCH

This is a two (2) position toggle switch and is used to control the concrete pump. Move toggle to **UP** position to activate **PUMP-ON.** Move toggle in **DOWN** position to turn **PUMP-OFF.**

3. PUMP DIRECTION FORWARD AND REVERSE SWITCH

This is a two (2) position toggle switch and is used to control the cycle direction of the concrete pump. Move toggle to **UP** position to activate **FORWARD** cycling. Move toggle in **DOWN** position for **REVERSE** cycling.

4. HORN

This is a two (2) position momentary toggle switch and is used to activate the **HORN** and reactivate the control and pump circuit after machine has been shut down using the **EMERGENCY STOP** switch. Once the emergency stop has been depressed it will be necessary to pull out on the **EMERGENCY STOP** switch and move toggle of **HORN/RESET** switch momentary to **RESET** position and sound horn.

5. PUMP STROKE CHANGE SWITCH

This is a two (2) position spring return switch and has two functions. One is a momentary toggle to change stroke from one side to the other to help clear a possible link plug. The other function is when the switch is held **DOWN** and allow for end of stroke. High pressure check or in the instance of equalizing the stroking pistons. The allowance of the spring return sets the machine back in forward stroke.

6. ENGINE SPEED SWITCH

This is a three (3) position momentary return to center position toggle switch. It is used to control and set the **ENGINE** speed. Activate the toggle switch **UP** and hole to **INCREASE** RPM; move toggle to **DOWN** and hold to **DECREASE** RPM. Speed of engine will be retained as set until reset. Center Position of switch is neutral.

RADIO REMOTE CONTROL FAMILIARIZATION
(NOTE: REFER TO VENDOR SECTION FOR ADDITONAL INFORMATION)

A hand held micro control base radio remote control unit is provided and used to enable operation of the concrete pump away from the immediate vicinity of the unit. The complete unit consists of a hand held transmitter and a receiver which is located on the trailer's front cover. The transmitter functions can then be activated by pressing the corresponding button. The receiver is operated by turning on the **REMOTE CONTROL** switch on the control panel. With the switch on, the **BLUE** light on the receiver will rapidly blink for approximately 3 seconds and then the **BLUE** light will be lit constantly. When this happens, the receiver is now ready for operations. The transmitter(handheld) must be turned on by pressing the **ON** button. Now that The transmitter is on, it will flash a **BLUE** light by pressing any function. This action shows that the transmitter and receiver are now linked, ready for operations.

N O T E

Each receiver is programmed to work with transmitter with the same pre-programmed ID code.

If you are changing the transmitter that was working with its respective receiver, the programming pin must be energized to reprogram the receiver to work with the new transmitter. This allows the receiver to recognize the new transmitter.

The above feature allows to trailer mounted concrete pump work in close vicinity of each other without interfering with each other. If the receiver receives data from a transmitter with a different ID code, the error code light will flash the appropriate error code and none of the function will response to the transmitter with wrong ID code.

RADIO REMOTE OPERATION

Before proceeding to start-up and operate the radio remote control, make sure it is safe to do so. Make sure the same safety precautions normally required for safe pump operation are adhered to.

- Place control switch on main panel to **REMOTE** position. The receiver **POWER** light should be lit. (Green)
- Press the **POWER ON** button and hold approximately (3) three seconds. The **BLUE TRANSMIT INDICATORS** will alternate until radio communication is attained.
- To deactivate the **E-STOP** function the HORN must be sounded, to do this press the horn button. **NOTE** (The horn must be sounded always after any **E-STOP** function or local to remote on the control box is selected.)

- When ready to cycle pump, press the transmitter **PUMP ON** button. To stop the pump, press the transmitter **PUMP OFF** button. The **GREEN TRANSMIT INDICATOR** light should go on during any transmit function.

- To change the pump direction to reverse, press the **REVERSE** button. To resume forward pumping press the reverse button once more. **NOTE** (The indicator lights on the door of the control box will illuminate to show functions of remote condition.)

- To turn off the radio transmitter **PRESS** and **HOLD** about 3 seconds the **RED** power button until the **RED BATTERY** And **GREEN TRANSMIT** indicators stop flashing. **NOTE** (At this time if a button is pushed the Green light on the transmitter will not illuminate. If the radio transmitter is not turned off after the job is done the **BATTERY WILL DISCHARGE**.

⚠ *WARNING*

Do not leave the transmitter unattended with the pump engine is operating.

The console contains the following functions:

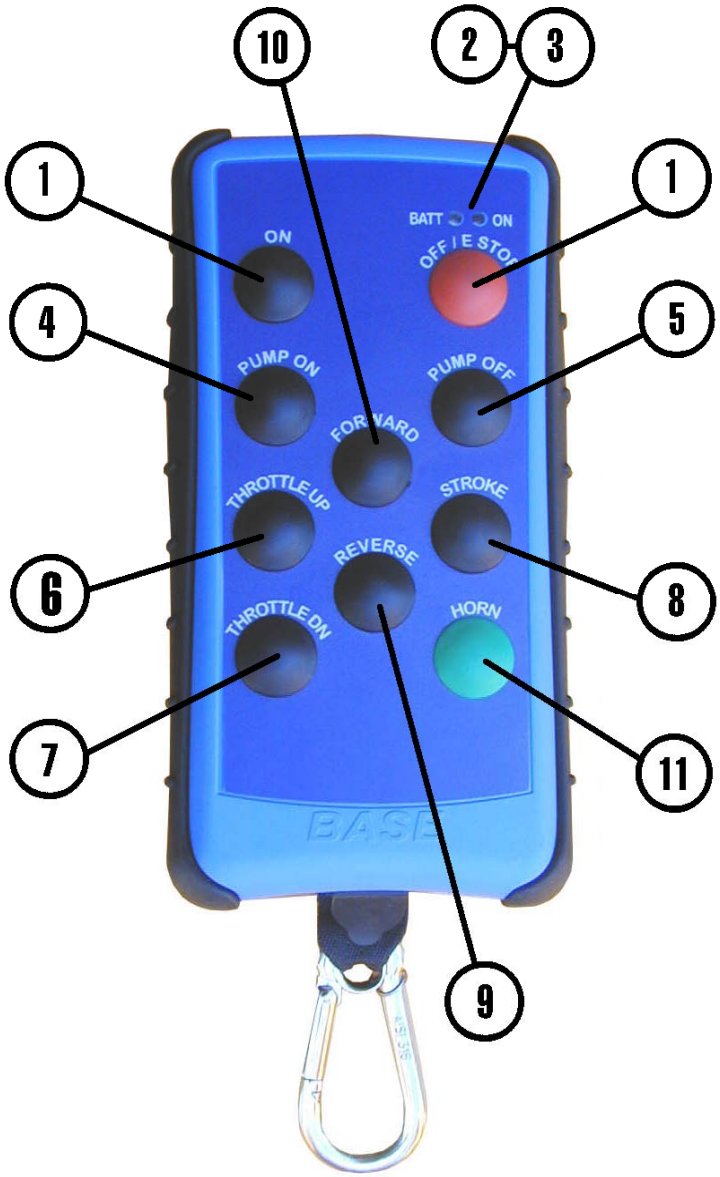
1. POWER ON OFF / E-STOP BUTTON

This is a power on off / emergency button and is used to shut down the pump in an emergency situation. Power is being used any time the power button is pressed or the transmitter power is on. To turn transmitter **POWER OFF**, **PRESS** and **HOLD** the power button until the **BLUE TRANSMIT** indicators stop flashing (about 3 seconds).

2. RED BATTERY INDICATOR

This **RED BATTERY** indicator turns on when the batteries reach a pre-set level.

This indicator will remain on when the battery voltage is low. There is enough power in the battery for about 60 minutes of operation after the light remains on. When this time is up, the red battery will turn off and the transmitter will no longer function properly until the battery has been changed. The transmitter is powered by a 9 volt alkaline battery. The operation time of the battery is determined by both frequency and duration of use.



BASE TRANSMITTER-HANDHELD

To change the transmitter battery, remove the battery cover on the back of the transmitter. Dispose of the old battery properly and replace with a 9 volt alkaline battery.

3. BLUE TRANSMIT INDICATOR

This green **TRANSMIT** indicator will light when there is good data received from a transmitter.

4. PUMP ON BUTTON

5. PUMP OFF BUTTON

6. INCREASE ENGINE RPM BUTTON

7. DECREASE ENGINE RPM BUTTON

8. STROKE CHANGE BUTTON

9. PUMP REVERSE BUTTON

10. PUMP FORWARD BUTTON

11. HORN BUTTON

TOWING THE TRAILER

(IF APPLICABLE)

The ***REED MODEL A30HP*** material pump although small in stature as compared to larger pumps or construction type equipment, requires the same care and attention in transporting as does the larger heavier equipment. At no time should this be overlooked.

The ***REED MODEL A30HP*** is equipped with a torsion bar single type axle, electric brakes, and standard tail lights. It is capable of being towed by a truck at a highway speed up to **55 MPH (88KM/HR) MAXIMUM**, depending on road conditions. **THIS SHOULD NOT BE EXCEEDED.**

PREPARE THE UNIT FOR TOWING AS FOLLOWS:

- **For units equipped with a pintle ring**, install over pintle hook and close safety clasp. Insert pin to securely lock safety clasp.
- **For units equipped with a ball hitch**, secure hitch on ball and lock in place. Check that ball has been completely inserted into coupler ball socket and ball clamp is closed around the underside of the tow ball and yoke and lever is in a closed position.
- Always attach the **SAFETY CHAINS** to towing vehicle and attach the breakaway cable.
- Connect trailer electrical cable to truck connection to establish trailer brake circuit and lighting. Check that lighting is operational.
- Raise outrigger legs and secure in place with retainer pin.
- Make sure that hopper cleanout door is securely closed.
- Fully raise front jackleg and lock handle.
- Check the tires for proper inflation pressure and inspect for any cuts and excessive wear.
- Survey underside of pump and trailer to look for other possible obstructions.

⚠ WARNING

Towing trailers at excessive speeds is DANGEROUS. Some trailers may weigh as much or more than the vehicle doing the towing, and can affect the control of the towing vehicle causing an OVERTURN condition. This situation can arise from excessive speed or rapid braking. Therefore, always maintain a sufficient distance for safe braking.

TOWING TIPS:

- **NEVER TRAVEL WITH CONCRETE IN HOPPER.** The trailer pump is not designed to be towed with this extra weight. Damage will occur.!!!!
- Remove all delivery lines from hopper outlet.
- Travel only as fast as conditions allow. **DO NOT EXCEED 55 MPH (88KM/HR).**
- Always leave sufficient distance between you and the vehicle ahead to allow **SAFE BRAKING.**
- Reduce speed at dips, bumps and rough road areas.

  If trailer begins to sway or swerve side to side, ease off of accelerator to slow down. **DO NOT JAM ON BRAKES**. Gently touch brake pedal intermittently to come to a stop. Check to determine cause of sway. Check hitch.

OPERATION INSTRUCTIONS

Having **READ** and **UNDERSTOOD** the previous pages on **SAFETY** and **CONTROL FAMILIARIZATION** you are now in a position to learn how to operate the unit. If you have not **READ** the previous pages we suggest you do so before **PROCEEDING**.

⚠ CAUTION

For your own SAFETY and others around you it is your RESPONSIBILITY to insure the unit is in proper working condition. Check out the unit by using the PRE-OPERATION INSPECTION notes previously identified.

⚠ WARNING

OBSERVE ALL SAFETY PRECAUTIONS WHILE OPERATING THIS MACHINE.

SELECTION AND SET-UP AT JOB SITE

Your first and primary concern when arriving at the job site is to insure the machine can be safely operated and it will afford the maximum production efficiency without jeopardizing safety.

- The machine should be located on as level ground as is possible.
- Lower rear outriggers and pin in place. If necessary, place additional blocking under the pads.
- Lower and apply pressure to the front jack on the ground and if necessary place wooden blocking under the jack pad. This will transfer weight to the outrigger legs.

NOTE

DAMGE WILL OCCUR IF OUTRIGGERS ARE NOT USED. WARRENTY WILL NOT BE HONERED IN THIS SITUATION!

- Keep a sufficient distance away from slopes, pits, trenches and excavations that could breakaway.

- Make every attempt to set up as near as possible to placement site. The shorter the pumping distance the greater the material delivery.

When the site for the operation has been selected proceed to set up unit for pumping.

- Disconnect safety chain, electrical cable and hitch from towing vehicle.

DELIVERY SYSTEM SUGGESTIONS

The delivery system is an arrangement of those components used from the pump discharge to the placement site. This could consist of rubberized material hose, steel piping, clamps, couplers and reducers. How this delivery system is set up, what components are used will greatly affect the end result of efficient and productive concrete pumping. The following suggestions are offered to assist in achieving your objective and for your consideration in laying out the delivery line.

- Use the most direct line as is feasible from the concrete pump to the placement area.

- Set up the delivery line using a minimum of rubber hose. Rubber hose offers three (3) times the resistance to the flow of concrete as compared to steel pipe.

- Concrete will also flow with less back pressure through pipe than through hose.

- Minimize the use of bends in the hose. This requires more pumping pressure.

- Place the hoses or pipe to the farthest placement point from the hopper discharge outlet **FIRST.** It is easier to remove lines than it is to add as the pumping operation takes place.

- The steel pipe, elbows, and reducers and hoses should be equipped with heavy-duty ends. These ends have a higher-pressure capability than the standard ends.

- Only connect together couplings or clamps that are clean and seals that will retain the slurry in the delivery line. Dirty couplings **LEAK** and when pressurized the leaking of water will inevitably cause blockage.

- **DO NOT USE** any worn or damaged hoses, pipes or couplings.

- If the delivery line will cross rebars, support must be considered for the pipe so that it does not contact the rebar mat.

- For best pumping results it is important to size the inside diameter of the pipe or hose to that of the size of the aggregate in the concrete to be pumped. The general rule is the inside diameter of the pump or hose shall be 3 to 4 times the size of the largest aggregate in the mix. As an example:

  1. Aggregate classified as 1 ½ inch (38mm) rock, 8 to 10% maximum content by weight requires a 5 inch (127mm) diameter concrete delivery system.

  2. Aggregate classified a 1 inch (25mm) rock, 10 to 15% maximum content by weight, requires a 4 inch (100mm) diameter concrete delivery system.

  3. Aggregate classified as ¾ inch (19mm)or smaller rock, 10 to 15% maximum content by weight, requires a 3 inch (76mm) diameter concrete delivery system.

- For vertical concrete delivery system, the vertical pipe line should be anchored to the building or other supporting structures every 10 ft (3m) of height.

PRE-PUMPING PREPARATIONS

Again we **REMIND** you to make sure the machine is in **PROPER WORKING CONDITION**. One of the worst, and possibly the most expensive, situation to encounter is to begin pumping and have a failure occur due to **NEGLIGENCE** of a thorough pre-operation inspection.

STARTING THE PUMP

Before starting diesel engine, check the position of the following controls and functions:

- That the **PUMP CYCLE** switch is **OFF**
- Check flush box is filled that sufficient lubrication oil or water exists. Replace cover.

When you have completed the above checks, the unit is ready for start up.

- At the main control panel, turn key switch and start engine. When engine starts, release key.
- Check that **CONTROL LOCATION** switch is in **LOCAL** position.
- Allow a few minutes for engine to warm up.
- Increase engine RPM by adjusting **THROTTLE** control to desired engine speed.

- Check the swing tube pressure gauge (3000 PSI/210 BAR gauge) that it is operational. Gauge should read approximately 2300 PSI (140 BAR).
- Pressure gauge (6000 PSI/420 BAR) will only indicate pressure when pump switch is **ON**.
- **DO NOT CYCLE PUMP** unless water or material has been placed in the hopper.
- To cycle pump adjust **THROTTLE** to attain the **VOLUME** that is desired.
- Place pump switch to **ON** position. The hydraulic drive and material cylinders will now cycle.
- Turn pump switch **OFF** to stop cycling.

⚠ CAUTION

At START-UP, ALWAYS OPERATE AT LOW SPEED until proper operation has been assured.

PRIMING THE PUMP SYSTEM

Before proceeding to cycle and pump concrete material it will be necessary to prime the pump system and delivery lines. This operation consists of pumping a coating of lubrication grout through the S-tube and delivery lines to enable the regular concrete mix to flow smoothly.

The grout used for priming and lubrication should consist of two (2) parts sand and one (1) part cement and mixed to a consistency of thick soup. This will coat the delivery line ahead of the actual material mix and will assist in preventing the possibility of packing when the line is filled with regular mix.

How much grout will be needed depends on the length of the delivery line as well as the material being pumped. Experience will eventually indicate the amount to be required.

- Using a water hose wet down the inside of the hopper with about one (1) gallon of water.
- When the concrete from the ready-mix truck is ready to be placed in the hopper, pour the grout into hopper.
- Adjust **THROTTLE** to **FULL RPM**

- At pump panel turn **PUMP ON**.
- As the slurry is being pumped out begin charging, pouring concrete from the truck into the hopper.
- Continue to pump until a steady flow is discharged from end of delivery line.
- Once this point has been reached, the **RPM** control can be adjusted to the desired concrete output.
- During the pumping operation observe the 6000 PSI hydraulic gauge. Be alert to unactuated sudden changes in pressure, high or low.
- The **S-TUBE** gauge should read approximately 2300 PSI just prior to the shifting of the S-tube. As shift is made gauge will quickly lose pressure then bounce back.
- To check pumping pressure, actuate **STROKE CHANGE** switch to either **CYL "A"** or **CYL "B"** position. Hold toggle until piston bottoms out. Read pressure on 6000 PSI gauge.

NOTE

The pressure by which the concrete is being pumped is based on the ratio between the hydraulic cylinder and the material cylinders and that is divided into the hydraulic pressure being applied to the drive cylinders.

In this instance the ratio is 3.3 (piston side) and the concrete pressure is calculated as follows:

SYSTEM GAUGE-PSI	CONCRETE PRESSURE PSI
1000	300
2000	600
3000	900

On the other hand the hydraulic pressure being applied to the drive cylinders is controlled by the engine RPM. When turned to the **MAXIMUM RPM** this will produce approximately 3000 PSI on gauge.

PUMPING TIPS AND PRECAUTIONS

Your **SAFETY** is our utmost **CONCERN** and it is your **RESPONSIBILITY** to operate the equipment in a **SAFE** manner. The following **TIPS** and **PRECAUTIONS** are offered as **AWARENESS** facts and should be **OBSERVED** for proper safe operation.

- Always maintain the material level in the hopper to no less than the height of the "S" tube shaft height or 1/2 full. This is **IMPORTANT** otherwise air will be sucked into the material cylinders and the continuous smooth flow may be interrupted.

- The concrete output is influenced and related to the quality and consistency of the concrete mix. Mix consistency is a decisive factor when it comes to the filling rate of the material cylinders.

With stiffer consistency and unfavorable grading curve of the aggregate, (smaller portion of sand, crushed materials) the rate of filling the material cylinders becomes less efficient resulting in a lesser concrete output. When you encounter this condition it is suggested that pumping at a slower speed can positively increase the output by allowing more time to fill the material cylinders.

- When it is necessary to pump unfavorable mixes such as extremely stiff, under sanded, lightweight concrete, the best procedure is to keep the "S" Tube shaft visible all the time. In so doing, the hopper will only be filled to the lower edge of the shaft making the concrete easier to pump.

- This method is called the **AIR-PLUG** method which allows air to be sucked into the material cylinders along with the unfavorable concrete mix.

- When it is necessary to pump concrete that is very liquid and has a high percentage of rough aggregate that tends to separate, keep the concrete level in the hopper as low as possible in case you encounter a work stoppage.

- Concrete that has separated or has begun to set and become lumpy should never be pumped.

- It is common that at sometime during the concrete placement you will be required to stop pumping for a period of time. This could be due to job site problems or possibly lack of concrete. Regardless of the reason, it is **IMPORTANT** to **MOVE** the concrete in the line during these periods. This can be accomplished by operating the pump in **REVERSE** for 2-3 strokes and then after another 10-15 minutes operate the pump **FORWARD** for 2-3 strokes.

- Downtime between forward and reverse movements will depend on the consistency and type of mix. Also if shutdown is for too long a period or if the day is very hot it may be necessary to clean out the delivery system and pump. Determine this from your experience in the material being pumped.

- Avoid having the material in the hopper separate during shut down.

- Air pockets in the delivery line can be dangerous as the air compresses within the delivery line and when it is released abruptly at the end of the line, the material being pumped is discharged in an explosive manner. Avoid air pockets. Keep sufficient material in hopper to prevent the induction of air into the material cylinders.

- Never bend or kink the flexible hose during the pumping operation. A kink is an obstruction that can stop the material flow, allowing pressure to build up in the system creating a dangerous condition.

When this occurs, the pumping direction must be **REVERSED** for 3-4 strokes to relieve the pressure in the line. Stop the pump and straighten out the kink, then resume pumping.

TROUBLESHOOTING TIPS - PUMPING & BLOCKAGE

- A drop in volume can occur when pumping long distances or with stiff mixes as compared with shorter lines and wetter mixes.

- Water leaking from a connection can cause separation of the mix in the delivery line and will eventually develop into a blockage at that point.

- Avoid using damaged hoses with internal restrictions. They can cause blockage.

- When using snap joint couplings with gaskets to join the hoses, be sure they are washed and cleaned after completion of the job. We also suggest the couplings and gaskets be dipped in water prior to use for easier installation.

- Don't be alarmed by a slight pulsation of the delivery hose near the outlet. This is a normal condition. However, excessive pulsation near the pump is normally due to higher than average line pressure that may be caused by pumping stiff harsh mixes or pumping extremely long distances. Using hose with a larger internal diameter will help in reducing the line pressure.

- Be alert to the fact that if the delivery system is blocked or the hose is kinked, the pump could suddenly force out the blockage or straighten out the kink. This rapid surge could cause the line to whip or move in such a manner that it may cause **INJURY**.

- When a blockage in the hose occurs, walk along the hose until you find the point of trouble. The hose will be soft immediately past the blockage point. Elevate the hose at that point with the blockage hanging down toward the free end. Shake the hose or pound with a hammer until the blockage loosens and the material flows freely again.

- **DOWNHILL** pumping involves some extra attention and can be difficult on some jobs. The reason for this is that when the pumping operation is stopped the material can flow slowly down the incline causing the hose to collapse. This can only result in a blockage when pumping is resumed. Kinking off the hose at the discharge while the pump is stopped can prevent this. Also the use of stiffer mixes when pumping downhill will lessen the gravity flow.

- When pumping over 40 feet vertically up the side of a structure, steel pipe should be used and should be securely fastened as necessary to support the pipe column. Install long radius 90º pipe sweeps at the top and bottom of the steel pipe delivery line. Also use a short section 20 - 25 feet of hose off the pump discharge to take up the pulsation. Use steel pipe for the balance.

CLEARING A PACK OR BLOCKAGE

Blockage in the delivery line during pumping operation will no doubt happen at one time or another. An observant alert operator, who can recognize the symptoms is of great value. A blockage can create excessive pressure in the system, which is a dangerous condition. When this occurs **IMMEDIATELY STOP** the pump.

- Place the pump direction switch to **REVERSE**. Then turn the pump switch to **ON** allowing the pump to stroke 2-3 times in reverse to assist in relieving the pressure from the delivery line blockage back to the pump outlet

- Switch the pump **OFF**

⚠ *WARNING*

NEVER ATTEMPT TO CLEAR A PACK OR BLOCKAGE IN THE DELIVERY SYSTEM USING THE PUMP PRESSURE.

- Warn all personnel in the immediate area of the imminent **DANGER** and to stay clear of the area.

- Make sure those assigned to clear the blockage are fitted with **EYE PROTECTION** before they open the clamping devise.

⚠ WARNING

Extreme caution must be exercised when opening the clamping devices on any part of the delivery system. The possibility may still exist that there is still some pressure trapped in the line.

- Open the clamp in the area of the blockage and clear the pack.
- When blockage has been cleared **START** pump, placing **DIRECTION** switch to **FORWARD**. Pump the material at a **LOW VOLUME** until material flows steadily out the end hose.

CLEAN UP OF THE PUMP

This sometimes may seem tedious, tiresome and a distasteful task, however, the clean up is a **VERY IMPORTANT** operation. We pointed out previously the importance of the pre-operation inspection. The clean up is no different because it sets the stage as to how well the pump will perform the next time it is used. The clean up involves the removal of unpumped material remaining in the hopper, swing tube, material cylinders and delivery system piping.

NOTE

The flushing and cleaning operation should only be done at LOW VOLUME.

- At pump panel set **RPM** control to approximately 1/3.
- With everything still in tact, pump as much material out of the system as possible, making sure there is still sufficient material in the hopper for lubrication of the piston cups. Then turn **PUMP** switch to **OFF** position.
- Open the hopper clean out door and dispose of the remaining concrete.
- Uncouple the delivery line at the pump outlet. If a reducer is used, disconnect the line right after the reducer.
- Using a water hose with spray nozzle attached to create some pressure, flush out the inside of the hopper, the inside of the S-tube and reducer if used.

- Place **DIRECTION** switch in **REVERSE**. Place the water hose **NO MORE THAN 12" INCHES** through the pump discharge outlet. **START** the **PUMP**. Water will drain into the material cylinders and as pump cycles, any sand and rocks will be forced out through the open clean out door. This will take approximately 10-12 strokes.

- Remove the hose and continue to stroke the pump to make sure all the sand has been cleaned out. Turn the pump **OFF**.

- Close the hopper clean out door. Place the clean out sponge into the disconnected delivery line. Reconnect the line to the hopper outlet or reducer with the sponge inserted.

- Fill the hopper with water. Place the **DIRECTION** switch to the **FORWARD** position and check that **RPM** control is set at low speed. Turn PUMP **ON** and cycle the pump until the sponge passes through the entire delivery system.

⚠ CAUTION

It is suggested that a SPONGE CATCHER be installed at the end of the delivery line to catch the sponge as it is discharged from the line.

- Turn **OFF** pump and allow the water to drain from the system.

- Clean up the remaining areas of the machine hosing them down as appropriate. PREPARE UNIT FOR TRAVEL

After the ***MODEL A30HP*** has been thoroughly cleaned it can now be readied for travel.

- Return **THROTTLE** control to **IDLE** position, and shut-off engine.

- If remote control was used disconnect from control box and store in secure place.

- Pick-up and store any wheel blocks, cones, delivery line and other equipment.

- Clean up area around pump.

PREVENTATIVE MAINTENANCE

How good is any of the equipment you own? It is only as good as it is **MAINTAINED**. Even the finest equipment manufactured requires attention and care. The ***02 MODEL A30HP*** is no different. A good well planned and carried out preventative maintenance program will enhance a properly operating unit as well as the safety of those operating and using the equipment.

It is very important to establish a good maintenance program. Costly repairs and loss of revenue can often be avoided by planning ahead, setting a regular schedule and exercising good preventative maintenance techniques.

The following section is offered as a guide and depicts a start for developing your own preventative maintenance program for the ***MODEL A30HP*** concrete pump. The program is depicted and broken into sections of **INSPECTION** and **LUBRICATION**.

NOTE

All points noted herein regarding the maintenance and checks are not intended to replace any local or regional regulations which may pertain to this type of equipment. It should also be noted that the list and schedule is not considered to be inclusive. Interval times may vary due to the climate and/or conditions associated with the location area in which the equipment will be used.

⚠ CAUTION

It is your responsibility to always insure that the applicable safety precautions are strictly observed when performing the inspections and maintenance checks. Make certain any components that are found to be defective are replaced or those in need of adjustments or repair are corrected before operating the machine.

SCHEDULED INSPECTION

The main purpose of accomplishing scheduled inspections is to identify and detect any potential malfunction before it can expand into a major problem. The list presented herein should be inspected and checked on a regular basis. In so doing, it will help ensure a good, safe unit performance.

1. SKID - FRAME

- Frame integrity, visually check welds, cracks
- Side Electrical Panel secure
- Body sheet metal panels secure

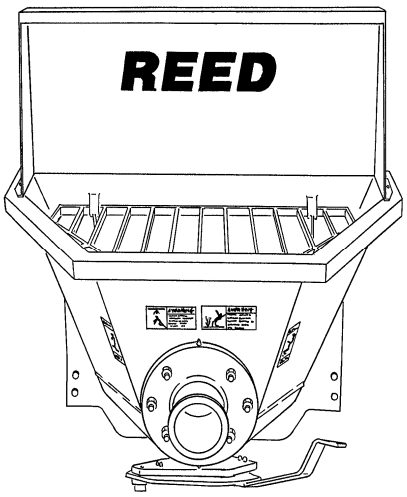
2. ELECTRIC MOTOR

- Inspect mountings, bolts, brackets
- Hydraulic Oil level proper, any leaks
- Hydraulic tank mounting, leaks, damaged lines
- Battery hold down, condition, tightness of cables
- Key switch, indicator lights operable
- Controls functional
- Power cord connections

3. PUMP CELL

- Visually check for structural damage, cracked welds
- Hydraulic drive cylinders in good condition, secure, no leakage
- Material cylinders secure, tie rods tight
- Water box structurally sound, clean, cover in place
- S-tube shift mechanism structurally sound, all pins and retainers in place
- Hydraulic shift cylinders in good condition
- Bearing housing, seals etc. in good condition
- Hydraulic hoses secure no leaks

4. HOPPER ASSEMBLY



- Visually check for structural damage, cracked welds
- S-tube secure, in good condition
- Check condition of wear plate, wear ring, seals
- Check connection of S-tube to outlet, seals, bearing
- Hopper drain is functional

5. MAIN CONTROL

- Control box in good condition, not damaged
- All toggles in good condition, stay in position or momentarily return to center
- Control identification in good condition, legible
- Gauges in good condition

6. REMOTE CONTROL

- Control console in good condition, not damaged
- Switch in good condition
- Umbilical cord in good condition, no cuts, securely mounted to box

WIRE REMOTE CONTROL

RADIO REMOTE CONTROL

7. HYDRAULIC SYSTEM

- Hydraulic tank securely mounted, covers tight
- Filler cap and strainer in place, level sight gauge in proper condition
- Check filter condition indicators
- Hydraulic oil cooler securely mounted, connections tight
- Check accumulator condition, mounting brackets & clamps
- Hydraulic fluid to proper level and clean
- All hoses and tubing secure, no leaks

LUBRICATION

The ***MODEL A30HP*** concrete pump is equipped with several components that because of the application require frequent lubrication. These areas involve the S-tube shifting mechanism, swing components, the shift and outlet bearings and agitator. To insure the economical service and the long life of these components, grease fittings are installed at each point.

⚠ *WARNING*

Rapid wear and probable component breakdown will result if the unit is operated with inadequate lubrication. Follow the recommended interval and if need be increase the interval when above normal usage takes place.

LUBE POINT LOCATION

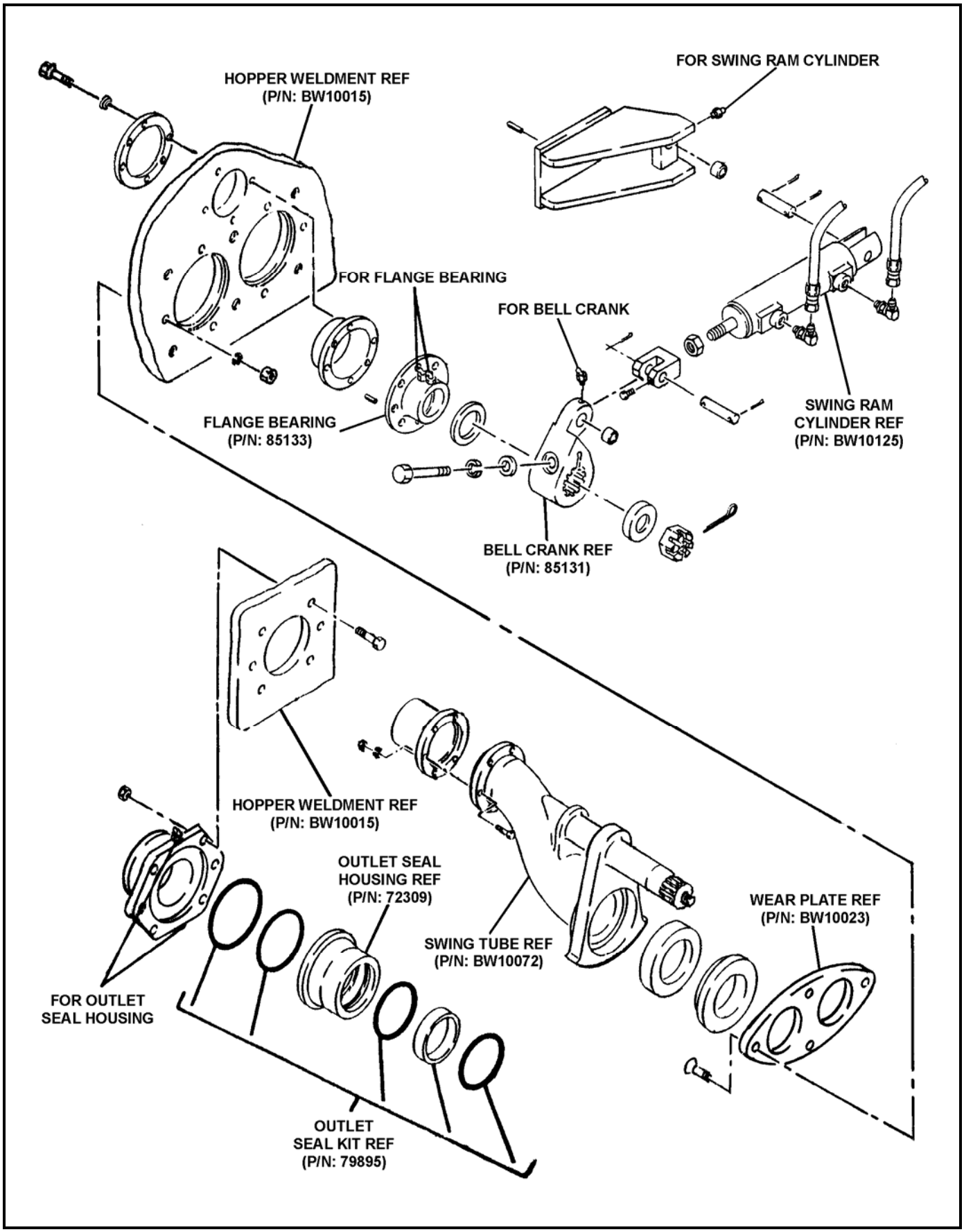
- **Swing Tube Shift**
  - Quantity 1 at cylinder barrel pivot
  - Quantity 1 at bell crank
  - Quantity 2 at swing tube shaft bearing housing
- **Swing Tube Outlet**
  - Quantity 2 on outlet bearing housing

Recommended Lubricant: **GENERAL PURPOSE GREASE**, SHELL **ALVANIA EPLFH2** or EQUAL

Recommended Interval: **DAILY, BEFORE START-UP AND AS REQUIRED DURING OPERATION**

LUBRICANT AND INTERVAL

The lubricant that is recommended is generally the best choice, however, should this lubricant be unavailable in your area, consult your local supplier for an equivalent.


HOPPER WELDMENT REF
(P/N: BW10015)
FOR SWING RAM CYLINDER
FOR FLANGE BEARING
FOR BELL CRANK
FLANGE BEARING
(P/N: 85133)
SWING RAM
CYLINDER REF
(P/N: BW10125)
BELL CRANK REF
(P/N: 85131)
HOPPER WELDMENT REF
(P/N: BW10015)
OUTLET SEAL
HOUSING REF
(P/N: 72309)
WEAR PLATE REF
(P/N: BW10023)
SWING TUBE REF
(P/N: BW10072)
FOR OUTLET
SEAL HOUSING
OUTLET
SEAL KIT REF
(P/N: 79895)

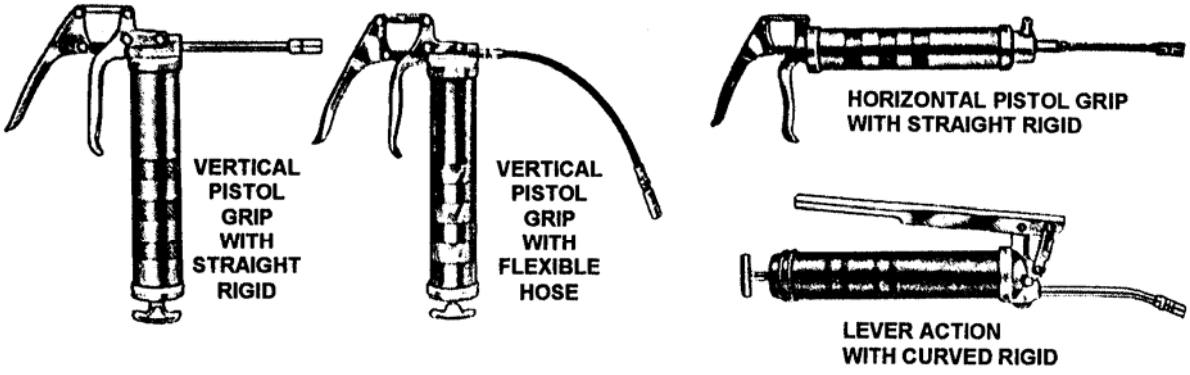
On the same basis, recommended lubrication intervals are based on normal use, in normal environmental conditions. User is **CAUTIONED** to adjust the lubrication interval accordingly to meet each individual condition and usage If the swing tube bearing housings become extremely hot or lubricant becomes a liquid and oozes out around the bearing or seal, the area should be relubricated.

If the ***MODEL A30HP*** has been stored or exposed to environmental conditions of extreme low humidity, high dust level, elevated temperatures or heavy rainfall, lubrication of components may be required more frequently than under normal conditions.

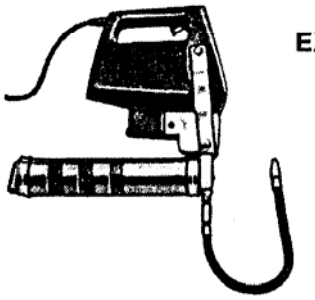
NOTE

External non-bearing surfaces should be wiped clean of extruded or spilled surplus grease and oil with a clean, but lint free cloth to prevent damaging dust and abrasive accumulation on lubricant wet surfaces.

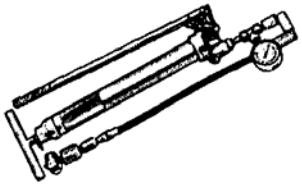
GENERAL PURPOSE GREASE GUNS



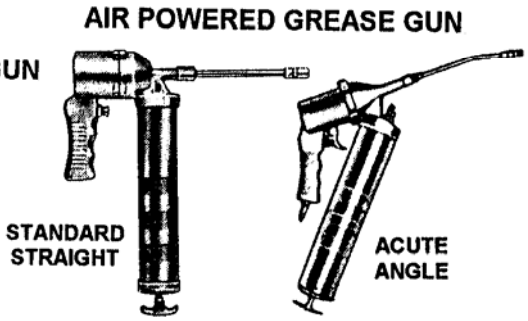
HAND HELD ELECTRIC GREASE GUN



EXTREME PRESSURE GREASE GUN



AIR POWERED GREASE GUN

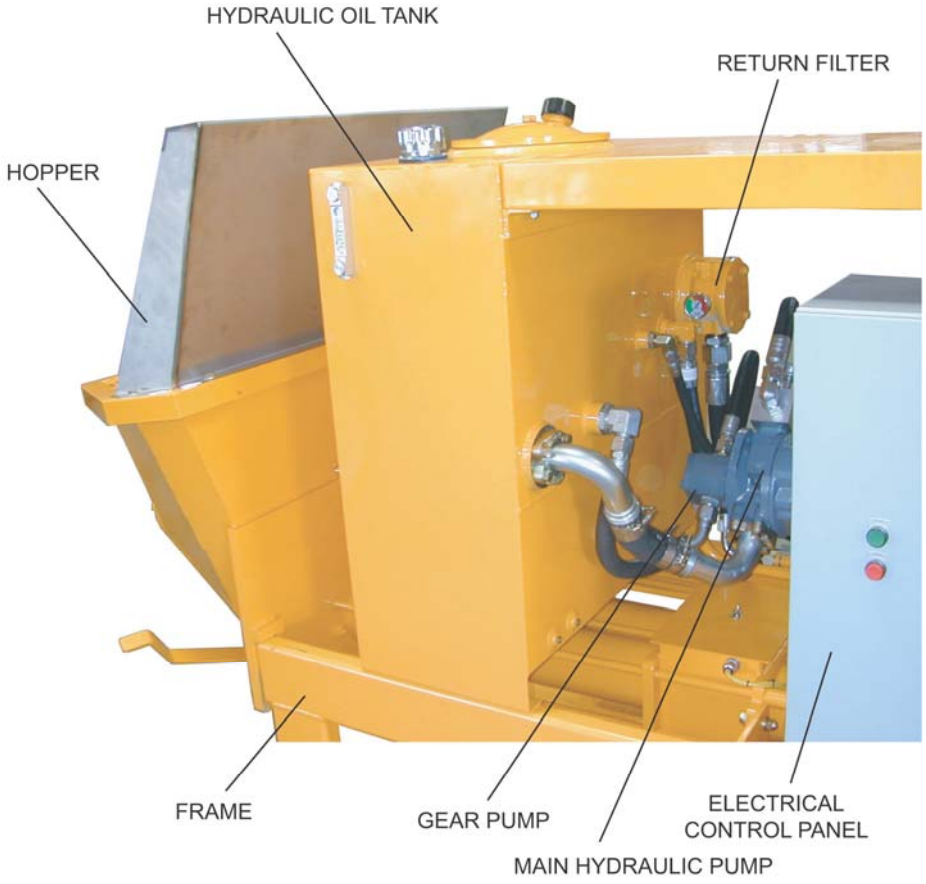


HYDRAULIC SYSTEM MAINTENANCE

The ***REED MODEL A30HP*** utilizes a electric motor as the main source of power, which drives the main hydraulic pump. The hydraulic pump is used to supply the flow and develop the necessary pressure to operate the concrete pump. As with any operational system, it is only as good as it is maintained. The hydraulic system is a critical system and it is for this reason that it is **IMPORTANT** that it receive extra care and good maintenance. This section is offered to alert you and guide you in maintaining the hydraulic system.

⚠ CAUTION

CONTAMINATION is the downfall of most hydraulic systems and a major contributor leading to system malfunctions. Extreme care must be exercised to prevent dirt from entering the system. Make it a habit to ALWAYS cap or plug open ports and hydraulic lines.



HYDRAULIC TANK

The hydraulic tank has a capacity of 40 GALS (190L) and is located just forward of the hopper. It is equipped with a filler breather unit, access cover. A sight gauge is installed on the left side of the tank and is used to determine the fluid level inside the tank. The tank is also equipped with drain valve.

Filtration is by a return line filter located on the front of the tank. An oil cooler is adjacent to the engine cooling unit. This cooler is used to cool the oil prior to entering the tank.

SYSTEM MAINTENANCE ITEMS

The following are specific items for care and maintenance of the hydraulic system.

- **FLUID LEVEL** Check level daily with sight gauge provided. Maintain level at full mark. Add through filter.
- **TANK BREATHER** Clean every 50 hours of operation. Remove from tank, clean with solvent and air blow dry.
- **RETURN LINE FILTER** One (1) 10-micron filter; change after first 50 Hours of operation. Thereafter change every 150 hours of operation or when condition gauge indicates to do so.
- **HYDRAULIC TANK** Change oil in tank every 1000 hours of operation or yearly whichever comes first.

NOTE

After fluid loss for any reason, filter replacement, component removal etc., sufficient fluid must be added to properly maintain required level in tank.

HYDRAULIC FLUID

The ***MODEL A30HP*** utilizes in its hydraulic system a fluid manufactured by the SHELL OIL CO. and is designated as TELLUS #46. It is to be used in ambient temperatures of 39 - 90° F (4 - 32° C). The normal fluid temperature will range from 100 - 167° F (38 - 75° C).

For ambient temperatures of 90° F (32° C) and above use fluid designated as a ISO rating of 68. Use ISO 32 for ambient temperatures of 32° F (4° C) and below.

⚠ WARNING

USE ONLY SHELL TELLUS 46 or equal hydraulic fluid and NEVER MIX with other type fluids. Always use a CLEAN fluid. Using impure or other type of fluids not specified will contaminate the hydraulic system and can lead to eventual system malfunction or damage and possibly deteriorate the hydraulic seals.

ADDING HYDRAULIC FLUID

As previously indicated, a hydraulic systems worst enemy is **CONTAMINATION**. Exercise extreme care when adding fluid to the hydraulic tank.

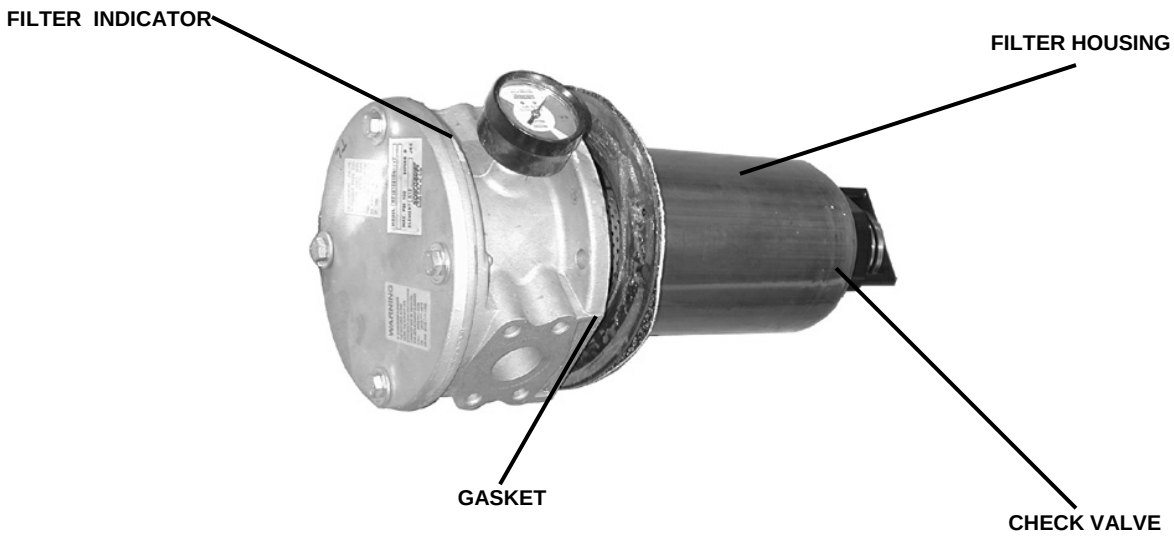
- To prevent any dirt or water from entering the hydraulic tank, thoroughly clean area around top of filter.
- Use fresh clean hydraulic fluid. If a hand pump is used to transfer the fluid, check that pump filter is clean. If pouring of fluid from a container, pour it through a fine wire mesh screen, 200 mesh or finer.

⚠ WARNING

Do not use a cloth for straining fluid as lint is harmful to the hydraulic system.

FILTER SERVICING

The purpose of installing hydraulic filters in the system is to provide a means of continuous hydraulic fluid filtration in an effort to prevent recirculation of abrasive solids which will cause rapid wear of component breakdown.



The **MODEL *A30HP*** hydraulic filter system consist of a return filter located on tank's side. The filter is equipped with a condition indicator gauge which should be checked periodically and the element changed when gauge reads 25PSI or higher..

To service/change the filter elements, the following is offered:

- Shut off machine. On pump circuit allow accumulator system to depressurize
- Wipe clean any dirt and grime from around filter housing.
- Remove the four (4) bolts holding on top plate of filter.
- There is a check valve in the filter housing, so the only oil lost will be that in the housing.
- Carefully remove cover so as not to damage the gasket.
- Remove element and discard.
- Replace with new element and replace cover.
- Start up machine and observe for leakage.

⚠ CAUTION

DO NOT ATTEMPT TO WASH OUT FILTER ELEMENT. These are disposable types and more harm can be done than it is worth.

CLEANING THE HYDRAULIC TANK

The hydraulic tank should be drained and cleaned after 1000 hours of operation or yearly whichever comes first. This will assist in keeping the systems clean and in proper condition. To accomplish this the following is offered.

- Shut off machine. On pump circuit allow accumulator system to depressurize

  Place a suitable size container under the hydraulic tank drain fitting located at back of tank facing the hopper. **NOTE:** The tank has a capacity of 40gals (160 L). Make sure your drain container is large enough. Remove drain plug.

- Remove the access cover on the hydraulic tank being careful not to damage the gasket

- After tank has drained, flush the inside of the hydraulic tank with clean solvent and wipe clean with lint free cloths. **DO NOT USE PAPER TOWELS**. Remove any particles from tank bottom.

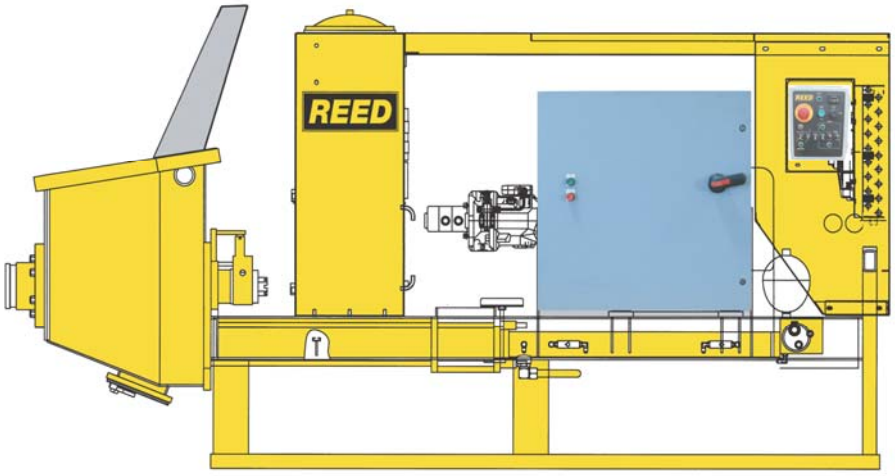
- Install the tank drain plug and access cover with gasket

- Clean the filler breather with solvent and air blow dry

- Change the hydraulic system filter element (see previous page)

- Refill the hydraulic tank with new **CLEAN** hydraulic fluid, **SHELL TELLUS 46**

- Start machine and check for leaks



DESCRIPTION OF HYDRAULIC SYSTEM

The hydraulic system of the ***MODEL A30HP*** consists of two separate circuits and although integrated, each is designed to perform a particular function within the operation of the concrete pump. The two circuits utilized are:

- **Main Pump Circuit -** It controls the function for operation of the hydraulic drive cylinder and material cylinders.
- **S-tube Shift Circuit -** It controls the function for operation of shifting the S-tube from one material cylinder to the other during concrete pumping.

For the purpose of making the operation of each circuit easier to understand, they are being described separately.

SPECIFICS – PRESSURES

- Main System Max. Pressure = 3000 PSI (207 Bar)
- Main System Relief Pressure = 3000 PSI (207 Bar)
- S-tube Shift System Relief Pressure = 2300 PSI (159 Bar)
- Accumulator Pre-Charge Pressure = 900 PSI (62 Bar)

SYSTEM FILTRATION

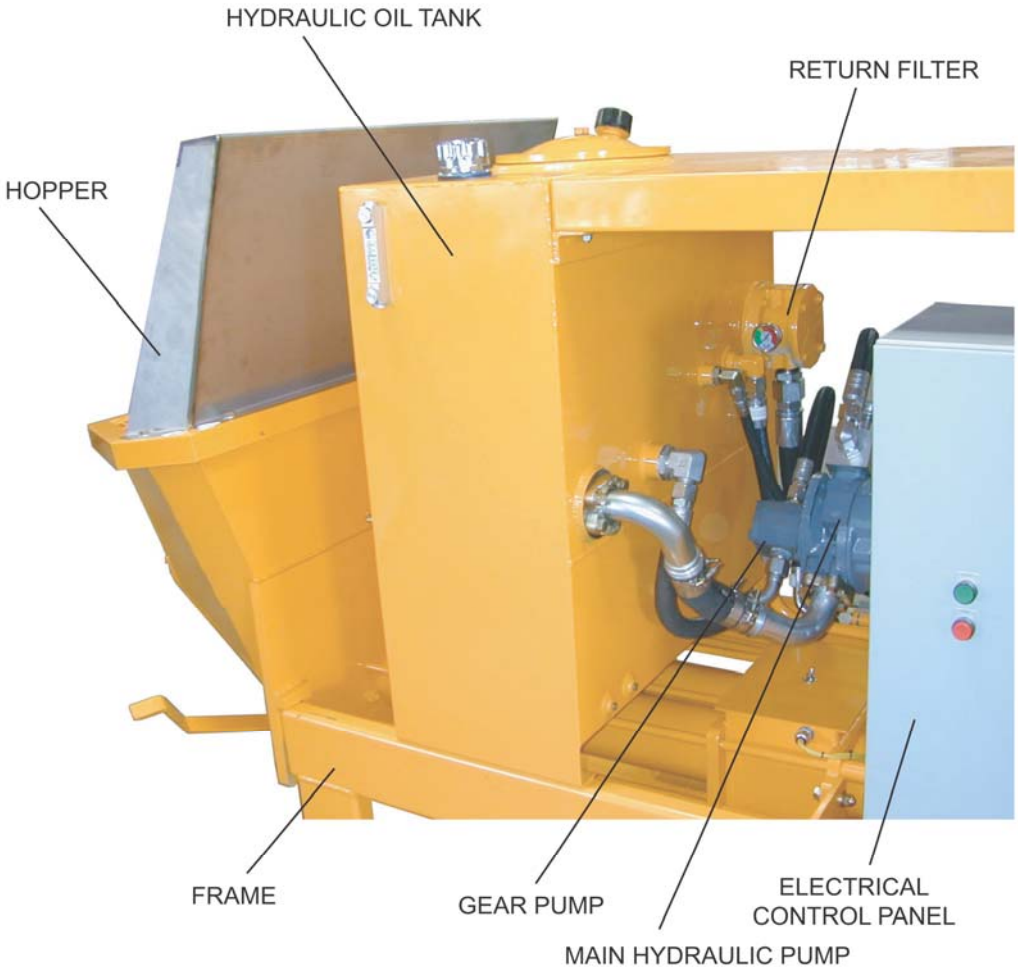
The hydraulic tank has a capacity of 40 gals (160L) of **SHELL TELLUS #46** hydraulic fluid. The system return fluid must pass through a 10-micron filter element before returning to the tank and after passing through the oil cooler.

MAIN PUMP CIRCUIT (Refer To Hydraulic Schematic)

The ***MODEL A30HP*** is designed to pump concrete like material from the hopper to the placement site. To accomplish this requires the use of two (2) material cylinders that are driven by two (2) hydraulic cylinders and the material pumping action is the result of the two cylinders operating or stroking on an alternate basis. In other words, when one cylinder is retracting it is drawing into the material cylinder tube the material from the hopper. The other cylinder, which has its material cylinder already full, is extending. This causes the material to be pushed through the swing tube and out into the delivery line.

This action continually takes place. This is the purpose of the **MAIN PUMP** circuit, to provide the hydraulic power for this operation.

The **MAIN PUMP CIRCUIT** is of the **OPEN LOOP** type. Meaning, that the hydraulic pump directs the fluid to one hydraulic cylinder to extend and the oil from the retracting cylinder is directed back to the tank.



To meet the volume and pressure requirements of the main pump circuit a hydraulic pump is used. The ***MODEL A30*** uses a gear type pump, while the ***MODEL A30HP*** uses a piston type load-sensing hydraulic pump.
In the case of the ***MODEL A30***, the **VOLUME OUTPUT** works as a function of R.P.M..

The main hydraulic pump is driven directly by the Perkins diesel engine. When the engine is started and running and the **PUMP** switch is in the **OFF** position, the oil is directed through the main valve back to tank through the cooler. This condition exists regardless of whether the engine is at idle or maximum **RPM**.

The main pump circuit is equipped with a manifold block installed at the **HEAD** side of the drive cylinders. This manifold is drilled and ported to accommodate the relief valve, check valve, and the pilot operated cycle valve. The cycle valve is a directional spool valve with electro hydraulic solenoid operation. Its purpose is to direct the flow of oil to one or the other hydraulic drive cylinders.

The pump will produce flow in proportion to the amount by which the RPM has been raised. Since the **PUMP** switch is **OFF**, the flow from the hydraulic pump is directed to the cycling valve, however, it is not needed and thus returns to the hydraulic tank by way of the cooler.

To energize the cycling circuit, the **PUMP** switch must be **ON**. When this is done, an electrical signal is generated which in turn energizes the coils of the main cycling pilot valve, which also activates the swing tube shift circuit. (Described later)

Where, how, and why is this electrical signal generated?

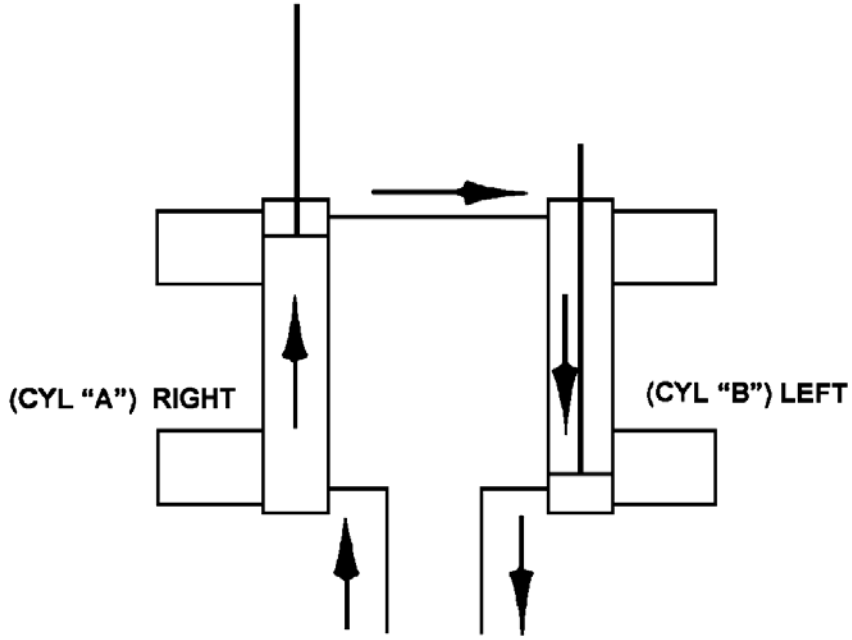
It was previously noted that the material pumping action is the result of the two material cylinders cycling on an alternate basis. This alternating cycling is controlled by an electrical signal that is generated at the end of each material cylinder's suction, (retraction stroke).

A proximity sensor, one for each material cylinder, is installed in the flush box. As the piston coupler passes under the proximity sensor, it generates an electrical signal that is sent to the Can-Bus logic controller. The controller is a ***REED*** proprietary solid state device, designed to control the alternating action of the material cylinders and in turn the movement of the swing tube. The signal from the controller is used to energize the coils of the main cycling pilot valve.

CIRCUIT OPERATIONAL SEQUENCE

In the operational sequence of the **MAIN PUMP CIRCUIT** and with the engine started and throttle adjusted, the main pump is idling. When the **PUMP** switch is placed **ON**, the hydraulic drive cylinders begin to cycle. The cylinder to receive the flow from the hydraulic pump via the cycling valve, is the cylinder whose coupler has triggered the proximity sensor while in the retracted position and is ready to extend. At full extension the other cylinder is totally retracted and the coupler activates the proximity sensor which via the Can-Bus logic controller, shifts the pilot valve spool, allowing the oil to pilot the main cartridge, which sends oil to the head side of retracted cylinder. This alternating cycling takes place continuously until the **PUMP** switch is turned **OFF**.

It can be noted in the schematic and the diagram below that the main pressure and flow is only directed to one side of the hydraulic drive cylinder. In this instance, it is directed to the barrel or piston side of the cylinder.



CONCRETE PUMP SYSTEM

The hydraulic drive cylinders are identical and because only one cylinder is pressurized at a time, a means is required to assist in the retraction of the opposite cylinder. This is accomplished by connecting the rod sides of the cylinders together. In so doing, the hydraulic fluid that exists in the rod side of the extending cylinder (**CYL A**) is transferred and directed to the rod side of the other cylinder (**CYL B**) causing it to retract. The oil in the barrel of **CYL B** is then forced out and has a free flow through the cycling valve back to the hydraulic tank or return system.

With this arrangement of connecting the two cylinders together, it is possible for various reasons, such as leakage around the piston seals that more oil exists on the rod side of the cylinder than is required. When this condition exists, some hydraulic oil remains at the rod end of the cylinder being extended while the other cylinder is fully retracted. As a result the cylinder cannot be totally extended and thus it **SHORT STROKES** which will also happen eventually to the other cylinder.

This condition can be corrected by actuating the **STROKE CHANGE** switch on the electrical control box to the change position and **HOLD,** whichever cylinder is extending is forced down, until the extended cylinder is fully bottomed out. Hydraulically, this is accomplished by use of the check valves installed on both cylinders. By holding the **STROKE CHANGE** switch, you have interrupted the cycle and are forcing more oil into the barrel of the extending cylinder. This oil is then directed by means of the check valve at the rod end of the extending cylinder, putting more oil on the rod side which is then transferred to the rod side of **OTHER CYL.** Since that cavity is full, pressure is built up in the rod side of **OTHER CYL**, which unseats the barrel side check valve forcing the excess oil back to the tank. Once the extending cylinder is at full stroke, regular operation can continue.

NOTE

In addition to piston leakage, a SHORT STROKE condition may result from incorrect proximity sensor location or leaking check valves.

As protection to the **MAIN PUMP CIRCUIT** against excessive pressure, a relief valve has been installed and is set to open at 3000 PSI, main system pressure. Thus when the system pressure reaches 3000 PSI, the relief valve opens directing the oil back to the tank.

S-TUBE SHIFT CIRCUIT (Refer to Hydraulic Schematic)

In the foregoing description of the Main Pump Circuit, we learned that the hydraulic drive cylinders operate on an alternating basis causing the material cylinders to do the same. Since there is only one outlet for the pumping material, a means is required to transfer the material from the material cylinder to the outlet and into the delivery line. To accomplish this a component referred to as the swing tube or **"S"** - tube is installed in the hopper. Since there are two material cylinders and one **S-tube**, the **S-tube** must be shifted from one material cylinder to the other, whichever one is loaded with the pumping material. Thus the incorporation of the, **S-TUBE SHIFT CIRCUIT**.

The S-tube shift hydraulic circuit is of the **UNLOADING CIRCUIT** type, meaning that when the **PILOT** control valve is in the **NEUTRAL** position electrically non operational (unactuated), the **UNLOADING CIRCUIT** passages of the valves are open, allowing the hydraulic fluid to return to the tank. With the engine running the hydraulic pump is operating, producing a flow of oil which, with no control energized, will pass through the **UNLOADING CIRCUIT** on its way back to tank.

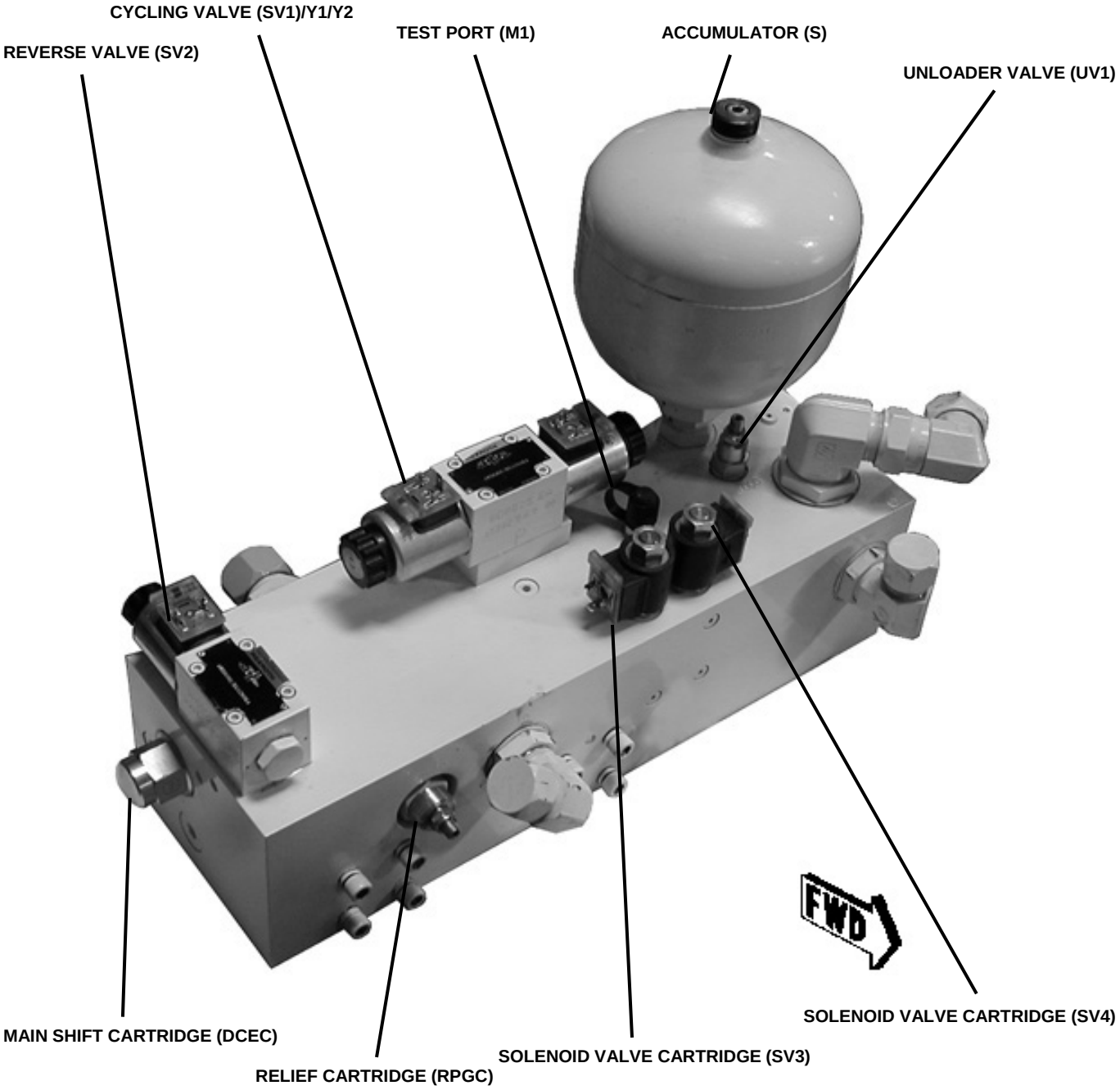
NOTE

THE ACCUMULATOR AND CYL. ARE FULLY CHARGED AND READY TO WORK WHEN THE "E" STOP CURCUIT IS DEACTIVATED!!!

To meet the flow and pressure requirements of the shift circuit, one section of a tandem pump is used. The **TANDEM HYDRAULIC PUMP** is of the gear pump design, having a fixed displacement meaning it is designed to constantly produce the same displacement at pre-set maximum engine RPM. The tandem gear pump is direct connected to the engine. In addition to the hydraulic pump, the swing tube shift circuit consists of an unloader manifold, an accumulator. The following is offered to describe the function of each in the system.

SHIFT CIRCUIT MANIFOLD

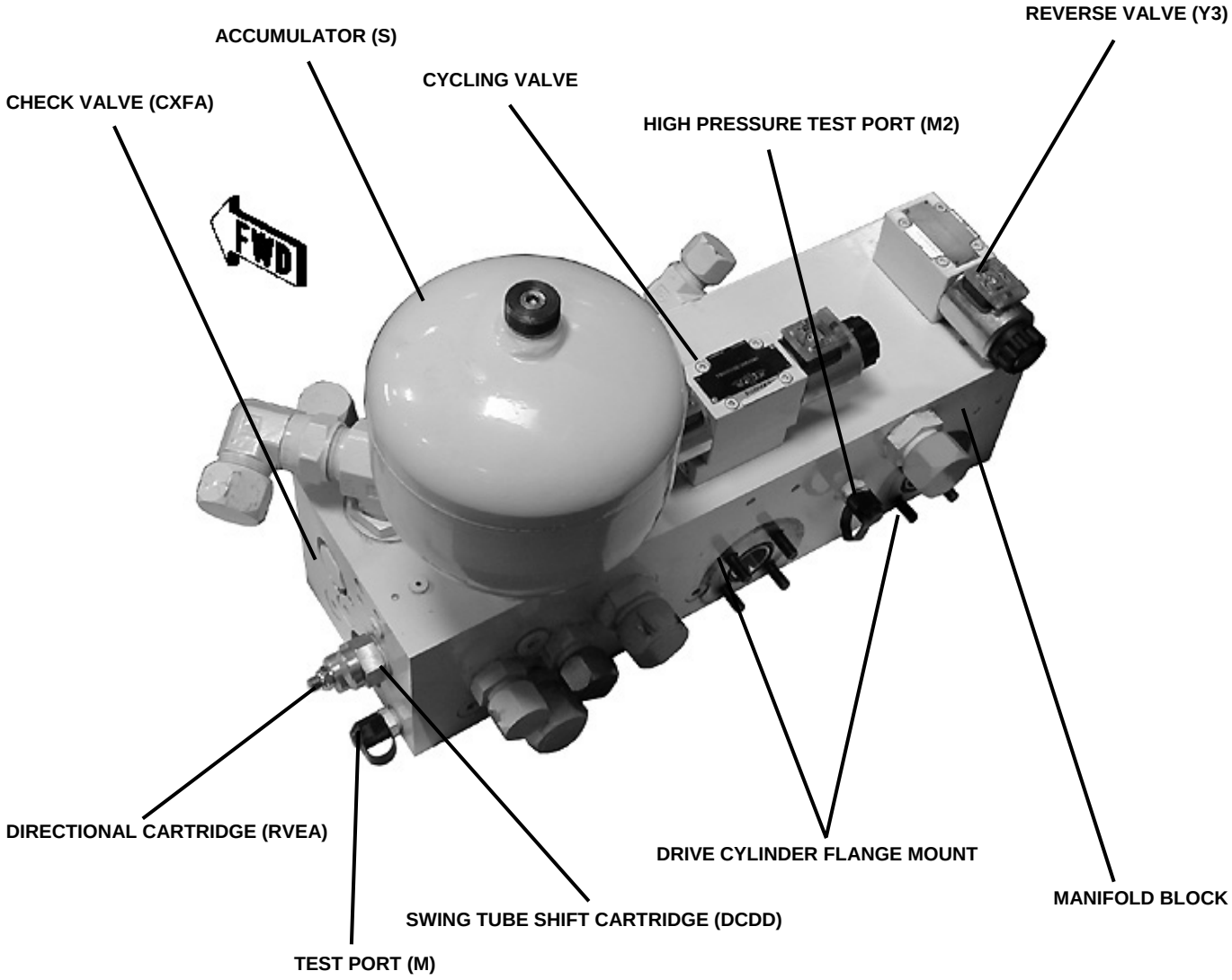
Like the main hydraulic circuit, the shift circuit is incorporated into the manifold block. This block is flange mounted to the drive cylinders. It contains a shift cartridge, relief cartridge, (2) two solenoid valve cartridge, and unloading valve cartridge. The directional cartridge valve is mounted in the block. Each of these components is designed to perform a particular function in the swing circuit as explained in the following descriptions:



- **RELIEF CARTRIDGE -** This cartridge is located on the top side of the manifold block and is used to protect the system from excessive pressure and to limit the amount of pressure being applied to the accumulator and is set at 2300 PSI (158 Bar)

- **DIRECTIONAL CARTRIDGE –**This cartridge is used to direct the flow of oil from the accumulator to one or the other end of the shift cylinder based on the hydraulic signal it receives from the cycling valve as is the main cycle cartridge.

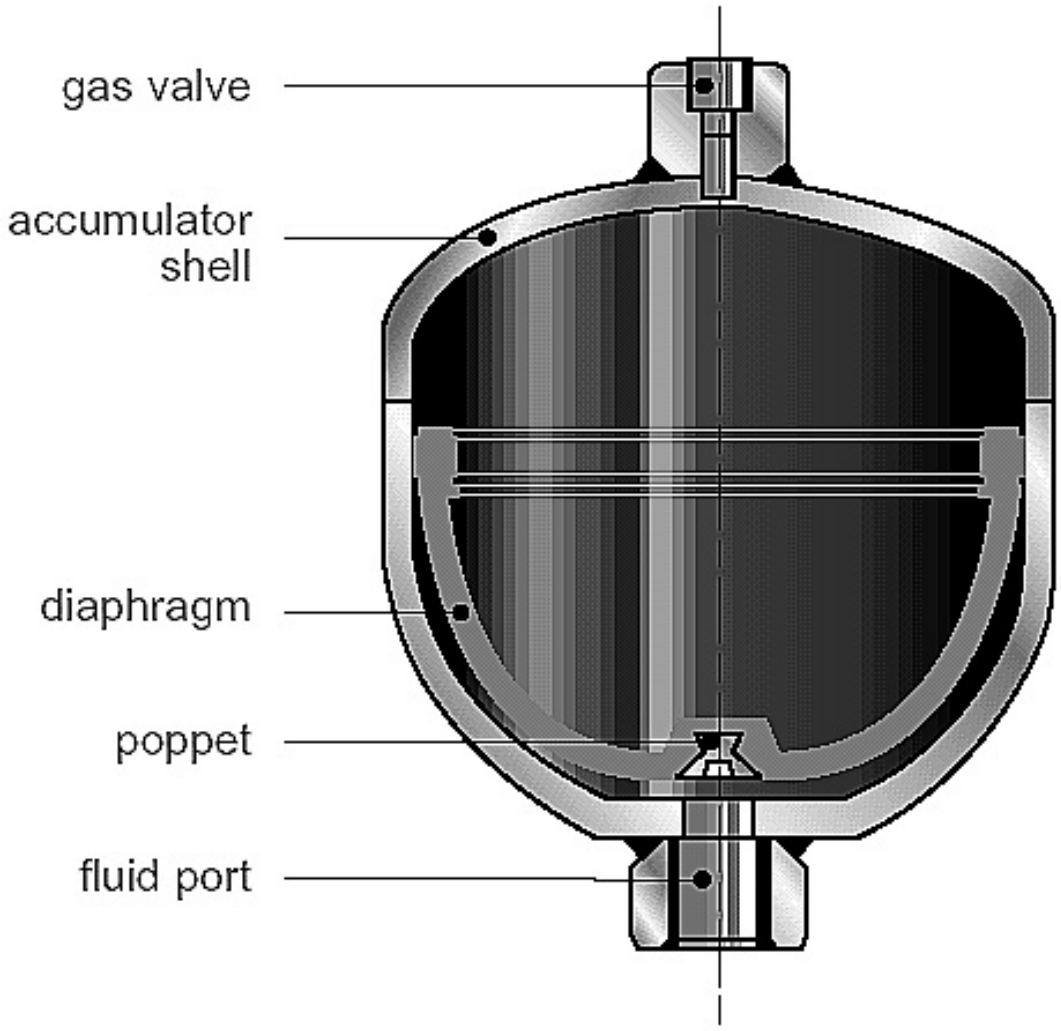
- **UNLOADER VALVE -** This cartridge is used to divert the pump flow from going to the accumulator once its capacity has been reached, directing it back to tank. It becomes operational when the differential setting has been reached (Working value).



- **SOLENOID VALVE CARTRIDGE –** (Y4 Refer to the schematic) Referred to as a dump valve, it is designed into the shift circuit as a **SAFETY VALVE**. Its purpose is to automatically relieve the pressure in the accumulator through an orifice. The valve is controlled by, the Can-Bus logic controller, the valve **OPENS** when the "E" Stop switch is **PUSHED IN**. This prevents the unintentional shifting of the S-tube when the pump is in an "E" Stop condition.

- **SOLENOID VALVE CARTRIDGE-** (Y5 Refer to the schematic) The second valve is also used as a dump valve and is used to direct pilot flow back to the tank when the **PUMP ON SWITCH** is off.

ACCUMULATOR



The accumulator is incorporated into the shift circuit to provide instant pressure and volume for the shifting of the swing tube, which cannot be obtained under normal circumstances. An accumulator is a hydraulic reservoir that retains the hydraulic fluid under high pressure.

To accomplish this, the accumulator contains a rubber bladder on the inside of the reservoir. This bladder prior to the installation of the accumulator on the machine must be pre-charged to a certain pressure using a **DRY NITROGEN GAS ONLY!** In this pre-charge operation, the bladder is expanded much like a balloon and is retained in that state. In the application of the shift circuit, the hydraulic fluid is pumped into the accumulator at a higher pressure than that inside the bladder. This compresses the bladder building up high pressure within the accumulator that is retained until released.

CIRCUIT OPERATIONAL SEQUENCE

In the operational sequence of the shift circuit with the engine at full **RPM**, the tandem pump is operating, producing its rated displacement. The flow is going through the system and is being dumped or directed back to the tank by the unloader cartridge.

When the **PUMP CYCLE** switch is placed to **ON**, an electrical signal closes the solenoid cartridge **(Y5)**. When this occurs the hydraulic fluid is now directed to the **UNLOADER CARTRIDGE** stopping the flow back to tank**.** When the pressure in the shift circuit reaches the setting of the relief cartridge, which in this application is 2300 PSI (160 Bar), the relief opens and activates the unloader valve. The valve then shifts and directs the flow from the pump back to the tank through the relief in lieu of continuing to pressurize the accumulator. The check valve then prevents the fluid in the accumulator from going back to the pump line or draining back through the circuit.

In the Main Pump Circuit description it was described how an electrical signal was generated by the proximity sensor which was sent to the Can-Bus controller and used to control the alternating action of the hydraulic drive cylinders. This same signal is also used to shift the swing tube so that its movement is synchronized with that of the hydraulic drive cylinder, shifting the swing tube to the material cylinder, which is ready to extend (normal forward operation).

The electrical signal activates the solenoid operated pilot valve, shifting the cartridge spool to the appropriate side. The accumulator then releases, exhausting the fluid, which is then directed to the appropriate side of the shift cylinder. As soon as the shift is made the accumulator is refilled immediately and the sequence starts all over again.

ADJUSTMENT PROCEDURES

It is not unusual that over a period of time due to usage, troubleshooting, making repairs or replacement of parts that certain components may require periodic adjustments to maintain the factory type performance. This section of the manual is offered to assist you in making the necessary adjustments.

ADJUSTMENTS TO HYDRAULIC SYSTEM

The ***MODEL A30HP*** concrete pump has undergone an extensive quality control inspection and testing phase during the manufacturing process prior to being shipped. All the required settings and adjustments to provide an efficient and safe operating machine have been made. The various pressure settings and adjustments should **NOT BE ALTERED**. However, it may be necessary through the course of using the machine or replacement of parts to check and reset the pressure settings to the factory established guidelines. This should only be done by **QUALIFIED MAINTENANCE PERSONNEL** who understand the systems. The following is offered to assist in accomplishing the task.

NOTE

The unit is equipped with a test port, which is used to install a test gauge. To perform the following checks and adjustments, the following test gauges may be required.

The **TEST GAUGE KITS** are available from the ***REED*** Parts Department.

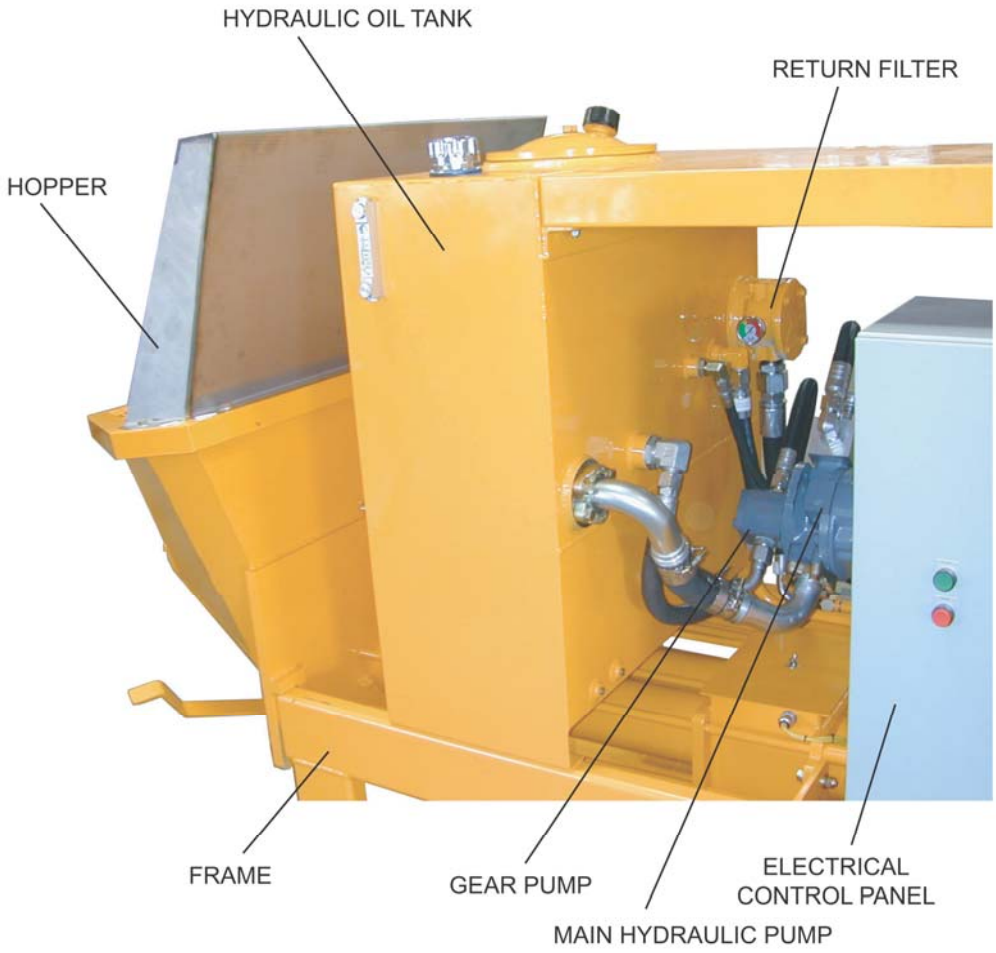
⚠ *WARNING*

DO NOT ACTUATE PUMP SWITCH.

A. SETTING MAIN RELIEF PRESSURE

PUMP GAUGE 6000PSI.

- Run engine at max **RPM** clear **"E"** Stop if active, turn pump on, hold the stroke change switch until one or the other drive cylinder reaches the end position. At this time you can read the relive setting on the 6000 psi gauge.



- The setting should read 3000 psi.
- If the pressure is correct then all is well.
- If the setting has been changed or is not to this spec., then an adjustment must be made.
- Using a 9/16 Wrench, loosen the jam nut on the main relive cartridge **RPGC** to **INCREASE** the pressure valve turn the 5/32”allen screw **IN,** and turn **OUT** to **DECREASE**.
- Make adjustment in small increments and monitor gauge.
- After pressure has been adjusted to proper setting, tighten locknut.
- Turn engine **OFF**.

⚠ WARNING

DO NOT ACTUATE PUMP SWITCH UNTIL ALL HANDS ARE CLEAR.

3. SHIFT CIRCUIT SYSTEM PRESSURE – SET @ 2000 PSI/140 BAR SHIFT RELIEF PRESSURE – 2300 PSI/160 BAR

The S-Tube Shift Circuit is located on the manifold block curb, side. It contains the relief and unloader valve. These cartridge valves are used to protect and limit the pressure being applied to the accumulator and are used to adjust and set the **SHIFT** system pressure. To check and adjust the pressure the following is offered:

A. CHECKING THE RELIEF PRESSURE

- Start engine and adjust **THROTTLE** to maximum RPM.
- Loosen locknut on the unload cartridge valve **QCDB**.
- Using an allen wrench, turn set screw all the way **IN**.
- Monitor the accumulator pressure gauge. Gauge should read 2300 PSI. This indicates the **RELIEF VALVE** setting. If gauge reads otherwise, then an adjustment is necessary.

B. SETTING SHIFT CIRCUIT PRESSURE

- Loosen locknut on **RELIEF VALVE**.
- Actuate **PUMP** switch to **ON** position.
- Monitor accumulator gauge while adjusting relief set screw **IN** to increase pressure or **OUT** to decrease pressure so that gauge reads 2300 PSI.
- Shift **UNLOADER** valve will also need to be reset. With allen wrench, adjust set screw **OUT** until pressure on gauge reads 2000 PSI.
- With adjustment made, tighten lock nut on **UNLOADER**.

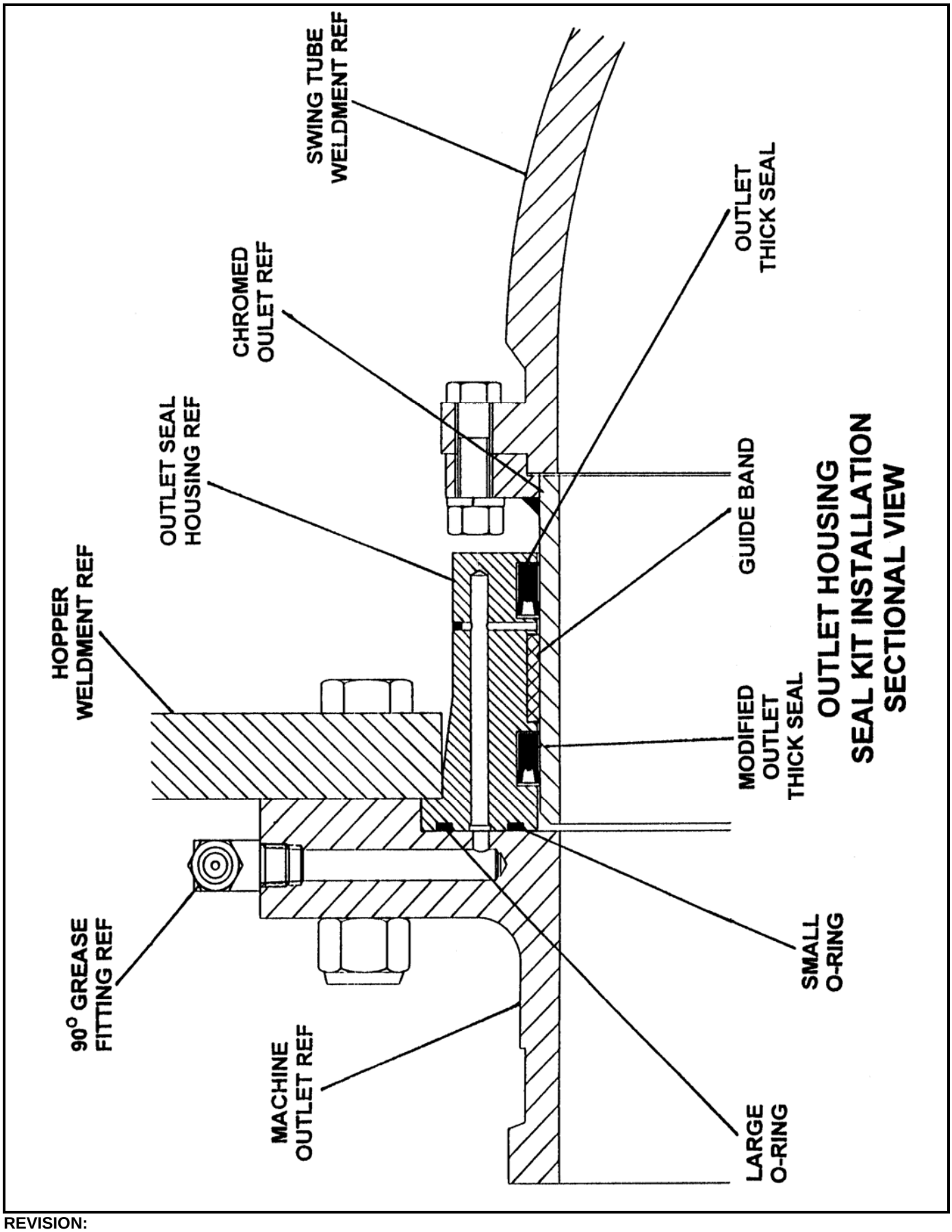
ADJUSTMENT TO SWING TUBE

It is important from an operational standpoint that the swing tube shift properly from side to side and that it is properly adjusted to prevent leakage particularly at high pressure and high volume pumping. On a properly adjusted swing tube, the shifting motion from one material cylinder to the other shall be smooth providing a very light scraping noise. The gap between the swing tube and the wear plate installed on the hopper shall be almost non-existent, but not so tight that it impedes a smooth movement.

Located inside the swing tube is a wear ring and it is designed to stay continually in contact with the wear plate providing the necessary sealing action for efficient operation. This is the scraping noise that should be heard. If there is a lack of the scraping noise or the swing tube shifts too freely this is usually the first indication that an adjustment is required,

To adjust the swing tube clearance:

- Shut off engine. If unit was being run, allow a few minutes for the accumulator pressure to subside.
- Remove cotter pin from large castle nut on swing tube shaft.
- Tighten the castle nut approximately one-half turn.
- Start engine and adjust **THROTTLE** to a low **RPM.**
- Turn the pump on and allow the pump to cycle. You can use the **Stroke Change** switch to actuate the **SWING TUBE** and allow swing tube to shift from side to side a few times.
- If the scraping noise of the swing tube is slight and the tube shifts briskly from side to side, the adjustment is correct.
- If further adjustment is necessary, again tighten hex nut a little at a time. **DO NOT OVER TIGHTEN** or swing tube may bind while pumping material at high pressure.
- If the swing tube hesitates or stutters during the change over, the adjustment is too tight. Loosen lock nut a little at a time
- Once adjustment is finalized, replace cotter pin and cover.


SWING TUBE WELDMENT REF
CHROMED OULET REF
OUTLET SEAL HOUSING REF
HOPPER WELDMENT REF
90° GREASE FITTING REF
MACHINE OUTLET REF
OUTLET THICK SEAL
GUIDE BAND
MODIFIED OUTLET THICK SEAL
SMALL O-RING
LARGE O-RING
OUTLET HOUSING
SEAL KIT INSTALLATION
SECTIONAL VIEW

MAJOR COMPONENT REPLACEMENT

It is a given fact that due to usage, improper maintenance and environmental conditions that certain parts will wear out over a period of time and will need to be replaced to continue efficient operation. When tell-tell signs indicate that a part is worn, do not delay in the replacement. Continued usage with worn parts may lead to the damaging of other parts.

This section of the manual is provided to assist you in replacing some of the major components that may be worn. A step by step procedure is offered. Please be aware that the possibility exists your machine may be slightly different. If you find this to be the case, contact the ***REED*** Service Department. They will be pleased to assist you.

SWING TUBE & COMPONENTS

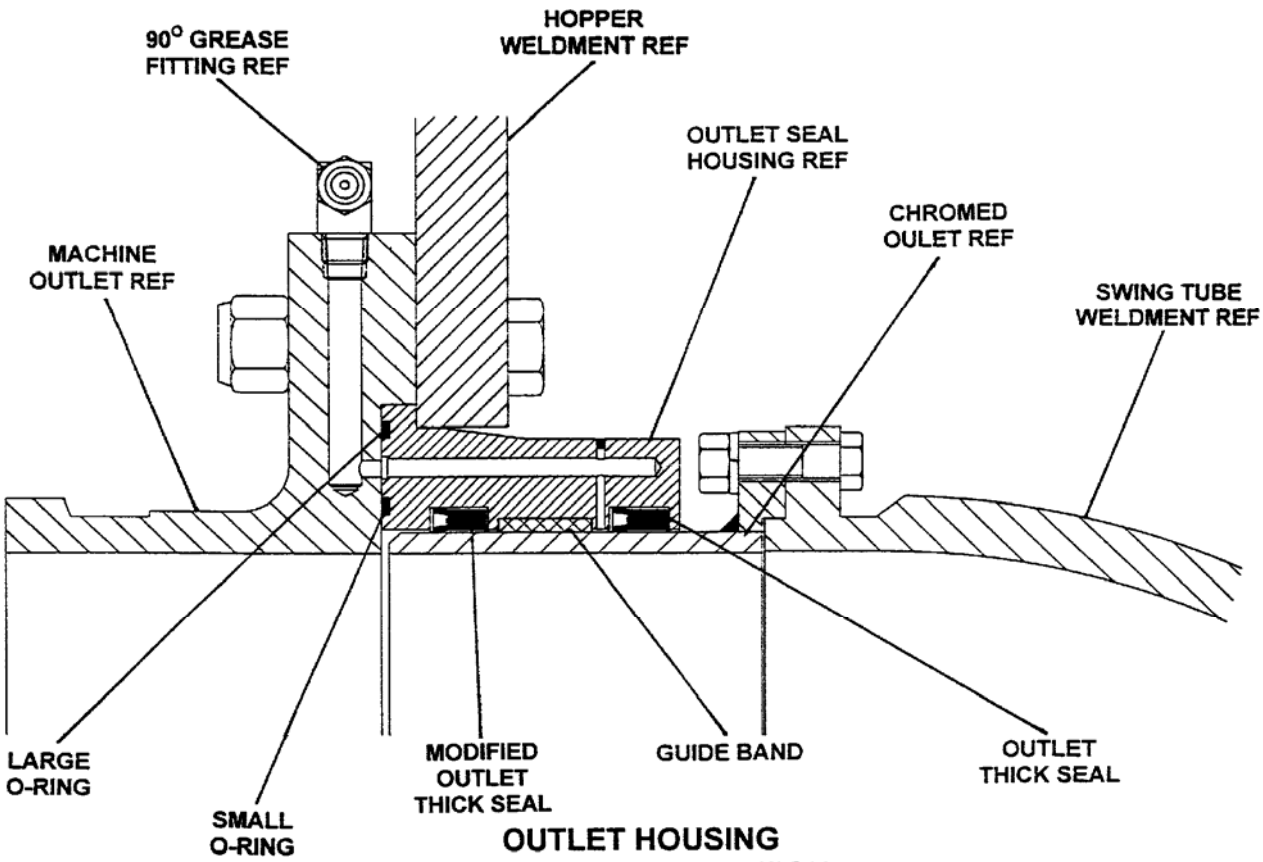
The sealing characteristics of the swing tube depends on metal to metal friction of the wear ring, located inside the swing tube, to the wear plate installed on the inside of the hopper at the material cylinders. This friction and the abrasiveness of the pumping material mixes will cause wear and a breakdown of the sealing action. As this breakdown occurs, periodic adjustments to the swing tube can be made as described in the **ADJUSTMENT SECTION**. This will help to improve the sealing quality, however, eventually the components will need to be replaced.

Some tell-tell signs or identifying symptoms that adjustment is needed or parts are worn might be:

- When deep grooves have developed on the face of the wear plate and/or on the wear ring.
- When the output volume at the end of the delivery line noticeably begins to decrease or eventually stops for no apparent reason.
- When the material being pumped is being forced back into the hopper under pressure.

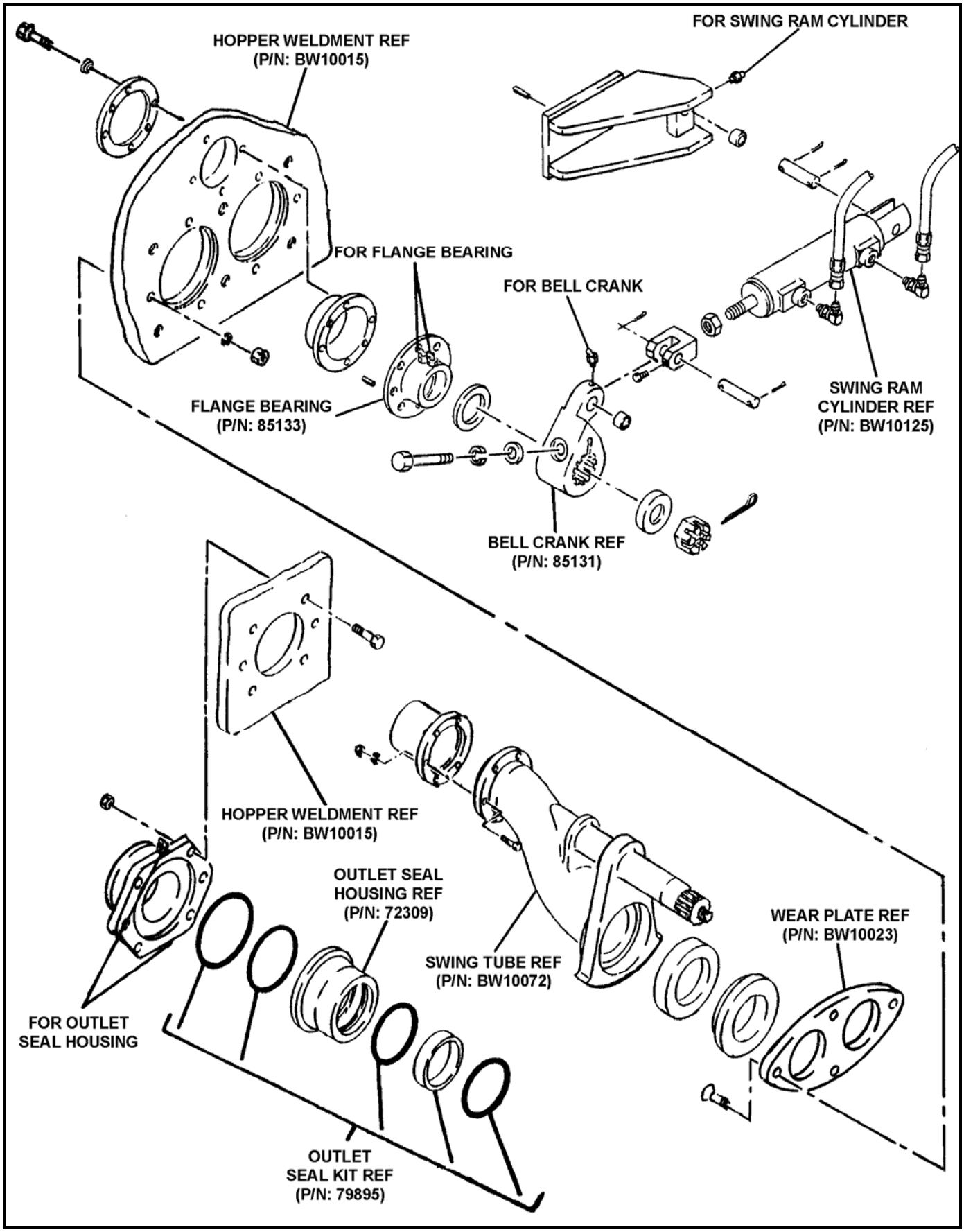
WEAR RING AND WEAR PLATE REMOVAL/REPLACEMENT

- Turn off engine to shut down the system. **BE SURE ACCUMULATOR PRESSURE IS RELEASED**.
- At the bell crank, remove cotter pin, castle nut, bell crank, and shift cylinder.



OUTLET HOUSING SEAL KIT INSTALLATION SECTIONAL VIEW

- Place a sling from an overhead hoist around the discharge end of swing tube to help support the tube.
- Unbolt outlet flange from hopper and remove, being careful not to damage any of the seals and o-rings.
- Work swing tube back toward the outlet. It may be necessary to nudge it with a pry bar. **EXERCISE CARE**. The swing tube only needs to be moved toward the outlet a sufficient distance to enable wear ring to be replaced.
- Remove wear ring and thrust ring from inside of swing tube.
- If it is necessary to replace the wear plate, this can be accomplished by backing out the mounting bolts located on the outside back the hopper. The bolts only have to be backed out a sufficient distance to enable wear plate to be removed. Maneuver the wear plate up through the gap between swing tube and hopper.
- Clean out the end of the swing tube where the wear ring will sit. Also clean the surface of the hopper where new wear plate will be installed.


HOPPER WELDMENT REF
(P/N: BW10015)
FOR SWING RAM CYLINDER
FOR FLANGE BEARING
FOR BELL CRANK
FLANGE BEARING
(P/N: 85133)
SWING RAM
CYLINDER REF
(P/N: BW10125)
BELL CRANK REF
(P/N: 85131)
HOPPER WELDMENT REF
(P/N: BW10015)
OUTLET SEAL
HOUSING REF
(P/N: 72309)
WEAR PLATE REF
(P/N: BW10023)
SWING TUBE REF
(P/N: BW10072)
FOR OUTLET
SEAL HOUSING
OUTLET
SEAL KIT REF
(P/N: 79895)

RE-ASSEMBLY

- Apply a small amount of general-purpose grease on the outside area of the wear ring and thrust ring. Install both pieces into swing tube.
- Slide the new wear plate down between the swing tube and hopper. Reinstall and tighten the bolts.
- Slide swing tube forward until wear ring is set against wear plate.
- Install outlet flange assembly being careful not to damage any of the seals. Tighten bolts.
- Reinstall bellcrank parts, shift cylinder, and castle nut. Remove sling.
- Adjust the swing tube. Refer to procedure outlined in **ADJUSTMENT SECTION**.

SWING TUBE REPLACEMENT

The swing tube, like the wear plate and wear ring, is considered a wear item, meaning that it will eventually need to be replaced. When this situation is encountered, the following is offered to assist you in accomplishing the replacement.

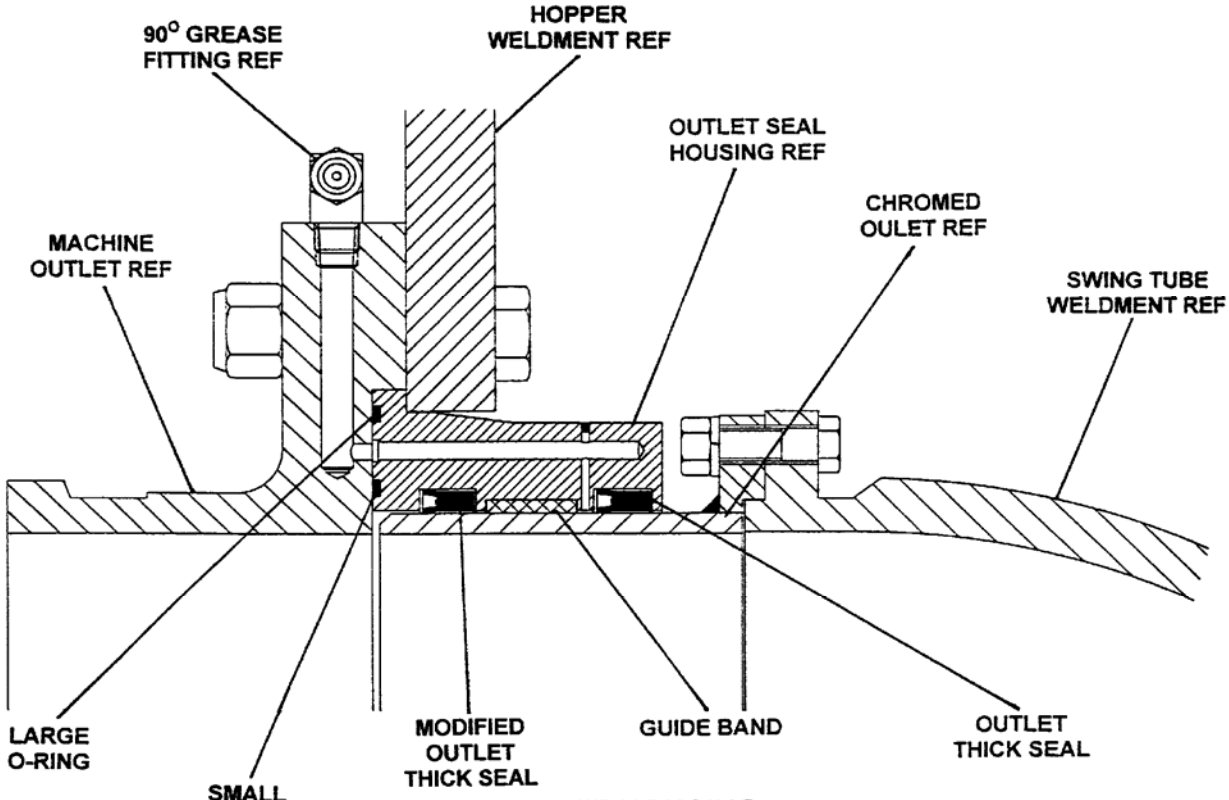
NOTE

The removal of the swing tube involves the disassembly of several other wear components. It is suggested that these be replaced as well.

REMOVAL

- Turn off engine to shut down the system. **BE SURE ACCUMULATOR PRESSURE IS RELEASED**.
- At the bell crank, remove the cotter pin, castle nut, bell crank, and shift cylinder.

- Place a sling from an overhead hoist around the discharge end of the swing tube to help support the tube.
- Unbolt outlet from swing tube and push outlet as far as possible toward hopper.
- Maneuver and work the swing tube toward the hopper outlet as far as it will go or until end of shaft is inside hopper.
- Using the hoist and sling, lift swing tube out of hopper.



OUTLET HOUSING SEAL KIT INSTALLATION SECTIONAL VIEW

RE-ASSEMBLY

Before reassembly of the swing tube this is a good opportunity to clean out hopper of cured material, replace wear plate or do any maintenance on the material cylinders.

It is recommended that when the swing tube is replaced that all seals on the outlet and bearing housing be replaced as well as any other wear items. This is good preventative maintenance.

- Reassemble the swing tube and components in basically the reverse order used in disassembly. Some important items to be noted are:
    - Make sure all components that are to be reused are cleaned from any residual material or grease.
    - Inspect all parts for damage such as nicks, scratches etc.
    - Smear a small amount of clean grease on all seals, polypacks and O-rings before installing.
    - Pay particular attention to the position and direction of seals when installing.
    - Make sure all bolts and nuts are tight.
    - Lubricate as required.
- Test movement of swing tube and make necessary adjustments following the procedure noted in the **ADJUSTMENT SECTION**.

MATERIAL CYLINDER COMPONENTS

Two (2) material cylinders powered by two (2) hydraulic drive cylinders are arranged in the system to operate alternately. While one cylinder is drawing material into the cylinder tube from the hopper on the retraction stroke, the other cylinder is pushing the material out the swing tube and discharge on the forward stroke. Because of the abrasiveness of the material being pumped, it will be necessary to periodically replace the piston cups.

Some tell-tell signs and identifying systems of worn parts might be:

- A slurry of the material being pumped starts to appear in the flush box.
- The water or lubricating oil, if used, begins to rapidly lower the level without any sign of leakage from the box.
- Operation of the cylinder is rough and erratic.

⚠ WARNING

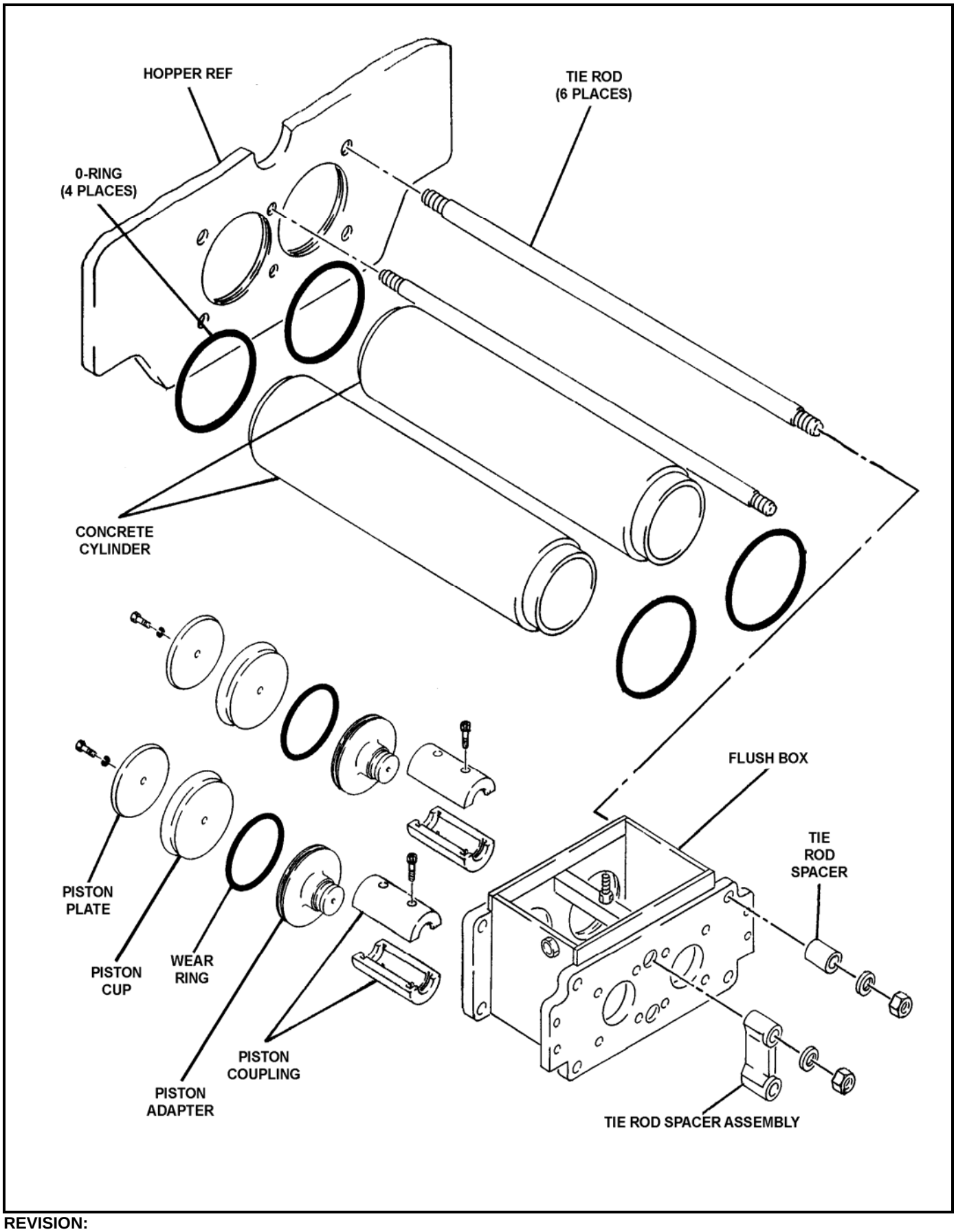
Be sure pressure in accumulator shift circuit has been released before doing any work inside the hopper or inside the flush box.

⚠ WARNING

Do not place hands in the water box or in adjacent area while motor is running. Always check that the pressure in the accumulator has been released before performing any work.

PISTON CUP REMOVAL/REPLACEMENT

- Cycle machine using appropriate controls until one of the cylinders is at full extension. Jog swing tube so that it is shifted over to other cylinder. This will expose fully extended piston.
- Turn off engine and allow pressure to subside.
- Remove the one (1) 3/4 -16 x 1½" long bolt and flat washer securing the piston plate, and piston cup to the piston adapter.
- Pry out the old piston cup and plate. Clean piston plate and inspect piston adapter, and clean if needed.
- Apply a good amount of grease on lip of piston cup. Tip should be facing hopper.
- Screw the bolt by hand into the piston adapter. Start the piston cup into the cylinder and using a wooden dowel, tap the piston plate, which will force the piston cup into the material cylinder.
- With the cup against the adapter, tighten the bolt.
  Replace piston cup in other cylinder in the same manner.


HOPPER REF
TIE ROD
(6 PLACES)
0-RING
(4 PLACES)
CONCRETE
CYLINDER
FLUSH BOX
TIE
ROD
SPACER
PISTON
PLATE
PISTON
CUP
WEAR
RING
PISTON
COUPLING
PISTON
ADAPTER
TIE ROD SPACER ASSEMBLY

PISTON ADAPTER GUIDE RING REMOVAL / REPLACEMENT

Installed on the piston adapter, is a guide ring that is used as a support and wear ring for the material cylinders. This guide ring will need replacing from time to time and a tell-tail sign is if noise or chatter is heard from the material cylinders. This guide ring cannot be replaced from the hopper end, but must be done at the flush box end. To change the piston adapter guide ring, the following is offered:

- Cycle machine until one of the cylinders is completely retracted. Turn off engine and allow the pressure to subside.
- Drain all oil or water from the flush box.
- As a precaution, mark location of proximity sensor adjusting bracket. Remove proximity sensor cross bracket.
- Mark the end of the piston coupler so that on reassembly, it can be placed in the same relation.
- Unbolt and remove top half of coupler. Pull the piston assembly toward you.
- Inspect piston cup , clean up or if necessary replace.
- Remove old guide ring from adapter and smear some clean grease on the new guide ring. Make sure, that the adapter grove is clean, Install guide ring on adapter.
- Place piston cup assembly into material cylinder at an angle so that center of adapter is angling toward bottom of flush box.
- Pull up on adapter to square up piston assembly.
- Install coupler halves and bolt together.

Follow same procedure to remove and replace the guide ring on the other cylinder. After this installation proceed to:

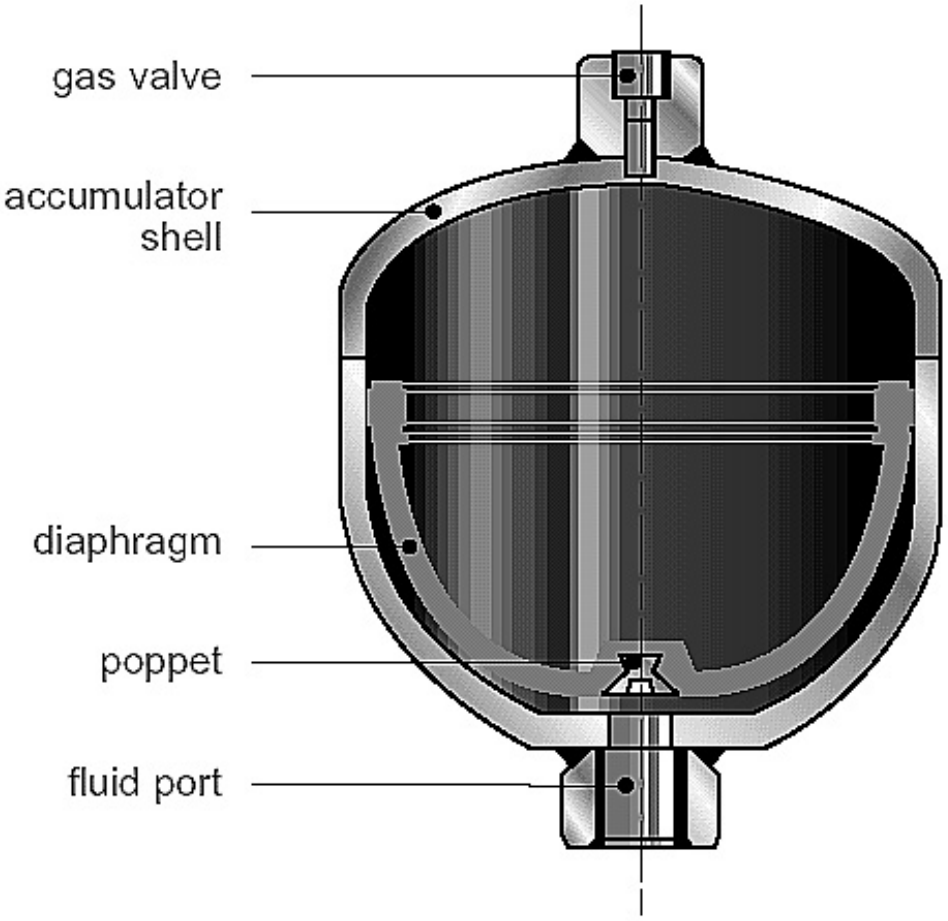
- Replace proximity sensor cross bar and check position of adjustment bracket to previous mark.
- Refill flush box with water or oil.

ACCUMULATOR

It was noted in the **S-TUBE SHIFT CIRCUIT** description that the S-tube must shift alternately from one cylinder to the other in a synchronized operation. In addition this shift must be almost simultaneously. This instant pressure and volume cannot be provided by the system itself. To compensate for this an accumulator is used.

This is made up with an outer shell or tank, a rubber bladder installed inside the shell, a gas valve with port on top of the shell and a fluid port at the bottom of the shell complete with the necessary valves and seals.

To successfully work in the system and do the job intended the accumulator must first be pre-charged. This operation involved the induction of **DRY NITROGEN GAS** into the bladder to a pressure of 1100 PSI (75.8 BAR). This pressure will vary with each ***REED*** pump. Check the specifications noted in **MAINTENANCE SECTION, HYDRAULIC DESCRIPTION CHAPTER** of the appropriate manual. This dry nitrogen gas is inserted prior to installation of the accumulator and is used to inflate the bladder much like a balloon.



In operation of the accumulator in the hydraulic system, hydraulic fluid enters the accumulator through the fluid port and fills the area at the bottom between the inner wall of the shell and bladder. The hydraulic fluid enters at a higher pressure, 2000 PSI (140 BAR) than the gas pressure inside the bladder. At the appropriate time in the pump cycle, the cartridge valve of the shift circuit allows the fluid in the accumulator to be discharged and is directed to the shift cylinder. As soon as the fluid is dispersed the accumulator is refilled. This cycle is repeated time after time.

The accumulator is a critical component in the pump operation and at some point in time it will be necessary to service the accumulator which might involve recharging with nitrogen. or replacement. The following is offered to assist you in accomplishing this repair.

⚠ *WARNING*

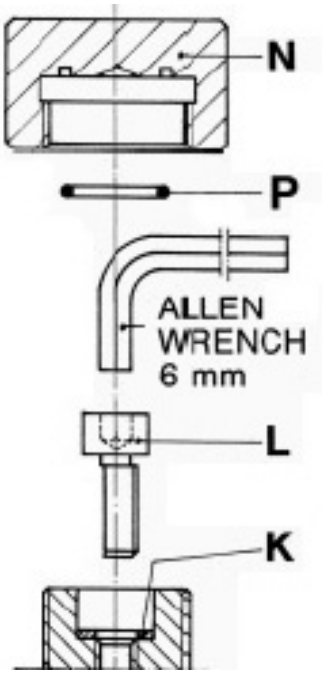
The hydraulic accumulator is PRESSURIZED VESSEL and only QUALIFIED TECHNICIANS should perform the necessary repairs. Always drain the fluid COMPLETELY from the accumulator before performing any work on the component.

We recommend the following special tools to be on hand to facilitate any work being done on the accumulator:

- **Charging & Gauge Unit**
- **Gas Valve Core Tool**
- **Blunt Flathead Screwdriver**
- **Soft Faced Hammer**
- **Torque Wrenches**

ACCUMULATOR CHARGE KIT
(P/N:71460)

ACCUMULATOR PART FAMILIARIZATION



N valve protection cap
(where applicable)
M O-ring
(where applicable)
L socket head cap screw (M8)
K seal ring

PRE-CHARGE PRESSURE

Pre-charge pressure as it relates to the accumulator is the insertion of dry nitrogen gas into the bladder, prior to installation or use. On a new machine the accumulator is pre-charged at the factory. When a replacement is shipped from the factory it is **NOT PRE-CHARGED**. A charged accumulator is a pressurized vessel thus it is against the law to ship by **AIR FREIGHT**.

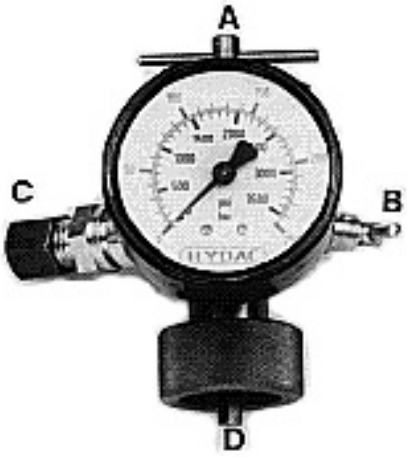
Periodically due to usage or leakage the bladder may loose some of the pre-charge which does affect the operation of the accumulator. As a result it is important that the pressure be checked at least once a year or when there is a noticeable change in the operation. The following is offered to assist you in servicing the accumulator.

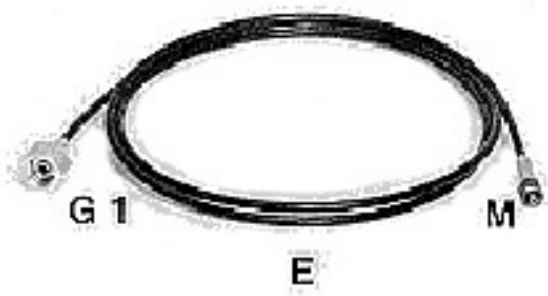
N O T E

A Charging and Gauge Kit is required to perform maintenance on the accumulator. It is available from the REED Parts Department and you will find that it to be a good investment for your workshop

CHECKING PRESSURE

Prior to checking of the accumulator pre-charge pressure the machine must be shut-down and all hydraulic pressure and fluid in the accumulator has been relieved.





A) "T" handle
B) Manual bleed valve
C) Check valve
D) Cap nut
E) Charging hose, Including cap screw connection

- Unscrew the valve protection cap **(N).** Exercise extreme care not to damage the O-ring **(P)** when removing the cap.
- Before making the installation of the gauge unit to the accumulator, turn the **"T"** handle **(A)** counterclockwise until some resistance is felt. Check that the manual bleed valve **(B)** is closed. Hand tight only.
- Install gauge unit on the accumulator by screwing the cap nut **(D)** onto the gas valve. Hand tighten.
- Proceed to turn T-handle counterclockwise a maximum of 3 full turns from the full clockwise position.
- The gauge should then indicate the pre-charge pressure. Refer to specifications for correct pressure:
    - If pressure reading is **TOO LOW** then accumulator will need **RECHARGED**.
    - If pressure is **TOO HIGH** then it will be necessary to **RELEASE** pressure.

RELEASE OF PRESSURE

When gauge indicates that the pre-charge pressure is too high proceed is as follows to release some of the pressure within bladder.

- With gauging valve installed, carefully open the **MANUAL BLEED** valve **(B)**, releasing some of the nitrogen gas.
- While doing this observe gauge until sufficient gas has been released and desired pressure has been reached.
- Close the manual bleed valve **(B)**. Wait approximately 10 minutes for the pressure to stabilize, then recheck and if necessary adjust accordingly.
- To remove the gauging unit, turn **"T"** handle until resistance is felt to close the gas valve. Open manual bleed valve.
- Disconnect the gauging unit by unscrewing the cap from the gas valve. Screw on valve protection cap, hand tight.

INCREASE PRE-CHARGE PRESSURE

In checking the pre-charge pressure if it is found to be too low then add nitrogen gas as follows:

- Install gauging unit as previously described. Turn **"T"** handle counterclockwise until needle on gauge begins to move then from this point turn it another full turn.

⚠ *WARNING*

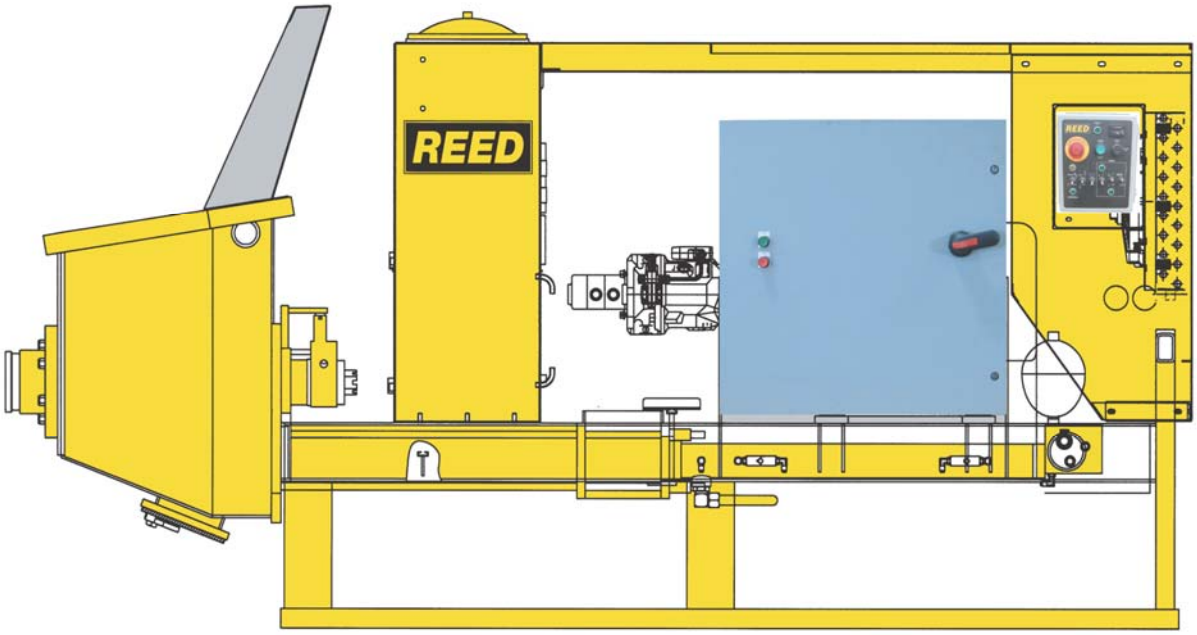
USE DRY NITROGEN GAS ONLY - NEVER USE OXYGEN OR AIR. THIS COULD CAUSE AN EXPLOSION.

- Connect the charging hose to the cap screw adapter and to the nitrogen bottle discharge. It is recommended that the commercial nitrogen bottle be equipped with a regulator to adjust pressure. Full pressure may damage gauge.
- Open the shut-off on the nitrogen bottle and slowly fill the accumulator. Charging too quickly may damage the accumulator.

NOTE

The gauge on the gauging unit during pre-charge registers the incoming line pressure and not necessarily the accumulator pressure while charging.

- The accumulator pressure can be checked by first closing the shut-off valve on nitrogen bottle.
- Allow a few minutes for the temperature and pressure in the accumulator to stabilize.
- Check the accumulator pressure as previously described, then fill or release pressure as required.
- Close shut-off valve on the nitrogen bottle. Turn **"T"** handle clockwise to close gas valve.
- Open bleed valve, disconnect charging hose and remove gauging unit from accumulator. Reinstall hex cap and protective cap.



SKID MOUNTED PUMP MODEL *A30HP*
HYDRAULIC COMPONENTS & SCHEMATIC

SCMTC

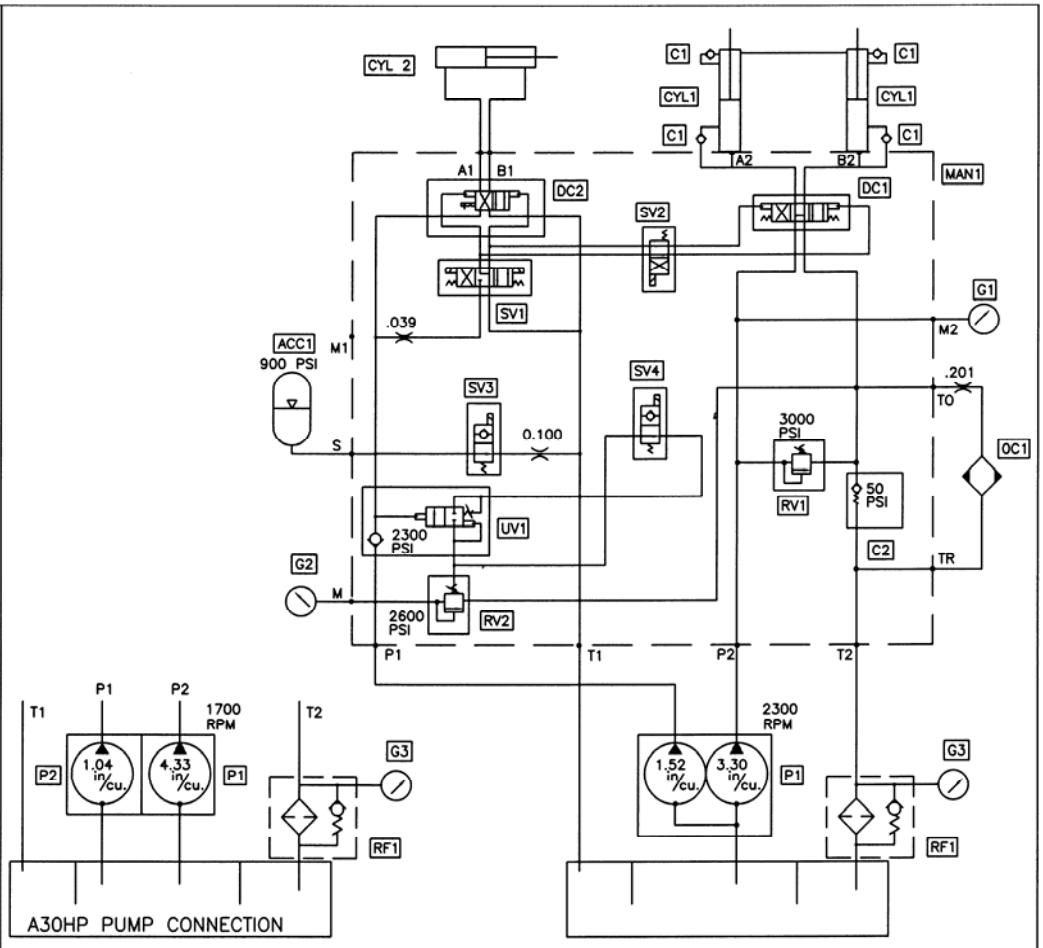
A SERIES HYDRAULIC SCHEMATIC

DATE 4/8/03

REV. C

PART NO. BW10041

REED



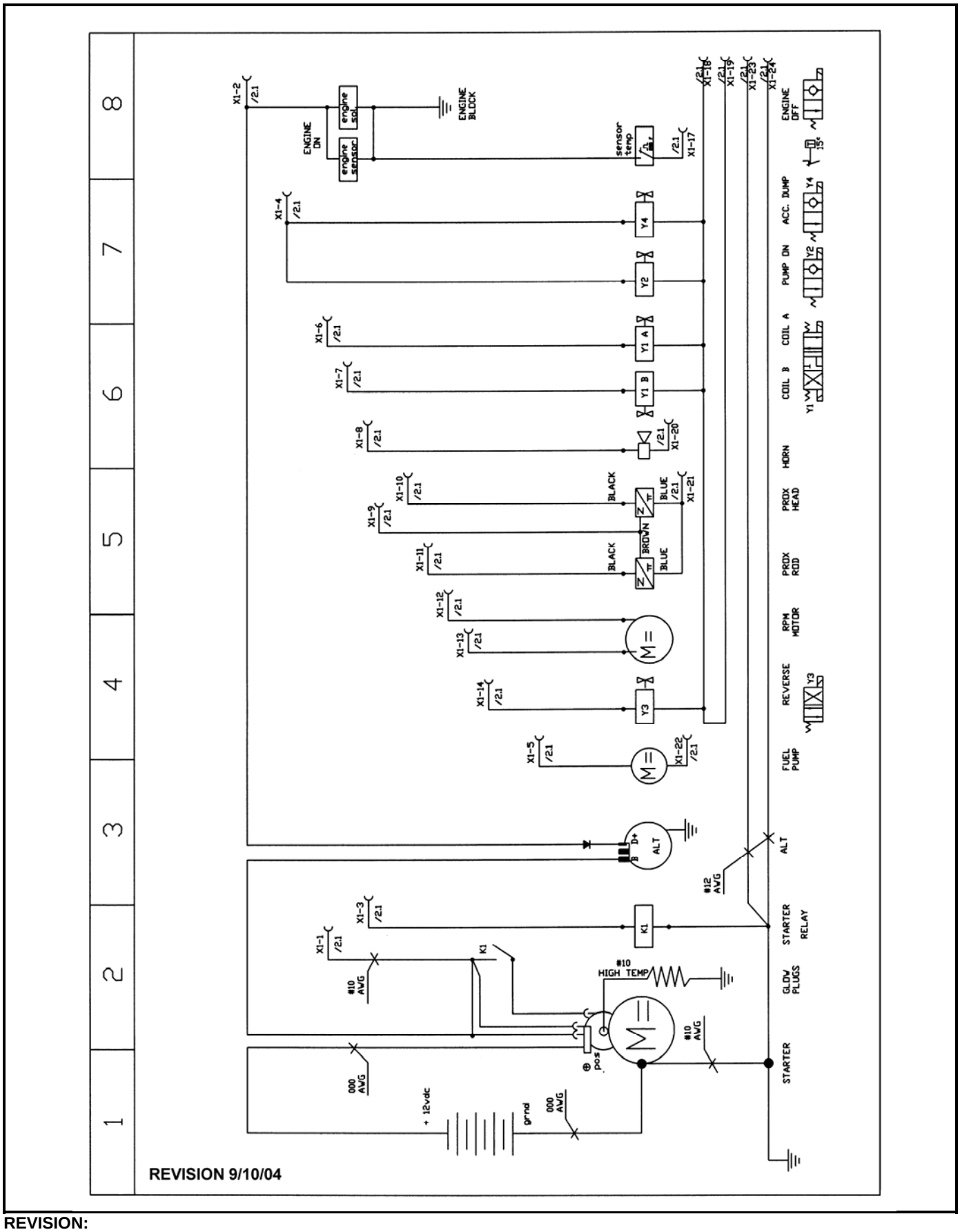
CODE	DESCRIPTION	PART NO.	QTY.
P1	Main Pump, Parts, Group 40		1
P2	Gear Pump, Parts, Group 40		1
CYL1	Hydraulic Drive Cylinder, Parts Group 60		
CYL2	Hydraulic Shift Cylinder, Parts Group 60	BW10125	1
MAN1	Manifold Drive & Swing Cylinder Circuit	BW10325	1
DC1	Directional Cartridge Valve, Main Cycling	BW10181	1
DC2	Directional Cartridge Valve, S Tube Shifting	BW10182	1
SV1	Solenoid Valve Pilot	85691	1
	Coil For SV1	85692	2
SV2	Solenoid Valve Pilot	BW10183	1
SV3/SV4	Solenoid Valve 2 Way	BW10185	2
RV1	Relief Valve Cartrige	BW10326	1
RV2	Relief Valve Cartrige	85703	1
UV1	Unloding Valve Cartrige	85704	1
ACC1	Accumulator	BW10184	1
C1	Check Valve	78961	4
C2	Check Valve	BW10327	1
G1	Pressure Gauge 6000 psi	74562	1
G2	Pressure Gauge 3000 psi	70366	1
G3	Pressure Gauge Return	85575	1
OC1	Oil Cooler		1
RF1	Return Filter	BW10027	1
	Return Filter Element	BW10106	1

REVISION:

SKID MOUNTED PUMP MODEL *A30HP*
ELECTRICAL SCHEMATIC (1 OF 4)

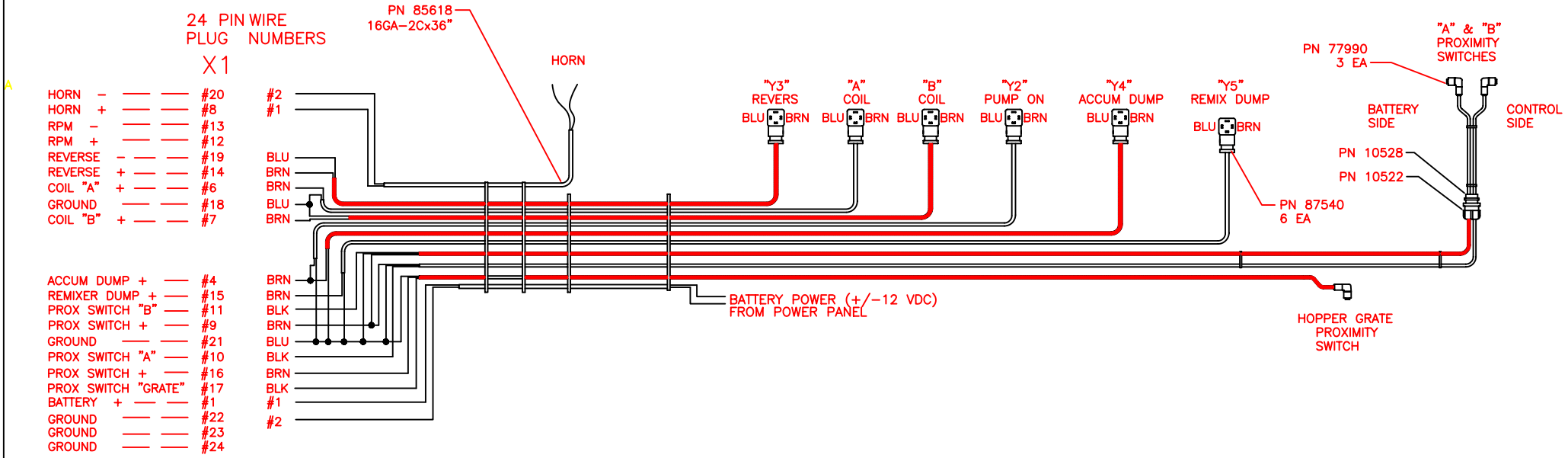
SCMTC

PAGE 02A



REVISION:

DEUSCH CONNECTOR PARTS
PLUG BW10145
BOOT BW10146
PINS BW10147



REV	DATE	DESCRIPTION OF CHANGE	BY

REVISIONS

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

TOLERANCES:
.XX .030
.XXX .010
FRACTION 1/32
ANGLE 1/2°

DRAWN	SK	1/30/08
APPVD		

REED

CONCRETE PLACING EQUIPMENT
CHINO, CA 91710

TITLE
WIRING HARNESS, A SER, ELECTRIC

MATERIAL

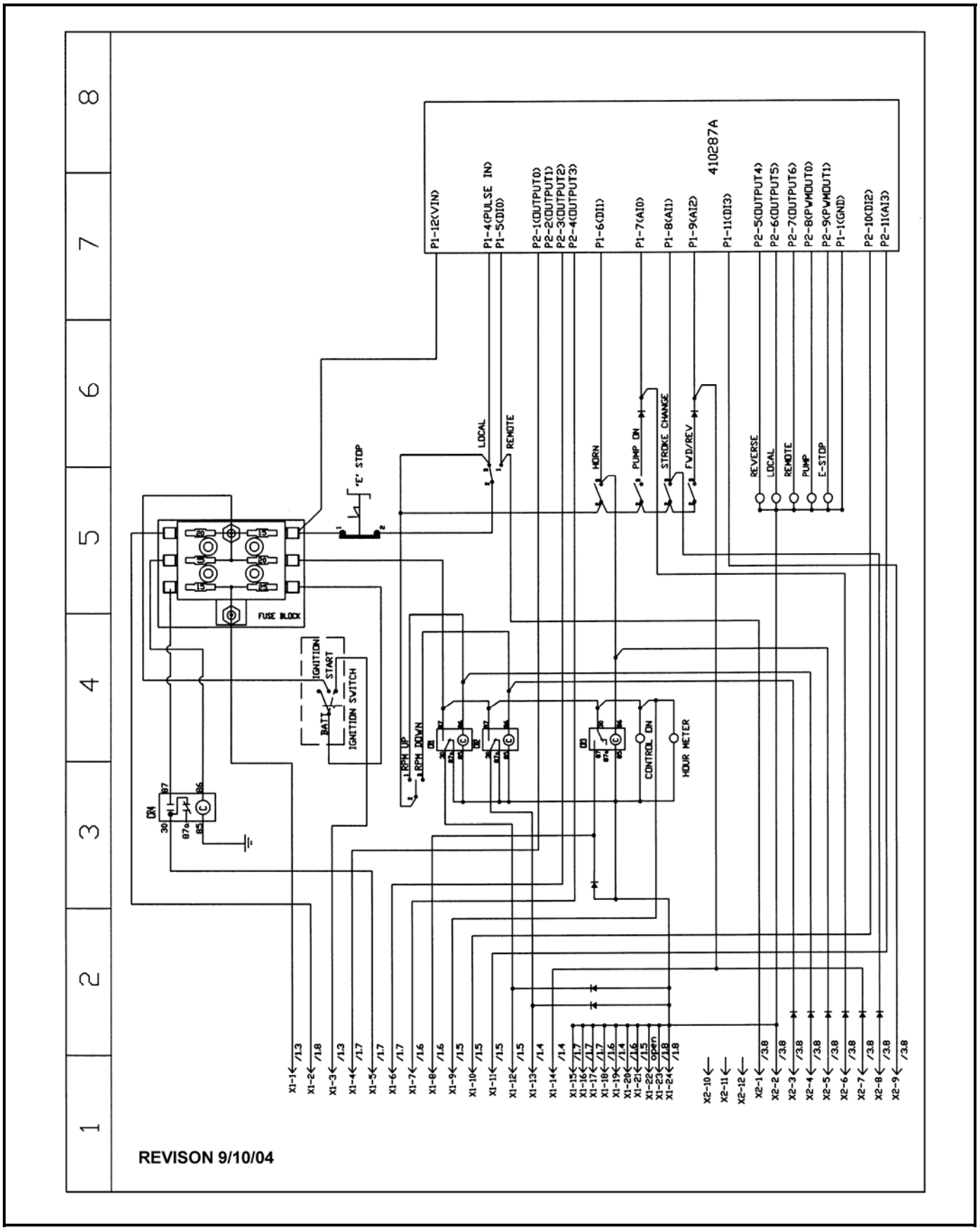
PART NUMBER
BW10445-1

REV

SKID MOUNTED PUMP MODEL *A30HP*
ELECTRICAL SCHEMATIC (2 OF 4)

SCMTC

PAGE 02B

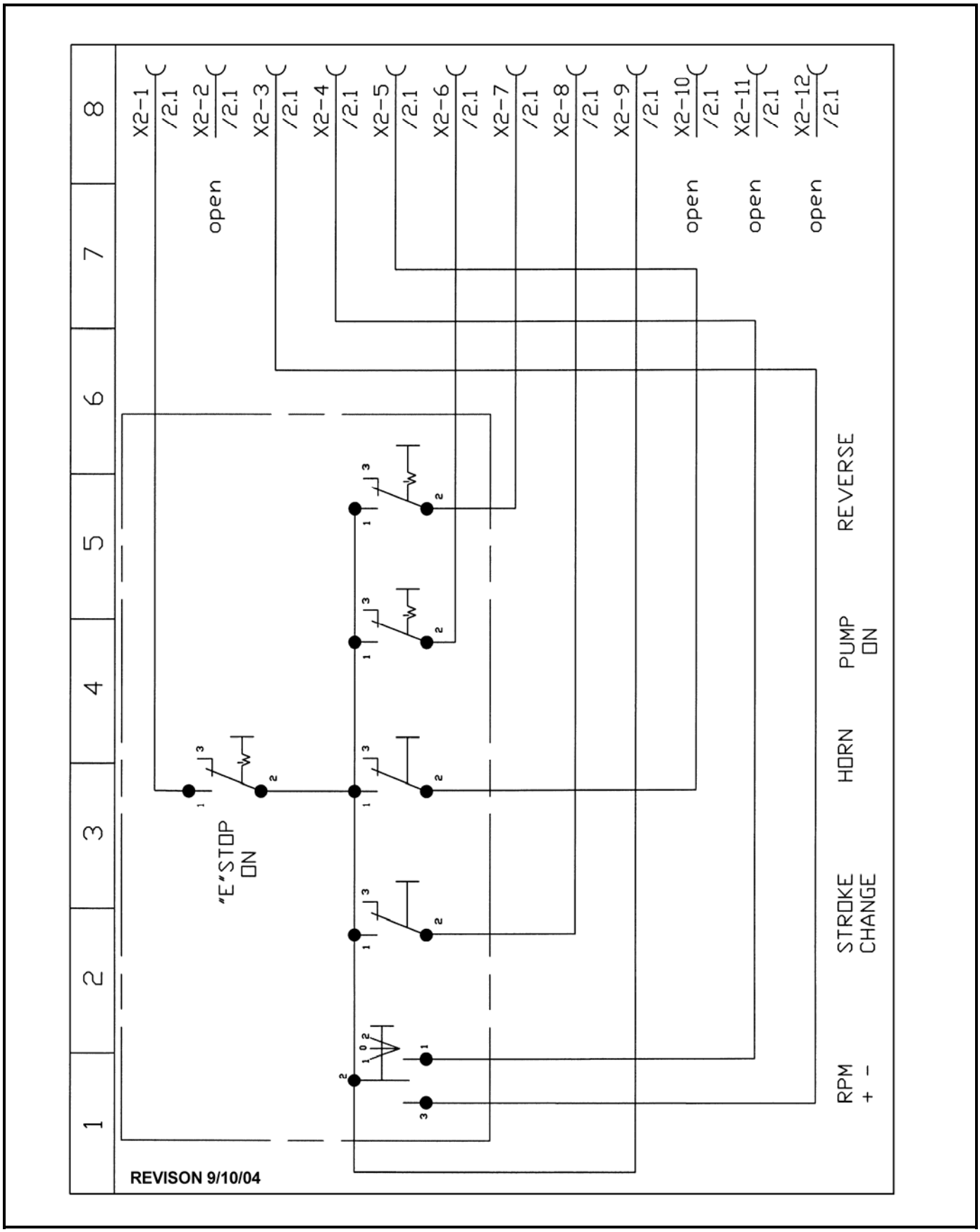


REVISION:

SKID MOUNTED PUMP MODEL *A30HP*
ELECTRICAL SCHEMATIC (3 OF 4)

SCMTC

PAGE 02C



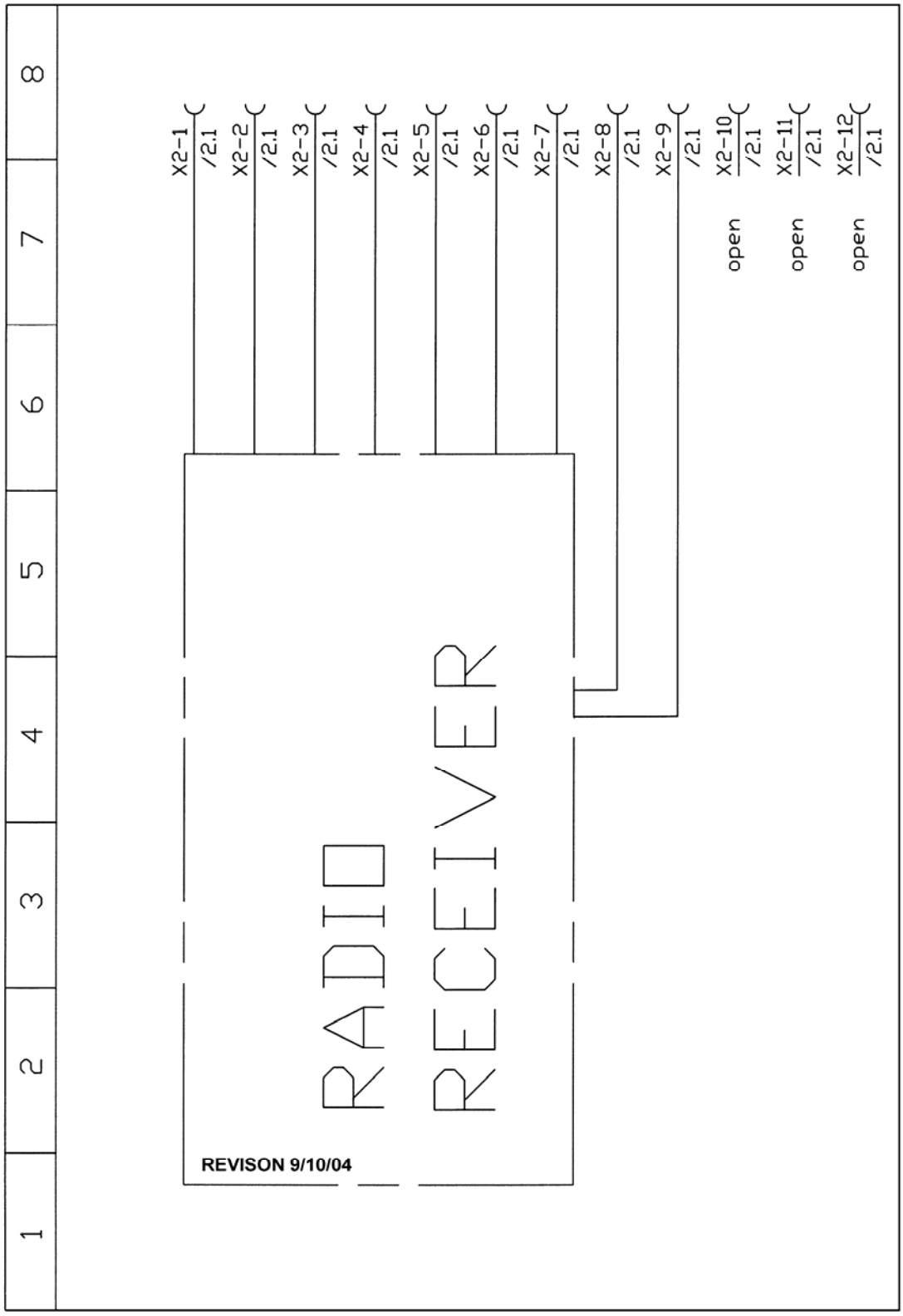
REVISION:

REED

SKID MOUNTED PUMP MODEL *A30HP*
ELECTRICAL SCHEMATIC (4 OF 4)

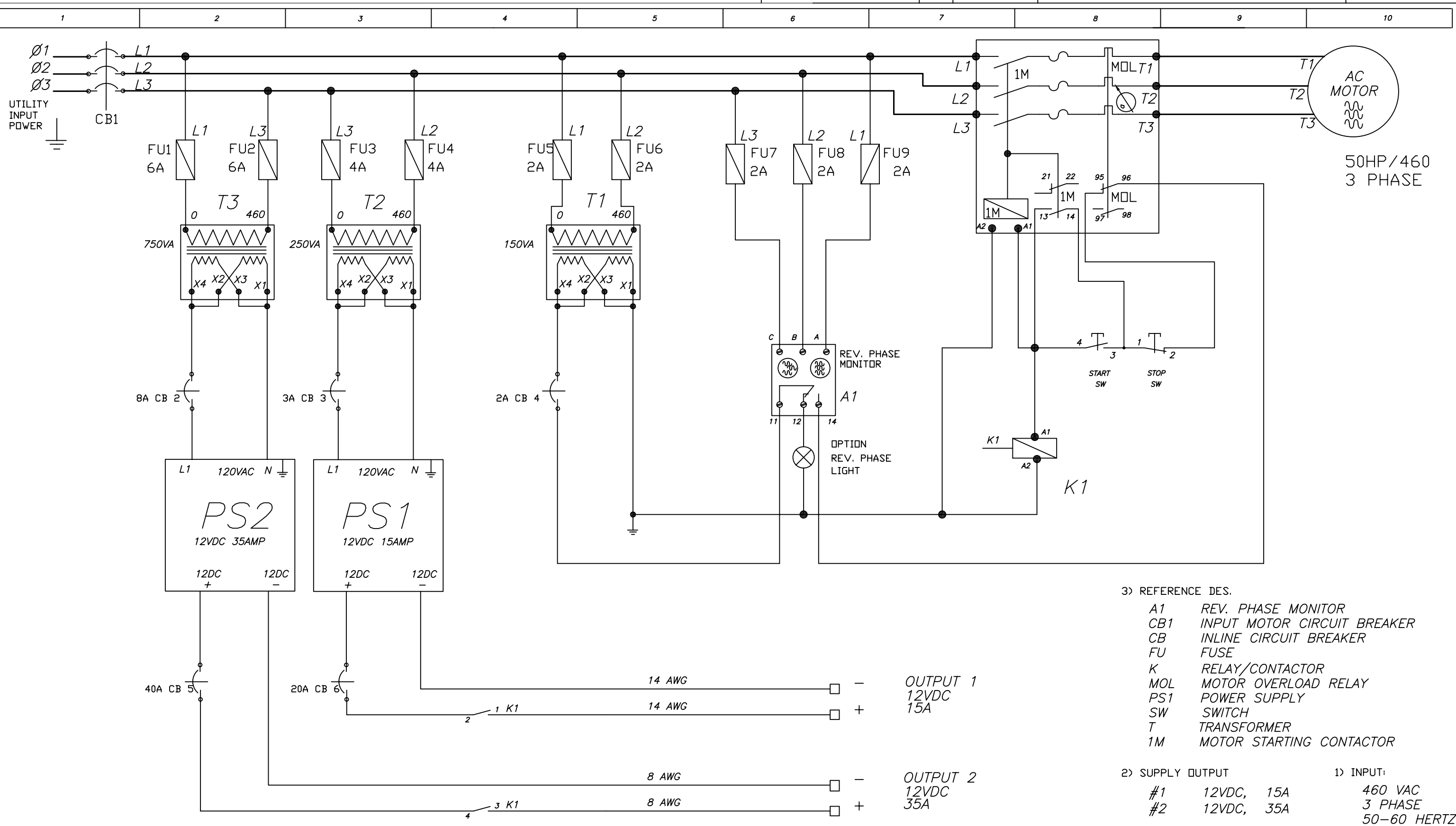
SCMTC

PAGE 02D



REVISION:

REED			TITLE1 TITLE2 TITLE3
DRAWING NO. 85997-8DWG	REV –	DATE 3/5/10	B20E SECTION PAGE



3) REFERENCE DES.

A1	REV. PHASE MONITOR
CB1	INPUT MOTOR CIRCUIT BREAKER
CB	INLINE CIRCUIT BREAKER
FU	FUSE
K	RELAY/CONTACTOR
MOL	MOTOR OVERLOAD RELAY
PS1	POWER SUPPLY
SW	SWITCH
T	TRANSFORMER
1M	MOTOR STARTING CONTACTOR

2) SUPPLY OUTPUT

#1	12VDC,	15A
#2	12VDC,	35A

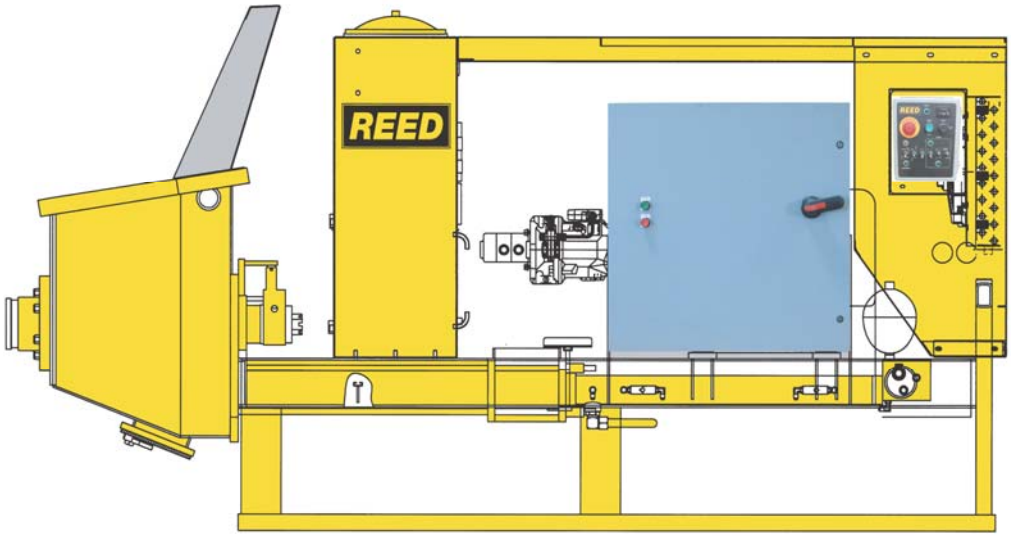
1) INPUT:

460 VAC
3 PHASE
50–60 HERTZ

REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL** CONTAINS THE FOLLOWING GROUPS AND FIGURES:

GROUP 60 PUMPING TRAIN INSTALLATION

GROUP 70 FRAME INSTALLATION



I. PURPOSE

This parts manual is prepared, issued and/or revised by ***REED*** Manufacturing, for the exclusive use of its customers and is intended for use in provisioning, requisitioning, storing and issuing replaceable ***REED*** skid mounted pump model ***A30HP.*** The contents are proprietary to ***REED*** and are subject to change without notice. The use of any part of this document by any other person or persons or for any other purpose without the written consent of ***REED*** is expressly prohibited. In addition, ***REED*** expressly disclaims any and all responsibility arising in or any way related to such ***REED'***s prior written consent thereto.

The parts number content of this document, arrangement and breakdown sequence of items is compatible with Military Standard (**MS**) and Air Transport Association Specification (**ATA**).

II. GENERAL SYSTEM OF ASSEMBLY ORDER – Detailed Parts List (Refer to Next Page)

1. This area refers to the corresponding illustration

MODEL – GROUP – FIGURE – PAGE

A. MODEL shows which is ***REED***'s model number.

B. GROUP should be divided with:

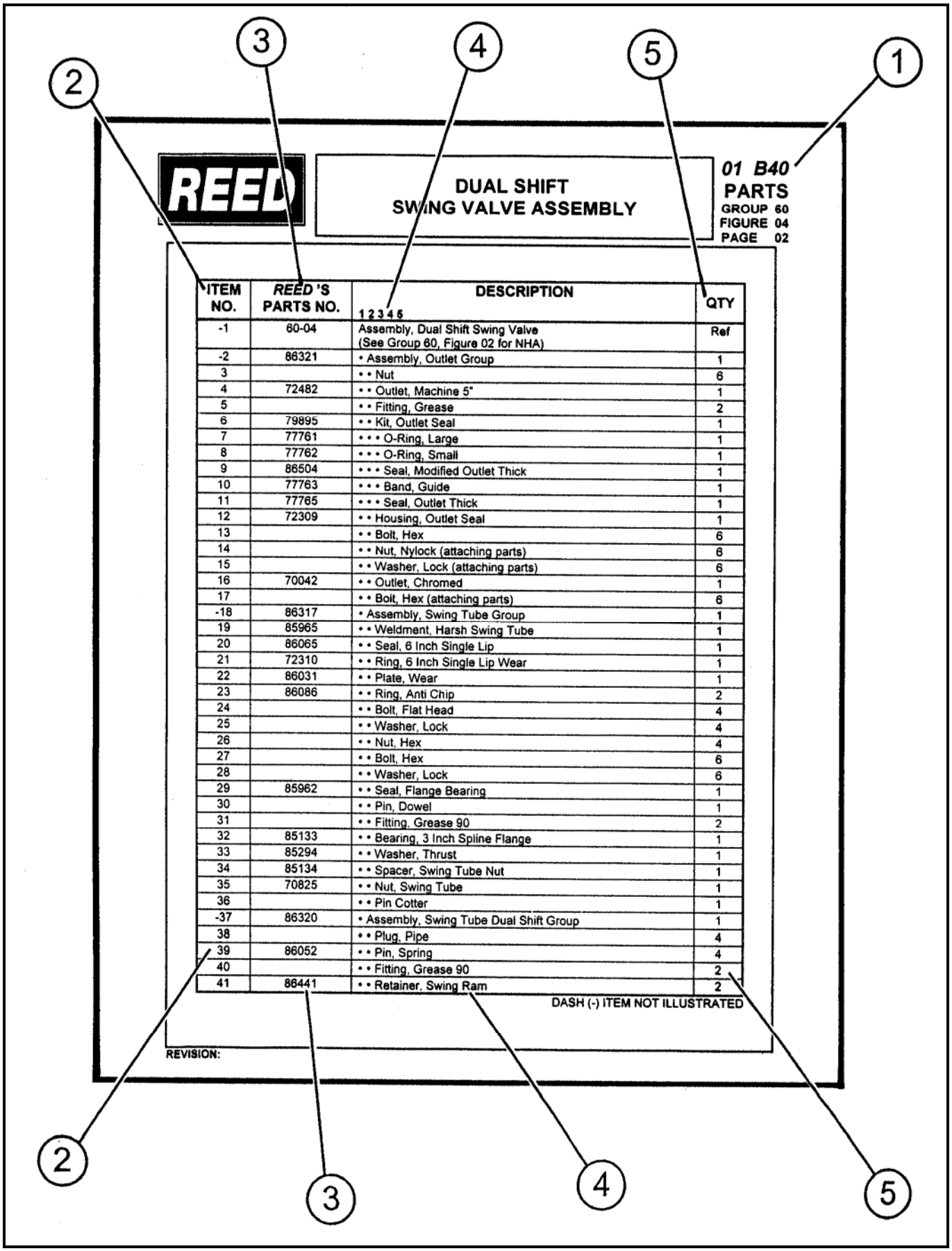
00	***04*** MODEL ***A30HP*** PARTS MANUAL
10	FINAL INSTALLATION
20	HOPPER INSTALLATION
30	TANK INSTALLATION
40	POWER TRAIN INSTALLATION
50	CONTROL INSTALLATION
60	PUMPING TRAIN INSTALLATION
70	FRAME INSTALLATION
80	OPTIONAL INSTALLATION

C. FIGURE belong to the group. Please see page of contents and each group.

D. PAGE numbers follow to the right of each figure number.

2. The **ITEM NUMBER** corresponds to the item number shown for the part in illustration. Parts with item number preceded by a dash (such as: -1, -5, -12 etc.) are not illustrated.

3. PARTS NUMBERS that carry a ***REED*** part number.



ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	60-04	Assembly, Dual Shift Swing Valve (See Group 60, Figure 02 for NHA)	Ref
-2	86321	• Assembly, Outlet Group	1
3		• • Nut	6
4	72482	• • Outlet, Machine 5"	1
5		• • Fitting, Grease	2
6	79895	• • Kit, Outlet Seal	1
7	77761	• • • O-Ring, Large	1
8	77762	• • • O-Ring, Small	1
9	86504	• • • Seal, Modified Outlet Thick	1
10	77763	• • • Band, Guide	1
11	77765	• • • Seal, Outlet Thick	1
12	72309	• • Housing, Outlet Seal	1
13		• • Bolt, Hex	6
14		• • Nut, Nylock (attaching parts)	6
15		• • Washer, Lock (attaching parts)	6
16	70042	• • Outlet, Chromed	1
17		• • Bolt, Hex (attaching parts)	6
-18	86317	• Assembly, Swing Tube Group	1
19	85965	• • Weldment, Harsh Swing Tube	1
20	86065	• • Seal, 6 Inch Single Lip	1
21	72310	• • Ring, 6 Inch Single Lip Wear	1
22	86031	• • Plate, Wear	1
23	86086	• • Ring, Anti Chip	2
24		• • Bolt, Flat Head	4
25		• • Washer, Lock	4
26		• • Nut, Hex	4
27		• • Bolt, Hex	6
28		• • Washer, Lock	6
29	85962	• • Seal, Flange Bearing	1
30		• • Pin, Dowel	1
31		• • Fitting, Grease 90	2
32	85133	• • Bearing, 3 Inch Spline Flange	1
33	85294	• • Washer, Thrust	1
34	85134	• • Spacer, Swing Tube Nut	1
35	70825	• • Nut, Swing Tube	1
36		• • Pin Cotter	1
-37	86320	• Assembly, Swing Tube Dual Shift Group	1
38		• • Plug, Pipe	4
39	86052	• • Pin, Spring	4
40		• • Fitting, Grease 90	2
41	86441	• • Retainer, Swing Ram	2

DASH (-) ITEM NOT ILLUSTRATED

REVISION:

REVISION:

4. DESCRIPTION

A. The **INDENTURE SYSTEM** used in the parts list shows the relationship of one part to another. For a given item, the number of indentures depicts the relationship of the item to the components of the item as follows:

1 2 3 4 5
Assembly (or **I**nstallation)

- **D**etail part of assembly
- **S**ub-assembly
- **A**ttaching parts for sub-assembly
- • **D**etail part of sub-assembly
- • **S**ub-sub-assembly
- • **A**ttaching parts for sub-sub-assembly
- • • **D**etail part of sub-sub-assembly
- • • **S**ub-sub-sub-assembly
- • • **A**ttaching parts of sub-sub-sub-assembly
- • • • **D**etail part of sub-sub-sub-assembly

B. "See Group 60, Figure 02 For **NHA**"
Identifies the illustrated parts chapter location; indicates where the Next Higher Assembly (**NHA**) of the item shown.

C. "See Group 60, Figure 07 For **DET**"
Identifies the illustrated parts chapter location; indicates where the item and its Detailed Breakdown (**DET**) is shown.

D. "See Group 30, Figure 05 for **REF**" or "See Vendor Chapter For **REF**"
Identifies the illustrated parts chapter where the part is, and if listed and illustrated in Vendor Chapter. It is used as a cross-reference (**REF**).

5. QUANTITY

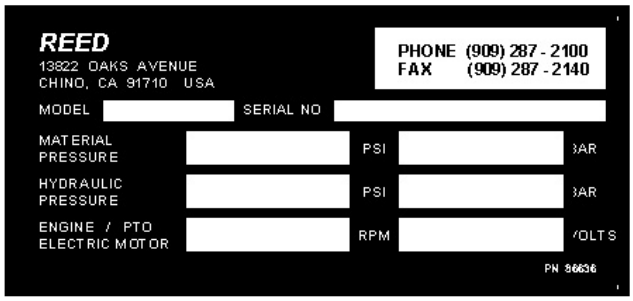
A. Reference (**REF**) indicates the items that is listed previously in the Next Higher Assembly (**NHA**) and then again in this figure.

B. As Required (**A/R**) indicates the parts that is used in a quantity as required.

C. A number entry indicates the quantity of the part used in its next higher application.

6. Functionally related assemblies are illustrated in phantom (—— – – ——) but not listed on the detail parts list page.

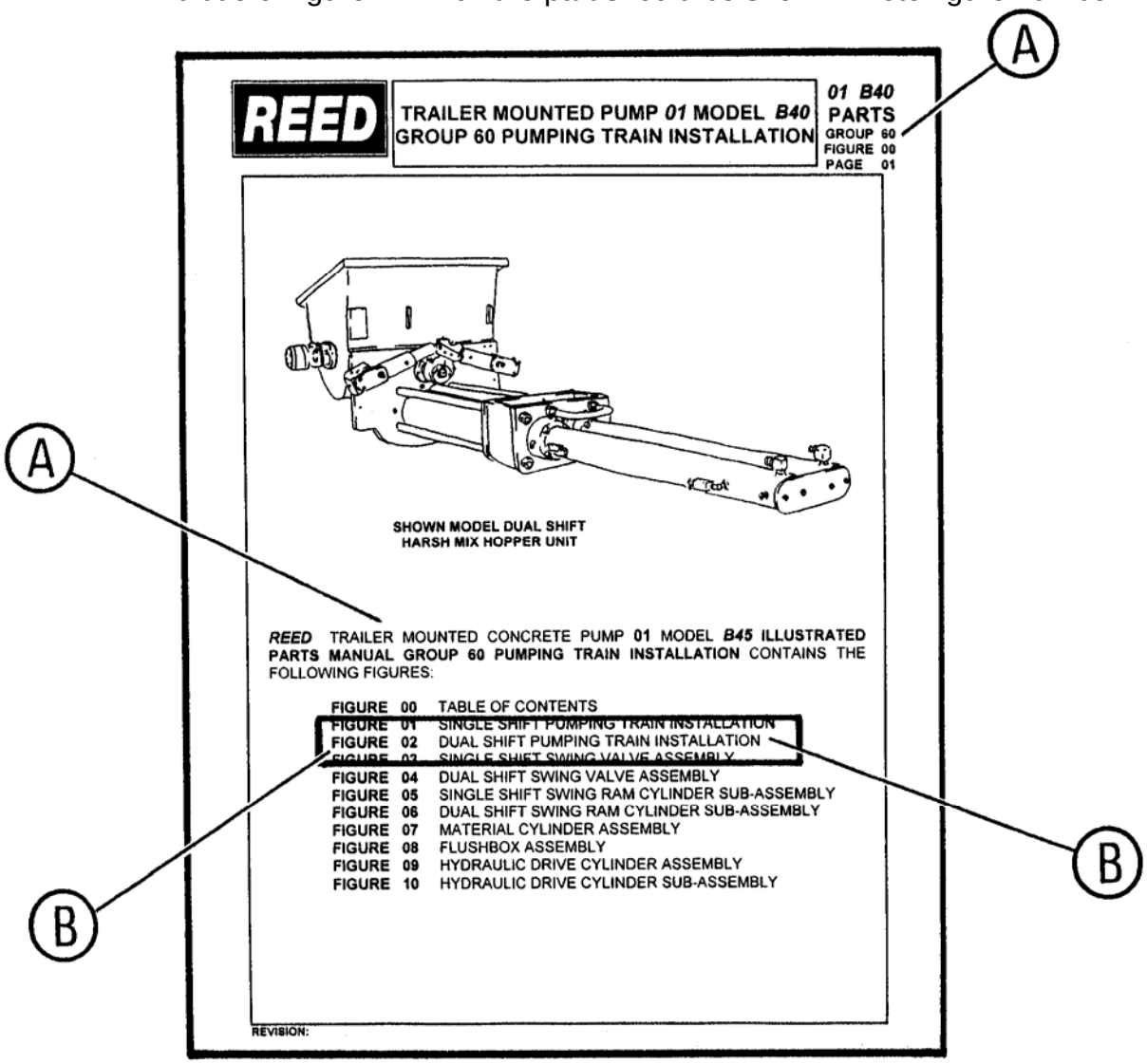
1. Always give serial number and model of ***REED*** skid mounted concrete pump ***01*** Model ***A30HP.*** (Refer to each unit name plate shown below). NOTE: This manual is being released to cover unit starting with serial number **3-08-1-2856** to current production. Some components used on earlier units differ from current productions. Where this occurs, the part is identified by a serial number.

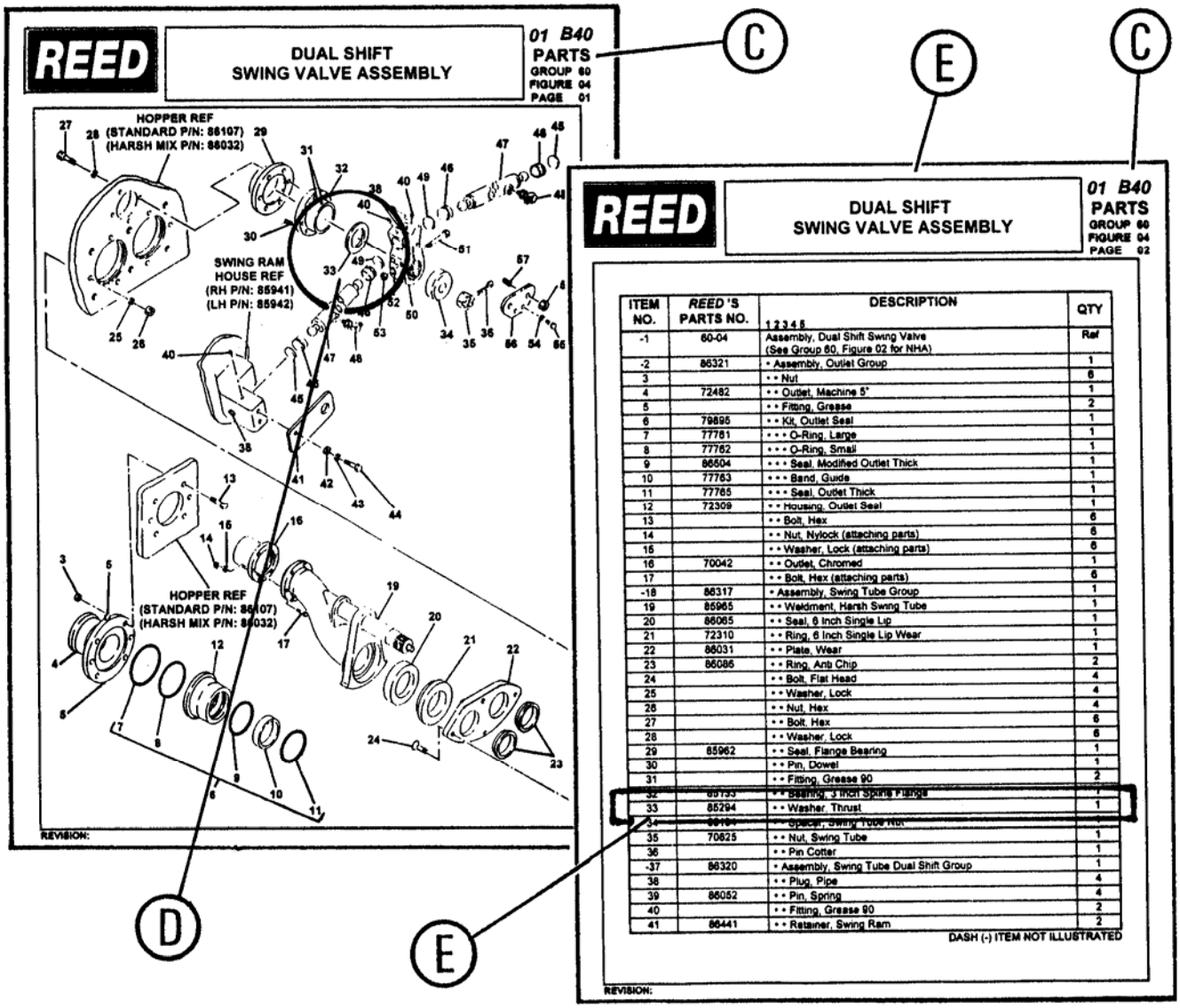


2. Always specify part number and complete name of parts ordered.

A. Turn to table of content in the desired Installation. Refer to main group in which part should be listed.

B. Find title of figure in which the part should be shown. Note figure number.





ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	60-04	Assembly, Dual Shift Swing Valve (See Group 60, Figure 02 for NHA)	Ref
-2	86321	• Assembly, Outlet Group	1
3		• • Nut	6
4	72482	• • Outlet, Machine 5"	1
5		• • Fitting, Grease	2
6	79695	• • Kit, Outlet Seal	1
7	77761	• • • O-Ring, Large	1
8	77762	• • • O-Ring, Small	1
9	86504	• • • Seal, Modified Outlet Thick	1
10	77763	• • • Band, Guide	1
11	77765	• • • Seal, Outlet Thick	1
12	72309	• • Housing, Outlet Seal	1
13		• • Bolt, Hex	6
14		• • Nut, Nylock (attaching parts)	6
15		• • Washer, Lock (attaching parts)	6
16	70042	• • Outlet, Chromed	1
17		• • Bolt, Hex (attaching parts)	6
-18	86317	• Assembly, Swing Tube Group	1
19	85965	• • Weldment, Harsh Swing Tube	1
20	86065	• • Seal, 6 Inch Single Lip	1
21	72310	• • Ring, 6 Inch Single Lip Wear	1
22	86031	• • Plate, Wear	1
23	86086	• • Ring, Anti Chip	2
24		• • Bolt, Flat Head	4
25		• • Washer, Lock	4
26		• • Nut, Hex	4
27		• • Bolt, Hex	6
28		• • Washer, Lock	6
29	85962	• • Seal, Flange Bearing	1
30		• • Pin, Dowel	1
31		• • Fitting, Grease 90	2
32	86133	• • Bearing, 3 Inch Spring Flange	1
33	85294	• • Washer, Thrust	1
34	86134	• • Spacer, Swing Tube Nut	1
35	70825	• • Nut, Swing Tube	1
36		• • Pin Cotter	1
-37	86320	• Assembly, Swing Tube Dual Shift Group	1
38		• • Plug, Pipe	4
39	86052	• • Pin, Spring	4
40		• • Fitting, Grease 90	2
41	86441	• • Retainer, Swing Ram	2

DASH (-) ITEM NOT ILLUSTRATED

C. Turn to corresponding page, find the group and figure.

D. Check your required part and its attaching parts and match with illustration page.

E. Refer to corresponding item number in the part list page.
Part numbers are located in the part number column.

F. When ordering variable or optional miscellaneous parts which are not found this in parts chapter, follow the above outlined procedure of how to order parts.

1). When applicable, give model and serial number of the component for which parts are desired.

2). In a specific, difficult to describe situation, a marked-up photograph or detailed sketch would be helpful.

3. Do not designate quantity by "set". State specifically how many parts are wanted.

4. Always give complete address and full shipping instructions. Specify shipping instructions, truck freight, air freight. United Parcel Service (UPS), or FEDEx and DHL are available in designated areas.

5. TO ORDER

A. BY MAIL

Attention: Parts Department
***REED* LLC**
13822 Oaks Avenue
Chino, CA. 91710

B. BY FAX

(909) 287 - 2141

C. BY PHONE

(909) 287 - 2100

6. Parts return without authorization will not be accepted. If it is necessary to return parts for any reason, written authorization may be obtained from ***REED*** Parts Department, Chino, CA. 91710. A Parts Return Authorization form is provided when ***REED*** deems its necessary to have the part returned for evaluation. The form is issued by the Warranty of Parts Department of ***REED*****.**

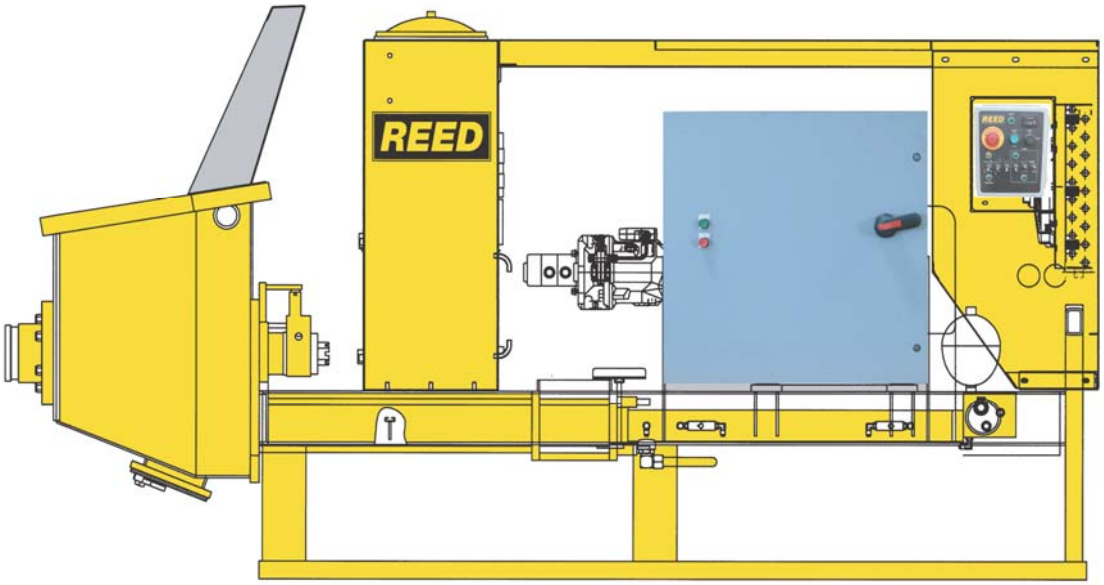
A. The form will be filled by ***REED*** unless requesting necessary information and you will receive a copy as well as shipping tag.

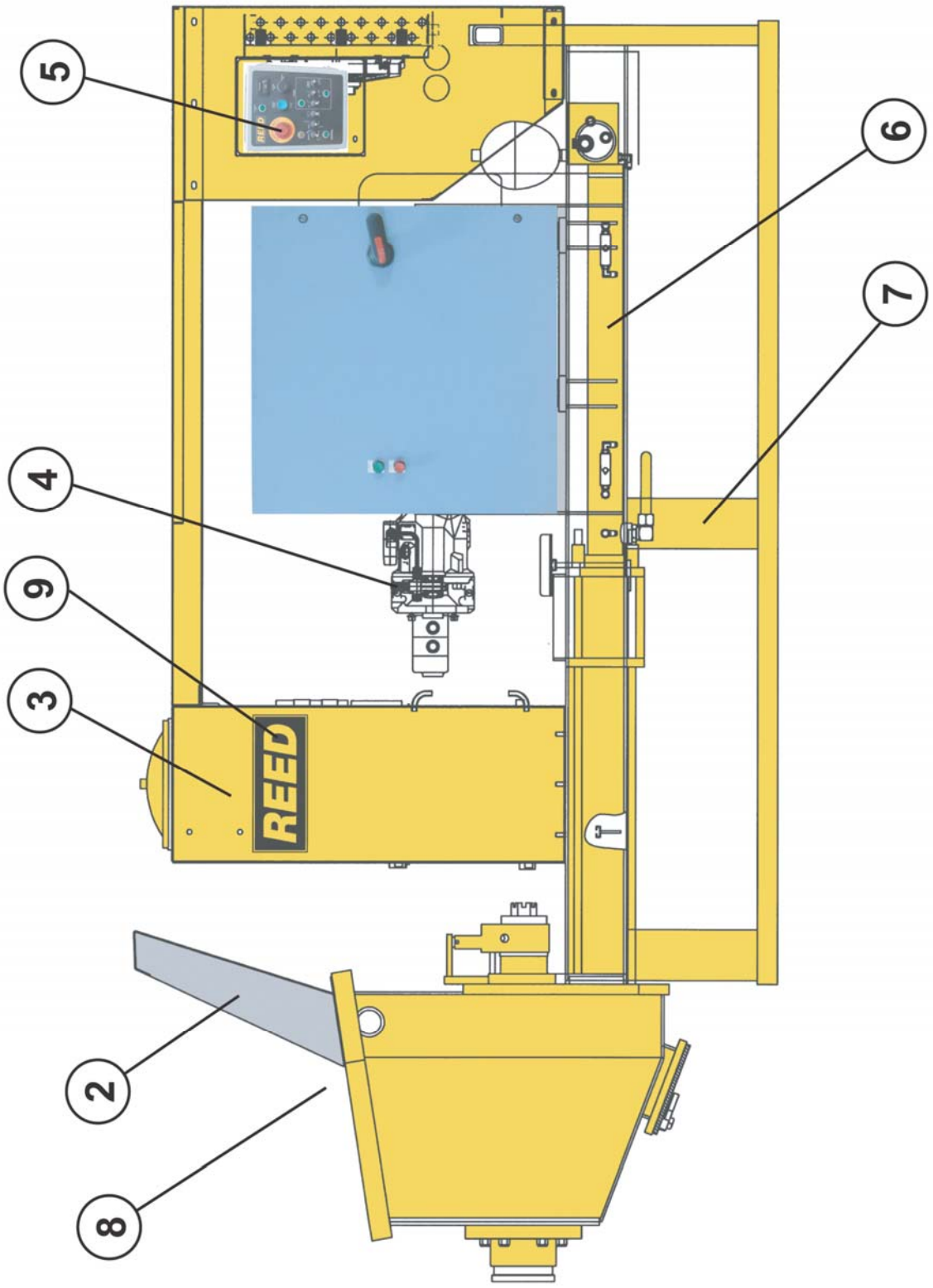
B. Attach shipping tag to part insert return original invoice.

C. Ship part to ***REED*** **PREPAID**.

D. Part must be returned to ***REED*** within 30 days from date of authorization.

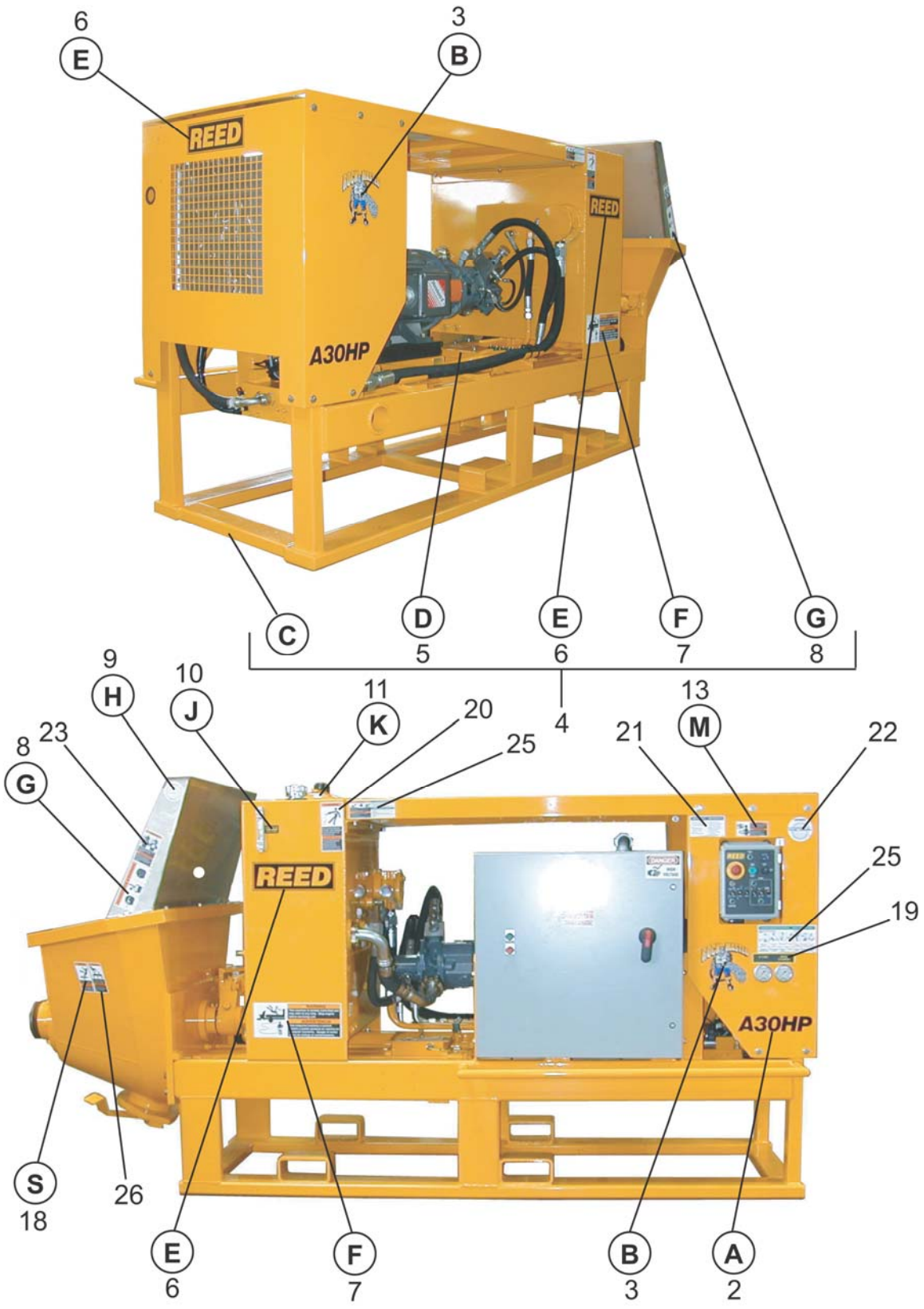
REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL GROUP 10 FINAL INSTALLATION** CONTAINS THE FOLLOWING FIGURES:





REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	***A30HP-SKE-V01***	Installation, ***A30HP*** Final	Ref
2	20-01	• Installation, Hopper (See Group 20, Figure 01 for DET)	1
3	30-01	• Installation, Tank (See Group 30, Figure 01 for DET)	1
4	40-01	• Installation, Power Train (See Group 40, Figure 01 for DET)	1
5	50-01	• Installation, Control (See Group 50, Figure 01 for DET)	1
6	60-01	• Installation, Pumping Train (See Group 60, Figure 01 for DET)	1
7	70-01	• Installation, Frame (See Group 70, Figure 01 for DET)	1
8	80-01	• Installation, Optional (See Group 80, Figure 01 for DET)	1
9	10-02	• Group, ***A30HP*** Decal (See Group 10, Figure 02 for DET)	1


6
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REED
A30HP
REED
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D
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J
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REED
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A30HP
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REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	10-02	Group, ***A30HP*** Decal (See Group 10, Figure 01 for NHA)	Ref
2	BW10275	• Decal, ***A30HP***	2
3	BW10100	• Decal, **ROCKMAN**	2
4	BW10121	• Kit, A-Series Decal	1
5	800916	• • Decal, Warning, Keep Hand Out of Water Box	1
6	BW10128	• • Decal, ***REED*** 4 ¼ X 12 ½ Inch	3
7	800924	• • Decal, Warning, This Machine is Remote Controlled and	2
8	800929A	• • Decal, Warning	2
9	800931	• • Decal, **ACPA** Member	1
10	85844	• • Decal, Oil Level	1
11	75020	• • Decal, Hydraulic Oil	1
12	75017	• • Decal, Diesel Fuel Only	1
13	800925	• • Decal, Warning, Do Not Operate This Machine without	1
14	86636	• • Nameplate, ***REED***, Serial No.	1
15	800921	• • Decal, Warning, Do Not Operate at Pressures Exceeding	1
16	73132	• • Decal, ***REED*** 4 1/2 Inch	1
17	800922	• • Decal, Warning, Before Opening a Blocked Pipeline,	1
18	800918	• • Decal, Warning, Do Not Stand on Hopper Grate	2
19	BW10351	• • Decal, Gauges	1
20	803225	• • Decal, Leaks Hazard	2
21	803226	• • Decal, How to Order	1
22	803229	• • Decal, **CPMA** Member	1
23	803231	• • Decal, Toxic Dust	2
24	803235	• • Decal, 1-7 Operation Signals	1
25	803237	• • Decal, Pressurized Pipes	2
26	800917	• • Decal, Warning, No Hands - Hopper	2
		DASH (-) ITEM NOT ILLUSTRATED	


WARNING
Keep hands out of waterbox.
Stop motor if access is required.
Keep guards in place.
ADVERTENCIA
No meta las manos a la caja de agua.
Pare el motor si necesita tener acceso.
Mantenga las cubiertas cerradas.
Do not paint over this label/No pintar encima de ésta etiqueta
800916

5
D

6
E

REED


WARNING
This machine is remote controlled and may start at any time. Stop engine before servicing unit.
ADVERTENCIA
Esta máquina funciona a control remoto y puede ponerse en marcha en cualquier momento. Apagar el motor antes de realizar el mantenimiento.
800924

7
F

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H
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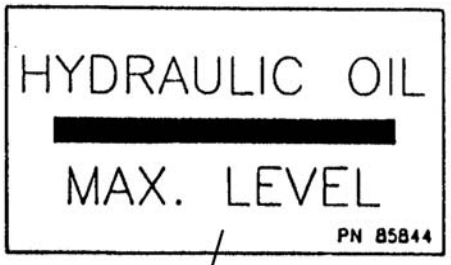
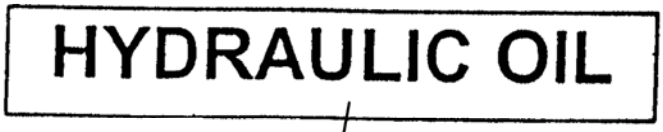
M
13



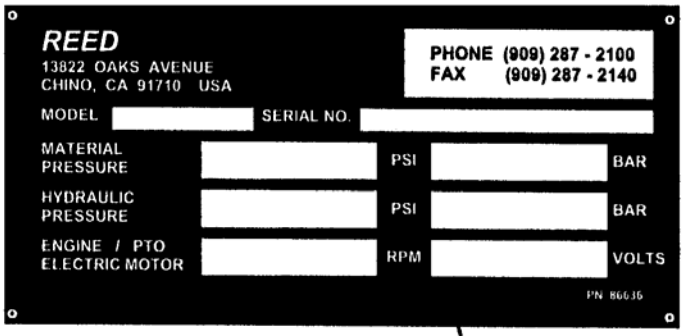
J
10

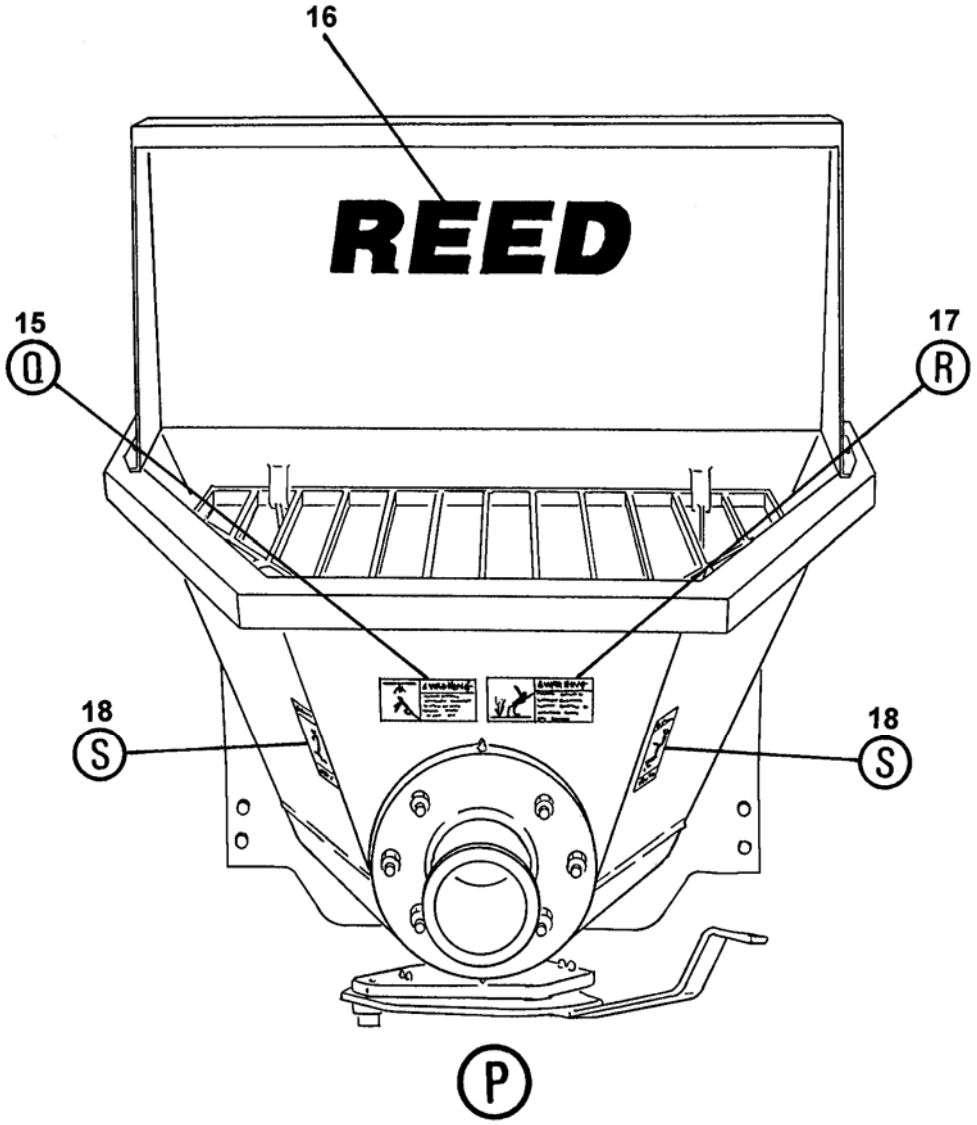
L
12



K
11

REVISION:


REED
13822 OAKS AVENUE
CHINO, CA 91710 USA
PHONE (909) 287 - 2100
FAX (909) 287 - 2140
MODEL
SERIAL NO.
MATERIAL PRESSURE
PSI
BAR
HYDRAULIC PRESSURE
PSI
BAR
ENGINE / PTO ELECTRIC MOTOR
RPM
VOLTS
PN 86636


N
14
16
REED
15
Q
17
R
18
S
18
S
P

REVISION:


WARNING
Do not operate at pressures exceeding the rating of the entire material delivery system.
ADVERTENCIA
No utilizar a presiones que excedan la presión nominal de todo el material de la linea de entrega.
Do not paint over this label/No pintar encima de ésta etiqueta
800921

Q
15


WARNING
Before opening a blocked pipeline, relieve pressure by reversing pump. See manual.
ADVERTENCIA
Alivie la presión antes de destapar una tubería bloqueada, invirtiendo para ello la bomba. Vea el manual.
Do not paint over this label/No pintar encima de ésta etiqueta
800922

R
17

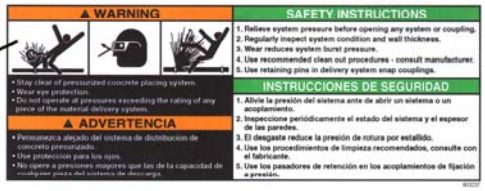

WARNING
Stay off hopper grates.
ADVERTENCIA
Manténgase alejado de la rejilla que cubren la tolva.
800918

S
18


S–TUBE
DRIVE CYLINDER
19


⚠ WARNING
Do not touch hydraulic oil leaks. Get immediate medical attention if oil penetrates skin.
⚠ ADVERTENCIA
No toque las fugas de aceite hidráulico. Obtenga atención médica inmediata si el aceite penetra en la piel.
20


INSTRUCCIONES DE SEGURIDAD SAFETY INSTRUCTIONS
1. START PUMP SPEED UP
2. SLOW PUMP DOWN
3. STOP PUMP
4. LITTLE BIT
5. RELIEVE PRESSURE
6. ADD WATER 4-GALLONS
7. ALL DONE CLEAN UP
1. PRENDER LA BOMBA ACELERAR
2. BAJAR VELOCIDAD A LA BOMBA
3. PARAR LA BOMBA
4. UN POCO
5. ALIVIAR LA PRESIÓ
6. AÑADIR AGUA 4-GALONES
7. TERMINADO LIMPIAR
24


⚠ WARNING
SAFETY INSTRUCTIONS
1. Relieve system pressure before opening any system or coupling.
2. Regularly inspect system condition and wall thickness.
3. Wear reduces system burst pressure.
4. Use recommended clean out procedures - consult manufacturer.
5. Use retaining pins in delivery system snap couplings.
⚠ ADVERTENCIA
INSTRUCCIONES DE SEGURIDAD
1. Alivie la presión del sistema ante de abrir un sistema o un acoplamiento.
2. Inspeccione periódicamente el estado del sistema y el espesor de las paredes.
3. El desgaste reduce la presión de rotura por estallido.
4. Use los procedimientos de limpieza recomendados, consulte con el fabricante.
5. Use los pasadores de retención en los acoplamientos de fijación a presión.
25

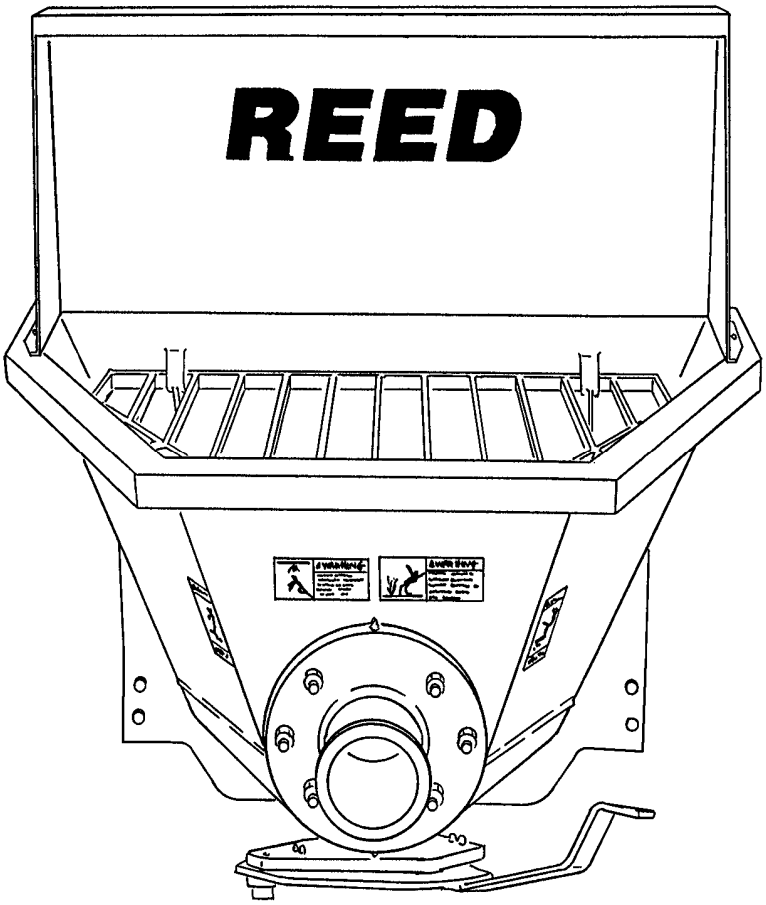

IMPORTANT
You can order additional operation manuals, spare parts books, safety manuals and decal sets by contacting us at:
REED Manufacturing
1-(888)-779-7333
7:00 AM to 5:00 PM
Pacific Time
Monday through Friday
IMPORTANTE
Usted puede solicitar manuales de operacion, catalogos de refacciones, manuales de seguridad y juegos de calcomanias adicionales contactando a:
REED Manufacturing
1-(888)-779-7333
DE 7:00 AM a 5:00 PM
Hora Central
21

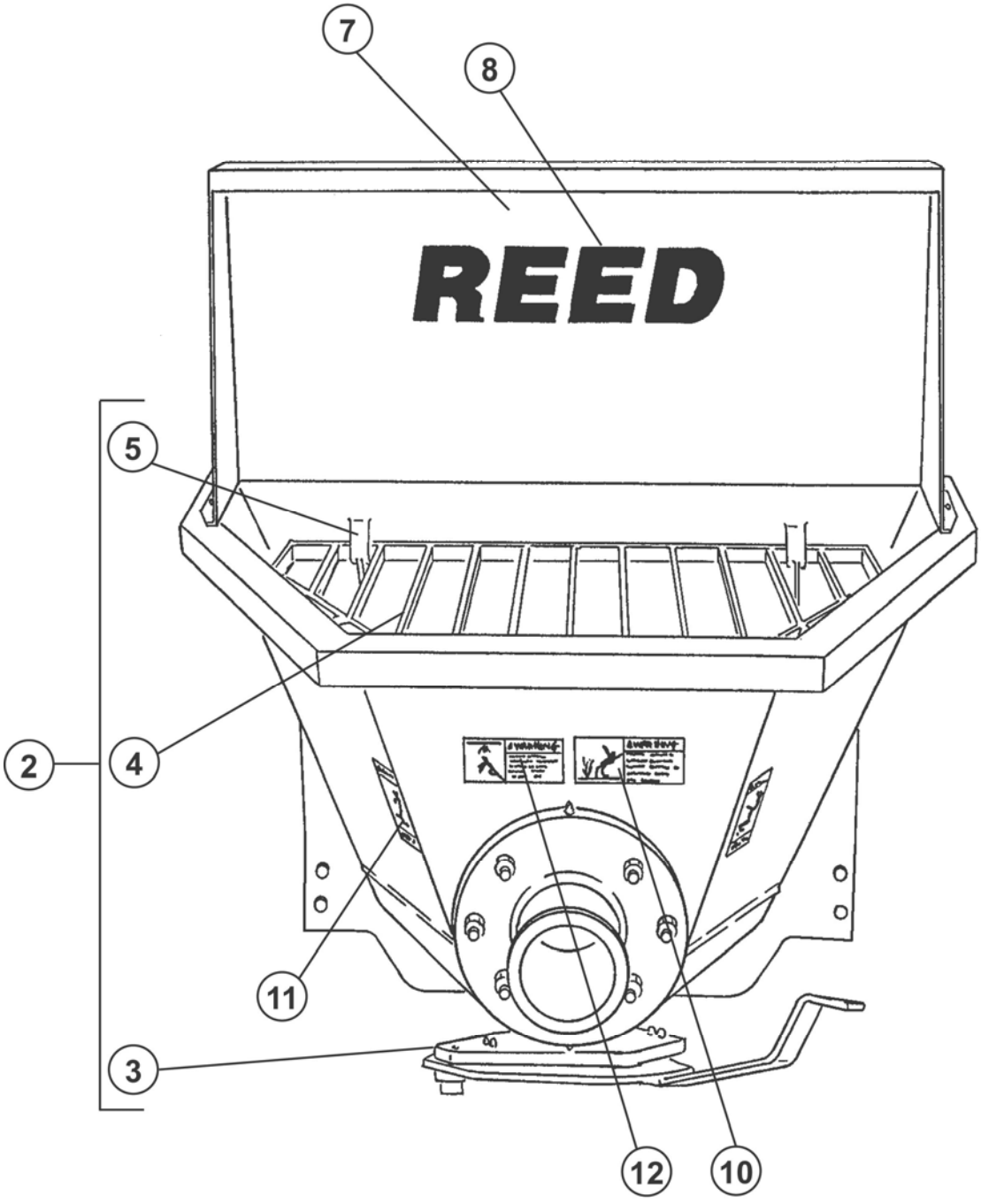

⚠ WARNING
Keep hands out of hopper and valve assembly. See operation manual if access is required.
⚠ ADVERTENCIA
No meta las manos a la tolva o válvula. Consulte el manual de operación si necesita tener acceso.
26


MEMBER
Concrete Pump
CPMA
Manufacturers Association
22


⚠ WARNING
OK
Cement dust is toxic. Use lung protection when exposed.
⚠ ADVERTENCIA
El polvo de cemento es tóxico. Use protección para los pulmones cuando se exponga.
23

REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL GROUP 20 HOPPER INSTALLATION** CONTAINS THE FOLLOWING FIGURES:

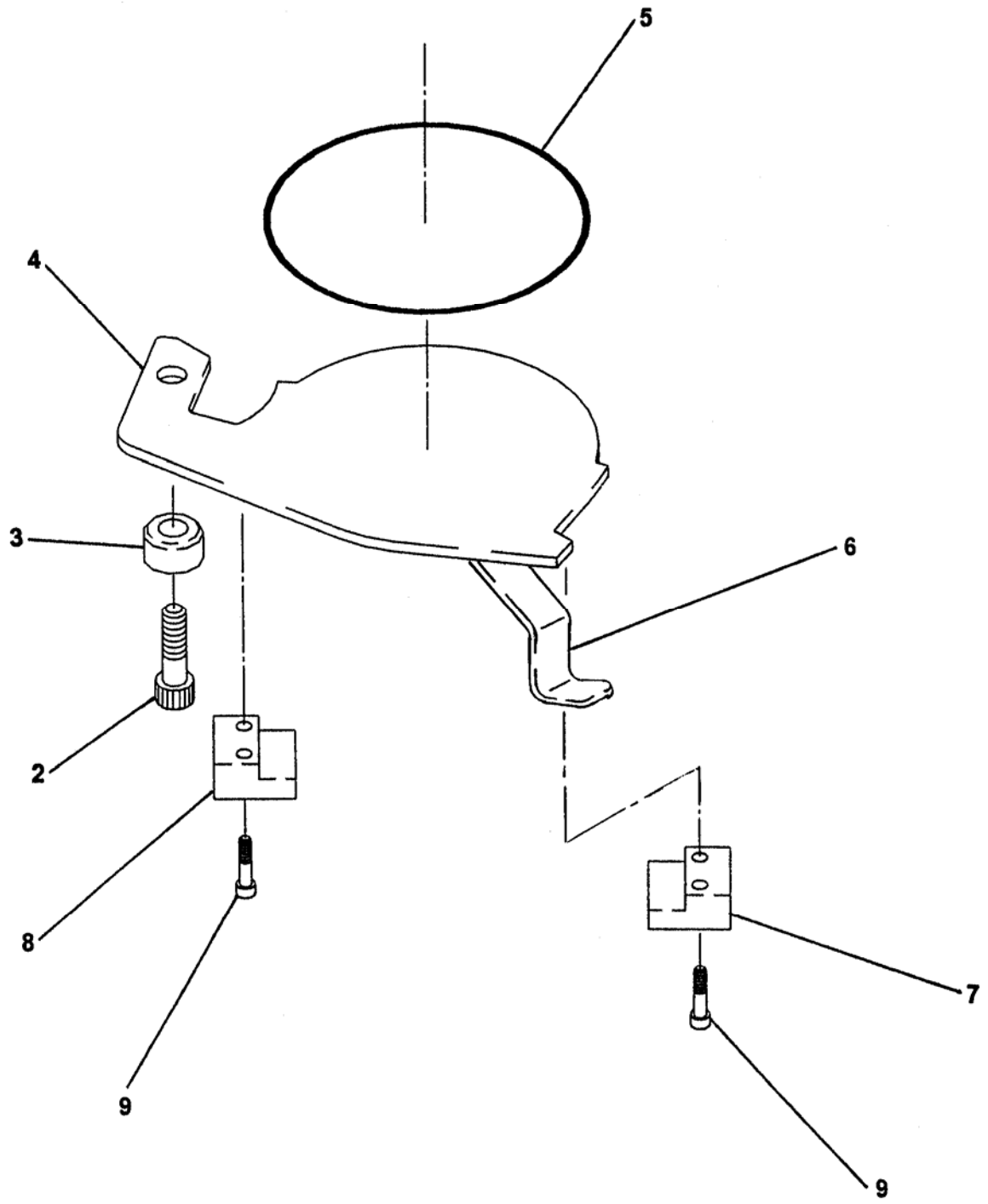




REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20-01	Installation, Hopper (See Group 10, Figure 01 for NHA)	Ref
2	BW10015	• Assembly, Hopper	1
3	86542	• • Assembly, Clean Out Door (See Group 20, Figure 02 for DET)	1
4	BW10042	• • Grate, Hopper	1
5	72679	• • Hinge, Grate	
6	800929A	• Decal, Warning	2
7	85714	• Guard, Splash	1
8	73132	• Decal, ***REED*** 4 ½ Inch	1
9	800931	• Decal, **ACPA** Member	1
10	800922	• Decal, Warning, Before Opening a Blocked Pipeline,	1
11	800917	• Decal, Warning, Keep Hand Out of Hopper and Valve	2

HOPPER CLEAN OUT DOOR ASSEMBLY



REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	86542	Assembly, Rounded Clean Out Door (See Group 20, Figure 01 for NHA)	Ref
2		• Bolt, Shoulder	1
3	85367	• Boss, Clean Out Door	1
4	85370	• Door, Clean Out	1
5	W-102908A	• Cord, Hopper Door O-Ring 2.21 FT	1
6	86541	• Handle, Clean Out Door	1
7	86560	• Block, RH Clean Out Door	1
8	86559	• Block, LH Clean Out Door	1
9		• Screw, Socket Head Cap	4
-10	85312	• Plate, Seal	1
-11	85371	• Neck, Clean Out Door	1

DASH (-) ITEM NOT ILLUSTRATED

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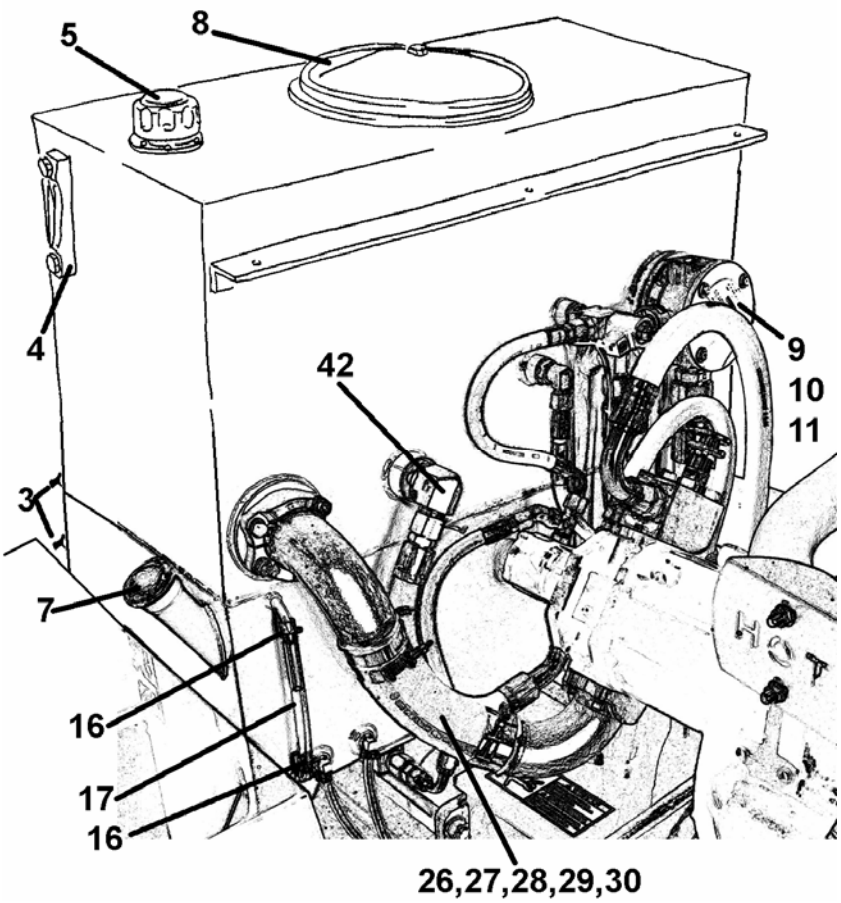
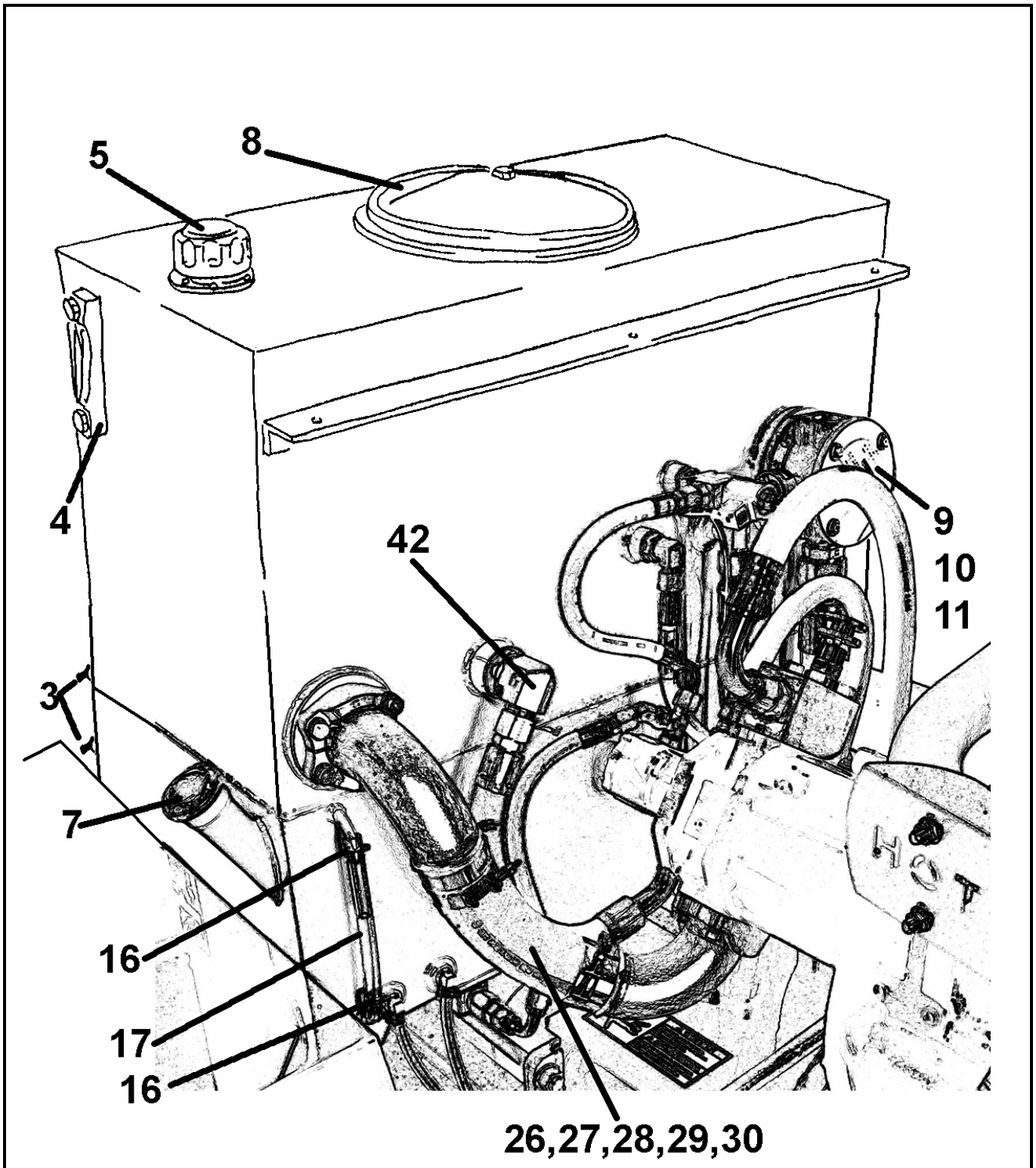
REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL GROUP 30 HYDRAULIC TANK INSTALLATION** CONTAINS THE FOLLOWING FIGURES:

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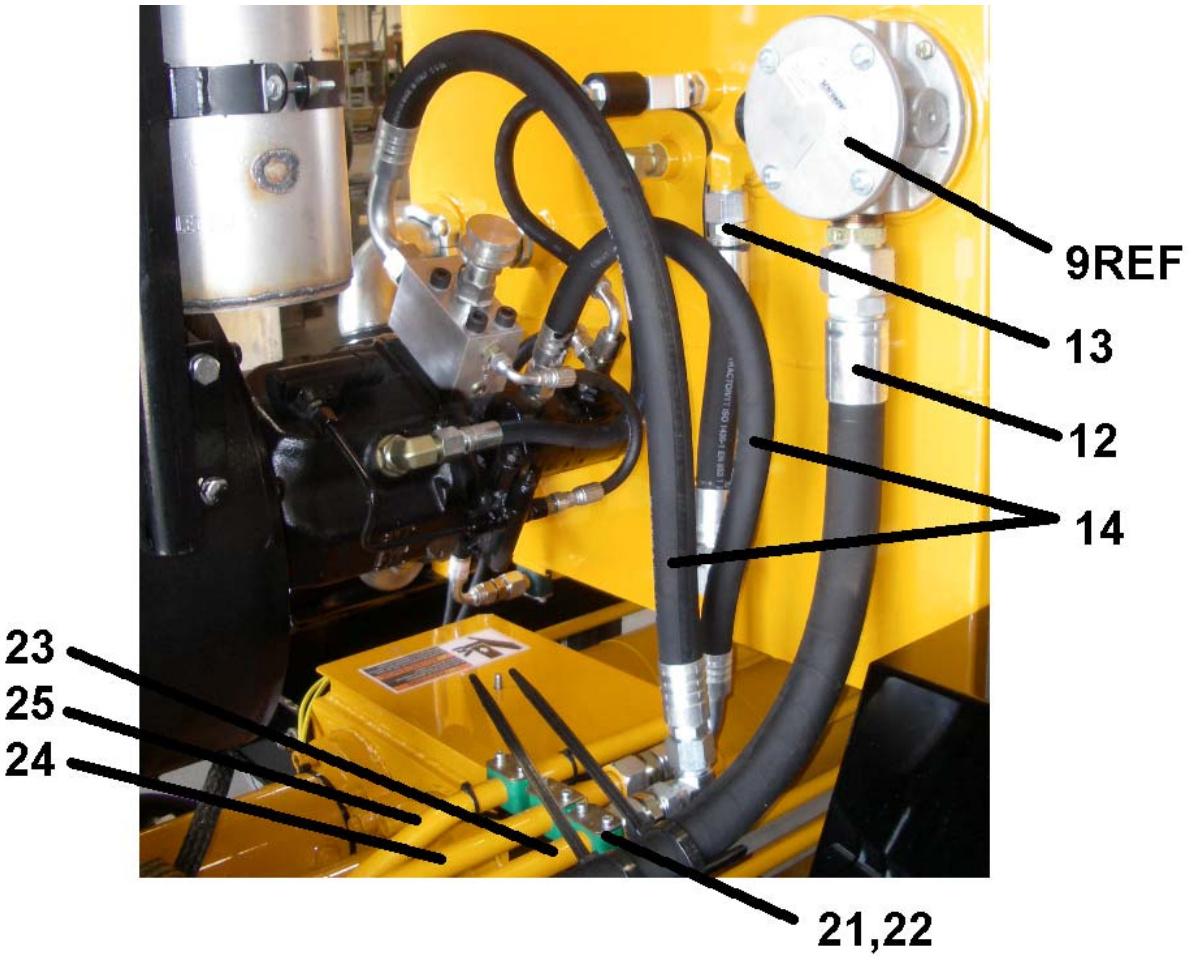
26,27,28,29,30

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW43010	Hydraulic/Fuel Group (See Group 10, Figure 01 for NHA)	Ref
-2	BW10117	• Assembly, A-Series Hydraulic / Fuel Tank	1
3	801025	• • Cock, ¼ Drain	2
4	74509	• • Gauge, Sight and Temperature	1
5	74508	• • Breather, Filler with Cap	1
6	BW10014	• • Weldment, A-Series Hydraulic / Fuel Tank	1
7	BW10256	• • • Cap, Filler	1
8	BW10171	• • • Kit, 12 Inch End Cover	1
9	BW10027	• • Filter, Return	1
10	BW10106	• • • Element, Filter	1
11		• • • Gauge, Filter	1
12	BW10162	• Assembly, Hydraulic Hose	1
13	BW10046	• Assembly, Return Line Hydraulic Hose	1
14	BW10047	• Assembly, Main Pump Hydraulic Hose	2
15	BW10051	• Assembly, Hydraulic Hose	2
16	802289	• Clamp, Worm	2
17	801978	• Tubing, Clear PVC	1
18	BW10049	• Assembly, Swing Cylinder Hydraulic Hose	2
19	BW10154	• Assembly, Swing Cylinder Hydraulic Tube	2
20	801902-006	• Clamp, Tube	4
21	801902-001	• Nut, Tube Clamp Tee	10
22	801902-007	• Clamp, Tube	6
23	BW10150	• Assembly, Main Pump Pressure Hydraulic Tube	1
24	BW10403	• Assembly, Main Pump Pressure Hydraulic Tube	1
25	BW10153	• Assembly, Return Line Hydraulic Tube	1
26	86264-005	• Split Flange	1
27	86264-006	• Split Flange	1
28	85661-001	• Hose-No Ends	1
29	87145	• Clamp T-Bolt	4
30	86911-009	• Stem, 2 ½"	2
-31	85659-014	• Assembly, Hydraulic Hose	1
-32	85664-008	• Assembly, Hydraulic Hose	1
-33	85657-001	• Assembly, Hydraulic Hose	1
-34	85667-004	• Assembly, Hydraulic Hose	1
-35	BW10405	• Assembly, Hydraulic Hose	1
-36	87415-001	• Union Male JIC MJ-MJ16-12	1
-37	87415-002	• Union Male JIC MJ-MJ16-16	1
-38	BW10229	• Conical Seal Size-12	4
-39	BW10230	• Conical Seal Size-16	6
-40	10282	• Plug, Pipe-1"	2
-41	801937	• Plug, Flange 2" Code 61	1
-42	86728-032	• Elbow, MB-MJ90-24-16	1
		DASH (-) ITEM NOT ILLUSTRATED	


9REF
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ITEM NO.	REED'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW43010	Hydraulic/Fuel Group (See Group 10, Figure 01 for NHA)	Ref
-2	BW10117	• Assembly, A-Series Hydraulic / Fuel Tank	1
3	801025	• • Cock, ¼ Drain	2
4	74509	• • Gauge, Sight and Temperature	1
5	74508	• • Breather, Filler with Cap	1
6	BW10014	• • Weldment, A-Series Hydraulic / Fuel Tank	1
7	BW10256	• • • Cap, Filler	1
8	BW10171	• • • Kit, 12 Inch End Cover	1
9	BW10027	RETURN FILTER, HOUSING/ELEMENT/GAUGE	1
10	BW10106	• • • Element, Filter	1
11		• • • Gauge, Filter	1
12	BW10162	• Assembly, Hydraulic Hose	1
13	BW10046	• Assembly, Return Line Hydraulic Hose	1
14	BW10047	• Assembly, Main Pump Hydraulic Hose	2
15	BW10051	• Assembly, Hydraulic Hose	2
16	802289	• Clamp, Worm	2
17	801978	• Tubing, Clear PVC	1
18	BW10049	• Assembly, Swing Cylinder Hydraulic Hose	2
19	BW10154	• Assembly, Swing Cylinder Hydraulic Tube	2
20	801902-006	• Clamp, Tube	4
21	801902-001	• Nut, Tube Clamp Tee	10
22	801902-007	• Clamp, Tube	6
23	BW10150	• Assembly, Main Pump Pressure Hydraulic Tube	1
24	BW10403	• Assembly, Main Pump Pressure Hydraulic Tube	1
25	BW10153	• Assembly, Return Line Hydraulic Tube	1
26	86264-005	• Split Flange	1
27	86264-006	• Split Flange	1
28	85661-001	• Hose-No Ends	1
29	87145	• Clamp T-Bolt	4
30	86911-009	• Stem, 2 ½"	2
-31	85659-014	• Assembly, Hydraulic Hose	1
-32	85664-008	• Assembly, Hydraulic Hose	1
-33	85657-001	• Assembly, Hydraulic Hose	1
-34	85667-004	• Assembly, Hydraulic Hose	1
-35	BW10405	• Assembly, Hydraulic Hose	1
-36	87415-001	• Union Male JIC MJ-MJ16-12	1
-37	87415-002	• Union Male JIC MJ-MJ16-16	1
-38	BW10229	• Conical Seal Size-12	4
-39	BW10230	• Conical Seal Size-16	6
-40	10282	• Plug, Pipe-1"	2
-41	801937	• Plug, Flange 2" Code 61	1
-42	86728-032	• Elbow, MB-MJ90-24-16	1
		DASH (-) ITEM NOT ILLUSTRATED	

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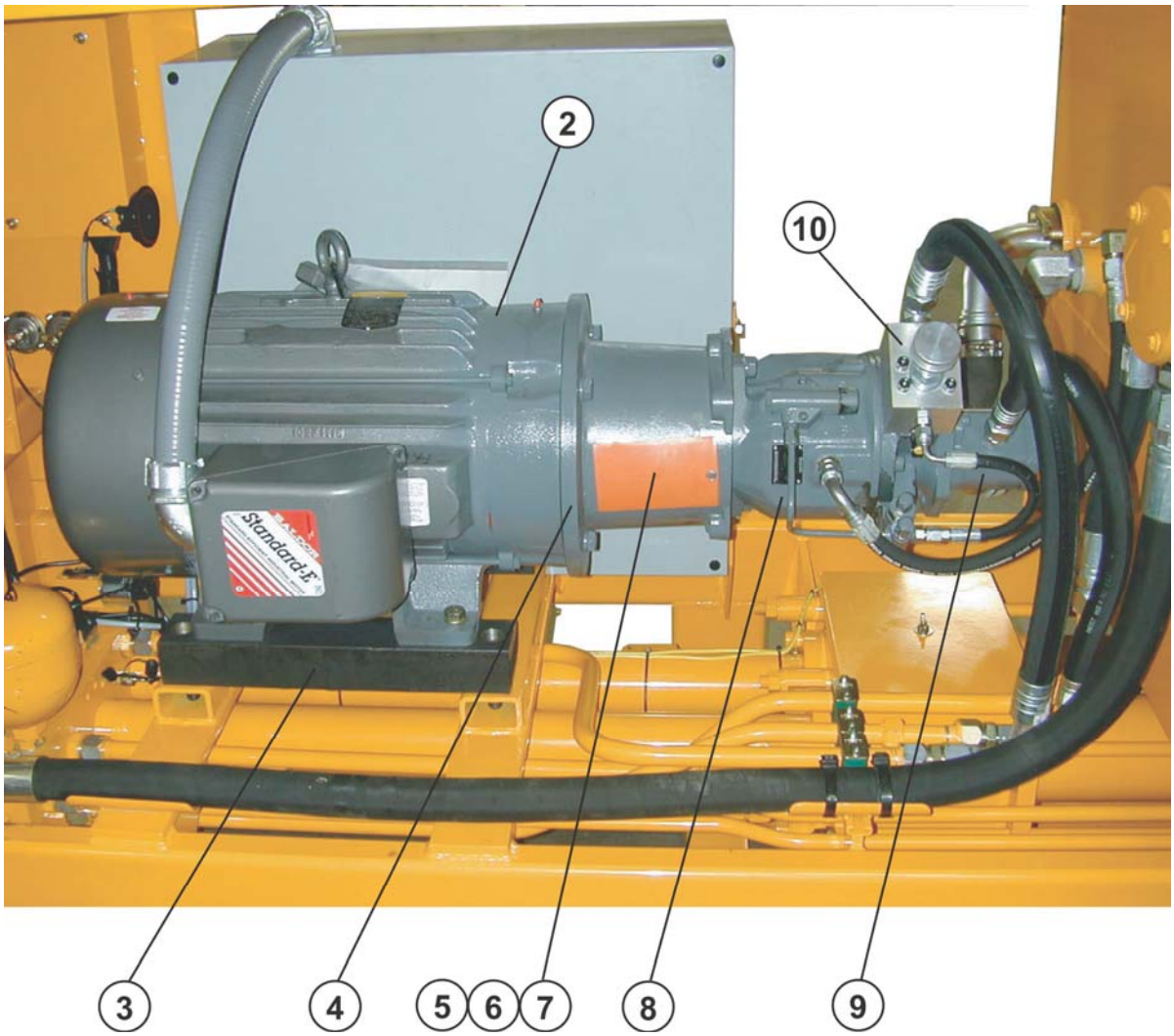
REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL GROUP 40 POWER TRAIN INSTALLATION** CONTAINS THE FOLLOWING FIGURES: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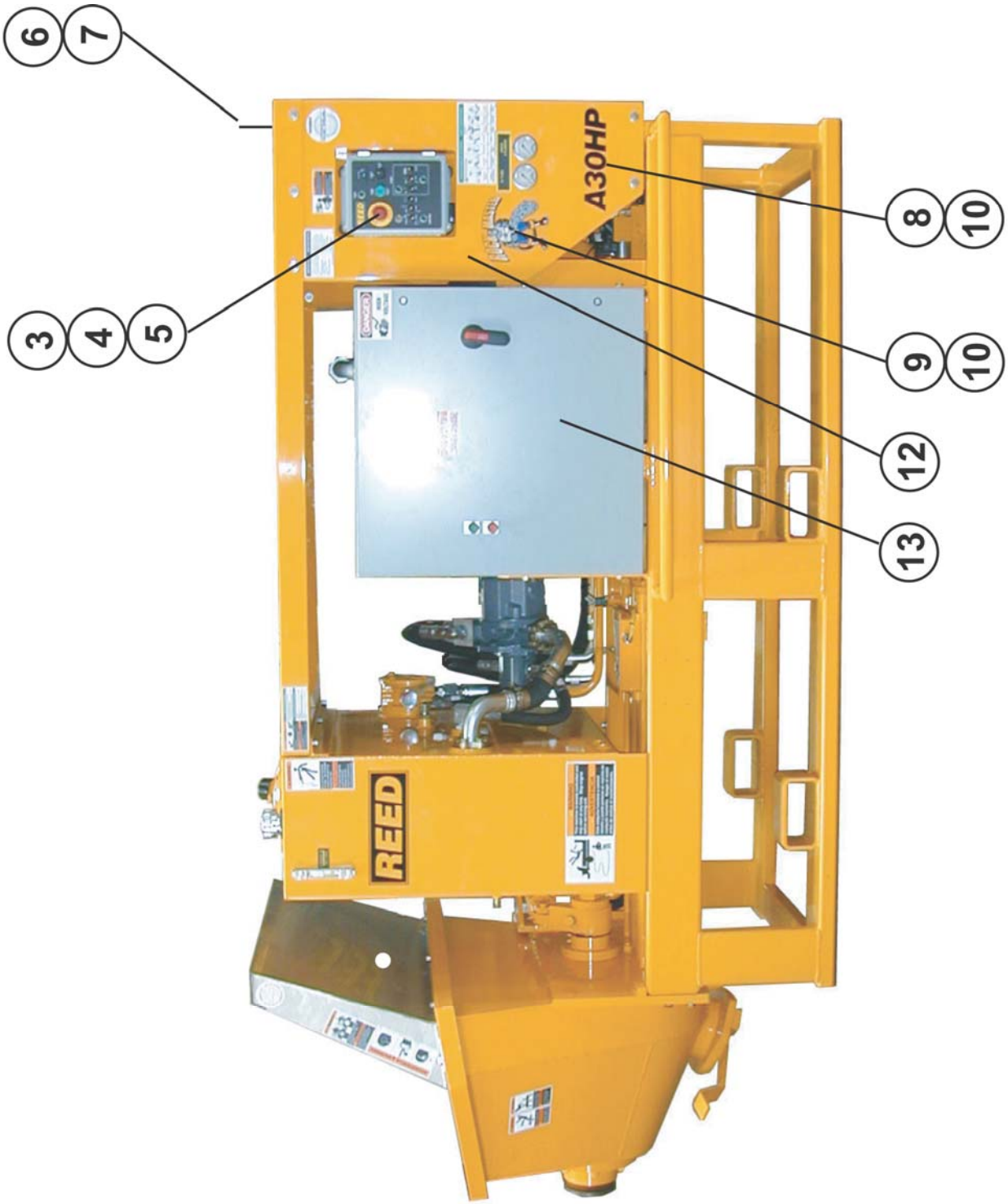
11

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW10444	Installation, Power Train (See Group 10, Figure 01 for NHA)	Ref
2	85991	• Assembly, Electric Motor - (50HP-460V-3PHASE-60HZ) (See Group 40, Figure 02 for DET) Also See Vendor Section, Figure 01 for REF	1
3	86003	• Frame, Motor Mount	2
4	72266	• Adapter, Pump	1
5	87039	• Coupling Half, Motor Shaft	1
6	87040	• Coupling Half, Pump Shaft	1
7	87041	• Spider, Coupling	1
8	87058	• Assembly, ***A30HP*** Main Pump (See Group 40, Figure 03 for DET) Also See Vendor Section, Figure 02 for REF	1
9	72978	• Pump, Gear-12.17CC	1
10	79570	• Valve, Flow Control	1
11	79433	• Cooler, Hydraulic Oil-12VDC Electric	

DASH (-) ITEM NOT ILLUSTRATED

REED SKID MOUNTED CONCRETE PUMP ***01*** **MODEL *A30HP* ILLUSTRATED PARTS MANUAL GROUP 50 CONTROLS INSTALLATION** CONTAINS THE FOLLOWING FIGURES:



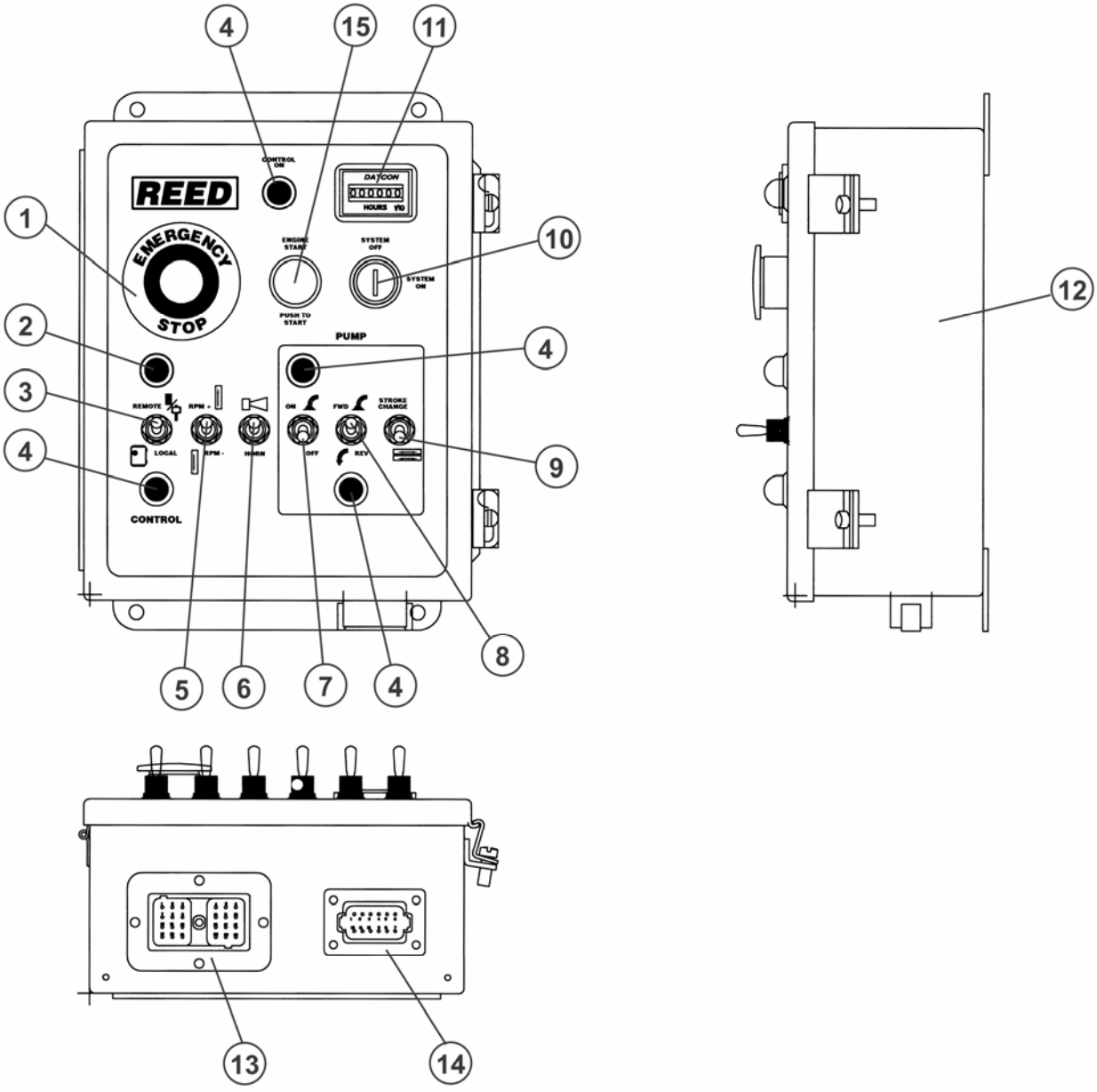
REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	50-01	Installation, Control (See Group 10, Figure 01 for NHA)	Ref
2	BW10013	• Assembly, Cable Remote Control (See Group 50, Figure 03 for DET)	1
3	BW10343-1	• Assembly, Control Box (See Group 50, Figure 03 for DET)	1
4	73748	• Bumper, Control Box	4
5	72862	• Gauge, Proximity Sensor Setting	1
6	Not Available	• Radio Remote Control Kit-Kartech (Optional Item) (See Group 50, Figure 04 for DET)	1
7	Not Available	• Radio Remote Control Kit-Remtron (Optional Item) (See Group 50, Figure 04 for DET)	1
-7A	BW10188-001	• Radio Remote Control Kit-Base (Optional Item)	1
8	74562	• Gauge, 6,000 PSI Hydraulic	1
9	70366	• Gauge, 3,000 PSI Hydraulic	1
10	78594	• Adapter, Minicheck Gauge	2
-11	BW10318	• Hose, 48 Inch-90 Degree Minicheck	2
12	800347	• Horn, 12 V	1
13	85997-8	• Control Panel-50HP Electric Motor	1
-14	72579	• Decal, Red Arrow	1
-15	746306	• Decal, High Voltage	1
		DASH (-) ITEM NOT ILLUSTRATED	


POWER ON
REED
"E" STOP
OFF
ENGINE SPEED UP
PUMP STROKE CHANGE
HORN
PUMP
ON
FWD
DOWN
OFF
REV

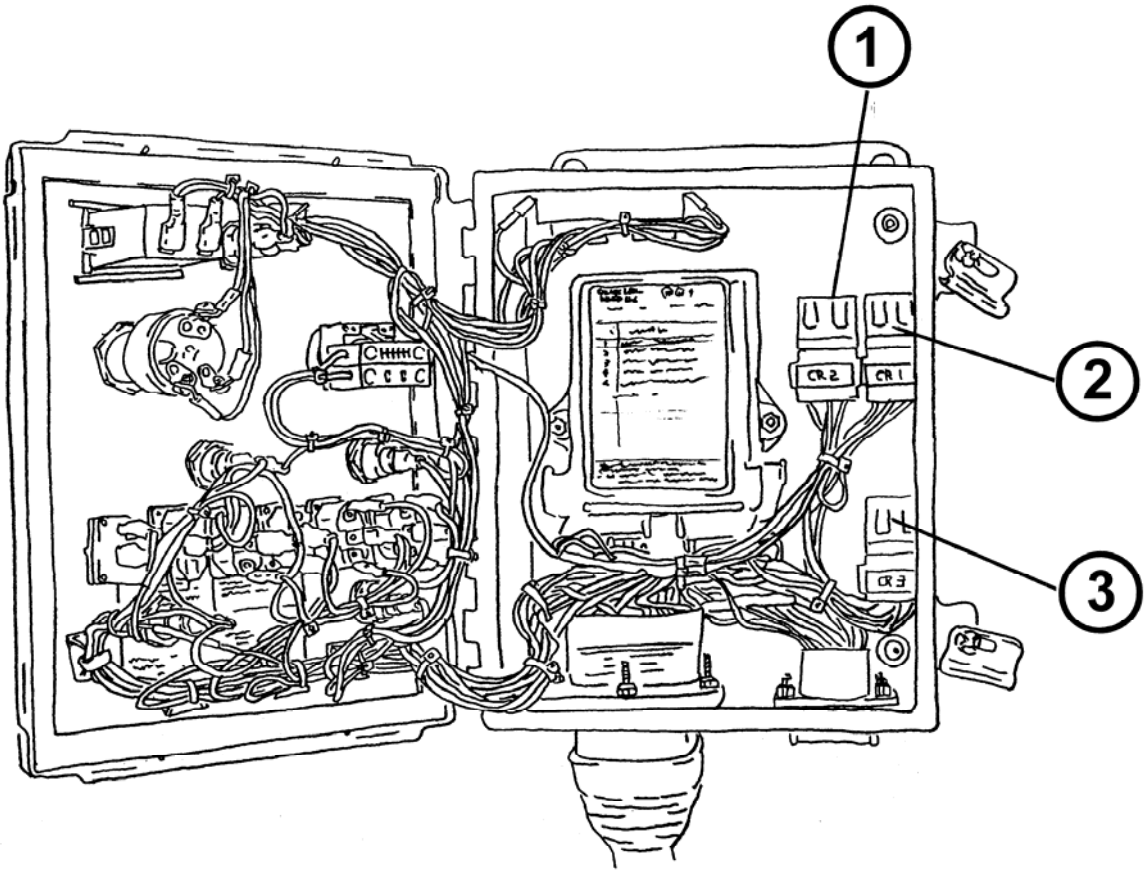
REVISION:

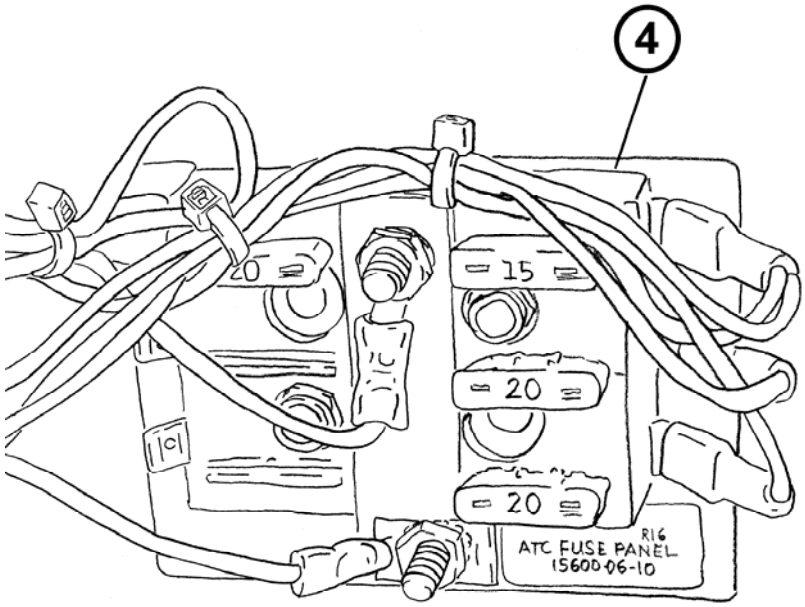
THIS GROUP 50, FIGURE 02, PARTS NUMBER BW10013,
CABLE REMOTE CONTROL ASSEMBLY,
DETAIL PARTS LIST IS NOT AVAILABLE THIS REVISION.



PN 10343 CONTROL BOX ASSEMBLY

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
1	BW10208	• E-Stop Light (Power Supply)	1
2	BW10214	• Lens, Amber	1
3	BW10223	• SPST Toggle Switch On-On	1
4	BW10215	• Lens, Green	1
5	BW10205	• SPDT Momentary Switch	1
6	BW10206	• SPDT Momentary Switch	1
7	BW10207	• SPST Toggle Switch	1
8	BW10207	• SPST Toggle Switch	1
9	BW10206	• SPDT Momentary Switch	1
10	BW10354	• SW, Key Switch	1
11	BW10212	• Hour Meter-Mini	1
12	BW10203	• 10x8x4 Steel CH Enclosure	1
13	BW10217	• Connector, DRC12-24PA	1
14	BW10218	• Connector, DT04-12PA-L012, 12 Pin EMT	1
15	Bw10355	• Button-Push, Engine Start	1
-16	BW10209	• Mushroom Head Maintained Button (Ref-BW10208 Red Light Housing)	1
-17	BW10211	• LGT, Mini Bayonet Red (Ref-BW10208 and BW10209)	1
-18	BW10213	• Light Socket (Ref-BW10214 and BW10215)	5
-19	BW10216	• Light Bayonet 14V (Ref-BW10213,BW10214 and BW10215)	5
-20	BW10219	• Connector 12 Pin, Gasket (Ref-BW10218)	1
-21	BW10220	• Connector 24in, Gasket (Ref-BW10217)	1
		ITEM (-) NOT ILLUSTRATED	

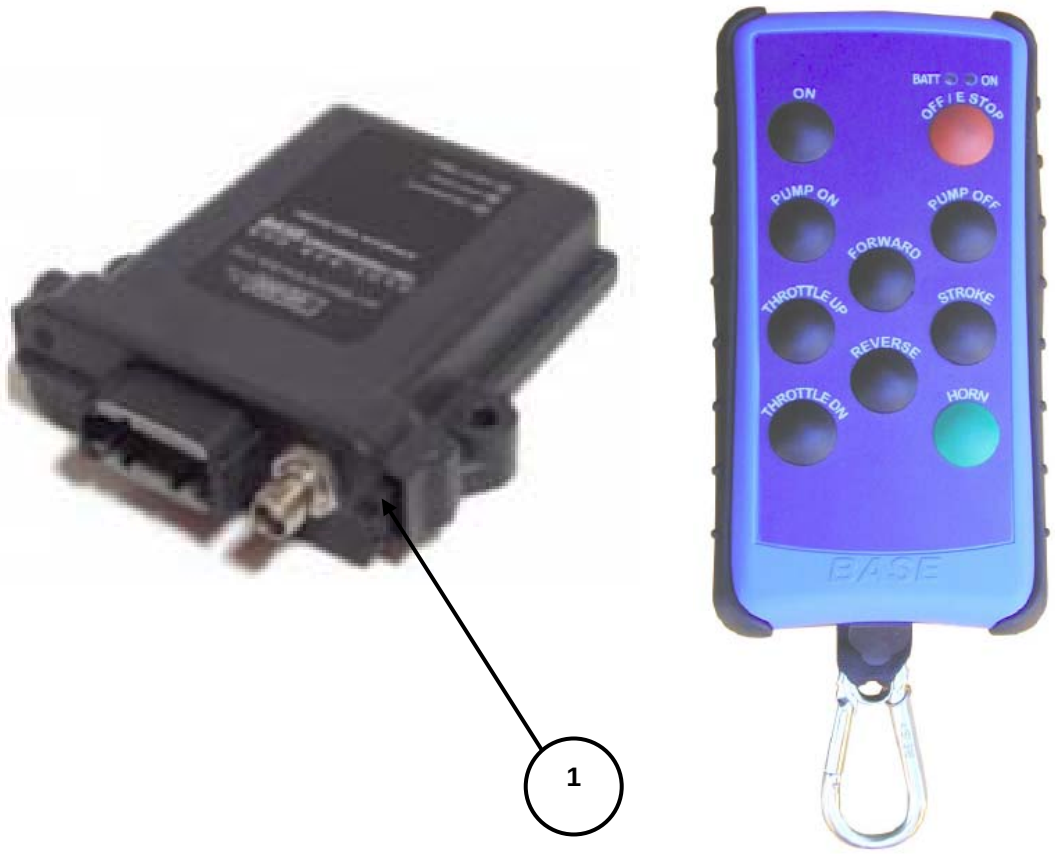




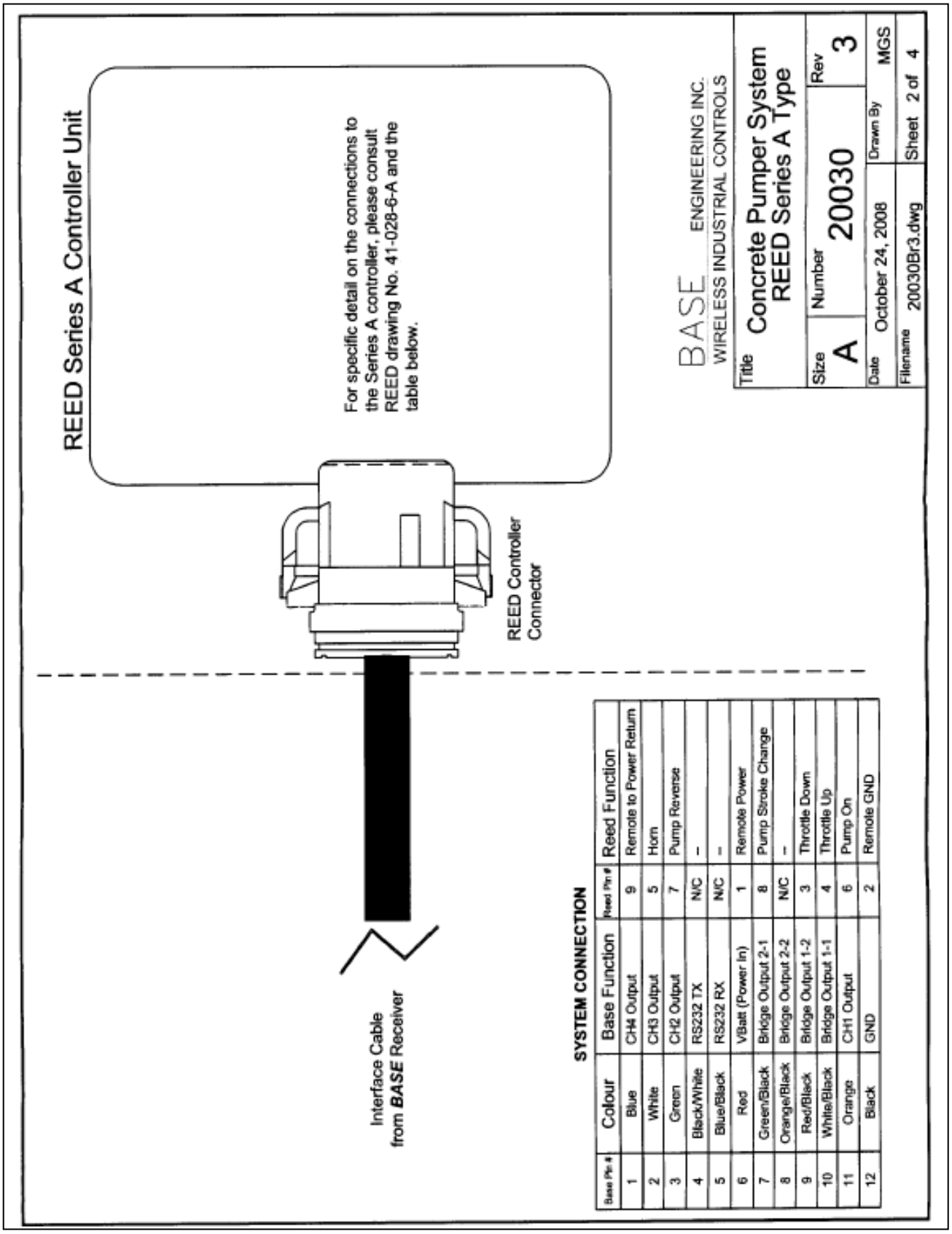
REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
1	BW10222	• Relay, Diode Suppress (Note: Same Part# For Items 1,2, &3)	1
2	BW10222	• Relay, Diode Suppress (Note: Same Part# For Items 1,2, &3)	1
3	BW10222	• Relay, Diode Suppress (Note: Same Part# For Items 1,2, &3)	1
4	BW10227	• Fuse, Block GNG 6F	1

BASE ENGINEERING INC.
INDUSTRIAL WIRELESS CONTROLS

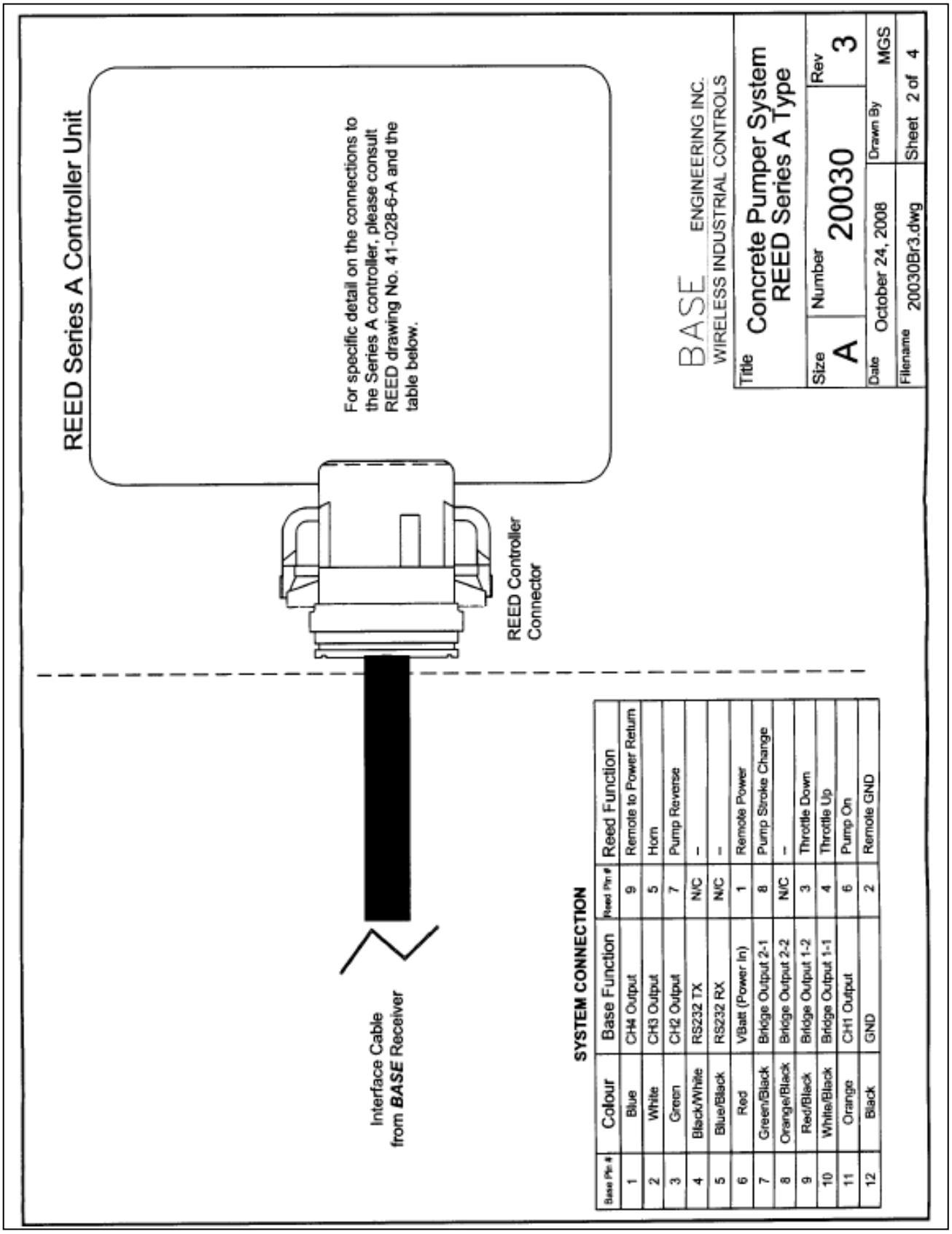


ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
1	BW10188-001	RADIO REMOTE KIT (BASE ENGINEERING)	1



SYSTEM CONNECTION

Base Pin #	Colour	Base Function	Reed Pin #	Reed Function
1	Blue	CH4 Output	9	Remote to Power Return
2	White	CH3 Output	5	Horn
3	Green	CH2 Output	7	Pump Reverse
4	Black/White	RS232 TX	N/C	–
5	Blue/Black	RS232 RX	N/C	–
6	Red	VBatt (Power In)	1	Remote Power
7	Green/Black	Bridge Output 2-1	8	Pump Stroke Change
8	Orange/Black	Bridge Output 2-2	N/C	–
9	Red/Black	Bridge Output 1-2	3	Throttle Down
10	White/Black	Bridge Output 1-1	4	Throttle Up
11	Orange	CH1 Output	6	Pump On
12	Black	GND	2	Remote GND



SYSTEM CONNECTION

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1	Blue	CH4 Output	9	Remote to Power Return
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9	Red/Black	Bridge Output 1-2	3	Throttle Down
10	White/Black	Bridge Output 1-1	4	Throttle Up
11	Orange	CH1 Output	6	Pump On
12	Black	GND	2	Remote GND

50HP 460/60HZ

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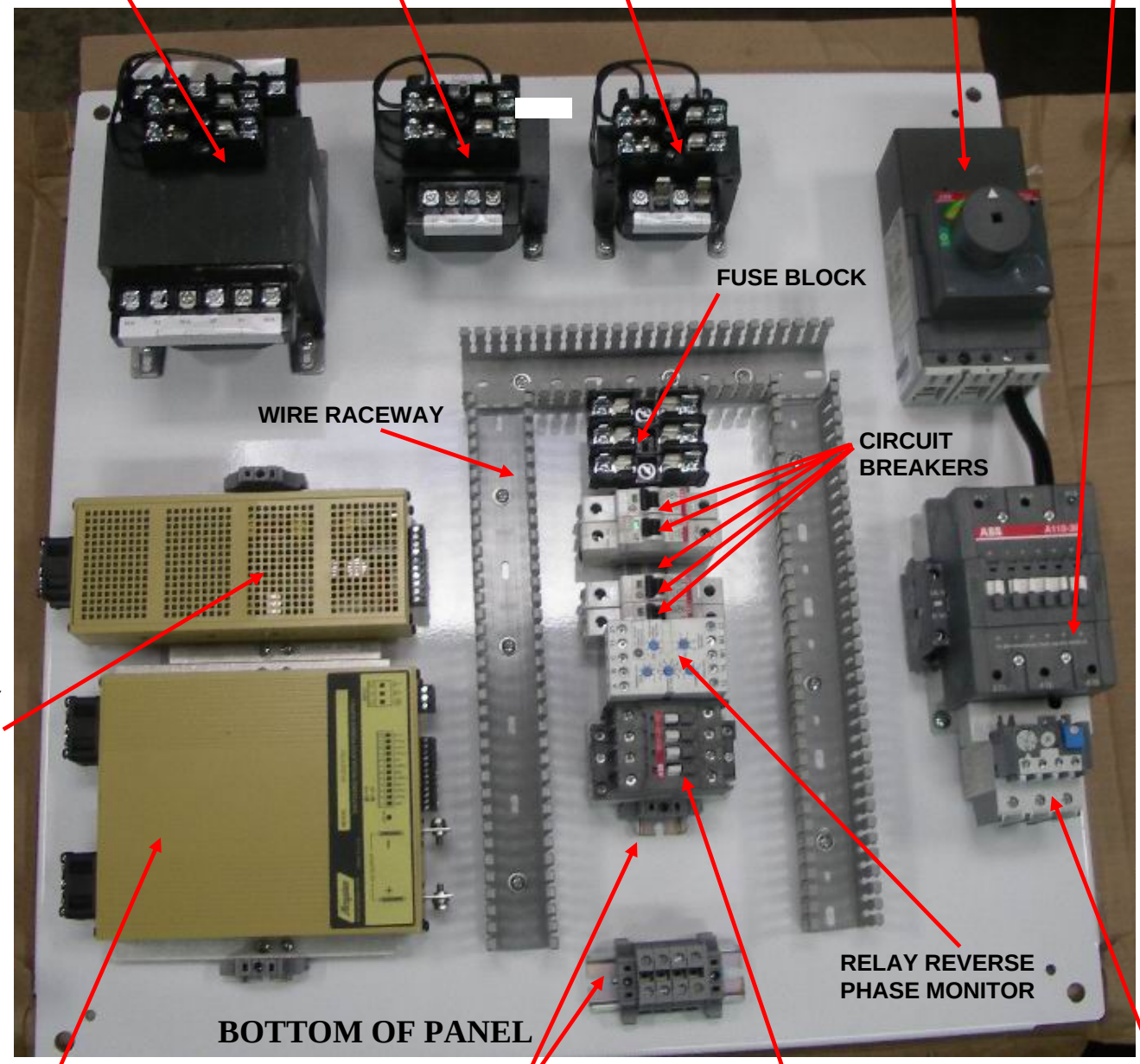
MAIN ELECTRIC CONTROL BOX P/N 85997-8

PART LAYOUT



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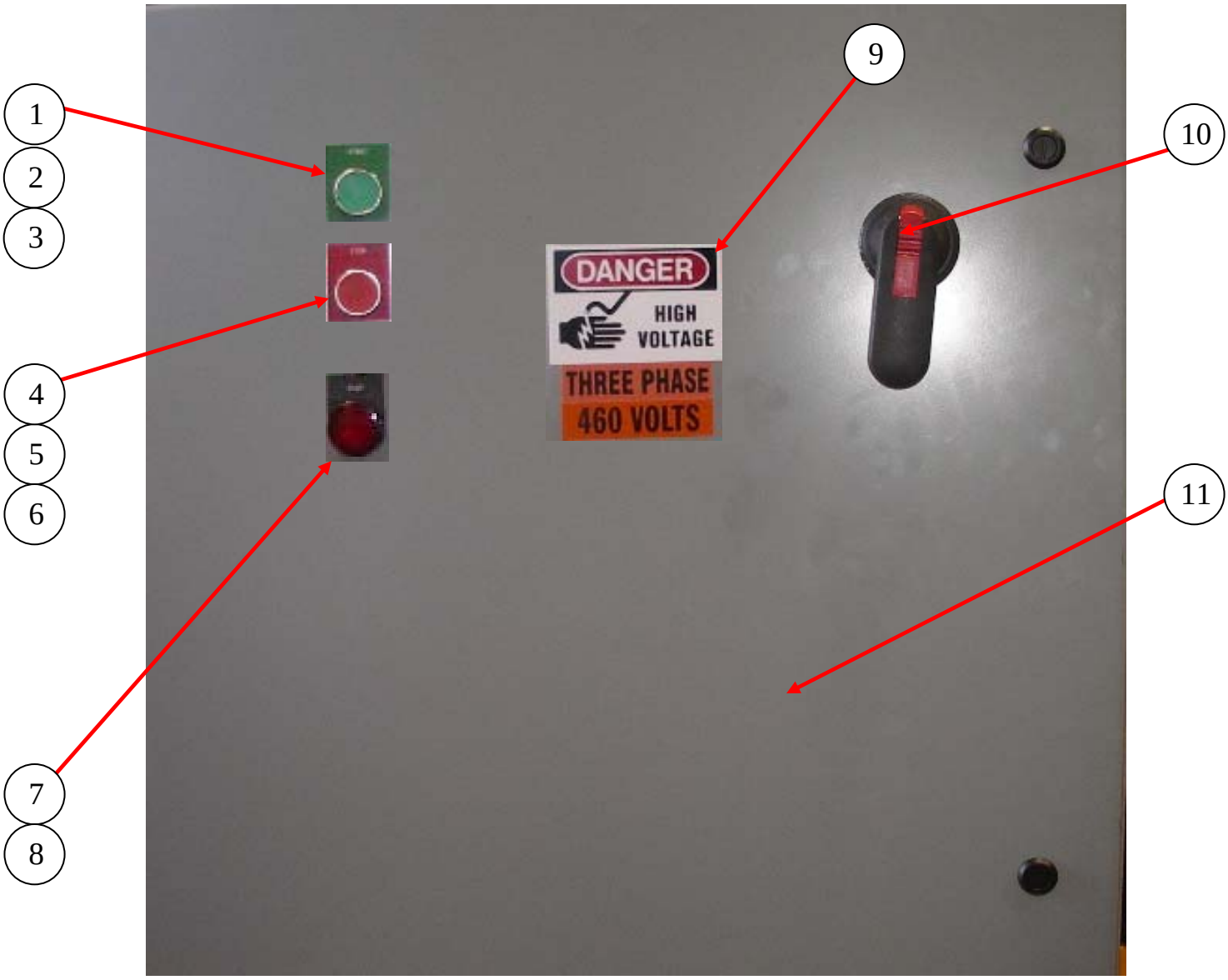

ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88065	LEGEND PLATE START	1	EA
2	88060	PUSHBUTTON (GREEN)	1	EA
3	88062	CONTACT BLOCK N. O.	1	EA
4	88064	LEGEND PLATE STOP	1	EA
5	88061	PUSHBUTTON (RED)	1	EA
6	88063	CONTACT BLOCK N.C.	1	EA
7	88150	LABLE PLATE (RESET)	1	EA
8	88149	LED INDICATING LIGHT, (RED)	1	EA
9	74306	HIGH VOLTAGE DECAL	1	EA
10	88107	HANDLE FOR 88070 CIRCUIT BREAKER	1	EA
11	88044	ENCLOSURE 30-30-12” NEMA-4	1	EA

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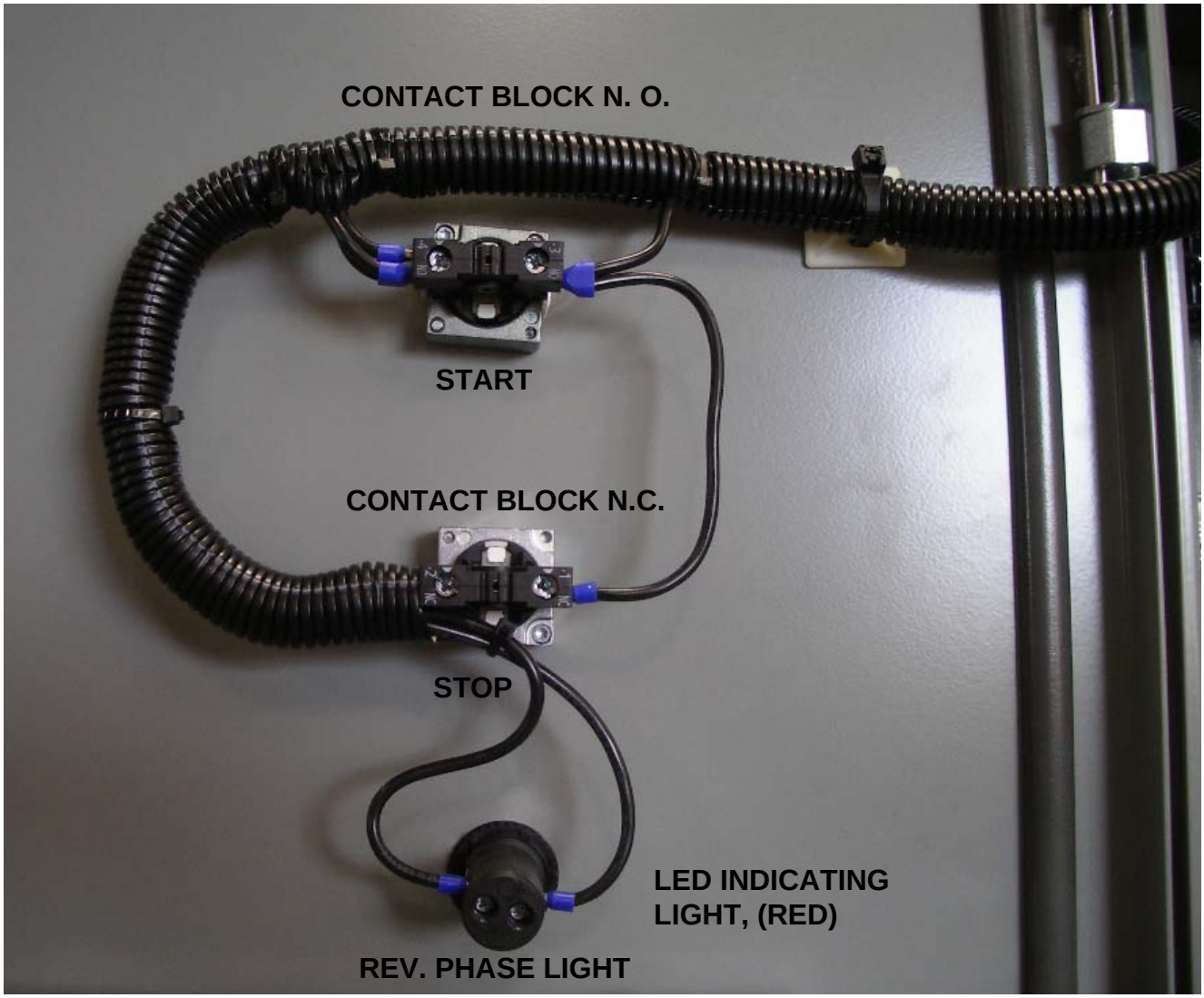
CONTACT BLOCKS (DOOR)



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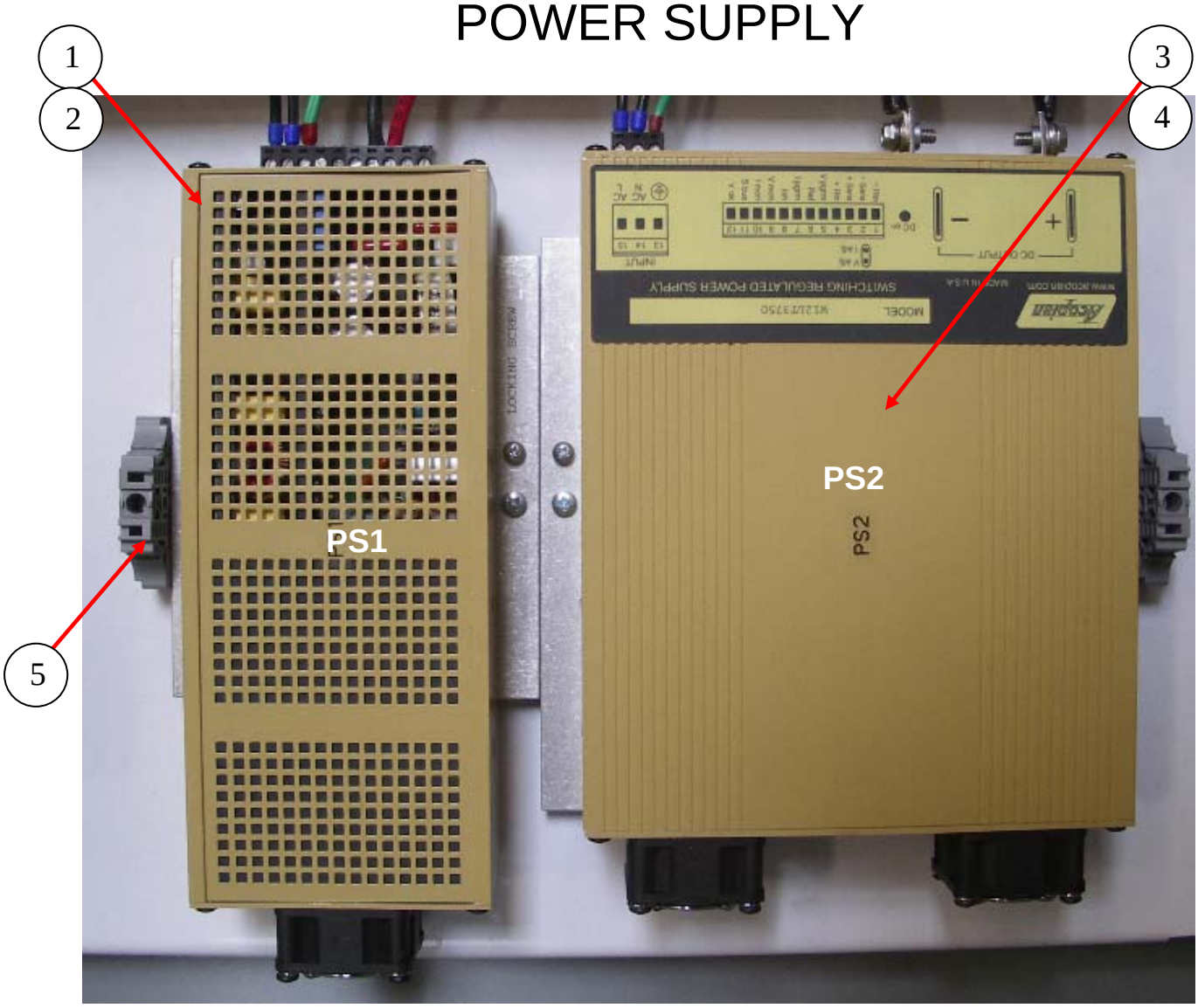
POWER SUPPLY



ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88059-1	POWER SUPPLY 12VDC 12 AMP ACOPIAN (PS1)	1	EA
2	88059-1DR	DIN RAIL KIT FOR 88059-1	1	EA
3	88059-2	POWER SUPPLY 12VDC 35 AMP ACOPIAN (PS2)	1	EA
4	88059-2DR	DIN RAIL KIT FOR 88059-2	1	EA
5	88082	GRAY END SECTION	2	EA

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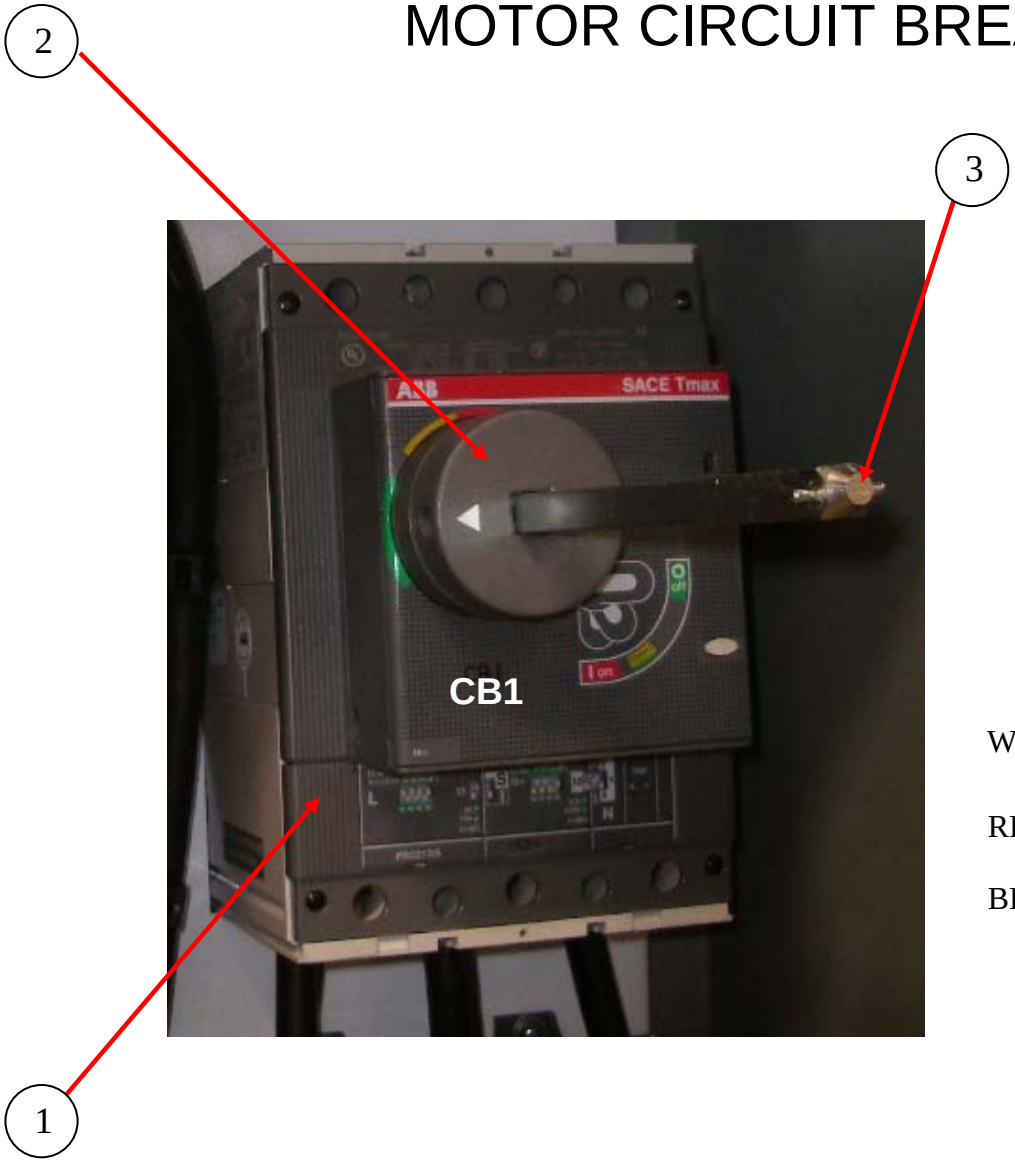
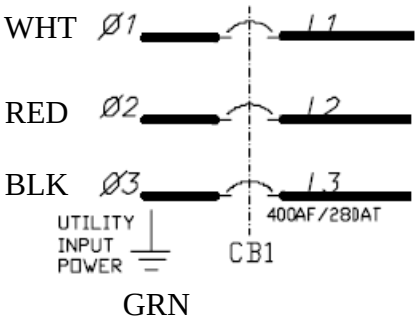
MOTOR CIRCUIT BREAKER





ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88098	CIRCUIT BREAKER 100 AMP 3 POLE LS/IU (CB1)	1	EA
2	88048	MECHANISM FOR CIRCUIT BREAKER	1	EA
3	88049	SHAFT FOR 88047 HANDLE	1	EA

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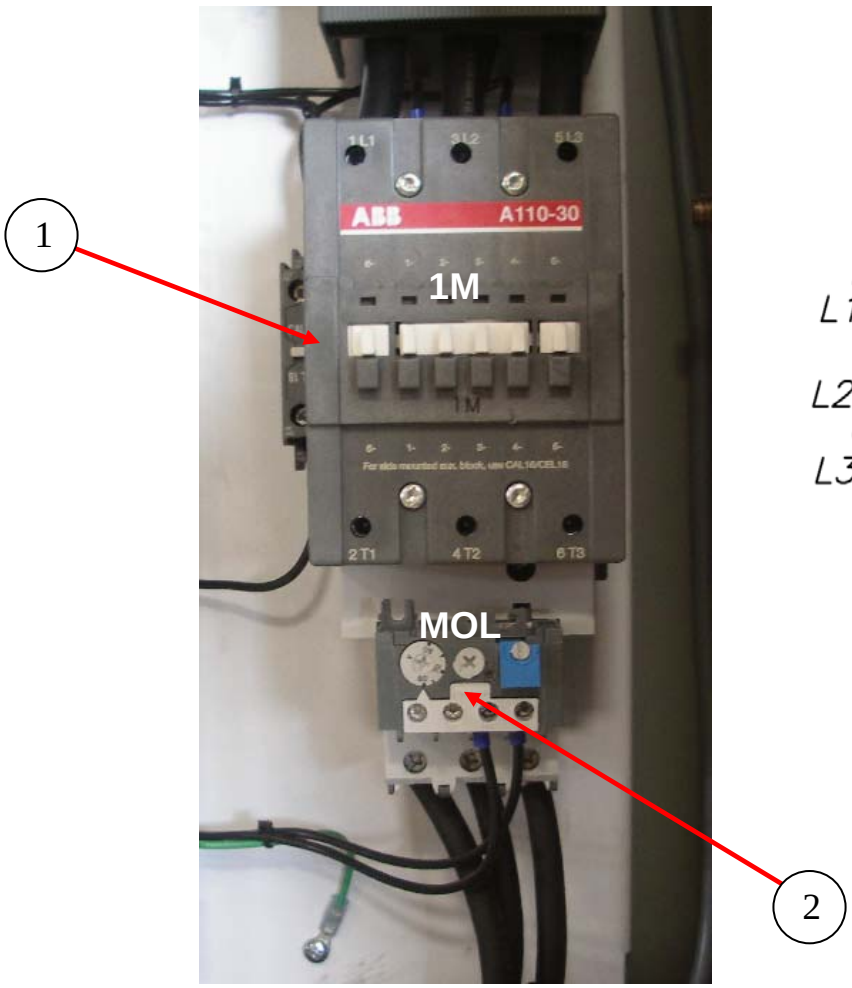
CONTACTOR / MOTOR OVERLOAD



ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88099	CONTACTOR (1M)	1	EA
2	88100	MOTOR OVERLOAD RELAY (MOL)	1	EA

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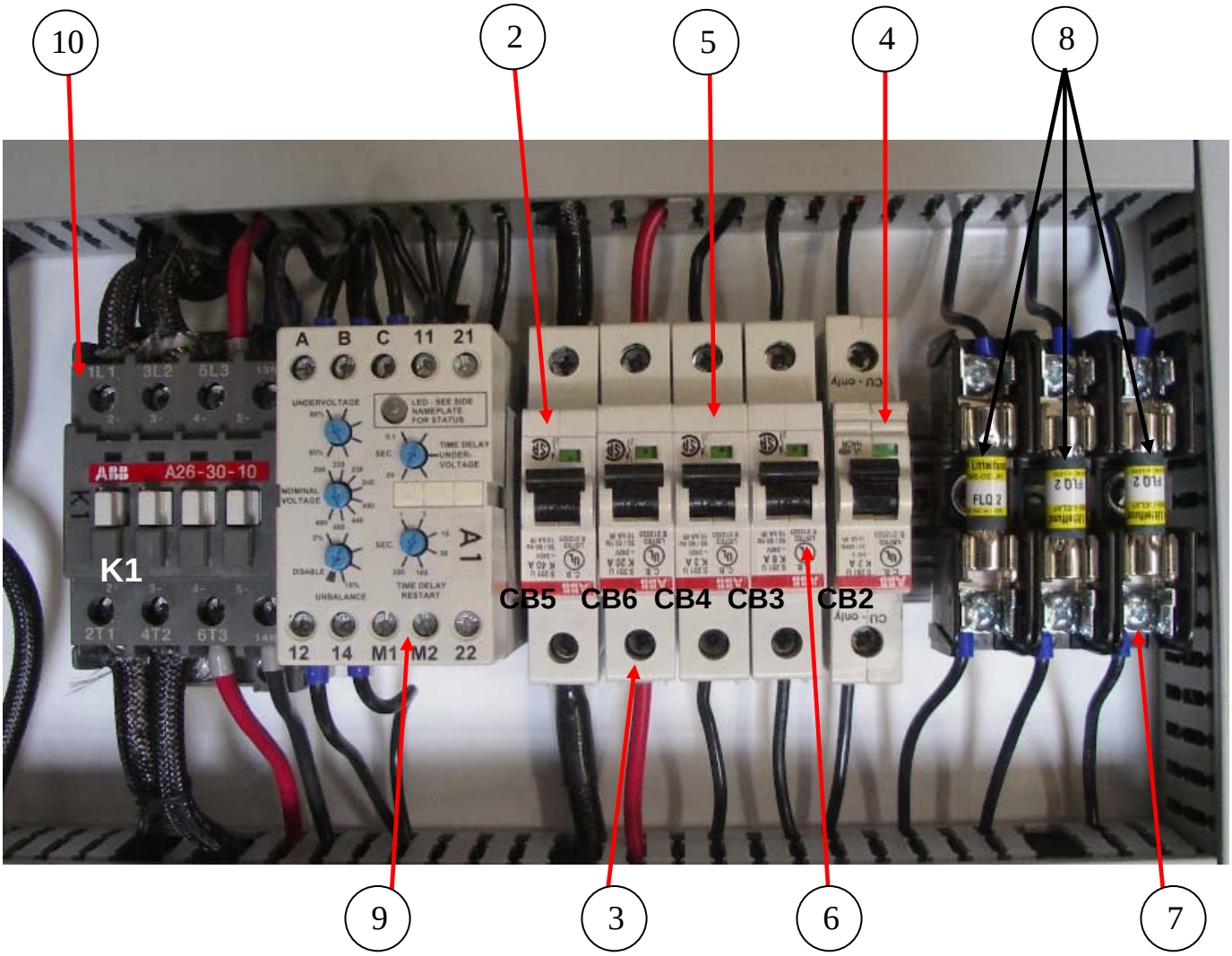
CIRCUIT BREAKERS / FUSES / RELAYS



ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88067	CONTACTOR-CONTROL, 3 POL N/O 120V 28 AMP (K4)	1	EA
2	88058-1	CIRCUIT BREAKER, 40 AMP (CB5)	1	EA
3	88058	CIRCUIT BREAKER, 20 AMP (CB6)	1	EA
4	88176	CIRCUIT BREAKER, 8 AMP (CB2)	1	EA
5	88055	CIRCUIT BREAKER, 2 AMP (CB4	1	EA
6	88086	CIRCUIT BREAKER, 3 AMP (CB3)	1	EA
7	88068	FUSE BLOCK	3	EA
8	88069	FUSE 2 AMP	3	EA
9	88066	RELAY REVERSE PHASE MONITOR (A1)	1	EA
10	88067	CONTACTOR-CONTROL, 3 POL N/O 120V 28 AMP(K1)	1	EA

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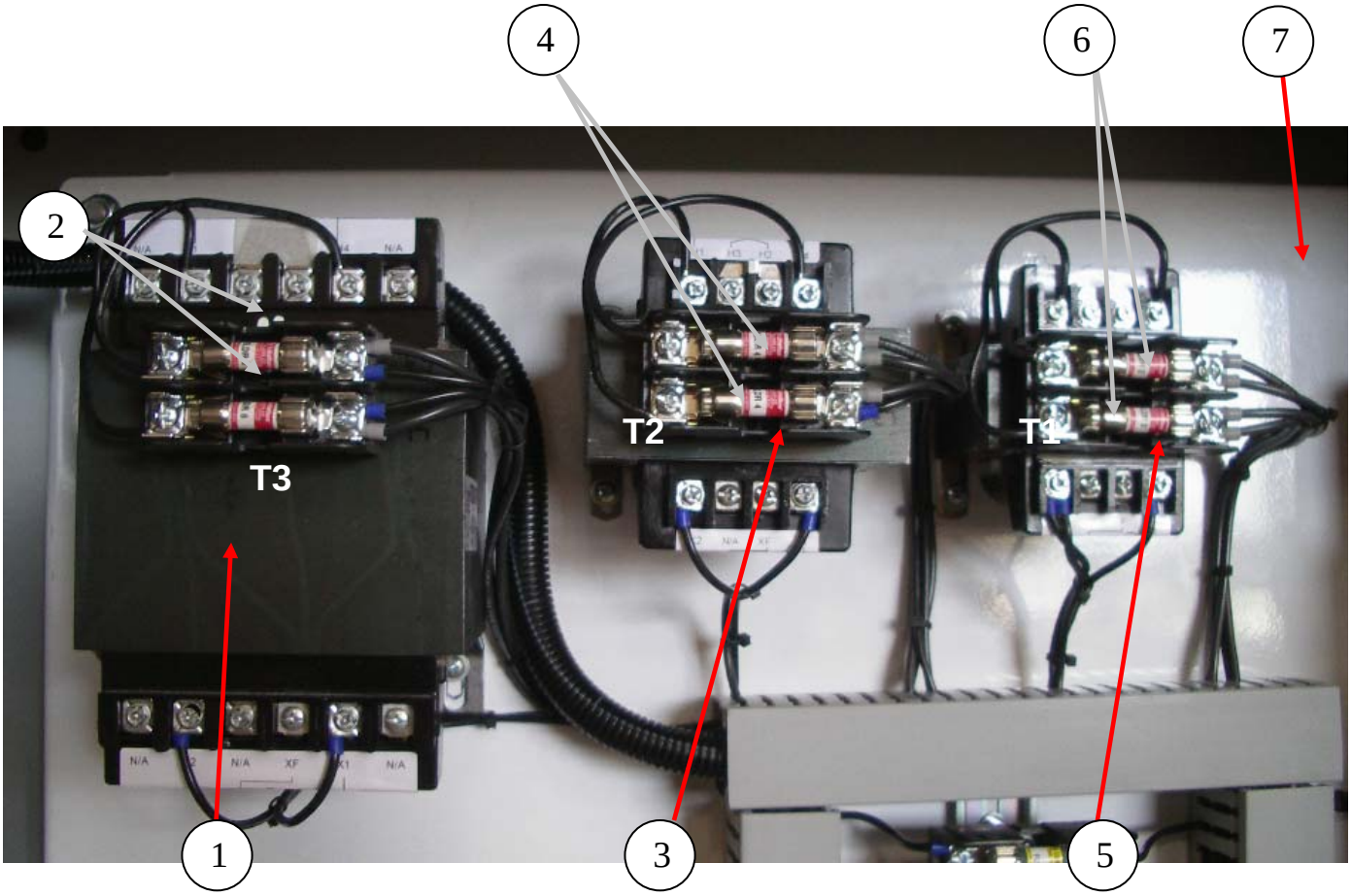
TRANSFORMERS



ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88177	TRANSFORMER 750V 230/460V-120V (T3)	1	EA
2	88175	FUSE 6 AMP	2	EA
3	88076	TRANSFORMER 250V 230/460V-120V (T2)	1	EA
4	88057	FUSE 4 AMP	2	EA
5	88087	TRANSFORMER 150V 230/460V-120V (T1)	1	EA
6	88054	FUSE 2 AMP	2	EA
7	88045	PANEL FOR 88044 ENCLOSED	1	EA

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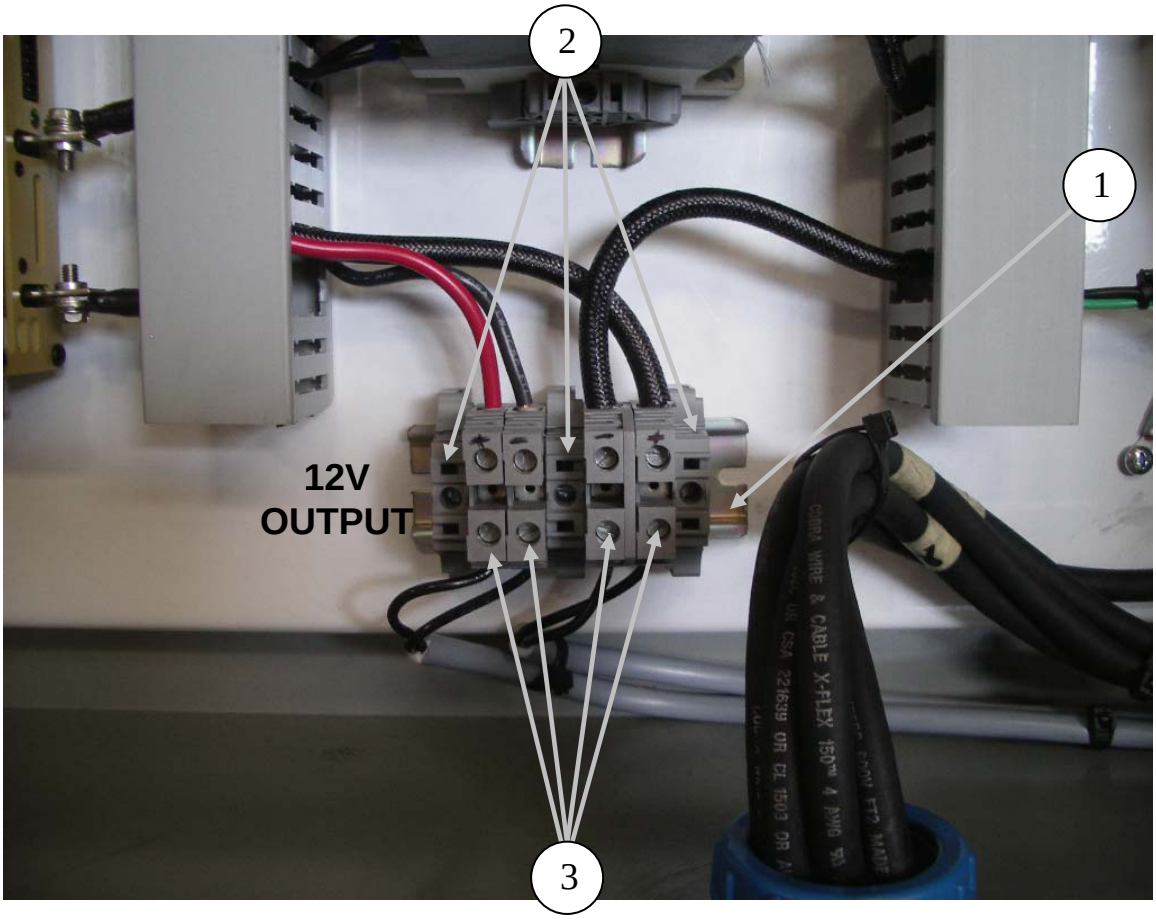
12V OUTPUT TERMINALS



ID #	PART #	PART DESCRIPTION	QUANTITY	
1	88059-2DR	DIN RAIL KIT FOR 88059-2	1	EA
2	88082	GRAY END SECTION	3	EA
3	88081	TERMINAL DIN RAIL GREY	4	EA

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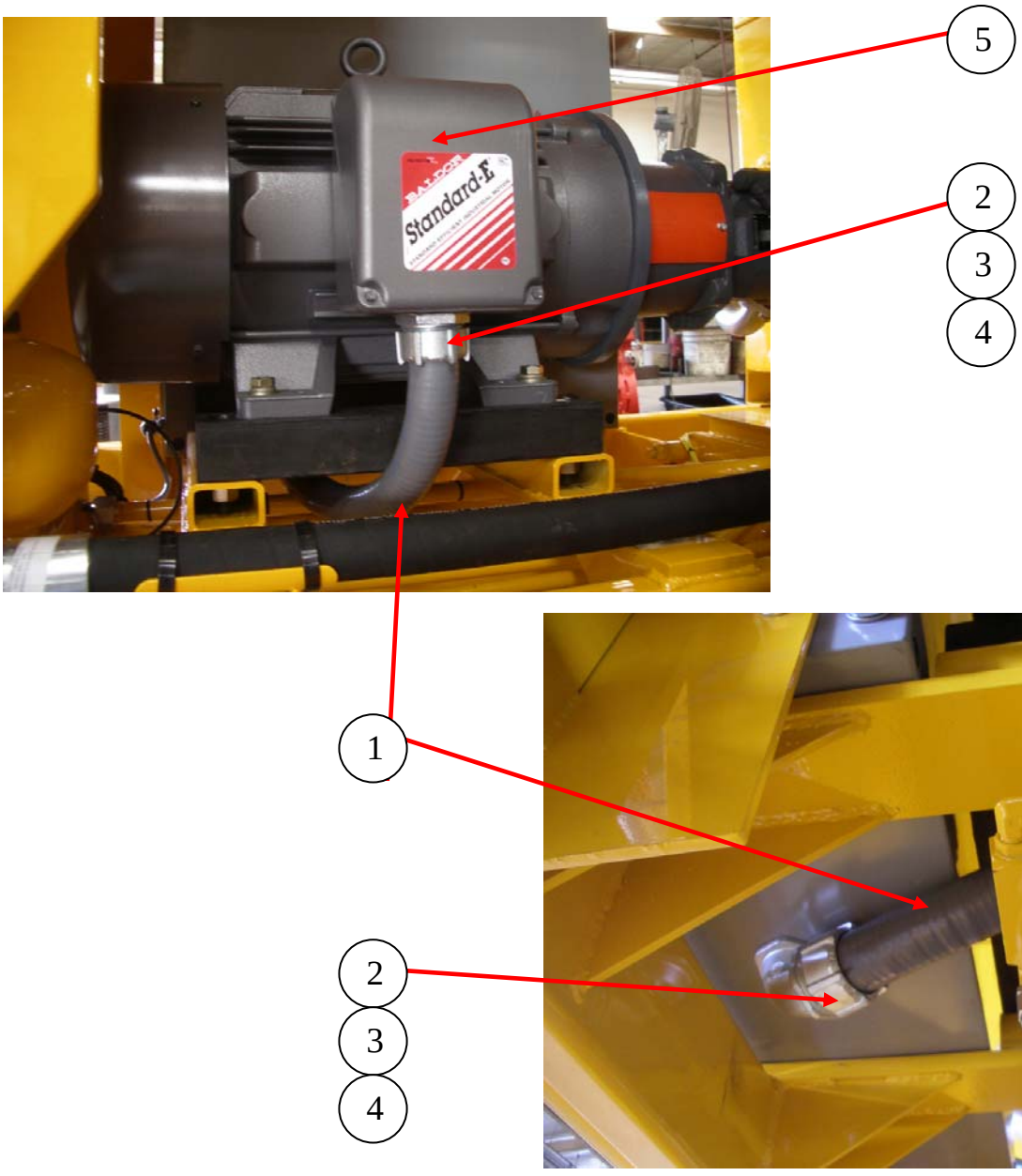
ELECTRIC CONTROL PANEL 50HP 460V



ID #	PART #	PART DESCRIPTION	QUANTITY	
1	86518	CONDUIT 1 ½" LIQUID TITE	3	FT
2	86519	CONNECTOR 1 ½" ELBOW 90°	1	EA
3	86520	INSULATED BUSHING 1 ½"	2	EA
4	86521	REDUCER WASHER 1 ½"	2	EA
5	85991	MOTOR, 50HP, 460V, 60HZ, 3PH	1	EA

50HP 460/60HZ

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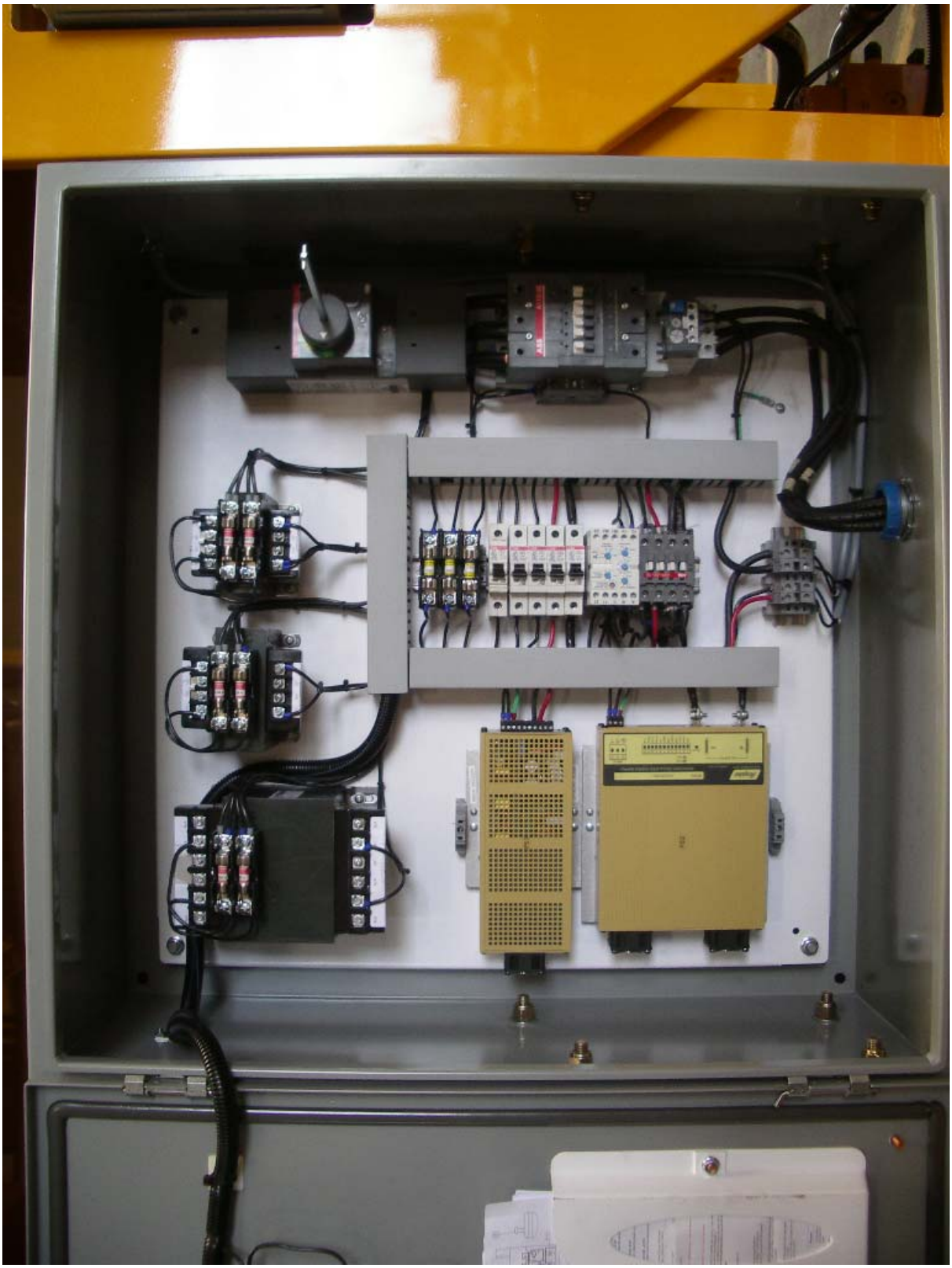
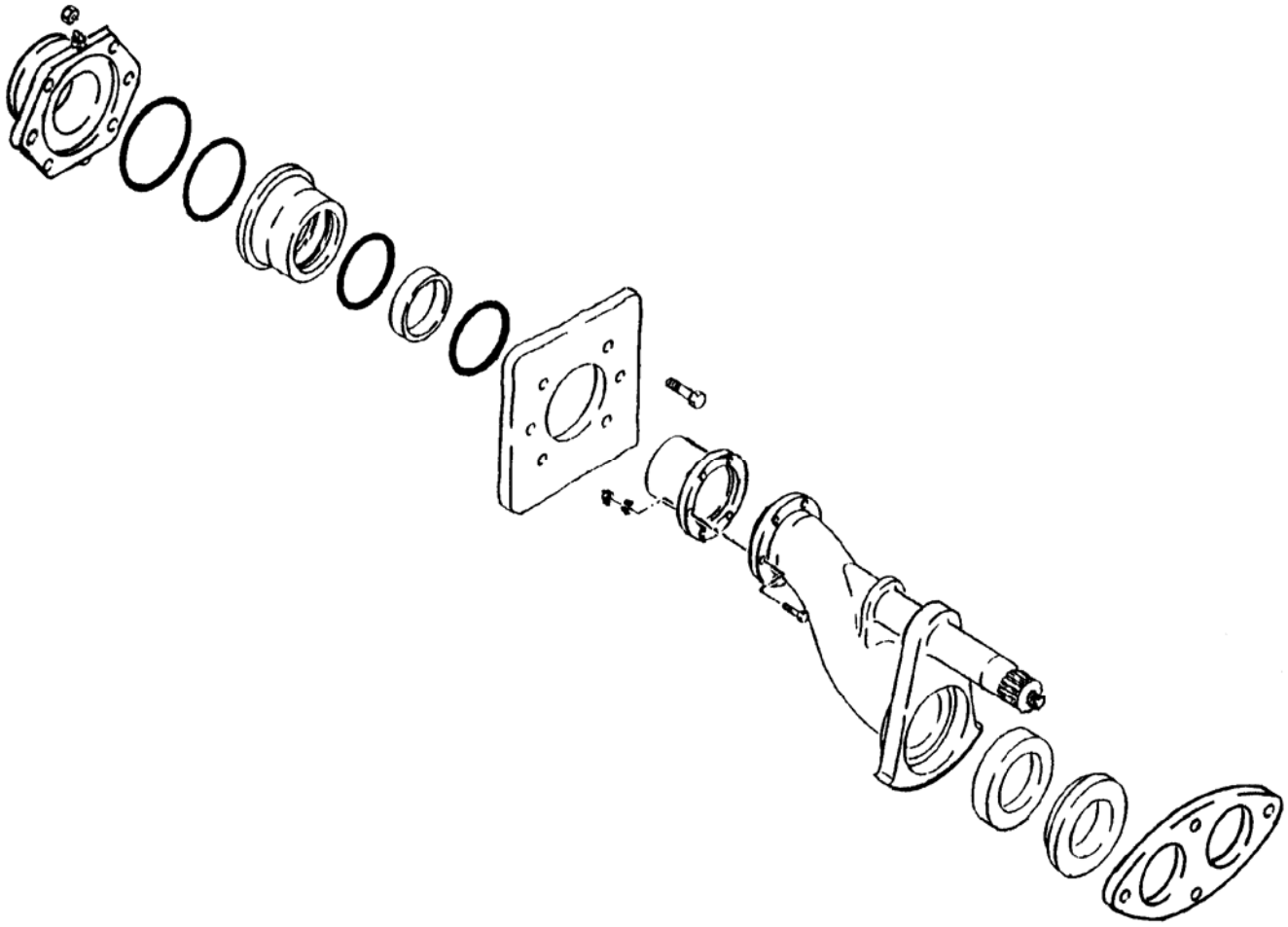
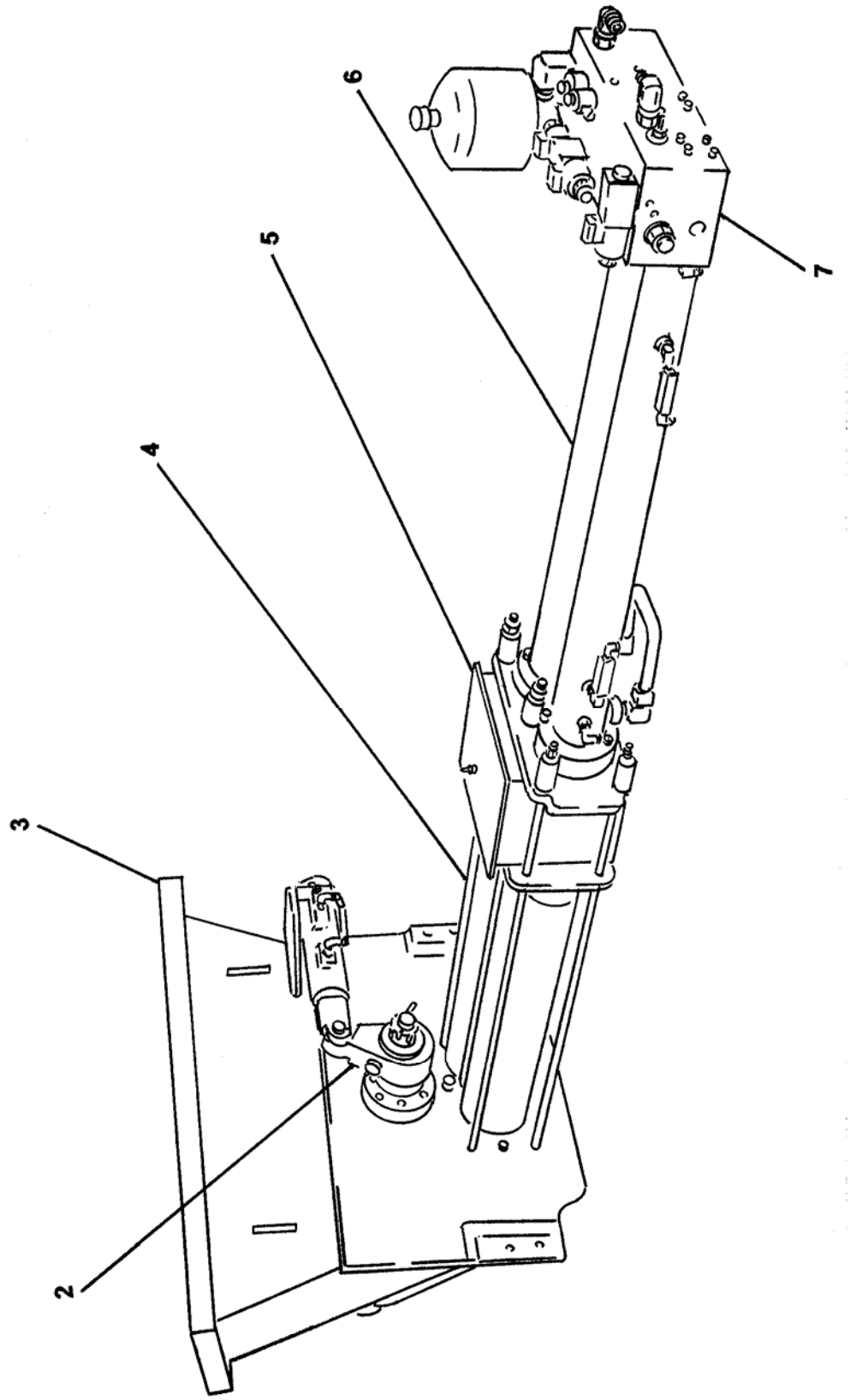
Chino, CA 91710
reedpumps.com





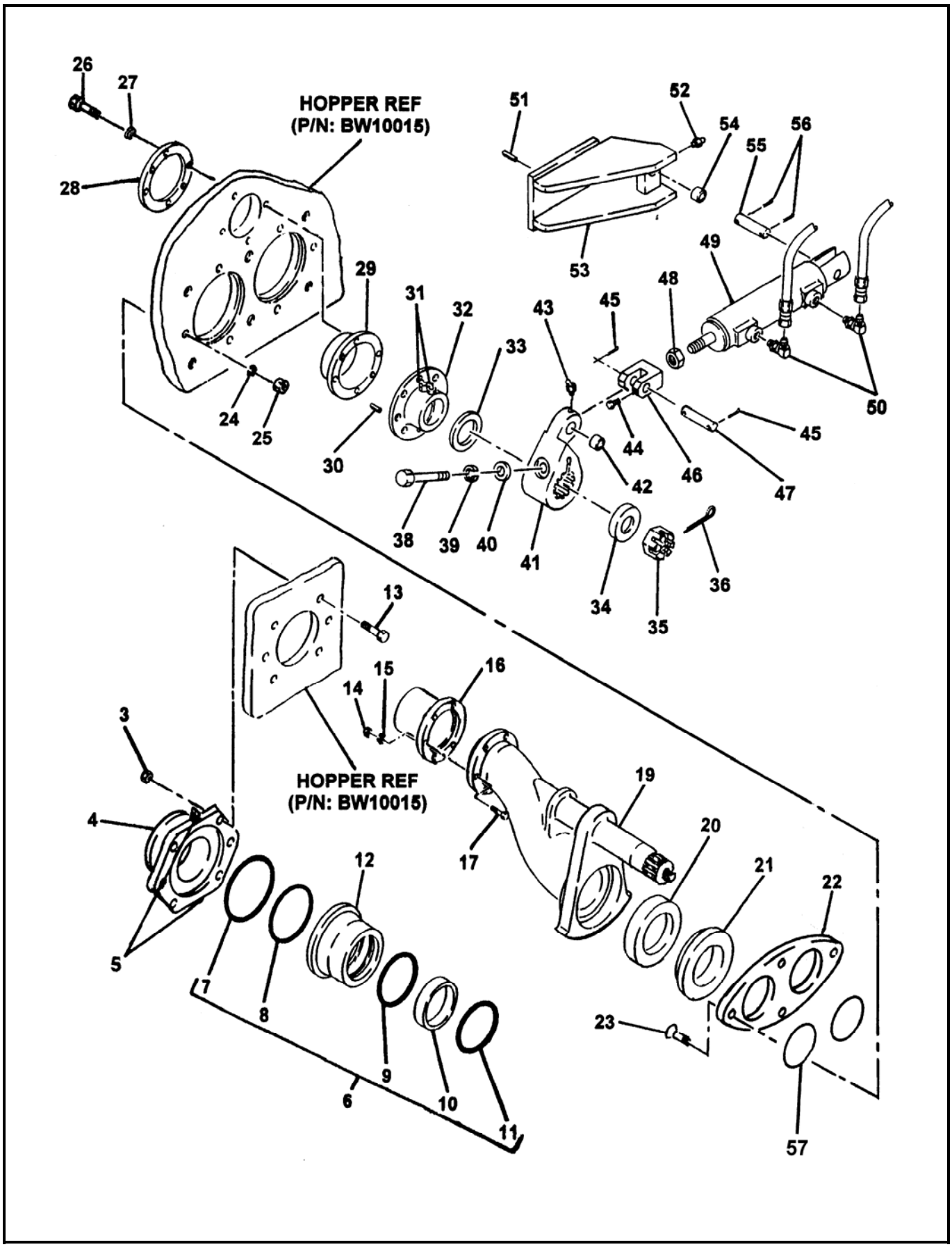
REED SKID MOUNTED CONCRETE PUMP ***02*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL GROUP 60 PUMPING TRAIN INSTALLATION** CONTAINS THE FOLLOWING FIGURES:



REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	60-01	Installation, Pumping Train (See Group 10, Figure 01 and Figure 03 for NHA)	Ref
2	60-02	• Assembly, Swing Valve (See Group 60, Figure 02 for DET)	1
3	20-01	• Installation, Hopper (See Group 20, Figure 01 for REF)	Ref
4	BW23000	• Assembly, Concrete Cylinder (See Group 60, Figure 04 for DET)	1
5	60-05	• Assembly, Flushbox (See Group 60, Figure 05 for DET)	1
6	BW21000	• Assembly, Hydraulic Drive Cylinder (See Group 60, Figure 06 for DET)	1
7	BW10004	• Assembly, Control Manifold with Cartridge (See Group 60, Figure 09 for DET)	1

DASH (-) ITEM NOT ILLUSTRATED


HOPPER REF
(P/N: BW10015)
HOPPER REF
(P/N: BW10015)
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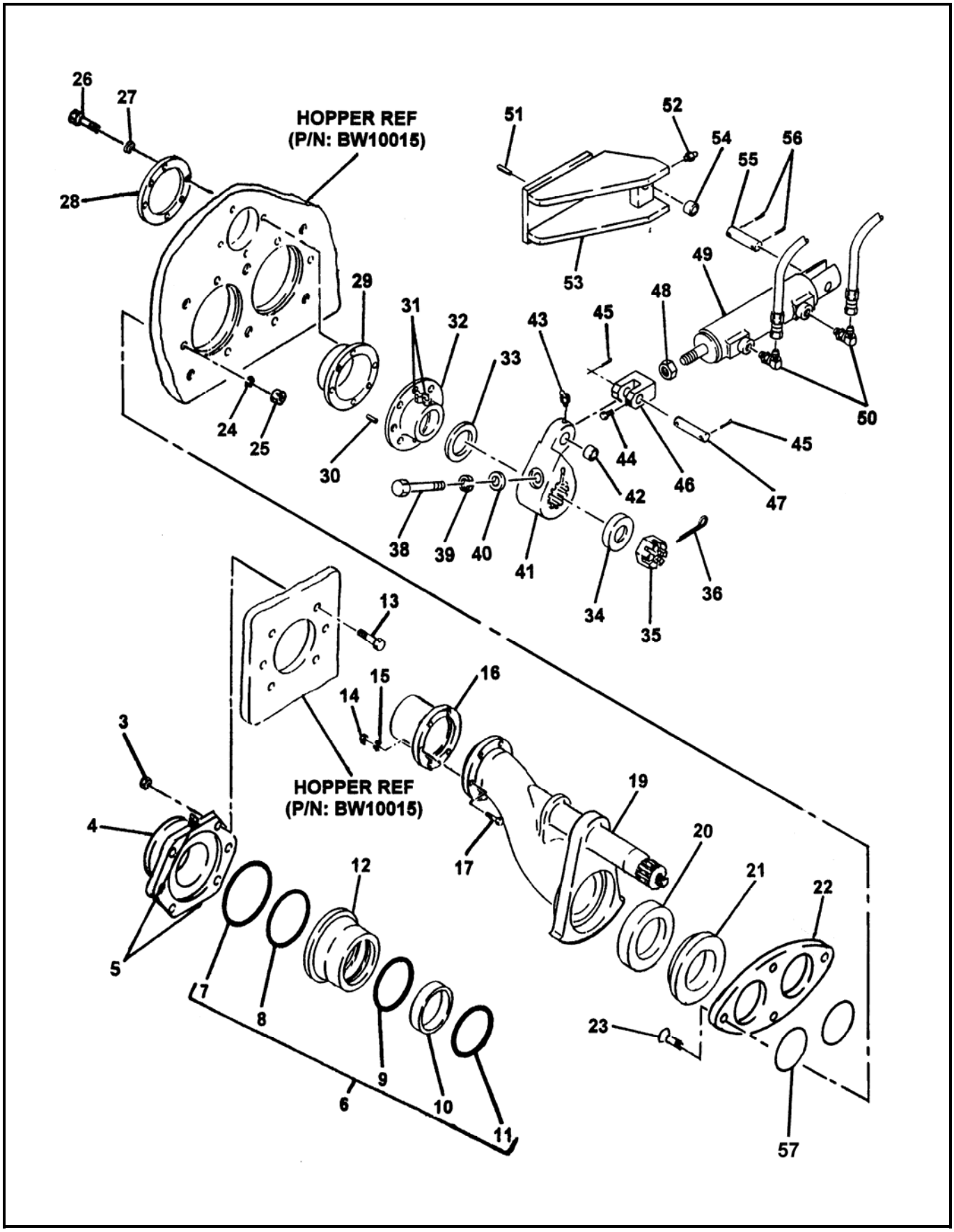
ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	60-02	Assembly, Swing Valve (See Group 60, Figure 01 for NHA)	Ref
-2	86321	• Assembly, Outlet Group	1
3		• • Nut	6
4	70122	• • Outlet, Machine 5"	1
5		• • Fitting, Grease	2
6	79895	• • Kit, Outlet Seal	1
7	77761	• • • O-Ring, Large	1
8	77762	• • • O-Ring, Small	1
9	86504	• • • Seal, Modified Outlet Thick	1
10	77763	• • • Band, Guide	1
11	77765	• • • Seal, Outlet Thick	1
12	72309	• • Housing, Outlet Seal	1
13		• • Bolt, Hex	6
14		• • Nut, Nylock (attaching parts)	6
15		• • Washer, Lock (attaching parts)	6
16	70042	• • Outlet, Chromed	1
17		• • Bolt, Hex (attaching parts)	6
-18	BW25000	• Assembly, Swing Tube Group	1
19	BW10072	• • Weldment, Swing Tube	1
20	BW10020	• • Seal, 5 Inch	1
21	BW10021	• • Ring, 5 Inch Wear	1
22	BW10023	• • Plate, Wear	1
23		• • Bolt, Flat Head	4
24		• • Washer, Lock	4
25		• • Nut, Hex	4
26		• • Bolt, Hex	6
27		• • Washer, Lock	6
28	BW10024	• • Ring, Space	1
29	85962	• • Seal, Flange Bearing	1
30		• • Pin, Dowel	1
31		• • Fitting, Grease 90	2
32	85133	• • Bearing, 3 Inch Spline Flange	1
33	85294	• • Washer, Thrust	1
34	85134	• • Spacer, Swing Tube Nut	1
35	70825	• • Nut, Swing Tube	1
36		• • Pin Cotter	1
-37	BW26000	• Assembly, Swing Tube Shift Group	1
38		• • Bolt, Hex	1
39		• • Washer, Flat	1
40		• • Washer, Lock	1
41	85131	• • Crank, 3 Inch Spline Bell	1

DASH (-) ITEM NOT ILLUSTRATED


HOPPER REF
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HOPPER REF
(P/N: BW10015)
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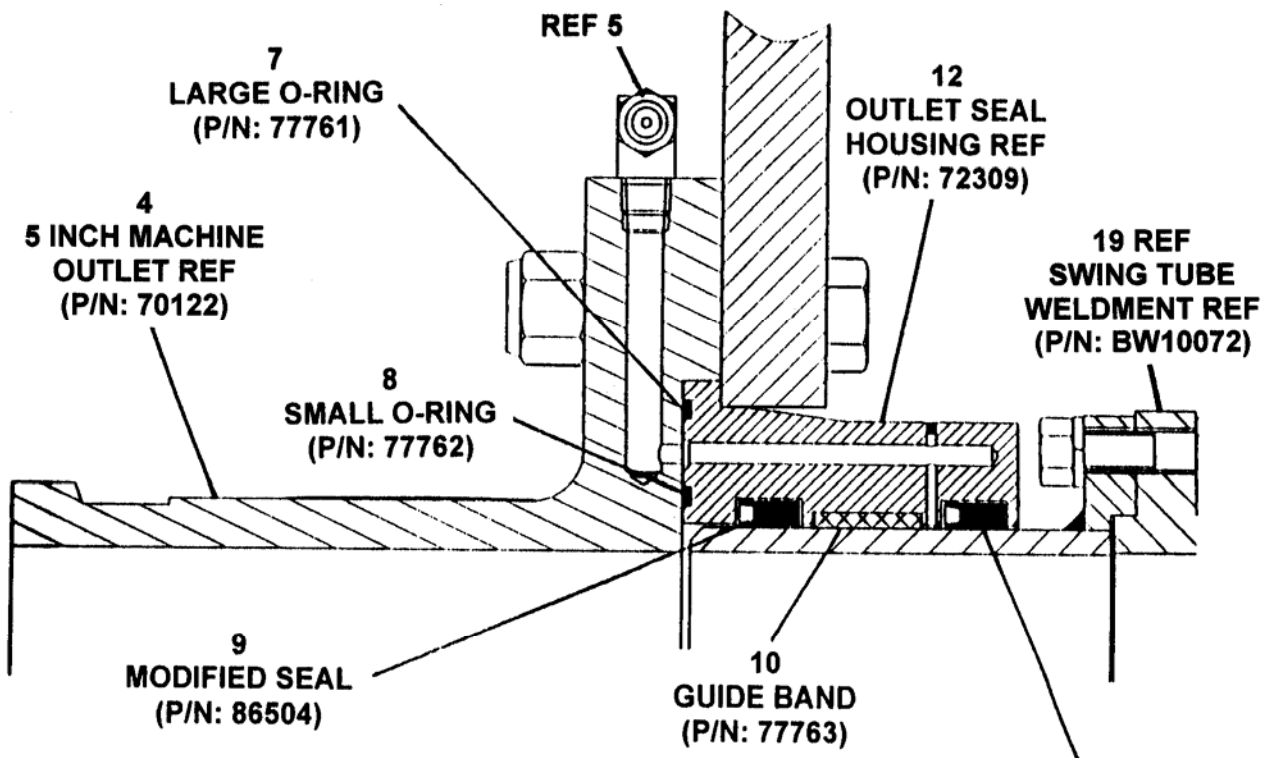
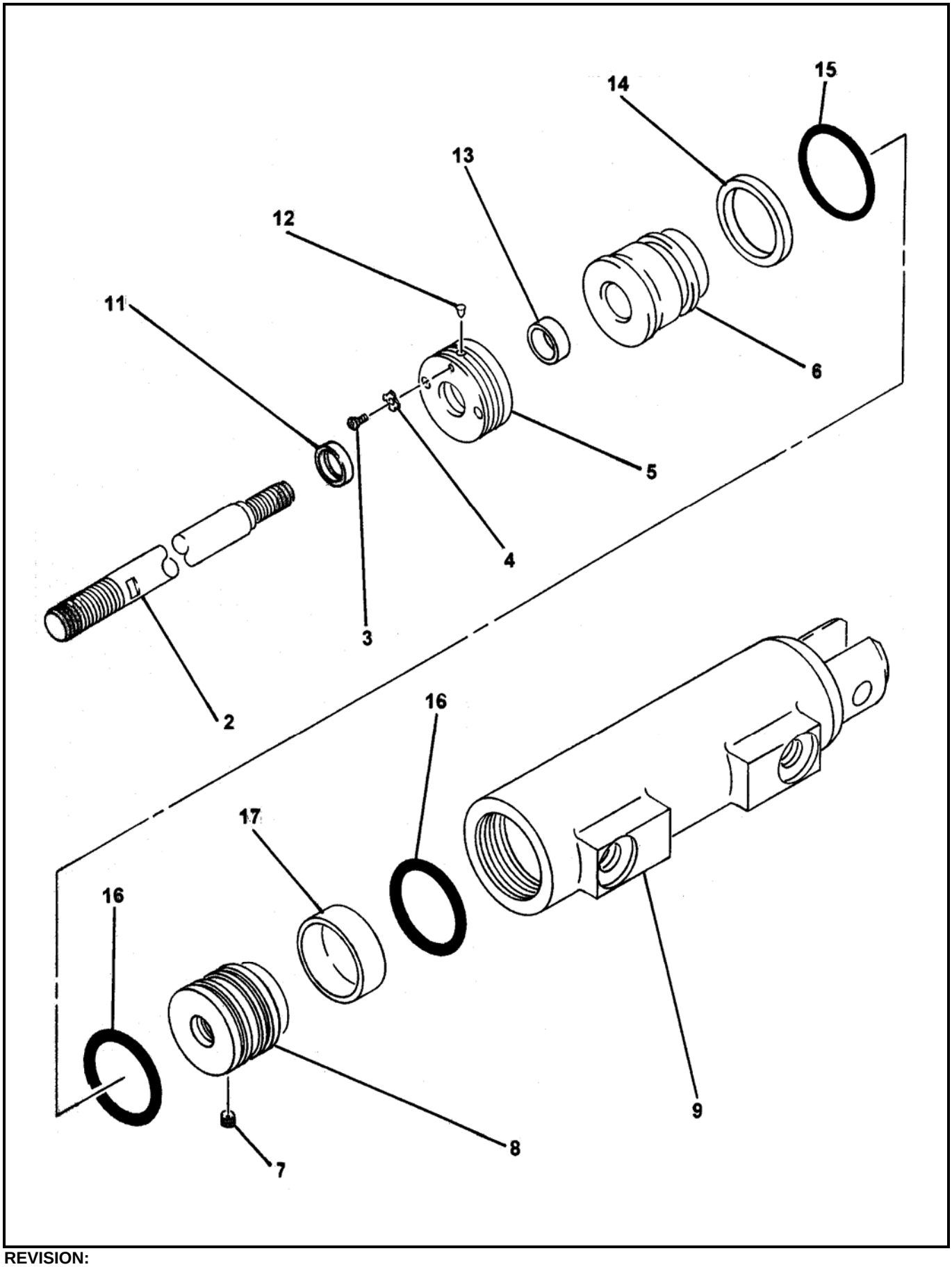


SEAL KIT INSTALLATION SECTIONAL VIEW (P/N: 79895)

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
42	85538	• • • Race, Inner	1
43		• • Fitting, Grease 90	1
44		• • Bolt, Hex	1
45		• • Pin, Cotter	2
46	86135	• • Clevis, Swing Ram Cylinder	1
47	86150	• • Pin, Clevis	1
48		• • Nut, Hex	1
49	BW10125	• • Assembly, Swing Ram Cylinder (See Group 60, Figure 03 for DET)	1
50		• • Fitting, 90	2
51	86052	• • Pin, Spring	2
52		• • Fitting, Grease STR	1
53	85947	• • Bracket, Swing Cylinder	1
54	71011	• • • Bushing, Shift Cylinder	1
55	74207	• • Pin, Clevis	1
56		• • Pin, Cotter	2
57	BW10031	• • Ring, Anti-Chip 5"	2
		DASH (-) ITEM NOT ILLUSTRATED	



REVISION:

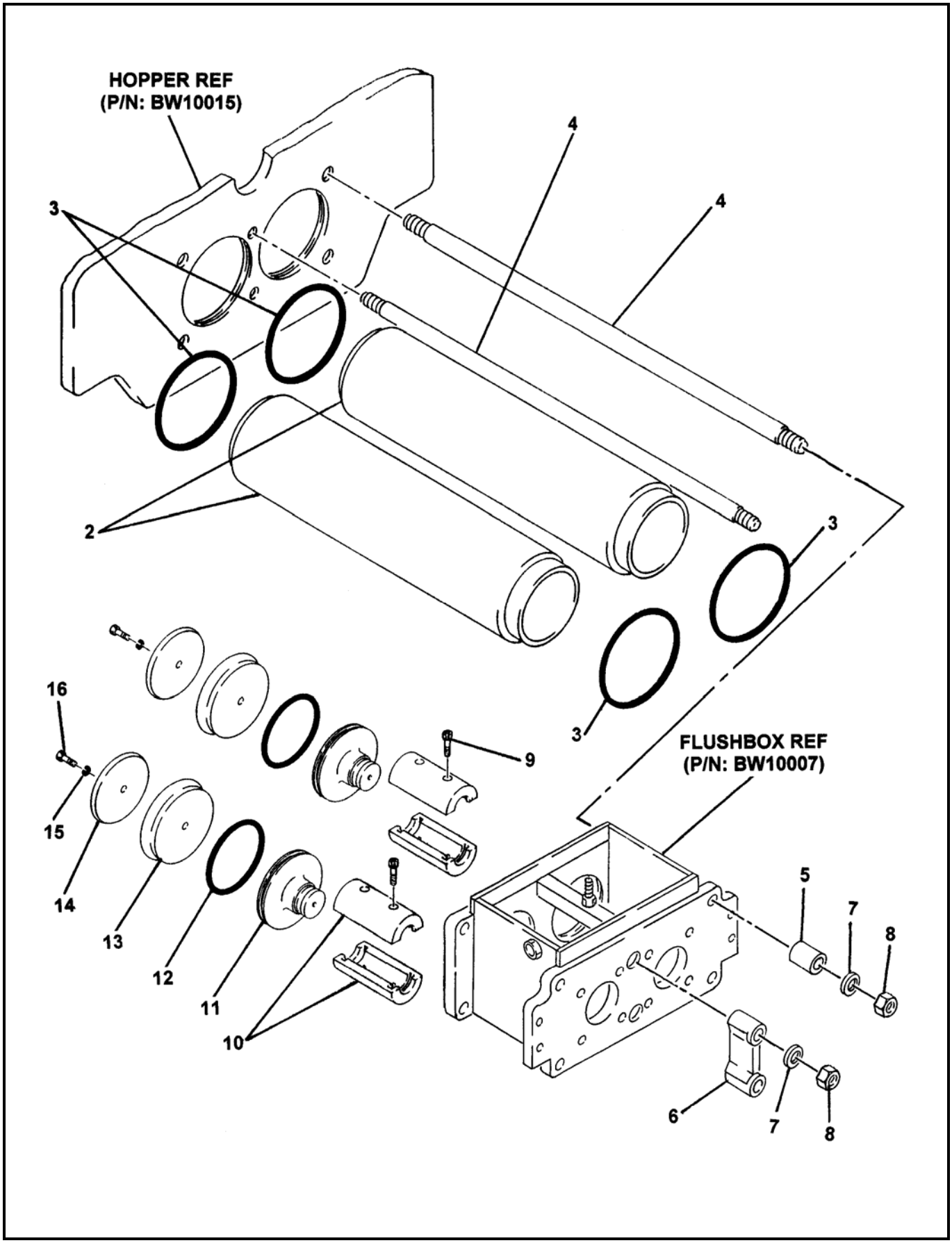
ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW10125	Assembly, Swing Ram Cylinder (See Group 60, Figure 02 for NHA)	Ref
2		• Rod, Cylinder	1
3		• Screw, Cap	1
4		• Washer, Lock	1
5		• Ring, Threaded	1
6		• Gland, Head	1
7		• Screw, Set	1
8		• Piston	1
9		• Weldment, Cylinder Case	1
-10	86221-SK	• Kit, Seal	1
11		• • Wiper, Rod	1
12		• • Plug, Nylon	1
13		• • U-Cup	1
14		• • Seal, Back Up	1
15		• • O-Ring	1
16		• • Seal, Piston	2
17		• • Ring, Wear	1

DASH (-) ITEM NOT ILLUSTRATED

REED

CONCRETE CYLINDER ASSEMBLY

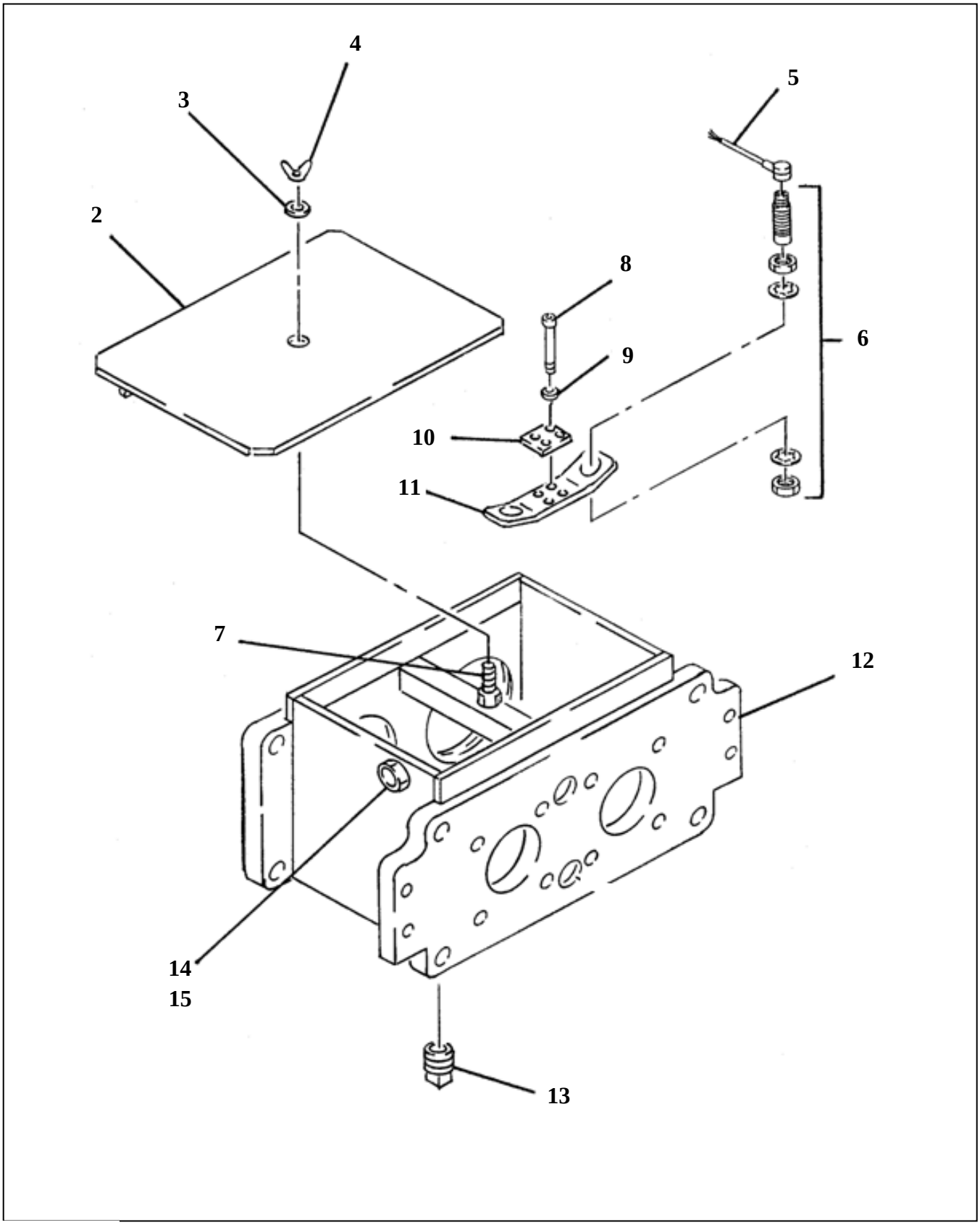
A30HP
PARTS
GROUP 60
FIGURE 04
PAGE 01



REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW23000	Assembly, Concrete Cylinder (See Group 60, Figure 01 for NHA)	Ref
2	BW10003	• Cylinder, Concrete	2
3	BW10028	• O-Ring, Concrete Cylinder	4
4	BW10018	• Rod, Tie	6
5	BW10038	• Spacer, Tie Rod	4
6	BW10016	• Assembly, Tie Rod Spacer	1
7		• Washer, Flat (attaching Parts)	6
8		• Nut, Hex (attaching Parts)	6
9		• Screw, Cap	4
10	73425	• Coupling, Piston	2
11	BW10340	• Adapter, 5 Inch Piston	2
12	BW10032	• Ring, 5 Inch Guide	2
13	BW10341	• Cup, 5 Inch Piston	2
14	BW10342	• Plate, 5 Inch Piston	2
15		• Washer, Star (attaching Parts)	2
16		• Bolt, Hex (attaching Parts)	2

DASH (-) ITEM NOT ILLUSTRATED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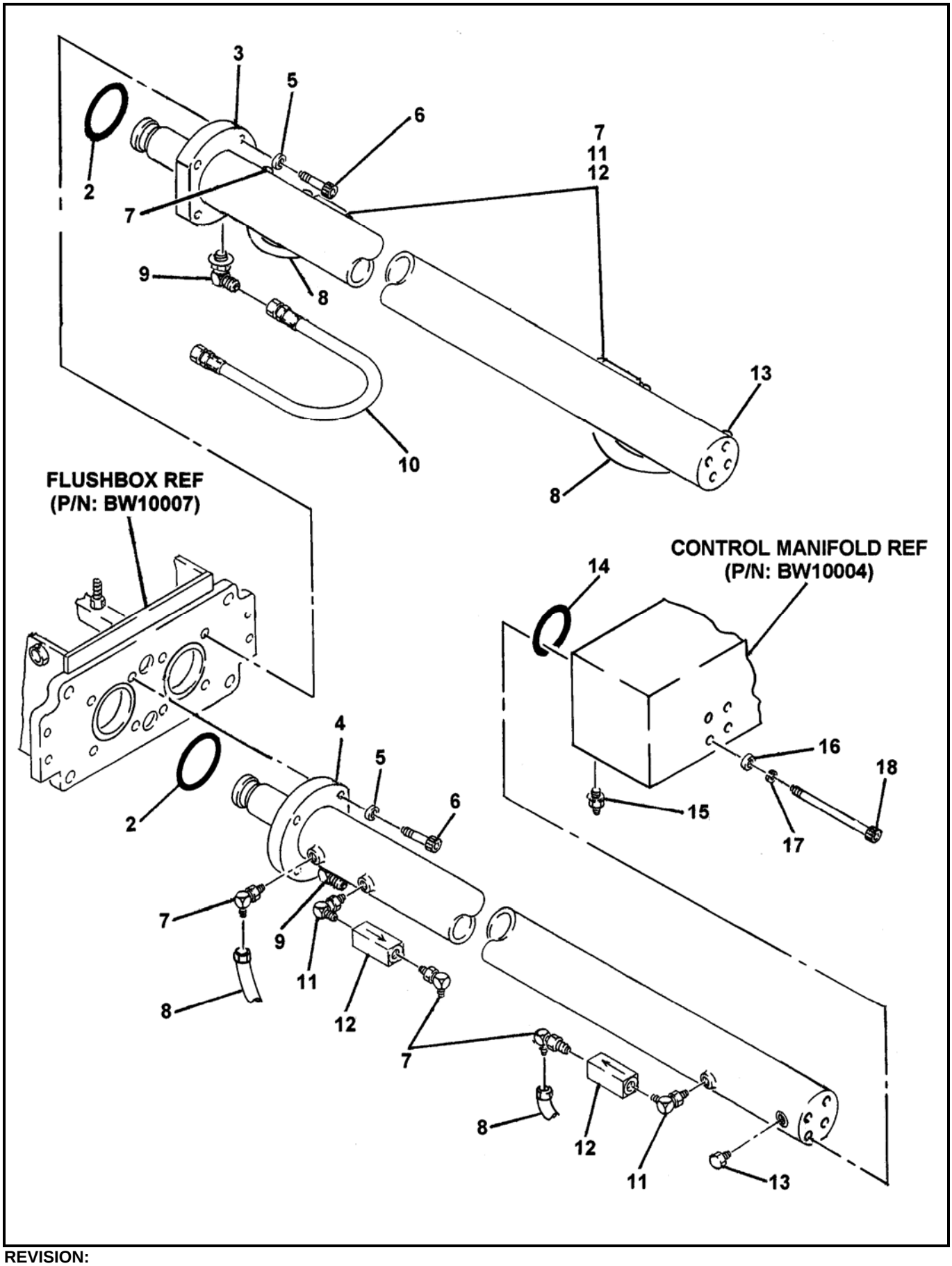
ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW22000	Assembly, flush box (See group 60, Figure 05 for NHA)	1
2	BW10454	Cover, weld/A series flush box-painted	1
3	80043	Flat washer, 3/8" USS	1
4		Wing nut	1
5	77990	Cable, proximity switch, 5M	2
6	77998	Proximity sensor, NPN flush box mount	2
7	BW10193	Stud, 3/8-16 x 2"	1
8		Bolt, 10-32X 1 1/2" SHCS	4
9		Flat washer, #10	4
10	BW10101	Bracket, Prox switch, A30	1
11	BW10102	Bracket, Prox switch	1
12	BW10007	Flush box weldment 5"	1
13	10282	Plugs-pipe Galv 1"	1
14	10522	Strain relief	1
15	10528	Nut-1/2" Bonding type lock	1

REED

HYDRAULIC DRIVE CYLINDER ASSEMBLY

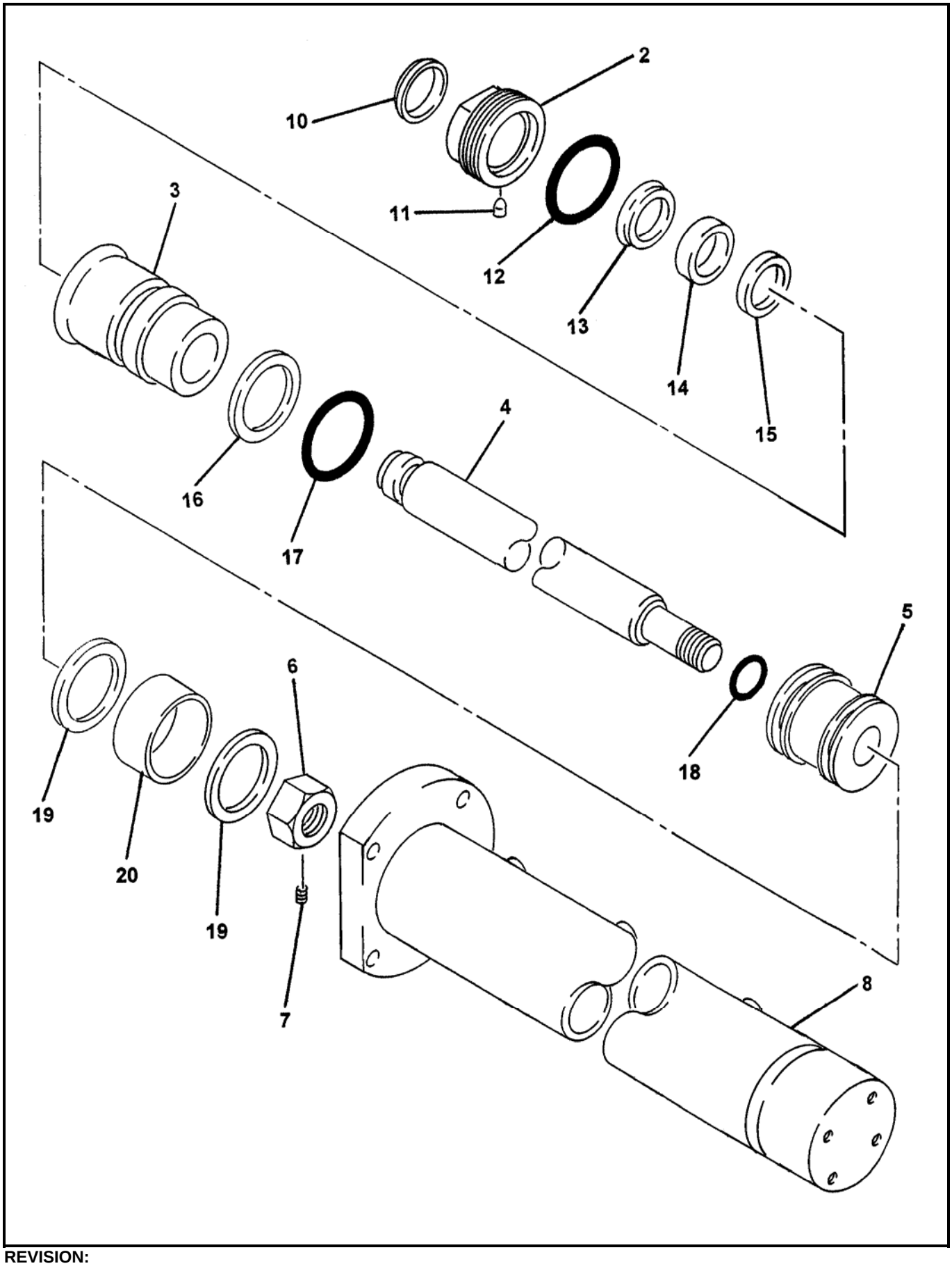


REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW21000	Assembly, Hydraulic Drive Cylinder (See Group 60, Figure 01 and Figure 02 for NHA)	Ref
2	BW10029	• O-Ring	2
3	BW10120	• Assembly, Left Hand Side Drive Cylinder (See Group 60, Figure 07 for DET)	1
4	BW10119	• Assembly, Right Hand Side Drive Cylinder (See Group 60, Figure 08 for DET)	1
5		• Washer, Lock (attaching parts)	8
6		• Bolt (attaching parts)	8
7		• Fitting, 90	6
8	BW10051	• Assembly, Hose	4
9		• Fitting, 90	2
10	BW10043	• Assembly, Lube Line Hydraulic Tube	1
11		• Fitting, 90	4
12	78961	• Valve, Check	4
13		• Plug	2
14	BW10177	• O-Ring	2
15		• Fitting, STR	2
16	BW10155	• Washer, Hardened	8
17		• Washer, Lock	8
18		• Bolt	8

DASH (-) ITEM NOT ILLUSTRATED

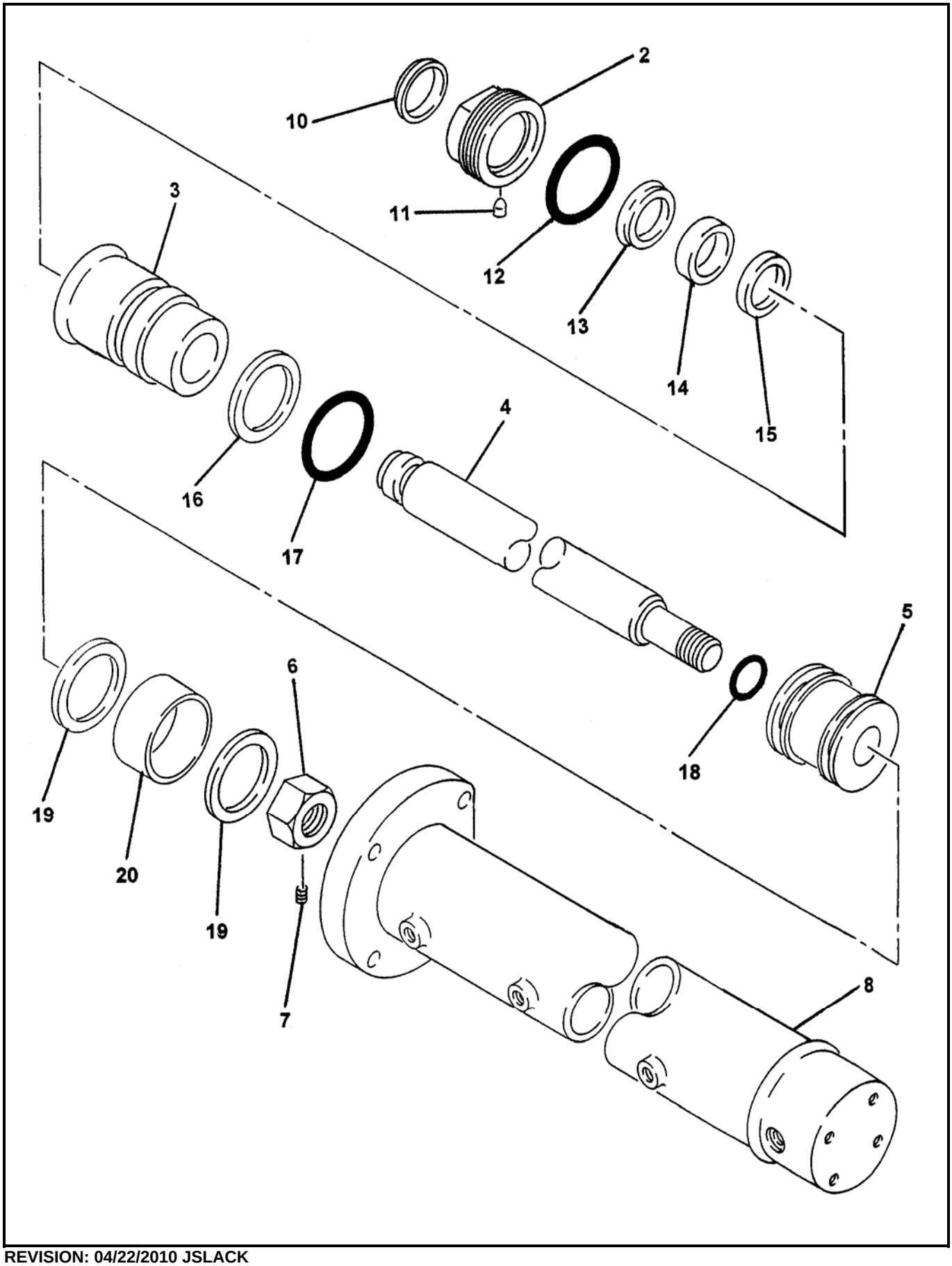
LEFT HAND SIDE
DRIVE CYLINDER ASSEMBLY



REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW10120	Assembly, Left Hand Side Drive Cylinder (See Group 60, Figure 06 for NHA)	Ref
2		• Ring, Threaded	1
3		• Gland, Head	1
4		• Rod, Cylinder	1
5		• Piston	1
6		• Nut, Piston	1
7		• Plug	1
8		• Weldment, Cylinder Case	1
-9	BW10120-SK	• Kit, Seal	1
10		• • Wiper, Rod	1
11		• • Plug, Nylon	1
12		• • O-Ring	1
13		• • Ring, Back Up	1
14		• • U-Cup	1
15		• • Seal, Buffer	1
16		• • Ring, Back Up	1
17		• • O-Ring	1
18		• • O-Ring	1
19		• • Seal, Piston	2
20		• • Ring, Wear	1

DASH (-) ITEM NOT ILLUSTRATED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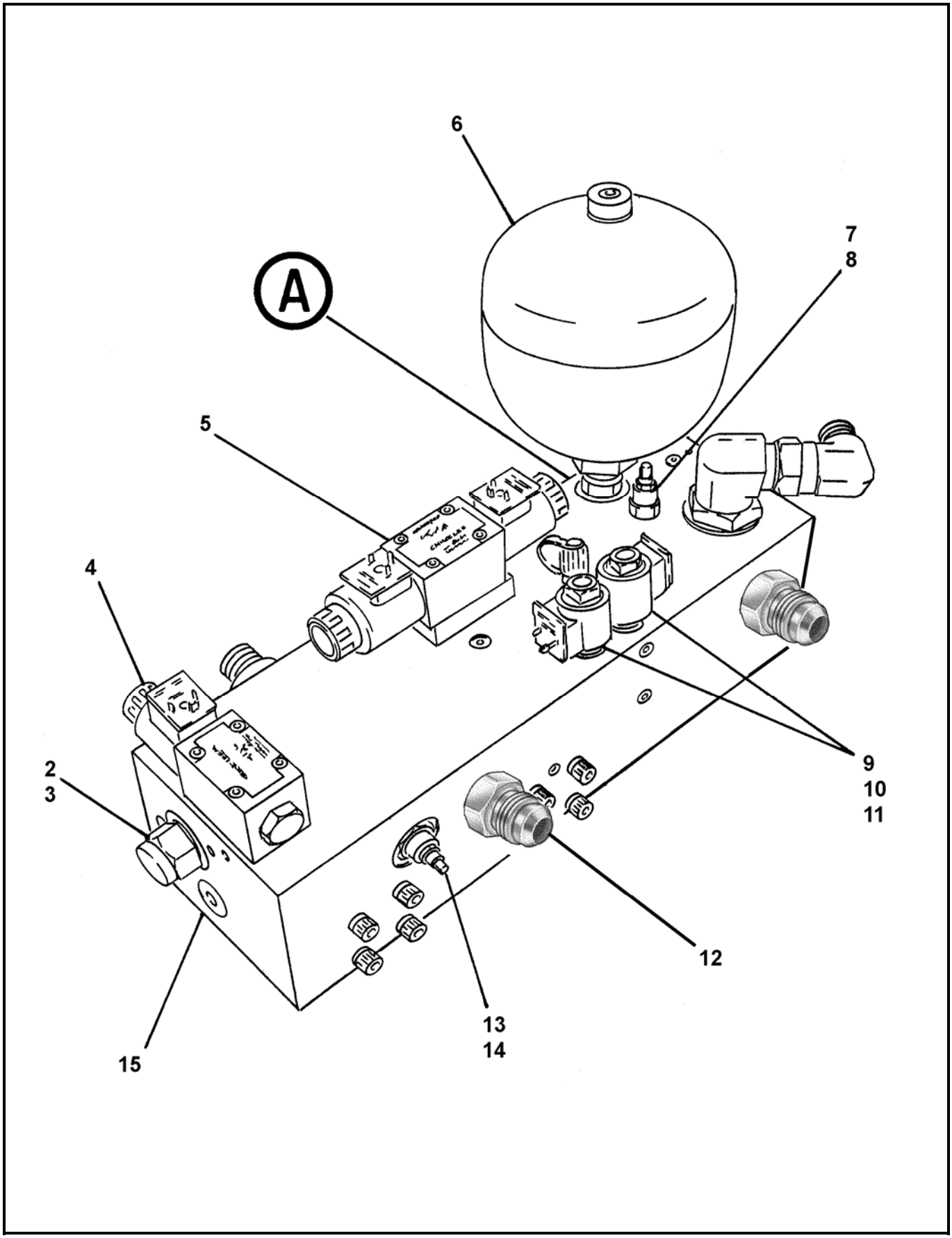
ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW10119	Assembly, Right Hand Side Drive Cylinder (See Group 60, Figure 06 for NHA)	Ref
2		• Ring, Threaded	1
3		• Gland, Head	1
4		• Rod, Cylinder	1
5		• Piston	1
6		• Nut, Piston	1
7		• Plug	1
8		• Weldment, Cylinder Case	1
-9	BW10119-SK	• Kit, Seal	1
10		• • Wiper, Rod	1
11		• • Plug, Nylon	1
12		• • O-Ring	1
13		• • Ring, Back Up	1
14		• • U-Cup	1
15		• • Seal, Buffer	1
16		• • Ring, Back Up	1
17		• • O-Ring	1
18		• • O-Ring	1
19		• • Seal, Piston	2
20		• • Ring, Wear	1

DASH (-) ITEM NOT ILLUSTRATED

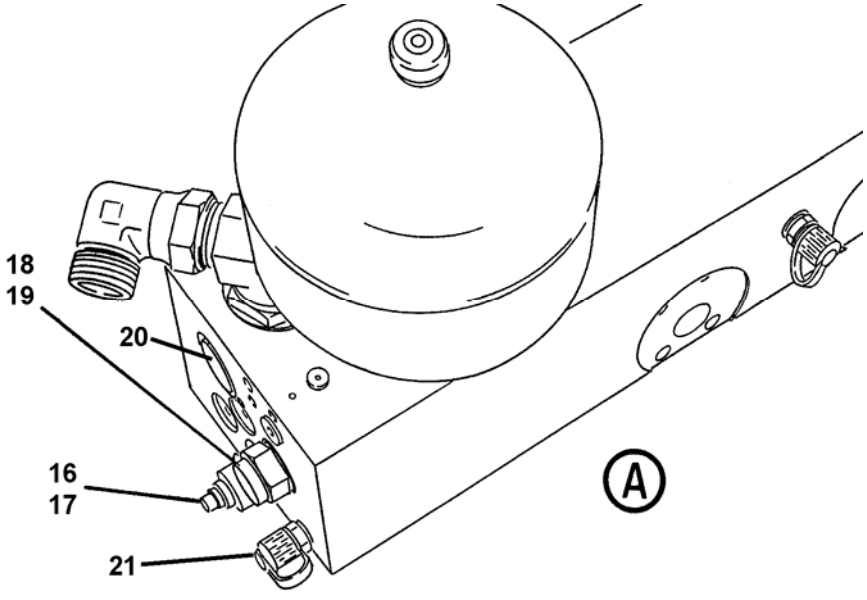
REED

CONTROL MANIFOLD WITH CARTRIDGE ASSEMBLY

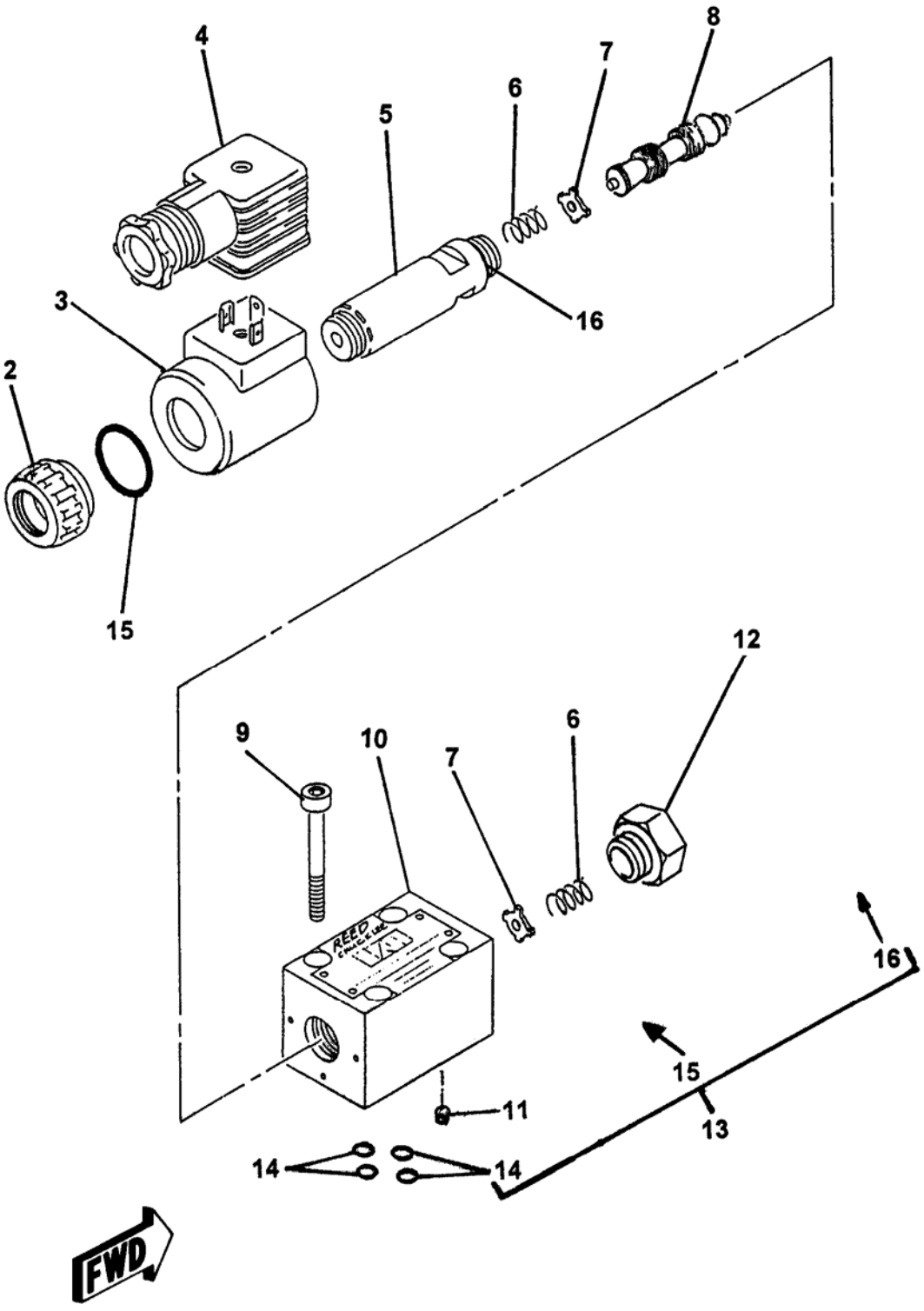


REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW10004	Assembly, Control Manifold with Cartridge (See Group 60, Figure 01 for NHA)	Ref
2	BW10181	• Cartridge, Directional Valve	1
3	BW10181-SK	• • Kit, Directional Valve Cartridge Seal	1
4	BW10183	• Assembly, Reverse Circuit Pilot Solenoid Valve (See Group 60, Figure 10 for DET)	1
5	85691	• Assembly, Main Cycling Circuit Pilot Solenoid Valve (See Group 60, Figure 11 for DET)	1
6	BW10184	• Assembly, 2 Liter Accumulator	1
7	85704	• Cartridge, Unloading Valve	1
8	85704-SK	• • Kit, Unloading Valve Cartridge Seal	1
9	BW10185	• Poppet, 2 Way Solenoid Valve Less Coil	2
10	BW10186	• Coil, 2 Way Solenoid Valve	2
11		• Kit, 2 Way Solenoid Valve Seal	2
12	86900-028	• Adapter, MB-MJ-16-16	4
13	BW10326	• Cartridge, Relief Valve	1
14		• • Kit, Relief Valve Cartridge Seal	1
15	BW10325	• Body, Manifold	1
16	85703	• Cartridge, Relief Valve	1
17	85703-SK	• • Kit, Relief Valve Cartridge Seal	1
18	BW10182	• Cartridge, Directional Valve	1
19	BW10182-SK	• • Kit, Directional Valve Cartridge Seal	1
20	BW10327	• Valve, Check	1
21	78593	• Adapter, Minicheck	3
-22	86900-024	• Adapter, MB-MJ-12-16	1
-23	BW10328	• Adapter, MB-MB-12-12	1
-24	86900-023	• Adapter, MB-MJ-12-12	2
-25	86728-028	• Elbow, MB-MJ90-20-24	1
-26	86905-012	• Elbow, MJ-FJX90-24-24	1
-27	BW10177	• O-Ring-#219	2
-28	BW10329	• SHCS 10-24 x 2" Long	8
		DASH (-) ITEM NOT ILLUSTRATED	



REVERSE CIRCUIT PILOT SOLENOID VALVE ASSEMBLY

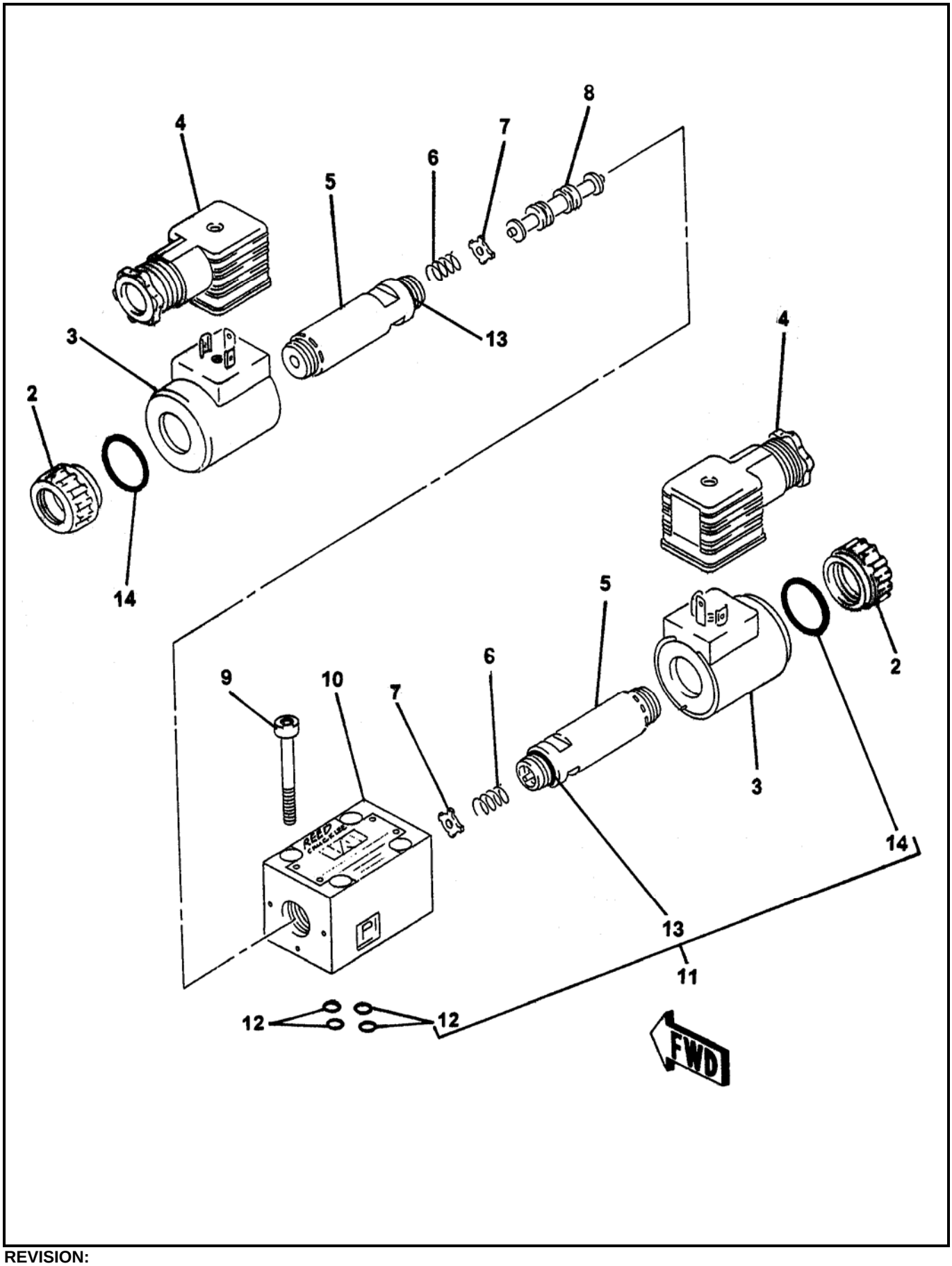


REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	BW10183	Assembly, Reverse Circuit Pilot Solenoid Valve (See Group 60, Figure 09 for NHA)	Ref
2		• Cap, Coil	1
3	85692	• Coil, Drive Cylinder Circuit Main Solenoid	1
4	74597	• Connector, Plug	1
5		• Amature	1
6		• Spring	2
7		• Plate, Spring	2
8		• Spool	1
9		• Screw, SOC	4
10		• Housing, Solenoid Valve	1
11		• Orfice	1
12		• Plug	1
13	72313	• Kit, O-Ring	1
14		• • O-Ring	4
15		• • O-Ring	1
16		• • O-Ring	1

DASH (-) ITEM NOT ILLUSTRATED

MAIN CYCLING CIRCUIT
PILOT SOLENOID VALVE ASSEMBLY



REVISION:

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	85691	Assembly, Main Cycling Circuit Pilot Solenoid Valve (See Group 60, Figure 09 for NHA)	Ref
2		• Cap, Coil	2
3	85692	• Coil, Solenoid	2
4	74597	• Connector, Plug	2
5		• Amature	2
6		• Spool	1
7		• Screw, SOC	4
8		• Housing, Solenoid Valve	1
9		• Detent	1
10		• Orifice	1
11	72313	• Kit, O-ring	1
12		• • O-Ring	4
13		• • O-ring	2
14		• • O-ring	2

DASH (-) ITEM NOT ILLUSTRATED

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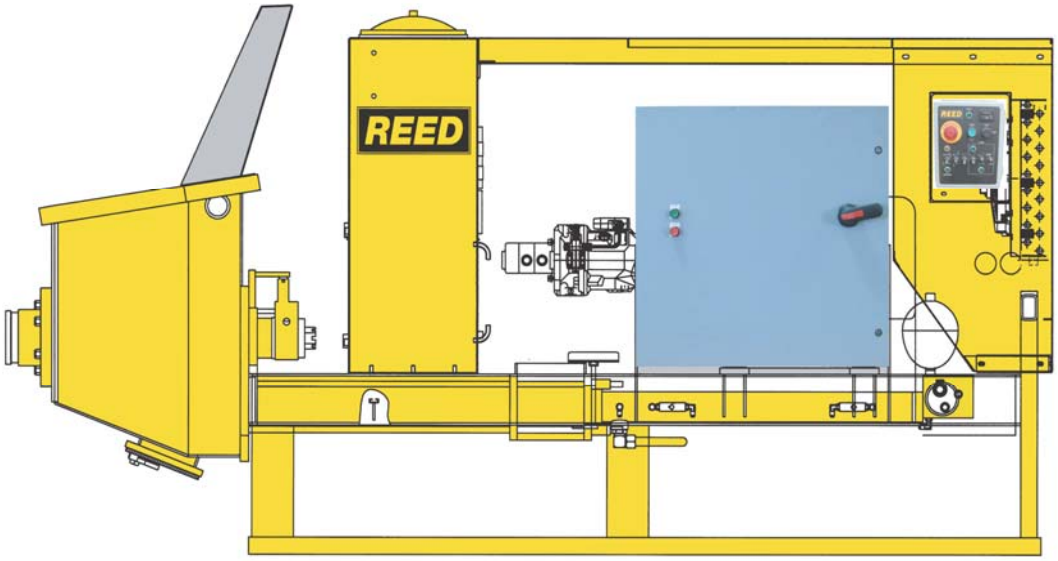
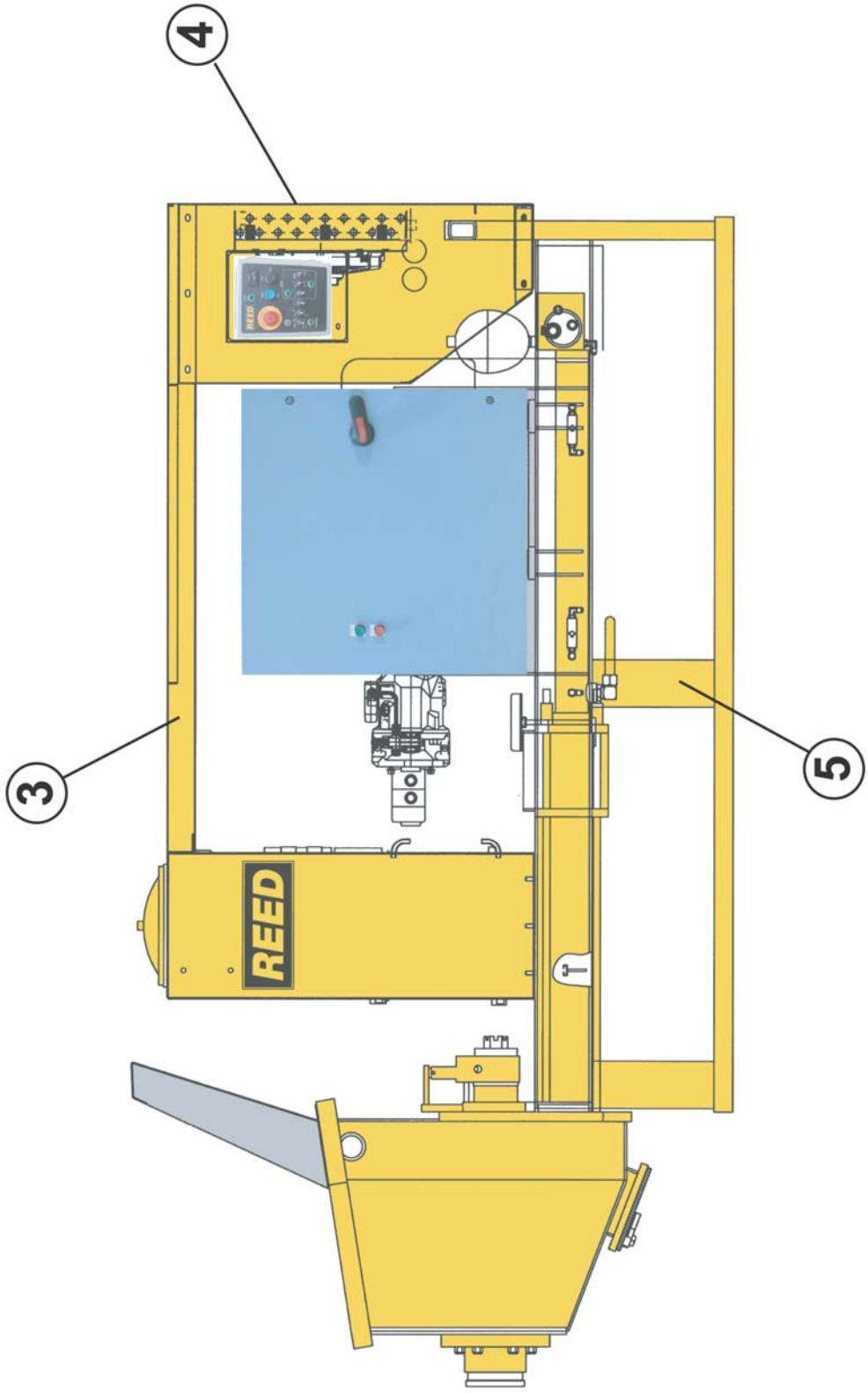
REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **ILLUSTRATED PARTS MANUAL GROUP 70 FRAME INSTALLATION** CONTAINS THE FOLLOWING FIGURES:

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REED

ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	70-01	Installation, Frame (See Group 10, Figure 01 for NHA)	Ref
2	BW10447	• Group, Loose Parts	1
3	BW10448	• • Cover, Engine Top	1
4	BW10400	• • Cover, Engine Front	1
5	BW10433	• Skid Frame Weldment	1
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		DASH (-) ITEM NOT ILLUSTRATED	

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REED SKID MOUNTED CONCRETE PUMP ***01*** MODEL ***A30HP*** **VENDOR SECTION** CONTAINS THE FOLLOWING FIGURES:

REED | 75HP-460V-60HZ-3PH BALDOR MOTOR | VENDOR | FIGURE 01 PAGE 01

BALDOR MOTORS AND DRIVES

Integral Horsepower
AC Induction Motors
ODP Enclosure
TEFC Enclosure

Installation & Operating Manual

9/96

REVISION:

REED | MANNESMANN REXROTH A10V PUMP | VENDOR | FIGURE 02 PAGE 01

FE

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NOTE

Pretested and preassembled Original Brueninghaus subassemblies make quick and successful repairs possible.

Delivery of the correct spare parts will be especially quick if you quote type and serial number when ordering.

Repairs are simple, but you are nevertheless recommended to take advantage of our training offer and thus gain the necessary specialist knowledge.

CONTENTS

Notes/Contents
Cross Section
Seal kits/sub-assemblies
Sealing the drive shaft
Disassembling of the pump
Several pilot valves (Section)
Disassembling and cleaning the pressure- and flowcontrol
Assembly demensions
Testing and set up instructions
Tools and tightening torques.

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BALDOR®
MOTORS AND DRIVES

Integral Horsepower
AC Induction Motors
ODP Enclosure
TEFC Enclosure

Installation & Operating Manual

9/96

MN400

Table of Contents

Section 1
General Information

Overview This manual contains general procedures that apply to Baldor Motor products. Be sure to read and understand the Safety Notice statements in this manual. For your protection, do not install, operate or attempt to perform maintenance procedures until you understand the Warning and Caution statements. A Warning statement indicates a possible unsafe condition that can cause harm to personnel. A Caution statement indicates a condition that can cause damage to equipment.

Important: **This instruction manual is not intended to include a comprehensive listing of all details for all procedures required for installation, operation and maintenance. This manual describes general guidelines that apply to most of the motor products shipped by Baldor. If you have a question about a procedure or are uncertain about any detail, Do Not Proceed. Please contact your Baldor distributor for more information or clarification.**

Before you install, operate or perform maintenance, become familiar with the following:

- NEMA Publication MG-2, Safety Standard for Construction and guide for Selection, Installation and Use of Electric Motors and Generators.
- The National Electrical Code
- Local codes and Practices

Limited Warranty

1. Baldor Electric motors are warranted for a period of one (1) year, from date of shipment from the factory or factory warehouse against defects in material and workmanship. To allow for stocking and/or fabrication period and to provide one year of actual service, the warranty period is extended for an additional period of six (6) months for a total of eighteen (18) months from the original date of shipment from the factory or factory warehouse stock. In no case will the warranty period be extended for a longer period. Baldor extends this limited warranty to each buyer of the electric motor for the purpose of resale and to the original purchaser for use.
2. Baldor will, at its option repair or replace a motor which fails due to defects in material or workmanship during the warranty period if:
   a. the purchaser presents the defective motor at or ships it prepaid to, the Baldor plant in Fort Smith, Arkansas or one of the Baldor Authorized Service Centers and
   b. the purchaser gives written notification concerning the motor and the claimed defect including the date purchased, the task performed by the Baldor motor and the problem encountered.
3. Baldor will not pay the cost of removal of any electric motor from any equipment, the cost of delivery to Fort Smith, Arkansas or a Baldor Authorized Service Center, or the cost of any incidental or consequential damages resulting from the claimed defects. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.) Any implied warranty given by laws shall be limited to the duration of the warranty period hereunder. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)
4. Baldor Authorized Service Centers, when convinced to their satisfaction that a Baldor motor developed defects in material or workmanship within the warranty period, are authorized to proceed with the required repairs to fulfill Baldor's warranty when the cost of such repairs to be paid by Baldor does not exceed Baldor's warranty repair allowance. Baldor will not pay overtime premium repair charges without prior written authorization.
5. The cost of warranty repairs made by centers other than Baldor Authorized Service Centers **WILL NOT** be paid unless first authorized in writing by Baldor.
6. Claims by a purchaser that a motor is defective even when a failure results within one hour after being placed into service are not always justified. Therefore, Baldor Authorized Service Centers must determine from the condition of the motor as delivered to the center whether or not the motor is defective. If in the opinion of a Baldor Authorized Service Center, a motor did not fail as a result of defects in material or workmanship, the center is to proceed with repairs only if the purchaser agrees to pay for such repairs. If the decision is in dispute, the purchaser should still pay for the repairs and submit the paid invoice and the Authorized Service Center's signed service report to Baldor for further consideration.
7. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

   Note that **Baldor Super–E® Premium Efficiency** electric motors are warranted for a period of three (3) years. All other terms and conditions of the Limited Warranty statement apply.

Safety Notice:

This equipment contains high voltage! Electrical shock can cause serious or fatal injury. Only qualified personnel should attempt installation, operation and maintenance of electrical equipment.

Be sure that you are completely familiar with NEMA publication MG-2, safety standards for construction and guide for selection, installation and use of electric motors and generators, the National Electrical Code and local codes and practices. Unsafe installation or use can cause conditions that lead to serious or fatal injury. Only qualified personnel should attempt the installation, operation and maintenance of this equipment.

WARNING: **Do not touch electrical connections before you first ensure that power has been disconnected. Electrical shock can cause serious or fatal injury. Only qualified personnel should attempt the installation, operation and maintenance of this equipment.**

WARNING: **Be sure the system is properly grounded before applying power. Do not apply AC power before you ensure that all grounding instructions have been followed. Electrical shock can cause serious or fatal injury. National Electrical Code and Local codes must be carefully followed.**

WARNING: **Avoid extended exposure to machinery with high noise levels. Be sure to wear ear protective devices to reduce harmful effects to your hearing.**

WARNING: **This equipment may be connected to other machinery that has rotating parts or parts that are driven by this equipment. Improper use can cause serious or fatal injury. Only qualified personnel should attempt to install operate or maintain this equipment.**

WARNING: **Do not by-pass or disable protective devices or safety guards. Safety features are designed to prevent damage to personnel or equipment. These devices can only provide protection if they remain operative.**

WARNING: **Avoid the use of automatic reset devices if the automatic restarting of equipment can be hazardous to personnel or equipment.**

WARNING: **Be sure the load is properly coupled to the motor shaft before applying power. The shaft key must be fully captive by the load device. Improper coupling can cause harm to personnel or equipment if the load decouples from the shaft during operation.**

WARNING: **Use proper care and procedures that are safe during handling, lifting, installing, operating and maintaining operations. Improper methods may cause muscle strain or other harm.**

WARNING: **Before performing any motor maintenance procedure, be sure that the equipment connected to the motor shaft cannot cause shaft rotation. If the load can cause shaft rotation, disconnect the load from the motor shaft before maintenance is performed. Unexpected mechanical rotation of the motor parts can cause injury or motor damage.**

WARNING: **Disconnect all electrical power from the motor windings and accessory devices before disassembly of the motor. Electrical shock can cause serious or fatal injury.**

WARNING: **Do not use these motors in the presence of flammable or combustible vapors or dust. These motors are not designed for atmospheric conditions that require explosion proof operation.**

Safety Notice Continued

Caution: **To prevent premature equipment failure or damage, only qualified maintenance personnel should perform maintenance.**

Caution: **Do not lift the motor and its driven load by the motor lifting hardware. The motor lifting hardware is adequate for lifting only the motor. Disconnect the load from the motor shaft before moving the motor.**

Caution: **If eye bolts are used for lifting a motor, be sure they are securely tightened. The lifting direction should not exceed a 20° angle from the shank of the eye bolt or lifting lug. Excessive lifting angles can cause damage.**

Caution: **To prevent equipment damage, be sure that the electrical service is not capable of delivering more than the maximum motor rated amps listed on the rating plate.**

Caution: **If a HI POT test (High Potential Insulation test) must be performed, follow the precautions and procedure in NEMA MG-1 and MG-2 standards to avoid equipment damage.**

If you have any questions or are uncertain about any statement or procedure, or if you require additional information please contact your Baldor distributor or an Authorized Baldor Service Center.

Receiving

Each Baldor Electric Motor is thoroughly tested at the factory and carefully packaged for shipment. When you receive your motor, there are several things you should do immediately.

1. Observe the condition of the shipping container and report any damage immediately to the commercial carrier that delivered your motor.
2. Verify that the part number of the motor you received is the same as the part number listed on your purchase order.

Storage

If the motor is not put into service immediately, the motor must be stored in a clean, dry and warm location. Several precautionary steps must be performed to avoid motor damage during storage.

1. Use a "Megger" periodically to ensure that the integrity of the winding insulation has been maintained. Record the Megger readings. Immediately investigate any significant drop in insulation resistance.
2. Do not lubricate bearings during storage. Motor bearings are packed with grease at the factory. Excessive grease can damage insulation quality.
3. Rotate motor shaft at least 10 turns every two months during storage (more frequently if possible). This will prevent bearing damage due to storage.
4. If the storage location is damp or humid, the motor windings must be protected from moisture. This can be done by applying power to the motors' space heater (if available) while the motor is in storage.

Unpacking

Each Baldor motor is packaged for ease of handling and to prevent entry of contaminants.

1. To avoid condensation inside the motor, do not unpack until the motor has reached room temperature. (Room temperature is the temperature of the room in which it will be installed). The packing provides insulation from temperature changes during transportation.
2. When the motor has reached room temperature, remove all protective wrapping material from the motor.

Handling

The motor should be lifted using the lifting lugs or eye bolts provided.

1. Use the lugs or eye bolts provided to lift the motor. Never attempt to lift the motor and additional equipment connected to the motor by this method. The lugs or eye bolts provided are designed to lift only the motor. Never lift the motor by the motor shaft.
2. If the motor must be mounted to a plate with the driven equipment such as pump, compressor etc., it may not be possible to lift the motor alone. For this case, the assembly should be lifted by a sling around the mounting base. The entire assembly can be lifted as an assembly for installation. Do not lift using the motor lugs or eye bolts provided.

   If the load is unbalanced (as with couplings or additional attachments) additional slings or other means must be used to prevent tipping. In any event, the load must be secure before lifting.

Section 2
Installation & Operation

Overview

Installation should conform to the National Electrical Code as well as local codes and practices. When other devices are coupled to the motor shaft, be sure to install protective devices to prevent future accidents. Some protective devices include, coupling, belt guard, chain guard, shaft covers etc. These protect against accidental contact with moving parts. Machinery that is accessible to personnel should provide further protection in the form of guard rails, screening, warning signs etc.

Location

The motor should be installed in an area that is protected from direct sunlight, corrosives, harmful gases or liquids, dust, metallic particles, and vibration. Exposure to these can reduce the operating life and degrade performance. Be sure to allow clearance for ventilation and access for cleaning, repair, service and inspections. Ventilation is extremely important. Be sure the area for ventilation is not obstructed. Obstructions will limit the free passage of air. Motors get warm and the heat must be dissipated to prevent damage.

These motors are not designed for atmospheric conditions that require explosion proof operation. They must NOT be used in the presence of flammable or combustible vapors or dust.

1. ODP motors are suitable only for indoor applications.
2. TEFC motors are suitable for indoor or outdoor standard service applications.

Mounting

The motor must be securely installed to a rigid foundation or mounting surface to minimize vibration and maintain alignment between the motor and shaft load. Failure to provide a proper mounting surface may cause vibration, misalignment and bearing damage.

Foundation caps and sole plates are designed to act as spacers for the equipment they support. If these devices are used, be sure that they are evenly supported by the foundation or mounting surface.

After installation is complete and accurate alignment of the motor and load is accomplished, the base should be grouted to the foundation to maintain this alignment.

The standard motor base is designed for horizontal or vertical mounting. Adjustable or sliding rails are designed for horizontal mounting only. Consult your Baldor distributor or authorized Baldor Service Center for further information.

Alignment

Accurate alignment of the motor with the driven equipment is extremely important.

1. **Direct Coupling**
   For direct drive, use flexible couplings if possible. Consult the drive or equipment manufacturer for more information. Mechanical vibration and roughness during operation may indicate poor alignment. Use dial indicators to check alignment. The space between coupling hubs should be maintained as recommended by the coupling manufacturer.
2. **End-Play Adjustment**
   The axial position of the motor frame with respect to its load is also extremely important. The motor bearings are not designed for excessive external axial thrust loads. Improper adjustment will cause failure.
3. **Pulley Ratio**
   The pulley ratio should not exceed 8:1.
4. **Belt Drive**
   Align sheaves carefully to minimize belt wear and axial bearing loads (see End-Play Adjustment). Belt tension should be sufficient to prevent belt slippage at rated speed and load. However, belt slippage may occur during starting.

Caution: **Do not over tension belts.**

Doweling & Bolting

After proper alignment is verified, dowel pins should be inserted through the motor feet into the foundation. This will maintain the correct motor position should motor removal be required. (Baldor motors are designed for doweling.)

1. Drill dowel holes in diagonally opposite motor feet in the locations provided.
2. Drill corresponding holes in the foundation.
3. Ream all holes.
4. Install proper fitting dowels.
5. Mounting bolts must be carefully tightened to prevent changes in alignment. Use a flat washer and lock washer under each nut or bolt head to hold the motor feet secure. Flanged nuts or bolts may be used as an alternative to washers.

Power Connection

Motor and control wiring, overload protection, disconnects, accessories and grounding should conform to the National Electrical Code and local codes and practices.

Conduit Box

For ease of making connections, an oversize conduit box is provided. The box can be rotated 360° in 90° increments. Auxiliary conduit boxes are provided on some motors for accessories such as space heaters, RTD's etc.

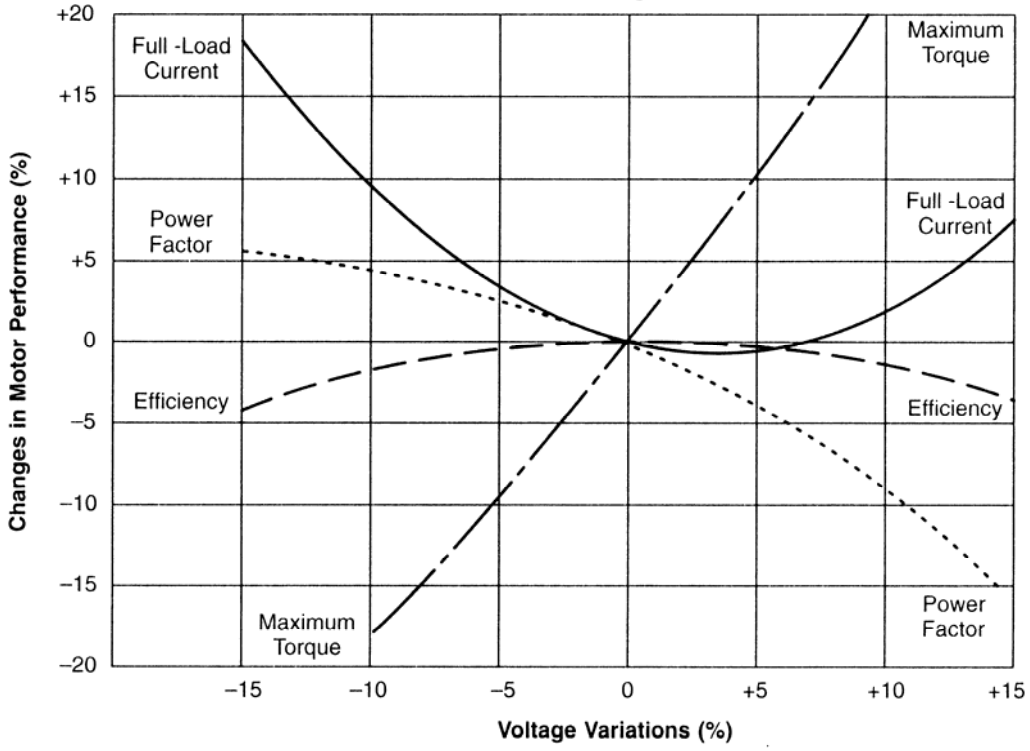
AC Power

Connect the motor leads as shown on the connection diagram located on the name plate or inside the cover on the conduit box. Be sure the following guidelines are met:

1. AC power is within ±10% of rated voltage with rated frequency. (See motor name plate for ratings).
   OR
2. AC power is within ±5% of rated frequency with rated voltage.
   OR
3. A combined variation in voltage and frequency of ±10% (sum of absolute values) of rated values, provided the frequency variation does not exceed ±5% of rated frequency.

Performance within these voltage and frequency variations are shown in Figure 2-1.

Figure 2-1 Motor Performance VS Voltage Variations



First Time Start Up

Be sure that all power to motor and accessories is off. Be sure the motor shaft is disconnected from the load and will not cause mechanical rotation of the motor shaft.

1. Make sure that the mechanical installation is secure. All bolts and nuts are tightened etc.
2. If motor has been in storage or idle for some time, check winding insulation integrity with a Megger.
3. Inspect all electrical connections for proper termination, clearance, mechanical strength and electrical continuity.
4. Be sure all shipping materials and braces (if used) are removed from motor shaft.
5. Manually rotate the motor shaft to ensure that it rotates freely.
6. Replace all panels and covers that were removed during installation.
7. Momentarily apply power and check the direction of rotation of the motor shaft.
8. If motor rotation is wrong, be sure power is off and change the motor lead connections. Verify rotation direction before you continue.
9. Start the motor and ensure operation is smooth without excessive vibration or noise. If so, run the motor for 1 hour with no load connected.
10. After 1 hour of operation, disconnect power and connect the to load to the motor shaft. Verify all coupling guards and protective devices are installed. Ensure motor is properly ventilated.

Coupled Start Up

This procedure assumes a coupled start up. Also, that the first time start up procedure was successful.

1. Check the coupling and ensure that all guards and protective devices are installed.
2. Check that the coupling is properly aligned and not binding.
3. The first coupled start up should be with no load. Apply power and verify that the load is not transmitting excessive vibration back to the motor though the coupling or the foundation. Vibration should be at an acceptable level.
4. Run for approximately 1 hour with the driven equipment in an unloaded condition.

The equipment can now be loaded and operated within specified limits. Do not exceed the name plate ratings for amperes for steady continuous loads.

Jogging and Repeated Starts Repeated starts and/or jogs of induction motors generally reduce the life of the motor winding insulation. A much greater amount of heat is produced by each acceleration or jog than than by the same motor under full load. If it is necessary to to repeatedly start or jog the motor, it is advisable to check the application with your local Baldor distributor or Baldor Service Center.

Heating - Duty rating and maximum ambient temperature are stated on the motor name plate. Do not exceed these values. If there is any question regarding safe operation, contact your local Baldor distributor or Baldor Service Center.

Section 3
Maintenance & Troubleshooting

General Inspection

Inspect the motor at regular intervals, approximately every 500 hours of operation or every 3 months, whichever occurs first. Keep the motor clean and the ventilation openings clear. The following steps should be performed at each inspection:

WARNING: Do not touch electrical connections before you first ensure that power has been disconnected. Electrical shock can cause serious or fatal injury. Only qualified personnel should attempt the installation, operation and maintenance of this equipment.

1. Check that the motor is clean. Check that the interior and exterior of the motor is free of dirt, oil, grease, water, etc. Oily vapor, paper pulp, textile lint, etc. can accumulate and block motor ventilation. If the motor is not properly ventilated, overheating can occur and cause early motor failure.
2. Use a "Megger" periodically to ensure that the integrity of the winding insulation has been maintained. Record the Megger readings. Immediately investigate any significant drop in insulation resistance.
3. Check all electrical connectors to be sure that they are tight.

Lubrication & Bearings

Bearing grease will lose its lubricating ability over time, not suddenly. The lubricating ability of a grease (over time) depends primarily on the type of grease, the size of the bearing, the speed at which the bearing operates and the severity of the operating conditions. Good results can be obtained if the following recommendations are used in your maintenance program.

Type of Grease

A high grade ball or roller bearing grease should be used. Recommended greases for standard service conditions are:

Shell Dolium R (Factory Installed) or Chevron SRI.

Lubrication Intervals

Recommended lubrication intervals are shown in Table 3-1. It is important to realize that the recommended intervals of Table 3-1 are based on average use. **Refer to additional information contained in Tables 3-2 and 3-3.**

Table 3-1 Lubrication Intervals

NEMA / (IEC) Frame Size	Rated Speed - RPM			
	3600	1800	1200	900
Up to 210 incl. (132)	5500 Hrs.	12000 Hrs.	18000 Hrs.	22000 Hrs.
Over 210 to 280 incl. (180)	3600 Hrs.	9500 Hrs.	15000 Hrs.	18000 Hrs.
Over 280 to 360 incl. (225)	* 2200 Hrs.	7400 Hrs.	12000 Hrs.	15000 Hrs.
Over 260 to 5000 incl. (300)	*2200 Hrs.	3500 Hrs.	7400 Hrs.	10500 Hrs.

* Bearings in 360 through 5000 frame, 2 pole motors are either 6313 or 6314 bearings and lubrication interval is shown in the table. If roller bearings are used, the bearings must be lubricated more frequently, divide the listed lubrication interval by 2.

Table 3-2 Service Conditions

Severity of Service	Ambient Temperature Maximum	Atmospheric Contamination	Type of Bearing
Standard	40° C	Clean, Little Corrosion	Deep Groove Ball Bearing
Severe	50° C	Moderate dirt, Corrosion	Ball Thrust, Roller
Extreme	>50° C* or Class H Insulation	Severe dirt, Abrasive dust, Corrosion	All Bearings
Low Temperature	<–30° C **		

* Special high temperature grease is recommended (Darmex 707).

** Special low temperature grease is recommended (Arrowshell 7).

Table 3-3 Lubrication Interval Multiplier

Severity of Service	Multiplier
Standard	1.0
Severe	0.5
Extreme	0.1

Table 3-4 Bearings Sizes and Types

Frame Size NEMA (IEC)	Bearing Description (These are the "Large" bearings (Shaft End) in each frame size)					
	Bearing	OD D mm	Width B mm	Weight of Grease to add oz (Grams)	Volume of grease to be added	
					in^3	tea-spoon
Up to 210 incl. (132)	6307	80	21	0.30 (8.4)	0.6	2.0
Over 210 to 280 incl. (180)	6311	120	29	0.61 (17.4)	1.2	3.9
Over 280 to 360 incl. (225)	6313	140	33	0.81 (23.1)	1.5	5.2
Over 360 to 5000 incl. (300)	NU322	240	50	2.12 (60.0)	4.1	13.4

Weight in grams = .005 DB

Lubrication Procedure

Be sure that the grease you are adding to the motor is compatible with the grease already in the motor. Consult your Baldor distributor or an authorized service center if a grease other than the recommended type is to be used.

Caution: **To avoid damage to motor bearings, grease must be kept free of dirt. For an extremely dirty environment, contact your Baldor distributor or an authorized Baldor Service Center for additional information.**

1. Clean all grease fittings.
2. Remove grease outlet plug.
3. If motor is stopped, add the recommended amount of grease.

   If motor is to be greased while running, a slightly greater quantity of grease will have to be added. Add grease slowly until new grease appears at shaft hole in the endplate or purge outlet plug.
4. Re-install grease outlet plug.

Sample Lubrication Determination

Assume - NEMA 286T (IEC 180), 1750 RPM motor driving an exhaust fan in an ambient temperature of 43° C and the atmosphere is moderately corrosive.

1. Table 3-1 list 9500 hours for standard conditions.
2. Table 3-2 classifies severity of service as "Severe".
3. Table 3-3 lists a multiplier value of 0.5 for Severe conditions.
4. Table 3-4 shows that 1.2 in^3 or 3.9 teaspoon of grease is to be added.

Note: Smaller bearings in size category may require reduced amounts of grease.

Accessories

The following is a partial list of accessories available from Baldor.
Contact your Baldor distributor for availability and pricing information.

Note: Space heaters and RTD's are standard on some motors.

Bearing RTD
RTD (Resistance Temperature Detector) devices are used to measure or monitor the temperature of the motor bearing during operation.

Bearing Thermocouples
Used to measure or monitor bearing temperatures.

Bearing Thermostat
Temperature device that activates when bearing temperatures are excessive. Used with an external circuit to warn of excessive bearing temperature or to shut down a motor.

Conduit Boxes
Optional conduit boxes are available in various sizes to accommodate accessory devices.

Cord & Plug Assembly
Adds a line cord and plug for portable applications.

Drains and Breathers
Stainless steel drains with separate breathers are available.

Drip Covers
Designed for use when motor is mounted in a vertical position. Contact your Baldor distributor to confirm that the motor is designed for vertical mounting.

Fan Cover & Lint Screen
To prevent build-up of debris on the cooling fan.

Nameplate
Additional stainless steel nameplates are available.

Roller Bearings
Recommended for belt drive applications with a speed of 1800 RPM or less.

Rotation Arrow Labels
Rotation arrows are supplied on motors designed to operate in one direction only. Additional rotation arrows are available.

Space Heater
Added to prevent condensation of moisture witnin the motor enclosure during periods of shut down or storage.

Stainless Hardware
Stainless steel hardware is available. Standard hardware is corrosion resistant zinc plated steel.

Winding RTD
RTD (Resistance Temperature Detector) devices are used to measure or monitor the temperature of the motor winding during operation.

Winding Thermocouples
Used to measure or monitor winding temperatures.

Winding Thermostat
Temperature device that activates when winding temperatures are excessive. Used with an external circuit to warn of excessive winding temperature or to shut down a motor.

Note: On some motors, leads for accessory devices are brought out to a separate conduit box located on the side of the motor housing (unless otherwise specified).

Table 3-5 Troubleshooting Chart

Symptom	Possible Causes	Possible Solutions
Motor will not start	Usually caused by line trouble, such as, single phasing at the starter.	Check source of power. Check overloads, fuses, controls, etc.
Excessive humming	High Voltage.	Check input line connections.
	Eccentric air gap.	Have motor serviced at local Baldor service center.
Motor Over Heating	Overload. Compare actual amps (measured) with nameplate rating.	Locate and remove source of excessive friction in motor or load. Reduce load or replace with motor of greater capacity.
	Single Phasing.	Check current at all phases (should be approximately equal) to isolate and correct the problem.
	Improper ventilation.	Check external cooling fan to be sure air is moving properly across cooling fins. Excessive dirt build-up on motor. Clean motor.
	Unbalanced voltage.	Check voltage at all phases (should be approximately equal) to isolate and correct the problem.
	Rotor rubbing on stator.	Check air gap clearance and bearings.
		Tighten "Thru Bolts".
	Over voltage or under voltage.	Check input voltage at each phase to motor.
	Open stator winding.	Check stator resistance at all three phases for balance.
	Grounded winding.	Perform dielectric test and repair as required.
	Improper connections.	Inspect all electrical connections for proper termination, clearance, mechanical strength and electrical continuity. Refer to motor lead connection diagram.
Bearing Over Heating	Misalignment.	Check and align motor and driven equipment.
	Excessive belt tension.	Reduce belt tension to proper point for load.
	Excessive end thrust.	Reduce the end thrust from driven machine.
	Excessive grease in bearing.	Remove grease until cavity is approximately $^3/_4$ filled.
	Insufficient grease in bearing.	Add grease until cavity is approximately $^3/_4$ filled.
	Dirt in bearing.	Clean bearing cavity and bearing. Repack with correct grease until cavity is approximately $^3/_4$ filled.
Vibration	Misalignment.	Check and align motor and driven equipment.
	Rubbing between rotating parts and stationary parts.	Isolate and eliminate cause of rubbing.
	Rotor out of balance.	Have rotor balance checked are repaired at your Baldor Service Center.
	Resonance.	Tune system or contact your Baldor Service Center for assistance.
Noise	Foreign material in air gap or ventilation openings.	Remove rotor and foreign material. Reinstall rotor. Check insulation integrity. Clean ventilation openings.
Growling or whining	Bad bearing.	Replace bearing. Clean all grease from cavity and new bearing. Repack with correct grease until cavity is approximately $^3/_4$ filled.

BASE Engineering Inc.

REED

INSTALLATION AND OPERATION PROCEDURE

CONCRETE PUMPER

FHSS WIRELESS CONTROL SYSTEM

SOLID STATE MULTI-CHANNEL SYSTEM
FHSS SERIES

NOTE:

To ensure proper operation, please perform a full charging cycle before using the system for the first time. See Handheld Battery Charging Section for details.

SYSTEM DESCRIPTION

The Wireless Concrete Pumper Control System is comprised of two major components; the handheld device and the receiver unit. The receiver is permanently attached to the pumper itself and provides for control of various operations by connecting directly to the existing electrical control system. The handheld device is the portable unit which the operator keeps by his side and uses to send commands back to the receiver to make the desired operational changes.

The receiver is mounted in a sealed Deutsch enclosure and is connected to the pumper through a short pigtail cable. Connectors on both the control cable and antenna cable allow for convenient installation. It is powered from the same 12VDC system used to start and operate the pumper engine. The radio signals from the handheld are received through a small ¼ wave antenna mounted on the pumper cowling which in turn are sent to the receiver module through the supplied coax cable.

The handheld unit is a robust, custom designed ergonomic unit. It uses large buttons which provide a positive tactile feedback when operated. The handheld is powered by rechargeable NiMH batteries. A 12 volt system charger is included in the system to allow charging while at the job site. Two LED indicators are used to give the operator confirmation of signal transmission during button presses and also to warn of low batteries. RF transmission is implemented using a Frequency Hopping Spread Spectrum system. This will ensure maximum range of the RF link as well as provide the best in terms of electrical interference rejection.

The handheld also has the following SafeLink and Auto Shutoff features incorporated into the design.

SafeLink Technology

The SafeLink function acts as a safety measure for the system. As long as the handheld unit is functioning and the receiver is within range of the handheld any currently active functions (latched channels) will remain active. However, if the handheld goes out of range, is turned OFF by the operator or fails for some reason, the receiver will shut down any active functions.

Handheld Auto Shutoff

The handheld unit has an auto shutoff feature which shuts down the power after a predefined period of time without button presses. This puts the unit into sleep mode thereby conserving battery power. The handheld ***ON*** button must be pressed to turn the unit back on again. The amount of time that the handheld waits before shutdown is preset to the Concrete Pump manufacturer's specifications at the factory.

SYSTEM OPERATION

General Operation

In order to begin operation of the system, the 12V power must be applied to the receiver module. In most cases, this is done by placing a "Remote/Local" switch on the pumper itself to the "Remote" position. After the switch is on, the Blue light on the receiver will blink rapidly for approximately 3 seconds and then turn ON solid. At this point the receiver is fully operational and is waiting for commands from the handheld unit.

The user then must turn the handheld on by pressing the ***ON*** button. Once the handheld device is powered on, any press of a button will make the blue indicator on the handheld flash rapidly. When the button is released, the blue indicator flashes approximately once per second. This is to show that the handheld is awake and is sending SafeLink signals to the receiver unit. Under normal operations, the red indicator will not light.

When the user presses any button on the handheld unit, the blue light on the receiver will also begin to flash and continue to do so. The only time that this light does not blink is when the handheld has gone into sleep mode, is turned OFF or has ceased to function possibly caused by discharged batteries. During normal operation the other two red fault indicators will not turn on at all.

If the batteries in the handheld become drained to a preset point, the red indicator will flash during button presses instead of the blue. An audible alarm will also sound at this point. This is to warn the operator that the handheld will need recharging soon. The user has approximately one hour of continuous operation time left before the unit shuts down. The actual amount of operational time will be dependant upon the actual usage of the handheld.

SafeLink Operation

The Wireless Control System is shipped with SafeLink feature turned ON. The operation of the SafeLink is fully automatic and requires no additional steps on the part of the operator. If the SafeLink system has been activated and the pumper has shut down, the operator can confirm this by observing the blue indicator on the receiver unit. If it is on solid and not flashing then the handheld was either out of range or stopped functioning.

During the SafeLink operation the handheld will attempt to communicate continuously with the receiver. If no answer is received, then the handheld will assume that either is Out of Range, or the receiver is not powered. If this situation arises, the handheld will beep 3 times, while blinking both, the Blue and Red LEDs, simultaneously. Then it will go OFF into sleep mode to prevent battery drain. Any attempt to power ON the handheld when there is no receiver powered ON or in range will generate this condition.

If the operator experiences a shut down triggered by the SafeLink, he can reactivate the pumping by moving back within range and pressing the Pump On button again. The system will return to normal operation again.

Handheld Battery Charging

If the red LED and buzzer of the handheld indicate that the system charge is getting low, the unit should be recharged as soon as possible.

To charge the batteries, pull back the sealing plug on the bottom of the handheld and insert the small plug of the supplied charger (stock no. CHA1000) into the receptacle. Next plug the other end of the charger into the power receptacle of the truck. Ensure that 12Vdc power is available to this receptacle at all times. In some vehicles, the power to the receptacle is cut off when the ignition is off.

While the handheld is charging, the blue LED will flash at a slow rate. When the unit is fully charged, the blue LED will remain ON solid. It will take up to four hours to charge the batteries from a fully depleted state.

WARNING: Do not charge the batteries unless the LOW BATTERY indicator is active. This will shorten the useful life of the batteries. The Handheld is designed to provide a long operation with each charge, therefore continuous recharging is not needed.

WARNING: Do not charge the handheld unit with any device other than the supplied BASE charger or damage to the unit may occur.

NOTE: It is not recommended to charge the handheld in a cold environment such as overnight in the vehicle. This will severely limit the lifespan of the batteries.

SYSTEM INSTALLATION

Receiver Module

Select a suitable location on the Concrete Pumper for mounting of the receiver unit. It should be an area which is protected from direct contact with rain, cleaning water, oil and fuel. The overall receiver will require approximately 4.65" x 8.73" for mounting. This should give adequate clearance for the bending radius of the cables. Please consult drawing 20012 for exact dimensions of the enclosure and mounting hole locations.

Power Connection

Connect the RED lead of the system cable to a keyed and fused +12Vdc source. This power source must be active whenever the ignition to the pump engine is ON. Electrical power to the receiver must always be ON regardless of the setting of the Remote/Local switch on the pumper. Connect the BLACK lead to suitable electrical ground of the pumper electrical system.

Pump On/Off Connection

Connect the ORANGE lead of the system cable to the appropriate terminal of the dash mounted Pump On switch. The receiver will provide a +12Vdc signal on this lead when the Pump On button of the handheld is pressed. Pressing the Pump Off or E-Stop button will remove the +12Vdc.

Pump Forward/Reverse

Connect the GREEN lead of the system cable to the appropriate terminal of the dash mounted Pump Reverse switch. The receiver will provide a +12Vdc signal on this lead when the Pump Reverse button of the handheld is pressed. Releasing the handheld button will remove the +12Vdc signal from the wire.

Local/Remote Safety Interlock

Connect the BLUE/BLACK wire of the cable harness to the terminal of the Local/Remote switch which is +12VDC when the switch is in the *REMOTE* Position. This will prevent the unintended operation of any functions via the handheld unit when the switch is in the Local mode.

Throttle Actuator

Connect the Throttle actuator according to the scenario applicable.

To configure for engine speed *INCREASE* as actuator extends:

Connect the WHITE/BLACK wire to the motor lead that is +12Vdc when actuator is extending.
Connect the RED/BLACK wire to the lead that is GND when actuator is extending.

To configure for engine speed *DECREASE* as actuator extends:

Connect the RED/BLACK wire to the lead that is +12Vdc when actuator is extending.
Connect the WHITE/BLACK wire to the lead that is GND when actuator is extending.

Volume Actuator

Connect the Volume actuator according to the scenario applicable.

To configure for pump volume INCREASE as actuator extends:

Connect the ORANGE/BLACK wire to the lead that is +12Vdc when actuator is extending.
Connect the GREEN/BLACK wire to the lead that is GND when actuator is extending.

To configure for pump volume DECREASE as actuator extends:

Connect the GREEN/BLACK wire to the lead that is +12Vdc when actuator is extending.
Connect the ORANGE/BLACK wire to the lead that is GND when actuator is extending.

Antenna

Mount the antenna to the top side of the concrete pumper cowling. Connect the antenna to the receiver using the supplied coax cable. Using cable ties, affix the cable to suitable locations to prevent flexing due to vibration. Excessive flexing can cause the internal conductors to suffer fatigue and break.

Handheld Unit

The handheld unit is shipped from the factory configured and ready for operation. It is recommended that the handheld unit be charged before it is put into operation.

System Programming

System with ON/OFF buttons.

The Wireless Control System ships from the factory fully configured and ready for use however, if necessary, the following procedure can be used to rededicate a replacement handheld or receiver unit in the field.

1. Turn the power to both the receiver and the handheld unit OFF.
2. Press the ***ON*** button of the handheld unit rapidly 5 times.
3. Verify that the red Battery Indicator as well as the buzzer on the handheld flashes five (5) times followed by a single longer flash.
4. Position the handheld device within ten feet of the receiver antenna. This is to ensure proper data transmission is achieved and to minimize the chances of other handhelds interfering with the dedication process.
5. Turn the power to the receiver unit ON. The dedication process will happen automatically and can take up to one minute.
6. Verify that the red Battery Indicator on the handheld flashes six (6) times. This confirms that the dedication was successful. If the handheld only flashes two (2) times then the process failed and you must start again from step 1.
7. When dedication is complete the handheld shuts down automatically. To begin operation you must press the ***ON*** button of the handheld.

NOTE: The user should ensure that there are no other operational handheld units within range of the system as they could interfere with the dedication process.

Systems without ON/OFF buttons.

1. Turn the receiver OFF by unplugging the Grey connector.
2. Open the Handheld and remove the back carefully without breaking the wires for the charger.
3. Remove one of the batteries.
4. Press and hold the setup button located to right of the batteries holder in the Handheld PCB.
5. While holding the button re-insert the battery in position. This will provide a power On reset.
6. The Red LED located besides the setup button in the Handheld PCB must blink 3 times and the buzzer must beep 3 times as well.
7. Press the setup button 3 times rapidly. Wait for the LED to blink 3 times. This will enter the programming mode. If the button is not pressed rapidly the system will not react.
8. Press the Setup button 5 times rapidly. Wait for the 5 blinks. This will enter the Dedication Mode.
9. Once the HH is in Dedication mode then turn ON the receiver.
10. Place the Handheld close to the receiver PCB.
11. The LED in the receiver will flash for approximately 5 seconds.
12. Once the LED goes solid the handheld red LED should blink 6 times. This means that the process has been successfully completed.

13. If the Handheld red LED does not blink 6 times and the buzzer does not blink 6 times, then wait for the buzzer to blink 2 times. This means that the process failed and must be done again.

NOTE: The user should ensure that there are no other operational handheld units within range of the system as they could interfere with the dedication process.

SYSTEM TROUBLESHOOTING

Receiver Fault Indicators

Output Fault – This indicator will light if any one of the four available outputs is shorted. If this fault occurs, turn the receiver power OFF. Carefully check both the cable connections to the pumper switches and the wiring of the pumper to determine where the fault has occurred. Fix the fault and the turn the receiver power back ON. Retest the system operation. If the indicator does not come back on then the fault has been corrected. If the fault reoccurs it is possible that the receiver has sustained damage. Call BASE Engineering Technical Support for assistance.

Actuator Fault – This indicator will come on if either of the two actuator circuits develops a short circuit. A single flash sequence means that the Throttle actuator circuit is shorted and a double flash sequence indicates that the Volume actuator circuit is shorted.

If this fault occurs turn the receiver power OFF and carefully inspect the wiring and connections to the actuator for any possible shorts. Repair any faults and then turn the receiver power back ON. Retest the system operation. If the indicator does not come back on then the fault has been corrected. If the fault reoccurs it is possible that the receiver has sustained damage. Call BASE Engineering Technical Support for assistance.

Other symptoms

Concrete Pumper shuts down unexpectedly

- Check to verify that the SafeLink has not activated. If it has, the blue activity indicator on the receiver will be on solid. Press the Pump On command of the handheld and verify that the Activity indicator starts to flash again. The SafeLink will activate if the operator goes out of the RF range or if there has been a long period of time where no buttons have been pressed on the handheld.
- Check to verify that the ON indicator of the handheld is flashing. If not, the handheld may have stopped functioning due to discharge batteries. Recharge the handheld unit and try again.

APPENDIX

Typical Connection Drawing

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AS WE MAKE IMPROVEMENTS TO THE ***REED***
SKID MOUNTED CONCRETE PUMP ***02*** MODEL ***A30HP***,
WE LIKE TO SUPPLY YOU, THE CUSTOMER, WITH
UPDATED INFORMATION WHICH APPLIES TO YOUR PUMP.

THIS SECTION IS PROVIDED AS A PLACE TO STORE
SERVICE BULLETINS AS YOU RECEIVE THEM
FROM ***REED*** **LLC.**

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BULLETIN NO: SB 001

DATE: JUNE 10, 2004

TO: ALL ***REED*** DEALERS

SUBJECT: ***REED* WARRANTY PROGRAM**

Each ***REED*** Concrete Placing Skid/Trailer Pump, Truck Mounted Boom Pump and Dry-mix Spraying Gun, undergoes before delivery a thorough Quality Assurance inspection, a performance check and final testing. However, even with these precautions the possibility exists that after delivery, for some reason, a component may fail.

This is the reason for warranty. If this should happen to one of your machines during the first 12 months or 1000 pumping hours after delivery, there is a good chance the failed component could be replaced under warranty.

REED has updated and formalized its **WARRANTY PROGRAM** and this bulletin is issued to make all dealers aware of the program.

Enclosed is a supply of our new **WARRANTY CLAIM** forms. From this point on, all warranty claims must be submitted on these forms. Also, please find a description of the program, coverage and how to make a claim and its submission. We suggest you give this some careful attention. Briefly some noteworthy items are:

- Do not return any failed part unless requested by ***REED***.
- Purchase the replacement part through normal channels from ***REED***. Submit your claim noting the invoice number of the replacement part. Upon approval of the claim, a credit will be issued.
- Every effort will be made to process claim within 2 weeks from receipt except for those occasions where the part is to be returned.

Should questions arise during your review, please do not hesitate to contact us.

We appreciate the opportunity to be of service.

Sincerely,

Mike Wickstrom
Service Manager

WARRANTY PROGRAM POLICY

REED Concrete Placing Equipment ***02*** MODEL ***A30HP*** is designed and engineered to perform as stated on published specifications. Only quality materials and workmanship are used in the manufacture of these products. As a back up for the product manufactured by ***REED***, a guarantee against defects in design and workmanship of components is provided for each machine.

The ***REED*** guarantee/warranty states, in general, that ***REED*** will replace free of charge any components found to be defective within the time frame of the warranty period. There are exceptions to some components which are not the responsibility of ***REED***. These are noted elsewhere.

A formal printed policy is available and depicts in more detail the warranty and description. However, for your ready reference the following is offered:

A. WARRANTY PERIOD

- ALL CONCRETE PLACING MACHINES

  The warranty period is for twelve (12) months from date of delivery to initial user or 1000 pumping hours whichever comes first.

- NEW PARTS WARRANTY

  For parts sold through the ***REED*** Parts Department the warranty is ninety (90) days from invoice ship date.

- REPLACEMENT WARRANTY PARTS

  Replacement parts provided under the terms of the machine warranty are for the warranty period applicable to the unit in which they were installed as if such parts were original components of the machine.

B. WARRANTY COVERAGE

- DEFECTIVE PARTS

  Unless otherwise authorized the replacement part **MUST** be **PURCHASED** from ***REED***. Once warranty claim is received and approved, ***REED*** will provide credit to the dealer/user for their cost of the replacement part as invoiced by ***REED***.

- LABOR

  No labor time and related compensation will be provided by ***REED*** to dealers/users or others to perform work under this warranty policy.

- TRAVEL TIME

  No travel time, mileage or other expenses will be compensated by ***REED*** to dealers/users or others to perform work under this warranty policy.

- FREIGHT, IMPORT DOCUMENTATION, CUSTOM DUTY

  Any expense incurred for freight, import duty and documentation will not be reimbursed by ***REED*** in association with this warranty policy.

C. EXCLUSIONS

- CHASSIS AND RELATED COMPONENTS (TRUCK MOUNTED UNITS)

  The warranty for the chassis is handled by the chassis manufacturer and their dealer network. Prior to putting the truck in service it is suggested you contact the nearest manufacturer dealership.

- ENGINE - TRAILER UNITS

  The engine warranty is handled by the engine manufacturer and their dealer network. The terms and conditions of their warranty will apply. Contact the local engine dealer for specifics on warranty of the engine.

- NORMAL WEAR

  This pertains to items that have failed as a result of normal wear and tear to the product including but not limited to material cylinder and hydraulic cylinder piston components, delivery systems, pins, chains, bushings, seals, concrete pump wear parts, brakes, filter elements, fluids and tires.

- DAMAGES

  Caused by transport of equipment or parts, improper set-up or installation, operator error, improper operation or storage, environmental conditions, accidents, improper mechanical techniques employed by anyone or any other cause other than a structural defect in materials or workmanship.

- MAINTENANCE

  Caused by failure to perform any scheduled maintenance or routine maintenance as specified in technical manual on any structural or mechanical component.

- MODIFICATIONS

  Any non-authorized changes or modifications of any kind to the product. Any modification must be authorized and approved in writing by ***REED*** Engineering Department.

- ABUSE

  Any accidental or intentional abuse of product including but not limited to neglect, loading beyond capacity or any operation of the equipment beyond the limits set forth by ***REED*** documentation and as depicted in the appropriate technical manual.

D. SUBMISSION OF CLAIM BY DEALER/USER

Should a component failure be encountered during the warranty period and should it fall within the guidelines of the ***REED*** **WARRANTY POLICY** the following procedure is to be followed to claim warranty:

1. REPLACEMENT PART

   - Obtain the replacement part by ordering it from the **REED PARTS DEPT.** through normal channels. You will be **INVOICED** for the part.

   - If the part has been previously ordered from ***REED*** and is in your replacement stock inventory you may choose to use that part.

2. COMPLETE THE CLAIM FORM

   REED has supplied you with a pre-numbered Warranty Claim Form which consists of four (4) parts. This and only this form is **ACCEPTABLE**. **DUPLICATE** copies of the form are **NOT ACCEPTABLE**. If you do not have the proper form, contact the ***REED*** Service Department. They will send you a supply.

REED
CONCRETE PLACING EQUIPMENT

WARRANTY CLAIM

13822 OAKS AVENUE
CHINO, CA. 91710 909-364-2100

NO.

Date: (1)

Distributor Account Number:
Distributor: (2)
Address:
City:
State: Zip Code:
Phone: ( )

End User Account Number:
End User: (3)
Address:
City:
State: Zip Code:
Phone: ( )

MACHINE PUMP DATA

Model (4) Serial No. (5) In Service Date (6)
Hours of Operation (7) Failure Date (8) Repair Date (9)

NOTE - Hold deficient part(s) until requested by **REED** or until claim is approved. All parts requested to be returned must have a return authroization number provided by **REED**, shipped freight prepaid.Parts must ship within 30 days from **REED** request.

RETURN AUTHORIZATION NO. (10) SHIP DATE (11)

PART NUMBER	DESCRIPTION (12)	QTY.	NET PRICE	TOTAL PRICE	REED REPLACEMENT PART INVOICE NO. (13)

Describe Failure and How it Occurred (14)

REED comments

Claim Approved for

$

REED Use - Claim Approved ☐ Denied ☐

Signed Date

Dealer Signature (15)

Date

REVISION:

The following instructions are offered for completing the **WARRANTY CLAIM FORM**. Refer to sample of form. Circled numbers on form correspond to items below. **FILL IN**:

1. Date your claim is written

2. Distributor name and address

3. End user name and address

4. Model number of unit affected

5. Serial number of unit affected

6. Date unit was first placed in service

7. Hours (from hour-meter) of operation at time of failure

8. Date when failure occurred

9. Date when unit was repaired

10. Return Authorization number as received from ***REED*** Service Department. This will only apply when failed component is requested to be returned by ***REED***.

11. Date when failed part is shipped back to ***REED***

12. List ***REED*** part number, description of part, quantity and price of part.

13. List ***REED*** invoice number sent you when replacement part was purchased

14. Briefly describe failure and how it occurred

15. Dealers signature and date

The claim form **MUST BE COMPLETELY FILLED OUT**. Claims lacking specific, accurate information will be returned **UNPROCESSED**. If additional room is needed to describe the failure or to list the parts used, attach a separate sheet and identify those sheets with the **SAME WARRANTY CLAIM NUMBER**.

3. SUBMITTING TO ***REED***

When all appropriate data has been entered on the claim and signed, proceed as follows:

- Remove copies of form marked **"DEALER"** (yellow) and **"RETURN AUTHORIZATION"** (green). The Dealer copy is for your records and the Return Authorization copy is to be retained in the event ***REED*** requests the return of the part.

- Mail the ***"REED"*** copy (white) and **"ACCOUNTING"** copy (pink) along with any back-up data such as a copy of the replacement part **INVOICE** to ***REED***. **DO NOT FAX COMPLETED FORM** and send only **FORM ORIGINALS**.

E. RETURN OF FAILED COMPONENT

Depending on the type of part and circumstance surrounding the component failure, the possibility exists that ***REED*** may request that the failed part be returned to them for investigation and evaluation purposes or to apply for warranty from the manufacturer of the part.

- Upon receipt of your warranty claim and before claim is approved, ***REED*** will inform you in writing if the part is to be returned. On this correspondence a **RETURN AUTHORIZATION** number will be given to you.

- This number is to be written in the appropriate area on the **RETURN AUTHORIZATION** copy (green) of the warranty form. Include this copy as part of your packing slip. Also write the number on a tag and attach to the part.

- Parts requested to be returned must be shipped back to ***REED*** within 30 days from issuing of the **RA** number. Failure to do so will cause warranty claim to be **DENIED**.

- Returned parts are to be properly packaged and shipped freight **PREPAID**.

- Any parts received by ***REED*** without the **PROPER RA** number will be shipped back at **DEALER/USER EXPENSE**.

- If claim is approved and no request to return parts from ***REED*** has been made, then parts can be discarded.

F. APPROVAL/DENIAL OF CLAIM

Every effort will be made to process the warranty claim within 2 weeks from receipt.

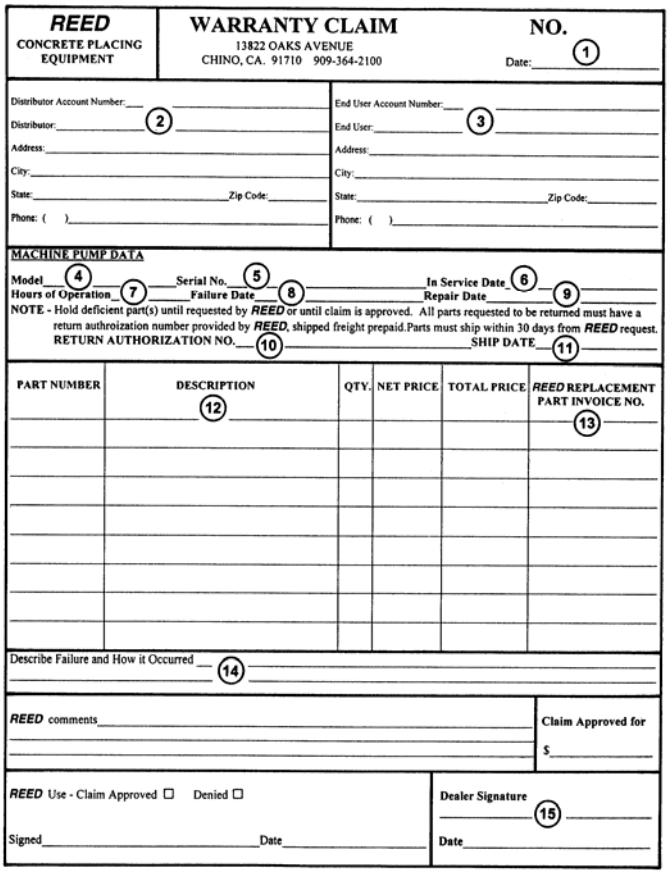
- APPROVAL

  Once your claim has been approved by ***REED***, the pink copy will be forwarded to our Accounting Dept. They in turn will issue a credit against the invoice for the replacement purchased part.

  In the meantime a fax or notification will be sent you indicating the claim and the amount approved.

- DENIAL

  If your warranty claim is denied for any reason, a fax or notification will be sent to you indicating reasons for denial. Should you have any dispute with the decision, you have the right to have the decision reconsidered. You must present your arguments in **WRITING** within 15 days of your receipt of the claim denial.



REED
CONCRETE PLACING EQUIPMENT

WARRANTY CLAIM NO.
13822 OAKS AVENUE
CHINO, CA. 91710 909-364-2100
Date: (1)

Distributor Account Number:
Distributor: (2)
Address:
City:
State: Zip Code:
Phone: ( )

End User Account Number:
End User: (3)
Address:
City:
State: Zip Code:
Phone: ( )

MACHINE PUMP DATA

Model (4) Serial No. (5) In Service Date (6)
Hours of Operation (7) Failure Date (8) Repair Date (9)
NOTE - Hold deficient part(s) until requested by REED or until claim is approved. All parts requested to be returned must have a return authroization number provided by REED, shipped freight prepaid.Parts must ship within 30 days from REED request.
RETURN AUTHORIZATION NO. (10) SHIP DATE (11)

PART NUMBER	DESCRIPTION (12)	QTY.	NET PRICE	TOTAL PRICE	REED REPLACEMENT PART INVOICE NO. (13)

Describe Failure and How it Occurred (14)

REED comments

Claim Approved for
$

REED Use - Claim Approved ☐ Denied ☐

Signed Date

Dealer Signature (15)

Date