



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 00

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 **REED 03 MODEL A30** 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

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REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 01

- 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.

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REED ROCK MASTER A30 TRAILER CONCRETE PUMP

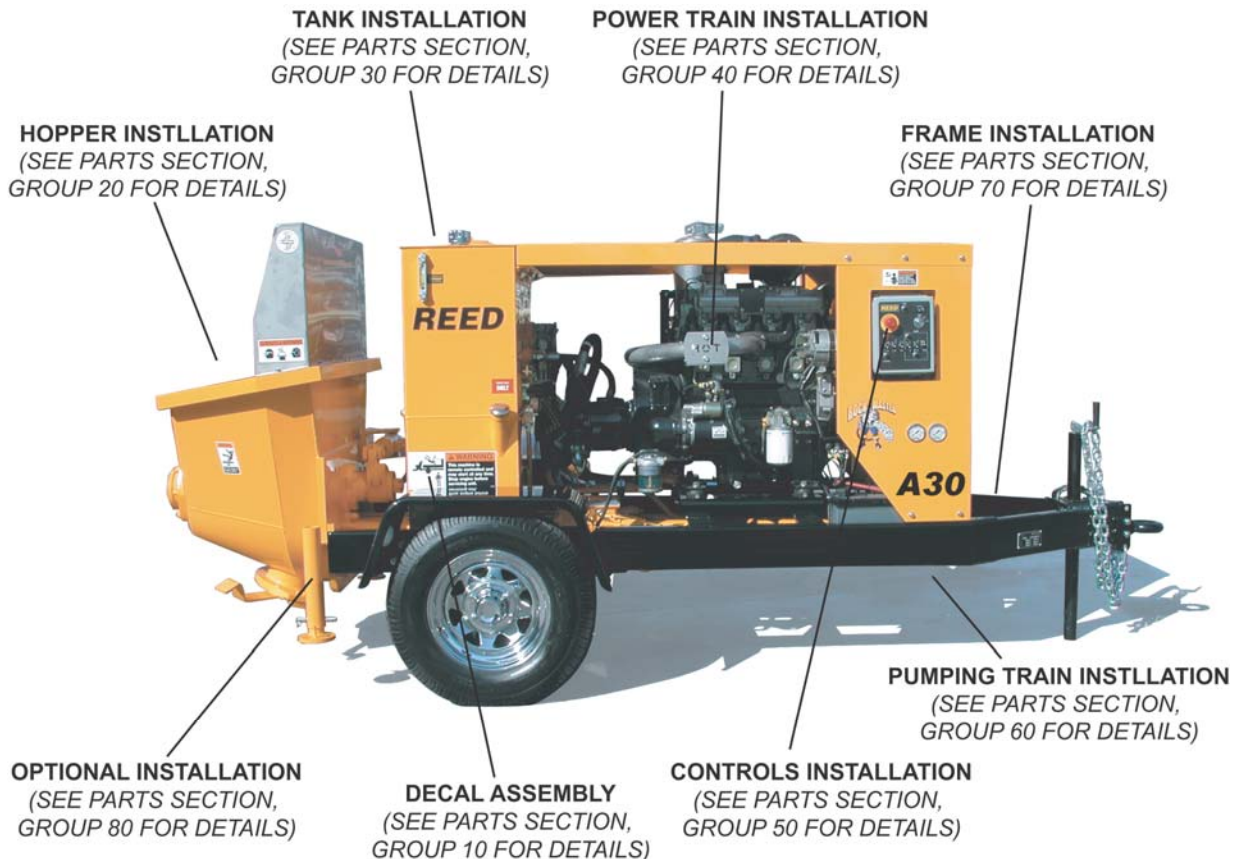
OPER.

PAGE 02

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 A30** concrete pump. Carefully study these.



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REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

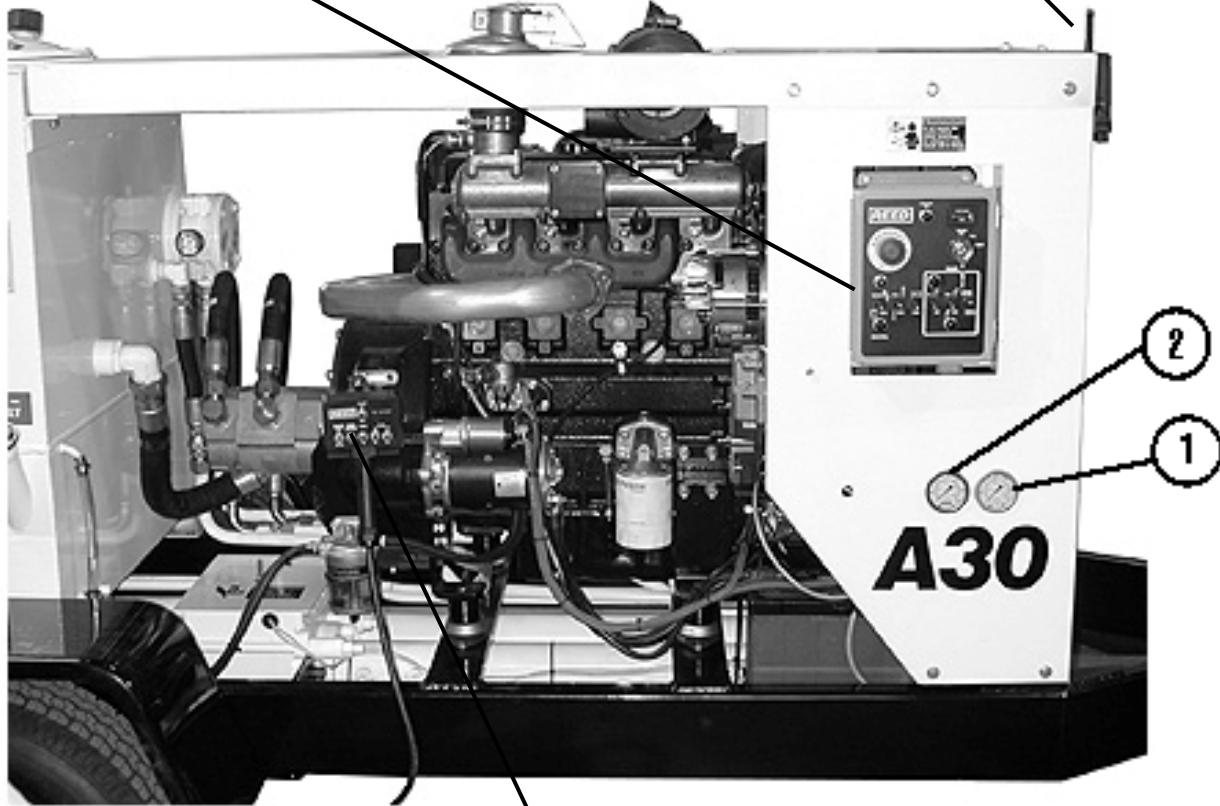
PAGE 03

CONTROL FAMILIARIZATION

The controls for operation of the **MODEL A30** 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:

SEE NEXT PAGE FOR MORE DETAILS

SEE RADIO REMOTE CONTROL
FAMILIARIZATION PAGE
FOR MORE DETAILS



SEE REMOTE CONTROL
FAMILIARIZATION PAGE
FOR MORE DETAILS

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.

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 04

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

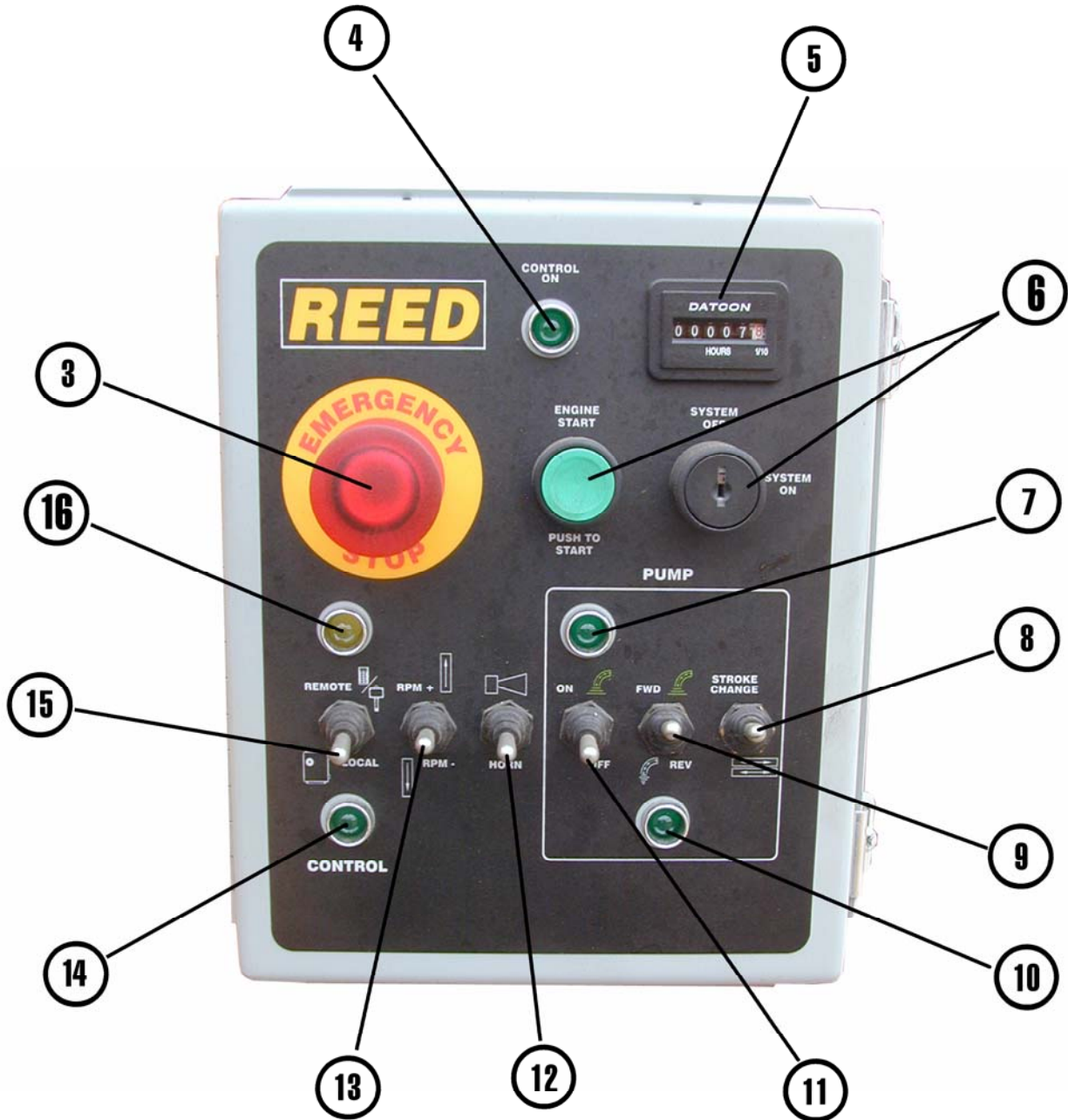
This is a two (2) position key switch that is used to control the engine. Turn key to **FAR RIGHT** position to engage starter; and then push **ENGINE START** button to start the engine, key will put switch in **SYSTEM ON** position. To shut down engine, turn the key counter-clockwise to **SYSTEM OFF**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

7. PUMP ON INDICATOR LIGHT

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



REED ROCK MASTER A30 TRAILER CONCRETE PUMP





REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 06

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.



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 07

14. INDICATOR LIGHT GREEN

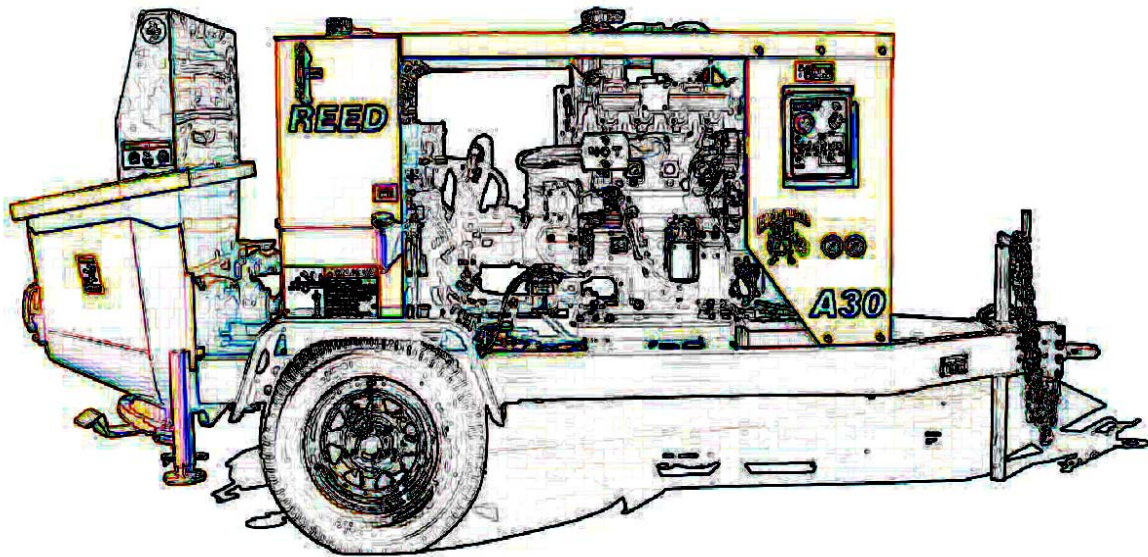
This green light, located below the switch is on when the **LOCAL** condition is selected.

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.



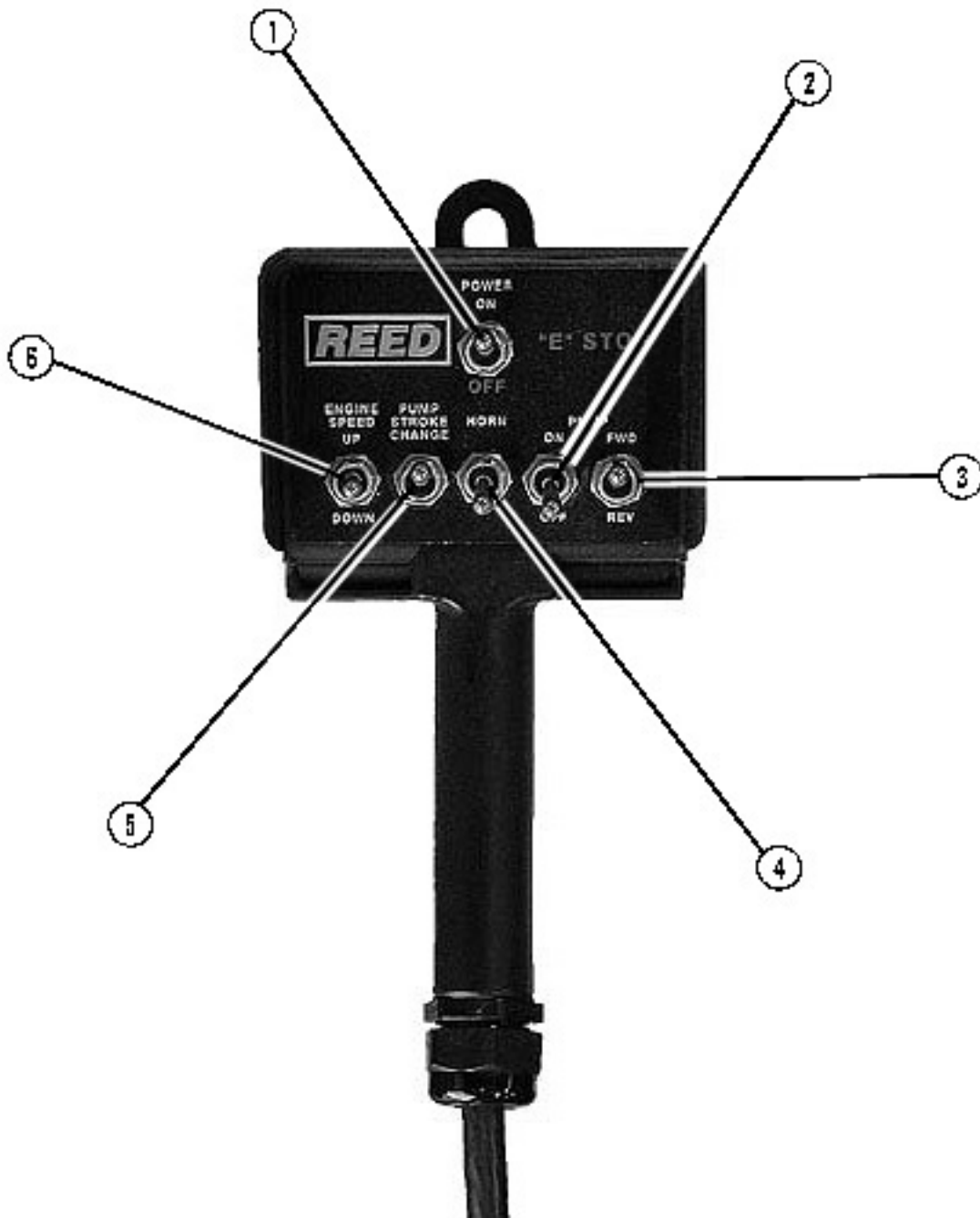
REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

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:





REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 09

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 hold 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.

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 10

RADIO REMOTE CONTROL FAMILIARIZATION (NOTE: REFER TO VENDOR SECTION FOR ADDITIONAL 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.

NOTE

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.)



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 11

- 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).

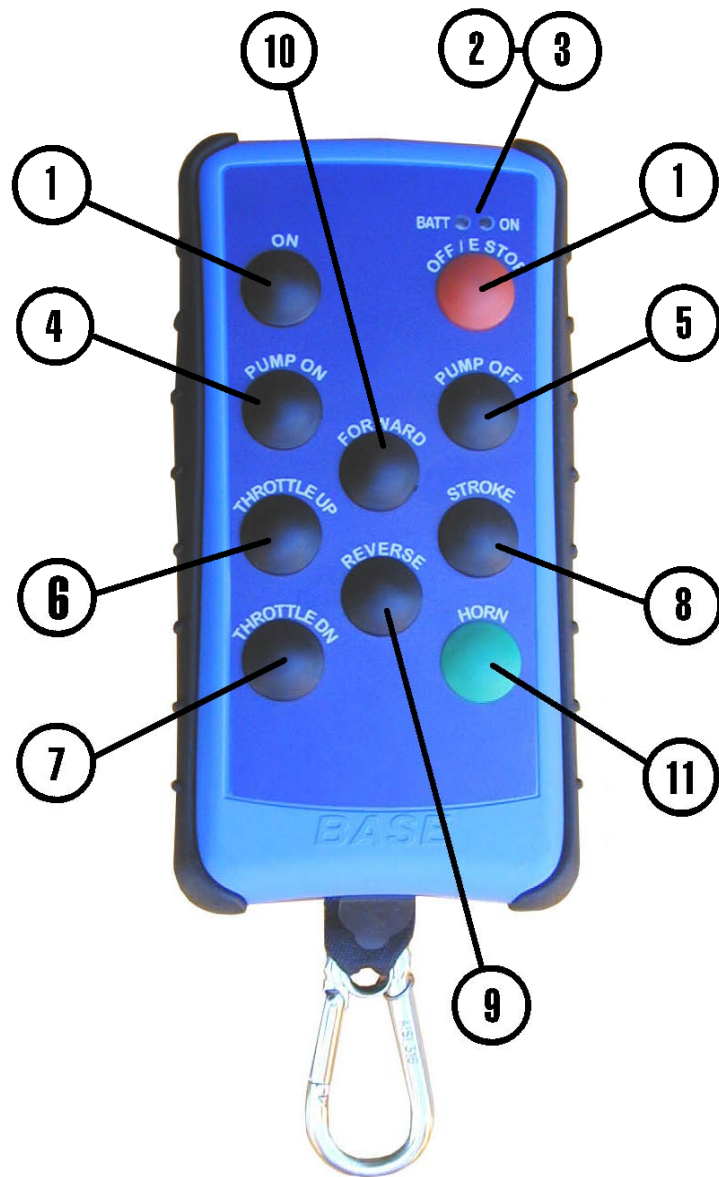
2. **RED BATTERY INDICATOR**

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.



REED ROCK MASTER A30 TRAILER CONCRETE PUMP



BASE TRANSMITTER-HANDHELD



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 13

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

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 14

TOWING THE TRAILER

The **REED MODEL A30** 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 A30** 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.

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⚠ 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.





REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 16

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!



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 17

- 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 rebar, support must be considered for the pipe so that it does not contact the rebar mat.

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 18

- 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 **REMINDE** 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.

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 19

- 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**

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

- 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.



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 21

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.

REVISION:



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 22

- 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**.



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 23

- 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 90° 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 device.



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 24

⚠ 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.



REED ROCK MASTER A30 TRAILER CONCRETE PUMP

OPER.

PAGE 25

- 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 A30** 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.
- Connect unit to towing vehicle, raise outrigger legs and front jack.