THE

ALLIANCE INTERNATIONAL INC.

MOBILE MIXER

OWNER / OPERATORS MANUAL

With Omnex Remote

2006 - 2012

Reimer Alliance International Inc.
www.reimermix.com
Ph: 403-335-9500 1-855-335-9500

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REIMER ALLIANCE International Inc.

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Owner / Operators Manual 2006 – 2012 With Omnex Remote

WARRANTY

1. NEW EQUIPMENT WARRANTY

Subject to the limitations and exclusions set out below, **Reimer Alliance International Inc.** warrants that if any component or part of a mixer manufactured by Reimer proves to be defective in material or workmanship within (6) six months from the original delivery date, Reimer will either repair or replace the defective part of the mixer.

2. LIMITATIONS AND EXCLUSIONS

This warranty by **Reimer Alliance International Inc.** does not extend to or include:

i Trucks- see the warranty information included with the truck manufacturer's information pack.

ii Damage resulting from accident, misuse, abuse, neglect or from other than normal and ordinary use of the mixer.

iii Damage resulting from failure to operate or maintain the mixer as specified in the operator's manual.

3. IMPROVEMENTS OR CHANGES- Reimer Alliance International Inc. reserves the right to make improvements or changes in design and specifications at any time without incurring any obligation to owners of mixers previously sold.

REIMER ALLIANCE INTERNATIONAL INC. IS NOT RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

REIMER ALLIANCE International Inc.

Standard Specifications

Capacity	**9.5 yds³ (7.5 m³)**
Production rate	Variable up to 75 yds³ per hour maximum
Dual Controls	Manual and wireless
Water Tank	450 US gallon polyethylene
Vibrators	Pneumatic
Fenders	Light weight and durable
Electronic digital counter	Calibration and delivery measurement
Powered	Chutes, auger and swing
Auger	9 or 12"
Mixer only weight	8350 lbs { 3795 kgs)

Optional Equipment

Hawk 6 Ad Mix System
Manual AdMix System
Color feeder
Larger water tank
Fibre feeder
Cement level sensor and alarm
Cement bin windows
Auto tire inflation system
Booster Axle
Lift axle extension
Stainless Steel fenders
Hydraulic vibrators or electric vibrators
Printer

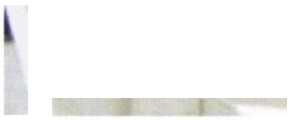
Introduction

Congratulations, you have chosen the world's finest and most reliable mobile mixer. You are now part of the world-wide Reimer Alliance International family, operating successfully in 36 countries. Your Reimer Mobile Mixer, manufactured by Reimer Alliance International Inc., will meet or exceed your concrete requirements. Reimer Alliance International represents over 30 years of experience in mobile, volumetric, continuous hatching; both as a concrete supplier and as a mixer manufacturer.

Years of experience have helped us develop and engineer a mobile mixer that will give many years of dependable and profitable service.

This manual provides operating and maintenance procedures that are critical to the profitable and successful operation of your Reimer Mobile Mixer. Operation and maintenance of your new mixer in accordance with this manual will assure you of long and trouble free service.

The serial number of your mobile mixer is located on the front support web of the main aggregate bin (driver's side). Please refer to this serial number when contacting Reimer Alliance International Inc. or its representatives, who are committed to providing prompt and efficient service.



NOTE:

Serial plate is located on the front support web on driver's side of the mixer.

Principle of Operation

The Reimer Mobile Mixer is uniquely designed to allow for the supply of freshly mixed concrete, regardless of delivery times, the elimination of wasted product, and flexibility of delivery that is not available with conventional transit mix operations. All the components of concrete; stone, sand, cement and water are transported to the site in separate compartments on one truck mounted unit. Dry ingredients are accurately proportioned and delivered to the mixing auger as they are being discharged. A controlled flow of water is added and the concrete is then blended as it is being discharged from a special mixing auger at the rear of the unit.

The mixing action is continuous until the bins are empty or indefinitely if the bins are being re-filled as the unit is producing concrete. On the other hand, the mixing action (and delivery of concrete through the chute) may be stopped and then started again by the operator to facilitate the loading of wheelbarrows or any application where small amounts of product are required. The discharge rate is infinitely variable from maximum, 60+ yards per hour down to zero.

How Concrete is Accurately Batched With The Reimer Mobile Mixer

Ingredient proportioning is based on the known dry weight of each ingredient and the requirements for each as specified in the mix design. The calibration procedure translates these weights into volume settings.

Cement is fed into the mix at a constant rate that is proportional to the movement of the conveyor belt. The control gates allow the operator to change the proportional flow of both sand and coarse aggregate in relation to the movement of the conveyor belt and therefore, to the flow of cement. Because the cement and aggregate feeders are mechanically synchronized, the proportions of each of the dry ingredients are constant, once the proportioning controls are set and locked.

An electronic counter allows the operator to determine the accumulated amount of cement discharged and, based on the calibration, the amount of concrete produced.

Calibration

The calibration procedure will provide the operator with a chart indicating the control gate settings for the each type of concrete mix as well as the digital counter readout required to determine the volume of concrete poured.

A basic overview of the calibration procedure is as follows:

As previously explained, the cement discharge is proportional to the movement of the conveyor belt and to the digital counter. The first step in the procedure, then, is to determine the rate of cement discharge in pounds or kg per count. Once this is determined, the mix design is used to calculate the number of counts required to produce one cubic yard or meter of concrete.

> **EXAMPLE:** You have determined, by weighing the cement discharged in a known number of counts that the cement is delivered at a rate of .45 pounds per count.
> The mix design indicates that 450 pounds of cement is required per cubic yard of concrete. This means that the digital counter must read 1000 (450 divided by .45) for sufficient cement to be discharged to produce one cubic yard.
> Now determine the control gate settings, which will allow the proper volume of aggregate to pass through, producing one cubic yard of concrete when the digital counter reads 100.

Because the cement discharge is always proportional to the movement of the conveyor, the design of the mix will remain constant, even if the discharge rate is changed, until the operator changes the control gate settings.

Proper calibration and setup of the Reimer Mobile Mixer, is essential to it's successful operation *(See Pages 26 to 29)*. Ensure that the operator has a good understanding of the concept of volumetric, continuous hatching as explained in this manual.

Operation

The key to a successful and profitable business as a mobile concrete producer, is the proper operation of your Reimer Mobile Mixer. The operator must be chosen with care, as he is responsible for the proper set up of the proportioning controls and the general delivery of a quality concrete product.

Loading the Mixer

Aggregate

Cement, sand and course aggregate are carried in separate, divided bins.

Materials loaded into the aggregate bins must be free of any foreign matter that may affect the quality of the concrete being produced or cause a partial or complete blockage in the control gates.

CAUTION:
When loading aggregates, it is important that one aggregate not be allowed to spill over into the other's bin, especially when that bin is empty. This will adversely affect the quality of that part of the load.

Cement Powder

WARNING:
Care must also be taken that no stone, water or other foreign material enters the cement bin. A serious malfunction of the cement feeding system may result.

Water

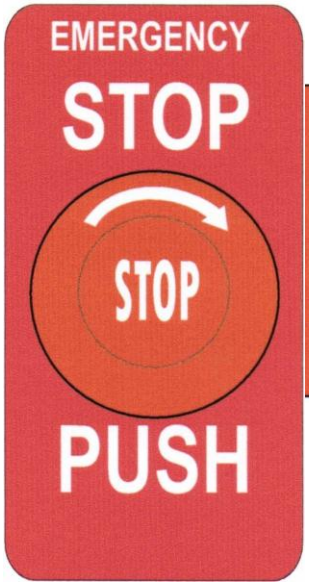
Water may be loaded through the top of the tank or bottom loaded at the cam lock fitting.

WARNING: BOTTOM LOAD PROCEDURE
Air venting is provided through the tank lid, however, damage to the tank and frame will result, if the tank is overfilled using a high pressure water supply.

Controls

Locate and become familiar with the operating controls of the Reimer Mobile Mixer.

- Master electrical switch -located on truck dash
- 'In cab' mixer control box -Provides for operation of all on/off and directional control functions of the Reimer Mobile Mixer from the operator's seat.
- 'T' handle control box - Provides for operation of all on/off and directional control functions from discharge area.
- Belt and mix auger speed controls
- Mix auger- Mix and Reverse
- Aggregate control gate adjustment hand wheels, dials and pointers
- Digital counters and reset button
- Water pump activation switch
- Conveyor function switch, labeled Belt/Auto/Water
- Water proportioning valve
- Water system blow-down valve- if installed for cold weather applications
- Master air supply valve
- **EMERGENCY STOP BUTTON**

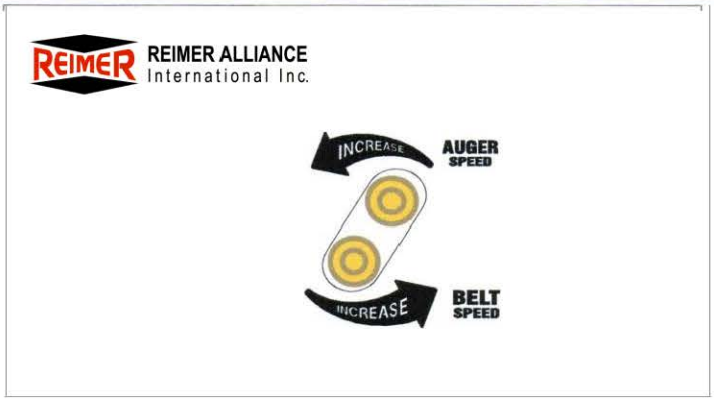


Large red knob on control panel.
Press to stop entire operation.
Turn to right to release.

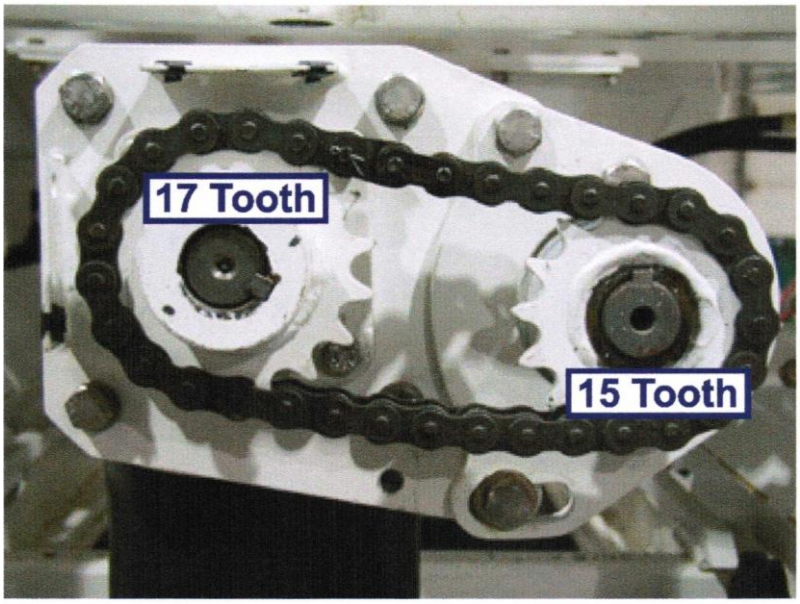
- Power swing Lock/Free- allows for the auger trough to be pivoted manually.
- Cement Motor Control
  - o Cement drive Motor On / Off }
  - o Full / Lean } *see* ***Page 10***
  - o Cement lean adjustment }

Control Panel

NOTE:: WHEN USING THE WIRELESS SYSTEM
To operate the color vibrator, press the GREEN shift button TOGETHER with the GREEN SPARE 1 BUTTON



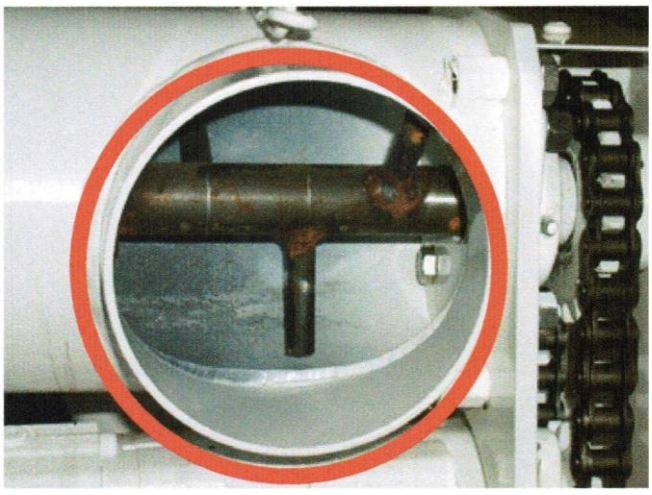
Cement Delivery System



Cement sprocketing shown above, can be interchanged by the operator to increase cement delivery.

15 x 17 Factory Setting
17 x 15 Will deliver approximately 20°/o more cement

Roll up cement drop tube as shown during wash out.



Remove drop tube and check weekly for cement build up in this area.

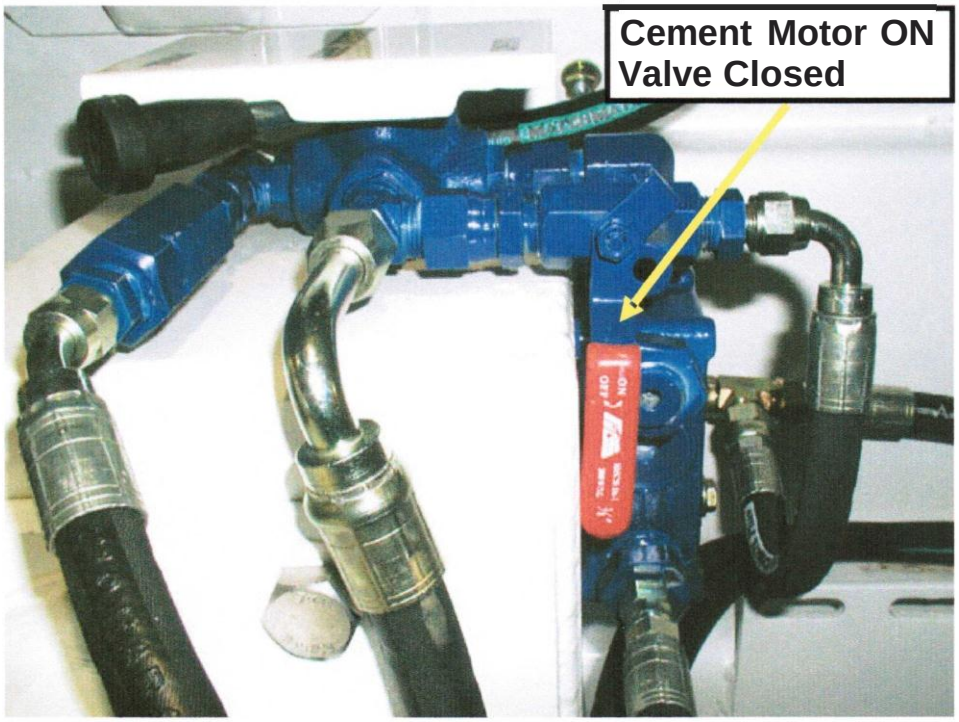
NOTE:
Unroll cement tube prior to cement delivery.

Cement Motor Controls

Cement Motor On/Off Valve

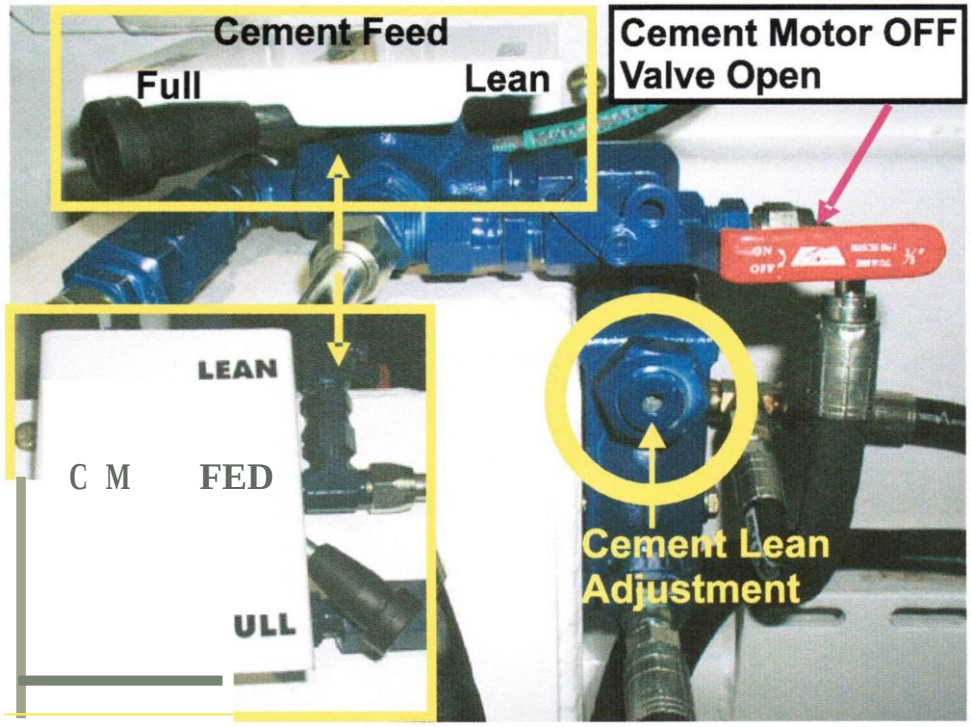
Cement Discharge can be stopped by placing this valve in the open position.

WARNING:
This valve should always be fully closed when producing concrete.



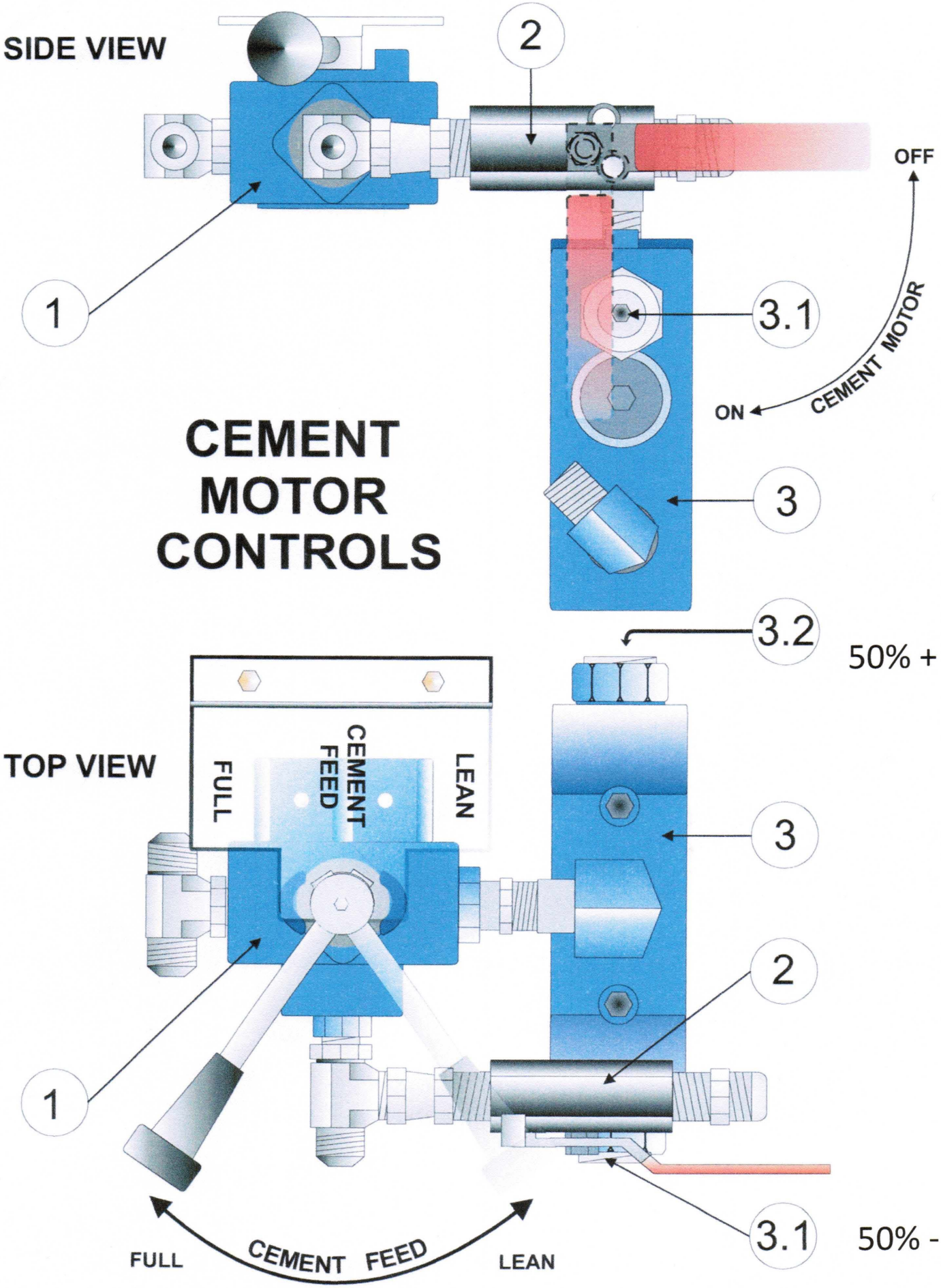
Cement Lean Adjustment

With the cement feed valve in the lean position, cement discharge will be reduced by approx. 50%. Further reduction can be achieved by loosening the stop nut on the lean adjustment valve and turning the screw clockwise with an allen wrench.



NOTE:
Cement discharge rate with the cement feed handle in the full position WILL NOT be changed by adjusting this valve.

WARNING: Lean adjustment should not be turned more than 1 turns (counter clockwise) from the full IN position as seal damage will result.


SIDE VIEW
2
OFF
1
3.1
CEMENT MOTOR
ON
CEMENT
MOTOR
CONTROLS
3
3.2
50% +
TOP VIEW
FULL
CEMENT FEED
LEAN
3
2
1
3.1
50% -
FULL
CEMENT FEED
LEAN

LEAN VALVE ADJUSTMENT

Loosen the stop nut on both 3.1 and 3.2
Use an Allen wrench to turn the spool adjustment in (clockwise) on both 3.1 and 3.2 until you feel the adjustment bottom out
From this position Fully In turn both 3.1 and 3.2 Out (counterclockwise) 1½ to 2 turns. You will feel friction on the adjustment at this point. Do not continue to turn past this point or the seal may come out. Both adjustments should be set to a similar position
The valve is now set to approximately SO/SO

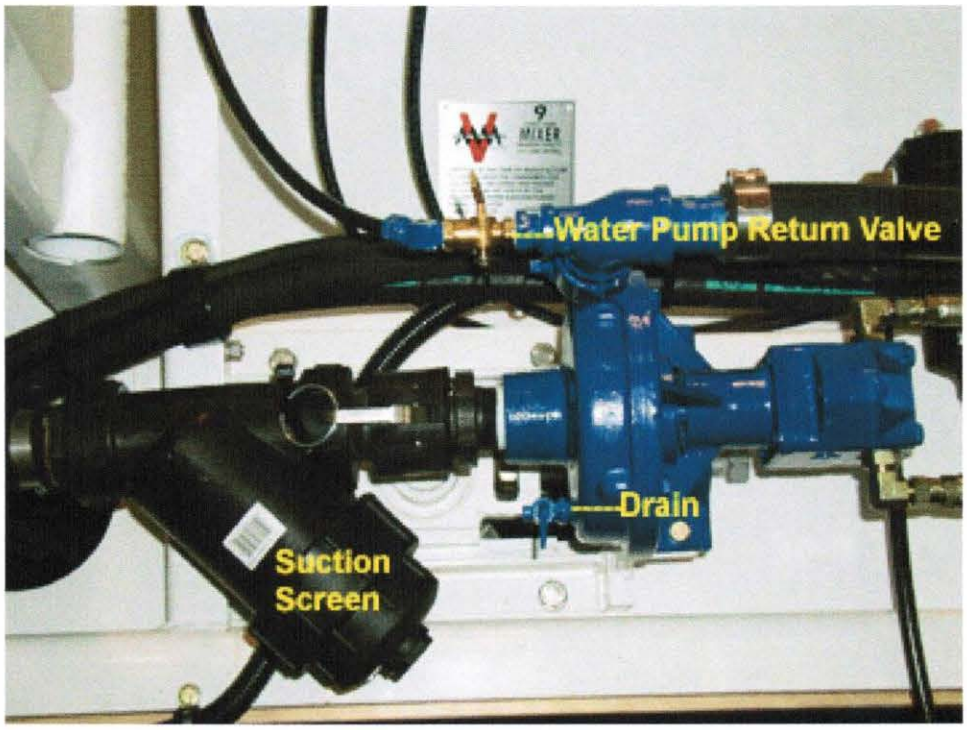
If you require Less than SO% Turn adjustment 3.11n (clockwise) until you achieve the desired%

If you require Greater than SO% Turn adjustment 3.21n (clockwise) until you achieve the desired%

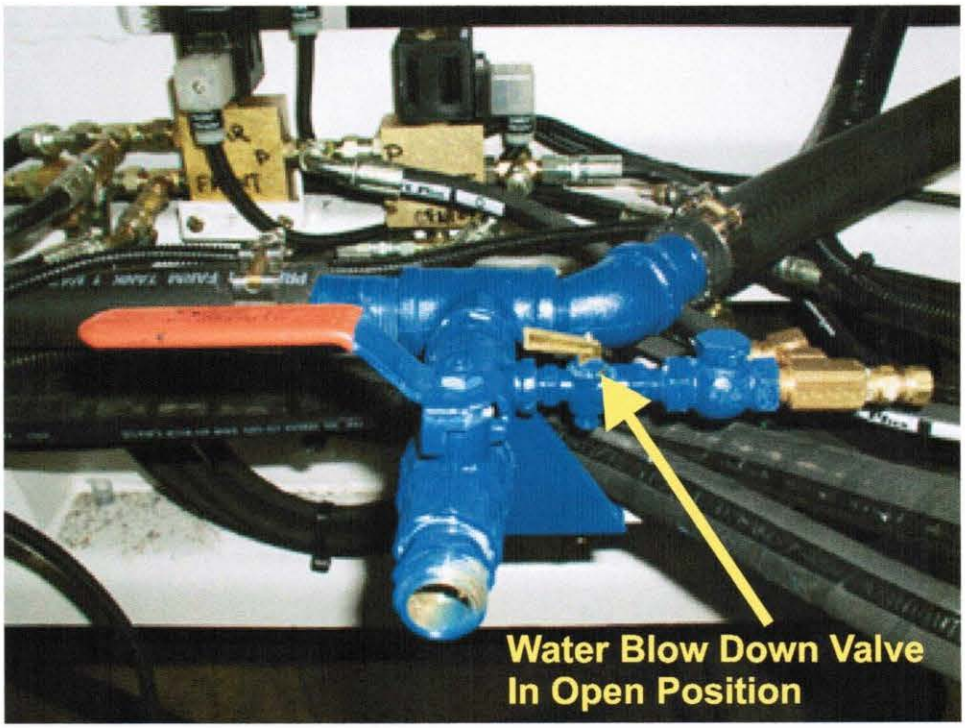
Note: Whenever making adjustments to one side the opposite side should always remain in the full Out Position (1½ to 2 turns)
Failure to do this may result in excessive heat generation and will eventually cause the valve to lock up the hydraulic circuit. Readjusting the valve will solve the problem

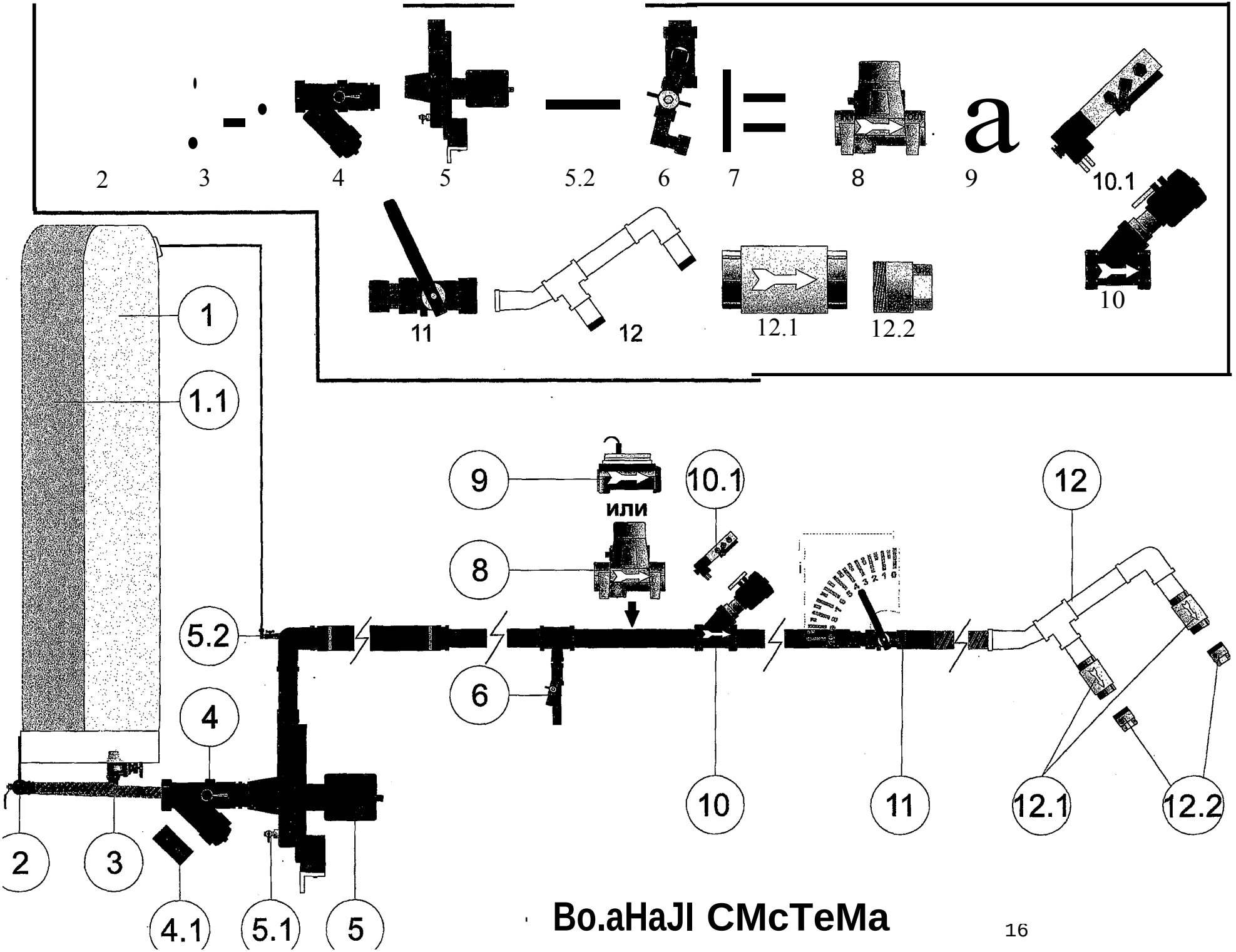
Any adjustments made to this valve will NOT affect your calibration data when in the Full position

Water Pump



WARNING:
The water return valve should be open whenever the water pump is running.
OPERATING THE WATER PUMP WITH THE VALVE CLOSED WILL RESULT IN PUMP DAMAGE.





Bo.aHaJl CMcTeMa

Setting Up To Pour

Upon arrival at the pour site, confirm the specifications of the concrete to be poured. SET CEMENT FEED VALVE AS REQUIRED. CONFIRM CEMENT MOTOR VALVE IS CLOSED. (See Page 10 if lean mix is required). Using this information and with reference to the calibration chart, SET AND LOCK THE CONTROL GATES. Using the following sequence, set up the mixer in preparation for pouring.

1.Set operating controls:
Master electrical switch- On
Water Tank Valve- Open
Water return valve- Open
Emergency stop – Off
To use Wireless set to ON
Digital Counter - Reset
Conveyor function switch - Auto Position
Water pump switch- On
Add Mix Pumps -As Required
Belt speed control- Set- (start at one tum less than fully open), maximum 4 turns= Fully Open
Auger speed control, 5 turns = Fully Open
Auger mix/reverse lever - Mix
Mix water control - Set *(operator must become familiar with initial settings required for proper slump, using small trial batches)*
Cement delivery tube – Extend

2. Lower mix auger: The transport lock will automatically disengage when the boom is lowered. An angle of no less than 25° should be used on the mixing auger.

CAUTION:
DO NOT ALLOW the angle of the mix auger to become to low, as this will limit the ability of the auger to mix thoroughly.

If required, lower the transition chute and add extensions as needed

3. Set power swing selector to desired function.

4. Apply any release agent at this time., if desired.

Pouring

As with any machine, the operator of the Reimer Mobile Mixer must understand and become confident in the operating procedures through training and experience. The following details the steps to be taken deliver a quality product to the customer.

1. **Activate high idle function:** using the **'RPM'** switch. Engine should be turning at no less than 1600 RPM.

2. **Activate conveyor belt switch.**

NOTE: When the conveyor belt is engaged, mix water flow is immediately activated. If the conveyor belt is not fully charged with materials to the discharge point, water will accumulate in the mix auger before the aggregate flow begins. This will cause a very wet slump in the initial flow of concrete. To prevent this, use the BELT POSITION on the CONVEYOR FUNCTION SWITCH to run the conveyor belt independently from the flow of water until it is charged with aggregate to the point of discharge into the mixing bowl. The WATER position of this switch, causes water to flow into the mix auger independently from belt operation. This function can be used during wash down or any other time that independent water flow is desired. During mixing operations, this switch must be in the center AUTO position.

3. **Activate mix auger switch:**

NOTE: Both the conveyor and mix auger switches may be activated simultaneously or separately at the judgement of the operator.

4. **Immediately adjust mix water feed valve:** to obtain the desired concrete slump.

NOTE: The operator MUST guard against 'chasing' the slump, by over adjustment of the mix water control valve. It takes several seconds for any changes in water flow to be noticed at the discharge end of the mix auger. THE BELT SPEED CONTROL CAN ALSO BE USED TO FINE TUNE THE SLUMP.

5. **Vibrate bins:** to ensure initial flow of sand and cement to conveyor belt.

NOTE: The frequency and duration of vibrating depends upon the distance traveled while loaded, road conditions, and the condition of the sand. The operator must judge, based on experience, the amount of vibration required. Insufficient vibration may allow the sand or cement to bridge in certain conditions, thereby affecting the quality and consistency of the concrete produced.

6. **Make frequent visual checks:** of aggregate flows as well as the flow of concrete to ensure that the customer is receiving a concrete product that is true to the desired specifications.

Wash Down And Preparation For Transport

When the pour is complete or the mixer is empty, it is important that the mix auger be properly washed out to prevent an excessive concrete buildup which could interfere with the operation of the mixer on subsequent loads. The operator should take this opportunity to inspect the wear plates and make a general visual check of the mix auger and other components which may require maintenance or repair.

The following steps act as a guideline for washing out the mix auger and preparing the mobile mixer for road transport:

+ Using a scraper, remove any excess material from the discharge end of the conveyor belt.
+ Roll up cement drop tube.
+ Run the mix auger until it is empty.
+ Adjust the mix auger speed control, to reduce auger speed as required.
+ Wash out swivel ring and area directly around discharge end of conveyor belt.
+ With mix auger still elevated, ensure that back plate and sides of the auger trough are free of buildup. If desired, a rapid flow of water can be added to the mix auger by placing the conveyor function switch into the **water position.**
+ Switch mix auger control to **'OFF'.**
+ Open the mix auger cover and lower the auger as far as possible.

WARNING:
Never run the mix auger with the top cover open.

+ Wash until the mix auger and trough are free of any cement or aggregate build up.
+ Elevate mix auger to transport position. The retaining lock will automatically engage.

CAUTION:
Check for proper alignment as the auger is being raised.

+ Water pump- **OFF**

WARNING:
DO NOT ALLOW the water pump to operate with out a water supply.
Seal damage will result.

+ Master switch in cab - **OFF**

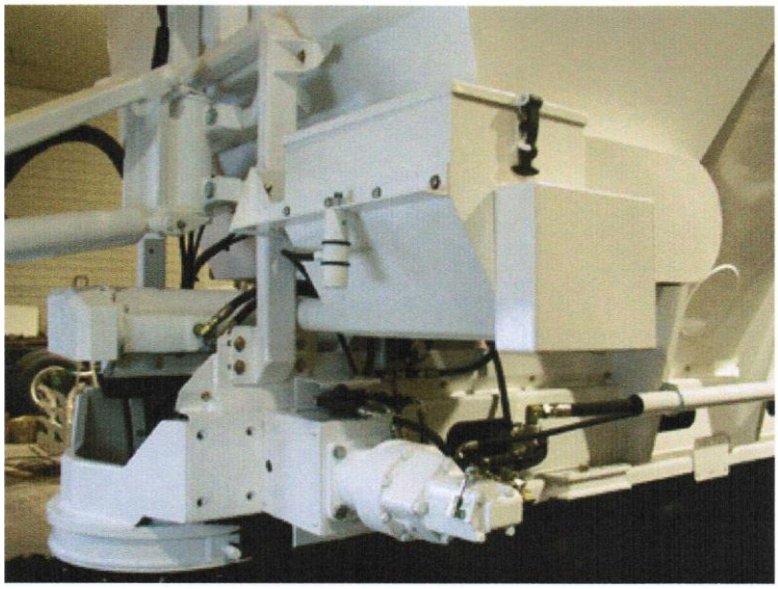
Optional Color Feeder

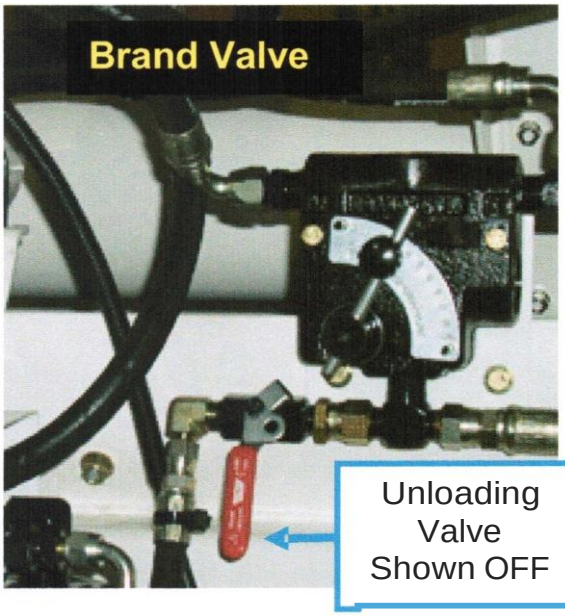
Description:

The Reimer Color feeder is designed to supply a controlled flow of powdered color to the concrete mix.

Features:

- 1.7 ft^3 large capacity
- Large capacity extension available
- Pneumatic vibrator to insure even flow





Calibrating the Color Feeder Using The Brand Flo-Control

Set the conveyor belt speed and note the position of the belt speed flow control *(e.g. number of turns open).*
Adjust the color feeder flow control to obtain the required discharge rate of colored powder.
Record the settings of both the belt speed control and the color feed control for future reference.

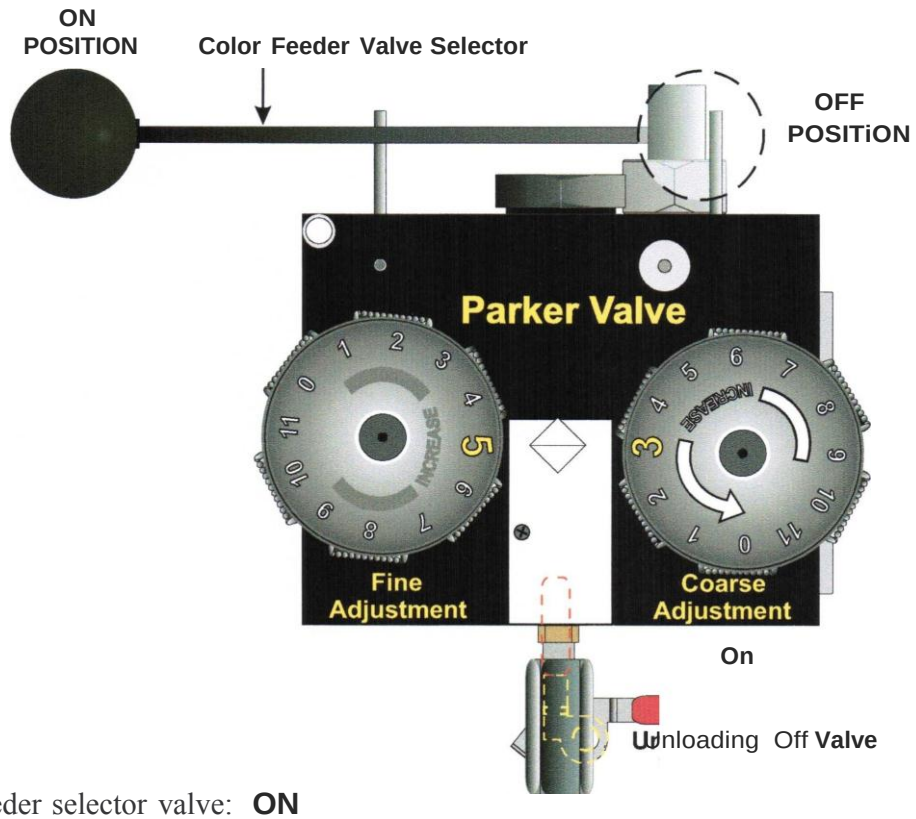
NOTE:
The color feeder discharge rate does not change proportionally with changes in the belt speed. Record the belt speed setting when calibrating the color feeder and use that belt speed whenever the color feeder is used.

Unloading the Color Feeder Hopper

Opening the unloading valve, allows the operator to unload the color feeder without the conveyor belt moving. The conveyor belt switch must be ON to supply oil flow to the color feeder.

WARNING:
The unloading valve MUST be closed whenever producing concrete.

Using the Color Feeder with Parker Flo-Control



A. Color feeder selector valve: **ON**

B. Start with the fine adjustment at the position and the coarse adjustment at the :3 position.

C. Rotate the **COARSE** adjustment counter clockwise to increase the discharge rate.

D. The **FINE** adjustment is then used for more precise control. Clockwise rotation will increase and counter clockwise rotation will decrease the discharge rate.

2. Calibrating The Color Feeder

A. Determine the number of lbs / yd^3 or kg / m^3 of color required.

B. Cement motor: **OFF (see page10).**

C. Color Feeder selector valve: **ON.**

D. Select a position for **Coarse** adjustment.

E. Zero the conveyor meter computer.

F. Run the conveyor to collect a color sample.

G. Weigh the color sample and compare with the meter reading.

H. Make adjustments as per **Section 1, D** and record the dial settings when the correct discharge rate is achieved for future reference.

I. DISCHARGE RATE IS NOT AFFECTED BY BELT SPEED.

3. Unloading Excess Color

A. Cement motor: **OFF (See Page 10).**

B. Color feeder selector valve: **ON.**

C. Unloading valve: **ON**

D. Select a setting on the **COARSE** adjustment to unload the color feeder.

E. Belt flo-control: **OPEN** .....Belt switch: **ON.**

WARNING: The unloading valve **MUST** be closed whenever producing concrete.

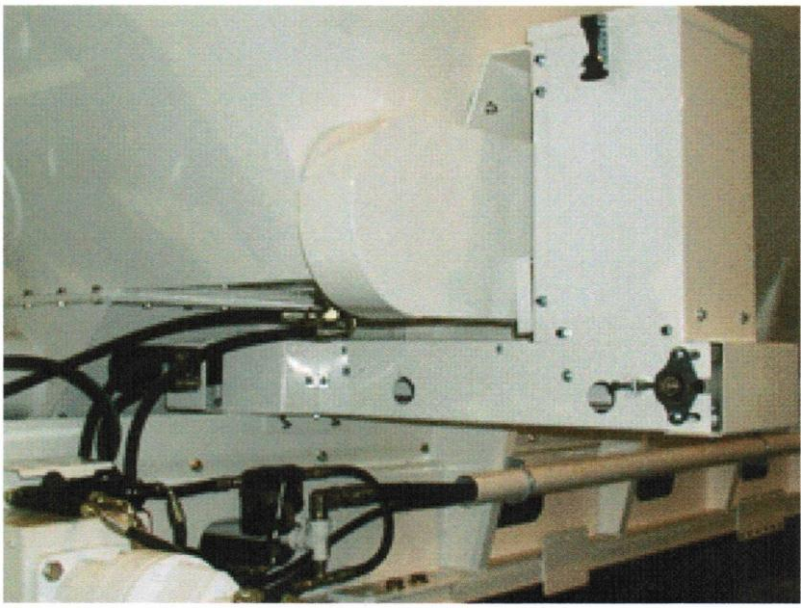
Optional Hawkridge Fibre Feeder

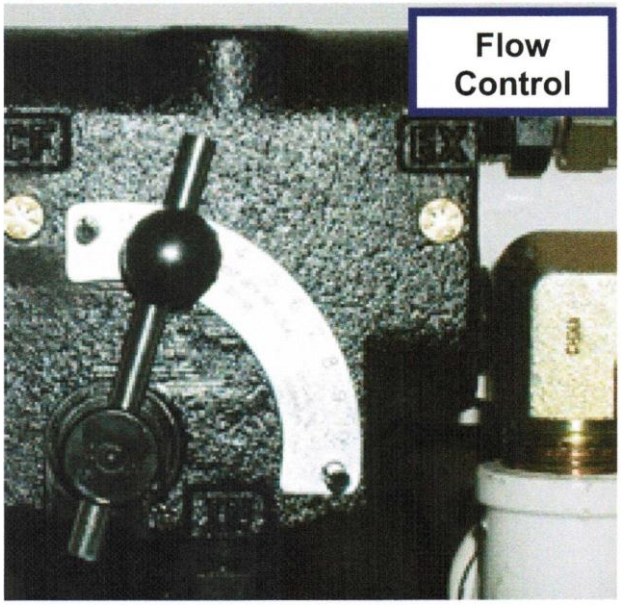
Description:

The Hawkridge Fibre Feeder is designed to supply a controlled flow of concrete reinforcement fibres, of various types, for mixing using volumetric batching concrete mixers.

Features:

- Works with a variety of fibre types.
- No special packaging required.
- Easy to install and operate.
- Hydraulically driven. Other drive options are available.
- A hydraulic control valve sets discharge rate.





When calibrating the fibre feeder, adjust the flo control to obtain the required discharge rate of fibre.

The fibre feeder discharge rate does not change proportionally with changes in the belt speed. Record the belt speed setting when calibrating the fibre feeder and use that belt speed whenever the fibre feeder is used.

NOTE:
Slowing the belt speed during operation with the fibre feeder in use, will increase the amount of fibre being added, because the fibre feeder will not slow down at the same rate as the belt.

Safety

Careful operation of your Reimer Mobile Mixer is your best insurance against an accident. Read and understand this operator's manual before operating.

Operational Safety

WARNING:
Never run the mix auger with the top cover open. Do not allow anyone unfamiliar or untrained to operate the Reimer Mixer.

WARNING:
Never allow anyone didrectly under the chutes or mix auger

CAUTION:

- Keep hands, feet and loose clothing away from rotating shafts, gears, chains, belts and other moving parts.
- When operating and moving about job sites, realize that the driver/operator holds the final responsibility for the safe operation of the mobile mixer. Be constantly aware of the location of open excavations, other workers, pilings, or anything else that that could be a hazard.
- When operating the power swing, chute, or boom functions, be aware of the location of workers.
- While everything has been done to ensure their reliability, do not trust hydraulic cylinders, hoses or fittings.

Maintenance Safety

WARNING:
Remove the key from the truck and keep it inaccessible while servicing the mix auger and hydraulic pump drive shaft.

Replace any shields and guards prior to returning the mixer to service.

Maintenance

Regular maintenance and inspection will help ensure trouble free operation, eliminate unnecessary down time, and extend the life of your Reimer Mobile Mixer. Keeping your mixer clean and free from cement build up helps to maintain a good image to your customers. The operator should perform a daily pre-operation check, inspecting the truck and mixer for any mechanical defects.

Preventative Maintenance

The following inspection and maintenance schedule acts as a guideline only. It should be noted that extreme weather conditions, aggressive aggregates, the nature of the concrete being produced (ie. low slump, high density) and other factors will affect the frequency of service required.

Inspection and Maintenance Schedule

COMPONENT	ACTION	FREQUENCY
Bottom auger bearing	Grease	Every 50 meters poured
Bottom auger seal	Grease	Every 50 meters poured
Conveyor shaft bearings	Inspect and grease	Every 250 meters poured
Cement hopper bearings	Grease	Every 250 meters poured
Hydraulic oil	Check level	**Daily** or after repairs to hoses and/or other components.
Conveyor chain	Apply oil	As required
Cement feed chain	Oil and check for tension	As required
Air supply oiler for vibrator lubrication *(See page 22)*	Inspect and fill Check and adjust flow	As required
AdMix filter screens	Inspect and clean	As Required
Hydraulic oil	Drain and replace	Every 2 years
Cement feed auger and delivery boot	Inspect for cement build up	Weekly
Auger swivel ring	Inspect and lubricate	Weekly
Water suction screen	Inspect and clean	Weekly or on condition
Mixer tie down bolts	Check for security and condition	Weekly
Conveyor belt	Check for damage & wear	Monthly
Hydraulic pump drive shaft	Inspect and grease	Monthly
Mixer tie down bracket	Check and re-torque frame attachment bolts.	Monthly
Hydraulic return line filter element	**REPLACE**	Yearly
Hydraulic suction screen *(in tank)*	**REPLACE**	Yearly

Wear Plates

The mix auger is equipped with replaceable wear plates, designed to protect the auger from premature wear. The wear plates must be inspected frequently and replaced when they wear down to the auger flighting.

> CAUTION:
> Never allow the plates to wear into the mounting holes drilled into the flighting. The complete auger, or portion of it will have to be replaced if this occurs.

Inspect the wear plates during washout and monitor their condition. Also, be aware of the nature of up coming pours. **This will help prevent a wear plate failure part way through a large, remote pour.**

Remove the old wear plates by cutting the nuts off with a chisel or cutting torch, being careful not to damage the auger flighting. When using a torch, be careful not to scortch the rubber portions of the auger trough.

> CAUTION:
> When attaching the new wear plates, it is important that they are against a firm, even surface st the bolting area. Excessive pressure on an uneven surface may cause breakage.

Service

The Reimer Mobile Mixer has been designed and tested to allow for a minimum number of adjustments and service items. The following sections describe adjustments and service that may be required.

Adjustments

1. Conveyor chain:- The take-ups on the front shaft of the conveyor must be adjusted to provide for proper tension on the conveyor chain. Proper adjustment is attained when the chain rollers are held about 1/8 " above the ends (front or back) of the chain return support bars. Be sure to check both sides of the conveyor chain, ensuring that the front shaft remains square to the main frame of the mixer.

2. Mix auger lift cylinder: - The lift cylinder is provided with an adjustable clevis to allow the proper engagement of the transport position locking hook. If the lock does not fully engage, lower the mix auger and support it with blocking to allow for the removal of the cylinder pin (clevis end). Loosen the tightening bolt to turn the clevis. Replace the pin and test for proper lock engagement. Repeat this procedure as necessary.

CAUTION:

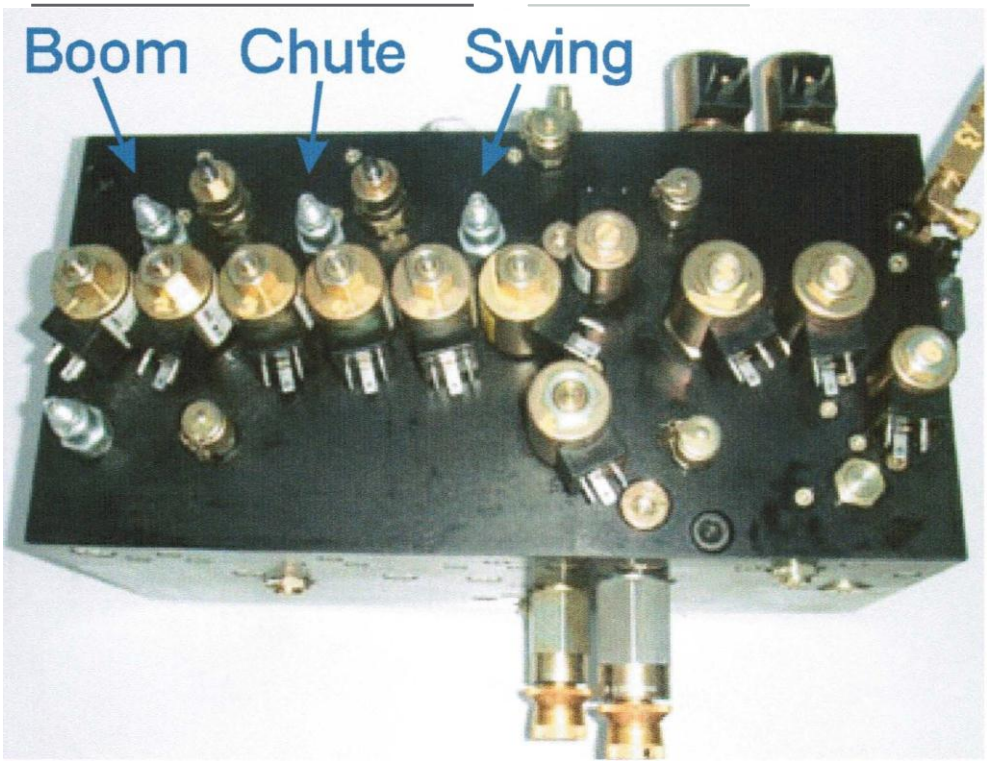
Over adjustment puts undue stress on the swivel ring and support pins. When turning the clevis, do not hold the cylinder rod with a pipe wrench or other such tool. Seal damage will result. If necesssary, extend the cylinder rod until it bottoms out. This will prevent it from turning easily. It may also be necessary to slightly spread the clevis with a chisel to loosen the threads.

3. Control gate position pointers: -The pointers are set at the factory to indicate 0 or12 on the dial when the control gates are in the lowest position (resting on the conveyor belt). If a service function requires that the pointer setting relative to the gate position be changed, return it to the original factory setting. It is a good practice to check this setting during regular maintenance.

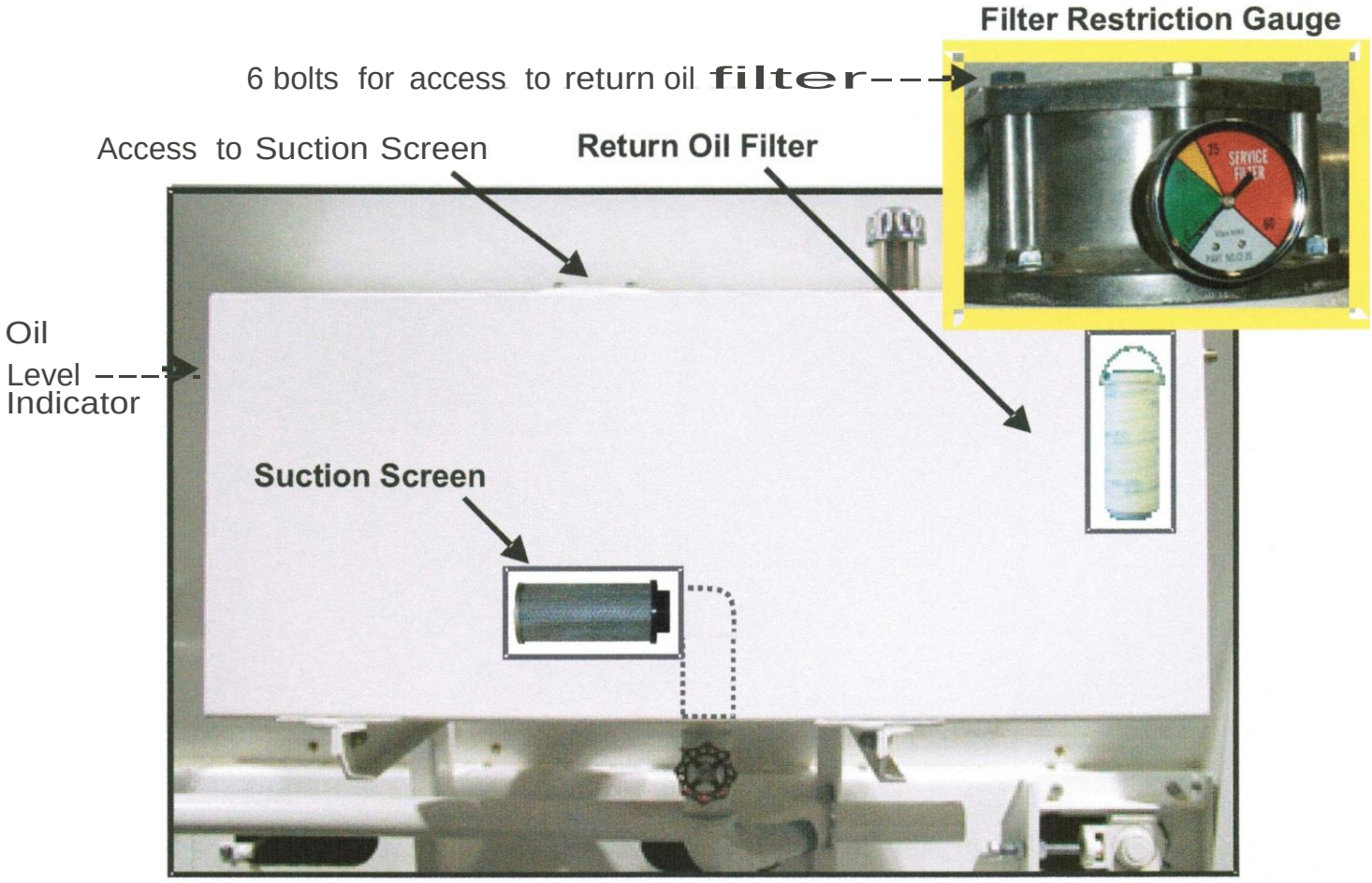
4. Cement feed drive chain: -Adjustment is provided by slotted holes under the cement drive motor mounting bracket.

5. Cement cross auger drive chain -Adjustment: -under the cement bin on the cross auger drive motor.

6. Mix auger: swing, boom and chute speed: -Adjustment for these directional functions is provided by flow controls under the main control panel.



Main Hydraulic Oil Tank



Monitor the filter restriction guage when the mixer is running and the oil warm.
Operation in the RED zone should be avoided as this indicates the return oil filter is contaminated.
This filter can be changed by removing the 6 bolts on the top of the housing.

Replacement filter element part numbers:		
Pall	HC2544FMP9H	2004 model mixers
Western	E4051B3C05	mixers before 2004

NOTE:
The filter restriction guage may run in the yellow zone when the oil is cold, but should drop into the green when normal temperatures are achieved.

Oil Specifications

Cleanliness

In systems that use Eaton medium duty piston pumps, the fluid must be maintained at ISO Cleanliness Code 18/13 or better per SAE 11165. This code allows a maximum of2,500 particles per milliliter greater than 5 J.lm and a maximum of 80 particles per milliliter greater than 15 J.lm. When components with different cleanliness requirements are used in the same system, the cleanest standard should be applied.

Hydraulic System

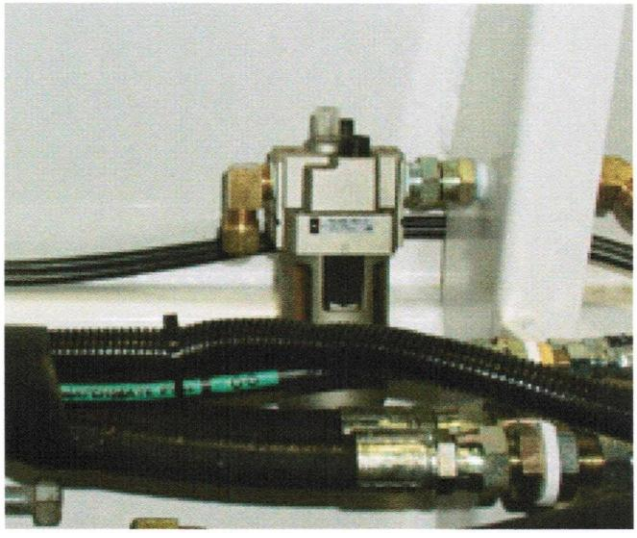
Your Re1mer Mobile M1xer has been filled with Petro Canada **HYDREX*** to g1ve you best all season performance, plus longer lasting protection against wear.

HYDREX* is recommended for use in equipment manufactured by: Eaton (Vickers), **Cincinnati Machine, Denison, Racine, Sauer-Danfoss, and others.**

Minimum Requirements for Replacement Oil

In hydraulic systems that use Eaton's Medium Duty piston pumps and motors, the optimum viscosity range is 1O- 39 eSt [60-180 SUS], at normal operating temperatures. Viscosity should never fall below 6 eSt [45 SUS]. At the lowest expected start-up temperature, the viscosity, with a non-charge system, should not exceed 432 eSt [2,000 SUS]

Air Supply Oiler



Keep the lubricator reservoir filled with appropriate oil (SAE 10 WT non-gumming type oil).

The oil feed rate can be varied, using the adjusting screw on the top of the lubricator.

The vibrator exhaust air should show an indication of oil when feed rate is adequate.

Trouble Shooting

Problem	Cause	Solution
No mixer functions operate	Master switch not active	Locate and ensure that the cab master switch is turned on.
	Electrical failure	Locate and check main circuit breaker located in the main breaker box of truck. If a short circuit is indicated, find the short and repair.
No water pressure	Water pump not running	Check water pump activation switch on rear panel.
	Water tank is empty	Fill
	Water pump has lost it's pnme	Ensure that no pressurized air is being allowed into water system through the blow-down valve or a faulty diaphragm in the automatic water valve.
	Water Suction Screen Plugged ***(Page 11)***	Remove and clean or replace
Digital meter not counting	Proximity sensor has come out of adjustment	Light on top of sensor will flash when bolt head passes by if properly adjusted. Adjust to within 1/16" of sprocket.
	Sensor Damaged	**Replace**
No numbers on counter display	Digital counter has failed	**Replace**
Water leaking from pump	Mechanical seal has failed	Replace seal, ensuring that seal components are properly installed. **DO NOT RUN DRY!**
Inconsistent slump	Moisture content of aggregates not consistent	Load materials of consistent moisture content. When this is not possible, the operator must compensate for moisture variations by making minor adjustments to the slump control valve or to the belt speed.
	Restriction in water supply line	Remove Y-strainer plug and screen. Check for contamination and clean if necessary.
	Air in water causing pump cavitation.	Check blow down air valve if so equipped. Valve must be fully closed.
	Over adjustment of slump control valve.	Check automatic water valve diaphragm. Replace if defective. When setting the slump, do not "chase" it by over adjusting the control valve. It takes several seconds for the slump to respond to changes made to the valve setting.
	Engine speed too low	Do not operate at less than 1600 R.P.M.
Mix is too stony	Sand has bridged or become restricted	Operate vibrators to cause sand to flo / properly.
		Check control gate opening for restrict ion.

Reimer Mobile Mixer

Calibration procedure

The calibration of the mixer is the process which determines the control gate settings and the meter count required to produce concrete of a certain specification. A predetermined "mix design" is used as the guide for the calibration procedure.

NOTE:
The larger the sample you are able to measure, the lower the error factor will be.

STEP 1 -Determine the 'cement output per count'. Each count is registered and displayed in the window of your meter.

Procedure:

1. Empty material from the sand and stone bins.
2. The cement bin should be at least 1/3 full.
3. Discharge an adequate amount of cement to ensure that the cement metering system is full.
4. Determine the empty weight of the container being used to collect the cement sample.
5. Zero the meter and place the container under the auger swivel ring.
6. Run the belt until the sample container is full, ensuring that all material being discharged is collected.
7. Weigh the sample.

CAUTION:
Remember to subtract the empty weight of the container.

1. Divide the sample weight by the number of counts shown on the meter to determine the **cement output per count.**

Cement Formula:

Sample Weight ____ divided by meter count ____ = **cement output per count** ____

NOTE:
Collect and weigh a minimum of (3) three samples.

Step 2 – Determine **the number of counts required** to deliver the specified weight of cement powder **per yd ^{3} of concrete** as needed in your mix design.

Count Formula:

Mix design requirements: lbs. of cement per yd ^{3} divided by **cement output per count** *(from step 1)* = **counts required per yd ^{3}** _____

Turn Cement Motor OFF. *(See page 10)*

Step 3– Determine the weight of stone that must be released per count.

Using your mix design, establish the required weight of stone to produce 1 yd ^{3} of concrete.

Divide the weight of stone per yard needed by the number of **counts per yd ^{3} required** *(from Step 2)*.

Stone Formula:

Mix design requirement lbs. of stone per yd ^{3} *(from step 2)*. divided by **counts per yd ^{3}** = **weight of stone per count _____**

Procedure:

1. Fill stone bin at least 1/4 full .
2. Determine the empty weight of the container being used to collect the material sample.
3. Adjust control gate to the setting taken from the *'Sample Data Chart'* found at the end of the calibration section.
4. Run the belt until material is being discharged off the end of the conveyor.
5. Zero the counter and place the sample container under the discharge ring.
6. Run the belt until the sample container is full, ensuring that all material being discharged is collected.
7. Read the meter and record the value.
8. Weigh the sample and divide by the meter reading to calculate the **weight of stone per count** that has been discharged.

CAUTION:
Remember to subtract the empty weight of the sample container.

NOTE:
After the control gate has been reset, the conveyor must be run until the adjusted material flow is past the discharge point. Disregard the material released during this operation and Re-Zero the meter.

1. Adjust the control gate andre-sample until the **weight of stone per count** is equal to the amount established in the stone formula above.

NOTE:
Once a gate setting is established,check it by taking 3 more samples.

Record stone control gate setting _____

Step 4 - Determine the weight of sand that must be released per count.

Sand Formula:

Mix design requirement lbs.of sand per yd ^{3} divided by **counts per yd** ^{3} *(from step 2).* = **weight of sand per count _____**

Empty the stone bin and fill the sand bin ¼ full, repeating step 3, replacing stone with sand in all references.

Record sand control gate setting _____

SUMMARY:

Mix# _____(Operators Reference)

Strength required _____

Counts per yd ^{3} _____

Stone gate setting _____

Sand gate setting _____

The mixer must be calibrated for each mix design used and the data should be recorded on a chart for use by the operator.

Sample Data Chart- SAMPLE ONLY!

Cement Output per count .478 lbs. or .218 Kgs

Strength	Counts Required Per		Gate Setting	
	Yd ^{3}	M3	Stone	Sand
3000 psi (20mpa)	872	1147	11.2	10
3500 psi (25mpa)	1008	1326	9.5	8
4000 psi (27.5mpa)	1150	1513	8.5	7
4500 psi (30mpa)	1238	1628	8.2	6.7

All calibration data should also be recorded elsewhere for a backup.

After calibrating, using weight it is recommended that the yield of each mix be verified by hatching concrete into a yield box *(container of known volume)* and comparing the result with that displayed by the meter. Small adjustments in the gate settings may be necessary to produce the desired yield.

APEX I

The APEX I is a processor and display designed to provide the mobile mixer operator with information related to the Mixing and Discharge of concrete. During the Mixer Calibration Procedure pertinent mix data information is entered into the Apex I to provide for real-time calculations related to concrete volume, cement weight, aggregate weight, and admixture flow rates. CemenUwater ratio, water flow rate and water totalizer are also available using the optional water meter.

Operating and data input

1. START- UP screen : displays time and counts/pulses

SCRN- to toggle between START-UP and ACTIVE-MIX screen

PRGM - to display the Program Screen
ADMIX- to view admixture flow rates
RESET- to Zero: counts/pulses and ACTIVE-MIX screen volume.
Values will be stored in the LAST 5 MIX screen.

2. ACTIVE - MIX SCREEN

MIX:(number@ name)
ST:(stone gate setting)
SA:(sand gate setting)
CNT: (total counts/pulses between resets)
MPA/PSI:(strength)
C/W:(cement/water ratio)
H20:(water flow rate)
H20T:(total amount of water used between resets)
RPM:(conveyor speed)
VOLUME COUNT:(yards or meters)

3.PROGRAM SCREEN

OK- return to the ACTIVE- MIX screen
SELECT- to choose one of the options
UP- scroll cursor up to the desired selection
DOWN- scroll cursor down to the desired selection

a. MIX SELECT SCREEN

UP and DOWN- select mix 1-15
SELECT- to return to the active mix screen

b. MIX ENTRY screen

MIX - select mix that is desired for data entry
SELECT -scroll data entry line through screen
UP - increase input value
DOWN - decrease input value
EXIT - note when data entry line is under EXIT : Use Door symbol (down key) to exit program

NOTE: Select will only scroll from top to bottom and repeat.

c. SET UP PARAMETERS screen

OK- to return to the ACTIVE-MIX screen
SELECT -allows programming of category selected
UP -to move the cursor up to the desired category
DOWN - to move the cursor down to the desired category

C.1 SET CONTRAST

scroll between Set Contrast and Set Bright
- to decrease value
+ to increase value
Use the door symbol to exit this screen

C.2 SET TIME

Set Time is used to scroll between minutes and hours
UP and DOWN increase and decrease values
Use the door symbol to exit this screen

C.3 H20 PULSE/ L(liters) or G(gallons)

Select- moves the cursor underneath the number indicating the pulse counts required to dispense 1 liter or 1 gallon

Up - increases the pulse count value
Down - decreases the pulse count value

Water Calibration:

Active - Mix screen :

a) Press **Reset** to zero all totals

b) Dispense water into a container of known volume **liters or gallons**

c) Note the volume of water displayed at **H20T** and compare this with the actual total

If the displayed volume is **low** the number of pulse counts required per liter or gallon must be **decreased.**

If the displayed volume is high the number of pulse counts required per liter or gallon must be **increased.**

It may be necessary to take several samples of water volume and make the appropriate adjustments to the **H20 PULSE** count in order to achieve the level of accuracy you require. However, once calibrated properly no further changes should be needed.

C.4 METRIC/IMPERIAL

Select- used to change between metric and imperial

NOTE: Auger PSI and BELT PSI are for future use.

1. **LAST 5 MIX screen** -view a log of the last 5 resets.

Each time you press the **RESET** button it will log the concrete volume and strength of the current job. Note: if the **RESET** button is depressed with (zero) 0 counts, (zero) 0 volume will be logged.

ADMIXTURE SCREEN

Setting Flow rates for admixture

Enter the desired amount of admixture required per meter or yard in the appropriate line from the MIX ENTRY screen. The Apex I will calculate the number of counts per minute and compute the desired flow rate- UMinute or Gal/minute to be displayed in the ADMIX screen.

From the START-UP screen or ACTIVE MIX screen with the convey or belt running press the ADMIX button. The ADMIX screen will indicate the appropriate flow rate needed for the rate at which concrete is being produced. Use the admix flow-control and flow meter for either the HI flow or Lo Flow admix pumps to make the appropriate flow rate adjustment.

This process can be done while mixing. You may easily move between the ACTIVE-MIX screen and the ADMIX screen to check the display which indicates the necessary flow rate.

CAUTION:

The computer does NOT control the admix. It only displays the amount of admixture that is required using the information that has been entered when setting up the MIX ENTRY screen. The operator must MANUALLY make adjustments to the ADMIX FLOW CONTROL.

NOTE:
If the conveyor speed is changed, you must make the necessary adjustment to the admix flow control in order to dispense the correct amount of admixture. The display in the ADMIX screen is to be used for reference only; when making these adjustments.

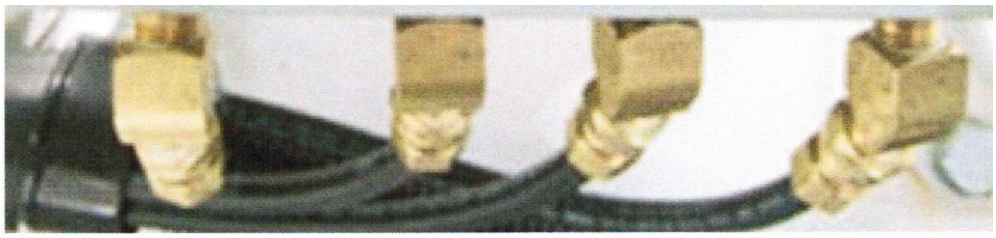
CAUTION:
When mixing concrete, using a different cement powder or aggregates differing in size from those which were used when calibrating, errors in yield will result. The operator should be prepared to re-calibrate in these situations and make the necessary changes in the gate settings to maintain the accuracy of the Reimer Mobile Mixer.

NOTE:
Proper calibration will enable you to deliver an accurate volume of quality concrete without consuming extra cement powder.

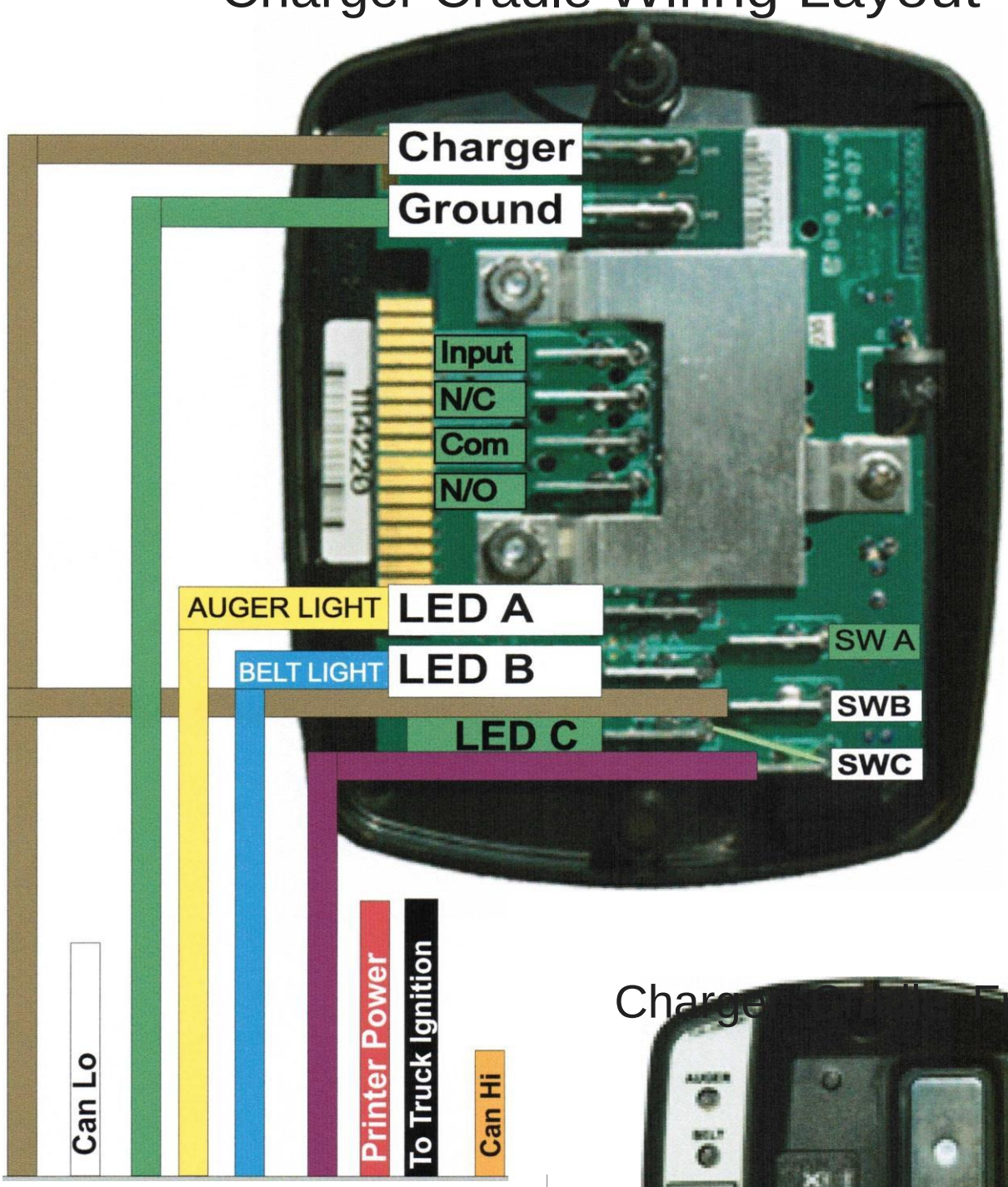
Using a wheelbarrow to collect material samples for calibration.

Manual Admix System

ADMIX MUST BE ADJUSTED WHEN MAKING CHANGES TO CONVEYOR OR SPEED.



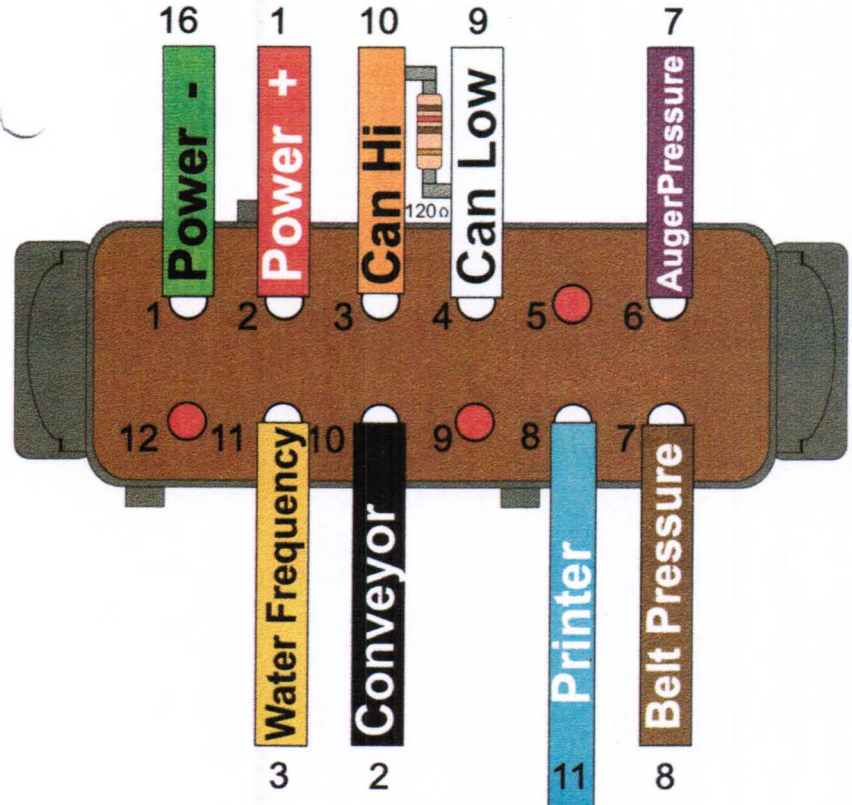
Charger Cradle Wiring Layout

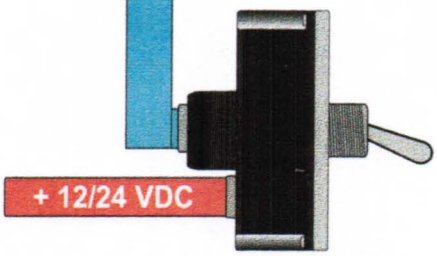


9 Wire Cab Cable

Charge[illegible] Front View

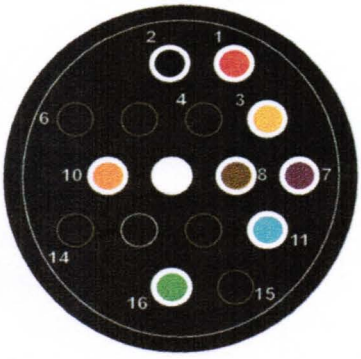
From Mixer Junction Box





PRINTER
SWITCH
1TL1-6

Amp inline
Connector
206036-3

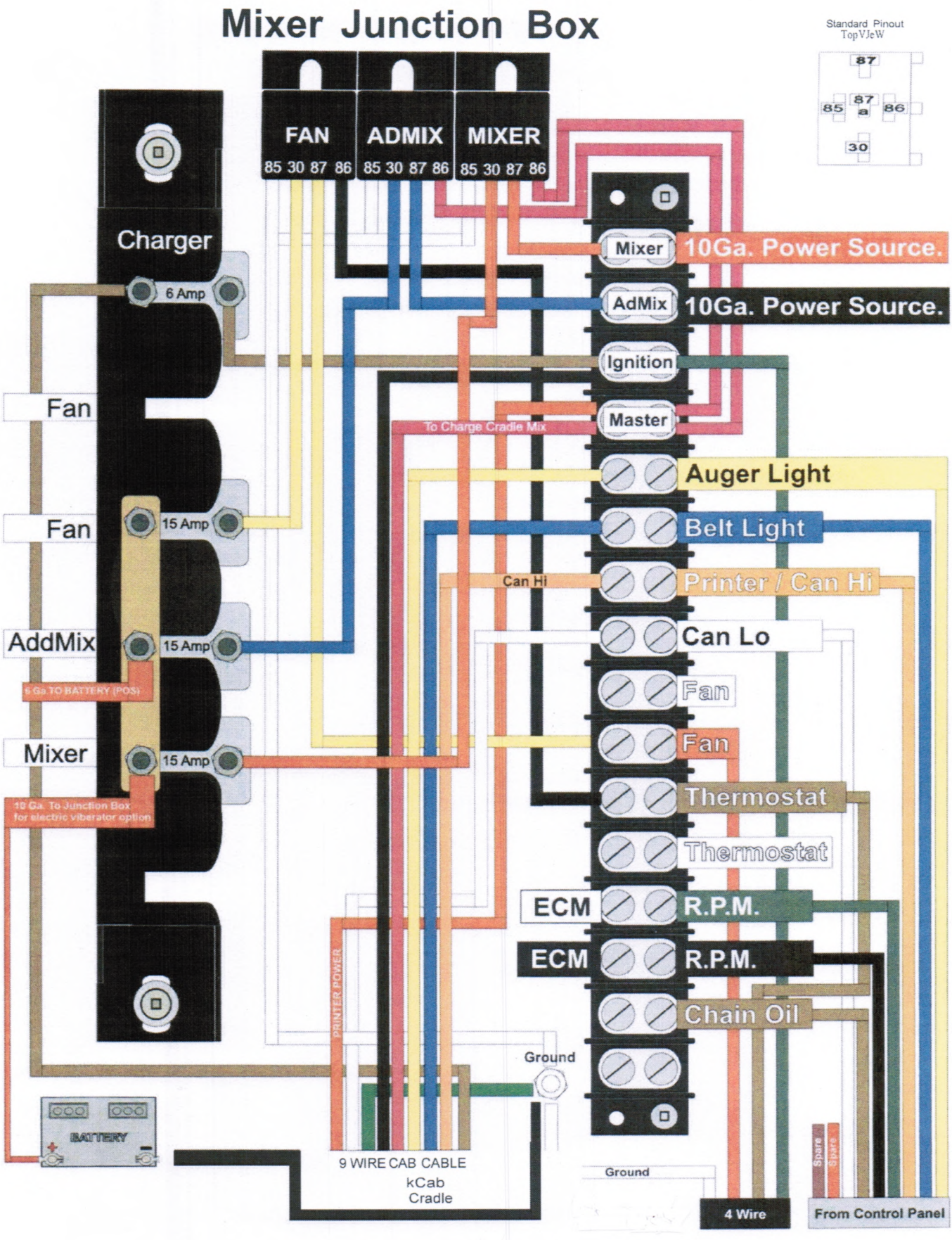


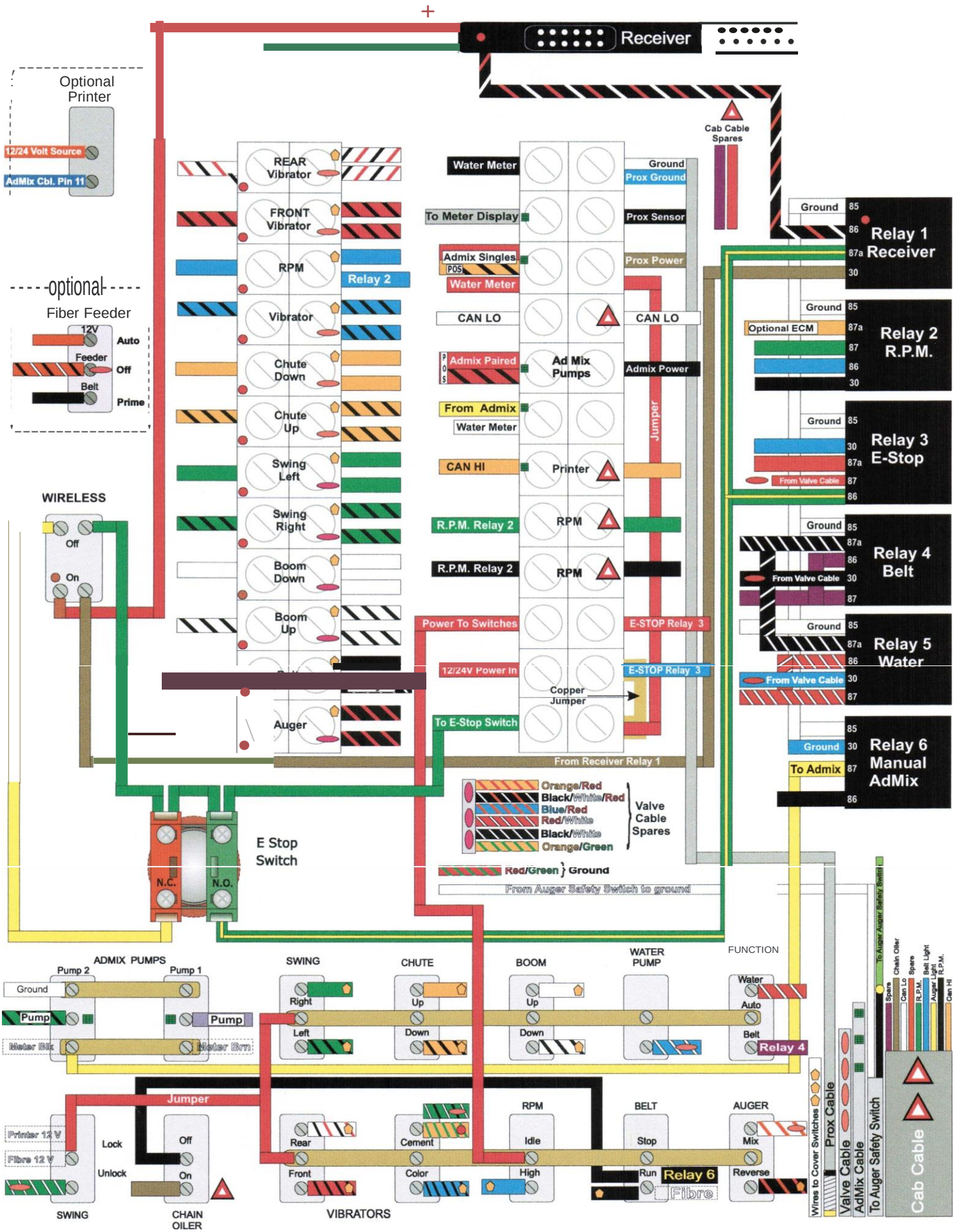
Meter Cable End
Male Pins 66099-5

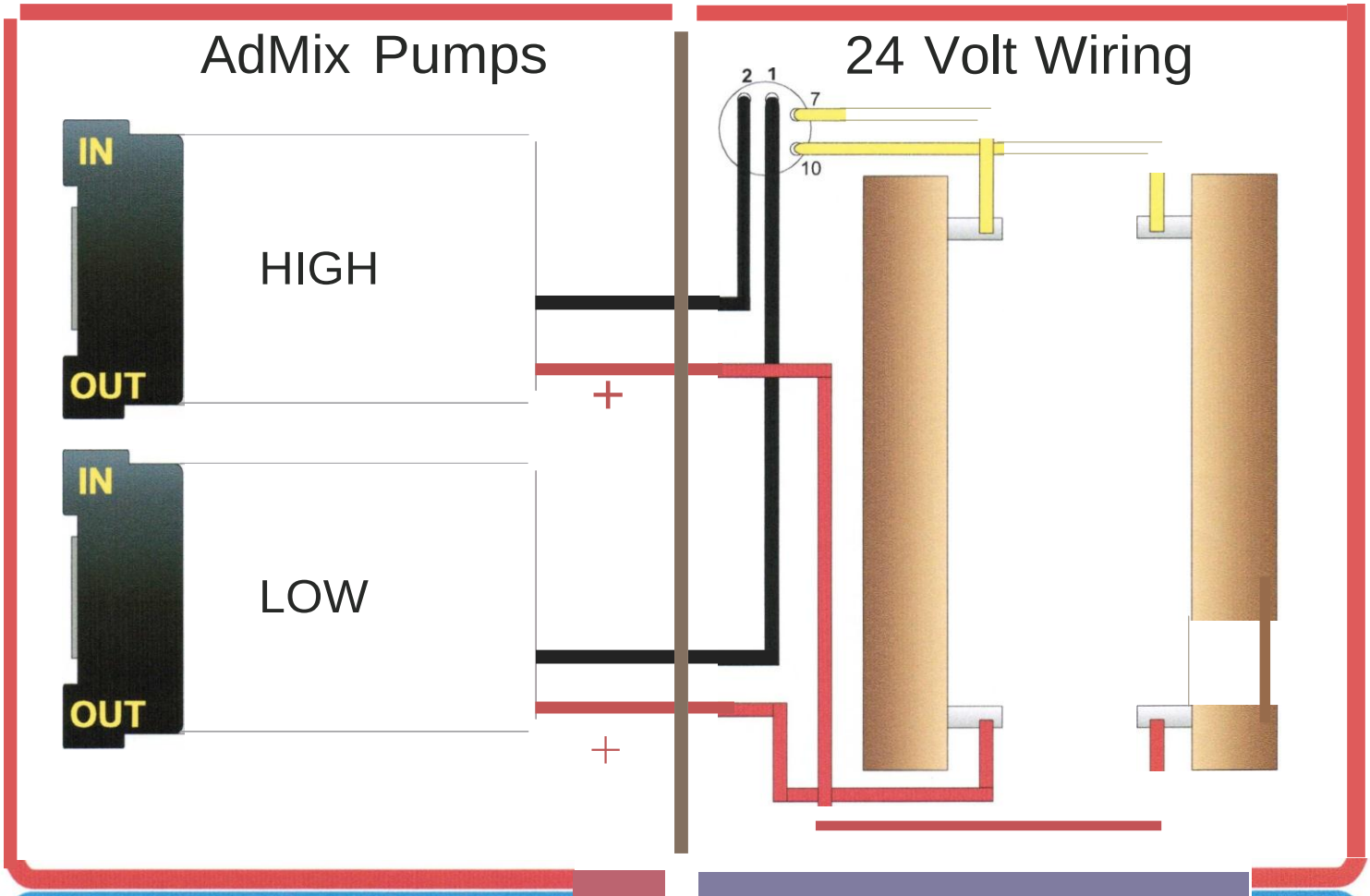
Addendum 'D'

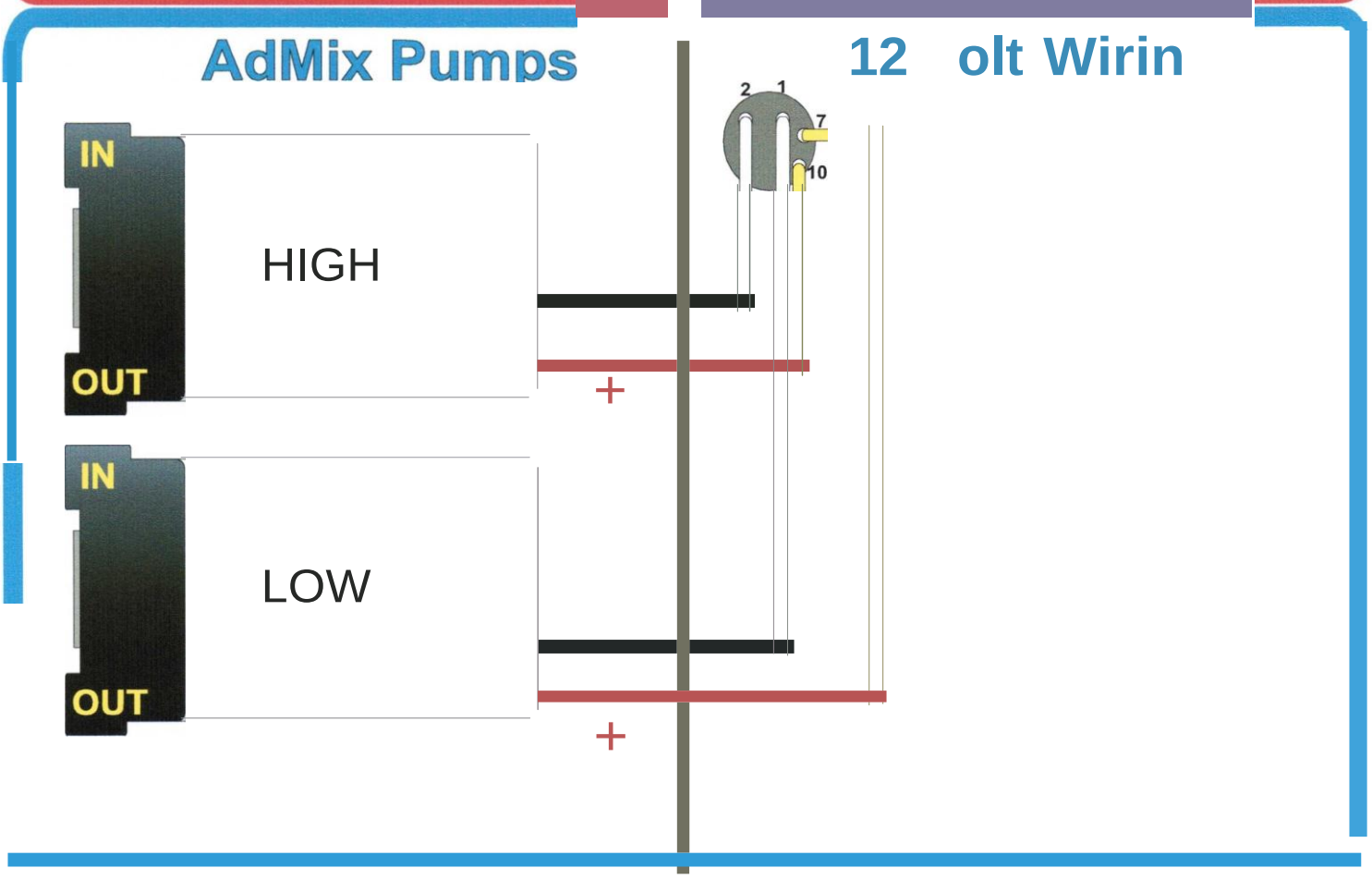
OMNEX

Wireless System


Mixer Junction Box
Standard Pinout
Top View
87
85
87a
86
30
FAN
ADMIX
MIXER
85 30 87 86
85 30 87 86
85 30 87 86
Charger
6 Amp
Fan
15 Amp
Fan
AddMix
15 Amp
6 Ga. TO BATTERY (POS)
Mixer
15 Amp
10 Ga. To Junction Box for electric viberator option
Mixer
10Ga. Power Source.
AdMix
10Ga. Power Source.
Ignition
Master
To Charge Cradle Mix
Auger Light
Belt Light
Can Hi
Printer / Can Hi
Can Lo
Fan
Fan
Thermostat
Thermostat
ECM
R.P.M.
ECM
R.P.M.
Chain Oil
PRINTER POWER
Ground
BATTERY
9 WIRE CAB CABLE
kCab
Cradle
Ground
4 Wire
Spare
Spare
From Control Panel

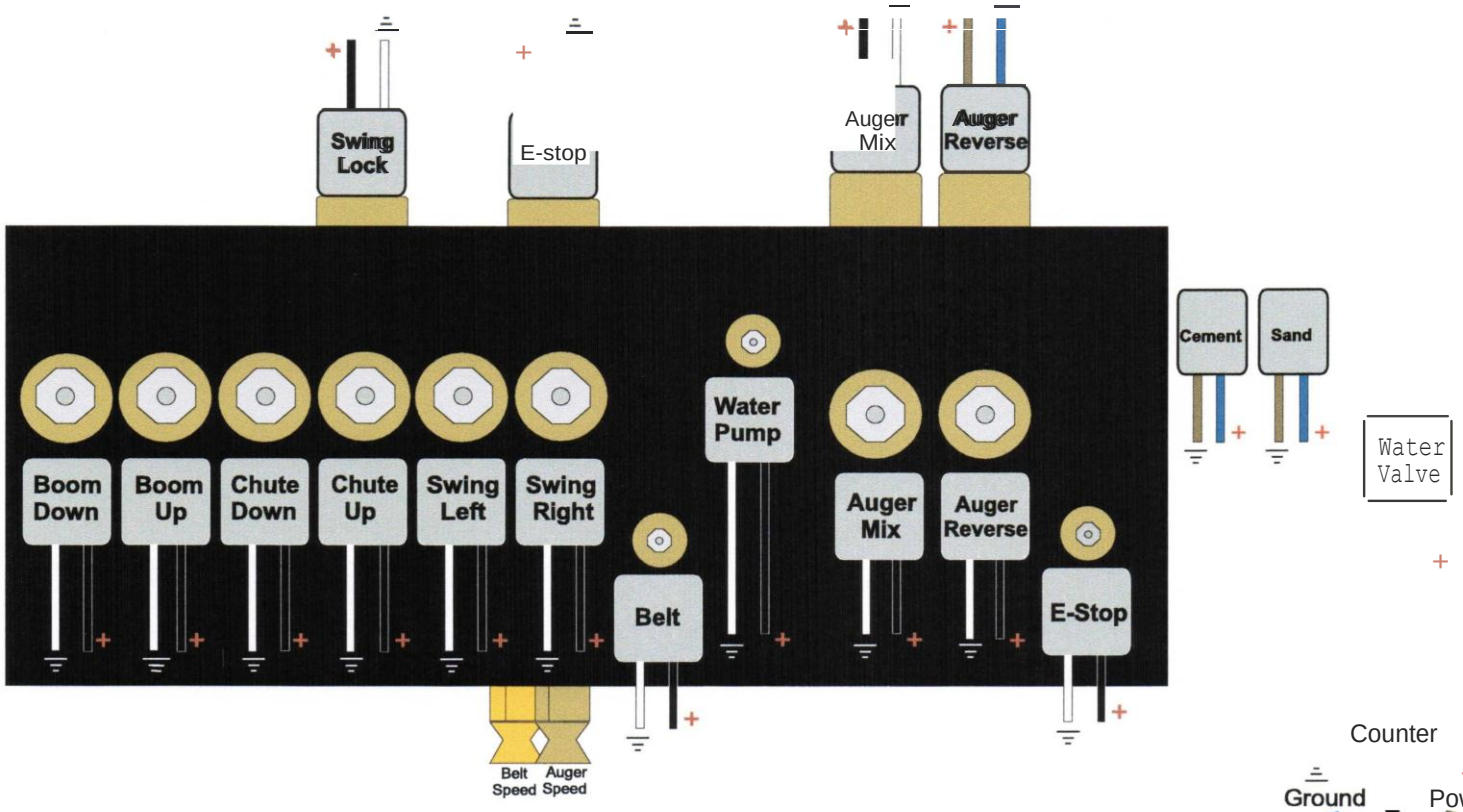

+
Receiver
Optional Printer
12/24 Volt Source
AdMix Cbl. Pin 11
Cab Cable Spares
REAR Vibrator
FRONT Vibrator
RPM
Relay 2
Vibrator
Chute Down
Chute Up
Swing Left
Swing Right
Boom Down
Boom Up
Auger
Water Meter
To Meter Display
Admix Singles
POS
Water Meter
CAN LO
Admix Paired
Ad Mix Pumps
From Admix
Water Meter
CAN HI
Printer
R.P.M. Relay 2
RPM
R.P.M. Relay 2
RPM
Power To Switches
12/24V Power In
Copper Jumper
To E-Stop Switch
From Receiver Relay 1
Ground
Prox Ground
Prox Sensor
Prox Power
CAN LO
Admix Power
Jumper
E-STOP Relay 3
E-STOP Relay 3
Ground 85 86 87a 30 Relay 1 Receiver
Optional ECM
Ground 85 87a 87 86 30 Relay 2 R.P.M.
Ground 85 30 87a 87 86 From Valve Cable Relay 3 E-Stop
Ground 85 87a 86 From Valve Cable 30 87 Relay 4 Belt
Ground 85 87a 86 From Valve Cable 30 87 Relay 5 Water
Ground 85 30 87 86 To Admix Relay 6 Manual AdMix
optional
Fiber Feeder
12V
Auto
Feeder
Off
Belt
Prime
WIRELESS
Off
On
E Stop Switch
N.C.
N.O.
Orange/Red
Black/White/Red
Blue/Red
Red/White
Black/White
Orange/Green
Valve Cable Spares
Red/Green Ground
From Auger Safety Switch to ground
ADMIX PUMPS
Pump 2
Pump 1
Ground
Pump
Pump
Meter Blk
Meter Brn
SWING
Right
Left
CHUTE
Up
Down
BOOM
Up
Down
WATER PUMP
FUNCTION
Water
Auto
Belt
Relay 4
Jumper
Printer 12 V
Fibre 12 V
Lock
Unlock
Off
On
SWING
CHAIN OILER
Rear
Front
Cement
Color
VIBRATORS
RPM
Idle
High
BELT
Stop
Run
Relay 6
Fibre
AUGER
Mix
Reverse
Wires to Cover Switches
Prox Cable
Valve Cable
AdMix Cable
To Auger Safety Switch
To Auger Auger Safety Switch
Spare
Chain Oiler
Can LO
Spare
R.P.M.
Belt Light
Auger Light
R.P.M.
Can HI
Cab Cable

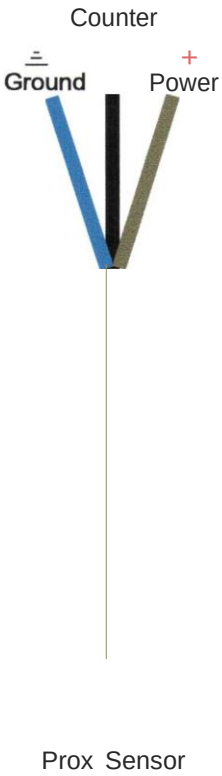

AdMix Pumps
24 Volt Wiring
IN
HIGH
OUT
IN
LOW
OUT
2
1
7
10
+
+

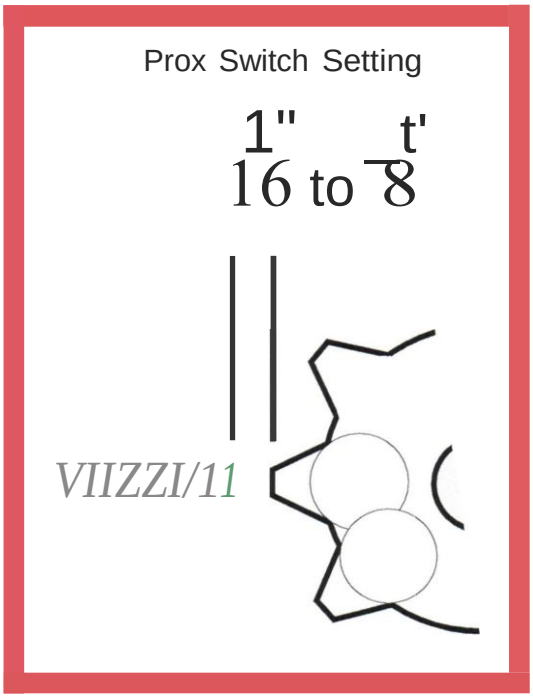

AdMix Pumps
12 olt Wirin
IN
HIGH
OUT
IN
LOW
OUT
2
1
7
10
+
+

Hydraulic System

Valve Wiring

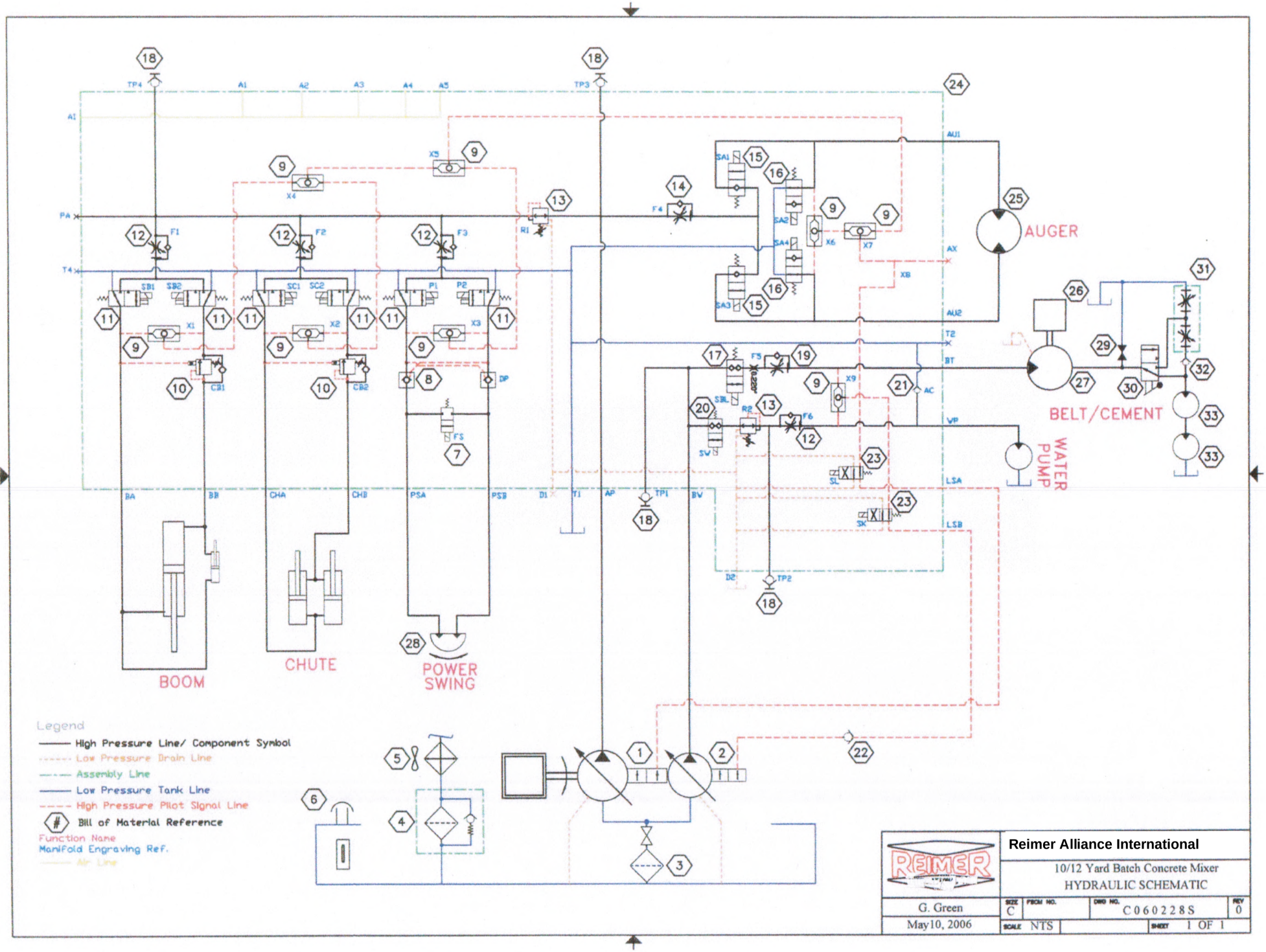






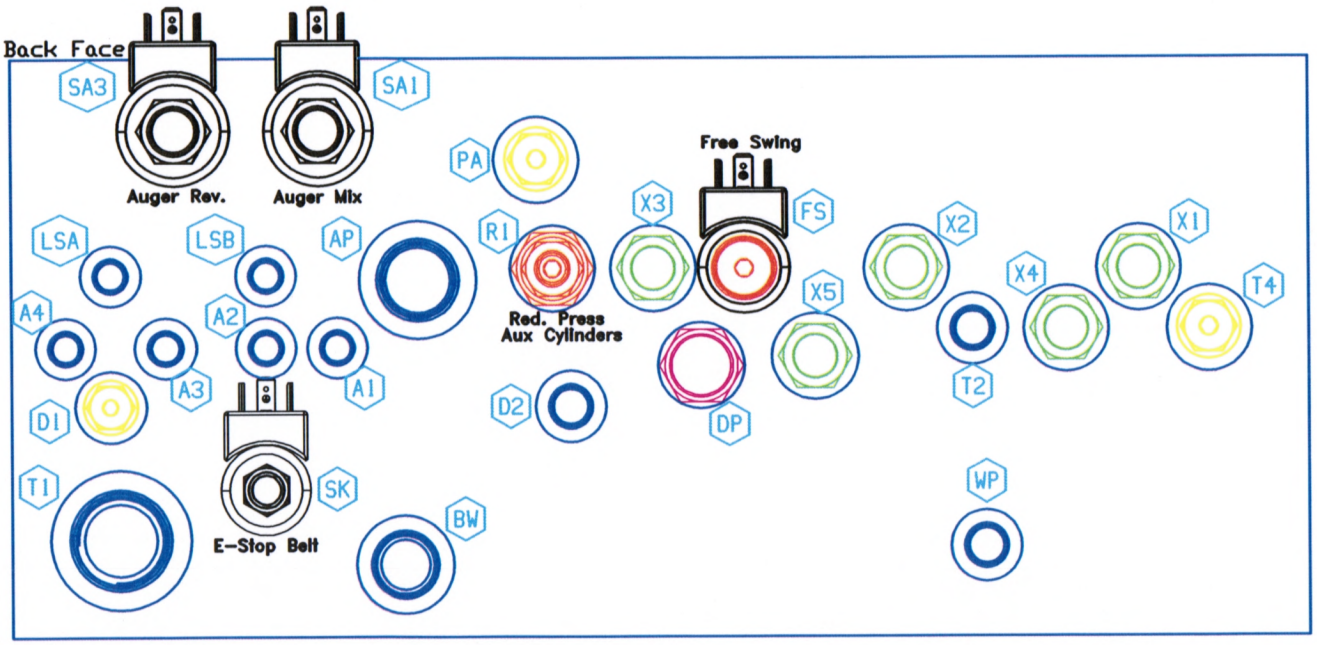
Each solenoid connector has 2 wires
Blue and white wires are ground
Brown and Black wires are Power

+	This symbol indicates power input to the connector.
	This symbol indicates the ground connection for the connector.
	The third and widest pin is not used.


AUGER
BELT/CEMENT
WATER PUMP
BOOM
CHUTE
POWER SWING
Legend
High Pressure Line/ Component Symbol
Low Pressure Drain Line
Assembly Line
Low Pressure Tank Line
High Pressure Pilot Signal Line
Bill of Material Reference
Function Name
Manifold Engraving Ref.
Air Line
Reimer Alliance International
10/12 Yard Batch Concrete Mixer
HYDRAULIC SCHEMATIC
G. Green
May10, 2006
C060228S
SCALE NTS
SHEET 1 OF 1

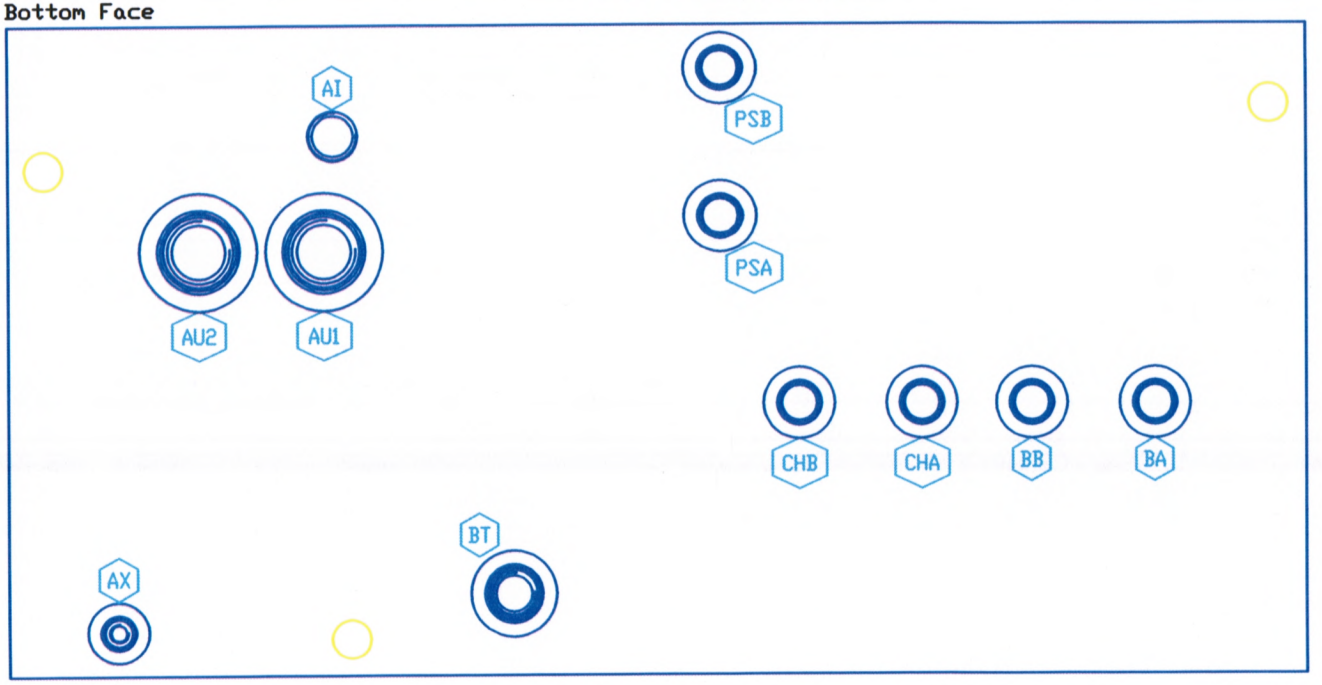
Back Face

Tag #	Function/ Port Name	Part Number
A1->A4	Air Manifold Ports	
AP	Auger Pump In	
BW	Belt/Water Pump In	
D1, D2	Drain Ports	
DP	Dual PO Check	DPC2-8U-A-25-00
FS	Free Swing Valve	SV4-8-CM-0-00
	Coil	MCSCSxxxDG000010
LSA	Load Sense - Auger	
LSB	Load Sense - Belt	
PA	Auxilary Pressure Port	
R1	Red. Press Aux. Cylinders	PRV12-10-S-30/
SA1	Auger Mix # 1 Valve	SV13-16-C-0-00
	Coil	MCSCHxxxDG000010
SA3	Auger Reverse #1 Valve	SV13-16-C-0-00
	Coil	MCSCHxxxDG000010
SK	E-Stop Belt	SV11-8-4-0-00
	Coil	MCSCPxxxDG000010
T1, T2, T4	Tank Ports	
WP	Water Pump	
X1->X5	Shuttle Valve	DSV2-8-B-0



xxx = 012 for 12VDc Systems
xxx = 024 for 24VDc Systems

Bottom Face



Bottom Face

Tag #	Function/ Port Name	Part Number
AI	Air Manifold - In Port	
AU1	Auger Mix Port	
AU2	Auger Rev. Port	
AX	Aux. Shuttle In Port	
BA	Boom Down Port	
BB	Boom Up Port	
BT	Belt Port	
CHA	Chute Down Port	
CHB	Chute Up Port	
PSA	Swing Left Port	
PSB	Swing Right Port	

Aluminum Valve Manifold
MATERIAL 6061-T6
PRESSURE RATING 3500 PSI
COATING BLACK ANODIZE
c/w 3 ea 0.500-13 x 8.50 Socket Head Cap Screw

REIMER ALLIANCE

Reimer Alliance International

Custom Hydraulic Manifold
GENERAL ASSEMBLY

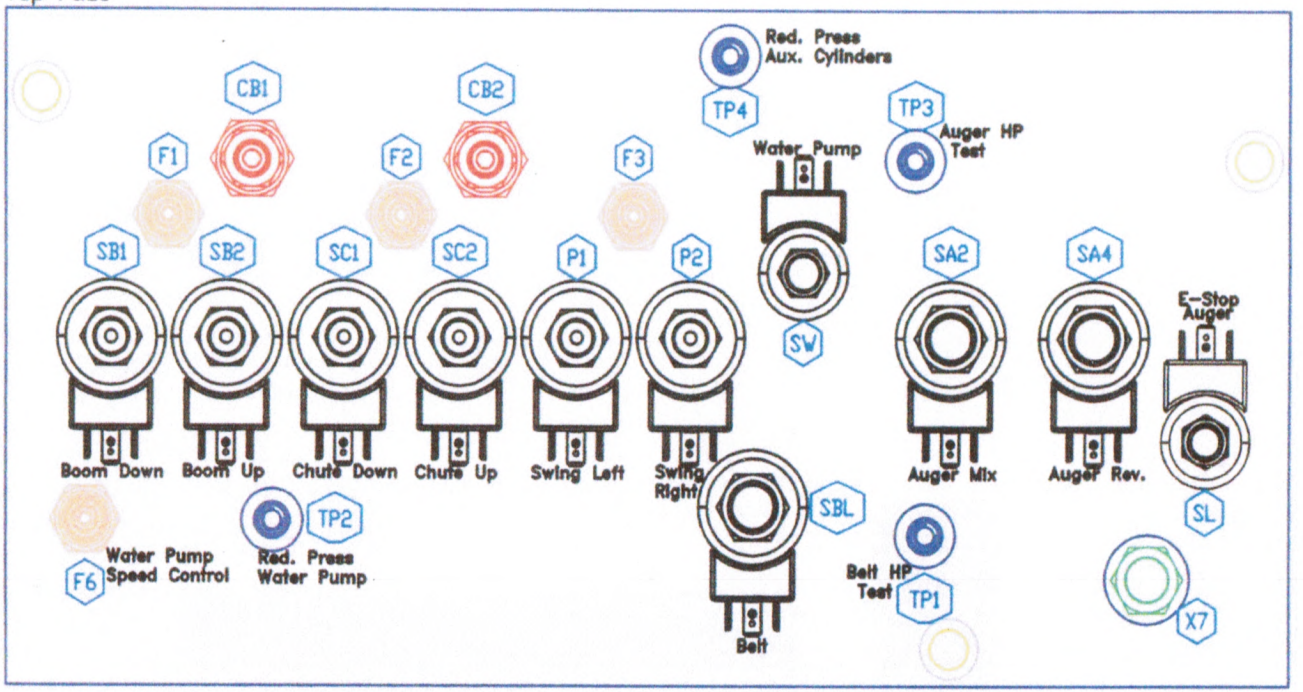
G. Green
February 23, 2011

SIZE C | FSCM NO. | DWG NO. C060227A | REV 3
SCALE NTS | SHEET 2 OF 2

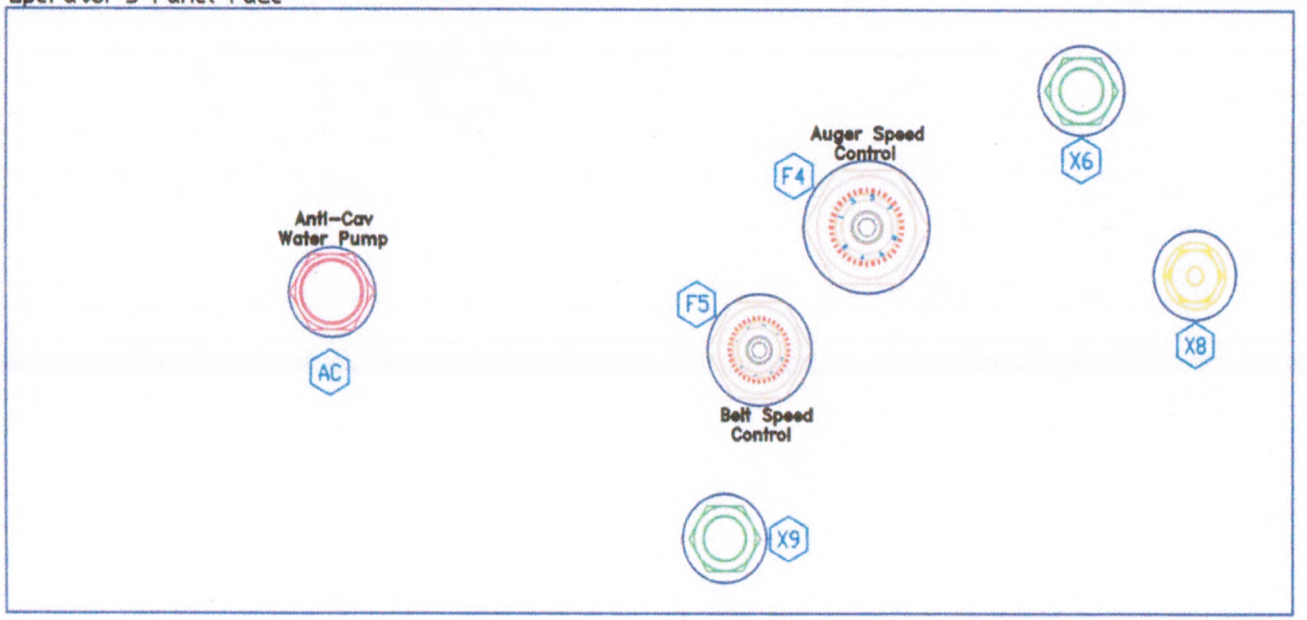
Top Face

Tag #	Function/Port Name	Part Number
CB1	Boom Counterbalance	CBV1-10-8-0-A-30/
CB2	Chute Counterbalance	CBV1-10-8-0-A-30/
F1	Boom Speed Control	FDBA-LAN
F2	Chute Speed Control	FDBA-LAN
F3	Swing Speed Control	FDBA-LAN
F6	Water Pump Speed Control	FDBA-LAN
P1	Swing Left Valve	SV4-5299-0
	Coil	MCSCJ012DG000010
P2	Swing Right Valve	SV4-5299-0
	Coil	MCSCJ012DG000010
SA2	Auger Mix # 2 Valve	SV13-16-0-0-00
	Coil	MCSCH012DG000010
SA4	Auger Reverse #2 Valve	SV13-16-0-0-00
	Coil	MCSCH012DG000010
SB1	Boom Down Valve	SV4-5299-0
	Coil	MCSCJ012DG000010
SB2	Boom Up Valve	SV4-5299-0
	Coil	MCSCJ012DG000010
SBL	Belt Valve	SBV11-12-C-0-00
	Coil	MCSCH012DG000010
SC1	Chute Down Valve	SV4-5299-0
	Coil	MCSCJ012DG000010
SC2	Chute Up Valve	SV4-5299-0
	Coil	MCSCJ012DG000010
SL	E-Stop Auger	SV11-8-4-0-00
	Coil	MCSCP012DG000010
SW	Water Pump Valve	SBV11-8-C-0-00
	Coil	MCSCP012DG000010
TP1	Belt HP Test	SMK20-7/16 UNF-VE
TP2	Red. Press Water Pump	SMK20-7/16 UNF-VE
TP3	Auger HP Test	SMK20-7/16 UNF-VE
TP4	Red. Press Aux. Cylinders	SMK20-7/16 UNF-VE
X7	Shuttle Valve	DSV2-8-B-0

Top Face



Operator's Panel Face



Operator's Panel Face

Tag #	Function/Port Name	Part Number
AC	Anti Cav. Water Pump	CV3-8-P-0-004
F4	Belt Speed Control	FAR1-12-H-0
		02-182842
F5	Auger Speed Control	FAR1-16-H-0-30
X6, X9	Shuttle Valve	DSV2-8-B-0
X8	Auxilary Shuttle Valve	SMBP SOC HD

Aluminum Valve Manifold

MATERIAL 6061-T6

PRESSURE RATING 3500 PSI

COATING BLACK ANODIZE

c/w 3 ea 0.500-13 x 8.50 Socket Head Cap Screw

Reimer Alliance International

Custom Hydraulic Manifold

GENERAL ASSEMBLY

G. Green

May 2, 2006

SIZE C | FSCM NO. | DWG NO. C060227A | REV 0

SCALE NTS | SHEET 1 OF 2

Hydraulic Pump Setting Procedures

Initial Setup

Open the valve on the hydraulic supply tank.
Disconnect load sense lines on both hydraulic pumps.
Place these lines in a container to collect the oil.

Master switch on.
Belt and auger switch on.
Belt and auger speed control open fully.
Turn engine over a few revolutions without starting to ensure that the pump is full of oil.
Start engine and check for oil flow from both load sense lines. Check for oil leaks on the machine.
Run 10 to 20 liters of oil through these lines to flush them then reconnect each line to the correct pump (the oil may be filtered and returned into the oil supply tank).
Belt and auger switches off.

Refer to the manual page 46 drawing showing top face of the manifold.
TP1 Belt HP Test.
TP3 Auger HP Test.
TP4 Red. Press Aux.Cylinders.

Setup Procedure / Conveyor Belt Pump

Connect test gauge to TP1.
Belt switch off

Start engine and run at an idle.
Set standby pressure on the pump control (by adjusting the allen screw in the smaller housing) for the rear (belt) pump- clockwise to raise the pressure; counter-clockWise to lower the pressure.
Set 380 - 400 psi.
Stop engine, restart and confirm correct setting.

Move the handle on the cement feed lean/full valve to the middle position. This will block the oil flow on the conveyor belt circuit allowing maximum pressure to be set.
Belt switch on
Set the maximum pressure setting on the pump control (by adjusting the allen screw in the larger housing) for the rear (belt) pump- clockwise to raise the pressure; counter-clockwise to lower the pressure.
Set 3800- –psi.
Belt switch off
Cement valve full

Note: It may be necessary to increase the engine RPM when adjusting maximum pressure to prevent the engine from stalling.

Setup Procedure / Auger Pump

Connect test gauge to TP3.
Auger switch off

With engine running set auger standby pressure on the pump control (by adjusting the allen screw in the smaller housing) for the front (auger) pump -clockwise to raise the pressure; counter-clockwise to lower the pressure.
Set 340-350 psi.

Block the oil flow on the auger circuit using a ball valve or by plugging the hoses at the auger motor.
Auger switch on

Set the maximum pressure setting on the pump control (by adjusting the allen screw in the smaller housing) for the front (auger) pump- clockwise to raise the pressure; counter-clockwise to lower the pressure.
Set 3800 --psi.

Note: It may be necessary to increase the engine RPM when adjusting maximum pressure to prevent the engine from stalling.

Setup Procedure / Pressure Reducina Valve

Connect test gauge to TP4

Move chute or boom cylinders to the end of their stroke and hold the switch. The pressure should be adjusted to 3000 psi. using the PRV valve (R1 on the drawing labeled back face).

Note: It may be necessary to open the flow controls (F1 F2 F3 drawing labeled top face) to make the cylinders move. These should all be readjusted to make the Boom Chute and SWing move at the required speed.

Setup Procedure / Counter Balance Valve

Set the counter balance valves (CB1 CB2 drawing labeled top face). The pressure gauge should read approximately 1200 -1300 psi. when lowering the boom and chute. Pressure will be increased by turning the adjusting screw counterclockwise. The adjustment will probably be all the way out when you have it set.

Setup Proceclure / Water Pump

Water pump speed (F6 on the top face drawing)

Place a flow meter between the pressure and return lines at the water pump. Set oil flow to 3 - 3.25 GPM. Reconnect the pressure and return lines to the correct port on the water pump

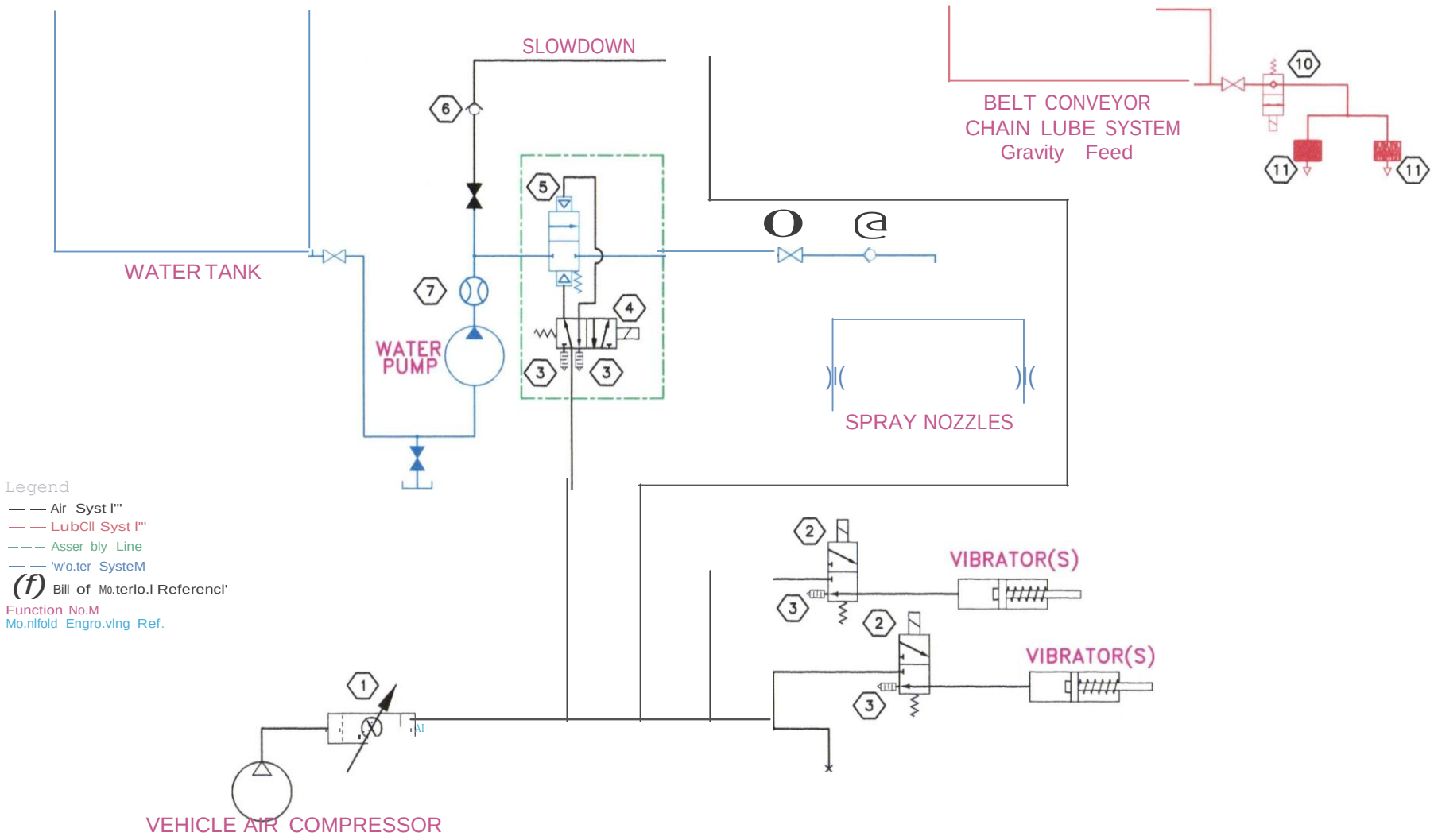
DO NOT RUN THE WATER PUMP WHEN IT IS DRY AS THIS WILL RESULT IN DAMAGE TO THE SEAL
If a flow meter is not available you may set the pump by running it with water and adjusting until you have satisfactory water pressure in the wash-down hose. Do not set the pump to run excessively fast or the life of the pump may be reduced.

Setup Procedure / Auger Latching

It may be necessary to also adjust the clevis on the boom cylinder in order to have the auger trough engage into the lockarm correctly. The position of the lockarm may also be adjusted using the bolt on the top of the lockarm cylinder. Ensure that the lockarm is adjusted high enough to allow the auger to engage the latches properly before raising it to the full upright position.

BILL OF MATERIAL – C060228S Hydraulics

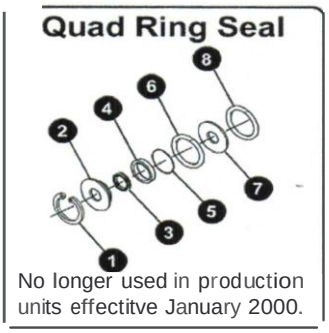
ITEM	QTY	DESCRIPTION	MFG
1	1	K3VL80/B-1NRSS-LO Righthand Rotation Auger Pump c/w P-29L8T2KD	Kawasaki
IA	*opt.*	K3VL80/B-1NLSS-LO Lefthand Rotation Auger Pump c/w P-29L8T2KD	Kawasaki
2	1	K3VL45/B-1NRSS-LO Righthand Rotation Belt Pump	Kawasaki
2A	*opt.*	K3VL45/B-1NLSS-LO Lefthand Rotation Belt Pump	Kawasaki
3	1	P50-2-100-RV3 Suction Strainer	Flo-Ezy
4	1	HH2544A24MPSAGD Return Riter w/Eiement,Indicator Gauge,& Diffuser	Pa11
4A	*spare*	HC2544FMP9H Spare Riter Element	Pall
5	1	043345 Fan Opererated Cooler 12V c/w B4130FD404P100 Thermostat Switch	Hayden
5A	*opt.*	043346 Fan Opererated Cooler 24V cjw B4130FD404P100 Thermostat Switch	Hayden
6	1	ABGP-1000-3-HN-CHAIN Breather cap	Flo-Ezy
7	1	SV4-8-CM-0-00 Free Swing Valve w/manual override	Eaton
7A	*1*	MCSCS012DG000010 12V DIN Coil	Eaton
7A.1	*opt.*	MCSCS024DG000010 24V DIN Coil	Eaton
8	1	DPC2-8U-25-A-00 Dual Pilot Operated Check Valve- cartridge Only	Eaton
9	8	DSV2-8-B-0 Shuttle Valve for Load Sense Signals	Eaton
10	2	CBV1-10-S-0-A-30/ 3:1Ratio Counterbalance Valve- cartridge Only	Eaton
11	6	SV4-5299-0 Boom/Chute/Swing Solenoid Valve 3way/2pos- cartridge Only	Eaton
JJA	*6*	MCS0012DG000010 12V DIN Coil	Eaton
1JA.1	*opt.*	MCS0024DG000010 24V DIN Coil	Eaton
12	4	FDBA-LAN Flow Control for Water Pump, Boom,Chute,Swing	Sun
13	▮	PRV12-10-S-0-30/ Pressure Reducing Valve - cartridge Only	Eaton
14	1	FAR1-16-H-0-30 Auger Speed Control Valve	Eaton
15	2	SV13-16-C-0-00 Auger Normally Oosed Solenoid Valves	Eaton
15A	2	MCSCH012DG000010 12V DIN Coil	Eaton
15A.1	*opt.*	MCSCH024DG000010 24V DIN Coil	Eaton
16	2	SV13-16-0-0-00 Auger Normally Open Solenoid Valves	Eaton
16A	2	MCSCH012DG000010 12V DIN Coil	Eaton
16A.1	*opt.*	MCSCH024DG000010 24V DIN Coil	Eaton
17	1	SBV11-12-C-0-00 Belt Normally Oosed Solenoid Valve	Eaton
17A	*1*	MCSCH012DG000010 12V DIN Coil	Eaton
17A.1	*opt.*	MCSCH024DG000010 24V DIN Coil	Eaton
18	4	SMK20-7/16 UNF-VE Test/Gauge Port Quick Disconnect	Stauff
19	1	HT-FCA-OK-XX Belt Row Control- Modified	Delta Power
19A	*1*	c/w 580426 VCK Knob	Eaton
20	1	SBV11-8-C-0-00 Water Pump Normally Closed Solenoid Valve	Eaton
20A	*1*	MCSCP012DG000010 12V DIN Coil	Eaton
20A.1	*opt.*	MCSCP024DG000010 24V DIN Coil	Eaton
21	1	CV3-8-P-0-004 Anti-cavitation Check for Water Pump	Eaton
23	2	SV11-8-4-0-00 E-Stop Solenoid Valve 4w/2p	Eaton
23A	2	MCSCP012DG000010 12V DIN Coil	Eaton
23A.1	*opt.*	MCSCP024DG000010 24V DIN Coil	Eaton
24	1	E-24029 Customer Hydraulic Manifold Block - Anodized Black	Daman
25	1	109-1104 4000 series keyed motor for 9" Auger	Eaton
25A	*opt.*	104-1034 2000 series splined motor for 9" Auger	Eaton
25A	*opt.*	112-1066 6000 series keyed motor for 12" Auger	Eaton
26	1	16FF1-05-6-A36 Planetary Reducer w/16E Sun Gear	Heco
27	1	106-1013 Regular Torque Motor for Belt	Eaton
27A	*opt.*	106-1012 High Speed for Belt	Eaton
28	1	L2025 Rotary Actuator for Swing Function	Belac
29	1	3/8" NPT - Ball Valve - 2500 psi	PCI:
30	▮	DH 5/3 B SAE Cement Mix Selector Valve	Walvoil
31	1	FP56-10 SAE Proportional Row Divider for Cement System	Brand
32	1	LT-50-0 Check Valve	Gresen
33	2	104-1228 Cement Augers Motor	Eaton

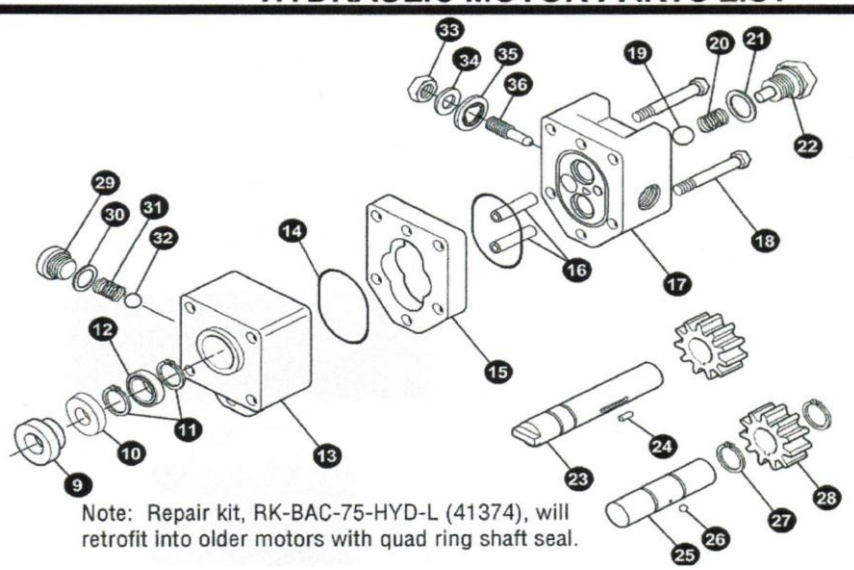


	REIMER ALLIANCE Internatiooal Inc. PO Rox 11 fiR, Didshury, A B, Canada TOMOWO
	10112 Yard Batch Concrete Mixer
	AIR / WATER / LUBE OLL SCHEMATIC
G. Green	SIZE C · FSCM NO. · DWG NO. C060229S · 3
February 23, 2011	SCALE NTS · SHEET 1 OF 1

BILL OF MATERIAL – C060229S Water, Air, Lube Oil			
ITEM	QTY	DESCRIPTION	MFG
1	1	B74G3AKAD3RMG Filter/Regulator & L74M3APEDN 3/8" NPT Lubricator	Norgren
2	2	NF1BAN524N00060 3/2 Air Solenoid Valve - Poppet	Numatics
3	2	B1MN Port Muffler	Numatics
4	1	8110738-0247-B 12V Pilot Valve c/w 2 MV002A muffler	Norgren
	opt.	8110738-0247-D 24V Pilot Valve c/w 2 MV002A muffler	Norgren
5	1	8473450.0000 2/2 Normally Closed Brass Angle Seat Valve	Norgren
6	1	CPMF20B Check Valve	Deltrol
7	1	ME006 Vortex Water Meter	Reimer
8	1	1" Ball Valve	Reimer
9	1	1" Check Valve	Reimer
10	1	B1723-7X03 Normally Closed Lube Oil Solenoid Valve	Oil-Rite
11	2	A2257-5X02 Stainless Steel Brushes	Oil-Rite

BAC·75·HYD·202
BAC·75·HYD·203



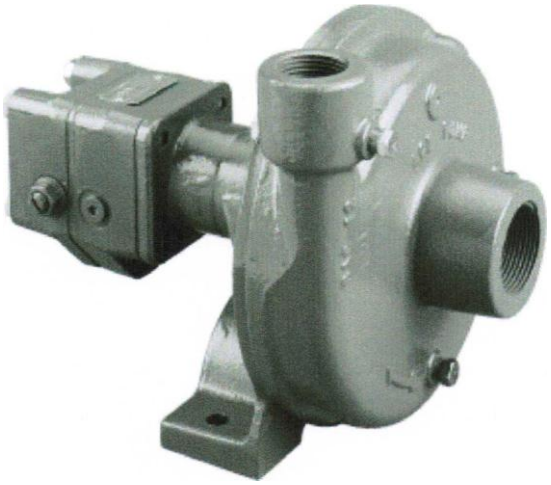


REF.#	MODEL 202	MODEL 203	DESCRIPTION	REQUIRED
1	41890	41890	Retaining ring, shaft seal	1
2	41770	41770	Seal retainer, steel	1
3 CD	41880	41880	Quad ring shaft seal	1
4	41840	41840	Collar, quad ring shaft seal	1
6 CD	41860	41860	"0" ring, seal retainer	1
7	41810	41810	Backup washer, steel	1
8	41830	41830	Bearing spacer, wire ring	1
10	40153	40153	Seal cartridge ("L" models)	1
11	41941	41941	Snap ring, bearing	2
12	41961	41961	Ball bearing, 7/16" I.D.	1
13	41731	41731	Drive plate	1
14 CD(2)	41850	41850	"0" ring, housing seal	2
15	41718	41719	Gear housing	1
16	41799	41799	Dowel pin, housing	2
17	41740	41740	End plate	1
18	41899	41899	Cap screw, 1/4" N.C. hex head	2
19	41950	41950	Ball, reverse flow check	1
20	41780	41780	Spring, reverse floww check	1
21	41820	41820	Washer, nylon, reverse flow check	1
22	41790	41790	Valve cap, reverse flow check	1
23	41758	41759	Drive shaft	1
24	41921	41925	Dowel pin, drive shaft	1
25	41968	41969	Idler shaft	1
26	41990	41990	Ball, idler shaft	1
27	41980	41980	Retaining ring, idler gear	2
28	41748	41749	Gear housing	2
29	42041	42041	Valve cap, coasting check	1
30 CD (2)	42044	42044	"0" ring, coasting check	1
31	42042	42042	Spring, coasting check	1
32	42043	42043	Ball, coasting check	1
33	40960	40960	Nut, 3/8" N.C. jam, needle valve	1
34	42040	42040	Washer, flat steel, needle valve	1
35 <D (2)	42030	42030	Thread seal, 3/8", needle valve	1
36	42010	42010	Adjusting screw, needle valve	1
<D	41371	41371	Repair Kit, RK-BAC-75-HYD	
(2)	41374	41374	Repair Kit, RK-BAC-75-HYD-L	

ACE Form # HYD-200 SERIES
Revised 08/2002

Small Displacement Hydraulic Motor Driven Centrifugal Pump

FMC-HYD-203 SAE



MECHANICAL SEALS

Mechanical seals have two polished faces which run against one another forming a barrier preventing pump solution from leaking. A small quantity of liquid crosses the faces and is necessary to lubricate and remove heat from the seal faces.

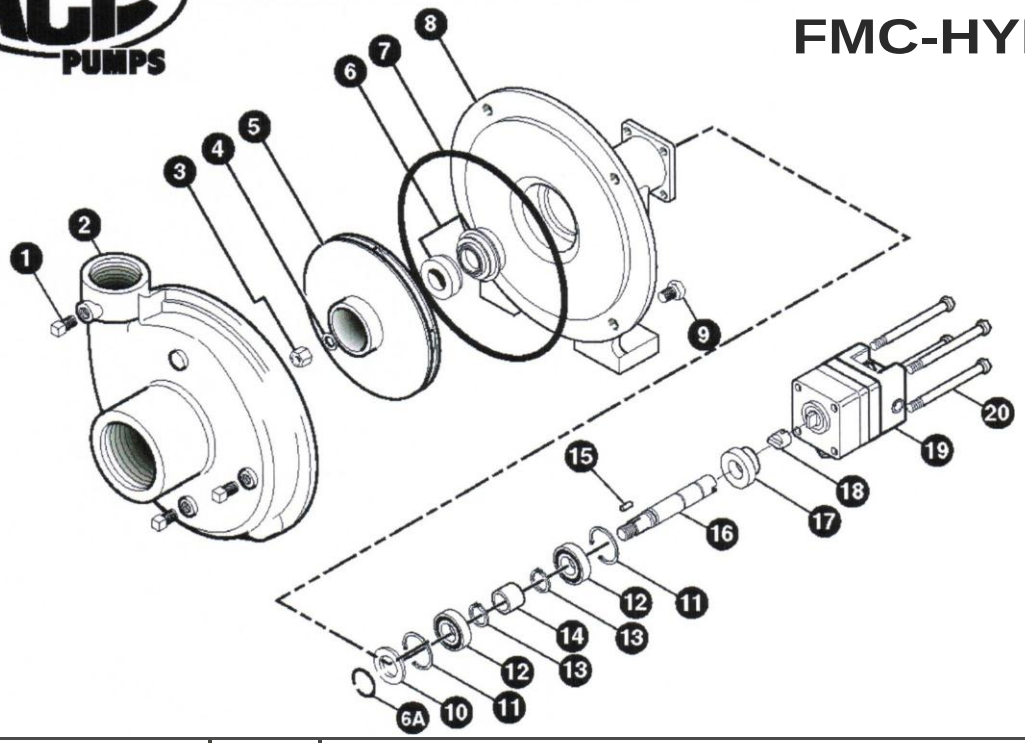
The two most common causes of seal failure are: 1) the carbon seal face is scratched and loses its polish by harder material crossing the face; and 2) thermal shock caused by cool liquid suddenly hitting a seal that has been running dry.

Damage to the seal face by harder materials can be a function of 1) abrasive solution materials, 2) rust or corrosion forming around the seal, 3) precipitates which come out of solution when heated, and 4) residue between the seal faces when a pump is shut off and not flushed out. This type of seal failure can be minimized by flushing the pump with water after use and storing the pump filled with antifreeze or oil to prevent corrosion.

The thermal shock creates radial cracks in the white ceramic face. When the pump is running dry, there is no liquid to lubricate or remove heat from the seal faces. The seal heats up rapidly to a temperature that can cause damage to the seal components.

Note: In tough applications where the standard carbon seal face is readily scratched or worn, the **BAC-7SC** seal with extra hard silicon carbide faces is recommended.

FMC-HYD-203



REF.#	PART NUMBER	EDP#	DESCRIPTION	REQ.
1	41110	41110	Pipe plug	3
1	41120	41120	Pipe plug, stainless steel (optional)	3
2	BAC-12	40250	Volute, 1 1/4" x 1"	1
3	BAC-23-A	40391	Nut, 3/8" NF, cad plated	1
4	BAC-24-HY 0-SS	40400	Washer, 3/8" star, stainless steel	1
5	BAC-26-HYD-VALOX	40440	Impeller, Valox, keyway	1
5	BAC-26-HY 0-CI	40442	Impeller, cast iron, keyway (optional)	1
*6	BAC-7V	40151	Seal, mechanical, Viton (includes 40160)	1
6	BAC-7SC	40152	Seal, mechanical, silicon carbide (includes 40160), optional	1
6A	40160	40160	0-ring, shaft seal	1
*7	BAC-4	40010	Gasket, 4 hole, (obsolete 1996)	1
*7	BAC-4A	40005	0-ring, body seal	1
8	BAC-14-HYD	40300	Mounting frame (for -200 Series hydraulic motors)	1
9	40950	40950	Cap screw, 3/8" NC x 3/4" hex head	4
9	40930	40930	Cap screw, 3/8" NC x 3/4" hex head, stainless steel (optional)	4
10	BAC-54	41130	Slinger	1
11	BAC-33	40810	Snap ring, intemal, BAC-14 mounting frame	2
12	BAC-37	40870	Ball bearing, sealed, BAC-6 shaft	2
13	BAC-32	40790	Snap ring, extemal, BAC-6 shaft	2
14	BAC-32-S	40795	Spacer for BAC-6 shaft	1
15	BACH-25	40420	Key, 1/8" x 1/8" x 1/2"	1
16	BAC-6-HYD	40060	Shaft, 5/8" diameter, keyway and tang slot (optional)	1
16	BAC-6-HYD-SS	40061	Shaft, 5/8" diameter, keyway and tang slot, stainless steel	1
17	S200	40161	Seal support spacer, 200 Series motor lip seal; effective *6100*	1
18	BAC-76-HYD	41380	Coupling for hydraulic motor	1
19	BAC-75-HY D-202	41368	Hydraulic motor, 2 GPM	1
19	BAC-75-HYD-203	41367	Hydraulic motor, 3 GPM	1
20	41256	41256	Cap screw, 5116" NC x 3 1/2" hex head (for 204 and 203 motor)	4
20	41250	41250	Cap screw, 5/16" NC x 3 1/4" hex head (for 202 motor)	4
#	RK-FMC	52700	Repair kit for FMC series pump	1
#	RK-BAC-75-HYD	41371	Repair kit for 202, 203, 204, 206, and 210 motor	1
#	RD-BAC-75-HYD-L	41374	Repair kit for 200 series HYD motors equipped with Teflon lip seal	1

*Items included in pump repair kit.

Ace Pump Corporation • P.O. Box 13187- 1650 Channel Avenue • Memphis, TN 38113
www.AcePumps.com • Phone: 901-948-8514 • Fax: 901-774-6147

Ace Fonn # FMC-HYD-202/203
Revised 04/01

Part No.	AIR
AI01	Parker 12 volt coil assembly
AI02	Vibrator Valve w/o Coil 1/2"
AI03	Air lubricator
	ADD MIX SYSTEM
AM01	12 gal. plastic tank
AM02	Add Mix tank lid
AM03	Tank strap - EACH
AM04	1/4" ball valve
AM05	Add Mix tank Frame
AM06	Hawkridge flow meter - HI
AM07	Hawkridge flow meter - LO
AM08	Hawkridge electric pump - HI
AM09	Hawkridge electric pump - LO
	AUGER
AU01-9	9" Mix auger assembly - COMPLETE
AU01-12	12" Mix auger assembly - COMPLETE
AU02-9	9" Mix auger trough - COMPLETE
AU02-12	12" Mix auger trough - COMPLETE
AU03	A.R plate - WELD ON
AU04	A.R plate - BOLT ON
AU05	Auger cover - TOP
HYM01-9	Auger motor 9"
HYM01-12	Auger motor 12"
AU07	Auger mat - STANDARD 24" x 96"
AU08	Auger mat - HEAVY 29" x 96"
AU09	Auger bearing
AU10	Auger wear plates CURVED
AU11	Auger wear plates STRAIGHT
AU12	Auger coupler
AU13	Auger splined coupler - 9"
AU14-9	Auger splined coupler - 12"
AU14-12	Auger motor seal kits - 9"
AU15	Auger motor seal kits - 12"
AU16	Bottom REAR auger seal
AU17	Bottom auger seal retainer
AU18	Seal ONLY
AU19	Top auger seal
AU20	Bowl skirt / ring rubber
AU21	Mix auger stub shaft - TOP
AU22	Mix auger stub shaft - BOTTOM
AU23	Bolt Kit
AU24	Auger Motor Splash Guard NEO-3
AU25	Auger Bearing Splash Guard NEO-4
AU26	Auger Trough Extension Chute 50-5
AU27	Chute Extension Top Chute 50-5
AU28	Chute Extension Top Chute 50-5
	FENDERS

Part No.	CHUTE
CH01	Chute cylinder seal kits
CH02	Small chute cylinders
CH03	Transition chute
CH04	Transition chute mount
CH05	4' Chute extentions
CH06	Chute cylinder pins
CH07	Counter balance valve
	CONVEYOR
CO01	Complete conveyor -117
CO01A	Complete conveyor -135
CO02	Chain ONLY - 117
CO02A	Chain ONLY - 135
CO04	Sprocket with keyway
CO05	Front shaft
CO06	Rear shaft
CO07	Conveyor bearings
CO08	Hinge kit - belt lacing
CO09	Elevator bolts / 100 - BOLTS ONLY
CO10	Rear belt seals
CO11	Skirt board rubbers 9 yd.
CO12	Skirt board rubbers 12 yd.
CO13	Center skirt board rubbers
CO14	Planetary gear reducer
HYM06	Bearingless belt motor - 1012
HYM07	Bearingless belt motor - 1013
CO15	Conveyor belt by the running foot
CO16	Chain lubricator oil tank
CO17	Chain lubricator bar
CO18	Breather cap for chain oil tank
	CYLINDER
CY01	Complete auger lift cylinder assembly
CY02	Lift cylinder seal kit
CY03	Lift cylinder rod
CY04	Lift cylinder piston
CY05	Lift cylinder head
CY06	Counter balance valve
CY07	Complete lock arm cylinder
CY08	Lock arm cylinder seal kit
CY09	Lock arm springs
	ELECTRICAL
EL01	Control box
EL02	Terminal strip
EL03	Din connector
EL04	Belt/water relay 12 or 24 volt
EL05	Throttle relay
EL06	E stop relay
EL07	Switch -weatherproof - 3 position

Part No.	HYDRAULIC MOTORS
HYMot-9	Auger motor 9"
HYMot-12	Auger motor 12"
HYMo2-9	Belt motor- 1012- 9 yard
HYMo2-12	Belt motor- 1013- 12 yard
HYM03	Cement drive motor
HYM04	Cement bin cross auger motor
HYMos	I'v1otor seal kit 4000 Series (61258-000)
	HYDRAULIC PUMPS

Complete hydraulic pump parts ref"erence on paf(e 41

	HYDRAULIC RESERVOIR
HYRot	Suction strainer
HYRo2	Filter housing return
HYRo3	Return oil filter element
HYRo4	Indicator
HYRos	Breather reservoir
HYRo6	Sight glass/level indicator gauge
	HYDRAULIC VALVES

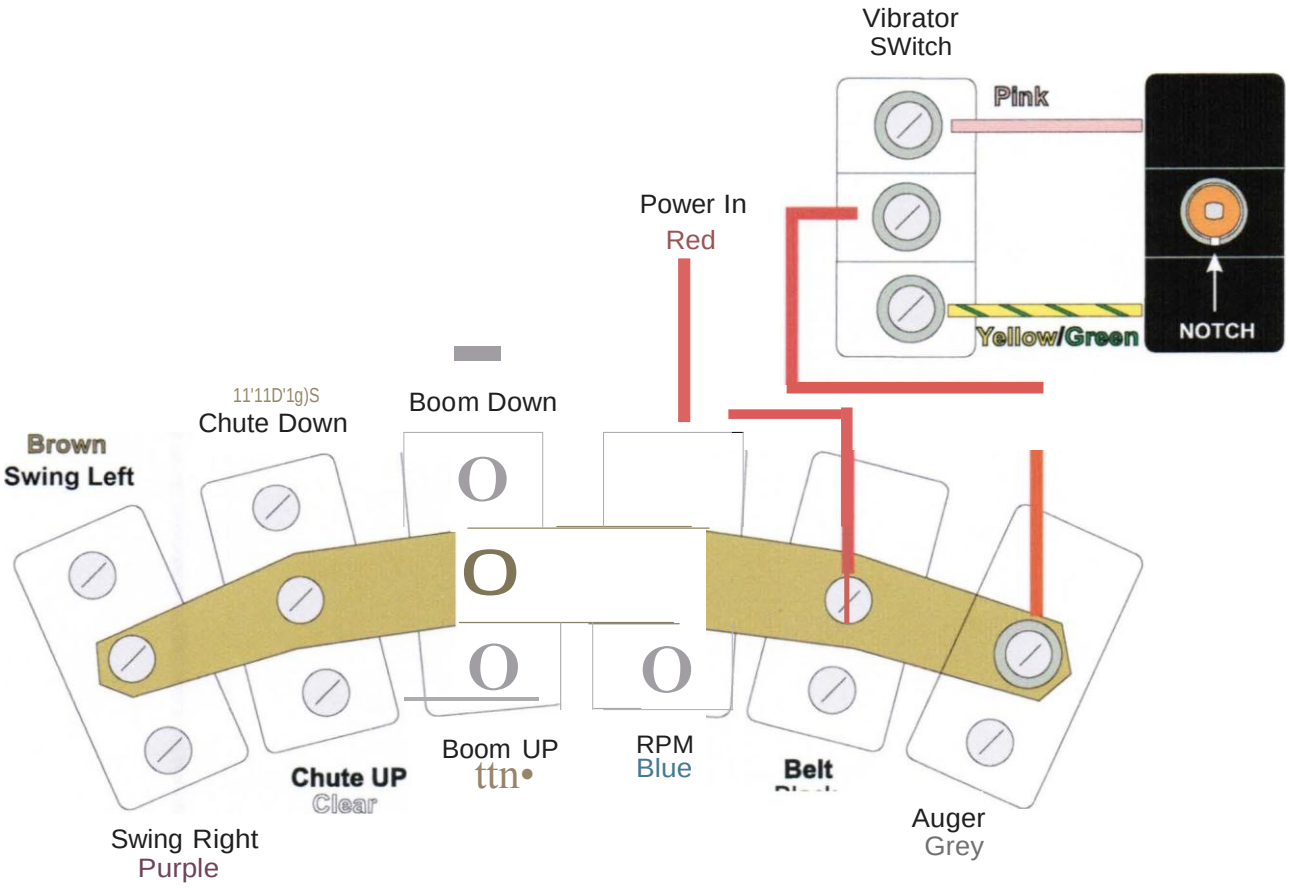
Hydraulic mlve reference can he seen on paf(es 34 to 40.

	METER
MEot	Proximity sensor
MEo2	Omron
MEo3	Face plate for Omron counter
MEo4	Hawk printer kit
MEos	Hawk III display for Add Mix system
MEo6	Hawk V display - **NO ADD MIX**
MEo7	Hawk VI display for Add Mix system
	MISC.
HYMOo3	Cement drive motor
MSCo2	Cement motor drive sprocket
MSCo3	Cement motor drive sprocket
MSCo4	Cement motor mount
MSCos	Cement hopper bin lid
MSCo6	Cement auger bearing
MSCo7	Cement sleeve (EPDM- was pure gum)
MSCoS	Sleeve clamp
MSCo9	Sleeve hook
MSCto	Sand or stone dial
MSC11	Retaining strap
	REMOTE

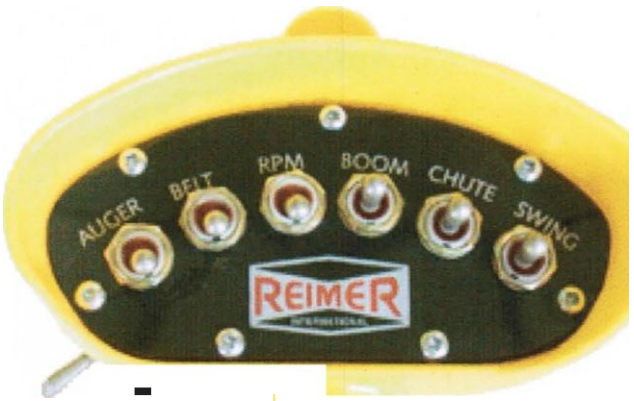
Part No.	TANK
TAotA	Plastic tank (360 lmp/450 U.S. gal.
TAotB	Plastic tank (570 lmp/700 U.S. gal.
TAo2A	Water tank frame, top, 2"
TAo2B	Water tank frame, top, 3"
	Water tank ladder
	Plastic tank lids w/ vent
TAos	1/2" bulk head fitting
TAo6	1 1/2" PP DT bulk head fitting
	VIBRATORS
VI01	Vibrator (sand or cement)
VIo2	Color feeder vibrator
	Hydraulic vibrator
	YJ- 1 1/2
VIos	YJ- 2
VIo6	HLF- 700 Hydraulic Vibrator
	HLF- 1300 Hydraulic Vibrator
	WATER SYSTEM
WAot	Complete Water Pump 1" (Ace)
WA02	Ace Water Pump Seal
WAo3	Ace Water Pump Impeller
WAo4	Ace Hydraulic I'v1otor Repair Kit
WAos	Water Valve
WAo6	Water Valve Diaphram
WAo7	Y Strainer
WAoS	Y Strainer screen

Complete water pump reference on paf(es 42 and 43.

Addendum 'A'
T-Handle Wiring



Vibrator Switch



Switch
Notch

Addendum 'B'

Hand Held Transmitter

Addendum 'C'

REIMER INTERNATIONAL

Proprietary User Guide

For the

SAUER DANFOSS

Proportional Flow Control

Table of Contents

I. Revisions

Level	Description – ECO Number	Date	By
0	Created	2/29/08	JH

II. Software Specifications

Module	Node#	HWD Version	Baud Rate	Program No.
10103773	6	10103651v150	250	SA3257103

III. Description of Operation:

This machine is a mobile concrete mixing unit The electronic display system is used for monitoring purposes and setup calculations only. It also is used to save specific data after a run is complete. There is also voltage monitoring that is done, so if the system voltage drops below 1Ovdc, two **RED** LED's will flash, indicating to the operator that their battery voltage is too low, the display may not operate properly, and the counts from the pulse pick ups will lose accuracy.

Main Screen 1:

Shows in **LARGE FONT**, the amount of counts that the conveyor has rotated. This is primarily used to calibrate the mixer.

Main Screen 2:

This screen shows operating data:
Which screen is selected, the strength that is being produced, the Sand and Stone gate positions, the amount of water that has been mixed with the cement, the R.P.M. and count of the cement conveyor, and in **LARGE LETTERS**, the overall cubic yards or meters of concrete distributed.

Program Screen:

The operator will use this screen to navigate to the following:

Mix Select Screen: Selects the mix you want to run.

Mix Entry Screen: Used to set up the parameters for 10 preset mix designs. Here, the operator enters values used for all calculations, including:
Truck Number
Strength
Pulses per yard (or meter).
Cement weight per yard (or meter).
Stone weight per yard (or meter).
Sand weight per yard (or meter).
ST (Stone Gate Position).
SA (Sand Gate Position).
Low flow gallons per yard (or liters per meter).
High Flow gallons per yard (or liters per meter).

Set up Parameters: allows the operator to setup the following:
Contrast and display backlighting
Set the Time
Select amount of pulses per gallon (or liter) of water
Select units of measure (imperial or metric)
Shows pressure at the belt and auger motors

Last 5 Mixes: When the operator is done with a load, they press the reset button to clear the counts. The values are calculated, showing yards (or meters) distributed and the strength of the mix for this, including the 4 previous runs.

Admix screen: Look at this screen to reference how much of the Hi and Low fluid should be added to get the correct mix selected for the speed that they are pumping.

Calibration: Not required for the display once the program is loaded.

IV. Fault Codes for RED LED

A blink code of 23 means the RED LED will flash two times, pause, then flash 3 times, it will then pause and either move on to the next item that is faulted, or repeat 23 if no other faults are present.

Blink Code	Reason For Fault	Corrective Action
21	Cement Pot not Calibrated	Calibrate pot (see above).
22	Cement pot voltage too high or too low	Check wiring for open short, replace pot.
23	Color pot not calibrated	Calibrate pot, see above
24	Color pot voltage too high or too low	Check wiring for open short, replace pot.
25	Sensor power too high or too low	Check for short on sensor power wire.
26	Cement output valve fault	Check wire for open short , replace coil.
27	Color output valve short	Check wiring for open or short, replace coil
28		
29		

OMNEX
TRUSTED WIRELESS™

Reimer Volumetric Mixer III

Installation / Configuration Manual

T110C Transmitter

R160 Receiver

February 6, 2008

Revision 3

DM-R160-0405A

#74-1833 Coast Meridian Road, Port Coquitlam, BC, Canada • V3C 6G5
Ph# (604) 944-9247 • Fax# (604) 944-9267
Toll Free 1-800-663-8806

Table of Contents

NOTE: *These instructions are intended only for installing and operating the remote control equipment described here. This is not a complete Operator's Manual. For complete operating instructions, please read the Operator's Manual appropriate for your particular machine.*

Safety Precautions

READ ALL INSTRUCTIONS

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Failure to follow the SAFETY PRECAUTIONS may result in radio equipment failure and serious personal injury

Installation

PROVIDE A SAFETY CUTOFF SWITCH. If maintenance is required, the radio must be disconnected from power

USE PROPER WIRING. Loose or frayed wires can cause system failure, intermittent operation, machine damage, etc.

DO NOT INSTALL IN HOT AREAS. This apparatus can be damaged by heat in excess of 158°F (70°C)

Personal Safety

MAKE SURE MACHINERY AND SURROUNDING AREA IS CLEAR BEFORE OPERATING. Do not activate the remote system unless it is safe to do so.

TURN OFF THE RECEIVER POWER BEFORE WORKING ON MACHINERY. Always disconnect the remote system before doing any maintenance to prevent accidental operation of the machine

Care

KEEP DRY. Do not clean the transmitter / receiver under high pressure. If water or other liquids get inside the transmitter battery or receiver compartment, immediately dry the unit. Remove the case and let the unit air dry

CLEAN THE UNIT AFTER OPERATION. Remove any mud, dirt, concrete, etc. from the unit to prevent clogging of buttons, switches, etc. by using a damp cloth.

Maintenance / Welding

DISCONNECT THE RADIO RECEIVER BEFORE WELDING on the machine the receiver is connected to. Failure to disconnect will result in the destruction of the radio receiver.

System Overview

The **T110C / R160** is a portable, long range, programmable radio remote control system. Designed as a compact and easy-to-use product, this system puts complete control of your machine where it's needed most, with the operator. It's robust, easy to install and has complete self-diagnostics. This system can be a simple cable replacement or add intelligence to make it a total control package. It's a radio, a PLC and a valve driver all in one.

The **T110C / R160** system uses Frequency Hopping Spread Spectrum (FHSS) technology. FHSS devices concentrate their full power into a very narrow signal that randomly hops from frequency to frequency within a designated band. This transmission pattern, along with CRC-16 error-checking techniques, enables our industrially hardened **FHSS** signals to overcome interference that commonly affects licensed radios

The R160 receiver is designed to be powered from a 12VDC or 24VDC system. It features 19 solid state, high-side driver input / output controls and a reliable E-Stop control.

The T110C comes with 4 to 10 buttons to provide the user flexibility to control the functions they need. The transmitter uses regular alkaline AA batteries and is also CC ready™. When used with the CC DOCK™, the T110C can use and recharge NiMH or Lithium rechargeable AA batteries. Each T110C transmitter uses a unique ID code to ensure that no two systems will conflict at a job site.

Features

FCC, ISC, CE approved

CC ready™

License free

1200 foot range @ 900 MHz (900 ft. @ 2.4 GHz)

Hand held / weatherproof / ergonomic

Simple "wire-and-use" installation

Resilient to impact and shock

Available in both 900 MHz and 2.4 GHz

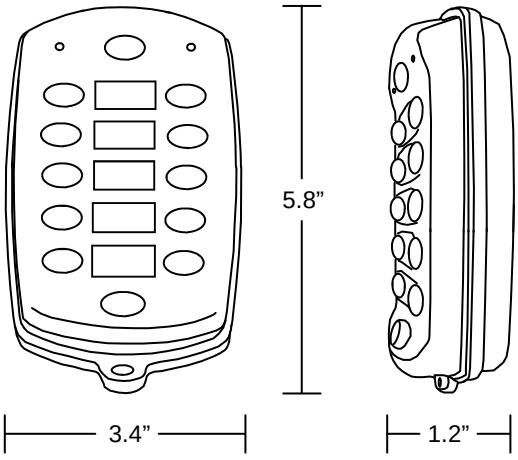
Available with optional E-Stop for ensured operator safety

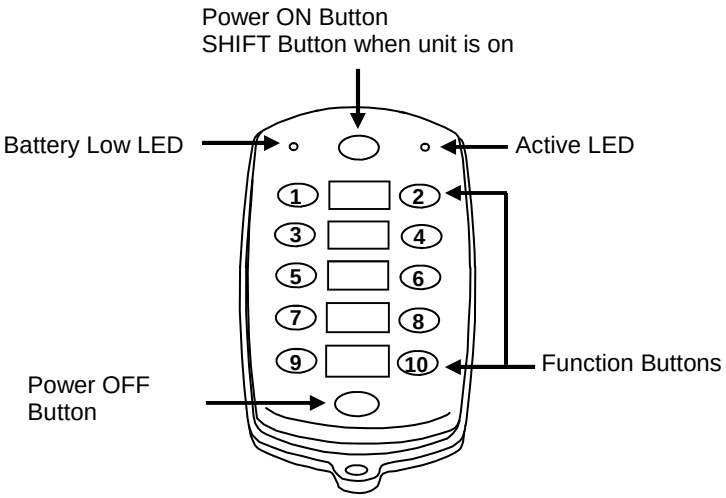
Factory configurable for all custom applications.

R160 Receiver

T110C Transmitter

T110C Dimensions and Controls

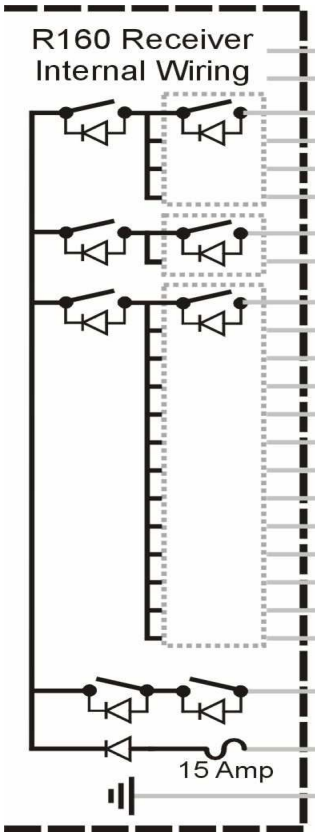




Installing the Receiver

Use the **Wiring Diagram** and the **Connector Diagram** below to connect the receiver pins directly to the appropriate contacts of the machine electronics. R160 Output Cables can be provided with every system to simplify the wiring process. Tips on mounting, power connections and filtering are also provided under **Installation Considerations**.

Wiring Diagram



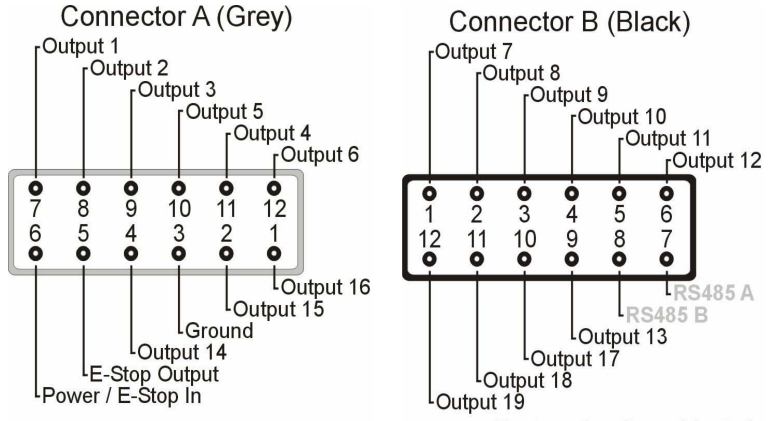
Pin-Output	Wire Colors	Functions
B7		Factory Configurable Only
B8		Factory Configurable Only
B12 - 19	Red/Black/White	Enable (On with output 1-18)
B11 - 18	Orange/Red	Spare 6 (Latching ON/OFF)
B10 - 17	White/Red	Spare 5 (Latching ON/OFF)
A1 - 16	Blue/Red	Spare 4 (Momentary)
A2 - 15	Black/White	Spare 3 (Momentary)
A4 - 14	Green/Black/White	Spare 2 (Momentary)
B9 - 13	Orange/Green	Spare 1 (Momentary)
B6 - 12	White/Red/Black	VBR Rear (Momentary)
B5 - 11	Red/Black	VBR Front (Momentary)
B4 - 10	Green/Black	Swing Right (Momentary)
B3 - 9	Green	Swing Left (Momentary)
B2 - 8	Orange/Black	Chute Up (Momentary)
B1 - 7	Orange	Chute Down (Momentary)
A12 - 6	White/Black	Boom Up (Momentary)
A10 - 5	White	Boom Down (Momentary)
A11 - 4	Black	Belt ON/OFF (Latching ON/OFF)
A9 - 3	Black/Red	Auger ON/OFF (Latching ON/OFF)
A8 - 2	Blue/Black	Vibrator ON/OFF (Momentary)
A7 - 1	Blue	RPM HIGH/LOW (Latching ON/OFF)
A5	Black/White/Red	Switches to Power with Link
A6	Red	Power Input (+9V to 30VDC)
A3	Green/White	Ground

Outputs: 19 solid state, high-side driver outputs, 5A max. per pin and 7A max per bank, total combined current 15A

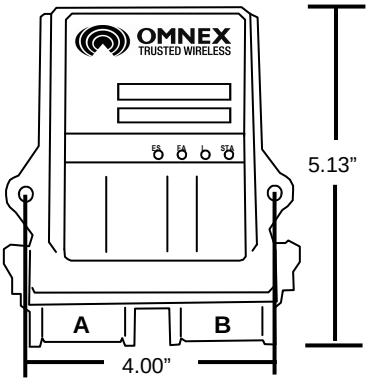
Inputs: All output pins can be factory configured as inputs. Input pins should be connected to a current limiting (fused) source

Connector Pin Assignments

Connectors as seen from under the receiver



R160 Dimensions



Special Functions

The [Shift] Function

Outputs 1-10 are controlled by the T110C [Function] buttons “1-10”. Outputs 11-18 are controlled by holding the T110C [Shift] button and pressing the [Function] buttons “1-8” (the GREEN Power [ON] button acts as the [Shift] button when the T110C is on).

CC DOCK™ - Wiring Diagram

POWER-BATTERY: Supply 11-29VDC (fuse with 1.5 - 3 Amp)

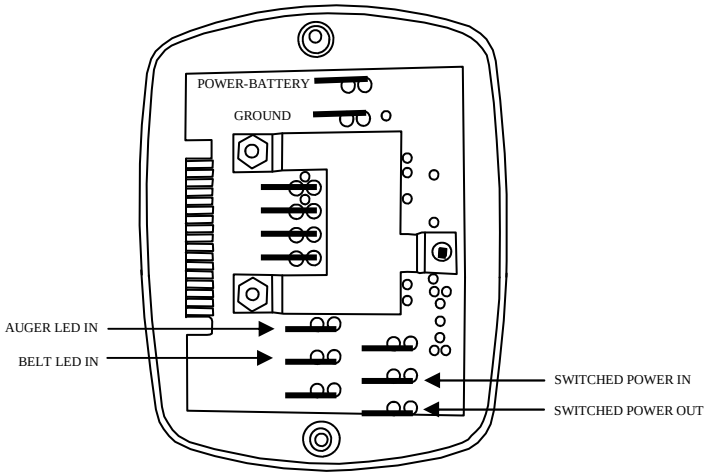
GROUND: Negative Supply, Ground

AUGER LED INPUT: Input for LED

BELT LED INPUT: Input for LED

SWITCHED POWER INPUT: Input for switched power

SWITCHED POWER OUTPUT: Output for switched power



Installation Considerations

NOTE: *The FCC and ISC require that the antenna be restricted to that supplied by the manufacturer and approved for use with this product. An optional 0dB coax wire antenna may be supplied. For other antenna options, please contact OMNEX Control Systems ULC*

Mounting and Installation

The receiver can be mounted by fastening two ¼” bolts through the two mounting holes in the unit’s enclosure. When mounting, ensure that the receiver is oriented so that the text is reading right and the connector is “down”.

When selecting a mounting point for the receiver, it is recommended that the location require only a minimal length of wiring to connect it to the control panel, that it will be in a visible area where it has good exposure to the operator and that it is mounted on a surface that is protected from the weather and sustains minimal vibration. It is also recommended that the receiver have the best possible line of sight with the transmitter for maximum operating range.

Power Connections and Wiring

Whenever a power connection is made to an electronic device, it is a good practice to make both the Power (+) and Ground (-) connections directly to the Battery and avoid connecting the power from the charging side of existing wiring or making use of existing "ACC" or other peripheral connection points.

Make sure that wire of sufficient gauge and insulator type is used when connecting the outputs of the receiver to the control panel. Observe any component manufacturer's instructions and recommendations for proper integration of their product. This includes the power ratings and requirements of such components as relays, valves, solenoids, etc.

Be sure to test each of the outputs with a multi-meter prior to connecting the outputs to your end devices. This will ensure that each output has been programmed to operate in the manner required by each end device.

Filtering and Noise Suppression

Whenever a solenoid or electromagnetic switch is controlled by the receiver, it is a good practice to install a Diode across its terminals to ensure that surges and spikes do not continue back into the circuit. Appropriate 36V Bi-directional Diodes kits can be ordered under the OMNEX part number “AKIT-2492-01”.

Power the Transmitter

1. Install Batteries

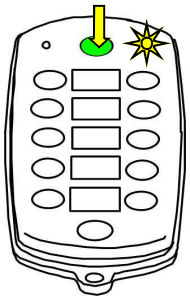
Remove the battery cover on the back of the transmitter using a slotted screwdriver and insert 4 "AA" alkaline batteries. When purchased with the CC DOCK™, insert either NiCad or NiMH (recommended) rechargeable AA batteries. Orientation of the batteries is embossed inside the battery housing.

T110C Battery Housing

2. Turn on the Transmitter

Refer to the **Light Legend** below for diagram details.

1. Press Power [ON]



NOTE: *Prior to inserting the batteries into the remote, apply grease (provided packet - Dow Corning 111 Valve Lubricant & Sealant) to the battery contacts and between batteries. Due to the harsh conditions these remotes operate in and the long term use of the rechargeable batteries, the grease protects the batteries and contacts from corrosion.*

WARNING: do not install batteries backwards, charge, put in fire, or mix with other battery types. May explode or leak causing injury. **Replace all batteries at the same time as a complete set and do not mix and match battery types.**

NOTE: *For operation at temperatures below –10°C lithium batteries are recommended. Low temperatures reduce battery performance for both alkaline and lithium types. Refer to the battery manufacturer's specifications for detailed information on low temperature performance.*

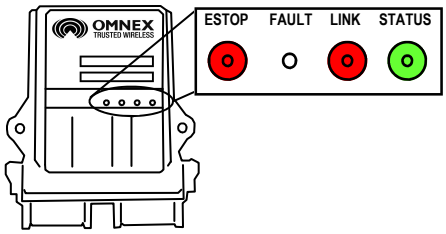
If the transmitter's (Active) light does not flash, check the battery orientation.

To turn off the transmitter, press the Power [OFF] button.

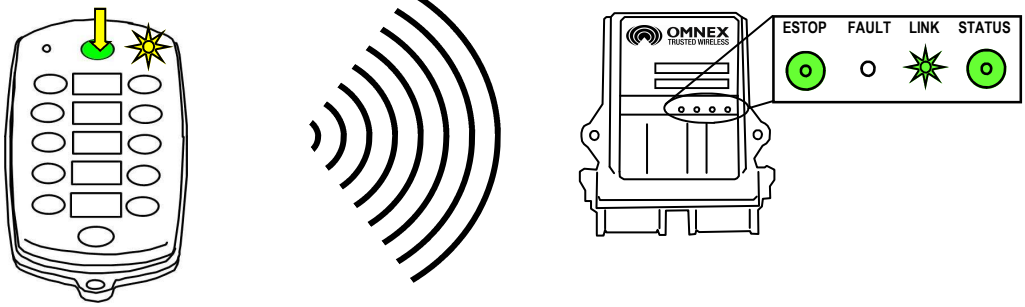
Test the Transmitter / Receiver Link

Follow these steps to ensure that there is a radio link between the transmitter and receiver.
Refer to the **Light Legend** below for diagram details

1. Power R160



2. Power T110C



NOTE: *The transmitter will shut itself off (and the receiver will then shut off all outputs) after 1 hour of inactivity as a battery saving feature. Momentarily operating any button on the transmitter, including the [Power] button will restart the 1 hour timer.*

The System is now ready for use.

If the receiver's (Link) light does not become GREEN follow the steps under **Download ID Code**.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Download ID Code (Use in case of Link Test failure)

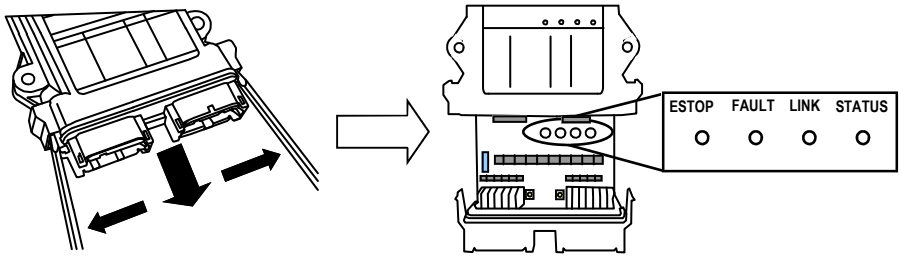
Follow these steps to download the transmitter's unique ID Code into the receiver. This will allow the receiver to establish a radio link with a specific transmitter. Refer to **Troubleshooting Chart #4** for Tips and Considerations

NOTE: *It is necessary to download the ID Code when replacing either the transmitter or the receiver.*

1. Opening the R160 Case

The cap is held on by two plastic tabs at opposing sides, which can be unlatched as shown using a screwdriver. Once the cap is free, the R160 can slide open.

Use a small slotted screwdriver to press the Side Tabs inward.



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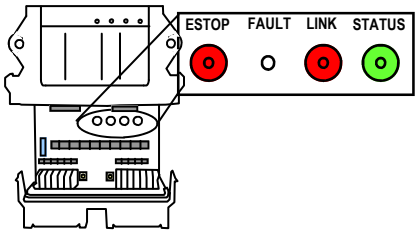
2. Power R160

A. Supply power to the receiver. The (E-Stop) light and the (Link) light will come on RED and the (Status) light will come on GREEN

A.



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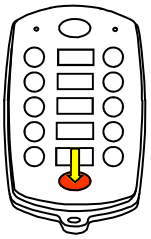
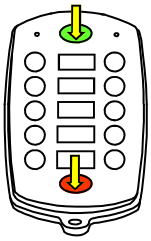
3. Power T110C into Configuration

A. Press and Hold Power [OFF]
B. Press and Hold Power [ON]
C. Release Power [OFF] button
D. Release Power [ON] button

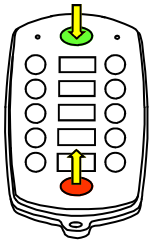
A.



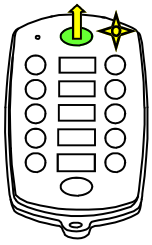
B.



C.



D.



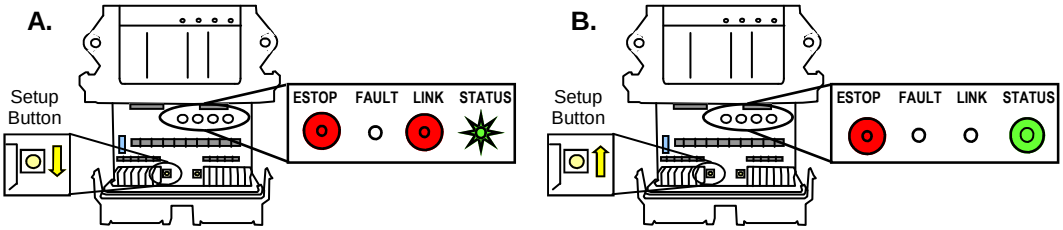
Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Download ID Code (Use in case of Link Test failure)

4. Put R160 into Setup Mode

A. Press & hold [Setup] button until (Status) light goes from slow flash to fast flash

B. Release [Setup] button. (Status) light goes to solid GREEN, (Link) light turns off



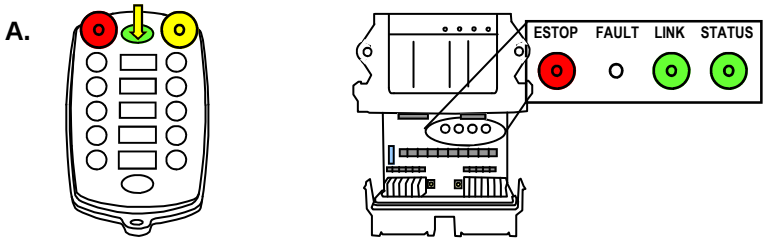
NOTE: *If left idle in Setup Mode for over 30 seconds, the receiver will time out. The (Link) light and (Status) light will flash RED rapidly. To return to Setup Mode, repeat step 4.*

---

5. Send Code

NOTE: *When downloading a new ID to a receiver, a safety feature requires that the transmitter be in close proximity to the receiver. This will prevent a transmitter from accidentally reprogramming a different receiver in the area.*

A. Press Power [ON] button to send code



Once the ID Code has been downloaded, the RED (Battery) light and the YELLOW (Active) light on the transmitter will go out. The (Link) light on the receiver will change from GREEN to RED.

NOTE: *When replacing the receiver cover, ensure the cover snaps completely into place to create a weather proof seal around the base of the receiver.*

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

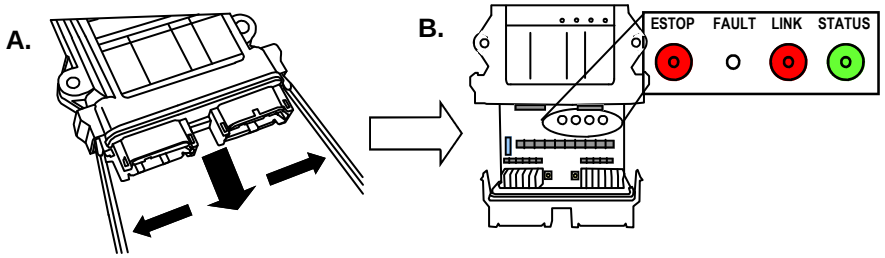
Changing Start Up and Shutdown Configuration

The T110C/R160 system has 3 available startup and shutdown modes that can be configured with the following steps.

1. Opening the R160 Case and Power R160

A. The cap is held on by two plastic tabs at opposing sides, which can be unlatched as shown using a screwdriver. Once the cap is free, the R160 can slide open.

B. Supply power to the receiver. The (E-Stop) light and the (Link) light will come on RED and the (Status) light will come on GREEN

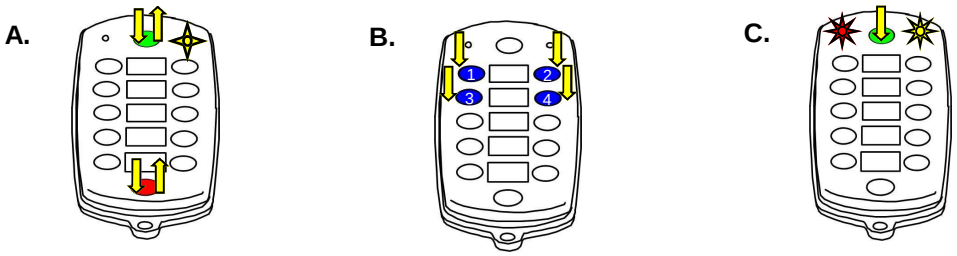


2. Power T110C into Configuration Mode & Enter Configuration Pass-

A. Power T110C into configuration mode by following Step #3 from **Download ID Code**

B. Press function buttons in order 3, 1, 4, 2

C. Press Power [ON] button



3. Enter Start Up and Shut Down Code

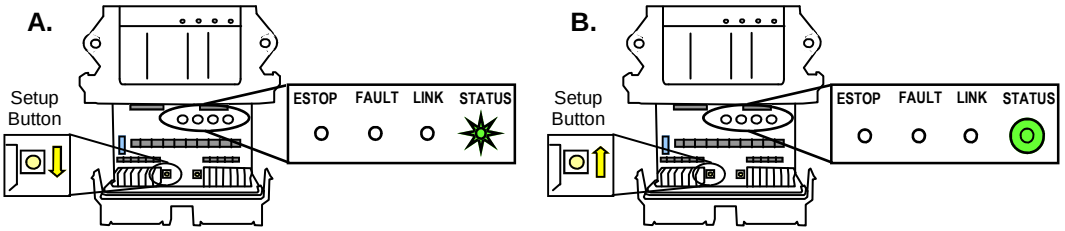
Enter the 10-digit Configuration Code associated with one of the following startup and shutdown modes:

ON / OFF Mode	1188888888	**ON** normal. **OFF** when T110C / R160 link is lost.
Secure Mode	4188888888	**ON** by entering the "3, 1, 4, 2" password on the T110C and pressing the GREEN [Power] button. **OFF** when T110C / R160 link is lost.
Auto Power Down Mode	5188888888	**ON** normal. **OFF** when T110C / R160 link is lost or after 10 minutes of being idle.

4. Put R160 into Setup Mode

A. Press & hold [Setup] button until (Status) light goes from slow flash to fast flash

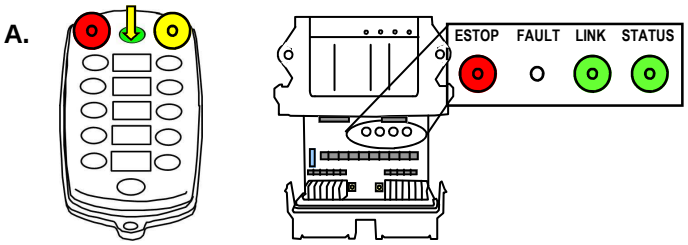
B. Release [Setup] button. (Status) light goes to solid GREEN, (Link) light turns off



NOTE: *If left idle in Setup Mode for over 30 seconds, the receiver will time out. The (Link) light and (Status) light will flash RED rapidly. To return to Setup Mode, repeat step 4.*

5. Send Code

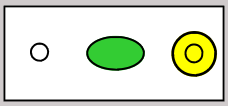
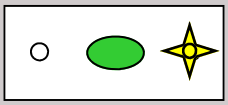
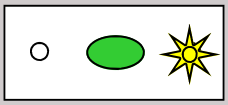
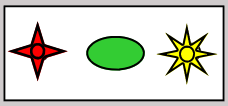
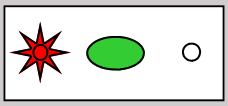
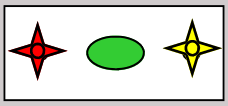
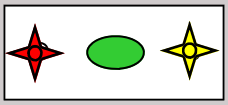
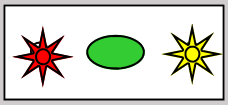
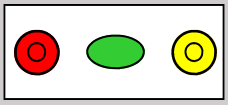
A. Press Power [ON] button to send code



Once the ID Code has been downloaded, the RED (Battery) light and the YEL-LOW (Active) light on the transmitter will go out. The (Link) light on the receiver will change from GREEN to RED.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

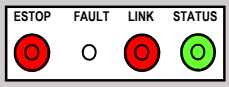
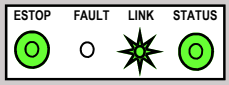
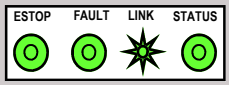
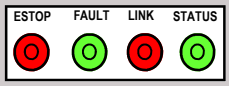
Diagnostics—T110C Transmitter

Indicator Lights	Description	Solution
	Occurs when ever a function is pressed. Will also remain on momentarily on Power Up.	N/A
	Transmitter is in Download mode.	To take it out of Download mode turn transmitter off and turn it back on again.
	Transmitter is in Operating mode.	N/A
	Low Battery.	Change or Recharge Batteries ***Note:*** *Low batteries will last approximately 8 hours once the Low Battery light begins to flash.*
	Fast Flash for approx. 10 seconds indicates T110C failure.	Send the unit in for service.
	Stuck button detected.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	**On Power Down** Unit is still powered, likely due to an on function or stuck button.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	Transmitter is in Configuration mode.	To take it out of Configuration mode turn transmitter off and turn it back on again.
	Transmitter is downloading ID Code.	Wait for approximately 5 seconds. Once the download is complete the transmitter will automatically shut off.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

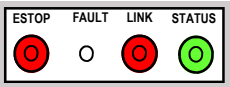
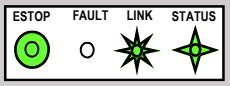
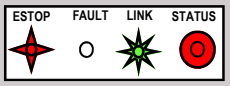
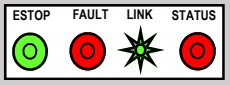
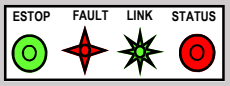
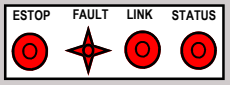
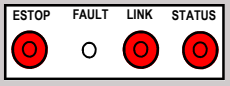
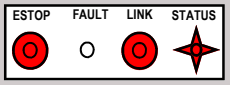
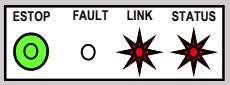
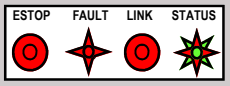
Diagnostics - R160 Receiver

Normal Operation

	Transmitter is OFF If the transmitter is off, the receiver is operating properly.
	Transmitter is ON When the transmitter is turned on, the Link light (fast flashing) and E-Stop (GREEN) indicates the receiver is operating properly
	Transmitter is in Operation When a function is activated on the transmitter, the Fault light will turn on GREEN. This indicates the receiver is operating properly
	Transmitter is OFF When a latched function is activated then the transmitter is turned off, the Fault light will stay on GREEN. If the system was intentionally designed this way, the receiver is operating properly, if not call for service.

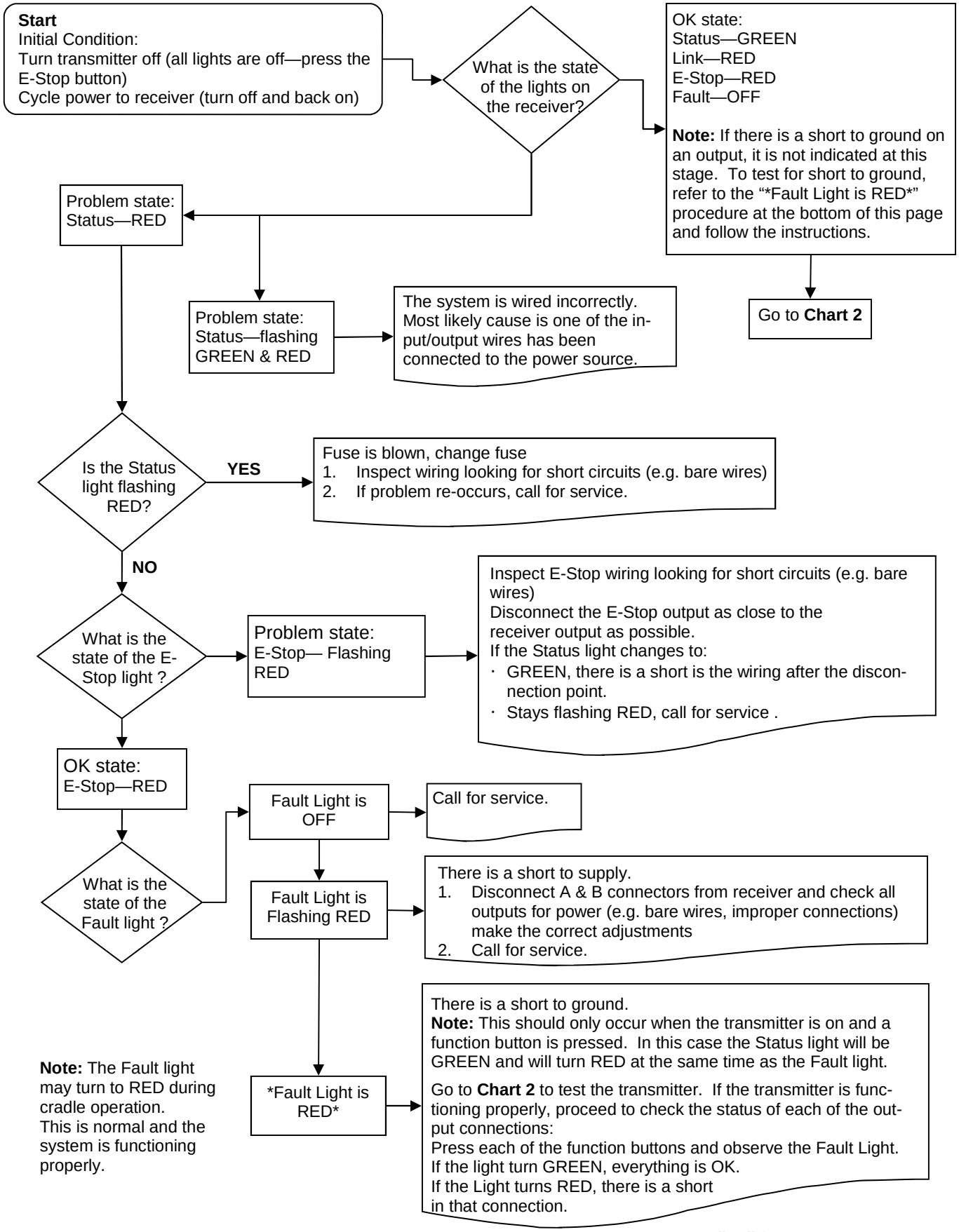
Trouble Indicators

Note: *In some cases, the indicator lights will be different depending on whether the transmitter is on or off. Please note the transmitter status in the "Description" column for each case.*

Indicator Lights	Description	Solution
	Transmitter is ON The reason is the transmitter is not communicating with the receiver.	Refer to **Troubleshooting Chart #3** for solutions
	Transmitter is ON A low battery condition has been detected.	To detect intermittent conditions caused by poor or corroded ground or power circuits, the GREEN light will continue to flash for 30 seconds after the condition has been removed.
	Transmitter is ON An internal fault with the E-Stop has been detected.	Inspect E-Stop wiring for short circuit. Disconnect E-Stop wire as close to the receiver output as possible. If the Status light changes to: · GREEN, a short occurs after disconnection point. · Stays flashing RED, send it in for service .
	Transmitter is ON A short to ground or excessive current draw on an output. It is most likely caused by a wiring fault.	Ensure transmitter is functioning properly, check status of each output connection: Press each function button and observe Fault Light. · If GREEN, everything is OK. · If RED, there is a short in that connection.
	Transmitter is ON The E-Stop output has been connected with one of the other outputs	Follow the wire and check for connections with other wires, disconnect to see if condition clears. If not, call for service.
	Transmitter is OFF A wiring short to the battery has been detected.	Refer to **Troubleshooting Chart #1** for solutions
	Transmitter is OFF The receiver has detected an internal fault.	Refer to **Troubleshooting Chart #1** for solutions
	Transmitter is OFF Blown fuse detected.	Refer to **Page 7** for instructions on how to open the receiver case to access fuse. Check wiring for shorts or bare spots. If fuses continue to blow, call for service.
	Transmitter is ON A setup failure has occurred.	Either hold the Setup button for 5 seconds to return to Setup mode or cycle power to return to the normal operating mode.
	Transmitter is OFF The receiver is powered incorrectly.	Most likely cause of this condition is that an output wire or the E-Stop wire has been connected to the power supply while the power wire is disconnected from the power supply.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Test the Receiver—R160



Test the Transmitter—T110C

Turn off the receiver
Ensure there are good/charged batteries in the transmitter
Turn on the transmitter

What is the state of the lights?

OK state:
Active light—steady for about 3 seconds then goes to fast flash.
Battery light—OFF

Press one of the buttons

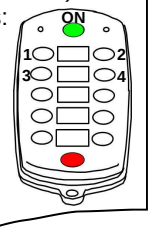
Does the Active light go to solid YELLOW?

NO

YES

Go to **Chart 3**

The transmitter may be in secure mode (this will only be the case if the transmitter has been programmed for the secure mode feature)
To check for this follow these steps:
1. Turn off transmitter
2. Turn on transmitter
3. Press these buttons in order:
   - 3, 1, 4, 2, ON (Green)
4. Press anyone of the buttons



Does the Active light go to solid YELLOW?

YES

NO

Reconfigure the transmitter to ensure it is out of secure mode
Refer to the Installation / Configuration manual for directions.

Neither light comes on at any time

Complete the following steps in order:
1. Check battery orientation
2. Clean battery contacts
3. Check, Recharge or Replace batteries
4. Send in for service

Both the Active light and the Battery light flash at the same time

Stuck button:
1. Toggle the buttons a few times
2. If condition persists, send the unit in for service

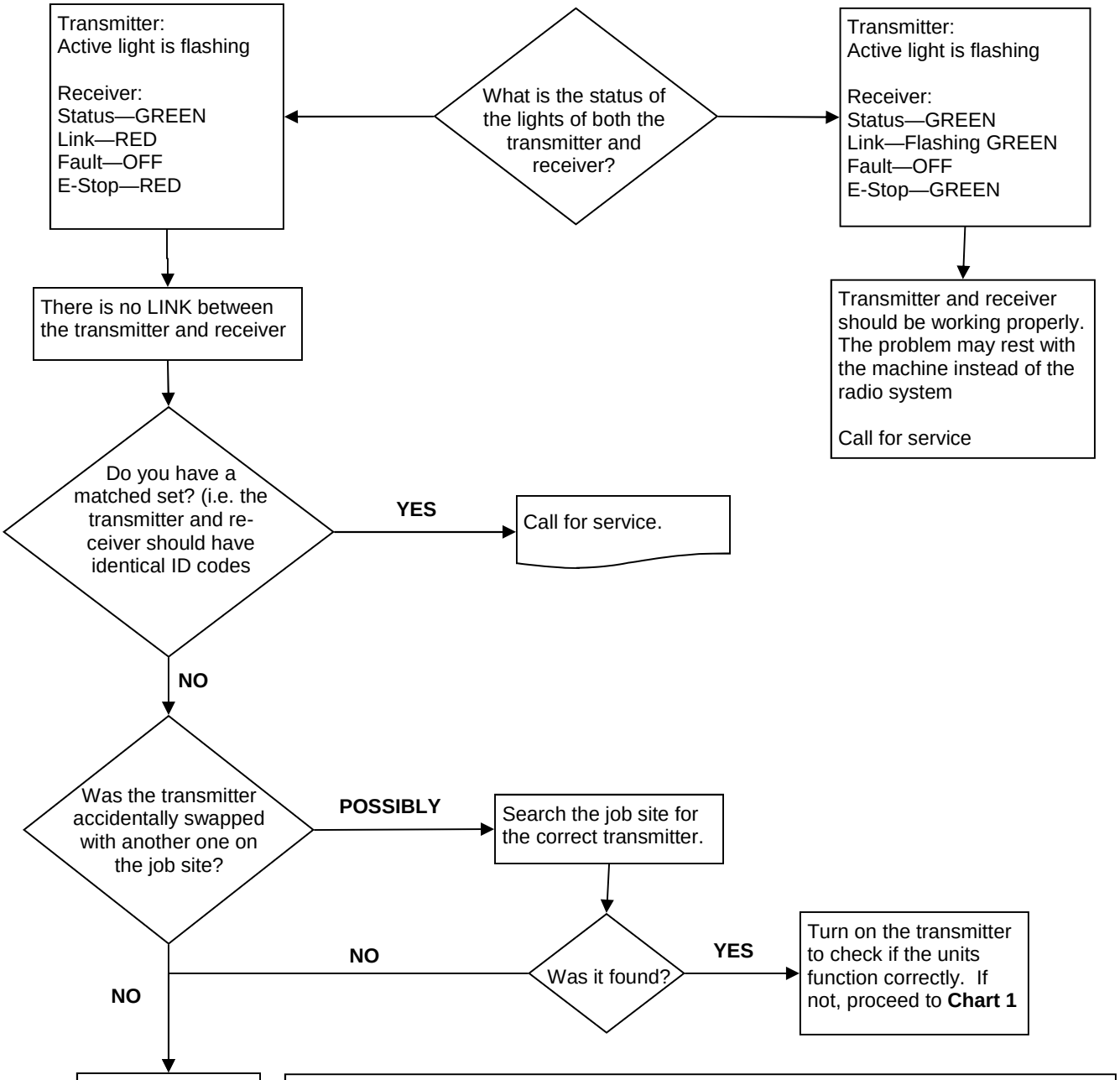
Active light and Battery light flashing alternately

Low Battery—Change/Recharge Batteries
Note: *Low batteries will last approximately 8 hours once the Low Battery light begins to flash.*

Battery light flashes for 10 seconds then both lights are OFF

Transmitter failure—send unit in for service

Testing the Transmitter / Receiver Communication



!!Caution!!

Note: Before you proceed with the Download ID procedure located on **Page 7,** great care and caution must be adhered to. Also, refer to **Chart #4** for Tips and Considerations.

If by accident, the transmitters have been switched with another unit, by downloading the ID code to a new receiver, it is possible for the transmitter to operate 2 units at the same time (if the original receiver unit is still on the job site). Therefore it must be certain that the transmitter / receiver pair are the correct set.

Secondly, once the download procedure is completed, ensure all other units on the job site are stopped. Test the operation of the newly configured set to ensure no other machines on the site work with the same transmitter.

Once you are certain that the transmitter / receiver pair are a unique set, continue normal operations.

Considerations when Downloading the ID

Potential downloading issues

If testing of the receiver and transmitter both show the system as working (Chart 1 & 2), then the transmitter and receiver will both go into Download/Configuration mode.

Possible issues could arise during Step 4, the download phase of reprogramming. In this case there are 2 symptoms to look for:

1. The Link light on the receiver will not turn GREEN when the power switch is toggled on the transmitter to download
2. The receiver will "time out" indicating that it didn't receive a signal from the transmitter within the 30 seconds from the time the receiver was put into Setup Mode.

If all indications appear normal during the download phase, test the link by turning on the transmitter (note: the transmitter shuts off after transmitting the ID code in Step 4)

1. If the Link light on the receiver doesn't turn GREEN, the receiver didn't receive all of the information that was sent from the transmitter.

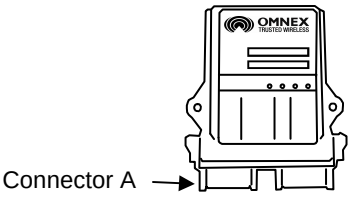
Possible Solutions

1. Try the Downloading steps again
2. If this doesn't correct the problem, send both the transmitter and receiver in for service.

Note: *you could try to determine whether the fault lies with the transmitter or receiver by completing the Reprogramming procedure with a different transmitter. If this step works, then the fault lies with the original transmitter. If not, the fault may lie with the receiver.*

!!Caution!!

Note: Before attempting reprogramming with another transmitter, understand that reprogramming the receiver with another transmitter, could result in two receivers on the job site responding to the one transmitter. If the original transmitter was sent in for repair, disconnect the receiver (disconnect connector A) to continue using the machine without remote capability and without fear of inadvertently operating the machine with the other transmitter.



Reprogramming Tips:

1. Be patient and deliberate when pressing the Power and E-Stop buttons in the correct order during power up in Configuration mode
2. Use a pointy instrument to depress the Setup button on the receiver (i.e. a pen) as the button is relatively small
3. Follow each step as laid out in the procedure
4. Never lay the receiver circuit board down on anything metallic (there are contact points on the back which could contact the metal and damage the receiver)

Parts & Accessories

Part	OMNEX Part Number	Description
Batteries	B0013	4 x AA Ni-Cadmium
Fuse	F0039	36V Bi-directional, Bussman ATC-15
Belt Clip	AKIT-2428-03	Belt clip for the T110C transmitter
Magnets	AKIT-2428-01	see illustration below
Bipolar Diode Kit	AKIT-2492-01	Motorola P6KE36CA
CC DOCK™	Call OMNEX	see illustration below
R160 Output Cable	ACAB-2493-01	Generic Output Cable- see illustration below
Connector Kit	AKIT-2337-01	Includes Deutsch socket connectors, wedges, pins and sealing plugs
Keypad Label T110C	FLBL-1726-25	Generic Line Pump Labels

CC DOCK™

Belt Clip

Magnets

R160 Output Cable

Specifications

	R160 Receiver	T110C Transmitter
Size	5.1” x 4.7” x 1.4” (130mm x 119mm x 36mm)	5.8" x 3.4" x 1.2" (147mm x 86mm x 30mm)
Weight	0.65lbs (0.295kg)	.65 lbs (295g) incl. batteries
Construction	High impact plastic, weatherproof	High impact, low temperature plastic, weatherproof
Input Power	+9V to 30VDC	4 x AA Ni-Cadmium
Battery Life	N/A	160 hours (continuous use)
Operating Temperature Range	-40F to 158F (-40C to 70C)	-22 F to +140 F (-30 to +60 C)
Outputs	3A (max) each (sourcing), 10A (max) each (combined)	N/A
Antenna	Internal	Internal
Approvals	**USA**- FCC part 15.247 **Canada**- ISC RSS 210 Issue 6, Sept. 2005 **Europe**– CE, EN 440 **Australia-** C-Tick	

FCC Rules and Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC	Part 15.247
ISC	RSS 210 Issue 6, Sept. 2005

Warranty

OMNEX Control Systems ULC warrants to the original purchaser that the OMNEX products are free from defects in materials and workmanship under normal use and service for a period of ONE YEAR, parts (EXCLUDING: SWITCHES, CRYSTALS, OR PARTS SUBJECT TO UNAUTHORIZED REPAIR OR MODIFICATION) and labor from the date of delivery as evidenced by a copy of the receipt. OMNEX's entire liability and your exclusive remedy shall be, at OMNEX's option, either the (a) repair or (b) replacement of the OMNEX product which is returned within the warranty period to OMNEX freight collect by the OMNEX APPROVED carrier with a copy of the purchase receipt and with the return authorization of OMNEX. If failure has resulted from accident, abuse or misapplication, OMNEX shall have no responsibility to repair or replace the product under warranty. In no event shall OMNEX be responsible for incidental or consequential damage caused by defects in its products, whether such damage occurs or is discovered before or after replacement or repair and whether or not such damage is caused by the negligence of OMNEX Control Systems ULC.

OMNEX Control Systems ULC

74-1833 Coast Meridian Road
Port Coquitlam, BC, Canada
V3C 6G5

Tel: 604-944-9247
Fax: 604-944-9267

Toll Free: 1-800-663-8806

www.omnexcontrols.com

MasterMix Electronic Display

Reimer Alliance International Inc.

2/1/2011

Master Mix Electronic Display

The **Master Mix** is a processor and display designed to provide the mobile mixer operator with information related to the Mixing and Discharge of concrete. During the Mixer Calibration Procedure pertinent mix data information is entered into the Apex I to provide for real-time calculations related to concrete volume, cement weight, aggregate weight, and admixture flow rates. Cement/water ratio, water flow rate and water totalizer are also available using the optional water meter.

Operating and data input

1. **START- UP screen :** displays time and counts/pulses
    - **SCRN-** to toggle between **START-UP** and **ACTIVE-MIX** screen
    - **PRGM**- to display the Program Screen
    - **ADMIX**- to view admixture flow rates
    - **Reset** – to Zero: counts/pulses and ACTIVE-MIX screen volume. Values will be stored in the **LAST 5 MIX** screen.

2. **ACTIVE - MIX screen**
    - **MIX**: (number @ name)
    - **ST:** (stone gate setting)
    - **SA**: (sand gate setting)
    - **CNT:** (total counts/pulses between resets)
    - **MPA**/**PSI:** (strength)
    - **C/W:** (cement/water ratio)
    - **H2O:** (water flow rate)
    - **H2OT:** (total amount of water used between resets)
    - **RPM:** (conveyor speed)
    - **VOLUME COUNT:** (yards or meters)

3. **PROGRAM screen**
    - **OK –** return to the **ACTIVE – MIX** screen
    - **SELECT-** to choose one of the options
    - **UP-** scroll cursor up to the desired selection
    - **DOWN-** scroll cursor down to the desired selection

    a) **MIX Select screen**
        - **UP and DOWN-** select mix 1-15
        - **SELECT-** to return to the active mix screen

    b) **MIX ENTRY screen**
        - **MIX –** select mix that is desired for data entry
        - **SELECT-** scroll data entry line through screen
        - **UP –** increase input value
        - **DOWN –** decrease input value
        - **EXIT-** note when data entry line is under **EXIT** : Use **Door** symbol (down key) to exit program
          *Note***: Select** will only scroll from top to bottom and repeat

    c) **SET UP PARAMETERS screen**
        - **OK-** to return to the **ACTIVE-MIX** screen
        - **SELECT –** allows programming of category selected
        - **UP-** to move the cursor up to the desired category
        - **DOWN-** to move the cursor down to the desired category

i. **SET CONTRAST**
scroll between **Set Contrast** and **Set Bright**
- to decrease value
+ to increase value
Use the **door symbol** to **exit** this screen

ii. **SET TIME**
scroll between minutes and hours
UP and **DOWN** increase and decrease values
Use the **door symbol** to **exit** this screen

iii. **H2O PULSE/** L (liters) or G (gallons)
a) **Select**- moves the cursor underneath the number indicating the pulse counts required to dispense **1** liter or **1** gallon
b) **Up**- increases the pulse count value
c) **Down**- decreases the pulse count value

Water Calibration: Active-Mix screen:
a) Press **Reset** to zero all totals
b) Dispense water into a container of known volume **liters** or **gallons**
c) Note the volume of water displayed at **H2OT** and compare this with the actual total

If the displayed volume is **low** the number of pulse counts required per liter or gallon must be **decreased.**

If the displayed volume is high the number of pulse counts required per liter or gallon must be **increased.**

It may be necessary to take several samples of water volume and make the appropriate adjustments to the **H2O PULSE** count in order to achieve the level of accuracy you require. Once calibrated properly no further changes should be needed.

iv. **METRIC/IMPERIAL**

Select- used to change between metric and imperial
Note: Auger PSI and BELT PSI are for future use

4. **LAST 5 MIX screen** – view a log of the last 5 resets.
Each time you press the **RESET** button it will log the concrete volume and strength of the current job. *Note*: if the **RESET** button is depressed with (zero) 0 counts, (zero) 0 volume will be logged.

5. **ADMIXTURE Screen** - Setting Flow rates for admixture

- Enter the desired amount of admixture required per meter or yard in the appropriate line from the **MIX ENTRY** screen. The Apex I will calculate the number of counts per minute and compute the desired flow rate – L/Minute or Gal/minute to be displayed in the **ADMIX** screen.

- From the **START-UP** screen or **ACTIVE MIX** screen with the conveyor belt running press the **ADMIX** button. The **ADMIX** screen will indicate the appropriate flow rate needed for the rate at which concrete is being produced. Use the admix flow-control and flow meter for either the HI flow or Lo Flow admix pumps to make the appropriate flow rate adjustment. This process can be done while mixing. You may easily move between the **ACTIVE-MIX** screen and the **ADMIX** screen to check the display which indicates the necessary flow rate.

- **CAUTION:** The computer does **NOT** control the admix. It only displays the amount of admixture that is required using the information that has been entered when setting up the **MIX ENTRY** screen. The operator must **manually** make adjustments to the **admix flow control**.

Note: If the conveyor speed is changed you must make the necessary adjustment to the admix flow-control in order to dispense the correct amount of admixture. The display in the ADMIX screen is to be used for reference only when making these adjustments

USER GUIDE

Reimer

Cement mixer

Display mix control

Table of Contents

I. Revisions

LEVEL	DESCRIPTION – ECO NUMBER	DATE	BY
0	CREATED	2/25/08	JH
1	Added printer	10/15/08	JH
2	Added Remote Print button	11/25/08	JH
3	Added company name to printer and ticket number	1/26/09	AE
4	Changes per Rev 110 addendum	4/7/09	AE
5	Updated to match current code rev	5/8/09	AE
6	Updated to match current code rev	5/22/09	AE
7	Updated to match current code rev	5/27/09	AE
8	Updated to match current code rev	6/9/09	AP
103-116	Shown on obsolete SA-3258-PRR revision record	5/11/11	AP
117	Added water ratio in Gal/Yd3 or Liter/m3. Switched rev record to User Guide	5/11/11	AP
118	Improved accuracy in the Liter/m3 calculations	5/18/11	AP
119	Corrected Cement, Stone and Sand kg values on Mix Setup screen	7/8/11	AP

II. Software Specification

Module	NODE #	HWD Version	Baud Rate	Program Number
10106883	11	10106196v110	250k	SA3258DP200xxx

III. Description of Operation:

This machine is a truck mounted cement mixing unit. The electronic display system is used for monitoring purposes and setup calculations only. It also is used to save specific data after a run is complete. There is also voltage monitoring that is done, so if the system voltage drops below 10VDC two red LED's will flash indicating to the operator that their battery voltage is too low. If the voltage gets too low, the display may not operate properly, and the counts from the pulse pickups will lose accuracy.

Main Screen 1:

Shows in large font the amount of counts that the conveyor has rotated. This is primarily used in calibrating the machine.

The operator will have to print after they are done with the mix. The operator will not have the ability to print previous runs after they have been reset.

Main Screen 2:

This screen shows operating data; which mix is selected, the strength that is being produced, the SA and ST gate positions, the amount of water that has been mixed with the concrete(H20T), current water flow meter reading(H20) the RPM and Count of the cement conveyor, and in large letters the overall cubic yards or meters of concrete that have been distributed. It also shows the C/W (cement to water ratio) overall since the last reset.

Program Screen:

The operator will use this screen to navigate to the following;

Mix Select screen to select which mix he would like to run.

Mix Entry screen, used to setup the parameters for 10 preset mixes. This is where the operator will enter values that they want used for all calculations to include; Truck number, Strength, Pulses per yard (or meter), Cement weight per yard (or meter), Stone weight per yard (or meter), Sand weight per yard (or meter), ST gate position, SA gate position, Low Flow gallons (or liters) per yard (or meter), and Hi Flow gallons (or liters) per yard (or meter).

Setup Parameters, where the operator has the ability to set the contrast and backlight of the display, set the time, set the amount of pulses per gallon or liter of water, and to select between metric and imperial units of measure. This screen also shows the pressure at the belt and auger motors.

Last 5 Mix, when the operator is done with a load, they press the reset button to clear the counts. The values are calculated and will show the yards that were distributed and the strength of the mix for that and the 4 previous runs. This screen is also where the operator will need to go in order to reset the run values.

Admix Screen:

The operator will look at this screen for a reference as to how much of the Hi and Low flow fluid they should be adding to attain the correct mix they selected for the speed in which they are pumping.

Calibration:

There is no calibration required for the display once the program is loaded.

IV. DP200

SPLASH SCREEN

MAIN SCREEN

SCRN – Switch to Run Screen, PGRM - Switch to Program Screen
ADMIX - Switch to Add Mix Screen

RUN SCREEN

SCRN – Switch to Main Screen, PGRM - Switch to Program Screen
ADMIX - Switch to Add Mix Screen

PROGRAM SCREEN

OK – Switch to Run Screen, SELECT – Switch to highlighted screen,
UP – Highlight previous, DOWN – Highlight next

MIX SELECT SCREEN

SELECT – Select current mix, Up – Show previous mix,
DOWN – Show next mix

MIX ENTRY SCREEN

MIX – Select mix number, SELECT – highlight value to adjust
Up – Adjust value up, DOWN – Adjust value down

SETUP PARAMETERS SCREEN

OK – Switch to Run Screen, SELECT – Switch to highlighted screen
Up – Highlight previous, DOWN – Highlight next

LAST 5 MIX SCREEN

OK – Switch to Run Screen

ADMIX SCREEN

OK – Switch to Run Screen

SET CONTRAST

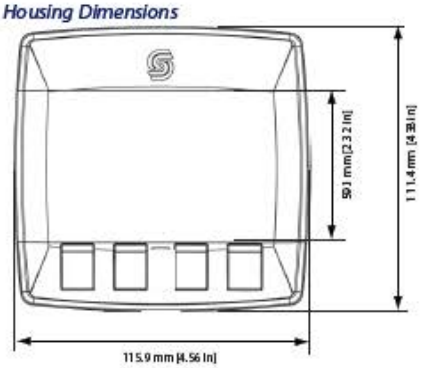
SET TIME AND DATE

V. DP200 I/O

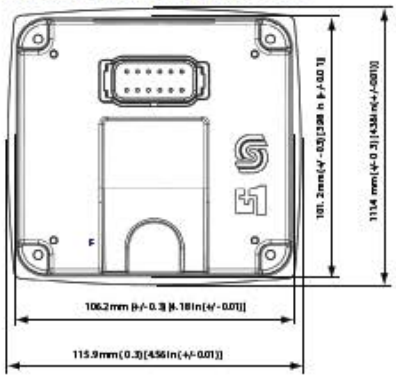
SAUER DANFOSS

DP200 Series
Graphical Terminal

Housing Dimensions



Mounting Panel Cutout Dimensions



DP200 Series Model Code

A Model Name

DP200	Graphical Display, IP 67 above panel

B Inputs/Outputs

00	1 CAN port, 2 DIN/AIN
01	1 CAN port, 6 DIN/AIN
04	2 CAN ports, 2 DIN/AIN

C Real Time Clock/Low Temperature Functionality

00	No RTC and LTF
01	RTC and LTF

D Flash Memory/Application Key

02	2MB without Application Key
03	2MB with Application Key

E Application Log

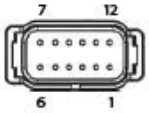
00	None
04	4 MB

F USB Port Type

00	None
01	USB Device

DP200 Series Product Parameters

DP200 Series	
Processor	ARM 7 core, 32bit/60 MHz
RAM	64 KB on-chip, 512MB on board
FRAM	16 KB
Power Supply	9–63 Vdc/6.5 Watts
Connector	Deutsch DTM-12
Type	LCD with 32 grayscale levels
Resolution	160 x 240 pixels
Viewable Area	80mm x 55mm [3.15 x 2.16]
IP Rating	IP67
Operation Temperature	Code C00: -20 °C — +70°C [-4°F — +158°F]
	Code C01: -40 °C — +85°C [-40°F — +176°F]
Storage Temperature	-40 °C — +85°C [-40°F — +176°F]
Weight	250g [0.5 lb]
Vibration/Shock	5g/ 100g
EMC/ESD	100V/m /15kV
Digital Output (0.5A)	1



Use care when wiring mating connector. Diagram shows device pins.

DP200 Series Available Models

DP200-00-00-01-00-00	10107021
DP200-00-01-03-00-00	10107380
DP200-01-01-02-00-00	10106883
DP200-01-01-03-00-00	10107381
DP200-04-01-02-00-00	10107022
DP200-04-01-03-00-00	10107382

DP200 Series Related Products Part Numbers

Deutsch Mating Connector Bag Assembly	10100944
DP2XX Mounting Hardware Replacement Kit	10107354
PLUS+1 GUIDE Single User License	10101000
DP200 Panel Seal Replacement Gasket	10107355

DP200 Series pin assignments

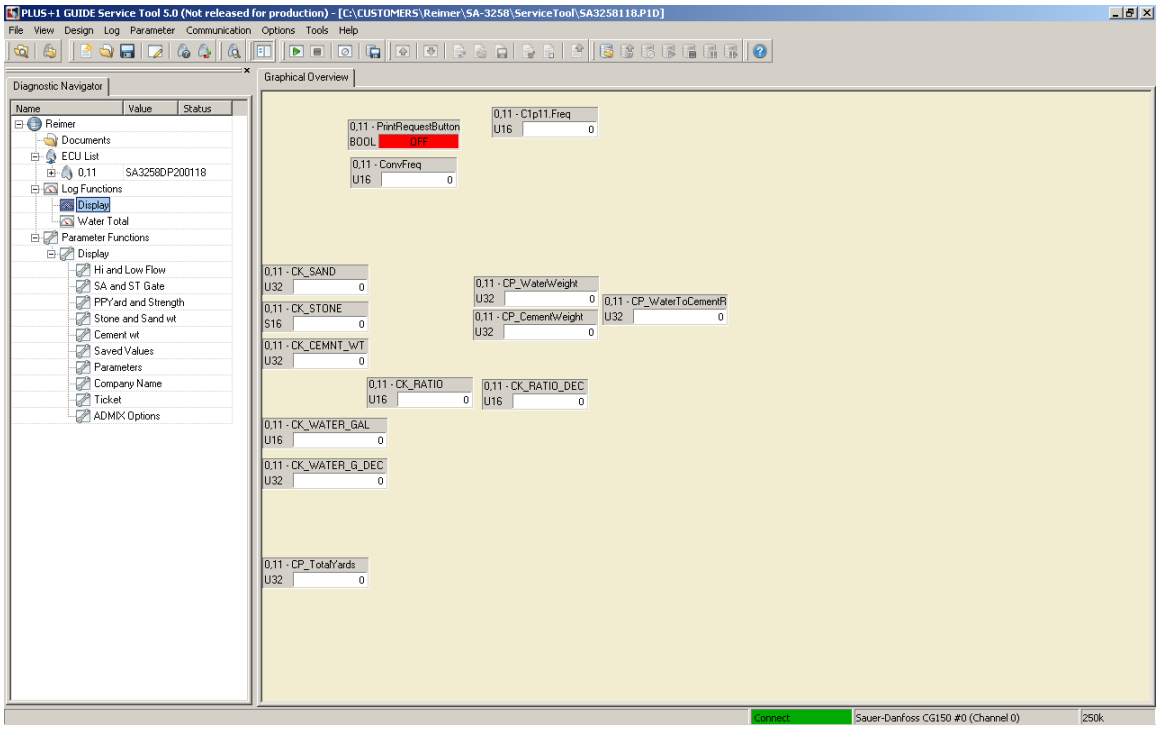
		Code B00	Code B01	Code B04
1	Power ground-			
2	Power supply+			
3	CAN 0+			
4	CAN 0-			
5	AIN/ CAN Shield			
6	See Code B option	NC	DIN/AIN	NC
7	See Code B option	NC	DIN/AIN	NC
8	See Code B option	NC	DIN/AIN	CAN 1+
9	See Code B option	NC	DIN/AIN	CAN1-
10	DIN/AIN/FREQ IN/ CURRENT IN			
11	DIN/AIN/FREQ IN/ CURRENT IN			
12	DOUT (0.5A)			

Comprehensive technical information: DP2XX Series Graphical Terminals Technical Information, 11023625
Sauer-Danfoss product literature is online at www.sauer-danfoss.com

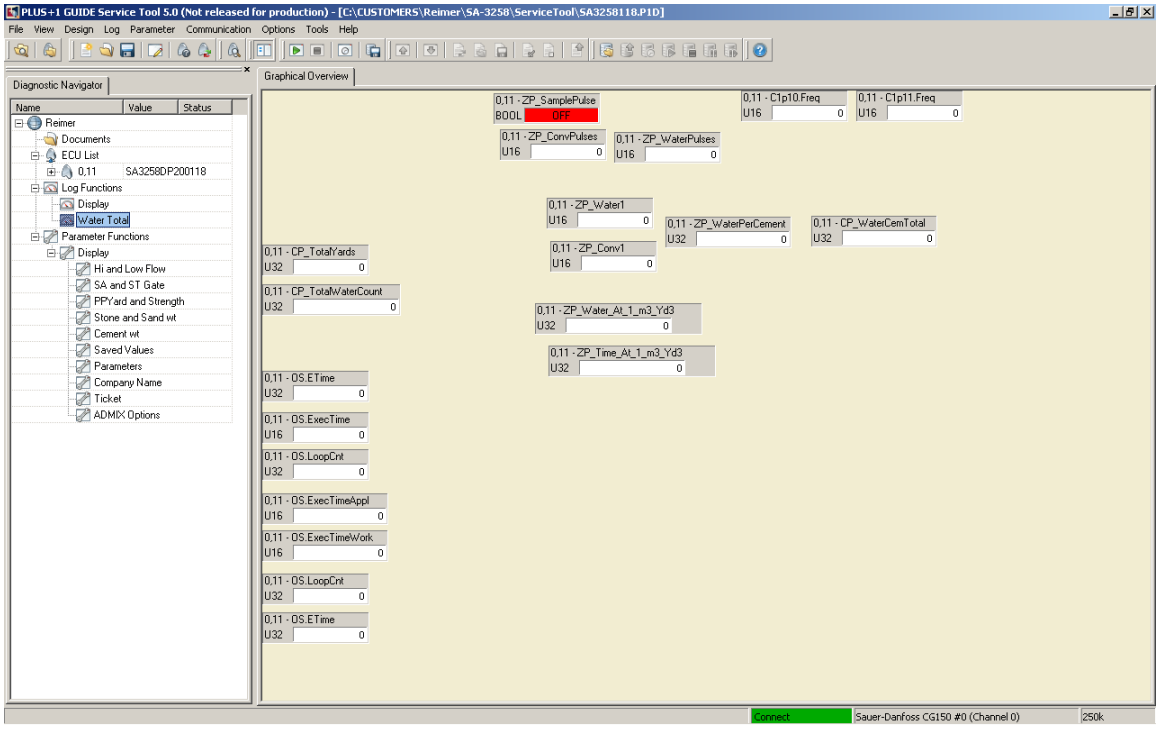
11025041 • Rev A • Apr 2007

VI. Service Tool

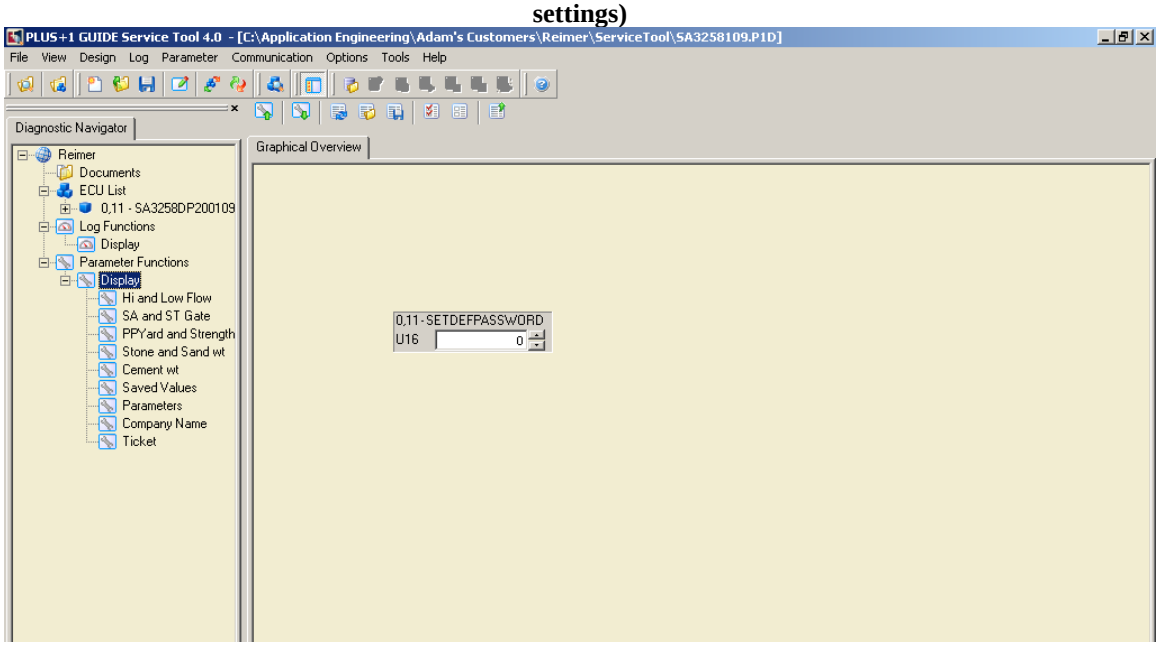
Main Screen



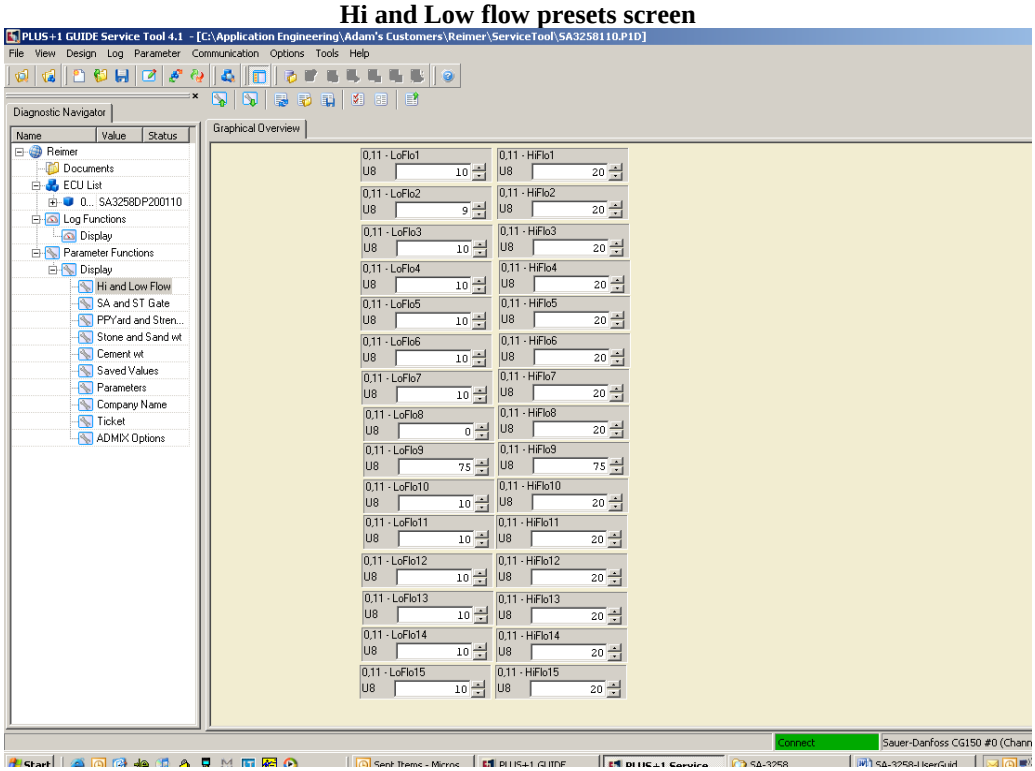
Water Total Screen



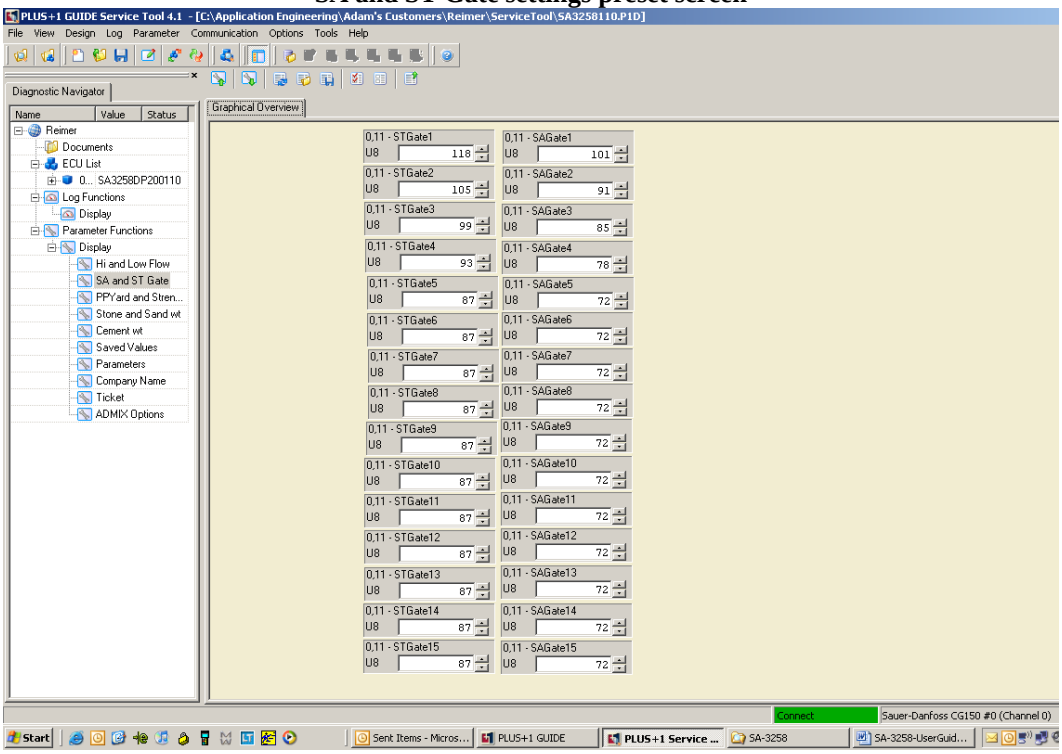
Set Defaults Screen
(If correct password is entered, all parameters go back to preset settings)



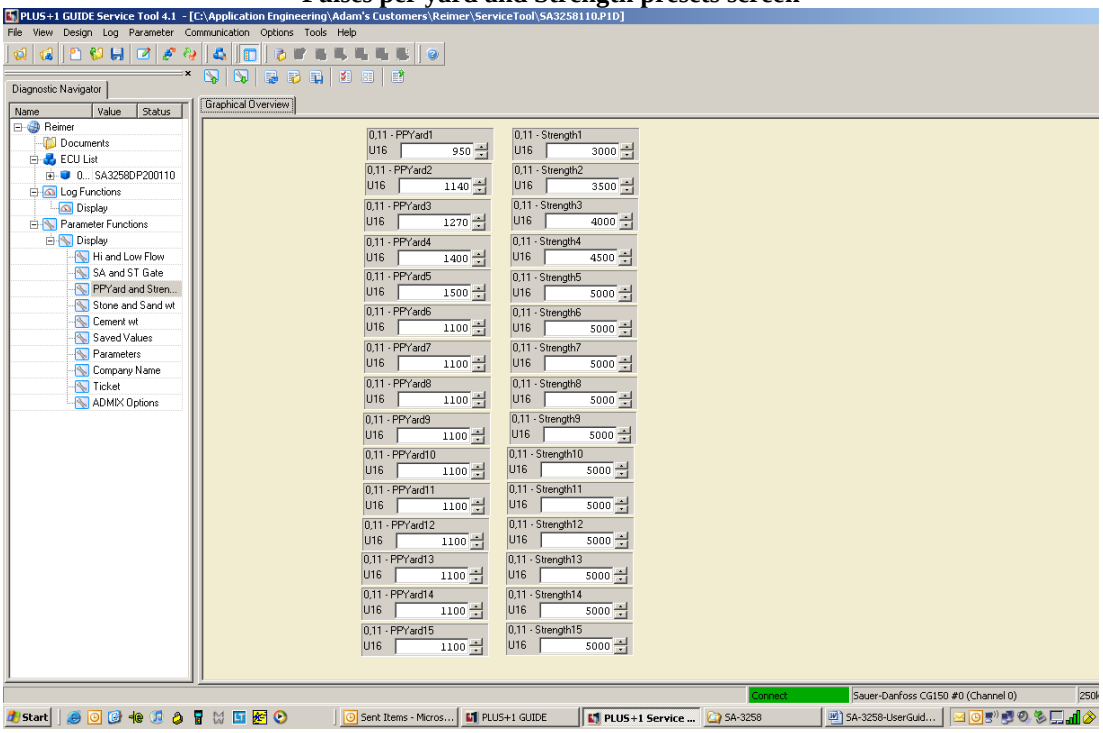
Hi and Low flow presets screen



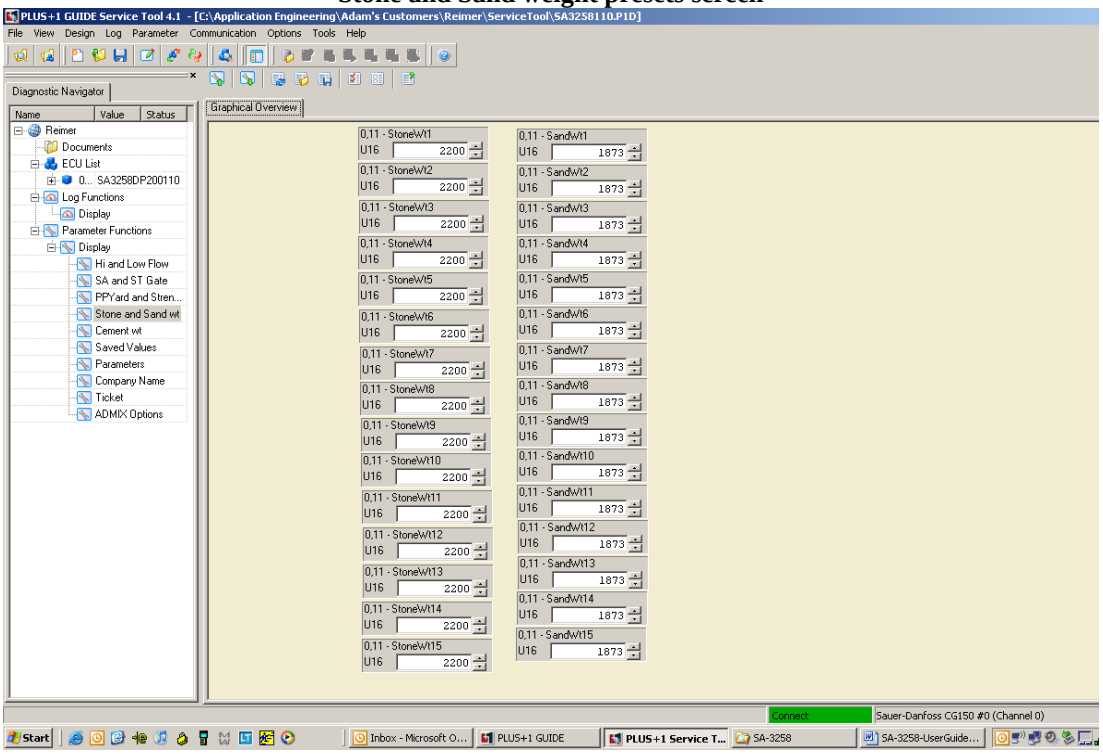
SA and ST Gate settings preset screen



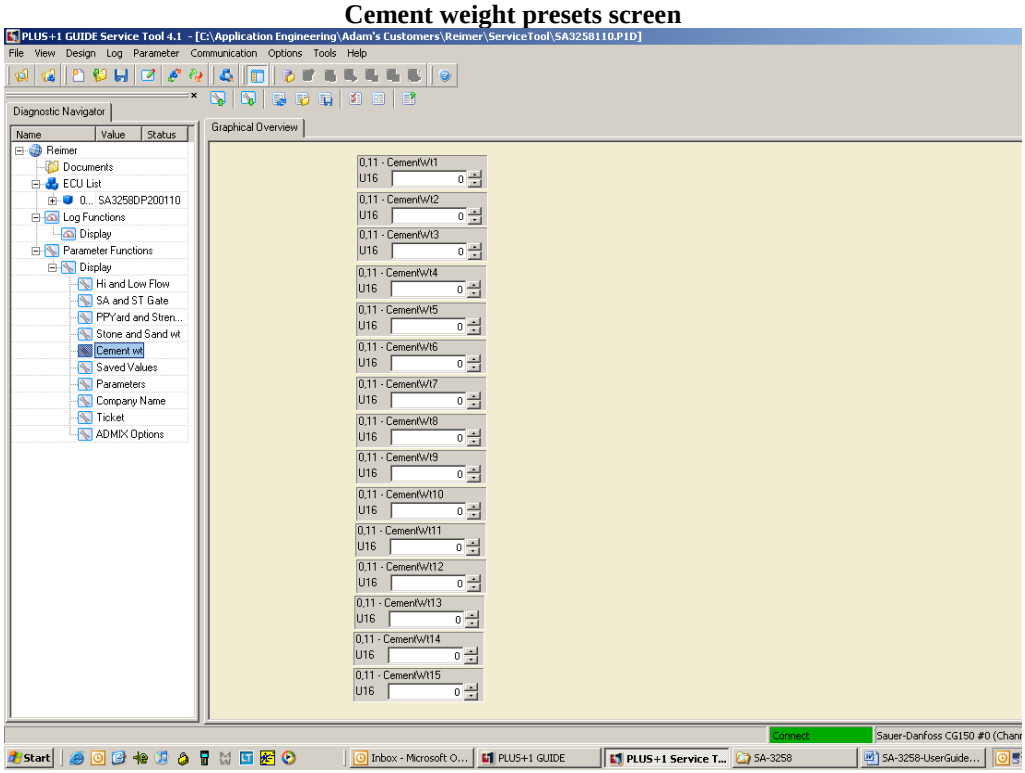
Pulses per yard and Strength presets screen



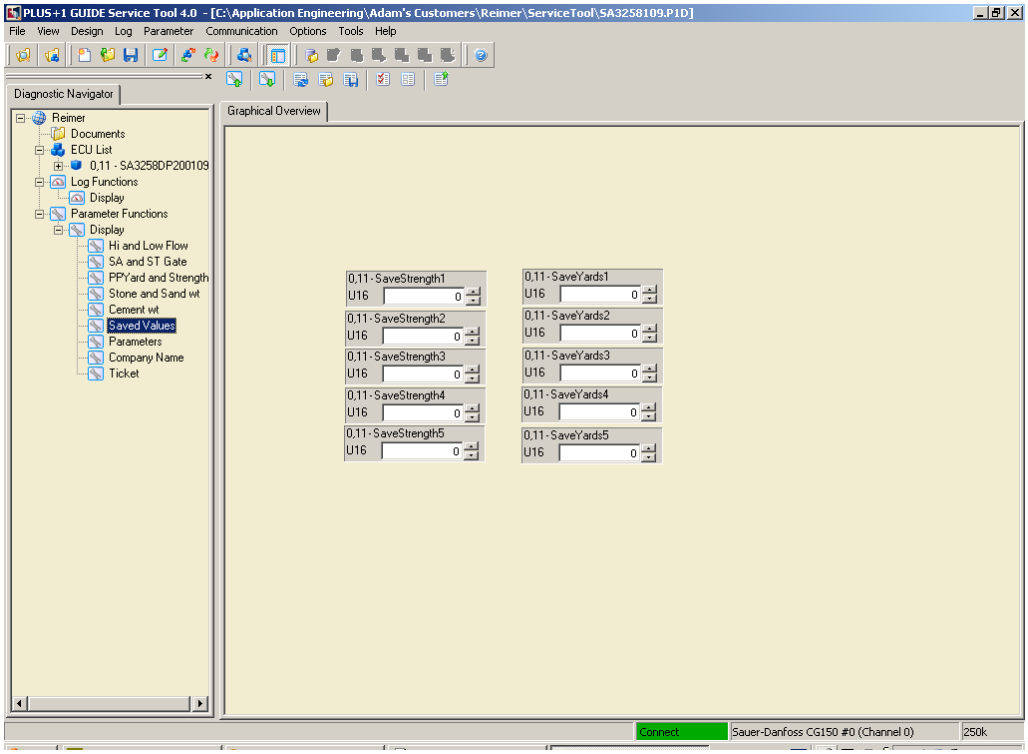
Stone and Sand weight presets screen



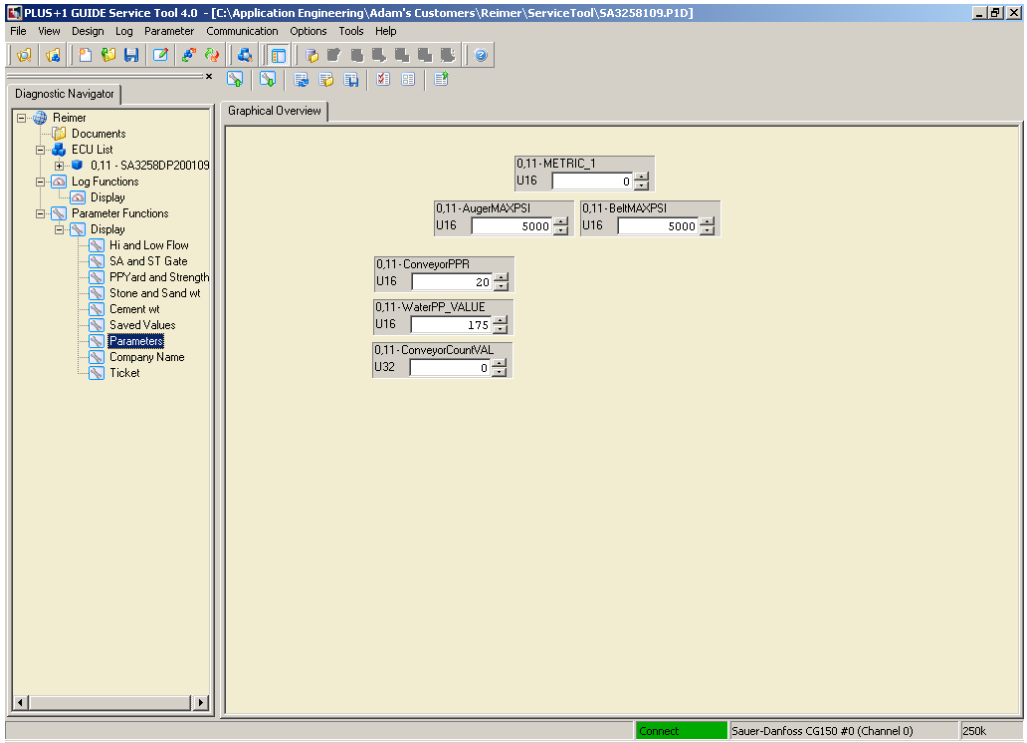
Cement weight presets screen



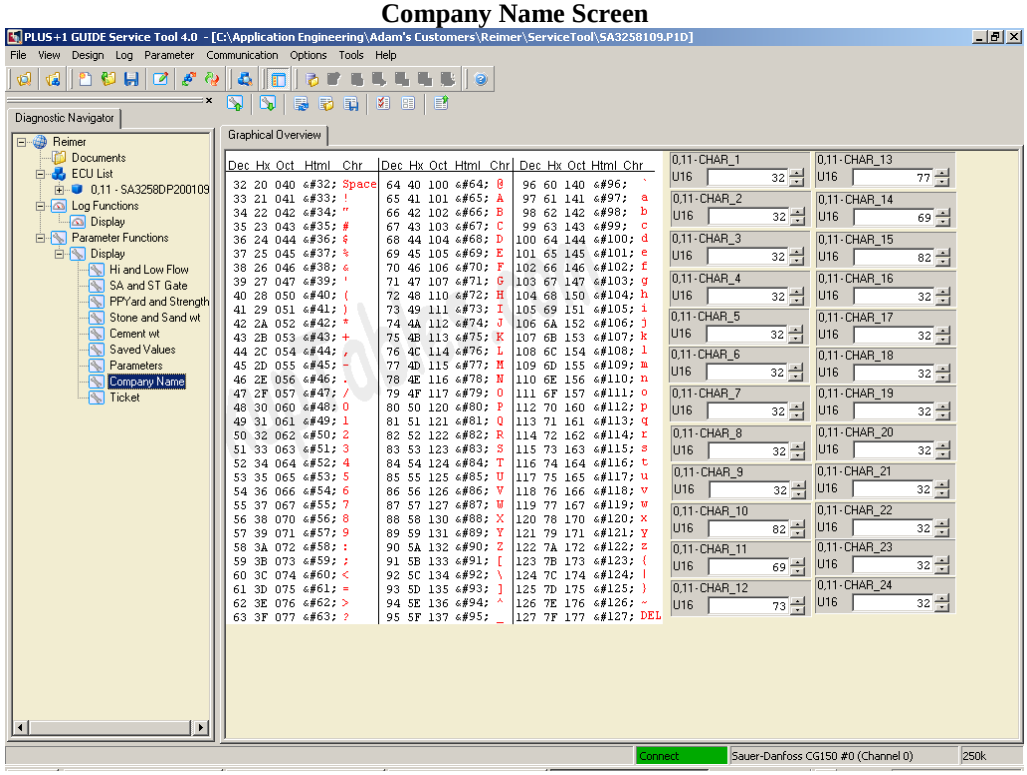
Last 5 saved values screen



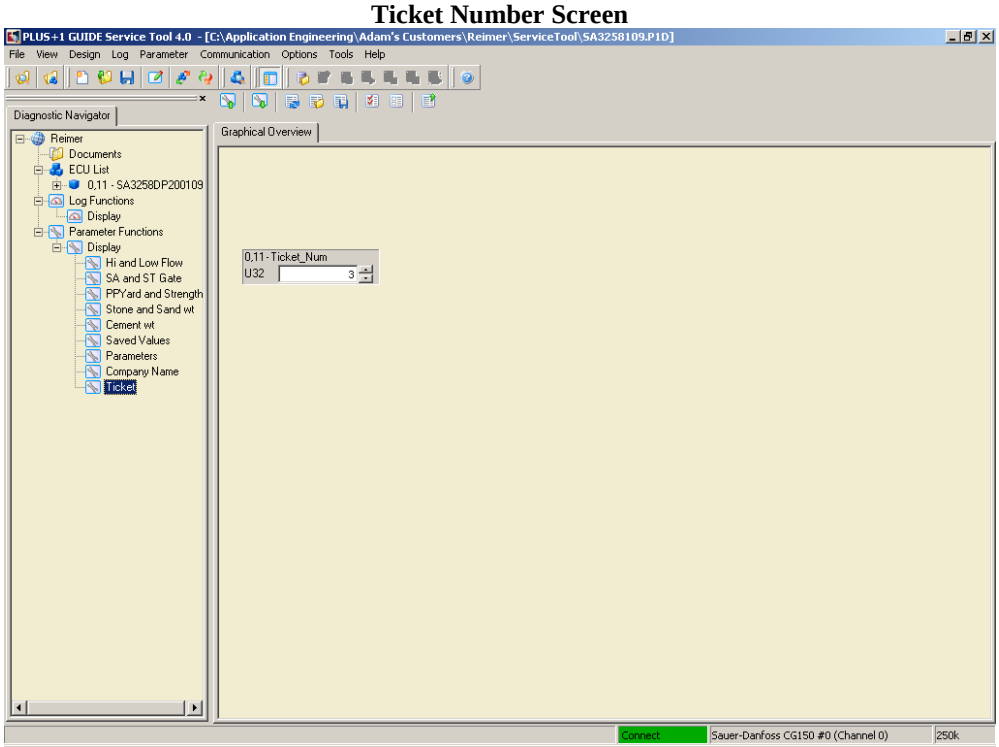
Parameter Screen



Company Name Screen



Ticket Number Screen



AdMix Meter Options Screen