

THE



ALLIANCE INTERNATIONAL INC.

MOBILE MIXER

OWNER / OPERATORS MANUAL

Reimer Alliance International Inc.

www.reimermix.com

1-855-335-9500

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.



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Standard Specifications

Capacity	9.5 yds ³ (7.5 m ³)
Production rate	Variable up to 75 yds ³ 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 batching 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 coarse 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 effect 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 operators 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 counter 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

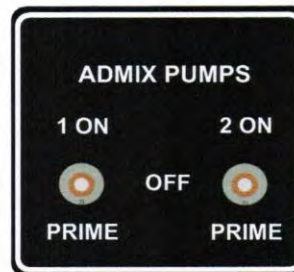
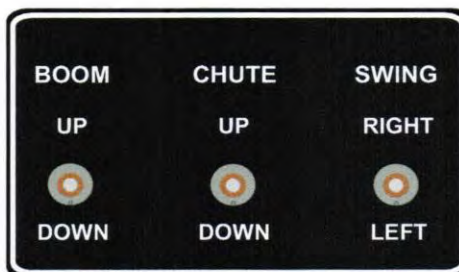
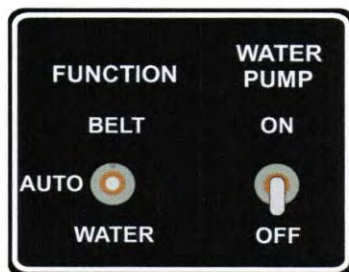
- **EMERGENCY STOP BUTTON**



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
 - Cement drive Motor On / Off }
 - Full / Lean } *see Page 10*
 - Cement lean adjustment }

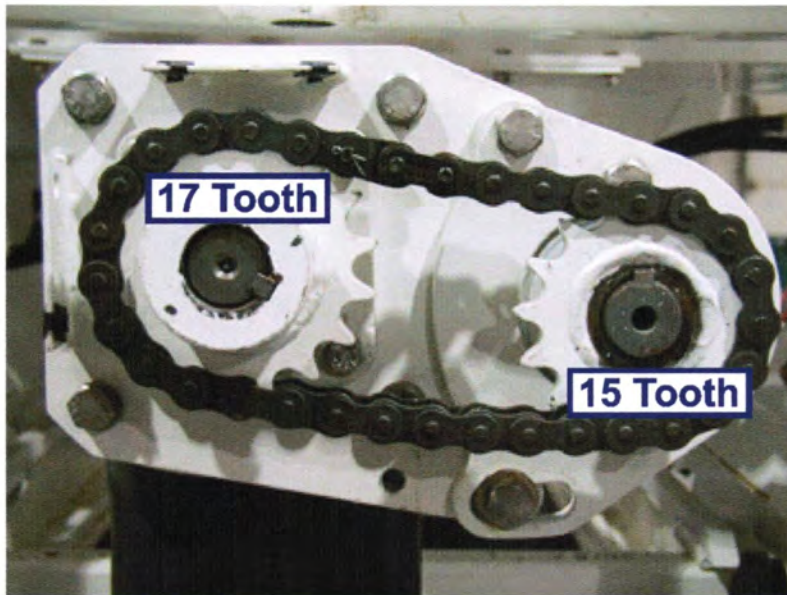
Control Panel



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

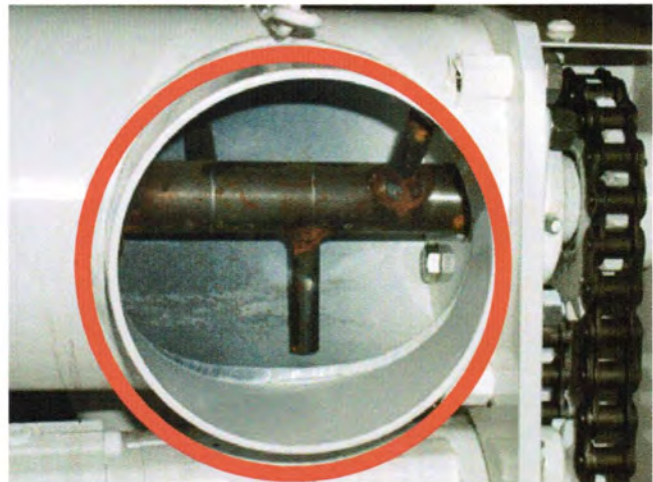


Cement sprocketing shown above, can be interchanged by the operator to increase cement delivery.

15 x 17 Factory Setting
17 x 15 Will deliver approximately 20% 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.

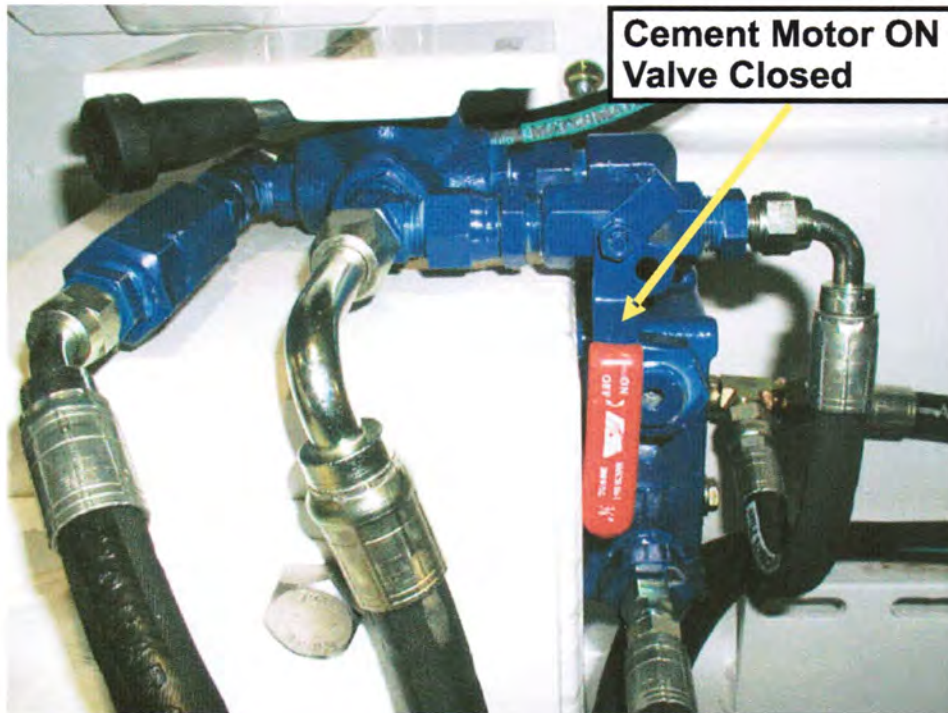
Cement Motor Controls

Cement Motor On/Off Valve

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

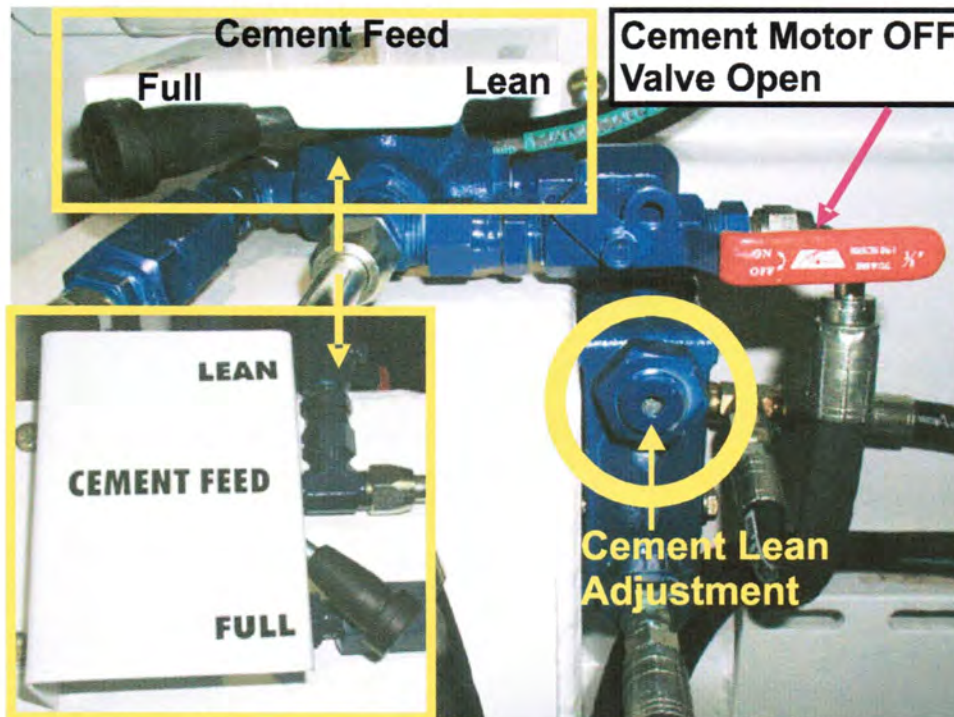
WARNING:

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 ½ turns (counter clockwise) from the full IN position as seal damage will result.

CEMENT MOTOR CONTROLS

SIDE VIEW

1

2

3.1

3

ON

OFF

CEMENT MOTOR

50% +

TOP VIEW

FULL CEMENT FEED LEAN

1

2

3

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) 1 ½ 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 50/50

If you require Less than 50% Turn adjustment 3.1 In (clockwise) until you achieve the desired %

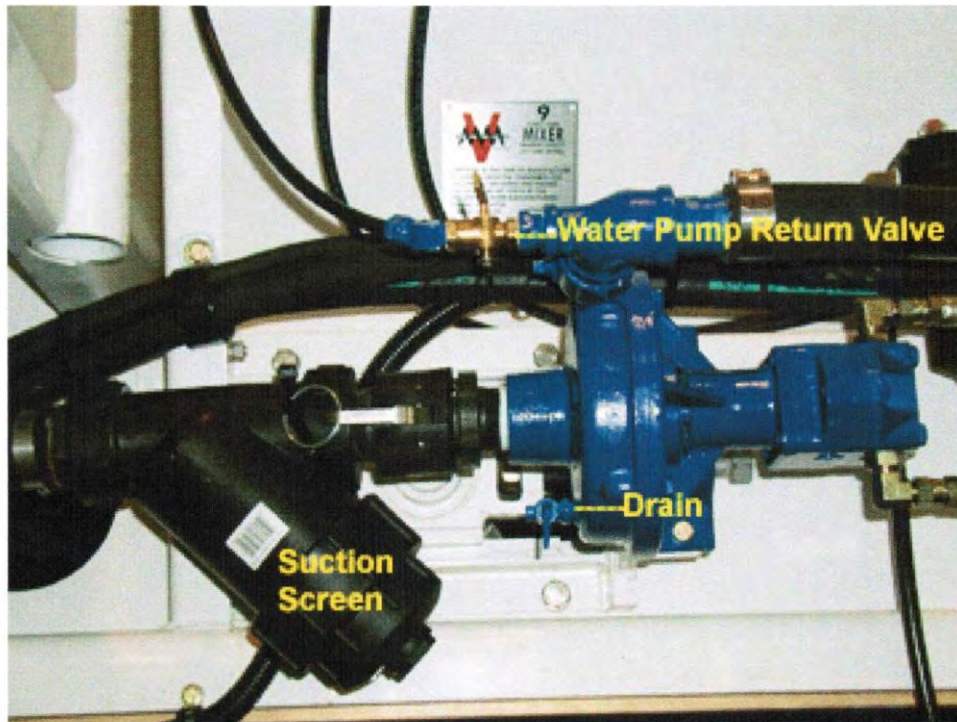
If you require Greater than 50% Turn adjustment 3.2 In (clockwise) until you achieve the desired %

Note: Whenever making adjustments to one side the opposite side should always remain in the full Out position (1 ½ 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

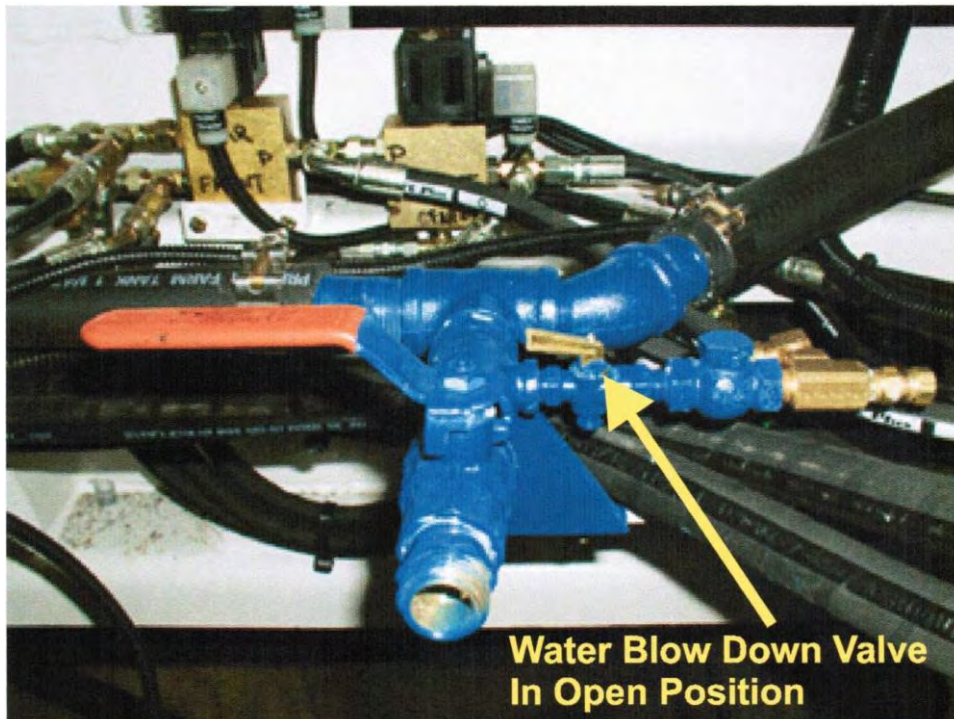
Any adjustments made to this valve will NOT affect your calibration data when in the Full position

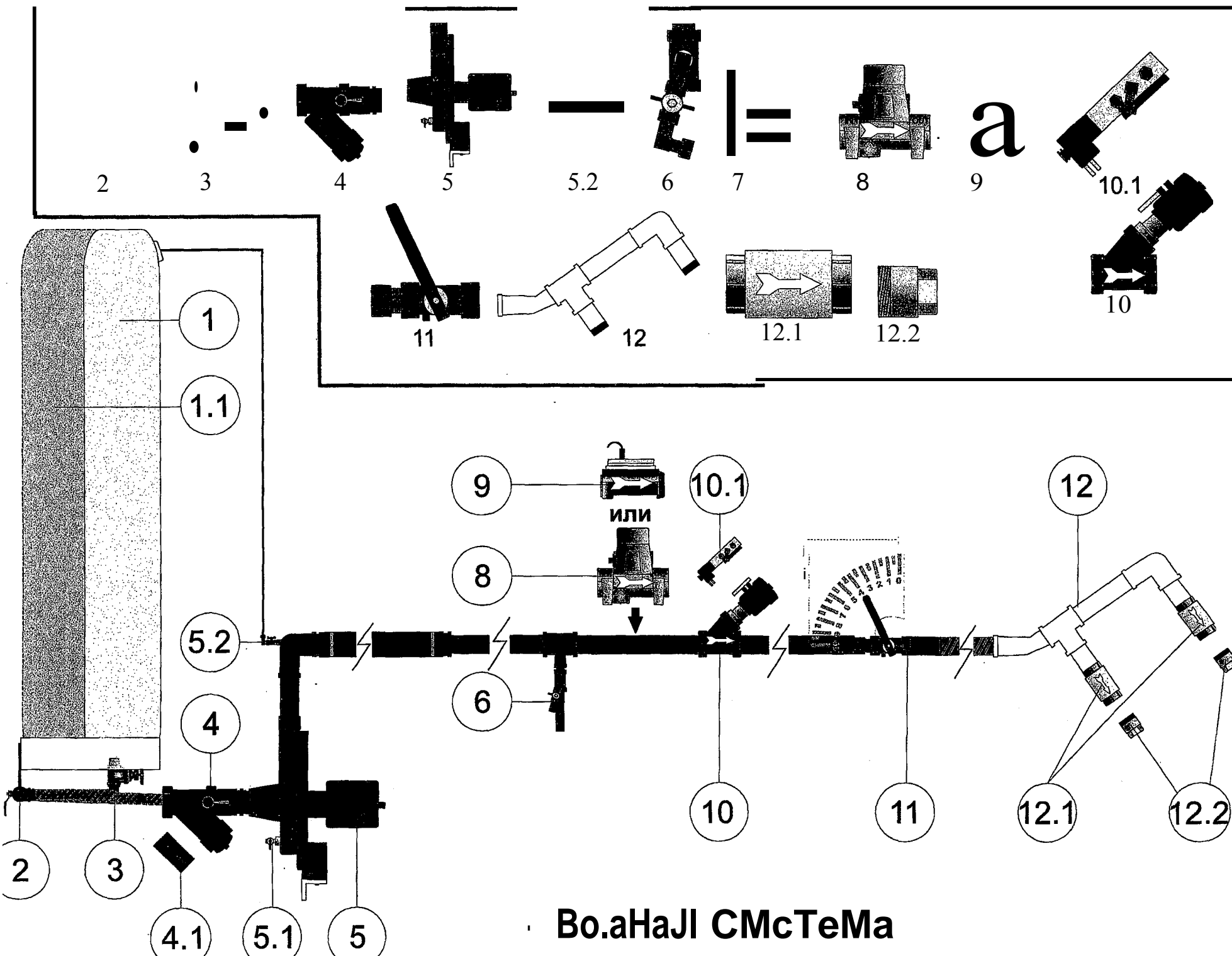
Water Pump



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.





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 turn 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 too 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 build up. 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**

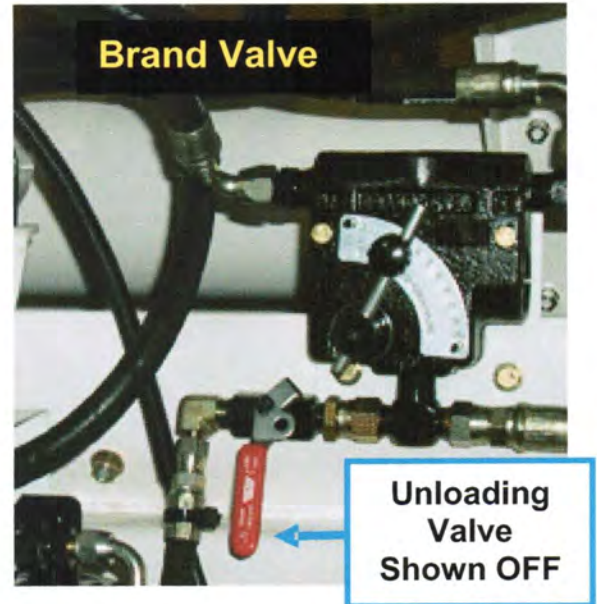
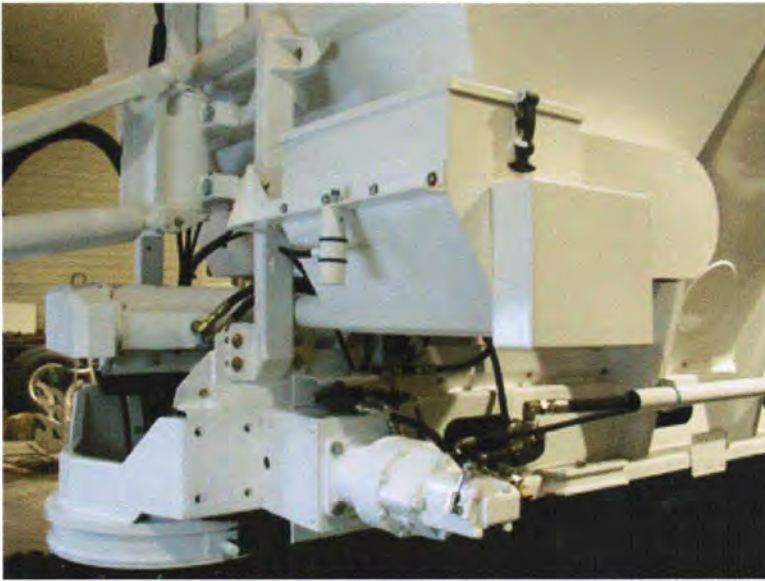
Optional Color Feeder

Description:

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

Features:

- 1.7 ft³ 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.

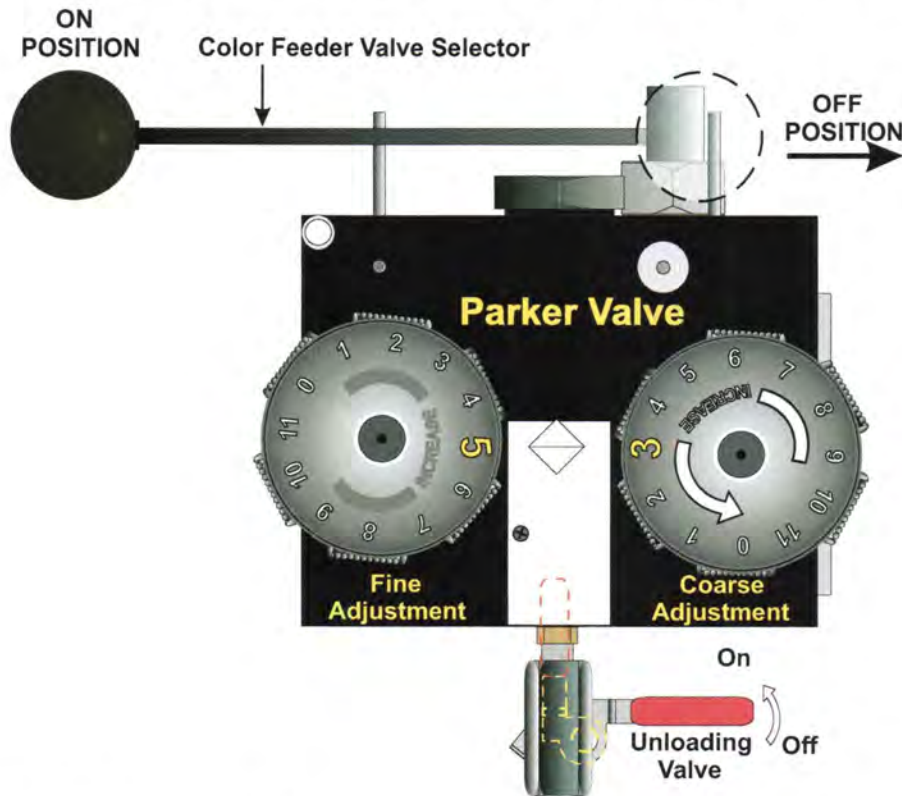
Unloading the Color Feeder Hopper

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 **#5** 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 / yd³ or kg / m³ 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.

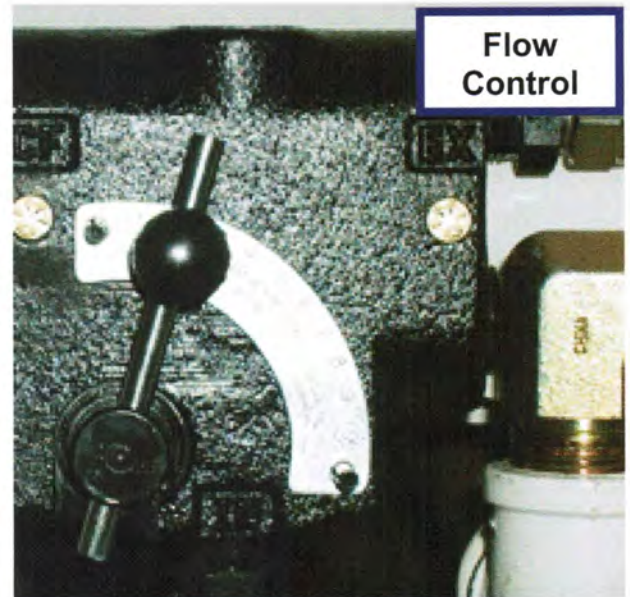
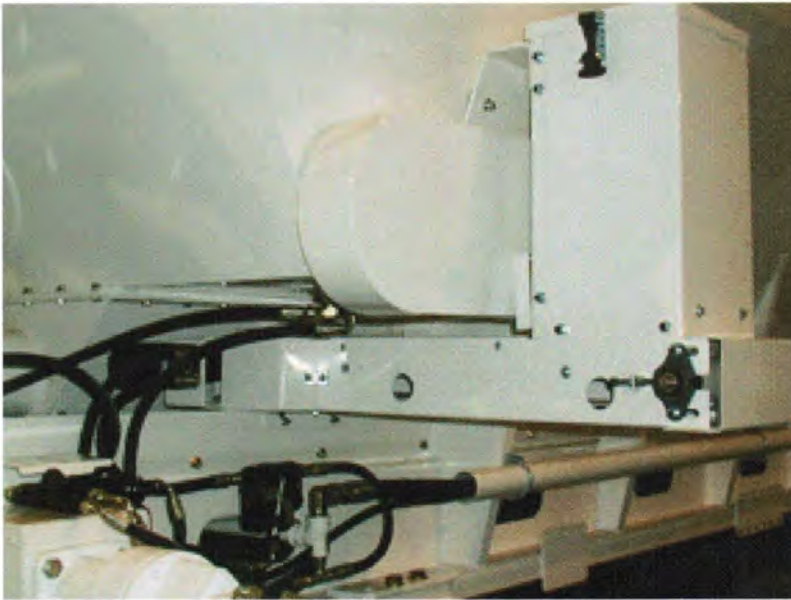
Optional Hawkridge Fibre Feeder

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 directly 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 will help 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 15 meters poured
2 Bottom auger seals	Grease	Every 15 meters poured
Top auger bearing	Grease	Every 25 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 (<i>See page 23</i>)	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 (<i>in tank</i>)	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 scorch 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 at 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

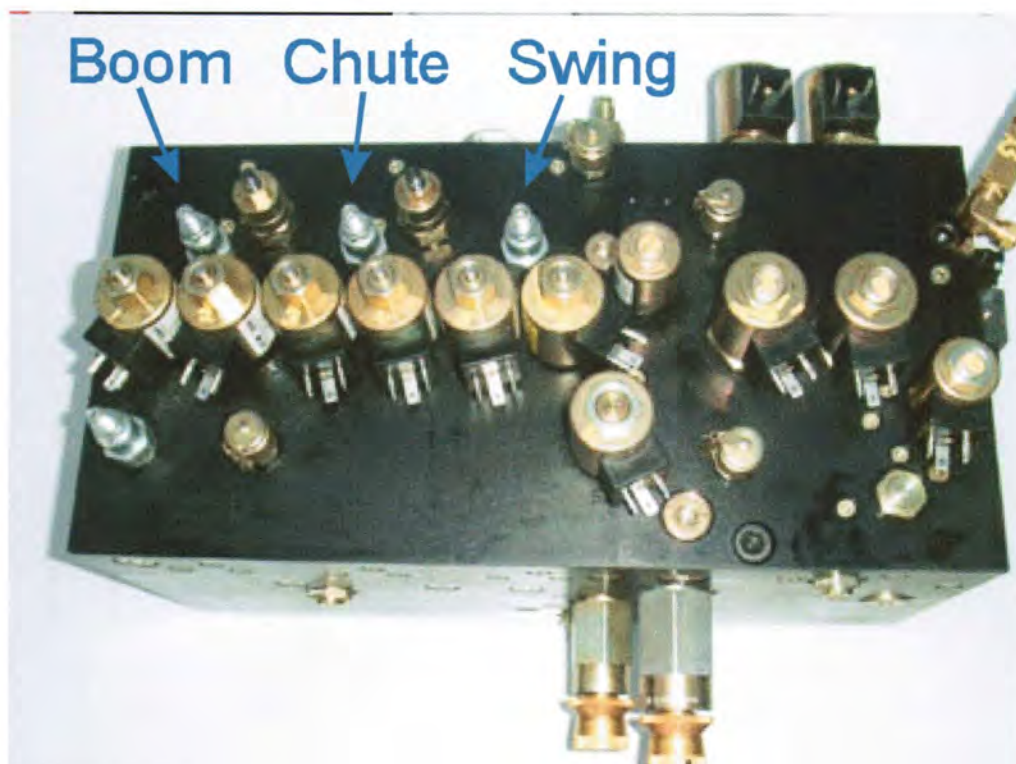
- 1. Conveyor chain:-** The take-ups on the front shaft of the conveyor must be adjusted to provide for proper tension on the conveyor chain. Proper adjustment is attained when the chain rollers are held about 1/8 " above the ends (front or back) of the chain return support bars. Be sure to check both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

Adjustments cont'd

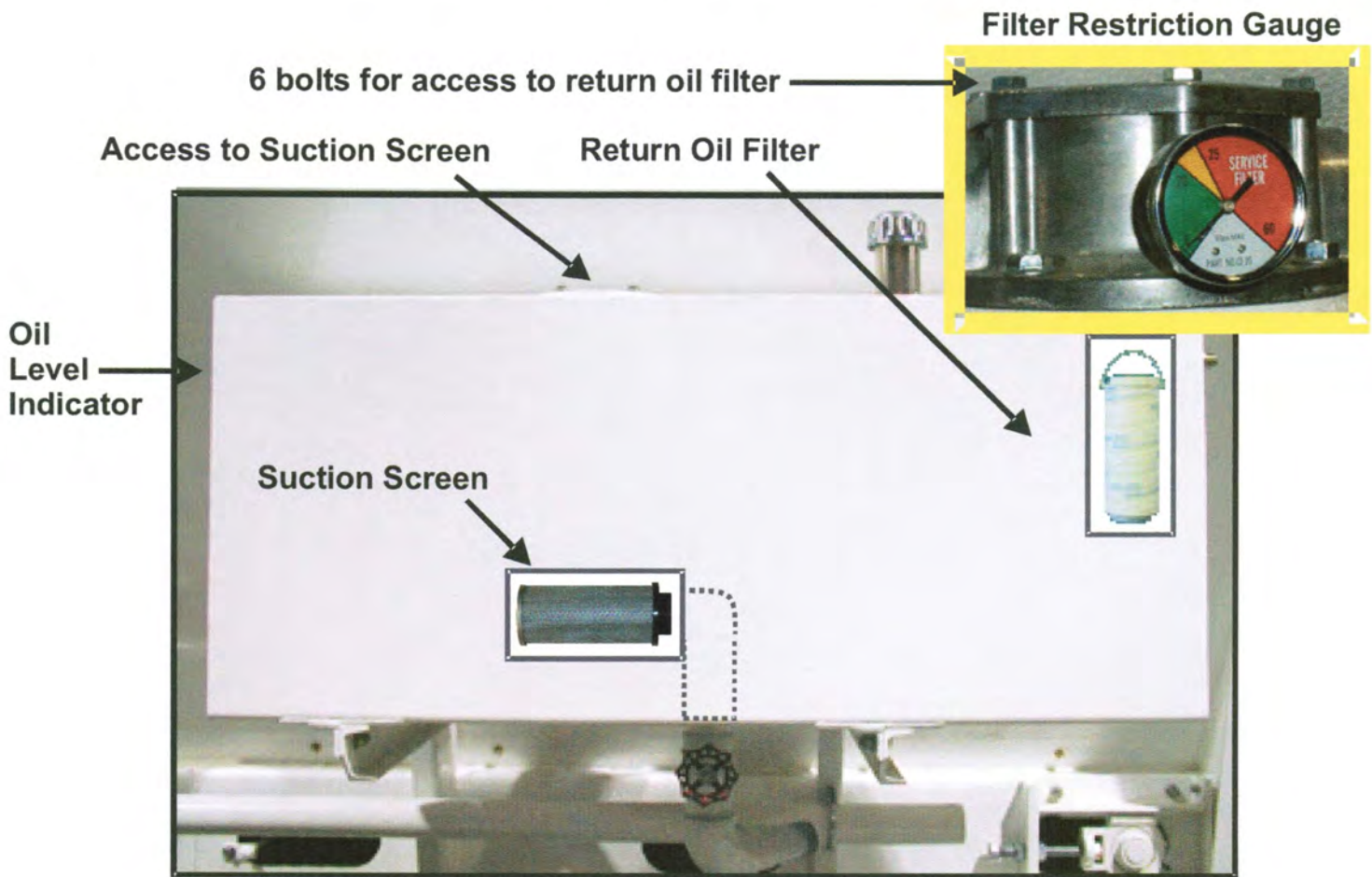
CAUTION:

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 necessary, 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 or 12 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 gauge 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 gauge 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 J1165. This code allows a maximum of 2,500 particles per milliliter greater than 5 μm and a maximum of 80 particles per milliliter greater than 15 μm . When components with different cleanliness requirements are used in the same system, the cleanest standard should be applied.

Hydraulic System

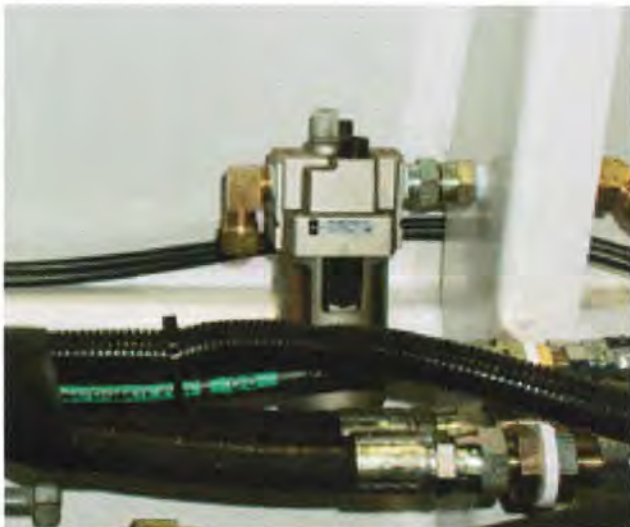
Your Reimer Mobile Mixer has been filled with Petro Canada **HYDREX*^{xv}** to give you best all season performance, plus longer lasting protection against wear.

HYDREX*^{xv} 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 10 - 39 cSt [60-180 SUS], at normal operating temperatures. Viscosity should never fall below 6 cSt [45 SUS]. At the lowest expected start-up temperature, the viscosity, with a non-charge system, should not exceed 432 cSt [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 Electrical failure	Locate and ensure that the cab master switch is turned on. 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 Water tank is empty Water pump has lost it's prime Water Suction Screen Plugged (<i>Page 11</i>)	Check water pump activation switch on rear panel. Fill 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. Remove and clean or replace
Digital meter not counting	Proximity sensor has come out of adjustment Sensor Damaged	Light on top of sensor will flash when bolt head passes by if properly adjusted. Adjust to within 1/16" of sprocket. 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 Restriction in water supply line Air in water causing pump cavitation. Over adjustment of slump control valve. Engine speed too low	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. Remove Y-strainer plug and screen. Check for contamination and clean if necessary. Check blow down air valve if so equipped. Valve must be fully closed. 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. 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 flow properly. Check control gate opening for restriction.

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 yd³ of concrete** as needed in your mix design.

Count Formula:

Mix design requirements: lbs. of cement per yd³ ____ divided by **cement output per count** (from step 1) ____ = **counts required per yd³** ____.

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 yd³ of concrete.

Divide the weight of stone per yard needed by the number of **counts per yd³ required** (from Step 2).

Stone Formula:

Mix design requirement lbs. of stone per yd³ _____ divided by **counts per yd³** (from step 2). _____ = **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 and re-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 yd³ _____ divided by **counts per yd³**
(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 yd³ _____

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	M ³	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 batching 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. 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

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 H2O 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 **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. 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 – L/Minute 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 AddMix System

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



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

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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(H2O), current water flow meter reading(H2O) 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



SCRIN – 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



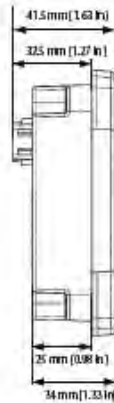
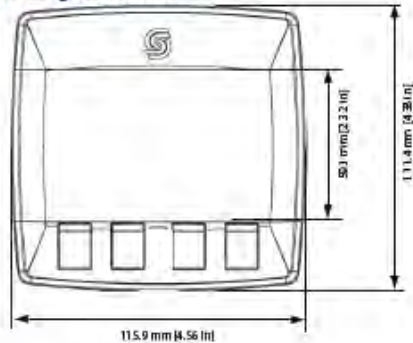
SET TIME AND DATE



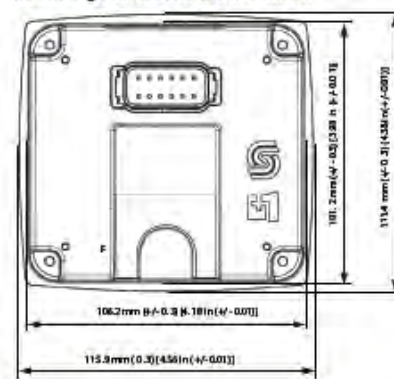
V. DP200 I/O

DP200 Series
Graphical Terminal

Housing Dimensions



Mounting Panel Cutout Dimensions



DP200 Series Model Code

A Model Name

DP200	Graphical Display, P 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

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

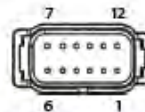
00	None
04	4 MB

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, 512 MB on board
FRAM	16 KB
Power Supply	9-63 Vdc/6.5 Watts
Connector	Deutsch DTN-12
Type	LCD with 32 grayscale levels
Resolution	160 x 240 pixels
Viewable Area	80 mm x 55 mm (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	250 g (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

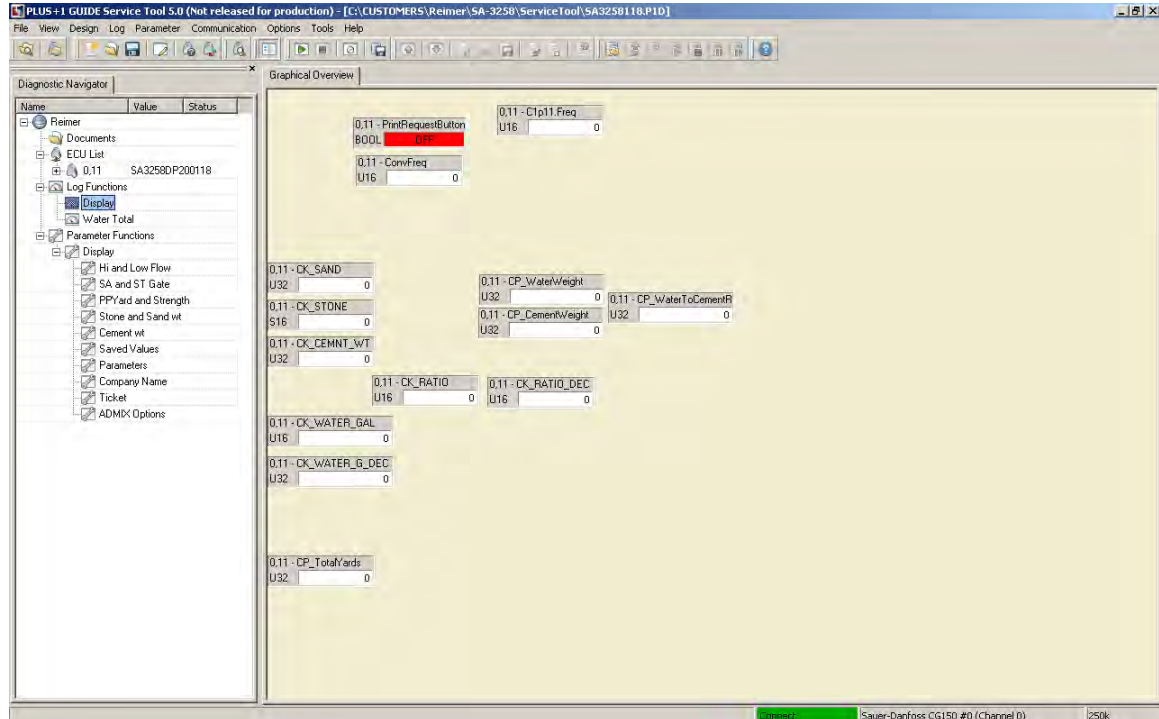
DP200 Series pin assignments

		Code B 00	Code B 01	Code B 04
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	CAN 1-
10	DIN/AIN-FREQ IN/ CURRENT IN			
11	DIN/AIN-FREQ IN/ CURRENT IN			
12	DO OUT (0.5A)			

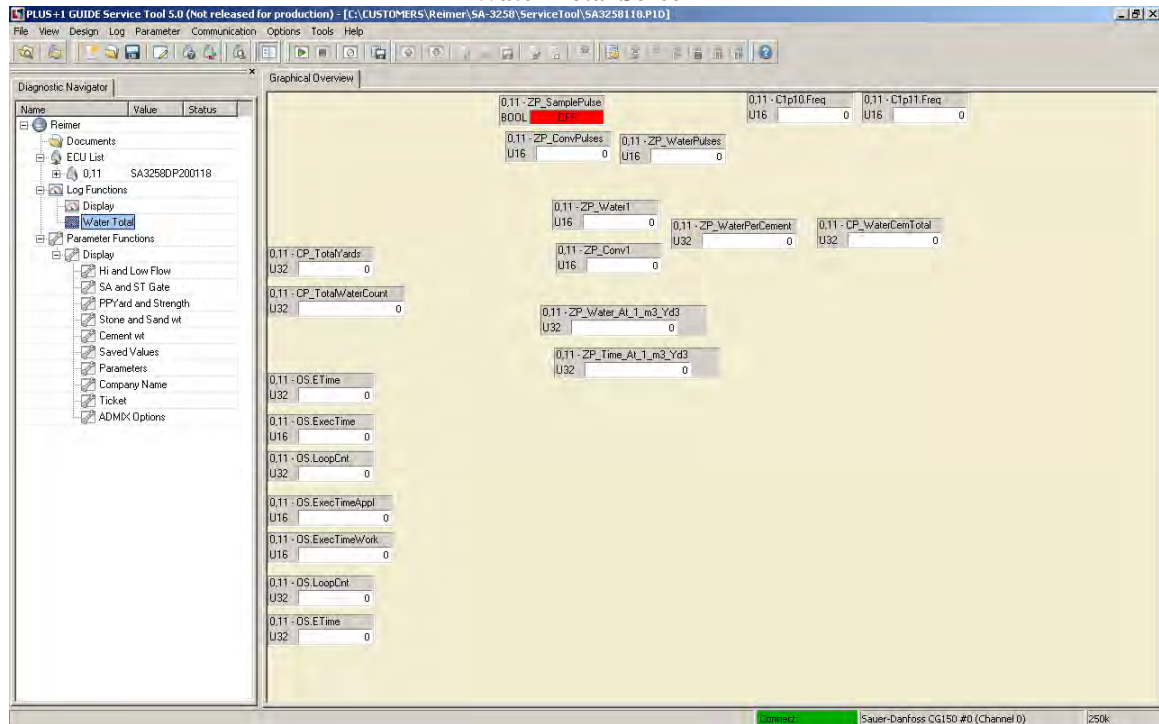
Comprehensive technical information: DP2XX Series Graphical Terminals Technical Information, 11023625
Sauer-Danfoss product literature is online at www.sauer-danfoss.com

VI. Service Tool

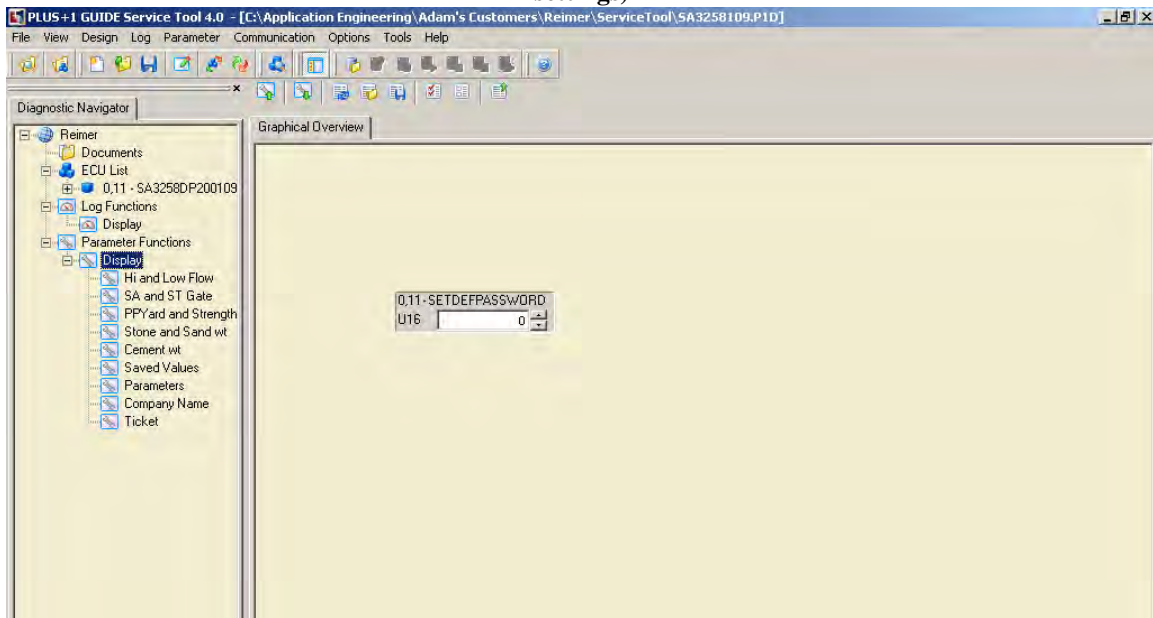
Main Screen



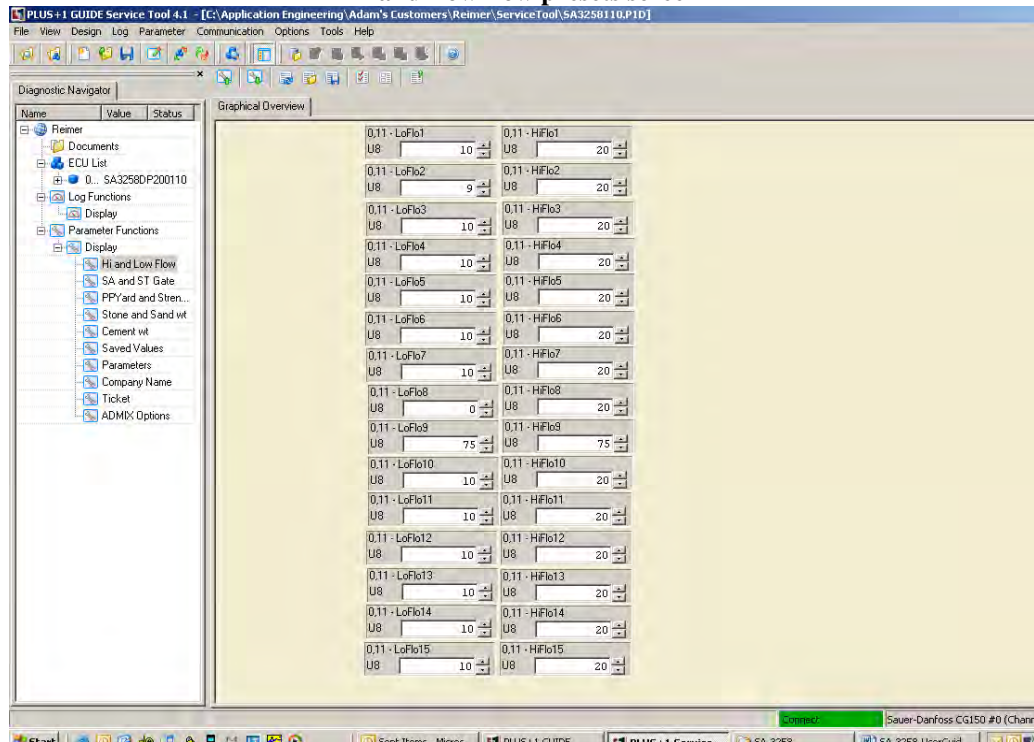
Water Total Screen



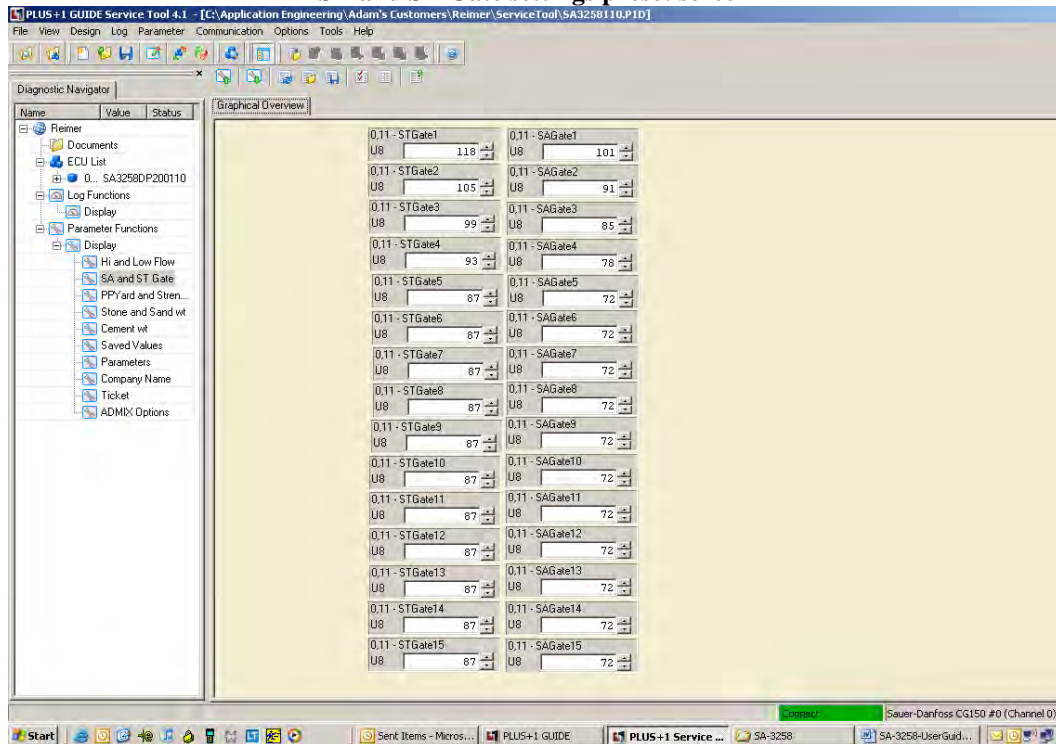
Set Defaults Screen
(If correct password is entered, all parameters go back to preset settings)



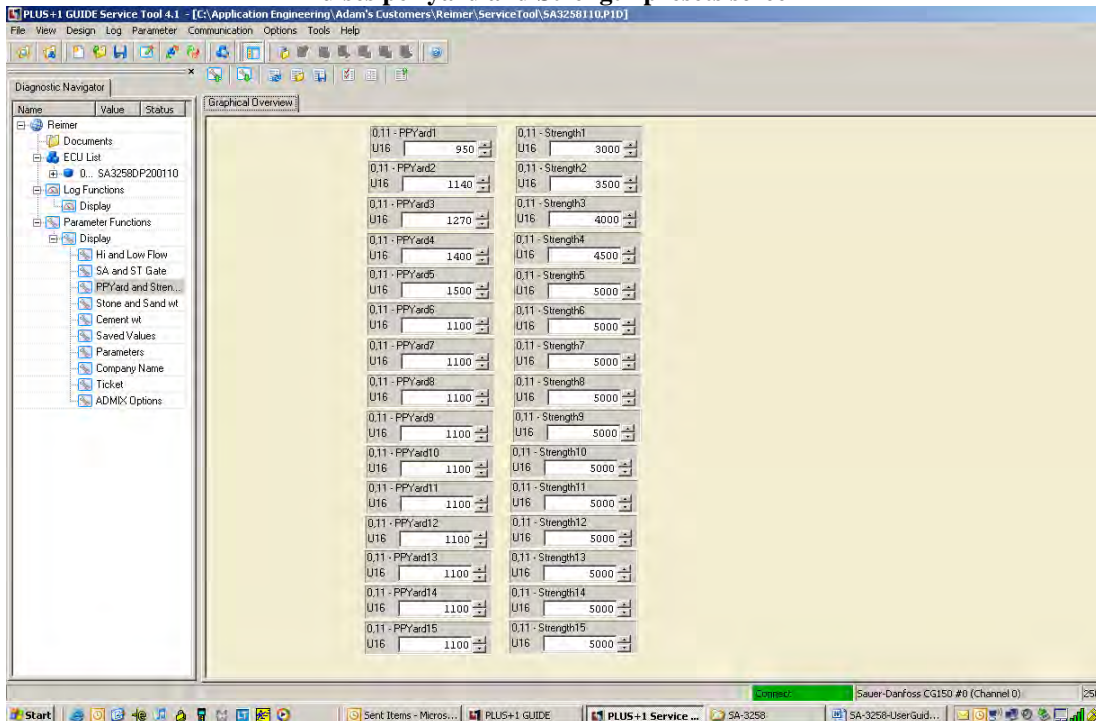
Hi and Low flow presets screen



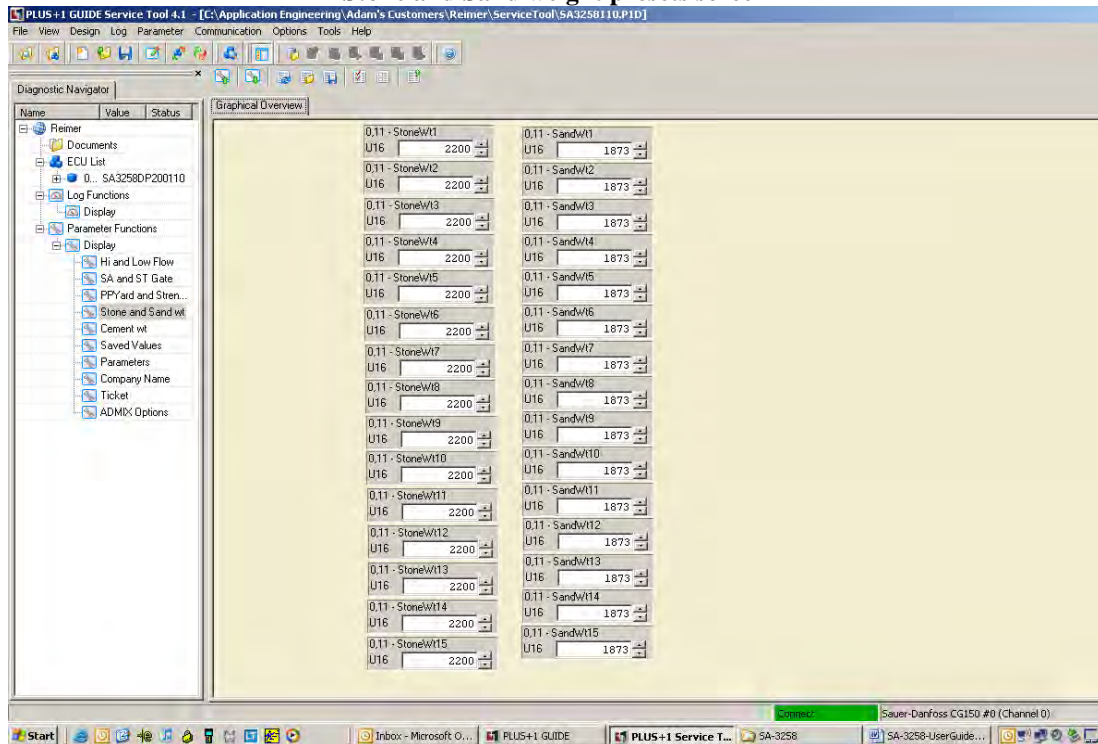
SA and ST Gate settings preset screen



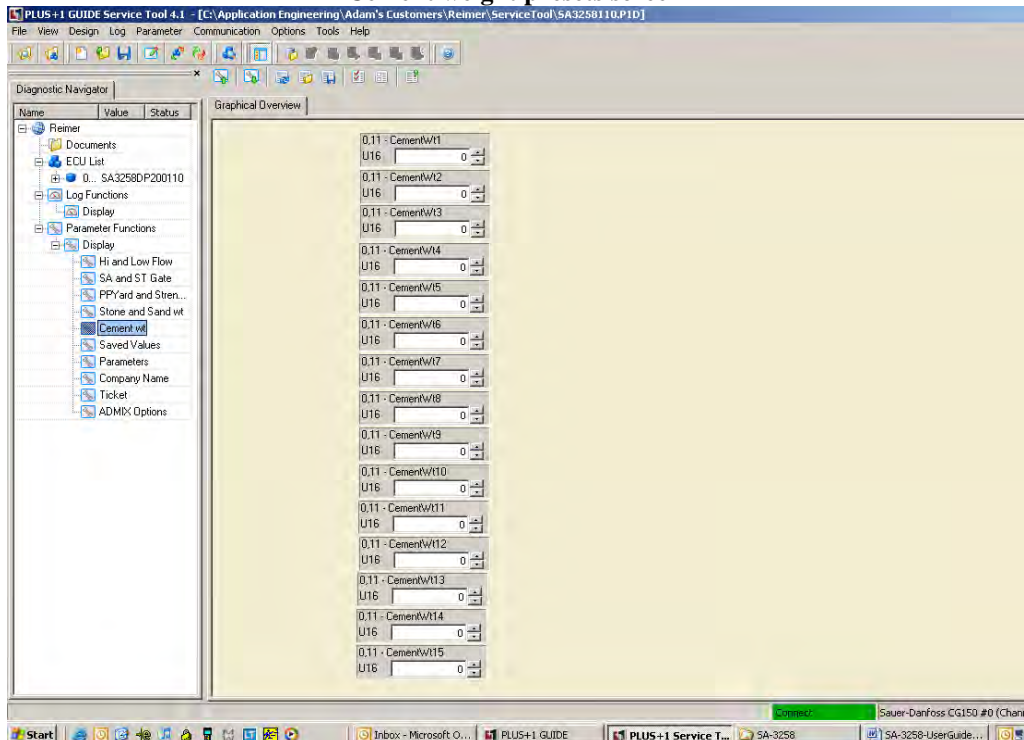
Pulses per yard and Strength presets screen



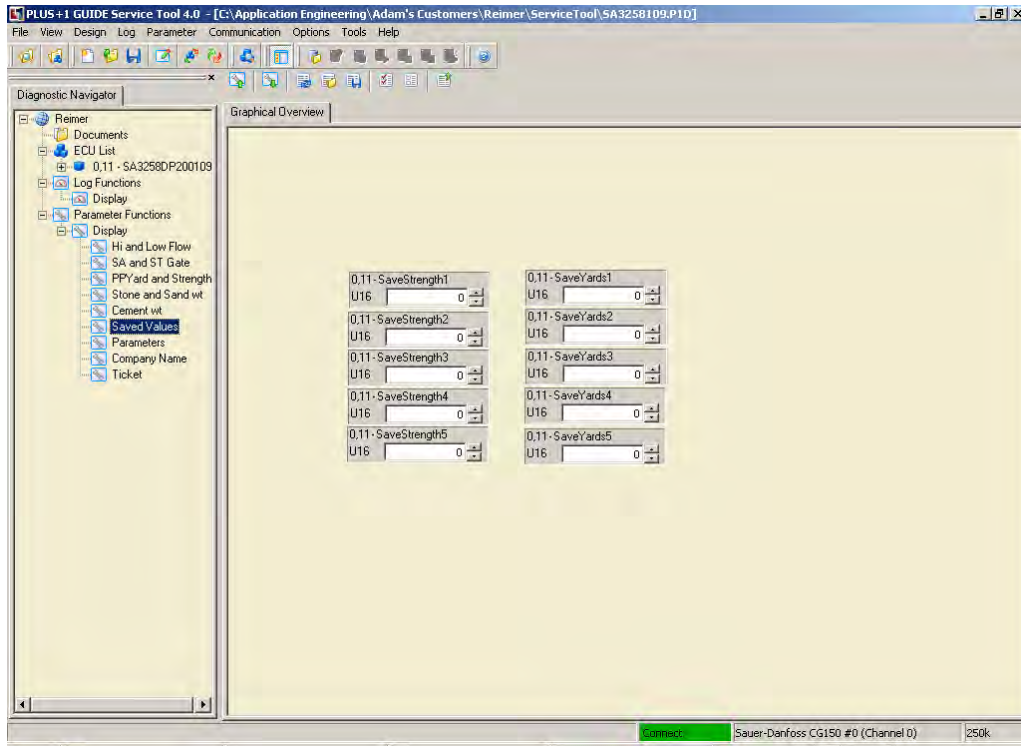
Stone and Sand weight presets screen



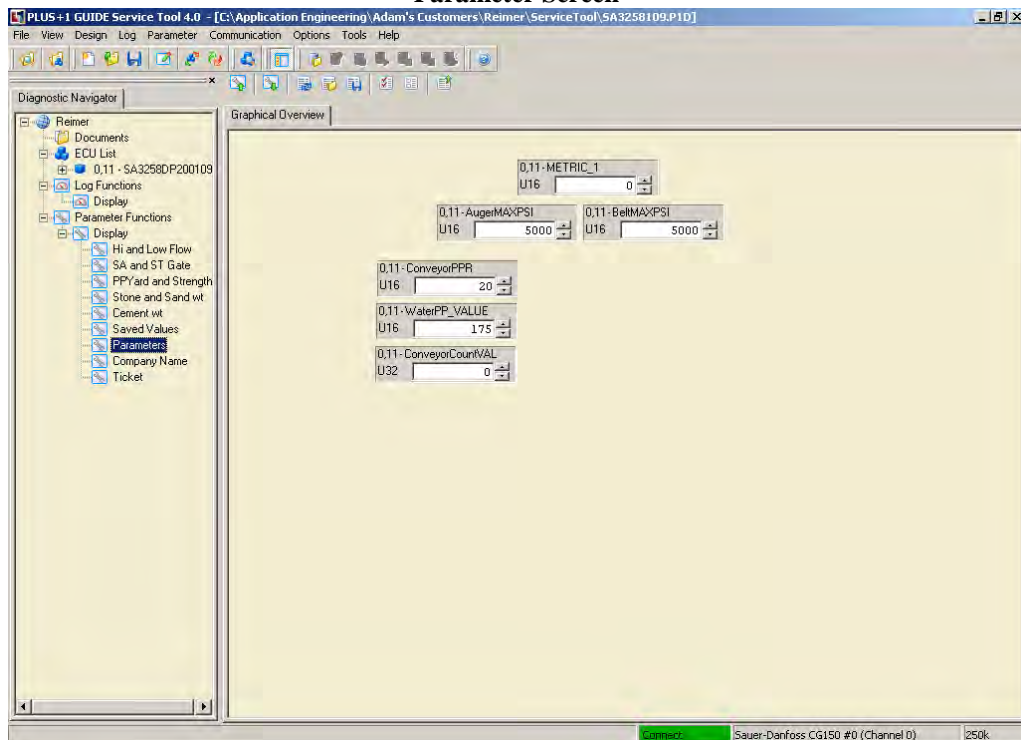
Cement weight presets screen



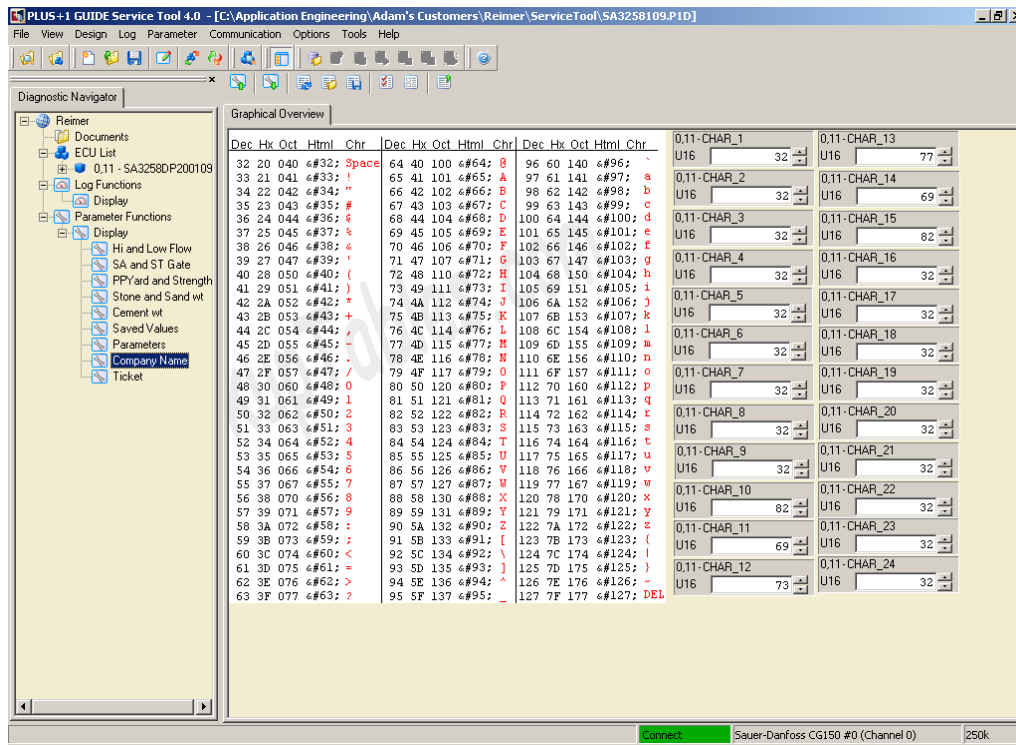
Last 5 saved values screen



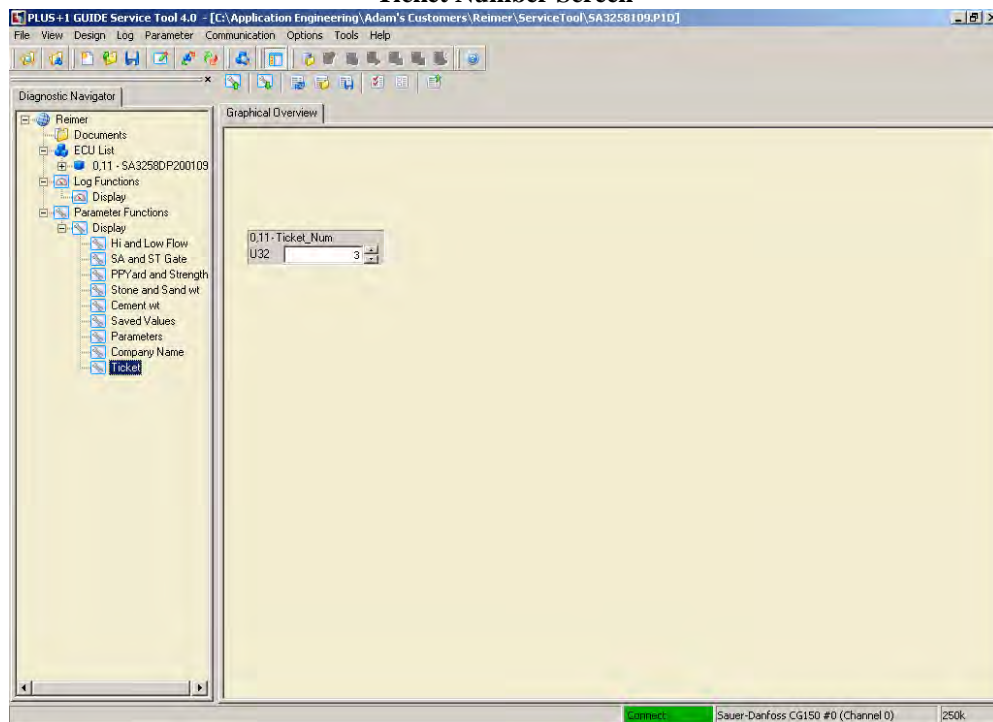
Parameter Screen



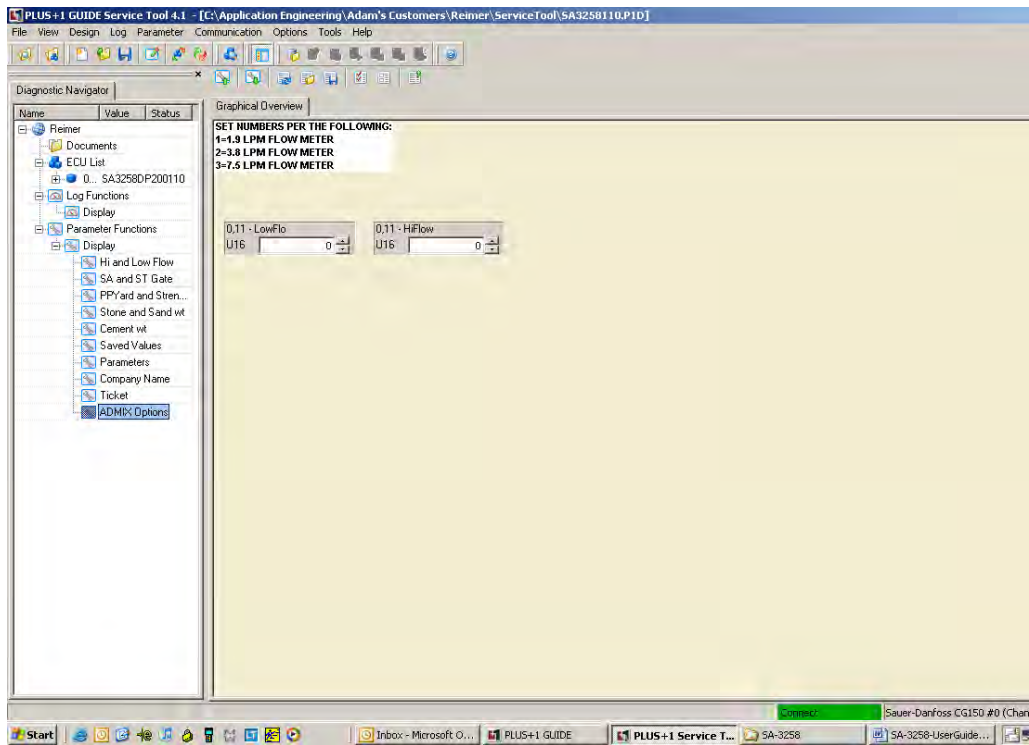
Company Name Screen



Ticket Number Screen



AdMix Meter Options Screen





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

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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

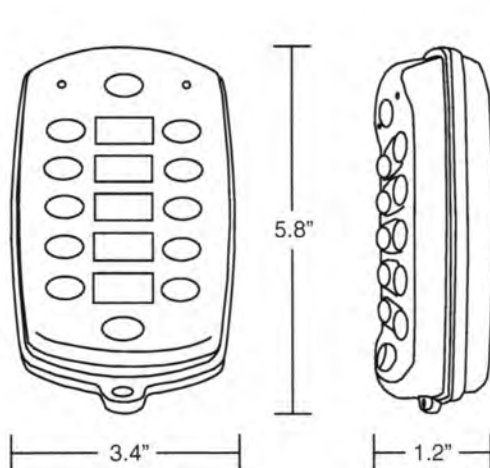
Factory configurable for all custom applications.



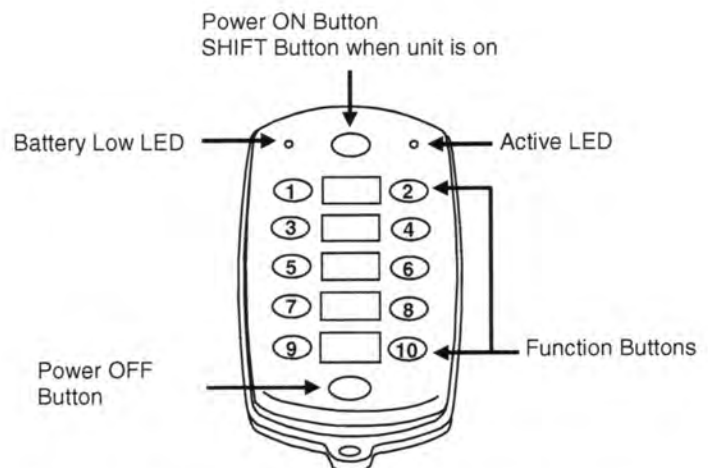
R160 Receiver

T110C Transmitter

T110C Dimensions and Controls



DM-R160-0405A (Rev 3)

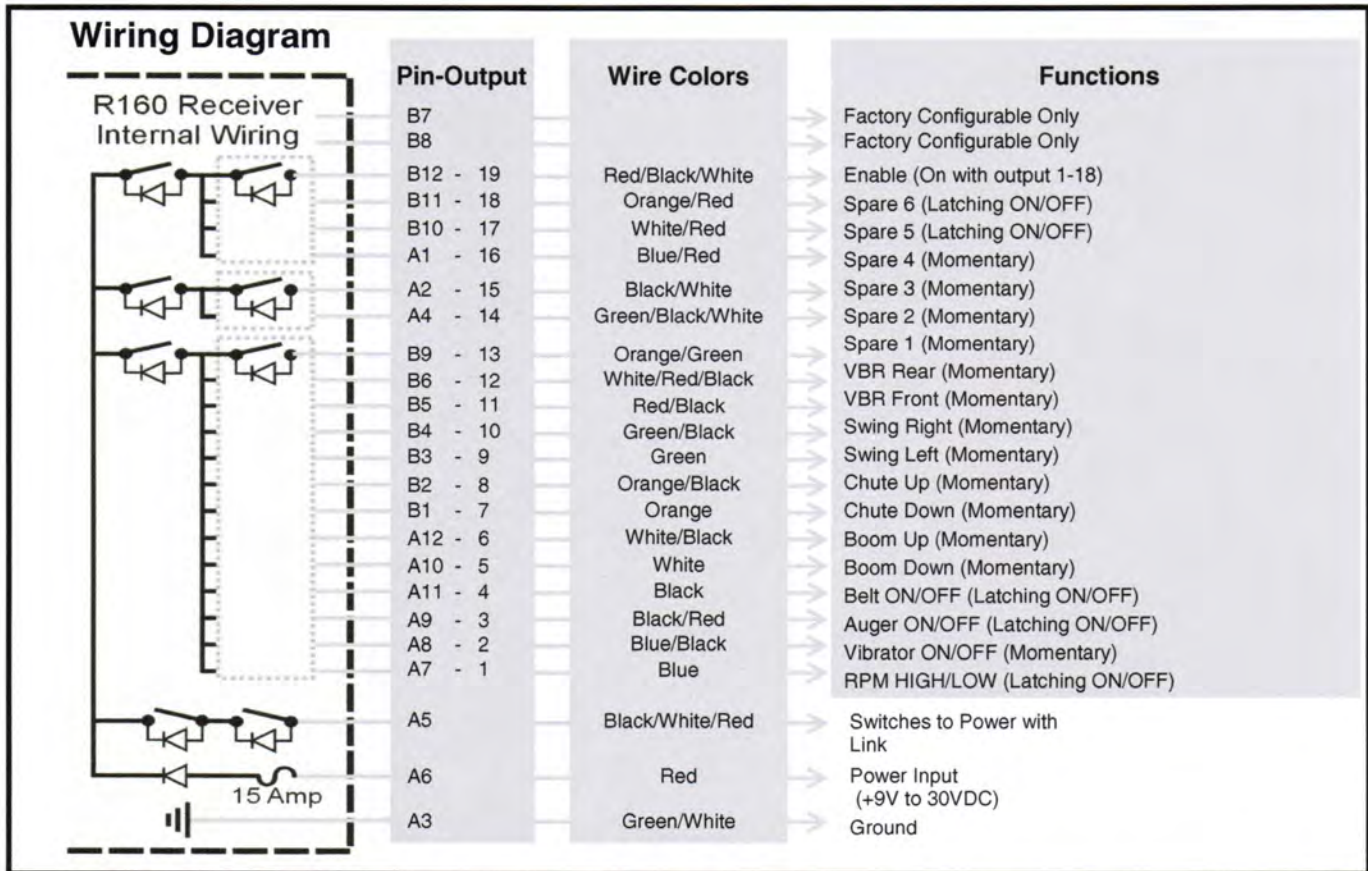


www.omnexcontrols.com

call toll free: 1-800-663-8806

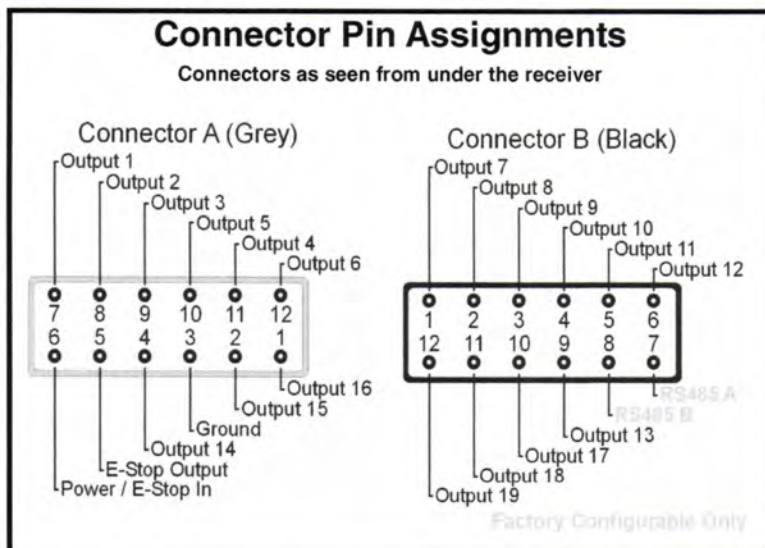
Installing the Receiver

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**.



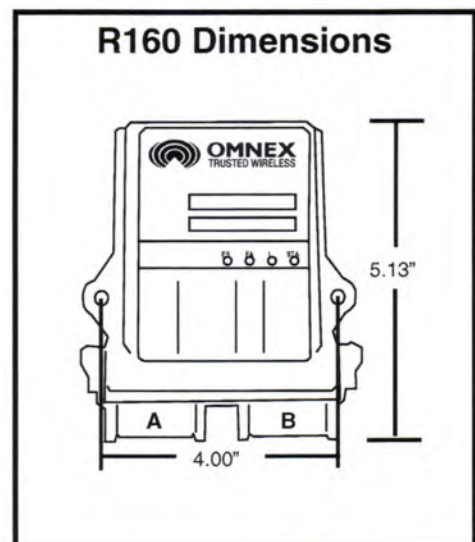
Outputs: 19 solid state, high-side driver outputs, 5A max. per pin and 7A max per bank, total combined current 15A

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



DM-R160-0405A (Rev 3)

www.omnexuscontrols.com



call toll free: 1-800-663-8806

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)

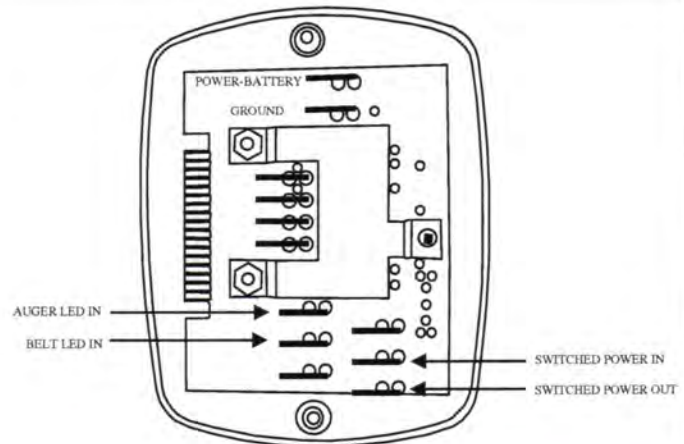
GROUND: Negative Supply, Ground

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.

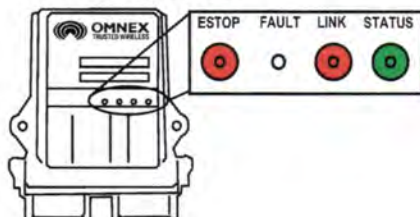
To turn off the transmitter, press the Power [OFF] button.

Test the Transmitter / Receiver Link

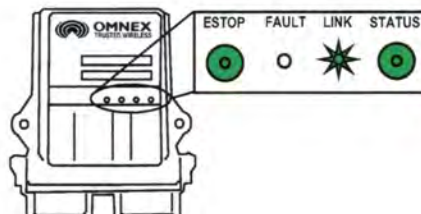
Follow these steps to ensure that there is a radio link between the transmitter and receiver.

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)

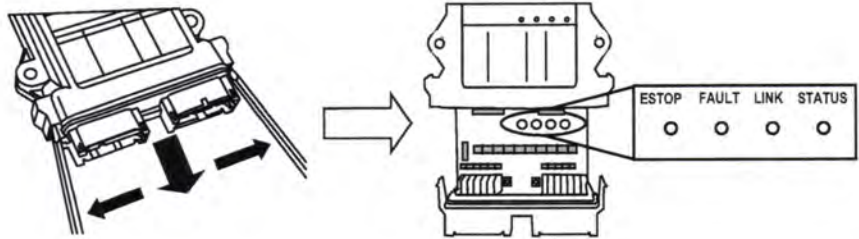
Follow these steps to download the transmitter's unique ID Code into the receiver. This will allow the receiver to establish a radio link with a specific transmitter. Refer to **Troubleshooting Chart #4** for Tips and Considerations

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

1. Opening the R160 Case

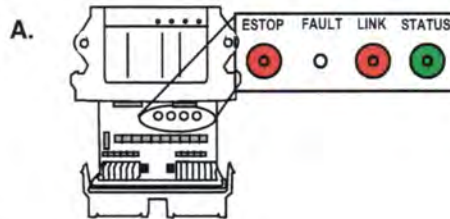
The cap is held on by two plastic tabs at opposing sides, which can be unlatched as shown using a screwdriver. Once the cap is free, the R160 can slide open.

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



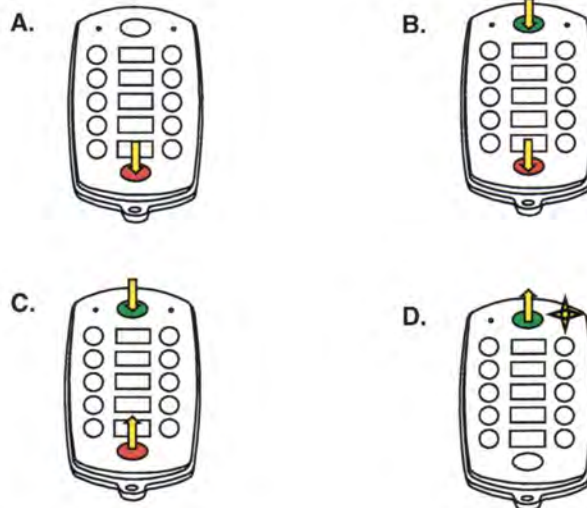
2. Power R160

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



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



Light Legend

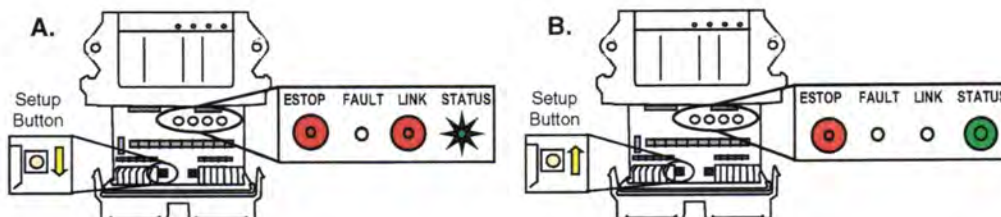
Solid		Slow Flash		Fast Flash		Red Light		Green Light		Yellow Light		Alternating Red & Green Light	
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Download ID Code (Use in case of Link Test failure)

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

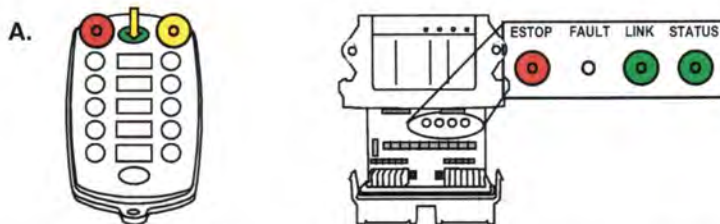


NOTE: If left idle in Setup Mode for over 30 seconds, the receiver will time out. The (Link) light and (Status) light will flash RED rapidly. To return to Setup Mode, repeat step 4.

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.

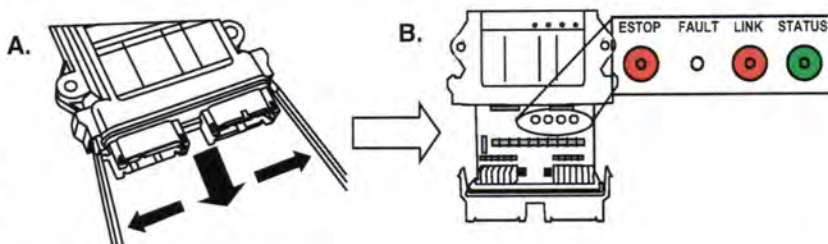
Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

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.

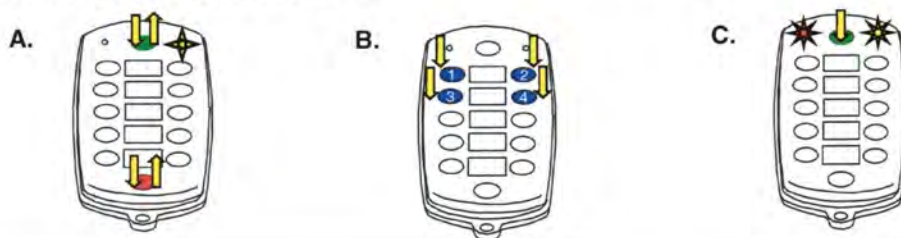
1. Opening the R160 Case and Power R160

- 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.
- 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-

- Power T110C into configuration mode by following Step #3 from **Download ID Code**
- Press function buttons in order 3, 1, 4, 2
- Press Power [ON] button



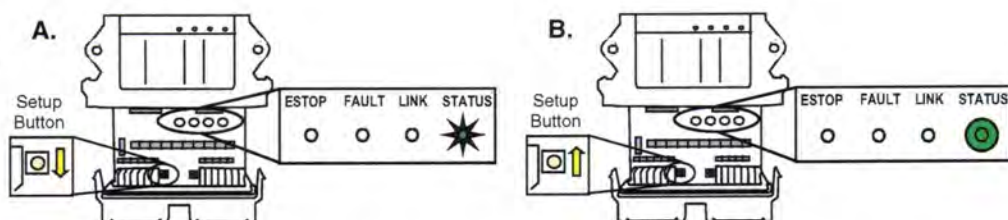
3. Enter Start Up and Shut Down Code

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

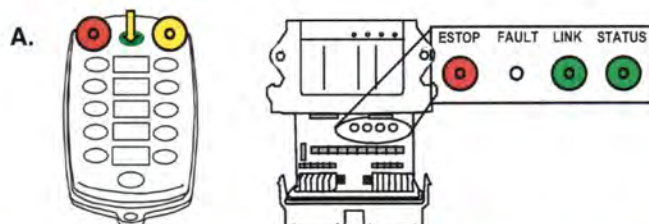
- Press & hold [Setup] button until (Status) light goes from slow flash to fast flash
- Release [Setup] button. (Status) light goes to solid GREEN, (Link) light turns off



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

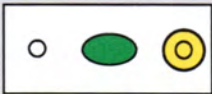




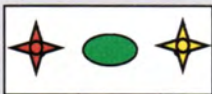
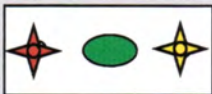
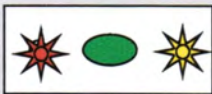

- Press Power [ON] button to send code



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 
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Diagnostics - R160 Receiver

Normal Operation

	<p>Transmitter is OFF</p> <p>If the transmitter is off, the receiver is operating properly.</p>
	<p>Transmitter is ON</p> <p>When the transmitter is turned on, the Link light (fast flashing) and E-Stop (GREEN) indicates the receiver is operating properly</p>
	<p>Transmitter is in Operation</p> <p>When a function is activated on the transmitter, the Fault light will turn on GREEN. This indicates the receiver is operating properly</p>
	<p>Transmitter is OFF</p> <p>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.</p>

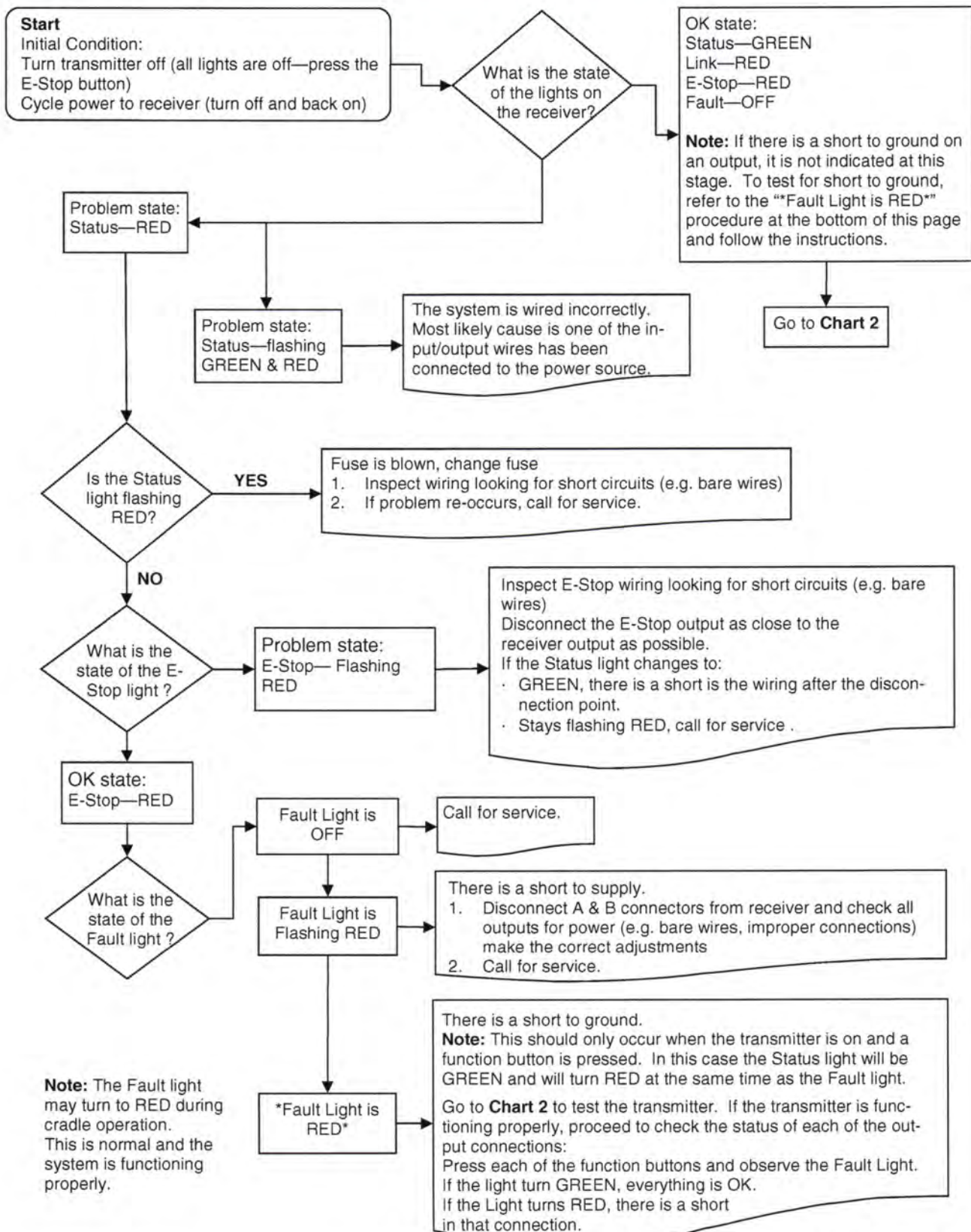
Trouble Indicators

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.

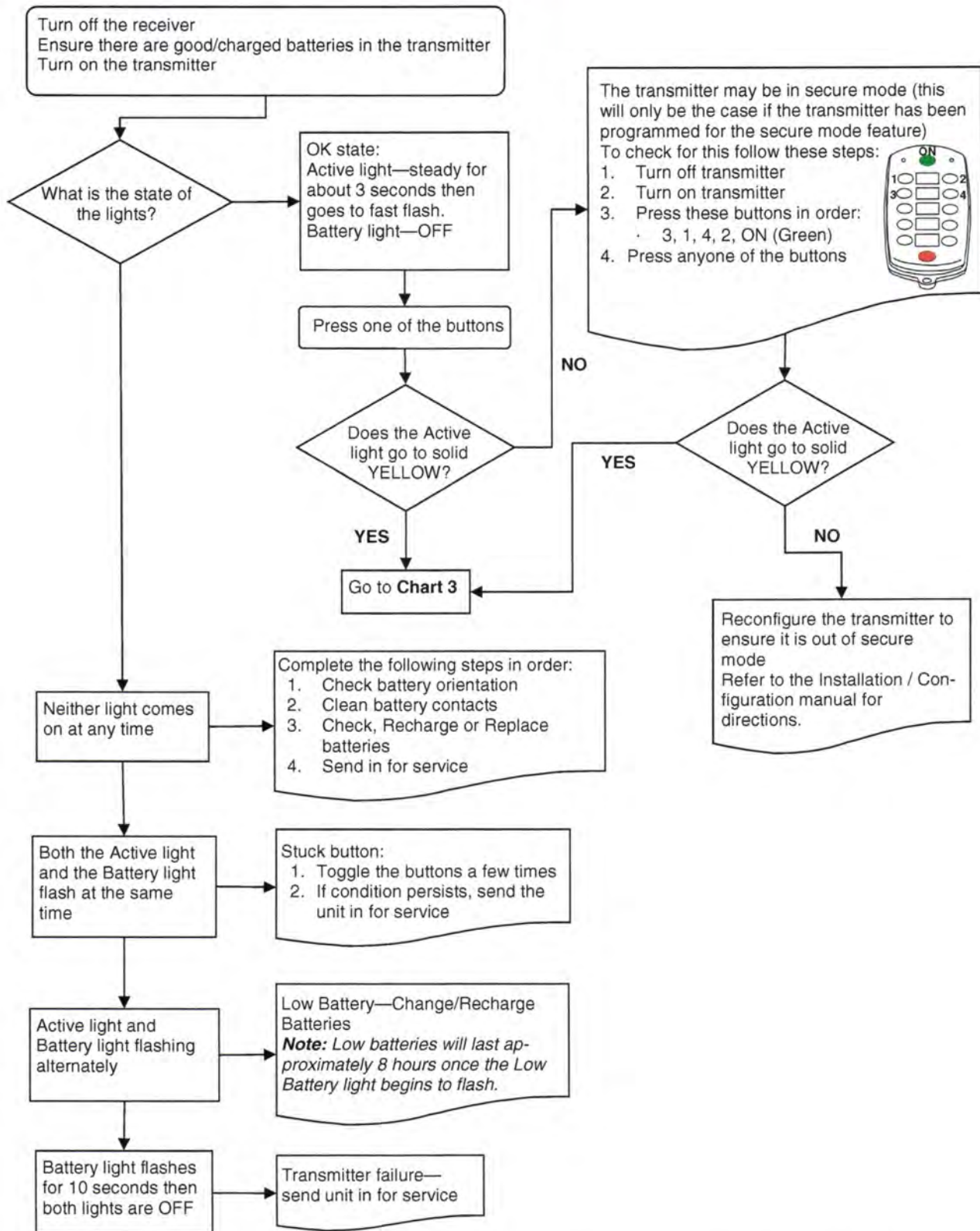
Indicator Lights	Description	Solution
	<p>Transmitter is ON</p> <p>The reason is the transmitter is not communicating with the receiver.</p>	Refer to Troubleshooting Chart #3 for solutions
	<p>Transmitter is ON</p> <p>A low battery condition has been detected.</p>	To detect intermittent conditions caused by poor or corroded ground or power circuits, the GREEN light will continue to flash for 30 seconds after the condition has been removed.
	<p>Transmitter is ON</p> <p>An internal fault with the E-Stop has been detected.</p>	<p>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:</p> <ul style="list-style-type: none"> GREEN, a short occurs after disconnection point. Stays flashing RED, send it in for service .
	<p>Transmitter is ON</p> <p>A short to ground or excessive current draw on an output. It is most likely caused by a wiring fault.</p>	<p>Ensure transmitter is functioning properly, check status of each output connection: Press each function button and observe Fault Light.</p> <ul style="list-style-type: none"> If GREEN, everything is OK. If RED, there is a short in that connection.
	<p>Transmitter is ON</p> <p>The E-Stop output has been connected with one of the other outputs</p>	Follow the wire and check for connections with other wires, disconnect to see if condition clears. If not, call for service.
	<p>Transmitter is OFF</p> <p>A wiring short to the battery has been detected.</p>	Refer to Troubleshooting Chart #1 for solutions
	<p>Transmitter is OFF</p> <p>The receiver has detected an internal fault.</p>	Refer to Troubleshooting Chart #1 for solutions
	<p>Transmitter is OFF</p> <p>Blown fuse detected.</p>	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.
	<p>Transmitter is ON</p> <p>A setup failure has occurred.</p>	Either hold the Setup button for 5 seconds to return to Setup mode or cycle power to return to the normal operating mode.
	<p>Transmitter is OFF</p> <p>The receiver is powered incorrectly.</p>	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

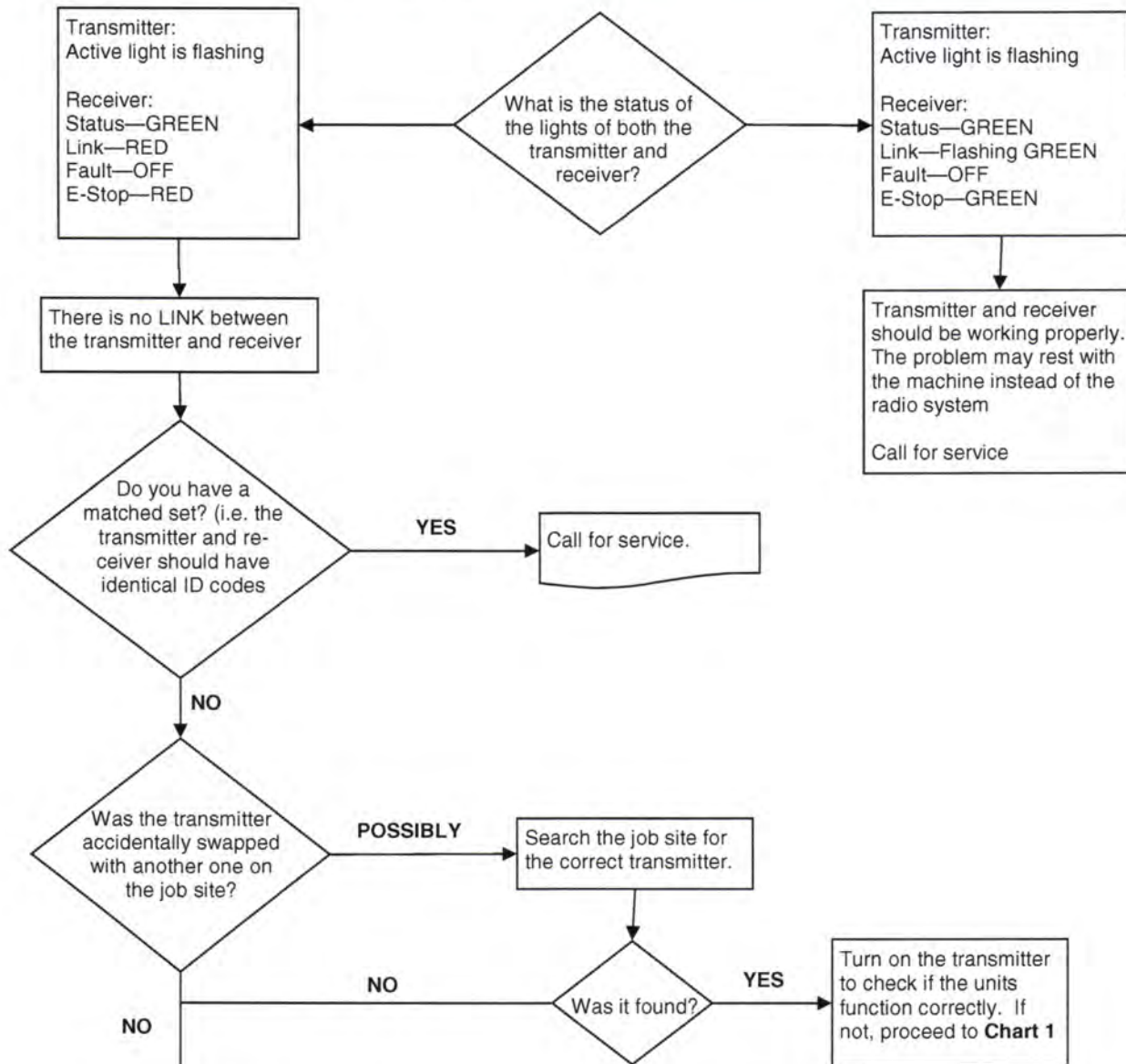
Test the Receiver—R160



Test the Transmitter—T110C



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.

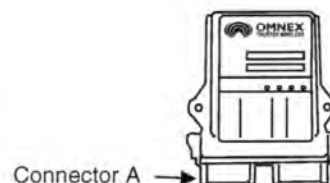
Possible Solutions

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!!

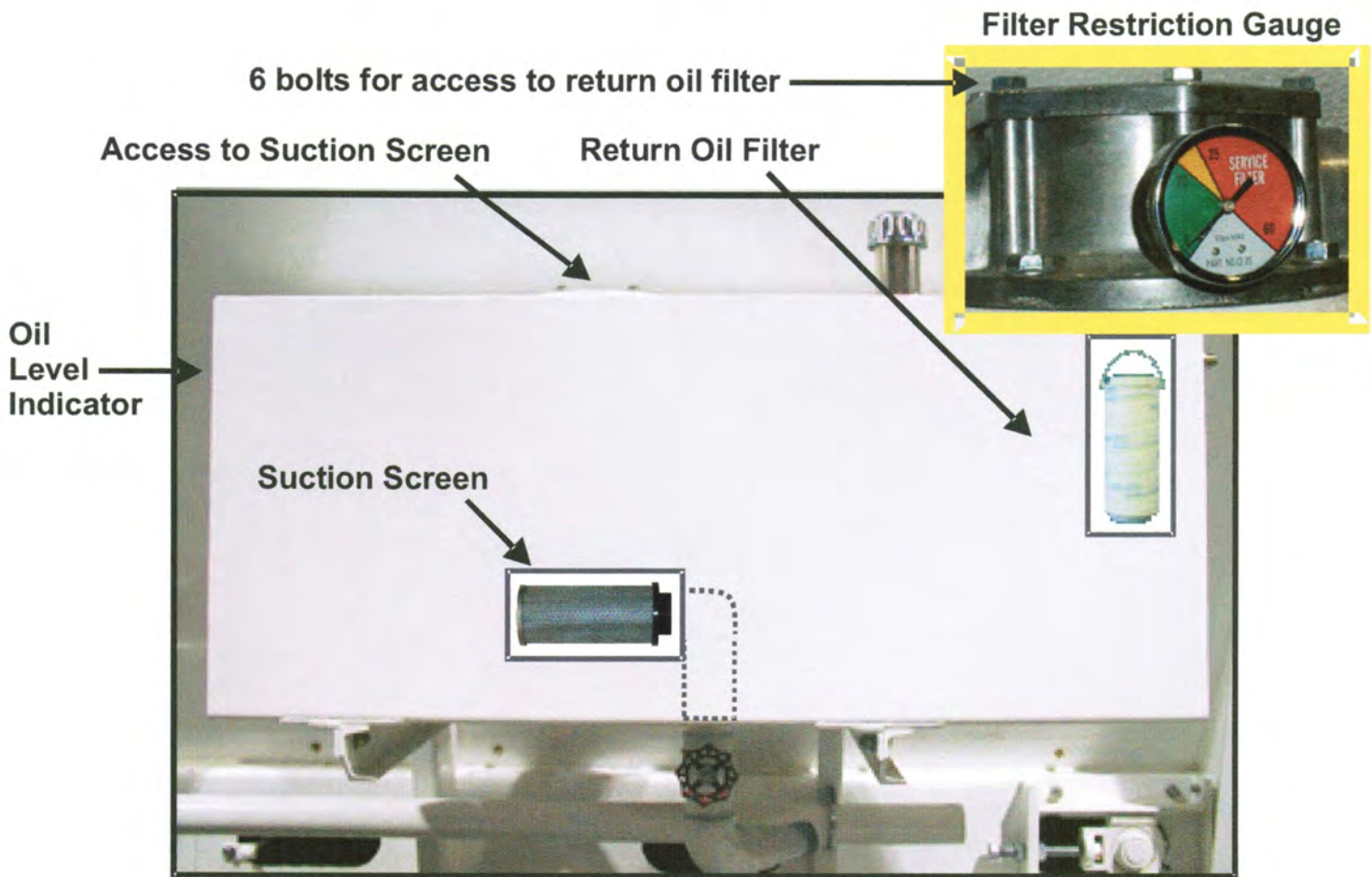
Note: Before attempting reprogramming with another transmitter, understand that reprogramming the receiver with another transmitter, could result in two receivers on the job site responding to the one transmitter. If the original transmitter was sent in for repair, disconnect the receiver (disconnect 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)

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.

CCDOCK™ for the T110C



The OMNEX CCDOCK™ is a new advanced charging accessory for the T110C transmitter. The CCDOCK™ is a reliable battery charging solution that offers:

- Elimination of battery contacts and associated contact problems
- Use of NiMH, NiCad or Alkaline batteries
- A 30 minute battery charge, providing enough power for 8 hours of use
- Continued transmitter operation from the CCDOCK™ at times when batteries are not available or have failed
- Convenient storage for the transmitter when it is not in use
- Vehicle battery protection (the CCDOCK™ will switch to low-power mode should the vehicle battery run below 12V)
- Optional alarm indicating when the transmitter is not in the CCDOCK™ & vehicle is set in motion
- Optional 3 foot cigarette lighter cord included



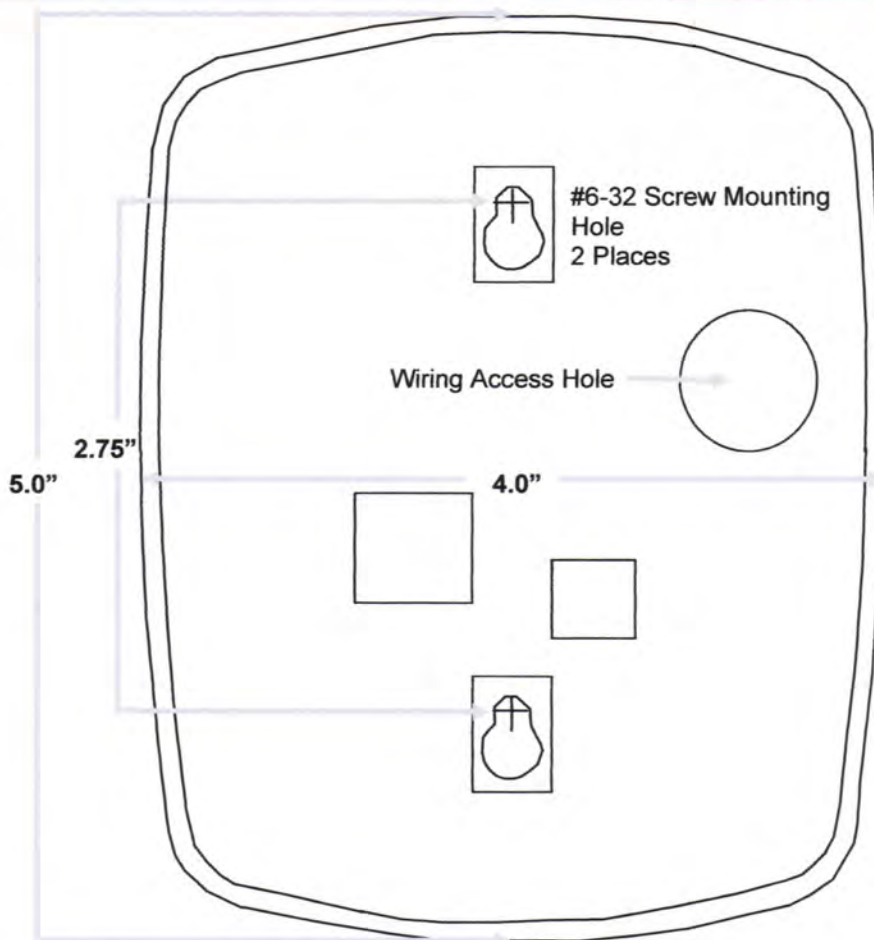
CCDOCK™ 110

Installing the CCDOCK™

1. Mount the CCDOCK™ in a convenient location that has access to battery and ground connections.
2. The mounting template here shows the location of the mounting and wire access holes. Remove the charger top from the base to get access to the mounting holes and electrical terminals inside the charger. The two Phillips screws in the front of the charger attach the charger top to the base.

NOTE: It is preferable to mount the CCDOCK™ in a location that is out of direct sunlight. Extreme heat will prevent proper charging capability and impact battery performance. If the temperature of the system passes +50° C (122° F) the CCDOCK™ will shift to Low Power mode and after +60° C (138° F) it will stop charging.

CCDOCK™ Mounting Template



Installing the CCDOCK™ (continued)

CCDOCK™ - Wiring Information

CHARGE: Supply 12-26VDC (fuse with 1.5 - 3 Amp)

GND: Negative Supply, Ground

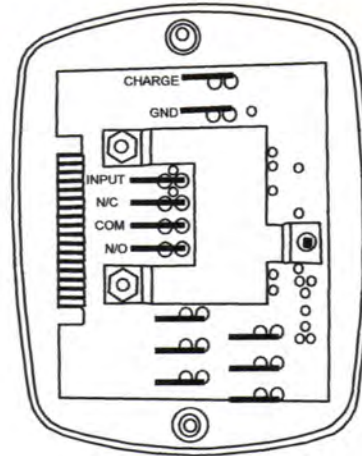
Transmitter missing alarm function (optional)

INPUT: Switch to supply when vehicle stationary (Typically 'Neutral' or 'Park' indicator). The relay will activate when this input is O/C or at ground and the transmitter is not in the cradle (5 second delay).

N/C: relay normally closed (max. current .5 Amp)

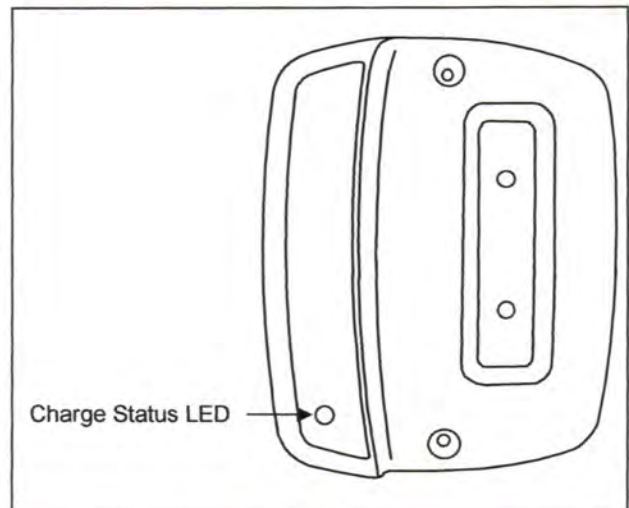
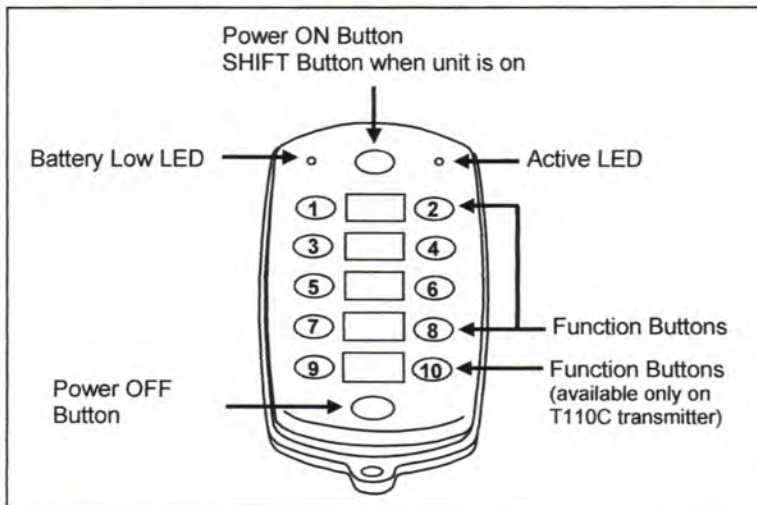
COM: relay common (max. current .5 Amp)

N/O: relay normally open (max. current .5 Amp)



3. Use standard 1/4" spade lug terminals on the end of the wires to make the connection. Once the CCDOCK™ base is mounted and the electrical connections are made, re-attach the charger top.
4. The unit is fused internally with an 1.2 Amp PTC fuse but it is recommended that a secondary 1.5—3 Amp fuse be installed in-line with the Power-Battery wire.

T110C Transmitter & CCDOCK™ Indicators - Controls



Installing & Charging the Batteries

1. Install Batteries

Remove the battery cover on the back of the transmitter using a slotted screwdriver and insert 4 "AA" Nickel Metal Hydride (NiMH) batteries. Orientation of the batteries is embossed inside the battery housing. (The CCDOCK™ can charge NiCad batteries or shut off if Alkalines are inserted)

NOTE: Prior to inserting the batteries into the remote, apply grease (provided packet - Dow Corning 111 Valve Lubricant & Sealant) to the battery contacts. 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.



T110C Battery Housing

Installing & Charging the Batteries (continued)

WARNING: Do not install batteries backwards, put in fire, or mix with other battery types. Batteries may explode or leak causing injury.

Replace all batteries at the same time as a complete set.

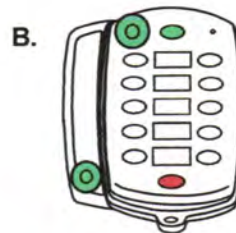
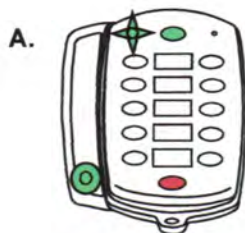
2. Charge Batteries

Place the transmitter on the CCDOCK™. The CCDOCK™ should detect the transmitter and start charging. The (Battery) light on the transmitter will slow flash GREEN. Fully charge the batteries for 8 hours or until the (Battery) light on the transmitter turns solid GREEN. The charging time may be longer in hot or cold temperature extremes. The (Status) light will be solid GREEN when charging.

NOTE: should the batteries need charging during a job, 15 minutes of charging will provide about 3-4 hours of operation, 1 hour of charging should provide approximately 12-16 hours of operation.

NOTE: that fully charging discharged batteries will take approximately 4-6 hours (NiMH) or 1-2 hours (NiCad) at 25° C (75° F).

- A. CCDOCK™ detects the transmitter and the batteries are charging
- B. Batteries are fully charged














Tips for best performance:

1. The system was designed to work best with NiMH batteries. Regular alkaline batteries and NiCad batteries will work, however, system performance may not meet all specifications. Remember to apply grease to the battery contacts each time a new set of rechargeable batteries are inserted.
2. Remove the transmitter case before placing the transmitter on the CCDOCK™. Leaving the case on, will greatly diminish the charging capability of the CCDOCK™.
3. Charge the batteries at the end of every shift. Temperature extremes (freezing and hot temperatures) will diminish battery performance, therefore, keep the batteries as fully charged as possible at all times to maximize operation time.

CCDOCK™ Diagnostics

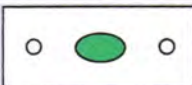




NOTE: the following indicator lights will be displayed on the CCDOCK™

Indicator Lights	Description	Solution
	The CCDOCK™ is operating properly and the transmitter has been detected	N/A
	The CCDOCK™ is operating properly and the transmitter has not been detected	N/A
	The voltage to the unit is not within 12—26 VDC	Bring the power supply to within operating parameters
	The internal temperature of the CCDOCK™ is below -50° C (-58° F) or above +60° C (140° F). Above +50° C the cradle will go into Low Power mode and shut down completely at +60° C	If possible heat up / cool down The CCDOCK™ to within operating temperature range

Light Legend	Solid	Slow Flash 1x / sec	Double Flash	Fast Flash 20x / sec	Red Light	Green Light	Yellow Light
							

T110C Transmitter Diagnostics

NOTE: the following indicator lights will be displayed on the transmitter while mounted on the CCDOCK™

Indicator Lights	Description	Solution
	Transmitter is not set properly in the CCDOCK™ cradle or cradle is not powered	Ensure the transmitter is oriented properly and check power to cradle
	Transmitter is in the powered CCDOCK™, and batteries are charging	N/A
	Transmitter is in the powered CCDOCK™, and batteries are fully charged	N/A
	Transmitter is in the powered CCDOCK™, and attempting to charge but the temperature of the batteries is either above 50° C or below 0° C	Either heat up / cool down the batteries to allow charging to occur
	A problem with the batteries has been detected. (No batteries, no contact to batteries, non-rechargeable batteries, backward batteries, dead batteries) This is a common error if using alkaline batteries or other non-rechargeable batteries.	Check and correct each of the battery conditions. If condition persists, contact service.










NOTE: The T110C is the transmitter designed to be compatible with the CCDOCK's intelligent charging system. To determine which T110 model you have, refer to the embossed model number located next to the battery cover on the back of the transmitter or look for the CC ready™ logo located on the transmitter.

Please refer to the system manual for transmitter operation, receiver installation, warnings and caution details.

CCDOCK™ 110 Specifications

Part	Description
Operating Voltage	12 & 24 VDC systems
Charging Voltage	12—26 Volts DC
Rechargeable Batteries	4-AA Nickel Metal Hydride (NiMH) (recommended) or Nickel Cadmium (NiCad)
Batteries	4-AA Alkaline
CCDOCK™ Operating Temperature	-40 to +60 Degrees Celsius (-40 to 140 Degrees Fahrenheit)
Charging Temperature Range	0 to +50 Degrees Celsius (30 to 122 Degrees Fahrenheit)

Light Legend	Solid	Slow Flash 1x / sec	Double Flash	Fast Flash 20x / sec	Red Light	Green Light	Yellow Light
							

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.

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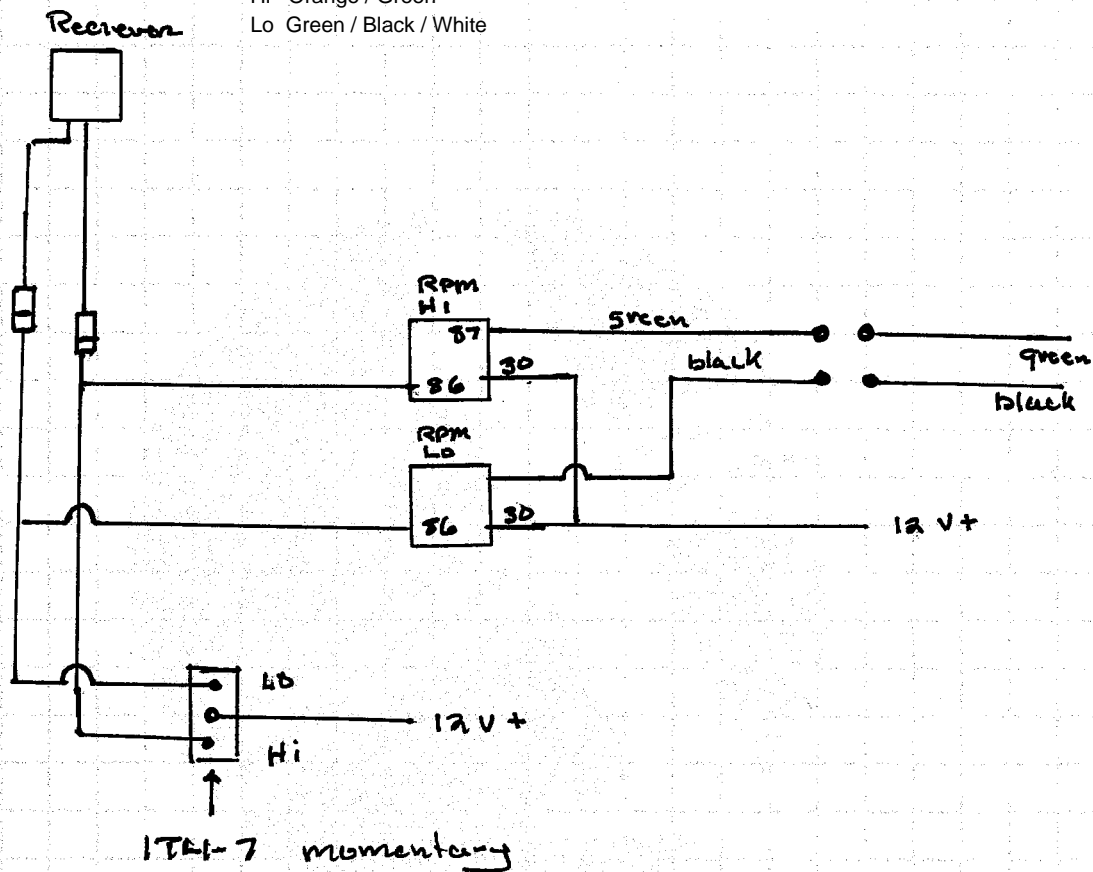
www.omnexcontrols.com

March 6, 2009

SUPPLIMENTARY ELECTRICAL DRAWING

Hi Orange / Green

Lo Green / Black / White



Transmitter

AUGER
ON/OFF

BELT
ON/OFF

RPM
HI

RPM
LO