
LCR-6-PT

LARGE CYLINDER ROLLER
PNEUMATIC WITH TOUCHSCREEN CONTROLLER

INSTRUCTION MANUAL



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1.0 INTRODUCTION

The Galiso LCR-6PT Large Cylinder Roller has been designed to provide a safe, economical method for mixing gases or abrasive media tumbling. This machine has been equipped with a PLC controller to allow preset programs to roll the cylinders in one direction, for a set amount of time, pause, or reverse the direction. The LCR-6PT has also been equipped with non-marring rollers, nearly eliminating any visual marking of the cylinder.

The LCR-6PT automatically inverts to a vertical position for easy loading and unloading of heavy cylinders, helping to reduce the risk of back injuries. This machine allows for as many as six 62" max and six 17" min cylinders to be cycled at once. Cylinders are loaded onto the rack in an upright position. The rack is then inverted to a horizontal position for mixing or tumbling.

The LCR-6PT is equipped with a safety bar prevent any operation from starting without the bar in place. An Emergency Manual Stop Button (EMO), is also installed to allow for instantaneous stopping of all machine operations in cases of emergency.

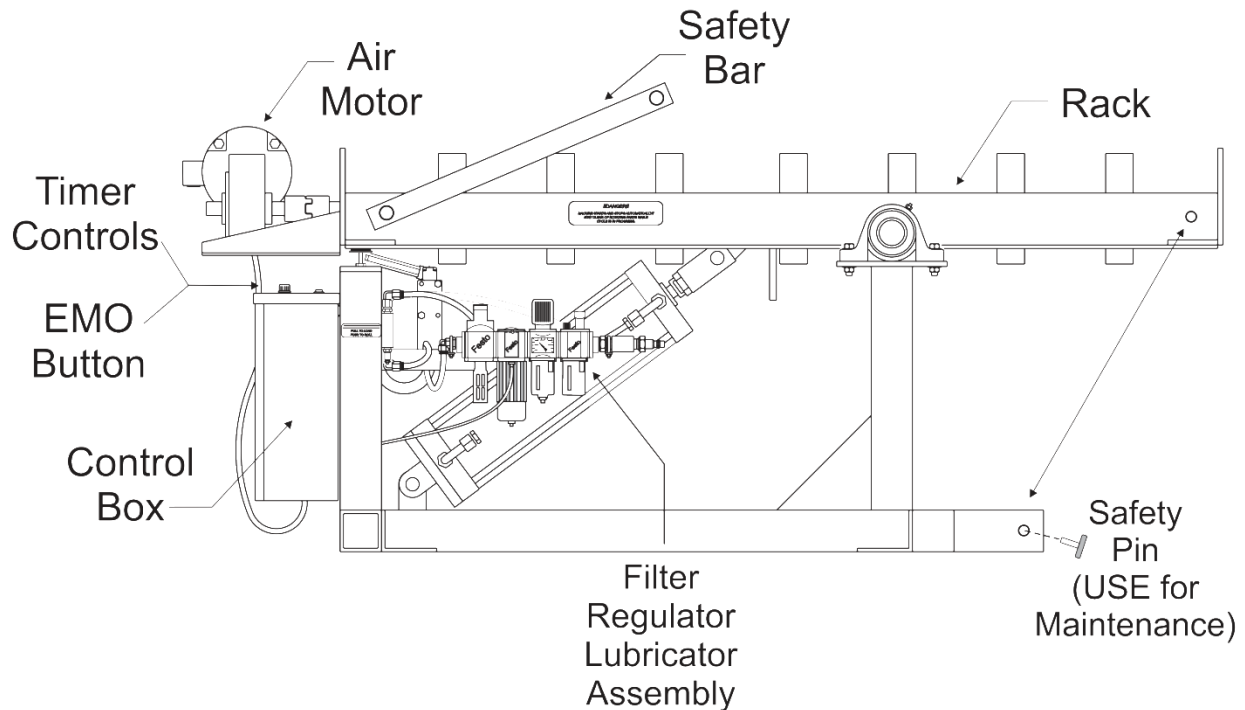


Figure 1, Basic Parts

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2.0 SAFETY

Read all instructions before attempting to install or operate this machine. GALISO, INCORPORATED IS NOT RESPONSIBLE FOR DAMAGE OR INJURY CAUSED BY UNSAFE USE, MAINTENANCE, APPLICATION, MODIFICATION OR IMPROPER INSTALLATION OF THIS MACHINE. Please contact Galiso, Inc. for guidance when you are in doubt as to the proper safety precautions to be taken when installing or operating this machine.

- A. Galiso, Inc. recommends marking off the area surrounding the LCR-6PT with yellow and black safety tape. The safety area should extend at least 36" on the loading side of the machine, to indicate the area occupied by the swing of the cylinder rack as it is inverted. All personnel should stay clear of the safety area while the machine is operating.
- B. During automatic operation, or once the manual start has been pressed, the LCR-6PT will rotate automatically. The operator should stay clear of all rotating parts and cylinders while any rotation is in progress. Make certain that all rotation has stopped before attempting to lift the safety bar or remove any cylinders.
- C. Do Not wear loose fitting clothing or jewelry near the LCR-6PT. Excessively long hair should be tied back or covered with a hairnet or hat.
- D. When tumbling with etchant media, face shield, goggles, head protection and gloves should be worn.
- E. Be careful to avoid back strain when lifting heavy, abrasive filled cylinders onto or off of the LCR-6PT.
- F. The LCR-6PT is equipped with a safety Button that will prevent any rotation of the rack or rollers without the safety bar in place and/or if the rack is in a vertical position.
- G. To avoid injury from electric shock, the LCR-6PT and the area around it should be kept as clean and dry as possible.
- H. Cylinders should always be loaded or unloaded in the vertical position. Do NOT attempt to place cylinders under the safety bar while the rack is in the horizontal position.
- I. This machine has been designed to accept up to as many as six 62" max and six 17" min cylinders to be cycled at once. Cycling smaller size cylinders with this model is not recommended.

2.0 SAFETY, continued

- J. The four corners below the rack of the LCR-6PT are locations that could be possible pinch points (see Figure 2, Pinch Points). Please be aware of this and keep all body parts and clothing away from the pinch points and from any moving parts.

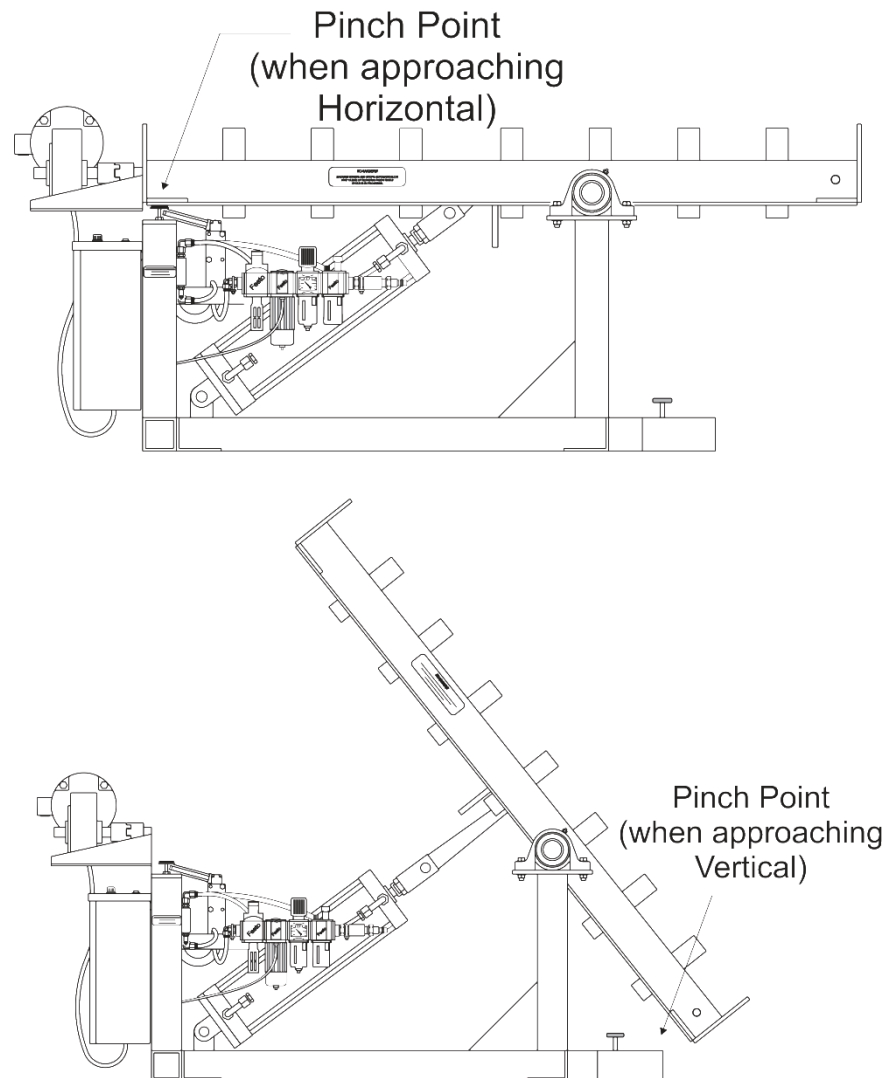


Figure 2, Pinch Points

!! DANGER !!

- K. **DO NOT STEP TOWARDS THE CYLINDERS OR RACK UNTIL THE RACK HAS BEEN RETURNED TO THE VERTICAL POSITION.**

2.0 SAFETY, continued

!! DANGER !!

- L. DO NOT USE THIS EQUIPMENT TO PURGE TOXIC OR FLAMMABLE GASES. DO NOT USE THIS EQUIPMENT UNDER FLAMMABLE, VOLATILE OR TOXIC CONDITIONS.**
- M. BE CERTAIN TO STAND ON THE CONTROL SIDE OF THE LCR AT ALL TIMES AFTER OPERATION HAS BEEN STARTED. AVOID BEING UNDER THE RACK OR NEAR ANY OF THE PINCH POINTS.**
- N. DO Not attempt to tumble aluminum cylinders with Scale Cut HD Etchant or Poly Fast Cut Neutralizer.**
- O. Plugs used to seal the cylinder should be equipped with a vent hole to prevent pressure from accumulating inside the cylinder during the tumbling process.**
- P. To help prevent a static charge, the LCR-6PT must be grounded using the bolt located on the right side of the Frame of the LCR.**
- Q. Although the LCR-6PT is free standing, Galiso, Inc. recommends securing the machine to the shop floor with lags or bolts.
- R. When performing maintenance always use the safety pins to lock the rack in place.
- S. In the event of loss of air pressure, the rack will remain in the position that it was in at the time of loss and the rollers will immediately stop until air is restored to the unit.
- I. To immediately stop all motion of the LCR-6PT press the Emergency Manual Stop Button (EMO). The LCR-6PT will instantly stop all processes including any roller bar rotation. To resume operation: follow the procedures described in Section 4.0, Operations.
- J. Note: At any time during manual operation, the EMO (Emergency Off Button) can be pressed to stop all motion. After the EMO is reset the motion will continue. Also, at any point of manual operation, the Home (F5) button can be pressed to stop all motion and return to the Home Menu.

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3.0 INSTALLATION

Carefully read all instructions and familiarize yourself with the installation and operation procedures and drawings before attempting to install or operate the LCR-6PT.

Receiving and Placement:

- A. Carefully un-crate the LCR-6PT and remove all banding and packing materials.
- B. Select a space for the installation of the LCR-6PT. The location should be flat, level surface that evenly supports the base of the machine. Lag or bolt the LCR-6PT to the shop floor.
- C. The location of the machine should allow adequate clearance around the frame of the machine, along with enough space for loading and unloading cylinders onto the rack. Galiso, Inc. recommends an additional safety zone of 36" safety zone be marked around the LCR-6PT.
- D. The LCR-6PT must be grounded using the bolt located on the right side of the Frame of the LCR-6PT.
- E. Connect your Shop Air Supply Line (1/2" minimum) to the port labeled. Shop Air should be supplied at a minimum 90 psi and maximum 120 psi.
- F. Turn the Shop Air Valve to the ON position (90°). Verify air pressure is on by using the pressure gauge.
- G. Release the Emergency Manual Off (EMO) by pressing down and turn clockwise. The rack will now move to the load position (vertical). Proceed to Operations section (section 4).

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4.0 OPERATION

- A. With the rack in the vertical (load/unload) position release the safety bar by pulling out the lock pin, on the side of the rack, and lift the safety bar.
- B. Load gas filled cylinders onto the rack, loading heaviest cylinders onto the center roller and loading the lighter cylinders towards the outer rollers. Replace the safety bar by pulling out the lock pin and lowering the safety bar.

NOTE: The LCR will not start any operation until the safety bar is in place and the rack is in a horizontal position.

- C. Automatic or manual options are available for operation of this machine.
- D. Turn the power knob to the ON position. The HOME Screen will appear on the PLC Controller. The operator can use either the touch screen or the corresponding “F” key below the touch screen for data entry and operation.



LCR Touch Screen Controller – HOME MENU

- E. This screen allows the operator to select Times, Auto, Settings or Manual.

4.0 OPERATION, continued

- F. **Settings Menu:** This menu allows for modification of how the PLC is viewed and/or heard.



Settings Menu

1. Contrast: Pressing Arrow Up (F4) will darken the screen and pressing the Arrow Down (F5) will lighten the screen. 1 being the lightest and 5 the darkest.
2. Beep: The Beep (F2) button functions as a toggle Button. Pressing the Beep (F2) button will turn the beeping sound off. Pressing it a second time, will turn the beep back on. The beep notifies the user when a button has been pressed.
3. Home: Pressing the Home (F1) button will return the user to the main menu. Once preferences have been entered, pressing Home will leave the numbers that were set as the active values.

4.0 OPERATION, continued

G. **Times Menu:** The Times Menu allows the operator to input time values for automatic operation. There are 6 user editable programs available at this menu.



Times Menu

1. From the Home screen press Times (or F2) to open the Times Menu.
2. The program number showing in the left-hand window will be the program that will be edited.
3. Pressing the Arrow Up (or F1) or the Arrow Down (or F2) will scroll through the available programs.
4. Once the appropriate program appears in the left window, pressing LOAD (or F4) will select the program as “ACTIVE”.
5. Once a program has been selected two options are available:
 - a. Pressing HOME (or F5) after a program has been made “Active” will ready the LCR-6PT to run the Active program.
 - Or,
 - b. If a change to the times or speeds need to performed, pressing EDIT (or F3) will open the editing menu.

4.0 OPERATION, continued



Edit Menu

H. **Edit Menu:** The Edit Menu allows the operator to set desired time values to a specific procedure, in a program.

1. To make changes to the amount of time for forward or reverse rotations, press the box under Forward or Reverse. A numeric keypad and generic editing keys will appear. See Figure , below.



Numeric Keypad

4.0 OPERATION, continued

2. Press the desired number for the chosen direction. The number input represents how many minutes the LCR-6PT will rotate in the selected direction. Either can be set between 0 – 999 minutes.
3. By pressing the box under either Fwd Rpm or Rev Rpm the amount of time in seconds can be entered, to set the desired revolutions per minute. This will regulate the speed at which the cylinder(s) rotate. These can be set from 10 – 90 rpm.
4. A pause time can be set by selecting the box under Pause. The amount of time the rollers are stopped, in a pause position, can range from 0 – 50 seconds. Selecting a time for pause will cause the rollers to completely stop before changing the next rotation direction.
5. To change which program will run, scroll through the programs with the Arrow Up or Arrow down until the name of the desired program shows in the left-hand box. Pressing Load (or F4) will enter the new program to be implemented. The program showing in the Active box will be the recipe that the LCR-6PT will execute.
6. After all desired changes have been made, press F3 (BAK) to return to the Times Menu.

4.0 OPERATION, continued

- I. **Manual Cycle Menu:** The Manual Cycle Menu allows the operator to set speed of the rotations at a range of 10-90 rpm, for either forward or reverse. When in Manual operation, the motion will continue until Home (F5) or the EMO is pressed

1. From the Home screen press Manual (F5) to open the Manual Menu. The following menu will show:



Manual Cycle Menu

2. Pressing the square next to RPM or (F4) will allow the system to accept an rpm range of 10 to 90 rpm.
3. After the desired speed has been entered, Pressing FWD (forward or F1) will start the rollers, at the set speed, in a clockwise direction.
4. Or: After the desired speed has been entered, Pressing REV (reverse or F1) will start the rollers, at the set speed, in the opposite direction.
5. If the rollers are turning in a forward motion, REV (reverse or F1) can be pressed at any time to cause the rollers to rotate in the opposite direction. The same is true if the rollers are rotation in a reverse direction (counter-clockwise) and FWD (forward or F1) is pressed.
6. Pressing the Home (or F5) will automatically stop all rotation.

4.0 OPERATION, continued

J. **Automatic Menu:** The Auto Menu will run the LCR-6PT operation, using the selected program, once Start (or F1) is pressed. The times for each operation must be entered or edited in the Times menu.

1. From the Home screen press Auto (F1) to open the Automatic Menu.



Auto Cycle Menu

2. This menu will display the current program that has been selected as the “active” program. Times and rotation speeds are displayed for each action the LCR-6PT will be performing, dependent upon which program has been selected.
3. After verifying that the chosen program perimeters are accurate for the desired speeds and times, press Start (or F1).

Caution: Always be certain that personnel and/or items are clear of the LCR-6PT frame and rotating cylinders.

4.0 OPERATION, continued

4. After pressing Start, the display will change to a screen showing the “Time Remaining” (see the figure, below). This screen shows the direction and current process, as it cycles. The direction of operation flashes as the machine runs the cycle. Time remaining show the time left for that particular cycle. The Total Min counts down to the program end, when the LCR-6PT will stop all processes.



Time Remaining

4.0 OPERATION, continued

5. At point, during any process, Abort (or F5) can be pressed to immediately stop and cancel all processes. If Abort (or F5) is pressed, the process can NOT restart from the stopping point. After pressing Abort (or F5) the screen will read “Resetting” and the rack will be returned to a vertical position? The following screen will show:



E-STOP Release

- K. If at any time during operation, an emergency should occur, The Emergency Manual Off (EMO) Button should be pressed to instantly stop all movement of the machine. The red message (shown above) will appear on the screen until the EMO Button is released. To release the EMO Button and return to cylinder processing, press down on the EMO Button and turn clockwise. The Button will “pop up” and return the Rack to the Load/Unload position.
- L. BE CERTAIN TO STAND ON THE CONTROL SIDE AT ALL TIMES AFTER OPERATION HAS BEEN STARTED. AVOID BEING UNDER THE RACK OR NEAR ANY OF THE PINCH POINTS.
- M. **DO NOT STEP TOWARDS THE CYLINDERS OR RACK UNTIL THE RACK HAS COMPLETED THE RETURN TO THE VERITCAL POSITION.**

4.0 OPERATION, continued

4.1 Operation, Mixing Gases

After start has been pressed, the automatic steps that the LCR-6PT will cycle through are as follows:

- I. Forward rolling will begin and continue rolling in the same direction for the time allotted in the selected program.
- II. After forward rolling has stopped, the rollers will stay in a “paused” position for the amount of time pre-set for the selected program.
- III. After the rollers have been stopped for the allotted time, they will begin to roll in the Reverse direction for the amount of time set for the selected program.
- IV. The rollers will then complete another “pause” cycle before beginning the next Forward rolling cycle.
- V. These steps will continue to cycle in this manner until all of the time input for total time has elapsed.

CAUTION: After the Cycle Time has elapsed the LCR-6PT will automatically invert the cylinder rack to an upright (vertical) position. It is very important to stay clear of the arc of the rack during this time and to stay clear of the area **under** the rack at this time.

4.0 OPERATION, continued

4.2 Operation, Tumbling with Abrasive Media

- A. When tumbling with abrasive media, fill cylinders at least half full with tumbling media. A tight fitting plug should be screwed into the neck threads of the cylinder. The plug should be equipped with a vent hole to prevent pressure generated by the tumbling process from accumulating inside the cylinder.
- B. When tumbling with Scale Cut Etchant, mix a solution of two ounces of etchant to one gallon of water, pour it into the cylinder, cap the cylinder and tumble for approximately thirty minutes. After tumbling with etchant, cylinders must be washed and then tumbled with Poly Fast Cut neutralizer to remove any acid residue and to prevent flash rusting. Face shield, goggles, head protection and gloves should be worn when tumbling with Scale Cut HD.

NOTE: DO NOT TUMBLE ALUMINUM CYLINDERS WITH SCALE CUT HD ETCHANT OR POLY FAST CUT NEUTRALIZER.

- C. After the LCR-6PT has been installed, turn the start Button to the on position. This will move the rack to the vertical (load/unload) position. Pull out the side lock pin and lift up the safety bar. Load the media filled cylinders onto the rollers starting with the heaviest cylinder in the center and the lighter cylinders towards the outsides of the rack.
- D. To set the Cycle Time, (same as above)
- E. The procedure for setting the Forward (same as above)
- F. Press Start will cause the rack to move to a horizontal position, and begin the mixing/tumbling process.
- G. After pressing the Start Button a pause of approximately 5 seconds will pass, before the rack rotates to a horizontal position and begins the mixing/tumbling process. **BE CERTAIN TO STAND ON THE CONTROL SIDE AT ALL TIMES AFTER OPERATION HAS BEEN STARTED. AVOID BEING UNDER THE RACK OR NEAR THE PINCH POINTS.**

4.0 OPERATION, continued

4.2 Operation, Tumbling with Abrasive Media, continued

- H. As the Rollers begin to rotate the cylinders in the forward direction, the Cycle in Progress (or Ready) Indicator will be lit yellow. When the forward rotation time has elapsed, the cylinders will stop rotating for the amount of time set on the Forward OFF timer and then the rotation direction will automatically reverse. When the reverse rotation time has elapsed, the LCR-6PT will continue to alternate the direction of rotation until the Total Cycle Time has elapsed. When the Total cycle Time has passed, the rotation of the cylinders will automatically stop. **DO NOT STEP TOWARDS THE CYLINDERS OR RACK UNTIL THE RACK HAS BEEN RETURNED TO THE VERTICAL POSITION.** After the Total Cycle Time has elapsed there is a short pause (approximately one 1 second) after which the Rack will then revert to the vertical (Load/Unload) position.
- I. The operator can press the EMO Button at any time, during any cycle to stop the rolling, inverting or reverting processes. Pressing the EMO Button will cause all rollers to stop and the rack to move to the vertical (Load/Unload) position.
- J. If at any time during operation, and emergency should occur, the Emergency Manual Off (EMO) Button should be pressed to instantly stop all movement of the machine. To release the EMO Button and return to cylinder processing, press down on the EMO Button and turn clockwise. The Button will “pop up” and now allow the operator to press Start to return to mixing/rolling, or to press stop to revert the rack back to the vertical (Load/Unload) position.

NOTE: WHEN TUMBLING SMALL CYLINDERS (i.e. SCUBA SIZE), THE LCR-6PT MUST BE LOADED AND UNLOADED IN THE HORIZONTAL POSITION.

- K. Lift the safety bar and unload the cylinders.
- L. To remove abrasive media after tumbling, Galiso recommends placing the cylinder in an EDR-1 or similar Dump Rack. Remove the vented plug from the cylinder neck and invert the cylinder over a perforated pan to catch the abrasive media. Flush the cylinder with water or suitable cleansing solution. Dry the cylinder to prevent rust from forming.
- M. After tumbling, cylinders should be Hydrostatically Tested.

5.0 MAINTENANCE

5.1 General Maintenance

- A. When performing maintenance always use the safety pins to lock the rack in place.
- B. Using the grease zert, lubricate the Bearings, -once per year with moly grease.
- C. Check the air supply line filter and lubricator twice per week for proper operation.

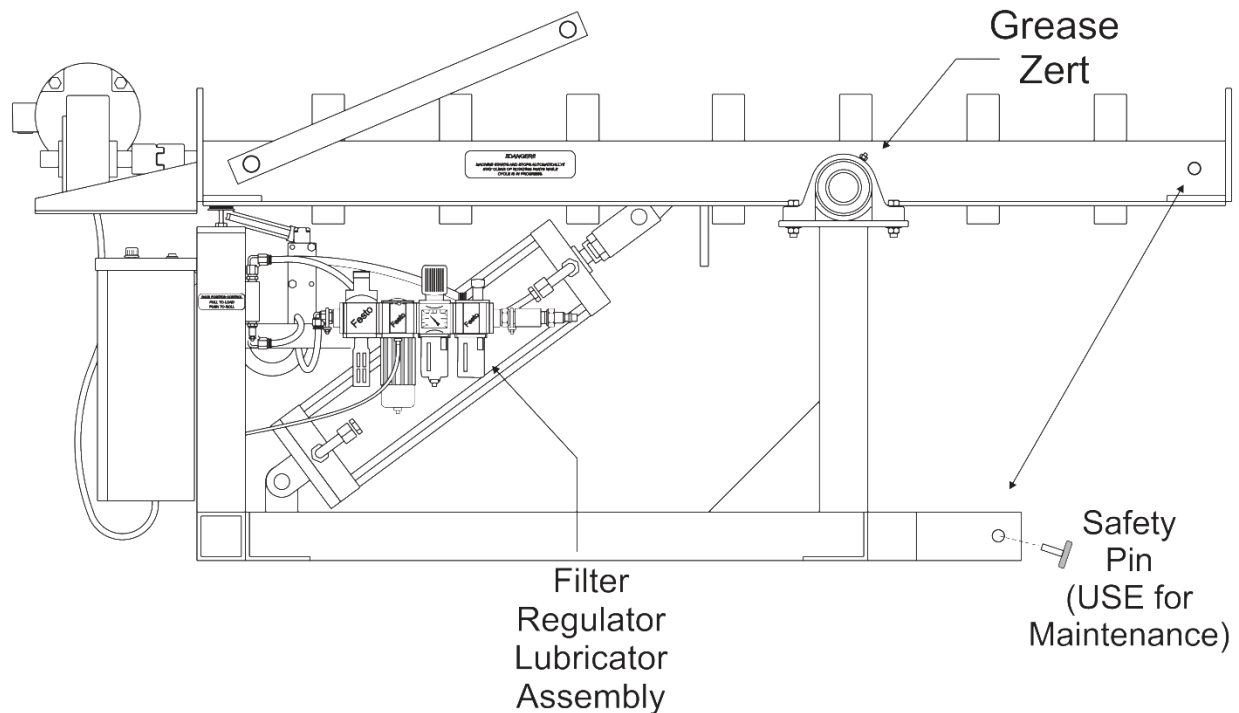


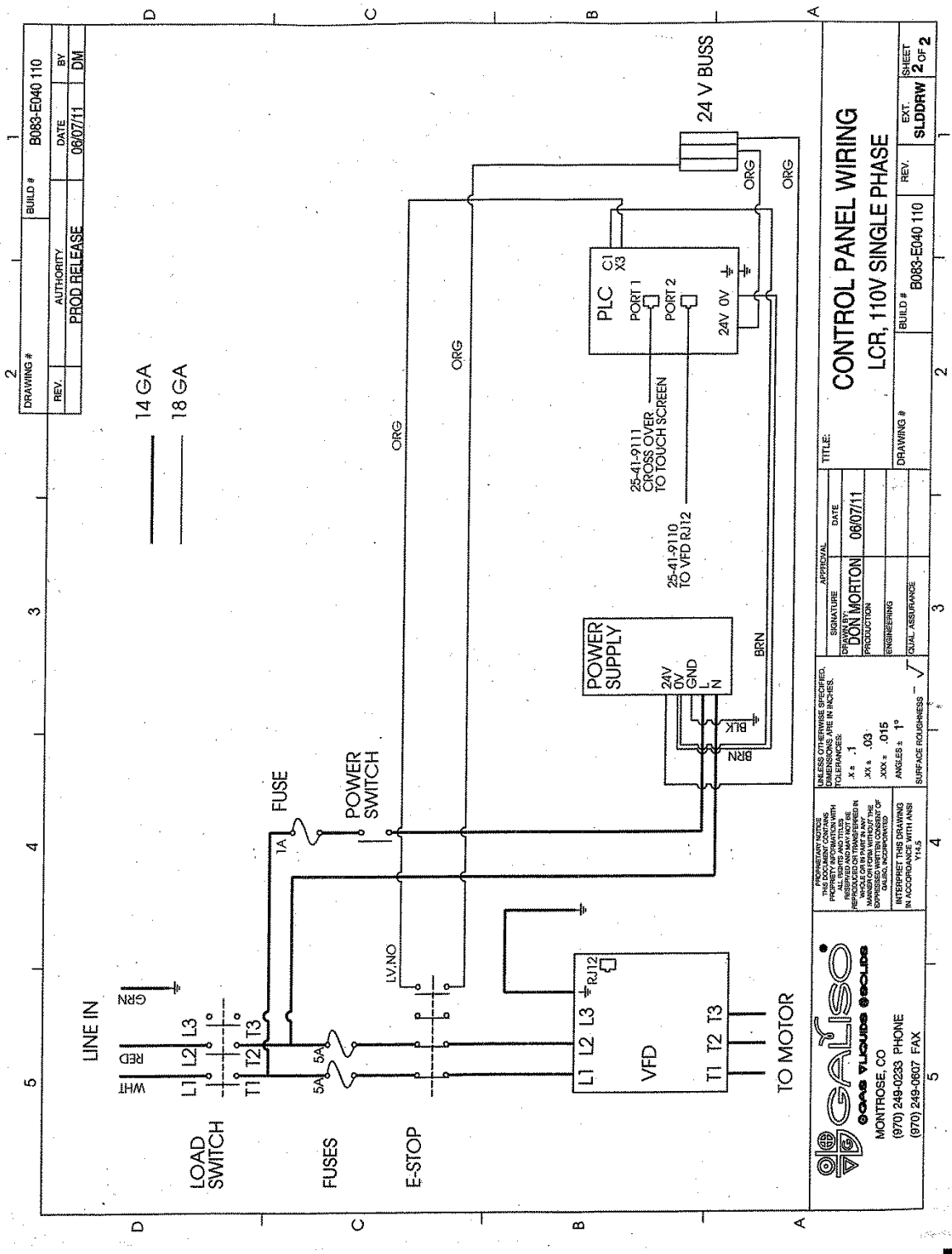
Figure 3, Maintenance Parts

5.2 Air Lubricator Fill

Fill the air lubricator in accordance with the following instructions.

- A. Disconnect the shop air supply to the LCR-6PT, and bleed all entrapped air by turning the air regulator all the way off. Verify the air pressure reads 0 psig on the regulator air pressure gauge.
- B. Locate the oil reservoir, remove and fill with 10 weight non-detergent oil.
- C. Replace the oil reservoir. The oil feed should already be factory adjusted to approximately one drop per minute at full speed air flow.
- D. Re-adjust the air pressure regulator to the proper air pressure. Close the inverter access panel and re-connect the air supply.

6.0 SCHEMATIC - LCR-6-PT



DRAWING #	BUILD #	B083-E040 110
REV.	AUTHORITY	PROD RELEASE
	DATE	06/07/11
	BY	DM

TITLE: CONTROL PANEL WIRING LCR, 110V SINGLE PHASE		BUILD # B083-E040 110	REV. SLDDRAW 2 OF 2
SIGNATURE DON MORTON	APPROVAL DATE 06/07/11	DRAWING #	SHEET
DRAWN BY PRODUCTION	ENGINEERING	TOTAL ASSURANCE	EXT.
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES: X.s ± .1 .XX ± .03 .XXX ± .015 ANGLES: 1° SURFACE ROUGHNESS: Y1.5	INTERPRET THIS DRAWING IN ACCORDANCE WITH ANSI Y14.5	3	4
GALISO GASES LIQUIDS SOLIDS MONTROSE, CO (970) 249-0233 PHONE (970) 249-0807 FAX		5	5