

# OPERATING INSTRUCTIONS

## LEHMAN EQUIPMENT/STUDIO STAR SUSPENDED PUMPS (MODELS: CC6, SP4, SP4L, PP30)

### IMPORTANT:

Do not attempt to use your casting machine/slip pump without reading the operating instructions and fully understanding its operation. Check your machine for damage caused in shipment before attempting to use it.

These models were not designed to mix slip or reclaim trimmings. They will however, provide gentle agitation to keep the slip in ideal casting condition.

### WARNING:

The motor on these machines is equipped with a grounded electrical cord. **ALWAYS** be sure the motor is fully grounded. If the receptacle (outlet) you are using is not grounded, it is recommended that you have a ground line installed. **AN UNGROUNDED CORD CAN CAUSE SEVERE ELECTRICAL SHOCK!!**

### MAXIMUM SLIP CAPACITIES ARE AS FOLLOWS:

**CC6 - 6 U.S. GALLONS**

**PPP30 - 30 U.S. GALLONS**

### ABOUT THE PUMP:

The Lehman Equipment/Studio Star suspended pump was designed for the small to medium size ceramic studio. **IT IS NOT suitable for production casting or commercial use.**

This pump draws the slip directly into the bottom of the pump housing. Because of this, the pump **cannot** sit on the bottom of the tank and will not empty the tank completely. The amount of useable slip is directly related to the diameter of the tank it is in. When installing the pump in your tank, it must be a minimum of 1 3/4" off of the bottom of the tank.

These pumps may be run dry (without liquid in the tank) for short periods of time without damage.

Pumping capacity varies from four (4) to seven (7) gpm depending on model and slip viscosity.

### PREPARING YOUR MACHINE FOR USE:

Some models require some very simple assembly. If you need technical assistance with this assembly you may call our service department.

When assembly is complete, run the pump dry for a short period of time to insure free movement of all parts. Next, put enough slip in the tank to cover the lower pump parts and run some slip through the hose and nozzle and back into the tank to test the pump. This procedure will also get rid of any air that is trapped in the hose and allow you to get the feel of the nozzle before attempting to pour any molds. After determining that everything is working properly, fill the tank to the desired level.

### FILLING/DRAINING MOLDS:

Hold the nozzle over the pour hole, turn the machine on and open the nozzle. Fill the mold slowly to keep the slip from splashing onto the interior walls of the mold. Filling the mold too fast can cause air bubbles in the greenware. The pouring nozzle will allow you to regulate the flow of slip from a small trickle up to a full stream.

When the molds are ready to drain, you can dump them right back in to the tank. Leave the motor running when draining and the gentle agitation of the pump will re-condition the slip.

### **LEAVING THE MACHINE AFTER POURING:**

When you are finished pouring for the day, refill the machine. This will keep the slip from drying on the sides of the tank. You can take a few ounces of water and gently pour on top of the slip to create a thin (1/8") moisture seal and cover the machine until you are ready to pour again.

Certain precautions should be taken when leaving the machine for an extended period of time (more than two weeks). It is advisable to pump the slip out of the machine and into resealable containers. Fill the tank with water and pump the water through the machine. This will clean out all of the pump parts as well as the hose and nozzle. You can also take this opportunity to wash down the inside of the tank. Now pump out the dirty water and put in enough clean water to cover the lower pump parts. The machine can be left indefinitely with water in it.

When you are ready to pour again, pump the water out and fill with slip. This procedure will save you hours of cleaning later.

### **CARE AND MAINTENANCE:**

The life of your pump/casting machine will be determined by the care you give it. We feel it is in your best interest to **keep it clean!!** The fiberglass tank and trough of your machine may be scraped with a plastic or wooden utensil. A rubber squeegee works great to keep the liquid slip pushed down in the tank. **DO NOT** use a metal scraper to clean the tank as it will permanently scratch the fiberglass.

Take the pump out of the tank and check lower pump parts every 60 to 90 days. There are pump packings (see parts diagram) that are subject to wear due to the abrasive nature of slip. These packings should be adjusted by tightening the packing gland screws to keep the main drive shaft from wobbling in the pump housing. Replace the packings when they can't be adjusted any more. **A VISUAL INSPECTION AND OCCASIONAL MAINTENANCE CAN SAVE COSTLY REPAIRS LATER.**

The pouring nozzle requires as much attention as any other part of the machine. The slip dust that is created in the pouring room will dry up all of the lubrication on the plunger stem o-ring causing it to stick (usually in the open position). This is easily remedied by soaking the nozzle in a bucket of water overnight. When you take it out of the water, dry it off and hold the nozzle upside down (with the plunger stem pointing up). Put one drop of light weight oil around the stem and allow the oil to get down to the o-ring inside. The nozzle can be disassembled for cleaning occasionally, just remember to lubricate the o-ring during reassembly.

### **INSTALLING THE PUMP REBUILD KIT:**

Even with excellent maintenance, the slip will eventually cause wear on the pump making it necessary to install a pump rebuild kit.

Start by taking the pump unit out of the tank and washing it off. You will be replacing all of the parts below the motor plate with the exception of the four tower rods. It is not necessary to remove the motor from the plate. Loosen the set screw in the flexible coupling below the plate and turn the shaft independently from the coupling to make sure it is loose. Take the four 1/4" nuts/washers off of the top side of the motor plate. The nuts/washers on the bottom side of the plate can stay on the rods. The entire pump unit should slide apart from the motor/plate assembly. Loosen the four jamb nuts at the bottom of the tower rods and unscrew the four rods from the old pump housing. Screw the rods into the new housing and tighten the jamb nuts against it. Reassemble the pump unit to the motor/plate assembly but do not tighten the coupling set screw. Make sure that you have the four nuts/washers on the rods for under the plate. Put the four nuts/washers on the tower rods on the top side of the plate. Don't tighten these nuts yet.

The most important thing with this or any other type of pump is making sure all of the parts aligned properly. **MISALIGNMENT WILL CAUSE UNDUE WEAR TO THE PUMP PARTS.** The motor plate must sit parallel to pump housing. To insure this, measure the distance between the bottom of the motor plate and the top of the pump housing at all four tower rods. This distance is adjusted by running the nuts up or down the the rods

below the plate. When the distance is the same at all four points, the motor plate and the pump housing are parallel and you can tighten the nuts down on top of the plate. Next push the 1/2" shaft into the flexible coupling as far as it will go and tighten the set screw down on the flat side of the shaft. Now install the discharge nozzle, suction cover, and screen. Turn the main drive shaft by hand. The shaft should turn freely with your fingers. If it doesn't, check the alignment and adjust as necessary.

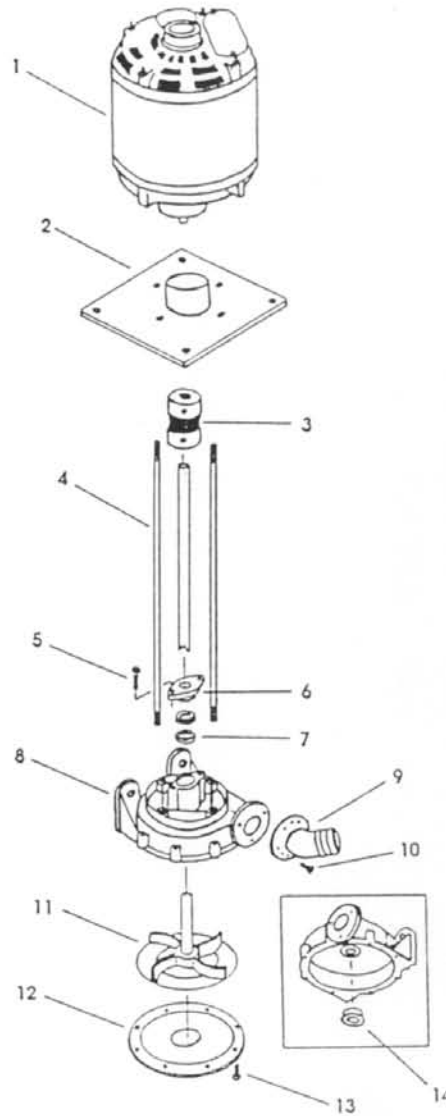
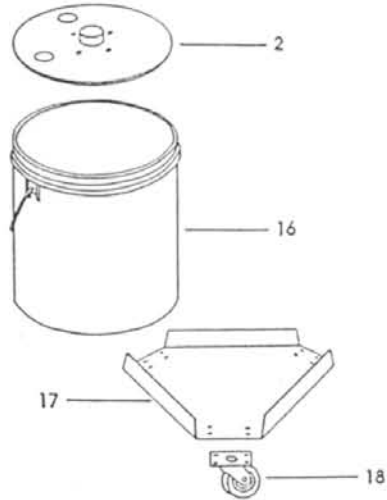
**If you need technical assistance or you need to order parts, you may call our  
SERVICE DEPARTMENT at:**

**Lehman Mfg.  
304 N. Fairgrounds Rd.  
Kentland, IN 47951  
219-474-6011**

**Our hours are 8am to 5pm cst Monday thru Thursday.**  
**Please have your model and serial number when you call.**

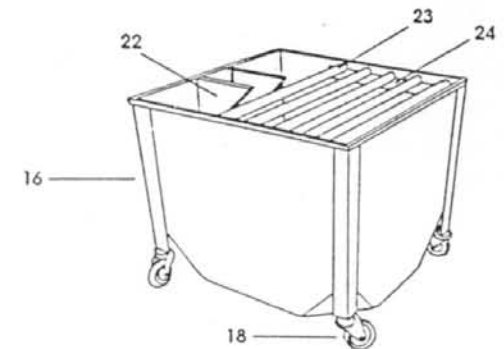
# LEHMAN STUDIO STAR SUSPENDED PUMP EQUIPMENT AND TANK SCHEMATIC

CC6



PARTS #1 AND #3 - #14 ARE COMMON TO ALL MODELS

PORTA POTTER 30



| <b>NO.</b> | <b>PART DESCRIPTION</b>            | <b>CC6</b> | <b>SP4</b> | <b>SP4L</b> | <b>PORTA<br/>POTTER 30</b> |
|------------|------------------------------------|------------|------------|-------------|----------------------------|
| 1          | Motor                              | SP2050A    | SP2050A    | SP2050A     | SP2050A                    |
| 2          | Motor Mount                        | C6401      | SS050      | SS050       | SS050                      |
| 3          | Coupling                           | 2X497      | 2X497      | 25-5        | 2X497                      |
| 4          | Tower RodS ( 4 Req'd )             | C6108      | SP108      | SPL108      | SP108                      |
| 5          | Packing Gland Screw ( 2 Req'd )    | LP1        | LP1        | LP1         | LP1                        |
| 6          | Packing Gland                      | LP33       | LP33       | LP33        | LP33                       |
| 7          | Pump Packing ( 2 Req'd )           | LP2B       | LP2B       | LP2B        | LP2B                       |
| 8          | Pump Housing                       | LP44       | LP44       | LP44        | LP44                       |
| 9          | Discharge Nozzle                   | LP9975     | LP99       | LP99        | LP99                       |
| 10         | Discharge Nozzle Screw ( 3 Req'd ) | LP3        | LP3        | LP3         | LP3                        |
| 11         | Shaft/Impeller                     | C6501      | SP501      | SPL501      | SP501                      |
| 12         | Suction Cover                      | LP89       | LP89       | LP89        | LP89                       |
| 13         | Suction Cover Screw ( 4 Req'd )    | LP84       | LP84       | LP84        | LP84                       |
| 14         | Bronze Bushing                     | LP55       | LP55       | LP55        | LP55                       |
| 16         | Tank                               | CC060      | N/A        | N/A         | P3075                      |
| 17         | Mobile Base Tray (No Casters)      | CC886      | N/A        | N/A         | N/A                        |
| 18         | Castors ( 3 Req'd )                | S106       | N/A        | N/A         | SM106                      |
| 19         | Tank Cover                         | CC061      | N/A        | N/A         | N/A                        |
| 22         | SS Pump Brackets (pr)              | N/A        | SS750      | SS750       | SS750                      |
| 23         | Dowel Rod                          | N/A        | N/A        | N/A         | P3101                      |
| 24         | Aluminum Dowel Rail                | N/A        | N/A        | N/A         | AR1505                     |

**PARTS NOT SHOWN**

|  |        |         |         |         |
|--|--------|---------|---------|---------|
| Motor Handle                                     | SS107  | N/A     | N/A     | N/A     |
| Cord and Inline Switch                           | 1EVP4  | 1EVP4   | 1EVP4   | 1EVP4   |
| Pouring Hose                                     | SS7508 | SS1008  | SS1008  | SS1008  |
| Pouring Nozzle                                   | 350A   | 30002   | 30002   | 30002   |
| Pump Screen                                      | SS475  | SS475   | SS475   | SS475   |
| Hose Clamp                                       | HC6716 | HC6716  | HC6716  | HC6716  |
| Pump Rebuild Kit<br>(Includes Diagram #5 - # 14) | C6200P | SSP400P | SPL425P | SSP400P |
|  |        |         |         |         |
|  |        |         |         |         |
|  |        |         |         |         |