Type: Floor-Mate 80

Model:

Serial Number:

Floor-Mate 80

Owner's Manual

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Table of Contents

Preface **4**

Important General Safety Information **5-11**

- **A. Material Hose** **5-6**
- **B. Pump** **7**
- **C. Hydraulics** **7-10**
- **D. Machinery** **10-11**
- **E. Water** **11**

Operation **12-15**

Preface

The Floor-Mate 80 machine manufacturing by Strong Manufacturing Company, Inc. is specifically designed to convey, mix and pump cementitious slurries.

We are confident that your Floor-Mate 80 will increase the efficiency of your work force. However, the service and life the machine will provide depends greatly on the care and attention you give it during daily and routine use. This OPERATION & MAINTENANCE MANUAL has been provided to assist you in obtaining the utmost performance from your machine and to instruct you and your operating personnel in its SAFE and efficient use. This manual should be carefully read and it instructions followed by those who will be responsible for the operation, maintenance, transportation, and uses of the machine. You should remember that the nature of the business – that is, the mixing and pumping of gypsum or cement and sand aggregates, water and admixtures – creates the most severe conditions under which machinery can operate. It was with these conditions in mind that the components for the Floor-Mate 80 were selected and designed.

A separate immediately following contains specific SAFETY INFORMATION. No one should be permitted to perform any function on the machine unless he or she has read and understands the safety section of this manual. The safety section is also available free of charge to owners of the Floor-Mate 80 machines as a separate pamphlet by writing the Strong Manufacturing Company, PO Box 8068, Pine Bluff, Arkansas, 71611.

Include the serial number(s) of your machine(s) with your request. Additional copies of the entire Operation and Maintenance Manual can be obtained at the above address for a minimal fee.

Important General Safety Information

The Floor-Mate 80 machine was primarily designed to mix and pump gypsum or cement, sand and water slurries. In addition to the usual hazards of machinery, several special hazards are involved in these operations. Please read and pay close attention to the following SAFETY INFORMATION.

Cleaning, Repairing, Servicing and Adjusting Prime Movers, Machinery and Equipment Section 3314 – General Industry Safety Orders

Machinery or equipment capable of movement shall be stopped and the power source de-energized or disengaged, and, if necessary, the movable parts shall be mechanically blocked or locked to prevent inadvertent movement during cleaning, servicing or adjusting operations unless the machinery or equipment must be capable of movement during this period in order to perform the specific task. If so, the employer shall minimize the hazard of movement by providing and requiring the use of extension tools (E.G., extended swabs, brushes, scrapers) or other methods or means to protect employees from injury due to such movement. Employees shall be made familiar with the safe use and maintenance of such tools by thorough training.

A. Material Hose

Caution: ALWAYS WEAR SAFETY GOGGLES WHEN WORKING WITH THE MATERIAL HOSE. Do not disconnect material hose with hoses under pressure. Always run pump in reverse until pressure gauge reads "0" psi, or hoses become soft. Failure to do so could result in material blowing out under pressure and striking someone causing bruises, cuts, breaking of limbs or possible loss of sight if material enters eye.

Caution: ALTHOUGH THE PRESSURE GAUGE MAY READ (0) P.S.I. MATERIAL MAY EXIT UNDER FORCE WHEN THE HOSE IS DISCONNECTED.

Because of wear and weathering that occurs on material hose, the following test should be conducted at the beginning of each day to determine the conditions of the hose. The field test consists of the following:

Attach all of the sections of hose that will be used in the day's operation together just as they will be used.

Pump water into the hose until it begins to discharge. Stop the pump and cap the discharge end securely with a quick coupler cap to fit hose size to be used.

After advising all personnel to stand clear of the hose, operate the pump until the pressure indicated on the hydraulic pump motor pressure gauge registers the maximum pressure the pump will produce and hold this pressure for 30 seconds.

Reverse the pump until o PSI pressure indicates on the gauge or the discharge hose becomes soft.

Remove the cap. Operate the pump until the water has been discharged and then proceed with the pumping of the slurry.

This field test should be repeated if any damage or accident befalls a section of the hose or if, for any reason, a section is suspect.

All replacement material hose and fittings should be rated for no less than 600 psi. Such hoses can be obtained from Strong Manufacturing Company.

Do not use other hoses unless specifically advised by the Strong Manufacturing Company.

Caution: ALL HOSES SHOULD BE FITTED WITH "FULL FLOW" CONNECTIONS. Connectors, which reduce the hose i.d., will cause increased pressures and reduced flows. Do not operate the machine unless properly functioning hydraulic pressure gauges are in place. The pump gauge registers pressure required by the hydraulic motor to turn the pump. A sudden rise in pressure indicates a blockage is about to occur and alerts the operator to stop pumping, reverse pump and remove blockage. While pumping material the rotor-stator pump can develop higher pressure than it does while pumping just water. Failure to stop the pump could cause the hose to rupture or uncouple possibly striking someone causing severe bodily injury such as cuts, bruises, broken limbs or possibly death.

Caution: NEVER USE WEATHERED, ROTTEN, DAMAGED HOSES OR HOSES WITH DAMAGED FITTINGS IN CONJUNCTION WITH PUMPING OPERATIONS. They represent a hazard to operators, bystanders, and persons handling the hoses. If a hose or a fitting should burst under pressure, persons could be injured.

B. Pump

1. When removing a section of hose, pressure must be relieved before undoing a fitting. This can be done by putting the pump in reverse and running it slowly until the discharge hose at the pump becomes soft. Failure to do this will result in the hose being under pressure when the fitting is undone, and material being blown out when disconnected, striking the face and eyes with the danger of injury or blindness. Also, there the hose could whip about and cause an injury.

2. When pumping in reverse, be sure that material is flowing back into the hopper as evidenced by the materials level in the hopper rising. Watch the discharge hose to avoid collapsing it and causing the pump to run dry.

3. Never run the materials pump dry because just a few minutes of running dry will ruin the pump stator. Always have water or slurry in hopper when running pump.

C. Hydraulics

1. Only qualified hydraulic mechanics should be allowed to work on any portion of this machine's hydraulic systems.

2. These valves are preset at pressures low enough to protect all the components of the machine from pressures higher than they are rated. Again, **only** Strong Manufacturing personnel or persons with experience in hydraulics should adjust relief valves. Relief valves are factory set a 2000 PSI unless otherwise noted.

   These values should never be exceeded!

   Caution: HYDRAULIC COMPONENTS CAN RUPTURE OR EXPLODE IN A HIGH-PRESSURE SITUATION IF ANY OF THESE VALUES ARE EXCEEDED. A MOTOR, OR HOSE EXPOSED TO GREATER PRESSURES THAN IT IS RATED, CAN BECOME A DEADLY PROJECTILE, RESULTING IN BROKEN BONES, CUTS, BRUISES OR EVEN DEATH.

3. Properly operating hydraulic pressure gauges should be on the machine at all times.

These gauges provide an instantaneous readout of hydraulic pressures required to power the system.

4. Relief valves can malfunction. If hydraulic pressure to any of the portion of the system ever exceeds the pressures listed in the above paragraph, the machine should be stopped immediately. The valve in question should be examined and properly adjusted only by Strong Manufacturing personnel or by a person experienced in hydraulics. A malfunctioning valve should be replaced immediately. However, without functioning pressure gauges, malfunctioning relief valves cannot be determined; thereby exposing personnel to potential injury caused by a component rupturing or exploding.

5. It is possible for excessive hydraulic pressure to develop if a hydraulic line is blocked. Extreme care should be exercised while working on this hydraulic system – damage to equipment and/or injury may result from misuse or careless operation of these components. Never loosely block off a hydraulic line. If a pipe plug or cap is used when testing hydraulic components, be sure it is tight – it can become a deadly projectile.

6. Always check to see that hydraulic valves are in neutral or off position, prior to starting engine.

7. Never disconnect a hydraulic line with engine running. When working on hydraulics, shut down the engine and disconnect the battery or remove the key. Never reset hydraulic relief valve to a setting above those listed in paragraph 2 of this section.

8. Inspect hoses regularly for wear. Replace if breaks, tears, or soft spots appear. For pressure hoses, replace with hoses designed to operate at or above 2000 PSI pressure and for return hoses, replace with hoses designed to operate at or above 1000 PSI.

9. Replace all components with same, or equal manufactured products.

10. Keep hydraulic oil off hot parts such as engine exhaust as the oil will ignite at high temperatures.

Caution: FAILURE TO OBSERVE THE ABOVE WARNINGS CAN RESULT IN SEVERE BODILY INJURY, INCLUDING EYE INJURY AND BURNS WITH LOSS OF SIGHT OR LIBS, CUTS, BRUISES OR POSSIBLE DEATH. EYE PROTECTORS SHOULD BE WORN AT ALL TIMES WHEN OPERATING OR WORKING ON THIS EQUIPMENT.

Guards

BE SURE ALL MACHINERY GUARDS ARE IN PLACE BEFORE OPERATING THE FLOOR-MATE 80. THE GUARDS PROVIDED WITH THIS MACHINE CONSIST OF THE FOLLOWING:

- **MIXER INLET GRATE**
- **WET MATERIALS HOPPER GRATE/SCREEN**
- **MIXER CHAIN GUARD**
- **AIR COMPRESSORBELT GUARD** (if equipped with optional air compressor)

Never operate the machine without **all** of these guards in place. The machine should be kept as clean as possible. Material should not be allowed to build up on warning signs, instructions, gauges, etc. It is also possible that material buildup could interfere with operation of the valves, thus presenting hazards of a general nature.

Danger: KEEP HANDS AND LIMBS CLEAR OF MOVING COMPOENNTS AS THEY MAY BECOME TRAPPED OR CAUGHT CAUSING SEVERE INJURIES SUCH AS CUTS, BRUISES, BROKEN LIMBS OR EVEN DEATH.

Mixer

Caution: ALWAYS WEAR SAFETY GOGGLES WHEN OPERATING OR WORKING AROUND THE MIXER. NEVER WEAR LOOSE CLOTHING OR HAVE LOOSE ARTICLES AROUND THE MIXER. ALWAYS TEST THE SAFETY KILL SWITCH BEFORE MIXING BEGINS. KEEP HANDS AND CLOTHING CLEAR OF MIXER AREA. Mixer paddles can catch hands of clothing as they turn, causing severe bodily injury be being pinned between the mixer blade and mixer walls. A loose article of clothing, if caught in the mixer blades, can pull an operator into the mixer.

1. It is very important to keep the mixer inlet grate in place during operation and clean-up.

2. The safety kill switch stops the engine if the mixer inlet grate is removed. This switch is crucial to the safe operation of the machine. **Never** under any circumstances remove, dismantle, or hinder the use of this switch in any way.

WARNING: OPERATION OF THIS EQUIPMENT WITHOUT GUARDS IN PLACE MAY LEAD TO SEVERE BODILY INJURIES SUCH AS CUTS, BRUISES, BROKEN LIMBS OR EVEN DEATH.

Eye Protection

Always wear safety glasses, goggles or a face shield when operating machine as dust and sand particles become airborne and could get into the eyes causing severe irritation or even permanent loss of sight.

D. Machinery

1. Read all **warning** and **caution** signs before starting machine.

2. Do not remove any guards or grates while engine is running. Stop engine, disconnect battery cable, and remove the key before removing a guard, or doing any work on machine.

3. Never operate machine with worn parts or loose parts that need adjustment.

4. Make sure all guards are in place before starting motor or engine.

5. If using a gasoline or diesel engine, never pour fuel into a hot engine. Allow engine to cool prior to filling fuel tank. Do not overflow fuel tank and spill onto engine. If spill occurs, wash away with water, making sure spillage is taken up with some type of absorbent. If nothing else, use a beg of cementitious mix. After containing spilled fuel, remove materials containing fuel from area.

6. Never operate equipment without having a BC dry chemical fire extinguisher available that is charged and in good operational condition.

7. Never operate equipment with excessive load.

8. Overloading the hydraulic system can be detrimental to hydraulic components as well as dangerous.

9. Inspect material hoses daily for wear or damage and replace with equal quality.

10. Keep empty bags out of area to prevent creating a tripping or fire hazard.

11. Loose clothing should not be worn by operator, or anyone working on, or around machine.

Caution: FAILURE TO OBSERVE THE ABOVE WARNINGS CAN RESULT IN SEVERE BODILY INJURY, INCLUDING LOSS OF EYES AND POSSIBLY DEATH.

E. Water

1. Never connect water to machine when line pressure is over 150 PSI.

2. Always flush water lines prior to connecting to machine as damage to the float valve may result from sand or other foreign particles getting into the system.

3. Use only potable water that is suitable for drinking.

4. Disconnect water from machine at end of shift; drain tank and lines, if possibility of freezing exists.

Caution: FAILURE TO OBSERVE THE ABOVE WARNINGS CAN RESULT IN SEVERE BODILY INJURY, INCLUDING LOSS OF EYES AND POSSIBLY DEATH.

Operation

Before operating this machine, be sure you have read and understand the operation and safety sections of this manual. Be sure all guards are in place and all services have been performed.

The Floor-Mate 80 is a multi-purpose machine when equipped with optional components. It may be used to mix, pump and spray cementitious slurries. The unit consist of a gasoline powered engine, a hydraulic pump, hydraulic driven patented double drum counter-rotating paddle mixer, automatic fill water tank and an optional air compressor.

The mixer RPM is governed by engine RPM and designed to operate with engine at full throttle. To engage the mixer, pull up on the mixer valve handle. To stop the mixer, push down on the mixer valve handle. The handle on the pump valve governs the speed of the pump. Pulling up on the pump valve handle energizes the pump in the forward position. Pushing down on the handle beyond the center position energizes the pump in the reverse position. The speed of the pump is controlled by moving the handle on the pump valve to positions between off and full speed. From the center OFF position, moving the handle up slightly will start the forward pump rotation, continuing to slowly raise the handle will slowly increase pump speed.

The following sequence should be adhered to when mixing and pumping the first batch. Fill fuel tank, check oil and connect the water hose. Start engine and allow it to warm up for 5 to 10 minutes. Arrange material in the area where it will be convenient to add to the mixer. Connect material hose to pump. It may be advantageous to pump a preliminary batch through the pump before pumping the specified materials. A slurry of cement or gypsum and water can be used. It can be mixed in the mixer or in a bucket by hand (one bag is sufficient). Pump the slurry into the hose and follow with the material to be pumped. If the gypsum is used, it must be of a type that will not flash set.

Allow the water tank to fill, close the mixer door. Add the amount of water required for the size batch to be mixed. Add the aggregate slowly to prevent the possibility of locking up the mixer.

After all the aggregate has been added, allow the mixer to mix for 1 to 3 minutes depending on the type of product. After thoroughly mixing, open the mixer door allowing the material to flow into the pump hopper. Close the mixer door. Start the pump. Watch for material hose plugging on the first batch. An indication of a plug would be a rise in hydraulic pressure, rise in pump pressure if equipped with an inline material pressure gauge or the stiffening of the material hose. After material begins to exit the end of the hose, another batch of material can be prepared.

In the event the material will not pump through the hose, reverse the pump by pushing down on the pump valve handle. Continue running the pump in reverse until the optional material pressure read 0 PSI and the hose becomes soft or easy to compress when stepped on or squeezed by hand. Disconnect the hose from the pump. Locate the blockage and remove the blockage by flushing the hose with water. Reconnect the hose to the pump and try again.

If the line is properly primed before a material with heavy aggregate is introduced into the hose the likelihood of a plug at start up is greatly reduced.

The speed of the material pump should be adjusted to match the speed of the mixer. At no time should the pump be allowed to run dry (without material in the pump hopper). If allowed to run dry, severe damage will occur to the material pump.

After completion of the job or day, water should be added to the mixer while the last batch is being pumped. When the material holding hopper is almost empty, open the mixer door and allow the water to flow into the pump hopper. Signal the mat at the end of the hose that water is coming. The hose man can signal the pump operator when the water arrives. The mixer man should immediately reverse the pump to prevent additional water from be discharged in a undesirable area. Having a container to catch the water should be advisable.

Move the hose to an area where it can be flushed out. With a wash down hose and nozzle, clean the inside of the mixer. Do not remove the mixer grate or stick anything through the mixer grate

without disconnecting the power supply. After the mixer is clean, close the door and fill with water. Open the clean-out door or plug on the pump hopper and wash out all remaining material. Close the door or replace the plug. Open the mixer door and allow the water to flow into the pump hopper. Engage the pump. After running the pump for several seconds disengage the pump and reverse to relieve hose pressure. Disconnect the hose. Wet a rag or sponge and place into the hose. Reconnect the hose. Engage the pump. Watch for the rag or sponge to discharge. Disengage the pump and relieve the hose pressure. Repeat the process until clean water exits the hose.

Clean off all remaining contaminates from the material hose and machine. Shut off power supply. Grease all fittings according to the maintenance schedule. It is essential that greasing be done at the end of the day or job to flush out any cement or gypsum that may have entered the bearings or packing.

After mixer and pump cleanup, disconnect the power supply and lock it out. At this time the mixer grate may be removed and thoroughly cleaned. Upon completion of mixer grate cleanup, replace the grate insuring proper installation and location so the safety switch operates properly. If the safely switch on the mixer is operating properly, the engine will be shut off it the mixer grate is removed.

Drain the water from the hoses, especially during freezing temperatures. Drain all water from tank and water hoses or fittings. Secure all guards to prevent loss during transport. The machine should now be ready for transporting.

Caution:

- AT NO TIME SHOUD ANY CLEAN UP OR SERVICE, WHERE ONE WOULD BE EXPOSED TO MOVING COMPONENTS, BE PERFORMED ON THIS EQUIPEMNT WITHOUT SHUTTING IT OUT.

- DO NOT OPERATE THIS EQUIPMENT FROM ANY LOCATION EXCEPT THE OPERATOR'S STATION.

- DO NOT REMOVE ANY GUARDS WITHOUT DISENGAGING THE POWER SUPPLY AND LOCKING IT OUT.

- DO NOT STAND OR SIT ON ANY GUARD OR GRATE.

FAILURE TO OBSERVE THE ABOVE CAUTIONS COULD CAUSE SEVERE BODILY INJURY SUCH AS CUTS, BRUISES, BROKEN LIMBS OR POSSIBLY DEATH.