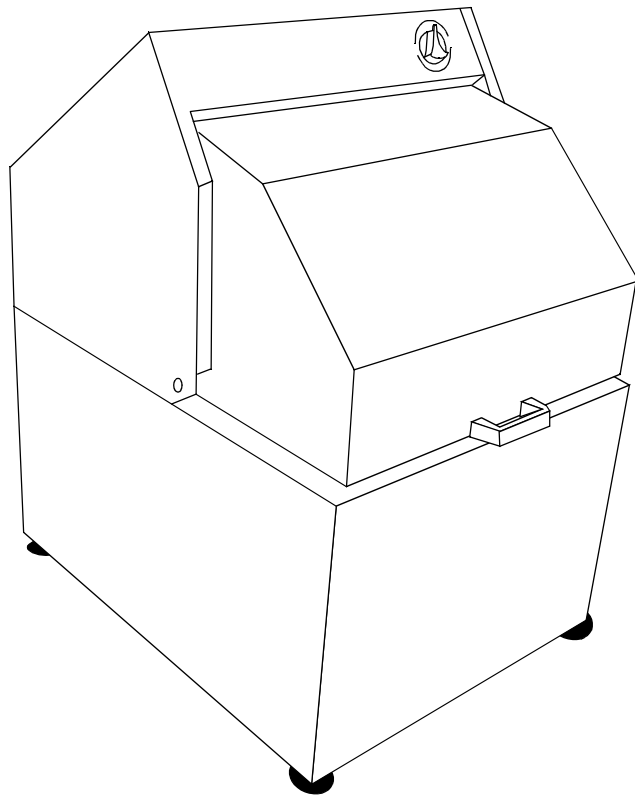




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***Fluid Management®***

***H-5 High Speed  
Paint Mixer  
With Electromechanical  
Timer System  
Operating and  
Instruction  
Manual***



Part # 26096  
Rev. A  
10/08/01

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ISO 9001  
ISO 14001

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**SAFETY  
INFORMATION**

**MIXER WARNING LABELS**

You should become familiar with important warning labels which are affixed to the mixer, as well as the symbols which appear throughout this manual.

Read all warning labels that are on the mixer. Keep them clean so they are easy to read. If the warning labels become damaged or unreadable, new labels can be purchased from Fluid Management. See the parts list in the back of the manual for ordering information.

**SAFETY NOTICE INFORMATION**

The two main safety notices used in this manual are **Warning** and **Caution**. Notices in this manual will look like the example below:

**Warning Notice**

**WARNING: ELECTRICAL HAZARD**



Do not operate the mixer with the door open. Disconnect power before servicing.

A **Warning** notice tells you about a hazard that could cause serious injury to you or extensive damage to the mixer. This information is placed at the beginning of the manual to emphasize the importance of safety to your well being.

When you see a **Warning** notice in this manual, read it carefully. Before continuing with the operation of the mixer, take all necessary precautions to avoid potential injury.

**Caution Notice**

**CAUTION: ELECTRICAL HAZARD**



All electrical components must be kept dry. Never place containers of liquid on or near the control box.

## SAFETY INFORMATION

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A **Caution** notice tells you about a danger that could cause injury to you or minor damage to the mixer. When you see a **Caution** notice in this manual, read it carefully and be sure you understand it before continuing.

### Information Notice

**NOTE:** \_\_\_\_\_



If the cabinet vibrates, loosen the locking nuts on the right front leveling foot and slightly adjust the length.

An **Information** notice gives details that will assist you in efficiently using the mixer. When you see an **Information** notice in this manual, know that it is there to save you time and energy.

### INTRODUCTION

The Harbil H-5 High Speed Paint Mixer is a basic, automatic mixer designed with concern for safety, reliability and ease of use. It is specifically designed to be placed on the floor. The gear drive assembly requires no lubrication. The belt should last for many years with occasional adjustments. It is a nearly maintenance free device that should deliver many years of reliable service. Its features include:

- Heavy-duty, high-capacity components and a durable finish for long wear.
- Vibration-free mixing for blending and conditioning paint.
- Pre-set mixing times with solid state electronic controls and touchpad.
- Automatic shut off if the door is opened during the mixing operation.

### SPECIFICATIONS

Height 40" (101.6 cm.) *WITH DOOR OPEN*

Width 24-1/8" (61.5 cm.)

Depth 31-1/4" (79.4 cm.)

Weight 310 lbs. (140.6 kg.)

Motor 1/3 HP (Draws 6.0 Amps @ 115 VAC)

### TYPICAL ELECTRICAL SUPPLY

See name plate for specific information.

115 V  $\pm$  10%, 60 Hz 20 Amp

## General Locations

- *MECHANICAL TIMER* - The twist knob controls mixing time.
- *DOOR SAFETY SWITCH* -The Door must be closed continuously to operate the paint mixer.
- *WARNING STICKERS* - Read these important messages for safety.
- *ADJUSTABLE FEET* - The feet adjust to balance the mixer.

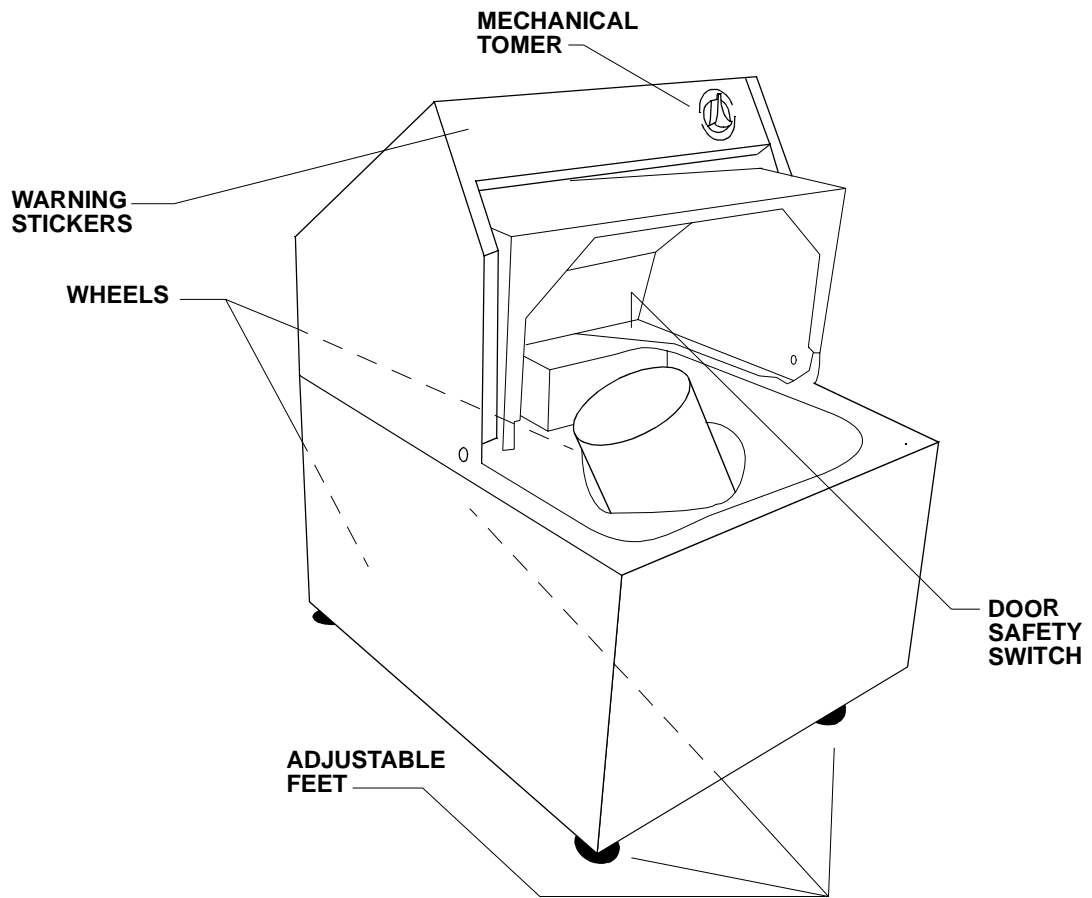


Figure 1 General Locations



### Control Panel Push-buttons

- *POWER SWITCH/TIMER* switch for applying power to the machine and setting mix time.
- *GRADUATION* markings for indicating mixing times.

Before operating the mixer, carefully read the following important information.

### WARNINGS

- Verify that your paint mixer is properly balanced on the floor. Improper balance may cause severe damage to the machine during the mixing operation. All feet must be adjusted so as to be firmly contacting the floor.
- Always shut off the POWER and unplug the mixer from the AC power outlet before servicing the paint mixer.
- THIS MACHINE IS NOT EXPLOSION-PROOF AND MUST NOT BE USED IN A FLAMMABLE ATMOSPHERE.

### CAUTIONS

- Do not run the paint mixer without a container in place.
- Do not run the paint mixer before removing shipping bolts and blocks.

### INSTALLATION      UNPACKING AND SETUP

#### INSPECT THE CRATE FOR DAMAGE

##### **IMPORTANT:**

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If any damage is found, notify the carrier at once and arrange for inspection in order to claim recovery. Claims for damage must be made by the consignee (YOU). The carrier assumes full responsibility upon acceptance of shipment and will not entertain any claims by the consignor (Fluid Management).

#### REMOVE SHIPPING BLOCKS

1. Carefully tilt the the base cabinet at an angle providing access to the lower part of the mixer.
2. Remove two (2) bolts and one (1) screw holding shipping blocks.
3. Set the mixer down and open the door.
4. The shipping blocks are joined together with a long cord. Use this cord to pull the blocks to the opening and lift out of the mixer.
5. With the shipping blocks removed, return the mixer to the upright position.

#### BALANCING

Although the mixer is balanced by the manufacturer, variations in surfaces may necessitate further adjustment.

##### **WARNING:**

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Improper leveling may cause severe damage to the paint mixer when in mixing operation.

1. Balance the mixer by adjusting the three (3) feet as necessary.
2. Lock the feet into place by tightening the lock nut to the frame insert.

**CONNECTING TO THE POWER SOURCE**

**NOTE:**



The unit must be plugged into a dedicated electrical line with no other equipment using the same circuit.

Connect the mixer to a separate, dedicated circuit; for example: 120 volt, 20 ampere. The mixer requires a single, grounded outlet. No other equipment is to be used on this dedicated line. See “Grounded Outlet” on page 13.

**EXTENSION CORDS**

Extension cords for 220 VAC models are not recommended. If an extension cord is to be used for 110 VAC models, it should not be combined with other extension cords. Use only a 3-wire extension cord that has a 3-pole grounding plug. Power should be provided by a 3-pole receptacle that will accept the plug on the product. Make sure that your extension cord is in good condition. This equipment draws 6.4 Amps at 115 VAC and 3.4 Amps at 220 VAC. An extension cord must be heavy enough to carry the current your product will draw. An undersized cord can cause a drop in line voltage resulting in loss of power, overheating and damage to the electronics.

The following chart represents the wire gauge size required in extension cords for the distance from the grounded receptacle to the equipment.

<b>DISTANCE</b>	25 ft	50 ft	100 ft	150 ft	200 ft	250 ft	300 ft	400 ft	500 ft
<b>GAUGE SIZE 220V</b>	18	18	16	14	12	12	10	10	8
<b>GAUGE SIZE 110V</b>	18	16	12	10	10	8	6	6	6

**Figure 2 Minimum Wire Gauge for Extension Cords**

### GROUNDING

This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electrical shock by causing the over current protection device to open the electrical circuit. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

**DANGER** - Improper installation of the grounding plug can result in a risk of electric shock. If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.

#### **DANGER:**

---



Improper use of the grounding plug can result in a risk of electric shock.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded. Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.

This product is for use on a nominal 120-volt circuit and has a grounding plug that looks like the plug illustrated in Figure 3 on page 13. A temporary adapter that looks like the adapter illustrated in Figure 4 on page 13 may be used to connect that plug to a 2-pole receptacle as shown, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green colored ridged ear, lug or the like extending from the adapter must be connected to a permanent ground such as a properly ground outlet box cover. Whenever the adapter is used, it must be held in place by a metal screw.

**WARNING:**



After you have plugged the mixer into a dedicated power line and leveled it, inspect to be sure that you have removed the shipping materials inside the mixer.

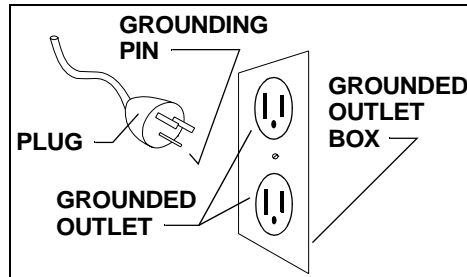


Figure 3 Grounded Outlet

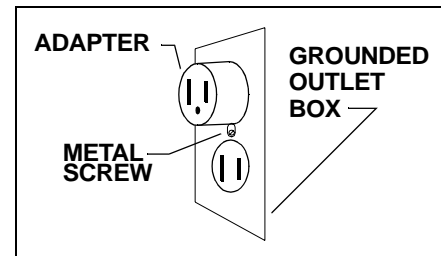


Figure 4 Adapter Grounding

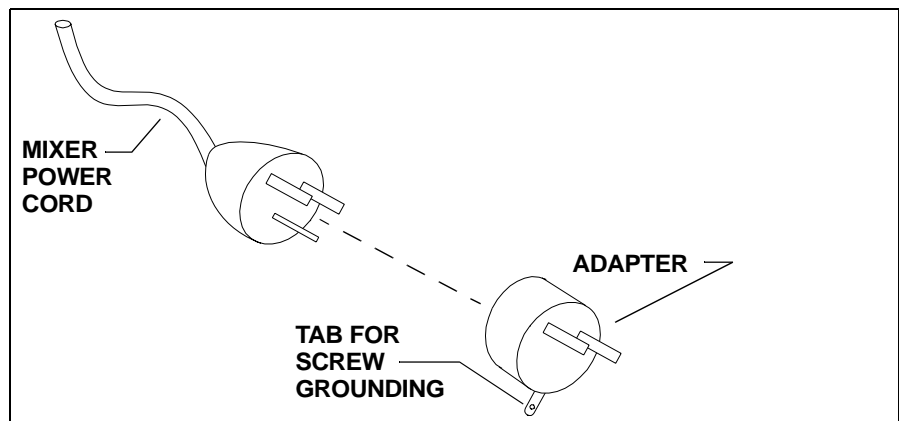


Figure 5 Adapter

## BASIC OPERATION

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### BASIC OPERATION

1. Open the door.
2. Place a can of paint in the mixer with the bail at the top.
3. Close the door. **A safety switch prevents operation of the paint mixer while the door is open.**
4. Apply power to the paint mixer turning the control knob clock-wise to the appropriate time setting.
5. Mixer stops automatically when mixing is finished.

**NOTE:** Generally, darker colors require longer mixing times. The timer can be set for a mixing time of between 5 and 120 seconds.

6. After the mixer has stopped, open the door and remove the container of paint.

**MAINTENANCE  
PROCEDURES**

To ensure safe, dependable operation of the paint mixer, follow the maintenance schedule detailed below:

<b>AS NEEDED</b>
Cleaning:
<ul style="list-style-type: none"><li>• Clean all accessible inside surfaces with soap and water.</li></ul>
<ul style="list-style-type: none"><li>• Clean control panel surfaces with soap and water.</li></ul>
<ul style="list-style-type: none"><li>• Clean all outside cabinet surfaces with soap and water.</li></ul>

<b>EVERY 6 MONTHS OR 7500 CYCLES</b>
Adjustments:
<ul style="list-style-type: none"><li>• Adjust belt tension as needed.</li></ul>

# MAINTENANCE PROCEDURES

---

Use the table below to record your scheduled maintenance on the mixer.

**CAUTION:** \_\_\_\_\_



Never lubricate gears, as this could cause slippage if belt is contaminated. Keep belt clean, dry and free of soap and water.

SCHEDULED LUBRICATION & MAINTENANCE RECORD			
CYCLES	COMPONENT	DATE	<input checked="" type="checkbox"/> BY:
7500	Belt		



**TROUBLE-SHOOTING CHART**

Using the chart below, locate the problem in the first column, then select the probable cause to check and action to take from the next two columns. The problems are arranged from the simplest to the most complex.

Where appropriate, refer to the Servicing and Repair section to correct the problem.

PROBLEM	CHECK	ACTION
The paint mixer does not start.	<ul style="list-style-type: none"> <li>✓ if mixer attached to power.</li> <li>✓ receptacle for voltage.</li> <li>✓ if the front door is not closed.</li> </ul> <p>Motor overload may be tripped.</p> <p>May be problem with printed circuit board.</p> <ul style="list-style-type: none"> <li>✓ door limit switch.</li> </ul>	<ul style="list-style-type: none"> <li>• Connect to power source.</li> <li>• Contact electrician.</li> <li>• Close the front door.</li> <li>• Allow motor to cool.</li> <li>• Call Customer Service.</li> <li>• Replace printed circuit board.</li> <li>• Replace as required.</li> </ul>
Paint mixer will not shut off.	<ul style="list-style-type: none"> <li>✓ timer control board.</li> <li>✓ if relay is stuck in the closed position.</li> </ul> <p>May be problem with printed circuit board.</p>	<ul style="list-style-type: none"> <li>• Replace if necessary.</li> <li>• Replace if necessary.</li> <li>• Call Customer Service.</li> <li>• Replace printed circuit board.</li> </ul>
The shake motor has voltage and hums, but it will not run.	<ul style="list-style-type: none"> <li>✓ for low line voltage.</li> <li>✓ V-belt tension.</li> <li>✓ V-belt</li> <li>✓ motor.</li> </ul>	<ul style="list-style-type: none"> <li>• Confirm that the mixer is on a dedicated line.</li> <li>• Correct tension.</li> <li>• Replace as needed.</li> <li>• Replace motor.</li> </ul>

## TROUBLE-SHOOTING CHART

<p>An excessive amount of vibration occurs.</p>	<ul style="list-style-type: none"> <li>✓ if mixer is out of balance.</li> <li>✓ if adjustable leg is broken or damaged.</li> </ul>	<ul style="list-style-type: none"> <li>• Balance by adjusting the legs.</li> <li>• Replace adjustable leg.</li> </ul>
<p>The POWER light is on and nothing happens.</p>	<ul style="list-style-type: none"> <li>✓ if the motor connections.</li> <li>✓ for broken wire motor cabling.</li> <li>✓ for faulty contact block on power switch.</li> <li>✓ for problem with the motor.</li> <li>✓ for problem with printed circuit board.</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten motor connections as required.</li> <li>• Replace motor cable as needed.</li> <li>• Replace motor cable as needed.</li> <li>• Replace motor.</li> <li>• Call Customer Service. Replace printed circuit board.</li> </ul>
<p>The POWER light does not turn on and nothing happens.</p>	<ul style="list-style-type: none"> <li>✓ for problem with POWER switch, light or operator button.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace as needed.</li> </ul>
<p>The POWER light does not turn on and mixer runs normally.</p>	<ul style="list-style-type: none"> <li>✓ for problem with POWER switch, light.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace as needed.</li> </ul>
<p>The mixer starts slowly and then increases to normal speed in a few seconds.</p>	<ul style="list-style-type: none"> <li>✓ shake motor V-belt tension.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the shake motor V-belt tension.</li> </ul>
<p>The mixer speeds up and slows down.</p>	<ul style="list-style-type: none"> <li>✓ if the door is making partial contact with the safety switch.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust safety switch.</li> </ul>
	<ul style="list-style-type: none"> <li>✓ for a damaged wire in motor cabling.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace motor cable.</li> </ul>

### SERVICING AND REPAIR

#### GENERAL INFORMATION

If you do not feel confident about disassembling the paint mixer or replacing a part, DO NOT ATTEMPT THE PROCEDURE. Should problems or questions arise, contact Customer Service at Fluid Management.

Carefully read all of the instructions before you begin. For component identification and location, refer to the Parts Section of this manual.

#### SAFETY PROCEDURE

##### Warning

#### WARNING: ELECTRICAL HAZARD



Always shut off the POWER switch and unplug the mixer before servicing.

##### Caution

#### CAUTION:



Wear your safety glasses to prevent possible injury.

### CHANGING POWER SWITCH

Read all of the following instructions. If you have any doubt about performing these procedures, please contact Customer Service at Fluid Management. Turn to the Parts Section of this manual for component identification and location.

#### **WARNING: ELECTRICAL HAZARD**



Always shut off the POWER switch and unplug the mixer before servicing.

1. Unplug the power cord from the electrical outlet.
2. Remove the four (4) screws at the top of the control panel and save for later use.
3. Lift the control panel off of the mixer enough to expose the wiring.
4. Unplug the wire Harness from the rectangular 6-pin connector. This will free the control panel from the mixer.
5. Remove the control panel and place to the side.
6. Remove the replacement switch assembly from the shipping container.
7. Unplug the two (2) brown wires from the terminals labeled **3** and **4** on the defective switch assembly.
8. Plug the same two (2) brown wires into the terminals labeled **3** and **4** on the replacement switch assembly.
9. Unplug the brown and blue wires from the terminals labeled **(X1)** and **(X2)** on the defective switch assembly.
10. Plug the same two (2) blue and brown wires into the terminals labeled **X1** and **X2** on the replacement switch assembly. *(The blue wire must be terminated on the X2 terminal.)*
11. Remove the defective switch assembly and discard.
12. Mount the replacement switch assembly in the panel.
13. Re-connect the rectangular 6-pin connector and place the control panel back on the front of the mixer with the bottom edge behind the front panel of the cabinet.
14. Fasten the control panel with the four (4) screws.

## **CHANGING MOTOR**

Read all of the following instructions. If you have any doubt about performing these procedures, please contact Customer Service at Fluid Management. Turn to the Parts Section of this manual for component identification and location.

### **WARNING: ELECTRICAL HAZARD**



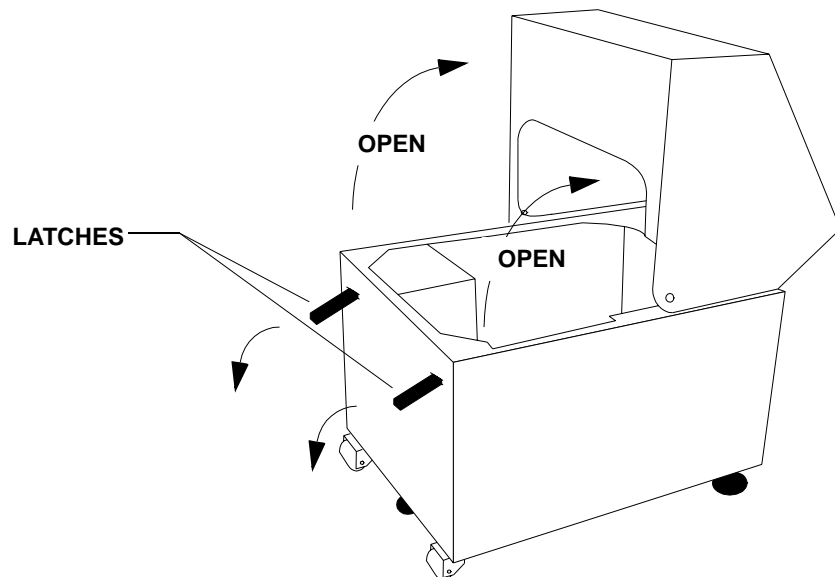
The mixer must be unplugged before attempting this procedure. There is a chance of electrical shock.

1. Unplug the power cord from the electrical outlet.
2. Close front cover of the machine.
3. Release the two (2) latches as shown and open rear of machine.
4. The belt tension is adjustable with an adjustment bolt and locking nut. To remove belt back off the locking nut and adjust with adjustment bolt as shown in “Belt Adjustment” on page 23.
5. Remove belt and save as required.
6. Remove the plate covering the motor saving mounting screws for reassembly.
7. Remove cover plate from motor and remove the three (3) wires.
8. The motor is foot-mounted. Remove mounting bolts and motor.
9. Using the same mounting hardware, mount the replacement motor.
10. Terminate the three (3) motor wires to the motor and secure the cover plate.
11. Place the plate covering the motor as it was earlier.
12. Install belt as shown in “Belt Adjustment” on page 23.
13. Tension is properly adjusted when approximately five (5) pounds of force deflects belt 1/4".
14. Close back cover of machine and secure with latches.
15. Plug machine into power source and test as required.

### CHANGING OR ADJUSTING V-BELT

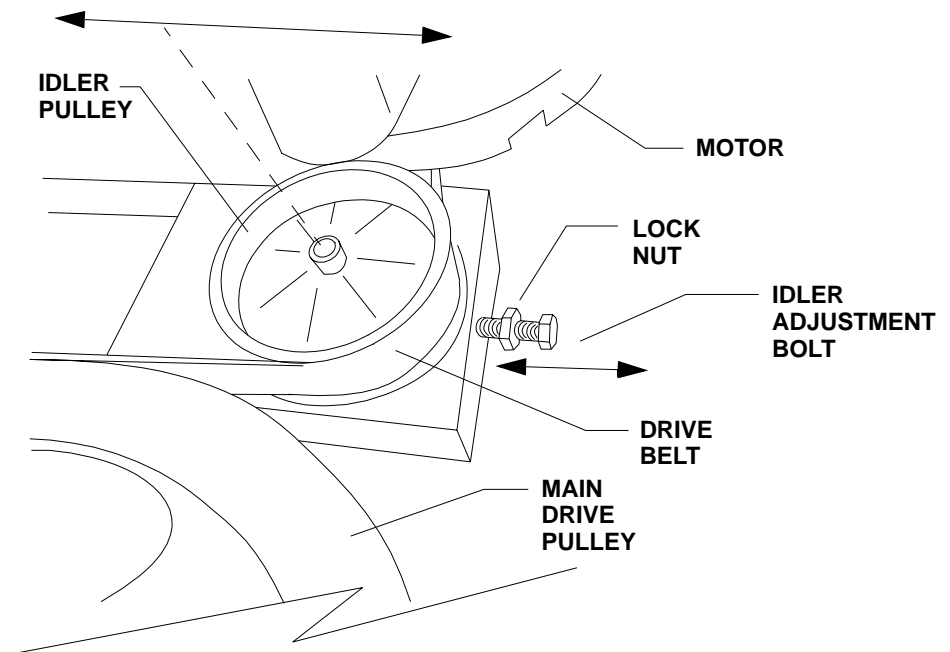
Read all of the following instructions. If you have any doubt about performing these procedures, please contact Customer Service at Fluid Management. Refer to the Parts Section for component identification and location.

1. Unplug the power cord from the electrical outlet.
2. Close front cover of the machine.
3. Release the two (2) latches as shown and open rear of machine.



**Figure 6 Opening Rear of Machine**

4. The belt tension is adjustable with an adjustment bolt and locking nut. To loosen or tighten the tension, back off the locking nut and adjust with adjustment bolt as shown.
5. To replace the belt, back off the locking nut and loosen with adjustment bolt as shown. Remove belt and install replacement as required.



**Figure 7 Belt Adjustment**

6. Tension is properly adjusted when approximately five (5) pounds of force deflects belt 1/4".
7. Close back cover of machine and secure with latches.
8. Plug machine into power source and test as required.

**PARTS  
SECTION**

This section is designed to assist you in

- Performing service functions

and

- Identifying parts.

All repairs must be performed by qualified service personnel.

**TERMS:** Unless prior arrangements have been made, parts will be shipped UPS-COD. All prices are F.O.B. Wheeling, Illinois, and are subject to change without notice.

In all correspondence or phone orders for parts, please state model number and serial number of the Miller Mixer.

**RETURNS:** No parts are to be returned without prior authorization. A Returned Goods Authorization number is required.

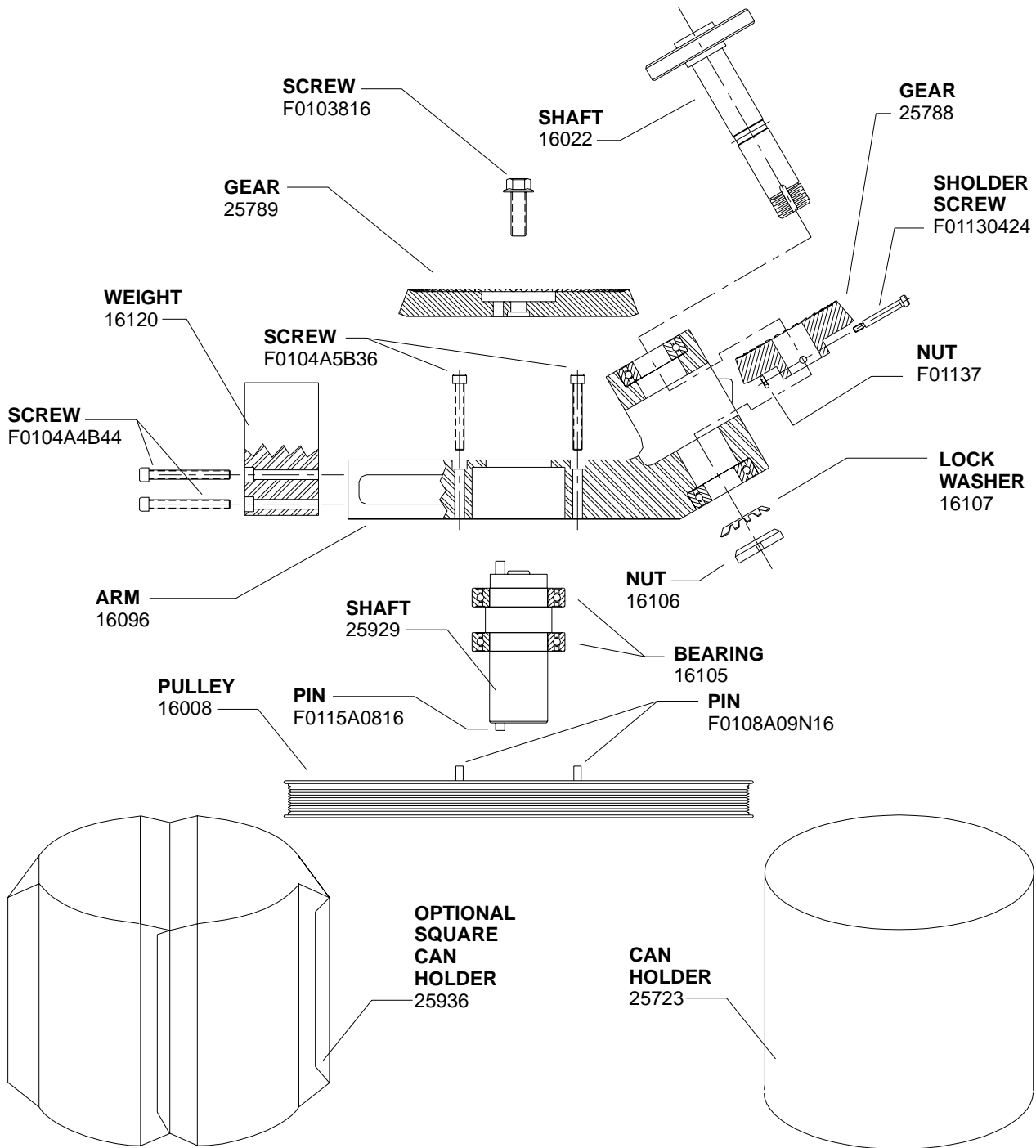








**PARTS SECTION**



**Figure 8 Transmission Arm Assembly**

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<b>PART NO</b>	<b>DESCRIPTION</b>	<b>NO REQ</b>
03179	LIMIT SWITCH (NOT SHOWN)	1
16008	DRIVE PULLEY	1
16096	TRANSMISSION ARM (INCLUDES BEARINGS)	1
16105	BEARING	2
16106	NUT	1
16107	LOCK WASHER	1
16120	COUNTER WEIGHT	1
16122	SECONDARY SHAFT	1
19337	TIMER KNOB (NOT SHOWN)	1
24895	TIMER (NOT SHOWN)	1
25723	SQUARE CAN HOLDER (OPTION FOR MIXING QURARE CANS)	1
25788	32 TOOTH BEVELED GEAR	1
25789	64 TOOTH BEVELED GEAR	1
25936	CAN HOLDER	1
25969	1/2 HP, 115 VAC MOTOR (NOT SHOWN)	1
26056	ONE GALLON ADAPTER (NOT SHOWN) (OPTION FOR MIXING ONE-GALLON CANS)	N/A
F0103816	1/2" - 13 X 1 SCREW	1
F0104A4B44	1/4-20 X 2-1/4 SCREW	2
F0104A5B36	5/16-18 2-1/4 SCREW	1
F0108A09N16	1/4 DOWEL PIN	2
F01130424	SHOULDER SCREW	1
F0115A0816	5/16 DOWEL PIN	2
F01173	NUT W/ LOCK WASHER	1

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