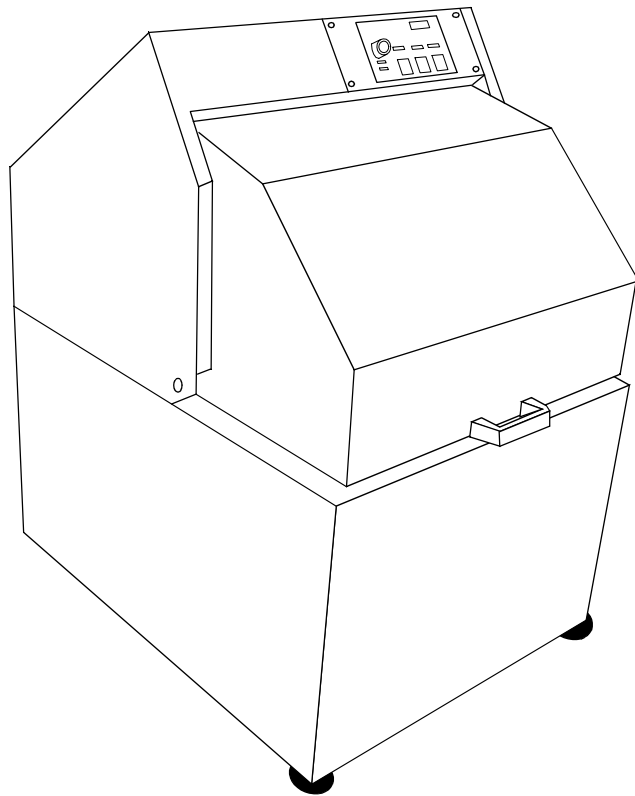




Fluid Management®

***H-5 High Speed
Paint Mixer***

***Operating and
Instruction
Manual***



Part # 26019
Rev. C
10/08/01

CONFIDENTIAL

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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

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 1/2 HP (Draws 8.4 Amps @ 115 VAC; 4.2 Amps @ 230 VAC)

TYPICAL ELECTRICAL SUPPLY

See name plate for specific information.

115 V \pm 10%, 60 Hz 20 Amp

215 V \pm 10%, 60 Hz 30 Amp

General Locations

- *CONTROL PANEL* - All controls are in one location.
- *DOOR SAFETY SWITCH* -The Door must be closed continuously to operate the paint mixer.
- *WARNING STICKERS* - Read these important messages for safety.
- *FEET* - The feet are factory adjusted to balance the mixer.

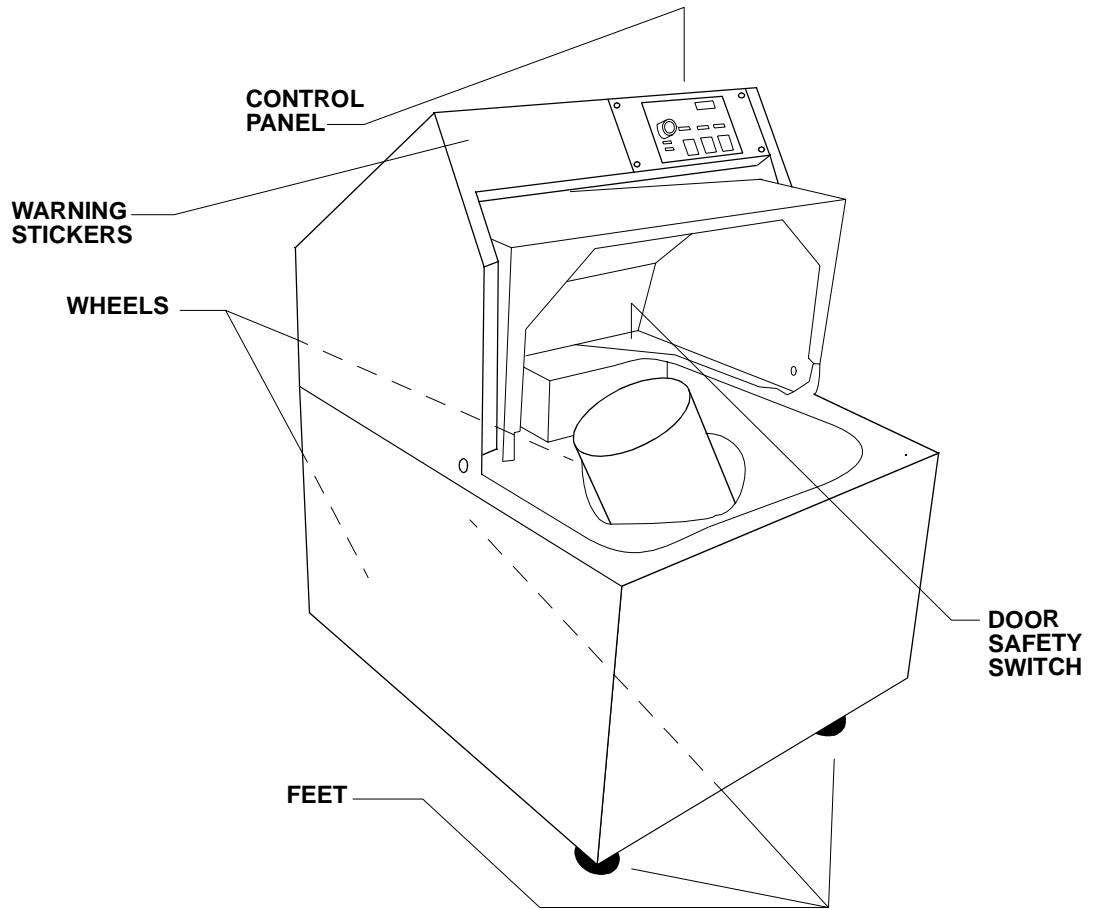


Figure 1 General Locations

Control Panel Push-buttons

- *POWER ON/OFF* pushbutton switch for applying power to the machine.
- *LIGHT* membrane pushbutton switch for mixing lighter colors for short periods of time.
- *MEDIUM* membrane pushbutton switch for mixing pastels and moderately tinted colors for normal periods of time.
- *DARK* membrane pushbutton switch for mixing dark or heavily tinted colors for longer periods of time.

Control Panel Displays

- *NUMERIC DISPLAY* for displaying total numbers of mixing cycles and time remaining to a cycle.
- *LIGHT* indicator illuminates when mixing short mixing time.
- *MEDIUM* indicator illuminates when mixing medium mixing time.
- *DARK* indicator illuminates when mixing long mixing time.

NOTE:



The POWER switch must be ON before the numeric display shows cycle count or before the H-5 can be operated.

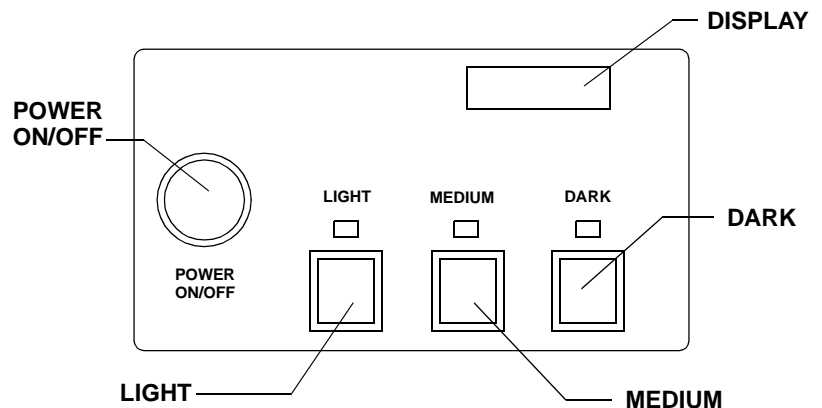


Figure 2 Control Panel

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

WARNINGS

- 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:



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. Look into the open mixer and locate the shipping blocks and bolts.
2. Remove and discard the three (3) bolts that secure the shipping blocks to the mixer.
3. Remove the bolt that fastens the front of the mixer to the skid.
4. Close the door, release the latches on the back of the mixer and open the back. (See Figure 7, on page 24)
5. Remove the bolt that fastens the back of the mixer to the skid.
6. Close and latch the back of the mixer.

WARNING:



Do **NOT** operate the mixer without first removing the shipping blocks.

BALANCING

The mixer is balanced by the manufacturer at the factory. It is not necessary to further adjust the feet.

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 “GROUNDING” 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 5.5 Amps at 115 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.

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

Figure 3 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 4 on page 14. A temporary adapter that looks like the adapter illustrated in Figure 5 on page 14 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.

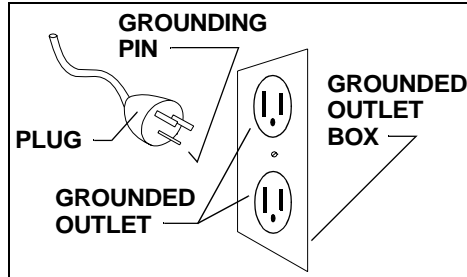


Figure 4 Grounded Outlet

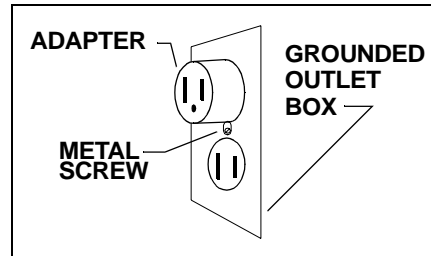


Figure 5 Adapter Grounding

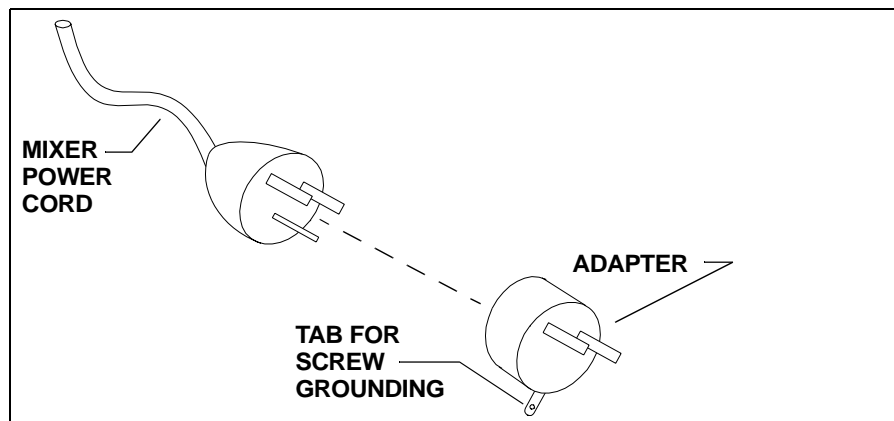


Figure 6 Adapter

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 by pressing the POWER switch.

NOTE: When power is applied to the mixer, and when it is not in a mixing cycle, the numeric display will show the number of cycles that the unit has been operated.

5. Push one of the three (3) membrane mix pushbutton.

NOTE: The LIGHT membrane pushbutton switch is used for 120 seconds of mixing time. The MEDIUM membrane pushbutton switch is used for 180 seconds of mixing time. The DARK membrane pushbutton switch is used for 240 seconds of mixing time. At this point, the mixer will start mixing. The appropriate indicator light will illuminate during the mixing period and the numeric display will start counting down the remaining time.

6. After the mixer has stopped, open the door and remove the container of paint. **Power need not be removed if the mixer is in frequent use. Turn off power at the end of the working period.**

NOTES:

MAINTENANCE PROCEDURES

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

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

WARNING: ELECTRICAL HAZARD



This mixer is equipped with an automatically reset thermal limiter to protect the motor against damage caused by overload

If the motor encounters a mechanical overload condition, a thermal limiter device will stop the motor. After the device cools, it could unexpectedly start the motor.

CAUTION: ELECTRICAL HAZARD



All advanced maintenance procedures must be performed by an authorized service representative.

Damage or injury could result if maintenance procedures other than routine cleaning and belt tension adjustments are performed by unauthorized service representatives.

MAINTENANCE PROCEDURES

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

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

TROUBLE-SHOOTING CHART

<p>An excessive amount of vibration occurs.</p>	<ul style="list-style-type: none"> ✓ if mixer is out of balance. ✓ if adjustable leg is broken or damaged. 	<ul style="list-style-type: none"> • Balance by adjusting the legs. • Replace adjustable leg.
<p>The power is on and nothing happens.</p>	<ul style="list-style-type: none"> ✓ the motor connections. ✓ for broken wire motor cabling. ✓ for faulty contact block on power switch. ✓ for problem with the motor. ✓ for problem with printed circuit board. ✓ for problem with POWER switch 	<ul style="list-style-type: none"> • Tighten motor connections as required. • Replace motor cable as needed. • Replace contact block as needed. • Replace motor. • Call Customer Service. Replace printed circuit board.
<p>The mixer starts slowly and then increases to normal speed in a few seconds.</p>	<ul style="list-style-type: none"> ✓ belt tension. 	<ul style="list-style-type: none"> • Replace as needed. • Adjust the belt tension.
<p>The mixer speeds up and slows down.</p>	<ul style="list-style-type: none"> ✓ for the door is making partial contact with the safety switch. ✓ for a damaged wire in motor cabling. 	<ul style="list-style-type: none"> • Adjust safety switch. • Replace motor cable.

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.
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 25.
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 sketch the wire connections.
8. Remove the three (3) conductors of the power cable that leads to the device.
9. The motor is foot-mounted. Remove mounting bolts and motor.
10. Using the same mounting hardware, mount the replacement motor.
11. Refer to the sketch, terminate the three (3) motor conductors of the power cable that leads to the device.
12. Place the plate covering the motor as it was earlier.
13. Install belt as shown in “Belt Adjustment” on page 25.
14. Tension is properly adjusted when approximately four (4) lbs. of force deflects belt 1/4".
15. Close back cover of machine and secure with latches.
16. Plug machine into power source and test as required.

CHANGING OR ADJUSTING POLY-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.

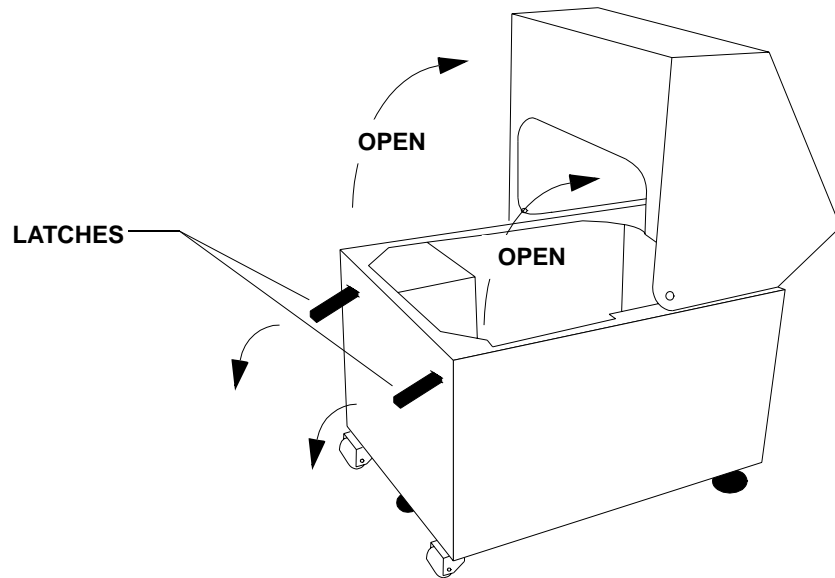


Figure 7 Opening Rear of Machine

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.

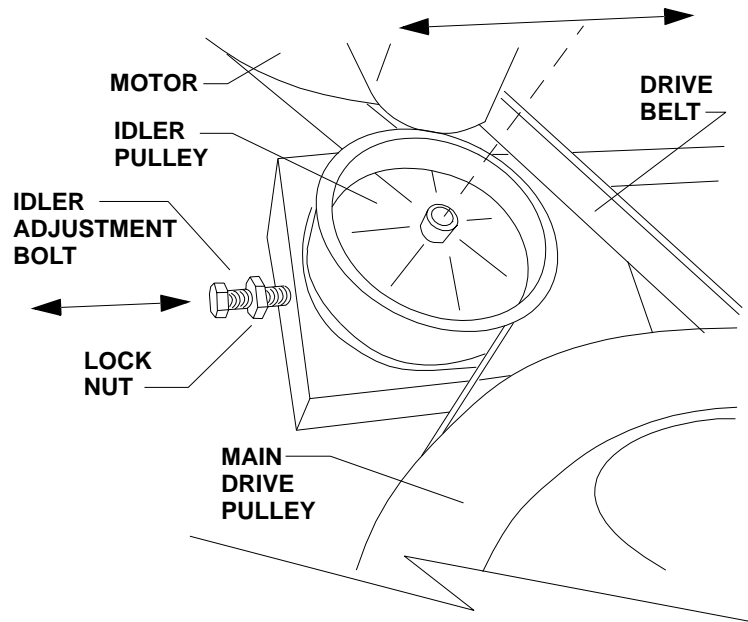


Figure 8 Belt Adjustment

6. Tension is properly adjusted when approximately four (4) lbs. 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.

CHANGING CONTROL PANEL

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 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. 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 discard.
6. Install the replacement part
7. Re-connect the rectangular 6-pin connector and place the control panel back on the front of the mixer.
8. Fasten the control panel with the four (4) screws.

NOTES:

**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 equipment.

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

EQUIPMENT MAINTENANCE LOG

RECORD MODEL NUMBER HERE: _____

RECORD SERIAL NUMBER HERE: _____

SERVICE DATE	DESCRIPTION & PARTS REPLACED (STATE IF UNDER WARRANTY)	SERVICED BY

SPARE PARTS ORDER

Fluid Management Parts Order Form

Photocopy and use this form to
Mail or Fax orders to:

Fluid Management A unit of IDEX / Phone: 1(800) 462-2466
1023 South Wheeling Road | Fax: 1(847) 537-5530
Wheeling, IL 60090

Sold To:

Ship To:

P.O. Number _____

PHONE # (____) ____ - ____

Ship Via: _____ Collect Prepaid

Taxable Tax Exempt (Fax copy of exemption certificate.)

QUANTITY	PART NUMBER	DESCRIPTION	UNIT PRICE

Comments: _____

Name (Please print)

Signature

Date:

PARTS SECTION

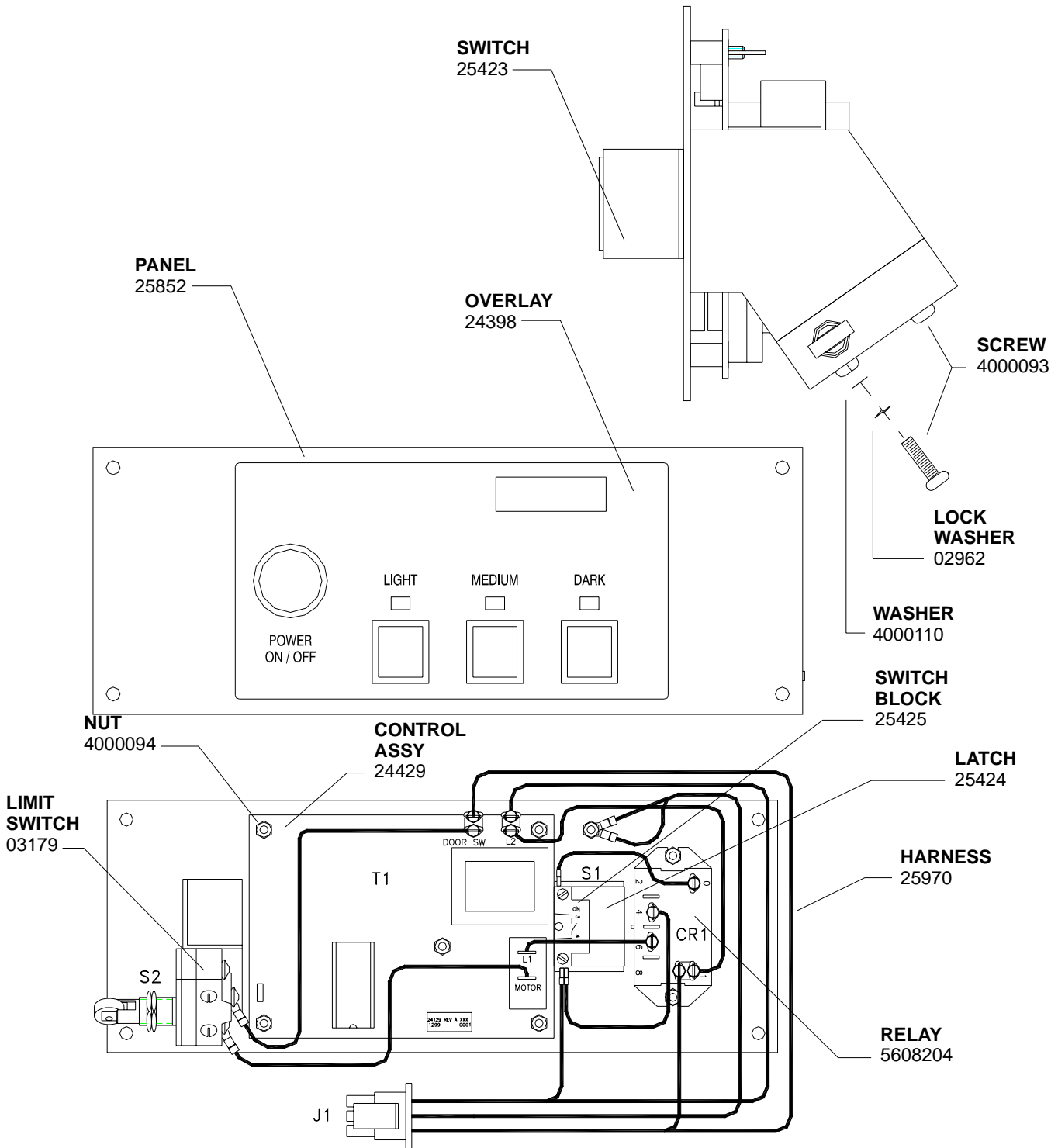


Figure 9 Control Panel 25967

PART NO	DESCRIPTION	NO REQ
02962	# 6 LOCK WASHER	2
24129	CONTROL ASSEMBLY WITH 3-SWITCH PCB	1
24398	OVERLAY	1
25423	POWER SWITCH OPERATOR	1
25424	SWITCH MOUNTING LATCH	1
25425	SWITCH MOUNTING BLOCK	1
25852	CONTROL PANEL	1
25967	CONTROL ASSEMBLY COMPLETE	1
25970	WIRE HARNESS	1
4000110	# 6 FLAT WASHER	2
5608204	RELAY	1
40000093	6-32 SCREW	10
40000094	6-32 NUT	2

PARTS SECTION

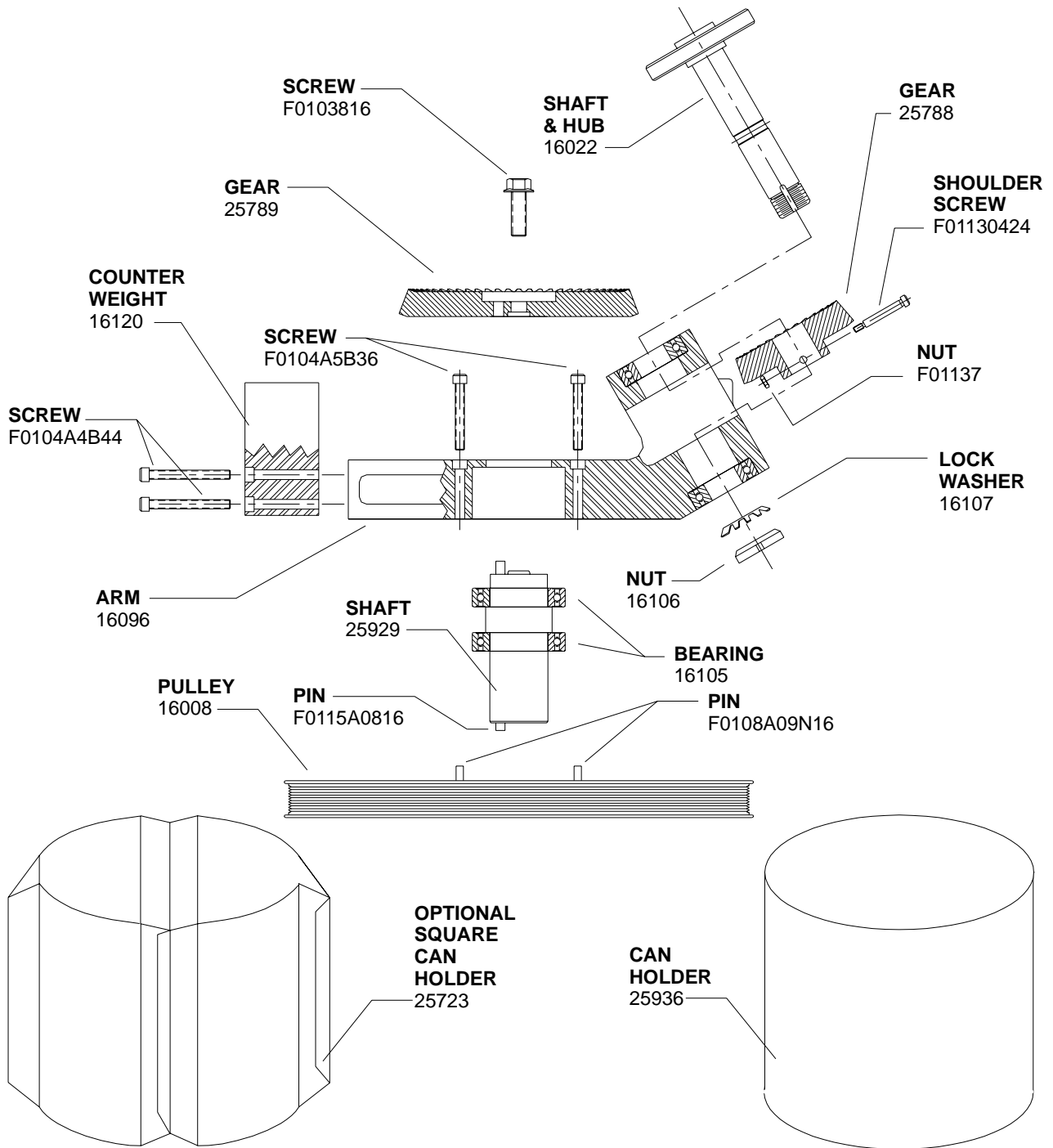


Figure 10 Transmission Arm Assembly

PART NO	DESCRIPTION	NO REQ
16008	DRIVE PULLEY	1
16022	SECONDARY SHAFT & HUB	1
16032	POLY-V BELT (NOT SHOWN)	1
16080	1/2 HP, 115/230 VAC MOTOR (NOT SHOWN)	1
16096	TRANSMISSION ARM (INCLUDES BEARINGS)	1
16105	BEARING	2
16106	NUT	1
16107	LOCK WASHER	1
16120	COUNTER WEIGHT	1
25723	SQUARE CAN HOLDER (OPTION FOR MIXING SQUARE CANS)	1
25788	32 TOOTH BEVEL GEAR	1
25789	64 TOOTH BEVEL GEAR	1
25935	TRANSMISSION ARM ASSEMBLY COMPLETE	1
25936	STANDARD CAN HOLDER	1
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	4
F0108A09N16	1/4 ROLL PIN	2
F01130424	SHOULDER SCREW	1
F0115A0816	5/16 DOWEL PIN	2
26056	ONE GALLON ADAPTER (NOT SHOWN) (OPTION FOR MIXING ONE-GALLON CANS)	N/A
F01173	NUT W/ LOCK WASHER	1

Part No. 26019

Rev. C

10/08/01

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