



BETTCHER Industries, Inc.

OPERATING INSTRUCTIONS AND SPARE PARTS LISTS



ULTRA DRIVE

High Speed Motor

MODEL UN-99

For Use With All Current
Electric Whizard® Trimmers

MODEL 173271 (115V/1/ 60HZ)
MODEL 173272 (230V/1/50-60HZ)

MANUAL #173299
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TMC #796

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Operating Instructions in other languages are available on request. Additional copies of Operating Instructions are available by calling or writing the local Representative or by contacting :

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The Information Provided In These Operating Instructions
Are Important To Your Health, Comfort And Safety.
For Safe And Proper Operation, Read This Entire
Manual Before Using This Equipment.



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Original Instructions

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SECTION 1.0 **Machine Specifications**

The Bettcher Whizard® Ultra Drive High Speed Motor is designed with the highest possible standards for safety in addition to high production efficiency.

The Whizard® Ultra Drive High Speed Motor Assembly described in this Operation Instruction has been tested by an independent and certified body, Underwriter's Laboratory (UL/CUL/CE), and complies with the Low Voltage Directive 73/23/EEC and EMC 89/336/EEC which includes conformity with the following standards :

- EN 50081-1
- EN 50082-1
- EN 60335-1
- IEC 335-1
- EN 55014-1/02.97
- EN 55014-2/02.97
- EN 61000-3-2/04.95
- EN 61000-3-3/01.95

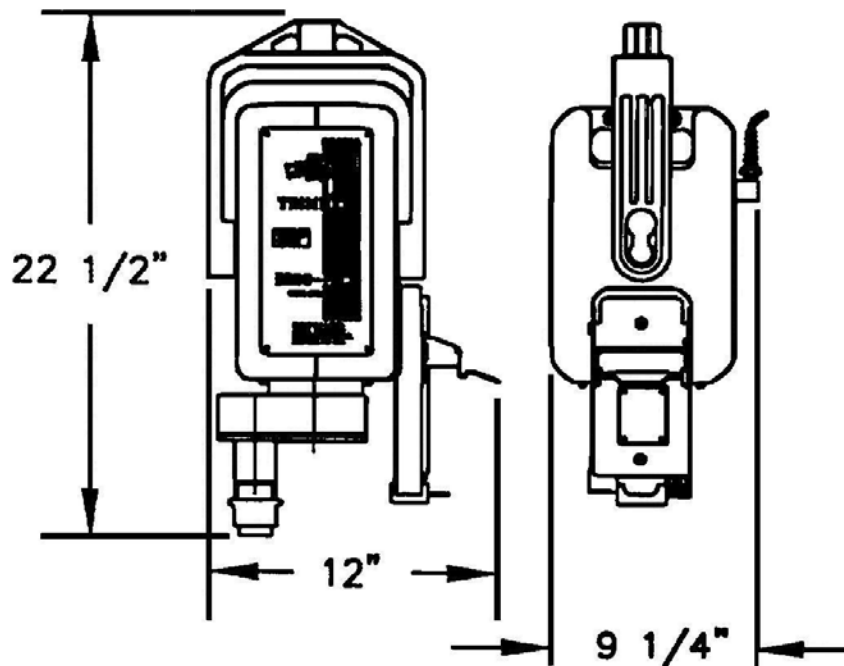
In addition, this product also conforms with the following American standards :
ANSI 3.34 and UL763.

Power Requirements:

Model 173271	115 VAC / 1 Phase / 60 Hz	5.2 Full Load Amps
Model 173272	230 VAC / 1 Phase / 50-60 Hz	2.5 Full Load Amps

General Whizard® Ultra Drive High Speed Motor Information:

Weight	35 lbs.
Overall Size	12" Wide x 9 1/4" Deep x 22 1/2" Long



SECTION 2.0 **Designated Use**

2.1 **Warning**



W A R N I N G



WHIZARD® TRIMMERS ARE USED FOR REMOVAL OF FAT AND TISSUE, THE RECOVERY OF LEAN MEAT FROM FAT AND AS A UNIVERSAL CUTTING TOOL IN THE MEAT INDUSTRY. ANY USE IN APPLICATIONS OTHER THAN THOSE FOR WHICH THE WHIZARD® TRIMMERS HAVE BEEN DESIGNED AND BUILT MAY RESULT IN SERIOUS INJURIES.



W A R N I N G



THE MANUFACTURER ASSUMES NO LIABILITY FOR ANY UNAUTHORIZED DESIGN CHANGES, MODIFICATIONS, OR USE OF PARTS NOT SUPPLIED BY THE MANUFACTURER

OR

THE USE OF PARTS NOT DESIGNED FOR USE ON THE SPECIFIC MODEL

AND

INCLUDES CHANGES IN OPERATING PROCEDURES MADE BY THE OWNER OR ANY OF HIS PERSONNEL.

THE USE OF PARTS OTHER THAN THOSE LISTED IN THE PARTS LIST OF THIS MANUAL MAY CAUSE BLADE LOCK-UP RESULTING IN AN UNSAFE OPERATING CONDITION.

FOR SAFE AND PROPER OPERATION, READ ENTIRE MANUAL BEFORE USING THIS EQUIPMENT.

2.2 Recommended Operation

The Whizard® Ultra Drive High Speed Motor Assembly has been designed for use with the following Whizard® Trimmers :

Model		Modular Model	
350	Trimmer	350M	Modular Trimmer
360	Trimmer	360M	Modular Trimmer
500	Bone Trimmer	500M 500MA	Modular Bone Trimmer Modular Angle Bone Trimmer
505	Bone Trimmer	505M 505MA	Modular Defatting Machine Modular Angle Defatting Machine
520	Bone Trimmer		
		564M	Modular Bone Trimmer
620	Bone Trimmer	620M 620MA	Modular Bone Trimmer Modular Angle Bone Trimmer
625	Fat Trimmer	625M	Modular Fat Trimmer
750	Trimmer	750M 754M	Modular Trimmer Modular Trimmer
850	Defatting Machine	850M 850MA	Modular Defatting Machine Modular Angle Defatting Machine
880-B	Primal Fat Shaper (Beef)	880B-M	Modular Primal Fat Shaper (Beef)
880-S	Primal Fat Shaper (Swine)	880S-M	Modular Primal Fat Shaper (Swine)
1850	Defatting Machine	1850M	Modular Defatting Machine
1880	Primal Fat Shaper	1880M	Modular Primal Fat Shaper
1000	Fat And Lean Trimmer	1000M	Modular Fat And Lean Trimmer
1300	Primal Fat Shaper	1300M	Modular Primal Fat Shaper
1400	Ham Finisher	1400M	Modular Ham Finisher
1500	Skinning Machine	1500M	Modular Skinning Machine

SECTION 3.0 **Function**

3.1 **Machine Functions**



The Whizard® Ultra Drive High Speed Motor has been designed to be used with all electric driven Bettcher Whizard® Trimmers plus UN84 Quick Release Flex Shafts and Casings. A custom belt drive and controller provides higher speed which provides faster blade speed.

A vertical motor drives a flexible shaft. The flexible shaft drives a rotating blade in the handpiece via a gear and pinion. The force to cut through meat and fats is provided by the drive motor and no longer by the worker. Forces applied by the worker are greatly reduced and limited to guiding the rotating knife blade. The Whizard® Ultra Drive High Speed Motor provides a mechanical advantage for the operator thus eliminating the need for manual tools such as knives and scissors.

An interlock feature in the hanger prevents turning on the motor while the Trimmer is in the hanger. A spring loaded latch on the handpiece hanger prevents the Trimmer from accidentally being knocked out of the hanger.

The motor will also shut off automatically when the Trimmer handpiece is placed in the hanger.




3.2 **Safety Recommendations And Warnings**

 <u>W A R N I N G</u> 
<p>ALWAYS TURN OFF THE MOTOR AND PLACE THE HANDPIECE IN THE HANGER BRACKET WITH THE CUTTING BLADE FACING THE MOTOR. NEVER LAY THE HANDPIECE DOWN ON THE WORKSTATION OR LET IT HANG FREE BY THE FLEX SHAFT CASING. NEVER PLACE THE HANDPIECE IN THE HANGER WHILE THE BLADE IS STILL REVOLVING.</p>



3.2 Safety Recommendations And Warnings (Continued)

 W A R N I N G 





ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEX SHAFT PRIOR TO SERVICING.

  W A R N I N G 

**ELECTRICAL SHOCK MAY OCCUR !
USE ONLY 3 WIRE GROUND TYPE CONNECTOR WHICH IS FURNISHED WITH THE MACHINE. THIS MUST BE CONNECTED TO AN EARTH GROUND VIA A SUITABLE GROUNDED THREE CONDUCTOR RECEPTACLE.
AVOID USE OF THIS MACHINE IN STANDING WATER.**

 W A R N I N G 

IF AT ANY TIME THIS MACHINE DOES NOT APPEAR TO OPERATE NORMALLY OR EXHIBITS A MARKED CHANGE IN PERFORMANCE, IT SHOULD BE IMMEDIATELY SHUT DOWN AND TAGGED AS "UNSAFE" UNTIL SUCH TIME AS PROPER REPAIRS ARE MADE THE MACHINE AGAIN OPERATES NORMALLY. FOLLOW YOUR COMPANY'S LOCKOUT/TAGOUT PROCEDURES.

  W A R N I N G  

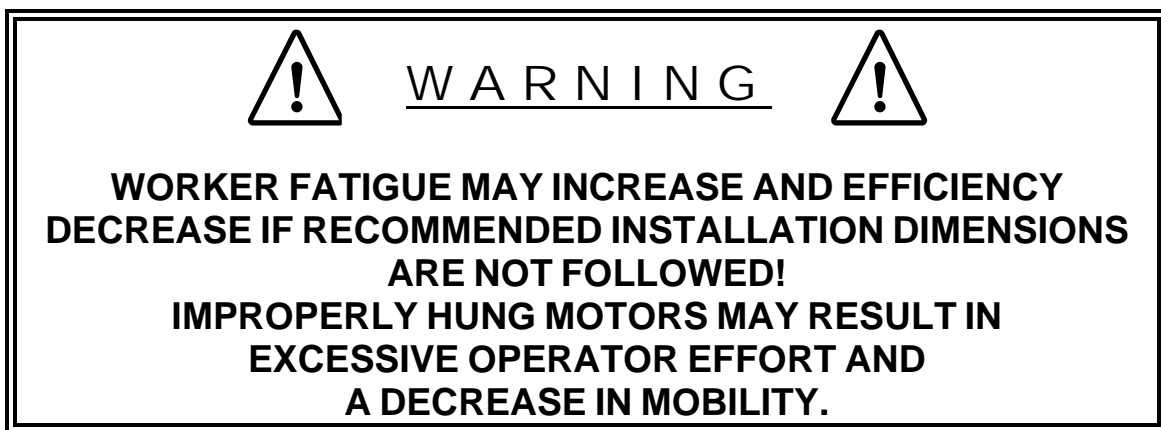
**SHARP BLADE MAY CAUSE CUT INJURY!
FOR PROPER PROTECTION OF HANDS, A METAL MESH GLOVE SHOULD BE USED ON THE NON-KNIFE HAND WHEN OPERATING THIS EQUIPMENT AND A PROTECTIVE GLOVE USED DURING THE HANDLING OF BLADES.**

SECTION 4.0 **Safety Features**

Strain relief design allows motor to be free-swinging.

The machine has an interlock on the handpiece hanger that prevents hanging the handpiece while the motor is running or turning the motor on while the handpiece is in the hanger. A spring loaded latch on the handpiece hanger prevents the trimmer from accidentally being knocked out of the hanger.

The motor will shut off automatically if the handpiece is placed into the hanger.



SECTION 5.0 **Installation**

5.1 **Mounting Position**

Correct installation is extremely important to achieve maximum efficiency for both the Whizard® unit and the operator. Incorrect installation may possibly hamper the operator's movements and cause undue wear or damage to the flex shaft and flex shaft casing parts of the unit.

The yoke should be rigidly mounted and parallel to the work station.

A 3/4 inch diameter pipe should be fastened to an overhead beam and be long enough to position the yoke as shown in Figure #1.

5.1 Mounting Position (Continued)

For further details on the ergonomic design considerations to the work station, please refer to the Whizard® Trimmer Ergonomic Manual. Copies may be obtained by making the request to Bettcher Industries at the contact locations listed in the back of this manual.

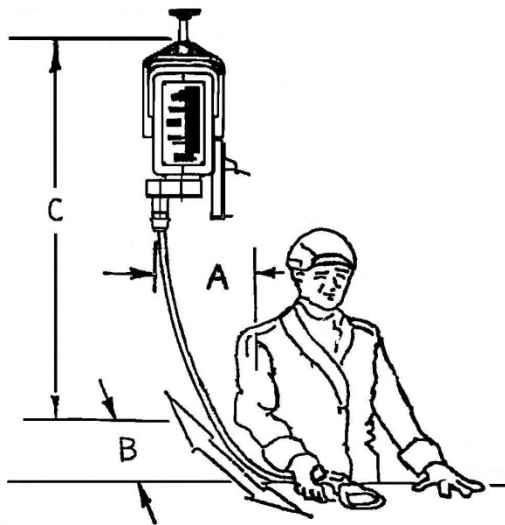


Figure #1

CASING SIZE	A	B	C
Small Diameter-Short	12"	12"	49½"
Small Diameter-Long	12"	12"	61½"
Small Diameter – Extra Long	12"	12"	61½" *
Large Diameter	12"	15"	63½"
Large Diameter – Extra Long	12"	*	63½" *

** Application Dependent; Distances Can Be Adjusted As Needed*

Dimension A = Distance Offset From Shoulder	Dimension B = Distance Out From Table Top	Dimension C = Distance Above Cutting Level
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It Is Strongly Recommended That A Safety Cable Or Chain Be Installed Through The Yoke And Around A Fixed Overhead Structure.

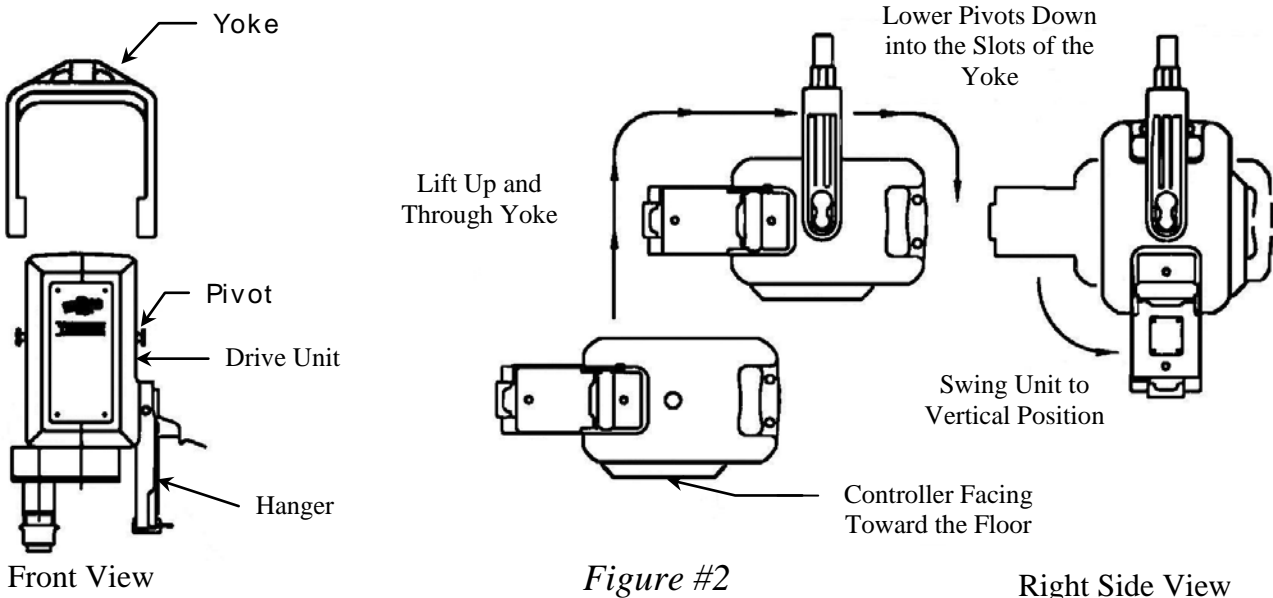
5.2 Mounting Drive Unit

ALWAYS REMOVE THE FLEX SHAFT/ CASING ASSEMBLY AND TRIMMER FROM THE DRIVE UNIT PRIOR TO MOUNTING OR REMOVING THE DRIVE UNIT.

Hold the drive unit so the controller side is pointing down and parallel to the floor. Lift the drive unit up and through the yoke opening aligning the flats on the pivots of the drive unit with the slots in the yoke inserts. Then lower the drive unit into the inserts and carefully allow the drive unit to slowly rotate to its vertical position. The drive unit should swivel freely in the yoke.

The hanger should appear on the right side when facing the front of the unit.

To remove the drive unit from the yoke, rotate the drive unit so the controller side is pointing down and parallel to the floor, then lift up and out of the yoke.



5.3 Attaching Flex Shaft/Casing Assembly

Install the flex shaft/casing assembly to the motor disconnect by lifting the disconnect collar and inserting the adapter end of the casing into the disconnect body. It may be necessary to rotate the casing assembly to align the square drive of the flex shaft with the square hole in the motor shaft adapter. Release the disconnect collar to secure the casing to the motor assembly. The flex shaft/casing assembly should swivel freely.

5.4 Power Source Connection

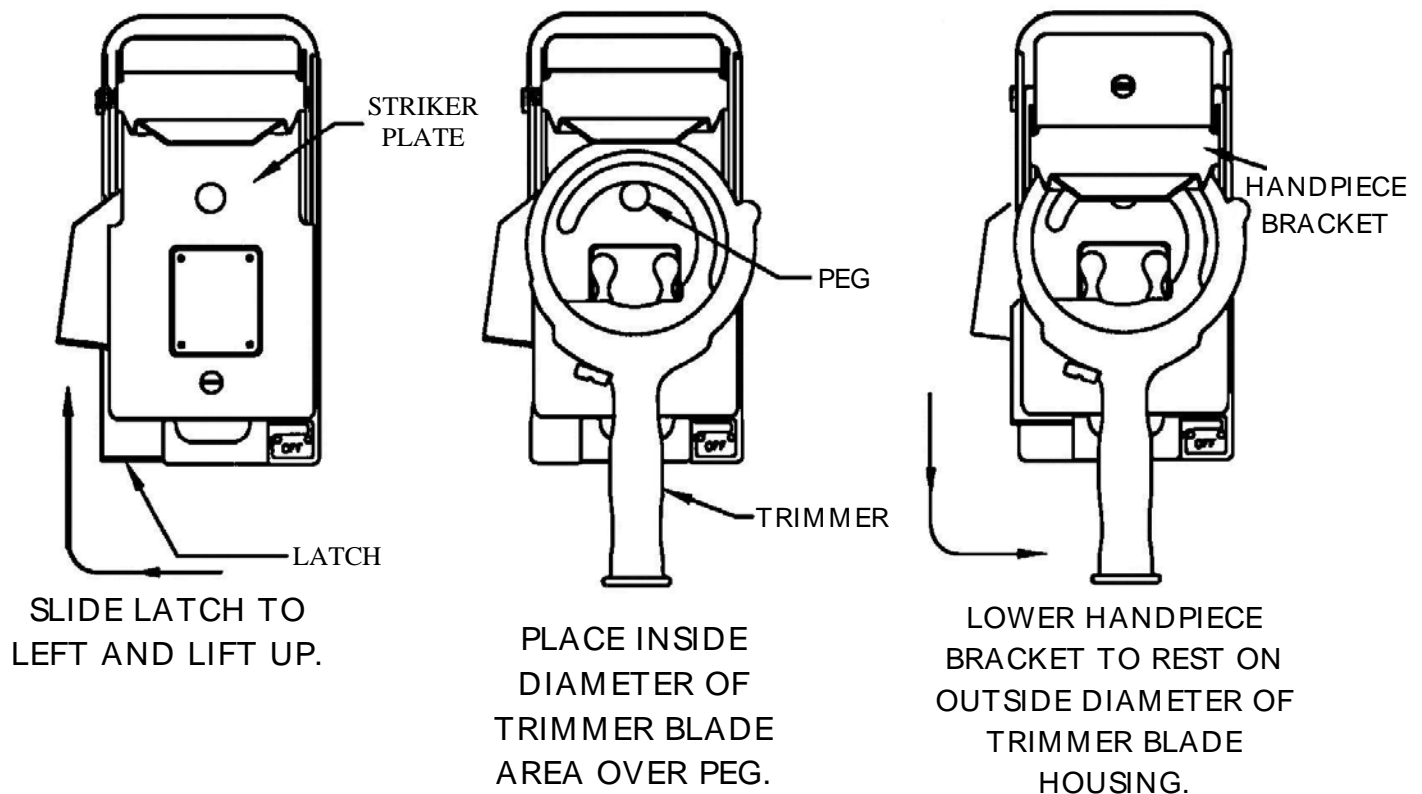
Connect the motor power cord to the prescribed voltage using a three (3) prong grounded plug. (Line power, neutral, and ground). (See Wiring Diagram in Section 6.6)

SECTION 6.0 **Instructions For Operation**

6.1 **Storing Trimmer** (Refer To Figure #3A)

To place the Trimmer in the hanger, swing the Latch with your left hand to the left and lift up the Handpiece Bracket to the full raised position (the Latch and Bracket are attached to one another). Place the Trimmer onto the Peg by sliding the inside diameter of the Trimmer blade (or depth gage) fully on to the Peg against the Striker Plate and lower the Bracket down so it's inside surface rests on the front edge of the Trimmer blade housing.

The Trimmer is now captured in the hanger. The spring loaded Latch will prevent the Trimmer from being accidentally knocked out the hanger.



NOTE: Latch and Handpiece Bracket are Connected and Move Together

Figure #3A
To Place Trimmer In Hanger

6.2 Removing Trimmer (Refer To Figure #3B)

To remove the Trimmer from the hanger, firmly grasp the handpiece by it's handle with your dominant hand and swing the Latch with your opposite hand to the left and lift the Bracket to its fully raised position, then carefully remove the Trimmer from the Peg.

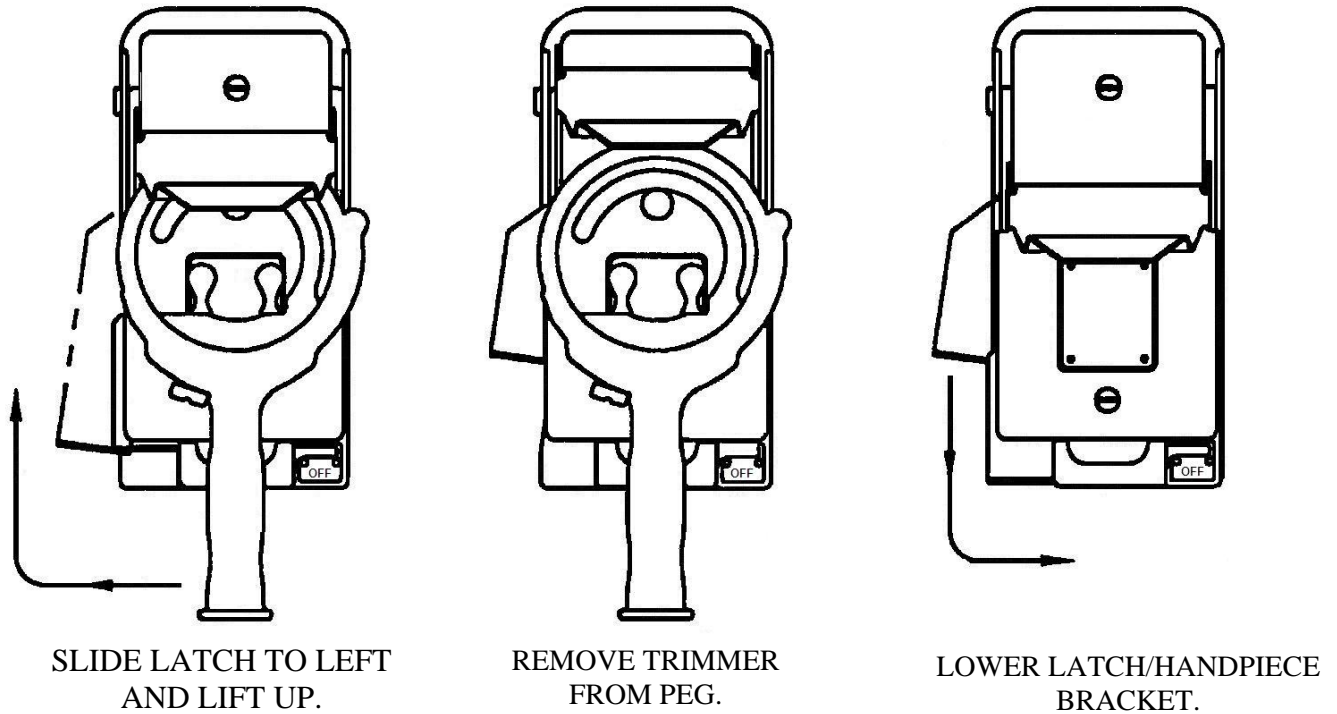
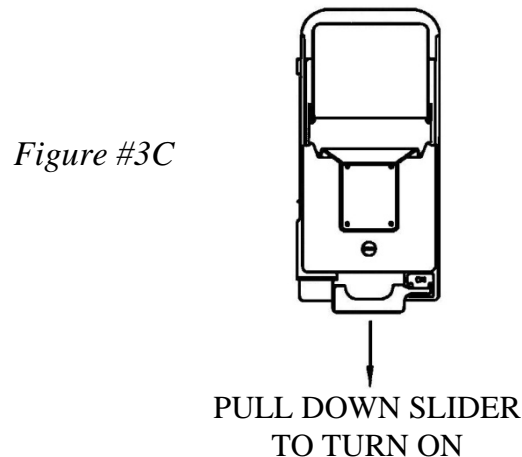


Figure #3B
To Remove Trimmer From Hanger

6.3 Turning The Unit On (Refer to Figure #3C)

To turn the drive unit ON, remove the Trimmer from the hanger and pull down on the switch Slider.



6.4 Turning The Unit Off (Refer to Figure #3D)

There are two ways to turn the drive unit OFF: One is to push up on the switch Slider. The second way is to lift the Latch/Handpiece Bracket with your hand or by placing the front portion of the Trimmer blade housing in the "lip" area of the Bracket and lift up with the Trimmer in hand.

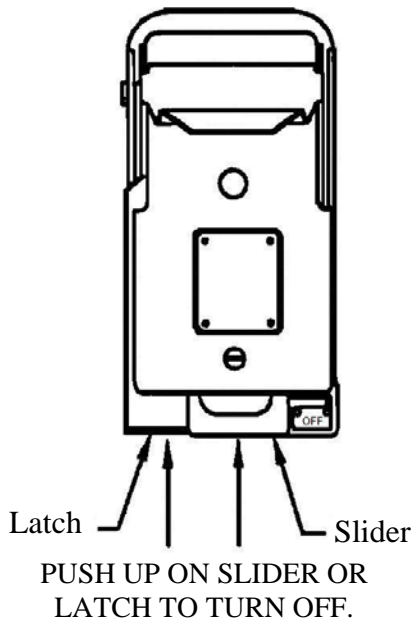
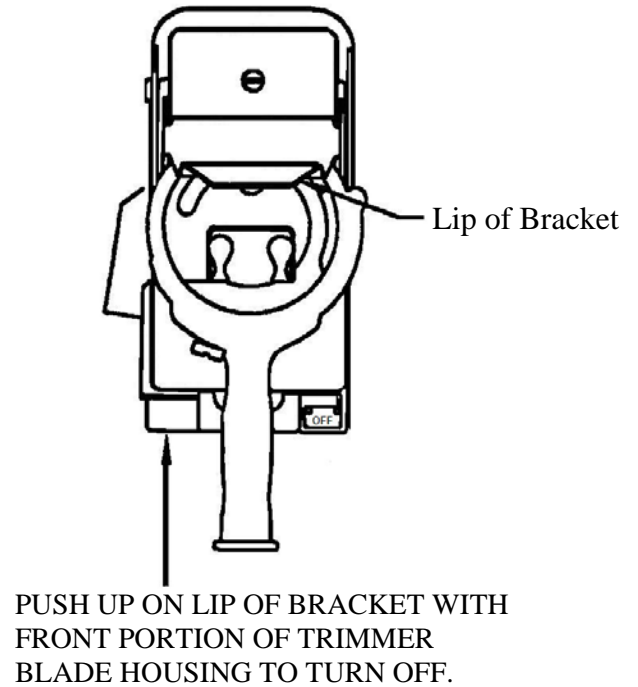


Figure #3D
Two Methods to
Turn Unit Off



6.5 Control Panel (Refer to Figure #3E)

On the controller panel at the rear of the drive unit you will find the following features:

- Power Cord And Strain Relief Connector
- Unit Specification Plate
- Warning Plate

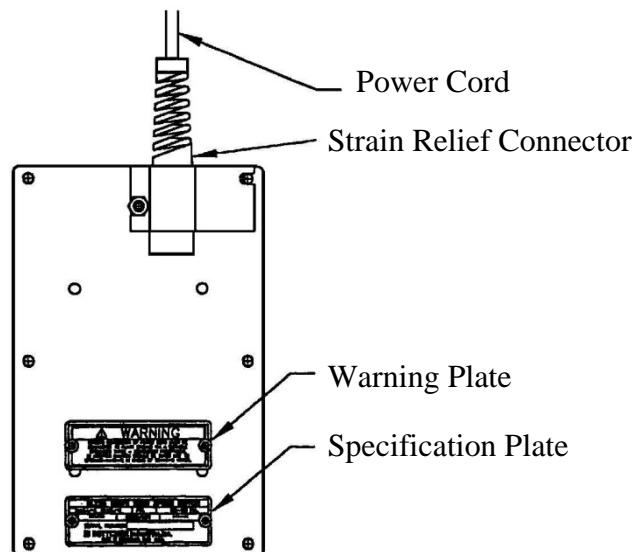
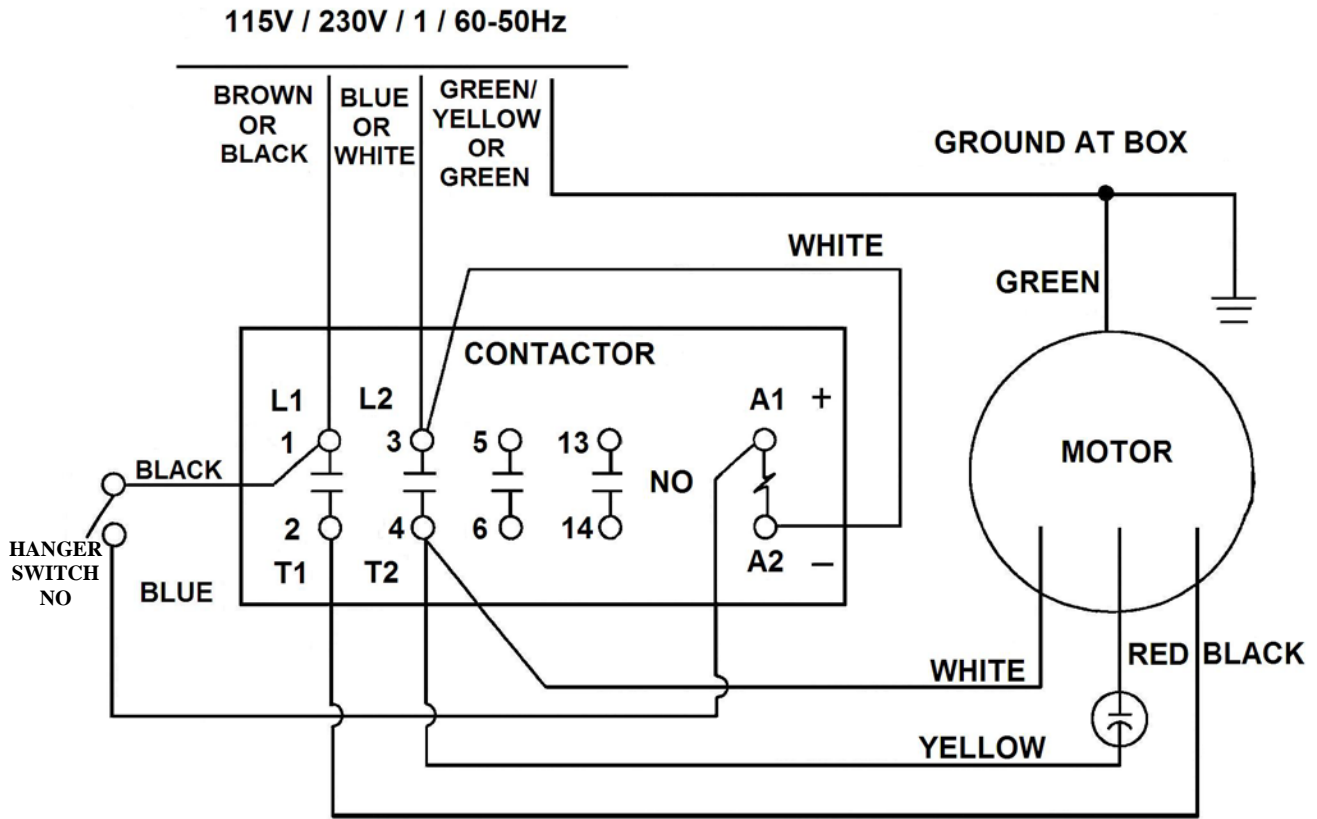


Figure #3E

6.6 Fault Detection And Correction/Wiring Diagram

Problem	Probable Cause	Remedy
Switch On, Motor Will Not Start	No input power.	Check power plug. Check input power.
	Power switch failure.	Check power at switch wires. Replace switch. Refer to Section 7.2.
	Motor failure.	Check connections inside control panel assembly. Replace motor. Refer to Section 7.4.
	Capacitor failure.	Replace capacitor. Refer to Section 7.1.
	Contactor failure.	Check power in and out of contactor. Replace contactor. Refer to Section 7.1.
Motor Stops While Operating	Motor failure.	Replace Motor. Refer to Section 7.4
Motor Runs But Flex Shaft Does Not Rotate	Broken belt.	Replace belt. Refer to Section 7.3.
	Loose sprocket.	Tighten sprocket.
	Worn drive adapter.	Replace drive adapter.

6.6 Fault Detection And Correction/Wiring Diagram (Continued)



WIRING DIAGRAM

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SECTION 7.0 Maintenance



The Drive Unit has been designed in four main sub-assemblies :

1. Controller Assembly
2. Hanger Assembly
3. Belt Drive Assembly
4. Enclosure/Frame/Motor Assembly

7.1 Controller Assembly (Refer to Control Panel Parts List Section 9.2)

Remove the six screws which hold the controller to the drive unit. Carefully pull the controller out through the opening in the drive unit. Remove the four junction box cover screws and remove the cover to access the interior of the controller assembly.

Remove the capacitor by pulling it up out of it's bracket. The capacitor cap will become loose from the capacitor. Loosen the motor and hanger switch connections and strain reliefs. Remove the motor and switch cables from the box.

Remove the two screws for the contactor. Remove the two screws holding the capacitor bracket.

Refer to the Controller Assembly Parts List for serviceable components.

For reassembly, reverse the above procedure. Refer to Wiring Diagram Section 6.6 for electrical connections.

The hanger switch cable and motor cable should run along the sides of the motor so not to come in contact with the motor fan.

7.2 Hanger Assembly (Refer to Hanger Parts List Section 9.3)

Remove the controller assembly as described in Section 7.1

Remove the two striker plate screws and remove the striker plate, peg, guard assembly, cover plate, actuator, spring, and slider. Remove the four screws and washers holding the housing to the drive unit. The switch wire harness will come through the clearance hole in the drive unit frame and enclosure.

To remove the switch, remove the two screws. Remove the switch base by removing the two screws and washers.

For reassembly, reverse the above procedures.

7.3 Belt Drive Assembly (Refer to Drive Unit Parts List 9.1)

Remove the casing disconnect assembly from the cover.

Remove the six screws and washers from the housing cover. Lift the housing cover straight off the housing assembly. If needed, there are screw-driver slots on the edge of the housing assembly, which will aid in prying the housing cover from the housing assembly.

Using a 1/8 hex wrench, remove the two set screws from the timing pulley tapered bushing. Break loose the tapered bushing from the motor shaft by installing one of the set screws into the third hole of the bushing and tighten down until the bushing and pulley separate.

Remove the tapered bushing and pull the timing pulley, shaft key, timing belt and pulley assembly from the housing assembly. Remove the four nuts and washers holding the housing assembly to the frame.

It is not necessary to remove the timing pulley and tapered bushing to remove the belt and pulley assembly. Place two screwdrivers between the pulley flange and the housing then pry the pulley straight out of the housing.

Note: For pulley assembly bearing service, it is recommended that the entire assembly be purchased and changed as a unit since bearing press fit (tolerance) is critical. Incorrect assembly will result in bearing failure.

For reassembly, reverse the above procedure. The flanges of the pulleys are to be in line with each other.

7.4 Enclosure/ Frame/ Motor Assembly (Refer to Drive Unit Parts List Section 9.1)

Remove all the fasteners securing the two enclosure halves to the frame. Remove the enclosure halves. The top vent will slide free from the enclosure. Remove the four motor studs and washers and remove the motor.

For reassembly, reverse the above procedure.

7.5 Preventive Maintenance

The Drive Unit has a belt and pulley assembly with bearings. Periodically the belt and pulley assembly bearings should be inspected for wear.

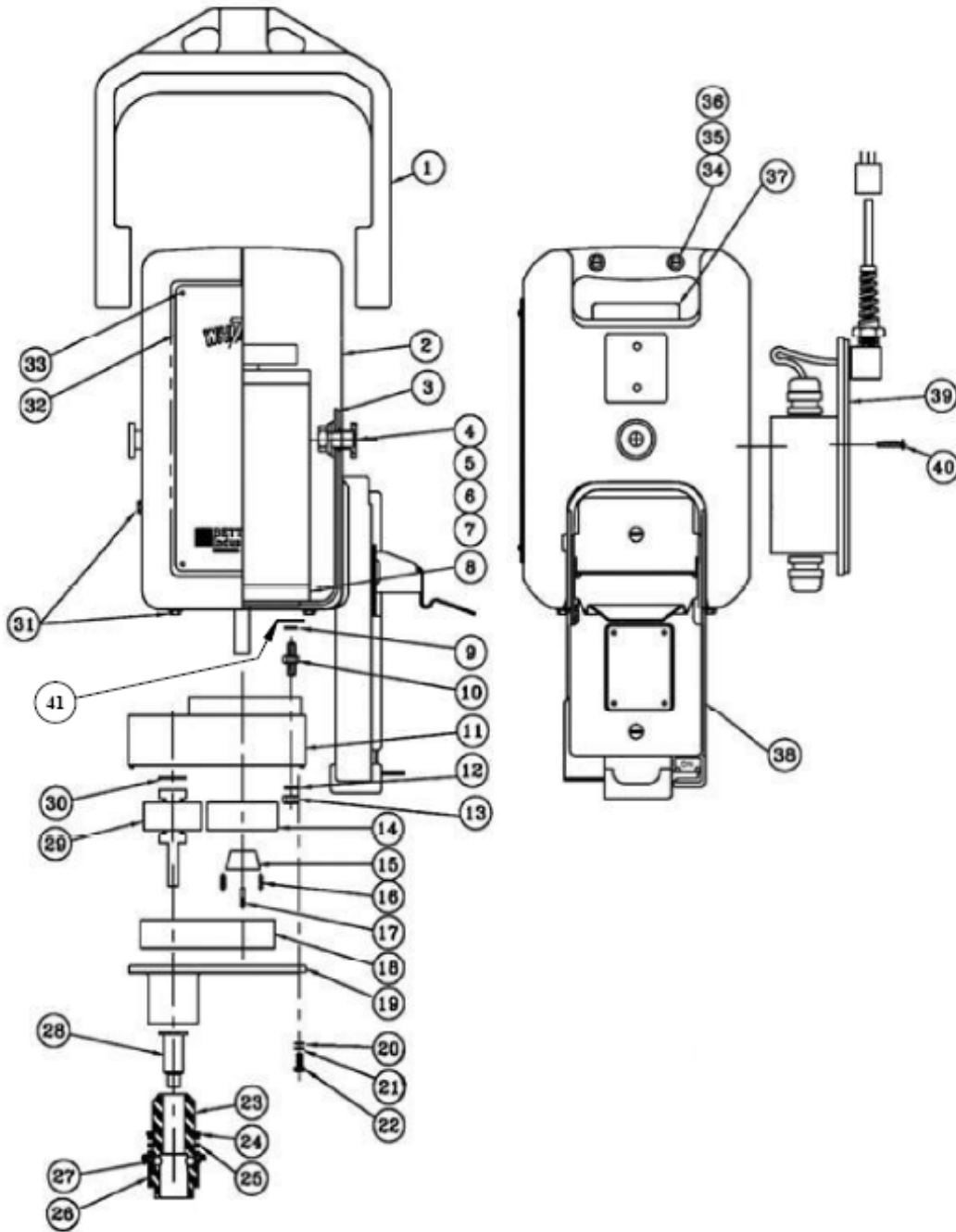
SECTION 8.0 Cleaning

The Drive Unit is of washdown construction and the following cleaning procedure is recommended : Wipe the outside of the motor and controller housing with mild detergent or cleaner with a pH less than 9. Cover or wrap the motor assembly with plastic during plant wash-down to protect the unit from harsh chemicals and cleaning agents.

The hanger assembly should be disassembled and cleaned periodically. Remove the two screws that hold the striker plate in place and remove the striker plate, peg, guard, cover plate, actuator, spring and slider. Wash all the parts with mild detergent or cleaner with a pH less than 9. Inspect the inside of the hanger housing and clean in the same manner, if needed. Dry all parts and reassemble.

SECTION 9.0 Spare Parts List

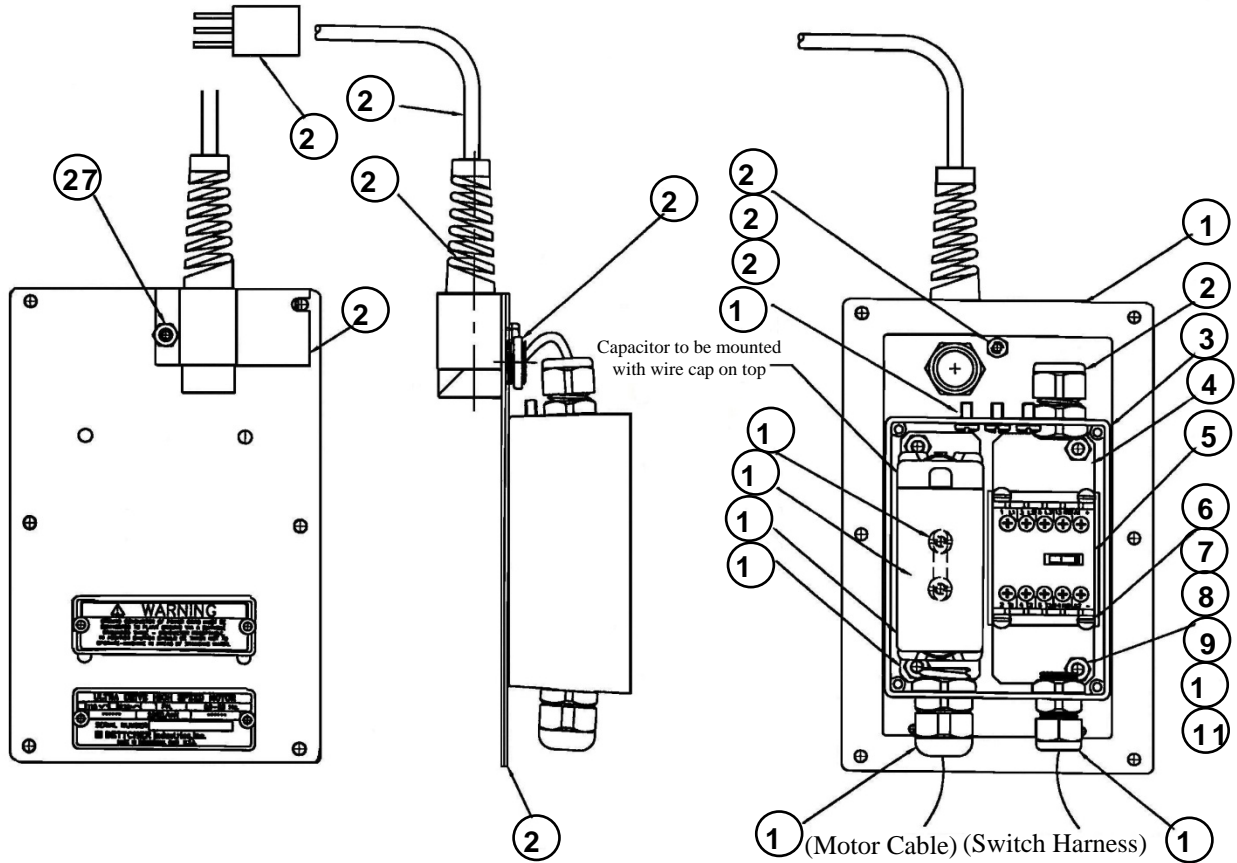
9.1 Drive Unit Assembly



9.1 Drive Unit Assembly (Continued)

ITEM	DESCRIPTION	PART NUMBER	QTY. USED
	COMPLETE DRIVE UNIT 115V/1/60Hz	173271	
	COMPLETE DRIVE UNIT 230V/1/50-60 Hz	173272	
	COMPLETE DRIVE UNIT 115V/1/60Hz without Yoke (Includes Items 2-41)	100147	
	COMPLETE DRIVE UNIT 230V/1/50-60 Hz without Yoke (Includes Items 2-41)	100148	
1	Yoke	163649	1
2	Enclosure R.H. and L.H. w/Tap Strips	173442	1
3	Frame	173264	1
4	Pivot	173045	2
5	Screw	120014	2
6	Lock Washer	120218	2
7	Flat Washer	120265	2
8	Motor Assembly – 115V	173267	1
	Motor Assembly – 230V	173268	1
9	Lock Washer	120220	4
10	Motor Stud	173269	4
11	Housing Assembly	173273	1
12	Lock Washer	120220	4
13	Nut	120327	4
14	Timing Pulley	125936	1
15	Tapped Bushing	125937	1
16	Set Screw	123108	2
17	Shaft Key	122606	1
18	Timing Belt	125938	1
19	Housing Cover	173260	1
20	Flat Washer	120281	6
21	Lock Washer	120204	6
22	Screw	120766	6
--	Disconnect Assembly (Includes Items 23-27)	163190	1
23	Disconnect Body	143112	1
24	Retaining Ring	122025	1
25	Spring	121610	1
26	Disconnect Collar	143113	1
27	Ball	143114	2
28	Drive Adapter	163400	1
29	Pulley Assembly	173265	1
30	Wave Spring	121632	1
31	Screw	123258	8
32	Name Plate	173292	1
33	Rivet	122778	4
34	Screw	120140	2
35	Lock Washer	120204	2
36	Nut	125314	2
37	Vent	173278	1
38	Hanger Assembly (See Section 9.3)	Ref.	1
39	Control Panel (See Section 9.2)	Ref.	1
40	Screw	123258	6
41	Flat Washer	120268	4

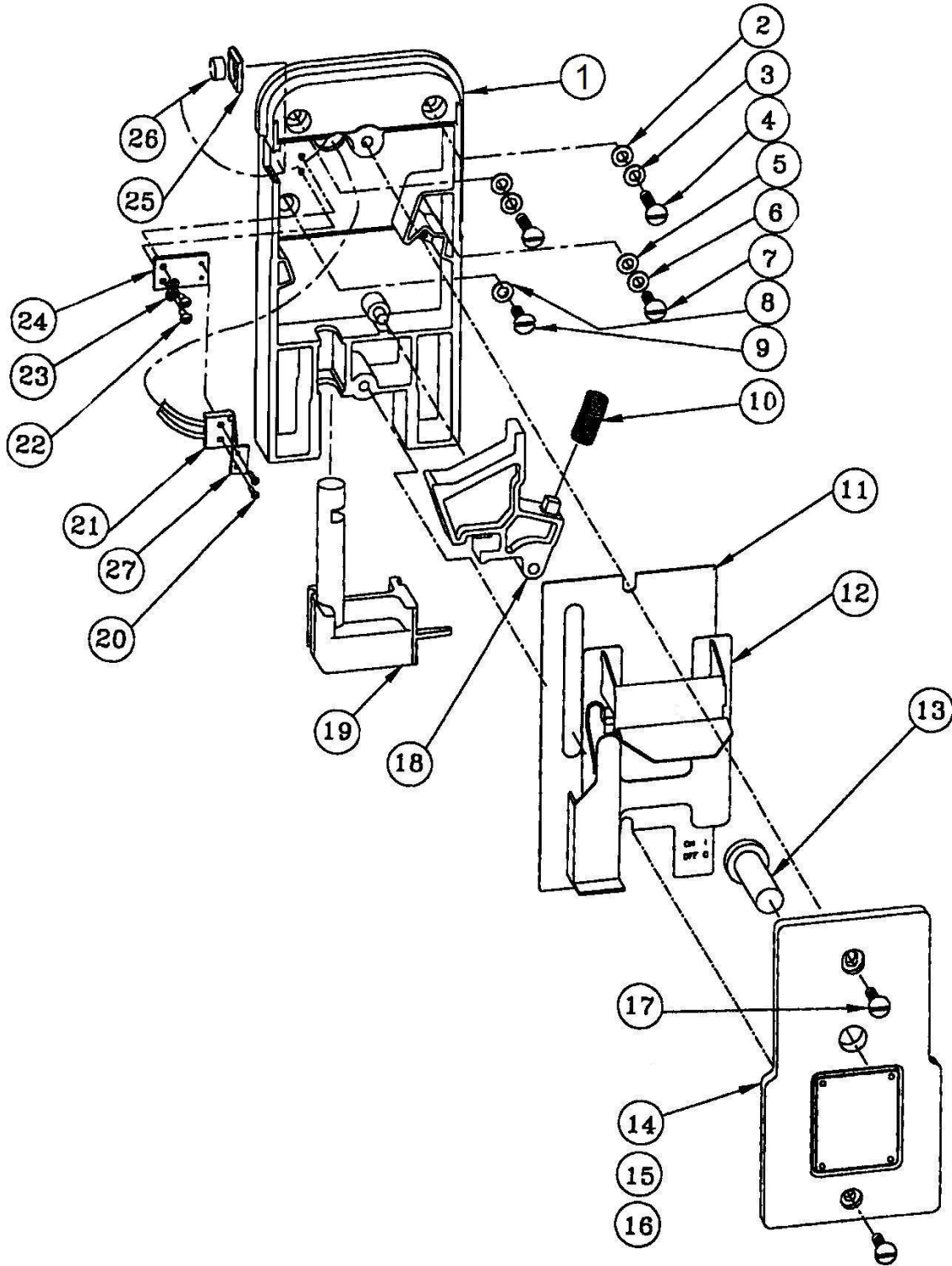
9.2 Control Panel Sub-Assembly



9.2 Control Panel Sub-Assembly (Continued)

ITEM	DESCRIPTION	PART NUMBER	QTY. USED
	CONTROL PANEL ASSY COMPLETE 115V/1/60Hz	173281	1
	CONTROL PANEL ASSY COMPLETE 230V/1/50-60 Hz	173282	1
1	Panel	173283	1
2	Connector	123002	1
3	Box	173284	1
4	Contactoer Bracket	173286	1
5	Contactoer – 115V	124906	1
	Contactoer – 230V	124907	1
6	Screw	120780	4
7	Lock Washer	120233	4
8	Flat Washer	123524	4
9	Nut	120342	4
10	Lock Washer	120204	4
11	Flat Washer	120281	4
12	Connector	123001	1
13	Connector	123003	1
14	Capacitoer Bracket	173285	1
15	Capacitoer Clip	124905	1
16	Capacitoer	124903	1
17	Screw	123257	2
18	Screw	123256	3
19	Lock Washer	120232	3
20	Nut	120342	1
21	Lock Washer	120204	1
22	Flat Washer	120281	1
23	Locknut	124054	1
24	Connector	124841	1
25	Power Cord – 115V	173287	1
	Power Cord – 230V	173288	1
26	Plug – 115V Only	103413	1
27	Screw	120758	1
28	Retainer Plate	163608	1
29	Gasket	173291	1

9.3 Hanger Sub-Assembly



9.3 Hanger Sub-Assembly (Continued)

ITEM	DESCRIPTION	PART NUMBER	QTY. USED
1	Hanger Housing	163652	1
2	Flat Washer	120281	2
3	Lock Washer	120204	2
4	Screw	120787	2
5	Flat Washer	120281	1
6	Lock Washer	120204	1
7	Screw	120787	1
8	Lock Washer	120245	1
9	Screw	120125	1
10	Spring	121622	1
11	Cover Plate	163653	1
12	Guard Assembly	173275	1
13	Peg	163418	1
14	Striker Plate (Includes Items 15 and 16)	163810	1
15	Label	163421	1
16	Rivet	122294	4
17	Striker Plate Screw	120110	2
18	Actuator	163550	1
19	Slider	163553	1
20	Screw	123260	2
21	Switch Assembly	173293	1
22	Screw	120144	2
23	Lock Washer	120233	2
24	Switch Base	163669	1
25	Insert	163646	1
26	Plug	124887	1
27	Retainer Plate	183134	1

SECTION 10.0 About These Operating Instructions

10.1 Other Languages

Translations into any of the languages used in the European Union are available at cost price upon request. Call or write the local Distributor or contact Bettcher Industries.

10.2 Document Identification

Copies of this Operating Instruction may be ordered by quoting the Document ID as listed below :

Document ID :	Manual #173299
Document Description :	Operating Instructions And Spare Parts List For WHIZARD® Ultra Drive High Speed Motor
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Operating Instructions for other Whizard® Drive Units and/or Whizard® Trimmers may be requested by quoting the model designation of the unit as shown on the identification plate on the unit.

10.3 Software And Duplication

This document has been created with Microsoft Word for Windows and set in Times New Roman 13 points for A-size paper (8.5 x 11 inches).

For more information, contact your local Representative or :

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SECTION 11.0 Contact Addresses And Phone

For additional information, technical support and spare parts, contact your local Representative, Distributor, or Bettcher Representative :

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