

# OPERATION AND PARTS MANUAL



## **MODEL MB25A REBAR BENDER (PORTABLE ELECTRIC)**

Revision #3 (11/18/08)

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**THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.**

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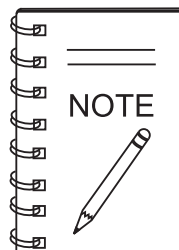
## MB25A REBAR BENDER

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*Specification and part number are subject to change without notice.*

# PARTS ORDERING PROCEDURES

## Ordering parts has never been easier! Choose from three easy options:

Effective:  
January 1<sup>st</sup>, 2006



### Order via Internet (Dealers Only):

Order parts on-line using Multiquip's SmartEquip website!

- View Parts Diagrams
- Order Parts
- Print Specification Information



If you have an MQ Account, to obtain a Username and Password, E-mail us at: [parts@multiquip.com](mailto:parts@multiquip.com).

To obtain an MQ Account, contact your District Sales Manager for more information.

Goto [www.multiquip.com](http://www.multiquip.com) and click on

**Order Parts** to log in and save!

Use the **internet** and qualify for a **5% Discount** on *Standard orders* for all orders which include complete part numbers.\*

Note: Discounts Are Subject To Change



### Order via Fax (Dealers Only):

All customers are welcome to order parts via Fax.

**Domestic (US) Customers dial:**

1-800-6-PARTS-7 (800-672-7877)

**Fax** your order in and qualify for a **2% Discount** on *Standard orders* for all orders which include complete part numbers.\*

Note: Discounts Are Subject To Change



**Order via Phone: Domestic (US) Dealers Call:**  
1-800-427-1244

### Non-Dealer Customers:

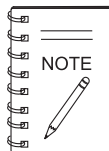
Contact your local Multiquip Dealer for parts or call 800-427-1244 for help in locating a dealer near you.



**International Customers** should contact their local Multiquip Representatives for Parts Ordering information.

## When ordering parts, please supply:

- |   |  |
|---|--|
| <input type="checkbox"/> Dealer Account Number                                | <input type="checkbox"/> Specify Preferred Method of Shipment:                             |
| <input type="checkbox"/> Dealer Name and Address                              | <input checked="" type="checkbox"/> UPS/Fed Ex <input checked="" type="checkbox"/> DHL     |
| <input type="checkbox"/> Shipping Address (if different than billing address) | <input checked="" type="checkbox"/> Priority One <input checked="" type="checkbox"/> Truck |
| <input type="checkbox"/> Return Fax Number                                    | <input checked="" type="checkbox"/> Ground   |
| <input type="checkbox"/> Applicable Model Number                              | <input checked="" type="checkbox"/> Next Day   |
| <input type="checkbox"/> Quantity, Part Number and Description of Each Part   | <input checked="" type="checkbox"/> Second/Third Day                                       |



All orders are treated as *Standard Orders* and will ship the same day if received prior to 3PM PST.

WE ACCEPT ALL MAJOR CREDIT CARDS!

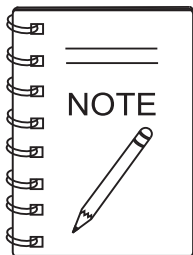


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## FOR YOUR SAFETY AND SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Messages and Operating Instructions could result in injury to yourself and others.



This manual has been developed to provide complete instructions for the safe and efficient operation of this equipment.

Before using this equipment ensure that the operating individual has read and understood all instructions in this manual.

## SAFETY MESSAGE ALERT SYMBOLS

The three Safety Messages shown below will inform you about potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: **DANGER**, **WARNING**, or **CAUTION**.

### **DANGER**

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

### **WARNING**

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

### **CAUTION**

You **CAN** be **INJURED** if you **DO NOT** follow these directions.

## HAZARD SYMBOLS

Potential hazards associated with the operation of this equipment will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

### **WARNING — Respiratory Hazards**



**ALWAYS** wear approved respiratory protection when required.

### **CAUTION — Rotating Parts Hazards**



**NEVER** operate equipment with covers or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.

### **CAUTION — Accidental Starting Hazards**



**ALWAYS** place the equipment ON/OFF switch in the OFF position when the equipment is not in use.

### **CAUTION — Eye and Hearing Hazards**



**ALWAYS** wear approved eye and hearing protection.

### **CAUTION — Equipment Damage Hazards**


Other important messages are provided throughout this manual to help prevent damage to your equipment, other property, or the surrounding environment.

# RULES AND REGULATIONS


## **WARNING — Read This Manual**

Failure to follow instructions in this manual may lead to serious injury or even **DEATH**. This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

### GENERAL SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual. 
- This equipment should not be operated by persons under 18 years of age.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.



- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication. 
- **NEVER** operate this equipment under the influence of drugs or alcohol.





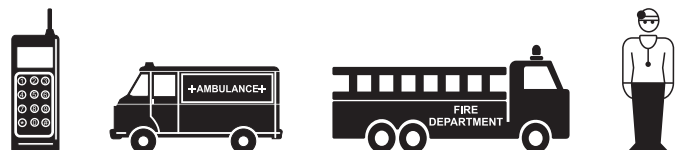
- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.
- **ALWAYS** check the equipment for loosened threads or bolts before starting.
- **MAINTAIN** equipment in a safe operating condition at all times.
- **KEEP** bystanders, children, and visitors away while operating the equipment. Distractions can cause loss of control.

- **DO NOT** wear loose clothing or jewelry. Contain long hair. Keep hair, clothing, and gloves away from moving parts. Rotating parts can cause injury if contacted.
- **ALWAYS** keep work area clean and free of foreign matter and debris. Also keep work area well lit.
- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death**. 
- **DO NOT** overreach. Keep proper footing and balance at all times.
- **NEVER** leave the equipment unattended. When not in use, before servicing, and when changing accessories, always unplug the equipment from the power source.
- **USE** this equipment for its intended purpose only.
- **KEEP** equipment clean for better and safer performance. Keep handles dry, clean, and free from oil and grease.
- **INSPECT** the equipment after each use. Replace any damaged or worn parts immediately. Do not use equipment if defective.
- If a malfunction occurs, immediately unplug the equipment from the power source and correct the problem. If problem cannot be corrected, contact the nearest MQ service center.

- **ALWAYS** store the equipment in a clean, dry location out of the reach of children.

### EMERGENCIES

- **ALWAYS** know the location of the nearest **fire extinguisher**. 
- **ALWAYS** know the location of the nearest **first aid kit**. 
- In emergencies, **always** know the location of the nearest phone or **keep a phone on the job site**. Also know the phone numbers of the nearest **ambulance, doctor** and **fire department**. This information will be invaluable in case of emergency.



# RULES AND REGULATIONS

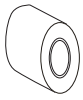




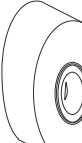
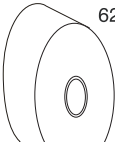

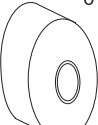



## ELECTRICAL SAFETY

- **ALWAYS** test the **POWER** switch on the equipment before operating. The purpose of this switch is to shut down the power.
- **NEVER** use an extension cord that is frayed or damaged where the insulation has been cut.
- **NEVER** carry the equipment by its power cord or disconnect it by yanking the cord from the power outlet.
- **ALWAYS** make certain that the proper extension cord has been selected for the job. See Extension Cord Gauge Selection Table.
- **NEVER** allow power cord to *lay in water*.
- **NEVER stand in water** while operating the equipment.
- When connecting the unit to a power receptacle, make sure the receptacle circuit is connected to either a GFCI receptacle or a receptacle protected by a 20 amp circuit breaker.
- When plugging the unit into a power receptacle, check the nameplate for the correct operating voltage. Operating the rebar bender at the wrong voltage will damage the electrical components. **ALWAYS** read the nameplate before applying power.
- This unit is equipped with a 3-prong male power plug. **DO NOT** use a 2-prong adapter when plugging into a wall outlet. This will defeat the purpose of the ground circuit. If the plug does not fit into the receptacle, contact a qualified electrician to install a 3-conductor wall receptacle (outlet).
- Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electrical shock if your body is grounded.
- **DO NOT** expose the hydraulic power unit to rain or wet conditions. Water entering the power unit will increase the risk of electrical shock.
- When operating the unit outdoors, be sure to use the appropriate outdoor extension cord. This type of extension cord reduces the risk of electrical shock.
- **ALWAYS** remove the AC power cord from the power source before performing any service or maintenance on the unit. This preventative safety measure reduces the possibility of accidental starting.
- When operating near an arc welder, it is important the both the unit and the welding equipment be connected to the same earth ground. If they are not, server damage to the unit, particularly to the power cord could occur. Personal injury may also occur.

Extension Cord Gauge Selection										
Ampere Rating Range	Volts	Length of Cord in Feet								
	115V	25 Ft.	50 Ft.	100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	400 Ft.	500 Ft.
	230V	50 Ft.	100 Ft.	200 Ft.	300 Ft.	400 Ft.	500 Ft.	600 Ft.	800 Ft.	1000 Ft.
0 - 2		18	18	18	16	16	14	14	12	12
2 - 3		18	18	16	14	14	12	12	10	10
3 - 4		18	18	16	14	12	12	10	10	8
4 - 5		18	18	14	12	12	10	10	8	8
5 - 6		18	16	14	12	10	10	8	8	6
6 - 8		18	16	12	10	10	8	6	6	6
8 - 10		18	14	12	10	8	8	6	6	4
10 - 12		16	14	10	8	8	6	6	4	4
12 - 14		16	12	10	8	6	6	6	4	2
14 - 16		16	12	10	8	6	6	4	4	2
16 - 18		14	12	8	8	6	4	4	2	2
18 - 20		14	12	8	6	6	4	4	2	2

# SPECIFICATIONS

TABLE 1. SPECIFICATIONS		
Model	MB25A	
Capacity	Ø6(1/4") - Ø25(1"), No.2 - No.8	
Range of Bends	0° - 180°	
Motor	Single Phase, 115 V, 60 Hz, 13A	
Standard Equipment	Roller - 5	Allen Wrench - 2
	Collar - 6	Open-End Wrench - 1
	Waterproof Cover - 1	Screwdriver - 1
	Tool Box - 1	Foot Switch - 1

TABLE 2. SIZE OF ROLLERS AND COLLARS						
REBAR DIAMETER	No. 8 1-inch (25.4mm)	No. 7 7/8-inch (22.2mm)	No. 6 3/4-inch (19.0mm)	No. 5 5/8-inch (15.9mm)	No. 4 1/2-inch (12.7mm)	No. 3 3/8-inch (9.52mm)
ROLLER DIAMETER	625  DIA. 2.54" (64.5MM)	622  DIA. 3.62" (92MM)	619  DIA. 4.67" (119MM)	616  DIA. 5.6" (142MM)	613  DIA. 6.61" (168MM)	613  DIA. 6.61" (168MM)
COLLAR DIAMETER	625  DIA. 6.00" (152MM)	622  DIA. 5.25" (133MM)	619  DIA. 4.50" (114MM)	616  DIA. 3.75" (95MM)	613  DIA. 3.00" (76MM)	610  DIA. 2.25" (57MM)

**NOTE:** Roller No. 625 and Collar No. 625 are factory installed on the bender.

## GENERAL INFORMATION

The **MQ MB25A Rebar Bender** is designed to be used as a portable on-site rebar bender, capable of bending in-place rebar to approved American Concrete Institute (ACI) radius. Labor time and injuries are greatly reduced from manually bending rebar. The MB25A is capable of bends up to 180°.

The MB25A comes with 5 rollers and collars which can be used in different combinations to match the diameter of the rebar to be bent.

The MB25A comes with a foot switch which can start the bending procedure with a push of the pedal instead of pressing the start button.

An emergency button is available to immediately stop the machine when something goes wrong during bending. The roller then returns to the starting position.

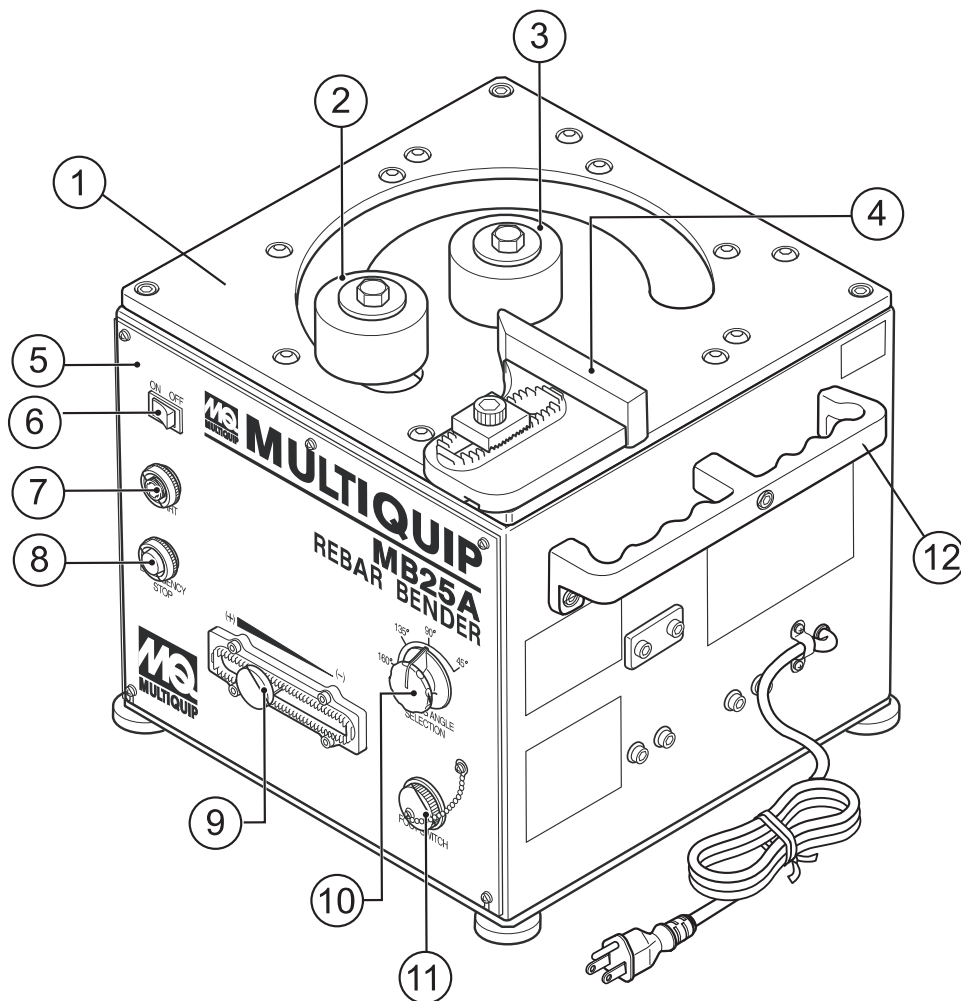


Figure 1. MB25A Components

Figure 1 shows the components of the MB25A Rebar Bender. These components are described below.

1. **Table** - Holds the roller, collar, stopper and the rebar to be bended.
2. **Roller** - Works in combination with the collar depending on the diameter of the rebar to bend.
3. **Collar** - Works in combination with the roller depending on the diameter of the rebar to bend.
4. **Stopper** - Holds the rebar in place when bending.
5. **Panel A** - Holds the different controls for the rebar bender.
6. **Power Switch** - Turns the power of the rebar bender on or off.
7. **Start Switch** - Starts the bending process.
8. **Emergency Stop Switch** - Stops the rebar bending and moves the roller back to the starting position.
9. **Angle Adjusting Knob** - Used to "fine tune" the angle after trial bends of a few pieces of rebar.
10. **Angle Select Dial** - Sets the angle that the rebar is going to be bent.
11. **Connector (for foot switch)** - Connects to the foot switch to start the machine with a push of the pedal.
12. **Handle** - Used to lift the rebar bender.

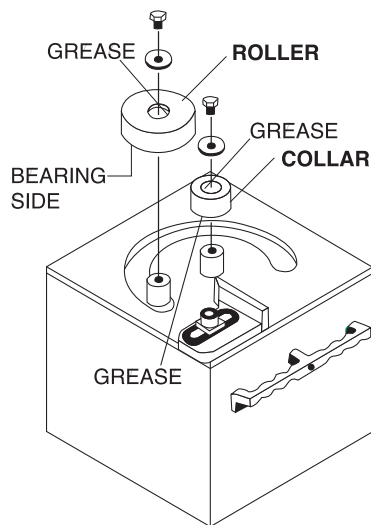
## SELECTION AND INSTALLATION OF ROLLER AND COLLAR

### **WARNING**

Keep fingers from the bending area. Moving parts can cause serious injury.

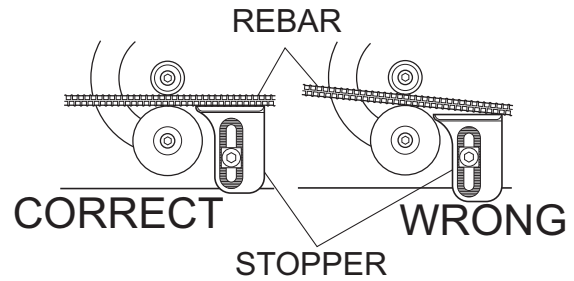
Do not drop anything into the machine from the bending area as this may damage the machine.

1. Select the roller and corresponding collar to match the diameter of the rebar to be bent. See Table 2 for the different combinations.
2. Apply multi-purpose grease to the roller.
3. Install the collar and the roller as shown in Figure 2.



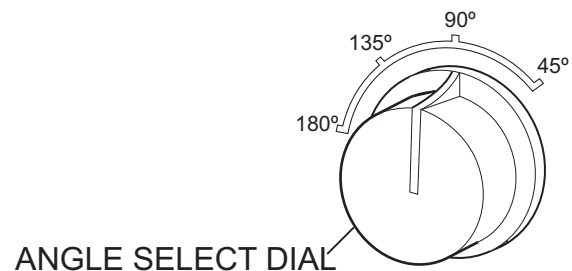
**Figure 2. Roller and Collar Installation**

4. When using a roller with a bearing, bearing must face downward.
5. When using a collar with a bearing, bearing must face downward.
6. To prevent the roller and the collar from coming off, attach the washer securely with the bolt.
7. Position the stopper so that rebar to be bent is parallel to the front of the stopper and tighten the rebar securely in place. If the rebar is not parallel to the front, the bending angle will be incorrect. See Figure 3.

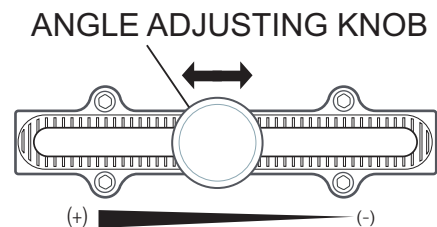


**Figure 3. Stopper Position**

8. Rotate the Angle Select Dial to the desired angle that the rebar is to be bent (Figure 4). If the selected angle cannot be obtained by the Angle Select Dial, "fine tune" the angle by using the Angle Adjusting Knob (Figure 5).



**Figure 4. Selecting the Bending Angle**



**Figure 5. Fine Tuning the Bending Angle**

9. Plug the power cord into a proper single-phase power source. Make sure that the rebar bender is properly grounded.
10. Turn the power switch on.
11. Hold the rebar firmly and press the Start Switch. This will engage the clutch and the roller to bend the rebar.
12. After the rebar is bent to the desired angle, the roller will automatically spring back to the starting position.

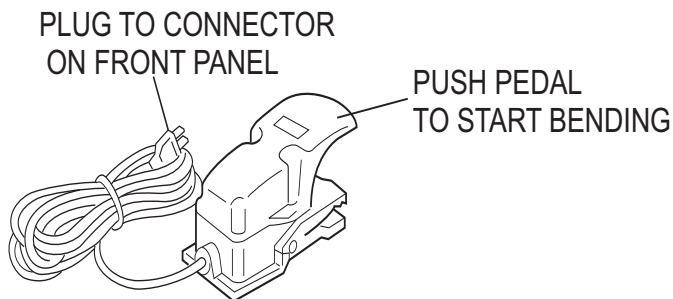
## USING THE ANGLE ADJUSTING KNOB

Depending on the diameter of the rebar and its tensile strength, it may be necessary to "fine tune" the angle using the Angle Adjusting Knob after trial bends of a few pieces of rebar.

1. The Angle Adjusting Knob is automatically locked when released. Unlock the knob by pulling it hard and sliding the knob to the right or left to adjust the angle.
2. When the desired angle is selected, release the knob. The knob will now be automatically locked.

## USING THE FOOT SWITCH

Instead of the Start Switch, the Foot Switch can be used to start the bending process. See Figure 6.



**Figure 6. Starting with the Foot Switch**

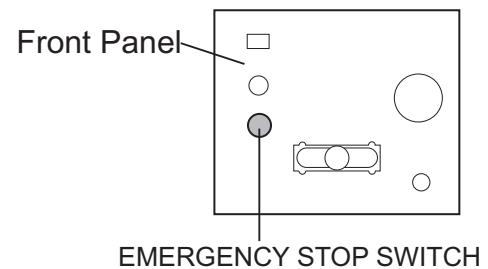
1. Insert the plug of the foot switch to the Foot Switch Connector on the front panel of the rebar bender.
2. Press the pedal on the foot switch to start bending.
3. When the bending angle is achieved, the roller will automatically spring back to the start position.



It is not necessary to press the pedal continuously while bending. Once the pedal is pressed bending will start and pedal can be released.

## EMERGENCY STOP SWITCH

1. To stop the rebar bender immediately in case anything goes wrong in the bending process, press the Emergency Stop Button (Figure 7). The roller on the rebar bender will immediately stop and return to the start position.



**Figure 7. Emergency Stop Switch**

### **WARNING**

The roller goes back to start position very quickly after bending because of the spring mechanism. Keep away from the machine until the roller is completely back in the start position to prevent any injury.

### **DANGER**

During operation of this rebar bender, there exists the possibility of **electrocution, electrical shock or burn**, which can cause **severe bodily harm** or even **DEATH!**

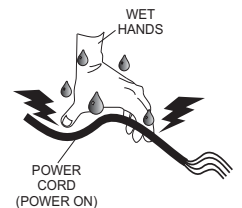


To avoid these hazards:

**NEVER** use damaged or worn cables when plugging the rebar bender into an AC power receptacle.

**NEVER** grab or touch a live power cord with wet hands.

**NEVER** stand in water and touch a live power cord.



## REMOVING STEEL DEBRIS

1. To remove steel debris from the machine, tilt it and clear all debris from the outlet.

### **WARNING**

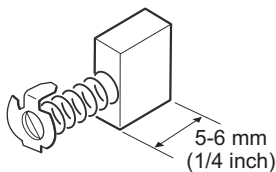
Do not let debris or rust accumulate inside the machine as this could lead to malfunction of the machine.

## REPLACING CARBON BRUSHES

### **WARNING**

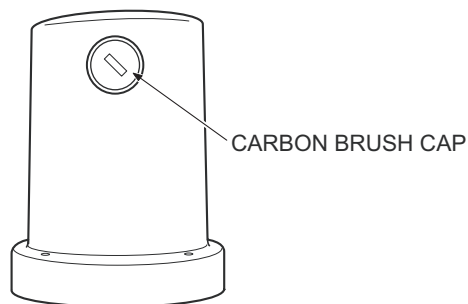
Unplug unit from power source before replacing carbon brushes.

When the carbon becomes less than 5 or 6 mm (1/4 inch) the motor force deteriorates because of low rectification (Figure 8). The carbon brushes need to be replaced.



**Figure 8. Carbon Brush Size**

1. Make sure that the power plug is not connected to the power source.



**Figure 9. Replacing Carbon Brushes**

2. Remove the rear panel and the bottom plate of the machine so that the outer frame of the motor is visible (Figure 9).
3. Remove the carbon brush cap of the motor outer frame using a standard screwdriver.
4. Replace the carbon brushes with new ones.
5. Put back the cap and reinstall the rear and end panels of the machine.

**⚠ WARNING**

Unplug unit from power source before troubleshooting.

**TABLE 4. TROUBLESHOOTING**

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Steel bar will not end because of clutch slipping.	Is clutch worn out?	Replace clutch.
	Is there an abnormal voltage drop?	Check cause of abnormal voltage drop.
	Are steel bars too hard?	Use steel bars with correct hardness.
Motor and clutch do not work while the current is on.	Are dust deposits on magnet switch contact?	Polish magnet switch.
	Is magnet switch contact worn out?	Replace magnet switch.
	Is lead wire disconnected?	Connect lead wire.
	Is electric motor weak or defective?	Replace or repair motor.
Irregularity in bending angles.	Is the stopper improperly positioned or not tightened enough?	Correct positioning and tightness of stopper.
	Is there an irregularity in the steel bar hardness?	Use steel bars with correct hardness.
Abnormal noise from motor.	Are armature cooling vanes broken or deformed?	Replace a defective armature and its bearings.
	Are armature bearings worn out?	Replace with new bearings.
	Is armature out of balance?	Replace with a new armature.
Power output motor is not sufficient.	Are carbon brushes worn out?	Replace with new ones.
	Is insulation of coils broken?	Replace armature or motor.
	Is there a drop in voltage?	Check the cause of the voltage drop.

# EXPLANATION OF CODE IN REMARKS COLUMN

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

The contents and part numbers listed in the parts section are subject to change **without notice**. Multiquip does not guarantee the availability of the parts listed.

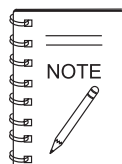
Sample Parts List:

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	12345	BOLT .....	1	INCLUDES ITEMS W/*
2*		WASHER, 1/4 IN. ....		NOT SOLD SEPARATELY
2*	12347	WASHER, 3/8 IN. ... 1		MQ-45T ONLY
3	12348	HOSE .....	A/R	MAKE LOCALLY
4	12349	BEARING .....	1	S/N 2345B AND ABOVE

## NO. Column

**Unique Symbols** - All items with same unique symbol (\*, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the "Remarks" column.

**Duplicate Item Numbers** - Duplicate numbers indicate multiple part numbers are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.



When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

## PART NO. Column

**Numbers Used** - Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at time of publication.

A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the "Remarks" Column.

## QTY. Column

**Numbers Used** - Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the "Remarks" Column.

## REMARKS Column

Some of the most common notes found in the "Remarks" Column are listed below. Other additional notes needed to describe the item can also be shown.

**Assembly/Kit** - All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:  
"INCLUDES ITEMS W/(unique symbol)"

**Serial Number Break** - Used to list an effective serial number range where a particular part is used.

Indicated by:  
"S/N XXXXX AND BELOW"  
"S/N XXXX AND ABOVE"  
"S/N XXXX TO S/N XXX"

**Specific Model Number Use** - Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

Indicated by:  
"XXXX ONLY"  
"NOT USED ON XXXX"

**"Make/Obtain Locally"** - Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

**"Not Sold Separately"** - Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

# SUGGESTED SPARE PARTS

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## MB25A REBAR BENDER

*1 to 3 Units*

Qty.	P/N	Description
2 .....	6402520 .....	HOLDER CAP
2 .....	6402510 .....	CARBON BRUSH



## MB25A — NAMEPLATE AND DECALS

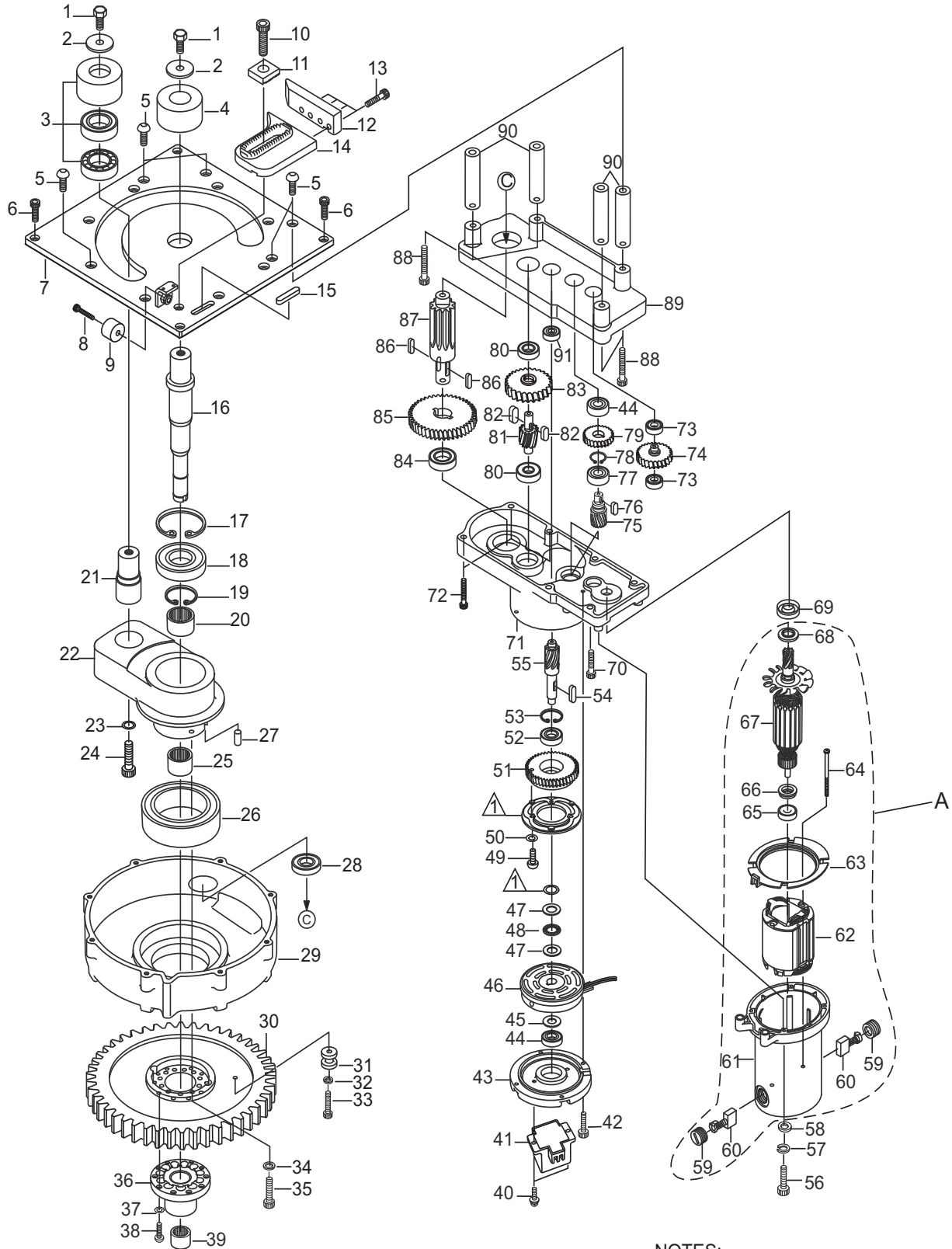
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### NAMEPLATE AND DECALS

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	8010780	SAFETY WARNING DECAL	1	
2		NAMEPLATE .....	1 .....	CONTACT MQ PARTS DEPT.
3	8010750	ROLLER AND COLLAR DECAL	1	
4	8005070	STOPPER INSTALLATION DECAL	2	
5	8010770	ROLLER AND COLLAR INSTALLATION DECAL	1	
6	8010760	ROLLER, COLLAR, AND TOOLS DECAL	1	

# MB25A — BENDER ASSEMBLY

## BENDER ASSEMBLY



NOTES:

▲ INCLUDED WITH ITEM 46.

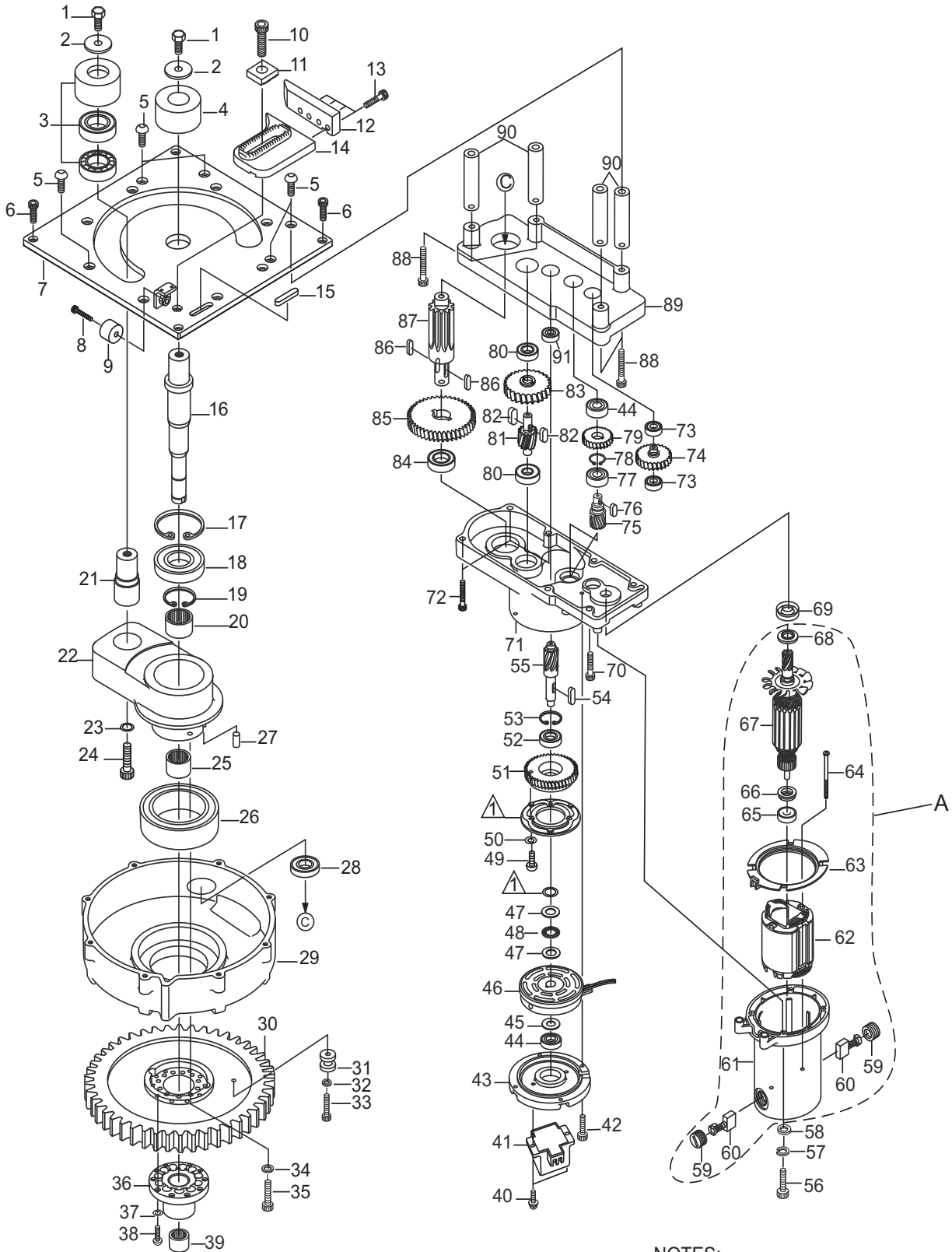
## MB25A — BENDER ASSEMBLY

### BENDER ASSEMBLY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	M5SB122000	HEX HEAD BOLT 12 X 20	2	
2	M5T4273800	WASHER A	2	
3	9008090	ROLLER 625	1	
3	9008080	ROLLER 622	1	
3	9008070	ROLLER 619	1	
3	9008060	ROLLER 616	1	
3	9008050	ROLLER 613	1	
3	9008040	ROLLER 610 .....	1	..... OPTIONAL
4	9008130	COLLAR 625	1	
4	9008120	COLLAR 622	1	
4	9008110	COLLAR 619	1	
4	3510370	COLLAR 616	1	
4	3510360	COLLAR 613	1	
4	3510350	COLLAR 610	1	
5	7550050	ALLEN HEAD SCREW 10X25	12	
6	7514000	ALLEN HEAD SCREW 8X15	4	
7	9009580	TABLE	1	
8	H5HB103000	ALLEN HEAD SCREW 10X30	1	
9	4500380	SHOCK ABSORBER	1	
10	M5B2050000	ALLEN HEAD BOLT 20X50	1	
11	M5T4267800	SQUARE NUT	1	
12	3502090	STOPPER PLATE	1	
13	H5HB082000	HEX HEAD SCREW 8X20	4	
14	3251620	STOPPER	1	
15	M5K1008500	STOPPER KEY	1	
16	3510260	OUTPUT SHAFT	1	
17	7410130	STOP RING RTW 100	1	
18	7103180	BEARING 6309DDU	1	
19	7411320	SNAP RING IRTW 55	1	
20	C5BTAFI385	NEEDLE BEARING HMK4530	1	
21	3510270	ROLLER SHAFT	1	
22	3510250	ARM	1	
23	7651300	WASHER, FLAT M 14	1	
24	7516200	ALLEN HEAD SCREW 14X40	1	
25	7200090	NEEDLE BEARING HMK3230	1	
26	7103190	BEARING 6218DDU	1	
27	6601090	PIN $\phi$ 13 X13	2	
28	M5B6205Z00	BEARING 6205Z	1	
29	3252160	FRAME	1	
30	3600180	GEAR WHEEL	1	

# MB25A — BENDER ASSEMBLY

## BENDER ASSEMBLY



NOTES:  
▲ INCLUDED WITH ITEM 46.

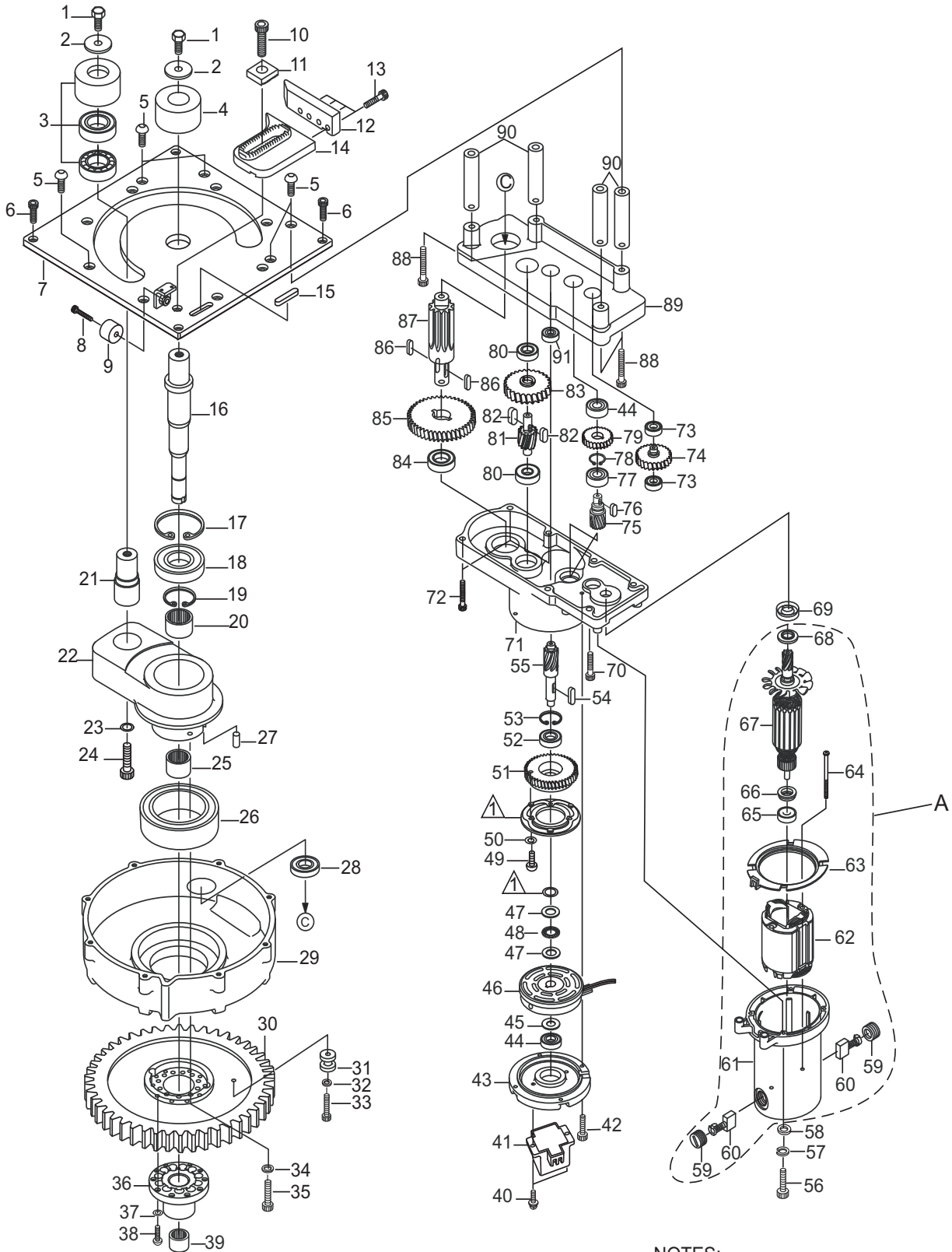
## MB25A — BENDER ASSEMBLY

BENDER ASSEMBLY (continued)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
31	3508830	SPRING GUIDE	1	
32	C5SW0601M0	WASHER, LOCK 6	1	
33	7513070	ALLEN HEAD SCREW 6X35	1	
34	H5HW100100	WASHER HW 10	10	
35	7515050	ALLEN HEAD SCREW 10X35	10	
36	3251290	TORSION COIL COLLAR	1	
37	H6HW060100	WASHER, FLAT HW 6	10	
38	7513030	SCREW 6X18	10	
39	7200070	NEEDLE BEARING HK2526	1	
40	7539010	SCREW W/ LOCK WASHER XR 4X16	2	
41	6100060	RECTIFIER	1	
42	H6HB051500	SCREW HB 5X15	4	
43	3252220	GEAR CASE COVER	1	
44	7101040	BEARING 6002Z	2	
45	3510230	GEAR COLLAR No.6	1	
46	6100040	MAGNET CLUTCH	1	
47	7301130	THRUST NEEDLE ROLLER BEARING AS 1104	2	
48	7301120	THRUST NEEDLE ROLLER BEARING AXK 1104	1	
49	7550120	SCREW 5X12	3	
50	H6HW050100	WASHER, FLAT 5	3	
51	3601690	GEAR No. 5	1	
52	7101220	BEARING 6004ZZ	1	
53	7411040	SNAP RING RTW 42	1	
54	3701250	KEY	1	
55	3601700	GEAR No.6	1	
56	7512100	BOLT HB 5X40	4	
57	C5SW0501M0	WASHER, LOCK 5	4	
58	7600100	WASHER, FLAT 5	4	
59#	6402520	HOLDER CAP	2	
60#	6402510	CARBON BRUSH	2	
61#	6402450	MOTOR CASE	1	
62#	6402420	STATOR 115V	1	
63#	6402380	FAN GUIDE	1	
64#	6402390	SCREW 5 X80	2	
65#	7105020	BEARING	1	
66#	6402370	INSULATOR WASHER	1	
67 #	6402340	ARMATURE 115V	1	
68 #	6402320	INSULATOR WASHER FOR BEARING	1	
69	7000060	BEARING 6202VV	1	
70	M5HB102500	ALLEN HEAD SCREW 10X25	4	

# MB25A — BENDER ASSEMBLY

## BENDER ASSEMBLY



NOTES:  
▲ INCLUDED WITH ITEM 46.

## MB25A — BENDER ASSEMBLY

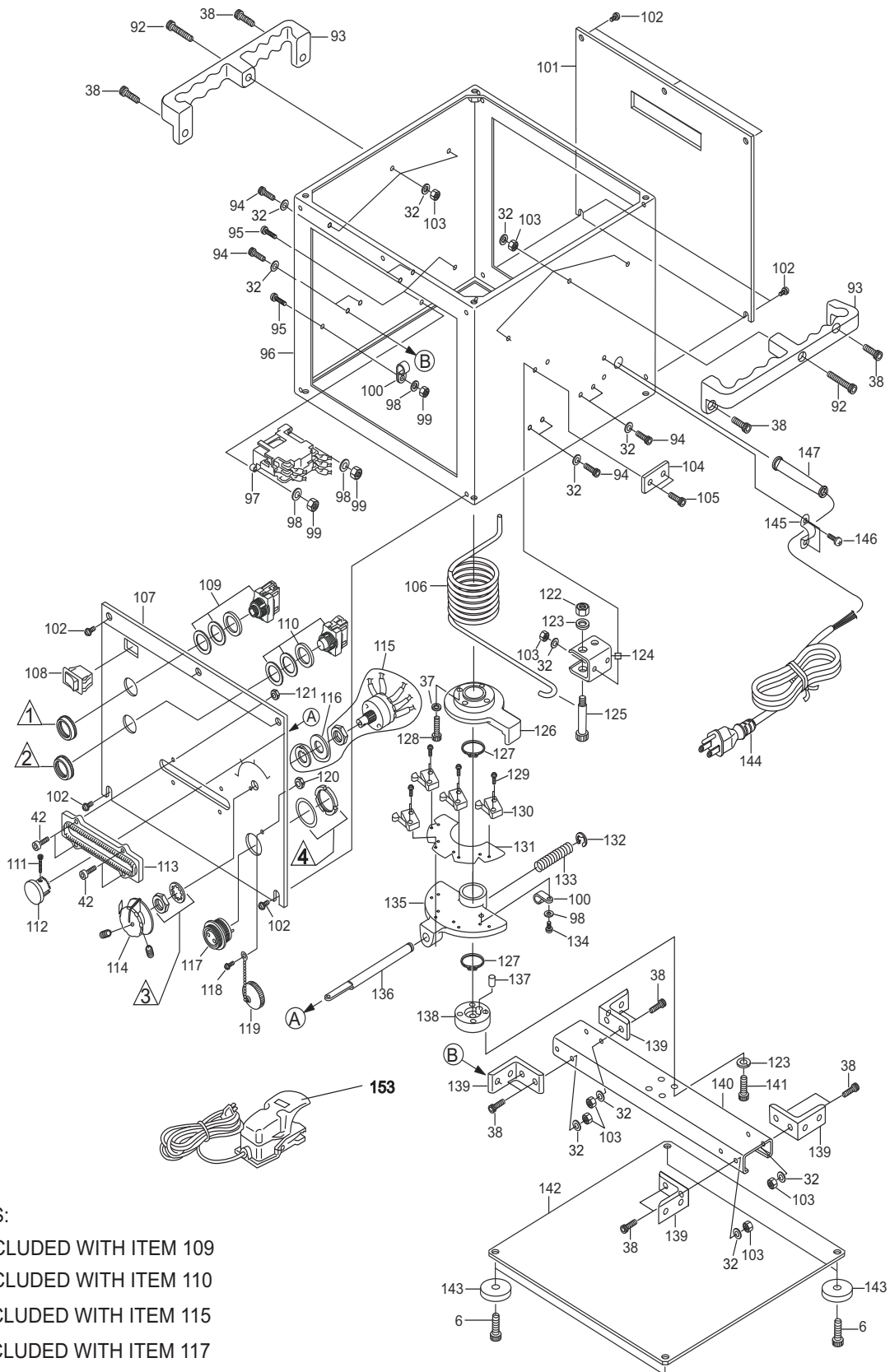
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BENDER ASSEMBLY (continued)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
71	3252180	GEAR CASE	1	
72	7515100	ALLEN HEAD SCREW 10 X50	3	
73	7101010	BEARING 6000Z	2	
74	3601660	GEAR No.2	1	
75	3601680	GEAR No.4	1	
76	C5T4230800	KEY D	1	
77	7101340	BEARING 6003VV	1	
78	7410100	SNAP RING STW 17	1	
79	3601670	GEAR No.3	1	
80	7101080	BEARING 6004Z	2	
81	3601720	GEAR No.8	1	
82	3701600	KEY FOR GEAR No.8	2	
83	3601710	GEAR No.7	1	
84	M5B6006Z00	BEARING 6006Z	1	
85	3601730	GEAR No.9	1	
86	3701200	KEY FOR SHAFT WITH GEAR	2	
87	3600530	SHAFT GEAR	1	
88	7515110	ALLEN HEAD SCREW 10X60	4	
89	3252170	GEAR BASE	1	
90	3508860	GEAR BASE PIN	4	
91	7102030	BEARING 6202Z	1	
A	6014110	MOTOR 115V .....	1	INCLUDES ITEMS W/ #

# MB25A — HOUSING ASSEMBLY

## HOUSING ASSEMBLY



### NOTES:

- ▲ INCLUDED WITH ITEM 109
- ▲ INCLUDED WITH ITEM 110
- ▲ INCLUDED WITH ITEM 115
- ▲ INCLUDED WITH ITEM 117

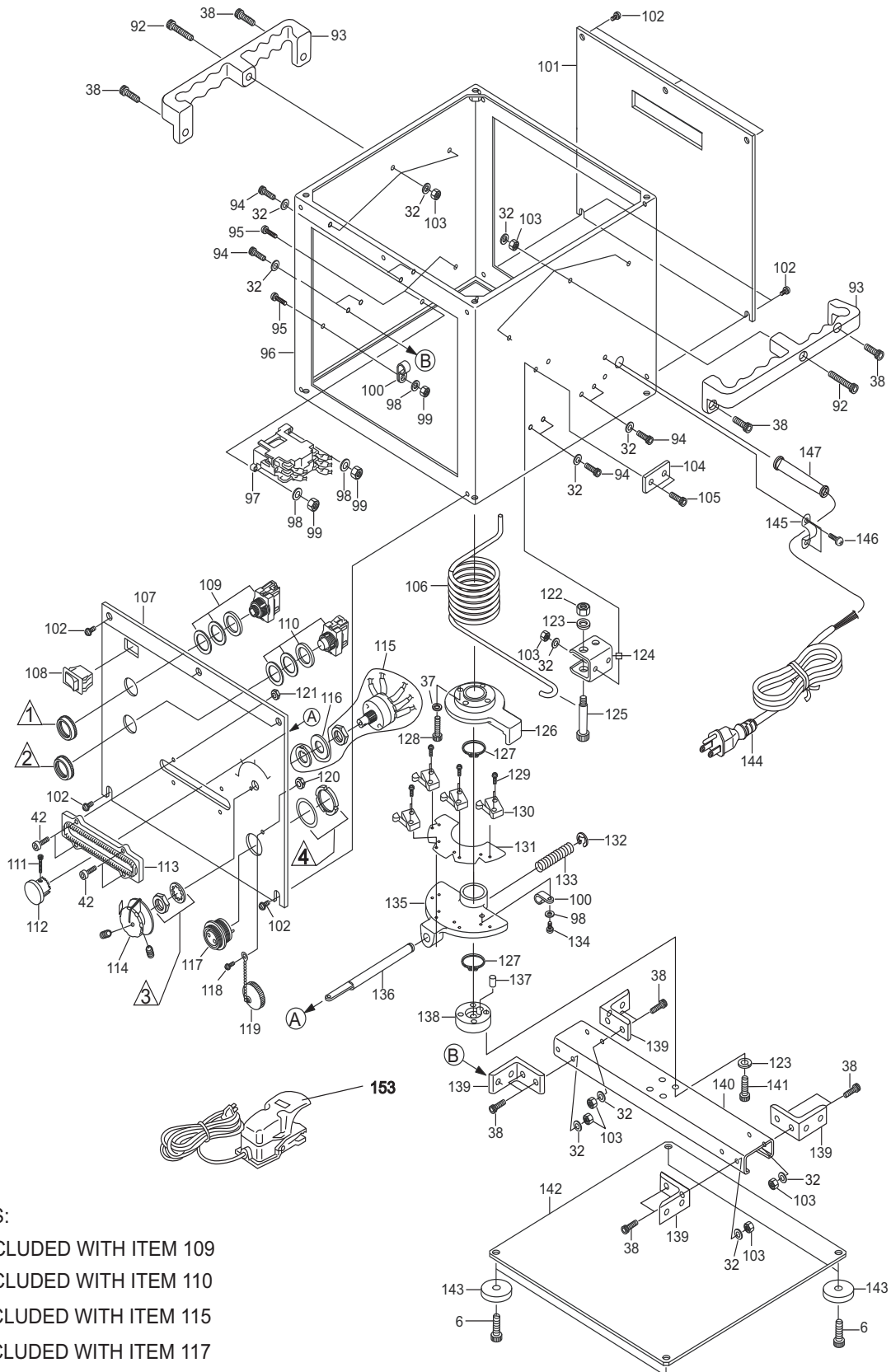
## MB25A — HOUSING ASSEMBLY

### HOUSING ASSEMBLY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
6	7514000	ALLEN HEAD SCREW 8X15	4	
32	C5SW0601M0	WASHER, LOCK 6	24	
37	H6HW060100	WASHER, FLAT 6	4	
38	7513030	ALLEN HEAD SCREW 6X18	12	
42	H6HB051500	ALLEN HEAD SCREW 5X15	4	
92	7513120	ALLEN HEAD SCREW 6 X60	2	
93	3250440	HANDLE	2	
94	7513010	ALLEN HEAD SCREW 6X2	8	
95	7538190	BOLT W/SPRING WASHER XR 4 X 20	3	
96	3000140	FRAME HOUSING	1	
97	6200160	MAGNET SWITCH	1	
98	7600010	WASHER, FLAT 4	4	
99	7700030	HEX NUT 4	3	
100	6101350	NYLON CLAMP	2	
101	3301460	PANEL B	1	
102	7538090	SCREW W/ LOCK WASHER XR 5 X 10	10	
103	7700050	HEX NUT 6	16	
104	3300610	OUTSIDE BRACKET, TORSION COIL	1	
105	H6HB062000	ALLEN HEAD SCREW 6 X 20	2	
106	4007570	TORSION COIL SPRING	1	
107	3301480	PANEL A	1	
108	6200770	POWER SWITCH	1	
109	6200230	START SWITCH	1	
110	6200240	EMERGENCY STOP SWITCH	1	
111	7511030	SET SCREW 4 X 20	1	
112	3503590	ANGLE ADJUSTING KNOB	1	
113	3250600	ANGLE ADJUSTING PLATE	1	
114	6101060	ANGLE SELECT DIAL	1	
115	6200170	ROTARY SWITCH	1	
116	7600050	WASHER, FLAT 10	1	
117	6101280	FOOT SWITCH CONNECTOR F	1	
118	7538000	SCREW W/ LOCK WASHER XR 3 X8	1	
119	6101290	FOOT SWITCH CONNECTOR CAP	1	
120	M5NM030100	HEX NUT 3	1	
121	7556020	HEX NUT 5X0.9	4	
122	M5NM080100	HEX NUT 8	1	
123	C5SW0801M0	WASHER, FLAT 8	5	
124	3510220	INSIDE BRACKET, TORSION COIL	1	
125	7551020	ALLEN HEAD SCREW 10X40	1	
126	3251270	CARRIER	1	
127	M5SNR25S00	SNAP RING STW 25	2	
128	7513050	ALLEN HEAD SCREW 6X25	4	
129	7538020	SCREW W/ LOCK WASHER XR 3X18	8	
130	6200190	MICRO SWITCH	4	
131	4600100	MICRO SWITCH HOLDER PLATE	1	

# MB25A — HOUSING ASSEMBLY

## HOUSING ASSEMBLY



### NOTES:

- ▲ INCLUDED WITH ITEM 109
- ▲ INCLUDED WITH ITEM 110
- ▲ INCLUDED WITH ITEM 115
- ▲ INCLUDED WITH ITEM 117

## MB25A — HOUSING ASSEMBLY

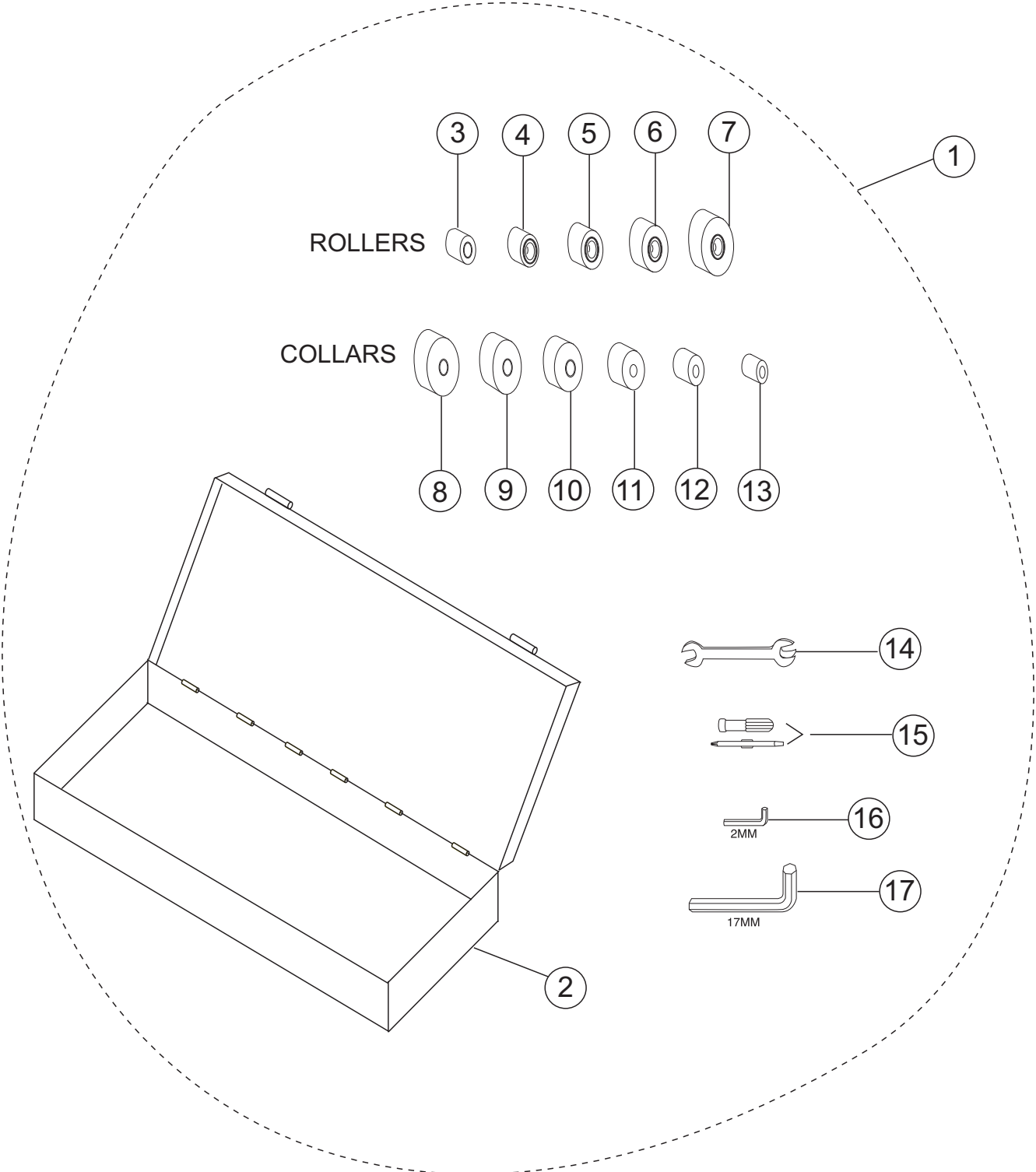
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### HOUSING ASSEMBLY (continued)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
132	7410080	SNAP RING ETW 8	1	
133	4007030	COIL SPRING	1	
134	7532010	SCREW 4X8	1	
135	3251280	MICRO SWITCH BASE	1	
136	3501960	ANGLE ADJUSTING STICK	1	
137	6601060	PIN $\varnothing$ 10 X10	1	
138	3510290	FIXED COLLAR	1	
139	3510200	OUTPUT SHAFT GUIDE BRACKET	4	
140	3510280	OUTPUT SHAFT GUIDE	1	
141	7514140	ALLEN HEAD SCREW 8X18	4	
142	3301470	BOTTOM PLATE	1	
143	3503420	COLLAR FOR END PLATE	4	
144	6301010	CORD WITH PLUG	1	
145	6600030	CLAMP, CABLE	1	
146	7538030	SCREW W/ LOCK WASHER XR 4X6	2	
147	C5Y8411000	STRAIN RELIEF, CABLE	1	
153	9002120	FOOT SWITCH ASSEMBLY	1	

# MB25A — TOOL BOX AND TOOLS ASSEMBLY

## TOOL BOX AND TOOLS ASSEMBLY



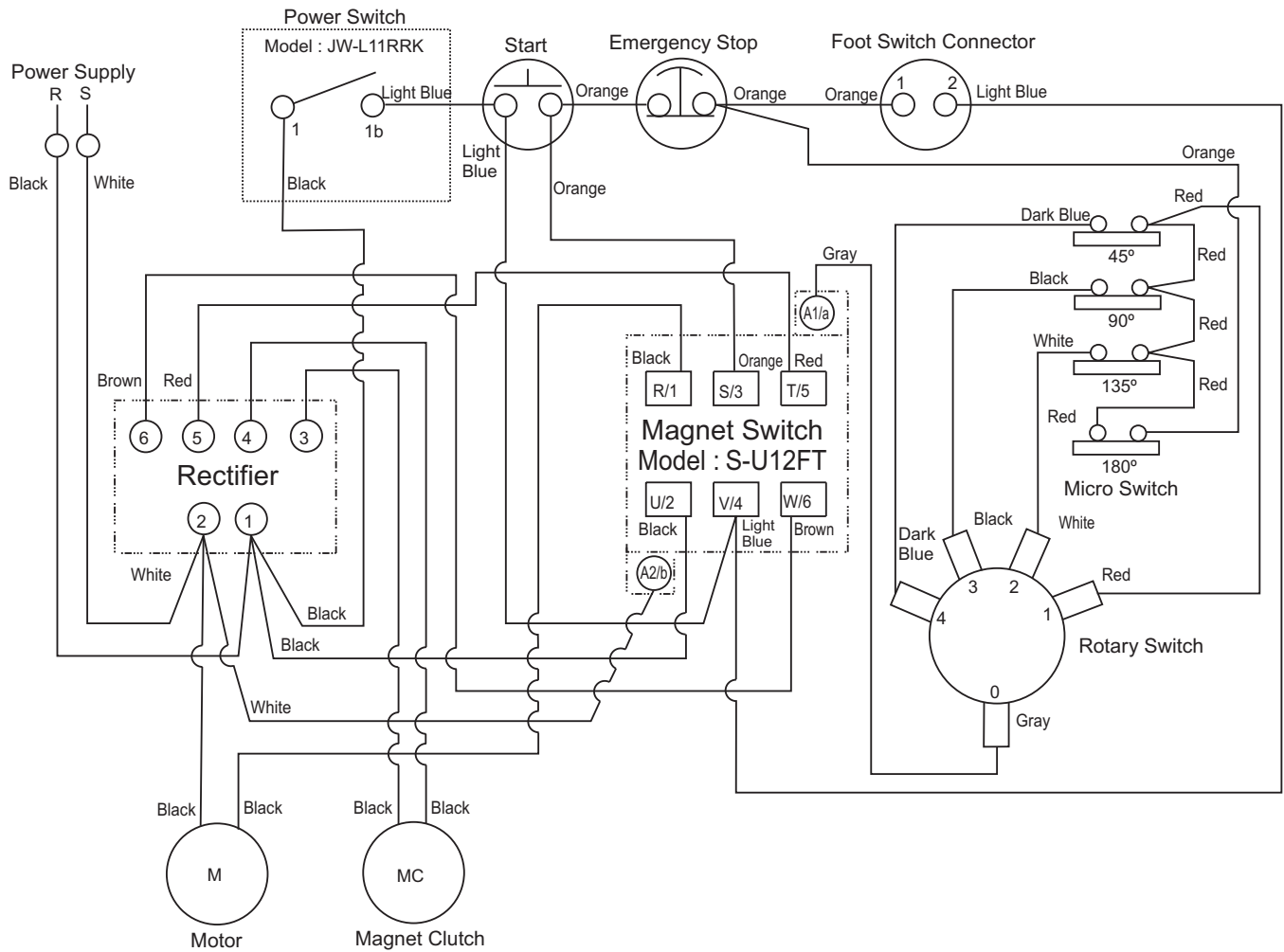
## **MB25A — TOOL BOX AND TOOLS ASSEMBLY**

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### TOOL BOX AND TOOLS ASSEMBLY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	9020120	TOOL BOX ASSY .....	1 .....	INCLUDES ITEMS W/ *
2*	8103050	TOOL BOX	1	
3*	9008090	ROLLER 625 (WITH BEARING)	1	
4*	9008080	ROLLER 622 (WITH BEARING)	1	
5*	9008070	ROLLER 619 (WITH BEARING)	1	
6*	9008060	ROLLER 616 (WITH BEARING)	1	
7*	9008050	ROLLER 613 (WITH BEARING)	1	
8*	9008130	COLLAR 625 (WITH BUSHING)	1	
9*	9008120	COLLAR 622 (WITH BUSHING)	1	
10*	9008110	COLLAR 619 (WITH BUSHING)	1	
11*	3510370	COLLAR 616	1	
12*	3510360	COLLAR 613	1	
13*	3510350	COLLAR 610	1	
14*	8201020	OPEN END WRENCH 17 X19 MM	1	
15*	8201510	SCREWDRIVER	1	
16*	8200020	ALLEN WRENCH M2	1	
17*	8200120	ALLEN WRENCH M17	1	

# MB25A — WIRING DIAGRAM



# TERMS AND CONDITIONS OF SALE — PARTS

## PAYMENT TERMS

Terms of payment for parts are net 30 days.

## FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

## MINIMUM ORDER

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

## RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
  - a. The parts numbers and descriptions must match the current parts price list.
  - b. The list must be typed or computer generated.
  - c. The list must state the reason(s) for the return.
  - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
  - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.

5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
  - a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
  - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
  - c. Any line item with an extended dealer net price of less than \$5.00.
  - d. Special order items.
  - e. Electrical components.
  - f. Paint, chemicals, and lubricants.
  - g. Decals and paper products.
  - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

## PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

## SPECIAL EXPEDITING SERVICE

A \$35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

## LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

## LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

Effective: February 22, 2006

# OPERATION AND PARTS MANUAL

## HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL  
NUMBER *ON-HAND* WHEN CALLING

### UNITED STATES

#### ***Multiquip Corporate Office***

18910 Wilmington Ave. Tel. (800) 421-1244  
Carson, CA 90746 Fax (800) 537-3927  
Contact: mq@multiquip.com

#### ***Mayco Parts***

800-306-2926 Fax: 800-672-7877  
310-537-3700 Fax: 310-637-3284

#### ***Service Department***

800-421-1244 Fax: 310-537-4259  
310-537-3700

#### ***MQ Parts Department***

800-427-1244 Fax: 800-672-7877  
310-537-3700 Fax: 310-637-3284

#### ***Warranty Department***

800-421-1244, Ext. 279 Fax: 310-537-1173  
310-537-3700, Ext. 279

#### ***Technical Assistance***

800-478-1244 Fax: 310-631-5032

### MEXICO

#### ***MQ Cipsa***

Carr. Fed. Mexico-Puebla KM 126.5 Tel: (52) 222-225-9900  
Momoxpan, Cholula, Puebla 72760 Mexico Fax: (52) 222-285-0420  
Contact: pmastretta@cipsa.com.mx

### UNITED KINGDOM

#### ***Multiquip (UK) Limited Head Office***

Hanover Mill, Fitzroy Street, Tel: 0161 339 2223  
Ashton-under-Lyne, Fax: 0161 339 3226  
Lancashire OL7 0TL  
Contact: sales@multiquip.co.uk

### CANADA

#### ***Multiquip***

4110 Industriel Boul. Tel: (450) 625-2244  
Laval, Quebec, Canada H7L 6V3 Fax: (450) 625-8664  
Contact: jmartin@multiquip.com

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This manual MUST accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

The information and specifications included in this publication were in effect at the time of approval for printing. Illustrations, descriptions, references and technical data contained in this manual are for guidance only and may not be considered as binding. Multiquip Inc. reserves the right to discontinue or change specifications, design or the information published in this publication at any time without notice and without incurring any obligations.

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