

# BETTCHER Industries, Inc.

*OPERATING INSTRUCTIONS AND SPARE PARTS LISTS*



## **LARGE MODULAR SERIES II TOOLS**

### Models :

750M2	(F/N *183000)	Bone Trimmer
850M2	(F/N *183001)	Defatting Machine
880M2-B&S	(F/N *183002)	Primal Fat Shaper
1850M2	(F/N *183003)	Defatting Machine
1880M2	(F/N *183004)	Primal Fat Shaper
1000M2	(F/N *183005)	Defatting Machine
1300M2	(F/N *183006)	Primal Fat Shaper
1400M2	(F/N *183007)	Ham Finisher
1500M2	(F/N *183008)	Skinning Machine
1930M2	(F/N *185000)	Defatting Machine
1932M2	(F/N *185086)	Defatting Machine
1933M2	(F/N *185001)	Defatting Machine
1940M2	(F/N *185002)	Defatting Machine
1942M2	(F/N *185087)	Defatting Machine
1943M2	(F/N *185003)	Slicing Machine

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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**

Bettcher Modular Series II Whizard® tools are highly effective for use in the meat industry, designed with the highest possible standards for safety, ergonomics and production. These versatile machines, with their carefully engineered and durable cutting edge, bring uniformity and consistent yield control to all operations. This Operating Instruction covers the following models:

Model	Main Application
750M2	Bone Trimmer
850M2	Defatting Machine
880M2-B&S	Primal Fat Shaper
1850M2	Defatting Machine
1880M2	Primal Fat Shaper
1000M2	Defatting Machine
1300M2	Primal Fat Shaper
1400M2	Ham Finisher
1500M2	Skinning Machine
1930M2	Defatting Machine
1932M2	Defatting Machine
1933M2	Defatting Machine
1940M2	Defatting Machine
1942M2	Defatting Machine
1943M2	Slicing Machine

**SECTION 2.0**     **Designated Use**

**2.1**     **Warning**

Modular Series II Whizard® tools 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® trimmer was designed and built may result in serious injuries.

	<b>WARNING</b>	
<b>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 THAT SPECIFIC MODEL, INCLUDING CHANGES IN OPERATING PROCEDURES MADE BY THE OWNER OR ANY OF HIS PERSONNEL.</b>		
<b>THE USE OF PARTS OTHER THAN THOSE LISTED IN THE PARTS LIST FOR THE SPECIFIC MODEL MAY CAUSE BLADE LOCK-UP RESULTING IN AN UNSAFE OPERATING CONDITION.</b>		

## 2.2 Recommended Operations

Modular Series II Whizard® tools are made for several recommended operations. Ensure that you are using the correct tool for your specific application. The following recommendation list is not intended to be a total and comprehensive listing, but is offered as a guide. Additional applications are possible.

### MODEL 750M2

#### PORK CUT

- Remove diaphragm lean
- Removal of picnic hearts

#### PORK KILL

- Remove cheek meat
- Remove blood clots from jowls

#### FOAM INDUSTRY

- Remove defects
- Flash trimming

### MODELS 850M2/1850M2

#### POULTRY

- Defatting turkey skins
- Defatting turkey thighs

#### BEEF

- Recover lean from fat
- Trim lean from rib caps
- Trim beef tripe

#### PORK PROCESSING

- External ham defatting
- Internal ham defatting
- Defat pork loins
- Remove oyster meat

#### PORK KILL

- Removing leaf lard

### MODEL 880M2-B/1880M2 WITH ADJUSTABLE DEPTH GAUGE

#### BEEF BONING/FABRICATING

- Removing Dirt and Hair
  - Slaughter Floor
  - Prior to Loading
  - Upon Receiving
  - Prior to Fabrication
- Final Trim on Primal Fat Shaping

### MODEL 880M2-S/1880M2 WITH ADJUSTABLE DEPTH GAUGE

#### HOG KILL/HOG CUT/HAM PROCESSING

- Remove skin or hair patches
- Trimming pork loins and Canadian backs
- Internal and external defatting of hams

#### TOP ROUNDS/BOTTOM ROUNDS/BRISKETS/CUBE STEAK MATERIAL

- Removing membranes and light fat covering

#### DEFATTING TURKEY THIGHS



## 2.2 Recommended Operations (Continued)

### MODEL 1000M2

#### HOG CUT

- Defat hams, picnics and butts
- Removing lean from:
  - Picnic Face
  - Fat Backs
  - Clear Plates
  - Bootjack
- Jowls shoulder end of belly
- Belly (Wire muscle – Pickle pocket)
- Plate Trim

#### BEEF SLAUGHTER

- Defatting hot beef externally & internally
- Kidney fat, heart fat, pelvic fat & cod fat

### MODEL 1300M2

#### BEEF KILL

- Pizzle cord removal
- Removing external fat

#### BEEF BONING/ FABRICATION

- Primal Fat Shaping:
  - Strips
  - Sirloin Butts
  - Ribs
- Defat navels (Pastrami)

#### HAM BONING

- External defat of hams
- External defat of pork shoulders

### MODEL 1400M2 WITH ADJUSTABLE DEPTH GAUGE

#### PORK PROCESSING

- Defatting:
  - Whole Hams
  - Shoulders
  - Canadian Backs
- Removing Beater Marks
- Scraping Leaf Lard

#### BEEF PROCESSING

- Carcass hair & dirt removal
- Defatting:
  - New York strips & sirloin butts
  - Rounds and ribeyes

### MODEL 1500M2 WITH ADJUSTABLE DEPTH GAUGE

#### PORK PROCESSING

- Removing skin patches from bellies
- Defatting:
  - Whole Hams
  - Pork Loins

#### BEEF SLAUGHTER

- Defatting hot beef externally
- Hair and dirt removal

## 2.2 Recommended Operations (Continued)

### **MODEL 1930M2**

#### BEEF SLAUGHTER

- Defatting Hot Beef

### **MODEL 1932M2 WITH ADJUSTABLE DEPTH GAUGE**

#### BEEF PROCESSING

- Defatting Strips

### **MODEL 1933M2 WITH ADJUSTABLE DISC GAUGE**

#### BEEF PROCESSING

- Defatting Strips

### **MODEL 1940M2**

#### BEEF SLAUGHTER

- Defatting Hot Beef

### **MODEL 1942M2 WITH ADJUSTABLE DEPTH GAUGE**

#### BEEF PROCESSING

- Defatting Strips

### **MODEL 1943M2 WITH ADJUSTABLE DISC GAUGE**

#### BEEF PROCESSING

- Defatting Strips

#### SALMON PROCESSING

- Slicing

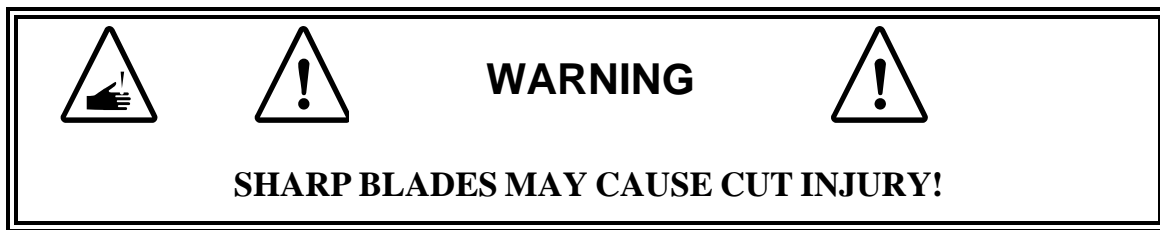
## SECTION 3.0     Function

### 3.1     Machine Functions

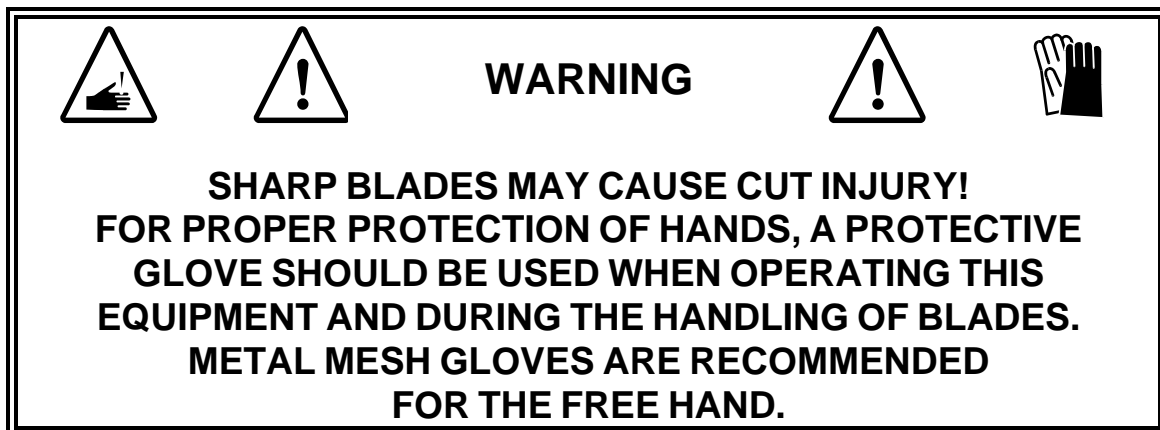
Modular Series II Whizard® tools are durable and efficient, promoting higher yields for meat and poultry trimming. The Modular Series II Whizard® tools are superbly designed for ease of handling while reducing operator fatigue. Modular Series II Whizard® tool blades maintain accurate and continued sharpness.

A vertically hung 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 fat is now 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.

### 3.2     Safety Recommendations And Warnings







Modular Series II Whizard® tools have been designed to obtain the highest possible degree of safety. The Trimmer contains sharp knife blades. Handle this equipment with caution as you would with any sharp object. In particular, read and apply the following safety recommendations :







3.2 Safety Recommendations And Warnings (Continued)

		<b>WARNING</b>	
<b>KEEP HANDS AWAY FROM MOVING BLADE!</b>			



	<b>WARNING</b>	
<b>ALWAYS TURN OFF THE MOTOR AND PLACE THE HANDPIECE IN THE HANGER BRACKET. 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!</b>		



	<b>WARNING</b>	
<b>ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEX SHAFT CASING PRIOR TO SERVICING!</b>		

	<b>WARNING</b>	
<b>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, UNPLUGGED, AND TAGGED AS "UNSAFE" UNTIL SUCH TIME AS PROPER REPAIRS ARE MADE AND THE MACHINE AGAIN OPERATES NORMALLY.</b>		



	<b>WARNING</b>	
<b>AFTER SERVICE OF THE UNIT, ALWAYS CHECK TO ENSURE THAT THE BLADE IS FREE TO ROTATE IN THE MACHINE PRIOR TO STARTING. IF THE BLADE DOES NOT ROTATE FREELY, IT MAY CAUSE THE HANDPIECE TO ROTATE IN THE HAND.</b>		

3.2 Safety Recommendations And Warnings (Continued)

	<b>WARNING</b>	
<p><b>LENGTHY OR REPEATED USE OF VARIOUS POWER TOOLS VIBRATING EXCESSIVELY IS SUSPECTED OF CONTRIBUTING TO CERTAIN HAND, WRIST OR FOREARM DISORDERS IN SUSCEPTIBLE INDIVIDUALS. IF EXCESSIVE VIBRATION OCCURS, IT IS AN INDICATION THAT THERE ARE WORN PARTS THAT NEED REPLACEMENT.</b></p>		

	<b>WARNING</b>	
<p><b>IF YOUR WHIZARD TRIMMER DEVELOPS UNUSUAL VIBRATION, DO NOT CONTINUE TO USE IT WITHOUT FIRST UNDERTAKING CORRECTIVE ACTION AS OUTLINED IN THE TROUBLESHOOTING GUIDE IN THIS OPERATING INSTRUCTION.</b></p>		

	<b>WARNING</b>		
<p><b>AVOID USE OF THIS MACHINE IN STANDING WATER.</b></p>			

	<b>WARNING</b>	
<p><b>USE ONLY REPLACEMENT PARTS MANUFACTURED BY BETTCHER INDUSTRIES, INC. USE OF SUBSTITUTE PARTS WILL VOID THE WARRANTY AND MAY CAUSE INJURY TO OPERATORS AND DAMAGE TO EQUIPMENT.</b></p>		

**SECTION 4.0**     **Safety Features**

All Modular Series II Whizard® tools have been designed for use with an optional Disconnect which will stop blade rotation when the trigger/lever is released. This trigger/lever has been designed in such a way that minimal grip force is required for operation, using three fingers.

## **SECTION 5.0**    **Ergonomics And Environment**

### **5.1**    **Ergonomic Features**

Handles – X-Small, Small, Medium, and Large Handle sizes are available to help improve the operator’s grip and comfort. Fitting the correct size handle to the worker's hand is a very important step. The Modular Series II Whizard® tools have been manufactured in both right and left handed configurations. All handles are also available without flanges, to allow for more freedom of movement where space is limited.

Optional Thumb Support - An adjustable Thumb Support is available to ensure a proper and comfortable fit while providing added control and stability of the tool during use.

Whizard® Hand Strap - This Strap has been designed to allow the user to relax the fingers between work cycles while maintaining control of the Trimmer.

**NOTE:** The Whizard® handstrap can not be used with the flangeless handles.

### **5.2**    **Noise And Vibration Levels**

The force to cut through meat and fats is now 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 noise emission value is less than 70 dB(A)

Vibration of the handpiece is less than 1 m/sec<sup>2</sup>

No negative side effects have been reported.

## **SECTION 6.0   Unpacking**

### **6.1   Safety First**



### **6.2   Included With Your Machine**

The following parts are included with each Modular Series II Whizard® tool. Please check when unpacking and advise your local Bettcher Industries representative if the delivery is incomplete.

Part Number	Description	Qty.
100642	Whizard® Special Steel	1
100660	Special Stone	1
113415	Grease Gun (for 8 oz. tube of Whizard® Grease)	1
100608	8 oz. Tube Whizard® Grease	1
143631	14 oz. Cartridge of Special Whizard® Grease	1
183130	Operating Instructions and Spare Parts List	1

## **SECTION 7.0   Installation**

The work station for each operator should be designed so that the operator's movements in performing the job are natural and easy. A sideways sweeping motion with the Modular Series II Whizard® tool is preferable to a reaching motion. Long reaching motions and high muscle strain should be avoided if possible. Also, a proper working height is needed to avoid excessive shoulder and back exertion. Refer to the Whizard® Motor Manual for instructions on the proper placement and installation of the motor.

## **SECTION 8.0**     **Instruction For Operation**

### **8.1**     **Optional Thumb Support And Handle Size Selection**

Your Modular Series II Whizard® tool has been supplied with a spacer ring and an optional thumb support. If using the optional thumb support, the operator's thumb should be fully supported and rest comfortably in the support. The thumb support has been optimized to fit most hands comfortably.

Fitting the correct size handle to the grip of an operator's hand is a very important step when trying to reduce risks associated with cumulative trauma disorders. The Trimmers are available in right and left handed configurations. Once it has been determined that an operator is right or left handed and the appropriate model of Trimmer has been selected, choosing the proper handle size can be accomplished in the following manner. The handles have been color-coded for size as follows:

- Tan                      XX-Small
- Turquoise              X-Small
- Grey                     Small
- Blue                     Medium
- Green                    Large

Here is a very simple procedure to determine correct handle size:

**STEP 1** - Assemble four (4) knives each with a different size handle. (See Section 8.2 for complete assembly instructions).

**STEP 2** - Allow the user to hold the knife and apply the grip pressure normally used during the job operation.

#### **NOTE**

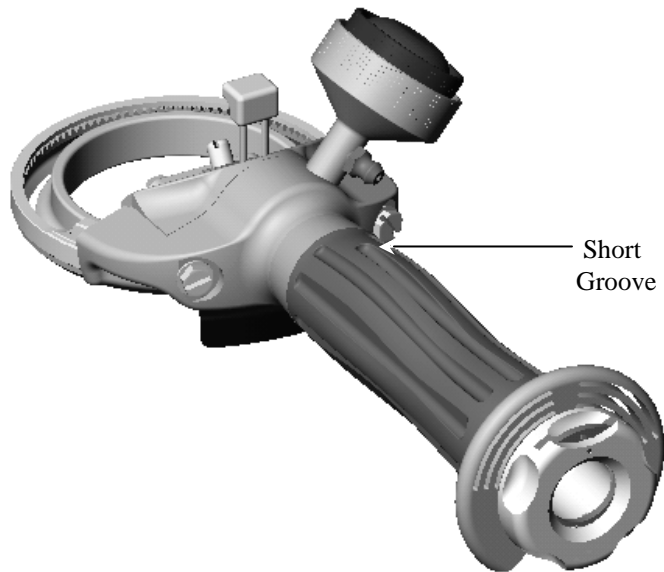
If the operator normally wears a glove, this process should be done with the glove(s) used in normal operation.

We do not recommend the use of Nitrile gloves in direct contact with the Whizard® handles because the gloves may become slippery.

The operator should choose the handle that is most comfortable. Allow the operator to work with this handle on a tool for several days. If the operator is not comfortable with the handle selection, try a different size.



## 8.1 Optional Thumb Support And Handle Size Selection (Continued)



## 8.2 Handle - Assembly And Adjustment

The Modular Series II Whizard® tools have been designed to allow the head of the tool to be rotated relative to the handle. In this way, the tool can be adjusted to position the blade properly to the product while the handle can be set to allow the operator to have a comfortable position for the wrist.

The position which is selected will vary based on the individual work station, product, and operator. To determine the proper position, it will be necessary to observe the operator while trying various positions. Select the position in which the operator's wrist appears to maintain the most neutral position and which is comfortable to the operator.

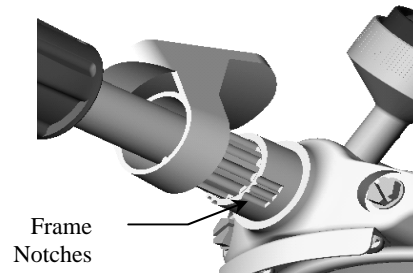
Note that left handed heads are available for left handed users. Do not assign a knife designed for a right handed person to a left handed user. Possible exposure to increased muscle stress may result.

8.2 Handle - Assembly And Adjustment (Continued)



STEP 1

- Pick up the Whizard® Trimmer
- Pick up a spacer ring or optional thumb support
- If the optional thumb support is used, align the thumb support tab with one of the notches on the underside of the frame
- The optional thumb support should be located on the opposite side of the grease cup

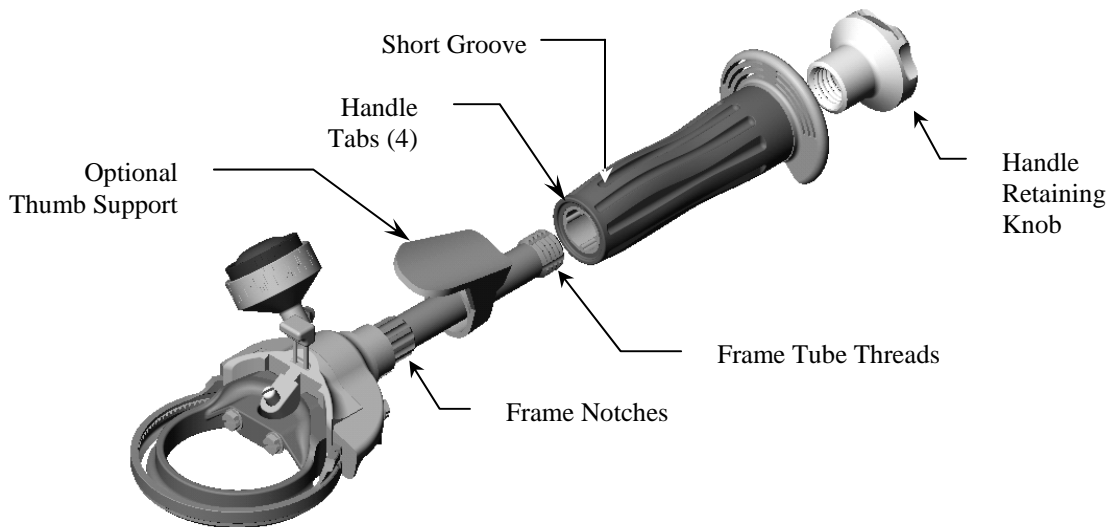


STEP 2

- While holding the Trimmer, pick up a handle and align the four (4) handle tabs with the four notches located on the threaded portion of the frame tube
- Firmly push the handle towards the bottom of the spacer ring or optional thumb support, and align the handle tabs with the notches on the front of the tube as shown
- For the initial adjustment position, the short groove on the handle should be on top, as shown.

STEP 3

- Screw on the handle retaining knob.
- Tighten firmly, but take care not to overtighten or the handle will be damaged.



## 8.2 Handle - Assembly And Adjustment (Continued)

The Whizard® Hand Strap has been designed to allow the user to relax the fingers of the hand between work cycles while maintaining control of the Trimmer.

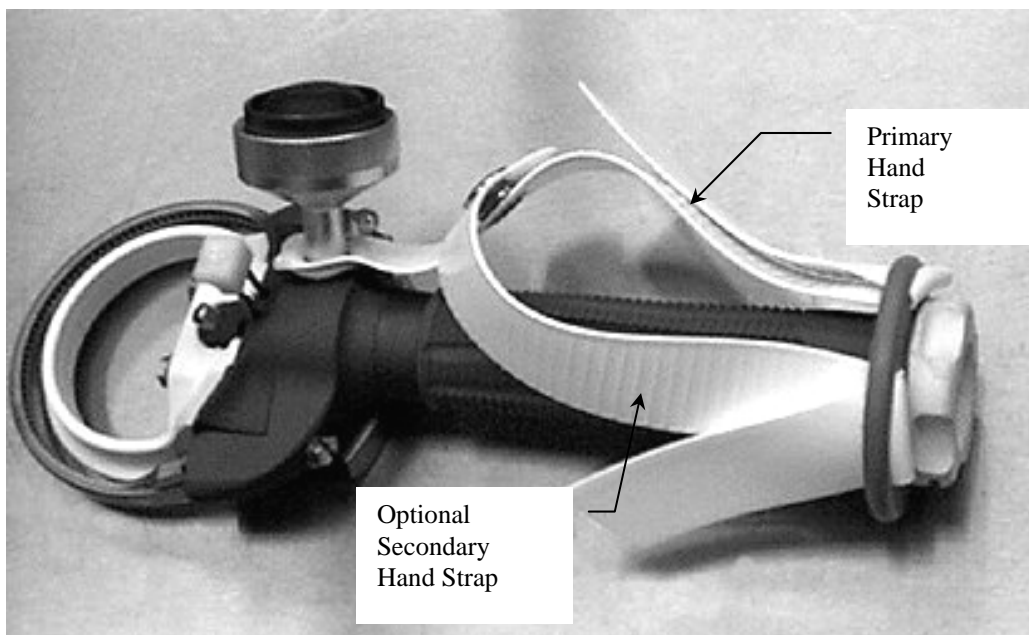
**NOTE:** The Whizard® handstrap can not be used with the flangeless handles.

### Installation Of The Hand Strap

- Remove the grease cup from the tool.
- Push the grease cup thread through the round grommet end of the strap. Be sure that the ribbed surface of the strap is on top as shown.
- Reinstall the grease cup.
- Weave the end of the strap down and back up through the slots in the flange of the handle. The strap may be pulled through the slots to adjust for size.

An optional secondary strap has been provided with your Modular Series II Whizard® tool. To install the secondary strap :

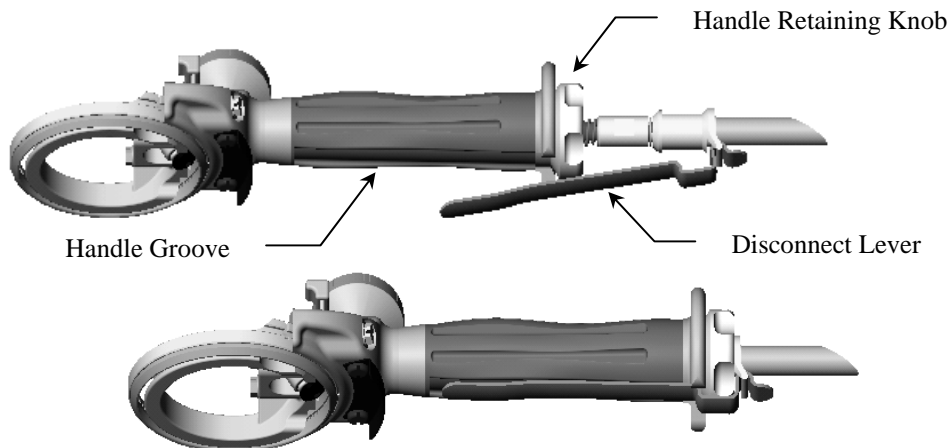
- Weave the secondary strap end through the opposite handle slots similar to the method used to install the primary hand strap.
- Bring the loose end of the strap across the tool and snap closed.







## 8.2 Handle - Assembly And Adjustment (Continued)

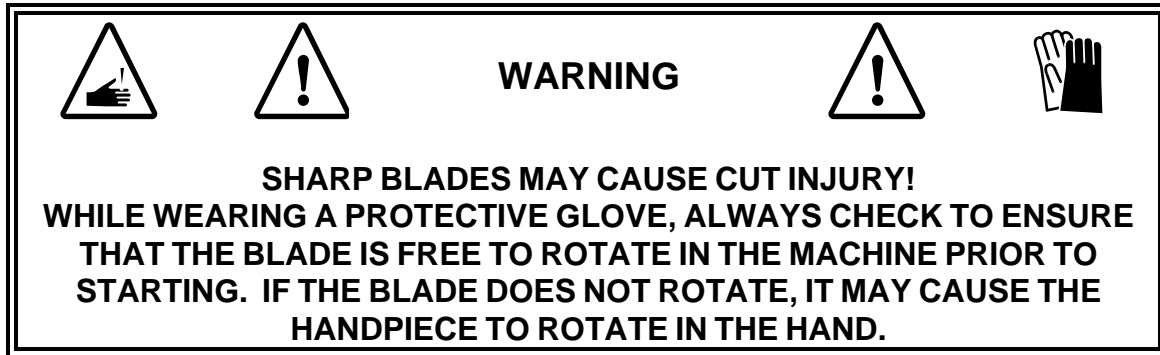
### The Disconnect Casing

- Connect the casing to the Bettcher Industries motor as described in the motor manual.
- Hold the trimmer in the hand you will use in operation, and with the other hand, grasp the casing and push it into the end of the tool through the handle retaining knob.
- Push the casing in until the latch catches the casing.
- The disconnect lever rotates freely around the handle.
- Align the disconnect lever in the notched-out area of the handle. Slightly open the fingers on the hand holding the trimmer. Push the casing inward and hold the lever down in the handle groove with the normal operating hand.
- Check to see that the lever is seated completely flat within the groove.
- Release the lever and the casing should pop out and stop the blade from turning. The motor will continue to operate.



		<b>WARNING</b>		
<b>SHARP BLADES MAY CAUSE CUT INJURY! NEVER LAY THE HANDPIECE DOWN ON THE WORK STATION OR LET IT HANG BY THE FLEX SHAFT CASING.</b>				
<b><u>ALWAYS TURN OFF AND PLACE THE HANDPIECE IN THE HANGER BRACKET.</u></b>				
<b>NEVER PLACE THE HANDPIECE IN THE HANGER WHILE THE BLADE IS STILL REVOLVING!</b>				

8.2 Handle - Assembly And Adjustment (Continued)



With the handpiece held in your operating hand, stand at your normal work position and move your hand and the handpiece over your normal work area to check that there are no binds or sharp bends in the flex shaft and casing assembly.

With your other hand, turn on the motor switch. While the blade is rotating, press the rubber cap of the grease cup on the handpiece with your thumb. Press only until a light coating of lubricant appears on the blade in the gear tooth area.

During daily use, the grease cup rubber cap should be depressed every 30 minutes. Refill when empty.

**WHIZARD® SPECIAL GREASE COMPLIES WITH  
USDA H1 STANDARDS FOR USE IN FEDERALLY  
INSPECTED MEAT AND POULTRY PLANTS AND IS  
AUTHORIZED BY AGRICULTURE AND AGRI-FOOD CANADA  
FOR USE IN FOOD PLANTS.**

**DO NOT USE A SUBSTITUTE TYPE LUBRICANT.**

**USE OF SUBSTITUTE LUBRICANTS COULD  
RESULT IN DAMAGE TO THE UNIT.**

Prior to placing the tool in operation, refer to the guidelines for tool adjustment and handle size selection. It is critical to use the proper size handle and that the tool be properly adjusted in order to gain the full benefit of the Modular Series II Whizard® tool design concept.

You are now ready to put the Modular Series II Whizard® tool into operation.

### 8.3 Operating Procedure



Always hold the handpiece of the Modular Series II Whizard® tool with your thumb extended. Let the handpiece rest naturally in the palm of the hand in a relaxed manner. Each person should be allowed to hold the handpiece in a position that is most comfortable to them.

The most-used motion is a long sweeping or gliding stroke across the trimming surface. Hold the blade surface as flat to the trim surface as possible. A scooping action, such as dipping ice cream, should be used around the vertebra.

On flat bones, such as backbones or blades, use a long, quick gliding stroke.

During the cutting operation do not try to pull the blade out of a cut. Let the blade do the work as you would any other cutting tool. Finding the proper angle for Whizard® trimming will become easy after experience and use of the tool.

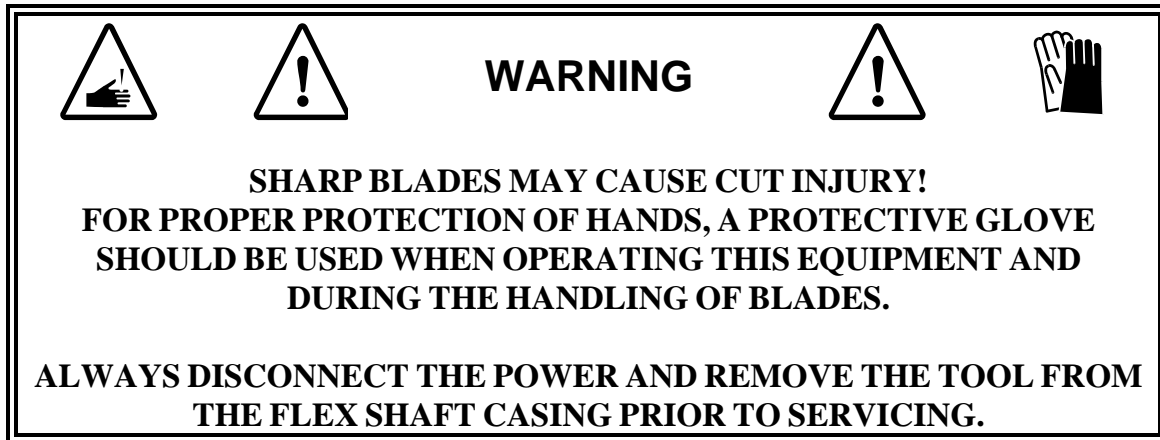
As with any meat cutting tool, your speed and efficiency is only as good as the blade sharpness.

In order to achieve maximum unit and operator efficiency, it is recommended that sharp blades be installed at each shift break. For this reason, it is suggested that extra blades be kept on hand. For example, if 4 units are being used and there are 3 shift breaks, 16 blades would be required. This would provide a sharp blade for start up and one for each break.

When following this procedure, steeling of the blade is virtually eliminated, and blades need only be sharpened once a day with the use of a Whizard® Model 210 Universal Blade Sharpener, Bettcher® AutoEdge, or by hand stoning.

If blades are not changed at each shift break, it may be required to steel the blade.

8.3 Operating Procedure (Continued)

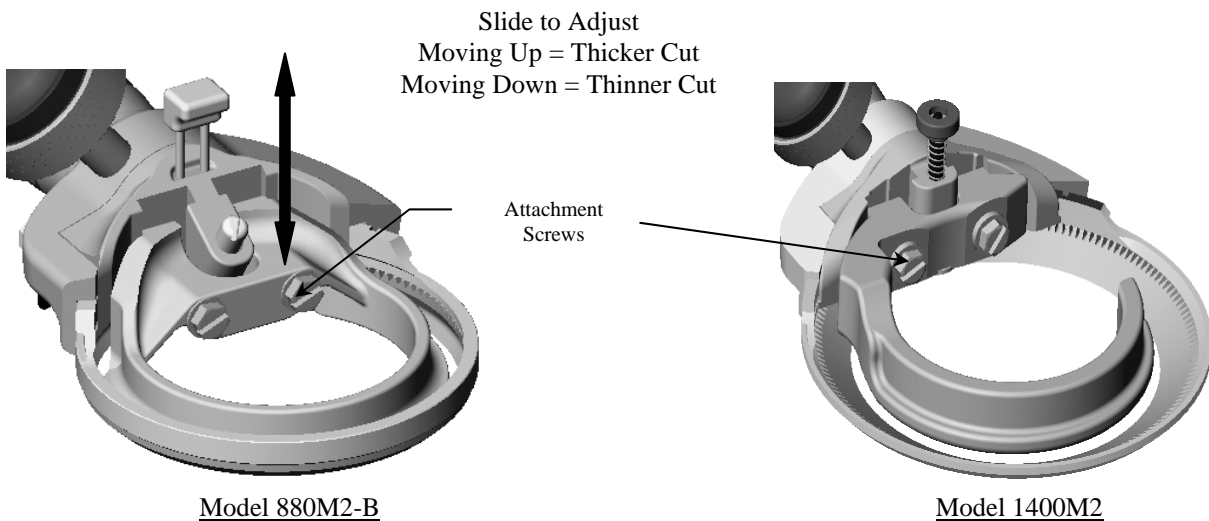


For Models 880M2-S&B, 1880M2, 1400M2, 1500M2, 1932M2 and 1942M2 Only :

These tools are equipped with an adjustable Depth Gauge for setting a controlled product trim thickness. The Depth Gauge can be adjusted for cuts up to 1/4" thick. A Depth Gauge Setting Device is also available. To adjust depth :

- Hold the handpiece with the blade facing downward.
- Loosen the attachment screws at the base of the plastic depth gauge.
- Adjust the gauge setting by sliding it up or down to the desired height.
- Retighten the attachment screws.

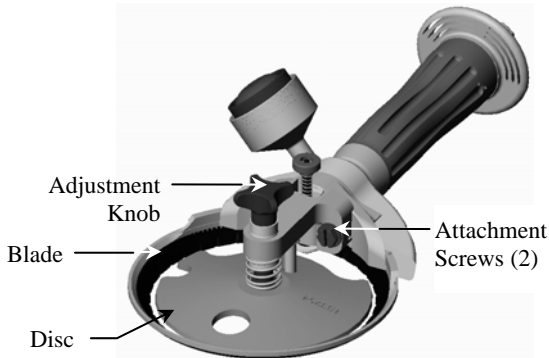
Depth Gauge Adjustment Range :



### 8.3 Operating Procedure (Continued)

#### Optional Adjustable Fat (F) and Skinner (S) Disc Gauges

(850M2, 1000M2, 1300M2, 1933M2 and 1943M2):



- ❖ Hold the handpiece with the blade facing downward.
- ❖ Adjustments – Turn the adjustment knob clockwise for a thicker cut, or counterclockwise for a thinner cut. Take care not to turn too far as the depth control hub may disengage from the shaft.

Model 1000M2-S

		<b>WARNING</b>		
<p><b>SHARP BLADES MAY CAUSE CUT INJURY!</b> <b>FOR PROPER PROTECTION OF HANDS, A PROTECTIVE GLOVE SHOULD BE USED WHEN OPERATING THIS EQUIPMENT AND DURING THE HANDLING OF BLADES.</b> <b>ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEX SHAFT CASING PRIOR TO SERVICING.</b></p>				

#### Steeling For All Models Except 750M2:

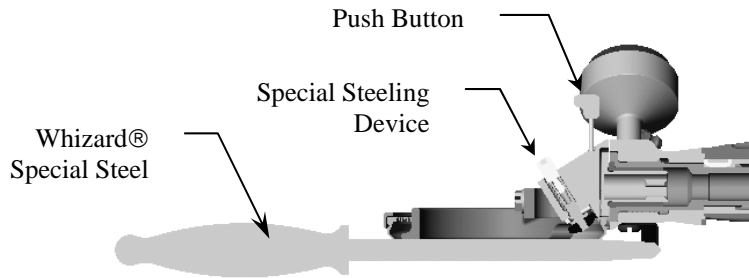
Use the Whizard® Special Steel anytime you feel the edge of the blade needs to be raised for better cutting action.

- Use the Whizard® Special Steel against the flat ground surface on the outside surface of the blade. Be sure to hold the "steel" flat and across the centerline of the blade to prevent "rounding off" or rolling of the edge.
- The inside edge of the blade should be steeled only with the Special Steeling Device mounted on the inside diameter of the blade housing. This is accomplished as follows :



### 8.3 Operating Procedure (Continued)

- Hold the Whizard® Special Steel on the bottom edge of the blade and the handpiece in your normal operating hand with the blade down, or away from you.
- With your thumb, lightly push down on the push button of the steeling device. **DO NOT** hold the steeling device against the rotating blade steadily, but rather lightly contact the blade edge.



Models 850M2/880M2-S&B/  
1850M2 and 1880M2

While steeling the inside edge,  
use the Whizard® Special Steel  
to steel the bottom edge.



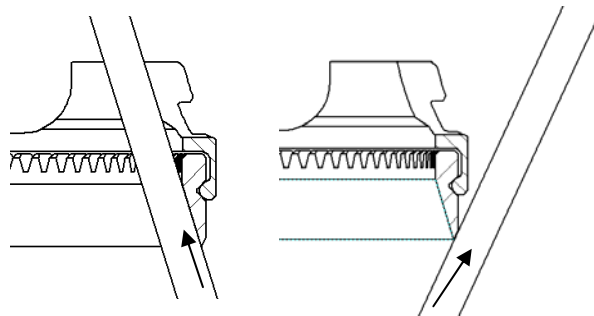
Models 1000M2/1300M2/1400M2/1500M2

Replace or sharpen the blade (see Section 9.3 for complete instructions) if this procedure does not improve the cutting action.

#### Steeling For Models 750M2 Only :

Use the Whizard® Special Steel any time you feel the blade needs to be raised for better cutting action. Be sure to hold the steel at the actual angle of the blade edge. Running the steel at an angle greater than the factory ground angle will round over the edge and make resharping more difficult.

Cross-Section View Of Steeling  
*Inside* Blade Edge

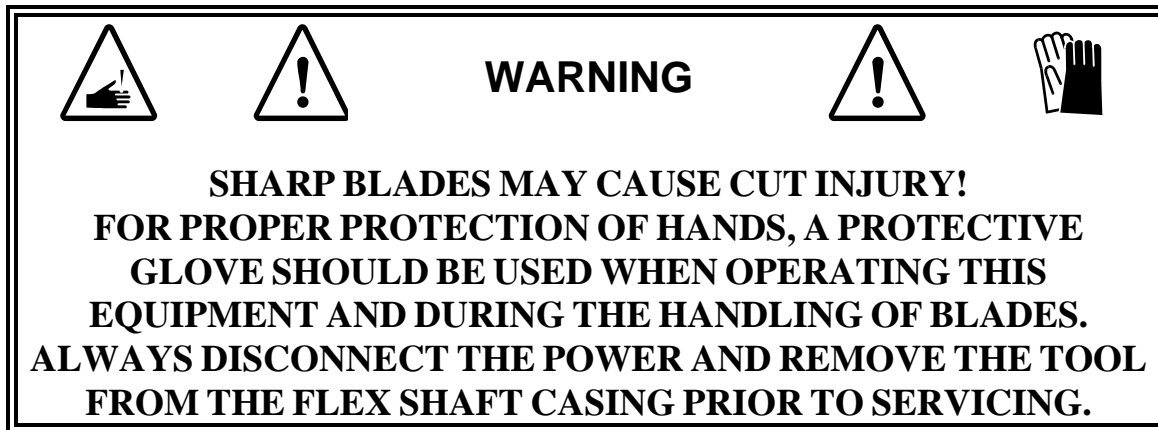


Cross-Section View Of Steeling  
*Outside* Blade Edge

Whizard® Special Steel

Use the steel lightly and always make the last pass of the steel on the blade on the inside surface of the blade.

### 8.3 Operating Procedure (Continued)



The Modular Series II Whizard® tools have been designed in such a way as to allow the blades to be quickly removed and reinstalled.

#### Blade Changing

- Hold the tool in your hand.
- Loosen only the left cover retaining screw (Item #1)
- With a screwdriver held in the opposite hand, insert the screwdriver in the housing slot (Item #2). Note: The 1000M2-1500M2 tools have two slots in the housing. Using the frame as the support point (Item #3), spread open the housing. The blade should fall out.

**NOTE:**

A slight tension on the left cover screw will allow the blade housing to stay open on its own.

#### To Re-Install The Blade :

- Turn the tool over so the blade side is up.
- Spread open the blade housing with a screwdriver.

**NOTE:**

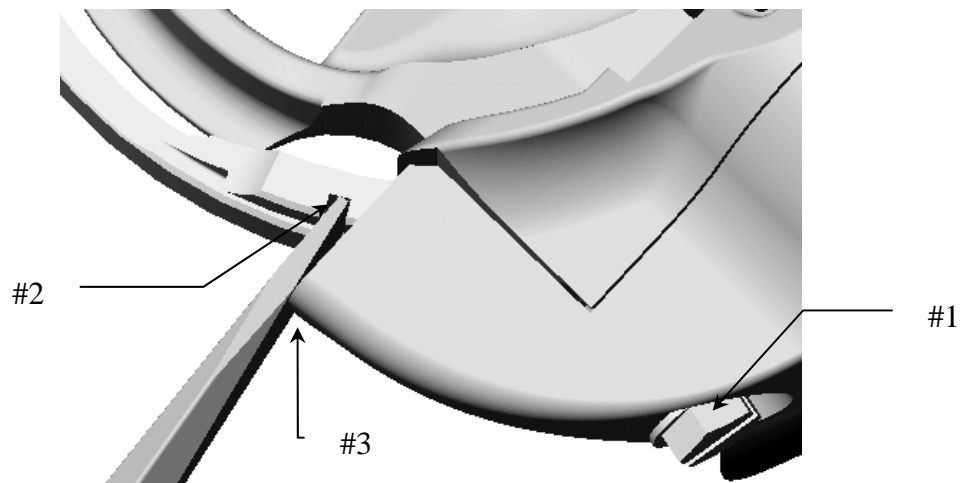
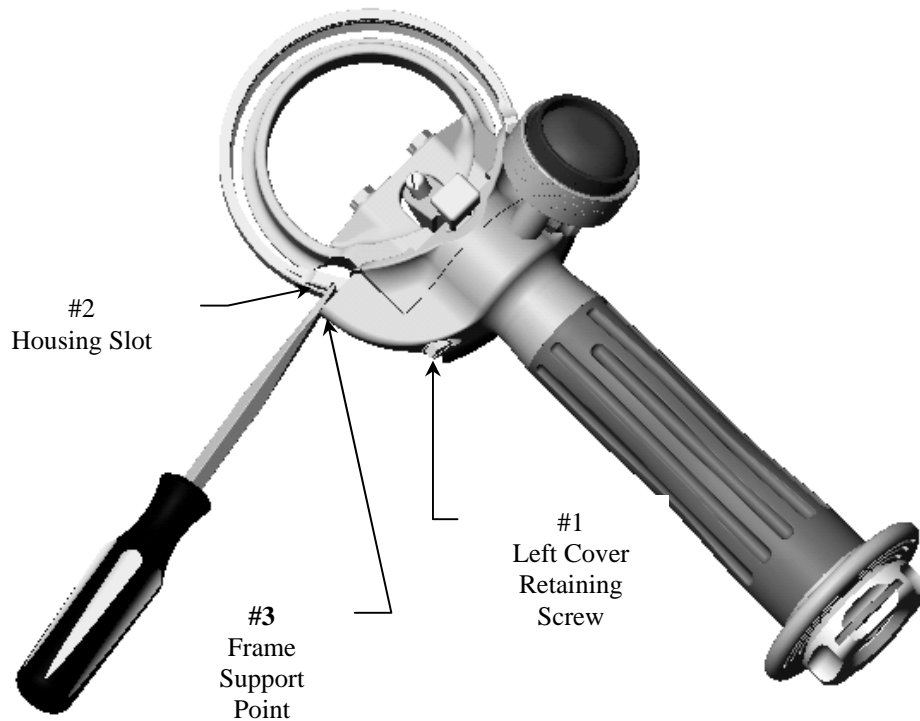
Leave a slight tension on the left cover screw so the blade housing will stay open on its own.

- Insert a new blade in the housing.
- Loosen the left cover screw so the housing will close.
- Adjust the housing for proper running clearance. The blade should turn freely with a slight side-to-side motion. This leaves room for the grease.
- **BE CERTAIN THAT THE BLADE IS FREE TO ROTATE IN THE HOUSING. IF THE BLADE DOES NOT TURN FREELY, IT MAY CAUSE THE TOOL TO ROTATE IN THE HAND.**
- Tighten the left cover screw to 35 in-lb. (4 N-m). Use of the Bettcher torque wrench kit is recommended.
- Re-check the running clearance.

### 8.3 Operating Procedure (Continued)

#### To Re-Install The Blade : (Continued)

- If the blade is too tight in the housing, adjustments can be made by loosening the left cover retaining screw and slightly spreading open the housing. Check again for proper running clearance. Retighten the left cover retaining screw.
- If the blade is too loose in the housing, adjustments can be made by slightly loosening the left cover screw and squeezing the housing lightly.
- Check the housing for proper running clearance and retighten the left cover screw to 35 in-lb. (4 N-m). Use of the Bettcher torque wrench kit is recommended.



8.4 Fault Detection And Correction

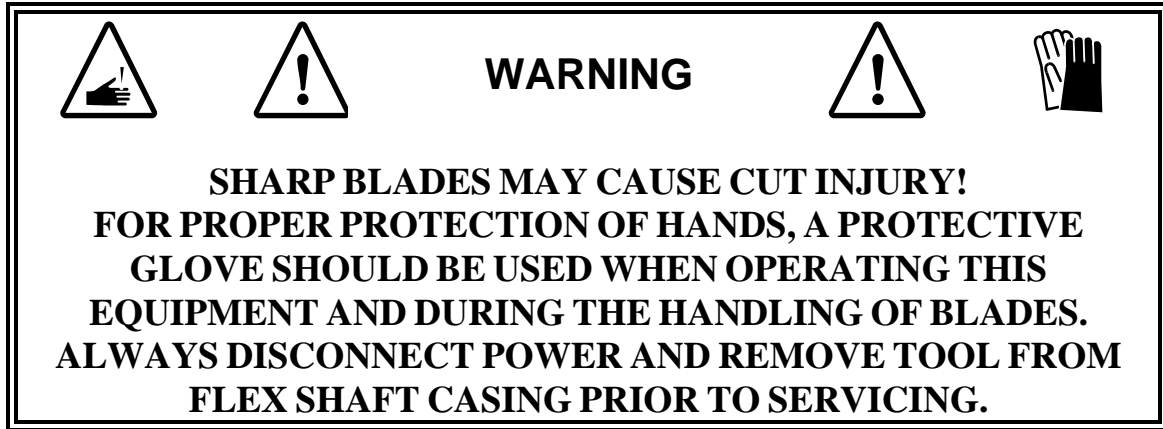
PROBLEM	PROBABLE CAUSE	REMEDY
Handpiece Vibration	Inside bore of handpiece frame worn out	Replace frame
	Worn handpiece bearing	Replace
	Worn pinion gear	Replace
	Worn teeth on blade or pinion gear	Replace
	Blade too loose in blade housing	Adjust blade housing. If still too loose, try a new blade in the housing.
	Blade too tight in the housing	Adjust blade housing
	Inside of flex shaft casing worn	Replace casing
	No lubrication on flex shaft or casing	Clean flex shaft and casing as described in Section 9.2 and relubricate properly
Handpiece Hot	Pinion gear tight in handpiece bearing	Clean corrosion from the handpiece bearing and lubricate
	Blade tight in blade housing	Adjust blade housing
	Handpiece bearing not installed correctly (No clearance between face of pinion gear and blade housing) causing mechanical bind	Reinstall bearing correctly. With handpiece removed from flex shaft, you should be able to rotate the blade freely by hand.

8.4 Fault Detection And Correction

PROBLEM	PROBABLE CAUSE	REMEDY
Rapid Flex Shaft Wear or Breakage	Improper cleaning and lubrication of flex shaft and casing.	Refer to Section 9.2
	Inside of flex shaft casing worn, allowing flex shaft to “wind-up” inside the casing	Replace flex shaft casing
	Mechanical bind in handpiece	With handpiece removed from flex shaft, blade should rotate freely by hand. Correct any mechanical bind.
Dull Blade	Improperly sharpened blades will cause loss of production, increase wear of parts, and operator fatigue	Sharpening can best be accomplished by use of a Whizard® Model 210 Universal Blade Sharpener, or Bettcher® AutoEdge. However, the blades can be sharpened by hand. See Section 9.3
Optional Thumb Support Rotates	Anti-rotation rib has broken off	Replace
Spring Lost from Flex Shaft Casing	Improper Assembly	Refer to note in section 11.5 flex shaft and casing of service parts list for assembly instructions
Blade Skips or Will Not Rotate	Handpiece bearing too tight	Check/Replace bearing
	Flex shaft worn	Replace shaft
	Motor Adapter worn	Replace adapter
	Loose ferrule on shaft	Replace shaft

## SECTION 9.0    Maintenance

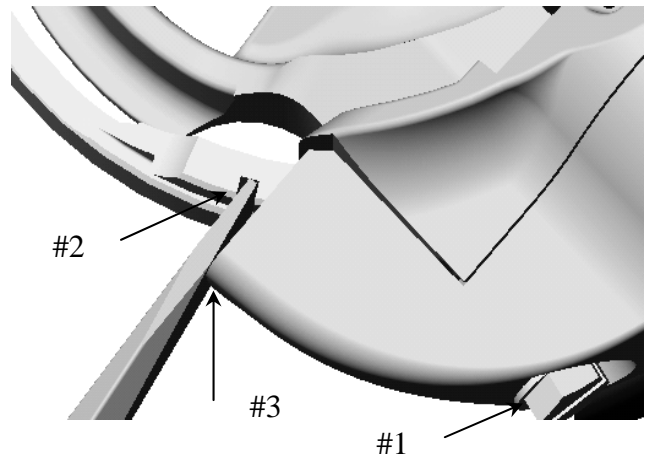
### 9.1    Disassembly Of Handpiece



To remove the casing from the handpiece, push the metal plate on the handle retaining knob in and the tool should pop off.

#### Removal Of The Blade From The Tool :

- Hold the tool in your hand.
- Loosen **only** the left cover retaining screw (Item #1)
- With a screwdriver held in the opposite hand, insert the screwdriver in the housing slot (Item #2). Note: The 1000M2-1500M2 tools have two slots in the housing. Using the frame as the support point (Item #3), spread open the housing. The blade should fall out.



Unscrew the grease cup.

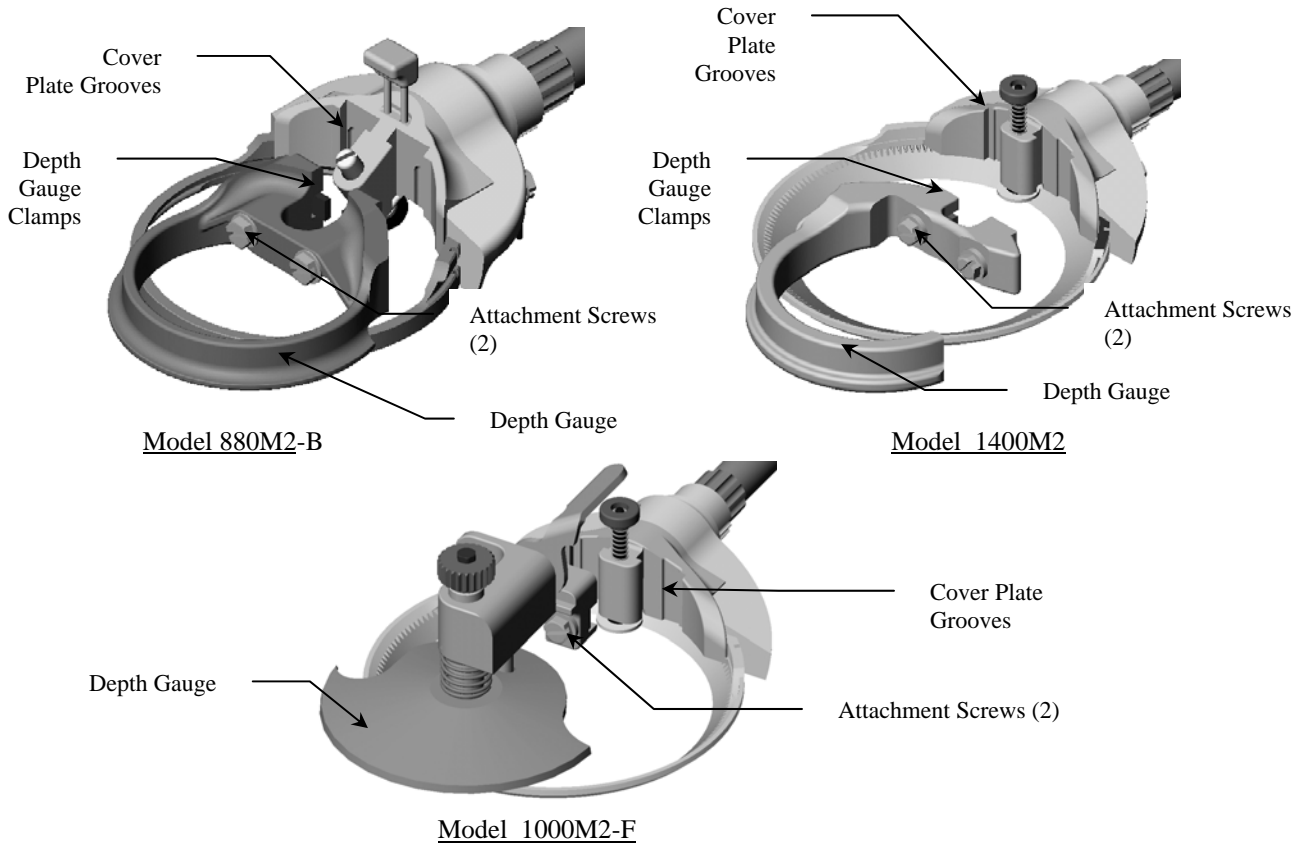
#### Removal Of The Handle From The Tool :

- Remove the handle retaining knob by turning counterclockwise.
- While holding the trimmer, pull the handle and align the four (4) handle tabs with the four notches located on the threaded portion of the frame tube.
- Pull the handle off the tube.
- Remove the handle spacer ring or optional thumb support.

### 9.1 Disassembly Of Handpiece (Continued)

#### Removal/Disassembly Of The Depth Gauge From The Cover:

- Loosen the two attachment screws located inside the depth gauge. It is not necessary to remove the screws.
- Slide the gauge upward until the depth gauge clamps come out of the cover plate grooves.



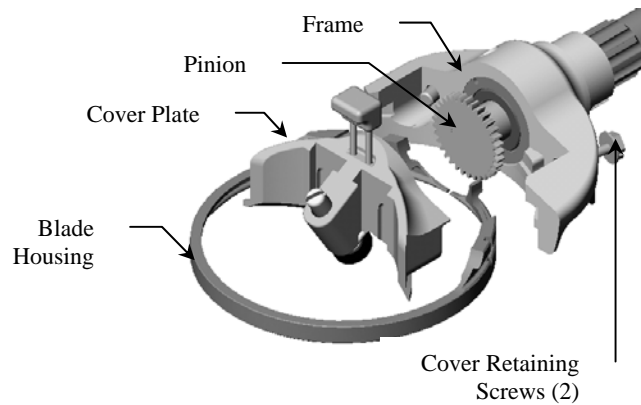
#### Removal Of The Blade Housing And Cover:

- Loosen cover retaining screws until the cover is free.

**NOTE:**

***The screws will stay in the frame.***

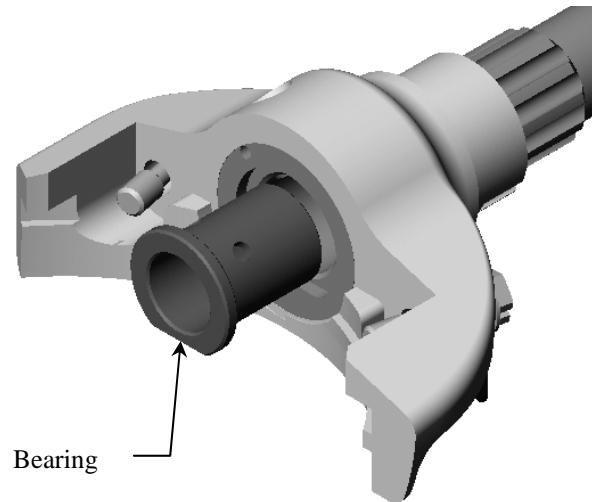
- Remove the blade housing.
- Pull the pinion out of the frame.



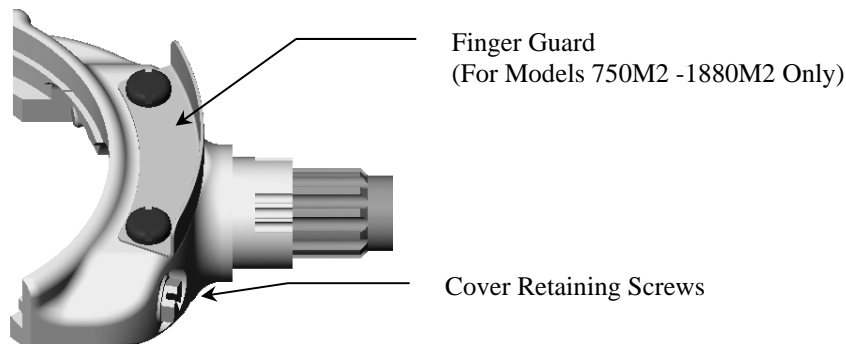
## 9.1 Disassembly Of Handpiece (Continued)

### Removal Of The Bearing From The Frame :

- The bearing is pulled out from the front of the tool.
- Use a screwdriver to reach into the bearing and catch the bearing grease groove.
- While pulling upward, try to rotate the bearing back and forth. Since the bearing is not a press-fit, this will work in most cases.
- If the bearing will not come out, it may be necessary to run a tap into the bearing and pull on the tap. If this is done, then the bearing must be replaced due to damage.



The handpiece is now completely disassembled except for the cover retaining screws and finger guard.

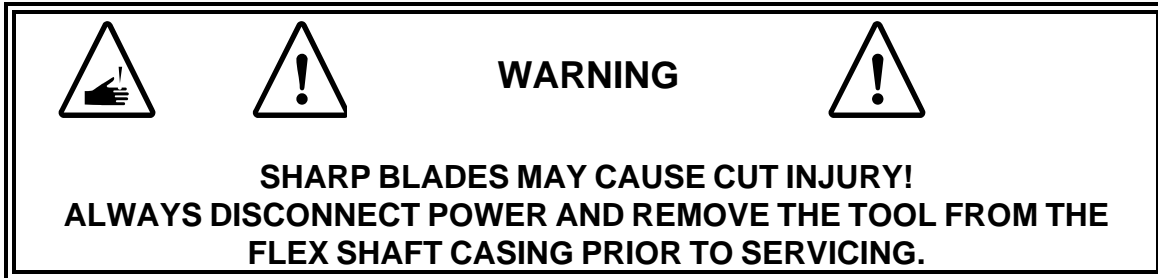


### **NOTE:**

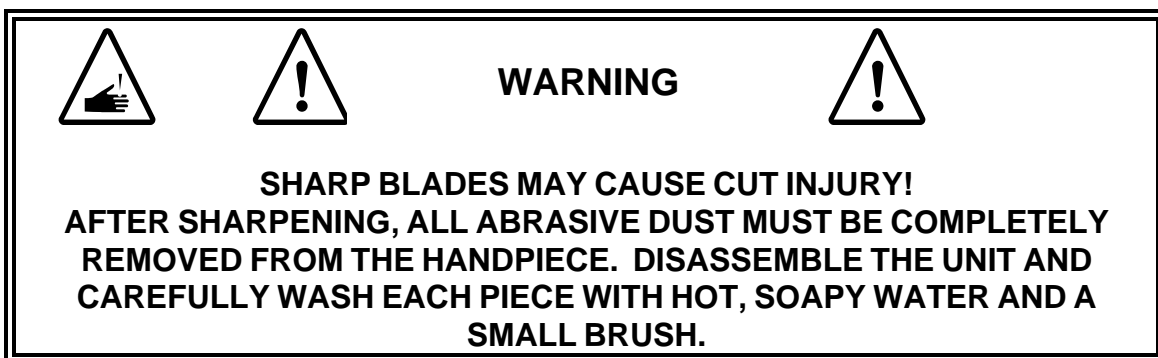
The cover retaining screws do not normally need to be removed. If they do need to be removed, turn the screw while pulling down to engage the thread in the frame.



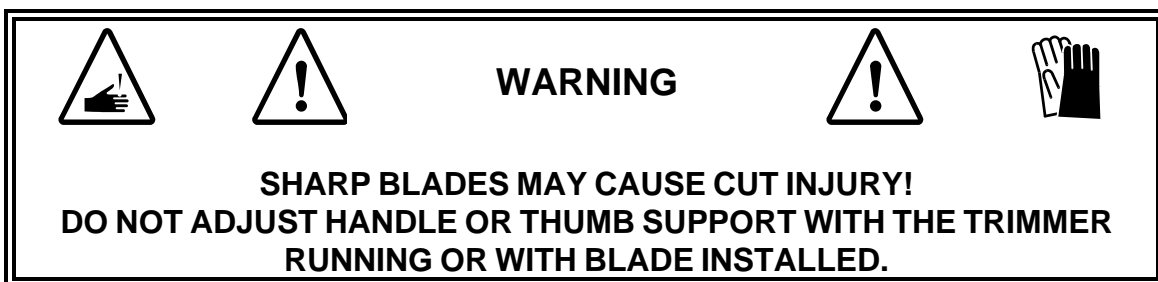
9.2 Daily Inspections & Maintenance



See Disassembly And Reassembly of Handpiece



Be Sure To Clean All Lubricant Out Of The Inside Of Handpiece. Rinse And Dry Each Piece.



Blade

- Inspect the cutting edge height with Bettcher Blade Gauge.
- Check for worn or chipped teeth.
- Check for damage to the cutting edge.

## 9.2 Daily Inspections & Maintenance (Continued)

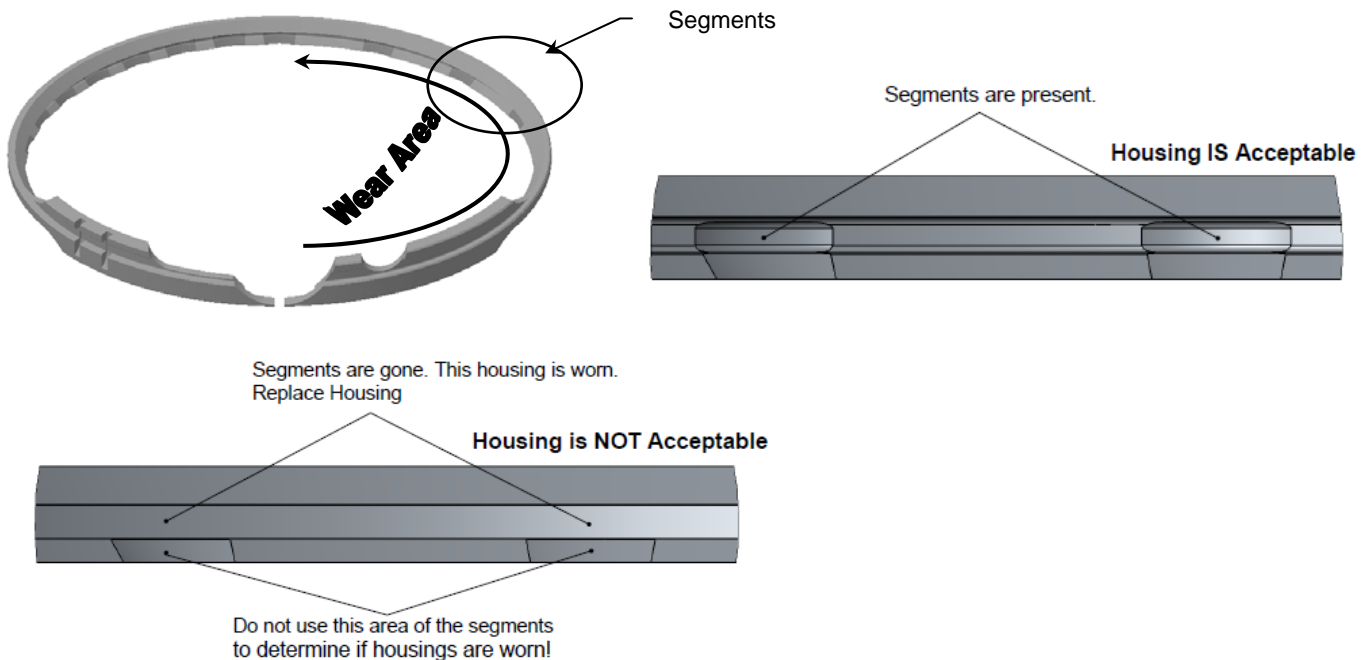
### Blade Housing Wear – For Models 750M2-1880M2

- Inspect the inner diameter of the housing for wear.
- Look for evidence of the blade rubbing the outer wall of the housing.
- When holding the housing with a new blade installed, if the split in the housing touches the other side, and the blade is still loose, the housing needs to be replaced. If a gap is seen, the housing is acceptable.



### Blade Housing Wear – For Models 1000M2-1500M2

- Inspect the inner diameter of the housing for wear.
- When the housing wears to a point where the segments (grooves) are gone, the housing needs to be replaced.



## 9.2 Daily Inspections & Maintenance (Continued)

### Pinion Gear

- Check for worn or chipped teeth. Worn out teeth are indicated by rounded off and pointed tops on the teeth.

### Bearing

- Install a new pinion and move the pinion side to side.
- If the bearing feels egg-shaped, it should be replaced.
- As a rule of thumb, the bearing should be replaced at 500 hours of use or sooner.

### Cover Plate

- Look for signs of corrosion or wear on the cover.
- Pay special attention to the area covering the gear teeth.
- If the edge of the cover is worn, exposing the pinion and blade teeth, the cover should be replaced.

### Hand Strap

- Inspect the strap for hardening and cracks.
- If any fibers, cuts, or cracks are showing, the strap should be replaced.

### Knob

- Inspect for cracks.
- Make sure spring tension in the metal plate is adequate.
- Make sure the metal plate is clean and moves freely.

### Frame

- Inspect the frame surfaces where the housing mounts.
- Look for corrosion and any nicks or burrs that may prevent proper housing seating.
- Inspect the housing locating key for damage.

### Steeling Device

- Inspect the surface condition of the carbide steel. If chipped or cracked it should be replaced.
- Make sure the steeling device and the plunger are free to move.
- The plunger and steel should be cleaned and oiled with mineral oil in order to keep free movement and prevent build-up of dirt.

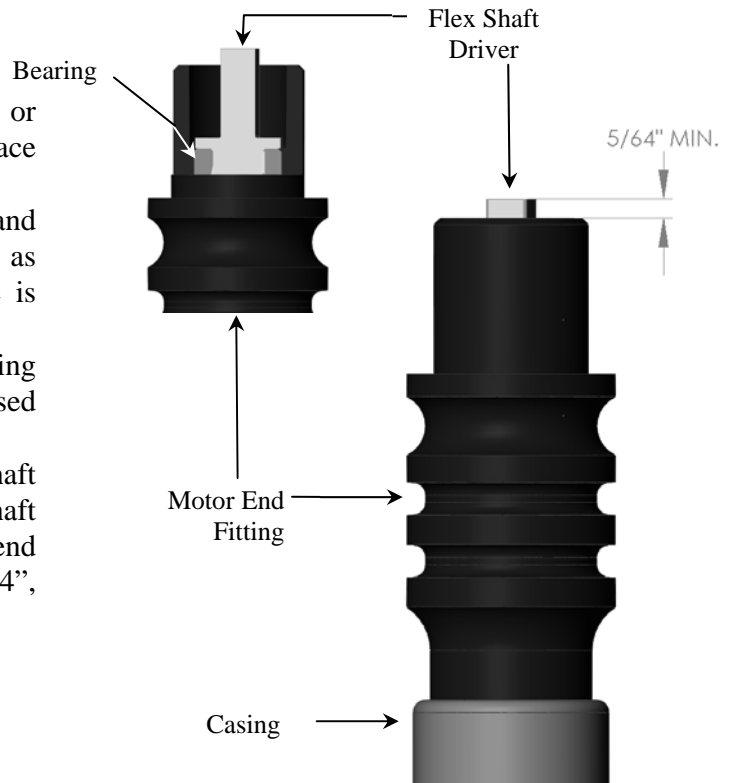
### Depth Gauge and Depth Gauge Clamps

- Inspect the depth gauge for wear or damage.
- Make sure the depth gauge clamps are not bent.

## 9.2 Daily Inspections & Maintenance (Continued)

### Flex Shaft And Casing

- Inspect the casing for any cracks, tears, or other wear. If any damage is found, replace the casing.
- Remove the flex shaft from the casing and check for any flex shaft damage, such as broken wires or kinking. If any damage is detected, replace the flex shaft.
- Reinsert the flex shaft into the casing, making certain the flange of the flex shaft is pressed against the bearing inside the casing.
- Check the extension of the flexible shaft driver at the motor end. The flexible shaft driver should extend past the motor end fitting. If the shaft extends less than  $5/64$ ", replace the casing.

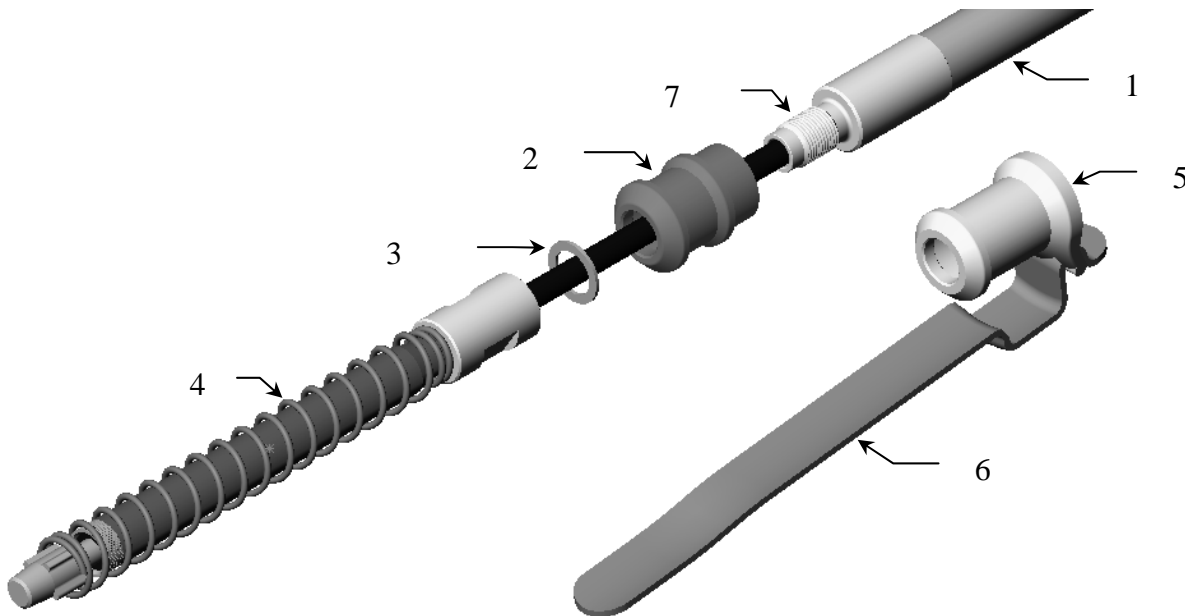


## 9.2 Daily Inspections & Maintenance (Continued)

### Casing Replacement

When the casing needs to be replaced, the drive end assembly may be retained and reused.

- Hold the casing (#1) in a vise.
- Unscrew the drive end assembly (#4) by turning counterclockwise using the wrench flats on the drive end assembly.
- Unscrew and remove the nylon washer (#3), casing latch collar (#2) or lever mounting collar (#5) from the casing.
- Discard the casing but retain and reuse the drive end assembly (#4), the nylon washer (#3), the casing latch collar (#2) – or the lever mounting collar (#5) and disconnect lever (#6).



### To Reassemble the Drive End Assembly to a New Casing

- If using the casing disconnect, place the disconnect lever (#6) onto the lever mounting collar (#5).
- Slip the casing latch collar (#2) or lever mounting collar (#5) with disconnect lever (#6) onto the new casing.
- Thread the nylon washer (#3) onto the new casing.
- Clean the threads of the new casing assembly and apply Loctite #242 Threadlocker or equivalent.
- Screw the drive end assembly (#4) on the new casing.
- Tighten by hand and then with a wrench while holding the casing by hand.

#### **NOTE:**

**DO NOT** hold the new casing in a vise or use pliers as damage will occur. It is not necessary to over-tighten this joint.

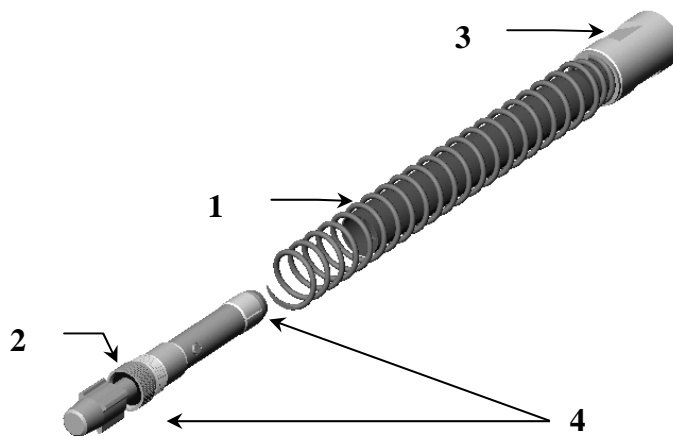
## 9.2 Daily Inspections & Maintenance (Continued)

### Drive End Assembly Inspection And Replacement

#### Removal of the driver assembly

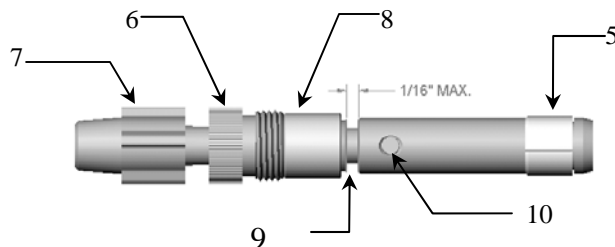
- With one hand, pull the spring (#1) back to expose the knurled cap (#2) at the end of the tube.
- Using the other hand, grip the knurled cap (#2) with a pair of pliers.
- Using a 7/16" open end wrench, hold the flats on the drive end assembly (#3) and turn the knurled cap (#2) counterclockwise.
- Unscrew the knurled cap (#2) until the threads are free from the tube.
- Pull the driver assembly (#4) out of the tube.

**NOTE:** Never use pliers on the tube as damage to the internal parts may occur.



#### Inspection of the driver assembly (See Figure Below)

- Wipe off excess grease.
- Inspect the split bearing (#5) for wear or damage. Replace if required.
- Slide the knurled cap (#6) forward against the driver (#7).
- Wiggle the bushing (#8) sideways to check for excessive movement. Movement should be minimal.



- Slide the bushing (#8) and washer (#9) forward toward the driver (#7). If the gap is 1/16" or greater, the driver should be replaced.

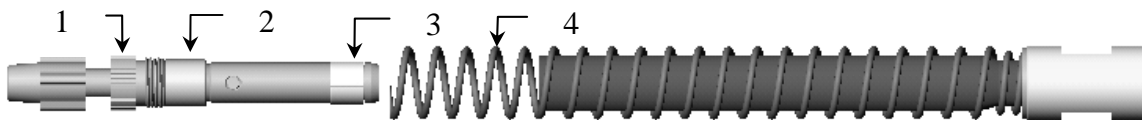
- Check the coupling cross pin (#10). If there is any free play or movement, replace the driver assembly.

## 9.2 Daily Inspections & Maintenance (Continued)

### Drive End Assembly Inspection And Replacement

#### Replacement of the Driver Assembly

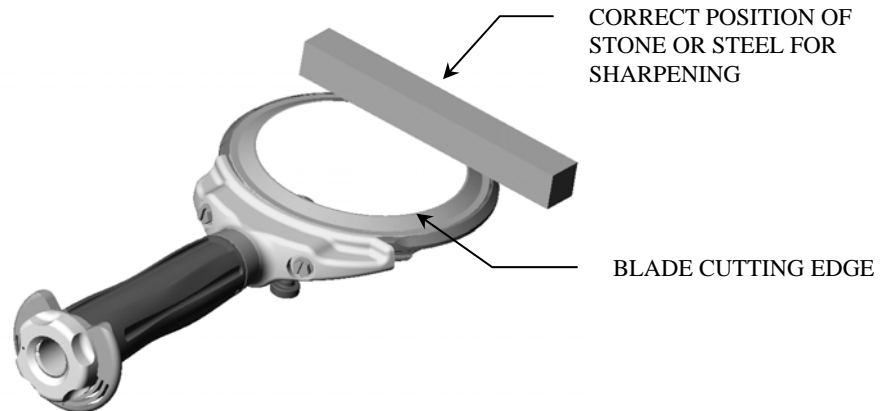
- Clean the threads on the tube and knurled cap.
- Apply Whizard® special grease to split bearing (#3) and bushing (#2).
- Apply a small amount of Loctite #242 Threadlocker or equivalent to the threads on the knurled cap (#1).
- Pull the spring (#4) on the drive end assembly back with one hand and insert the driver assembly in the tube.
- Push in and tighten the knurled cap until it is flush with the end of the tube. Pliers may be used for this however it is not necessary to tighten beyond hand tight.
- Allow ½ hour dry time for the threadlocker before the assembly is put in service.





#### Replacement of the Split Bearing (#3)





- Remove the driver assembly as described above.
- Insert a small screwdriver into the split in the bearing.
- Spread the bearing and slide over the shoulder on the driver.
- Clean the surface of the coupling and apply Whizard® special grease.
- Hold the bearing with the inside cone facing the end of the coupling.
- Push the bearing on until it snaps into position.
- Install the driver assembly as described above.

9.3 Blade Sharpening – Daily



 **WARNING** 

**AFTER SHARPENING, ALL ABRASIVE DUST MUST BE COMPLETELY REMOVED FROM THE HANDPIECE. DISASSEMBLE THE UNIT AND CAREFULLY WASH EACH PIECE WITH HOT, SOAPY WATER AND A SMALL BRUSH.**

  **WARNING**  

**SHARP BLADES MAY CAUSE CUT INJURY!  
FOR PROPER PROTECTION OF HANDS, A PROTECTIVE GLOVE SHOULD BE USED WHEN OPERATING THIS EQUIPMENT AND DURING THE HANDLING OF BLADES.**

The blade should be stoned or sharpened on a Whizard® Model 210 Universal Blade Sharpener or Bettcher® AutoEdge at the end of each work day. Be sure to clean the blade first to remove all grease or meat particles which could coat the stone and greatly reduce its effectiveness. In the event the stone becomes coated, simply scrub it using hot, soapy water.

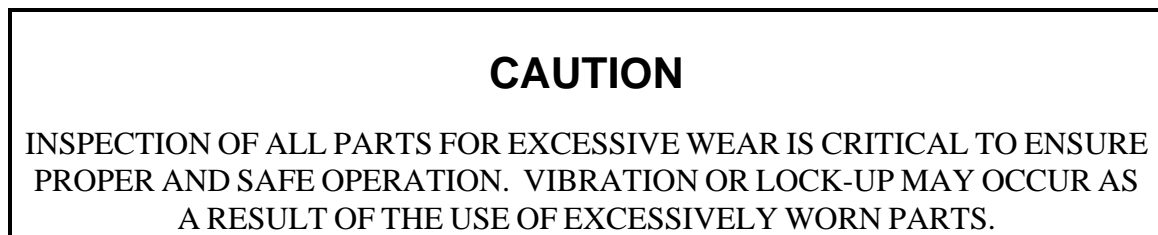
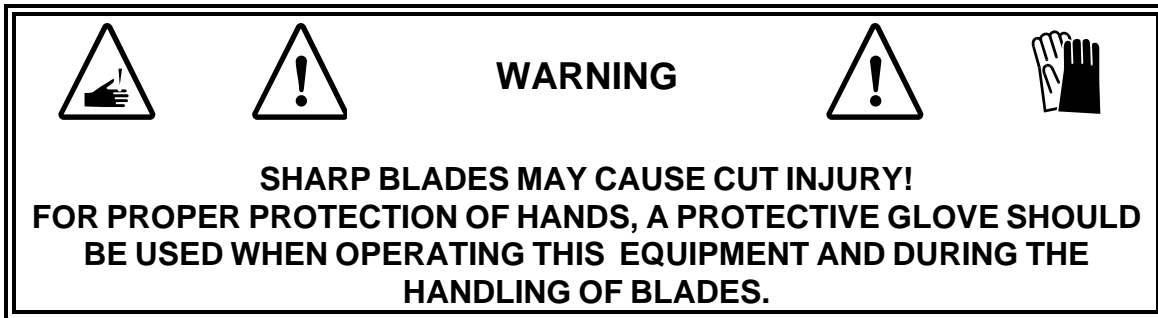
HAND STONING – Models 850M2/880M2/1000M2-1500M2/1850M2/1880M2:

With the motor running, apply the flat side of the stone to the outside of the blade as shown in the illustration. The stone should be applied with the flat part of the stone resting on the flat part of the blade edge to be ground, using a "back and forth" motion.

Use the Special Whizard® steel to finish sharpening as described in the Operating Section.



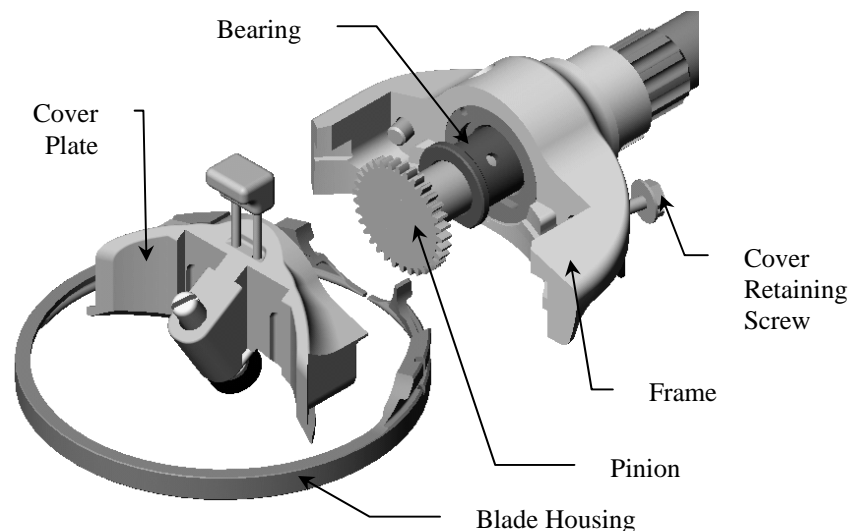
## 9.4 Assembly Of Handpiece



Prior to assembly, be sure all parts are clean and have been inspected for wear per Section 9.2.

### Handpiece Bearing Installation

- Push the handpiece bearing in the frame bore and align the bearing flat with the frame flat.
- The bearing should go in with minimal effort and not require pressing.
- Do not force the bearing in. If it does not go in, check frame and bearing for damage or build-up.



### Pinion Installation

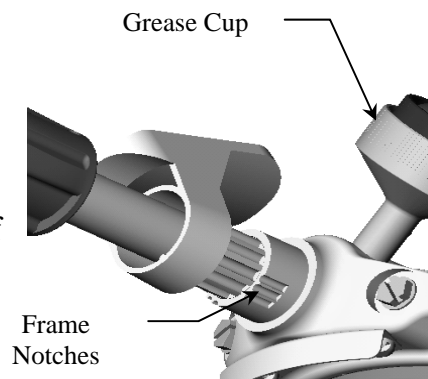
- The pinion should fit freely into the bearing.

### Blade Housing And Cover Plate Installation

- Set the blade housing on the frame and put the cover plate on.
- While holding the cover plate firmly against the housing and frame start the two cover retaining screws.
- Tighten the screws lightly.

#### 9.4 Assembly Of Handpiece (Continued)

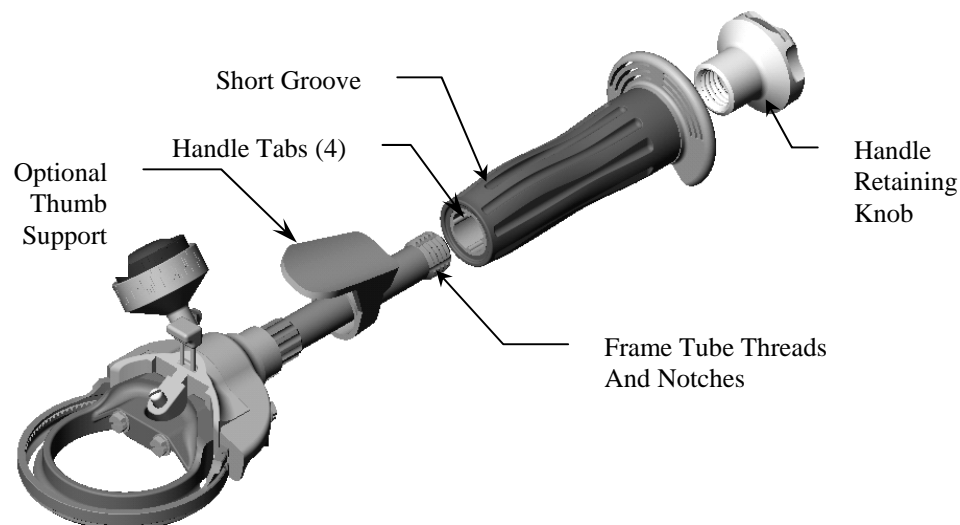
- Pick up the Whizard® Trimmer
- Pick up a spacer ring or optional thumb support
- If the optional thumb support is used, align the thumb support tab with one of the notches on the underside of the frame
- The optional thumb support should be located on the opposite side of the grease cup



- While holding the Trimmer, pick up a handle and align the four (4) handle tabs with the four notches located on the threaded portion of the frame tube
- Firmly push the handle towards the bottom of the spacer ring or optional thumb support, and align the handle tabs with the notches on the front of the tube as shown
- For the initial adjustment position, the short groove on the handle should be on top, as shown.

**NOTE:** The handle can be adjusted to suit the operator and the work station by pulling the handle back away from the frame and re-locating it on another set of notches on the frame tube.

- Screw on the handle retaining knob.
- Tighten firmly but take care not to overtighten or the handle will be damaged.



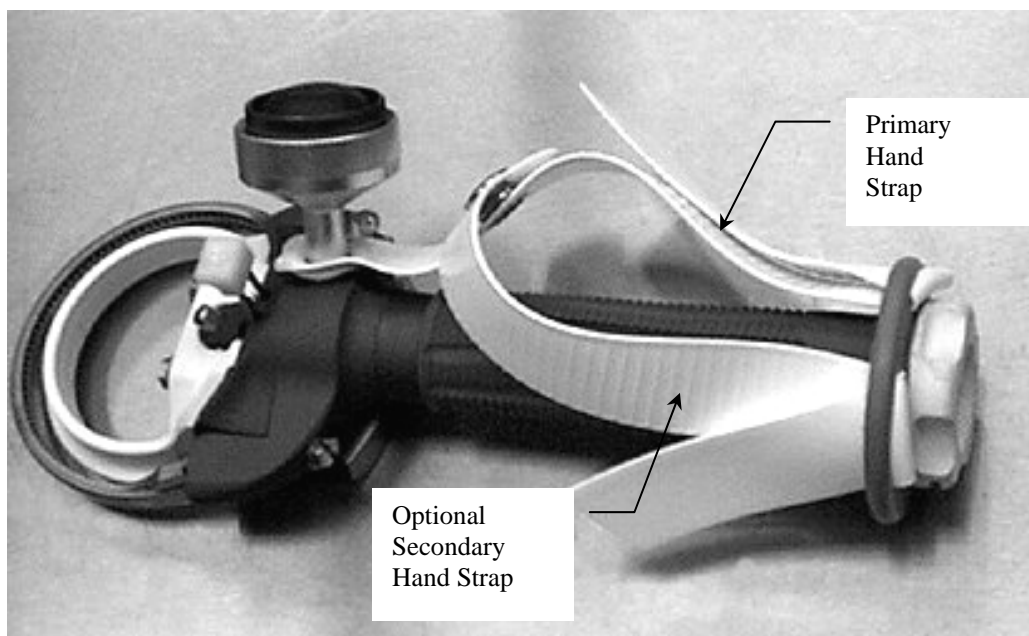
## 9.4 Assembly Of Handpiece (Continued)

### Installation Of The Hand Strap And Grease Cup

- Push the threaded end of the grease cup through the round grommet end of the strap. Be sure that the ribbed surface of the strap is on top as shown.
- Reinstall the grease cup.
- Weave the end of the strap down and back up through the slots in the flange of the handle. The strap may be pulled through the slots to adjust for size.

An optional secondary strap has been provided with your Modular Series II Whizard® tool. To install the secondary strap :

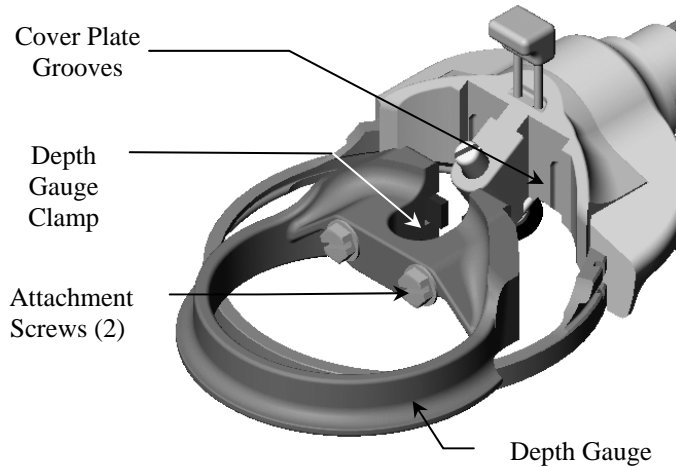
- Weave the secondary strap end through the opposite handle slots similar to the method used to install the primary hand strap.
- Bring the loose end of the strap across the tool and snap closed.



## 9.4 Assembly Of Handpiece (Continued)

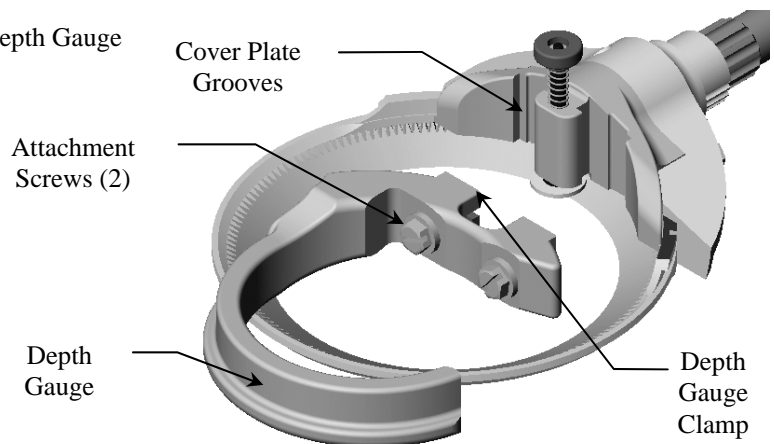
### Installation Of The Depth Gauge

(For 880M2-S&B, 1880M2, 1400M2, 1500M2, 1932M2 and 1942M2 Only)



Model 880M2-B

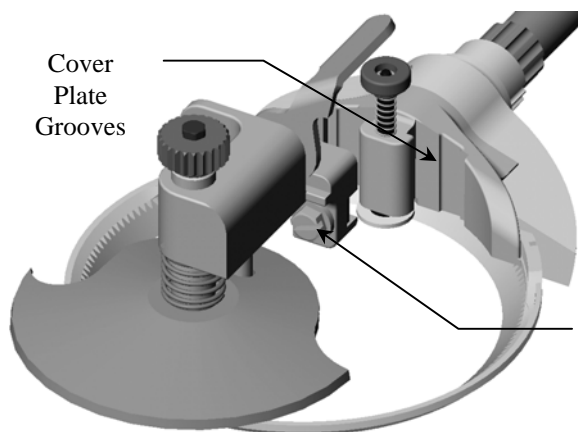
- Slide the depth gauge downward along the cover plate grooves until the depth gauge clamps catch in position.
- Final height adjustment can be made after the blade is installed.
- Tighten the two attachment screws.



Model 1400M2

### Installation Of The Adjustable Disc Gauge

(For 850M2, 1000M2 and 1300M2)



Model 1000M2-F

- Slide the depth gauge downward along the cover plate grooves until the depth gauge clamps catch in position.
- Final height adjustment can be made after the blade is installed.
- Tighten the two attachment screws.

## 9.4 Assembly Of Handpiece (Continued)

### Installation of the Blade :

- Turn the tool over so the blade side is up.
- Spread open the blade housing with a screwdriver.

**NOTE:**

Leave a slight tension on the left cover screw so the blade housing will stay open on its own.

- Insert a new blade in the housing.
- Loosen the left cover screw so the housing will close.
- **BE CERTAIN THAT THE BLADE IS FREE TO ROTATE IN THE HOUSING. IF THE BLADE DOES NOT ROTATE FREELY, IT MAY CAUSE THE TOOL TO ROTATE IN THE HAND.**
- Adjust the housing for proper running clearance. For more information, refer to section 8.3, Operating Procedures.

## 9.5 Preventive Maintenance

### CAUTION

USE ONLY BETTCHER WHIZLUBE

At least once each week, more frequently for multi-shift operation, the flex shaft casing should be cleaned, inspected and lubricated as follows:

Exterior Of Casing – Clean the exterior of the casing with a mild detergent. For best results, use Whizard® **EXTRA** Heavy Duty Cleaner, diluted according to the directions on the container.

Flex Shafts - Clean the shaft after 20 hours of operation by wiping off the old grease with a dry cloth. Avoid the use of any liquids on the shaft. Spray the shaft with a generous amount of Bettcher WhizLube as it is pushed back into the casing. Inspect the casing support for wear, cracks, or chips.

### CAUTION

DO NOT USE ANY HYDROCARBON SOLVENTS OR MINERAL OIL ON, OR IN, THE CASING.

## SECTION 10.0    Cleaning

### **CAUTION**

CASINGS, FLEX SHAFTS, AND HANDPIECES SHOULD BE REMOVED  
PRIOR TO AREA CLEANUP.

#### 10.1    Periodic Cleaning During Use

Remove meat particles and rinse with warm soapy water. Wash the Whizard Trimmer with warm cleaning solution. For best results, clean the Whizard® Trimmer with **EXTRA** Heavy Duty Cleaner, diluted according to the directions on the container. Rinse thoroughly with water.

#### 10.2    Cleaning After Daily Use

Disassemble and clean thoroughly daily.

Remove the blade and blade housing and clean them with a brush and cleaner. For best results, clean the Whizard® Trimmer with **EXTRA** Heavy Duty Cleaner, diluted according to the directions on the container. Rinse thoroughly with water and dry.

Remove the hand strap from the handpiece per the instructions in Section 9.2. Clean these in warm soapy water.

Before assembly, rinse well with clean water, dry, and assemble per instructions in Section 9.4.

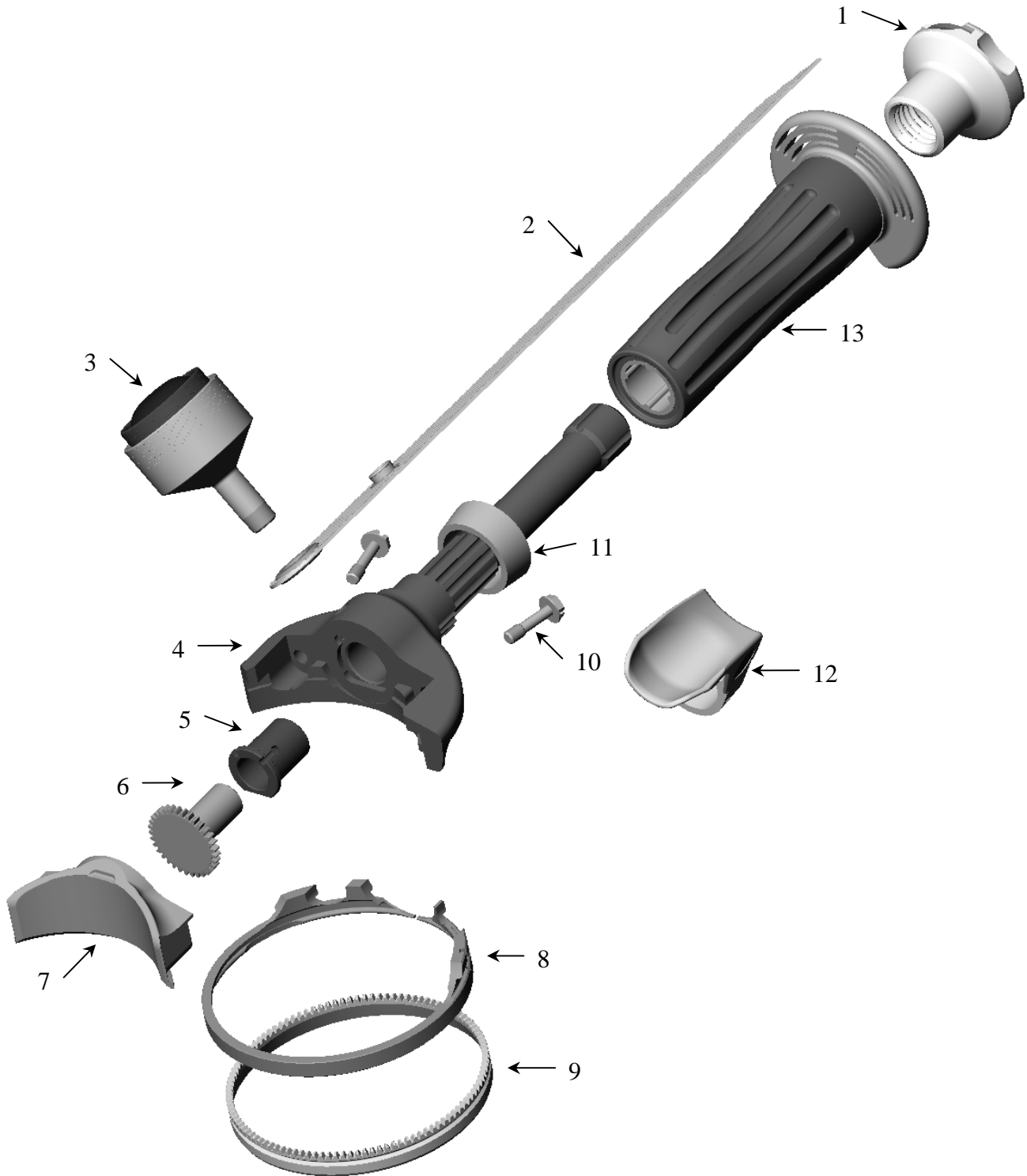
#### 10.3    Cleaning Solutions

Avoid the use of aggressive cleaning products as they will damage the aluminum handle assembly.

**SECTION 11.0**    **Spare Parts List**

Bettcher Industries, Inc. proudly manufactures quality parts for your Bettcher equipment. For optimum performance of your Bettcher equipment, use only parts manufactured by Bettcher Industries, Inc.

11.1 Head Assembly – 750M2

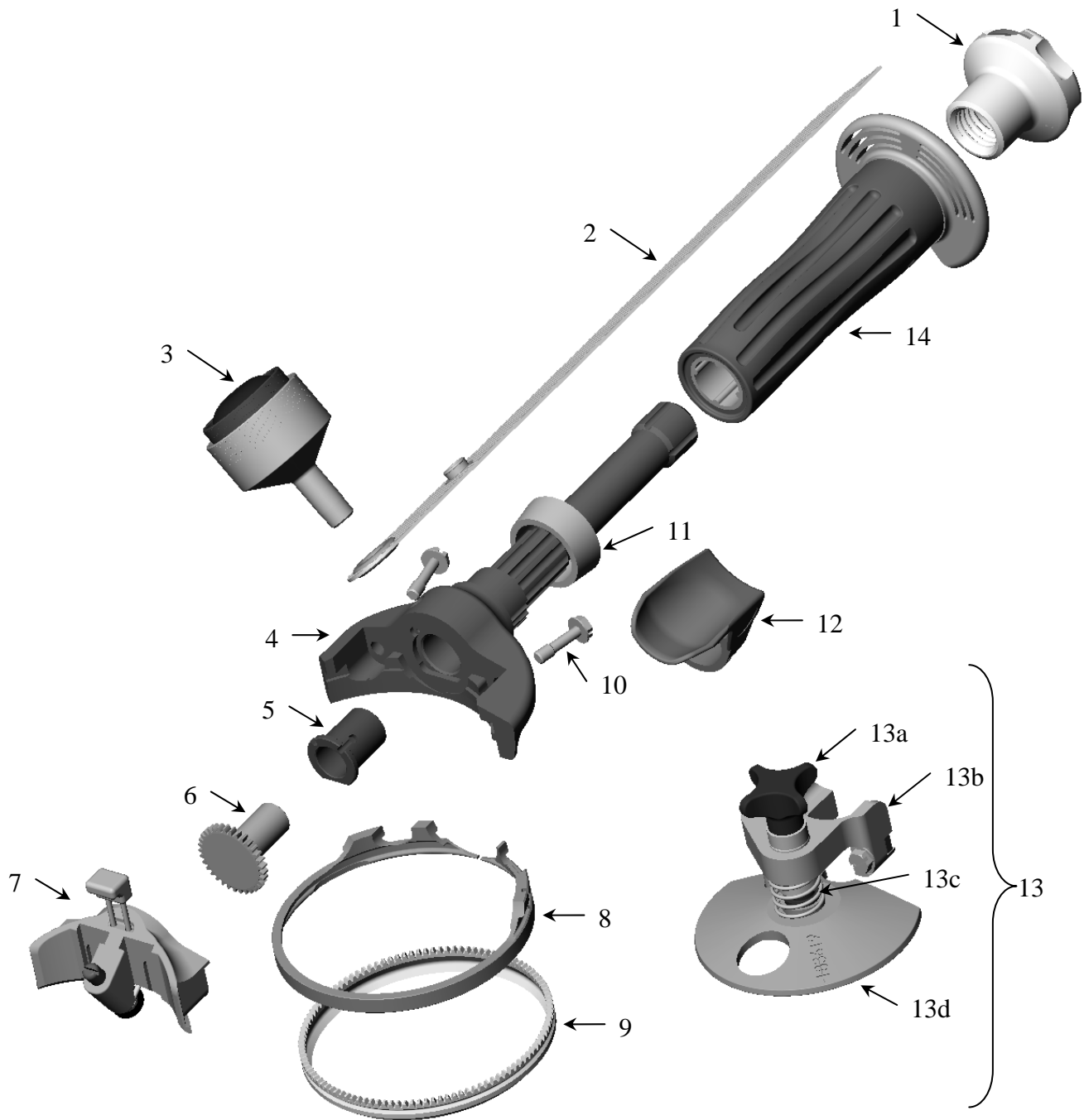




11.1 Head Assembly – 750M2

ITEM	DESCRIPTION	750M2 RH		750M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)</b>					
	XX-Small	183722	184580	183724	184581
	X-Small	183386	184582	183390	184583
	Small	183387	184584	183391	184585
	Medium	183388	184586	183392	184587
	Large	183389	184588	183393	184589
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)</b>					
	XX-Small	183721	184806	183723	184807
	X-Small	183378	184808	183382	184809
	Small	183379	184810	183383	184811
	Medium	183380	184812	183384	184813
	Large	183381	184814	183385	184815
<b>Head Assembly (Includes Items 3 - 10)</b>		183021		183022	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	183896		183897	
5	Bearing	183060		183060	
6	Pinion	183063		183063	
7	Cover	183088		183088	
8	Blade Housing	183070		183070	
9	Blade	183071		183071	
10	Cover Retaining Screw (2 required)	183654		183654	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	<b>See Section 11.20 for Handle Options</b>				

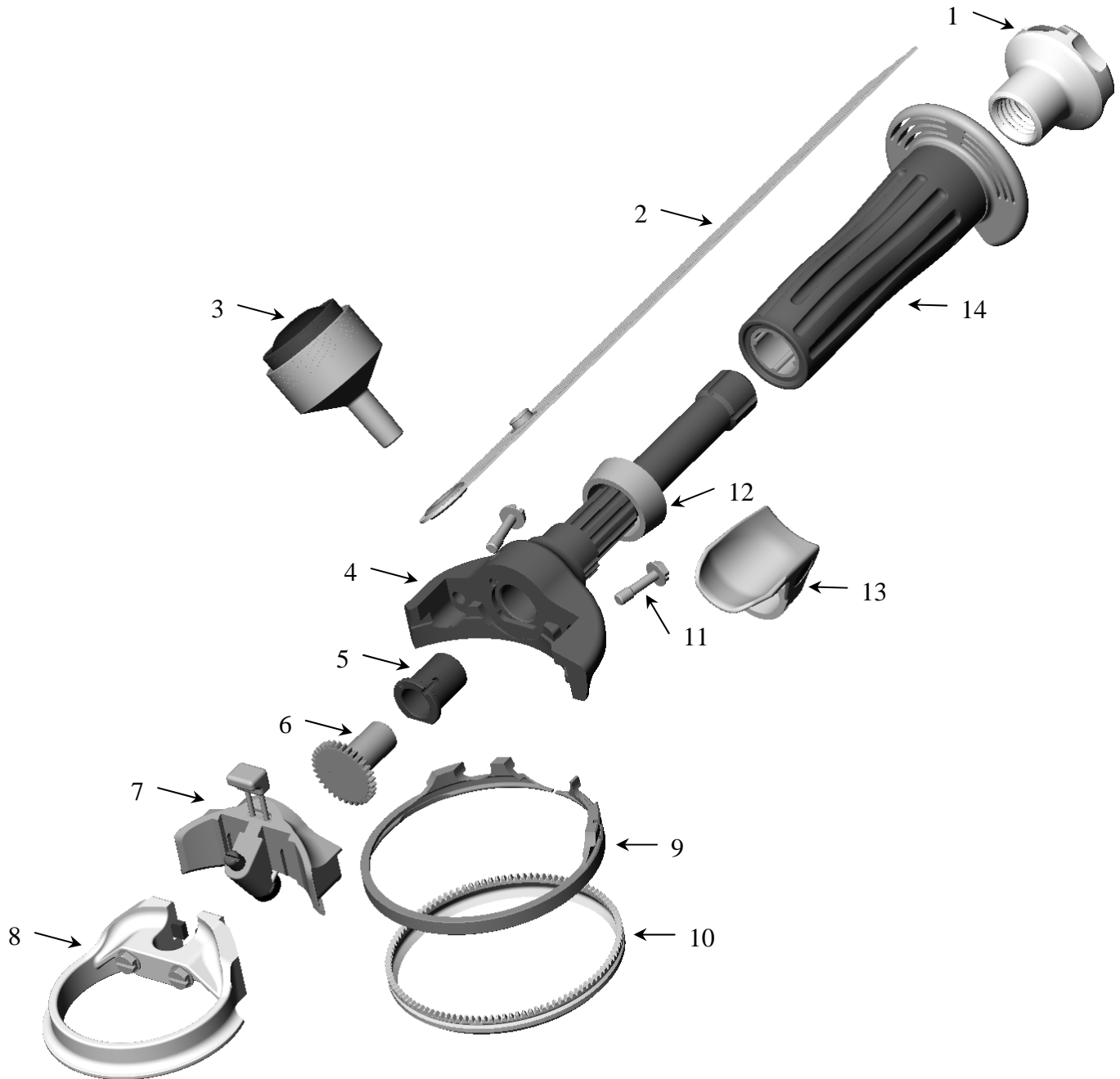
11.2 Head Assembly – 850M2



11.2 Head Assembly – 850M2

ITEM	DESCRIPTION	850M2 RH		850M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183726	184590	183728	184591
	X-Small	183402	184592	183406	184593
	Small	183403	184594	183407	184595
	Medium	183404	184596	183408	184597
	Large	183405	184598	183409	184599
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183725	184816	183727	184817
	X-Small	183394	184818	183398	184819
	Small	183395	184820	183399	184821
	Medium	183396	184822	183400	184823
	Large	183397	184824	183401	184825
<b>Head Assembly (Includes Items 3 – 10)</b>		183023		183024	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	183896		183897	
5	Bearing	183060		183060	
6	Pinion	183063		183063	
7	Cover with Special Steeling Device	183056		183056	
	Repair Kit (Not Shown)	183474		183474	
8	Blade Housing	183070		183070	
9	Blade	183072		183072	
10	Cover Retaining Screw (2 required)	183654		183654	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX- Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	Disc Gauge Kit 850M2-S (Optional)	183801		183801	
<b>Parts for Disc Gauge</b>					
13a	Knob	183791		183791	
13b	Frame	183798		183798	
13c	Spring	121635		121635	
13d	Disc Assembly	183799		183799	
14	<b>See Section 11.20 for Handle Options</b>				

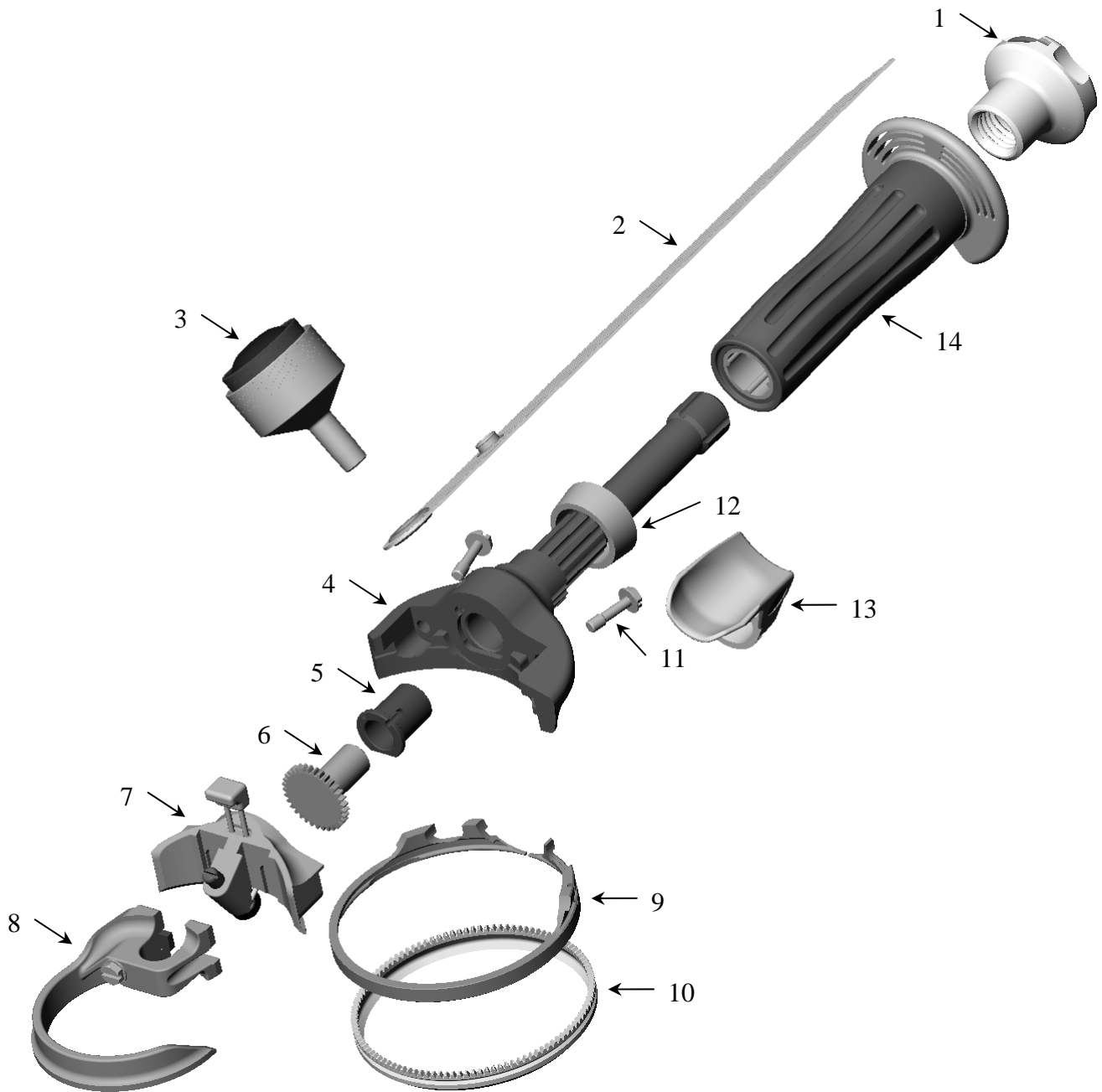
11.3 Head Assembly – 880M2-B



11.3 Head Assembly – 880M2-B

ITEM	DESCRIPTION	880M2-B RH		880M2-B LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183730	184600	183732	184601
	X-Small	183418	184602	183422	184603
	Small	183419	184604	183423	184605
	Medium	183420	184606	183424	184607
	Large	183421	184608	183425	184609
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183729	184826	183731	184827
	X-Small	183410	184828	183414	184829
	Small	183411	184830	183415	184831
	Medium	183412	184832	183416	184833
	Large	183413	184834	183417	184835
<b>Head Assembly (Includes Items 3 - 11)</b>		183025		183026	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	183896		183897	
5	Bearing	183060		183060	
6	Pinion	183063		183063	
7	Cover with Special Steeling Device	183056		183056	
	Repair Kit (Not Shown)	183474		183474	
8	Depth Gauge Assembly	183075		183075	
9	Blade Housing	183070		183070	
10	Blade	183072		183072	
11	Cover Retaining Screw (2 required)	183654		183654	
12	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

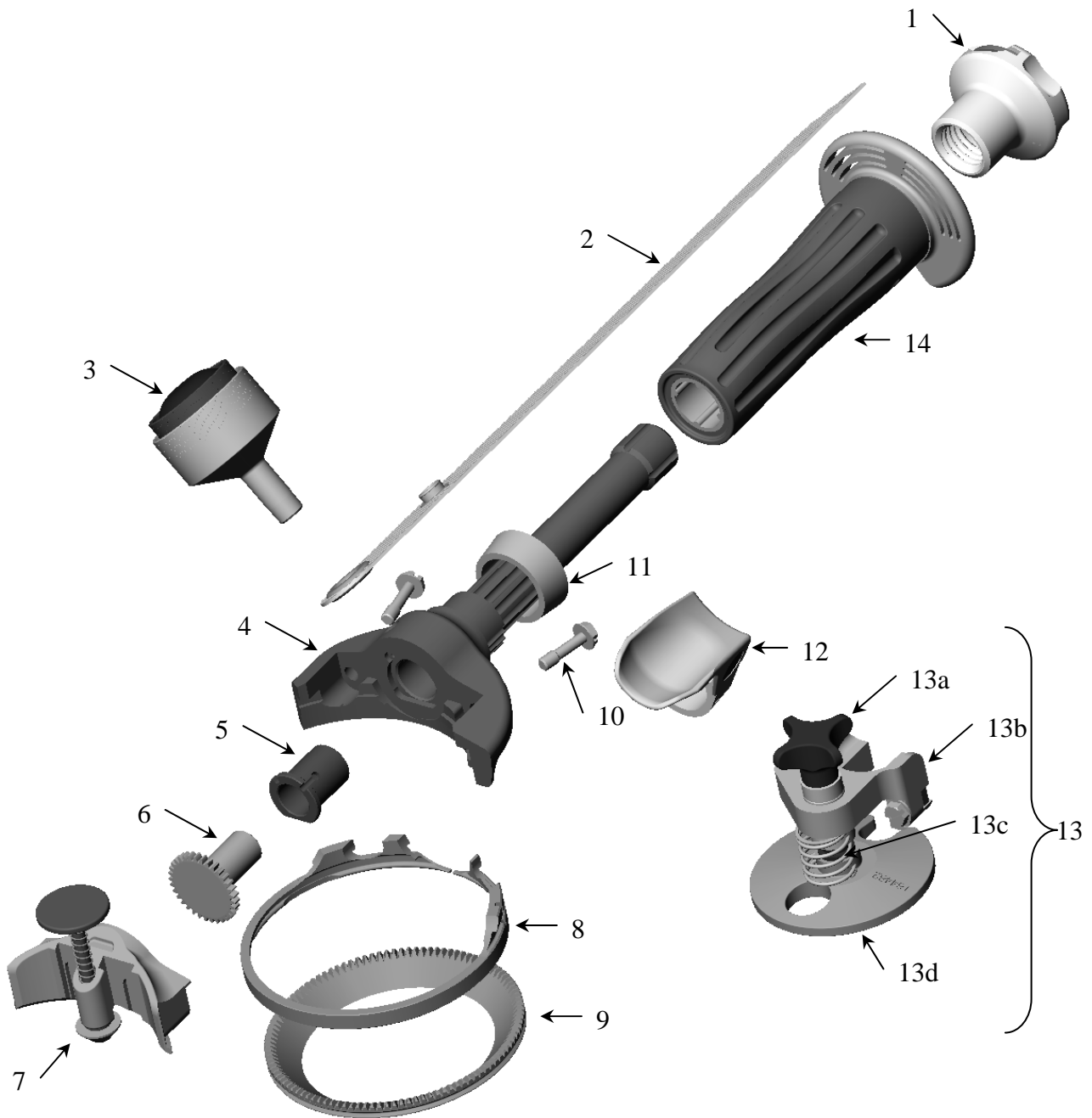
11.4 Head Assembly – 880M2-S



11.4 Head Assembly – 880M2-S

ITEM	DESCRIPTION	880M2-S RH		880M2-S LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183734	184610	183736	184611
	X-Small	183434	184612	183438	184613
	Small	183435	184614	183439	184615
	Medium	183436	184616	183440	184617
	Large	183437	184618	183441	184618
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183733	184836	183735	184837
	X-Small	183426	184838	183430	184839
	Small	183427	184840	183431	184841
	Medium	183428	184842	183432	184843
	Large	183429	184844	183433	184845
<b>Head Assembly (Includes Items 3 - 11)</b>		183027		183028	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	183896		183897	
5	Bearing	183060		183060	
6	Pinion	183063		183063	
7	Cover with Special Steeling Device	183056		183056	
	Repair Kit (Not Shown)	183474		183474	
8	Depth Gauge Assembly	183076		183076	
9	Blade Housing	183070		183070	
10	Blade	183072		183072	
11	Cover Retaining Screw (2 required)	183654		183654	
12	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

11.5 Head Assembly – 1850M2

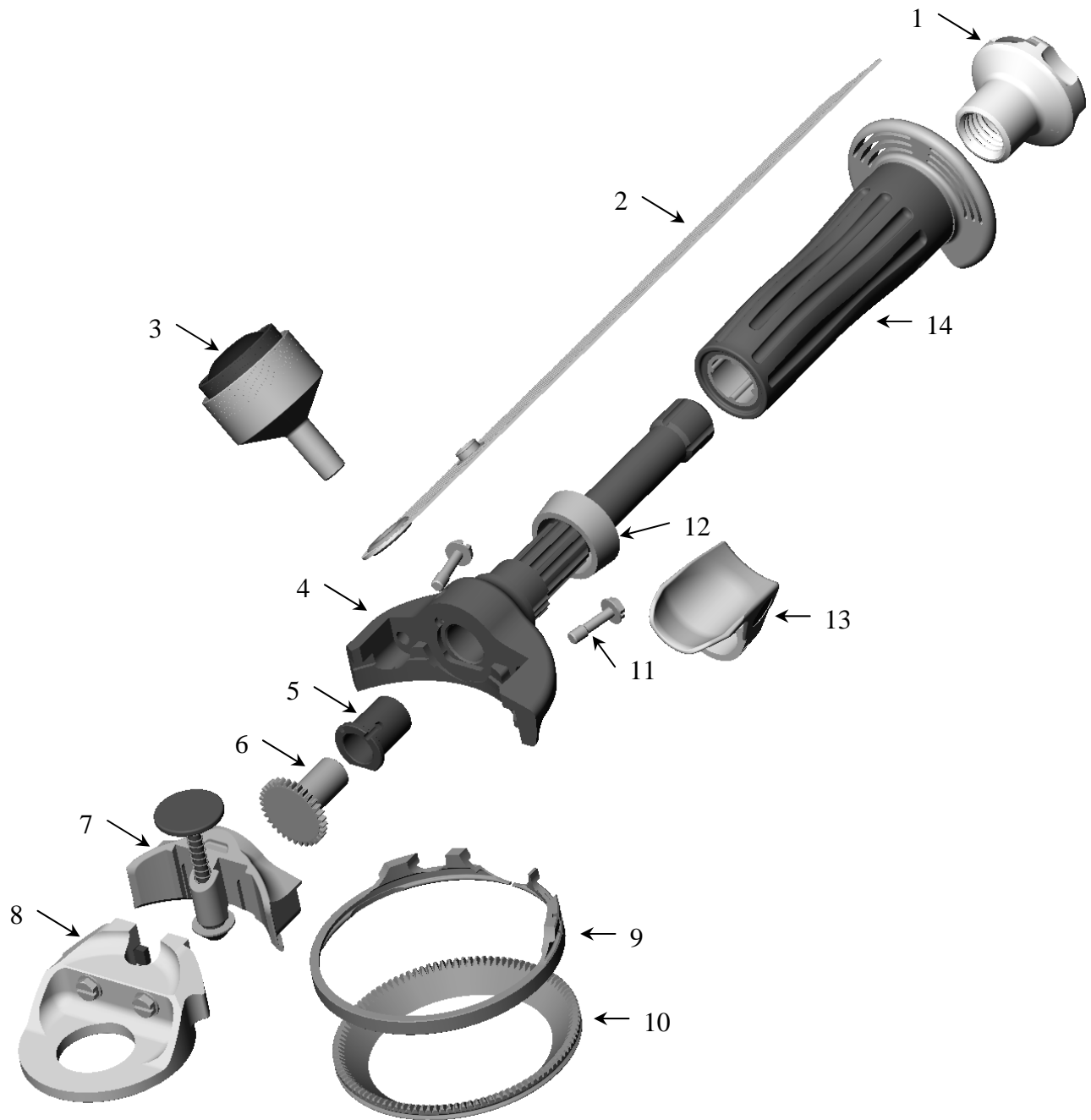




11.5 Head Assembly – 1850M2

ITEM	DESCRIPTION	1850M2 RH		1850M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183738	184620	183740	184621
	X-Small	183450	184622	183454	184623
	Small	183451	184624	183455	184625
	Medium	183452	184626	183456	184627
	Large	183453	184628	183457	184629
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183737	184846	183739	184847
	X-Small	183442	184848	183446	184849
	Small	183443	184850	183447	184851
	Medium	183444	184852	183448	184853
	Large	183445	184854	183449	184855
<b>Head Assembly (Includes Items 3 – 10)</b>		183029		183030	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	183896		183897	
5	Bearing	183060		183060	
6	Pinion	183063		183063	
7	Cover with Special Steeling Device	183053		183053	
	Repair Kit (Not Shown)	183476		183476	
8	Blade Housing	183070		183070	
9	Blade	183073		183073	
10	Cover Retaining Screw (2 required)	183654		183654	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	Disc Gauge Kit 1850M2-K (Optional)	184479		184479	
<b>Parts for Disc Gauge:</b>					
13a	Knob	183791		183791	
13b	Frame	183798		183798	
13c	Spring	121635		121635	
13d	Disc Assembly	184481		184481	
14	<b>See Section 11.20 for Handle Options</b>				

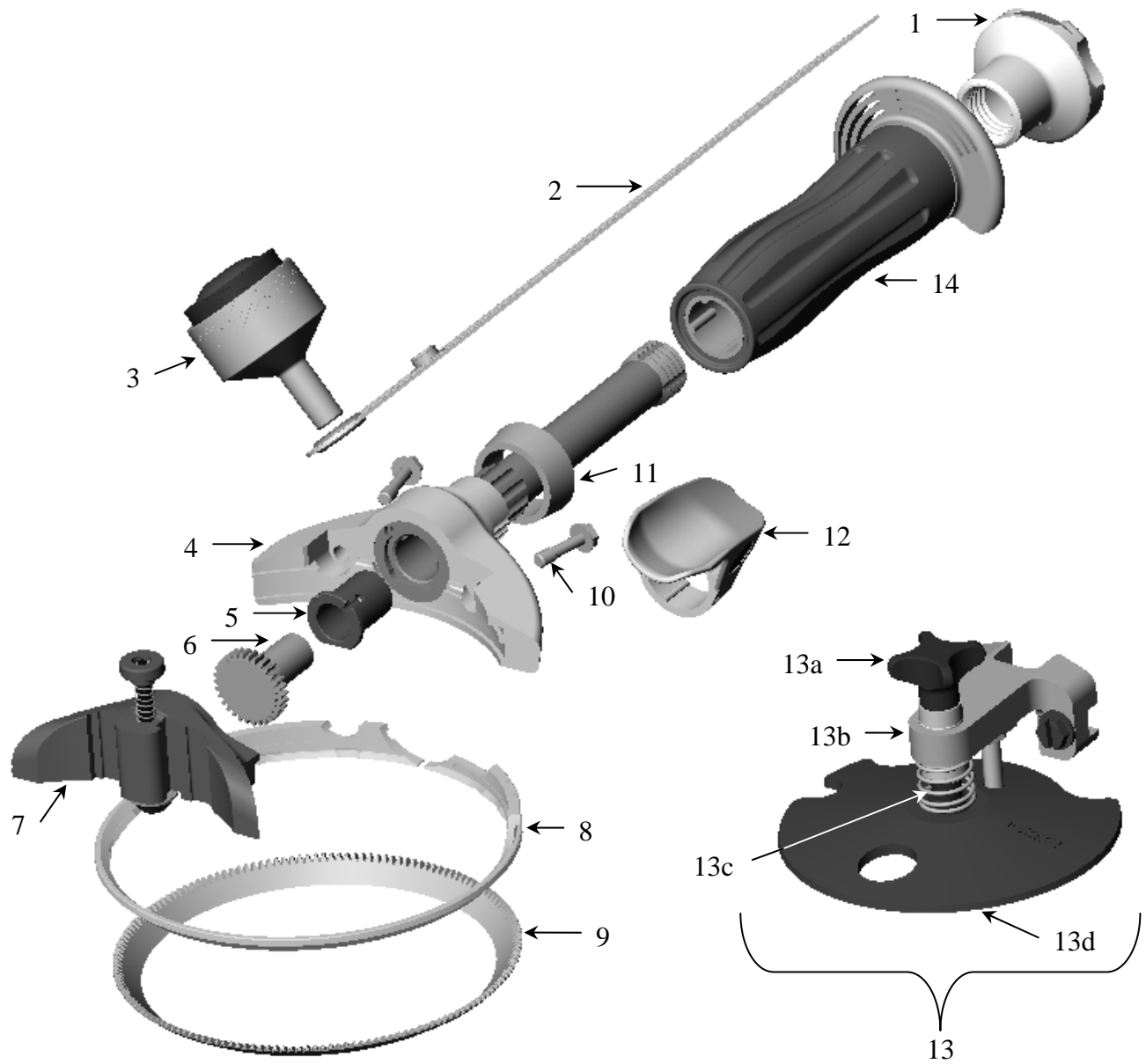
11.6 Head Assembly – 1880M2



11.6 Head Assembly – 1880M2

ITEM	DESCRIPTION	1880M2 RH		1880M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183742	184630	183744	184631
	X-Small	183466	184632	183470	184633
	Small	183467	184634	183471	184635
	Medium	183468	184636	183472	184637
	Large	183469	184638	183473	184639
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183741	184856	183743	184857
	X-Small	183458	184858	183462	184859
	Small	183459	184860	183463	184861
	Medium	183460	184862	183464	184863
	Large	183461	184864	183465	184865
<b>Head Assembly (Includes Items 3 - 11)</b>		183031		183032	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	183896		183897	
5	Bearing	183060		183060	
6	Pinion	183063		183063	
7	Cover with Special Steeling Device	183053		183053	
	Repair Kit (Not Shown)	183476		183476	
8	Depth Gauge Assembly	183077		183077	
9	Blade Housing	183070		183070	
10	Blade	183073		183073	
11	Cover Retaining Screw (2 required)	183654		183654	
12	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

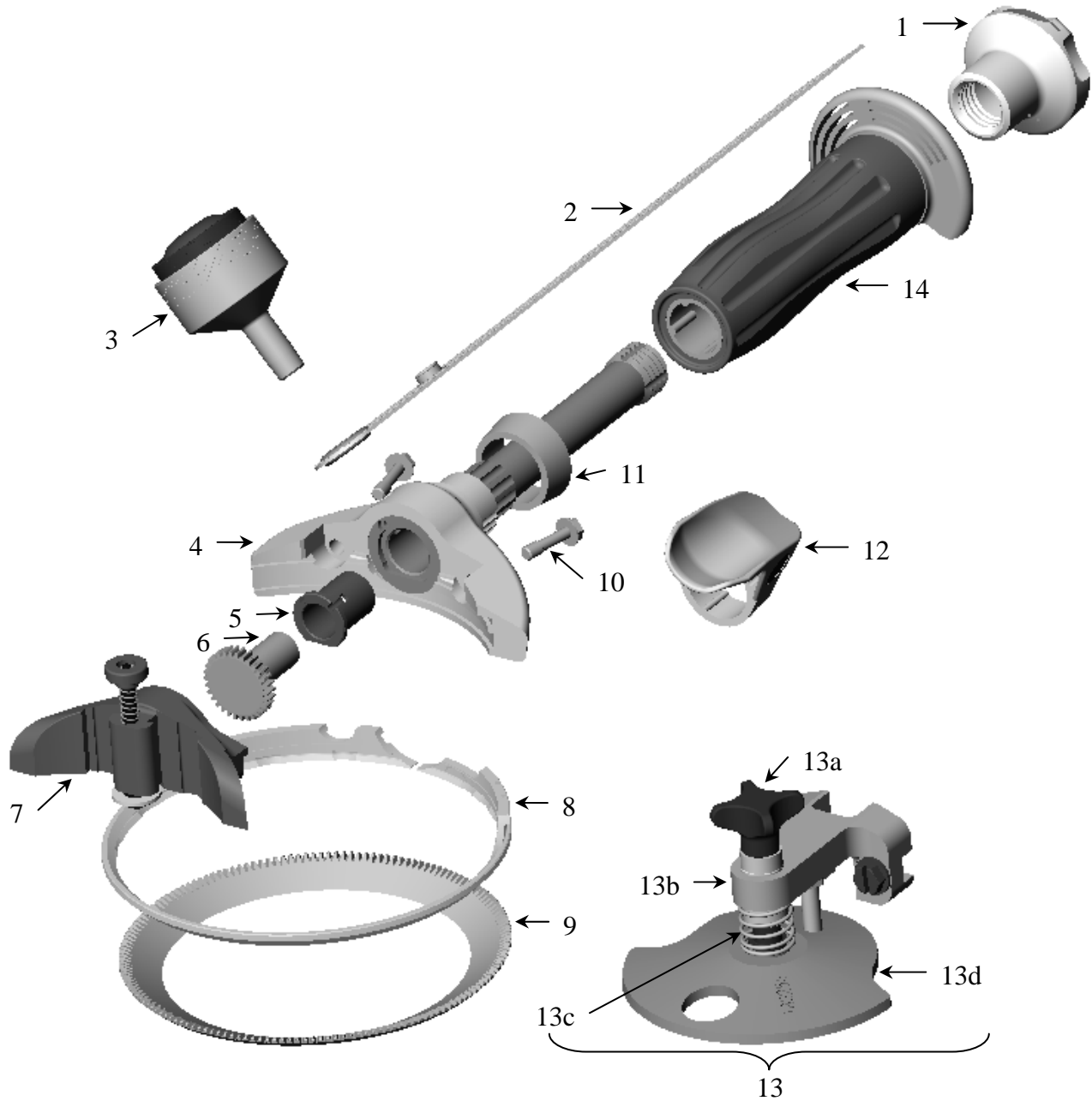
11.7 Head Assembly – 1000M2



11.7 Head Assembly – 1000M2

ITEM	DESCRIPTION	1000M2 RH		1000M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)					
	XX-Small	183746	184640	183748	184641
	X-Small	183185	184642	183189	184643
	Small	183186	184644	183190	184645
	Medium	183187	184646	183191	184647
	Large	183188	184648	183192	184649
Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)					
	XX-Small	183745	184866	183747	184867
	X-Small	183177	184868	183181	184869
	Small	183178	184870	183182	184871
	Medium	183179	184872	183183	184873
	Large	183180	184874	183184	184875
Head Assembly (Includes Items 3 – 10)		183169		183170	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
Parts for Grease Cup (Not Shown)					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	184362		184363	
5	Bearing	183060		183060	
6	Pinion	183154		183154	
7	Cover with Special Steeling Device	183163		183163	
	Repair Kit (Not Shown)	183477		183477	
8	Blade Housing	183143		183143	
9	Blade	183141		183141	
10	Cover Retaining Screw (2 required)	183654		183654	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	Disc Gauge Kit (Optional)				
	1000M2-S (Skinner)	183792		183792	
	1000M2-F (Fat)	183793		183793	
	1000M2-N (Special)	184365		184365	
Parts for Disc Gauge					
13a	Knob	183791		183791	
13b	Frame Assembly	183784		183784	
13c	Spring	121635		121635	
13d	Disc Assembly (S)	183787		183787	
	Disc Assembly (F)	183788		183788	
	Disc Assembly (N)	184367		184367	
14	<b>See Section 11.20 for Handle Options</b>				

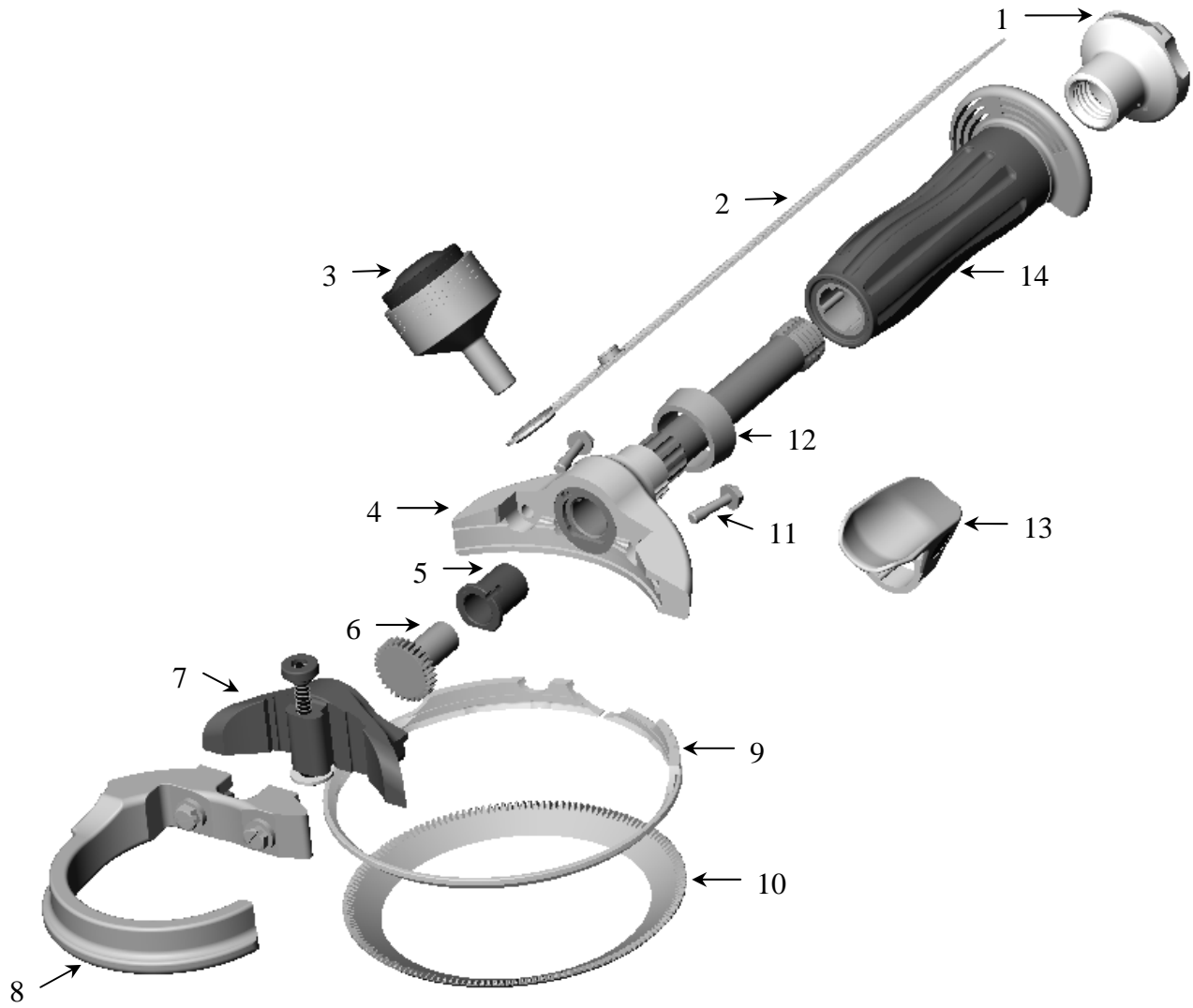
11.8 Head Assembly – 1300M2



11.8 Head Assembly – 1300M2

ITEM	DESCRIPTION	1300M2 RH		1300M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183750	184650	183752	184651
	X-Small	183201	184652	183205	184653
	Small	183202	184654	183206	184655
	Medium	183203	184656	183207	184657
	Large	183204	184658	183208	184659
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 14)</b>					
	XX-Small	183749	184876	183751	184877
	X-Small	183193	184878	183197	184879
	Small	183194	184880	183198	184881
	Medium	183195	184882	183199	184883
	Large	183196	184884	183200	184885
<b>Head Assembly (Includes Items 3 – 10)</b>		183171		183172	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
	<b>Parts for Cup (Not Shown)</b>				
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	184362		184363	
5	Bearing	183060		183060	
6	Pinion	183154		183154	
7	Cover with Special Steeling Device	183164		183164	
	Repair Kit (Not Shown)	183478		183478	
8	Blade Housing	183143		183143	
9	Blade	183142		183142	
10	Cover Retaining Screw (2 required)	183654		183654	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	Disc Gauge Kit (Optional)				
	1300M2-S (Skinner)	183794		183794	
	1300M2-F (Fat)	183795		183795	
	1300M2-K (Kebab)	184993		184993	
	<b>Parts for Disc Gauge</b>				
13a	Knob	183791		183791	
13b	Frame	183784		183784	
13c	Spring	121635		121635	
13d	Disc Assembly (S)	183789		183789	
	Disc Assembly (F)	183790		183790	
	Disc Assembly (K)	184994		184994	
14	<b>See Section 11.20 for Handle Options</b>				

11.9 Head Assembly – 1400M2

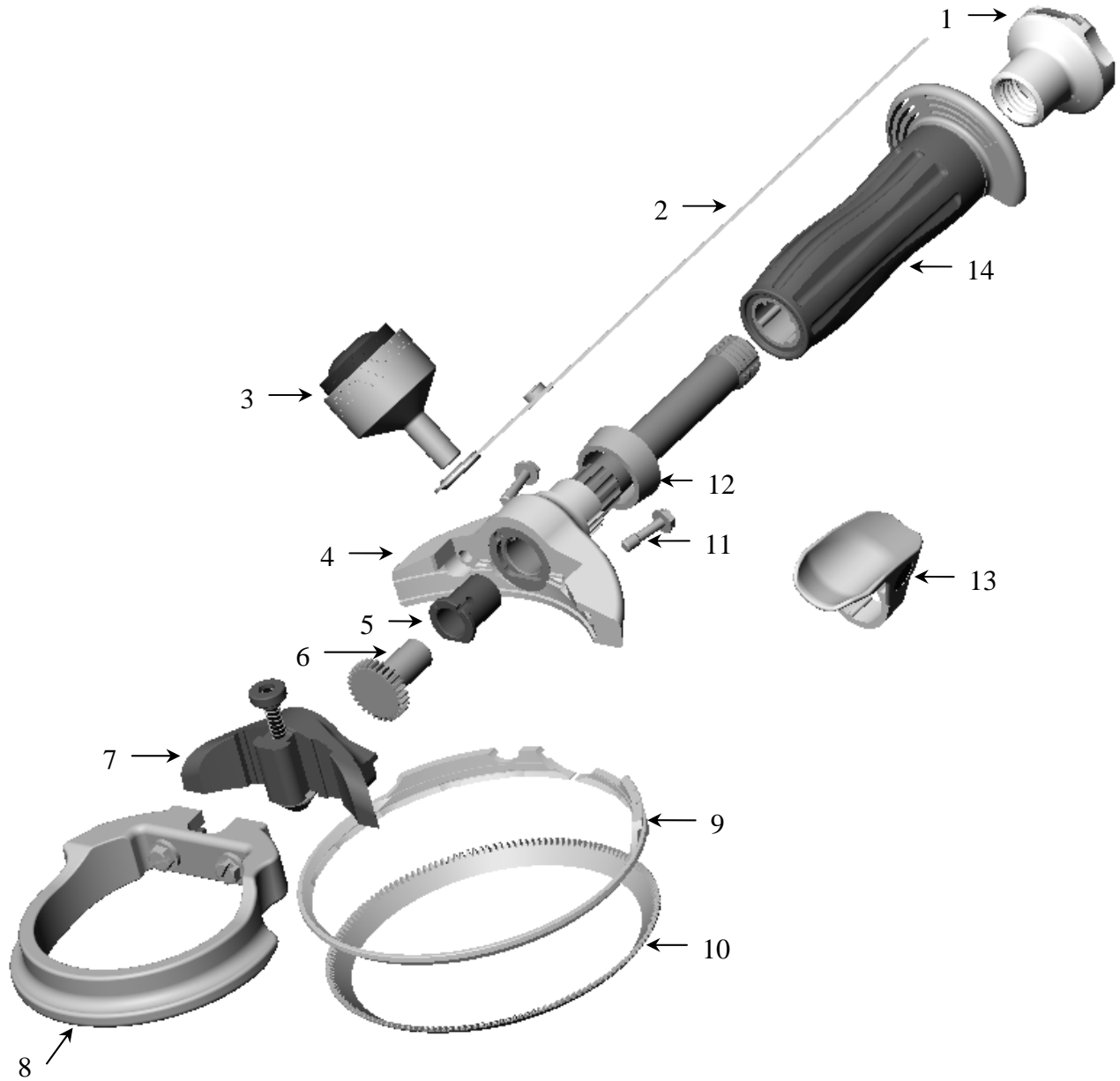




11.9 Head Assembly – 1400M2

ITEM	DESCRIPTION	1400M2 RH		1400M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183754	184660	183756	184661
	X-Small	183217	184662	183221	184663
	Small	183218	184664	183222	184665
	Medium	183219	184666	183223	184667
	Large	183220	184668	183224	184669
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183753	184886	183755	184887
	X-Small	183209	184888	183213	184889
	Small	183210	184890	183214	184891
	Medium	183211	184892	183215	184893
	Large	183212	184894	183216	184895
<b>Head Assembly (Includes Items 3 – 11)</b>		183173		183174	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	184362		184363	
5	Bearing	183060		183060	
6	Pinion	183154		183154	
7	Cover with Special Steeling Device	183164		183164	
	Repair Kit (Not Shown)	183478		183478	
8	Depth Gauge Assembly	183159		183159	
9	Blade Housing	183143		183143	
10	Blade	183142		183142	
11	Cover Retaining Screw (2 required)	183654		183654	
12	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

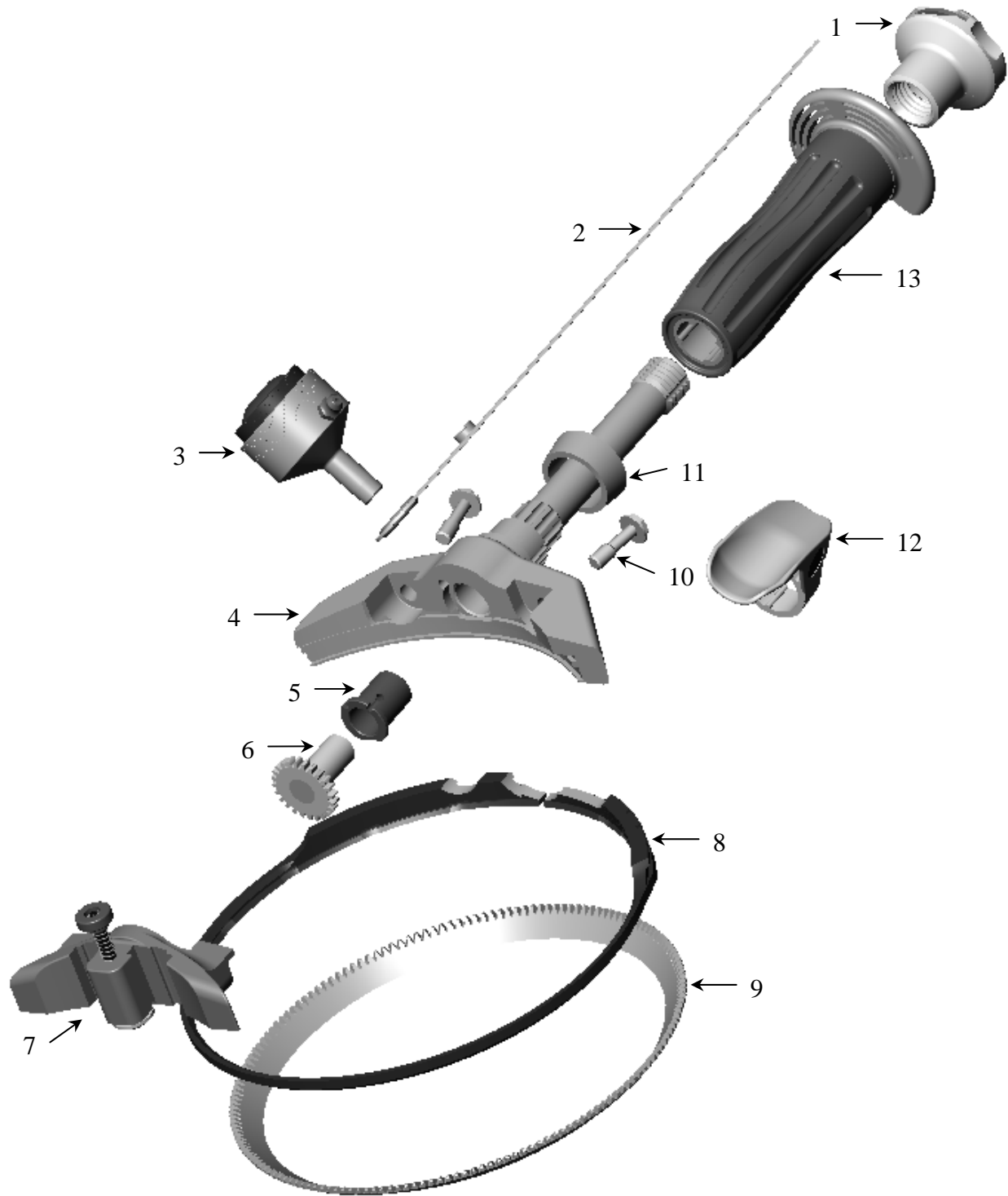
11.10 Head Assembly – 1500M2



11.10 Head Assembly – 1500M2

ITEM	DESCRIPTION	1500M2 RH		1500M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183758	184670	183760	184671
	X-Small	183233	184672	183237	184673
	Small	183234	184674	183238	184675
	Medium	183235	184676	183239	184677
	Large	183236	184678	183240	184679
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	XX-Small	183757	184896	183759	184897
	X-Small	183225	184898	183229	184899
	Small	183226	184900	183230	184901
	Medium	183227	184902	183231	184903
	Large	183228	184904	183232	184905
<b>Head Assembly (Includes Items 3 – 11)</b>		183175		183176	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame Assembly	184362		184363	
5	Bearing	183060		183060	
6	Pinion	183154		183154	
7	Cover with Special Steeling Device	183163		183163	
	Repair Kit (Not Shown)	183477		183477	
8	Depth Gauge Assembly	183160		183160	
9	Blade Housing	183143		183143	
10	Blade	183141		183141	
11	Cover Retaining Screw (2 required)	183654		183654	
12	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

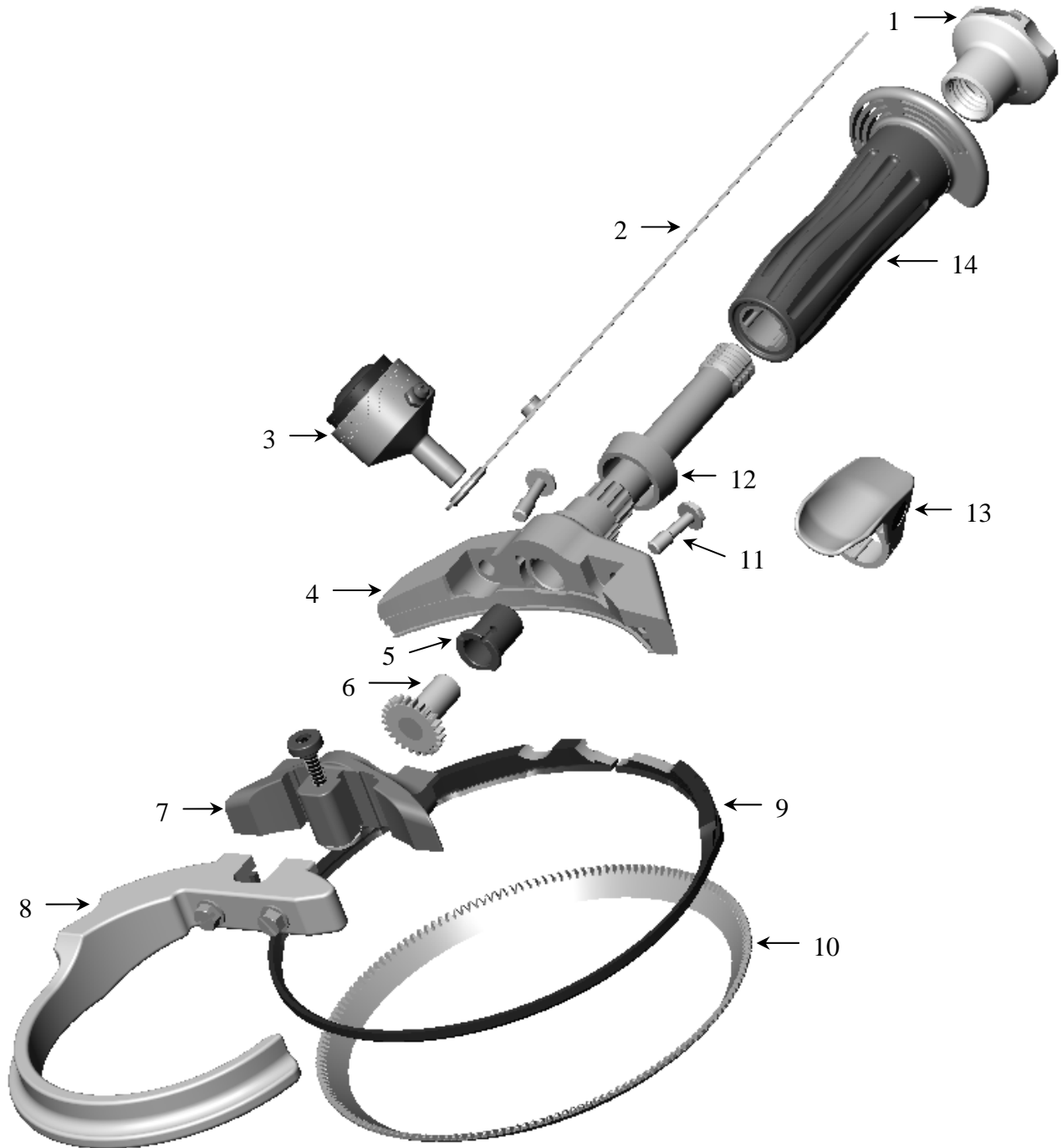
11.11 Head Assembly – 1930M2



11.11 Head Assembly – 1930M2

ITEM	DESCRIPTION	1930M2 RH		1930M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)</b>					
	Small	185010	184690	185013	184691
	Medium	185011	184692	185014	184693
	Large	185012	184694	185015	184695
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)</b>					
	Small	185004	184916	185007	184917
	Medium	185005	184918	185008	184919
	Large	185006	184920	185009	184921
<b>Head Assembly (Includes Items 3 – 10)</b>		185053		185054	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame	185061		185062	
5	Bearing	183060		183060	
6	Pinion	185063		185063	
7	Cover with Special Steeling Device	185071		185071	
	Repair Kit (Not Shown)	183477		183477	
8	Blade Housing	185065		185065	
9	Blade	185066		185066	
10	Cover Retaining Screw (2 required)	185075		185075	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	<b>See Section 11.20 for Handle Options</b>				

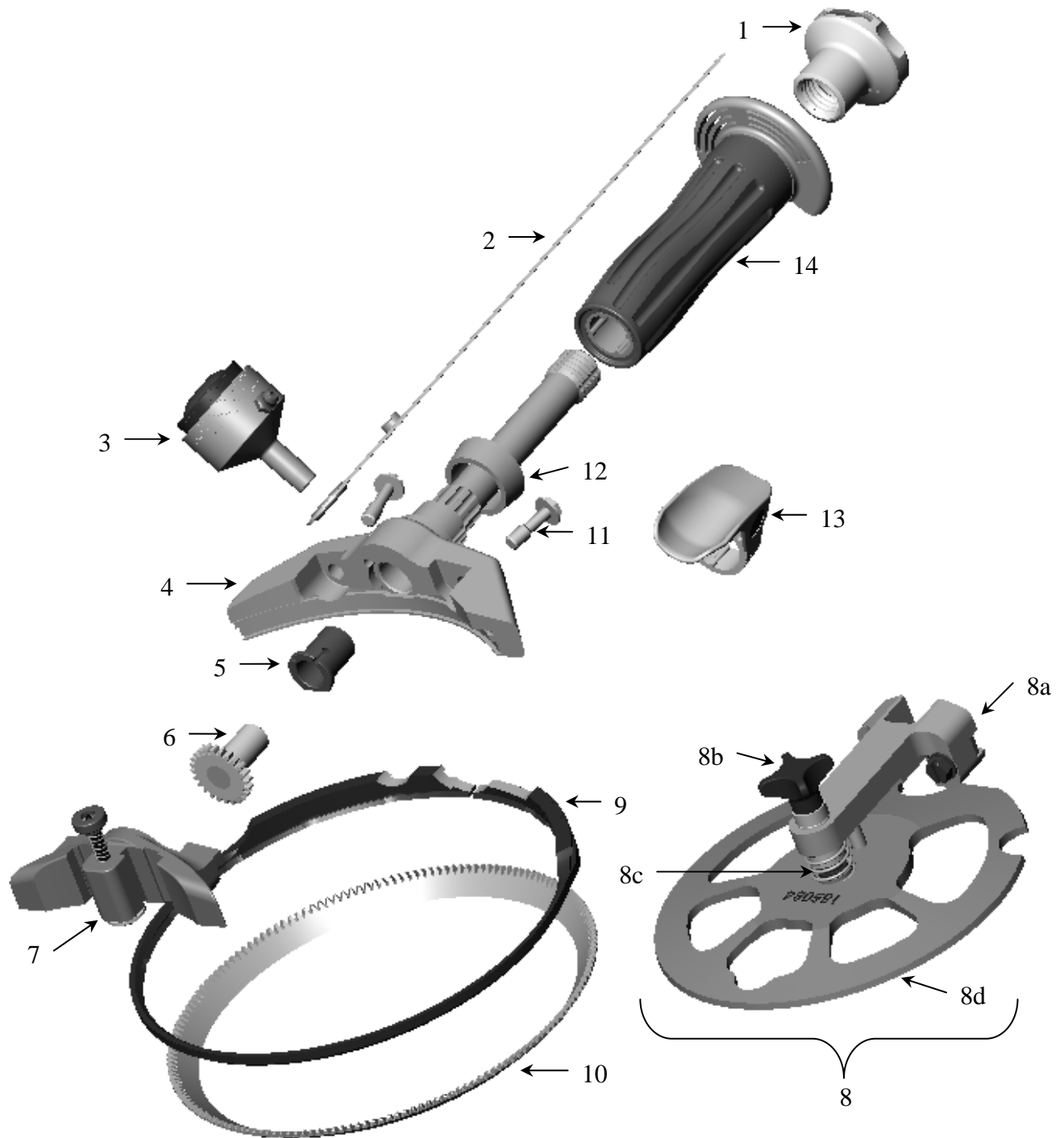
11.12 Head Assembly – 1932M2



11.12 Head Assembly – 1932M2

ITEM	DESCRIPTION	1932M2 RH		1932M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	Small	185094	184696	185097	184697
	Medium	185095	184698	185098	184699
	Large	185096	184700	185099	184701
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	Small	185088	184922	185091	184923
	Medium	185089	184924	185092	184925
	Large	185090	184926	185093	184927
<b>Head Assembly (Includes Items 3 – 11)</b>		185112		185113	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame	185061		185062	
5	Bearing	183060		183060	
6	Pinion	185063		185063	
7	Cover with Special Steeling Device	185071		185071	
	Repair Kit (Not Shown)	183477		183477	
8	Depth Gauge Assembly	185116		185116	
9	Blade Housing	185065		185065	
10	Blade	185066		185066	
11	Cover Retaining Screw (2 required)	185075		185075	
12	Handle Spacer Ring	183120		183120	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

11.13 Head Assembly – 1933M2

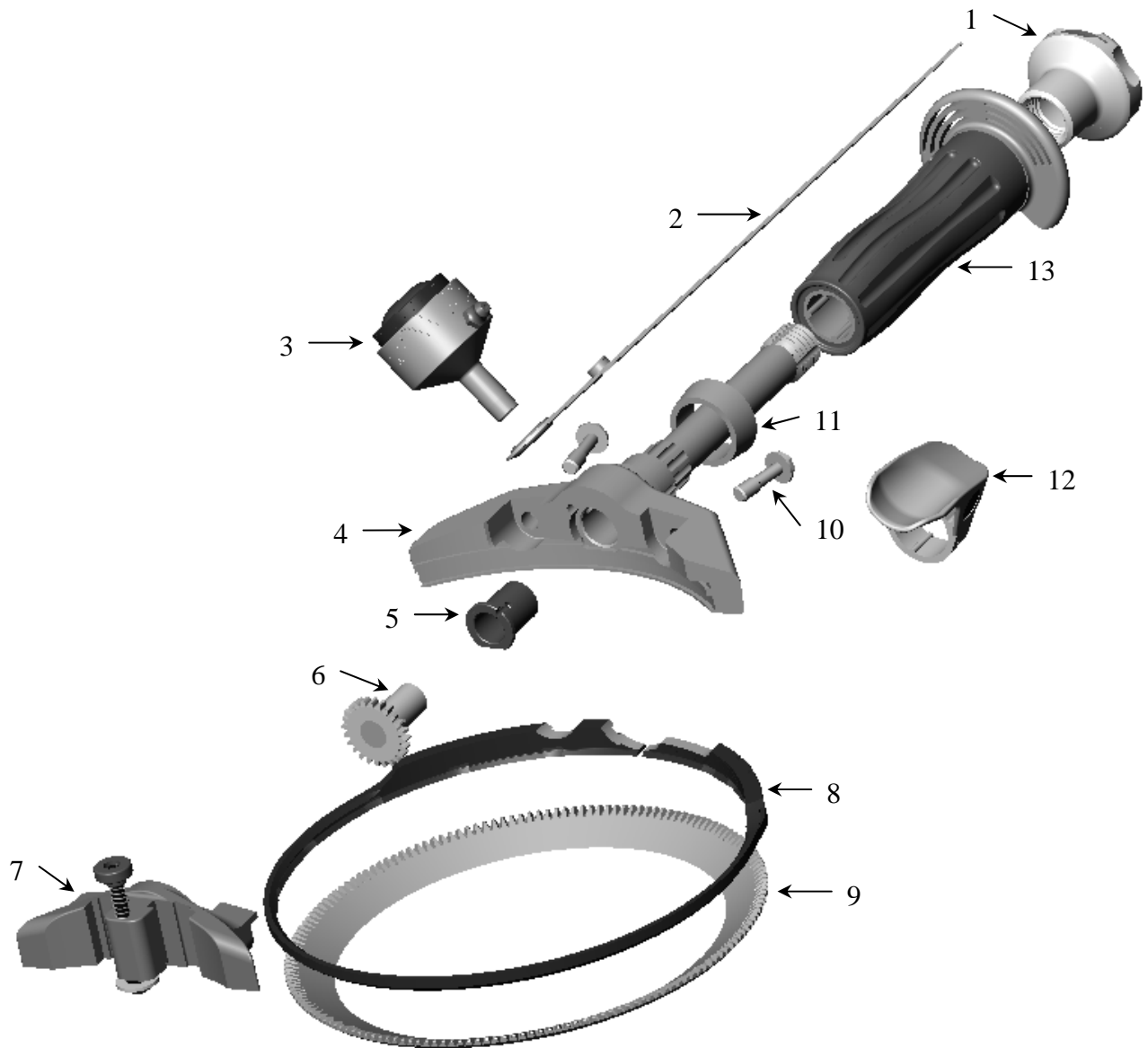




11.13 Head Assembly – 1933M2

ITEM	DESCRIPTION	1933M2 RH		1933M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	Small	185022	184702	185025	184703
	Medium	185023	184704	185026	184705
	Large	185024	184706	185027	184707
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	Small	185016	184928	185019	184929
	Medium	185017	184930	185020	184931
	Large	185018	184932	185021	184933
<b>Head Assembly (Includes Items 3 – 11)</b>		185055		185056	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame	185061		185062	
5	Bearing	183060		183060	
6	Pinion	185063		185063	
7	Cover with Special Steeling Device	185071		185071	
	Repair Kit (Not Shown)	183477		183477	
8	Disc Gauge Assembly (Optional)	185077		185077	
<b>Parts for Disc Gauge</b>					
8a	Frame Assembly	185079		185079	
8b	Knob	183791		183791	
8c	Spring	121635		121635	
8d	Disc Assembly	185082		185082	
9	Blade Housing	185065		185065	
10	Blade	185066		185066	
11	Cover Retaining Screw (2 required)	185075		185075	
12	Handle Spacer Ring	183120		183120	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

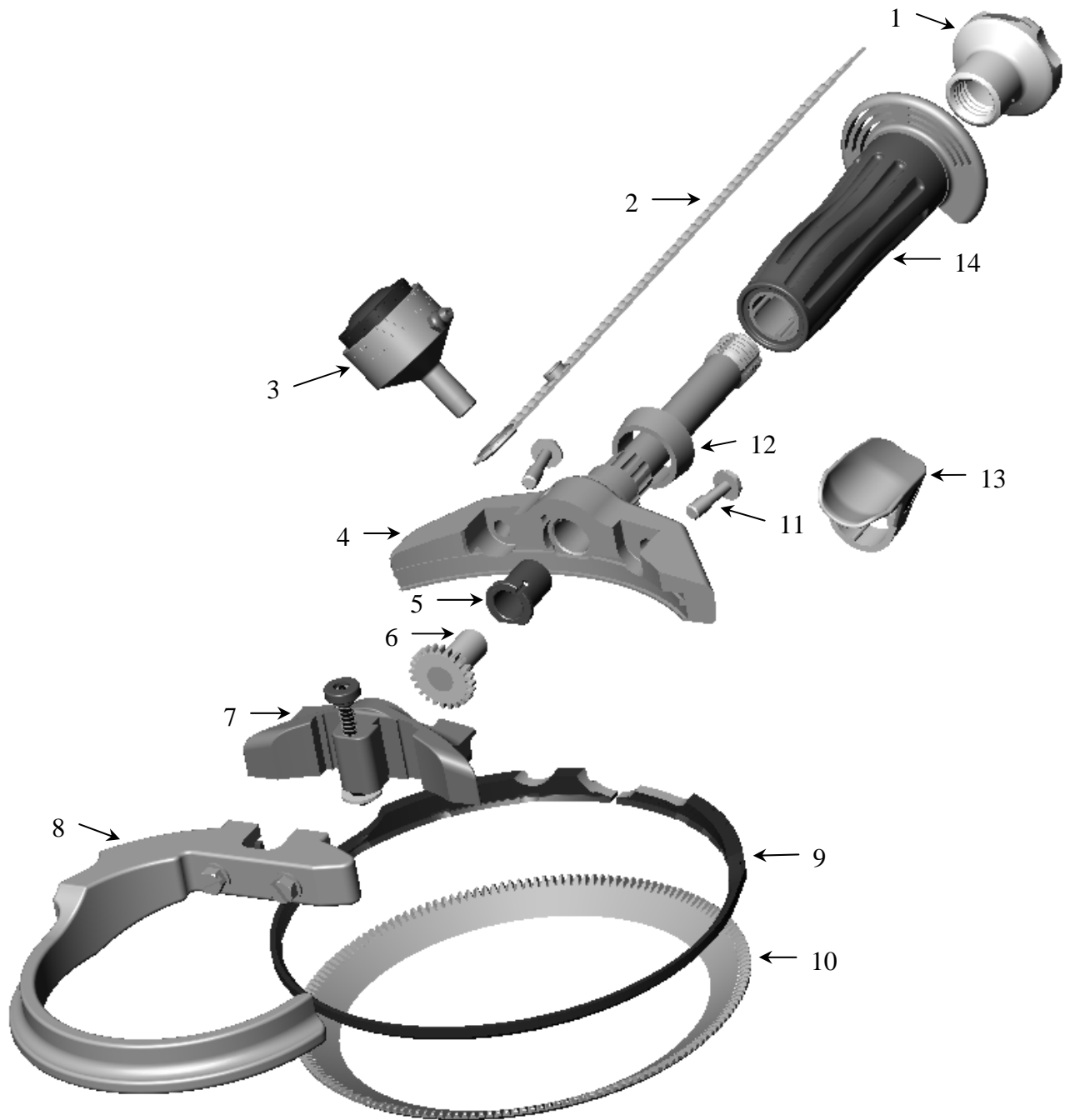
11.14 Head Assembly – 1940M2



11.14 Head Assembly – 1940M2

ITEM	DESCRIPTION	1940M2 RH		1940M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)					
	Small	185034	184708	185037	184709
	Medium	185035	184710	185038	184711
	Large	185036	184712	185039	184713
Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)					
	Small	185028	184934	185031	184935
	Medium	185029	184936	185032	184937
	Large	185030	184938	185033	184939
Head Assembly (Includes Items 3 – 10)		185057		185058	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
Parts for Grease Cup (Not Shown)					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame	185061		185062	
5	Bearing	183060		183060	
6	Pinion	185063		185063	
7	Cover with Special Steeling Device	185072		185072	
	Repair Kit (Not Shown)	183478		183478	
8	Blade Housing	185065		185065	
9	Blade	185068		185068	
10	Cover Retaining Screw (2 required)	185075		185075	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	<b>See Section 11.20 for Handle Options</b>				

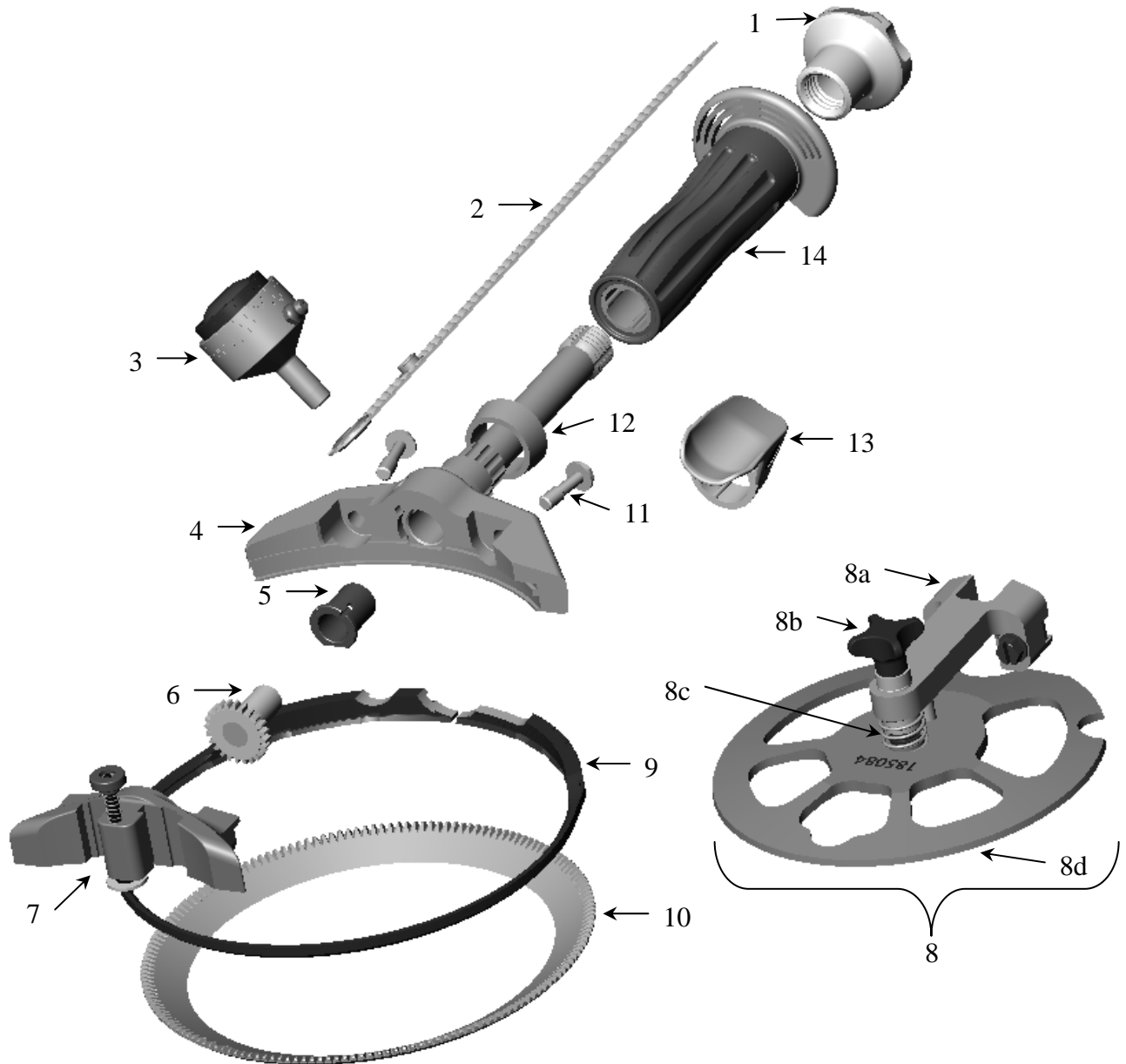
11.15 Head Assembly – 1942M2



11.15 Head Assembly – 1942M2

ITEM	DESCRIPTION	1942M2 RH		1942M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
<b>Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	Small	185106	184714	185109	184715
	Medium	185107	184716	185110	184717
	Large	185108	184718	185111	184719
<b>Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)</b>					
	Small	185100	184940	185103	184941
	Medium	185101	184942	185104	184943
	Large	185102	184944	185105	184945
<b>Head Assembly (Includes Items 3 – 11)</b>		185114		185115	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
<b>Parts for Grease Cup (Not Shown)</b>					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame	185061		185062	
5	Bearing	183060		183060	
6	Pinion	185063		185063	
7	Cover with Special Steeling Device	185072		185072	
	Repair Kit (Not Shown)	183478		183478	
8	Depth Gauge Assembly	185116		185116	
9	Blade Housing	185065		185065	
10	Blade	185068		185068	
11	Cover Retaining Screw (2 required)	185075		185075	
12	Handle Spacer Ring	183120		183120	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

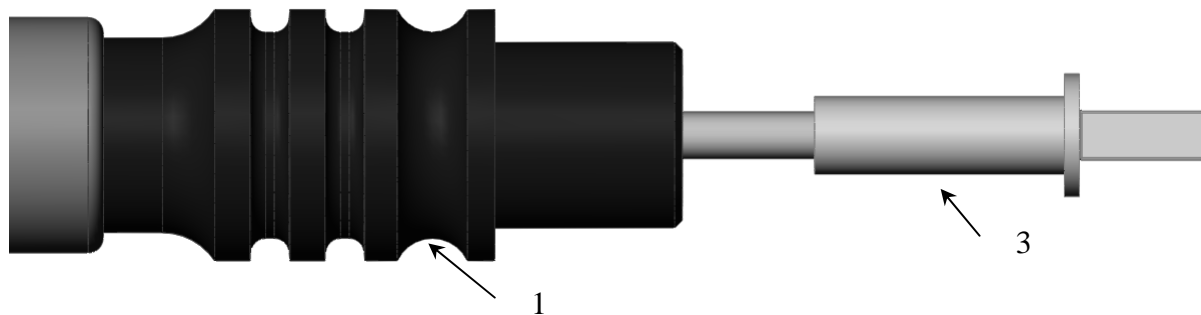
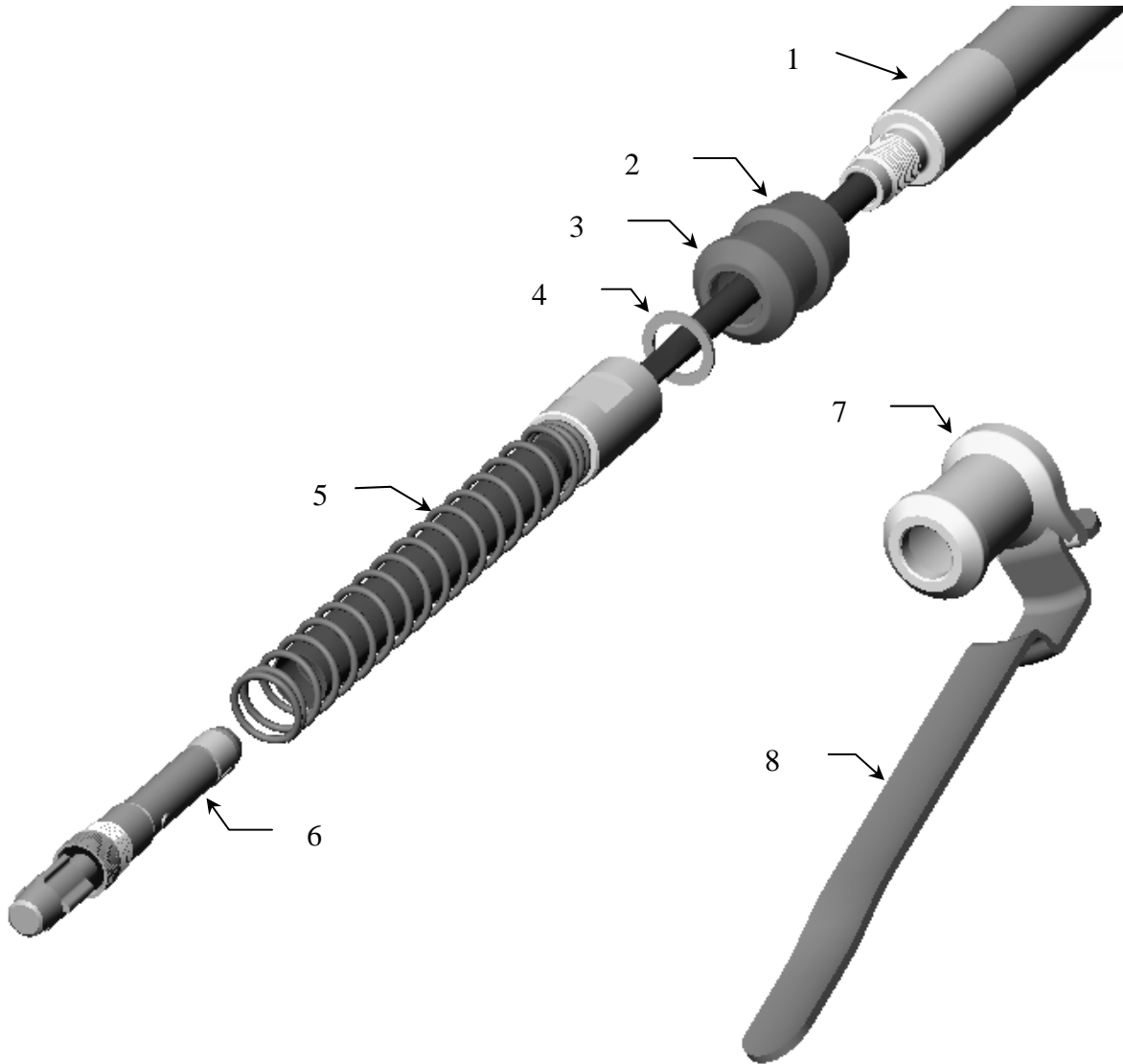
11.16 Head Assembly – 1943M2



11.16 Head Assembly – 1943M2

ITEM	DESCRIPTION	1943M2 RH		1943M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)					
	Small	185046	184720	185049	184721
	Medium	185047	184722	185050	184723
	Large	185048	184724	185051	184725
Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 12, 13, 14)					
	Small	185040	184946	185043	184947
	Medium	185041	184948	185044	184949
	Large	185042	184950	185045	184951
Head Assembly (Includes Items 3 – 11)		185059		185060	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	173191		173191	
Parts for Grease Cup (Not Shown)					
	Retainer Ring Only	173190		173190	
	Bulb and Washer	173208		173208	
	Base and Fitting	173187		173187	
4	Frame	185061		185062	
5	Bearing	183060		183060	
6	Pinion	185063		185063	
7	Cover with Special Steeling Device	185072		185072	
	Repair Kit (Not Shown)	183478		183478	
8	Disc Gauge Assembly (Optional)	185078		185078	
Parts for Disc Gauge					
8a	Frame Assembly	185079		185079	
8b	Knob	183791		183791	
8c	Spring	121635		121635	
8d	Disc Assembly	185083		185083	
9	Blade Housing	185065		185065	
10	Blade	185068		185068	
11	Cover Retaining Screw (2 required)	185075		185075	
12	Handle Spacer Ring	183120		183120	
13	Thumb Support (Gray)	163207		163207	
14	<b>See Section 11.20 for Handle Options</b>				

11.17 Flex Shaft and Casing

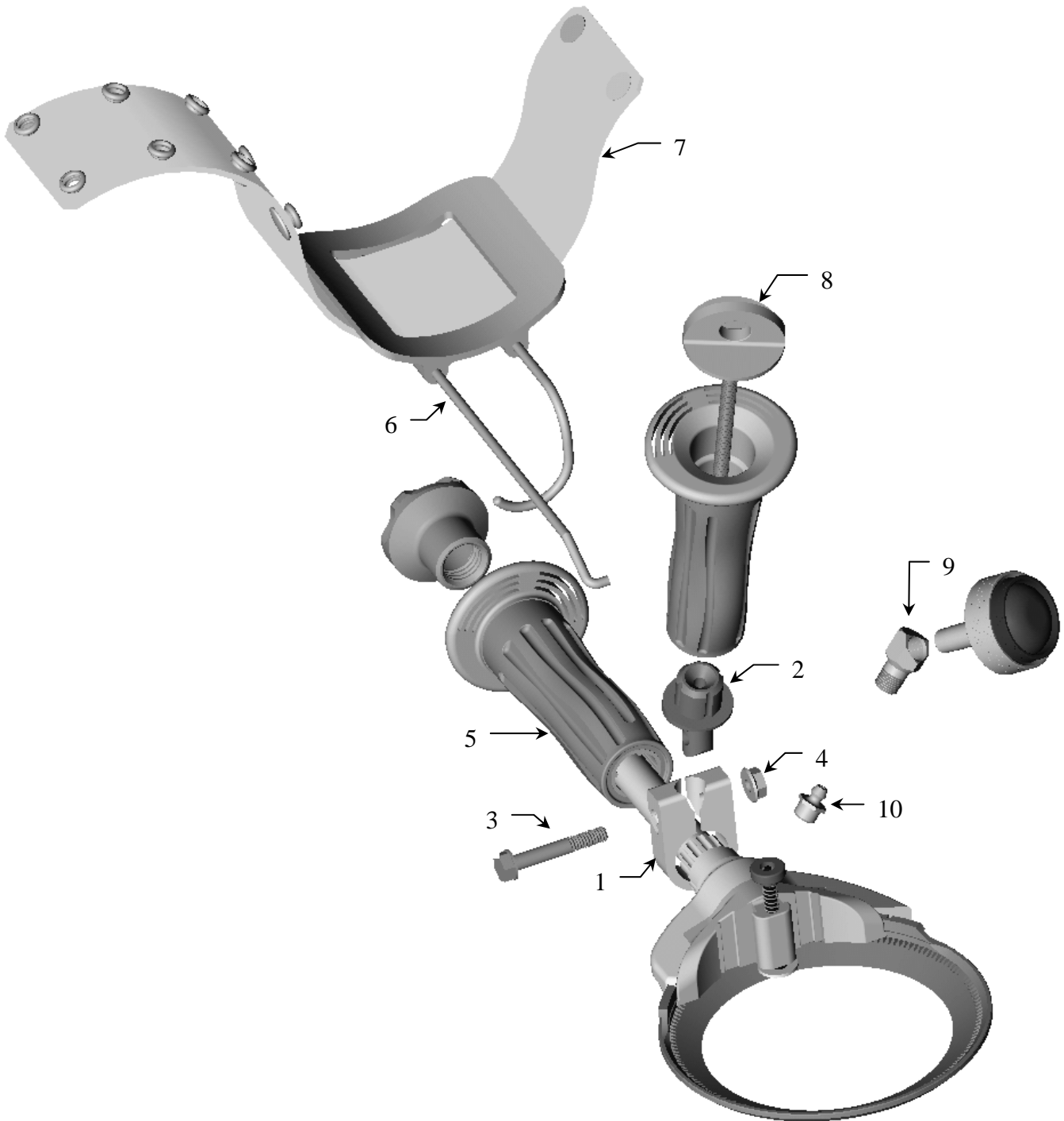




11.17 Flex Shaft and Casing (Continued)

ITEM	DESCRIPTION	WITHOUT DISCONNECT			WITH DISCONNECT		
		48"	60"	84"	48"	60"	84"
	Casing Assembly Complete (Includes Items 1, 2, 4, 5)	183849	183850	183851	-----	-----	-----
	Casing Assembly Complete (Includes Items 1, 4, 5, 7, 8)	-----	-----	-----	183852	183853	183854
1	Casing Assembly	183771	183772	183773	183771	183772	183773
2	Casing Latch Collar	183111	183111	183111	-----	-----	-----
3	Flex Shaft	183837	183838	183839	183837	183838	183839
4	Nylon Washer	123314	123314	123314	123314	123314	123314
	Drive End Assembly (Includes Items 5 and 6)	183099	183099	183099	183099	183099	183099
5	Drive End Sub-Assembly	183129	183129	183129	183129	183129	183129
6	Driver Assembly	183101	183101	183101	183101	183101	183101
7	Lever Mounting Collar	-----	-----	-----	183110	183110	183110
8	Disconnect Lever	-----	-----	-----	183108	183108	183108

11.18 Post Handle (Optional)



11.18 Post Handle (Optional) (Continued)

ITEM	DESCRIPTION	183620 UNIVERSAL POST HANDLE KIT	QTY.
1	Clamp Ring	183621	1
2	Post	183622	1
3	Hex Washer Head Bolt	183623	1
4	Hex Flange Nut	183633	1
5	Handle (Extra Small)	183043	1
6	Arm Rest Assembly	183624	1
7	Arm Rest Strap Assembly	183630	1
8	Knob Assembly	183626	1
9	45° Elbow	183631	1
10	Grease Fitting	102273	1

11.19 Optional Equipment Available

**Lubrication and Lubrication Equipment**

Part Number	Description
173519	Duralite® Casings Maintenance Kit (WhizLube Spray)
100608	8 oz. Tube Whizard® Grease
143631	14 oz. Cartridge of Special Whizard® Grease
163328	25 pack – 14 oz. Cartridges of Whizard® Grease
100640	35 Pound Bucket of Whizard® Grease
113415	Grease Gun (for 8 oz. tube of Whizard® Grease)
163267	Large Grease Cup (Optional)
102273	Grease Fitting
183631	Elbow - Body

**Optional Blades**

Part Number	Description
183289	1850M2 Serrated Blade
183265	1000M2 / 1500M2 Serrated Blade
183266	1300M2/1400M2 Serrated Blade
185067	1930M2 – 1933M2 Serrated Blade
185069	1940M2 – 1943M2 Serrated Blade

**Blade Sharpening and Steeling Equipment**

Part Number	Description
100660	Special Stone
100642	Whizard® Special Steel
100650	Ceramic Sharpener
163076	750 EdgeMaster
163071	850 / 880 EdgeMaster
163069	1000 / 1500 EdgeMaster
163070	1300 / 1500 EdgeMaster
122740	Positioner Reel for EdgeMaster
183908	750 EZ Edge
183925	850 / 880 EZ Edge
173322	1000 / 1500 EZ Edge
173298	1300 / 1400 EZ Edge

**Covers and Depth Gauges**

Part Number	Description
185134	Poultry Cover Assembly 750
173347	Depth Gauge Setting Device Device Kit 880 S&B
173348	Depth Gauge Setting Device Device Kit 1400 & 1500

11.19 Optional Equipment Available (Continued)

**Tools**

Part Number	Description
183900	M2 Torque Wrench Kit

**Cleaning Equipment**

Part Number	Description
184334	Handpiece Cleaning Kit (Contains the following)
184335	Handpiece Cleaning Pick
184336	Stainless Steel Hand Brush
184337	Scrub Brush
184338	1-1/2" Diameter Tubing Brush
184339	1/2" Diameter Tubing Brush

**Cleaning Solution**

Part Number	Description
184331	Case of EXTRA Cleaner (four 1 gallon jugs)
184332	EXTRA Cleaner (1 gallon jug)

11.20 Handle Options

Molded Handles	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
Large (Green)	183040	183918	183045	183937
Medium (Blue)	183041	183919	183046	183938
Small (Gray)	183042	183920	183047	183939
X-Small (Turquoise)	183043	183921	183048	183940
XX-Small (Tan) (With Spacer Ring)	183511	183935	183512	183942
Aluminum Handles	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
Small (With Spacer Ring)	-	-	-	183767
Medium (With Spacer Ring)	-	-	-	183768

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## **SECTION 12.0 About These Operating Instructions**

### **12.1 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.

### **12.2 Document Identification**

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

Document ID:	Manual #183130
Document Description:	Operating Instructions and Spare Parts List for Large Modular Series II Whizard® Tools
Issued:	November 15, 1999

Operating Instructions for other Whizard® Trimmer Models may be requested by quoting the model designation of the tool as shown on the identification plate on the Whizard® Trimmer.

### **12.3 Software And Duplication**

For more information, contact your local Representative or :

Bettcher Industries  
Administrative Assistant/Engineering  
Department  
P.O. Box 336  
Vermilion, Ohio 44089  
USA

**SECTION 13.0**    **Contact Addresses And Phone**

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

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