BETTCHER Industries, Inc.

OPERATING INSTRUCTIONS AND SPARE PARTS LISTS

WHIZARD® TRIMMER SERIES II

SMALL MODULAR SERIES II TOOLS

Models :

350M2	(F/N *183636)	Bone Trimmer
360M2	(F/N *183637)	Bone Trimmer
440M2	(F/N *183862)	Bone Trimmer
500M2	(F/N *183513)	Bone Trimmer
500MA2	(F/N *183514)	Bone Trimmer
505M2	(F/N *183515)	Defatting Machine
564M2	(F/N *183943)	Bone Trimmer
620M2	(F/N *183290)	Bone Trimmer
620MA2	(F/N *183291)	Bone Trimmer
625M2	(F/N *183292)	Defatting Machine
350M2 Poultry TrimVac®	(F/N *188200)	Vacuum Trimmer

MANUAL #183371
Issued : November 9, 2000
TMC# 763

Information in this document is subject to change without notice.

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 Infomation 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.

ISO 9001

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SECTION 1.0 Machine Specifications

Whizard® Modular Series II 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 Instructions and Spare Parts List covers the following models :

Model	Main Application
350M2	Bone Trimmer
360M2	Bone Trimmer
440M2	Bone Trimmer
500M2	Bone Trimmer
500MA2	Bone Trimmer
505M2	Defatting Machine
564M2	Bone Trimmer
620M2	Bone Trimmer
620MA2	Bone Trimmer
625M2	Defatting Machine
350M2 Poultry TrimVac®	Vacuum Trimmer

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.

WARNING

THE MANUFACTURER ASSUMES NO LIABILITY FOR ANY UNAUTHORIZED DESIGN CHANGES, MODIFICATION, OR USE OF PARTS NOT SUPPLIED BY THE MANUFACTURER
OR
THE USE OF PARTS NOT DESIGNED FOR USE ON THIS SPECIFIC MODEL, AND INCLUDES CHANGES IN OPERATING PROCEDURES MADE BY THE OWNER OR ANY OF HIS PERSONNEL.

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

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 350M2 / 360M2

BEEF
- Cartilage Removal
- Liver Spotting
- Bone Trimming
- Strip Intestine

PORK
- Button Bones
- Bone Trimming
- Spotting Livers / Removing Gall Sacks

POULTRY
- Turkey Breast
- Turkey Necks
- Chicken Backs
- Turkey Thighs
- Turkey Cage
- Oil Sacks

Model 440M2

POULTRY
- Chicken Wing Drop
- Chicken Thigh Deboning
- Turkey Thigh/Knuckle Deboning

Model 500M2/500MA2

POULTRY
- Turkey Thigh Knuckles

INDUSTRIAL
- Foam Industry

PORK KILL
- Trim Pork Snouts
- Trim Pork Trachea
- Trim Pork Heads

PORK CUT
- Remove Lean from Neck Bones of Heavy Hogs
- Remove Tails from Heavy Hogs
- Removing 99% Picnic Muscle from Bellies
- Removing Pork Tenderloins

Model 505M2

POULTRY
- Turkey Thigh Trim

BEEF BONING/FABRICATION
- Removing Lean from Fat Generated in Fabrication

2.2 Recommended Operations (Continued)

Model 564M2

PORK KILL
- Remove Tenderloin
- Mark Tenderloin

Model 620M2/620MA2

BEEF KILL/OFFAL
- Removing Lean from Heads
- De-Veining Livers

POULTRY
- Removing Lean from Turkey Carcasses
- Removing Lean from Turkey Necks
- Removing Oil Sacks

PORK KILL/OFFAL
- Removing Eyelids
- Cleaning Stick Wounds
- Removing Eardrums
- Removing Lean from Heads
- Spotting Livers / Removing Gall Sacks

BEEF BONING / FABRICATION
- Removing Lean from Bones, Especially:
  - Neck Bones - Atlas Bones
  - Chine Bones from Strips or Rib Eyes
  - Pelvic Bones / Aitch Bones
  - Rib Cages
  - Blade Bones
  - Strip Bones
  - Feather Bones

PORK CUT
- Trimming Neck Bones
- Removing Lean from Bones
- Removing Tails

Model 625M2

BEEF
- Upgrading Retrim

POULTRY
- Fat Trimming of Turkey Thighs
- Trimming of Turkey Skins

PORK
- Fat Trimming of Pork Loins

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


WARNING

SHARP BLADES MAY CAUSE CUT INJURY!

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 :


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. METAL MESH GLOVES ARE RECOMMENDED FOR THE FREE HAND.

3.2 Safety Recommendations And Warnings (Continued)


WARNING

KEEP HANDS AWAY FROM MOVING BLADE!

WARNING

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 FLEXSHAFT CASING. NEVER PLACE THE HANDPIECE IN THE HANGER WHILE THE BLADE IS STILL ROTATING!

WARNING

ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEXSHAFT CASING PRIOR TO SERVICING.

WARNING

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.

WARNING

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.

3.2 Safety Recommendations And Warnings (Continued)

WARNING

LONG 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.

WARNING

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.

WARNING

AVOID USE OF THIS MACHINE IN STANDING WATER.

WARNING

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.

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 – XX-Small, X-Small, Small, Medium, and Large Handle sizes are available to help improve operator grip ability and comfort. Fitting the correct size handle to the grip of the worker's hand is a very important step when trying to reduce exposure to some risk factors associated with cumulative trauma disorders. The Modular Series II Whizard® tools have been manufactured in both right and left handed configurations, with or without flanges.

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. This is beneficial to the operator to reduce exposure to mechanical stresses. The strap can not be used with 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^2

No negative side effects have been reported.

SECTION 6.0 Unpacking

6.1 Safety First


WARNING

SHARP BLADES MAY CAUSE CUT INJURY!
UNPACK THE WHIZARD® TRIMMER CAREFULLY.

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.
100641	Whizard® Special Steel	1
100655	Special Stone For Sharpening	1
113415	Grease Gun (Foreign)	1
100608	8 oz. Tube of Special Whizard® Grease (Foreign)	1
143631	14 oz. Cartridge of Special Whizard® Grease (Domestic)	1
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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 Instructions 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:

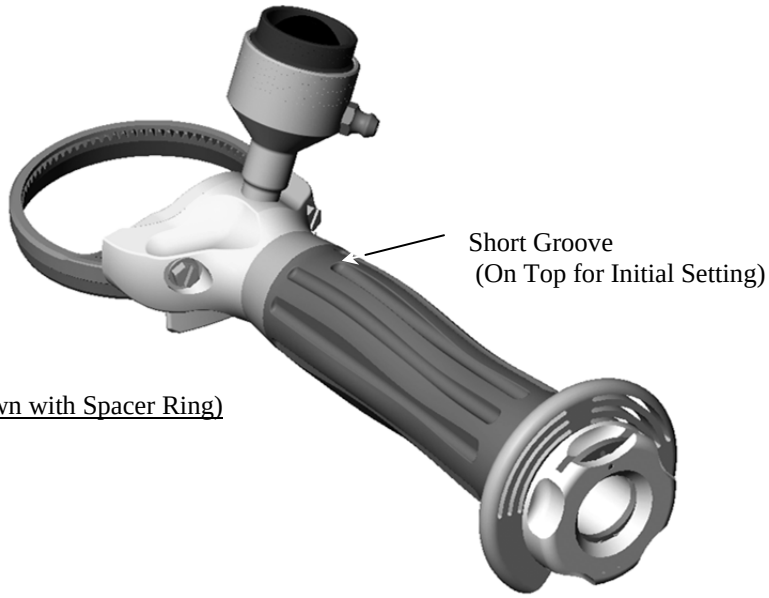
STEP 1 - Assemble five (5) knives each with a different size handle. (See Section 8.2 for complete assembly instructions).

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 all the gloves used in normal operation.

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, allow the operator to try a different size.

8.1 Optional Thumb Support And Handle Size Selection (Continued)



Model 500M2 (Shown with Spacer Ring)

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)

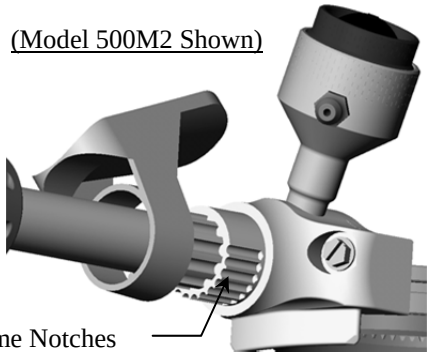
WARNING

SHARP BLADES MAY CAUSE CUT INJURY!

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

(Model 500M2 Shown)

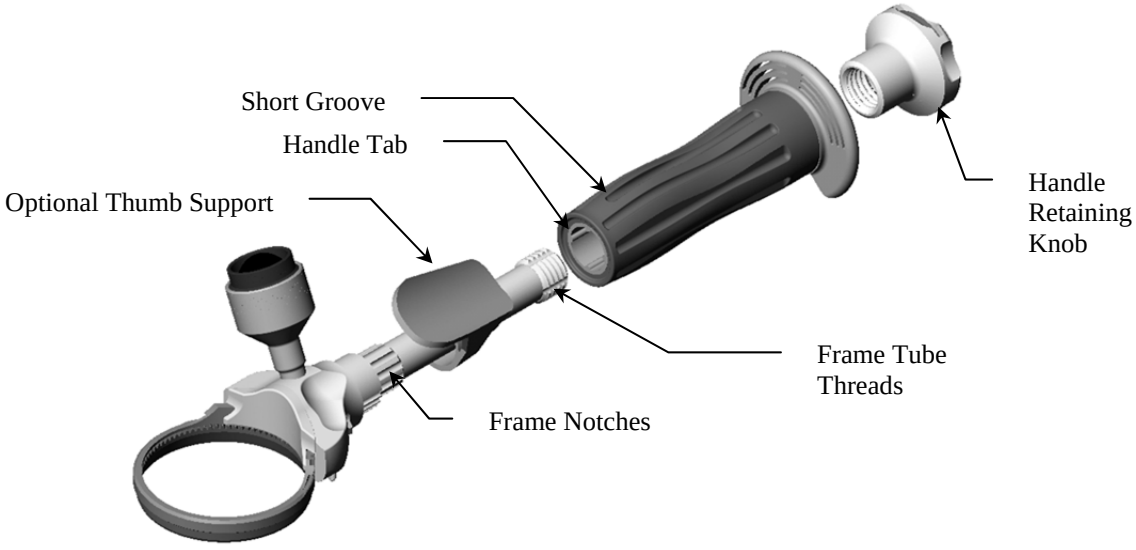


STEP 2

- 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.

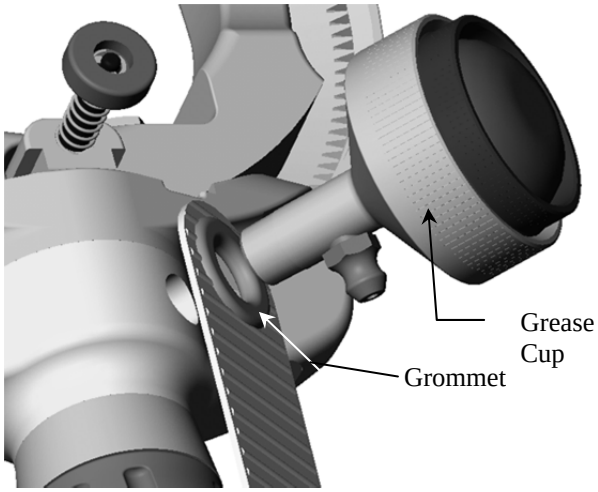


8.2 Handle - Assembly And Adjustment (Continued)

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, which can be beneficial and may reduce risks associated with stress. The hand strap can not be used with 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.

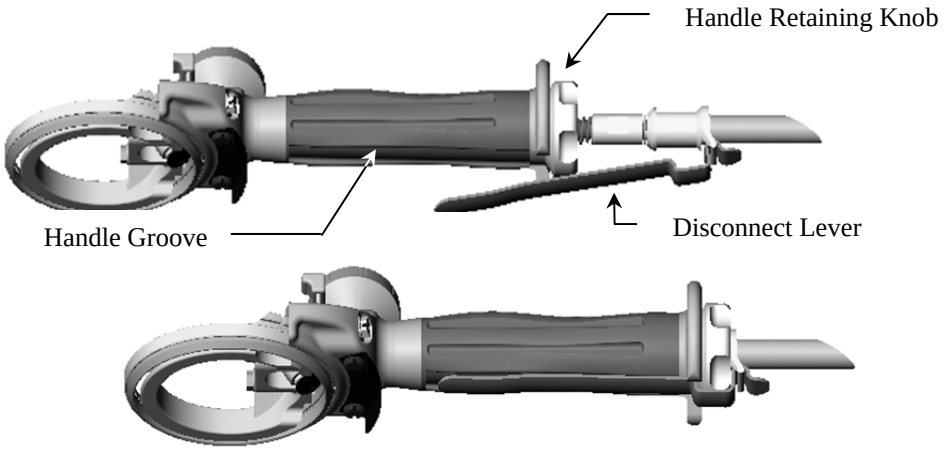
An optional secondary strap has been provided with your Modular Series II Whizard® tool. To install the secondary strap :

- 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.



WARNING

SHARP BLADES MAY CAUSE CUT INJURY!
NEVER LAY THE HANDPIECE DOWN ON THE STATION OR LET IT HANG BY THE FLEXSHAFT CASING.

ALWAYS TURN OFF AND PLACE THE HANDPIECE IN THE HANGER BRACKET.

NEVER PLACE THE HANDPIECE IN THE HANGER WHILE THE BLADE IS STILL ROTATING.

8.2 Handle - Assembly And Adjustment (Continued)

WARNING

SHARP BLADES MAY CAUSE CUT INJURY!
WHILE WEARING A PROTECTIVE GLOVE, ALWAYS CHECK TO ENSURE THAT THE BLADE IS FREE TO ROTATE IN THE MACHINE PRIOR TO STARTING. IF THE BLADE DOES NOT ROTATE, IT MAY CAUSE THE HANDPIECE TO ROTATE IN THE HAND.

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 flexshaft 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 MEETS THE STANDARDS REQUIRED OF PREVIOUSLY APPROVED H-1 LUBRICANTS 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 Procedures


WARNING

SHARP BLADES MAY CAUSE CUT INJURY!
NEVER HOLD THE PRODUCT BEING TRIMMED IN YOUR HAND.
ALWAYS LAY THE PRODUCT FLAT ON THE WORK SURFACE.

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 Procedures (Continued)

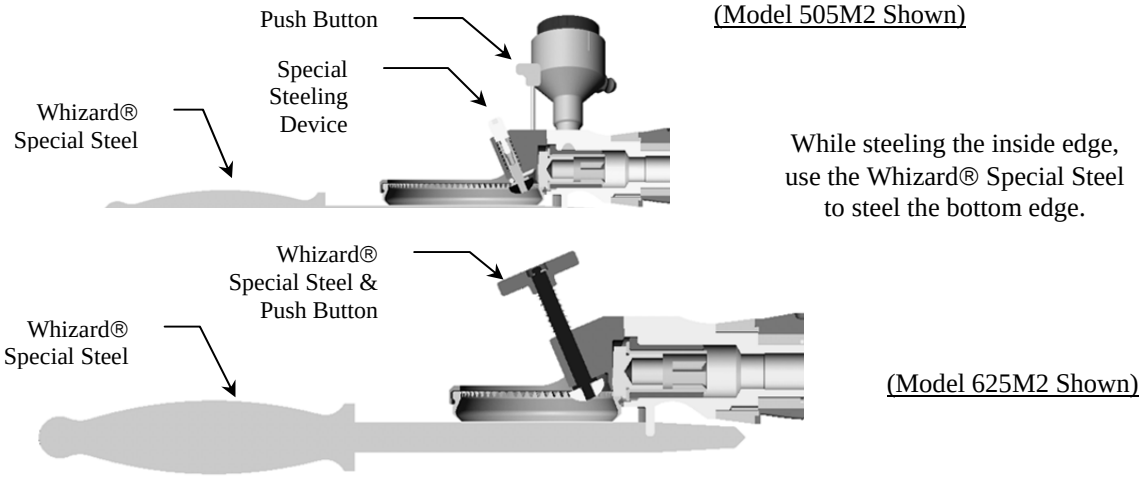
WARNING

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. ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEXSHAFT CASING PRIOR TO SERVICING.

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

Steeling For Models 505M2 and 625M2:

- 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 :
- 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.



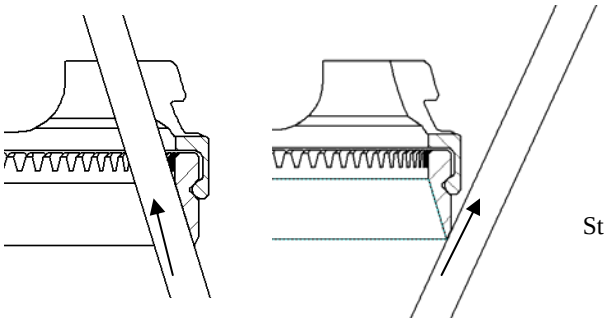
8.3 Operating Procedures (Continued)

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.
ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEXSHAFT CASING PRIOR TO SERVICING.

Steeling For Models 350M2/360M2/440M2/500M2/500MA2/564M2/620M2/620MA2
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 resharpening 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.

Steeling can be accomplished with much greater consistency with the use of the specially designed Whizard® EdgeMaster™ Steels. For more information contact your Sales Representative at Bettcher Industries.

Replace or sharpen the blade (see Section 9.3 for complete instructions) if this procedure does not improve the cutting action. Blade running time can be extended with the use of Bettcher® EZ Edge sharpeners. The Bettcher® EZ Edge allows the operator to sharpen a blade at the work station.

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

8.3 Operating Procedure (Continued)


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.

ALWAYS DISCONNECT THE POWER AND REMOVE THE TOOL FROM THE FLEXSHAFT CASING PRIOR TO SERVICING.

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 500M2/500MA2 and 505M2 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.

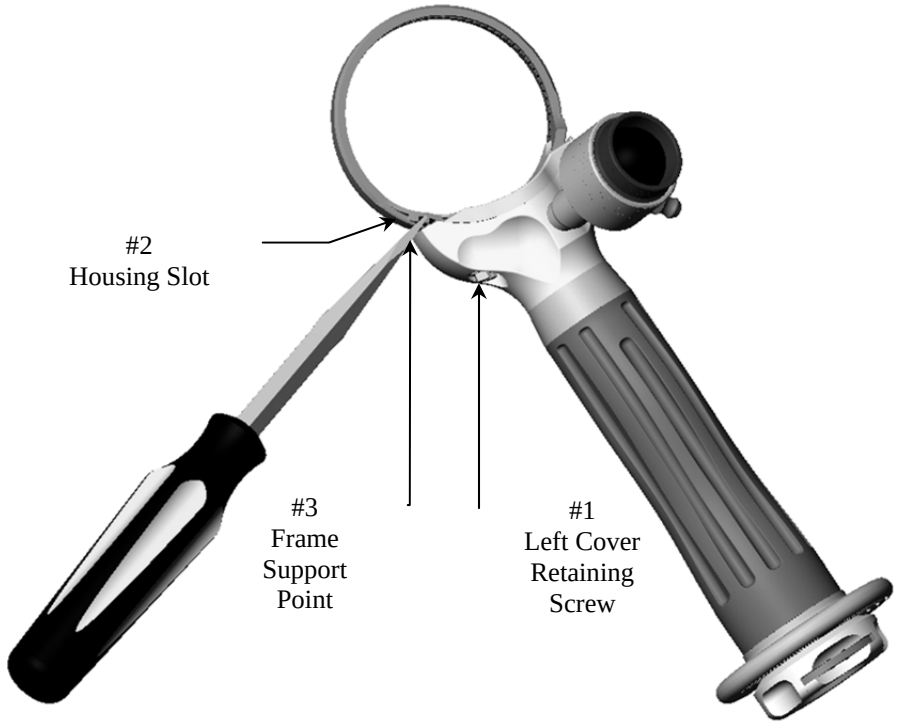
NOTE:
Leave a slight tension on the left cover screw
so the blade housing will stay open on its own.

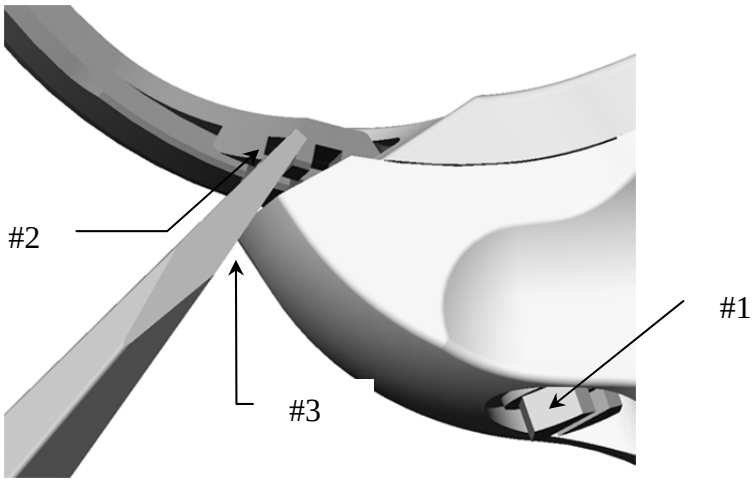
- Insert a new blade in the housing.
- Loosen the left cover screw so the housing will close.
- Adjust the housing for proper running clearance. The blade should turn freely with a slight side-to-side motion. This leaves room for the grease.
- **BE CERTAIN THAT THE BLADE IS FREE TO ROTATE IN THE HOUSING. 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 flexshaft casing worn	Replace casing
	No lubrication on flexshaft or casing	Clean flexshaft 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 flexshaft, you should be able to rotate the blade freely by hand.

8.4 Fault Detection And Correction

PROBLEM	PROBABLE CAUSE	REMEDY
Rapid Flexshaft Wear or Breakage	Improper cleaning and lubrication of flexshaft and casing	Refer to Section 9.2
	Mechanical bind in handpiece	With handpiece removed from flexshaft, blade should rotate freely by hand. Correct any mechanical bind
	Motor not installed at proper height or location	Install per instructions in motor manual
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
	Blade not steeled properly	See Section 8.3 for proper steeling
Optional Thumb Support Rotates	Anti-rotation rib has broken off	Replace
Spring Lost from Flexshaft Casing	Improper Assembly	Refer to note in section 11.5 flexshaft and casing of service parts list for assembly instructions
Blade Skips or Will Not Rotate	Handpiece bearing too tight	Check/Replace bearing
	Casing not fully engaged or inserted	Make sure the casing is fully inserted to the drive position. Refer to Section 8.2 for proper installation.
	Flexshaft worn	Replace shaft
	Motor Adapter worn	Replace adapter
	Loose ferrule on shaft	Replace shaft

SECTION 9.0 Maintenance

9.1 Disassembly of Handpiece

WARNING

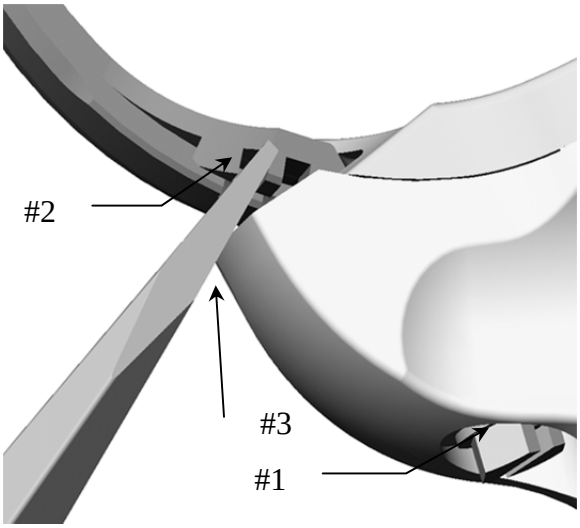
SHARP BLADES MAY CAUSE CUT INJURY!
FOR PROPER PROTECTION OF HANDS, A PROTECTIVE GLOVE SHOULD BE USED WHEN OPERATING THIS EQUIPMENT AND DURING THE HANDLING OF BLADES.

ALWAYS DISCONNECT POWER AND REMOVE TOOL FROM FLEXSHAFT CASING PRIOR TO SERVICING.

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

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 your other hand, insert the screwdriver in the housing slot (Item #2). Note: The 500M2/500MA2/505M2 tools have two slots in the housing. Using the frame as the support point (Item #3), spread open the housing. The blade can now be removed.



Unscrew the grease cup.

Remove the handle retaining knob by turning counterclockwise.

Removal of the Handle from the Tool :

- 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.

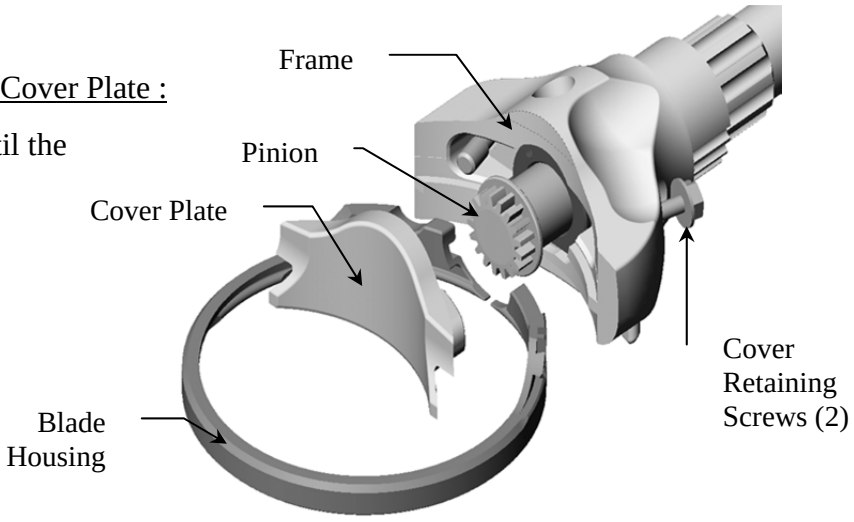
9.1 Disassembly Of Handpiece (Continued)

Removal Of The Blade Housing And Cover Plate :

- Loosen cover retaining screws until the cover is free.

NOTE:
The screws will stay in the frame.

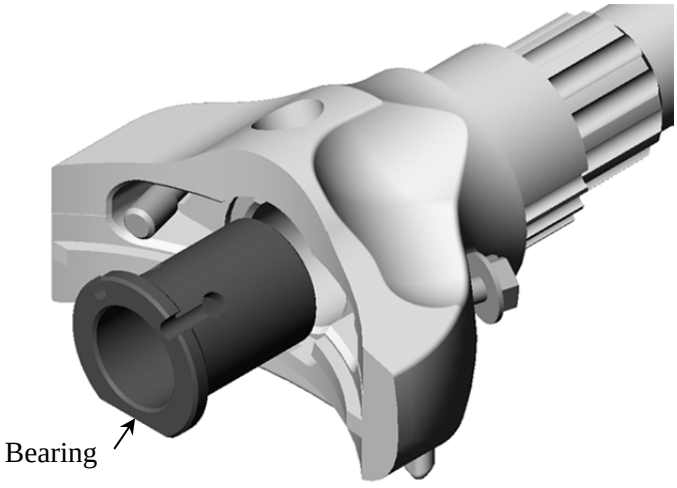
- Remove the blade housing.
- Pull the pinion out of the frame.



(Model 500M2 Shown)

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.



(Model 500M2 Shown)

The handpiece is now completely disassembled.

9.2 Daily Inspections & Maintenance


WARNING


SHARP BLADES MAY CAUSE CUT INJURY!
ALWAYS DISCONNECT POWER AND REMOVE THE TOOL FROM THE FLEXSHAFT CASING PRIOR TO SERVICING.

See Disassembly And Reassembly of Handpiece


WARNING

SHARP BLADES MAY CAUSE CUT INJURY!
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.

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


WARNING


SHARP BLADES MAY CAUSE CUT INJURY!
DO NOT ADJUST HANDLE OR THUMB SUPPORT WITH THE TRIMMER RUNNING, OR WITH BLADE INSTALLED.

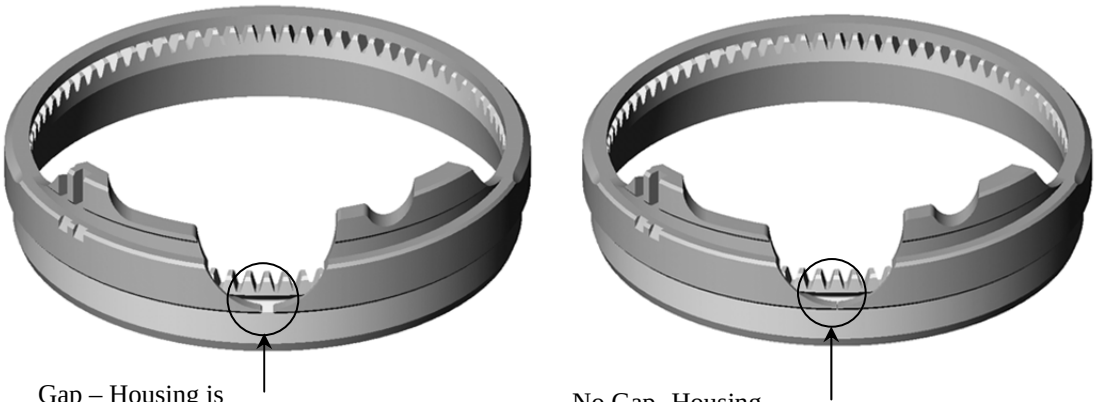
Blade

- Check for worn or chipped teeth.
- Check for damage to the cutting edge.

9.2 Daily Inspections & Maintenance (Continued)

Blade Housing Wear

- 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.



Gap – Housing is Acceptable

No Gap -Housing is **Not** Acceptable

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.

9.2 Daily Inspections & Maintenance (Continued)

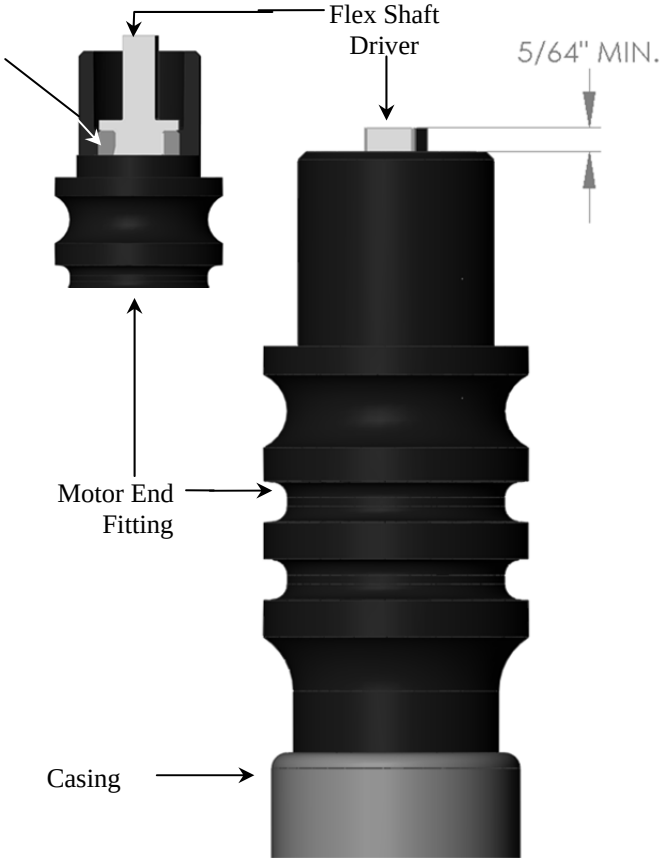
Hand Strap
- Inspect the strap for hardening and cracks.
- If any fibers, cuts, or cracks are showing, the strap should be replaced.

Handle Retaining 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 - (For Models 505M2 and 625M2 Only)
- 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.

Flexshaft And Casing
- Inspect the casing for any cracks, tears, or other wear. If any damage is found, replace the casing.
- Remove the flexshaft from the casing and check for any flexshaft damage, such as broken wires or kinking. If any damage is detected, replace the flexshaft.
- Reinsert the flexshaft into the casing, making certain the flange of the flexshaft 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.

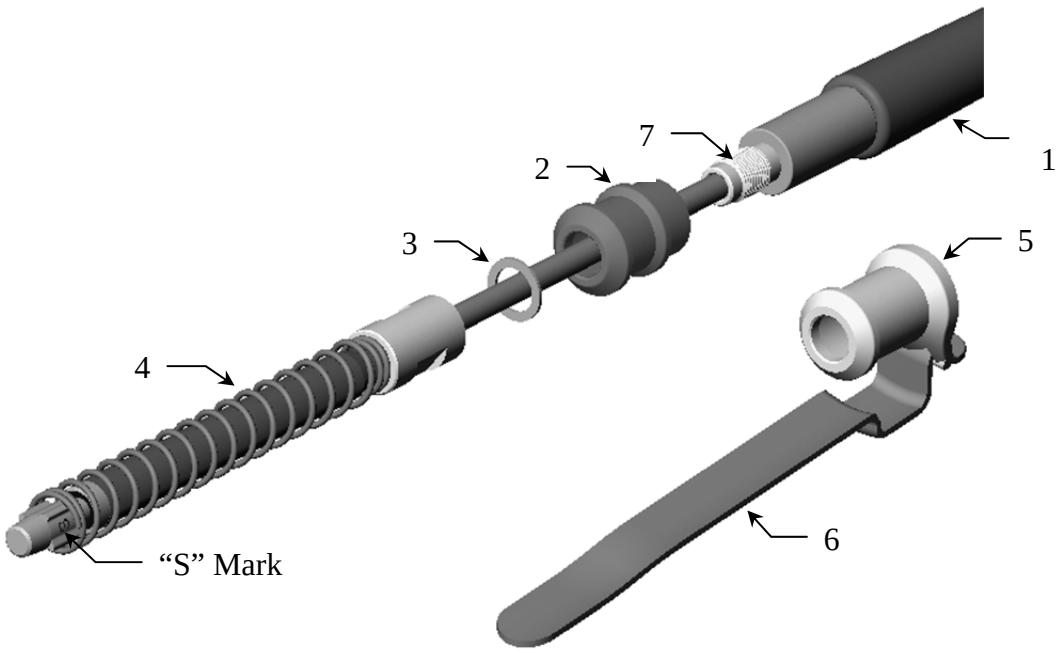


9.2 Daily Inspections & Maintenance (Continued)

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 (#7) of the new casing assembly and apply Loctite #242 Threadlocker or equivalent.
- Verify the driver is marked "S" for small. 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.

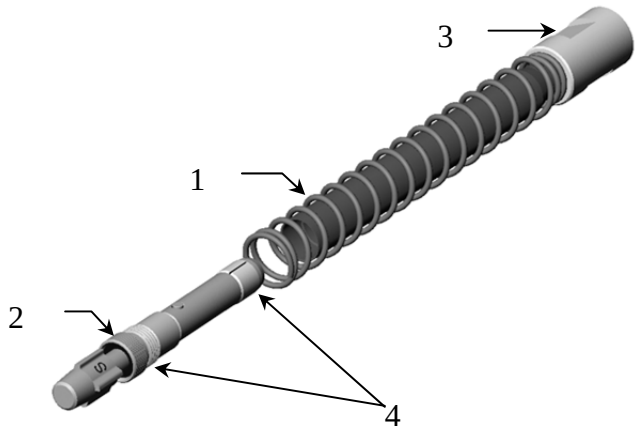
9.2 Daily Inspections & Maintenance (Continued)

Drive End Assembly Inspection And Replacement

Removal of the driver assembly

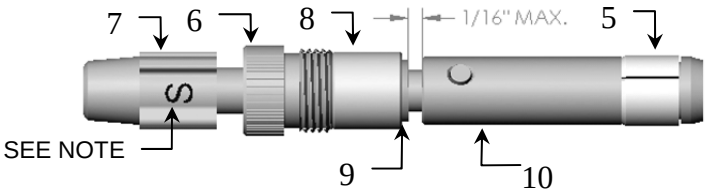
- With one hand, pull the spring (#1) back to expose the knurled cap (#2) at the end of the tube.
- Using the other hand, grip the knurled cap (#2) with a pair of pliers.
- Using a 7/16" open end wrench, hold the flats on the drive end assembly (#3) and turn the knurled cap (#2) counterclockwise.
- Unscrew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

NOTE: The driver assembly for small diameter flexshafts is marked with an "S"

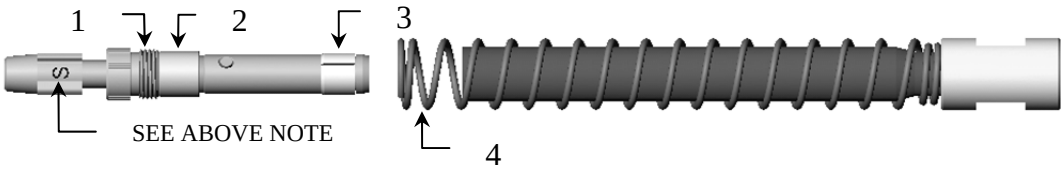
9.2 Daily Inspections & Maintenance (Continued)

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.

NOTE: The driver assembly for small diameter flexshafts is marked with an "S"



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

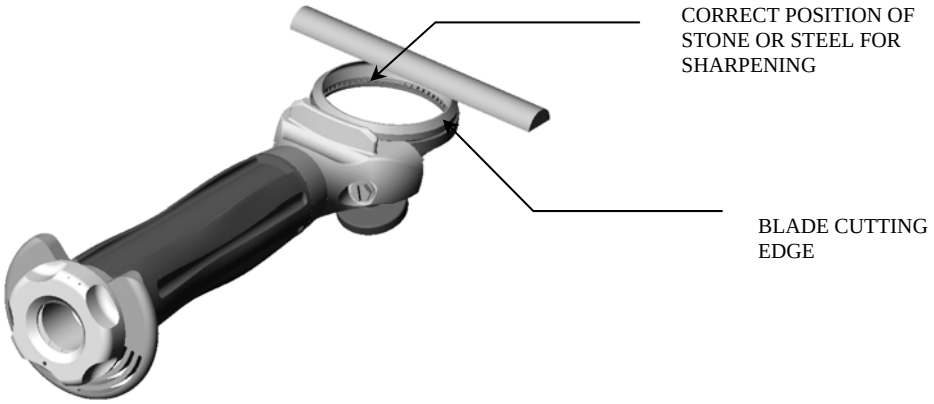
WARNING

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 360M2, 505M2 and 625M2 Only

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

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.

WARNING

INSPECTION OF ALL PARTS FOR EXCESSIVE WEAR IS CRITICAL TO ENSURE PROPER AND SAFE OPERATION. VIBRATION OR LOCK-UP MAY OCCUR AS A RESULT OF THE USE OF EXCESSIVELY WORN PARTS.

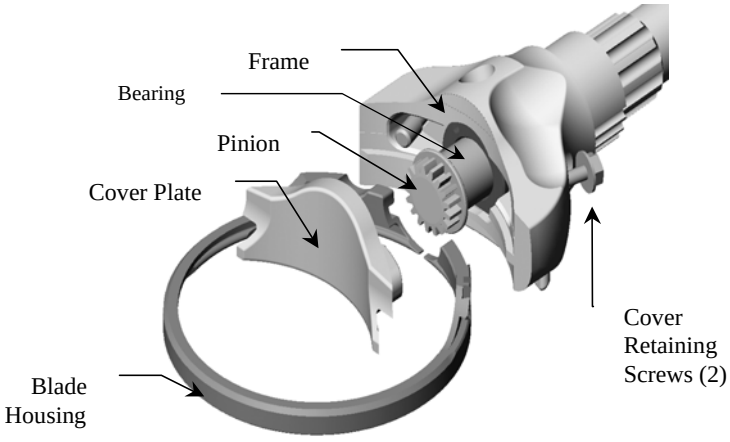
Prior to assembly, be sure all parts are clean and have been inspected for wear per Section 9.2.

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.

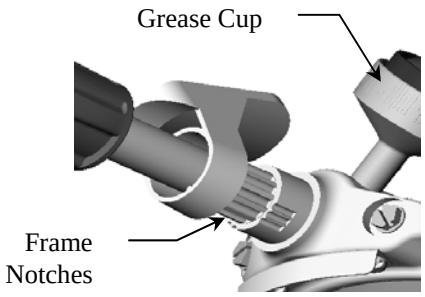


(Model 500M2 Shown)

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.

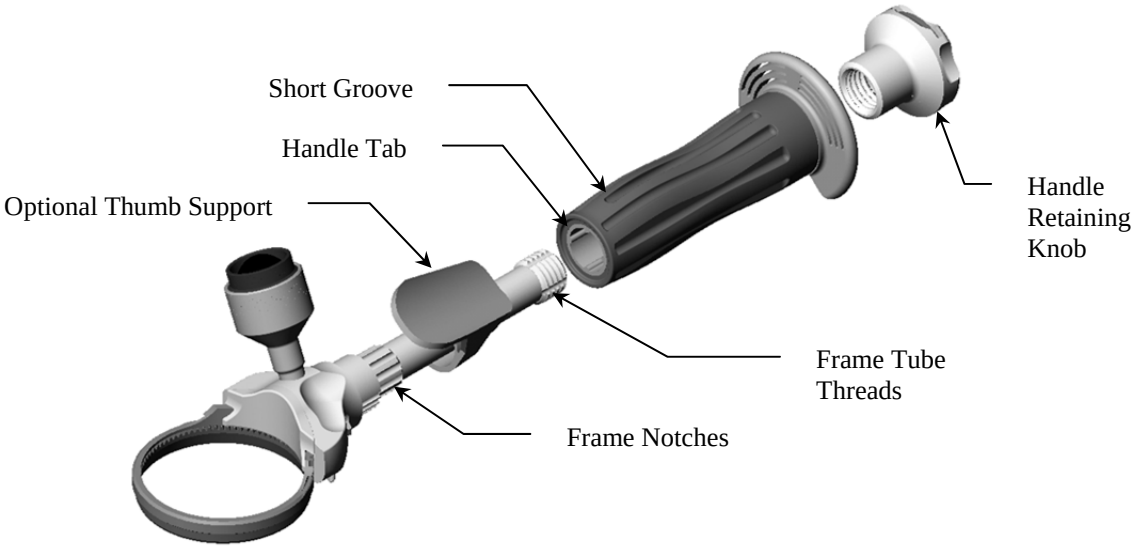
9.4 Assembly of Handpiece (Continued)



- 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.

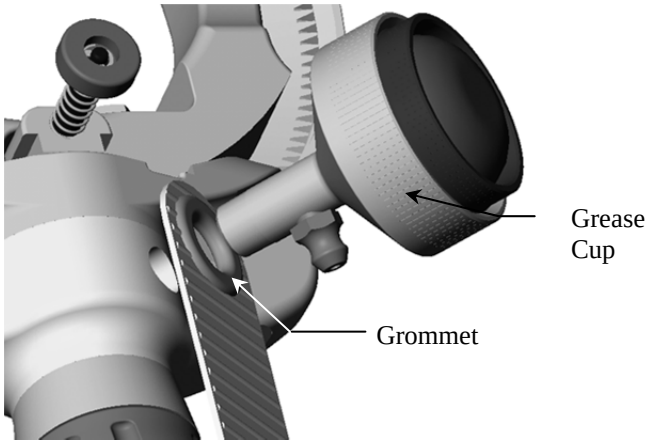
- Screw on the handle retaining knob.
- Tighten firmly but take care not to overtighten or the handle will be damaged.



9.4 Assembly of Handpiece (Continued)

Installation of the Hand Strap and Grease Cup

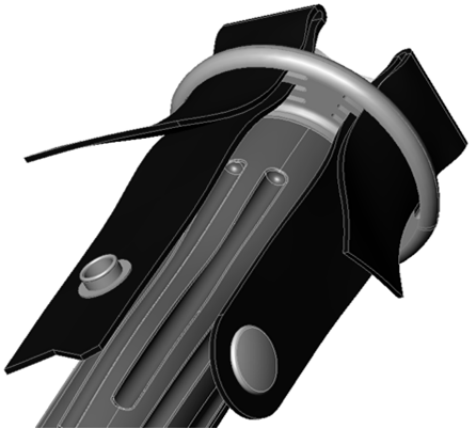
- Push the threaded end of the grease cup through the round grommet end of the strap. Be sure that the ribbed surface of the strap is on top as shown.
- Reinstall the grease cup.



- 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 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 TURN 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 flexshaft 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.

Flexshafts - 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 a generous amount of WhizLube on the shaft prior to re-insertion in the casing.

CAUTION

DO NOT USE HYDROCARBON SOLVENTS ON OR IN THE CASING AS THESE WILL CAUSE CASING TO SHRINK IN LENGTH AND BECOME BRITTLE.

SECTION 10.0 Cleaning

CAUTION

CASINGS, FLEXSHAFTS, 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.

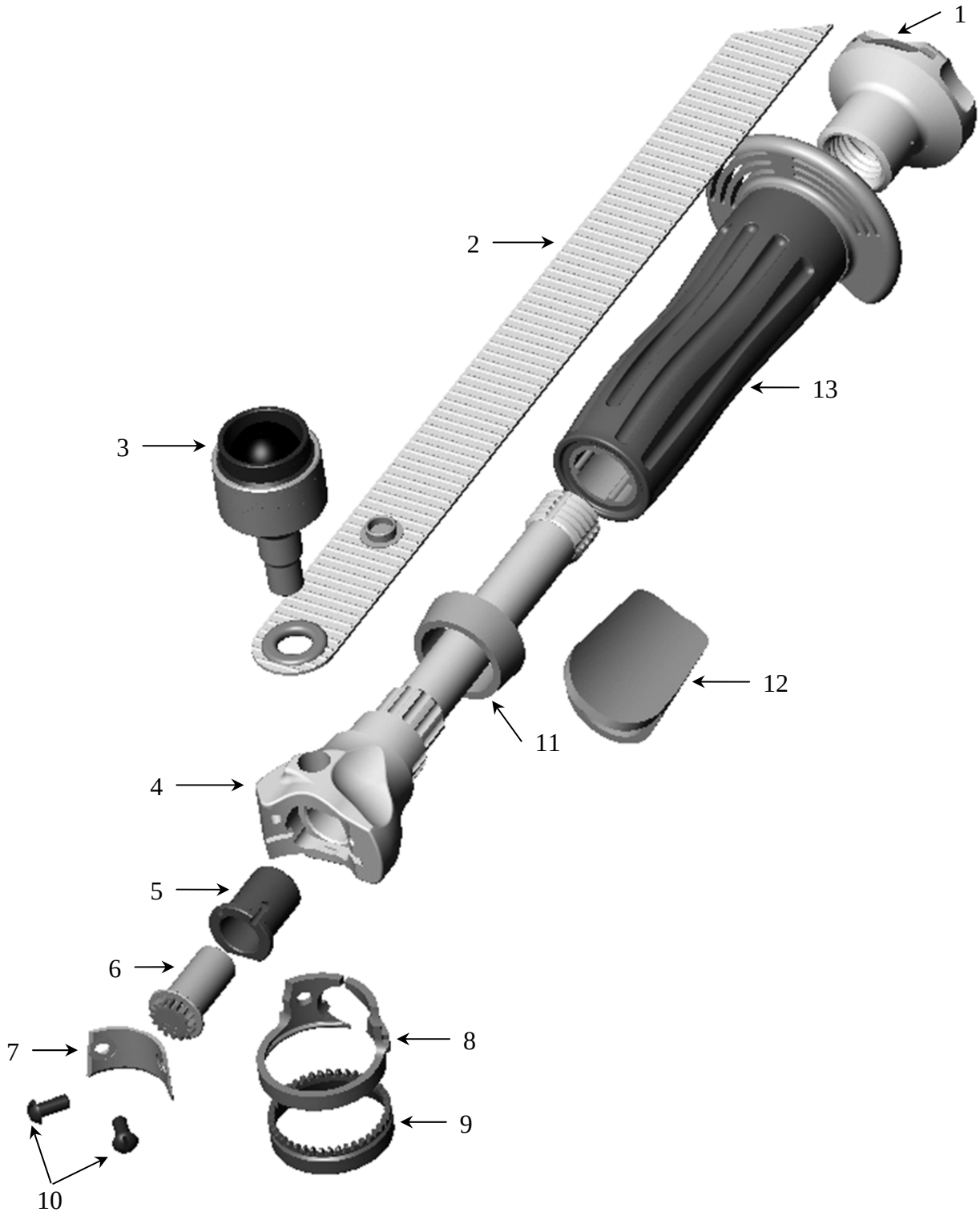
10.3 Cleaning Solutions

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

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.

SECTION 11.0 Spare Parts List

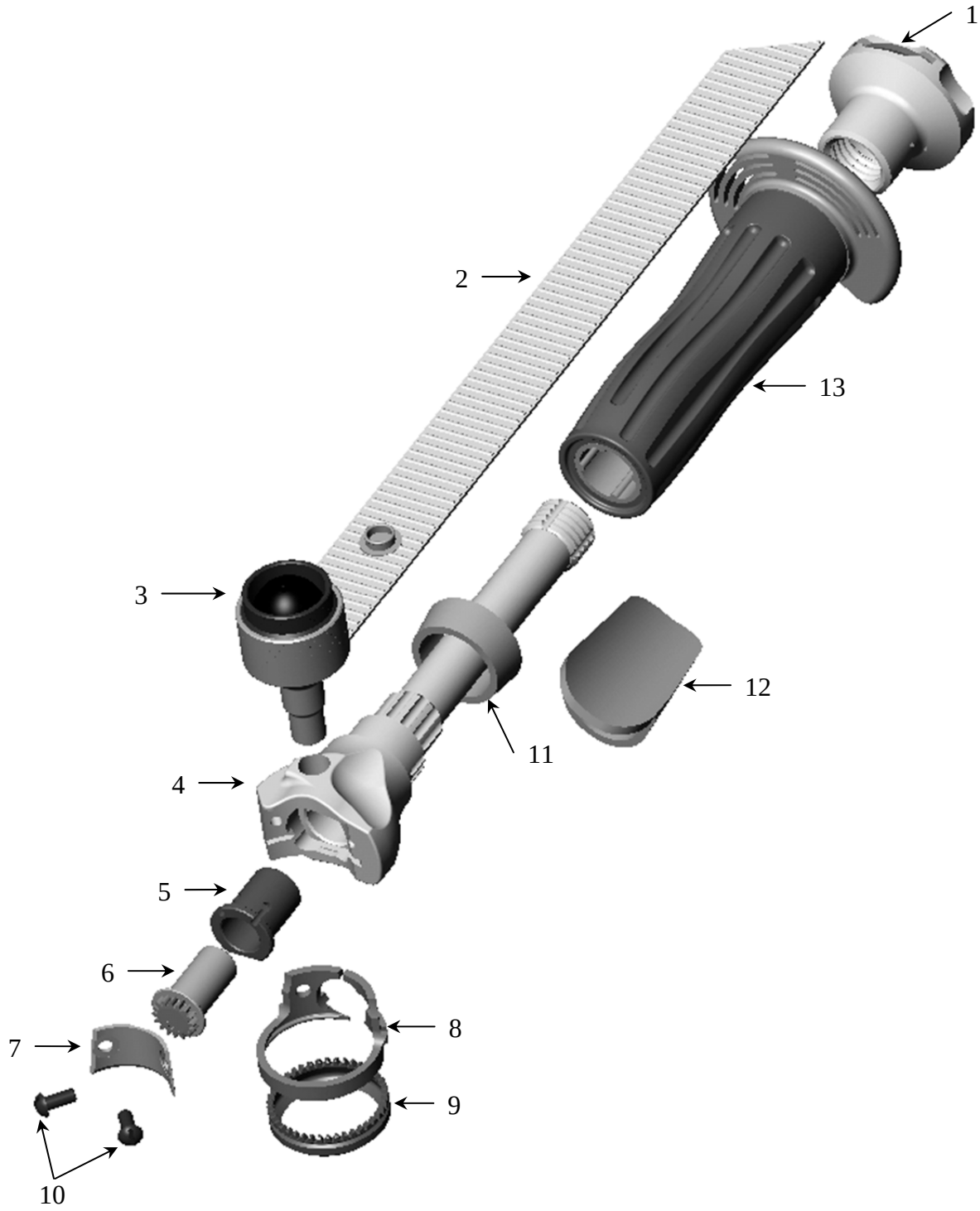
11.1 Head Assembly – 350M2



11.1 Head Assembly – 350M2

ITEM	DESCRIPTION	350M2 RH		350M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183673	184500	183678	184501
	X-Small	183674	184502	183679	184503
	Small	183675	184504	183680	184505
	Medium	183676	184506	183681	184507
	Large	183677	184508	183682	184509
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183663	184726	183668	184727
	X-Small	183664	184728	183669	184729
	Small	183665	184730	183670	184731
	Medium	183666	184732	183671	184733
	Large	183667	184734	183672	184735
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183639		183640	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183643		183644	
5	Bearing	183060		183060	
6	Pinion	183651		183651	
7	Cover	183648		183648	
8	Blade Housing	183645		183645	
9	Blade	183646		183646	
10	Cover Retaining Screw (2 required)	183703		183703	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

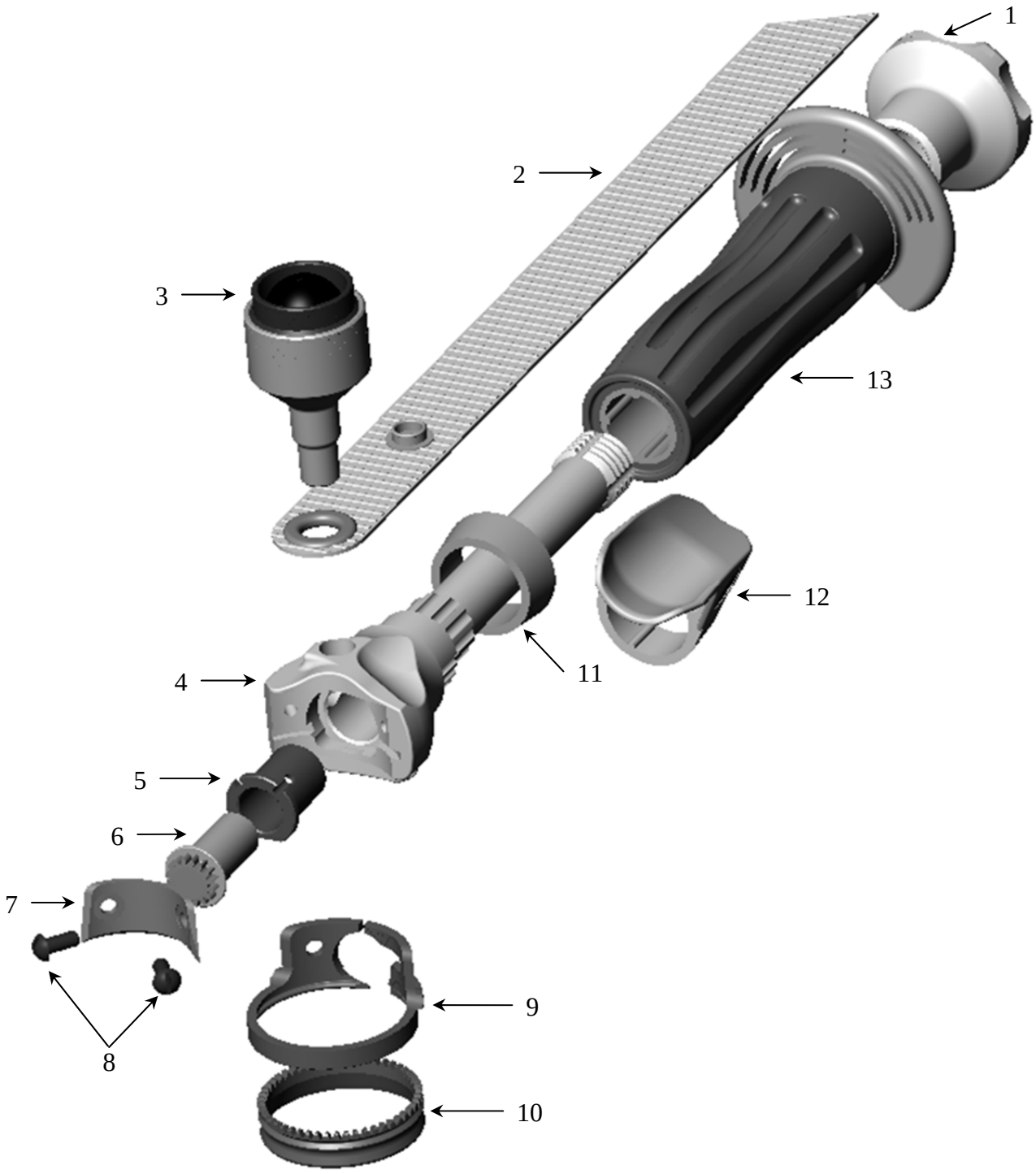
11.2 Head Assembly – 360M2



11.2 Head Assembly – 360M2

ITEM	DESCRIPTION	360M2 RH		360M2 LH	
		Flanged	Flangless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183693	184510	183698	184511
	X-Small	183694	184512	183699	184513
	Small	183695	184514	183700	184515
	Medium	183696	184516	183701	184517
	Large	183697	184518	183702	184519
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183683	184736	183688	184737
	X-Small	183684	184738	183689	184739
	Small	183685	184740	183690	184741
	Medium	183686	184742	183691	184743
	Large	183687	184744	183692	184745
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183641		183642	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183643		183644	
5	Bearing	183060		183060	
6	Pinion	183651		183651	
7	Cover	183648		183648	
8	Blade Housing	183645		183645	
9	Blade	183647		183647	
10	Cover Retaining Screw (2 required)	183703		183703	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

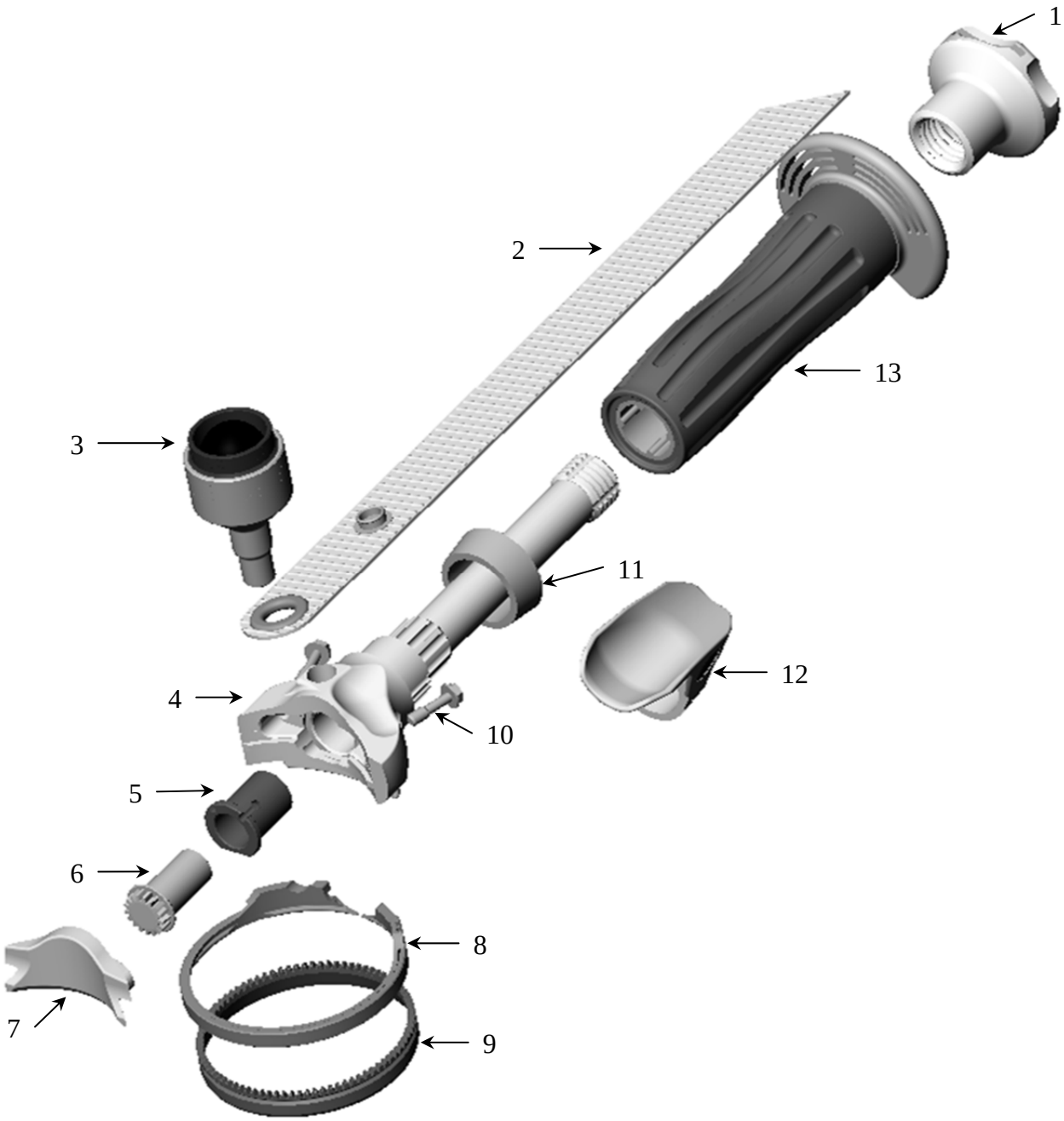
11.3 Head Assembly – 440M2



11.3 Head Assembly – 440M2

ITEM	DESCRIPTION	440M2 RH		440M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 15)					
	XX-Small	183881	184680	183886	184681
	X-Small	183882	184682	183887	184683
	Small	183883	184684	183888	184685
	Medium	183884	184686	183889	184687
	Large	183885	184688	183890	184689
Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 15)					
	XX-Small	183871	184906	183876	184907
	X-Small	183872	184908	183877	184909
	Small	183873	184910	183878	184911
	Medium	183874	184912	183879	184913
	Large	183875	184914	183880	184915
Head Assembly (Includes Items 3 - 10)		183864		183865	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183866		183867	
5	Bearing	183060		183060	
6	Pinion	183651		183651	
7	Cover	183870		183870	
8	Cover Retaining Screw (2 required)	183703		183703	
9	Blade Housing	183868		183868	
10	Blade	183869		183869	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

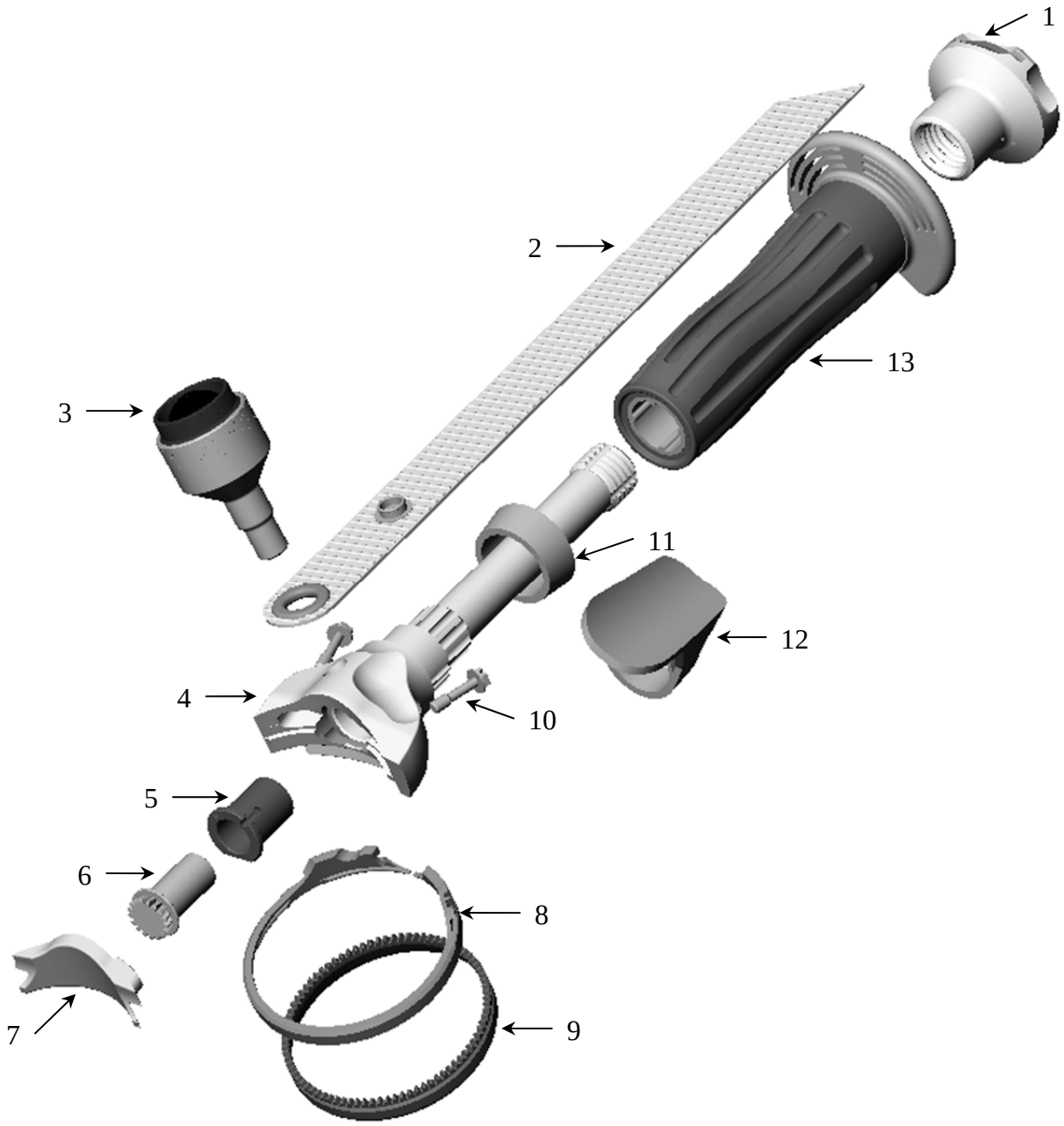
11.4 Head Assembly – 500M2



11.4 Head Assembly – 500M2

ITEM	DESCRIPTION	500M2 RH		500M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183609	184520	183610	184521
	X-Small	183524	184522	183528	184523
	Small	183525	184524	183529	184525
	Medium	183526	184526	183530	184527
	Large	183527	184528	183531	184529
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183607	184746	183608	184747
	X-Small	183516	184748	183520	184749
	Small	183517	184750	183521	184751
	Medium	183518	184752	183522	184753
	Large	183519	184754	183523	184755
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183565		183566	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183571		183572	
5	Bearing	183060		183060	
6	Pinion	183365		183365	
7	Cover	183579		183579	
8	Blade Housing	183575		183575	
9	Blade	183606		183606	
10	Cover Retaining Screw (2 required)	183376		183376	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

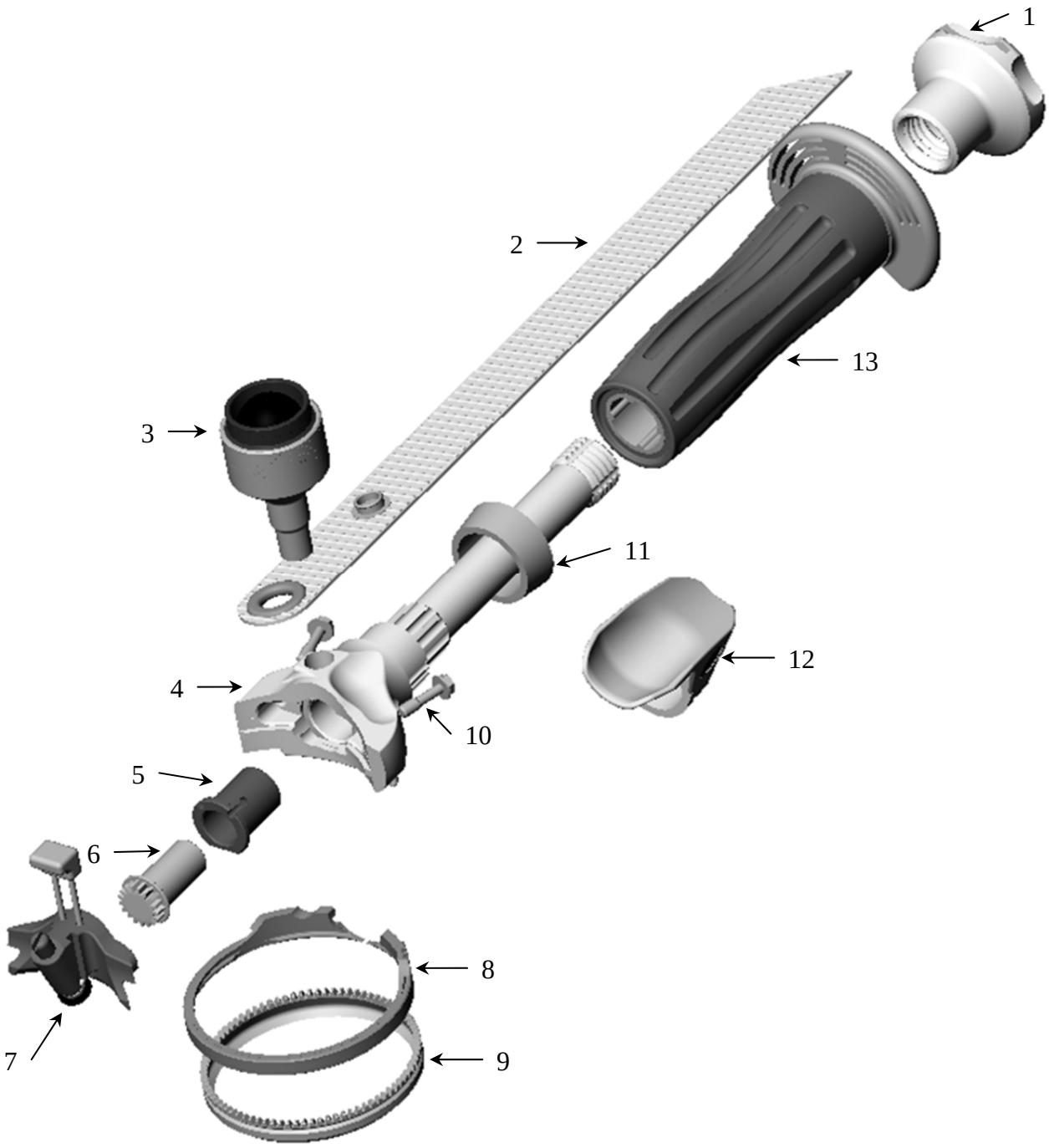
11.5 Head Assembly – 500MA2



11.5 Head Assembly – 500MA2

ITEM	DESCRIPTION	500MA2 RH		500MA2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183613	184530	183614	184531
	X-Small	183540	184532	183544	184533
	Small	183541	184534	183545	184535
	Medium	183542	184536	183546	184537
	Large	183543	184538	183547	184539
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183611	184756	183612	184757
	X-Small	183532	184758	183536	184759
	Small	183533	184760	183537	184761
	Medium	183534	184762	183538	184763
	Large	183535	184764	183539	184765
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183567		183568	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183573		183574	
5	Bearing	183060		183060	
6	Pinion	183367		183367	
7	Cover	183580		183580	
8	Blade Housing	183575		183575	
9	Blade	183606		183606	
10	Cover Retaining Screw (2 required)	183377		183377	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

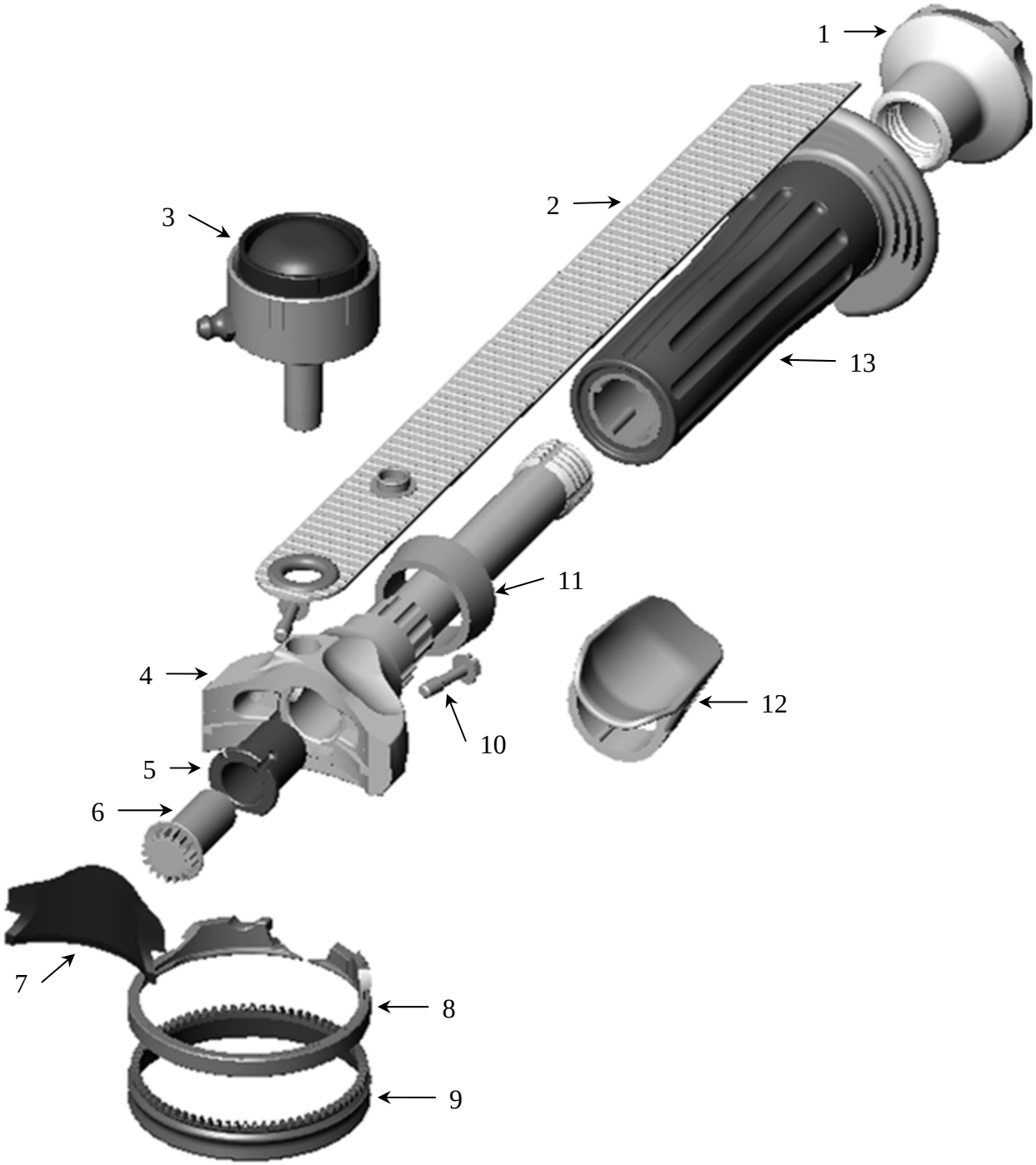
11.6 Head Assembly – 505M2



11.6 Head Assembly – 505M2

ITEM	DESCRIPTION	505M2 RH		505M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183617	184540	183618	184541
	X-Small	183556	184542	183560	184543
	Small	183557	184544	183561	184545
	Medium	183558	184546	183562	184547
	Large	183559	184548	183563	184549
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183615	184766	183616	184767
	X-Small	183548	184768	183552	184769
	Small	183549	184770	183553	184771
	Medium	183550	184772	183554	184773
	Large	183551	184774	183555	184775
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183569		183570	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183571		183572	
5	Bearing	183060		183060	
6	Pinion	183365		183365	
7	Cover with Special Steeling Device	183585		183585	
	Repair Kit for Steeling Device (Not Shown)	183655		183655	
8	Blade Housing	183575		183575	
9	Blade	183577		183577	
10	Cover Retaining Screw (2 required)	183376		183376	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

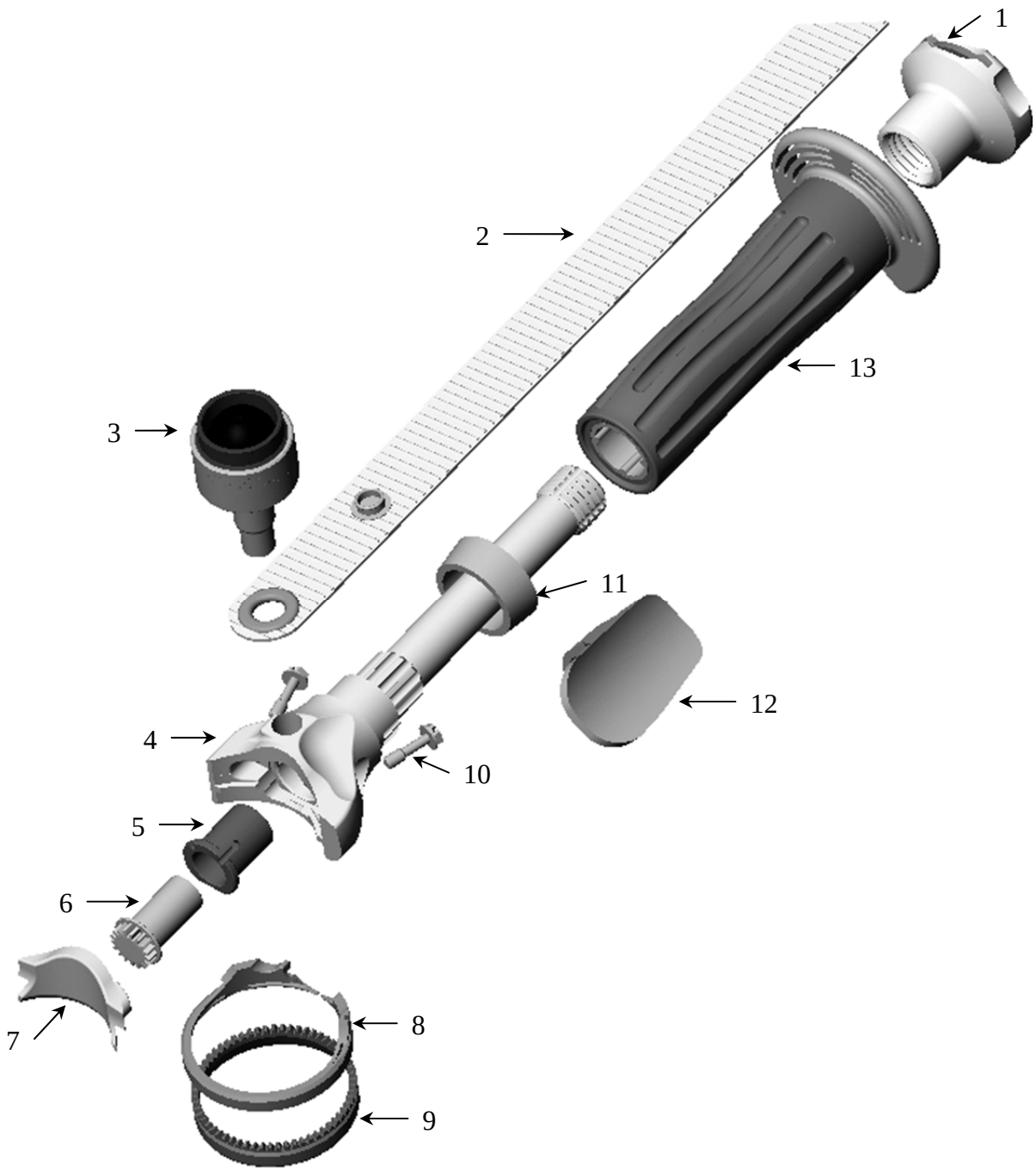
11.7 Head Assembly – 564M2



11.7 Head Assembly – 564M2

ITEM	DESCRIPTION	564M2 RH		564M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 13)					
	XX-Small	183952	184953	183957	184958
	X-Small	183953	184954	183958	184959
	Small	183954	184955	183959	184960
	Medium	183955	184956	183960	184961
	Large	183956	184957	183961	184962
Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2 (Flanged Only), 11, 12, 15)					
	XX-Small	183962	184963	183967	184968
	X-Small	183963	184964	183968	184969
	Small	183964	184965	183969	184970
	Medium	183965	184966	183970	184971
	Large	183966	184967	184952	184972
Head Assembly (Includes Items 3 - 10)		183945		183946	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183947		183948	
5	Bearing	183060		183060	
6	Pinion	183365		183365	
7	Cover	183951		183951	
8	Blade Housing	183949		183949	
9	Blade	183950		183950	
10	Cover Retaining Screw (2 required)	183376		183376	
11	Handle Spacer Ring	183120		183120	
	Handle Spacer Ring for XX-Small	163313		163313	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

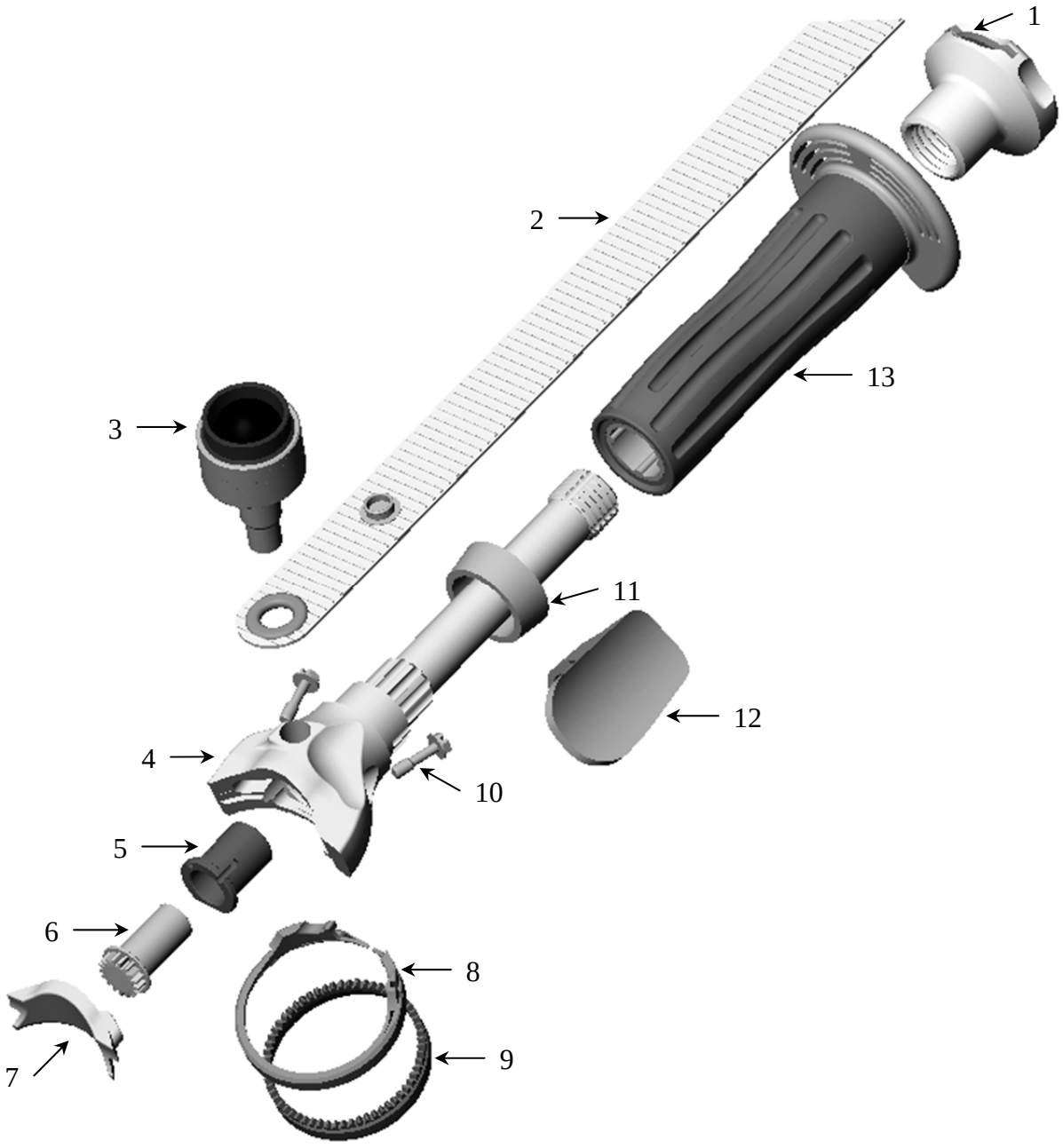
11.8 Head Assembly – 620M2



11.8 Head Assembly – 620M2

ITEM	DESCRIPTION	620M2 RH		620M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183595	184550	183596	184551
	X-Small	183301	184552	183305	184553
	Small	183302	184554	183306	184555
	Medium	183303	184556	183307	184557
	Large	183304	184558	183308	184559
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183593	184776	183594	184777
	X-Small	183293	184778	183297	184779
	Small	183294	184780	183298	184781
	Medium	183295	184782	183299	184783
	Large	183296	184784	183300	184785
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183342		183343	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183348		183349	
5	Bearing	183060		183060	
6	Pinion	183365		183365	
7	Cover	183356		183356	
8	Blade Housing	185606		185606	
9	Blade	183605		183605	
10	Cover Retaining Screw (2 required)	183376		183376	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

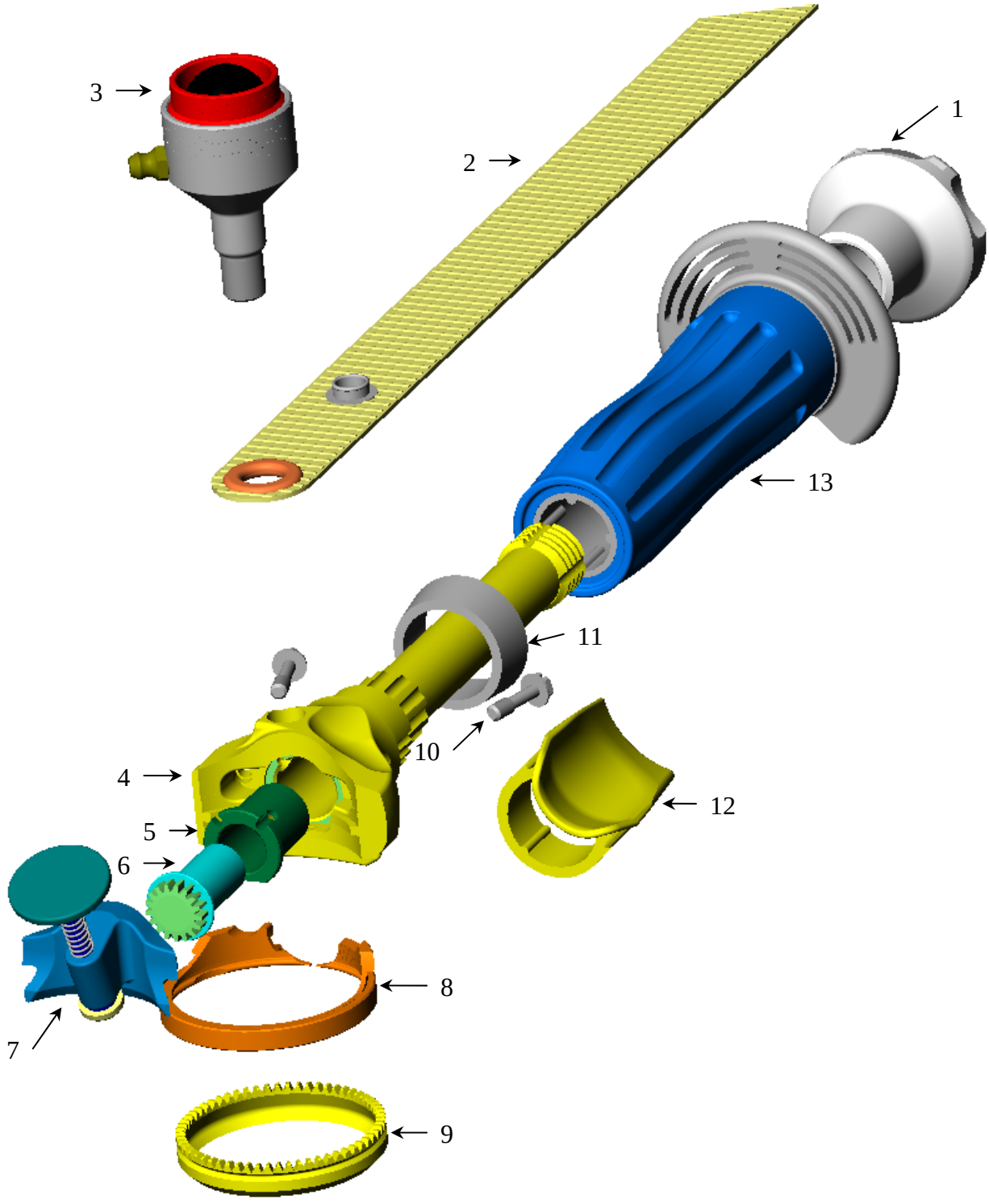
11.9 Head Assembly – 620MA2



11.9 Head Assembly – 620MA2

ITEM	DESCRIPTION	620MA2 RH		620MA2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183599	184560	183600	184561
	X-Small	183317	184562	183321	184563
	Small	183318	184564	183322	184565
	Medium	183319	184566	183323	184567
	Large	183320	184568	183324	184569
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183597	184786	183598	184787
	X-Small	183309	184788	183313	184789
	Small	183310	184790	183314	184791
	Medium	183311	184792	183315	184793
	Large	183312	184794	183316	184795
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183344		183345	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183350		183351	
5	Bearing	183060		183060	
6	Pinion	183367		183367	
7	Cover	183357		183357	
8	Blade Housing	185606		185606	
9	Blade	183605		183605	
10	Cover Retaining Screw (2 required)	183377		183377	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

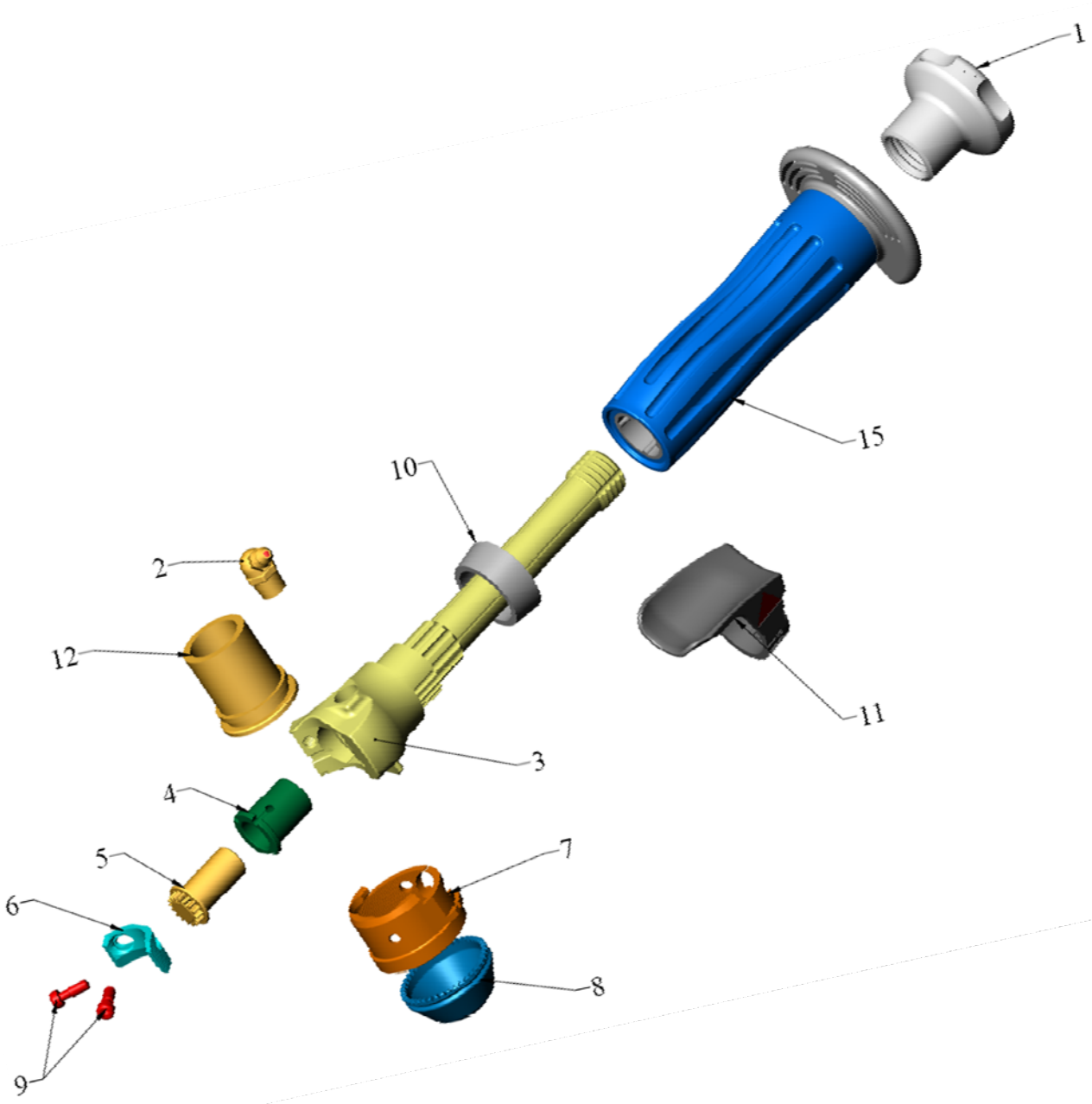
11.10 Head Assembly – 625M2



11.10 Head Assembly – 625M2

ITEM	DESCRIPTION	625M2 RH		625M2 LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183603	184570	183604	184571
	X-Small	183333	184572	183337	184573
	Small	183334	184574	183338	184575
	Medium	183335	184576	183339	184577
	Large	183336	184578	183340	184579
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 2, 11, 12, 13)					
	XX-Small	183601	184796	183602	184797
	X-Small	183325	184798	183329	184799
	Small	183326	184800	183330	184801
	Medium	183327	184802	183331	184803
	Large	183328	184804	183332	184805
Complete Head Assembly (Includes Items 3, 4, 5, 6, 7, 8, 9, 10)		183346		183347	
1	Handle Retaining Knob	183086		183086	
2	Hand Strap – Primary	183065		183065	
	Hand Strap – Secondary (Not Shown)	183121		183121	
3	Grease Cup	163263		163263	
Parts for Grease Cup (Not Shown)					
	Washer	123523		123523	
	Bulb	163265		163265	
	Ring	163266		163266	
	Cup with Fitting	163269		163269	
4	Frame Assembly	183348		183349	
5	Bearing	183060		183060	
6	Pinion	183365		183365	
7	Cover with Special Steeling Device	183368		183368	
	Repair Kit for Steeling Device (Not Shown)	183656		183656	
8	Blade Housing	185606		185606	
9	Blade	183354		183354	
10	Cover Retaining Screw (2 required)	183376		183376	
11	Handle Spacer Ring	183120		183120	
12	Thumb Support (Gray)	163207		163207	
13	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

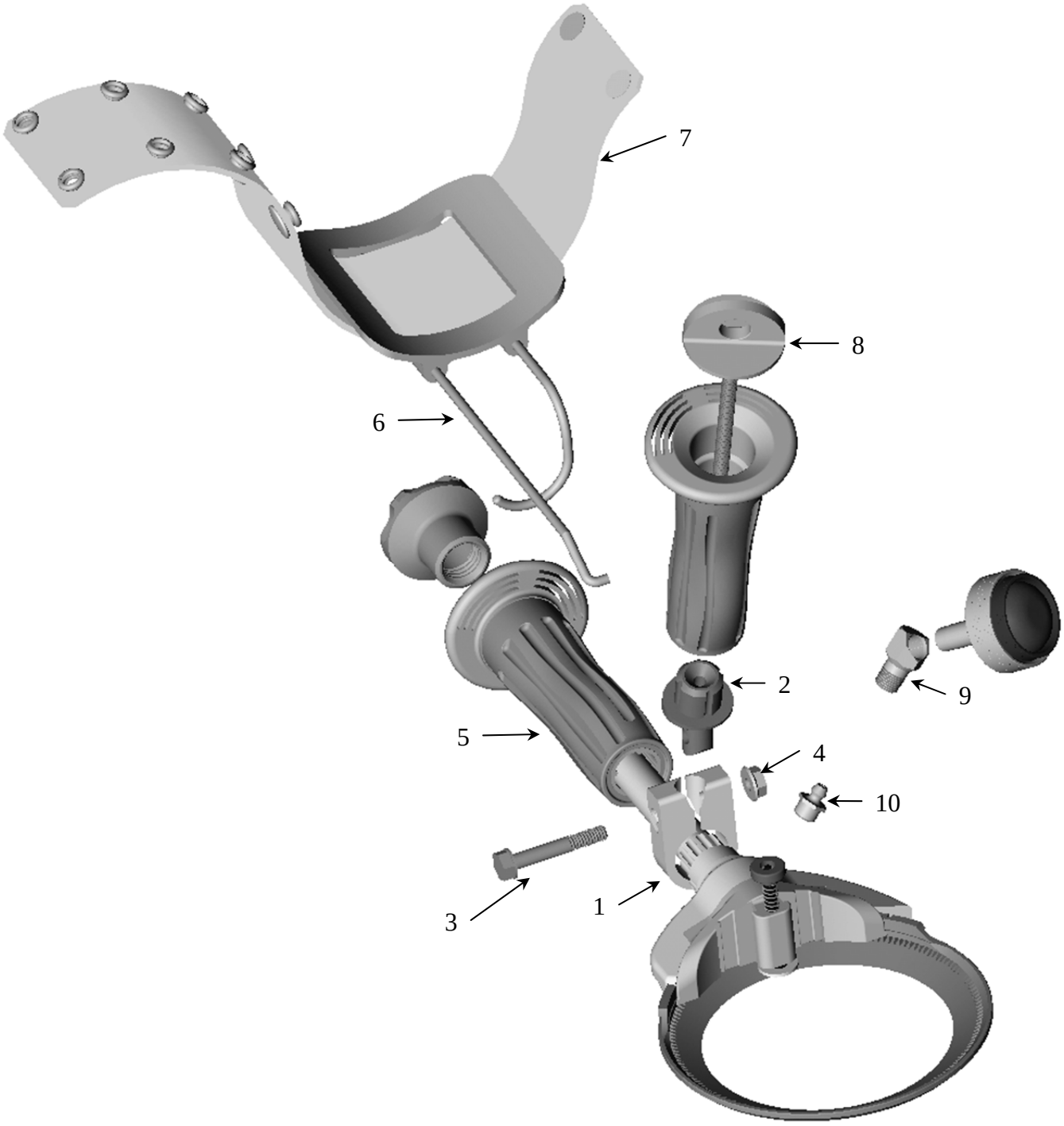
11.11 350M2 Poultry TrimVac®



11.11 350M2 Poultry TrimVac®

ITEM	DESCRIPTION	350M2 Poultry TrimVac® RH		350M2 Poultry TrimVac® LH	
		Flanged	Flangeless	Flanged	Flangeless
Complete Handpiece Assembly (Includes the Head Assy. Plus Items 1, 10, 11, 15)					
	XX-Small	188210	188220	188230	188240
	X-Small	188211	188221	188231	188241
	Small	188212	188222	188232	188242
	Medium	188213	188223	188233	188243
	Large	188214	188224	188234	188244
Complete Disconnect Handpiece Assembly (Includes the Head Assy. Plus Items 1, 10, 11, 15)					
	XX-Small	188215	188225	188235	188245
	X-Small	188216	188226	188236	188246
	Small	188217	188227	188237	188247
	Medium	188218	188228	188238	188248
	Large	188219	188229	188239	188249
Complete Head Assembly (Includes Items 2, 3, 4, 5, 6, 7, 8, 9, 12)		188201		188202	
1	Handle Retaining Knob	183086		183086	
2	Grease Fitting	125590		125590	
3	Frame Assembly	183643		183644	
4	Bearing	183060		183060	
5	Pinion	183651		183651	
6	Cover	184477		184477	
7	Blade Housing	184478		184478	
8	Blade	183923		183923	
9	Cover Retaining Screw (2 required)	184434		184434	
10	Handle Spacer Ring	183120		183120	
11	Thumb Support (Gray)	163207		163207	
12	1” Adapter	188204		188204	
13	Hose Clamp – Not Shown (2 Required)	188208		188208	
14	Vacuum Hose Assembly – Not Shown (Includes 2 Clamps)	188207		188207	
15	Handle	Flanged	Flangeless	Disconnect Flanged	Disconnect Flangeless
	-Large (Green)	183040	183918	183045	183937
	-Medium (Blue)	183041	183919	183046	183938
	-Small (Grey)	183042	183920	183047	183939
	-X-Small (Turquoise)	183043	183921	183048	183940
	-XX-Small (Tan) (With Handle Spacer Ring)	183511	183935	183512	183942

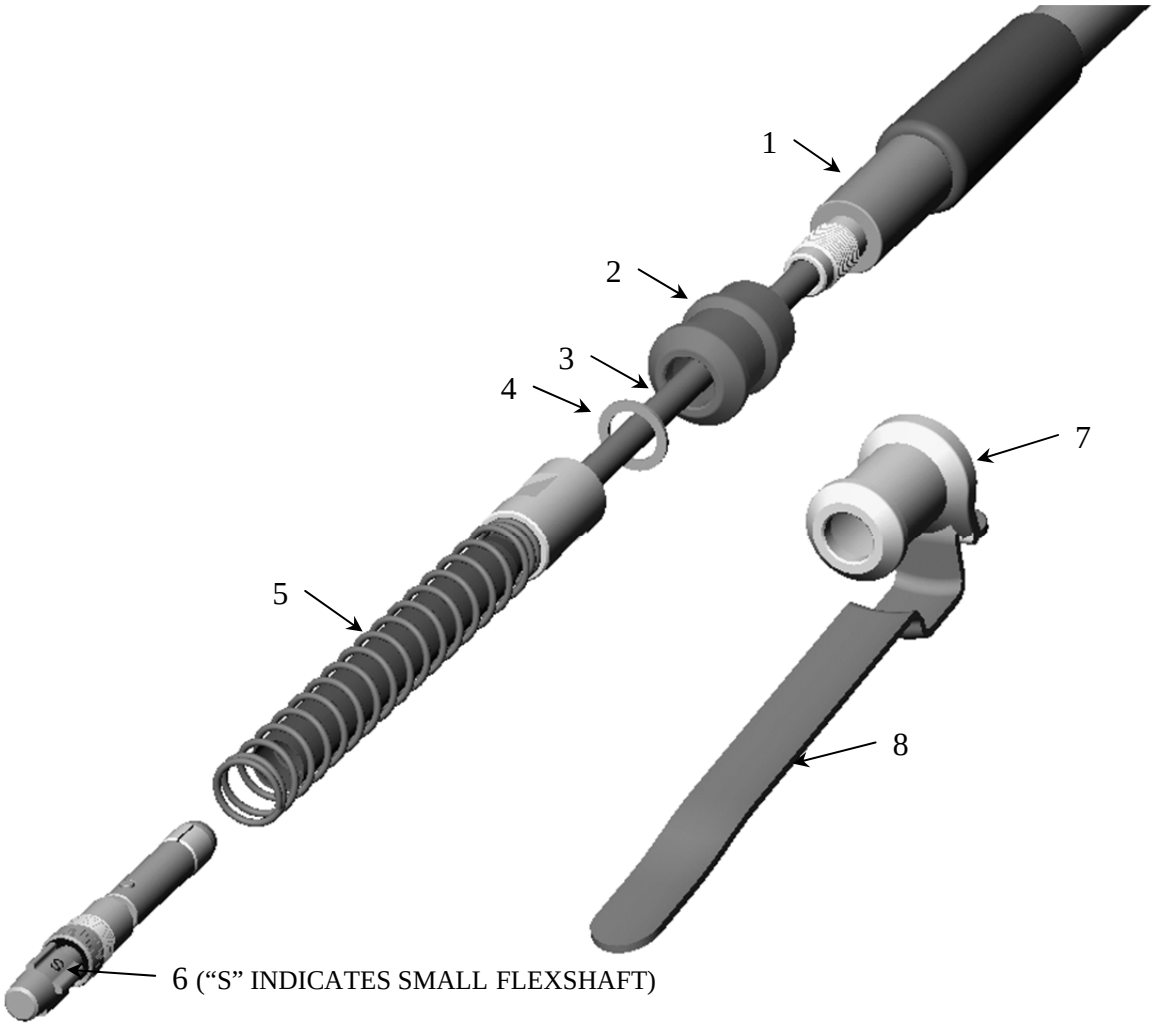
11.12 Post Handle

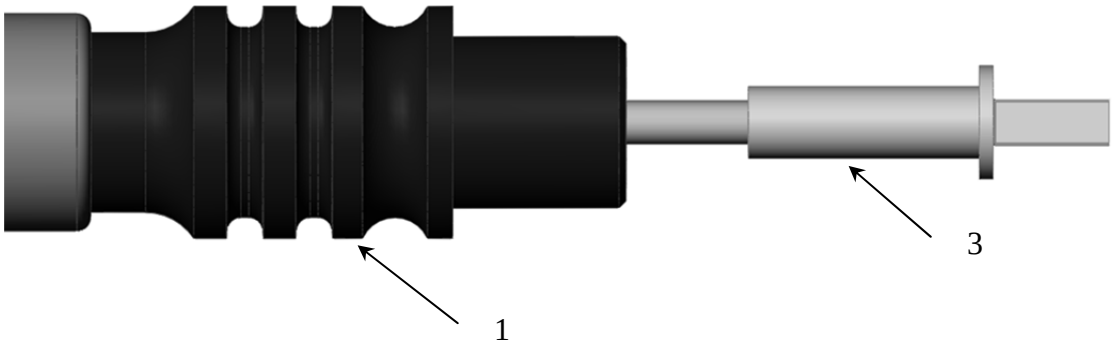


11.12 Post Handle

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	45º Elbow	183631	1
10	Grease Fitting	102273	1

11.13 Flexshaft & Casing





11.13 Flexshaft & Casing

ITEM	DESCRIPTION	WITHOUT DISCONNECT			WITH DISCONNECT		
		48”	60”	84”	48”	60”	84”
	Casing Assembly Complete (Includes Items 1, 2, 4, 5)	183856	183857	183858			
	Casing Assembly Complete (Includes Items 1, 4, 5, 7, 8)				183859	183860	183861
1	Casing Assembly	183491	183492	183493	183491	183492	183493
2	Casing Latch Collar	183111	183111	183111			
3	Flexshaft	183661	183662	183832	183661	183662	183832
4	Nylon Washer	123314	123314	123314	123314	123314	123314
	Drive End Assembly (Includes Items 5 and 6)	183503	183503	183503	183503	183503	183503
5	Drive End Sub-Assembly	183129	183129	183129	183129	183129	183129
6	Driver Assembly (Small)	183502	183502	183502	183502	183502	183502
7	Lever Mounting Collar				183110	183110	183110
8	Disconnect Lever				183108	183108	183108

11.14 Optional Equipment Available

Lubrication and Lubrication Equipment

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

Optional Blades

Part Number	Description
183706	350M2 Low Profile Blade
183923	350M2 Cone Blade
183353	620M2 Low Profile Blade
183576	500M2 Low Profile Blade
188010	TrimVac® 24AMX, 5/16” Blade
100212	360M2 29 mm I.D. Blade

Blade Sharpening and Steeling Equipment

Part Number	Description
100655	Special Stone
100641	Special Steel
100650	Ceramic Sharpener
163080	350 Whizard® EdgeMaster™
163074	360 Whizard® EdgeMaster™
173364	440 Whizard® EdgeMaster™
163079	620 Whizard® EdgeMaster™
163073	625 Whizard® EdgeMaster™
163077	500 Whizard® EdgeMaster™
163072	505 Whizard® EdgeMaster™
122740	Tool Positioner for Whizard® EdgeMaster™
183905	350 Bettcher® EZ Edge
183928	360 Bettcher® EZ Edge
183906	440 Bettcher® EZ Edge
183892	620 Bettcher® EZ Edge
183926	625 Bettcher® EZ Edge
183907	500 Bettcher® EZ Edge
183927	505 Bettcher® EZ Edge

11.14 Optional Equipment Available (Continued)

Covers and Depth Gauges

Part Number	Description
185128	Poultry Cover 350M2
185129	Poultry Cover 440M2
185130	Poultry Cover 500M2
185131	Poultry Cover 620M2
185135	Poultry Cover Assembly 625M2
185465	Poultry Cover Assembly 505M2
183705	Depth Gauge Assembly 505M2 with 1 mounting screw
185605	Housing – Blade, Offset Split 500M2 (English Version Only)
185606	Housing – Blade, Offset Split 620M2 (English Version Only)
185979	Depth Gauge Complete 625M2-S
188081	Depth Gauge Assembly 505M2 with 2 mounting screws

Tools

Part Number	Description
183900	M2 Torque Wrench Kit

Also Available

Part Number	Description
183767	Small Aluminum Handle with Spacer
183768	Medium Aluminum Handle with Spacer

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	½” Diameter Tubing Brush

Cleaning Solution

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

Contact Your Whizard® Salesperson For Information About Our Ergonomic Manual Now Available.

SECTION 12.0 About These Operating Instructions

12.1 Other Languages

Translations into any of the languages used in the European Union are available for purchase. 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 #183371
Document Description:	Operating Instructions And Spare Parts List For Small Modular Series II Whizard® Tools
Issued:	October 20, 2000

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.

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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