



BETTCHER Industries, Inc.

Operating Instructions & Parts List for



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Operating Instructions in other languages are available on request. Additional copies of Operating Instructions are available by calling or writing your Regional Manager, or by contacting:

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The Information Provided In These Operating Instructions Is 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

Safety and Ergonomics

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The manufacturer assumes no liability for any unauthorized changes in operating procedures or for unauthorized changes or modifications made to the design of the machine or any factory-installed safety equipment, whether these changes are made by the owner of this equipment, by his employees, or by service providers not previously approved by Bettcher Industries, Inc.



Signal Words and Signal Word Panels



DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. (The signal word **DANGER** is in white letters on a safety red background)



WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury. (The signal word **WARNING** is in black letters on a safety orange background)



CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. (The signal word **CAUTION** is in black letters on a safety yellow background)



NOTICE indicates information considered important, but not hazard-related (e.g. messages relating to property damage). (The signal word ***NOTICE*** is in italicized, white letters on a safety blue background)

The safety definitions provided comply with the American National Standard for Product Safety Information in Product Manuals, Instructions and Other Collateral Materials. (ANSI Z535.4-2011)

This manual is printed in black and white.



Safety Symbols



The safety alert symbol indicates a potential personal injury hazard. It is not used for messages related to property damage. The safety alert symbol may be used alone or in conjunction with a signal word in a signal word panel



Danger of electrical shock



Blade hazard, keep hands clear



Read Operator's Manual



Protective safety gloves must be worn

Symbols are harmonized with ANSI Z535.4 and ISO 3864-2 standards. Warning symbols are presented on a safety yellow background. Mandatory action symbols are presented on a safety blue background.

This technical manual is printed in black and white.



Safety Recommendations and Warnings

Bettcher Quantum[®] Air Trimmers are used for removal of fat and tissue, the recovery of lean meat from bone, and as a universal cutting tool in 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.

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.

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.

 **WARNING**

Sharp blades may cause injury!





Safety Recommendations and Warnings (Continued)

Whizard Quantum[®] Air Trimmers have been designed to obtain the highest possible degree of safety. The trimmer contains a sharp knife blade. Handle this equipment with caution, as you would 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 the blades. Metal mesh gloves are recommended for the “non-knife” hand.

Keep hands away from moving blades!

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, disconnected from the air supply, and tagged as “unsafe” until such time as proper repairs are made and the machine again operates normally.

! WARNING

Hearing loss may occur!

Always operate with hose and muffler attached.

! WARNING



Sharp blades may cause injury!

Always disconnect air supply prior to servicing unit.

! 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 trimmer develops unusual vibration, do not continue to use it without first undertaking corrective action as outlined in the fault and detection section of this operating instruction.



Safety Recommendations and Warnings (Continued)



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.

Safety Features

Two-handed start-up prevents the tool from being started accidentally.

The air supply is disconnected from the motor when the run lever is released.

Ergonomic Features

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. Whizard Quantum[®] tools can be configured in both right and left handed configurations.

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[®] Micro- Break 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.

Additional Features

The hose assembly swivels for easier trimmer rotation and operator comfort.

The hose is ten feet (3.05 m) long to allow for greater operator mobility.



Section 2

Designated Use

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Recommended Operation

Whizard Quantum[®] Air Trimmers are made for several recommended operations. Assure 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.

Whizard Quantum[®] Air 350 / 360

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

Whizard Quantum[®] Air 620

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



Recommended Operation (Continued)

Whizard Quantum® Air 625

BEEF

- Upgrading Retrim

POULTRY

- Fat Trimming of Turkey Thighs
- Trimming of Turkey Skins

PORK

- Fat Trimming of Pork Loins
- Upgrading Retrim

Whizard Quantum® Air 500

POULTRY

- Turkey Thigh Knuckles

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

INDUSTRIAL

- Foam Industry

Whizard Quantum® Air 505

POULTRY

- Turkey Thigh Trim

BEEF BONING/FABRICATION

- Removing Lean from Fat Generated in Fabrication

Whizard Quantum® Air 750

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



Recommended Operation (Continued)

Whizard Quantum® Air 850 / 1850

PORK KILL

- Removing Leaf Lard

HAM PROCESSING

- External Ham Defatting
- Internal Ham Defatting
- Defat Pork Loins
- Remove Oyster Meat

BEEF

- Recover Lean from Fat
- Trim Lean from Rib Caps
- Trim Beef Tripe

POULTRY

- Defatting Turkey Skins
- Defatting Turkey Thighs

Whizard Quantum® Air 880-B / 1880 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

Whizard Quantum® Air 880-S with Adjustable Depth Gauge

PORK

- Remove Skin or Hair Patches
- Trimming Pork Loins and Canadian Backs
- Internal and External Defatting of Hams

POULTRY

- Defatting Turkey Thighs

BEEF

- Removing Membranes and Light Fat Covering from Top Rounds, Bottom Rounds, Briskets and Cube Steak Material



Recommended Operation (Continued)

Whizard Quantum® Air 1000

PORK 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

Whizard Quantum® Air 1300

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

Whizard Quantum® Air 1400 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



Recommended Operation (Continued)

Whizard Quantum[®] Air 1500 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

Whizard Quantum[®] TRIMVAC[®] 18

BEEF and PORK SLAUGHTER

- Removal of Spinal Column

Whizard Quantum[®] TRIMVAC[®] 45

BEEF and PORK SLAUGHTER

- Internal Defatting

Salmon and Whitefish Processing

- Frame Scraping

Cheese Processing

- Remove Mold



Section 3

Unpacking and Installation

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Safety First



Sharp blades may cause injury!
Unpack the whizard trimmer carefully.



Included with your Machine – (Small Whizard Quantum® Air Tools)

Models: 350, 360, 620, 625, 500, 505

| Part Number | Description |
|----------------------------------|---|
| 173226 | Filter Regulator Lubricator (FRL) Kit |
| 100655 | Special Stone |
| 100641 | Special Steel |
| 103603 | Pint of Oil |
| 113326 | Planetary Gear Grease Gun (Needle-Nose) |
| 184134 | Spanner Wrench |
| 184128 | Hex Wrench |
| 184282 | 4 oz. Tube of Max-Z-Lube |
| And one of the following: | |
| 143631 | 14 oz. Cartridge of Special Whizard® Grease |
| 100608 | 8 oz. Tube of Special Whizard® Grease |



Included With Your Machine – (Large Whizard Quantum® Air Tools)

Models: 750, 850, 880-B, 880-S, 1850, 1880, 1000, 1300, 1400, 1500

| Part Number | Description |
|----------------------------------|---|
| 173226 | Filter Regulator Lubricator (FRL) Kit |
| 100660 | Special Stone |
| 100642 | Special Steel |
| 103603 | Pint of Oil |
| 113326 | Planetary Gear Grease Gun (Needle-Nose) |
| 184134 | Spanner Wrench |
| 184128 | Hex Wrench |
| 184282 | 4 oz. Tube of Max-Z-Lube |
| And one of the following: | |
| 143631 | 14 oz. Cartridge of Special Whizard® Grease |
| 100608 | 8 oz. Tube of Special Whizard® Grease |



Included With Your Machine – (Whizard Quantum[®] TRIMVAC[®] Tools)

Models: Whizard Quantum[®] TRIMVAC[®] 18 and Whizard Quantum[®] TRIMVAC[®] 45

| Part Number | Description |
|--------------------|---|
| 113326 | Planetary Gear Grease Gun (Needle-Nose) |
| 184134 | Spanner Wrench |
| 184128 | Hex Wrench |
| 184325 | Hex Wrench – 3/32” |
| 184437 | Hex Wrench – 9/64” |
| 184282 | 4 oz. Tube of Max-Z-Lube |



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Installation

The workstation 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 Whizard Quantum[®] Air Trimmer 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.

Air Supply

A clean, dry, lubricated air supply is critical to proper operation. The filter, regulator and lubricator (FRL) unit, furnished with your complete Bettcher Quantum[®] Air , should be mounted horizontally at the air supply outlet and in such a position as to be easily reached for draining the filter bowl and refilling the lubricator. The filter bowl should be drained, and the lubricator refilled, daily.

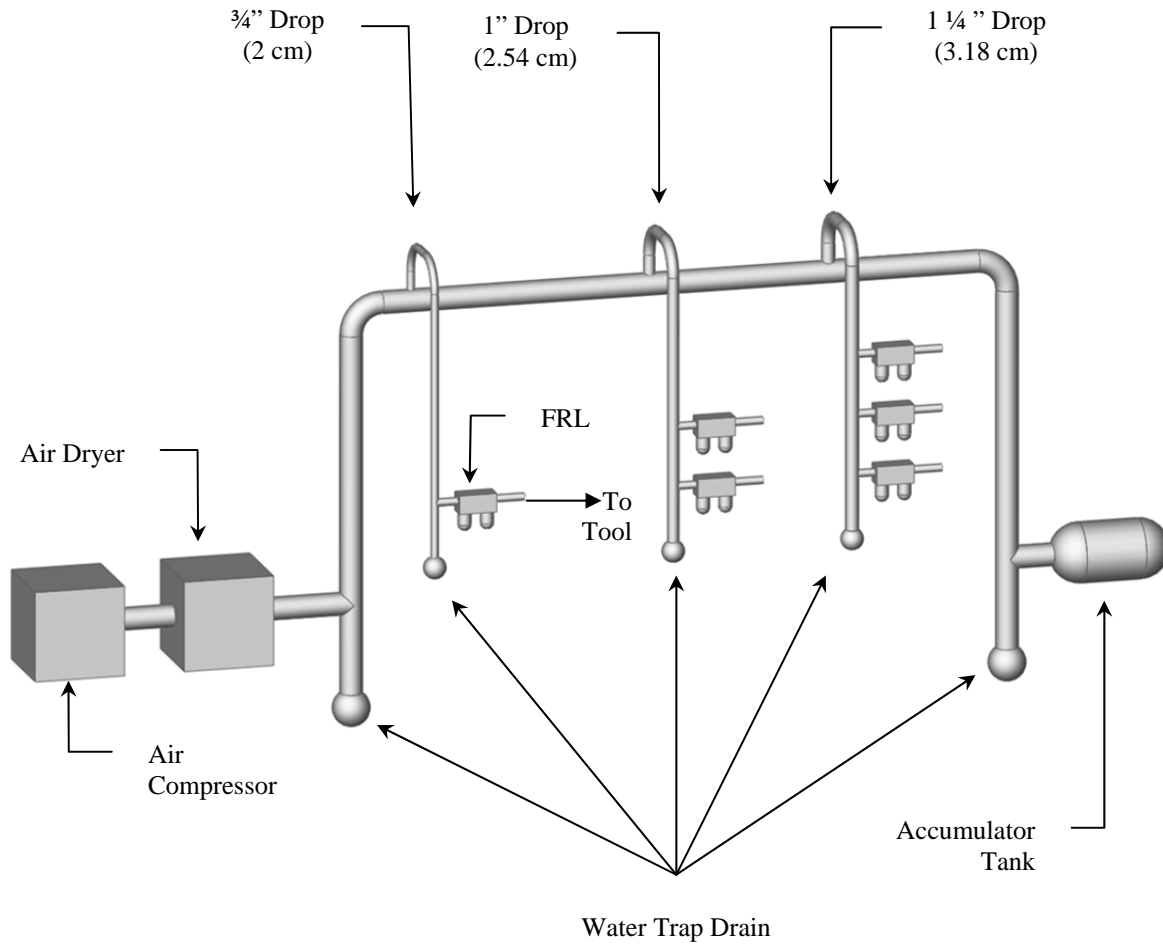
IMPORTANT: Be sure the air supply is a constant 90 pounds per square inch (6.2 bar) and the volume is a minimum of 14 cubic feet per minute (396 liters per minute) per unit.

Supply Line:

- Use a 2 inch to 6 inch (5 cm to 15 cm) pipe for the air supply.
- All air outlet drops should be connected to the top of the main air supply line to minimize the possibility of moisture and dirt reaching the motor.
- Drops should be at least:
 - ¾ inch (2 cm) pipe for one (1) tool.
 - 1 inch (2.54 cm) pipe for two (2) tools.
 - 1 ¼ inch (3.18 cm) pipe for three (3) tools.
- A FRL should be used for each tool. Do not run multiple tools off of a single FRL.
- All air outlets should be located close enough to the operator's work station so that additional hose is not required.



Installation (Continued)



Performance Specifications

| | |
|-----------------------|-------------------------------------|
| Pressure (psi) | 90 |
| Air Consumption (cfm) | 14 |
| Speed, No Load (rpm) | 5,700 Max No Load Motor Assembly |
| Power (hp) | .22 (164W) |
| Sound (dBA) | 74dBa Max. |
| Weight (lbs) | .8 (.36kg) |



Section 4

Instructions for Operation

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Optional Thumb Support

Your Bettcher Quantum[®] Air Trimmer 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.

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 Quantum[®] Air handles because the gloves may become slippery.



Power Unit / Head Assembly - Attachment and Adjustment

The Whizard Quantum[®] Air Trimmers 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 align the blade with the product, while maintaining a comfortable position for the operator's wrist.

The position that is selected should be based on the individual workstation, product, and operator. To determine the proper position, it will be necessary to observe the operator while trying various positions. Select the position which is most comfortable to the operator.



Sharp blades may cause injury!





Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 1:

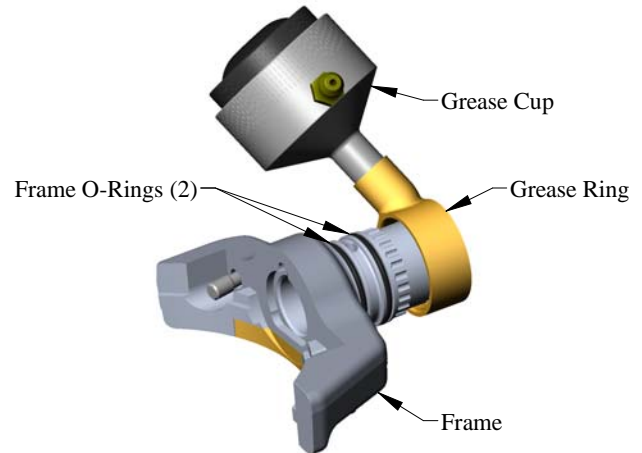
Grease Cup and Ring

- Pick up the Whizard® Trimmer.
- Pick up the grease cup and ring. Apply a small amount of Whizard® Special Grease to the frame o-rings.
- With a twisting motion, install the grease ring onto the frame over the o-rings.

NOTICE

Be careful not to squeeze the o-rings out of their grooves, or they could be trapped and damaged.

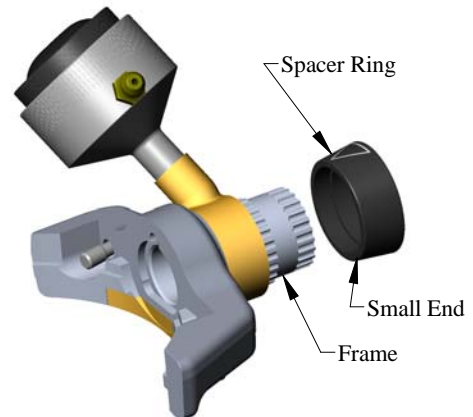
- Rotate the grease cup to the desired position.



Step 2:

Spacer Ring

- Select the spacer ring or optional thumb support.
- **If the spacer ring is used**, Slide the spacer ring onto the frame, small end first.



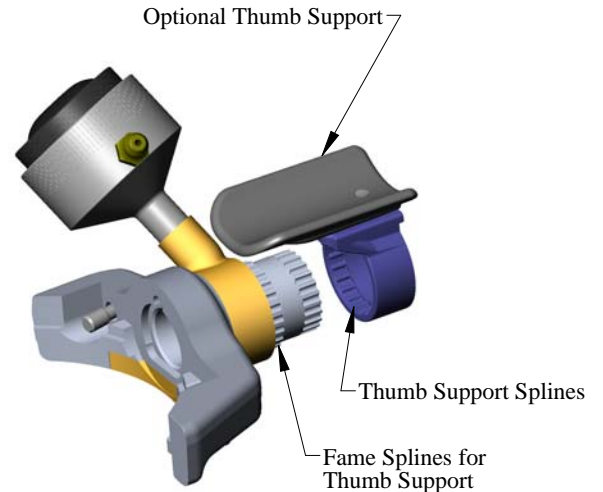


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 3:

Optional Thumb Support

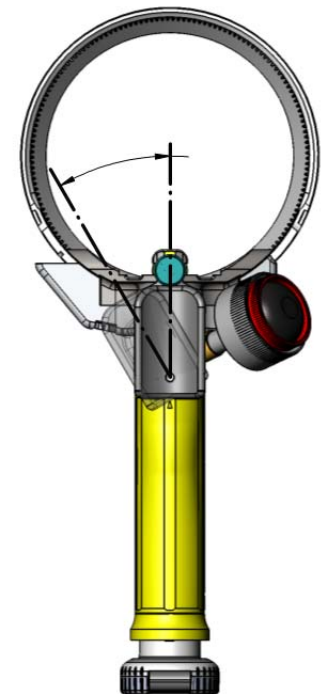
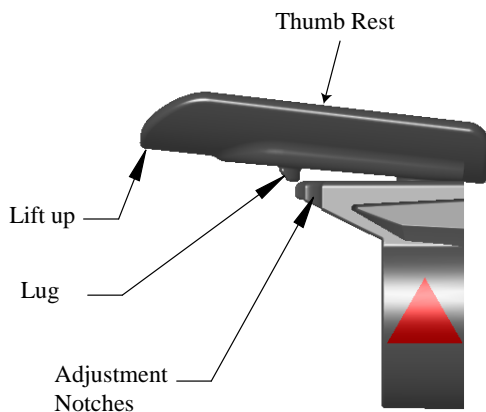
- Pick up a spacer ring or optional thumb support.
- If the optional thumb support is used, align the thumb support splines with the frame splines.
- The optional thumb support should be located on the opposite side of the grease cup.



Thumb Support Angle Adjustment

- Lift up on the front of the thumb support until the lug comes out of the notch underneath the thumb support.
- Rotate the thumb rest to a new position.
- Push the thumb rest back down to seat the lug into a new notch.

NOTE: It may be necessary to rotate the grease cup to a new position to adjust the thumb support to the desired position.



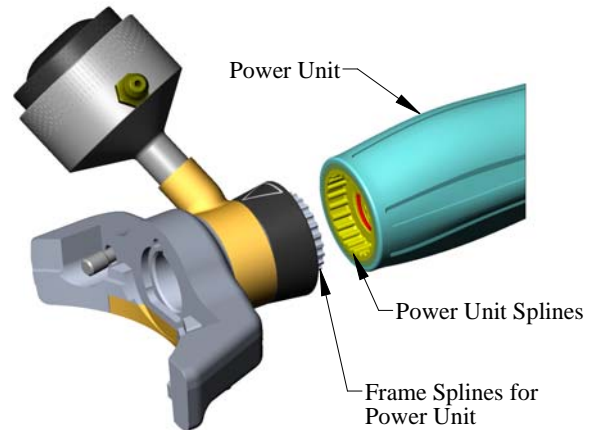


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 4:

Power Unit

- While holding the trimmer, pick up a power unit.
- Firmly push the power unit towards the bottom of the spacer ring or optional thumb support. Align the power unit spline with the splines on the frame.



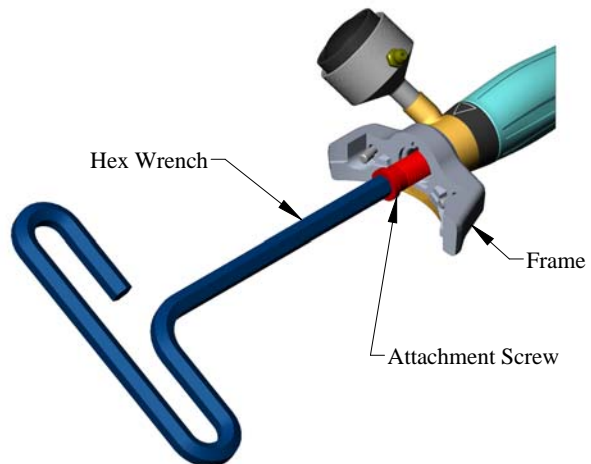
NOTE: *The handle can be adjusted to suit the operator and the work station by pulling the power unit back away from the frame and re-locating it on another set of notches on the frame.*

Step 5:

Attachment Screw

- Insert the attachment screw in the frame.
- Tighten the attachment screw **FIRMLY**, using the supplied hex wrench.

NOTE: *Recommended torque of 115-140 lb-in (13-16 N-m).*



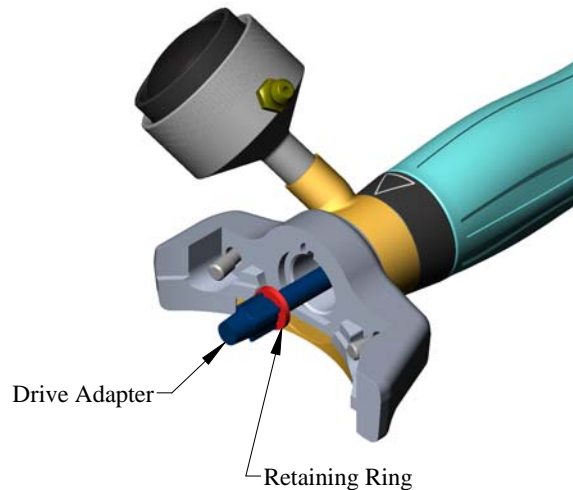


Power Unit / Head Assembly - Attachment and Adjustment **(Continued)**

Step 6:

Install Drive Adapter

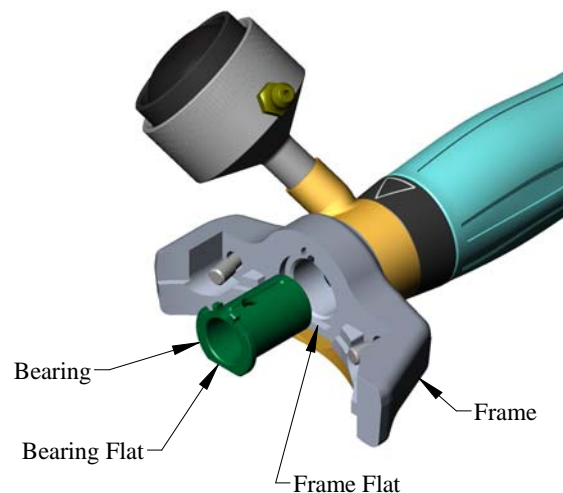
- Insert the drive adapter and align the square end with the square hole in the power unit.
- The drive adapter should drop in with no force required.
- The retaining ring will sit flush against the attachment screw when properly aligned.



Step 7:

Install Bearing

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



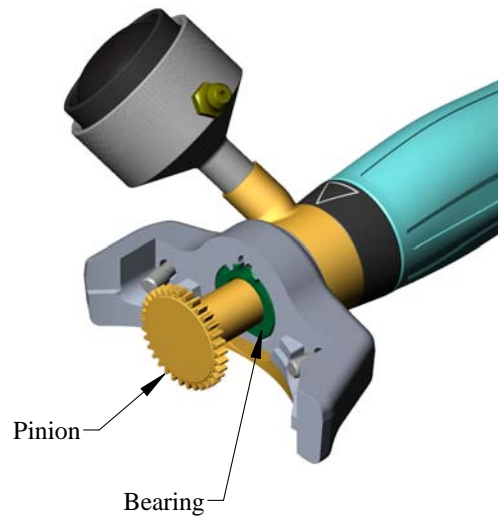


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 8:

Install Pinion

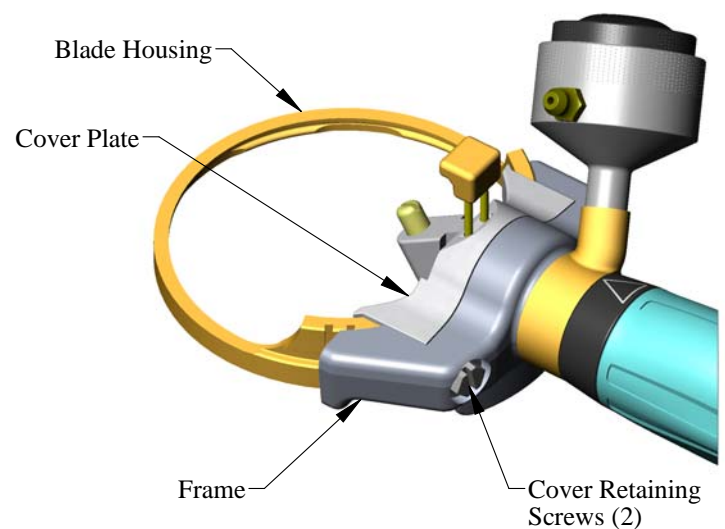
- Insert the pinion into the bearing bore.
- The pinion should go in with minimal effort and not require pressing.
- Do not force the pinion into the bearing. If the pinion does not go in easily, check bearing and pinion for damage or build-up.
- The pinion should sit flush against the bearing. If the pinion does not, rotate the pinion to seat it flush with the bearing.



Step 9:

Install Cover and Blade Housing

- Set the blade housing on the frame and place the cover plate over the blade housing.
- While holding the cover plate firmly against the housing and frame, start the two cover retaining screws.
- Thread the cover retaining screws in, leaving a slight tension to allow for blade adjustment.





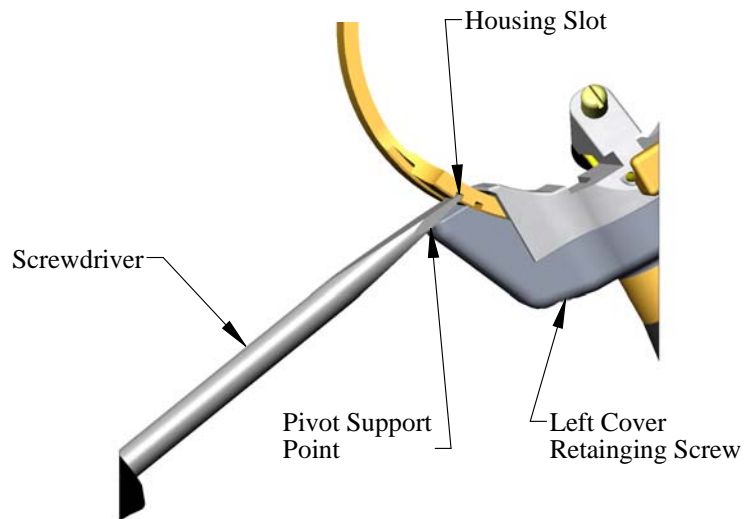
Power Unit / Head Assembly - Attachment and Adjustment (Continued)

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

Step 10:

Install Blade

- Holding the tool blade side up, pry open the blade housing with a screwdriver.
- Insert a new blade into the housing.
- Loosen the left cover retaining screw to allow the housing to close.
- Tighten the right cover retaining screw.
- With left cover retaining screw $\frac{1}{2}$ turn loose, adjust housing for proper fit.
- Gently pry the housing open until the blade rotates freely and has enough clearance to allow the blade to move forward and backward in the housing. Only a slight amount of movement is necessary.
- Tighten the cover retaining screws to the recommended torque.



NOTE: *Recommended torque of 30-40 lb-in (3.4-4.5 N-m).*

IMPORTANT: *Be sure that the blade is free to move in the housing. If the blade does not move freely, it may cause the trimmer to overheat.*

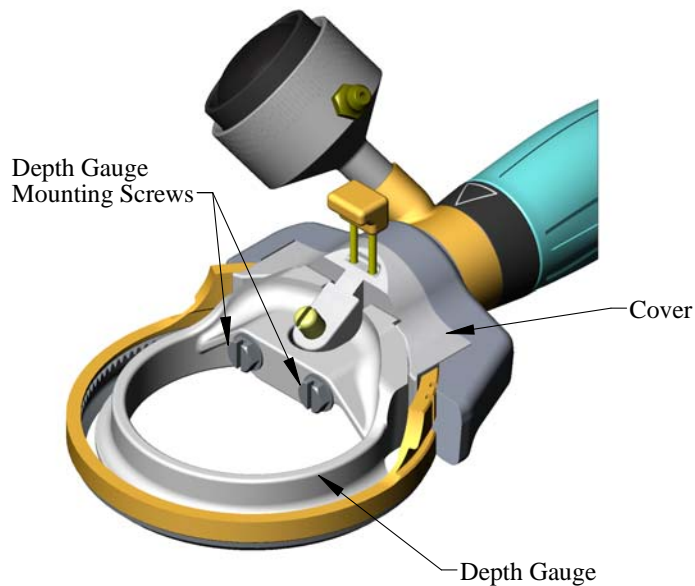


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 11:

Install Depth Gauge (Optional)

- Loosen depth gauge attachment screws.
- Slide depth gauge onto the cover.
- Adjust the depth gauge to the desired height.
- (See Depth Gauge Adjustment for more information)
- Tighten the depth gauge attachment screw(s).

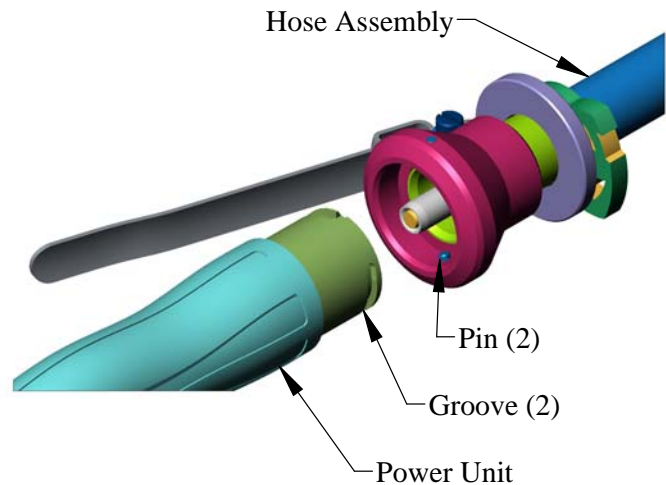




Hose Assembly Attachment

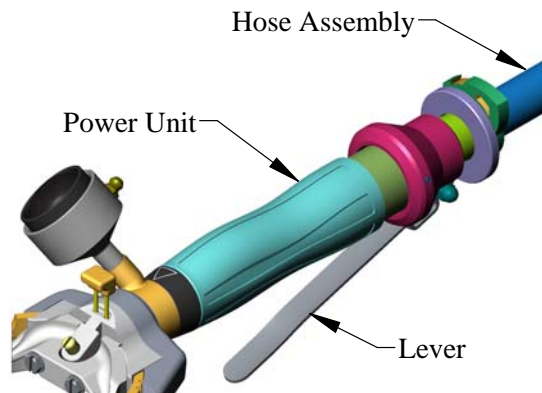
Step 1:

- Align the pins in the hose assembly with the grooves on the power unit.



Step 2:

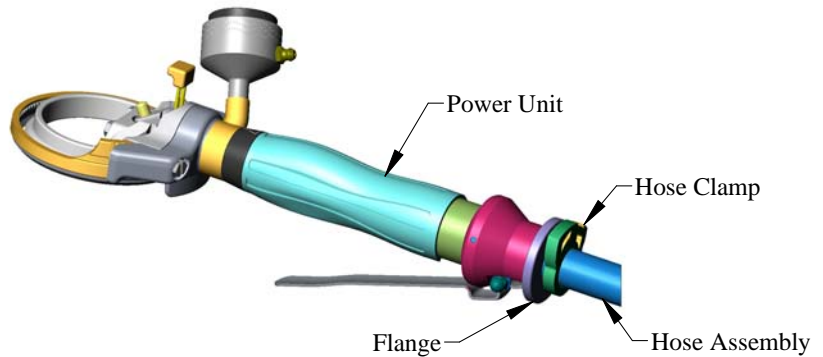
- Slide the power unit into the hose assembly
- Rotate the power unit 90°
- Lever will rotate toward the bottom of the tool.



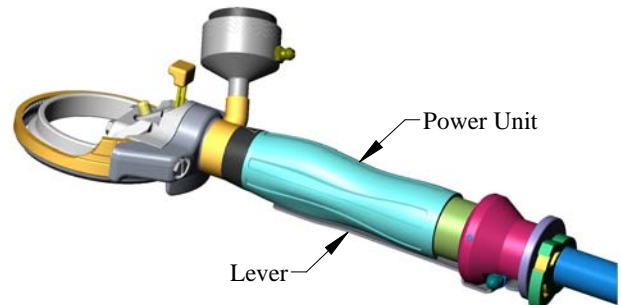


Starting the Trimmer with Standard Hose Assembly

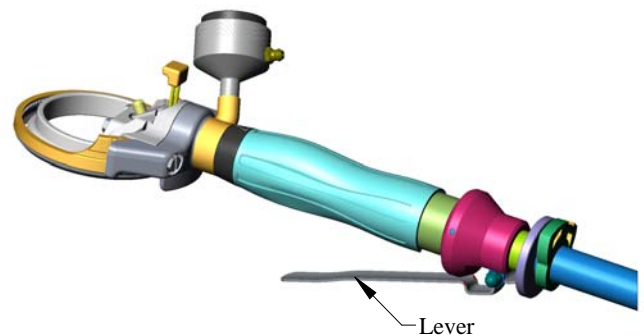
- Hold the power unit and push the flange and or hose clamp of the hose assembly toward the power unit.



- Hold the lever against the power unit to keep the trimmer running.



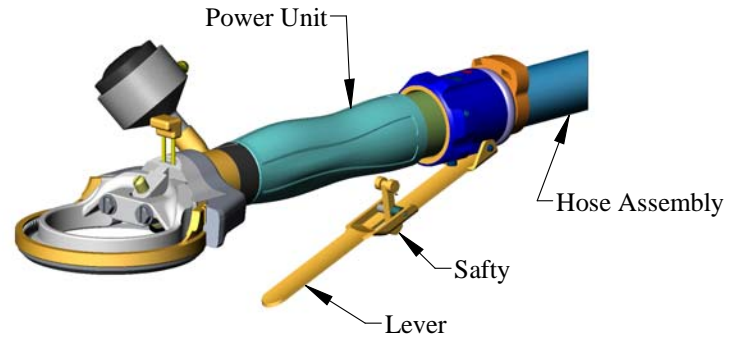
- Release the lever to turn the trimmer off.



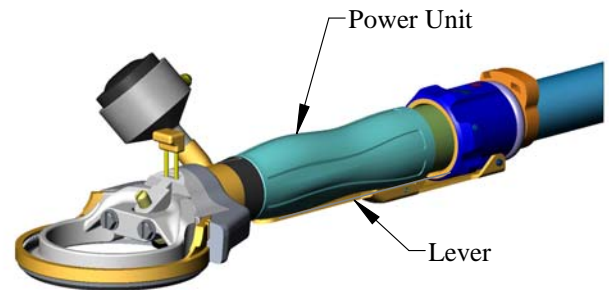


Starting the Trimmer with Quick-Start Hose Assembly

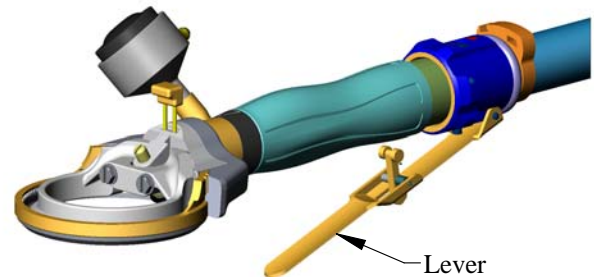
- Fold the safety into the lever.



- Hold the lever against the power unit to keep the trimmer running.



- Release the lever to turn the trimmer off.





Depth Gauge Adjustment

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 tool from the air supply prior to servicing.

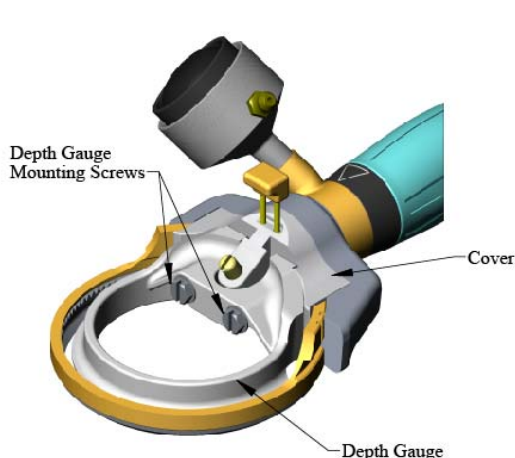
Whizard Quantum[®] Air Models 880, 1880, 1400, 1500 and optional 505:

These models are equipped with an adjustable depth gauge for setting a controlled product trim thickness. The depth gauge can be adjusted for cuts up to ¼" thick. A depth gauge setting device is also available.

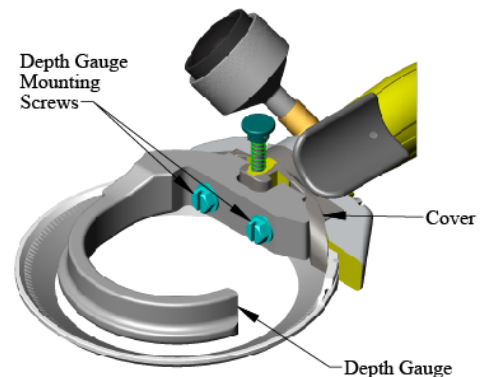
To adjust the depth:

- Hold the handpiece with the blade facing downward.
- Loosen the depth gauge **attachment screw(s)**.
- Adjust the depth gauge setting by sliding it up or down to the desired height.
- Retighten the depth gauge **attachment screw(s)**.

Depth Gauge Adjustment Range:



Slide to Adjust
Moving Up = Thicker Cut
Moving Down = Thinner Cut



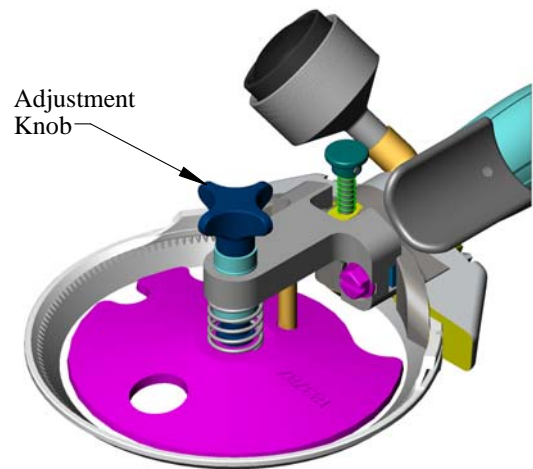


Depth Gauge Adjustment (Continued)

Optional Adjustable Fat (F) and Skinner (S) Disc Gauges for the Whizard Quantum[®] Air Models 850, 1850, 1000 and 1300

- Hold the handpiece with the blade facing downward.
- Adjustments – Turn the adjustment knob **clockwise** for a thicker cut, or **counterclockwise** for a thinner cut.

Important: *Take care not to turn the adjustment knob too far as the disc may disengage from the shaft.*



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 tool from the air supply prior to servicing.



Tool Operation



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 handle of the Whizard Quantum[®] Air Trimmer with your thumb extended. Let the handle rest naturally in your 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-commonly 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 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 Quantum[®] Air trimming will become easier as the operator gains experience using 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 minimized, and blades need only be sharpened once a day with the use of a Whizard[®] Model 210 Universal Blade Sharpener, Whizard[®] Model 214 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.



Blade Steeling



Sharp blades may cause cut injury!

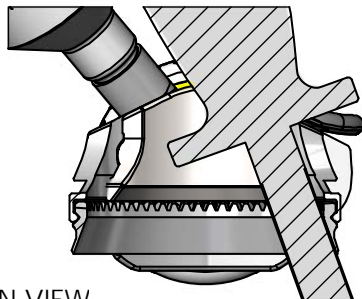


For proper protection of hands, a protective glove should be used when operating this equipment and during the handling of blades.

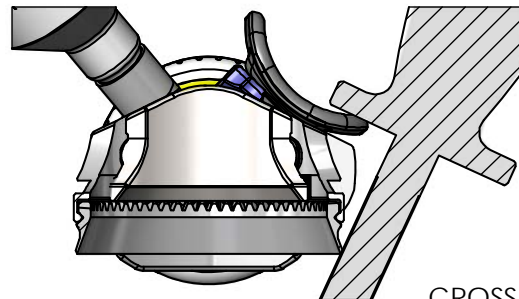
Always disconnect the tool from the air supply prior to servicing.

Steeling For Whizard Quantum[®] Air Models: 350, 500, 620 and 750:

- 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 re-sharpening more difficult.



CROSS-SECTION VIEW
OF STEELING INSIDE
BLADE EDGE



CROSS-SECTION VIEW
OF STEELING OUTSIDE
BLADE EDGE

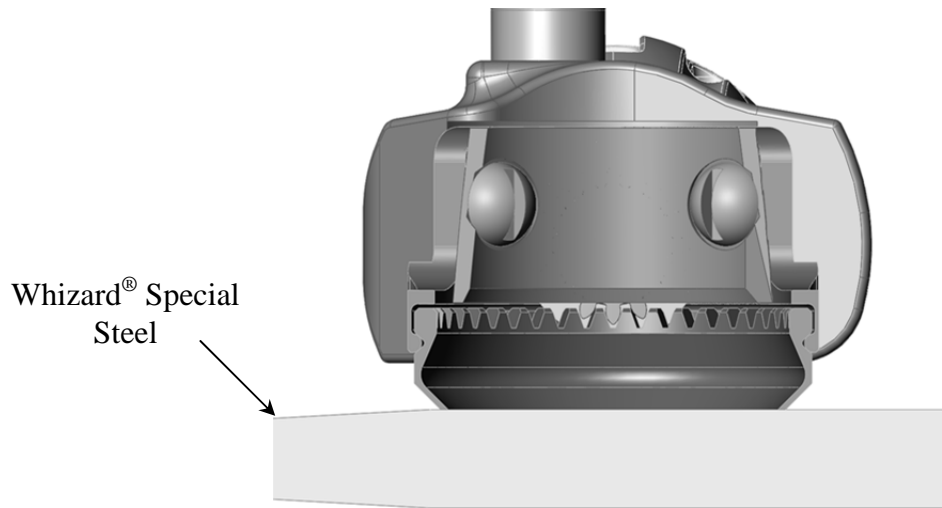
- Use the steel lightly and always make the last pass of the steel on the inside surface of the blade.
- Steeling can be accomplished with much greater consistency with the use of the specially designed Whizard[®] Edge Master[™] Steels. See Section 7; Blade Sharpening and Steeling Equipment, or contact your Regional Manager or Bettcher Industries, Inc. for more information.
- Replace or sharpen the blade if this procedure does not improve the cutting action.
 - The Whizard Quantum[®] Air Trimmers have been designed to allow the blades to be quickly removed and reinstalled.



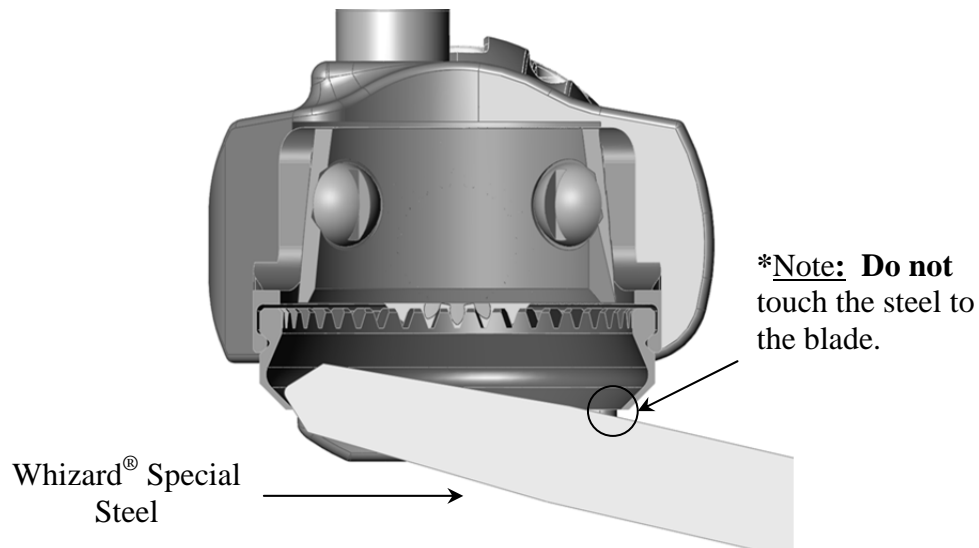
Blade Steeling (Continued)

Steeling for Whizard Quantum[®] Air Model: 360

- Steel the outside edge of the blade by laying the special Whizard[®] steel flat against 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.



- Steel the inside of the blade by placing the cone shaped tip of the Whizard[®] special steel on the inside edge of the blade. Do not touch the blade with the shaft of the Whizard[®] special steel.

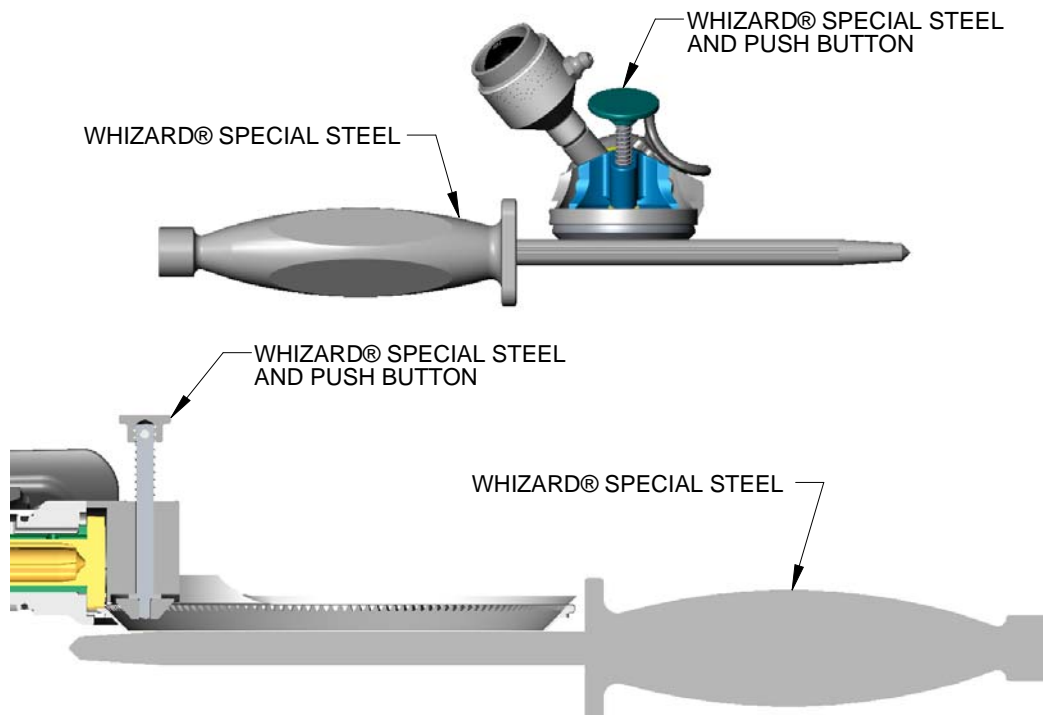




Blade Steeling (Continued)

Steeling for Whizard Quantum[®] Air Models: 505, 625, 850, 880, 1850, 1880, 1000, 1300, 1400 and 1500

- 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.
- At the same time, lightly push down with your thumb on the push button, holding the steeling device lightly against the blade edge for several blade rotations.





Blade Changing



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 tool from the air supply prior to servicing.

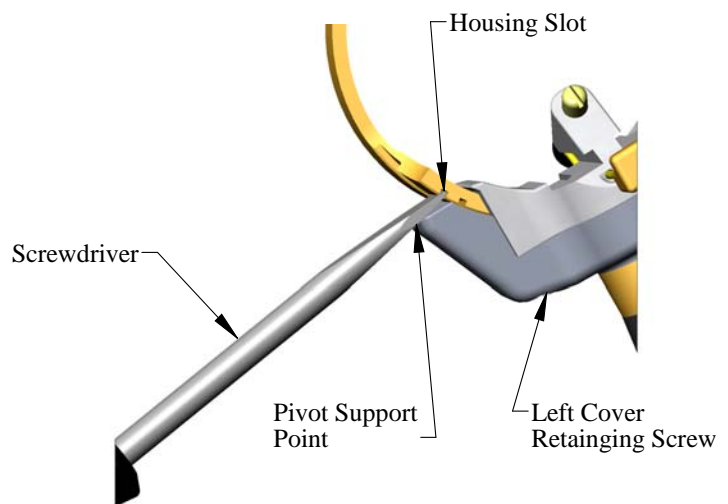
The Bettcher Quantum[®] Air Trimmers have been designed to allow the blades to be quickly removed and reinstalled.

To Change the Blade

- Loosen only the left cover retaining screw.

NOTE: *Slight tension on the left cover screw will allow the blade housing to stay open.*

- Holding the tool blade side up, pry open the blade housing with a screwdriver.
- Carefully remove the old blade.
- Insert a new blade in the housing.



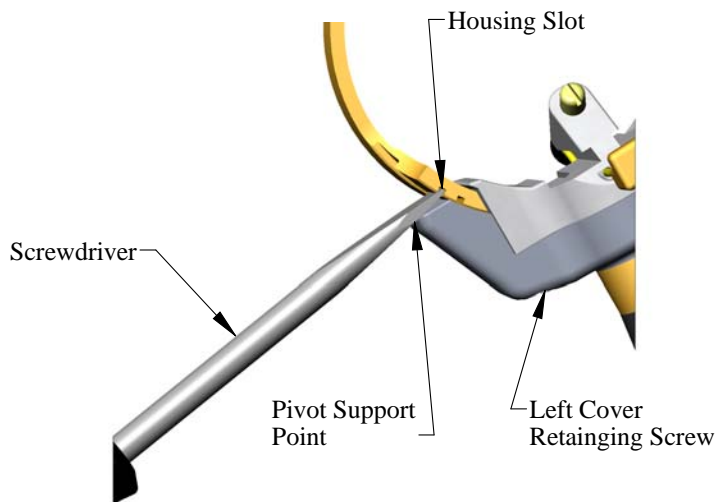


Blade Changing (Continued)

- Loosen the left cover retaining screw to allow the housing to close.
- Tighten the right cover retaining screw.
- With left cover retaining screw ½ turn loose, adjust housing for proper fit.
- Gently pry the housing open until the blade rotates freely and has enough clearance to allow the blade to move forward and backward in the housing. Only a slight amount of movement is necessary.
- Tighten the cover retaining screws to the recommended torque.

NOTE: *Recommended torque of 30-40 lb-in (3.4-4.5 N-m).*

IMPORTANT: *Be sure that the blade is free to move in the housing. If the blade does not move freely, it may cause the trimmer to overheat.*





Section 5

Maintenance

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Maintenance Schedule

| Description | Maintenance Schedule |
|---------------|-----------------------------|
| Handpiece | Daily |
| Power Unit | After Every 80 Hours of Use |
| Hose Assembly | As Required |

General Maintenance

- Drain filter bowls daily.
- Inspect filter for damage and dirt build-up. Replace when necessary.
- Fill lubricator (oiler) daily or more often if needed.
- Verify oiler is set to deliver 3 drops of oil per minute.
- Verify air pressure is set at 90-100 psi. ***Do not exceed 100 psi!***

Handpiece Maintenance



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 air supply and remove tool from hose assembly prior to servicing.

The Whizard Quantum[®] Air Trimmer was designed to allow quick and easy removal of the handpiece from the hose assembly. This allows the trimmer to be removed from the hose assembly while still on the production line. The hose assembly can be left hanging on the production line and the handpiece can be returned to the knife room for service. It is recommended that this procedure be followed. The removal of the 10 feet (3.05 m) of hose will allow easier service, storage, and handling by knife room personnel.

Required Tools for Handpiece Maintenance

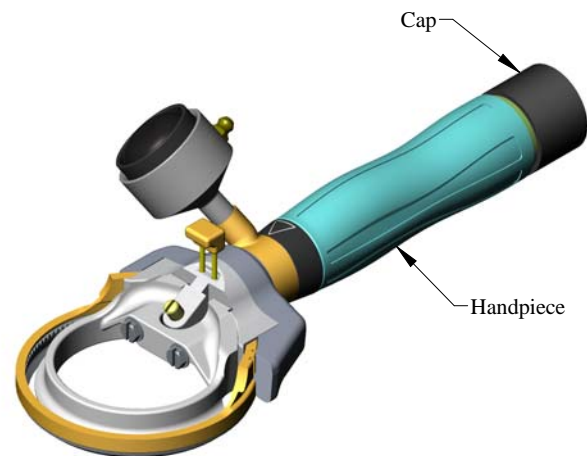
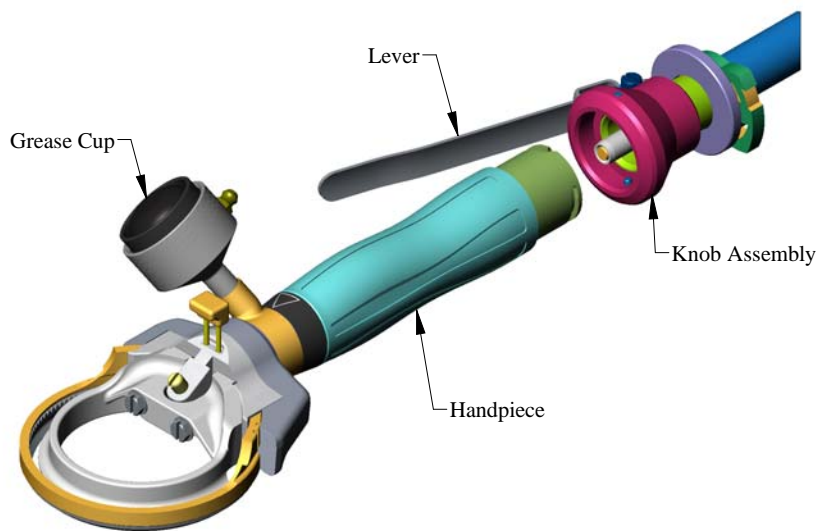
- 1 – Flat head screwdriver
- 1 – Hex Wrench (supplied with the Whizard Quantum[®] Air Trimmer)



Disassembly of Handpiece

Step 1: Remove Handpiece from Hose Assembly:

- While holding the handpiece, grip the knob assembly with the opposite hand.
- Rotate the knob assembly 90° and pull the hose assembly from the handpiece.
- Place the cap over the end of the handpiece to protect the handle and protect the motor from water damage.

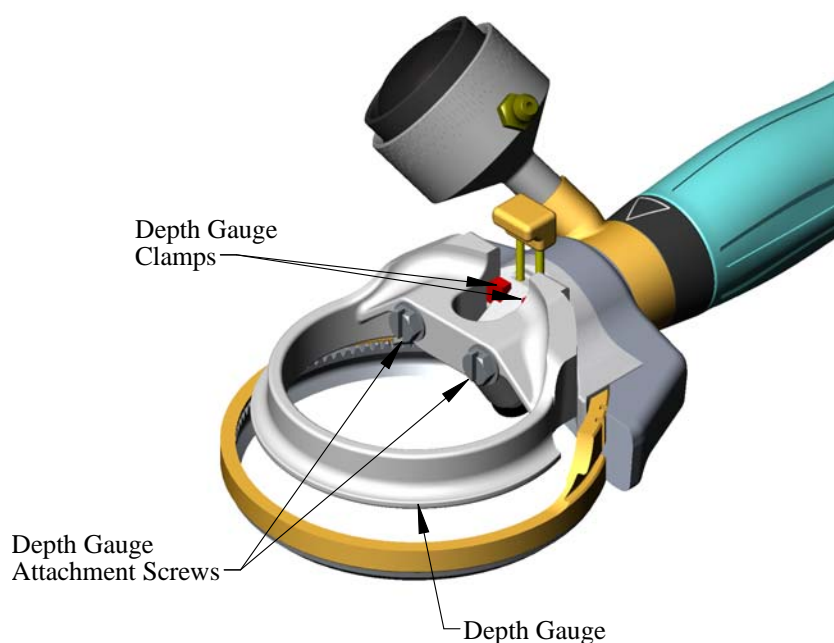




Disassembly of Handpiece (Continued)

Step 2: Removal/Disassembly of the Depth Gauge from the Cover:

- Loosen, but do not remove, the depth gauge attachment screw(s) located inside the depth gauge.
- Slide the depth gauge upward until the depth gauge clamp(s) slide out of the cover plate grooves.





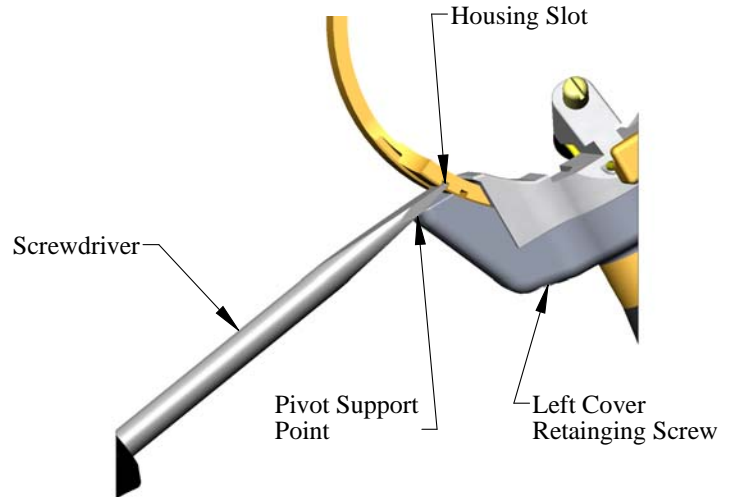
Disassembly of Handpiece (Continued)

Step 3: Remove Blade:

- Hold the tool with the blade side up.
- Loosen only the left cover retaining screw.

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

- Insert a screwdriver into the housing slot.
- Using the frame as the support point, spread open the housing, just far enough to remove the blade.
- Carefully remove the blade.

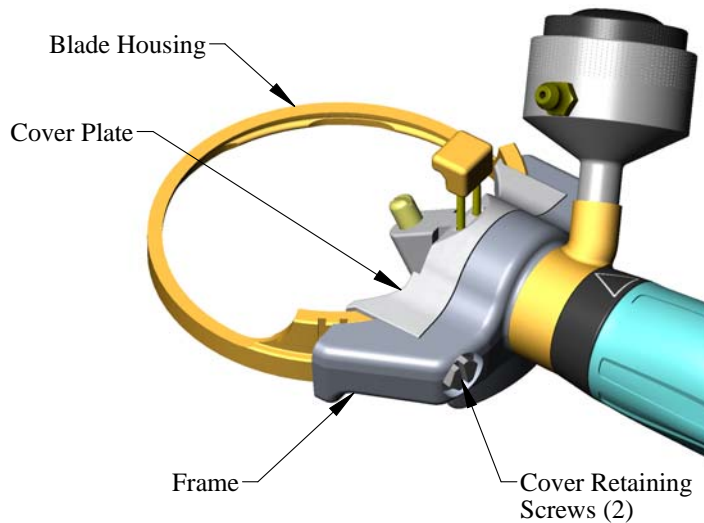




Disassembly of Handpiece (Continued)

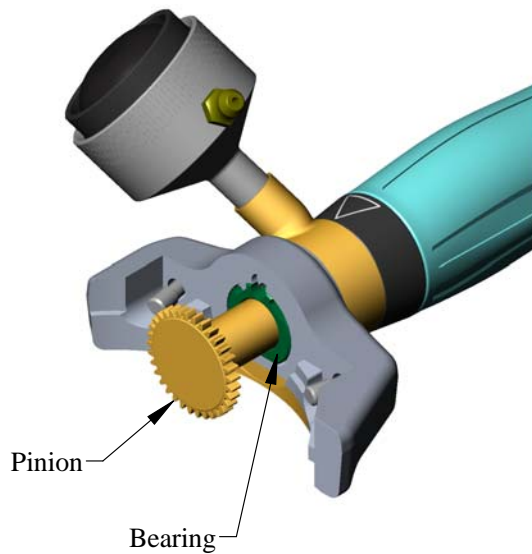
Step 4: Remove Cover and Blade Housing:

- Loosen the cover retaining screws until the cover can be removed.
- Remove the blade housing and cover.



Step 5: Remove Pinion:

- Pull the pinion out of the frame.

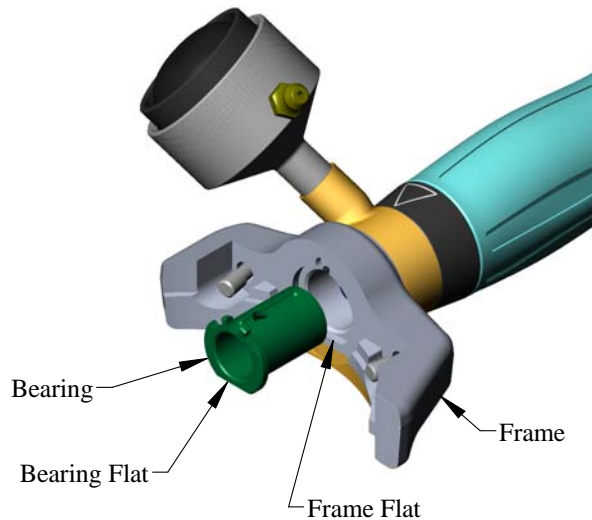




Disassembly of Handpiece (Continued)

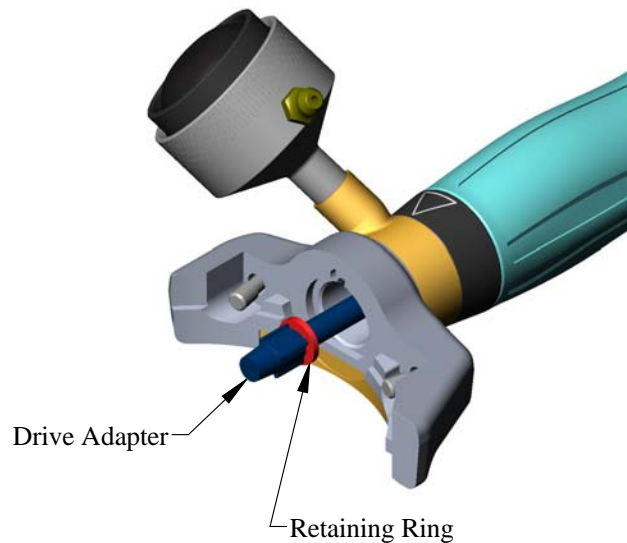
Step 6: Remove Bearing:

- Pull the bearing out of the frame.



Step 7: Remove Drive Adapter:

- Pull the drive adapter out of the frame.

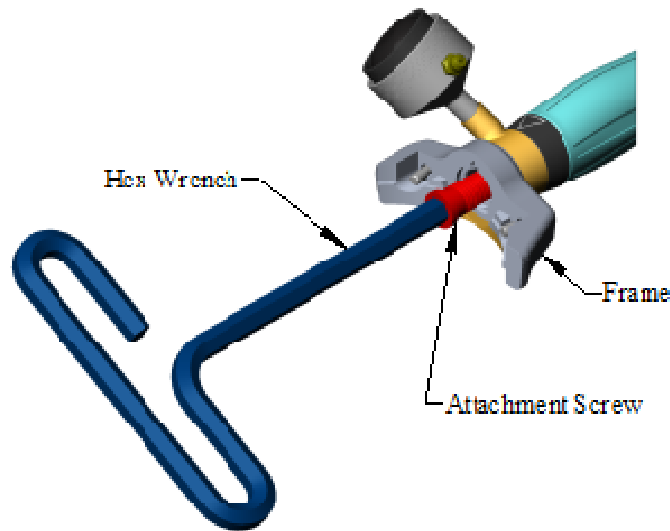




Disassembly of Handpiece (Continued)

Step 8: Remove Frame from Power Unit:

- Remove attachment screw from inside the frame using the supplied hex wrench.
- Remove the frame from the power unit.





Inspection and Maintenance of Handpiece



WARNING

Sharp blades may cause cut injury!



Always disconnect the air supply prior to servicing.

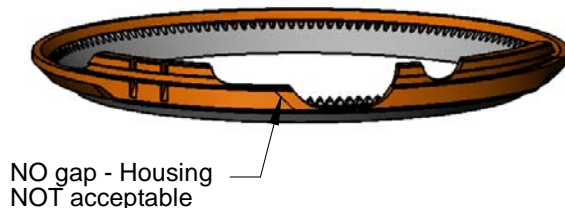
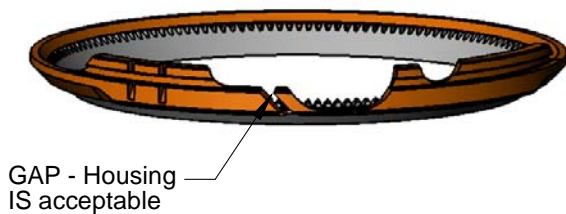
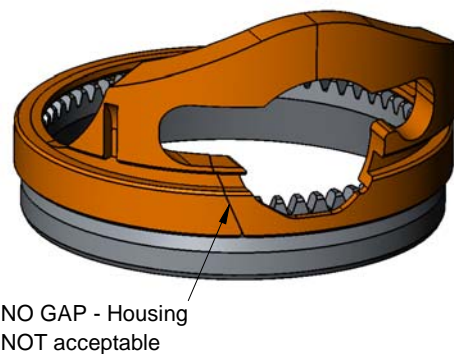
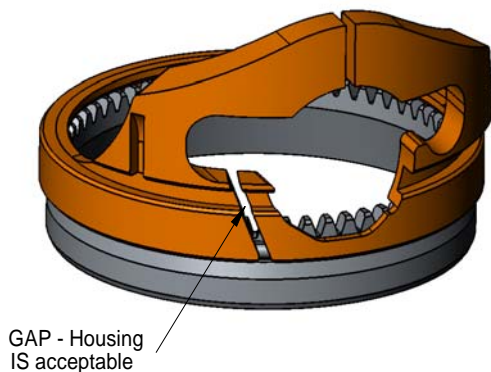
For proper protection of hands, a protective glove should be used when operating this equipment and during the handling of blades.

Blade

- Inspect the cutting edge height with a Whizard[®] blade gauge.
- Check for worn or chipped teeth.
- Check for damage to the cutting edge.

Blade Housing

- Inspect 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.





Inspection and Maintenance of Handpiece (Continued)

Pinion Gear

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

Bearing

- Install a new pinion and move the pinion side to side.
- If the pinion feels loose in the bearing, the bearing should be replaced.
- The bearing should be replaced after 500 hours of use.

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.
- Look for signs of wear on the pinion cover surface. If excessive wear signs are present, check the seal on the power unit for leakage.

Frame

- Inspect the frame surface where the housing is attached.
- Look for corrosion and any nicks or burrs that may prevent proper housing seating.
- Inspect the housing locating key for damage.
- Inspect the cover retaining screws and replace if bent or damaged.

Steeling Device

- Inspect the surface condition of the carbide steel. If chipped or cracked, it should be replaced.
- 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.
- If the depth gauge clamps are bent, replace the depth gauge.



Inspection and Maintenance of Handpiece (Continued)

Drive Adapter Assembly

- Inspect the drive adapter assembly for the following. Replace the drive adapter assembly if damaged.
 - Inspect the square end of the driver for rounded corners.
 - Inspect the retaining ring for damage.
- If retaining ring has moved out of the groove or is missing, replace drive adapter assembly.



Blade Sharpening



WARNING

Sharp blades may cause cut injury!



Always disconnect the air supply prior to servicing.

For proper protection of hands, a protective glove should be used when operating this equipment and during the handling of blades.



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.

- The blade should be sharpened daily with the use of a Whizard[®] Model 210 Universal Blade Sharpener, a Whizard[®] Model 214 Blade Sharpener, a Bettcher[®] AutoEdge, or by hand stoning.
- Clean all grease and meat particles from the blade before sharpening. Sharpening blades that have not been cleaned will coat the stone or grinding wheel and greatly reduce its effectiveness.
 - If the stone or grinding wheel becomes coated, gently scrub them clean using hot, soapy water.



Blade Sharpening (Continued)

Hand Stoning

- With the motor running, apply the flat side of the stone to the flat part of the blade.

WARNING

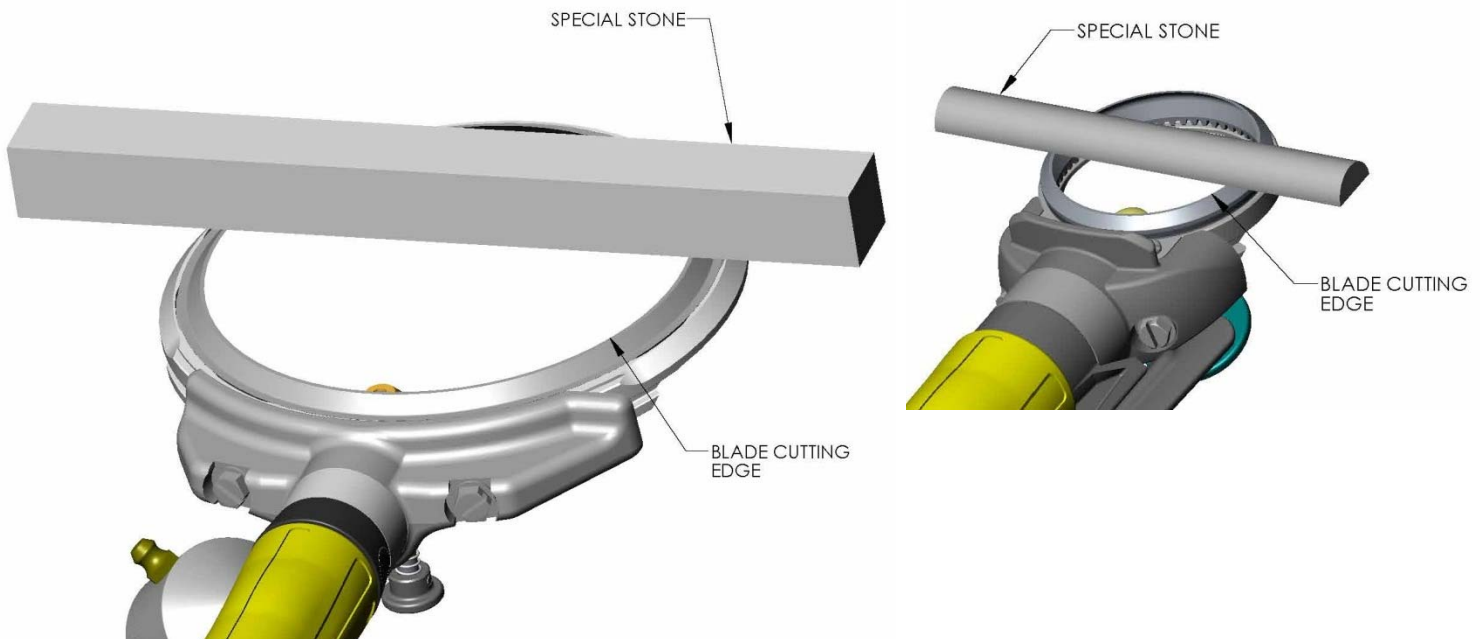


Sharp blades may cause injury!
For proper protection of hands, a protective glove should be used.

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.

- Move the stone, using a “back and forth” motion.
- Use the Special Whizard® Steel to finish sharpening. (*See Blade Steeling in Section 4*)





Power Unit / Head Assembly - Attachment and Adjustment



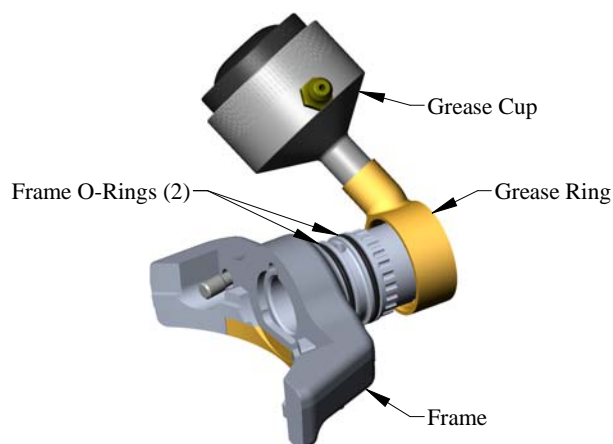
WARNING

Prior to assembly, be sure all parts are clean and have been inspected for wear per Section 5.

Step 1:

Grease Cup and Ring

- Pick up the Whizard[®] Trimmer.
- Pick up the grease cup and ring. Apply a small amount of Whizard[®] Special Grease to the frame o-rings.
- With a twisting motion, install the grease ring onto the frame over the o-rings.



NOTICE

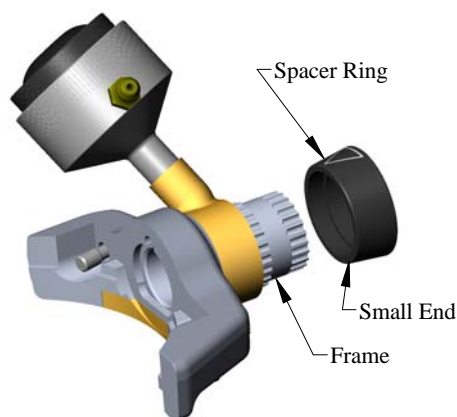
Be careful not to squeeze the o-rings out of their grooves, or they could be trapped and damaged.

- Rotate the grease cup to the desired position.

Step 2:

Spacer Ring

- Select the spacer ring or optional support.
- **If the spacer ring is used**, Slide the spacer ring onto the frame, small end first.



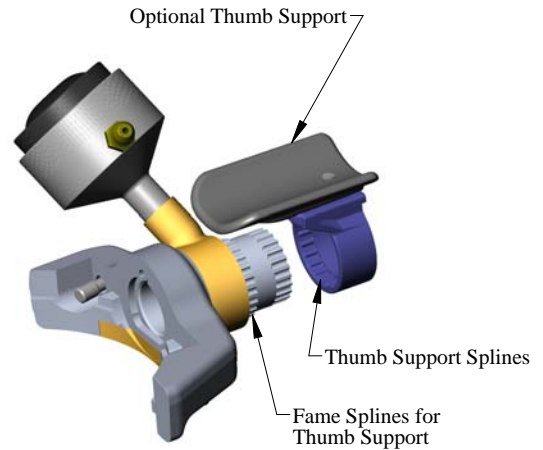


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 3:

Optional Thumb Support

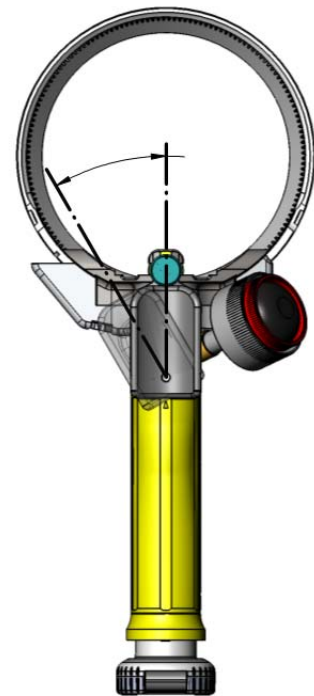
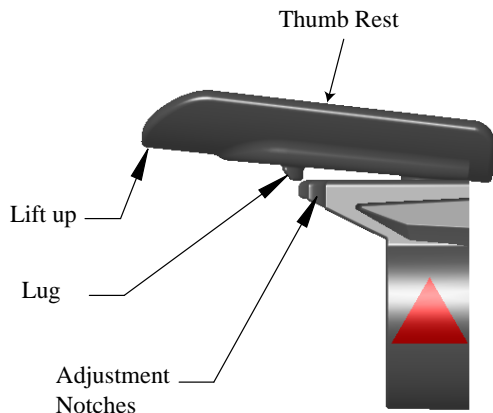
- Pick up a spacer ring or optional thumb support.
- If the optional thumb support is used, align the thumb support splines with the frame splines.
- The optional thumb support should be located on the opposite side of the grease cup.



Thumb Support Angle Adjustment

- Lift up on the front of the thumb support until the lug comes out of the notch underneath the thumb support.
- Rotate the thumb rest to a new position.
- Push the thumb rest back down to seat the lug into a new notch.

NOTE: *It may be necessary to rotate the grease cup to a new position to adjust the thumb support to the desired position.*



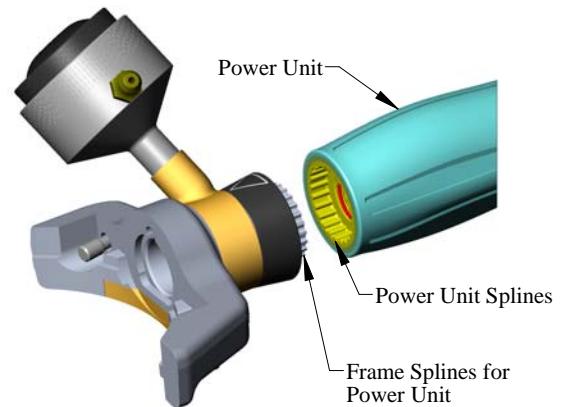


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 4:

Power Unit

- While holding the trimmer, pick up a power unit.
- Firmly push the power unit towards the bottom of the spacer ring or optional thumb support. Align the handle spline with the splines on the frame.



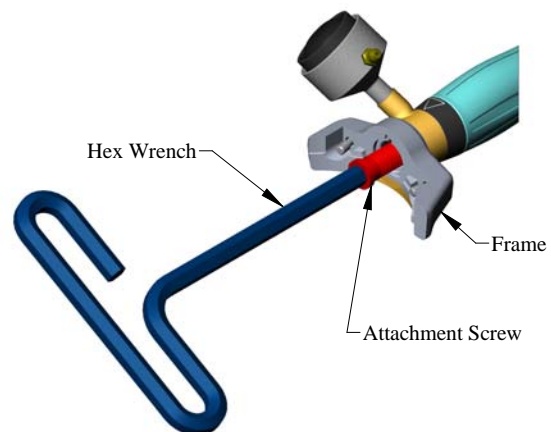
NOTE: *The handle can be adjusted to suit the operator and the work station by pulling the power unit back away from the frame and re-locating it on another set of notches on the frame.*

Step 5:

Attachment Screw

- Insert the attachment screw in the frame.
- Tighten the attachment screw **FIRMLY**, using the supplied hex wrench.

NOTE: *Recommended torque of 115-140 lb-in (13-16 N-m).*



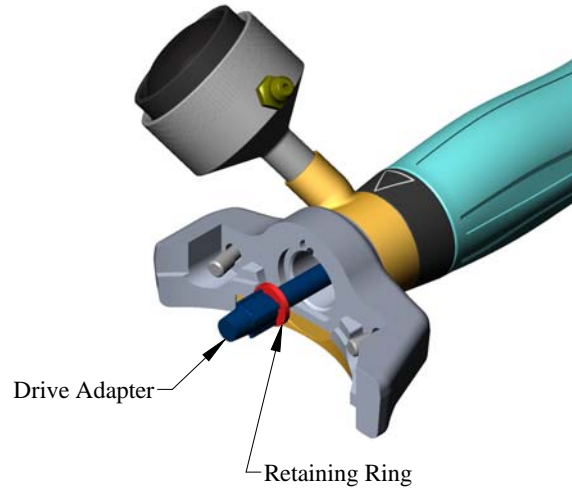


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 6:

Install Drive Adapter

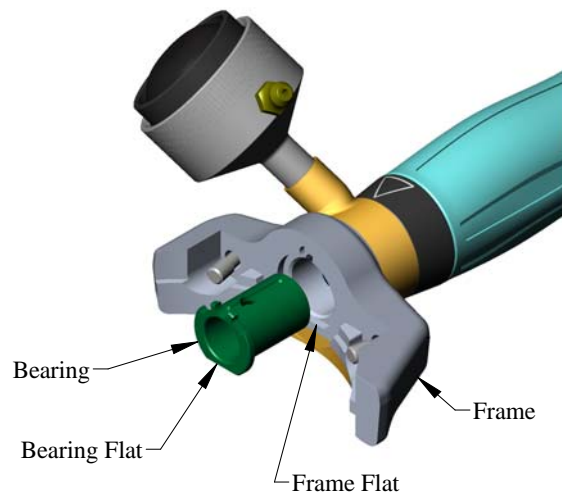
- Insert the drive adapter and align the square end with the square hole in the power unit.
- The drive adapter should drop in with no force required.
- The retaining ring will sit flush against the attachment screw when properly aligned.



Step 7:

Install Bearing

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



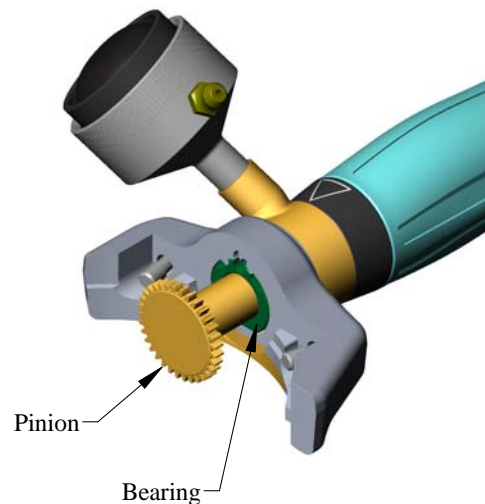


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 8:

Install Pinion

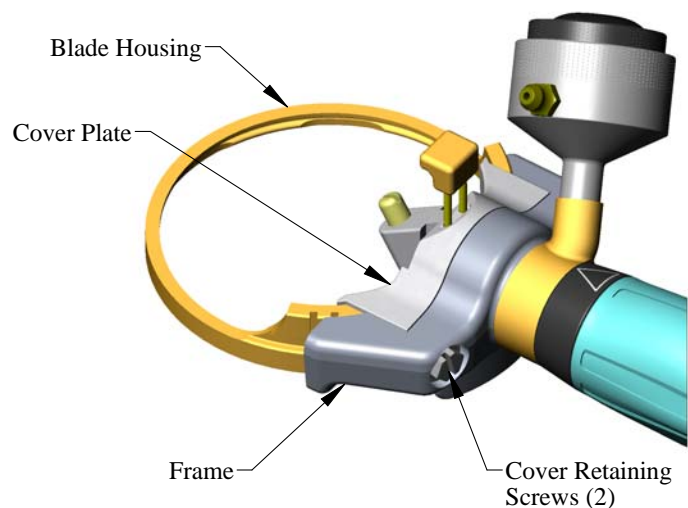
- Insert the pinion into the bearing bore.
- The pinion should go in with minimal effort and not require pressing.
- Do not force the pinion into the bearing. If the pinion does not go in easily, check bearing and pinion for damage or build-up.
- The pinion should sit flush against the bearing. If the pinion does not, rotate the pinion to seat it flush with the bearing.



Step 9:

Install Cover and Blade Housing

- Set the blade housing on the frame and place the cover plate over the blade housing.
- While holding the cover plate firmly against the housing and frame, start the two cover retaining screws.
- Thread the cover retaining screws in, leaving a slight tension to allow for blade adjustment.





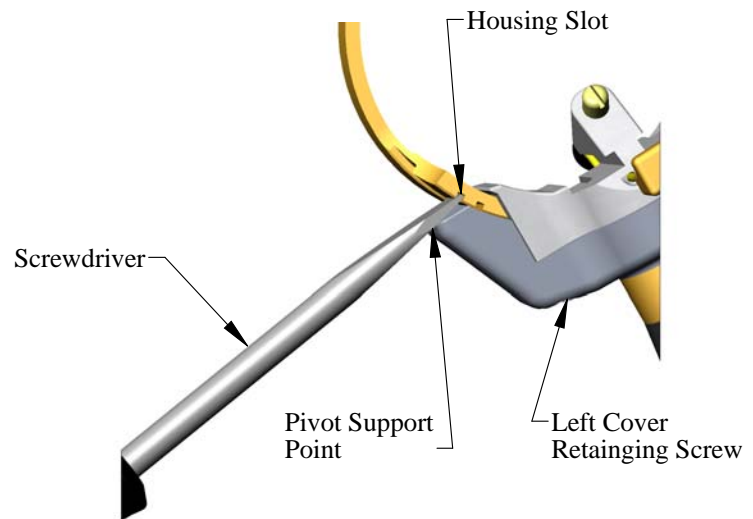
Power Unit / Head Assembly - Attachment and Adjustment (Continued)

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

Step 10:

Install Blade

- Holding the tool blade side up, pry open the blade housing with a screwdriver.
- Insert a new blade into the housing.
- Loosen the left cover retaining screw to allow the housing to close.
- Tighten the right cover retaining screw.
- With left cover retaining screw $\frac{1}{2}$ turn loose, adjust housing for proper fit.
- Gently pry the housing open until the blade rotates freely and has enough clearance to allow the blade to move forward and backward in the housing. Only a slight amount of movement is necessary.
- Tighten the cover retaining screws to the recommended torque.



NOTE: *Recommended torque of 30-40 lb-in (3.4-4.5 N-m).*

IMPORTANT: *Be sure that the blade is free to move in the housing. If the blade does not move freely, it may cause the trimmer to overheat.*

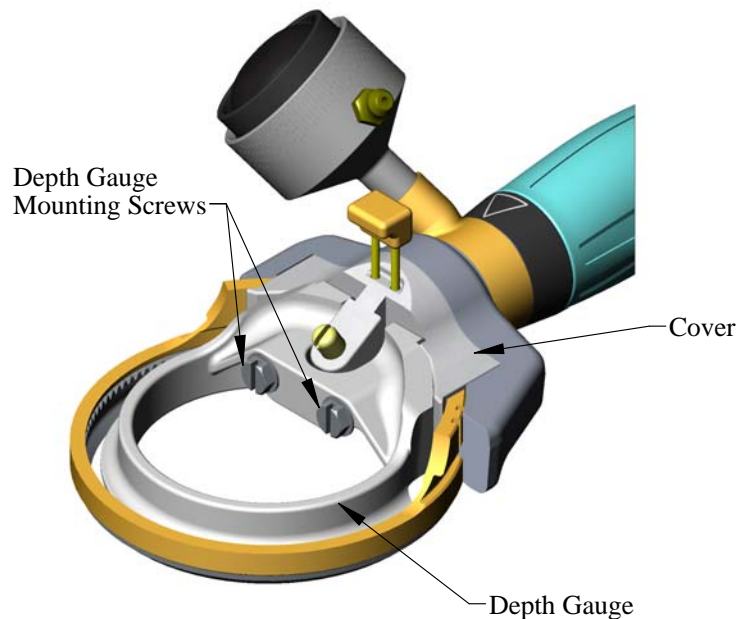


Power Unit / Head Assembly - Attachment and Adjustment (Continued)

Step 11:

Install Depth Gauge (Optional)

- Loosen depth gauge **attachment** screws.
- Slide depth gauge onto the cover.
- Adjust the depth gauge to the desired height.
- (See Depth Gauge Adjustment for more information)
- Tighten the depth gauge **attachment screw(s)**.





Whizard Quantum[®] TRIMVAC[®] Handpiece Maintenance



Sharp blades may cause injury!



For proper protection of hands, a protective glove should be used when operating this equipment and during the handling of blades.

Always disconnect air supply and remove tool from hose assembly prior to servicing.

Required Tools for Handpiece Maintenance

- 1 – Flat head screwdriver
- 1 – 3/32” hex wrench (supplied with the Whizard Quantum[®] TRIMVAC[®])
- 1 – 9/64” hex wrench (supplied with the Whizard Quantum[®] TRIMVAC[®])
- 1 – 3/8” hex wrench (supplied with the Whizard Quantum[®] TRIMVAC[®])

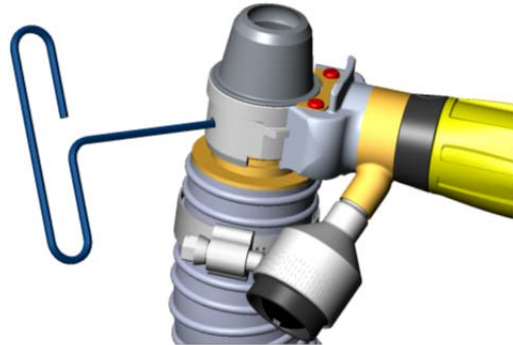


Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece

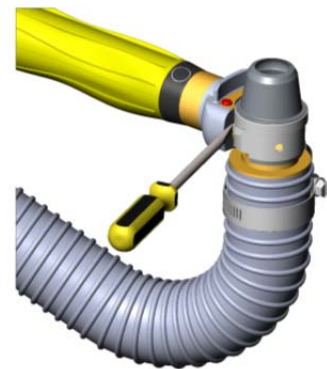
Step 1: Remove Blade from Handpiece:

Whizard Quantum[®] TRIMVAC[®] 18:

- Hold the tool with the blade side up.
- Loosen only the left cover retaining screw, using the supplied 3/32" hex wrench.



- Insert a screwdriver into the housing slot.
- Using the frame support point, spread open the housing, just far enough to remove the blade.



- Carefully remove the blade.

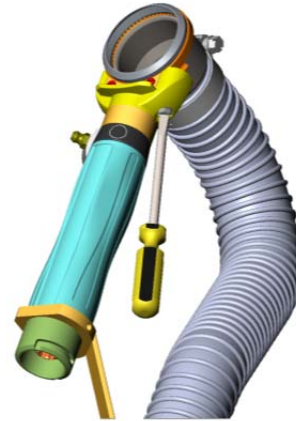




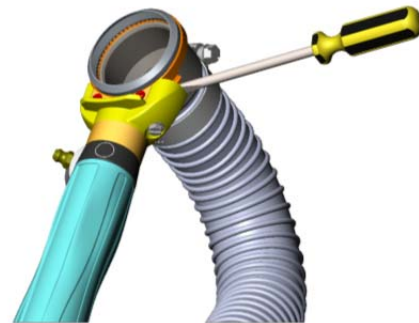
Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Whizard Quantum[®] TRIMVAC[®] 45:

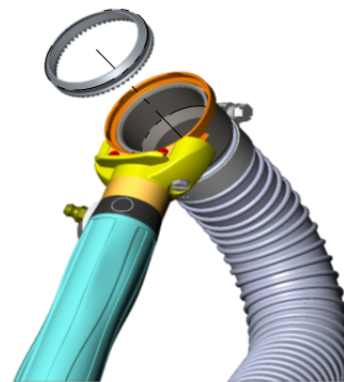
- Hold the tool with the blade side up.
- Loosen only the left cover retaining screw.



- Insert a screwdriver into the housing slot.
- Using the frame support point, spread open the housing, just far enough to remove the blade.



- Carefully remove the blade.





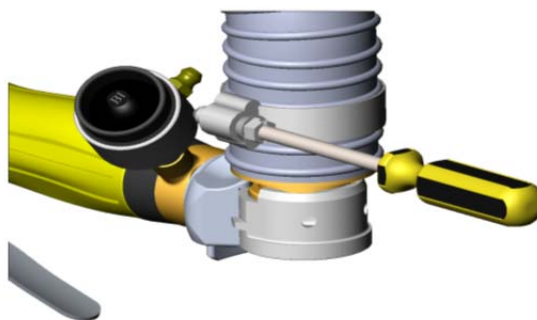
Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 2: Remove Vacuum Hose:

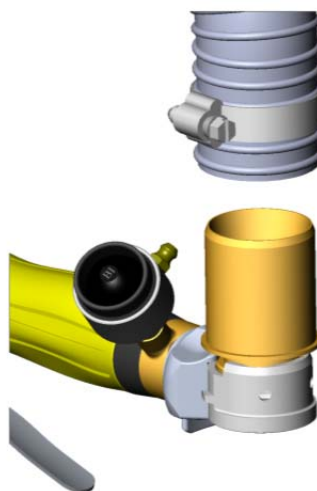
- Slide the Whizard Quantum[®] Air hose out of the clips on the vacuum hose.
- Repeat for each clip.



- Loosen the screw on the hose clamp.



- Slide the vacuum hose off of the hose adapter.



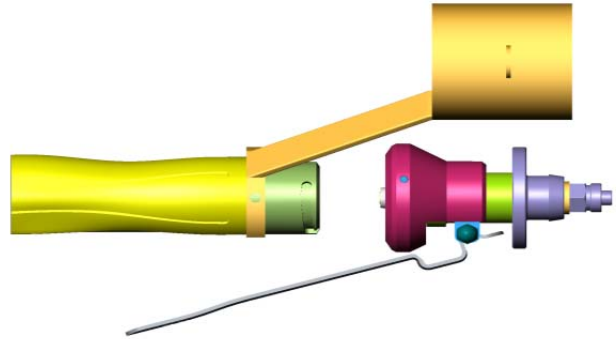
- Slide the hose out of the vacuum hose bracket.



Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 3: Remove Handpiece from Hose Assembly:

- While holding the handpiece grip the knob assembly with the other hand.
- Rotate the knob assembly 90° and pull the hose assembly from the handpiece.



Step 4: Remove Hose Adapter, Cover, and Blade Housing:

Whizard Quantum[®] TRIMVAC[®] 18:

- Loosen the cover retaining screws until the hose adapter, cover, and blade housing can be removed.
- Remove the hose adapter, cover and blade housing

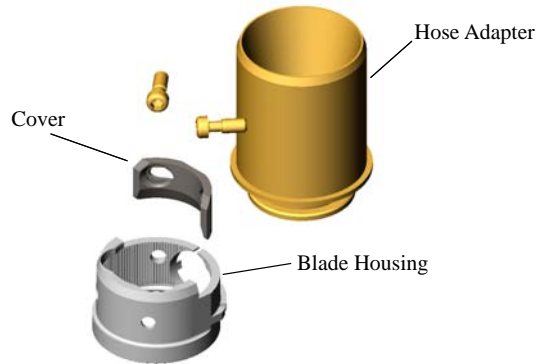




Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

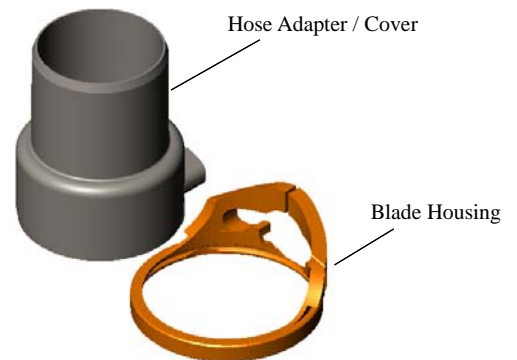
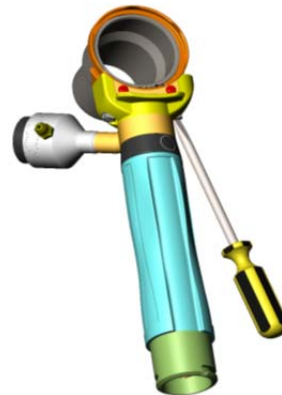
Step 4: Remove Hose Adapter, Cover, and Blade Housing (Continued):

- Separate the parts.



Whizard Quantum[®] TRIMVAC[®] 45:

- Loosen the cover retaining screws until the hose adapter / cover and blade housing can be removed.
- Remove the hose adapter / cover and blade housing
- Separate the parts.

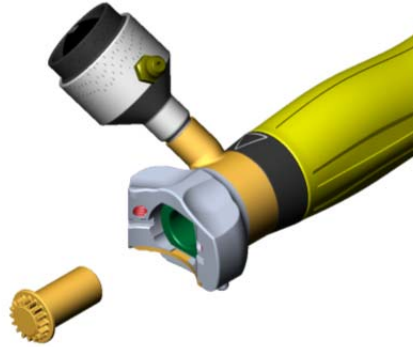




Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

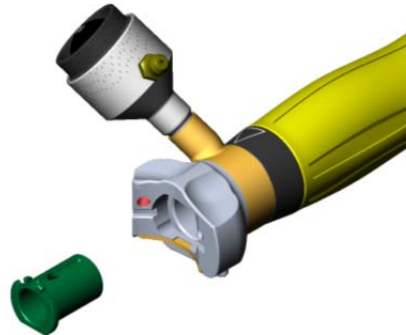
Step 5: Remove Pinion:

- Pull the pinion out of the bearing.



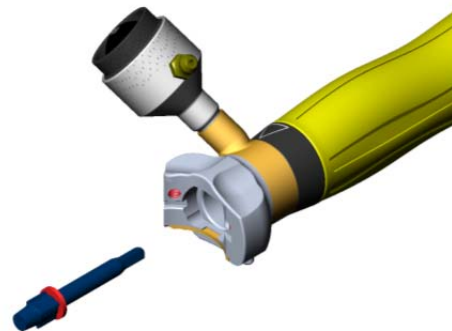
Step 6: Remove Bearing:

- Pull the bearing out of the frame.



Step 7: Remove Drive Adapter:

- Pull the drive adapter out of the frame.

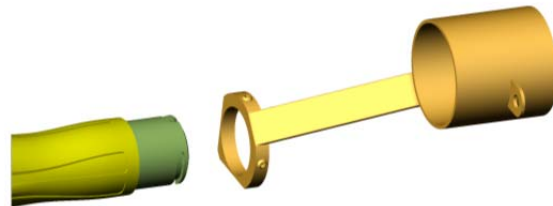
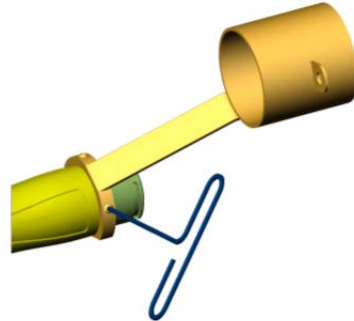




Disassembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

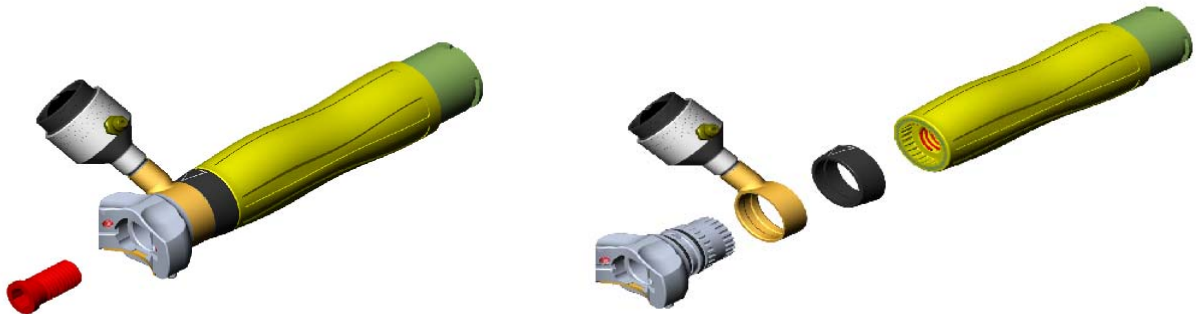
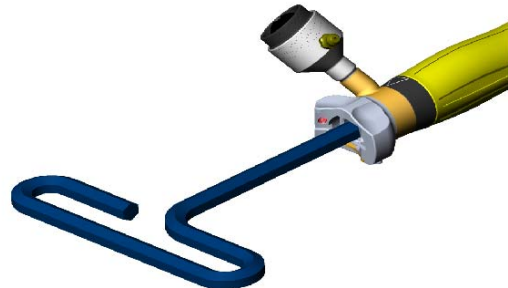
Step 8: Remove Vacuum Hose Bracket:

- Loosen the hose bracket screws.
- Slide the hose bracket off of the power unit.



Step 9: Remove Frame from Power Unit:

- Remove the attachment screws from inside the frame using the supplied hex wrench.
- Remove the frame from the power unit.





Inspection and Maintenance of Whizard Quantum[®] TRIMVAC[®] Handpiece

! WARNING

Sharp blades may cause cut injury!



Always disconnect the air supply prior to servicing.

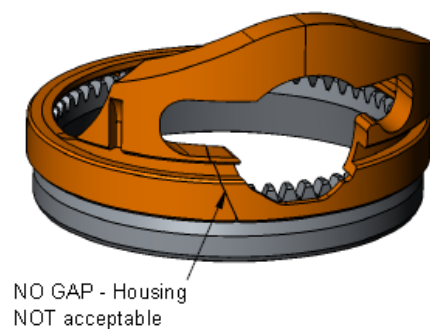
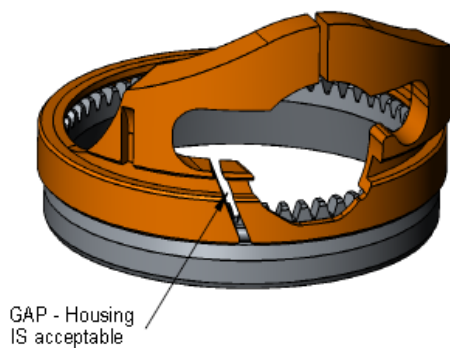
For proper protection of hands, a protective glove should be used when operating this equipment and during the handling of blades.

Blade

- Inspect the cutting edge height with a Bettcher blade gauge.
- Check for worn or chipped teeth.
- Check for damage to the cutting edge.

Blade Housing

- Inspect 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.
-





Inspection and Maintenance of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Pinion Gear

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

Bearing

- Install a new pinion and move the pinion side to side.
- If the pinion feels loose in the bearing, the bearing should be replaced.
- The bearing should be replaced after 500 hours of use, or if it is worn, whichever comes first.

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.
- Look for signs of wear on the pinion cover surface. If excessive wear signs are present, check the seal on the power unit for leakage.

Hose Adapter

- Inspect the hose adapter for chips or cracks and replace if damaged.

Frame

- Inspect the frame surface where the housing is attached.
- Look for corrosion and any nicks or burrs that may prevent proper seating of the housing.
- Inspect the housing locating key for damage.
- Inspect the cover retaining screws and replace if bent or damaged.

Drive Adapter Assembly

- Inspect the drive adapter assembly for the following. Replace the drive adapter assembly if damaged.
 - Inspect the square end of the driver for rounded corners.
 - Inspect the retaining ring for damage.
- Press the retaining ring back into the groove if the retaining ring has moved.



Blade Sharpening of Whizard Quantum[®] TRIMVAC[®] Handpiece



WARNING

Sharp blades may cause cut injury!



Always disconnect the air supply prior to servicing.

For proper protection of hands, a protective glove should be used when operating this equipment and during the handling of blades.



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.

Whizard Quantum[®] TRIMVAC[®] 45 Sharpening

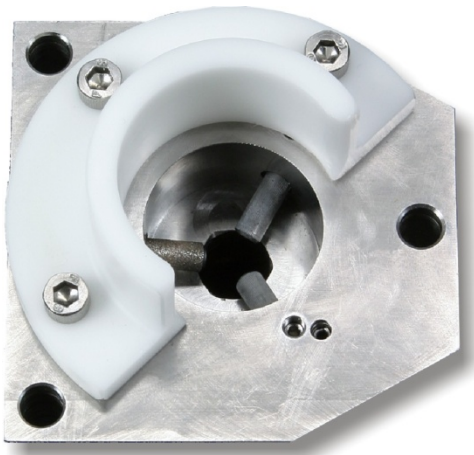
- The blade should be sharpened daily with the use of a Whizard[®] Model 210 Universal Blade Sharpener, a Whizard[®] Model 214 Blade Sharpener, Bettcher[®] AutoEdge, or by hand stoning.
- Clean all grease and meat particles from the blade before sharpening. Sharpening blades that have not been cleaned will contaminate the stone or grinding wheel and greatly reduce its effectiveness.
 - If the stone or grinding wheel becomes contaminated, gently scrub them clean using hot, soapy water.



Blade Sharpening of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Whizard Quantum[®] TRIMVAC[®] 18 Sharpening

- With the trimmer running, insert the blade into the TRIMVAC[®] Sharpener. The plastic cap on the top of the sharpener will guide the handpiece into the sharpener.
- Press the blade lightly onto the sharpening and steeling rods for a few seconds.





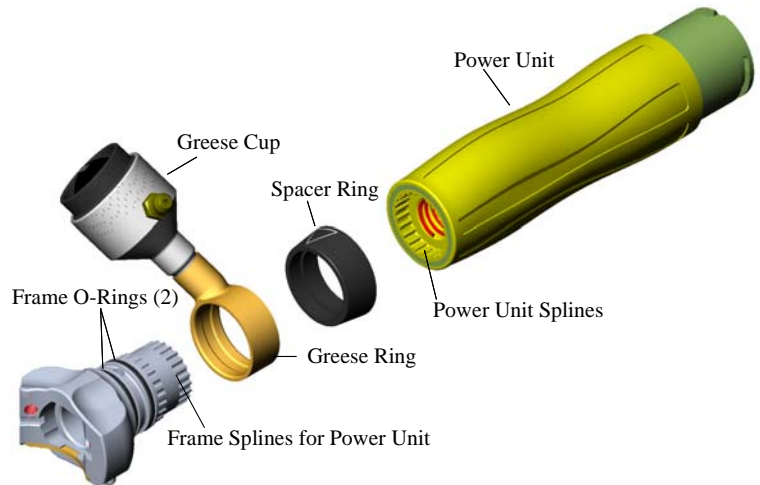
Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece

Prior to assembly, be certain all parts are clean and have been inspected for wear per Section 5.

Step 1: Attach Frame to Power Unit:

Grease Cup and Ring

- Pick up the Whizard[®] Trimmer.
- Pick up the grease cup and ring. Apply a small amount of Whizard[®] Special Grease to the frame o-rings.
- With a twisting motion, install the grease ring onto the frame over the o-rings.



NOTICE

Be careful not to squeeze the o-rings out of their grooves, or they could be trapped and damaged.

- Rotate the grease cup to the desired position.
- Slide the spacer ring onto the frame, small end first.
- While holding the trimmer, pick up the power unit.
- Firmly push the power unit towards the bottom of the spacer ring. Align the power unit spline with the splines on the frame.

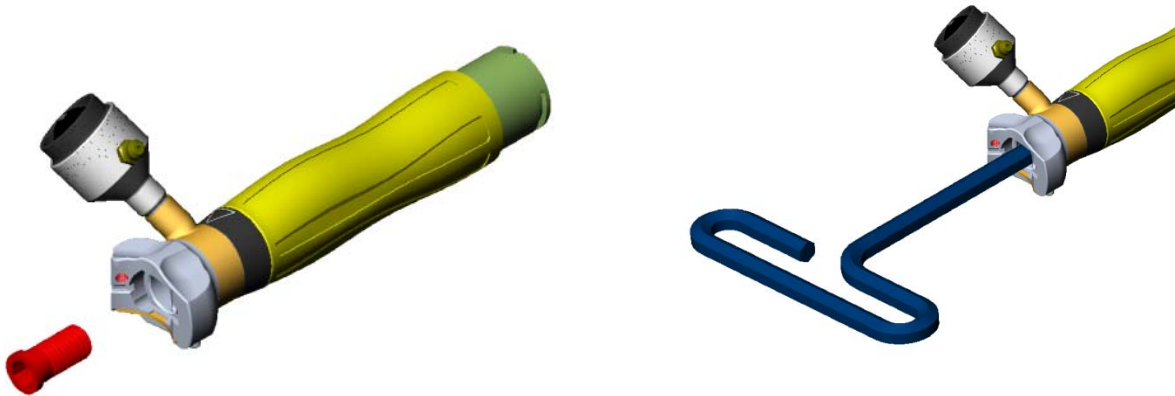
NOTE: *The handle can be adjusted to suit the operator and the work station by pulling the power unit back away from the frame and re-locating it on another set of notches on the frame.*



Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 1: Attach Frame to Power Unit (Continued):

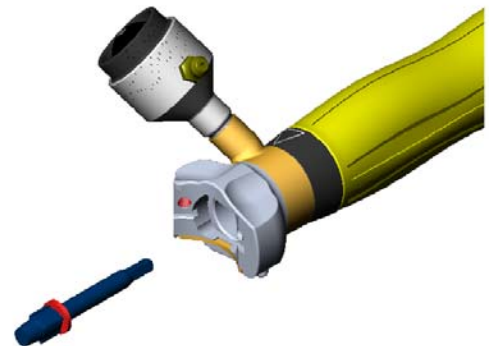
- Insert the attachment screw in the frame.
- Tighten the attachment screw ***firmly***, using the supplied hex wrench.



NOTE: *Recommended torque of 115-140 lb-in (13-16 N-m).*

Step 2: Install Drive Adapter:

- Insert the drive adapter and align the square end with the square hole in the power unit.
- The drive adapter should drop in with no pressing force required.
- The retaining ring will sit flush against the attachment screws when properly inserted.

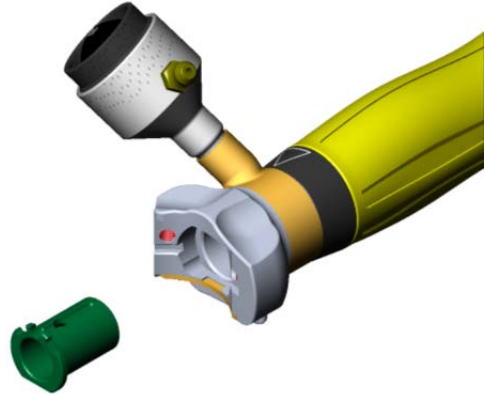




Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

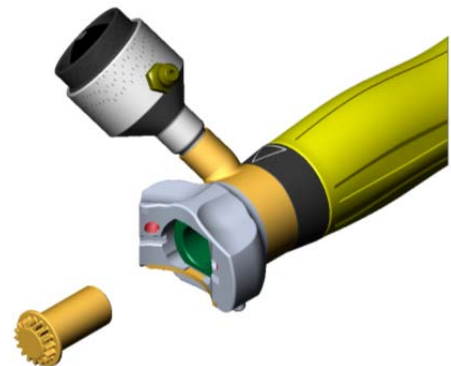
Step 3: Install Bearing:

- Push the handpiece bearing into 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 the bearing does not go in easily, check frame and bearing for damage or build-up.



Step 4: Install Pinion:

- Insert the pinion into the bearing bore.
- The pinion should go in with minimal effort and not require pressing.
- Do not force the pinion into the bearing. If the pinion does not go in easily, check the bearing and pinion for damage or build-up.
- The pinion should sit flush against the bearing. If it does not, rotate the pinion to seat it flush with the bearing.

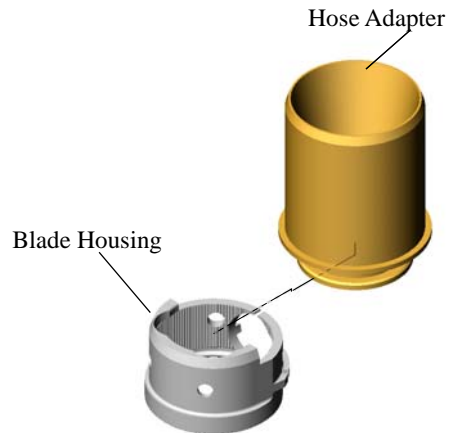




Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 5: Install Hose Adapter onto Housing (Whizard Quantum[®] TRIMVAC[®] 18 Only):

- Slide the hose adapter into the housing.



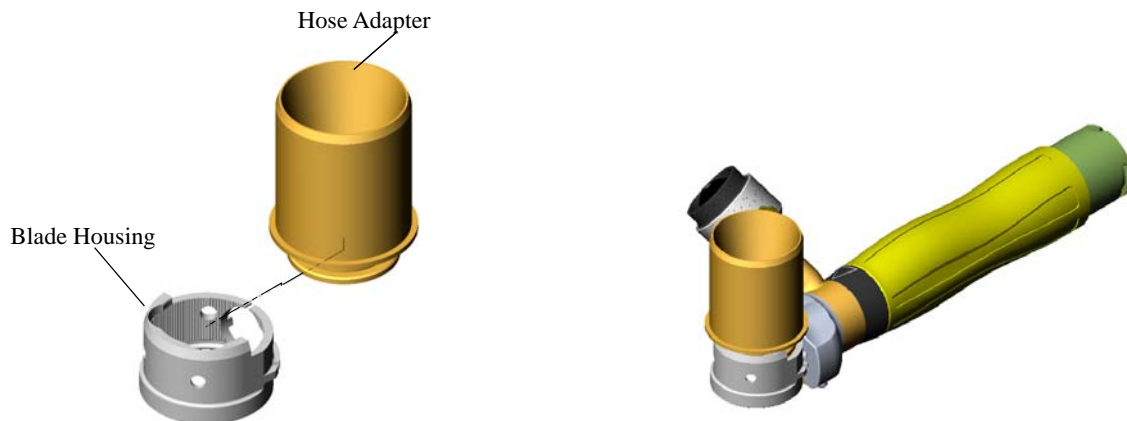


Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

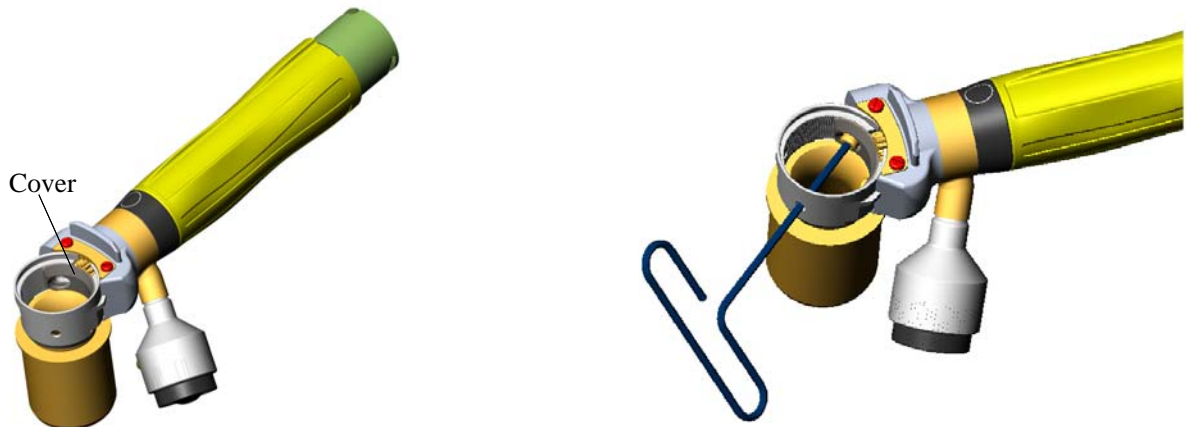
Step 6: Attach Housing to Frame:

Whizard Quantum[®] TRIMVAC[®] 18:

- Set the blade housing with the hose adapter installed on the frame.



- Insert the cover plate into the housing. Align the holes in the cover plate with the holes in the frame.
- Insert the cover retaining screws. Thread the cover retaining screws in, leaving a slight tension to allow for blade adjustment.



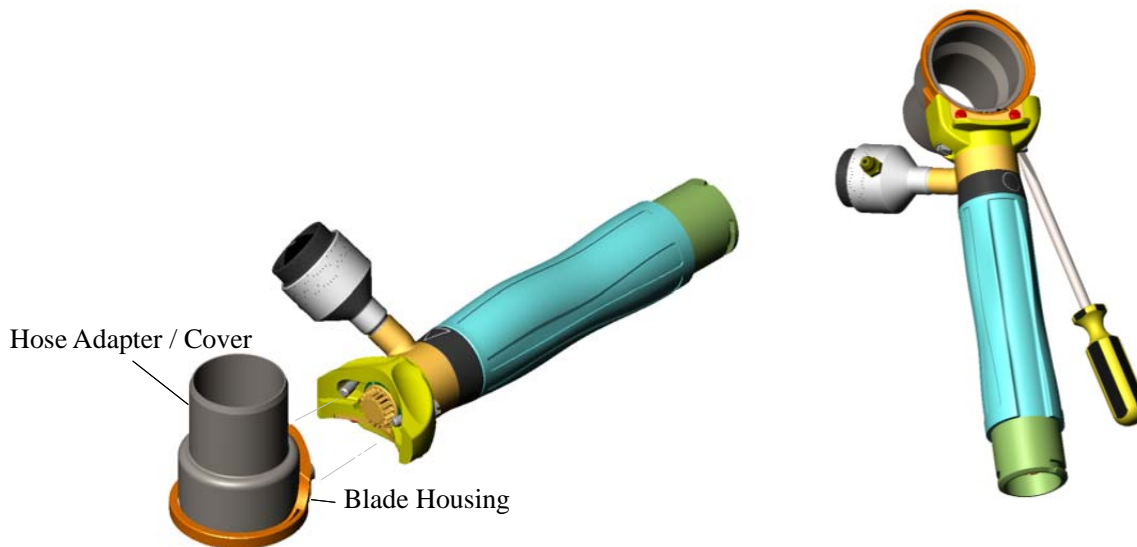


Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 6: Attach Housing to Frame (Continued):

Whizard Quantum[®] TRIMVAC[®] 45:

- Insert the hose adapter / cover into the blade housing.
- Set the blade housing on the frame. Make sure both the housing and hose adapter / cover are seated properly.
- While holding the hose adapter / cover firmly against the housing and frame, start the two cover retaining screws.
- Thread the cover retaining screws in, leaving a slight tension to allow for blade adjustment.





Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 7: Install Blade:

Whizard Quantum[®] TRIMVAC[®] 18:

- Hold the tool with the blade side up.
- Loosen only the left cover retaining screw using the supplied 3/32" hex wrench.

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



- Insert a screwdriver into the housing slot.
- Using the frame support point, spread open the housing, just far enough to install the blade.



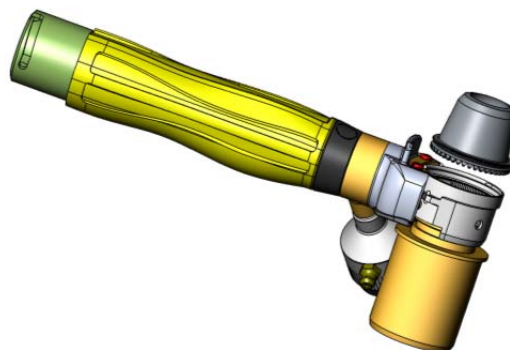


Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 7: Install Blade (Continued):

Whizard Quantum[®] TRIMVAC[®] 18:

- Carefully insert the blade.



- Loosen the left cover retaining screw so the housing will close.

NOTE: *Be certain that the blade is free to move in the housing. If the blade does not move freely, it may cause the trimmer to overheat.*

- Adjust the housing for proper running clearance.
- When the housing is properly adjusted there will be a slight “left to right” movement, plus a light “up and down” movement.
- If the blade does not move “left to right” and “up and down”, pry the housing open slightly.
- Retighten the cover retaining screws.

NOTE: *Recommended torque of 30-40 lb-in (3.4-4.5 N-m)*





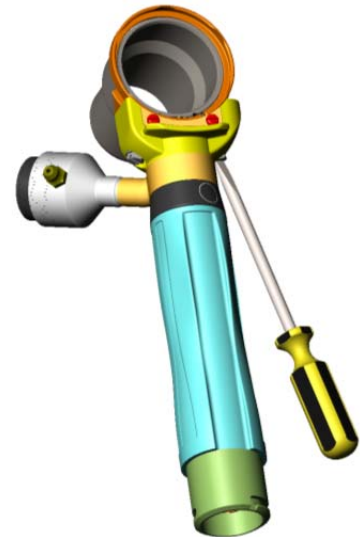
Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 7: Install Blade (Continued):

Whizard Quantum[®] TRIMVAC[®] 45:

- Hold the tool with the blade side up.
- Loosen only the left cover retaining screw.

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



- Insert a screwdriver into the housing slot.
- Using the frame support point, spread open the housing, just far enough to install the blade.

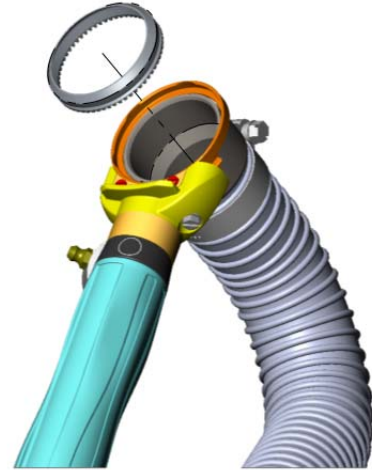




Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 7: Install Blade (Continued):

- Carefully insert the blade.



- Loosen the left cover retaining screw so the housing will close.

NOTE: *Be certain that the blade is free to move in the housing. If the blade does not move freely, it may cause the trimmer to overheat.*

- Adjust the housing for proper running clearance.
- If the blade is tight in the housing, adjustments can be made by loosening the left cover retaining screw and slightly spreading open the housing. Check for free movement.
- Retighten the cover retaining screws.



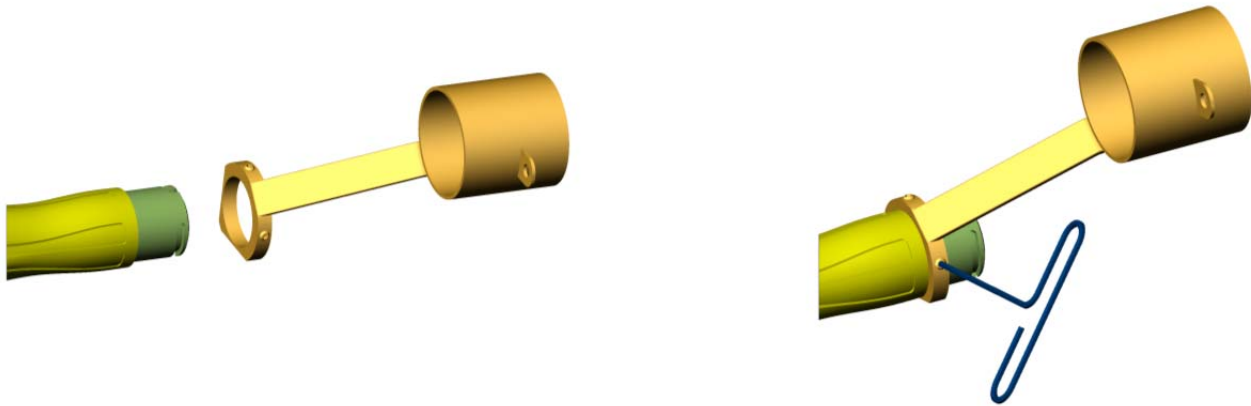
NOTE: *Recommended torque of 30-40 lb-in (3.4-4.5 N-m)*



Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

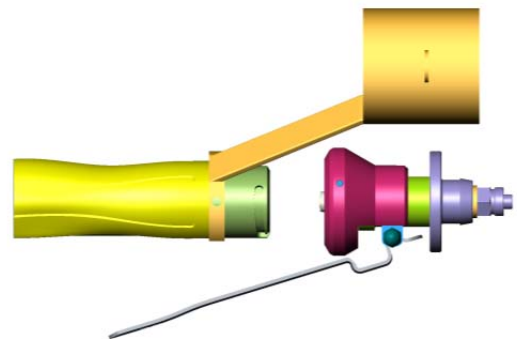
Step 8: Install Vacuum Hose Bracket:

- Slide the hose bracket onto the power unit.
- Align the flat on the vacuum hose bracket with the lever relief groove on the power unit.
- Tighten the hose bracket screws.



Step 9: Attach Whizard Quantum[®] Air Hose to Power Unit:

- Align the pins in the hose assembly with the grooves on the power unit.
- Slide the power unit into the hose assembly.
- Rotate the power unit 90°.
- The lever will rotate toward the bottom of the tool.

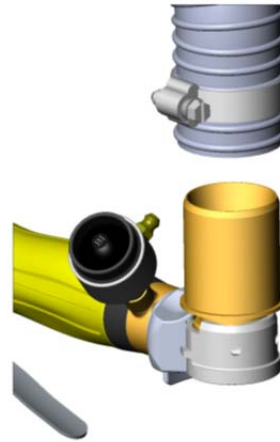




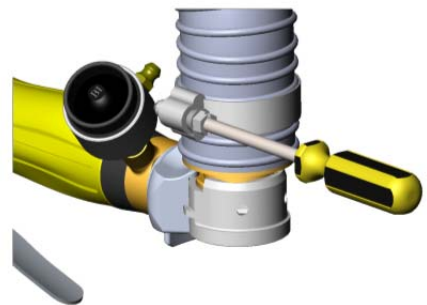
Assembly of Whizard Quantum[®] TRIMVAC[®] Handpiece (Continued)

Step 10: Attach Vacuum Hose:

- Slide the vacuum hose through the vacuum hose bracket.
- Slide the vacuum hose onto the hose adapter.



- Tighten the hose clamp screw.



- Slide the Whizard Quantum[®] Air hose into the clips on the vacuum hose.
- Repeat step for each clip.





Power Unit Maintenance

Required Tools for Power Unit Maintenance

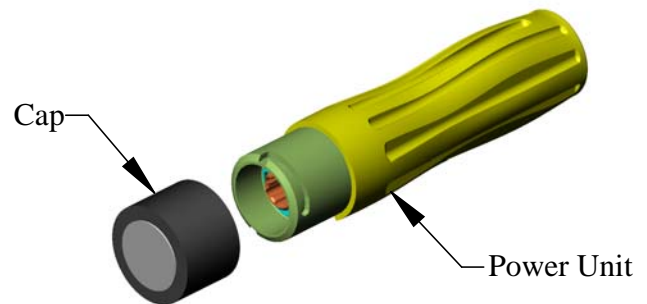
1 – Spanner Wrench (Supplied with your Whizard Quantum[®] Air Trimmer)

Disassembly of Power Unit

Step 1: Remove Cap

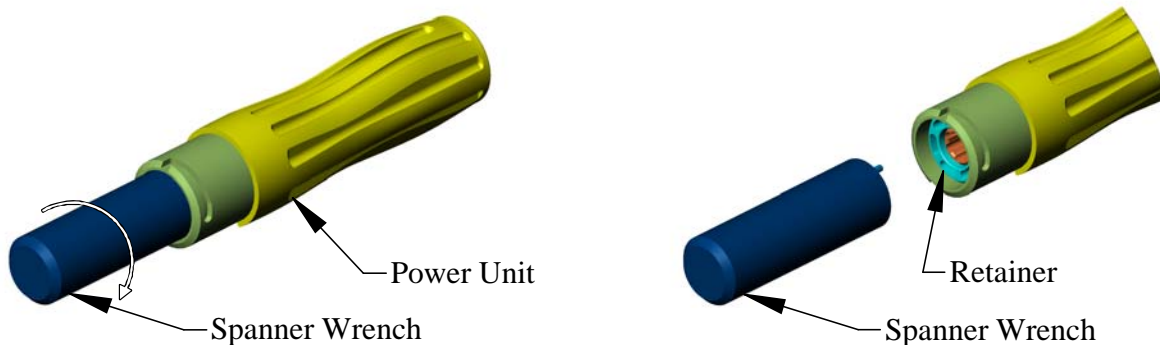
- Remove the cap.

NOTE: *Do not discard the cap.*



Step 2: Unscrew Retainer

- Unscrew the retainer using the supplied spanner wrench. The retainer is a left-handed thread and must be turned to the right (clockwise) to unscrew.

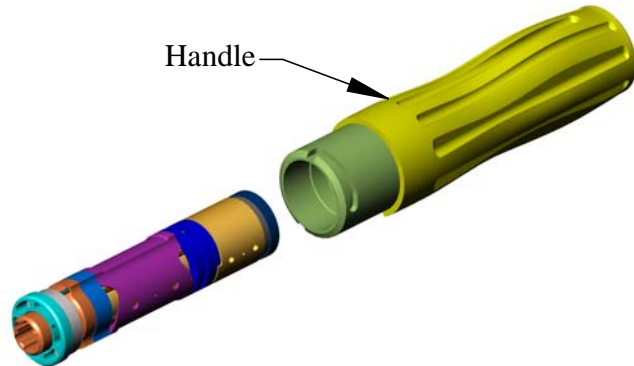




Disassembly of Power Unit (Continued)

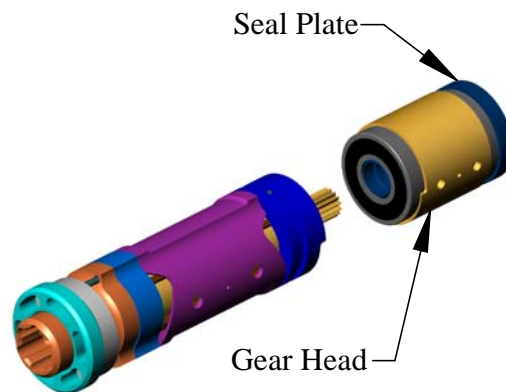
STEP 3: Slide Components Out Of Handle

- Slide the seal plate, gear head, air motor, adapter plate, muffler, and retainer out of the handle.
- The parts should slide out easily. If the parts do not slide out, tap the handle lightly against a plastic block to dislodge the parts.



STEP 4: Separate Seal Plate And Gear Head Assembly

- Separate the seal plate and gear head assembly from the air motor, adapter plate, muffler, and retainer.

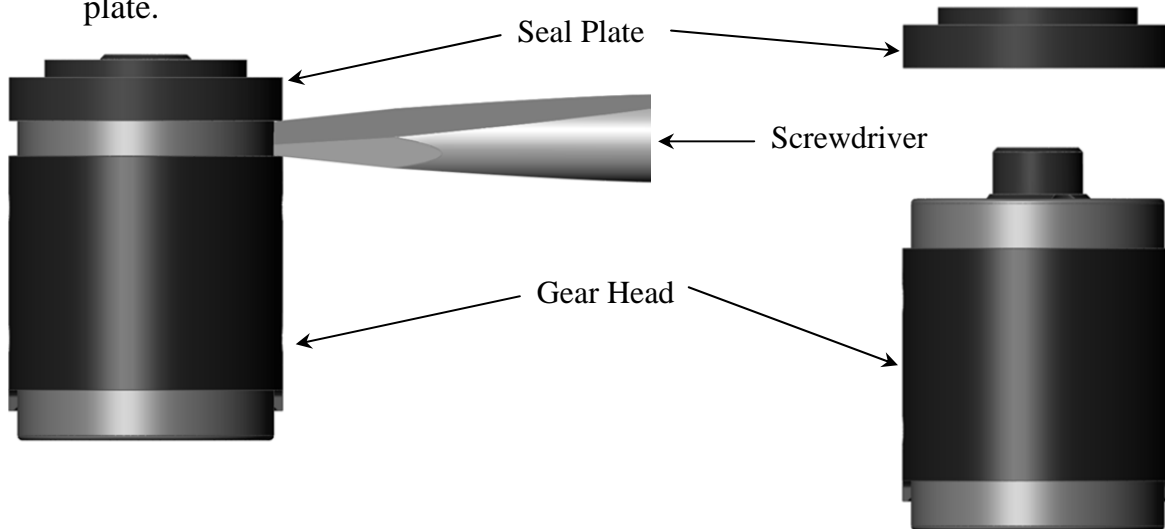




Disassembly of Power Unit (Continued)

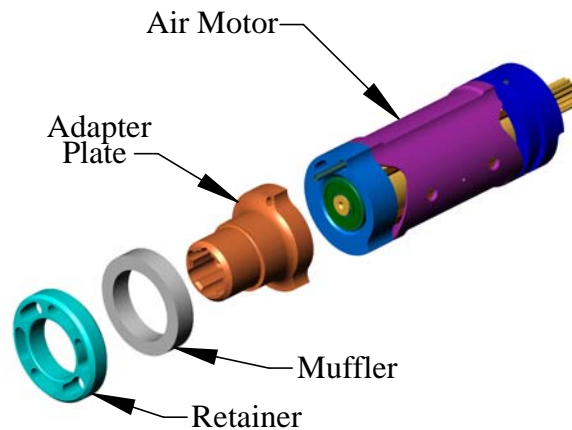
Step 5: Remove Seal Plate

- Remove the seal plate from the top of the gear head.
- Insert a screwdriver between the seal plate and ring gear and twist to remove the seal plate.



Step 6: Separate Remaining Components

- Separate air motor, adapter plate, muffler, and retainer.



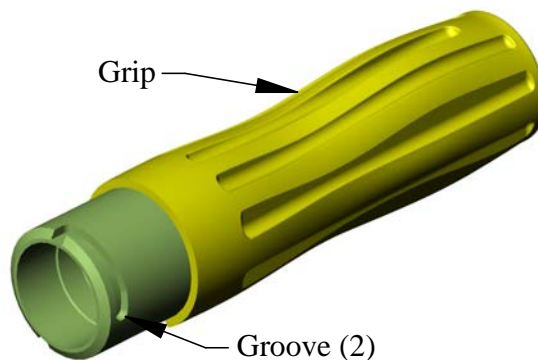


Inspection and Maintenance of Power Unit

Inspection and maintenance should be performed after every 80 hours of use.

Handle

- Clean the handle with warm soapy water and a soft brush. Remove any build up from the grooves. Rinse the handle and dry thoroughly.
- Inspect the handle for the following and replace if damage is detected.
 - Inspect the handle grip for tears, cuts, or wear.
 - Inspect the handle grooves for nicks or wear.
 - Inspect the handle I.D. for dents.

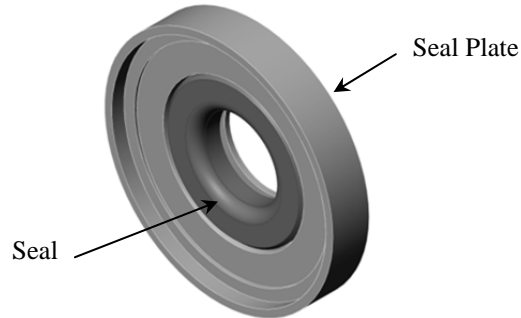




Inspection and Maintenance of Power Unit (Continued)

Seal Plate

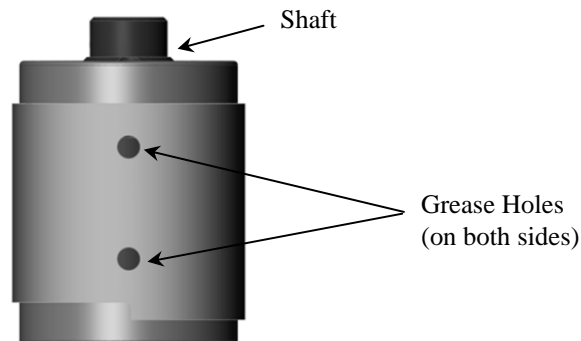
- Inspect the seal plate I.D. and O.D. for nicks, dents or wear. Replace the seal plate if damaged. (See Seal Plate Maintenance).
- Inspect the seal I.D. for nicks, cuts or cracks. Replace the seal if damaged. (See Seal Plate Maintenance).



Gear Head

- Inspect the gear head, by rotating the shaft.
 - If the shaft does not rotate, replace the gear head.
 - If you feel a rough or gritty resistance while rotating the shaft, replace the gear head.
- Re-grease gear head with Max-Z-Lube grease every 80 hours of use.
 - Squeeze grease in through the rotor shaft hole in the bottom of the gear head.
 - Continue to supply grease until clean grease comes out of the grease holes in the ring gear.
 - This method will thoroughly re-grease gear head and clean out debris trapped in the gear head.

NOTE: Use only *Max-Z-Lube high performance lubricant.*

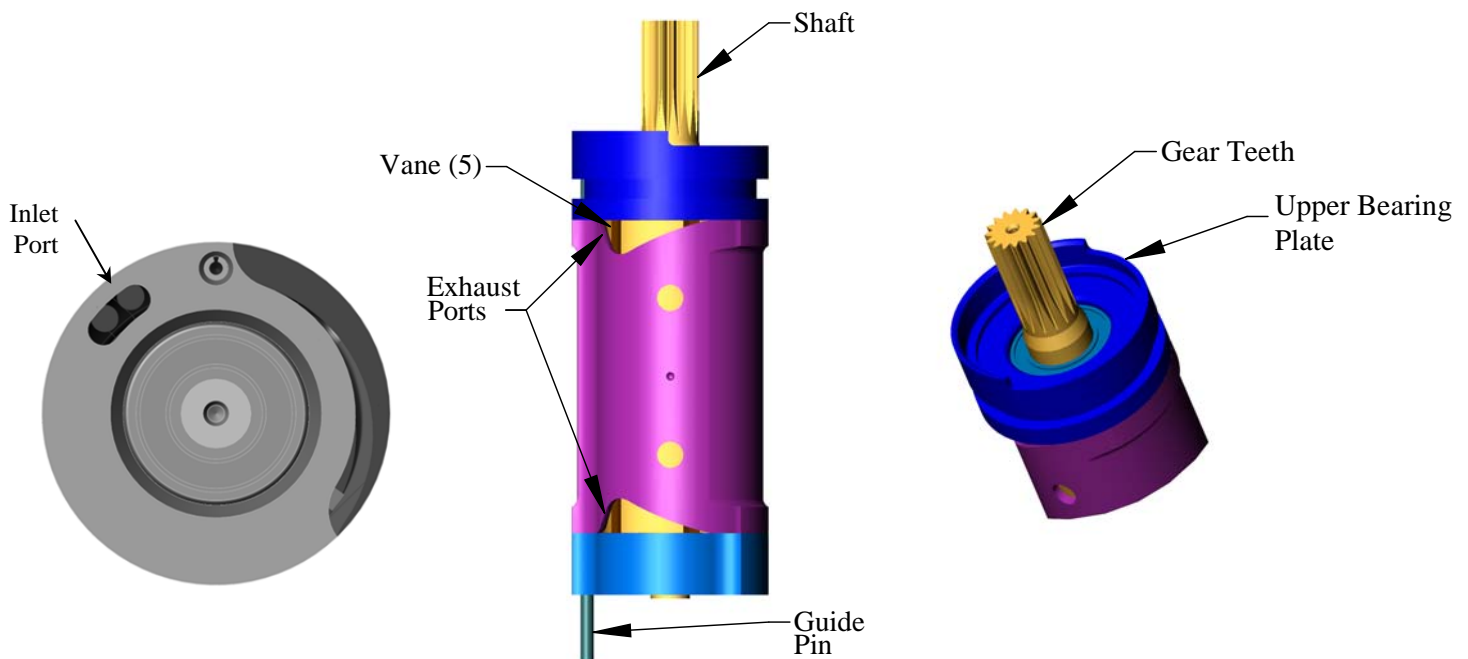




Inspection and Maintenance of Power Unit (Continued)

Air Motor

- Clean all build-up out of the inlet and exhaust ports.
- Inspect the air motor for the following and replace or repair the air motor if damage is detected. (See Air Motor Maintenance Section to repair the air motor).
 - Check for worn or chipped teeth. Worn out teeth are indicated by rounded off or pointed tops on the teeth.
 - Look for cracked or broken gear teeth.
 - Inspect the upper bearing plate I.D. and O.D. for nicks, dents, or wear.
 - Inspect the vanes for chipped or broken tips by looking through the exhaust ports and rotating the shaft to see all five vanes.
 - Inspect the guide pin to verify it is not bent.
 - The shaft should rotate freely.
- Lubricate the air motor with mineral oil through the exhaust ports.

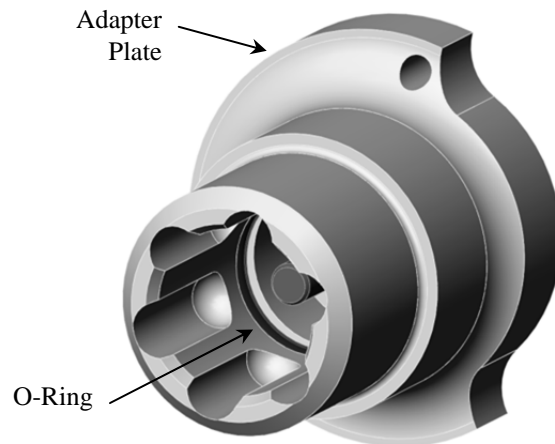




Inspection and Maintenance of Power Unit (Continued)

Adapter Plate

- Inspect the adapter plate for cracks or chips. Replace the adapter plate if damaged.
- Inspect o-ring for nicks, cuts or tears. Replace the o-ring if damaged.



Muffler

- Inspect the muffler for broken or protruding wires. Replace the muffler if damaged.
- Muffler may be cleaned with parts cleaner to remove build-up. Replace muffler if excessive build up prevents proper cleaning.

Note:

Do not clean the muffler while it is installed in the power unit.



Retainer

- Inspect the retainer for cracks or chips. Replace the retainer if damaged.
- Inspect the retainer threads for damage. Replace the retainer if damaged.



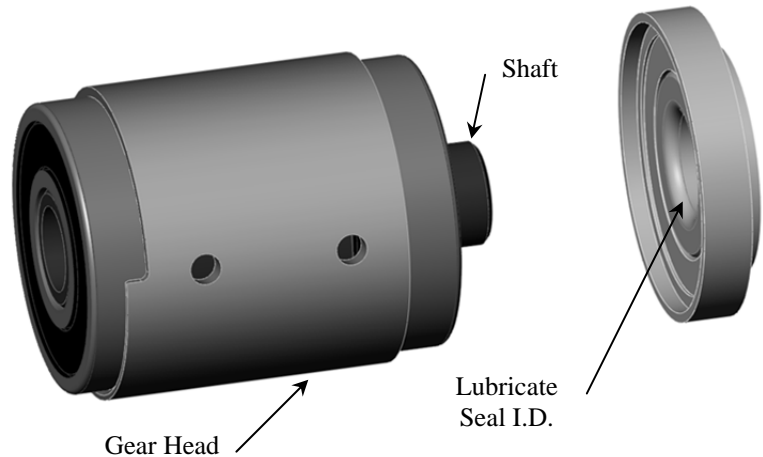
Assembly of Power Unit

Step 1: Install Seal Plate

- Apply a small amount of Max-Z-Lube to the seal I.D.

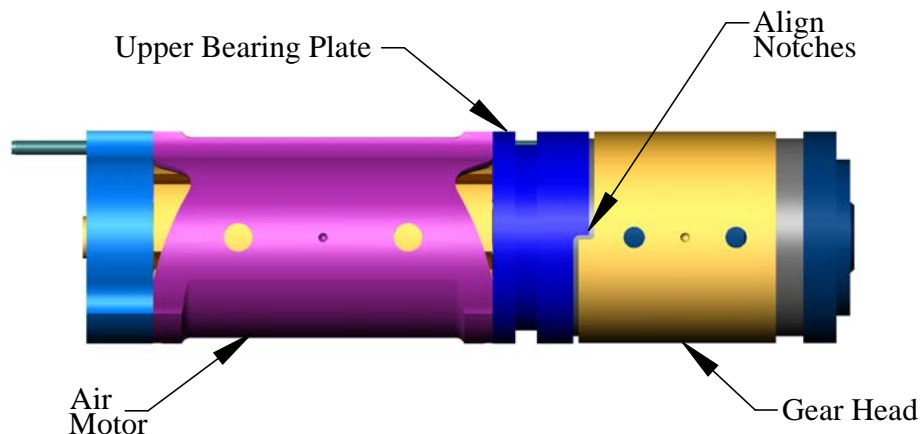
NOTE: Use only Max-Z-Lube high performance lubricant.

- Slide the seal plate over the gear head shaft and onto the gear head bearing.



Step 2: Align Gear Head and Air Motor

- Slide the gear head over the rotor shaft.
- Align the top notches on the gear head and upper bearing plate.
- Seat gear head in top plate.

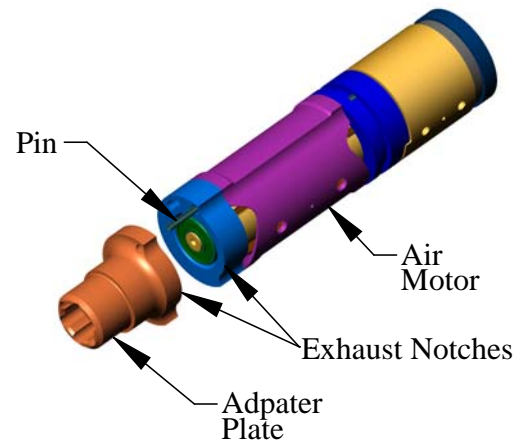




Assembly of Power Unit (Continued)

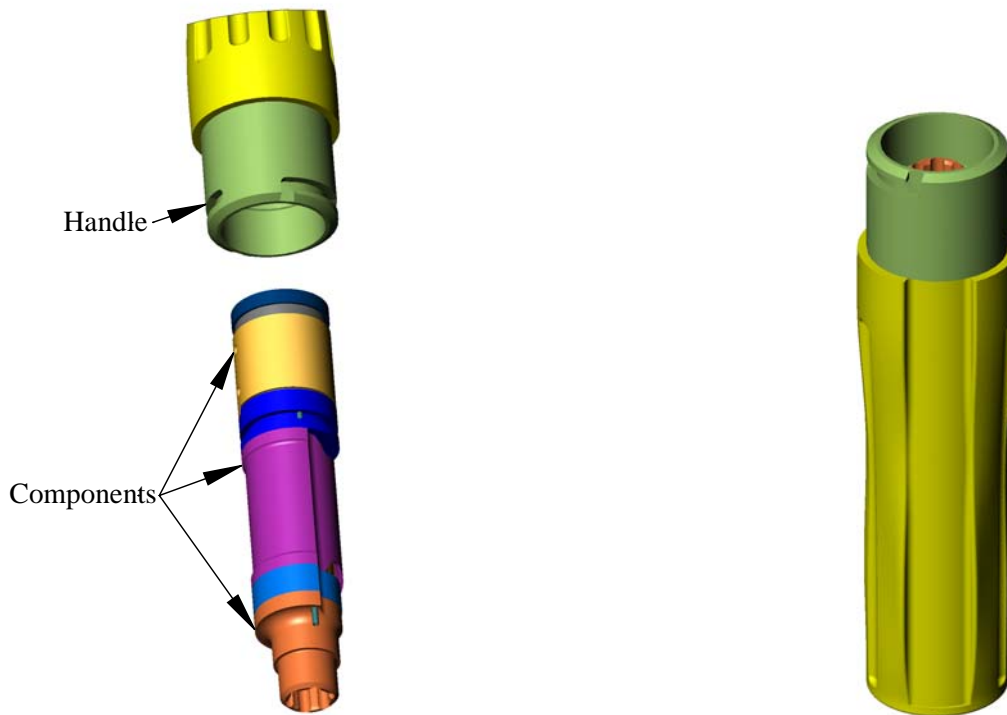
Step 3: Align Adapter Plate

- Slide the adapter plate over the pin in the air motor.
- Align the exhaust notches on the adapter plate and the air motor.



Step 4: Slide Components Into Handle

- Slide components up into the handle.
- Be careful not to let the components separate and become misaligned.
- While holding the components in place, turn the handle over.

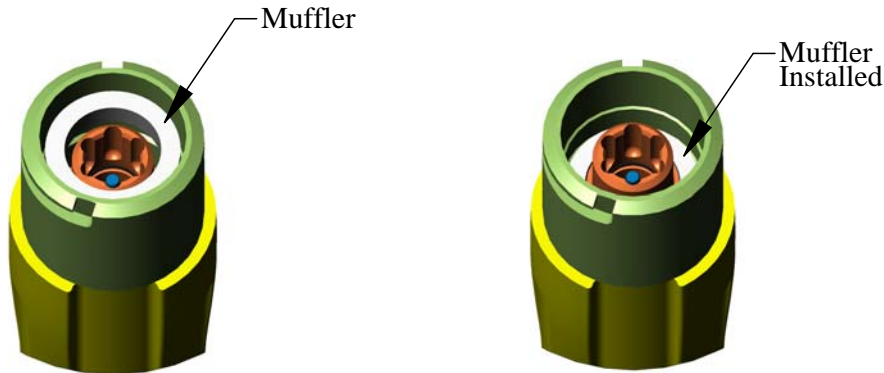




Assembly of Power Unit (Continued)

Step 5: Install Muffler

Slide the muffler into the power unit.

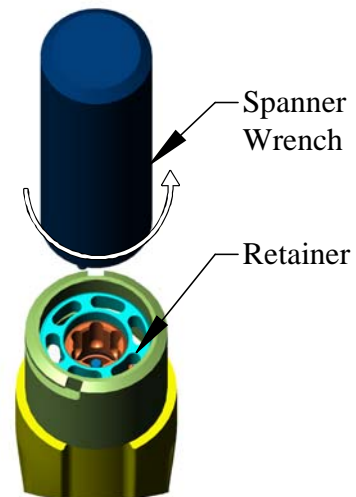


Step 6: Install Retainer

- Screw the retainer firmly into the power unit, using the supplied spanner wrench. The retainer is a left-hand thread, and must be turned to the left (counter clockwise), to tighten.

NOTE: Recommended torque of 25-30 lb-in (2.8-3.4 N-m)

IMPORTANT: Be careful not to cross thread the retainer. This will cause poor motor performance.

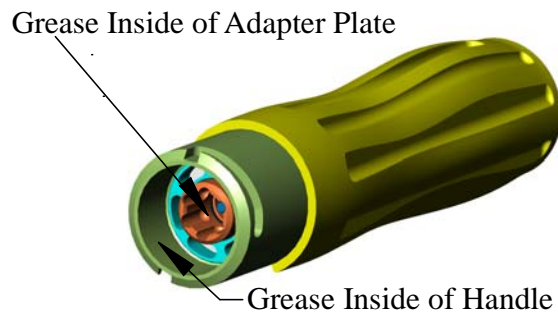




Assembly of Power Unit (Continued)

Step 7: Grease Power Unit

- Grease the inside of the handle and the inside of the adapter plate with Max-Z-Lube.



Step 8: Install Cap

- Slide the cap over the end of the power unit.





Seal Plate Maintenance

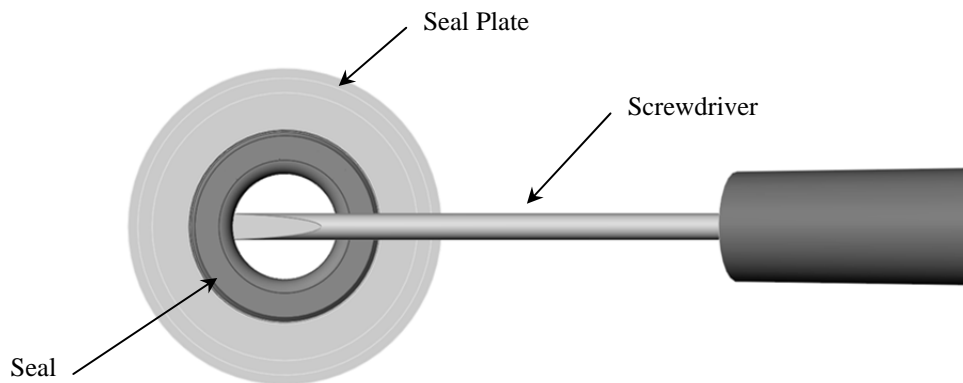
Required Tools for Seal Plate Maintenance

1 – Small flat head screwdriver

Replace Seal

Step 1: Remove Seal

- Use a small flat head screwdriver to pry the seal out of the seal plate.

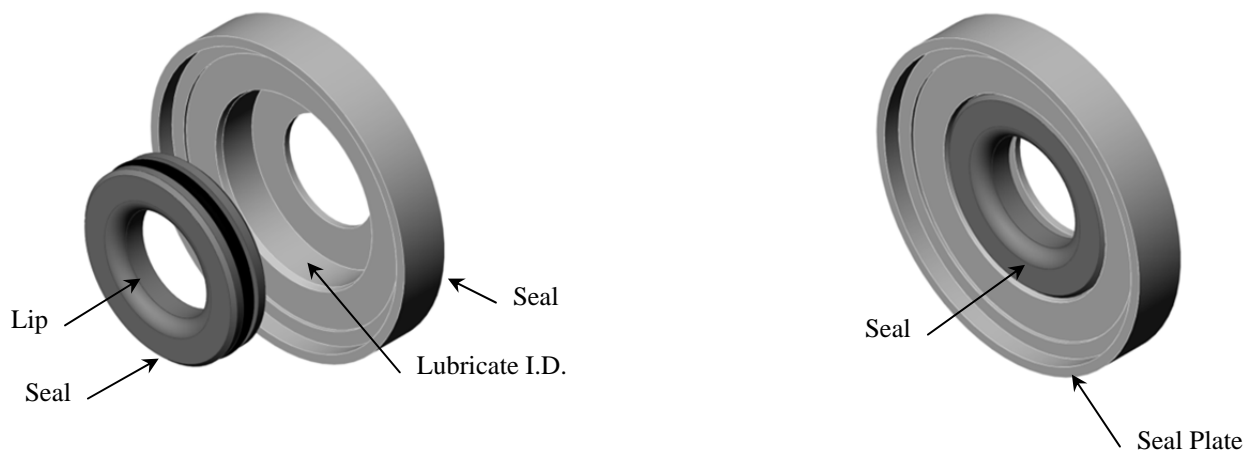


Step 2: Install Seal

- Apply a small amount of Max-Z-Lube to ID of the seal plate.

NOTE: Use only Max-Z-Lube high performance lubricant.

- Press the seal into the seal plate. The lip of the seal should curl into the seal plate.

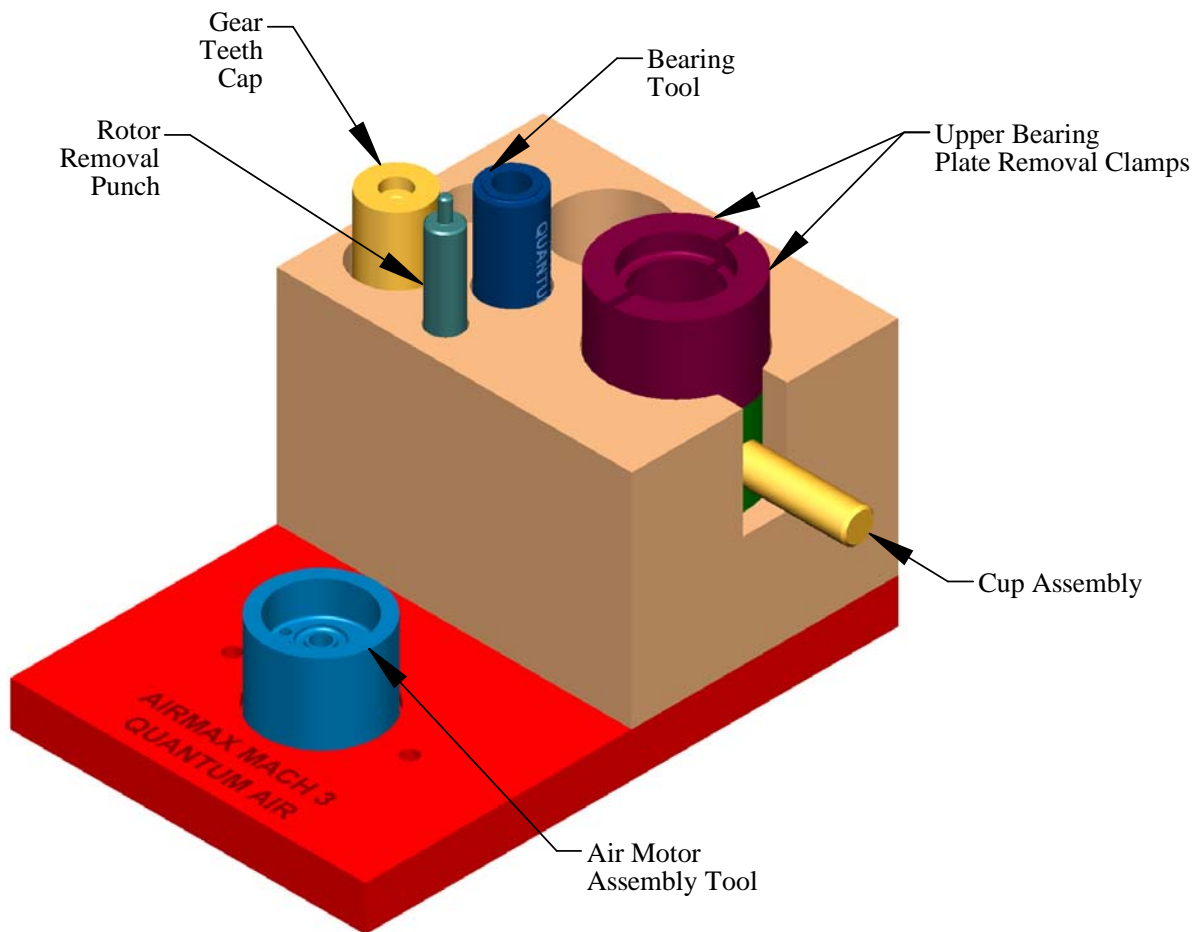




Air Motor Maintenance

Required Tools for Air Motor Maintenance

- 1 – Hammer
- 1 – Whizard Quantum[®] Air Maintenance Kit

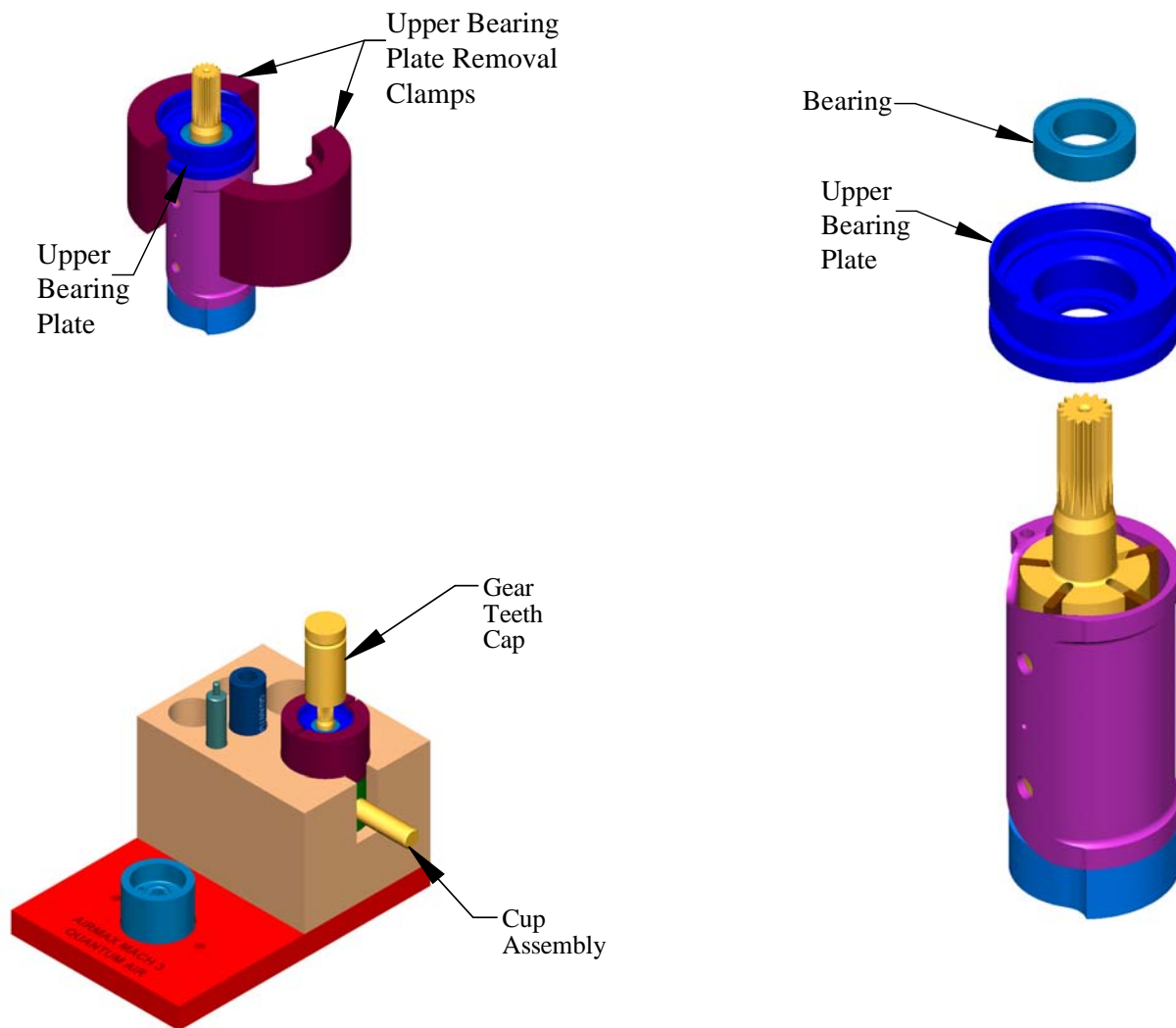




Disassembly of Air Motor

Step 1: Remove Upper Bearing Plate and Bearing

- Place upper bearing plate removal clamps around the upper bearing plate and place this assembly into the cup assembly in the maintenance kit.
- Place gear teeth cap over rotor gear teeth.
- Using a hammer, tap the gear teeth until the rotor is removed from the upper bearing plate.
- Pull the upper bearing out of the upper bearing plate.

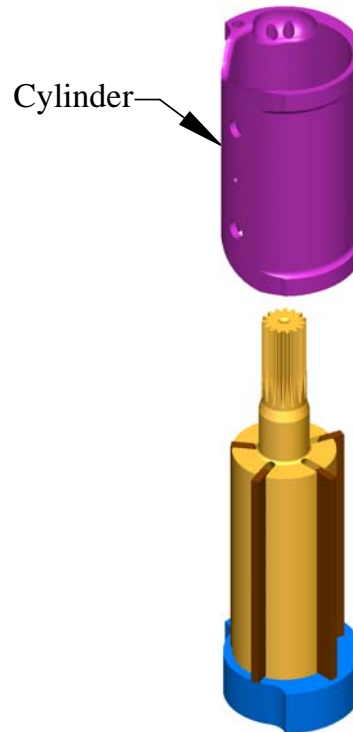




Disassembly of Air Motor (Continued)

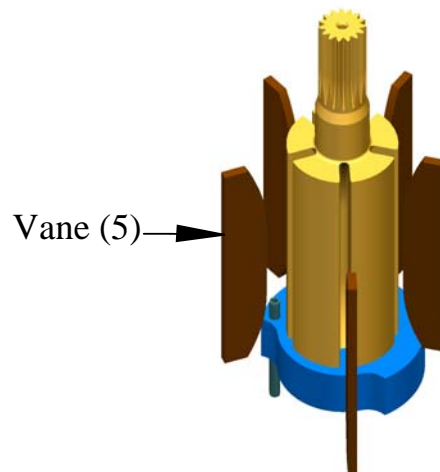
Step 2: Remove Cylinder

- Slide the cylinder off the rotor.



Step 3: Remove Vanes

- Remove the vanes from the slots.

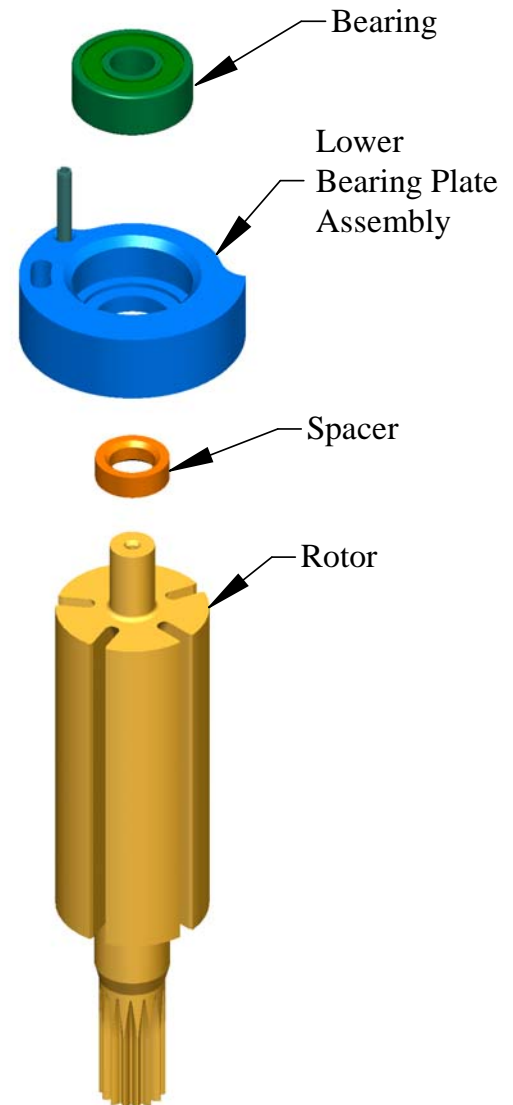
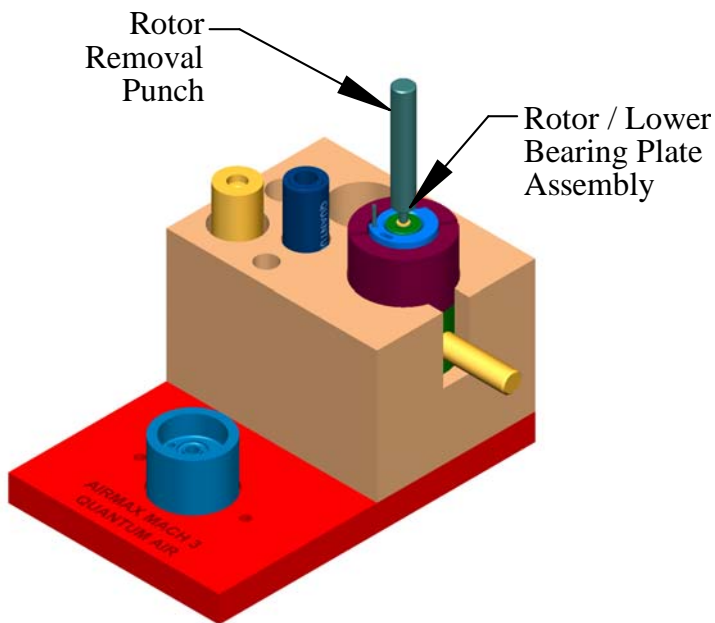




Disassembly of Air Motor (Continued)

Step 4: Remove Lower Bearing Plate

- Set the rotor / lower bearing plate assembly in the upper bearing plate removal clamps. Be sure the plate sits flush on the clamps. The alignment pin in the lower bearing will sit between the clamps.
- Place the small diameter of the rotor removal punch on the end of the rotor shaft.
- Using a hammer, tap the rotor removal punch until the rotor is removed from the lower bearing plate.
- Pull the bearing out of the lower bearing plate.
- Slide the spacer off of the rotor shaft.

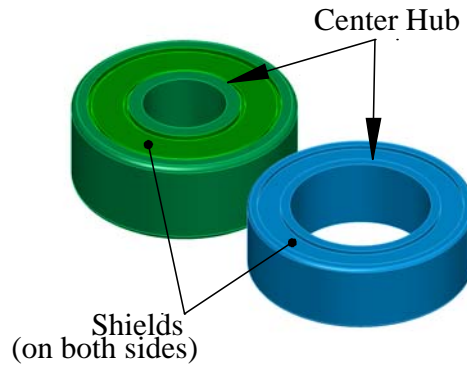




Inspection and Maintenance of Air Motor

Upper and Lower Bearing

- Inspect the shields for dents. If damaged, replace the bearing.
- Rotate the bearing. If you feel a rough or gritty resistance, replace the bearing.
- If the center hub can be moved from side to side, replace the bearing.



Upper Bearing Plate

- Inspect the I.D. and O.D. for nicks, dents, or wear. Replace the upper bearing plate if damaged.
- Inspect the alignment pin to be sure it is not bent. Replace the upper bearing plate if damaged.
- Clean and dry the part thoroughly.

Cylinder

- Inspect the cylinder I.D. for grooves. If the grooves are more than .002" (.05mm) deep, replace the cylinder.
- Clean and dry the part thoroughly.

Vanes

- Inspect the vanes for chipped or broken tips. Replace if damaged.
- Inspect the vanes for grooves. If grooves are more than .010" (.25mm) deep, replace the vanes.
- Inspect the vane height. If the overall vane height is less than .195" (.5mm), replace the vanes.

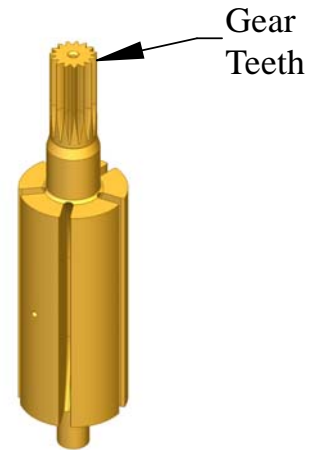
NOTE: *Always replace all five (5) vanes as a set.*



Inspection and Maintenance of Air Motor (Continued)

Rotor

- Inspect the gear teeth for cracked or broken teeth and replace the rotor if damaged.
- Inspect the gear teeth for excessive wear. If the gear teeth are worn to a sharp point, replace the rotor.
- Clean and dry the part thoroughly.



Spacer

- Inspect the spacer for nicks or cracks. Replace if damaged.
- Clean and dry the part thoroughly.

Lower Bearing Plate

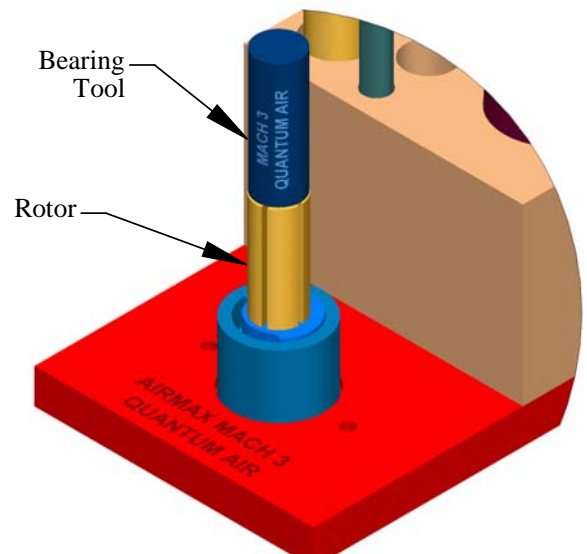
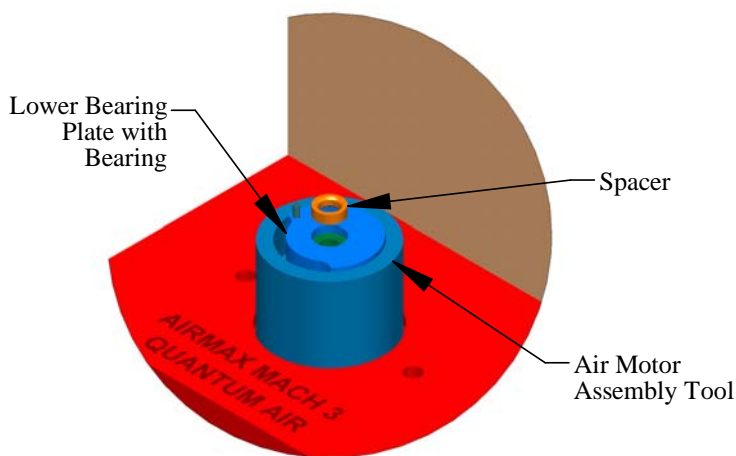
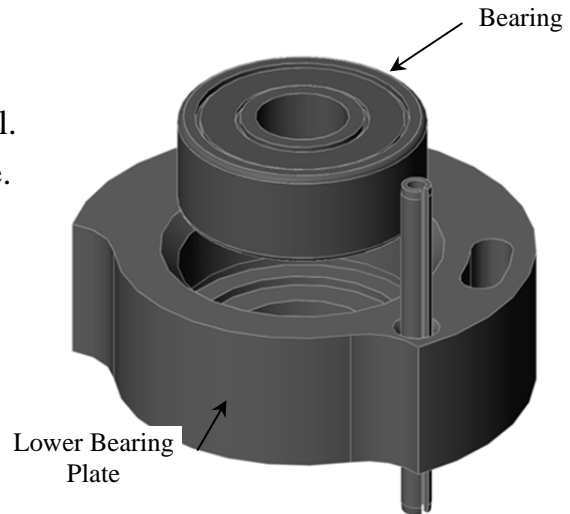
- Inspect the I.D. and O.D. for nicks, dents, or wear. Replace the lower bearing plate if damaged.
- Inspect the alignment pin to be certain it is not bent. Replace the lower bearing plate if damaged.
- Clean and dry the part thoroughly.



Assembly of Air Motor

Step 1: Install Rotor

- Insert the bearing into the lower bearing plate.
- Place the lower bearing plate, with bearing, in the air motor assembly tool. Line up the pin in the lower bearing plate with the clearance hole in the air motor assembly tool.
- Insert the spacer into the lower bearing plate.
- Insert the small shaft of the rotor into the spacer.
- Slide the bearing tool over the rotor shaft.
- Using a hammer, tap the bearing tool until the rotor is fully seated in the lower bearing plate.

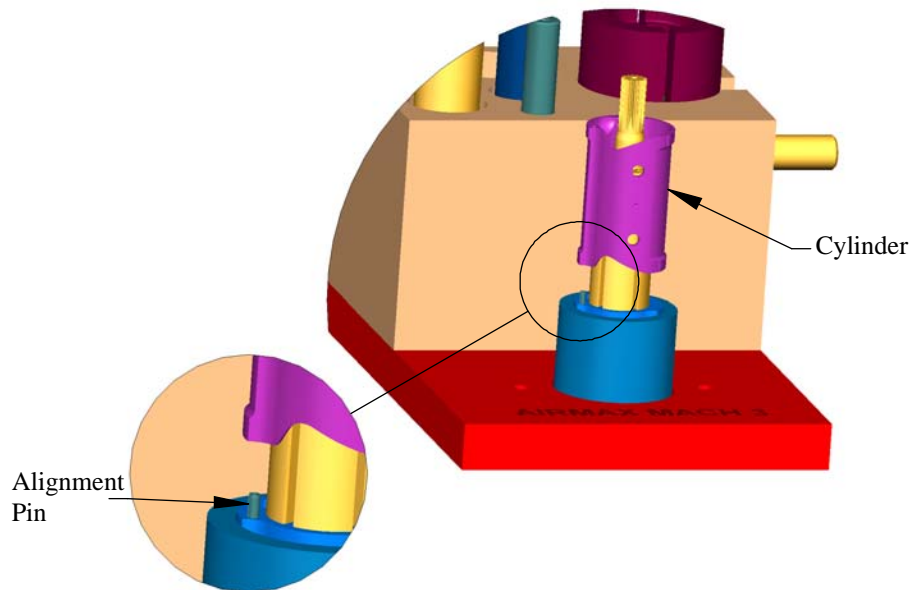




Assembly of Air Motor (Continued)

Step 2: Install Cylinder

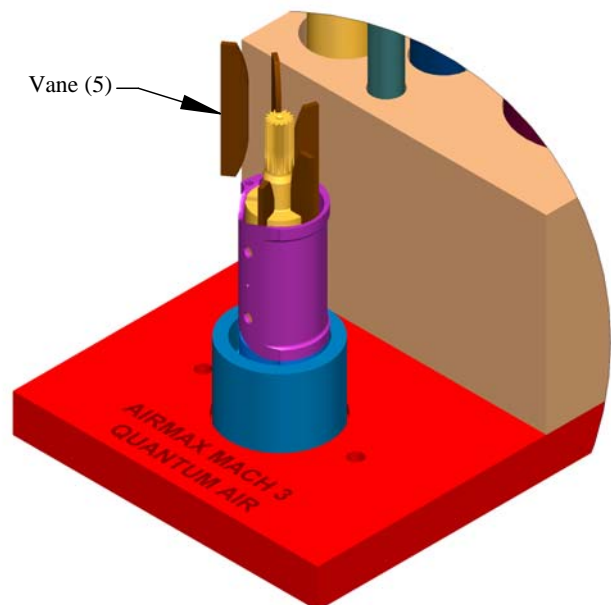
- Align the exhaust channels on the cylinder and lower bearing plate.
- Slide the cylinder over the rotor.
- The alignment pin in lower bearing plate will slide into the alignment hole in the cylinder.



Step 3: Install Vanes

- Slide the vanes (5) into the slots (5).

Note: *Vanes should be aligned with the curved side towards the rotor center. Vane length should match the length of the rotor slot. Do not use the standard Whizard® AirMax vane kit in the Whizard Quantum® Air.*

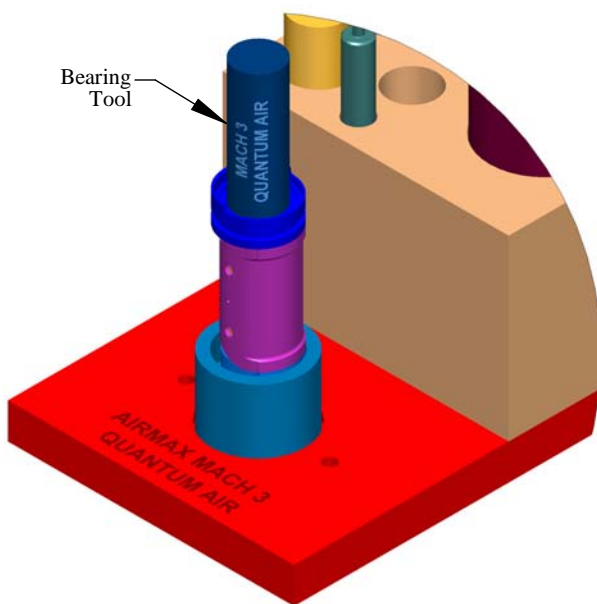
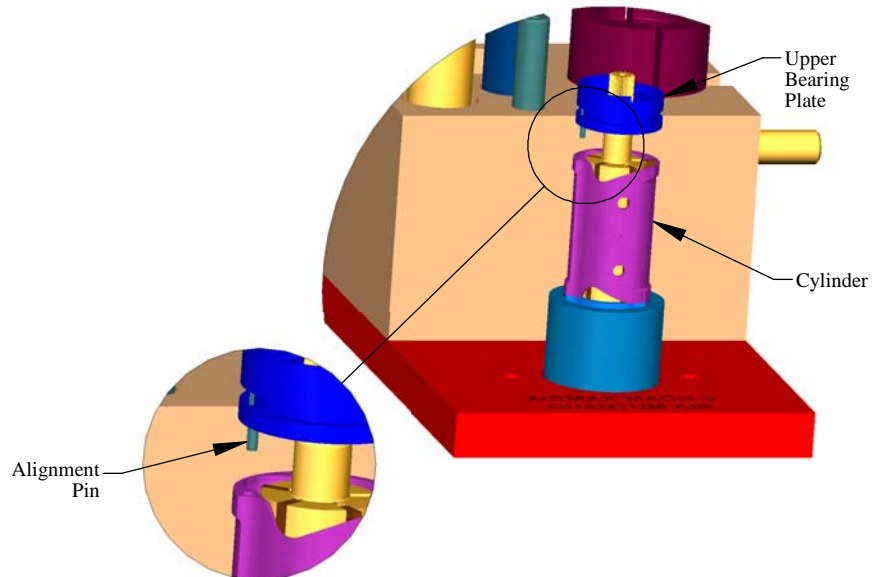




Assembly of Motor (Continued)

Step 4: Install Upper Bearing Plate

- Slide the upper bearing plate over the rotor shaft.
- The alignment pin in the upper bearing plate will slide into the alignment hole in the cylinder.
- Slide the upper bearing over the rotor shaft.
- Place the bearing tool on the upper bearing.
- Using a hammer, tap the bearing tool until the upper bearing plate is fully seated on the cylinder.
- The rotor will spin freely when properly assembled.





Valve and Hose Assembly Maintenance

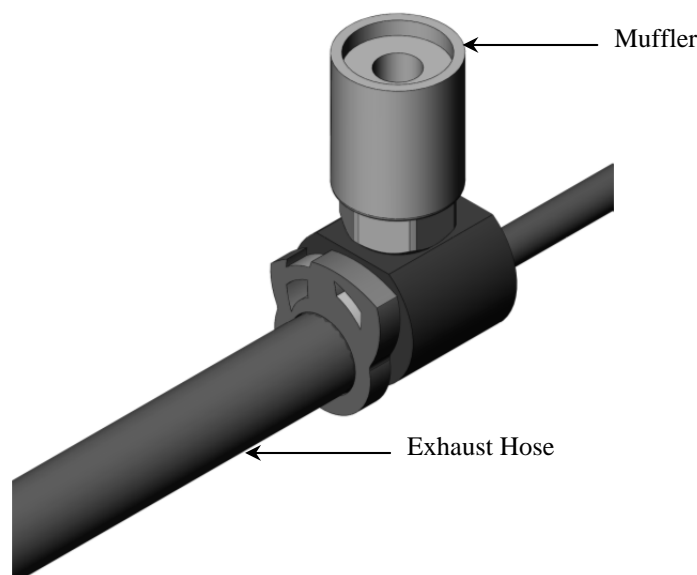
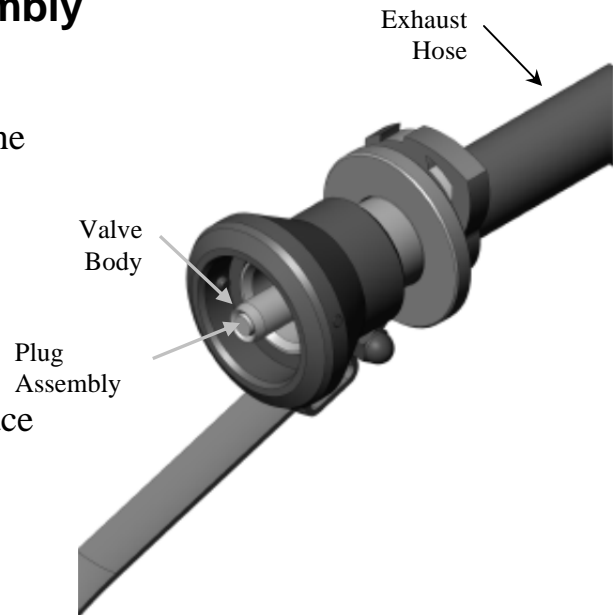
Required Tools for Valve and Hose Assembly Maintenance

- 1 – 1/2" Open End Box Wrench
- 1 – 9/16" Open End Box Wrench

Inspection of Valve and Hose Assembly

Valve and Hose Assembly

- Connect the valve and hose assembly to the FRL at 90-100 psi.
- If air leaks around the plug assembly, replace the valve assembly.
- If the valve body is dented, nicked, or scratched, replace the valve assembly.
- If air can be felt leaving the muffler, replace the hose assembly.
- If the exhaust hose is cut, torn, or nicked, replace the exhaust hose.
- If the muffler is dirty or clogged, replace the muffler.

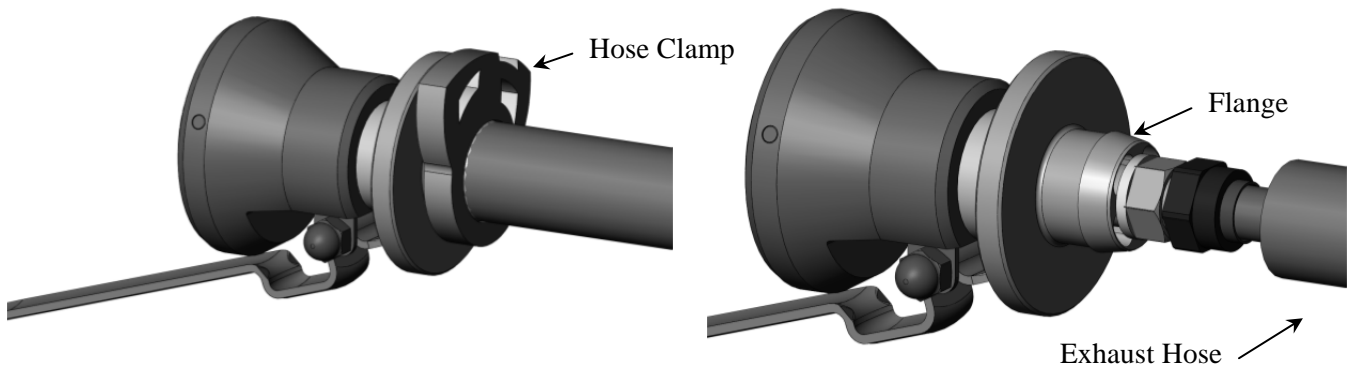




Disassembly of Valve and Hose

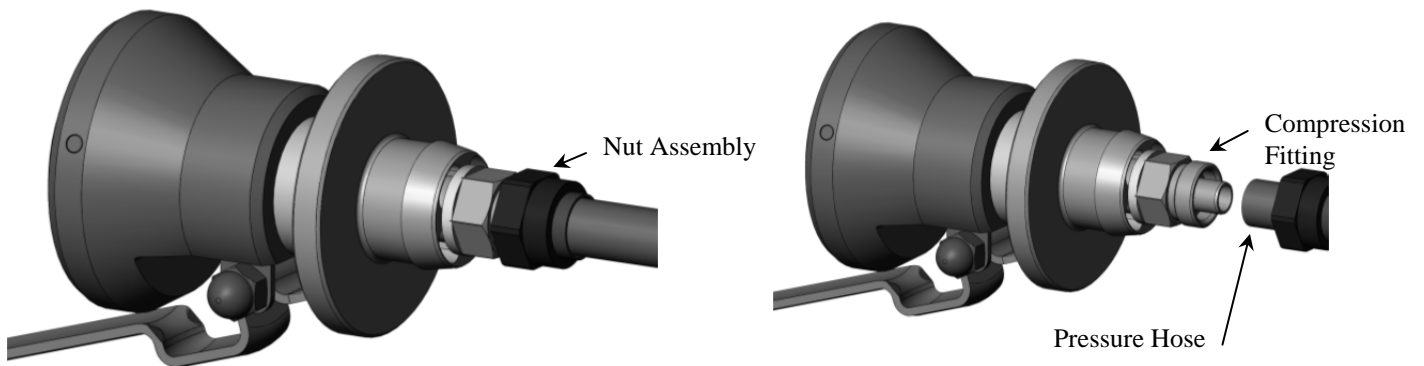
Step 1: Disconnect Exhaust Hose

- Remove the hose clamp.
- Slide the exhaust hose off of the flange.



Step 2: Disconnect Pressure Hose

- Unscrew the nut assembly from the compression fitting.
- Slide the pressure hose off of the compression fitting.

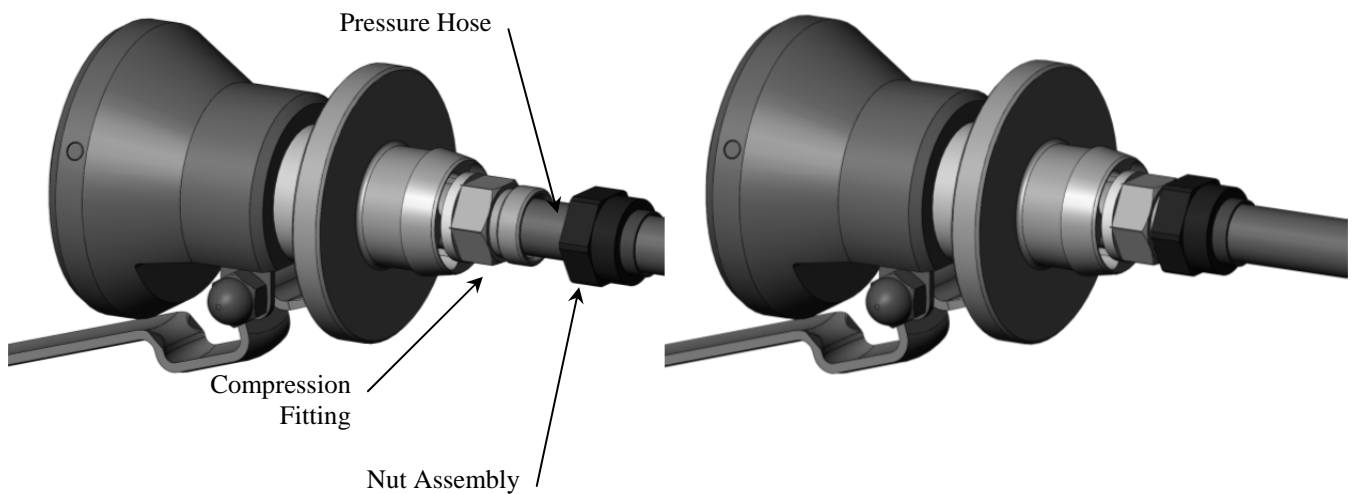




Assembly of Valve and Hose

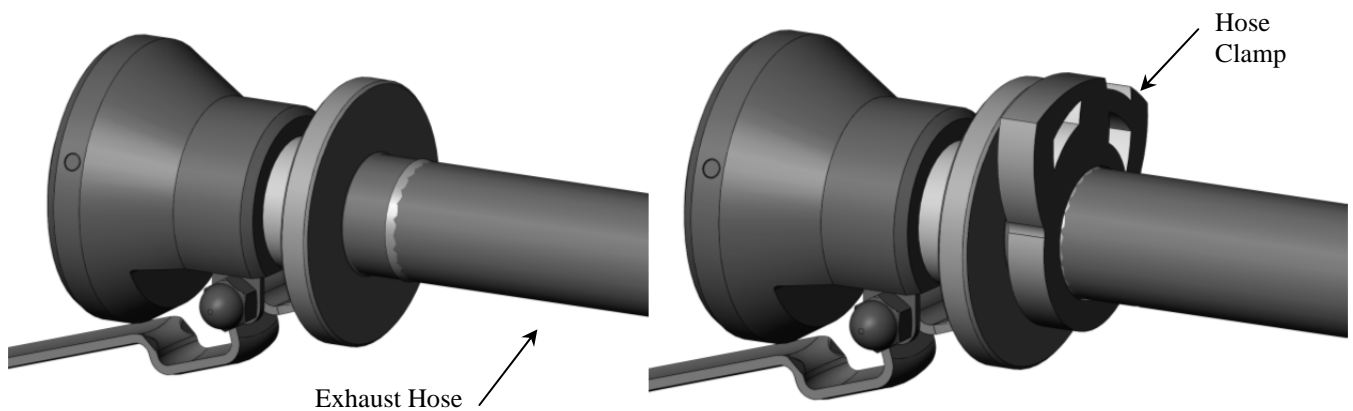
Step 1: Connect Pressure Hose

- Slide the nut assembly over the pressure hose.
- Slide the pressure hose onto the compression fitting.
- Screw the nut firmly onto the compression fitting.



Step 2: Connect Exhaust Hose

- Slide the exhaust hose onto the flange.
- Install hose clamp.





Quick Start Valve and Hose Assembly Maintenance

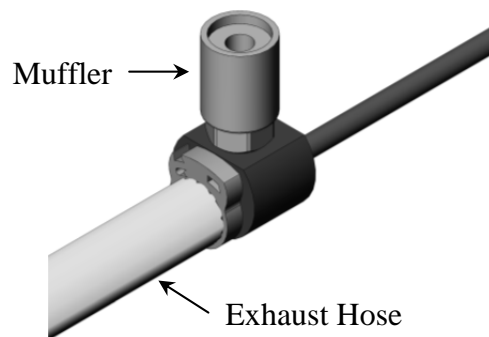
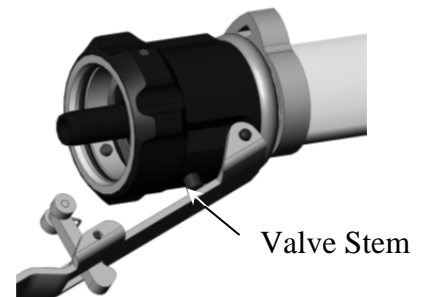
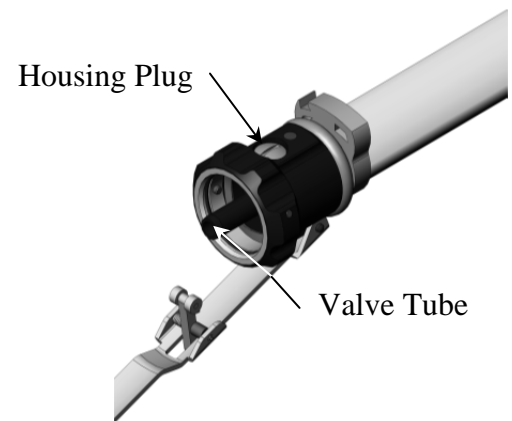
Required Tools for Quick Start Valve and Hose Assembly Maintenance

- 1 – 1/2" Open End Box Wrench
- 1 – 9/16" Open End Box Wrench

Inspection of Valve and Hose Assembly

Quick Start Valve and Hose Assembly

- Connect the valve and hose assembly to the FRL at 90-100 psi.
- If air leaks around the housing plug, replace the o-ring on the housing plug
- If air leaks around the valve stem, replace the lower valve stem o-ring.
- If air leaks through the valve tube, replace the upper valve stem o-ring.
- If replacing the valve stem o-rings does not fix the air leak, replace the valve body assembly
- If the valve tube is dented, nicked, or scratched, replace the valve body assembly.
- If air can be felt leaving the muffler, replace the hose assembly.
- If the exhaust hose is cut, torn, or nicked, replace the exhaust hose.
- If the muffler is dirty or clogged, replace the muffler.

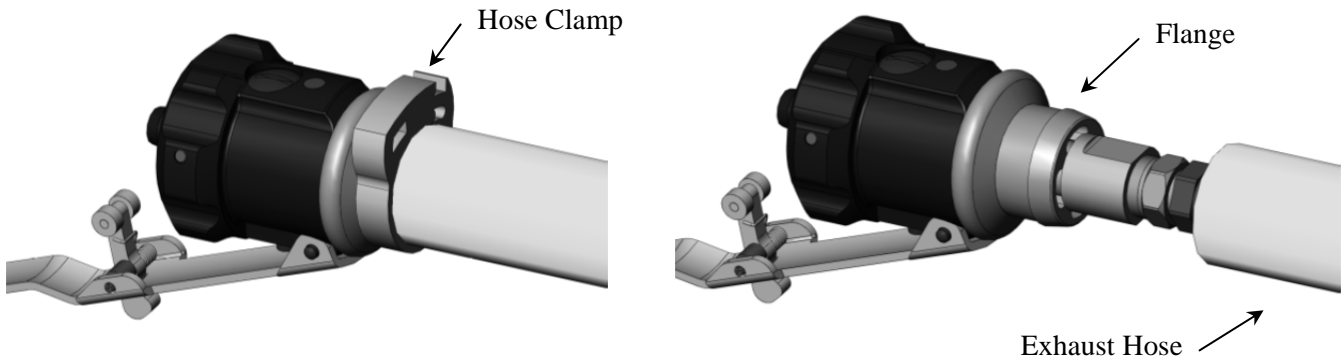




Disassembly of Quick Start Valve and Hose

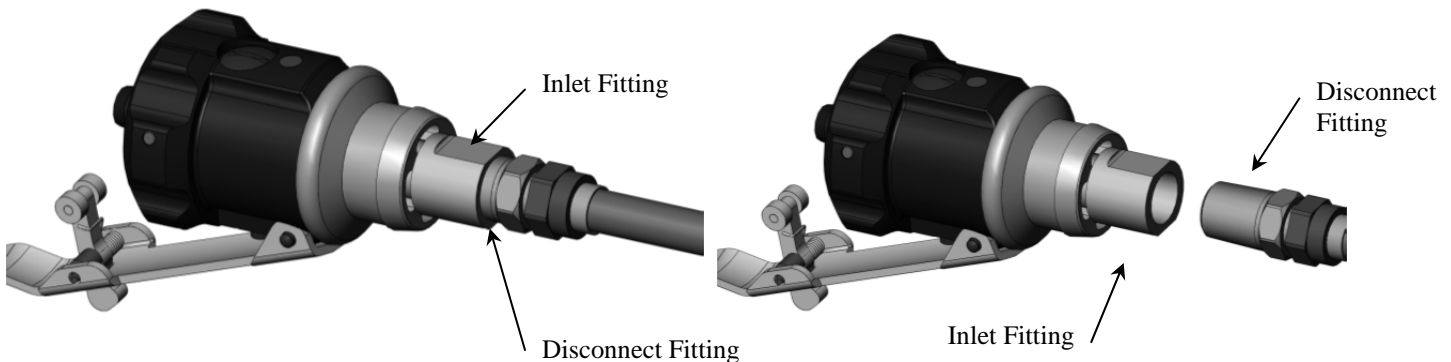
Step 1: Disconnect Exhaust Hose

- Remove the hose clamp.
- Slide the exhaust hose off of the flange.



Step 2: Disconnect Pressure Hose

- Unscrew the disconnect fitting from the inlet fitting.

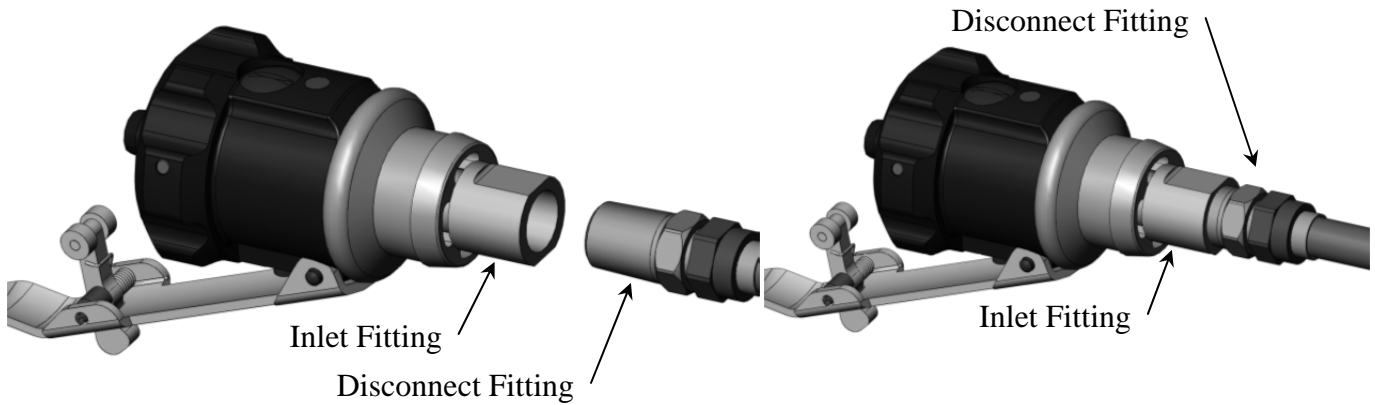




Assembly of Quick Start Valve and Hose

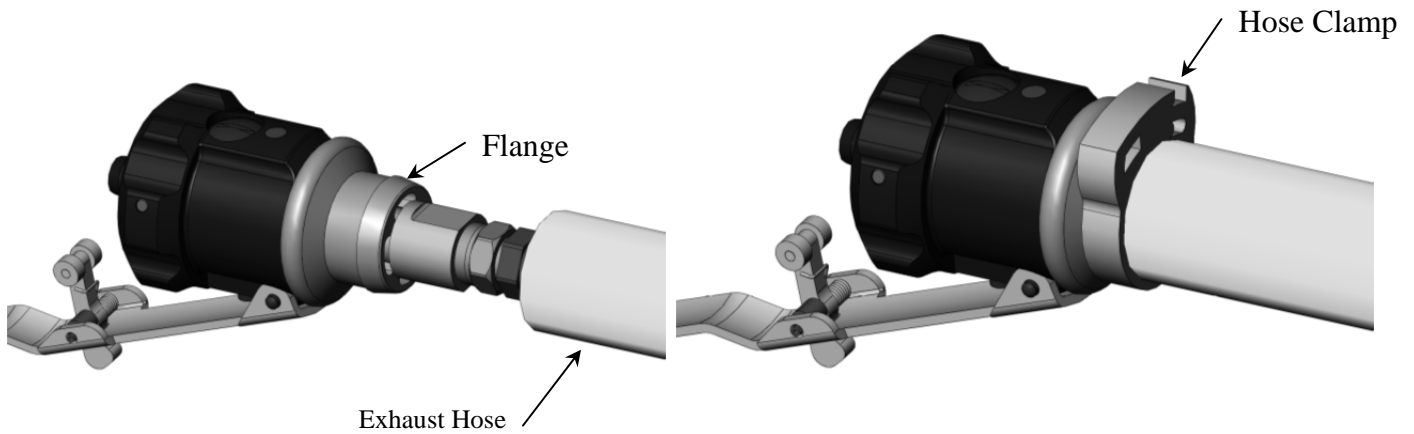
Step 1: Connect Pressure Hose

- Screw the disconnect fitting into the inlet fitting.



Step 2: Connect Exhaust Hose

- Slide the exhaust hose onto the flange.
- Install the hose clamp.





Fault Detection and Correction

| PROBLEM | PROBABLE CAUSE | REMEDY |
|--------------------------------|--|---|
| Handpiece Vibration | Handpiece bearing worn | Replace bearing |
| | Pinion gear worn | Replace pinion |
| | Teeth on pinion worn | Replace pinion |
| | Blade too tight in blade housing | Adjust blade housing |
| | Product build-up | Clean trimmer |
| Handpiece Hot | Pinion gear tight in handpiece bearing | Clean corrosion from the handpiece bearing and lubricate, or replace |
| | 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 the bearing correctly. |
| | Power Unit seal worn (Air blowing through front of Power Unit) | Replace Seal and O-Ring in Power Unit |
| Blade Will Not Rotate | Blade housing is too tight | Adjust blade housing |
| Blade Skips | Blade too loose in blade housing | Adjust blade housing |
| Dull Blade | Improperly sharpened blades will cause loss of production, increase wear of parts, and operator fatigue | Sharpen blade with a Whizard® Model 210, Whizard® 214 Blade Sharpener or Bettcher® AutoEdge |
| Optional Thumb Support Rotates | Anti-rotation rib has broken off | Replace thumb support |



Fault Detection and Correction (Continued)

| PROBLEM | PROBABLE CAUSE | REMEDY |
|------------------------------------|---------------------------------|---|
| Motor Does Not Run | Air supply hose leaks | Replace hose assembly |
| | Air supply pressure is too low | Set air pressure to 90-100 psi |
| | Retainer is cross threaded | Remove retainer and screw in properly |
| | Adapter plate is damaged | Replace adapter plate |
| | Air motor bearings are seized | Replace air motor or bearing |
| | Vanes are broken or worn | Replace all 5 vanes |
| | Gear head is seized | Replace gear head |
| Motor Runs but Blade Does Not Turn | Teeth on pinion worn | Replace pinion |
| | Teeth on blade worn | Replace blade |
| | Drive adapter worn | Replace drive adapter |
| | Drive adapter missing | Install drive adapter |
| | Motor and gear head not engaged | Properly engage air motor and gear head |
| | Teeth on rotor worn | Replace air motor or rotor |
| | Gear head worn | Replace gear head |
| | Head attachment screw loose | Tighten head attachment screw |



Fault Detection and Correction (Continued)

| PROBLEM | PROBABLE CAUSE | REMEDY | |
|--------------------------------------|---|--|-------------------|
| Loss of Power | Air pressure too low | Set air pressure to 90-100 psi (6.2-6.9 bar) | |
| | Mineral oil is not being supplied to tool | Fill lubricator (oiler) | |
| | Too much water in the air line | | Replace filter |
| | | | Drain filter bowl |
| | | | Drain water traps |
| | | | Replace filter |
| | Blade tight in blade housing | Adjust blade housing | |
| | Drive adapter worn | Replace drive adapter | |
| | Motor and gear head not engaged | Properly engage air motor and gear head | |
| | Teeth on rotor worn | Replace air motor or rotor | |
| | Gear head worn | Replace gear head | |
| | Gear head not properly greased | Grease gear head | |
| | Air supply hose leaks | Replace hose assembly | |
| | Retainer is cross threaded | Remove retainer and screw in properly | |
| | Adapter plate is damaged | Replace adapter plate | |
| Vanes are broken or worn | Replace all 5 vanes | | |
| Muffler in power unit is clogged | Replace muffler | | |
| Incorrect vane kit in the air motor. | Use vane kit for Whizard® AirMax MACH 3. | | |



Section 6

Cleaning

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Periodic Cleaning During Use

Light rinsing during operation is recommended.

Thorough rinsing at each break is highly recommended to improve tool performance.

Cleaning after Daily Use

If handpiece is removed from hose assembly, install cap to prevent water and debris from entering the motor during cleaning.

Fully disassemble the Whizard Quantum[®] Air trimmer head assembly and clean each part thoroughly with a brush and cleaner. For best results, clean the Whizard Quantum[®] Air trimmer with Bettcher[®] **EXTRA** Heavy Duty Cleaner, diluted according to the directions on the container. After cleaning, rinse each part thoroughly with water and dry. Assemble the head assembly per instructions in Section 5.

Cleaning Solutions

Avoid the use of aggressive cleaning products and all cleaning products containing NaOH (sodium hydroxide) as they will damage the handpiece.



Section 7

Service Parts

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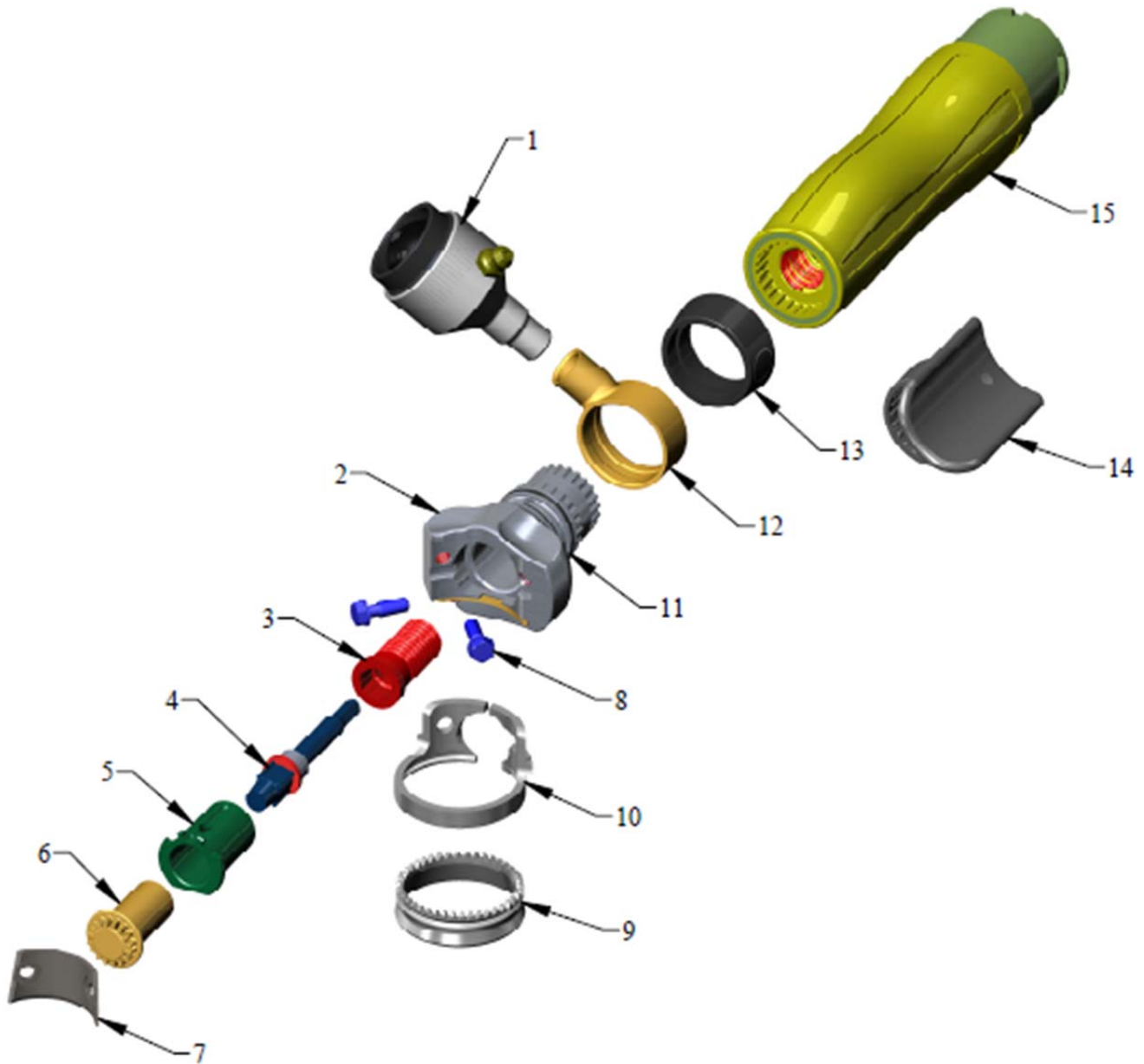
BETTCHER INDUSTRIES, INC. PROUDLY
 MANUFACTURES QUALITY PARTS FOR YOUR
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 EQUIPMENT, USE ONLY PARTS MANUFACTURED
 BY BETTCHER INDUSTRIES, INC.



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350 Whizard Quantum[®] Air Head Assembly



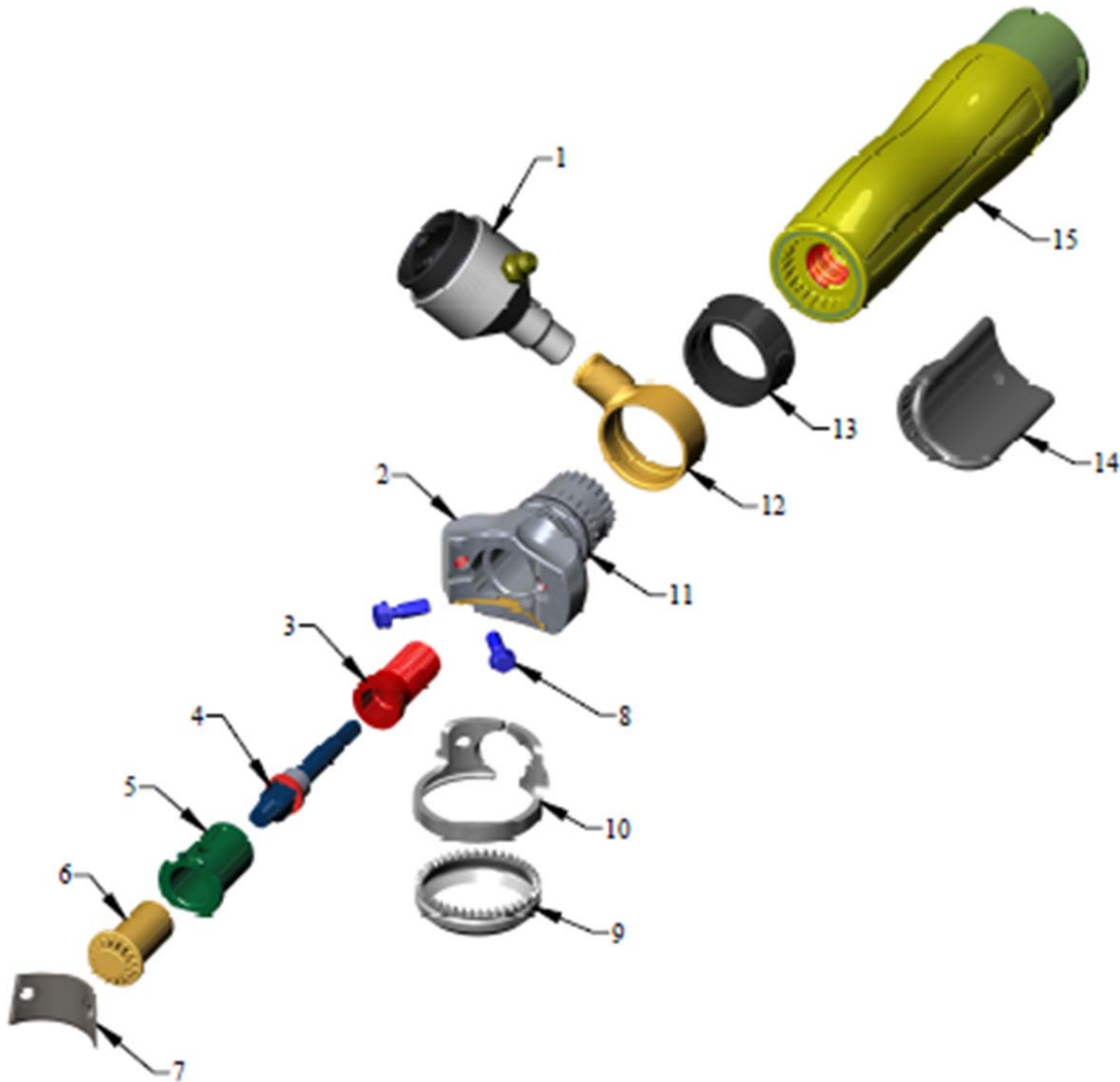


350 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 350 Whizard Quantum[®] Air | QTY. |
|-------------|------------------------------|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 101090 | 1 |
| | Washer | 123523 | 1 |
| | Bulb | 163265 | 1 |
| | Ring | 101576 | 1 |
| | Cup with Fitting | 101089 | 1 |
| 2 | Frame | 101793 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183651 | 1 |
| 7 | Cover | 183648 | 1 |
| 8 | Cover Retaining Screw | 103758 | 2 |
| 9 | Blade | 102076 | 1 |
| 10 | Blade Housing | 102075 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



360 Whizard Quantum[®] Air Head Assembly



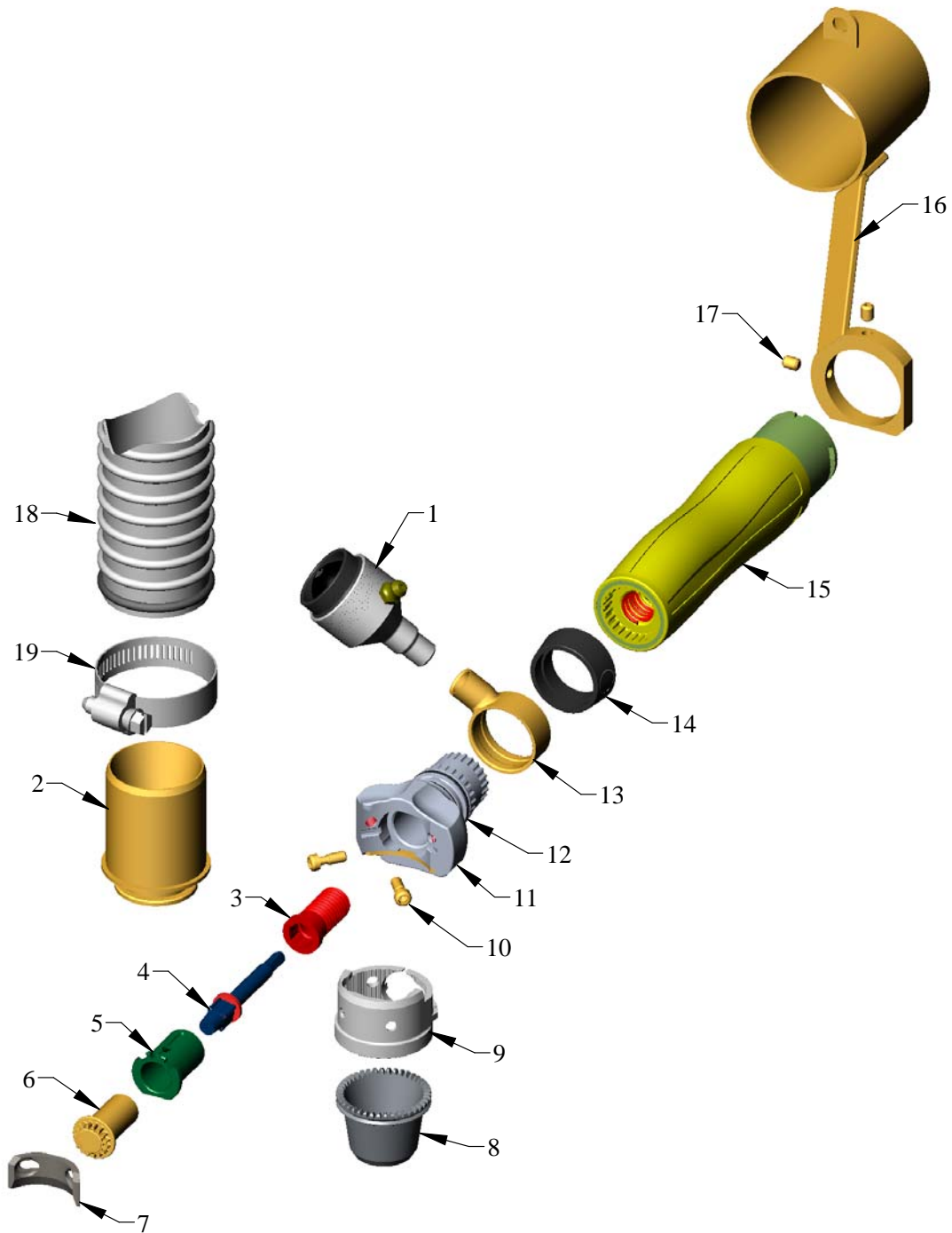


360 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 360 Whizard Quantum[®] Air | QTY. |
|-------------|------------------------------|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 101090 | 1 |
| | Washer | 123523 | 1 |
| | Bulb | 163265 | 1 |
| | Ring | 101576 | 1 |
| | Cup with Fitting | 101089 | 1 |
| 2 | Frame | 101793 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183651 | 1 |
| 7 | Cover | 183648 | 1 |
| 8 | Cover Retaining Screw | 103758 | 2 |
| 9 | Blade | 102077 | 1 |
| 10 | Blade Housing | 102075 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



Whizard Quantum® TRIMVAC® 18 Head Assembly



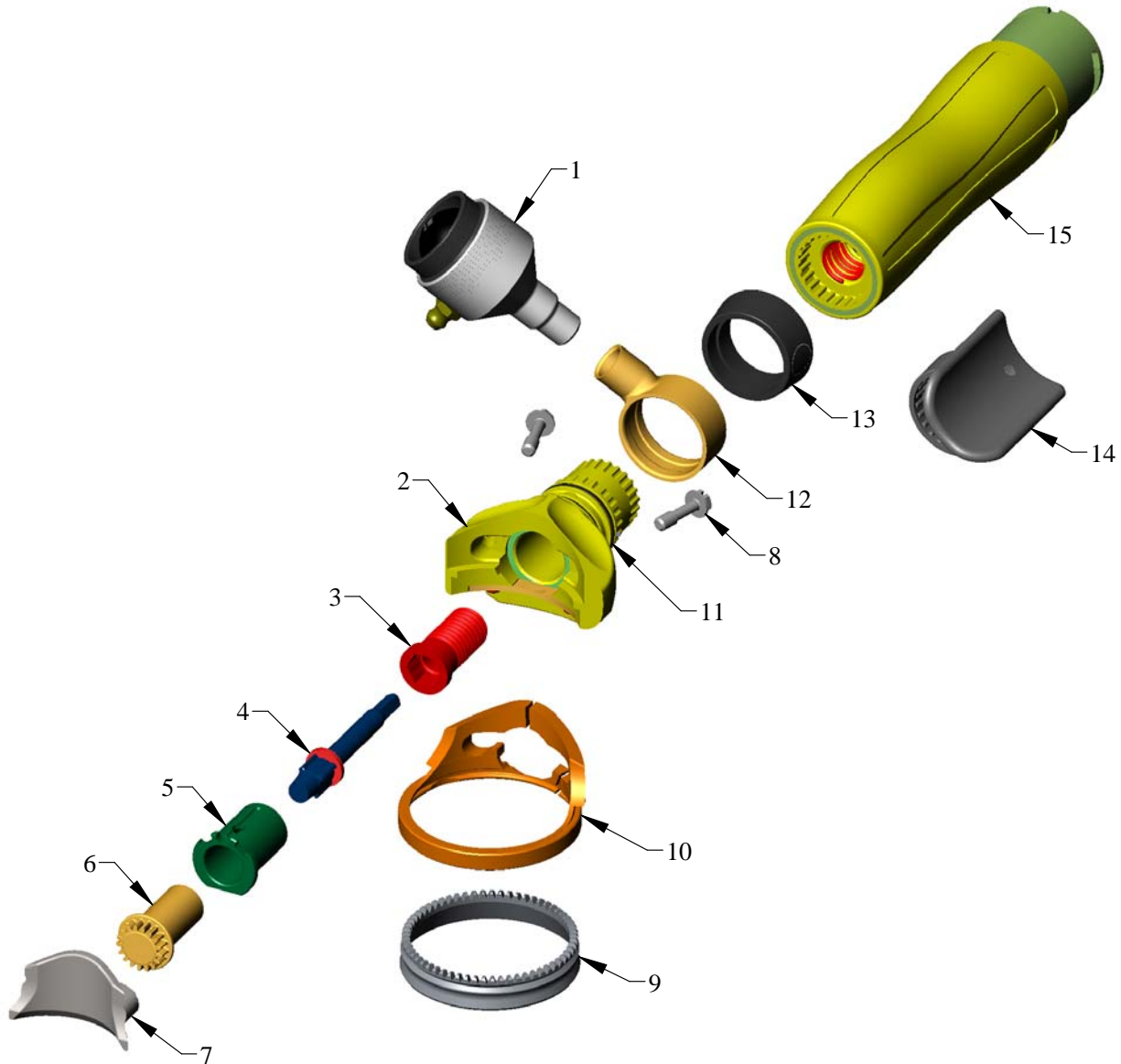


Whizard Quantum[®] TRIMVAC[®] 18 Head Assembly (Continued)

| ITEM | DESCRIPTION | Whizard Quantum[®] TRIMVAC[®] 18 | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup | 101090 | 1 |
| 2 | Hose Adapter | 184322 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183651 | 1 |
| 7 | Cover | 184477 | 1 |
| 8 | Blade | 184319 | 1 |
| 9 | Blade Housing | 101696 | 1 |
| 10 | Cover Retaining Screw | 184434 | 2 |
| 11 | Frame | 101793 | 1 |
| 12 | Frame O-rings | 103388 | 2 |
| 13 | Grease Ring | 100961 | 1 |
| 14 | Handle Spacer Ring | 101130 | 1 |
| 15 | Power Unit – Small Handle (Yellow) | 101216 | 1 |
| | – Small Handle (Sky Blue) | 101217 | 1 |
| 16 | Vacuum Hose Bracket Kit (Includes Item 17) | 184344 | 1 |
| 17 | Set Screw | 120053 | 2 |
| 18 | Vacuum Hose Assembly (Shown Cut Off for Picture) (Includes Item 19) | 184358 | 1 |
| 19 | Hose Clamp | 184359 | 1 |



620 Whizard Quantum[®] Air Head Assembly



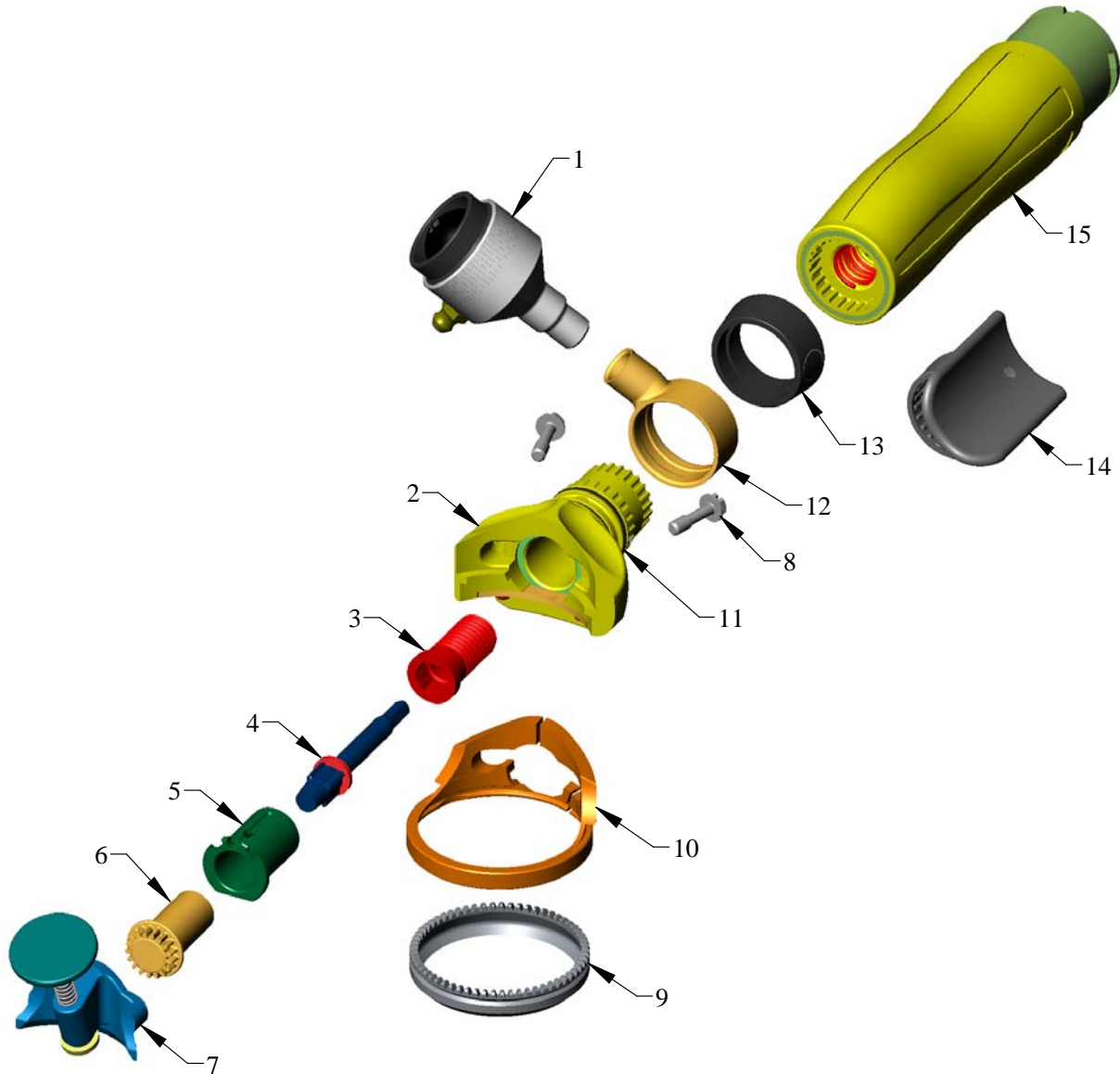


620 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 620 Whizard Quantum[®] Air | QTY. |
|-------------|------------------------------|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 101090 | 1 |
| | Washer | 123523 | 1 |
| | Bulb | 163265 | 1 |
| | Ring | 101576 | 1 |
| | Cup with Fitting | 101089 | 1 |
| 2 | Frame | 101792 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183365 | 1 |
| 7 | Cover | 101039 | 1 |
| 8 | Cover Retaining Screw | 183376 | 2 |
| 9 | Blade | 102078 | 1 |
| 10 | Blade Housing | 102074 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



625 Whizard Quantum[®] Air Head Assembly



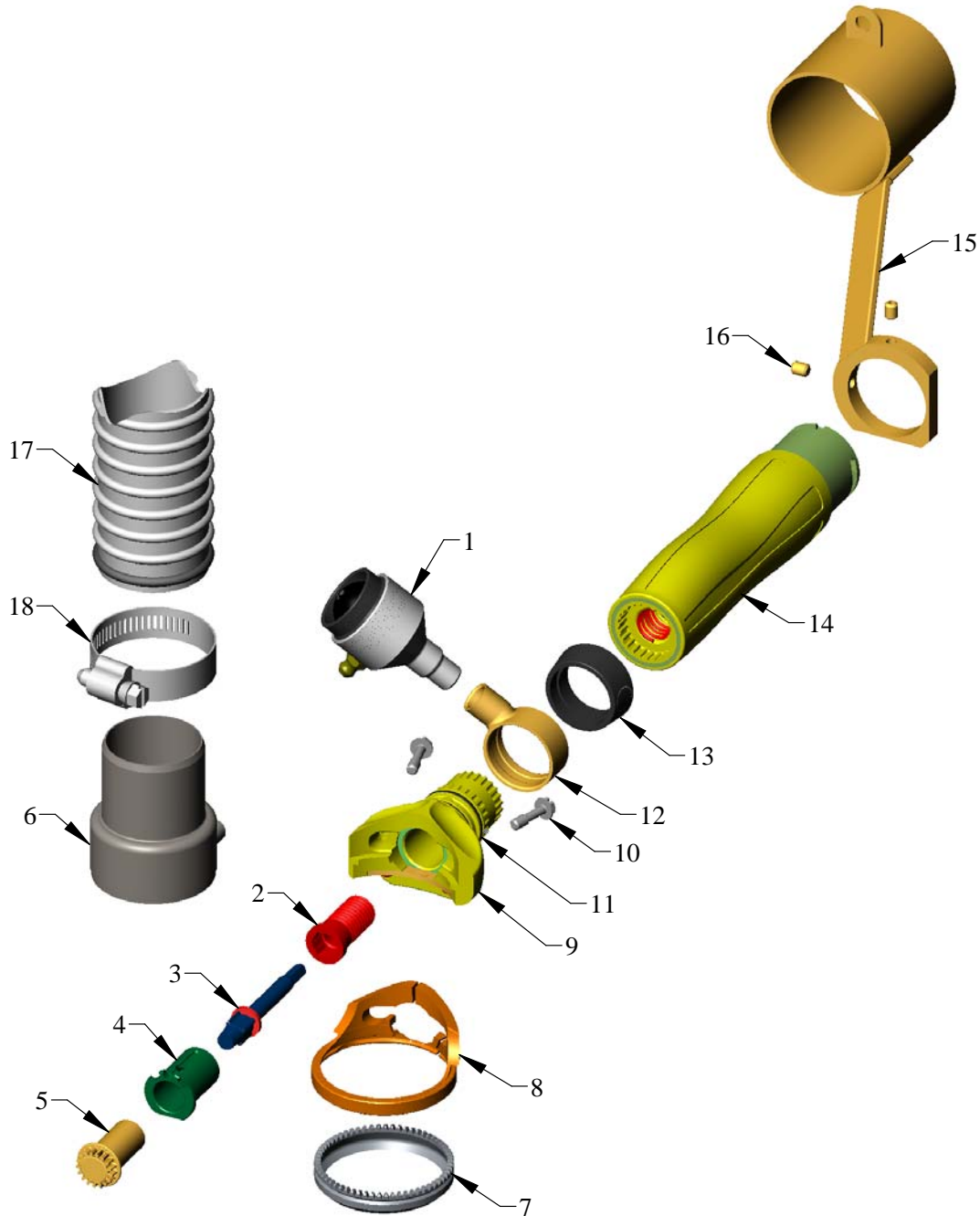


625 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 625 Whizard Quantum[®] Air | QTY. |
|-------------|---|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 101090 | 1 |
| | Washer | 123523 | 1 |
| | Bulb | 163265 | 1 |
| | Ring | 101576 | 1 |
| | Cup with Fitting | 101089 | 1 |
| 2 | Frame | 101792 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183365 | 1 |
| 7 | Cover with Special Steeling Device | 101078 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183656 | 1 |
| 8 | Cover Retaining Screw | 183376 | 2 |
| 9 | Blade | 102079 | 1 |
| 10 | Blade Housing | 102074 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



Whizard Quantum® TRIMVAC® 45 Head Assembly



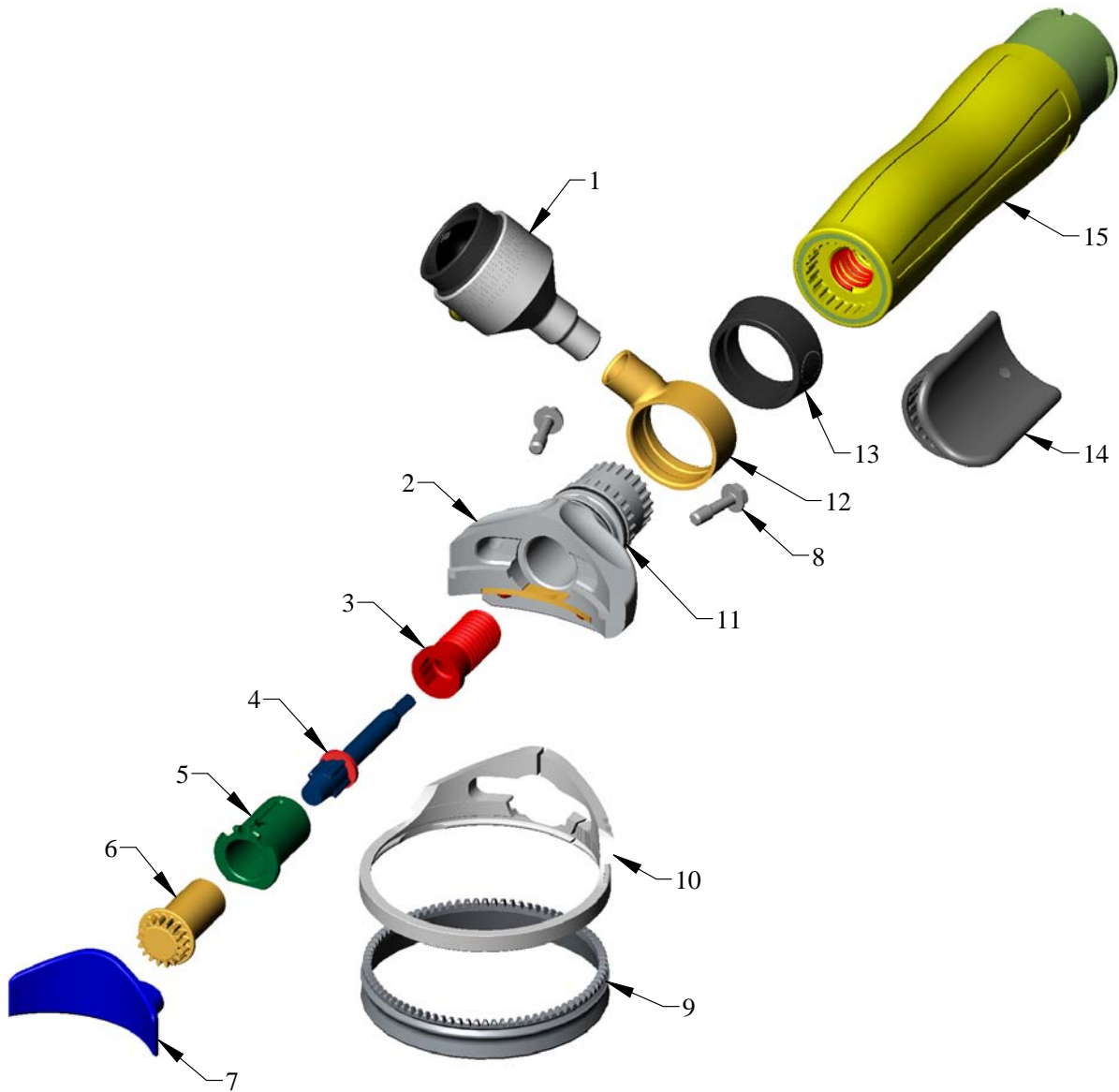


Whizard Quantum[®] TRIMVAC[®] 45 Head Assembly (Continued)

| ITEM | DESCRIPTION | TRIMVAC[®] 45 | TRIMVAC[®] 45-Cheese | QTY. |
|-------------|---|-----------------------------------|--|-------------|
| 1 | Grease Cup | 101090 | 101090 | 1 |
| 2 | Attachment Screw | 184119 | 184119 | 1 |
| 3 | Drive Adapter Assembly | 184120 | 184120 | 1 |
| 4 | Bearing | 100996 | 100996 | 1 |
| 5 | Pinion | 183365 | 183365 | 1 |
| 6 | Cover / Hose Adapter | 102160 | 102160 | 1 |
| 7 | Blade | 102079 | 102092 | 1 |
| 8 | Blade Housing | 102074 | 102074 | 1 |
| 9 | Frame | 101792 | 101792 | 1 |
| 10 | Cover Retaining Screw | 183376 | 183376 | 2 |
| 11 | Frame O-rings | 103388 | 103388 | 2 |
| 12 | Grease Ring | 100961 | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 101130 | 1 |
| 14 | Power Unit – Small Handle (Yellow) | 101216 | 101216 | 1 |
| | – Small Handle (Sky Blue) | 101217 | 101217 | 1 |
| 15 | Vacuum Hose Bracket Kit (Includes Item 16) | 184344 | 184344 | 1 |
| 16 | Set Screw | 120053 | 120053 | 2 |
| 17 | Vacuum Hose Assembly (Shown Cut Off for Picture) (Includes Item 18) | 184358 | 184358 | 1 |
| 18 | Hose Clamp | 184359 | 184359 | 1 |



500 Whizard Quantum[®] Air Head Assembly



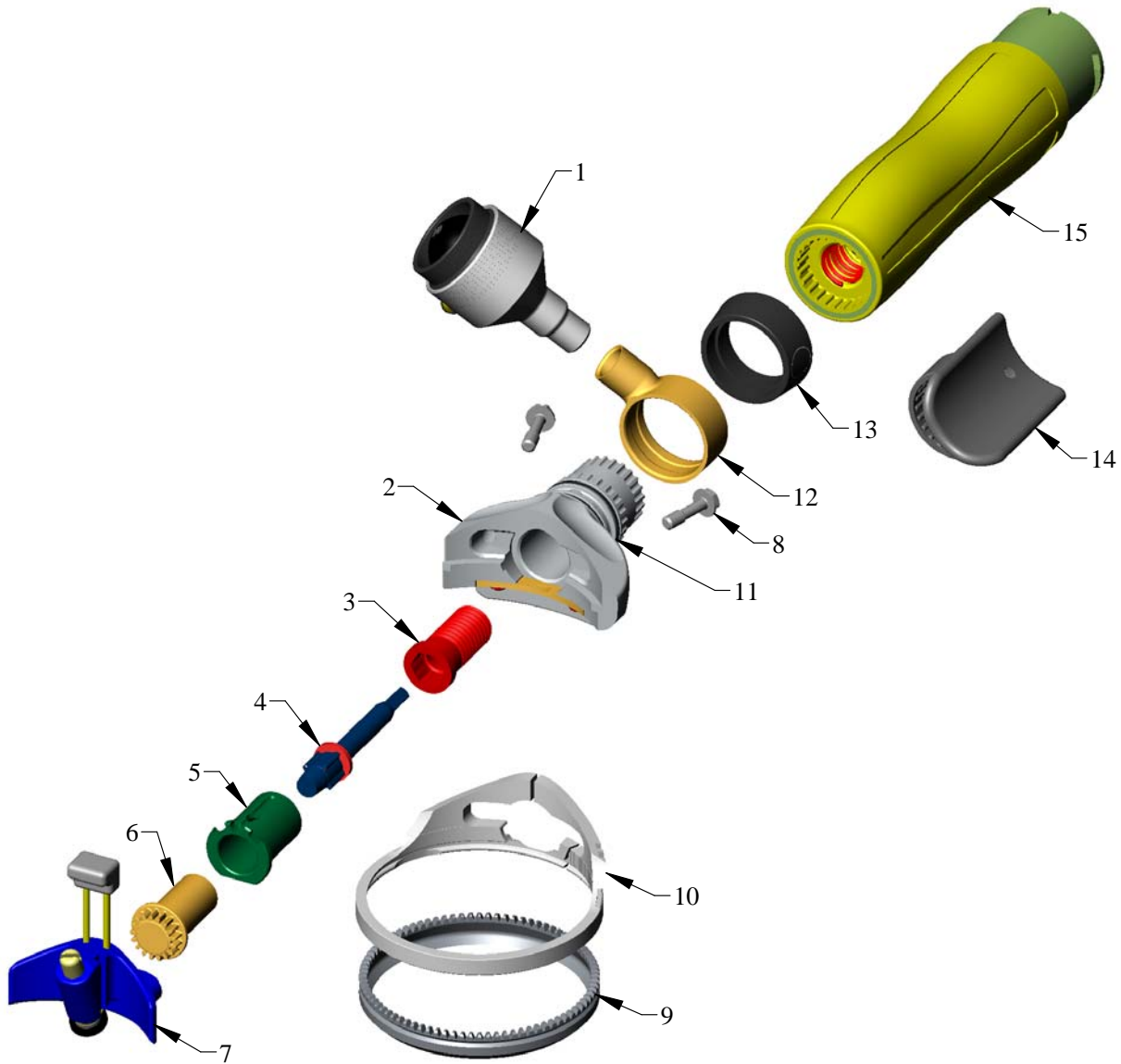


500 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 500 Whizard Quantum[®] Air | QTY. |
|-------------|------------------------------|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 101090 | 1 |
| | Washer | 123523 | 1 |
| | Bulb | 163265 | 1 |
| | Ring | 101576 | 1 |
| | Cup with Fitting | 101089 | 1 |
| 2 | Frame | 101688 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183365 | 1 |
| 7 | Cover | 101585 | 1 |
| 8 | Cover Retaining Screw | 183376 | 2 |
| 9 | Blade | 102083 | 1 |
| 10 | Blade Housing | 102090 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



505 Whizard Quantum[®] Air Head Assembly



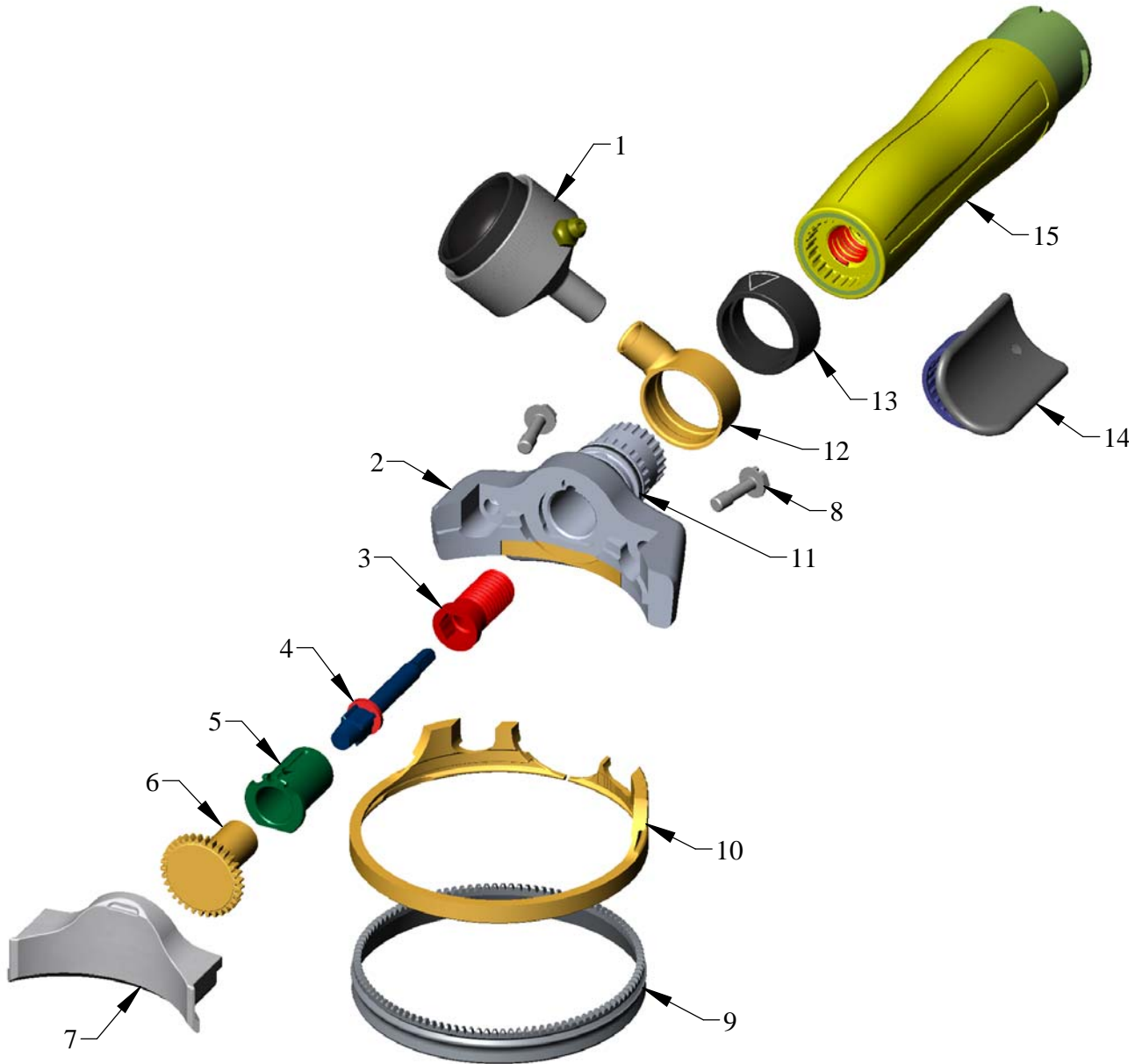


505 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 505 Whizard Quantum[®] Air | QTY. |
|-------------|---|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 101090 | 1 |
| | Washer | 123523 | 1 |
| | Bulb | 163265 | 1 |
| | Ring | 101576 | 1 |
| | Cup with Fitting | 101089 | 1 |
| 2 | Frame | 101791 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183365 | 1 |
| 7 | Cover | 101597 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Screw and Instructions | 183655 | 1 |
| 8 | Cover Retaining Screw | 183376 | 2 |
| 9 | Blade | 102086 | 1 |
| 10 | Blade Housing | 102090 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



750 Whizard Quantum[®] Air Head Assembly



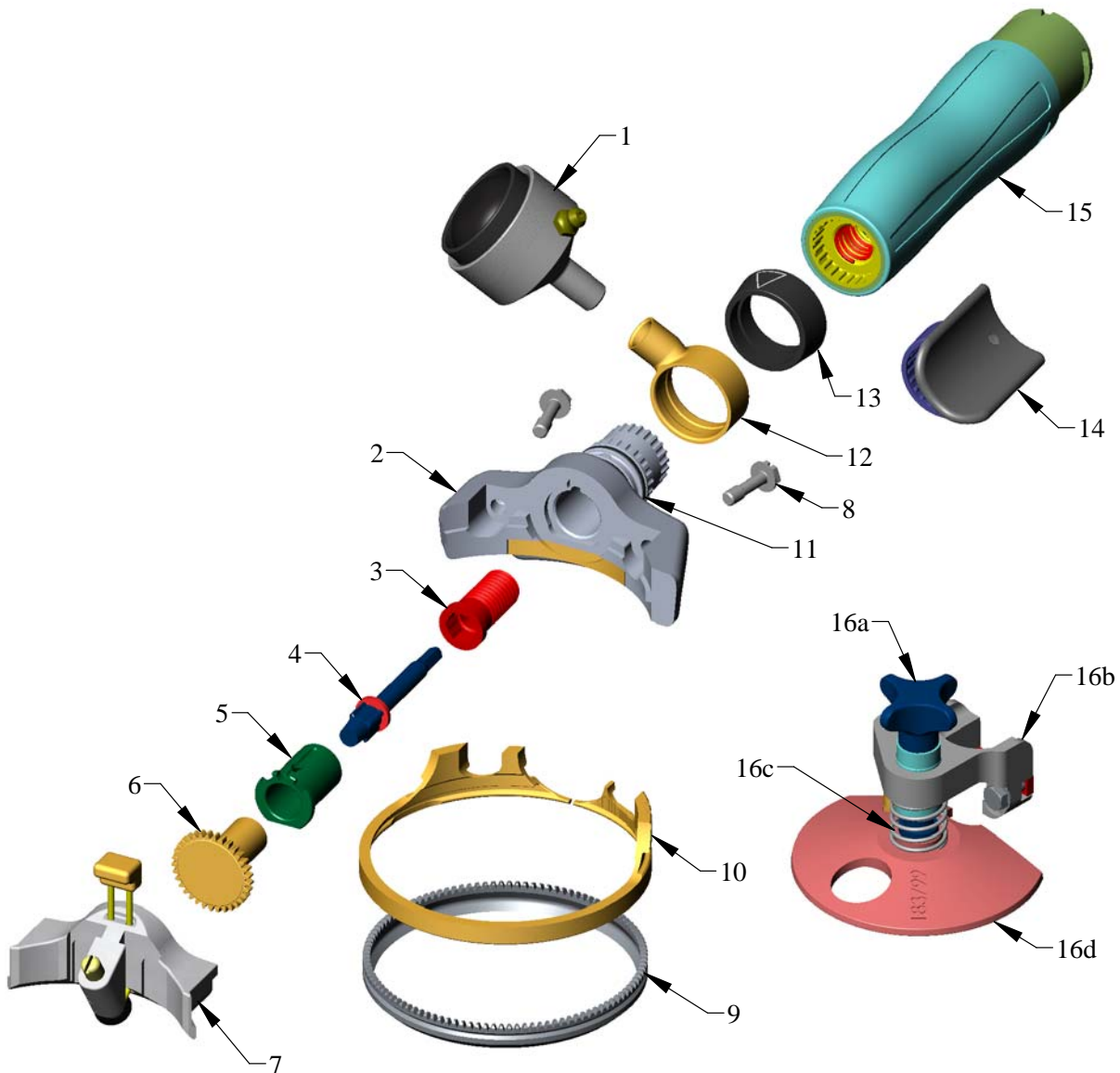


750 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 750 Whizard Quantum[®] Air | QTY. |
|-------------|------------------------------|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101790 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183063 | 1 |
| 7 | Cover | 101374 | 1 |
| 8 | Cover Retaining Screw | 188017 | 2 |
| 9 | Blade | 102085 | 1 |
| 10 | Blade Housing | 102089 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |



850 Whizard Quantum[®] Air Head Assembly



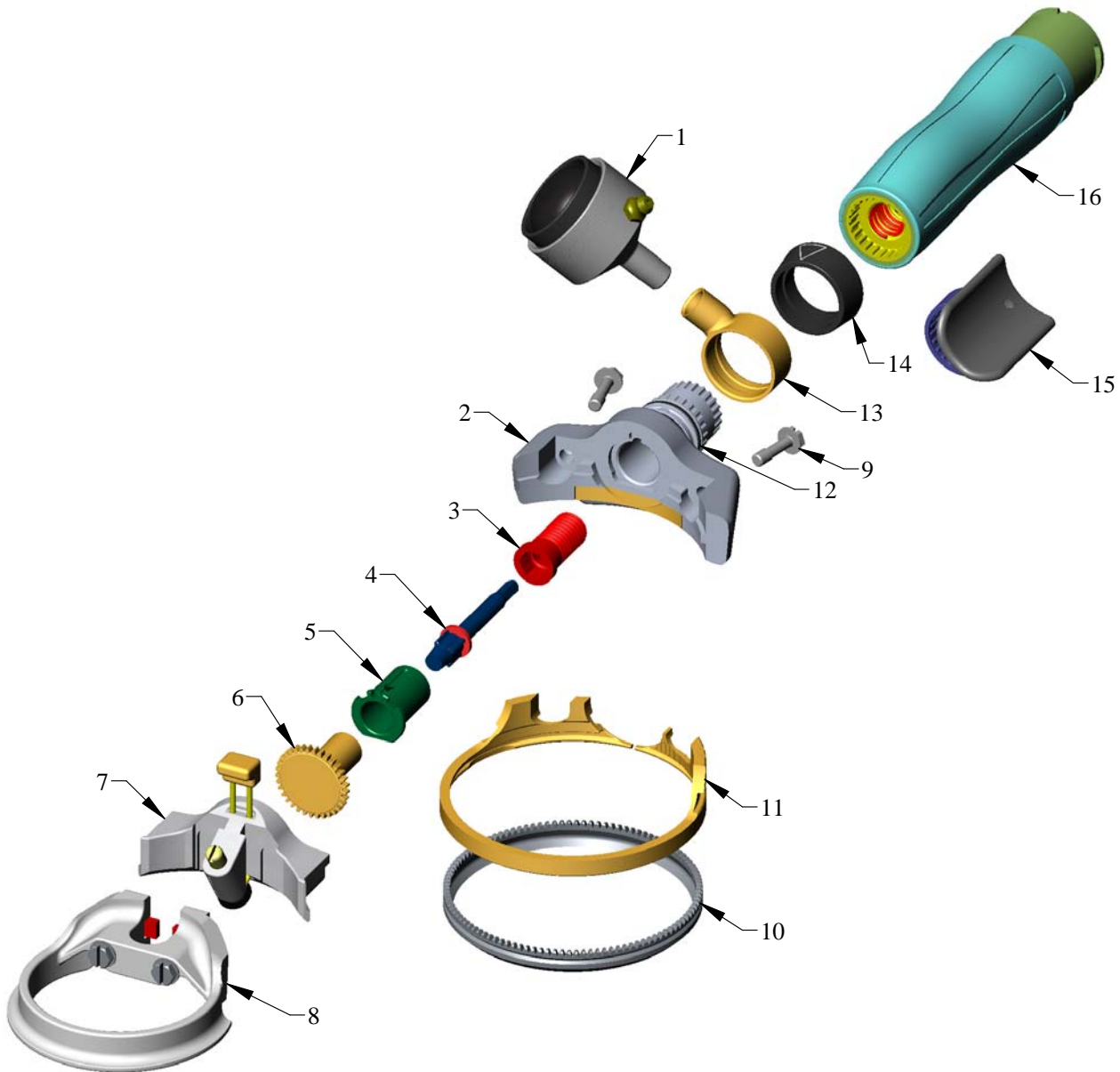


850 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 850 Whizard Quantum[®] Air | QTY. |
|-------------|---|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101790 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183063 | 1 |
| 7 | Cover with Special Steeling Device | 101437 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Screw and Instructions | 183474 | 1 |
| 8 | Cover Retaining Screw | 188017 | 2 |
| 9 | Blade | 102087 | 1 |
| 10 | Blade Housing | 102089 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |
| 16 | Disc Gauge Kit 850S (Optional) (Includes 16a, 16b, 16c, 16d) | 183801 | 1 |
| 16a | Knob | 183791 | 1 |
| 16b | Frame Assembly | 183798 | 1 |
| 16c | Spring | 121635 | 1 |
| 16d | Disc Assembly | 183799 | 1 |



880-B Whizard Quantum[®] Air Head Assembly



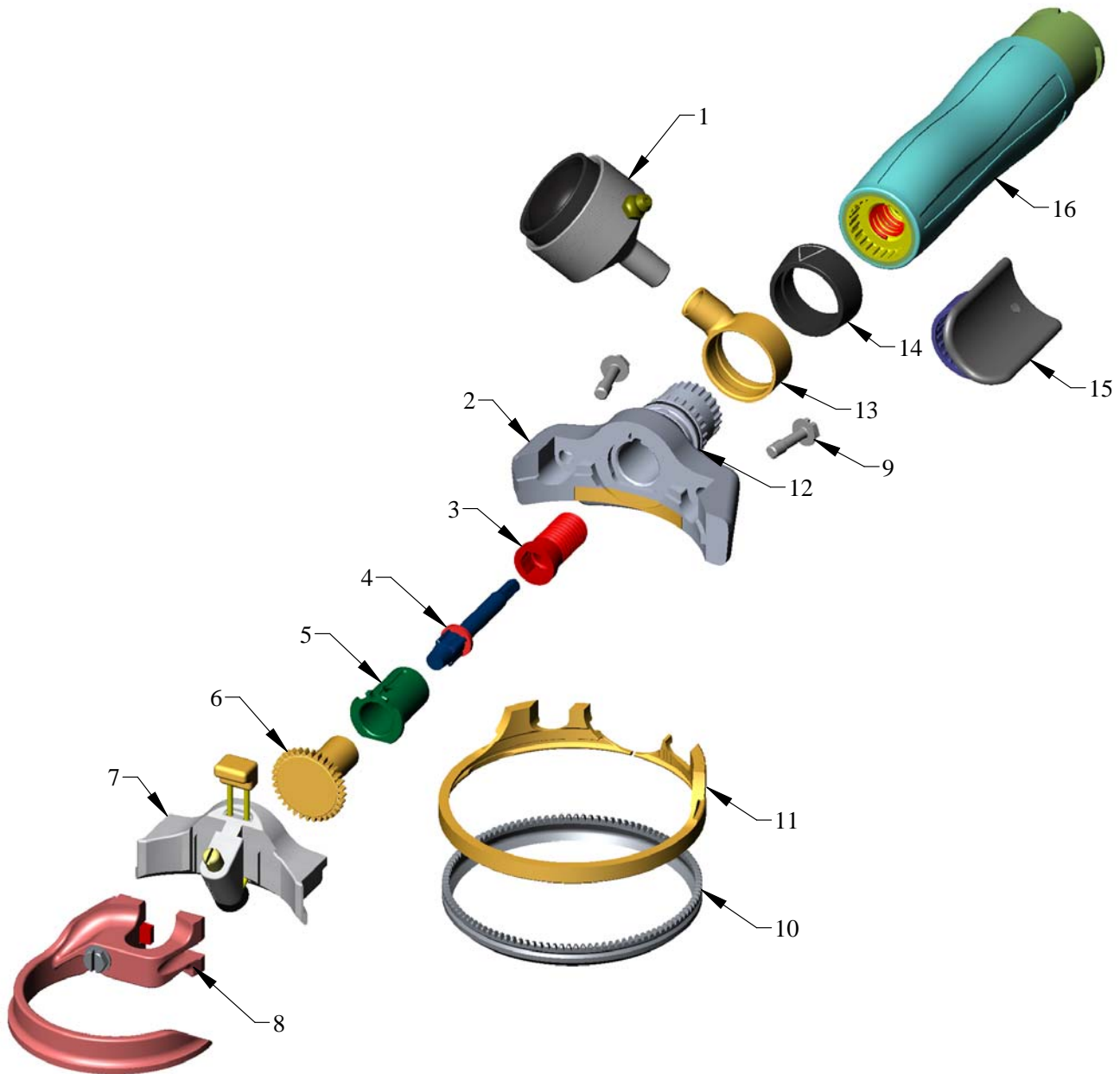


880-B Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 880-B Whizard Quantum[®] Air | QTY. |
|-------------|---|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101790 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183063 | 1 |
| 7 | Cover with Special Steeling Device | 101437 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Screw and Instructions | 183474 | 1 |
| 8 | Depth Gauge Assembly | 183075 | 1 |
| 9 | Cover Retaining Screw | 188017 | 2 |
| 10 | Blade | 102087 | 1 |
| 11 | Blade Housing | 102089 | 1 |
| 12 | Frame O-rings | 103388 | 2 |
| 13 | Grease Ring | 100961 | 1 |
| 14 | Handle Spacer Ring | 101130 | 1 |
| 15 | Thumb Support | 101021 | 1 |
| 16 | Power Unit (Yellow) | 101216 | 1 |



880-S Whizard Quantum[®] Air Head Assembly



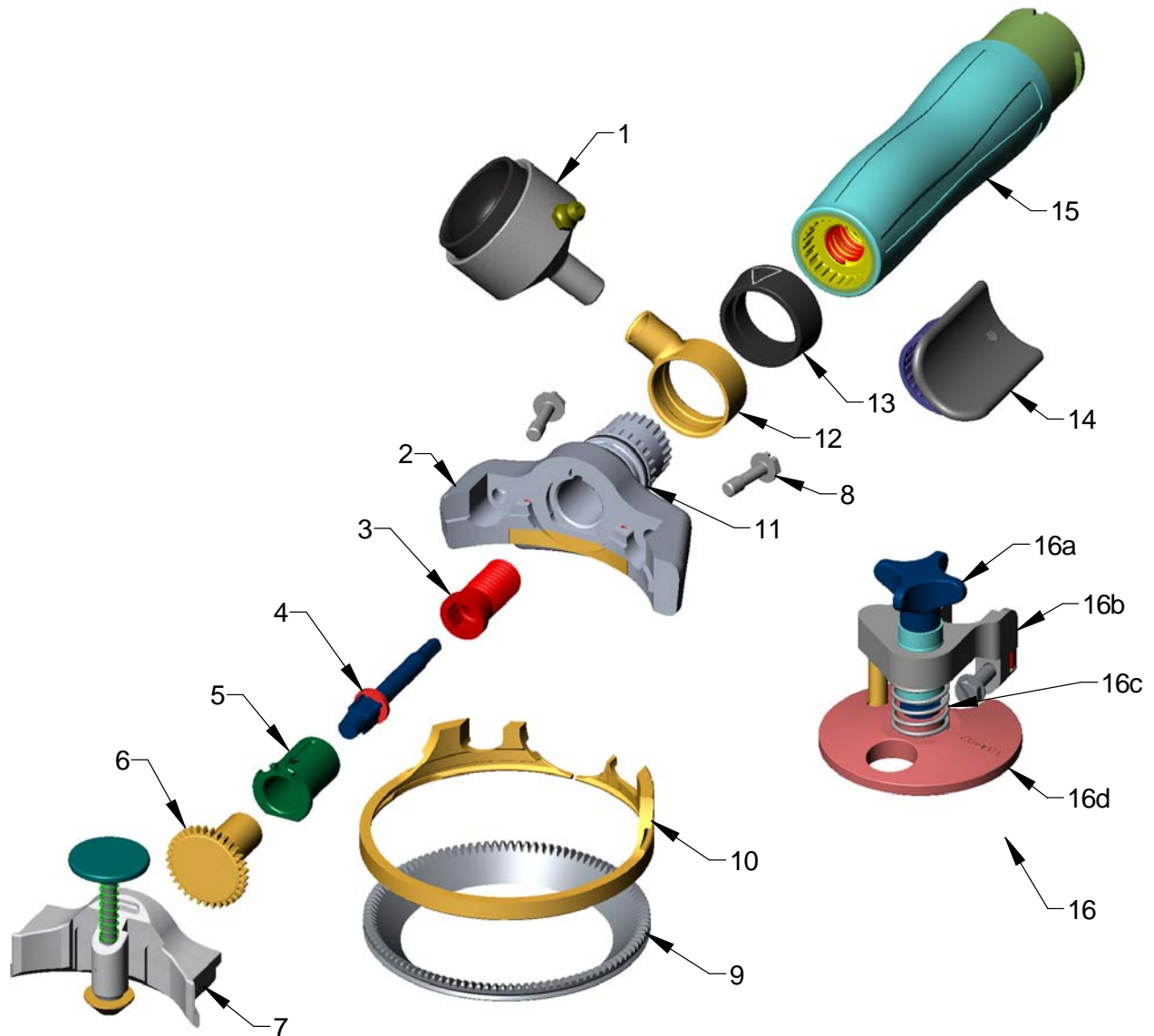


880-S Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 880-S Whizard Quantum[®] Air | QTY. |
|-------------|---|--|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100996 | 1 |
| 2 | Frame | 101790 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183063 | 1 |
| 7 | Cover with Special Steeling Device | 101437 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Screw and Instructions | 183474 | 1 |
| 8 | Depth Guage Assembly | 183076 | 1 |
| 9 | Cover Retaining Screw | 188017 | 2 |
| 10 | Blade | 102087 | 1 |
| 11 | Blade Housing | 102089 | 1 |
| 12 | Frame O-rings | 103388 | 2 |
| 13 | Grease Ring | 100961 | 1 |
| 14 | Handle Spacer Ring | 101130 | 1 |
| 15 | Thumb Support | 101021 | 1 |
| 16 | Power Unit (Yellow) | 101216 | 1 |



1850 Whizard Quantum[®] Air Head Assembly



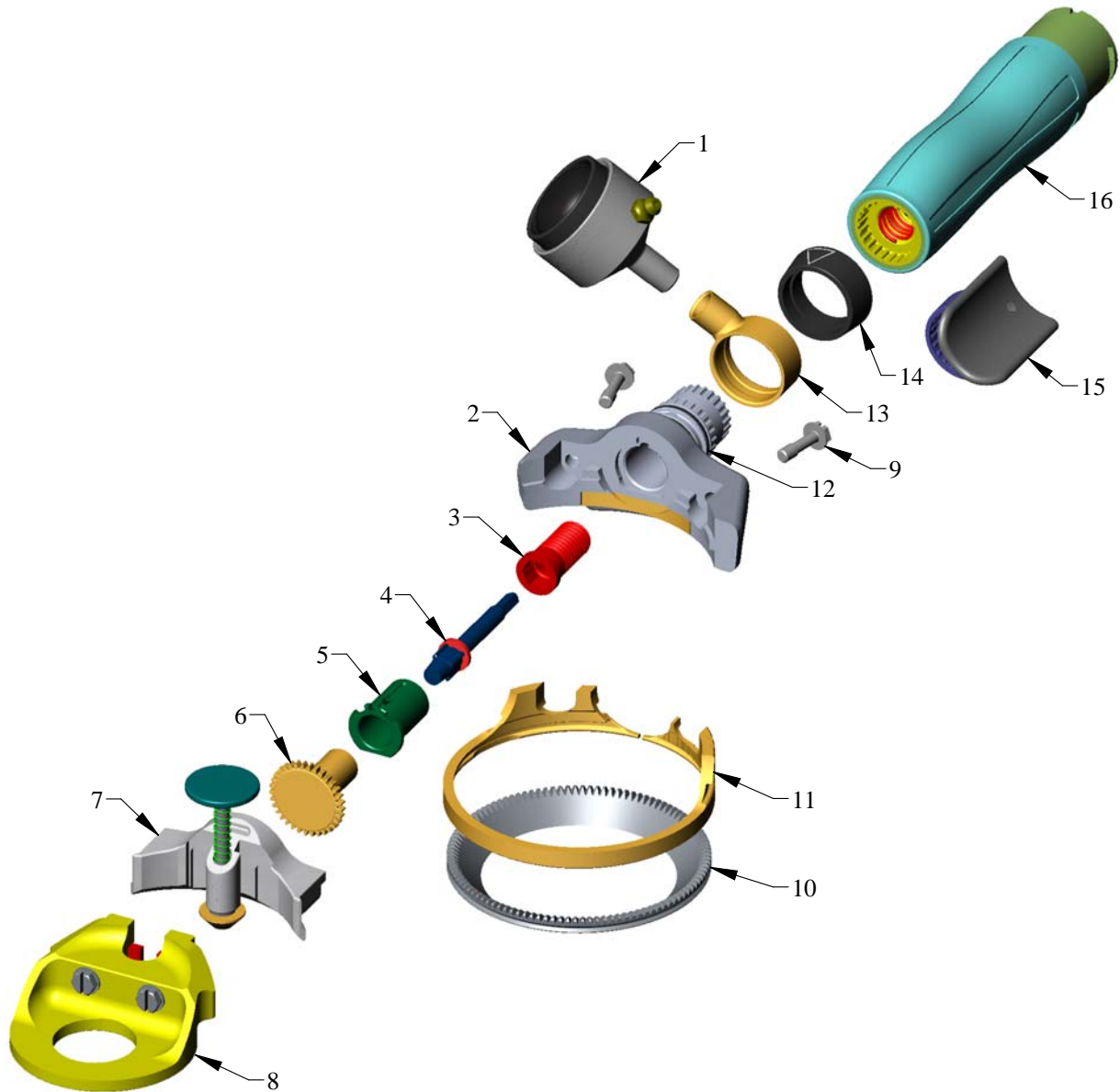


1850 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 1850 Whizard Quantum[®] Air | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101790 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183063 | 1 |
| 7 | Cover with Special Steeling Device | 100443 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183476 | 1 |
| 8 | Cover Retaining Screw | 188017 | 2 |
| 9 | Blade | 102088 | 1 |
| 10 | Blade Housing | 102089 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |
| 16 | Disc Gauge Kit | 184479 | 1 |
| 16a | Knob | 183791 | 1 |
| 16b | Frame | 183798 | 1 |
| 16c | Spring | 121635 | 1 |
| 16d | Disc Assembly | 184481 | 1 |



1880 Whizard Quantum[®] Air Head Assembly



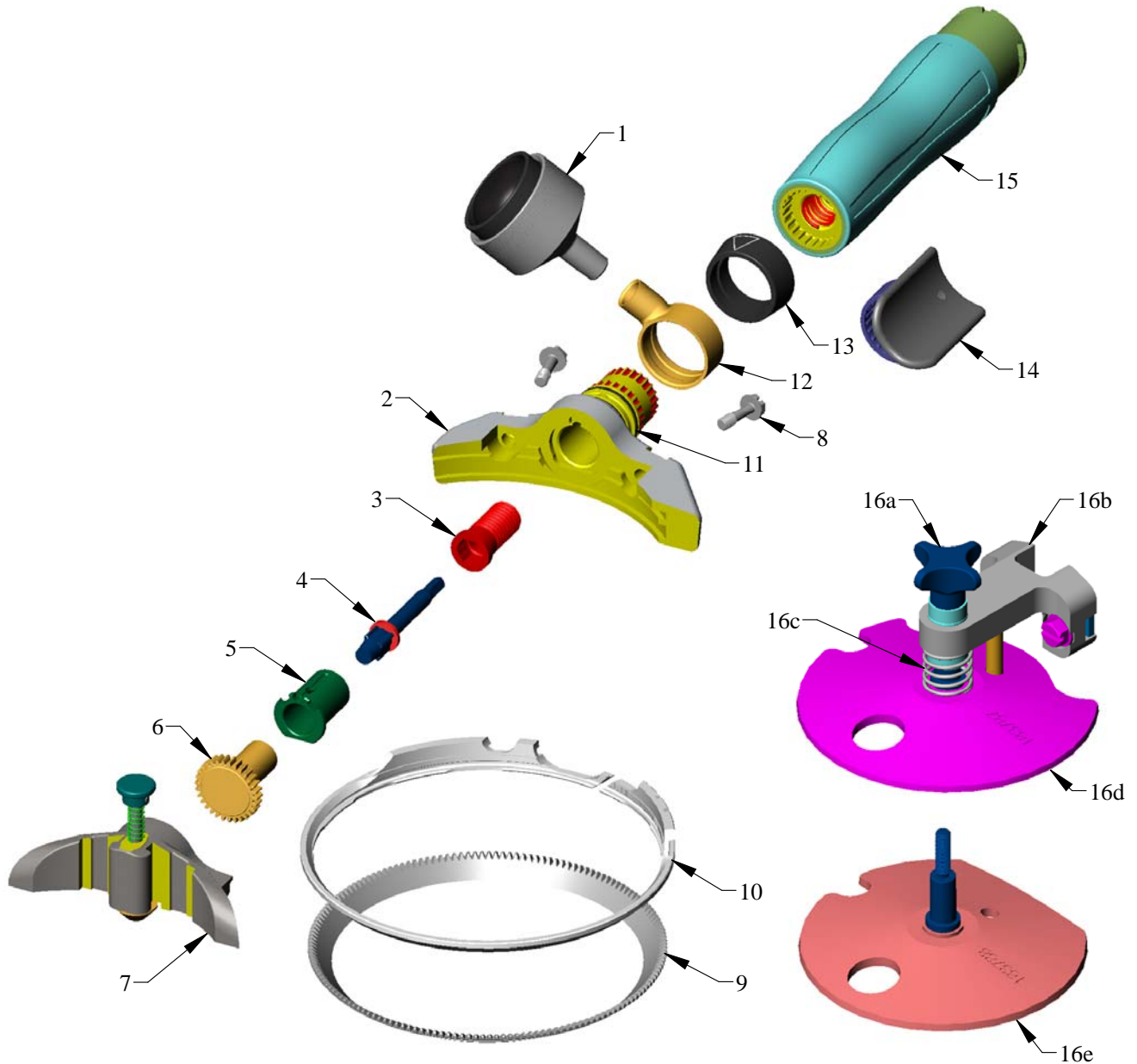


1880 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 1880 Whizard Quantum[®] Air | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101790 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183063 | 1 |
| 7 | Cover with Special Steeling Device | 101443 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183476 | 1 |
| 8 | Depth Gauge Assembly | 183077 | 1 |
| 9 | Cover Retaining Screw | 188017 | 2 |
| 10 | Blade | 102088 | 1 |
| 11 | Blade Housing | 102089 | 1 |
| 12 | Frame O-rings | 103388 | 2 |
| 13 | Grease Ring | 100961 | 1 |
| 14 | Handle Spacer Ring | 101130 | 1 |
| 15 | Thumb Support | 101021 | 1 |
| 16 | Power Unit (Yellow) | 101216 | 1 |



1000 Whizard Quantum[®] Air Head Assembly



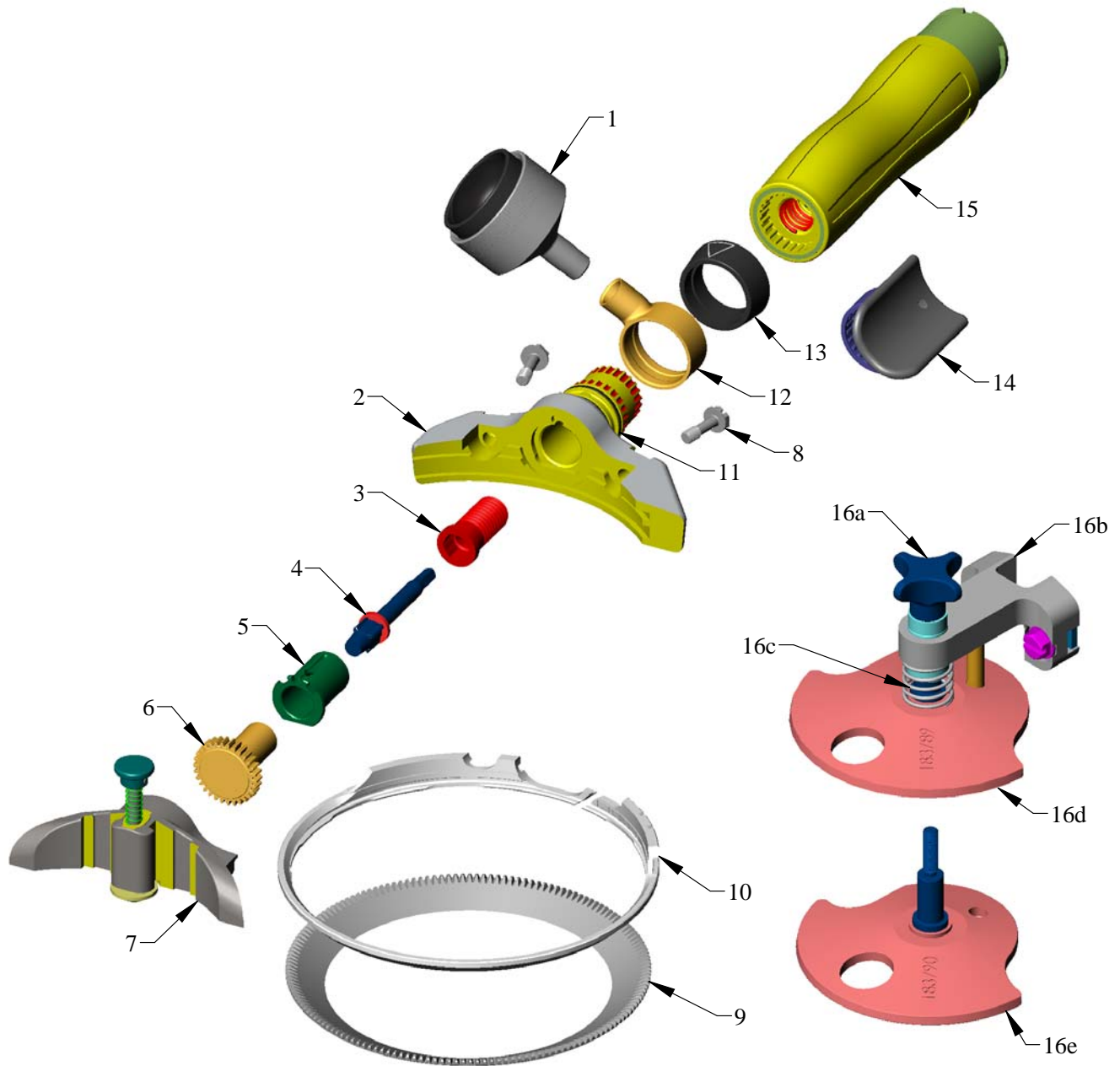


1000 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 1000 Whizard Quantum[®] Air | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101176 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183154 | 1 |
| 7 | Cover with Special Steeling Device | 101031 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183477 | 1 |
| 8 | Cover Retaining Screw | 101046 | 2 |
| 9 | Blade | 100629 | 1 |
| 10 | Blade Housing | 100628 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |
| 16 | Disc Gauge Kit (Optional) | | |
| | 1000 Skinner (S) | 183792 | 1 |
| | 1000 Fat (F) | 183793 | 1 |
| 16a | Knob | 183791 | 1 |
| 16b | Frame Assembly | 183784 | 1 |
| 16c | Spring | 121635 | 1 |
| 16d | Disc Assembly (S) | 183787 | 1 |
| 16e | Disc Assembly (F) | 183788 | 1 |



1300 Whizard Quantum[®] Air Head Assembly



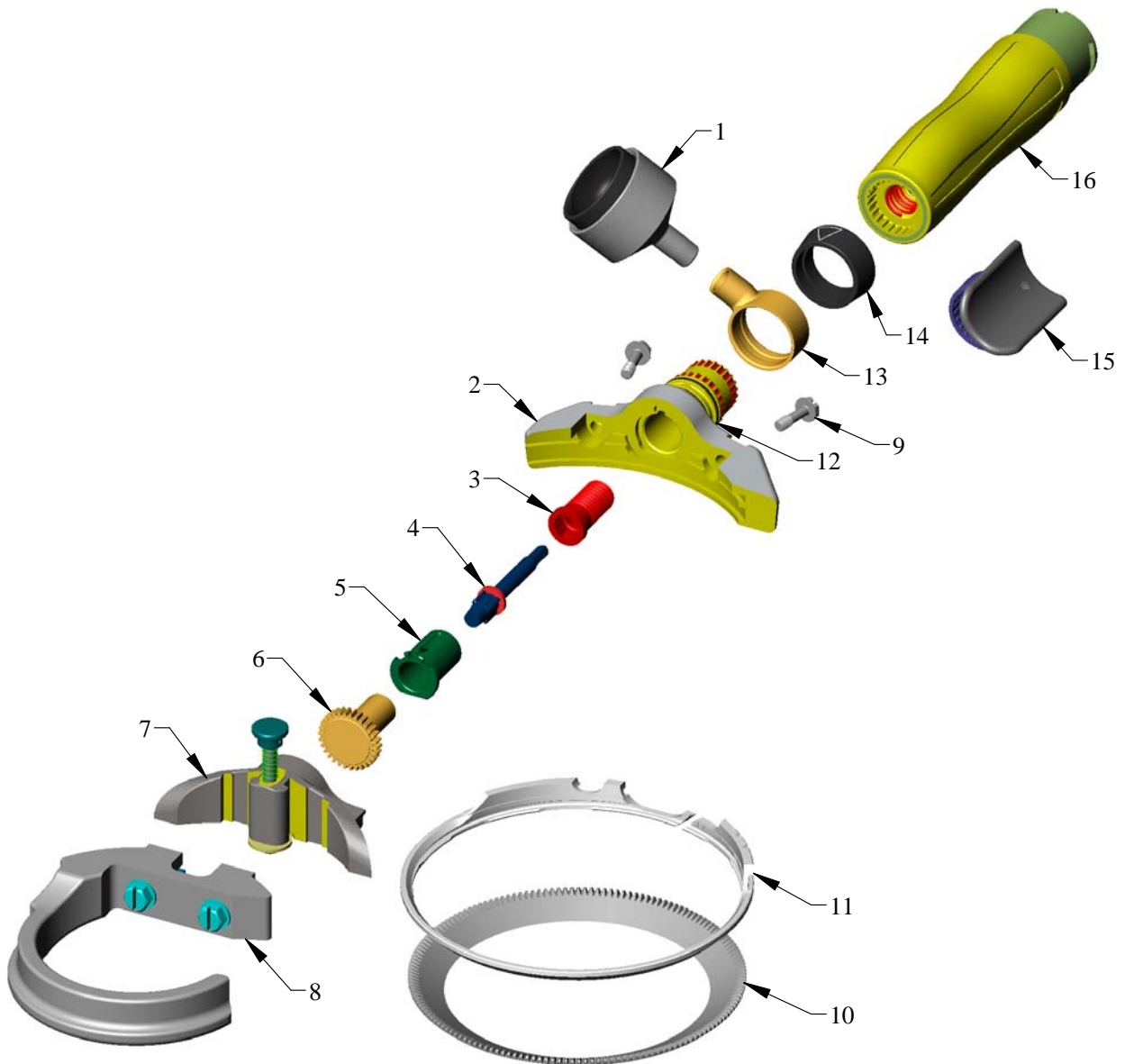


1300 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 1300 Whizard Quantum[®] Air | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101176 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183154 | 1 |
| 7 | Cover with Special Steeling Device | 101032 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183478 | 1 |
| 8 | Cover Retaining Screw | 101046 | 2 |
| 9 | Blade | 100630 | 1 |
| 10 | Blade Housing | 100628 | 1 |
| 11 | Frame O-rings | 103388 | 2 |
| 12 | Grease Ring | 100961 | 1 |
| 13 | Handle Spacer Ring | 101130 | 1 |
| 14 | Thumb Support | 101021 | 1 |
| 15 | Power Unit (Yellow) | 101216 | 1 |
| 16 | Disc Gauge Kit (Optional) | | |
| | 1000 Skinner (S) | 183794 | 1 |
| | 1000 Fat (F) | 183795 | 1 |
| 16a | Parts for Disc Gauge (Not Shown) | | |
| | Knob | 183791 | 1 |
| | Frame Assembly | 183784 | 1 |
| | Spring | 121635 | 1 |
| | Disc Assembly (S) | 183789 | 1 |
| | Disc Assembly (F) | 183790 | 1 |



1400 Whizard Quantum[®] Air Head Assembly



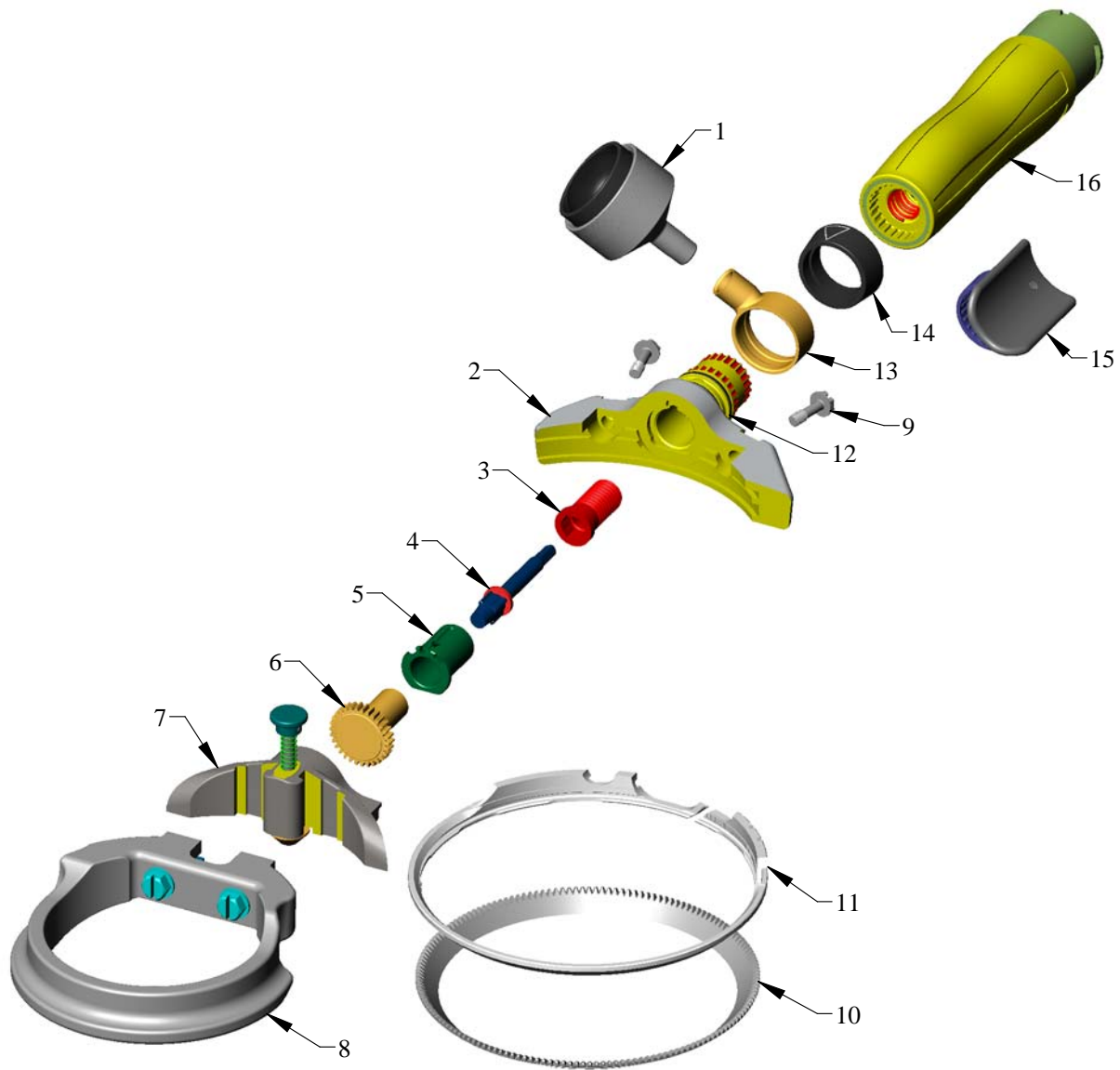


1400 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 1400 Whizard Quantum[®] Air | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101176 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183154 | 1 |
| 7 | Cover with Special Steeling Device | 101032 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183478 | 1 |
| 8 | Depth Gauge Assembly | 183159 | 1 |
| 9 | Cover Retaining Screw | 101046 | 2 |
| 10 | Blade | 100630 | 1 |
| 11 | Blade Housing | 100628 | 1 |
| 12 | Frame O-rings | 103388 | 2 |
| 13 | Grease Ring | 100961 | 1 |
| 14 | Handle Spacer Ring | 101130 | 1 |
| 15 | Thumb Support | 101021 | 1 |
| 16 | Power Unit (Yellow) | 101216 | 1 |



1500 Whizard Quantum[®] Air Head Assembly





1500 Whizard Quantum[®] Air Head Assembly (Continued)

| ITEM | DESCRIPTION | 1500 Whizard Quantum[®] Air | QTY. |
|-------------|---|---|-------------|
| 1 | Grease Cup (Parts Not Shown) | 100998 | 1 |
| | Retaining Ring Only | 101577 | 1 |
| | Bulb and Ring Only | 173208 | 1 |
| | Cup with Fitting | 100999 | 1 |
| 2 | Frame | 101176 | 1 |
| 3 | Attachment Screw | 184119 | 1 |
| 4 | Drive Adapter Assembly | 184120 | 1 |
| 5 | Bearing | 100996 | 1 |
| 6 | Pinion | 183154 | 1 |
| 7 | Cover with Special Steeling Device | 101031 | 1 |
| | Kit for Special Steeling Device (Not Shown) Includes Shaft, Spring, Button, Pin and Instructions | 183477 | 1 |
| 8 | Depth Gauge Assembly | 183160 | 1 |
| 9 | Cover Retaining Screw | 101046 | 2 |
| 10 | Blade | 100629 | 1 |
| 11 | Blade Housing | 100628 | 1 |
| 12 | Frame O-rings | 103388 | 2 |
| 13 | Grease Ring | 100961 | 1 |
| 14 | Handle Spacer Ring | 101130 | 1 |
| 15 | Thumb Support | 101021 | 1 |
| 16 | Power Unit (Yellow) | 101216 | 1 |



Lubrication and Lubrication Equipment

| Part Number | Description |
|--------------------|--|
| 103603 | Pint of Oil |
| 184282 | 4 oz. Tube of Max-Z-Lube Grease |
| 100608 | 8 oz. Tube of Whizard [®] Grease |
| 143631 | 14 oz. Cartridge Whizard [®] Grease |
| 163328 | 25 pack - 14 oz. Cartridge Whizard [®] Grease |
| 100640 | 35 Pound Bucket Whizard [®] Grease |
| 113415 | Grease Gun |
| 113326 | Planetary Gear Grease Gun (Needle Nose) |
| 101316 | Large Grease Cup (Optional) |
| 102273 | Grease Fitting |
| 183631 | Elbow - Body |

Air Supply Equipment

| Part Number | Description |
|--------------------|---|
| 173226 | Filter, Regulator, Lubricator (FRL) Kit |
| 185789 | Replacement Filter Element |
| 103386 | Automatic Air Coupler |



Optional Blades

| Part Number | Description |
|--------------------|--|
| 183923 | Q350 Cone Blade |
| 101366 | Q1850 Serrated Blade |
| 100780 | Q1000 / Q1500 Serrated Blade |
| 100781 | Q1300 / Q1400 Serrated Blade |
| 102092 | Q625 Serrated Blade |
| 101363 | Q750 Serrated Blade |
| 184401 | TRIMVAC [®] 14 Blade |
| 185699 | TRIMVAC [®] 45, Spinal Cord Removal Blade |
| 185684 | TRIMVAC [®] 45, Long 620 Style |
| 185786 | TRIMVAC [®] 45, Long 620 Serrated |
| 185999 | TRIMVAC [®] 18, 8mm Blade |
| 188067 | TRIMVAC [®] 18, 8mm Blade, Tapered |
| 188010 | TRIMVAC [®] 24, 5/16" Blade |



Blade Sharpening and Steeling Equipment

| Part Number | Description |
|--------------------|---|
| 100655 | Special Stone (Small Tools) |
| 100660 | Special Stone (Large Tools) |
| 100641 | Special Steel (Small Tools) |
| 100642 | Special Steel (Large Tools) |
| 100650 | Ceramic Sharpener |
| 163080 | 350 Whizard® EdgeMaster™ |
| 163074 | 360 Whizard® EdgeMaster™ |
| 163079 | 620 Whizard® EdgeMaster™ |
| 163073 | 625 Whizard® EdgeMaster™ |
| 163077 | 500 Whizard® EdgeMaster™ |
| 163072 | 505 Whizard® EdgeMaster™ |
| 163076 | 750 Whizard® EdgeMaster™ |
| 163071 | 850 / 880 Whizard® EdgeMaster™ |
| 163069 | 1000 / 1500 Whizard® EdgeMaster™ |
| 163070 | 1300 / 1400 Whizard® EdgeMaster™ |
| 122740 | Positioner Reel for Whizard® EdgeMaster™ |
| 183905 | 350 Bettcher® EZ Edge Sharpener |
| 183928 | 360 Bettcher® EZ Edge Sharpener |
| 183892 | 620 Bettcher® EZ Edge Sharpener |
| 183926 | 625 Bettcher® EZ Edge Sharpener |
| 183907 | 500 Bettcher® EZ Edge Sharpener |
| 183927 | 505 Bettcher® EZ Edge Sharpener |
| 183908 | 750 Bettcher® EZ Edge Sharpener |
| 183925 | 850/880 Bettcher® EZ Edge Sharpener |
| 173322 | 1000/1500 Bettcher® EZ Edge Sharpener |
| 173298 | 1300/1400 Bettcher® EZ Edge Sharpener |
| 184423 | Steeling Assembly Ball Tip |
| 185797 | Steel for TRIMVAC® 18, 8mm Blade |
| 188069 | Steel for TRIMVAC® 18, 8mm Blade, Tapered |



Covers, Depth Gauges and Depth Gauge Equipment

| Part Number | Description |
|--------------------|--|
| 185128 | Poultry Cover 350 |
| 101600 | Poultry Cover 500 |
| 101146 | Poultry Cover 620 |
| 101192 | Poultry Cover Assembly 625 |
| 101375 | Poultry Cover 750 |
| 102242 | Depth Gauge Assembly - 625 with Special Cover Assembly |
| 183705 | Depth Gauge Assembly – 505M2 With 1 Mounting Screw |
| 188081 | Depth Gauge Assembly – 505M2 With 2 Mounting Screws |
| 173347 | Depth Gauge Setting Device Kit 880-S&B |
| 173348 | Depth Gauge Setting Device Kit 1400 and 1500 |

Cleaning Equipment

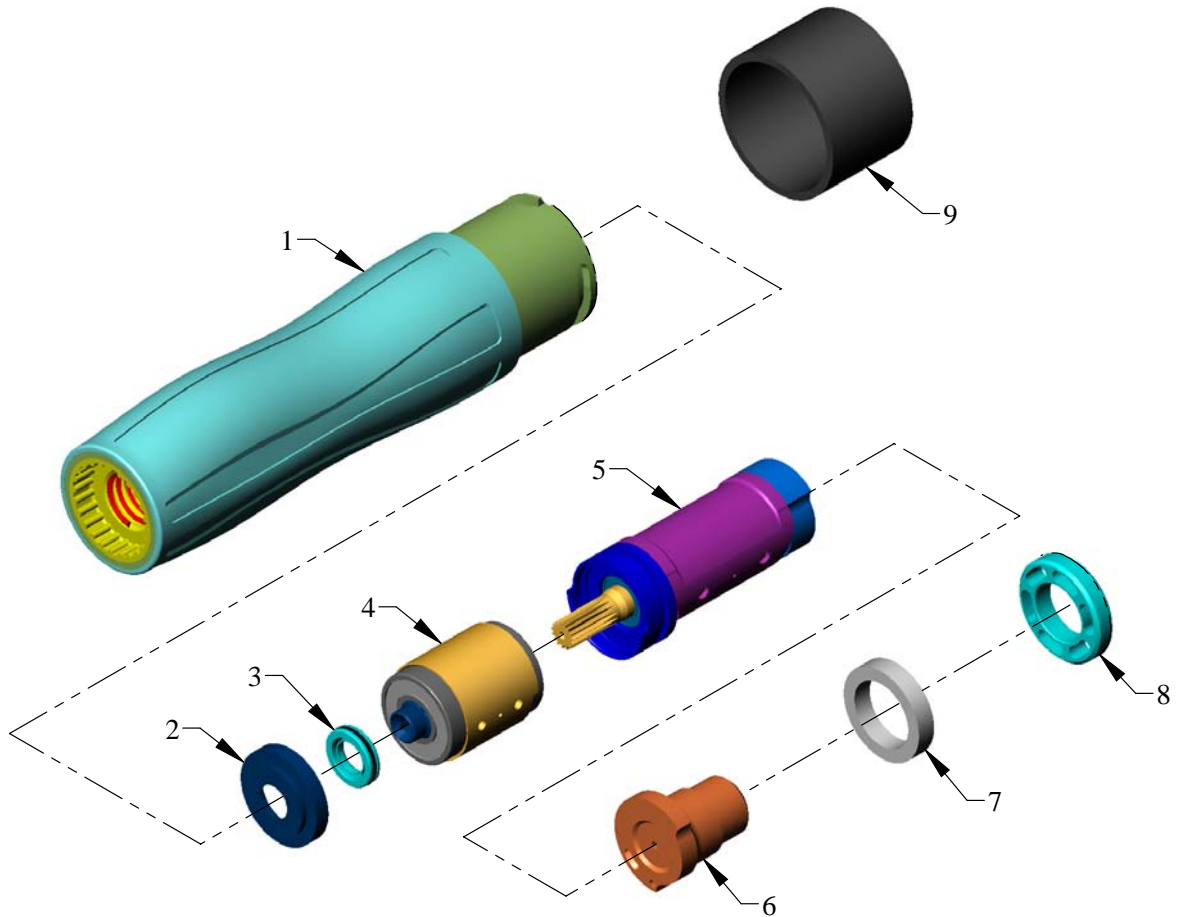
| Part Number | Description |
|--------------------|---|
| 184334 | Handpiece Cleaning Kit (Contains the following) |
| 184335 | Handpiece Cleaning Pick |
| 184336 | Stainless Steel Hand Brush |
| 184337 | Scrub Brush |
| 184338 | 1-1/2” Diameter Tubing Brush |
| 184339 | ½” Diameter Tubing Brush |

Cleaning Solution

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



Complete Power Unit Assembly





Complete Power Unit Assembly (Continued)

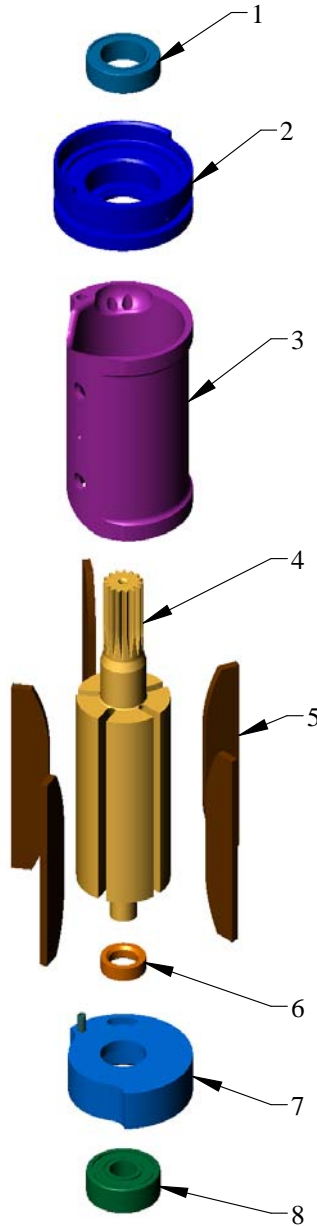
| ITEM | DESCRIPTION | Small Whizard Quantum® Power Unit | QTY. |
|------|--|-----------------------------------|------|
| -- | Complete Power Unit Assembly (Yellow) (Includes Items 1, 2, 3, 4, 5, 6, 7, 8, 9) | 101216 | |
| -- | Complete Power Unit Assembly (Sky Blue) (Includes Items 1, 2, 3, 4, 5, 6, 7, 8, 9) | 101217 | |
| 1 | Over-molded Handle with O-Ring (Yellow)* | 101207 | 1 |
| | Over-molded Handle with O-Ring (Sky Blue)* | 101209 | 1 |
| -- | Handle O-Ring (Not shown) (Included with Item # 1) | 122316 | 1 |
| 2 | Seal Block | 184062 | 1 |
| 3 | Seal Kit | 184427 | 1 |
| 4 | Gear Head Assembly* | 185935 | 1 |
| 5 | Air Motor Assembly | 185942 | 1 |
| 6 | Adapter Plate Assembly | 184047 | 1 |
| -- | Adapter Plate O-Ring (Not shown) Included with Item#6 | 122315 | 1 |
| 7 | Muffler | 184388 | 1 |
| 8 | Retainer | 184049 | 1 |
| 9 | Cap | 184286 | 1 |

***Refurbished Items Also Available**

| ITEM | DESCRIPTION | Part Number |
|------|--|-------------|
| 1 | Refurbished Over-molded Handle with O-Ring (Yellow) – Old Part must be returned | 102250 |
| 1 | Refurbished Over-molded Handle with O-Ring (Sky Blue) - Old Part must be returned | 102253 |



Complete Air Motor Assembly



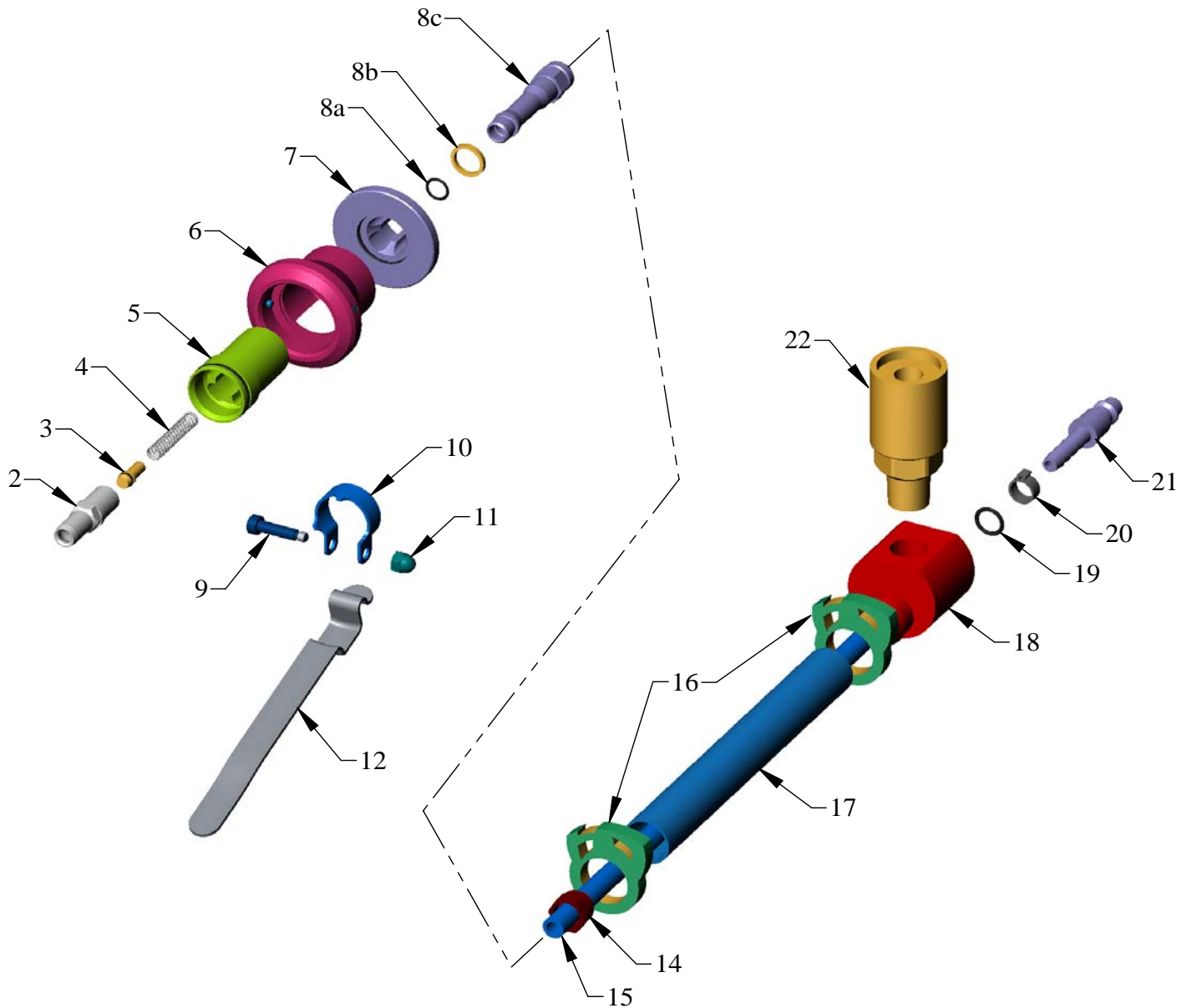


Complete Air Motor Assembly (Continued)

| ITEM | DESCRIPTION | PART NUMBER | QTY. |
|-------------|--|--------------------|-------------|
| | Complete Air Motor Assembly (Includes Items 1, 2, 3, 4, 5, 6, 7, 8) | 185942 | |
| 1 | Upper Bearing | 185950 | 1 |
| 2 | Upper Bearing Plate Assembly | 185948 | 1 |
| 3 | Cylinder | 185947 | 1 |
| 4 | Rotor | 185944 | 1 |
| 5 | Vane Kit (Contains 5 Vanes) | 185790 | 1 |
| 6 | Spacer | 184043 | 1 |
| 7 | Lower Bearing Plate Assembly | 184042 | 1 |
| 8 | Lower Bearing | 184046 | 1 |



Complete Valve and Hose Assembly



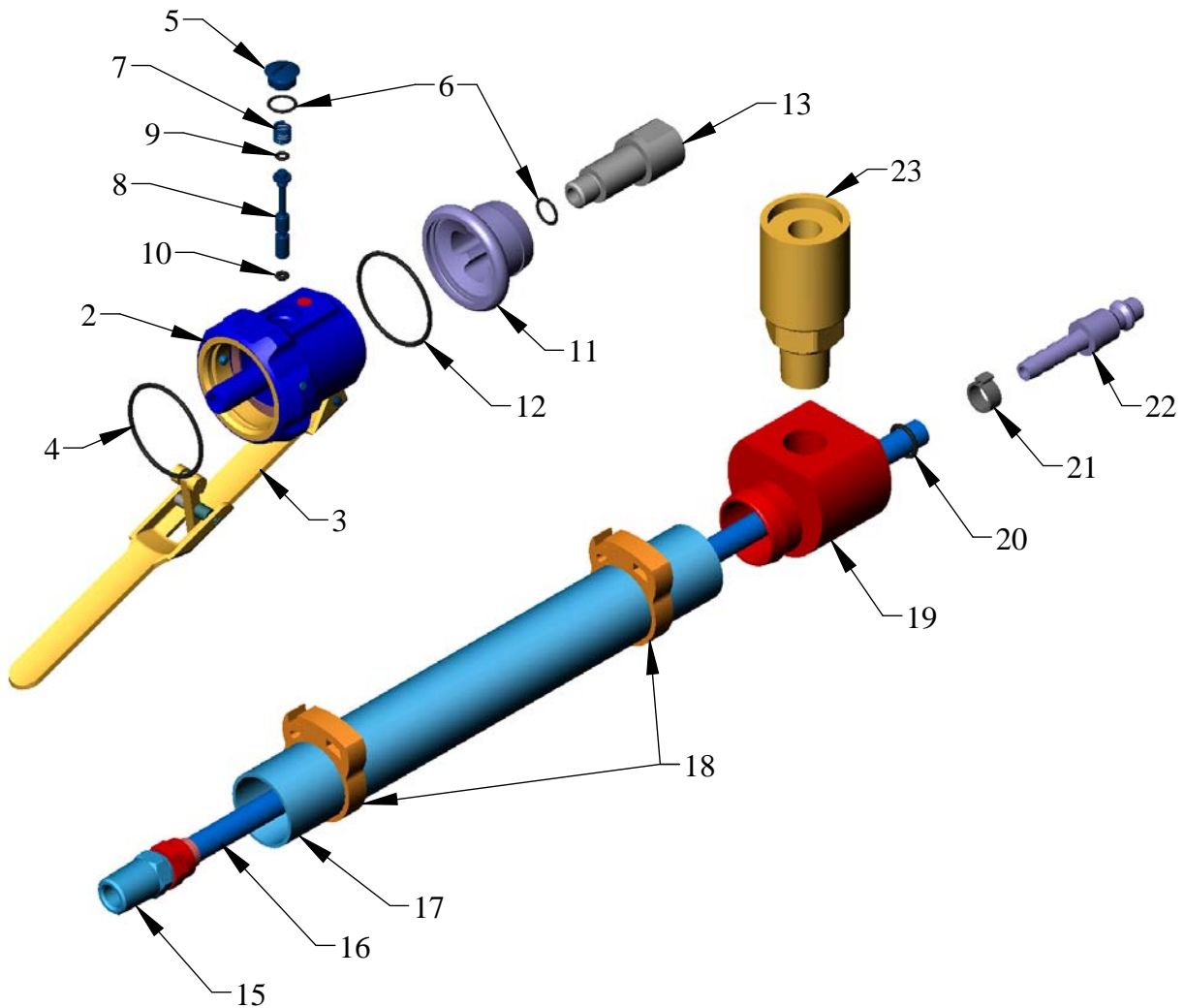


Complete Valve and Hose Assembly (Continued)

| ITEM | DESCRIPTION | PART NUMBER | QTY. |
|------|---|-------------|------|
| | Complete Valve and Hose Assembly (Includes Items 1, 12) | 185137 | |
| 1 | Valve Assembly (Includes Items 2, 3, 4, 5, 6, 8a, 8b, 8c, 9, 10, 11, 12) | 185138 | 1 |
| 2 | Valve Body | 185139 | 1 |
| 3 | Plug Assembly (includes Plug O-Ring) | 185140 | 1 |
| -- | Plug O-Ring (not shown) | 103299 | 1 |
| 4 | Valve Spring | 184057 | 1 |
| 5 | Exhaust Fitting Assembly (includes Exhaust Fitting O-Ring) | 184264 | 1 |
| -- | Exhaust Fitting O-Ring (not shown) | 103388 | 1 |
| 6 | Knob Assembly | 184051 | 1 |
| 7 | Swivel Fitting Assembly (includes Swivel Fitting O-Ring) | 184265 | 1 |
| -- | Swivel Fitting O-Ring (not shown) | 103388 | 1 |
| 8 | Compression Fitting Kit (Includes Items 8a, 8b, 8c) | 184260 | 1 |
| 8a | O-Ring | 143434 | 1 |
| 8b | Washer | 184310 | 1 |
| 8c | Compression Fitting | 184240 | 1 |
| 9 | Shoulder Screw | 184065 | 1 |
| 10 | Clamp | 184053 | 1 |
| 11 | Acorn Nut | 184066 | 1 |
| 12 | Lever | 183108 | 1 |
| 13 | Hose Assembly (Includes Items 14,15,16,17,18,19,20,21,22) | 184263 | 1 |
| 14 | Nut Assembly | 184241 | 1 |
| 15 | Pressure Tubing | 184061 | 1 |
| 16 | Hose Clamp | 184484 | 2 |
| 17 | Exhaust Tubing | 184072 | 1 |
| 18 | Exhaust Tube Adapter | 184074 | 1 |
| 19 | O-Ring | 122315 | 1 |
| 20 | Hose Clamp | 184063 | 1 |
| 21 | Disconnect Fitting | 121433 | 1 |
| 22 | Muffler | 184498 | 1 |



Complete Quick Start Valve and Hose Assembly



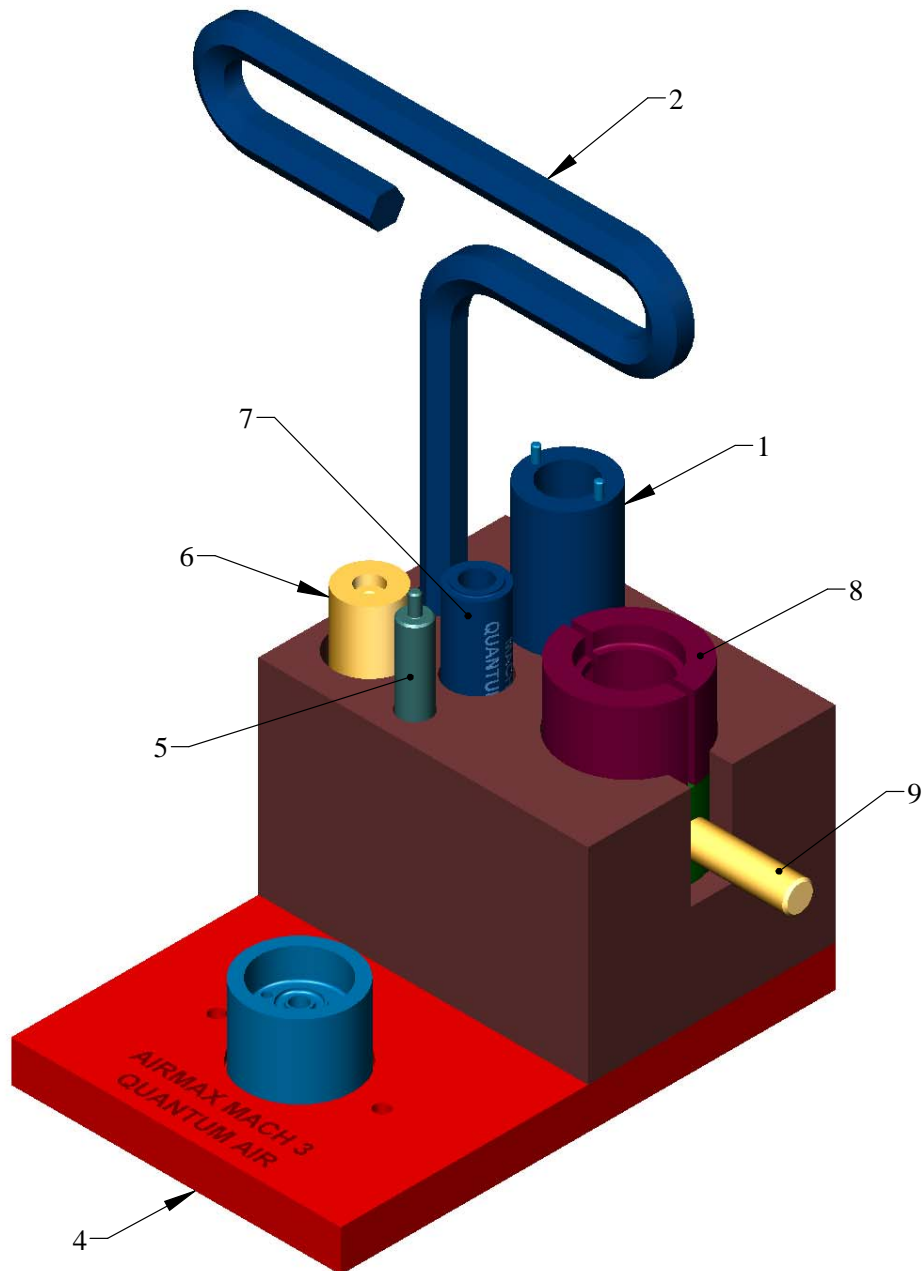


Complete Quick Start Valve and Hose Assembly (Continued)

| ITEM | DESCRIPTION | PART NUMBER | QTY. |
|-------------|--|--------------------|-------------|
| | Complete Valve and Hose Assembly (Includes Items 1, 14) | 185374 | |
| 1 | Valve Assembly (Includes Items 2, 4, 5, 6, 7, 8, 11, 13) | 185351 | 1 |
| 2 | Valve Body Assembly (Includes Item 3) | 185352 | 1 |
| 3 | Lever Assembly Kit (Includes Lever Assembly and Lever Pin) | 185385 | 1 |
| 4 | O-Ring | 122480 | 1 |
| 5 | Housing Plug | 185383 | 1 |
| 6 | O-Ring | 143434 | 2 |
| 7 | Valve Spring | 163792 | 1 |
| 8 | Valve Stem Assembly (Includes Items 9,10) | 185356 | 1 |
| 9 | O-Ring | 143328 | 1 |
| 10 | O-Ring | 122481 | 1 |
| 11 | Exhaust Fitting Assembly (Includes Item 12) | 185366 | 1 |
| 12 | O-Ring | 122480 | 1 |
| 13 | Inlet Fitting | 185368 | 1 |
| 14 | Hose Assembly (Includes Items 15, 16, 17, 18, 19, 20, 21, 22, 23) | 185369 | 1 |
| 15 | 1/8" NPT Fitting | 143404 | 1 |
| 16 | Pressure Tubing | 185370 | 1 |
| 17 | Exhaust Tubing | 185373 | 1 |
| 18 | Hose Clamp | 185372 | 2 |
| 19 | Exhaust Deflector | 185371 | 1 |
| 20 | O-Ring | 122315 | 1 |
| 21 | Hose Clamp | 184063 | 1 |
| 22 | Disconnect Fitting | 121433 | 1 |
| 23 | Muffler | 184498 | 1 |



Tools and Maintenance Kit



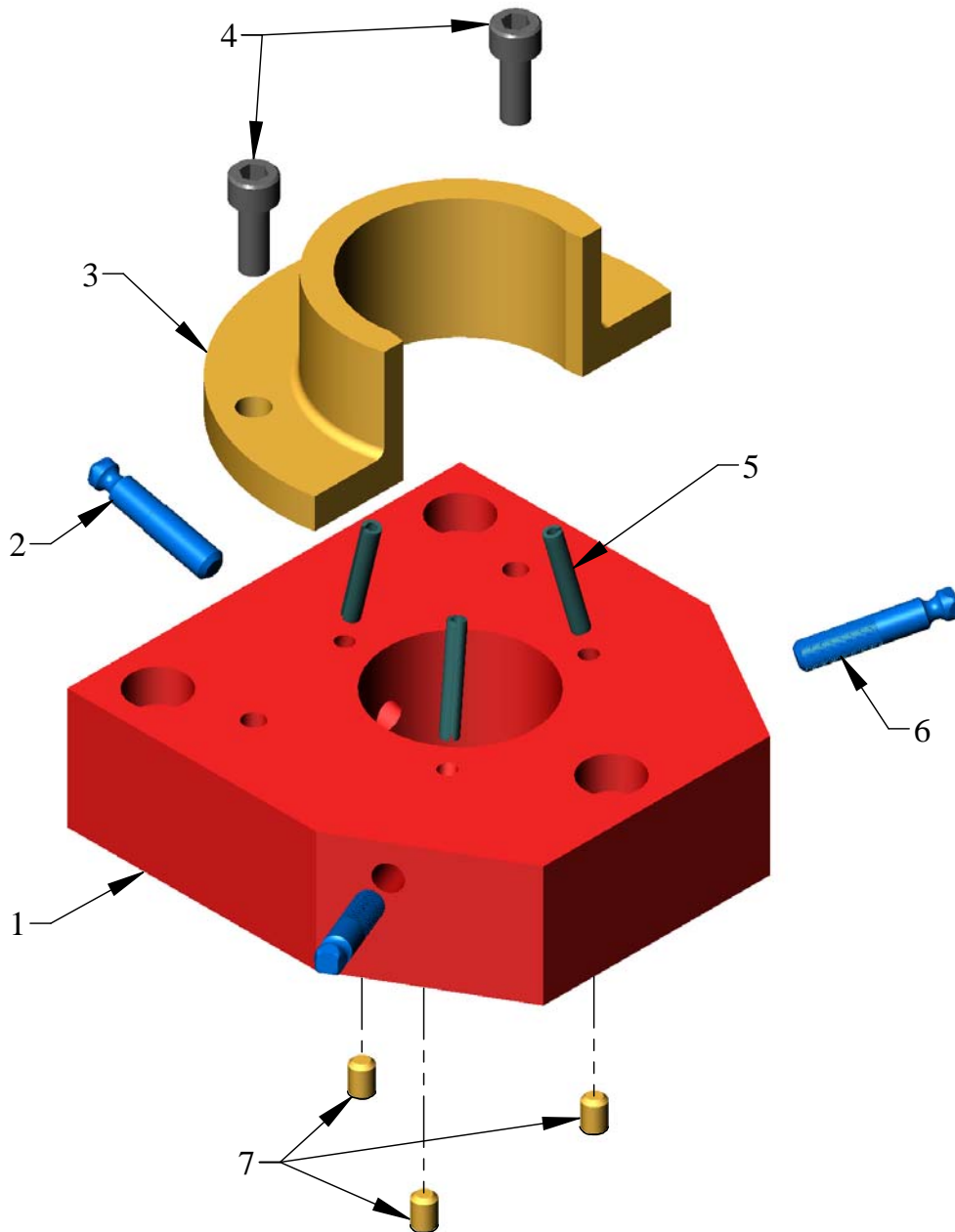


Tools and Maintenance Kit (Continued)

| ITEM | DESCRIPTION | PART NUMBER | QTY. |
|-------------|--|--------------------|-------------|
| 1 | Spanner Wrench | 184134 | 1 |
| 2 | Hex Wrench | 184128 | 1 |
| 3 | Maintenance Kit (Includes Items 4, 5, 6, 7, 8, 9) | 185975 | 1 |
| 4 | Base Assembly | 185976 | 1 |
| 5 | Rotor Removal Punch | 184254 | 1 |
| 6 | Gear Teeth Cap | 185977 | 1 |
| 7 | Bearing Tool | 185978 | 1 |
| 8 | Top Plate Removal Clamp (2 required) | 184255 | 2 |
| 9 | Cup Assembly | 184246 | 1 |



Whizard® TRIMVAC® 18 Sharpener Assembly





Whizard® TRIMVAC® 18 Sharpener Assembly (Continued)

| ITEM | DESCRIPTION | PART NUMBER | QTY. |
|-------------|---|--------------------|-------------|
| | Complete TRIMVAC® 18 Sharpener Assembly (Includes Items 1, 2, 3, 4, 5, 6, 7) | 184377 | |
| 1 | Base | 184378 | 1 |
| 2 | Sharpening Rod | 183893 | 1 |
| 3 | Guide | 184379 | 1 |
| 4 | Socket Head Cap Screw | 122510 | 2 |
| 5 | Spring Pin | 122409 | 3 |
| 6 | Steeling Rod | 163124 | 2 |
| 7 | Set Screw | 120092 | 3 |



Section 8

Contact and Document Information

CONTENTS OF THIS SECTION

| | |
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| Contact Addresses and Phone | 8-2 |
| Document Identification | 8-2 |
| Software and Duplication..... | 8-3 |



Contact Addresses and Phone

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Visit our website at www.bettcher.com

Document Identification

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

| | |
|-----------------------|--|
| Document ID: | Manual # 102481 |
| Document Description: | Operating Instructions and Spare Parts List For Whizard Quantum [®] Air Trimmers |
| Issued: | March 7, 2014 |

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.



BETTCHER
Industries, Inc.

Contact and Document Information

Software and Duplication

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