

- [Novatek 139 0205 Air Peening Prep Kit 2 Inch](#)
- [Novatek 194 C205 Air Peening Prep Tool Star Cutter Hub](#)
- [Novatek 194 0405 Air Peening Prep Tool 4 Inch Rotopeen Flaps](#)
- [Novatek 194 C405 Air Peening Prep Tool Star Cutter Hub](#)
- [Novatek 194 0205 Air Peening Prep Tool 2 Inch Rotopeen Flaps](#)
- [Novatek 139 0405 Air Peening Prep Kit 4 Inch](#)
- [Novatek 194 0215 Electric Peening Prep Tool Rotopeen Flaps](#)
- [Novatek 194 C215 Electric Peening Prep Tool Star Cutter](#)
- [Novatek 194 0415 Electric Peening Prep Tool Rotopeen Flaps](#)
- [Novatek 194 C415 Electric Peening Prep Tool Star Cutter](#)
- [Novatek 139.0215 Electric Peening Prep Kit](#)
- [Novatek 139.0415 Electric Peening Prep Kit](#)

- 194.0205 & 194.C205 – 2” Air**
- 194.0405 & 194.C405 – 4” Air**
- 194.0215 & 194.C215 – 2” Electric**
- 194.0415 & 194.C415 – 4” Electric**
- 139.0205 – 2” Air Kit**
- 139.0405 – 4” Air Kit**
- 139.0215 – 2” Electric Kit**
- 139.0415 – 4” Electric Kit**

## **Peening Prep Tools 2” & 4” Electric and Air Operations & Maintenance**



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**Specifications subject to changes without notice!**

# OPERATION AND MAINTENANCE MANUAL FOR PEENING PREP TOOL

## NOTICE

FOR PROFESSIONAL USE ONLY



## WARNING



**IMPORTANT SAFETY INFORMATION ENCLOSED.  
READ AND UNDERSTAND THIS MANUAL BEFORE OPERATING THIS PRODUCT.**

**IT IS YOUR RESPONSIBILITY TO MAKE THIS SAFETY INFORMATION  
AVAILABLE TO OTHERS THAT WILL OPERATE THIS PRODUCT.**

**FAILURE TO OBSERVE THE FOLLOWING WARNING COULD RESULT IN INJURY.**



### PLACING TOOL IN SERVICE

- Always install, operate, inspect and maintain this product in accordance with all applicable standards and regulations (local, state, country, federal, etc.).
- Compressed air models always use clean, dry air at 90 psi (6.2bar/620kPa) maximum air pressure at the inlet. Higher pressure may result in hazardous situations including excessive speed, rupture, or incorrect output torque or force.
- Electric models must always utilize proper gauge, and rated electrical cords with correct connections.
- Be sure all hoses and fittings are the correctly sized and secured.
- Ensure an accessible emergency shut off has been installed in the air or electrical supply line. Make others aware of its location.
- Do not use damaged, frayed, or deteriorated air hoses and fittings.
- Always use proper gauge electrical cords with correct connections. (When applicable.)
- Electric models must not use damaged, frayed, or deteriorated electrical cords and connections.
- Keep clear of whipping air hoses. Shut off the compressed air before approaching a whipping hose.
- Always turn off and disconnect the tool from its power supply before installing, removing or adjusting any accessory, or before performing any maintenance on the tool.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel. Use only recommended lubricants.
- Keep work area clean, uncluttered, ventilated and illuminated.
- Keep all electrical connections clear of water or other liquids. (When applicable.)
- Do not operate the machine while flammable or volatile liquids such as gasoline, diesel or jet fuel are present. Failure to do so can result in explosion. (When applicable.)
- Do not remove any labels. Replace any damaged label.

### USING THE TOOL

- Always wear protection when operating or performing maintenance on this tool.
- Always wear hearing protection when operating this tool.
- Always use Personal Protective Equipment appropriate to the tool used and material worked. This may include dust mask or other breathing apparatus, safety glasses, ear plugs, gloves, apron, safety shoes, hard hat and other equipment,
- Prevent exposure and breathing of harmful dust and particles created by power tool use:
  - Some dust created by power sanding, sawing, and grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
    - Lead from lead based paints,
    - Crystalline silica from bricks and cement and other masonry products, and
    - Arsenic and chromium from chemically treated lumber
- Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.
- Keep others a safe distance from your work area, or ensure they use appropriate Personal Protective Equipment.
- This tool is not designed for working in explosive environments, including those caused by fumes and dust, or near flammable materials.

- Electrically powered tools are not insulated against electric shock.
- Be aware of buried, hidden or other hazards in your work environment. Do not contact or damage cords, conduits, pipes, or hoses that may contain electrical wires, explosive gases or harmful liquids.
- Keep hands, loose clothing, long hair and jewelry away from working end of tool.
- Power tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advices before resuming use.
- Keep body stance balanced and firm. Do not overreach when operating this tool. Anticipate and be alert for sudden changes in motion, reaction torques, or forces during startup and operation.
- Tool and/or accessories may briefly continue their motion after throttle is released,
- To avoid accidental starting – ensure tool in “off” position before applying air pressure or connecting to electricity. Avoid throttle when carrying, and release throttle with loss of air or electricity.
- Ensure work pieces are secure. Use clamps or vises to hold work piece whenever possible.
- Do not carry or drag the tool by the hose or power cord.
- Do not use power tools when tired, or under the influence of medication, drugs, or alcohol.
- Never use a damaged or malfunctioning tool or accessory,
- Do not modify the tool, safety devices, or accessories.
- Do not use this tool for purposed other than those recommended.
- Use accessories recommended by Novatek Corp.
- Never operate a tool with an accessory unless it is properly installed and the tool is held firmly against the work,
- Always use a retainer, when furnished, in addition to proper barriers to protect persons in surrounding or lower areas from possible ejected accessories.
- When wearing gloves and operating models with inside trigger, always be sure that the gloves will not prevent the trigger from being released.
- Wear safety shoes, hard hat, safety goggles, gloves, dust mask and any other appropriate protective clothing while operating the tool.
- Do no indulge in horseplay. Distraction can cause accidents.
- Keep hands and fingers away from the throttle lever until it is time to operate the tool.
- Never rest the tool on your foot.
- Never point the tool at anyone.
- Compressed air is dangerous. Never point an air hose at yourself or others.
- Never blow clothes free of dust with compressed air.
- Be sure all hose connections are tight. A loose hose not only leaks but can come completely off the tool and while whipping under pressure, can injure the operator and other in the area. Attach safety cables to all hoses to prevent injury in case a hose is accidentally broken.
- Never disconnect a pressurized air hose. Always turn off the air supply and bleed the tool before disconnecting a hose.
- When applicable, the operator must keep limbs and body clear of the chisel. If a chisel breaks, the tool with the broken chisel projecting from the tool will suddenly surge forward.
- Do not ride the tool with one leg over the handle. Injury can result if the chisel breaks while riding the tool.
- Know what is underneath the material being worked. Be alert for hidden water, gas, sewer, telephone or electric lines.
- Use only proper cleaning solvents to clean parts. Use only cleaning solvents which meet current safety and health standards. Use cleaning solvents in a well ventilated area.
- Do not flush the tool or clean any parts with diesel fuel. Diesel fuel residue will ignite in the tool when the tool is operated, causing damage to internal parts. When using models with outside triggers or throttle levers, take care when setting the tool down to prevent accidental operation.
- Do not operate the tool with broken or damaged parts.
- Never start the tool when it is lying on the ground.
- This tool is not designed for working in explosive atmospheres.

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Refer All Communications to the Nearest  
Novatek Corporation Office or Distributor.  
**Printed in U.S.A.**

## TABLE OF CONTENTS

### SECTION I

GENERAL.....	6
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### SECTION II

PRIOR TO USE .....	6
IN USE.....	7

### SECTION III

SAFETY WORK.....	7
TROUBLESHOOTING .....	8
CLEANING AND INSPECTION .....	8

### SECTION IV

DISASSEMBLY .....	9
ASSEMBLY .....	10

### SECTION V

PARTS BREAKDOWN.....	8
NOVATEK WARRANTY .....	9

### SECTION VI

R/A ELECTRIC DRIVE MOTOR SUB-ASSEMBLY INSPECTION .....	10
R/A DRIVE AIR MOTOR INSPECTION AND REPAIR.....	11
REPLACEMENT OF ROTO PEEN/STAR CUTTER SETS .....	11

### SECTION VI

SERVICE LAYOUT.....	12
PARTS BREAKDOWN.....	12
SPECIFICATIONS.....	19
NOVATEK WARRANTY .....	20

## SECTION I

### GENERAL

This operation and maintenance manual is furnished with each Peening Prep Tool or Kit purchased. It outlines the general operation and maintenance items critical to insure satisfactory, safe and long life of the Peening Prep Tool and accessories.

### **READ ALL INSTRUCTIONS AND DATA IN THIS OPERATION AND MAINTENANCE MANUAL PRIOR TO OPERATION OF THIS EQUIPMENT.**

These instructions are for your protection and convenience. Please read them carefully since failure to follow the precautions could result in injury. Whenever using electric powered equipment, basic safety precautions should be followed.

If after reading this manual anything seems unclear, contact a **NOVATEK** authorized distributor or **NOVATEK** directly by dialing 1-866-563-7800.

## SECTION II

### PRIOR TO USE

Inspect the tool's external parts, fitting and hub assembly for loose or damaged parts prior to use.

**CAUTION:** Do not inspect the tool hub assembly without first disconnecting the tool's power supply.

#### **Air Powered Unit**

- Insure that sufficient length of 3/8" diameter hose, supplied with a minimum of 30 SCFM compressed air at 90 PSI is available with fittings compatible to the tool's 3/8" MQC air inlet plug. A supply of clean, dry air is required and suitable filter lubrication is recommended for trouble free use.

**WARNING** Air inlet plugs less than 3/8" will not supply sufficient airflow to the PPT and will cause Roto Peen Flap failure.

- Tighten all hose connector fittings and blow out hose to insure that all debris is purged from the supply line.
- Put a few drops of light machine oil into the air inlet of the tool on a daily basis prior to start up and at shut down.
- Remove screw (#24) and add a few drops of gear lube into the gear head.

**WARNING** Failure to lubricate the gear head may result in unsatisfactory performance, premature failure and may void the warranty.

- The air motor drive unit requires the correct air input fitting be installed (part # 818.0255) to insure that 3/8" plug size is used.

#### **Electric Powered Unit**

Insure that electric power (120v-10amp) is available, per the name plate. Power cords should be limited to 50' in length and have a minimum #14 gage wire heavy duty.

- Daily inspections of the electric powered PPT are required to insure reliable operation of the unit. The daily inspection consists of the following:
  - Wipe down the outside surface of the R/A gear drive unit and electric motor enclosure to remove accumulated dirt, dust and other residue from the PPT preceding cleaning operation.
  - Check for loose or damaged parts. Tighten or replace as necessary.
  - Clear out any dust or debris from the inside of the motor case by means of compressed air jet through the cover case cooling slots.
  - Test run the motor to insure no arcing is indicated between the brush and commutator. If arcing takes place add additional air jet cleaning.
  - Check the R/A gear drive unit by rotating the output shaft with or without hub attached to determine any roughness in the bearing or gear meshing during rotation. If no roughness is found – unit may operate normally.
- Periodic inspections and maintenance requirements:
  - Electric motor arcing between the commutator and brushes indicated poor contact due to dirt accumulation, worn brushes or worn commutator.

- If compressed air jet does not clean the commutator/brush electrical contact, the motor cover must be removed for inspection.
- The motor cover is removed by removing two head screws (#21) and removing the cover carefully to the rear and out of the way.
- The brushes and commutator should be closely inspected for cleanliness and good brush spring loaded contact with the commutator.
- The brushes (#39) must be replaced if the brush length is less than .25 or ¼". The brushes are removed by releasing the tension hold down action of the torsional spring and reversing the process for installation.
- If the commutator is discolored or dirt, but not worn, the copper surfaces should be cleaned with a suitable solvent.
- If the commutator is worn and uneven across its length, the commutator should be turned and undercut to original surface condition. This is normally a high time maintenance wear item.
- If roughness of the R/A gear head is determined, the bearing and gears should be closely examined to determine the cause.
  - The output shaft should be inspected by removing the shaft assembly bearing and large level gear from the R/A gear drive unit. Disassembly is made by removing 4 lens head screws (#22). The assembly should be cleaned of grease and shaft rotated on bearing (#17). If roughness is detected the bearing should be replaced.
  - The motor armature bearings (#18 & #19) should also be rotated by turning the armature. If no roughness is felt, this confirms replacing bearing #17 due to roughness.
  - Bevel gears should be cleaned and inspected, to insure no wear has taken place. If worn or chipped teeth are found, the gears should also be replaced.
- The gear case should be cleaned, parts assembled and checked for smooth operation. The gear case should be filled with grease and reassembled in reverse order.

### IN USE

To start the Peening Prep Tool operation, place the PPT flat on the surface to be cleaned. Make sure to keep the roller guides in contact with the work surface. **NEVER** operate the tool while not in contact with the work surface if there is a possibility of bodily contact with the rotating hub.

To start the cleaning process, depress the throttle lever slowly and guide the PPT smoothly over the work surface. Keep the roller guides in contact with the work surface at all times.

**WARNING** Do not run the PPT over edges of the work surface. This may tear Roto Peen Flaps and create a dangerous operating condition. The resulting damage to the tool may not be covered under warranty.

Always use correct abrasive flaps. Experimentation with various flaps or cutter assemblies will be beneficial in terms of production. For example, it is recommended that a star cutter assembly be used initially on coatings thicker than 10mm. A change in Roto Peen flaps will tend to achieve the desired profile.

The electric drive motor switch should be in the "off" position when not in use. After proper power has been supplied to switch be turned to the "on" position. The motor is set for the proper no-load speed (2000 rpm) for most efficient operation under load conditions. No attempt should be made to vary this speed from the optimum rpm setting.

## SECTION III

### SAFETY

The following safety precautions should be practiced when operating the Peening Prep Tool (PPT).

- During Peening, cutting or grinding operations, the user is required to use safety and protective equipment as directed by OSHA, Occupational Safety and Health Administration. Eye and face protection equipment is required to meet OSHA standards. Casual eyewear is NOT a substitute for industrial safety eye protection.
- The tool should be operated using both gloved hands to firmly position the roller guides against the work surface. Never operate the tool in a manner where there is the possibility of physical contact with the rotor or debris from the cleaning process or failed rotor parts.
- Always start the tool by depressing the throttle lever with a gloved hand. **NEVER under any circumstances** operate the tool by locking the throttle lever open by taping or other means.
- Never operate the PPT over corners or sharp protrusions, which can cause premature flap failure and possible flying debris.

- Never inspect the PPT hub while installed in the shroud without disconnecting the power source first. (Air or Electric)
- For electric drive motors it is recommended to install a fault current switch (30ma) in extremely moist conditions or if the machine is covered with conductive dust.
- The spindle lock on the electric drive motors should not be used until the tool has come to a complete stop.
- Always use the vacuum system when operating the tool in a Peening or cutting operation to remove and dispose of debris, in the specified manner. Always change pre-filters as specified or more often when operating on concrete to effectively contain dust and associated hazardous debris.
- It is the tool owner's responsibility to insure that the tool is maintained in a safe operating condition.
- If the tool produces unusual sounds or vibrates excessively shut down immediately for repair or return to factor for inspection. Exposure to excessive vibrations or repetitive work practices may be harmful. The use of gloves will help dampen vibrations during prolonged use.
- The tool should not be brought to rest by applying pressure to the hub cutter assembly.
- Due to fire hazards, do not use gasoline or volatile thinners to flush or clean the tool in any way.
- Maintenance and repair records should be kept on all PPT's. Frequency and nature of repair may reveal unsafe operational conditions.

## **TROUBLESHOOTING**

### **Air Motor Drive**

- Input a few drops of oil daily through the air inlet fitting with an industry approved air tool lubricant. Suitable oil if NFO's Air Lube (10w/NR) or equivalent light machine oil (10w). A suitable airline filter is required and an in line lubricator is recommended.
- The R/A Air Motor Drive Angle Head Case should be checked for oil level at the filter screw oil port. A few drops of gear lube must be added daily for satisfactory trouble free operation. A sample of the gear lube recommended is included and can be obtained as Castrol AW-68, Dryden EP-68 #2 or an equivalent.

### **Electric Motor Drive**

- No lubrication is required for the R/A gear case for normal operation.
- The gearbox grease should be changed when normal maintenance inspection indicates the replacement of worn bearing or gear components.
- The R/A gear case should be cleaned and re-filled with grease Shell or high quality grease with a honey consistency.

## **CLEANING AND INSPECTION**

### **Shroud & Hub Assemblies**

- At intervals of no more than 50 hours of operation, or weekly, clean the tool externally and internally by removing the shroud end plate. Inspect the hub assembly and cutting flap unit and cutter heads for wearing and damage. Use a high flash point solvent to flush debris. Replace or repair any defective parts found. Replace the end plate and run the tool to check for satisfactory operation.

### **Air Drive Motors**

- Air drive motors require very little normal maintenance if proper air filtration and inline lubricator is installed.
- Daily external cleaning and inspection is recommended.
- Reconditioning of air drive motors after warranty operation.

### **Electric Drive Motors**

- If inspection indicates a buildup of dust inside the cover, this build up may be removed by blowing compressed air through the air slots.
- If excessive brush sparking is observed though the air inlet slots, switch the machine off immediately to avoid serious damage, which can occur with prolonged operation.

## **SECTION IV**

### **DISASSEMBLY AND ASSEMBLY**

The tool consists of three subassemblies, the right angle (R/A) Drive (Air or Electric Motor), the Shroud Assembly and the Hub Assembly (HDRP or Star Cutter Hub). Normal maintenance operation will require only periodic inspection, lubrication and cleaning of the hub cutting head components.



The R/A Drive (Air or Electric Motor) requires only periodic inspection and lubrication as recommended. If a problem occurs during the warranty period, the drive assembly should be returned for warranty inspection for repair or replacement.

The Shroud Assembly may be disassembled to replace or service the Peening Hub or Star Cutter Hub assemblies. The Shroud End Plate is removed by unfastening the screw set to allow access to the hubs for cleaning and inspection. If no problems are found, the shroud is reassembled by installing the end plate with screws torque snugly.

If hub inspection indicates repair or replacement of Peening flaps or cutter heads, they may be removed as follows:

- With the Shroud End Plate removed, place the wrench on the flats of the drive spindle through the bottom tool opening. The HDRP hub is removed by inserting the Allen wrench into the hub and turned counter clockwise until the hub is free of the back flange.
- The Star Cutter assembly is removed by turning the hub counter clockwise with a gloved hand or with a screw driver inserted between the cutter axles to provide the break loose torque.
- The Electric Drive PPT has a lock button on the gear drive head. No wrench is required to loosen or tighten the hubs.
- The reverse operation of installing either hub is accomplished taking care that the hub is torque (clockwise) firmly against the back flange on the drive spindle. Normal tool operating torque will insure that the hub is seated firmly against the flange – locking is not required.

## **DISASSEMBLY**

- Release the locking screw on back flange and unscrew using pin key and end wrench.
- Place tool in vice, clamping across flats on throttle housing, unscrew lock ring. (Note: Left hand thread on angle head casting, right hand thread on motor housing.)
- Pull motor assembly out and unscrew throttle assembly from motor housing, ease out rear spacer, coupling and front spacer.

### **Motor Disassembly**

- Grip the rotor splines in soft jaws of vice and unscrew governor for RA2 (left hand thread).
- Displace cylinder to one side and insert stripper block between bearing housings.
- Using stripper plate, pass rear bearing housing into hole A so that the edge of the cylinder lodges on one side and the stripper block on the other side.
- Push rotor through from splined end.
- Pass rotor through hole B and press out from rear bearing housing.
- Remove rotor spacer and vanes.
- To remove bearing from housings, place over hole B and push out with punch.

### **Angle Head Disassembly**

- Grip casting in soft jaws, unscrew bearing housing and withdraw whole spindle assembly unit.
- Remove circlip.
- Remove bearing by sliding spindle into slot E in stripper plate, support stripper plate either side of bearing and press out.
- Slide off and circlip.
- Press off gear wheel and ease out woodruff key.
- Press out spindle by placing blocks either side of bearing housing with thread in downward.
- Turn bearing housing over and press out bearing with punch.

### **Throttle Unit Disassembly**

- Remove the throttle plug, O-ring and valve spring.
- Withdraw valve stem and O-ring, with a suitable punch, tap out lever pin and remove the throttle lever.
- Cleaning, inspection and parts replacement should be done at this time.
- All renewal parts required should be ordered to support reassembly and return to service.
- It should be noted that certain parts should be stocked, based on experience, to support a rapid repair cycle.

## **ASSEMBLY**

### **Motor Assembly**

- Press bearings into housings and insert rotor spacer into rear housing with taper facing away from housing.

- Insert threaded end of rotor into rear housing and press fully home using hole C.
- Fit vans into rotor.
- Place cylinder over rotor, locating pin in small hole in rear housing.
- Locate front bearing housing over splines and use bush to push bearing and housing full home.
- Grip splines in soft jaws and screw on nut for governor, left handed thread.
- Slide assembly into motor housing so that approximately 7mm of front bearing housing can be seen protruding.
- Replace rear spacer.
- In the event that vanes are not free to move in rotor slots, they should be replaced with a new set.
- Reassembly throttle by fitting the O-ring to valve stem.
- Fit the valve stem, spring, O-ring and throttle plug.
- Fit lever together with spring if fitted and pin.
- Screw the throttle assembly into rear of motor housing.

**NOTE: On 2" Air Motor with governor and jet, unless these parts have been replaced, it is not normally necessary to make adjustment. However, should it be found necessary, take out the first locking screw and release the second. Using Allen Key, screw in jet ¼ turn and re-tighten locking screw. The assembled machine should be tested for speed. If it is found necessary to alter the speed, remove the throttle assembly and turn jet 1/16 to 1/8 turn each time until correct speed is obtained. Take care not to overturn the jet as there is only a few thousandths clearance between it and the governor.**

#### **Angle Head Assembly**

- To reassemble angle head, place bearing over hose D in stripper plate and press on spindle right home to shoulder.
- With bearing housing over hole B, thread upward, place spindle (thread downward) and bearing over housing and with tube press bearing on outer race fully home.
- Fit woodruff key, gear wheel, and circlip.
- Place bearing over hole C and with thread at the top, press spindle into bearing up to the shoulder.
- Fit circlip.
- Locate spindle assembly into angle head.  
Screw bearing housing and tighten.
- Press two bearings onto pinion using hole C in stripper plate slide pinion assembly into angle head housing and mesh gears.
- Locate front spacer onto pinion bearings and fit coupling onto pinion splines.

There should now be two sub-assemblies for the right angle drive air motor: 1- the angle head assembly, 2- the motor and throttle assembly with the lock-ring separate.

#### **Throttle Unit Assembly**

Check that the throttle assembly unit is at least hand tight against the motor housing and that the C wrench and a suitable wrench to fit the flats on the throttle body are close at hand.

- Place the angle head assembly horizontally but upside down in vice jaws gripping carefully across the two flats machines for the handles.
- Place the lock-ring over the straight portion of the motor housing but DO NOT screw on.
- Connect the motor housing assembly to the angle head, locating the nylon coupling onto the splines of the motor and push squarely and comfortable together with the throttle lever in the desired position.
- Turn the lock-ring by hand in a counter-clockwise direction to connect both left and right hand threads together until both sub assemblies are firm and comfortable together. This should leave about a .025 inch gap between the lock-ring and the casting for final tightening.
- Using a suitable wrench on the two flats on the throttle body to hold the motor housing in its position, tighten the lock ring with the E spanner.
- Check that the spindle is still free to turn. If it becomes stiff, then this generally means that the motor has been incorrectly assembled and must be readjusted.
- Replace back flange and tighten the lock screw.

## **SECTION V**

### **R/A ELECTRIC DRIVE MOTOR SUB-ASSEMBLY INSPECTION**

In the event the electric drive unit has accumulated 500 hours +/- any increment there after (1000, 1500, etc.) the drive unit should be inspected as required in this manual.

In the event that the electric drive unit has been operated in the 500-1000 hour range, and the user should inspect the electric drive assembly, the following steps should be taken:

1. Inspect the motor components, such as, brushes and armature wear.
2. Cleaning (dust & dirt – wipe or vacuum) of motor cavity.
3. Inspect gear case grease for contaminants (such as metal chips etc.).

The motor cover is disassembled by removing two screws and moving them over to expose the brush holders, brushes and motor armature. Extensive cleaning, replacement of parts and armature reconditioning should be accomplished by a licensed shop or returning to TSPT for service.

The R/A gear case may be inspected by removing four lens head screws and gear cap cover after removing the collar, motor to shroud mounting. The old grease must be removed and replaced with gear grease or equivalent. Care should be taken to replace the parts in reverse order.

### **R/A DRIVE AIR MOTOR INSPECTION & REPAIR**

In the event that the R/A Drive Air Motor is beyond warranty (1 year) and the user wishes to recondition the Air Drive Motor, the following steps should be taken to inspect and recondition the unit, it not returned for servicing.

**WARNING** Following reconditioning of R/A Drive Air Motor is critical to insure the no load speed of the motor is approximately 2700 RPM +/- 100 RPM. Over or under torque of the air motor assembly will result in deviations of rotational speeds and can cause poor tool performance and Roto Peen flaps failure. The no load speed must be checked following assembly each time the hub is torque to the locking position.

**NOTE: Stripping Tool Kit (312.A529) should be ordered and available prior to disassembly of the Air Drive Motor. These special stripping or disassembly tools along with the following instructions are supplied for customers who wish to carry out their own repairs. These repairs should only be undertaken if trained personnel and approved speed testing equipment are available.**

### **REPLACEMENT OF ROTO PEEN/STAR CUTTER SETS**

If inspection warrants, roto-peen flaps replacements are made as follows:

With the HDRP Hub Assembly removed from the drive spindle, remove the flaps from the six hub slots. Care should be taken to insure the retaining pins are saved. It should be noted that the retaining pins are designed to stagger the flaps so that every other flap is off by ¼” to provide smooth overlap coverage. Select the type of flap required for replacement.

Type B – for surface roughing and light coating removal  
Type C – for de-scaling steel and coating removal  
Type D – for heavy coating removal and concrete preparation

- Insert the flaps with retainer pins in the slows from the counter-sunk threaded hole end.
- Insure that the printing on the flap is toward the direction of rotation – counter clockwise.
- Insure that the flaps are staggered in each slot, i.e. have Pin A & Pin B alternating to position each flap assembly approximately ¼” offset to the next slot position.

After inspection to see the flaps are correctly installed (alternating pattern in slots), the hub is installed on the drive spindle. The flange will retain the flaps in position during operation. The hub is tightened by hand (clockwise) to a position snug against the back flange. The tool operating torque will insure the hub will not become loose during operation.

The Star Cutter Hub replacement is as follows:

- With the Star Cutter removed from the drive spindle, remove the two sets of retaining hardware which locks the star cutter locating axles in the hub assembly.
- The axles are removed allowing the star cutters and axles to be inspected and re replaced if required.
- The axles should also be inspected for excessive wear or damage and replaced as a set if required.
- The Star Cutters are replaced using a configuration selected from the following cutters available.

Configuration F – 7 Cutters per axle  
Configuration S – 20 Cutters per axle

- The cutters and axles, if replaced, are assembled stacked in sets for each axle in accordance to configuration above.
- The cutters are stacked inside the hub, with hub blank end down.
- The axles are free to be inserted through the hole in the top hub flange.
- The axles, one at a time, are inserted through the top flange, through the cutters and into the blind hole in the bottom flange.
- The plate-axle retainer is placed over the open hole, axle ends and locked into place with the retaining hardware.
- Care must be taken to insure the lock nut is located inside the hub assembly to insure no problem will be created in outside hub clearance.
- After inspection to insure the star cutter wheels are installed and locked satisfactorily, the star cutter hub assembly is installed onto the drive spindle.
- The hub is tightened by hand (clockwise) to a position snug against the drive flange.
- The tool operating torque will insure the hub will not become loose during operation.

## SECTION VI

### SERVICE LAYOUT

The following parts lists are included to identify specific parts from the service layout by reference number, part number and description. The parts lists are arranged as to parts contained in:

PPT Kit Assembly  
 PPT Tool Assembly  
 PPT Tool Sub Assemblies (R/A Motors, Shrouds and Hubs)

Parts lists will include type of drive motor (air or electric), shroud and attachment collar, and hub type (roto peen or cutter). Sub assemblies service layouts include a drawing, reference number and part number for each part described in the following parts lists. Parts are defined as spare parts for reconditioning or consumable parts expended in the operating wear process.

### PEENING PREP TOOL PARTS LIST

#### PEENING PREP TOOL KITS

<u>PART #</u>	<u>KIT</u>
139.0205	2" PPT/Air Drive
139.0215	2" PPT/Electric Drive
139.0405	4" PPT/Air Drive
139.0415	4" PPT/Electric Drive

Kit includes PPT installed with HDRP hub and flaps; spares included one (1) HDRP hub with flaps and one (1) cutter hub with cutters and other parts as follows:

#### KIT CONTENTS

<u>REF #</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1A	194.0205	2" Air Drive PPT
1E	194.0215	2" Electric Drive PPT
1A	194.0405	4" Air Drive PPT
1E	194.0415	4" Electric Drive PPT
77	438.0205	HDRP S/A (2")
77	438.0405	HDRP S/A (4")
76	438.0209	Star Cutter S/A (2")
76	438.0409	Star Cutter S/A (4")

#### MISCELLANEOUS KIT PARTS

<u>REF #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>AIR</u>	<u>ELECTRIC</u>
--	420.0399	Air Hose Assembly (6')	X	N/A
20	805.0603	Allen Wrench Set (1/4 & 5/32)	X	X
--	700.3091	Tool Box (2")	as req.	as req.

--	700.4091	Tool box (4")	as req.	as req.
--	--	Oil Bottle (sample)	X	N/A

**2" & 4", Air and Electric Drive Assembly**

<u>PART #</u>	<u>TOOL</u>
194.0205	2" PPT/Air Drive/Roto Peen Hub
194. C205	2" PPT/Air Drive/Cutter Hub
194.0215	2" PPT/Electric Drive/Roto Peen Hub
194. C215	2" PPT/Electric Drive/Cutter Hub
194.0405	4" PPT/Air Drive/Roto Peen Hub
194. C405	4" PPT/Air Drive/Hub/Cutter Hub
194.0415	4" PPT/Electric Drive/Roto Peen Hub
194. C415	4" PPT/Electric Drive/Cutter Hub

Tool includes HDRP hub with flaps **OR** cutter hub with cutters.

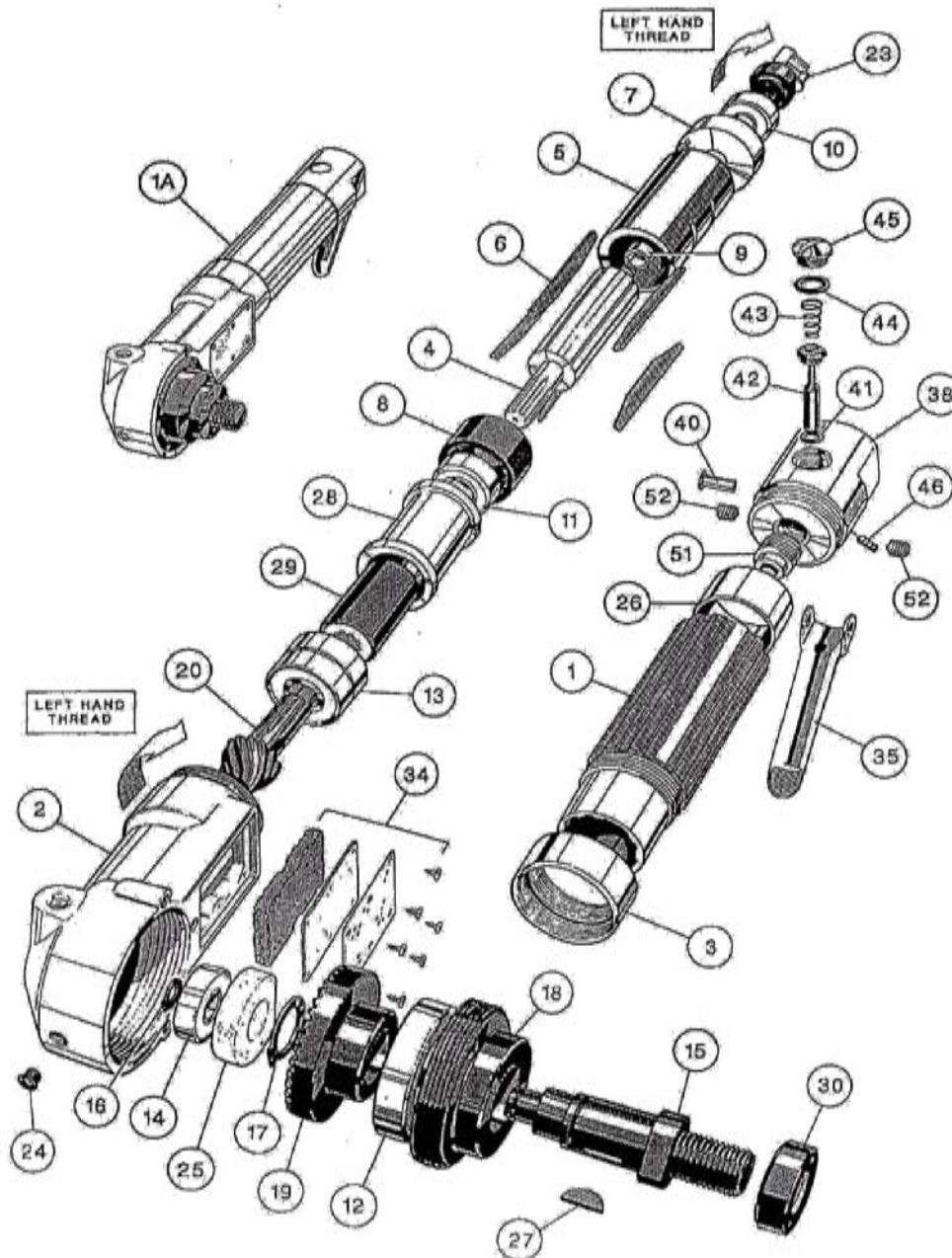
<u>Ref #</u>	<u>S/A Part #</u>	<u>Description</u>
1A	312.ARA2	R/A Air Motor Sub/Assembly (2" & 4")
1E	312.1845	R/A Electric Motor Sub/Assembly (2" & 4")
60A	437.0205	Shroud Sub/Assembly (2")
60A	437.0405	Shroud Sub/Assembly (4")
68A	312.D209	Collar - Motor to Shroud Mtg. - Air Motor
68E	312.E200	Collar - Motor to Shroud Mtg. - Electric Motor
71	438.0205	HDRP Sub/Assembly (2")
71	438.0405	HDRP Sub/Assembly (4")
76	438.0209	Star Cutter Sub/Assembly (2")
76	438.0409	Star Cutter Sub/Assembly (4")

**TSPT PPT R/A Air Motor Drive Sub/Assembly - 2" & 4"**

<u>REF#</u>	<u>PART #</u>	<u>DESCRIPTION</u>
<b>1A</b>	<b>312.ARA2</b>	<b>R/A AIR MOTOR SUB ASSEMBLY</b>
1	312.A735	MOTOR HOUSING
2	312.A930	ANGLE HEAD
3	312.A685	LOCK RING
4	312.A686	ROTOR
5	312.A451	CYLINDER
6	312.A421	VANES (5 REQUIRED)
7	312.A415	REAR BEARING HOUSING
8	312.A346	FRONT BEARING HOUSING
9	312.A101	ROTOR SPACER
10	312.A604	BEARING
11	312.A689	BEARING
12	312.A722	BEARING
13	312.A723	BEARING
14	312.A605	BEARING
15	312.A725	SPINDLE
16	312.A100	CIRCLIP
17	312.A142	CIRCLIP
18	312.A724	BEARING HOUSING
19&20	312.A727	GEAR WHEEL / PINION SET
21	312.A612	WRENCH - OPEN END (19MM)
22	818.0255	1/4 NPT X 3/8 MQC PLUG
23	312.A102	GOVERNOR
24	312.A249	OILING SCREW
--	312.A254	OILER - GEAR LUBE
26	312.A626	REAR SPACER
27	312.A172	WOOD RUFF KEY
28	312.A728	FRONT SPACER
29	312.A729	COUPLING

30	312.A730	BACK FLANGE
34	312.A732	SILENCER COVER & SCREWS
35	312.A342	LEVER
38	312.A718	THROTTLE HOUSING
39	312.A719	THROTTLE LEVER ASSEMBLY
40	312.A141	LEVER PIN
41	312.A330	O RING
42	312.A143	THROTTLE VALVE STEM
43	312.A144	VALVE SPRING
44	312.A113	O RING
45	312.A146	THROTTLE PLUG
46	312.A177	LEVER RETURN SPRING
51	312.A105	JET
52	312.A108	JET LOCKING SCREW
--	--	OIL BOTTLE (SAMPLE CASTROL ASPHA SP68)

## PPT AIR MOTOR DRIVE ASSEMBLY - 2" & 4"



**TSPT PPT R/A Electric Drive Motor Sub/Assembly - 2" & 4"**

<u>Ref #</u>	<u>Part #</u>	<u>Description</u>
1B	312.1845	R/A ELECTRIC MOTOR DRIVE SUB/ASSEMBLY
1		ARMATURE (FR/VR)
2		MAGNETIC FIELD (FR/VR)
4		STRANDED WIRE FOR CONDENSER
5		CABLE USA
6		MOTOR CASE WITH CARBON BRUSH HOLDER
7		CONTROL LEVER
8		CONTROL ROD
9		COMPRESSING SPRING
11		ELECTRONIC CONDENSER (VR)
12		MAGNETIC RING (L 1503)
15		SEALING RING 6001 J
16		CROWN WHEEL (L 1503 VR)
17		BALL BEARING 6001 ZZ
18		BALL BEARING 6000 ZZTN9
19		BALL BEARING 607 ZTN9
20		FAN
21		TORX HEAD SCREW (2 REQUIRED)
22		LENS HEAD SCREW (4 REQUIRED)
23		GEAR CASE FOR SPINDLE LOCKSYSTEM
24		GEAR CAP
25		COVER (L 1503 VR)
26		BEARING RING
27		CABLE CONDUIT
28		BEARING COVER
30		DISTANCE RING
31		SEALING RING
32		SPRING WASHER
34		AIR GUIDE
35		TORX HEAD SCREW
36		SINTERED SLIDE BEARING
37		LENS HEAD SCREW (2 REQUIRED)
38		TORX HEAD SCREW (2 REQUIRED)
39		CARBON BRUSH K33 USA
40		SWITCH
41		CABLE CLAMP COMPLETE
42		PINION (L 1503 VR)
43		SEALING RING
44		WASHER
45		WASHER
47		GRIP CAP FOR SPINDLE LOCKSYSTEM
48		SCREW (L 1506 VR/L 1503 VR)
50		LOCKING BUTTON COMPLETE
51		COMPRESSING SPRING
52		SEALING RING
53		LOCKING DISK
60		SPACER
61		FLANGE

**TSPT PPT Tool Shroud Sub/Assembly - 2" & 4"**

<u>REF#</u>	<u>PART #</u>	<u>DESCRIPTION</u>
60A	437.0205	SHROUD SUB-ASSEMBLIES (2 ")
60A	437.0405	SHROUD SUB-ASSEMBLIES (4")
60	312.C210	2" SHROUD BODY
60	312.C410	4" SHROUD BODY
61	312.C211	SHROUD END PLATE
64	312.D201	AXLE (2"), ROLLER (2/SET)
64	312.D401	AXLE (4"), ROLLER (2/SET)

63	312.G200	ROLLER (2"), SHROUD POSITIONING (2/SET)
63	312.G400	ROLLER (4"), SHROUD POSITIONING (2/SET)
74	822.0205	GRIP - HANDLE (2") (OPT)
74	822.0405	GRIP - HANDLE (4") (OPT)

**PPT Hub Sub/Assembly - 2" & 4", Air and Electric Drive  
HDRP HUB SUB/ASSEMBLY - 2" & 4"**

<u>REF#</u>	<u>PART #</u>	<u>DESCRIPTION</u>
76	438.0205	HDRP HUB SUB/ASSEM. (2")
76	438.0405	HDRP HUB SUB/ASSEM. (4")
71*	312.D205	HUB, SLOTTED (2")
71*	312.D405	HUB, SLOTTED (4")
72*	312.D213	PIN-FLAP RETAIN (SET OF 6) - 2"
72*	312.D413	PIN-FLAP RETAIN (SET OF 6) - 4

\*ITEMS 71 & 72 AVAILABLE AS PART OF ITEM 76 (FLAPS NOT INCLUDED - SEE CONSUMABLE PARTS BELOW)

**CONSUMABLE PARTS**

<u>REF#</u>	<u>PART #</u>	<u>DESCRIPTION</u>
73	312.M210	ROTO PEEN FLAP (TYPE A) (6/SET)
	312.MRPA	ROTO PEEN FLAP (TYPE A) (EACH)
73	312.M212	ROTO PEEN FLAP (TYPE C) (6/SET)
	312.MRPC	ROTO PEEN FLAP (TYPE C)

**PPT Hub Sub/Assembly - 2" & 4", Air and Electric Drive - CONT'D  
STAR CUTTER HUB SUB/ASSEMBLY - 2" & 4"**

<u>REF#</u>	<u>PART #</u>	<u>DESCRIPTION</u>
70	438.0209	STAR CUTTER HUB SUB/ASSEM. (2")
70	438.0409	STAR CUTTER HUB SUB/ASSEM. (4")
77*	438.0205	2" HUB
77*	438.0405	4" HUB
78*	312.D210	AXLE CUTTER (2")
78*	312.D410	AXLE CUTTER (4")
79*	312.D211	PLATE AXLE RETAIN
80*	508.D212	HWD, PLATE AXLE RETAIN (2/SET)

\* ITEMS 77 - 80 AVAILABLE AS PART OF ITEM 70

**CONSUMABLE PARTS**

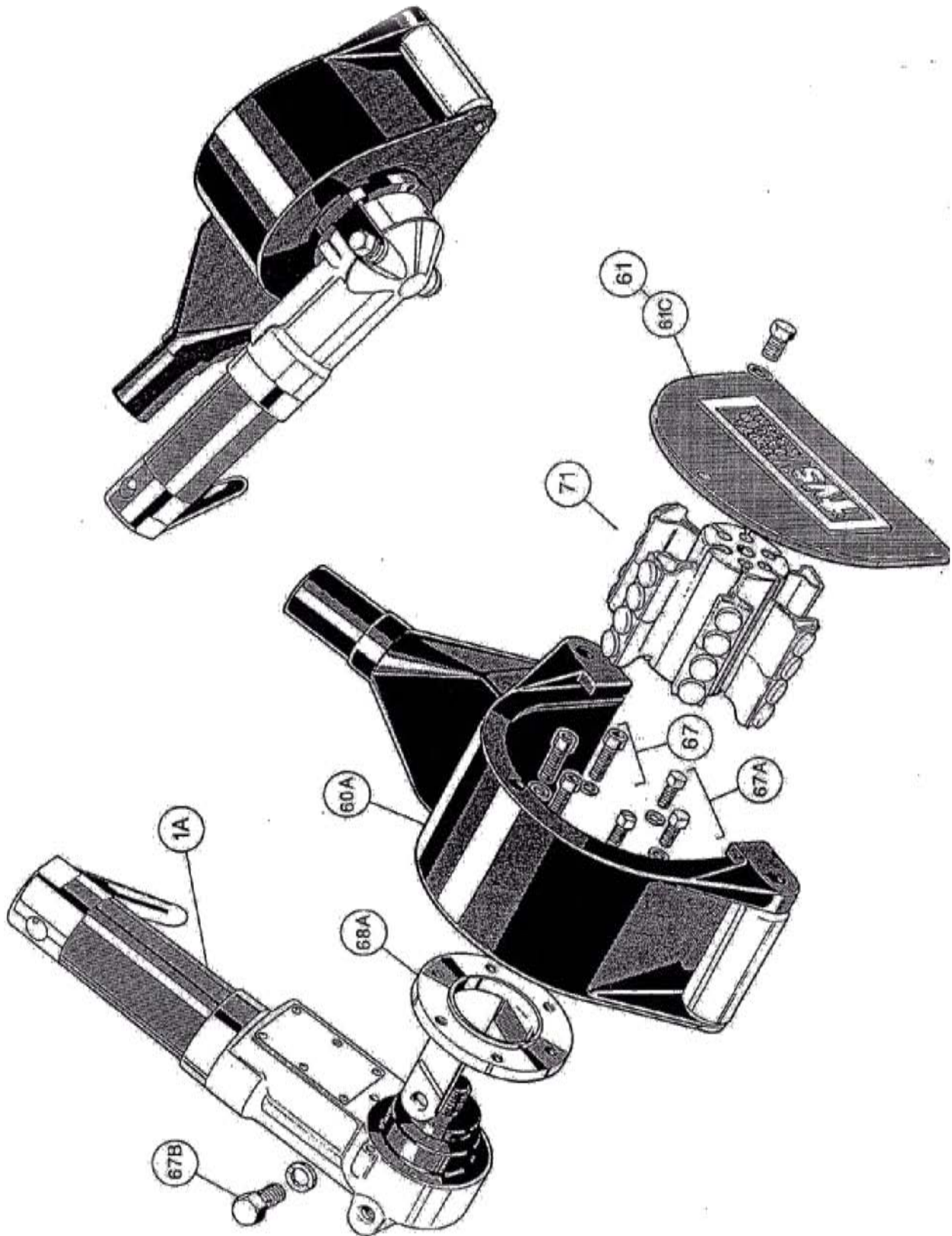
<u>REF#</u>	<u>PART #</u>	<u>DESCRIPTION</u>
78	312.D210	2" & 4" AXLE, CUTTER (4/SET)
78	312.D410	2" & 4" AXLE, CUTTER (4/SET)
81	312.S200	STAR CUTTER (80/SET) CONFIG. S (80 REQ. PER LOAD FOR 2") **
81	312.S200	STAR CUTTER (80/SET) CONFIG. S (164 REQ. PER LOAD FOR 4") **
81	312.F202	STAR CUTTER (28/SET) CONFIG. F (28 REQ. PER LOAD FOR 2") **
81	312.F202	STAR CUTTER (28/SET) CONFIG. F (56 REQ. PER LOAD FOR 4") **

**\*\*NOTE:** STAR CUTTER CONFIG. F (THICK - 1/4")  
SURFACE PRODUCED - SMOOTH PLANED SURFACE PROFILE  
CUTTER LIFE RATIO - 3/1

STAR CUTTER CONFIG. S (THIN - 3/32")  
SURFACE PRODUCED - SCARIFIED SURFACE PROFILE  
CUTTER LIFE RATIO - 1/3



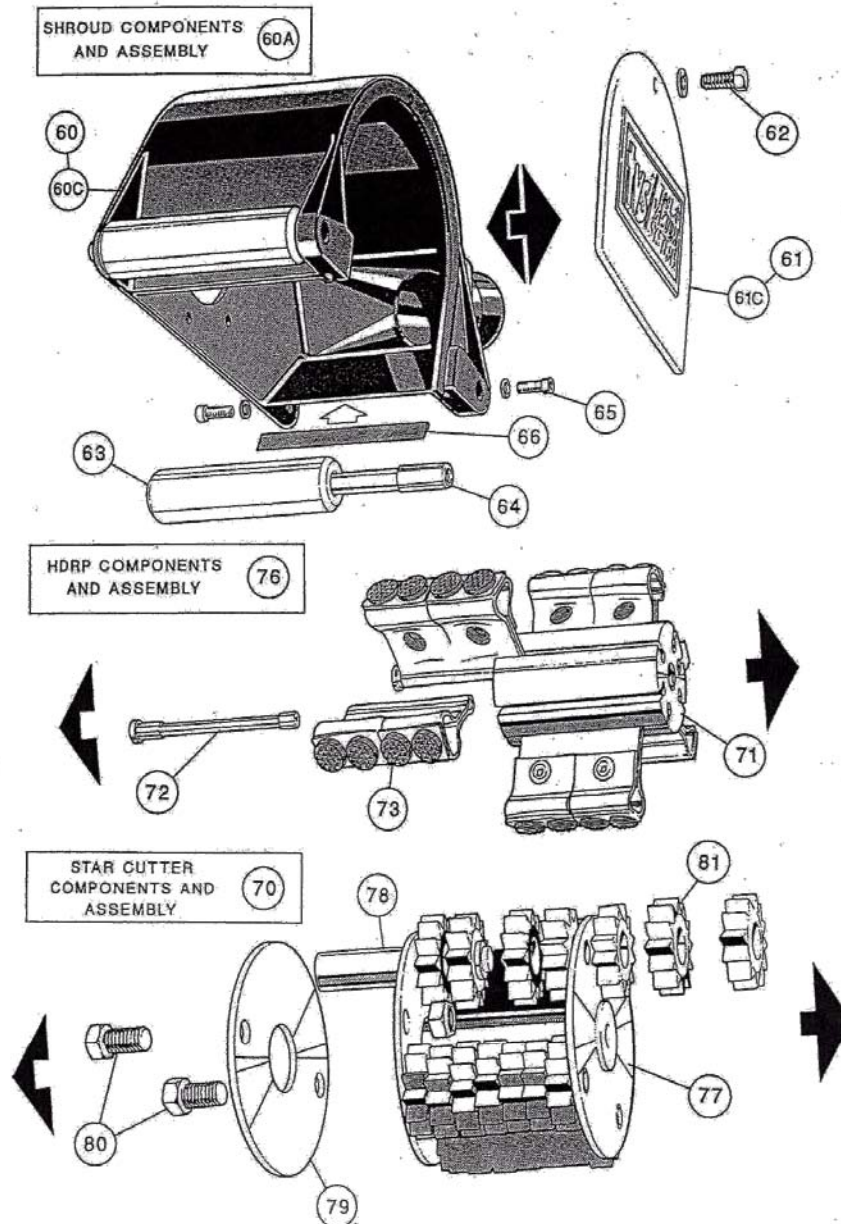
# PEENING PREP TOOL (PPT)



**FASTENING HARDWARE REQUIRED**

<u>REF#</u>	<u>PART #</u>	<u>SIZE &amp; QTY REQUIRED PER UNIT</u>
62	508.D216	1 SET - SOCKET HD. (5/32 HEX), 10-24 X 1/2 SCREWS & #10 SPLIT LOCK WASHER (PLATE RETAINING)
65	508.D217	4 SETS - SOCKET HD. (5/32 HEX), 10-24 X 1/2 SCREWS & #10 SPLIT LOCK WASHER (ROLLER RETAINING)
67	508.D218	3 SETS - SOCKET HD. (5/32 HEX), 10-24 X 7/8 SCREWS & #10 SPLIT LOCK WASHER (AIR MOTOR TO SHROUD)
67A	508.0205	3 SETS - HEX HD. 1/4-20 X 1/2 SCREWS & SPLIT WASHER (COLLAR TO SHROUD - AIR MOTOR)
67B	508.D221	2 SETS - HEX HD. 10MM - 1.5 X 20, SCREW SPLIT WASHER (COLLAR TO AIR MOTOR)
67D	508.0223	2 SETS - BUTTON HD SCREWS (COLLAR TO ELECTRIC MOTOR HEAD)
80	508.D212	2 SETS - HEX HD. 1/4-20 X 3/4 SCREWS & 1/4 - 20 NYLON INSERT LOCK NUT

**PPT TOOL - SHROUD, HDRP HUB, CUTTER HUB  
&  
FASTENING HARDWARE**



**SPECIFICATION**

The specifications for both the air and electric powered 2" & 4" tools with hub change outs available.

<b><u>MODEL #</u></b>	<b><u>194.0205</u></b>	<b><u>194.C205</u></b>	<b><u>194.0215</u></b>	<b><u>194.C215</u></b>	<b><u>194.0405</u></b>	<b><u>194.C405</u></b>	<b><u>194.0415</u></b>	<b><u>194.C415</u></b>
Drive Motor	Air	Air	Electric	Electric	Air	Air	Electric	Electric
Horse Power	1.2	1.2	----	----	1.2	1.2	----	----
Power Output WATTS	----	----	700	700	----	----	700	700
Hub Type	Roto Peen	Star Cutter	Roto Peen	Star Cutter	Roto Peen	Star Cutter	Roto Peen	Star Cutter
Working Width	2"	2"	2"	2"	4"	4"	4"	4"
Tool Width	6 ¼"	6 ¼"	9 ¾"	7 ¾"	8 ¼"	8 ¼"	9 ½"	9 ½"
Tool Height (w/o handles)	6"	6"	6"	6"	6"	6"	6"	6"
Tool Length	14"	14"	15"	15"	14"	14"	15"	15"
Wt. #	7.5	11.5	9.7	13.7	9	14	11	15
No Load-RPM**	2700	2700	2000	2000	2700	2700	2000	2000
#Roto Peen Flaps	6	--	6	--	12	--	12	--
#Star Cutters "F"	--	28	--	28	--	56	--	56
#Star Cutters "S"	--	80	--	80	--	164	--	164
Air Pressure Req. (PSI)	90	90	--	--	90	90	--	--
Air Consumption (SCFM)	30	30	--	--	30	30	--	--
Power Req. WATTS/AMPS	--	--	1200/10	1200/10	--	--	1200/10	1200/10
Voltage (AC)	--	--	120	120	--	--	120	120
Spindle Thread	5/8-11	5/8-11	5/8-11	5/8-11	5/8-11	5/8-11	5/8-11	5/8-11

## NOVATEK CORPORATION LIMITED WARRANTY

The **TOOLS** manufactured/distributed by **Novatek Corporation** are warranted to be free from defects in material and workmanship for a period of **ONE YEAR** with the exception of Electric Drive Units, Electric Motors and Air Blowers - **6 months warranty applies on the electric components** from the date of purchase. This warranty does not apply to accessories or parts subject to normal wear.

This warranty applies only to **TOOLS** purchased new from **NOVATEK CORPORATION** or an authorized distributor. This warranty does not apply to any **TOOL** which has been abused, misused, modified or repaired by someone other than **NOVATEK CORPORATION** or its authorized repair center.

If a **TOOL** proves defective in material or workmanship within one year of purchase from **NOVATEK CORPORATION**, it should be returned to **NOVATEK CORPORATION**, transportation pre-paid. The return must be authorized by a **RETURN MERCHANDISE AUTHORIZATION NUMBER (R.M.A. #)** obtained from **NOVATEK CORPORATION** prior to returning the **UNIT**. All packages must show clearly on the outside the return merchandise authorization number. All packages received without any R.M.A. # on the outside will be refused by **NOVATEK CORPORATION** receiving department.

Warranty claims will only be considered upon adequate proof of date of purchase. **NOVATEK CORPORATION** will, at its option, **REPAIR or REPLACE DEFECTIVE PARTS**. Repairs or replacements are warranted as above for the remainder of the original warranty period. The sole liability of **NOVATEK CORPORATION** and the user's exclusive remedy under this warranty is limited to the repair or replacement of the defective product.

THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED AND **NOVATEK CORPORATION** SHALL NOT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OR ANY OTHER EXPENSES OR REPAIR OR REPLACEMENT AS DESCRIBED ABOVE.

All warranty claims should be forwarded to:

**ATTENTION: CLAIM AND SERVICE DEPARTMENT**  
**R.M.A. # \_\_\_\_\_**