Serial Number 4J3749 and Higher

Parts Page Reorder No. PD05•23
Effective June, 2005
Supersedes PD01•51R

Dynadie® III

Air Motor and Machine Parts

Models:

12250 – 5,000 Strokes Per Minute
12252 – Dynadie® Kit
12254 – Dynadie® Scraper Kit

⚠WARNING **Always operate, inspect and maintain this tool in accordance with the Safety Code for portable air tools (ANSI B186.1) and any other applicable safety codes and regulations. Please refer to Dynabrade's Warning/Safety Operating Instructions for more complete safety information.**

Index Key

No.	Part #	Description
1	**02581**	Cover
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3	**02586**	Wrist Pin Coupler
4	**02587**	Bearing
5	**96566**	Bushing
6	**02583**	Crank
7	**96071**	Set Screw (2)
8	**02582**	Retaining Ring
9	**02578**	Yoke
10	**02514**	Housing
11	**02518**	Barrel Slider
12	**02576**	Scuff Plate
13	**02575**	Lock Plate
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31	**01461**	Lock Nut
32	**01558**	Insulator Collar
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38	**02511**	Ring Gear
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67	**95620**	Retaining Ring
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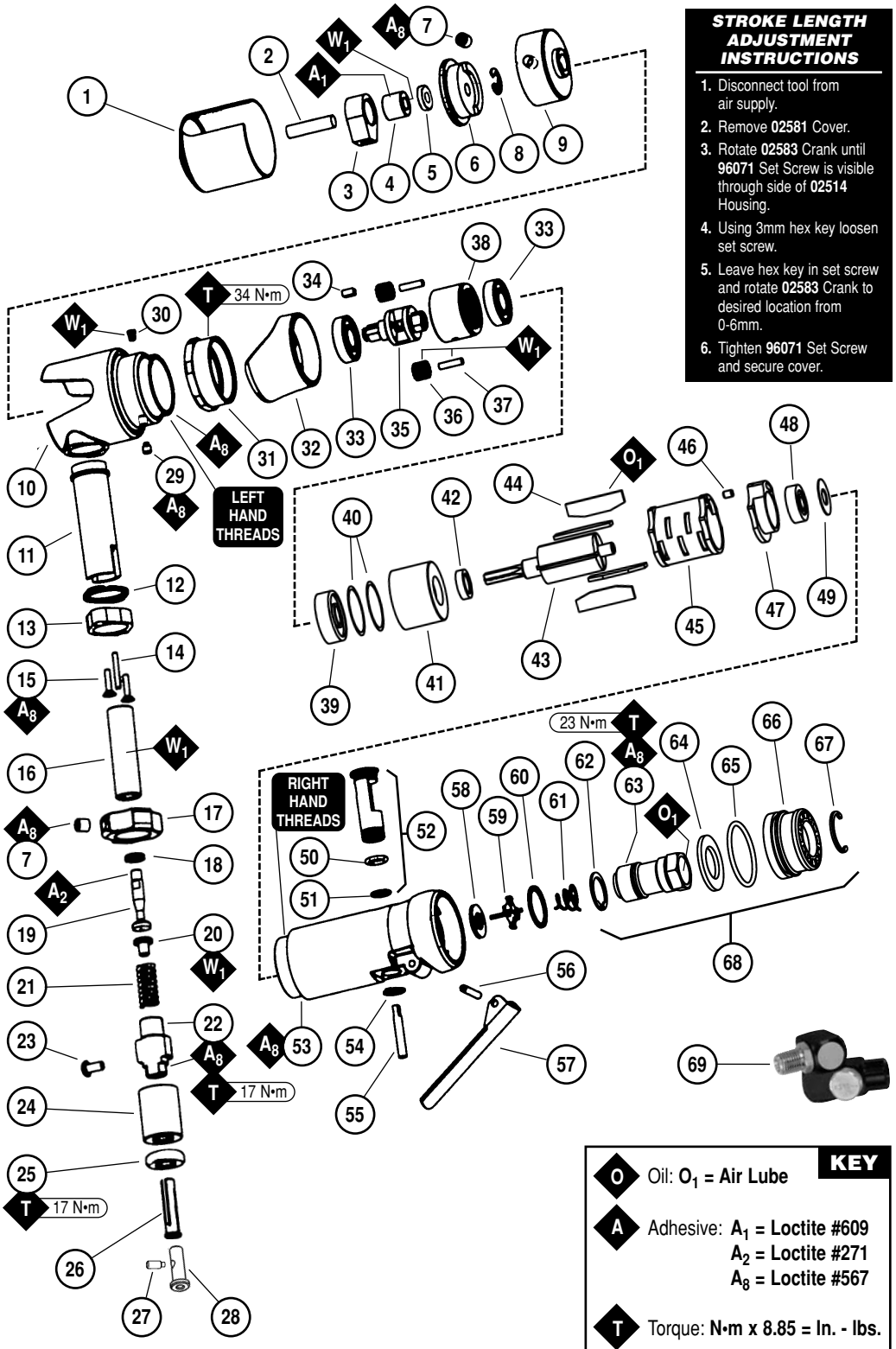
69	**94407**	Flow Control Swivel



STROKE LENGTH ADJUSTMENT INSTRUCTIONS

1. Disconnect tool from air supply.
2. Remove **02581** Cover.
3. Rotate **02583** Crank until **96071** Set Screw is visible through side of **02514** Housing.
4. Using 3mm hex key loosen set screw.
5. Leave hex key in set screw and rotate **02583** Crank to desired location from 0-6mm.
6. Tighten **96071** Set Screw and secure cover.

KEY

- **O** Oil: **O_1 = Air Lube**
- **A** Adhesive: **A_1 = Loctite #609**, **A_2 = Loctite #271**, **A_8 = Loctite #567**
- **T** Torque: **N•m x 8.85 = In. - lbs.**
- **W** Wicking: **W_1 = Gear Oil**

Important Operating, Maintenance and Safety Instructions

Carefully read all instructions before operating or servicing any Dynabrade® Abrasive Power Tool.
Warning: Hand, wrist and arm injury may result from repetitive work motion and overexposure to vibration.

Operating Instructions:

Warning: Eye, face, sound, respiratory and body protection must be worn while operating power tools. Failure to do so may result in serious injury or death. Follow safety procedures posted in workplace.

1. With power source disconnected from tool, securely fasten abrasive/accessory on tool.
2. Install air fitting into inlet bushing of tool. **Important:** Secure inlet bushing of tool with a wrench before attempting to install the air fitting to avoid damaging valve body housing.
3. Connect power source to tool. Be careful not to depress throttle lever in the process.
4. Operate tool by gripping the composite housing, reduces vibration exposure.

Maintenance Instructions:

1. Check tool speed regularly with a tachometer. If tool is operating at a higher speed than the RPM marked on the tool, the tool should be serviced to correct the cause before use.
2. Some silencers on air tools may clog with use. Clean and replace as required.
3. All Dynabrade rotary vane air motors should be lubricated. Dynabrade recommends one drop of air lube per minute for each 10 SCFM (example: if the tool specifications state 40 SCFM, set the drip rate of your filter-lubricator at 4 drops per minute).
   Dynabrade Air Lube (P/N **95842**: 1 pt. 473 ml.) is recommended.
4. It is strongly recommended that all Dynabrade rotary vane air tools be used with a Filter-Regulator-Lubricator to minimize the possibility of misuse due to unclean air, wet air or lubrication. Dynabrade recommends the following: **11405** Air Line Filter-Regulator-Lubricator – Provides accurate air pressure regulation, two-stage filtration of water contaminants and micro-mist lubrication of pneumatic components.
   Operates up to 40 SCFM @ 100 PSIG has 3/8" NPT female port.
5. Lubricate planetary gear case with gear oil fitting with 2-3 plunges every **8 hours** of use for maximum gear life. **Important:** Use recommended gear oil only. **Do not contaminate with any other oil or grease product (Order 95848 Gear Oil and 95541 Gun)**.
6. Use only genuine Dynabrade replacement parts. To reorder replacement parts, specify the **Model #**, **Serial #** and **RPM** of your machine.
7. A Motor Tune-Up Kit (P/N **96533**) is available which includes assorted parts to help maintain motor in peak operating condition. Please refer to Dynabrade's Preventative Maintenance Schedule for a guide to expectant life of component parts.
8. Mineral spirits are recommended when cleaning the tool and parts. Do not clean tool or parts with any solvents or oils containing acids, esters, keytones, chlorinated hydrocarbons or nitro carbons.

Safety Instructions:

Products offered by Dynabrade should not be converted or otherwise altered from original design without expressed written consent from Dynabrade, Inc.

- **Important:** User of tool is responsible for following accepted safety codes such as those published by the American National Standards Institute (ANSI).
- Always disconnect power supply before changing abrasive/accessory or making machine adjustments.
- Inspect abrasives/accessories for damage or defects prior to installation on tools.
- Please refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for more complete safety information.

Notice

All Dynabrade motors use the highest quality parts and metals available and are machined to exacting tolerances. The failure of quality pneumatic motors can most often be traced to an unclean air supply or the lack of lubrication. Air pressure easily forces dirt or water contained in the air supply into motor bearings causing early failure. It often scores the cylinder walls and the rotor blades resulting in limited efficiency and power. Our warranty obligation is contingent upon proper use of our tools and cannot apply to equipment which has been subjected to misuse such as unclean air, wet air or a lack of lubrication during the use of this tool.

One Year Warranty

Following the reasonable assumption that any inherent defect which might prevail in a product will become apparent to the user within one year from the date of purchase, all equipment of our manufacture is warranted against defects in workmanship and materials under normal use and service. We shall repair or replace at our factory, any equipment or part thereof which shall, within one year after delivery to the original purchaser, indicate upon our examination to have been defective. Our obligation is contingent upon proper use of Dynabrade tools in accordance with factory recommendations, instructions and safety practices. It shall not apply to equipment which has been subject to misuse, negligence, accident or tampering in any way so as to affect its normal performance. Normally wearable parts such as bearings, contact wheels, rotor blades, etc., are not covered under this warranty.

Model Number	Motor hp (W)	Stroke Inch (mm)	Air Inlet Thread	Sound Level	Air Flow Rate CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Strokes Per Minute	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
All Models	.2 (142)	1/4 (6)	1/4 NPT	77 dB(A)	2/18 (509)	90 (6.2)	5,000	1.8 (.82)	6-5/8 (170)	4-1/8 (106)

Additional Specifications: Hose I.D. Size 1/4" or 8mm

(PD05•23)

Motor Assembly/Disassembly Instructions – Dynadie® III

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.
Notice: Dynabrade strongly recommends the use of their 52296 Repair Collar (sold separately) during assembly/disassembly activities. Failure to use this collar will highly increase the risk of damage to the valve body of this tool. Please refer to parts breakdown for parts identification.

Motor Disassembly:

Important: Disconnect the Dynadie from the air supply before servicing any part of the tool.

1. Place the **52296** Repair Collar around the **12257** Housing and secure the tool in a vise so that the **02514** Housing is pointing up.
2. Use a 34mm or an adjustable wrench to remove the **01461** Lock Nut by turning it counterclockwise.
3. Pull the motor assembly out of the **12257** Housing.
4. Fasten the **96346** Bearing Separator around the portion of the **02506** Cylinder that is closest to the **02676** Rear Bearing Plate and place the motor assembly along with the bearing separator on the table of the **96232** Arbor Press (#2) so that the rotor pinion is pointing toward the floor.
5. Remove the **02679** Shield from the **02696** Bearing.
6. Use a 3/16" dia. flat end drive punch as a press tool to press the **02504** Rotor out of the **02696** Bearing.
7. Remove the **02696** Bearing from the **02676** Rear Bearing Plate with the **96210** Bearing Removal Tool.
8. Use the bearing separator and the arbor press to remove the **02649** Bearing, the **02507** Front Bearing Plate, the **01479** Spacer and the **54529** Shims from the **02504** Rotor.

Motor Disassembly Complete.

Valve Disassembly:

1. Place the **52296** Repair Collar around the **12257** Housing and secure the tool in a vise so that the air inlet is pointing up.
2. Use two wrenches when removing the **94407** Flow Control Swivel and the air fitting. Place one wrench on the **01578** Inlet Adapter to hold it stationary and use another wrench to remove the **94407** Flow Control Swivel and the air fitting.
3. Remove the inlet adapter from the **12257** Housing. **Note:** Refer to the exploded view of the muffler assembly to identify the parts and their correct order of assembly.
4. Use needle nose pliers to remove the **01468** Spring and the **01472** Tip Valve. The **01464** Seal can be removed from the **12257** Housing with a small screwdriver.
5. Use retaining ring pliers to remove the **95558** Retaining Ring and push the **01469** Speed Regulator Assembly along with the **01449** Valve Stem out of the housing.
6. Use a 2.5mm dia. drive punch to remove the **12132** Pin and the throttle lever.

Valve Disassembly Complete.

Work Head Disassembly:

1. With the work head assembly removed from the motor housing secure the lower part of the **02514** Housing (The portion of the housing where the **01461** Lock Nut attaches.) in a vise with aluminum or bronze jaws. Remove the **02581** Cover by pinching it between your thumb and index finger. Turn the cover counterclockwise until it stops and then pull it off.
2. Use a hot air gun to apply heat to the **02586** Wrist Pin Coupler to soften the thread adhesive. Use the **96314** Open End Wrench (4mm) to unscrew the **02522** Ball Joint from the **02586** Wrist Pin Coupler. Remove the slider assembly from the **02518** Barrel Slider.
3. Use the **95266** Hex Key (3mm) to loosen the **96071** Set Screw and remove the **02577** Barrel Control from the **02518** Barrel Slider.
4. Remove the **02586** Wrist Pin Coupler from the **02584** Dowel Pin.
5. Use the **95266** hex Key (3mm) to remove the **96071** Set Screw from the inside of the **02578** Yoke.
6. Remove the **02563** Crank.
7. Use a small screwdriver to remove the **02582** Retaining Ring from the inside of the **02578** Yoke.
8. Use the **96401** Hex Key (2mm) to remove the **50784** Set Screw from the **02514** Housing.
9. Place the **02514** Housing in the **96232** Arbor Press (#2) so that the **02510** Planetary Carrier is pointing down. Use a 3/16" dia. flat end drive punch as a press tool to remove the planetary carrier.
10. Remove the **02579** Key from the planetary carrier.
11. Use the bearing separator and the arbor press to remove the **12153** Bearings (2) and the **02511** Ring Gear.
12. **Note:** Inspect the **02513** Gears (2) and the **02512** Gear Shafts (2) for fit and wear to determined if the gears and the shafts need to be replaced. If they are worn, remove the shafts by placing the short stem of the **02510** Planetary Carrier in a vise with aluminum or bronze jaws so that the **02512** Gear Shafts can be driven out of the planetary carrier. Use a 3/32" dia. drive punch to remove the shafts.
13. Use a hot air gun to apply heat and a 1/16" Hex Key to remove the **95291** Screws (2) from the **02514** Housing.
14. Secure the **02520** Slider in vise with aluminum or bronze jaws so that the **02573** Guard and the **02519** Tool Holder are pointing up. Use a hot air gun to apply heat to the **02574** Nut until it can be removed with a wrench by turning it in a counterclockwise direction. Use the **95252** Hex Key (2.5mm) to remove the **96113** Button Head Cap Screw, and the **02573** Guard from the tool holder.
15. Once the **02520** Slider is cool enough to handle, remove the parts that are contained in the slider.

Work Head Disassembly Complete.

Work Head Assembly:

1. Place the **02520** Slider in vise with aluminum or bronze jaws so that the end with the internal thread is pointing up.
2. Install the **02521** Socket over the stem of the **02552** Ball Joint so that the chamfered side of the socket fits against the pivot end of the ball joint. Place these into the slider so that the stem of the ball joint protrudes out through the opposite end of the slider.
3. Install the **02523** Retainer so that the flat side of the retainer is against the **02522** Ball Joint. Install the **02572** Spring into the slider and against the **02523** Retainer. Apply a small amount of the **95848** Gear Oil into the slider to lubricate these parts.
4. Apply a small amount of the Loctite #567 (or equivalent) to the larger dia. threads of the **02519** Tool Holder and tighten the tool holder into the slider. (Torque to 17 N•m/150 in.- lbs.)
5. Slip the **02573** Guard over the **02519** Tool Holder aligning the button screw hole with the threaded hole in the tool holder.
6. Use **95252** Hex Key (2.5mm) to install the **96113** Button Head Screw into the tool holder.
7. Apply a small amount of the Loctite #271 (or equivalent) to the threads of the tool holder and install the **02574** Nut. (Torque to 17 N•m/150 in.- lbs.)
8. Install the **02576** Scuff Plate and the **02575** Lock Plate onto the **02518** Barrel Slider. Apply a small amount of the Loctite #567 (or equivalent) to the threads of the **95291** Screw. Use a 1/16" hex key to attach all of these parts to the **02514** Housing with the **95291** Screws (2).
9. Place the longer stem of the **02510** Planetary Carrier in a vise with aluminum or bronze jaws so that the shorter stem is pointing up.
10. Apply a small amount of the **95848** Gear Oil to the **02513** Gears (2) and the **02512** Shafts (2).
11. Use a 1/4" dia. drive punch and a hammer to carefully install the gears and shafts into the **02510** Planetary Carrier.
12. Use the **96240** Bearing Press Tool and the **96232** Arbor Press (#2) to install the **12153** Bearing onto the longer stem of the planetary carrier. **Note:** Position the press tool against the inner race of the bearing when pressing the bearing onto the stem of the planetary carrier.
13. Position and install the **02511** Ring Gear over the planetary gear assembly so that the ring gear fits onto the **12153** Bearing. **Note:** Orient the ring gear so that the set screw hole will align with the set screw hole in the **02514** Housing once it is installed.
14. Apply a small amount of the Loctite #567 (or equivalent) to the threads of the **50784** Set Screw and install it into the **02514** Housing by using the **96401** Hex Key (2mm).

15. Use the **96240** Bearing Press Tool and the **96232** Arbor Press (#2) to install the **12153** Bearing onto the shorter stem of the planetary carrier. **Note:** Position the press tool against the inner race of the bearing when pressing the bearing onto the stem of the planetary carrier.
16. Install the **02579** Key into the longer stem of the planetary carrier.
17. Use the **96240** Bearing Press Tool to support the inner race of the **12153** Bearing that is on the shorter stem of the planetary carrier. Place the opposite side of the **96240** Bearing Press Tool on the table of the arbor press. Align the **02578** Yoke on the longer stem of the planetary carrier and to the **02579** Key. Press the yolk down onto the planetary carrier.
18. Install the **02582** Retaining Ring so that it is arched away from the **02578** Yolk.
19. Install the **02583** Crank into the **02578** Yoke. Index the crank to the number 6 setting. Apply a small amount of the Loctite #567 (or equivalent) to the threads of the **96071** Set Screw and secure it into the **02583** Crank with the **95266** Hex Key (3mm).
20. Apply a small amount of the Loctite #609 (or equivalent) to the outer race of the **02587** Bearing and install the bearing into the **02586** Wrist Pin Coupler.
21. Apply a small amount of **95848** Gear Oil into the **02587** Bearing and install the wrist pin coupler along with the bearing onto the **02584** Dowel Pin.
22. Install the wrist pin coupler along with the bearing onto the **02584** Dowel Pin.
23. Apply a small amount of the Loctite #271 (or equivalent) to the threads of the **02522** Ball Joint and install it into the **02520** Slider. Align and thread the ball joint into the wrist pin coupler securing it in place with the **96314** Open End Wrench.
24. Install the **02581** Cover onto the **02514** Housing and turn it clockwise to secure it in place.
25. Initially lubricate the planetary gears with the **95848** Gear Oil applying 2-3 plunges of oil with the **95541** Gear Oil Gun. After the initial application of oil lubricate the gears with 2-3 plunges for every 8 hours of use.

Work Head Assembly Complete.

Valve Assembly:

1. Place the **52296** Repair Collar around the **12257** Housing and secure the tool in a vise so that the air inlet opening is pointing up.
2. Install the **01469** Speed Regulator along with the **01449** Valve Stem and secure the speed regulator assembly with the **95558** Retaining Ring.
3. Install the **01464** Seal into the air inlet so that it is laying flat.
4. Use needle nose pliers to install the **01472** Tip Valve so that the metal pin fits through the hole in the **01449** Valve Stem.
5. Install the **01468** Spring so that the small end fits over the back of the tip valve.
6. Install the inlet adapter into the **12257** Housing. **Note:** Refer to the exploded view of the muffler assembly to identify the parts and their correct order of assembly. Apply a small amount of the Loctite #567 (or equivalent) to the threads of the **01578** Inlet Adapter and install it into the **12257** Housing.
7. Install the throttle lever and secure it in place with the **12132** Pin.
8. Use two wrenches when installing the **94407** Flow Control Swivel and the air fitting. Place one wrench on the **01578** Inlet Adapter to hold it stationary and use another wrench to install the **94407** Flow Control Swivel and air fitting.

Valve Assembly Complete.

Motor Assembly:

1. Secure the vane body of the rotor in a vise with aluminum or bronze jaws so that the pinion end is pointing up.
2. Slip the **01479** Spacer onto the **02504** Rotor.
3. Place a .002 (.05mm) thick shim from the **54529** Shim Pack into the **02507** Front Bearing Plate as an initial spacing and install the **02649** Bearing into the front bearing plate.
4. Use the **96240** Bearing Press Tool so that it pushes against the inner race of the **02649** Bearing and with the **96232** Arbor Press (#2) install the bearing/plate assembly onto the **02504** Rotor.
5. Use a .001 (.03mm) feeler gauge to check the clearance, it should be .001 (.03mm) - .0015 (.04mm). If it is necessary to make an adjustment to the clearance, do so by repeating steps 3-5. (Changing the thickness of shims.)
6. Once the proper rotor/plate clearance is achieved, apply the **95842** Dynabrade Air Lube (10W/NR or equivalent) to the **02505** Blades (4) and install these into the rotor.
7. Use the **96216** Bearing Press Tool so that it pushes against the outer race of the **02696** Bearing and use the arbor press to install it into the **02676** Bearing Plate.
8. Install the **02506** Cylinder so that the air inlet passage of the cylinder is properly aligned with the air inlet passage in the **02676** Rear Bearing Plate.
9. Use the **96216** Bearing Press Tool so that it pushes against the inner race of the **02696** Bearing and use the arbor press to install the rear bearing/plate assembly onto the **02504** Rotor. **Note:** Carefully press the rear bearing/plate assembly onto the rotor until it touches the **02506** Cylinder. A "snug" fit should be created between the bearing plates and the cylinder. If the fit is too tight the rotor will not turn freely and will cause damage to the bearings. If the fit is too loose the proper bearing preload will not be achieved.
10. Apply a small amount of the **95848** Gear Oil to the seal of the **02696** Bearing and stick the **02679** Shield against the seal of the bearing.
11. Install the motor assembly into the **12257** Housing so that the air passage node of the rear bearing plate aligns with the air passage notch on the inside of the housing.
12. Apply a small amount of the Loctite #567 (or equivalent) to the threads of the **12257** Housing and use a 34mm or an adjustable wrench to secure the **01461** Lock Nut when connecting the work head assembly to the motor housing. (Torque to 34 N•m/300 in.- lbs.)

Motor Assembly Complete. Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

Throttle Lever Positioning Procedure:

1. Place the **52296** Repair Collar around the **12257** Housing and secure it in a vise so that the **02514** Housing is pointing up.
2. Slip the **01558** Collar down onto the **12571** Housing to expose the **01461** Lock Nut.
3. With a firm hold on the **02514** Housing, use a 34mm or an adjustable wrench to turn the **01461** Lock Nut counterclockwise to loosen the **02514** Housing from the valve housing.
4. Orient the throttle to the operators desired grip and positioning. **Note:** Allow for additional rotation of the **02514** Housing as the **01461** Lock Nut is tightened.
5. With a firm hold on the **02514** Housing to reduce its rotation, use a 34mm or an adjustable wrench to tighten the **01461** Lock Nut. (Torque to 45 N•m/400 in.- lbs.)

Important: Carefully perform this procedure so as not to entirely separate the **02514** Housing from the **12257** Housing. Loosen the **01461** Lock Nut only enough to make the desired throttle lever adjustment.

Optional Accessories

96533 Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.

Dynabrade Air Lube

- Formulated for pneumatic equipment.
- Absorbs up to 10% of its weight in water.
- Prevents rust and formation of sludge.

95842: 1 pt. (473 ml)
95843: 1 gal. (3.8 L)

95848 Dynabrade Gear Oil (2 oz.)

- Specifically formulated to adhere to gears.
- **95541** Push-Type Gear Oil Gun.

Visit Our Web Site: www.dynabrade.com

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DYNABRADE®

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PRINTED IN USA
PD05.23_06/05