Serial Number 4J3749 and Higher

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

Dynadie® III

Air Motor and Machine Parts

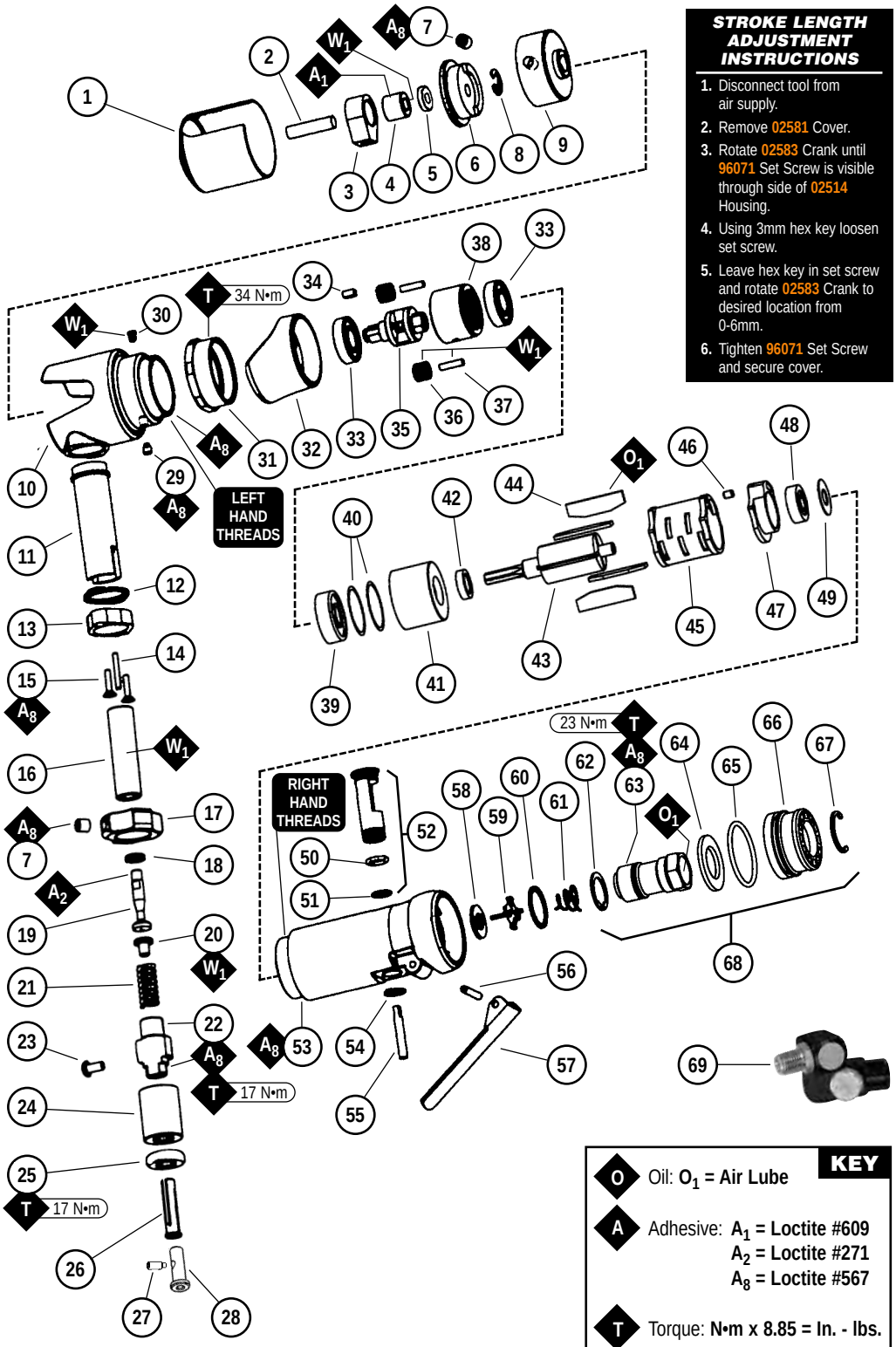
Models:

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
2	02584	Dowel Pin
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
14	95585	Roll Pin
15	95291	Screw (2)
16	02520	Slider
17	02577	Barrel Control
18	02521	Socket
19	02522	Ball Joint
20	02523	Retainer
21	02572	Spring
22	02519	Tool Holder
23	96113	Button Head Cap Screw
24	02573	Guard
25	02574	Nut
26	02500	Insert
27	96166	Set Screw
28	12267	Insert
29	50784	Set Screw
30	01041	Grease Fitting
31	01461	Lock Nut
32	01558	Insulator Collar
33	12153	Bearing (2)
34	02579	Key
35	02510	Planetary Carrier
36	02513	Gear (2)
37	02512	Gear Shaft (2)
38	02511	Ring Gear
39	02649	Bearing
40	54529	Shim Pack (3/pkg.)
41	02507	Front Bearing Plate
42	01479	Spacer
43	02504	Rotor
44	02505	Blades (4/pkg.)
45	02506	Cylinder
46	50767	Pin
47	02676	Rear Bearing Plate
48	02696	Bearing
49	02679	Shield
50	01024	O-Ring
51	95730	O-Ring
52	01469	Speed Regulator Assembly (Includes O-Rings)
53	12257	Housing
54	95558	Retaining Ring
55	01449	Valve Stem
56	12132	Pin
57	01448	Throttle Lever
58	01464	Seal
59	01472	Tip Valve
60	01564	Air Control Ring
61	01468	Spring
62	95711	Retaining Ring
63	01578	Inlet Adapter
64	01486	Felt Silencer (4)
65	96065	O-Ring
66	01446	Air Defector
67	95620	Retaining Ring
68	94535	Muffler Assembly
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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