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1hp Dynastraight®
Governor Controlled

Parts Page Reorder No. PD04•38
Effective July, 2004
Supersedes PD01•46R

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

13500 – 950 RPM, with 13071 Arbor
13501 – 1,800 RPM, with 13071 Arbor
13502 – 3,400 RPM, with 13016 Arbor
13503 – 3,400 RPM, with 13017 Arbor
13504 – 3,400 RPM, with 13014 Arbor
13505 – 3,400 RPM, with 13015 Arbor
13506 – 3,400 RPM, with 13071 Arbor
13507 – 4,500 RPM, with 13016 Arbor
13508 – 4,500 RPM, with 13071 Arbor
13509 – 6,000 RPM, with 13071 Arbor
13521 – 1,800 RPM, with 13015 Arbor
13523 – 4,500 RPM, with 13072 Arbor



⚠ WARNING

Read and understand this tool manual before operating your air tool. Follow all safety rules for the protection of operating personnel as well as adjacent areas. Always operate, inspect and maintain this tool in accordance with the American National Safety Institute (ANSI) Safety Code for Portable Air Tools – B186.1. For additional safety information, refer to Safety Requirements for the Use, Care and Protection of Abrasive Wheels – ANSI B7.1, Code of Federal Regulation – CFR 29 Part 1910, European Committee for Standards (EN) Hand Held Non-Electric Power Tools – Safety Requirements and applicable State and Local Regulations.

SAFETY LEGEND



⚠ WARNING

Read and understand tool manual to reduce risk of injury to operator, visitors, and tool.

⚠ WARNING

Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of alcohol or drugs.





⚠ WARNING

Eye protection must be worn at all times, eye protection to conform to ANSI Z87.1.

⚠ WARNING

Ear protection to be worn when exposure to sound, exceeds the limits of applicable Federal, State or local statues, ordinances and/or regulations.





⚠ WARNING

Respiratory protection to be used when exposed to contaminants that exceed the applicable threshold limit values required by law.

⚠ WARNING

Air line hazard, pressurized supply lines and flexible hoses can cause serious injury. Do not use damaged, frayed or deteriorated air hoses and fittings.



SAFETY INSTRUCTIONS

Carefully Read all instructions before operating or servicing any Dynabrade® Abrasive Power Tool.
Products offered by Dynabrade are not to be modified, converted or otherwise altered from the original design without expressed written consent from Dynabrade, Inc.

Tool Intent: Dynastraight® Finishing Tools are ideal for surface preparation, cleaning and finishing using abrasive wheels, discs and related accessories.

Do Not Use Tool For Anything Other Than Its Intended Applications.
This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide Dynastraight® operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Mount only recommended accessories. See back page of manual and Dynabrade literature.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. (See tool Machine Specifications table.)
- Air supply hoses and air hose accessories must have a minimum working pressure of 150 PSIG (10 Bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See tool Machine Specifications table.)
- DO NOT use – Grinding Wheels, cut-off wheels, saw blades or other products outside tool intent.

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OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted eye, face, respiratory, hearing and body protection.

Caution: Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

- Keep hand and clothing away from working end of the air tool.
- Be sure that any loose clothing, hair and all jewelry is properly restrained.
- Secure inlet bushing on air tool with a wrench before attempting to install the air fitting to avoid damaging housing assembly.
- BEFORE MOUNTING AN ACCESSORY, after all tool repairs and whenever a Dynastraight® is issued for use, check tool RPM (speed) with tachometer with air pressure set at 90 PSIG while the tool is running. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

Caution: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

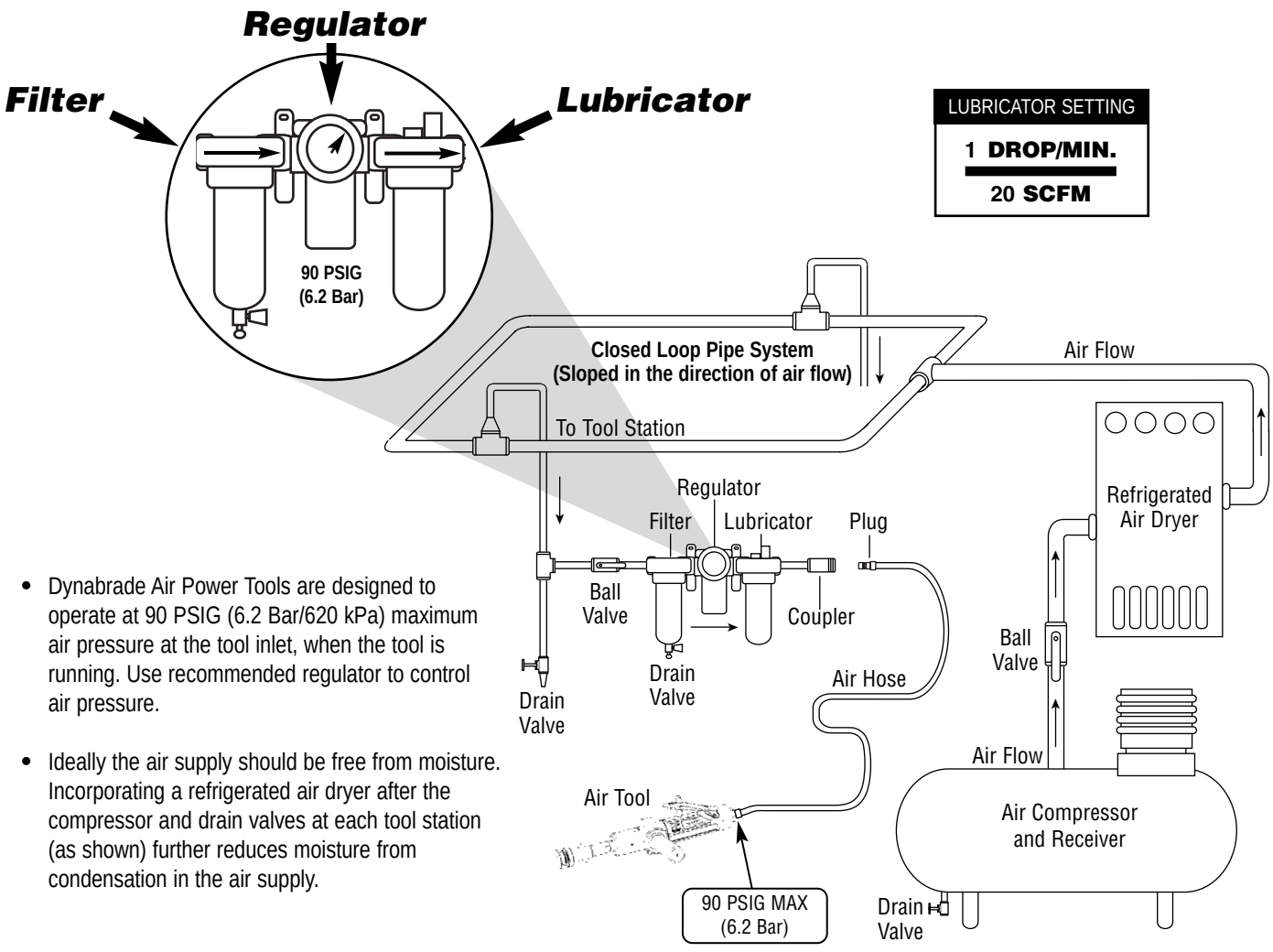
- With power source disconnected from air tool, mount recommended accessory onto arbor assembly.
- When mounting abrasive or accessory on arbor be sure to follow recommended procedure of the manufacturer.
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process. **Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).**

Caution: After installing the accessory, the Dynastraight® must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.
- Air tools are not intended for use in explosive atmospheres and are not insulated for contact with electric power sources.
- Use a vise or clamping device to hold work piece firmly in place.
- Do not apply excessive force on tool or apply “rough” treatment to it.
- Always work with a firm footing, posture and proper lighting.
- Ensure that sparks and debris resulting from work do not create a hazard.
- The tool is rear exhaust. Exhaust may contain lubricants, vane material, bearing grease, and other materials flushed thru the tool.

Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Air System



- Dynabrade Air Power Tools are designed to operate at 90 PSIG (6.2 Bar/620 kPa) maximum air pressure at the tool inlet, when the tool is running. Use recommended regulator to control air pressure.
- Ideally the air supply should be free from moisture. Incorporating a refrigerated air dryer after the compressor and drain valves at each tool station (as shown) further reduces moisture from condensation in the air supply.

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Maintenance Instructions

Important: A preventative maintenance Program is recommended whenever portable power tools are used.

- Use only genuine Dynabrade replacement parts to insure quality. To order replacement parts, specify Model#, Serial# and RPM of your air tool.
- All Dynabrade Rotary Vane air tools must be used with a Filter-Regulator-Lubricator to maintain all warranties. Dynabrade recommends the following: **11411** Air Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants. Operates 55 SCFM/1,558 LPM@90 PSIG with 1/2" NPT female ports.
- Dynabrade recommends one drop of air lube per minute for each 20 SCFM (example: if the tool specification states 40 SCFM, set the drip rate on the filter-lubricator to 2 drops per minute). Dynabrade Air Lube (P/N **95842**: 1 pt 473 mi) is recommended.
- Grease the planetary gear assembly with **95542** Grease by applying 2-3 Plunges with **95541** Grease Gun every 50 of use, to achieve maximum gear life.

Routine Preventative Maintenance: Check free speed of Dynastraight® using a tachometer. This governor controlled grinder should be speed checked every 20 hours of use or weekly, whichever occurs more frequently.

- DO NOT disassemble the governor for any reason. Reorder correct speed – governor assembly (See Assembly Breakdown) and recheck free speed of tool with a tachometer.
- Mineral spirits are recommended when cleaning the tool and parts. Do not clean tool or parts with any solvents or oils containing acids, esters, ketones, chlorinated hydrocarbons or nitro carbons.
- DO NOT clean or maintain tools with chemicals that have a low flash point (example: WD-40®).
- A Motor Tune-Up Kit (P/N **96532**) is available which includes high wear and medium wear motor parts.
- Air tool labels must be kept legible at all times, if not, reorder label(s) and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM. (See Assembly Breakdown)
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Use of tool rests, hangers and/or balancers is recommended.
- Protect tool inlet from debris (see Notice below).
- DO NOT carry tool by air hose.
- Protect abrasive accessories from exposure to water, solvents, high humidity, freezing temperature and extreme temperature changes.
- Store accessories in protective racks or compartments to prevent damage.

Machine Specifications

Model Number	Motor HP (W)	Motor RPM	Sound Level	Air Flow Rate CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Wheel Arbor Dia. Inch	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
13500	1 (744)	950	81 dB(A)	6/43 (1216)	90 (6.2)	5/8 or 1	5.2 (2.4)	15.7" (400)	1.9" (48)
13501	1 (744)	1,800	84 dB(A)	5/34 (952)	90 (6.2)	5/8 or 1	4.4 (1.9)	14.5" (370)	1.9" (48)
13502	1 (744)	3,400	80 dB(A)	6/43 (1218)	90 (6.2)	1/2	4.3 (2.0)	15.1" (384)	1.9" (48)
13503	1 (744)	3,400	80 dB(A)	6/43 (1218)	90 (6.2)	5/8	4.3 (2.0)	15.1" (384)	1.9" (48)
13504	1 (744)	3,400	80 dB(A)	6/43 (1218)	90 (6.2)	14mm	4.3 (2.0)	15.1" (384)	1.9" (48)
13505	1 (744)	3,400	80 dB(A)	6/43 (1218)	90 (6.2)	5/8"-11	4.2 (1.9)	16.1" (409)	1.9" (48)
13506	1 (744)	3,400	80 dB(A)	6/43 (1218)	90 (6.2)	5/8 or 1	4.4 (2.0)	14.5" (370)	1.9" (48)
13507	1 (744)	4,500	80 dB(A)	6/41 (1161)	90 (6.2)	1/2	4.3 (2.0)	15.1" (384)	1.9" (48)
13508	1 (744)	4,500	80 dB(A)	6/41 (1161)	90 (6.2)	5/8 or 1	4.4 (2.0)	14.5" (370)	1.9" (48)
13509	1 (744)	6,000	82 dB(A)	6/44 (1256)	90 (6.2)	5/8 or 1	4.4 (1.9)	14.5" (370)	1.9" (48)
13521	1 (744)	1,800	84 dB(A)	5/34 (952)	90 (6.2)	5/8"-11	4.2 (1.9)	16.1" (409)	1.9" (48)
13523	1 (744)	4,500	84 dB(A)	6/41 (1161)	90 (6.2)	5/8"-11	3.8 (1.7)	14.3" (363)	1.9" (48)

Additional Specifications: Air Inlet Thread 3/8" NPT • Hose I.D. Size 3/8" or 10mm • Air Flow Rate Based At Max HP. • Air Pressure 90 PSIG Max

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.

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1hp Dynastraight®

Complete Assembly

Model – Arbor	
13500	13071
13501	13071
13502	13016
13503	13017
13504	13014
13505	13015
13506	13071
13507	13016
13508	13071
13509	13071
13521	13015
13523	13072

Index Key

No.	Part #	Description
1		**Arbor Assembly** (See Chart)
2	**53199**	Handle Mount
3	**53163**	Handle Assembly
4*	**01041**	Grease Fitting
5	**53694**	Planetary Cover (950 RPM Only)
6*	**04014**	Set Screw
7	**51971**	Planetary Gear Casing (1,800 – 4,500 RPM)
8	**04032**	Spindle Nut
9	**02552**	Bearing
10	**53685**	Carrier (6,000 RPM)
	53165	Carrier (All Other RPM)
12	**53193**	Planetary Gear (4) 950 & 1,800 RPM (2) 3,400 RPM
	53195	Planetary Gear (2) 4,500 RPM
	53661	Planetary Gear (3) 6,000 RPM
13	**04026***	Needle Bearing (4)
	96528	Needle Bearing (3) 6,000 RPM
14	**53182**	Gear Shaft 2 (3-6,000 RPM)
15	**53191**	Ring Gear
	53664	Ring Gear (6,000 RPM)
16	**53188**	Spacer (950 RPM Only)
17	**96498**	Wave Spring
18	**53673**	Carrier
19	**53678**	Gear Retainer Shaft (2) (950 RPM Only)
20	**53665**	Ring Gear (950 RPM Only)
21	**95438**	O-Ring (1,800 - 6,000 RPM Models)
22	**53620**	Adapter (1,800 - 6,000 RPM Models)
23	**54520**	Bearing
24	**51951**	Shim Pack
25	**51922**	Front Bearing Plate
26	**96441**	Pin (2)
27	**51927**	Spacer
28A	**53659**	Pinion
28	**Rotor**	
	53666	950 RPM
	51977	1,800 & 3,400 RPM
	51976	4,500 RPM
	51921	6,000 RPM
29	**51926**	Blade (4/Pkg.)
30	**51925**	Cylinder
31	**51923**	Rear Bearing Plate
32	**02057**	Bearing
33	**96445**	Pin (2)
34	**51924**	Gasket
35	**Governor Assembly**	
	51953	1,800 RPM Models
	51933	All Other RPM Models
36	**All Housings Include:**	
	Warning & Specification Labels	
	53700	Housing – Model **13500**
	53701	Housing – Model **13501**
	53702	Housing – Model **13502**
	53703	Housing – Model **13503**
	53704	Housing – Model **13504**
	53705	Housing – Model **13505**
	53706	Housing – Model **13506**
	53707	Housing – Model **13507**
	53708	Housing – Model **13508**
	53709	Housing – Model **13509**
	53793	Housing – Model **13521**
	53797	Housing – Model **13523**
37	**96444**	Pin
38	**51949**	Safety Lever Assembly
39	**51946**	Valve Stem Assembly (Incl. **96443** O-Ring)
40	**51945**	Valve Seat
41	**51944**	Tip Valve
42	**51943**	Spring
43	**96442**	O-Ring
44	**51940**	Spacer
45	**53682**	Gasket
46	**94528**	Felt Silencer
47	**53686**	Muffler Cap
48	**94924**	Wave Spring
49	**53683**	Spacer
50	**53681**	Inlet Bushing (Incl. 2 – **51938** Screens)
51	**51942**	Baffle
52	**51941**	Spring
53	**51939**	Silencer plate
54	**51937**	Inlet Bushing (Incl. 2 – **51938** Screens)

Label Key

No.	Part #	Description
55	**00001180**	Warning Label
56	**00001181**	Specification Label

T 35 N•m
G1
T 17 N•m
A8
A10
O1
2 N•m
LEFT HAND THREAD
53655 Muffler Assembly

Shaded index numbers represent specific parts for 950 RPM Tools.

*** For 950 RPM models, quantity required must be doubled.**

KEY

- O — Oil: O_1 = Air Lube
- A — Adhesive: A_8 = Loctite #567, A_{10} = Loctite #243
- T — Torque: N•m x 8.85 = In. - lbs.
- G — Grease: G_1 = Lubriplate 630 AA

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Disassembly Instructions - 1hp Dynastraight®

Important: Manufacturer's warranty is void if tool is disassembled before warranty expires.

Disconnect tool from power source before tool repair.

Motor Disassembly:

1. Remove arbor assembly from front of tool.
2. Using **51989** Repair Collar or padded vise, secure front end of housing using machined flats on the silver ring.
3. Remove planetary gear casing from housing (twist counterclockwise).
4. Remove **04014** Set Screw(s) and pull planetary carrier assembly(s) from planetary gear casing.
5. Press planetary carrier assembly from rear **02552** Bearing. Remove ring gear and gears from planetary carrier(s).
6. Secure planetary carrier in vise and remove **04032** Spindle Nut (twist counterclockwise).
7. Press planetary carrier from front **02552** Bearing.
   Note: On double planetary models slide, bearing/carrier from **53694** Gear Casing. Then press planetary carrier through **02552** bearing. Press **53678** Gear Shaft from carrier assembly. Remove ring gear from the housing assembly
8. Remove remaining tool assembly from vise.
9. Remove **96498** Wave Spring. (Single planetary models only)
10. Pull motor assembly, and remove **53620** Motor Adapter with **95438** O-Ring.
11. Remove governor assembly by using a slotted screw driver. (**LEFT HAND THREAD**)
12. Secure **51925** Cylinder and place a 1/8" (3mm) drift pin to the base of the internal thread and press the **51921** Rotor from the **02057** Rear Bearing.
13. Slide **02057** Rear Bearing from **51923** Rear Bearing Plate.
14. Remove **51925** Cylinder and **51926** Blades.
15. Press rotor though **54520** Bearing , **51922** Front Bearing Plate and **51927** Rotor Spacer.
16. Slide **54520** Bearing and shims from **51922** Front Bearing Plate.

Motor Disassembly Complete.

Housing Disassembly:

1. Secure housing using **51989** Repair Collar (***see back cover for Optional Accessories***).
2. Remove inlet bushing with muffler assembly (twist counterclockwise).
3. Remove **53682** Gasket, **51943** Spring, **96442** O-Ring, **51940** Spacer, **94528** Felt Silencer, **53686** Muffler Cap, **94924** Wave Spring and **53683** Spacer from **53681** Inlet Bushing.
4. Remove **51944** Tip valve and **51945** Valve Seat.
5. Remove housing and **51989** Repair Collar and lay collar on bench with flange facing down so it is supporting throttle lever. Place a 3/32" (2.4 mm) drift pin on **96444** Pin and tap pin thru housing.
6. Remove **51946** Valve Stem Assembly.
7. Remove **96443** O-Ring from **51946** Valve Stem Assembly.

Housing Disassembly Complete.

Assembly Instructions - 1hp Dynastraight®

Motor Assembly:

Important: Be sure parts are clean and in good repair before reassembly. Follow grease, oil and torque specifications.

1. Place Rotor into padded vise with male thread or spline facing upwards.
2. Slip **51927** Rotor Spacer over Rotor Shaft and down against rotor body face.
3. Press **96441** Coiled Pin into **51922** Front Bearing Plate. Make certain, coiled pin does not protrude beyond internal bearing surface.
4. Place a .002" shim into the base of **51922** Front Bearing Plate as an initial spacing and slide **54520** Bearing to the front plate base. **Note: 51951** Shim Pack contains .001" and .002" shims.
5. Press bearing/bearing plate assembly onto rotor.
6. Check clearance between rotor and front bearing plate by using a .001" feeler gauge. Clarence should be between .001" – .0015". Adjust clarence by repeating steps 4 and 5 with different shims if necessary.
7. Once proper rotor gap clarence is achieved, install well lubricated **51926** Blades (4) into rotor slots. Dynabrade recommends lubricating blades with **95842** Air Lube.
   Important: Make certain beveled edge of blade follows rotor outside diameter.
8. Install **51925** Cylinder over rotor and front plate raised boss. Align coiled pin on front to cylinder slot.
9. Press **96441** Coiled Pin into blind hole on **51923** Rear Bearing Plate. Press (2) **96445** Coiled Pins into the back side of rear bearing plate.
10. Peel backing off **51924** Gasket and align it firmly in place onto **51923** Rear Bearing Plate.
11. Place **51923** Rear Bearing Plate over rotor mandrel and insert raised boss on rear bearing plate into cylinder diameter, while inserting short coiled pin into cylinder slot. Be sure inlet slot on rear bearing plate line up with inlet slot on cylinder. Flip cylinder end to end and repeat step 8 for correct assembly.

(Continued on next page.)

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Assembly Instructions - (Continued)

Important: Manufacturer's warranty is void if tool is disassembled before warranty expires.
Please refer to parts breakdown for part identification.

12. Press **02057** Bearing onto rotor and onto **51923** Rear Bearing Plate until it is seated. **Important:** Cylinder must fit snug between bearing plates. If too tight, rotor will not turn freely. Rotor must be lightly tapped at press fit end until rotor spins freely while still maintaining a snug fit. A loose fit will not achieve the proper preload on motor bearing. While pressing **02057** Bearing, make certain to contact inner race of bearing only.
13. Add one drop of Loctite® 243 (or equiv.) to governor assembly male thread and screw governor assembly into place (**LEFT HAND THREAD**) with a slotted screw head. Torque to 2 N•m (18 lb.-in.).
14. Install motor assembly into housing, making sure motor drops all the way into housing. **Note:** Align both 96445 Coiled Pins to slots in insert and against **51924** Gasket.
15. Insert **95438** O-Ring onto **53620** Adapter and slide adapter into housing and over **54520** Bearing.
16. Place **96498** Wave Washer onto **53620** Adapter.
    Note: ***On double planetary models,*** the ring gear replaces **53620** Adapter, **95438** O-Ring, and **96498** Wave Washer is installed in the gear casing assembly.

Motor Assembly Complete.

Gear Casing Assembly:

1. Press Front **02552** Bearing onto front end of planetary carrier.
2. Apply one drop of Loctite® #243 to threads of **04032** Spindle Nut and thread onto planetary carrier. Torque to 17 N•m (150 lb.-in.).
3. Install gears with needle bearings and assemble onto planetary carrier using **53182** gear shafts.
4. Slip ring gear over carrier and gears, making sure notches face away from spindle nut.
5. Press **02552** Bearing onto rear of planetary carrier
6. Slide planetary carrier assembly into gear casing. Align the ring gear notch with the set screw hole(s) and grease fitting(s).
7. Install **04014** Set Screw(s). Apply a small amount of Loctite® #567 to the threads before installing.
   Note: On double planetary models, install needle bearings into planetary gear and slide **53678** Gear Shaft through planetary gear. Press **53678** Gear Shaft into planetary carrier holes. Place **96498** Wave Washer over pinion spline. Press **02552** Bearing over pinion spline, trapping **96498** wave washer between **02552** Bearing and gears. Slide counter bored end of ring rear into tool housing and over **54520** Bearing of motor assembly. Install planetary gear assembly into **53694** Gear Casing. Align ring gear slot with set screw hole. Apply a small amount of Loctite® #567 to the male thread of the housing and thread gear casing onto housing. **Note:** While threading on **53694** Gear Casing, place **04014** Set Screw with a small amount of Loctite® #567 on the male thread, and install once ring gear slot is aligned. Torque gear casing to 35 N•m (310 lb.-in.).
   Important: Align rotor spline to planetary gears and carefully thread gear casing onto housing making sure the output shaft turns freely.
8. Apply a small amount of Loctite® #567 Loctite to the male thread of the housing and thread gear casing onto housing. Torque to 35 N•m (310 lb.-in.).
   Important: Align rotor spline to planetary gears and carefully thread gear casing onto housing making sure the output shaft turns freely
9. Thread arbor assembly onto spindle. Torque to 17 N•m (150 lb.-in.).

Gear Casing Assembly Complete.

Housing Assembly:

1. Secure housing using **51989** Repair Collar ***(see back cover for Optional Accessories)***
2. Install **51945** Valve Seat by aligning 3 male prongs with three deep slots on insert. Make certain valve seat is pressed flat against base of pocket. **Note:** Add a few drops of Dynabrade Air Lube (P/N **95842**) to pocket walls before inserting **51945** Valve Seat.
3. Install **51944** Tip Valve as shown.
4. Pre-assemble muffler, slide **53683** Spacer over **53681** Inlet Bushing and up against the hex head base. Slide **94924** Wave Spring over **53681** Inlet Bushing and up against spacer. Pre roll **94528** Felt Silencer and install it in **53686** Muffler Cap. Support felt/muffler cap assembly and slide **53681** Inlet Bushing thru the inside until the muffler cap assembly seats against the **94924** Wave Spring. Flare the felt and place **51940** Spacer over male thread and set **96442** O-Ring into groove at the base of thread. Return felt to unflared form. Slide **51943** Spring into bushing and up to the two **51938** Screens.
5. Place **53682** Gasket over felt silencer and against **53686** Muffler Cap.
6. Apply one drop of Loctite® #243 (or equiv.) to inlet bushing thread.
7. Align small inside diameter of **51943** Spring to cone point on **51944** Tip Valve and thread inlet bushing and sub-assembly into place. Torque bushing to 35 N•m (310 lb.-in.).
8. Slide **96443** O-Ring onto **51946** Valve Stem and slide sub-assembly until o-ring passes through housing hole. Make certain valve stem assembly slides freely after the o-ring passes through the hole.
9. Remove housing from **51989** Repair Collar and replace repair collar onto the bench top with the part number identifier against the bench. Align the throttle lever holes to housing pin hole and rest the housing and throttle lever onto the legs of the repair collar. Press **96444** Coiled Pin into lever hole and center into housing.

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

Important: Before operating, place 2-3 drops of Dynabrade Air Lube (P/N **95842**) directly into inlet with throttle lever depressed. Operate tool for 30 seconds to allow Air Lube to properly lubricate internal motor components. Motor should now be tested for proper operation at 90 PSIG max. If tool operates at a higher RPM than marked on the tool or if vibration and sound levels seem abnormal, the tool should be serviced to correct the cause before use.

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Preventative Maintenance Schedule

For All 1hp Dynastraight® Finishing Tools

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours or 50% of a man year. Parts included in motor tune-up kit are identified by High Wear and Medium Wear items.

LEGEND	
T	Part included in **96532** Tune-up Kit
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.
R1	Replace each time tool is disassembled.



96532 – 1 hp. Motor Tune-Up Kit

- Tune-Up Kit includes high wear and medium wear motor parts.

Parts Common to all Models:

Index #	Part Number	Description	Number Required	High Wear 100%	Medium Wear 70%	Low Wear 30%	Non-Wear 10%
1	See Note	Arbor Assembly	1				X
2	**53199**	Handle Mount	1				X
3	**53163**	Handle Assembly	1			X	
4*	**01041**	Grease Fitting	1			X	
5	**53694**	Planetary Cover	1				X
6*	**04014**	Set Screw	1		L		
7	**51971**	Planetary Gear Casing	1				X
8	**04032**	Spindle Nut	1				X
9	**02552**	Bearing	2			X	
10	See Note	Carrier	1			X	
12*	See Note	Planetary Gear	See Note			X	
13*	See Note	Needle Bearing	See Note			X	
14	**53182**	Gear Shaft	See Note			X	
15	See Note	Ring Gear	1			X	
16	**53188**	Spacer	1			X	
17	**96498**	Wave Spring	1		T, X		
18	**53673**	Carrier	1			X	
19	**53678**	Gear Retainer Shaft	See Note			X	
20	**53665**	Ring Gear	1			X	
21	**95438**	O-Ring	1		T, L		
22	**53620**	Adapter	1				X
23	**54520**	Bearing	1		T, X		
24	**51951**	Shim Pack	1		T, L		
25	**51922**	Front Bearing Plate	1			X	
26	**96441**	Pin	2			X	
27	**51927**	Spacer	1		T, X		
28A	**53659**	Pinion	1			X	
28	See Note	Rotor	1			X	
29	**51926**	Blade (4/Pkg.)	1	T, X			
30	**51925**	Cylinder	1			X	
31	**51923**	Rear Bearing Plate	1			X	
32	**02057**	Bearing	1		T, X		
33	**96445**	Pin	2			X	
34	**51924**	Gasket	1		T, X		
35	See Note	Governor Assembly	1			X	
36	See Note	Housing	1				X
37	**96444**	Pin	1		T, L		
38	**51949**	Safety Lever Assembly	1			X	
39	**51946**	Valve Stem Assembly	1		T, X		
40	**51945**	Valve Seat	1				X
41	**51944**	Tip Valve	1		T, X		
42	**51943**	Spring	1				X
43	**96442**	O-Ring	1		T, L		
44	**51940**	Spacer	1				X
45	**53682**	Gasket	1		X		
46	**94528**	Felt Silencer	1		T, X		
47	**53686**	Muffler Cap	1			X	
48	**94924**	Wave Spring	1		X		
49	**53683**	Spacer	1				X
50	**53681**	Inlet Bushing (Incl. 2 – **51938** Screens)	1				X
51	**51942**	Baffle	1				X
52	**51941**	Spring	1				X
53	**51939**	Silencer plate	1				X
54	**51937**	Inlet Bushing (Incl. 2 – **51938** Screens)	1				X

Note: Please refer to page 4 of tool manual for specific part number.

* Number reflects amount required for 1,800, 3,400 RPM and 4,500 RPM tools. For 950 RPM tools number required should be doubled.

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Optional Accessories



96005 Male Plug
- Provides up to twice the air flow compared to standard plug design.
- Plug has "ported" design to prevent "starving" of the air tool.



Dynaswivel®
- Swivels 360° AT TWO PIVOT POINTS allowing the air hose to drop directly to the floor while providing superb tool handling.

95461 – 3/8" NPT



95542 Grease 10 oz.
- Multi-purpose grease for all types of bearings, cams, gears.
- High film strength; excellent resistance to water, steam, etc.
- Workable range 0˚ F to 300˚ F.



95541 Push-type Grease Gun
- One-hand operation.



Dynabrade Air Lube
- Formulated for pneumatic equipment.
- Absorbs up to 10% of its weight in water.
- Prevents rust and formation of sludge.
- Keeps pneumatic tools operating longer with greater power and less down time.

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



51989 Repair Collar
- Specially designed collar for use in vise to prevent damage to valve body of tool during disassembly/assembly.



96209 Motor Repair Clamp
- Specially designed clamp to secure motor cylinder before disassembly.



94465 Wheel Inflation Tool
- Controlled inflation/deflation of pneumatic wheel.
- Has 1/4" female thread; fits 1/4" air hose.
- **95633** Nozzle replacement available.



50066 Collet Assembly
- 1/2"- 20 Female Thread



96532 Motor Tune-Up Kit
- Includes assorted parts to help maintain and repair motor.

01886 Drop-In Motor Mdls: 13509
01887 Drop-In Motor Mdls: 13507, 13508 & 13523
01888 Drop-In Motor Mdls: 13501-13506 & 13521
01904 Drop-In Motor Mdls: 13500



94472 Dynacushion® Pneumatic Wheel
- 5" Diameter x 3-1/2" Wide.
- 3-1/2" wide x 15-1/2" long belt size.

92868 Dynacushion® Pneumatic Wheel
- 5" Diameter x 1-1/2" Wide.
- 1-1/2" wide x 15-1/2" long belt size.



Composite-Style Coupler
- Easy connect/disconnect by single push-button action.
- Shock-proof, low-vibration, crush-resistant.

94960: 1/4" Female NPT
94980: 1/4" Male NPT



53621 Over Hose Assembly
- Over Hose Assembly directs exhaust away from operator.



95281 – 19mm open-end wrench
95303 – 1/4" hex key wrench



30335 Air Supply Hose
- 3/8 in. I.D. x 60 in. Wide air supply hose, includes: 3/8 in. NPT male and female threaded fittings.



Bearing Press Tool
- Used to install bearings.

96243: For installing 02057 Bearing.



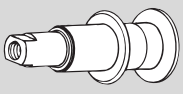
Dynastraight® Wheel Shields
- Built-in handle.

13032 – For wheels up to 8" dia. x 2" wide.
13033 – For pneumatic wheels up to 5" dia.

Reference Contact Information

1. **American National Standards Institute – ANSI**
   24 West 43rd Street
   Fourth Floor
   New York, NY 10036
   Tel: 1 (212) 642-4900
   Fax: 1 (212) 398-0023
2. **Government Printing Office – GPO**
   Superintendent of Documents
   Attn. New Orders
   P.O. Box 371954
   Pittsburgh, PA 15250-7954
   Tel: 1 (202) 512-1803
3. **European Committee for Standardization**
   Rue de Stassart 36
   B - 1050 Brussels, Belgium

Dynastraight® Arbors

Arbor P/N	Wheel Width	Tool's Male Spindle			Arbor Bore					Pictorial Reference
		3/8"-24	1/2"-20	5/8"-11	14 mm	1/2"	5/8"	1"	5/8"-11	
13014	up to 51 mm		✔		✔					
13015	3-1/2"		✔						✔ (Thread)	
13072	1-1/2"		✔						✔ (Thread)	
13016	up to 2"		✔			✔				
13017	up to 2"		✔				✔			
13071	up to 3"		✔				✔	✔		

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