

FLX OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

Revised:

4-15-13

Models FLX()



WARNING

**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
OPERATING OR SERVICING THIS EQUIPMENT.**

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

Pneumatic tools should always be installed and used in accordance with A.N.S.I. B186.1 "Safety Code For Portable Air Tools."

WARNING

- Operate this tool at 90-120 p.s.i.g. maximum air pressure at the air inlet of the tool.
- Disconnect air supply from tool before removing/installing bit, socket or device attached to tool or performing maintenance procedures.
- Keep hands, clothing and long hair away from rotating end of tool.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Never exceed rated r.p.m. of tool.
- Wear suitable eye and hearing protection while operating tool.
- Tool shaft can continue to rotate briefly after throttle is released.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.
- Use only accessories recommended by FLEXARM.

WARNING

Repeated prolonged operator exposure to vibrations which may be generated in the use of certain hand—held tools may produce Raynaud's phenomenon, commonly referred to as White finger disease. The phenomenon produces numbness and burning sensations in the hand and may cause circulation and nerve damage as well as tissue necrosis. Repetitive users of hand—held tools who experience vibrations should closely monitor duration of use and their physical condition.

NOTICE

- The use of other than genuine FLEXARM replacement parts may result in safety hazards, decreased tool performance and increased maintenance and may invalidate all warranties.
- FLEXARM is not responsible for customer modification of tools for applications on which FLEXARM was not consulted.
- Tool maintenance and repair should be performed by authorized, trained, competent personnel.
- It is the responsibility of the employer to place the information in this manual into the hands of the operator.

For parts and service information, contact FLEXARM, Wapakoneta, OH at PH: (419) 738-8147, FAX: (419) 738-8147.

FLEXARM

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

WARNING



Wear eye protection when operating or performing maintenance on this tool.

WARNING



Wear hearing protection when operating this tool.

WARNING



Turn off air supply and disconnect air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

WARNING



Air powered 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 advice before resuming use.

WARNING



Do not carry the tool by the hose.

WARNING



Do not use damaged, frayed or deteriorated air hoses and fittings.

WARNING



Do not overreach when operating this tool. Keep body stance balanced and firm.

WARNING



Operate at 90 p.s.i.g. (6.2 bar/620 kPa) maximum air pressure.

WARNING = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

CAUTION = Hazards or unsafe practices which could result in minor personal injury or product or property damage.

NOTICE = Important installation, operation or maintenance information.

FLEXARM

ROUTINE LUBRICATION REQUIREMENTS

Lack of or an excessive amount of lubrication will affect the performance and life of this tool. Use only recommended lubricants at below time intervals:

EVERY 8 HOURS OF TOOL OPERATION - Fill lubricator reservoir of recommended F.L. with oil (EP-32). If an in line or air line lubricator is not used, apply several drops of oil (EP-32) in air inlet.

EVERY 160 HOURS OF TOOL OPERATION - Lubricate gearing. Pack bearings, coat shafts and lubricate gears with NLGI #1 "EP" grease (33153). Gearing should contain approximately 1/16 oz. (1.8 g) of grease for double reduction.

AIR SUPPLY REQUIREMENTS

For maximum operating efficiency, the following air supply specifications should be maintained to this air tool:

- AIR PRESSURE 90 p.s.i.g. (6.2 bar)
- AIR FILTRATION - 50 micron
- LUBRICATED AIR SUPPLY
- HOSE SIZE - 5/16" (8 mm) I.D.

A FLEXARM model 0391M air line FILTER/LUBRICATOR (F.L.) is recommended to maintain the above air supply specifications.

RECOMMENDED LUBRICANTS

After disassembly is complete, all parts, except sealed or shielded bearings, should be washed with solvent. To relubricate parts, or for routine lubrication, use the following recommended lubricants:



Tool maintenance and repair shall be performed by authorized, trained, competent personnel. Tools, hose and fittings shall be re-

Where Used	FLEXARM Part #	Description
Air Motor	EP-32	1(GAL) Spindle Oil
"O" Rings & Lip Seals Gears and Bearings	EP-33153	(2oz) "EP"- NLGI #1 Grease

INSPECTION, MAINTENANCE AND INSTALLATION

Disconnect air supply from the tool or shut off air supply and exhaust (drain) line of compressed air before performing maintenance or service to the tool.

It is important that the tools be serviced and inspected at regular intervals for maintaining safe, trouble-free operation of the tool.

Be sure the tool is receiving adequate lubrication, as failure to lubricate can create hazardous operating conditions resulting from excessive wear.

Be sure that the air supply lines and connectors are of proper size to provide a sufficient quantity of air to the tool.

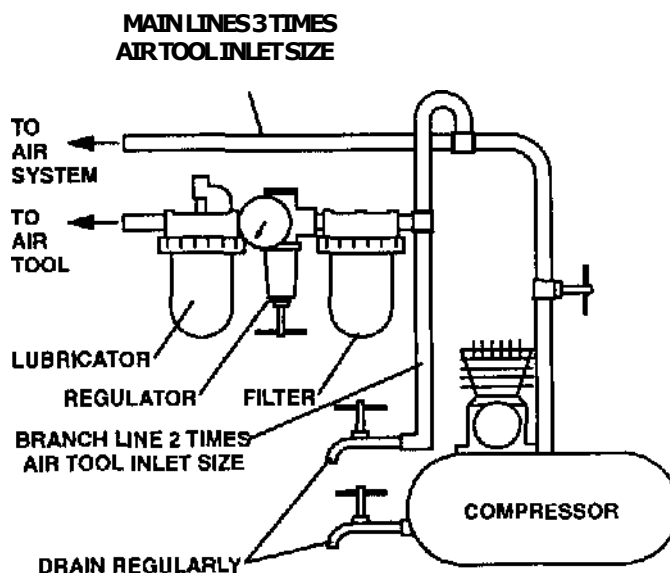
placed if unsuitable for safe operation and responsibility should be assigned to **be** sure that all tools requiring guards or other safety devices shall be kept in legible condition. Maintenance and repair records should be maintained on all tools. Frequency of repair and the nature of the repairs can reveal unsafe application. Scheduled maintenance by competent authorized personnel should detect any mistreatment or abuse of the tool and worn parts. Corrective action should be taken before returning the tool for use.

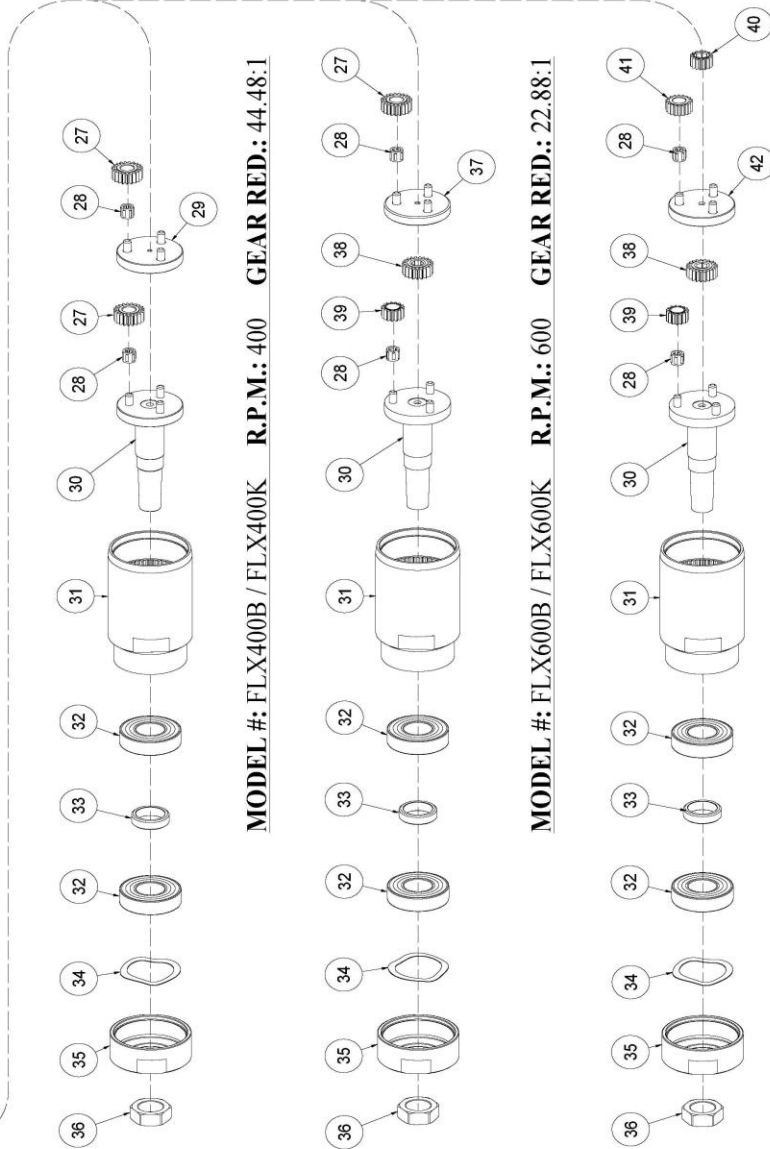
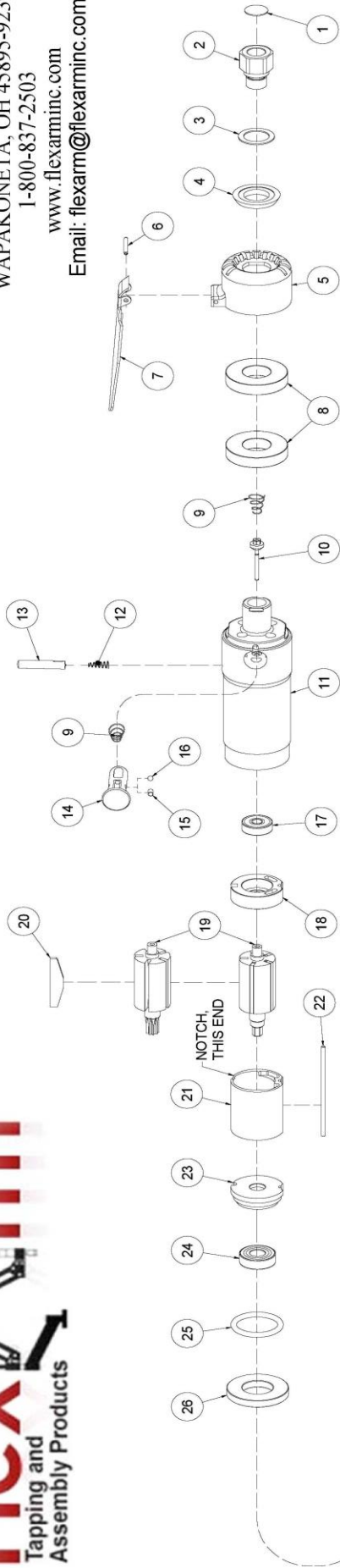
Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded bearings should never be placed in solvent unless a good method of re-lubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry.

Upon reassembling, lubricate parts where required. Use 33153 grease, or equivalent, in bearings. Use 33153 lubricant for "O" ring assembly. When assembling "O" rings or parts adjacent "O" rings, care must be exercised to prevent damage to the rubber sealing surfaces. A small amount of grease will usually hold steel balls and other small parts in place while assembling.

When replacement parts are necessary, consult drawing containing the part for identification.

Always use clean, dry air. Dust, corrosive fumes and/or excessive moisture can damage the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes rust, scale, moisture and other debris from the air lines. Low air pressure (less than 90 p.s.i.g.) reduces the speed of the air tool. High air pressure (more than 90 p.s.i.g.) raises performance beyond the rated capacity of the tool and could cause injury. Shown below is a typical piping arrangement.





MODEL #: FLX400B / FLX400K R.P.M.: 400 GEAR RED.: 44.48:1

MODEL #: FLX600B / FLX600K R.P.M.: 600 GEAR RED.: 22.88:1

MODEL #: FLX1000B R.P.M.: 1000 GEAR RED.: 15.09:1

PARTS LIST				PARTS LIST			
#	PART #	DESCRIPTION	QTY	#	PART #	DESCRIPTION	QTY
1	33911	SCREEN	1	22	47723-2	LOCATING PIN	1
2	46377	INLET ADAPTOR	1	23	47722	FRONT END PLATE	1
3	47205	SPACER	1	24	Y65-13	BALL BEARING	1
4	46449	DIFFUSER WASHER	1	25	Y325-214	O-RING	1
5	46448	EXHAUST CAP	1	26	46412	SPACER	1
6	Y178-28	ROLL PIN	1	27	46901	PLANET GEAR (21 T)	3 OR 6
7	46326	LEVER	1	28	42315	NEEDLE BEARING	6
8	46452	FILTER	2	29	47544	CARRIER ASSEMBLY	1
9	41654	SPRING	2	30	CHART	SPINDLE ASSEMBLY	1
10	46354	VALVE ROD ASSY	1	31	46690-1	RING GEAR	1
11	49719	HOUSING ASSEMBLY	1	32	31308	BALL BEARING	2
12	46374	SPRING	1	33	46686-1	SPACER	1
13	46286-2	THROTTLE PIN	1	34	46691-1	WAVE WASHER	1
14	46476	VALVE BODY	1	35	46689-1	LOCK NUT	1
15	49983	PIN	1	36	46692-1	NUT	1
16	Y16-204	BALL (1/8")	1	37	46721	CARRIER ASSEMBLY	1
17	47724	BALL BEARING	1	38	46465	SUN GEAR (21 T)	1
18	46312-1	REAR END PLATE	1	39	46699	PLANET GEAR (15 T)	3
19	CHART	ROTOR	1	40	46466	SUN GEAR (15 T)	1
20	46413	ROTOR BLADE	5	41	46900	PLANET GEAR (18 T)	3
21	46311	CYLINDER	1	42	46522	CARRIER ASSEMBLY	1

MODEL #	R.P.M.	ITEM # 19	ITEM # 30
FLX400B	400	ROTOR	SPINDLE
FLX400K	400	46470 (9 T)	48688-1
FLX600B	600	46470 (9 T)	48688-1K
FLX600K	600	46470 (9 T)	48688-3
FLX1000B	1000	46454 (HEX)	48688-3

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

NOTICE

- Never apply excessive pressure by a holding device which may cause distortion of a part.
- Apply pressure evenly to parts which have a press fit.
- Apply even pressure to the bearing race that will be press fitted to the mating part.
- Use correct tools and fixtures when servicing this tool.
- Don't damage "O" rings when servicing this tool.
- Use only genuine FLEXARM replacement parts for this tool. When ordering, specify part number, description, tool model number and serial number.

GEARING DISASSEMBLY

Remove drive option from tool.

Using a wrench on flats, remove ring gear (31).

Remove nut (36).

Remove spindles and gears from ring gear. NOTE: Keep gears grouped with mating spindle when disassembling gearing. Do not remove bearings (28) unless damage is evident. Do not remove bearings (32) or spacer (33) unless damage is evident.

- _ To remove bearings (32) and spacer (33) from ring gear, remove lock nut (35) from ring gear and press on bearing (32) from inside splined end of ring gear.

Do not remove gears (27 or 41) from carrier assemblies unless damage is evident. Gears are press fit onto carrier assemblies.

GEARING ASSEMBLY

Lubricate bearings with 33153 grease before assembly. Assemble bearing (32) into ring gear, pressing on outer race of bearing.

Coat shafts of spindles with 33153 grease.

Assemble gears, containing bearings (28), to shafts of mating spindle.

Assemble carrier assembly to spindle assembly.

Lubricate sets of gears liberally with 33153 grease (see "Routine Lubrication Requirements", page 3).

Assemble spindles and gearing into ring gear. Rotate spindle and gears to align gear teeth with splines of ring gear.

Assemble spacer (33) to spindle.

Assemble bearing (31) into ring gear.

Assemble wave washer (34) and lock nut (35) to ring gear.

Assemble ring gear and components to tool and tighten using a wrench on flats.

- _ Assemble drive option to tool.

MOTOR DISASSEMBLY

Remove gearing from tool.

- _ Remove spacer (26) and "O" ring (25).

Tap front edge of housing to remove motor assembly. Locating pin (22) should also come out.

- _ Tap drive end of rotor (19) with a soft face hammer; motor will come apart. NOTE: Bearings are press fit on rotor.
- _ Remove end plate (18) and bearing (17) from rotor.

MOTOR ASSEMBLY

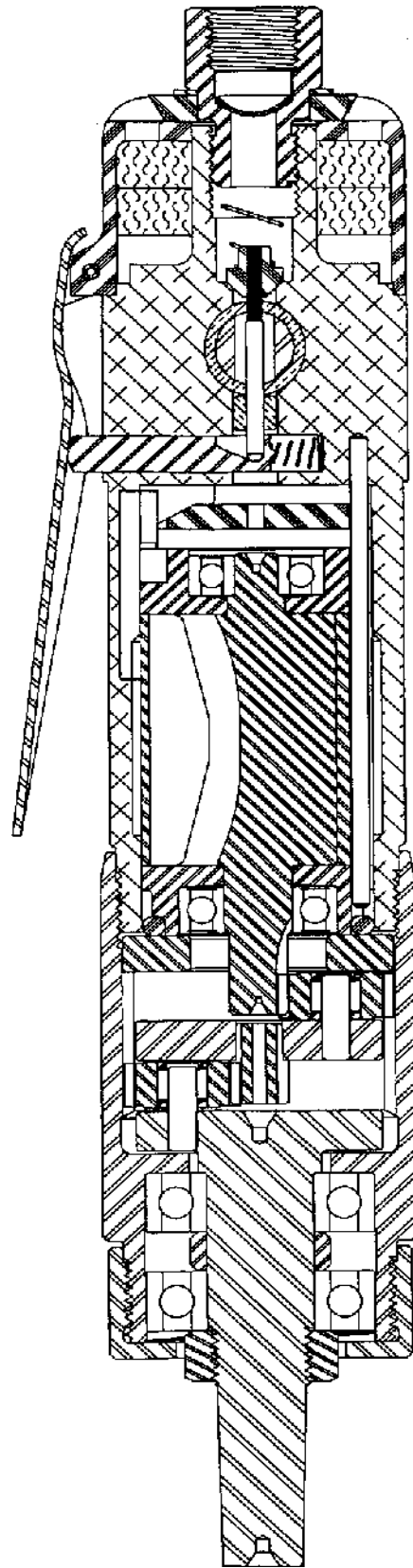
- Lubricate bearing (17) with 33153 grease and assemble to end plate (18), pressing on outer race of bearing.
- _ Assemble end plate (18) to rotor, pressing on inner race of bearing.
- _ Coat five rotor blades (20) with FLEXARM EP-32 oil and assemble to rotor slots — straight side out.
- _ Coat i.d. of cylinder (21) with FLEXARM EP-32 oil and assemble over rotor. NOTE: Air inlet slots in end of cylinder must be aligned with two air inlet slots in end plate (18).
- _ Assemble bearing (24) to end plate (23), pressing on outer race of bearing.
- _ Assemble end plate (23) to rotor, pressing on inner race of bearing. Be sure rotor turns without binding.
- _ Insert locating pin (22) into .096" diameter blind hole at bottom of motor cavity in housing.
- _ Align notches of end plates and cylinder and install motor into housing, aligning notches with locating pin (22).
- _ Grease and assemble "O" ring (25) to end plate. Assemble spacer (26) to motor. Assemble gearing to tool.

THROTTLE DISASSEMBLY

- _ Clamp air inlet adapter (2) in a smooth face vise. Unthread housing (11), using a strap type wrench.
- _ Remove diffuser washer (4), exhaust cap (5), two filters (8), spring (9) and valve rod (10). CAUTION: Do not remove or adjust rubber portion of valve rod (9), as it is preset at the factory.
- _ Remove pin (15), ball (16), valve body (14) and spring (9). Remove screen (1) from inlet adapter. Remove throttle pin (13) and spring (12).

THROTTLE ASSEMBLY

- Install spring (9) and valve body (14) in housing. NOTE: Align ball slot in valve body with slot in housing.
- _ Install spring (12) and throttle pin (13), aligning slot in throttle pin with air inlet holes in housing.
- _ Install valve rod assembly (10) into housing so it passes thru open slot in valve body (14). NOTE: Throttle pin (13) should not pull out when valve rod (10) is seated properly. Assemble ball (16) and pin (15) into slots of housing and valve body (14).
- _ Install two fillers (6) to exhaust cap (5).
- _ Install exhaust cap (5) to housing, being certain ball (16) and pin (15) remain properly positioned in housing and valve body. Assemble diffuser washer (4), spacer (3) and inlet adapter (2) to tool. Clean and install screen (1) in inlet adapter (2).



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