



930-450
930-750
930-1000

MODEL 930 TUBE ROLLER



OPERATING INSTRUCTIONS & SERVICE MANUAL

Rev: A, 10/1/2007

**TO REDUCE THE RISK OF INJURY AND EQUIPMENT DAMAGE
USER MUST READ AND UNDERSTAND OPERATOR'S MANUAL.**

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SAFETY INSTRUCTIONS



WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS

Failure to follow all instructions listed below, may result in accident, fire and/or personal injury.

SAVE THESE INSTRUCTIONS

1. Do not allow corrosive gases or foreign material to enter the unit. Moisture, oil-based contaminants, or other liquids must be filtered out.
2. Eye protection is always required when running motor.
3. Hearing protection is recommended when in close proximity to all operating air motors.
4. Dust mask, non-skid safety shoes, hard hat, gloves and other personal safety equipment must be used.
5. Stay alert, watch what you are doing, and use common sense when operating a power tool.
6. Dress properly. Do not wear loose clothing or jewelry.
7. Keep your work area clean and well lit.
8. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.
9. Disconnect the tool from the air supply before installing, making any adjustment, changing accessories, servicing or storing tool.

LUBRICATION

Amount of oil used will vary with tool usage but daily filling of handle oil reservoir should normally be adequate. Check that a fine mist of oil is always present in the air which passes out through exhaust deflector holes. For continuous and heavy tool usage, it is preferable to use an automatic air line lubricator. For this purpose, the Wilson Air Filter-Lubricator Unit (Cat. #8596 for 3/8" lines) is recommended. This unit combines an automatic lubricator with an efficient air filter.

Caution: To inhibit rust during tool storage be sure a liberal amount of oil has been introduced into valve and air motor. Also be sure operating air moisture content is kept at a minimum. Compressor after coolers, air line traps, water separators and use of rust-inhibiting lubricating oil all help. Thoroughly clean or replace any rusted parts found during service checks.

OPERATION

1. Make sure there is an adequate supply of clean air of 90 psi lubricated with light machine oil of SAE 10 viscosity. This should be done before all long runs of tube expanding and after every four hours of continuous use unless an air line lubricator of ample capacity is used. SEE 'LUBRICATION' SECTION BELOW.
2. Always blow out air hose thoroughly before attaching it to throttle valve cap which takes the 3/8" pipe coupling of 3/8" hose assembly supplied (No. 50007). Always use a 3/8" I.D. or larger air line when maximum power is desired and be sure that air pressure at the tool is at least 90 psi gauge.
3. Select required snap-on mandrel drive and attach it to tool spindle nose. Be sure to align detents within it with drilled spots on spindle nose. (Instructions for releasing detents are stamped on mandrel drive sleeves.)
4. Adjust Thrust Collar on expander and attach mandrel to snap-on mandrel drive by engaging detent and circular groove on mandrel's square shank.
5. Insert expander in tube as required.
6. Completely depress throttle valve trigger lever to find forward speed. When desired expansion has been attained, release throttle valve lever .
7. Fully squeeze reverse valve trigger into reverse position (depressed). Depress throttle valve trigger lever to reverse drive and back expander out of tube.

MAINTENANCE & SERVICING

Rotor Blades - Generally these are the only parts requiring replacement after long service. Always replace the rotor blades in a set of 4 only, whenever they are broken or cylinder edge is gouged, worn uneven or worn down 1/16". This would cause the blade edges to be 1/16" below top of its slot in rotor drum.

Cylinder and Rear End Plate - Replacement is required only if part is broken or rubbing surfaces are gouged.

Ball Bearing - normally these ball bearings should not require additional lubrication during tool life. However, whenever tube roller is disassembled for servicing, the motor ball bearings should be lubricated with light oil (SAE #10) while the drive ball bearings should receive a small amount of bearing grease. All ball bearings should turn smoothly and freely with no noticeable looseness. There should be a snub fit with no shake both in their housings and on their shafts. However, the front motor ball bearing is a mild press fit on its rotor shaft.

Intermediate Spindle Assembly and Drive Spindle Assembly - Do not disassemble planet gears from their spindles unless the gears do not move freely about their planet pins. Be careful not to lose any one of the nine needle rollers assembled within each planet gear. Lubricate planet gear and needle rollers with a good bearing grease only.

Caution: Note position of planet pin milled step in relation to steel retaining ring or turned step on drive spindle on assembly drawing before reassembling either spindle.

Air Screen - Throttle valve air screen assembly should be cleaned by reverse flushing when necessary. Before reassembly note on drawing that air screen cylinder is assembled within the throttle valve cap. Also when reassembling be sure small end of conical throttle valve spring rests against the 3/8" diameter hardened steel ball. Be sure air screen flange comes to rest correctly within its counter-bore in steel seat insert.

REASSEMBLY

Air motor disassembly procedure

- (A) Hold Tube Roller fixed with offset handle upwards.
- (B) Prevent rotation with wrench locked on 2" hexagon located against torque calibrated index plate.
- (C) Tap motor handle with a soft-faced mallet in a counterclockwise direction when viewed from offset handle end.
- (D) Unscrew and remove air motor and offset housing assembly complete.
- (E) Remove intermediate spindle assembly from air motor assembly or from within internal gear.
- (F) Unscrew adapter ring (Pc #63) out of cast aluminum motor housing.
- (G) Rotor with 4 rotor blades, front plate spacer, ball bearing and separator can now be lifted out.

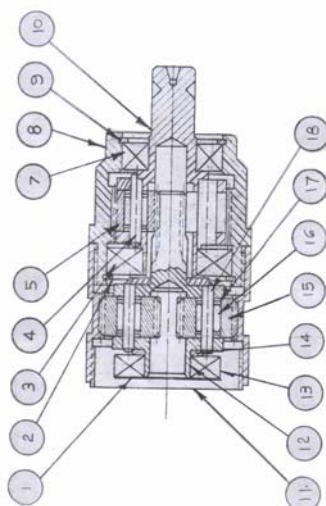
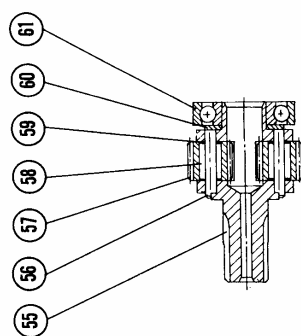
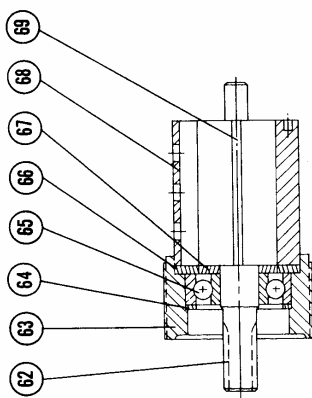
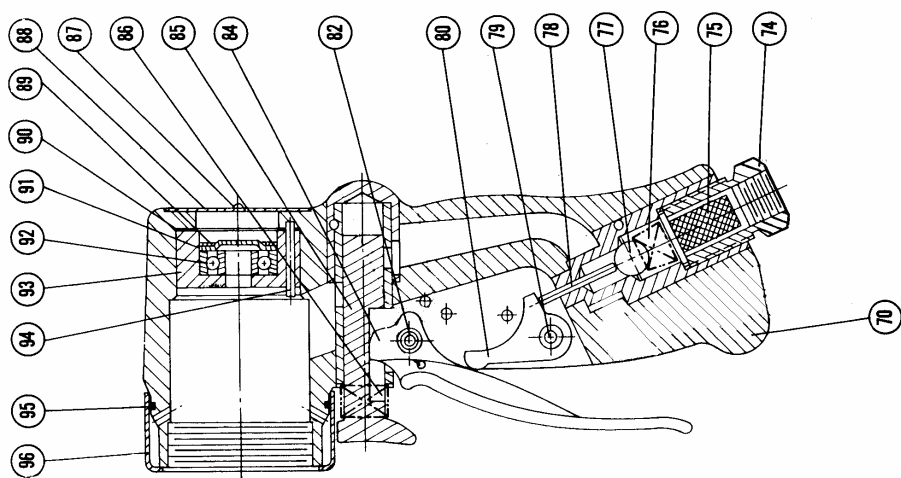
Note: Leave cylinder and assembled rear end plate within motor housing. Refer to assembly drawing on page 6.

To reassemble AIR MOTOR follow disassembly steps in reverse.

TROUBLE-SHOOTING

PROBLEM	CAUSE & REMEDY
Motor will not run.	<ol style="list-style-type: none"> 1. Inefficient air supply —Check 90 psi and 32 CFM air supply. 2. Clogged air inlet screen —Replace-see pg.6 (pc #75) 3. Broken or severely worn rotor blades —Replace-see pg.6 (pc #69) 4. Rust due to improper storage of tool —Disassemble and clean– Refer to Disassembly procedure. 5. Broken throttle valve pin or lever —Replace—see pg.6 (pc. #78/80)
Motor will not reach RPM.	<ol style="list-style-type: none"> 1. Insufficient air volume —Check 32 CFM supply. 2. Dirty air inlet screen —Clean –see pg. 6 (pc.#75) 3. Worn rotor blades —Replace-see pg.6 (pc #69) 4. Air supply hose chocked or too small —See Operating Procedure recommended hose.
Motor stalls at high torque	<ol style="list-style-type: none"> 1. Insufficient air pressure —Check 90 psi supply 2. Dirty air inlet screen —Clean –see pg. 6 (pc.#75) 3. Rotor blades worn, chipped or broken —Replace-see pg.6 (pc #69)
Motor fails to stop	<ol style="list-style-type: none"> 1. Broken throttle valve spring —Replace-see pg.6 (pc #76) 2. Valve ball does not seal —Replace or rework valve seat-Refer to pg. 6 (pc.#77)

PARTS LIST



PARTS LIST (Cont’)

SM-79D

Key	Description	930- 1000	930- 750	930- 450	Key	Description	930- 1000	930- 0750	930- 0450
Gear Housing Assembly					Air Motor Assembly				
51570 51570 51570					53581 53581 53581				
-0001 -0002 -0003					(Keys 62 thru 69) -0001 -0002 -0003				
1	End Play Shim		51513		62	Rotor	51133	51132	51131
2	Spirolox Ring		34263		63	Adapter Ring	52497	52497	52497
3	Ball Bearing		51194		64	Bearing Separator	51191	51191	51191
4	Planet Pin—Long		24314		65	Front Motor Bearing	51361	51361	51361
5	Planet Gear	24504	24364	24321	66	Front Plate	50809	50809	50809
7	Ball Bearing		51195		67	Front Bearing Spacer	51135	51135	51135
8	Internal Gear	51560	51561	51560	68	Cylinder	51225	51225	51225
9	Spirolox Ring		34261		69	Rotor Blade(Set of 4)	51139	51139	51139
10	Drive Spindle		51537	51536	Motor Housing Ass’y				
11	Intermediate Internal Gear	51155	51156	51157	Key 70 thru 86, 90, 93 & 94				
12	Intermediate Spindle	51123	51122	51121	70	Motor Housing	53580	53580	53580
13	Ball Bearing		24525		74	Throttle Valve Cap	42872	42872	42872
14	Retainer Washer		51118		75	Air Screen	51179	51179	51179
15	Planet Gear	51102	24321	51105	76	Throttle Valve Spring	51541	51541	51541
16	Needle Rollers		24354		77	Valve Ball	2629	2629	2629
17	Roller Retainer		24355		78	Valve Pin	51540	51540	51540
18	Planet Pin—Short		24512		79	Lever Pin	28215	28215	28215
Intermediate Spindle Ass’y					80	Throttle Valve Lever	53501	53501	53501
(Keys 55 thru 61)					82	Trigger Pin	28215	28215	28215
55	Intermediate Spindle	51123	51122	51121	84	Throttle Valve trigger	51563	51563	51563
56	Planet Pin (2)	24512	24512	24512	85	Reversing Valve Trigger	51544	51544	51544
57	Planet Gear (2)	51102	24321	51105	86	Trigger Spring	52635	52635	52635
58	Needle Roller (2 Sets)	24354	24354	24354	87	Drive Screw (2)	6896	6896	6896
59	Roller retainer (2 Sets)	24355	24355	24355	88	Nameplate	38635	38635	38635
60	Retainer Washer	51118	51118	51118	89	Retaining Ring	53560	53560	53560
61	Rear Drive Bearing	24525	24525	24525	90	Gasket	51229	51229	51229
					91	Rear Plug	21994	21994	21994
					92	Rear Motor Bearing	21944	21944	21944
					93	Rear End Plate	51532	51532	51532
					94	Roll Pin	51474	51474	51474
					95	Seal Ring	28187	28187	28187
					96	Exhaust Muffler Assy	53840	53840	53840
Dead Handle 24305, Hex. Key(5/16) 52147, Hex. Key(1/8) 52144, Hex. Key(3/16) 51254.									

SPECIFICATIONS

Model no.	930-450	930-750	930-1000
Free Speed (RPM)	450	750	1000
Min. Torque (Ft-Lb)	3	3	3
Max. Torque (Ft-Lb)	18	12	10
Air Pressure (psi)	90		
Air Inlet	3/8" NPT		
Hose	3/8" I.D.		
Air Flow @Free Speed	32 CFM		
Spindle	1/2" Dia. with 2 spots		
Weight	4.5 lbs.		

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