PARTS

MANUAL

MODEL "LS-3000"

Air Powered

LAMB/SHEEP WOOL SHEAR

BEST & DONOVAN TOLL FREE 1-800-553-BEST

5570 CREEK ROAD; CINCINNATI, OHIO 45242, USA; PHONE: 513-791-9180; Telex 275189 WEPCO

"LS-3000"

Operating and Servicing Instructions

AIR REQUIREMENTS

— #6337793 Air/Regulator/Lubricator

— 10 mm ID air hose.

— 85-90 psi = 5.8 - 6 bar.

— Coil-type retractable air hose with quick-disconnect coupling.

DAILY CHECK

— Clean hand tool (use air gun)

— Check blades for sharpness.

— Lubricate all friction points.

— Check oil level in air lubricator.

— Check all parts for normal wear and replace where needed.

MONTHLY

— Unscrew handpiece (3) from gear & nose (125). Use 32mm wrench supplied. Thread is left hand.

— Unscrew crankhead (1) from spindle, use 14mm wrench supplied. RH thread.

— Unscrew spindle nut (124) from spindle — RH thread.

— Unscrew gear & nose (125) from motor case (7). Thread is left hand.

— DO NOT REMOVE THE AIR MOTOR.

— Clean planet cage and gear complete (132) with clean white spirit, & regrease.

IMPORTANT: NEVER ATTEMPT TO UNSCREW THE CONTROL TOP (30) UNLESS GEAR & NOSE (125) ARE LOOSENED.

BLADE TENSION SETTING

THE BEST & DONOVAN AIR MODEL "LS-3000" LAMB/SHEEP WOOL SHEAR REQUIRES ONLY A LIGHT BLADE TENSION COMPARED WITH THE STANDARD ELECTRIC SHEAR. EXCESSIVE TENSION WILL RESULT IN RAPID DESTRUCTION OF CENTER POST (10), CENTER POST CUP (14), AND BLADES.

WARNING

ALWAYS DISCONNECT TOOL FROM AIR SUPPLY BEFORE ATTEMPTING ANY REPLACEMENT, ADJUSTMENT, SERVICING OR DISMANTLING.

Operating and Servicing Instructions

GENERAL NOTES

Bearings that have a retainer holding the balls in place must be assembled into the tool with the blank face of the retainer to the air flow; in the case of the motor the blank faces must face each other across the rotor.

The threads in this tool are left hand with the exception of the air inlet adaptor and the crankhead.

It is important that the end cap (5) is slackened first, **NEVER** attempt to unscrew the control top when the above component is fully tightened.

TO DISMANTLE

Mount the motor case (7) between a pair of clamp blocks and clamp firmly in a vice. Unscrew the end cap (5) then unscrew the control top. Remove the tool from the clamp blocks and push the internal out the motor case.

The remainder of the dismantling follows normal engineering practice with reference to the illustration.

TO ASSEMBLE

Assembly Notes

1. When locating the motor complete (165) in the control top complete (30) the pin projecting out of the rear bearing housing complete (163) must enter the 'R' marked hole in the control top.
2. It is important that spacer (24) is located the correct way round: concave side to the rear of the tool.

Sub Assemblies

Using the illustration as a guide, assemble the control top and planet cages.

The following instructions for the motor complete (165) must be followed:

Take the rotor (161) and place the rear bearing plate (159), with grooves to rotor, into position. Press bearing (158) onto the rotor so that there is 0.038 mm (0.0015 in.) gap between the rotor and the rear bearing plate. Holding the rotor and rear bearing plate assembly with the gear end of the rotor uppermost, slide the cylinder (160) over the rotor. Locate the rotor blades (162) into their slots in the rotor and lubricate. Place the front bearing plate (159) into position, with grooves to rotor.

Note: If a new bearing (158) is to be fitted into the front bearing housing (156) make sure that the bearing is 0.25 mm (0.010 in.) below the housing face out of which pin (157) protrudes.

Press the front bearing housing with its bearing onto the rotor making sure that all location holes are aligned so that the pins can pass through on assembly.

Note: This assembly should be pressed on using the inner face of front bearing (158) and taking the reaction on the end face of the rotor rear bearing spigot. The assembly should be pressed on until all the free axial movement between the front and rear bearings is removed.

Locate the rear bearing housing (163) with cap (164) and check that the rotor is free to rotate.

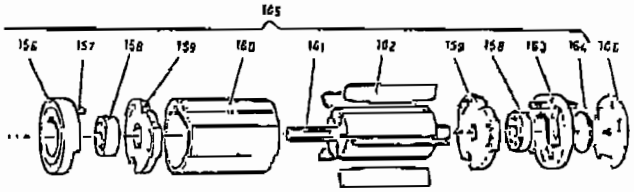
FINAL ASSEMBLY

Stand control top on air inlet adaptor, place gasket (166) in position so that the required pin location hole is clear. Remove the rear bearing housing (163) from the motor complete (165) and locate in the control top, load the rest of the motor into position then slide the motor case (7) over the motor and screw fully into the control top. Slide the planet cage assemblies into the motor case checking that as each assembly is located the unit is free to rotate.

Mount the motor case (7) between a pair of clamp blocks and clamp firmly in a vice. Screw on the end cap (5) and tighten, replace the crankhead (2) and the crankhead guard (4). The tool can now be connected to the air supply and tested for correct operation.

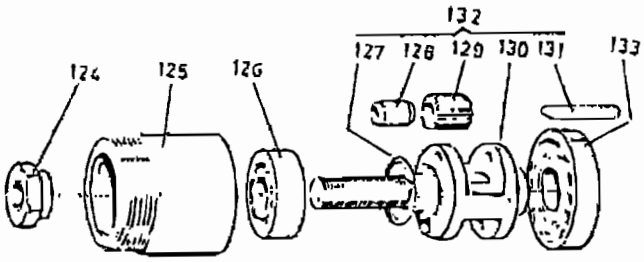
#9770150 MOTOR UNIT

156	9770155	Front Bearing Housing	1
157	9770160	Spring Pin	1
158	9770165	Bearing	2
159	9770170	Bearing Plate	2
160	9770175	Cylinder	1
161	9770180	Rotor	1
162	9770185	Rotor Vane	5
163	9770190	Rear Bearing Housing Complete	1
164	9770205	Cap	1
165	9770150	Air Motor Complete	1
166	9770210	Gasket	1



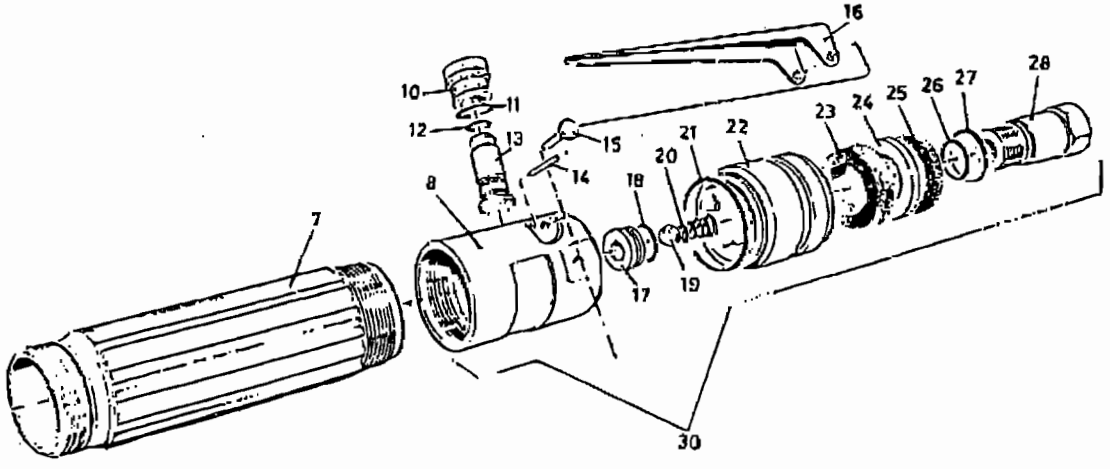
#9770250 GEAR BOX

124	9770259	Spindle Nut	1
125	9770260	Gear & Nose	1
126	9770265	Bearing	1
127	9770270	Retaining Ring	1
128	9770275	Needle Bearing	2
129	9770280	Gear	2
130	9770285	Cage	1
131	9770290	Pin	2
132	9770250	Cage Complete	2
133	9770295	Bearing	2



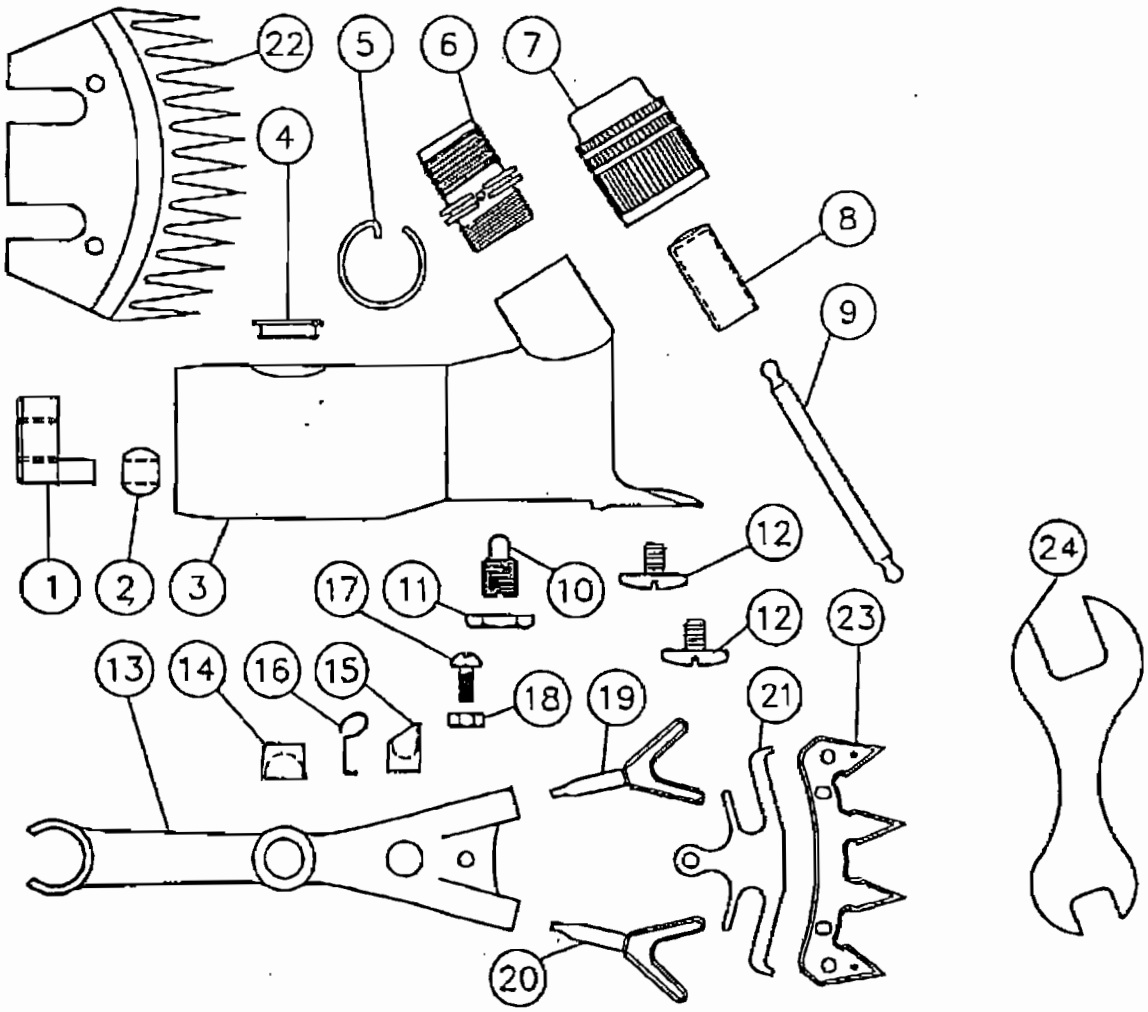
#9770350 MAIN ASSEMBLY

7	9770355	Motor Case -3000 RPM	1
8	9770360	Valve Body	1
10	9770365	Guide	1
11	9770370	"O" Ring	1
12	9770375	"O" Ring	1
13	9770380	Valve Rod	1
14	9770385	Spring Pin	1
15	9770390	Lever Pin	1
16	9770395	Lever	1
17	9770405	Valve Seat	1
18	9770410	"O" Ring	
19	9770415	Ball	1
20	9770420	Spring	1
21	9770425	"O" Ring	1
22	9770430	Muffler Housing	1
23	9770435	Felt Muffler	1
24	9770440	Spacer	1
25	9770445	Muffler Silencer	1
26	9770455	"O" Ring	1
27	9770460	"O" Ring	1
28	9770465	Inlet Adaptor	1
30	9770340	Control Top Complete	



#9770450 HANDPIECE PARTS

1	9770470	Crank Head	13	9770535	Fork (Wide)
2	9770475	Crank Head Ball	14	9770540	Center Post Cup
3	9770480	Barrel	15	9770545	Tension Pin Cup
4	9770485	Plug (Barrel)	16	9770555	Tension Pin Cup Spring
5	9770490	Safety Spring (Tens.Nut)	17	9770560	Screw
6	9770495	Tension Nut Sleeve	18	9770565	Nut
7	9770505	Tension Nut	19	9770570	Fork LH
8	9770510	Thimble (Fork Tens.Pin)	20	9770575	Fork RH
9	9770515	Fork Tension Pin	21	9770580	Fork Retaining Plate
10	9770520	Center Post	22	9770585	Comb
11	9770525	Center Post Nut	23	9770590	Cutter
12	9770530	Comb Screws (2)	24	9770595	Service Tool 32 - 14mm



BEST & DONOVAN

MODEL "LS-3000-1"

AIR POWERED

LAMB/SHEEP WOOL SHEAR

PARTS AND SERVICE MANUAL

USDA APPROVED	CE

BEST & DONOVAN

5570 CREEK ROAD, CINCINNATI, OHIO 45242, USA

TOLL FREE: 1-800-553-2378 TEL.: 1-513-791-9180

FAX: 1-513-791-0925 CABLE: WEPCO

NOTICE TO OPERATORS, MAINTENANCE, AND CLEAN-UP PERSONNEL

OPERATORS

Stop using a defective or malfunctioning tool immediately. Report problem and defect immediately to your supervisor for removal of tool from service.

Do not attempt to make repairs yourself; do not tamper with a malfunctioning or defective tool.

Remove power from tool when tool is left unattended or not in use.

Never tie-down, by-pass, or alter triggers or safety switches of the tool.

Never make alterations or modifications to the tool.

Do not activate switches of the tool unless you intend to operate and use the tool.

Do not allow unauthorized individuals to operate the tool.

Never place fingers, hands, or other parts of your body in the cutting path of the tool.

This tool is capable of causing severe injury if misused.

CLEAN-UP PERSONNEL

Shut off all power and disconnect all hydraulic and air hoses from tool before performing clean-up.

Be aware of sharp blades.

MAINTENANCE PERSONNEL

Shut off all power and disconnect all hydraulic and air hoses from tool before making repairs, maintenance, and before replacing or sharpening blades.

Do not use substitute parts or use other than original make and brand parts.

Use extreme care when testing or operating tool.

REMEMBER: THINK SAFETY - ACT SAFELY

OPERATING AND SERVICING INSTRUCTIONS

DAILY CHECK

- Clean hand tool (use air gun)
- Check blades for sharpness
- Lubricate all friction points
- Use "E2040 Food Grade Lubricant" for parts 14 - 15
- Check oil level in air lubricator
- Check all parts for normal wear and replace where needed

MONTHLY

- Unscrew handpiece (3) from gear and nose (5). This is a left-hand thread.
- Unscrew crankhead (1) from spindle, use 14 mm spanner (24) supplied. This is a right-hand thread.
- Unscrew spindle nut (4) from spindle - right-hand thread.
- Unscrew gear and nose (5) from motor case (26). This is a left-hand thread.
- Do not remove the air motor.
- Clean planet cage and gear complete (12) with clean white spirit, and regrease with "Duckhams" type 9.5618 grease or equivalent.

Important: Never attempt to unscrew the control top (46) unless gear and nose (5) are slackened off.

BLADE TENSION SETTING

The Realcold air shear requires only a light blade tension compared with the standard electric shear. Excessive tension will result in rapid destruction of centre post (10), centre post cup (14), and blades.

Warning: Always disconnect tool from air supply before attempting any replacement, adjustment, servicing, or dismantling.

TECHNICAL DATA

Weight	1.28kg
Overall Length	331mm
Operating air pressure	90psi - 6 bar
Air consumption	14 CFM

Accepts standard Lister, Sunbeam, Heiniger comb and cutter.

AIR REQUIREMENTS

3/8" - 10mm air filter/lubricator.

10mm I.D. selfstore hose.

Optional "free angle" fitting available.

A dryer is recommended for use on the air compressor to remove moisture.

GENERAL NOTES

Bearings that have a retainer holding the balls in place must be assembled into the tool with the blank face of the retainer to the air flow; in the case of the motor the blank faces must face each other across the rotor.

The threads in this tool are left-hand with the exception of the air inlet adaptor and the crankhead.

It is important that the end cap (50) is slackened first, **NEVER** attempt to unscrew the control top when the above components is fully tightened.

TO DISMANTLE

Mount the motor case (7) between a pair of clamp blocks and clamp firmly in a vice. Unscrew the end cap (50) then unscrew the control top. Remove the tool from the clamp blocks and push the internal out the motor case.

The remainder of the dismantling follows normal engineering practice with reference to the illustration.

TO ASSEMBLE

Assembly Notes

1. When locating the motor complete (24) in the control top complete (46) the pin projecting out of the rear bearing housing complete (22) must enter the 'R' marked hole in the control top.

2. It is important that spacer (41) is located the correct way round: concave side to the rear of the tool.

Sub Assemblies

Using the illustration as a guide, assemble the control top and planet cages. The following instructions for the motor complete (24) must be followed:

Take the rotor (20) and place the rear bearing plate (18), with grooves to rotor, into position. Press bearing (17) onto the rotor so that there is 0.038 mm (0.0015 in.) gap between the rotor and the rear bearing plate. Holding the rotor and rear bearing plate assembly with the gear end of the rotor uppermost, slide the cylinder (19) over the rotor. Locate the rotor blades (21) into their slots in the rotor and lubricate. Place the front bearing plate (18) into position, with grooves to rotor.

Sub Assemblies (continued)

Note: If a new bearing (18) is to be fitted into the front bearing housing (14) make sure that the bearing is 0.25 mm (0.010 in.) below the housing face out of which pin (15) protrudes.

Press the front bearing housing with its bearing onto the rotor making sure that all location holes are aligned so that the pins can pass through on assembly.

Note: This assembly should be pressed on using the inner face of front bearing (18) and taking the reaction on the end face of the rotor rear bearing spigot. The assembly should be pressed on until all the free axial movement between the front and rear bearings is removed.

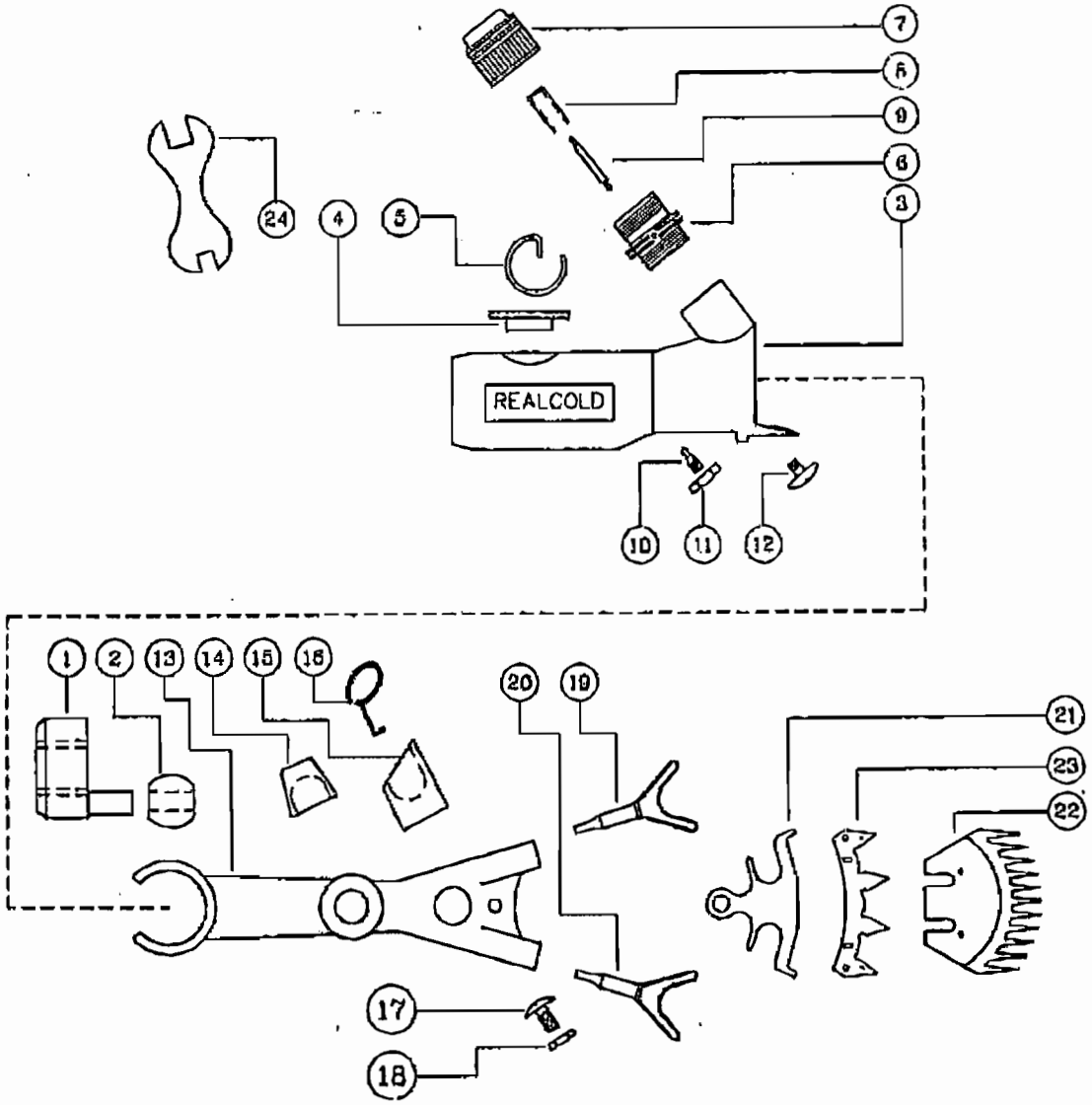
Locate the rear bearing housing (22) with cap (23) and check that the rotor is free to rotate.

Final Assembly

Stand control top on air inlet adaptor, place gasket (25) in position so that the required pin location hole is clear. Remove the rear bearing housing (22) from the motor complete (24) and locate in the control top, load the rest of the motor into position then slide the motor case (26) over the motor and screw fully into the control top. Slide the planet cage assemblies into the motor case checking that as each assembly is located the unit is free to rotate.

Mount the motor case (26) between a pair of clamp blocks and clamp firmly in a vice. Screw on the end cap (50) and tighten, replace the crankhead (2) and the crankhead barrel plug (4). The tool can now be connected to the air supply and tested for correct operation.

HANDPIECE PARTS LISTING



Ref No.	Part No.	Description	Qty.
1	9770470	CRANK HEAD	1
2	9770475	CRANK HEAD BALL	1
3	9770480	BARREL	1
4	9770485	BARREL PLUG	1
5	9770490	TENSION NUT SAFETY SPRING	1
6	9770495	TENSION NUT SLEEVE	1
7	9770505	TENSION NUT	1
8	9770510	THIMBLE	1
9	9770515	FORK TENSION PIN	1
10	9770520	CENTRE POST	1
11	9770525	CENTRE POST NUT	1
12	9770530	COMB SCREWS	2
13	9770535	FORK (WIDE)	1
14	9770540	CENTRE POST CUP	1
15	9770545	TENSION PIN CUP	1
16	9770555	TENSION PIN CUP SPRING	1
17	9770560	FIXING SCREW	1
18	9770565	FIXING SCREW NUT	1
19	9770570	FORK CHICKEN FOOT L/H	1
20	9770575	FORK CHICKEN FOOT R/H	1
21	9770580	FORK RETAINING PLATE	1
22	9770585	COMB	1
23	9770590	CUTTER	1
24	9770595	SERVICE TOOL	1
	9770450	HAND PIECE COMPLETE (1 - 23)	

Air Motor Parts Diagram

Ref. No.	Part No.	Description	Qty.
4	9770259	Spindle Nut	1
5	9770212	Outer End Cap	1
*6	9770214	Bearing	1
7	9770216	Gear Ring	1
8	9770218	Planet Cage	1
9	9770220	Planet Gear Bearing	3
10	9770222	Planet Gear	3
11	9770224	Planet Pin	3
12	**9770145**	**Planet Cage Complete (8 - 11)**	**1**
*13	9770226	Bearing	1
14	9770155	Front Housing	1
*15	9770160	Spring Pin	1
16	**9770140**	**Front Bearing Housing Complete (14 & 15)**	**1**
*17	9770165	Bearing	2
18	9770170	Bearing Plate	2
19	9770175	Cylinder	1
20	9770228	Rotor	1
*21	9770185	Rotor Blade	5
22	9770190	Rear Housing Complete	1
23	9770230	End Cap	1
24	**9770130**	**Motor Assemble Complete (14 - 23)**	**1**
*25	9770210	Gasket	1
*26	9770355	Motor Case	1
27	9770365	Guide	1
*28	9770370	O-Ring	1
*29	9770375	O-Ring	1
30	9770232	Valve Rod	1
31	9770360	Valve Body	1
*32	9770385	Spring Pin	1
33	9770234	Lever	1
34	9770236	Lever Rivet	1
*35	9770410	O-Ring	1
36	9770405	Valve Seat	1
37	9770415	Ball	1
38	9770420	Spring	1
*39	9770425	O-Ring	1
40	9770430	Silencer Housing	1
41	9770440	Spacer	1
42	9770445	Silencer	1
*43	9770455	O-Ring	1
*44	9770460	O-Ring	1
45	9770465	Inlet Adapter	1
46	**9770120**	**Control Top Complete (27 - 45)**	**1**
50	9770238	Inner End cap	1
51	**9770110**	**Air Motor Complete (4 - 50)**	**1**
52	9770240	Spring Pin Only	1

* - Indicates normal replacement items. It is recommended that adequate stock is held for servicing requirements.

"LS-3000-1" AIR MOTOR PARTS DIAGRAM