

**Model 750**  
**BADAC**  
**ENVELOPE EXPANDER**

**INSTALLATION & OPERATION**  
**INSTRUCTIONS**

**BADAC EQUIPMENT**  
**10715 W. JERSEYVILLE ROAD**  
**BLANCHARD, MI 49310**  
**PH (989) 561-5222 FAX (989) 561-5078**

## ***CONGRATULATIONS***

on the purchase of your new 750 Expander.

Would you be interested in further increasing the efficiency and the profits of your operation?

Consider the purchase of another fine Badac product

### **- The 700 Mounted Lift**

Used with the 750 Expander, here's what **The 700 Mounted Lift** can do for you:

- *Provide safe, efficient means of positioning tires from floor to monorail.*
- *Make a convenient, adjustable work station- for installing and removing quick seals or arc rings.*
- *Provide a safe, convenient way to transfer tires from J-hooks to floor or rim station.*

Along with the strength and durability and that are built in to all Badac products, **The 700 Mounted Lift** has these other important features:

- *Mounts quickly and easily to your 750 Expander- on either the left or right side.*
- *Uses economical, convenient, lever-operated air power*
- *Has independently adjustable up and down speed*
- *Rotates 120 degrees- allowing unrestricted Expander operation*

For more information, contact:

Badac Equipment  
10715 W. Jerseyville Rd.  
Blanchard, MI 49310  
(989) 561-5222 Fax (989) 561-5078

## ASSEMBLY and INSTALLATION

**Note:** While removing machine components from packing carton, check for damage. If damage is noticed, notify the freight company immediately.

While the 750 Envelope Expander is shipped pre-assembled, for the most part, a few simple steps are required to make it ready for operation. Briefly, they are:

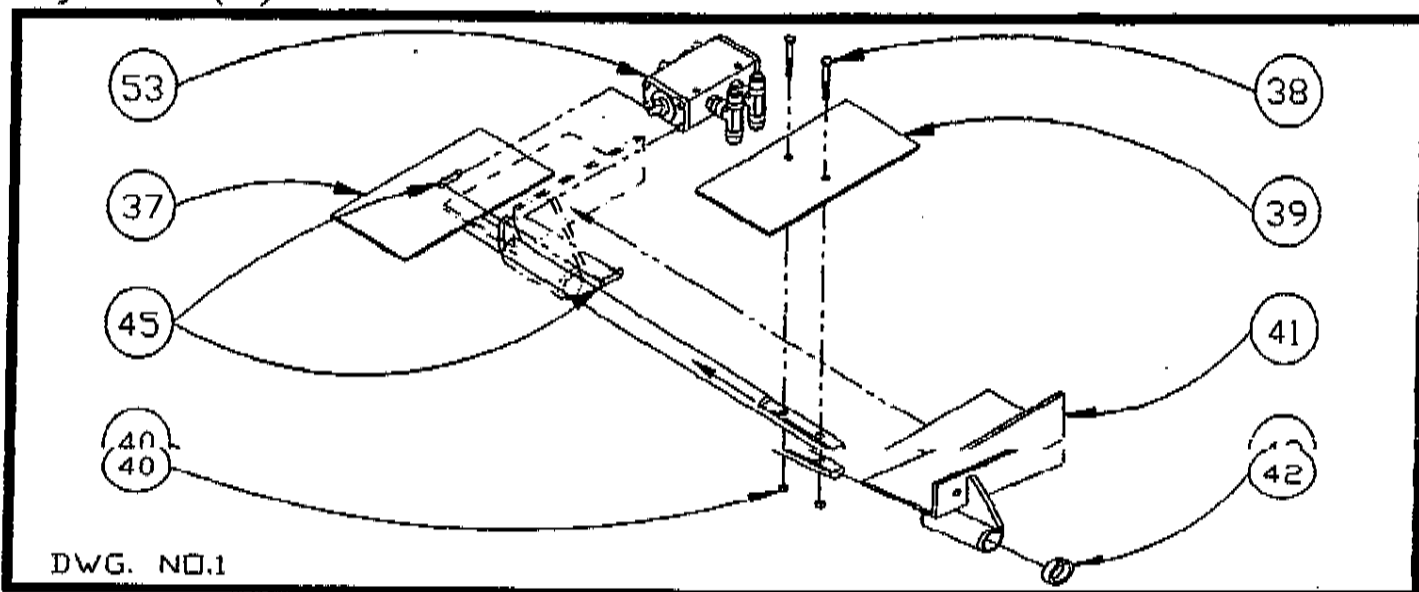
- A. Complete treadle assembly ; steps 1&2 in assembly instructions.
- B. Complete base and side arm assembly, and anchor to floor; steps 3 thru 7.
- C. Complete main frame assembly; steps 8 thru 11.
- D. Prepare pneumatic system for operation; steps 12 thru 14.

To aid in completing these instructions, and to provide detailed information for ordering replacement parts, several assembly drawings have been included.

Please recognize that all of these drawings view the machine from the same side and angle. During assembly, it is important to note the relative positions of the long side of the treadle shaft, the pivot plates, main frame halves, and the FRL unit.

### Treadle Assembly ( See Dwg. No.1)

1. Slide mounting bracket(41) on to shaft assembly(37) and secure with set collar(42). There should be sufficient clearance between the mounting bracket bushing and the projecting ear on the shaft assembly to allow free movement of the shaft and ear.
2. Attach treadle plate(39) to shaft assembly using two 5/16" x 1 1/4" carriage bolts(38) and nylock nuts(40).



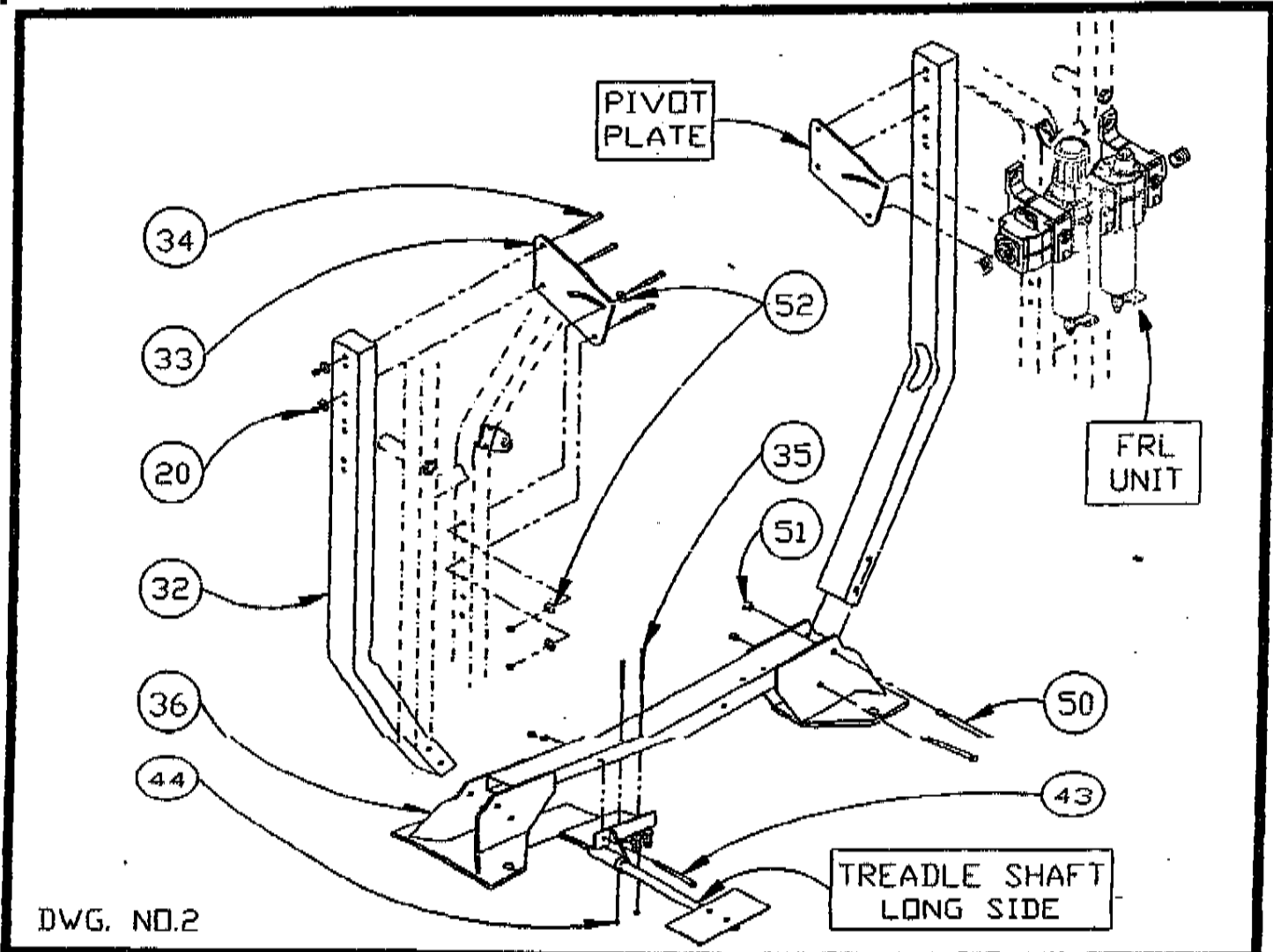
3. Attach valve assembly(53) to shaft assembly using master link(45). The valve mounts under bracket(41)— with the holes in the valve lining up with those in the bracket.

### Base and Arm Assembly (See Dwg. No.2)

4. Connect completed treadle assembly to expander base(36) using two 1/4" x 4" bolts(35) and nuts(44), and one 3/8" x 4" bolt(43), 3/8" flat washer, and nylock nut. (Note: valve on bottom.)

5. Attach side arms(32) to base using four 1/2" x 4 1/2" bolts(50) and nylock nuts(51).
6. Connect pivot plates(33) to side arms using four 3/8" x 3" bolts(34) and nylock nuts. The pivot plates should point in the same direction as the long side of the treadle shaft.

**Note:** The multiple sets of mounting holes in the side arms, as well as those in the main frame are provided to allow expander height adjustment. The holes you choose to use, at this point, can be based on a rough determination of height requirements. Final positioning is best accomplished after machine has been assembled further.



7. Center base and arm assembly(36&32) directly under monorail in a location that provides access to a tire lift, allowing rimming and/or bead seal operations, as required, when mounting or de-mounting envelopes. Anchor base to floor using the four mounting holes and anchor bolts with at least 2 inches of contact in concrete (bolts not provided).

For best results from your new or existing 750 Envelope Expander, use an Olson 700 Mounted Lift/Seal Station. Mounted directly to the 750 Expander, the 700 Mounted Lift ensures longest envelope life and reduces operator injury. Consult your dealer or call *Badac Equipment Co.* for more information.

### Main Frame Assembly

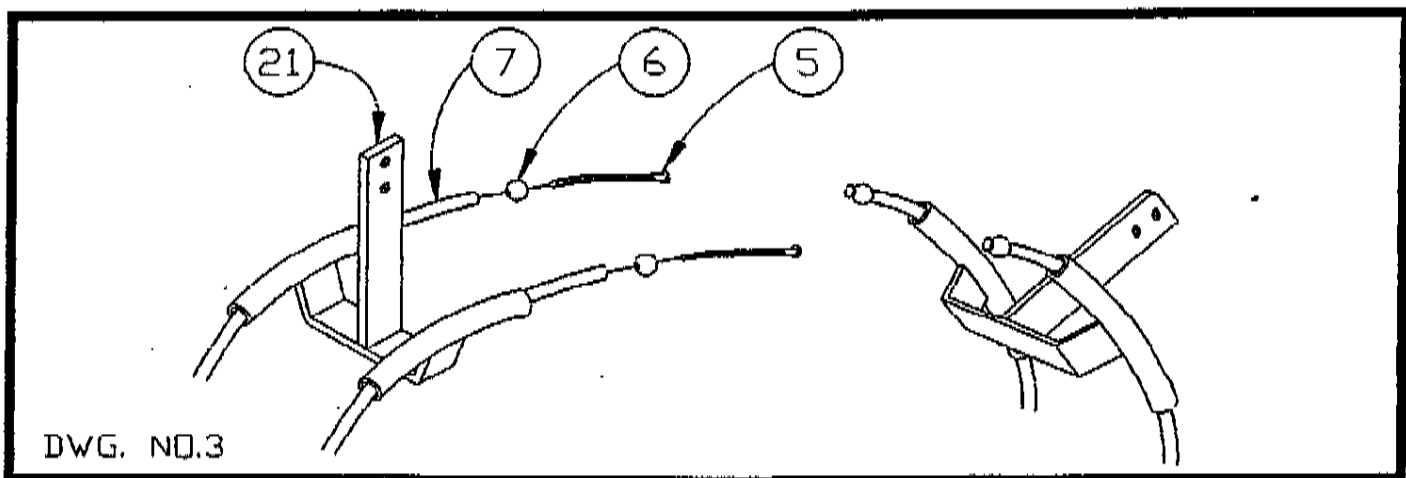
8. Mount main frame halves to base and arm assembly by attaching to slotted ends of pivot plates using four 3/8" x 3" bolts, ten 3/8" flat washers(52), and nylock nuts.

**Important: Do not attempt to mount main frame halves before anchoring base and arm assembly.**

Main frame should be positioned over long end of treadle shaft with FRL unit located as shown in Dwg. No. 2. Washers should be located as shown, one on outside of pivot plate slot, two on inside of main frame tube, and two on outside of arm. Nuts should only be hand tightened since further adjustment or re-positioning may be necessary later on.

9. Connect main frame halves together at bottom, using four 3/8" x 1 1/4" bolts and nylock nuts(20, see Dwg No.5).

10. Remove packing straps from finger assemblies(21) and rotate them toward center of machine. The four fingers with nuts(22, see Dwg. No.5) must be positioned with the nuts on the side opposite the FRL unit. Thread o-rings(7) through fingers starting at either 11:00 or 1:00 o'clock position. (Top center of expander must remain open to allow "J" hook to pass through.) Insert nail(5) and ball(6) assemblies in o-ring ends as far as possible. A drop of liquid soap on nail ends will make this step easier.(See Dwg. No.3)



11. Determine final positioning for expander main frame. At its center, its height should be approximately 3" above tire center to allow for envelope sag. Main frame angle should match hanging angle of tire. Height is adjusted using the various sets of mounting holes in the main frame, as mentioned earlier, as well as the multiple pivot plate mounting holes in the side arms. In special circumstances, additional height can be accomplished by reversing the pivot plates so that they angle upward. Angle is adjusted using the slotted holes in the pivot plates. Tighten all nuts.
12. (See Dwg. No.4) Attach air line(26) from elbow connector on FRL(23) to swivel elbow connector(49) on treadle valve(47). Attach air lines from lower horizontal cylinders on frame halves to swivel tee connectors(46) on treadle valve; lines from straight connectors(28) must be attached to one tee connector, and lines from elbow connectors(31) attached to the other tee connector. Secure attached air line to frame halves with extra ties provided, to prevent interference with machine operation. (See airline configuration pg. 13.)

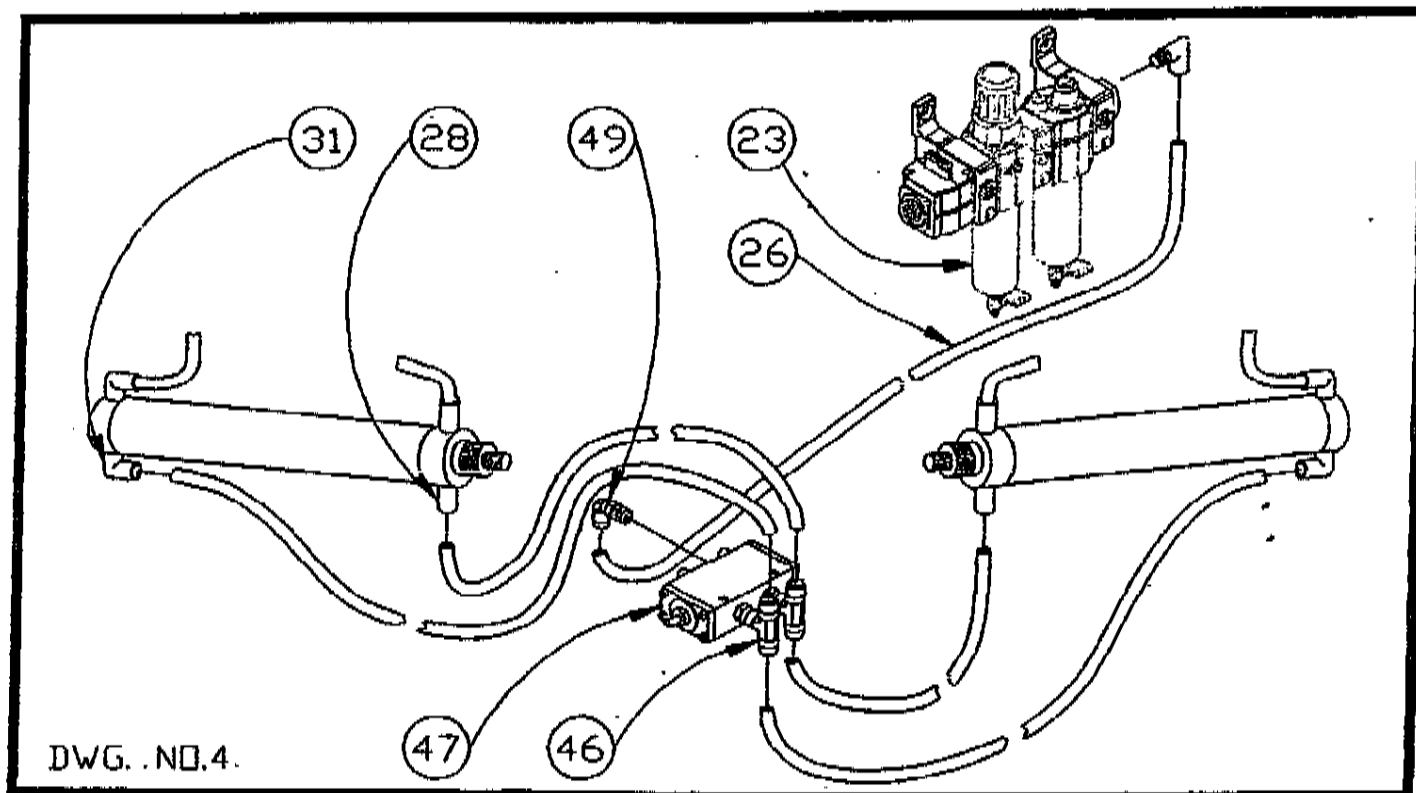
13. Grease all zerks, a total of 17. Do not neglect zerk on treadle mounting bracket bushing(41).

14. Fill FRL lubricator reservoir with a **light viscosity air tool oil** "See page 12"

**Fill to line on bowl; do not overfill.** Set valve regulator at 100 PSI; main system air pressure must be at least 120 PSI for machine to operate correctly.

Attach your system air line to FRL unit (connector not provided). Cycle machine 10 times to check for proper lubrication. One drip per cycle of machine operation is necessary to prevent damage. Drip rate is adjusted by metering screw in top of sight dome.

**Important:** Always disconnect unit from main air system before attempting to service FRL.



**Note:** After completing assembly and installation, if expander cylinders do not extend and retract properly, check that all air lines have been attached to the correct connectors.

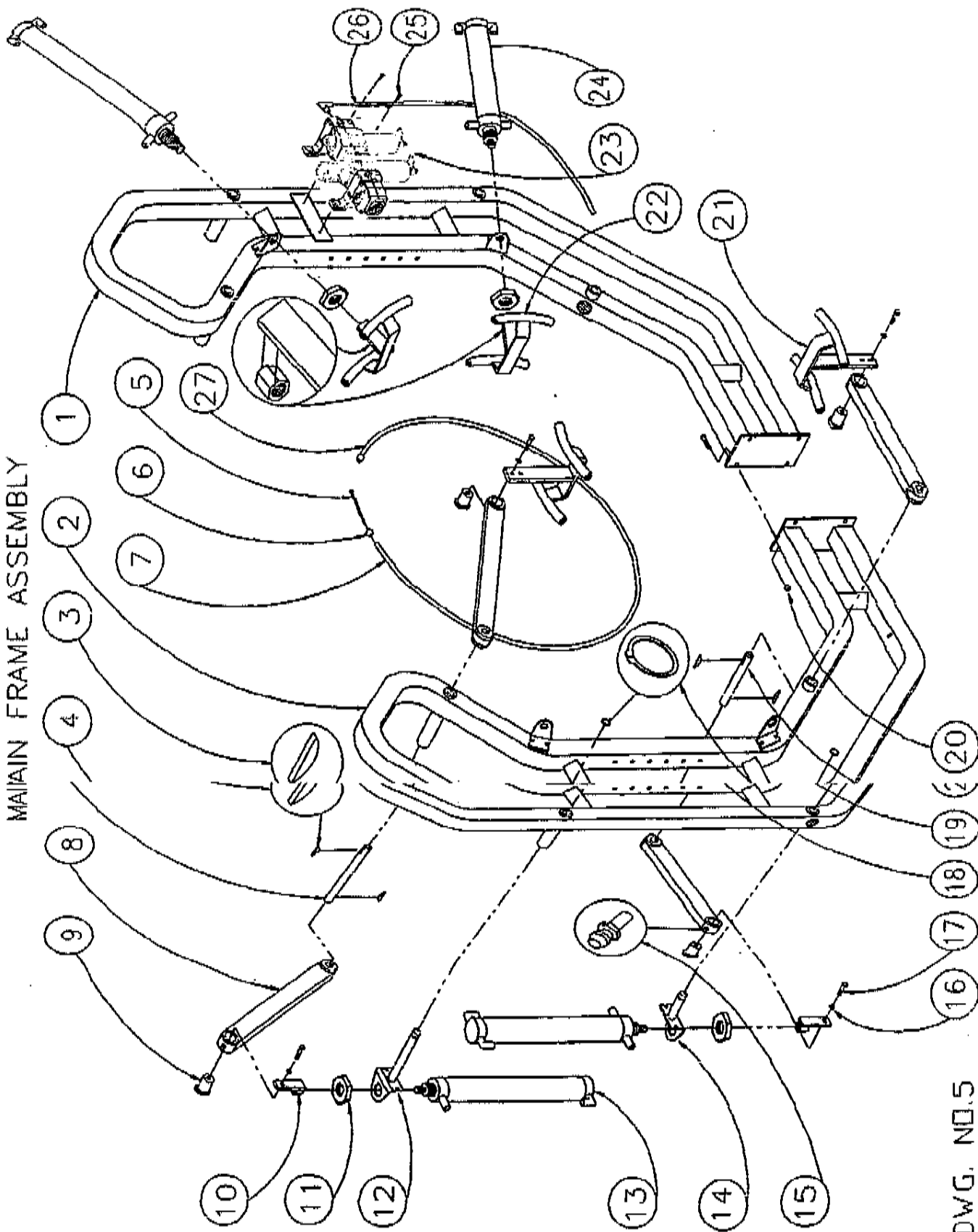
### OPERATION

**Warning:** This machine is powered by high pressure air. Operator must wear safety glasses to help prevent serious injury.

**Important:** Check oil level in FRL daily before operating expander.

1. Attach lip of envelope to expander fingers. Expand envelope by rotating treadle shaft.
2. Bring tire into envelope. Rotate treadle shaft in opposite direction to close envelope.
3. Detach envelope from fingers, and pass tire on through machine.

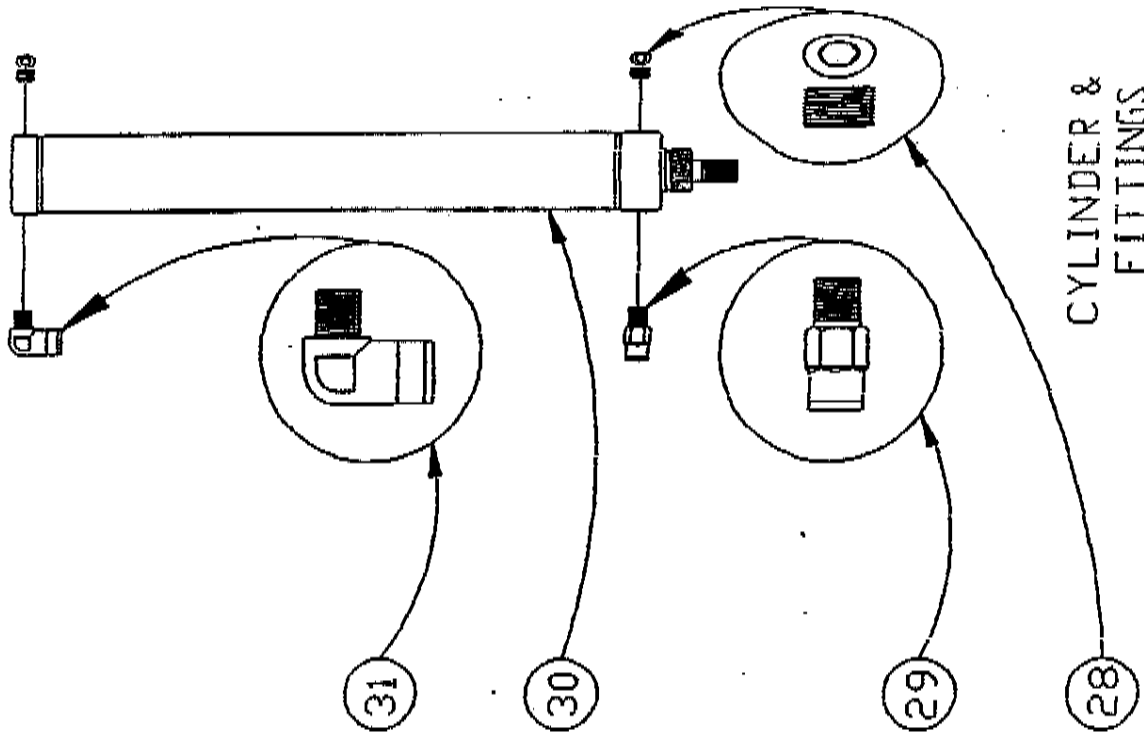
MAJAIN FRAME ASSEMBLY



DWG. NO.5

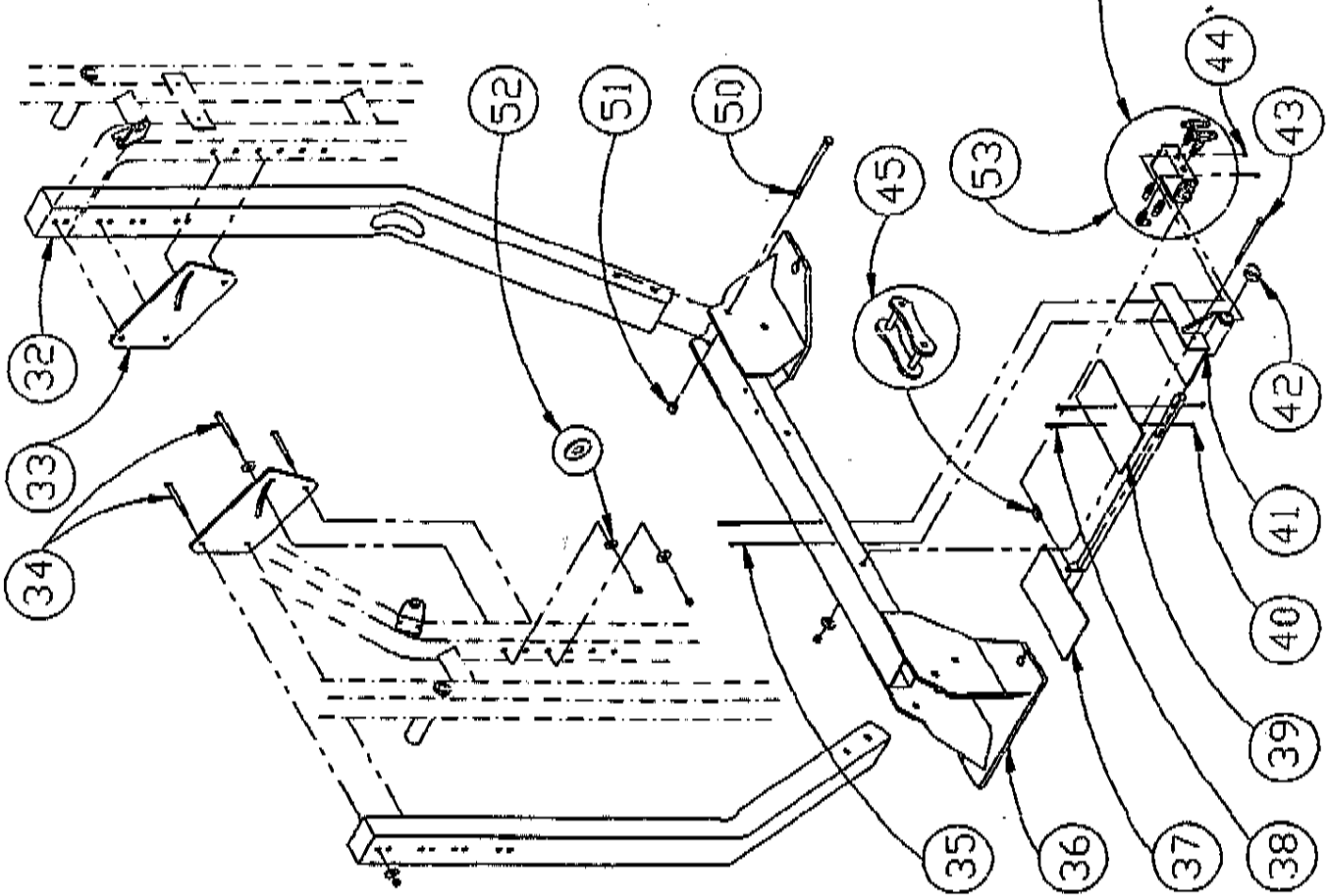
PARTS LIST

#	QTY.	PART #	DESCRIPTION
1	1	6027	MAIN FRAME, RIGHT SIDE
2	1	6029	MAIN FRAME, LEFT SIDE
3	8	4019	HALF MOON KEY
4	2	5021	SHAFT, LONG
5	4	3011	SHANK NAIL, BENT
6	4	3007	NYLON BALL, DRILLED
7	2	5129	O-RING
8	8	6004	ARM
9	8	5004	BUSHING, ALUM.
10	4	6005	LINK, VERTICAL
11	8	4024	NUT, LARGE CYLINDER
12	2	6032	MOUNT, VERT. CYL., LONG
13	2	6020	CYLINDER, W/PLUGS
14	2	6009	MOUNT, VERT. CYL., SHORT
15	17	4005	GREASE ZERK, 3/16 DRIVE TYPE
16	8	4114	WASHER, 3/8 LOCK
17	12	4112	BOLT, 3/8 x 1 1/4, USS
18	4	4031	SNAP RING, 3/4
19	2	5020	SHAFT, SHORT
20	13	4111	NYLOCK NUT, 3/8-16
21	4	6084	DOUBLE FINGER, LONG
22	4	6063	DOUBLE FINGER, SHORT
23	1	4036	NORGREN FRL
24	8	6018	CYLINDER, W/FITTINGS
25	2	4101	SCREW, 1/4 X 3/4
26	55'	4048	AIR LINE, 3/8
27	2	6017	O-RING ASSEMBLY, 5 1/2"
28	4	4044	CYLINDER PLUG.
29	14	4010	STRAIGHT CONNECTOR, RIGID
30	8	4001	PNEUMATIC CYLINDER
31	15	4012	90° CONNECTOR, RIGID

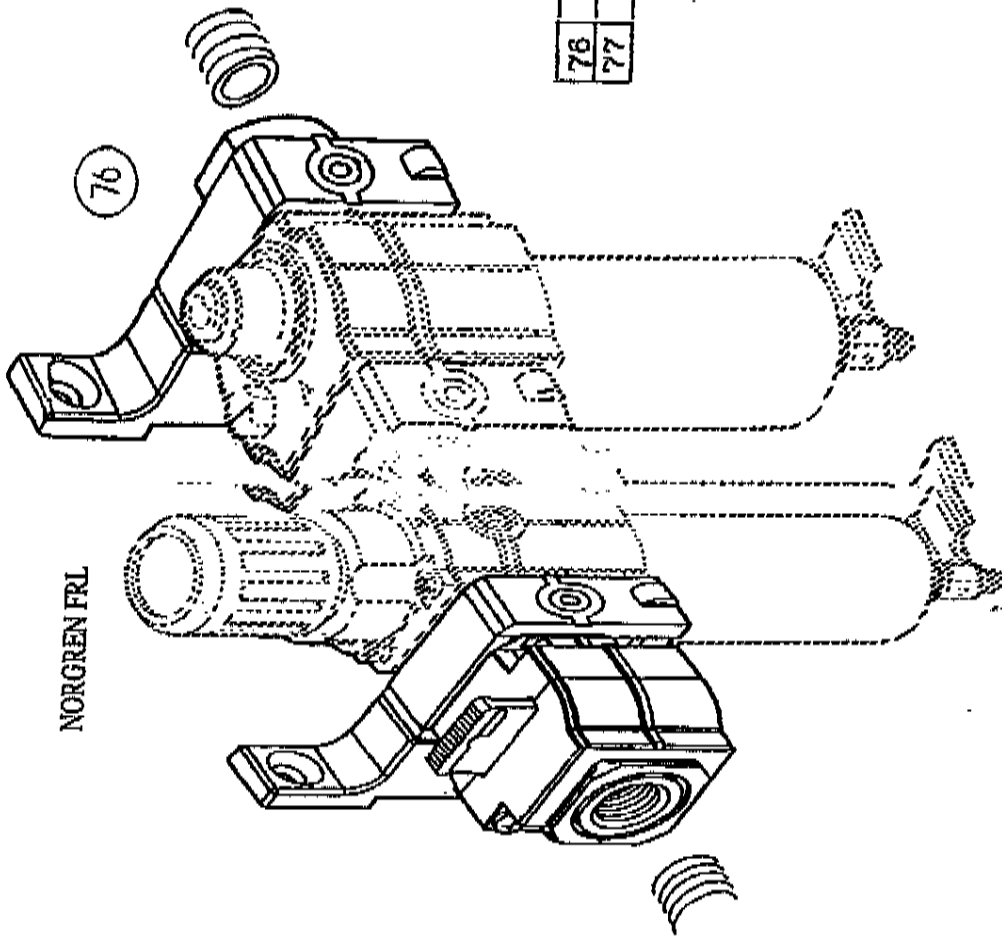




#	QTY.	PART#	DESCRIPTION
32	2	6094	SIDE ARM ASSEMBLY
33	2	6030	PIVOT PLATE, PLATED
34	8	4110	BOLT, 3/8 X 3
35	2	4079	BOLT, 1/4 X 4
36	1	6093	BASE ASSEMBLY
37	1	6069	TREADLE SHAFT ASSEMBLY
38	2	4084	CARR. BOLT, 5/16 X 1 1/4
39	1	6067	TREADLE PLATE
40	2	4085	NYLOCK NUT, 5/16-16
41	1	6060	MNTNG BRACKET W/BUSHING
42	2	4138	SET COLLAR
43	1	4131	BOLT, 3/8 X 4
44	1	4080	NUT, 1/4 - 16
45	1	4144	MASTER LINK, #2040
46	2	4013	SWIVEL TEE, 1/4"
47	1	3012	TREADLE VALVE
48	2	4007	SILENCER, 1/4"
49	1	4014	90° CONNECTOR, 1/4" SWIVEL
50	4	4077	BOLT, 1/2 X 4 1/2
51	4	4078	NYLOCK NUT, 1/2"
52	11	4113	WASHER, 3/8 FLAT
53	1	6068	TREADLE VALVE ASSEMBLY



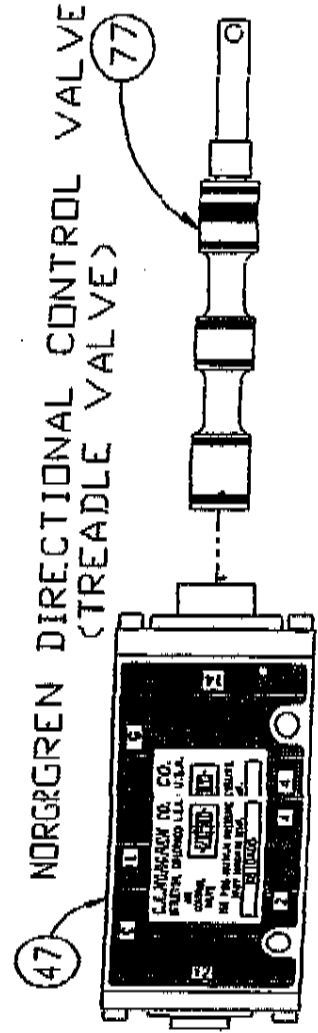
DWG. NO.6



PARTS LIST (CONT.)

76	1	4036	NORGREN FRL
77	1	3012-1	SPOOL ASSY, TREADLE VALVE

\* Not available individually, refer to list of service kits.



DWG. NO.7

**750 EXPANDER Service Kits**

<b>Kit No. - Name:</b>	<b>Parts Included:</b>
#9005 - Super Short Single Fingers (for oversize tires)	4 - #6110 (Fingers w/Holes) 4 - #6109 (Fingers w/Nut)
#9015 - Cylinders & Fittings	55' - #4048 (3/8" Air Line) 6 - #6018 (Cylinder w/Fittings) 2 - #6020 (Cylinder w/Plugs) 20 - #8004 (Plastic Tics)
#9030 - Double Fingers (replaces single fingers & allows multi-direction operation)	4 - #6063 (Short Fingers) 4 - #6064 (Long Fingers)
#9020 - Treadle Valve & Shaft (replaces hand lever-style operation)	1 - #6068 (Treadle Valve Assy.) 1 - #6069 (Treadle Shaft Assy.) 1 - #6067 (Treadle Plate) 1 - #4144 (Master Link)
#9022 - 750 Base (replaces pivot style Model 700)	1 - #6093 (Base Assy.) 2 - #6094 (Side Arms)
#9026 - Cylinders	8 - #4001 (Cylinders w/o Fittings)
#9027 - FRL Kit	1 - #4036 (Norgren FRL) 1 - #4036-1 (Gauge) 1 - #6119 (FRL Mounting Bracket) 2 - #4100 (Self-Tapping Screws)
#9031 - Finger Extension Kit	8 - #6111 (Finger Extensions) 1 - #9032 (Upper Finger Stop Kit) 8 - #6116 (Cylinder Stop Assy.)
#9032 - Upper Finger Kit	2 - #6115 (Arm Brackets) 2 - #6118 (Finger Brackets) 2 - #6118 (Finger Brackets) 2 - #5197 (Barrel Stops) 2 - #4160 (Springs)

**ORDERING INFORMATION**

This manual is based on the latest information available at time of printing. Any questions concerning assembly, operation, or replacement parts should be directed to Badac Equipment Co. at the address and phone number below. When doing so, please have the following information readily available:

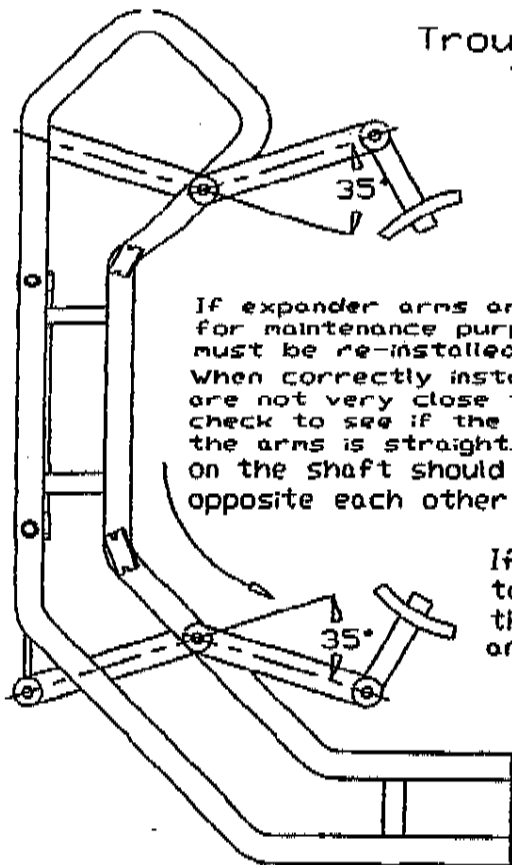
- Machine Serial Number & Model Number
- Part Number, Name, & Quantity Required
- Shipping Method

**BADAC EQUIPMENT**

10715 W. Jerseyville Rd. Blanchard, MI 49310

Ph. (989)-561-5222 Fax (989)-561-5078

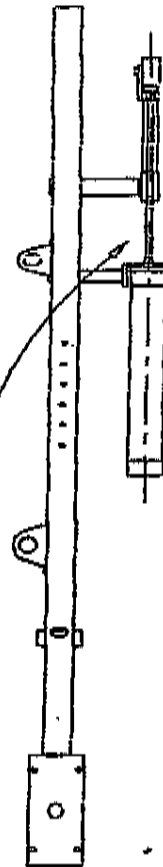
**WARRANTY:** This equipment is guaranteed against defects in parts, material, or workmanship for a period of one year after shipment. Liability is limited to replacement of defective components. This warranty specifically excludes parts #5129 O-Ring and #6017 O-Ring Assembly, as they are subject to continuous wear during the operation.



## Troubleshooting Guide 750 Expander

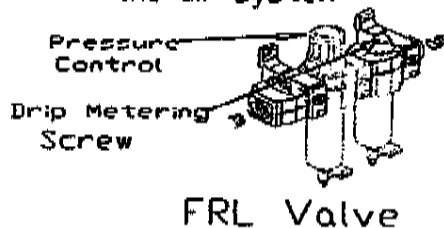
If expander arms are removed for maintenance purposes, they must be re-installed in this position. When correctly installed, if the arms are not very close to this position, check to see if the shaft connecting the arms is straight. The key seats on the shaft should be directly opposite each other at 180°.

If cylinder rods will not extend to proper position, check to see that rods and arms are aligned and are not binding up.

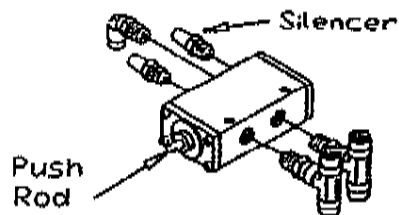


## Troubleshooting Guide 750 Expander Air System

If your 750 Expander runs slowly, check for problems in the air system:



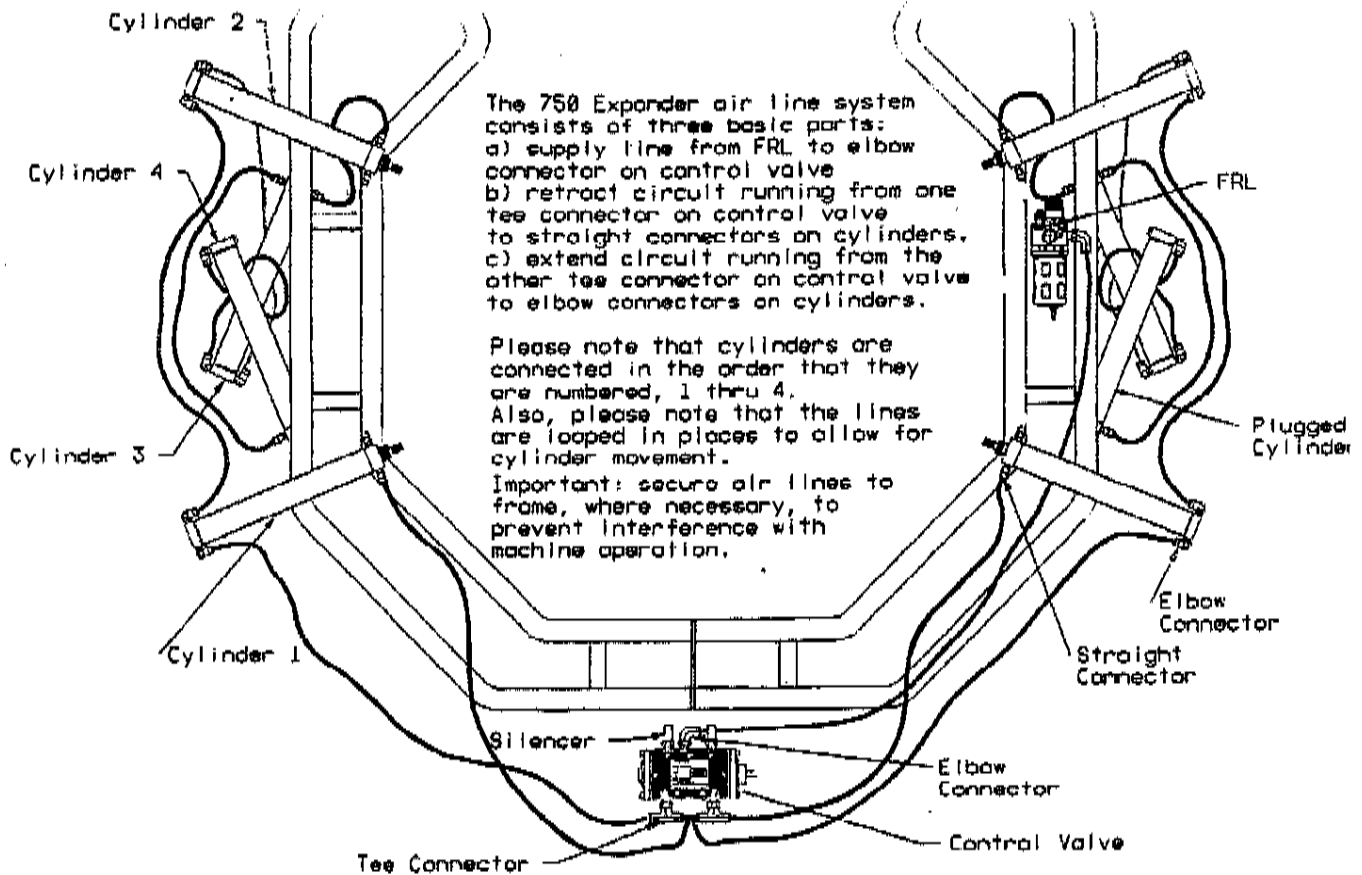
FRL Valve



Directional Control Valve

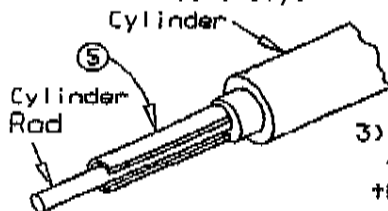
- 1) Check for proper system pressure. The FRL should be set at 100-110 PSI. Your factory system air should be at least 120 PSI. Also check for proper system lubrication -- at least one drip per machine cycle. Drip rate is adjusted with the oil metering screw on the FRL.
- 2) Check the silencers on the directional control valve. If they are dirty enough to restrict air flow, they should be replaced.
- 3) Check the spool assembly in the directional control valve. To do this, make sure the push rod is pushed into the valve as far as it will go, and listen for air exhausting through the silencers. If the valve is working properly, there should be no air escaping.

Air Line Configuration  
750 Expander



ASSEMBLY and INSTALLATION

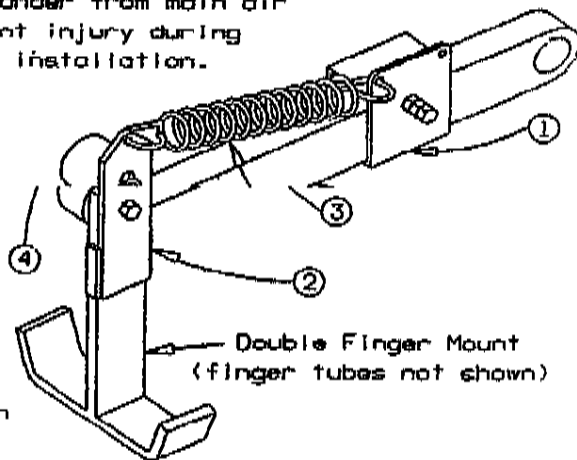
1) Check parts for damage. If found, notify freight company immediately.



2) Cycle machine to fingers closed position (cylinder rods extended). Snap Cylinder Stops (5) over rods. Cables are provided to connect stops to expander -- using screws or, in pairs, using nylon ties provided.

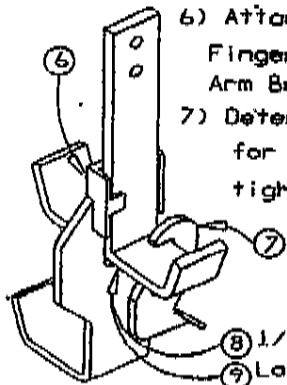
3) Disconnect expander from main air system to prevent injury during the remainder of installation.

4) Remove Finger Mounts from the two upper Expander arms. Slide Arm Brackets (1) over arms. Position of Barrel Stop (4) may be adjusted to change finger mount angle.



6) Attach Springs (3) to Finger Brackets (2) and Arm Brackets (1).

7) Determine correct position for Arm Brackets (1) and tighten bolts.



8) Mount Finger Ext./Thumb Latch Assys. (6&7) on finger mounts, as shown. Thumb Latch pivots to simplify this procedure.

1/2" Spring and Shoulder Bolt located between Thumb Latch(7) and Finger Extension(6), not visible in this view.