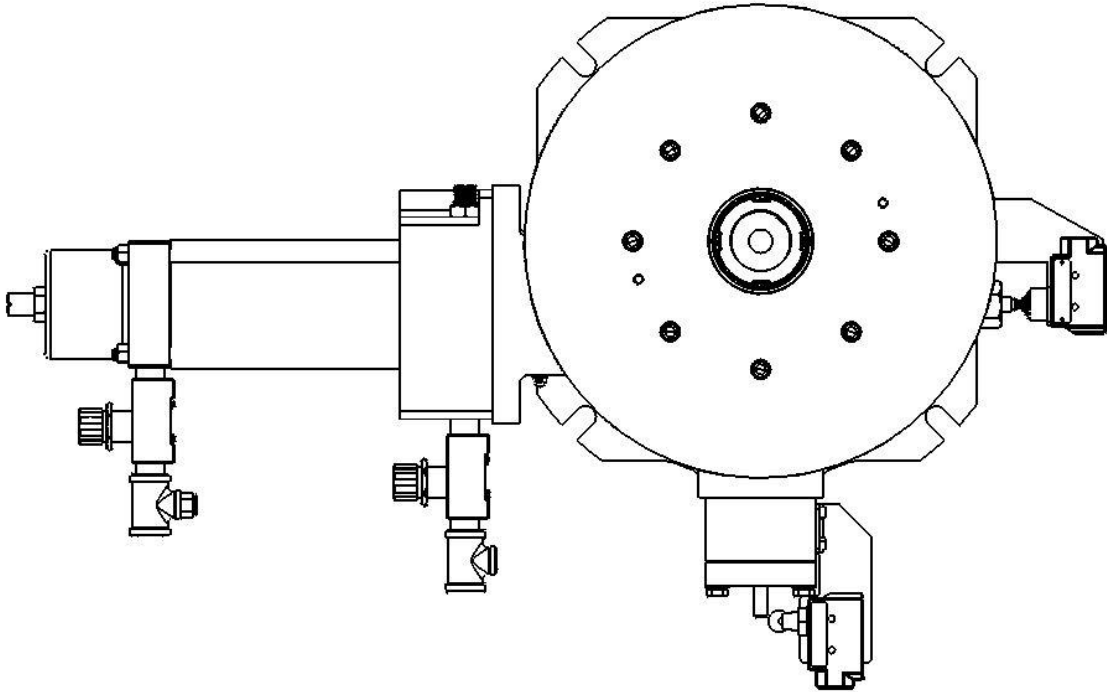


MODEL 1581 INDEX TABLE

COUNTER CLOCKWISE ROTATION



OPERATION AND MAINTENANCE MANUAL

***This manual contains important information on the set-up and operation of this table. Be sure all personnel have the information available to them before using equipment.



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Serial No. _____

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WARRANTY

We warrant to the original user that all products of our manufacture will be free from defects in material and workmanship and will possess the characteristics represented in writing by us. Claim for breach of the above warranty must be made within a period of one (1) year from the date of delivery to the user. Upon satisfactory proof of claim, we will make any necessary repairs or corrections, or, at our option, replace defective parts at the factory, transportation charges prepaid. Charges for correcting defects will not be allowed, nor can we accept goods returned for credit unless we are notified in writing and the return or correction is authorized by us in writing. **THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION OF THE PRODUCT.** This paragraph sets forth the extent of our liability for breach of any warranty in connection with the sale or use of our products. It is understood we will not be liable for consequential damage such as loss of profit, delays, or expense whether based on tort or contract.

HOOK-UP

The Model 1581 index table is operated by compressed air moving the index and locking cylinders. Air-Hydraulics, Inc. recommends that the air line supplying the table be at least 1/2" pipe or 1/2" I.D. hose. If the air supply is smaller than recommended, the action of the table may be altered and will not perform to your satisfaction. Care should be taken that the main supply pipe to the table is not hooked to a line that is supplying other functions of the machine because the table may be "starved" for air when it is trying to index.

The air supply to the unit must be filtered and lubricated. The use of a regulator is recommended in order to maintain a constant air pressure to the table. If the air pressure is allowed to fluctuate to a great degree, the table will not be able to perform the same each time it indexes.

A 1/2" NPT two-position, four way valve controls the action of the table. The use of a single solenoid or pilot, spring return valve is better suited to this application than double solenoids. The use of a 3 position valve may cause the locking and index cylinders to shift when the valve is in the center (neutral) position.

The use of a filter-regulator-lubricator combination is recommended. If water is not filtered out of the air, it will collect inside the cylinders of the table and the cylinders will wear out prematurely. Lubricated air is recommended in order to extend the life of the internal seals of the cylinders. The air pressure must be maintained between 80 – 110 P.S.I. If the air pressure is allowed to drop below 80 P.S.I., the operation of the table will become erratic and the load moving capacity will drop. Air pressure in excess of 110 P.S.I. will exceed the safe operating point of the cylinders and gaskets.

If a subplate is to be mounted to the dial plate of the index table, follow the steps outlined in the “MOUNTING SUBPLATE” section of this manual. Air-Hydraulics, Inc. assumes no responsibility for problems arising out of improper mounting of a subplate not done at the factory.

Make sure the table is mounted securely before indexing. The table can shift when the index cycle is occurring if it is left loose on the mounting surface.

STANDARD OPERATING PROCEDURES FOR MOUNTING TOOLING TO A.H.I. INDEX TABLE

1. Remove subplate
2. Mount table to the machine where the machining (drilling, tapping, reaming, etc.) will be performed. Mount the fixture or tooling
3. Connect the proper valving to the table, according to the diagram and the instructions in the brochure provided.
4. Index the table to insure proper operation.
5. Indicate the inner bearing race of the table top.
6. Install the subplate with bolts and dowel that are provided.
7. Make sure that the table is in the locked position.
8. Perform the work required to mount the fixture or tooling at the position required.
9. Index the table to the next position and repeat step #8.
10. Repeat steps #8 and #9 until all mounting holes are complete at each index station.
11. Remove the table from the machine and install the index table on the machine where the table will be used.
12. Indicate or position the table (with the valving installed and the table in the locked position) on the desired location for your machining operation.

NOTE: Air-Hydraulics, Inc. recommends that the fixtures and index table be doweled into position to insure repeatability.

SEQUENCE OF OPERATION

COUNTER CLOCKWISE

The sequence of operation is as follows:

1. The directional control valve is shifted by the pilot or solenoid signal. This causes the locking cylinder to retract unlocking the table.
NOTE: The signal to the solenoid or pilot must be maintained until the dial plate has completed its movement.
2. With the locking cylinder clear of the index ring, the index cylinder extends moving the index arm which in turn, turns the dial plate.
3. After the index cylinder is fully extended, the directional control valve is shifted back. This forces the locking cylinder forward and locks the table into position. At the same time that the locking cylinder locks the table into place, it pushes the index pawl out of the index ring.
4. With the index pawl clear of the index ring, the index cylinder retracts until it hits the adjustable stop rod. When the adjustable stop rod is adjusted properly, the index pawl falls into the next slot on the index ring and the cycle is complete.
5. The index table is now ready for the next index cycle.

NOTE: If using a manual operation to shift the directional control valve that controls the table, make sure to hold the valve fully shifted until the table stops moving. There is a built-in cushion for the index cylinder which slows the movement of the table just before the cylinder is fully extended. If the valve is released too soon, the locking cylinder may not be able to engage the index ring. If the table is not locked, the dial plate will return to its original position.

ADJUSTING THE TABLE

Air-Hydraulics, Inc. tables are built, tested and adjusted at the factory prior to shipment. After receipt of the table, you may find minor adjustments are required to meet your operational requirements. The two basic adjustments you may need are the speed of the table top during the index cycle and the cushion at the end of the index.

The first adjustment should be in the general speed of the table during the index. The speed control on the index cylinder is turned clockwise to slow the speed of the table while moving. Turning the speed control in a counter clockwise direction increases the speed of the

table top. Care should be taken not to set the speed of the table so high the cushion will not be able to slow the cylinder.

The second adjustment to the table should be the cushion. Cushioning occurs just prior to stopping at the end of an index cycle. Turning the cushion adjustment screw in a clockwise direction increases the amount of cushion, while turning the adjustment screw in a counter clockwise direction decreases the amount of cushion. Do not run the index table with the cushion not functioning. The index table will be damaged if there is no cushioning of the table top movement.

There should be no reason to adjust the stop rod when you receive the table. The stop rod is used to adjust the point where the index pawl drops into a slot and is ready to index the table top. If the stop rod is inadvertently moved, use the following procedure to readjust the stop rod. Remove all air connections from the index table. Loosen the jam nut on the stop rod and turn the stop rod out until there is approximately 1 ½” of threads showing. Make sure the table is in position to be locked and then apply an air signal to the back of the locking cylinder. With the signal maintained to the locking cylinder, pressurize the front of the index cylinder forcing the piston rod backward. Remove the air signal from the index cylinder and slowly turn the stop rod in a clockwise direction until the pawl drops into a slot in the ring. If the table is locked the stop rod will not be able to be turned when the pawl drops into the slot. Turn the stop rod in a counter clockwise direction ¼ to ½ turn and tighten the jam nut. The index cylinder stroke should be correct allowing the pawl to drop into a slot at every cycle.

MAINTENANCE OF THE 1581 COUNTER CLOCKWISE TABLE

Always keep the air line filter clean. If the air filter does not have an automatic dump valve, open the manual drain on the bottom and allow all water to be emptied on a daily basis. If the air supply is very dirty, check the replaceable cartridge inside the filter on an annual basis and change if necessary. Never clean the filter with any product that will weaken the polycarbonate bowl. Always use soap and water.

Change all seals and gaskets on an annual basis in order to extend the life of the table. When changing the seals and gaskets, it is recommended that the index pawl and pawl spring be changed also. After repeated index cycles, the effectiveness of the pawl spring is lessened.

A regular lubrication program is recommended to increase the table life and reliability. Grease zerk fittings are supplied on the table and should be greased on a weekly basis or as required. Take care not to lubricate the table too much because the excess grease usually collects inside of the table and will cause the internal parts of the table to move slower due to the restriction that grease causes.

Check and fill the air lubricator on a weekly basis. If the oil in the lubricator turns milky, drain the oil and clean all internal parts. Oil that is not clear may be caused by moisture mixing with the oil in the bowl. Always fill the lubricator with a clean lightweight oil such as spindle oil. Do not use any oil in the plastic bowl that is not compatible with polycarbonates. Never clean the lubricator with any product that will weaken the polycarbonate bowl. Always use soap and water.

*If any problems are encountered with the table, feel free to call the factory for assistance in solving your problems. If a comprehensive maintenance program suited for your application is desired, the factory will be able to set up such program.

**Air-Hydraulics, Inc. recommends that at least one maintenance kit be kept on the shelf to repair your table if needed. All the seals and gaskets are in the kit.

MODEL 1581 COUNTER CLOCK INDEX TABLE

PARTS LIST

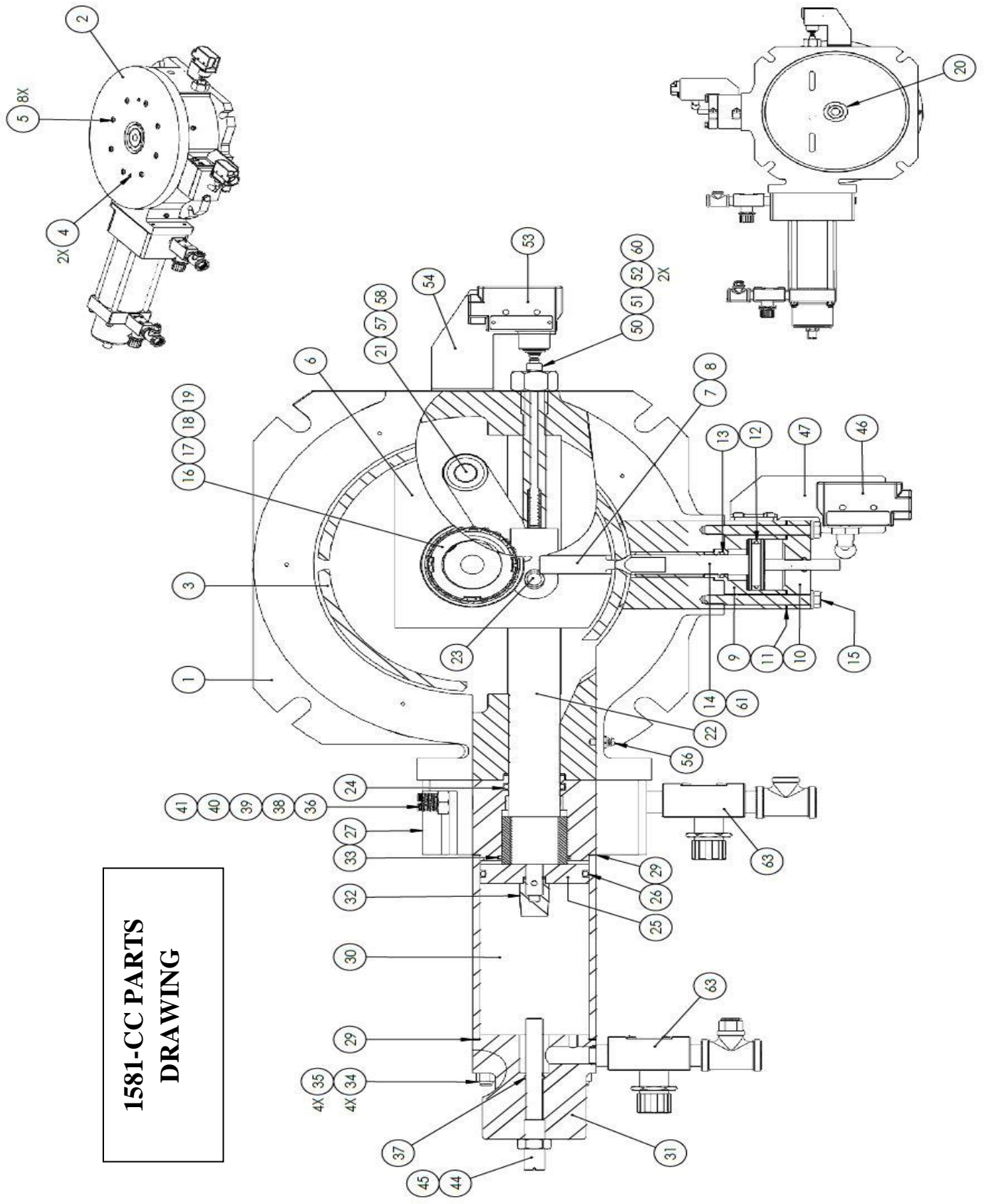
NOTE: When ordering replacement parts for this table specify **Model 1581 CC** and supply the serial number. Air-Hydraulics, Inc. cannot be held responsible for parts shipped in error if the above information is not supplied.

PART #		DESCRIPTION	QTY
01		Base	1
02		Table Top	1
03		Station Ring	1
04		Station Ring Locator Pin	2
05		Station Ring Mounting Screws	8
06 C		Index Arm Assy.	1
07		Index Pawl	1
08		Pawl Return Spring	1
09		Locking Cylinder Body	1
10		Locking Cylinder End Plate	1
11	*	Locking Cylinder Gasket	1
12	*	Locking Cylinder Piston O-Ring	1
13		Locking Piston Rod O-Ring	1
14		Locking Piston & Piston Rod Assy.	1
15		Locking Cylinder Mounting Screw	4
16		Main Bearing (cup & cone)	1
17		Main Bearing Lock Washer	1
18		Main Bearing Lock Nut	1
19		Spindle	1
20		Spindle Retaining Nut	1
21		Connection Link Assy.	1
22 C		Index Piston Rod	1
23		Piston Rod Pin	1
24	*	Index Cylinder Rod Seal	1
25		Index Cylinder Piston	1
26	*	Index Cylinder Piston O-Ring	1
27 C		Index Cylinder Front Cap	1
28		Front Cap Mounting Screws	4
29	*	Index Cylinder Body Gasket	2
30 C		Index Cylinder Body	1
31 C		Index Cylinder Back Head	1
32		Cushion Rod	1
33 C	*	Cushion Rod O-Ring	1
34 C		Index Cylinder Tie Rod	4
35		Index Cylinder Nut	4
36		Cushion Adjustment Valve	1

37	*	Stop Rod O-Ring	1
38	*	Cushion Adjustment Valve O-Ring	1
39		Check Valve Plug	1
40		Check Valve Spring	1
41		Check Valve Ball	1
42 C		3/8 Speed Control Valve	1
43		1/2 Speed Control Valve	1
44 C		Stop Bolt	1
45		Stop Rod Nut	1
46		Safety Limit Switch	1
47		Limit Switch Bracket	1
48 C		Over Ride Stop Bolt	1
49		Over Ride Stop Nut	1
50 C		Limit Switch Actuator Rod	1
51		Actuator Spring	1
52		Actuator Snap Ring	1
53		Safety Limit Switch	1
54 C		Limit Switch Bracket	1
55		Limit Switch Bracket Screw	2
56		(Lube) Grease Fittings	6
57		Arm Pin Needle Bearing (see item #21)	1
58		Rod Pin Needle Bearing (see item #21)	1
59		Air Bearing (optional)	1
60	*	Actuating Rod O-Ring	1
61		Wear Plate Woodruff	1
62		Plug	1
63		Flow Control (optional)	

*** All replacement seals, gaskets and O-Rings are sold in the complete Seal Kit

**1581-CC PARTS
DRAWING**



DIAGRAM

MODEL 1581 INDEX TABLE CC ROTATION

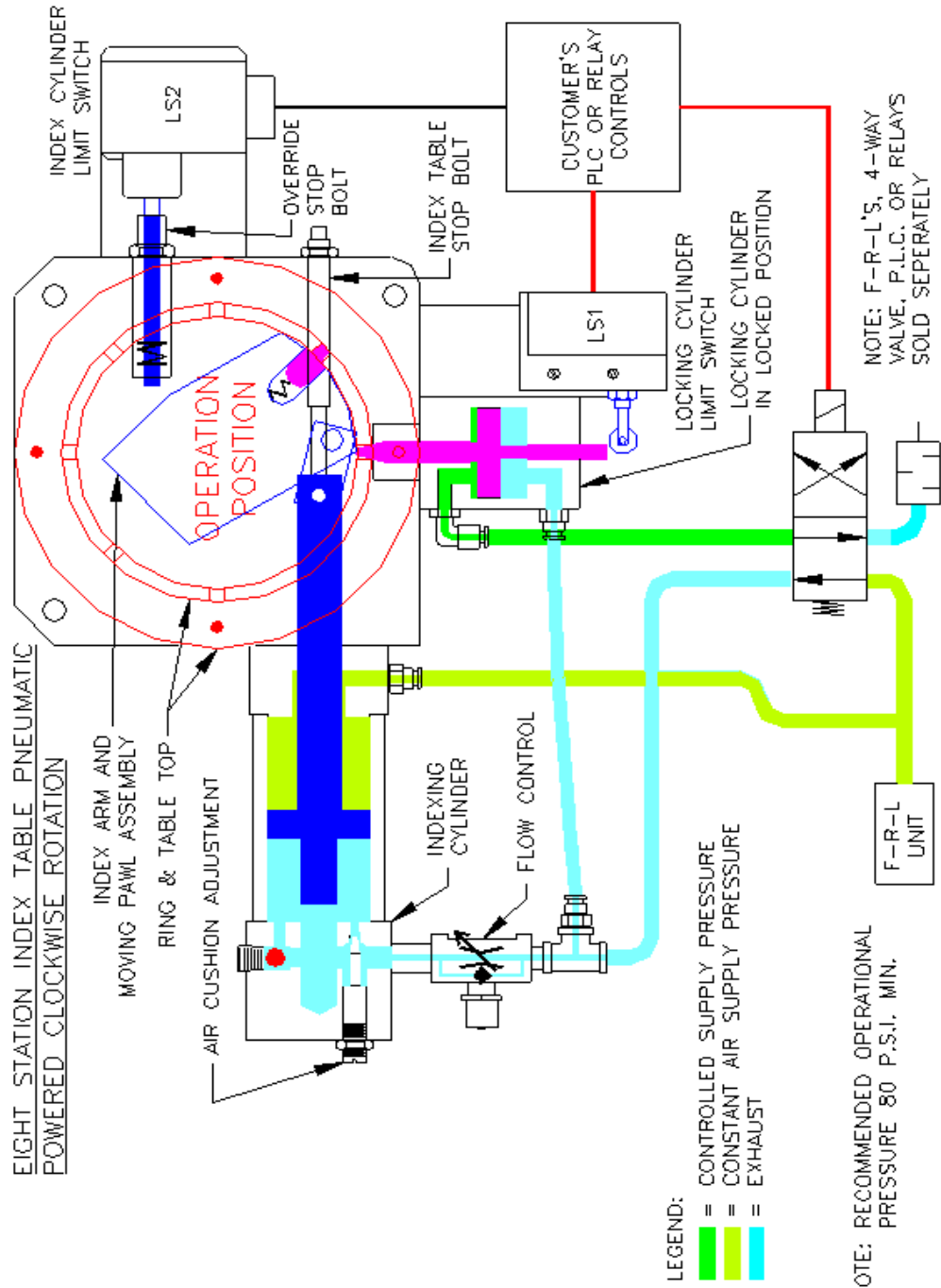
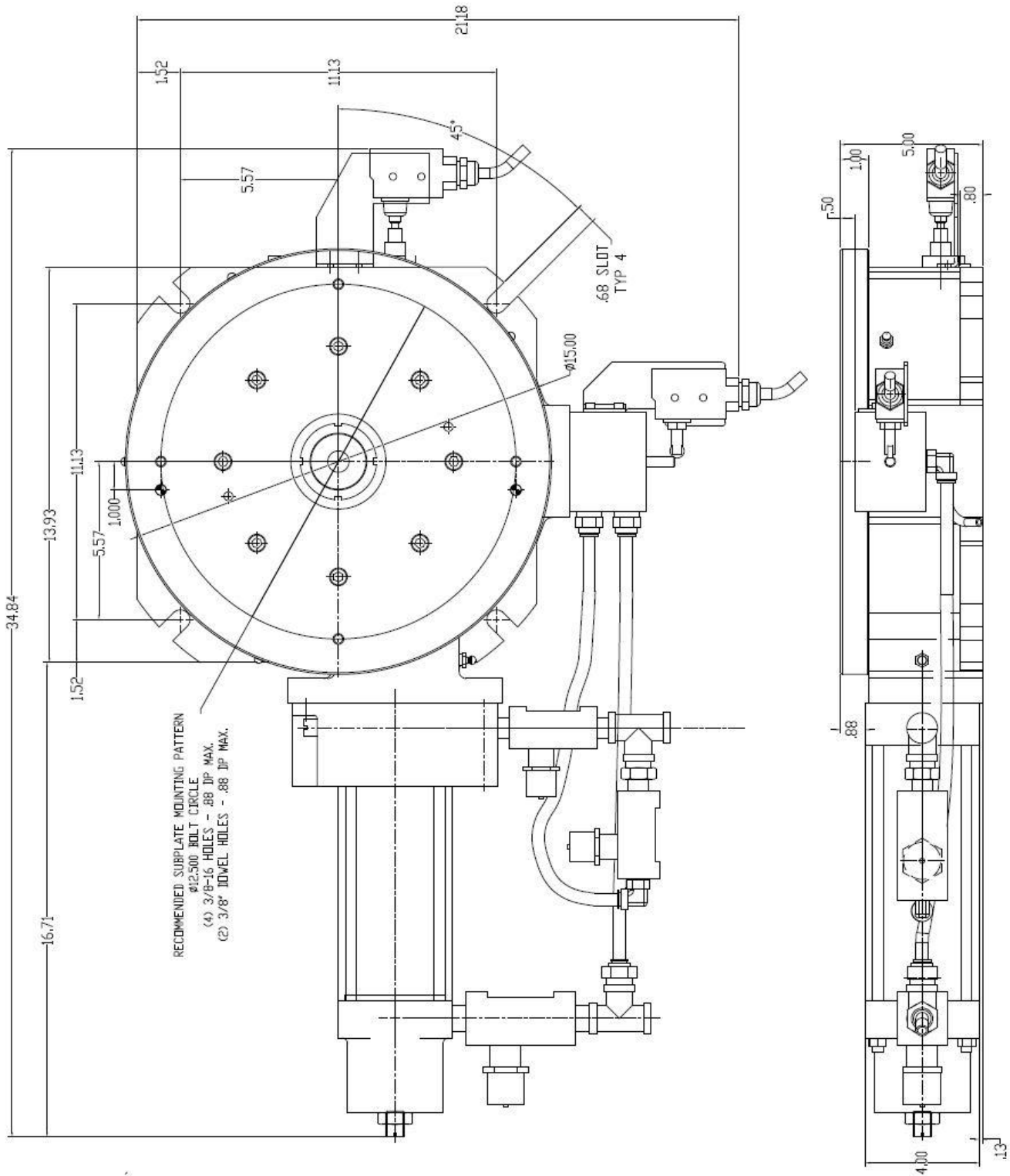


TABLE SHOWN LOCKED FOR MACHINING OPERATIONS

NOTE: THE FULL INDEX TABLE MOTION CAN BE FOUND AT:
<http://www.airhydraulics.com/Products/IndexTables/animation.htm>

Model 1581 Dimensions



Torque Specifications		
Model	Cylinder Mounting Bolt (ea)	Cylinder Tie Rod / Hex Nut (ea)
1581-xx	19 ft. lb.	31 ft. lb.

Model 1581 Dimensions Continued

Dial Plate Diameter	15"
Dial Plate Material	Free Machining Steel
Recommended Max. Tooling Wt. within Table O.D.	
Without LFLS Wear Bearing	300 lbs.
With LFLS Wear Bearing	600 lbs.
Max. Unsupported Sub-Plate O.D.	30"
Standard Index Range	4 to 30
Spindle Through Hole I.D.	3/4"
Accuracy (at table diameter)	±.0015"
Cushioned Index Stroke and Speed Control	Standard
Torque or Power Stroke	750 lbs., 5" radius
Max. Cylinder Stroke	5.612"
Max. Side Pressure (Radial lbs. @ 500 r.p.m.)	1,680 lbs.
Thrust (@ 500 r.p.m.)	1,350 lbs.
Max. Side Pressure in Stop Position	6,720 lbs.
Air Requirements	
Air supply must be filtered and lubricated	
Supply Pipe size (min.)	1/2" NPT
Min. Air Pressure	80 PSIG
Max. Air Pressure	110 PSIG
Air Consumption @ 100 PSIG	108 in ³ /cycle
Valve required	2 pos 4 way
Shipping Weight	200

Piping Schematic

