

# KURT

# Power Drawbars

## Automatic

### Assembly & Operation Guide

9445 East River Road NW  
Minneapolis, MN 55433

Tel: 763.574.8309 (877.226.7823)

Fax: 763.574.8313 (877.226.7828)

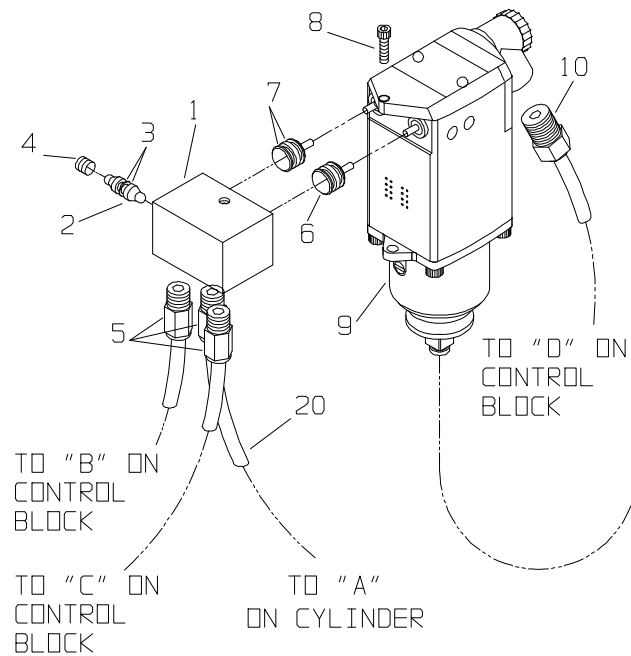
[www.kurtworkholding.com](http://www.kurtworkholding.com)



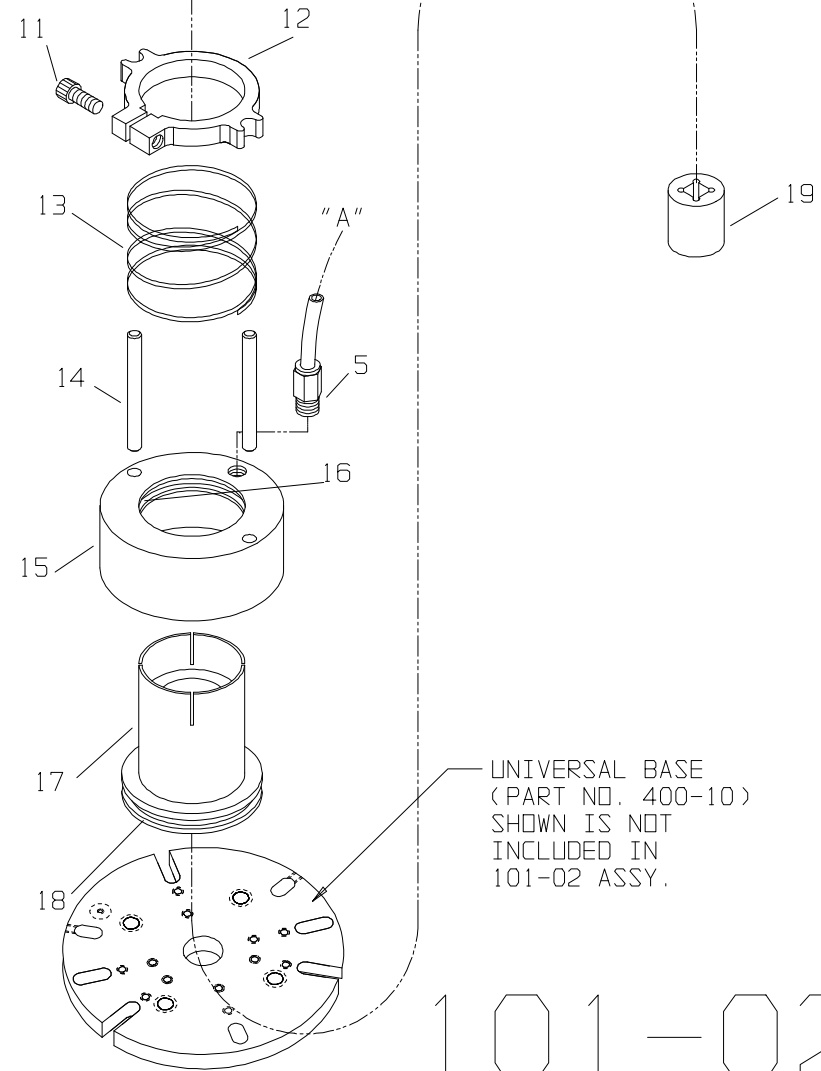


NO.	PART NO.	DESCRIPTION	QTY
1	202-02	UPPER BLOCK	1
2	201-00	SHUTTLE PISTON	1
*3	225-02	O-RING, #008, 70 BN, MOLY	2
4	227-02	PLUG, 1/8 NPT, BRASS	1
5	226-01	FITTING, 1/8 NPT (PUSH IN)	4
6	224-02	SLAVE PISTON	2
*7	325-01	O-RING, #010, 50 BN, MOLY.	4
8	00-0259	SHCS. #10-32 X 3/4	1
9	212-1000	IMPACT WRENCH	1
10	226-02	FITTING, 1/4 NPT (PUSH IN)	1
11	00-1293	SHCS. 1/4-20 X 1.00 LONG.	1
12	204-01	CLAMP	1
13	210-00	PISTON SPRING	1
14	04-0049	GUIDE ROD	2
15	205-01	CYLINDER	1
*16	225-03	O-RING, -225, 70 BN.	1
17	203-01	PISTON	1
*18	225-04	O-RING, -228, 70 BN.	1
19	208-00	SOCKET	1
20	219-0075	AIR TUBE, 7.5 INCHES LG.	1

\* NOT SHOWN



NOTE: MOTOR APPLYS 38 FT LBS OF TORQUE ON DRAWBAR.  
TEST MADE ON BRIDGEPORT WITH R-8 COLLET.



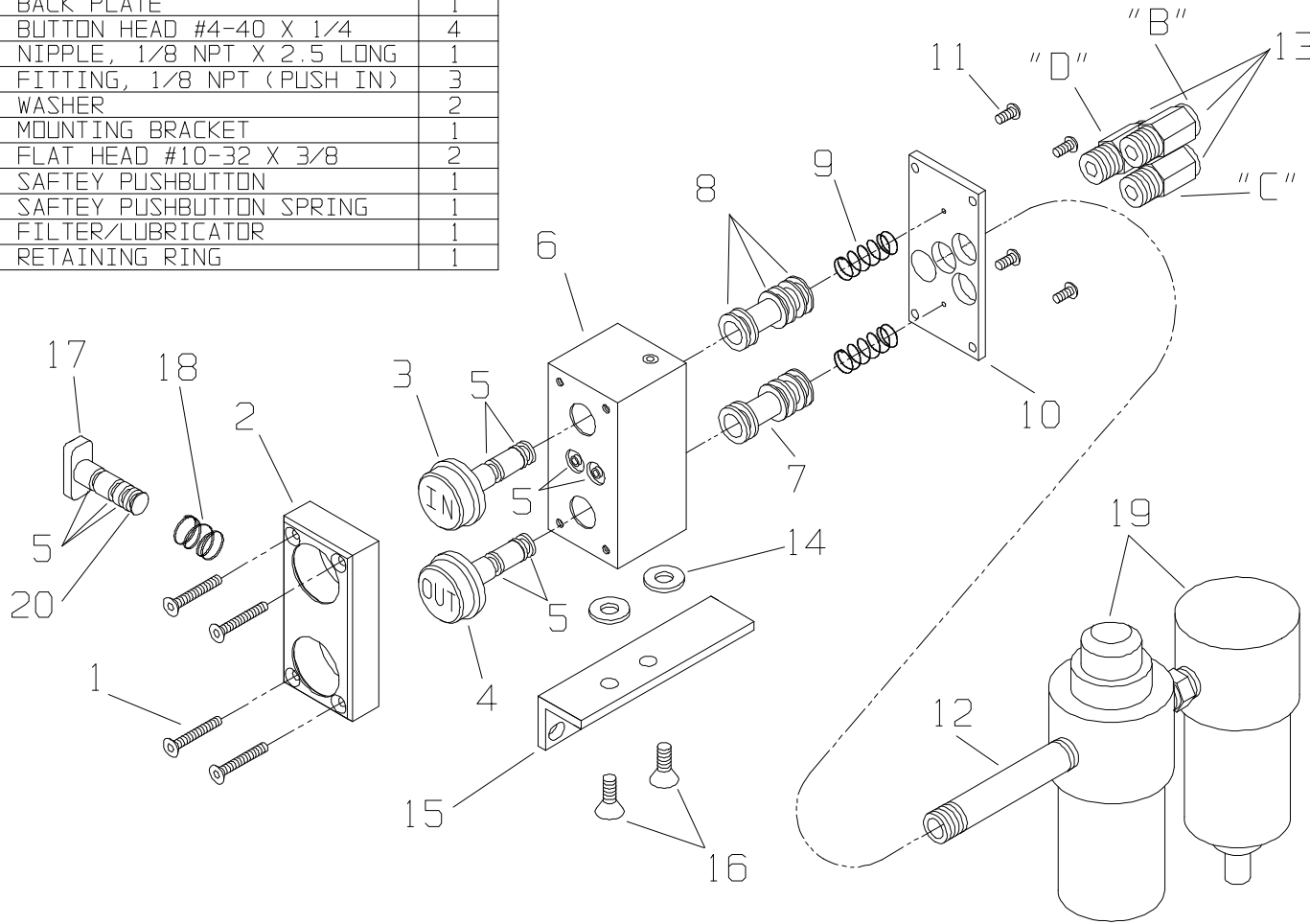
UNIVERSAL BASE  
(PART NO. 400-10)  
SHOWN IS NOT  
INCLUDED IN  
101-02 ASSY.

101-02  
(C:\CADKEY7\DBAR\DBAR\101-02a)

NO.	PART NO.	DESCRIPTION	QTY
1	03-1110	FLAT HEAD #4-40 X 3/4	4
2	308-01	FRONT PLATE, 3 BUTTON	1
3	324-03	"IN" BUTTON	1
4	324-04	"OUT" BUTTON	1
5*	225-01	O-RING, -008, 70 BN.	9
6	306-01	PUSHBUTTON BLOCK	1
7	301-00	PUSHBUTTON SLEEVE	2
8*	225-02	O-RING, -012, 70 BN.	6
9	326-02	PUSHBUTTON SPRING	2
10	307-00	BACK PLATE	1
11	03-0105	BUTTON HEAD #4-40 X 1/4	4
12	327-25	NIPPLE, 1/8 NPT X 2.5 LONG	1
13	226-01	FITTING, 1/8 NPT (PUSH IN)	3
14	06-1108	WASHER	2
15	309-00	MOUNTING BRACKET	1
16	03-1020	FLAT HEAD #10-32 X 3/8	2
17	328-00	SAFETY PUSHBUTTON	1
18	326-01	SAFETY PUSHBUTTON SPRING	1
19	312-06	FILTER/LUBRICATOR	1
20*	228-02	RETAINING RING	1

VERTICAL SAFETY PUSHBUTTON WITH FLR

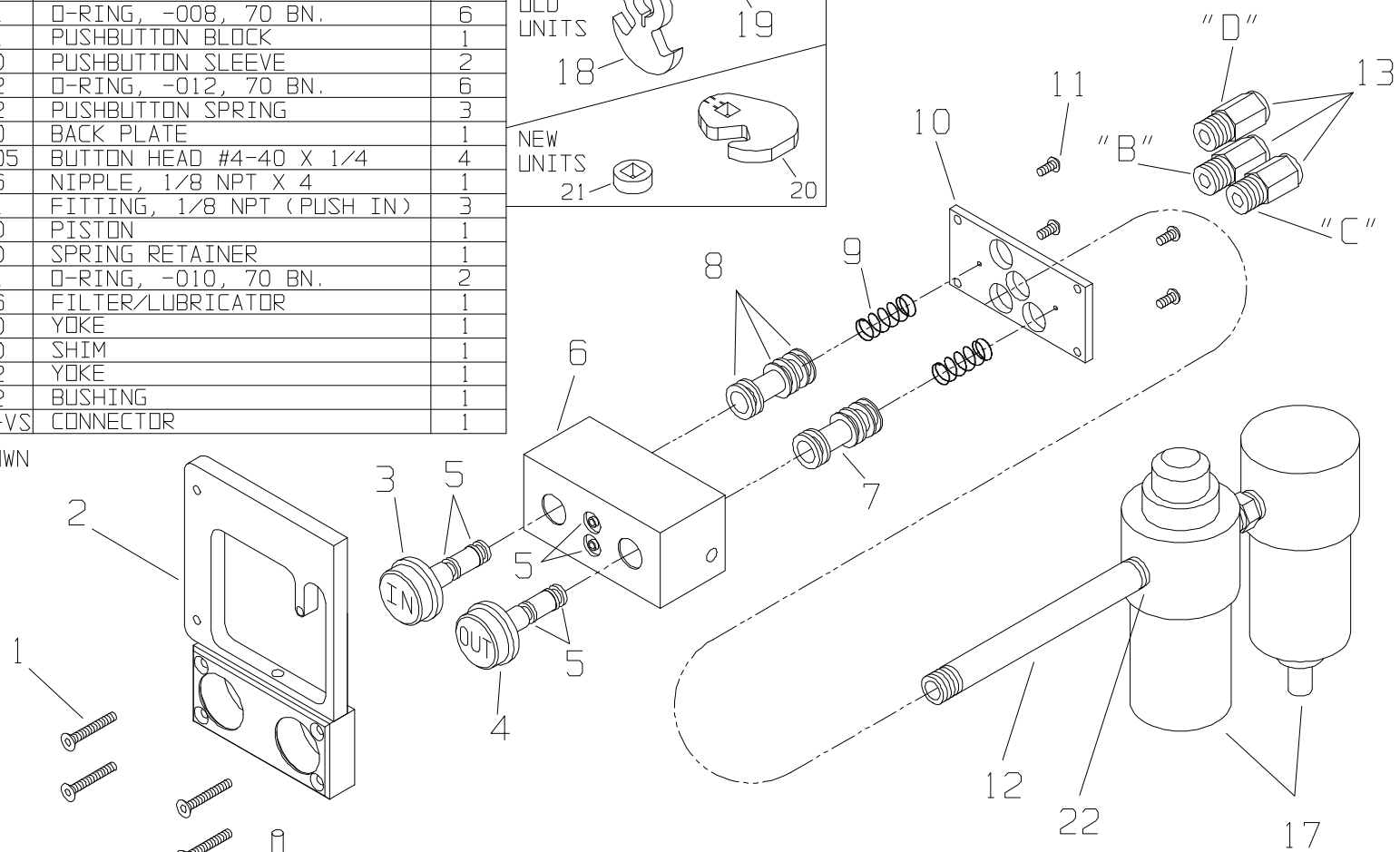
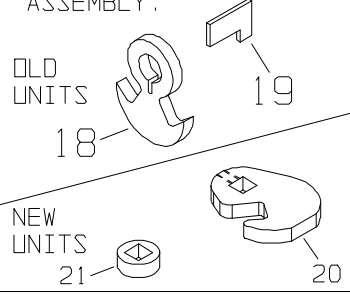
102-01



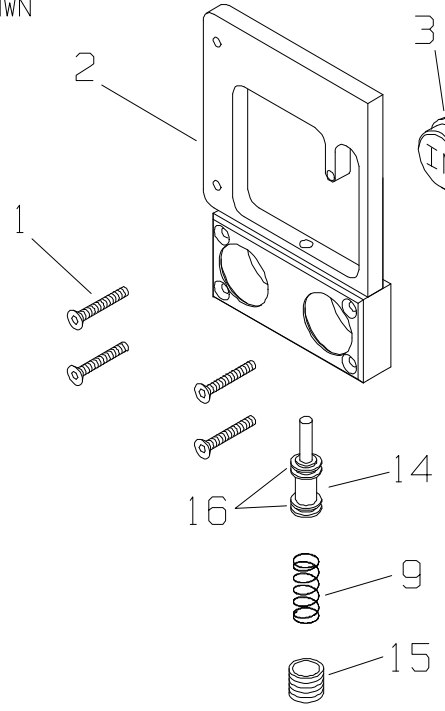
\* NOT SHOWN

NO.	PART NO.	DESCRIPTION	QTY
1	03-1110	FLAT HEAD #4-40 X 3/4	4
2	303-01	MOUNTING BRACKET	1
3	324-01	"IN" BUTTON	1
4	324-02	"OUT" BUTTON	1
5*	225-01	O-RING, -008, 70 BN.	6
6	306-01	PUSHBUTTON BLOCK	1
7	301-00	PUSHBUTTON SLEEVE	2
8*	225-02	O-RING, -012, 70 BN.	6
9	326-02	PUSHBUTTON SPRING	3
10	307-00	BACK PLATE	1
11	03-0105	BUTTON HEAD #4-40 X 1/4	4
12	327-46	NIPPLE, 1/8 NPT X 4	1
13	226-01	FITTING, 1/8 NPT (PUSH IN)	3
14	302-00	PISTON	1
15	304-00	SPRING RETAINER	1
16	325-01	O-RING, -010, 70 BN.	2
17	312-06	FILTER/LUBRICATOR	1
18	310-00	YOKE	1
19	305-00	SHIM	1
20	310-02	YOKE	1
21	305-02	BUSHING	1
22*	28-102-VS	CONNECTOR	1

THESE PARTS ARE NOT INCLUDED IN THIS ASSEMBLY.



\* NOT SHOWN



102-02

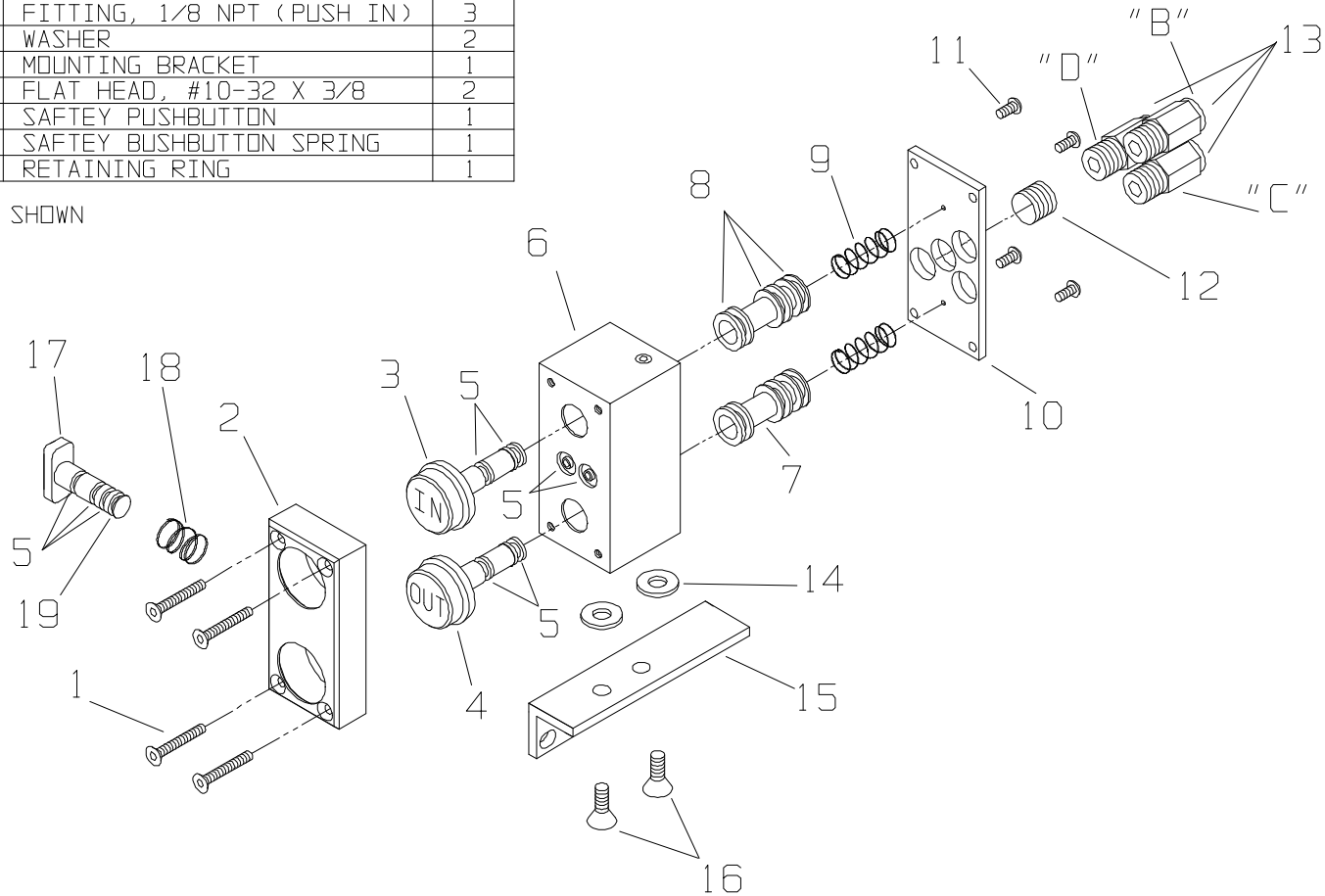
CUTTLER HAMMER

NO.	PART NO.	DESCRIPTION	QTY
1	03-1110	FLAT HEAD #4-40 X 3/4	4
2	308-01	FRONT PLATE, 3 BUTTON	1
3	324-03	"IN" BUTTON	1
4	324-04	"OUT" BUTTON	1
5*	225-01	O-RING, -008, 70 BN.	9
6	306-01	PUSHBUTTON BLOCK	1
7	301-00	PUSHBUTTON SLEEVE	2
8*	225-02	O-RING, -012, 70 BN.	6
9	326-02	PUSHBUTTON SPRING	2
10	307-00	BACK PLATE	1
11	03-0105	BUTTON HEAD #4-40 X 1/4	4
12	227-02	PLUG, 1/8 NPT	1
13	226-01	FITTING, 1/8 NPT (PUSH IN)	3
14	06-1108	WASHER	2
15	309-00	MOUNTING BRACKET	1
16	03-1020	FLAT HEAD, #10-32 X 3/8	2
17	328-00	SAFTEY PUSHBUTTON	1
18	326-01	SAFTEY BUSHBUTTON SPRING	1
19*	228-02	RETAINING RING	1

VERTICAL SAFETY PUSHBUTTON NO FLR

102-04

\* NOT SHOWN

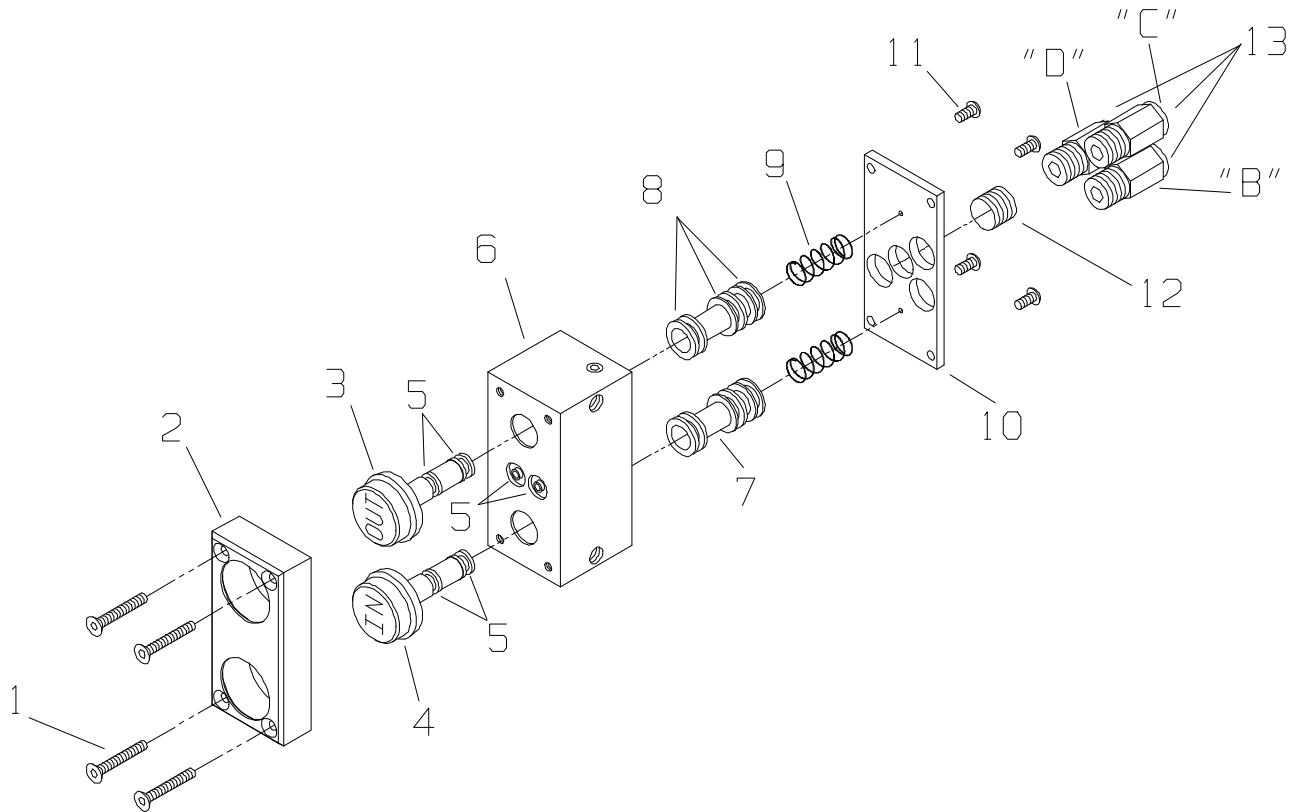


NO.	PART NO.	DESCRIPTION	QTY
1	03-1110	FLAT HEAD #4-40 X 3/4	4
2	308-00	FRONT PLATE, 2 BUTTON	1
3	324-01	"IN" BUTTON	1
4	324-02	"OUT" BUTTON	1
5*	225-01	O-RING, -008, 70 BN.	6
6	306-02	PUSHBUTTON BLOCK	1
7	301-00	PUSHBUTTON SLEEVE	2
8*	225-02	O-RING, -012, 70 BN.	6
9	326-02	PUSHBUTTON SPRING	2
10	307-00	BACK PLATE	1
11	03-0105	BUTTON HEAD #4-40 X 1/4	4
12	227-02	PLUG, 1/8 NPT	1
13	226-01	FITTING, 1/8 NPT (PUSH IN)	3

HORIZONTAL PUSHBUTTON NO FLR

102-05

\* NOT SHOWN

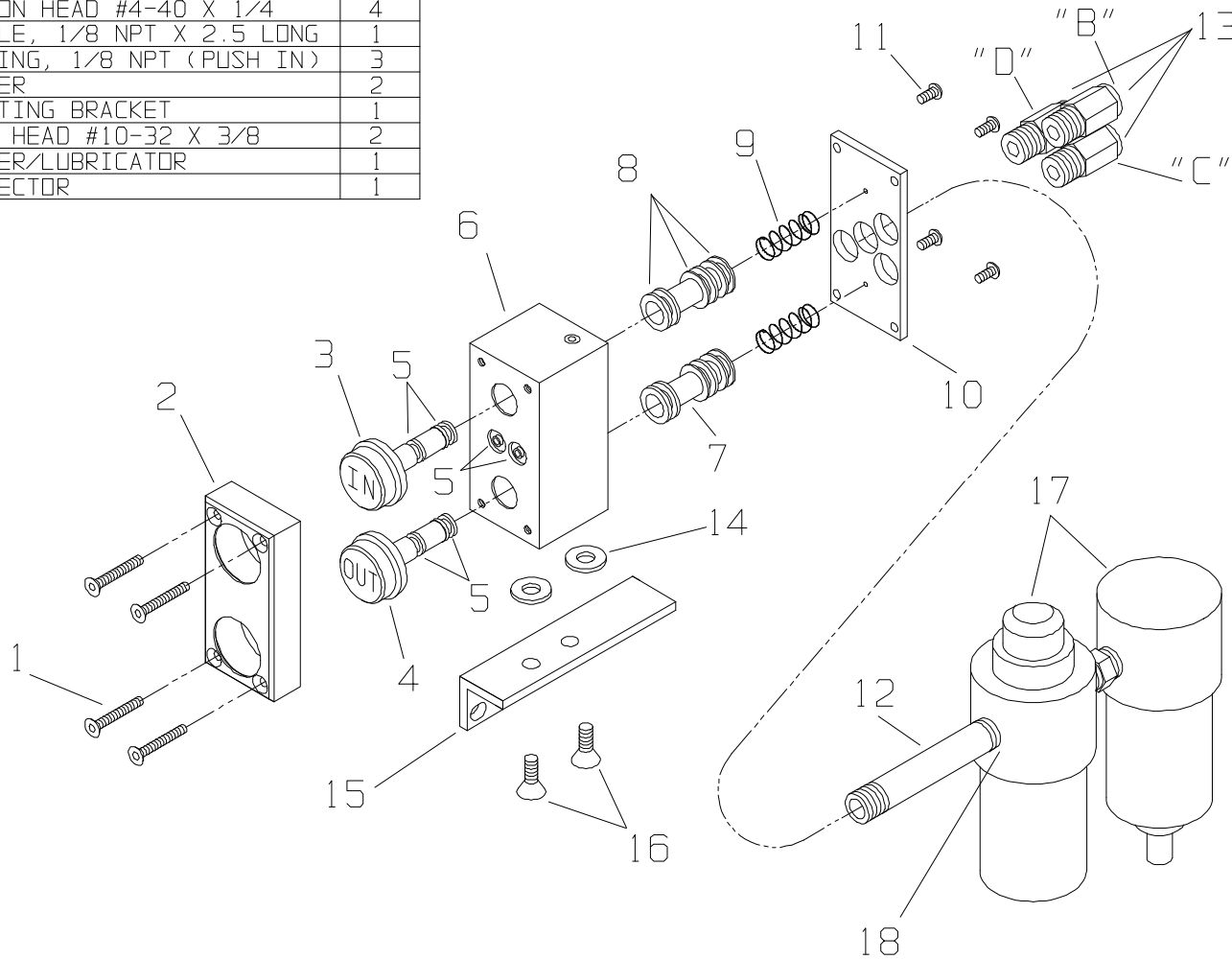


NO.	PART NO.	DESCRIPTION	QTY
1	03-1110	FLAT HEAD #4-40 X 3/4	4
2	308-00	FRONT PLATE, 2 BUTTON	1
3	324-03	"IN" BUTTON	1
4	324-04	"OUT" BUTTON	1
5*	225-01	O-RING, -008, 70 BN.	6
6	306-01	PUSHBUTTON BLOCK	1
7	301-00	PUSHBUTTON SLEEVE	2
8*	225-02	O-RING, -012, 70 BN.	6
9	326-02	PUSHBUTTON SPRING	2
10	307-00	BACK PLATE	1
11	03-0105	BUTTON HEAD #4-40 X 1/4	4
12	327-25	NIPPLE, 1/8 NPT X 2.5 LONG	1
13	226-01	FITTING, 1/8 NPT (PUSH IN)	3
14	06-1108	WASHER	2
15	309-00	MOUNTING BRACKET	1
16	03-1020	FLAT HEAD #10-32 X 3/8	2
17	312-06	FILTER/LUBRICATOR	1
18*	28-102-VS	CONNECTOR	1

VERTICAL PUSHBUTTON WITH FLR

102-06

\* NOT SHOWN

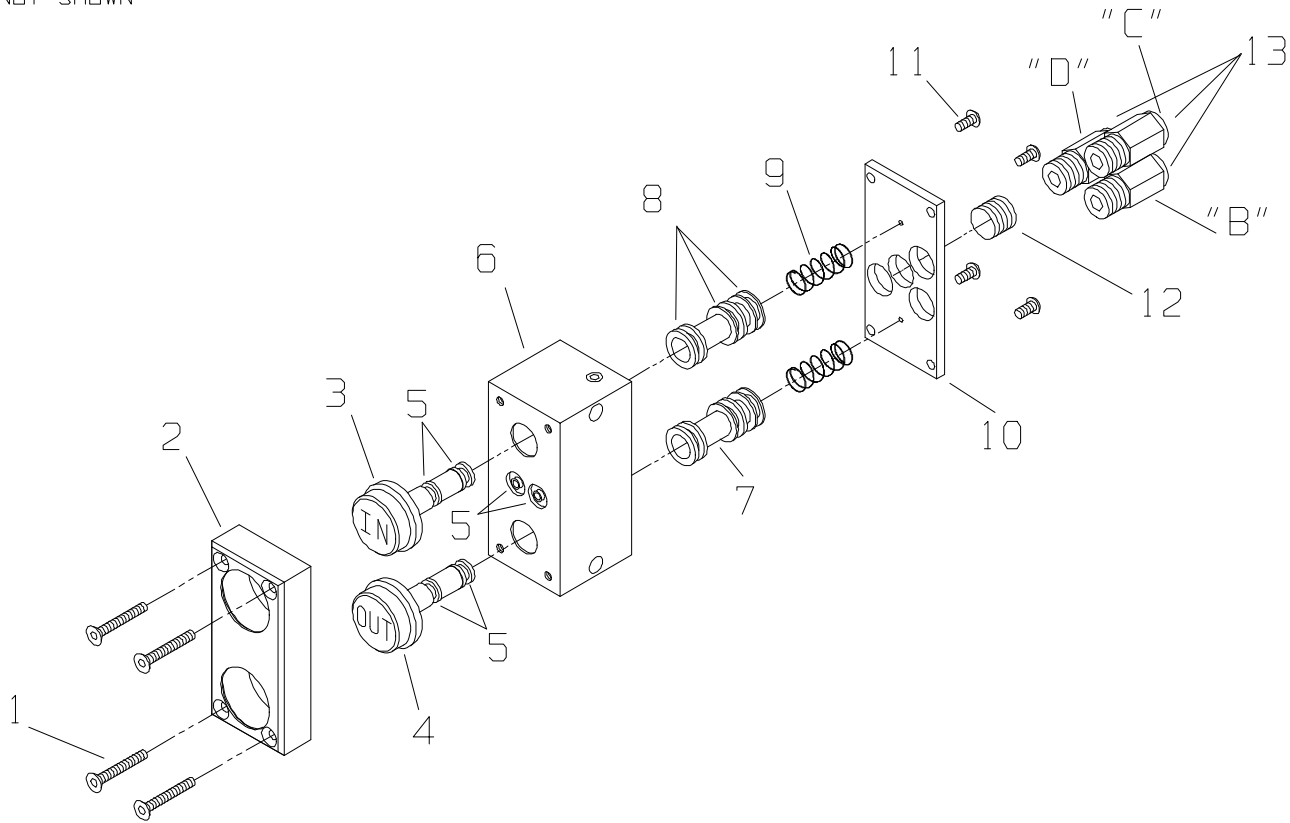


NO.	PART NO.	DESCRIPTION	QTY
1	03-1110	FLAT HEAD #4-40 X 3/4	4
2	308-00	FRONT PLATE, 2 BUTTON	1
3	324-03	"IN" BUTTON	1
4	324-04	"OUT" BUTTON	1
5*	225-01	O-RING, -008, 70 BN.	6
6	306-03	PUSHBUTTON BLOCK	1
7	301-00	PUSHBUTTON SLEEVE	2
8*	225-02	O-RING, -012, 70 BN.	6
9	326-02	PUSHBUTTON SPRING	2
10	307-00	BACK PLATE	1
11	03-0105	BUTTON HEAD #4-40 X 1/4	4
12	227-02	PLUG, 1/8 NPT	1
13	226-01	FITTING, 1/8 NPT (PUSH IN)	3

VERTICAL PUSHBUTTON NO FLR

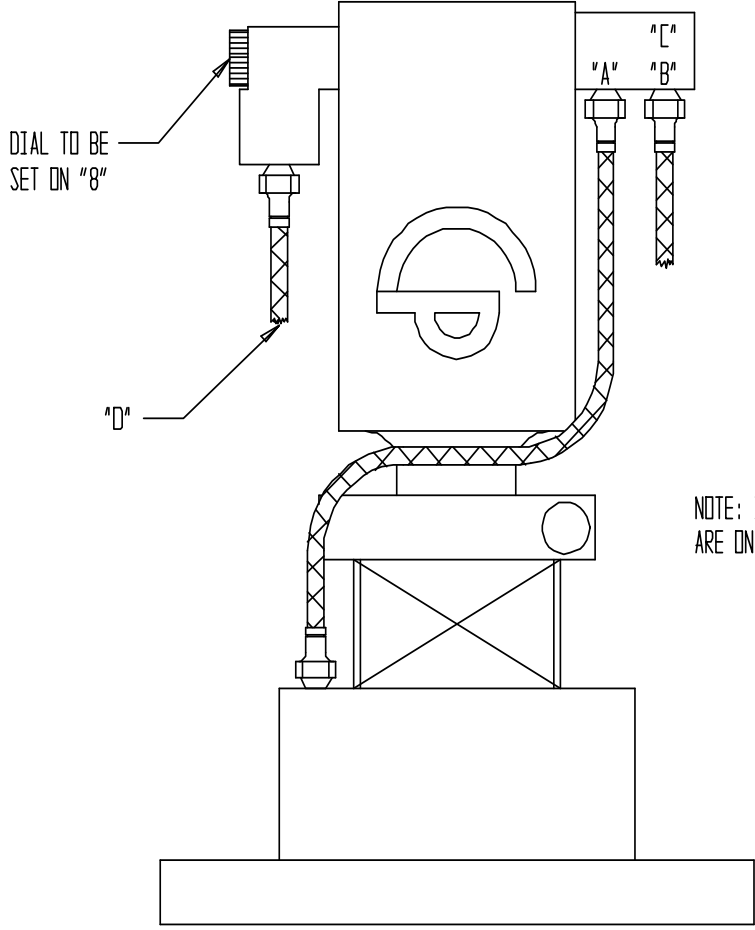
102-07

\* NOT SHOWN

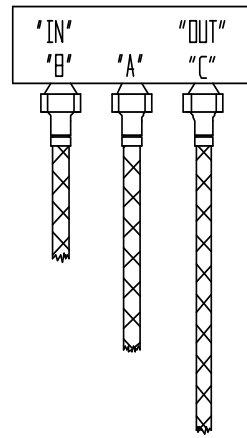




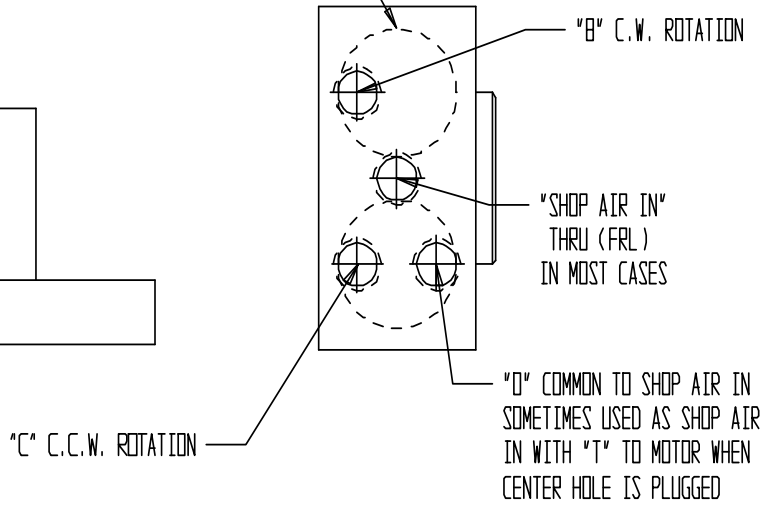
"STANDARD 2J AUTOMATIC STYLE"



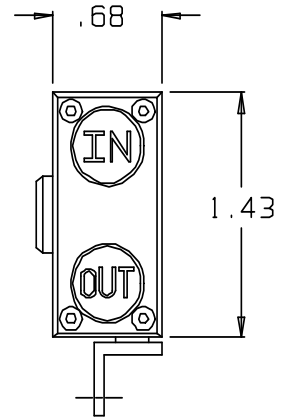
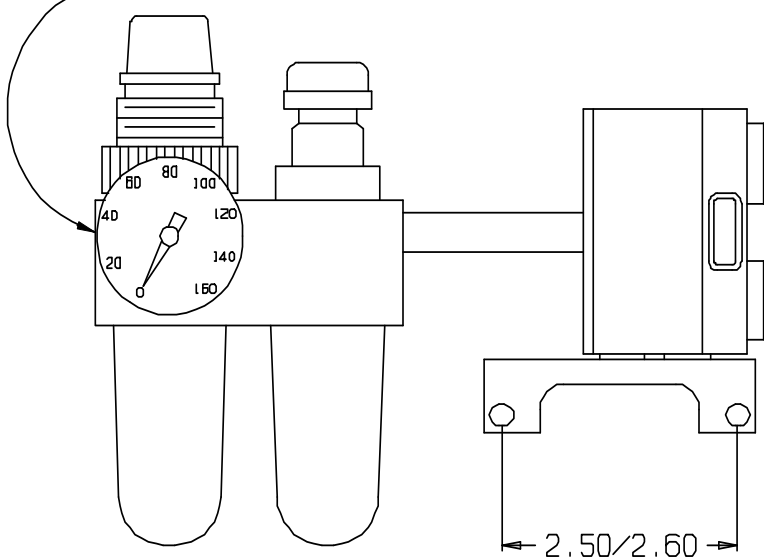
"SIDE VIEW"



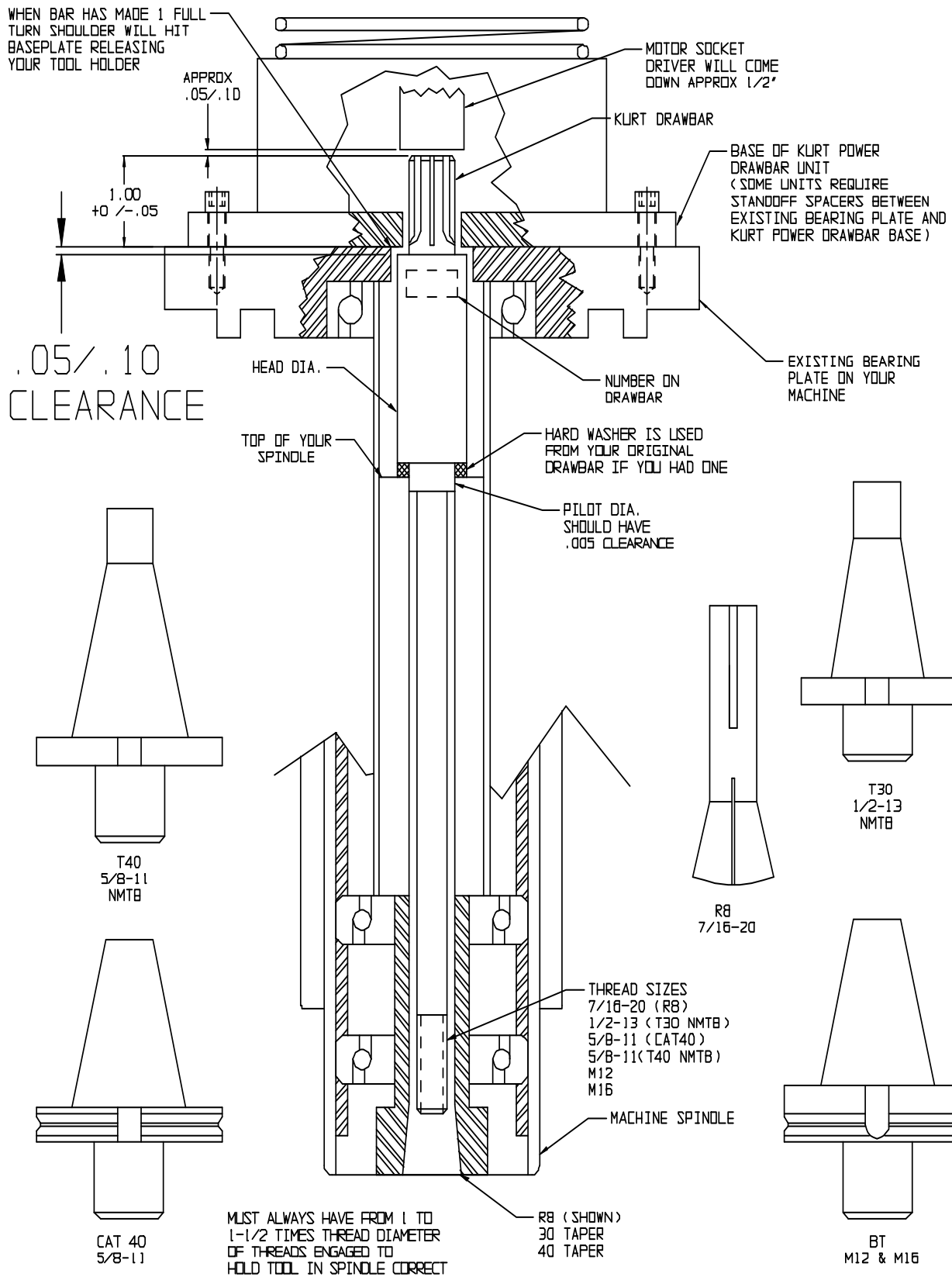
NOTE: IN/OUT BUTTONS ARE ON OPPOSITE SIDE



AIR INLET



# MANUAL OR AUTOMATIC MODELS NORMAL SET-UP CONFIGURATION



## INSTALLATION:

Prior to installation make sure that:

Power source to machine has been turned off and locked.

Quill or Spindle is fully retracted and locked

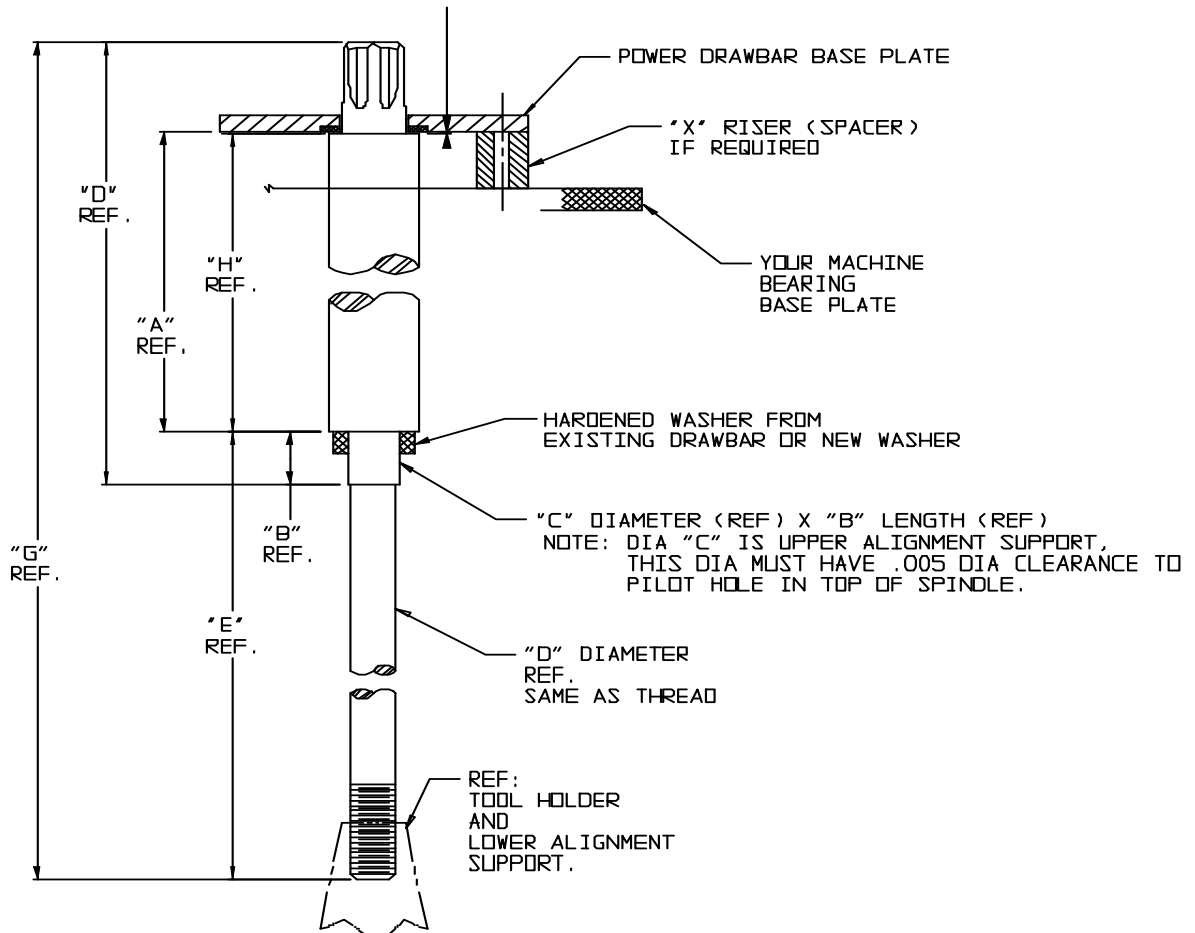
Review Bill of Material to make sure you are not missing any parts.

Air supply to machine is at least 90 PSI and free of moisture in line.

1. Remove old Drawbar from your machine if you have one. Make sure hardened washer did not stay in machine as it may fall off Drawbar. Keep hardened washer, as it will be used later unless kit came with a new washer to use.
2. Lay old Drawbar next to new Drawbar and they should both be the same length from shoulder where hardened washer rests to end of the threaded rod. The length of upper body may vary depending on whether or not risers are used for your application. (**Note:** Old Drawbar has hex on end new Drawbar has spline).
3. Apply molybdenum disulfide grease found in the hardware package (white tube) to threads, spline, and area where washer will sit.
4. Place washer onto new Drawbar and place back into machine.
5. On top where you just put Drawbar into machine is the machine bearing plate. The new Drawbar should be sticking out of plate  $1.000 +.000/-.050$  if no risers are needed. If risers are used add riser length to the 1.000 and again tolerance will be  $+.000/-.050$  from that length. (If you are short double check to make sure quill is in fully retracted position).
6. Insert a tool holder into spindle and hand tighten. This will be a check to see if Drawbar is too long or too short, and align bar in spindle for step 8. If bar is too long tool holder will not seat. To check for too short count the number of turns it takes to seat the tool after thread is first engaged. In most cases this will be approximately 8 to 13 turns.
7. Remove the three button head screws holding the cover on air motor assembly and remove cover. Place the Pneumatic Motor Assembly on top of the bearing plate of machine, or on top of risers if needed. Make sure the air regulator on motor is facing the operator. Check to see that the regulator on motor is fully open which is (8) on dial.
8. Align the mounting holes in the base of the assembly with the existing threaded holes in the bearing plate. **Note:** In some cases you may have to drill and tap your own  $\frac{1}{4}$ -20 holes in bearing plate. Only snug the bolts at this time.
9. Push down lightly on the motor until it engages with the spline of the Drawbar. Engage and disengage this way several times to make sure unit goes up and down freely. Now hold down and tighten bolts. Recheck after tightening to make sure operation is still free.
10. Mount the "FRL"(filter/regulator/lubricator) and tool (IN/OUT safety block is only on automatic models). In most cases this would be on the left-hand side of machine; however you may mount it on the most convenient place for the operator. Hook up air lines from switch to motor and from "FRL" as required.
11. Fill the oil sight glass on "FRL" with the air tool oil provided with your kit. **Always use air tool oil only.**
12. The collet drive pin in R-8 spindle or drive keys on 30 and 40 taper spindles must be in place. This prevents the tool from turning during the "IN" and "OUT" operation.
13. Before hooking up the air supply to the machine, make sure it is free of condensation. Also, make sure the air supply to the machine is at 90-PSI. At tool change the air pressure must stay at 80-PSI or above.
14. Connect "FRL" to air supply and turn up to no less than 90-PSI on gage. Open oil supply if it is not already set at max. (One full turn is fully open and one turn back to close). Run **IN/OUT** buttons until you see oil mist in the motor exhaust and then close. Cycle unit several times and then slowly open until you have one drop per 5 to 10 cycles. **Note:** One cycle is equal to tool in and out one time.
15. When the Power Drawbar is functioning properly, replace the cover onto air motor assembly with the three button head cap screws. You are now ready to run.
16. Turn main power back on the machine.

## CONFIGURATION IF RISER PAD IS NEEDED

.05/.10 CLEARANCE TO THRUST  
WASHER OR PLATE IS RECOMMENDED



MUST ALWAYS HAVE AT LEAST  
1 1/2 TIMES THREAD DIAMETER  
OF THREADS ENGAGED TO  
HOLD TOOL IN SPINDLE CORRECT

### NOTES:

- 1) .050 DIM. APPLIES WHEN QUILL IS ALL THE WAY UP OR IN THE TOOL CHANGE POSITION.
- 2) WHEN MOUNTING BASEPLATE TO THE BEARING PLATE:  
HAND TIGHTEN A TOOL IN THE SPINDLE THIS WILL STRAIGHTEN UP THE BAR. THEN LOOSEN THE (3) CAP SCREWS AND PUSH THE ASSEMBLY UP AND DOWN UNTIL THE UNIT FEELS CENTERED TO DRAWBAR. THEN TIGHTEN THE (3) SHCS.
- 3) AIR PRESSURE MUST BE AT 90 PSI DURING A TOOL CHANGE.
- 4) SET OIL DRIP TO ONE DROP PER (5-10) TOOL CHANGES. (TOOL CHANGE= IN AND OUT ONE TIME).
- 5) APPLY GREASE (WHITE TUBE) FROM HARDWARE KIT TO HARDENED WASHER, SOCKET END, & THREADS BEFORE USE.
- 6) IN SOME CASES YOU WILL WANT TO TURN THE BRAKE LEVER UP GETTING IT OUT OF THE WAY. (REMOVE PIN IN BRAKE HANDLE REMOVE HANDLE AND TURN 180 DEGREES AND REPLACE PIN TO HOLD BRAKE.

## Trouble Shooting Guide to Automatic or Manual Drawbar

### **Motor does not run:**

- 1) Is main air supply to machine turned on and at least 90 PSI?
- 2) Is air regulator set to at least 80 PSI?
- 3) Is dial on motor set to (8) all the way open? Turn C.C.W. to open.
- 4) If you think the air motor is oil locked do the following. **A)** Disconnect air supply.
- B)** One at a time, remove air hose's, blow out & replace. Make sure hose's are pushed securely back into fittings. **C)** Disassemble upper control block (on automatic only) and remove excess oil and re assemble. **D)** Run motor manually by depressing buttons on motor or using butterfly. **E)** Re connect the air supply and turn on air. **F)** Adjust the Lubricator for minimum oil flow. You should just be able to see a drop forming during operation, to allow 1 drop per 5-10 cycles. 1 cycle is equal to 1 in and 1 out.
- 5) Did you remember to push in on the green safety button on side of switch?
- 6) On manual model did the butterfly skip past the roll pin?

### **Motor turns but nothing**

#### **Happens to Drawbar:**

- 1) Is spindle all the way up and in the locked position or at machine home?
- 2) Has socket fallen off end of motor?
- 3) Are splines broken or stripped from end of Drawbar?

#### **Drawbar turns but tool does not tighten proper**

- 1) Does air supply to motor stay above 80PSI while making tool change
- 2) Do you have a washer between Drawbar and spindle and is it well greased at washer and on Drawbar threads. This is very important due to friction reducing clamping forces.
- 3) Is sheer pin in Drawbar broken or missing?
- 4) Are threads in Collet or on Drawbar stripped?
- 5) Are you holding Arm or Push Buttons in for three seconds after tool seats?
- 6) With soapy water check airlines for leaks. Sometimes an airline will get pinched and a small hole will be cut in airline. Be sure airline and fittings are checked.
- 7) If you are using a **R8** collet and tool slips in the holder hold the IN button for 3 seconds to allow tool to tighten in spindle.
- 8) Make sure Drawbar Rod did not bottom out in tool holder.

#### **Motor runs all the time**

- 1) Airline from FRL is connected to wrong fitting on Automatic Drawbar.
- 2) Butterfly has skipped past roll pin on arm. Manual Drawbar only.
- 3) Sometimes one of the plungers in motor will stick in the in position.

#### **Tool seems to be sticking**

##### **Or stuck In spindle:**

- 1) Make sure threads and washer have grease on them.
- 2) Have you got .050 to .100 space between Drawbar and motor mounting plate?
- 3) Check air pressure to machine. 90 PSI min. into FRL and 80 PSI min. out FRL.
- 4) On Automatic the Upper Control block may need to be cleaned. Turn off air supply and remove from motor. Clean thoroughly and replace. Note: Stud on piston goes to motor. O-rings are made of 50 Buna if you need to replace them.
- 5) Motor over or under oiled could also cause tool to stick as motor loses power.
- 6) On Automatic model try reversing the airline into IN/OUT ports to see if it makes any difference. If it does a O-ring may have been cut or a chip may have gotten into the IN/OUT block. A disassemble and cleaning of IN/OUT block may be necessary.

#### **Miscellaneous information:**

- 1) If Drawbar rod does not fit thru top of your machine it may need to be turned to .875 Dia. On some machines the 1.060 Dia. Is too large.
- 2) Always use a synthetic air tool oil in FRL.
- 3) Always have pin in spindle on R8 Collet machines to keep Collet from turning.
- 4) General maintenance once a month should include greasing threads on Drawbar and area where washer rests. Make sure FRL is working properly with 1-2 drops every 5 to 10 cycles. One cycle is in and out once. Also check to make sure no screws have vibrated loose. If any have retighten as needed.

