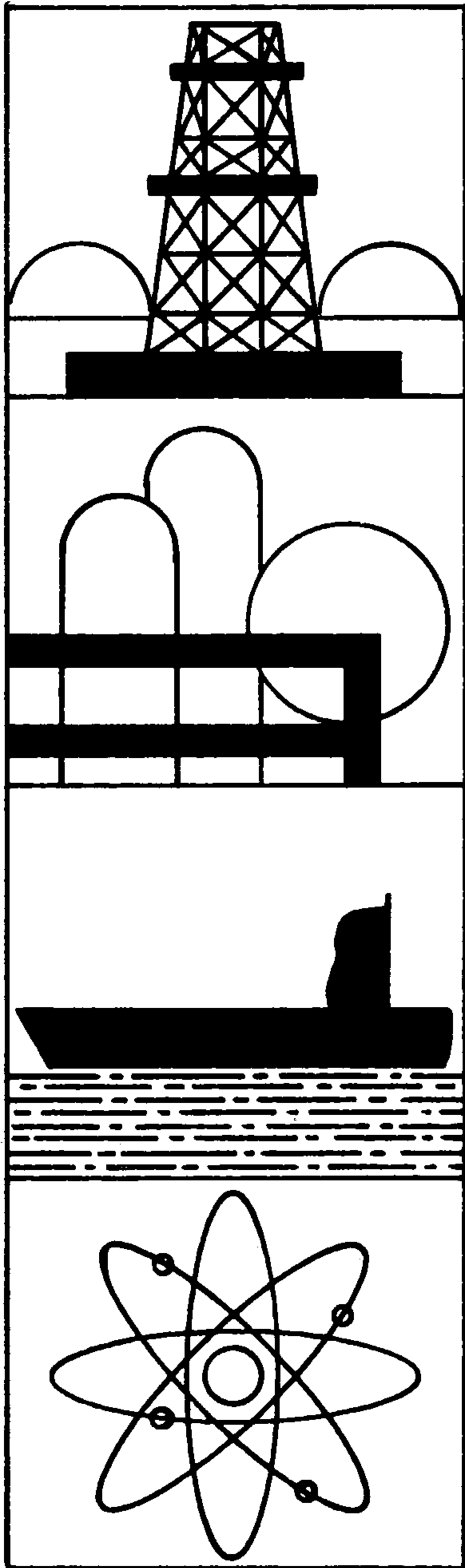


# valve

# actuators



**oil/gas**

**chemical**

**marine**

**nuclear**

**"T" SERIES**





## INDEX

Details and technical data shown in this catalog were correct at time of printing. Due to continual improvements, equipment may vary slightly from details shown. Although extreme care has been taken in compiling this catalog, we cannot assure responsibility for errors or omissions.

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## **“T” - SERIES ROBOTARM ACTUATOR**

The Bettis “T” Series Robotarm actuator is a superior cylinder-type actuator for pneumatic or hydraulic service. Its proven highly efficient design features, the “Guided Track” and the “Guided Piston” provide positive on-off and precise valve positioning service. These rugged, compact and economical actuators provide a reliable method for opening and closing valves without the need of expensive gearing or complicated motor-driven devices.

### **FEATURES**

**BODY** —All “T” Series actuators have a totally enclosed housing, providing complete protection for all moving parts and eliminates the chance of injury to operating personnel. A special vent fitting has been incorporated in the housing cover to eliminate any possible housing pressurization resulting from thermal expansion or other cause. External field adjustable body stops are provided to insure proper valve opening and closing and eliminates unnecessary load on the valve stops.

**INTERNAL TIE-BAR CONSTRUCTION** — Eliminates piston scrubbing against the cylinder wall, resulting in longer service life and low maintenance.

**GUIDED TRACK DESIGN** — Increases efficiency by reducing friction and side loads, resulting in a lighter more compact unit, supplying higher torque outputs at lower operating pressures.

**MODELS AND SIZES** — “T” Series actuators are available for torque outputs up to 450,000 inch-pounds in double acting units and 177,000 inch-pounds end torque in spring return units.

**SERVICE TEMPERATURES** — “T” Series actuators are designed to operate from -20°F. to +200°F. Special seals and lubricants are available for temperatures beyond these limits.

**PERMANENT LUBRICATION** — All wear surfaces and moving parts are permanently lubricated with a special heat cured molybdenum disulfide and resin coating process. Cylinder walls are also lined with a heat cured solid film lubricant and corrosion resistant coating to reduce “break away” friction. All wear surfaces are generously coated with special lubricants applied during assembly. External grease fittings are provided for lubricating the upper and lower yoke bearings without having to disassemble the actuator for normal routine maintenance.

**POSITIVE FAIL-SAFE SPRING RETURN ACTUATORS** — Spring return “T” Series actuators provide positive operation where absolute emergency shut-down is imperative. These units may be assembled to either “fail-open” or “fail-close” on loss of operating pressures, as required. These actuators are equipped with “Service-Safe” spring cartridges which makes it easy to service the actuators in the field without danger to personnel or the use of special equipment.



# ROBOTARM<sup>®</sup> VALVE ACTUATORS

## TORQUE OUTPUT

ALL PUBLISHED TORQUES ARE GUARANTEED MINIMUM VALUES

### DOUBLE ACTING

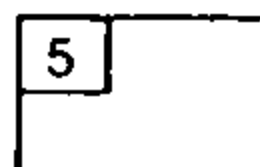
ACTUATOR MODEL	TORQUE OUTPUT INCH-LBS.	OPERATING PRESSURE — LBS./SQ. INCH												
		40	50	60	70	80	90	100	125	150	175	200	225	250
T-310	BREAK	14700	18400	22100	25800	29500	33100	36800	46000	55200				
	RUNNING	8100	10100	12100	14100	16200	18200	20200	25300	30300				
T-312	BREAK	20100	26100	31400	36600	41800	47000	52300						
	RUNNING	11600	14500	17400	20400	23300	26200	29100						
T-410	BREAK	20700	25800	31000	36200	41300	46500	51700	64500	77500	90400	103000		
	RUNNING	11100	13800	16600	19400	22200	25900	28700	34600	41600	50200	57000		
T-412	BREAK	29700	37100	44500	52000	59400	66800	74300	94000	111000				
	RUNNING	16500	20600	24800	28900	33000	37100	41300	51600	62000				
T-416	BREAK	47800	59800	71800	83700	95800	107700							
	RUNNING	26600	33300	40000	46600	53200	59800							
T-516	BREAK	63000	78700	94500	110000	126000	14100	157000	197000					
	RUNNING	35000	43700	52400	61200	70000	78500	87300	109000					
T-520	BREAK	100000	125000	150000	175000	200000								
	RUNNING	55600	69500	83400	97200	110000								
T-816	BREAK	99000	124000	148500	173500	198000	223000	248000	310000	371000				
	RUNNING	55000	69000	82500	96500	110000	124000	137500	172000	206000				
T-820	BREAK	157500	197000	236000	276000	315000	354000	394000						
	RUNNING	87500	109500	131000	153000	175000	197000	219000						

CONSULT FACTORY FOR ACTUATORS CAPABLE OF PRODUCING TORQUES GREATER THAN 400,000 IN./LBS.

### SPRING RETURN

		OPERATING PRESSURE — LBS./SQ. INCH												
		40	50	60	70	80	90	100	125	150	175	200	225	250
T-310-SR	ENDING		5	5	5	4	4	4	3	2	2	1	1	1
			1,470	5,170	5,510	7,630	9,570	9,570	13,400	20,200	20,200	21,600	28,100	28,100
T-312-SR	ENDING	5	5	4	4	3	3	2	2	1	1	1		
		4,150	5,510	9,570	9,570	13,400	13,400	19,000	20,200	27,000	28,100	28,100		
T-316-SR	ENDING	4	3	2	2	2	1	1	1	1				
		9,570	13,400	17,000	20,200	20,200	24,000	28,100	28,100	28,100				
T-410-SR	ENDING							5	4	3	3	2	2	
								13,200	18,300	24,500	29,400	29,400	31,800	41,300
T-412-SR	ENDING				5	5	4	3	3	3	2	1	1	
					13,300	13,300	19,900	20,800	29,400	29,400	41,300	46,300	55,700	55,700
T-416-SR	ENDING	5	5	4	3	3	3	2	1	1				
		8,800	13,300	19,900	29,400	29,400	29,400	34,000	46,600	55,700				
T-420-SR	ENDING	4	3	3	2	1	1	1						
		19,900	29,400	29,400	41,300	48,500	55,700	55,700						
T-516-SR	ENDING		5	5	4	3	3	3	2	2	1	1	1	
			26,300	26,300	39,900	48,000	48,000	48,000	66,200	81,600	92,500	111,000	111,000	111,000
T-520-SR	ENDING	4	3	3	3	2	2	2	1	1				
		35,100	48,000	48,000	48,000	69,000	81,500	81,500	111,000	111,000				
T-816-SR	ENDING				5	5	5	5	4	3	3	2	2	
					59,600	63,300	63,300	63,300	95,600	129,000	129,000	172,000	177,000	177,000
T-820-SR	ENDING	5	5	5	4	4	3	3	2	2				
		43,000	63,300	63,300	86,100	95,500	129,000	129,000	167,000	177,000				

\*LEGEND



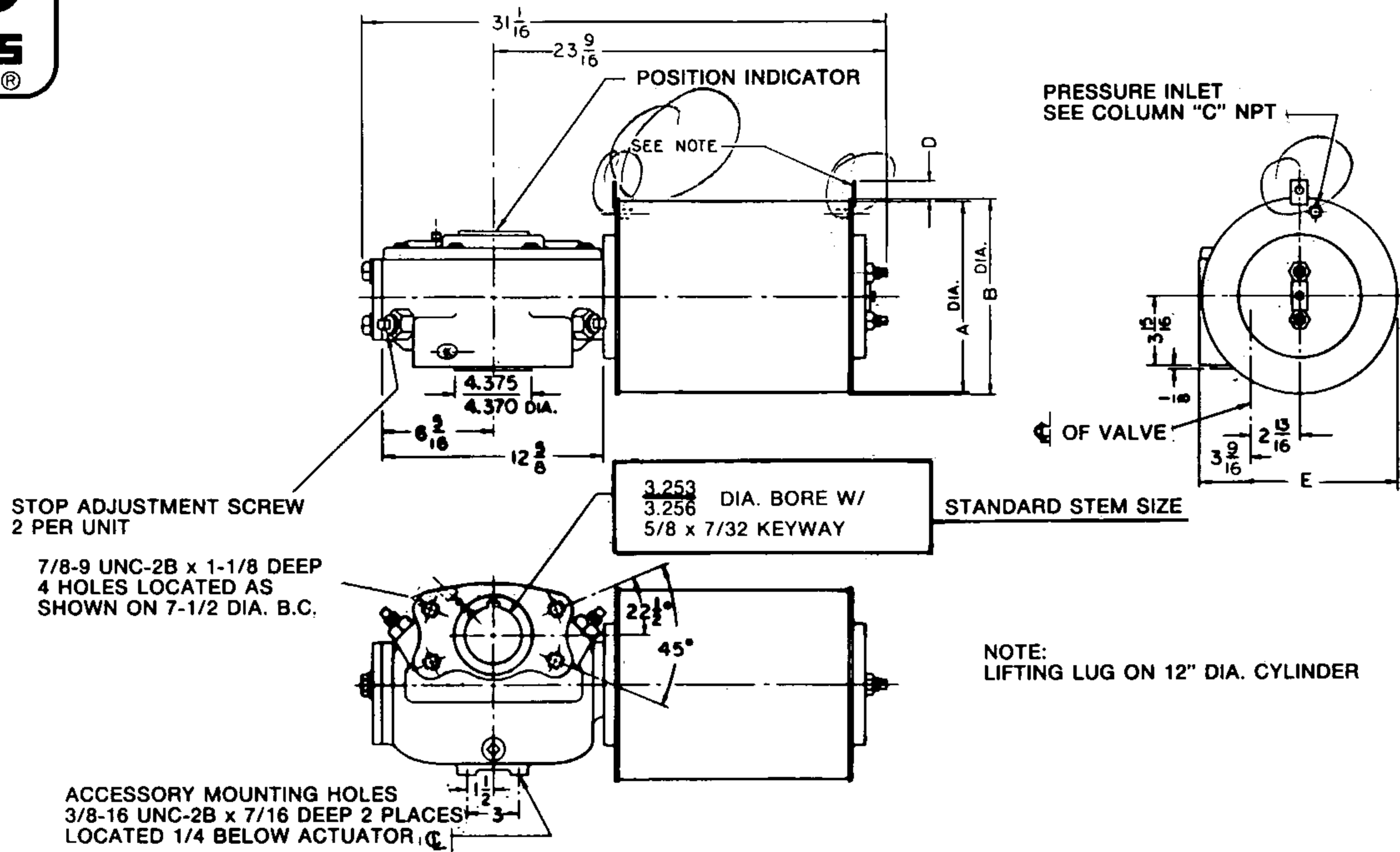
NUMBER IN SMALL SQUARE IS SPRING SIZE AND MUST BE SPECIFIED.  
EXAMPLE: T-816-SR5

CONSULT FACTORY FOR SPRING RETURN ACTUATORS CAPABLE OF PRODUCING ENDING TORQUES IN EXCESS OF 177,000 IN./LBS.

All "T" Series Actuators listed in this Bulletin are designed and manufactured to rigid standards to insure maximum efficiency. Bettis Corporation certifies that the Torque Output Values published above represent true, tested and measured torque capabilities. When you purchase a Bettis Actuator you can be certain that your Actuator will develop the published torque. A properly maintained Actuator will continue to produce the advertised torques after a long service life.

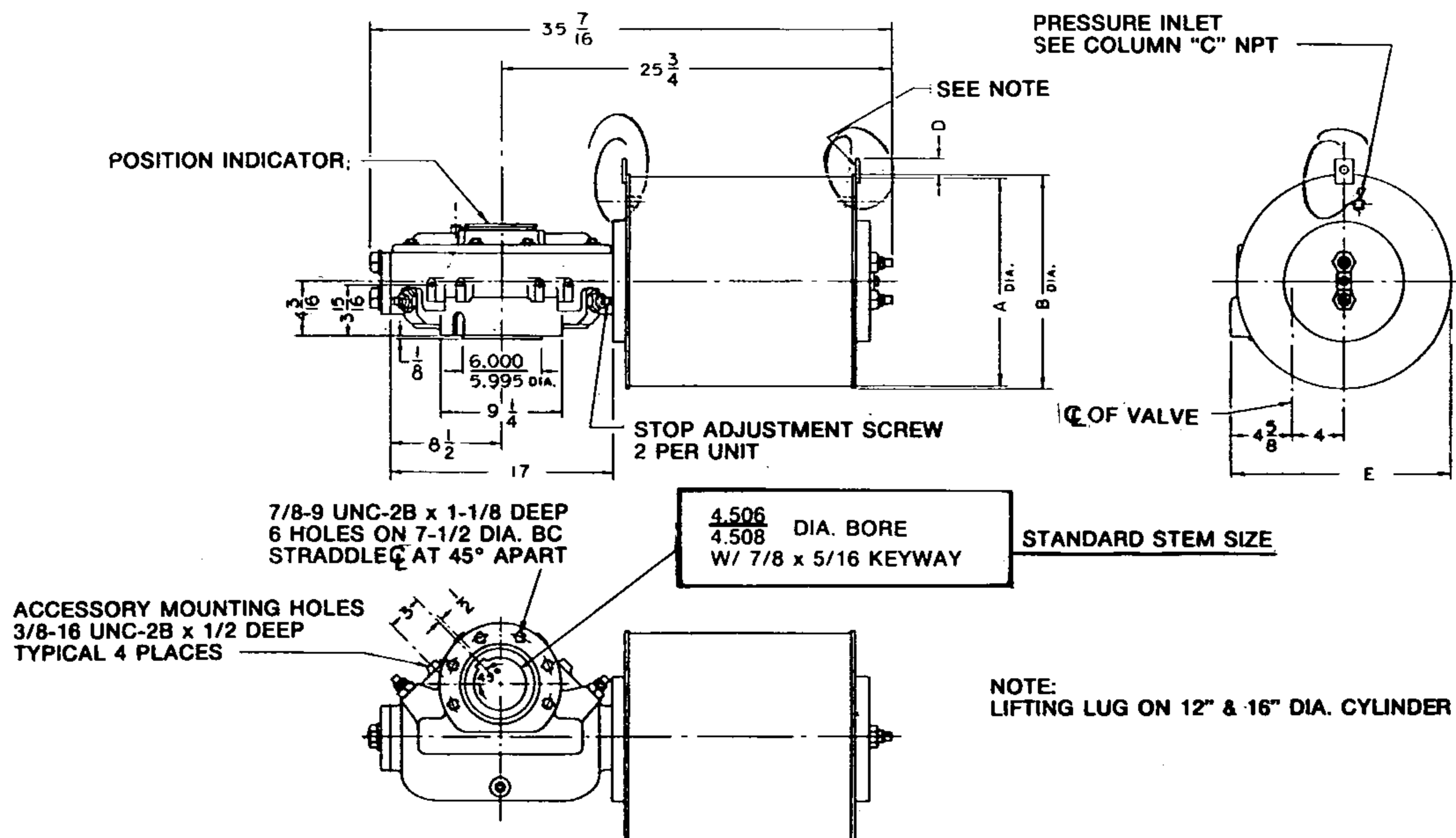


## T-3A DOUBLE ACTING



MODEL	A	B	C	D	E
T-310A	10-3/4	11	1/2 NPT	-	11-7/8
T-312A	12-3/4	13	1/2 NPT	2	12-7/8

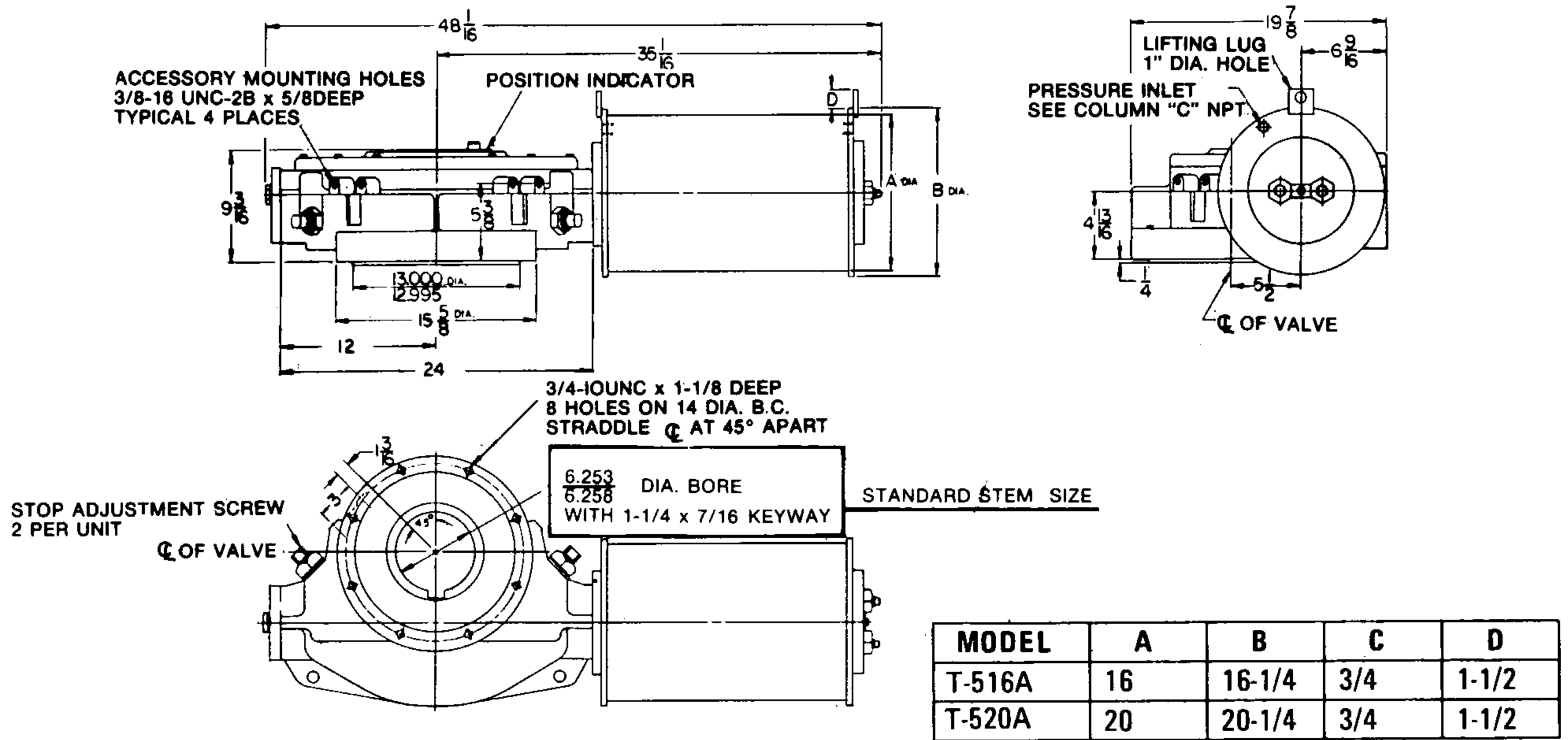
## T-4 DOUBLE ACTING



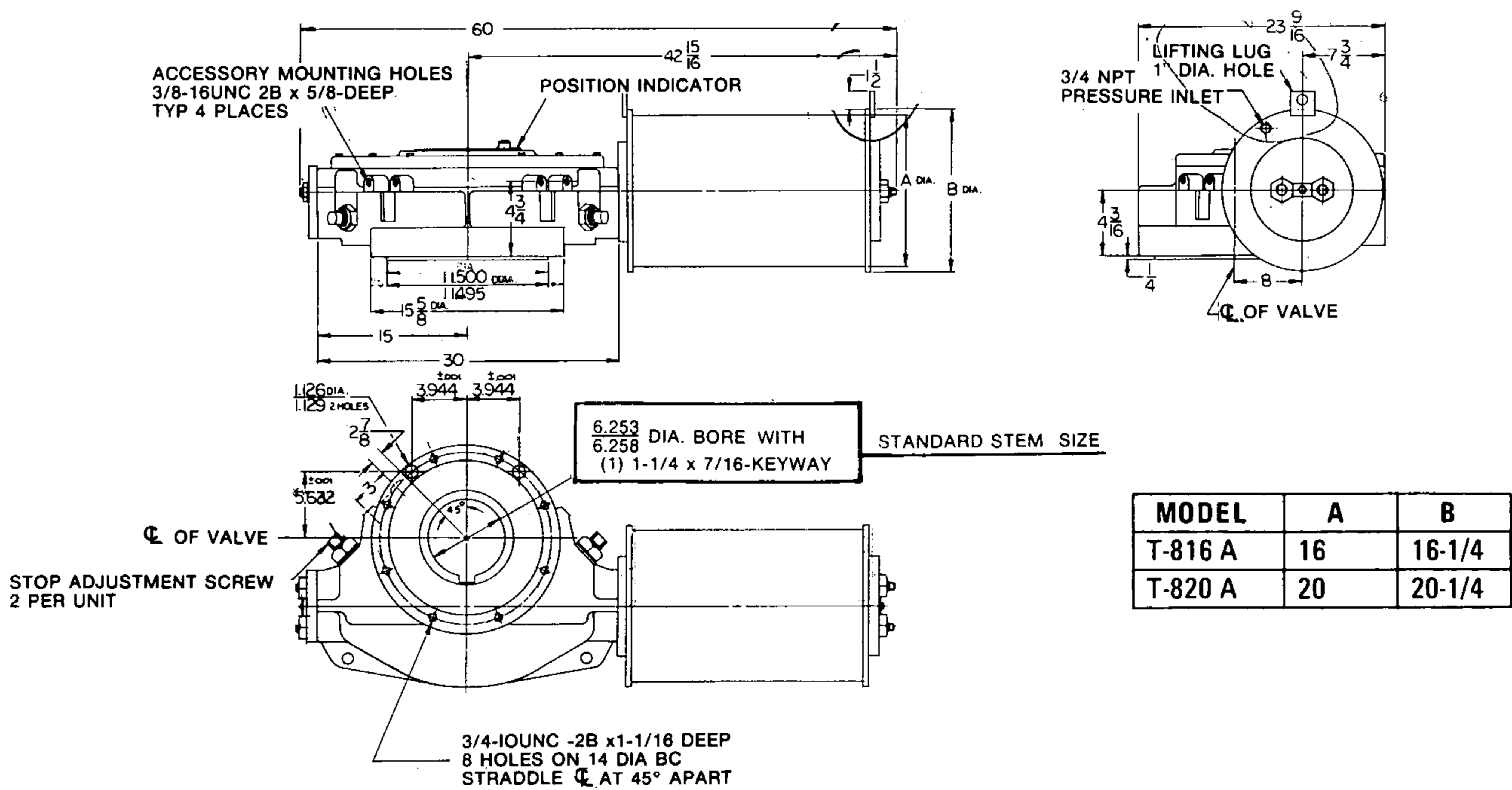
MODEL	A	B	C	D	E
T-410	10-3/4	11	1/2	-	14-1/8
T-412	12-3/4	13	1/2	2	15-1/8
T-416	16	16-1/4	3/4	1-1/2	16-3/4



## T-5A DOUBLE ACTING

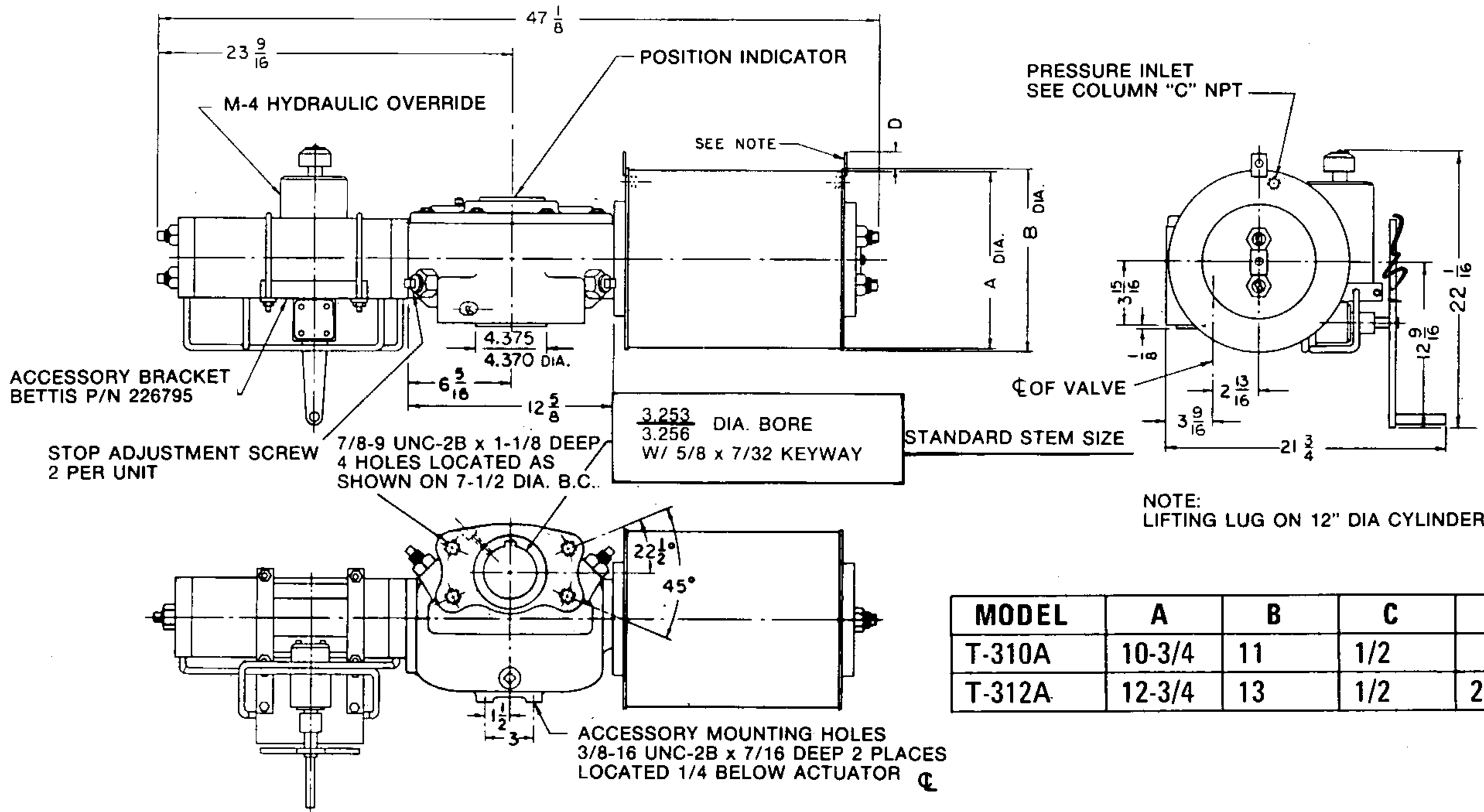


## T-8A DOUBLE ACTING

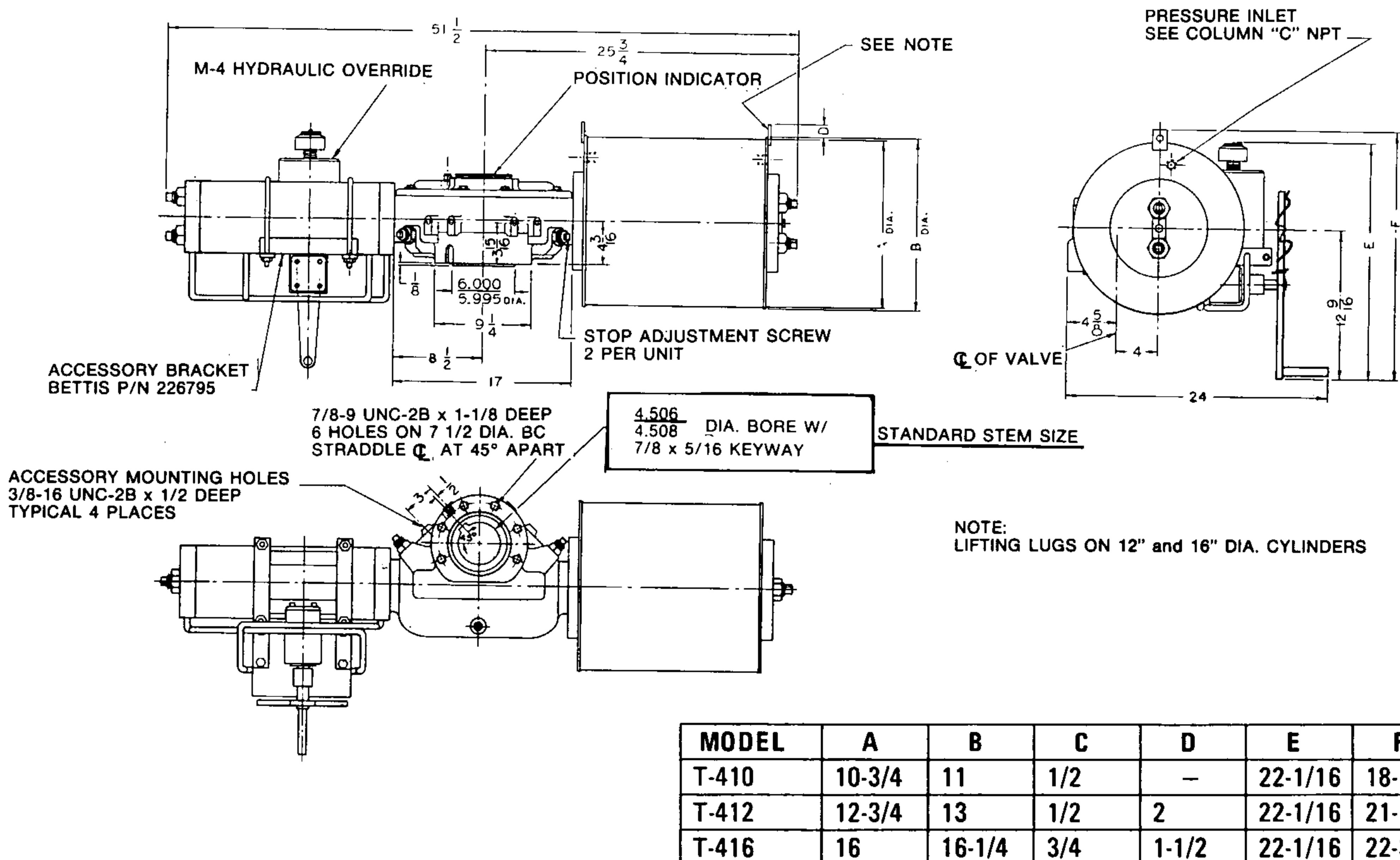




## T-3A-H W/M-4 HYDRAULIC MANUAL OVERRIDE

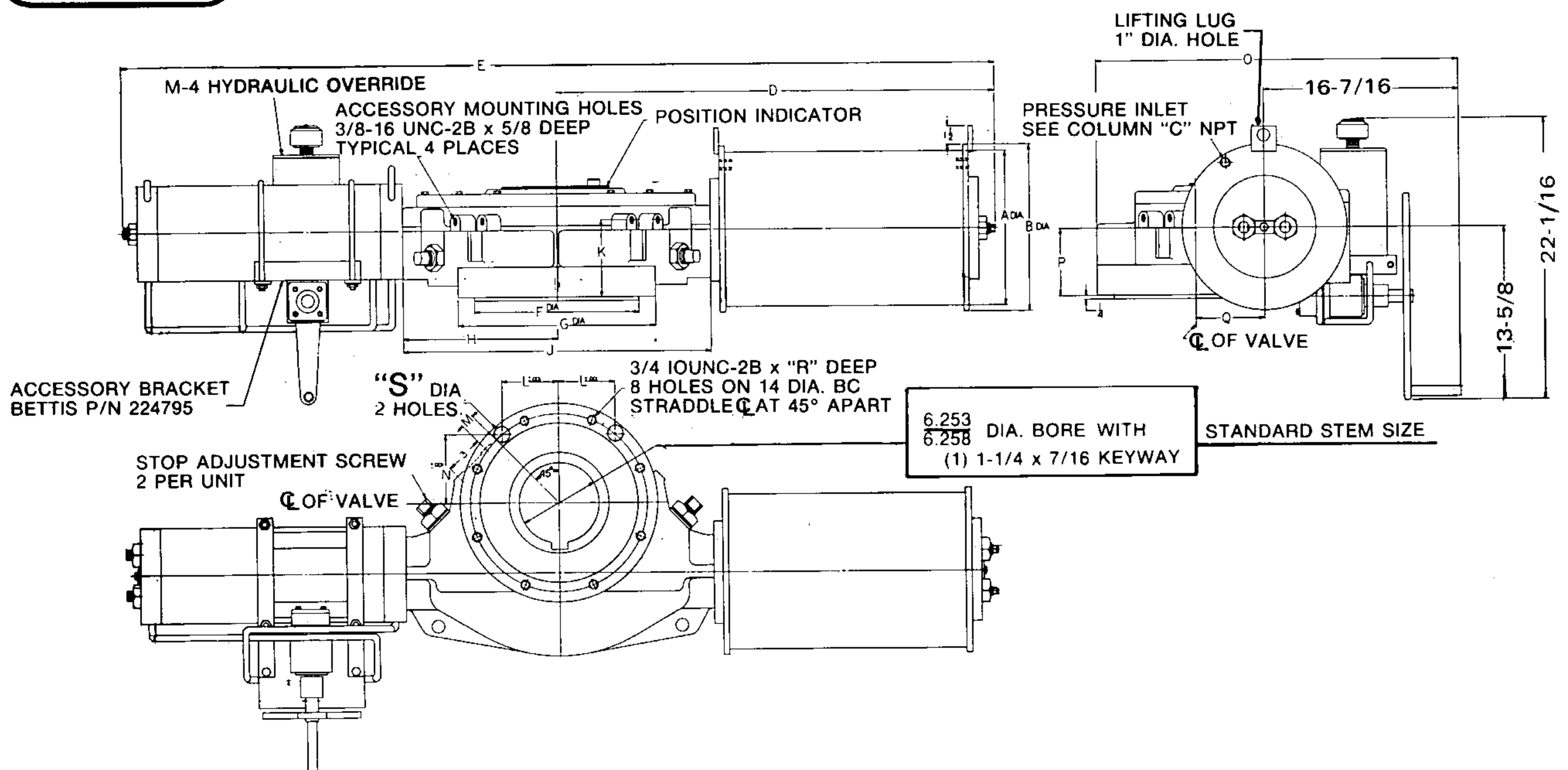


## T-4-H W/M-4 HYDRAULIC MANUAL OVERRIDE



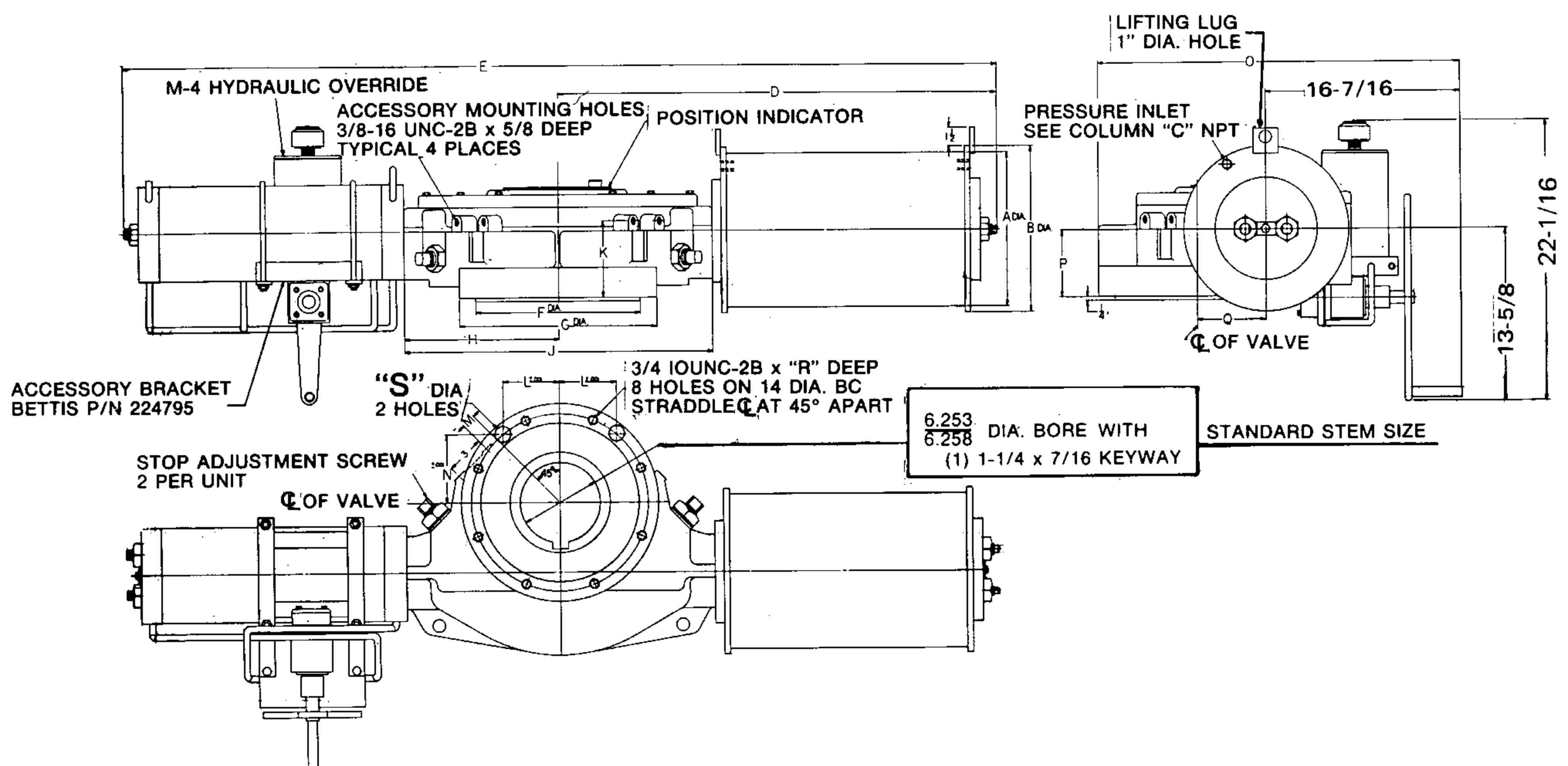


## T-5-H W/M-4 HYDRAULIC MANUAL OVERRIDE



MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
T-516A	16	16-1/4	3/4	35-1/16	70-1/8	13.000/12.995	15-5/8	12	24	5-3/8	N/A	1-3/16	N/A	29-3/4	4-13/16	5-1/2	1-1/8	N/A
T-520A	20	20-1/4	3/4															

## T-8A-H W/M-4 HYDRAULIC MANUAL OVERRIDE

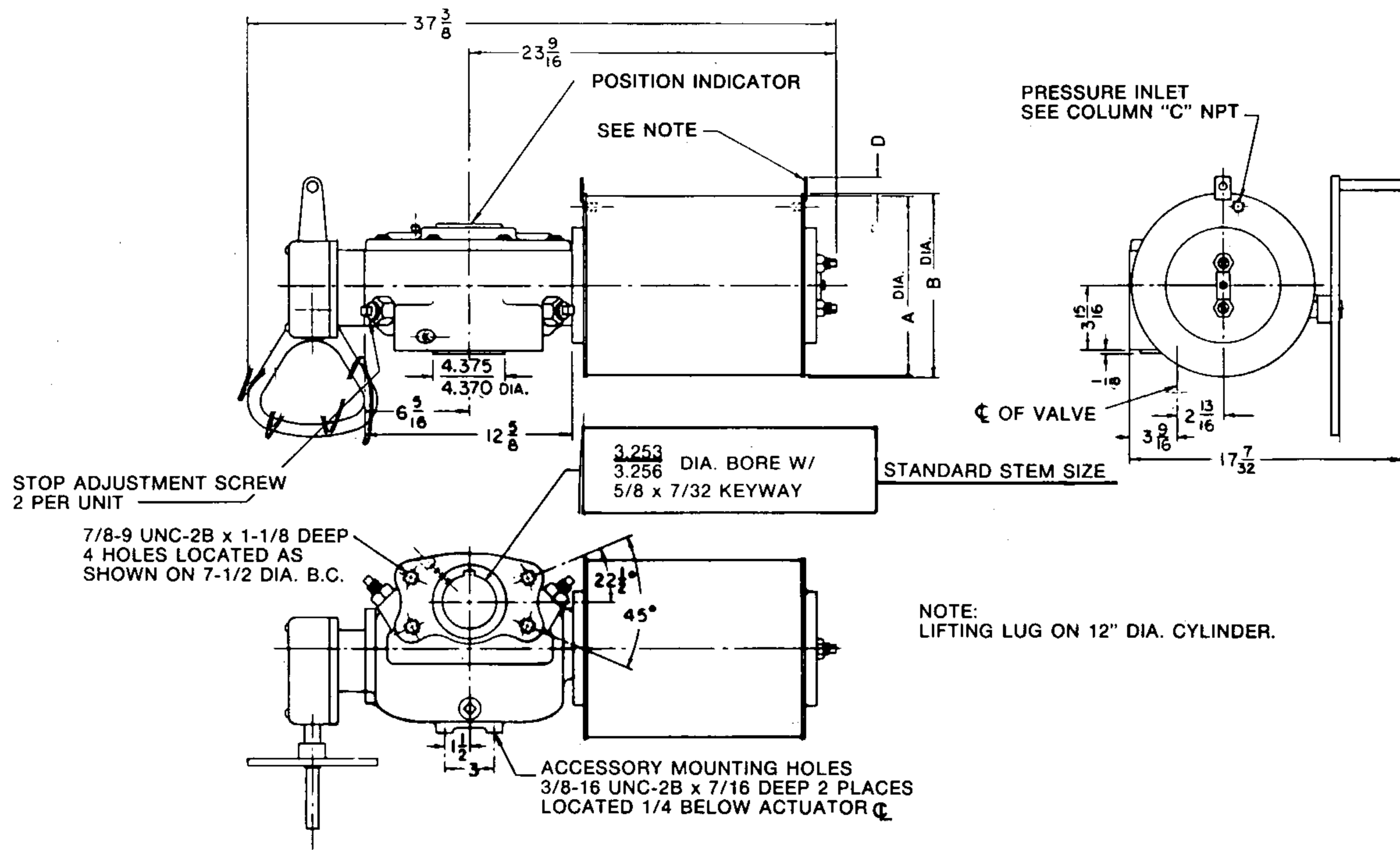


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
T-816A	16	16-1/4	3/4	42-15/16	85-13/16	11.500/11.495	15-5/8	15	30	4-3/4	3.944	2-7/8	5.632	32-1/4	4-3/16	8	1-1/16	1.126/1.129
T-820	20	20-1/4	3/4															





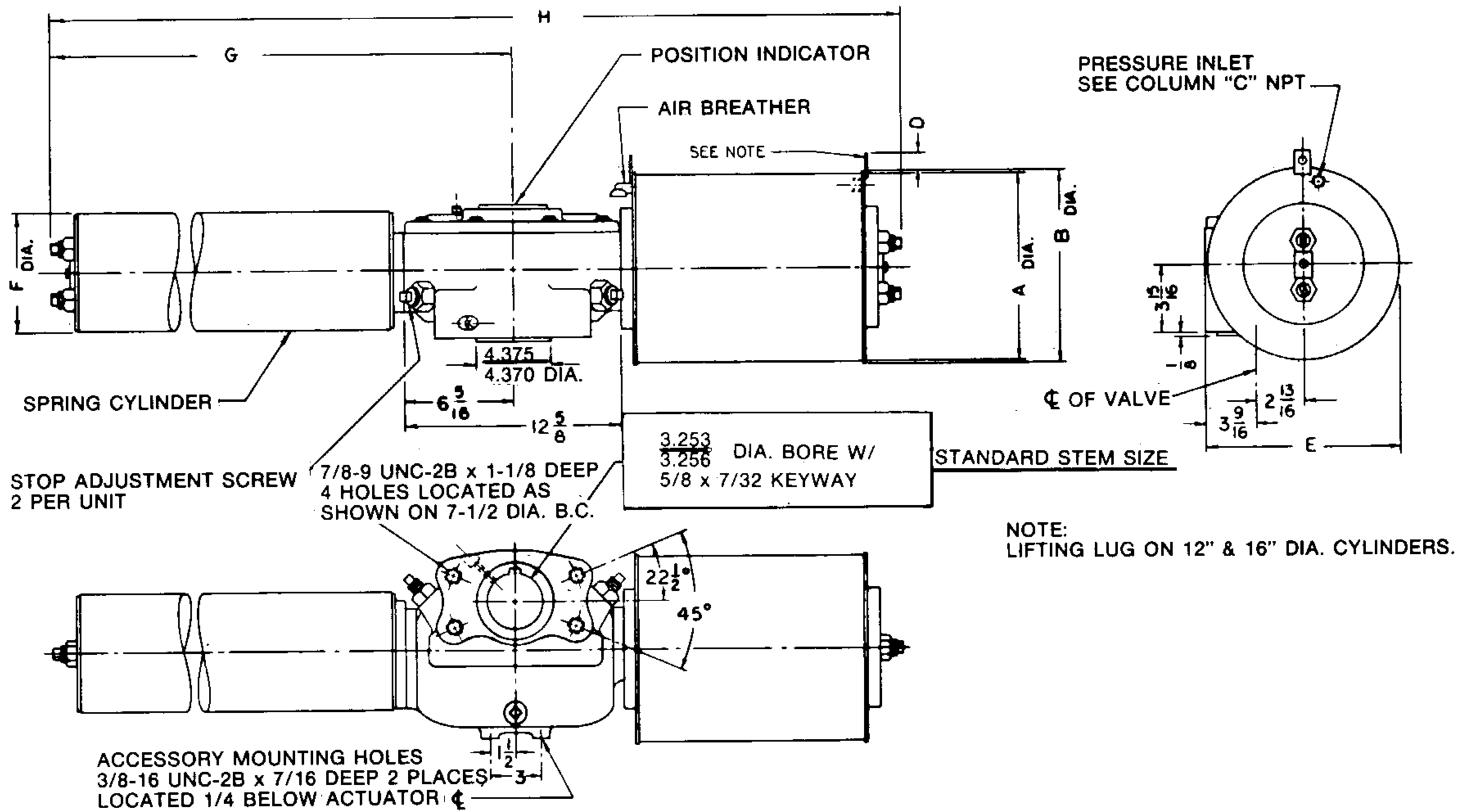
# T-3A MANUAL



MODEL	A	B	C	D
T-310 A-M	10-3/4	11	1/2 NPT	—
T-312 A-M	12-3/4	13	1/2 NPT	2

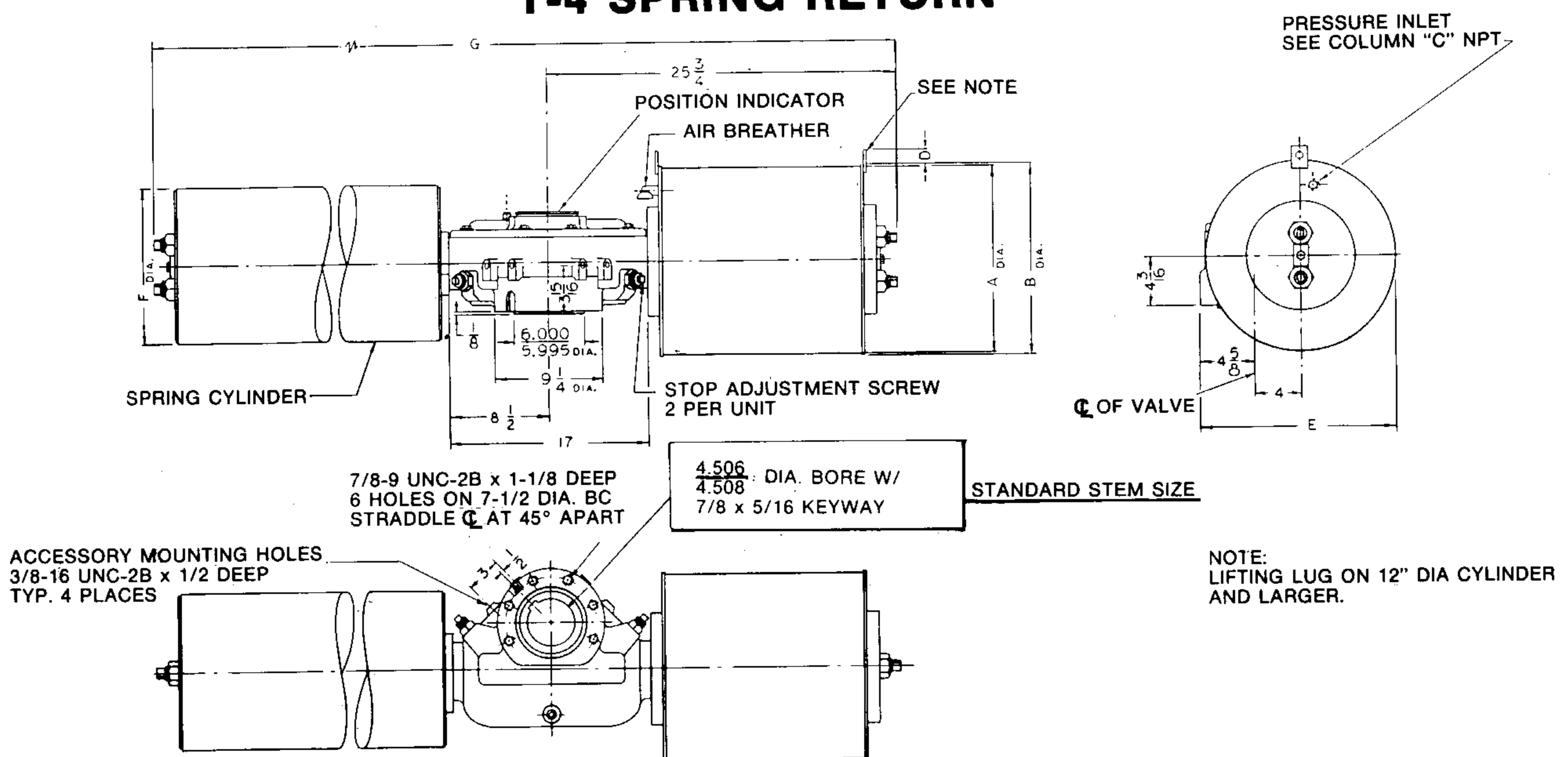


## T-3A SPRING RETURN



MODEL	SR-1								SR-2								SR-3							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
T-310A-SR	10-3/4	11	1/2	-	11-7/8				10-3/4	11	1/2	-	11-7/8				10-3/4	11	1/2	-	11-7/8			
T-312A-SR	12-3/4	13	1/2	2	12-7/8	11-3/8	45-13/16	69-3/8	12-3/4	13	1/2	2	12-7/8	10-3/4	36-11/16	60-1/4	12-3/4	13	1/2	2	12-7/8	7	38-15/16	62-1/2
T-316A-SR	16	16-1/4	3/4	1-1/2	14-1/2				16	16-1/4	3/4	1-1/2	14-1/2				16	16-1/4	3/4	1-1/2	14-1/2			
MODEL	SR-4								SR-5															
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H								
T-310A-SR	10-3/4	11	1/2	-	11-7/8				10-3/4	11	1/2	-	11-7/8											
T-312A-SR	12-3/4	13	1/2	2	12-7/8	7	38-15/16	62-1/2	12-3/4	13	1/2	2	12-7/8	7	41-13/16	65-3/8								
T-316A-SR	16	16-1/4	3/4	1-1/2	14-1/2				16	16-1/4	3/4	1-1/2	14-1/2											

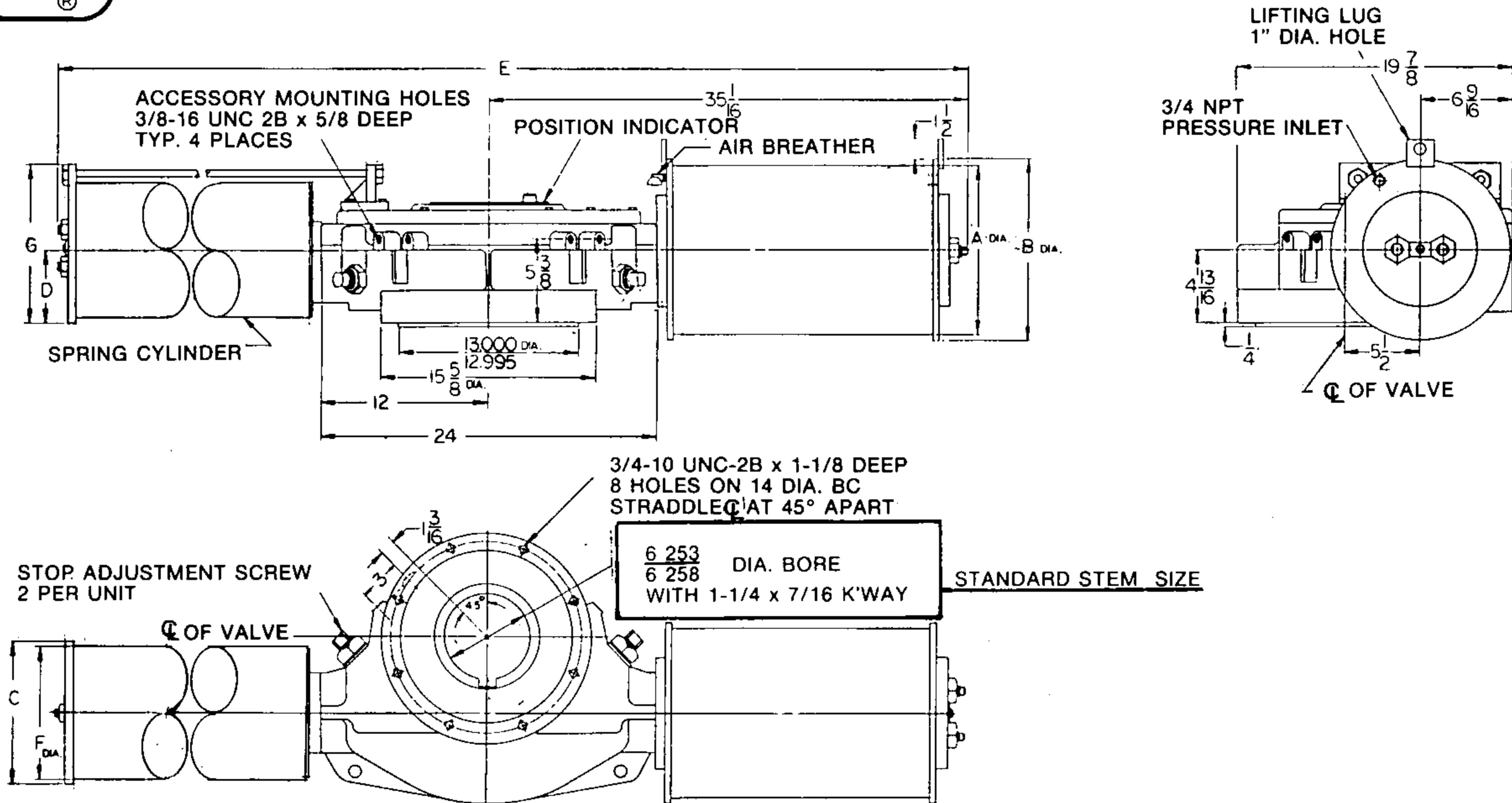
## T-4 SPRING RETURN



MODEL	SR-1								SR-2								SR-3							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
T-410-SR	10-3/4	11	1/2	-	14-1/8				10-3/4	11	1/2	-	14-1/8				10-3/4	11	1/2	-	14-1/8			
T-412-SR	12-3/4	13	1/2	2	15-1/8	11-3/8	69-1/2		12-3/4	13	1/2	2	15-1/8	11-3/8	73-1/2	12-3/4	13	1/2	2	15-1/8	10-3/4	64-3/8		
T-416-SR	16	16-1/4	3/4	1-1/2	16-3/4				16	16-1/4	3/4	1-1/2	16-3/4				16	16-1/4	3/4	1-1/2	16-3/4			
T-420-SR	20	20-1/4	3/4	1-1/2	20-1/4				20	20-1/4	3/4	1-1/2	20-1/4				20	20-1/4	3/4	1-1/2	20-1/4			
MODEL	SR-4								SR-5															
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H								
T-410-SR	10-3/4	11	1/2	-	14-1/8				10-3/4	11	1/2	-	14-1/8											
T-412-SR	12-3/4	13	1/2	2	15-1/8	7	66-5/8		12-3/4	13	1/2	2	15-1/8	7	69-1/2									
T-416-SR	16	16-1/4	3/4	1-1/2	16-3/4				16	16-1/4	3/4	1-1/2	16-3/4											
T-420-SR	20	20-1/4	3/4	1-1/2	20-1/4				20	20-1/4	3/4	1-1/2	20-1/4											

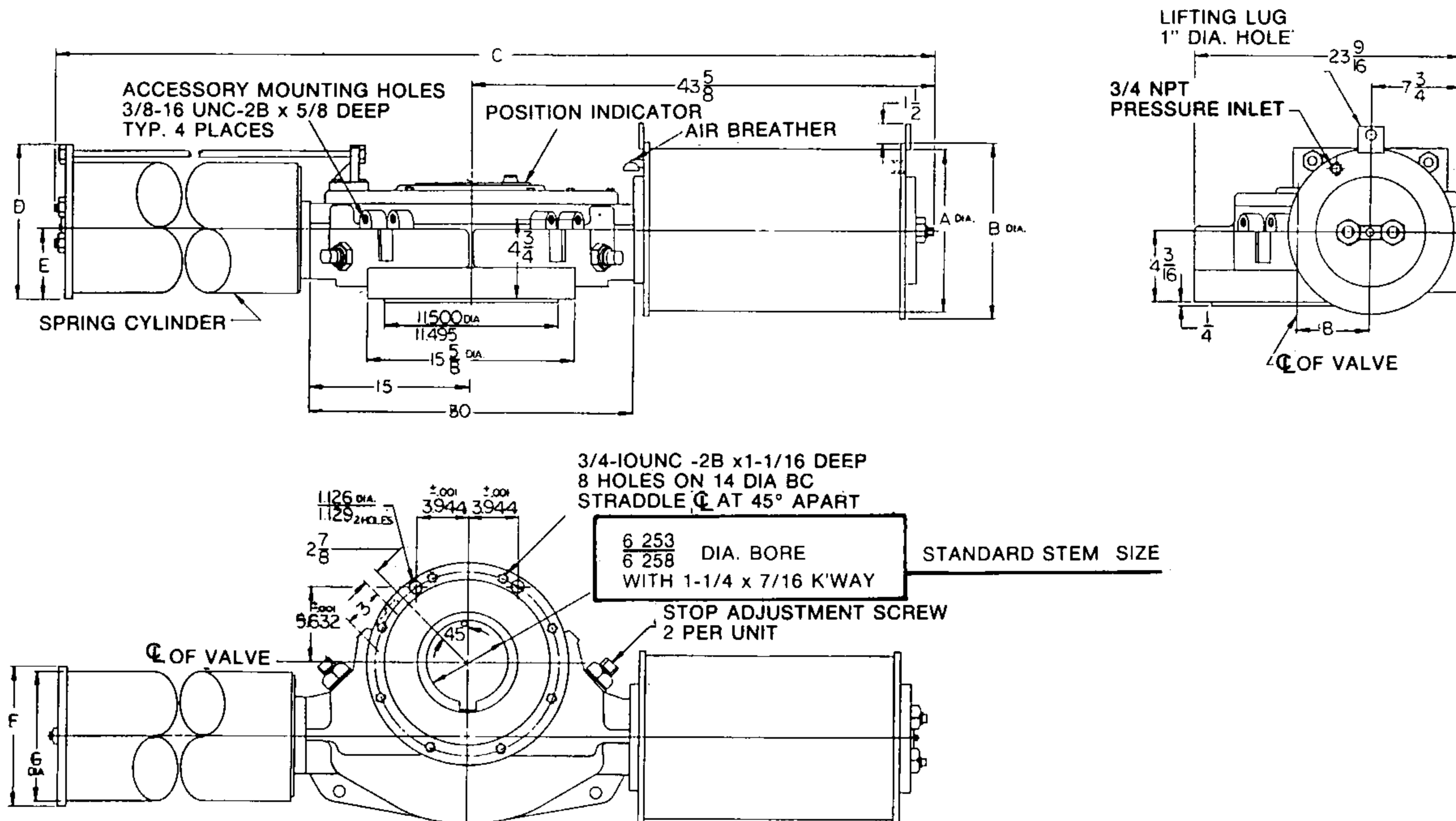


## T-5A SPRING RETURN



MODEL	SR-1							SR-2							SR-3							
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	
T-516A-SR	16	16-1/4						16	16-1/4						16	16-1/4						
T-520A-SR	20	20-1/4	14-1/2	6-5/16	122-1/16	12-1/8	13-9/16	20	20-1/4	14-1/2	5-15/16	112-1/16	11-3/8	13-3/16	20	20-1/4	14-1/2	5-9/16	97-11/16	10-5/8	12-13/16	
MODEL	SR-4							SR-5														
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	
T-516A-SR	16	16-1/4	14-1/2	5-9/16	104-5/16	10-5/8	12-13/16	16	16-1/4													
T-520A-SR	20	20-1/4						20	20-1/4													

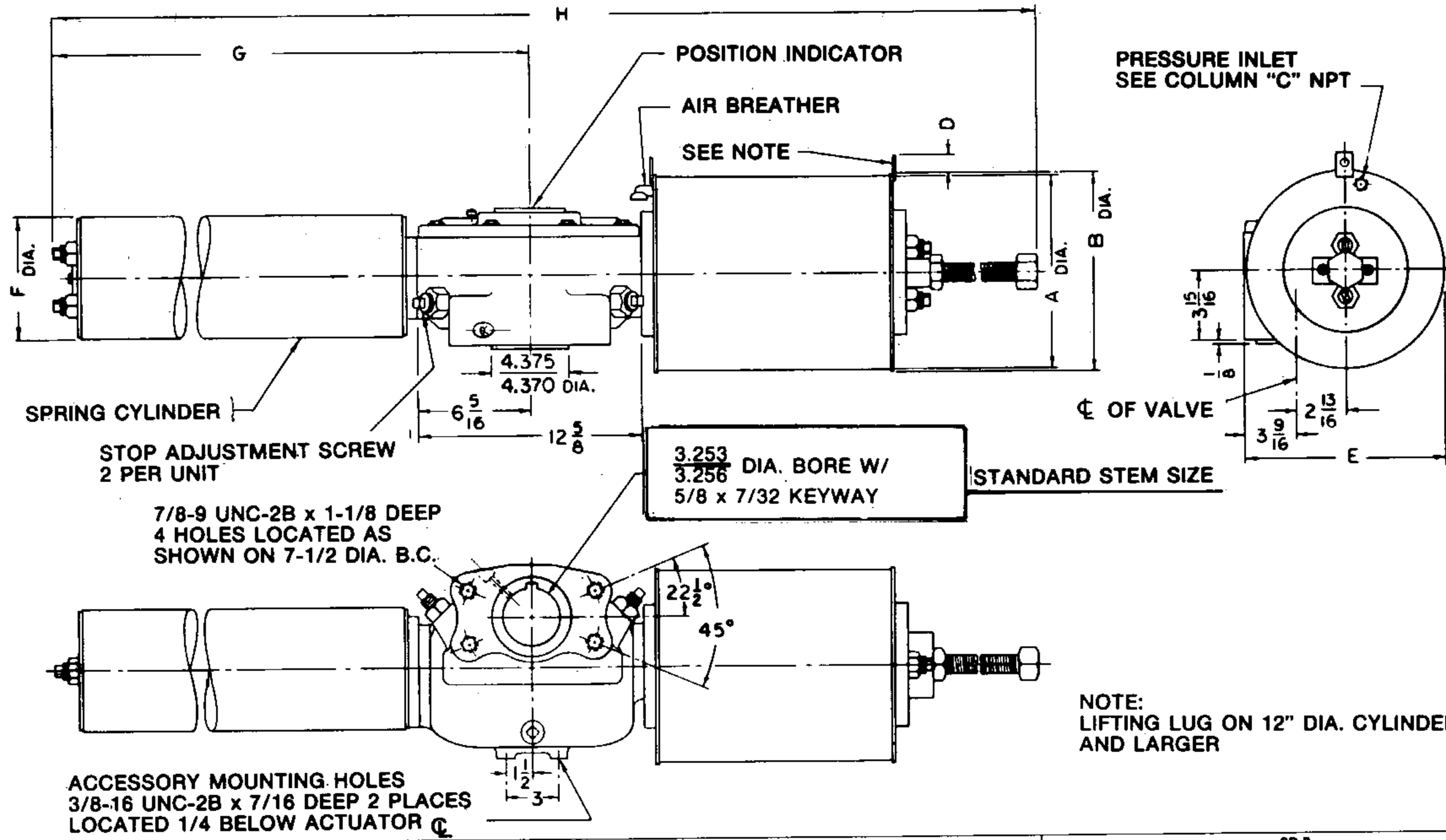
## T-8A SPRING RETURN



MODEL	SR-1							SR-2							SR-3							
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	
T-816A-SR	16	16-1/4	133-1/2	-	-	-	12-3/4	16	16-1/4	133-1/2	13-9/16	6-5/16	14-1/2	12-1/8	16	16-1/4	123-1/2	13-3/16	5-15/16	14-1/2	11-3/8	
T-820A-SR	20	20-1/4						20	20-1/4						20	20-1/4						
MODEL	SR-4							SR-5														
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	
T-816A-SR	16	16-1/4	132-1/2	13-3/16	5-15/16	14-1/2	11-3/8	16	16-1/4	115-3/4	12-15/16	5-9/16	14-1/2	10-5/8								
T-820A-SR	20	20-1/4						20	20-1/4													



## T-3A-SR-M3 (JACKSCREW)

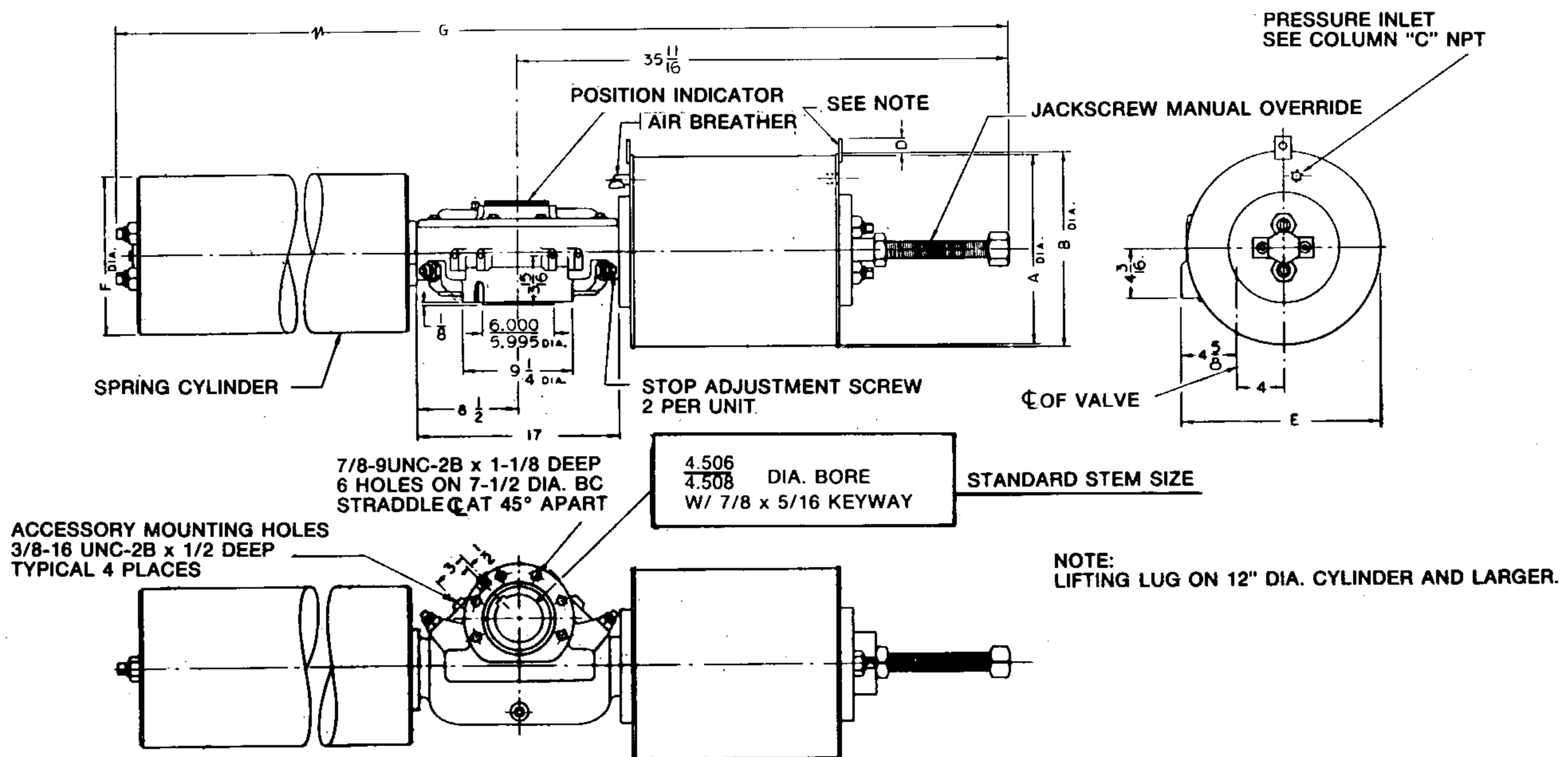


MODEL	SR-1								SR-2								SR-3							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
T-310A-SR	10-3/4	11	1/2	-	11-7/8	-	-	-	10-3/4	11	1/2	-	11-7/8	-	-	-	10-3/4	11	1/2	-	11-7/8	-	-	-
T-312A-SR	12-3/4	13	1/2	2	12-7/8	11-3/8	45-13/16	80-5/16	12-3/4	13	1/2	2	12-7/8	10-3/4	36-11/16	71-3/16	12-3/4	13	1/2	2	12-7/8	7	38-15/16	73-7/16
T-316A-SR	16	16-1/4	3/4	1-1/2	14-1/2	-	-	-	16	16-1/4	3/4	1-1/2	14-1/2	-	-	-	16	16-1/4	3/4	1-1/2	14-1/2	-	-	-

MODEL	SR-4								SR-5							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
T-310A-SR	10-3/4	11	1/2	-	11-7/8	-	-	-	10-3/4	11	1/2	-	11-7/8	-	-	-
T-312A-SR	12-3/4	13	1/2	2	12-7/8	7	38-15/16	73-7/16	12-3/4	13	1/2	2	12-7/8	7	41-13/16	76-5/16
T-316A-SR	16	16-1/4	3/4	1-1/2	14-1/2	-	-	-	16	16-1/4	3/4	1-1/2	14-1/2	-	-	-

## T-4-SR-M3 (JACKSCREW)



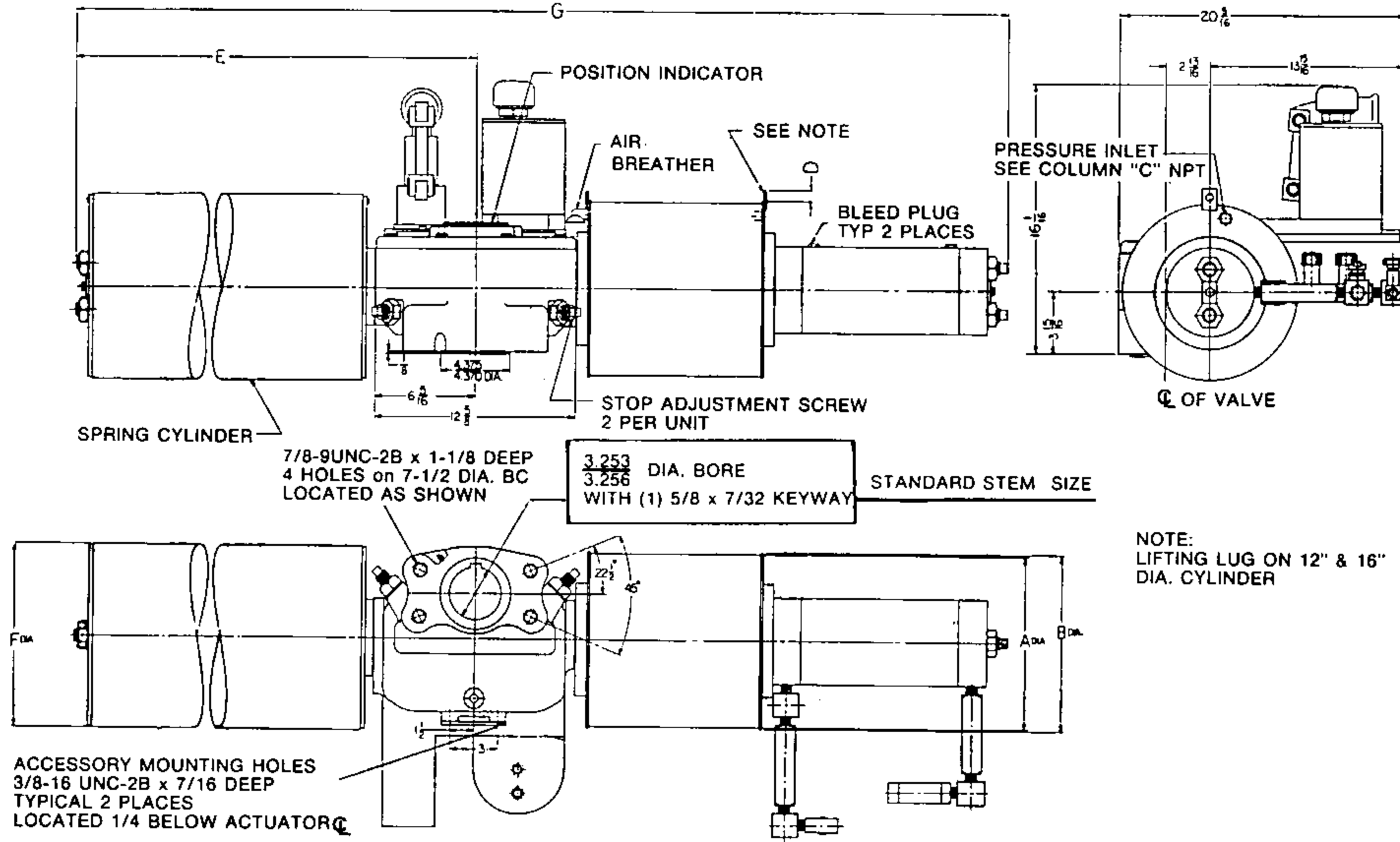
MODEL	SR-1								SR-2								SR-3							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
T-410-SR	10-3/4	11	1/2	-	14-1/8	-	-	-	10-3/4	11	1/2	-	14-1/8	-	-	-	10-3/4	11	1/2	-	14-1/8	-	-	-
T-412-SR	12-3/4	13	1/2	2	15-1/8	11-3/8	79-7/16	-	12-3/4	13	1/2	2	15-1/8	11-3/8	83-7/16	-	12-3/4	13	1/2	2	15-1/8	10-3/4	74-5/16	-
T-416-SR	16	16-1/4	3/4	1-1/2	16-3/4	-	-	-	16	16-1/4	3/4	1-1/2	16-3/4	-	-	-	16	16-1/4	3/4	1-1/2	16-3/4	-	-	-
T-420-SR	20	20-1/4	3/4	1-1/2	20-1/4	-	-	-	20	20-1/4	3/4	1-1/2	20-1/4	-	-	-	20	20-1/4	3/4	1-1/2	20-1/4	-	-	-

MODEL	SR-4								SR-5							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
T-410-SR	10-3/4	11	1/2	-	14-1/8	-	-	-	10-3/4	11	1/2	-	14-1/8	-	-	-
T-412-SR	12-3/4	13	1/2	2	15-1/8	7	76-9/16	-	12-3/4	13	1/2	2	15-1/8	7	79-7/16	-
T-416-SR	16	16-1/4	3/4	1-1/2	16-3/4	-	-	-	16	16-1/4	3/4	1-1/2	16-3/4	-	-	-
T-420-SR	20	20-1/4	3/4	1-1/2	20-1/4	-	-	-	20	20-1/4	3/4	1-1/2	20-1/4	-	-	-

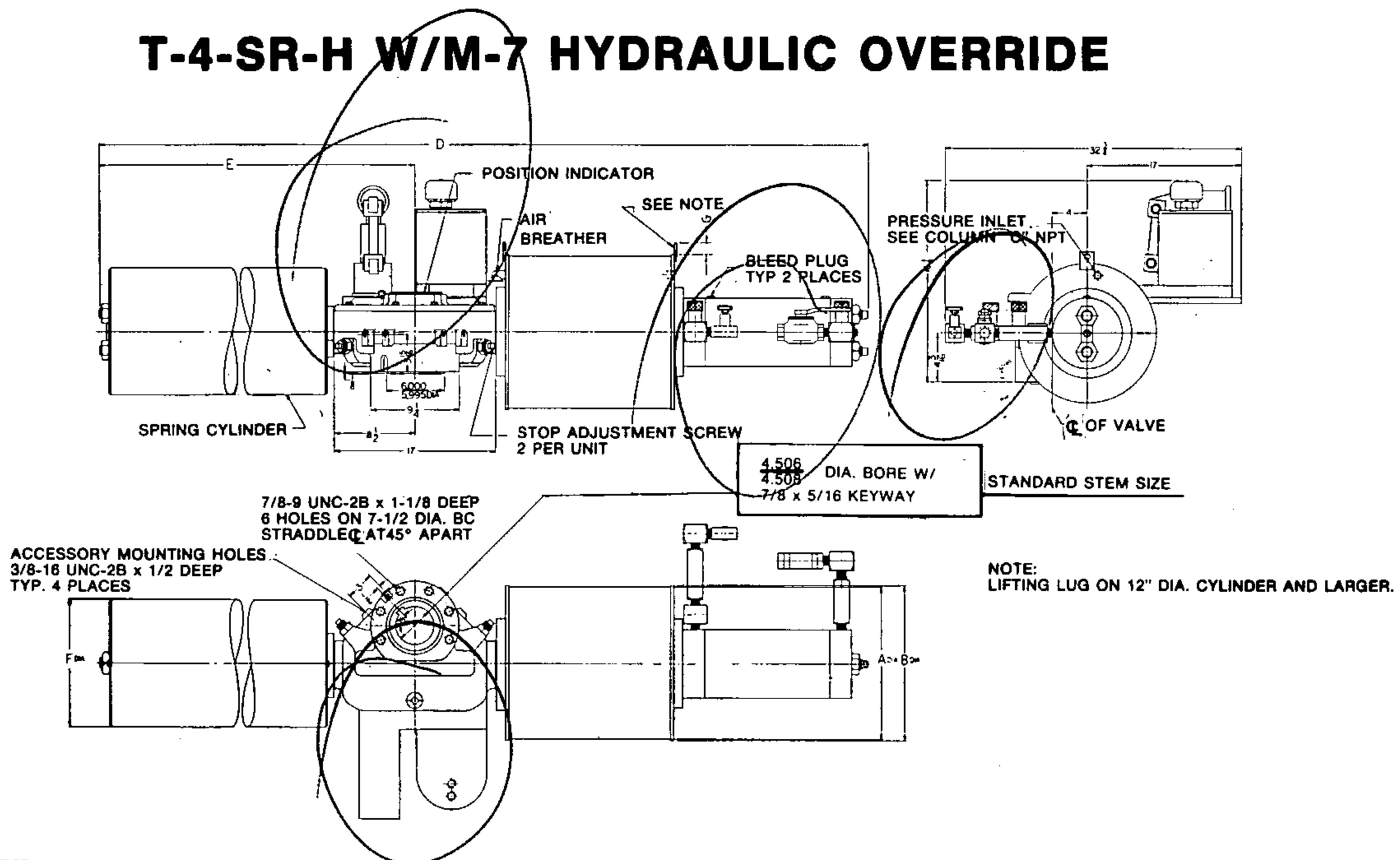


## T-3A-SR-H W/M-7 HYDRAULIC OVERRIDE



MODEL	SR-1-H							SR-2-H							SR-3-H							
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	
T-310A-SR	10-3/4	11	1/2	-				10-3/4	11	1/2	-				10-3/4	11	1/2	-				
T-312A-SR	12-3/4	13	1/2	2	45-13/16	11-3/8	79-5/8	12-3/4	13	1/2	2	36-11/16	10-3/4	70-1/2	12-3/4	13	1/2	2	38-15/16	7	72-3/4	
T-316A-SR	16	16-1/4	3/4	1-1/2				16	16-1/4	3/4	1-1/2				16	16-1/4	1-1/2					
MODEL	SR-4-H							SR-5-H														
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	
T-310A-SR	10-3/4	11	1/2	-				10-3/4	11	1/2	-											
T-312A-SR	12-3/4	13	1/2	2	38-15/16	7	72-3/4	12-3/4	13	1/2	2	41-13/16	7	75-5/8								
T-316A-SR	16	16-1/4	3/4	1-1/2				16	16-1/4	3/4	1-1/2											

## T-4-SR-H W/M-7 HYDRAULIC OVERRIDE

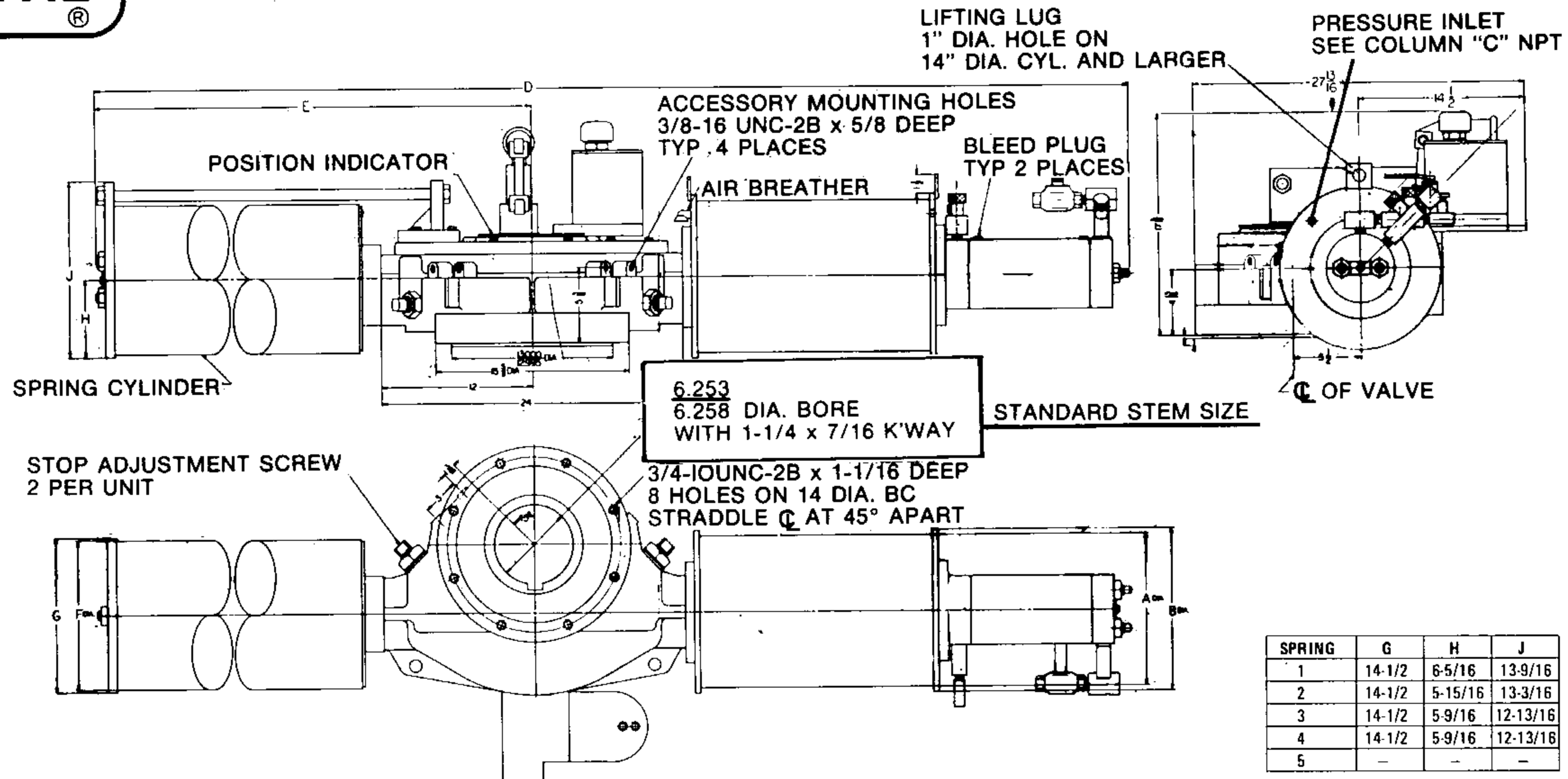


MODEL	SR-1-H						SR-2-H						SR-3-H					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
T-410-SR	10-3/4	11	1/2				10-3/4	11	1/2				10-3/4	11	1/2			
T-412-SR	12-3/4	13	1/2	85	43-3/4	11-3/8	12-3/4	13	1/2	89	47-3/4	11-3/8	12-3/4	13	1/2	79-7/8	38-5/8	10-3/4
T-416-SR	16	16-1/4	3/4				16	16-1/4	3/4				16	16-1/4	3/4			
T-420-SR	20	20-1/4	3/4				20	20-1/4	3/4				20	20-1/4	3/4			
MODEL	SR-4-H						SR-5-H											
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
T-410-SR	10-3/4	11	1/2				10-3/4	11	1/2									
T-412-SR	12-3/4	13	1/2	82-1/8	40-7/8	7	12-3/4	13	1/2	85	43-3/4	7						
T-416-SR	16	16-1/4	3/4				16	16-1/4	3/4									
T-420-SR	20	20-1/4	3/4				20	20-1/4	3/4									

MODEL	G
T-412-SR	2
T-416-SR	1-1/2
T-420-SR	1-1/2

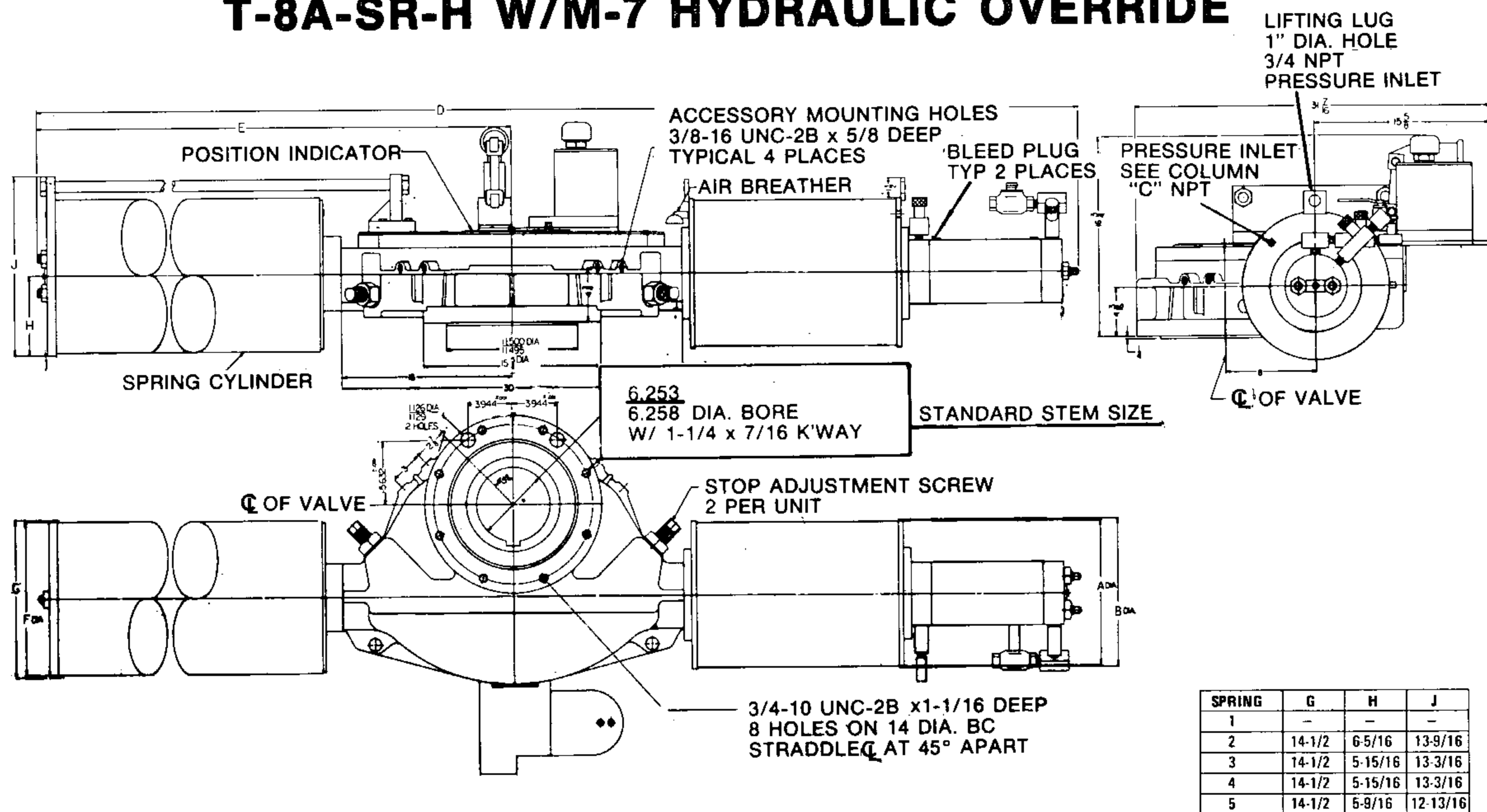


## T-5A-SR-H W/M-7 HYDRAULIC OVERRIDE



MODEL	SR-1-H						SR-2-H						SR-3-H					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
T-512A-SR	12-3/4	13	1/2				12-3/4	13	1/2				12-3/4	13	1/2			
T-516A-SR	16	16-1/4	3/4	142-5/8	87	12-1/8	16	16-1/4	3/4	132-5/8	77	11-3/8	16	16-1/4	3/4	118-1/4	62-5/8	10-5/8
T-520A-SR	20	20-1/4	3/4				20	20-1/4	3/4				20	20-1/4	3/4			
MODEL	SR-4-H						SR-5-H											
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
T-512A-SR	12-3/4	13	1/2				12-3/4	13	1/2									
T-516A-SR	16	16-1/4	3/4	124-7/8	69-1/4	10-5/8	16	16-1/4	3/4	124-7/8	69-1/4	7						
T-520A-SR	20	20-1/4	3/4				20	20-1/4	3/4									

## T-8A-SR-H W/M-7 HYDRAULIC OVERRIDE



MODEL	SR-1-H						SR-2-H						SR-3-H					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
T-812A-SR	12-3/4	13	1/2				12-3/4	13	1/2				12-3/4	13	1/2			
T-816A-SR	16	16-1/4	3/4	160-3/8	89-7/8	12-3/4	16	16-1/4	3/4	160-3/8	89-7/8	12-1/8	16	16-1/4	3/4	150-3/8	79-7/8	11-3/8
T-820A-SR	20	20-1/4	3/4				20	20-1/4	3/4				20	20-1/4	3/4			
MODEL	SR-4-H						SR-5-H											
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
T-812A-SR	12-3/4	13	1/2				12-3/4	13	1/2									
T-816A-SR	16	16-1/4	3/4	159-3/8	88-7/8	11-3/8	16	16-1/4	3/4	142-5/8	72-1/8	10-5/8						
T-820A-SR	20	20-1/4	3/4				20	20-1/4	3/4									



## ACTUATOR DATA

MODEL	DISPLACEMENT		WEIGHT (LBS.)	W/MANUAL ADD	MAX. TORQ. (IN LBS)	WKG. PRESS. (PSIG)	TEST PRESS. (PSIG)*
	CU. IN.	CU. FT.					
T-310A	665	.386	130	16#	60,000	160	245
T-312A	950	.550	160			115	170
T-410	665	.386	255		115,000	225	338
T-412	950	.550	285			155	233
T-416	1510	.875	375			95	145
T-516A	2100	1.215	690	120#	225,000	145	218
T-520A	3325	1.922	820			90	130
T-816A	3050	1.763	785		450,000	180	270
T-820A	4820	2.786	986			115	170

\* TEST PRESSURE IS THE MAXIMUM ALLOWABLE STATIC PRESSURE WITH THE ACTUATOR FULLY STROKED AND AGAINST THE TRAVEL STOPS.

MODEL	DISPLACEMENT		WEIGHT					W/MAN. ADD	MAX. TQ.	MAX.WKG. PRESS.
	CU.IN.	CU.FT.	SR-1	SR-2	SR-3	SR-4	SR-5			
T-310A-SR	665	.386	425	356	250	260	260	100#	28,800	250
T-312A-SR	950	.550	455	395	280	290	290			250
T-316A-SR	1510	.875	535	475	360	370	370			160
T-410-SR	665	.386	560	555	495	380	385		55,500	250
T-412-SR	950	.550	590	585	525	410	415			250
T-416-SR	1510	.875	680	675	615	500	505	160		
T-420-SR	2389	1.366	805	800	740	625	630	120#	112,500	100
T-516A-SR	2100	1.215	1430	1230	1060	1075	925			250
T-520A-SR	3325	1.922	1560	1360	1190	1205	1055		170	
T-816A-SR	3050	1.763	—	1525	1325	1355	1170		177,000	250
T-820A-SR	4820	2.786	—	1665	1465	1495	1310			170

### “T” - SERIES MANUAL OVERRIDES

“M” — An Internal Mechanical Override is available on T-3 Double Acting Units.

M-3 — Jackscrew Manual Override is available on T-3 and T-4 Spring Return units.  
Note that the Jackscrew Override is an integral part of the Actuator.

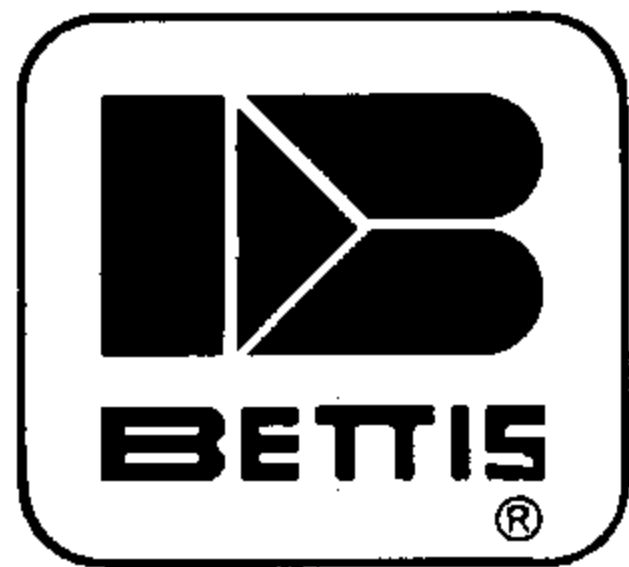
M-4 — Hydraulic Manual Override is a Bi-Directional Hydraulic Manual Override, available on T-3 thru T-8 Double Acting Units.

M-7 — Hydraulic Manual Override is a Uni-Directional Hydraulic Manual Override, available on T-3 thru T-8 Spring Return Units.

### HYDRAULIC SPEED CONTROL

M-8 — Hydraulic Speed Control for operation in either direction is available on all Double Acting or Spring Return Units, T-3 thru T-8.

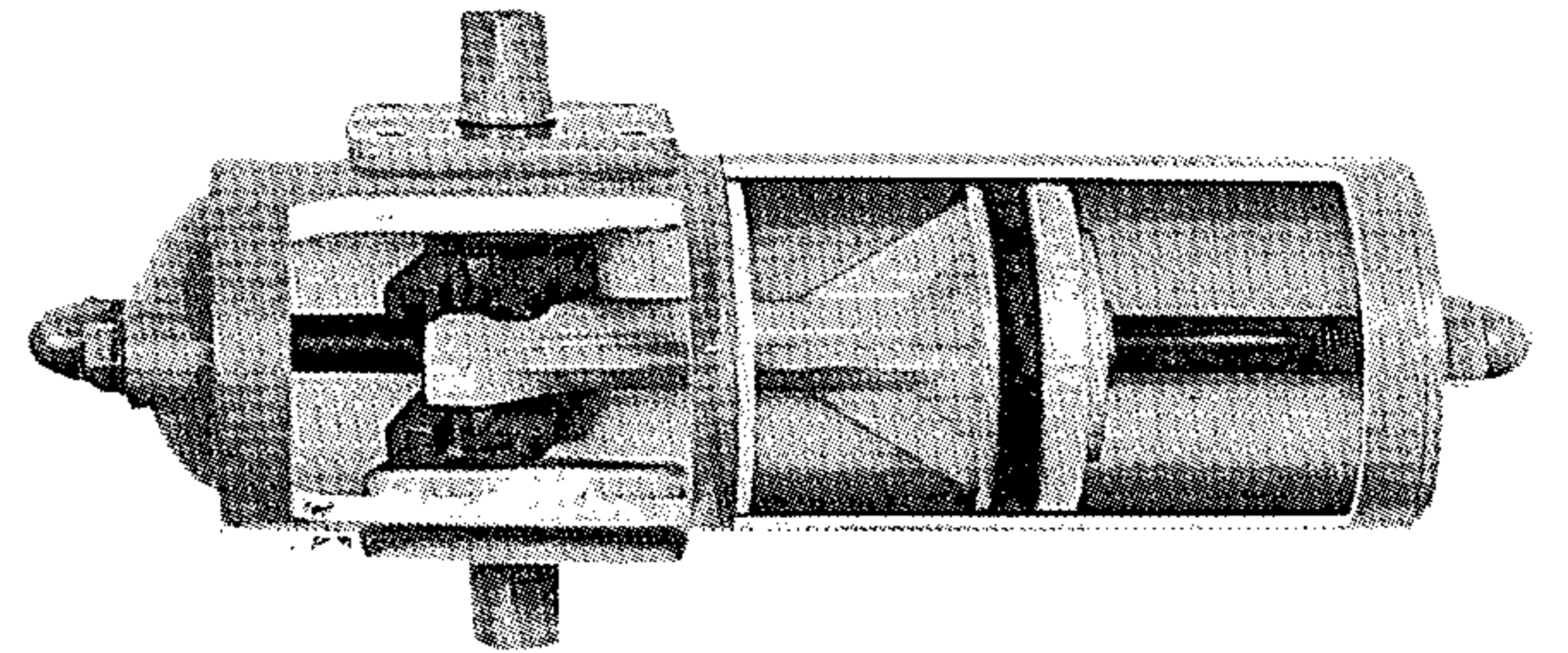
**NOTE:** M-4 and M-7 Control Systems include the hydraulic speed control feature as standard.



## OTHER BETTIS PRODUCTS

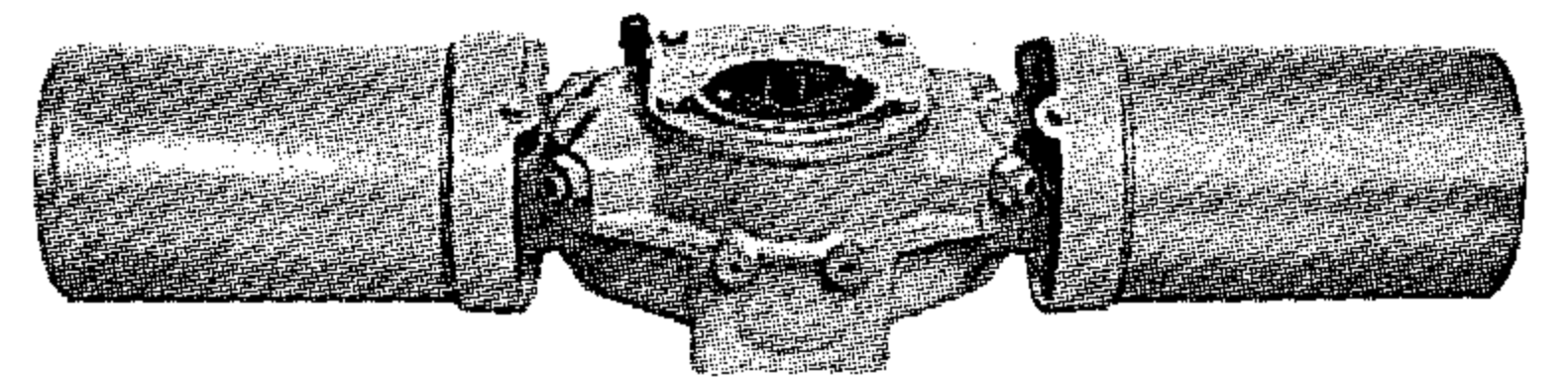
### "CB" SERIES

The Robotarm Model "CB" Series Actuator is a gas or air-driven cylinder-type operator that gives positive remote control for any of 90-degree rotary operation. The model "CB" Robotarm is one of the most economical and compact rotary actuators available. Standard units are manufactured in several sizes from 300 to 9240 inch-pounds torque output for double acting and 200 to 3800 inch-pounds torque output for spring return units. Standard operating pressures are 40 to 120 PSIG.



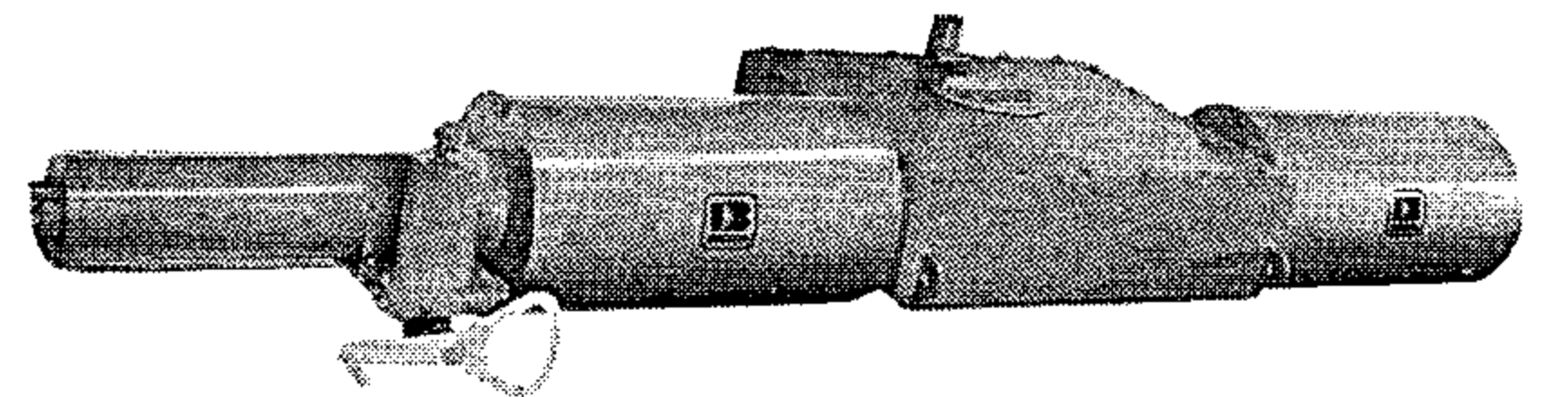
### HEAVY DUTY SERIES

The Bettis Heavy Duty Series, Scotch Yoke Robotarm Actuator, is a superior cylinder-type actuator for pneumatic or hydraulic service. Its proven design offers positive control for operation of ball, butterfly or plug valves and many other 90° rotating mechanisms. Double acting HD series actuators are available for torque outputs of 2,000 to 60,000 in-pounds. Spring return actuators are available for torque outputs of 800 to 15,000 in-pounds.



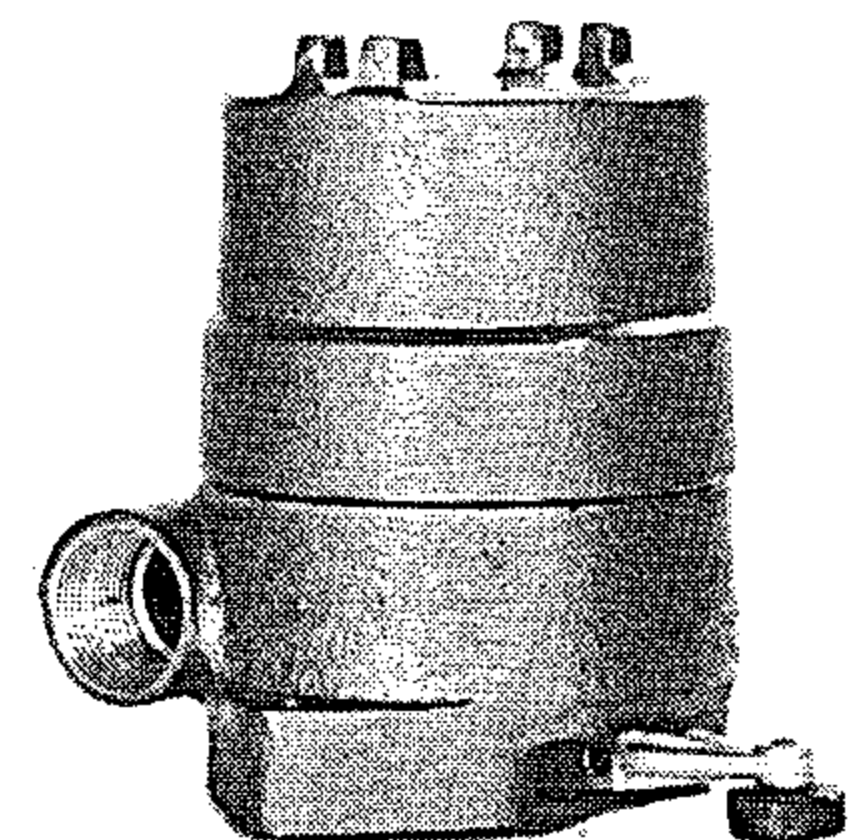
### "TR" & "TRQ" SERIES

The "TR" (Track-Guide Rail) and "TRQ" (Track-Guide Rail - Quad Body) Series represents a further extension of the line of high torque Robotarm actuators. Designed with the same quality and rugged features as the other series Bettis actuator, these units are available for torques up to 2,000,000 inch-pounds.



### BETTISWITCH

The Bettiswitch is a versatile position-indicating switch designed primarily for use with Bettis valve actuators. The Bettiswitch is especially adaptable to sequence cycling or automated systems, with a choice of operating mechanisms, direct-coupled or three position lever/roller operations. All switches are weather and explosion proof.



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