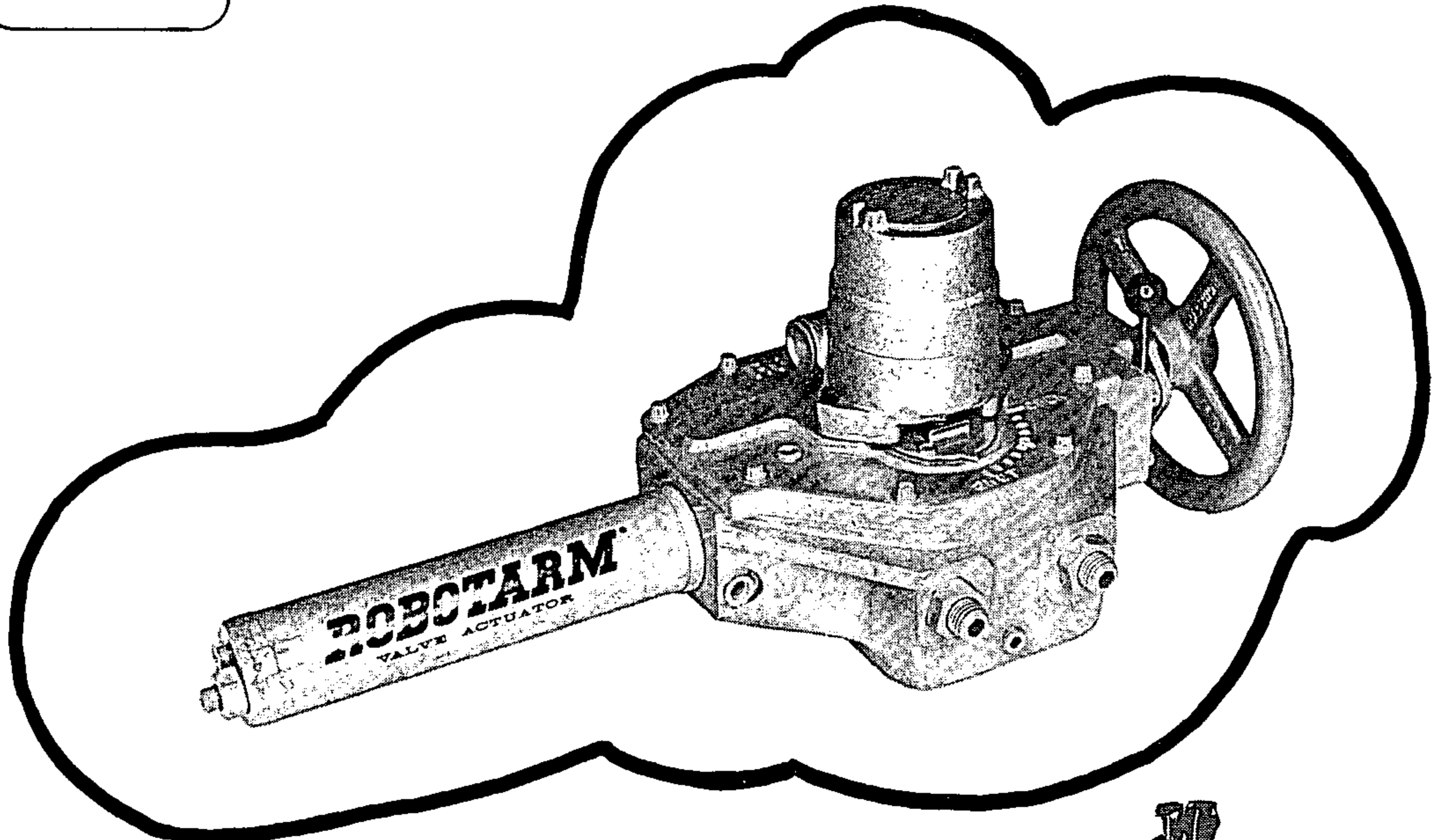




ROBOTARM® VALVE ACTUATORS

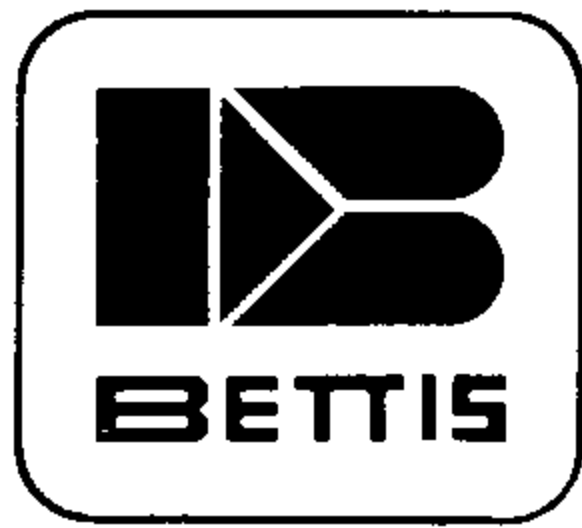


FOR BALL, PLUG AND BUTTERFLY TYPE VALVES

**"T" SERIES
FOR MARINE APPLICATIONS**



3100 FALL AT GRAND • P. O. BOX 14689
PHONE: (713) RI 8-1143 • HOUSTON, TEXAS 77021



FSMC 16583

HYDRAULIC VALVE ACTUATORS

"T" SERIES

The new "T" Series Bettis Hydraulic Valve actuators are compact, rugged units manufactured under the same rigid standards resulting in Bettis being the recognized leader in the field of pneumatic and hydraulic valve actuators.

FEATURES:

Due to the flexibility of the "T" Series basic design a broad range of operating conditions can be satisfied. Larger models are available that can produce up to 500,000 inch lbs. of torque.

This bulletin covers only two models, the T-02011-1014 and T-02021-1014. In this bulletin these units will be referred to as T-1 and T-2 models. The "T" identifies "Track/Tie-Bar" construction. The track serves as a guide for the yoke pin which eliminates side loads on the piston rod resulting in highly efficient performance.

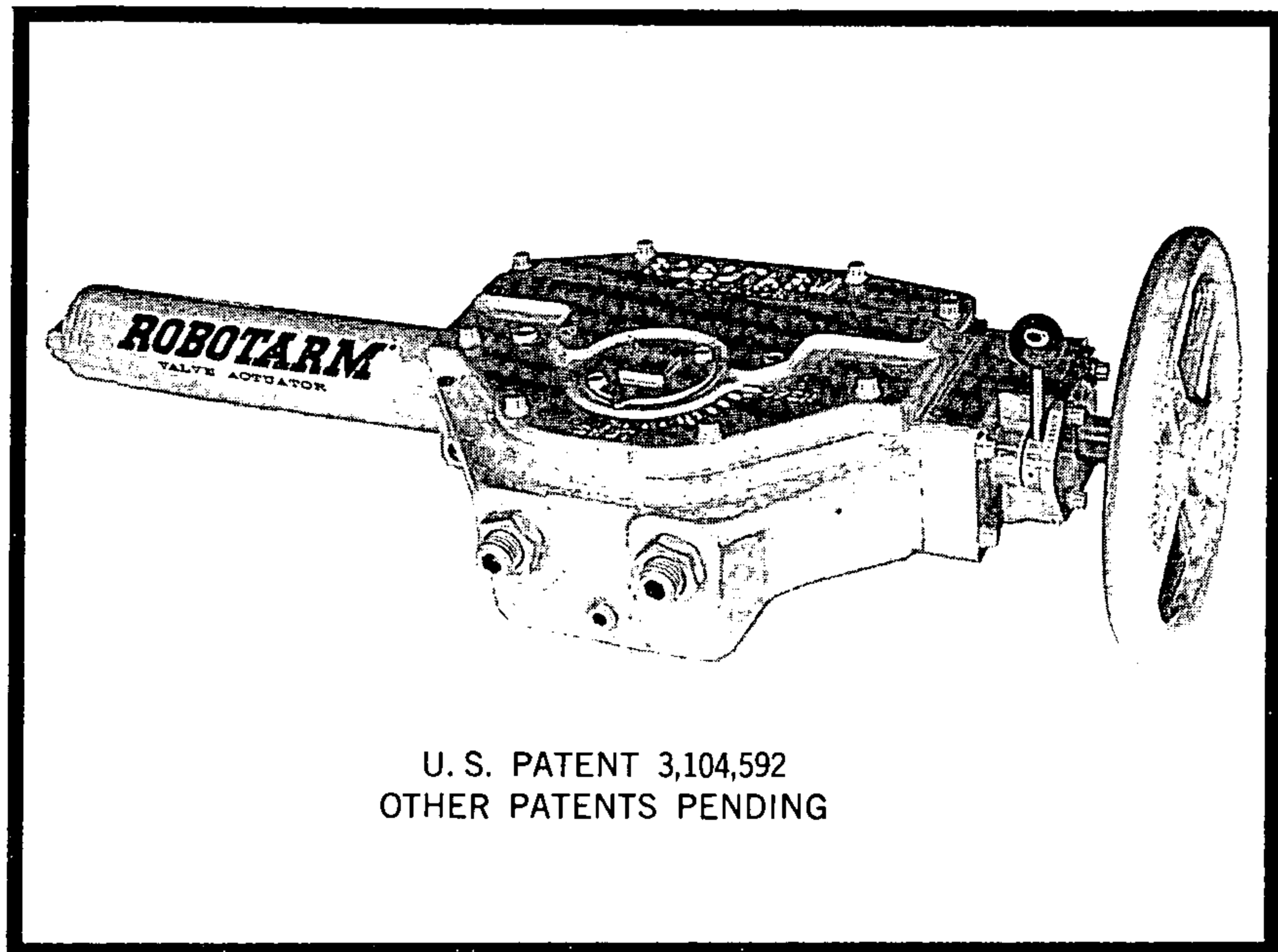
The T-1 and T-2 units both feature a declutchable manual operator which is an integral part of the operator and is completely encased in the body housing with all wearing parts being grease lubricated. Engagement and disengagement is fast and simply accomplished with a lever conveniently located at the handwheel.

The internal tie-bar is a proven principle which permits fast and economical maintenance. This design is currently utilized in the Bettis CB-Series Actuators. This feature assures accurate alignment eliminating the possibility of misalignment caused by unequal torquing of external tie-bars.

The cylinder is lined with a baked-on fluoropolymer producing minimum friction characteristics. In addition, this process creates a high load and corrosion resistant surface. Since piston side load is carried by the internal tie-bar, scrubbing against the cylinder wall is eliminated thereby protecting the coating and prolonging the life of the unit.

STORAGE:

For applications where the actuator is not put into immediate service or is used in intermittent services, it is recommended that the actuator be cycled at least three (3) times per month to keep the packing flexible and to insure that the valve is free. When this is not possible and the actuator is equipped with manual override, it is recommended that the air inlets be plugged and the actuator cycled manually. Indoor storage, if available, is recommended for all actuators. Care should be taken to plug the cylinder ports, control valve ports and the body ports. Also, actuators should not be stored in an atmosphere harmful to resilient seals.

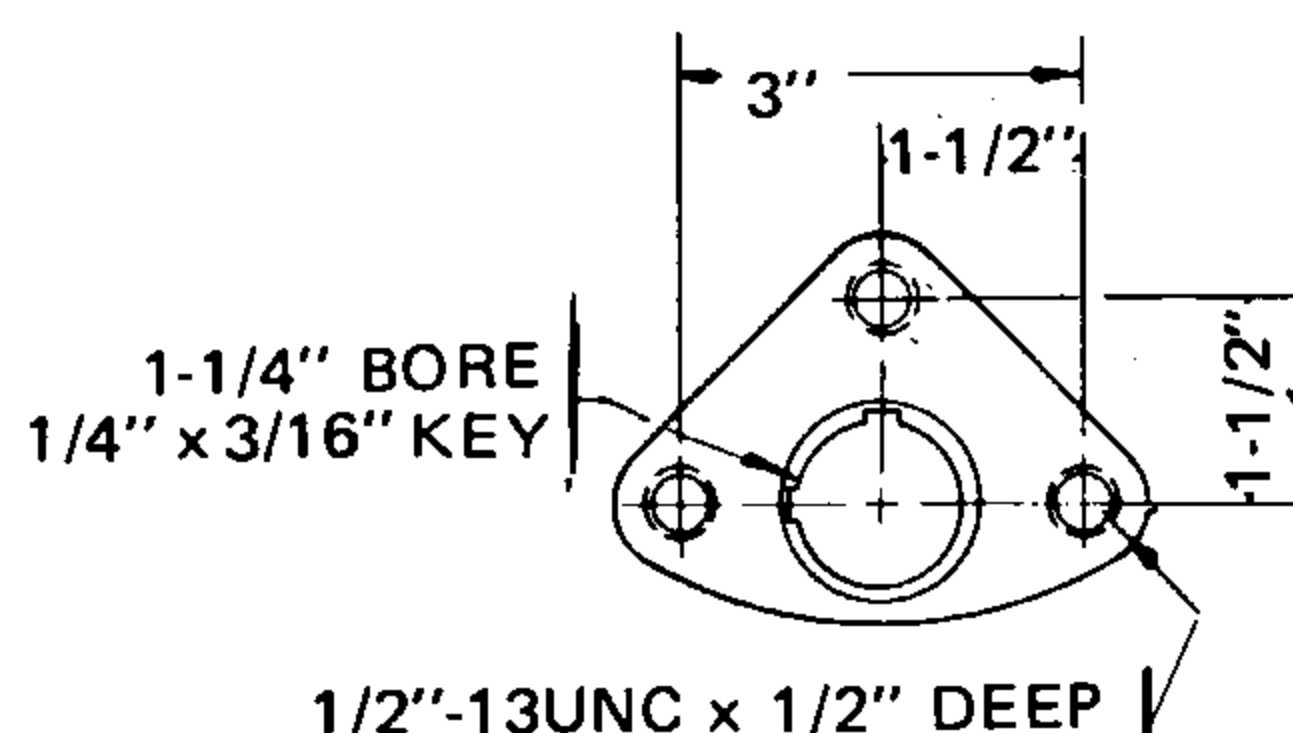
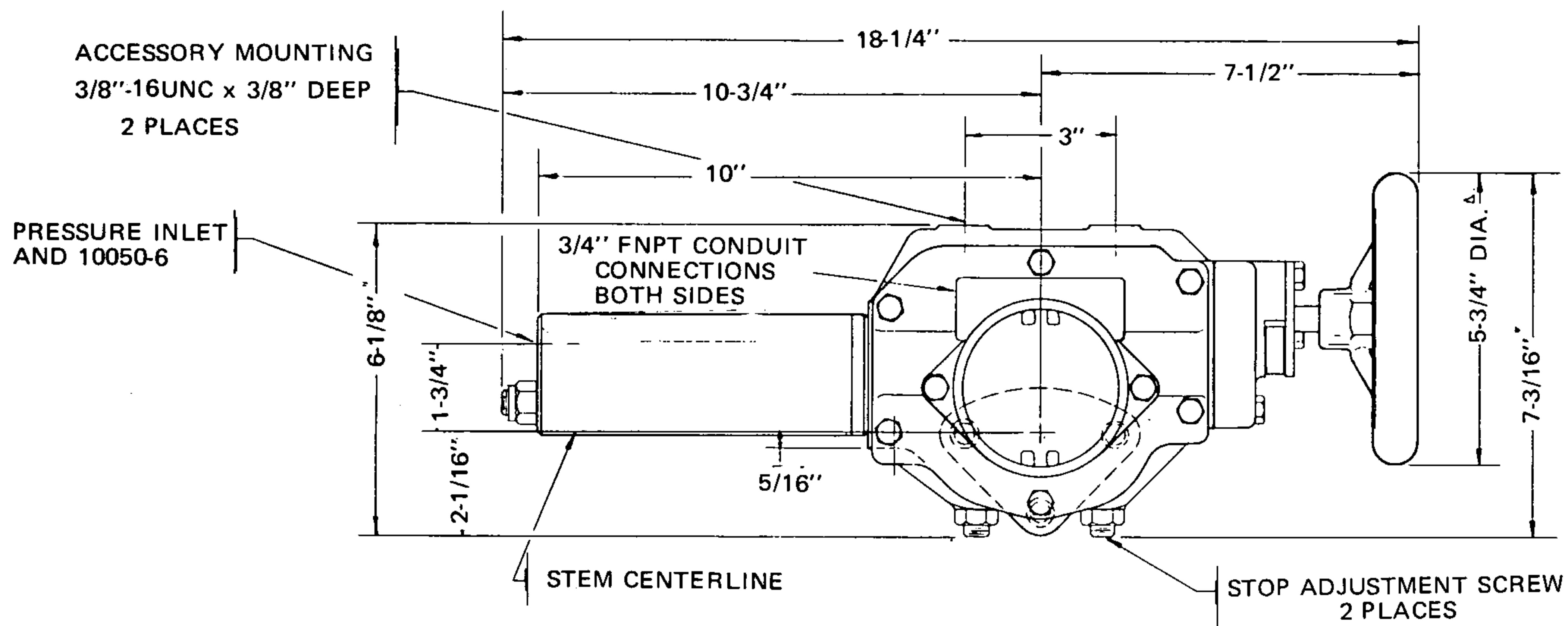




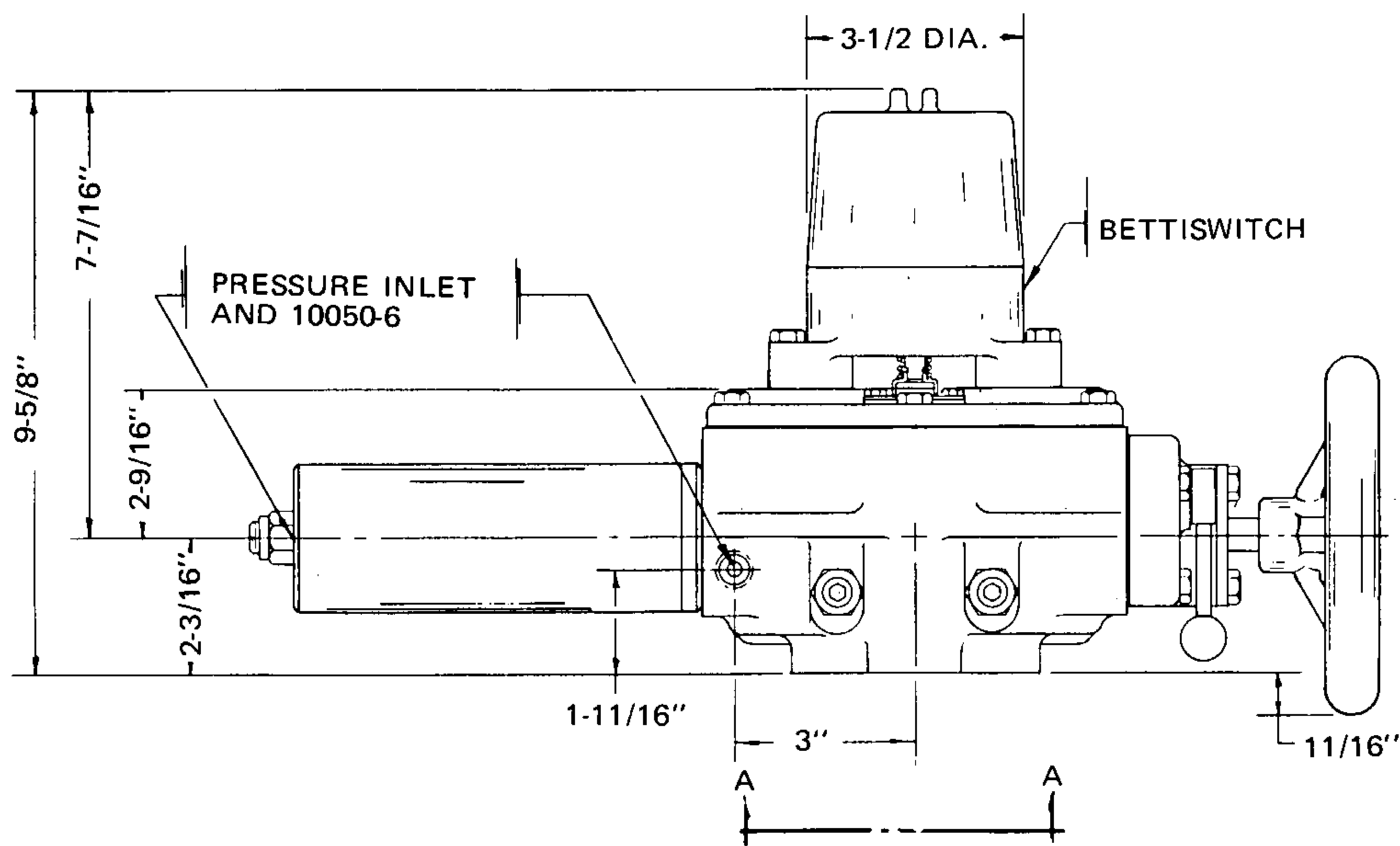
BETTIS HYDRAULIC VALVE ACTUATORS

1000 PSI
OPERATING
PRESSURE

MODEL T-02011-1014
(SHOWN WITH BETTISWITCH)



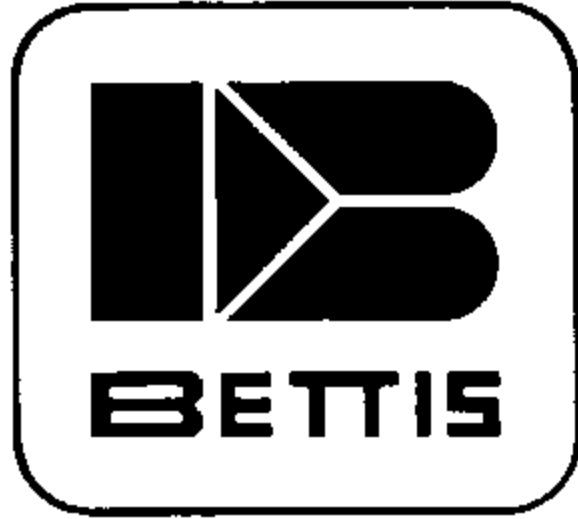
MOUNTING PAD
VIEW A-A
SHOWN IN SHUT POSITION



NOTE: MODEL T-02011-1014
IDENTIFIES ACTUATOR
ONLY. THE BETTISWITCH
IS AN ACCESSORY ITEM.

TORQUE OUTPUT

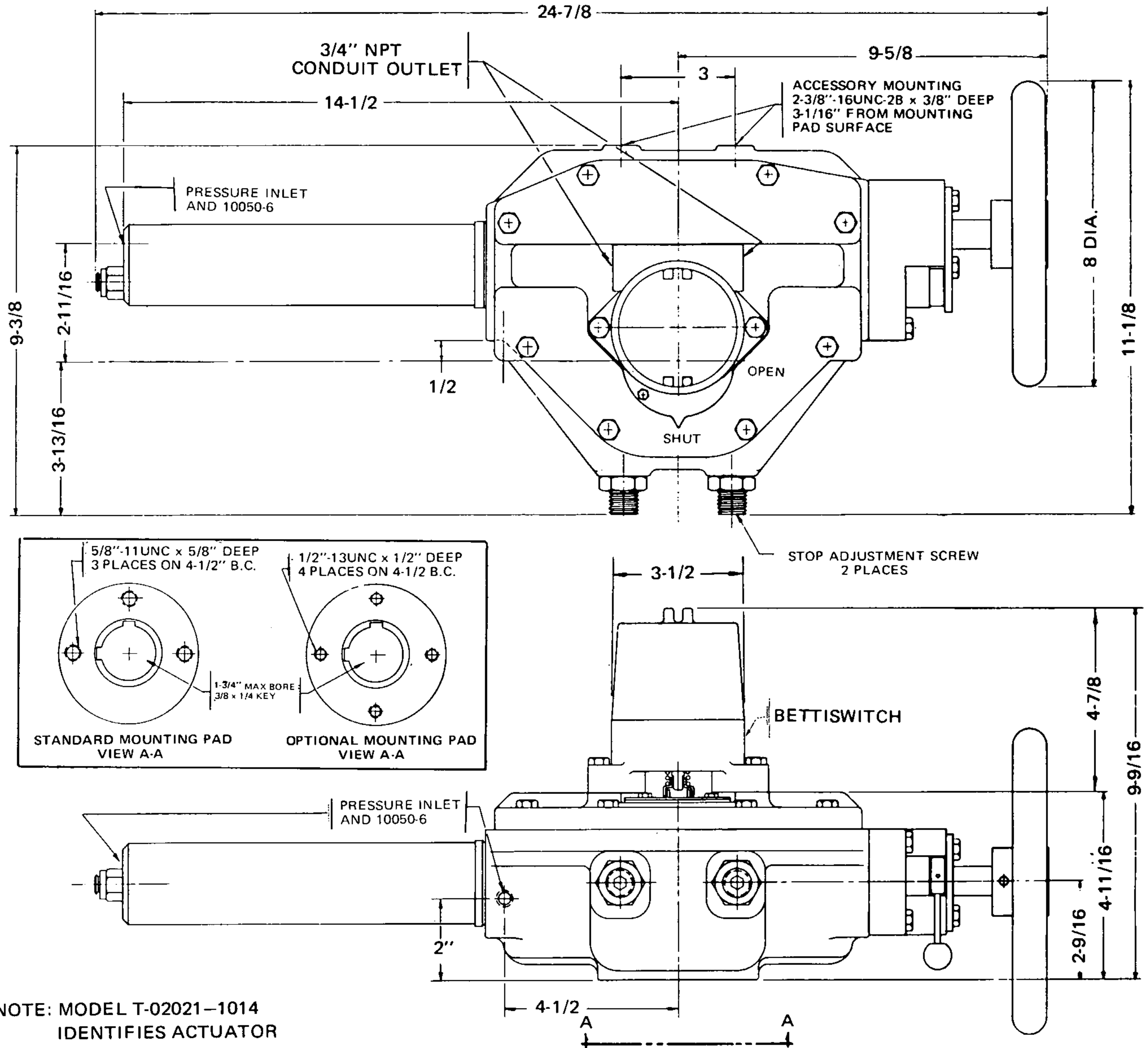
OPER. PRESSURE LBS. PER SQ. IN.	500	600	650	700	750	800	850	900	950	1000
BREAKING TORQUE OUTPUT IN./LBS.	2500	3000	3250	3500	3750	4000	4250	4500	4750	5000



BETTIS HYDRAULIC VALVE ACTUATORS

2000 PSI
OPERATING
PRESSURE

MODEL T-02021-1014
SHOCK TEST REPORT LE-827 *
(SHOWN WITH BETTISWITCH)



NOTE: MODEL T-02021-1014 IDENTIFIES ACTUATOR ONLY. THE BETTISWITCH IS AN ACCESSORY ITEM.

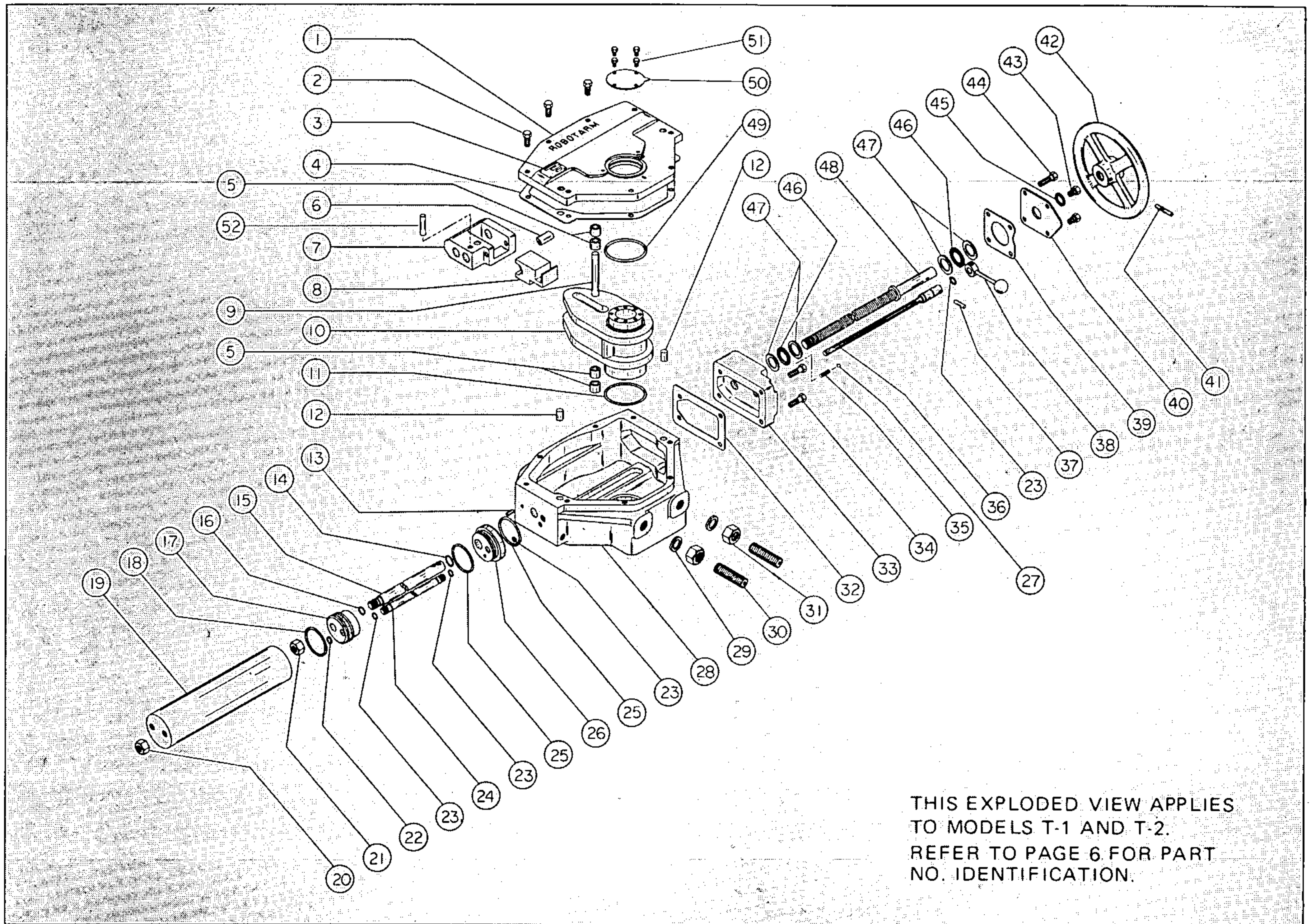
TORQUE OUTPUT

OPER. PRESSURE LBS. PER SQ. IN.	500	750	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
BREAKING TORQUE OUTPUT IN./LBS.	4250	6375	8500	9350	10200	11050	11900	12750	13600	14450	15300	16150	17000

*THIS UNIT WAS SHOCK TESTED WITH BETTISWITCH MODEL RXN-21 MOUNTED AS SHOWN ON COVER.



ROBOTARM VALVE ACTUATORS



	SERIES T-1	SERIES T-2
	MODEL T-02011-1014	MODEL T-02021-1014
WEIGHT	39#	48#
MAX. STEM SIZE WITHOUT BUSHING (Yoke Bore)	1 1/4"	1 3/4"
MAX. STEM SIZE WITH BUSHING	7/8"	1 3/8"
KEY	1/4" x 3/16"	3/8" x 1/4"
DISPLACEMENT PER CYCLE—CU. IN.	14.38	26.14
DISPLACEMENT PER CYCLE—GALLONS	.062	.113
TEMPERATURE RANGE:		
CONTINUOUS SERVICE	← —20°F to 350°F —→	
INTERMITTANT SERVICE	← —20°F to 400°F —→	

SEALS: Viton & Polyurethane are suitable for use with phosphate ester fire resistant fluid (MIL-H-19457).



ROBOTARM VALVE ACTUATORS

PARTS

PARTS ARE INTERCHANGEABLE WHERE SHADED.

ITEM NO.	DESCRIPTION	No. Req.	PART No. FOR T-02011-1014	No. Req.	PART No. FOR T-02021-1014
1	Cover	1	217676	1	216768
2	Scr. Hex Hd. Cap Nylok. S.S.	6	216769	8	216769
3	Nameplate	1	216770	1	216770
4	Gasket, Cover	1	217677	1	216771
5	Roller, Yoke	4	217678	4	216772
6	Cam	1	217679	1	216773
7	Ret. Split Nut	1	217680	1	216774
8	Nut, Split	1	217681	1	216775
9	Pin, Yoke	1	216776	1	216776
10	Yoke	1	217682	1	216777
11	Seal-Poly-Pak	1	217683	1	216820
12	Pin. Driv-Lok, Type "A" Alloy Steel	2	216778	2	216778
13	Pin Driv-Lok	1	216779	1	216779
14	Seal Assy.	1	216821	1	216821
15	Rod, Piston	1	217684	1	216780
16	Seal, O-Ring	1	217492	1	217492
17	Piston	1	216784	1	216784
18	Seal, Assy. Piston	1	216785	1	216785
19	Cylinder	1	217685	1	216786
20	Nut, Cyl.-Elas. Stop. S.S.	1	216787	1	216787
21	Nut, Piston-Elas. Stop. S.S.	1	216788	1	216788
22	Seal Assy.	1	216822	1	216822
23	Seal, O-Ring	4	217491	4	217491
24	Rod, Tie	1	217686	1	216789
25	Seal, O-Ring	2	217494	2	217494
26	Head, Cyl.	1	216790	1	216790
27	Ball, S/S	1	217482	1	217482
28	Housing	1	217687	1	216791
29	Seal, Nyltite	2	217688	2	216792
30	Screw, Stop-Socket Head, Flat Pt.	2	217660	2	216793
31	Nut, Stop Lock-Jam	2	210661	2	216794
32	Gasket, Housing	1	217662	1	216796
33	Housing, Operator	1	217663	1	216798
34	Screw, Hex Hd. Cap Nylok	2	216799	2	216799
35	Spring	1	217483	1	217483
36	Shaft Assy, Engaging. Consisting of: 1-Spline Shaft; 1 sub-engaging; 1-pin Drive-Lok	1	217664	1	216800
37	Pin, Driv Lok	1	216804	1	216804
38	Lever Assy: Consisting of: Hub, Shaft & Knob	1	217665	1	216805
39	Gasket, Bearing Retainer	1	217666	1	216806
40	Retainer, Bearing	1	217667	1	216807
41	Pin, Driv-Lok	1	217668	1	216808
42	Handwheel	1	217669	1	216809
43	Screw, Hex-Head Cap-Nylok	1	216810	2	216810
44	Screw, Hex-Head Cap-Nylok	2	216811	2	216811
45	Seal, Single Lip	1	217670	1	216812
46	Bearing, Needle	2	216671	2	216813
47	Race, Thrust	4	217672	4	216814
48	Screw Assy. Consisting of: Screw, Hub	1	217673	1	216815
49	Seal, O-Ring	1	217674	1	217493
50	Indicator	1	217675	1	216818
51	Screw, Hex Hd.-Cap Nylok	4	216819	4	216819
52	Pin, Driv-Lok	1	217486	1	217486
			B/M 17659		B/M 16767