

SERIES  
500T  
500F

# LIQUID LEVEL CONTROLS

FOR BOILERS— PRESSURE OR VACUUM VESSELS



## SIDE MOUNTING

PRESSURES TO 300 PSIG.

MULTIPLE CIRCUITS

SINGLE, TWO-STAGE

WITH HERMETICALLY SEALED MERCURY SWITCH CONTACTS OR SNAP-ACTION CONTACTS

AVAILABLE CONSTRUCTION

ALL TYPES—STAINLESS STEEL REMOVABLE FLOAT AND TRIM

**General Purpose (NEMA 1):** Type 500G, 500FG. For indoor service and other general applications. Switch assembly is enclosed in a heavy gauge steel case finished in charcoal gray. 3/4" NPT conduit connection. \*

**Weather-Resistant (Raintight) (NEMA 3R):** Type 500TW or 500FW. For outdoor service and other applications. 3/4" NPT conduit connection. \*

**Explosion-Proof (Class 1, Group C and D NEMA 7), (Class 1, Group E, F, and G, NEMA 9R):** Type 500TE or 500Fw. For hazardous locations. 3/4" NPT conduit connection. \*

**Vapor-Proof—Explosion-Proof (NEMA 7, 9):** Type 500TEV or 500FEV.

**Watertight-Dustight (NEMA 3X, 4 4X & 6):** Type 500WT or 500FWT.

**Splash-Proof (General Purpose Only.) (NEMA 2):** Type 500TS or 500FS.

\*The 3/4" NPT conduit connection (on all types) can be rotated 360° to facilitate wiring.

### INSTALLATION

#### MOUNTING —

**Type 500T -** Threaded connection (2½" NPT male pipe thread.) For direct attachment.

**Type 500F -** Flanged Type (ANSI 2½", 125 lb. cast iron flange as standard). Steel body furnished (with ANSI 2½" 150 lb. forged steel flange) for direct mounting.

**LOCATION -** Install control in a 2½" NPT opening at the level where operation is desired. Use wrench on octagon flats. **Do Not Force** with switch enclosure as armature tube may be bent. Armature tube should be **VERTICAL** and control mechanism **LEVEL**.

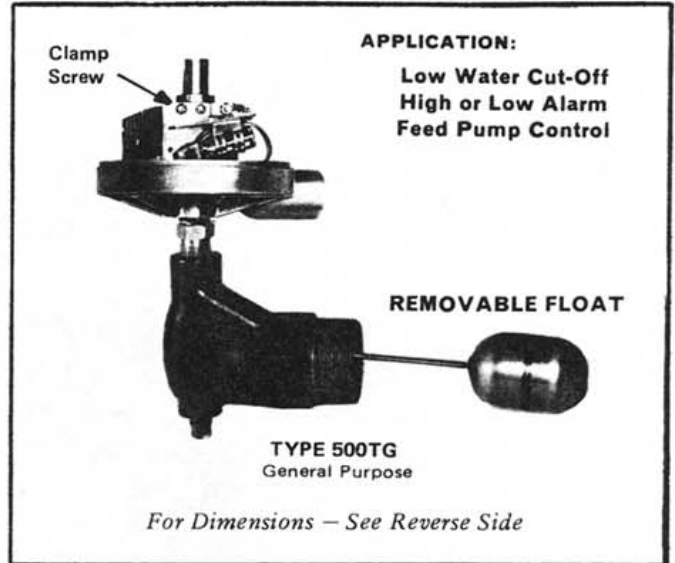
#### DIFFERENTIAL ADJUSTMENT OF SINGLE STAGE UNIT (Two-Stage Unit is NOT ADJUSTABLE)

Remove the armature tube from the cast body exposing the armature. The armature is held to the armature rod with a guide nut and jamb nut on top, and two jamb nuts inside. Moving either set of nuts upward will raise the operating liquid level. Separating the two sets of jamb nuts will widen the differential. At **Minimum** differential the armature should be free enough for the bottom to touch the armature rod. For **Maximum differential the switch mechanism should be as low as possible on the armature tube.**

At small differentials, the operating point can be changed by moving the switch mechanism up or down on the armature tube. Moving the switch mechanism 1/4" will change the operating point about 1/2" when a 6" float rod is used.

#### REMOVAL OF ARMATURE AND HINGE ASSEMBLY

If it is desired to remove the entire armature and hinge assembly, remove the armature tube, top jamb nut, guide nut and armature. Next remove the two screws holding the hinge in place. Pull the assembly out of the body far enough to remove the hinge pin, spacers and hinge. Then remove the assembly through the armature tube opening.



For Dimensions — See Reverse Side

Minimum Specific Gravity		BODY MATERIAL		
		Max. Press.	Cast Iron	Steel
.80	Single stage (2½" ball float)	400 PSI	C-80	C1-80
.55	Single stage (2½" x 4" float)	300 PSI	C-55	C1-55
.70	Two stage (2½" x 4" float)	300 PSI	C-70	C1-70

Maximum Temperature 425°F.

**OPERATION:** Pressure tight armature tube with internal armature and external magnet.

**SEMI-AUTOMATIC** with manual reset. Identified by the letters 'RU' after type number. Example: 500TG-RU. Operates on level **RISE** only. Manual reset required on level **FALL**.

Wire in accordance with local electrical codes or follow manufacturer's instructions.

Align wiring block to face conduit opening and tighten **CLAMP** screw of switch assembly.

The 3/4" NPT conduit connection (on all types) can be rotated 360° to facilitate wiring.

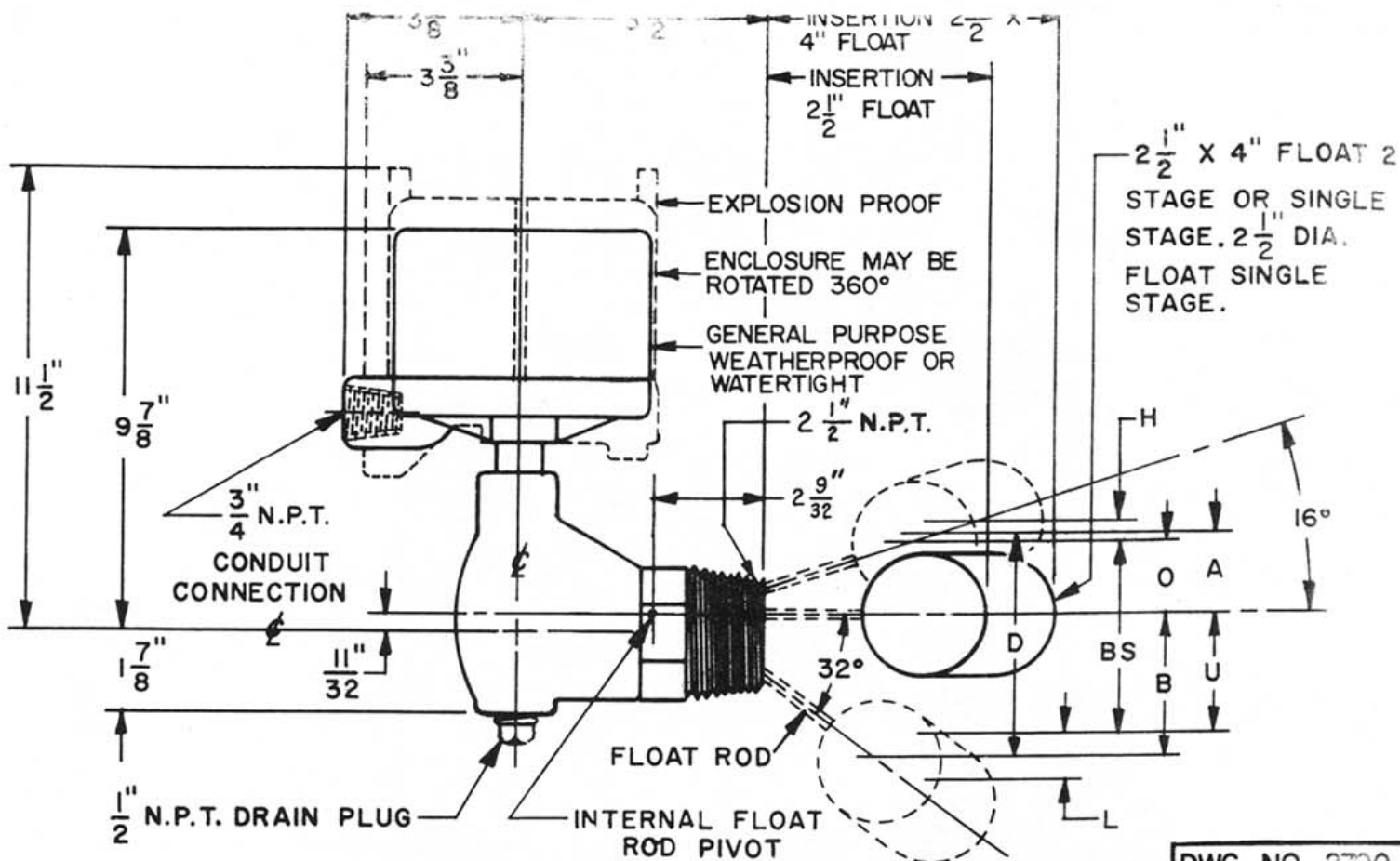
**CAUTION: Do Not Overload electrically. See rating stamped on name-plates.**

### Electrical Circuits and Ratings

SWITCH TYPE	SWITCH ACTION	ELECTRICAL RATINGS IN AMPS					ORDERING CODE SINGLE STAGE	TWO STAGE	
		120V AC	240V	440V†	125V DC	250V		LOWER	UPPER
Mercury Contacts	SP-ST Open on level FALL	10	5	3‡	10	5	-4820	-4820	-20
	SP-ST Open on level RISE	10	5	3‡	10	5	-4821	-4821	-21
	SP-DT One switch	4	2	1‡	4	2	-4810	-4810	-10
	SP-DT Two switches E.I.*	10	5	3‡	10	5	-4815	-4815	-15
	DP-ST Two switches E.I.* Open on level FALL	10	5	3‡	10	5	-4814	-4814	-14
	DP-ST Two switches E.I.* Open on level RISE	10	5	3‡	10	5	-4813	-4813	-13
	DP-DT Two SP-DT switches	4	2	1‡	4	2	-4806	-4806	-06
Snap-Action Contacts	SP-DT One switch	12	5	3‡	0.5**	0.25**	-7810	-7810	-10
	DP-DT Two SP-DT switches	12	5	3‡	0.5**	0.25**	-7806	-7806	-06
	DP-DT Two SP-DT switches	10	3		10‡	3‡	-9806	-9806	-06
	SP-DT One switch	10	3		10‡	3‡	-9810	-9810	-10

\*Electrically Independent  
‡10 Amp Inductive (Polarized) at 125V DC  
for temperature limits.

†Available on special order. Change 1st digit in Ordering Code from 4 to 5 or 7 to 8 —  
i.e. -4820 becomes -5820; -7810 becomes -8810; etc.  
\*\*Resistive



DWG. NO. 2700

**Single Stage<sup>(1)</sup>** Note: Cold shock or water hammer must be avoided, as this condition may damage the float and prevent proper operation of the control.

FLOAT ROD LENGTH	FLOAT INSERTION		MINIMUM SPECIFIC GRAVITY		ADJUSTABLE "D" DIFFERENTIAL	MAX. "A" ABOVE $\bar{C}$	MAX. "B" BELOW $\bar{C}$
	2 1/2" FLOAT	2 1/2" x 4" FLOAT	2 1/2" FLOAT	2 1/2" x 4" FLOAT			
6"	6 1/2"	8"	.80	.55	(1)MAX. 3" MIN. 1/2"	1 7/8" 1 3/4"	3 3/8" 2 3/4"
12"	12 1/2"	14"	.90	.60	(1)MAX. 5 1/4" MIN. 1"	3" 2 7/8"	6 3/8" 5 1/4"
18"	18 1/2"	21"	1.0	.65	(1)MAX. 7 1/2" MIN. 1 1/2"	4 1/4" 4"	9 1/2" 7 3/4"
24"	24 1/2"	26"	1.1	.70	(1)MAX. 10" MIN. 2"	5 1/2" 5 1/8"	12 1/2" 10 1/4"

(1) If control is nozzle mounted max. diff. will be limited by nozzle length.

**Two Stage (2 1/2" x 4" Float Only)<sup>(2)</sup>**

FLOAT ROD LENGTH	INSERTION 2 1/2" x 4" FLOAT	DIFFERENTIAL NOT ADJUSTABLE		BETWEEN STAGES NOT ADJUSTABLE			MINIMUM SPECIFIC GRAVITY
		BOTTOM STAGE (HIGH LEVEL) H	TOP STAGE (LOW LEVEL) L	BS	OVER $\bar{C}$ "O"	UNDER $\bar{C}$ "U"	
6"	8"	3/8"	3/8"	3 5/8"	1 1/4"	2 3/8"	.70
12"	14"	1/2"	7/8"	6 5/8"	2 1/8"	4 1/2"	.70
18"	20"	7/8"	1 1/4"	9 5/8"	2 7/8"	6 3/4"	.75
24"	26"	1 1/8"	1 1/2"	12 5/8"	3 5/8"	9"	.8

(2) Two stage operation requires 32° float rod movement below horizontal so flange must be bolted directly to tank as shown.

