

QUIC-FLOW™ MANUAL DUMP VALVE



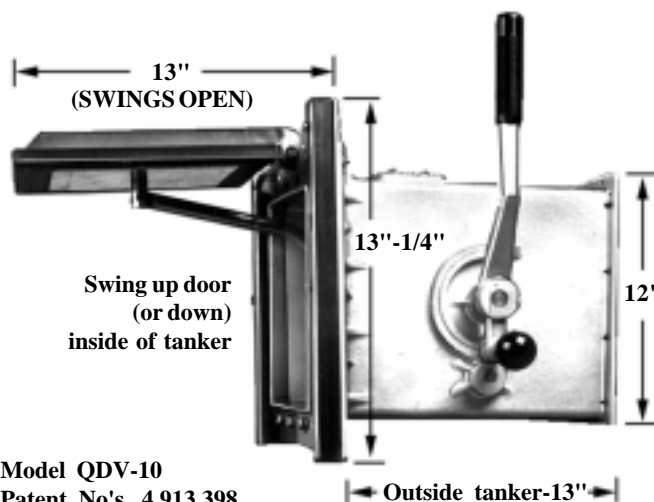
Valve may be rear (above) or side mounted. Side mounted valve does not protrude past side compartments.

All components in contact with water are passivated stainless steel. The valve is easily mounted from outside the vehicle by one man. Ordinary valves require an additional person inside the tank while mounting, increasing installation costs.

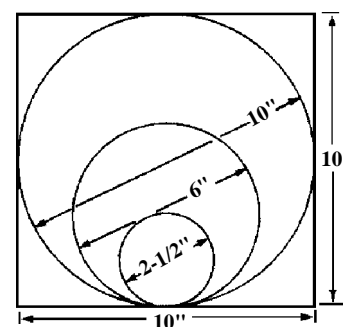
Any adjustments to the valve may be made from outside with the tank full of water. We have designed-in options to allow field or factory addition of electrical, pneumatic, or hydraulic control systems. Pre-drilled pads are provided on top of the valve body for attachment of the electrical system. Chutes may be permanently attached or quickly slipped on in the field.

QUIC-FLOW valves are the fastest dumping systems for tankers...bar none... dumping up to 2800 GPM. Mounting the valve at the bottom of the tank provides approximately 1700 GPM, half of valve below tank 2300 GPM, and valve below tank up to 2800 GPM.

Tested to 3000 G.P.M.



Model QDV-10
Patent No's. 4,913,398,
D315,945, D390,412



***Theoretical Discharge Rates**

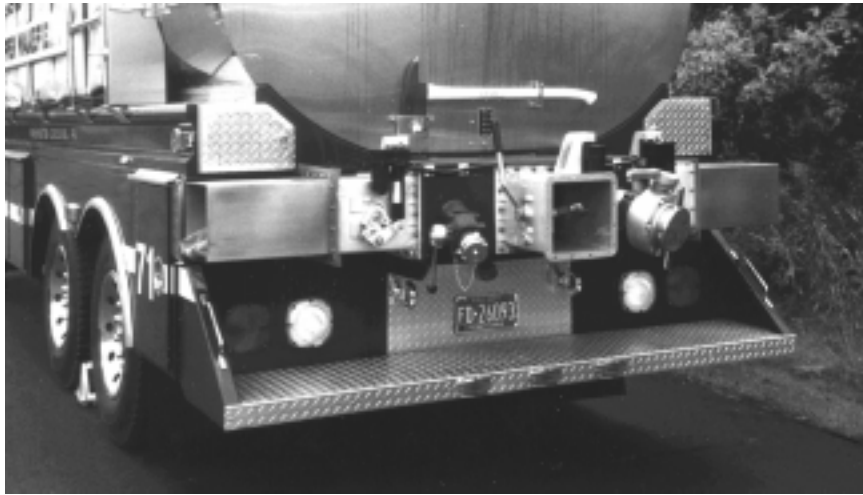
2.5" DIA.	4.9 SQ. IN.	187 GPM
4" DIA.	12.6 SQ. IN.	478 GPM
6" DIA.	28.3 SQ. IN.	1074 GPM
8" DIA.	50.2 SQ. IN.	1900 GPM
10" DIA.	78.5 SQ. IN.	2970 GPM
10" x 10" SQ.	100 SQ. IN.	3500 GPM
12" DIA.	113.1 SQ. IN.	4100 GPM

Comparison of square inches for round and square valves, with theoretical discharge rates.

*From "More Flow To Go" by Michael A. Whelan, Sister Lakes, MI V.F.D. FIREHOUSE Nov. 1984, pp. 58-66 & 96.

ORDER NO.	PART NO.	DESCRIPTION	WT./@ IN LBS.
QDV-10	2070-105-000	10" Square Valve	41.0
QDV-10-UPF	2070-107-000	10" Valve for United Plastics Tank	42.0
QDV-HC	2070-120-000	Valve Handle-Complete Assembly	1.7
QDV-AHL	2070-121-000	Auxilliary Handle Lock less Hardware (see page 12)	1.8

QUIC-FLOW™ ELECTRIC DUMP VALVE



Electrically operated valves (3) off distributor box allows dumping on three sides (see photo above). ACH-18 chutes with QDV-VCE extension are attached to side dumps.

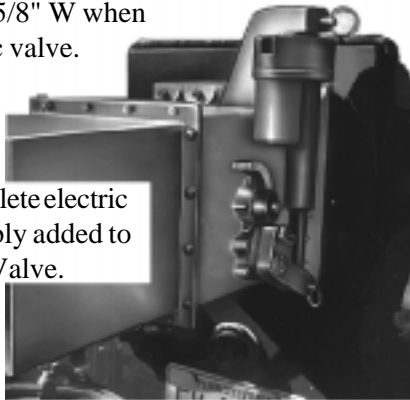
Electrically operated valves may be controlled from the cab or near the valve...eliminates need for personnel to be in the highly dangerous position between the vehicle and the dump tank.



QDV-CPA/LMS
Control Panel Assembly

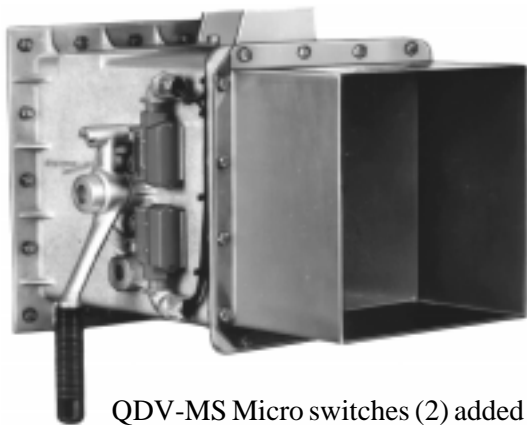
Actuator requires additional 4-3/8" H x 1-5/8" W when added to basic valve.

QDV-AA complete electric actuator assembly added to basic QDV-10 Valve.



Actuator may be attached to either the left or right side of valve. If sufficient clearance is not available above the valve, simply flip the unit over allowing the actuator to extend below the valve.

The manual valve handle may be shortened from 14" to 9" when the electric actuator is used...or it may be cut even shorter as required. Either of two pins may be pulled, in the event of electrical failure, to operate the valve manually.



QDV-MS Micro switches (2) added to operate valve electrically.

ORDER NO.	PART NO.	DESCRIPTION	WT.@ IN LBS.
QDV-AA	2070-110-000	Complete Electric Actuator Assembly	18.5
QDV-MS	2070-111-000	Micro Switch Only-per each	.9
QDV-CPA/MS	2070-112-000	Control Panel Assembly with Two Micro Switches	3.0
QDV-CPA/LMS	2070-113-000	Control Panel Assembly Only - Less Micro Switches	1.3
QDV-AAMH	2070-115-000	Electric Actuator Mounting Hardware Only	5.9
QDV-EA	2070-125-000	Electric Actuator Only	11.3

QUIC-FLOW™ DUMP VALVE CHUTES

Chutes facilitate delivery of water to dump tank



CACH-6

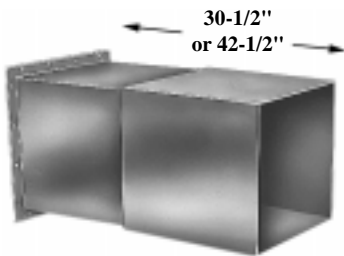
By providing a square flange on the discharge side of the valve, ZICO offers several options for attaching auxilliary chutes to discharge the water further from the tanker. Chutes may be permanently attached (fixed length or extendable), or quickly added or removed (slip-on) as required. The QDV-VCE 22-ounce vinyl chute extension may be used with any of the permanently attached chutes.



SOACH-__

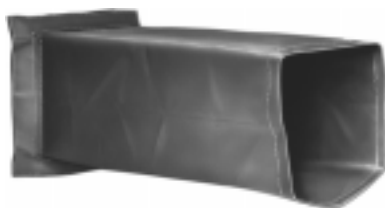
ORDER NO.	PART NO.	DESCRIPTION	WT./@ IN LBS.
CACH-6	2070-132-000	6" Cast Aluminum Chute	8.2
SOACH-18	2070-150-000	18" Slip-On Aluminum Chute	7.2
SOACH-24	2070-152-000	24" Slip-On Aluminum Chute	9.7
EACH-3-305	2070-180-000	30-1/2" Extendable Aluminum Chute- 12" Base - 3 Section	19.7
EACH-3-425	2070-182-000	42-1/2" Extendable Aluminum Chute- 16" Base - 3 Section	25.1
QDV-VCE	2070-200-000	34" Vinyl Chute Extension	1.8

Chutes provided by apparatus manufacturers to fit ZICO valve:

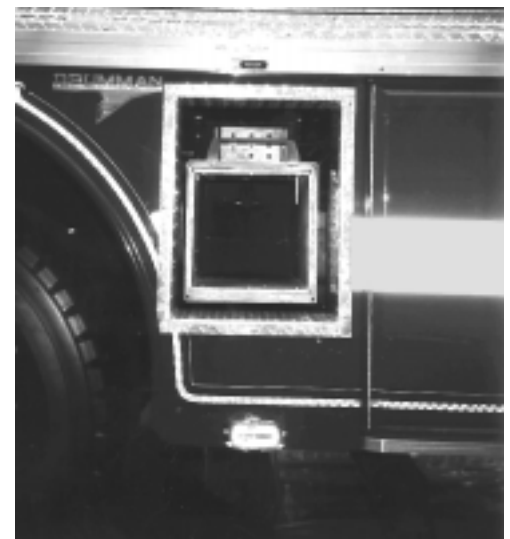


EACH-3-__

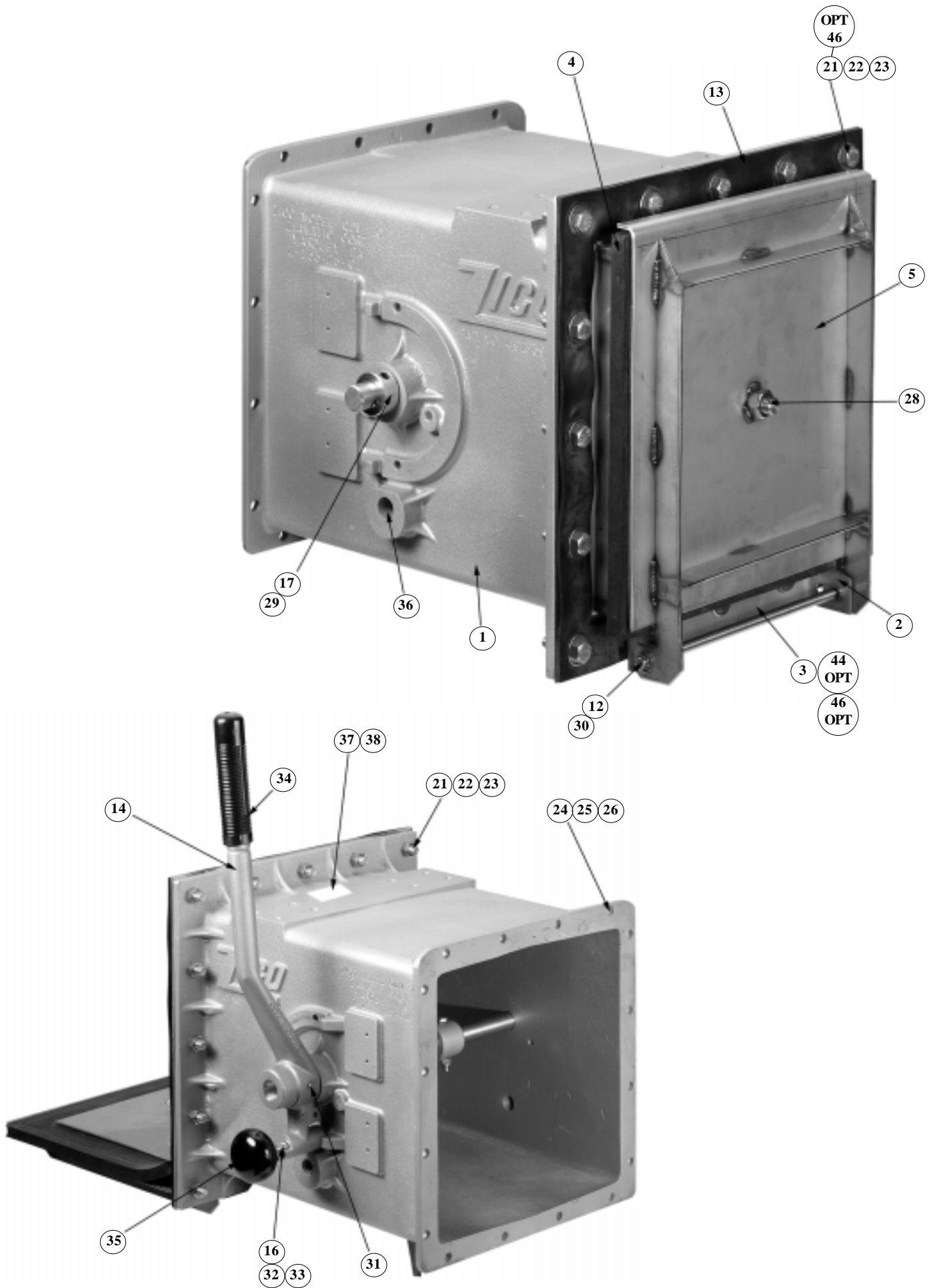
Hinged flip down chute. Flip up and it becomes a cover over the valve.



QDV-VCE



3-Section extension chute is pneumatically extended and the valve is operated by the control panel mounted on top of the valve.

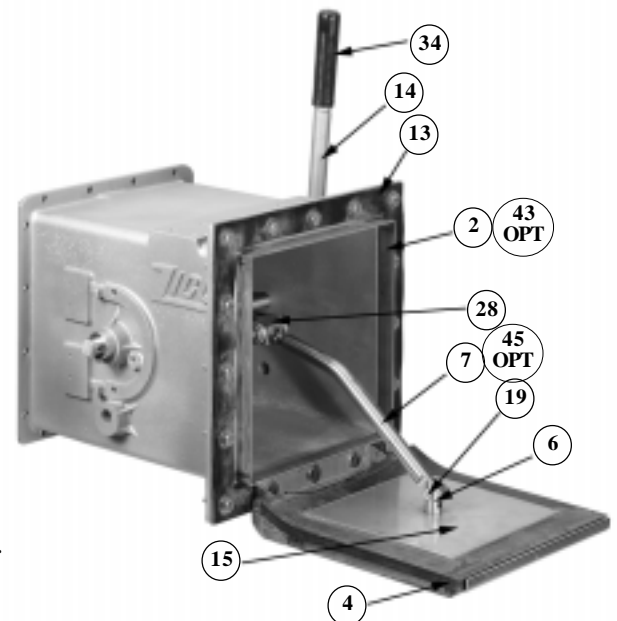
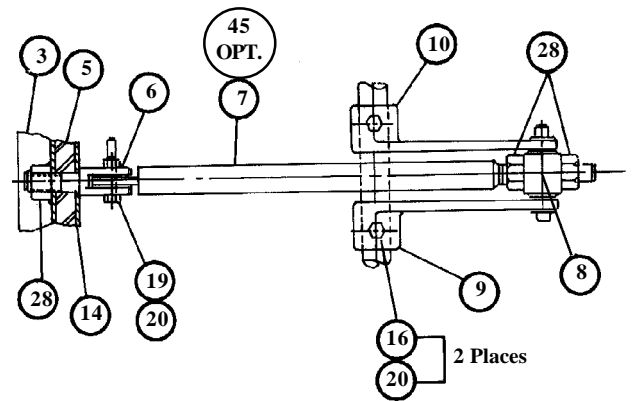
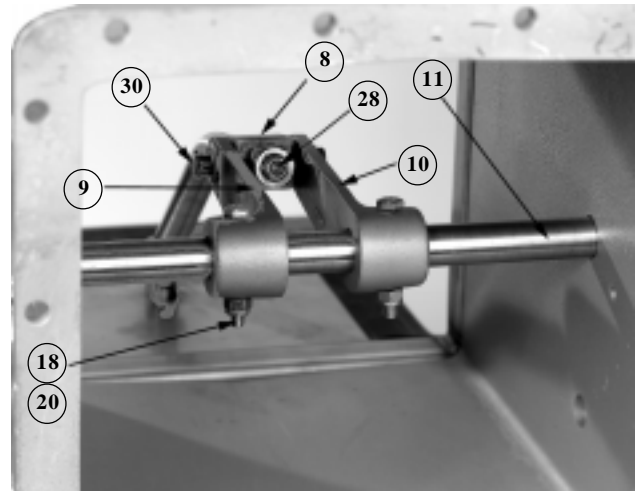


MODEL QDV-10 MANUAL DUMP VALVE PARTS

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	2070-105-101	Base casting	1
2	2070-105-102	Valve flange, S/S	1
3	2070-105-103	Hinge assembly, S/S	1
4	2070-105-104	Valve seal, neoprene	1
5	2070-105-105	Valve gate, S/S	1
6	2070-105-106	Pivot, 3/4" dia x 3-1/4"L	1
7	2070-105-107	Draw bar, 3/4" dia x 13-1/2"L	1
8	2070-105-108	Trunion, brass	1
9	2070-105-109	Crank casting, left	1
10	2070-105-110	Crank casting, right	1
11	2070-105-122	Crank shaft, 3/4" dia x 14-5/8"L	1
12	2070-105-111	Hinge pin, 5/16" dia x 9-1/8"L	1
13	2070-105-112	Flange gasket, 3/32" tk x 13" x 13"	1
14	2070-105-113	Handle casting - aluminum	1
15	2070-105-114	Seal plate, S/S	1
16	2070-105-115	Valve plunger, brass	1
17	2070-105-116	Collar, zincal die cast	1
18	9110-102532	1/4-20 x 2 HH C/S S/S	2
19	9110-102524	1/4-20 x 1-1/2 HH C/S S/S	1
20	9113-172500	1/4-20 ESNA locknut, HH S/S	3
* 21	9110-103718	3/8-16 x 1-1/8 HH M/S S/S	13
22	9112-103700	3/8-16 HH Finish nut, S/S	16
23	9114-113700	3/8 ID Flat washer, S/S	13
24	9110-103112	5/16-18 x 3/4 HH M/S S/S	16
25	9112-103100	5/16-18 HH Finish nut, S/S	16
26	9114-103100	5/16 ID Flat washer, S/S	16
28	9112-105000	1/2-13 HH trunion nut, S/S	3
29	9110-383104	5/16-18 x 1/4 HH cup pt set	1
30	9170-100608	1/16 x 1/2 Cotter pin, S/S	4
31	9140-102528	1/4 x 1-3/4 Handle groove pin, S/S	1
32	9140-101210	1/8 x 5/8 Plunger spring pin, S/S	1
33	2070-105-117	Spring, compression .048 x 2	1
34	2070-105-118	Protective grip 7/8 OD x 4-3/4" L	1
35	2070-105-119	Ball knob	1
36	2070-105-121	Tapered plug (inside of casting)	2
37	2070-000-140	Label - pat. & trade mark	1
43	2070-107-102	Valve flange for QDV-10-UPF	1
44	2070-107-103	Hinge assembly for QDV-10-UPF	1
45	2070-107-107	Draw bar for QDV-10-UPF	1
46	9110-103736	3/8-16 x 2-1/4 HH M/S	16

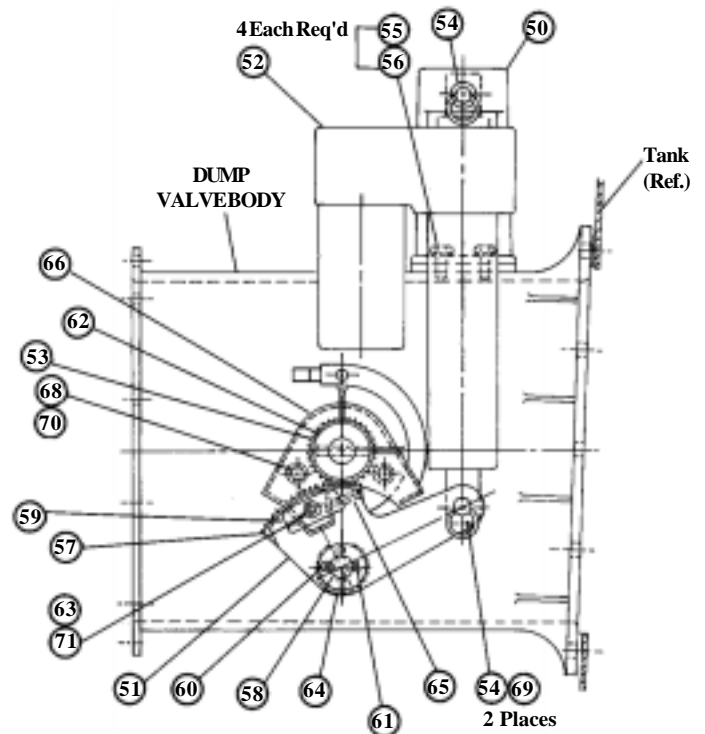
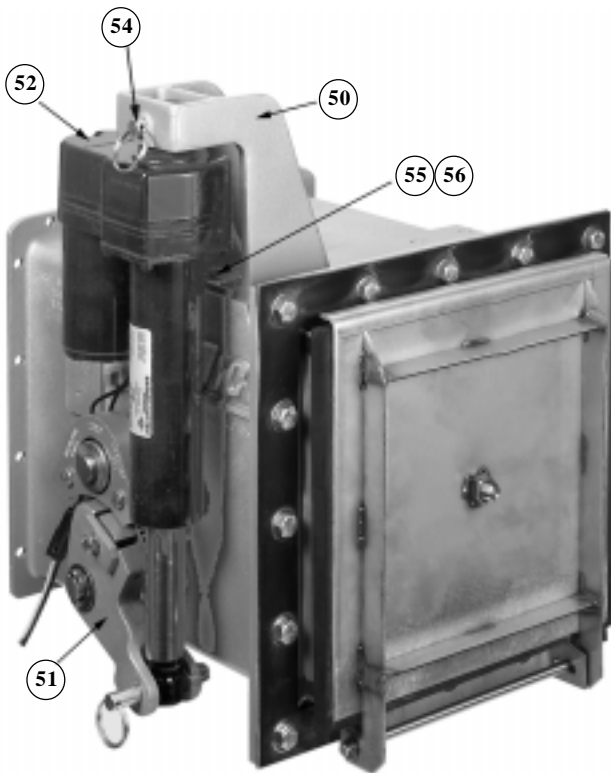
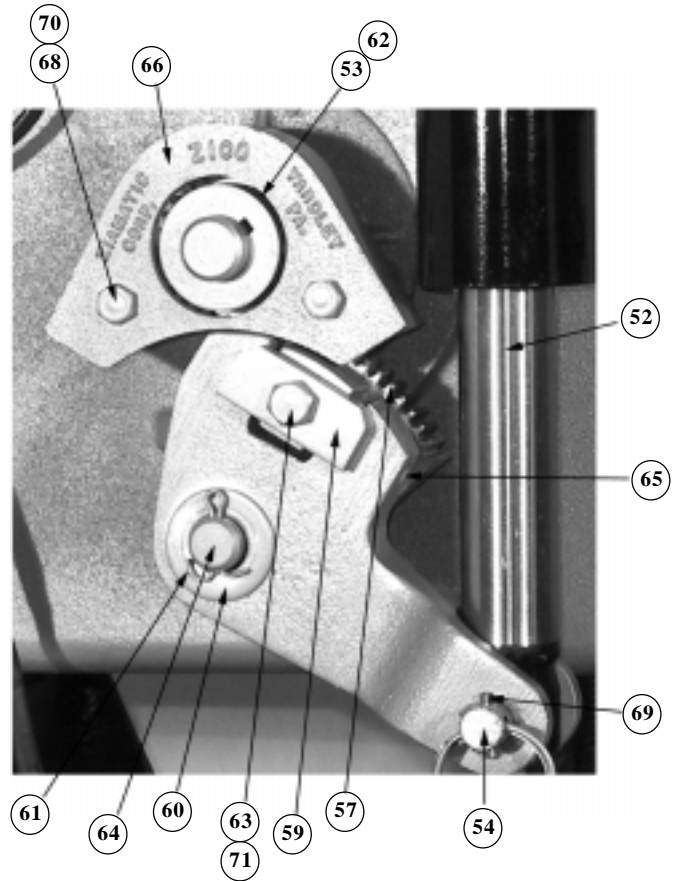
*For QDV-10-UPF item 46 increases to 16 and item 21 is eliminated.

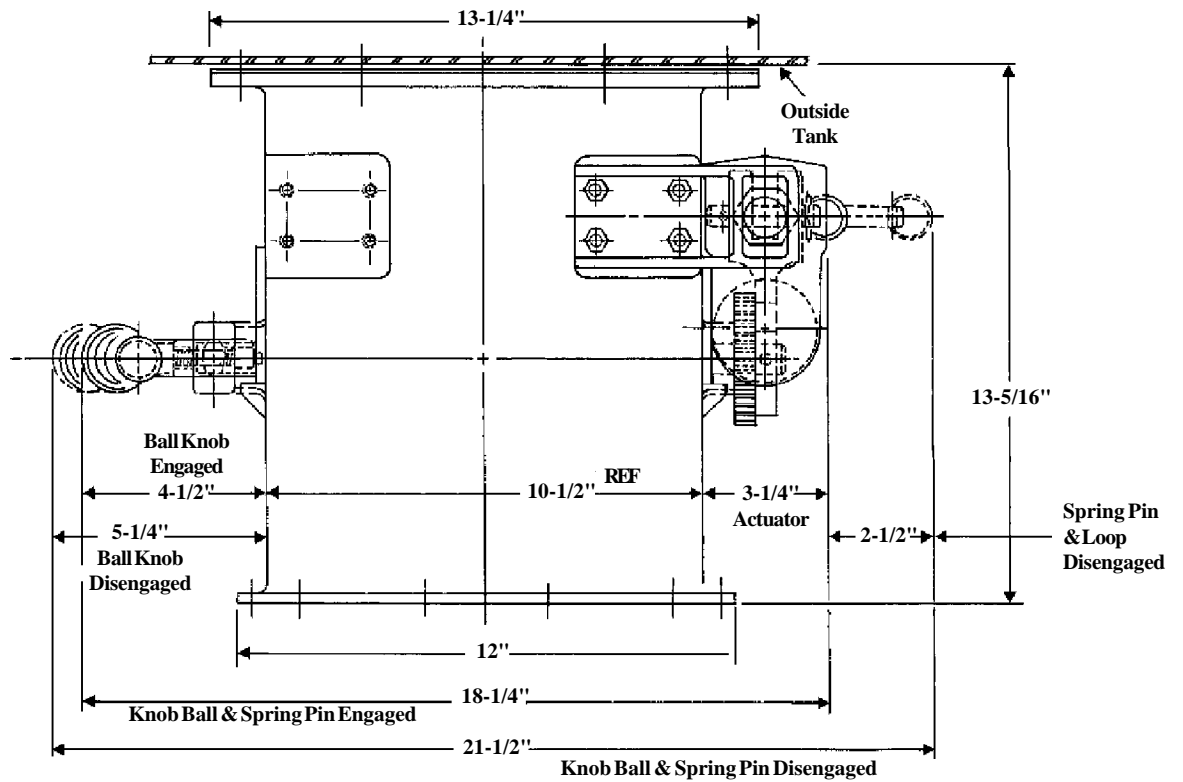
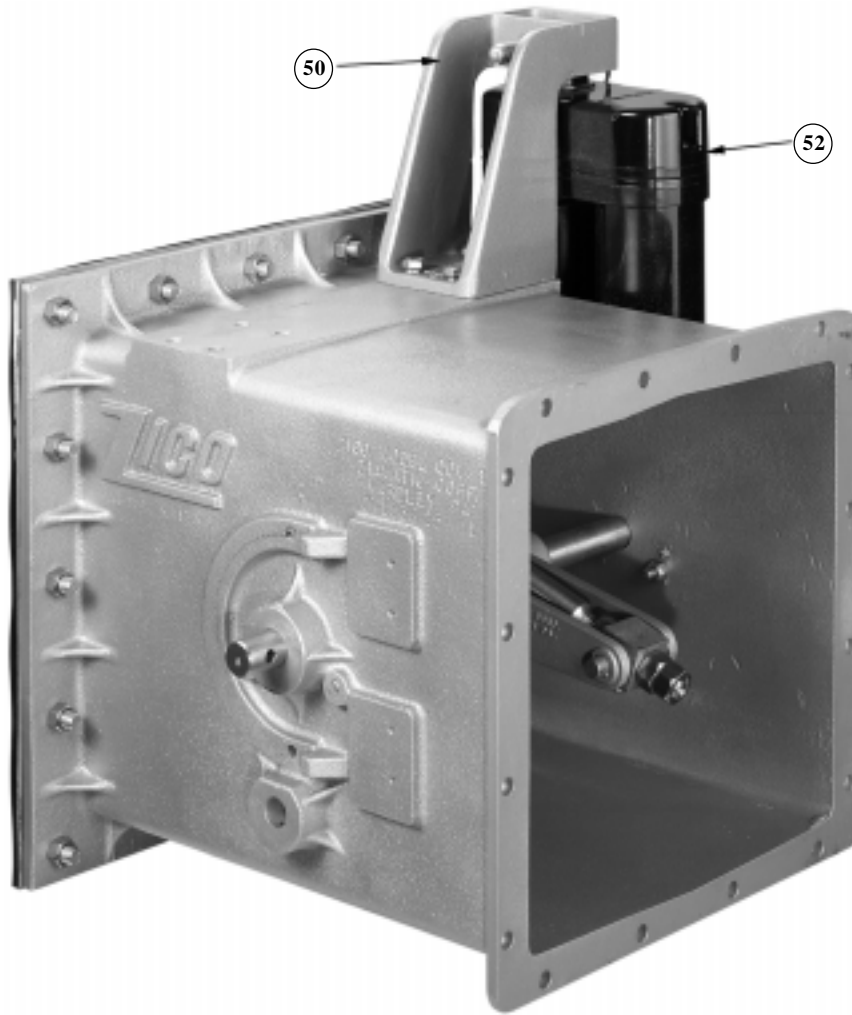
NOTE: Items 43, 44, 45 and 46 are for "UPF" style dump valve.



MODEL QDV-AA ELECTRIC ACTUATOR ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
50	2070-110-105	Actuator mounting bracket cast.	1
51	2070-110-110	Actuator lever casting	1
52	2070-110-115	Electric actuator	1
53	2070-110-120	Actuator gear	1
54	9050-135048	1/2 OD x 3" cotterless pin	2
55	9110-103112	5/16-18 x 3/4 hex hd m/s	4
56	9114-203100	5/16 ID split lock washer	4
57	2070-110-125	Gear segment	1
58	2070-110-130	Shaft, actuator lever	1
59	2070-110-135	Keeper - aluminum	1
60	9114-116200	5/16 ID flat washer	1
61	9170-101216	1/8 x 1 cotter pin	1
62	9045-112524	1/4 x 1-1/2 cotter hitch (gear) pin	1
63	9110-103120	5/16-18 x 1-1/4 hex hd m/s	1
64	9145-121824	3/16 x 1-3/8 groove pin	1
65	9110-392512	1/4-20 x 3/4 hex hd sss flat pt	2
66	2070-110-140	Shield casting	1
68	9110-102540	1/4-20 x 2-1/2 hex hd m/s	2
69	9140-101212	1/8 x 3/4 spring pin	1
70	9113-172500	1/4-20 ESNA hex hd nut	2
71	9114-103100	5/16 ID flat washer	1





DIMENSIONS OF COMPLETED ASSEMBLY - TOP VIEW

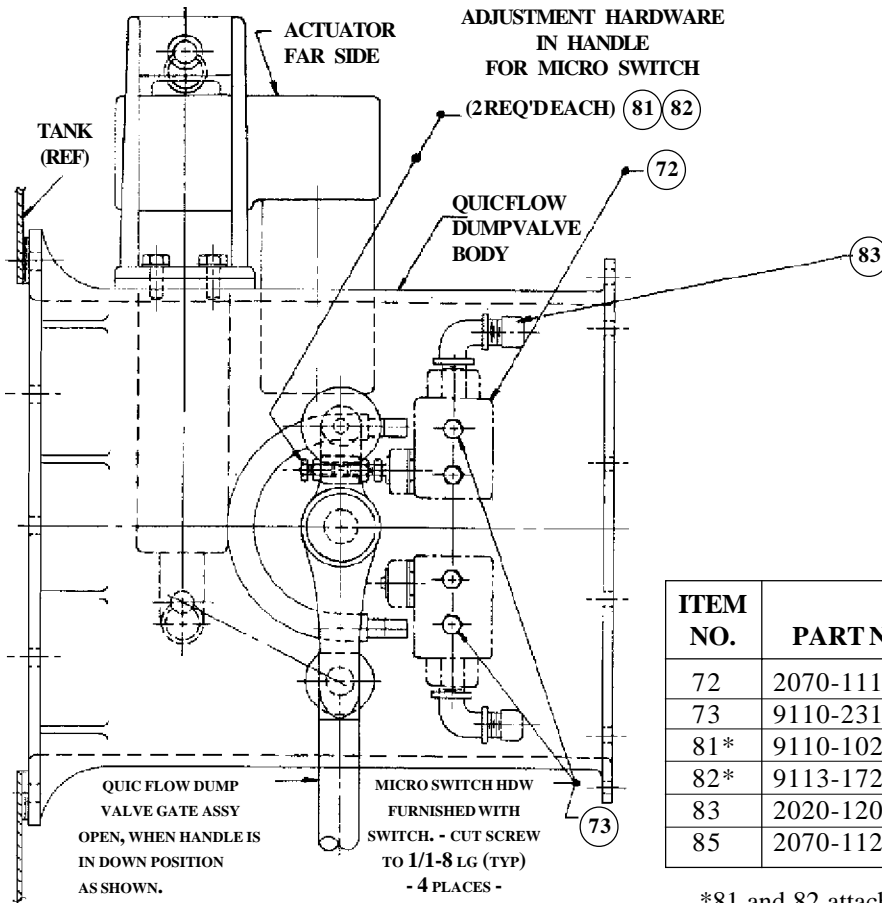
ASSEMBLY PROCEDURE - ATTACHING ELECTRIC ACTUATOR ASSEMBLY

NOTE: Water tank must be empty before starting mounting procedure.

Procedure based on mounting actuator on right side of QUIC-FLOW™ Dump Valve (when looking at valve from rear of tanker).

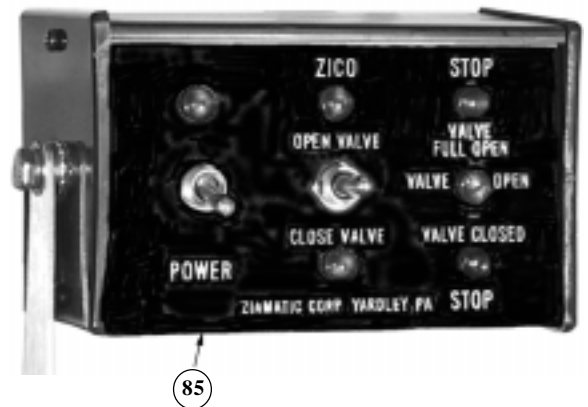
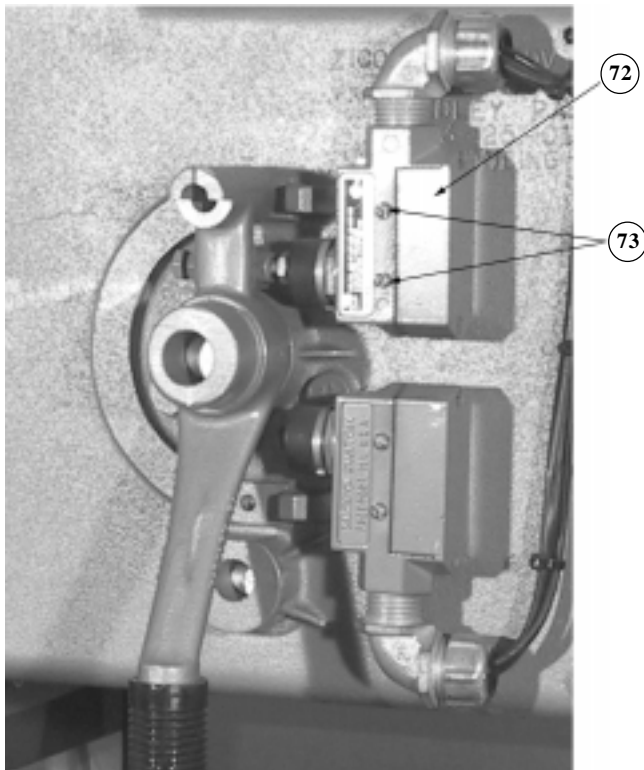
1. Remove 1/2-13 hex nut (28) from end of trunnion block (8).
2. Remove 1/4-20 x 1-1/2" hex head bolt (19) and nut (20) from pivot (6).
3. Remove 1/4-20 x 2" hex head bolt (18) and nut (20) from left (9) and right (10) crank castings.
4. Push straight back on drive bar (7) opening gate (5) slightly, to remove the drive bar from the trunnion block (8).
5. Remove collar (17) by loosening set screw with 5/32 allen wrench and pull collar off crank shaft (11).
6. Pull crank shaft (11) out - the left (9) and right (10) crank castings can be slid off the crank shaft at this time.
7. Remove aluminum crank shaft handle (14) from crank shaft (11) by removing 1/4" groove pin (31).
8. Remove ball knob (35) from end of brass plunger (16).
9. Hold plunger end of handle (14) in vise and remove 1/8 x 5/8 spring pin (32).
10. Slide out brass plunger (16) with attached compression spring (33) - these will not be reused.
11. Slide Boston gear (53) onto crank shaft (11) on side of body casting (1) where actuator is to be mounted and insert 1/4-20 bolt to temporarily hold in place.
12. Slide crank shaft back through body casting.
13. Slide crank shaft handle (14) onto opposite end of crank shaft - if hole (in crank shaft) does not line up for groove pin (31) the two flat surfaces of the crank shaft handle may need to be machined.
14. Machine if necessary.
15. Remove caplug (36) on the side actuator is to be mounted on - you will note a 3/16" hole drilled half way through boss from bottom side of body casting (page 4, top photo).
16. Insert .625 shaft (58) and line up hole from bottom of boss with hole through shaft.
17. Insert 3/16" drill from bottom and drill hole through shaft and top of boss.
18. Insert 3/8 x 1-3/8 shaft pin (64).
19. Slide actuator lever (51) onto end of shaft (58) and attach in place with 5/8 I.D. flat washer (60) and 1/8 x 1" cotter pin (61).
20. Remove four 5/16-18 x 3/4 bolts (24) and 5/16 I.D. lock washers (56) from top of body casting (1).
21. Place aluminum mounting bracket (50) on top of pad with top projection extending past side of body casting. Bolt in place using 5/16 I.D. lock washers (56) and 5/16-18 x 3/4 bolts (55).
22. Secure crank shaft handle (14) to crank shaft (11) using 1/4 x 1-3/4 groove pin (31), it's best to push the pin in place in a vise.
23. Slide crank shaft (11) part way out from crank shaft handle (14) end - remove Boston gear that had 1/4-20 bolt to hold it in place temporarily.
24. Slide left (9) and right (10) crank castings back on crank shaft (11) and bolt in place using two 1/4-20 x 2" bolts (18) and 1/4-20 nuts (20) - Note: Crank shaft handle will be in down position and trunnion block will be on side of crank shaft (11) toward open end of body casting.
25. Attach drive bar (7) to pivot (6) using 1/4-20 x 1-1/2" bolt (19) and nut (20).
26. Insert threaded end of drive bar (7) into trunnion block (8) by opening gate (5) slightly.
27. **Thread on 1/2-13 nut (28) and torque to 30 inch pounds maximum.**
28. Tighten inner 1/2-13 nut (28) down on trunnion block - may have to use hammer and center punch to tighten nut.
29. Place Boston gear (53) on end of crank shaft (11) and line up holes in gear and shaft.
30. Using 1/4" drill run hole through Boston gear (53) and insert 1/4 x 1-1/2" groove pin (62) and tap in place with hammer.
31. At this point you may have to remove the cotter pin (61) and 5/8 I.D. flat washer (60) to line up actuator lever (51) with Boston gear (53).
32. Activate crank shaft handle (14) to open gate (5) fully (handle in up position).
33. Take electric actuator (52) out of box (shaft will be closed all the way).
34. Mount actuator (52) to actuator mounting bracket (50) using 1/2" detent pin (54) - motor on actuator to face open end of body casting away from tanker.
35. Line up actuator lever (51) with Boston gear (53) so that 1/2" detent pin (54) will slide through actuator lever (51) and shaft of electric actuator (52).
36. Replace 5/8 I.D. flat washer (60) and cotter pin (61) on .625 shaft (58).
37. Using 1/8" allen wrench snug up on 1/4-20 x 3/4 hex socket screw (65) toward inside of actuator lever (51) and tighten opposite socket screw against keeper (59).
38. At this point, wiring should be run to dump valve and switch(es) mounted in desired location. See page 11 for wiring diagram.
39. Attach wiring to electric actuator (52) and you are ready to try assembly.
40. When gate (5) is closed, crank shaft handle (14) should be in the down position and the shaft from the electric actuator (52) should be in the extended position.

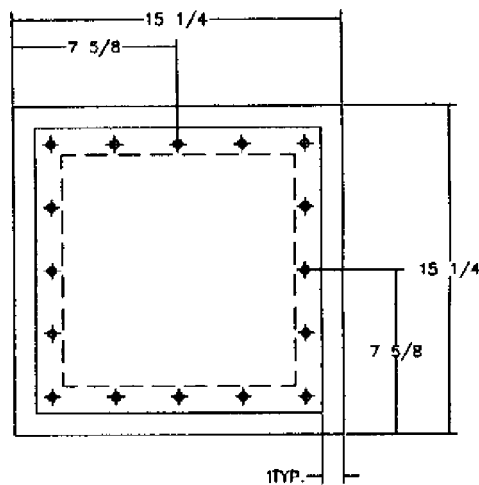
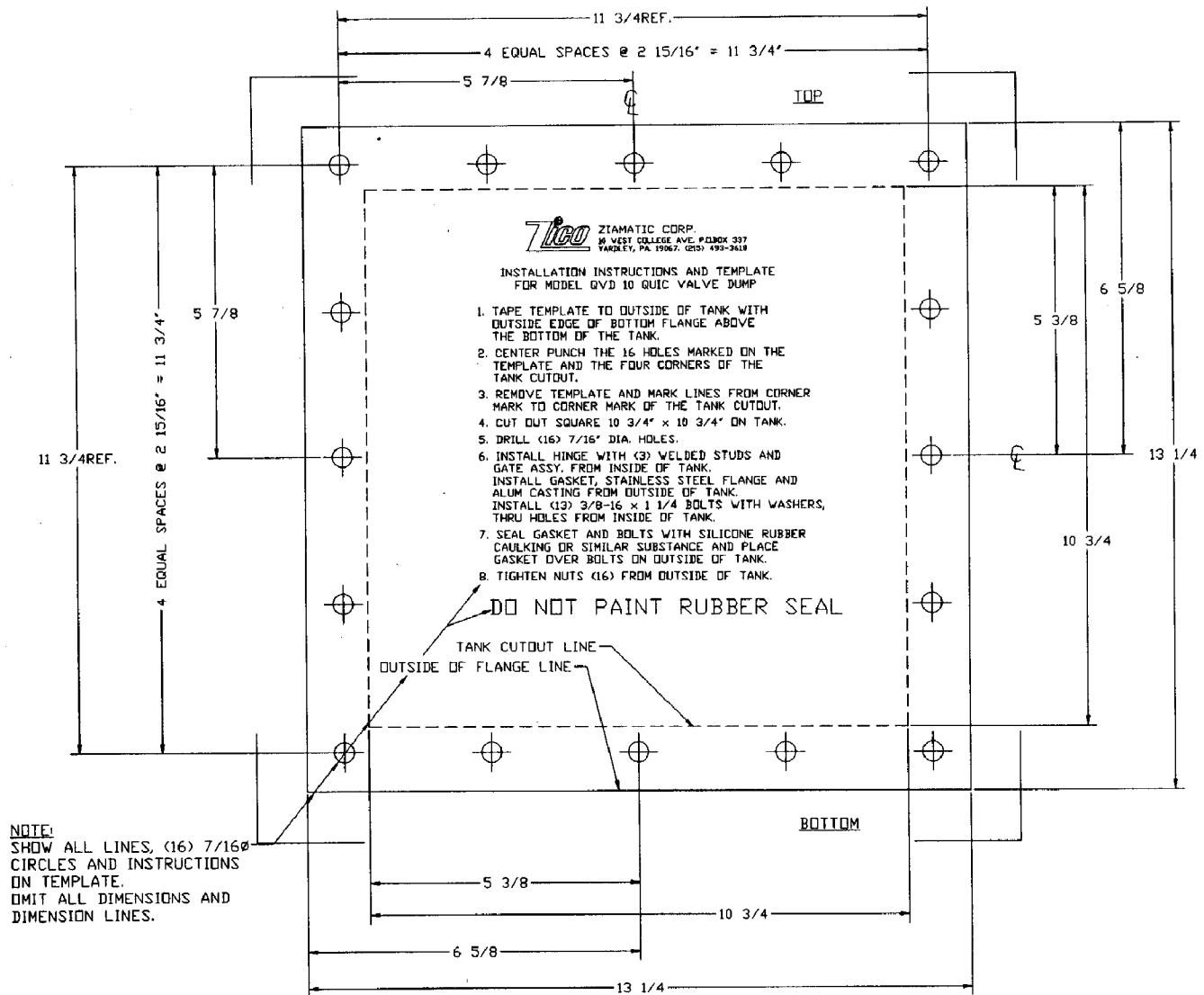
MICRO SWITCHES AND HANDLE MOUNTED ON LEFT SIDE



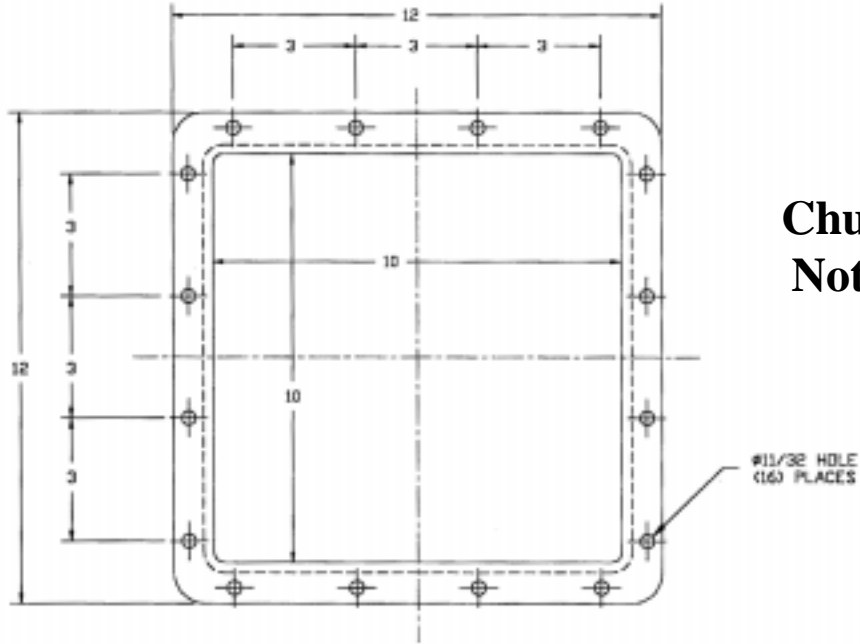
ITEM NO.	PART NO.	DESCRIPTION	QTY.
72	2070-111-105	Micro switch	1
73	9110-231320	6-32 UNC x 1-1/4 rd hd slotted m/s	2
81*	9110-102512	1/4-20 x 3/4 hex hd m/s	1
82*	9113-172500	1/4-20 ESNA hex hd nut	1
83	2020-120-039	1/2" strain relief conn. - 90 degree	1
85	2070-112-000	Control panel assembly complete	1

*81 and 82 attached to handle casting to activate micro switch. One each of above required with each micro switch.



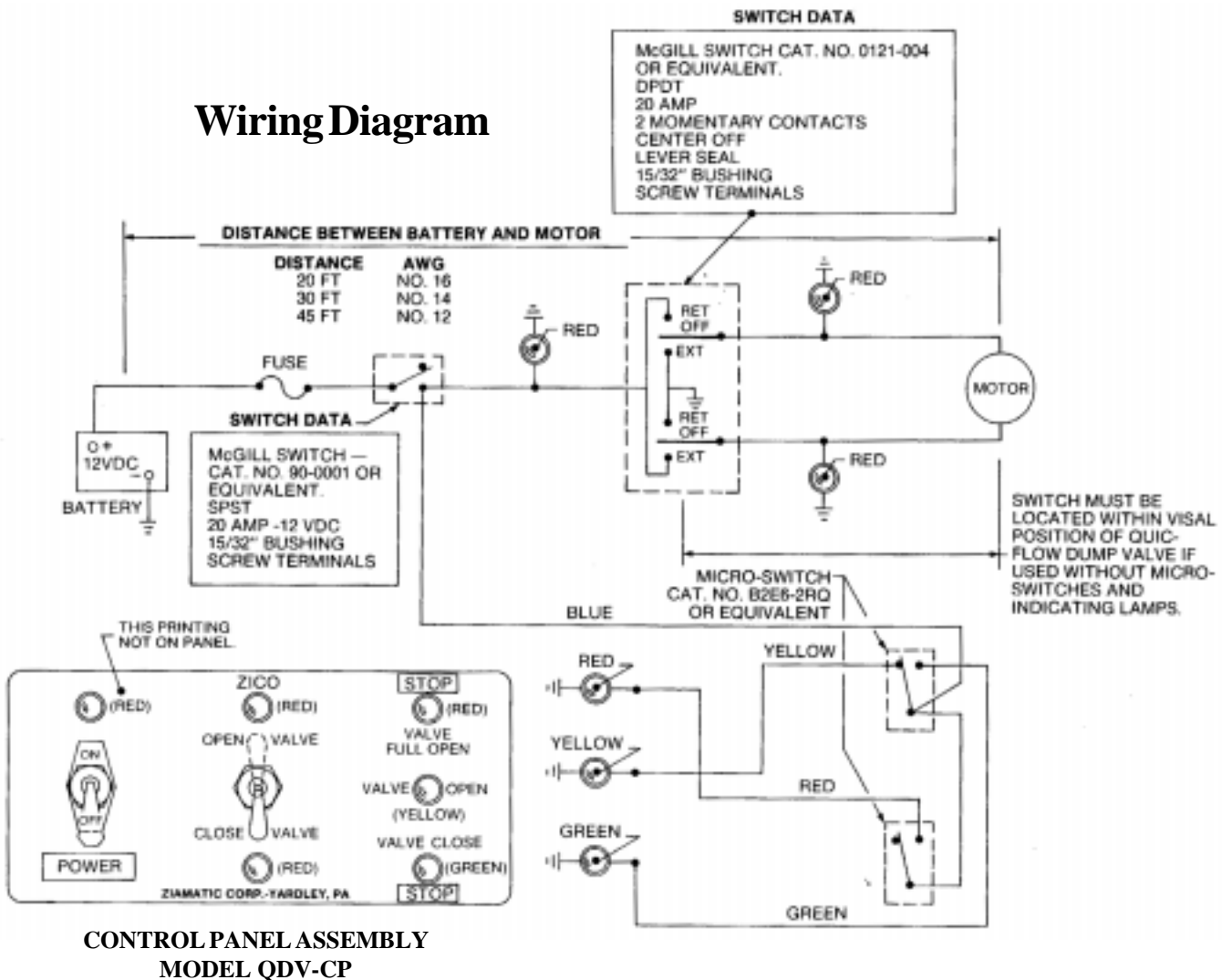


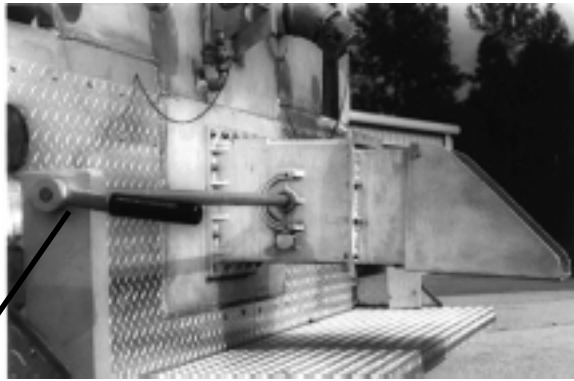
**Tank flange, template provided with valve (top) and overall template size (bottom).
 Not to scale.**



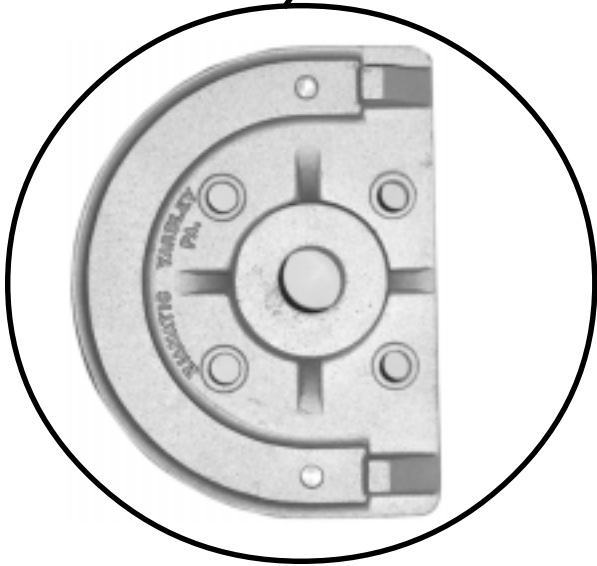
**Chute flange.
Not to scale.**

Wiring Diagram



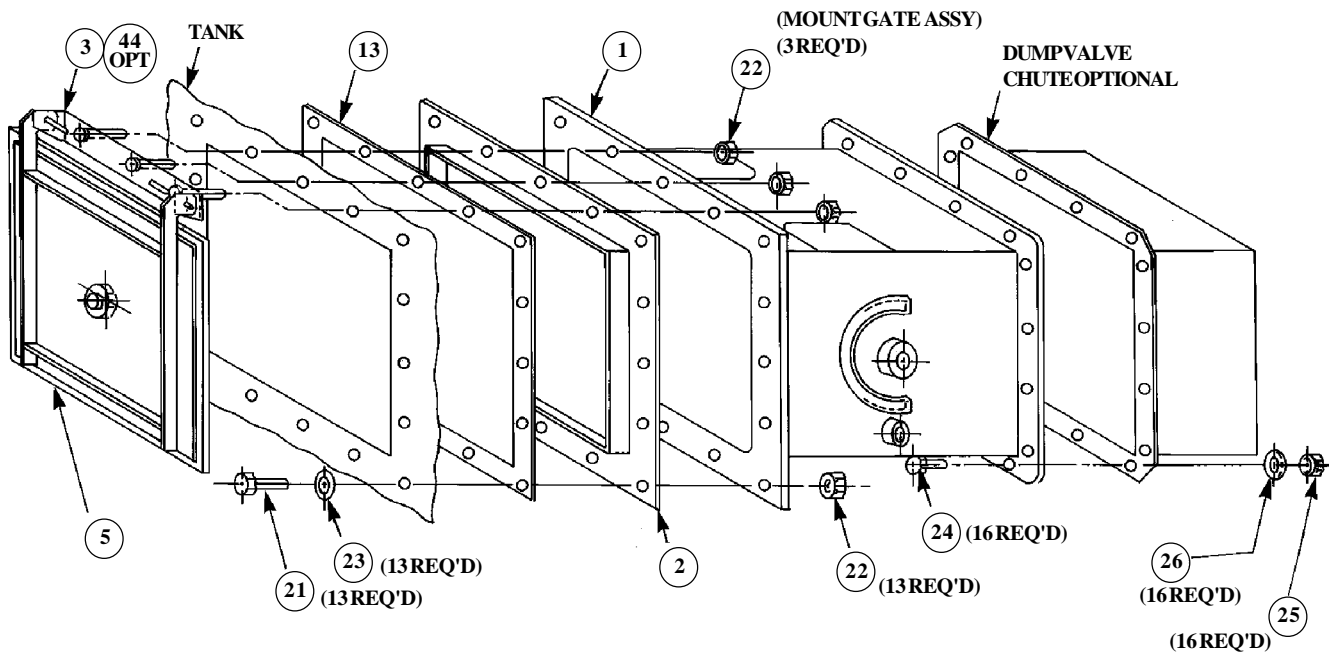


Auxilliary Handle Lock (QDV-AHL) permits firefighter to operate the valve safely from the side of vehicle. The standard handle is designed to accept a shaft that runs to the outside control handle. The AHL permits handle to be locked open or closed.



ITEM NO.	ORDER NO.	DESCRIPTION	WT.
90	QDV-AHL	Auxillary handle lock	1.8

ITEM NO.	DESCRIPTION
1	Dump valve body casting
2	Valve flange
5	Dump valve gate assy
13	Flange gasket
21	3/8-16 x 1-1/8 HH M/S
22	3/8-16 Hex hd nut
23	3/8 I.D. flat washer
24	5/16-18 x 3/4 HH M/S
25	5/16-18 Hex hd nut
26	5/16 I.D. flat washer



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