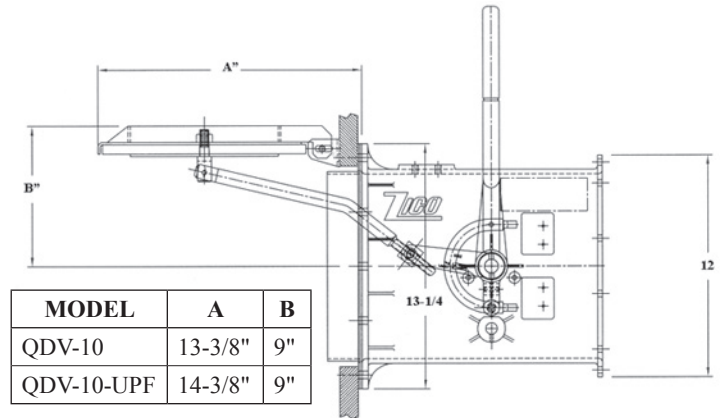


**QUIC-FLOW™ DUMP VALVES
PARTS AND INSTRUCTION MANUAL**

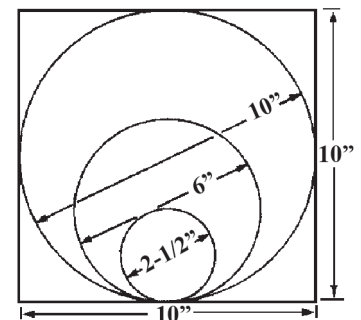
Zico dump valves are uniquely designed to stop annoying leakage. A special slotted hinge over the door shifts when in the closed position to provide an exceptionally strong and even seal around the gasket. The over-center locking mechanism keeps the door closed tight against powerful water pressure. Even the washers and bolts are specially designed to stop water from creeping through. Put the drip bucket away and get yourself a Zico dump valve.

Mounting a QUIC-FLOW Dump Valve at the bottom of your tank provides approximately 1700 GPM. Half of valve below the tank - 2300 GPM. Valve completely below the tank - 2800 GPM. You'll be hard pressed to find a faster water dumping system.



- All valve components in contact with water are made with passivated stainless steel.
- May be side or rear mounted. Side mounted valves do not protrude past most side compartments.
- Valve can be mounted from outside the vehicle by one person, lowering installation time and expense.
- Adjustments to the valve may be made from outside, even with a full tank of water.
- Includes option to add field or factory-installed (see page 6) electrical control system.
- Pre-drilled pads are provided on top of valve body for attachment of an electrical system.
- Built-in flange allows for installation of chutes. See page 11.
- Tested to 3000 GPM.

ORDER NO.	PART NO.	DESCRIPTION	WT./@ IN LS.
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



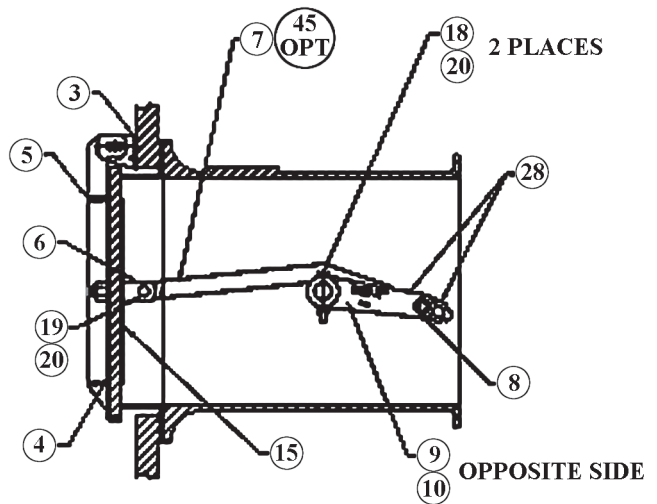
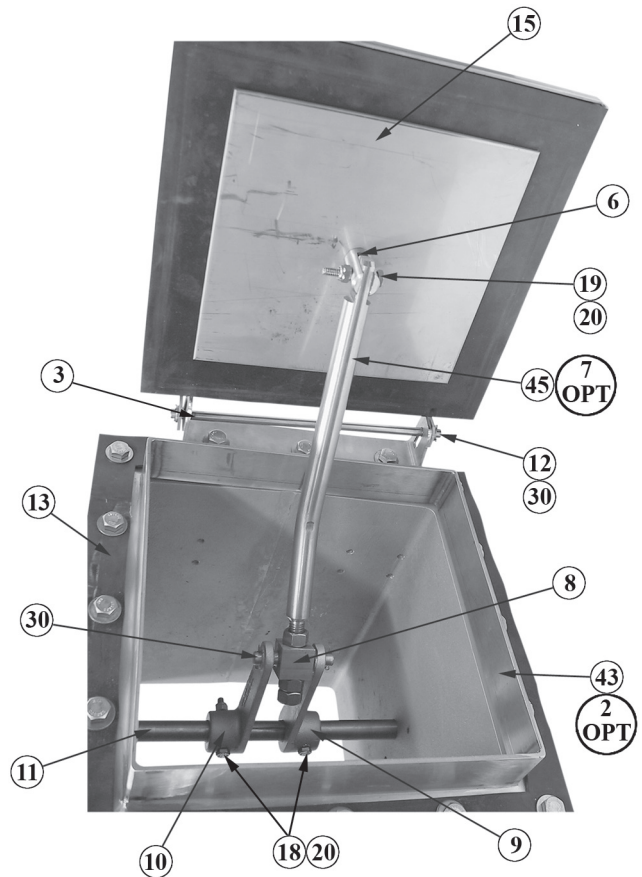
***Theoretical
Discharge Rates**

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

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

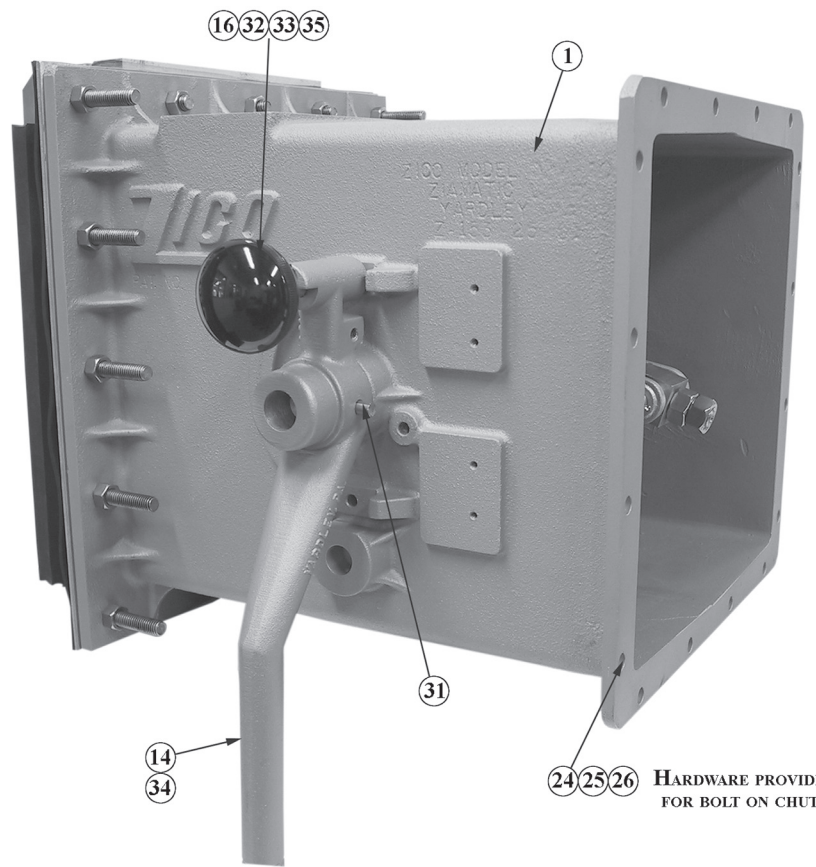
Parts Diagram/Breakdown - Manual Dump Valve

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	2070-105-101	Base casting	1
2	2070-105-102	Valve flange, S/S for QDV-10	1
3	2070-105-103	Hinge assembly, S/S for QDV-10	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, 13-1/2" L for QDV-10	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
22	9112-103700	3/8-16 HH Finish nut, S/S	16
*23	9114-343700	3/8 Sealing washer	16
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
38	9120-101103	Drive screw #4	2
39	9114-103100	5/16 Narrow Flat washer, S/S	2
43	2070-107-102	Valve flange for QDV-10-UPF	1
44	2070-107-103	Hinge assembly for QDV-10-UPF	1
45	20701-07-107	Draw bar for QDV-10-UPF	1
46	9110-103736	3/8-16 x 2-1/4 HH M/S	16
47	2070-105-120	Hinge seal, neoprene	1

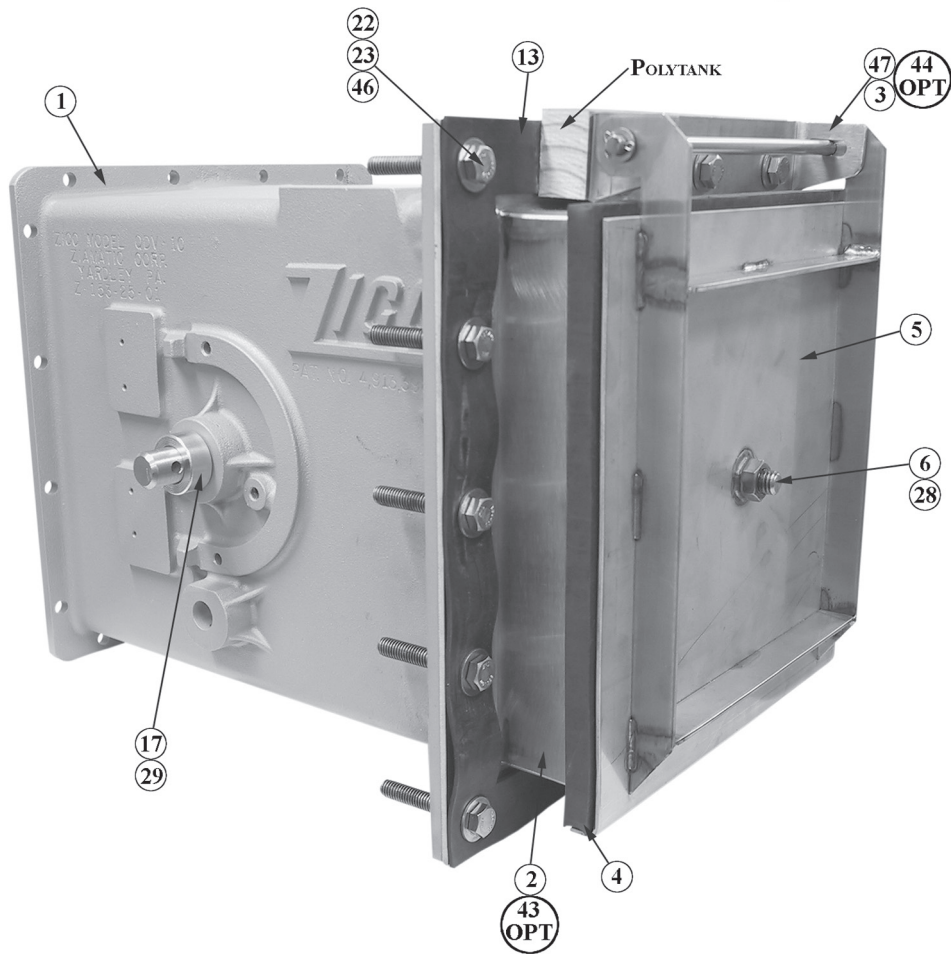


*With QDV-10, Item 23 is 13 pieces.

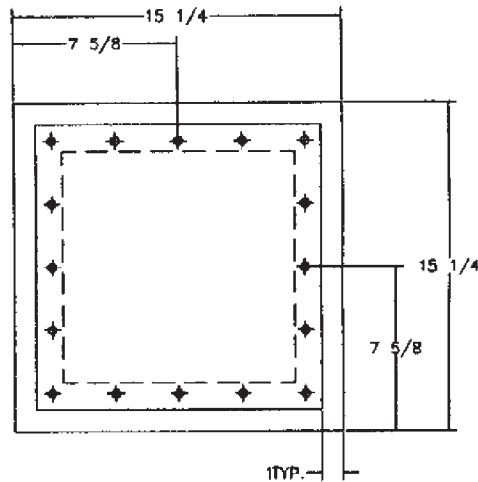
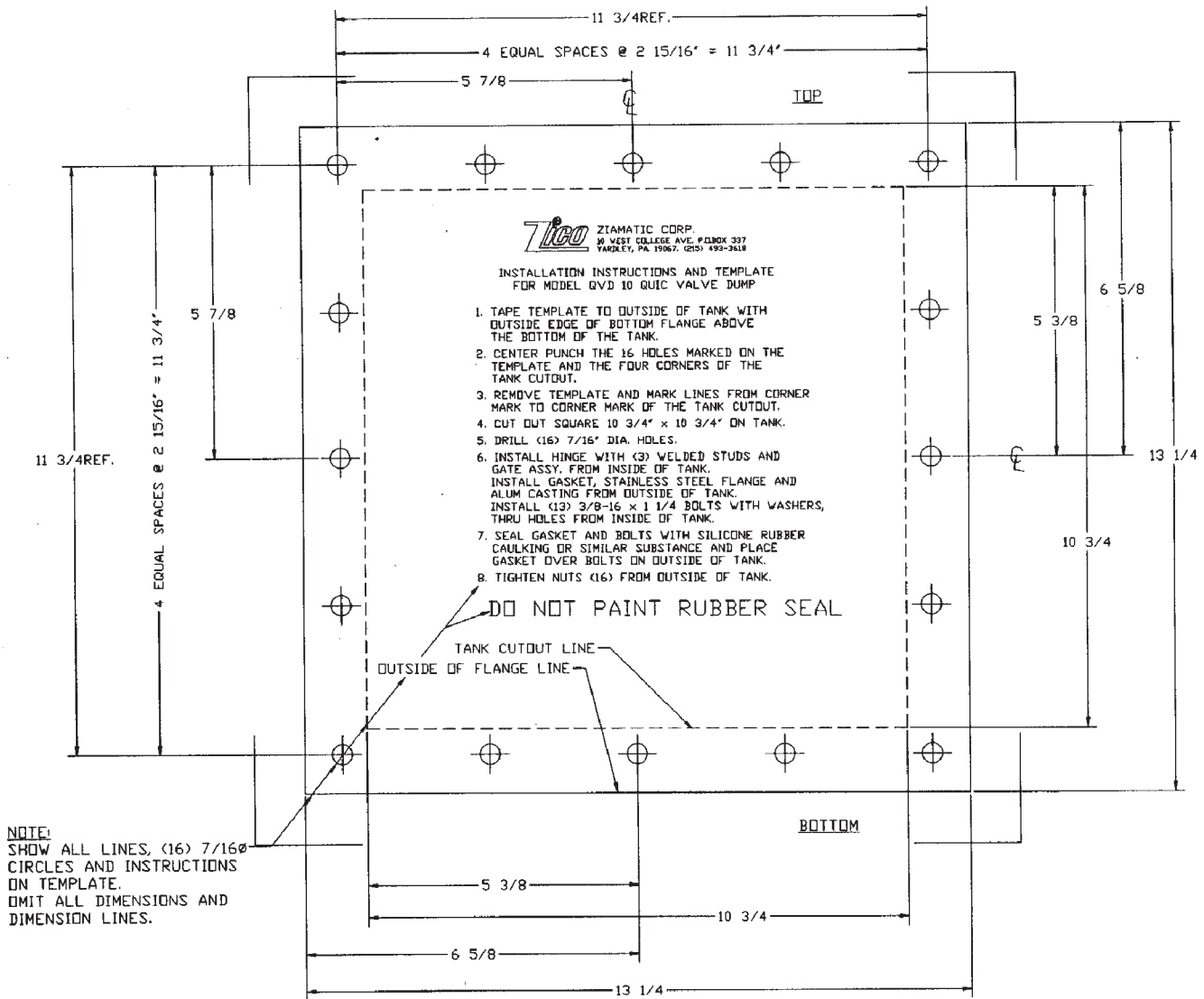
NOTE: Items 2, 3 and 7 used with QDV-10 only
Items 43, 44, 45 and 46 used with QDV-10-UPF only.



HARDWARE PROVIDED
FOR BOLT ON CHUTE



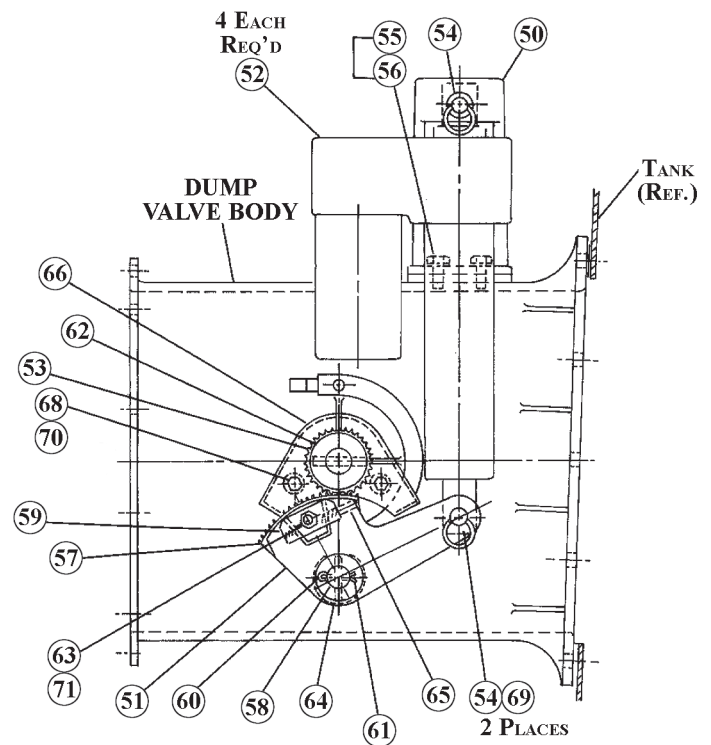
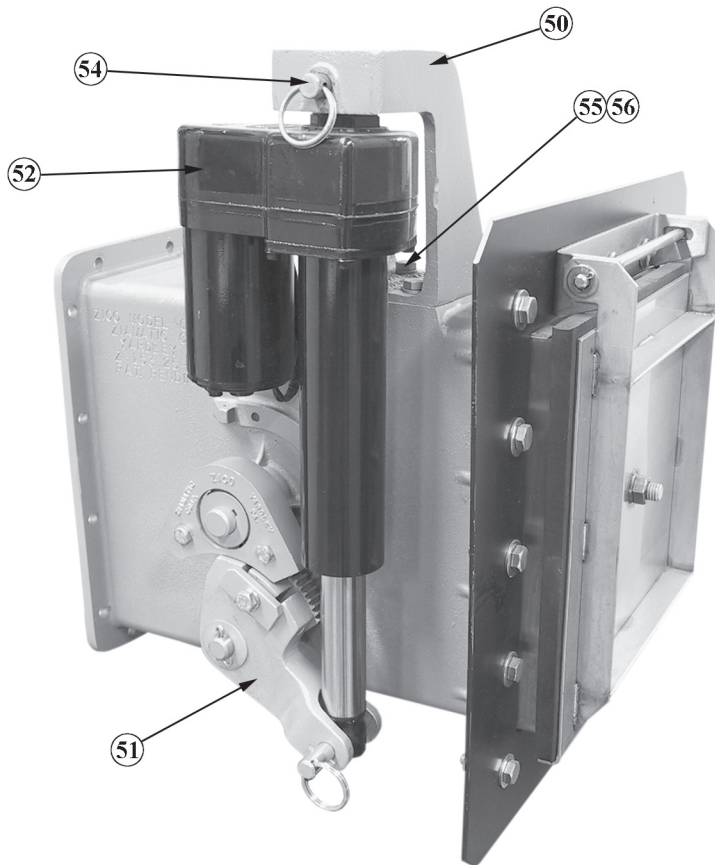
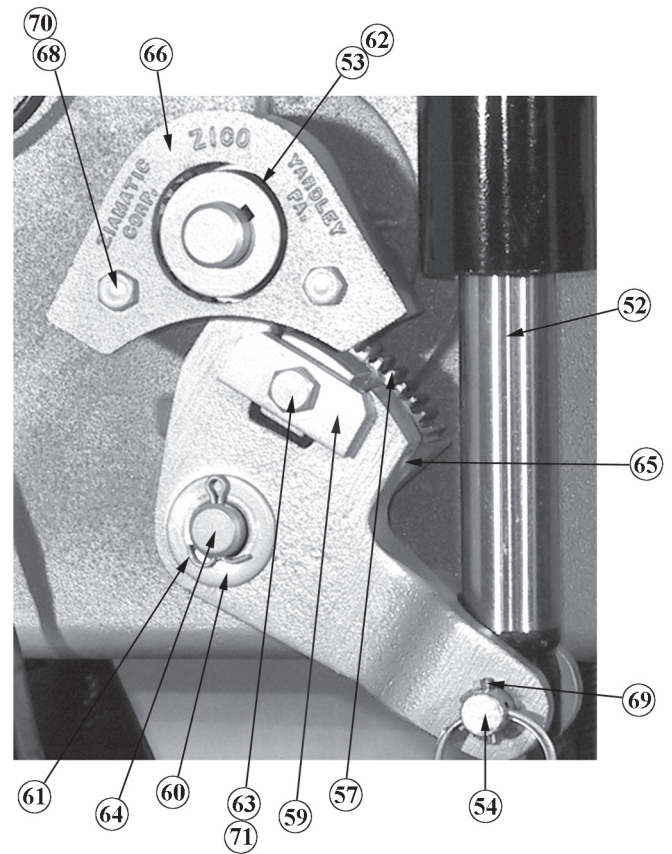
Valve Installation Instructions



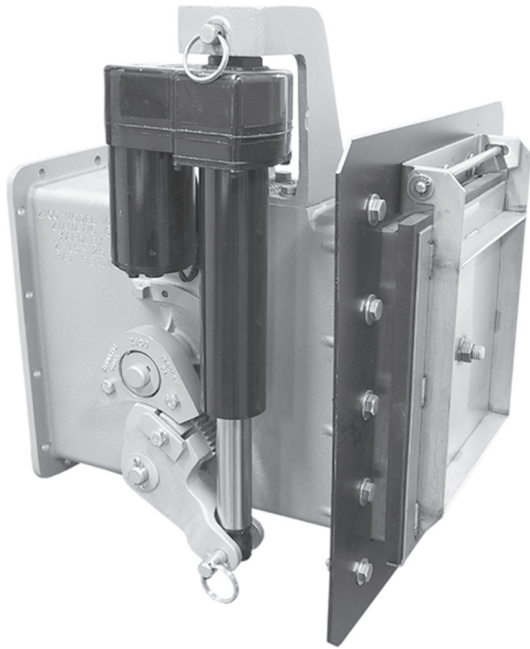
Top: A full size tank flange template is provided with valve. Bottom: Overall template size. Diagrams on this page are not to scale.

Parts Diagram/Breakdown - 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 1 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	5/8 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 nylock nut	2
71	9114-103100	5/16 ID flat washer	1
72	0000-000-186	Silicon sealant	1



Optional Electric Actuator Assembly



Increased Safety and Flexibility

With no manual valve handle to pull, our electric dump valves can be controlled away from the valve itself, such as a side panel or inside the cab, keeping personnel away from the dangerous area between the vehicle and the dump tank.

In addition, keeping the operator safely away from the valve leaves space for dumping from three sides.

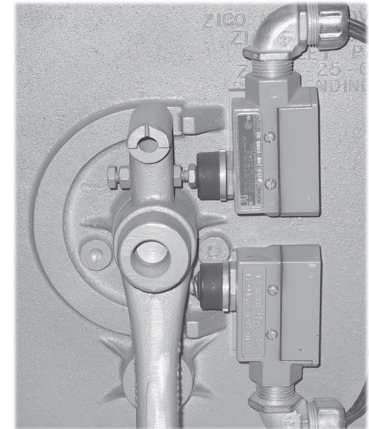
Available as complete unit or as upgrade kit for manual valve. If upgrading, the electric actuator may be attached to either the right or left side of the valve and requires an additional 4-3/8" H x 1-5/8" W when added to our manual valve. If sufficient clearance is not available, simply flip the entire unit over and extend the actuator below the valve.

The manual valve handle may be shortened from 14" to 9" when actuator is used or as required.

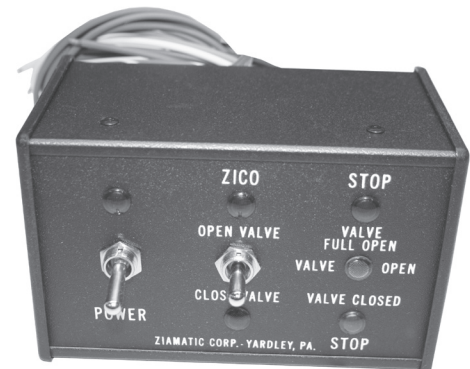
In the event of electrical failure, either of two pins may be pulled to operate the valve manually.

NOTE: Items below must be ordered in addition to QDV-10-__ (see page 1).

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
2070-110-115	2070-110-115	Electric Actuator Only	11.3

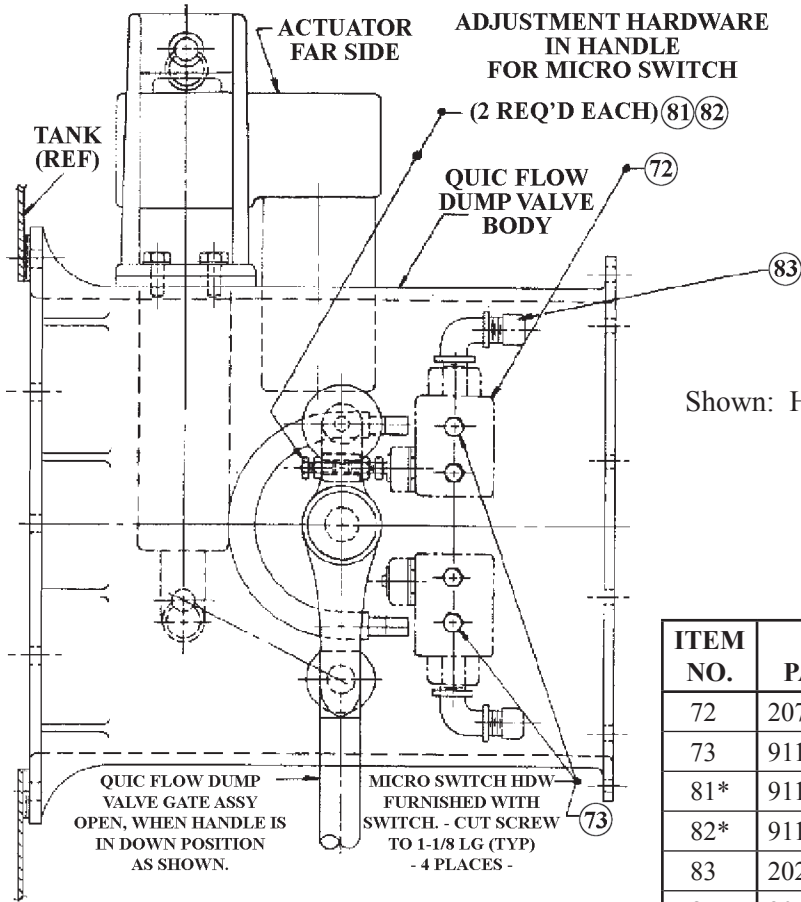


QDV-MS Micro switches (2) added to operate valve electrically



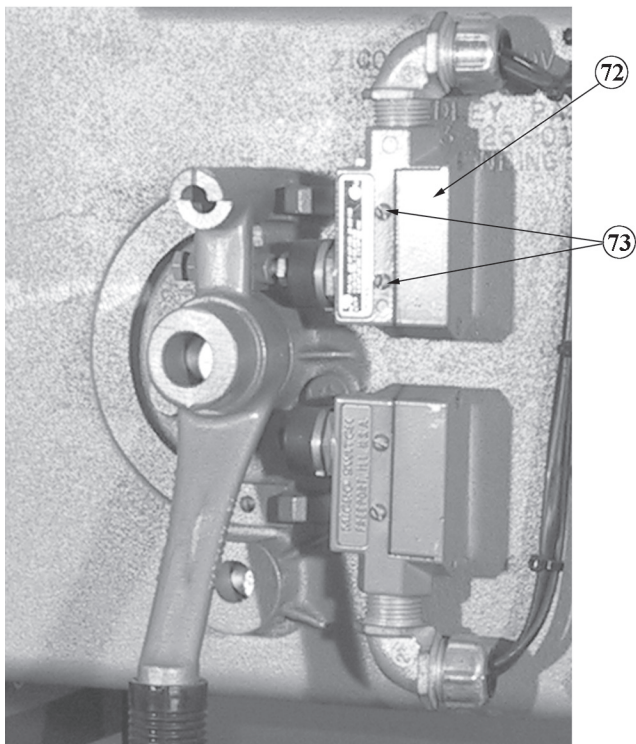
QDV-CPA/LMS Control panel assembly

Parts Diagram/Breakdown - Electric Actuator, Micro Switches and Control Panel Assembly



Shown: 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.



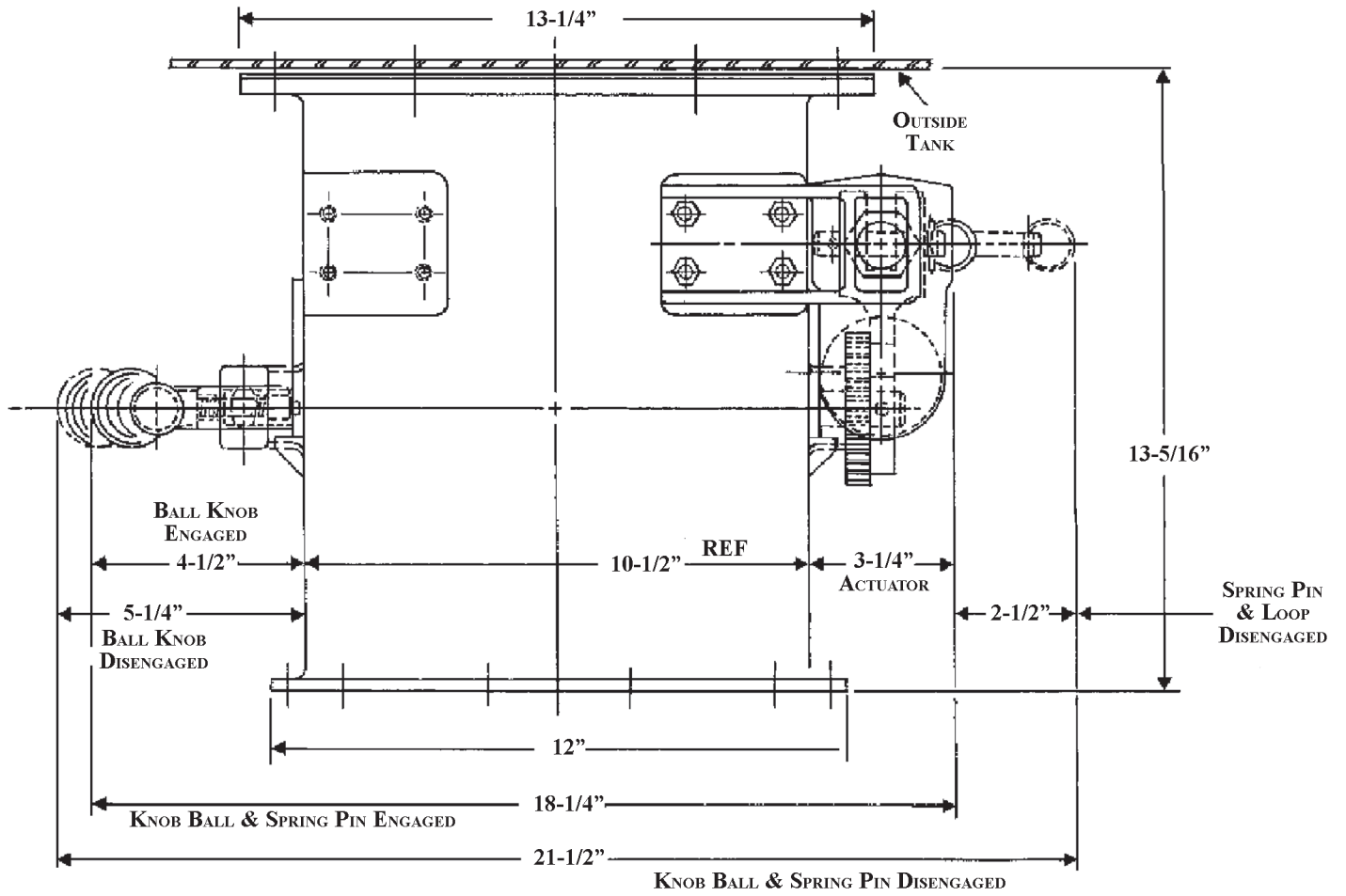
Installation Procedure - Attaching Electric Actuator Assembly

WARNING: Water tank must be empty before beginning installation procedure.

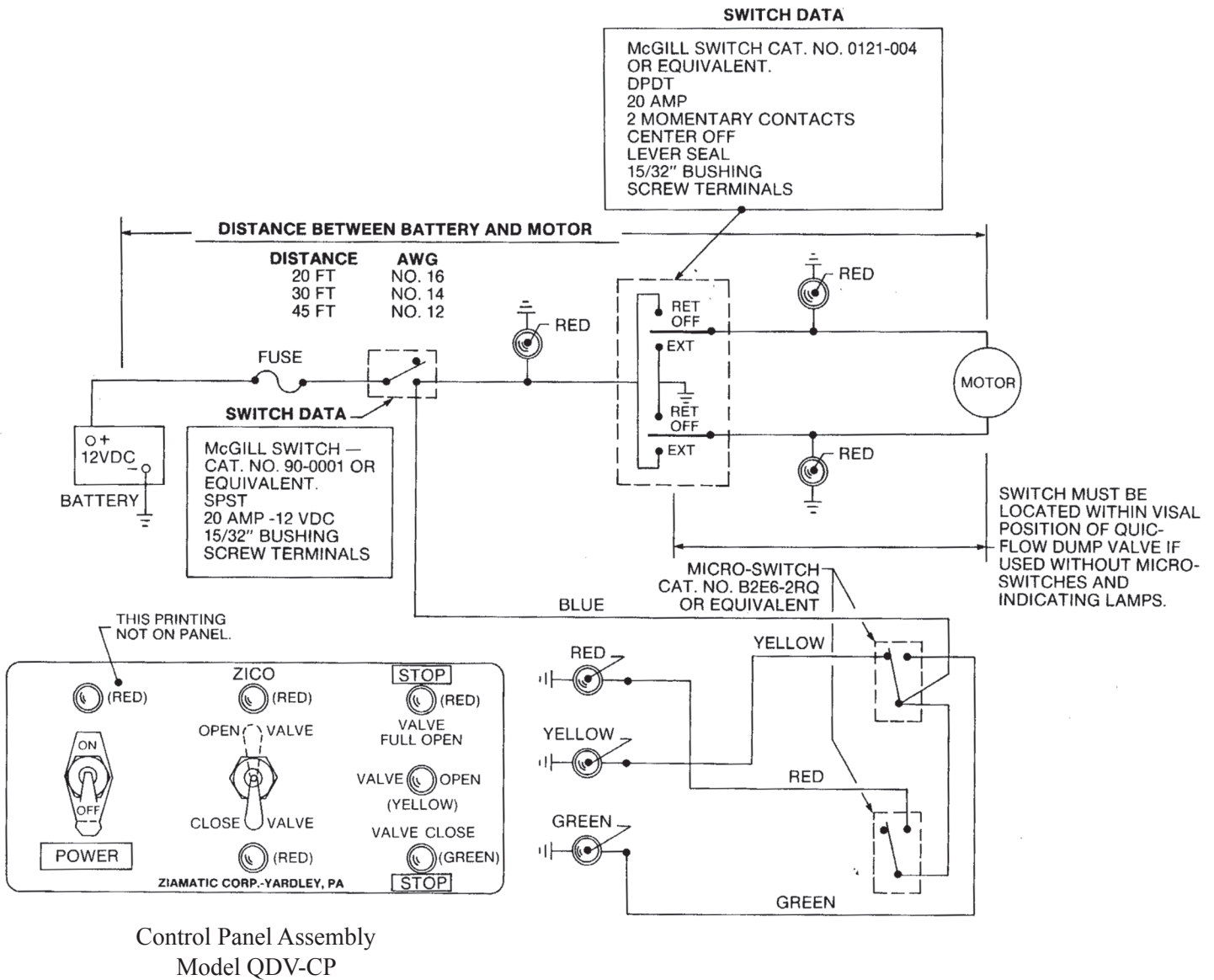
Installation instructions based on mounting actuator onto right side of QUIC-FLOW™ Dump Valve (when looking at valve from rear of tanker). For left side mounting, adjust accordingly.

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 draw 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. Mark the aluminum crank shaft handle (14) and the crank shaft (11) with a center punch to aid groove pin (31) reinstallation. Then remove groove pin (31) and handle from crank shaft.
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, the face of the crank shaft handle will need material removed.
14. Remove crank shaft (11).
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.
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 3/16 x 1-3/8 spring pin.
19. Slide actuator lever (51) onto end of shaft (58) and attach in place with 5/8 I.D. flatwasher (60) and 1/8 x 1" cotter pin (61) - spread cotter pin only slightly.
20. Carefully drive silicone sealer on tapped holes in top of valve body with 1/4" aluminum rod or an equally soft material. **Steel is NOT recommended**, as thread damage may result.
21. Place aluminum mounting bracket (5) on top of pad with top projection extending past side body casting. Bolt in place using 5/16 I.D. lock washers (56) and 5/16-18 x 1" bolt (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 crankshaft (11) part-way in from handle side of body.
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 - angled down.
25. Attach draw bar (7) to pivot (6) using 1/4-20 x 1-1/2" bolt (19) and nut (20).
26. Insert threaded end of draw bar (7) into trunnion block (8) by opening gate (5) slightly - with bar bending around crank shaft.
27. Thread on 1/2-13 nut (28) and **torque to 30 inch pounds maximum**. Install jam nut and tighten.
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). Mesh the two teeth.
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 the actuator lever (51) with Boston gear (53) so that 1/2" detent pin with spring pin (54 & 69) 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 10 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.
41. Install shield casting (66) with 1/4-20 x 2-1/2 hex head bolts (68) and 1/4-20 nylock nuts (70).

Dimensions - Completed Electric Actuator Assembly - Top View



Wiring Diagram - Electric Actuator Assembly



Optional Dump Valve Chutes

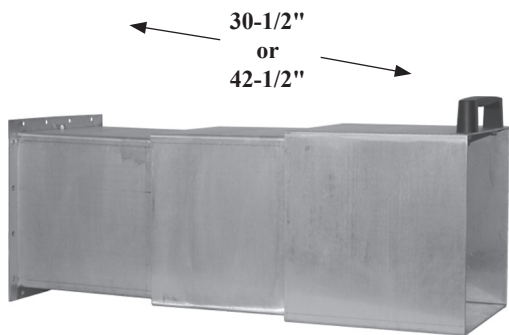
Zico dump valves feature a square flange on the discharge side of the valve, allowing for the attachment of an auxiliary chute to discharge the water further from the tanker.

6" Cast Aluminum Chute



Extends 6" from the dump valve to clear bumpers, running boards, and other apparatus components.

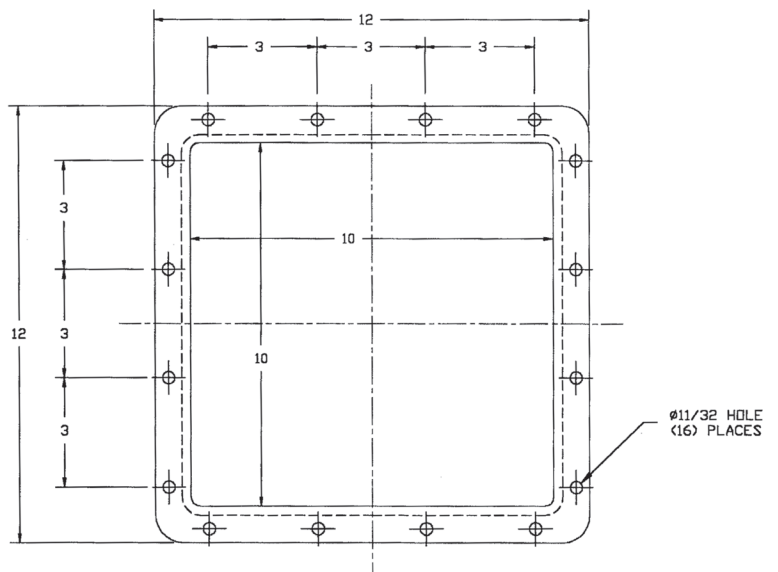
Extendable Aluminum Chute



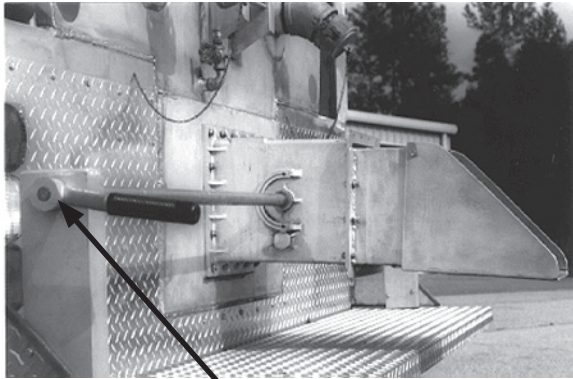
Our heavy-duty extendable aluminum chutes extend the reach of the dump valve up to 42". Chutes lock into place when fully extended or retracted.

- EACH-3-305: 12-1/4" base extends to 30-1/2".
- EACH-3-425: 16-1/4" base extends to 42-1/2".

ORDER NO.	PART NO.	DESCRIPTION	WT./@ IN LBS.
CACH-6	2070-132-000	6" Cast Aluminum Chute	8.2
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

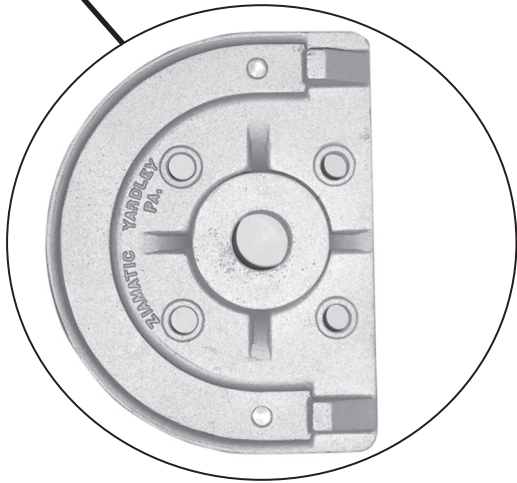


Optional Auxillary Handle Lock



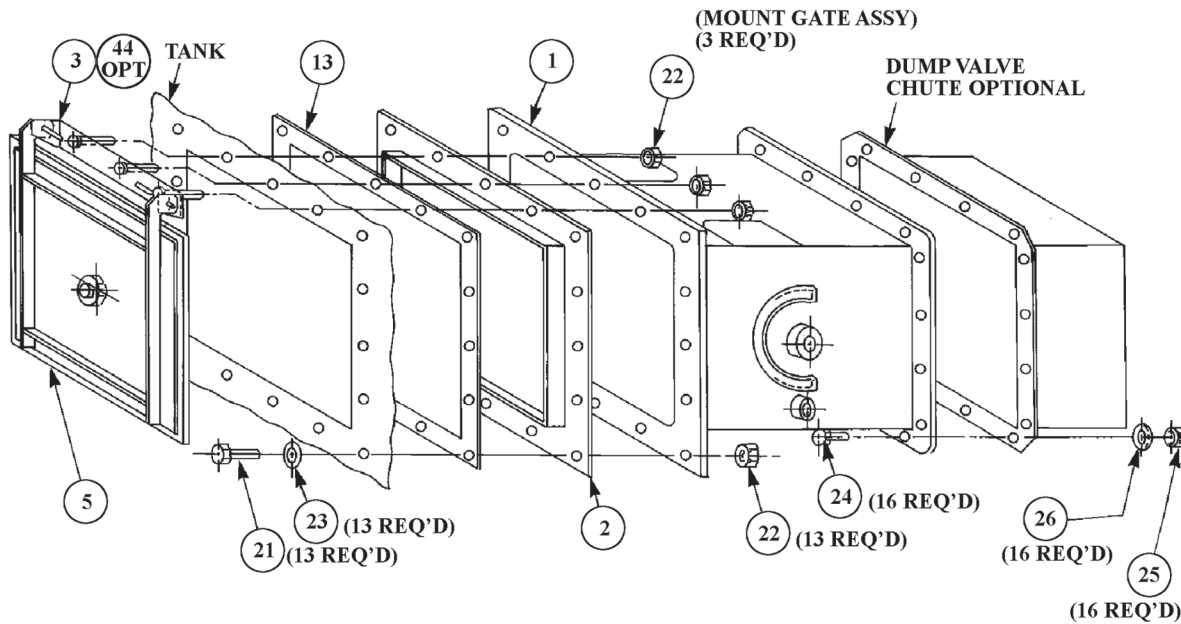
Permits firefighter to operate the valve safely from the side of vehicle.

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 1 HH M/S
25	5/16-18 Hex hd nut
26	5/16 I.D. split lock washer



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