INDEX





	PAGE
INTRODUCTION AND HISTORY	2B-2
ORDERING	
Dimensions:	
Overall Hydrant	2B-3
Optional Bottoms (Bases)	2B-4
Operating Nut Sizes	2B-5
Weights	2B-6
Friction Loss	2B-7
Submittal Sheet	2B-8
INSTALLATION AND TESTING	
Installation	2B-9, 2B-10
Testing	2B-11
OPERATION AND MAINTENANCE	
Operation	2B-12
Maintenance	2B-13
Troubleshooting Guide	2B-14
REPAIRS	
Identifying Pacer Variations	2B-15
Ordering Repair Parts	2B-15
Parts List:	
250 p.s.i.g. Rated Ductile Iron Pacer	2B-16, 2B-17
150 p.s.i.g. Rated Gray Iron Pacer	2B-18, 2B-19
Repair Instructions	2B-20 thru 2B-24
Traffic Damage Repair	2B-25 thru 2B-29
Nozzle Replacement:	2B-30
Mechanically Attached Nozzles	2B-31, 2B-32
Caulked (Leaded-In) Nozzles	2B-33, 2B-34
EXTENDING	
Traffic Models	2B-35 thru 2B-38
Non-Traffic Models	2B-39 thru 2B-42



WATEROUS 5-1/4 IN. PACER FIRE HYDRANT

The Waterous Pacer's sleek and stylish design blends perfectly with today's modern architecture. The Pacer is rated for 250 p.s.i.g. and exceeds all of the requirements of AWWA C-502. Ductile iron construction assures strength and durability.

Introduced in 1967, the Pacer fire hydrant provides real solutions to today's system demands. With many cities experiencing increased pressure to stretch their dollars, it is important to note that the Pacer hydrant can be maintained by just one person. The removal of four nuts and bolts allows access to all working parts.

The Pacer hydrant has all the features you expect from a high quality fire hydrant. The epoxy primer and polyurethane top coat system on external surfaces of the upper barrel provide a durable, high-gloss finish that will continue to look good for years without repainting. The all bronze valve seat and bronze seat insert assure that the Pacer hydrant remains easy to repair. The Pacer has been manufactured for more than forty years while still maintaining complete parts interchangeability.

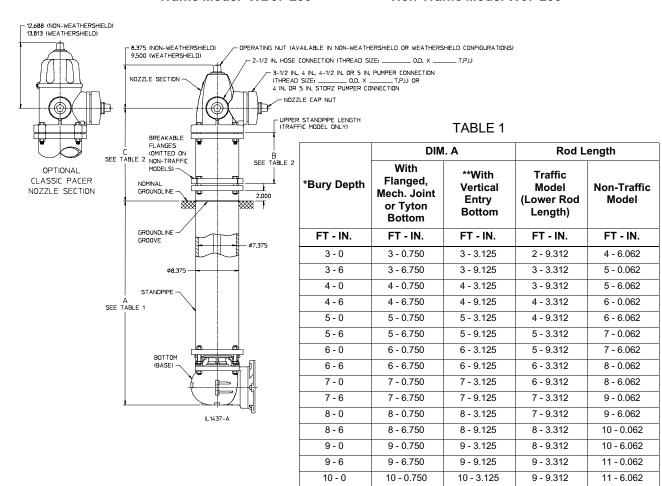
S

PACER - DIMENSIONS

Traffic Model WB67-250

Non-Traffic Model W67-250



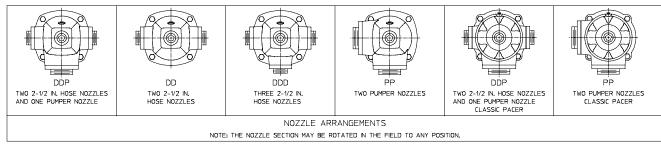


*NOTE: Bury depth is the nominal distance from groundline to bottom of connecting pipe. 1'6" through 11' 6" bury depths are available.

**NOTE: For vertical entry bottoms, bury depth is measured to the face of the inlet flange. See detail on next page.

TABLE 2

DIM. B Upper Standpipe Length	DIM. C Nozzle Elevation Above Groundline	
(Traffic Models Only)	Traffic Model (WB67-250)	Non-Traffic Model (W67-250)
10 IN.	18 IN.	
16 IN.	24 IN.	
22 IN.	30 IN.	18 IN.
28 IN.	36 IN.	
34 IN.	42 IN.	



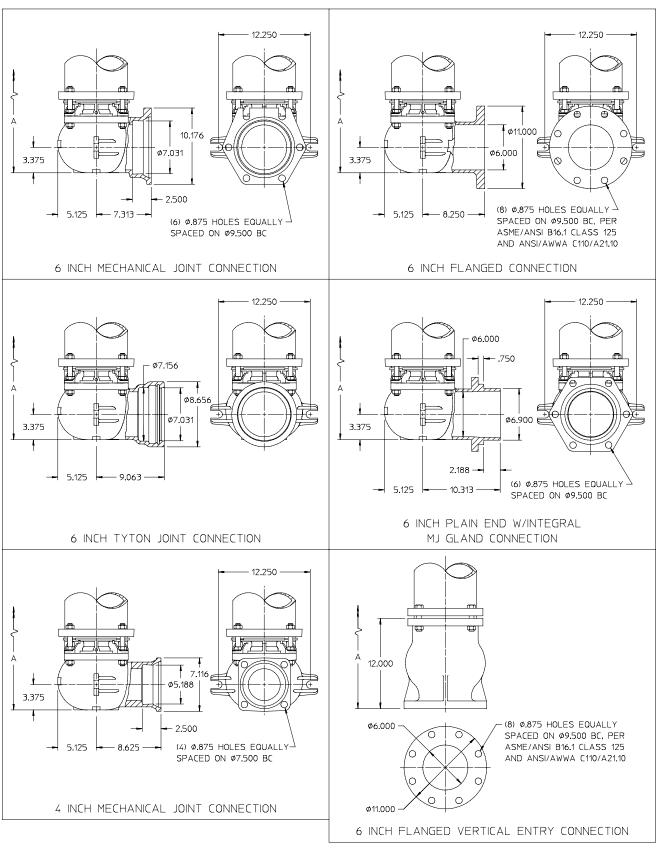
NOTES: 1. 250 p.s.i.g. AWWA rated working pressure.

- 2. Meets or exceeds requirements of AWWA C502, latest revision.
- 3. May be furnished in configurations that are Listed by Underwriters Laboratories, Inc. and Approved by Factory Mutual Approvals.

IL1437-B



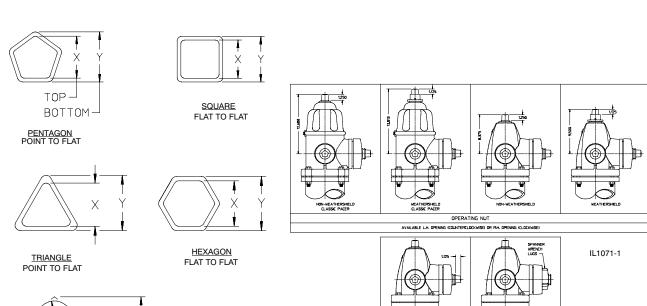
PACER - DIMENSIONS, OPTIONAL BOTTOMS (BASES)



IL1437-2

NOTE: See Table 1 on Page 2B-3 for Dimension A

PACER - OPERATING NUT SIZES



Nut Shape	Waterous Nut No.	Nominal Nut Size	X (Top)	Y (Bottom)
	1	15/16	.866 / .835	.962 / .931
	2	1-1/8	1.059 / 1.028	1.155 / 1.124
	3	1-7/32	1.155 / 1.124	1.251 / 1.220
Pentagon	3A	1-9/32	1.202 / 1.171	1.299 / 1.268
	4	1-5/16	1.251 / 1.220	1.348 / 1.317
	4A	1-3/8	1.309 / 1.278	1.406 / 1.375
	5	1-1/2	1.443 / 1.412	1.540 / 1.509
Caucana	6	7/8	.750 / .719	.875 / .844
Square	7	1	.875 / .844	1.000 / .969
Triangle	8	1-1/2	1.520 / 1.480	1.582 / 1.542
	9	1-19/32	1.540 / 1.509	1.637 / 1.606
Pentagon	*10	1-11/16	1.637 / 1.606	1.732 / 1.701
Pentagon	*11	1-25/32	1.732 / 1.701	1.827 / 1.796
	*12	1-7/8	1.827 / 1.796	1.923 / 1.892
	13	1-1/8	1.000 / .969	1.125 / 1.094
Square	14	1-1/4	1.187 / 1.156	1.250 / 1.219
	*15	2	1.875 / 1.844	2.000 / 1.969
Hexagon	17	1-5/16	1.320 / 1.280	1.395 / 1.355
пехадоп	17A	1-1/4	1.190	1.280
Square	19	15/16	.812 / .781	.937 / .906
Triangle	20	1-3/8	1.375 / 1.344	1.437 / 1.406
Square	*21	1-3/8	1.312 / 1.281	1.375 / 1.344
Havasan	22	1-1/2	1.437 / 1.406	1.531 / 1.500
Hexagon	22A	1-7/16	1.406 / 1.375	1.500 / 1.469
Square	*23	1-3/4	1.718 / 1.687	1.781 / 1.750
Rocker Lug	41	Rocker lug for spanner wrench (caps only)		

^{*}NOTE: Operating nuts in these sizes are available only as weathershield type.

PENTAGON AND TRIANGLE

NUT DIMENSIONS ARE TO

THIS POINT

R.063

IL1071

TYP



PACER - WEIGHTS With 6 in. Mechanical Joint Bottom (Less Accessories)

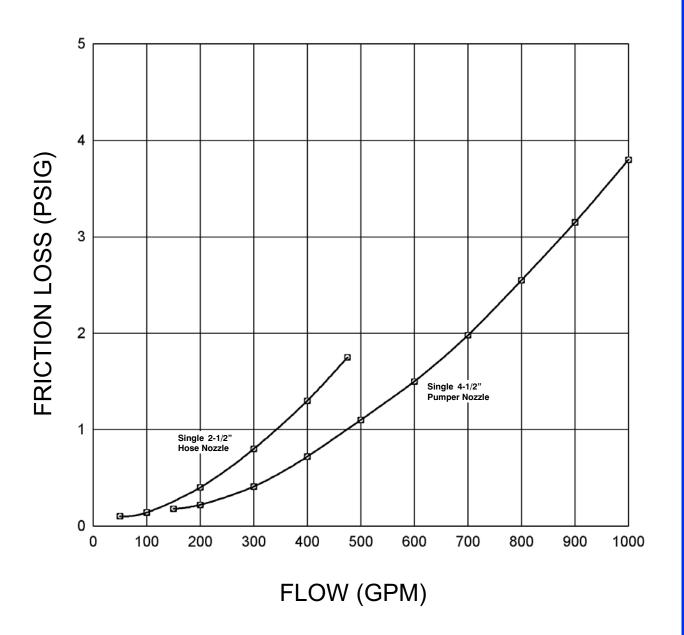
	WEIGHT (LBS)		
BURY DEPTH	NON-TRAFFIC MODEL W67-250	TRAFFIC MODEL WB67-250	
FT - IN.	DDP	DDP	
3-0	338	357	
3-6	358	377	
4-0	379	398	
4-6	399	418	
5-0	420	439	
5-6	440	458	
6-0	461	480	
6-6	481	500	
7-0	502	521	
7-6	522	541	
8-0	543	562	
8-6	563	582	
9-0	584	603	
9-6	604	623	
10-0	625	644	

- NOTES: 1. Deduct 11 lbs for DD (2 hose)
 - 2. 16" Breakoff Section Use weight for 6" longer hydrant
 - 3. 22" Breakoff Section Use weight for 12" longer hydrant
 - 4. Add 11 lbs for 4" Mechanical Joint accessories
 - 5. Add 17 lbs for 6" Mechanical Joint accessories
 - 6. Add 12 lbs for Classic Pacer (DDP & PP)

SS



5-1/4" Pacer Hydrant Flow vs. Friction Loss



IL1073



AMERICAN Flow Control® WATEROUS 5-1/4 IN. PACER FIRE HYDRANT

SUBMITTAL SHEET

С	ity Specification:		Qu	antity:
S	tyle:		☐ Classic	
T	ype: Traffic (Model WB	67-250)	☐ Non-Traffic	(Model W67-250)
D	irection to Open: Left (C.C.	W.)	Right (C.W.)
ıţs	Operating Nut		No	zzle Cap Nuts
Operating Nuts	☐ Non-Weathershield ☐ Wea	athershield	Rocker Lug for or	Spanner Wrench
ratin	Nominal Size	Shape	Same as opera	ting nut
Ope	Market No. (151Zec. 1)			Size Shape
	Waterous No. (If Known)	D	Waterous mper Nozzle:	Hose or IHG Valve Nozzle:
	Nozzle Configuration: (Check One)		☐ 4 in. ☐ 5 in.	Nat'l Std Yes No
ړ	DDP (Two Hose, One Pumper) DDD (Three Hose)		☐ Yes ☐ No	Size:
Nozzles	DD (Two Hose)	Size:		
l	PP (Two Pumper)		D. x T.P.I.	O.D. x T.P.I.
	GGP (Two IHG Valves, One Pumper)		Template (If Known)	Waterous Template (If Known)
	GG (Two IHG Valves)			
N	ozzle Cap Chains: 🔲 Yes 🔲	No	Bury Depth (Depth	n of Trench):
Upper Standpipe Length (Traffic Models Only): 10" 16" 22" 28" 34"				
Monitor Elbow:				
Bottom (Base) Connection: (Check One)				
🔲 6" Flanged 🔲 6" MJ 🔲 6" Tyton 🔲 6" Plain End with Integral MJ Gland				
☐ 6" Flanged Vertical Entry ☐ 4" MJ				
Paint Color:				
UL Listed: Yes No FM Approved: Yes No				
0	Other Requirements: (List)			

NOTES:

- 1. Meets or exceeds requirements of AWWA C502, latest revision.
- 2. 250 p.s.i.g. AWWA rated working pressure.
- 3. May be furnished in configurations that are Listed by Underwriters Laboratories, Inc. and Approved by Factory Mutual Approvals.

AMERICAN Flow Control®

American-Darling Valve & Waterous
A Division of AMERICAN

PACER - INSTALLATION

This instruction is issued as a recommendation to the customer for the proper use of the AMERICAN Flow Control manufactured fire hydrants. AMERICAN recommends you follow the general Inspection and Installation guidelines outlined in AWWA Manual *M17 for Installation, Field Testing, and Maintenance of Fire Hydrants* and/or as recommended below. Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment. Failure to follow proper practice and guidelines can also result in serious injury and/or even death.



Receiving Inspection

On receipt, inspect for direction of opening, correct nozzle threads and operating nuts and shipping damage.

Report any problems to carrier, note on bill of lading and have the driver sign your copy.

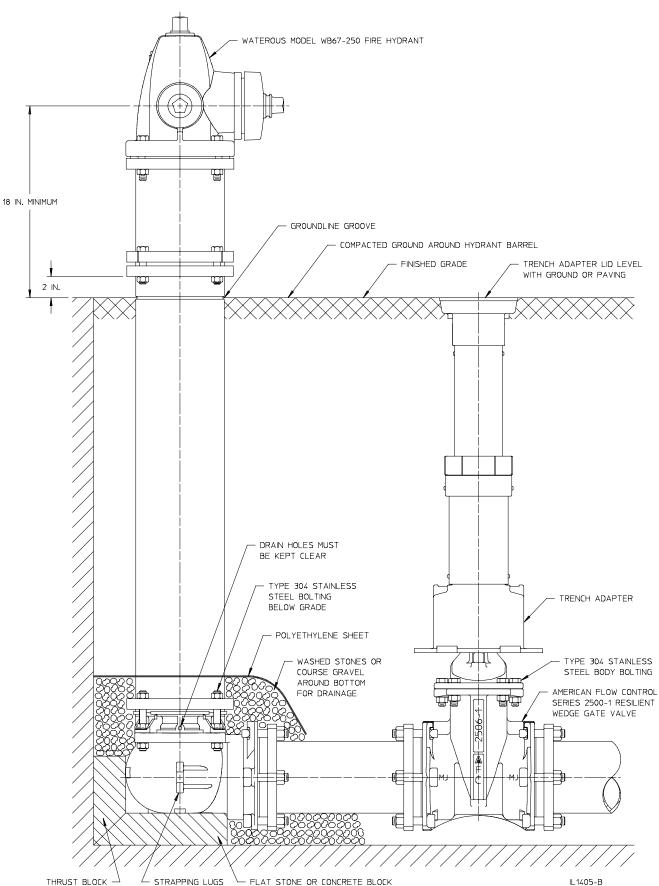
Installation

- When hydrants are received, they should be handled carefully to avoid breakage and damage to flanges. Keep hydrants closed until they are installed. Protect stored hydrants from the elements if possible.
- 2. Before installation of hydrant, clean piping, base and drain ring of hydrant of any rocks, sand and/or foreign material. Check for loose bolts at base, ground line and cover. Tighten if necessary.
- 3. Hydrants shall be located as shown or as directed and in a manner to provide complete accessibility, and also in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized. Locate hydrants as detailed in AWWA M17 and/or in accordance with applicable fire codes, the requirements of local fire authority, or the applicable municipal design standard.
- 4. All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the curb, with the pumper nozzle facing the curb, except that hydrants having two hose nozzles 90° apart shall be set with each nozzle facing the curb at the angle of 45°. Hydrants shall be set to the established grade, with nozzles at least 18 inches above the ground, as shown or as directed by the engineer.
- 5. It is recommended practice to install an auxiliary or secondary gate valve in the lateral between the hydrant and the main to permit inspection and repair of the hydrant without shutting down mains. The use of AMERICAN Flow Control Series 2500 Resilient Wedge Gate Valves are recommended.
- 6. On traffic hydrants, be sure the earth is firmly compacted around the barrel to support the lower barrel against side loading. If the soil is too sandy and will not support the loads, pour a concrete pad around the barrel at or near the ground line at least 6 inches thick and 36 inches in diameter for barrel support.

- 7. Whenever a hydrant is set in soil that is pervious. drainage shall be provided at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand, from the bottom of the trench to at least 6 inches above the drain opening in the hydrant and to a distance of 1 foot around the elbow.
- 8. Whenever a hydrant is set in clay or other impervious soil, a drainage pit 2 feet in diameter and 3 feet deep shall be excavated below each hydrant and compactly filled with coarse gravel or crushed stone mixed with coarse sand under and around the elbow of the hydrant and to a level of 6 inches above the drain opening.
- 9. Where there is a high ground water level or other conditions which prevent the use of hydrants with drains, "non-draining" hydrants should be used. Hydrants of this type are provided with either a solid seat and/or plugged drains and are marked to pump after use. This is especially important to avoid damage to the hydrant in areas where freezing temperatures are likely. Non-draining hydrants should be checked to make sure the barrels stays dry.
- Restrain hydrant movement with appropriate thrust blocking or restrained joint to prevent pipe and/or joint separation.
- When first installed, the hydrant should be operated from full closed to full open position and back to make sure no obstructions are present.
- After the line as well as the hydrant have been hydrostatically tested, the hydrant should be flushed and then checked for proper drainage, if applicable.



PACER - INSTALLATION



PACER TESTING



AMERICAN recommends you follow the general Inspection and Installation guidelines outlined in AWWA Manual M17 for Installation, Field Testing, and Maintenance of Fire Hydrants and/or as recommended below. AWWA C502 permits dry-barrel hydrants with unplugged drain outlets to have an allowable leakage of 5 fluid oz/min (0.25 mL/s) through the drain valve. Therefore, the main valve should not be opened at the same time that the water main is tested. The auxiliary valve should be closed during water main tests (see AWWA C600). However, if it is possible to temporarily plug the drain outlets by installing a no-drain seat, then the hydrant and main may be tested at the same time.

After the hydrant is installed and, when possible, before backfilling (and after pressure testing the water main), the hydrant should be tested as follows:

Pressure Test at Main Pressure

- 1. Remove the highest outlet-nozzle cap and open the hydrant valve a few turns. Allow the hydrant to fill until water is at the bottom of the outlet-nozzle.
- 2. Replace the outlet-nozzle cap and leave it loose to permit all air to escape.
- 3. After all air has escaped, tighten the outlet-nozzle cap.
- 4. Open the hydrant completely. (Opening the hydrant fully before all the air has escaped will compress the air and cause a safety hazard.)
- 5. Check for leakage at flanges, outlet-nozzles and the O-rings around the stem.
- 6. If leakage is noted, repair or replace the necessary components or the entire hydrant.
- 7. Repeat the test until results are satisfactory.

Pressure Test at Pressures Above Main Pressure

- 1. Connect a pressure-test pump to one of the hydrant's outlet-nozzles.
- 2. Open the highest outlet-nozzle cap. Open the hydrant valve a few turns. Allow the hydrant to fill until the water is at the bottom of the outlet-nozzle.
- 3. After all the air has escaped, tighten the outlet-nozzle cap.
- 4. Open the hydrant completely.
- 5. Close the auxiliary valve.
- 6. Pump up to test pressure (typically 150 p.s.i.g. [1034 kPa] but not to exceed rated working pressure of the hydrant or system components).
- 7. Check for leakage at flanges, outlet-nozzles and the O-rings around the stem.
- 8. Repair or replace hydrant, if necessary.
- 9. Repeat the test until results are satisfactory.
- 10. Open the auxiliary valve.

Drainage Test for Dry-Barrel Hydrants

- 1. Following the pressure test, close the hydrant main valve.
- 2. Remove one outlet-nozzle cap and place the palm of one hand over the outlet-nozzle opening.
- 3. Drainage should be sufficiently rapid to create a noticeable suction.
- 4. If the hydrant fails the drainage test, partially open the hydrant with the outlet-nozzle caps on to create a pressure that will clear the drain valve. If this fails, then the drain valve assembly should be removed and inspected. If the drain valve is clear, then the problem may be that the drain outlet is plugged from outside the hydrant. Repair will require digging down around the outside of the hydrant and clearing the drain outlet.

The following steps are recommended for placing the hydrant into service.

- 1. After testing and backfilling, the hydrant should be flushed and tested to be sure that it is bacteriologically safe before it is put into service.
- 2. Tighten the outlet-nozzle caps. Back the caps off slightly so they will not be excessively tight, but tight enough to prevent their removal by hand.
- Clean the hydrant exterior to remove dirt accumulated during installation. Touch-up any areas where factory coating was damaged during handling or installation. Use an appropriate top coating or contact factory for touch-up coatings.



PACER - OPERATION

Operation

AMERICAN recommends you follow the general Inspection and Installation guidelines outlined in AWWA Manual M17 for Installation, Field Testing, and Maintenance of Fire Hydrants and/or as recommended below. The thrust bearing hydrant requires a minimum of torque to operate. It is possible to damage the hydrant by forcing it beyond its limits of travel with excess torque; therefore:

- Check direction of opening as marked on the hydrant cover.
- 2. To Open, turn the operating nut until the valve hits the stop in the opening direction. Do not force the hydrant in the opening direction beyond full open as indicated by sudden resistance to turning. If water does not flow when the hydrant is open, it is probably due to a closed valve upstream from the hydrant. The hydrant should typically be opened completely during operation. This will help prevent erosion of backfill around the drains and also help prevent small debris from being trapped in the hydrant seat.
- To close, turn the operating nut until the valve stops off the flow. It is not necessary to close this style of hydrant with great force. Once the flow has stopped, loosen the operating nut in the opening direction to take the strain off the operat-

- ing parts of the hydrant and to make it easier to open the hydrant. If the hydrant does not shut off completely, do not attempt to force the hydrant to close. Debris and small stones may be trapped in the valve seat and may be preventing the hydrant from closing. Attempt to partially open and close the hydrant several times to help dislodge the debris. If this does not work, remove the hydrant operating rod assembly, remove the debris and repair as detailed in subsequent sections of this manual.
- 4. NOTE: POTENTIAL HYDRANT CAP HAZARD. Make sure the auxiliary gate valve in the lateral between the main and they hydrant is closed and that the hydrant is not charged with pressure when removing caps. Failure to relieve the pressure can result in the cap blowing off, serious injury and/or even death.

PACER - MAINTENANCE

AMERICAN Flow Control strongly recommends that you follow routine maintenance on fire hydrants as outlined in AWWA Manual M17 for Installation, Field Testing, and Maintenance of Fire Hydrants. The ease of operation and the frequency of repair depends on the condition of the water system and the maintenance given. Dirt, gravel and other foreign material in the hydrant may prevent it from closing or draining properly, which may result in damage to the hydrant main valve. Under most operating conditions AMERICAN Flow Control recommends semi-annual lubrication and inspection of fire hydrants.

- Twice per year, open the hydrant completely and let water run for several minutes. Open and close valve to make sure it works properly, and check for leaks.
- 2. After the valve is closed, the water in the hydrant should drain rapidly. If it does not, the drain ports may be clogged. To clear drain ports, install nozzle cap, and tighten until water tight, then open hydrant two or three turns for several minutes. This will leave drain port partially open and permit water pressure to wash out the obstruction. If this method is unsuccessful, remove the operating rod assembly and clean the drain mechanism. If neither of above methods permits water to drain, it indicates that the drainage area around the hydrant base should be rebuilt.

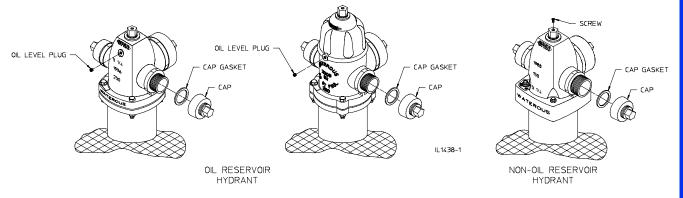
3. Oil Reservoir Hydrants:

Remove oil level plug and check oil level. If it is necessary to add oil, remove the oil level plug on the back of the nozzle section and add oil. FILL OIL TO THE LEVEL OF THE PLUG, IF NECESSARY.

4. Non-Oil Reservoir Hydrants:

Remove screw from operating nut, and add approximately one tablespoon of oil through opening. Replace screw.

 Remove all nozzle caps, clean rust or corrosion from threads of nozzles and caps, and replace cap gaskets if necessary. Apply a light coat of grease to nozzle threads before replacing cap.



Note: Where oil or grease is specified, use an AMERICAN Flow Control recommended food grade lubricant.



PACER - TROUBLESHOOTING GUIDE

Problem

- 1. Operating nut turns freely but hydrant does not open.
- Hydrant will not shut off or ground around hydrant is highly saturated.

- 3. External leakage is noticed around the operating nut.
- 4. Operating nut is extremely hard to turn.

5. Water is dripping around nozzles.

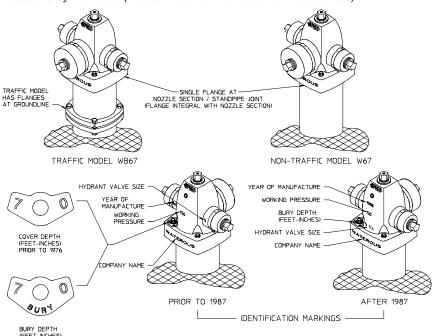
6. Hydrant will not drain properly.

Solution

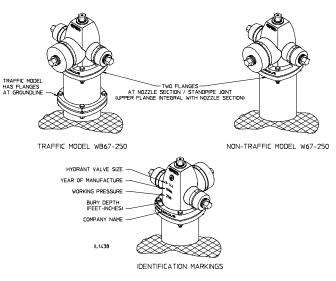
- Inspect rod coupling for breakage and ensure rod pin is properly installed.
- Close hydrant and remove nozzle cap. Check with listening device to determine if water is passing by main valve. If it is determined that the main valve is leaking, try the following:
 - Flush hydrant in fully open position (watch to see if rocks or other foreign objects flush out of the barrel).
 - b. After flushing for several minutes, shut off the hydrant. Watch for several minutes to see if flow stops. Place hand over open hose nozzle; suction should be felt, indicating hydrant is no longer leaking and drains are working properly.
 - c. If flushing does not solve the problem, it would indicate that something is trapped or has cut the main valve rubber. Follow the seat removing instructions to replace the valve. Check threads on bronze seat to be sure that is not damaged. If threads appear worn or bent, replace the bronze seat.
 - d. If replacing the valve does not stop the leakage, bolting at the hydrant shoe may be loose or the base gasket is damaged. The hydrant must be excavated to make the repair.
- This indicates that O-rings are cut or missing. O-rings can be replaced without shutting off the water. See repair section of the manual for proper replacement.
- Try to turn the operating nut. If the nut turns, carefully turn the nut back from a tight closed position until it turns freely. If it is necessary to add lubricant, for hydrants with an oil reservoir, remove the oil level plug on the back of the nozzle section and add oil. Fill oil to the level of the plug, if necessary. For hydrants with no oil reservoir, remove the flat head screw on the operating nut and add mineral oil or similar lubricant. ALWAYS FULLY OPEN AND CLOSE THE HYDRANT AFTER LUBRICATING. Replace the oil level plug or the flat head screw taking care to replace the thread sealant. The hydrant should cycle freely. If this does not solve the problem, remove the operating nut. Inspect the threads of the operating nut and upper rod. Inspect the thrust watsher to ensure it is lubricated and is undamaged. Replace and/or lubricate the thrust washer if necessary. If this does not solve the problem, remove the hydrant seat and flush thoroughly. Note: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.
- 5. Remove nozzle cap and replace nozzle gasket. Tighten cap and check for leaks. If leaking continues, the nozzle seal may need repair or replacement. Hydrants with casting dates prior to 1982 used leaded-in nozzles. Hydrants with casting dates of 1982 or later us leaded-in or mechanically attached nozzles. On mechanically attached nozzles, remove the nozzle retainer and replace the O-ring behind the retainer. Leaded-in nozzles do not use retainers and must be recaulked if leaking.
- 6. Check to be sure the water table has not risen too high to allow for drainage. Flush hydrant to be sure drains are clear. Open hydrant slowly several turns while leaving caps firmly in place to insure hydrant drains are clear. Close hydrant and repeat this procedure. Do this slowly several times. If this does not solve the problem, remove the hydrant seat assembly and check the rubber drain facings. If no problems are found, excavate the hydrant to see if concrete or other materials have blocked the drain holes.

Pacer - Identifying Variations / Repair Parts

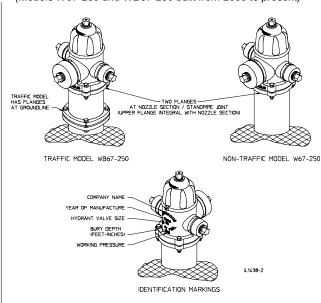
150 P.S.I.G. Working Pressure Gray Iron Pacer (Models W67 and WB67 built from 1967 to 1998)



250 P.S.I.G. Working Pressure Ductile Iron Pacer (Models W67-250 and WB67-250 built from 1996 to present)



250 P.S.I.G. Working Pressure Ductile Iron Classic Pacer (Models W67-250 and WB67-250 built from 2009 to present)



Repair Parts

To assure prompt delivery and shipment of the correct parts, furnish the following information with each repair parts order.

- 1. Date of manufacture or purchase of hydrant.
- 2. Working pressure of hydrant, 150 or 250 p.s.i.g.
- Depth of bury (hydrants dated 1976 and later); or depth of cover (hydrants dated prior to 1976).

NOTE: Depth is shown on bury depth plate. Bury depth plates are embossed with the depth and the word "BURY"; cover depth plates show only the depth.

4. Hydrant opening direction.

- Check original order to see if any special parts are required. For replacement nozzles, caps, and operating nuts, be sure to furnish thread data and size and shape of nut.
- 6. Whether hydrant is traffic model or non-traffic model.
- For each part ordered, give reference number and description as found on the following parts lists.

NOTE: Kits are available for making most repairs or extending the hydrant.

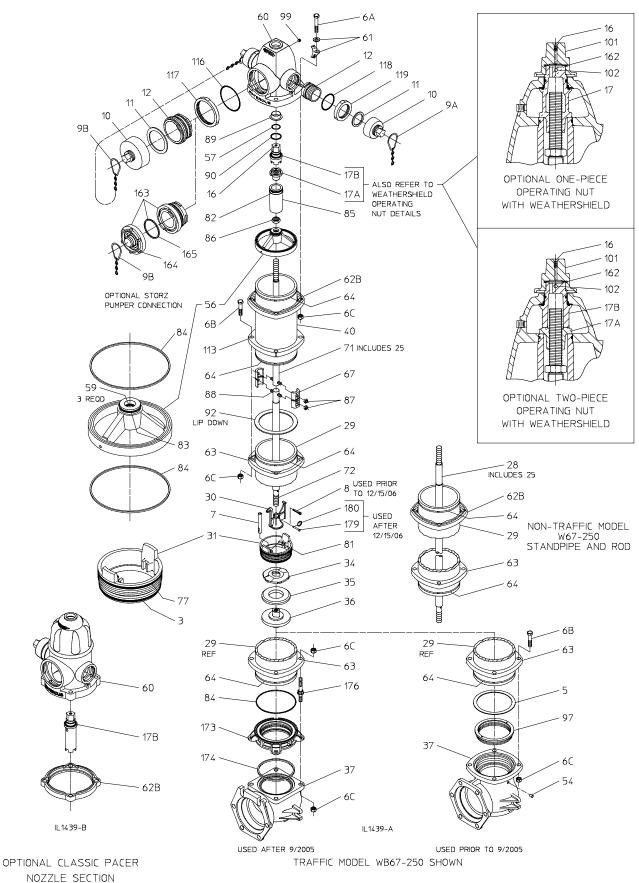
カ

S



Parts List - 250 P.S.I.G. Rated Ductile Iron Pacer

Traffic Model WB67-250 and Non-Traffic Model W67-250



Parts List - 250 P.S.I.G. Rated Ductile Iron Pacer

Traffic Model WB67-250 and Non-Traffic Model W67-250

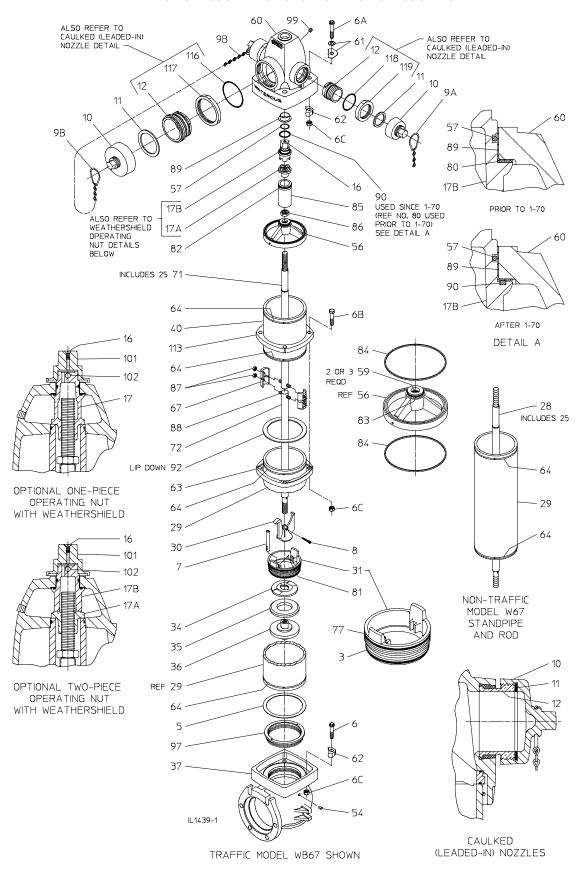
Section	Traffic Model WB67-250 and Non-Traffic Model W67-250			
5 Lower standpipe gasket* Neoppene 6A Hex hd bott, 58-11 (Above grade) Zinc plated steel 6B Hex hd bott, 58-11 (Above grade) Zinc plated steel 6C Hex nut, 58-11 (Bellow grade) Staniess steel 6C Hex nut, 58-11 (Bellow grade) Staniess steel 7 Dorn Program X + 1-12 in. Staniess steel 8 Dorn Program X + 1-12 in. Staniess steel 10 Nozzle cap chain, single or double Zinc plated steel 10 Nozzle cap, hose or pumper Ductilie iron 11 Cap gasket, hose or pumper Reoppene 12 Nozzle, hose or pumper Program Stanies 16 Fisch of Stanies Staniess steel 17A Lower spending nut Bronze 17A Lower spending nut Bronze 28 Rod (Non-Traffic model) Steel rod 29 Standpipe (Non-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (Non-Traffic model) Centrifugally cast ductile iron pipe* 31 Valve seat Bronz	REF NO.	DESCRIPTION	MATERIAL	
5 Lower standpipe gasket* Neoppene 6A Hex hd bott, 58-11 (Above grade) Zinc plated steel 6B Hex hd bott, 58-11 (Above grade) Zinc plated steel 6C Hex nut, 58-11 (Bellow grade) Staniess steel 6C Hex nut, 58-11 (Bellow grade) Staniess steel 7 Dorn Program X + 1-12 in. Staniess steel 8 Dorn Program X + 1-12 in. Staniess steel 10 Nozzle cap chain, single or double Zinc plated steel 10 Nozzle cap, hose or pumper Ductilie iron 11 Cap gasket, hose or pumper Reoppene 12 Nozzle, hose or pumper Program Stanies 16 Fisch of Stanies Staniess steel 17A Lower spending nut Bronze 17A Lower spending nut Bronze 28 Rod (Non-Traffic model) Steel rod 29 Standpipe (Non-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (Non-Traffic model) Centrifugally cast ductile iron pipe* 31 Valve seat Bronz	3	O-ring (Lower valve seat), 5-5/8 x 6-3/64	Buna-N	
6A Hex hd bott, 58-11 (3 - 3)4 in. Zinc plated steel 6B Hex hd, 56-11 (Above grade) Zinc plated steel 6C Hex nut, 56-11 (Above grade) Zinc plated steel 7 Drain plunger Red brass 8 A, 98 Cotter put, 4-1/2 in. Red brass 10 A, 98 Nozzie, pose or pumper Duciliated steel 11 Cap gasket, hose or pumper Duciliated steel 12 Nozzie, hose or pumper Red brass 16 Flat bd scew, 1/4-20 x 12 in. Stainless steel 17 Operating nut (one-piace) Bronze 17A Lower operating nut Ducille iron* 28 Rod Wohn-Traffic model) Steel process 29 Sandrey (Mon-Traffic model) Steel process 20 Crossam Bronze 31 Valve seat Bronze 34 Upper valve washer Ducilie iron 35 Main valve rubber Urethane 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 36 Lower valve washer Ducilie iron 40 Upper standpipe flang Ducilie iron 57 Oring (Upper uble steel)		- ',		
6C Hex nut, 5/8-11 (Above grade) Zinc plated steel 6C Hex nut, 5/8-11 (Above grade) Stainless steel 7 Drain plunger Red brass 8 Cotter jn. 1/4 x 1-1/2 in. Stainless steel 10 Nozzle cap hose or pumper Ductile iron 11 Cap gasket, hose or pumper Neoprene 12 Nozzle, hose or pumper Parass 16 Flat Ms corw. 144-20 x 1/2 in. Stainless steel 17A Operating nut (one-gloce) Broze 17A Upper operating nut (one-gloce) Broze 17B Upper operating nut Ductile iron* 25 Rod (Non-Traffic model) Steel rod 29 Standpipe (Non-Traffic model) Centrifugally cast ductile iron pipe* 31 Valve seat Bronze 34 Upper valve washer Ductile iron 35 Main valve rubber Urethane 40 Upper valve washer Ductile iron 56 Support wheel Traffic model) Ductile iron 61 B	6A		·	
6C	6B	Hex hd bolt, 5/8-11 x 3 in.	Zinc plated steel	
Red brass Stainless steel Stainless steel Stainless steel Nozzle cap chain, single or double Zinc plated steel Nozzle cap chain, single or double Zinc plated steel Nozzle cap, hose or pumper Neoprene Ductile fron Nozzle cap, hose or pumper Neoprene Reass Stainless steel Proceed Reason Reaso	6C	Hex nut, 5/8-11 (Above grade)	Zinc plated steel	
8 Cotler jn, 1/4 x 1-1/2 in. Stainless steel 10 Nozzle cap, hose or pumper Ductile iron 11 Cap gasket, hose or pumper Neoprene 12 Nozzle, hose or pumper Brass 16 Flat hd screw, 1/4-20 x 1/2 in. Stainless steel 17 Operating nut (one-piece) Bronze 17A Lower operating nut Ductile iron* 25 Rod bushing Rod lower 20 Rod (Non-Traffic model) Steel rors 21 Rod (Non-Traffic model) Steel rors 22 Rod (Non-Traffic model) Steel rors 23 Standagie (Non-Traffic model) Centrifugally cast ductile iron pipe* 24 Standagie (Non-Traffic model) Centrifugally cast ductile iron pipe* 25 Standagie (Non-Traffic model) Ductile iron 31 Valve seat Bronze 34 Upper valve washer Ductile iron 35 Main valve rubber Ureltane 36 Lower valve washer Ductile iron 37 Hydrath bot		Hex nut, 5/8-11 (Below grade)	Stainless steel	
9A, 9B Nozzle cap chain, single or double				
10				
11		· · · · · · · · · · · · · · · · · · ·	<u>-</u>	
12				
Flat hd screw, 1/4-20 x 1/2 ln. Stainless steel			·	
17A		, , ,		
17A				
178				
Red brass Rod (Non-Traffic model) Steler rod Lower standpipe (Non-Traffic model) Crossarm Standpipe (Non-Traffic model) Crossarm Valve seat Upper valve washer Upper valve washer Lower do (Traffic model) Lower valve washer				
28 Rod (Non-Traffic model) Steel rod 29 Standpipe (Non-Traffic model) Centrifugally cast ductile iron pipe* 30 Crossam Bronze 31 Valve seat Bronze 34 Upper valve washer Ductile iron 35 Main valve rubber Urethane 36 Lower valve washer Ductile iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 41 Drain bushing Brass 56 Support wheel Ductile iron 57 O-ring (Deprating proff) Ductile iron 60 Nozzis section Ductile iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62B Upper standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (two-halves) Gray iron 71 Upper rod (Traffic model)				
29				
Standpipe (Non-Traffic model)				
31	29	Standpipe (Non-Traffic model)		
1	30	Crossarm	Bronze	
1956	31	Valve seat	Bronze	
36		Upper valve washer	Ductile iron	
August 20	35	Main valve rubber		
40 Upper standpipe (Traffic model) Centifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel Ductile iron 57 O-fing (Opport wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section Ductile iron 61 Bury depth plate Aluminum 61 Bury depth plate Aluminum 62B Upper standpipe flange Ductile iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (two-halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower of (Traffic model) Steel rod 73 O-fing (Upper tube seal), 5-7/8 x 6-1/4 Buna-N 81 Grove pin, 37/32 x 7/16 in. Beryllium copper 82 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support wheel / Lower standpipe gasket Buna-N 86 Stop nut				
		•		
56 Support wheel Ductile iron 57 O-ring (Oupport wheel), 1-1/8 x 1-3/8 Buna-N 59 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzie section Ductile iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62B Upper standpipe flange Ductile iron 63 Standpipe flange Ductile iron 64 Flarge lock ring Stainless steel 67 Coupling sleeve (two-halves) Gray iron 71 Upper rod (Traffic model) Steel rod 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Upper tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 1/2-20 Brass 87 Coupling stud, 1/2-20				
57 O-ring (Operating nut), 1-1/2 x 1-3/4 Buna-N 59 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section Ductile iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62B Upper standpipe flange Ductile iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (two-halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Upper tube seal), 2-3/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 17-20 Brass 87 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle s		•		
59		··		
60 Nozzle section 61 Bury depth plate 61 Bury depth plate 61 Bury depth plate washer 62B Upper standpipe flange 63 Standpipe flange 64 Flange lock ring 64 Flange lock ring 67 Coupiling sleeve (two-halves) 68 Standpipe flange 69 Ductile iron 60 Stainless steel 60 Coupiling sleeve (two-halves) 61 Upper rod (Traffic model) 62 Lower rod (Traffic model) 63 Stalness steel 64 Flange lock ring 65 Steel rod 66 Steel rod 67 Coupiling sleeve (two-halves) 67 Coupiling sleeve (two-halves) 68 Steel rod 69 Steel rod 60 Steel rod 60 Steel rod 61 Steel rod 62 O-ring (Upper valve seat), 5-7/8 x 6-1/4 63 Buna-N 64 Support whee seal), 2-3/8 x 2-5/8 64 Support whee seal), 1-7/8 x 2-1/8 65 Support wheel / Lower standpipe gasket 66 Stop nut, 1"-8 67 Coupiling nut, 1/2-20 68 Coupiling nut, 1/2-20 Stainless steel 68 Stop nut, 1"-8 69 Nozzle section bushing 60 Thrust ring 60 Thrust ring 61 Polymer bearing 62 Upper standpipe gasket 63 Neoprene 64 Stop nut, 14 NPT 65 Brass 66 Stop nut, 14 NPT 67 Brass 68 Coupiling stand, 1/2-20 x 2-9/16 in. 69 Nozzle section bushing 70 Thrust ring 71 Valve seat insert 71 Brass 72 Coupiling nut, 1/2-20 x 2-9/16 in. 73 Stainless steel 74 Valve seat insert 75 Brass 76 Ductile iron 77 Valve seat insert 78 Brass 79 Ductile iron 79 Valve seat insert 70 Ductile iron 70 Uctile iron 71 Ductile iron 71 Ductil				
61 Bury depth plate 61 Bury depth plate washer 62B Upper standpipe flange 63 Standpipe flange 64 Flange lock ring 65 Coupling sleeve (two-halves) 66 Coupling sleeve (two-halves) 67 Coupling sleeve (two-halves) 68 Steel rod 69 Steel rod 69 Steel rod 60 Steel rod 61 Upper rod (Traffic model) 61 Upper valve seat), 5-7/8 x 6-1/4 62 Lower rod (Traffic model) 63 Steel rod 64 Flange lock ring 65 Steel rod 66 Steel rod 67 Coupling sleeve (two-halves) 67 Coupling sleeve (two-halves) 68 Buna-N 69 Support whee seal), 5-7/8 x 6-1/4 69 Buna-N 60 Support whee seal), 1-7/8 x 2-1/8 60 Support tube seal), 1-7/8 x 2-1/8 61 Support tube seal), 1-7/8 x 2-1/8 62 O-ring (Upper standpipe gasket 63 Support tube 64 Stop nut, 1/2-20 65 Support tube 65 Support tube 66 Stop nut, 1/2-20 67 Coupling stud, 1/2-20 x 2-9/16 in. 68 Stop nut, 1/2-20 68 Coupling stud, 1/2-20 x 2-9/16 in. 69 Nozzle section bushing 60 Thrust ring 60 Thrust ring 61 Upper standpipe gasket 62 Neoprene 63 Valve seat insert 64 Neoprene 65 Pipe plug, 1/4 NPT 67 Stainless steel 67 Valve seat insert 68 Bronze 68 Spinol pin, hvy, 1/4 x 2-1/4 in. 69 Spirol pin, hvy, 1/4 x 2-1/4 in. 60 C-ring (Upmer nozzle), 5-1/4 x 5-3/4 61 Buna-N 61 O-ring (Upmer pozzle), 5-1/4 x 5-5/8 61 Buna-N 62 Weathershield nut gasket 63 Nozzle, pumper, Storz 64 Stainless steel 65 Cap gasket, pumper, Storz 65 Stainless steel 66 Stainless steel 67 Stainless steel 68 Nozzle, pumper, Storz 69 Buna-N 60 Stainless steel 69 Ronze and Aluminum 60 Stainless steel 60 Stainless steel 61 Nitrile 61 Stainless steel 61 Stainless steel 62 Weathershield nut gasket 63 Nozzle, pumper, Storz 64 Stainless steel 65 Cap gasket, pumper, Storz 65 Stainless steel 66 Stainless steel 67 Stud, 5/8-11 x 5-650 in. 68 Stainless steel 68 Stainless steel 69 Stainless steel 69 Stainless steel 60 Stainless steel		± ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '		
61 Bury depth plate washer 62B Upper standpipe flange 63 Standpipe flange 64 Flange lock ring 67 Coupling slewe (two-halves) 67 Coupling slewe (two-halves) 68 Standpipe flange 69 Stainless steel 69 Stainless steel 60 Stainless steel 61 Coupling slewe (two-halves) 62 Stainless steel 63 Stainless steel 64 Flange lock ring 65 Coupling slewe (two-halves) 66 Stainless steel 67 Coupling slewe (two-halves) 68 Steel rod 69 Steel rod 60 Steel rod 60 Steel rod 61 Steel rod 61 Steel rod 62 Support was seath, 5-7/8 x 6-1/4 63 Buna-N 64 Support tube seal), 2-3/8 x 2-5/8 64 Support tube seal), 2-3/8 x 2-5/8 65 Support tube 66 Stop nut, 1"-8 67 Coupling nut, 1"-8 68 Stop nut, 1"-8 68 Stop nut, 1"-8 69 Nozzle section bushing 60 Thrust ring 61 Stainless steel 62 Upper standpipe gasket 63 Neoprene 64 Neoprene 65 Valve seat insert 67 Valve seat insert 68 Neoprene 69 Pipe plug, 1/4 NPT 60 Stainless steel 60 Spirol pin, hvy, 1/4 x 2-1/4 in. 61 Stainless steel 61 O-ring (Homer roazle), 5-1/4 x 5-3/4 62 Weathershield nut 63 Nozzle, pumper, Storz (with cap and gasket) 64 Nozzle cap, pumper, Storz (with cap and gasket) 65 Cap gasket, pumper, Storz (with cap and gasket) 66 Nitrile 67 Stud, 5/8-11 x 5-650 in. 68 Stainless steel 69 Nitrile 60 Stainless steel 60 Nitrile 61 Stud, 5/8-11 x 5-650 in. 61 Stainless steel 61 Stainless steel 61 Stainless steel 62 Stainless steel 63 Nozzle, pumper, Storz (with cap and gasket) 64 Nozzle cap, pumper, Storz (with cap and gasket) 65 Cap gasket, pumper, Storz (with cap and gasket) 65 Stud, 5/8-11 x 5-650 in. 65 Stud, 5/8-11 x 5-650 in. 65 Stainless steel 66 Stainless steel 67 Nationard Clock (ANSI A21-51)				
62B Upper standpipe flange 63 Standpipe flange 64 Flange lock ring 65 Standpipe flange 66 Flange lock ring 67 Coupling sleeve (two-halves) 68 Stainless steel 69 Coupling sleeve (two-halves) 70 Upper od (Traffic model) 71 Upper od (Traffic model) 72 Lower rod (Traffic model) 73 Steel rod 74 O-ring (Upper valve seat), 5-7/8 x 6-1/4 75 O-ring (Upper valve seat), 5-7/8 x 6-1/4 76 Study Stainless steel 77 O-ring (Upper tube seal), 2-3/8 x 2-5/8 80 O-ring (Upper tube seal), 2-3/8 x 2-5/8 81 O-ring (Upper tube seal), 1-7/8 x 2-1/8 82 O-ring (Lower tube seal), 1-7/8 x 2-1/8 83 O-ring (Lower standpipe gasket 84 Support wheel / Lower standpipe gasket 85 Support tube 86 Stop nut, 1"-8 87 Coupling nut, 1/2-20 87 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 89 Nozzle section bushing 80 Nozzle section bushing 80 Thrust ring 81 Polymer bearing 82 Upper standpipe gasket 84 Neoprene 85 Neoprene 86 Stop nut, 1/2-14 in. 86 Stainless steel 87 Coupling stud, 1/2-14 in. 87 Stainless steel 88 Coupling stud, 1/2-14 in. 89 Nozzle section bushing 80 Nozzle section bushing 81 Prass 82 Doubtle iron 84 Ductile iron 85 Ductile iron 86 Ductile iron 86 Ductile iron 87 Valve seat insert 88 Ductile iron 88 Ductile iron 88 Ductile iron 88 Ductile iron 89 Pipe plug, 1/4 NPT 89 Brass 80 Ductile iron 81 Ductile		· · ·		
63		* : :		
64 Flange lock ring Stainless steel 67 Coupling sleeve (two-halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Upper tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4		,, ,,		
67 Coupling sleeve (two-halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Lower tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 1*2-20 Brass 87 Coupling nut, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 112 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange		· · · · · · · · · · · · · · · · · · ·		
72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4	67		Gray iron	
77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Lower tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support tube Ductile iron 86 Support tube Ductile iron 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle, 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 </td <td>71</td> <td>Upper rod (Traffic model)</td> <td>Steel rod</td>	71	Upper rod (Traffic model)	Steel rod	
81 Groove pin, 3/32 x 7/16 in. 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 84 Support tube seal), 1-7/8 x 2-1/8 85 Support tube 86 Stop nut, 1"-8 87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring 91 Polymer bearing 92 Upper standpipe gasket 93 Neoprene 94 Valve seat insert 95 Pipe plug, 1/4 NPT 96 Brass 101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 103 Breakable flange 104 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Pumper nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 173 Valve seat insert 184 Nozzle rectainer 185 O-ring (Hose nozzle), 3-1/4 x 3-5/8 196 Weathershield nut gasket 197 Nozzle retainer 198 Nozzle retainer 199 Cap gasket, pumper, Storz 190 Weathershield nut gasket 190 Aluminum 191 Nozzle, pumper, Storz 191 Stainless steel 191 Nozzle, pumper, Storz 192 Suna-N 193 Valve seat insert 194 Valve seat insert 195 Cap gasket, pumper, Storz 197 Valve seat insert 198 Cievis pin, 1/4 x 1-1/16 in. 199 Cievis pin, 1/4 x 1-11/16 in. 190 Kickout ring 190 Aluminum 190 Cievis pin, 1/4 x 1-11/16 in.	72	Lower rod (Traffic model)	Steel rod	
82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 1"- 8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 3-5/8 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hoze nozzle retainer	77	O-ring (Upper valve seat), 5-7/8 x 6-1/4	Buna-N	
83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 84 Support wheel / Lower standpipe gasket 85 Support tube 86 Stop nut, 1"- 8 87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring 91 Upper standpipe gasket 97 Valve seat insert 98 Pipe plug, 1/4 NPT 99 Pipe plug, 1/4 NPT 101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 103 Breakable flange 104 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 160 Weathershield nut gasket 161 Nozzle, pumper, Storz 162 Weathershield nut gasket 163 Nozzle, pumper, Storz 173 Valve seat insert 184 Stainless steel 185 Cap gasket, pumper, Storz 186 Stud, 5/8-11 x 5.650 in. 187 Clevis pin, 1/4 x 1-11/16 in. 188 Cap AWWA Standard C151 (ANSI A21.51)		· · · · · · · · · · · · · · · · · · ·		
84 Support wheel / Lower standpipe gasket Buna-N 85 Support tube Ductile iron 86 Stop nut, 1"- 8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hoze nozzle retainer Ductile iron 162 Weathershield nut gasket Nitrile 163 Nozzle, pumper, Storz (with cap and gasket) Bronze and Aluminum 164 Nozzle cap, pumper, Storz 173 Valve seat insert Bronze 174 Valve seat insert Bronze 175 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel *AWWA Standard C151 (ANSI A21.51)		± 1 11		
85 Support tube Ductile iron 86 Stop nut, 1"- 8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hoze nozzle retainer Ductile iron 162 Weathershield nut gasket Nitrile 163 Nozzle, pumper, Storz Aluminum 164 Nozzle, pumper, Storz Bronze				
Stop nut, 1"- 8 Coupling nut, 1/2-20 Stainless steel		· · · · · · · · · · · · · · · · · · ·		
87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring 91 Upper standpipe gasket 97 Valve seat insert 98 Pripe plug, 1/4 NPT 99 Pipe plug, 1/4 NPT 99 Pipe plug, 1/4 NPT 90 Ustile iron 100 Spirol pin, hvy, 1/4 x 2-1/4 in. 101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 102 Spirol pin, hvy, 1/4 x 5-3/4 113 Breakable flange 114 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 110 Weathershield nut gasket 111 Nozzle, pumper, Storz (with cap and gasket) 112 Bronze and Aluminum 113 Nozzle, pumper, Storz 114 Nozzle cap, pumper, Storz 115 Cap gasket, pumper, Storz 116 Nozzle seat insert 117 Pronze 118 Nozzle seat insert 119 Stainless steel 119 Clevis pin, 1/4 x 1-11/16 in. 110 Stainless steel 111 Stainless steel 112 Stainless steel 113 Stainless steel 114 Valve seat insert gasket 115 Stainless steel 116 Stainless steel 117 Clevis pin, 1/4 x 1-11/16 in. 117 Stainless steel 118 Kickout ring 118 Kathoria Stainless steel 119 Clevis pin, 1/4 x 1-11/16 in. 119 Stainless steel 110 Stainless steel 110 Stainless steel 1110 Stainless steel 112 Stainless steel 112 Stainless steel 113 Stainless steel 114 AWWA Standard C151 (ANSI A21.51)				
88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring 91 Upper standpipe gasket 97 Valve seat insert 98 Pipe plug, 1/4 NPT 99 Pipe plug, 1/4 NPT 99 Pipe plug, 1/4 x 3-1/4 in. 91 Stainless steel 97 Ductile iron 98 Spirol pin, hvy, 1/4 x 2-1/4 in. 99 Spirol pin, hvy, 1/4 x 2-1/4 in. 91 Stainless steel 93 Breakable flange 94 Ductile iron 95 Stainless steel 96 Ductile iron 97 Stainless steel 98 Stainless steel 99 Pipe plug, 1/4 NPT 90 Stainless steel 99 Pipe plug, 1/4 NPT 90 Stainless steel 90 Ductile iron 91 Stainless steel 91 Stainless steel 91 Stainless steel 92 Spirol pin, hvy, 1/4 x 2-1/4 in. 93 Stainless steel 94 Stainless steel 95 Stainless steel 96 Stainless steel 97 Stainless steel 98 Stainless steel 98 Stainless steel 98 Stainless steel 99 Polymer bearing 99 Neopree 97 Neopree 97 Neopree 97 Neopree 97 Neopree 97 Neopree 98 Neopree 98 Neopree 99 Neopree 99 Pipe plug, 1/4 x 2-1/4 in. 99 Stainless steel 99 Stainless steel 99 Polymer bearing 90 Neopree 97 Neopree 98 Neopree 97 Neop				
89 Nozzle section bushing 90 Thrust ring 91 Upper standpipe gasket 92 Upper standpipe gasket 93 Neoprene 94 Valve seat insert 95 Pipe plug, 1/4 NPT 96 Brass 101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 103 Breakable flange 114 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 115 Pumper nozzle retainer 116 O-ring (Hose nozzle), 3-1/4 x 3-5/8 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 175 Valve seat insert 176 Stud, 5/8-11 x 5.650 in. 177 Clevis pin, 1/4 x 1-11/16 in. 178 Valwa Standard C151 (ANSI A21.51) 180 Folymer bearing 180 Polymer bearing 180 Stainless steel				
90 Thrust ring Polymer bearing 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Spirol pin, hvy, 1/4 x 2-1/4 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hoze nozzle retainer Ductile iron 162 Weathershield nut gasket Nitrile 163 Nozzle, pumper, Storz (with cap and gasket) Bronze and Aluminum 164 Nozzle cap, pumper, Storz 174 Valve seat insert Bronze 174 Valve seat insert Bronze 175 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring *AWWA Standard C151 (ANSI A21.51)				
92 Upper standpipe gasket 97 Valve seat insert 99 Pipe plug, 1/4 NPT 81 Brass 101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 113 Breakable flange 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 175 Cap gasket, pumper, Storz 176 Stud, 5/8-11 x 5.650 in. 177 Clevis pin, 1/4 x 1-11/16 in. 180 Kickout ring *AWWA Standard C151 (ANSI A21.51)		•		
97 Valve seat insert 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 103 Breakable flange 104 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 175 Cap gasket, pumper, Storz 176 Stud, 5/8-11 x 5.650 in. 177 Clevis pin, 1/4 x 1-11/16 in. 180 Kickout ring 180 *AWWA Standard C151 (ANSI A21.51)		· · · · · · · · · · · · · · · · · · ·	,	
101 Weathershield nut 102 Spirol pin, hvy, 1/4 x 2-1/4 in. 103 Breakable flange 114 Ductile iron 115 Breakable flange 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 165 Cap gasket, pumper, Storz 170 Valve seat insert 171 Valve seat insert gasket 172 Clevis pin, 1/4 x 1-11/16 in. 173 Stainless steel 180 Kickout ring 180 *AWWA Standard C151 (ANSI A21.51)	97	Valve seat insert	•	
102 Spirol pin, hvy, 1/4 x 2-1/4 in. 113 Breakable flange 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 102 Weathershield nut gasket 103 Nozzle, pumper, Storz (with cap and gasket) 104 Nozzle cap, pumper, Storz 105 Cap gasket, pumper, Storz 107 Valve seat insert 108 Yalve seat insert gasket 109 Stainless steel 100 Yalve seat insert gasket 100 Stainless steel 100 Yalve Stainless steel	99	Pipe plug, 1/4 NPT	Brass	
113 Breakable flange 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 175 Cap gasket, pumper, Storz 176 Stud, 5/8-11 x 5.650 in. 179 Clevis pin, 1/4 x 1-11/16 in. 180 Kickout ring *AWWA Standard C151 (ANSI A21.51)	101	Weathershield nut	Ductile iron	
116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 165 Cap gasket, pumper, Storz 173 Valve seat insert 174 Valve seat insert gasket 176 Stud, 5/8-11 x 5.650 in. 179 Clevis pin, 1/4 x 1-11/16 in. 180 Kickout ring *AWWA Standard C151 (ANSI A21.51)	102	Spirol pin, hvy, 1/4 x 2-1/4 in.	Stainless steel	
117 Pumper nozzle retainer Ductile iron 118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hoze nozzle retainer Ductile iron 162 Weathershield nut gasket Nitrile 163 Nozzle, pumper, Storz (with cap and gasket) Bronze and Aluminum 164 Nozzle cap, pumper, Storz Aluminum 165 Cap gasket, pumper, Storz Buna-N 173 Valve seat insert Bronze 174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring *AWWA Standard C151 (ANSI A21.51)				
118 O-ring (Hose nozzle), 3-1/4 x 3-5/8 119 Hoze nozzle retainer 162 Weathershield nut gasket 163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 165 Cap gasket, pumper, Storz 173 Valve seat insert 174 Valve seat insert gasket 176 Stud, 5/8-11 x 5.650 in. 179 Clevis pin, 1/4 x 1-11/16 in. 180 Kickout ring *AWWA Standard C151 (ANSI A21.51)				
119 Hoze nozzle retainer Ductile iron 162 Weathershield nut gasket Nitrile 163 Nozzle, pumper, Storz (with cap and gasket) Bronze and Aluminum 164 Nozzle cap, pumper, Storz Aluminum 165 Cap gasket, pumper, Storz Buna-N 173 Valve seat insert Bronze 174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)		The state of the s		
162 Weathershield nut gasket Nitrile 163 Nozzle, pumper, Storz (with cap and gasket) Bronze and Aluminum 164 Nozzle cap, pumper, Storz Aluminum 165 Cap gasket, pumper, Storz Buna-N 173 Valve seat insert Bronze 174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)		3 \		
163 Nozzle, pumper, Storz (with cap and gasket) 164 Nozzle cap, pumper, Storz 165 Cap gasket, pumper, Storz 173 Valve seat insert 174 Valve seat insert gasket 176 Stud, 5/8-11 x 5.650 in. 179 Clevis pin, 1/4 x 1-11/16 in. 180 Kickout ring *AWWA Standard C151 (ANSI A21.51) Bronze Aluminum Buna-N Bronze Nitrile Bronze Nitrile Stainless steel Stainless steel Stainless steel Stainless steel				
164 Nozzle cap, pumper, Storz Aluminum 165 Cap gasket, pumper, Storz Buna-N 173 Valve seat insert Bronze 174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)				
165 Cap gasket, pumper, Storz 173 Valve seat insert Bronze 174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)		the state of the s		
173 Valve seat insert Bronze 174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)		· · · · · · · · · · · · · · · · · · ·		
174 Valve seat insert gasket Nitrile 176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)				
176 Stud, 5/8-11 x 5.650 in. Stainless steel 179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51) Stainless steel				
179 Clevis pin, 1/4 x 1-11/16 in. Stainless steel 180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)		· · · · · · · · · · · · · · · · · · ·		
180 Kickout ring Stainless steel *AWWA Standard C151 (ANSI A21.51)				
		• •		
**Bronze is optional on some nut sizes.				
	**Bronze is optional on	some nut sizes.		

²B-17



Parts List - 150 P.S.I.G. Rated Gray Iron Pacer

Traffic Model WB67 and Non-Traffic Model W67



Parts List - 150 P.S.I.G. Rated Gray Iron Pacer

Traffic Model WB67 and Non-Traffic Model W67

3 O-ring (Lower valve seat), 5-5/8 x 6-3/64	REF NO.	DESCRIPTION	MATERIAL
5 Lower standpipe gasket Neoprene 6A Hex hd bolt, 5/8-11 x 3 in. Zinc plated steel 6B Hex hd bolt, 5/8-11 x 3 in. Zinc plated steel 6C Hex nut, 5/8-11 Zinc plated steel 7 Drain plunger Red brass 8 Cotter pin, 1/4 x 1-1/2 in. Stainless steel 10 Nozzle cap chain, single or double Zinc plated steel 11 Cap gasket, hose or pumper Gray iron 12 Nozzle, hose or pumper Gray iron 12 Nozzle, hose or pumper Brass 16 Flat hd screw, 1/4-20 x 1/2 in. Stainless steel 17 Operating nut (one-piece) Bronze 17A Lower operating nut Bronze 25 Rod bushing Red brass 28 Rod (non-Traffic model) Steel rod 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 31 Valve seat Bronze 34	3	O-ring (Lower valve seat), 5-5/8 x 6-3/64	Buna-N
6A Hex hot bolt, 58-11 x 3 in. Zinc plated steel 6C Hex nut, 58-11 Zinc plated steel 7 Drain plunger Red brass 8 Cotter pin, 14 x 1-1/2 in. Stainless steel 10 Nozzle cap, chain, single or double Zinc, plated steel 11 Cap gasket, hose or pumper Gray Iron 11 Cap gasket, hose or pumper Red brass 12 Nozzle, hose or pumper Brass 16 Flat hd screw, 142-20 x 1/2 in. Stainless steel 17 Operating nut (one-piece) Bronze 17A Lower operating nut Bronze 25 Rod husking Red brass 28 Rod (non-Traffic model) Steel rod 29 Standpipe (non-Traffic model) Centifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centifugally cast ductile iron pipe* 31 Valve seat Bronze 34 Upper valve washer*** Gray fron 35 Main valve rubber Nitrile 4 Upper valve w		-	Neoprene
6B Hex hat J, 58-11 Zinc plated steel 6C Hex nut, 58-11 Zinc plated steel 7 Drain plunger Red brass 8 Cotter pin, 14x x 1-1/2 in. Stainless steel 9A, 9B Nozzle cap chain, single or double Zinc plated steel 10 Nozzle cap chain, single or double Zinc plated steel 11 Cap gasket, lose or pumper Neoprene 12 Nozzle, lose or pumper Neoprene 12 Nozzle, lose or pumper Neoprene 14 Coparating nut (one-plece) Bronze 17A Lower daming nut" Gray tron" 25 Rod bushing Red brass 28 Rod (non-Traffic model) Steel rod 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe" 31 Valve seat Bronze 34 Upper valve washer** Gray iron 35 Main valve rubber Nitrile 36 Lower valve washer** Gray iron 37 Hydrant bottom** Gray iron	6	Hex hd bolt, 5/8-11 x 3 in.	Zinc plated steel
6C Hex nut, 5/8-11 Zinc plated steel 7 Drain plunger Red brass 8 Cotter pin, 1/4 x 1-1/2 in. Stainless steel 9A, 9B Nozzle cap, hose or pumper Cinc plated steel 10 Nozzle cap, hose or pumper Reg yiron 12 Nozzle, hose or pumper Brass 16 Flat Ind screw, 1/4-20 x 1/2 in. Stainless steel 17 Operating nut (one-piece) Bronze 17A Lower operating nut Bronze 17B Upper operating nut Bronze 25 Rod bushing Red brass 28 Rod (non-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 30 Crossam Ductile iron 31 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve nubber Nitrite 4 Upper valve washer*** Gray iron 36 Lower valve washer** Gray iron	6A	Hex hd bolt, 5/8-11 x 3-3/4 in.	Zinc plated steel
7 Drain plunger Red brass 8 Cotter pin, 14 x 1-1/2 in. Stainless steel 9A, 9B Nozzle cap, hose or pumper*** Zinc plated steel 10 Nozzle cap, hose or pumper** Gray iron 11 Cap gasket, hose or pumper Bross 16 Flat hd screw, 14-20 x 1/2 in. Stainless steel 17 Operating nut (non-piece) Bronze 17A Lower operating nut** Gray iron** 25 Rod fund-Traffic model) Steel rod 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 30 Crossam Ductile iron 31 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve ruiber Nitrile 36 Lower valve washer*** Gray iron 37 Hydrant bottom** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 56	6B	Hex hd bolt, 5/8-11 x 3 in.	Zinc plated steel
8 Cotter pin, 1/4 x 1-1/2 in. Stainless steel 10 Nozzle cap chen, single or double Zinc plated steel 10 Nozzle cap, hose or pumper Gray iron 11 Cap gasket, hose or pumper Bross 16 Flat hd screw, 1/4-20 x 1/2 in. Stainless steel 17 A Lower operating nut Bronze 17A Lower operating nut** Gray iron** 25 Rod bushing Red brass 28 Rod (non-Traffic model) Steel rod 29 Lower standpipe (Iron-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 30 Crossarm Ductile iron 31 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve rubber Nitrile 36 Lower valve washer*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56	6C	Hex nut, 5/8-11	Zinc plated steel
9A, 9B Nozzle cap phose or pumper** 10 Nozzle cap, hose or pumper* 11 Cap gasket, hose or pumper 12 Nozzle, hose or pumper 13 Nozzle, hose or pumper 14 Nozzle, hose or pumper 16 Fish that screw, 142 0x 1/2 in. 17 Operating nut (one-piece) 17A Lower operating nut 17B Upper operating nut 17B Upper operating nut 17B Upper operating nut 17B Upper operating nut 17B Red brass 28 Rod (non-Traffic model) 29 Lower standpipe (fraffic model) 29 Standpipe (non-Traffic model) 29 Standpipe (non-Traffic model) 30 Crossam 31 Valve seat 34 Upper valve washer*** 35 Main valve rubber 36 Lower valve washer*** 37 Hydrant bottom** 40 Upper standpipe (Traffic model) 57 O-ring (Deprating nut), 1-1/2 x 1-3/4 40 Prain bushing 58 Support wheel** 59 O-ring (Support wheel), 1-1/8 x 1-3/8 60 Nozzle section*** 61 Bury depth plate 62 Lock ring clamp 64 Flange lock ring 67 Coupling sleeve (2 halves) 71 Upper rub washer 80 Traffic model) 72 Co-ring (Upper valve sash), 2-7/8 x 6-1/4 80 Thrust washer (Used until Jan., 1970) 81 Grove pin, 3/32 x 7/16 in. 82 Gray iron 83 Standpipe flange 64 Flange lock ring 67 Coupling sleeve (2 halves) 75 O-ring (Upper valve sash), 2-7/8 x 6-1/4 80 Thrust washer (Used until Jan., 1970) 81 Grove pin, 3/32 x 7/16 in. 82 Gray iron 83 Standpipe flange 94 Cuper sandpipe flange 95 O-ring (Upper valve sash), 2-7/8 x 6-1/4 84 Support wheel gasket 85 Support wheel gasket 96 Gray iron 97 Valve seat insert 98 Pipe plug, 1/4 NPT 99 Pipe plug, 1/4 NPT 100 Weathershield nut 101 Weathershield nut 102 Grove pin, 3/32 x 7/16 in. 103 Breakable flange 104 Upper nozzle retainer 105 Upter included in until Jan., 1970) 106 Weathershield nut 107 Upper nozzle retainer 108 O-ring (Upper nozzle), 5-1/4 x 5-3/4 109 Upper standpipe pounce on zero. 109 Thrust ring (Used starting Jan., 1970) 100 Thrust ring (Used starting Jan., 1970) 101 Weathershield nut 102 Grove pin, 1/4 x 2 in. 103 Ductil	7	Drain plunger	Red brass
10		• •	Stainless steel
11 Cap gasket, hose or pumper 12 Nozzle, hose or pumper 16 Flat hd screw, 1/4-20 x 1/2 in. 17 Operating nut (one-piece) 17 Lower operating nut 18 Upper operating nut 18 Upper operating nut 28 Rod (non-Traffic model) 29 Lower standpipe (Traffic model) 29 Standpipe (non-Traffic model) 30 Crossarm 31 Valve seat 34 Upper valve washer** 35 Main valve rubber 36 Lower valve washer** 37 Hydrant bottom** 38 Cary inon 39 Crossarm 30 Lower valve washer** 39 Gray iron 30 Crossarm 31 Valve seat 34 Upper valve washer** 35 Main valve rubber 36 Lower valve washer** 37 Hydrant bottom** 38 Cary iron 39 Crossarm 39 Centifugally cast ductile iron pipe* 39 Centifugally cast ductile iron pipe* 30 Crossarm 31 Valve seat 34 Upper valve washer** 35 Main valve rubber 36 Lower valve washer** 37 Hydrant bottom** 38 Cary iron 39 Centifugally cast ductile iron pipe* 39 Centifugally cast ductile iron pipe* 30 Crossarm 31 Hydrant bottom** 40 Upper standpipe (Traffic model) 54 Drain bushing 56 Support wheel** 57 O-fing (Operating nut), 1-1/2 x 1-3/4 59 O-ing (Support wheel), 1-1/8 x 1-3/8 59 O-ing (Support wheel) 50 Nozzle section** 51 Gray iron 52 Coupling standpipe flange 53 Standpipe flange 54 Flange lock ring 55 Coupling steeve (2 halves) 56 Standpipe flange 57 Coupling steeve (2 halves) 58 Standpipe flange 59 Coupling steeve (2 halves) 50 Crossard 50 Crossard 51 Upper rod (Traffic model) 52 Coupling steeve (2 halves) 53 Standpipe flange 54 Flange lock ring 55 Coupling steeve (2 halves) 56 Support wheel gasket 57 Coupling steeve (2 halves) 58 Support tube** 59 Coupling steeve (2 halves) 70 Lower rod (Traffic model) 71 Upper rod (Traffic model) 72 Lower rod (Traffic model) 73 Coupling steeve (2 halves) 74 Upper rod (Traffic model) 75 Coupling steeve (2 halves) 76 Coupling steeve (2 halves) 77 Coupling steeve (2 halves) 78 Coupling steeve (2 halves) 79 Coupling steeve (2 halves) 70 Coupling steeve (2 halves) 71 Upper rod (Traffic model) 71 Upper rod (Traffic model) 72 Coupling steeve (2 halves) 73 Coupling steeve (2 halves) 74 Valve seat ins		·	•
12		·	•
Flat hd screw, 1/4-20 x 1/2 in. Stainless steel			•
17A Coperating nut (one-piece) Bronze 17B Upper operating nut Bronze 17B Upper operating nut*** Gray iron** 25 Rod bushing Red brass 28 Rod (non-Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 30 Crossarm Ductile iron 31 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve rubber Nitrile 36 Lower valve washer*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel** Gray iron 57 O-ing (Operating nut), 1-1/2 x 1-3/4 Buna-N 59 O-ing (Support wheel*), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate washer Zinc plated steel 61 Bury depth plate washer			
17A			
17B		,	
25 Rod bushing Red brass 28 Rod (non-Traffic model) Steel rod 29 Lower standpipe (Traffic model) Centrifugally cast ductile iron pipe* 30 Crossarm Ductile iron 31 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve rubber Nitrile 36 Lower valve washer*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel*** Gray iron 57 O-ring (Operating nut), 1-1/2 x 1-3/4 Buna-N 59 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stalinless steel 67 Coupling sleeve (2 halves) Gray iron			
28 Rod (non-Traffic model) Stelet lod 29 Lower standpipe (Traffic model) Centrifugally cast ductile iron pipe* 30 Crossarm Ductile iron 31 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve rubber Nitrile 36 Lower valve washer*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel*** Gray iron 57 O-ring (Support wheel), 1-1/2 x 1-3/4 Buna-N 69 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductlle iron 64 Flange lock ring Stainless steel 67 Coupling stee (2 halves) Gray iron			•
29 Lower standpipe (Traffic model) Centrifugally cast ductile iron pipe* 29 Standpipe (non-Traffic model) Centrifugally cast ductile iron pipe* 30 Crossarm Ductile iron 311 Valve seat Bronze 34 Upper valve washer*** Gray iron 35 Main valve rubber Nitrile 36 Lower valve washer*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel*** Gray iron 57 O-ring (Operating nut), 1-1/2 x 1-3/4 Buna-N 59 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Staininess steel 67 Coupling sleeve (2		•	
Standpipe (non-Traffic model)		,	
30 Crossarm Duclile iron			• • • • • • • • • • • • • • • • • • • •
34			
35 Máin valve rubber Gray iron 36 Lower valve washer*** Gray iron 37 Hydrant bottom*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel*** Gray iron 57 O-ring (Operating nut), 1-1/2 x 1-3/4 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate Aluminum 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teffon	31	Valve seat	Bronze
36 Lower valve washer*** Gray iron 37 Hydrant bottom*** Gray iron 40 Upper standpipe (Traffic model) Centrifugally cast ductile iron pipe* 54 Drain bushing Brass 56 Support wheel*** Gray iron 57 O-ring (Operating nut), 1-1/2 x 1-3/4 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainess steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 84 Support tube seal), 2-3/8 x 2-5/	34	Upper valve washer***	Gray iron
37	35	Main valve rubber	Nitrile
40 Upper standpipe (Traffic model) Brass 54 Drain bushing Brass 56 Support wheel*** 57 O-ring (Operating nut), 1-1/2 x 1-3/4 59 O-ring (Support wheel), 1-1/8 x 1-3/8 60 Nozzle section*** 61 Bury depth plate 61 Bury depth plate Aluminum 61 Bury depth plate Washer 62 Lock ring clamp 63 Standpipe flange 64 Flange lock ring 67 Coupling sleeve (2 halves) 67 Coupling sleeve (2 halves) 67 Coupling sleeve (2 halves) 68 Steel rod 69 Thrust washer (Used until Jan., 1970) 69 Thrust washer (Used until Jan., 1970) 60 Thrust washer (Lese and), 2-3/8 x 2-5/8 61 Buna-N 62 D-ring (Lower tube seal), 1-7/8 x 2-1/8 63 Buna-N 64 Flange lock ring 65 Coupling sleeve (2 halves) 66 Coupling sleeve (2 halves) 67 Coupling sleeve (2 halves) 68 Gray iron 69 Steel rod 60 Thrust washer (Used until Jan., 1970) 61 Groove pin, 3/32 x 7/16 in. 61 Beryllium copper 62 Buna-N 63 Buna-N 64 Support wheel gasket 65 Support tube** 66 Stop nut, 1"- 8 67 Coupling nut, 1/2-20 68 Coupling stud, 1/2-20 x 2-9/16 in. 69 Nozzle section bushing 70 Thrust ring (Used starting Jan., 1970) 71 Felfon 72 Upper standpipe gasket 73 Nozle section bushing 74 Valve seat insert 75 Pipe plug, 1/4 NPT 76 Pipe plug, 1/4 NPT 77 Pipe proving Live Pipe Plug, 1/4 NPT 78 Pipe plug, 1/4 NPT 89 Pipe plug, 1/4 NPT 80 Stainless steel 80 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 80 Ductile iron 80 Poring, (Hose nozzle), 3-1/4 x 3-5/8 81 Buna-N 84 Ductile iron 85 Buna-N 86 Poring, (Hose nozzle), 3-1/4 x 3-5/8 86 Buna-N 87 Pumper nozzle retainer 87 Ductile iron 88 Ductile iron 89 Ductile iron 89 Pipe pug-189 Reass	36	Lower valve washer***	Gray iron
54 Drain bushing Brass 56 Support wheel*** Gray iron 57 O-ring (Operating nut), 1-1/2 x 1-3/4 Buna-N 59 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 73 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support tube***	37	Hydrant bottom***	Gray iron
Support wheel*** Gray iron		,	0)
57 O-ring (Support wheel), 1-1/8 x 1-3/4 Buna-N 59 O-ring (Support wheel), 1-1/8 x 1-3/8 Buna-N 60 Nozzle section*** Gray iron 61 Bury depth plate Aluminum 61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Upwer tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1/2-			
59 O-ring (Support wheel), 1-1/8 x 1-3/8 60 Nozzle section*** 61 Bury depth plate 61 Bury depth plate 62 Lock ring clamp 63 Standpipe flange 64 Flange lock ring 67 Coupling sleeve (2 halves) 68 Coupling sleeve (2 halves) 69 Coupling sleeve (2 halves) 60 Coupling sleeve (2 halves) 61 Coupling sleeve (2 halves) 62 Lower rod (Traffic model) 63 Coupling sleeve (2 halves) 64 Flange lock ring 65 Coupling sleeve (2 halves) 66 Coupling sleeve (2 halves) 67 Coupling sleeve (2 halves) 68 Coupling sleeve (2 halves) 69 Coupling sleeve (2 halves) 70 Coupling sleeve (2 halves) 71 Coupling sleeve (2 halves) 72 Lower rod (Traffic model) 73 Lower rod (Traffic model) 74 Coupling sleeve (2 halves) 75 Coupling (1 Joper tube seal), 5-7/8 x 6-1/4 76 Coupling (1 Joper tube seal), 2-3/8 x 2-5/8 77 Coupling (1 Joper tube seal), 2-3/8 x 2-5/8 78 Support wheel gasket 78 Support wheel gasket 79 Support wheel gasket 70 Coupling nut, 1/2-20 71 Salandes steel 71 Coupling nut, 1/2-20 72 Brass 73 Coupling stud, 1/2-20 x 2-9/16 in. 74 Stainless steel 75 Stainless steel 76 Coupling stud, 1/2-20 x 2-9/16 in. 75 Stainless steel 76 Coupling stud, 1/2-20 x 2-9/16 in. 76 Stainless steel 77 Coupling stud, 1/2-20 x 2-9/16 in. 77 Coupling stud, 1/2-20 x 2-9/16 in. 78 Stainless steel 79 Nozzle section bushing 80 Thrust ring (Used starting Jan., 1970) 81 Fefion 82 Coupling stud, 1/2-20 x 2-9/16 in. 83 Stainless steel 84 Nozzle section bushing 85 Stainless steel 86 Nozzle section bushing 86 Stop nut, 1/2-20 x 2-9/16 in. 87 Stainless steel 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring (Used starting Jan., 1970) 91 Fefion 92 Upper standpipe gasket 93 Nozzle section bushing 94 Pipe plug, 1/4 X 2 in. 95 Brass 96 Stop nut, 1/4 x 2 in. 97 Valve seal insert 98 Brass 99 Pipe plug, 1/4 NPT 90 Brass 90 Coupling stud, 1/4 x 2 in. 90 Coupling stud, 1/4 x 3-5/8 90 Coupling stud, 1/4 x 3-5/8 90 Coupling stud, 1/4 x 3-5/		••	•
60 Nozzle section*** 61 Bury depth plate Aluminum 61 Bury depth plate Aluminum 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring 65 Coupling sleeve (2 halves) Gray iron 66 Coupling sleeve (2 halves) Gray iron 67 Coupling sleeve (2 halves) Steel rod 68 Steel rod 69 Coupling sleeve (2 halves) Gray iron 69 Steel rod 60 Coupling sleeve (2 halves) Steel rod 60 Gray iron 61 Upper rod (Traffic model) Steel rod 61 Coupling sleeve (2 halves) Steel rod 62 Lower rod (Traffic model) Steel rod 63 Stanless steel rod 64 Flange lock iron 65 Steel rod 66 Steel rod 67 Coupling valve seat), 5-7/8 x 6-1/4 68 Buna-N 69 Thrust washer (Used until Jan., 1970) Teflon 69 Gray iron 60 Gray iron 60 Gray iron 61 Gray iron 62 O-ring (Lower tube seal), 1-7/8 x 2-1/8 63 O-ring (Lower tube seal), 1-7/8 x 2-1/8 64 Support wheel gasket Buna-N 65 Support wheel gasket Buna-N 65 Support wheel gasket Buna-N 66 Stop nut, 1"-8 Zinc plated steel 67 Coupling nut, 1/2-20 68 Coupling stud, 1/2-20 x 2-9/16 in. 69 Nozzle section bushing Brass 60 Thrust ring (Used starting Jan., 1970) Teflon 60 Upper standpipe gasket Neoprene 61 Pipe plug, 1/4 NPT Brass 62 Gray iron 63 Stanless steel 64 Neoprene 65 Stanless steel 65 Stanless steel 66 Steel rod 67 Coupling stud, 1/2-20 x 2-9/16 in. 68 Stanless steel 69 Nozzle section bushing Brass 60 Thrust ring (Used starting Jan., 1970) Teflon 60 Groove pin, 1/4 x 2 in. 60 Stanless steel 61 Ductile iron 61 Ductile iron 61 Ductile iron 61 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 61 Ductile iron 61 Ductile iron 62 Ductile iron 63 Stanless steel 64 Ductile iron 65 Steel rod 65 Steel rod 66 Steel rod 66 Steel rod 67 Coupling stantener 67 Ductile iron 68 Steel rod 68 Steel rod 69 Pipe plug, 1/4 x 2 in. 60 Ductile iron 69 Ductile iron 60 Ductile iron 60 Ductile iron 61 Ductile iron			
61 Bury depth plate 61 Bury depth plate washer 62 Lock ring clamp 63 Standpipe flange 64 Flange lock ring 65 Coupling sleeve (2 halves) 66 Coupling sleeve (2 halves) 67 Coupling sleeve (2 halves) 68 Steel rod 69 Steel rod 60 Coupling sleeve (2 halves) 69 Steel rod 60 Coupling sleeve (2 halves) 60 Coupling sleeve (2 halves) 61 Upper rod (Traffic model) 62 Lower rod (Traffic model) 63 Steel rod 64 Steel rod 65 Steel rod 66 Steel rod 67 Coupling sleeve (2 halves) 68 Support whee yealy, 5-7/8 x 6-1/4 69 Buna-N 60 Thrust washer (Used until Jan., 1970) 60 Teflon 61 Groove pin, 3/32 x 7/16 in. 61 Beryllium copper 62 O-ring (Upper tube seal), 2-3/8 x 2-5/8 63 O-ring (Lower tube seal), 1-7/8 x 2-1/8 64 Support wheel gasket 65 Support tube*** 66 Stop nut, 1"- 8 67 Coupling nut, 1/2-20 67 Brass 68 Coupling stud, 1/2-20 2-9/16 in. 69 Nozzle section bushing 60 Thrust ring (Used starting Jan., 1970) 71 Feflon 72 Upper standpipe gasket 73 Neoprene 74 Valve seat insert 75 Brass 76 Stainless steel 76 Brass 76 Pipe plug, 1/4 NPT 76 Brass 77 Coupling nut, 1/2-20 77 Valve seat insert 77 Brass 78 Brass 79 Ductile iron 79 Pipe plug, 1/4 NPT 70 Brass 70 Brass 70 Roove pin, 1/4 x 2 in. 70 Brass 71 Brass 71 Brass 72 Brass 73 Brass 74 Buna-N 75 Brass 75 Brass 76 Brass 77 Coupling flower rozzle), 5-1/4 x 5-3/4 77 Brass 78 Brass 79 Brass 70 Brass 70 Courlie iron 70 Cover pin, 1/4 x 2 in. 70 Brass 70 Bra			
61 Bury depth plate washer Zinc plated steel 62 Lock ring clamp Malleable iron 63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 80 Thrust washer (Used until Jan., 1970) Teffon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teffon 92 Upper standpipe gask			
Lock ring clamp			
63 Standpipe flange Ductile iron 64 Flange lock ring Stainless steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support wheel gasket Buna-N 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling stud, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat		• • •	•
64 Flange lock ring Stainless steel 67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support wheel gasket Gray iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 101 Weathershiel		· ·	
67 Coupling sleeve (2 halves) Gray iron 71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut		• • •	
71 Upper rod (Traffic model) Steel rod 72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1"- 8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Groove pin, 1/4 x 2 in.			
72 Lower rod (Traffic model) Steel rod 77 O-ring (Upper valve seat), 5-7/8 x 6-1/4 Buna-N 80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Groove pin, 1/4 x 2 in. Stainless steel 113 Breakable flange	71	Upper rod (Traffic model)	•
80 Thrust washer (Used until Jan., 1970) Teflon 81 Groove pin, 3/32 x 7/16 in. Beryllium copper 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1"- 8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Groove pin, 1/4 x 2 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer	72		Steel rod
81 Groove pin, 3/32 x 7/16 in. 82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 84 Support wheel gasket 85 Support tube*** 86 Stop nut, 1"- 8 87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 80 Brass 80 Upper standpipe gasket 81 Neoprene 82 Pipe plug, 1/4 NPT 83 Brass 84 Brass 85 Ductile iron 86 Stop nut, 1/2-20 x 2-9/16 in. 87 Coupling stud, 1/2-20 x 2-9/16 in. 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 80 Brass 81 Brass 82 Ductile iron 84 Ductile iron 85 Stainless steel 86 Ductile iron 87 Valve seat insert 87 Brass 88 Ductile iron 89 Pipe plug, 1/4 NPT 89 Brass 80 Ductile iron 80 Ductile iron 81 Breakable flange 90 Ductile iron 81 Brass 81 Ductile iron 81 Buna-N 81 Ductile iron 82 Ductile iron 83 Ductile iron 84 Ductile iron 85 Ductile iron 86 Ductile iron 87 Ductile iron 88 Ductile iron 89 Ductile iron 80 Ductile iron 80 Ductile iron	77	O-ring (Upper valve seat), 5-7/8 x 6-1/4	Buna-N
82 O-ring (Upper tube seal), 2-3/8 x 2-5/8 Buna-N 83 O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N 84 Support wheel gasket Buna-N 85 Support tube*** Gray iron 86 Stop nut, 1"-8 Zinc plated steel 87 Coupling nut, 1/2-20 Brass 88 Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel 89 Nozzle section bushing Brass 90 Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Groove pin, 1/4 x 2 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Du	80	Thrust washer (Used until Jan., 1970)	Teflon
O-ring (Lower tube seal), 1-7/8 x 2-1/8 Buna-N Support wheel gasket Support tube*** Support tube*** Support tube*** Support tube*** Stop nut, 1"- 8 Coupling nut, 1/2-20 Brass Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel Nozzle section bushing Nozzle section bushing Teflon Upper standpipe gasket Valve seat insert Pipe plug, 1/4 NPT Weathershield nut Groove pin, 1/4 x 2 in. Breakable flange O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N Hose Nozzle Retainer Ductile iron		• •	, ,,
84 Support wheel gasket 85 Support tube*** 86 Stop nut, 1"- 8 87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring (Used starting Jan., 1970) 91 Upper standpipe gasket 92 Upper standpipe gasket 93 Pipe plug, 1/4 NPT 94 Brass 95 Pipe plug, 1/4 NPT 96 Brass 97 Valve seat insert 98 Pipe plug, 1/4 NPT 99 Pipe standpipe gasket 99 Pipe plug, 1/4 NPT 90 Brass 90 Brass 910 Weathershield nut 910 Ductile iron 92 Upper standpipe gasket 95 Pipe plug, 1/4 NPT 96 Brass 97 Use seat insert 98 Brass 99 Brass 90 Brass 90 Ductile iron 91 Brass 91 Brass 91 Brass 92 Brass 93 Brass 94 Brass 95 Brass 96 Brass 97 Valve seat insert 98 Brass 99 Pipe plug, 1/4 x 2 in. 90 Brass 90 Br			
Support tube*** Stop nut, 1"- 8 Coupling nut, 1/2-20 Brass Coupling stud, 1/2-20 x 2-9/16 in. Stainless steel Nozzle section bushing Thrust ring (Used starting Jan., 1970) Upper standpipe gasket Valve seat insert Pipe plug, 1/4 NPT Weathershield nut Gray iron Staincless steel Brass Nozzle section bushing Brass Neoprene Prep plug, 1/4 NPT Brass Unctile iron Cring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N Pumper nozzle retainer O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N Hose Nozzle Retainer Ductile iron		3 \	
86 Stop nut, 1"- 8 87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring (Used starting Jan., 1970) 92 Upper standpipe gasket 97 Valve seat insert 99 Pipe plug, 1/4 NPT 101 Weathershield nut 102 Groove pin, 1/4 x 2 in. 103 Breakable flange 104 Stainless steel 105 Ductile iron 106 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 107 Pumper nozzle retainer 108 Ductile iron 109 Ductile iron 100 Ductile iron 100 Ductile iron 101 Ductile iron 102 Ductile iron 103 Breakable flange 104 Ductile iron 105 Ductile iron 106 Doring (Pumper nozzle), 3-1/4 x 3-5/8 107 Ductile iron 108 Doring, (Hose nozzle), 3-1/4 x 3-5/8 109 Ductile iron 110 Ductile iron			
87 Coupling nut, 1/2-20 88 Coupling stud, 1/2-20 x 2-9/16 in. 89 Nozzle section bushing 90 Thrust ring (Used starting Jan., 1970) 91 Upper standpipe gasket 92 Valve seat insert 93 Pipe plug, 1/4 NPT 94 Weathershield nut 95 Groove pin, 1/4 x 2 in. 96 Groove pin, 1/4 x 2 in. 97 Stainless steel 98 Brass 99 Ductile iron 99 Ductile iron 90 Ductile iron 90 Brass 90 Neoprene 97 Neoprene 98 Bronze 99 Pipe plug, 1/4 NPT 99 Brass 90 Ductile iron 90 Ductile iron 91 Ductile iron 91 Ductile iron 92 Ductile iron 95 Ductile iron 96 Ductile iron 97 Ductile iron 98 Ductile iron 98 Buna-N 99 Ductile iron 99 Pipe plug, 1/4 x 2-5/8 90 Pipe plug, 1/4 x 3-5/8 90 Neoprene 97 Neoprene 98 Brass 90 Brass			
Results and the state of the st		•	
89 Nozzle section bushing 90 Thrust ring (Used starting Jan., 1970) 92 Upper standpipe gasket 97 Valve seat insert 98 Pipe plug, 1/4 NPT 99 Pipe plug, 1/4 NPT 90 Brass 101 Weathershield nut 102 Groove pin, 1/4 x 2 in. 103 Breakable flange 104 Stainless steel 105 Ductile iron 106 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 107 Pumper nozzle retainer 108 Punding Nozzle Retainer 109 Ductile iron 110 Ductile iron 1110 Ductile iron 1120 Ductile iron 1130 Ductile iron 1140 Ductile iron 1150 Ductile iron 1160 D-ring, (Hose nozzle), 3-1/4 x 3-5/8 1190 Ductile iron		1 0 /	
Thrust ring (Used starting Jan., 1970) Teflon 92 Upper standpipe gasket Neoprene 97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Groove pin, 1/4 x 2 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron			
92 Upper standpipe gasket 97 Valve seat insert 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut 102 Groove pin, 1/4 x 2 in. 113 Breakable flange 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 119 Hose Nozzle Retainer Neoprene Brass Ductile iron Stainless steel Ductile iron Ductile iron Ductile iron Ductile iron Ductile iron		· · · · · · · · · · · · · · · · · · ·	
97 Valve seat insert Bronze 99 Pipe plug, 1/4 NPT Brass 101 Weathershield nut Ductile iron 102 Groove pin, 1/4 x 2 in. Stainless steel 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron		3 ' ,	
101 Weathershield nut 102 Groove pin, 1/4 x 2 in. 113 Breakable flange 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 117 Pumper nozzle retainer 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 119 Hose Nozzle Retainer Ductile iron Ductile iron Ductile iron Ductile iron Ductile iron			•
102 Groove pin, 1/4 x 2 in. 113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron	99	Pipe plug, 1/4 NPT	Brass
113 Breakable flange Ductile iron 116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron		1 1 0	Ductile iron
116 O-ring (Pumper nozzle), 5-1/4 x 5-3/4 Buna-N 117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron	102		Stainless steel
117 Pumper nozzle retainer Ductile iron 118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron	113		Ductile iron
118 O-ring, (Hose nozzle), 3-1/4 x 3-5/8 Buna-N 119 Hose Nozzle Retainer Ductile iron		• • • • • • • • • • • • • • • • • • • •	
119 Hose Nozzle Retainer Ductile iron		•	
		· · · · · · · · · · · · · · · · · · ·	
			Ductile Iron

^{*}AWWA Standard C151 (ANSI 21.51)



T

^{**}Bronze or ductile iron optional on some nut sizes.

^{***}Ductile Iron components will be furnished in place of gray iron components when these items are ordered for repairs.

4

A

PACER - REPAIR INSTRUCTIONS

Disassembling the Hydrant

Special care should be taken in the disassembly and repair of pressure containing devices such as valves and hydrants. Failure to follow proper practice and guidelines can also result in serious injury and/or even death.

 Close valve in water main, remove a nozzle cap, and open hydrant to make sure that water is turned off.

250 P.S.I.G. Rated Pacers (See Figure 1, Page 2B-22)

2a. At the nozzle section, remove bolts (6A), nuts (6C), and allow flange (62B) to slide down the upper standpipe. Depth plate and washer (61) will come off with bolts.

150 P.S.I.G. Rated Pacers (See Figure 2, Page 2B-22)

2b. At the nozzle section, remove bolts (6A), nuts (6C) and clamps (62) from underneath flange of the nozzle section (60). Depth plate and plain washer (61) will come off with bolts.

NOTE: If clamps (62) should stick underneath the flange of the nozzle section (60), it may be necessary to drive them out.

- Remove operating nut (17B or 17) from the nozzle section (60). (On hydrants with weathershield, it is necessary to drive out pin (102) and remove weathershield (101) before upper operating nut can be removed.)

NOTE: Bushing (89) is cemented in nozzle section (60). Removing it is not necessary unless it is damaged. To replace the bushing, follow instructions on page 2B-24.

- 5. Unscrew lower operating nut (17A two- piece nuts, 17 one-piece nut), and remove support tube (85).
- 6. Unscrew hex stop nut (86) from operating rod (28 or 71), and remove support (56).
- 7. Carefully lower disassembly wrench into standpipe over operating rod, and engage lugs of valve seat (31). See Figure 3 on Page 2B-23.

Do not drop disassembly wrench into hydrant; it may damage valve seat and related parts.

- 8. Insert a three or four foot heavy steel bar (approximately 1 in. diameter) through eye of wrench, and turn in a counterclockwise direction to remove complete operating rod and valve assembly.
- 9. When valve seat (31) is clear of threads in hydrant bottom (37), remove disassembly wrench and lift out operating rod assembly.
- 10. To disassemble lower portion of operating rod, remove cotter pin (8) or clevis pin (179) and kickout ring (180). Hold rod (28 or 72) with a pipe wrench or in a vise, and unscrew lower washer (36) with a 1-9/16 end wrench or suitable adjustable wrench. (Main valve (35), upper washer (34), valve seat (31), and cross arm (30) will come off with lower washer.) Slide drain plunger (7) from valve seat. Remove O-rings (3 and 77). Do not remove groove pin (81), which guides drain plunger, unless it is damaged. See Figure 4 on Page 2B-23.

Traffic Models Only

11. Disassemble breakable coupling, unscrew nuts (87), and remove rod coupling halves (67) which join upper rod (71) to lower rod (72). Do not remove studs (88) unless they are damaged. (Breakable coupling disassembly is usually not necessary unless coupling parts are damaged.)

NOTE: When a supply of gaskets and O-rings are available, always install new ones when reassembling the hydrant. Clean dirt from O-ring grooves.

PACER - REPAIR INSTRUCTIONS

Reassembling the Hydrant

Note: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.

- 1. **Traffic Models Only**: Assemble breakable coupling. Slide rod coupling halves (67) onto the studs (88) in the upper and lower rods (71, 72) and install coupling nuts (87).
- 2. If necessary, install new groove pin (81) in valve seat (31). Slide drain plunger (7) into seat with oblong hole at lower end. Grease O-ring grooves in valve seat and install O-rings (3 and 77). Be sure to remove any twists.
- 3. Slide crossarm (30) and valve seat (31) on operating rod (28 or 72). Position main valve (35) and upper washer (34) on lower washer (36). Screw lower washer onto rod, engaging diamond boss on lower washer in matching recess in crossarm. Position valve seal against valve seat (35) and tighten lower washer with a pull of about 50 lbs on a 12 inch wrench. Tighten enough to permit installation of the clevis pin (179) and kickout ring (180).
- 4. Coat threads of valve seat (31) with grease. Carefully lower assembled operating rod into standpipe until valve seat rests on threads in hydrant bottom. Grasping rod (28 or 71) firmly with both hands, slowly turn in a counterclockwise direction until threads engage, then turn clockwise until it is handight.
- 5. Slowly lower disassembly wrench over operating rod (28 or 71) in standpipe, and engage it with valve seat (31). Insert a 3 or 4 foot heavy steel bar through eye of wrench and tighten valve seat securely in hydrant bottom. Remove wrench.
 - Do not exceed 200 lb-ft torque (50 lb pull on the end of a 4 ft bar). One person using a bar 3 to 4 feet long can easily exert enough force to tighten valve seat. Further tightening may make future seat removal more difficult.
- 6. Pull rod up as far as it will go (main valve will now be closed). Hold in this position while an assistant slowly turns on the water.

MARNING

To prevent serious personal injury, do not stand over rod when assistant turns on the water.

- Visually check for possible leaks before proceeding with the next step.
- 8. Grease O-ring and gasket grooves in support (56), and install O-rings (59), gaskets (84) and lower tube seal (83). Tape threads of operating rod (28 or 71) to protect O-rings, and install support. Remove tape from threads.
- 9. Install hex stop nut (86), turning it down to end of thread. Snug up with a torque of 30 lb-ft (30 lb at end of 12 in. wrench).

- 10. Grease groove in upper end of support tube (85), and install upper tube seal (82). Slide tube down over operating rod (28 or 71) until it is seated on support (56).
- 11. Grease threads of operating rod (28 or 71) and lower bearing surface of operating nut (17A or 17). Screw lower operating nut onto rod while centering support (56) on the standpipe. Tighten operating nut (17A or 17) to securely clamp support (56) against upper standpipe (40). Be sure support (56) is centered on upper standpipe (40).
- 12. Grease and install thrust ring (90) and Oring (57) in operating nut (17B or 17). If hydrant has a two-piece operating nut, set upper operating nut (17B) on lower operating nut (17A) and engage lugs in slots.
- 250 P.S.I.G. Rated Pacers (See Figure 1, Page 2B-22)
- 13a. Carefully lower nozzle section (60) over operating nut (17b or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install bolts (6A) and nuts (6C) through flange of nozzle section and standpipe flange (62B) and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Make sure flange (62B) is seated properly up under flange, and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.
- 150 P.S.I.G. Rated Pacers (See Figure 2, Page 2B-22)
- 13b. Make sure lock ring (64) is properly installed in standpipe (29) or upper standpipe (40). Carefully lower nozzle section (60) over upper operating nut (17B or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install clamps (62), bolts (6A) and nuts (6C) in flange of nozzle section and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Make sure all clamps are seated properly up under flange, and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.
- 14. Back off operating nut slightly to release tension on operating rod. Since water pressure will hold valve up against seat, it is not necessary to turn operating nut to a dead stop if the valve and seat are in good condition.
- 15. Lubricate hydrant per "Lubrication" portion of the "Maintenance" section.



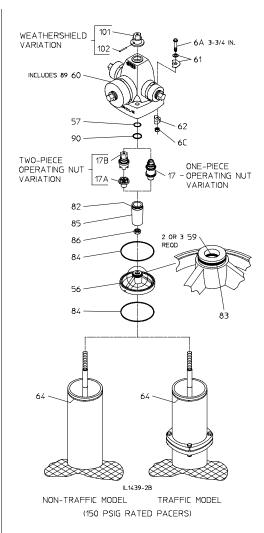
(A)

PACER - REPAIR INSTRUCTIONS

Figure 1. Repair Diagram - 250 P.S.I.G. Rated Pacers

WEATHERSHIELD VARIATION 6A 3-3/4 IN. INCLUDES 89 60 60 INCLUDES 89 57 -90 TWO-PIECE OPERATING NUT ONE-PIECE OPERATING NUT VARIATION VARIATION 62B 82 85 IL1439-2C 3 REQD 59 86 OPTIONAL CLASSIC PACER NOZZLE SECTION 83 62B 62B NON-TRAFFIC MODEL TRAFFIC MODEL (250 PSIG RATED PACERS)

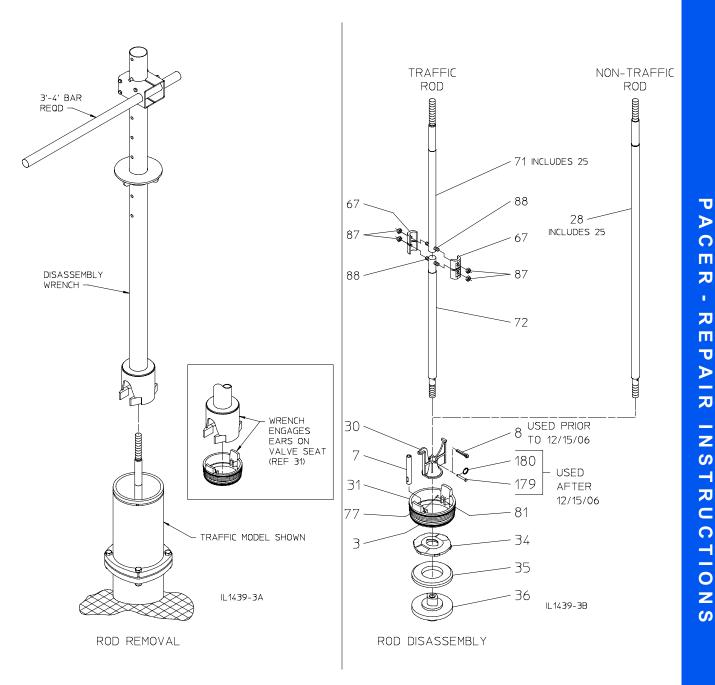
Figure 2. Repair Diagram - 150 P.S.I.G. Rated Pacers



PACER - REPAIR INSTRUCTIONS

Figure 3. Rod Removal

Figure 4. Rod Disassembly



A

PACER - REPAIR INSTRUCTIONS

Nozzle Section Bushing Replacement

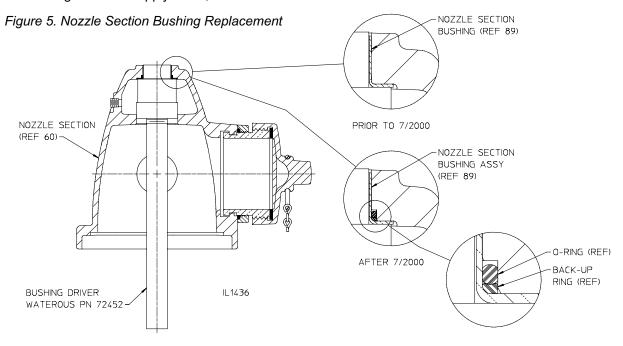
 Remove the old bushing. Prior to mid -1988, a nylon bushing was used. Starting mid-1988, a brass bushing was used.

Nylon Bushing: Peel out with a sharp knife blade.

Brass Bushing: Peel out with a sharp chisel.

- 2. Clean any rust or paint build-up from the inside of the bore. An abrasive sanding drum, turned with a battery-operated drill works well. An alternative method is to remove any rust or paint using a large half-round file. After cleaning, bare metal should be visible in the bore. To check whether the bore has been cleaned to the proper size, partially insert the bushing into the bore from the top of the nozzle section with only slight force from your hand. About one half of the length of the bushing should fit into the bore before it becomes tight.
- 3. Apply 1099 Scotch-Grip Adhesive/Seal-ant (Waterous Part No. V 3405): If the hydrant was manufactured after mid-2000, install the back-up ring and O-ring onto the replacement bushing as shown in the detail drawing. If the hydrant was manufactured before mid-2000, remove the back-up ring and O-ring from the replacement bushing and discard. Place the bushing onto the bushing driver and apply a thin, even

- coating of adhesive/sealant on the outside diameter of the bushing. Apply a thin coating of adhesive/sealant to the inside surface of the bore in the nozzle section and let both parts dry for several minutes. The layers of adhesive should be mostly dry to the touch, with a slightly \subseteq tacky" surface.
- 4. Drive in the Bushing: Using the Bushing Driver (Waterous Part No. 72452) and a hammer, drive the bushing into the bore from the inside of the nozzle section. Be sure to drive the bushing until the flange is seated against the counter bore in the nozzle section. The bushing driver should withdraw from the inside of the installed bushing without resistance. If resistance is felt, the rust or paint was not adequately cleaned from the nozzle section bore.
- 5. Prepare the Operating Nut: Remove the old O-ring seal (57) and the Thrust Ring (90) or Thrust Washer (80) from the operating nut (17 or 17B). Inspect the surfaces of the operating nut where the seal and thrust ring or washer were located and remove any paint or rust from the surface using a file or abrasive emery cloth. With the O-ring removed, insert the operating nut into the bore from the top of the nozzle section to test the fit of the operating nut in the newly installed bushing. The nut should turn freely. If not, carefully sand or file the inside diameter of the bushing until the nut will turn freely in the bore. Install the new O-ring seal (57) and the Thrust Ring (90) or Thrust Washer (80) onto the operating nut (17 or 17B).



PACER - TRAFFIC DAMAGE REPAIR

Introduction

This instruction covers the repair of Pacer Traffic models. The Pacer Traffic models are furnished in two main variations:

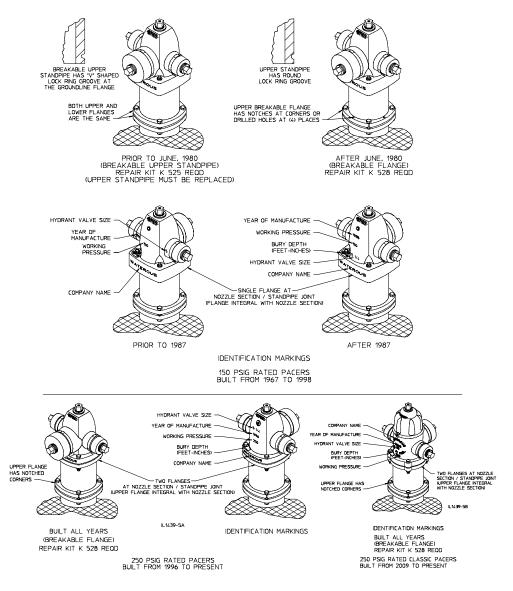
- 150 p.s.i.g. rated working pressure models WB67
- 250 p.s.i.g. rated working pressure models WB67-250

The disassembly and reassembly procedure varies slightly for each. Also, the 150 p.s.i.g. rated model was furnished with two types of breakable parts as follows:

- Prior to June, 1980 The upper standpipe was designed to fracture at the lower lock ring groove. The flanges remained intact.
- After June, 1980 A flange which is designed to fracture is used and the upper standpipe remains intact (this design also is used on all 250 p.s.i.g. rated Pacers).

The repair kits and repair procedure vary slightly for each type. Refer to Figure 1 below to identify which variation of Pacer hydrant and type of breakable parts you have.

Figure 1. Identification Diagram





150 P.S.I.G. Rated Working Pressure Pacer Using Repair Kits K525 or K528

Note: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.

150 P.S.I.G. Rated Pacers (See Figure 2, Page 2B-27)

 At the ground line, remove bolts (6B) and nuts (6C) which attach the upper and lower flanges. Discard the gasket, nuts and bolts.

Note: If top of the hydrant is completely broken away from the lower portion of the hydrant, step 1 may not be necessary.

 At the nozzle section, remove bolts (6A), nuts (6C) and clamps (62) from underneath the flange of the nozzle section (60). Depth plate and plain washer (61) will come off with bolts.

> Note: If clamps (62) should stick underneath the flange of the nozzle section (60), it may be necessary to drive them out.

- If the breakable upper standpipe is fractured (hydrants built prior to June, 1980), discard upper standpipe (40) and the lower flange. A new upper standpipe with a breakable flange are furnished in kit K525.
- Turn upper operating nut (17B) or weathershield nut (101) in the opening direction to separate the nozzle section (60) and the support (56). Remove the nozzle section, lifting upwards. Use proper handling techniques to avoid injury.
- Remove operating nut (17B or 17) from the nozzle section (60). (On hydrants with weathershield, it is necessary to drive out pin (102) and remove weathershield (101) before upper operating nut can be removed.)

Note: Bushing (89) is cemented in nozzle section (60). Removing it is not necessary unless it is damaged. If replacement is necessary, see Page 2B-24.

- Unscrew lower operating nut (17A two-piece nuts, 17 - one-piece nut), and remove support tube (85).
- 7. Unscrew hex stop nut (86) from operating rod (71), and remove support (56).
- 8. Remove nuts (87) and rod coupling halves (67) from upper and lower rods (71 & 72). Carefully check upper rod (71) to make sure it is not bent more than 1/8 in. out of straightness. Straighten or replace if necessary. Also check studs (88) for thread damage or bending which will prevent the installation of new coupling halves. Replace studs if necessary.
- Position upper rod (71) over lower rod (72) and install new coupling halves (67). Install nuts (87) and tighten securely.

Hydrants built prior to June, 1980 (K525)

10a. Slide breakable flange (113) over lower end of the new upper standpipe (40). (The lower end has the lock ring groove 3/8 in. from the end.) Install lock rings (64) in grooves on the upper standpipe. (Be sure flange is orientated so that the larger ID of the flange engages the lock ring properly.) See Figure 3 on Page 2B-27.

Hydrants built after to June, 1980 (K528)

- 10b. Remove lock rings (64) from the bottom of the upper standpipe (40). Remove old breakable flange (113) from the upper standpipe if it is still attached (in most cases, it will fracture and disengage itself from the upper standpipe). Slide new breakable flange (113) over the upper standpipe (40) (orient flange so that the larger ID of the flange will point down and properly engage the lock ring). See Figure 3. Install lock ring (64) in the bottom groove of the upper standpipe (40). Slide flange (113) down and over the lock ring (64).
- 11. Place new gasket (92) on the lower standpipe with the lip pointing down. Position the upper standpipe (40) on the lower standpipe and install bolts (6B) thru flanges (113) and (63). Install nuts (6C) and tighten the four bolts evenly. Tighten to 60-70 lb-ft of torque.

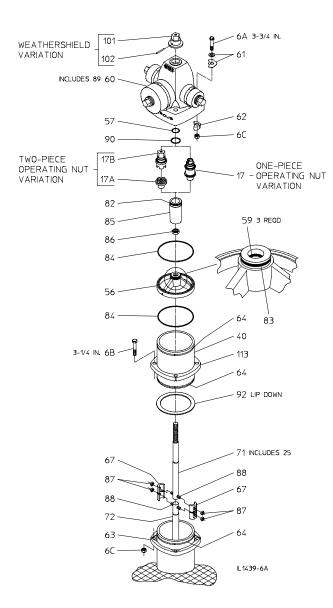
Note: Be sure to install the upper standpipe correctly. The groove at the top must be 3/4 in. from the end. The groove at the bottom must be 3/8 in. from the end. Also, the breakable flange (113) must be at the bottom (groundline) end. See Figure 3 on Page 2B-27.

- 12. Grease O-ring and gasket grooves in support (56), and grease O-rings (59), gaskets (84) and lower tube seal (83). Tape threads of operating rod (71) to protect O-rings. Install support (56) onto operating rod (71), being careful not to damage O-rings on operating rod threads. Remove tape from threads.
- 13. Install hex stop nut (86), threading it down to end of thread. Snug up with a torque of 30 lb-ft (30 lb at end of 12 in. wrench).
- Grease O-ring in upper end of support tube (85). Slide tube down over operating rod (71) until it is seated on support (56).
- 15. Grease threads of operating rod (71) and lower bearing surface of operating nut (17A or 17). Screw lower operating nut onto rod while centering support (56) on the standpipe. Tighten operating nut (17A or 17) to securely clamp support (56) against upper standpipe (40). Be sure support (56) is centered on upper standpipe (40).

150 P.S.I.G. Rated Working Pressure Pacer Using Repair Kits K525 or K528

- 16. Grease and install thrust ring (90) and O-ring (57) in upper operating nut (17B or 17). If hydrant has a two-piece operating nut, set upper operating nut (17B) on lower operating nut (17A) and engage lugs in slots.
- 17. Make sure lock ring (64) is properly installed in the upper standpipe (40). Carefully lower nozzle section (60) over upper operating nut (17B or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install clamps (62), bolts (6A) and nuts (6C) in flange of nozzle section and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Make sure all clamps are seated properly up under nozzle section flange and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.

Figure 2. 150 P.S.I.G. Traffic Repair



18. Back off operating nut slightly to release tension on operating rod. Since water pressure will hold valve up against seat, it is not necessary to turn operating nut to a dead stop if the valve and seat are in good condition.



Note: When a supply of gaskets and Orings are available, always install new ones when reassembling the hydrant. Clean dirt from O-ring grooves.

Figure 3. Upper Standpipe/Breakable Flange Orientation

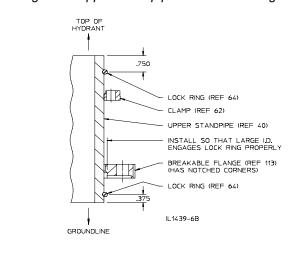
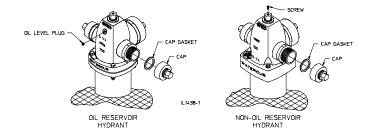


Figure 4. Lubrication Detail



 Oil Reservoir Hydrants: Remove oil level plug. Add oil to the level of the plug. Use an AMERICAN Flow Control recommended oil.

Non-Oil Reservoir Hydrants: Remove screw from operating nut and add approximately one tablespoon of oil through opening. Replace screw. Use an AMERICAN Flow Control recommended oil.

Remove all nozzle caps, clean rust or corrosion from threads of nozzles and caps. Replace cap gaskets if necessary. Apply a light coat of grease to nozzle threads before replacing cap. Use an AMERICAN Flow Control recommended food grade grease.





250 P.S.I.G. Rated Working Pressure Pacer Using Repair Kit K528

Note: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.

250 P.S.I.G. Rated Pacers (See Figure 5, Page 2B-29)

 At the groundline, remove bolts (6B) and nuts (6C) which attach the upper and lower flanges. Discard the gasket, nuts and bolts.

Note: If top of the hydrant is completely broken away from the lower portion of the hydrant, step 1 may not be necessary.

- 2. At the nozzle section, remove bolts (6A), nuts (6C) and allow flange (62B) to slide down the upper standpipe. Depth plate and plain washer (61) will come off with bolts.
- Turn upper operating nut (17B) or weathershield nut (101) in the opening direction separate the nozzle section (60) and the support (56). Remove the nozzle section.
 Use proper handling techniques to avoid injury.
- Remove operating nut (17B or 17) from the nozzle section (60). (On hydrants with weathershield, it is necessary to drive out pin (102) and remove weathershield (101) before upper operating nut can be removed.)

Note: Bushing (89) is cemented in nozzle section (60). Removing it is not necessary unless it is damaged. If replacement is necessary, see Page 2B-24.

- 5. Unscrew lower operating nut (17A two-piece nuts, 17 one-piece nut), and remove support tube (85).
- 6. Unscrew hex stop nut (86) from operating rod (71), and remove support (56).
- 7. Remove coupling nuts (87) and sleeves (67) from upper and lower rods (71 & 72). Carefully check upper rod (71) to make sure it is not bent more than 1/8 in. out of straightness. Straighten or replace if necessary. Also check studs (88) for thread damage or bending which will prevent the installation of a new coupling. Replace studs if necessary.
- 8. Position upper rod (71) over lower rod (72) and install new coupling halves (67). Install nuts (87) and tighten securely.

- 9. Remove lock ring (64) from the bottom of the upper standpipe (40). Remove old breakable flange (113) from the upper standpipe if it is still attached (in most cases, it will fracture and disengage itself from the upper standpipe). Slide new breakable flange (113) over the upper standpipe (40). Orient flange so that the larger ID of the flange will point down and properly engage the lock ring. Install lock ring (64) in the bottom groove of the upper standpipe (40). Slide flange (113) down and over the lock ring (64). See Figure 6, on Page 2B-29.
- 10. Place new gasket (92) on the lower standpipe with the lip pointing down. Position the upper standpipe (40) on the lower standpipe and install bolts (6B) thru flanges (113) and (63). Install nuts (6C) and tighten the four bolts evenly. Tighten to 60-70 lb-ft of torque.
- 11. Grease O-ring and gasket grooves in support (56), and grease O-rings (59), gaskets (84) and lower tube seal (83). Tape threads of operating rod (71) to protect O-rings. Install support (56) onto operating rod (71), being careful not to damage O-rings on operating rod threads. Remove tape from threads. See Figure 6, on Page 2B-29.
- 12. Install hex stop nut (86), threading it down to end of thread. Snug up with a torque of 30 lb-ft (30 lb at end of 12 in. wrench).
- 13. Grease O-ring in upper end of support tube (85). Slide tube down over operating rod (71) until it is seated on support (56).
- 14. Grease threads of operating rod (71) and lower bearing surface of operating nut (17A or 17). Screw lower operating nut onto rod while centering support (56) on the standpipe. Tighten operating nut (17A or 17) to securely clamp support (56) against upper standpipe (40). Be sure support (56) is centered on upper standpipe (40).
- 15. Grease and install thrust ring (90) and O-ring (57) in upper operating nut (17B or 17). If hydrant has a twopiece operating nut, set upper operating nut (17B) on lower operating nut (17A) and engage lugs in slots.

Note: Be sure to install the upper standpipe correctly. The groove at the top must be 3/4 in. from the end. The groove at the bottom must be 3/8 in. from the end. Also, the breakable flange (113) must be at the bottom (groundline) end of the upper standpipe. See Figure 6, on Page 2B-29.

250 P.S.I.G. Rated Working Pressure Pacer Using Repair Kit K528

- 16. Carefully lower nozzle section (60) over upper operating nut (17B or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install bolts (6A) and nuts (6C) through flange of nozzle section and flange (62B) and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Make sure flange (62B) is seated properly with flange lock ring (64) and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.
- 17. Back off operating nut slightly to release tension on operating rod. Since water pressure will hold valve up against seat, it is not necessary to turn operating nut to a dead stop if the valve and seat are in good condition.

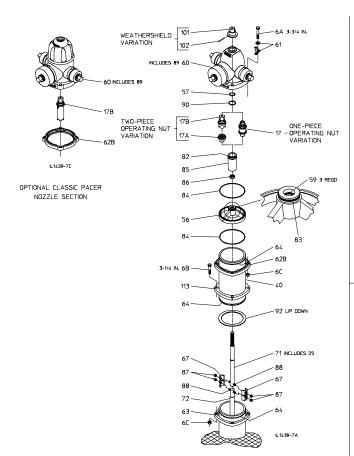
18. Lubricate hydrant as shown in Figure 7.

Note: When a supply of gaskets and Orings are available, always install new ones when reassembling the hydrant. Clean dirt from O-ring grooves.

Figure 5. 250 P.S.I.G. Traffic Repair

Figure 6. Upper Standpipe (Breakable Flange Orientation)





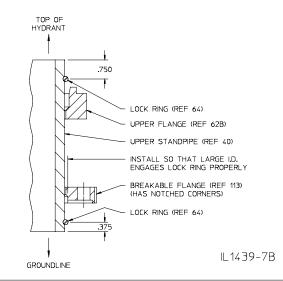
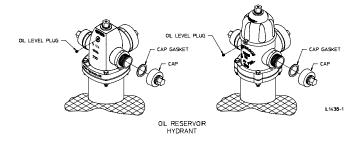


Figure 7. Lubrication Detail



- Remove oil level plug and add oil to the level of the plug. Use an AMERICAN Flow Control recommended oil.
- Remove all nozzle caps, clean rust or corrosion from threads of nozzles and caps. Replace cap gaskets if necessary. Apply a light coat of grease to nozzle threads before replacing cap. Use an AMERICAN Flow Control recommended oil.

 \vdash

A

PACER - NOZZLE REPLACEMENT

Mechanically Attached Nozzles

Mechanically Attached method (see Figure 1) - A retainer is threaded onto the nozzle, trapping an O-ring against the nozzle section and providing a water tight seal. This method is used on all newer versions of Waterous Pacer hydrants.

Waterous has wrenches available for removing and installing retainers as follows.

■ For Pumper Nozzles: Part No. 81420

■ For 5" Storz

Pumper Nozzles: Part No. 82766

For Hose Nozzles: Part No. 72094

O-RING SEAL
RETAINER
NOZZLE

IL1583-A

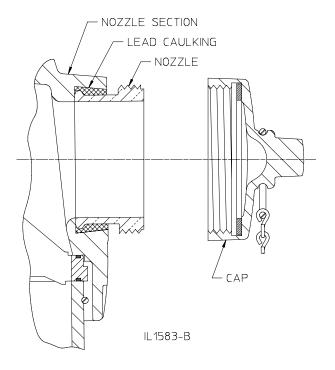
NOZZLE SECTION

Figure 1. Mechanically Attached Nozzles

Caulked (Leaded-In) Nozzles

Caulked (Leaded-In) method (see Figure 2) - Molten lead is poured into the void area between the nozzle and nozzle section which solidifies and creates a water tight seal. This method was used on older versions of Waterous Pacer hydrants.

Figure 2. Caulked (Leaded-In) Nozzles



Mechanically Attached Pumper Nozzle



NOTE: POTENTIAL HYDRANT CAP HAZARD. Make sure the auxiliary gate valve in the lateral between the main and the hydrant is closed and that the hydrant is not charged with pressure when removing caps. Failure to relieve the pressure can result in the cap blowing off, serious injury and/or even death.

- 1. Remove cap.
- 2. Place wrench on the retainer so it engages the rounded protrusions and unthread from nozzle.
- Removal of the 5-inch Storz hydrant nozzle requires the use of the hinged pumper-nozzle retainer wrench (Waterous Part No. 82766).
- Rotate nozzle counter-clockwise until the four lugs on the nozzle disengage the recesses in the nozzle section socket which will allow the nozzle to be removed.

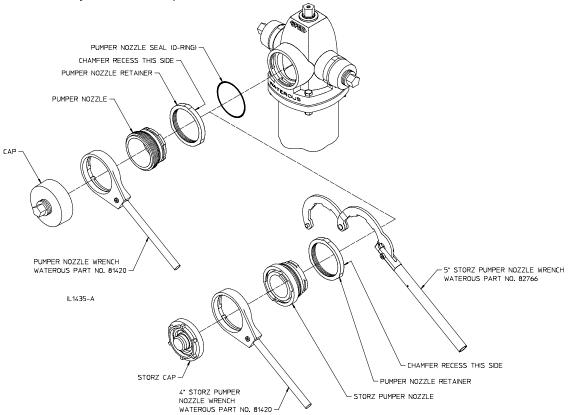
Installation

- 1. Thread retainer onto the retainer threads of the pumper nozzle.
- Grease O-ring and place it over nozzle starting from the end with the four lugs and into the chamfer recess in the retainer.
- 3. Insert the nozzle/retainer/O-ring subassembly into the socket in the nozzle section. Rotate the subassembly clockwise until it stops with the four lugs on the nozzle fully engaged in the anti-rotation recesses in the socket. If it cannot be rotated, turn the retainer in a direction to allow the nozzle to be inserted further into the socket so the subassembly rotates clockwise against the stops.
- Hand tighten the retainer to press O-ring against the face of the socket.

- 5. Place wrench on the retainer so it engages the rounded protrusions, tighten firmly.
 - Installation of the 5-inch Storz hydrant nozzle requires the use of the hinged pumper-nozzle retainer wrench (Waterous Part No. 82766).
- Clean rust or corrosion from cap threads and replace cap gasket if necessary. Apply a light coat of grease to the nozzle threads and install the cap.
- Cap all nozzles and open the hydrant valve, check the area around the repaired nozzle for leaks.

NOTE: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.







Mechanically Attached 2-1/2" Hose Nozzle

Removal

NOTE: POTENTIAL HYDRANT CAP HAZARD. Make sure the auxiliary gate valve in the lateral between the main and the hydrant is closed and that the hydrant is not charged with pressure when removing caps. Failure to relieve the pressure can result in the cap blowing off, serious injury and/or even death.

moved.

1. Remove cap.

- Installation
- Insert hose nozzle into the socket of the nozzle section, turn clockwise until it stops with the two lugs on the nozzle fully engaged in the anti-rotation recesses in the socket.
- 2. Grease O-ring and place it over the nozzle and against the face of the socket.
- Thread retainer onto the hose nozzle and hand tighten to press the O-ring against the face of the socket.
- Figure 4. Mechanically Attached Hose Nozzle

4. Place wrench on retainer so it engages the rounded protrusions, and tighten firmly.

2. Place wrench on the retainer so it engages the rounded protrusions and unthread from nozzle.

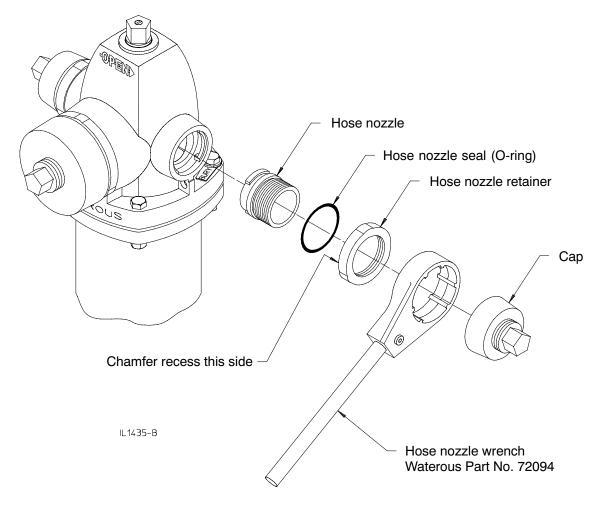
3. Rotate nozzle counter-clockwise until the two lugs

on the nozzle disengage the recesses in the nozzle

section socket which will allow the nozzle to be re-

5. Clean rust or corrosion from cap threads and replace cap gasket if necessary. Apply a light coat of grease to the nozzle threads and install the cap.

NOTE: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.



Caulked (Leaded-In) Pumper and Hose Nozzle



Introduction

These instructions provide the main steps necessary to replace hydrant nozzles in the field. Two methods are given. The first method involves removing the nozzle section from the standpipe while the second does not.

The first method is preferable because centering the nozzle in the cavity of the nozzle section is easier, and distribution of the lead around the nozzle will probably be more even.

NOTE: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.

Method 1

This method requires removal of the nozzle section.

WARNING

Lead vapor hazard. May cause severe illness.

Only use molten lead in areas with adequate ventilation.

WARNING

Molten lead hazard. May cause severe burns.

Wear protective clothing, safety glasses and gloves to prevent injury from the molten lead.

- 1. Remove the nozzle section following the procedure outlined in the applicable installation and maintenance instructions.
- Melt lead around the damaged nozzle and remove the nozzle. Chip out dirt, old lead, etc. to provide a clean seat for the new nozzle.
- 3. Position the nozzle section on a firm, horizontal support with the cavity for replacement nozzle up.
- 4. Position the new nozzle in the center of the cavity and pour melted lead around it. Peen lead with a blunt chisel or punch and chip away the excess lead which might interfere with the nozzle threads.

NOTE: A special caulking chisel, Part No. 61510, is available from Waterous for peening lead around the nozzle.

- Replace the nozzle section following the procedure outlined in the installation and maintenance instructions.
- Clean rust or corrosion from cap threads and replace cap gasket if necessary. Apply a light coat of grease to nozzle threads and install the cap.
- 7. Cap all hydrant nozzles and open the hydrant valve. Check the cavity around the repaired nozzle for leaks.

NOTE: There are times that the nozzle may loosen from the nozzle section cavity for various reasons which may result in slight leakage. This can be corrected by peening the lead caulking around the nozzle with a blunt chisel or our standard caulking chisel Part No. 61510, without removing any parts except the hydrant nozzle cap. After repeening, it is suggested to retest this area by following the procedure in Method 1, Step 7.



Caulked (Leaded-In) Pumper and Hose Nozzle

Method 2

If circumstances make removal of the nozzle section inconvenient, this method permits installing replacement nozzles without disassembling the hydrant. This method should normally not be used due to the following:

- Melted lead may flow unevenly around the nozzle.
- Lead may leak into the hydrant and foul the valve parts at the bottom.

MARNING

Lead vapor hazard. May cause severe illness.

Only use molten lead in areas with adequate ventilation.

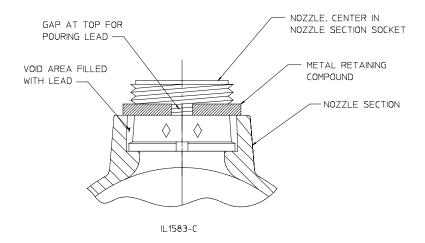
MARNING

Molten lead hazard. May cause severe burns.

Wear protective clothing, safety glasses and gloves to prevent injury from the molten lead.

- Melt lead around the damaged nozzle and remove the nozzle. Chip out dirt, old lead, etc., to provide a clean seat for the new nozzle.
- Wrap a 1/2 in. diameter bead of metal-retaining compound around the new nozzle to seal the cavity and to hold the nozzle in position. Leave a small gap at the top of the bead to permit pouring in melted lead.
- Form a V-shaped, sheet-metal trough, small enough to enter the gap in the bead. Use the trough to pour melted lead around the nozzle.
- Remove the metal-retaining compound and peen lead with a blunt chisel or punch. Chip away excess lead which might interfere with nozzle threads.
- Clean rust or corrosion from cap threads and replace cap gasket if necessary. Apply a light coat of grease to nozzle threads and install the cap.
- Cap all hydrant nozzles and open the hydrant valve. Check the cavity around the repaired nozzle for leaks.

Figure 5. Caulked (Leaded-In) Pumper and Hose Nozzle Replacement



PACER - EXTENDING TRAFFIC MODEL

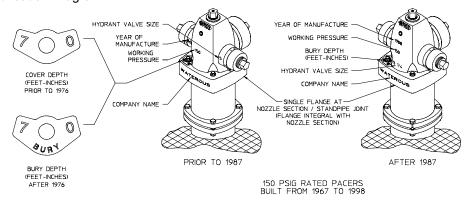
Introduction

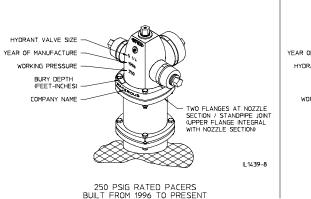
This instruction covers the installation of the standpipe and rod extension kit (K562) for Pacer Traffic models. Traffic Pacer models are furnished in two main variations:

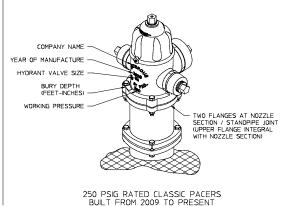
- 150 p.s.i.g. rated working pressure models WB67
- 250 p.s.i.g. rated working pressure models WB67-250

The extension kit installation is identical for both variations; however, the disassembly and reassembly varies slightly. Refer to the identification diagram below to identify which variation of Pacer hydrant you have.

Figure 1. Identification Diagram







Important Notes

- Waterous recommends a new rod corresponding to the extended bury or cover depth be installed in place of a rod extension if the hydrants meet one or more of the following criteria:
 - a. The length of the rod extension required exceeds 4'-0".
 - The hydrant has already been extended. Only one rod extension per hydrant is recommended.
 - c. 150 P.S.I.G. rated Pacers only:

The depth of the extended hydrant will exceed 9'-0" bury or 8'-6" cover. Depths of 9'-6" thru 11'-6" bury and 9'-0" thru 11'-0" cover should have a heavy duty (larger diameter) rod installed. Note that 250 PSI rated Pacers are supplied with heavy duty rods for all depths from the factory.

- If extended depth of hydrant will exceed 11'-6" bury or 11'-0" cover, a "bottom extension" should be installed in place of a standpipe and rod extension.
- Contact Waterous Company for appropriate parts and guidance if any of the above situations exist.



Pacer - Extending Traffic Model

Note: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.

 Closing the water main valve when installing extensions is usually not necessary. Water pressure will keep the hydrant valve closed.

250 P.S.I.G. Rated Pacers (See Figure 2, Page 2B-37)

2a. At the nozzle section, remove bolts (6A), nuts (6C), and allow flange (62B) to slide down the upper standpipe. Depth plate and washer (61) will come off with bolts.

150 P.S.I.G. Rated Pacers (See Figure 3, Page 2B-37)

2b. At the nozzle section, remove bolts (6A), nuts (6C) and clamps (62) from underneath flange of the nozzle section (60). Depth plate and plain washer (61) will come off with bolts.

Note: If clamps (62) should stick underneath the flange of the nozzle section (60), it may be necessary to drive them out.

- Turn upper operating nut (17B) or weathershield nut (101) in the opening direction to separate the nozzle section (60) and the support (56). Remove the nozzle section, lifting upwards. Use proper handling techniques to avoid injury.
- Remove operating nut (17B or 17) from the nozzle section (60). (On hydrants with weathershield, it is necessary to drive out pin (102) and remove weathershield (101) before upper operating nut can be removed.)

Note: Bushing (89) is cemented in nozzle section (60). Removing it is not necessary unless it is damaged. If replacement is necessary, contact the Waterous Company.

- Unscrew lower operating nut (17A two- piece nuts, 17 - one-piece nut), and remove support tube (85).
- 6. Unscrew hex stop nut (86) from operating rod (28), and remove support (56).
- 7. Remove bolts (6B) and nuts (6C) and lift off upper standpipe (40). Discard gasket (92), bolts (6B) and nuts (6C). Note that on 250 PSI Pacers, flange (113) and (62B) will remain attached to the upper standpipe (40). On 150 PSI Pacers, flange (113) will remain attached. It is not necessary to remove these flanges. They may remain on the upper standpipe.
- 8. Disassemble breakable coupling. Unscrew nuts (87) and remove rod coupling halves (67) which join the upper rod (71) to the lower rod (72). Do not remove studs (88) unless they are damaged.

- 9. Install rod extension (74) on existing lower rod (72) using extension couplings (174). Slide coupling halves (174) onto studs in rod extension (74) and lower rod (72) and install nuts (87). Note: Be sure extension couplings are installed at the original ground line. Refer to Figure 5 on Page 2B-38.
- Install flanges (63) and lock rings (64) onto standpipe extension (45). Be sure to orient flanges properly. Refer to Figure 4 on Page 2B-38.
- 11. Install gasket (92) on existing standpipe with lip pointing down. Install standpipe extension (45) on existing standpipe. Install bolts (6D) and nuts (6C) thru flanges (63) and tighten finger tight. Make sure flanges (63) are seated properly on lock rings (64) and tighten all bolts and nuts evenly. Tighten to 60-70 lb- ft torque.
- 12. Install existing upper rod (71) onto rod extension (74) using breakable couplings (67). Slide coupling halves (67) onto studs in rod extension (74) and upper rod (71) and install nuts (87). Note: Be sure breakable couplings are installed at the new ground line. Refer to Figure 5 on Page 2B-38.
- 13. Install gasket (92) on standpipe extension (45) with lip pointing down. Install existing upper standpipe (40) on standpipe extension. Install bolts (6B) and nuts (6C) thru flanges (113) and (63) and tighten finger tight. Be sure flanges engage lock rings (64) properly and tighten all bolts and nuts evenly. Note that breakable flange (113) must be on on the bottom of the upper standpipe. Also, upper standpipe (40) must be installed properly with the groove 3/4 in. from the end at the top and the groove 3/8 in. from the end at the bottom. Refer to Figure 5 on Page 2B-38.
- 14. Grease O-ring and gasket grooves in support (56), and grease O-rings (59), gaskets (84) and lower tube seal (83). Tape threads of operating rod (71) to protect O-rings. Install support (56) onto operating rod (71), being careful not to damage O-rings on operating rod threads. Remove tape from threads.
- Install hex stop nut (86), turning it down to end of thread.
 Snug up with a torque of 30 lb-ft (30 lb at end of 12 in. wrench).
- Grease O-ring in upper end of support tube (85). Slide tube down over operating rod (71) until it is seated on support (56).
- 17. Grease threads of operating rod (71) and lower bearing surface of operating nut (17A or 17). Screw lower operating nut onto rod while centering support (56) on the standpipe. Tighten operating nut (17A or 17) to securely clamp support (56) against upper standpipe (40). Be sure support (56) is centered on upper standpipe (40).
- Grease and install thrust ring (90) and O-ring (57) in operating nut (17B or 17). If hydrant has a two- piece operating nut, set upper operating nut (17B) on lower operating nut (17A) and engage lugs in slots.

Pacer - Extending Traffic Model

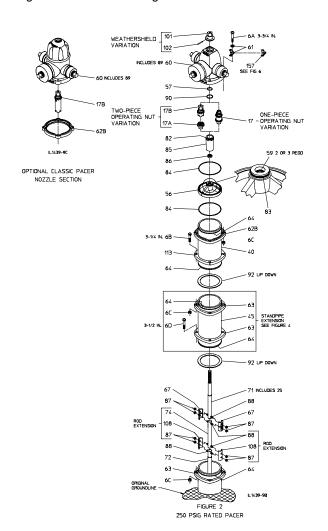
250 P.S.I.G. Rated Pacers (See Figure 2)

19a. Carefully lower nozzle section (60) over operating nut (17b or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install bolts (6A) and nuts (6C) through flange of nozzle section and flange (62B) and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Also install extension plate (157) opposite the bury depth plate (see Figure 6). Make sure flange (62B) is seated properly with lock ring (64) and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.

150 P.S.I.G. Rated Pacers (See Figure 3)

19b. Make sure lock ring (64) is properly installed in upper standpipe. Carefully lower nozzle section (60) over upper operating nut (17B or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install clamps (62), bolts (6A) and nuts (6C) in

Figure 2. Installation Diagram - 250 P.S.I.G. Rated Pacer

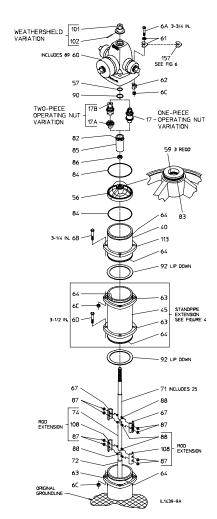


flange of nozzle section and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Also install extension plate (157) opposite the bury depth plate (see Figure 6). Make sure all clamps are seated properly up under flange, and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.

- 20. Back off operating nut slightly to release tension on operating rod. Since water pressure will hold valve up against seat, it is not necessary to turn operating nut to a dead stop if the valve and seat are in good condition.
- 21. Lubricate hydrant as shown in Figure 7 on Page 2B-38.

Note: When a supply of gaskets and Orings are available, always install new ones when reassembling the hydrant. Clean dirt from O-ring grooves.

Figure 3. Installation Diagram - 150 P.S.I.G. Rated Pacer —





Pacer - Extending Traffic Model

Figure 4. Standpipe Extension/Flange Orienta-

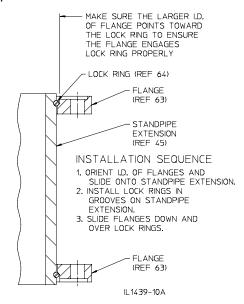


Figure 6. Extension Plate Installation

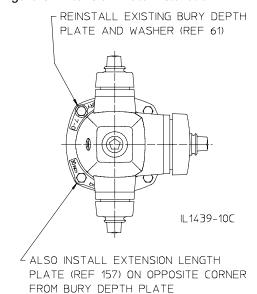
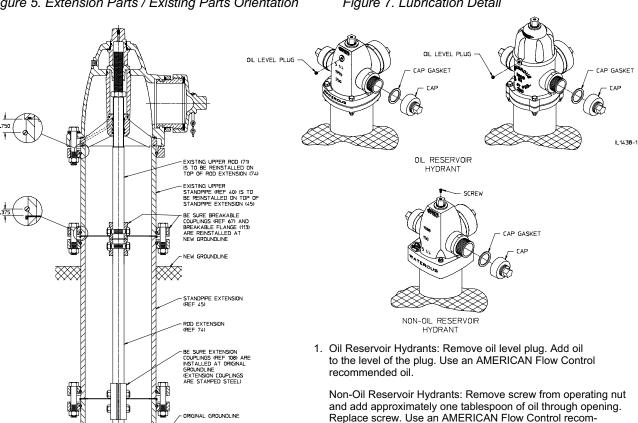


Figure 5. Extension Parts / Existing Parts Orientation

Figure 7. Lubrication Detail



mended oil.

2. Remove all nozzle caps, clean rust or corrosion from threads of nozzles and caps. Replace cap gaskets if necessary. Apply a light coat of grease to nozzle threads before replacing cap. Use an AMERICAN Flow Control recommended food grade grease.

(250 PSI PACER SHOWN)

EXISTING LOWER ROD AND STANDPIPE

IL1439-10B

PACER - EXTENDING NON-TRAFFIC MODEL

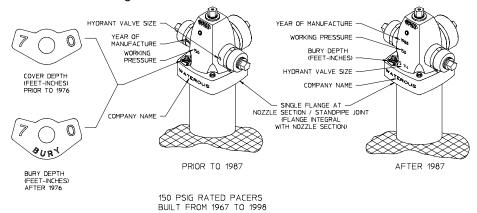
Introduction

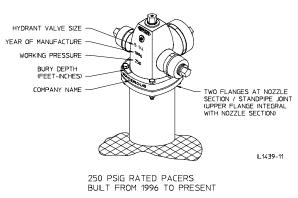
This instruction covers the installation of the standpipe and rod extension kit (K563) for Pacer non-Traffic models. Non-Traffic Pacer models are furnished in two main variations:

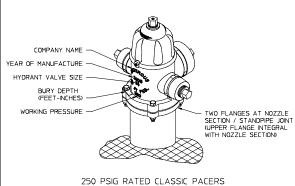
- 150 p.s.i.g. rated working pressure models W67
- 250 p.s.i.g. rated working pressure models W67-250

The extension kit installation is identical for both variations; however, the disassembly and reassembly varies slightly. Refer to the identification diagram below to identify which variation of Pacer hydrant you have.

Figure 1. Identification Diagram







BUILT FROM 2009 TO PRESENT

Important Notes

- Waterous recommends a new rod corresponding to the extended bury or cover depth be installed in place of a rod extension if the hydrants meet one or more of the following criteria:
 - a. The length of the rod extension required exceeds 4'-0".
 - The hydrant has already been extended. Only one rod extension per hydrant is recommended.
 - c. 150 P.S.I.G rated Pacers only:

The depth of the extended hydrant will exceed 9'-0" bury or 8'-6" cover. Depths of 9'-6" thru 11'-6" bury and 9'-0" thru 11'-0" cover should have a heavy duty (larger diameter) rod installed. Note that 250 p.s.i.g. rated Pacers are supplied with heavy duty rods for all depths from the factory.

- If extended depth of hydrant will exceed 11'-6" bury or 11'-0" cover, a "bottom extension" should be installed in place of a standpipe and rod extension.
- Contact Waterous Company for appropriate parts and guidance if any of the above situations exist.



Pacer - Extending Non-Traffic Model

Note: Where grease is specified, use an AMERICAN Flow Control recommended food grade grease.

 Closing the water main valve when installing extensions is usually not necessary. Water pressure will keep the hydrant valve closed.

250 P.S.I.G. Rated Pacers (See Figure 2, Page 2B-41)

2a. At the nozzle section, remove bolts (6A), nuts (6C), and allow flange (62B) to slide down the standpipe. Depth plate and washer (61) will come off with bolts.

150 P.S.I.G. Rated Pacers (See Figure 3, Page 2B-41)

2b. At the nozzle section, remove bolts (6A), nuts (6C) and clamps (62) from underneath flange of the nozzle section (60). Depth plate and plain washer (61) will come off with bolts.

Note: If clamps (62) should stick underneath the flange of the nozzle section (60), it may be necessary to drive them out

- Remove operating nut (17B or 17) from the nozzle section (60). (On hydrants with weathershield, it is necessary to drive out pin (102) and remove weathershield (101) before upper operating nut can be removed.)

Note: Bushing (89) is cemented in nozzle section (60). Removing it is not necessary unless it is damaged. If replacement is necessary, contact the Waterous Company.

- 5. Unscrew lower operating nut (17A tow piece nuts, 17 one-piece nut), and remove support tube (85).
- 6. Unscrew hex stop nut (86) from operating rod (28), and remove support (56).

250 P.S.I.G. Rated Pacers (See Figure 2, Page 2B-41)

7a. Remove lock ring (64) from existing standpipe (29) and slide off flange (62B). Install new flange (63) on existing standpipe (29) and re-install lock ring (64). Retain flange (62B) for installation to standpipe extension (45) in step 9a. Refer to Figure 5 for proper flange operation.

150 P.S.I.G. Rated Pacers (See Figure 3, Page 2B-41)

- 7b. Remove lock ring (64) from original standpipe (29) and install new flange (63). Re-install lock ring (64). Refer to Figure 6 for proper flange orientation.
- Install rod extension (75) on existing rod (28): Mark threads on existing rod 1-3/4 inch from the end and thread extension (75) down to that mark. Tighten set screws (76) securely. Refer to Figure 4 on Page 2B-42.

250 P.S.I.G Rated Pacers (See Figure 2, Page 2B-41)

9a. Install flange (62B) on the top of standpipe extension (45) and flange (63) on the bottom of standpipe extension (45). Install lock rings (64) in grooves. Refer to Figure 5 for proper flange orientation. Note that flange 62B has four raised protrusions on one side, flange (63) is flat on both sides.

150 P.S.I.G. Rated Pacers (See Figure 3, Page 2B-41)

- 9b. Install flange (63) on the bottom of standpipe extension (45). Install lock rings (64) in grooves. Refer to Figure 6 for proper flange orientation.
- 10. Install gasket (92) on existing standpipe with lip pointing down. Install standpipe extension (45) on existing standpipe (29). Install bolts (6D) and nuts (6C) thru flanges (63) and tighten finger tight. Make sure flanges engage lock rings properly and tighten bolts and nuts evenly. Refer to Figure 5 for 250 P.S.I.G. Pacers and Figure 6 for 150 P.S.I.G. Pacers for orientation of standpipe extension.
- 11. Grease O-ring and gasket grooves in support (56), and install O-rings (59), gaskets (84) and lower tube seal (83). Tape threads of operating rod (28) to protect O-rings. Install support (56) onto operating rod (28), being careful not to damage O-rings on operating rod threads. Remove tape from threads.
- 12. Install hex stop nut (86), turning it down to end of thread. Snug up with a torque of 30 lb-ft (30 lb at end of 12 in. wrench).
- 13. Grease O-ring in upper end of support tube (85). Slide tube down over operating rod (28) until it is seated on support (56).
- 14. Grease threads of operating rod (28) and lower bearing surface of operating nut (17A or 17). Screw lower operating nut onto rod while centering support (56) on the standpipe. Tighten operating nut (17A or 17) to securely clamp support (56) against standpipe extension (45). Be sure support (56) is centered on standpipe extension (45).
- 15. Grease and install thrust ring (90) and O-ring (57) in operating nut (17B or 17). If hydrant has a two-piece operating nut, set upper operating nut (17B) on lower operating nut (17A) and engage lugs in slots.

Pacer - Extending Non-Traffic Model

250 P.S.I.G. Rated Pacers (See Figure 2)

16a. Carefully lower nozzle section (60) over operating nut (17B or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install bolts (6A) and nuts (6C) through flange of nozzle section and flange (62B) and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Also install extension plate (157) opposite the bury depth plate (see Figure 7 on Page 2B-42). Make sure flange (62B) is seated properly with lock ring (64), and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.

150 P.S.I.G. Rated Pacers (See Figure 3)

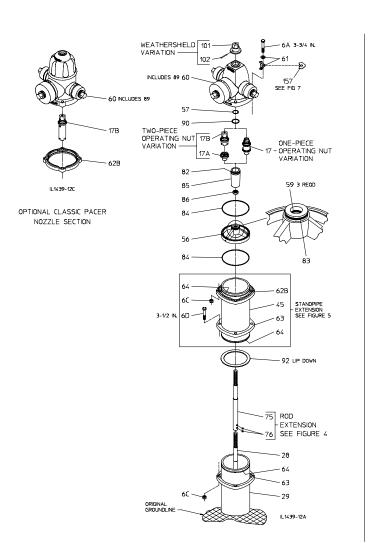
16b. Make sure lock ring (64) is properly installed in standpipe (29). Carefully lower nozzle section (60) over upper operating nut (17B or 17) until it seats on support (56). Rotate nozzle section (60) to desired position. Install clamps (62), bolts (6A) and nuts (6C) in flange of nozzle section and tighten finger tight. Be sure to install depth plate and washers (61) in proper position. Also install extension plate (174) opposite the bury depth plate (see Figure 7 on Page 2B-42). Make sure all clamps are seated properly up under flange, and tighten all bolts and nuts evenly. Tighten to 60-70 lb-ft of torque.

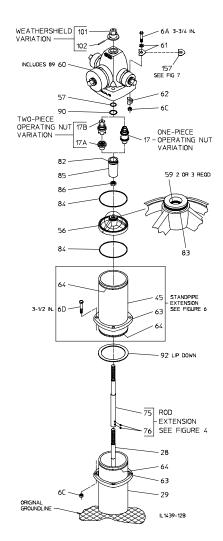
- 17. Back off operating nut slightly to release tension on operating rod. Since water pressure will hold valve up against seat, it is not necessary to turn operating nut to a dead stop if the valve and seat are in good condition.
- 18. Lubricate hydrant as shown in Figure 8 on Page 2B-42.

Note: When a supply of gaskets and O - rings are available, always install new ones when reassembling the hydrant. Clean dirt from O-ring grooves.

Figure 2. Installation Diagram - 250 P.S.I.G. Rated Pacer

Figure 3. Installation Diagram - 150 P.S.I.G. Rated Pacer

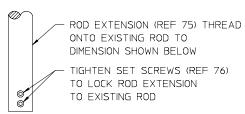




â

Pacer - Extending Non-Traffic Model

Figure 4. Rod Extension Installation



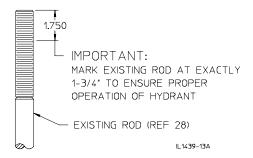


Figure 6. Standpipe / Flange Orientation (150 P.S.I.G.)

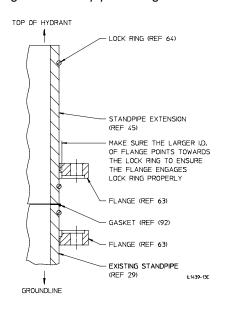


Figure 5. Standpipe / Flange Orientation (250 P.S.I.G.)

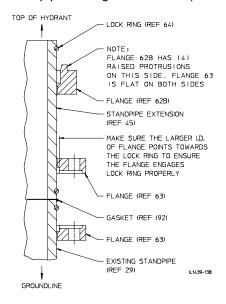


Figure 7. Extension Plate Installation

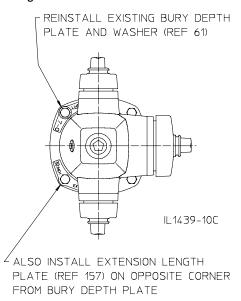
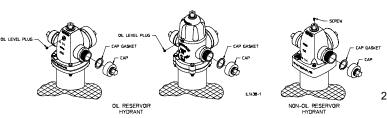


Figure 8. Lubrication Details



- Oil Reservoir Hydrants: Remove oil level plug. Add oil to the level of the plug. Use an AMERICAN Flow Control recommended oil.
 - Non-Oil Reservoir Hydrants: Remove screw from operating nut and add approximately one tablespoon of oil through opening. Replace screw. Use an AMERICAN Flow Control recommended oil.
- Remove all nozzle caps, clean rust or corrosion from threads of nozzles and caps. Replace cap gaskets if necessary. Apply a light coat of grease to nozzle threads before replacing cap. Use an AMERICAN Flow Control recommended food grade grease.