

OPERATION AND MAINTENANCE MANUAL

SEQUOIA™ WET BARREL FIRE HYDRANT



AMERICAN

FLOW CONTROL

THE RIGHT WAY



INDEX

SEQUOIA™ WET BARREL FIRE HYDRANT

	Page
INTRODUCTION AND HISTORY	2C-2
ORDERING	
Dimensions:	
Overall Hydrant.....	2C-3
Friction Loss.....	2C-4
Submittal Sheet.....	2C-5
INSTALLATION AND TESTING	
Installation.....	2C-6
Testing.....	2C-7, 2C-8, 2C-9
OPERATION AND MAINTENANCE	
Operation and Maintenance.....	2C-10, 2C-11
Troubleshooting Guide.....	2C-12
REPAIRS	
Parts List.....	2C-13, 2C-14, 2C-15, 2C-16
Field Disassembly Instructions.....	2C-17, 2C-18, 2C-19, 2C-20
Field Assembly Instructions.....	2C-21, 2C-22, 2C-23, 2C-24, 2C-25
SPECIFICATIONS	2C-26



SEQUOIA™ WET BARREL FIRE HYDRANT

The **SEQUOIA™** fire hydrant, by **AMERICAN Flow Control®** incorporates more than a century of experience in design, manufacture and field experience from the iconic American-Darling and Waterous brands. This means dependable and efficient operation when needed.

The **SEQUOIA** hydrant is rated at 350 psig and is tested at 700 psig. This hydrant meets or exceeds all requirements of ANSI/AWWA C503 for wet-barrel hydrants.

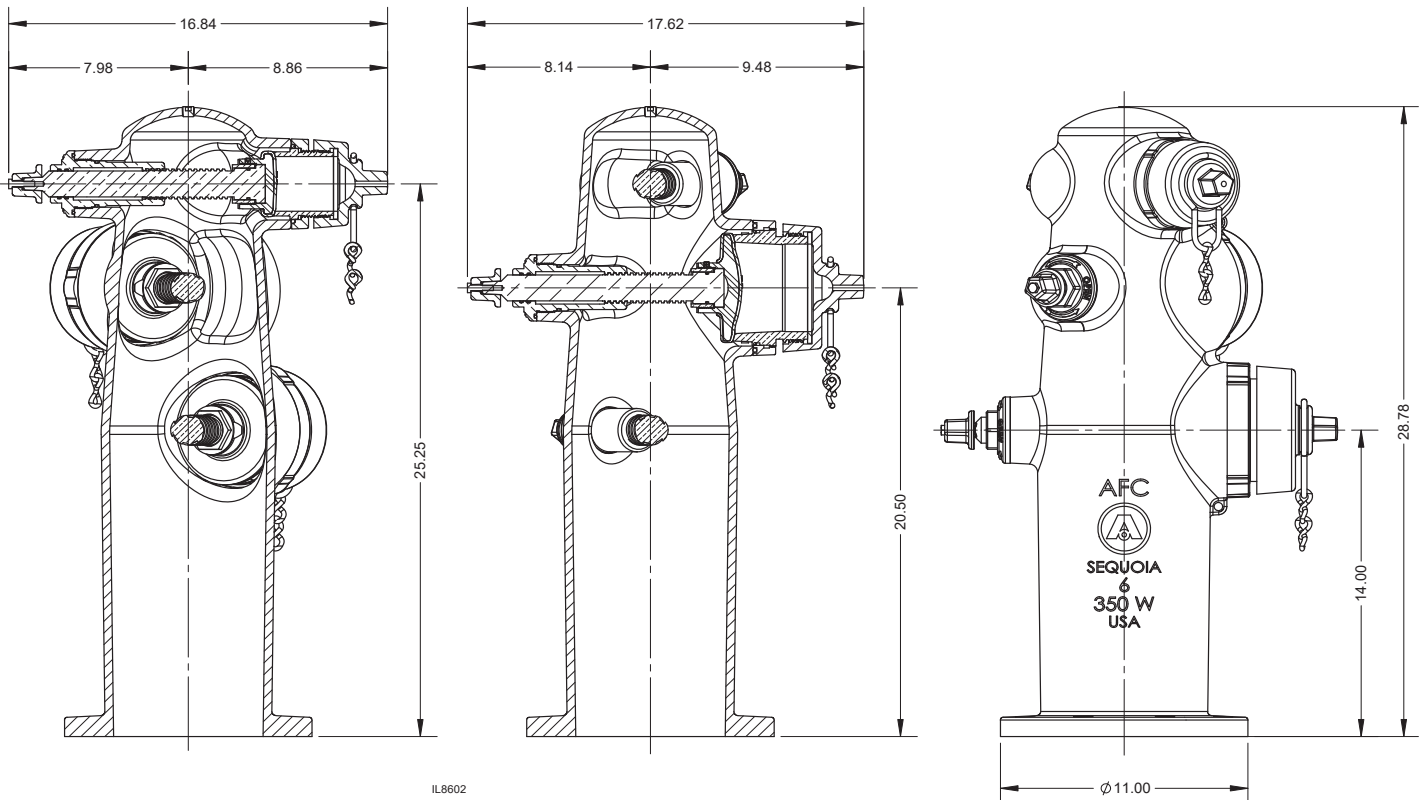
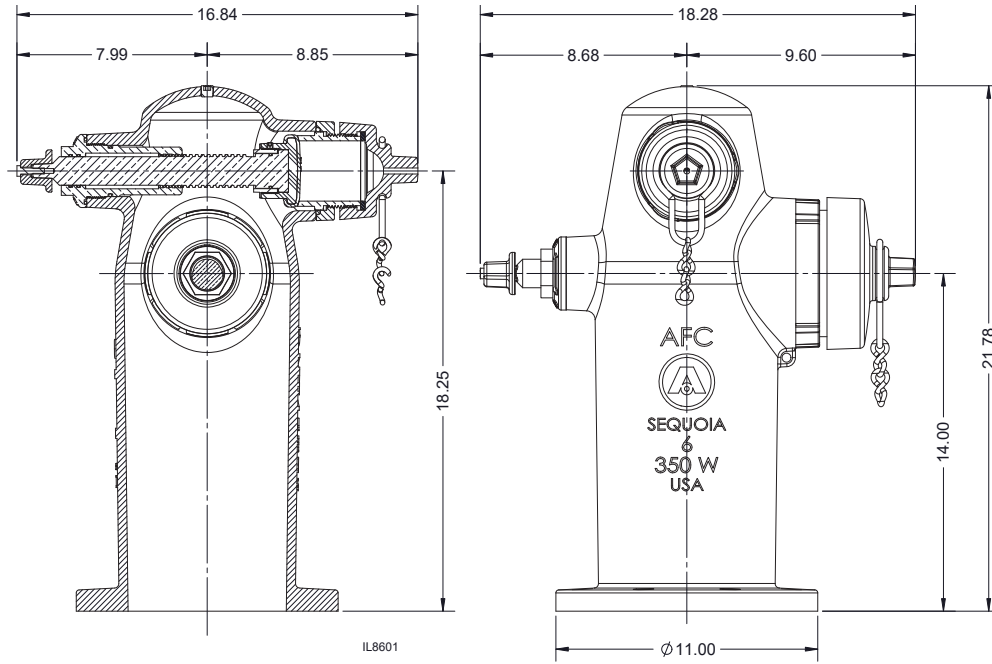
SEQUOIA is manufactured with the features you expect from a high-quality fire hydrant. The exclusive nozzle retention design ensures the hydrant is easily repaired by just one person in the event of damage to the nozzles.

The **SEQUOIA** fire hydrant is Certified to NSF Standard 61 and NSF Standard 372, which exhibit compliance with U.S Safe Drinking Water Act.

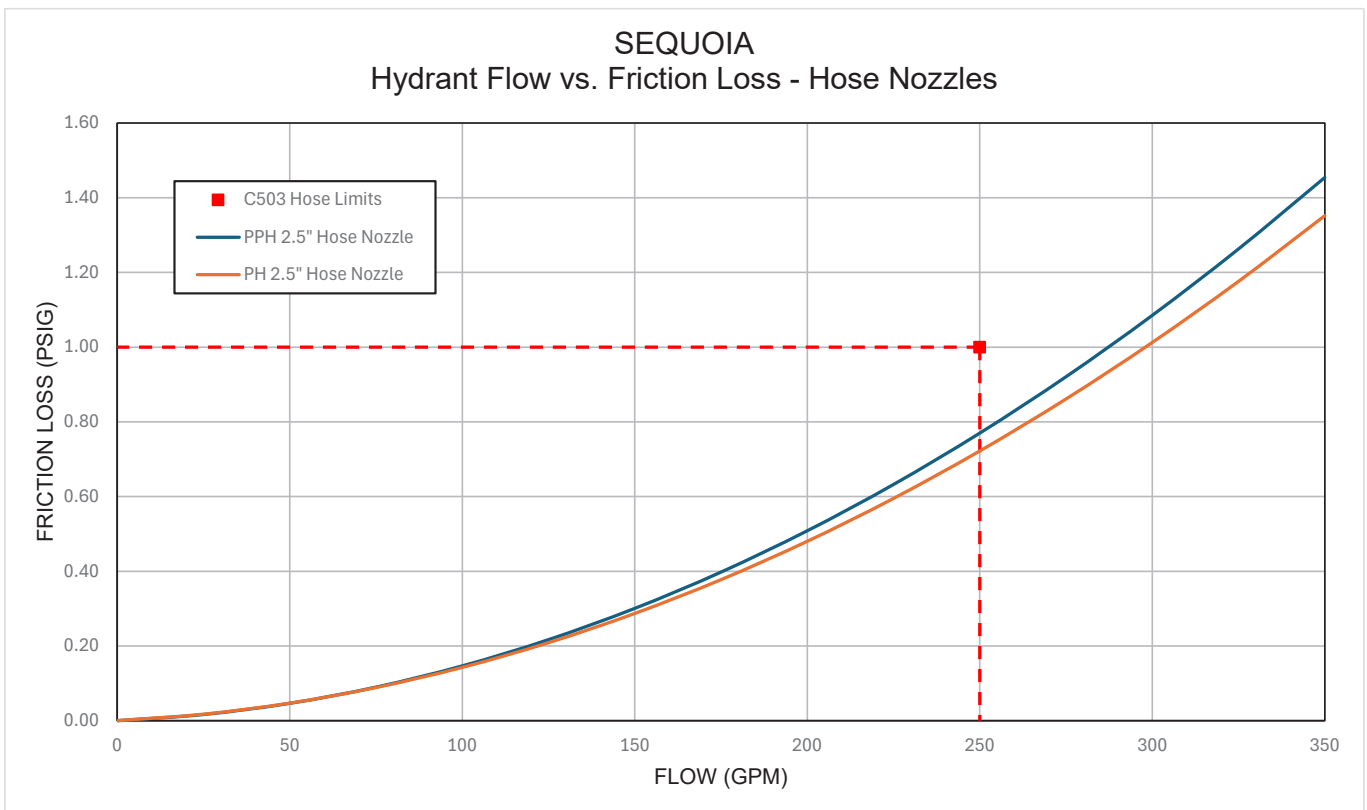
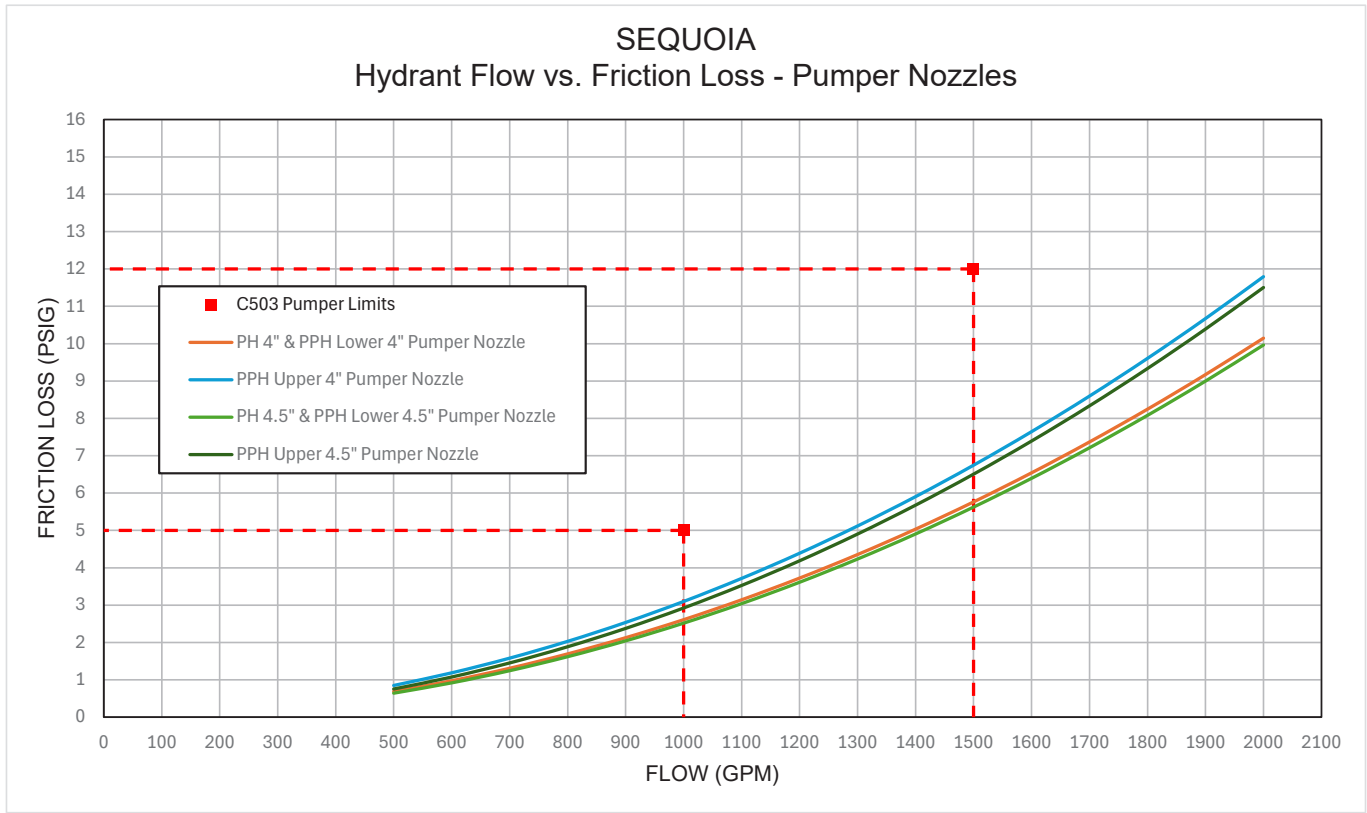
UL-FM

The **SEQUOIA** hydrant is UL Listed and FM Approved. Both UL and FM Approvals require that we consistently manufacture and test our hydrants in full compliance with their stringent standards. Our facilities are subject to periodic inspections to ensure we are in compliance with their standards.

SEQUOIA™ DIMENSIONS



SEQUOIA™ FRICTION LOSS CURVE



AMERICAN Flow Control®
SEQUOIA™ FIRE HYDRANT
 SUBMITTAL SHEET



City Specification: _____ Quantity: _____		
Direction to Open: <input type="checkbox"/> Left (C.C.W.)		
Operating Nut Size: _____ Shape _____ Waterous No. (If Known) _____		
Nozzles		
Configuration: (Check One)	Pumper Nozzle:	Hose Nozzle:
<input type="checkbox"/> One Hose, One Pumper (2-Way) <input type="checkbox"/> One Hose, Two Pumper (3-Way) <input type="checkbox"/> Two Hose, One Pumper (3-Way)	<input type="checkbox"/> 4 in.National Standard <input type="checkbox"/> 4.5 in.National Standard	<input type="checkbox"/> 2.5 in. National Standard
Flange Machining Option: (Check One)		
<input type="checkbox"/> ANSI Eight-Bolt <input type="checkbox"/> AWWA C503 Six-Bolt <input type="checkbox"/> San Diego Six-Bolt		
Paint Color: _____		
Other Requirements: (List)		

NOTES:

1. Available in configurations that meet or exceed the requirements of ANSI/AWWA C503 with 350 psig rated working pressure.
2. UL Listed and FM Approved with 350 psig rated working pressure.
3. Certified to NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372.

SEQUOIA™ INSTALLATION INSTRUCTIONS



This instruction is issued as a recommendation to the customer for the proper use of the AMERICAN Flow Control® (AFC) SEQUOIA™ wet-barrel fire hydrant. AFC recommends following the general inspection and installation guidelines outlined in AWWA Manual M17 for installation, field testing, and maintenance of fire hydrants in combination with the recommendations below.

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Receiving Inspection

On receipt, inspect for any damage that may have resulted from shipping. Report any problems to the carrier, note on bill of lading and have the driver sign recipient's copy. NOTE: All water lines related to the installation of the hydrant should be isolated, free from any pressure, and drained prior to installation.

Installation

1. When hydrants are received, they should be handled carefully to avoid damage. Keep hydrants closed until they are installed. Caps should remain installed on nozzles to protect valve disc rubber from UV damage. Protect stored hydrants from the elements.
2. **Before installation of the hydrant, clean flanges, valve discs, and valve seats of any rocks, sand and/or foreign material. Pressure relief holes in the hydrant caps should be inspected for blockage to prevent dangerous pressure build up between closed valves and caps. Check to make sure all bolts are tight, and all nozzles are properly installed.**
3. Hydrants shall be located as shown or as directed to provide complete accessibility. Also consider the possibility of damage from vehicles and equipment or injury to pedestrians. 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 have outlets oriented as shown or as directed by the engineer. Hydrants shall be set with the body flange 2 in. above the established grade to allow access to flange bolting and free swing of hydrant wrenches in operation.
5. It is recommended practice that an AMERICAN Flow Control® SEQUOIA™ Check Valve be installed below the hydrant to reduce water loss and help prevent damage in the event of a traffic impact. If a traffic break check valve is installed, the top of the check valve should be set 4 to 6 inches above the established grade.
6. As recommended in AWWA M17, install an auxiliary or secondary gate valve in the lateral between the hydrant and the main to permit inspection or repair of the hydrant without shutting down mains. The use of AMERICAN Flow Control® Series 2500 Resilient Wedge Gate Valves is recommended.
7. Restrain hydrant lead and lower bury ell as necessary.
8. Carefully position flange gasket between hydrant and vertical inlet lead. Bolt hydrant to the vertical inlet lead in accordance with gasket manufacturer recommendations.
9. When first installed, each hydrant valve should be operated from the fully closed to fully open position and back to ensure proper valve movement. Full valve travel will be 12-14 turns nominally.
10. Once installed, the SEQUOIA™ hydrant should be hydrostatically tested and flushed. See following sections.



AFC recommends following the general inspection and installation guidelines outlined in AWWA Manual M17 for installation, field testing, and maintenance of fire hydrants in combination with the recommendations below. The auxiliary valve should be closed during water main tests (see ANSI/AWWA C600).

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Pressure Test at Main Pressure

1. Ensure that the auxiliary shut-off gate valve and all hydrant valves are closed. Do not over-torque valves.
2. Inspect all hydrant caps to ensure that the pressure relief hole is clear of debris or paint to prevent the possibility of pressure buildup between closed valves and caps.
3. Remove cap from the upper-most valve on hydrant body.
4. Open auxiliary shut-off gate valve.
5. Open upper-most valve 3-4 turns or until flow is heard.
6. Close the upper-most valve once steady flow out of nozzle is seen.
7. The hydrant is now at full main pressure.
8. Check for leakage at all joints and outlets.
9. If necessary, safely repair hydrant using the instructions found in this manual.
10. Repeat the test until the results are satisfactory.
11. At test conclusion, fully close the hydrant valves, replace nozzle caps, and ensure auxiliary shut-off gate valve is fully open.



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Pressure Test at Pressures Above Main Pressure

1. Ensure that the auxiliary shut-off gate valve and all hydrant valves are closed. Do not over-torque valves.
2. Inspect all hydrant caps to ensure that the pressure relief hole is clear of debris or paint to prevent the possibility of pressure buildup between closed valves and caps.
3. Connect a pressure test pump to one of the lower hydrant outlets and open the respective valve.
4. Remove cap from the upper-most valve on hydrant body.
5. Open auxiliary shut-off gate valve.
6. Open upper-most valve 3-4 turns or until flow is heard.
7. Close the upper-most valve once steady flow out of nozzle is seen.
8. Close the auxiliary valve.
9. Safely pump up to the test pressure but do not exceed the rated working pressure of the hydrant or system components.
10. Check for leakage at all joints and outlets.
11. Safely repair hydrant, if necessary, using the instructions found in this manual.
12. Repeat the test until the results are satisfactory.
13. At test conclusion, relieve test pump pressure.
14. At test conclusion, fully close the hydrant valves, replace nozzle caps, and ensure auxiliary shut-off gate valve is fully open.



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Placing a Hydrant in Service

1. After testing and backfilling, the hydrant should be safely flushed and tested to be sure that it is bacteriologically safe before it is put into service.
2. Close all outlet valves. Ensure that auxiliary shut-off gate valve is fully open.
3. Inspect all hydrant caps to ensure that the pressure relief hole is clear of debris or paint to prevent the possibility of pressure buildup between closed valves and caps.
4. 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.



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Operation

AFC recommends following the general inspection and installation guidelines outlined in AWWA Manual M17 for installation, field Testing, and maintenance of fire hydrants in combination with the recommendations below.

1. Check the direction of opening as marked on the stuffing box.
2. Make sure all hydrant valves are in the closed position.
3. Inspect all hydrant caps to ensure that the pressure relief hole is clear of debris or paint to prevent the possibility of pressure buildup between closed valves and caps.
4. Remove cap from valve outlet to be operated.
5. Slowly and consistently open valve 12-14 turns.

NOTES:

- Always operate the hydrant fully open. The hydrant valve is not intended for throttling.
 - The stuffing box limits the open position. Do not force the hydrant beyond fully open as indicated by sudden resistance to turning.
6. To close, turn the valve until the flow is stopped. It is not necessary to close the hydrant valve with great force. The valve will be assisted by mains pressure in sealing. If the hydrant does not shut off completely, do not attempt to force the hydrant to close. See Troubleshooting.



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Inspection

1. It is recommended that hydrants be inspected twice per year to ensure satisfactory operation.
2. Routine inspection should cover the points outlined in AWWA Manual M17 and include (but not be limited to) the following points:
 1. External inspection of hydrant, check valve, and any attached accessories for damage, corrosion, paint condition, etc.
 2. Inspecting valves for leakage.
 3. Inspect all hydrant caps to ensure that the pressure relief hole is clear of debris or paint to prevent the possibility of pressure buildup between closed valves and caps.
 4. Look for leakage at connections.
 5. Cycling the hydrant from full open to full close. (See operation)
 6. Verifying that the traffic break check valve does not close under hydrant flow.
 7. Ensuring hydrant and attached accessories are properly lubricated.
3. At the time of inspection, flush the hydrant to remove any foreign material from the system.

Maintenance

AFC strongly recommends that following 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 maintenance practices. Valve operating components of wet barrel hydrants are in constant contact with the water system and routine exercising is key to ensuring smooth and reliable operation valves over the life of the hydrant. Dirt, gravel, and other foreign material in the hydrant may prevent it from closing or operating smoothly. This can also result in damage to the valve rubber. Under most operating conditions, AFC recommends semi-annual lubrication and inspection of fire hydrants.

Note: Where grease is specified, use AFC recommended wet-barrel hydrant grease. USE OF A NON-AFC RECOMMENDED GREASE MAY NOT BE COMPATIBLE WITH EPDM SEALS AND AFFECT HYDRANT PERFORMANCE AND LONGEVITY.

1. Twice per year, open the hydrant completely and flush for several minutes. Open and close all hydrant valves to ensure proper operation and check for leaks.
2. Ensure proper lubrication of the operating mechanism.
3. If hydrant fails to operate properly and smoothly, see the troubleshooting guide.

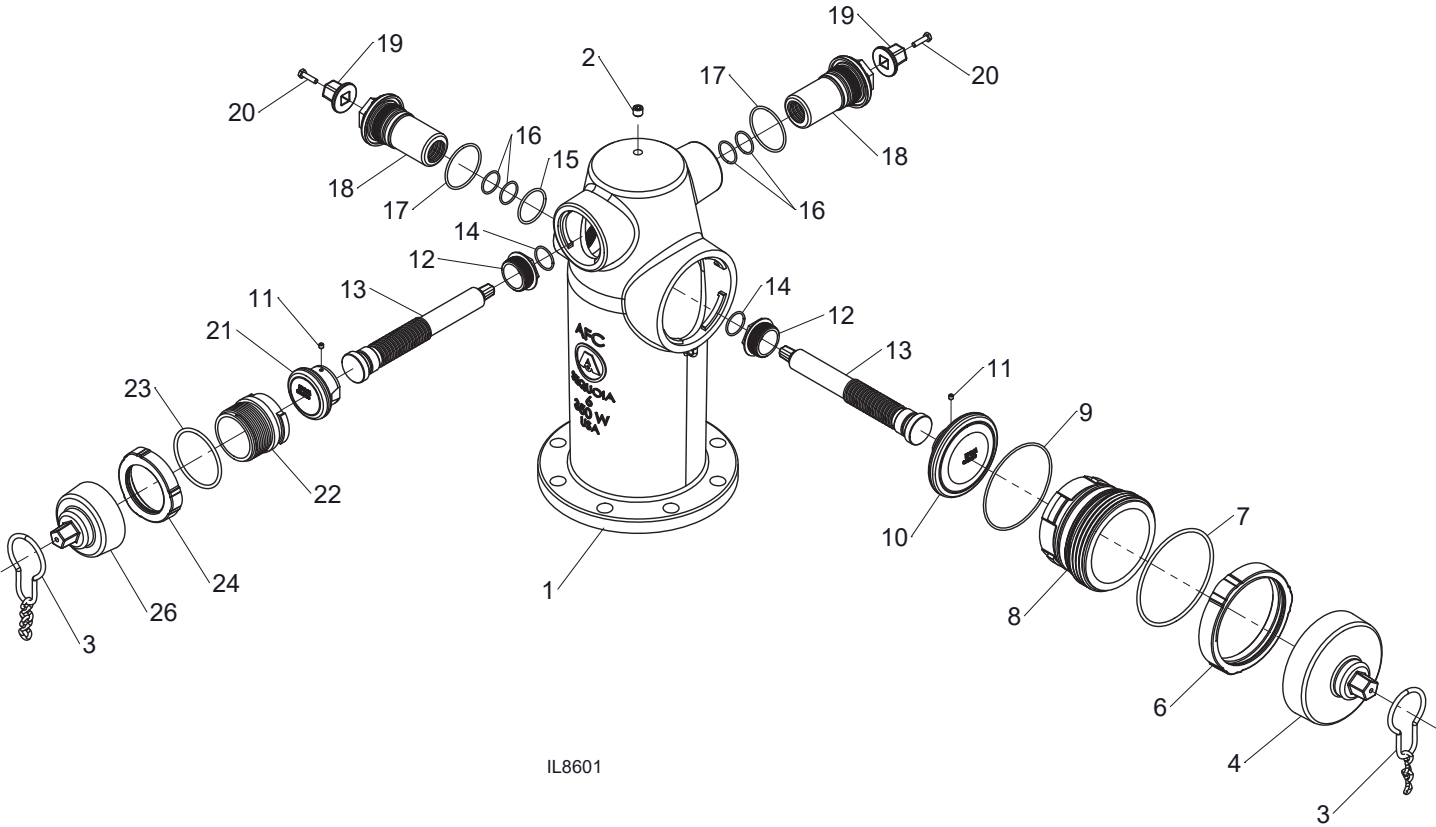
SEQUOIA™ TROUBLESHOOTING GUIDE



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Problem	Solutions
Hydrant valve does not shut off completely.	<ol style="list-style-type: none"> 1. Debris may be trapped in the valve seat preventing the hydrant from fully closing. With a cap removed, partially open and close the hydrant several times to dislodge the debris. 2. Flush leaking valve in fully open position. 3. Safely disassemble, inspect, clean, and repair the hydrant valve using the instructions found in this manual.
Ground around hydrant is highly saturated.	<ol style="list-style-type: none"> 1. Inspect valves, external seals, and above-ground connections for leakage or signs of leakage. If a valve(s) is leaking, follow steps 1-3 above. 2. If seals other than valve(s) are leaking, inspect and repair the seal using the instructions found in this manual. 3. The lower bury ell connection to the main may be leaking. This will require excavation of the hydrant bury section.
No flow through hydrant with traffic break check valve installed.	<ol style="list-style-type: none"> 1. Check that hydrant isolation valve is open. 2. Close the hydrant isolation valve. Check valve activation lever may have come free, allowing check valve to close. Follow check valves installation and inspection instructions to remove hydrant and inspect check valve for unintended closure.
Valve is extremely hard to turn.	<ol style="list-style-type: none"> 1. Close the hydrant isolation valve. Safely disassemble the hydrant and add AFC approved grease to valve mechanism. 2. Inspect, clean, and repair the hydrant internals using the instructions found in this publication.

SEQUOIA™ PARTS LIST
2-Way Configuration



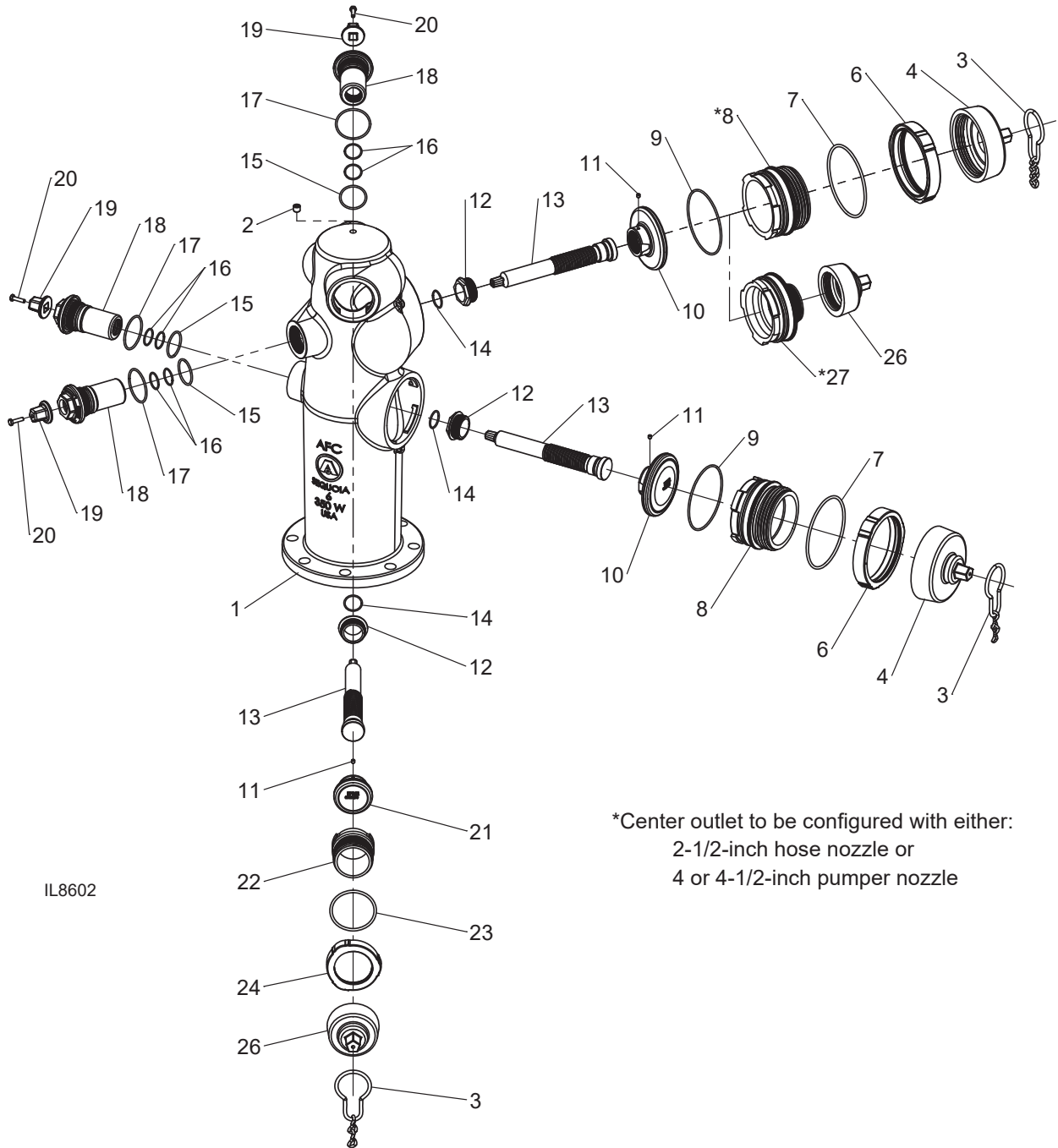
IL8601



REF No.	QTY.	DESCRIPTION	MATERIAL
1	1	Barrel	Ductile Iron, ASTM A536 Grade 65-45-12, Interior Surfaces Epoxy Coated, ANSI/AWWA C550
2	1	Headless Pipe Plug, 1/4 NPT	Stainless Steel, Type 316
3	2	Nozzle Cap Chain	Zinc Plated Steel
4	1	Nozzle Cap, Pumper	Ductile Iron, ASTM A536 Grade 65-45-12
6	1	Pumper Nozzle Retainer	Ductile Iron, ASTM A536 Grade 65-45-12
7	1	O-ring (Pumper Nozzle)	EPDM
8	1	Nozzle, Pumper	Bronze, ASTM B584, UNS C87600
9	1	O-ring (Pumper Nozzle)	EPDM
10	1	Pumper Valve Disc Rubber	EPDM Rubber Encapsulated Bronze, ASTM B584, UNS C87600
11	2	Hex Socket Set Screw, 1/4-20 x 1/4"	Stainless Steel, Type 316
12	2	Valve Disc Retaining Nut	Bronze, ASTM B584, UNS C87600
13	2	Valve Stem	Bronze, ASTM B584, UNS C87600
14	2	O-ring (Valve Disc Retaining Nut)	EPDM
15	2	O-ring (Stuffing Box)	EPDM
16	4	O-ring (Stuffing Box)	EPDM
17	2	O-ring (Stuffing Box)	EPDM
18	2	Stuffing Box	Bronze, ASTM B584, UNS C87600
19	2	Stem Nut	Ductile Iron, ASTM A536 Grade 65-45-12
20	2	Hex Head Bolt, 1/4-20 x 1"	Stainless Steel, Type 316
21	1	Hose Valve Disc Rubber	EPDM Rubber Encapsulated Bronze, ASTM B584, UNS C87600
22	2	Nozzle, Hose	Brass, ASTM B505, UNS C83600
23	1	O-ring (Hose Nozzle)	EPDM
24	1	Hose Nozzle Retainer	Ductile Iron, ASTM A536 Grade 65-45-12
26	1	Nozzle Cap, Hose	Ductile Iron, ASTM A536 Grade 65-45-12

SEQUOIA™ PARTS LIST

3-Way Configuration



*Center outlet to be configured with either:
 2-1/2-inch hose nozzle or
 4 or 4-1/2-inch pumper nozzle



REF No.	QTY.	DESCRIPTION	MATERIAL
1	1	Barrel	Ductile Iron, ASTM A536 Grade 65-45-12, Interior Surfaces Epoxy Coated, ANSI/AWWA C550
2	1	Headless Pipe Plug, 1/4 NPT	Stainless Steel, Type 316
3	3	Nozzle Cap Chain	Zinc Plated Steel
4	2*	Nozzle Cap, Pumper	Ductile Iron, ASTM A536 Grade 65-45-12
6	2	Pumper Nozzle Retainer	Ductile Iron, ASTM A536 Grade 65-45-12
7	2	O-ring (Pumper Nozzle)	EPDM
8	2*	Nozzle, Pumper	Bronze, ASTM B584, UNS C87600
9	2	O-ring (Pumper Nozzle)	EPDM
10	2	Pumper Valve Disc Rubber	EPDM Rubber Encapsulated Bronze, ASTM B584, UNS C87600
11	3	Hex Socket Set Screw, 1/4-20 x 1/4"	Stainless Steel, Type 316
12	3	Valve Disc Retaining Nut	Bronze, ASTM B584, UNS C87600
13	3	Valve Stem	Bronze, ASTM B584, UNS C87600
14	3	O-ring (Valve Disc Retaining Nut)	EPDM
15	3	O-ring (Stuffing Box)	EPDM
16	6	O-ring (Stuffing Box)	EPDM
17	3	O-ring (Stuffing Box)	EPDM
18	3	Stuffing Box	Bronze, ASTM B584, UNS C87600
19	3	Stem Nut	Ductile Iron, ASTM A536 Grade 65-45-12
20	2	Hex Head Bolt, 1/4-20 x 1"	Stainless Steel, Type 316
21	1	Hose Valve Disc Rubber	EPDM Rubber Encapsulated Bronze, ASTM B584, UNS C87600
22	2	Nozzle, Hose	Brass, ASTM B505, UNS C83600
23	1	O-ring (Hose Nozzle)	EPDM
24	1	Hose Nozzle Retainer	Ductile Iron, ASTM A536 Grade 65-45-12
26	1*	Nozzle Cap, Hose	Ductile Iron, ASTM A536 Grade 65-45-12
27*	1*	Nozzle, Pumper to Hose	Bronze, ASTM B584, UNS C87600



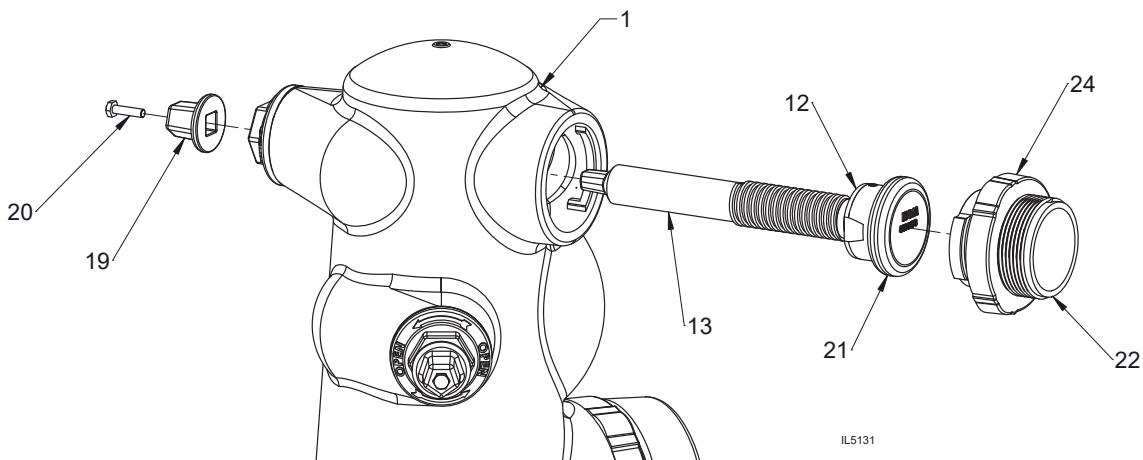
WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Preparation

1. Close the isolation valve to the hydrant.
2. Remove a nozzle cap (4 or 26) and while standing behind the hydrant, crack the valve open to release pressure.
WARNING: If hydrant continues to flow, STOP, and check that hydrant isolation valve is fully closed and operational.

Disassembly: Removal of Nozzles and Valve Assemblies

1. Remove nozzle cap (4 or 26).
2. Open valve to be disassembled 3-4 turns.
3. Using the correct AFC nozzle retainer wrench, loosen the nozzle retainer (6 or 24) far enough to remove the nozzle (8, 22, or 27) with a quarter-turn.
4. Remove the stem nut bolt (20) using a 7/16 combination wrench or socket.
5. Using a hydrant wrench, turn the valve in the closing direction. The stem nut (19) will be forced off the end of the valve stem (13) as it contacts the stuffing box (18).
6. Once the stem nut (19) comes loose, an adjustable crescent wrench or channel-lock pliers may be used on the square end of the valve stem (13) to continue turning the valve in the closing direction until it unthreads from the stuffing box (2-3 turns).
7. Remove the valve assembly through the nozzle boss, being careful not to drop the assembly into the hydrant body.





WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

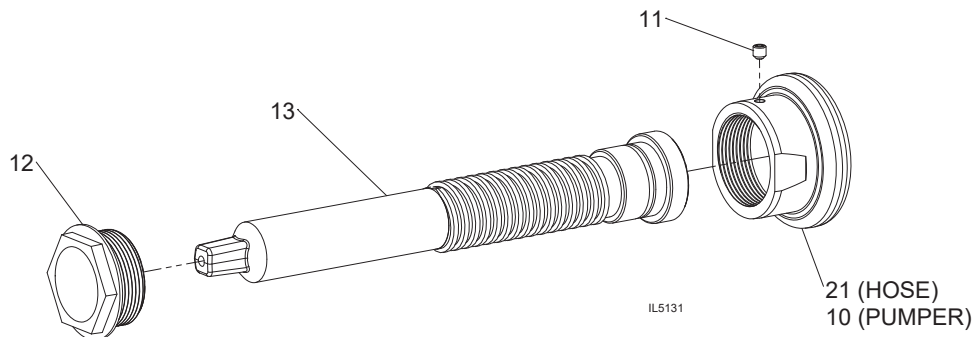
Disassembly: Valve Assembly

1. Follow the instructions to remove valve assembly.
2. Loosen the set screw (11) in the pumper/hose valve disc (10 or 21).
3. Using two channel lock pliers, use the flats on the pumper/hose valve disc (10, 21) and the hex on the valve disc retaining nut (12) to unthread the pumper/hose valve disc.
 - a. **DO NOT USE A PIPE WRENCH ON THE VALVE DISC RETAINING NUT HEX OR ON THE RUBBER ON THE VALVE DISC.** Doing so may damage the valve components.
 - b. **DO NOT CLAMP DIRECTLY ON MACHINED SURFACES OF VALVE STEM.** It may be helpful to clamp the stem into a vice to hold the assembly in place during this step. However, a rag, piece of rubber, or other cushioning should be placed between the stem and the vice jaws to prevent damage to the threads and sealing surfaces. Damage to the threads and sealing surfaces may prevent smooth operation and proper sealing upon reassembly.
4. The pumper/hose valve disc (10 or 21) and valve disc retaining nut (12) can then be removed from the valve stem (13).
5. The friction o-ring (14) may be removed if damaged.

Points of Inspection

The following points should be inspected at this time:

1. The machined sealing surface between the square end and threads on the valve stem (13) should be smooth and free of knicks or burrs that may cause poor sealing or damage to the stuffing box O-rings (16) during operation.
2. The valve stem (13) threads should be clean and free of damage and mineral build up that may prevent smooth operation. Light use of a wire brush or Emory cloth to remove mineral build up is acceptable.
3. The rubber on the pumper/hose valve disc (10 or 21) should be free of tears and embedded debris.
4. A 60° thread file may be used to clean up any burrs in the threads of the valve disc retaining nut (12) caused by the set screw (11) to ease reassembly.
5. The friction o-ring (14) provides no sealing function but should be replaced if torn or excessively stretched or abraded to prevent vibration of the valve discs when the valve is open.





WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

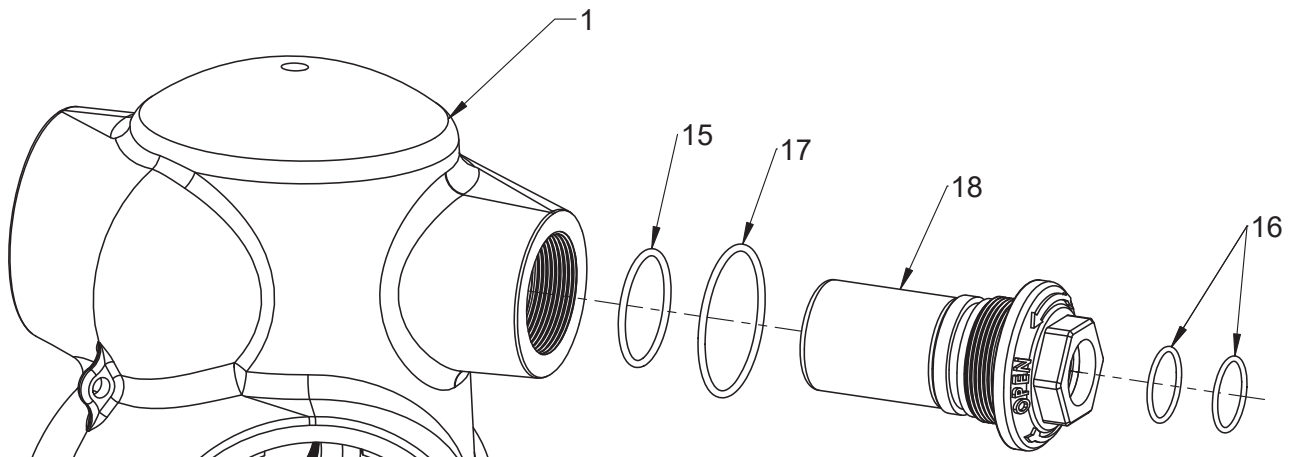
Disassembly: Stuffing Box

1. Disassembly of stuffing box is typically only necessary if there is leakage between hydrant barrel (1) and stuffing box (18).
2. Follow the instructions to remove valve assembly.
3. Using a long ratchet and 1-3/4" socket, unscrew the stuffing box (18) from the hydrant barrel (1) in a counter-clockwise direction (right-hand threads).
 - a. **AFC recommends using a wrench sized for at least 300 ft-lbs of torque.**

Points of Inspection

The following points should be inspected at this time:

1. All O-rings (15, 16, 17) should be inspected for cuts, abrasion, and stretching and be lubricated and replaced as needed.



IL5131



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

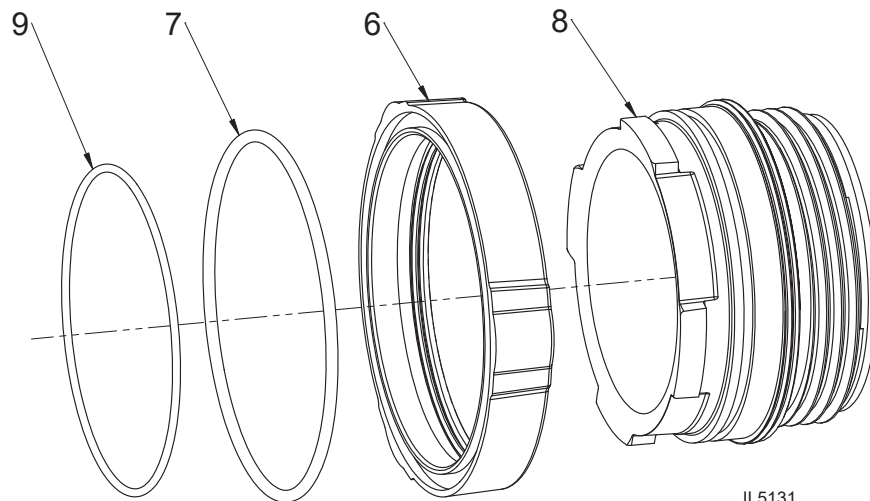
Disassembly: Nozzles

1. Remove nozzle cap (4 or 26).
2. Open valve to be disassembled 3-4 turns.
3. Using the correct AFC nozzle retainer wrench, loosen the nozzle retainer (6 or 24) far enough to remove the nozzle (8, 22, or 27) with a quarter-turn.
4. For hose nozzles (22):
 - a. Safely turn the nozzle a quarter-turn counterclockwise to remove. The hose nozzle retainer (24) can be unscrewed off the hose nozzle (22).
5. For pumper nozzles (8 or 27):
 - a. Continue unthreading the pumper nozzle retainer (6) toward the pumper threads until it stops turning. Safely turn the nozzle a quarter-turn counterclockwise to remove. **THE PUMPER NOZZLE RETAINER CANNOT BE FULLY REMOVED BY UNSCREWING IT TOWARDS THE PUMPER THREADS.**
 - b. This will reveal the pumper nozzle radial O-ring (9), which can be removed from the pumper nozzle (8, 27).
 - c. The pumper nozzle face O-ring (7) can also be removed from the pumper nozzle retainer (6).
 - d. The pumper nozzle retainer (6) can then be unscrewed towards the nozzle lugs and removed.

Points of Inspection

The following points should be inspected at this time:

1. All O-rings (7, 9, 23) should be inspected for cuts, abrasion, and stretching and be lubricated and replaced as needed.
2. **Replacement of the radial pumper nozzle O-ring (9) after every removal of a pumper nozzle is recom-**



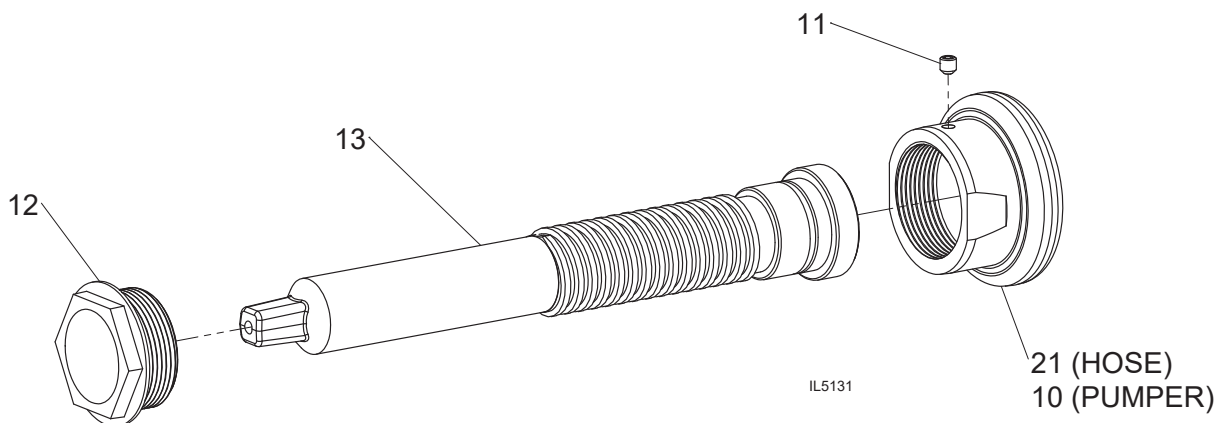
IL5131



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Resassembly: Valve Assembly

1. Ensure all mating surfaces are clean, and free of any corrosion, dirt, or debris.
2. Inspect the friction O-ring (14) for abrasion, stretching and cuts and lubricate with AFC recommended grease.
3. If desired, use a 60° thread file to clean up any burrs in the threads of the valve disc retaining nut (12) caused by the set screw (11) to ease reassembly.
4. Slide the valve disc retaining nut (12), threaded end first, over the square end of the valve stem (13) and over the friction O-ring (14), being careful not to cut or pinch the o-ring.
5. Using two channel lock pliers, thread the pumper/hose valve disc (10 or 21) onto the valve disc retaining nut (12). The nut should bottom out on the disc. There is no need to overtighten.
 - a. **DO NOT USE A PIPE WRENCH ON THE VALVE DISC RETAINING NUT HEX OR ON THE RUBBER ON THE VALVE DISC.** Doing so may damage the valve components.
 - b. **DO NOT CLAMP DIRECTLY ON MACHINED SURFACES OF VALVE STEM.** It may be helpful to clamp the stem into a vice to hold the assembly in place during this step. However, a rag, piece of rubber, or other cushioning should be placed between the stem and the vice jaws to prevent damage to the threads and sealing surfaces. Damage to the threads and sealing surfaces may prevent smooth operation and proper sealing upon reassembly.
6. Using a 1/8" Allen key, tighten the set screw (11) to retain the valve disc retaining nut (12). An excessive amount of torque is not required.

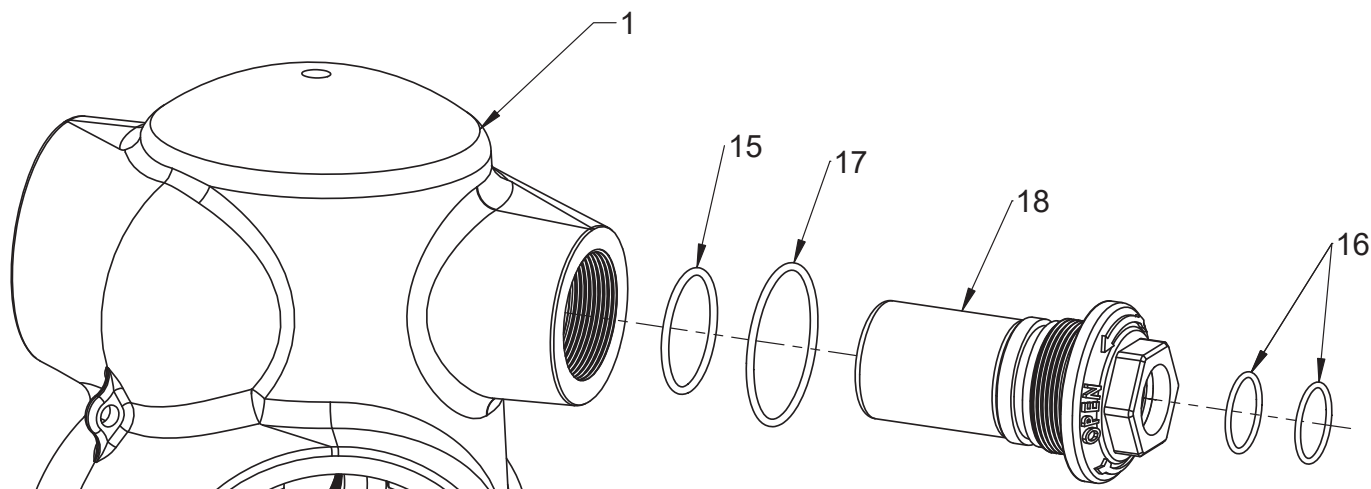




WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Assembly: Stuffing Box

1. Ensure all mating surfaces are clean, and free of any corrosion, dirt, or debris.
2. Inspect all O-rings (15, 16, 17) for abrasion, stretching and cuts and lubricate heavily with AFC recommended grease.
3. Install the following O-rings in the stuffing box (18):
 - a. (1) Stuffing Box Radial O-ring (15)
 - b. (1) Stuffing Box Face O-ring (17)
 - c. (2) Stem O-rings (16)
4. Fill the inside and threads of the stuffing box (18) with AFC recommended grease.
5. Using a 1-3/4" socket, screw the stuffing box (18) into the hydrant barrel (1) in a clockwise direction (right-hand threads).
6. **TORQUE THE STUFFING BOX TO 300 FT-LBS.**



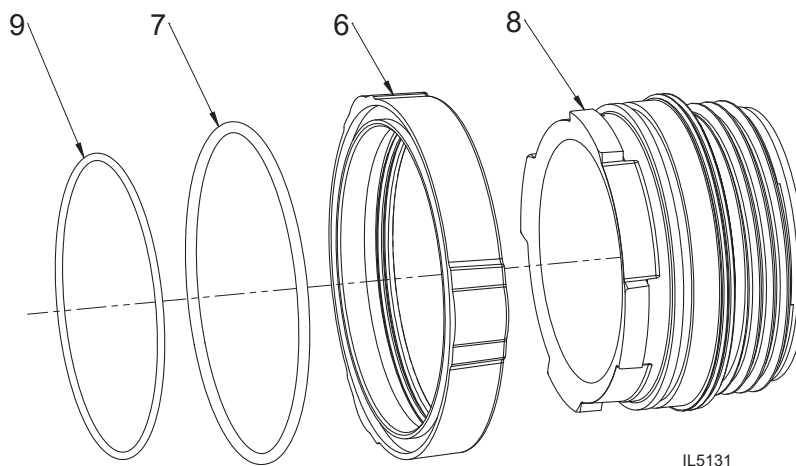
IL5131



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Assembly: Nozzles

1. Ensure all mating surfaces are clean, and free of any corrosion, dirt, or debris.
2. Inspect all O-rings (7, 9, or 23) for abrasion, stretching and cuts and lubricate thoroughly with AFC recommended grease.
3. For hose nozzles (22):
 - a. Thread hose nozzle retainer (24) onto the hose nozzle (22), with the chamfered o-ring sealing surface facing towards the lugs.
 - b. Install the hose nozzle O-ring (23).
 - c. Install the hose nozzle assembly into the hydrant barrel (1) with a quarter turn.
 - d. Tighten the hose nozzle retainer (24) to 100-150 ft-lbs. using the AFC hose retainer wrench.
4. For pumper nozzles (8 or 27):
 - a. From the lug end, thread the pumper nozzle retainer (6) onto the pumper nozzle (8 or 27) far enough that the radial O-ring groove is exposed.
 - b. Install the pumper nozzle radial O-ring (9) into the O-ring groove on the pumper nozzle (8, 27).
 - i. **ENSURE THIS O-RING IS PROPERLY LUBRICATED. This will ensure that no stretching, abrasion, or tearing of the O-ring occurs during installation.**
 - c. Install the pumper nozzle face O-ring (7) into the groove on the pumper nozzle retainer (6).
 - d. Install the pumper nozzle assembly into the hydrant barrel (1) with a quarter turn.
 - e. Tighten the hose nozzle retainer (24) to 200-250 ft-lbs. using the AFC pumper retainer wrench.
5. Install nozzle cap (4 or 26) and close hydrant valve.

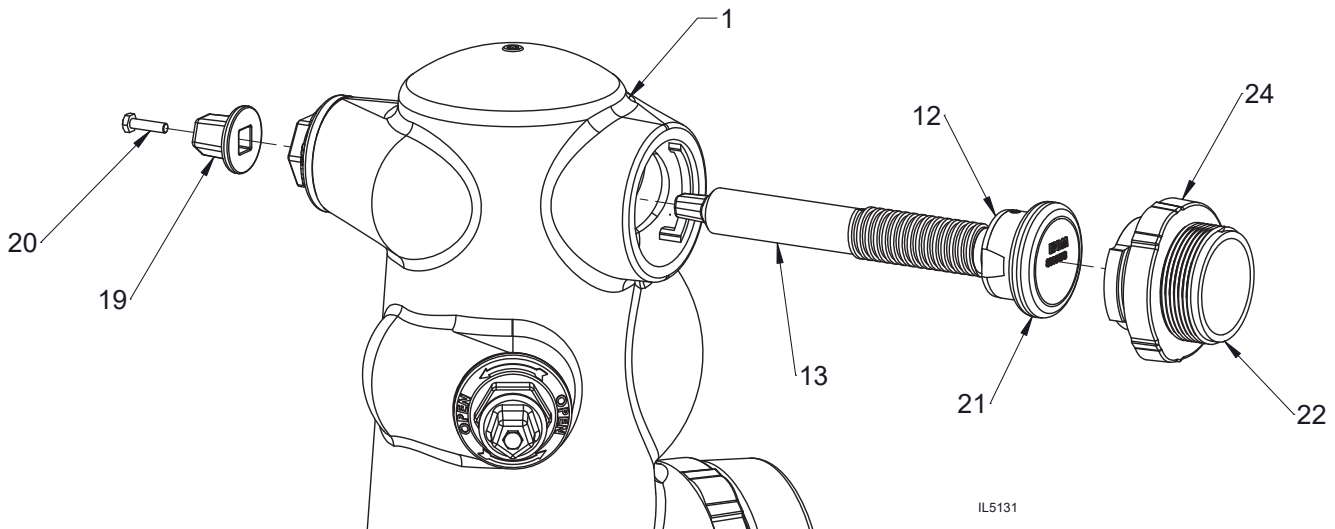




WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Assembly: Installation of Nozzles and Valve Assemblies

1. Ensure all mating surfaces are clean, and free of any corrosion, dirt, or debris.
2. Inspect all O-rings for abrasion, stretching and cuts and lubricate thoroughly with AFC recommended grease.
3. If the stuffing box (18) has been removed from the hydrant barrel (1), follow the respective assembly instructions to install the stuffing box into the hydrant barrel.
4. Inspect the stuffing box stem O-rings (16) for tears, abrasion, and stretching.
5. Ensure that the stuffing box (18) is filled with grease and the threads are well lubricated.
6. If the valve assembly has been taken apart, follow the relevant assembly instructions to reassemble.
7. Insert the valve assembly into the stuffing box (18). Using an adjustable crescent wrench or pair of channel-lock pliers on the square end of the valve stem (13), turn the valve stem in the opening direction to thread the valve stem into the stuffing box.
 - a. Some axial force may be needed to push the valve stem (13) past the inner stem O-rings (16) in the stuffing box (18) to engage the threads.
8. Continue turning the valve assembly in the open direction until it is fully open to fully lubricate the valve mechanism. The mechanism should turn easily and smoothly.
9. Install the stem nut (19) onto the square end of the valve stem (13) and install the stem nut retaining bolt (20) using a 7/16 combination wrench or socket.
10. Follow the instructions to install the correct pumper or hose nozzle (8, 22, or 27) into the hydrant barrel (1).



IL5131



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.

Reassembly: Finishing

1. Close all hydrant valves.
2. To create an air vent point, slightly open the highest valve available to allow air to escape.
3. Slowly open the auxiliary valve.
4. When water begins to escape the air escape point, it can be closed.
5. Inspect the hydrant and attached outlets for any leaks.

SEQUOIA™ SPECIFICATIONS



GENERAL

Wet barrel design

Meets ANSI/AWWA C503

Certified to NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372

Compliant with ANSI/AWWA C550

UL Listed and FM Approved

Fully field serviceable

EPDM O-ring seals

Coatings:

Exterior – Epoxy Primer and Two-Part Polyurethane Topcoat

Interior – Epoxy Primer and Fusion Bonded Epoxy (FBE)

Hardware, 316 stainless steel throughout

Pressure rating, 350 psig

Pressure testing, 700 psig

Capable of 1000 gpm flow through 4-inch pumper nozzle at less than 4 psi friction loss

Furnished with 2-D barcode allowing seamless enrollment of the hydrant into a cloud-based GIS application

HYDRANT BARREL

Ductile iron construction

Flanged inlet with the following bolt patterns available:

- C503 6-Bolt Pattern

- ANSI Class 150 6" 8-Bolt Pattern

- San Diego 6-Bolt Pattern

Nozzles secured with threaded ductile iron retainers

60° valve spacing for 3-way hydrant

VALVE

Full bronze and 316 stainless steel valve mechanism

Free spinning valve discs

EPDM encapsulated valve discs

OPERATING MECHANISM

Ductile iron stem nuts

Stub ACME operating threads

Turns for full travel, 12 – 14 nominally

OUTLETS

Available in the following configurations:

- (1) Pumper, (1) Hose

- (1) Pumper, (2) Hose

- (2) Pumper, (1) Hose

2.5", 4" and 4.5" National Hose Thread pumper nozzles available



AMERICAN

FLOW CONTROL

THE RIGHT WAY

AMERICAN Flow Control
P.O. Box 2727
Birmingham, AL 35202-2727
Phone: 800-326-8051
Fax: 800-610-3569
Email: afcsales@american-usa.com

Waterous Company
125 Hardman Avenue South
South St. Paul, MN 55075-2421
Phone: 888-266-3686
Fax: 800-601-2809
Email: afcsales@american-usa.com

WWW.AMERICAN-USA.COM



Product literature may become outdated. AMERICAN is not responsible for out-of-date information, errors or omissions.
Product diagrams are illustrative only. Please contact AMERICAN for the most current product information.