FIELD MAINTENANCE INSTRUCTION MANUAL

Standard Valve Manual

For American AVK Resilient Wedge Gate Valves

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Resilient Wedge Gate Valves

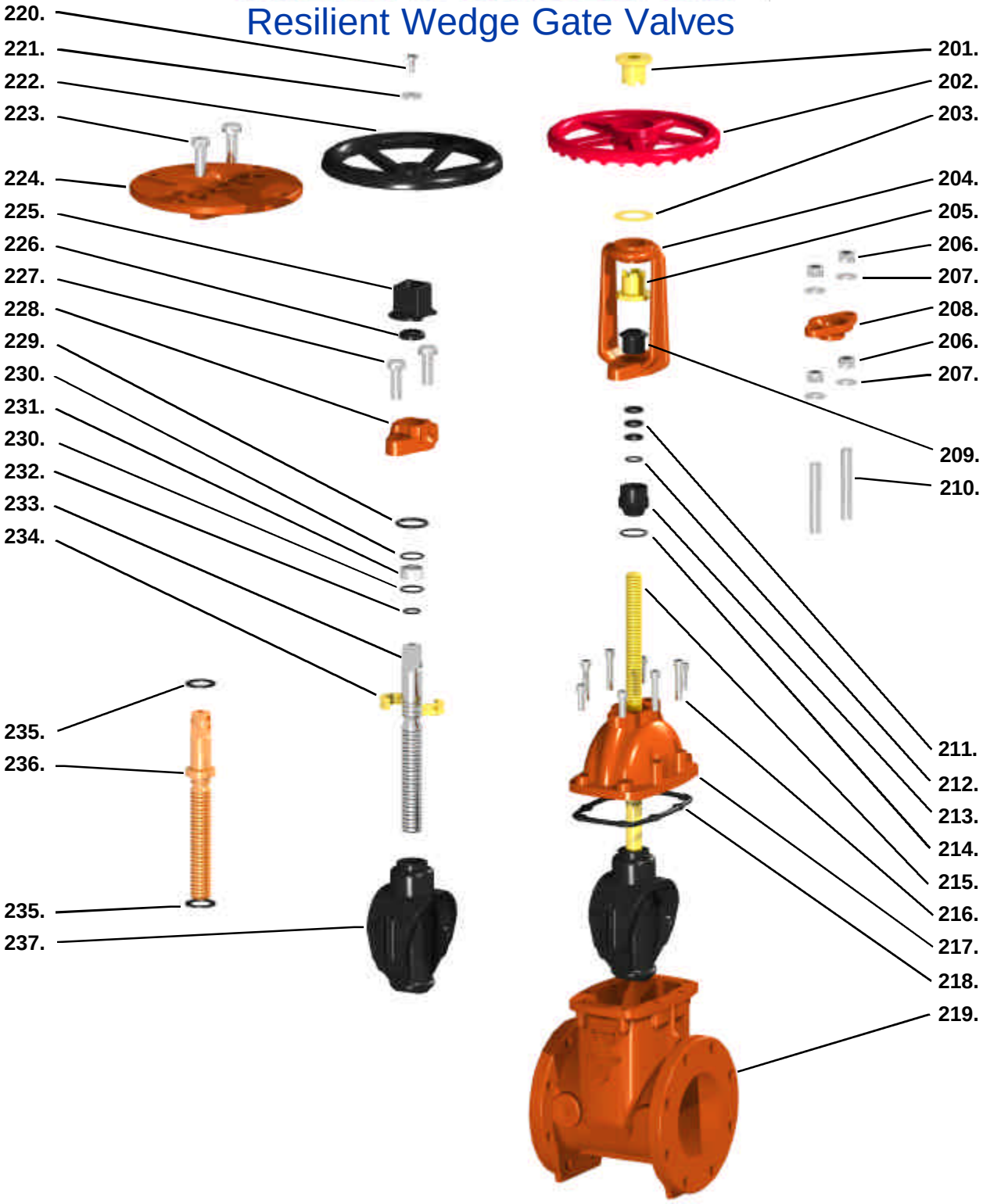

Fig. 1

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Item Number:	Description:	AAVK Part Number:	Material:
201.	Upper Stem Nut	25-XXX-18-00	Copper Alloy 35330
202.	OS&Y Handwheel	25-XXX-75-XX	Grey Iron, ASTM A126, “B”
203.	Anti Friction Washer	25-XXX-26-XX	Copper Alloy 83600
204.	Yoke	25-XXX-17-XX	Ductile Iron, ASTM A536
205.	Lower Stem Nut	25-XXX-18-00	Copper Alloy 35330
206.	Gland Follower/Yoke Nut	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304
207.	Gland Follower/Yoke Washer	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304
208.	Gland Follower	25-XXX-29	Ductile Iron, ASTM A536
209.	Gland	25-XXX-28-00	Nylon
210.	Stud Bolt	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304
211.	Stem Seal O-rings	25-XXX-63	(SBR) Styrene Butadiene Rubber
212.	Inner Bushing O-ring	25-XXX-14, 25-XXX-16	(NBR) Acrylonitrile Butadiene Rubber
213.	OS&Y Bushing	25-XXX-27-00	Nylon
214.	Outer Bushing O-ring	25-XXX-14, 25-XXX-16	(NBR) Acrylonitrile Butadiene Rubber
215.	OS&Y Stem Assembly Copper Alloy Stem Stainless Steel Stem Wedge Pin Wedge	 25-XXX-25-00 25-XXX-2X-00 25-XXX-35 21-XXX-33XXX	 Copper Alloys 36000, 95500 304, 420 316, Stainless Steel (SBR) Styrene Butadiene Rubber (EPDM) Ethylene-Propylene-Diene Rubber
216.	Bonnet Bolts	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304, 316
217.	Bonnet (Grey Iron) Bonnet (Ductile Iron)	2X-XXX-02-XX 2X-XXX-32-XX	Grey Iron, ASTM A126,”B” Ductile Iron, ASTM A536
218.	Bonnet Gasket	XX-XXX-0420	(NBR) Acrylonitrile Butadiene Rubber
219.	Body (Grey Iron) Body (Ductile Iron)	(See individual spec sheets) (See individual spec sheets)	Grey Iron, ASTM A126,”B” Ductile Iron, ASTM A536
220.	Wrench Nut/Handwheel Bolt	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304, 316
221.	Wrench Nut/Handwheel Washer	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304, 316
222.	NRS Handwheel	08-XXX-0X-XX	Grey Iron, ASTM A126,”B”
223.	Post Indicator Bolts	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304, 316
224.	Post Indicator	25-XXX-86	Grey Iron, ASTM A126,”B”
225.	Wrench Nut	04-XXX-11-XX-XX	Grey Iron, ASTM A126,”B”
226.	Wiper Ring	01-014-X	(NBR) Acrylonitrile Butadiene Rubber
227.	Gland Flange Bolt	Optional Zinc Plate, Stainless Steel	Zinc Plate, 304, 316
228.	Gland Flange	21-XXX-23-XX	Ductile Iron, ASTM A536
229.	Gland O-ring	21-XXX-09	(NBR) Acrylonitrile Butadiene Rubber
230.	Upper Stem Seal O-rings	21-XXX-XX	(NBR) Acrylonitrile Butadiene Rubber
231.	Stem Seal Bushing	21-XXX-1900	Nylon
232.	Lower Stem Seal O-ring	(Refer to Valve size)	(NBR) Acrylonitrile Butadiene Rubber
233.	Stainless NRS Stem	25-XXX-15-XX	420,440
234.	Thrust Collar	2X-XXX-06	Copper Alloy 35530
235.	NRS Anti-Friction Washer	25-XXX-06-00	Nylon
236.	Low Zinc NRS Stem	25-XXX-05-5X	Copper Alloy 99500
237.	NRS Wedge	21-XXX-43XXX	(SBR) Styrene Butadiene Rubber (EPDM) Ethylene-Propylene-Diene Rubber

INTRODUCTION:

American AVK recommends that all water distribution systems have a routine maintenance program established for all components of the water delivery network. For Resilient Wedge Gate Valves, we recommend that ANSI/AWWA C509 (latest), Appendix A, as an excellent reference for this, and has been included in this manual.

All American AVK valves are manufactured and tested to ensure trouble free operation. We are so confident of the quality built into all of our products that they come with a 10 Year Warranty against manufacturing and material defects and should, in fact, perform to specification for a much longer period of time.

At this time American AVK has no specific " Maintenance Instructions" for gate valves other than those recommended in the AWWA Publication previously cited. Specific instructions would depend upon the location, installation methods (above ground, buried service, in a vault, etc.), and intended use for each size and end configuration, which is already covered in the publication included in this instruction package. However we recognize the need for some additional information that is specific to the American AVK product and offer the following to assist you.

In the event of damage to the valve due to foreign material in the system, excessive force being applied when opening or closing the valve, accidental water hammer causing internal damage or other un-foreseen incident, the following instructions are provided to assist you in the inspection and repair of the Non-Rising Stem (NRS) valve. Refer to the item numbers listed in (Fig.1) Even though these instructions are based on Flanged by Flanged end connections, the parts and instructions remain the same for all NRS American AVK valves, even though the AAVK part numbers may be different for other end connections or other criteria.

For repairs on Outside Stem and Yoke (OS&Y) valves, also refer to (Fig.1).

APPENDIX A

NOTE: This appendix is for information only and is not part of AWWA C509.

SECTION A.1: GENERAL INFORMATION

Resilient-seated gate valves form a significant component of many fire-fighting or water distribution systems. Failure of a resilient seated gate valve in such a system, either due to faulty installation or improper maintenance, could result in extensive damage and costly repairs. In addition many resilient-seated gate valves are installed in buried-service or underground applications. Problems with or malfunctions of the valves due to faulty installation or improper maintenance can result in costly unearthing operations to effectively correct or eliminate the problem. Many resilient-seated gate valve problems and failures can be traced back to improper installation, operation, or maintenance procedures.

SECTION A.2: UNLOADING

All valves should be unloaded carefully. Each valve should be carefully lowered from the truck to the ground; it should not be dropped. In the case of larger valves, forklifts or slings around the body of the valve or under the skids should be used for unloading. Only hoists and slings with adequate load capacity to handle the weight of the valve or valves should be used. Hoists should not be hooked into or chains fastened around yokes, gearing, motors, cylinders, or handwheels. Failure to carefully follow these recommendations is likely to result in damage to the valve.

SECTION A.3: INSPECTION PRIOR TO INSTALLATION

Resilient-seated gate valves should be inspected at the time of receipt for damage in shipment. The initial inspection should verify compliance with specifications, direction of opening, size and shape of the operating nut, number of turns to open or close, and type of end connections. A visual inspection of the seating surfaces should be performed to detect any damage in shipment or scoring of the seating surfaces. Inspection personnel should look for bent stems, cracked parts, loose bolts, missing parts and accessories, and any other evidence of mishandling during shipment. Each valve should be operated through one complete opening-and-closing cycle in the position in which it is to be installed.

SECTION A.4: STORAGE

Valves should be stored in the fully closed position to prevent entry of foreign material that could cause damage to the seating surfaces. Whenever practical, valves should be stored indoors. If outside storage is required, means should be provide to protect the operating mechanism, including gears, motor actuators, and cylinders, from weather elements. During outside storage, valves should be protected from the weather, sunlight, ozone, and foreign materials. In colder climates where valves may be subject to freezing temperatures, it is absolutely essential to remove water from the valve interior and close the valve before storage. Failure to do so may result in a cracked valve casting and/or deterioration of the resilient seat material.

SECTION A.5: INSTALLATION

Instructions supplied by the manufacturer should be reviewed in detail before the valves are installed. At the job-site prior to installation, each valve should be visually inspected and any foreign material in the interior portion of the valve should be removed. A detailed inspection of the valve as outlined in Sec. A3 should be performed prior to installation.

Sec. A.5.1 Bolts:

All bolts should be checked for proper tightness and protected by the installer to prevent corrosion, either with a suitable paint or by a polyethylene wrapping.

Sec. A.5.2 Underground Installation:

Valves in water distribution lines shall, where practical, be located in easily accessible areas.

A.5.2.1 During installation there is the possibility of foreign materials inadvertently entering the valve. Foreign material can damage the internal working parts during operation of the gate valve. For this reason, gate valves should be installed in the closed position. Each valve should be placed on firm footing in the trench to prevent settling and excessive strain on the connection to the pipe. Piping systems should be supported and aligned to avoid damage to the valve.

A.5.2.2 A valve box or vault should be provided for each valve in a buried-service application. The valve box should be installed so as to not transmit shock loads or stress to the valve. The valve box should be centered over the operating nut of the valve with the box cover flush with the surface of the finished area or such other level as directed as directed by the owner. Valve boxes should be of such design that a traffic load on the top of the box is not transmitted to the valve.

A.5.2.3 Valves buried in unusually deep trenches should have special provisions for operating the valve. Either a riser on the stem to permit use of a normal key or a notation on the valve records that a long key will be required.

A.5.2.4 When valves with exposed gearing or operation mechanisms are buried belowground, a vault designed to allow pipe clearance and prevent settling on the pipe should be provided. The operating nut should be accessible from the top opening of the vault with a valve key. The size of the vault should provide for easy removal of the valve bonnet and internal parts of the valve for purposes of repair. Consideration should be given to the possibility of groundwater and/or surface water and to the need to provide the disposal of such water.

Sec. A.5.3 Aboveground Installation:

Valves installed aboveground or in a plant piping system should be supported and aligned to avoid damage to the valves. Valves should not be used to correct the misaligned piping.

Sec. A.5.4 Inspection:

After installation and before pressurization of the valve, all pressure containing bolting (bonnet, seal plate, packing gland, and end connections) should be inspected for adequate tightness to prevent leakage. In addition, an inspection should be made for adequate tightness of all tapped and plugged openings to the valve interior. Proper inspection at this time will minimize the possibility of leaks after pressurization of the piping system.

SECTION A.5: INSTALLATION (Cont.)

Sec. A.5.5 Testing:

In order to prevent time searching for leaks, it is recommended that valve excavations not be backfilled until after pressure tests have been made. After installation it is desirable to test newly installed piping sections, including valves, at some pressure above the system designed pressure. The test pressure should not exceed the rated working pressure of the valve. After the test, steps should be taken to to relieve any trapped pressure in the body of the valve. The resilient-seated gate valve should not be operated in either the opening or closing direction at differential pressures above the rated working pressure. It should be noted that valves seat better at or near the rated working pressure of the valve. It is also recognized that wear or foreign material may damage valve seating surfaces and may cause leakage.

Sec. A.5.6 Records:

On completion of the installation, valve location, size, make, type, date of installation, number of turns to open, direction of opening, and other information deemed pertinent should be entered on permanent records.

Sec. A.5.7 Application Hazards:

Resilient-seated gate valves should not be installed in applications or for service other than those recommended by the manufacturer.

A.5.7.1 Resilient-seated gate valves should not be installed in lines where service pressure will exceed the rated working pressure of the valve.

A.5.7.2 Resilient-seated gate valves should not be used for throttling service unless the design is specifically recommended for that purpose or approved in advance by the manufacturer.

A.5.7.3 Resilient-seated gate valves should not be used in applications that are exposed to freezing temperatures unless sufficient flow is maintained through the valve or other protection is provided to prevent freezing.

A.5.7.4 Pipe, fittings, and valves installed in underground pipelines are generally joined with push-on or mechanical joints. These joints are considered unrestrained-type joints since no considerable restraint against longitudinal separation is provided.

Gate valves should not be installed in a dead end or near a bend in a pipeline without proper and adequate restraint to support the valve and prevent it from blowing off the end of the line.

It is good engineering practice to consider during the design whether or not thrust blocks, restrained joints, or other means of restraint are needed on or adjacent to valves on pipelines and/or where unusual conditions exist, such as high internal pressures, adjacent fittings, or unsuitable soils.

A.5.7.5 To prevent damage, 3-in. (75mm)and 4-in. (100mm) NPS resilient-seated gate valves should not be operated with input torques greater that 200 ft-lb (270 Nm). Gate valves 6-in. (150mm) NPS to 12-in. (300mm) NPS should not be operated with input torques greater than 300 ft-lb (406Nm).

SECTION A.6: INSPECTION AND MAINTENANCE

Each valve should be operated through a full cycle and returned to it's normal position on a time schedule designed to prevent to prevent a buildup of tuberculation or other deposits that could render the valve inoperable or prevent a tight shutoff. The interval of time between operations of valves in critical locations, or valves subjected to severe operating conditions, should be shorter that that for less important installations, but can be whatever time period is found to be satisfactory based on local experience. The number of turns required to complete the operation cycle should be recorded and compared with permanent installation records to ensure full gate travel.

When using portable auxiliary power actuators with input torque capacities exceeding the maximum operating torques recommended in **Sec A.5.7.5**, extreme care should be taken to avoid the application of excessive torque to the valve stem. If the actuator has a torque limiting device, it should be set below the values in Sec. **A.5.7.5**. If there is no torque limiting device, the recommended practice is to stop the power actuator three or four turns before the valve is fully opened or fully closed and then complete the operation manually.

Maintenance should be performed at the time a malfunction is discovered to avoid a return trip to the same valve and to prevent forgetting about it altogether. A recording system should be adopted that provides a written record of valve location, condition, maintenance, and each subsequent inspection of the valve.

Sec. A.6.1 Inspection:

Each valve should be operated through one complete cycle. If the stem action is tight as a result of "hard water" buildup on the stem threads, the operation should be repeated several times until the opening an closing actions are smooth and free. With the gate in the partially open position, a visual inspection should be performed, where practical, to check for leakage at all joints, connections, and areas of packing or seals. If leakage is observed, all defective O-rings, seals, gaskets, or end-connection sealing members should be replaced. If the leakage can not be corrected immediately, the nature of the leakage should be reported promptly to those who are responsible for repairs. If the valve is inoperable or irreparable, its location should be clearly established to save time for repair crews. The condition of the valve, and if possible, the gate position, should be reported to personnel responsible for repairs. In addition, fire departments and other municipal departments should be informed that the valve is out of service.

Sec. A.6.2 Record Keeping:

In order to carry out a meaningful inspection and maintenance program, it is essential that the location, make, type, size, and date of installation of each valve be recorded. Depending on the type of record system used, other information may be entered in the permanent record. When a resilient-seated gate valve is inspected, an entry should be entered in the permanent record indicating the date of inspection and condition of the valve. If repair work is necessary, it should be indicated. On completion of the work, the nature of the repairs and date completed should be recorded.

SECTION A.7: REPAIRS

Leakage, broken parts, hard operation, and other major defects should be corrected by a repair crew as soon as possible after the defect has been reported. If repairs are to be performed in the field, the repair crews should take a full complement of spare parts to the jobsite. Provisions should be made to isolate the the defective valve from water pressure and relieve internal trapped pressure prior to performing any corrective maintenance. Disassembly of the valve should be accomplished in accordance with the procedure supplied by the manufacturer. After repairing the valve, the operating mechanism should be cycled through one complete operating cycle. With full line pressure applied to the valve in the open position, an inspection should be made to detect leakage in the areas around the seal plate, bonnet, packing gland, and body-end connections. A record should be made to indicate that the valve has been repaired and is in working condition. Any marking that the valve is inoperable should be removed. In addition, fire department and other appropriate municipal departments should be informed of satisfactory repair of the valve.

WRENCH NUT, GLAND FLANGE / WIPER RING, GLAND FLANGE O-RING AND STEM O-RING REPLACEMENT (Fig.2)

WARNING: Although some of the following procedures can be performed under full working line pressure, it is recommended that any partial disassembly or maintenance be perform with the Water Main Supply Line shut off!

CAUTION: With the valve in the fully "**OPEN**" position, the following procedures can be performed under full working pressure, with no need to shut down the system.

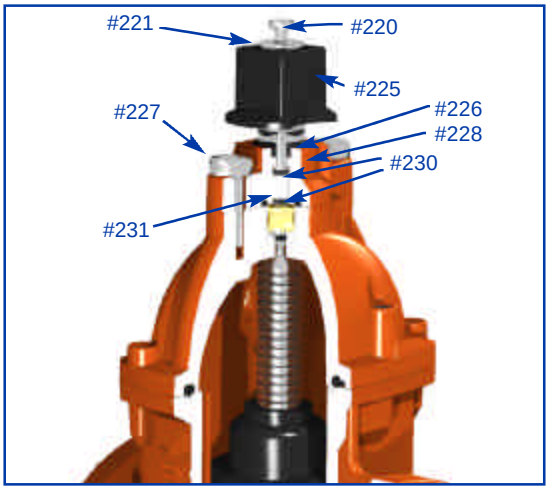

Fig.2

1. Remove the Wrench Nut/ Handwheel Bolt (#220) and Wrench Nut/Handwheel Washer (#221) using a 1/2", (13mm) wrench, for 2 1/2" to 4" valve sizes, and 11/16", (17mm) wrench for 6" to 12" valve sizes. Remove the Wrench Nut (#225) or NRS Handwheel (#222).(See Fig.1, and Fig.2)
2. Remove the two Gland Flange Bolts (#227).
3. Remove the Gland Flange (#228) with Wiper Ring (#226) attached. **NOTE**: The Wiper Ring is a "Factory Installed" press fit and therefore must be reordered as an assembly.
4. When performing step 3, verify the location of the Upper Stem Seal O-rings, quantity 2, (#230) and the Stem Seal Bushing (#231). They may be located on the Stem (#233), or in the counterbore of the Gland Flange (#228).
5. Inspect and replace any damaged parts. Re-assemble in reverse order.

STEM, LOWER STEM SEAL O-RING, AND WEDGE REPLACEMENT (Fig.3, & Fig.4)

WARNING: To perform the following steps, be sure the Water Main Supply Line has been shut off, and that the pressure has been bled off! Also provide sufficient clearing around the valve so that no soil or debris may fall into it.

1. Complete steps 1 through 4 in the **WRENCH NUT, GLAND FLANGE / WIPER RING, GLAND FLANGE O-RING AND STEM O-RING REPLACEMENT** section.
2. Turn the stem in a closing direction until it disengages from the wedge and remove from valve.
3. If applicable, for Low Zinc Stems, remove the Lower Anti-Friction Washer (#235) from the recess in the bonnet (#217). For Stainless Steel Stems, the stem collar and Anti-Friction Washers are replaced by a two-piece Thrust Collar (#234). No Anti-Friction are necessary or present. The Lower Stem Seal O-ring (#232) should be present on the stem and in it's own groove, located directly above the threads. **NOTE**: On Stainless Steel Stems, the upper three grooves are for locating the Thrust Collar.
4. Inspect and replace any damaged parts.
5. Using a small, flat bladed screwdriver, remove the hot melt glue that covers the Bonnet Bolts (#216).

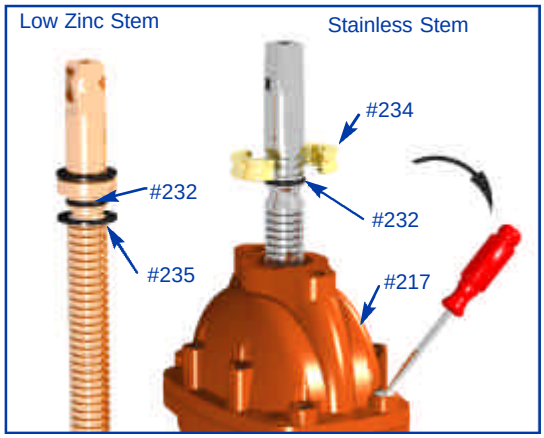

Fig. 3

STEM, LOWER STEM SEAL O-RING, AND WEDGE REPLACEMENT (Fig.3, & Fig.4)Continued:

WARNING: To perform the following steps, be sure the Water Main Supply Line has been shut off, and that the pressure has been bled off! Also provide sufficient clearing around the valve so that no soil or debris may fall into it.

6. Once the hot melt glue has been removed, use a 3/8", or 10mm Allen wrench to remove the Bonnet Bolts (#216). Remove the Bonnet (#217) and Bonnet Gasket (#218) and set aside.

7. To remove the Wedge (#237) it is sometimes helpful to thread the Stem (#233) back into the wedge and use the stem as a handle or lever to extract the wedge. This is helpful with the larger sizes, (10" and 12") valves.

8. Carefully inspect the interior of the valve body and remove any debris.

9. Inspect and replace any damaged parts and re-assemble in reverse order, torquing the Bonnet Bolts to 40 ft. lbs., in a diametrically opposed (180 degrees apart) pattern.

9. To replace the protective hot melt glue over the Bonnet Bolts, use any EPA approved caulk, or hot melt glue.

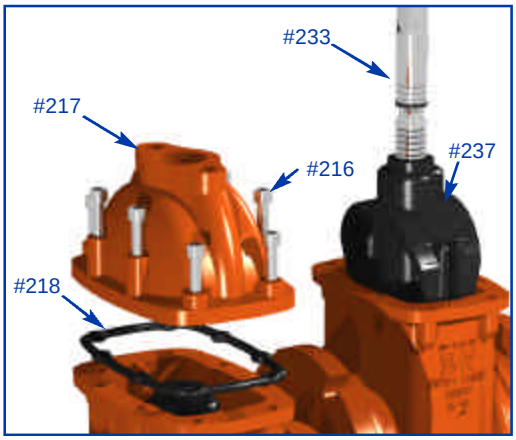

Fig.4

OS&Y VALVE REPAIRS

HANDWHEEL REPLACEMENT (Fig.5)

WARNING: To perform the following steps, be sure the Water Main Supply Line has been shut off, and that the pressure has been bled off! Also provide sufficient clearing around the valve so that no soil or debris may fall into it.

1. Remove the two upper Gland Follower / Yoke Nuts (#206) and associated Washers (#207). Lift the Gland Follower (#208) up off of the Stud Bolts (#210).

2. Remove the two lower Gland Follower / Yoke Nuts (#206) and associated Washers (#207) from the Stud Bolts (#210).

3. Turn the remaining part of the Handwheel (#202) in the closing direction. This will lift the Yoke (#205) up the Stud Bolts until the upper half of the Stem Nut (#201) comes off of the Stem Assembly (#215).

4. Remove the upper half of the Stem Nut (#201) from the handwheel and place it in the "new Handwheel" (#202).

NOTE: The Stem Nut pair are keyed with different sized lugs. Be sure to align the lugs in the correct location! (See Detail "A")

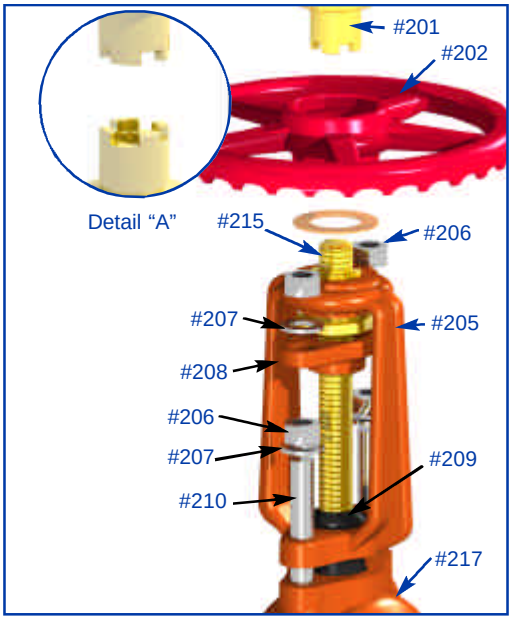

Fig. 5

CAUTION: Do not over tighten the upper pair of Gland Follower / Yoke Nuts (#206). Over tightening can cause the Gland (#209) to fracture. Tighten the nuts evenly so the Gland Follower applies even and level pressure on the Gland. If the Gland Follower is assembled at an angle, leaks may occur.

5. Perform steps 1 through 4 in reverse order to re-assemble. Turn the Handwheel a few additional turns after the Yoke has seated on the Bonnet (#217). This will help prevent undue strain placed on the Gland (#209) when replacing the upper nuts and washers.

HANDWHEEL REPLACEMENT (Continued)

WARNING: To perform the following steps, be sure the Water Main Supply Line has been shut off, and that the pressure has been bled off! Also provide sufficient clearing around the valve so that no soil or debris may fall into it.

6. Repressurize the system. At this time, if there is a leak around the Gland (#209) be sure that the upper Gland Follower / Yoke Nuts (#206) are screwed down evenly on the Stud Bolts (#210). Tighten the nuts 1/4 turn each until the leak stops.

NOTE: Since UL , ULC and FM Approvals are for the Manufacturer, this procedure will have no effect on listings or approvals.

STEM SEAL O-RING REPLACEMENT (Fig.6)

WARNING: To perform the following steps, be sure the Water Main Supply Line has been shut off, and that the pressure has been bled off! Also provide sufficient clearing around the valve so that no soil or debris may fall into it.

1. Remove the two upper Gland Follower / Yoke Nuts (#206) and associated Washers (#207). Lift the Gland Follower (#208) up off of the Stud Bolts (#210). (See Detail “B”)

2. Lift the Gland (#209) to access the three Stem Seal O-rings (#211). **NOTE:** These O-rings are split-type o-rings. When replacing them, insure that the splits **DO NOT** align. Rotate the splits at approximately 90 degree intervals. (See Detail “C”)

3. Reverse steps 2 and 3 for re-assembly.

4. Repressurize the system. At this time, if there is a leak around the Gland (#209) be sure that the upper Gland Follower / Yoke Nuts (#206) are screwed down evenly on the Stud Bolts (#210). Tighten the nuts 1/4 turn each until the leak stops.

BROKEN STEM OR DAMAGED WEDGE REPLACEMENT

WARNING: To perform the following steps, be sure the Water Main Supply Line has been shut off, and that the pressure has been bled off! Also provide sufficient clearing around the valve so that no soil or debris may fall into it.

1. The OS&Y Stem Assembly (#215) is a factory assembled unit which includes the Stem, Wedge, and press fit Wedge Pin and must be ordered as such.

2. If the Stem is severely bent, it should be pre-determined whether it is easier and less time consuming for the field maintenance personnel to attempt to cut the damaged stem assembly apart to disassemble the valve, or to change out the entire “Head Assembly” .

3. Follow steps 1 through 3 of the **HANDWHEEL REPLACEMENT** section.

4. Place the Handwheel (#202) and Anti-Friction Washer (#204) aside. Lift the Yoke (#205) up until it clears the Stud Bolts (#210) and Lower Stem Nut (#205). The Lower Stem Nut, Gland Follower, Gland and Yoke can now be removed off of the Stem Assembly (#215) and set aside. (See Detail “B”)

5. Using a small, flat bladed screwdriver, remove the hot melt glue that covers the Bonnet Bolts (#216). Once the hot melt glue has been removed, use a 3/8”, or 10mm Allen wrench to remove the Bonnet Bolts. Rotate the Bonnet (#217) 90 degrees in either direction (to allow better for easier lifting) and carefully lift the Bonnet, Bushing (#213) and associated O-rings (#211,#212,#214) over the Stem Assembly (#215). (See Detail “D”)

CAUTION: Do not over tighten the upper pair of Gland Follower / Yoke Nuts (#206). Over tightening can cause the Gland (#209) to fracture. Tighten the nuts evenly so the Gland Follower applies even and level pressure on the Gland. If the Gland Follower is assembled at an angle, leaks may occur.

6. Visually inspect and replace any damaged parts,and inspect the seating area of the valve body for damage or debris. Install the new Stem Assembly(#215). Re-assemble the valve by following steps 5 through 3 in reverse order.

TOOL REQUIREMENTS FOR AMERICAN AVK RESILIENT-SEATED GATE VALVES

The following tool requirements are listed in both Standard “Inch” sizes as well as “Metric” sizes.

PART	INCH	METRIC
Wrench Nut/Handwheel Retaining Bolts		
2 1/2” - 4” valves	1/2”	13mm
6” - 12” valves	11/16”	17mm
Gland Flange/ Post Indicator Retaining Bolts		
2 1/2” - 4” valves	15/16”	24mm
6” - 12” valves	1 1/4”	30mm
Gland Follower/Yoke Retaining Nuts		
2 1/2” - 4” valves	15/16”	24mm
6” - 12” valves	1 1/4”	30mm
All sizes, Bonnet Bolts	3/8”	10mm

MISCELLANEOUS INFORMATION

Fig. 6

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