



Clow Valve Co.

902 South 2nd Street  
Oskaloosa, IA 52577

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**RESILIENT WEDGE GATE VALVE  
2" -12" NRS O & M Manual**

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## INSTALLATION, OPERATION AND MAINTENANCE MANUAL

### RESILIENT SEAT GATE VALVE

**GENERAL;** *Inspect all valves at time of delivery for shipping damage and to confirm compliance with specifications. Valves are completely tested per the appropriate standards and specifications by the manufacturer. The valves should be stored in such a manner to protect them from weather and blowing dirt and debris. In cold climates, if water is allowed to freeze in the valve, severe damage to the valve components could result. Any packaging should be replaced if removed for inspection. Proper slinging and handling methods should be used when moving valves. Do not place slings or other devices around operating stem or through the valve port opening.*

#### **I. Installation**

1. *Check that valve end joints are clean. Again check for damage to the valve. Open and close valve to insure proper operation. Close wedge before placing valve in trench or line.*
2. *Handle valve carefully. Do not drop into position. Do not sling through the port opening.*
3. *Prepare pipe ends according to manufacturer's instructions. Install valve per proper methods according to end joint type. All piping should be properly supported to avoid line stress on the valve. Do not use the valve as a jack to force a pipeline into position.*
4. *A valve box or vault should be provided for each valve used in buried service application. These should be installed such that no load is transferred to the valve.*
5. *Before pressurization of the pipeline and valve, all pressure containing bolting (cover, follower plate, end connection) should be inspected for adequate tightness (usually 90 ft. lb.).*
6. *Buried valves should be pressurized before backfilling.*
7. *With valve in open position, the entire system should be thoroughly flushed to clean the system. Debris in the valve could prevent valve from closing or possibly damage the resilient material on the wedge.*

8. Upon completion of the installation, gate valve location, size, type, date of installation, number of turns to open, direction of opening, and any other special information should be entered on permanent records.

## II. Operation

1. Do not operate valves in systems that exceed the rated working pressure of the valve, (2"-12" 250 psi, 14"-24" 200 psi).
2. System should be completely flushed before valve is operated in normal cycle.
3. The RW valve opens and closes by turning the main valve stem with an operating nut or handwheel. The valve closes by compressing the resilient material bonded to the wedge against the valve body. As the material is being compressed (at end of closing cycle) torque requirements will approach maximum. Opening the valve requires significantly less torque.
4. If the valve should fail to seal after necessary number of turns, open the valve four or five times and reseal.

### **Emergency Operation;**

**Turn the handwheel of operating nut faster in the desired direction.**

## III. Inspection and Maintenance

1. Frequency of inspection should be based on frequency of operation. Semi annual inspections are minimum recommended. Valves should not be disassembled unless a breakdown has occurred.
2. During inspection, the valve should be opened and closed with pressure in the pipeline. The valve should function freely with no binding or vibration. Count the number of turns to full closed, this will reveal an obstruction if correct number of turns are not achieved. See table;

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### URNS TO OPEN

2"	-	4 ¾
2 ½"	-	5 ½
3"	-	10
4"	-	13 1/2
6"	-	19 1/2
8"	-	25 ½
10"	-	31 ½
12"	-	37 ¾

**NOTE; For valves with motors, refer to actuator data sheet included with wiring diagrams.**

**RW GV O&M CONTINUED**

3. *All gaskets and joints should be checked for leakage and tightness.*
4. *With the valve closed and pressure against the disc, a check for leakage is possible by "listening" to the valve for flow. A stethoscope will help in this procedure.*
5. *Attached actuators should be inspected per manufacturer's recommendations provided with those units.*
6. *OS&Y valves should have the exposed stem lubricated at each inspection. Check stuffing box bolts for tightness.*
7. *A permanent inspection record should be kept for each valve.*

**RECORDS**

1. Trouble can be anticipated with a good Inspection Program. Such a program can not exist without good records. Poor records are worse than none.
2. A printed 5 x 8 record card for each valve and hydrant in the system is most convenient.
  - a. Identification of each valve and hydrant is essential. Setting up a numbering system is one of the first steps to take. A reasonably simple method is to assign a number to each street intersection, then identify each valve of hydrant numerically or alphabetically between intersection numbers.  
For instance; I9-I10, would be the number of second valve from street intersection number 9 in going toward street number 10.  
  
Another convenient device is to assign only odd numbers to existing hydrants. When hydrants are added later they can be giving numbers which will fit in the numerical sequence.
  - b. Location should be recorded first. Measurements must be made from property lines or street center lines – not power poles fence lines - or the like.

**VALVE RECORD**

No. \_\_\_\_\_

Location \_\_\_\_\_ FT. \_\_\_\_\_ of \_\_\_\_\_ Prop. Line of \_\_\_\_\_  
 And \_\_\_\_\_ FT. \_\_\_\_\_ of \_\_\_\_\_ Prop. Line of \_\_\_\_\_  
 Size \_\_\_\_\_ Make \_\_\_\_\_ Type \_\_\_\_\_ Gearing \_\_\_\_\_ Bypass \_\_\_\_\_  
 Opens \_\_\_\_\_ Turns to Operate \_\_\_\_\_ Depth of Nut \_\_\_\_\_  
 Remarks \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

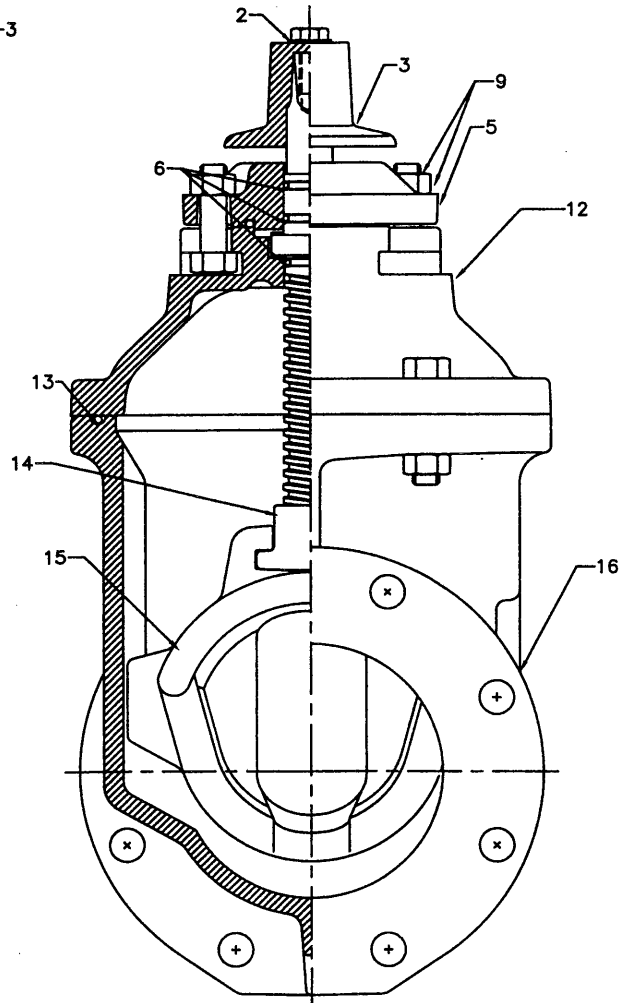
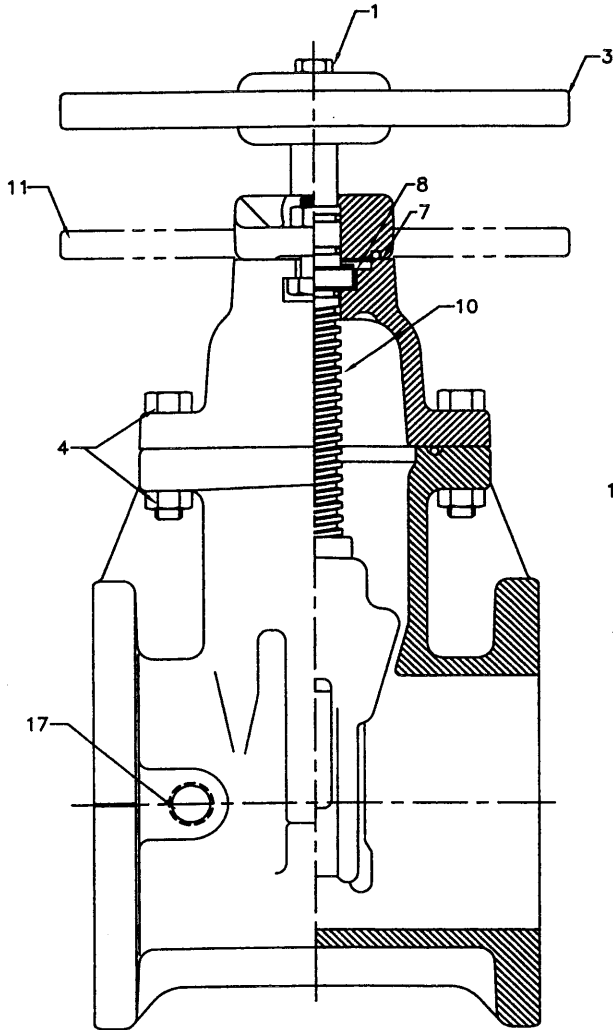
Maintenance & Inspection Record							
Date	Work Done	O.K.	By	Date	Work Done	O.K.	By

Complies with applicable requirements of AWWA C509

2"-12" R/W VALVE  
N.R.S. ASSEMBLY MATERIAL LIST

**CLOW VALVE COMPANY**

MODEL 2639 & 2640



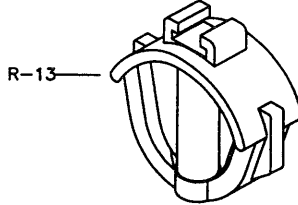
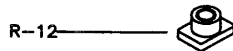
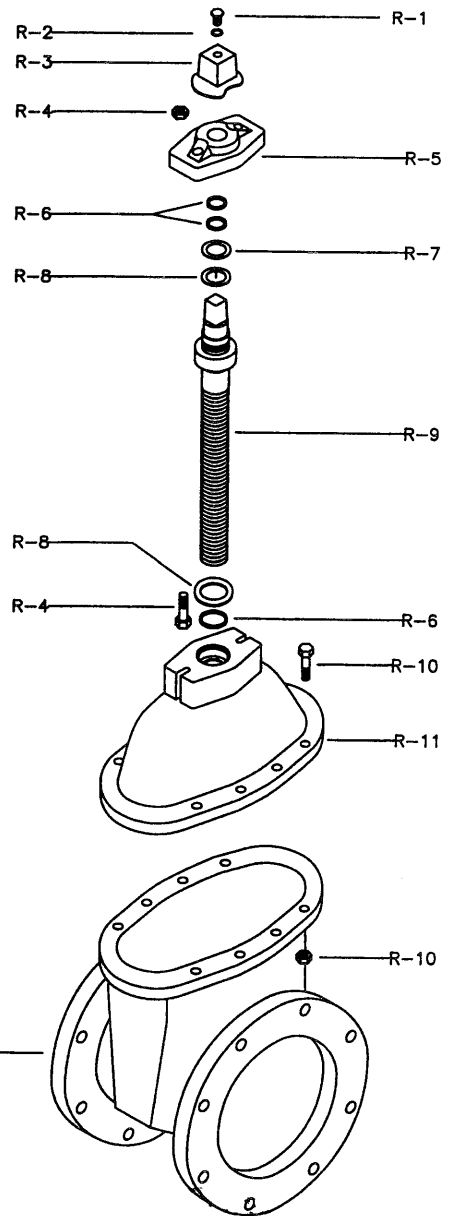
ITEM	DESCRIPTION	MATERIAL 2640	ASTM SPEC.	MATERIAL 2639	ASTM SPEC.
1	Hex Head Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B	Zinc Chromate Plated Steel	ASTM A307 Gr B
2	Flat Washer	Zinc Chromate Plated Steel	ASTM A307 Gr B	Zinc Chromate Plated Steel	ASTM A307 Gr B
3	Operating Nut or Handwheel	Gray Iron	ASTM A126 Cl B	Gray Iron	ASTM A126 Cl B
4	Hex Head Bolts & Nuts	Zinc Chromate Plated Steel	ASTM A307 Gr B	Zinc Chromate Plated Steel	ASTM A307 Gr B
5	Follower Plate	Gray Iron	ASTM A126 Cl B	Ductile Iron	ASTM A536 Gr 64-45-10
**	6	Stem O-Ring	Buna N	Buna N	-----
**	7	Follower Plate O-Ring/gasket	Buna N	Buna N	-----
	8	Thrust Washer Bearing	Delrin	Delrin	-----
9	Hex Head Bolts & Nuts	Zinc Chromate Plated Steel	ASTM A307 Gr B	Zinc Chromate Plated Steel	ASTM A307 Gr B
10	Stem	Bronze	ASTM B584 C86700	Bronze	ASTM B584 C86700
11	Indicator Post Plate (Optional 3-12")	Gray Iron	ASTM A126 Cl B	Ductile Iron	ASTM A536 Gr 64-45-10
12	Cover	Gray Iron	ASTM A126 Cl B	Ductile Iron	ASTM A536 Gr 64-45-10
**	13	Cover O-Ring	Buna N	Buna N	-----
	14	Stem Nut	Bronze	Bronze	ASTM B584 C83600
	15	Wedge	Gray Iron & SBR	Gray Iron & SBR	ASTM A126 Cl B
	16	Body - all types	Gray Iron	Ductile Iron	ASTM A536 Gr 64-45-10
	17	Pipe Plug (Optional Some Styles)	Stainless Steel	Stainless Steel	-----

\*\*RECOMMENDED SPARE PARTS

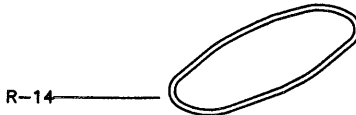
2"-12" R/W VALVE FLANGED ENDS  
NRS ASSEMBLY - EXPLOSION  
**CLOW VALVE COMPANY**

MODEL 2639 & 2640

ITEM NO.	QTY.	DESCRIPTION	2640	MATERIAL
R-1	1	HOLD DOWN BOLT		ZINC CHROMATE PLATED STEEL
R-2	1	HOLD DOWN BOLT WASHER		ZINC CHROMATE PLATED STEEL
R-3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)		GRAY IRON
R-4	2	FOLLOWER PLATE BOLT& NUT		ZINC CHROMATE PLATED STEEL
R-5	1	FOLLOWER PLATE		GRAY IRON
** R-6	3	STEM O-RING		NBR
** R-7	1	FOLLOWER PLATE O-RING		NBR
R-8	1	THRUST WASHER (SIZES 2"-2.5")		DELTRIN
	2	THRUST WASHER (SIZES 3-12")		BRONZE
R-9	1	STEM		BRONZE
R-10	4	COVER BOLTS&NUTS (SIZES 2" THRU 6")		ZINC CHROMATE PLATED STEEL
	8	COVER BOLTS&NUTS (SIZES 8" THRU 12")		ZINC CHROMATE PLATED STEEL
R-11	1	COVER		GRAY IRON
R-12	1	STEM NUT		BRONZE
R-13	1	WEDGE		GRAY IRON & SBR
** R-14	1	COVER O-RING		NBR
R-15	1	BODY		GRAY IRON



\*\*RECOMMENDED SPARE PARTS



ITEM NO.	QTY.	DESCRIPTION	2639	MATERIAL
R-1	1	HOLD DOWN BOLT		ZINC CHROMATE PLATED STEEL
R-2	1	HOLD DOWN BOLT WASHER		ZINC CHROMATE PLATED STEEL
R-3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)		GRAY IRON
R-4	2	FOLLOWER PLATE BOLT& NUT		ZINC CHROMATE PLATED STEEL
R-5	1	FOLLOWER PLATE		DUCTILE IRON
** R-6	3	STEM O-RING		NBR
** R-7	1	FOLLOWER PLATE O-RING		NBR
R-8	1	THRUST WASHER (SIZES 2"-2.5")		DELTRIN
	2	THRUST WASHER (SIZES 3-12")		BRONZE
R-9	1	STEM		BRONZE
R-10	4	COVER BOLTS&NUTS (SIZES 2" THRU 6")		ZINC CHROMATE PLATED STEEL
	8	COVER BOLTS&NUTS (SIZES 8" THRU 12")		ZINC CHROMATE PLATED STEEL
R-11	1	COVER		DUCTILE IRON
R-12	1	STEM NUT		BRONZE
R-13	1	WEDGE		GRAY IRON & SBR
** R-14	1	COVER O-RING		NBR
R-15	1	BODY		DUCTILE IRON

**DISASSEMBLY INSTRUCTIONS  
FOR  
CLOW NRS RESILIENT SEAT GATE VALVE (2"-12")**

1. *Remove capscrew (R-10 and washer (R-2).*
2. *Remove handwheel or operating nut (R-3)*
3. *Remove o-ring plate nuts (R-4)*
4. *Remove o-ring follower plate (R-5)*
5. *Remove stem (R-9) by turning stem in opposite direction for opening valve.*
6. *Remove neck flange bolts & nuts (R-10).*
7. *Lift off cover (R-11).*
8. *Grasp stem nut (R-12) and lift out wedge (R-13)*
9. *Reassemble In reverse order replacing cover o-ring (R-14), stem o-rings (R-6), follower plate o-ring (R-7) and thrust washer (R-8) if necessary.*



**Troubleshooting  
RW GV'S**

Possible Malfunction	Symptoms – Causes	Corrective Action
<i>Joint Leakage</i>	<i>Bolt Tension Relaxing</i>	<i>Tighten Bolts</i>
<i>Seat Leakage</i>	<i>Foreign material caught in seat</i>	<i>Operate valve to flush Out debris.</i>
	<i>Seats Dirty/Carroded</i>	<i>Flush or dis-assemble &amp; clean.</i>
	<i>Seats Damaged</i>	<i>Inspect-repair or Replace</i>
<i>Leak Past Stem</i>	<i>Bolts loose</i>	<i>Tighten Bolts</i>
	<i>(NRS) Orings worn/damaged</i>	<i>Inspect/replace</i>
	<i>(OS&amp;Y) Packing worn/damaged</i>	<i>Inspect/replace</i>

*Inspection for the above should be done semi/annually at the minimum.  
There are no lubrication requirements other than;  
OS&Y valves should have the exposed stem \*\*lubricated at each inspection.  
\*\* Food grade grease similar to Mystic FG 2*

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*For Parts and Service Contact mfg's rep*



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**CLOW RESILIENT WEDGE VALVES**

**TEN YEAR LIMITED WARRANTY**

Clow Valve Company warrants that its R/W valves will be free from defects in material and workmanship under normal and customary use and maintenance for a period of **ten (10)** years from the date of purchase, provided the valve is installed and maintained according to Clow instruction, and applicable codes. The foregoing warranty does not cover failure of any part or parts from external forces, including but not limited to earthquake, vandalism, vehicular or other impact, and application of excessive torque to the operating mechanism or frost heave.

Should any Clow Valve Company part or parts fail to conform to the foregoing warranty, Clow shall, upon prompt written notice thereof, repair or replace, F.O.B. point of manufacture, such defective part or parts. Purchaser shall, if requested, return the part or parts to Clow, transportation prepaid. Purchaser shall bear all responsibility and expense incurred for removal, reinstallation and shipping in connection with any part supplied under the foregoing warranty.

**THE FOREGOING WARRANTY IS IN LIEU OF AN EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS. IN NO EVENT SHALL CLOW VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES, DAMAGES OR EXPENSES.**