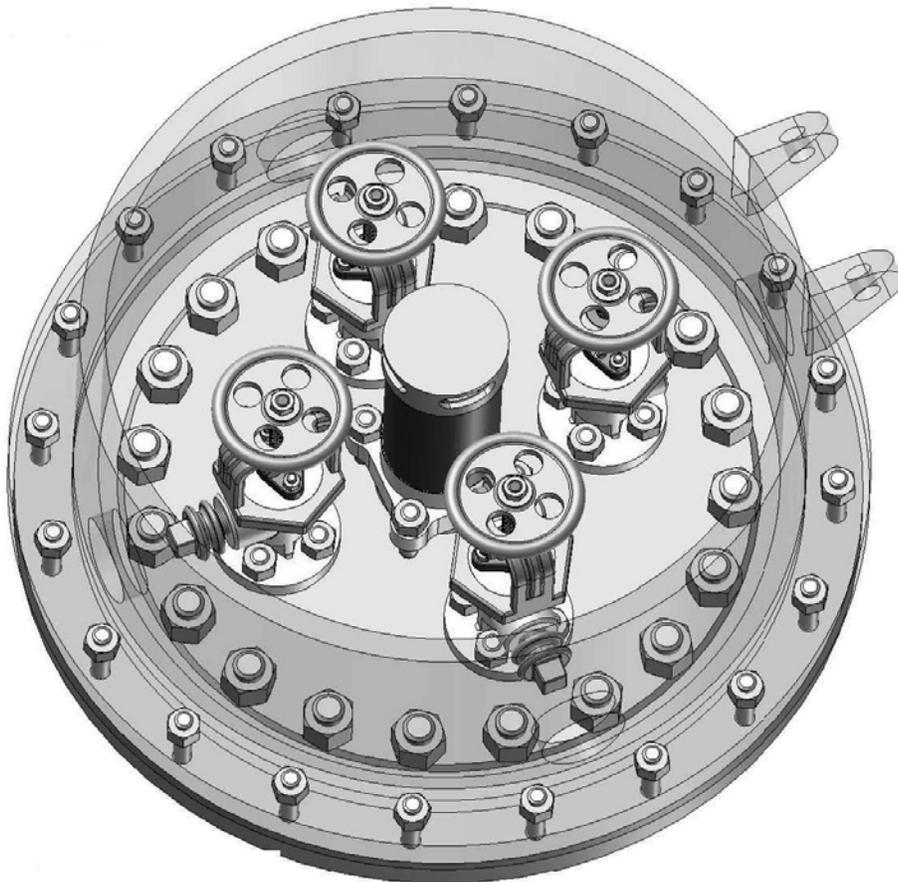


CHLORINE INSTITUTE EMERGENCY KIT “C”

FOR CHLORINE TANK CARS & TANK TRUCKS

Edition 10 Revision 1
January 2017



THE CHLORINE INSTITUTE

INSTRUCTION BOOKLET

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1. INTRODUCTION

Leaks in chlorine tank cars, cargo tanks and portable tanks rarely occur. When they do occur, however, prompt corrective action is required by trained competent personnel with special equipment. The Chlorine Institute Emergency Kit "C" and this instruction booklet are made available by The Chlorine Institute in the belief that they will be helpful in handling such emergencies.

1.1 SCOPE

This instruction booklet provides information on the design and use of the Chlorine Institute Emergency Kit "C".

1.2 CHLORINE INSTITUTE STEWARDSHIP PROGRAM

The Chlorine Institute exists to support the chlor-alkali industry in advancing safe, secure, environmentally compatible, and sustainable production, distribution, and use of its mission chemicals¹.

Chlorine Institute members are committed to adopting CI's safety and stewardship initiatives, including pamphlets, checklists, and incident sharing, that will assist members in achieving measurable improvement. For more information on the Institute's stewardship program, visit CI's website at www.chlorineinstitute.org.

1.3 DISCLAIMER

The information in this booklet is drawn from sources believed to be reliable. The Institute and its members, jointly and severally, make no guarantee, and assume no liability, in connection with any of this information. Moreover, it should not be assumed that every acceptable procedure is included, or that special circumstances may not warrant modified or additional procedures. The user should be aware that changing technology or regulations may require changes in the recommendations contained herein. Appropriate steps should be taken to ensure that the information is current when used. These recommendations should not be confused with federal, state, provincial, municipal, or insurance requirements, or with national safety codes.

1.4 APPROVAL

The Institute's Emergency Preparedness Issue Team approved Edition 10, Revision 1 of this instruction booklet on January 18, 2017.

1.5 REVISIONS

Suggestions for revision should be directed to the Secretary of the Institute.

¹ CI's mission chemicals: chlorine, sodium and potassium hydroxides, sodium hypochlorite, the distribution of vinyl chloride monomer (VCM), and the distribution and use of hydrogen chloride.

1.5.1 Significant Revisions For This Edition

Revision 1 of this edition includes various enhancements now available for the Emergency Kit “C,” instruction on how to address tell-tale valves on pressure relief devices which interfere with kit application, and other minor editorial revisions.

1.6 REPRODUCTION

The contents of this instruction booklet are not to be copied for publication, in whole or in part, without prior permission from the Secretary of the Chlorine Institute.

1.7 REVISION HISTORY AND COMPATIBILITY

The Chlorine Institute has published an instruction booklet for the Emergency Kit “C” beginning in 1964. Since then, the Kit and booklet have gone through a series of changes. The table below details the updates through the years and device compatibility with current equipment.

Table 1. Kit Revision History			
Inst. Book Ed.	Date	Revision Summary	Compatible with Current Cars?
Ed. 10 Rev. 1	Jan. 2017	Various minor equipment improvements and inclusion of guidance relating to pressure relief device tell-tale valves	Yes
Ed. 10	Feb. 2014	Kit application modification to accommodate alternate valve arrangements	Yes
Ed. 9 (again)	Jan. 2009	No Kit design change, Booklet updated	Yes
Ed. 9	April 2005	No Kit design change, Booklet updated	Yes
Ed. 8	Dec 1996	Device 6 & 24 modified	Yes
Ed. 7	Oct 1983	10D Adapter plate added	Yes
Ed. 6	July 1978	Included molded Viton gaskets 6BMV & 24BMV, lead gaskets removed	Yes
Ed. 5	1976	No Kit design change, Booklet updated	Yes
Ed. 4	1970	No Kit design change, Booklet updated	Yes
Ed. 3	1970	No Kit design change, Booklet updated	Yes
Ed. 2	1964	No Kit design change, Booklet updated	Yes
Ed. 1	1964	Booklet created	Yes

2. GENERAL DESCRIPTION

The CI Emergency Kit “C” is designed for use with the standard DOT 105J500W, DOT 105J600W, DOT 105J600I, and DOT-SP-15036 chlorine tank cars; DOT MC331 and DOT MC330 chlorine cargo tanks; and DOT 51 portable tanks in chlorine service only. These tanks vary in capacity from 16 to 90 tons of chlorine. The kit is not designed to be used on liquid-full tank cars or cargo tanks.

2.1 TRAINING AND SAFETY

Emergency Response and other personnel must be trained in the use of the devices and tools within the CI Emergency Kit "C". Training must include the use of respiratory equipment and all other safety equipment. Knowledge of the properties of chlorine is essential. Emergency response personnel can refer to CI Pamphlet 1, *Chlorine Basics*, for an overview of chlorine properties. Pamphlet 1, along with many other useful resources, is available for free download from the Chlorine Institute bookstore, <https://bookstore.chlorineinstitute.org>.

2.2 RESPIRATORY EQUIPMENT

Personnel safety is of primary importance. Emergency response should only be performed by authorized personnel who are trained in the procedures and are equipped with suitable respiratory and personal protective equipment. The type of respiratory equipment required will be determined by the severity of the leak and the potential for exposure to chlorine. Guidance on personal protective equipment selection can be found in CI Pamphlet 65, *Personal Protective Equipment for Chlor-Alkali Chemicals*, which is also available for free download from the CI bookstore online.

2.3 CHLORINE TANK INSPECTION

Daily inspection of loaded tank cars or cargo tanks is recommended whether or not they are connected to loading/unloading lines. Through these means a leak usually can be detected in an early stage when it can be corrected or controlled by appropriate procedures.

2.4 LEAK DETECTION

As soon as there is an indication of the presence of chlorine in the air, **authorized, trained personnel equipped with suitable personal protective equipment should investigate promptly**. All other persons should be kept away from the affected area.

The location of a leak in a chlorine containing system can usually be detected by the reaction of ammonia vapor with the escaping chlorine. The reaction produces a dense white cloud. The most convenient way is to use 10-30% aqua ammonia (ammonium hydroxide) solution in a squeeze bottle. Direct the vapors at the suspected leak. Efforts to detect the source of any leak should be carried out with an awareness of the potential hazards and use of necessary personal protective equipment.

2.5 ASSISTANCE

Chlorine emergencies should be handled only by trained personnel. If assistance is required, promptly notify your supplier. If the supplier cannot be reached or respond immediately, then summon help by activating CHLOREP, The Chlorine Emergency Plan. CHLOREP is a mutual-aid network in the U.S. and Canada that will provide technical assistance (on the phone, and if necessary, in person) from shippers, producers, and users of chlorine. CHLOREP can be activated by calling CHEMTREC® in the U.S. 1-800-424-9300 or CANUTEC in Canada 1-613-996-6666.

2.6 REPORTING REQUIREMENTS

Users should be aware of and comply with Federal, State and local requirements for the reporting of chlorine releases.

2.7 EMERGENCY PLAN

It is recommended that users have an Emergency Plan that complies with Federal, State and local requirements. CI has many relevant resources available through CI's bookstore, including the FR-DVD, *Chlorine Emergencies: An Overview for First Responders*, and CI Pamphlet 64, *Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities*.

2.8 DRAWINGS

The valve drawings used in this booklet represent traditional chlorine angle valves and pressure relief devices, as well as alternative designs, that are currently in service.

3. **VALVE DESIGNS**

Starting in 2009, chlorine tank cars began to be equipped with an alternate valve design (known as a dual valve system). The primary feature that is different on the alternate design is that a spring-loaded check valve is in place instead of an excess flow valve. The check valve is designed to remain closed during transport, so in the unlikely event of a rollover where valves shear off, the valve port remains closed and prevents release.

Prior to this time, the traditional valve style was found on all chlorine tank cars and cargo tanks in service in the United States and Canada. This is referred to as the "traditional" valve design in this booklet and consists of two vapor valves, two liquid valves, and one pressure relief device. Arrangements consisting of the alternate design may have wider bases and can consist of either 3 or 4 liquid/vapor valves and one pressure relief device. Either the alternate design or the traditional design can now be seen installed on a tank car or cargo tank. **This is important because depending on the valve type installed, Kit "C" may need to be applied differently.**

More information on traditional valve designs can be found in CI Pamphlet 166, *Angle Valve Guidelines for Chlorine Bulk Transportation*. Information on the alternate valve designs can be found in CI Pamphlet 168, *Guidelines for Dual Valve Systems for Bulk Chlorine Transport*. Both Pamphlet 166 and 168 are available for free download from the CI bookstore, <https://bookstore.chlorineinstitute.org>.

This section will outline the different valve designs that can currently be found in chlorine service.

3.1 TRADITIONAL VALVE DESIGN ARRANGEMENT

- 1-Angle Valve Packing
- 2-Angle Valve Seat
- 3-Angle Valve Gasket
- 4-Pressure Relief Device
- 5-Pressure Relief Device Gasket
- 6-Manway Cover Gasket
- 7-Excess Flow Valve

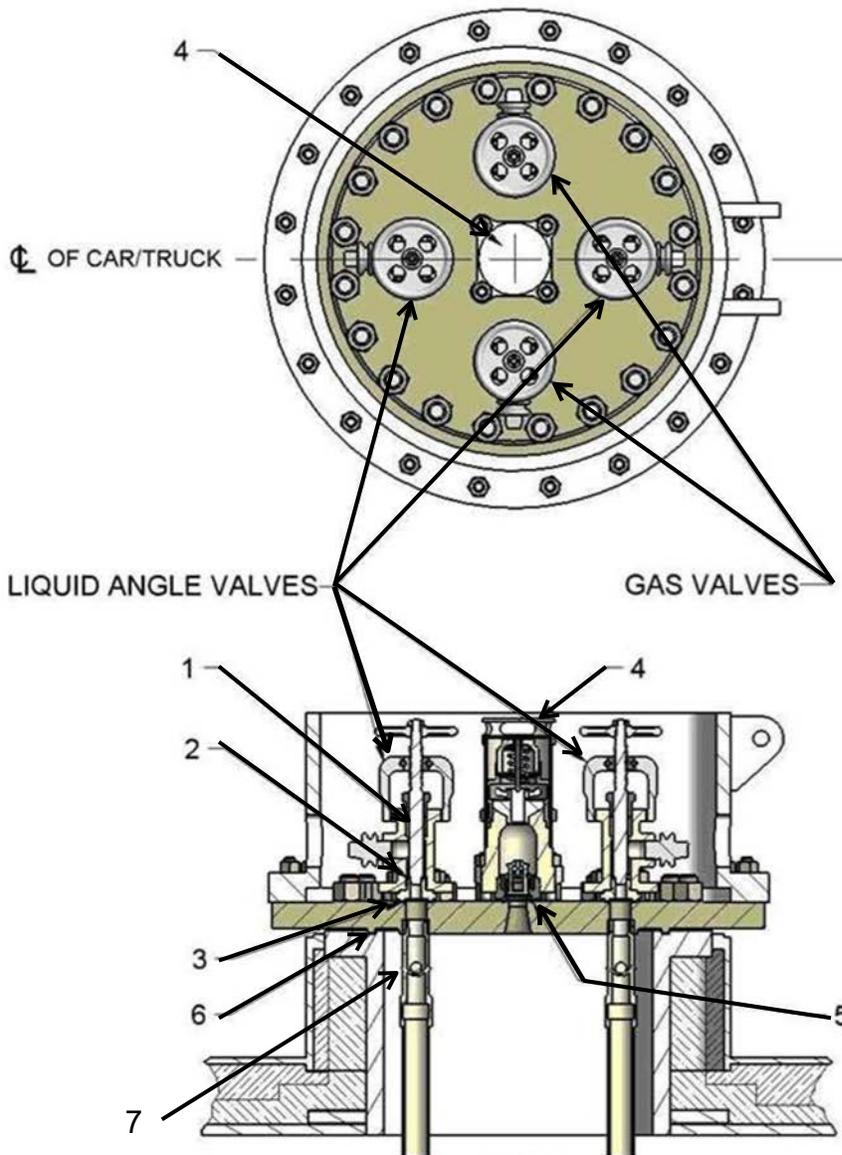


Figure 3.1

3.2 ALTERNATE VALVE DESIGN ARRANGEMENT – 3 LOADING/UNLOADING VALVES

- 1A-Angle Valve (Liquid)
- 1B-Angle Valve (Vapor)
- 2-Pressure Relief Device
- 3-Rupture Disc
- 4-Check Valve

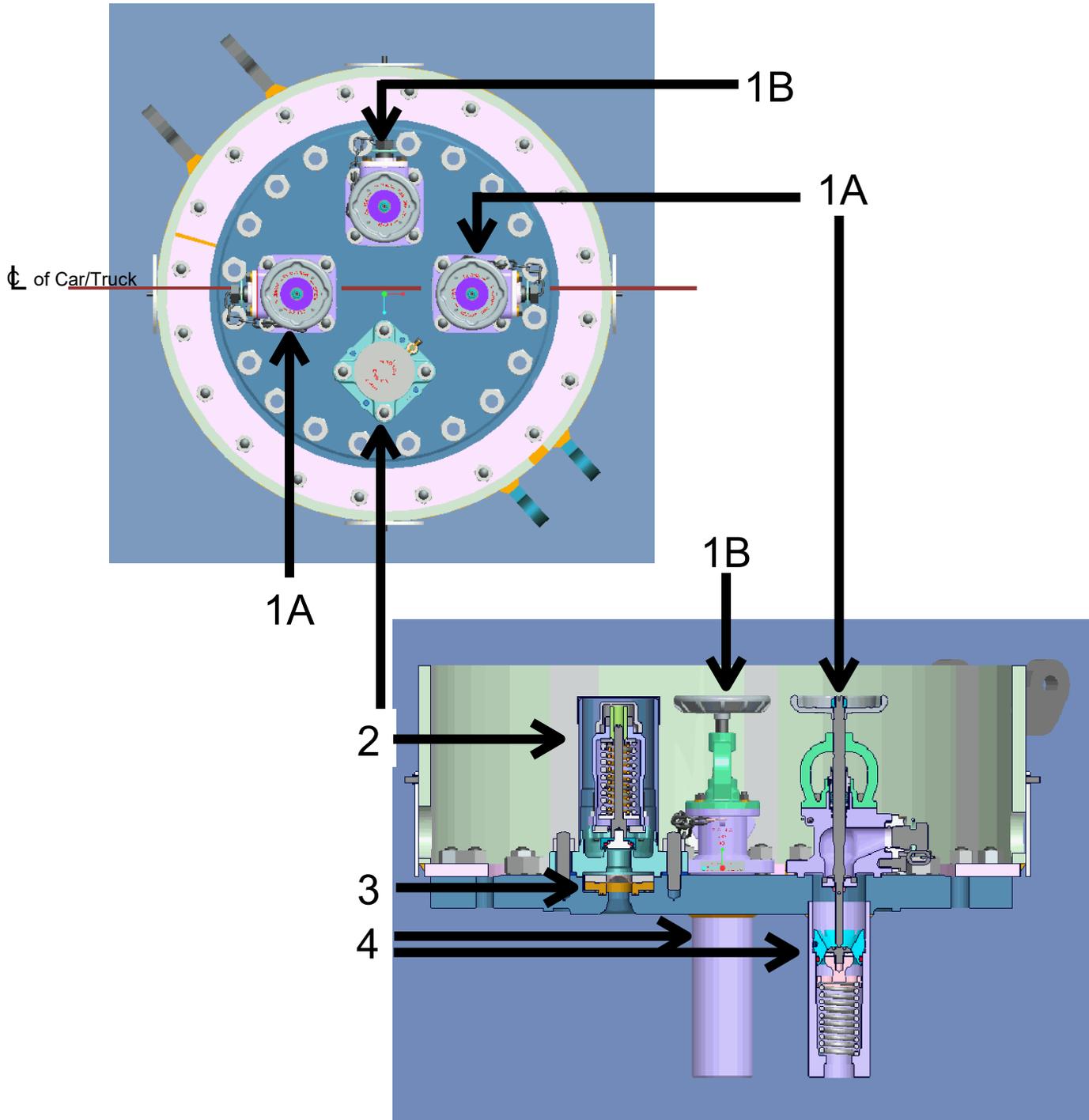


Figure 3.2

3.3 ALTERNATE VALVE DESIGN ARRANGEMENT – 4 LOADING/UNLOADING VALVES

- 1A-Angle Valve (Liquid)
- 1B-Angle Valve (Vapor)
- 2-Pressure Relief Device
- 3-Rupture Disc
- 4-Check Valve

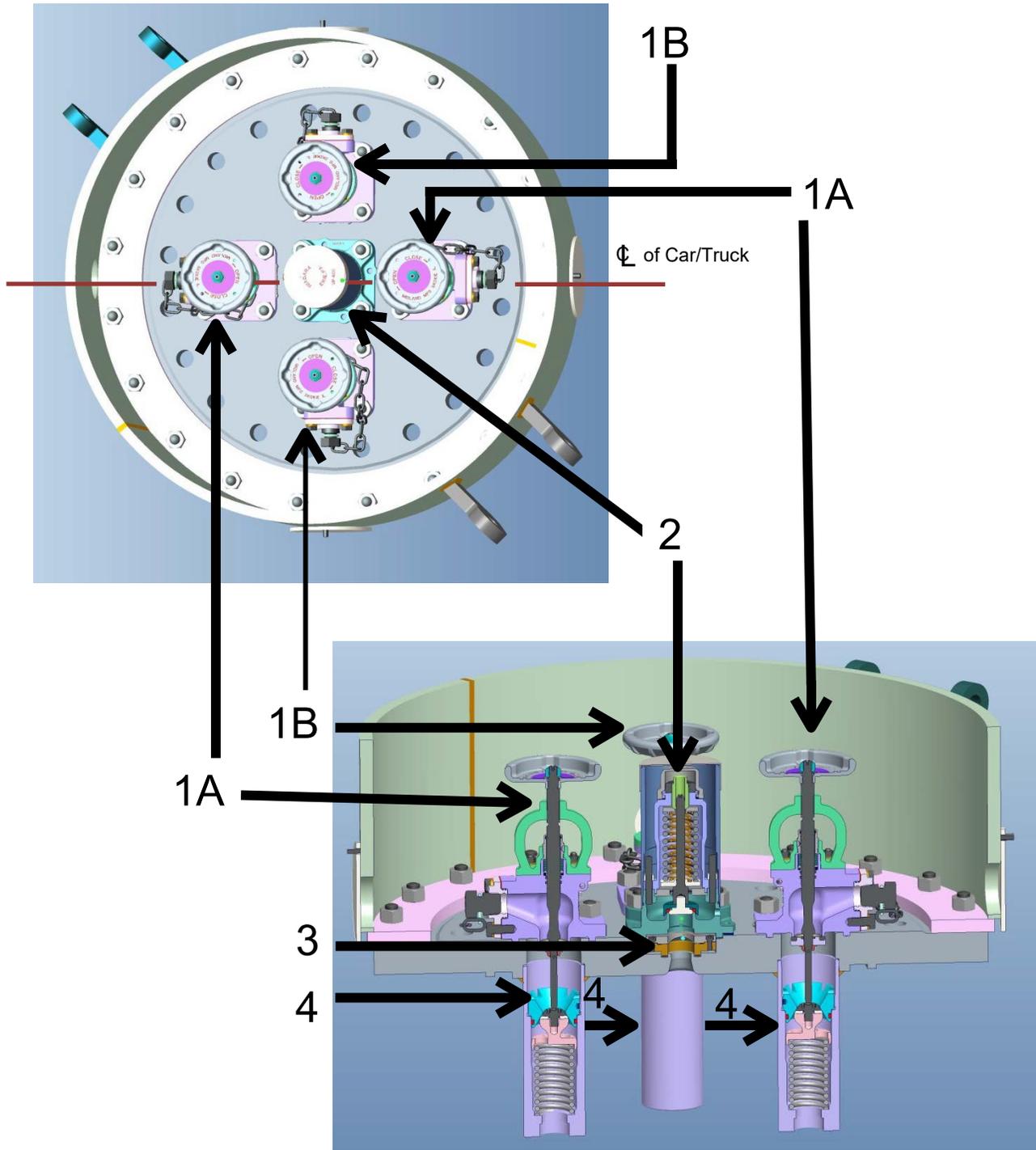


Figure 3.3

3.4 HOOD SELECTION TO STOP LEAKS

As mentioned in Section 3.1 – Traditional Valve Design, Section 3.2 – Alternate Valve Design Arrangement – 3 Loading/Unloading Valves, and Section 3.3 – Alternate Valve Design Arrangement – 4 Loading/Unloading Valves, there is more than one valve arrangement in service. Different valves require that different devices be used to stop the leak, as detailed in Section 6 – Hood for Traditional Angle Valves – Device 6, Section 7 -Hood For Pressure Relief Device – Device 24, and Section 8 – Hood for Alternate Valve Design – Device 24. The table below is a quick reference guide to determine which device should be used with the different valves.

Table 3. Hood Selection Guide		
Valve Arrangement	C-Kit Hood Required	Is Outlet Flange Removal Required to Install Hood?
Traditional Angle Valves		
Midland A-713-ML	Device 6	No
ACF 1" Angle Valve		
Eagle 1" Bellows Sealed Angle Valve		
Descote 921 Angle Valve		
Pressure Relief Devices	Device 24	No
Alternate Valves		
Midland Model A-718-HC Angle Valve	Device 24	Yes (see Figure 3.4 below)
Descote 925 Angle Valve	Device 6	No
Midland Model A-718-B Angle Valve	Device 24	No
Descote 922 Angle Valve		

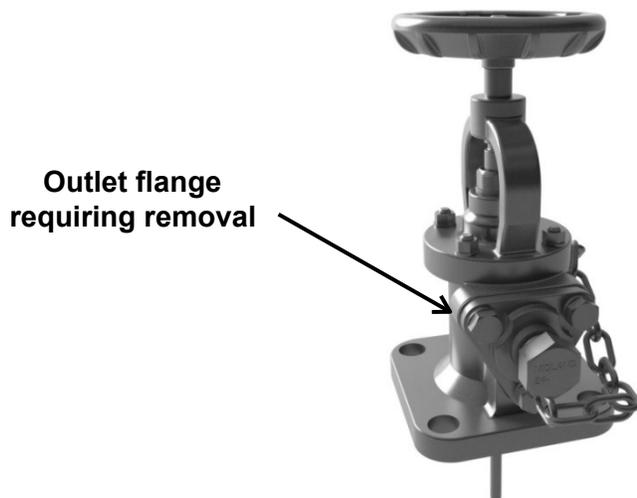


Figure 3.4 – Midland A-718-HC Angle Valve

3.5 ADDITIONAL TOOL KIT

The newer valve designs have a wider base and Device 6 will not fit over those valves. Device 24, used only to cap pressure relief devices on the traditional arrangement, will need to be used to cap these valves. Additionally, tools which ARE NOT included in the Kit "C" will need to be used. These tools are (shown in Figure 3.5):

- A. 1" diameter NPT (National Pipe Thread), End Threaded x 18" long carbon steel stabber pipe
- B. $\frac{3}{4}$ " deep socket wrench
- C. pressure gauge assembly (specifically designed or cleaned for chlorine use)

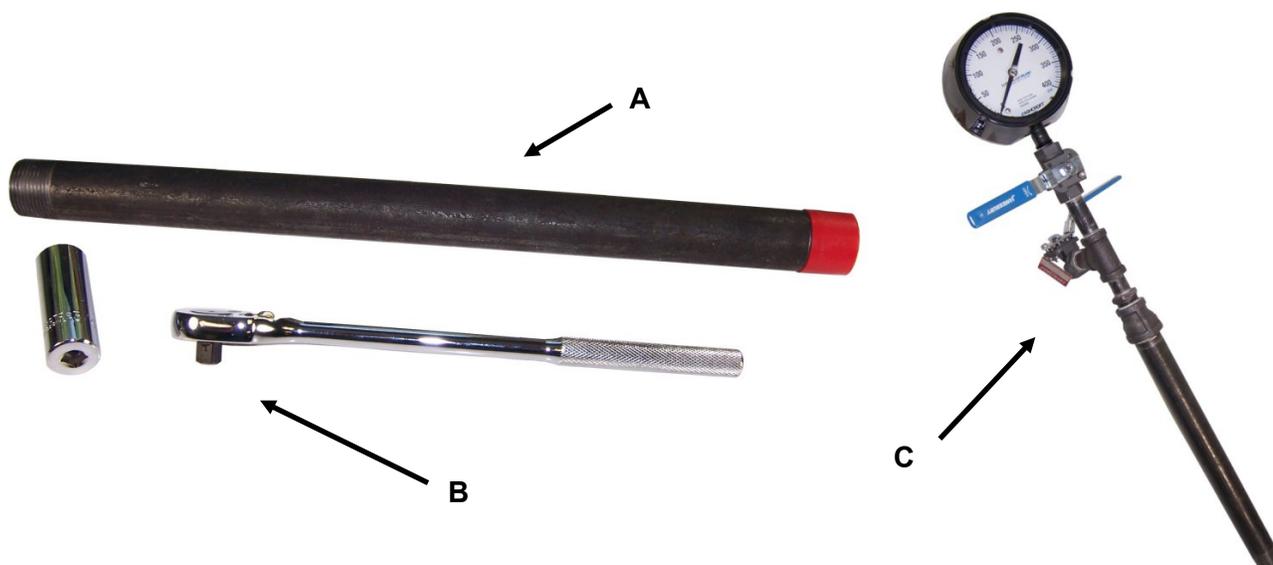


Figure 3.5 – Additional Tools Needed for Kit "C"

4. IDENTIFYING AND STOPPING LEAKS

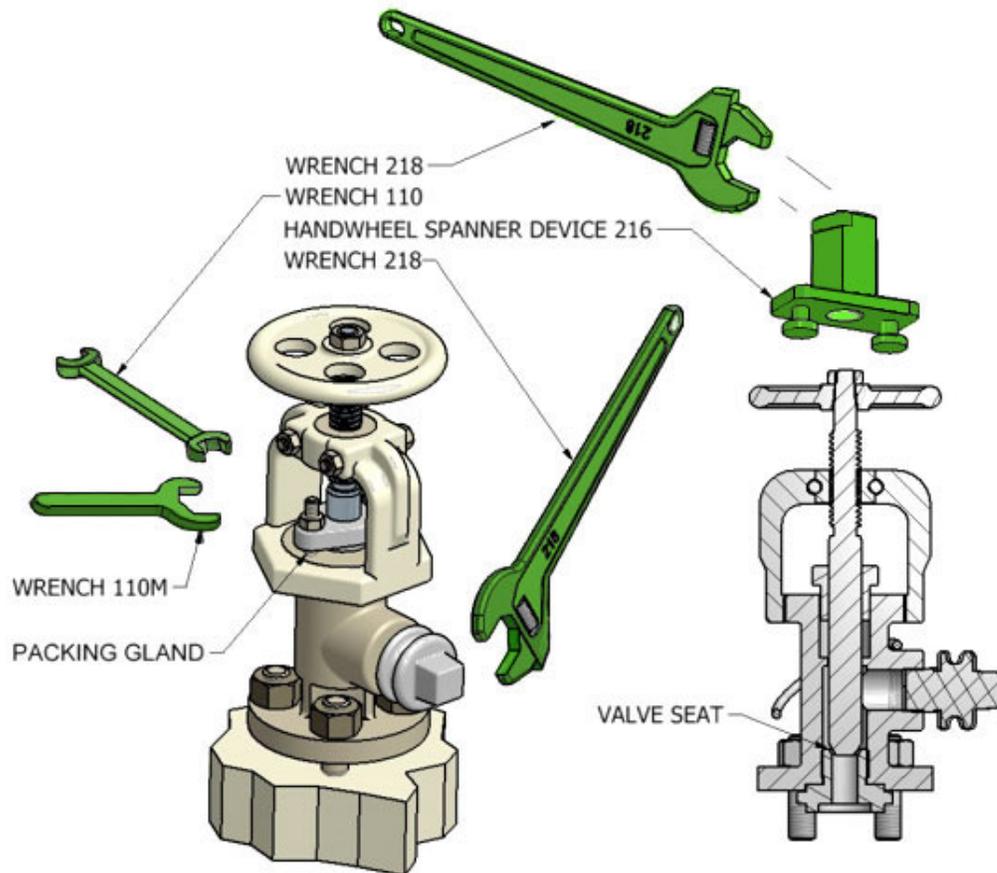


Figure 4.1 – Angle Valve Packing Gland Leak Points and Required Tools

4.1 LEAK: ANGLE VALVE PACKING GLAND

ACTION:

- A) Close valve by hand or use HANDWHEEL SPANNER DEVICE 216 with WRENCH 113, and WRENCH BAR 113C if additional force is required (See Figure 4.1). This should stop a packing leak. If it does not stop the leak, there is a valve seat leakage problem. See Section 4.2 about valve seat leaks.
- B) Tighten packing gland nuts using WRENCH 110 or 100M. Test for leaks.
- C) If leak continues, apply DEVICE 6 (Hood and Yoke Assembly Figure 6) (See Section 6 for instructions).

ACTION:

- A) Insert valve outlet plug using WRENCH 218 (See Figure 4.1). Open and close valve by hand or use HANDWHEEL SPANNER DEVICE 216 with WRENCH 113, and WRENCH BAR 113C if additional force is required. Carefully remove plug, wait a moment for the trapped chlorine to escape. Test for leaks.
- B) If leak continues, apply DEVICE 6 (Hood and Yoke Assembly Figure 6) (See Section 6 for instructions).

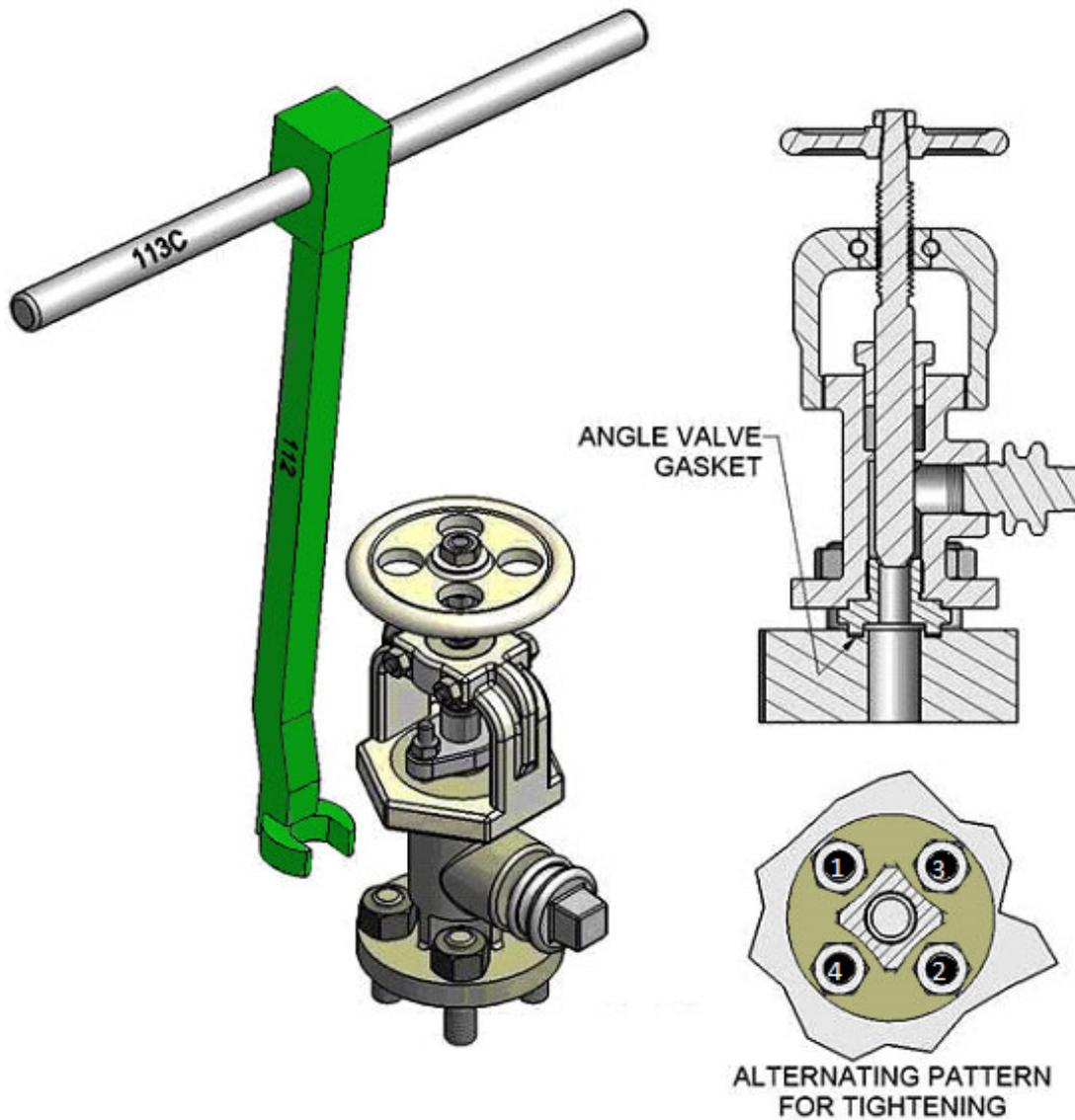


Figure 4.2 – Angle Valve Gasket Leaks and Required Tools

4.2 LEAK: ANGLE VALVE GASKET

ACTION:

- A) Tighten stud nuts in an alternating pattern using WRENCH 112 and WRENCH BAR 113C (See Figure 4.2). Test for leaks.
- B) If leak continues, apply DEVICE 6 (Hood and Yoke Assembly Figure 6) (See Section 6 for instructions).

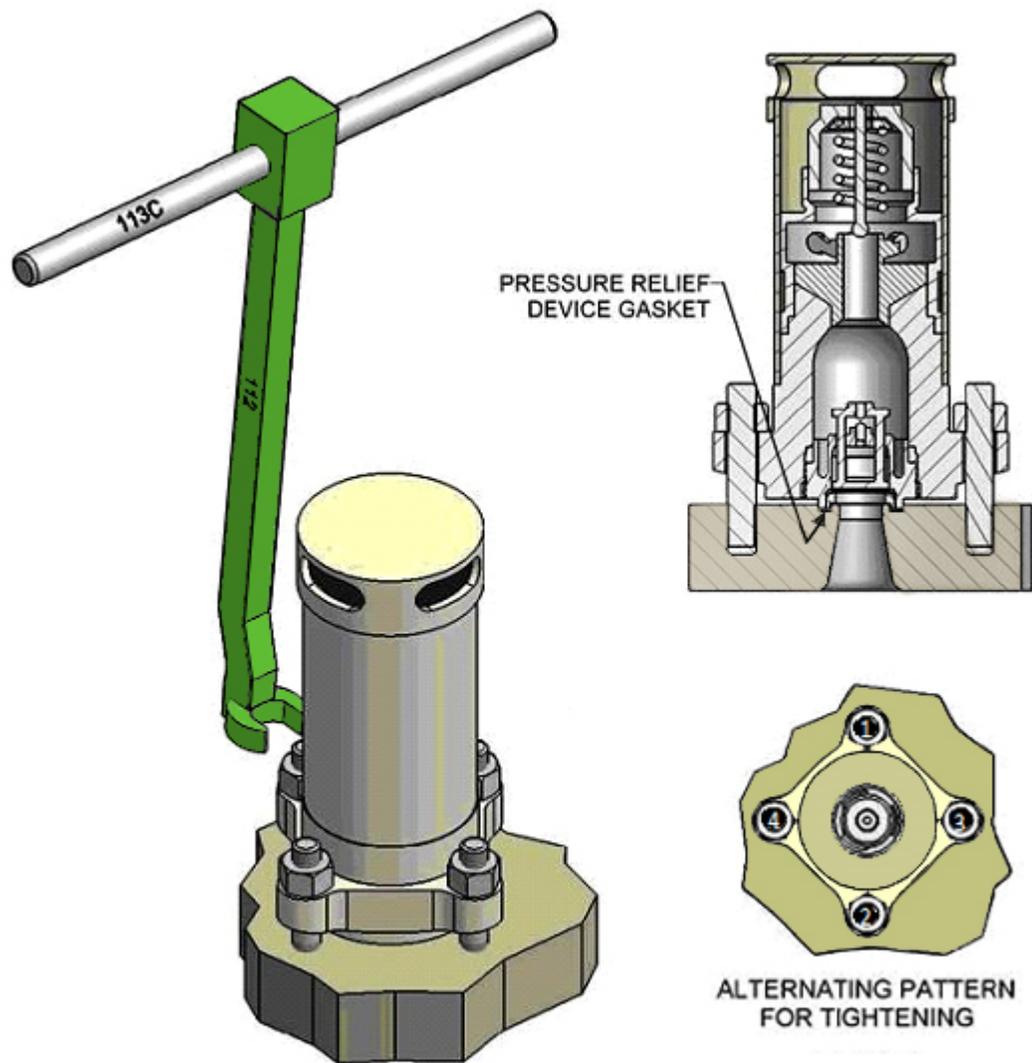


Figure 4.3 – Pressure Relief Device Leaks and Required Tools

4.3 LEAK: PRESSURE RELIEF DEVICE

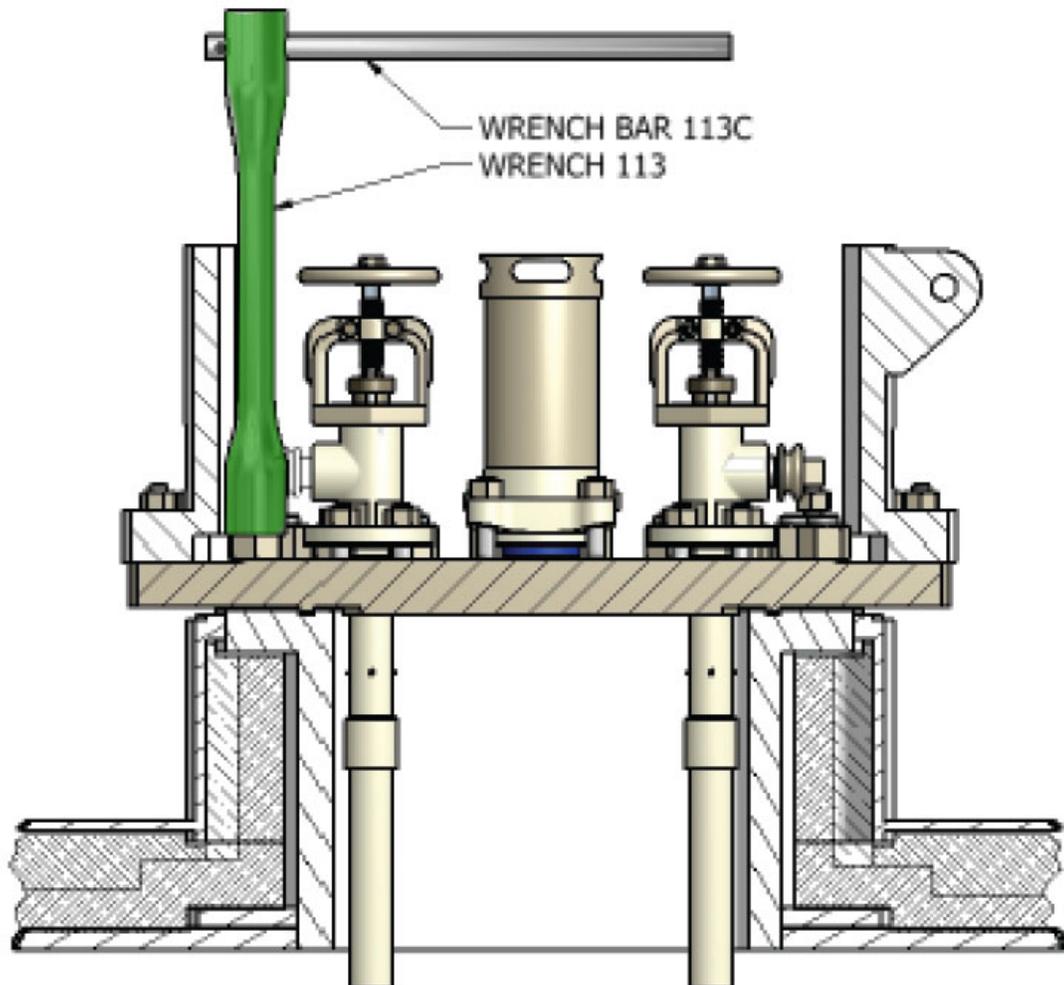
ACTION:

- A) Install pressure gauge, preferably on the vapor valve, to verify the car is not liquid full or under high pressure.
- B) Apply DEVICE 24 (Hood and Yoke Assembly Figure 7.1) (See Section 7 for instructions).

4.4 LEAK: PRESSURE RELIEF DEVICE GASKET

ACTION:

- A) Tighten stud nuts in an alternating pattern using WRENCH 112 and WRENCH BAR 113C (See Figure 4.3). Test for leaks.
- B) If leak continues, apply DEVICE 24 (Hood and Yoke Assembly Fig 7.1) (See Section 7 for instructions).



4.5 LEAK: MANWAY COVER GASKET

ACTION:

- A) Immediately report leak to the chlorine supplier. **CAUTION: IT IS NOT ADVISABLE FOR PERSONS TO HANDLE THIS CONDITION WITHOUT SPECIAL TRAINING.**
- B) Tighten manway cover stud nuts using WRENCH SOCKET 113, and WRENCH BAR 113C (See Figure 4.4).
- C) Test for leaks.

5. SUPPLEMENTARY ILLUSTRATIONS

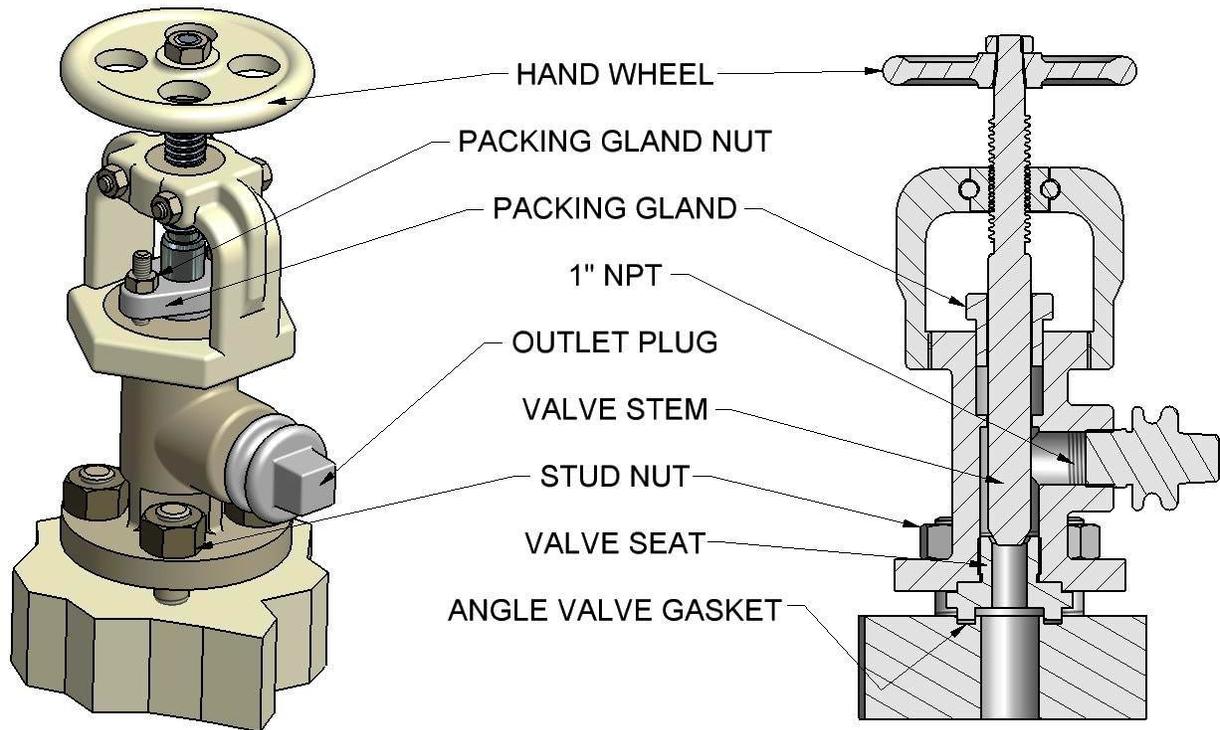


Figure 5.1 – Chlorine Angle Valve

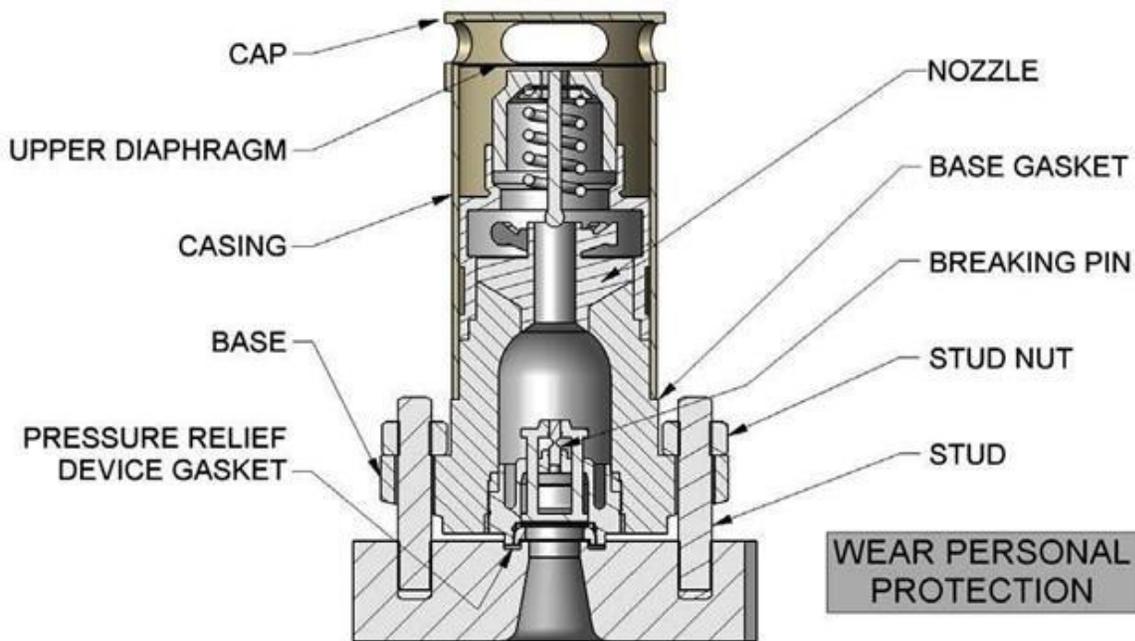


Figure 5.2 – Chlorine Pressure Relief Device (Traditional)

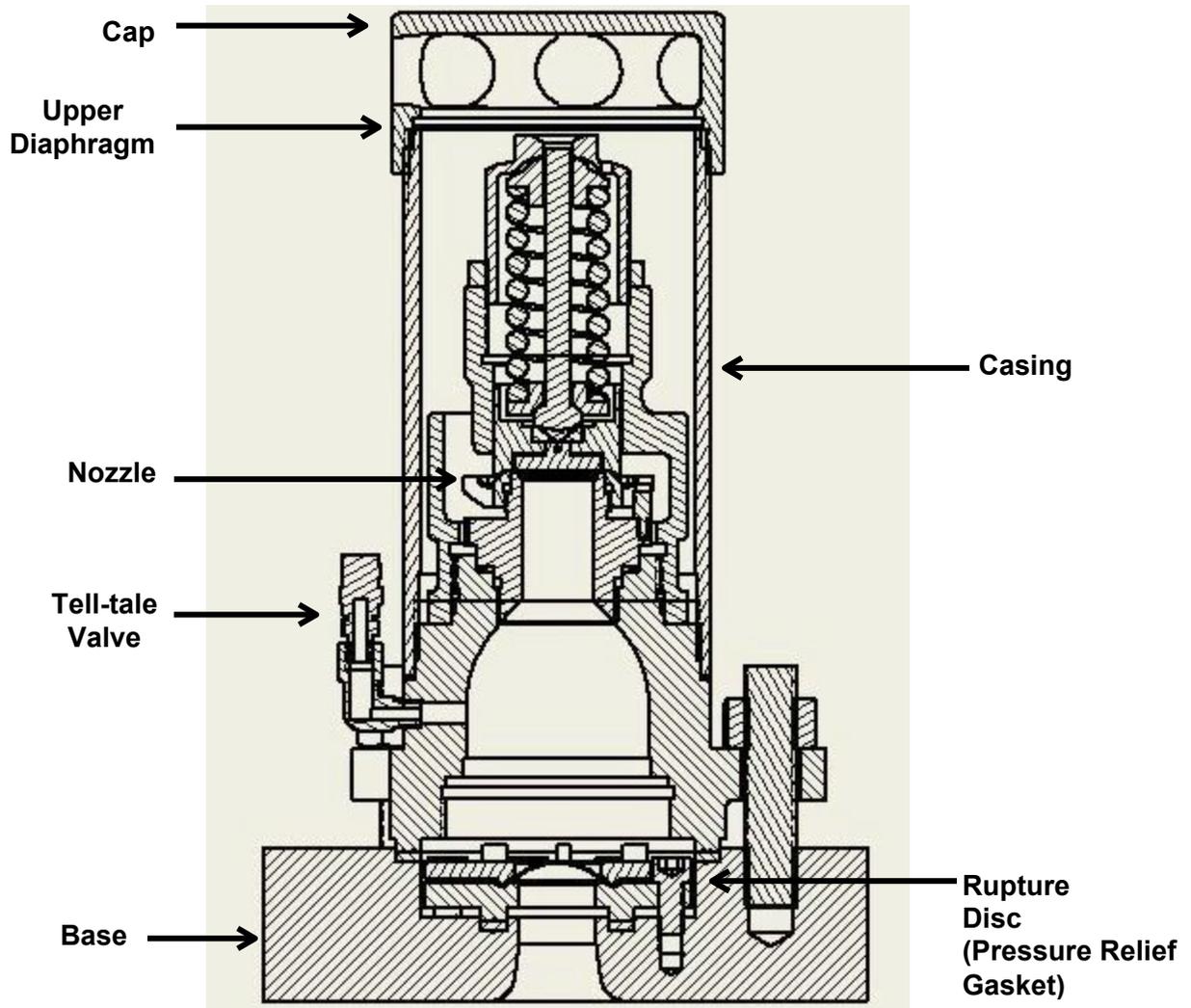


Figure 5.3 – Chlorine Pressure Relief Device (Alternate Design)

6. HOOD FOR TRADITIONAL ANGLE VALVES – DEVICE 6

STEPS – See Figure 6	Equipment
1. Remove outlet cap from VENT VALVE 6V on HOOD 6A1 and open valve.	WRENCH 200C HOOD 6A1
2. Disconnect piping if leaking angle valve is connected, or unscrew valve outlet plug. NOTE: A new shorter valve outlet plug design will be available soon. It is designed so that DEVICE 6 can be applied without the need to remove the plug.	WRENCH 218
3. Place outlet plug against packing gland. If plug chain or cable is in the way, cut it off with BOLT CUTTER C-3.	BOLT CUTTER C-3
4. Clean Manway Cover. Use PAINT SCRAPER C-2 if paint is loose or uneven.	PAINT SCRAPER C-2
5. Place GASKET 6BMV on HOOD 6A1. NOTE: When ambient temperatures are low, it is desirable to perform this operation in advance, preferably in a heated area.	GASKET 6BMV HOOD 6A1
6. Place HOOD 6A1 with GASKET 6BMV over the leaking valve.	GASKET 6BMV HOOD 6A1
7. Place YOKE ASSEMBLY 11A hooks into port openings of protective housing.	YOKE ASSEMBLY 11A
8. Center SCREW 11C over HOOD 6A1, tighten SCREW 11C forcing HOOD 6A1 and GASKET 6BMV against manway cover. Tighten 4 SCREWS 11E in BLOCK 11B alternately using WRENCH 200C forcing HOOD 6A1 and GASKET 6BMV against manway. NOTE: SCREW 11C should only be used to center hood and remove slack from the assembly. Retightening 11C will loosen the 4 remaining screws on BLOCK 11B. CAUTION: Tighten enough to stop leak; overtightening may cut gasket.	YOKE ASSEMBLY 11A HOOD 6A1 GASKET 6BMV WRENCH 200C
9. Close VENT VALVE 6V on HOOD 6A1 using WRENCH 200C. Replace VENT VALVE 6V outlet cap.	HOOD 6A1 WRENCH 200C
10. Test for leaks immediately after installation and at regular intervals if the capping is to be kept in place for an extended period.	

DEVICE 6 INCLUDES:

HOOD ASSEMBLY – 6A1 (with VENT VALVE 6V)
 YOKE ASSEMBLY – 11A
 GASKET – 6BMV
 WRENCH – 200C

**WEAR PERSONAL
PROTECTION**

Device 6 Assembled Over Angle Valve

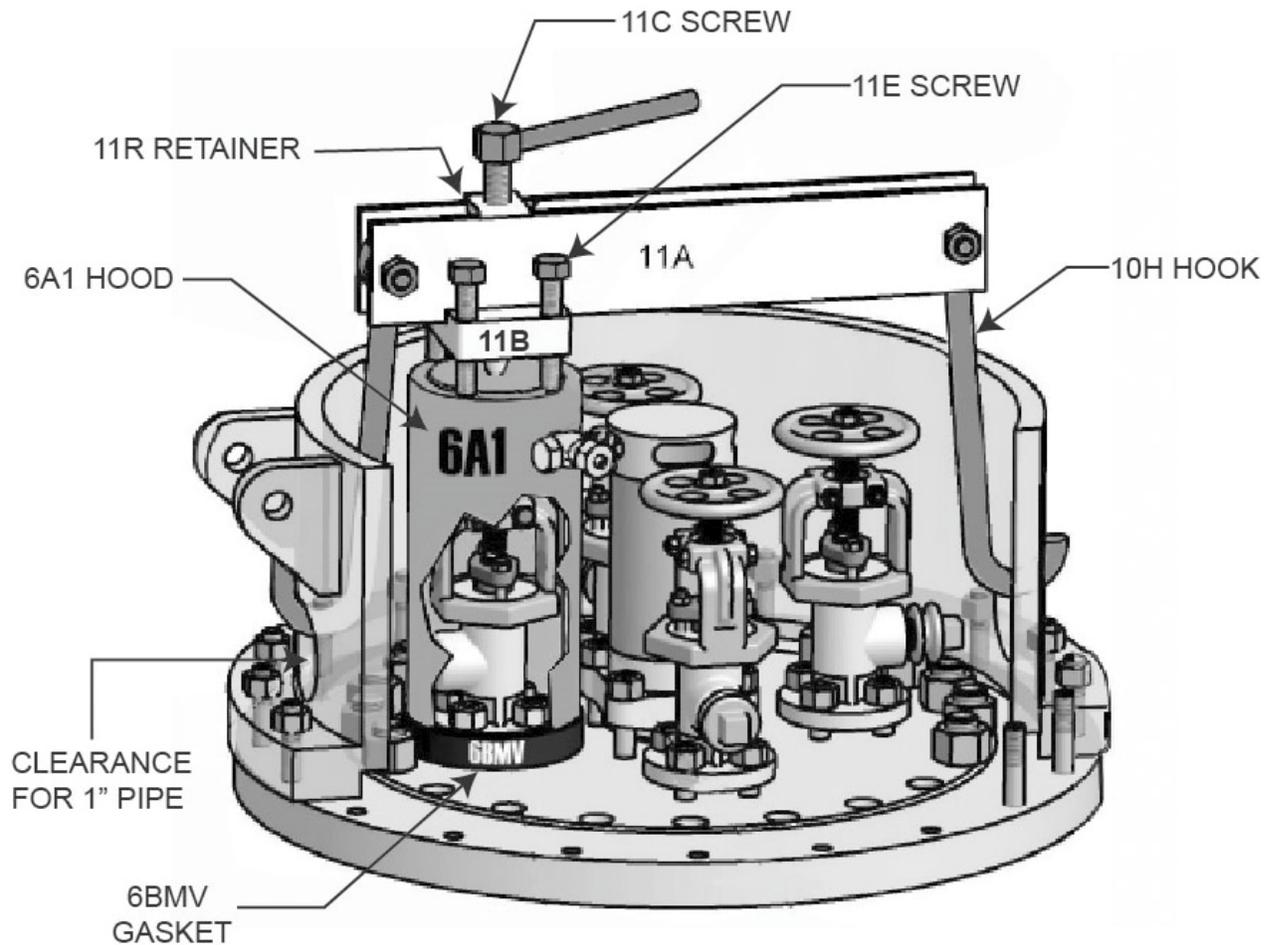


Figure 6 – Device 6, Assembled Over Angle Valve



**DEVICE 6
VIDEO CLIP**

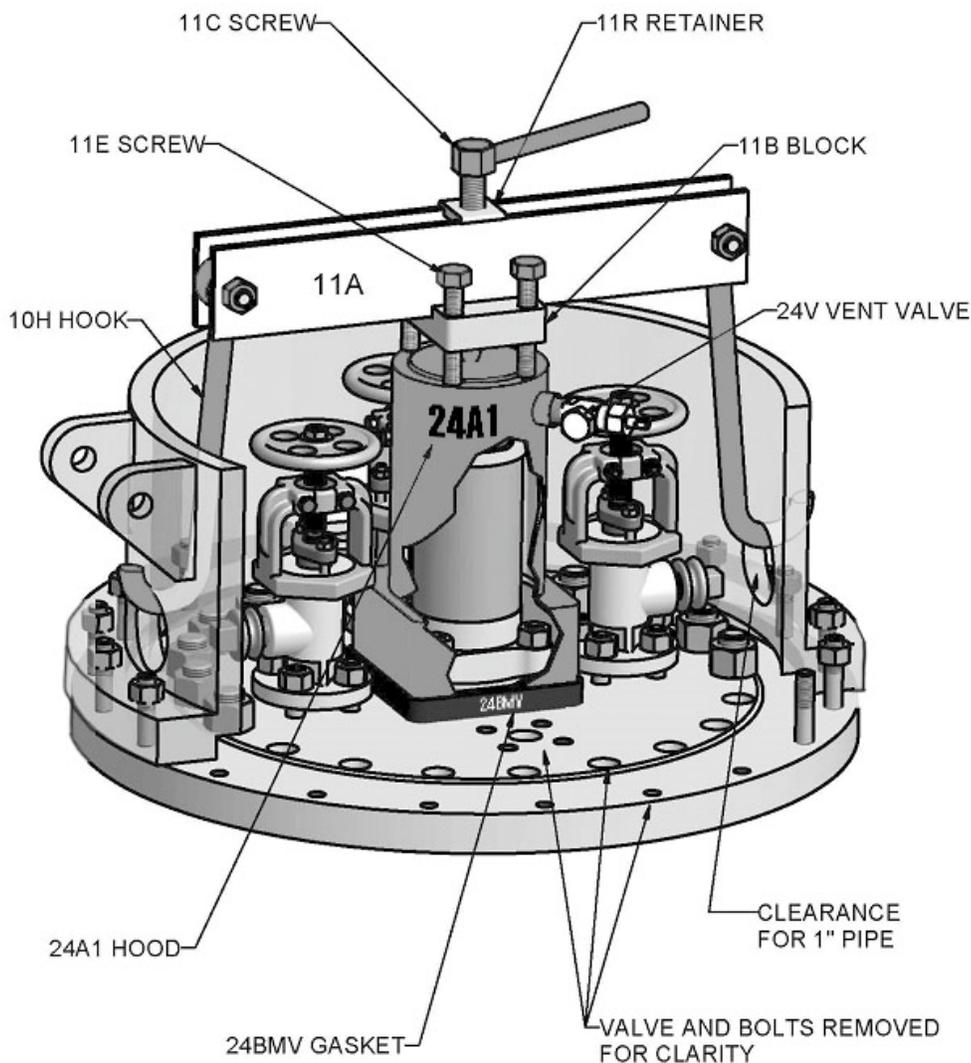
7. HOOD FOR PRESSURE RELIEF DEVICE – DEVICE 24

STEPS – See Figures 7.1, 7.2 and 7.3	Equipment
<p>Prior to installing DEVICE 24, a pressure reading should be taken to ensure the tank is not liquid full.</p> <ol style="list-style-type: none"> 1. Remove outlet cap from VENT VALVE 24 on HOOD 24A1 and open VENT VALVE 24V. 2. Clean manway cover. Use PAINT SCRAPER C-2 if paint is loose or uneven. 3. Place GASKET 24BMV on HOOD 24A1. NOTE: When ambient temperatures are low, it is desirable to perform this operation in advance, preferably in a heated area. 4. Place HOOD 24A1 with GASKET 24BMV over pressure relief device. NOTE: The design of some tell-tale valves are such that an outlet screw plug may be installed on the side and interfere with application of the HOOD 24A1 (see Figure 7.2). There are two options to resolve this interference prior to installing the HOOD 24A 1: (1) rotate the tell-tale valve toward the pressure relief device until the screw plug does not interfere with application (see Figure 7.3), OR (2) unscrew and remove the screw plug. 5. Place YOKE ASSEMBLY 11A hooks into port openings of protective housing. 6. Center SCREW 11C over HOOD 24A1, tighten SCREW 11C forcing HOOD 24A1 And GASKET 24BMV against manway cover. Tighten 4 SCREWS 11E alternately in BLOCK 11B using WRENCH 200C forcing HOOD 24A1 and GASKET 24BMV against manway. NOTE: SCREW 11C should only be used to center hood and remove slack from the assembly. Retightening 11C will loosen the 4 remaining screws on BLOCK 11B. CAUTION: Tighten enough to stop leak; overtightening may cut gasket. 7. Close VENT VALVE 24V on HOOD 24A1 using WRENCH 200C. Replace VENT VALVE 24V outlet cap. 8. Test for leaks immediately after installation and at regular intervals if the capping is to be kept in place for an extended period. 	<p>WRENCH 200C HOOD 24A1</p> <p>PAINT SCRAPER C-2</p> <p>GASKET 24BMV HOOD 24A1</p> <p>GASKET 24BMV HOOD 24A1</p> <p>YOKE ASSEMBLY 11A</p> <p>YOKE ASSEMBLY 11A HOOD 24A1 GASKET 24BMV WRENCH 200C</p> <p>HOOD 24A1 WRENCH 200C</p>

DEVICE 24 INCLUDES:
 HOOD ASSEMBLY – 24A1 (with VENT VALVE 24V)
 YOKE ASSEMBLY – 11A
 GASKET – 24BMV
 WRENCH – 200C

WEAR PERSONAL PROTECTION

Device 24 Assembled Over Pressure Relief Device



Vapor valve, bolts, and pressure gauge removed from illustration for clarity

Figure 7.1 – Device 24 Assembled Over Pressure Relief Device



**DEVICE 24
VIDEO CLIP**



Figure 7.2 – Tell-tale valve plug shown extending into the Hood 24A footprint



Figure 7.3 – Rotated tell-tale valve so it does not interfere with Hood 24A footprint

8. HOOD FOR ALTERNATE VALVE DESIGN – DEVICE 24

Device 6 will not fit on some of the alternate valve designs. Device 24, traditionally used for the pressure relief device only, will need to be used instead. Also, additional tools, not included in the C-Kit, will be needed (see the Additional Tools Section 3.5).

STEPS – See Figure 7.1	Equipment
1. Remove the inlet/outlet flange by removing the three bolts securing the flange to the valve body. Use the stabber pipe to separate the flange from the valve body.	1" x 18" STABBER PIPE ² 3/4" DEEP SOCKET WRENCH ²
2. Remove outlet cap from VENT VALVE 24 on HOOD 24A1 and open VENT VALVE 24V.	WRENCH 200C HOOD 24A1
3. Clean manway cover. Use PAINT SCRAPER C-2 if paint is loose or uneven.	PAINT SCRAPER C-2
4. Place GASKET 24BMV on HOOD 24A1. NOTE: When ambient temperatures are low, it is desirable to perform this operation in advance, preferably in a heated area.	GASKET 24BMV HOOD 24A1
5. Place HOOD 24A1 with GASKET 24BMV over leaking valve.	GASKET 24BMV HOOD 24A1
6. Place YOKE ASSEMBLY 11A hooks under mounting bars or port openings of protective housing.	YOKE ASSEMBLY 11A
7. Center SCREW 11C over HOOD 24A1, tighten SCREW 11C forcing HOOD 24A1 And GASKET 24BMV against manway cover. Tighten 4 SCREWS 11E alternately in BLOCK 11B using WRENCH 200C forcing HOOD 24A1 and GASKET 24BMV against manway. NOTE: SCREW 11C should only be used to center hood and remove slack from the assembly. Retightening 11C will loosen the 4 remaining screws on BLOCK 11B. CAUTION: Only tighten enough to stop leak; overtightening may cut gasket.	YOKE ASSEMBLY 11A HOOD 24A1 GASKET 24BMV WRENCH 200C
8. Close VENT VALVE 24V on HOOD 24A1 using WRENCH 200C. Replace VENT VALVE 24V outlet cap.	HOOD 24A1 WRENCH 200C
9. Test for leaks immediately after installation and at regular intervals if the capping is to be kept in place for an extended period.	
10. After an hour, recheck bolt torque to restore the amount of torque used to stop leak. Do not overtighten.	

DEVICE 24 INCLUDES:

HOOD ASSEMBLY – 24A1 (with VENT VALVE 24V)

YOKE ASSEMBLY – 11A

GASKET – 24BMV

WRENCH – 200C

**WEAR PERSONAL
PROTECTION**

² Additional tool not included with Kit "C" (See Section 3.5)

9. HANDLING OF CHLORINE REMAINING IN TANK

The containment of leaks by the CI Emergency Kit “C” devices is only an interim measure; the container must be emptied as soon as possible. The preferred method is to use the remaining chlorine in the customer’s process.

This procedure should be attempted by experienced personnel only.

**CONSULT WITH THE CHLORINE SUPPLIER
IMMEDIATELY AND ARRANGE FOR ULTIMATE DISPOSAL**

If supplier is unknown, see Section 2.5, Assistance, for instructions.

10. KIT MAINTENANCE

NOTE: All parts of the CI Emergency Kit “C” should be maintained in a ready-to-use condition.

10.1 AFTER USE

Inspect all parts for damage, wear and corrosion. Clean and dry all parts used. Lubricate moveable parts with a lubricant that is non-reactive to chlorine. Refer to CI Pamphlet 164, *Reactivity and Compatibility of Chlorine and Sodium Hydroxide with Various Materials*, for guidance on suitable lubricants. (CI Pamphlet 164 is available for free download from the CI bookstore, <https://bookstore.chlorineinstitute.org>). Replace all gaskets used.

10.2 ROUTINE

The kit should be frequently inspected by the person responsible for the equipment and checked with the contents list to ensure that equipment is complete and ready for use. **The box should be sealed after each inspection** and such seals should be broken only by authorized persons or in case of accidents. Many owners coordinate routine inspection with training drills.

All gaskets made of Viton® are stamped with the date of manufacture and **should be removed from the kit after use in an Emergency or after a four-year shelf life**. For further guidelines concerning the gaskets made from Viton™, consult the manufacturer or The Chlorine Institute.

10.3 SPARE PARTS

Owners of this kit may purchase spare parts from the manufacturer. For information on ordering procedures consult the manufacturer or The Chlorine Institute.

11. KIT LIMITATIONS

Kit specifications call for the pressure retaining parts of this kit to be hydrostatically tested to 300 psi by the manufacturer. CI Emergency Kit "C" does not contain any devices to handle leaks in the tank itself.

12. PARTS LIST**Chlorine Institute Emergency Kit "C"**

(Full contents pictured in Figure 12 below)

Part Number	Description	Quantity Per Kit
6A1	Hood Assembly (with 6V Vent Valve)	1
6BMV	Gasket, molded from Viton®	2
11A	Yoke Assembly	1
11B	Block with 4 – 11E Screws	1
11C	Screw with 11R Retainer	1
24A1	Hood Assembly (with 24V Vent Valve)	1
24BMV	Gasket, molded from Viton®	2
110	Wrench, Combination, 11/16", 6-1/2" long	1
110M	Wrench, Open End, 1-1/16" x 6" long	1
112	Wrench, crowfoot special, 1-9/32" opening x 21" long	1
113	Wrench Assembly 1-13/16" socket x 18"lg., 1" dia. bar adapter	1
113C	Wrench Bar, 1" dia. x 20" long	1
200C	Wrench, 3/8" sq. box x 1-1/4" open end x 7-1/4" long	1
216	Handwheel Spanner Device	1
218	Wrench, 15" adjustable	1
C-1	Hammer, Machinist, 24 oz.	1
C-2	Paint Scraper, 1-1/4 blade	1
C-3	Bolt Cutter, 18"	1
C-5	Rings, Vent Valve Packing, 7/8" OD x 15/32" ID x 1/4" thick	5
C-7	Kit Box Seals	15
C-9	Gasket Sack	1
151-C	Kit Tool Box	1
152	Tool Roll	1
	Kit "C" Instruction Booklet	2
	CI Pamphlet 1 - <i>Chlorine Basics</i>	1

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Figure 12 – Chlorine Institute Emergency Kit “C”



OPTIONAL EQUIPMENT**Device Part #406**

Stripped Bulk Valve Stem Clamping Device:
Designed to close tank car angle valves with stripped valve stem threads.

13. EMERGENCY CONTACTS

The following is a sample form that can be used for recording necessary emergency contacts.

Emergency Contacts	
Chlorine Supplier:	_____
Address:	_____
Phone:	_____
CHEMTREC*	800-424-9300
CANUTEC**	613-996-6666
Nearest Chlorine Producer or Packager:	_____
Address:	_____
Phone:	_____
Police Department:	_____
Fire Department:	_____
First Aid:	_____
* In the UNITED STATES, summon help through CHEMTREC, the Chemical Transportation Emergency Center at the American Chemistry Council in Falls Church, VA.	
(toll free)	800-424-9300
** In CANADA, summon help through CANUTEC, the Canadian Transport Emergency Centre in Ottawa.	
CANADA, All provinces (call collect)	613-996-6666