

Summary Report for Individual Task  
052-12K-1071  
Rebuild a Gate Valve  
Status: Approved

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**Distribution Restriction:** Approved for public release; distribution is unlimited.

**Destruction Notice:** None

**Foreign Disclosure: FD1** - This training product has been reviewed by the training developers in coordination with the Maneuver Support Center of Excellence (MSCoE), Fort Leonard Wood, MO. foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

**Condition:** Given a mission to rebuild a gate valve, in an existing pipeline/system, materials takeoff list, materials estimates, all required materials, pipefitters tool kit 1/8 to 2 inch, pipefitters tool kit 2 to 4 inch, engineer squad carpenters tool kit, engineer squad pioneer tool kit, special tools, goggles/safety glasses, gloves appropriate doctrine and access to the International Plumbing Code (IPC). This task should not be trained in MOPP 4.

**Standard:** Rebuild a gate valve meeting specifications. Without leaks, damage to equipment or the environment and without injury to personnel.

**Special Condition:** In the event the gate valve is being used for compressed air, steam, natural gas or petroleum liquids, ensure all safety and code requirements are followed.

**Safety Risk:** Low

**MOPP 4:** Never

<b>Task Statements</b>
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**Cue:** Soldier receives an order to rebuild a gate valve.

<b>DANGER</b>
The use of Gate Valves in construction and installation of liquefied petroleum gas facilities shall be in accordance with the requirements of the International Building code, the International Fire Code, the International Mechanical Code, the International Fuel Gas Code and NFPA 58.

<b>WARNING</b>
None

<b>CAUTION</b>
None

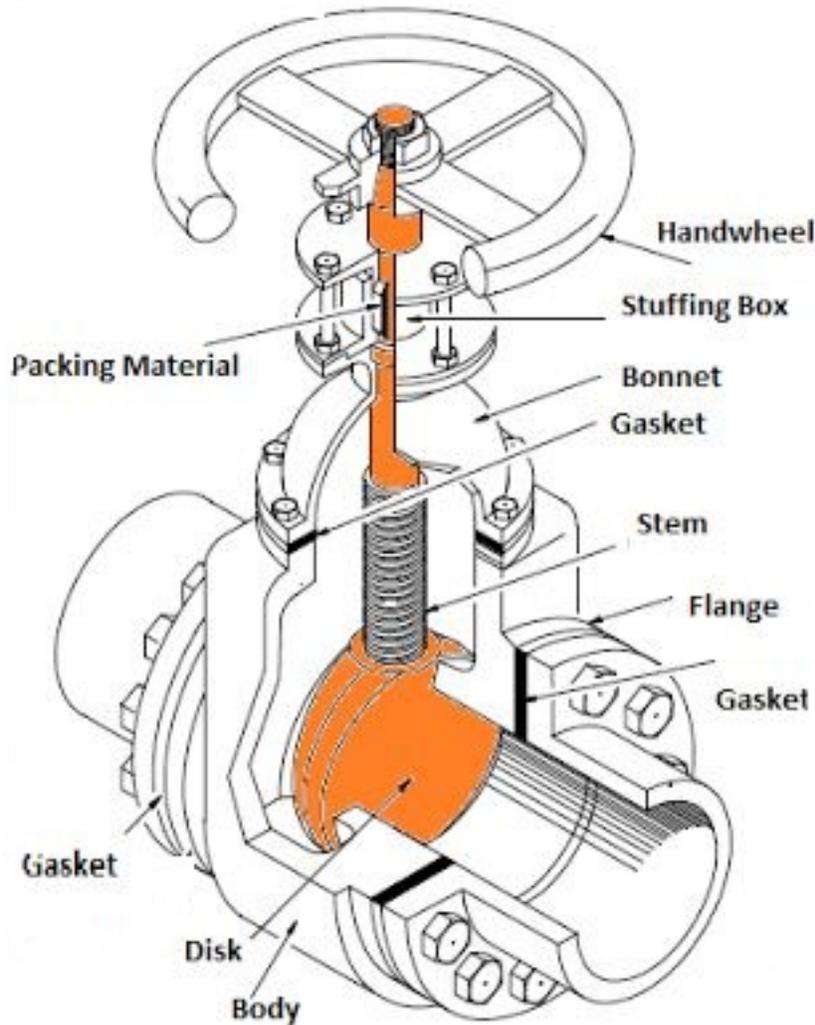
**Remarks:** None

**Notes:** A gate valve is used to start or stop liquid, steam, or gas flow. This valve has a split or a solid wedge disc that fits into a machine surface called a seat. The valve is operated by raising the disc to start the flow and seating the disc to stop the flow. Gate valves come in the following models: rising stem with an outside screw and yoke, rising stem with an inside screw, and non-rising stem with an inside screw.

## Performance Steps

1. Verify the materials takeoff list and the material estimates.

a. Verify the type of gate valve to be repaired.



Typical Gate Valve Assembly  
052-12K-1071-1

b. Verify the proper repair parts or rebuild kits are available.

**Safety:** In some circumstances the gate valve is the main shut off valve. This may warrant draining storage facilities or the use of other methods to relieve pressure from the gate valve prior to disassembly. If this is the case, then caution must be used when removing the valve bonnet as it may be under pressure. The valve bonnet can be loosened slowly allowing the pressure to be released at the valve.

2. Shut off liquid flowing through the gate valve at the main.

3. Rebuild the gate valve.

Note: - Before disassembling the valve ensure the stem and disc assembly move freely.

a. Remove the wheel handle and packing nut assembly.

b. Clean out all of the old packing.

- c. Remove the valve bonnet and gasket assembly.
- d. Remove the stem and disk assembly.
- e. Clean the entire valve body and assembly.
- f. Resurface the disc with a mixture of oil and lapping compound.
- g. Reassemble the valve.

Note: Best practices:

- During disassembly, check all parts for wear and replace them as needed.
- is to apply Teflon paste to the threaded portion of the stem and gate assemblies before repositioning them in the valve body.
- Set in new graphite packing.
- Best practice is to apply Teflon paste to the top portion of the stem before repositioning the wheel.

4. Test the gate valve by restoring liquid flow through the vale.

Note: While testing inspect for leaks and check to ensure the valve operates correctly. If either of these test fail take corrective action and retest the valve.

(Asterisks indicates a leader performance step.)

**Evaluation Guidance:** Score the Soldier GO if all steps are passed (P). Score the Soldier NO-GO if any step is failed (F). If the Soldier fails any step, show him how to do it correctly.

**Evaluation Preparation:** Setup: Provide the Soldier with the items listed in the conditions. Brief Soldier: Tell the soldier that he will be required to complete the performance measures according to the standards set forth in the task.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Verified the materials takeoff list and the material estimates.			
2. Shut off liquid flowing through the gate valve at the main.			
3. Rebuilt the gate valve.			
4. Tested the gate valve by restoring liquid flow through the vale.			

**Supporting Reference(s):**

Step Number	Reference ID	Reference Name	Required	Primary
	TM 3-34.70	Plumbing, Pipe Fitting, and Sewerage	Yes	Yes

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and / or host nation laws for disposal of solid waste (i.e. scrap steel, plastic, and copper pipe etc.) generated by construction tasks.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and

water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. Soldier needs to wear all safety items while performing this task. All tools and unused material must be picked-up if not being used.

**Prerequisite Individual Tasks :** None

**Supporting Individual Tasks :**

<b>Task Number</b>	<b>Title</b>	<b>Proponent</b>	<b>Status</b>
052-12K-1061	Maintain Plumbing Tools	052 - Engineer (Individual)	Approved

**Supported Individual Tasks :** None

**Supported Collective Tasks :** None