

# Type N550 Emergency Shutoff Valves

## Instruction Manual



### WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Fisher equipment must be installed, operated, and maintained in accordance with federal, state, and local codes and Fisher instructions. The installation in most states must also comply with NFPA No. 58 or ANSI K61.1 standards.

Only personnel trained in the proper procedures, codes, standards, and regulations of the LP-gas or anhydrous ammonia industries should install and service this equipment.

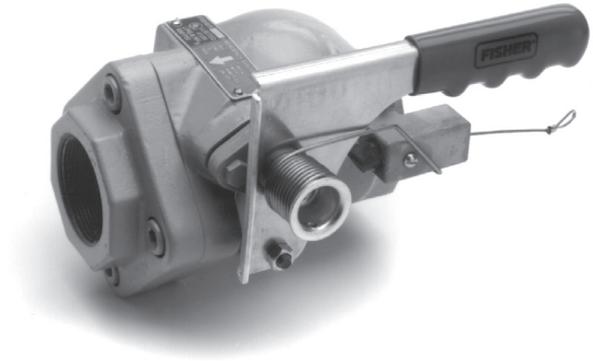


Figure 1. Type N550 in Closed Position

## Introduction

### Scope of Manual

This instruction manual covers installation and maintenance for the Type N550 Series Emergency Shutoff Valves and Accessories.

### Description

Type N550 Snappy Joe® (Figure 1) emergency shutoff valves are intended for in-line use on LP-gas or NH<sub>3</sub> service.

The valves may be installed on both ends of transfer hoses where the hose connects the bulk plant piping to the bobtail, transport, or tank car. They provide a quick way of shutting off gas flow in the event of a hose rup-

ture and meet the requirements for such service when correctly installed with a remote release and proper piping support. The N550 valves are lever operated, latch-open, and quick closing valves. A fusible element in the latch melts if the temperature reaches 212°F (100°C), allowing the valve to close.

The following accessories are also covered:

Type P164B – Cable Release Assembly.

Type P327D – Remote Pneumatic Release Assembly.

## Specifications

Table 1 lists specifications for the Type N550 valve which is designed for butane, propane, or NH<sub>3</sub> service at ambient temperatures. Contact the factory if the valve is to be used on any other service, fluid, compressed gas, or temperature condition.



# Type N550 Emergency Shutoff Valves

## Operation



### CAUTION

The Type N550 handle and shaft may break if the valve is forced open against the gas flow and before pressure is equalized on each side of the main valve disc.

### To Open a Closed Valve:

Close a shutoff valve downstream of the N550. Pull the N550 handle counter clockwise. There will be resistance to opening as inlet pressure helps hold the valve disc closed against the seat. The initial opening force on the handle opens a pilot valve in the main valve disc, permitting pressure to build up downstream. When differential pressure across the main disc has been reduced, the N550 can be opened without further difficulty by continuing to lift the handle to the open position. When the handle is fully open (handle perpendicular to the pipe) the latch engages to hold the valve open.



### CAUTION

Because the valve is spring closed (aided by pressure), the handle can snap down with considerable force when closing. Keep hands and fingers away from the handle as it closes.

### To Close an Open Valve:

Pushing the handle down (handle parallel to the pipe) will close the valve.

From a remote location, pulling on the remote cable or exhausting pneumatic pressure from the P327D will retract the plunger allowing the N550 to close.

If emergency conditions cause the fusible element to reach a temperature of 212°F (100°C), the element, which attaches the handle to the shaft, pulls apart and allows the valve to close.

## Installation

### Shutoff Direction

The valves shall be installed in the fixed piping between a storage tank and the transfer hose connection at the

TYPE NUMBER	BODY SIZE	PROPANE FLOW AT 2 PSIG DIFFERENTIAL
N550-10	1 1/4-in. FNPT	75GPM
N550-16	2-in. FNPT	115 GPM
N550-24	3-in. FNPT	275GPM

MAXIMUM INLET PRESSURE :400 PSI

Table 1 - Specifications

truck or tank car loading/unloading area. They can be placed in a line used either for filling or withdrawing from the storage tank (or both). The valve shall be installed to shutoff flow from the tank towards the hose, enabling the valve to control product loss in case of a hose break.



### WARNING

N550 valves are spring closed (aided by pressure) and shutoff flow in one direction only. THE NAMEPLATE FLOW ARROW SHOWS FLOW DIRECTION FOR VALVE SHUTOFF. The arrow shall point to the hose connection. Improper flow direction will not shutoff flow through the line.

When installed in horizontal piping, install with the nameplate up. The valve can be installed in vertical piping with the flow arrow pointing in the desired flow direction for valve shutoff. In some cases the normal flow through the valve may be opposite the shutoff direction (like a back check valve).

### Bulk Head Protection

The valve should be installed near the hose connection, but shall be positioned so that any undue strain resulting from a hose pull cannot shear the valve or its inlet piping from the storage area piping. The piping shall always be firmly supported and anchored to be sure of meeting the requirement.

One preferred method of installation is shown in Figure 2 where the pipe connection to the valve and to the hose coupling is securely anchored in a solid bulkhead.

A bobtail truck can provide enough pull on the hose connection to cause a break in the system. That break must not occur between the Type N550 and the storage tank.

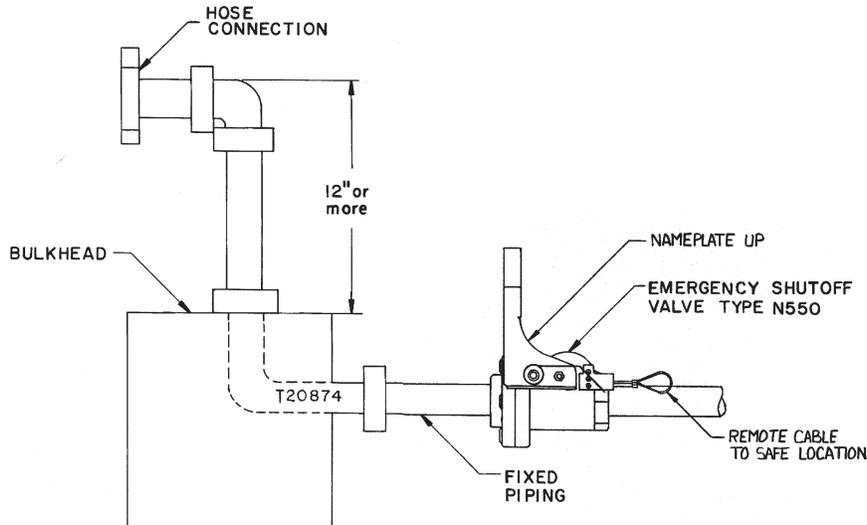


Figure 2. Typical N550 Installation Using Remote Cable Release

## Fusible Element Location

A fusible element that will close the N550 shall be located within five feet of the hose connection. If the N550 is placed within five feet of the hose connection, this requirement is met. If not, an additional fusible element must be provided near the hose coupling which will activate a remote release.

## Remote Release Installation

In all installations a remote release shall be connected to the latch on all emergency valves at the bulk head. The remote release has to extend to a place where it can be easily reached to close the N550 valve(s) in the event that an emergency makes the valve(s) inaccessible. The remote release shall shutdown all emergency valves when activated. Remote release activation may be by cable or pneumatic hook-up.

## Cable Hook-Ups



### WARNING

**Remote release cables shall be installed so that they will close the N550 valve(s) when pulled from the farthest remote location. Cable shall operate smoothly, over pulleys and/or through conduit. Do not kink cable or run cable around sharp corners. If installed in conduit, keep water out of conduit. Frozen water, dirt or dried mud in the conduit will render the remote release inoperable.**

**Remote releases used on N550 valves shall not:**

- (a) be made from plastic or fiber rope;**
- (b) have any kind of fusible link which could melt and prevent the cable from pulling the N550 latch.**

To provide a remote release, aircraft cable can be connected to the short looped cable on the valve and run to the remote release point over pulleys or through conduit. Adjust the cable so that minimal pull is required to close the emergency valves.

## P164B Cable Installation

To connect a Fisher P164B remote release assembly, which is supplied with 50 feet of cable:

1. Run the inner cable and housing assembly to the remote release point. Leave enough slack on each end for a smooth, flowing path, without sharp bends in the cable, between the N550 latch block and remote release handle.
2. If it is necessary to cut the cable to a shorter length, pull about one foot of inner cable from the N550 latch block cable end (end with the 3/16 by 1/2 long cylindrical cast fitting, see Figure 3) from the housing.

At the remote release end (other end of inner cable/housing assembly), cut the housing and inner cable at desired length. Push the excess inner cable back through the housing so that the bare cable extends from the remote release end.

# Type N550 Emergency Shutoff Valves

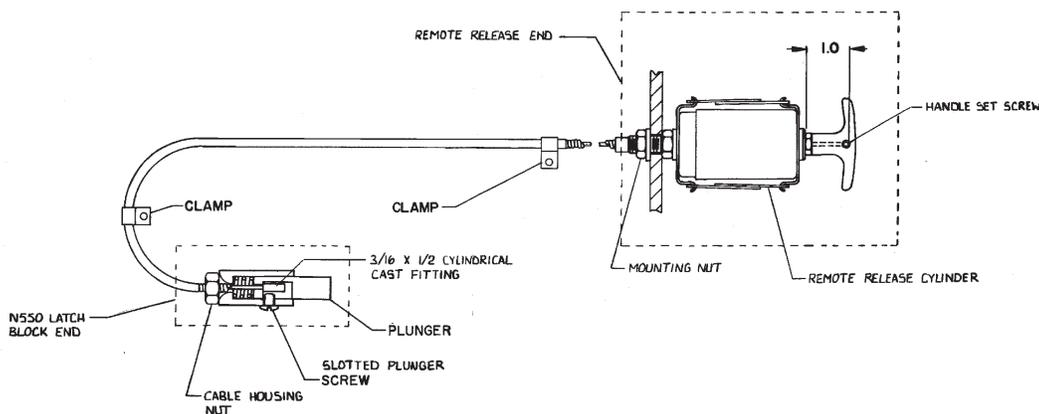


Figure 3. Type P164B Installation Schematic

3. Close the N550 valve. Handle parallel to pipe.
4. If necessary for additional working space, remove the long end of the external spring from under the latch block. **DO NOT REMOVE SPRING FROM HANDLE.**
5. Loosen the slotted screw, Figure 3, on the N550 valve's latch block until the plunger can be pulled from the latch block.
6. Disconnect the short looped cable and remove it.
7. Insert the P164B inner cable end cylindrical cast fitting through the latch block rear conical hole and connect the cylindrical cast fitting into the side slot in the plunger.
8. Replace the plunger in the latch block, oriented so the screw will enter the plunger slot. Tighten the screw.
9. The end of the cable housing and cable housing nut fit into the conical end of the latch block. Pulling the excess inner cable through the housing from the remote release end will hold the housing in the latch block.
10. Mount the remote release cylinder assembly to a suitable support at the remote release location (7/16 inch diameter mounting hole) but do not tighten the mounting nut.
11. At the remote release end, strip about 3/4 inch of vinyl cover from the cable housing end.
12. Insert the inner cable completely through the release cylinder. Screw the bare cable housing end into the remote release cylinder by rotating the cylinder. Tighten the mounting nut.

13. Pull any slack from the inner cable, just tight enough so that the latch is not activated, and cut the inner cable off 1 inch past the remote release cylinder end.
14. Insert the 1-inch bare inner cable into the remote release handle shaft. Push the remote release handle completely into the remote release cylinder. Tighten the handle set screw to secure the handle to the inner cable.

## CAUTION

**Possible hand and finger pinch point between closing N550 handle and latch block. Handle closes quickly and with extreme force. Keep hands and fingers away from handle as it closes.**

15. Test the remote release and N550 operation from the most remote location. Rotate handle counter clockwise to open valve. Valve must stay open. **HANDLE AND VALVE MUST QUICKLY "SNAP" CLOSED** when (a) the remote release cable is pulled, and (b) handle is pushed closed from the open position.

## WARNING

**All open N550 emergency valve(s) attached to the remote release must properly close when the release cable is pulled.**

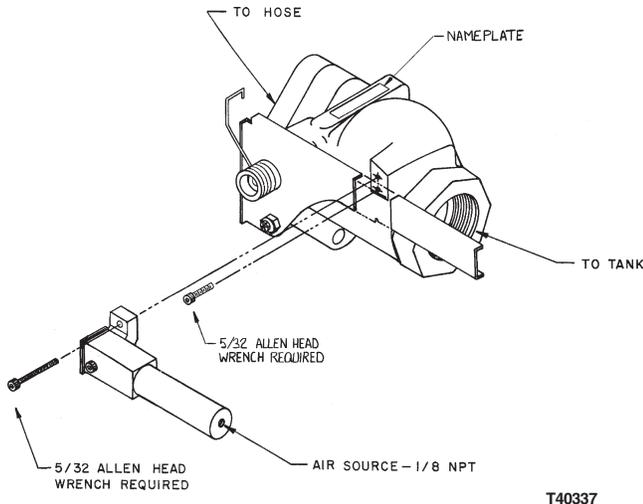


Figure 4. Type P327D Air Cylinder Installation

## Pneumatic Hook-Up

### P327D Pneumatic Release Block Installation

If several valves are installed at the same location, remote release may be accomplished with the Type P327D pneumatic release block which replaces the cable latch block installed on the N550 valves.

To install the P327D, see Figure 4:

1. Close the N550 valve. Handle is parallel to the pipe.
2. Remove the long end of the external spring from under the latch block. **DO NOT REMOVE SPRING FROM HANDLE.**
3. Remove latch bolt(s). Older valves will have 2 bolts. **DISCARD CABLE LATCH BLOCK.**
4. Use a 5/32 Allen head wrench to screw 1/4 inch long bolt into bottom hole.
5. Tighten until bolt head seats firmly on body.
6. Place latch block on body with lower blind hole over bolt in body.
7. Install 3/4 inch long bolt through second hole and firmly tighten with 5/32 Allen head wrench.
8. Refasten long end of spring under latch block by **ROTATING 180 DEGREES CLOCKWISE.**
9. Attach the remote air source to the cylinder end with appropriate supply tubing and valving. A regulated air supply of **30 to 70 PSIG** to the P327D cylinder is required for proper operation.



### CAUTION

Possible hand and finger pinch point between closing N550 handle and latch block. Handle closes quickly and with extreme force. Keep hands and fingers away from handle as it closes.

10. Test the remote release and N550 operation. Rotate handle counter clockwise to open valve. Valve must stay open. **HANDLE AND VALVE MUST QUICKLY “SNAP” CLOSED** when (a) air pressure is exhausted from P327D remote release, and (b) the handle is pushed closed from the open position.



### WARNING

All open N550 Emergency Valve(s) attached to the remote pneumatic release system must properly close when air pressure is exhausted from the system. Remote release controls must quickly exhaust pressure from the supply line to close emergency valves.

## Optional Motion Release Cable

With either the cable or pneumatic remote release hook-ups, it is possible to connect an additional cable from the Type N550's operating handle to the truck along the transfer hose(s). This cable would close the valve if the hose(s) is stretched (driver does not disconnect) beyond a preselected limit. The hook-up does not affect the normal operation of the valve.

### Motion Release Cable Installation

1. Connect a suitable release cable such as stainless steel aircraft cable to a standard “S” hook. Attach the “S” hook to the N550 handle as shown in Figure 5.
2. The cable should run through the bulkhead just below and to the side of the pipe. The cable should be in line with the operating lever, refer to Figure 5.
3. Leave enough slack in the cable to allow the N550 lever to move freely but not close during normal hose movement or hook-up.
4. Run the cable along the hose. Tape or secure it to the hose. Fasten the cable securely to the “truck” end hose connection.

When the hose stretches more than the amount of slack left in the cable, the tightening cable will pull the lever down and close the N550 valve.

# Type N550 Emergency Shutoff Valves

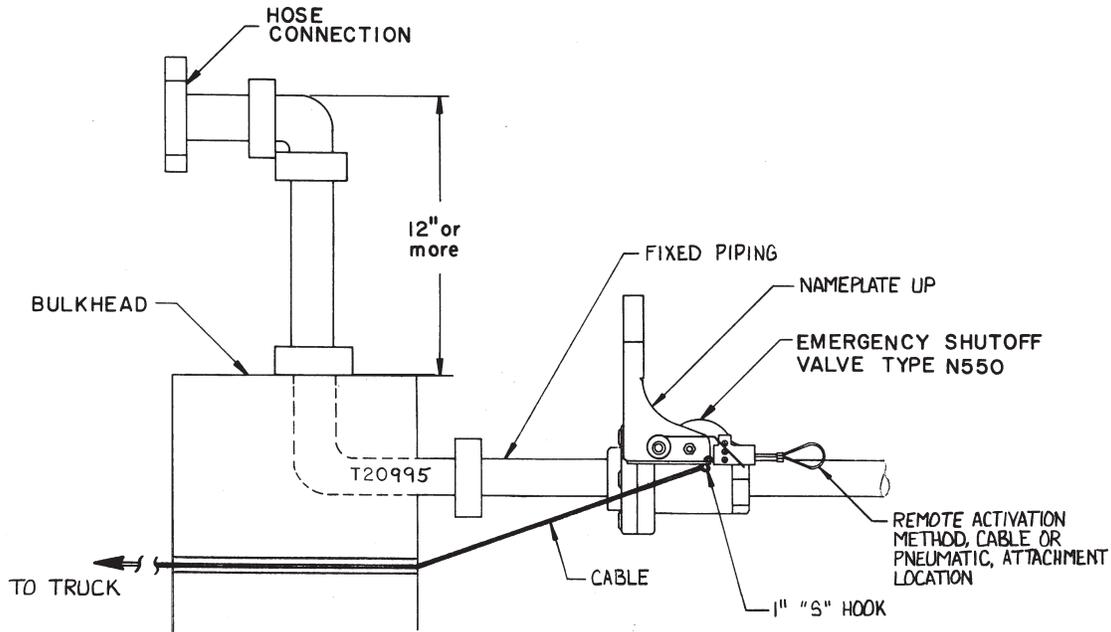


Figure 5. Motion Release Cable Installation (Optional)

## Maintenance



### WARNING

Only qualified service personnel should attempt to repair these valves. Before starting any type of repair, close off the upstream valves and remove all pressure from both the inlet and outlet of the Type N550 Emergency Shutoff Valve.

At least once a month inspect and check the following things:

1. See that the remote release is properly connected, works freely, and is not worn. Operate the release to make certain it closes the valve. If the valve closes slowly, packing replacement (refer to form MCK-1155) may be required.
2. Make sure that the lever, latch, and release are

working smoothly. The latch parts and lever are easily accessible for replacement or repair by removing the securing bolts.

3. Check for packing and joint leakage.

## Replacing Internal Parts

Type N550 can be repaired in the field. However, due to the special fire resistant seals and assembly techniques, repairs should be done only by trained personnel. If repair should become necessary, contact your Fisher distributor or the factory for information and assistance.

Only parts manufactured by Fisher should be used for the repair of Fisher N550 Valves. Be sure to give the complete type number of the N550 when corresponding with the factory.

N550 Valves that have been disassembled for repair must be tested for proper operation before being returned to service.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, expressed or implied, regarding the products or services described herein or their use or applicability. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

### Emerson Process Management

Fisher Controls International, LLC.  
 P.O. Box 8004  
 McKinney, Texas 75070, USA  
 Telephone: 1 (800) 432-8711  
 Telephone: 1 (972) 542-5512

[www.FISHERregulators.com/lp](http://www.FISHERregulators.com/lp)

