

Technical Manual  
for  
**1.5 VARI-NOZZLE, FIRE HOSE**

DEFENSE CONSTRUCTION SUPPLY CENTER

NSN: 4210-00-601-0986  
CAGE: 20266  
MFR/PN: SFL-GN-125  
ISSUED: 12-94

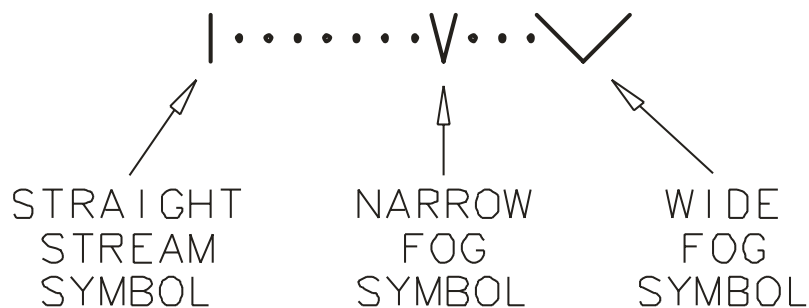
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Please refer to **FIGURE 1** on page 7.

## I. Operating Instructions

A. The nozzle is put into operation by first checking that the **Nozzle Tip** is in the *Wide Angle Fog* position and the **Horshu-Handle** is in the “*CLOSED*” position.

1. Rotate the **Nozzle Tip** by grasping the **Hand Grip** and turning it counter clockwise until the bottom of the **Locking Lever** is resting in the notch directly below the *Wide Angle Fog* symbol on the **Nozzle Tip**.



2. Push the **Horshu-Handle** as far forward as possible to place it in the “*CLOSED*” position.

B. The nozzle-man should activate the water supply.

C. The nozzle-man (with hose team) should then advance the nozzle toward the fire, but short of engagement.

**WARNING:** The nozzle and hose line should be fully manned (at least 2 men) before engaging the fire.

D. The nozzle-man should then slowly move the **Horshu-Handle** from the “*CLOSED*” to the “*OPEN*” position with the nozzle aimed in the direction of the fire.

1. Slowly pull the **Horshu-Handle** as far back as possible to place it in the “*OPEN*” position.

E. The nozzle-man should then test the operation of the nozzle by rotating the **Nozzle Tip** from the *Wide Angle Fog* stream pattern position to the *Narrow Fog* position and on to the *Straight Stream* position and then reverse direction and go back to the *Wide Angle Fog* stream pattern position. The nozzle-man should stop at each stream pattern position long enough to inspect the stream pattern. Each of the fog pattern positions should produce a complete conical shaped pattern with no gaps or disruptions. If gaps or disruptions are observed in any pattern position the nozzle should be checked for debris or damage (see Section IV).

**CAUTION:** The **Nozzle Tip** must be returned to the *Wide Angle Fog* pattern position before preparing to advance the hose team into an engagement with the fire.

F. The nozzle is now ready for operation. Refer to Command Firefighting Doctrine for application.

## II. Making Ready for Service

A. After each use the nozzle should be removed from the hose while the hose is being drained and stored.

B. The nozzle should be cleaned with a mild detergent and nylon bristled brush. The nozzle should then be inspected for damage (see Section III).

**CAUTION:** Petroleum based solvents are not recommended for cleaning the nozzle. Using petroleum based solvents on components such as the O-rings, gaskets, or the Hand Grip may cause degradation resulting in premature failure.

C. The nozzle should then be attached to the stored hose, with the **Horshu-Handle** placed in the “CLOSED” position and the **Nozzle Tip** placed in the *Wide Angle Fog* position.

D. Where practical, the nozzle should be stored with the discharge down to prevent contaminants from collecting in the nozzle.

### III. Inspection of Nozzle

A. Nozzle Tip rotation: Rotate **Nozzle Tip** through all positions several times. The **Nozzle Tip** should not bind or stick. Return **Nozzle Tip** to the *Wide Angle Fog* position.

B. Flush feature: Depress the pad on the **Locking Lever** until the blade on the bottom of the **Locking Lever** disengages from the notch in the **Center Barrel** and rotate the **Center Barrel** counter clockwise as far as possible. Release the **Locking Lever** and rotate the **Center Barrel** back clockwise until the blade of the **Locking Lever** snaps back down to engage the notch in the **Center Barrel**. Repeat several times. The **Center Barrel** should not bind or stick and the **Locking Lever**

should snap back down to engage the notch in the **Center Barrel** every time. If **Locking Lever** fails to snap back down to engage the notch in the Center Barrel replace the nozzle.

C. Shut-off Valve: Move the **Horshu-Handle** from the full forward “*CLOSED*” position to the full back “*OPEN*” position and back several times. The **Horshu-Handle** should not bind or stick.

D. Nozzle Sealing: With water pressure on and the **Horshu-Handle** in the “*CLOSED*” position water should not exit the nozzle, either through the discharge end or any of the sealed joints. If leakage of more than 5 drips per minute occurs the nozzle should be replaced.

#### IV. Troubleshooting

A. Uneven stream pattern or gaps in stream pattern. Pattern affected in all stream positions and affected area does not rotate with the turning of **Nozzle Tip**.

The most likely cause of this problem is debris lodged inside the nozzle. Flushing the nozzle with water flowing may correct the problem. While the nozzle is flowing water, depress the pad on the **Locking Lever** until the blade on the bottom of the **Locking Lever** disengages from the notch in the **Center Barrel** and rotate the Center Barrel counter clockwise as far as possible. Release the **Locking Lever** and rotate the **Center Barrel** back clockwise until the blade of the **Locking Lever** snaps back down to engage the notch in the **Center Barrel**. Inspect stream pattern, if it is still affected the debris may be too large to pass through

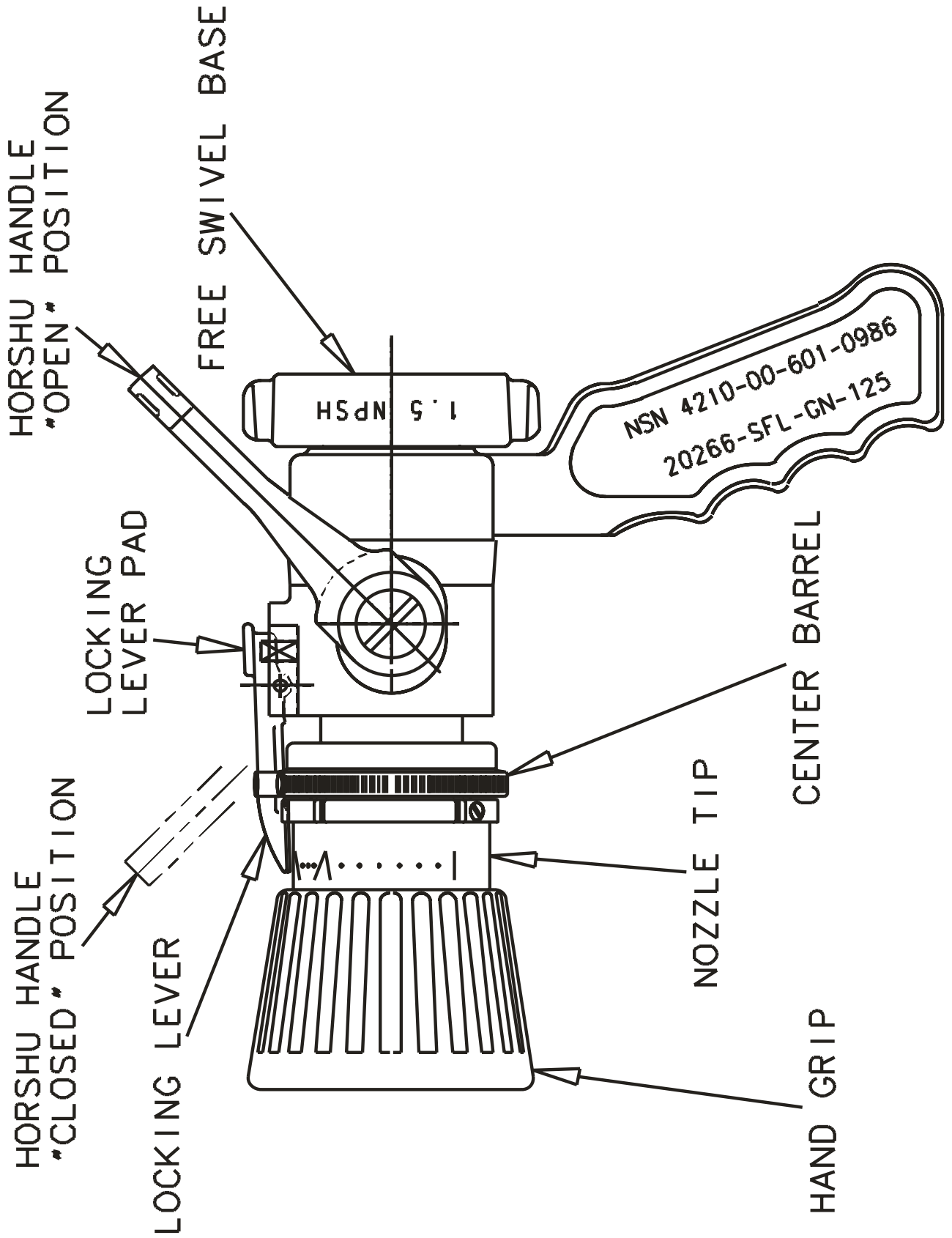
the nozzle in the flush position. The water supply should be secured and the nozzle disconnected from the hose so the debris can be removed from the inlet end of the nozzle.

B. Uneven stream pattern or gaps in stream pattern. Pattern affected in all stream positions and affected area rotates with the turning of **Nozzle Tip**.

The most likely cause of this problem is damage to the **Nozzle Tip**. Inspect the metal teeth and the inside diameter of the **Nozzle Tip**, on the discharge end, for damage. If damaged the nozzle should be replaced,

C. Leakage at the connection of the nozzle inlet to the hose coupling.

This may be caused by a worn gasket in the **Free Swivel Base** of the nozzle. Replace the gasket and retest the connection. If leakage continues look for damage to the threads or surfaces that contact the gasket. Replace the nozzle if the threads or gasket surface are damaged. Replace or repair the hose coupling if the threads or gasket surface are damaged.



**FIGURE 1**

