Nexteligence® Newsletter

Issue #33 February 2026

Welcome to the Nexteligence Newsletter!

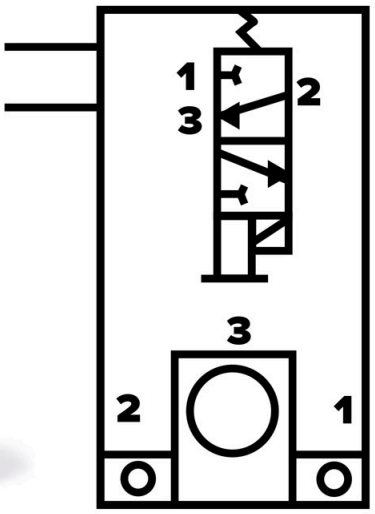
Welcome to the 33rd edition of the Nexteligence Newsletter. We look forward to continuing to provide the latest news in the Nexteligence training community.

Solenoid Operated 3-Way Pneumatic Valve - How it works and How to Troubleshoot

In this month's edition of the Nexteligence Newsletter, we are going to look at a solenoid-operated 3-way pneumatic valve, how it works, where they are used, and detail some basic troubleshooting.

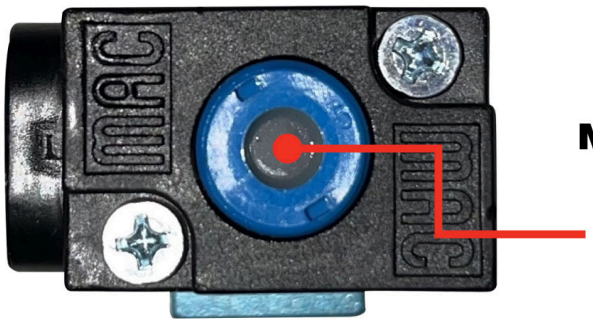
Below, you will see a solenoid-operated 3-way pneumatic valve often known by its brand name MAC valve.

Actual 3 Way Pneumatic Valve



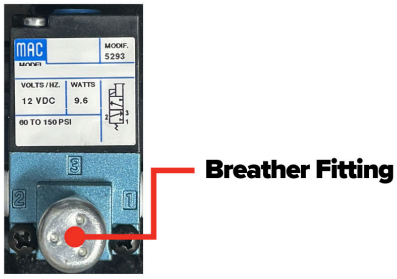
Schematic Symbol

The solenoid-operated pneumatic valve is made up of a 12vdc coil coupled to a pneumatic valve that allows air to pass through the ports when activated. This valve can be activated or tested by depressing the recessed manual push button shown below on the end of the coil.



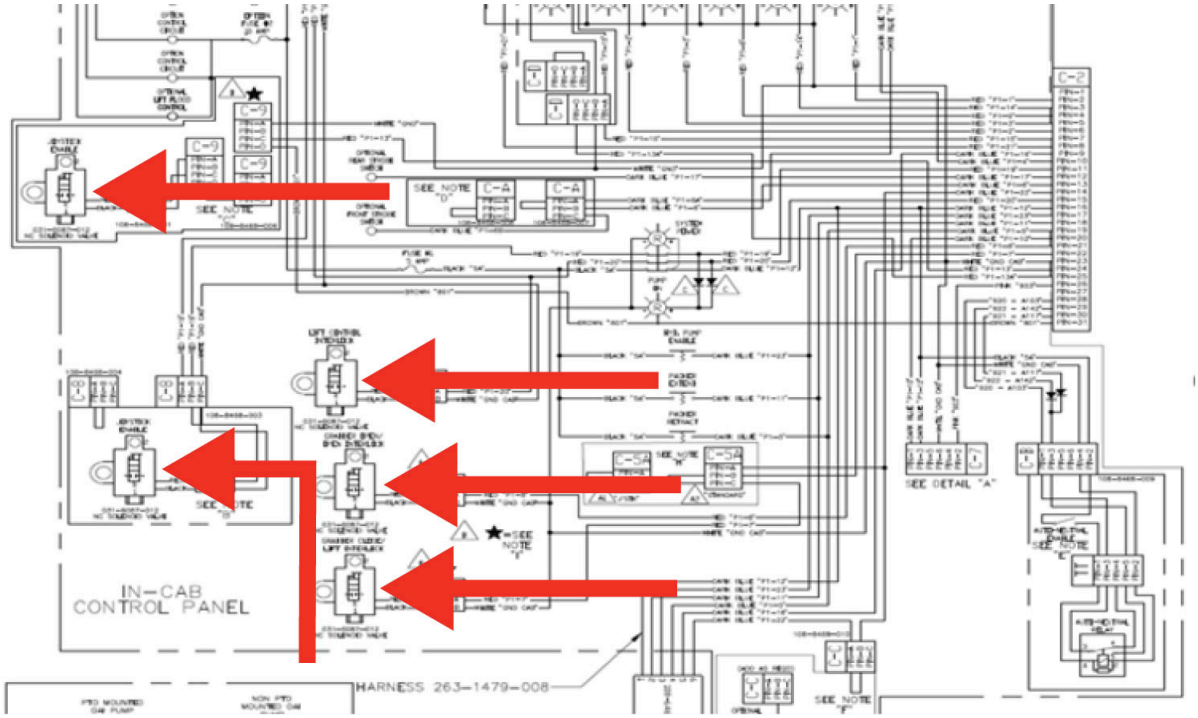
Manual Pushbutton to Activate the Valve (center of blue ring)

Caution: depressing this button too aggressively can damage the valve beyond operation.



The valve has (3) 1/8” NPT ports for air fittings. At Heil, we install a breather fitting that serves two purposes: to muffle the exhaust and to prevent contamination from entering the port and damaging the valve.

Caution: do not remove the breather fitting or plug the port. You can open the valve up to damage from contamination or prevent the valve from activating.

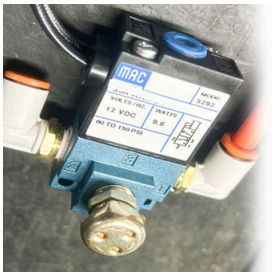


The valve’s function is to use a 12 VDC signal provided by a pushbutton, a controller, or a joystick to energize the valve coil. Once the valve receives this electrical signal, the air portion of the valve opens and sends a pneumatic signal to an air actuator. That air actuator can shift a hydraulic valve or act as an in-line air switch to interlock or prevent specific functions.

For example, on an Automated Side Loader, this setup can prevent the grabbers from opening when the lift is raised.

The electrical signal used to activate the air portion of the valve may come from a Heil DuraPack Python joystick command, such as grabber close. The signal may also originate from a Heil non-Odyssey commercial front loader component, such as the packer extend electric pushbutton or the packer retract electric pushbutton.

Once the electrical signal is sent to the coil, the air portion of the valve opens and activates the air actuator on the hydraulic valve. This shifts the hydraulic valve spool and enables functions including packer extend, packer retract, lift extend, lift retract, grabber open, and grabber close.



What do I do when the pneumatic valve is not working? How do I test and make the repair?

Step One

Perform the easiest tests first to verify the valve is not working.

Depress the manual push button on the end of the valve. Does the valve function and allow air to pass through?

If yes, now check for voltage (12vdc) and verify ground to the coil by unplugging the connector and using your multimeter to confirm.

If no voltage or even low voltage is present at the connector, you will need to troubleshoot the wiring harness to find where the loss of voltage is at in the harness.

Also, check the ground source to make sure you have a good ground, as a bad ground will not allow the switch to operate. Both power and ground must be present to operate the valve. If the valve is getting both voltage and ground, it is possible that the valve is sticking or the

coil is electrically breaking down. A good, healthy valve coil should read 15 Ω (ohms) of resistance.

If the answer is no, the valve does not operate when the manual button is pressed and will not operate with power and ground on the connector: the valve is damaged and should be replaced.

That's all there is to it!

We hope this issue of the Nexteligence Newsletter has helped you better understand the technical aspects of a solenoid-operated 3-way pneumatic valve and how to troubleshoot it.

Would you like to know more about hydraulics, electrical systems, and related topics? Good news! We teach that in our Nexteligence MAT classes. You can get in-depth training by contacting us to register for a Nexteligence MAT class at: Nexteligence@terex.com

---

Contact Info & Helpful Links

Miss a Newsletter?

No problem - You can now view all past Nexteligence newsletters by visiting our Archives page.

VIEW NEWSLETTER ARCHIVES HERE

2026 Nexteligence Training Schedule

The 2026 Training Schedule can be viewed via the Nexteligence webpage, or on the Heil Dealer Portal.

2026 Heil Online Webinar Training Schedule

Online Training Dates	Product	Time
March 10th, 11th, & 12th	Half/Pack Commercial	9:00 - 11:30am CST

2026 Heil Factory Training Schedule

Factory Training Dates*	Product	Time
March 24th & 25th	Half/Pack Commercial	8am – 4pm CST

* Subject to change
** 3rd Eye training can be scheduled as a REQUESTED third half day upon request.

2026 3rd Eye Online Training Schedule

3rd Eye Training Dates	3rd Eye Product Training	Delivery Method	Time
March 17th	Camera and Digital	Webinar	8am - 1pm CST

2026 3rd Eye Factory Training Schedule

3rd Eye Training Dates	3rd Eye Product Training	Delivery Method	Time
March 26th	Camera & Digital	Factory	8am - 1pm CST

VIEW FULL SCHEDULE

Nexteligence Class Registration

Feel free to contact us anytime if you have any training questions or to register for one of our training classes.

EMAIL TRAINING

Service Shack

Visit the Heil Service Shack for helpful training and instructional videos

VIEW SERVICE SHACK

Sign Up for the Nexteligence Newsletter!

To sign up or add team members, click the button below!

SIGN UP

Nexteligence
Connected-Tech Training

BRONZE SILVER GOLD PLATINUM
