

Fire Suppression

Section 03-10

Komatsu has made every effort to make this manual as accurate as possible based on the information available at the time of publication and printing. Continuous improvement and advancement of product design may cause changes to machines, which may not have been included in this publication. Komatsu reserves the right to make changes and improvements at any time. To ensure the most current information, please contact your service center.

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Scope of This Publication

This publication and vendor support documentation contains information about the fire suppression system. The operator and maintenance personnel should read all instructions carefully and understand them before operating or performing maintenance operations to the machine. The entire fire suppression system must be maintained per its manufacturer recommendations.

Safety

This publication contains special instructions that pertain to safety, operation, maintenance, and repair of the machine. Listed below are the signal words and symbols that precede these instructions and their meanings:



DANGER

- The danger label indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

- The warning label indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

- The caution label, used with the safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury (includes the safety alert symbol .

CAUTION

- The caution label (without safety alert symbol) is used to address practices not related to personal injury – only equipment damage.

NOTICE

The NOTICE graphic is to indicate areas of importance to the reader that are not related to personal injury or machine damage.

Safety, Warnings, and Cautions

WARNING

CRUSH HAZARD

- Crush hazard exists if the machine is started or moved while work processes are being performed on the machine. Place bucket flat and level on the ground. Place frame lock in the locked position and lock out the machine's starting capability before performing any work process. Follow all applicable lockout procedures and local rules and regulations for performing work processes. ANYONE performing inspections or service procedures to the machine should be familiar with ALL instructions and procedures contained in the machine's SERVICE MANUAL. Crush hazard could occur if the machine is started or moves while any type of work process is being conducted on the machine, resulting in serious injury or death.

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- Crush hazard exists in machine pivot area and area between the tires. Do not enter these areas unless it is verified that the operator has control over the steering and that personnel locking the frame lock have good communication with the operator. Entering the pivot area and area between the tires while the machine is moving or pivoting (articulating) could cause crush hazards resulting in serious injury or death.
- Crush hazard exists if standing under, or placing any body part under hoisted/suspended components. Never stand under hoisted/suspended components. Ensure appropriate lifting devices are used, and blocking is adequate to prevent the component from unexpectedly moving during transportation. Refer to SAFETY, WARNINGS, AND CAUTIONS before attempting to remove the operator's cab. Failure to stay out from under hoisted/suspended components can cause crush hazard resulting in serious injury or death.

FALL HAZARDS

- Fall hazard exists when removing the switch. Do not attempt to climb on the machine to remove the switch. Use a man lift, scaffolding, or other locally acceptable method to reach the fire suppression system manifold. Failure to use appropriate lifting method can cause fall hazards resulting in serious injury or death.
- Fall hazard exists when working at heights on the machine. Be sure to take appropriate safety precautions when working at heights on the rear and front frames. Use fall restraint when appropriate. Follow all required statutory regulations for working at height. Failure to use fall restraint when working at heights on the machine can cause fall hazards resulting in serious injury or death.

EYE INJURY HAZARD

- Eye injury hazard exists when working with compressed gasses. Injury from puncture by flying debris is possible when working with compressed gasses. Do not work with compressed gasses without wearing appropriate Personal Protective Equipment (PPE). Punctures from pressurized gas and eye injury from flying debris are possible, resulting in serious injury or death.

EXPLOSION HAZARDS

- Explosion hazard exists when working on the fire suppression system. Only personnel trained by the system's manufacturer should service the system. Certain components of the system contain a compressed charge that can cause serious personal injury if not handled properly. Failure to use trained personnel when working on the fire suppression system can cause explosion hazard resulting in serious injury or death.

**CAUTION****INHALATION HAZARD**

- Inhalation hazard exists if the fire suppression system is discharged. The discharge of the dry chemical fire suppression agent may create personnel hazards such as obscured vision or temporary breathing difficulties. Bring the machine to a complete stop and shut down engine before deploying. System actuation will result in immediate discharge, which may obscure vision. Exit the area as quickly as safely possible if the system is discharged. Failure to exit the area can cause inhalation hazards resulting in injury.

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Theory of Operation

The vendor support documentation provides typical concepts for fire suppression systems. It should be read before using the system. The entire fire suppression system must be maintained per its manufacturer recommendations.

Fire Prevention and Control

In the event of a fire, the machine is optionally equipped with either a manually operated hand held fire suppressor or a manually activated fire suppression system.

Fire Prevention

Proper machine inspection and maintenance is **CRITICALLY IMPORTANT** to prevent a disastrous fire. The following guidelines should be followed to reduce the chances of a fire:

- a. Daily inspection and preventive maintenance at points where fires are most likely to start - engine block, electrical system, turbochargers, exhaust manifolds, brake system, and hydraulic gearbox/pump area is critically important.
- b. Regular cleaning of all areas where flammable materials such as fuel, oil, grease, hydraulic fluid, and combustible debris may collect is also critically important.

NOTICE

Refer to “PREVENTIVE MAINTENANCE”, Section 02 in the Service Manual for tips on cleaning your machine.

- c. NEVER smoke while checking fuel level or refueling. Unguarded trouble lights, flames, or spark-producing devices should be kept at a safe distance while refueling. ALWAYS stop the engine before refueling the machine.
- d. Keep all fuel and lubricants stored in properly marked containers and away from unauthorized persons.
- e. Store oily rags or other flammable material in a protective container, located in a safe place.
- f. Make sure all clamps, guards and heat shields are installed correctly to prevent vibration, rubbing against other parts, and excessive heat during operation.
- g. DO NOT weld or cut on pipes, tubes, or reservoirs that contain flammable liquids or gases.

NOTICE

As installed at the Komatsu factory, the fire suppression system is manually actuated. The LINCS II computer system or a Komatsu factory-installed fire system, WILL NOT automatically discharge the fire suppressant in the event of a fire. When fire detection and suppression discharge occurs, the operator is audibly and visually alerted by the system monitor mounted inside the cab.

An electronic fire detection option that WILL automatically discharge the suppression system is available through fire detection and suppression system manufacturers. Some machines may have this feature installed.

Before operating the machine, check to determine whether the fire suppression system will automatically discharge if a “need for discharge” condition is detected.

NOTICE

Before operating, and before performing maintenance or repair procedures, refer to the appropriate manufacturer vendor support literature for further information on subjects such as vehicle fire preventive maintenance, and how the system works and system maintenance.

Component Description

Fire Suppression System - AFEX or ANSUL Systems (Optional)

The machine is equipped with a manually activated fire suppression system. Operator safety is greatly enhanced; however, the operator's cab is not protected. It is the responsibility of the equipment owner to ensure operators and service technicians read and understand the manufacturer's fire suppression system owner's manual.

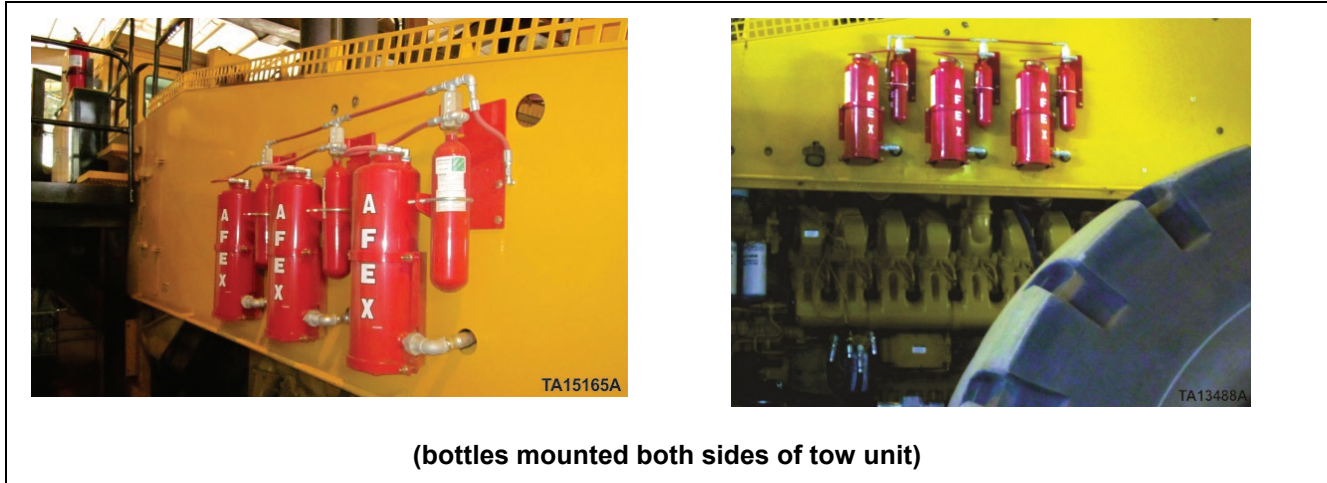


Figure 1. Fire suppression system bottles - AFEX system shown

CAUTION

Inhalation hazard exists if the fire suppression system is discharged. The discharge of the dry chemical fire suppression agent may create personnel hazards such as obscured vision or temporary breathing difficulties. Bring the machine to a complete stop and shut down engine before deploying. System actuation will result in immediate discharge, which may obscure vision. Exit the area as quickly as safely possible if the system is discharged. Failure to exit the area can cause inhalation hazards resulting in injury.

CAUTION

The fire suppression system is a **MANUALLY DISCHARGED** system. Fire detection is optionally provided, but the fire suppression system **WILL NOT** automatically discharge unless that option is available and installed by the manufacturer of the fire suppression system or by mine site personnel.

CAUTION

The fire system provided on the machine is a suppression system only and is not designed or intended to extinguish all fires, particularly when unusual amounts of combustible materials and an ample oxygen supply are present. It is extremely important that alternative firefighting equipment be available in case the system does not totally extinguish a fire.

CAUTION

Use extreme care to prevent the accumulation of debris, combustible materials, and fluids that could intensify the fire or cause it to spread to areas where there was no previous potential for fire.

CAUTION

If modifications are made to the machine, or if the fire suppression system is disconnected for any reason, make sure the fire equipment is immediately inspected and tested by an authorized distributor for the system's manufacturer.

CAUTION

The fire suppression system's dry chemical dispersion nozzles are strategically located inside the front and rear frames. The operator's cab is NOT protected. The fire suppression system will NOT suppress fires outside the machine or in the operator's cab. The hand-held portable fire suppressor is recommended and is useful if re-ignition occurs or when fires originate independently of the machine or outside the protected areas.

Manual Fire Suppressor

Inspect the machine's manual hand-held fire suppressor regularly; read and understand its operation before using. This fire suppressor is capable of suppressing fires in the following materials: wood, paper, cloth, electrical, gasoline and oil.

- If the suppressor is equipped with a gauge, ensure the needle is in the green portion of the gauge.
- Ensure the pin is installed and the seal has not been broken.
- Have the fire suppressor inspected and serviced by licensed personnel at the required interval or immediately if it has been discharged.
- Read and understand your employer's policy in regards to extinguishing fires before attempting to manually extinguish any fire.

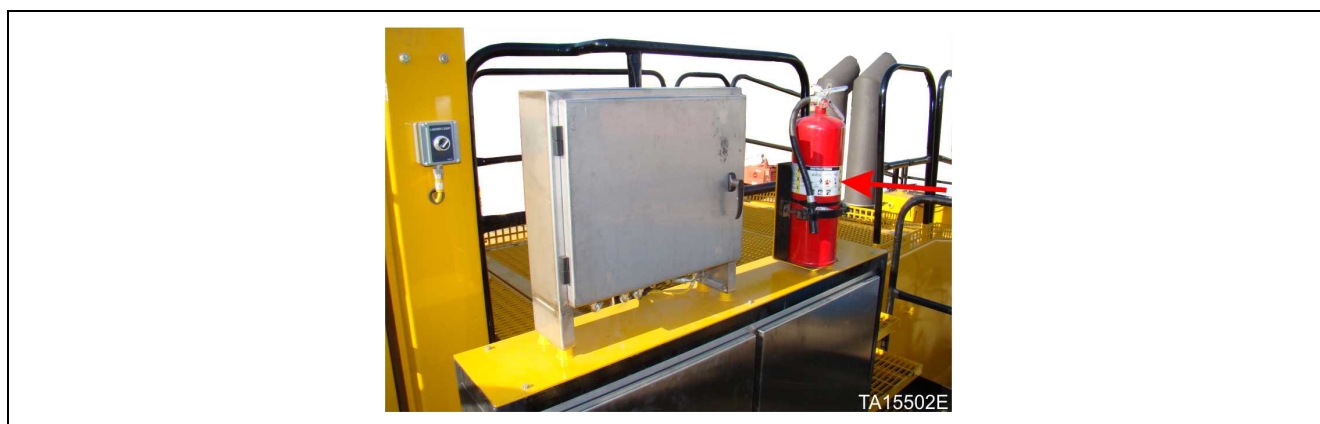


Figure 2. Hand-held portable fire suppressor

ANSUL Fire Detection System Circuit Monitor Panel (Optional)

The fire detection system circuit monitor panel (optional) is mounted on the rear inside cab wall (refer to illustration “ANSUL FIRE DETECTION CIRCUIT MONITOR PANEL (OPTIONAL)”). The circuit monitor’s function is to monitor the fire suppression system’s electrical detection and manual actuation circuits and provide the operator with both visual and audible warnings of a fire.

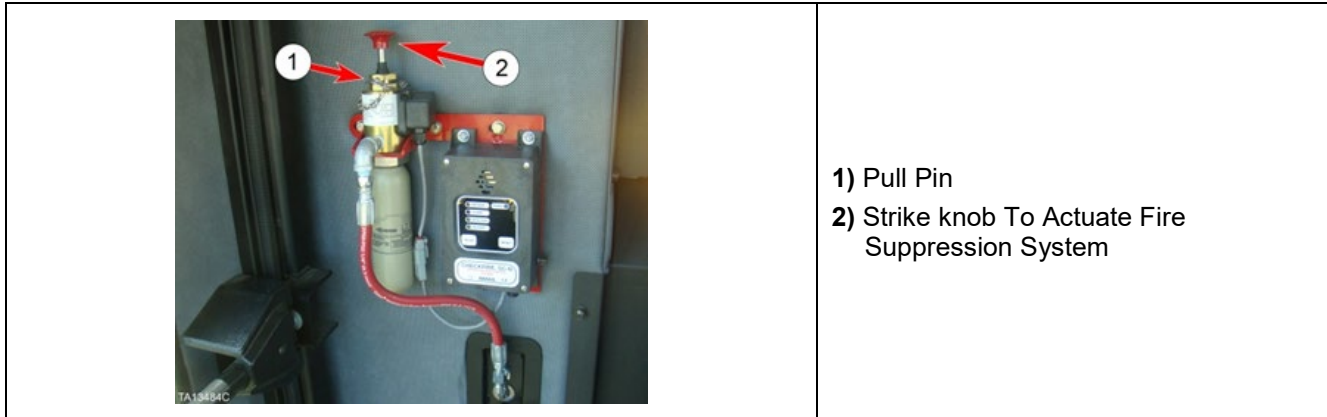


Figure 3. ANSUL cab mounted discharge mechanism

Visual indicators:

The circuit monitor panel provides LED indicators for battery, alarm, detection, release, and power to the panel. In the event of fire detection, an audible alarm accompanies the LED Alarm indicator.

Controls:

The front panel contains a “DELAY” and “RESET” button. The DELAY button is non-functional.

The RESET button is used to reinitialize the control panel when depressed; it provides an indication that all LEDs and the audible alarm are functional.

Sequence of Operation:

Upon receiving an input signal indicating a fire, the alarm LED will flash and the audible alarm will pulse at the rate of two times per second. Refer to “Manual Actuation – AFEX and ANSUL Systems”, located within this section.

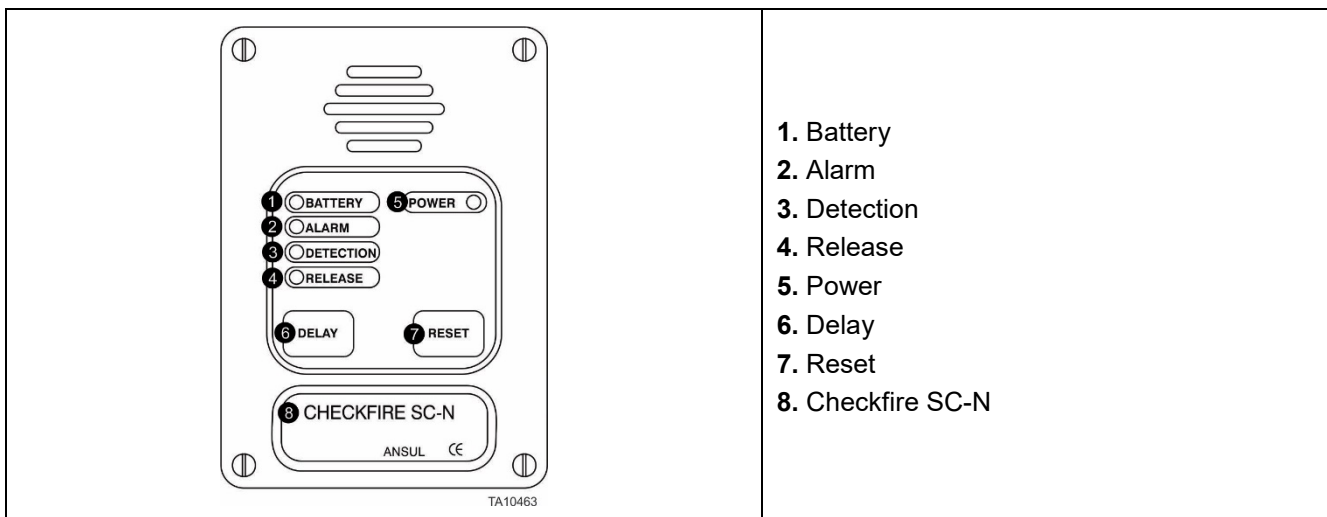


Figure 4. ANSUL fire detection circuit monitor panel (optional)

AFEX Fire Detection System Circuit Monitor Panel (Optional)

A circuit monitor panel is mounted on the rear inside cab wall. Refer to ANSUL FIRE DETECTION CIRCUIT MONITOR PANEL (OPTIONAL)". The circuit monitor's function is to monitor the fire suppression system's electrical detection and actuation circuits, including the power source, squib (compressed charge which actuates the discharge of the fire suppression agent), and continuity of the detection wiring.

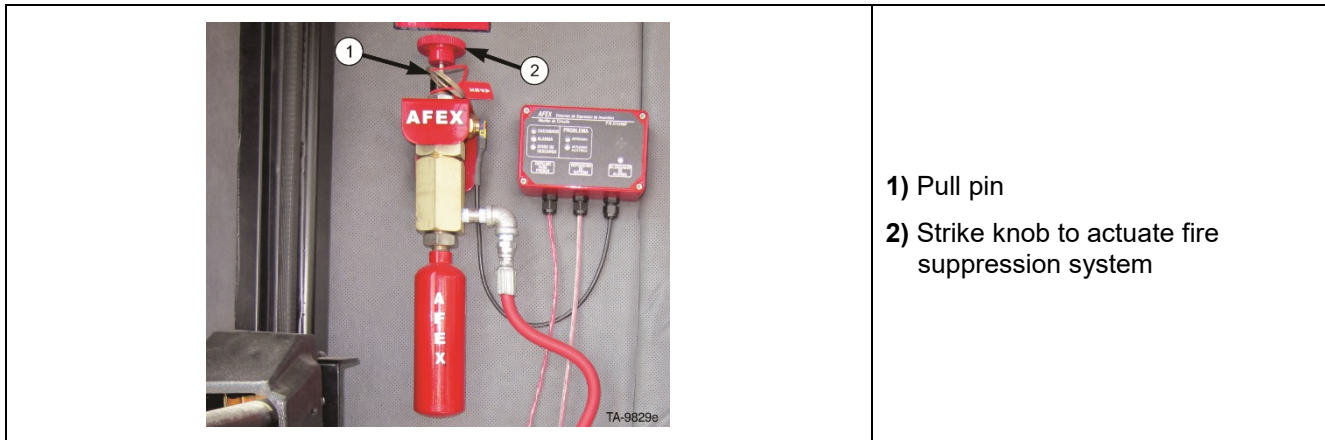


Figure 5. AFEX cab mounted firing mechanism with circuit monitoring panel (optional)

NOTICE

The AFEX fire suppression system retains its manual discharge capabilities should the circuit monitor panel or any of its internal circuitry fail. If the circuit monitor panel must be removed for any reason, the fire suppression system can be wired to retain its manual actuation feature. Refer to the manufacturer's owner's manual through their respective website.

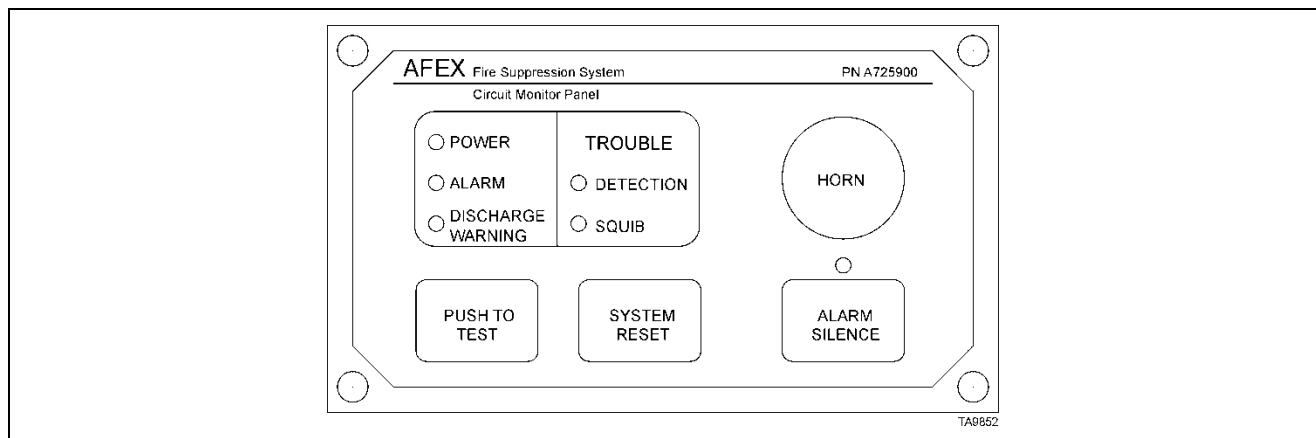


Figure 6. AFEX fire detection circuit monitor panel (optional)

The circuit monitor panel provides audible and visual indicators of alarm conditions. The operator can monitor detection and release circuits and power supply. A system reset button and restart time delay is also provided.

Visual indicators:

- Green LED - Power to circuit monitor panel
- Red LED - Alarm
- Amber LED - Alarm silence activated - Trouble with squib - Trouble with detection circuit

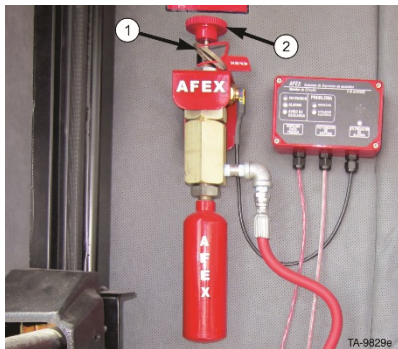
Controls:

- Alarm Silence
- Push to Test
- System Reset
- Push-ON, Push-OFF operation (flush mounted behind panel cover)

Manual Actuation - AFEX and ANSUL Systems

The machine is equipped with manual firing mechanisms. Firing mechanisms are located:

- Operator cab (inside)
- Right side of machine (hydraulic reservoir)
- Left side, near left rear access ladder area.

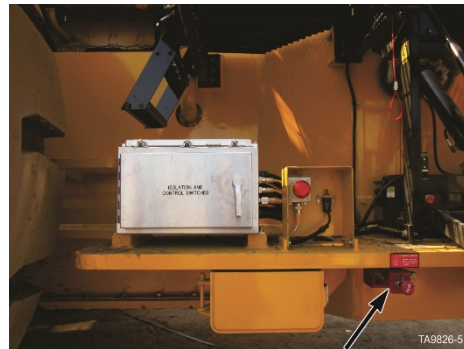


1) Pull Pin

2) Strike knob to actuate fire suppression system

AFEX cab mounted firing mechanism with circuit monitoring panel (typical)

(charge bottle not shown)



1) Pull pin and strike knob to activate

AFEX ground level manual firing mechanism (typical) (mounted on converter cabinet left side of tow unit – additional mechanism mounted on hydraulic reservoir right side and electrical cabinet)

Figure 7. Fire suppression system actuator switches - AFEX systems

 1) Pull Pin 2) Strike knob to actuate fire suppression system	 Fire suppression system-pull pin & strike knob to actuate
ANSUL cab mounted discharge mechanism	ANSUL ground level manual firing mechanism (both sides of machine)

Figure 8. Fire suppression system actuator switches - ANSUL systems

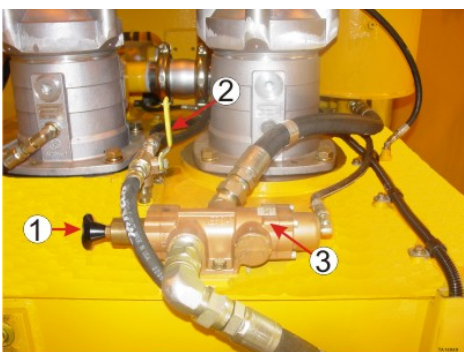
	1) Reset Button 2) Manual Relief Valve 3) Automatic Air Release Valve
--	--

Figure 9. Hydraulic reservoir air release valves

If the operator notices or is alerted to a fire, the following actions should be taken:

1. Quickly bring the machine to a complete stop, set the park brakes, and shut down the engine.
2. Manually actuate the fire suppression system by pulling the safety pin from the neck of the firing mechanism and strike down hard on the push knob.
3. Quickly exit the machine and move to a safe distance away from the machine.
4. Call fire department or mine safety personnel to extinguish the fire.

NOTICE

When the fire suppression system is discharged, the hydraulic reservoir automatic air release will be tripped. This will release the air pressure in the hydraulic reservoir. The automatic air release valve must be manually reset by pushing the knob IN to the closed position (refer to Section 01, "SAFETY INSTRUCTIONS").



- 1) Rear Cab Wall
- 2) Left Rear of Machine
- 3) Hydraulic Reservoir

NOTICE

Check your machine and make note of all switch locations before operating machine.

Figure 10. Locations of fire suppression system actuation switches (typical locations)

Fire Detection Engine Shutdown

The LINC S II computer system employs an engine shutdown feature that will stop the machine and shut down the engine when fire suppression system discharge occurs.

CAUTION

Unless automatic detection system is present in the fire suppression system, the discharge of fire suppressant and actuation of the Fire Detection Engine Shutdown feature must be actuated by manually discharging the fire suppressant with any of the fire suppression system actuator switches.

NOTICE

Before operation of the machine, all operators should be trained in the operation and capabilities of the fire suppression system.

The following events will occur following discharge of the fire suppressant:

1. Propulsion is disabled.
2. Dynamic braking is actuated.
3. The automatic air release valve will release hydraulic reservoir air pressure.
4. The engine will shut down once wheel motor speed is less than a set point rpm.
5. Park brakes will set.

Testing the “Fire Suppression System Engaged” Detection Switch

The normally open switch being tested is closed by pressure in the fire suppression system pilot pressure circuit. It is located in the fire suppression pilot pressure circuit manifold, normally positioned in the articulation area.

- This switch does not activate the fire system.
- This switch closes when pressure in the fire suppression system pilot pressure circuit reaches 200 psi (13.79 bar).
- The machine control system (LINCS) responds to the condition of the switch (open or closed).

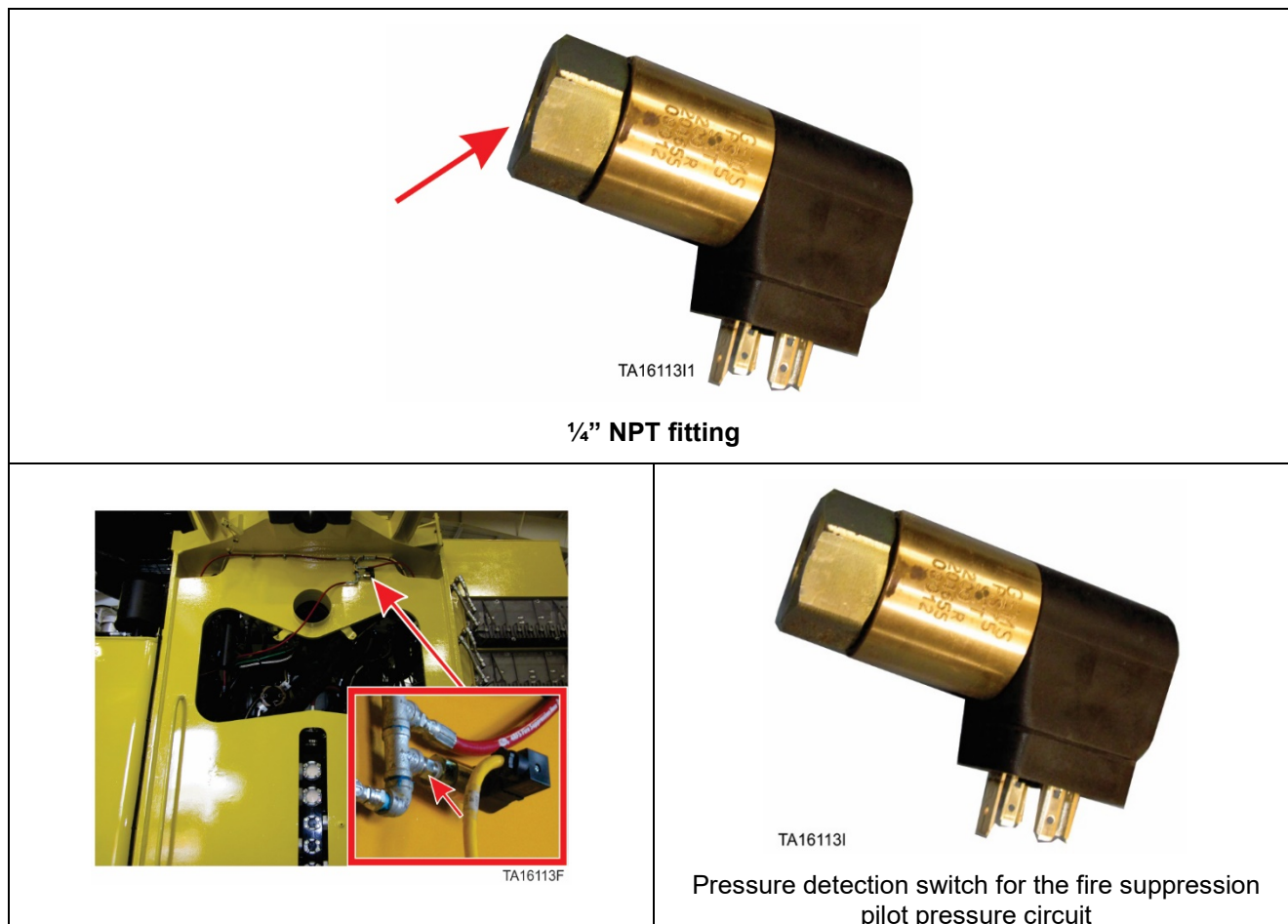
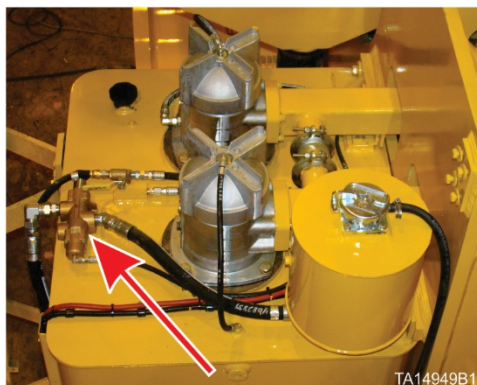


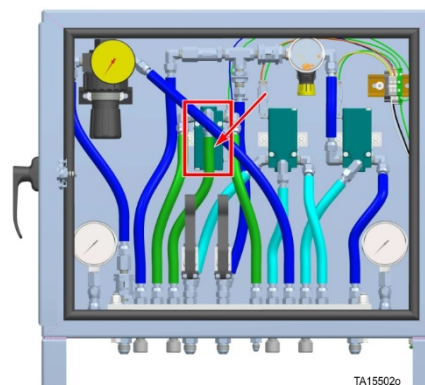
Figure 11. Plumbing manifold location in articulation area

During normal machine operation, if pressure in the fire suppression system pilot pressure circuit reaches 200 psi (13.79 bar), the switch closes and the following processes occur.

1. The switch immediately actuates the “hydraulic reservoir pressure release” solenoid (SOL TD).
- The switch and the solenoid are hard wired together.
 - The solenoid sends pilot pressure to the “hydraulic reservoir pressure release valve” (typical Versa valve).
 - Hydraulic reservoir air pressure release valve (Versa valve) vents air pressure inside the hydraulic reservoir, out to atmosphere.



Hydraulic reservoir pressure release valve (typical Versa valve shown) on top of hydraulic reservoir



The solenoid is located in the air box on current production machines

2. LINCS determines the switch is closed and generates a “Fire Suppression System Engaged or Detected” red alarm on the operator screen, and activates the alarm buzzer inside the cab.

- The machine slows down.
- The park brake is set.
- The engine shuts down.

The testing verifies the switch is:

- Mechanically sensing pilot pressure in the fire suppression system pilot pressure circuit.
- Electrically actuating the hydraulic reservoir air release solenoid (SOL TD).
- Being sensed as “actuated” (closed) by the machine control system (LINCS).

Conditions of the Test Procedure

- Machine is not running.
- Machine is capable of booting control system (LINCS).
- The machine air system is pressurized to machine operating pressure.
- Any type of heat producing maintenance work should not be performed on the machine during the test, to reduce chance of fire while the fire suppression system is de-activated.
- The test should be performed on a “cold” machine to reduce the possibility of fire occurring during the test.
- The switch to be tested is removed from the fire suppression pilot pressure circuit manifold.
 - The switch is reinstalled after the test is successful and it is determined to be functioning properly.

Safety Preparations

Use the following procedure to isolate energy sources before performing any removal, replacement, or installation procedures described in this document.

CAUTION

During the time the switch is being tested, the fire suppression system will not function if a fire occurs on the machine (while the fire suppression system charge bottles are removed). A fire could seriously damage the machine.



WARNING

Fall hazard exists when removing the switch. Do not attempt to climb on the machine to remove the switch. Use a man lift, scaffolding, or other locally acceptable method to reach the fire suppression system manifold. Failure to use appropriate lifting method can cause fall hazards resulting in serious injury or death.



WARNING

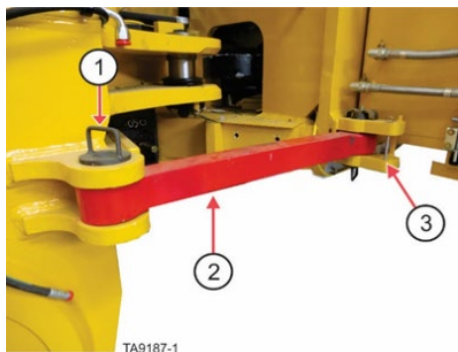
Crush hazard exists if the machine is started or moved while work processes are being performed on the machine. Place bucket flat and level on the ground. Place frame lock in the locked position and lock out the machine's starting capability before performing any work process. Follow all applicable lockout procedures and local rules and regulations for performing work processes. ANYONE performing inspections or service procedures to the machine should be familiar with ALL instructions and procedures contained in the machine's SERVICE MANUAL. Crush hazard could occur if the machine is started or moves while any type of work process is being conducted on the machine, resulting in serious injury or death.

- a. Stop the wheel loader on flat level ground.
- b. Set bucket flat and level on the ground.
- c. Move the frame lock to the locked position so that the frame cannot be steered.



WARNING

Crush hazard exists in machine pivot area and area between the tires. Do not enter these areas unless it is verified that the operator has control over the steering and that personnel locking the frame lock have good communication with the operator. Entering the pivot area and area between the tires while the machine is moving or pivoting (articulating) could cause crush hazards resulting in serious injury or death.



Frame lock in locked position. Frame lock appearance may differ by machine model

- 1) Retaining pin for locked position, 2) Frame lock - shown in locked position,
3) Retaining pin bracket for un-locked position

Figure 12. Frame Lock (typical)

- d. Set the park brake.
- e. Shut off the engine.
- f. Turn the starter isolation switch to the "OFF" position and install lock on the switch.

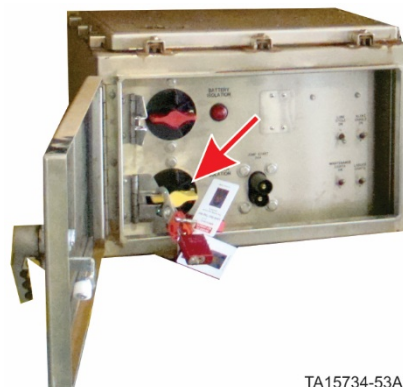
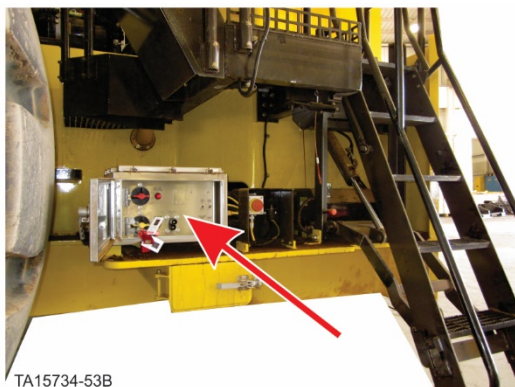


Figure 13. Starter isolation switch in OFF position with locks in place

- g. Place wheel chocks in front and behind each wheel.
- h. Use the hydraulic pressure bleed down valves located in the front frame underneath the Husco valves to bleed any stored pressure in the hoist and bucket cylinders.
 - Turn each valve slowly counter clockwise as shown below and allow the pressure to bleed down.
- i. Open the valves completely and leave open during the procedure.

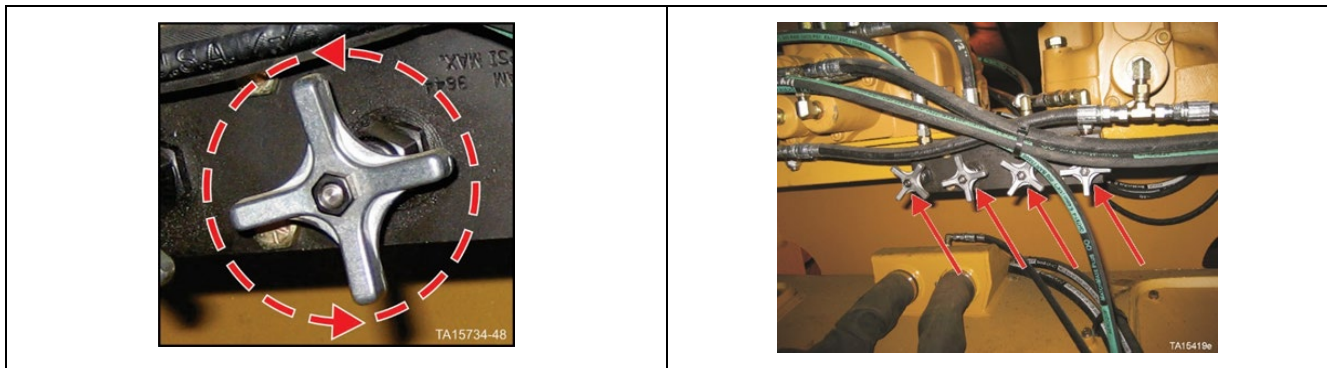
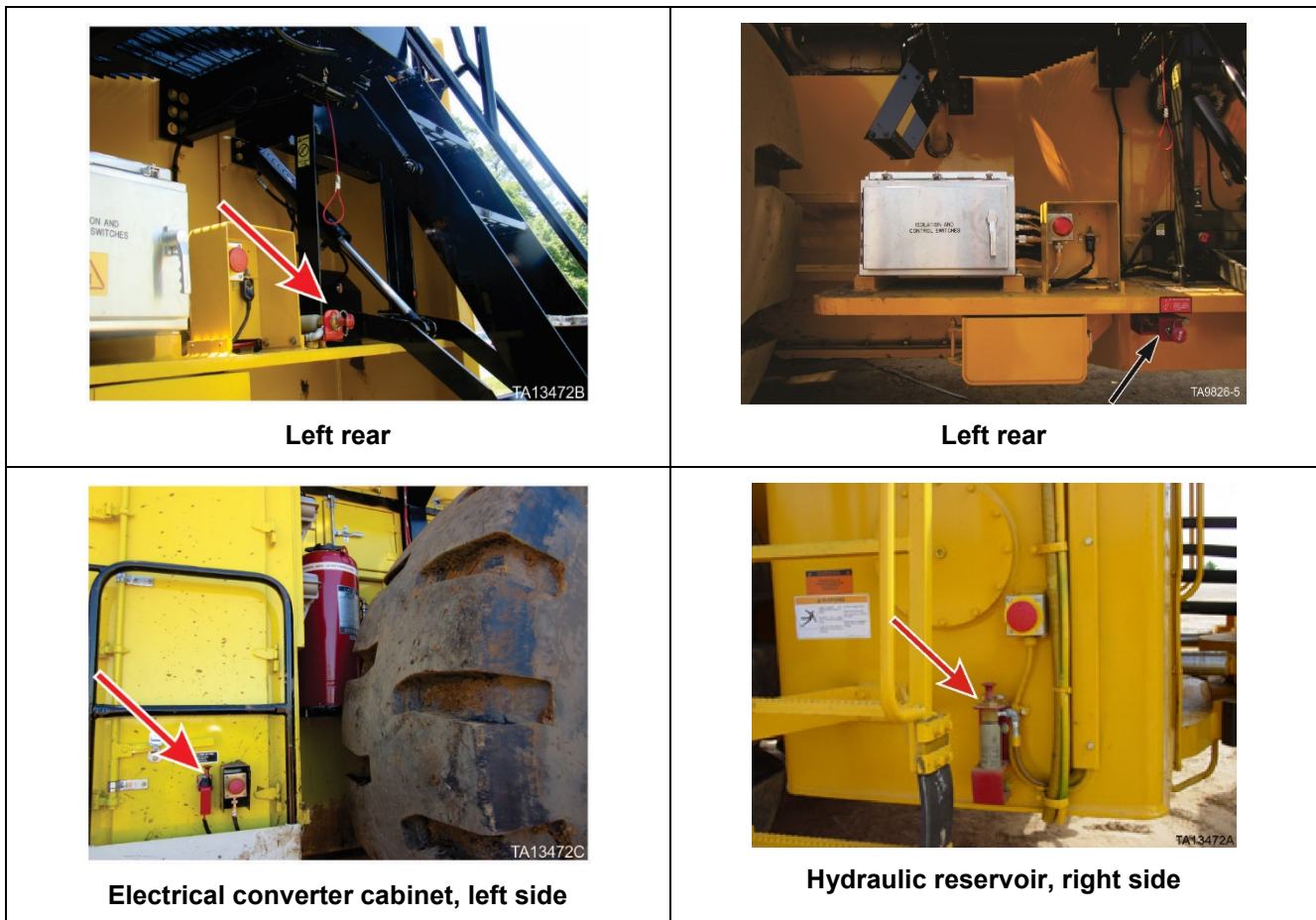


Figure 14. Open hydraulic circuit pressure bleed down valves

- j. Follow all local rules and regulations for lockout tag out procedures.
- k. Remove all the charge bottles from the fire suppression system.
 - Mark the bottles.
 - After the switch test, they should be reinstalled in the original location.

CAUTION

Check local safety authority and specific fire suppression system manufacturer representative to ensure removing the charge bottles does not affect operation or warranty.



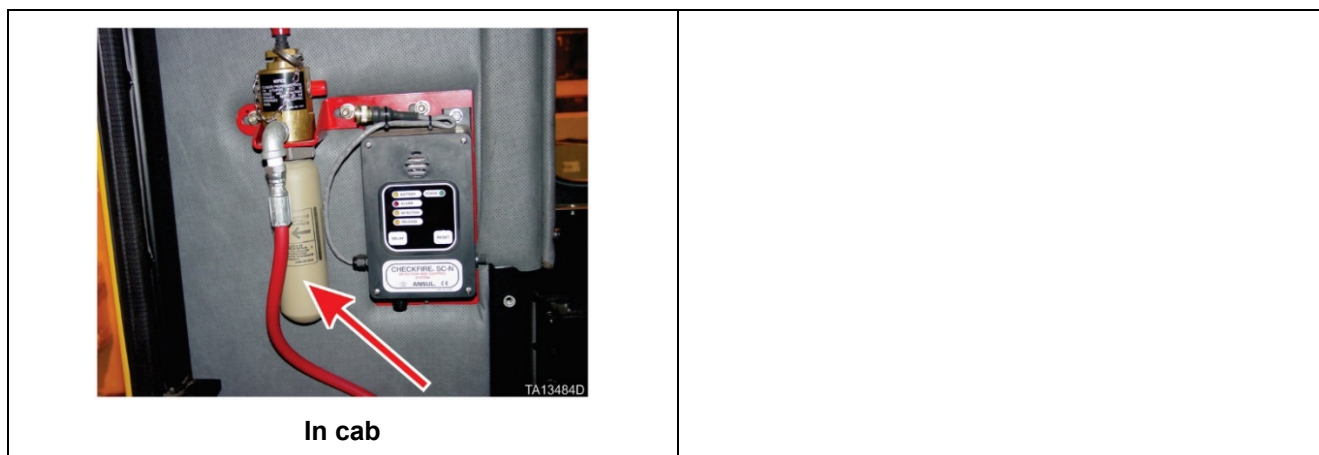


Figure 15. Charge bottles (typical locations and types)

Testing the Switch

WARNING

Fall hazard exists when removing the switch. Do not attempt to climb on the machine to remove the switch. Use a man lift, scaffolding, or other locally acceptable method to reach the fire suppression system manifold. Failure to use appropriate lifting method can cause fall hazards resulting in serious injury or death.

- a. Remove the Turck cable connector from the switch.
 - Use a man lift or scaffolding to access the manifold.

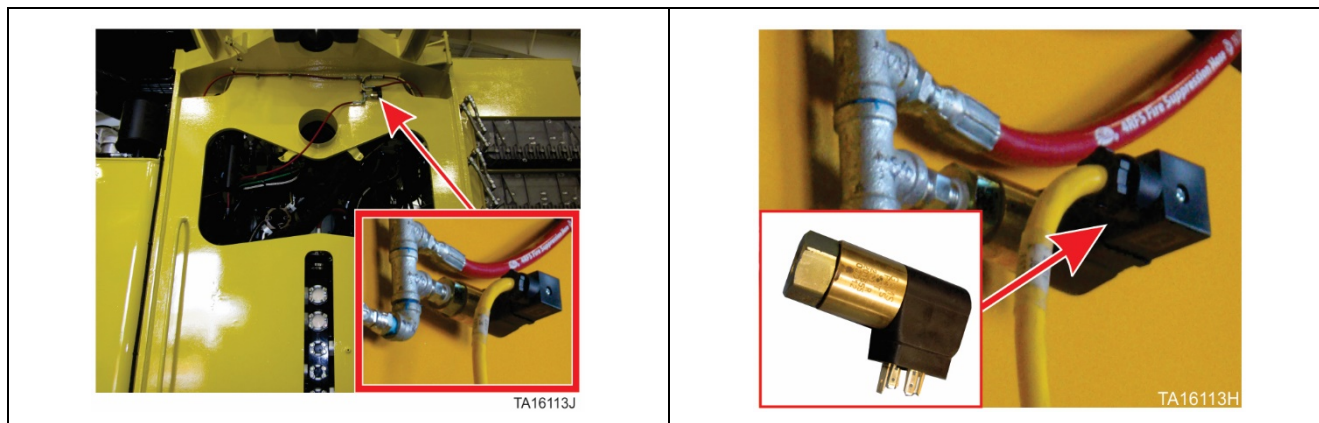


Figure 16. Remove Turck cable from switch

- b. Remove the switch from the plumbing manifold.
- The switch is tested while removed from the system.

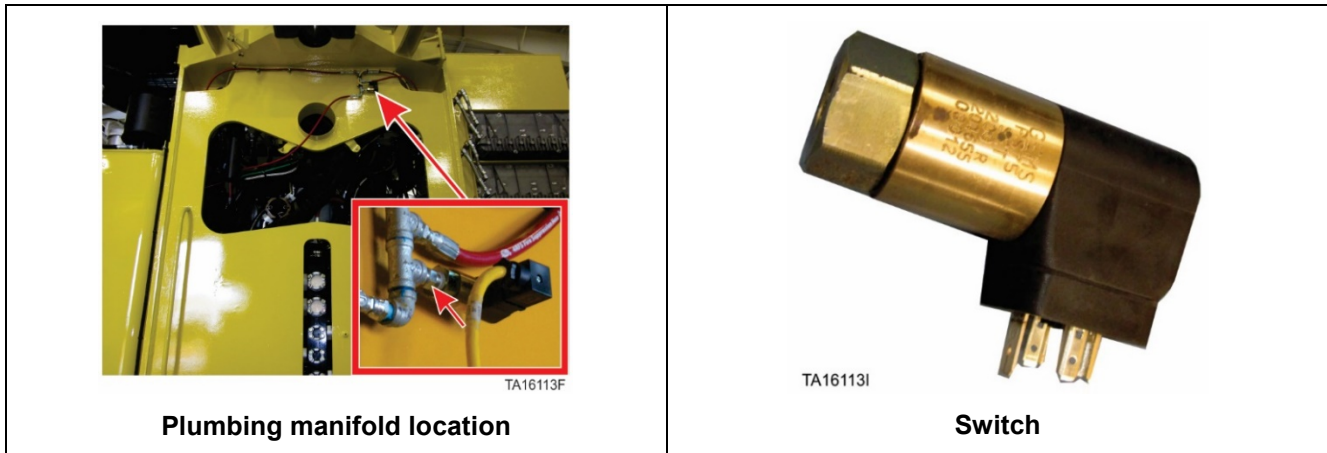


Figure 17. Remove switch from plumbing manifold

- c. Plug the fitting from which the switch was removed.
- Tighten hand tight.
 - To prevent debris or insects from entering the pilot system.

⚠ WARNING

Eye injury hazard exists when working with compressed gasses. Injury from puncture by flying debris is possible when working with compressed gasses. Do not work with compressed gasses without wearing appropriate Personal Protective Equipment (PPE). Punctures from pressurized gas and eye injury from flying debris are possible, resulting in serious injury or death.

- d. Plumb the switch to a testing assembly.
- The regulated gas or air source should not be greater than 220 PSI (15.17 bar) maximum for this test.
 - The switch is tested at 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar).
 - Ensure the regulator is closed (no pressure applied to exit port).
 - Use an appropriately sized regulator to control the pressure.
 - Gauge capable of reading 220 PSI (15.17 bar)

NOTICE

If the gas or air supply has a regulator capable of regulating the supply line at 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar), the three-way valve (3), the hose (4), the regulator (5) and the hose (6) shown in the figure "Pneumatic test assembly diagram" may not be necessary when constructing the test assembly. The need for the test assembly is to safely apply 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar), to the switch, and be able to safely bleed off the pressure after the test is complete. Since the test requires the electrical wiring Turck connector to be connected to the switch during the test, it is recommended that the test assembly have its own regulator for close proximity to the testing area. The Turck connector wiring is not long enough to reach the ground level where the gas cylinder or air supply regulator might be located.

For numbers in parenthesis in following text, refer to illustration “Pneumatic test assembly diagram”.

The test assembly must be supplied by a regulated nitrogen cylinder gas supply or air supply (1). Either type of supply must be able to produce and regulate the pressure to the test assembly at 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar). A hose (2) connects the gas or air supply to the three-way valve (3). A three-way valve (3) is used to bleed the pressure from the gas or air supply once the test is complete. A hose (4) connects the three-way valve to the regulator (5). The regulator (5) is used to apply 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar) to the switch. A hose (6) is used to connect the regulator to the three-way valve (7). A three-way valve (7) is used to bleed pressure from the switch (9) after the test is complete. A hose with a 1/4" NPT fitting (8) is used to connect the three-way valve (7) to the switch (9).

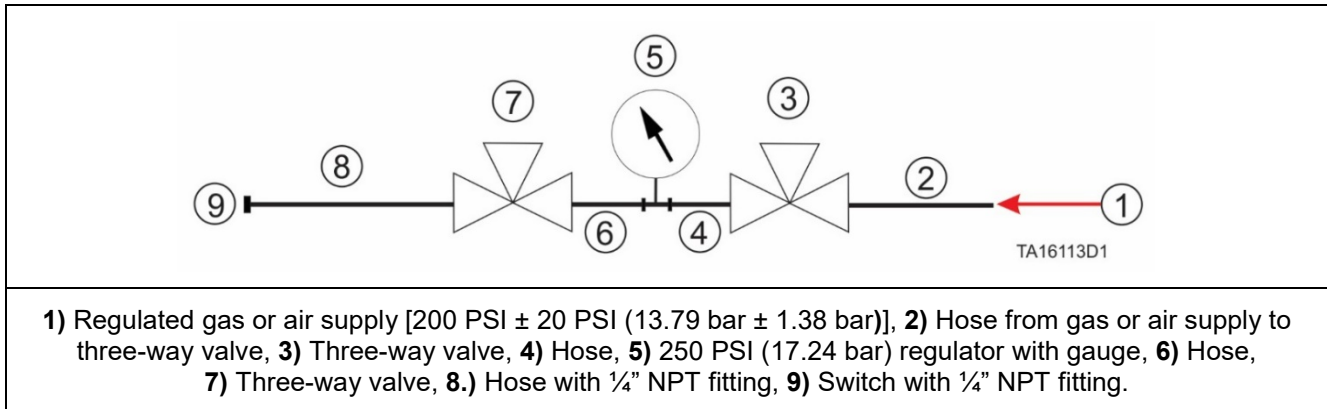


Figure 18. Pneumatic test assembly diagram

- e. Reconnect the Turck cable to the switch.
- f. Boot up LINCS by turning on the machine ignition switch key.
 - Do not start the machine.
 - Wait for the operator screen to appear.
- g. Open the pressure source to the regulated test assembly.
- h. Adjust regulator to apply 200 psi (13.79 bar) to the switch. The switch test range is 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar). It should be expected to actuate within this range.

Observe the Results of the Switch Test

If all of the following results do not occur once the switch is pressurized to 200 PSI $\pm$ 20 PSI (13.79 bar $\pm$ 1.38 bar), check all hoses, wiring connections and components of the circuits that are expected to respond. If all components are found to be in working condition, replace the switch and perform the test again. Do not operate the machine if the switch is not working properly.

When the switch actuates the following results should be noted.

1. The hydraulic reservoir air release solenoid (SOL TD) energizes.
 - The solenoid provides air from the machine air system to pressurize the hydraulic reservoir air release valve (typical Versa valve) located on top of the hydraulic reservoir.
 - The valve releases hydraulic reservoir air pressure to atmosphere through a hose positioned down the length of the reservoir.

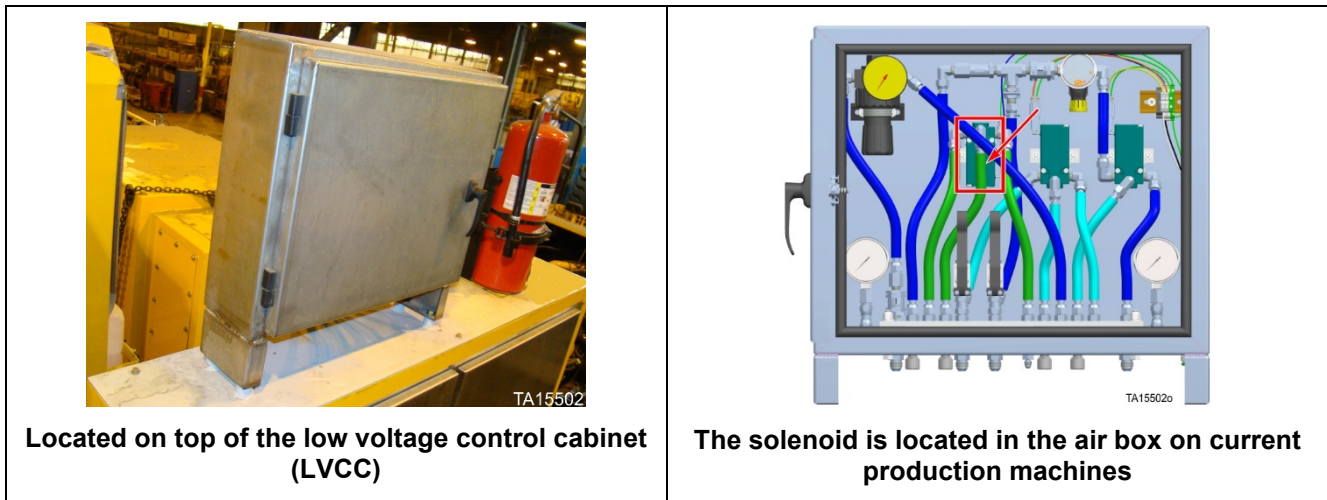


Figure 19. Hydraulic reservoir dump solenoid (SOL TD) location.

2. The hydraulic reservoir air release valve (typical Versa valve) relieves air pressure from the hydraulic reservoir.
 - After the test, this valve must be manually reset by pushing the black button back into original position.
 - It cannot be reset until the hydraulic reservoir air release valve (typical Versa valve) pilot air pressure is relieved.
 - The solenoid (SOL TD) relieves the pilot pressure to the hydraulic reservoir air release valve once conditions are met for normal operation.

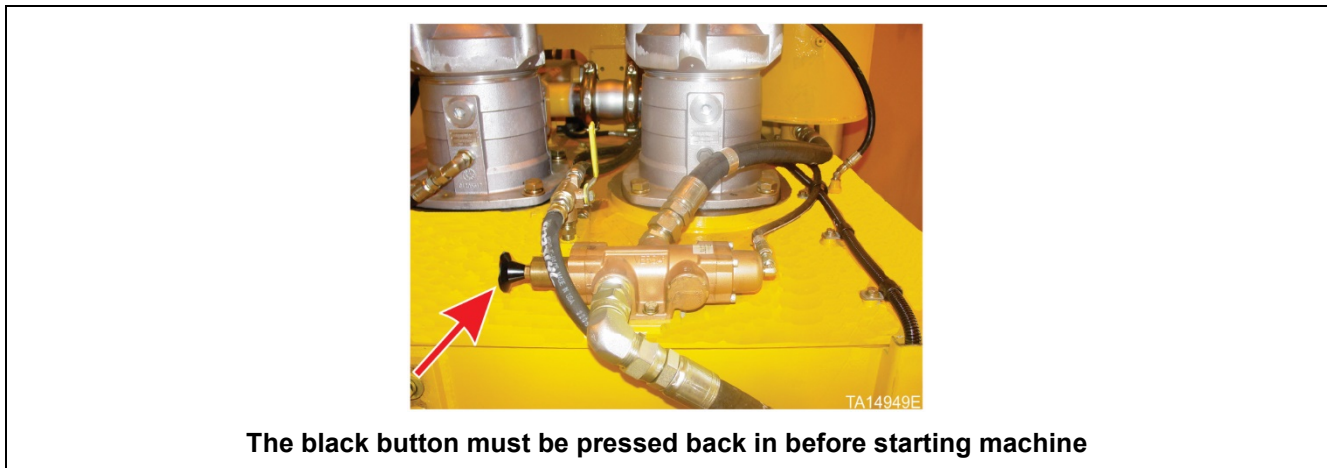


Figure 20. Hydraulic reservoir air pressure release valve reset button must be pushed in to reset

3. Once pressure on the switch reaches 200 psi (13.79 bar) and the switch closes, LINCOS responds to the closed switch and displays a red alarm – “Fire Suppression System Engaged or Detected” on the operator screen. The alarm buzzer inside the cab is also activated.



Figure 21. Fire suppression system engaged or detected red alarm screen

Return the Machine to Operation

- a. Turn off ignition switch key.
 - LINCS boots down.
- b. Turn off the air or gas pressure supply to the regulated test assembly.
- c. Open both three-way bleed valves on the regulated test assembly.
 - Open the valves slowly.
 - Ensure all personnel are clear of the vent.
- d. Disconnect the Turck cable from the pressure switch.
- e. Remove the switch from the regulated test assembly.
- f. Clean the area around the plug in the fire suppression pilot circuit manifold.
 - To prevent debris from entering the manifold.
 - Located in the port from which the switch was removed.
- g. Remove the plug from the plumbing manifold.
- h. Reinstall the switch into the plumbing manifold.

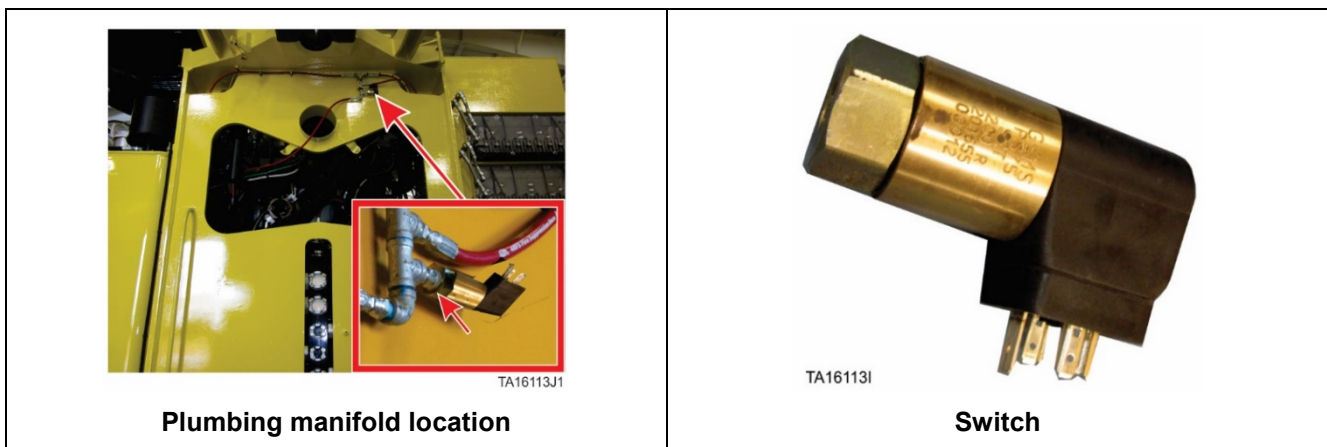


Figure 22. Switch reinstalled into plumbing manifold

- i. Reconnect the Turck cable connector to the switch.

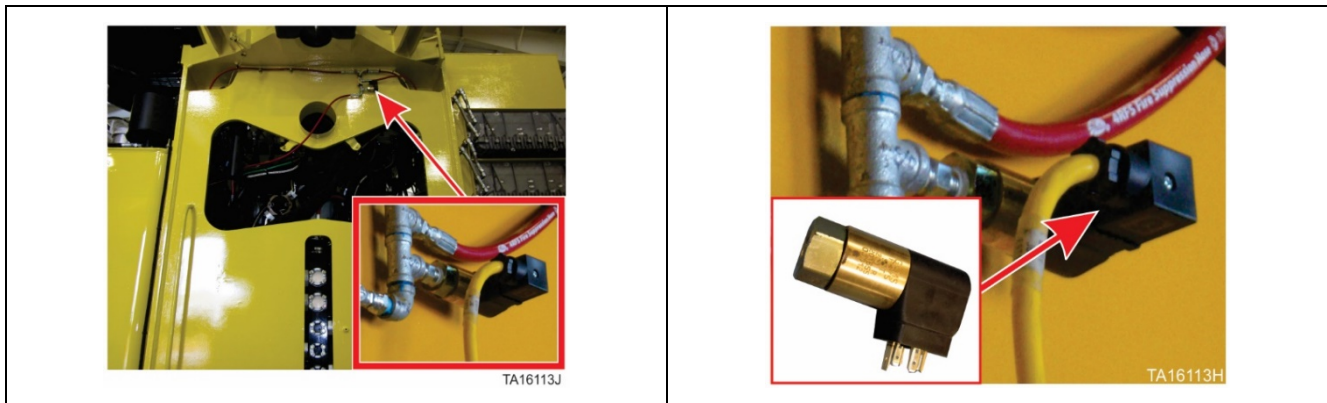


Figure 23. Turck cable reconnected to pressure switch

- j. Close the hydraulic circuit bleed valves.
- Located inside the front frame.

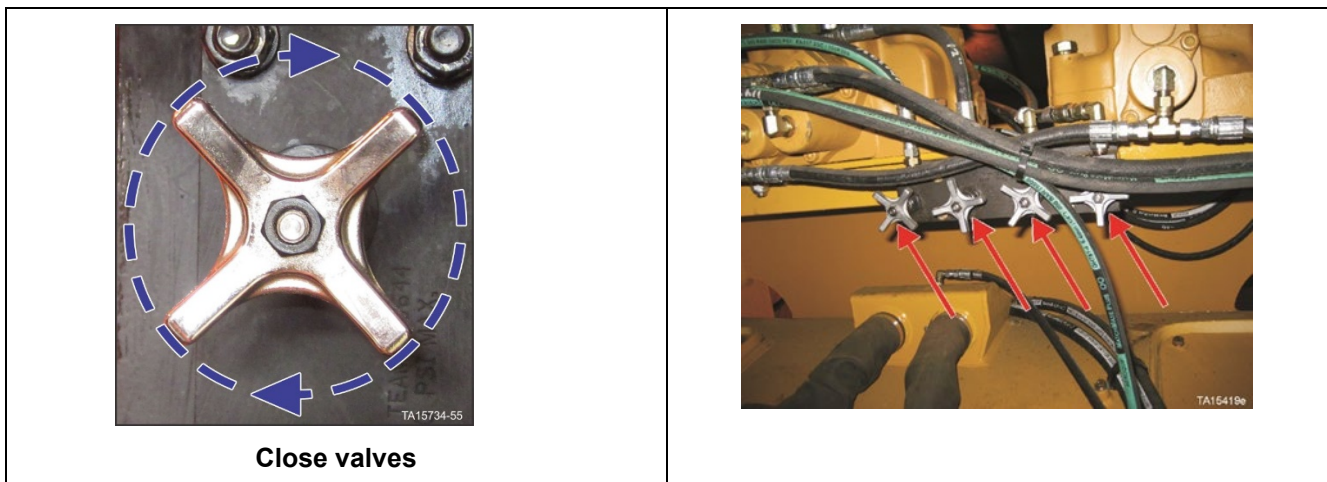


Figure 24. Close hydraulic circuit pressure bleed down valves

- k. Reset the hydraulic reservoir pressure release valve (Versa valve).
- Push the black button back into the original position.

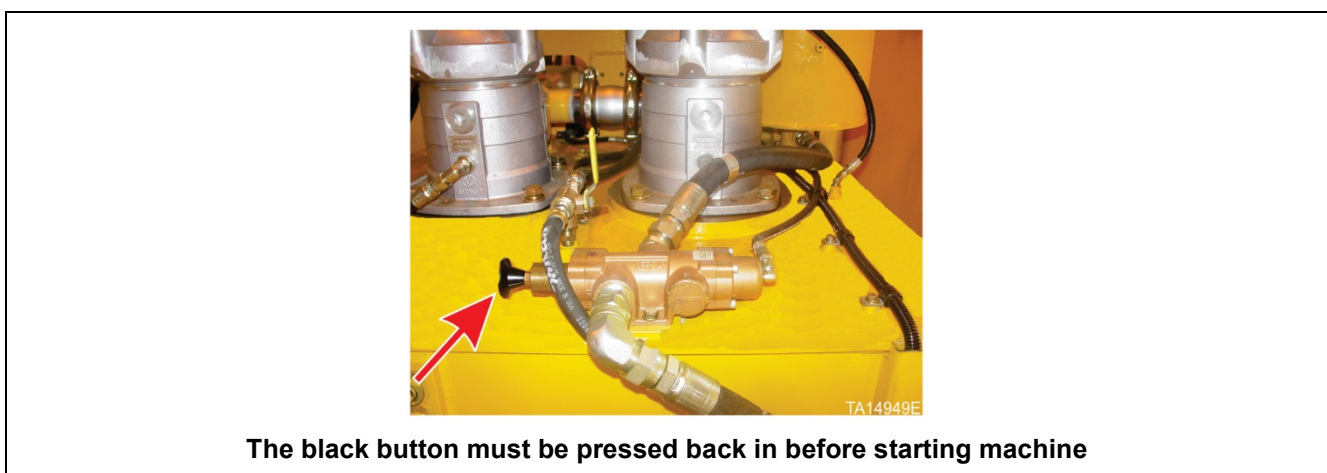
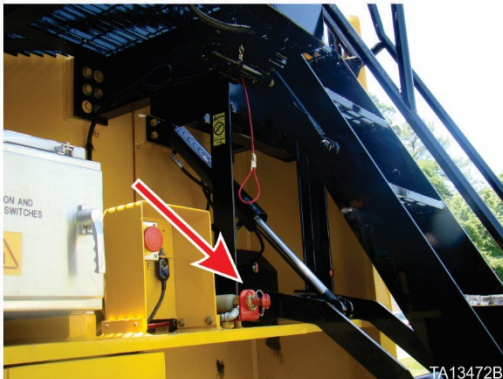


Figure 25. Versa valve reset button must be pushed in to reset

- I. Replace the fire suppression system charge bottles.
 - Reinstall the bottles into the original location.



Left rear



Left rear



Electrical converter cabinet, left side



Hydraulic reservoir, right side



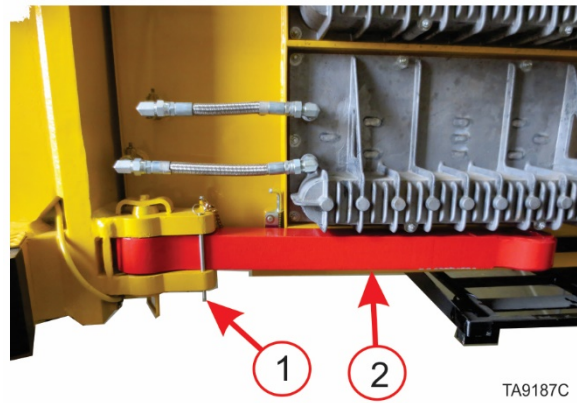
In cab

Figure 26. Charge bottles (typical locations and types)

- m. Unlock the frame lock.

CAUTION

Be sure to unlock the frame lock before operating the machine. Equipment damage will occur if the machine is articulated before unlocking the frame lock.



1) Frame lock securing pin, 2) Frame lock in unlocked position*

*Frame lock appearance may differ by machine model

Figure 27. Unlock the frame lock (typical)

- n. Follow all local rules and regulations for returning a machine to operation.
 - Follow all local lockout tag out procedures.
- o. Remove tags and turn on the “starter isolation” switch.

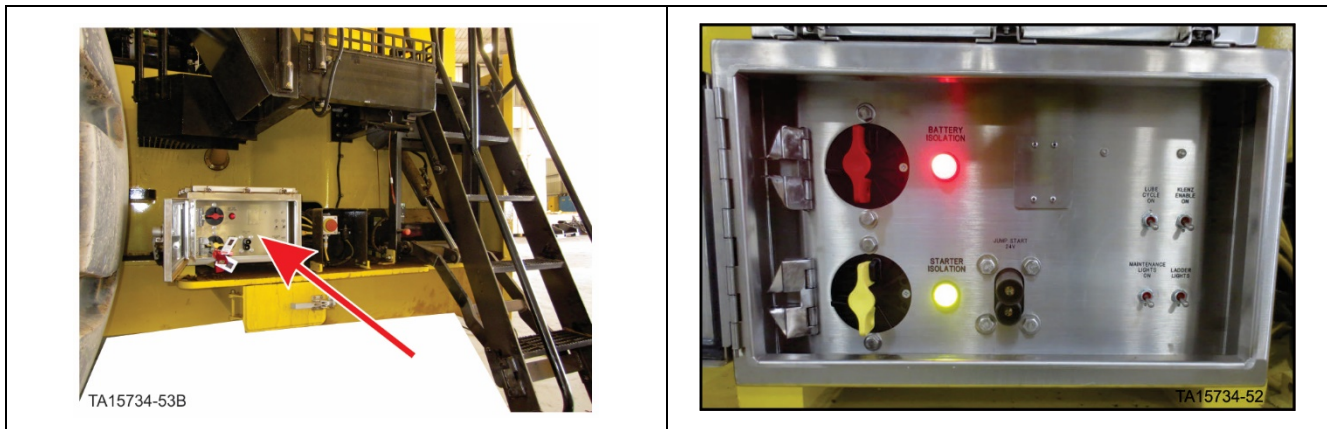


Figure 28. Remove tags and locks and place starter isolation switch in “ON” position.

CAUTION

If locally required, the fire suppression system should be inspected by the system manufacturer to determine proper operation, before machine operation.

Suggested Tool List

All valves, fittings, and hoses, on the pressure regulated test assembly must be pressure rated for at

- Open ended wrench set (up to 1") (25.4 mm).
- Various wrenches for plumbing the regulated test assembly.
- Pressure regulated test assembly capable of controlling pressure up to 250 psi (17.24 bar) with three-way bleed down valves.
- One (1) plug for plugging the fire system manifold when the switch is temporarily removed during the test.
- Various hoses and fittings for plumbing the switch into a regulated test assembly for testing.
- A man lift or scaffolding to gain safe access to the fire suppression system manifold while removing, installing, and testing the switch.

Troubleshooting

System Maintenance and Troubleshooting

The fire suppression system requires regular inspection and maintenance. The manufacturer's recommended maintenance schedules are also located in the owner's manual, which may be obtained from the manufacturer's website. System troubleshooting and wiring information is also provided in the manufacturer's owner's manual appended to this publication.



WARNING

Explosion hazard exists when working on the fire suppression system. Only personnel trained by the system's manufacturer should service the system. Certain components of the system contain a compressed charge that can cause serious personal injury if not handled properly. Failure to use trained personnel when working on the fire suppression system can cause explosion hazard resulting in serious injury or death.

CAUTION

Electronic components of the fire suppression system can also be damaged if not handled in the proper manner. Only trained personnel should be performing maintenance or repair procedures to the system.

CAUTION

Before performing welding operations or jumpstarting the machine, the circuit monitor panel's in-line fuse must be removed. Failure to do so may cause the system to actuate and/or damage the solid-state components of the system. Replace the in-line fuse before starting the machine or when welding operations have been completed.



1. Inside cab, rear wall
2. Left rear of machine
3. Hydraulic reservoir

NOTICE

Check your machine and make note of all switch locations before operating machine.

Figure 29. Locations of fire suppression system actuation switches (typical locations - standard installation)

CAUTION

Before performing a heat generating process such as grinding, cutting, or welding on a machine, the fire suppression system circuit monitors panel's in-line fuse must be removed. The fuse is located in the battery box on the loader. Failure to do so may cause the system to actuate and/or damage the solid-state components of the system. Replace the in-line fuse before the machine has been started or after all welding operations have been completed.

NOTICE

Some fire suppression systems have an internal battery and are not hard wired to the machine batteries. This fuse will not exist on these machines. Before beginning any heat producing work on the machine, appropriate steps must be taken to prevent the heat producing activity from activating the fire suppression system.



Fire suppression in-line fuse located in loader battery box.



WARNING

Fall hazard exists when working at heights on the machine. Be sure to take appropriate safety precautions when working at heights on the rear and front frames. Use fall restraint when appropriate. Follow all required statutory regulations for working at height. Failure to use fall restraint when working at heights on the machine can cause fall hazards resulting in serious injury or death.



WARNING

Crush hazard exists if standing under, or placing any body part under hoisted/suspended components. Never stand under hoisted/suspended components. Ensure appropriate lifting devices are used, and blocking is adequate to prevent the component from unexpectedly moving during transportation. Refer to SAFETY, WARNINGS, AND CAUTIONS before attempting to remove the operator's cab. Failure to stay out from under hoisted/suspended components can cause crush hazard resulting in serious injury or death.

CAUTION

Have qualified fire watch personnel present, and keep a fire extinguisher that meets all statutory regulations nearby during all cutting and welding operations.

Vendor Literature

VL 15 – ANSUL Checkfire SC Electric Detection and Actuation System

VL 15A – ANSUL Checkfire 210 Detection and Actuation System

VL 15B - ANSUL Checkfire 210 Detection and Actuation System Owners Guide

VL 59A – AFEX Fire Suppression Systems

VL 97A – ANSUL Vehicle Fire Protection

NOTICE

Do not modify the fire suppression system without the permission of the manufacturer.

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by Tyco Fire Suppression & Building Products

CHECKFIRE SC-N ELECTRIC DETECTION AND ACTUATION SYSTEM

Data/Specifications

FEATURES

- FM Approved
- Self Contained – Internal 3.6 VDC Power Source
- External 12/24 VDC Power Source Connection Available
- Battery Back-up Available
- Power Fault Monitoring for Both Internal and External Power
- Euro-Style Terminal Block for Field Connections
- Two Part Enclosure Design Simplifies Installation and Servicing
- Environmentally Sealed Enclosure
- Mounting Feet for Mounting to Any Suitable Flat Surface
- Microprocessor Based Circuitry
- Sealed, Membrane Push Button for Reset and Delay
- Vibration and Shock Resistant Design
- Electronic Circuitry That Meets the IEC Standards for Electromagnetic Compatibility in Heavy Industrial Environments
- Form “C” Relay Output Connection for Both Auxiliary Alarm and Shutdown Functions
- Normally Open Trouble Contacts Available for Remote Trouble Annunciation
- Two Supervised Initiating Circuits – One for Detection and One for Either Manual Electric Actuation or Pressure Switch Feedback
- One Supervised Release Circuit
- Manually Field Programmable Circuits (can optionally be PC programmed)
- History File to Record the Last 50 Alarm and Trouble Events
- Built-in Diagnostic Function Identifies the Source of Trouble
- Programmable Time Delays (Alarm to Shutdown, Shutdown to Release)

APPLICATION

The CHECKFIRE SC-N Electric Detection and Actuation System furnishes fire detection for equipment hazard areas. Its unique actuator allows actuation of a pneumatically-actuated fire suppression system either manually or automatically.

The CHECKFIRE SC-N system is typically used with an ANSUL A-101 Vehicle Fire Suppression system for 24-hour protection of equipment. The system is particularly suited for protection of equipment that is subjected to extreme environmental and physical conditions such as vehicles used in forestry, mining, agriculture, construction, public transportation, public utilities, land fill, and waste disposal.

The control module can be utilized as a self contained system, powered by its own internal Lithium battery. This allows the detection system to operate around-the-clock without use of external power. Optionally, external power can be connected to the control module. With external power connected, the internal power source provides battery back-up. When connected to an external 12/24 VDC supply with the internal battery also connected, the external power source becomes the primary supply, while the internal source is maintained in a standby mode of operation.

The control module may be installed where the ambient temperature is between -40 °F to 140 °F (-40 °C to 60 °C).



002710

DESCRIPTION

The complete CHECKFIRE SC-N system is composed of components which are combined to provide automatic fire detection and actuation. The electric detection and actuation system is designed for use with the ANSUL fire suppression systems that use pneumatic actuation as a means of system actuation.

The first of two initiating circuits is the supervised detection circuit designed to be connected to linear (wire) and/or spot type thermal detectors that provide a contact closure input to initiate a fire detected condition. A second option for this circuit is the addition of Triple IR Flame Detector(s) added to the linear or thermal detection circuit. The second initiating circuit is designed to accept a contact closure type of actuating device such as a manual electric pull station input or a pressure switch to initiate the module when the system is actuated with the pneumatic/manual actuator or a manual/electric pull station device. The initiating circuits are low impedance and designed to eliminate nuisance alarms associated with contact bounce.

First Initiating Circuit

Two field programmable time delays provide timing of shutdown and release functions associated with the operation of the detection and electric manual pull/pressure switch input initiating circuits. The first time delay is field programmed to assign the time between the initial alarm condition from the detection circuit and the operation of the shutdown relay. The first time delay is programmable for 5, 10, 20, or 30 seconds. The second time delay is field programmed to assign the time between the completion of the first time delay (when the shutdown relay operates) and operation of the release circuit. The second time delay is field programmable for 0, 10, 20, or 30 seconds.

DESCRIPTION

Second Initiating Circuit

The second initiating circuit is field programmable to be used as an electric manual pull or as a pressure switch feedback circuit. If selected as an electric manual actuation input circuit, its operation will override the first time delay function and initiate a second time delay condition, causing the shutdown relay to immediately operate and the release to occur upon expiration of the second delay. Additionally, the control module can be field programmed, if it is so desired, to shorten the second time delay when a manual actuation occurs. The time delay options associated with the manual actuation are 0, 10, 20, and 30 seconds, with the condition that it can only be less than or equal to the time delay associated with the detection circuit.

Selection of the second initiating circuit as a pressure switch feedback circuit will result in the operation of the alarm relay and shutdown relay, but will not operate the release circuit. Additionally, a trouble condition will occur on the control module, indicating the need for service.

The front panel contains a "DELAY" and "RESET" button. Operation of the DELAY button will repeat the first time delay if initiated while time delay one is active. Once time delay two has started, operation of the DELAY switch has no affect. The delay button also serves the dual function of silencing the auxiliary alarm relay, but is only effective for this function 30 seconds after release, or after pressure switch feedback operation has occurred.

The RESET button is used to re-initialize the control panel. When depressed, it provides an indication that all LEDs and the sounder are functional. It is also used to upload the manual programming into the control module.

The front panel also contains LEDs for visual annunciation of alarm, trouble, release, and power conditions.

EMI filtering is provided on all inputs, outputs, and power circuitry.

CONSTRUCTION

The enclosure consists of a cover assembly and back box which is constructed of Noryl SE1GFN3 with a flammability rating of UL94 V-1. The back box contains the field interface terminal block, battery, and field wiring entrance ports. The cover assembly contains the control PC board assembly, sounder, operator interface panel, and environmental seal. The enclosure meets IEC 529 requirements for dust and water spray in all directions. Mounting feet allow mounting to any suitable flat surface. Steel mounting brackets are also available.

All circuitry, relays, switches, and LEDs are contained on a single PC board. A board mounted receptacle mates with the plug-in terminal block mounted in the back box. A high pitch sounder is threaded into the cover and plugged into the PC board. The PC board is encapsulated to provide added protection against moisture and dust. An RS232 connector is provided for field programming from a PC and for data retrieval from a trouble and alarm event history file. The PC board assembly contains a DIP switch for optional manual programming functions without the use of a PC.

INTERNAL CONNECTIONS

The internal battery is connected to the PC board via a single plug. The external power is connected to the field connection terminal strip located in the back box.

The field connection terminal strip located in the back box is a 16 position terminal block containing the following terminations:

Position	Circuit Description
1	+ External 12/24 VDC Power
2	– External 12/24 VDC Power
3	+ Detection Input
4	– Detection Input
5	+ Manual Input
6	– Manual Input
7	+ Release Input
8	– Release Input
9	Trouble Common
10	Trouble NO
11	Alarm NO
12	Alarm Common
13	Alarm NC
14	Shutdown NO
15	Shutdown Common
16	Shutdown NC

OPERATIONAL ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature Rating: –40 °F to 140 °F (–40 °C to 60 °F)
- Humidity: 24 Hours at 85% +/- 5% at 86 °F (30 °C)
- Shock: In accordance with UL1254
- Vibration: In accordance with UL1254
- Electromagnetic Compatibility: Meets EN 55011 and EN 50082-2 for heavy industrial environments
- Moisture and Dust: Meets IEC 529 for direct water spray

SEQUENCE OF OPERATION

Upon receiving an input signal from either a shorted detection wire or a closed thermal detector, the following functions will be performed automatically:

1. The Alarm LED will flash, the internal sounder will pulse at a rate of 2 times per second. The alarm relay will transfer resulting in remote alarm operation, and the shutdown time delay begins. (The operator can repeat the shutdown time delay if the DELAY button is depressed before the shutdown time delay has expired).
2. After the shutdown time delay has expired, the Alarm LED pulse rate and the sounder pulse rate will change to 4 times per second. The shutdown relay will transfer resulting in equipment shutdown (when provided), and the discharge time delay begins (when set).
3. After the discharge time delay has expired, the control module release circuit operates, resulting in the fire suppression system actuation.

After system discharge, the Alarm LED and sounder will continue to pulse at a rate of 4 times per second for 30 seconds. After that, it will switch to the trouble mode and pulse once every 10 seconds.

If manual actuation is performed through operation of the manual input circuit, the first time delay will be by-passed and either immediate release will occur or the second time delay will begin.

If manual actuation is performed by operating the mechanical actuator, the fire suppression system will immediately discharge. The shutdown function will take place through the pressure switch circuit (if provided).

APPROVALS

Factory Mutual (JI0B8A8.AF)

ORDERING INFORMATION

Part No.	Shipping Assembly
436302 (436303 TC)	CHECKFIRE SC-N Electric Detection and Actuation System Includes: Control Module, Manual/Automatic Actuator, Mounting Bracket, Protracting Actuation Device, Connector/Cable Assembly, LT-10-R Cartridge, 1/4 in. Check Valve, Hardware Kit, Label Package, and Owners Manual (Battery must be ordered separately)
71230	Linear Detection Wire, 356 °F (180 °C), 100 ft (30.5 m)
71231	Linear detection Wire, 356 °F (180 °C), 500 ft (152.4 m)
426520	End-of-Line Resistor Assembly
416218	Spot Detector – 270 °F (132 °C)
416219	Spot Detector – 325 °F (163 °C)
416220	Spot Detector – 360 °F (182 °C)
416213	Spot Detector Package (one required per detector)
416221	Spot Detector Bracket – one required for each detector
416113	Pneumatic/Linear Detector, 35 ft (10.7 m) (Model 808-DRV)
416216	Cable Assembly, 15 ft (4.6 m) (for pneumatic/linear detector)
436242	Cable Assembly – 20 ft (6.1 m)
436114	Connector/Cable Assembly – 20 in. (51.0 cm)
432480	Triple IR (IR ³) Flame Detector Shipping Assembly includes Spectrex Model 20/20MI-32-S-F; Triple IR (IR ³) Flame Detector, Part No. 434941; Detector Mounting Bracket, Part No. 434116
434102	Triple IR CHECKFIRE Detection Interface Kit includes Interface Module, Part No. 434108; Module Mounting Bracket, Part No. 423528; End-of-Line (EOL) Cable Assembly, Part No. 434107
434103	10 ft (3.1 m) Receptacle-Plug Cable Assembly (Triple IR)
434104	20 ft (6.1 m) Receptacle-Plug Cable Assembly (Triple IR)
434105	30 ft (9.1 m) Receptacle-Plug Cable Assembly (Triple IR)
434107	End-of-Line (EOL) Cable Assembly (Triple IR)
434106	“Y” Connector Cable (Triple IR)
434108	Triple IR CHECKFIRE Detection Interface Module
434109	Cover, Triple IR CHECKFIRE Detection Interface Module
432485	Triple IR Flame Detector User and Maintenance Manual
419780	Power Wiring Assembly – 15 ft (connector on one end only)
419781	Power Wiring Assembly – 15 ft (connector on both ends)
419782	Power Wiring Assembly – 10 ft (connector on both ends)
423520	Battery Shipping Assembly
419783	Battery Connection
426461	End-of-Line Resistor Assembly (10 of Part No. 426520)
423541	Release Circuit Test Module
436243	Protracting Actuation Device Test Adaptor
423522	Operation and Maintenance Manual – SC-N System
432485	Operation and Maintenance Manual – Triple IR (IR ³) Detection System

CHECKFIRE 210 Detection and Actuation System

Features

- Supervised power, detection, release, and communication circuits
- Display module with LED system status indicators
- Adjustable mounting bracket (display module)
- 85 dB internal sounder
- Compact size
- Automatic and/or manual actuation
- Electric "DELAY/Reset/Silence" button
- "PUSH To Activate / Alarm When Lit" electric manual activation button
- Interface control module for all color-coded "Plug and Play" cable connections
- Cables provide quick installation and easy replacement
- Internal power source with optional external power
- Auxiliary power output when external power is connected
- Manual programming at interface control module
- Computer programming available through mini USB port
- Two programmable release time delays
- Two analog detection circuits
- Detection circuits are programmable for multiple detection methods
- Detection circuit #2 may be programmed for pressure switch feedback
- Two internal programmable SPDT Form C relays (5 A @ 30 VDC nominal automotive)
- Downloadable 4000+ event history log with real-time stamp
- System isolate feature
- Dust and water tight (IP67 rated)
- Designed for harsh environments



009266

Application

The CHECKFIRE 210 Detection and Actuation System is typically used with an ANSUL® A-101 or LVS Vehicle Fire Suppression System for 24-hour protection of equipment. The system is designed for vehicles and equipment in extreme environmental and physical conditions.

Industries where vehicles use CHECKFIRE 210 Systems:

- | | |
|-------------------------|------------------|
| ■ Forestry | ■ Land fills |
| ■ Agriculture | ■ Waste disposal |
| ■ Construction | ■ Mining |
| ■ Public transportation | |
| ■ Public utilities | |

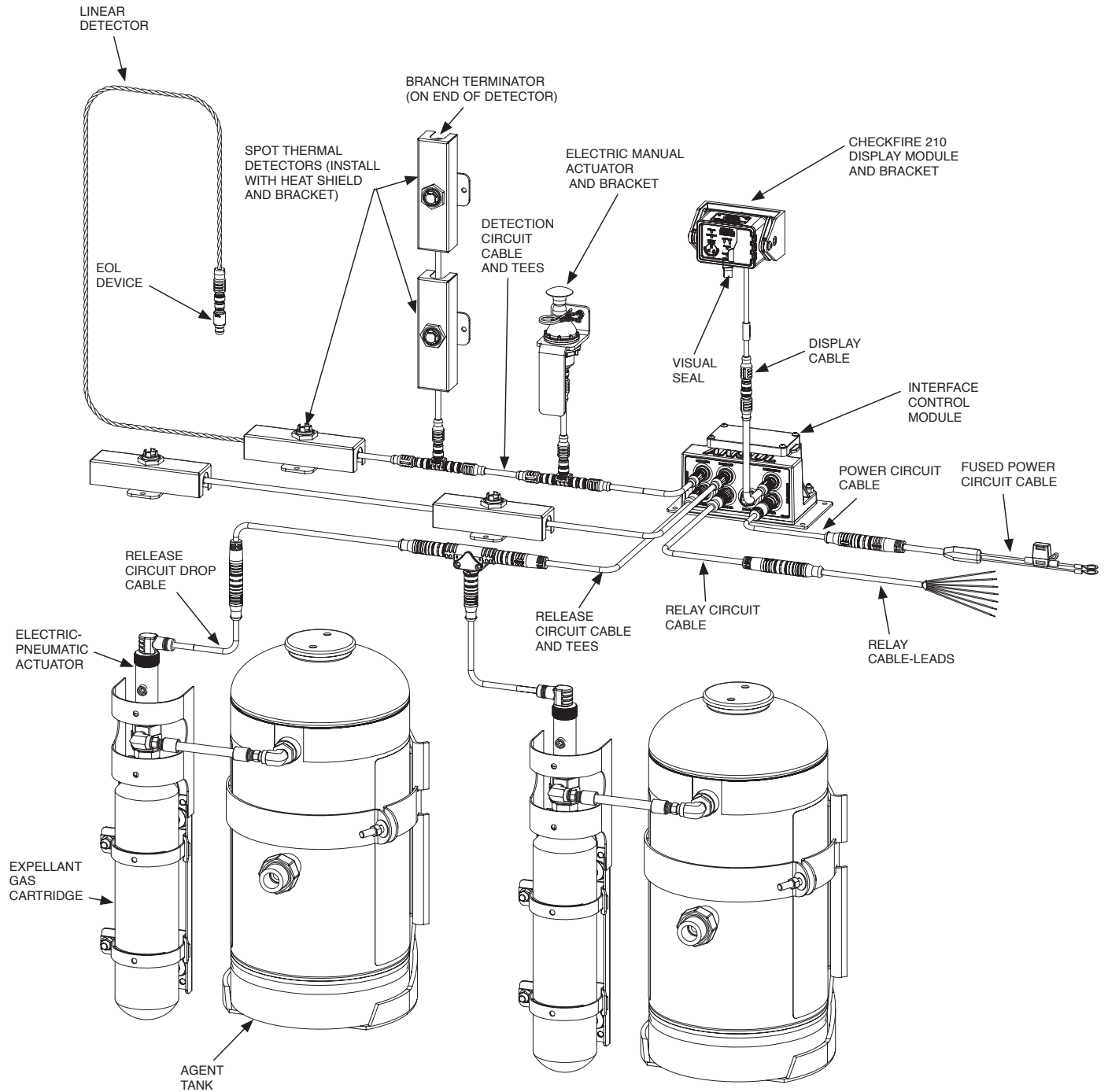
Description

The CHECKFIRE 210 Automatic Detection and Actuation System provides supervised input/output circuits to activate an ANSUL® fire suppression system. Upon detecting a fire condition, the interface control module activates the release circuit, resulting in the discharge of an expellant gas cartridge, initiating fire suppression system operation.

Green, amber, and/or red pulsing LEDs, and the internal sounder notify operator of system status. The sounder only activates for faults, isolate mode, and system release.

Operating components include the display module, interface control module, spot thermal detectors, linear detectors, electric manual actuators, protracting actuation devices (PAD), electric-pneumatic actuators, and cables for power, detection, and release circuits. The entire system is electronics based for supervision, communication, and control of system components.

CHECKFIRE 210 SYSTEM – SAMPLE CONNECTIONS



009269

Typical System Connections

The CHECKFIRE 210 Display Module communicates with the CHECKFIRE 210 Interface Control Module (ICM) through the display cable using threaded circular connectors. Color-coded receptacles in the ICM are the central connection point for all system cables.

System Cabling: Enables communication and control of components.

- IP67 connectors
- Color-coded, anti-vibration connections
- Integral connectors on each end of cable
- Multiple lengths for versatility
- Temperature rating: 302 °F (150 °C)

Detection Circuits #1 and #2: Permits multiple-detection options using detection circuit cable and tees for the main detection trunk and branch lines.

- Electric manual actuators
- Linear detectors
- Spot thermal detectors
- Pressure switch (detection circuit #2 only)

Release Circuit: Connects to a maximum of 10 electric-pneumatic actuators installed on agent tank expellant gas cartridges using release circuit cable(s), tee(s), and release circuit drop cable(s).

External Power Circuit: Provides a direct connection to the vehicle power source using power circuit cable(s) and a single fused power circuit cable, when external power is required.

Auxiliary Output Circuit: Connects to external notification devices.

Display Circuit: Connects display module with ICM.

Relay Circuit: Provides connection for two independent internal relay contacts for connection by others.

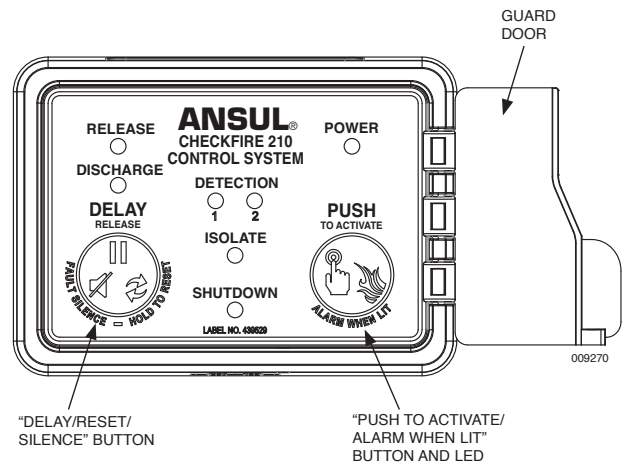
Detection

A Linear Detector with an activation temperature rating of 356 °F (180 °C) provides fire detection in the protected area. Two twisted spring steel conductors separated by a heat-sensitive insulator are limited to a minimum bend radius of 2 1/2 in. (64 mm). For easy installation, red color-coded connectors match the red connectors of the entire detection circuit.

Spot Thermal Detectors have the temperature rating stamped on the detector and are color-coded blue for 250 °F (121 °C) and red for 350 °F (177 °C) operating temperatures. The included retaining nut securely holds the detector in the required bracket and heat shield.

Display Module

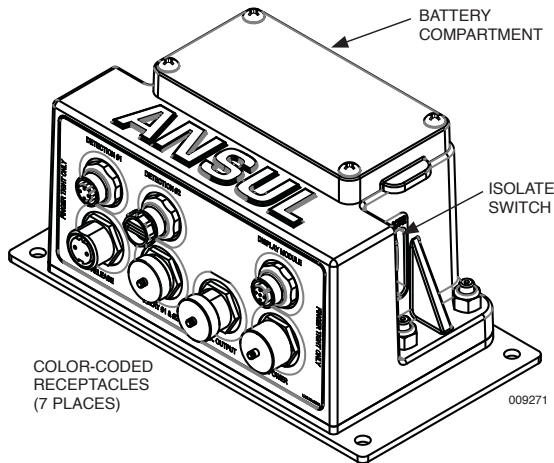
The CHECKFIRE 210 Display Module communicates with the Interface Control Module (ICM) to indicate system status. Installation within reach of the operator provides easy access to operator controls.



- Dust and water tight (IP67 rated)
- Durable high-strength glass-filled nylon material
- Surface or bracket mounted
- Two index pins on back for secure mounting
- Ambient temperature range: – 40 °F to 185 °F (– 40 °C to 85 °C)
- LED indicators provide notification of system status (internal sounder matches LED pulse rate)
- “PUSH To Activate / Alarm When Lit” manual-activation button and LED
 - Provides manual actuation (immediate release)
 - Indicates alarm condition
- Guard door with visual seal to protect manual-activation button
- “DELAY/Reset/Silence” Button
 - Restarts Time Delay #1 (TD1) before TD1 sequence expires
 - Resets system (during non-alarm status)
 - Silences internal sounder during fault conditions and isolate mode

Interface Control Module (ICM)

The CHECKFIRE 210 Interface Control Module (ICM) is the central connection point for input/output circuits. Through communication with the display module, operators receive continuous system status updates, and operator input commands go directly to the ICM. Color-coded receptacles match with color-coded cable connectors providing quick visual confirmation of proper circuit connections.



The protective battery compartment cover is held in place with 4 captive screws. Besides the internal power supply, the battery compartment includes the battery cable, a mini USB connection port, and the programming interface (button and LEDs). The system programming may be accomplished with the manual programming button and indicator LEDs or by using a computer with the ANSUL CHECKFIRE 210 Programmer software communicating through the mini USB port.

An isolate switch on the side of the ICM provides ease of access to temporarily disable the automatic system release function. While disabled, manual system release is still available. An amber isolate LED on the display module continues to pulse until the switch is returned to normal.

- Dust and water tight (IP67 rated)
- Durable high-strength glass-filled nylon
- UL94 Flame rating
- Ambient temperature range: – 40 °F to 185 °F (– 40 °C to 85 °C)
- Internal battery compartment with IP67 cover
- System isolate switch
- Steel mounting plate



Battery Module

A supervised 3.6 VDC lithium CHECKFIRE 210 Battery Module provides internal power for the CHECKFIRE 210 System. A connector pigtail extending from the top of the battery connects to the ICM battery cable.

Electric-Pneumatic Actuator

With a focus on ease of installation and safety, the Electric-Pneumatic Actuator reduces system complexity. The Protracting Actuation Device (PAD) directly actuates the electric-pneumatic actuator pin eliminating the need for pneumatic actuation.

The re-designed PAD with plug-in spade connectors is easy to install and replace without tools. After plugging the PAD into the release circuit drop cable, the cable is hand-tightened to the top of the electric-pneumatic actuator.



For installer safety during assembly of the Electric-Pneumatic Actuator to an expellant gas cartridge, the actuator includes a new preventor. The integral preventor reduces the possibility of attaching the actuator with the pin not completely retracted. It also provides a metal to metal seat with the expellant gas cartridge eliminating the spacing washer.

If required, optional pneumatic actuation is available.

Electric Manual Actuator

The newly designed Electric Manual Actuator (EMA) provides electrical activation of the fire suppression system. Pulling the pin and striking the red button sends a signal to the interface control module for immediate actuation of the electric-pneumatic actuator. Upon actuation, the expellant gas cartridge initiates fire suppression system operation.



009262

EMAs are typically accessible from ground level and/or in a path of egress. An index nub ensures the EMA remains at the proper angle for access to the pull pin.



009268

System Specifications

Interface Control

Module Power: Internal power source
and/or: 12/24 VDC nominal
external power
(24 hour operation)

Operating

Temperature Range: - 40 °F to 185 °F
(- 40 °C to 85 °C)

Shock: In accordance with UL1254

Vibration: In accordance with UL1254

Moisture and Dust: IP67 per IEC 60529

Electromagnetic

Compatibility: Heavy Industrial EMC Directive
Compliant (2004/108/EC)

Approvals

FM Approved and CE Marked

Ordering Information

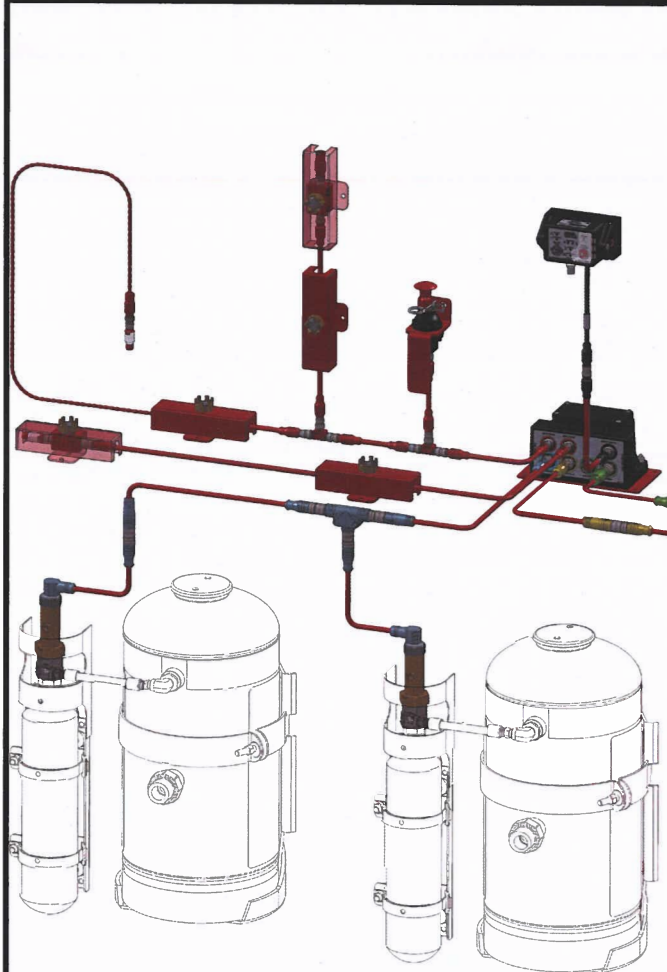
Part No.	Description
System Components	
439560	Display Module, CHECKFIRE 210
439564	Mounting Bracket, CHECKFIRE 110/210
439561	Interface Control Module, CHECKFIRE 210
439569	Electric-Pneumatic Actuator (normally supplied with agent tanks)
439400	Electric Manual Actuator (EMA)
440537	Electric Manual Actuator Bracket
Detection Circuit Cables and Fittings	
439384	Cable, Detection Circuit, 2 ft (0.61 m)
439386	Cable, Detection Circuit, 5 ft (1.53 m)
439388	Cable, Detection Circuit, 10 ft (3.05 m)
439390	Cable, Detection Circuit, 20 ft (6.10 m)
440759	Cable, Detection Circuit, 30 ft (9.15 m)
440762	Cable, Detection Circuit, 50 ft (15.24 m)
439394	Connector, Tee, Detection Circuit (MxFxF)
439396	Connector, EOL Device, Detection Circuit
439398	Connector, Branch Terminator, Detection Circuit
439404	Connector, Bulkhead, Detection Circuit
Linear Detectors	
439406	Linear Detector, 2 ft (0.61 m)
439478	Linear Detector, 5 ft (1.53 m)
439480	Linear Detector, 10 ft (3.05 m)
439408	Linear Detector, 20 ft (6.10 m)
439410	Linear Detector, 30 ft (9.15 m)
440765	Linear Detector, 50 ft (15.24 m)
Release Circuit Cables and Fittings	
439418	Cable, Release Circuit, 2 ft (0.61 m)
439420	Cable, Release Circuit, 5 ft (1.53 m)
439422	Cable, Release Circuit, 10 ft (3.05 m)
439424	Cable, Release Circuit, 20 ft (6.10 m)
439426	Cable, Release Circuit, 30 ft (9.15 m)
439428	Cable, Release Circuit, 50 ft (15.24 m)
439430	Cable, Release Circuit Drop, 30 in. (0.77 m)
439432	Cable, Release Circuit Drop, 38 in. (0.97 m)
439434	Connector, Tee, Release Circuit (MxFxF)
439436	Connector, Release Circuit Terminator
439405	Connector, Bulkhead, Release and Power Circuits
439448	Protracting Actuation Device (PAD), w/Spade Connectors

Part No.	Description
Display Cables	
439452	Cable, Display, 2 ft (0.61)
439454	Cable, Display, 5 ft (1.53)
439456	Cable, Display, 10 ft (3.05)
439458	Cable, Display, 20 ft (6.10)
439460	Cable, Display, 30 ft (9.15)
439462	Cable, Display, 50 ft (15.24)
439449	Connector, Bulkhead, Display Cable
Relay #1 & #2 Circuit Cable	
439466	Cable, Relay Cable-Leads, 3 ft (0.91)
440410	Cable, Backup Power/Relay Circuit, 2 ft (0.61 m)
440413	Cable, Backup Power/Relay Circuit, 5 ft (1.53 m)
439482	Cable, Backup Power/Relay Circuit, 10 ft (3.05 m)
440416	Cable, Backup Power/Relay Circuit, 20 ft (6.10 m)
Auxiliary Output Circuit Cable	
439450	Cable, Auxiliary Power Output Circuit, 3 ft (0.91)
Power Circuit Cables and Fittings	
439438	Cable, Power Circuit, 2 ft (0.61 m)
439440	Cable, Power Circuit, 5 ft (1.53 m)
439442	Cable, Power Circuit, 10 ft (3.05 m)
439444	Cable, Power Circuit, 20 ft (6.10 m)
439446	Cable, Power Circuit, 30 ft (9.15 m)
440187	Cable, Power Circuit, 50 ft (15.24 m)
439405	Connector, Bulkhead, Release and Power Circuits
439492	Cable, Fused Power Circuit, (w/Inline Fuse Holder), 3 ft (0.91 m)
Accessory Equipment	
440362	ICM Battery Module, CHECKFIRE 210
438280	Spot Thermal Detector, 250 °F (121 °C)
438281	Spot Thermal Detector, 350 °F (177 °C)
440905	Spot Thermal Detector Bracket and Heat Shield
440389	Pressure Switch
440737	Double-Loop Cable Ties (Pkg. of 50)
56692	Rubber Sleeve (Pkg. of 20)
440798	Label Package
440097	Detection Circuit Tester (DCT)
441021	Release Circuit Tester (RCT)
440912	Release Circuit Test Plug (Pkg. of 3)

CHECKFIRE 210 DETECTION AND ACTUATION SYSTEM



OWNERS' GUIDE



(Brazilian Portuguese, Chinese, English, French, German, Italian,
Latin American Spanish, Mongolian, Russian, and Swedish)

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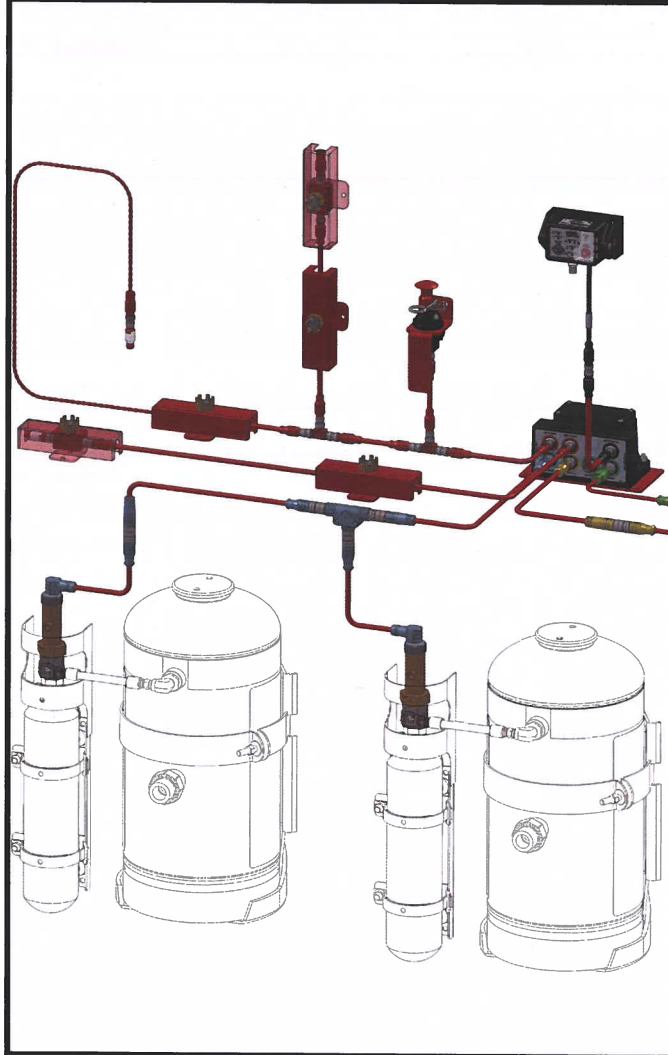


Svenska	Español	Русский	Монгол Хэл	Italiano	Deutsch	Français	中文	Português do Brasil
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CHECKFIRE 210 DETECTION AND ACTUATION SYSTEM



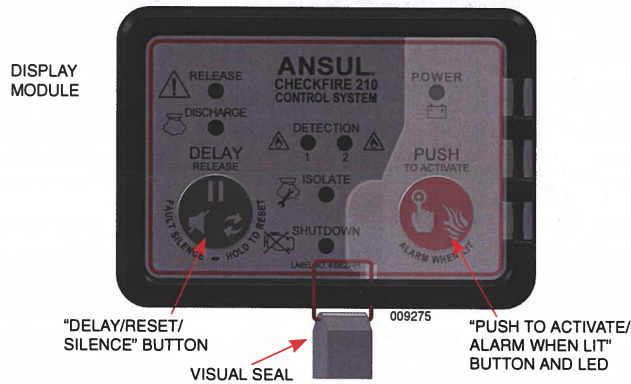
OWNERS' GUIDE



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CHECKFIRE 210 Detection and Actuation System Owners' Guide



This vehicle/equipment is monitored with a CHECKFIRE 210 Detection and Actuation System which is typically connected to an ANSUL® A-101 or LVS Fire Suppression System for 24-hour fire suppression. The operator of the equipment should be provided with hands-on training by Authorized ANSUL Distributors or the end user.

This handbook is a quick-reference guide for basic operation of the CHECKFIRE 210 System. Two buttons on the display module and manual actuators provide operator control.

Fill-In System Information (as installed)

Power: ☐ Internal Only ☐ Dual (External & Internal)

External Power Supply (vehicle battery, power panel, etc.):

TD1 (Time Delay 1, seconds): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (Time Delay 2, seconds): ☐ 0 ☐ 5 ☐ 10 ☐ 15

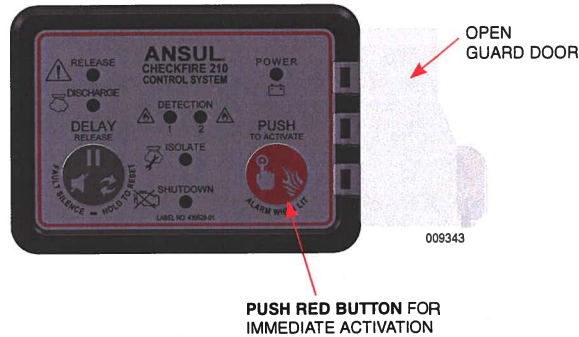
Time Delay Restarts: ☐ 2 ☐ Unlimited

Relay #1: ☐ Alarm ☐ Fault ☐ Not Used

Relay #2: ☐ Shutdown ☐ Alarm ☐ Not Used

Pressure Switch Auxiliary Operation: _____

IN CASE OF FIRE: Manual Actuation



- 1) Safely bring equipment to complete stop, set brake and shut off engine.
- 2) Break visual seal and open guard door.
- 3) Push the red "PUSH To Activate / Alarm When Lit" button.
- 4) Release circuit immediately activates the connected fire suppression system (if included, pressure switch activates auxiliary operation). **See Note below.**
- 5) Safely exit equipment and stand-by with supplemental firefighting equipment.
- 6) Optional manual actuation: Pull ring pin and strike red button on electric or pneumatic manual actuator.

Note: The red "PUSH To Activate / Alarm When Lit" LED and sounder remain steady-on for 10 sec. during initiation (release) of fire suppression system. Post release: Detection 1 and/or Detection 2, Shutdown, and Release LEDs and sounder continue to pulse 1 x 10 sec. If safe to re-enter equipment, push "DELAY/Reset/Silence" button to silence sounder for two hours.

Fill-In System Information (as installed)
Electric or Pneumatic Manual Actuator Location(s):

IN CASE OF FIRE: Automatic System Operation

- 1) Detector(s) registers alarm condition in hazard area and initiates the time delay notification on display module.
- 2) "PUSH To Activate / Alarm When Lit" plus Detection 1 and/or Detection 2 LEDs plus sounder:
 - a. Pulse 2 x 1 sec. until last 5 sec. of TD1; then pulse 4 x 1 sec. with Shutdown LED at start of final 5 sec.
(See DELAY/RESET/SILENCE (grey) button below for TD1 restart); then, only Shutdown LED is steady-on for 1 sec. indicating TD1 transferring to TD2 (restart no longer available).
 - b. Pulse 4 x 1 sec. with Shutdown LED during TD2.
 - c. Steady-on 10 sec. with Shutdown LED during initiation (release) of fire suppression system (if included, pressure switch activates auxiliary operation).
- 3) As soon as time delay begins: Safely stop equipment, set brake, shut off engine, and exit. Standby with supplemental firefighting equipment.
- 4) Post release: LEDs and sounder pulse 1 x 10 sec.

PUSH GREY
BUTTON TO
RESTART
TIME DELAY
(TD1 ONLY)



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DELAY/RESET/SILENCE (Grey) Button

- 1) **Restart Time Delay:** Press and release for each restart of TD1 during alarm condition. (Limit: 2 restarts or Unlimited, see page 1.)
 - a. Must be initiated before last second of TD1. (No response after TD1 until post release.)
 - b. **Note:** Press and hold will not extend time delay period.
- 2) **Silence sounder (post discharge or fault notification) for two hours:** Press and release to silence sounder; LED fault indication will continue until fault is cleared. Any new fault or detection event will reactivate sounder.
- 3) **Reset function** is for Authorized ANSUL Distributor service technician.

FRONT PANEL INDICATORS

POWER LED:
GREEN, AMBER OR OFF



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- 1) Power LED 
 - a. Green steady-on indicates normal **external** power.
 - b. Green pulsing 1 x 3 sec. indicates normal **internal** power.
 - c. Amber pulsing 1 x 3 sec. indicates external power fault; system is operating on internal power. Contact Authorized ANSUL Distributor for service.
 - d. Amber pulsing 1 x 10 sec. with sounder indicates internal or external power fault. Contact Authorized ANSUL Distributor for service.
 - e. Off indicates no system power. Contact Authorized ANSUL Distributor for service.
- 2) All other LEDs     
 - a. Off indicates normal status.
 - b. Amber or red pulsing with sounder: Contact Authorized ANSUL Distributor for service.

CAUTION

Any fault indication may cause the fire detection and actuation system to not function properly; immediately contact an Authorized ANSUL Distributor for service.

FRONT PANEL INDICATORS (Continued)

STEP 2 (Continued)



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c. LED amber or red indications



Amber: **RELEASE** Circuit Fault,
pulsing 1 x 10 sec.



Red: **DETECTION** Circuit Alarm Condition,
pulsing 1 x 10 sec

Amber: **DETECTION** Circuit Fault,
pulsing Amber 1 x 10 sec.



Red*: System **DISCHARGE** activated pressure
switch, steady-on for remaining Release
Activated.

Pulsing 1 x 10 sec. during Post Release
Activated



Amber: **ISOLATE** Mode, pulsing 2 x 30 sec.



Red: **SHUTDOWN** status, pulsing 4 x 1 sec.
during Alarm Condition.

Steady-on during Release Activated.

Pulsing 1 x 10 sec. during Post Release
Activated.

* Australian Standard: Only active when "Pressure Switch
Feedback" is programmed.

FRONT PANEL INDICATORS (Continued)

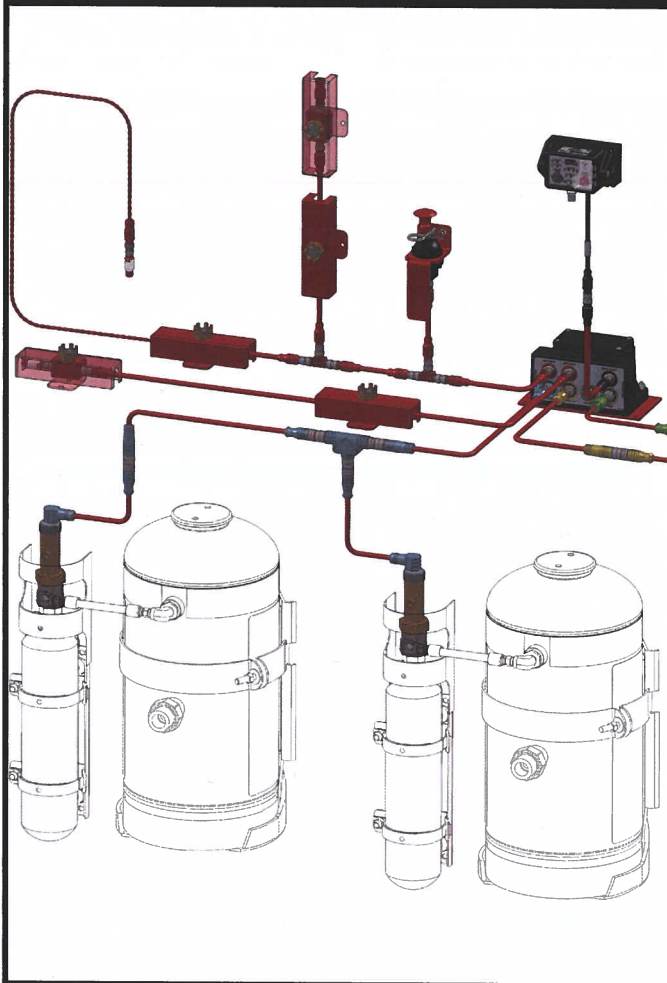
- 3) Red "PUSH" To Activate / Alarm When Lit" LED (sounder matches pulse rate). 
- a. Pulsing 1 x 1 sec. indicates Pre-Alarm Condition, Alarm Only Programming or Isolate Mode.
 - b. Pulsing 2 x 1 sec. indicates Alarm Condition and TD1 (time delay #1) starts countdown (last 5 sec. pulsing increases to 4 x 1 sec.).
 - c. Pulsing 4 x 1 sec. indicates last 5 sec. of TD1 and TD2 (time delay #2) continues with pulsing at 4 x 1 sec. until end of countdown.
 - d. Steady-on for 10 sec. indicates Release Activated.
 - e. LED is also a button, see page 2 for manual activation of fire suppression system.

- 4) DELAY/Reset/Silence Button 
- a. Icons on button represent options for system control.
 -  During Time Delay, press button to **restart** Time Delay.
 -  When sounder is pulsing, press button to **silence**.
 -  Press and hold button for 3 sec. to **reset** system.

SISTEMA DE DETECÇÃO E ATUAÇÃO CHECKFIRE 210



GUIA DO PROPRIETÁRIO



Observação: a versão em inglês deste documento é a oficial. Se esse documento for traduzido para qualquer idioma que não seja o inglês e houver uma discrepância entre o inglês e a tradução, a versão em inglês prevalecerá.

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Guia do proprietário do sistema de detecção e atuação CHECKFIRE 210

Português
do Brasil

MÓDULO DE
EXIBIÇÃO



BOTÃO "DELAY/RESET/ SILENCE"
(RETARDO/REINICIALIZAÇÃO/MUDO)

LACRE VISUAL

BOTÃO E LED "PUSH TO
ACTIVATE / ALARM WHEN
LIT" (APERTE PARA ATIVAR/
EMITIR ALARME QUANDO
ACESO)

Este veículo/equipamento é monitorado com um sistema de detecção e atuação CHECKFIRE 210, normalmente conectado a um sistema de supressão de incêndios ANSUL® A-101 ou LVS. O operador do equipamento deve receber treinamento prático pelos distribuidores autorizados da ANSUL ou pelo usuário final.

Este manual é um guia de referência rápida para a operação básica do sistema CHECKFIRE 210. Dois botões no módulo de exibição e nos atuadores manuais oferecem controle do operador.

Preencha as informações do sistema (conforme instalado)

Alimentação: ☐ Interna somente ☐ Dual (externa e interna)

Fonte de alimentação externa (bateria do veículo, painel de alimentação etc):

TD1 (Retardo de tempo 1, segundos): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (Retardo de tempo 2, segundos): ☐ 0 ☐ 5 ☐ 10 ☐ 15

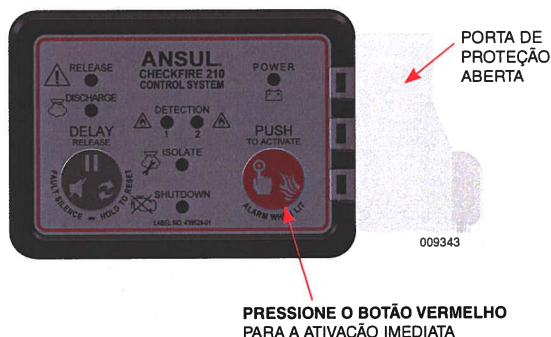
Reinícios do retardo de tempo: ☐ 2 ☐ Ilimitado

Relé 1: ☐ Alarme ☐ Falha ☐ Não usado

Relé 2: ☐ Desligamento ☐ Alarme ☐ Não usado

Operação auxiliar do interruptor de pressão:

EM CASO DE INCÊNDIO: Atuação manual



- 1) Faça o equipamento parar de modo seguro, freie e desligue o motor.
- 2) Rompa o lacre visual e abra a porta de proteção.
- 3) Pressione o botão vermelho "PUSH To Activate / Alarm When Lit" ("APERTE para ativar/emitir alarme quando aceso").
- 4) Liberar o circuito ativa imediatamente o sistema de supressão de incêndio conectado (se incluído, o interruptor de pressão ativa a operação auxiliar). **Veja as observações a seguir.**
- 5) Saia com segurança do equipamento e fique em standby com o equipamento de combate a incêndio suplementar.
- 6) Atuação manual opcional: Puxe o pino de anel e aperte o botão vermelho no atuador manual elétrico ou pneumático.

Observação: o LED vermelho "PUSH To Activate / Alarm When Lit" (Aperte para ativar/emitir alarme quando aceso) e o dispositivo sonoro permanecem estáveis por 10 segundos durante a inicialização (liberação) do sistema de supressão de incêndios. **Pós-liberação:** Os LEDs de Detecção 1 e/ ou Detecção 2, Desligamento e Liberação e o dispositivo sonoro continuam a pulsar 1 vez a cada 10 segundos. Se for seguro entrar novamente no equipamento, pressione o botão "DELAY/Reset/Silence" (RETARDO/Reinicialização/Mudo) para silenciar o dispositivo sonoro por duas horas.

Preencha as informações do sistema (conforme instalado)
Localização(ões) do atuador elétrico ou manual pneumático:

EM CASO DE INCÊNDIO: Operação do sistema automático

- 1) Os detectores registram a condição de alarme na área de risco e inicia a notificação de retardo de tempo no módulo de exibição.
- 2) "PUSH To Activate / Alarm When Lit" (Aperte para ativar/emitir alarme quando aceso), os LEDs Detection 1 (Detecção 1) e/ou Detection 2 (Detecção 2) e o dispositivo sonoro:
 - a. Pulso duas vezes a cada um segundo até os últimos 5 segundos de TD1; em seguida pulso quatro vezes a cada um segundo com o LED Shutdown (Desligamento) no começo dos 5 segundos finais
(Veja o botão (cinza) DELAY/RESET/SILENCE (RETARDO/Reinicialização/Mudo) abaixo da reinicialização de TD1); em seguinte, somente o LED Shutdown (Desligamento) fica estável por 1 segundo indicando que TD1 está transferindo para TD2 (reinicialização não mais disponível).
 - b. Pulso 4 x 1 segundo com LED Shutdown (Desligamento) durante TD2.
 - c. Estável por 10 segundos com LED Shutdown (Desligamento) durante a inicialização (liberação) do sistema de supressão de incêndio (se incluído, o interruptor de pressão ativa a operação auxiliar).
- 3) Assim que o retardo de tempo começar: Faça o equipamento parar de modo seguro, freie, desligue o motor e saia. Em standby com equipamento de combate a incêndio suplementar.
- 4) Pós-liberação: LEDs e dispositivo sonoro pulsam 1 vez a cada 10 segundos.

PRESSIONE O
BOTÃO CINZA
PARA REINICIAR
O RETARDO DE
TEMPO (TD1
SOMENTE)



009290

Botão (cinza) DELAY/RESET/SILENCE (RETARDO/REINICIALIZAÇÃO/SILÊNCIO)

- 1) **Reiniciar retardo de tempo:** Pressione e libere para cada reinicialização de TD1 durante a condição de alarme. (Limite: duas reinicializações ou ilimitado, veja a página 1.)
 - a. Deve ser iniciado antes do último segundo de TD1. (Nenhuma resposta após TD1, até a pós-liberação.)
 - b. **Observação:** Manter pressionado não aumentará o retardo de tempo.
- 2) **Silencie o dispositivo sonoro (pós-descarga ou notificação de falha) por duas horas:** Pressione e libere para silenciar o dispositivo sonoro, a indicação de falha continuará até que a falha seja liberada. Qualquer nova falha ou evento de detecção reativará o dispositivo sonoro.
- 3) A função **Reset (Reinicializar)** é para ser usada somente pelo técnico de serviço do distribuidor autorizado pela ANSUL.

INDICADORES DO PAINEL FRONTAL

LED DE ALIMENTAÇÃO VERDE,
ÂMBAR OU DESLIGADO



009290

1) LED de alimentação

- a. A cor verde estável indica uma alimentação **externa** normal.
- b. Verde pulsando 1 vez a cada 3 segundos indica alimentação **interna** normal.
- c. Âmbar pulsando uma vez a cada 3 segundos indica falha na alimentação externa; o sistema está operando com alimentação interna. Entre em contato com o distribuidor autorizado da ANSUL para chamar o serviço.
- d. Âmbar pulsando uma vez a cada 10 segundos com dispositivo sonoro indica falha de alimentação interna ou externa. Entre em contato com o distribuidor autorizado da ANSUL para chamar o serviço.
- e. Desligado indica nenhuma alimentação no sistema. Entre em contato com o distribuidor autorizado da ANSUL para chamar o serviço.

2) Todos os outros LEDs

- a. Desligado indica status normal.
- b. Âmbar ou vermelho pulsando com o dispositivo sonoro: Entre em contato com o distribuidor autorizado da ANSUL para chamar o serviço.

CUIDADO

Qualquer indicação de falha pode fazer com que o sistema de detecção de incêndio e atuação não funcione corretamente; entre imediatamente em contato com um distribuidor autorizado da ANSUL para chamar o serviço.

INDICADORES DO PAINEL FRONTAL (Continuação)

- 3) LED vermelho "PUSH To Activate / Alarm When Lit" (Aperte para ativar/emitir alarme quando aceso) (o dispositivo sonoro corresponde à taxa de pulso). 
- a. Pulsar uma vez a cada um segundo indica uma condição de pré-alarme, uma programação de alarme somente ou Modo de isolamento.
 - b. Pulsar duas vezes a cada um segundo indica condição de alarme e TD1 (retardo de tempo 1) começa a contagem regressiva (nos últimos cinco o pulso aumenta para 4 vezes a cada um segundo.).
 - c. Pulsar quatro vezes a cada um segundo indica que os últimos cinco segundos de TD1 e TD2 (tempo de retardo 2) continua a pulsar quatro vezes a cada um segundo até o final da contagem regressiva.
 - d. Estável por 10 segundos indica liberação ativada.
 - e. O LED também é um botão, veja a página 2 para obter a ativação manual do sistema de supressão de incêndio.

- 4) Botão DELAY/Reset/Silence (Retardo/Reinicialização/Mudo) 

- a. Os ícones no botão representam as opções para controle de sistema.



Durante o retardo de tempo, pressione o botão para **reiniciar** o retardo de tempo.



Quando o dispositivo sonoro estiver pulsando, pressione o botão para **silenciar**.

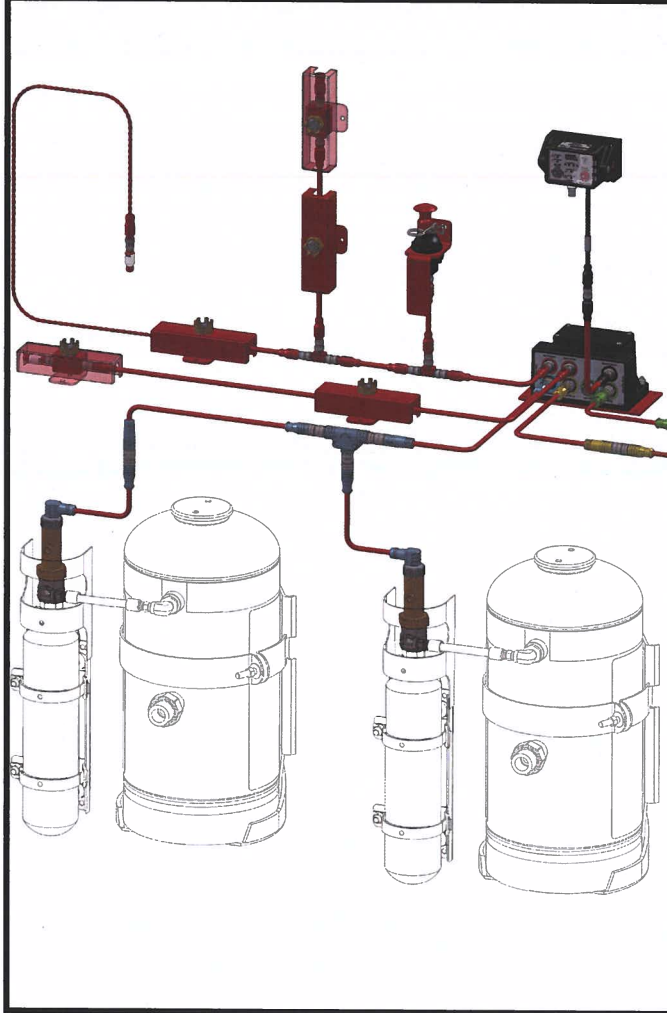


Mantenha pressionado o botão por 3 segundos para **reiniciar** o sistema.

CHECKFIRE 210 探测和释放系统



使用说明书

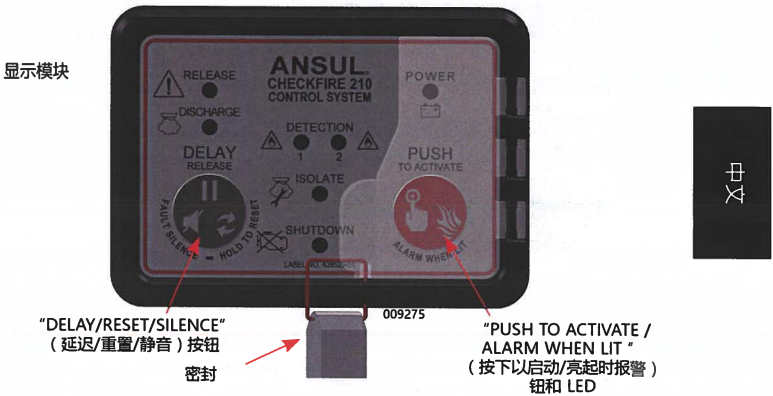


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CHECKFIRE 210 探测和释放系统使用说明书



该车辆/设备通过 CHECKFIRE 210 检测和驱动系统监控，该系统通常连接至 ANSUL® A-101 或 LVS 灭火系统，用于 24 小时灭火。设备操作员必须通过得到授权的 ANSUL 经销商或最终用户提供的实操培训。

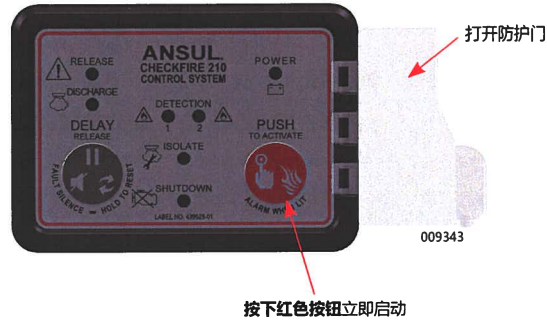
本手册是 CHECKFIRE 210 系统基本操作的快速参考指南。控制模块上的两个按钮及手动启动器为操作员提供手动操作功能。

电源： ☐ 仅内部电源 ☐ 双电源（外部和内部供电）

外部电源（车辆电池、配电盘等）：

填写系统信息（根据安装情况）	
TD1（时间延迟 1，秒）：	☐ 0 ☐ 5 ☐ 10 ☐ 15
TD2（时间延迟 2，秒）：	☐ 0 ☐ 5 ☐ 10 ☐ 15
时间延迟重置：	☐ 2 ☐ 无限制
继电器 #1：	☐ 警报 ☐ 故障 ☐ 未使用
继电器 #2：	☐ 关闭 ☐ 警报 ☐ 未使用
压力开关辅助操作：	

发生火灾时：手动启动



- 1) 安全地让设备完全停止，拉起停车制动器并关闭发动机。
- 2) 拉断控制模块上的密封铅丝并打开防护门。
- 3) 按下红色“按下以启动/亮起时报警”按钮。
- 4) 释放电路立即激活连接的灭火系统（如果有辅助功能，压力开关会激活辅助操作）。**请参见下面的注释。**
- 5) 安全地离开设备并用备用消防设备做好准备。
- 6) 可选手动启动：拉动扣环插销并按下电动或气动手动启动器上的红色按钮。

注：在灭火系统启动（释放）期间，红色“按下以启动/亮起时报警”LED 和警报声将持续 10 秒钟。释放后：探测 1 和/或探测 2、停机和喷放 LED 和警报声将按 10 秒一次闪动并报警。如果可安全地重新进入设备，则按下“延迟/重置/静音”按钮可将警报声静音两小时。

填写系统信息（根据安装情况）

电动或气动手动启动器位置：

发生火灾时：自动系统操作

- 1) 探测器探测到被保护区域的危险状况后反馈给控制模块启动时间延迟。
- 2) “按下以启动/亮起时报警”以及探测 1 和/或探测 2 LED 和警报声：
 - a. 每秒两次，直至 TD1 的最后 5 秒；然后在最后 5 秒每秒 4 次，并且停机 LED 等点亮（有关 TD1 重置，请参见下面的延迟/重置/静音（灰色）按钮）；然后仅停机 LED 保持长亮 1 秒时间，表示 TD1 转为 TD2（此时重置功能无效）。
 - B. TD 2 期间每秒 4 次，停机 LED 亮起。
 - C. 在启动（释放）灭火系统期间常亮 10 秒（如果有辅助功能，压力开关会激活辅助操作）。
- 3) 一旦时间延迟开始：安全地停止设备、设置制动器、关闭发动机，然后退出。用备用消防设备做好准备。
- 4) 释放后：LED 和警报声 10 秒一次

按下灰色按钮重置时间延迟（仅限 TD1）



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延迟/重置/静音（灰色）按钮

- 1) **重置时间延迟**：在报警状态下每按动此按钮一次可以重置时间延迟循环一次。（限制：2 次重置或无限次重置，参见第 1 页。）
 - A. 必须在 TD1 延时的最后一秒之前启动。（在 TD1 之后没有响应，直至释放后）。
 - b. **注**：按住不放不会延长延迟时间。
- 2) **警报声静音（释放或故障通知后）两小时**：按动一次可以使警报声静音；LED 故障指示将继续闪动直至故障被排除。任何新的故障或探测事件都将重新激活警报声。
- 3) **重置功能**只适用于得到授权的 ANSUL 经销商维修技术人员。

前面板指示灯

电源 LED：绿色、黄色或熄灭



009290

1) 电源 LED

- A. 绿色灯长亮指示**外部**电源正常。
- b. 绿色灯 3 秒一次闪动，指示**内部**电源正常。
- c. 黄灯 3 秒一次闪动，指示外部电源故障；系统由内部电源供电。请联系得到授权的 ANSUL 经销商进行维修。
- d. 黄灯10 秒闪动一次并警报声，指示内部或外部电源故障。请联系得到授权的 ANSUL 经销商进行维修。
- E. 熄灭表示没有系统电源。请联系得到授权的 ANSUL 经销商进行维修。

2) 其他 LED

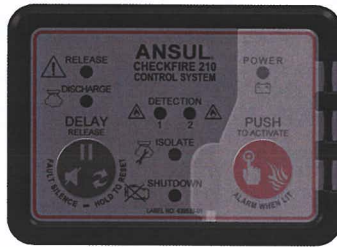
- a. 熄灭表示处于正常状态。
- B. 黄色或红色灯闪动并启动警报声：请联系得到授权的 ANSUL 经销商进行维修。

小心

任何故障指示都可导致火灾探测和释放系统不能正常工作；请立即联系得到授权的 ANSUL 经销商进行维修。

前面板指示灯 (续)

步骤 2 (续)



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C. 黄色或红色 LED 指示



黄色：释放回路故障，10 秒一次闪动



红色：探测回路警报状态，10 秒一次闪动

黄色：探测回路故障，黄灯10 秒一次闪烁



红色*：系统释放压力开关激活，整个释放周期内一直常亮。

在释放后每10 秒闪动一次



黄色：隔离模式，每30 秒两次



红色：停机状态，在警报状态下每秒 4 次。

在释放期间保持常亮。

在释放后每10 秒闪烁一次。

* 澳大利亚标准：仅在设定了“压力开关反馈”之后激活。

前面板指示灯（续）

3) 红色“按下以启动/亮起时报警”LED（警报声同时响起）。



中文

- a. 每秒一次闪动，指示警报前期、探测回路仅限警报的设定或隔离模式。
- b. 每秒两次，指示警报条件和 TD1（时间延迟 #1）开始倒计时（最后 5 秒闪烁增加至每秒 4 次）。
- c. 每秒四次，指示 TD1 和 TD2 的最后 5 秒（时间延迟 #2），继续闪动每秒四次，直至倒计时结束。
- d. 长亮10 秒，指示释放已激活。
- e. LED 也是按钮，请参见第 2 页有关灭火系统手动启动的信息。

4) 延迟/重置/静音按钮



A. 按钮上的图标表示系统控制选项。

 在时间延迟期间，按下按钮重置时间延迟。

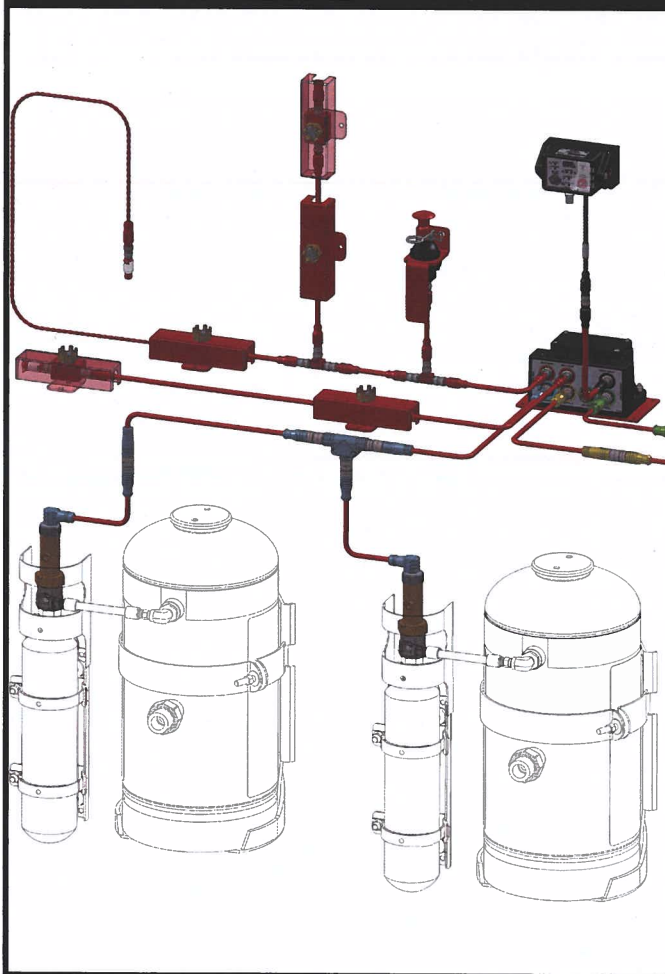
 当警报声发声时，按下按钮可静音。

 按住按钮 3 秒时间可重置系统。

**SYSTÈME DE DÉTECTION
ET DE DÉCLENCHEMENT
CHECKFIRE 210**



GUIDE DU PROPRIÉTAIRE

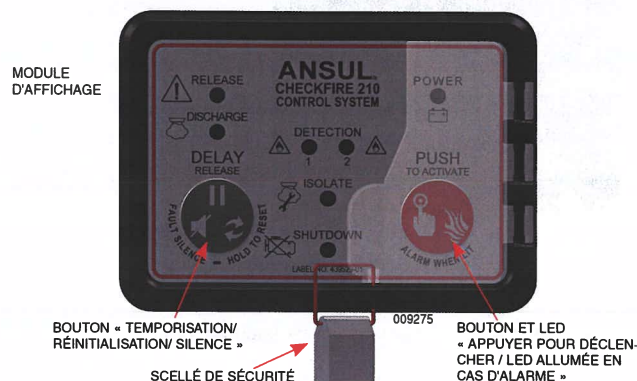


Remarque : La version en langue anglaise du présent document est la version officielle. Si ce document est traduit dans une autre langue que l'anglais et qu'une différence est constatée entre la version en langue anglaise et la traduction, la version en langue anglaise prévaudra.

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Guide du propriétaire du système de détection et de déclenchement CHECKFIRE 210



Français

Ce véhicule/cet équipement est surveillé par un système de détection et de déclenchement CHECKFIRE 210 généralement raccordé à un système d'extinction d'incendie ANSUL® A-101 ou LVS pour assurer une protection 24/24. Les distributeurs agréés ANSUL ou l'utilisateur final devront dispenser une formation pratique à l'opérateur de l'équipement.

Le présent manuel constitue un guide de référence rapide à l'utilisation de base du système CHECKFIRE 210. L'opérateur peut commander le système à l'aide des deux boutons sur le module de commande ainsi qu'à l'aide des actionneurs manuels.

Remplir les informations sur le système (comme installé)

Alimentation : ☐ Interne uniquement ☐ Double (Externe & Interne)

Alimentation externe (batterie du véhicule, panneau électrique, etc.) :

TD1 (Temporisation 1, secondes) : ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (Temporisation 2, secondes) : ☐ 0 ☐ 5 ☐ 10 ☐ 15

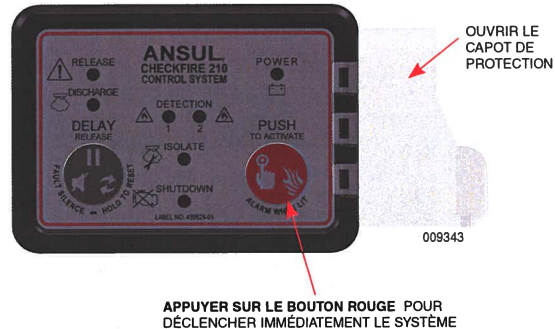
Redémarrages de la temporisation : ☐ 2 ☐ Illimité

Relais n° 1 : ☐ Alarme ☐ Défaut ☐ Non utilisé

Relais n° 2 : ☐ arrêt ☐ Alarme ☐ Non utilisé

Circuit auxiliaire actionné par manostat :

EN CAS D'INCENDIE : Déclenchement manuel



Français

- 1) Amener l'équipement à l'arrêt en toute sécurité, appliquer le frein et arrêter le moteur.
- 2) Briser le scellé de sécurité et ouvrir le capot de protection.
- 3) Appuyer sur le bouton rouge « APPUYER pour déclencher / LED allumée en cas d'alarme ».
- 4) Le circuit de libération déclenche immédiatement le système d'extinction d'incendie (si installé en option, le manostat active le circuit auxiliaire). **Voir la Remarque ci-dessous.**
- 5) Sortir en toute sécurité de l'équipement et être prêt avec des équipements supplémentaires de lutte contre les incendies.
- 6) Déclencheur manuel en option : Tirer sur l'anneau et appuyer sur le bouton rouge de l'actionneur manuel électrique ou pneumatique.

Remarque : La LED rouge « APPUYER pour déclencher / LED allumée en cas d'alarme » et la sonnerie restent activées en continu pendant 10 secondes pendant l'initiation (activation) du système d'extinction d'incendie. **Post-activation :** Les LED Détection 1 et/ou Détection 2, Arrêt et Activation, ainsi que la sonnerie continuent à donner une impulsion 1 x toutes les 10 secondes. Si l'équipement peut être réintégré en toute sécurité, appuyer sur le bouton « TEMPORISATION/Réinitialisation/Silence » pour mettre la sonnerie en sourdine pendant deux heures.

Remplir les informations sur le système (comme installé)

Emplacement des actionneurs manuels électriques ou pneumatiques :

EN CAS D'INCENDIE : Déclenchement automatique

- 1) Le(s) détecteur(s) enregistre(nt) une condition d'alarme dans la zone de danger et initie(nt) la notification de la temporisation au module d'affichage.
- 2) LED « APPUYER pour déclencher / LED allumée en cas d'alarme » plus Détection 1 et/ou Détection 2 LED plus sonnerie :
 - a. Impulsion 2 x par seconde jusqu'aux 5 dernières secondes de TD1 ; ensuite impulsion 4 x par seconde de la LED Arrêt au cours des 5 dernières secondes (**Voir le bouton (gris) TEMPORISATION/RÉINITIALISATION/SILENCE ci-dessous pour redémarrer TD1**) ; la LED Arrêt reste alors allumée en continu pendant 1 seconde pour indiquer le transfert de TD1 à TD2 (le redémarrage n'est plus disponible).
 - b. Impulsion 4 x par seconde de la LED Arrêt pendant TD2.
 - c. LED Arrêt allumée en continu pendant 10 secondes pendant l'initiation (activation) du système d'extinction d'incendie (si inclus en option, un manostat active le circuit auxiliaire).
- 3) Dès que la temporisation démarre : Amener l'équipement à l'arrêt en toute sécurité, appliquer le frein, arrêter le moteur et sortir. Être prêt avec des équipements supplémentaires de lutte contre les incendies.
- 4) Post-activation : Impulsion des LED et de la sonnerie 1 x toutes les 10 secondes.

APPUYER SUR
LE BOUTON
GRIS POUR
REDÉMARRER
LA TEMPORI-
SATION (TD1
UNIQUEMENT)



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Bouton gris « TEMPORISATION/Réinitialisation/SILENCE »

- 1) **Redémarrer la temporisation** : Appuyer sur le bouton et le relâcher à chaque redémarrage de TD1 pendant une condition d'alarme. (Limite : 2 redémarrages ou illimitée, voir page 1.)
 - a. Doit être initié pendant la dernière seconde de TD1. (Pas de réponse après TD1 jusqu'à la post-activation.)
 - b. **Remarque** : Le fait d'appuyer sur ce bouton et de le maintenir enfoncé n'allonge pas la période de temporisation.
- 2) **Mettre la sonnerie en sourdine (après la décharge ou la notification d'un défaut) pendant deux heures** : Appuyer sur ce bouton et le relâcher pour mettre la sonnerie en sourdine ; la LED de défaut reste allumée jusqu'à ce que le défaut soit éliminé. Tout nouveau défaut ou nouvel événement de détection réactivera la sonnerie.
- 3) **La fonction de réinitialisation** est réservée au technicien de service du distributeur ANSUL.

INDICATEURS DU PANNEAU FRONTAL

LED D'ALIMENTATION :: VERTE,
AMBRE OU ÉTEINTE



Français

1) LED d'alimentation

- a. La LED verte allumée en continu indique une alimentation **externe** normale.
- b. Une impulsion de la LED verte 1 x toutes les 3 secondes indique une alimentation **interne** normale.
- c. Une impulsion de la LED ambre 1 x toutes les 3 secondes indique un défaut de l'alimentation externe ; le système fonctionne sur l'alimentation interne. Contacter le concessionnaire ANSUL agréé pour un entretien.
- d. Une impulsion de la LED ambre 1 x toutes les 10 secondes accompagnée de la sonnerie indique un défaut d'alimentation interne ou externe. Contacter le concessionnaire ANSUL agréé pour un entretien.
- e. La LED éteinte indique l'absence d'alimentation système. Contacter le concessionnaire ANSUL agréé pour un entretien.

2) Toutes les autres LED

- a. LED éteinte indique le statut normal.
- b. Impulsion de la LED ambre ou rouge, accompagnée de la sonnerie : Contacter le concessionnaire ANSUL agréé pour un entretien.

ATTENTION

Toute indication de défaut peut provoquer le dysfonctionnement du système de détection et de déclenchement. Dans ce cas, contacter immédiatement un concessionnaire ANSUL agréé pour un entretien.

INDICATEURS DU PANNEAU FRONTAL (suite)

ÉTAPE 2 (suite)



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Français

c. Indications de la LED ambre ou rouge



Ambre : **ACTIVATION** Défaut du circuit, impulsion 1 x toutes les 10 secondes.



Rouge : **DÉTECTION** Condition d'alarme du circuit, impulsion 1 x toutes les 10 secondes

Ambre : **DÉTECTION** Défaut du circuit, impulsion de la LED ambre 1 x toutes les 10 secondes



Rouge*: Manostat de **DÉCHARGE** du système activé, LED allumée en continu pendant la période résiduelle d'activation.

Impulsion 1 x toutes les 10 secondes pendant l'activation de la post-activation.



Ambre : Mode **ISOLATION**, LED impulsion 2 x toutes les 30 secondes.



Rouge : Statut **ARRÊT**, LED impulsion 4 x par seconde pendant la condition d'alarme.

LED allumée en continu pendant l'activation.

Impulsion 1 x toutes les 10 secondes pendant la post-activation.

* Norme australienne : Active uniquement lorsque l'« asservissement par manostat » est programmé.

INDICATEURS DU PANNEAU FRONTAL (suite)

- 3) LED rouge « APPUYER pour déclencher / LED allumée en cas d'alarme » (la sonnerie correspond à la vitesse d'impulsion).



- a. Une impulsion 1 x par seconde indique une condition de pré-alarme, la programmation Alarme uniquement ou le mode Isolation.
- b. Une impulsion 2 x par seconde indique une condition d'alarme et TD1 (temporisation n° 1) lance le compte à rebours (au cours des 5 dernières secondes, l'impulsion augmente à 4 x par seconde).
- c. Une impulsion 4 x par seconde indique les 5 dernières secondes de TD1 et TD2 (temporisation n° 2) se poursuit par une impulsion 4 x par seconde jusqu'à la fin du compte à rebours.
- d. La LED allumée en continu pendant 10 secondes indique que la libération est activée.
- e. La LED est également un bouton, voir page 2 pour le déclenchement manuel du système d'extinction d'incendie.

- 4) Bouton « TEMPORISATION/Réinitialisation/ Silence »



- a. Les icônes du bouton représentent les options de commande du système.



Pendant la temporisation, appuyer sur le bouton pour **redémarrer** la temporisation.



À l'impulsion de la sonnerie, appuyer sur le bouton **pour mettre la sonnerie en sourdine**.

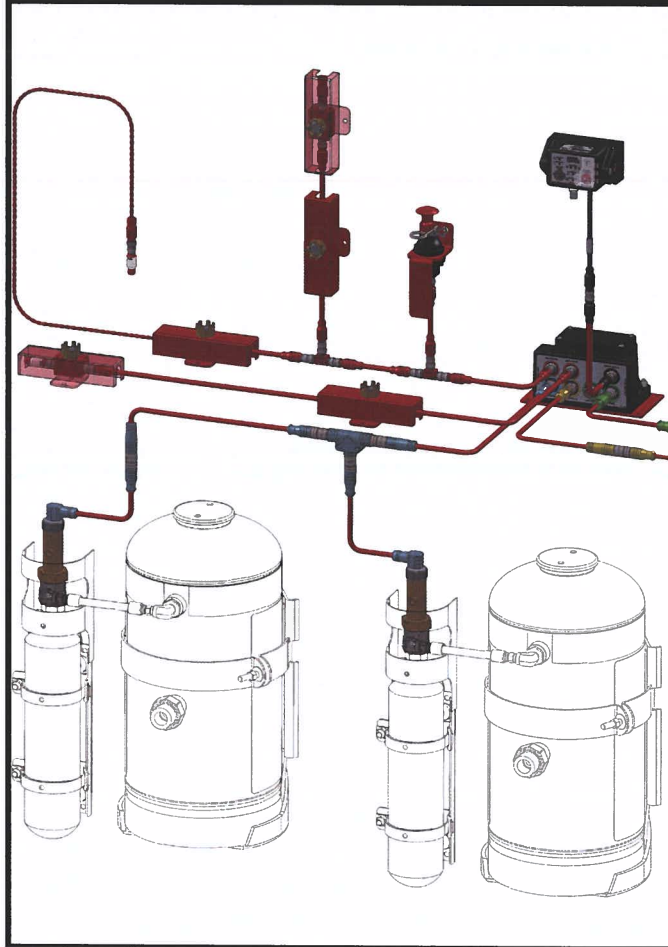


Appuyer sur le bouton et le maintenir enfoncé 3 secondes pour **réinitialiser** le système.

BRANDERKENNUNGS- UND AUSLÖSESYSTEM CHECKFIRE 210



BETRIEBSHANDBUCH

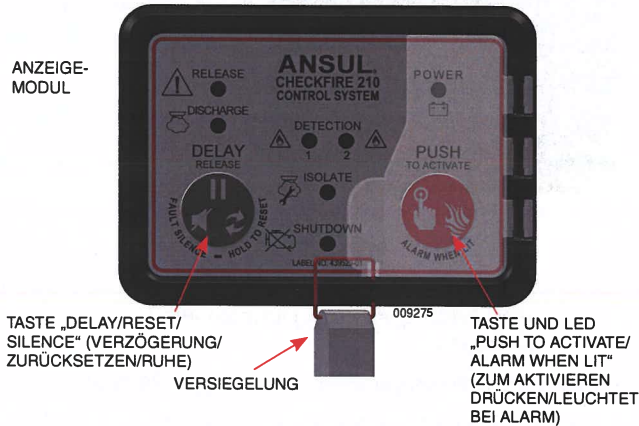


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Bestell-Nr. 442045-01_DE



Branderkennungs- und Auslösesystem Checkfire 210 – Betriebshandbuch



Deutsch

Dieses Fahrzeug bzw. diese Anlage ist mit einem Branderkennungs- und Auslösesystem CHECKFIRE 210 ausgestattet. Es ist in der Regel an eine ANSUL® A-101- oder LVS-Löschanlage angeschlossen, welche einen ununterbrochenen Brandschutz gewährleistet. Der Bediener muss von einem autorisierten ANSUL-Servicepartner oder durch einen vom Servicepartner geschulten Mitarbeiter in Funktion und Bedienung der Anlage praktisch eingewiesen werden.

Dieses Handbuch dient dem schnellen Nachschlagen der wichtigsten Funktionen des CHECKFIRE 210-Systems. Die Bedienung erfolgt über zwei Tasten auf dem Anzeigemodul und über den Handauslöser.

Informationen zum installierten System eintragen

Stromversorgung: ☐ nur intern ☐ zweifach (extern und intern)
Externe Stromversorgung (Fahrzeugbatterie, Schaltschrank usw.):

TD1 (Zeitverzögerung 1, in Sekunden): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (Zeitverzögerung 2, in Sekunden): ☐ 0 ☐ 5 ☐ 10 ☐ 15

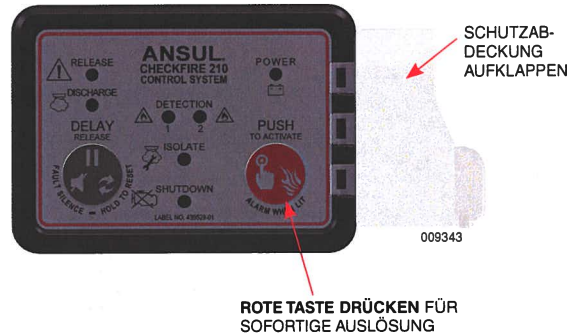
Neustarts der Zeitverzögerung: ☐ 2 ☐ unbegrenzt

Relais 1: ☐ Alarm ☐ Störung ☐ nicht verwendet

Relais 2: ☐ Abschalten ☐ Alarm ☐ nicht verwendet

Zusatzfunktion Druckschalter:

IM BRANDFALL: Manuelle Auslösung



Deutsch

- 1) Fahrzeug/Gerät vorsichtig vollständig anhalten, Bremse einlegen und Motor ausschalten.
- 2) Versiegelung aufbrechen und Schutzabdeckung aufklappen.
- 3) Die Taste „PUSH To Activate/Alarm When Lit“ drücken (Zum Aktivieren drücken/Leuchtet bei Alarm).
- 4) Der Auslöseschaltkreis aktiviert sofort das angeschlossene Löschesystem (falls vorhanden, kann über den Druckschalter eine weitere Aktion ausgelöst werden). **Siehe nachstehender Hinweis.**
- 5) Fahrzeug/Anlage vorsichtig verlassen und sich mit ergänzenden Brandbekämpfungsmitteln bereithalten.
- 6) Optionale manuelle Auslösung: Sicherungsstift ziehen und rote Taste am elektrischen oder pneumatischen Handauslöser drücken.

Hinweis: Während das Löschesystem ausgelöst wird, leuchtet die rote LED „PUSH To Activate/Alarm When Lit“ (Zum Aktivieren drücken/Leuchtet bei Alarm) und das akustische Signal ertönt. Beide Signale halten 10 Sekunden lang an. Nach dem Auslösen: Alle 10 Sekunden blinken die LEDs „DETECTION 1“ und/oder „DETECTION 2“ (Erkennung 1/2), „SHUTDOWN“ (Abschalten) und „RELEASE“ (Auslösen) und ertönt das akustische Signal. Wenn die Rückkehr in das Fahrzeug bzw. die Anlage sicher ist, drücken Sie die Taste „DELAY/Reset/Silence“ (Verzögerung/Zurücksetzen/Ruhe), um den akustischen Signalgeber für zwei Stunden zu deaktivieren.

Informationen zum installierten System eintragen

Position(en) der elektrischen oder pneumatischen Handauslöser:

IM BRANDFALL: Automatischer Systembetrieb

- 1) Die Brandmelder registrieren eine Alarmbedingung im Gefahrenbereich und initialisieren die Verzögerungsmeldung auf dem Anzeigemodul.
- 2) Die LEDs „PUSH To Activate/Alarm When Lit“ (Zum Aktivieren drücken/Leuchtet bei Alarm) sowie „DETECTION 1“ und/oder „DETECTION 2“ (Erkennung 1/2) plus akustisches Signal:
 - a. 2-mal pro Sekunde bis zu den letzten 5 Sekunden von TD1; dann während der letzten 5 Sekunden 4-mal pro Sekunde zusammen mit LED „SHUTDOWN“ (Abschalten).
(Informationen zum TD1-Neustart siehe Abschnitt „Graue Taste „DELAY/RESET/SILENCE““)
Danach leuchtet nur die „SHUTDOWN“-LED 1 Sekunde lang, was bedeutet, dass TD1 zu TD2 wechselt (Neustart nicht länger möglich).
 - b. 4-mal pro Sekunde während TD2, zusammen mit „SHUTDOWN“-LED
 - c. Durchgängig 10 Sekunden zusammen mit „SHUTDOWN“-LED während das Löschsystem ausgelöst wird (falls vorhanden, kann über den Druckschalter eine weitere Aktion ausgelöst werden).
- 3) Sobald die Zeitverzögerung einsetzt: Fahrzeug/Gerät vorsichtig vollständig anhalten, Bremse einlegen, Motor ausschalten, aussteigen. Sich mit ergänzenden Brandbekämpfungsmitteln bereithalten.
- 4) Nach dem Auslösen: LEDs und akustisches Signal blinken bzw. ertönen alle 10 Sekunden.

GRAUE TASTE
DRÜCKEN, UM
DIE ZEITVERZÖ-
GERUNG NEU
ZU STARTEN
(NUR TD1)



009290

Graue Taste „DELAY/RESET/SILENCE“ (Zeitverzögerung/Zurücksetzen/Ruhe)

- 1) **Zeitverzögerung neu starten:** Für jeden Neustart von TD1 während der Alarmbedingung drücken und loslassen. (Maximum: 2 Neustarts oder unbegrenzte Neustarts, siehe Seite 1)
 - a. Initialisierung muss vor Ablauf der letzten Sekunde von TD1 erfolgen. (Keine Reaktion nach TD1 bis zum Ende des Auslösezeitraums)
 - b. **Hinweis:** Drücken und halten verlängert die Zeitverzögerung nicht.

- 2) **Akustischen Signalgeber für zwei Stunden deaktivieren (nach der Auslöse- oder Störungsmeldung):** Zum Deaktivieren des akustischen Signalgebers drücken und loslassen. Die LED-Störungsanzeige bleibt aktiv, bis die Störung behoben ist. Jede neue Störung und jedes neue Erkennungsereignis lösen den akustischen Signalgeber wieder aus.
- 3) **Rücksetzfunktion** – nur für Servicetechniker eines autorisierten ANSUL-Servicepartners

ANZEIGEMUSTER

STROM-LED: GRÜN,
GELB ODER AUS



009290

Deutsch

- 1) Strom-LED
 - a. Leuchtet grün = **externe** Stromversorgung normal
 - b. Blinkt grün alle 3 Sek. = **interne** Stromversorgung normal
 - c. Blinkt gelb alle 3 Sek. = Störung der externen Stromversorgung; Systembetrieb über interne Stromversorgung. Autorisierten ANSUL-Servicepartner hinzuziehen.
 - d. Blinkt gelb alle 10 Sek. plus akustisches Signal = Störung der internen oder externen Stromversorgung. Autorisierten ANSUL-Servicepartner hinzuziehen.
 - e. Aus = System wird nicht mit Strom versorgt. Autorisierten ANSUL-Servicepartner hinzuziehen.
- 2) Alle anderen LEDs
 - a. Aus = normal
 - b. Gelbes oder rotes Blinken plus akustisches Signal: Autorisierten ANSUL-Servicepartner hinzuziehen.

ACHTUNG

Jede angezeigte Störung kann die Funktionsweise des Branderkennungs- und Auslösesystems beeinträchtigen. Lassen Sie daher sofort einen autorisierten ANSUL-Servicepartner kommen.

ANZEIGEMUSTER (Forts.)

SCHRITT 2 (Fortsetzung)



009290

c. Bedeutung gelber oder roter LEDs



Gelb: Schaltkreis **RELEASE** (Auslösen) gestört: blinkt alle 10 Sek.



Rot: Schaltkreis **DETECTION** (Erkennung) mit Alarmbedingung: blinkt alle 10 Sek.

Gelb: Schaltkreis **DETECTION** (Erkennung) gestört: blinkt gelb alle 10 Sek.



Rot*: **DISCHARGE** (Löschsystem ausgelöst) durch aktivierten Druckschalter; leuchtet für den verbleibenden Auslösezeitraum.

Blinkt alle 10 Sek. nach Ende des Auslösezeitraums.



Gelb: Modus **ISOLATE** (Isolieren): blinkt 2-mal pro Sek. alle 30 Sek.



Rot: Status **SHUTDOWN** (Abschalten): blinkt 4-mal pro Sekunde während Alarmbedingung.

Leuchtet während Auslösezeitraum.

Blinkt alle 10 Sek. nach Ende des Auslösezeitraums.

* Australischer Standard: nur aktiv, wenn das System für den Empfang eines Druckschaltersignals („Pressure Switch Feedback“) programmiert ist.

Deutsch

ANZEIGEMUSTER (Forts.)

- 3) Rote LED „PUSH To Activate/Alarm When Lit“
(Zum Aktivieren drücken/Leuchtet bei Alarm) –
akustisches Signal im Blinkrhythmus



- a. 1-mal pro Sekunde = zeigt Voralarmstufe („Pre-Alarm Condition“) an, den Programmiermodus „Alarm Only“ (nur Alarm) oder „Isolate“ (Isolieren)
- b. 2-mal pro Sekunde = Alarmbedingung liegt vor und TD1 (Zeitverzögerung 1) setzt ein (in den letzten 5 Sekunden 4-mal pro Sekunde).
- c. 4-mal pro Sekunde = die letzten 5 Sekunden von TD1 laufen und TD2 (Zeitverzögerung 2) übernimmt mit 4 Signalen pro Sekunde bis zum Ende des Countdowns.
- d. Durchgängig 10 Sekunden = Auslösung aktiviert
- e. Die LED ist auch eine Taste; Informationen zum manuellen Auslösen des Löschsystems siehe Seite 2.

- 4) Taste „DELAY/Reset/Silence“
(Verzögerung/Zurücksetzen/Ruhe)



- a. Die Symbole auf der Taste stehen für die verfügbaren Steuerungsoptionen.



Während der Zeitverzögerung drücken, um sie **neu zu starten**



Drücken, während das Signal ertönt, um es **auszustellen**

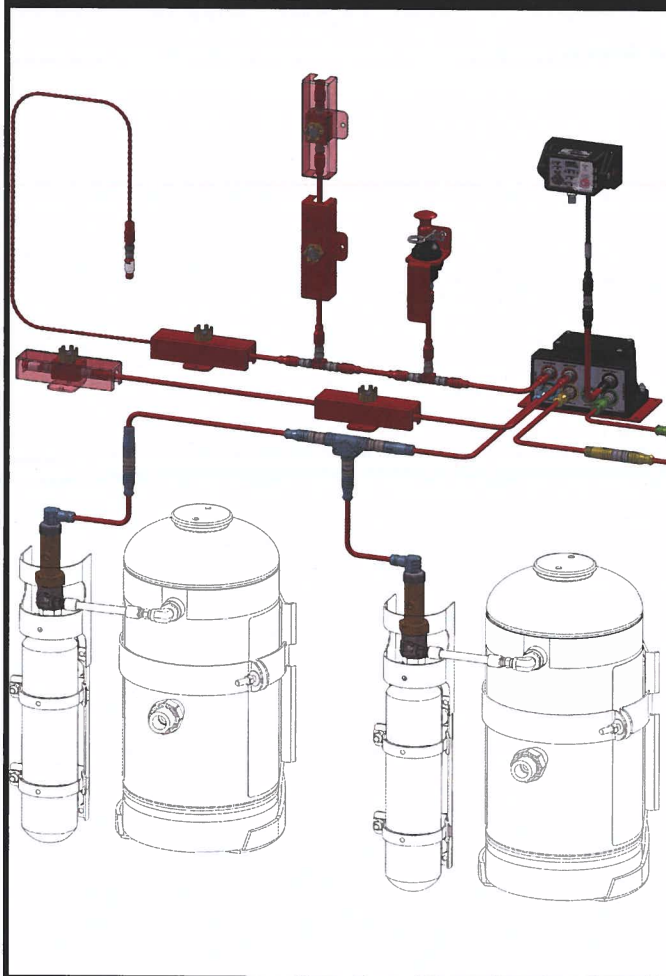


Zum **Zurücksetzen** des Systems 3 Sekunden lang gedrückt halten

**SISTEMA DI RIVELAZIONE
E ATTIVAZIONE
CHECKFIRE 210**



GUIDA PER L'UTENTE

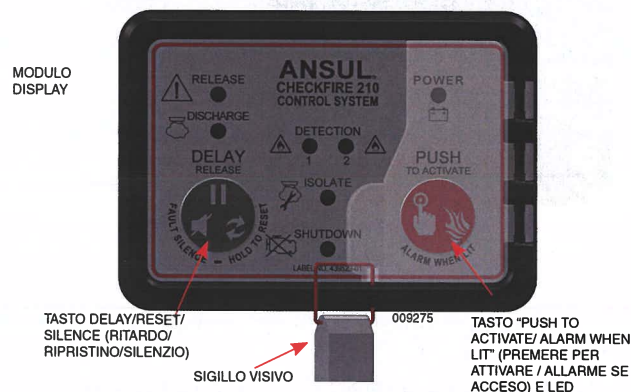


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N. art. 442045-01_IT



Sistema di rivelazione e attivazione CHECKFIRE 210 Guida per l'utente



Questo veicolo/questa macchina è monitorato/a da un sistema di rivelazione e attivazione CHECKFIRE 210 che normalmente è collegato a un sistema di soppressione incendi ANSUL® A-101 o LVS per l'estinzione dell'incendio 24 ore su 24. L'operatore della macchina dovrebbe essere sottoposto a un addestramento pratico dai distributori autorizzati ANSUL o dall'utente finale.

Il presente manuale è una guida rapida di riferimento per il funzionamento di base del sistema CHECKFIRE 210. Il controllo dell'operatore è realizzato mediante due tasti sul modulo display e attuatori manuali.

Italiano

Inserire le informazioni sul sistema (come installato)

Alimentazione: ☐ Solo interna ☐ Doppia (esterna e interna)

Alimentazione elettrica esterna (batteria del veicolo, quadro elettrico ecc.):

TD1 (ritardo 1, secondi): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (ritardo 2, secondi): ☐ 0 ☐ 5 ☐ 10 ☐ 15

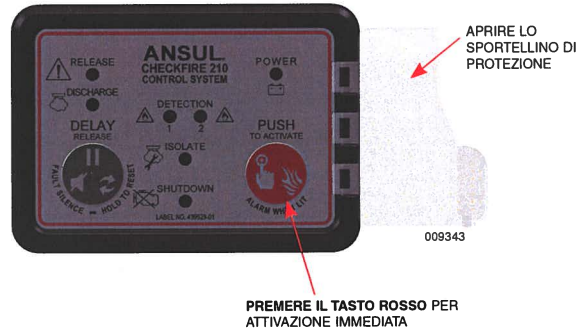
Riavviamenti ritardo: ☐ 2 ☐ illimitati

Relè #1: ☐ Allarme ☐ Guasto ☐ Non utilizzato

Relè #2: ☐ Arresto ☐ Allarme ☐ Non utilizzato

Funzionamento ausiliario con pressostato: _____

IN CASO DI INCENDIO: attivazione manuale



- 1) Fare arrestare completamente la macchina in modo sicuro, inserire il freno e spegnere il motore.
- 2) Rompere il sigillo visivo e aprire lo sportellino di protezione.
- 3) Premere il tasto rosso "PUSH To Activate / Alarm When Lit" ("PREMERE per attivare / Allarme se acceso").
- 4) Il circuito di rilascio attiva immediatamente il sistema di soppressione incendio collegato (se incluso, un pressostato attiva il funzionamento ausiliario). **Vedere la nota seguente.**
- 5) Abbandonare in sicurezza la macchina e prepararsi a intervenire con equipaggiamento antincendio supplementare.
- 6) Attivazione manuale opzionale: tirare la leva e premere il tasto rosso sull'attuatore manuale pneumatico o elettrico.

Nota: il LED rosso "PUSH To Activate / Alarm When Lit" ("PREMERE per attivare / Allarme se acceso") e il segnale acustico rimangono accesi per 10 secondi durante l'inizializzazione (rilascio) del sistema di soppressione incendio. Dopo il rilascio: i LED Detection 1 (Rilevamento 1) e/o Detection 2 (Rilevamento 2), Shutdown (Arresto) e Release (Rilascio) e il segnale acustico continuano ad attivarsi ad impulsi 1 volta ogni 10 sec. Se è sicuro ritornare all'interno della macchina, premere il tasto "DELAY/Reset/Silence" ("RITARDO/Ripristino/Silenzio") per disattivare il segnale acustico per due ore.

Inserire le informazioni sul sistema (come installato)

Posizione(i) dell'attuatore manuale pneumatico o elettrico:

IN CASO DI INCENDIO: funzionamento automatico del sistema

- 1) Il/i rivelatore/i registra/no lo stato di allarme nella zona di pericolo e attiva/no la notifica del ritardo sul modulo display.
- 2) LED "PUSH To Activate / Alarm When Lit" ("PREMI per attivare / Allarme se acceso) più Detection 1 (Rilevamento 1) e/o Detection 2 (Rilevamento 2) più segnale acustico:
 - a. 2 impulsi al sec. fino agli ultimi 5 sec. di TD1; poi 4 impulsi al sec. con LED Shutdown (Arresto) all'inizio degli ultimi 5 sec. **(Vedere tasto DELAY/RESET/SILENCE (RITARDO/Ripristino/Silenzio) (grigio) sotto illustrato per riavvio TD1);** poi solo il LED Shutdown (Arresto) rimane acceso per 1 sec., indicando il passaggio da TD1 a TD2 (riavvio non più possibile).
 - b. 4 impulsi al sec. con LED Shutdown (Arresto) durante TD2.
 - c. Accensione permanente per 10 sec. con LED Shutdown (Arresto) durante l'inizializzazione (rilascio) del sistema di soppressione incendio (se incluso, un pressostato attiva il funzionamento ausiliario).
- 3) Appena inizia il ritardo: arrestare in modo sicuro la macchina, inserire il freno, spegnere il motore e uscire. Tenersi pronti a intervenire con equipaggiamento antincendio supplementare.
- 4) Dopo il rilascio: LED e segnale acustico emettono 1 impulso ogni 10 sec.

PREMERE
IL TASTO
GRIGIO PER
RIAVVIARE
IL RITARDO
(SOLO TD1)



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Italiano

Tasto DELAY/RESET/SILENCE (RITARDO/RIPRISTINO/SILENZIO) (grigio)

- 1) **Riavvio ritardo:** premere e rilasciare per ogni riavvio di TD1 durante lo stato di allarme. (limite: 2 riavvii o illimitati, vedere pag. 1.)
 - a. Deve essere avviato prima dell'ultimo secondo di TD1. (Nessuna risposta dopo TD1 fino a dopo il rilascio.)
 - b. **Nota:** tenere premuto il tasto non aumenta il periodo di ritardo.
- 2) **Disattivazione del segnale acustico (dopo rilascio o notifica di un guasto) per due ore:** premere e rilasciare per disattivare il segnale acustico; l'indicazione di guasto del LED continua sino all'eliminazione del guasto. Qualsiasi nuovo evento di guasto o rilevamento riattiva il segnale acustico.
- 3) **Ripristino della funzione** riservato al tecnico dell'assistenza del distributore autorizzato ANSUL.

INDICATORI SUL PANNELLO FRONTALE

LED ALIMENTAZIONE:
VERDE, GIALLO O OFF



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1) LED alimentazione

- a. Se acceso in modo permanente in verde indica la normale alimentazione **esterna**.
- b. Se lampeggia in verde con 1 impulso ogni 3 sec. indica la normale alimentazione **interna**.
- c. Se lampeggia in giallo con 1 impulso ogni 3 sec. indica un guasto dell'alimentazione esterna; il sistema sta funzionando con alimentazione interna. Contattare il distributore autorizzato ANSUL per l'assistenza.
- d. Se lampeggia in giallo con 1 impulso ogni 10 sec. e segnale acustico indica un guasto dell'alimentazione interna o esterna. Contattare il distributore autorizzato ANSUL per l'assistenza.
- e. Off indica l'assenza di alimentazione del sistema. Contattare il distributore autorizzato ANSUL per l'assistenza.

2) Tutti gli altri LED

- a. Off indica lo stato normale.
- b. Lampeggio in giallo o rosso con segnale acustico: contattare il distributore autorizzato ANSUL per l'assistenza.

ATTENZIONE

Qualsiasi indicazione di guasto può causare il funzionamento non corretto del sistema di rivelazione incendio e attivazione; contattare immediatamente un distributore autorizzato ANSUL per l'assistenza.

INDICATORI SUL PANNELLO FRONTALE (continua)

FASE 2 (continua)



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c. Indicazioni in giallo o rosso del LED



Giallo: guasto circuito **RELEASE** (RILASCIO), 1 impulso ogni 10 sec.



Rosso: stato di allarme circuito **DETECTION** (RILEVAMENTO), 1 impulso ogni 10 sec.

Giallo: guasto circuito **DETECTION** (RILEVAMENTO) lampeggiante in giallo 1 impulso ogni 10 sec.



Rosso*: il LED **DISCHARGE** (SCARICO) sistema ha attivato il pressostato, rimane acceso in modo permanente per il restante periodo di Release Activated (Rilascio attivato).

1 impulso ogni 10 sec. durante Post Release Activated (Attivazione dopo rilascio)



Giallo: modalità **ISOLATE** (ISOLAMENTO), 2 impulsi ogni 30 sec.



Rosso: stato di **SHUTDOWN** (ARRESTO), 4 impulsi al sec. durante Alarm Condition (Stato di allarme).

Acceso in modo permanente durante Release Activated (Rilascio attivato).

1 impulso ogni 10 sec. durante Post Release Activated (Attivazione dopo rilascio).

* Standard australiano: attivo solo se "Pressure Switch Feedback" (Feedback pressostato) è programmato.

Italiano

INDICATORI SUL PANNELLO FRONTALE (continua)

- 3) LED rosso "PUSH" To Activate / Alarm When Lit" (PREMI per attivare / Allarme se acceso) (il segnale acustico è sincronizzato con la velocità d'impulso).
- 
- a. Il lampeggio con 1 impulso al sec. indica uno stato di preallarme, la sola programmazione allarme o la modalità di isolamento.
- b. Il lampeggio con 2 impulsi al sec. indica uno stato di allarme e TD1 (ritardo #1) inizia il conto alla rovescia (negli ultimi 5 sec. gli impulsi aumentano a 4 al sec.).
- c. Il lampeggio con 4 impulsi al sec. indica gli ultimi 5 sec. di TD1 e TD2 (ritardo #2) continua a lampeggiare a 4 impulsi al sec. fino alla fine del conto alla rovescia.
- d. Acceso in modo permanente per 10 sec. indica il rilascio attivato.
- e. Il LED è anche un tasto, vedere pag. 2 per l'attivazione manuale del sistema di soppressione incendio.

- 4) Tasto DELAY/Reset/Silence (RITARDO/Ripristino/Silenziamento)



- a. Icone sul tasto rappresentano le opzioni per il controllo del sistema.



Durante il ritardo, premere il tasto per **riavviare** il ritardo.



Quando l'avvisatore acustico funziona ad impulsi premere il tasto per **silenziarlo**.

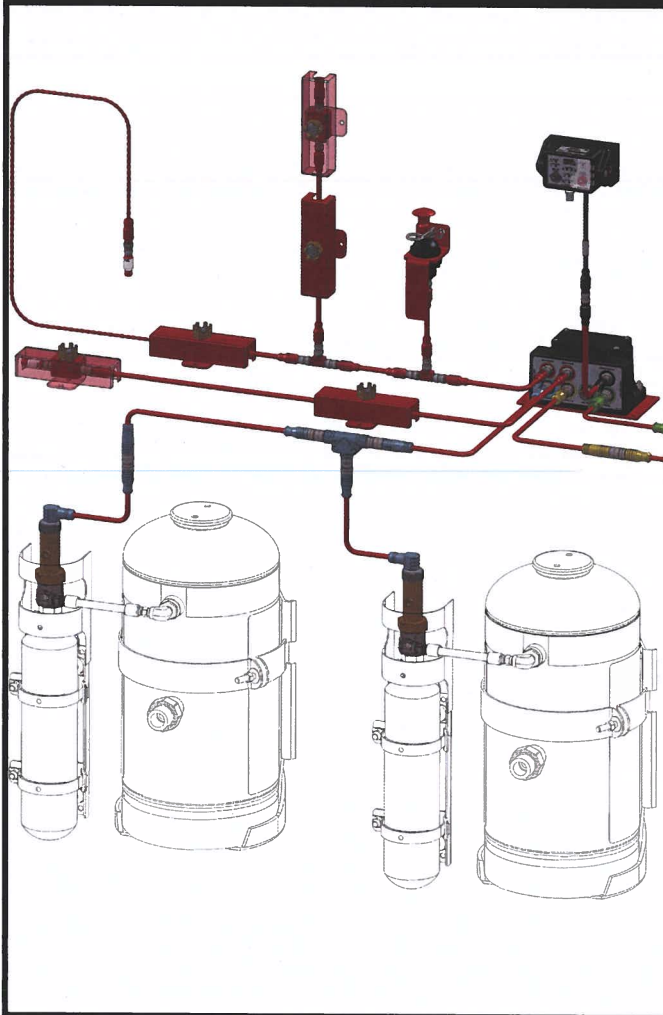


Premere il tasto e tenerlo premuto per 3 sec. per **ripristinare** il sistema.

**CHECKFIRE 210 ИЛРҮҮЛЭЛТ
БОЛОН АЖИЛЛУУЛАЛТЫН
СИСТЕМ**



ЭЗЭМШИГЧИЙН ГАРЫН АВЛАГА

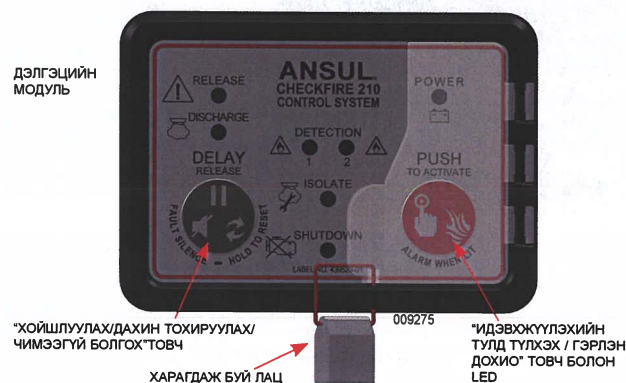


Жич: Энэхүү бичиг баримтын Англи хэл дээрх хувилбар нь албан ёсны хувилбар нь болно. Хэрэв энэхүү бичиг баримт нь Англи хэлнээс өөр ямар нэг хэл рүү орчуулагдсан бөгөөд Англи хэл дээрх хувилбар болон орчуулгын хооронд зөрчилдөөн гарсан тохиолдолд, Англи хэл дээрх хувилбарыг баримтална.

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Үзүүлсэн бүх үзүүлэлтүүд болон бусад мэдээлэл нь бичиг баримтын хянасан огнооны үеийнх бөгөөд мэдэгдэлгүйгээр өөрчлөлт оруулж болно. | Хэсгийн Дугаар. 442045-01_MN



CHECKFIRE 210 Илрүүлэлт болон Ажиллуулалтын Систем Эзэмшигчийн Гарын Авлага



Энэхүү CHECKFIRE 210 Илрүүлэлт болон Ажиллуулалтын Систем нь машин механизм/тоног төхөөрөмж дээр суурилагдсан ANSUL® A-101 эсвэл LVS Гал Унтраах Системтэй холбогдож удирддаг ба 24 цагийн турш гал унтраах үйл ажиллагааг хянадаг. Тоног төхөөрөмжийн оператор нь ANSUL-ын Албан Ёсны Дистрибьютер эсвэл техникийн өмчлөгчөөс практик сургалт авах нь зүйтэй.

Энэхүү гарын авлага нь CHECKFIRE 210 системийн үндсэн ажиллагааны товч лавлах юм. Дэлгэцийн модуль болон гар ажиллуулагч дээрх хоёр товч нь ажиллагааг удирдах боломжийг олгодог.

Системийн Мэдээлэл Бөглөх (суурьлуулсанаар)

Цэнэг: ☐ Зөвхөн Дотоод ☐ Хосломол (Гадаад & Дотоод)

Гадаад Тэжээлийн Үүсгүүр (машин механизмын зай, тэжээлийн самбар, гэх мэт.):

TD1(Хугацааны Тоолуур 1, секундээр): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2(Хугацааны Тоолуур 2, секундээр): ☐ 0 ☐ 5 ☐ 10 ☐ 15

Хугацааны Тоолуур Дахин Эхлэдэг: ☐ 2 ☐ Хязгааргүй

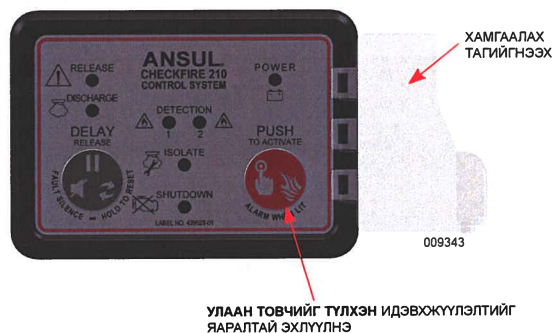
Реле #1: ☐ Дохио ☐ Доголдол ☐ Ашиглагдаагүй

Реле #2: ☐ Унтраах ☐ Дохио ☐ Ашиглагдаагүй

Даралтын Мэдрэгч/Унтраалгын Ажиллагаа:

МОНГОЛ
Хэл

ГАЛ ГАРСАН ҮЕД: Гар Ажиллуулалт



- 1) Тоног төхөөрөмжийг аюулгүй зайд гарган зогсоож, зогсоолын тоормосоо идэвхжүүлэн, хөдөлгүүрийг унтраана уу.
- 2) Тагны лацыг ховхлоод, хамгаалалтын тагийг нээнэ.
- 3) "Идэвхжүүлэхийн тулд ТҮЛХЭХ / Гэрлэн Дохио" улаан товчийг дарна уу.
- 4) Идэвхжүүлэх систем нь гал унтраах системийг шууд идэвхжүүлдэг (хэрэв даралтын мэдрэгч/унтраалга суурилагдсан бол нэмэлт ажиллагаа буюу хөдөлгүүрийг унтраах ажиллагааг идэвхжүүлдэг).
Доорх Тэмдэглэгээг Харна уу.
- 5) Тоног төхөөрөмжээс болгоомжтой бууж, гал унтраах нэмэлт хэрэгсэл галын хорыг нөөцөнд ойр байлгана уу.
- 6) Нэмэлт гар ажиллуулалт: Цагиранган түгжээг татаад, цахилгаан эсвэл хийн гар удирдлага дээрх улаан товчийг дарна уу.

Монгол
Хэл

Жич: Улаан өнгөтэй "Идэвхжүүлэхийн тулд ТҮЛХЭХ / Гэрлэн Дохио" LED болон дуут дохио нь гал унтраах системийг идэвхжүүлэх (нээх) үед 10 секундын турш дуут дохио өгч гэрэл дохио нь асаалттай байна.
Нээсний дараа : Илрүүлэлт 1 болон/эсвэл Илрүүлэлт 2, Унтраах, болон LED болон дуут дохиог нээснээр 1 x 10 секундээр үргэлжлүүлэн цохилдог. ХХэрэв тоног төхөөрөмж аюулгүй бол, "ХОЙШЛУУЛАХ/Дахин Тохируулах/Чимээгүй Болгох" товчийг дарахад дуут дохио хоёр цагийн турш чимээгүй болно.

Системийн Мэдээлэл Бөглөх (суурьлуулсанаар)

Цахилгаан болон Хийн Гар Ажиллуулалтын Байршил(ууд):

ГАЛ ГАРСАН ҮЕД: Автомат Системийн Ажиллагаа

- 1) Мэдрэгч(үүд) нь эрсдэлтэй хэсэгт аюултай нөхцөл байдал үүссэнийг мэдрч дэлгэцийн модуль дээр хугацааны тоолуурын мэдэгдэлийг эхлүүлдэг.
- 2) "Идэвхжүүлэхийн тулд ТҮЛХЭХ / Гэрлэн Дохио" нэмэх нь Илрүүлэлт 1 болон /эсвэл Илрүүлэлт 2 LED нэмэх нь дуут дохио:
 - a. TD1-ын сүүлийн 5 секунд хүртэл 2 x 1 секундээр цохилон; дараа нь сүүлийн 5 секунд эхлэхэд Унтраах LED –тэй 4 x 1 секундээр цохилох.
(See ХОЙШЛУУЛАХыг харах/ДАХИН ТОХИРУУЛАХ/ ЧИМЭЭГҮЙ БОЛГОХ доорх (саарал) товчийг даран TD1-ыг дахин эхлүүлэх); үүний дараа, зөвхөн Унтраах LED нь 1 секундын турш тогтмол асах ба энэ нь TD1 нь TD2 руу шилжиж буй илэрхийлдэг (дахин эхлүүлэх боломжгүй).
 - b. TD2-ын үеэр Унтраах LED 4 x 1 секундээр цохилох.
 - c. Гал унтраах системийг эхлүүлэх (нээх) үеэр Унтраах LED 10 секунд тогтмол байна ((хэрэв даралтын мэдрэгч/унтраалга суурилагдсан бол нэмэлт ажиллагаа буюу хөдөлгүүрийг унтраах ажиллагааг идэвхжүүлдэг).
- 3) Хугацааны тоолуур эхэлмэгц: Тоног төхөөрөмжийг аюулгүйгээр зогсоож, тоормосоо тохируулан, хөдөлгүүрийг унтраан, гарна уу. Гал унтраах нэмэлт тоног төхөөрөмжийг нөөцөнд ойр байлгана уу.
- 4) Нээсний дараа: LED болон дуут дохио 1 x 10 секундээр цохилно.

СААРАЛ
ТОВЧИЙГ
ДАРАН
ХУГАЦААНЫ
ТООЛУУРЫГ
ДАХИН
ЭХЛҮҮЛНЭ ҮҮ
(ЗӨВХӨН TD1)



009290

Монгол
Хэл

ХОЙШЛУУЛАХ/ДАХИН ТОХИРУУЛАХ/ЧИМЭЭГҮЙ БОЛГОХ (Саарал) Товч

- 1) **Хугацааны Тоолуурыг Дахин Эхлүүлэх:** Дохиолол өгсөн үед TD1-ыг шинээр эхлүүлэх бүрт дарна уу. (Хязгаар: 2 удаа шинээр эхлүүлэх эсвэл Хязгааргүй, хуудас 1-ийг харна уу.)
 - a. TD1-ын сүүлийн секундээс өмнө эхлүүлсэн байх шаардлагатай. (Нээснээс хойш TD1-ын дараа хариу үйлдэл байхгүй.)
 - b. **Жич:** Дараад, дарсан чигтээ барих нь хугацааны тоолуурын хугацааг уртасгахгүй.
- 2) **Дуут дохиог хоёр цагийн турш чимээгүй болгох (ажиллуулалтын эсвэл доголдолын мэдэгдэлийн дараа) :** Дуут дохиог чимээгүй болгох; LED доголдолын заалт нь доголдол арилтал асна. Аливаа шинэ доголдол эсвэл илрүүлэлт гарвал дуут дохио нь дахин идэвхжинэ.
- 3) **RESET буюу дахин тохируулах** нь ANSUL-ын Албан Ёсны Дистрибутерын үйлчилгээний техникийн ажилтанд зориулагдсан.

ХЯНАХ САМБАРЫН ЗААГЧУУД

ЦЭНЭГИЙН LED: НОГООН, ХУВ
ШАРГАЛ ЭСВЭЛ УНТРААЛТТАЙ



009290

1) Цэнэгийн LED

- Тогтмол ногоон гэрэл нь хэвийн **гадаад** тэжээлтэй буйг илэрхийлдэг.
- 1 x 30 секундээр цохилох ногоон гэрэл нь **гадаад** тэжээл хэвийн буйг илэрхийлдэг.
- 1 x 3 секундээр цохилох хув шаргал гэрэл нь гадаад тэжээлийн доголдол; систем дотоод тэжээлээрээ ажиллаж буйг илэрхийлдэг. Үйлчилгээ авахын тулд ANSUL-ын Албан Ёсны Дистрибьютерт хандана уу.
- Дуу гаргагчтай 1 x 10 секундээр цохилох хув шаргал гэрэл нь дотоод эсвэл гадаад тэжээлийн доголдолыг илэрхийлдэг. Үйлчилгээ авахын тулд ANSUL-ын Албан Ёсны Дистрибьютерт хандана уу.
- Унтраалттай байх нь систем цэнэггүй буйг илэрхийлдэг. Үйлчилгээ авахын тулд ANSUL-ын Албан Ёсны Дистрибьютерт хандана уу.

Монгол
Хэл

2) Бусад бүх LED

- Унтраалттай байх нь хэвийн төлөвийг илэрхийлдэг.
- Дуут дохиотой цохилох хув шаргал эсвэл улаан гэрэл: Үйлчилгээ авахын тулд ANSUL-ын Албан Ёсны Дистрибьютерт хандана уу.

САНАМЖ

Аливаа доголдолын заалт нь гал илрүүлэлт болон ажиллуулалтын системийг хэвийн ажиллахад саад болж болно; үйлчилгээ авахын тулд ANSUL-ын Албан Ёсны Дистрибьютерт нэн даруй хандана уу.

ХЯНАХ САМБАРЫН ЗААГЧУУД (Үргэлжлэл)

АЛХАМ 2 (Үргэлжлэл)



009290

с. LED шаргал эсвэл улаан заалтууд



Хув Шаргал: **ИДЭВХЖҮҮЛЭХ** Цахилгаан Хэлхээний Доголдол, 1 x 10 секундээр цохилдог.



Улаан: **ИЛРҮҮЛЭЛТ** Цахилгаан Хэлхээний Дохиолол Өгсөн Үед, 1 x 10 секундээр цохилдог.

Хув Шаргал: **ИЛРҮҮЛЭЛТ** Цахилгаан Хэлхээний Доголдолийн Үед, 1 x 10 секундээр цохилдог Хув Шаргал.



Улаан*: Систем **ГАРГАХ** идэвхжүүлсэн даралтын унтраалга, үлдэж буй Гаргалт Идэвхжсэн дээр тогтмол байна.
Гаргалт Дуусаны Дараа 1 x 10 секундээр цохилдог



Хув Шаргал: **ТУСГААРЛАХ** Горим, 2 x 30 секундээр цохилдог.



Улаан: **УНТРААХ** төлөв, Дохиолол Өгсөн Үед 4 x 1 секундээр цохилдог.

Гаргалт Идэвхжсэн үеэр тогтмол байна.

Гаргалт Дууссаны Дараа 1 x 10 секундээр цохилдог.

* Австрали Стандарт: Зөвхөн "Даралтын Унтраалгын Эргэх Холбоо" програмчлагдсан үед идэвхитэй байна.

Монгол
Хэл

ХЯНАХ САМБАРЫН ЗААГЧУУД (Үргэлжлэл)

- 3) Улаан өнгөтэй “Идэвхжүүлэхийн тулд ТҮЛХЭХ / Гэрлэн Дохио” LED (дуут дохио цохилтын хэмнэлтэй таардаг).
- 
- a. 1 x 1 секундээр цохилох нь Дохиолол Өгөхийн Өмнөх Үе, Зөвхөн Дохио Бүхий Програм эсвэл Тусгаарлах Горимыг илэрхийлдэг.
- b. 2 x 1 секундээр цохилох нь Дохиолол Өгөхийн Өмнөх Үеийг илэрхийлдэг ба TD1 (хугацааны тоолуур #1) тоологдож эхлэдэг (сүүлийн 5 секундэд цохилт 4 x 1 секундээр ихэсдэг).
- c. 4 x 1 секундээр цохилох нь TD1-ын сүүлийн 5 секундыг илэрхийлдэг ба TD2 (хугацааны тоолуур #2) тооллогын төгсгөл хүртэл 4 x 1 секундээр үргэлжлэн цохилдог.
- d. 10 секундын турш тогтмол байх нь Гаргалт Идэвхжсэнийг илэрхийлдэг.
- e. LED нь мөн товч бөгөөд, гал унтраах системийн гар идэвхжүүлэлтийн талаар 2-р хуудаснаас харна уу.

4) ХОЙШЛУУЛАХ/Дахин Тохируулах/Чимээгүй Болгох Товч



- a. Товчин дээрх таних тэмдэгүүд нь системийн хяналтыг илэрхийлдэг.



Хугацааны Тоолуурын үеэр, **дахин эхлүүлэх**товчийг даран Хугацааны Тоолуурыг эхлүүлнэ үү.



Дуут дохио ажиллаж байх үед, **чимээгүй болгох**товчийг дарна уу.



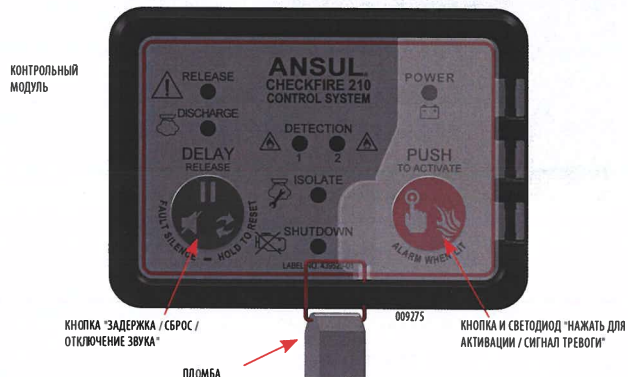
Товчийг 3 секундын турш дарсан чигтээ бариад системийг **дахин тохируулна** уу.

ANSUL

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Система обнаружения возгорания и активации пожаротушения CHECKFIRE 210. Руководство пользователя



Данное транспортное средство/техника оборудовано модулем обнаружения возгорания и активации пожаротушения CHECKFIRE 210 обнаружения возгорания и активации тушения, подсоединенным к системе пожаротушения ANSUL® A-101 или LVS, для обеспечения круглосуточной противопожарной защиты. Оператор должен пройти практический курс обучения под руководством авторизованного дистрибьютора ANSUL или конечного пользователя.

Настоящее руководство представляет собой краткий справочник, описывающий основные принципы работы системы CHECKFIRE 210. Оператор управляет системой при помощи ручных извещателей и двух кнопок, расположенных на контрольном модуле.

Заполните информацию о состоянии системы (первоначальный монтаж)

Электропитание системы: ☐ только внутреннее ☐ сдвоенное (внешнее и внутреннее)
внешний источник питания (аккумулятор автомобиля, панель питания и т.п.)

TD1 (период задержки, секунд): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD1 (период задержки, секунд): ☐ 0 ☐ 5 ☐ 10 ☐ 15

Количество перезапусков таймера: ☐ 2 ☐ неограниченное

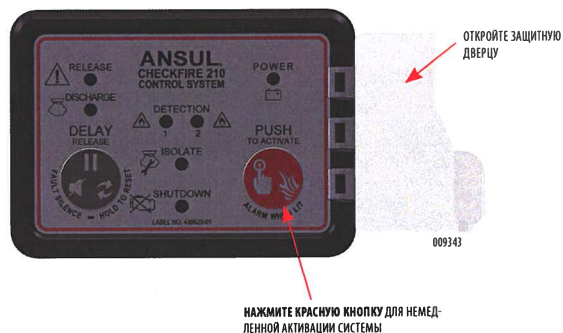
Реле #1: ☐ Сигнал тревоги ☐ Отказ ☐ Не используется

Реле #2: ☐ Отключение двигателя ☐ Сигнал тревоги ☐ Не используется

Дополнительные функции сигнализатора давления:

Русский

ПРИ ПОЖАРЕ: РУЧНАЯ АКТИВАЦИЯ



- 1) Выполните безопасную остановку техники, установите тормоз и выключите двигатель.
- 2) Удалите пломбу и откройте защитную дверцу.
- 3) Нажмите красную кнопку "НАЖАТЬ для активации / Сигнал тревоги" [PUSH To Activate/Alarm When Lit].
- 4) Цепь выпуска немедленно активируют подключенную систему пожаротушения (сигнализатор давления, если используется в системе, активирует дополнительные функции). **См. приведенное ниже Примечание.**
- 5) Соблюдая меры безопасности, покиньте кабину управления и будьте готовы использовать дополнительные средства пожаротушения.
- 6) Альтернативный вариант ручной активации. Потяните шпильку с кольцом и нажмите красную кнопку на электрическом или пневматическом ручном активаторе.

Примечание. В течение 10 секунд – в процессе срабатывания системы пожаротушения (при выпуске огнетушащего вещества - ОТВ) – непрерывно горит красный светодиод (кнопка) "НАЖАТЬ для активации/Сигнал тревоги" [PUSH To Activate/Alarm When Lit] и формируется звуковой сигнал. После выпуска ОТВ. Светодиоды "Обнаружение 1" и/или "Обнаружение 2" ([Detection 1], [Detection 2]), "Останов" ([Shutdown]) и "Выпуск" ([Release]) мигают с частотой 1 вспышка в 10 секунд, с этой же периодичностью звучит звуковой сигнал. Если есть возможность вернуться в транспортное средство после устранения опасности, тогда можно нажать кнопку "Задержка/Сброс/Отключение звука" [DELAY/RESET/SILENCE], чтобы отключить звуковой сигнал на два часа.

Русский

Заполните информацию о состоянии системы (первоначальный монтаж)

Укажите расположение ручных электрических или пневматических активаторов:

ПРИ ПОЖАРЕ: АВТОМАТИЧЕСКАЯ АКТИВАЦИЯ СИСТЕМЫ

- 1) Линейный извещатель (или тепловые детекторы) обнаруживает факт возгорания в защищаемой зоне и инициирует на контрольном модуле уведомление о начале периода задержки времени срабатывания.
- 2) Светодиодные сигналы "НАЖАТЬ для активации/Сигнал тревоги" ([PUSH To Activate/Alarm When Lit]), "Обнаружение 1" ([Detection 1]) и/или "Обнаружение 2" ([Detection 2]), а также звуковой сигнал:
 - а. подаются 2 раза в секунду до последних 5 секунд периода задержки TD1; затем, на последних 5 секундах, подаются 4 раза в секунду одновременно со светодиодом "Отключение двигателя" ([Shutdown]) (**перезапуск периода TD1 кнопкой "Задержка/СБРОС/ОТКЛЮЧЕНИЕ ЗВУКА - см. далее**). После чего происходит переход от периода задержки TD1 к периоду TD2, что отображается непрерывным горением светодиода "Отключение двигателя" [Shutdown] в течение 1 с (после перехода к периоду TD2 перезапуск задержки невозможен);
 - б. подаются 4 раза в секунду вместе со светодиодным сигналом "Отключение двигателя" [Shutdown] в течение периода задержки TD2;
 - в. непрерывно горят (вместе со светодиодом "Отключение двигателя" [Shutdown]) в течении 10 секунд в процессе срабатывания системы пожаротушения (при выпуске ОТВ). Если предусмотрен сигнализатор давления, он активирует дополнительные функции.
- 3) После начала периода задержки времени срабатывания необходимо: Выполнить безопасную остановку техники, установить тормоз, выключить двигатель и покинуть кабину управления. Подготовиться к использованию дополнительных средств пожаротушения.
- 4) После выпуска ОТВ: светодиоды мигают (и звучит звуковой сигнал) с частотой 1 вспышка в 10 секунд.

НАЖМИТЕ СЕРУЮ КНОПКУ, ЧТОБЫ ПЕРЕЗАПУСТИТЬ ПЕРИОД ЗАДЕРЖКИ (ТОЛЬКО TD1)



009290

Серая кнопка "Задержка/Сброс/Отключение звука" [DELAY/RESET/SILENCE]

- 1) Перезапуск периода задержки. Нажмите и отпустите кнопку для каждого перезапуска периода задержки TD1 при срабатывании пожарной сигнализации. (Ограничения: 2 перезапуска или неограниченное число перезапусков – см. стр. 1)
 - а. Кнопка должна быть нажата в пределах периода задержки TD1 (нажатие не воспринимается по окончании периода TD1 и до момента завершения выпуска ОТВ).
 - б. **Примечание.** Необходимо нажать и отпустить кнопку - нажатие и удержание кнопки не будет продлевать период задержки.
- 2) **Отключение звукового сигнала (после выпуска ОТВ или индикации о неисправности) на два часа).** Нажмите и отпустите кнопку, чтобы отключить звуковой сигнал; светодиод индикации о неисправности будет продолжать гореть до тех пор, пока неисправность не будет устранена. Любая новая неисправность или обнаружение возгорания будут активировать звуковую сигнализацию.
- 3) **Функция сброса,** реализуемая данной кнопкой, предназначена для авторизованных технических специалистов дистрибьютора ANSUL.

Русский

Индикаторы передней панели

СВЕТОДИОД ПИТАНИЯ: ЗЕЛЕНЫЙ,
ЖЕЛТЫЙ ИЛИ ПОГАШЕН



009290

1) Светодиод питания

- а. непрерывно горит зеленым - нормальная работа от **внешнего** источника питания;
- б. мигает зеленым (1 вспышка в 3 секунды) - нормальная работа от **внутреннего** источника питания;
- в. мигает желтым (1 вспышка в 3 секунды) - неисправность внешнего питания. Система работает от резервного внутреннего источника. Обратитесь к авторизованному дистрибьютору ANSUL для проведения технического обслуживания;
- г. мигает желтым (1 вспышка в 10 секунд), сопровождается звуковым сигналом - неисправность внешнего или внутреннего источника питания. Обратитесь к авторизованному дистрибьютору ANSUL для проведения технического обслуживания;
- д. светодиод погашен - отсутствие питания системы. Обратитесь к авторизованному дистрибьютору ANSUL для проведения технического обслуживания;

2) Остальные светодиоды



- а. светодиод погашен - нормальное рабочее состояние;
- б. мигает желтым или красным, сопровождается звуковым сигналом - обратитесь к авторизованному дистрибьютору ANSUL для проведения технического обслуживания;

Русский

ВНИМАНИЕ!

Наличие любой неисправности может привести к неработоспособности системы обнаружения возгорания и активации пожаротушения! Немедленно обратитесь к авторизованному дистрибьютору ANSUL для проведения технического обслуживания системы.

Индикаторы передней панели (продолжение)

Пункт 2 (продолжение)



009290

в. Светодиод горит или мигает желтым или красным цветом



Желтый: 1 вспышка в 10 секунд - неисправность цепи выпуска [**RELEASE Fault**];



Красный: 1 вспышка в 10 секунд - сигнал тревоги (обнаружение пожара) цепи обнаружения [**DETECTION Circuit Alarm**];

Желтый: 1 вспышка в 10 секунд - неисправность в цепи обнаружения [**DETECTION Circuit Fault**];



красный*: срабатывание сигнализатора давления в цепи выпуска [**DISCHARGE**]: светодиод горит непрерывно – выполняется выпуск ОТВ;

1 вспышка в 10 секунд – по окончании выпуска ОТВ;



Желтый: 2 вспышки в 30 секунд - состояние блокировки (изоляции) модуля [**ISOLATE**];



Красный: 4 вспышки в секунду - состояние отключение двигателя при срабатывании пожарной сигнализации [**SHUTDOWN**];

светодиод горит непрерывно – выполняется выпуск ОТВ;

1 вспышка в 10 секунд – по окончании выпуска ОТВ;

* Стандарт Австралии: действует только в том случае, если запрограммировано условие обратной связи от сигнализатора давления.

Русский

Индикаторы передней панели (продолжение)

- 3) Красный светодиод "НАЖАТЬ для активации/Сигнал тревоги" ([PUSH To Activate/ Alarm When Lit]) (звуковой сигнал раздается с той же периодичностью):
- 
- а. мигает 1 раз в секунду – обнаружение только в 1 зоне при перекрестном обнаружении (cross-zone detection), программирование модуля только на сигнализацию или режим изоляции;
 - б. мигает 2 раза в секунду – состояние обнаружение пожара и запуск обратного отсчета TD1 (период задержки #1), в последние 5 секунд периода частота вспышек увеличивается до 4 раз в секунду;
 - в. мигает 4 раза в секунду в течении последних 5 секунд периода задержки TD1 и в течении всего TD2 (период задержки #2) вплоть до окончания обратного отсчета;
 - г. непрерывно горит в течение 10 секунд в процессе выпуска ОТВ;
 - д. данный светодиод расположен в корпусе кнопки, используемой для ручной активации системы – см. стр. 2.

- 4) Кнопка "Задержка/Сброс/Отключение звука"
- 
- а. На кнопке показаны пиктограммы, описывающие функции управления системой.



Нажатие кнопки во время периода задержки времени срабатывания приводит к **перезапуску** периода задержки (действительно только для периода задержки #1 - TD1).



Нажатие кнопки при включенном звуковом сигнале приводит к **отключению звука**.



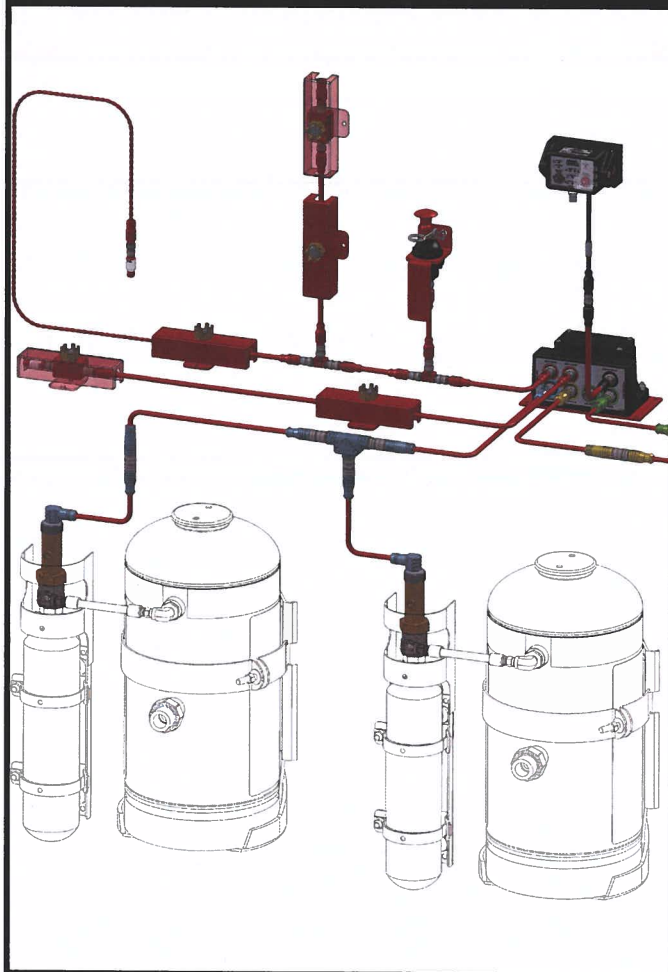
Нажатие и удержание кнопки в течение 3 секунд приводит к **сбросу состояния** системы.

Русский

**SISTEMA DE ACTIVACIÓN Y
DETECCIÓN CHECKFIRE 210**



GUÍA DEL PROPIETARIO

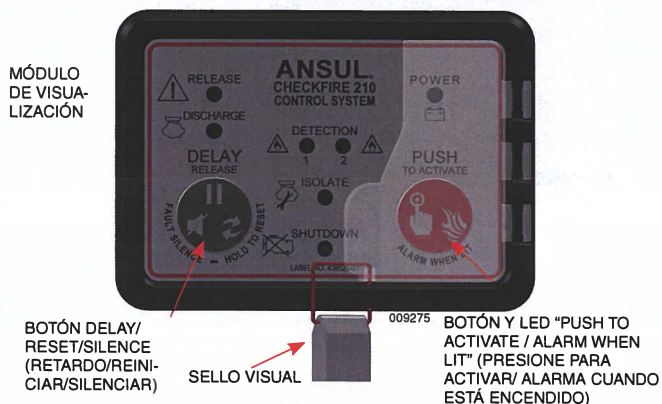


Nota: la versión en inglés de este documento es la versión oficial. Si este documento es traducido a otro idioma y surge una discrepancia entre la versión en inglés y la traducción, la versión en inglés prevalecerá.

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Pieza n.º 442045-01_LAS



Guía del Propietario de Sistema de Activación y Detección CHECKFIRE 210



Este vehículo/equipo está monitoreado con un Sistema de Activación y Detección CHECKFIRE 210, el cual generalmente está conectado a un Sistema de Extinción de Incendios ANSUL® A-101 o LVS para una extinción de incendios las 24 horas. El operador del equipo debe proporcionarse con una capacitación práctica a cargo de los Distribuidores ANSUL autorizados o el usuario final.

Este manual es una guía de referencia rápida para la operación básica del Sistema CHECKFIRE 210. Dos botones en el módulo de pantalla y activadores manuales proporcionan control al operador.

Llene con Información del Sistema (mientras instala)

Alimentación: ☐ Sólo Interna ☐ Doble (Externa e Interna)

Suministro de Alimentación Externa (batería de vehículo, panel de alimentación, etc.): _____

TD1 (Retardo 1, segundo): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (Retardo 2, segundos): ☐ 0 ☐ 5 ☐ 10 ☐ 15

Reinicios del Retardo: ☐ 2 ☐ Ilimitados

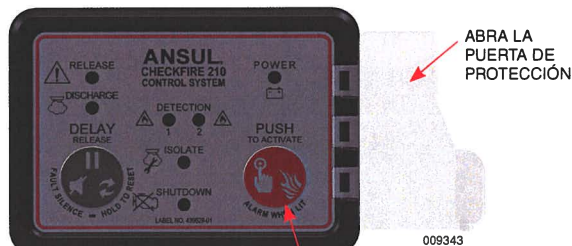
Relé n.º1: ☐ Alarma ☐ Falla ☐ No usado

Relé n.º2: ☐ Apagado ☐ Alarma ☐ No usado

Operación auxiliar de interruptor de presión: _____

Español

EN CASO DE INCENDIO: Activación manual



PRESIONE EL BOTÓN ROJO PARA UNA ACTIVACIÓN INMEDIATA

- 1) Detiene completamente el equipo de forma segura, activa el freno y apaga el motor.
- 2) Rompimiento de sello visual y apertura de puerta de protección.
- 3) Presione el botón "PUSH To Activate / Alarm When Lit" (PRESIONE para activar/ Alarma cuando está encendido) rojo.
- 4) El circuito de liberación activa inmediatamente el sistema de extinción de incendios conectado (si se incluye, la operación auxiliar activa el interruptor de presión). **Consulte nota más abajo.**
- 5) Salida segura desde equipo y equipo suplementario para combate de incendios.
- 6) Activación manual opcional: Pasador de anillo de disparo y botón rojo de golpeo sobre activador manual eléctrico o neumático.

Nota: El LED "PUSH To Activate / Alarm When Lit" (PRESIONE para activar/ Alarma cuando está encendido) rojo y la sirena permanecen constantes durante 10 seg. durante el inicio (liberación) del sistema de extinción de incendios. Posterior a la liberación: Los LED Detect 1 (Detección 1) y/o Detect 2 (Detección 2), Shutdown (Apagar) y Release (Liberar) y la sirena continúan en pulsos de 1 x 10 seg. Si es seguro el reingreso al equipo, presione el botón "DELAY/Reset/ Silence" (RETARDO/Reiniciar/Silenciar) para silenciar la sirena durante dos horas.

Español

Llene con Información del Sistema (mientras instala)

Ubicación(es) del Activador manual eléctrico o neumático:

EN CASO DE INCENDIO: Operación automática del sistema

- 1) El detector(es) registra una condición de alarma en el área de peligro e inicia la notificación de retardo en el módulo de visualización.
- 2) LED "PUSH To Activate / Alarm When Lit" (PRESIONE para activar/ Alarma cuando está encendido) más Detect 1 (Detección 1) y/o Detect 2 (Detección 2) más sirena:
 - a. Pulso 2 x 1 seg. hasta duración de 5 seg. de TD1; luego pulso de 4 x 1 seg. con LED Shutdown (Apagar) al comienzo de los 5 seg. finales. **(Consulte el botón DELAY/RESET/SILENCE (RETARDO/ Reiniciar/Silenciar) (gris) más adelante para obtener detalles sobre el reinicio de TD1);** a continuación, sólo el LED Shutdown (Apagar) se mantiene constante por 1 seg. indicando TD1 transfiriendo a TD2 (el reinicio ya no está disponible).
 - b. Pulso 4 x 1 seg. con LED Shutdown (Apagar) durante TD2.
 - c. 10 seg. constantes con LED Shutdown (Apagar) durante inicio (liberación) del sistema de extinción de incendios (si se incluye, el interruptor de presión activa la operación auxiliar).
- 3) Tan pronto como se inicia el retardo: Detiene el equipo de forma segura, activa el freno, apaga el motor y cierra. En espera con equipo suplementario para combate de incendios.
- 4) Posterior a la liberación: Los LED y la sirena emiten pulsos de 1 x 10 seg.

PRESIONE
EL BOTÓN
GRIS PARA
REINICIAR
EL RETARDO
(SÓLO TD1)



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Botón DELAY/RESET/SILENCE (RETARDO/REINICIAR/ SILENCIAR) (Gris)

- 1) **Reiniciar Retardo:** Presione y suelte para cada reinicio de TD1 durante la condición de alarma. (Limite: 2 reinicios o ilimitados, consulte la página 1.)
 - a. Debe iniciarse antes del último segundo de TD1. (No responde después de TD1 hasta la liberación posterior.)
 - b. **Nota:** El presionar y mantener no extiende el periodo de retardo.
- 2) **Silenciar sirena (posterior a descarga o notificación de falla) durante dos horas:** Presione y libere para silenciar la sirena; la indicación de falla del LED continuará hasta que se elimine la falla. Cualquier nueva falla o evento de detección reactivará la sirena.
- 3) **Función Reset (Reiniciar)** es para el técnico de servicio del Distribuidos ANSUL autorizado.

Español

INDICADORES DE PANEL FRONTAL

LED POWER (ENCENDIDO):
VERDE, ÁMBAR O APAGADO



009290

1) LED Power (Encendido)

- a. Verde constante indica una alimentación **externa** normal.
- b. Verde con pulsos de 1 x 3 seg. Indica una alimentación **interna** normal.
- c. Ámbar con pulsos de 1 x 3 seg. indica una falla de la alimentación externa; el sistema está funcionando con alimentación interna. Contacte a su Distribuidor ANSUL autorizado para obtener servicio.
- d. Ámbar con pulsos de 1 x 10 seg. con sirena indica una falla de la alimentación interna o externa. Contacte a su Distribuidor ANSUL autorizado para obtener servicio.
- e. Apagado indica que no existe alimentación en el sistema. Contacte a su Distribuidor ANSUL autorizado para obtener servicio.

2) Todos los otros LED

- a. Apagado indica un estado normal.
- B. Pulsos ámbar o rojo con sirena: Contacte a su Distribuidor ANSUL autorizado para obtener servicio.

PRECAUCIÓN

Cualquier indicación de falla puede producir el mal funcionamiento de la detección de incendios o el sistema de activación; contacte de inmediato a su Distribuidor ANSUL autorizado para obtener servicio.

INDICADORES DE PANEL FRONTAL (Continuación)

PASO 2 (Continuación)



009290

c. Indicaciones de LED ámbar o rojo



Ámbar: **LIBERACIÓN** Falla de circuito, pulsos de 1 x 10 seg.



Rojo: **DETECCIÓN** Condición de alarma de circuito, pulsos de 1 x 10 seg.

Ámbar: **DETECCIÓN** Falla de circuito, pulsos de Ámbar 1 x 10 seg.



Rojo*: Interruptor de presión de **DESCARGA** de sistema activado, constante durante Liberación Activada restante.
Pulsos de 1 x 10 seg. durante Liberación Posterior Activada



Ámbar: Modo **AISLAR**, pulsos de 2 x 30 seg.



Rojo: Estado **APAGADO**, pulsos de 4 x 1 seg. durante Condición de Alarma.
Constante durante Liberación Activada.
Pulsos de 1 x 10 seg. durante Liberación Posterior Activada.

* Estándar Australiano: Sólo activo cuando se programa "Pressure Switch Feedback" (Retroalimentación de Interruptor de Presión).

Español

INDICADORES DE PANEL FRONTAL (Continuación)

- 3) LED rojo "PUSH" To Activate / Alarm When Lit"
(PRESIONE para activar / Alarma cuando está encendido)
(la sirena iguala la velocidad de pulsos).
- 
- a. Pulsos de 1 x 1 seg. indican una Condición Previa a la Alarma, Alarma sólo en Modo de Programación o Aislar.
 - b. Pulsos de 2 x 1 seg. indican una Condición de Alarma y TD1 (retardo n.º1) comienza su cuenta regresiva (el último pulso de 5 seg. aumenta a 4 x 1 seg.).
 - c. Pulsos de 4 x 1 seg. Indican los últimos 5 seg. de TD1 y TD2 (retardo n.º2) continúan con pulsos de 4 x 1 seg. hasta el fin de la cuenta regresiva.
 - d. Constante durante 10 seg. Indica Liberación Activada.
 - e. El LED además es un botón, consulte la página 2 para conocer la activación manual del sistema de extinción de incendios.

- 4) Botón DELAY/Reset/Silence (RETARDO/Reiniciar/Silenciar)



- a. Los íconos sobre el botón representan opciones para el control del sistema.



Durante el Retardo, presione el botón para **reiniciar** el Retardo.



Cuando la sirena emite pulsos, presione el botón para **silenciar**.

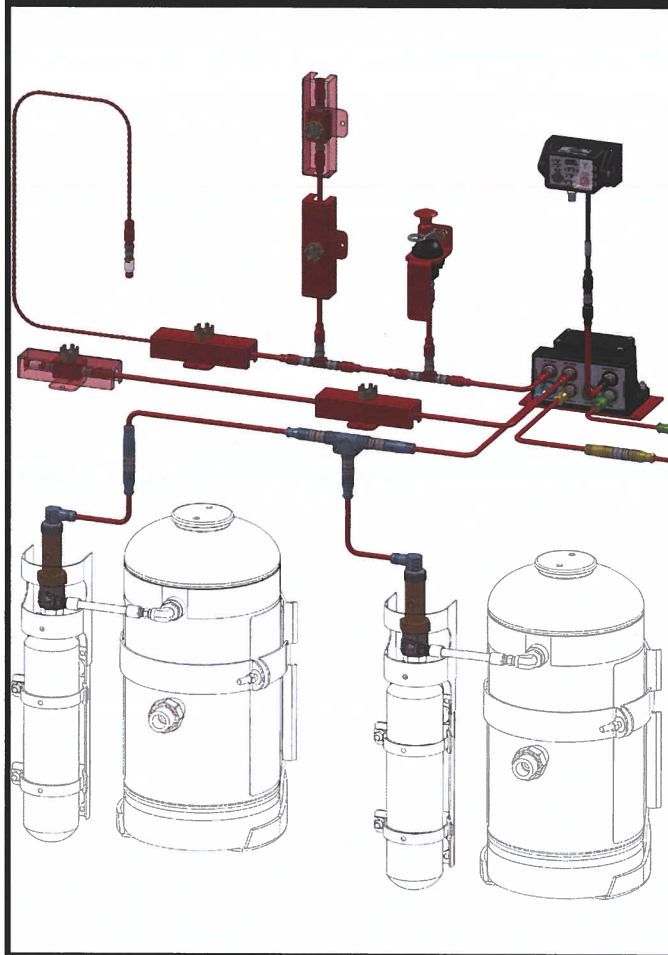


Presione y mantenga durante 3 seg. para **reiniciar** el sistema.

CHECKFIRE 210 DETEKTERINGS- OCH AKTIVERINGSSYSTEM



ANVÄNDARHANDBOK

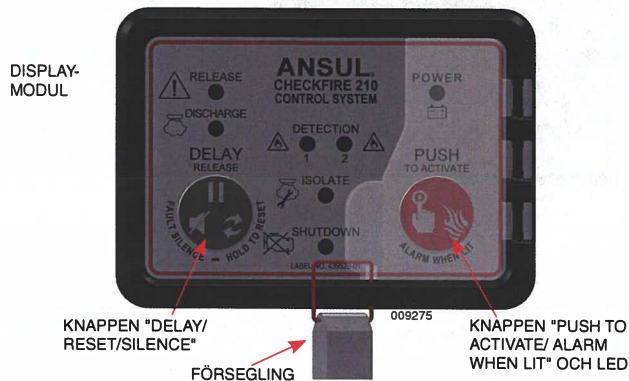


Anmärkning: Den engelska språkversionen av detta dokument är den officiella versionen. Om detta dokument översätts till ett annat språk än engelska och det föreligger en diskrepans mellan den engelska språkversionen och översättningen, så gäller den engelska språkversionen.

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CHECKFIRE 210 Detekterings- och aktiveringssystem Användarhandbok



Detta fordon/denna utrustning övervakas med ett CHECKFIRE 210 Detekterings- och aktiveringssystem som normalt är anslutet till ett ANSUL® A-101 eller LVS släcksystem för brandbekämpning 24 timmar om dygnet. Användaren av utrustningen ska genomgå praktisk utbildning hos en auktoriserad ANSUL-distributör eller slutanvändaren.

Denna handbok är en snabbguide för grundläggande användning av CHECKFIRE 210-systemet. Två knappar på displaymodulen och manuella utlösare ger användaren kontroll.

Systeminformation (såsom installerat)

Ström: ☐ Endast intern ☐ Dubbel (extern och intern)

Extern strömförsörjning (fordonsbatteri, strömpanel, etc.):

TD1 (Tidsfördröjning 1, sekunder): ☐ 0 ☐ 5 ☐ 10 ☐ 15

TD2 (Tidsfördröjning 2, sekunder): ☐ 0 ☐ 5 ☐ 10 ☐ 15

Tidsfördröjning startar om: ☐ 2 ☐ Obegränsat

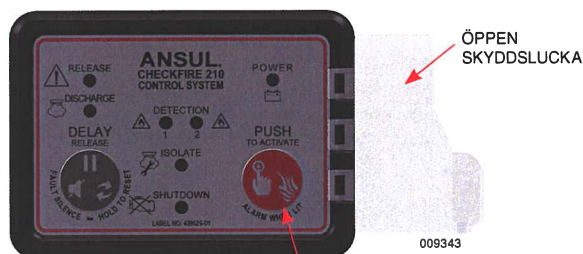
Relä nr 1: ☐ Larm ☐ Fel ☐ Används ej

Relä nr 2: ☐ Avstängning ☐ Larm ☐ Används ej

Tryckbrytare för reservdrift:

Svenska

I HÄNDELSE AV BRAND: Manuell aktivering



TRYCK PÅ DEN RÖDA KNAPPEN
FÖR OMEDELBAR AKTIVERING

- 1) Stoppa utrustningen på ett säkert sätt, dra åt bromsen och stäng av motorn.
- 2) Bryt förseglingen och öppna skyddsluckan.
- 3) Tryck på den röda knappen "PUSH To Activate / Alarm When Lit" (Tryck för att aktivera / Larm när tänd).
- 4) Utlösningsskretsen aktiverar omedelbart släcksystemet (om inkluderat aktiverar tryckbrytaren reservdrift). **Se anmärkning nedan.**
- 5) Lämna utrustningen på ett säkert sätt och var beredd med kompletterande brandbekämpningsutrustning.
- 6) Valfri manuell aktivering: Dra i ringbulten och tryck på den röda knappen på den elektriska eller pneumatiska manuella utlösaren.

Anmärkning: Den röda lysdioden "PUSH To Activate / Alarm When Lit" och ljudsignalen förblir på i 10 sekunder under initiering (utlösning) av släcksystemet. Efter utlösning: Detektering 1 och/eller Detektering 2, Avstängning samt utlösningssdioder och ljudsignal fortsätter att pulsera 1 x 10 sekunder. Om det är säkert att åter gå in i fordonet, tryck på knappen "DELAY/Reset/Silence" (FÖRDRÖJNING/Återställning/Tystnad) för att stänga av ljudsignalen i två timmar.

Systeminformation (såsom installerat)

Plats(er) för elektrisk eller pneumatisk manuell utlösare:

Svenska

I HÄNDELSE AV BRAND: Automatisk systemdrift

- 1) Detektor(er) registrerar larmläge i riskområdet och visar meddelandet om tidsfördröjning på displaymodulen.
- 2) "PUSH To Activate / Alarm When Lit" plus lysdioder för Detektering 1 och/eller Detektering 2 plus ljudsignal:
 - a. Puls 2 x 1 sekund till sista 5 sekunderna av TD1, sedan puls 4 x 1 sekund med lysdioden Avstängning vid start av sista 5 sekunder. (Se knappen "DELAY/RESET/SILENCE" (grå) nedan för TD1-omstart): sedan, endast lysdioden Avstängning är på i 1 sekund, vilket indikerar överföring av TD1 till TD2 (omstart ej längre möjlig).
 - b. Puls 4 x 1 sekund med lysdioden Avstängning under TD2.
 - c. På i 10 sekunder med lysdioden Avstängning under initiering (utlösning) av släcksystemet (om inkluderat aktiverar tryckbrytare reservdrift).
- 3) Så snart tidsfördröjningen börjar: Stoppa utrustningen på ett säkert sätt, dra åt bromsen, stäng av motorn och lämna platsen. Var beredd med kompletterande brandbekämpningsutrustning.
- 4) Efter utlösning: Lysdioder och ljudsignal pulserar 1 x 10 sekunder.

TRYCK PÅ DEN
GRÅ KNAPPEN FÖR
ATT STARTA OM
TIDSFÖRDRÖJNINGEN
(ENDAST TD1)



Knappen DELAY/RESET/SILENCE (grå)

- 1) **Omstart av tidsfördröjning:** Tryck och släpp för varje omstart av TD1 under larmläge. (Begränsning: 2 omstarter eller Obegränsat, se sidan 1.)
 - a. Måste initieras före sista sekunden av TD1. (Inget svar efter TD1 förrän efter utlösning.)
 - b. **Anmärkning:** Att hålla knappen intryckt förlänger inte tidsfördröjningsperioden.
- 2) **Stäng av ljudsignalen (efter utlösning eller felmeddelande) i två timmar:** Tryck och släpp för att stänga av ljudsignalen: LED-felindikeringen fortsätter tills felet rensas. Varje nytt fel eller ny detekteringshändelse återaktiverar ljudsignalen.
- 3) **Funktionen Återställning** är avsedd för auktoriserade ANSUL servicetekniker.

MEDDELANDEN PÅ FRONTPANEL

LYSDIOD FÖR STRÖMINDIKERING:
GRÖN, GUL ELLER AV (SLÄCKT)



009290

1) Lysdiod strömindikering

- Grönt fast sken indikerar normal **extern** strömförsörjning.
- Grönt pulserande sken 1 x 3 sekunder indikerar normal **intern** strömförsörjning.
- Gult pulserande sken 1 x 3 sekunder indikerar externt strömförsörjningsfel, systemet drivs med intern strömförsörjning. Kontakta auktoriserad ANSUL-distributör för service.
- Gult pulserande sken 1 x 10 sekunder med ljudsignal indikerar internt eller externt strömförsörjningsfel. Kontakta auktoriserad ANSUL-distributör för service.
- Släckt lysdiod indikerar frånvaro av systemströmförsörjning. Kontakta auktoriserad ANSUL-distributör för service.

2) Alla övriga lysdioder

- Av (släckt) indikerar normal status.
- Gult eller rött pulserande sken med ljudsignal: Kontakta auktoriserad ANSUL-distributör för service.

FÖRSIKTIGHET

Varje felindikering kan medföra att branddetekterings- och aktiveringssystemet inte fungerar korrekt. Kontakta omedelbart en auktoriserad ANSUL-distributör för service.

MEDDELANDEN PÅ FRONTPANEL (forts.)

STEG 2 (forts.)



c. Gula eller röda LED-indikeringar



Gul: **UTLÖSNING** Kretsfel, pulserande 1 x 10 sekunder.



Röd: **DETEKTERING** Kretslarmläge, pulserande 1 x 10 sekunder.

Gul: **DETEKTERING** Kretsfel, pulserande gul 1 x 10 sekunder.



Röd*: System **UTLÖST** aktiverad tryckbrytare, fast sken för återstående Utlösning aktiverad.

Pulserande 1 x 10 sekunder under Efter utlösning aktiverad.



Gul: **ISOLERA**-läge, pulserande 2 x 30 sekunder.



Röd: **AVSTÄNGNING**-status, pulserande 4 x 1 sekund under larmläge.

Fast sken under Utlösning aktiverad.

Pulserande 1 x 10 sekunder under Efter utlösning aktiverad.

* Australiensisk standard: Endast aktiv när "Pressure Switch Feedback" är programmerad.

MEDDELANDEN PÅ FRONTPANEL (forts.)

- 3) Röd lysdiod "PUSH To Activate / Alarm When Lit" (ljudsignal matchar pulsfrekvens).



- a. Pulserande 1 x 1 sekund indikerar förelarmläge, Endast larmprogrammering eller Isolera-läge.
- b. Pulserande 2 x 1 sekund indikerar Larmläge och TD1 (tidsfördröjning nr 1) startar nedräkning (sista 5 sekunderna pulserande ökar till 4 x 1 sekund).
- c. Pulserande 4 x 1 sekund indikerar de sista 5 sekunderna av TD1 och TD2 (tidsfördröjning nr 2) fortsätter med pulserande vid 4 x 1 sekund till slutet av nedräkningen.
- d. Fast sken i 10 sekunder indikerar Utlösning aktiverad.
- e. Lysdioden (LED) är också en knapp, se sidan 2 för manuell aktivering av släcksystemet.

- 4) Knappen DELAY/Reset/Silence



- a. Ikoner på knappen visar alternativ för systemkontroll.



Under Time Delay (Tidsfördröjning), tryck på knappen för att **starta om** Time Delay.



När ljudsignalen pulserar, tryck på knappen för att **stänga av** ljudsignalen.



Håll knappen intryckt i 3 sekunder för att **återställa** systemet.

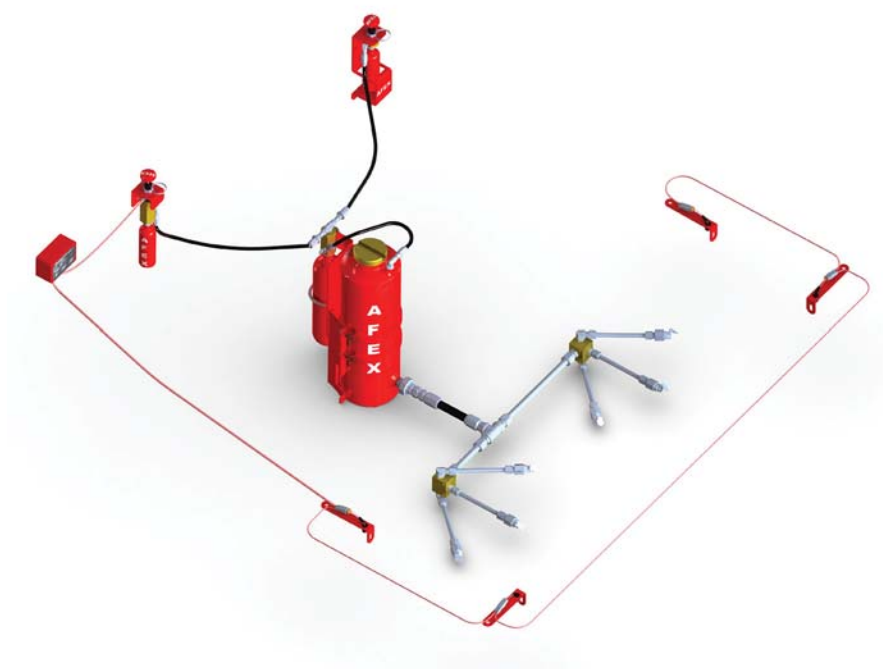
AFEX
FIRE SUPPRESSION SYSTEMS

OWNER/OPERATOR'S MANUAL
PN A100001



AFEX 2000 Series Pre-Engineered Multipurpose
Dry Chemical Fire Suppression System

AFEX W Series Pre-Engineered
Liquid Agent Fire Suppression System



5808 LEASE LANE
RALEIGH, NC 27617
TEL (919) 781-6610 FAX (919) 787-3915
WWW.AFEXSYSTEMS.COM

Revised July 2012

This fire suppression system unit is to be installed, inspected and maintained in accordance with NFPA Standard No. 17 and the **AFEX** Installation, Operation, Maintenance, and Service Manual.

AFEX 2030 Series System

This system, when installed according to this manual, can be considered an integrated fire detection and fighting system as defined in EN 13478:2001, article 6.3.

Conforms with the EC standards:

DIN EN ISO 14982:2009

ISO 13766:2006

ISO 10605:2001

ISO 11452-2:2004

ISO 7637-2:2004

EN 894-1:1997

EN 894-2:1997

EN 1127-1:2007

EN 1127-2:2002

EN 13478:2001

EN 842:1996

ISO 7731:2003

EN 981:1996

The following Notified Body has issued a positive Statement of Opinion.

Identification of NB Statement of Opinion

Report No.: 31160512.001

Name and address of NB

TUV Rheinland of North America, Inc.

762 Park Avenue, Youngsville, NC 27596-9470

This manual should be carefully read by all individuals who have or will have responsibility for using the product.

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IMPORTANT:

AFEX fire suppression systems are made up of units tested within limitations contained in the *Installation, Operation, Maintenance, and Service Manual*. No modifications are to be made to the system. The system designer must be consulted whenever changes are planned for the system or area of protection. An authorized installer or system designer must be consulted after the system has discharged.

This system is limited to use on mobile equipment, when installed and maintained as described in the *Installation, Operation, Maintenance, and Service Manual*. Other uses are not permitted. **AFEX** automatic fire suppressions systems are not "intrinsically safe" and are therefore not suitable for use in potentially explosive atmospheres such as underground coal mines. The **AFEX** system has not been tested to comply with the ATEX 95 directive and is therefore not permitted for use in any underground mine that requires adherence to this directive.

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Introduction

Heavy duty mobile equipment is larger and more expensive than ever before. Production losses from downtime coupled with high repair and replacement costs increase the importance of adequate fire protection.

Because of the location of the operator on modern equipment, together with noise suppression and personnel guarding, a fire on board can become severe before it is even noticed. The size of the machines makes operator egress difficult and protective guarding hampers the use of hand portable fire extinguishers.

As a permanent part of the vehicle, the **AFEX** system allows effective fire suppression in normally inaccessible areas. Operator safety is also greatly enhanced. Detection and automatic actuation allow for early system activation, alerting the operator and protecting the capital investment.

This manual is intended to acquaint you with the **AFEX** Fire Suppression System. This manual is not to be considered a detailed installation guide and this manual provides no instructions for the installation, recharging, or regular inspection and maintenance of an **AFEX** system. A detailed *Installation, Operation, Maintenance, and Service Manual* is available upon request from **AFEX**. Should you have any questions, please direct them to **AFEX** or an authorized **AFEX** distributor.

Fire Suppression System Overview

A fire suppression system is a heavy equipment accessory that is designed to help reduce damage and losses related to fire. Its purpose is to suppress a fire long enough to allow access to, or the arrival of fire fighting equipment. Fire suppression systems are not designed or intended to extinguish all fires, particularly when unusual amounts of combustible materials and an ample oxygen supply are present.

Fire conditions could occur which exceed the extinguishing capacity of the fire suppression system, possibly resulting in temporary suppression but not total extinguishment. Therefore, it is extremely important that alternative fire fighting equipment be available in case the system does not totally extinguish a fire.

The **AFEX** vehicle fire suppression system discharges A:B:C dry chemical powder and/or **AFEX** liquid agent into the protected areas of the machine, typically the engine and transmission compartments. The system is installed as part of the vehicle and consists of detection, actuation, and distribution components.

AFEX offers two types of system actuation: automatic & manual only. Automatic systems may also be manually actuated.

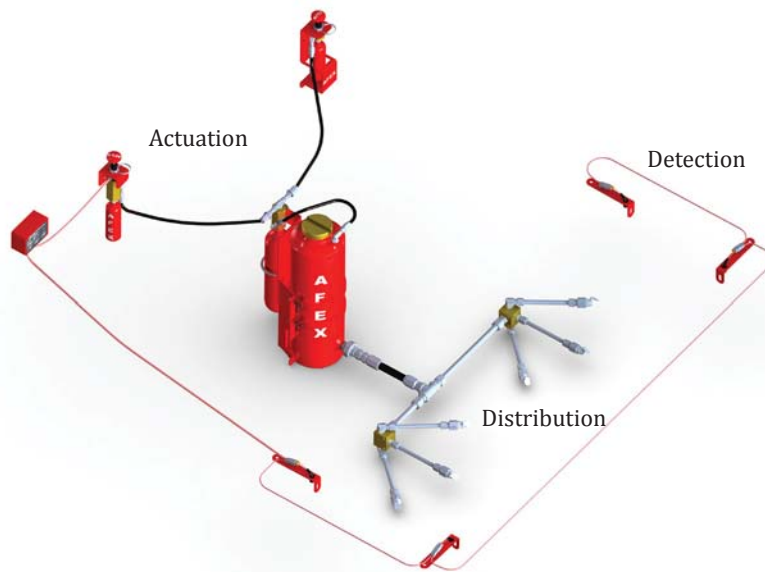
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The system is installed as part of the vehicle and consists of detection (automatic systems only), actuation, and distribution components.

Detection components include sensors and/or linear detection wire, the circuit monitor panel, and wire.

Actuation components include the firing mechanism or manual actuators, electric actuator, nitrogen cartridges, slave actuators, and hose.

Distribution components include the agent tank, hose, stainless steel tubing, and nozzles.



System Features

Familiarize yourself with the features of the **AFEX** system. If you need help identifying these features, contact your local distributor.

Your system may include some or all of the following:

- Automatic Detection
- Circuit Monitor Panel
- Automatic Actuator with Manual Override
- Exterior Remote Actuator
- A:B:C Dry Chemical Powder
- A**FEX** Liquid Agent
- Stainless Steel Distribution
- Automatic Engine Shutdown
- External Horn and/or External Lights

Reducing the Risk of Fire

Your risk of equipment fires, and the damage resulting from a fire, can be reduced by following the tips below:

- Maintain vehicles properly and regularly.
 - Frequently clean combustible debris and fuels from belly pans and engine and transmission compartments.
 - Check all oil, hydraulic fluid and gas lines for cuts, abrasions, or wear. Replace as needed.
 - Inspect all oil, hydraulic, and gas line fittings for tightness. Clean off all residue and tighten.
 - Check braking system for proper adjustment especially if brakes overheat when not engaged.
 - Check all possible ignition points (engine block, exhaust manifolds, turbochargers, etc.). Make sure oil, hydraulic fluid, and gas lines are not in contact with these ignition points.
 - Clean vehicle of all combustible debris, dry vegetation, grain particles, coal dust, etc. Remove any oil and fuel drippings.
 - Check all electrical lines and connections for tight fit, wear or abrasion. Replace any defective electrical equipment or wiring.
- Have fire response plan in place.
 - Train personnel on the use of fire suppression systems and portable fire extinguishers.
 - Follow proper fire suppression system maintenance intervals.
 - Have additional fire fighting equipment available on-site.
 - Avoid parking equipment side by side at night.

What Operators Need to Know

- The Circuit Monitor Panel & firing mechanism (or manual actuator) are located in the cab, typically within your view and arm's reach.
- The agent dispersion nozzles are typically located in the engine and transmission and other hazard areas.
 - The operator's cab is not protected.
 - The system will not suppress fires outside the machine.
- Bring the vehicle to a stop and shut down the machine immediately when a fire condition is observed.
- Manually actuate the system immediately when a fire condition is observed, even if it is an automatic system, if it has not already actuated automatically.
- Hand portable fire extinguishers are recommended and are useful if re-ignition occurs or if fires originate outside of the protected area.
- In the event of a fire, the immediately inform the appropriate on-site personnel in order to maximize fire fighting efforts.

What Maintenance Personnel Need to Know

- Fire suppression system components are installed on the machine to protect the engine and transmission compartments against fire.
 - Tampering with, repositioning, removing or damaging components can adversely affect the fire suppression system's performance or even prevent the system from functioning properly.
 - Should you have concerns regarding the fire suppression system installation, certification or repair, contact the local **AFEX** distributor or service agent immediately.
- To avoid damage to the Circuit Monitor Panel (if equipped), disconnect power to the panel prior to welding on or jump starting the machine.
- After performing major maintenance procedures or repairs to the equipment, the engine, or transmission, contact the local distributor to inspect and restore the fire system to proper operating condition.

IMPORTANT:

This system is made of units tested within limitations contained in the detailed installation manual. The system designer must be consulted whenever changes are planned for the system or area of protection. An authorized installer or system designer must be consulted after the system has discharged.

System Operation

1. A fire starts in the protected area of the machine.
2. The system is automatically or manually actuated.
IMPORTANT: If you see signs of a fire before the system automatically actuates, manually actuate the system. Rapid response is critical in successfully suppressing the fire.
 - a. (Automatic Actuation) The heat from the fire activates the sensors or linear detection wire, which sends a signal to the Circuit Monitor Panel to fire the electric actuator.
NOTE: **AFEX** sensors activate at 300°F (148.89°C) and reset at 275°F (135°C). **AFEX** linear detection wire is rated at 356°F (180°C).
 - b. (Manual Actuation) The operator manually actuates the system by pulling the safety pin and striking the push knob on the cab or exterior actuator.
3. The seal on the actuation cartridges is punctured, releasing the nitrogen gas which flows through the actuation lines.
4. The nitrogen gas activates the slave actuator, puncturing the seal on the pressurizing cartridge(s), pressurizing the agent tank.
5. The agent flows through the distribution network and sprays out of the nozzles into the protected area of the machine.

Circuit Monitor Panel Operation

1. A sensor (or the linear detection wire) is activated.
2. The ALARM light illuminates and audible alarm sounds. The discharge delay cycle begins.
 - a. The discharge delay cycle may be set from 0 to 30 seconds. Pushing the SYSTEM RESET button will reset the discharge delay cycle.
NOTE: The audible alarm remains on, even after the system discharges, unless the sensor resets or the ALARM SILENCE button is pressed.
The ELECTRIC ACTUATOR light illuminates.
3. At 65% of the discharge delay cycle, the DISCHARGE WARNING light illuminates.
4. At the end of the discharge delay cycle, the electric actuator fires.

Pre-shift System Checklist

If any of the following are found in a condition that is not as indicated, immediately notify the proper safety and/or maintenance personnel, as the system may not be operational:

- There are no signs of a fire having occurred on the machine.
- There is no sign of the A:B:C dry chemical or **AFEX** liquid agent on the machine or the ground, indicating a possible system discharge.
- The safety seal and safety pin are in place in all system actuators.
- The green POWER light on the Circuit Monitor Panel is illuminated.
- None of the TROUBLE lights on the Circuit Monitor Panel are illuminated.



- The Circuit Monitor Panel's audible alarm is silent.
- There is no visible damage to any of the following components:
 - The agent tanks and mounting brackets
 - Hose and hose fittings
 - Detection components
 - Actuators and mounting brackets
 - Nozzles
- The fire suppression system components are not in contact with other parts of the machine.
- The portable fire extinguisher is charged and in its proper place.
- Any required repairs to the machine have been made.

In the Event of a Fire

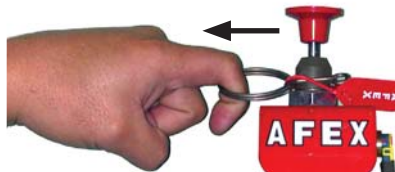
In the event of a fire, **remain calm**, and **do not panic**. The actions taken by the operator can directly affect the effectiveness of the fire suppression system as well as the overall outcome of the fire.

1. Safely bring the vehicle to a complete stop in a safe location.
2. Turn off the machine's motor and set the brake.

IMPORTANT: Failure to turn off the vehicle may:

- Allow the pumps to feed fuel or hydraulic oil onto the fire.
- Allow energized electrical circuits to re-ignite the fire.
- Allow the cooling system fan to exhaust some of the A:B:C dry chemical powder, thereby reducing effectiveness.

3. Manually actuate the fire suppression system.
 - a. Remove safety pin from the actuator.



- b. Strike push knob with force. Use a closed fist or the base of your palm to generate the most force.

NOTE: The firing mechanism and/or remote actuator may not always be mounted in a vertical orientation.



IMPORTANT: Even if your system is equipped with an automatic actuation package, **DO NOT** wait for the system to automatically actuate! Actuate the system manually as soon as you are safely parked with the engine off.

(continued on next page)

4. There will be a noise from the release of the nitrogen gas.
5. The agent(s) will be discharged into the protected area of the machine. An A:B:C dry chemical powder discharge will be visible as a large yellow cloud, a liquid agent discharge will not be visible from outside the protected area.



NOTE: Breathing the A:B:C dry chemical is not toxic, however it may cause temporary irritation to the eyes, skin, or respiratory system.

6. Exit the machine and move to a safe distance away from the machine.
7. Standby with a portable fire extinguisher to make sure that any smoldering debris has been extinguished and there is no fire re-ignition.
8. Call your local fire department, and site supervisor and/or maintenance department to alert them to the situation and follow any applicable fire response procedures.
9. In the event of fire re-ignition or suppression only, additional fire fighting equipment will be necessary to ensure fire extinguishment.

After the Fire is Out

1. Use water or compressed air to clean the equipment.
2. Determine the cause of the fire and make the required repairs.
3. Contact your local **AFEX** distributor to schedule a service and recharge of your fire suppression system.

IMPORTANT:

DO NOT place the vehicle back in service until it has been repaired and the cause of the fire has been determined and rectified.

DO NOT place the vehicle back in service until the fire suppression system has been serviced and recharged.

Routine Fire Suppression System Maintenance

AFEX fire suppression systems are designed and built to withstand adverse environmental and operating conditions; however, periodic inspection and maintenance is necessary to insure that the system is fully operational when required.

AFEX fire suppression systems are to be installed, inspected, maintained, and tested in accordance with NFPA 17, the National Fire Protection Association's Standard for Dry Chemical Fire Extinguishing Systems. It is the responsibility of the owner to make sure the required daily, monthly and semiannual inspection and maintenance procedures are performed.

This standard requires the following:

1. DAILY INSPECTIONS

- Check the tubing, nozzles, nitrogen cartridges, and other system components for loose mountings or obstructions. Tighten as required.
- Check the sensors and wiring for damage, broken wires or broken connections. Repair as required.
- Ensure that all manual actuation rods are secured with a safety pin and seal.
- Ensure that portable fire extinguishers are available and fully charged.
- Check that any oil leaks or electrical problems on the vehicle are corrected.
- Remove all debris accumulation from the vehicle's protected areas.

2. THIRTY (30) TO NINETY (90) DAYS INSPECTION

On a monthly basis, this inspection shall include verification of the following:

- That the extinguishing system is in its proper place.
- The manual actuators are unobstructed.
- The tamper indicators and seals are intact.
- The maintenance tag or certificate is in place.
- No obvious physical damage or condition exists that might prevent operation.
- Nozzle covers are intact and undamaged.

3. SEMIANNUALLY

(To be performed by a trained service technician)

- Examine the dry chemical agent.
- Examine all detectors, nitrogen cartridges, agent tanks, actuators, hose assemblies, tubing, nozzles, alarms, and all auxiliary equipment.
- Verify that the agent distribution network is not obstructed.
- Ensure the fire hazard has not changed.

4. INTERVALS NOT TO EXCEED TWELVE (12) YEARS

- All hose assemblies shall be hydrotested to the following pressures:

Actuation hose	1250 psi
Distribution hose	565 psi

(continued on next page)

- The agent tank(s) shall be hydrotested to the following pressures:

PN A200720	20 Lb. Dry Chemical Agent Tank	585 psi
PN A200505	30 Lb. Dry Chemical Agent Tank	585 psi
PN A202000	60 Lb. Dry Chemical Agent Tank	585 psi
PN A200507	125 Lb. Dry Chemical Agent Tank	520 psi
PN A200511	15 Gallon Liquid Agent Tank	520 psi
PN A201000	5 Gallon Liquid Agent Tank	585 psi

In addition to NFPA requirements, the DOT requires:

INTERVALS NOT TO EXCEED TEN (10) YEARS

- All nitrogen cartridges larger than 2 oz. shall be hydrotested.

In addition to the previously mentioned inspections, **AFEX** requires the following supplemental maintenance:

1. INTERVALS NOT TO EXCEED FIVE (5) YEARS

- Replace the electric actuator, PN A709500. (automatic systems only)
- Replace the liquid agent, PN A200515. (liquid agent systems only)
- Hydrotest or replace hoses.

2. INTERVALS NOT TO EXCEED TEN (10) YEARS

- Replace all 1 oz. (PN A320000) and 2 oz. (PN A360000) nitrogen cartridges.

IMPORTANT: Make sure the machine is off before inspecting or servicing the fire suppression system. Always wear the proper safety equipment.

Maintenance Interval Considerations

Based on your local environmental and/or operating conditions, system inspection and maintenance services may be required in shorter intervals than those previously described. In our experience, a complete inspection every 3-4 months or 1,000-1,200 operating hours (whichever comes first) is optimal for ensuring the system is fully operational. Please consult with your local service provider and local authority having jurisdiction to determine an appropriate inspection and maintenance interval for your systems

Per NFPA 17, system inspections and recharges should be performed by a factory trained **AFEX** system technician. Procedures for inspection, maintenance and recharge can be found in the *System Inspection and Recharge Instructions*, available from **AFEX**.

Choosing a Service Provider

We recommend that you work with your local **AFEX** distributor or service agent. If you don't know who your local **AFEX** distributor is, please contact our office to find out.

Regardless of who you choose to perform your service, they should:

- Be experienced and comfortable working on fire suppression systems for heavy equipment in heavy duty environments – not a general fire protection service provider for buildings, restaurants or simply, portable extinguishers.
- Have factory training for installation and maintenance on the products they carry.
- Maintain an inventory of recharge and repair parts for prompt installation and service.
- Respond promptly with on-site service.
- Provide training and help develop a fire response plan.

Your local **AFEX** representative is:

Warranty

AFEX warrants its Fire Suppression System against manufacturing defects for six (6) months from the date of purchase (hereinafter "the warranty period") by the user **PROVIDED THAT** the user gives written notice to **AFEX** within thirty (30) days of discovery of such defect and within the warranty period and **FURTHER PROVIDED THAT** if **AFEX** so instructs, such part is promptly returned, freight prepaid, to **AFEX**. In the event proper notice of defect occurs within the warranty period, **AFEX** will repair and/or replace any part which, in its opinion, contains a manufacturing defect and has not been tampered with or misused or exposed to corrosive conditions. **IN NO CASE SHALL AFEX BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOSS OF PROFITS.**

Disclaimer of All Other Warranties

THE EXPRESSED WARRANTY ABOVE IS THE EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED. AFEX SPECIFICALLY EXCLUDES ANY WARRANTIES OF MERCHANTABILITY AND ANY WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. AFEX does not assume, or authorize any person to assume for it, any other liability in connection with the sale of its products.

Limitation of Liability

Notwithstanding the Warranty and Disclaimer of All Other Warranties, **AFEX** limits any liability it may have to the purchase price of the fire suppression system.

AFEX

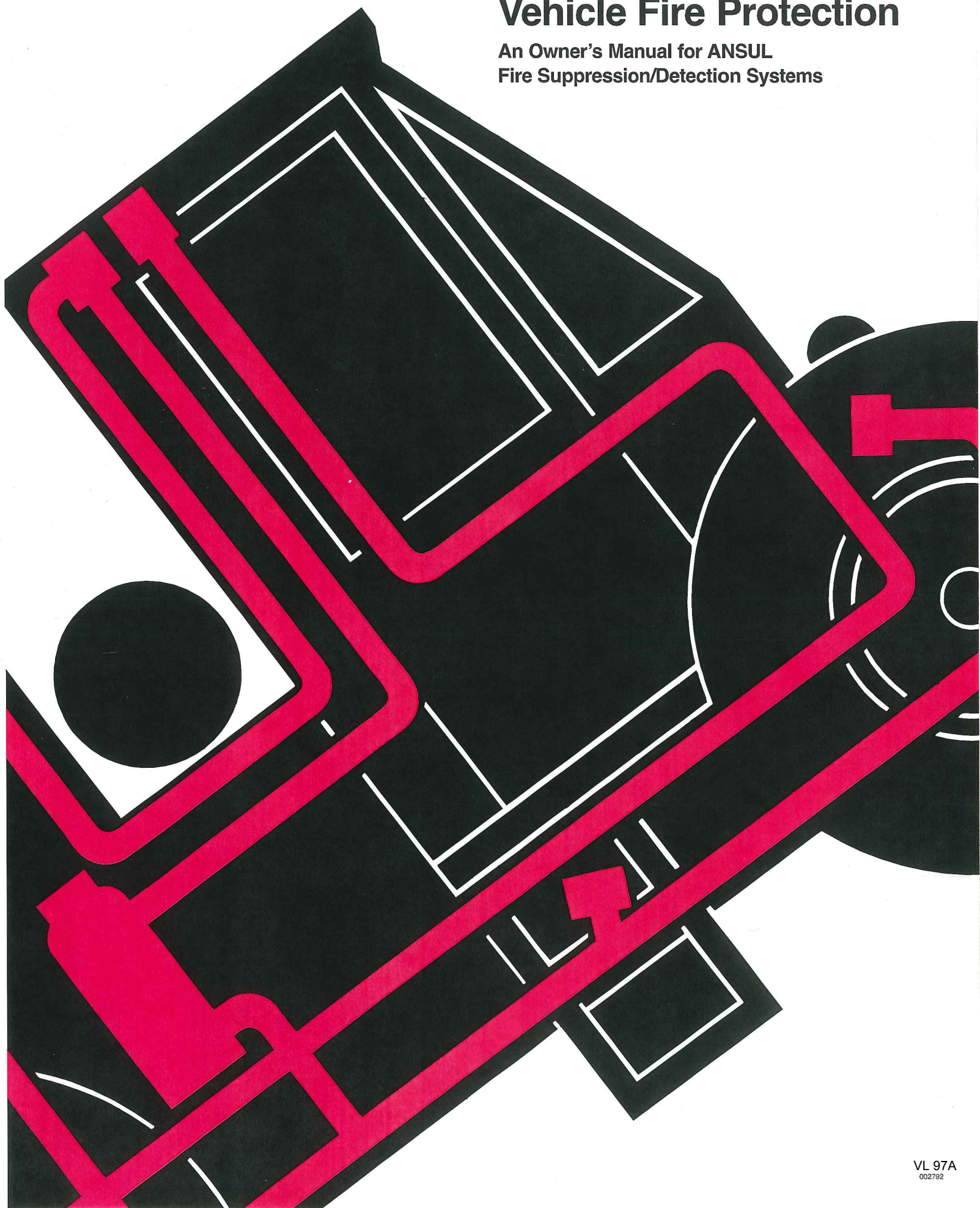
FIRE SUPPRESSION SYSTEMS

**5808 LEASE LANE
RALEIGH, NC 27617
TEL (919) 781-6610 FAX (919) 787-3915
WWW.AFEXSYSTEMS.COM**

SM-4-OOM-B

Vehicle Fire Protection

An Owner's Manual for ANSUL
Fire Suppression/Detection Systems



Off-road vehicles do have fires

Statistics show that off-road vehicles burn...with alarming frequency. These vehicles are susceptible to fire for several reasons. They often operate steady for several hours at a time (sometimes around the clock). They use flammable liquids – lubricating oil, gasoline, diesel oil, greases and hydraulic fluids – in their normal operation. They also generate heat – from engine blocks, manifolds, turbochargers and brake systems – which can ignite these flammable liquids and debris.

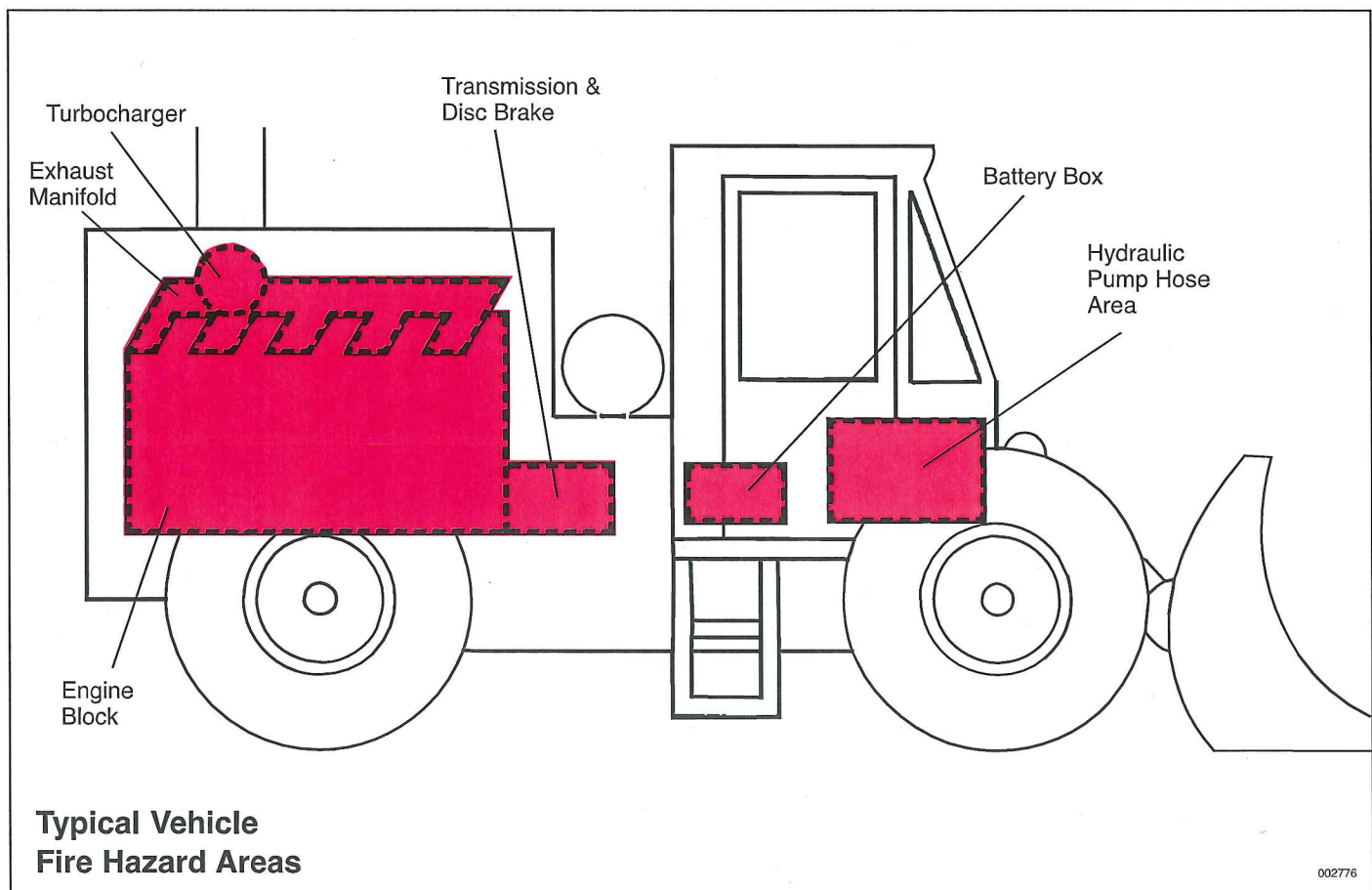
Since the passage of the federal and state clean air acts, many vehicles, including most busses operated by mass transit authorities and state agencies, have been converting to cleaner burning fuels such as LPG, LNG, and CNG instead of gasoline or diesel fuel. Use of these fuels is an essential component of improving our environment, but their use raises the possibility of dangerous gas leaks.

When fire breaks out, it can result in expensive repair or replacement of valuable equipment, costly downtime or loss of business continuity. Worse yet, it can mean serious personal injury to vehicle operators or passengers.

Insurance companies are well aware of these facts. That's why insurance rates are skyrocketing.

As the owner of a vehicle equipped with an ANSUL Fire Detection/Suppression System, you've taken an important step in facing the fire problem. You are dramatically reducing your potential fire loss and helping to ensure personnel safety.

This owner's guide has been provided to help you understand how your ANSUL Fire Detection/Suppression System works, your responsibilities for fire prevention and maintenance, and what to do in case of fire. In no way is this guide intended to provide detailed installation instructions. Should you have any questions or require assistance, contact your nearest authorized ANSUL products distributor or ANSUL Technical Services.



SAFETY PRECAUTIONS

The fire system described in these materials is a suppression system only and is not designed or intended to extinguish all fires, particularly when unusual amounts of combustible materials and an ample oxygen supply are present. It is extremely important that alternative firefighting equipment be available in case the system does not totally extinguish a fire.

Use extreme care to prevent the accumulation of debris, combustible materials and fluids which could intensify the fire or cause it to spread to areas where there was no previous potential for fire.

If modifications are made to the equipment being protected or if the fire detection and/or suppression system is disconnected for any reason, make certain the fire equipment is immediately inspected and tested by an authorized ANSUL vehicle systems distributor.

If an automatic fire detection and actuation system has not been supplied or has been disconnected, system actuation and discharge will not occur unless the fire suppression system is manually actuated. Reliance on a manual release system usually results in a slower reaction to fire.

Your role in protecting your vehicle from fire

Your ANSUL Fire Suppression System is custom-designed to protect specific hazard areas on your vehicle. It's been carefully engineered for reliability and built to the highest quality standards. Every component has been tested to ensure long life and dependable performance.

With proper maintenance, your ANSUL Fire Suppression System should give you years of fire protection.

The main purpose of the manual, however, is to explain the most basic form of fire protection – fire prevention. It outlines steps you can take to prevent a disastrous fire. Precautions which can greatly reduce the risk of serious fire damage.

Fire prevention on vehicles relies upon two basic factors:

- 1.** Inspection and preventative maintenance at points where fires are most likely to start – engine blocks, electrical systems, turbochargers, exhaust manifolds and brake systems.
- 2.** Regular cleaning of all areas where flammable materials such as fuel, oil, grease, hydraulic fluid and combustible debris may collect.

Vehicle Fire Prevention Maintenance

The following is a suggested daily maintenance outline which can help reduce the risk of fire on your vehicle.

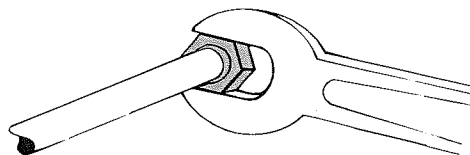
CAUTION: Take care during vehicle maintenance, cleaning, or welding. To avoid unintentionally setting off the system and the discharge of agent, do not cut, pinch, or apply heat exceeding 200 °F (93 °C) to the detection lines of the system.

1. Check all oil, hydraulic fluid and gas lines for cuts, abrasions or undue wear. Replace as needed.



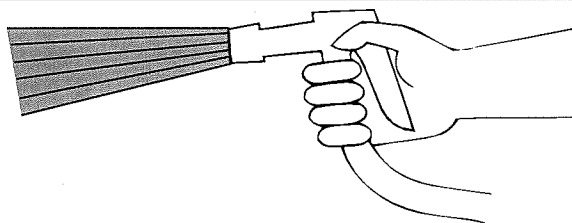
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2. Inspect all oil, hydraulic and gas line fittings for tightness. Clean off all residue and tighten.



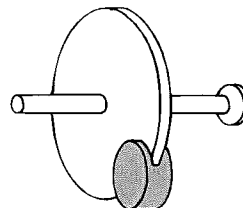
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3. Inspect and clean engine area. Depending upon the operation of the vehicle, use water or steam to clean it. Schedule cleaning for the end of the work shift when heat buildup may occur after the engine is shut down.



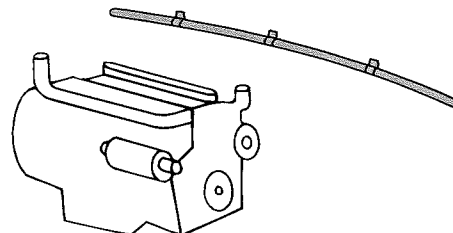
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4. Check braking system for proper adjustment – especially if brakes overheat when not engaged.



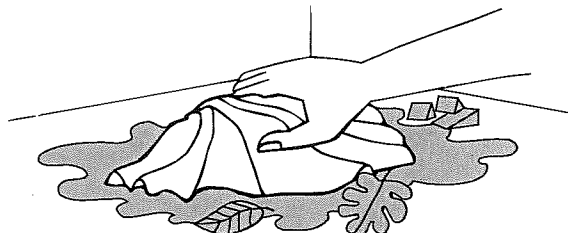
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5. Check all possible ignition points (engine block, exhaust manifolds, turbochargers, etc.). Make sure oil, hydraulic fluid and gas lines are not in contact with these ignition points.



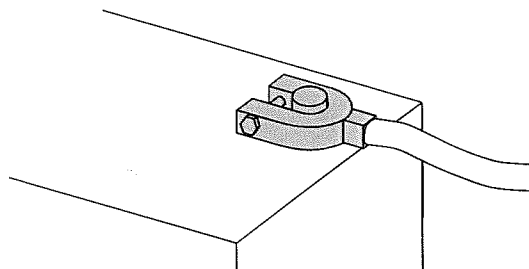
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6. Clean vehicle of all combustible debris – dry vegetation, grain particles, coal dust, etc. Also, remove any oil and fuel drippings.



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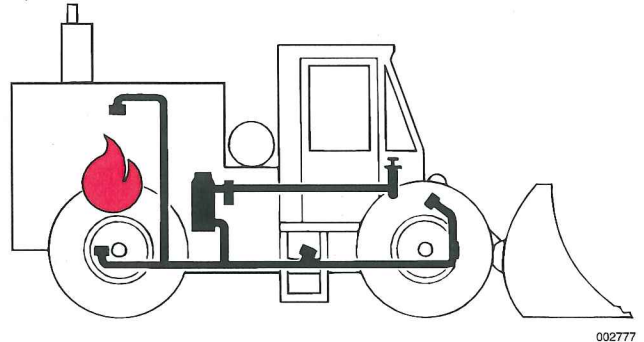
7. Check all electrical lines and connections for tight fit, wear or abrasion. Replace any defective electrical equipment or wiring.



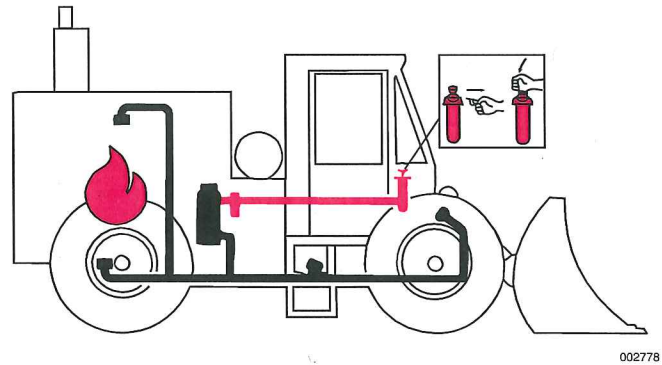
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How your ANSUL Fire Suppression System works . . . manually

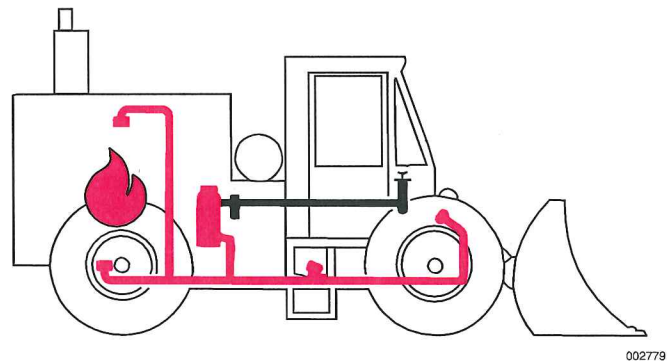
1. A fire starts in the protected area. Equipment operator should bring equipment to a complete stop, set the brake, and turn off the engine.



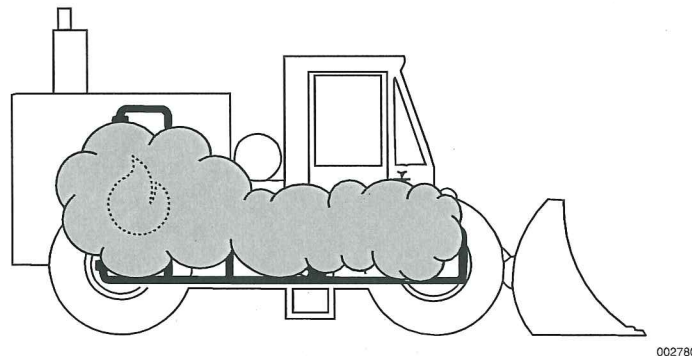
2. Equipment operator pulls the ring pin and strikes the plunger on the manual actuators. Pressure from the actuator causes the ANSUL Fire Suppression System to actuate.



3. Expellant gas pressure "fluidizes" the dry chemical extinguishing agent and propels it through distribution hose.



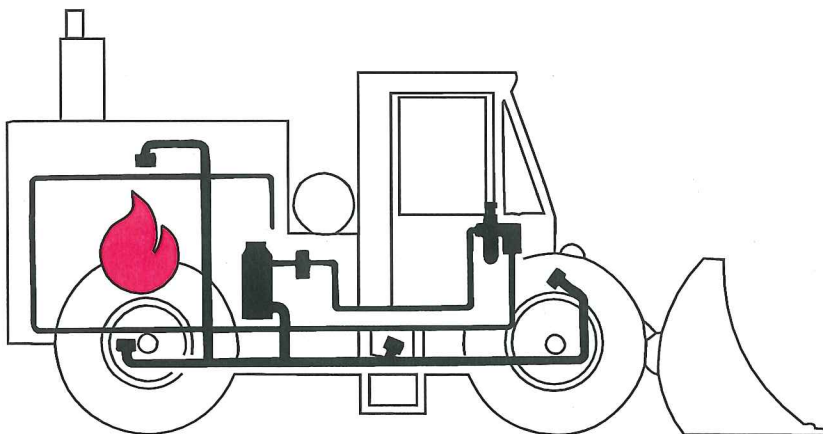
4. Dry chemical extinguishing agent is discharged through fixed nozzles into protected areas, suppressing the fire.



**And you can have automatic 24 hour protection with
ANSUL CHECKFIRE Detection and Actuation Systems . . .**

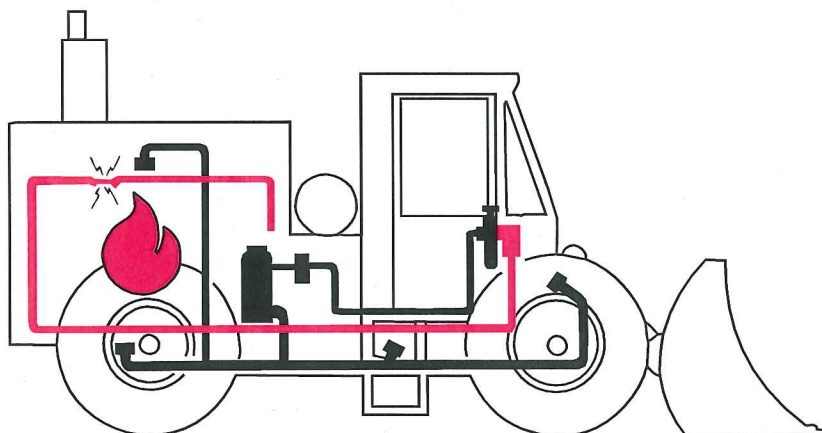
How the system works with optional CHECKFIRE Electric Detection and Actuation

1. A fire starts in the protected area.



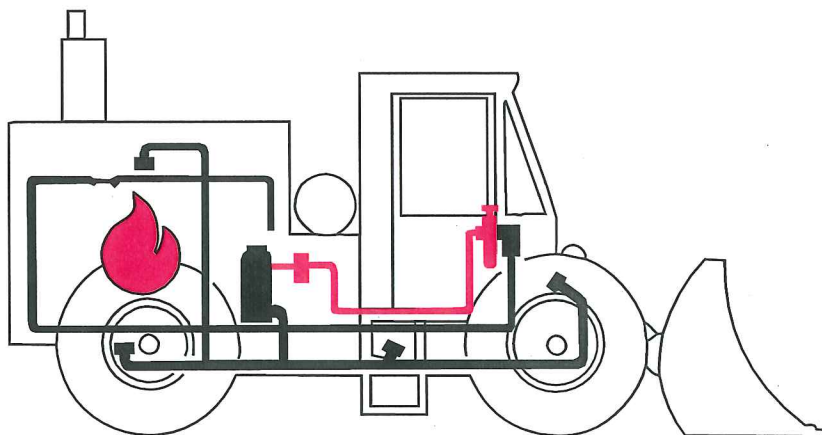
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2. Linear, spot detectors, or Triple IR flame detectors signal the system control module indicating that a fire has started in the protected area.



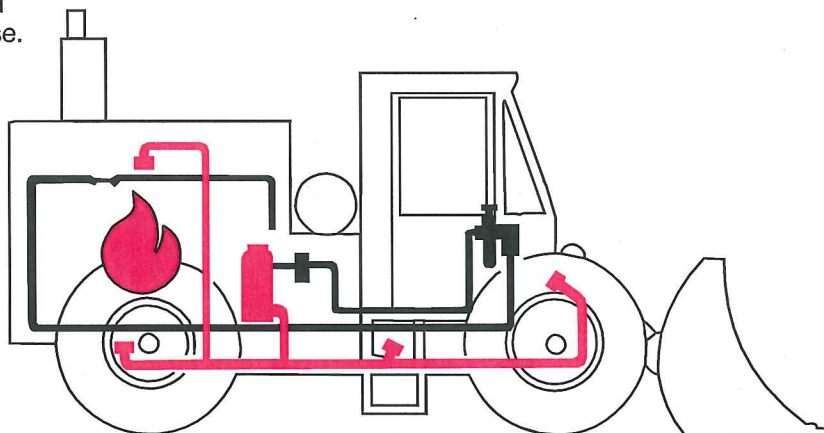
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3. The Control Module actuates the fire suppression system. The module will also provide time delay, shut down functions and activation of auxiliary vehicle components in accordance with your installation.



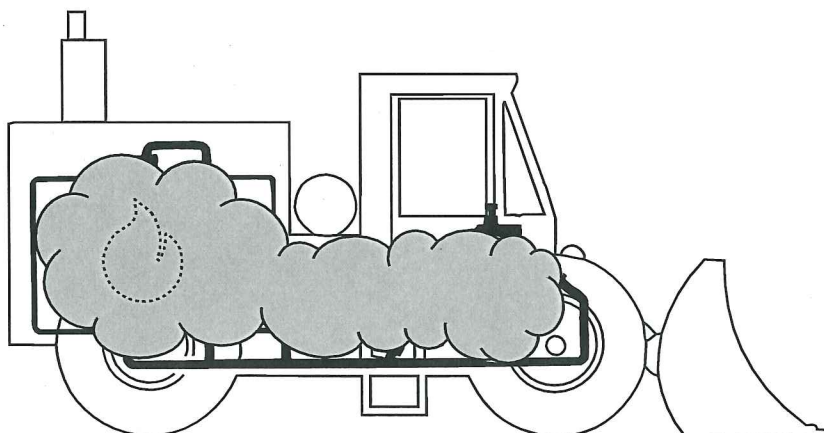
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-
4. Expellant gas pressure “fluidizes” the dry chemical extinguishing agent and propels it through the distribution hose.



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-
5. Dry chemical extinguishing agent is discharged through fixed nozzles into protected areas, to suppress the fire.



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Optional LVS (Twin Agent) Fire Suppression System

Along with dry chemical fire suppression system protection, some vehicles, because of their size, require an additional type of system. This type of system is called a twin agent system. An ANSUL LVS, Liquid Agent System, is designed to discharge wet chemical into the protected hazard areas simultaneously with the dry chemical discharge. The addition of the wet chemical produces a cooling effect onto the flammable fuel and the surrounding surface areas. The wet chemical can flow into hard to reach areas where fuels may have flowed into.

Make sure your ANSUL Fire Suppression System is

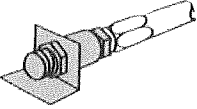
The ANSUL Fire Suppression System is your second line of fire defense in case your fire prevention efforts are not enough. However, in order to perform properly, your ANSUL System requires periodic inspection and maintenance.

Nozzles

BLOW-OFF CAPS
IN PLACE

NOZZLES NOT CLOGGED
OR COVERED WITH DEBRIS

NOZZLES TIGHT
IN BRACKETS



002797

002798

002799

System Hydraulic Hose

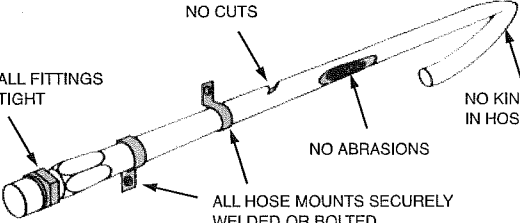
NO CUTS

ALL FITTINGS
TIGHT

NO ABRASIONS

ALL HOSE MOUNTS SECURELY
WELDED OR BOLTED

NO KINKS
IN HOSE



002786

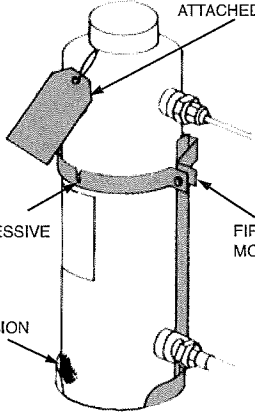
Agent Tank
A-101

AUTHORIZED ANSUL
DISTRIBUTOR
CERTIFICATION TAG
ATTACHED

NO EXCESSIVE
WEAR

NO CORROSION

FIRMLY
MOUNTED



002784

Agent Tank LVS
or LT-A-101-125/250

FIRMLY

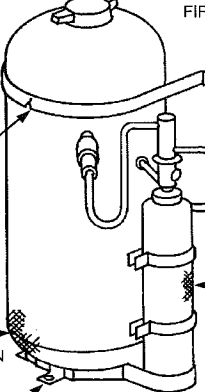
NO EXCESSIVE
WEAR

NO CORROSION

FIRMLY MOUNTED

NO ABRASIONS

NO CORROSION



004320

Hand Portable Fire
Extinguisher

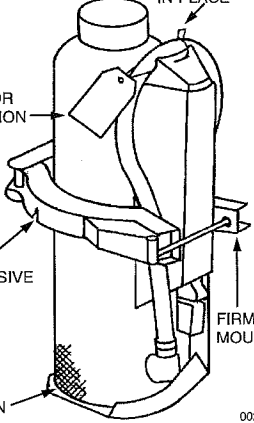
VISUAL SEAL
IN PLACE

DISTRIBUTOR
CERTIFICATION

NO EXCESSIVE
WEAR

NO CORROSION

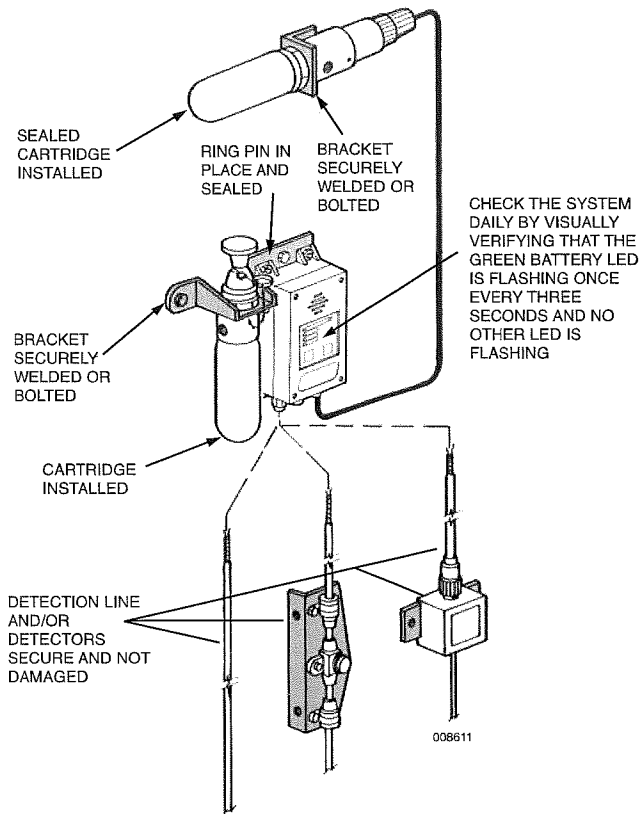
FIRMLY
MOUNTED



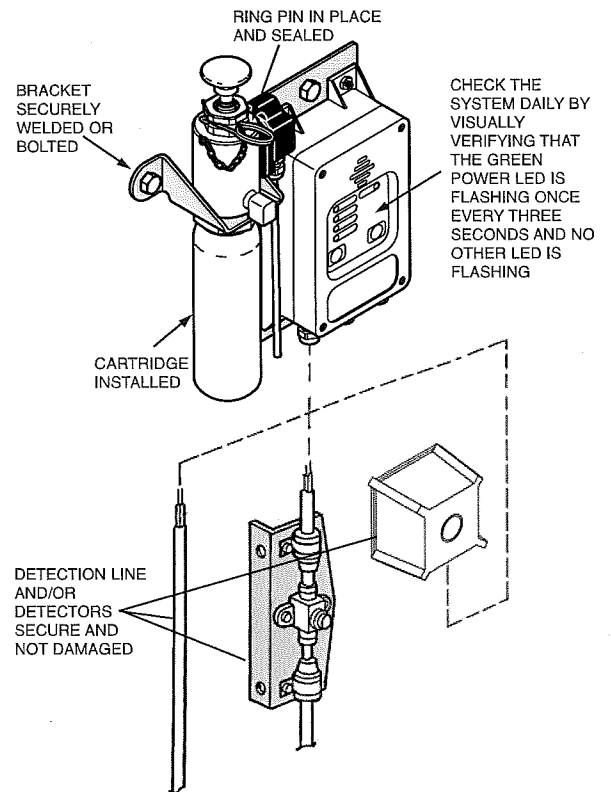
002788

kept in good working order.

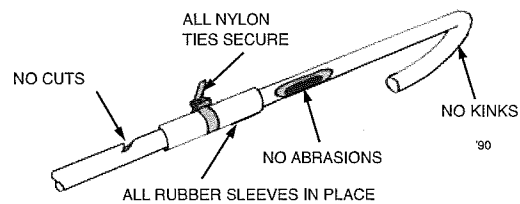
CHECKFIRE MP-N Inspection



CHECKFIRE SC-N Inspection



Detection Wire, Power Wire



Provide for vehicle modification

Your ANSUL Fire Suppression System was custom designed and installed on your vehicle to protect specific hazard areas from fire. Should you add accessory equipment to your vehicle at a later date, or make major mechanical modifications, you may be reducing the capabilities of the ANSUL Fire

Suppression System. When such modifications are made, contact your ANSUL distributor. He can reevaluate your ANSUL System to ensure it protects all hazard areas from fire.

Provide for periodic maintenance

Periodic maintenance is essential to ensure that your ANSUL Fire Suppression System is operational. Contact your ANSUL distributor for periodic follow-up, in-depth inspection and maintenance.

Protect against fires outside of the hazard area

Hand portable fire extinguishers are an effective way to suppress fires which may occur away from the vehicle, or in areas not protected by the ANSUL Fire Suppression System. Your ANSUL distributor can recommend the proper size, type and placement of hand portable extinguishers and train your personnel in their operation, inspection and maintenance.

Should fire occur in an area not protected by the ANSUL Fire Suppression System, a hand portable fire extinguisher should be employed as follows:

- 1.** Shut off the vehicle's engine and set brakes.
- 2.** Evacuate the vehicle and secure a hand portable fire extinguisher.
- 3.** Approach the fire from the upwind side.
- 4.** Actuate the hand portable fire extinguisher per instructions printed on the extinguisher's nameplate.
- 5.** Once the fire is extinguished, stand by in case the fire reflash.

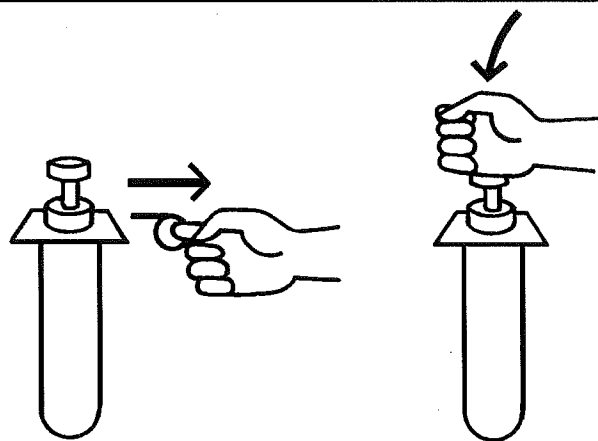
In the event of a fire on your vehicle

To manually operate system:

1. Shut off the vehicle

2. Set the brakes

3. Pull the ring pin on manual actuator and strike the red button



000627

4. Evacuate the vehicle

5. Stand by with a fire extinguisher

Inspection and Maintenance Record

Date	Authorized ANSUL Distributor	Recharge	Inspection	Action Taken

Your Authorized ANSUL Distributor