QUICK START GUIDE

SAM (GENERATION 2)

BY
HALE PRODUCTS, INC.
A Unit of IDEX Corporation
607 NW 27th Ave, Ocala, FL 34475
(800) 533.3569
(800) 520.3473 (FAX)
www.haleproducts.com

NOTICES

THIS GUIDE IS INTENDED FOR QUICK REFERENCE ONLY. DO NOT USE IT TO REPLACE REQUIRED TRAINING, STANDARD OPERATING GUIDELINES REQUIRED BY THE AUTHORITY HAVING JURISDICTION, THE OPERATION INSTALLATION MAINTENANCE MANUAL, OR APPROPRIATE QUALIFICATIONS.

THIS GUIDE INCLUDES TWO ADDENDUMS: ONE FOR REMOTE CONTROL OF SAM USING THE TABLET. THE SECOND FOR OPERATING SAM WITH AN OPTIONAL CAFS OR SMARTFOAM SYSTEM.

QSG P/N FSG-MNL-00209 REVISION A REFERENCE OIM MANUAL P/N FSG-MNL-00210

1. SAFETY

Firefighting is an inherently risky activity. Knowledge and training may manage that risk. This document is not a training manual and does not provide all detailed operation. This guide serves as a quick reference for SAM operation. AHJ (Authority Having Jurisdiction) shall provide training and guidelines for system operation.

1.1 DANGERS, WARNINGS, CAUTIONS, and NOTICES

DANGERS, WARNINGS, CAUTIONS, and NOTICES consist of two parts: a heading (that identifies possible result if disregarded) and a statement of the hazard (that provides the minimum precautions). The following warnings and cautions are used throughout the Hale SAM manuals.

ATTENTION ⚠ DANGER

INDICATES A HAZARDOUS SITUATION, WHICH IF NOT AVOIDED WILL RESULT IN SERIOUS INJURY OR DEATH.

ATTENTION ⚠ WARNING

INDICATES A HAZARDOUS SITUATION, WHICH IF NOT AVOIDED COULD RESULT IN SERIOUS INJURY OR DEATH.

ATTENTION ⚠ CAUTION

INDICATES A POTENTIALLY HAZARDOUS SITUATION, WHICH IF NOT AVOIDED MAY RESULT IN MINOR OR MODERATE INJURY.

IMPORTANT ⚠ NOTICE

ADDRESSES PRACTICES NOT RELATED TO PERSONAL INJURY.

1.2 SAM General WARNING And NOTICES

ATTENTION ⚠ WARNING

ENSURE THE OK TO PUMP (GREEN LIGHT ON THE IN-CAB CONTROL PANEL) AND THROTTLE READY (GREEN LED ON THE TWISTER) INDICATORS AND THE PUMP CONTROLLER ARE ON BEFORE ATTEMPTING TO OPERATE THE PUMP. FOLLOW ALL SOG (STANDARD OPERATING GUIDELINES) FOR PARKING BRAKE, PUMP ENGAGEMENT, AND WHEEL CHOCKS.

IMPORTANT ⚠ NOTICE

SAM PROVIDES AUTOMATED CONTROL OF EACH INDIVIDUAL DISCHARGE LINES PRESSURE. WHILE FLOWING, THE VALVES GATE TO MAINTAIN THE SET PRESSURE. ADDITIONAL FEATURES ASSIST THE OPERATOR WITH THE TRANSITION FROM TANK TO HYDRANT (OR DRAFTING). LOW INTAKE MONITORING FOR A HYDRANT AND LOW FLOW DETECTION FOR DISCHARGES (CAN HELP INFORM THE OPERATOR IF A NOZZLE IS CLOSED OR A HOSE LINE IS SEVERELY KINKED). ADVANCED FEATURES CALCULATE PUMP FLOW RATES ABOVE 600 GPM AND PROVIDE ADVANCED MAINTENANCE REMINDERS TO REDUCE LIFE CYCLE COSTS.

IMPORTANT ⚠ NOTICE

WHILE SAM CAN REDUCE PUMP OPERATOR WORKLOAD, IT DOES NOT TAKE THE PLACE OF THE PUMP OPERATOR. THE PUMP OPERATOR STILL NEEDS TO CALCULATE THE REQUIRED LINE PRESSURE TO SUPPORT THE HOSE LAY AND NOZZLE IN USE. SAM WILL MAINTAIN THE SET PRESSURE IN AUTO MODE.

IMPORTANT ⚠ NOTICE

AHJ MUST INSURE PROPER TRAINING IS IN PLACE FOR ALL OPERATORS. THIS QUICK START GUIDE DOES NOT REPLACE OR SUPERSEDE THE OPERATION INSTALLATION MAINTENANCE MANUAL OR PROPER TRAINING.

2. SAM USER INTERFACE

The SAM control system user interface (Figure 1) provides the operator control of the valves, engine speed and pump in both automatic and manual mode. The user interface is displayed on a touchscreen and can be operated with a gloved hand.

IMPORTANT ⚠ NOTICE

ONLY TOUCH THE SCREEN IN ONE PLACE AT A TIME. THE TOUCHSCREENS DO NOT SUPPORT MULTI–TOUCH.

Figure 1. SAM Control Center (Left) And Pump Controller (Right)

2.1 Additional SAM Interfaces

IN AN EMERGENCY, pressing the IDLE button (Figure 2) on the twister will send the engine to idle, place SAM in Manual mode, and the governor to IDLE mode. NOTES: Touching the mode button (IDLE – greyed out) places the governor in PSI mode. Also, the throttle portion of the twister is limited while SAM is in Auto Mode (momentary 10 PSI or 100 RPM change – overwritten in 1 second by auto mode).

The ITL–40 provides continuous display of the onboard water level. Additionally, the SAM Control Center displays the onboard water level with color indications (yellow bars for low water warning).

Figure 2. Twister Throttle Controller And ITL–40

Optionally, the apparatus may have up to two additional SAM Control Centers to provide SAM operation from curb side or other location. Collocated with each additional Center is a remoted emergency IDLE button.

2.2 Entering Manual Operation

Manual mode can be accessed at any time, even before the pump is placed in gear. The default SAM Control Center splash screen (shown on left, see Figure 3) displays until the pump is engaged.

Once the pump is engaged, SAM goes into Auto Mode (shown on right, see Figure 3).

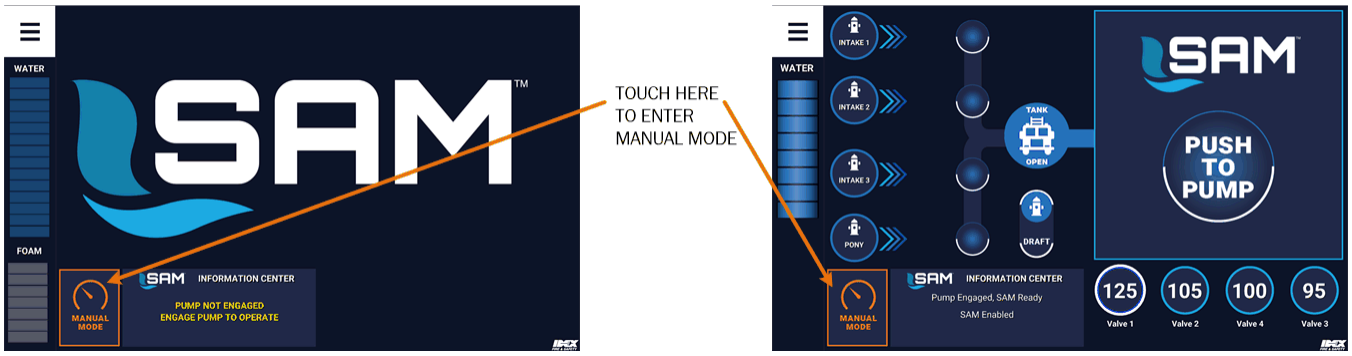

Figure 3. Entering Manual Mode (From Splash or Auto Mode Home Screen)

No matter which screen is displayed, touch the MANUAL MODE button (orange) and then touch YES (to confirm – see Figure 4) to access SAM Manual mode.

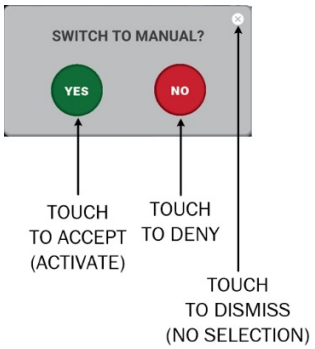

Figure 4. Popup Confirm/Deny (Yes/No) Buttons

3. MANUAL (BASIC) OPERATION

In Manual mode, the operator controls the intake and discharge valves and the governor directly, no automated functions are provided. This mode is often used for pump testing. See Figure 5.

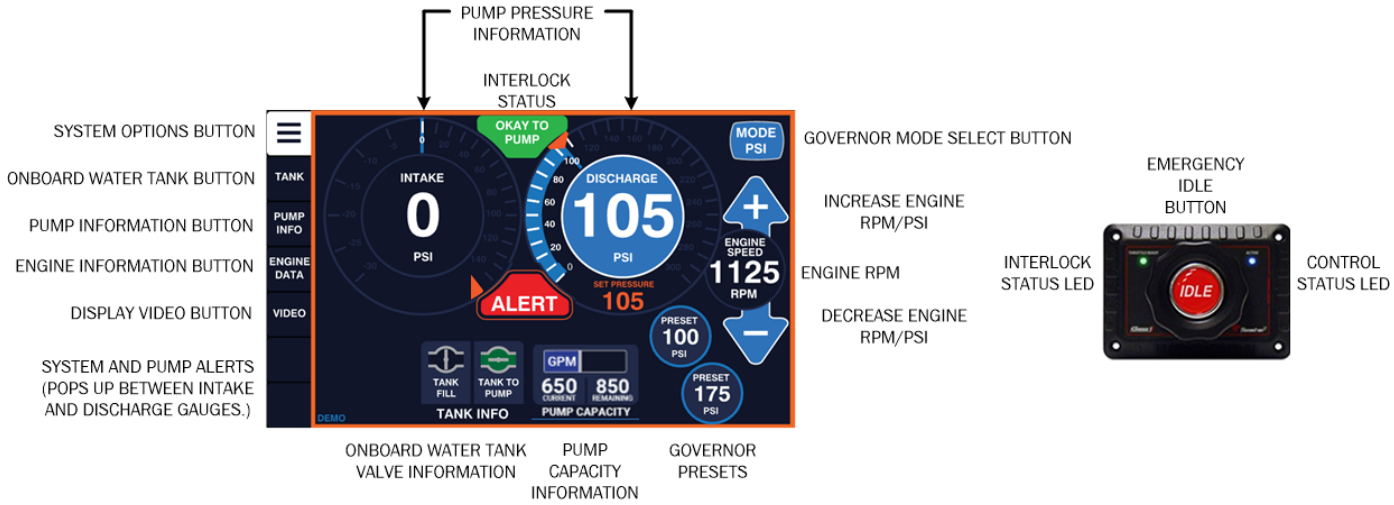

Figure 5. Manual Governor Controls And Indicators

Tank-to-pump and tank fill are controlled from the TANK screen. Touch the TANK button on the left side of the screen and use the tank fill and/or tank-to-pump buttons to open and close the valves as desired. The Tank Info indicators (bottom of screen) show valve statuses.

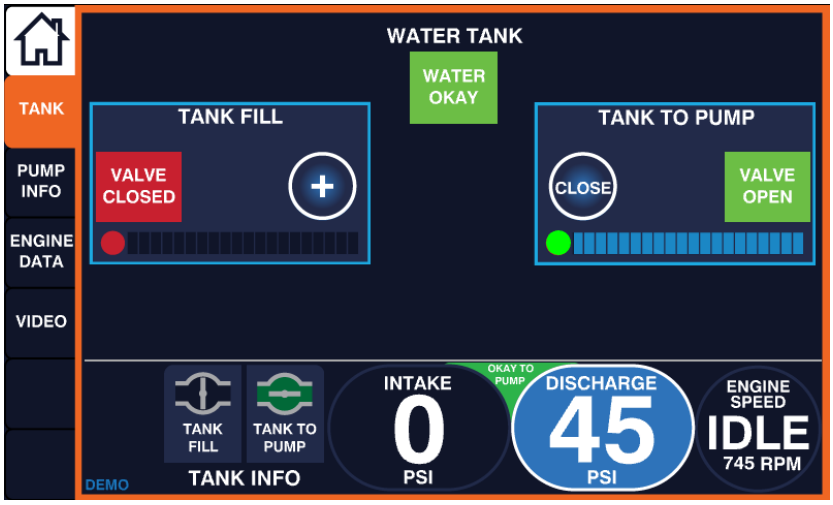

Figure 6. Pump Controller – Tank Screen

Touch the Home button to return to the current governor screen. Touch the PUMP INFO, ENGINE DATA, and VIDEO buttons to access additional options and other advanced features.

In Manual mode, the SAM Control Center (Figure 7) provides the operator access to control the intake and discharge valves directly. The valve position is shown for all intake and all discharge valves along with the pressure (PSI) for each discharge. To open a valve, touch the + button. To close a valve, touch the — button.

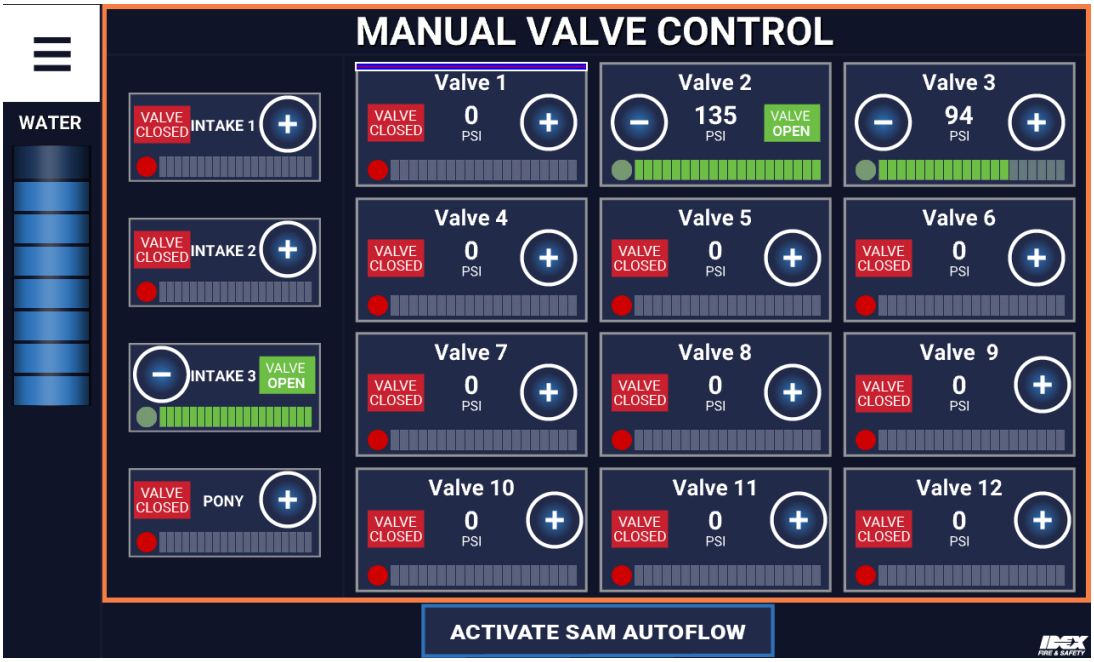

Figure 7. SAM Control Center – MANUAL VALVE CONTROL Screen

If the discharge valves are equipped with Akron Navigator Pro 9327 or 9335 controls (Figure 8), the Navigators only control the associated valve when SAM is in Manual mode.

To active SAM Auto Mode touch the ACTIVATE SAM AUTOFLOW button then touch YES (see Figure 4).

Figure 8. Akron Navigator Pro 9327 (Left) And 9335 (Right)

NOTES

For tank-to-pump, tank fill, or pony intake valves, reference 126898, Style 9327 Navigator Mini Valve Controller Installation, Operating, And Maintenance Instructions, or all other valves reference 126914, Style 9335 Navigator Pro With Pressure, Flow CAFS And Valve Control Installation, Operating, And Maintenance Instructions, respectively.

4. SAM AUTO MODE

The SAM system opens the tank-to-pump valve when the pump is engaged and automatically recirculates water as required to prevent pump overheating by opening or closing the tank fill valve. NOTE: The onboard water tank is active (TANK OPEN) before any intakes. (See Figure 9) If a quickset is activated, SAM will begin flowing water. It is important that an offboard intake be established before the onboard water supply is exhausted if pumping begins prior to connecting the offboard intake.

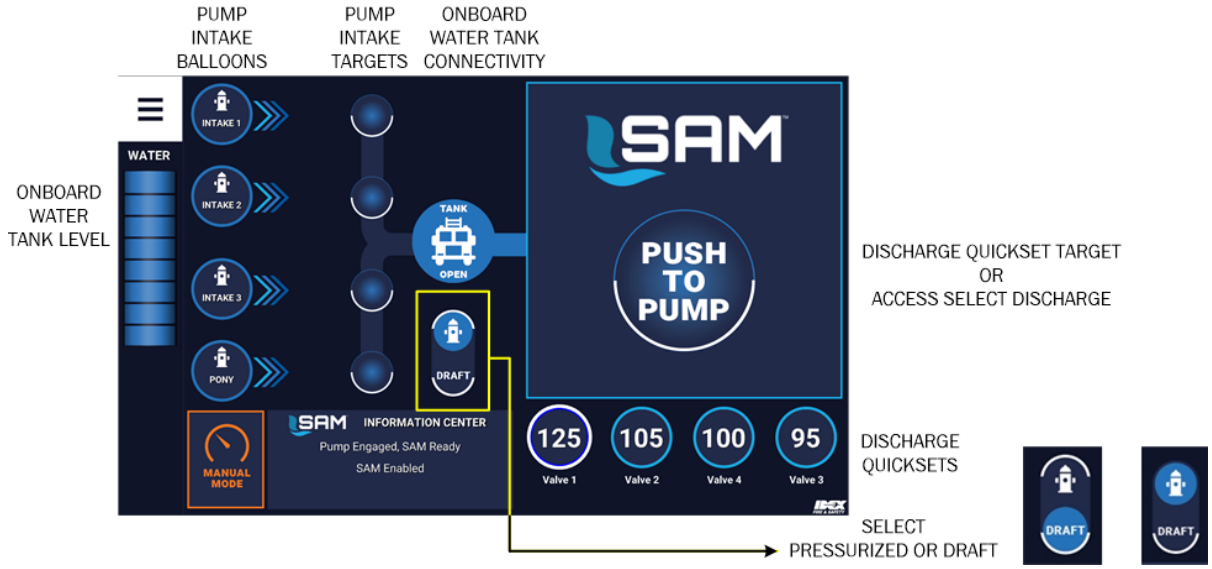

Figure 9. SAM Control Center – Auto Mode – Home Screen

4.1 Selecting A Water Supply

Determine the offboard water source and select pump method (DRAFT or HYDRANT, Figure 9), touch and drag to toggle.

4.1.1 Pressurized Water Supply (Hydrant)

To activate a hydrant, connect supply hose to intake and open hydrant. On the SAM Control Center, touch and drag corresponding intake balloon to the associated target.

NOTE: If intake is NOT close to SAM Control Center pressing the button on the MIV-Auto (located at the intake) actives the intake as if swiping on the SAM Control Center. (See Figure 10).

SAM then bleeds the air, opens the intake valve, closes the tank-to-pump valve, and fills the water tank as the water supply permits. All this can be done while flowing water or before the discharge is opened.

Figure 10. MIV-Auto

NOTES

The automatic functions are not available for an auxiliary intake (Pony).

A status indicator shows the operator what is happening.

4.1.2 Draft Water Supply

See paragraph 4.5 (page 9), DRAFTING WITH SAM, for details pertaining to drafting water in Auto Mode.

4.2 Using Discharge Quicksets, Presets, And The SET PRESSURE Widget

Quicksets are discharges set up by the AHJ. After ensuring hose(s) are attached and deployed, touch the associated quickset bubble (lower right section of the screen, see Figure 9), drag the balloon, and drop it on the quickset target (PUSH TO PUMP) (Figure 11). SAM increases engine speed to provide the pressure setting and the discharge valve opens to charge the line, then SAM controls as required to maintain the set pressure. NOTE: The blue bar at the bottom of the area indicates normal SAM Auto Mode control.

Figure 11. Activating Quickset Discharges (Touch – Drag – Drop)

NOTE: Once one discharge is opened, the discharge area changes to show SAM can automatically control up to six (6) discharges. To add more discharges simply: 1. Activate another quickset (drag desired quickset button to the ADD LINE button/target. or 2. Touch the ADD LINE button/target.

If the ADD LINE button/target was touched, the SELECT DISCHARGE screen (left - below) is displayed (shows all available discharges, up to 12), touch the desired discharge button. Set the desired discharge pressure using a preset balloon (top right below) or the SET PRESSURE widget (lower right below) from the VALVE xx screen. See Figure 12. If using the preset, simply drag the preset balloon to the SET PRESSURE target or touch (without dragging it to the target, the YES /NO popup buttons will appear, then touch YES). If using the widget, touch + or – button as required to show desired pressure on the gauge, the YES /NO popup buttons will appear. If the widget was used, the setting will NOT active until you touch YES. (Touch NO to do nothing.)

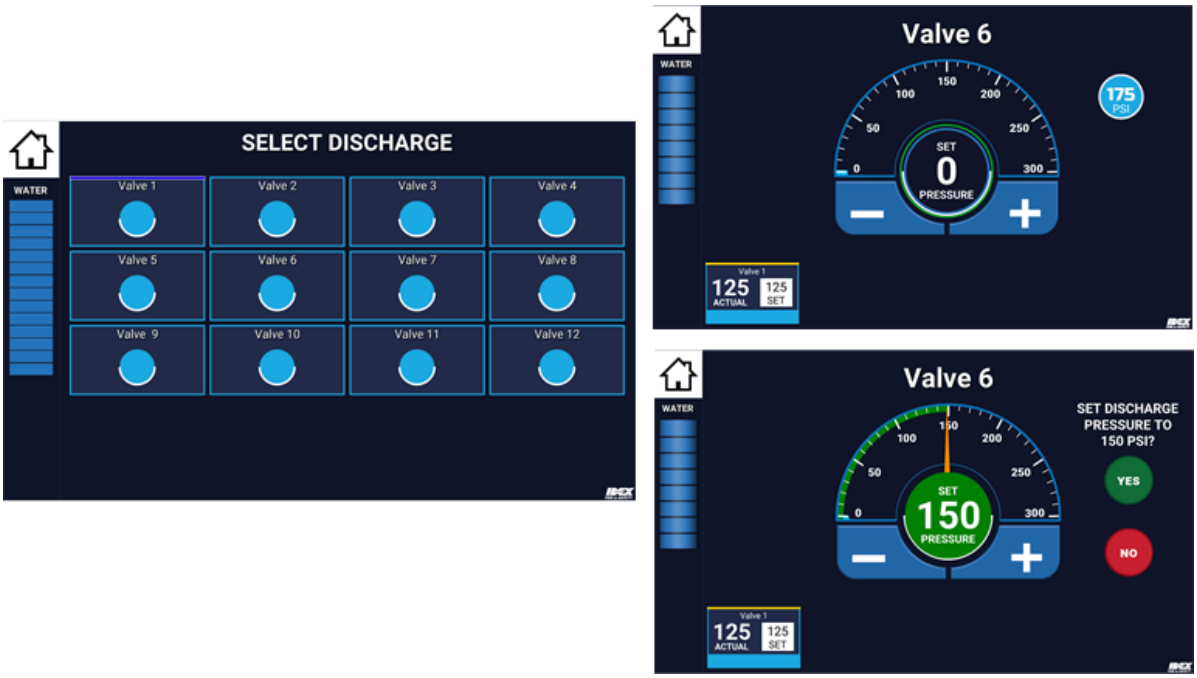

Figure 12. Activating Additional Discharges (Use Preset Balloon or SET PRESSURE Widget)

To change the set pressure of an open line, touch the associated Discharge Square (see right most screen on Figure 11) and use the VALVE xx screen to change the pressure setting as follows: Swipe a preset or the CLOSE LINE balloon to the SET PRESSURE target, or use the widget (see Figure 13) to increase the setting (touch +) or decrease the setting (touch –) to the desired pressure then touch YES to activate the new setting. NOTE: Touch NO to do nothing. Also, the preset or CLOSE LINE balloon activates automatically.

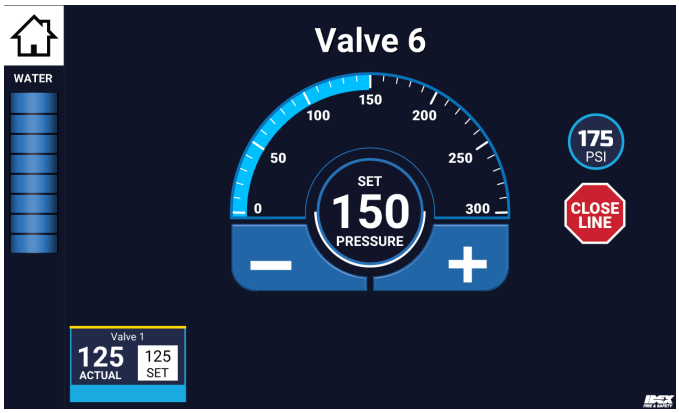

Figure 13. Changing Discharge Pressure (Use Preset/Stop Balloon or SET PRESSURE Widget)

4.3 SAM Auto Mode Alerts

Low flow indicator can show when a nozzle is clogged, a line is severely kinked, or the nozzle bail is closed. This indicator appears on the screen as shown on the right.

If intake pressure drops below minimum set point (a user selectable level), SAM reduces engine speed and pump pressure. See Figure 14. When the user touches (acknowledges) the popup, the intake pressure continues to display with a red background until the condition is corrected.

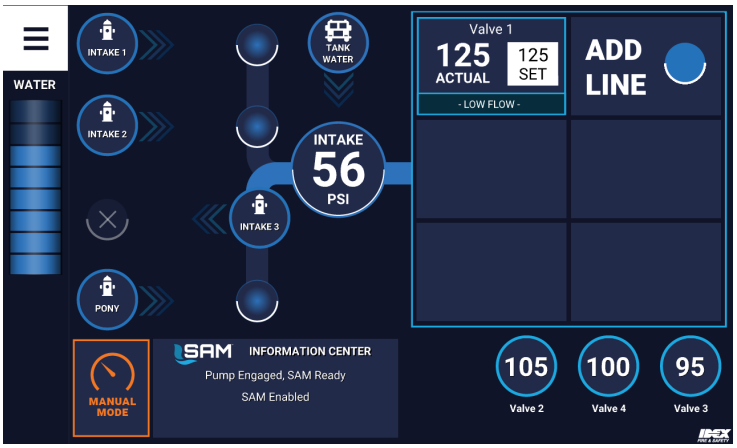

Figure 14. SAM Auto Mode Alerts

IMPORTANT ⚠ NOTICE

SAM CAN HELP PROTECT BOTH THE WATER SUPPLY AND THE PUMP; PREVENTING PUMP CAVITATION AND/OR VACUUM IN WATER MAINS OR COLLAPSE FROM KINKED LDH (LARGE DIAMETER HOSE). AN APPROPRIATE ALERT IS DISPLAYED (AND ANNOUNCED) AND SAM REDUCES ENGINE SPEED TO MAINTAIN INTAKE PRESSURE. NO DISCHARGES ARE CLOSED, AND SAM CONTINUES TO SUPPLY THE MAXIMUM AVAILABLE WATER.

OPERATOR SHOULD INCREASE WATER SUPPLY OR CLOSE LOWEST PRIORITY DISCHARGE.

4.4 Special Auto Mode Features

SAM has several features to make priming easier.

- When operating from hydrant or relay, SAM monitors the water supply pressure, if the water supply is lost, SAM alerts the operator, closes the intake, returns to the onboard tank water, and continue operation from the tank; providing additional time for the operator to respond to the loss of the water supply.
- SAM monitors the pump temperature and circulates water to cool the pump as needed.
- If operating from draft, SAM performs priming functions, if prime is lost SAM attempts to regain prime.
- SAM stops the primer pump after 45 seconds to prevent damage (and allow for leak inspection).

4.5 DRAFTING WITH SAM

To activate a draft, toggle SAM to DRAFT (see Figure 9, page 6) and connect an appropriate supply hose to the desired master intake. (See NOTES below.) On the SAM Control Center, the icons change to indicated drafting and the used simply touches and drags the corresponding DRAFT intake balloon to the associated pump intake target.

NOTES: If the intake is NOT adjacent to the SAM Control Center, pressing the button on the MIV-Auto (see Figure 10, located at the intake) actives the intake as if swiping on the SAM Control Center. An auxiliary intake (Pony) can NOT draft in SAM Auto Mode.

SAM then primes (instead of bleeding air) up to the MIV (MIVs ONLY), opens the intake valve, closes the tank-to-pump valve, and fills the water tank as the water supply permits. All this can be done while flowing water or before the discharge is opened. SAM then runs the primer as needed to maintain prime. Discharge operation is the same whether in draft or hydrant mode. If prime is lost and can NOT be re-established, SAM warns the operator before idling the engine.

5. OVERRIDES

The intake valves are normally operated by the SAM Control Center screen. Additional control (Figure 15) can be used to operate the intake valve and bleed air. Using the override can interrupt an automatic sequence.

Figure 15. MIV 2.0 Placard

The primer button (Figure 16) can be used at any time to assist in priming the pump.

Figure 16. Primer Button

6. ADDITIONAL FEATURES

The Pump Controller screen has additional features. The pump info and engine data screens provide detailed information about the pump and engine status as well as maintenance warnings. See Figure 17. Select the desired screen using the buttons on the left-hand side of the screen.

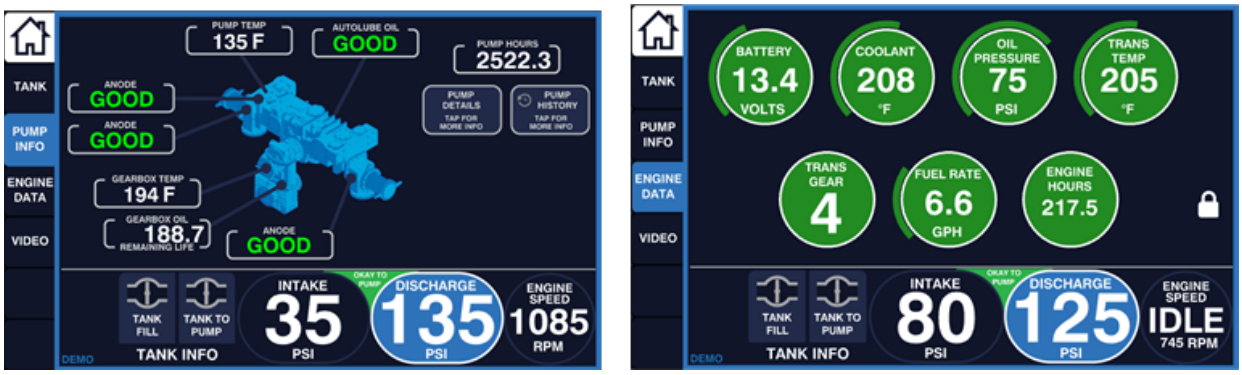

Figure 17. Pump Info And Engine Data Screens

Additionally, when flow is above 600 GPM, the Pump Controller also calculates/displays the pump flow and the reserve pump capacity under the current conditions. See Figure 18.

Figure 18. Pump Flow And Reserve Pump Capacity

Optionally, the Pump Controller screen displays video (up to three [3] cameras). View a blind spot or an aerial view point. See Figure 19.

Figure 19. Video Screen