

Sunrise Fire Rescue  
Division of Operations  
Presents  
Quint 332



**Vehicle Specs:**

<b>Manufacturer</b>	<b>E-One Typhoon X Cab</b>
<b>Engine</b>	<b>450Hp Cummings Diesel</b>
<b>Transmission</b>	<b>Allison EVS 3000 6 speed Transmission</b>
<b>Fuel</b>	<b>65 Gallon Diesel tank</b>
<b>Emissions</b>	<b>Diesel Particulate Filter (DPF)</b>
<b>Primary Brake System</b>	<b>Front Disk with Rear Drum Air Brake System</b>
	<b>Anti-Lock Braking (ABS) with Electronic Stability Control</b>
<b>Secondary Brake System</b>	<b>Jacobs (Jake) Engine Compression Break</b>
<b>Pump System</b>	<b>Darley EMax 1500 GPM single stage pump</b>
<b>Water Tank</b>	<b>480 Gallon Water Tank</b>
<b>Foam System</b>	<b>125 GPM In-line Foam Inductor delivered to the front #1 Bumper line</b>
<b>Foam Tank</b>	<b>20 Gallon on Board Foam Tank</b>
<b>Pre-connects</b>	<b>2-150 foot 1 ¾" Bumper line</b>
	<b>1-200foot 2 ½" Mid-ship pre-connected line</b>
<b>Supply Line</b>	<b>800 feet of 5" Hose</b>
	<b>350 Feet of 2 ½" Hose Dry storage</b>
<b>Generator</b>	<b>On Board PTO Generator</b>

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**Truck Information**



VEHICLE S.O. 138089	
	FLUID TYPE / CAPACITY
ENGINE OIL	V V PREMIUM BLUE 15W40 21-QT
ENGINE COOLANT	50/50 ZEREX EXTENDED LIFE 61-QT
TRANSMISSION	TRANSYND 24-QT
POWER STEERING	SHARED WITH HYD/ SYSTEM
FRT DRIVE AXLE	N/A
RR DRV AXLE FRT	N/A
RR DRV AXLE RR	V V HP 80W90 GEAR OIL 42.4-PT
AERIAL HYD OIL	AW32 HYDRAULIC FLUID 55-GAL
CAB TILT FLUID	V V DEX/MERC ATF 8-QT
PUMP GEARCASE	V V HP 80W90 GEAR OIL 2-QT
PUMP PRIMER	N/A
TRANSFER CASE	N/A
CAFS AIR COMPR	N/A
GENERATOR OIL	V V DEX/MERC ATF 20-QT
EQUIPMENT RACK	N/A
A/C REFRIGERANT	134A 7.5-LB
A/C LUBRICANT	PAG OIL 8-OZ
FRT TIRE PRESS	110- PSI MAX. COLD
REAR TIRE PRESS	130- PSI MAX. COLD
FRT TIRE SPD RAT	65- MPH
RR TIRE SPD RAT	75- MPH

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STARTING THE VEHICLE



Battery switch



- **BATT IGN:** Engaged in the UP position. The Engine is ready to start after the “prove out” is completed, allowing the truck multiplex system to self check.
- **Engine Start:** To start the truck press STOP/START switch DOWN. Do not run this switch longer then 15 seconds according to the manufacturer.
- To shut the truck off, Press STOP/START switch UP, ensure the truck has cooled down prior to shut down.
- To turn batteries on only:the BATT IGN switch is placed in the middle position

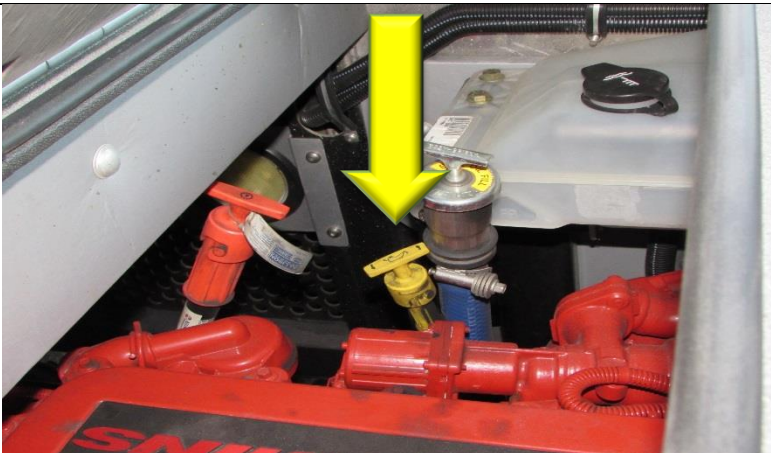
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**CHECKING FLUID LEVELS**

**Access Panel**



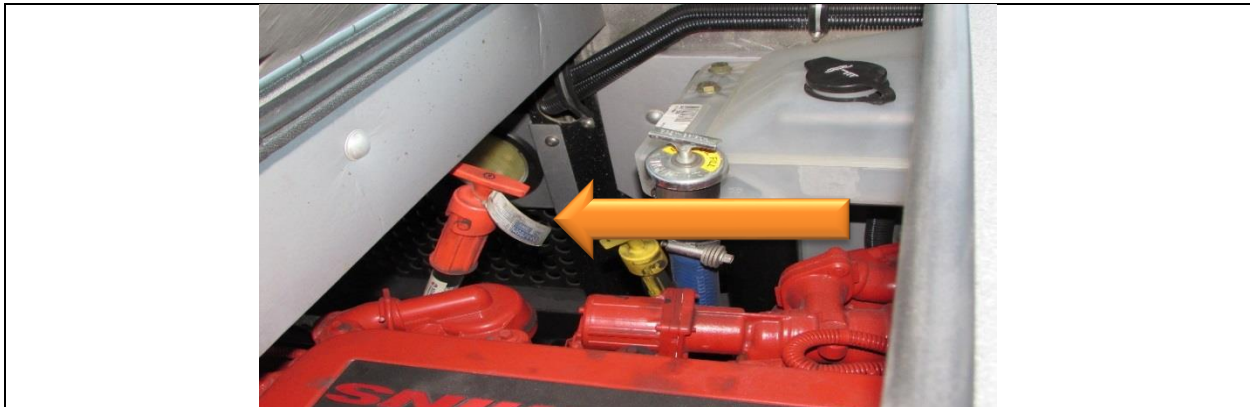
Located between the Driver and officer on the center console is an access panel to check the fluids for the Engine. All fluids should be checked daily in accordance with Sunrise Fire Rescue Policy.



**ENGINE OIL LEVEL**

To check engine oil, locate yellow dipstick pull.  
Carefully pull dipstick from dipstick tube.  
Wipe oil from dipstick and reinsert into dipstick tube.  
Carefully pull dipstick from dipstick tube again, this time examining the oil level on dipstick.  
Ensure oil level is at full mark.  
Low levels should be taken to the garage to be refilled..

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**TRANSMISSION FLUID LEVEL** - Transmission Fluid is checked with engine running.

To check transmission fluid level, locate the dark orange dipstick pull.

Carefully pull dipstick from dipstick tube.

Wipe fluid from dipstick and reinsert into dipstick tube.

Carefully pull dipstick from dipstick tube again, this time examining the fluid level on dipstick. Ensure fluid level is at full mark.

Low levels should be taken to the garage to be refilled

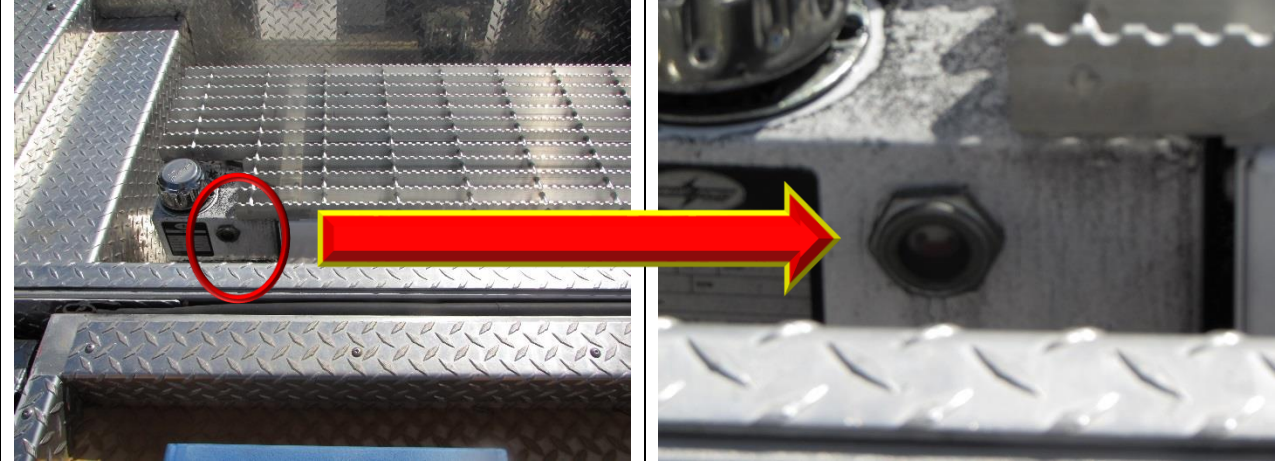
**WINDSHIELD WIPER CLEANING FLUID LEVEL**

Located on the riser of the drivers step is a fluid level indicator for the washer fluid (shown with the arrow in the picture) If fluid is needed, the fill tube is located near the floor board to the left side of where the driver sits,



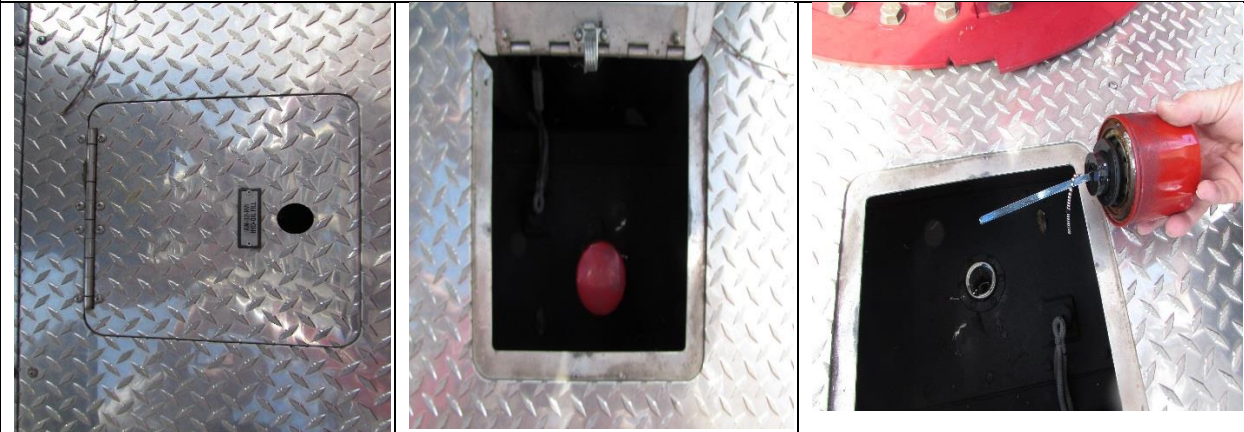
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**Hydraulic Generator Fluid Check**



To check the fluid in the hydraulic in the generator a site glass is located on the side of the generator

**Aerial Hydraulic Fluid**



On the topside of the truck in front of the turntable is a hatch to check the level of the hydraulic fluid the aerial. If it is low it should only be filled by the garage as this could indicate an issue with the hydraulic system.( SEE PICTURE ABOVE)



On the pump panel are lights which also indicate the level of hydraulic fluid inside the aerial reservoir.( SEE PICTURE TO THE LEFT)

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**ENGINE COOLANT LEVEL**



**Check coolant level when the engine is cold. Coolant level must be checked using the sight glass on the top of the radiator tank, NOT the expansion tank. This is located under the hatch in the center console looking forward. If there is insufficient coolant, fill the radiator with coolant until it can be seen in the sight glass. DO NOT ADD ANY COOLANT TO THE EXPANSION TANK.**

**WARNING!**

**NEVER REMOVE THE RADIATOR OR COOLANT RESERVOIR CAP WHEN THE ENGINE IS HOT. WAIT UNTIL THE ENGINE AND RADIATOR COOL DOWN. SERIOUS BURNS COULD BE CAUSED BY HIGH PRESSURE FLUID ESCAPING FROM THE RADIATOR.**

**NOTE: NEVER FILL COOLANT RECOVERY BOTTLE. DOING SO WILL CAUSE COOLANT TO OVERFLOW ONCE ENGINE REACHES NORMAL OPERATION TEMPERATURE**

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**TRANSMISSION**



The vehicle is equipped with an Allison 6 speed automatic transmission. The transmission selector consists of an electronic control head mounted on the engine cowling by the driver's right arm. The control head consists of a display window and a series of touch pad buttons. The **R** button activates the reverse gear. The **N** button places the transmission in neutral. The **D** button places the transmission in the normal drive range. In this range, the transmission will automatically shift up and down through gears 1-5. The **MODE** button feature is deactivated. There are two additional touch pad buttons on the control head. The up and down buttons allow the operator to manually shift/downshift between gears. The display window on the control head displays the gear range (**R, N, 4, 5**) on the left side and, on the right side of the window, the actual gear that the transmission is in at the moment it is being viewed. By depressing the both arrow buttons at the same time while the engine is running and in the Neutral position, will allow the operator to run a fluid level check which will be displayed in the display window.



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**DIESEL PARTICULATE FILTER REGENERATION**

**BACKGROUND**

- Diesel particulate filters (DPF) are being used on Cummins automotive engines to meet new emissions regulations.
- A DPF is a large filter which traps soot. The soot needs to be oxidized periodically.

**UNDERSTANDING THE NEED FOR REGENERATION**

- Emergency Vehicles seldom remain in a high vehicle speed condition long enough for a complete mobile regeneration (30 minutes or longer).
- Extended periods of engine idle – not enough heat in exhaust system

**NOTE: IF REGENERATION IS NOT PERFORMED IT COULD RESULT IN AN EXPENSIVE DPF REPLACEMENT.**

**HOW DOES THE DPF REGENERATION WORK**

There are two methods of DPF regeneration:

- Passive regeneration: The passive regeneration process operates in the background, no operator interaction is required. When the exhaust flow temperature is high enough, the DPF will clean itself automatically
- Active regeneration: The active regeneration cycle heats up the DPF by adding extra hydrocarbons into the system. The exhaust temperature may reach 600°C (1112°F). Illumination of the high exhaust system temperature (HEST) lamp during regeneration is normal and does not indicate a problem.

Most Emergency Vehicles require active regeneration to remove the soot. This can be accomplished either during a stationary (parked) regeneration or during a mobile regeneration (driving the vehicle at highway speed)

**HOW OFTEN IS DPF REGENERATION NECESSARY**

Emergency Vehicles which encounter long periods of idle, even high idle rarely encounter highway speeds for long intervals (30 to 45 minutes) and may require DPF regeneration from daily to 2 or 3 times per week. High heat in the exhaust flow is needed for proper operation of the DPF. Operating the engine in low exhaust heat flow conditions, will require the regeneration process more often.

**WHY DOES THE NEED FOR REGENERATION VARY**

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- Due to the varied operation requirements, the need for regeneration will vary from vehicle to vehicle as well as day from day with the same vehicle.
- High exhaust flow heat is needed for the DPF to work properly. The engine working under a load is the best method for longer intervals between regenerations.
- Long periods of idle, even fast idle, driving the vehicle at low speeds or seldom reaching highways speeds for intervals longer than thirty minutes, will require the need for more frequent regeneration.
- Because of the varied operation of the vehicle on a day to day basis, it is impossible to determine intervals that regeneration will be required.

**HOW LONG DOES REGENERATION TAKE**

- Stationary (parked) regeneration: 30-60 minutes.
- Mobile (driving) regeneration: 30 minutes average.

Factors which determine the time to complete a regeneration include level of soot, engine load, vehicle speed, and ambient temperature.

**FOR ACTIVE MOBILE REGENERATION TO TAKE PLACE**

***THE REGEN LAMP MUST BE ILLUMINATED (SOLID OR FLASHING)  
BEFORE AN ACTIVE REGENERATION CAN BE PERFORMED.***

1. To initiate the regeneration cycle, the vehicle must be moving at least 40 MPH.
2. To complete a regeneration, the vehicle must remain above 5 MPH.
3. Regeneration will be completed, when REGEN Lamp goes out.

**NOTE: THE HEST MAY ILLUMINATE. THIS IS NORMAL AND DOES NOT INDICATE A PROBLEM.**

**FOR ACTIVE STATIONARY REGENERATION TO TAKE PLACE**

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- Park vehicle in an appropriate location, set parking brake and place transmission in Neutral.
- Set up a safe exhaust area. Confirm that nothing is on or near the exhaust system surfaces.
- Disconnect PTO powered devices before starting the regeneration, i.e. make sure switches are in the off position.
- Push and hold for 4 seconds the REGEN switch. Note: Engine speed will increase and there may be a noticeable change to the sound of the turbocharger during the regeneration process. If the engine speed does not increase immediately, recheck the above steps or contact Service Technical Support.
- Once the regeneration process is completed, the engine will automatically return to normal idle speed.
- Monitor the vehicle and surrounding area during the regeneration process. If any unsafe conditions occur, shut off the engine immediately.
- The HEST lamp may illuminate during regeneration which is normal and does not indicate a problem.
- To stop a stationary regeneration process, depress the throttle pedal.
- Be careful, exhaust gas and exhaust surface temperatures will remain elevated for 3 to 5 minutes, after the regeneration process is completed.
- At anytime during the stationary regeneration process, the regeneration can be stopped by depressing the throttle pedal.

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**Regen: Press switch upward to start “parked” regeneration. Press switch downward to inhibit regeneration. See Diesel Particulate Filter Regeneration**

**HOW WILL I KNOW WHEN AN ACTIVE REGENERATION WILL NEED TO BE DONE?**

There are three (3) designated warnings before possible engine or DPF damage will occur.

- The first indication a regeneration process is needed will be a solid illuminated REGEN lamp.
- If no action is taken, the second indication will be a flashing illuminated REGEN lamp.
- If no action is taken, the third indication will be a flashing illuminated REGEN lamp and an illuminated Check Engine lamp.

Once the first stage is reached (REGEN lamp solid), it is expected you will have 4 to 6 hours before the second stage (REGEN lamp flashing). It is expected you will have 2 to 4 hours before reaching the third stage (REGEN lamp solid and Check Engine lamp solid). At this stage, you will have 1 to 2 hours before the Stop Engine lamp is illuminated. Summary, from the first stage (REGEN lamp solid) to the last stage (Stop Engine lamp solid) is anticipated to be 8 plus hours.

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## WHAT HAPPENS WHEN I'M IN PUMPING MODE?

The DPF is designed to work in a mode with no operator interface. This mode is referred to as passive regeneration. When operating in pumping mode, due to the engine load (exhaust flow temperature), passive regeneration may take place. The passive regeneration does not affect engine operation, i.e. power, speed, pressures, etc. The only indication you may have will be the HEST lamp may illuminate. Remember, this is normal and does not indicate a problem.

## ANTI-LOCK BRAKING SYSTEM (ABS)

This unit is equipped with an anti-lock braking system. This system prevents the vehicle from skidding out of control during panic braking. IFSTA's *1999 Pumping Apparatus DRIVER/OPERATOR Handbook pg. 64* describes how ABS brake systems operate:

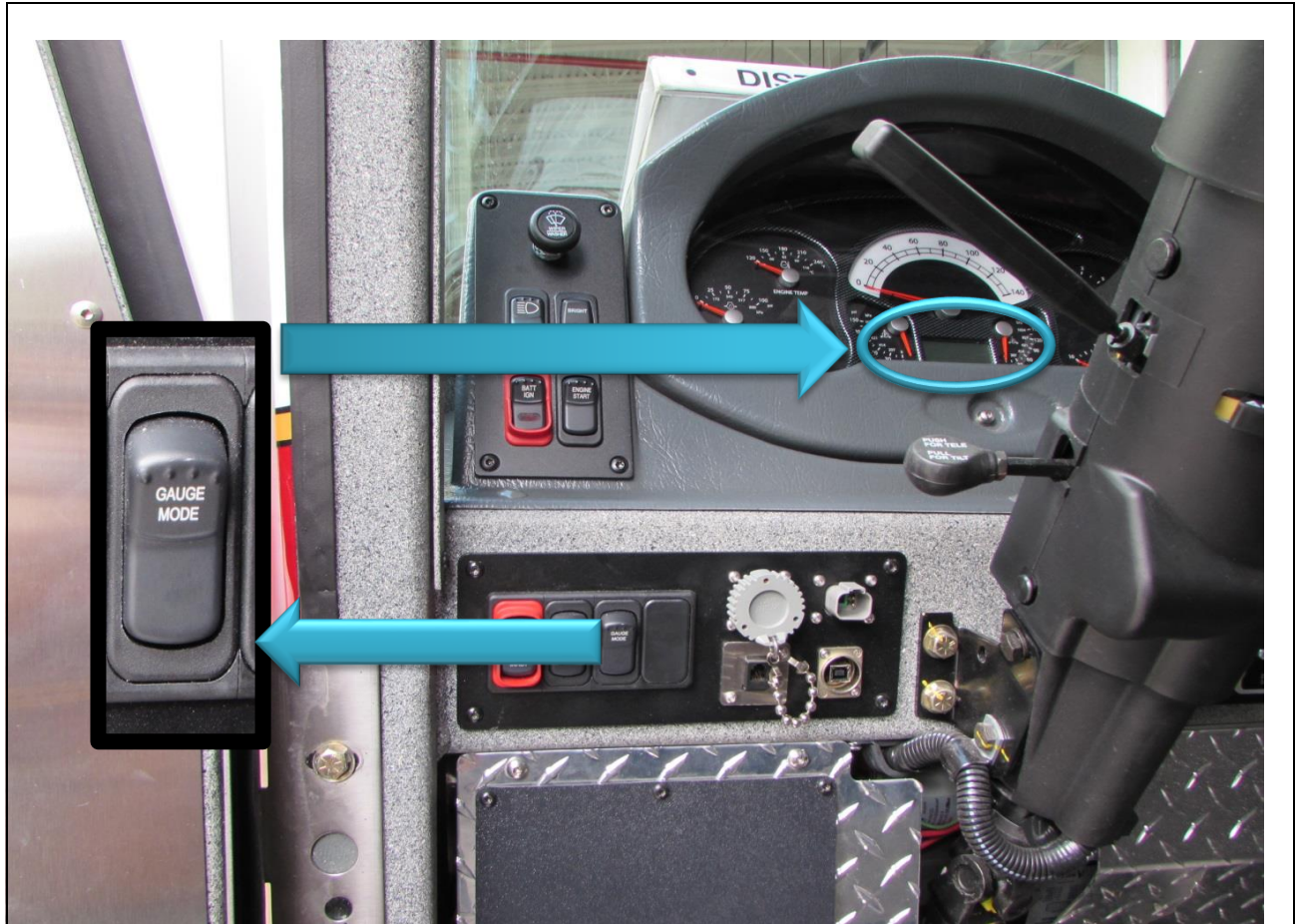
“These systems are effective in that they **minimize** the chance of the vehicle being put into a skid when the brakes are applied forcefully. ABS works using digital technology in an onboard computer that monitors each wheel and controls air pressure to the brakes, maintaining optimal braking ability. A sensing device located in the axle monitors the speed of each wheel. The wheel speed is converted into a digital signal that is sent to the on board computer. When the driver/operator begins to brake and the wheel begins to lock up, the sensing device sends a signal to the computer that the wheel is not turning. The computer analyzes the signal against the signals from the other wheels to determine if this particular wheel should still be turning. If it is determined that it should be turning, a signal is sent to the air modulation valve at that wheel and allowing the wheel to turn. Once the wheel turns, the computer allows the brake to be applied again and repeats the diagnosis. When being applied the driver may feel a pulsation in the brake pedal until the vehicle is brought to a complete stop or the brake pedal is fully released. The computer makes these decisions many times a second until the vehicle is brought to a halt.”

## OPERATION

The brake pedal must be activated with solid continuous pressure. **Do not pump the brakes while attempting to stop the vehicle.** Should the ABS system detect impending lockup, it will activate and the driver may feel a pulsation of the brake pedal. This is normal.

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**INSTRUMENT CLUSTER AND OVERHEAD CONTROLS**



The Gauge Mode Switch cycles through the different functions of odometer display screen sequentially to display the next parameter.

Tachometer  
Hour meter  
RPM  
HOURS  
Miles  
Odometer

Trip A/B ( to reset the odometer for trip mode hold the “Gauge Switch” for several seconds.

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Jacobs(JAKE) Brake Controls Overhead Panel



**AUX BRAKE (RED ARROW) Toggle switch in the UP Position activates the JAKE Brake. The ENG BRK switch(YELLOW ARROW) selects how aggressive the Jake Brake will function. Down is lowest braking action, center is medium and up is highest. Driving conditions and driver preferences will dictate which setting works best for your application.**

**NEVER USE THE JAKE BRAKE IN BAD WEATHER CONDITIONS WHEN ROADS MAY BE SLICK. SUDDEN JAKE BRAKE ENGAEMENT COULD CAUSE VEHICLE TO LOSE CONTROL!!!**

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**Diesel Exhaust Fluid (DEF)**



DEF Fluid Gauge Shows the level of the DEF fluid in the reservoir. The Reservoir is located in the rear passenger compartment on the driver's side of the vehicle below the step.



The Federal Signal Corporation® Traffic Master™ is the directional traffic light bar located on the rear of the apparatus. The electronic control head for the Traffic Master™ is located to the right of the driver on the overhead panel. This device allows the driver/operator to choose a light pattern to direct traffic to the LEFT, RIGHT, and SPLIT out both sides from the center, and FLASH which places the Traffic Master™ into an alternating wigwag pattern for additional rear warning. There is also FAST/LOW feature



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V-MUX Vista



This unit controls the emergency lighting and scene for the vehicle as well as safety information warning the driver operator of crew members not having their seatbelts in place or compartment doors ajar. This device will also display images from the backup and officer side camera. To activate the emergency lighting push the E-Master switch. The PTO Generator is engaged from this menu. The vehicle's high idle can also be turned on or off by pressing the high idle button. The screen will display YELLOW when items are engaged.



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**Jump Start Studs: Located below the drivers step inside the door.**



**Parking Brake: Pull to apply and Push to release Please note the airbrakes will not release if the air pressure is below 70 PSI in the system**



**Air Pump Shift:**

- 1. Truck must be in neutral with the parking break applied allowing interlocks to engage.**
- 2. Move PUMP SHIFT to “NEUTRAL” and briefly pause**
- 3. Move PUMP SHIFT to the “PUMP” position**
- 4. Place transmission into drive.**

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**MANUAL PUMP OVERRIDE**



**Located to the left of the pump panel below the step ( ORANGE ARROW). This is used in the event the Pump does not engage during the pump shift process. To engage the pump gear using the manual override :**

- 1.Ensure pump did not engage**
- 2.Move PUMP SHIFT to “PUMP”**
- 3 Pull MANUAL HANDLE OVERRIDE**
- 4.Place Engine in DRIVE**

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**FIRE RESEARCH CORPORATION® IN-CONTROL 400™**

The Fire Research **INControl** pressure governor and all-in-one instrument panel uses state of the art programmable microprocessor technology. Measuring only 10.5 by 5.5 inches the **INControl** offers pump discharge and pump intake displays, pump pressure or RPM control, and remote engine displays. It will maintain a steady pump discharge pressure by controlling engine speed or hold a selected engine RPM. It offers complete engine control and remote display in a single compact unit.

The **INControl** operates in one of two modes, pressure or RPM. In pressure mode the **INControl** maintains a constant pump discharge pressure. The discharge pressure is monitored and compared to the selected pressure setting, the engine RPM is varied to keep the discharge pressure at the selected setting. In RPM mode the **INControl** maintains a constant engine RPM. The pump discharge pressure is monitored and can vary but as a safety feature it will be limited to an increase of 30 PSI. If the discharge pressure increases 30 PSI the governor will automatically lower the engine RPM to prevent a high-pressure surge.



**RPM (throttle) mode** - The driver operator can switch to the RPM mode when pressure surges cause the pump to keep returning to an idle. When using the Throttle (RPM) mode, the operator can either watch the RPM display on the engine status monitor to the right of the rotating throttle or watch the pump discharge pressure on the left side of the governor while rotating the throttle control knob.

**PSI (pressure) Mode** – The pressure mode will adjust engine speed to maintain a selected pressure. Regardless of whether incoming pressure changes, or discharges are opened and shut,

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the pressure governor will maintain the selected PSI. When using the pressure mode the operator should watch the pump discharge pressure.

**Mode Selection** – After engaging the pump the FRC® In- Control 400™ head will display the word MODE. To activate the unit, the operator pushes the pressure switch of desired mode once.  
**Cavitation Protection Feature** – The pressure governor includes a cavitation protection feature, which protects the pump, plumbing, and firefighters from sudden water surges, ingestion of large amounts of air, or loss of supply pressure. **The mode selector must be in the PSI mode for this feature to be active and the pump pressure must be above 40 PSI.** If the water supply is reduced or interrupted, the governor will first attempt to increase pressure by increasing the engine speed. If the pump discharge pressure remains less than 25 PSI for more than 5 seconds, the engine speed will automatically return to an idle.

**If it is apparent that air or a temporary reduction of suction pressure has been or will be introduced into the pump, it may be desirable to temporarily switch from the PSI mode to the RPM mode to reduce the likelihood of sudden RPM changes and the automatic shutdown of lines due to the anti-cavitation feature.**

**System Shutdown-** Pushing the red idle button in for more than one second will cause the engine governor to return to an idle speed. The red idle button can and should be used to return the engine speed to idle when operating in low or no water flow conditions. **It should not be used when flowing large amounts of water as this may cause a water hammer.** When flowing large amounts of water use the rotating throttle to gradually reduce engine speed to an idle.

**Once the red idle button has been activated, the governor leaves the mode sequence. The MODE button must be depressed again and a mode type selected in order to restore control of the pump.**

The INControl also features remote engine monitoring for the following:

- Engine oil pressure
- Engine water temperature
- Transmission temperature
- Battery voltage

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**Pump Control Valves**



These Engines are equipped with two types of discharge operating valves:

**T Handles** which opens by pulling out, and closed by pushing in.

**Electronic Valve:** Operated by pressing the OPEN and CLOSE buttons. The valve position is indicated by the LED lights above the operating buttons. The 3" discharge and the Master Waterway discharge are equipped with this type of valve. An additional electronic valve for the Master Intake is located on the pump panel and should be left in the OPEN position as the manual gate for the MIV is primarily used.

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**NOTE:** In the event of the Electronic valve for the 3” discharge is not operating properly. A Manual valve control is located to the left of the 3” discharge. This valve is operated by inserting a socket wrench onto the operating nut and rotating the nut **CLOCKWISE** to **CLOSE**.

**Air Actuated TANK To PUMP**



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**Drivers Side**



**Officer Side**

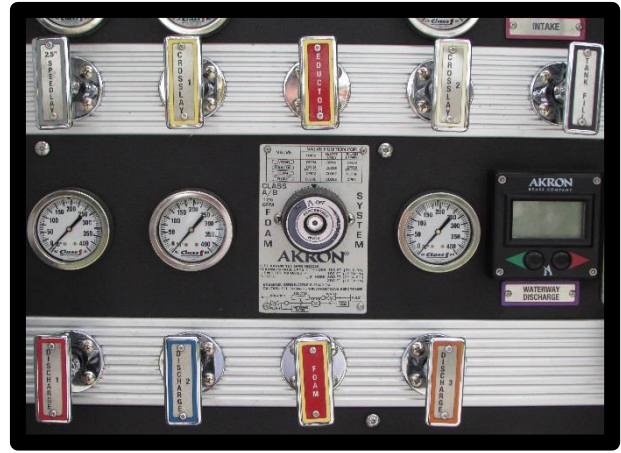


Pump intakes are located on the driver side and officer sides of the Quint. The Driver's side is equipped with a 5" Stortz connection and a 2 1/2" intake. The Officers side only has a 5" Stortz connection. All intakes operate separate of each other and each intake has a separate bleeder valve to purge the air out of the system once the hydrant is charged. The Stortz connection intake is controlled by a hand wheel above the connection and the bleeder is located on the underside of the valve. Both are opened by turning COUNTER CLOCKWISE. The axillary 2 1/2" intake is controlled by a lever to the right of the intake on the driver side intake. This lever is operated by lifting up to open. The air bleeder is located below the intake. It is opened by lifting up on the lever.



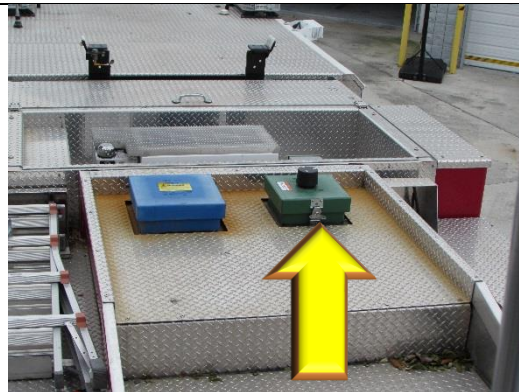
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**FOAM Check Pressure Gauges**



**Quint 332 is equipped with an AKRON® 125 GPM bypass eductor foam system. This will allow the 20 gallons of on board foam to be proportioned and dispensed through the FRONT 1-3/4" BUMPER CROSS LAY ONLY. To produce foam, the operator merely opens the tank to pump, open the eductor valve (pull), open the foam tank (FOAM) pull , Next, set the foam metering dial to the proper percentage, charges the front jump line, Set the Master discharge pressure to 200 psi.**

**Foam Fill**



**The fill for the 20 gallon on board Class B foam tank is located on top of the truck under the Green hatch.**

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**Auxiliary foam Inlet**



Additionally, this Quint has been equipped with an AKRON® off truck access kit. This kit allows foam to be drawn into the on board foam system from a source other than the on board tank (5-gallon jug). To use this function, follow the steps described below.

- Connect the 6 foot off truck suction hose to the off truck screw on connection on the pump panel.
- Open tank to pump
- Open the educator as described on the previous page
- Leave the on-board foam tank closed
- Open the auxiliary foam inlet valve
- Set the foam proportioner
- Set Master Discharge Pressure to 200 psi

**NOTE:** Whenever either foam supply source is utilized, the foam system must be flushed with fresh water for 3 minutes at 100 psi. To accomplish this, the foam tank valve is closed, the flush valve opened, and the educator valve opened.

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**Aerial Waterway Drain**



Located to the rear of the truck on the Officers side. This valve is open and able to drain with the handle pointed towards the ground.

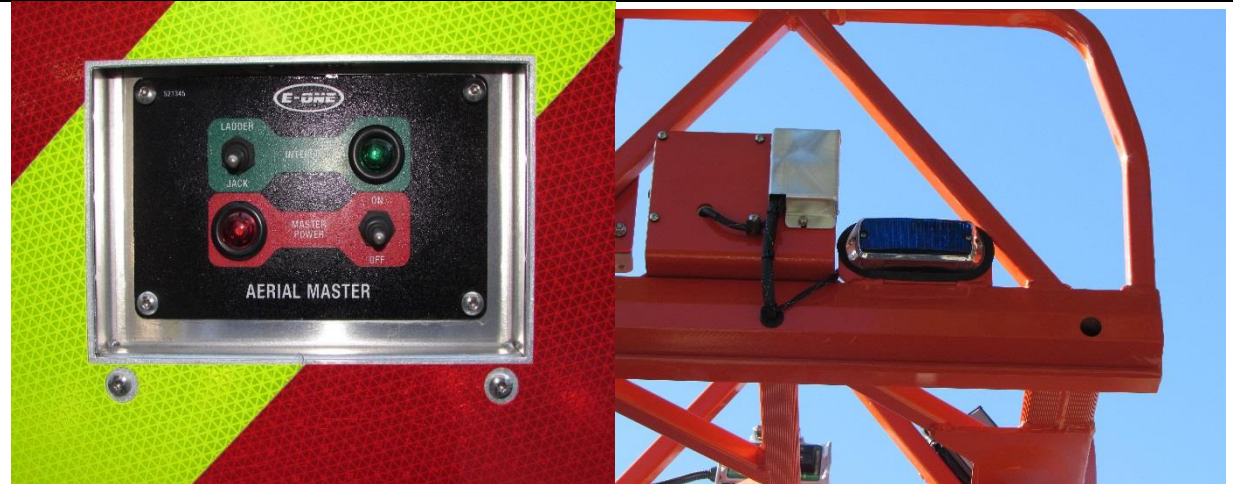
**Ground Ladders**



This Aerial is equipped with the following ground ladders  
35' Extension (3 Section) RED ARROW  
16' roof Ladder YELLOW ARROW  
24' Extension Ladder GREEN ARROW  
10 foot Attic Ladder ( NOT SHOWN) rear of truck right compartment  
14 foot roof Ladder( NOT SHOWN ) attached to side of aerial  
17' Little Giant.™ Drivers side above Pump Panel (NOT SHOWN)

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**Aerial Master**



These switches control the power to the Aerial JACKS or LADDER. The Master Power switch needs to be moved to the ON position to enable the JACKS or AERIAL to have power. Once the MASTER POWER is ON a Blue light at the tip of the ladder( LEFT PICTURE) will flash (NOTE THIS LIGHT WILL FLASH EVEN IF THE PTO IS NOT ENGAGED AND THE POWER IS ON- )

**Aerial PTO**



The Aerial PTO (YELLOW ARROW) is Located on the Overhead Console. The ON Position is up. The driver can confirm the Aerial PTO is engaged by:

- The Light turning yellow on the V MUX Display
- The steering wheel will no longer be able to move as the PTO is powered from the same system as the Power Steering system.

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**Jacks Controls**




With the AERIAL PTO engaged, the operator can begin the setup of the Aerial. The controls for the jacks are located at the rear of the truck. The AERIAL MASTER is located on the driver's side rear. The MASTER POWER needs to be placed in the ON position. The LADDER/JACKS switch needs to be placed in the JACKS position. Once this is accomplished the JACKS can be deployed using the JACK CONTROL (OUT first then DOWN) located on the perspective rear side of the truck. Ideally, The JACKS should deploy all the way out until the jack stops moving. Next the JACKS can be deployed down. The JACKS need to be placed on the AUXILIARY JACK PADS supplied for this vehicle before the JACK comes in contact with the ground. The truck is leveled to achieve INTERLOCK (GREEN LIGHT) and the weight is removed from the rear tires. When the Jack is in contact with the ground the JACK DOWN LIGHT will illuminate. The truck can be SHORT JACKED meaning the jacks are not deployed out fully which means the Truck cannot operate the aerial normally over the side with the jacks not fully extended. **REFER HP78' SHORT JACK ADV JACKS/CONTROLS FOR FURTHER INFORMATION**

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**Aerial Chart**

**HP78  LADDER**




RATED  
 VERTICAL HEIGHT: 78 FT. (23.8 M)  
 HORIZONTAL REACH: 70.2 FT. (21.4 M)

**RATED LOAD CAPACITIES**  
 = 250 LBS (113 KG)




**1000 GPM WATER STREAM OPERATION**

ELEVATION ANGLE	-8 TO 76		
TIP LOAD (# PEOPLE)	 (2)		

**LADDER OPERATION TIP LOAD ONLY**

ELEVATION ANGLE	-8 TO 40	41 TO 49	50 TO 76
TIP LOAD (# PEOPLE)	 (3)	 (4)	 (5)

**LADDER OPERATION EVENLY DISTRIBUTED LOAD INDICATES # OF PEOPLE AT TIP**

ELEVATION ANGLE	-8 TO 30	31 TO 45	46 TO 76
DISTRIBUTED LOAD (# PEOPLE)	 (4)	 (6)	 (9)

NOTE: CAPACITIES ARE GOVERNED BY THE FOLLOWING:  
 \* APPARATUS SET UP ACCORDING TO OPERATING INSTRUCTIONS.  
 \* LADDER FULLY EXTENDED AND UNSUPPORTED, 360 DEGREES CONTINUOUS ROTATION.

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# Sunrise Fire Rescue Division of Operations Presents Quint 332

## Aerial Controls



AERIAL CONTROLS are located in two places for the operator:

- Rear Pedestal Turn Table: (RIGHT PICTURE)
- Pump Panel: (LEFT PICTURE)

The Buttons above the controls allow the operator to adjust the stream as well as the position of the monitor.

The Large RED BUTTON is the EMERGENCY Stop which shuts down the AERIAL operation and not allow the AERIAL to Move

**REFER HP78' SHORT JACK ADV JACKS/CONTROLS FOR FURTHER INFORMATION AND USE OF MONITER BUTTONS**

## AERIAL WATER WAY INTAKE



The rear of the Truck is Equipped with an Intake for the AERIAL WATER WAY. The Trucks Pump CANNOT be supplied from this intake.

Sunrise Fire Rescue  
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**Hydraulic Generator Fluid Check**



To check the fluid in the hydraulic in the generator a site glass is located on the side of the generator

**Circuit Breaker Panel for Hydraulic Generator**



The compartment on the driver's side to the rear of the pump panel houses the circuit breaker panel for the hydraulic generator. The Main should be left in the ON position prior to starting the generator the cord reel should be left in the OFF position as not to draw a load as the generator is starting.



Sunrise Fire Rescue  
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Quint 332

**Pinned Waterway**



Quint 332 is equipped with waterway which can operate in 2 positions depending what the operation of the aerial is being used for. Sunrise Fire Rescue will normally leave the waterway pinned back as described in the picture above for in the event of a call to assist with a rescue involving the aerial. (SEE CIRCLED PIN). If Operations involve deploying water from the Aerial the waterway should be pinned as indicated by the arrow. (REFER TO HP 78' SHORT JACK ADV JACK/CONTROLS for detailed operating instructions)