



**2020 Rescue Squad 715
Driver's Manual
Stock # 04-20-3005**



REV GROUP

The information in the manual is designed to serve as the initial familiarization for new and incumbent drivers for RS715. All information was acquired via the appropriate manufacturer sources.

For the purposes of this manual, the compartments on the unit will be designated as R for the right or Officer's side of the vehicle and L for Left or the driver's side. Compartment numbers run from front to back starting at 1 as provided in the example below.



Vehicle Information

Model	Cyclone II
Year	2020
Height	11'2"
GVWR	70,800 lbs.
Width	8'
Length	39'
Motor	Cummins ISX 12 500 HP
Transmission	Allison EVS 4000
Governed speed	60 MPH
Cab construction material	Aluminum
Body construction material	Stainless steel

E-One V-Mux Panel

V-Mux control screens are located on both the driver and officer sides of RS715. Both panels are identical and offer identical controls capabilities. These are not touchscreens - the buttons around the outside of the screens provide the controls. The bottom row of buttons provides the ability to scroll through various sets of options, activate the Emergency Warning Light Master control, and control high idle. The side rows provide the ability to make selections. Certain menus also show the status of various vehicle systems.



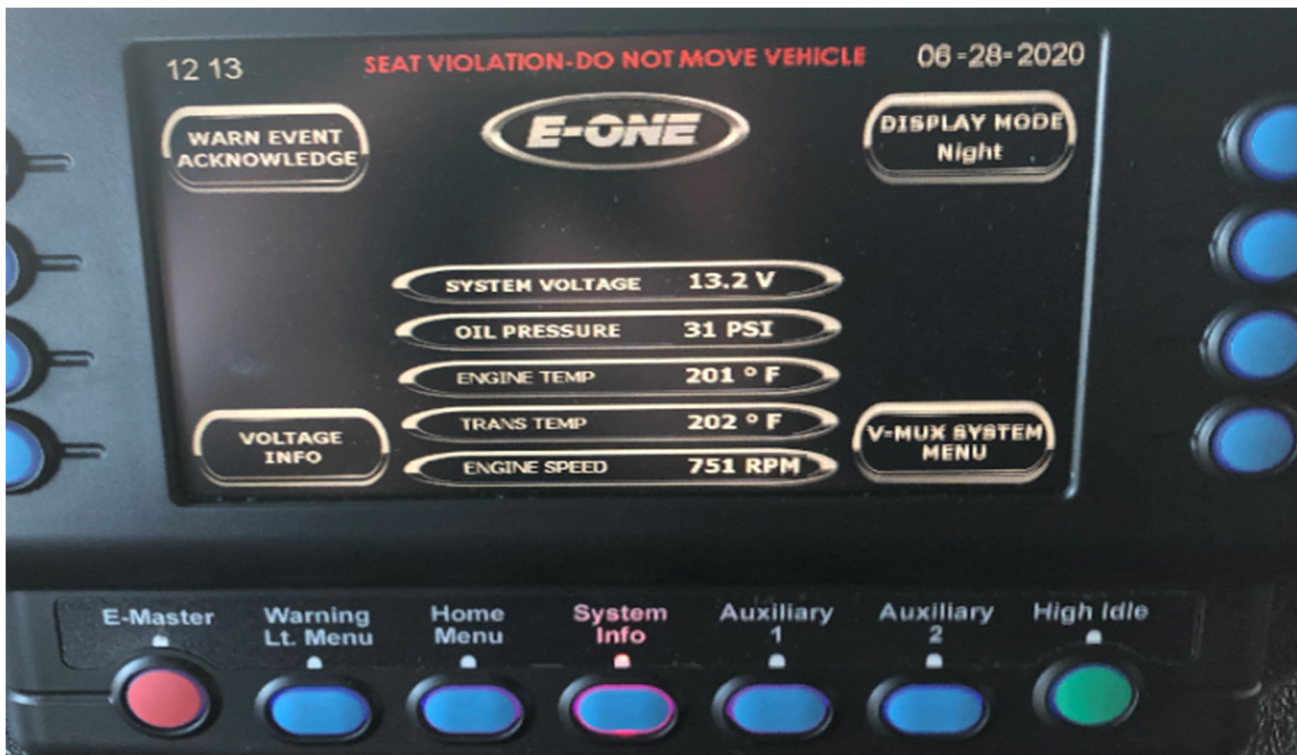
Home Menu



Warning Light Menu



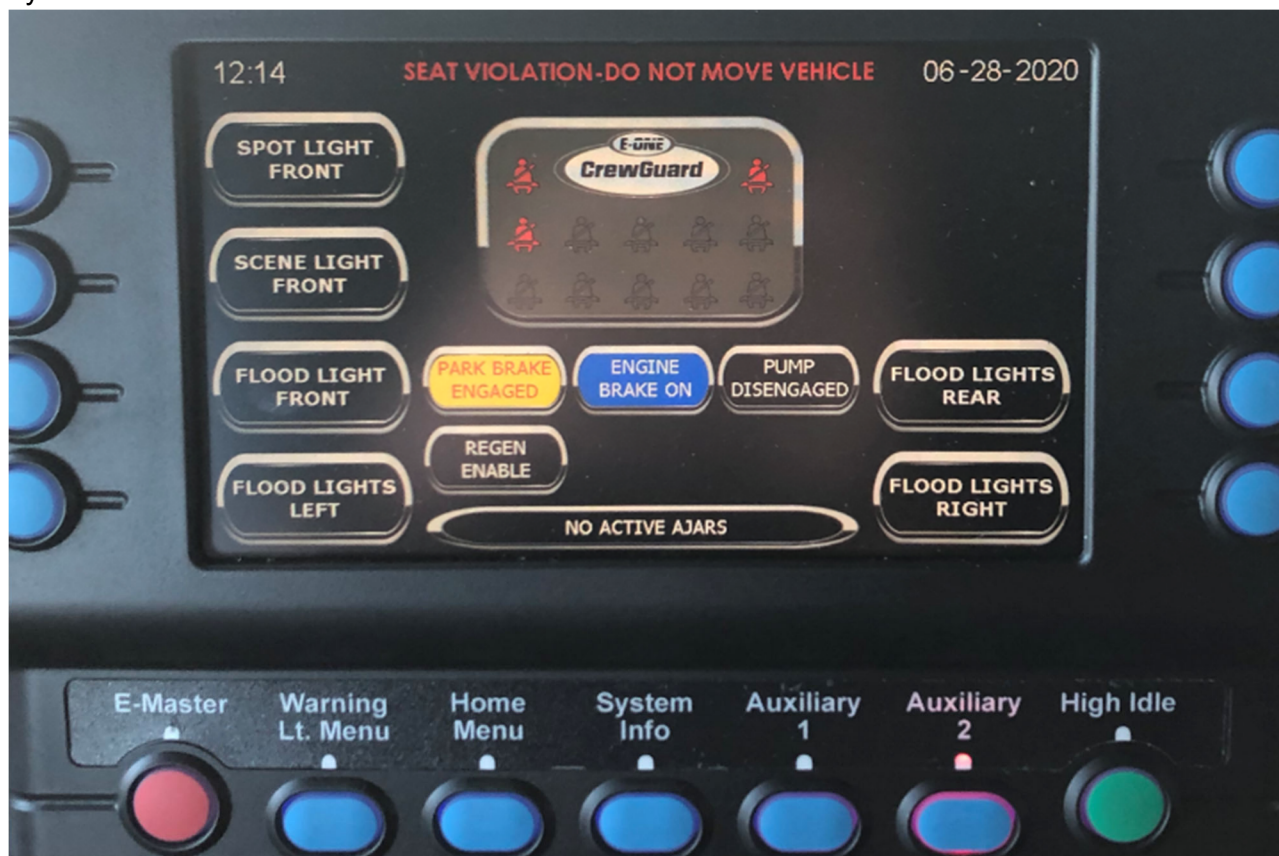
System Info. Screen



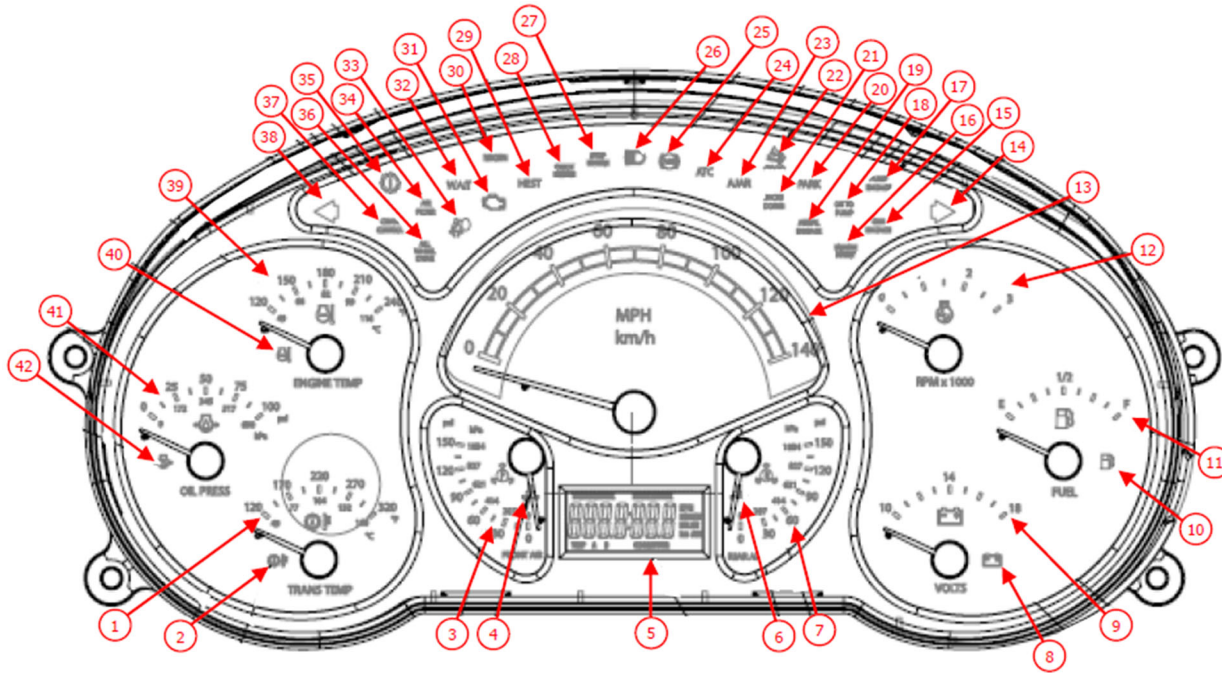
Auxiliary Menu 1



Auxiliary Menu 2



Driver's Main Gauge Cluster



- | | |
|--|---|
| 1. Engine Oil Pressure Indicator | 25. ABS Warning Indicator |
| 2. Engine Low Oil Pressure Indicator | 26. High Beam Indicator |
| 3. Front Air Pressure | 27. Stop Engine Indicator |
| 4. Front Low Air Indicator | 28. Check Engine Indicator |
| 5. Multi-Function Odometer | 29. High Exhaust System Temperature Indicator |
| 6. Rear Low Air Indicator | 30. Regeneration Indicator |
| 7. Rear Air Pressure | 31. MIL Lamp |
| 8. Voltage Low Indicator | 32. WAIT Indicator |
| 9. Voltage Gauge | 33. Airbag Warning Indicator |
| 10. Fuel Low Indicator | 34. Air Filter Warning Indicator |
| 11. Fuel Level | 35. Check Transmission Indicator |
| 12. Tachometer | 36. All Wheel Drive Indicator (not equipped) |
| 13. Speedometer | 37. Cruise Control Indicator (not equipped) |
| 14. Right Hand Turn Signal Indicator | 38. Left Hand Turn Signal Indicator |
| 15. Generator Engaged Indicator | 39. Transmission Oil Temperature Gauge |
| 16. Engine Maintenance Indicator | 40. Transmission Oil High Temperature Indicator |
| 17. Pump Engaged Indicator | 41. Coolant Temperature Gauge |
| 18. OK to Pump Indicator (not equipped) | 42. Coolant High Temperature Indicator |
| 19. Aerial Indicator (not equipped) | |
| 20. Park Indicator | |
| 21. Jacks down Indicator (not equipped) | |
| 22. Diesel Exhaust Fluid (DEF) Indicator | |
| 23. Cab ajar Indicator | |
| 24. ATC Warning Indicator | |

Driver Overhead



Top Row (left to right):

1. Left mirror control
2. Right mirror control
3. Jake brake On/Off
4. Jake brake LO/MED/HI
5. Inter axle lock
6. White Light override
7. Kneel (Rear suspension)
8. Siren brake
9. Electronic siren (Rear)
10. Speaker for backup camera

Bottom Row

1. DEF level meter
2. Cab lock/unlock
3. Mirror Heat
4. Telma Power level display
5. Generator engage
6. Tool Pump engage
7. Winch Pump Engage

Cab Controls

Left of Steering Wheel



Top Row

1. Headlights
2. Headlight intensity - DIM (Low Beam), Bright (High Beam)
3. Blank

*Blank switch remains blank

Bottom Row

1. BATT/IGN - Bottom, Battery OFF. Middle, Battery ON. Top, Ignition ON
2. ENGINE START

Left side below steering wheel



Steering Wheel

Rescue Squad 715 is equipped with a smart steering wheel.



LEFT SIDE

1. MW- Master Warning Lights
2. Driver side flood lights
3. Front roof flood light
4. Officer side flood lights
5. Aux Brake on/off

RIGHT SIDE

1. Airhorn
2. Wiper controls

Right side above steering wheel



Front Wheel Lock (Front Park Brake)

Push Button shifter

Radio PTT

Right side below steering wheel



Parking brake

Center Dash



All window controls.

Rear seats have their own window controls on the side of cab walls, above seats.



A/C and defrost controls.

Center Cab overhead- Electronic Siren, AM/FM Radio, Mobile Radio



Officer's side Overhead



Officer's side lower dash



Cab Tilt Process

The following steps must be followed to tilt the cab:

1. Lock rubber bellows to cab. (opposite of pictured)
2. Secure items in cab.
3. Turn on battery and ignition.
4. Operate via switches or remote on Officer's side first compartment forward wall.
5. Once the cab has raised to the appropriate level the yellow guard will drop into place to secure the cab.
6. In order to lower the cab, the T handle pull cord in the R1 compartment must be utilized to lift the yellow guard and allow the cab to lower.



Fluid Access

The following fluids can be accessed via in cab access points:

1. Oil check and fill
2. Transmission fluid
3. Power Steering fluid
4. Radiator overflow
5. Windshield washer fluid (lower area in front of driver)



Auxiliary braking devices

Rescue Squad 715 is equipped with both a Telma driveline retarder and Jacobs engine brake.

The Telma is programmed to apply stages 1 and 2 when the throttle is released. Stages 3 and 4 are applied with brake application. There is no ON/OFF switch for the Telma - it will only shut off in the event that the ABS activates.

The Jacobs engine brake is controlled via an ON/OFF switch and a Hi/Med/Low switch.

Traction Control

RS715 is equipped with an anti-lock brake system. If the ABS senses a loss of braking control and engages, auxiliary braking devices will be automatically disengaged.

Suspension and Kneeling

Rescue Squad 715 is equipped with a Hendrickson FIREMAAX EX model FMX-82 rear airbag suspension. The rear suspension can be emptied to "kneel" the unit. This is accomplished via an overhead switch in the driver's seat. This functionality should be utilized when using the rear winch or side anchor points. The rear of the unit is shown kneeling in the picture below.



Rear Suspension



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<https://hendrickson-intl.com/CMSPages/GetFile.aspx?guid=4d18119c-b3e2-485f-a335-1dbdac20a339>

Front suspension

Leaf spring suspension with U Bolts and Koni Shock absorbers.

Air Drains

The air tank drains have been piped to just before the tandem axles on the driver side. Each tank has been physically piped to the drain location and labeled. These are more reliable than typical pull cord drains, however will take slightly longer to empty the tanks due to the distance between the tanks and the drain location.

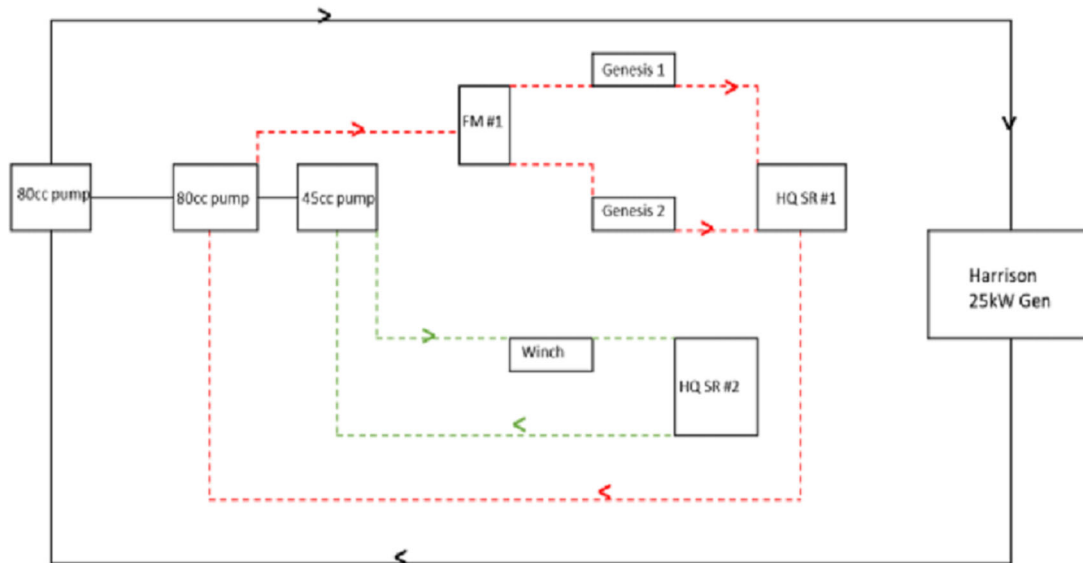


Harrison Integrated Hydraulic Technology (IHT) System

Rescue Squad 715 is equipped with a Harrison IHT hydraulic system. The system consists of inline PTO driven hydraulic pumps which via thru-drive modifications and a manifold supply hydraulic power to the generator, hydraulic winch, and both Genesis hydraulic tri-pumps. Two Harrison Cube HQ-40 cooler units with reservoirs can be found in the dunnage area on the roof of the unit's body.

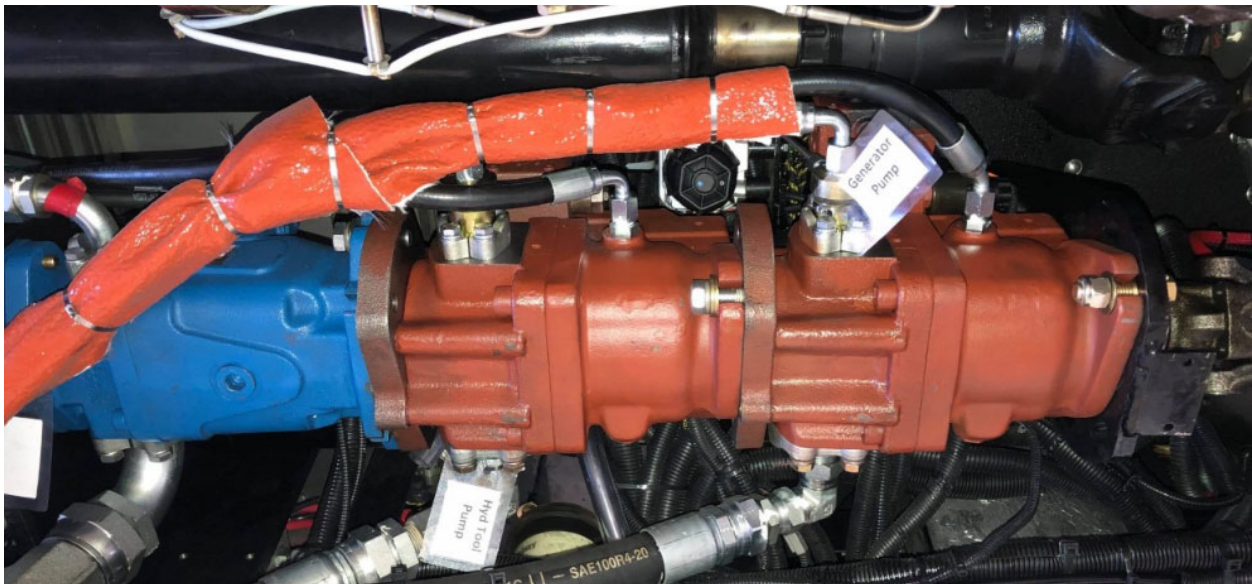


IHT System schematic



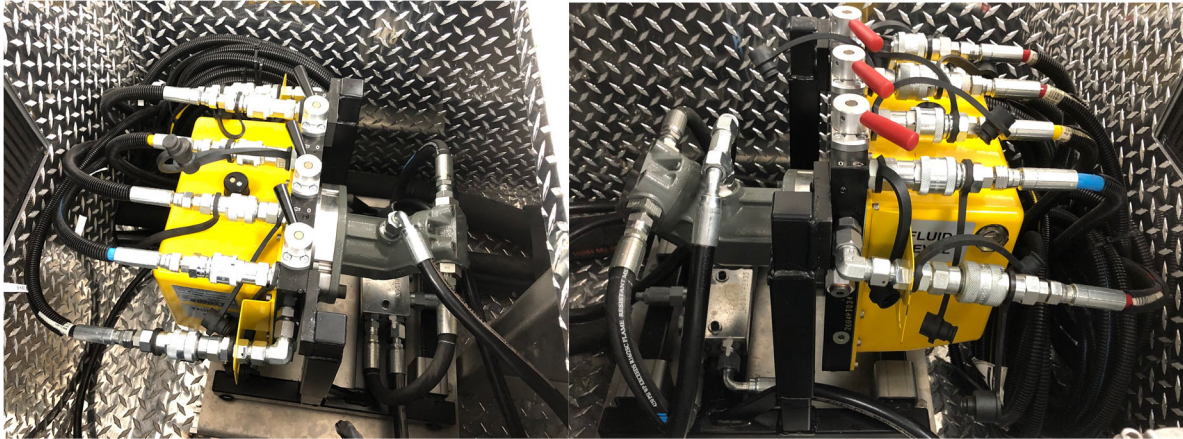
In-Line Hydraulic Pumps

Located under the unit, attached to the lower PTO port. Each Pump is tagged with its specific purpose.



Genesis Hydraulics

The Rescue Squad 715 hydraulic tool complement consists of both pre-connected and battery powered hydraulic tools as well as a portable tri-pump. On top of the unit on either side a separate Genesis three tool pump is powered by the Harrison IHT system to support three pre-connected lines on each side, and a single hydraulic port in the front bumper.



The hydraulic system operates at 10,500 PSI. All reels and the front bumper port are equipped with the Genesis “One-Step Coupler” which will allow tool swapping without shutting down lines. There are 3 pre-connected, 100 ft hydraulic reels accessed via compartments L5 and R5. The actual reels are located in the coffin compartments directly above.

To operate tools, the “Tool Pump Engage” option must be selected in either side cab V-Mux screen or the manual switch over the driver. Activating this switch automatically charges 6 Genesis tools, which remain charged unless the “Tool Pump Engaged” switch is turned off, and



are supported by the Genesis One Step Coupler (OSC) on all lines allowing for tool swapping while charged. A control valve is located in Compartment L5. This valve determines whether the 6th charged tool is the Red/Black line in the rear of the unit or the front bumper. If the valve is pulled toward the outside of the compartment the line in that compartment is charged. The inward position charges the front bumper port. If the valve remains in the center position, neither will function.

Generator

Rescue Squad 715 is equipped with a Harrison MPC Hydraulic Generator, 25KW. The generator is engaged via the Harrison IHT System through either the V-Mux screens in the driver or officer seat or a standard switch over the driver seat. The generator is utilized to power RS715's light tower and two electric cord reels.

Two electric cord reels with junction boxes can be accessed from compartments L3 and R3. The reels themselves are mounted and can be accessed in coffin compartments via the roof walkway. Each reel is equipped with 200 ft. of 8/4 yellow cable and includes Woodhead Dual 110V/220V junction boxes.

Junction box connections: (each receptacle has a circuit breaker on the junction box)

- 1- 110V GFCI duplex receptacle
- 2- 110V GFCI twist lock receptacle
- 1- 220V GFCI twist lock receptacle

On-Board Air System

Rescue Squad 715 is equipped with a 2 ASME cylinder, 6,000 PSI single bank utility air system. The cylinders are located in a stacked configuration in the dunnage area on top of the unit, but the valves must be accessed via the cab walk-through pictured on the next page. The cylinders feed 2, 200 ft air reels which can be accessed via compartment L4 and R4. The reels themselves are located in roof top coffin compartments. The valves on each cylinder can be located through an access panel in the rear of the walk-in area.

Air lines are ½" diameter and are controlled via a control panel on each respective side of the unit in compartment L4 or R4. The maximum regulated pressure is 600 PSI. The R4 panel is considered the master panel and can be utilized to refill the system using the high-pressure fill line at Fire Station 15.





Scene Lighting

All Rescue Squad 715 scene lighting consists of Firetech brand 12V LEDs.

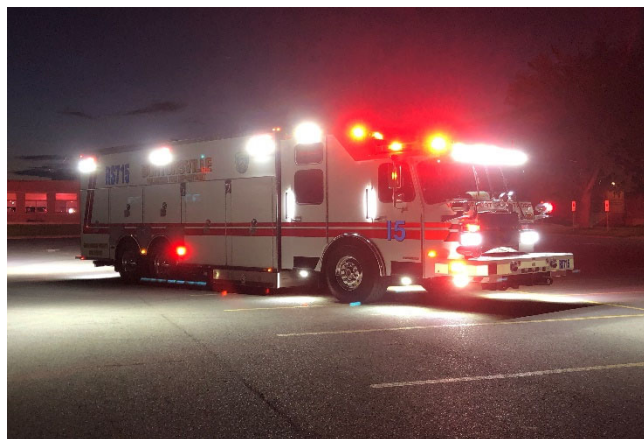
Front

- 72" Brow light with integrated marker lights

Sides

- Cab sides- 11" double stack LED, 1 on each side
- Box sides- 18" double stack LED, 3 on each side
- Box rear- 18" double stack LED

Firetech LED ground and compartment lights are also utilized throughout.



Light Tower

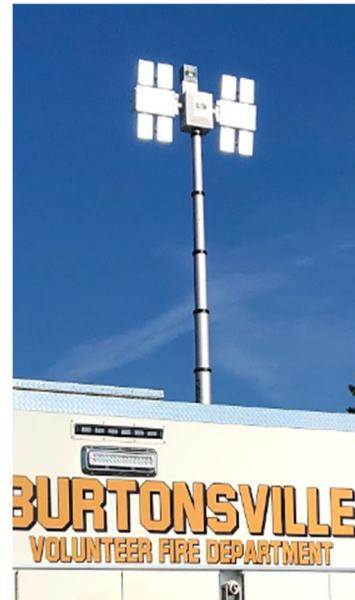
Rescue Squad 715 is equipped with the Will Burt- Night Scan Powerlite 3.0 light tower. The light tower includes (2) 600 watt, 240V Sirion LED light heads and has a maximum extension of 10 feet. It is also equipped with the D-TEC II Safety System. The controller is located in the L1 compartment. To operate the light tower the generator must be engaged via any of the options in the cab.

Light Tower Operation Summary:

Following is a quick summary of the operation of the system.

If an emergency stop is required at any time, press the "Start/Stop" button. This will disconnect the unit from power and cause all air to be exhausted from the mast.

1. Ensure that the vehicle parking brake is engaged.
2. Ensure that there are no obstructions overhead.
3. Ensure that the red "Start/Stop" button is released.
4. Raise the mast to 90° and turn on the lights by performing one of the following steps: Quickly press the "Mast Up" button twice (Auto-up feature) to move mast to 90° and turn both banks of lights on. To abort the Auto-up feature, press any controller button. Press and hold the "Mast Up" button to raise the mast. Then press the "Lights" to turn the lights on. The RCP will become active when the mast is at 90°. Only the controller buttons that have a lit LED are active.
5. If desired, raise the mast further by pressing "Mast Up".
6. Position the lights vertically by pressing "Tilt Down" and "Tilt Up".
7. Position the lights horizontally by pressing "Pan Right" and "Pan Left".
8. If desired, lower the mast by pressing "Mast Down".
9. Stow the mast by performing one of the following steps:
 - **Quickly press the "Mast Down" button twice (Auto Stow® feature). It is recommended to use the Auto Stow® feature to stow the mast.**
 - To abort Auto Stow®, press the any controller button.
 - Press and hold "Mast Down" until all LEDs on the controller turn off.
 - Ensure that "Mast Down" is released only after the controller LEDs turn off which means the mast is stowed



Light Tower Controller



D-Tec II Safety System:

Provides limited protection against raising the light tower mast into power lines or physical obstructions. When the mast begins raising, the control begins initiating the D-Tec II sensor and self-tests continuously until it either passes or the mast reaches 90 degrees. If the test is passed the operator will be permitted to extend the mast. If an obstruction is sensed, the mast will stop extending. Alphanumeric messages and codes will be displayed on the device controller to provide clarity into why the mast will not extend. If the operator believes the sensed condition is false, it can be cleared in two ways: momentarily initiating the auto-stow function, or lowering the mast to the bottom of the 90 degree position. At either point the alarm will clear and the operator can again attempt to raise the mast.

D-TEC error codes

Message	Meaning	Root Issue
D-TEC Testing	The D-TEC II Sensor is performing a self-test.	The D-TEC II has repeatedly been trying to pass the self-test while moving to the RCP active position. Normally, it will pass one of these attempts and no message will be displayed. If not, once there it tries one more time to pass and this message will displayed during the self-test.
Power Line E-Field	The D-TEC II has sensed voltage from a power line.	A power line may be in close proximity. If so, move the vehicle to a location away from the power line, and then redeploy the system.
Power Line H-Field	The D-TEC II has sensed current from a power line.	A power line may be in close proximity. If so, move the vehicle to a location away from the power line, and then redeploy the system.
D-TEC Obstruction	The D-TEC II has sensed some type of physical obstruction.	A physical obstruction may be in close proximity. If so, move the vehicle to a location away from the obstruction, and then redeploy the system. Certain high frequency sounds (e.g. air from pneumatic tools) or fluorescent lights may also interfere.
D-TEC OSHA Limit	The D-TEC II has sensed voltage from a very high power line.	A power line may be in close proximity. If so, move the vehicle to a location away from the power line, and then redeploy the system.

https://www.willburt.com/wp-content/uploads/filebase/product_manuals/Night-Scan-Powerlite-3.0-4.5-6.0-7.5-Operators-Manual-November-2016-Current.pdf

Emergency Light and Sirens

Rescue Squad 715 is equipped with all LED emergency lighting. The emergency lights can be controlled from the driver or officer position from the V-Mux screen. They can also be controlled via the MW option of the steering wheel.

Rescue Squad 715 is equipped with 3 sirens:

1. Federal Q2B
 - a. Controlled via Officer or Driver foot pedal.
2. Whelen Electronic Siren w/ Federal BP200, 200 Watt speaker- Front Bumper
 - a. Controlled in cab via Driver area center, overhead.
 - b. This siren has multiple sound and PA options.
 - c. The T3 position is the PowerCall option.
3. Whelen Electronic Siren w/ Federal ES100, 100 Watt speaker- Rear of body
 - a. Controlled via Alpha 3 operating switch by Driver.

Winches

Rescue Squad 715 is equipped with 3 winches.

1. Rear Hydraulic Winch- Ramsey Model H800R 20,000 lb. capacity
 - a. 200 ft. synthetic rope, 5/8" diameter
 - b. Controller stored in winch compartment
2. Front Electric Winch- Ramsey Model RE12000X 12,000 lb. capacity
 - a. 125 ft. synthetic rope, 3/8" diameter
 - b. Controller stored in winch compartment
3. Portable Electric winch- Ramsey Model QM 9000 9,000 lb. capacity
 - a. 100 ft. synthetic rope 3/8" diameter
 - b. Controller stored strapped to the winch unit.

The hydraulic PTO must be utilized to provide power for the rear winch. Both the front winch and portable winch are powered via 12V and only require the unit's ignition to be turned on or the vehicle running.

The portable winch can be operated on the front and rear of the unit as well as three other points on either side of the body. Every receiver point is equipped with a power connection nearby.



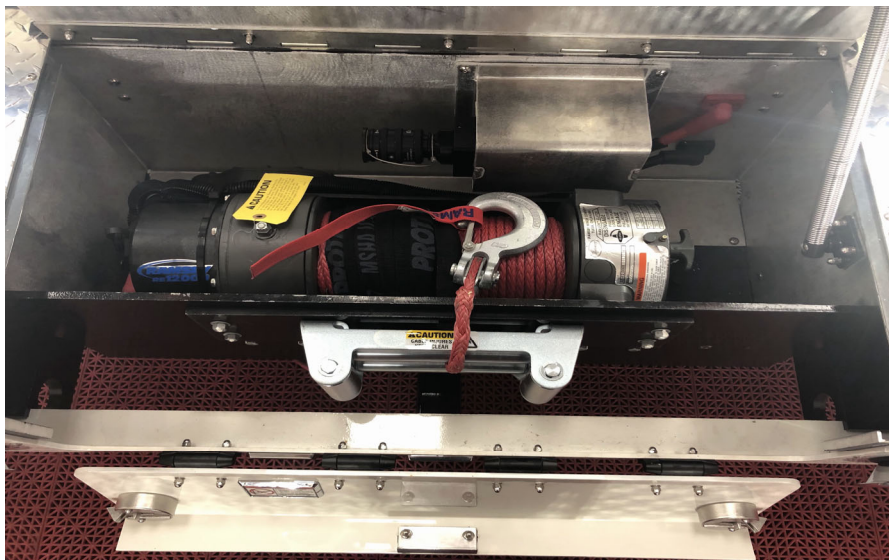
Rear winch



Portable winch



Front Winch



Anchors and receivers

Rescue Squad 715 is equipped with two, 9,000 lb. anchors on each side of the body straddling compartment L2/R2.



The unit is also equipped with 8- 9,000 lb. receivers. In the following locations:

- Front
- Rear
- 2-Side under L2/R2 (centered in side anchors)
- 2-Side compartment between tandem axles
- 2-Side under L5/R5

Each receiver is co-located with a power connection, protected by an enclosed box.



Alcoa Dura Brite Wheel Finish

<https://www.alcoawheels.com/durabright/>

How to Clean Dura-Bright® Wheels

Dura-Bright® Wheels are the no-polish, easy-maintenance way to bright, shiny wheels that stay that way when properly maintained. Because the Dura-Bright® production process penetrates the aluminum, these wheels keep their shine, even after hundreds of washes and thousands of miles – without polishing.

Since Dura-Bright® Wheels clean easily with mild soap and water, they eliminate the need for harsh cleaning products, further protecting the environment and reducing maintenance costs.



Step 1: Cool down

Before cleaning, allow the wheels to cool down to a temperature below 95° F (35° C).



Step 2: Pre-rinse

To prevent scratching and abrasion, rinse wheels thoroughly with a water hose or power washer to remove any loose and visible dirt/debris.



Step 3: Prepare cleaning solution

Add a **mild** detergent, like common liquid dish soap, to the water at the specified dilution ratio before applying to vehicle.

- The pH level should be 3-11 for Dura-Bright® EVO (5-9 for Dura-Bright® XBR) in diluted/ready-to-use state.
- If using multiple solutions, each solution must fall within the pH range of 3-11 for Dura-Bright® EVO (5-9 for Dura-Bright® XBR).
- Do not use Hydrofluoric Acid (HF), Hydrochloric Acid (HCl) or Sulfuric Acid (H_2SO_4) on Dura-Bright® Wheels.



This is an example of how to test pH.



Step 4: Clean the wheel

Apply soap or detergent generously on wheel surface with either a spray applicator, a clean, soft bristled brush or soft sponge.

- Abrasive tools and scouring pads (e.g. 3M Scotch-Brite®) **should not be used.**



Step 5: Rinse the wheel

Rinse the wheel thoroughly with clean water to remove all remaining soap and dirt. Dry your wheels with a soft cloth that is free of debris.

Note:
If the wheel requires additional cleaning repeat steps 1-5.

To extend the life of your product

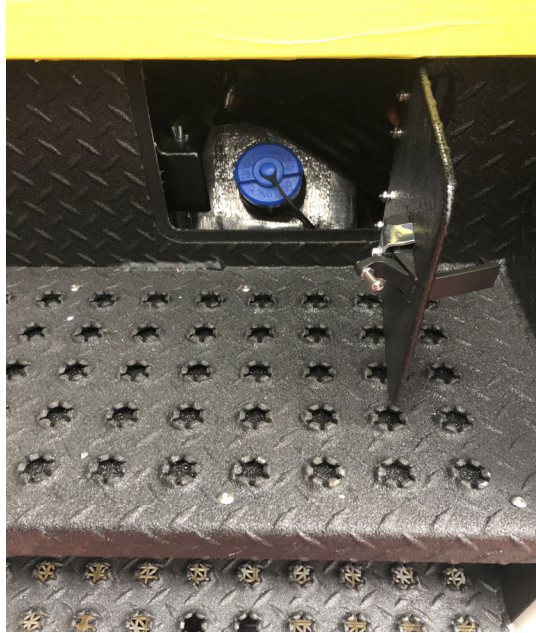
& prevent build-up of dirt/debris, we recommend rinsing wheels with water via hose or pressure washer regularly.

Fueling

Rescue Squad 715 is equipped with fuel fills on both sides of the apparatus. The driver's side has a Fuel Master Fuel ring installed.

DEF

The DEF fill is located in the step well of the driver's side rear cab door.



SCBA Cylinder and wheel chock storage

Driver's side Front of tandem axle

Wheel chock storage



Driver's side Rear of tandem axle



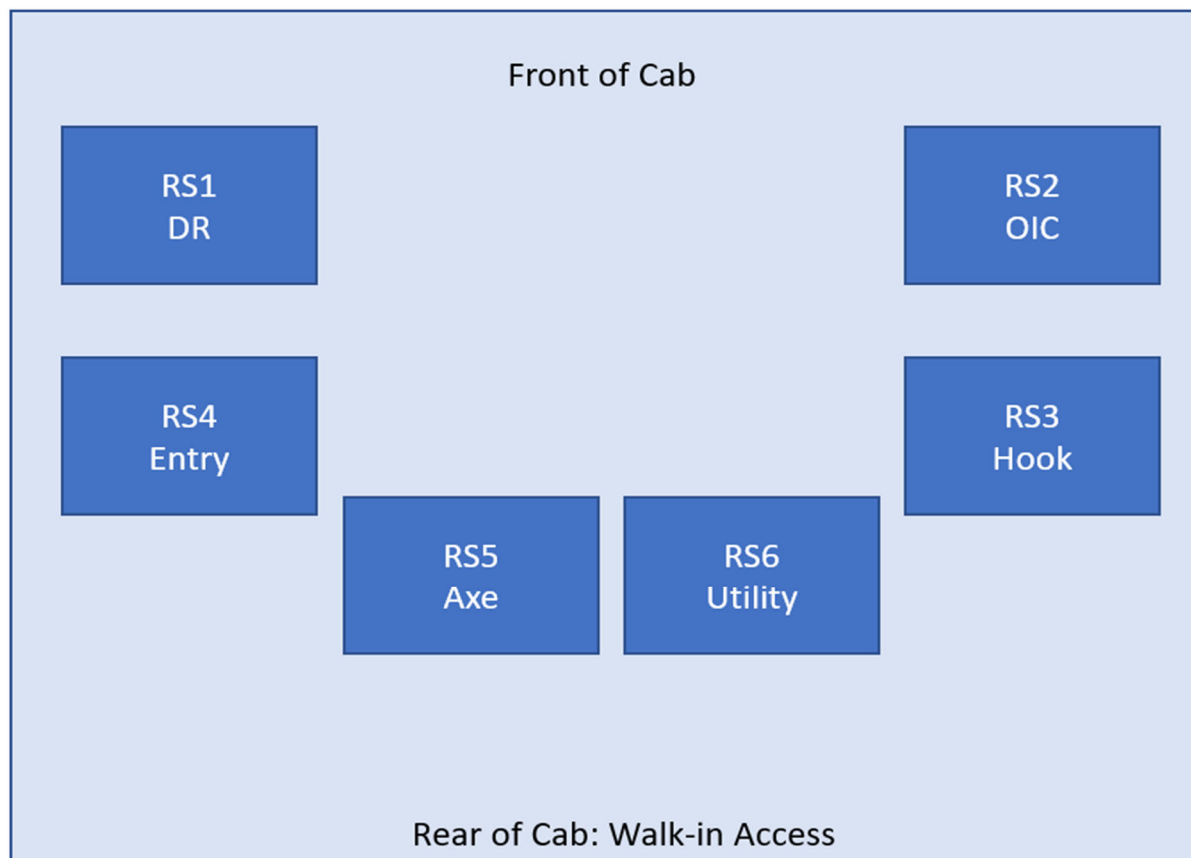
Officer's side Front of tandem axle



Officer's side Rear of tandem axle



Interior Seating Overview



Monthly Maintenance

Rescue Squad 715 is not equipped with a Vogel Lube system. Based on this CMF has asked for the following items to be greased during the unit's monthly check:

- Kings pins- Top and Bottom
- Tie rod ends
- Steering shaft and miter box
- Drive shaft slip joint and U joints

Other Considerations

Drivers should remain cognizant of the belly compartment clearance when operating RS715, specifically during tight turns and/or grade changes.

