

The aerial portion of this manual has been prepared with the assistance of service and engineering specialists to acquaint you with the operation and maintenance of your new aerial. You are urged to read these publications carefully. Following the instructions and recommendations in this manual will help assure the safe and enjoyable operation of your aerial.

When it comes to service, remember that your manufacturer's dealer knows your aerial best and has factory-trained technicians and specialists who are interested in your satisfaction. To ensure the full period of your warranty all service work should be done by Rosenbauer or a Rosenbauer approved facility.

To maintain the structural warranty, it is the responsibility of the department to have the unit inspected by an authorized independent testing company on an annual basis. Copies of all such inspection forms are to be supplied to Rosenbauer at the following address.:

Rosenbauer Aerials
870 S. Broad St.
Fremont, NE 68025
P & F: (402) 721-7622



WARNING

Before operating unit, read and understand all operating and safety information in manual.

OPERATORS TRAINING

Designated Rosenbauer personnel offers preventative maintenance and hands-on operating familiarization prior to the department operating the unit.

It will be the responsibility of the department to permit only qualified operators, as determined by Fire Department, to operate the aerial apparatus. The operators must be aware of the proper fire ground tactics, practice all known safety rules such as ground support for proper stabilizer placement, use of auxiliary pads and awareness of overhead wires. It is also vital the operator understands the load chart as well as the capabilities and limitations of the device.

HYDRAULIC OIL ANALYSIS

Rosenbauer recommends that when the department receives the truck a hydraulic sample should be taken and tested to be used as a baseline for future maintenance checks. The analysis should include but is not limited to the partial count, spectrochemical, water content and viscosity. The oil sample should be taken from the aerial oil tank after oil has been warmed to normal system operation temperatures (115 degrees or higher)

AERIAL INSPECTION

Rosenbauer recommends a primary inspection be done after the delivery and operation familiarization are completed on the aerial. The inspection will help the operator become familiar with preventative maintenance procedures as well as the up keep of the aerial device including but not limited to cable adjustment, lubrication, cylinders and operations. The operator's awareness of how the properly adjusted aerial operates could prevent future failures or aerial damage.

STRUCTURAL ADJUSTMENTS

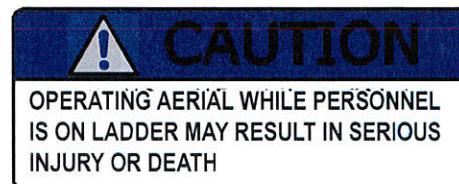
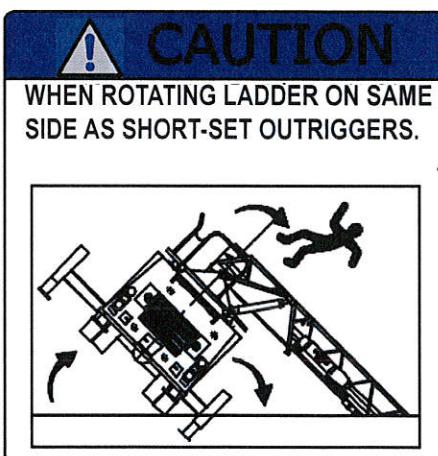
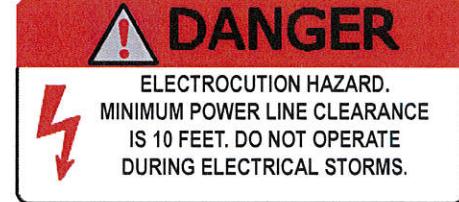
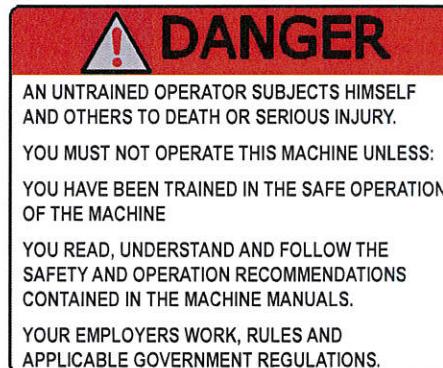
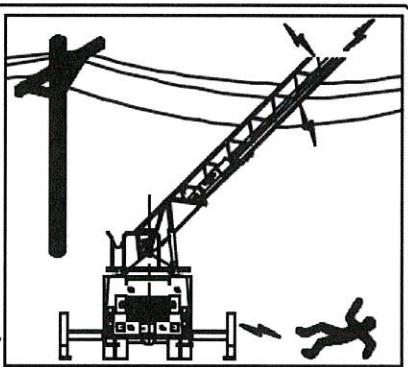
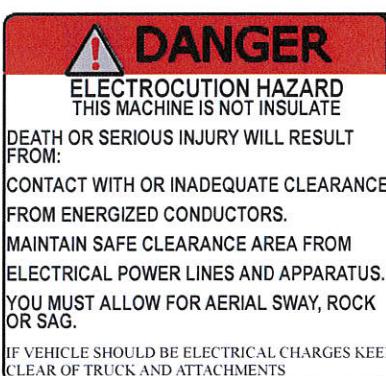
Rosenbauer will not be held responsible for any adjustments or changes made to the aerial device including but not limited to drilling of holes or welding of any sort. If modifications need to be made to the device, written consent will need to be obtained from the aerial facility.

EQUIPMENT MOUNT ON AERIAL

All equipment mounted on the aerial device including but not limited to axes, pike poles, storage boxes, rescue baskets and roof ladders need to be mounted securely as the manufacturer intended for extreme travel conditions.

SAFETY OPERATIONS

It is the responsibility of the operator to know the condition of the aerial before operating. A quick and accurate visual check should be preformed of the following (but not limited to) cables, cylinders, pins, equipment, switches, monitors, intercoms etc.



AERIAL CONSTRUCTION COMPONENTS

The aerial device is made to assist firefighters and civilians in potential life threatening situations. The aerials main members are constructed out of 100,000 and 70,000 PSI steel to ensure the tensile strength of each section. Each section consist of diagonals, k-braces, handrails and rungs.

The rungs are covered with a high traction illuminated cover to ensure a safe climbing environment. The rungs are round in shape to ensure a large stepping area.

The aerial will either be sealed with a primer and paint to protect the aerial from corrosion or hot dipped galvanized in a vat of molten zinc to protect the entire interior and exterior from corrosion.

TURNTABLE CONSTRUCTION COMPONENTS

The turntable is connected to the bearing plate using grade 8 bolts. It is the connecting point of the aerial hoist cylinders and the operators station. The walking surface for the turntable is skid-resistant aluminum tread brite. The turntable has lights installed to illuminate it for night time operation.

TORQUE BOX CONSTRUCTION COMPONENTS

The torque tube is designed to accommodate the correct strength to weight ratio. It is the substructure of the aerial and the turntable is connected to it.

The torque box will either be sealed with a primer and paint to prevent the torque box from corrosion or be hot dipped galvanized in a vat of molten zinc to protect the entire interior and exterior from corrosion.

ELEVATION SYSTEM

Two elevating cylinders are connected from the underside of the base section to the aerial turntable. They allow the aerial to elevate from -10 degrees to +75 degrees. Each cylinder has counterbalance valves connected directly to the barrel of the cylinder. The cylinders have spherical bushings to minimize cylinder rod wear. A pressure-reducing valve limits the force of the aerial when lowering and the system pressure limits the force when elevating the aerial.

EXTENSION/RETRACTION SYSTEM

Two extension cylinders are connected to the base section of the ladder. The extension cylinders have counter balance valves mounted directly to the rod side of the cylinder. The extension cylinders extend and retract the aerial with a 4:1 cable cylinder arrangement from totally retracted to 98' at 75 degrees totally extended.

ROTATION SYSTEM

One hydraulically motor operate planetary gearbox is installed on the turntable to allow for continuous 360 degree rotation. The turntable bearing bolts are required to be checked and re-torqued at regular intervals, the bolts are able to be easily re-torqued from the top of the turntable. The bearing is bolted to the bearing base plate using sixty (60) 5/8" SAE Grade 8 bolts. The bearing is bolted to the turntable using fifty-five (55) 5/8" SAE Grade 8 bolts. One hydraulic release/spring brake provides a positive lock to prevent rotation. One pressure reducing valve controls the force of the rotation and the side loads on the aerial.

ROTATION INTERLOCK

A rotation interlock has been put into place to prevent the rotation of the aerial into an unsafe or potential tip over situation.

BOOM SUPPORT

A heavy duty boom support is provided behind the cab and connected to the frame rails of the chassis to support the aerial device. The boom support doubles as the aerial oil tank reservoir.

OPERATION CONTROL LOCATIONS

Two control boxes are located one on the left and one on the right of the back of the truck for operation of the outriggers. One box is located in the lower center of the back of the truck to serve as an overall information and operation station for both outrigger control locations

One control station is located on the turntable and one in the platform for aerial operations.

IMPORTANT:

The following operating procedures are intended to assist in safe operation of the aerial. Any deviation from these procedures is not recommended and is done so at the risk of the operator.

Pre-Driving Checks

It is important to check the following items before driving the truck.

1. Ladder fully stowed in ladder bed. Door ajar light will illuminate indicating ladder is not stowed (optional).
2. Outriggers stowed for travel. Door ajar light will illuminate indicating outriggers are not stowed.
3. Aerial Master switch (or aerial master/PTO switch) is in the Off position (switch located in cab).

Positioning the Truck for Operation

1. Determine if the aerial will be used as a water tower or for rescue.
2. Make sure to note ALL overhead obstructions.
3. Scan scene to position the truck for best attack.

NOTE: For the best positioning, a corner of a building is highly suggested. This gives the operator access to two sides of the structure as well as the roof.

REMINDER: The operator should always observe the placement of the fire fighting vehicle to be sure that there is enough space for the stabilizers to be set and the aerial to be operated without any obstructions.

Obstructions to be most aware of include, but are not limited to: adjacent buildings, curbs, drop-offs at road edges, man holes, vehicles, trees, over head electrical wires, ditches and culverts.

**DANGER**

Should the aerial come into contact with an electrical wire the operator needs to stay on the truck as all personnel has become part of the charge of the wire. Should the operator need to get off the truck the operator should do so by jumping off and not stepping. Stepping off will cause a surge from the ground to the truck using the operator as it's electrical passageway causing serious injury or death.

The aerial apparatus can be set up one of two ways, uphill or downhill. Depending on the situation one method could prove to be more accommodating than the other. Operators should be aware of the advantages and disadvantages of each method to determine how the truck will be positioned. In either condition, the truck is capable of being leveled within safe operating parameters.

SETTING FRONT OF TRUCK TO UPHILL GRADES

With maximum grades the truck should be positioned with the cab facing uphill. Aerial should be operated over the rear.

Advantages:

- Can reduce the truck's grade by extending the rear outrigger stabilizer jacks.
- When truck is set up the front tires will be in contact with the ground.
- With the outriggers set operator has more ballast for the operation of the aerial

Disadvantages:

- Since only the front tires are on the ground there is less resistance to prevent truck movement.
- The rear compartment and aerial access step are more difficult to access.

SETTING FRONT OF TRUCK TO DOWNSHILL GRADE**Advantages:**

- Rear compartments are closer to the ground for easier access.
- Better resistance to keep the truck from sliding by having more tires in contact with the ground.

Disadvantages:

- Can not reduce the trucks grade by extending the front outrigger stabilizer jacks. **FRONT TIRES MUST STAY ON THE GROUND WHEN OPERATING OVER THE FRONT OF THE TRUCK.**
- It is possible that the truck will teeter if the aerial is operated over the front stabilizers with the front tires off the ground.
- There will be less ballast for aerial operations with the rear tires on the ground.
- When setting up the stabilizers the ground must be firm. It is highly recommended that the operator uses the outrigger pads provided. Setting up over manholes, underground parking facilities or storm drains could cause serious damage to the operator and/or serious damage to the truck. The area must be able to support 75 PSI.

With a Rear Mounted Aerial truck positioned down hill the front tires must stay in contact with the ground if operating the aerial with the ladder over 50% extended and within 45 degrees rotation either side of the cab.

SETTING THE CAB

1. Place the transmission into the neutral position
2. Set the park brake
3. Switch on the aerial master. When the aerial master is switched on there is electrical power to the aerial system. At this time flashing lights on the outriggers will begin to operate.
4. Switch on the Power Take-Off (PTO).

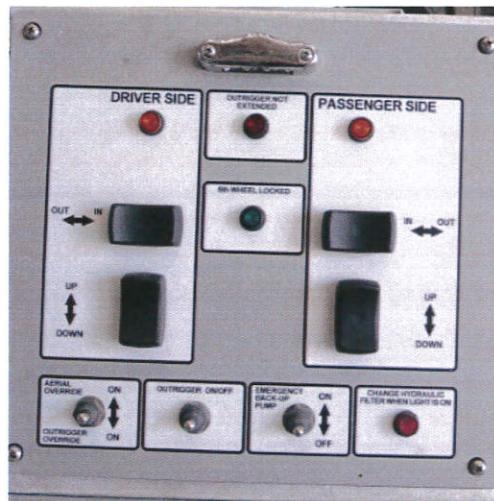
Note: It is important to note that step # 4 cannot be performed before step # 3 has been completed and step # 2 cannot be completed until step # 1 has been completed. Some trucks will have the aerial master and PTO switch combined .

The transmission must be in neutral or 4th gear for the water pump to be engaged. The parking brake must be set before the ladder power will operate. If the water pump is engaged, the high idle of the aerial will be disengaged.

A qualified operator, as determined by the fire department, is now ready to set the stabilizers.

Outrigger Controls Passenger's Side:

1. Driver Side Outrigger Indicator Light
2. Outrigger Not Extended Light
3. Passenger's Side Outrigger Indicator Light
4. 5th Wheel Locked Light
5. Aerial/Outrigger Override Switch
6. Outrigger On/Off Switch
7. Emergency Back-Up Pump Switch
8. Change Hydraulic Filter Light
9. Manual Outrigger Controls Levers

**Outrigger Controls Driver's Side:**

1. Aerial Smart Screen
2. Outrigger On/Off Switch
3. Aerial/Outrigger Override Switch
4. Emergency Back-Up Pump Switch



SMART AERIAL OUTRIGGER PANEL

1. Aerial/Outrigger Override Switch

- With the aerial out of the bed, the outriggers can no longer be operated. If a case arises where the outriggers need to be readjusted, activate the momentary Aerial/Outrigger Override Switch down to Outrigger Override. Adjust the outrigger controls (left/right, up/down) until the outrigger is set to the desired place.
- If a case arises where the aerial needs to be overridden, activate the momentary Aerial/Outrigger Override Switch up to Aerial Override. A second operator will then need to adjust the aerial to the desired location using the manual aerial controls (extend/retract, left/right, raise/lower). Extreme caution must be taken when using the overrides.
-

2. Outrigger On/Off Switch

- The Outrigger On/Off Switch must be turned on before the outriggers can be operated. This will enable the high idle if water pump is not engaged.

3. Emergency Back up Pump Switch

- The sole purpose of the Emergency Back-Up Pump is to stow the aerial in case of hydraulic failure.
- To Use Emergency Back-Up Pump
 - Select the operation required (outrigger or aerial) and move switch to the on position.
 - Engage the outrigger or aerial control handle.
 - Activate momentarily the Emergency 12V Back-Up Pump
- To ensure that the Emergency Back-Up Pump doesn't over heat, it can only operate 5 minutes out of 60.

4. Change Hydraulic Filter when Light is On

When this light is illuminated the high pressure and return hydraulic filters are dirty and need to be changed, both filters are connected to the same light.

5. Driver Side Outrigger Deployment Controls

To deploy the outriggers on the drivers side the outrigger on/off switch needs to be in the on position. Press deployment control out until the outrigger is fully deployed out. Then press the deployment control down until the outrigger is completely set (the bubble taken out of the tire).

6. Outrigger Not Extended Light

- The Outrigger Not Extended Light will be lit solidly if any outrigger is not fully extended
- The Outrigger Not Extended Light will be lit solidly if any jack is not set on the ground.
- The Outrigger Not Extended Light will flash rapidly (5 times per second) if the aerial is out of the bed and the outrigger switch is turned on preventing outrigger operations.

7. 5th Wheel Locked Light

The 5th wheel locked light will illuminate and automatically lock when the outriggers are fully set and the outrigger on/off switch is put into the off position. When the outrigger on/off switch is in the on position the 5th wheel lock will unlock automatically.

SMART AERIAL OUTRIGGER PANEL CONTINUED

8. Passenger Side Outrigger Deployment Control

To deploy the outriggers on the passengers side the outrigger on/off switch needs to be in the on position. Press deployment control out until the outrigger is fully deployed out. Then press the deployment control down until the outrigger is completely set (the bubble taken out of the tire).

9. Outrigger Indicator Lights

The Outrigger Indicator Lights are provided for each outrigger jack to indicate when an outrigger makes contact with the ground. Each individual outrigger status Jack Light has four conditions to provide, at a glance, the position of each outrigger's condition.

- The Jack Light will remain unlit when the outrigger is fully retracted and the jack is not set on the ground.
- The Jack Light will flash rapidly (five flashes per second) if the outrigger is extended and the jack is not set on the ground.
- The Jack Light will flash slowly (twice per second) if the jack is set on the ground but the outrigger is not fully extended.
- The Jack Light will remain lit solidly if the jack is set on the ground and the outrigger is fully extended.

SETTING THE OUTRIGGERS:

With tire chocks set the operator will proceed to the outrigger station. The Outrigger Not Extended Light will be illuminated. This light will stay illuminated until all outriggers have been fully extended and are making contact with the ground.

1. Move Outrigger On/Off Switch to the ON position
 - This will cause the high idle to engage and the warning alarm will begin. The alarm alerts all other personnel the outriggers are being positioned. If the water pump is engaged the high idle of the aerial will be disengaged.
 - With the switch in the on position the 5th wheel lock will be unlocked.
2. Use Controllers to Extend Outriggers.
 - The outrigger controls are located to the back, outside of the truck to provide the operator a good clear vision to set up the outriggers.
 - The controllers are designed to move in the same direction as the corresponding outrigger. (Example: To extend the right outrigger you would push the controller to the right to extend and to the left to retract.)
3. Position outrigger pads under jack locations
4. Lower outrigger jacks
 - The controllers are designed to move in the same direction as the corresponding outrigger. (Example: To lower the right outrigger you would push down on the controller.)
 - Take the bubble out of the truck tire or level truck as much as possible.
 - As the truck is leveled or the bubble is taken out, each Jack Indicator Light will respond according to how the outrigger is set (see different setting under Jack Indicator Light description on the control panel).
 - Once all outrigger beams are fully extended and making contact with the ground the Outrigger Not Extended Light will go out.
5. When outriggers are set move the Outrigger On/Off Switch to the OFF position.
 - With the switch in the off position the 5th wheel lock will automatically lock into place and the light will illuminate and an icon will appear on the screen.
6. Install outrigger jack safety pins.
 - Safety pins are not required for operating the aerial. However, we strongly recommend installing them as an additional back up safety feature.

Outrigger operation set up is completed.

NOTE: The aerial safety interlock control system will not activate until the outriggers are placed securely on the ground.

Should any two outriggers at any point come off the ground the aerial will come to a feather-soft stop. The operator will need to retract and raise the aerial out of the unsafe position. Once the aerial is in a safe position the aerial can continue operations as normal.

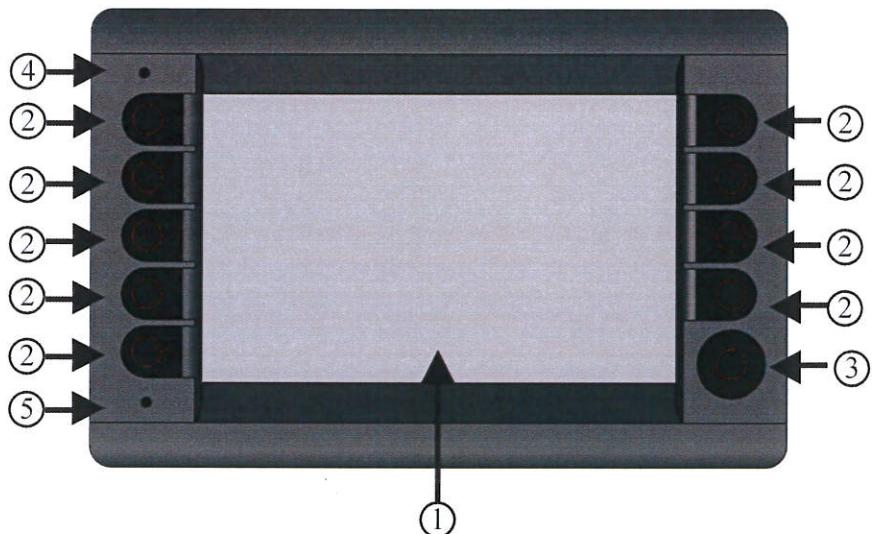
STOWING THE OUTRIGGERS:

With the aerial bedded in the boom support, the outriggers are now ready to be stowed.

1. Activate Outrigger On/Off Switch to the ON position
 - This will cause the high idle to engage and the warning alarm will begin. The alarm alerts all other personnel the outriggers can be moved. If the water pump is engaged the high idle of the aerial will be disengaged.
2. Remove and return jack safety pins to their proper location
3. Raise outrigger jacks
 - The controllers are designed to move in the same direction as the corresponding outrigger. (Example: To raise the right outrigger you would pull up on the controller.)
4. Return outrigger pads to their proper location
5. Use Controllers to Retract Outriggers.
 - The outrigger controls are located to the back, outside of the truck to provide the operator a good clear vision to set up the outriggers.
 - The controllers are designed to move in the same direction as the corresponding outrigger. (Example: To retract the right outrigger you would push the controller to the left to retract and to the right to extend.)
6. When outriggers are fully stowed turn the Outrigger On/Off Switch to the OFF position.

AERIAL SMART SCREEN

1. Display Screen
2. Control Buttons
3. Screen Display Scroll Button
4. Light Sensor
5. Power Indicator



AERIAL SMART SCREEN

1. Display Screen

The area where the different screens will display information for the operator.

2. Control Buttons

All the buttons around the display screen that will control such functions as tip lights, tracking lights, auto bedding, air horn etc . . .

3. Screen Display Scroll Button

This button shall bring the operator from one display screen to the next.

4. Light Sensor

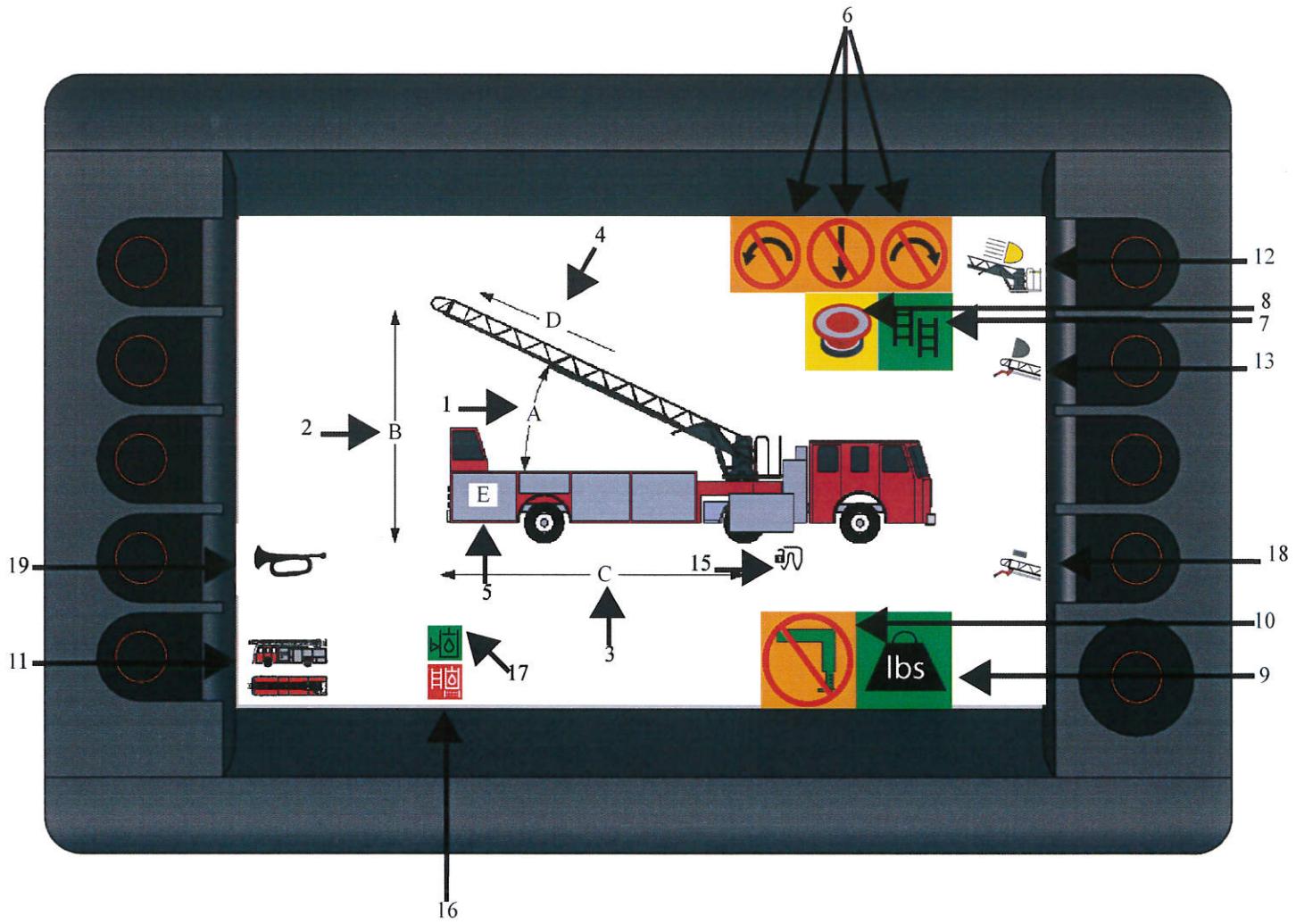
This sensor registers the brightness on the display screen and will automatically adjust the brightness.

5. Power Indicator Light

This light will be illuminated green if the screen is receiving power.

AERIAL SMART SCREEN DISPLAY

- | | |
|-----------------------------------|--------------------------------------|
| 1. Aerial Elevation (A) | 10. Outrigger Not Extended Indicator |
| 2. Aerial Height (B) | 11. Auto Bedding Indicator |
| 3. Aerial Reach (C) | 12. Tracking Light Button |
| 4. Aerial Extension Remaining (D) | 13. Tip Light Button |
| 5. Aerial Rotation (E) | 14. Breathing Air |
| 6. Operational Envelop Indicators | 15. 5th Wheel Lock |
| 7. Rung Alignment Indicator | 16. Dirty Filter Indicator |
| 8. Emergency Stop Indicator | 17. Hydraulic Tank Level Indicator |
| 9. Aerial Load Gauge | 18. Tip Marker Lights |
| | 19. Air Horn |



SMART SCREEN DISPLAY

1. Aerial Elevation (A)

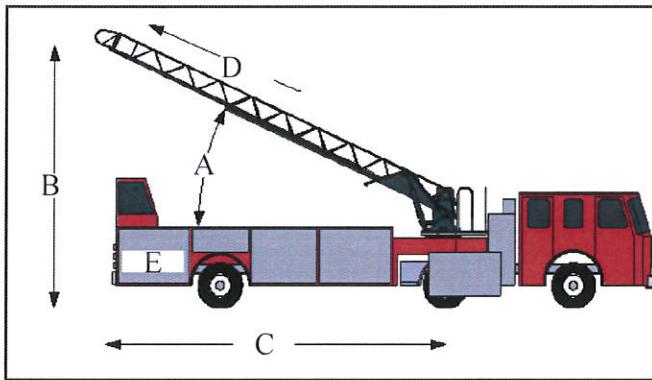
The “A” displays the aerial elevation in degrees.

2. Aerial Height (B)

The “B” displays the height of the aerial.

3. Aerial Reach (C)

The “C” displays the reach of the aerial.



4. Aerial Extension Remaining (D)

The “D” displays the extension remaining.

5. Aerial Rotation (E)

The “E” displays rotation angle. Left of the ladder bed is negative numbers and right of the ladder bed is positive numbers.



6. Operational Envelope Indicators

Indicators (left disabled, down disabled & right disabled) will illuminate when their respective function of the aerial has been disabled. Should the aerial enter an overload situation the down disable and right and/or left disable light will illuminate indicating the aerial will need to be retracted and raised in order to continue operations. If the aerial is lowered at a pre programmed position over the cab or body the aerial will come to a smooth stop and the down disabled light will illuminate. If right or left rotation light is on, the aerial is restricted from operating in that direction. With the ladder in the bedded position both left and right disabled indicators will appear and the down disabled indicator will not.



7. Rung Alignment Indicator

The rung alignment indicator will illuminate when the rungs are aligned. While extending or retracting the aerial this indicator will flash on and off in accordance with the rungs being aligned. It is recommended that the rungs be aligned when personnel are climbing the aerial for personal safety.



8. Emergency Stop Switch

Should the operator come into a dangerous situation and need to stop the aerial immediately push down on the emergency stop button at the control station and the aerial will come to an immediate stop. The operator will need to pull up on the emergency stop button in order to reactive the aerial operation controls. When the emergency stop is engaged an indicator will appear on the screen indicating so.

CONTROL PANEL FUNCTIONS CONTINUED



9. Aerial Load Monitor

The screen will continually indicate the state of the load on the aerial.

The green indicator states that the load is within load limits.

The yellow indicator states caution, alerting the operator that the load is getting closer to overload.

The red indicator states overload when the rated load capacity is approximately 100 less than the rated live load.

The red indicator will flash between the red and the red with the yellow cautionary symbol over it when the rated capacity is exceeded by more than 100 pounds of the rated live load. A horn will also emit at this time.



10. Outrigger Not Extended Indicator

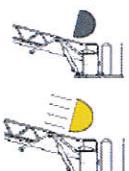
The outrigger not extended indicator will be illuminated if any outrigger is short set or doesn't have solid contact with the ground.

When any outrigger is preventing the aerial from moving the outrigger not extended indicator will flash with the cautionary symbol.



11. Auto Bedding Switch & Indicator

When auto bedding icon indicator is displayed auto bedding is enabled. The auto bedding indicator will be a moving display on the screen picturing the ladder in the ready to bed stage and then bedded. The auto bedding switch is a momentary switch. The aerial needs to be approximately 20% extended, 20 degrees to the right or left of the ladder bed and below 20 degrees elevated. Activate on the momentary auto bedding switch and the aerial will automatically bed itself. If the switch is released the aerial will stop moving.



12. Tracking Lights Switch

To activate the tracking lights, (lights located on the base section in front of the elevation cylinders) the button will need to be pushed to activate the lights on and off. This button will activate all AC and DC tracking lights as well as the panel light and optional rung lighting.

The indicator on the screen will display a gray light when lights are off.

The indicator on the screen will display yellow when the lights are activate.

Most AC and DC lights provided also include a switch on the lamp head itself. If personnel switched the switch on the lamp head to the off position the operator will not be able to override it from the control panel. The switch will need to be reengaged from the lamp head.

CONTROL PANEL FUNCTIONS CONTINUED

13. Tip Lights Switch



To activate the tip lights, (lights located on the front of the platform) the button will need to be pushed to activate the lights on and off. This button will activate all AC and DC tip lights.

The indicator on the screen will display a gray light when lights are off.

The indicator on the screen will display a yellow light when lights are activated. Most AC and DC lights provided also include a switch on the lamp head itself. If personnel switched the switch on the lamp head to the off position the operator will not be able to override it from the control panel. The switch will need to be reengaged from the lamp head.

14. Breathing Air Monitor



The Smart Aerial Air will be continuously monitored and displayed on the screen.

The green indicator states that there is enough air in the bottle.

The yellow indicator states that there is only 30% air left in the bottle.

The red indicator will start flashing between the solid state.

The red with the cautionary symbol indicating there is less than 20% of air in the bottle. At this time a horn will sound. The percentage of air in the bottle will continually be displayed on the indicator.

15. 5th Wheel Lock



The 5th wheel lock will engage and disengaged automatically depending on the position of the outriggers. When the outrigger on/off switch is in the on position and the outriggers are able to be adjusted the indicator will show the 5th wheel as unlocked. Once the outriggers are fully set and the outrigger on/off switch is put into the off position the 5th wheel will automatically lock and the indicator will show as locked. The indicator will appear on both the main information screen and on the outrigger screen.



16. Dirty Filter Indicator

The dirty filter indicator is to alert the operator that one or more of the aerial filters (high pressure, return filter) are dirty and need to be changed. It is recommended that when the indicator appears all filters be changed. The filter will only appear on the screen when there is a dirty filter.

17. Hydraulic Tank Level Indicator



These icons will let you know if the hydraulic oil in your reservoir is getting low. The green hydraulic oil tank level icon is displayed when the tank level is full (within 5 gallons from full mark on dipstick). The amber hydraulic oil tank level icon is displayed when the tank is OK to operate (from 5 gallons below full, to 5 gallons above primary suction line). The red hydraulic oil tank level icon is displayed when the tank is critically low (less than 5 gallons above primary suction line).

18. Tip Marker Lights

The tip marker lights are located on the tip of the aerial to help the operator and ground personal better identify where the tip of the aerial is. Push the button and the lights will activate and the icon will illuminate to green. Push the button again and the lights will turn off and the icon will become gray.

19. Air Horn

The air horn switch is a momentary switch. Push the button and the horn will emit and the icon on the screen will turn green. Release the button and the horn will stop and the icon will turn to black.

**CAUTION**

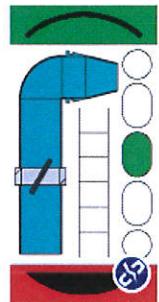
A blue circle with a chain link broken with a lightning bolt is an indication that the smart screen has lost communication with a specific function. This icon will flash in the corner of the appropriate button image.



For example, if the screen cannot communicate with the electric actuated water-way latch control module:



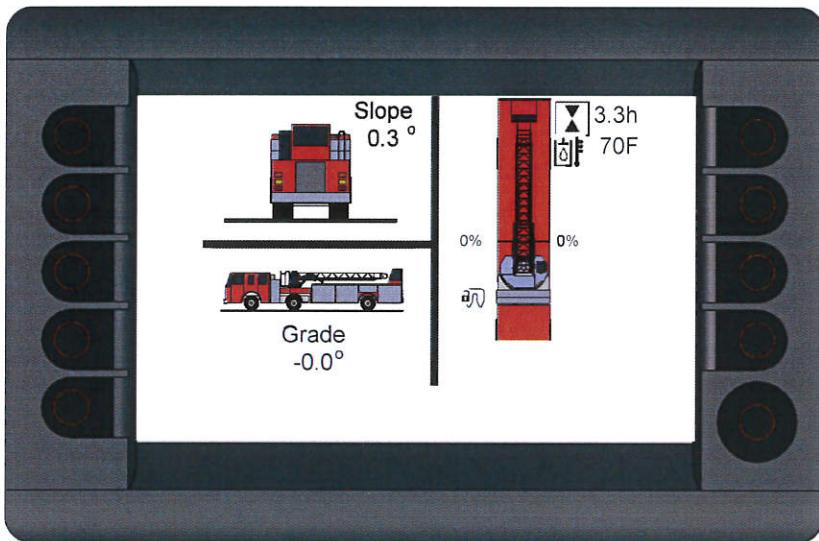
If the screen cannot communicate with the aerial control system:



If the screen cannot communicate with the proportionally controlled electric butterfly valve:

AERIAL SMART SCREEN DISPLAY

1. Side to Side Slope
2. Front to Back Slope
3. Outrigger Configuration
4. Aerial Hour Meter
5. 5th Wheel Lock

**AERIAL SMART SCREEN DISPLAY THREE**

1. Engine RPM
2. Engine Coolant Temperature
3. Engine Oil Pressure
4. Battery Charging Condition
5. Transmission Fluid Temperature
6. Fuel Level



SMART SCREEN DISPLAY

1. Side to Side Slope



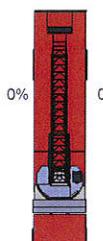
The top portion of the screen displays side to side leveling of the truck. As the outriggers are set the slope will change, in degrees, to indicate how level the truck is side to side. It is highly recommended the truck be set within five degrees to the left or right.

2. Front to Back Slope



The bottom portion of the screen displays front to back leveling of the truck. As the outriggers are set up the grade will change, in degrees, to indicate how level the truck is front to back. It is highly recommended the truck be set within five degrees to the

3. Outrigger Configuration



The outrigger configuration on the left side of the screen indicates the configuration or each individual outrigger in percentage. As each outrigger is extended the percentage will change until it reaches 100% or the desired extension. Depending on how far the outrigger is extended will determine the color it will appear in on the screen. The color will coordinate with the outrigger coordinates of operation on the load chart.

4. Aerial Hour Meter



3.3h

The aerial hour meter will track the hours the aerial has been operated.

5. 5th Wheel Lock



The 5th wheel lock will engage and disengaged automatically depending on the position of the outriggers. When the outrigger on/off switch is in the on position and the outriggers are able to be adjusted the indicator will show the 5th wheel as unlocked. Once the outriggers are fully set and the outrigger on/off switch is put into the off position the 5th wheel will automatically lock and the indicator will show as locked. The indicator will appear on both the main information screen and on the outrigger screen.

SMART SCREEN DISPLAY

1. Engine RPM



This indicator shows the current engine RPM's.

2. Engine Coolant Temperature



This indicator will show the engine coolant temperature.

3. Engine Oil Pressure



This indicator will show the engine oil pressure.

4. Battery Charging Condition



This indicator will show how charged the battery is.

5. Transmission Fluid Temperature



This indicator will show the transmission fluid temperature.

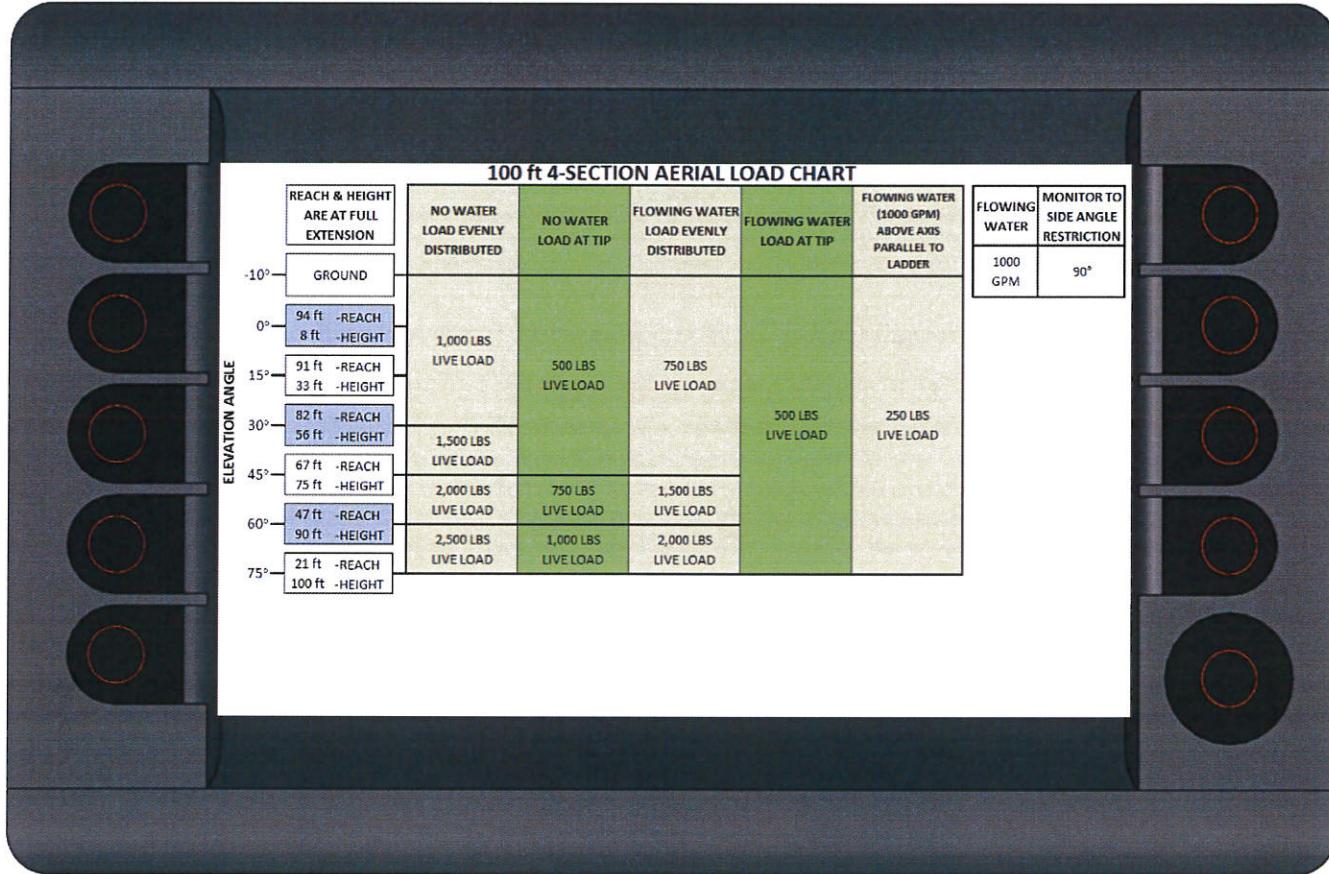
6. Fuel Level



This indicator shows you how much fuel is in the truck.

0.0 %

LOAD CHART



OUTRIGGER SHORT JACKED REACH RESTRICTION DESCRIPTION

While an outrigger is extended 15 inches or less, the aerial will be blocked from rotating over the area the outrigger is designed to support. The aerial will be permitted to rotate back the other way. The alarm will activate when the capabilities are reached within the following limitations:

- While an outrigger is extended 26% to 50%, reach of the aerial will be limited to approximately 40 feet while over the short jacked outrigger
- While an outrigger is extended 51% to 75%, reach of the aerial will be limited to approximately 45 feet while over the short jacked outrigger.
- While an outrigger is extended 76% to 95%, reach of the aerial will be limited to approximately 50 feet while over the short jacked outrigger.

SHORT JACKING A SMART AERIAL

Short jacking is defined as setting up the outrigger to a position less than full extension.

Should the operator be presented with a situation where the truck needs to be set up in tight quarters, it is recommended that the outrigger on the side of least operation be short jacked. Short jacking the outrigger on a Smart Aerial can be performed with one person. A red warning light (outrigger not extended light) at the outrigger and aerial operator's control consoles will warn the operator that one or more outriggers have been short jacked. The jack lights on the outrigger panel will indicate to the operator which outrigger is short jacked.

Using the Programmable Logic Controller (PLC), it is possible to safely operate over short jacked outriggers. The PLC takes continual readings of the load, extension, elevation and rotation of the aerial. The PLC allows the aerial to rotate over the short jacked outrigger. If the aerial is moved over an area with a short jacked outrigger the permitted extension and elevation is controlled by the distance the short jacked outrigger is extended.

The operator can rotate the aerial over the short jacked outrigger as long as it is within the safe operating parameters. If the aerial is not within the preset parameters, the PLC system will automatically ramp the aerial to a feather-soft stop. The only way to rotate out of this position is to retract or raise the aerial and rotate it to the side of the truck where the outriggers are fully deployed. If the aerial is lowered or extended to far when rotated into a short jacked area the rotation will come to a smooth feather-soft stop. Retracting or raising the aerial will return it to a safe operating condition. With one or both front outriggers extended less than 25 percent the aerial will not elevate above 45 degrees.



WARNING

- It is recommended that the aerial only be short jacked in an extreme emergency. Improper operation or overriding of the aerial onto the short jacked side could cause serious injury or death and place the truck in a potential tip over situation.
- Only a qualified operator should operate the aerial over the short jacked side of the truck.

AERIAL OPERATIONS

Before operating the aerial, the operator must be aware of all the load limitations, angle indicators and stabilizer set up.



WARNING

- The operator is responsible for knowing the condition of the aerial device before operating. This should include a quick visual scan of, but not limited, to pins, cables, cylinders, loose equipment, ladder placement, etc..
- During aerial operations safety chains must be connected to close exit/entry position or the optional spring loaded ManSaver safety bar must be across the turntable exit/entry position.
- The operator should be stationed at the turntable control station at all times while the aerial is out of the bedded position.
- All personnel on ladder should wear safety belts at all times.

OPERATING THE AERIAL

1. Open the control console cover.
2. Turn the aerial power switch to the high or low position.
3. Turn on the required switches for lighting.
4. To raise the aerial, lift up on the locking mechanism on the bottom side of the knob on the controller. Pull back on the raise lever to raise the aerial out of the boom support. Raise aerial high enough to avoid any body or cab mounted lighting or equipment.
 - The operator does not need to hold onto the locking mechanism while operating the aerial. The locking mechanism works as a safety feature so the aerial cannot be moved by bumping the lever. When the lever is moved back into the natural position it will automatically lock.



WARNING

Do not extend or retract the ladder sections with personnel standing on the ladder sections, as legs and feet may be jammed between the rungs.

5. To extend the aerial, lift up on the locking mechanism on the bottom side of the knob on the controller. Push forward on the extend lever. As the aerial extends the rung alignment light will illuminate when the rungs are aligned. When the aerial is at the desired extension make sure the light is illuminated. This will ensure a easier and safer climbing surface.
6. To rotate the turntable clockwise (right), lift up on the locking mechanism and push the rotation lever forward. To rotate counterclockwise (left), pull back on the rotation lever.

NOTE: Steps four through six can be repeated as many times as needed to set the aerial to the desired position.

The aerial has the capability to have the elevation, extension, and rotation functions be performed simultaneously. It is strongly recommended that only one function be performed at a time. If in situations of extreme emergency which require performing more than one function at a time it is recommended the aerial be operated by an experienced operator.

CAB & BODY COLLISION PROTECTION

! CAUTION

The cab and body collision protection is pre-programmed based on items that were sold on this unit. Any additional items added to the cab or body will not be protected under the cab & body collision protection.

Three amber lights are on each control panel (left disabled, down disabled, right disabled). If the operator should rotate the aerial to close to the cab or body of the truck the aerial functions will come to a feather-soft stop and the corresponding disable light will illuminate. The operator will need to rotate up and in the opposite direction to activate the disabled function.

STOWING THE AERIAL

After aerial operations are complete use the auto bedding to stow the aerial. The aerial will need to be within the preset auto bedding parameters, 20 degrees elevation, 20 degrees to the left or right of the ladder bed and retracted to 20 percent or less. Once the aerial is within the preset parameters hold the auto bedding switch until the aerial is firmly bedded.

STOWING THE OUTRIGGERS

Once the aerial is bedded the outriggers need to be stowed.

1. Pull all the safety pins from the outriggers
2. Turn the outrigger on/off switch to the on position. This will cause the alarm to sound.
3. Retract and stow the outrigger, these operations can be done simultaneously.
 - Note: Make sure the outrigger pads have been picked up and stowed in the designated location on the truck.
4. Turn the outrigger on/off switch to the off position.

Before driving the truck make sure to turn the aerial master switch or switch in the cab to the off position. Also, check to make sure all doors are secure and equipment has been stowed. If the door ajar light is illuminated the aerial (optional) or outriggers may not be stowed correctly.

ANALYSTS, INC. 
 A Bureau Veritas Group Company

 Analysts, Inc. | 2450 Hassell Rd, Hoffman Estates, IL, 60169
 Phone: 800-222-0071

Analysis Report

Status:  **NORMAL** on Aug 18 2017

Page 1

Greg Hilgenkamp

--
--P.O./Ref No. **7202066030**Unit ID **ROSENBAUER T100T08** Unit Worksite:Comp Ref No. **7454615**Component Type **HYDRAULIC SYSTEM**Component **HYDRAULIC**

Unit Manufacturer and Model: --

Oil Type - **UNKNOWN ISO 32**Comonent Manufacturer and Model: **Unknown/Unspecified** -

Component Serial Number

Maintenance Recommendations for Lab No. 201708231707Reported On **Aug 25 2017**From: **Rosenbauer Aerials LLC, Fremont, NE**

ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION

LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	Sample Drawn
1707	1	<1	<1	<1	<1	<1	1	0.5	<1	<1	1	<1	<1	2	264	343	96	<1	13	<1	08/18/17	

SAMPLE INFORMATION**PHYSICAL TEST RESULTS**

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	Oil CHG	Water	D7279 Vis 40 °C	D664(M) TAN	ISO Code	T/S
1707	2	0	0	-	S	<0.1	33.1	0.56	21/17/11	<0.1

Notice: This analysis is intended as an aid in predicting mechanical wear. Test results, maintenance recommendations and accuracy are affected by customer-provided samples, equipment identification and maintenance history. No guarantee, expressed or implied, is made against failure of this piece of equipment or a component thereof. The ultimate responsibility for the maintenance of this piece of equipment and all of its components is the responsibility of the equipment owner.
 N/R = Test not performed

© Copyright 2012 Analysts, Inc.

Assembly Torque Values to Produce Corresponding Bolt Loads

Size	Grade 2		Grade 5		Grade 8				
	Clamp Load (lb)	Assembly Torque		Clamp Load (lb)	Assembly Torque		Clamp Load (lb)	Assembly Torque	
		Dry (lb)	Lub.* (lb)		Dry (lb)	Lub.* (lb)		Dry (lb)	Lub.* (lb)
4-40	250	5"	4"	380	8"	6"	540	12"	9"
4-48	275	6"	5"	420	9"	7"	600	13"	10"
6-32	375	10"	8"	580	16"	12"	820	23"	17"
6-40	420	12"	9"	640	18"	13"	920	25"	19"
8-32	580	19"	14"	900	30"	22"	1260	41"	31"
8-36	610	20"	15"	940	31"	23"	1320	41"	32"
10-24	725	27"	21"	1120	43"	32"	1580	60"	45"
10-32	825	31"	23"	1285	49"	36"	1800	68"	51"
1/4-20	1320	66"	50"	2000	8'	75"	2850	12'	9'
1/4-28	1500	76"	56"	2300	10'	86"	3250	12'	10'
5/16-18	2160	11'	8'	3350	17'	13'	4700	25'	18'
5/16-24	2400	12'	9	3700	19'	14'	5200	25'	20'
3/8-16	3200	20'	15'	4950	30'	23'	7000	45'	35'
3/8-24	3620	23'	17'	5600	35'	25'	7900	50'	35'
7/16-14	4390	32'	24'	6800	50'	35'	9550	70'	55'
7/16-20	4900	36'	27'	7600	55'	40'	10650	80'	60'
1/2-13	5850	50'	35'	9000	75'	55'	12750	110'	80'
1/2-20	6600	55'	40'	10250	90'	65'	14375	120'	90'
6/16-12	7500	70'	55'	1160	110'	80'	16375	150'	110'
9/16-18	8400	80'	60'	13000	120'	90'	18250	170'	130'
5/8-11	9350	100'	75'	14400	150'	110'	20350	220'	170'
5/8-18	10550	110'	85'	16375	180'	130'	23000	240'	180'
3/4-10	13800	175'	130'	21300	260'	200'	30100	380'	280'
3/4-16	15400	200'	150'	23800	300'	220'	3350	420'	320'
7/8-9	11450	170'	170'	29450	430'	320'	41600	600'	460'
7/8-14	12600	180'	140'	32450	470'	360'	45900	660'	500'
1-8	15000	250'	190'	38600	640'	480'	54500	900'	680'
1-12	16800	270'	210'	42300	710'	530'	59700	1000'	740'
1-14	16800	280'	210'	43400	730'	540'	61200	1020'	760'
1-1/8-7	18900	350'	270'	42300	800'	600'	68900	1280'	960'
1-1/8-12	21200	400'	300'	47500	880'	660'	77000	1440'	1080'
1-1/4-7	24000	500'	380'	53800	1120'	840'	87200	1820'	1360'
1-1/4-12	26600	550'	420'	59600	1240'	920'	96600	2000'	1500'
1-3/8-12	28600	670'	490'	64100	1460'	1100'	104000	2380'	1780'
1-3/8-12	32500	750'	560'	73000	1680'	1260'	118400	2720'	2040'
1-1/2-6	34800	870'	650'	78000	1940'	1460'	126500	3160'	2360'
1-1/2-12	39100	980'	730'	87700	2200'	1640'	142200	3560'	2660'

NOTE: When maximum torque values have been exceeded, the fastener must be replaced.

* "Lubricated" includes lubricant, lubrizing plating, and hardened washers

**CAUTION**

Always replace screws/bolts with the same grade as the original fastener.

NOTE: SAE standards require the manufacturer's logo or trademark to be included in the head pattern. Certain bolts may be marked in a similar manner and not meet the specifications set forth in these standards. Bolts purchased from distributor other than the original equipment manufacturer (OEM) should be accompanied by certification documents to ensure the integrity of the equipment is maintained.

Bolts of the same diameter may differ greatly from one another in terms of strength. Depending on the material composition and manufacturing process, the tensile strength of a bolt can vary from 64,000 psi to 180,000 psi.

The relative strength of a fastener is indicated by the head shape and standard markings designated for this purpose.

Hex head cap screws, commonly found on aerial equipment will be marked with diagonal lines, numbering from two to six.

PROPER TORQUE OF ALL SIZES AND GRADES OF BOLTS

Identification of bolt grade is always necessary. When marked as a high-strength fastener (Grade 5, Grade 8 etc), the mechanic must be aware that these are highly stressed components and must be torqued accordingly.

Special attention should be given to lubrication, plating and other factors that would dictate a deviation from the standard torque values.

TORQUE WRENCHES AND ASSOCIATED EQUIPMENT

TORQUE WRENCHES

These wrenches are precision instruments and must be handled with care to ensure proper calibration accuracy. Calibration checks should be made on a regularly scheduled basis. Whenever a torque wrench may have been over-stressed or damaged, it should be removed from service until recalibrated or replaced.

Rigid click-type torque wrenches, which have torque-limiting devices that can be preset to the required torque values are recommended.

When using the torque value chart, values close to the mid-range are recommended to allow for torque wrench calibration tolerances. Erratic or jerking motion of the wrench can easily result in excessive torque values. Always use slow, even wrench movements and stop when the predetermined value has been reached.

ASSOCIATED EQUIPMENT

Certain accessories used in conjunction with the torque wrench enable maintenance personnel to properly service the stressed fasteners encountered on aerial device. The proper use of these tools and their intended application are outlined in the following paragraphs.

NOTE: A torque multiplier increases the output force of the socket by approximately four times the value that is introduced by the torque wrench. Factoring the torque value typically one-fourth the desired manufacturer's instructions for the specific torque multiplier.

Torque multiplier provide the maintenance personnel with fastener-tightening power that requires approximately one-fourth the force required using conventional tools. They provide safe, convenient tightening power when confronted with the need for high-torque values within a limited amount of working or leverage space.

These checks and services have been provided to help you keep your aerial in good operating condition and in service.

The preventive maintenance section is intended to formally maintain and document the aerial device on a regular schedule. This schedule is intended as a minimum and is greatly dependent on operating conditions. Heavy use and extreme environmental conditions such as heat, cold, sand, or salt spray will demand increased inspection and maintenance.

The preventive maintenance section is not intended to replace or negate any routine pre-operation safety inspections. The aerial operator must be aware of the condition of the aerial equipment before operating. A pre-operational visual safety inspection should always be performed, including checking stabilizers, aerial pivot pins and retaining hardware, cables, sheaves, basket pivot pins, retaining hardware, etc.

Fill out the information below and return with the check list. This will allow us to keep a maintenance history of your aerial for future reference. Any additional information found during the inspection should be included with the check list. See mailing and fax information in the introduction section of this manual.

TRUCK INFORMATION FORM

Fire Department: _____

Address: _____

City/State/Zip: _____ / _____ / _____

Inspected by: _____

Date of inspection: _____

Aerial model number: _____

Manufacturing job number: _____

Hours of operation: _____

Type of inspection:

- 25 hour/ Primary Inspection
- 50 hour/ Annual Inspection
- 100 hour/ Annual Inspection
- 400 hour/Annual Inspection

Weather conditions:

Approximate temperature: _____

- Overcast
- Snow
- Partly Cloudy
- Rain
- Clear

PRIMARY INSPECTION: 25 Hours of Operation

Review Date: ____ / ____ / ____

Symbols: = Okay = Repairs needed

IMPORTANT NOTE: Perform primary inspection within the first 25 hours of operation and with each inspection thereafter.

<u>STATUS</u>	<u>ITEM</u>	<u>CORRECTIVE ACTION</u>	<u>DATE REPAIR COMPLETED</u>
	PTO Engages Properly		
	Aerial Master Switch		
	Neutral Safety		
	Outrigger High Idle Switch		
	Aerial High Idle Switch		
	Stabilizer Interlock		
	Aerial Interlock		
	Safety Decals		
	Outrigger Safety Pins		
	Aerial Pivot Pins, Cylinder Hoist Pins & Extension Pins		
	Intercoms		
	Rung Covers		
	Breathing Air		
	Aerial Controls		
	Rung Alignment Indicator		
	Aerial Load Gauge		
	Aerial Control Gauges, Switches & Indicator Lights		
	Outrigger Override		
	Aerial Override		
	Retractable Waterway		
	Radio Remote Controls (optional)		
	Emergency Power		
	Hydraulic Oil Level		
	Hydraulic Oil Return Filter		
	Check & Adjust (if needed) Extension/Retraction Cables/ Sheaves Tension		

PRIMARY INSPECTION: 50 Hours of Operation

Review Date: ____ / ____ / ____

Symbols: = Okay = Repairs needed**IMPORTANT NOTE:** Perform primary inspection within the first 25 hours of operation and with each inspection thereafter.

STATUS	ITEM	CORRECTIVE ACTION	DATE REPAIR COMPLETED
	Hoist Cylinder Leaks		
	Extension Cylinder Leaks		
	Electrical Lines & E-Chain		
	Waterway Alignment & Mounting		
	Completely Grease Aerial		
	Clean Entire Aerial Device		
	Hydraulic Pump/PTO		
	Waterway Slip Tubes		
	Waterway Lubrication		
	Waterway Function		
	Check & Adjust (if needed) Extension/Retraction Cables/Sheaves Tension		

PRIMARY INSPECTION: 100 Hours of Operation

Review Date: ____ / ____ / ____

Symbols: = Okay = Repairs needed

IMPORTANT NOTE: Perform primary inspection within the first 25 hours of operation and with each inspection thereafter.

STATUS	ITEM	CORRECTIVE ACTION	DATE REPAIR COMPLETED
	Stabilizer Setup for Each Stabilizer		
	Scoring on Stabilizer Up & Down Jacks		
	Stabilizer Alignment		
	Scoring on Stabilizer Beams		
	Snap Rings on Stabilizer Pins		
	Security of Bottom Pins on Outrigger Pads		
	Security of Hydraulic Lines on Outrigger Extension Cylinders/Outrigger Roll Hoses		
	Leaks in Hydraulic Lines on Jack Cylinders		
	Leaks in Hydraulic Lines on Main Pressure & Return		
	Leaks in Outrigger Valves & Hoses		
	Swing Brake Mounting & Leaks		
	Planetary Mounting		
	Hydraulic Motor for Ladder Rotation		
	Swing Brake Manifold & Adjustment		
	Operation of Swing Brake		
	Adjust Extension/Retraction Cables/Sheaves Tension		
	Cable Sheaves Alignment		
	Rear Slide Pads (all sides, rear & bottom)		
	All Front Section Slide Pads (all side & bottom)		
	Inspect Bull Gears		
	Grease Rotation Bearing		
	Grease Bull Gear		
	Stainless Steel Scuff Pad on Base (optional)		
	Deutsche Electrical Connection		
	Sealed Electrical Connections		

PRIMARY INSPECTION: 400 Hours of Operation

Review Date: ____ / ____ / ____

Symbols: = Okay = Repairs needed

IMPORTANT NOTE: Preform primary inspection within the first 25 hours of operation and with each inspection there after.

STATUS	ITEM	CORRECTIVE ACTION	DATE REPAIR COMPLETED
	Stabilizer Wear Pads		
	Stabilizer Cylinder Drift Down for all Stabilizers (1/4" per hour)		
	Synchronized Operation of Hoist Cylinder		
	Aerial Hoist Cylinder Drift Down: Right Cylinder (1/2" per hour tolerance)		
	Aerial Hoist Cylinder Drift Down: Left Cylinder (1/2" per hour tolerance)		
	Extension Cylinder Drift Down (1/2" per hour)		
	Stabilizer Extension Cylinder Proper Timing for All Stabilizers		
	Synchronized Operation of Hoist Cylinders		
	Take Sample of Hydraulic Oil from Reservoir		
	Pinion Gear Back Lash		
	Aerial Bed Cradle Mounting		
	Re-Torque Frame Mounting Bolts		
	Aerial Bed Cradle Weldments		
	Swivel Water Mounting/Leaks		
	Swivel Hydraulic Mounting/Leaks		
	Swivel Electrical Mounting/Leaks		
	Retorque Aerial Turntable Bearing (top & bottom)		
	Aerial Functional Time		