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 included 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.

DANGER

ELECTROCUTION HAZARD
THIS MACHINE IS NOT INSULATE

DEATH OR SERIOUS INJURY WILL RESULT FROM:

CONTACT WITH OR INADEQUATE CLEARANCE

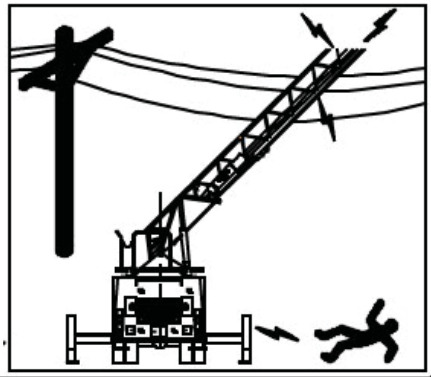
FROM ENERGIZED CONDUCTORS.

MAINTAIN SAFE CLEARANCE AREA FROM

ELECTRICAL POWER LINES AND APPARATUS.

YOU MUST ALLOW FOR AERIAL SWAY, ROCK OR SAG.

IF VEHICLE SHOULD BE ELECTRICAL CHARGES KEEP CLEAR OF TRUCK AND ATTACHMENTS



DANGER

AN UNTRAINED OPERATOR SUBJECTS HIMSELF AND OTHERS TO DEATH OR SERIOUS INJURY.

YOU MUST NOT OPERATE THIS MACHINE UNLESS:

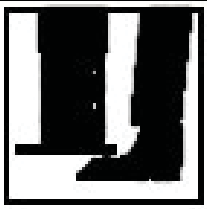
YOU HAVE BEEN TRAINED IN THE SAFE OPERATION OF THE MACHINE

YOU READ, UNDERSTAND AND FOLLOW THE SAFETY AND OPERATION RECOMMENDATIONS CONTAINED IN THE MACHINE MANUALS.

YOUR EMPLOYERS WORK, RULES AND APPLICABLE GOVERNMENT REGULATIONS.

WARNING

STAND CLEAR OF OUTRIGGER
OUTRIGGERS CAN CAUSE SERIOUS
CRUSHING INJURY



DANGER

ELECTROCUTION HAZARD.
MINIMUM POWER LINE CLEARANCE
IS 10 FEET. DO NOT OPERATE
DURING ELECTRICAL STORMS.

DANGER

LIVE LOAD RATING 500 LBS AT TIP WITH 1,000 GPM OF WATER AT 90 DEGREES TO SIDE.

WARNING

FAILURE TO OBEY THE FOLLOWING CAN RESULT IN DEATH OR SERIOUS INJURY.

INSPECT VEHICLE AND AERIAL DEVICE INCLUDING OPERATION DAILY PRIOR TO USE.

FOR STATIONARY OPERATION VEHICLE MUST BE SECURELY PARKED AND STABILIZED BEFORE THE WORK TO BE PREFORMED AND BEFORE THE AERIAL DEVICE CAN BE OPERATED.

OUTRIGGERS MUST BE ON SOLID FOOTING TO PREVENT TIP OVER.

OPERATORS SHOULD WEAR A BODY BELT AND ATTACHED WITH LINEAR TO AERIAL.

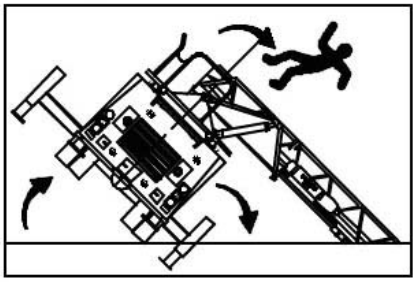
OPERATE ALL CONTROLS SLOWLY FOR SMOOTH MOTION.

DO NOT LOAD BEYOND RATED CAPACITY.

OPERATOR MUST WEAR PROPER PROTECTION GEAR.

CAUTION

WHEN ROTATING LADDER ON SAME SIDE AS SHORT-SET OUTRIGGERS.



DANGER

DO NOT WELD, DRILL OR ALTER THIS AERIAL DEVICE OR SUPPORTING STRUCTURE WITHOUT PRIOR APPROVAL OF THE AERIAL MANUFACTURER.

CAUTION

OPERATING AERIAL WHILE PERSONNEL IS ON LADDER MAY RESULT IN SERIOUS INJURY OR DEATH

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 101’ 3.6” 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

One control box is located one on the left side of the truck for operation of the outriggers. The box serves as an overall information and operation station for both outriggers.

One control station is located on the turntable 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).
4. Tiller drivers in seat with seat belt attached and in communication with tractor driver if rear steering is not locked in straight forward position.

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 then the other. Operators should be aware of the advantages and disadvantages of each method to determine how the tuck will be positioned. In either condition, the truck is capable of being leveled within safe operating parameters.

MAXIMUM GRADES

With maximum grades the truck should be positioned with the cab facing down hill. Aerial should be operated over the side of the truck.

Advantages:

- Can reduce the truck's grade by extending the outrigger stabilizer jacks.
- When truck is set up the front tires and rear tiller will be in contact with the ground.
- With the outriggers set operator has more ballast for the operation of the aerial.
- This allows the turntable to be leveled more then placing the tiller uphill.
- The rear compartment and aerial access step are more difficult to access.
- 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.

SETTING THE CAB

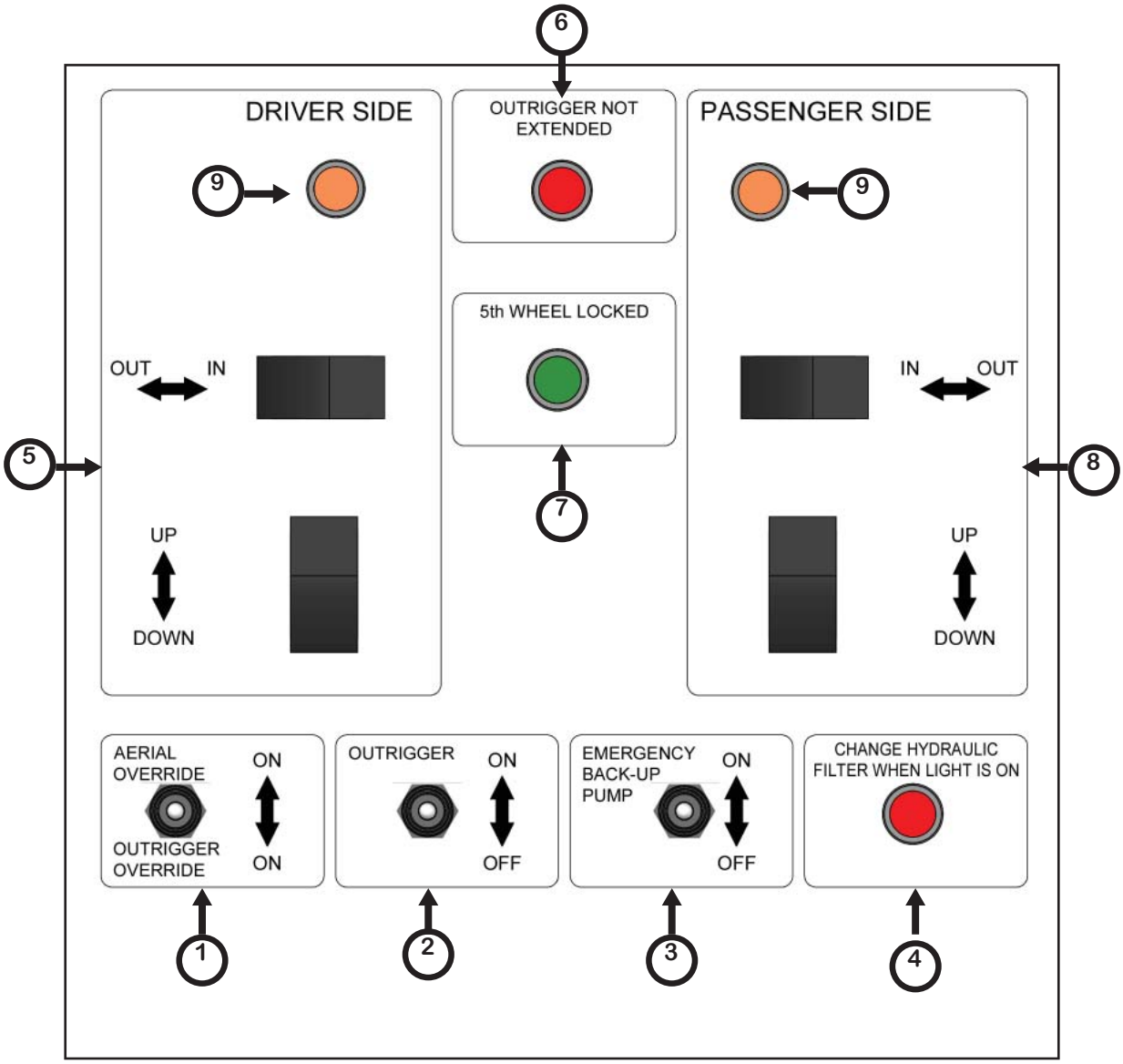
1. Place the transmission into the neutral position
2. Set the park brake
3. Switch on the aerial master. When the aerial master is switched on there is electrical power to the aerial system. At this time flashing lights on the outriggers will begin to operate.
4. Switch on the Power Take-Off (PTO).

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.

1. Aerial / Outrigger Override Switch
2. Outrigger On / Off Switch
3. Emergency Back-up Pump Switch
4. Change Hydraulic Filter when light is on light
5. Driver Side Outrigger Deployment Controls
6. Outrigger Not Extended Light
7. 5th Wheel Locked Light
8. Passenger Side Outrigger Deployment Controls
9. Outrigger Jack Lights



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 and the outrigger alarm.

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
     1. Select the operation required (outrigger or aerial) and move switch to the on position.
     2. Engage the outrigger or aerial control handle.
     3. 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 lock light is illuminated the outriggers have and the aerial is ready to be operated. The 5th wheel lock is designed to be unlocked while driving and setting of the outriggers. Once outriggers are set and the outrigger switch is turned off the 5th wheel will automatically lock and the green light will illuminate indicating the 5th wheel is locked and the aerial is ready to be operated.

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 Jack Lights

The Jack 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. The tractor must be within 15 degrees straight forward of the trailer and park break set with the transmission in natural in order to operate the outriggers.

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 a water pump is equipped and engaged the high idle of the aerial will be disengaged.
2. Use Controllers to Extend Outriggers.
   - The outrigger controls are located on each side of the truck near the outrigger location to provide the operator a good clear vision to set up the outriggers.
3. Position outrigger pads under jack locations
4. Lower outrigger jacks
   - Take the bubble out of the tractor tires 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.
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.

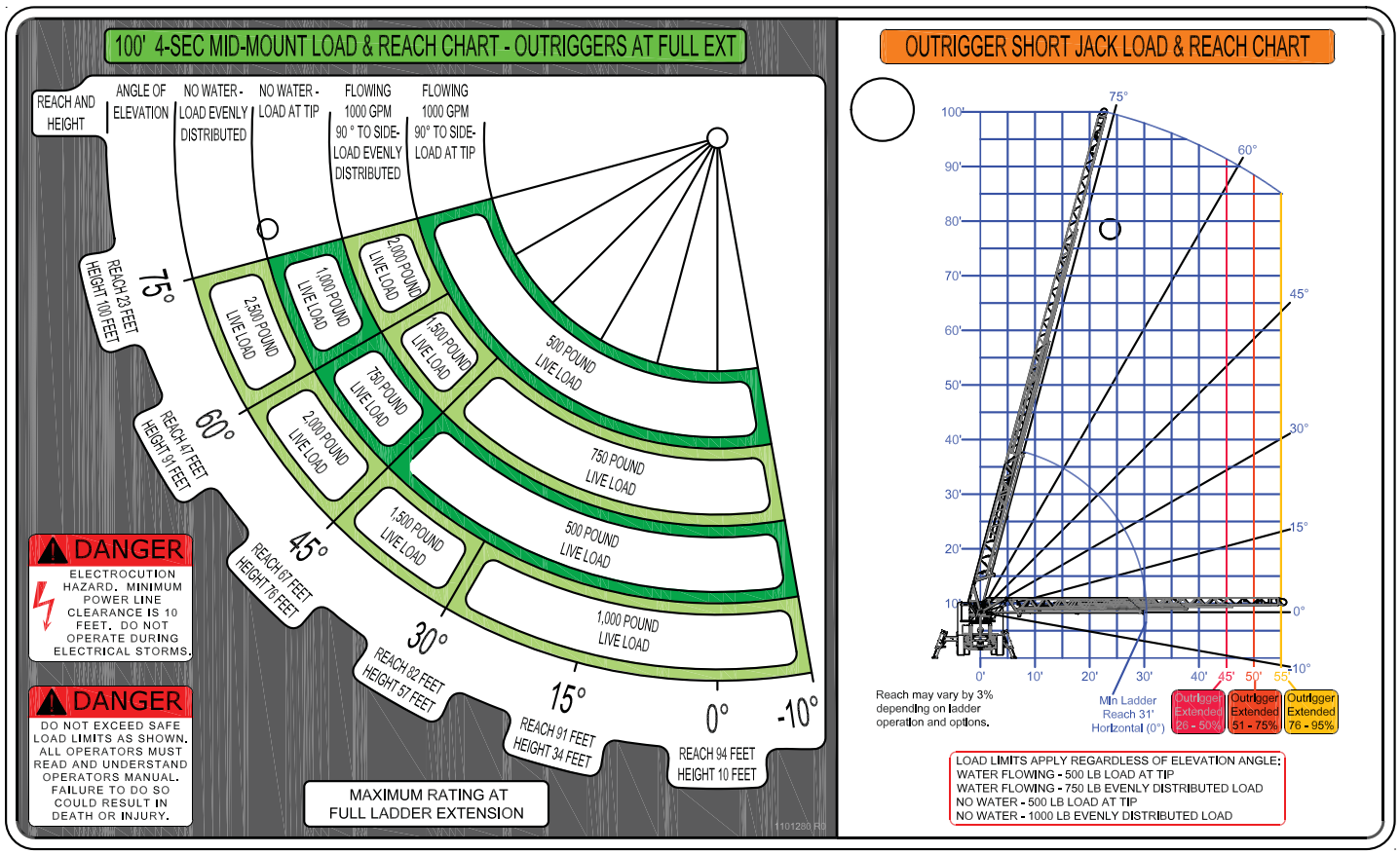
Outrigger operation set up is completed.

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

Should the opposite side outrigger 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.

The tiller is equipped with an auto 5th wheel locking system, locking the pivot between the tractor to the trailer. The 5th wheel lock is designed to be unlocked while driving and setting of the outriggers. Once outriggers are set and the outrigger switch is turned off the 5th wheel will automatically lock and the green light will illuminate indicating the 5th wheel is locked. Once the 5th wheel locked light is illuminated the aerial is now ready to be operated.

LOAD CHART & SHORT JACKED OUTRIGGER 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 45 feet while over the short jacked outrigger**
- **While an outrigger is extended 51% to 75%, reach of the aerial will be limited to approximately 50 feet while over the short jacked outrigger.**
- **While an outrigger is extended 76% to 95%, reach of the aerial will be limited to approximately 55 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 preformed 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 then 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.

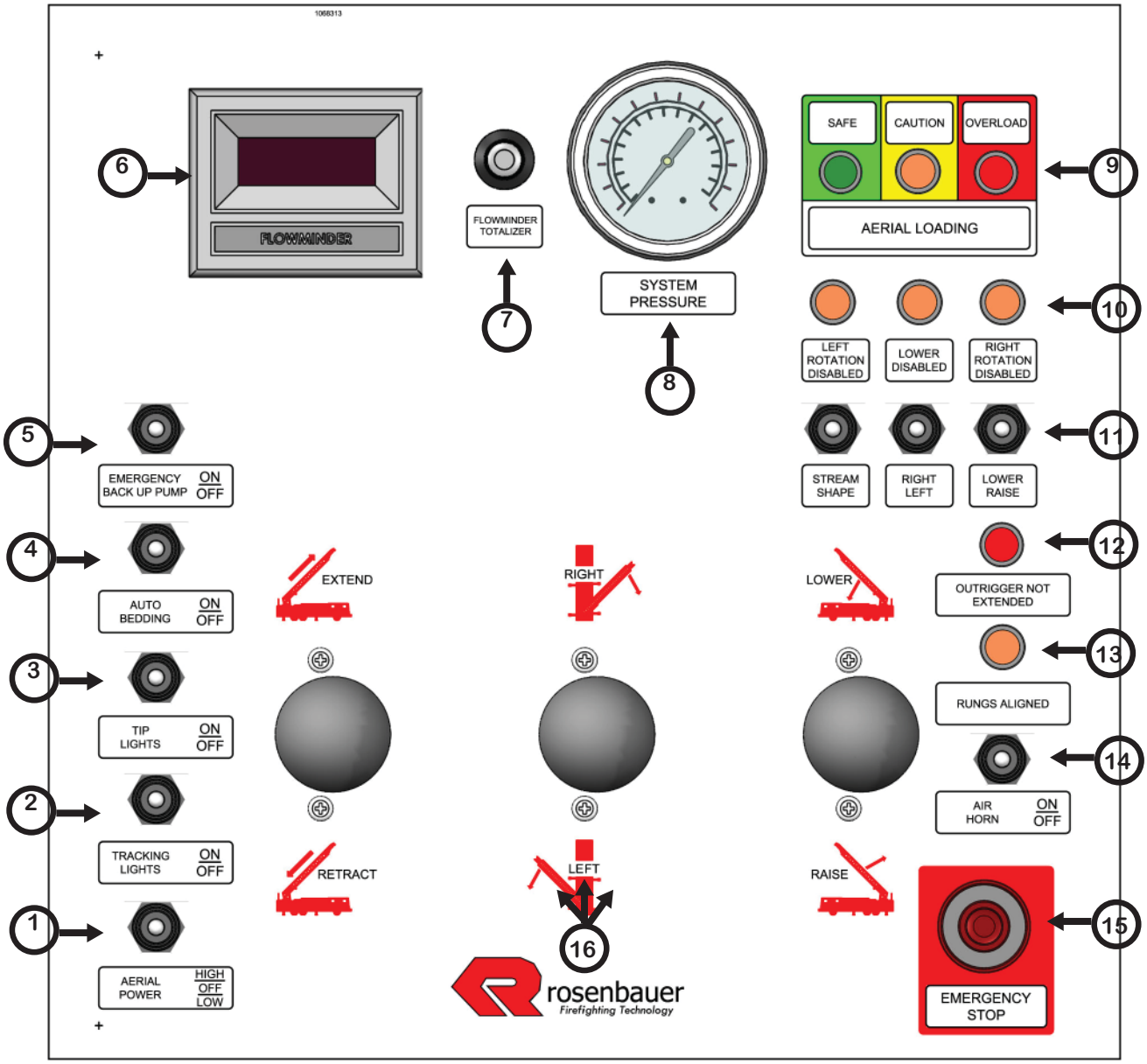
STOWING THE OUTRIGGERS:

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 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.

SMART AERIAL CONTROL PANEL:

1. Aerial Power Switch
2. Tracking Lights Switch
3. Tip Lights Switch
4. Auto Bedding Switch
5. Emergency Back-Up Pump Switch
6. Flow Meter
7. Flow Meter Totalizer
8. System Pressure Gauge
9. Aerial Load Gauge
10. Operational Envelope Lights
11. Monitor Control Switches
12. Outrigger Not Extended Light
13. Rungs Aligned Light
14. Air Horn Switch
15. Emergency Stop Button
16. Aerial Controls



CONTROL PANEL FUNCTIONS

1. Aerial High/Off/Low Switch
   To run the aerial this switch needs to be placed in the high or low position. To run the aerial at normal speed push the switch up to the high position. For a new or inexperienced operator we recommend running the aerial at low speed (half the normal speed).

2. Tracking Lights Switch
   To activate the tracking lights (lights located on the base section in front of the elevation cylinders) this switch will need to be placed in the on position. This switch will activate all AC and DC tracking lights as well as the panel light and optional rung lighting. 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.

3. Tip Lights Switch
   To activate the tip lights (lights located on the fly section) this switch will need to be placed in the on position. This switch will activate all AC and DC lights at the tip. 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.

4. Auto Bedding Switch
   The auto bedding switch is a momentary switch. The aerial needs to be less the 20% extended, within 20 degrees to the right or left of the ladder bed and below 20 degrees elevated. Activate the momentary auto bedding switch and the aerial will automatically bed itself. If the switch is released the aerial will stop moving. Auto bedding switch will also auto bed the monitor so it won't hit the tiller cab.

5. Emergency Hydraulic Pump Switch
   The emergency hydraulic pump switch is a momentary switch. Emergency Back-Up Pump switch is only used to stow the aerial in case of hydraulic failure. It is recommended that the emergency hydraulic pump only run for 5 minutes out of 60 minutes.

6. Flow Gauge
   The flow gauge will give a continues reading of the water flowing from the monitor. Depending on options this could be a combination pressure and flow gauge and will vary by manufacturer.

7. Flow Gauge Totalizer
   The totalizer button only comes with certain flow gauges. Press the button to get the total amount of water flown.

8. Hydraulic System Pressure Gauge
   This gauge shows the current hydraulic system pressure while the aerial is operating.

CONTROL PANEL FUNCTIONS CONTINUED

9. Aerial Load Monitor

An aerial load monitor will continuously monitor the load on the device. It includes three lights green amber and red. The green light indicates the load is within load limits. The amber light indicates caution, alerting the operator that the load is getting closer to overload. The red light will flash when the rated load capacity is approximately 50 pounds less than the rated live load. The horn will emit a constant sound when the rated capacity is exceeded by more then 100 pounds of the rated live load.

10. Operational Envelope Lights

Three amber lights (left disabled, down disabled & right disabled) indicate which functions of the aerial have 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 preprogrammed 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 light will be on and the down disabled light will be off.

11. Monitor Control Switches

Three monitor toggle switches or the manufactured monitor controls will control the monitor (stream/shape, right/left, lower/raise). Push up on the individual switches to activate the stream, right & lower functions of the monitors. Push down on the individual switches to activate the shape, left and lower functions of the monitors. To turn off the switches the operator will need to release the switch to the neutral position.

12. Outrigger Not Extended Light

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

13. Rung Alignment Light

The rung alignment light will illuminate when the rungs are aligned. While extending or retracting the aerial this light 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.

14. Air Horn Switch (optional)

The Air Horn is a momentary switch. Push up on the switch to activate the horn, release switch to disengage.

15. 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 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.

16. Electric Aerial Control Handles

The three controllers will operate the aerial functions (extend/retract, left/right & raise/lower). In order to activate the controller pull up on the locking mechanism on the bottom side of the controller. Push or pull the appropriate controller to move the aerial. See aerial operations.

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.

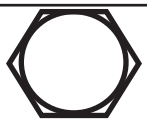
STOWING THE OUTRIGGERS

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.

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

http://www.fandisc.com/tti.htm

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 you 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 preformed, 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: Preform primary inspection within the first 25 hours of operation and with each inspection there after.

STATUS	ITEM	CORRECTIVE ACTION	DATE REPAIR COMPLETED
	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		

PRIMARY INSPECTION: 50 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
	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		

PRIMARY INSPECTION: 100 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 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 Steal 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		