

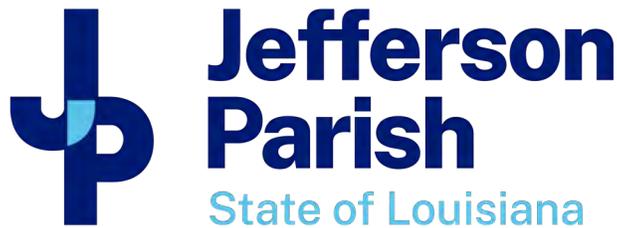


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**5000142338 Two (2) Year Contract Renewal for Labor, Materials and Equipment necessary for Testing of Aerial Devices and Ground Ladders for the Jefferson Parish East Bank Consolidated Fire Department  
Jefferson Parish Government**

Project documents obtained from [www.CentralBidding.com](http://www.CentralBidding.com)

31-May-2023 06:56:40 AM



**Bid Number 50-00142338**

**Two (2) Year Contract Renewal for Labor, Materials and Equipment  
necessary for Testing of Aerial Devices and Ground Ladders for the  
Jefferson Parish East Bank Consolidated Fire Department**

**BID DUE: June 6, 2023 AT 11:00 AM**

**ATTENTION VENDORS!!!**

**Please review all pages and respond accordingly, complying with all provisions  
in the technical specifications and Jefferson Parish Instructions for Bidders and  
General Terms and Conditions. All bids must be received on the Purchasing  
Department's eProcurement site, [www.jeffparishbids.net](http://www.jeffparishbids.net), by the bid due date  
and time. Late bids will not be accepted.**

**Jefferson Parish Purchasing Department  
200 Derbigny Street  
General Government Building, Suite 4400  
Gretna, LA 70053  
Buyer Name: Lisa Caronia  
Buyer Email: [LCaronia@jeffparish.net](mailto:LCaronia@jeffparish.net)  
Buyer Phone: 504-364-2679**

## **TWO (2) YEAR CONTRACT FOR LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR A NONDESTRUCTIVE TEST (NDT) OF AERIAL DEVICES AND GROUND LADDERS FOR THE JEFFERSON PARISH EAST BANK CONSOLIDATED FIRE DEPARTMENT**

It is the intent of this specification to obtain for the Parish of Jefferson, State of Louisiana, the most thorough and complete inspection and testing of our aerial devices and ground ladders. Bidders must submit references upon request. The testing must consist of rules, recommendations and requirements from current N.F.P.A standards, O.S.H.A., A.N.S.I., S.A.E., A.S.M.E., and manufacturer's specifications.

Testing will include magnaflux to find possible weld and metal cracks, ultra-sonic inspection of pins and bolts for internal defects.

### **0001 AERIAL DEVICES**

All Aerial Devices will be inspected and tested to the current NFPA guidelines. This includes a five (5) year nondestructive test (NDT) conducted annually.

#### **1. Chassis**

Aerial support structure, outrigger structure, cylinder pins, hydraulic lines, etc. to be inspected for proper installation and compliance with standard inspection practices.

#### **2. Turntable**

2.1. Rotation bearing, aerial support structure mounting bolts are to be inspected visually for tightness.

All bolts showing visual signs of being loose or loosening will require immediate notification to the Fire Department Chief or his representative.

Operational testing will not proceed until the loose bolts are at least tightened by Fire Department personnel or their representative.

2.2. All hydraulic upper and lower raising and extension cylinder pins, fasteners and anchors are to be inspected. Any observation of abnormal wear, elongation and improper alignment shall be recorded.

2.3. All hydraulic raising and extension cylinders shall be checked for drift. Ladder sections shall be elevated and lock valves closed. Record amount of drift in one (1) hour.

2.4. Turntable electrical contact rings shall be checked for transmitting power from chassis to turntable.

#### **3. Hydraulic System**

3.1 All flexible and rigid hydraulic lines installed on the turntable, aerial and outriggers are to be inspected. Any observation of wear, improper installation procedures and external oil leakage shall be recorded.

The main hydraulic relief valve setting (P.S.I.G.) shall be checked against the operational pressure

recommended by the manufacturer. Actual and recommended pressures shall be recorded.

- 3.2 All hydraulic raising and extension cylinders are to be inspected. Any observation of seal wear, improper installation, and shaft scoring or pitting shall be recorded.
- 3.3 All hydraulic components are to be inspected. Any observation of internal or external oil leakage, excessive wear and abnormal junction shall be recorded.
- 3.4 Hydraulic outriggers shall be checked for drift. Drift shall be checked while performing operational test over a thirty (30) minute time span. Record distance or drift.

#### **4. Nondestructive Testing**

4.1 Magnetic particle inspection shall be conducted on the following welded areas of ferrous material considered critical by the testing company.

- A. Aerial Ladder Section
- B. Outriggers-Superstructure, Main Beams and Feet
- C. Aerial Support Structure (Main Frame)
- D. Turntable
- E. Turret

It is realized that accessibility to some critical welds may be completely restricted because of sheet metal body work, equipment, etc., and these welds cannot be magnetic particle inspected.

All welds considered defective shall be identified by defect number with ink markings.

4.2 Ultrasonic inspection shall be conducted on the following areas:

- A. Outriggers-pins and mounting bolts
- B. Rotation Bearing Bolts
- C. Raising and extension, cylinder mounting pins and bolts
- D. Aerial hinge pins
- E. Aerial support structure mounting bolts.

All defective pins or bolts on aerial devices will be identified by defect number with ink markings.

NOTE: Dye penetrant inspection techniques will be employed at the option of the inspector to evaluate weld or casting defects in non-ferrous material.

#### **5. Operational Tests**

5.1 After satisfactorily completing all of the above listed tests which are applicable to the aerial device, the following operational timing tests shall be performed to determine that the hydraulic system and all structural mechanisms are performing in the proper manner and in accordance with speeds within fifteen (15) percent of manufacturer's specifications. All timing speeds are to be recorded.

5.2 Telescoping Aerial Ladder:

- A. Check outriggers while traveling out, down, up and in or down and up, whichever is applicable

- B. Elevate ladders from bedded position to maximum degrees elevation
- C. Lower ladder from maximum elevation to bedded position
- D. Elevate ladder to sixty (60) degrees and bed ladder
- E. Completely retract all sections from sixty (60) degrees and bed ladder
- F. Elevate ladder from bedded position to sixty (60) degrees elevation, rotate turntable ninety (90) degrees off the side of truck and extend ladder to maximum extension. Return ladder to bedded position.
- G. Elevate ladder to sixty degree elevation. All ladder sections are to be fully retracted. Rotate turntable three hundred sixty (360) degrees in a clockwise and counter clockwise direction. Return ladder to bedded position.

5.3 Throughout the Operation Tests, a visual inspection of the following is to be completed.

- A. Outriggers shall be inspected for stability.
- B. Any evidence of instability shall be recorded; Ladder sections shall be inspected for normal movement. Any evidence of abnormal movement, such as twisting, vibration or deflection shall be recorded.
- C. Weld joints at outrigger structure, outriggers, turntable, cylinder anchors, hinge pins, and roller
- D. Supports shall be inspected. Any evidence of movement or deflection shall be recorded.

#### **6. Testing of Waterway System**

The water system shall be inspected and pressure tested as specified in the most current version of NFPA guidelines.

#### **7. Hydraulic Oil Sample**

After completion of operational tests, an oil sample shall be withdrawn from the aerial device hydraulic reservoir tank and submitted to a laboratory for spectrochemical analysis.

#### **8. Hydraulic Oil Sample Report**

A copy of the report from the laboratory performing the test of the hydraulic oil shall be forwarded to the Chief of each fire department of Jefferson Parish that participated in the testing.

#### **9. Testing Company's Records Report**

The testing company's comprehensive record report shall be completed for all inspections and test of the aerial devices and signed by the person responsible for the test in accordance to current NFPA guidelines. Items of concern found during the inspection and testing shall be separated into the following listed categories

##### **Category I**

These are items which the testing company mandates to be repaired or replaced. Each item listed under this heading requires that it be identified by a defect number in the testing company's inspection report.

**Category II**

*Recommended Items*

These are items which the testing company recommends be repaired, replaced or installed.

**Category III**

*Informational Items*

These are items which the testing company has found to be in non-compliance with today's standards or items which should be checked periodically, or items for our general information.

**10. Certificate of Aerial Lift Device Safety Inspections**

Upon completion of repairing or replacing required items of the testing company's inspection report, in accordance with the manufacturer's recommendation, and the best business practices available to the Fire Departments, the testing company shall issue a Certificate of Aerial Lift Device Safety Inspection for a one (1) year period attesting to the satisfactory operation condition and structural integrity of the equipment, to each fire department participating in the test, for their equipment.

**11. Standards**

The standards regarding certification from the following sources will apply where applicable:

- a) Occupational Safety and Health Administration
- b) National Fire Protection Association
- c) American Society of Mechanical Engineers
- d) American National Standards Institute
- e) Society of Automotive Engineers
- f) Fire Equipment Manufactures

**12. All Inspections will be done at the Fire Department's Facilities.**

**0002 Ground Ladder Testing**

All ground ladders will be tested to the current NFPA guidelines. These tests include a visual check, horizontal bend load test (500 pounds), extension ladder hardware test (1000 pounds), and roof hook test (1000 pounds). A report shall be provided on each ground ladder that is tested and inspected.

Note: Contract to include any and all new equipment as acquired. Contract may be utilized by Jefferson Parish East Bank Consolidated Fire Department and other Jefferson Parish Fire companies excluding Grand Isle.

**0003 Miscellaneous items including but not limited to the following:**

A visual inspection shall include, but not be limited to the following:

1. Heat sensor labels on metal and fiberglass ladders and on wood ladders if provided, for a change indicating heat exposure.
2. All rungs for snugness and tightness.
3. All bolts and rivets for tightness, bolts on wood ladders, for snugness and tightness without crushing the wood.
4. Welds, for any cracks or apparent defects.
5. Beams and rungs, for cracks, splintering, break, gouges, checks, wavy conditions or deformation.
6. Butt spurs, for excessive wear or other defects.
7. Halyards, for fraying or kinking.
8. Roof hooks, for sharpness and proper operation.
9. Rungs, for punctures, wavy conditions, worn serrations, or deformation.
10. Surface corrosion.
11. Ladder slide areas, for galling or absence of wax, if required by the manufacturer.
12. Loss of gloss on fiberglass and wood ladder beams, damage to the varnish finish on wood ground ladders.
13. Correct operation of the pawl assemblies.
14. Wire rope on 3 and 4 section ladders for snugness when the ladder is in the bedded position, to insure proper synchronization of upper sections during operation.
15. Labels present and legible.
16. Ladders clean with no buildup of grease, dirt, or grime on the beams.

**Heat Sensor Labels:**

1. If the heat sensor label has an expiration date and the date has passed, or there is no date on the label, the heat sensor shall be replaced.
2. If the ladder is constructed of metal or fiberglass materials and does not have heat sensor labels, the ladder shall be tested in accordance to current N.F.P.A. guidelines.
3. If the ladder passes all the tests, heat sensor labels shall be applied to the ladder.
4. For all ladders except folding ladders the heat sensor labels shall be located on the inside of each beam of each section immediately below the second rung from the tip of each section and in the center of that section.
5. For folding ladders, the heat sensor labels shall be permitted to be applied to either the inside or outside of the ladder and shall be located immediately below the second rung from the tip of the ladder and in the center of the ladder.

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**Standard for the  
Inspection, Maintenance,  
Testing, and Retirement of  
In-Service Emergency Vehicles**

**2017**



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21.8.4 If the engine speed required to meet any of the test points during the pumping test exceeds 110 percent of the engine speed listed on the test label attached to the apparatus, the pump shall be repaired or replaced.

21.8.5 Indications of decreasing pump or component performance shall be reported to the AHJ.

21.8.6 Data that are submitted at the time of the delivery test and all results of service tests shall be maintained in a permanent file and compared year to year to identify changing conditions that could indicate developing problems with the engine or pump.

21.8.7\* If the AHJ wishes to rerate the pump, the pump shall be tested to the complete pumping test as specified in NFPA 1901, including having the test witnessed and certified by an accredited third-party testing organization.

#### Chapter 22 Performance Testing of Aerial Devices

22.1 General. If the fire apparatus is equipped with an aerial device, the aerial device shall be inspected and tested as required by this chapter.

22.1.1 All inspections and tests specified in this standard, except those specifically designated as nondestructive tests (NDT), shall be conducted at the following times:

- (1) At least annually
- (2) After major repairs or overhaul
- (3) Following the use of the aerial device when the aerial device could have been subjected to unusual operating conditions of stress or load
- (4) When there is reason to believe that usage has exceeded the manufacturer's recommended aerial device operating procedures

22.1.2\* The inspections and tests specified in this chapter as NDT shall be conducted as follows:

- (1) At least every 5 years
- (2) Whenever visual inspection or load testing indicates a potential structural or safety problem
- (3) When there is a desire to further confirm continued operational safety

22.1.3 If the aerial device is involved in a situation that produces any structural damage, or if the inspections and tests that are required in this standard reveal any problems that affect the structural integrity of the aerial device, the aerial device shall be placed out of service.

22.1.3.1\* The aerial device shall be repaired to an acceptance level in accordance with the manufacturer's standard.

22.1.3.2 If the manufacturer is no longer in business and therefore cannot be consulted with regard to repair of the aerial device, the repairs shall be performed by a repair facility that is acceptable to the AHJ.

22.1.3.3 The aerial device shall be tested to the full operational load and NDT of this standard before it is placed back in service.

22.1.4\* The inspections and tests specified herein shall be the minimum performance test requirements for all aerial devices.

22.1.4.1 Since each manufacturer's unit will be somewhat different, specific attention shall be given to the manufacturer's

instructions concerning periodic maintenance and inspection checks.

22.1.4.2 The testing personnel shall have written documentation identifying the aerial device manufacturer's operating procedures, component performance specifications, and tolerances.

22.1.5\* Only qualified persons, acceptable to the AHJ, shall be permitted to operate the apparatus during testing procedures.

#### 22.2 Inspection Personnel.

22.2.1 The inspections and tests outlined in this standard shall be performed by qualified persons, a third-party testing company, or the manufacturer, as determined acceptable by the AHJ.

22.2.2 The person actually performing the nondestructive test work shall be certified as at least a Level II NDT technician in the test method used, as specified in ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*.

22.2.3 Trainees and personnel certified to Level I NDT in the test method used shall be permitted to conduct the nondestructive tests so long as they work under the direct and immediate supervision of either a Level II or an ASNT Level III NDT technician holding current certification in the same test method.

22.3 Third-Party Test Companies. If a third-party test company is employed to perform NDT, that company shall be accredited to the requirements of ISO/IEC 17020, *Requirements for the operation of various types of bodies performing inspection*.

22.4 Visual Inspection. A visual inspection shall be performed in accordance with the requirements of Sections 22.8, 22.9, or 22.10, depending on the aerial device.

22.4.1 The visual inspection shall be conducted prior to any operational or load testing and shall be carried out in a systematic sequence.

22.4.2 The visual inspection shall be to detect any visible defects, damage, or improperly secured parts.

#### 22.5 Weld Inspection.

22.5.1 When the inspections required by 22.1.1 are performed, all accessible structural welds shall be visually inspected for fractures.

22.5.2 When the NDT required by 22.1.2 is performed, all accessible structural welds shall be inspected by technicians who meet the criteria of Section 22.2 for the test methods used.

#### 22.5.3 Welds on Steel.

22.5.3.1 All accessible structural welds on steel shall be inspected in accordance with the applicable provisions of AWS D1.1/D1.1M, *Structural Welding Code — Steel*.

22.5.3.2 All structural welds shall comply with weld quality as specified in the visual inspection acceptance criteria of AWS D1.1/D1.1M.

#### 22.5.4 Welds on Aluminum.

22.5.4.1 All accessible structural welds on aluminum shall be inspected in accordance with the applicable provisions of AWS D1.2/D1.2M, *Structural Welding Code — Aluminum*.

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- (3)\* All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa).
- (5) The rise in discharge pressure shall be recorded.

**21.7.8.3.2** The pressure control device shall be tested at 90 psi (620 kPa) net pump pressure as follows:

- (1) The original conditions of pumping rated capacity at 100 psi (700 kPa) net pump pressure shall be reestablished.
- (2) The discharge pressure shall be reduced to 90 psi (620 kPa) net pump pressure by throttling the engine fuel supply with no change to the discharge valve setting, hose, or nozzles.
- (3) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 90 psi (620 kPa) net pump pressure.
- (4) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.
- (5) The rise in discharge pressure shall not exceed 30 psi (200 kPa).
- (6) The rise in discharge pressure shall be recorded.

**21.7.8.3.3** The pressure control device shall be tested at 50 percent of rated pump capacity at 200 psi (1400 kPa) net pump pressure as follows:

- (1) The pump shall be delivering 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure.
- (2) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 200 psi (1400 kPa) net pump pressure.
- (3) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa).
- (5) The rise in discharge pressure shall be recorded.

**21.7.8.4\* Ultra-High-Pressure Fire Pumps.** The pressure control system of an ultra-high-pressure fire pump shall be tested as follows:

- (1) The ultra-high-pressure fire pump shall be operated to deliver rated capacity at rated discharge gauge pressure.
- (2) If a pressure control system is supplied, it shall be set in accordance with the manufacturer's instructions.
- (3) All discharge valves shall be closed.
- (4) Any rise in discharge pressure shall not exceed 40 percent of the rated pump pressure.
- (5) The pump shall be operated with the discharge lines closed for 3 minutes without the temperature of the pump exceeding 140 F (60 C).
- (6) The final discharge pressure, any rise in discharge pressure, and the final pump temperature shall be recorded.

**21.7.9\* Intake Relief Valve System Test.** If the apparatus is equipped with an intake relief valve system or a combination intake/discharge system, a test to ensure the system is operating in accordance with the manufacturer's specifications shall be conducted.

**21.7.10 Gauge Test.**

**21.7.10.1\*** Each water pressure gauge shall be checked for accuracy at a minimum of three points, including 150 psi (1000 kPa), 200 psi (1400 kPa), and 250 psi (1700 kPa).

**21.7.10.2** Any gauge that is off by more than 10 psi (70 kPa) shall be recalibrated, repaired, or replaced.

**21.7.11 Flowmeter Test.**

**21.7.11.1\*** Each flowmeter shall be checked for accuracy at the test flows shown in Table 21.7.11.1.

**21.7.11.2** Any flowmeter that is off by more than 10 percent shall be recalibrated, repaired, or replaced.

**21.7.12 Tank-to-Pump Flow Rate.** If the apparatus is equipped with a water tank, the tank-to-pump flow rate also shall be checked using the following procedure:

- (1) The water tank shall be filled until it overflows.
- (2) All intakes to the pump shall be closed.
- (3) The tank fill line and bypass cooling line shall be closed.
- (4) Hose lines and nozzles for discharging water at the anticipated flow rate shall be connected to one or more of the discharge outlets.
- (5) The tank to the pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.
- (6) The engine throttle shall be adjusted until the maximum consistent pressure reading on the discharge pressure gauge is obtained.
- (7) The discharge valve(s) shall be closed and the water tank refilled, with the bypass line permitted to be opened temporarily if needed to keep the water temperature in the pump within acceptable limits.
- (8) The discharge valves shall be reopened fully and a pitot reading or other flow measurement shall be taken while the water is being discharged, with the engine throttle adjusted to maintain the discharge pressure noted in 21.7.12(6), if necessary.
- (9)\* The flow rate shall be recorded and compared with the rate designated by the manufacturer when the apparatus was new or with the rate established in previous testing.

**21.8\* Test Results.**

**21.8.1\*** The pumping system (that is, engine, pump, transmission) shall not overheat, lose power, or exhibit other defects during the entire test.

**21.8.2** The flow rate, discharge pressure, intake pressure, and engine speed recorded for each test shall be the average of the readings taken during that test.

**21.8.3\*** The results of all tests of the pump system shall be recorded, and the results shall be compared with the results of previous tests.

**Table 21.7.11.1 Flow-Measuring Points for Flowmeters**

Pipe Size		Test Flow	
in.	mm	gpm	L/min
1½	38	128	454
2	51	180	682
2½	63	300	1135
3	75	700	2650
4	100	1000	3785

**22.5.4.2** All structural welds shall comply with weld quality as specified in the visual inspection acceptance criteria of AWS D1.2/D1.2M.

**22.5.5** The application of a particular NDT weld inspection technique shall be as recommended by AWS B1.10/B1.10M, *Guide for the Nondestructive Examination of Welds*.

**22.6 Bolt and Pin Inspection.** Bolts and pins that are subjected to ultrasonic testing shall contain no ultrasonic cathode ray tube (CRT) indications that can be interpreted as cracks or elongated material.

#### 22.7 Nondestructive Testing Procedures.

**22.7.1** All test procedures shall be consistent with ASTM E1316, *Standard Terminology for Nondestructive Testing*.

**22.7.2** All ultrasonic inspections shall be conducted in accordance with the following standards:

- (1) ASTM E114, *Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method*
- (2) ASTM E797/E797M, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*

**22.7.3** All magnetic particle inspections shall be conducted in accordance with ASTM E709, *Standard Guide for Magnetic Particle Examination*.

**22.7.4** All liquid penetrant inspections shall be conducted in accordance with the following standards:

- (1) ASTM E165/E165M, *Standard Test Method for Liquid Penetrant Examination*
- (2) ASTM E1220, *Standard Test Method for Visible Penetrant Examination Using the Solvent-Removable Process*
- (3) ASTM E1418, *Standard Test Method for Visible Penetrant Examination Using the Water-Washable Process*

**22.7.5** All hardness readings shall be conducted in accordance with the following standards:

- (1) ASTM B647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*
- (2) ASTM B648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impresor*
- (3) ASTM E6, *Standard Terminology Relating to Methods of Mechanical Testing*
- (4) ASTM E10, *Standard Test Method for Brinell Hardness of Metallic Materials*
- (5) ASTM E18, *Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials*
- (6) ASTM E92, *Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials*

**22.7.6** All acoustic emission inspections shall be conducted in accordance with the following standards:

- (1) ASTM E569/E569M, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*
- (2) ASTM E650/E650M, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*

**22.7.7** All eddy current inspections shall be conducted in accordance with ASTM E1004, *Standard Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy Current) Method*.

#### 22.8 Inspecting and Testing Aerial Ladders.

##### 22.8.1 General.

**22.8.1.1** The tests specified in Section 22.8 shall apply only to metal aerial ladders.

**22.8.1.2** In addition to the manufacturer's recommendations for annual inspections and tests, the inspections and tests detailed in 22.8.2 through 22.8.11 shall be performed.

**22.8.1.3** An inspection procedure preceded by a plus sign (+) indicates that an appropriate NDT shall be conducted as required by 22.1.2.

**22.8.2 Service Records.** The aerial ladder's service records shall be checked for any reports that indicate defective conditions.

**22.8.3 Hydraulic Components.** Hydraulic components shall show no signs of hydraulic fluid leakage.

**22.8.3.1** A component shall be considered leaking if hydraulic fluid (oil) droplets are forming on the component.

**22.8.3.2** A film of hydraulic fluid on the component shall not be considered severe enough to categorize the component as leaking.

**22.8.4 Turntable, Torque Box, Suspension, and Tractor-Drawn Components Inspection and Test.** The turntable, torque box, suspension components, and tractor-drawn components, where applicable, shall be inspected on all aerial ladders in accordance with 22.8.4.1 through 22.8.4.29.

**22.8.4.1 Rotation-Bearing Mounting Bolts.** The rotation-bearing mounting bolts shall be inspected as follows:

- (1) Inspect all accessible bolts for proper grade and installation as specified by the apparatus manufacturer.
- (2) Using a properly calibrated torque wrench, verify that the bolt torque on all accessible bolts meets the apparatus manufacturer's specifications.
- (3) (+) Inspect all accessible bolts for internal flaws.

##### 22.8.4.2 Torque Box Mounting to Frame.

**22.8.4.2.1** If the torque box is bolted to the frame, the torque box mounting to the frame shall be inspected as follows:

- (1) Inspect all accessible bolts for proper grade and installation as specified by the apparatus manufacturer.
- (2) Using a properly calibrated torque wrench, verify that the torque on all accessible bolts meets the apparatus manufacturer's specifications.
- (3) (+) Inspect all bolts for internal flaws.

**22.8.4.2.2** If the torque box is welded to the frame, the torque box mounting to the frame shall be inspected as follows:

- (1) Visually inspect all accessible attaching welds for fractures.
- (2) (+) Inspect all accessible attaching welds.

##### 22.8.4.3 Tractor-Drawn Components Mounting to Frame.

**22.8.4.3.1** If tractor-drawn components are bolted to the frame, the mounting of the tractor-drawn components to the frame shall be inspected as follows:

- (1) Inspect all accessible bolts for proper grade and installation as specified by the apparatus manufacturer.

- (2) Using a properly calibrated torque wrench, verify that the torque on all accessible bolts meets the apparatus manufacturer's specifications.
- (3) (+) Inspect all bolts for internal flaws.
- 22.8.4.3.2** If tractor-drawn components are welded to the frame, the mounting of the tractor-drawn components to the frame shall be inspected as follows:
- (1) Visually inspect all accessible attaching welds for fractures.
  - (2) (+) Inspect all accessible attaching welds.
- 22.8.4.4 Suspension System.**
- 22.8.4.4.1** If the suspension system components are bolted to the frame, the mounting of the suspension system components to the frame shall be inspected as follows:
- (1) Inspect all accessible bolts for proper installation.
  - (2) (+) Inspect all accessible bolts for internal flaws.
- 22.8.4.4.2** If the suspension system components are welded to the frame, all accessible attaching welds shall be visually inspected for fractures.
- 22.8.4.5 Rotation Gear and Bearing.** The rotation gear and bearing shall be inspected as follows:
- (1) Inspect the rotation gear for missing or damaged teeth, pinion-to-gear alignment, proper lubrication, and backlash.
  - (2) Inspect the bearing clearance.
- 22.8.4.6 Rotation Gear Reduction Box Mounting.**
- 22.8.4.6.1** If the rotation gear reduction box is bolted to the turntable, the rotation gear reduction box mounting shall be inspected as follows:
- (1) Inspect all bolts for proper grade and installation as specified by the apparatus manufacturer.
  - (2) Using a calibrated torque wrench, verify that the torque on all bolts meets the apparatus manufacturer's specifications.
  - (3) (+) Inspect all bolts for internal flaws.
- 22.8.4.6.2** If the rotation gear reduction box is welded to the turntable, the rotation gear reduction box mounting shall be inspected as follows:
- (1) Visually inspect all of the accessible weldments for defects and all of the welds for fractures.
  - (2) (+) Inspect all reduction box attaching welds.
- 22.8.4.7 Structural Components.** The structural components shall be inspected as follows:
- (1) Visually inspect all of the accessible structural weldments for defects and all of the welds for fractures.
  - (2) (+) Inspect all accessible structural component welds.
- 22.8.4.8 Rotation Hydraulic Swivel.** The rotation hydraulic swivel shall be inspected for external hydraulic fluid leakage and the security of the swivel attachment to the structure.
- 22.8.4.9 Hydraulic Lines and Hose.** All hydraulic lines and hose shall be inspected for kinks, cuts and abrasions, and hydraulic fluid leakage at connectors and fittings.
- 22.8.4.10 Elevation, Extension, and Rotation Lock(s).** The elevation, extension, and rotation lock(s) shall be inspected as follows:
- (1) Inspect the manual valve on the elevation, extension, and rotation lock(s) for external hydraulic fluid leakage.
  - (2) Verify by visual inspection that the manual elevation lock operates properly by engaging the lock and then attempting to raise and lower the ladder while the main hydraulic system is operating.
  - (3) Verify by visual inspection that the manual extension lock operates properly by engaging the lock and then attempting to extend or retract the ladder while the main hydraulic system is operating.
  - (4) Verify by visual inspection that the manual rotation lock operates properly by engaging the lock and attempting to rotate the turntable clockwise and counterclockwise while the main hydraulic system is operating.
  - (5) If provided, verify that the rotation interlock system operates properly.
  - (6) If provided, verify that the system provided to avoid collisions between the aerial device and the apparatus cab/body operates properly.
  - (7) For aerial devices that have computer-controlled or electronically controlled limitations to the range of aerial movement, a test shall be performed to validate the proper operation of the control system, as defined by the manufacturer.
- 22.8.4.11 Power Takeoff (PTO).** The PTO shall be inspected as follows:
- (1) Inspect the PTO for external hydraulic fluid leakage.
  - (2) Verify that the PTO engages and disengages properly.
- 22.8.4.12 Hydraulic Pump.** The hydraulic pump shall be inspected for external hydraulic fluid leakage.
- 22.8.4.13 Collector Rings.** The collector rings shall be inspected as follows:
- (1) If the collector rings are accessible, inspect them for foreign material buildup.
  - (2) If the collector ring terminals are accessible, inspect them for damage.
  - (3) Conduct tests to ensure the proper operation of the collector rings by rotating the aerial device while electric-powered devices are in operation.
  - (4) If applicable, check for indications of moisture in the electrical chamber by visually inspecting the desiccant moisture indicators.
- 22.8.4.14 Elevation Cylinder Anchor Ears and Plates.**
- 22.8.4.14.1** The elevation cylinder anchor ears and plates shall be inspected as follows:
- (1) Visually inspect the elevation cylinder anchor ears and plates for defects and the attaching welds for fractures.
  - (2) (+) Inspect the elevation cylinder anchor ears and plate-attaching welds.
- 22.8.4.14.2** If the elevation cylinder anchor is bolted, it shall be further inspected as follows:
- (1) Inspect all accessible bolts for proper grade and installation as specified by the apparatus manufacturer.

- (2) Using a properly calibrated torque wrench, verify that the bolt torque on all accessible bolts meets the manufacturer's specification.
- (3) (+) Inspect all accessible bolts for internal flaws.

**22.8.4.15 Elevation Cylinder Pins.** The elevation cylinder pins shall be inspected as follows:

- (1) Inspect the cylinder pins for proper installation, alignment, lubrication, operation, and retention.
- (2) (+) Inspect cylinder pins for internal flaws.

**22.8.4.16 Elevation Cylinders.**

**22.8.4.16.1** The elevation cylinders shall be inspected as follows:

- (1) Inspect the cylinder rods for pitting, scoring, and other defects.
- (2) Inspect the cylinder rod-to-barrel seal and the end gland seal for external hydraulic fluid leakage that exceeds the manufacturer's specifications.

**22.8.4.16.2\*** The elevation cylinders shall be subjected to a drift test as follows:

- (1) With the hydraulic fluid at ambient temperature, place the aerial device at 60 degrees elevation at full extension.
- (2) Mark the cylinder position.
- (3) Close the manually operated locking valves, and allow the device to stand for 1 hour with the engine off.
- (4) Measure the drift and verify that the results do not exceed the manufacturer's specifications for allowable cylinder drift.

**22.8.4.17 Holding Valves on Elevation Cylinders.** The holding valves on the elevation cylinders shall be inspected for external hydraulic fluid leakage.

**22.8.4.18 Operating Controls.** The operating controls shall be inspected as follows:

- (1) Inspect the operating controls to ensure control handles are not damaged or missing, functions are identified, operating instructions and warnings are posted, and no hydraulic fluid leakage has occurred.
- (2) Verify that the controls operate smoothly, return to neutral position when released, and do not bind during operation.
- (3) If interlocks have been provided or are required to prevent unintentional operation of the aerial device, verify that the interlocks or locking devices are operating properly.

**22.8.4.19 Load Limit Indicators.** The load limit indicators shall be inspected for proper operation and legibility.

**22.8.4.20 Emergency Hand-Crank Controls.** The emergency hand-crank controls shall be inspected for proper operation.

**22.8.4.21 Auxiliary Hydraulic Power.** The auxiliary hydraulic power shall be inspected for proper operation.

**22.8.4.22 Turntable Alignment Indicator.** When the aerial device is stowed in the cradle, the presence and accuracy of the turntable alignment indicator shall be verified.

**22.8.4.23 Throttle Control.**

**22.8.4.23.1** The throttle control shall be inspected for proper operation.

**22.8.4.23.2** The operating speed of the engine shall be measured using a tachometer or a revolution counter and shall be checked against the manufacturer's specifications.

**22.8.4.24 Communication System.** The communication system shall be inspected for proper installation and operation.

**22.8.4.25 Relief Hydraulic Pressure.** The main hydraulic pump relief pressure shall be tested to determine that it does not exceed the manufacturer's specifications.

**22.8.4.26 Unit Main Frame.** The unit main frame shall be inspected as follows:

- (1) Visually inspect the main frame for any cracks, bends, dents, twists, or other weldment defects.
- (2) Visually inspect any welds for fractures.
- (3) (+) Inspect all main frame welds.

**22.8.4.27 Transmission/Aerial Device Interlocks.** If interlocks have been provided that prevent operation of the aerial device until both the parking brakes have been set and the transmission has been positioned properly, the interlocks shall be inspected to verify they are operating properly.

**22.8.4.28 Engine Speed Interlocks.** If interlocks have been provided that allow operation of the engine speed control only after both the parking brakes have been set and the transmission has been positioned properly, the interlocks shall be inspected to verify they are operating properly.

**22.8.4.29 Breathing Air Systems.** If a breathing air system is provided, the system shall be inspected as follows:

- (1) Verify that the breathing air system — including the integrity of the air cylinder mounting, the regulator, and the air lines from the air cylinder(s) to the top of the aerial device — is properly installed.
- (2) Verify that all the component parts of the system are present and in serviceable condition.
- (3) Visually inspect the air cylinder mounting brackets for defects and the welds for fractures.
- (4) (+) Inspect all welds on air cylinder mounting brackets.
- (5) Check that the air pressure regulator is set at the apparatus manufacturer's recommended pressure.

**22.8.5 Stabilizer Inspection and Test.** The stabilizer components, where applicable, shall be inspected on all aerial ladder apparatus in accordance with 22.8.5.1 through 22.8.5.16.

**22.8.5.1 Stabilizer Structural Components.** The stabilizer structural components shall be inspected as follows:

- (1) Visually inspect all of the stabilizer components for defects and all of the welds for fractures.
- (2) (+) Inspect all stabilizer structural component welds.

**22.8.5.2 Stabilizer Pads.** The stabilizer pads shall be inspected to verify that they are present, are of proper construction, and are in serviceable condition.

**22.8.5.3 Stabilizer Mounting to Frame or Torque Box.**

**22.8.5.3.1** The stabilizer mounting to the frame or torque box attachment shall be visually inspected for defects such as dents and bends.

**22.8.5.3.2** If the stabilizer mounting to the frame or torque box is welded, it shall be further inspected as follows:

- (1) Visually inspect the stabilizer to frame or torque box mounting for weld cracks.

- (2) (+) Inspect the stabilizer to frame or torque box mounting welds.
- 22.8.5.3.3** If the stabilizer mounting to the frame or torque box is bolted, it shall be further inspected as follows:
- (1) Inspect all bolts for proper fastener grade and installation as specified by the apparatus manufacturer.
  - (2) Using a properly calibrated torque wrench, verify that the torque on all bolts meets the apparatus manufacturer's specifications.
  - (3) (+) Inspect all bolts for internal flaws.
- 22.8.5.4 Hydraulic Lines and Hoses in Stabilizer System.** All hydraulic lines and hoses in the stabilizer system shall be inspected for kinks, cuts and abrasions, and leakage at connectors and fittings.
- 22.8.5.5 Stabilizer Interlock System.** The stabilizer interlock system shall be inspected to verify that it is operating properly.
- 22.8.5.6 Stabilizer Warning Device.** The stabilizer warning device shall be inspected to verify that it is operating properly.
- 22.8.5.7 Stabilizer Extension Cylinder Pins and Hinge Pins.** The stabilizer extension cylinder pins and hinge pins shall be inspected as follows:
- (1) Inspect all stabilizer cylinder pins and hinge pins for proper installation, lubrication, operation, and retention.
  - (2) (+) Inspect all stabilizer pins and hinge pins for internal flaws.
- 22.8.5.8 Stabilizer Extension Cylinders.**
- 22.8.5.8.1** The stabilizer extension cylinders shall be inspected as follows:
- (1) Inspect the stabilizer extension cylinder rods for pitting, scoring, and other defects.
  - (2) Inspect the cylinder rod-to-barrel seals and the end gland seals for external hydraulic fluid leakage that exceeds the manufacturer's specifications.
- 22.8.5.8.2\*** The stabilizer extension cylinder shall be subjected to a drift test as follows:
- (1) With the hydraulic fluid at ambient temperature, properly set the stabilizer's cylinders.
  - (2) Mark the cylinder position.
  - (3) Measure the drift after 1 hour with the engine off.
  - (4) Verify that the results do not exceed the manufacturer's specification for allowable stabilizer cylinder drift.
- 22.8.5.9 Holding Valves on Extension Cylinders.** The holding valves on extension cylinders shall be inspected for external leakage of hydraulic fluid.
- 22.8.5.10 Operating Controls.** The operating controls shall be inspected as follows:
- (1) Inspect the operating controls to ensure control handles are not damaged or missing, functions are identified, operating instructions and warnings are posted, and no hydraulic fluid leakage has occurred.
  - (2) Verify that the controls operate smoothly, return to the neutral position when released, and do not bind during operation.
  - (3) If interlocks have been provided or are required to prevent unintentional operation of the aerial device, verify that the interlocks or locking devices are operating properly.
- 22.8.5.11 Leveling Indicator.** If a leveling indicator(s) is provided to aid the operator in leveling the apparatus, the accuracy and legibility of the leveling indicator shall be checked.
- 22.8.5.12 Diverter Valve.** The diverter valve shall be inspected for external hydraulic fluid leakage.
- 22.8.5.13 Positive Stops.** The mechanical stabilizers shall be inspected for proper operation of the positive stops that prevent overextension.
- 22.8.5.14 Stabilizer Deployment.** If the stabilizer system is operated hydraulically, the system shall be inspected to verify that it can be deployed within the time frame designated by the aerial device manufacturer.
- 22.8.5.15 Manual Spring Locks.** The stabilizer manual spring locks shall be inspected for proper condition and operation.
- 22.8.5.16 Tractor Lockout Device.** If the aerial ladder is tractor drawn, the spring lockout or fifth wheel lockout device(s), if supplied, shall be inspected for any discontinuities and for proper operation.
- 22.8.6 Aerial Ladder Inspection and Test.** The aerial ladder shall be inspected in accordance with 22.8.6.1 through 22.8.6.30.
- 22.8.6.1 Structural Modifications, Improper Repairs, or Added Weight.**
- 22.8.6.1.1** The aerial ladder shall be inspected for structural modifications or improper repairs.
- 22.8.6.1.2** The aerial ladder shall be inspected to determine that no extra equipment has been added to the aerial ladder without subtracting the weight of such equipment from the rated capacity.
- 22.8.6.1.3** Details of any structural modifications, improper repairs, or added weight shall be contained in the record required by 22.8.12.
- 22.8.6.2 Aerial Ladder Weldments.** All aerial ladder weldments shall be inspected as follows:
- (1) Visually inspect all of the accessible aerial ladder weldments for defects and all of the welds for fractures.
  - (2) (+) Inspect all accessible welds on the ladder.
- 22.8.6.3 Aerial Ladder Fasteners.** All aerial ladder structural fasteners and fastened connections shall be inspected visually for cracked fasteners and material cracks around the fasteners.
- 22.8.6.4 Ladder Section Alignment.** Measurements shall be taken to determine that the amount of ladder section twist or bow in the aerial ladder does not exceed the manufacturer's specifications for allowable ladder section twist or bow.
- 22.8.6.5 Hydraulic, Pneumatic, and Electrical Lines in Ladder Sections.** All hydraulic, pneumatic, and electrical lines in ladder sections shall be inspected for proper mounting and for wear, cracking, kinks, and abrasions.
- 22.8.6.6 Top Rails.** The top rails shall be inspected as follows:
- (1) Inspect the top rails for straightness or any signs of misalignment.

(2) If the ladder is constructed of aluminum, perform one of the following:

- (a) (+) Take hardness readings at intervals of 12 in. (305 mm) or less on the last 10 ft (3 m) of each top rail section and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the top rail.
- (b)\* (+) If heat sensors are installed on the top rails, visually inspect the heat sensors for discoloration.
- (3) (+) If the aerial device is constructed of aluminum and is painted, follow the manufacturer's recommendations for inspection.
- (4) (+) If there is discoloration of heat sensor(s) or any indication of heat damage anywhere on an aluminum aerial device, take hardness readings at intervals of 12 in. (305 mm) or less between the heat-affected areas and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the top rail.

**22.8.6.7 Vertical and Diagonal Braces.** The vertical and diagonal braces shall be inspected as follows:

- (1) Inspect the verticals and diagonals for straightness, dents, and other deformities.
- (2) (+) Inspect all accessible attachment welds.

**22.8.6.8 Base Rails.** The base rails shall be inspected as follows:

- (1) Inspect the base rail for straightness and any signs of wear, ironing, dents, or corrosion.
- (2)\* (+) Inspect the bottom of all hollow I-beam base rails to determine that the thickness of the rail is not less than the manufacturer's minimum specifications.
- (3) If the ladder is constructed of aluminum, perform one of the following:
  - (a) (+) Take hardness readings at intervals of 28 in. (710 mm) or less along the entire length of both bottom rails and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the top rail.
  - (b)\* (+) If heat sensors are installed on the base rails, visually inspect the heat sensors for discoloration.
  - (c) (+) If the aerial ladder is painted, follow the manufacturer's recommendations for inspection.
- (4) (+) If there is discoloration of a heat sensor(s) or any indication of heat damage anywhere on an aluminum aerial device, take hardness readings at intervals of 12 in. (305 mm) or less between the heat-affected areas and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the base rail.

**22.8.6.9 Rungs.** All rungs of the aerial ladder shall be inspected for straightness, signs of ladder lock damage, damaged or loose rung covers and rung cap castings, and signs of cracks or missing rivets, if applicable.

**22.8.6.10 Folding Steps.** The folding steps on the ladder shall be inspected as follows:

- (1) Visually inspect the folding steps and folding step mounting brackets for defects and the welds for fractures.
- (2) (+) Inspect all welds on the folding step(s) and folding step mounting brackets.

**22.8.6.11 Rollers.** All rollers shall be inspected for proper lubrication and operation and for any signs of wear.

**22.8.6.12 Guides, Babbitts, Wear Strips, Pads, and Slide Blocks.**

**22.8.6.12.1** The guides shall be visually inspected for cracked welds, loose rivets, alignment problems, and any irregularities.

**22.8.6.12.2** The babbitted areas of the base rail shall be free of paint and inspected for signs of wear.

**22.8.6.12.3** The wear strips, pads, and slide blocks shall be inspected for wear and gouging and for proper mounting.

**22.8.6.13 Extension Sheaves.** The extension sheaves shall be inspected as follows:

- (1) Inspect extension sheaves for signs of wear, free movement during operation, proper retainers, and proper lubrication.
- (2) Visually inspect all extension sheave mounting brackets for defects and the welds for fractures.
- (3) (+) Inspect all welds of extension sheave mounting brackets.

**22.8.6.14 Extension Cables.** The extension cables shall be inspected for compliance with Chapter 5-2 of ASME B30.5, *Mobile and Locomotive Cranes*.

**22.8.6.15 Extension and Retraction Motor.** The extension and retraction motor shall be inspected for signs of external hydraulic fluid leakage and, where applicable, brake wear and brake alignment with the shaft.

**22.8.6.16 Cable Separation Guide.** During operation of the aerial ladder, the cable separation guide shall be inspected visually for free travel and any signs of misalignment.

**22.8.6.17 Winch Holding Capacity.** The winch shall be inspected for holding capacity as follows:

- (1) Fully elevate the aerial ladder and extend it 10 ft (3 m).
- (2) Measure the winch slippage for a 5-minute period.
- (3) Verify that the slippage does not exceed the manufacturer's specifications.

**22.8.6.18 Brake-Holding Capacity.** The brake-holding capacity of the extension motor shall be inspected as follows:

- (1) Fully elevate the aerial ladder and extend it 10 ft (3 m).
- (2) Measure the brake slippage for a 5-minute period.
- (3) Verify that the slippage does not exceed the manufacturer's specifications.

**22.8.6.19 Extension, Elevation, and Rung Alignment Indicators.** The elevation, extension, and rung alignment indicators shall be inspected for legibility, clarity, and accuracy.

**22.8.6.20 Ladder Locks.** The ladder lock mechanisms shall be inspected for proper mounting, alignment, lubrication, and operation.

**22.8.6.21 Ladder Cradle.**

**22.8.6.21.1** The aerial ladder cradle shall be inspected as follows:

- (1) Inspect the ladder cradle for wear and proper alignment, and inspect the cradle pad for damage.
- (2) Visually inspect the ladder cradle for defects such as weld cracks, dents, or bends.

- (3) (+) Inspect the ladder cradle welds and bracket attachments.

**22.8.6.21.2** If the aerial ladder cradle is bolted, it shall be further inspected as follows:

- (1) Inspect all accessible bolts for proper grade and installation as specified by the apparatus manufacturer.
- (2) Using a properly calibrated torque wrench, verify that the bolt torque on all accessible cradle-to-chassis-frame mounting bolts meets the apparatus manufacturer's specifications.
- (3) (+) Inspect all accessible bolts for internal flaws.

**22.8.6.22 Ladder Bed Lock.**

**22.8.6.22.1** The ladder bed lock mechanism and hydraulic lines shall be inspected for proper mounting, signs of wear, and hydraulic fluid leakage at fittings.

**22.8.6.22.2** The ladder bed lock shall be inspected to verify proper operation.

**22.8.6.23 Stop Mechanism.** The stop mechanisms shall be inspected to ensure that they prevent overextension or overretraction of the aerial ladder.

**22.8.6.24 Maximum Extension Warning Device.** During operation, if the aerial ladder is equipped with an audible device that warns of the approach of maximum extension, the device shall be inspected to verify proper operation.

**22.8.6.25 Ladder Illumination.** The lights that are used to illuminate the ladder shall be inspected for proper operation.

**22.8.6.26 Extension Cylinder Anchor Ears and Plates.**

**22.8.6.26.1** The extension cylinder anchor ears and plates shall be inspected as follows:

- (1) Visually inspect the extension cylinder anchor ears and plates for defects and the attaching welds for fractures.
- (2) (+) Inspect the attaching welds of the extension cylinder anchor ears and plates.

**22.8.6.26.2** If the extension cylinder anchor is bolted, it shall be further inspected as follows:

- (1) Inspect all accessible bolts for proper grade and installation as specified by the apparatus manufacturer.
- (2) Using a properly calibrated torque wrench, verify that the bolt torque on all accessible bolts meets the manufacturer's specifications.
- (3) (+) Inspect all accessible bolts for internal flaws.

**22.8.6.27 Extension Cylinder Pins.** The extension cylinder pins shall be inspected as follows:

- (1) Inspect the cylinder pins for proper installation and retention.
- (2) (+) Inspect the cylinder pins for internal flaws.

**22.8.6.28 Extension Cylinder.**

**22.8.6.28.1** The extension cylinder shall be inspected as follows:

- (1) Inspect the cylinder rods for pitting, scoring, and other defects.
- (2) Inspect the cylinder rod-to-barrel seal and the end gland seal for external hydraulic fluid leakage that exceeds the manufacturer's specifications.

**22.8.6.28.2\*** The extension cylinder shall be subjected to a drift test as follows:

- (1) With the hydraulic fluid at ambient temperature, place the aerial device at 60 degrees elevation at full extension.
- (2) Mark the cylinder position or the second aerial ladder section in relation to the base section.
- (3) Allow the ladder to stand for 1 hour with the engine off.
- (4) Measure the drift and verify that the results do not exceed the manufacturer's specifications for allowable cylinder drift.

**22.8.6.29 Holding Valves on Extension Cylinder.** The holding valves shall be inspected for external and internal hydraulic fluid leakage.

**22.8.6.30 Tip Controls.** If the aerial ladder is equipped with a secondary operating position at the tip, the controls shall be inspected as follows:

- (1) Check that the control handles are not damaged or missing, functions are identified, and operating instructions and warnings are posted.
- (2) Verify that the controls operate smoothly, return to neutral when released, and do not bind during operation.
- (3) Verify that the turntable or lower controls will override the tip controls.
- (4) Verify that any safety devices that are designed to operate in conjunction with the tip controls are fully operational.
- (5) If the aerial ladder was built to the 1996 or a later edition of NFPA 1901, verify that the speed of the aerial ladder, when being operated from the tip controls, does not exceed the speeds permitted in the edition of NFPA 1901 to which the aerial ladder was manufactured.

**22.8.7 Load Testing.**

**22.8.7.1\*** Tests shall be conducted when the wind velocity is less than 10 mph (16 km/hr).

**22.8.7.2** Only those personnel who are essential to conduct the test shall be permitted near the apparatus during the test.

**22.8.7.3** A watch shall be maintained during all load tests for any signs of instability, the development of conditions that could cause damage or permanent deformation, or twist that exceeds the aerial ladder manufacturer's allowance, and the test shall be discontinued immediately if such conditions develop.

**22.8.7.4 Horizontal Load Test.**

**22.8.7.4.1** The aerial apparatus shall be on a hard, level surface with the stabilizers deployed in accordance with the manufacturer's instructions, and with the turntable level.

**22.8.7.4.2\*** A test cable hanger shall be attached to the top section of the ladder as follows:

- (1) If the ladder is rated at 500 lb (227 kg) or less, the cable hanger shall be attached to the top rung and centered.
- (2) If the ladder is rated at greater than 500 lb (227 kg), the test cable hanger shall be attached to both base rails at the top rung.

**22.8.7.4.3** The rated capacity that the ladder is designed to support in the horizontal position at full extension shall be determined from the manufacturer's load chart or operator's manual. If full extension is not permitted in the horizontal

position with a specified rated capacity, the maximum permissible extension with a specified rated capacity shall be used for the purpose of this test.

**22.8.7.4.4** The ladder shall be positioned as follows:

- (1) For single-chassis apparatus, the ladder shall be rotated, if necessary, until it is positioned over the rear, and parallel to, the vehicle centerline.
- (2) For a tractor-drawn apparatus, the ladder shall be positioned in the most stable position, as recommended by the manufacturer.

**22.8.7.4.5** The ladder shall be placed in the horizontal position and extended to full extension or the maximum permitted extension as determined in 22.8.7.4.3. The base section shall not be permitted to rest in the bed.

**22.8.7.4.6** The ladder section locks, either manual pawls or hydraulic holding valves, shall be applied properly.

**22.8.7.4.7** The elevation cylinders' integral holding valve or shutoff safety valve shall be properly closed or applied.

**22.8.7.4.8\*** A free-hanging weight that is equal to the rated capacity, as determined in 22.8.7.4.3, shall be applied gradually to the top section of the aerial ladder by utilizing a test weight container or other suitable means of applying the weight.

**22.8.7.4.8.1** The weight shall be suspended by a cable and shall not be more than 3 ft (1 m) above the ground.

**22.8.7.4.8.2** The combined weight of the test cable hanger and cable, the test weight container, and the test weights shall not exceed the rated capacity.

**22.8.7.4.8.3** The weights shall be added to the ladder in a manner that does not shock load the ladder.

**CAUTION:** Dropping the weights and shock loading the ladder can damage the ladder.

**22.8.7.4.9** The test weight shall be sustained by the unsupported aerial ladder for 5 minutes.

**22.8.7.4.10** The test weight shall hang freely from the tip of the aerial ladder.

**22.8.7.4.11** If the test weight hanger and ladder deflection are such that the test weight comes to rest on the ground, the ladder elevation shall be permitted to be raised slightly above the horizontal position.

**22.8.7.4.12** The ladder shall not be moved while the test weight is applied.

**CAUTION:** Moving the ladder with a test weight applied could result in the application of forces that damage the ladder.

**22.8.7.4.13** After removal of the test weight, a complete visual inspection shall be made of all load-supporting elements.

**22.8.7.4.14** Any visually detectable signs of damage, permanent deformation, or twist exceeding the manufacturer's specifications shall constitute noncompliance with the load test requirements, and the aerial ladder shall be placed out of service.

#### **22.8.7.5 Maximum Elevation Load Test.**

**22.8.7.5.1** The aerial apparatus shall be on a hard, level surface with the stabilizers deployed in accordance with the manufacturer's instructions, and with the turntable level.

**22.8.7.5.2\*** A test cable hanger shall be attached to the top section of the ladder as follows:

- (1) If the ladder is rated at 500 lb (227 kg) or less, the cable hanger shall be attached to the top rung and centered.
- (2) If the ladder is rated at greater than 500 lb (227 kg), the test cable hanger shall be attached to both base rails at the top rung.

**22.8.7.5.3** The maximum rated capacity that the ladder is designed to support in the maximum elevated position at full extension shall be determined from the manufacturer's load chart or operator's manual.

**22.8.7.5.4** The ladder shall be rotated, if necessary, until the ladder is positioned over the rear and parallel to the vehicle centerline. Midship-mounted aerial ladders shall be permitted to be rotated slightly off of the vehicle centerline to apply the test load without interfering with the body of the apparatus.

**22.8.7.5.5** The ladder shall be positioned at its maximum elevation and full extension.

**22.8.7.5.6** The ladder section locks, either manual pawls or hydraulic holding valves, shall be applied properly.

**22.8.7.5.7** The elevation cylinders' integral holding valve or shutoff safety valve shall be properly closed or applied.

**22.8.7.5.8** A free-hanging weight that is equal to the rated capacity, as determined in 22.8.7.5.3, shall be applied gradually to the top rung of the aerial ladder by utilizing a test weight container or other suitable means of applying the weight.

**22.8.7.5.8.1** The weight shall be suspended by a cable and shall not be more than 3 ft (1 m) above the ground.

**22.8.7.5.8.2** The combined weight of the test cable hanger and cable, the test weight container, and the test weights shall not exceed the rated capacity.

**22.8.7.5.8.3** The weights shall be added to the ladder in a manner that does not shock load the ladder.

**CAUTION:** Dropping the weights and shock loading the ladder can damage the ladder.

**22.8.7.5.9** The test weight shall be sustained by the unsupported aerial ladder for 5 minutes.

**22.8.7.5.10** The test weight shall hang freely from the tip of the aerial ladder.

**22.8.7.5.11** The ladder shall not be moved while the test weight is applied.

**CAUTION:** Moving the ladder with a test weight applied could result in the application of forces that damage the ladder.

**22.8.7.5.12** After removal of the test weight, a complete visual inspection shall be made of all load-supporting elements.

**22.8.7.5.13** Any visually detectable signs of damage, permanent deformation, or twist exceeding the manufacturer's specifications shall constitute noncompliance with the load test requirements, and the aerial ladder shall be placed out of service.

#### **22.8.8 Operating Test.**

**22.8.8.1** After the load tests have been conducted, the ladder shall be fully elevated out of the bed, rotated 90 degrees, and fully extended.

**22.8.8.2\*** The procedure specified in 22.8.8.1 shall be completed smoothly and without undue vibration within the time permitted by the edition of NFPA 1901 in effect at the time of manufacture.

**22.8.8.3** After completing the procedure specified in 22.8.8.1, the ladder shall be retracted, the turntable rotation completed through 360 degrees, and the ladder lowered to its bed.

**22.8.8.4** During the test, the proper operation of all ladder controls shall be verified.

**22.8.8.5** After the procedure specified in 22.8.8.1 through 22.8.8.4 is completed, a thorough inspection shall be made of all moving parts.

**22.8.8.6** The security and adjustment of the ladder cables or chains shall be checked for proper tension and retention in accordance with the manufacturer's specifications.

#### **22.8.9 Waterway System Test.**

**22.8.9.1** The following inspection and test shall apply only to permanently piped, aerial ladder waterway systems.

**22.8.9.2** The waterway system shall be inspected as follows:

- (1) Inspect the system for proper operation of all components.
- (2) Inspect the system for rust, corrosion, blockage, or other defects.

**22.8.9.3** The waterway-attaching brackets shall be inspected as follows:

- (1) Inspect the brackets for loose bolts, weld fractures, or other defects.
- (2) (=) Inspect all attaching welds.

**22.8.9.4 Pressure Test.** The water system shall be pressure tested as specified in 22.8.9.4.1 through 22.8.9.4.3.

**22.8.9.4.1\*** The aerial device shall be positioned between 0 degrees and 10 degrees elevation and fully retracted.

**22.8.9.4.1.1** If there is no valve located at the discharge end, a valve shall be attached for the purpose of the test.

**22.8.9.4.1.2\*** The water system shall be filled with water, and the valve at the discharge end shall be closed.

**CAUTION:** For safety reasons, all air must be removed from the system.

**22.8.9.4.1.3** The pressure on the system shall be raised to the water system manufacturer's maximum rated working pressure and shall be maintained while the operations and inspections required by 22.8.9.4.1.4 and 22.8.9.4.1.5 are conducted.

**22.8.9.4.1.4** The aerial device shall be raised to full elevation and rotated 360 degrees.

**22.8.9.4.1.5** The water system, including the turntable swivel, shall be checked for leaks.

**22.8.9.4.1.6** Care shall be taken not to overheat the water pump during this test.

**22.8.9.4.2\*** The aerial device shall then be positioned between 0 degrees and 10 degrees elevation and extended to its maximum permissible limit.

**22.8.9.4.2.1** The water system shall be filled with water, all air shall be removed from the system, and the valve at the discharge end shall be closed.

**CAUTION:** Failure to remove all air from the water system could result in injury if there is a component failure during the test.

**22.8.9.4.2.2** The pressure on the system shall be raised to the water system manufacturer's maximum rated working pressure and maintained while the inspections required by 22.8.9.4.2.3 are conducted.

**22.8.9.4.2.3** The entire length of the water system shall be checked for leaks.

**22.8.9.4.2.4** Care shall be taken not to overheat the water pump during the test.

**22.8.9.4.3\*** The water system shall operate properly and with an absence of leaks during the tests.

#### **22.8.9.5 Flowmeters.**

**22.8.9.5.1** If the waterway system is equipped with a flowmeter(s), the flowmeter(s) shall be tested for accuracy as recommended by the apparatus manufacturer.

**22.8.9.5.2** Any meter that reads off by more than 10 percent shall be recalibrated, repaired, or replaced.

#### **22.8.9.6 Water Pressure Gauges.**

**22.8.9.6.1** If the waterway system is equipped with a water pressure gauge(s), each water pressure gauge(s) shall be checked for accuracy at a minimum of three points at 50 psi (345 kPa) intervals without exceeding the maximum rated working pressure of the waterway system.

**22.8.9.6.2** Any gauge that reads off by more than 10 psi (70 kPa) shall be recalibrated, repaired, or replaced.

#### **22.8.9.7 Relief Valve.**

**22.8.9.7.1** If the waterway system is equipped with a relief valve, the relief valve shall be checked to verify that it is operational at the waterway manufacturer's recommended pressure setting.

**22.8.9.7.2** Any relief valve that fails to operate within 10 psi (70 kPa) of the manufacturer's required setting shall be repaired, recalibrated, or replaced.

**22.8.10 Signs.** All signs shall be inspected to verify they are in place and legible.

**22.8.11\* Hydraulic Fluid.** After the operating tests have been performed, a sample of the hydraulic fluid shall be removed from the hydraulic reservoir and subjected to spectrochemical analysis, particle count, viscosity check, and water content analysis.

**22.8.12\* Records.** A comprehensive record shall be completed for all inspections and tests of the aerial ladder and signed by the person responsible for the test.

**22.8.12.1** When the torque verification of mounting bolts is performed as required by this standard, the bolt size, grade, and torque specifications shall be recorded.

**22.8.12.2** When an NDT is conducted, the test record shall indicate the NDT method used in each inspected area.

**22.8.12.3** Where this standard requires measurements to be taken — such as bearing clearance and backlash, cylinder drift, relief pressure, ladder section twist, hardness readings, base rail thickness, extension brake drift, and winch drift — these measurements shall be recorded in the test record so that a year-to-year comparison can be made.

## 22.9 Inspecting and Testing Elevating Platforms.

### 22.9.1 General.

**22.9.1.1** In addition to the manufacturer's recommendations for annual inspections and tests, the inspections and tests detailed in 22.9.2 through 22.9.16 shall be performed.

**22.9.1.2** An inspection preceded by a plus sign (+) indicates that an appropriate NDT shall be conducted as required by 22.1.2.

**22.9.2 Service Records.** The elevating platform's service records shall be checked for any reports that indicate defective conditions.

**22.9.3 Hydraulic Components.** Hydraulic components shall show no signs of hydraulic fluid leakage.

**22.9.3.1** A component shall be considered to be leaking if hydraulic fluid (oil) droplets are forming on the component.

**22.9.3.2** A film of hydraulic fluid on the component shall not be considered severe enough to categorize the component as leaking.

**22.9.4 Turntable and Torque Box Inspection and Test.** The turntable and torque box components, where applicable, shall be inspected in accordance with 22.8.4.1, 22.8.4.2, 22.8.4.4 through 22.8.4.13, and 22.8.4.18 through 22.8.4.29.

**22.9.5 Stabilizer Inspection and Test.** The stabilizer components, where applicable, shall be inspected in accordance with 22.8.5.1 through 22.8.5.14.

**22.9.6 Platform and Boom Inspection and Test.** The platform and booms shall be inspected in accordance with 22.9.6.1 through 22.9.6.12.

### 22.9.6.1 Structural Modifications, Improper Repairs, or Added Weight.

**22.9.6.1.1** The platform and booms shall be inspected for structural modifications or improper repairs.

**22.9.6.1.2** The platform shall be inspected to determine that no extra equipment has been added to the platform without subtracting the weight of such equipment from the rated capacity.

**22.9.6.1.3** Details of any structural modifications, improper repairs, or added weight shall be contained in the required report.

**22.9.6.2 Platform Mounting Brackets.** The platform mounting brackets shall be inspected as follows:

- (1) Visually inspect all platform mounting brackets for defects, such as weld cracks, dents, or bends.
- (2) (+) Inspect all welds in the platform mounting brackets.
- (3) (+) Inspect all bolts and pins structurally involved with the platform mounting to the ladder or boom for internal flaws.

**22.9.6.3 Platform.** The platform shall be inspected as follows:

- (1) Visually inspect the platform for defects, such as weld cracks, dents, or bends.
- (2) (+) Inspect all welds on the platform.

**22.9.6.4 Hydraulic, Pneumatic, and Electrical Lines in the Platform.** All hydraulic, pneumatic, and electrical lines shall be inspected for proper mounting, wear, cracking, kinks, and abrasions.

**22.9.6.5 Auxiliary Winch Mounting.** The auxiliary winch mounting shall be inspected as follows:

- (1) Inspect all mounting bolts for proper grade and installation as specified by the apparatus manufacturer.
- (2) Using a calibrated torque wrench, verify that the torque on all winch mounting bolts meets the apparatus manufacturer's specifications.
- (3) If welded, visually inspect the winch mounting for weld fractures.
- (4) (+) Inspect the mounting bolts for internal flaws.
- (5) (+) If brackets are welded, inspect all welds on the mounting brackets.

**22.9.6.6 Winch Controls.** The winch controls shall be inspected as follows:

- (1) Inspect controls for proper identification as to function and operation.
- (2) Verify smooth operation of the winch controls.

**22.9.6.7 Elevating Platform Rated Capacity Identification.** The elevating platform rated capacity identification plate shall be checked to verify that it is present, proper, and legible.

### 22.9.6.8 Platform Gate Latches and Hinge Points.

**22.9.6.8.1** The platform gate latches shall be inspected for proper alignment.

**22.9.6.8.2** The latch and hinges shall be inspected for smooth operation.

**22.9.6.9 Platform Hinge Pins.** The platform hinge pins shall be inspected as follows:

- (1) Inspect platform hinge pins for proper installation, lubrication, and any irregularities.
- (2) (+) Inspect the platform hinge pins for internal flaws.

**22.9.6.10 Platform Controls.** The platform controls shall be inspected as follows:

- (1) Inspect the platform operating controls to ensure control handles are not damaged or missing, functions are identified, and operating instructions and warnings are posted.
- (2) Verify that the controls operate smoothly, return to neutral when released, and do not bind during operation.
- (3) Verify that the turntable or lower controls will override the platform controls.

**22.9.6.11 Platform Monitor and Nozzle.** The platform monitor and nozzle shall be inspected as follows:

- (1) Inspect the complete operation of the platform monitor and nozzle.
- (2) Inspect the monitor mounting brackets for any defects and their welds for fractures.

**22.9.6.12 Boom Illumination.** The operation of spotlights used to illuminate the boom shall be verified.

**22.9.7 Articulating Boom—Lower Boom Inspection and Test.** For apparatus equipment with an articulating boom, the lower boom shall be inspected and tested in accordance with 22.9.7.1 through 22.9.7.14.

**22.9.7.1 Hinge Pins.** The hinge pins shall be inspected as follows:

- (1) Inspect the boom hinge pins for proper installation, lubrication, operation, and any discontinuities.
- (2) (+) Inspect the boom hinge pins for internal flaws.

**22.9.7.2 Lower Boom Elevation Cylinder Anchor Ears and Plates.** The lower boom elevation cylinder anchor ears and plates shall be inspected as follows:

- (1) Visually inspect the anchor ears and plates for defects and the attaching welds for fractures.
- (2) (+) Inspect all welds on the anchor ears and plates.

**22.9.7.3 Lower Boom Elevation Cylinders.**

**22.9.7.3.1** The lower boom elevation cylinder(s) shall be inspected as follows:

- (1) Inspect the cylinder rod(s) for pitting, scoring, and other defects.
- (2) Inspect the cylinder rod-to-barrel seal and the end gland seal for external hydraulic fluid leakage that exceeds the manufacturer's specifications.

**22.9.7.3.2\*** The lower boom elevation cylinder shall be subjected to a drift test as follows:

- (1) With the hydraulic fluid at ambient temperature, take measurements of the drift in accordance with the manufacturer's recommendations.
- (2) Verify that the results of the measurements do not exceed the manufacturer's specifications for allowable lower boom cylinder drift.

**22.9.7.4 Holding Valves on Lower Boom Elevation Cylinder.** The holding valve(s) shall be inspected for signs of external hydraulic fluid leakage.

**22.9.7.5 Boom Assembly.** The lower boom assembly shall be inspected as follows:

- (1) Visually inspect the boom for defects, such as weld cracks, dents, or bends.
- (2) Visually inspect all structural fasteners and fastener connections for cracked fasteners and material cracks around the fasteners.
- (3) (+) Inspect all welds on the boom for any structural discontinuities.
- (4) If the lower boom assembly is constructed of aluminum, perform one of the following:
  - (a) (+) Take hardness readings at intervals of 28 in. (710 mm) or less along the length of the lower boom assembly and compare the results with the

manufacturer's specifications for the hardness of the material used for construction of the lower boom assembly.

- (b)\* (+) If heat sensors are installed on the lower boom assembly, visually inspect the heat sensors for discoloration.
- (c) (+) If the boom assembly is painted, follow the manufacturer's recommendations for inspection.
- (5) (+) If there is discoloration of a heat sensor(s) or any indication of heat damage anywhere on an aluminum boom assembly, take hardness readings at intervals of 12 in. (305 mm) or less between the heat-affected areas and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the boom assembly.

**22.9.7.6 Cylinder Link Pins.** The cylinder link pins shall be inspected as follows:

- (1) Inspect the cylinder link pins for proper installation, lubrication, operation, and any fractures.
- (2) (+) Inspect the cylinder link pins for internal flaws.

**22.9.7.7 Platform-Leveling Linkages.** The platform-leveling linkages shall be inspected as follows:

- (1) Visually inspect linkages for defects, such as weld cracks, dents, and bends.
- (2) (+) Inspect all welds of the leveling assembly.
- (3) (+) Inspect all leveling linkage pins for any internal flaws.

**22.9.7.8 Hydraulic Lines and Hoses in Lower Boom.** All hydraulic lines and hoses in the lower boom shall be inspected for proper mounting, abrasion, hydraulic fluid leakage, and wear.

**22.9.7.9 Hydraulic Lines in Knuckle.** All hydraulic lines in the knuckle shall be inspected for hydraulic fluid leakage, abrasion, and any signs of wear.

**22.9.7.10 Cables, Chains, and Rods.** All cables, chains, and rods shall be inspected for signs of wear and for proper adjustment.

**22.9.7.11 Sprockets, Pulleys, and Hooks.** All sprockets, pulleys, and hooks shall be inspected for lubrication, signs of wear, distortion, and proper operation.

**22.9.7.12 Boom Support.**

**22.9.7.12.1** The boom support shall be inspected as follows:

- (1) Inspect the boom support for wear and proper alignment, and inspect the cradle pad for damage.
- (2) Visually inspect the boom support for defects, such as weld cracks, dents, or bends.
- (3) (+) Inspect the boom support welds and bracket attachment.

**22.9.7.12.2** If the boom support is bolted, it shall be further inspected as follows:

- (1) Inspect all accessible bolts for proper grade and installation as specified by the manufacturer.
- (2) Using a properly calibrated torque wrench, verify that the bolt torque on all accessible boom-support-to-chassis-frame mounting bolts meets the apparatus manufacturer's specifications.
- (3) (+) Inspect all accessible bolts for internal flaws.

**22.9.7.13 Lower Boom Angle Indicator Lights.** The lower boom angle indicator lights shall be inspected to verify that they are operating properly.

**22.9.7.14 Pneumatic and Electrical Lines.** All pneumatic and electrical lines in the lower boom and the knuckle shall be inspected for proper mounting, wear, cracking, kinks, and abrasions.

**22.9.8 Articulating Boom—Upper Boom Inspection and Test.** For apparatus equipment with an articulating boom, the upper boom shall be inspected and tested in accordance with 22.9.8.1 through 22.9.8.15.

**22.9.8.1 Upper Boom for Alignment with Lower Boom.** The upper boom shall be inspected to verify it is aligned with the lower boom.

**22.9.8.2 Platform-Leveling Linkages.** The platform-leveling linkages shall be inspected as follows:

- (1) Visually inspect linkages for defects, such as weld cracks, dents, and bends.
- (2) (+) Inspect all welds of the leveling assembly.
- (3) (+) Inspect all leveling linkage pins for any internal flaws.

**22.9.8.3 Boom Boost Cylinder Brackets.** The boom boost cylinder brackets shall be inspected as follows:

- (1) Visually inspect the boom boost cylinder brackets for defects, such as weld cracks, dents, or bends.
- (2) (+) Inspect the boom boost cylinder bracket welds.

**22.9.8.4 Boom Boost Cylinders.** The boom boost cylinders shall be inspected for any external hydraulic fluid leakage.

**22.9.8.5 Cylinder Link Pins.** The cylinder link pins shall be inspected as follows:

- (1) Visually inspect the cylinder link pins for proper installation, lubrication, operation, and any irregularities.
- (2) (+) Inspect the cylinder link pins for internal flaws.

**22.9.8.6 Boom Assembly.** The upper boom assembly shall be inspected as follows:

- (1) Visually inspect the boom for defects, such as weld cracks, dents, or bends.
- (2) Visually inspect all structural fasteners and fastener connections for cracked fasteners and material cracks around the fasteners.
- (3) (+) Inspect all welds on the boom.
- (4) If the upper boom assembly is constructed of aluminum, perform one of the following:
  - (a) (+) Take hardness readings at intervals of 28 in. (710 mm) or less along the length of upper boom assembly and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the upper boom assembly.
  - (b)\* (+) If heat sensors are installed on the upper boom assembly, visually inspect the heat sensors for discoloration.
  - (c) (+) If the boom assembly is painted, follow the manufacturer's recommendations for inspection.

- (5) (+) If there is discoloration of a heat sensor(s) or any indication of heat damage anywhere on an aluminum boom assembly, take hardness readings at intervals of 12 in. (305 mm) or less between the heat-affected areas and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the boom assembly.

**22.9.8.7 Hydraulic Lines and Hoses in Upper Boom.** All hydraulic lines and hoses in the upper boom shall be inspected for proper mounting, abrasions, hydraulic fluid leakage, and wear.

**22.9.8.8 Cables, Chains, and Rods.** All cables, chains, and rods shall be inspected for signs of wear and for proper adjustment.

**22.9.8.9 Sprockets, Pulleys, and Hooks.** All sprockets, pulleys, and hooks shall be inspected for lubrication, signs of wear, distortion, and proper operation.

**22.9.8.10 Upper Boom Hold-Down Device.** The upper boom hold-down device shall be inspected as follows:

- (1) Visually inspect the upper boom hold-down device for defects and for proper operation.
- (2) (+) Inspect all welds of the upper boom hold-down device.

**22.9.8.11 Safety Stop Mechanism.** The safety stop mechanism shall be verified to be operating properly.

**22.9.8.12 Upper Boom Elevation Cylinder Anchor Ears and Plates.** The upper boom elevation anchor ears and plates shall be inspected as follows:

- (1) Visually inspect the anchor ears and plates for defects and the attaching welds for fractures.
- (2) (+) Inspect all welds on the anchor ears and plates.

**22.9.8.13 Upper Boom Elevation Cylinder(s).**

**22.9.8.13.1** The upper boom elevation cylinder(s) shall be inspected as follows:

- (1) Inspect the cylinder rod(s) for pitting, scoring, and other defects.
- (2) Inspect the cylinder rod-to-barrel seal and the end gland seal for external hydraulic fluid leakage that exceeds the manufacturer's specifications.

**22.9.8.13.2\*** The upper boom elevation cylinder(s) shall be subjected to a drift test as follows:

- (1) With the hydraulic fluid at ambient temperature, take measurements of the drift in accordance with the manufacturer's recommendations.
- (2) Verify that the results of the measurements do not exceed the manufacturer's specifications for allowable upper boom cylinder drift.

**22.9.8.14 Holding Valves on Upper Boom Elevation Cylinder.** The holding valve(s) shall be inspected for signs of external hydraulic fluid leakage.

**22.9.8.15 Pneumatic and Electrical Lines.** All pneumatic and electrical lines in the upper boom shall be inspected for proper mounting, wear, cracking, kinks, and abrasions.

**22.9.9 Telescoping Boom Inspection and Test.** For platforms equipped with a telescoping boom, the boom shall be inspected and tested in accordance with 22.8.4.14 through 22.8.4.17, 22.9.7.10 through 22.9.7.12, and 22.9.9.1 through 22.9.9.14.

**22.9.9.1 Boom Assemblies.** The boom assemblies shall be inspected as follows:

- (1) Visually inspect the boom assembly for defects, such as weld cracks, dents, or bends.
- (2) Visually inspect all structural fasteners and fastener connections for cracked fasteners and material cracks around the fasteners.
- (3) (+) Inspect all welds on booms.
- (4) If the boom assembly is constructed of aluminum, perform one of the following:
  - (a) (+) Take hardness readings at intervals of 28 in. (710 mm) or less along the length of boom assembly and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the boom assembly.
  - (b)\* (+) If heat sensors are installed on the boom assembly, visually inspect the heat sensors for discoloration.
  - (c) (+) If the boom assembly is painted, follow the manufacturer's recommendations for inspection.
- (5) (-) If there is discoloration of a heat sensor(s) or any indication of heat damage anywhere on an aluminum boom assembly, take hardness readings at intervals of 12 in. (305 mm) or less between the heat-affected areas and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the boom assembly.

**22.9.9.2 Ancillary Boom Ladder.** The ancillary boom ladder shall be inspected as follows:

- (1) Inspect the ancillary boom ladder for any defects and the welds for fractures.
- (2) Inspect the mounting brackets for loose bolts, weld fractures, or other defects.
- (3) (+) Inspect all welds on the ladder and attaching welds.

**22.9.9.3 Guides, Wear Strips and Pads, and Slide Blocks.** Guides, wear strips and pads, and slide blocks shall be inspected for proper installation and signs of wear.

**22.9.9.4 Extension Sheaves.** The extension sheaves shall be inspected as follows:

- (1) Inspect the extension sheaves for proper mounting, alignment, and signs of wear.
- (2) (+) Inspect all welds of the extension sheave mounting brackets.
- (3) (+) Inspect the retaining bolt for internal flaws.

**22.9.9.5\*** The aerial extension and retraction cables shall be inspected to verify that the cables are tensioned according to the manufacturer's requirements and inspected to comply with Chapter 5-2 of ASME B30.5, *Mobile and Locomotive Cranes*.

**22.9.9.6 Elevation Indicator.** The elevation cylinder indicator shall be inspected for legibility and clarity.

**22.9.9.7 Maximum Extension Warning Device.** During operation, if the elevating platform is equipped with an audible device that warns of the approach of maximum extension, the device shall be inspected to verify proper operation.

**22.9.9.8 Platform-Leveling Cylinders.** The platform-leveling cylinders shall be inspected as follows:

- (1) Inspect the cylinder rod(s) for pitting, scoring, and other defects.
- (2) Inspect the cylinder rod-to-barrel seal and the end gland seal for external hydraulic fluid leakage that exceeds the manufacturer's specifications.
- (3) Visually inspect the leveling system for proper installation.
- (4) Visually inspect the mounting of the leveling system for defects and the welds for fractures.
- (5) (+) Inspect all welds for mounting of the leveling system.
- (6) (+) Inspect all leveling cylinder pins for any internal flaws.

**22.9.9.9 Hydraulic Lines and Hoses in Boom Assemblies.** All hydraulic lines and hoses in the boom assemblies shall be inspected for hydraulic fluid leakage, abrasions, and any signs of wear.

**22.9.9.10 Extension Cylinder Anchor Ears and Plates.** The extension cylinder anchor ears and plates shall be inspected as follows:

- (1) Visually inspect the extension cylinder anchor ears and plates for defects and the attaching welds for fractures.
- (2) (+) Inspect the extension cylinder anchor ears and the plate-attaching welds.

**22.9.9.11 Extension Cylinder Pins.** The extension cylinder pins shall be inspected as follows:

- (1) Inspect the cylinder pins for proper installation and retention.
- (2) (+) Inspect the cylinder pins for internal flaws.

**22.9.9.12 Extension Cylinder.**

**22.9.9.12.1** The extension cylinder shall be inspected as follows:

- (1) Inspect the cylinder rods for pitting, scoring, and other defects.
- (2) Inspect the cylinder rod-to-barrel seal and the end gland seal for external hydraulic fluid leakage that exceeds the manufacturer's specifications.

**22.9.9.12.2\*** The extension cylinder shall be subjected to a drift test as follows:

- (1) With the hydraulic fluid at ambient temperature, place the aerial device at full elevation and 10 ft (3 m) of extension.
- (2) Mark the cylinder position or the second boom section in relation to the base section.
- (3) Allow the elevating platform to stand for 1 hour with the engine off.
- (4) Measure the drift, and verify that the results do not exceed the manufacturer's specifications for allowable cylinder drift.

**22.9.9.13 Holding Valves on Extension Cylinder.** The holding valves shall be inspected for external hydraulic fluid leakage.

**22.9.9.14 Pneumatic and Electrical Lines.** All pneumatic and electrical lines in the booms shall be inspected for proper mounting, wear, cracking, kinks, and abrasions.

**22.9.10 Diagnostic Check from Lower Controls.**

**22.9.10.1** With engine speed set to allow maximum speed as permitted by the manufacturer, the elevating platform shall be operated in all positions, as allowed by the manufacturer, using the lower or ground controls.

**22.9.10.2** The operation of the elevating platform shall include, but not be limited to, moving the platform from ground to maximum elevation, as well as rotating the platform 30 degrees and returning to the starting point in the opposite direction while the aerial device is at its maximum horizontal extension.

**22.9.10.3** All safety devices shall operate properly.

**22.9.10.4** All controls shall operate smoothly, return to the neutral position when released, and not bind during operation.

**22.9.10.5** Rollers, slides, and sheave wheels on telescoping elevating platforms shall be checked for proper alignment, function, and free operation.

**22.9.11 Diagnostic Check from Platform Controls.**

**22.9.11.1** With engine speed set to allow maximum speed as permitted by the manufacturer, the elevating platform shall be operated from the platform control station through all positions, as allowed by the manufacturer, with only the operator on the platform.

**22.9.11.2** The operation of the elevating platform shall include, but not be limited to, moving the platform from ground to maximum elevation, as well as rotating the platform a minimum of 30 degrees and returning to the starting point in the opposite direction while the aerial device is at its maximum horizontal extension.

**22.9.11.3** All safety devices shall operate properly.

**22.9.11.4** The platform deactivation control, from the ground or lower controls, shall be demonstrated to operate properly.

**22.9.11.5** The platform shall level properly as the booms are moved through all allowable positions.

**22.9.11.6** The mechanical override on a hydraulically leveled platform shall operate properly during emergency lowering of the boom without hydraulic power.

**22.9.12 Load Test.**

**22.9.12.1** The aerial apparatus shall be positioned on a hard, level surface with room for unrestricted boom movements.

**22.9.12.2** The stabilizers shall be deployed in accordance with the manufacturer's instructions.

**22.9.12.3** A watch shall be maintained during all load tests for any signs of instability, the development of conditions that could cause damage or permanent deformation, or twist that exceeds the elevating platform manufacturer's allowance, and the test shall be discontinued immediately if such conditions develop.

**22.9.12.4** The platform shall be placed near the ground and loaded to the elevating platform's rated capacity minus the weight of equipment added to the platform after delivery.

**22.9.12.5** The platform load shall be secured properly.

**22.9.12.6** The unit shall be operated from the lower controls through all allowable phases of operation. The manufacturer's operational limits shall not be exceeded.

**22.9.12.7** Boom movements shall exhibit no abnormal noise, vibration, or deflection.

**22.9.12.8** The platform shall level properly as the booms are moved through all allowable positions.

**22.9.12.9** At the conclusion of the load test, weld joints at the stabilizer structure, stabilizers, frame, main frame, frame reinforcements, turntable, cylinder anchors, boom joints, leveling system, platform, and pivot pin bosses shall be inspected and shall show no signs of deterioration.

**22.9.13 Operating Test.**

**22.9.13.1** After the load tests have been conducted, a complete test of the elevating platform's operation shall be conducted using the lower or ground controls.

**22.9.13.2** The elevating platform shall be raised out of the bed, extended to its full height, and rotated through a 90-degree turn.

**22.9.13.3\*** The procedure specified in 22.9.13.2 shall be completed smoothly and without undue vibration within the time permitted by the edition of NFPA 1901 in effect at the time of manufacture.

**22.9.13.4** After the procedure specified in 22.9.13.2 is completed, the elevating platform shall be retracted, the turntable rotation shall be completed through 360 degrees, and the elevating platform shall be lowered to its bed.

**22.9.13.5** During the test, the proper operation of all elevating platform controls shall be verified.

**22.9.13.6** After the procedure specified in 22.9.13.1 through 22.9.13.5 is completed, a thorough inspection shall be made of all moving parts.

**22.9.14 Water System Inspection and Test.**

**22.9.14.1** The waterway system shall be inspected as follows:

- (1) Inspect the system for proper operation of all components.
- (2) Inspect the system for rust, corrosion, blockage, or other defects.

**22.9.14.2** The waterway-attaching brackets shall be inspected as follows:

- (1) Inspect the brackets for loose bolts, weld fractures, or other defects.
- (2) (+) Inspect all attaching welds.

**22.9.14.3 Pressure Test.** The water system shall be pressure tested.

**22.9.14.3.1** If the elevating platform has a telescoping boom, the water system shall be tested following the procedures in 22.8.9.4.1 and 22.8.9.4.2.

**22.9.14.3.2\*** If the elevating platform has an articulating boom, the water system shall be tested in accordance with 22.9.14.3.2.1 through 22.9.14.3.2.6.

**22.9.14.3.2.1** The boom shall be positioned in the road-travel position.

**22.9.14.3.2.2** If no valve is located at the discharge end of the water system, a valve shall be attached for the purpose of the test.

**22.9.14.3.2.3** The water system shall be filled with water, all air shall be removed from the system, and the valve at the discharge end shall be closed.

**CAUTION:** Failure to remove all air from the water system could result in injury if there is a component failure during the test.

**22.9.14.3.2.4** The pressure on the system shall be raised to the water system manufacturer's maximum rated working pressure and shall be maintained while the elevating platform is raised to its rated vertical height and rotated 360 degrees.

**22.9.14.3.2.5** The water system, including the turntable swivel, shall be checked for leaks.

**22.9.14.3.2.6** Care shall be taken not to overheat the water pump.

**22.9.14.3.3** If the elevating platform has both a telescoping boom and an articulating boom, it shall be tested in accordance with 22.9.14.3.1 and 22.9.14.3.2.

**22.9.14.3.4\*** The water system shall operate properly and with an absence of leaks during the pressure test.

#### **22.9.14.4 Flowmeters.**

**22.9.14.4.1** If the waterway system is equipped with a flowmeter(s), the flowmeter(s) shall be tested at the water system manufacturer's maximum rated water system flow.

**22.9.14.4.2** Any meter that reads off by more than 10 percent shall be recalibrated, repaired, or replaced.

#### **22.9.14.5 Water Pressure Gauges.**

**22.9.14.5.1** If the waterway system is equipped with a water pressure gauge(s), each water pressure gauge(s) shall be checked for accuracy at a minimum of three points at 50 psi (345 kPa) intervals without exceeding the maximum rated working pressure of the waterway system.

**22.9.14.5.2** Any gauge that reads off by more than 10 psi (70 kPa) shall be recalibrated, repaired, or replaced.

#### **22.9.14.6 Relief Valve.**

**22.9.14.6.1** If the waterway system is equipped with a relief valve, the relief valve shall be checked to verify that it is operational at the waterway manufacturer's recommended pressure setting.

**22.9.14.6.2\*** Any relief valve that fails to operate within 10 psi (70 kPa) of the manufacturer's required setting shall be repaired, recalibrated, or replaced.

#### **22.9.14.7 Water Curtain System.**

**22.9.14.7.1** The water curtain system control shall be identified for function and direction.

**22.9.14.7.2** The water curtain system shall be inspected for function and operation with a minimum of 100 psi (690 kPa) water pressure to produce a fog pattern.

**22.9.14.7.3** Any device within the system that is found inoperable shall be repaired or replaced.

**22.9.15 Signs.** All signs shall be inspected to verify they are in place and legible.

**22.9.16\* Hydraulic Fluid.** After the operating tests have been performed, a sample of the hydraulic fluid shall be removed from the hydraulic reservoir and subjected to spectrochemical analysis, particle count, viscosity check, and water content analysis.

**22.9.17\* Records.** A comprehensive record shall be completed for all inspections and tests of the elevating platform and signed by the person responsible for the test.

**22.9.17.1** When the torque verification of mounting bolts is performed as required by this standard, the bolt size, grade, and torque specifications shall be recorded.

**22.9.17.2** When an NDT is conducted, the test record shall indicate the NDT method used in each inspected area.

**22.9.17.3** Where this standard requires measurements to be taken — such as bearing clearance and backlash, cylinder drift, relief pressure, ladder section twist, hardness readings, base rail thickness, extension brake drift, and winch drift — these measurements shall be recorded in the test record so that a year-to-year comparison can be made.

#### **22.10 Inspecting and Testing Water Towers.**

##### **22.10.1 General.**

**22.10.1.1** In addition to the manufacturer's recommendations for annual inspections and tests, the inspections and tests detailed in 22.10.2 through 22.10.13 shall be performed.

**22.10.1.2** An inspection preceded by a plus sign (+) indicates that an appropriate NDT shall be conducted as required by 22.1.2.

**22.10.2 Service Records.** The water tower's service records shall be checked for any reports that indicate defective conditions.

**22.10.3 Hydraulic Components.** Hydraulic components shall show no signs of hydraulic fluid leakage.

**22.10.3.1** A component shall be considered to be leaking if hydraulic fluid (oil) droplets are forming on the component.

**22.10.3.2** A film of hydraulic fluid on the component shall not be considered severe enough to categorize the component as leaking.

**22.10.4 Turntable and Torque Box Inspection and Test.** The turntable and torque box components, where applicable, shall be inspected on all water tower apparatus in accordance with 22.8.4.1, 22.8.4.2, and 22.8.4.4 through 22.8.4.29.

**22.10.5 Stabilizer Inspection and Test.** The stabilizer components, where applicable, shall be inspected on all water tower apparatus in accordance with 22.8.5.1 through 22.8.5.14.

**22.10.6 Aerial Ladder Inspection and Test.** For a water tower apparatus that is equipped with an aerial ladder, the aerial ladder shall be inspected and tested in accordance with 22.8.6 and 22.8.7.

**22.10.7 Articulating Boom—Lower Boom Inspection and Test.** For a water tower apparatus that is equipped with an articulating boom, the lower boom shall be inspected and tested in accordance with 22.9.7.1 through 22.9.7.6 and 22.9.7.8 through 22.9.7.14, as applicable.

**22.10.8 Articulating Boom—Upper Boom Inspection and Test.** For a water tower apparatus that is equipped with an articulating boom, the upper boom shall be inspected and tested in accordance with 22.9.8.1 and 22.9.8.3 through 22.9.8.15, as applicable.

**22.10.9 Telescoping Boom Inspection and Test.** For a water tower apparatus that is equipped with a telescoping boom, the boom shall be inspected and tested in accordance with 22.9.7.10 through 22.9.7.14, 22.9.9.1 through 22.9.9.7, and 22.9.9.9 through 22.9.9.14, as applicable.

**22.10.10 Operating Test.**

**22.10.10.1** After starting the engine, setting the stabilizers, and transmitting power to the water tower, the water tower shall be fully elevated out of the bed, rotated 90 degrees, and fully extended.

**22.10.10.2\*** The procedure specified in 22.10.10.1 shall be completed smoothly and without undue vibration within the time permitted by the edition of NFPA 1901 in effect at the time of manufacture.

**22.10.10.3** After completing the procedure specified in 22.10.10.1, the water tower shall be retracted, the turntable rotation shall be completed through 360 degrees, and then the water tower shall be lowered to its bed, after which a thorough inspection shall be made of all moving parts.

**22.10.10.4** The test shall demonstrate successful operation of all water tower controls.

**22.10.11 Water System Inspection and Test.**

**22.10.11.1** The waterway system shall be inspected as follows:

- (1) Inspect the system for proper operation of all components.
- (2) Inspect the system for rust, corrosion, blockage, or other defects.

**22.10.11.2** The waterway-attaching brackets shall be inspected as follows:

- (1) Inspect the brackets for loose bolts, weld fractures, or other defects.
- (2) (+) Inspect all attaching welds.

**22.10.11.3** The water system shall be pressure tested.

**22.10.11.3.1** If the water tower has a telescoping boom, the water system shall be tested following the procedures in 22.8.9.4.1 and 22.8.9.4.2.

**22.10.11.3.2** If the water tower has an articulating boom, the water system shall be tested following the procedure in 22.9.14.3.2.

**22.10.11.3.3** If the water tower has both a telescoping boom and an articulating boom, it shall be tested in accordance with 22.10.11.3.1 and 22.10.11.3.2.

**22.10.11.3.4\*** The water system shall operate properly and with an absence of leaks during the pressure test.

**22.10.11.4 Flowmeters.**

**22.10.11.4.1** If the waterway system is equipped with a flowmeter(s), the flowmeter(s) shall be tested at the water system manufacturer's maximum rated water system flow.

**22.10.11.4.2** Any meter that reads off by more than 10 percent shall be recalibrated, repaired, or replaced.

**22.10.11.5 Water Pressure Gauges.**

**22.10.11.5.1** If the waterway system is equipped with a water pressure gauge(s), each water pressure gauge(s) shall be checked for accuracy at a minimum of three points at 50 psi (345 kPa) intervals without exceeding the maximum rated working pressure of the waterway system.

**22.10.11.5.2** Any gauge that reads off by more than 10 psi (70 kPa) shall be recalibrated, repaired, or replaced.

**22.10.11.6 Relief Valve.**

**22.10.11.6.1** If the waterway system is equipped with a relief valve, the relief valve shall be checked to verify that it is operational at the waterway manufacturer's recommended pressure setting.

**22.10.11.6.2** Any relief valve that fails to operate within 10 psi (70 kPa) of the manufacturer's required setting shall be repaired, recalibrated, or replaced.

**22.10.12 Signs.** All signs shall be inspected to verify that they are in place and legible.

**22.10.13\* Hydraulic Fluid.** After the operating tests have been performed, a sample of the hydraulic fluid shall be removed from the hydraulic reservoir and subjected to spectrochemical analysis, particle count, viscosity check, and water content analysis.

**22.10.14\* Records.** A comprehensive record shall be completed for all inspections and tests of the water tower and signed by the person responsible for the test.

**22.10.14.1** When the torque verification of mounting bolts is performed as required by this standard, the bolt size, grade, and torque specifications shall be recorded.

**22.10.14.2** When an NDT is conducted, the test record shall indicate the NDT method used in each inspected area.

**22.10.14.3** Where this standard requires measurements to be taken — such as bearing clearance and backlash, cylinder drift, relief pressure, ladder section twist, hardness readings, base rail thickness, extension brake drift, and winch drift — these measurements shall be recorded in the test record so that a year-to-year comparison can be made.

**Chapter 23 Performance Testing of Foam Proportioning Systems**

**23.1 General.** If the apparatus is equipped with a foam proportioning system, a test shall be performed to determine if the foam proportioning system is capable of delivering foam solution at a concentrate setting established for the agent(s) used.

**23.1.1** At a minimum, the foam proportioning system shall be tested annually.

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 1

DATE: 5/26/2023

BID NO.: 50-00142338

**JEFFERSON PARISH**  
PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETNA, LA. 70054-0009  
504-364-2678

VENDOR:

BUYER: LCARONIA@jeffparish.net

**Bids will be received until 11:00 AM, 6/06/2023**

**LATE BIDS WILL NOT BE ACCEPTED**

NOTE: ONLY BIDS WRITTEN IN INK OR TYPEWRITTEN, AND PROPERLY SIGNED BY A MEMBER OF THE FIRM OR AUTHORIZED REPRESENTATIVE, WILL BE ACCEPTED. PENCIL AND/OR PHOTOSTATIC FIGURES OR SIGNATURES SHALL RESULT IN BID REJECTION. HOWEVER, ELECTRONIC SIGNATURES AS DEFINED IN LSA - R.S. 9:2602(8) ARE ACCEPTABLE. SIGNATURE MUST BE A SECURED DIGITAL SIGNATURE.

All bids submitted are subject to these instructions and general conditions and any special conditions and specifications contained herein, all of which are made part of this bid proposal reference. By submitting a bid, vendor agrees to comply with all provisions of Louisiana Law, as well be in compliance with the Jefferson Parish Code of Ordinances, Louisiana Code of Ethics, applicable Jefferson Parish ethical standards and Jefferson Parish Resolution No. 113646 and/or Resolution No. 113647 as amended. A copy of these resolutions may be obtained from the Office of the Parish Clerk, Suite 6700, Jefferson Parish General Government Building, 200 Derbigny Street, Gretna, LA 70053. You may also obtain a copy by visiting the Purchasing Department webpage at [purchasing.jeffparish.net](http://purchasing.jeffparish.net) and clicking on On-line forms.

All vendors submitting bids should register as a Jefferson Parish vendor if not already yet registered. Registration forms may be downloaded from <http://purchasing.jeffparish.net> and by clicking on Vendor Information. Current W-9 forms with respective Tax Identification numbers and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, vendor registration is mandatory. Vendors may experience a delay in payment if your company is not a registered vendor with Jefferson Parish.

Jefferson Parish is exempt from paying sales tax under LSA-R.S. 47:301 (8)(c). All prices for purchases by Jefferson Parish of supplies and materials shall be quoted in the unit of measure specified and unless otherwise specified, shall be exclusive of state and local taxes. The price quoted for work shall be stated in figures. In the event there is a difference in unit prices and totals, the unit price shall prevail. Quotations shall be based on F.O.B. Delivered, anywhere within the Parish as designated by the Purchasing Department. **JEFFERSON PARISH WILL ACCEPT ONE BID ONLY FROM EACH VENDOR.** Items bid must meet specifications. JEFFERSON PARISH will accept one price for each item unless otherwise indicated. Two or more prices for one item will result in bid rejection. Bidders are required to complete, sign and return the bid form and/or complete and return the associated line item pricing forms as indicated. The price quoted for work shall be stated in figures. In the event there is a difference in unit prices and totals, the unit prices shall prevail

JEFFERSON PARISH reserves the right to award contracts or place orders on a lump sum or individual item basis, or such combination, as shall in its judgment be in the best interest of JEFFERSON PARISH. Every contract or order shall be awarded to the **LOWEST RESPONSIVE and RESPONSIBLE BIDDER**, taking into consideration the **CONFORMITY WITH THE SPECIFICATIONS and the DELIVERY AND/OR COMPLETION DATE**

**PROTESTS:** Only those vendors that submit bids in response to this solicitation may protest any element of the procurement, in writing to the Director of the Purchasing Department. Written protest must be received within 48 hours of the release of the bid tabulation by the Purchasing Department. After consultation, the Parish Attorney's Office will then respond to protests in writing. (For more information, please see Chapter 2, Article VII, Division 2, Sec. 2-914.1 of the Jefferson Parish Code of Ordinances.)

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in the quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH requires all products to be new (current) and all work must be performed according to standard practices for the project. Unless otherwise specified, no aftermarket parts will be accepted. Unless otherwise specified, all workmanship and materials must have at least one (1) year guaranty, in writing, from the date of delivery and/or acceptance of the project. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

If this bid requires a pre-bid conference (see Additional Requirements section), bidders are advised that such conference will be held to allow bidders the opportunity to identify any discrepancies in the bid specifications and seek further clarification regarding instructions. The Purchasing Department will issue a written response to bidders' questions in the form of an Addendum.

All formal Addenda require written acknowledgment on the bid form by the bidder by the bidder placing the Addendum number in the appropriate section. Failure to acknowledge an Addendum on the bid form shall cause the bid to be rejected; JEFFERSON PARISH reserves the right to award bid to next lowest responsive and responsible bidder in this event.

**USE OF BRAND NAMES AND STOCK NUMBERS:** Where brand names and stock numbers are specified, it is for the purpose of establishing certain minimum standards of quality. Bids may be submitted for products of equal quality, provided brand names and stock numbers are specified. Complete product data may be required prior to award.

Quantities listed are for bidding purposes only. Actual requirements may be more or less than quantities listed.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

Bidders are not to exclude from participation in, deny the benefits of, or subject to discrimination under any program or activity, any person in the United States on the grounds of race, color, national origin, or sex; nor discriminate on the basis of age under the Age Discrimination Act of 1975, or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, or on the basis of religion, except that any exemption from such prohibition against discrimination on the basis of religion as provided in the Civil Rights Act of 1964, or Title VI and VII of the Act of April 11, 1968, shall also apply. This assurance includes compliance with the administrative requirements of the Revenue Sharing final handicapped discrimination provisions contained in Section 51.55 (c), (d), (e), and (k)(5) of the Regulations. New construction or renovation projects must comply with Section 504 of the 1973 Rehabilitation Act, as amended, in accordance with the American National Standard Institute's specifications (ANSI A1 17.1-1961).

Jefferson Parish and its partners as the recipients of federal funds are fully committed to awarding a contract(s) to firm(s) that will provide high quality services and that are dedicated to diversity and to containing costs. Thus, Jefferson Parish strongly encourages the involvement of minority and/or woman-owned business enterprises (DBE's, including MBE's, WBE's and SBE's) to stimulate participation in procurement and assistance programs.

**IN ACCORDANCE WITH STATE REGULATIONS JEFFERSON PARISH OFFERS ELECTRONIC PROCUREMENT TO ALL VENDORS**

**This electronic procurement system allows vendors the convenience of reviewing and submitting bids online.**

**This is a secure site and authorized personnel have limited read access only. Bidders are to submit electronically using this free service; while the website accepts various file types, one single PDF file containing all appropriate and required bid documents is preferred. Bidders submitting uploaded images of bid responses are solely responsible for clarity. If uploaded images/documents are not legible, then bidder's submission will be rejected. Please note all requirements contained in this bid package for electronic bid submission.**

**Please visit our E-Procurement Page at [www.jeffparishbids.net](http://www.jeffparishbids.net) to register and view Jefferson Parish solicitations. For more information, please visit the Purchasing Department page at <http://purchasing.jeffparish.net>.**

**ADDITIONAL REQUIREMENTS FOR THIS BID**

PLEASE MATCH THE NUMBERS PRINTED IN THIS BOX WITH THE CORRESPONDING INSTRUCTIONS BELOW.

**3, 6, 10, 12, 13**

1. All bidders must attend the MANDATORY pre-bid conference and will be required to sign in and out as evidence of attendance. In accordance with LSA R.S. 38:2212(I), all prospective bidders shall be present at the beginning of the MANDATORY pre-bid conference and shall remain in attendance for the duration of the conference. Any prospective bidder who fails to attend the conference or remain for the duration shall be prohibited from submitting a bid for the project.
2. Attendance to this pre-bid conference is optional. However, failure to attend the pre-bid conference shall not relieve the bidder of responsibility for information discussed at the conference. Furthermore, failure to attend the pre-bid conference and inspection does not relieve the successful bidder from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the specification with no additional cost to the owner.
3. Contractor must hold current applicable JEFFERSON PARISH licenses with the Department of Inspection and Code Enforcement. Contractor shall obtain any and all permits required by the JEFFERSON PARISH Department of Inspection and Code Enforcement. The contractor shall be responsible for the payment of these permits. All permits must be obtained prior to the start of the project. Contractor must also hold any and all applicable Federal and State licenses. Contractor shall be responsible for the payment of these permits and shall obtain them prior to the start of the project.
4. A LA State Contractor's License will be required in accordance with LSA R.S. 37-2150 et. seq. and such license number will be shown on the outside of the bid electronic envelope. Failure to comply will cause the bid to be rejected. When submitting the bid electronically, the license number must be entered in the appropriate field in the electronic procurement system. Failure to comply will cause the bid to be rejected.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

5. It is the bidder's responsibility to visit the job site and evaluate the job before submitting a bid.
6. Job site must be clean and free of all litter and debris daily and upon completion of the contract. Passageways must be kept clean and free of material, equipment, and debris at all times. Flammable material must be removed from the job site daily because storage will not be permitted on the premises. Precaution must be exercised at all times to safeguard the welfare of JEFFERSON PARISH and the general public.
7. PUBLIC WORKS BIDS: All awards for public works in excess of \$5,000.00 will be reduced to a formal contract which shall be recorded at the contractor's expense with the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. A price list of recordation costs may be obtained from the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. All awards in excess of \$25,000.00 will require both a performance and a payment bond. Unless otherwise stated in the bid specifications, the performance bond requirements shall be 100% of the contract price. Unless otherwise state in the bid specifications, the payment bond requirements shall be 100% of the contract price. Both bonds shall be supplied at the signing of the contract.
8. NON-PUBLIC WORKS BIDS: A performance bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The performance bond shall be supplied at the signing of the contract.
9. NON-PUBLIC WORKS BIDS: A payment bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The payment bond shall be supplied at the signing of the contract.
10. All bidders must comply with the requirements stated in the attached "Standard Insurance Requirements" sheet attached to this bid solicitation. Failure to comply with this instruction will result in bid rejection.
11. A bid bond will be required with bid submission in the amount of 5% of the total bid, unless otherwise stated in the bid specifications. All sureties must be in original format (no copies). When submitting a bid online, vendors must submit an electronic bid bond through the respective online clearinghouse bond management system(s) as indicated in the electronic bid solicitation on Central Auction House. No scanned paper copies of any bid bond will be accepted as part of the electronic bid submission.
12. This is an as needed basis contract. JEFFERSON PARISH makes no representations on warranties with regard to minimum guaranteed quantities unless otherwise stated in the bid specifications.
13. Freight charges should be included in total cost when quoting. If not quoted FOB DELIVERED, freight must be quoted as a separate item. Bid may be rejected if not quoted FOB DELIVERED or if freight charges are not indicated on bid form.
14. PUBLIC WORKS BIDS - Completed, Signed and Properly Notarized Affidavits Required; This applies to all solicitations for construction, alteration or demolition of public buildings or projects, in conformity with the provisions contained in LSA-RS 38:2212.9, LSA-RS 38:2212.10, LSA-RS 38:2224, and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Conviction Affidavit, Non-Collusion Affidavit, Campaign Contribution Affidavit, Debt Disclosures Affidavit and E-Verify Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
15. NON PUBLIC WORK BIDS - Completed, Signed and Properly Notarized Affidavits Required in conformity with the provisions contained in LSA – RS 38:2224 and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Collusion Affidavit, Debt Disclosures Affidavit and Campaign Contribution Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled NON PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

16. The ensuing contract for this bid solicitation may be eligible for FEMA reimbursement and/or Federal funding/reimbursement. As such, the referenced appendix will be applicable accordingly and shall be considered a part of the bid documents. All applicable certifications must be duly completed, signed and submitted with bid submission. Failure to submit applicable certifications with bid submission will result in bid rejection.

17. For this project, the Contractor shall not pay any state or local sales or use taxes on materials and equipment which are affixed and made part of the immovable property of the project or which is permanently incorporated in the project (hereinafter referred to as "applicable materials and equipment"). All purchases of applicable materials or equipment shall be made by the contractor on behalf of and as the agent of Jefferson Parish (Owner), a political subdivision of the State of Louisiana. No state and local sales and use taxes are owed on applicable materials and equipment under the provisions of Act 1029 of the 1991 Regular Session - Louisiana Revised Statute 47:301(8)(c). Owner will furnish to contractor a certificate form which certifies that Owner is not required to pay such state or local sales and use taxes, and contractor shall furnish a copy of such certificate to all vendors or suppliers of the applicable materials and equipment, and report to Owner the amount of taxes not incurred.

**It shall be the duty of every parish officer, employee, department, agency, special district, board, and commission: and the duty of every contractor, subcontractor, and licensee of the parish, and the duty of every applicant for certification of eligibility for a parish contract or program, to cooperate with the Inspector General in any investigation, audit, inspection, performance review, or hearing pursuant to Jefferson Parish Code of Ordinances Section 2-155.10(19). By submitting a bid, vendor acknowledges this and will abide by all provisions of the referenced Jefferson Parish Code of Ordinances.**

DATE: 5/26/2023

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 5

BID NO.: 50-00142338

**JEFFERSON PARISH**

PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETNA, LA. 70054-0009  
504-364-2678

VENDOR: IIA Lifting Services, Inc.(FKA Diversified Inspections/ITL, Inc.)

BUYER: LCARONIA

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Agency warehouse or jobsite, anywhere within the Parish as designated by the Purchasing Department.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH is expecting all products to be new and all work to be done in workman-like manner, according to standard practices. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

<b>DELIVERY: FOB JEFFERSON PARISH</b>	
INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES	_____
INDICATE STARTING TIME (IN DAYS) FOR CONSTRUCTION WORK	_____
INDICATE COMPLETION TIME (IN DAYS) FOR CONSTRUCTION WORK	_____

In the event that addenda are issued with this bid, bidders **MUST** acknowledge all addenda on the bid form. Bidder must acknowledge receipt of an addendum on the bid form by placing the addendum number as indicated. Failure to acknowledge any addendum on the bid form will result in bid rejection.

Acknowledge Receipt of Addenda: NUMBER: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_

LOUISIANA CONTRACTOR'S LICENSE NO.: (if applicable) \_\_\_\_\_

<b>*** ALL BIDDERS MUST COMPLETE SECTION BELOW ***</b>	
<b>FIRM NAME:</b> IIA Lifting Services, Inc. (FKA Diversified Inspections/ITL, Inc.)	
<b>SIGNATURE:</b> (Must be signed here) <i>Mike Maguire</i>	<b>TITLE:</b> Senior Sales Manager
<b>PRINT OR TYPE NAME:</b> Mike Maguire	
<b>ADDRESS:</b> 16140 N. Arrowhead Fountains Center Dr., Suite 108	
<b>CITY, STATE:</b> Peoria, AZ	<b>ZIP:</b> 85382
<b>TELEPHONE:</b> ( 386 ) 717-7588	<b>FAX:</b> ( )
<b>EMAIL ADDRESS:</b> Mike.Maguire@industrial-ia.com	

TOTAL PRICE OF ALL BID ITEMS: \$ 20,875.00

## INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00142338

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	15.00	EA	<p>Two (2) Year Contract Renewal for Labor, Materials and Equipment necessary for Testing of Aerial Devices and Ground Ladders for the Jefferson Parish East Bank Consolidated Fire Department</p> <p>0010 - AERIAL DEVICE TESTING</p>	\$ <u>725.00</u>	\$ <u>10,875.00</u>
2	4,500.00	FT	<p>TWO (2) YEAR CONTRACT RENEWAL FOR LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR TESTING OF AERIAL DEVICES AND GROUND LADDERS FOR THE JEFFERSON PARISH EAST BANK CONSOLIDATED FIRE DEPARTMENT</p> <p>0020 - GROUND LADDER TESTING</p>	\$ <u>2.00</u>	\$ <u>9,000.00</u>
3	400.00	EA	<p>0030 - MISCELLANEOUS ITEMS INSPECTED ON ALL DEVICES AND LADDERS</p> <p>**HEAT SENSOR LABELS (ALL OTHER ITEMS ARE INCLUDED IN GROUND LADDER TESTING PRICE**</p>	\$ <u>2.50</u>	\$ <u>1,000.00</u>

## **STANDARD INSURANCE REQUIREMENTS FOR BIDDING PURPOSES**

All required insurance under this bid shall conform to Jefferson Parish Resolution No. 113646 or No. 113647, as applicable. Contractors may not commence any work under any ensuing contract unless and until all required insurance and associated evidentiary requirements thereto have been met, along with any additional specifications contained in the **Invitation to Bid**. Except as where otherwise precluded by law, the Parish Attorney or his designee, with the concurrence of the Director of Risk Management or his designee, may agree on a case-by-case basis, to deviate from Jefferson Parish's standard insurance requirements, as provided in this Section. Vendors requesting deviation therefrom shall submit such requests in writing, along with compelling substantiation, to the Purchasing Department prior to the bid's due date. Any changes to the insurance requirements will be reflected in the bid specifications and addenda. Prior to contract execution and at all times thereafter during the term of such contract, contractors must provide and continuously maintain all coverages as required by the foregoing Resolutions, and the contract documents. Failure to do so shall be grounds for suspension, discontinuation or termination of the contract.

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For bidding purposes, bidders must submit with bid submission a current (valid) insurance certificate evidencing the required coverages. Failure to comply will cause bid to be rejected. The current insurance certificate will be used for proof of insurance at time of evaluation. Thereafter, and prior to contract execution, the low bidder will be required to provide final insurance certificates to the Parish which shall name **the Jefferson Parish, its Districts Departments and Agencies under the direction of the Parish President and the Parish Council** as additional insureds regarding negligence by the contractor for the Commercial General Liability and the Comprehensive Automobile Liability policies. Additionally, said certificates should reflect the name of the Parish Department receiving goods and services and reference the respective Jefferson Parish bid number.

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### **JEFFERSON PARISH REQUIRED STANDARD INSURANCE**

#### **WORKER'S COMPENSATION INSURANCE**

As required by Louisiana State Statute, exception; Employer's Liability, Section B shall be \$1,000,000 per occurrence when Work is to be over water and involves maritime exposures to cover all employees not covered under the State Worker's Compensation Act, otherwise this limit shall be no less than \$500,000 per occurrence.

**Note: If your company is not required by law to carry workmen's compensation insurance, i.e. not a Louisiana company, sole employee of the company, then bidders must request a workmen's compensation insurance declaration affidavit prior to the bid opening date. This insurance declaration affidavit must be fully completed, signed, properly notarized and submitted with the bid. A scanned copy may be submitted with the bid; however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being**

rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.

**COMMERCIAL GENERAL LIABILITY**

Shall provide limits not less than the following: \$1,000,000.00 Combined Single Limit per Occurrence for bodily injury and property damage.

**COMPREHENSIVE AUTOMOBILE LIABILITY**

Bodily injury liability \$1,000,000.00 each person; \$1,000,000.00 each occurrence.  
Property Damage Liability \$1,000,000.00 each occurrence.

**Note: This category may be omitted if bidders do not/will not utilize company vehicles for the project or do not possess company vehicles. Bidder must request an automobile insurance declaration affidavit prior to the bid opening date. This insurance declaration affidavit must be fully completed, signed, properly notarized and submitted with the bid. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid; however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.**

**DEDUCTIBLES** - The Parish Attorney with concurrence of the Director of Risk Management have waived the deductible section of the Terms and Conditions for all Invitations to Bid, until further notice.

**UMBRELLA LIABILITY COVERAGE**

An umbrella policy or excess may be used to meet minimum requirements.

**FOR CONSTRUCTION AND RENOVATION PROJECTS:**

The following are required if selected below. Such insurance is due upon contract execution.

**OWNER'S PROTECTIVE LIABILITY**

To be for the same limits of liability for bodily injury and property damage liability established for commercial general liability.

**BUILDER'S RISK INSURANCE**

The contractor shall maintain Builder's Risk Insurance at his own expense to insure both the owner (Parish of Jefferson) and contractor as their interest may appear.

