



# *City of Winter Park Fire-Rescue*

## *Standard Operating Guideline*

# 220.06

**Title: Procedures for the Maintenance and Operation of Truck 61 (Vehicle # 2250)**

**Original Date Issued: December 6<sup>th</sup>, 2005**  
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**Purpose:** To establish a procedure to outline the regular maintenance and operation of Vehicle 2250 (Pierce Dash 100' Aerial Platform)

**Scope:** This policy will outline what maintenance is to be performed by Fire Department personnel and what is to be referred to Fleet Maintenance personnel. In addition, this SOG will cover those operational considerations of this apparatus in regards to testing, training and fire / rescue operations.

### **General:**

#### **220.05.01. Description:**

2003 Pierce Dash 100' Aerial Platform with 2000 GPM pump manufactured by Pierce Manufacturing of Appleton Wisconsin. Truck 61 was placed in service on July 1, 2003. It is designed to operate under Department staffing policies and be utilized as the Departments only Advanced Life Support Truck Company.

#### **220.05.02. Specifications:**

1. Engine – Detroit Diesel Series 60 14.0L electronically controlled
  - a. OIL – SAE 15w-40 / 38 Quarts
  - b. ANTI-FREEZE / Pre-mix 50:50 / 58 Quarts
  - c. POWER STEERING FLUID – Dextron II ATF / 4 Quarts
  - d. FUEL TANK – Diesel / 65 Gallons
2. Transmission – Allison 5 speed Automatic Transmission HD4060P
  - a. FLUID – Dextron III ATF wide range / 35 Quarts
3. Chassis – Pierce Manufacturing / Dash
  - a. Front Axle – Oshkosh TAK-4 Independent Suspension system.

- b. Rear Axles – Meritor RT-52-185 / 80w90 wt. 46 Quarts
- c. Tires – Front / Michelin 425/65R22.5 Rear / 12R22.5
- 4. Pump – Hale QMAX-200 2000 GPM Single Stage Centrifugal
  - a. Relief Valve Control
  - b. 300 gallon UPF Poly –Tank IIE
- 5. Aerial Ladder and Platform – Pierce Manufacturing
  - a. Length – 100+ feet / high strength steel construction
  - b. Aerial Hydraulics / 65 gallon reservoir Mobil DTE 16M
  - c. Hydraulic Leveling Power Unit / Dextron III ATF / 8 Quarts
- 6. Measurements
  - a. Overall Length= 47' 10" from edge of bucket to rear bumper
  - b. Angle of Approach= Meets NFPA minimum of 8 degrees
  - c. Angle of Departure= Meets NFPA minimum of 8 degrees
  - d. Overall Height= 11' 9" approximately, ground to top of Basket
  - e. Wheelbase= 250"
  - f. Width= 96"

**220.05.03. Fire Department Performed Maintenance:**

Daily Check List Items:

- a. Visual Inspection / Around / Over / Under Vehicle
- b. Check all fluid levels on chassis: engine, transmission, coolant, pump oil, power steering, hydraulic systems and others.

NOTE - If engine was running within the previous (5) minutes of the engine oil being checked it should be allowed to sit and drain into the oil pan for a more accurate check.

- c. Check belts for wear, tension and condition.
- d. Visually check fuel level tank gauge and condition of tank for any damage.
- e. Check High Air Restriction Indicator Light: LCD message with a red warning indicator and audible alarm.
- f. Tires and Wheels – Check inflation pressure. Inflate to correct pressure per the tire manufacturer's load/inflation recommendations. Rims should be inspected for damage. These are polished aluminum disc-type wheels and can be dented, bent or damaged by driving over obstacles in the road. Lug nuts should be torqued at regular intervals

by the garage. NO IMPACT WRENCHES ARE TO BE USED ON THE ALUMINUM RIMS. Fleet Maintenance staff should be reminded of this each time a tire is dealt with or during preventative maintenance visits.

- g. Automatic Transmission – Check shifter for smooth operation, Inspect for signs of leaks and inspect physical appearance of transmission fluid.
- h. To properly check the transmission fluid level the following should be performed in order:
  - 1. Stop Engine
  - 2. Set Parking Brake
  - 3. Place Transmission in NEUTRAL
  - 4. Engine should be at NORMAL OPERATING TEMPERATURE
  - 5. Engine RPM should be at IDLE

**NOTE: DIPSTICK WILL SHOW AN ADD OR FULL INDICATION. FLUID SHOULD ONLY BE ADDED BY CITY MAINTENANCE PERSONNEL**

- i. Fire Pump - Check overall operation of fire pump and primer pump oil level.
- j. Electrical System - Check all lights and gauges.
- k. Check mirrors.
- l. Visually Check Water Tank Level.
- m. Examine all other equipment as required.
- n. Run auxiliary generator to normal temperature (weekly). Check hydraulic fluid level.

**See Pierce Operation and Maintenance Manual for other daily and weekly checklists covering the body, chassis, pump and aerial operations.**

- o. Washing of Apparatus – Wash the vehicle using a mild, non-abrasive liquid detergent or “wash and wax” type soap that is specifically formulated for vehicles. Rinse all washed areas thoroughly with tap water at gentle pressure before the wash solution dries. After washing and rinsing always wipe dry using a clean soft chamois.

**DO NOT SPRAY COOL WATER ON RIMS OR CHASSIS COMPONENTS THAT ARE HOT.**

Allow the truck to cool prior to rinsing. The vehicle will be placed in the waxing rotation to maintain its appearance. Avoid waxing close to the reflective stripping or lettering to avoid wax build-up along the edges.

**DO NOT WAX ANY OF THE GOLD LEAF, GOLD STAR OR OTHER VINYL DECALS. WAX AROUND THEM.**

Anodized Aluminum surfaces should be cleaned only with mild detergent and lukewarm water. Acidic or Alkaline cleaners can damage the surface.

#### **220.05.04. Operations:**

##### 2. Set-up for Aerial Operations

- a. All Apparatus should be positioned a minimum of thirty feet from any building being responded to. Greater distances may be indicated by fire involvement, potential for collapse or other situations. Consideration should be given to accessing two sides of the building as well as overhead obstructions. Being unable to fully deploy the outriggers the full eighteen foot span may limit the capability of the aerial device.
- b. Set the parking brake and place the transmission in NEUTRAL.
- c. Engage the Front Axle Lock.
- d. Place the Aerial Master and Aerial PTO switches in the "ON" position. NOTE: If the Aerial emergency stop (E-Stop) light stays on after releasing the Aerial Master Switch one of the E-Stop buttons either on the turntable control or the basket control has been depressed. The Aerial PTO light will illuminate when the PTO is engaged.
- e. Engage pump shift and then shift transmission to "D" (Drive) if the pump will be used during the operation. NOTE: The Aerial throttle will be deactivated and the engine throttle will control aerial functions. There is NO HIGH IDLE WHEN THE PUMP IS ENGAGED.

Outside the vehicle

- f. Place the wheel chocks in front and behind the front wheels.

- g. Open the small compartment doors at the rear of the truck to access the stabilizer controls and the ladder storage door to access the stabilizer control panel. The manual stabilizer controls are in the right-side rear compartment, behind the fire extinguishers.
- h. Activate the switches to fully extend all four beams.
- i. Set the four (4) Auxiliary Stabilizer Pads in position on the ground out from the stabilizer jacks on each side of the truck. THE LADDER MAY NOT BE PLACED INTO OPERATION WITHOUT THE USE OF THE STABILIZERS AND THE STABILIZERS MUST HAVE THE PADS PLACED PRIOR TO SETTING THE JACKS.
- j. Activate switches to lower the jacks until they touch the ground and the CZIC (Command Zone Information Center) screen indicates all the jacks are set.
- k. Push the Auto Level Switch at the rear control panel to level the vehicle. The trucks tires must break contact with the ground for proper stabilization. If necessary the truck can be leveled manually using the CZIC. The truck cannot tip beyond 8 degrees without the control functions being disabled. The manual override switch is located on the rear control panel.
- l. Install the jack safety pins.

#### Short Jacking

A situation may arise due to parked cars, narrow streets or other obstructions where the stabilizers cannot be fully extended or only extended on one side. Operation of the aerial will be limited to the side that is fully extended.

On the short jack side it is necessary to extend the beam far enough out to reach the pin from its storage bracket and install it. A warning will appear on the CZIC screen advising of the short jack condition.

If an Aerial operation is attempted on the short jack side it will automatically stop and a warning will be displayed.

#### Aerial Operations

Once the Stabilizers are set the ladder may be placed into operation. The operator must remain at the turntable controls any time there are crews operating in the bucket. Even if the ladder is being controlled from the bucket the operator must remain aware of the

proximity of the ladder to power lines, trees and buildings. NOTE: The turntable controls are the Master controls and can over-ride the controls in the bucket.

- a. Check for overhead obstructions.
- b. Pull back on the elevation control while lifting the handle lock.
- c. Activate the rotation and extension controls in the same manner

#### Stowing the Aerial

- a. Rotate the aerial to align with the boom support.
- b. Lower the aerial until contact is made.
- c. Continue lowering the aerial with a moderate amount of pressure to assure the ladder is secure in the bed.

**The Manual controls for the aerial functions are found at the turntable at the base of the ladder.**

#### Stowing the Stabilizers

- a. Remove the four safety pins and store them in their brackets.
- b. Fully retract the jacks.
- c. Fully retract the beams
- d. Return the ground pads and wheel chocks to their storage brackets.
- e. Turn the Aerial Master switch and the PTO switch to the off position.

#### Generator Operations

##### Pre-Start

- a. Insure the truck is in NEUTRAL.
- b. Insure the Parking Brake is set.
- c. Insure the truck engine is at idle speed.

Start

- a. Place the Generator PTO Switch in the Engaged position.

Stop

- a. Turn off all devices receiving power from the generator.
- b. Place the Generator PTO Switch in the Disengaged position.

2. Cab Tilting

**TO RAISE CAB**

- a. Secure or remove all loose objects from inside the cab.
- b. Make sure all objects on the front bumper are removed or otherwise stowed.
- c. Ensure that the vehicle is on a flat and level surface, engine off, transmission in neutral, and the parking brake is set.
- d. Raise the Aerial device to provide adequate clearance for raising the cab.
- e. Dash 2000 Cab Tilt Control is provided as a remote control unit that is plugged into a socket located in the front bumper.
- f. Operate the toggle switch to raise the cab fully then visually inspect the Stay-arm channel to ensure that it has dropped into place on the passenger side lift cylinder. Move the toggle switch to the "Lower" position to allow the cab to settle on the support.

**WARNING – Failure to ensure the Stay-arm is securely in its support position could cause severe personal injury or death.**

**TO LOWER THE CAB**

- a. Make sure all personnel are clear from the cab area.
- b. Make sure all tools, spray cans, drop lights, etc, are removed from under the cab and engine area.
- c. Operate the toggle switch to raise the cab and relieve pressure on the support channel.

- d. Pull and hold the T-handle or engage the stay-arm release switch to move the support channel out of the way.
- e. Operate the toggle switch to lower the cab fully. Continue to hold the toggle switch in the lower position for 5 seconds to ensure the cab locks are engaged.
- f. Release the T-handle.

**WARNING:** Failure to perform any of these actions during the raising or lowering of the cab could result in serious injury or death or damage to the vehicle.

### 3. Engine Brake Operation

The Jacob ("Jake") Engine Brake is coupled to the engine exhaust valve train. When activated, it prevents power strokes from occurring and the engine works as a retarding force on the vehicle.

It is controlled by a panel mounted switch. With the control switch "ON" the engine brake will function whenever foot pressure is off the throttle. Depressing the throttle will deactivate the engine brake.

With this Detroit Diesel type engine, the brake has a two position switch which allows either the left or the right bank of valves to be used for braking. This switch has a "HI-MED-LO" position and a separate position for "ON - OFF" when the braking effect is not desired.

For safety reasons the Department policy for operating the Jacobs Engine Brake on any apparatus will be to the driver's discretion as to use the "HI-MED-LO" mode.

**WARNING: THE ENGINE BRAKE WILL BE TURNED OFF DURING ALL WET ROAD CONDITIONS. IF THE UNIT IS LEFT ON, SKIDDING MAY OCCUR ON ANY SLIPPERY SURFACE.**

### 4. Hose Loads

This unit shall be loaded with the following amounts of fire hose

All hose shall be loaded in a way that best supports the safe and quick deployment of the line. Any changes made to the current hose load configurations shall be approved by the Battalion Chief assigned to apparatus prior to the change being affected.

- a. Front Bumper Hose Well – 100', 1 ¾" attack hose
- b. Cross Lay Hose Beds – 150', 1 ¾" attack hose and 200', 1 ¾" attack hose.
- c. Rear Hose Bed – 1000', 4" LD Supply Hose
- d. Ladder Bed – 600', 2 ½" attack hose
- e. Right Side Step Well – 1- 25', 2 ½" supply hose and 1- 25', 4" LD supply hose.
- f. Basket Hose Compartment – 100', 1 ¾" attack hose

#### 5. Emergency Lighting

All emergency lighting should be utilized while the vehicle is in the responding mode. Upon arrival at the scene, the operator should use their discretion in turning off any unnecessary emergency lights.

To meet NFPA requirements all emergency lights with clear lenses will be "blocked" when the parking brake is set.

The directional arrow light at the rear of the vehicle should be used during the responding mode in the warning position. Upon arrival the operator should utilize this light to direct traffic around the vehicle.

Perimeter Scene Lights located under the vehicle are designed to illuminate the working areas in which personnel climb onto the apparatus or descend from the apparatus to the ground. The perimeter scene lights are activated by the parking brake.

Lighting supplied from the on-board generator should be established anytime an extended nighttime operation is established. These lights are designed to be operated with as little effort as possible and afford personnel a safer working environment.

6. Operational Questions

All operational questions for this vehicle should be routed through the chain-of-command to the Battalion Chief assigned to apparatus.

A copy of the Operational Manual from Pierce Manufacturing Inc. is located in the Battalion Chief's office and is available at any time to all personnel.



A handwritten signature in black ink, appearing to read 'James E. White', is positioned above a horizontal line.

James E. White  
Chief of Department