

ELMSDALE FIRE & EMERGENCY SERVICES

# EQUIPMENT MANUAL

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# EQUIPMENT

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## 101 WINCH

1. A winch has been fitted on 231.
2. The winch is rated at 12,000 pounds.
3. Careless winch operation can result in serious injury to personnel and property damage.
4. Personnel shall be trained in the operation of the winch prior to operating it.
5. The winch shall be operated by the remote control with the operator as far away from the winch as practical.
6. The remote control shall be stored in the glove box of 231.

### 101.1 SAFETY

1. A danger zone of 15 M around the operation shall be established.
2. All personnel and vehicles within this area should be cleared away.
3. All personnel shall have complete turnout gear and eye protection on prior to entering the danger zone.
4. When using the remote control inside the vehicle, pass it through a window
5. Do not touch the wire rope or hook while they are in tension or under load.
6. Keep clear of the drum and fairlead area, the wire rope, and the rigging.
7. Inspect the remote control lead for cracks, pinched spots, frayed wire, or loose ends prior to using.
8. Do not exceed the rated capacity of the winch
9. Inspect and carefully rewind the wire rope after use.
10. Plug in the remote control only during the actual winching operation
11. Do not winch with less than five wraps of wire rope on the winch drum.
12. The wire rope must always spool off the drum in the direction of the arrow
13. When using an anchor ensure that the anchor is capable of withstanding the load; use a choker chain, wire choker rope, or a tree trunk protector on the anchor.
14. When anchoring the pulling vehicle, set the parking brake, block the wheels, place transmission in neutral.
15. Do not put the winch wire rope around an object and hook it back to it
16. Use the winch intermittently to take up wire rope slack to avoid shock loads with can momentarily far exceed the winch and wire rope rating.
17. The greatest pulling power is available at the first layer on the drum; unwind as much wire rope as possible when preparing rigging.
18. Pull as straight as possible to minimise the build-up of wire rope on one end of the drum.
19. To avoid wire rope damage caused by over-tightening:
  - Release the switch when the hook is a minimum of 1M from the fairlead
  - Unplug the remote control lead
  - Release the clutch
  - Rotate the drum by hand to retrieve the remainder of the wire rope
  - Re-engage the clutch
20. Ensure the wire rope is evenly distributed and tight on the drum when retrieving or spooling in wire rope to prevent binding and damage.
21. To free a bind in the wire rope:
  - Connect the hook to a load.
  - Alternately powering "in" and "out" to work the rope free
  - Do not put your hands anywhere near the wire rope when working a bind

### 101.2 SINGLE LINE PULLS

1. Park 231 to allow the winch to pull straight onto the winch drum.
2. Stand facing the winch, turn the control handle on the left clockwise a full half turn, and manually pull off what wire you require, leaving a minimum of five strands still on the drum.
3. Install choker chain or sling around object to be pulled.
4. Install backboard between victims and the straight pull of the cable prevent possible injury to victims should the cable or choker fail.

5. Install winch cable hook to the choker.
6. Throttle engine manually to 1500 RPM.
7. Stand facing the winch, turn the control handle on the left end of the winch counter clockwise one half turn to engage gears.
8. Install the remote winch control; push ahead to power the winch cable in, push back to power the winch cable out.
9. Move back away from the winch the full amount the remote control cable will allow and on command of the person in charge, operate the winch.
10. Check winch motor for heat, when it is uncomfortable to leave your hand on the winch motor stop pulling and allow the winch motor to cool.
11. When the pull is completed:
  - Wind the winch cable in to the last four feet
  - Unhook the remote control cable
  - Wind the last metre by hand manually.
12. At the fire station:
  - Unwind the cable off the drum down to 5 wraps
  - With a pull of 500 pounds rewind the cable evenly and tightly to the last metre
  - Unhook the remote control
  - Turn the small left-hand gear level clockwise a full half turn
  - Wind the remaining cable in manually.

### 101.3 DOUBLE LINE PULLS

1. Prepare the object to be pulled as in Items 1 through 4.
2. The hook is to be secured to a large stationary object, not 231.
3. Install the snatch block into the choker, by unscrewing the pin of the shackle. Put the choker in the shackle and re-screw the bolt in fully.
4. Unscrew the pin that holds the snatch block together; and install the winch cable onto the sheaf. Reinstall the pin fully.
5. Instruct the operator to proceed as per guideline items 10 through 13 in the single line pull guidelines.

### 102 5 KW GENERATOR

1. To provide electrical energy for lighting and power tools a 5 KW portable generator is carried on 231.
2. The generator shall normally be operated on the slide out shelf but may be removed by at least 2 members to a more convenient location.
3. The generator shall be grounded before starting and during all times running.
4. Ensure the AC circuit breaker is in the OFF position prior to starting to allow easier starting.
5. An auto-throttle system is fitted to minimise fuel consumption; it must be switched off until the engine reaches operating temperature.
6. The output circuits are fitted with circuit breakers to protect the generator, if they trip check appliance and load rating prior to resetting.
7. A fuel gauge is fitted on the top of the fuel tank; tank capacity is 17 litres.
8. When transporting the generator, turn the fuel valve to the OFF position and keep the generator level to prevent fuel spillage.
9. The generator is fitted with an OIL ALERT LAMP above the key. If the oil in the engine falls below a pre-set level the unit will shut down. The oil alert lamp will flash when starting is attempted and the engine will not run. Engine oil must be added to enable the engine to run again. The recommended grade of motor oil to use is 10W/30.

### 102.1 SAFETY

1. When not on 231:
  - Place the generator at least 1 M away from equipment or buildings during operation
  - Operate on a level surface to prevent possible fuel spillage
2. Never run the generator in an enclosed area, exhaust gases contain poisonous CO.
3. Extend the drawer when running on 231.

4. Know how to stop the generator quickly and understand the operation of all controls.
5. Refuel in a well-ventilated area with the engine stopped.

#### 102.2 ELECTRIC START

1. Ensure the 12-volt supply is plugged into generator (right hand side).
2. Ensure AC circuit breaker is off (top, right, front).
3. Turn the fuel valve to ON position (rear of pull cord).
4. Ensure the auto-throttle switch is OFF (below key).
5. To start:
  - Turn the key to START position
  - Hold until the engine starts
  - Do not use the starter for more than five seconds at a time
  - If engine fails to start, wait 10 seconds prior to operating the starter again
  - When the engine starts allow the key to return to ON position.
6. Unplug 12-volt supply from 231.
7. Switch on the AC circuit breaker (top, right, front).
8. Plug in appliances.
9. Switch the auto-throttle switch to AUTO after the engine has warmed up (below key).

#### 102.3 MANUAL START

1. Ensure AC circuit breaker is off (top, right front).
2. Turn the fuel valve to ON position (rear of pull cord).
3. Ensure the auto-throttle switch is OFF (below key).
4. To start:
  - Turn key to ON position.
  - Pull the starter grip until compression is felt
  - Pull briskly. Do not allow the starter grip to snap back, return it slowly by hand.
5. Switch on the AC circuit breaker (top, right front).
6. Plug in appliances.
7. Switch the auto-throttle switch to AUTO after the engine has warmed up (below key).

#### 102.4 SHUT DOWN

1. Turn the AC circuit breaker to the OFF position (top, right front).
2. Turn the key to the OFF position.
3. Turn the fuel valve off (rear of pull cord).

#### 102.5 EMERGENCY SHUT DOWN

1. Turn the key to the OFF position.

### **103 BRAKE PEDAL CUTTER**

1. The Brake Pedal Cutter is stored on 231.
2. The Brake Pedal Cutter is designed to cut material such as brake pedals, steering wheels, gearshifts, and other small objects.
3. 2 members should normally be assigned to operate the Brake Pedal Cutter, one to position and guide the cutter head and one to operate the hand pump.
4. When using the Brake Pedal Cutter, ensure victims and operating personnel are protected from flying cut objects. When a brake pedal or gearshift lever has been cut, the free end tends to fly. Substantial covering, i.e., a folded blanket shall be used to prevent injury.
5. The fluid used in the Brake Pedal Cutter is the same as that used for the other Hurst equipment.

#### 103.1 OPERATION

1. Remove all unnecessary work tools from the work area where the tool will be used.
2. Remove the Brake Pedal Cutter from the carrying case and ensure the cutter blades are fully open.
3. To open the blades, open the valve on the side of the pump, when the blades are fully open, shut the valve.

4. The hand pump can be removed from the base plate if space requires this action.
5. Position the cutter head, then extend the hose and place the base plate and hand pump on a flat surface.
6. Running the full extent of the hose, while keeping the cutter head positioned will provide a clutter free work environment.
7. When cutting accelerator, clutch pedals, etc., the cutter head should be positioned as close as possible to the bottom of the material being cut.
8. All cuts should be made on the broad or thinnest side of the material.
9. When cutting a steering wheel, the cutter head should be positioned with the open side of the head facing away from the victim and the operator. One of the team members should keep one hand on the wheel, well away from the cutter.
10. When cutting a floor mounted gear shift, the cutter head should be positioned as close to the floor as possible,
11. When cutting a steering column mounted gearshift, the cutter head should be positioned as close to the column as possible.
12. When the hand pump is hard to operate when cutting, then suddenly loses resistance, the internal pressure relief valve has lifted, the operator should release the pressure by opening the valve on the side of the hand pump. Reposition the cutter head in a different location and try again. The metal may be impossible to cut and alternate methods will have to be used.
13. The Brake Pedal Cutter shall be returned to the carrying case, cleaned as per the regular Hurst servicing methods.

#### **104 SELF CONTAINED BREATHING APPARATUS (SCBA)**

1. 12 ready use Scott 2.2 SCBA are available, 4 units on 211, and 5 units on 231, and 3 units on 232.
2. A modified SCBA unit on 231 is fitted out and marked as a RIT SCBA and shall only to be used for that task.
3. 10 facemasks are available, 5 masks on 211, and 5 masks on 231
4. 27 air bottles are available, 7 on 211, 14 on 231, and 6 on 232.
5. All SCBA shall have the valve turned off and the regulator bled down.
6. The safety strap shall be used to prevent the SCBA from coming loose from the seat.
7. All air bottles shall have the air changed at intervals of no longer than 3 months.

##### **104.1 OPERATION**

1. Personnel shall remove safety strap prior to donning the SCBA.
2. Sit in seat, connect waist belt, and slide into shoulder harness.
3. Adjust straps to fit and tuck in ends.
4. Turn on air, low air alarm should sound momentarily, confirm bottle full by gauge.
5. Confirm heads up display operational and indicating bottle full.
6. Ensure flash hood on and pulled down.
7. Select proper mask and adjust straps to fit.
8. Replace flash hood over head.
9. Don remaining PPE, ensuring it is correct.
10. Check out other members of team for correct fit.
11. If stood down or resting the SCBA is to be placed back on the vehicle it came from if at all possible. If conditions do not allow that, the SCBA and mask shall not to be dropped or left on the ground. It shall be left in a clean and protected area.
12. When a bottle is empty it shall be replaced with a full one.
13. All empty bottles shall be sent to the fill site or kept separate from full bottles.

##### **104.2 CLEANING**

1. On return to the hall the SCBA shall be cleaned and fitted with a full bottle.
2. The frame and bottle shall be washed down with warm soapy water and dried.
3. All straps shall be fully extended.
4. The mask straps shall be fully extended.
5. The mask shall be washed in warm soapy water and shook dry.
6. The mask shall be disinfected with supplied disinfectant on both sides.
7. Check masks to ensure all internal fittings are correct.

8. Replace masks on vehicle.

### 105 GAS DETECTOR MONITOR

1. A 4 gas detector monitor is normally carried on 232 to check the level of O<sub>2</sub>, CO, H<sub>2</sub>S, and flammable vapours in the atmosphere of areas to be entered by members.
2. The monitor shall be calibrated at the minimum of every 30 days or as required with in-date test gas.

#### 105.1 CARBON MONOXIDE (CO)

1. The detector monitor will alarm for CO at 35 PPM.
2. CO is an odourless and colourless gas with the same vapour density of air.
3. The poisonous nature of CO is due to the fact that it combines with the haemoglobin in the blood in place of oxygen, causing chemical suffocation.
4. Effects of CO poisoning are:
  - 100 PPM - slight headache
  - 200 PPM - headache
  - 300 PPM - severe headache
  - 300 PPM + - disorientation, collapse
  - 1000 PPM - coma
5. The effects of CO are commutative, I.E. 2 hours at 50 PPM equals 1 hour at 100 PPM.

#### 105.2 HYDROGEN SULFIDE (H<sub>2</sub>S)

1. The detector monitor will alarm for H<sub>2</sub>S at 10 PPM.
2. H<sub>2</sub>S is a colourless flammable gas with the odour of rotten eggs with a vapour density heavier than air.
3. Hydrogen sulphide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected. It forms a complex bond with iron in the mitochondrial cytochrome enzymes, thereby blocking oxygen from binding and stopping cellular respiration.
4. Effects of H<sub>2</sub>S poisoning are:
  - 10 – 20 PPM - eye irritation
  - 50 – 100 PPM - eye damage
  - 150 – 250 PPM - nose paralyzed
  - 320 – 530 PPM - pulmonary oedema, possible death
  - >800 PPM - lethal to 50% of humans
  - 1000 PPM - lethal

#### 105.3 OXYGEN (O<sub>2</sub>)

1. The detector monitor will alarm for O<sub>2</sub> at 19.5% and 23.5%.
2. The normal concentration of O<sub>2</sub> in the atmosphere is 20.9%.
3. Effects of lower and higher concentrations of O<sub>2</sub> are:
  - 17% - abnormal behaviour
  - 2%-3% drop - death
  - 10%-13% - become unconscious so quickly cannot help self
  - > 24% - increased flammability of materials

#### 105.4 FLAMABLE VAPOURS

1. The detector monitor will alarm for flammable vapours at 10% lower explosive level (LEL)
2. The detector monitor uses methane as a calibration gas for flammable vapours.

#### 105.5 BATTERY

1. The typical life of a fully charged lithium ion battery is 50 hours without the pump.
2. The typical life of a fully charged lithium ion battery is 24 hours with the pump operating.

3. The battery life is displayed on the screen during operation.

#### 105.6 START UP

1. To switching on the detector monitor press any one of the 4 interface buttons, follow prompts.
2. The detector monitor will initialize.
3. To switch off the detector monitor press and hold the left and right bottom buttons at the same time for 2 seconds, follow prompts.
4. The detector monitor must be zeroed in an area free of detectable gasses prior to being used.
5. Press the lower right button marked next.
6. Press the lower left button, zero, the detector monitor will take a few minutes to zero and return to the main screen.
7. Ensure the detector monitor is zeroed in known clean atmosphere or the readings and warnings may not be correct.

#### 105.7 REMOTE SAMPLING

1. Close the shutter by pushing forward, the pump will start.
2. Connect the sampling tube.
3. A leak test of the sampling tube will be carried out by following the prompts on the screen.
4. When the leak test is complete connect the probe and begin sampling.
5. Prevent liquid from entering the probe.
6. If the probe or tube becomes blocked a low flow alarm will sound and the blockage must be cleared prior to continuing.
7. Allow sufficient time for the detector monitor to draw a remote sample, the pump requires 1 second per foot of tubing to dry a sample.

### **106 COLD WATER RESCUE EQUIPMENT**

#### 106.1 SUITS

1. To facilitate cold water rescue 2 Ice Commander Suits are carried on 231.
2. The suits shall only to be worn by personnel trained in cold water rescue techniques
3. Lead ankle weights shall be worn to provide stability to the rescuer in the water.
4. All air shall be removed from suits prior to starting a rescue
5. All straps shall be tightened to make the suit conform to the body prior to starting a rescue.
6. On completion of a rescue or training the suit shall be:
  - Inspected for damage
  - Hand washed with warm soapy water and a cloth
  - Hung to dry out of direct sunlight and heat
7. The zipper shall be lubricated with paraffin wax.
8. When completely dry the suit shall be rolled from the feet to the head and replaced in the storage bag.
9. The suits shall be inspected on a regular base for damage, cleanliness, and mildew.

#### 106.2 LINES & TOOLS

1. To facilitate cold water rescue ropes, throw bags, PFD's, ice poles, rescue slings, carabineers, and snap hooks are carried on 231
2. The lines and equipment shall only to be used by personnel trained in their use.
3. On completion of a rescue or training the ropes and throw bags shall be:
  - Inspected for damage
  - Dried out of direct sunlight and heat.
4. When dry all lines shall be recoiled and the throw bags repacked.
5. On completion of a rescue or training the PFD's shall be:
  - Inspected for damage
  - Washed in warm soapy water
  - Dried out of direst sunlight and heat

6. On completion of a rescue or training the carabineers and snap hooks shall be:
  - Inspected for damage
  - Washed in warm soapy water
  - Dried
  - Lightly oiled

### **107 DISC SAW**

1. To facilitate ventilation, extrication, and other tasks a rotary rescue saw is carried on 231.
2. Only personnel trained in its use shall operate the saw.
3. The saw shall be maintained on a regular base.
4. Always wear appropriate PPE when operating saw.
5. The saw shall not be carried while it is running.
6. The saw uses mixed gas only.
7. To start the saw:
  - Check gas level
  - Press decompression button in
  - Slide control switch all the way to the left
  - Push the choke fully up
  - Lock throttle in the fully open position
  - Pull cord
  - When saw starts turn choke off
  - Disengage throttle lock
  - Saw may not start first time, keep pulling cord
  - As soon as saw coughs and doesn't start turn choke off, should start next pull
8. To stop saw slide control switch all the way to the right
9. Always stop saw to refuel.

### **108 RESCUE SAW**

1. To facilitate ventilation and other tasks a chain type rescue saw is carried on 231.
2. Only personnel trained in its use shall operate the saw.
3. The saw shall be maintained on a regular base.
4. Always wear appropriate PPE when operating saw.
5. The saw shall not be carried while it is running.
6. The saw uses mixed gas only.
7. To start the saw:
  - Check gas level
  - Check chain oil level
  - Press decompression button in
  - Ensure chain brake on
  - Push the choke fully down while depressing and locking throttle fully open
  - Pull cord
  - Saw may not start first time, keep pulling cord
  - When saw starts pull choke up to half on
  - Disengage throttle lock
  - When warm pull choke up to off position
  - Disengage chain brake to use saw
8. To stop saw slide control switch all the way up.
9. Always stop saw to refuel.

### **109 RECIPROCATING SAW**

1. To facilitate extrication and other tasks a reciprocating saw is carried on 231.
2. Only personnel trained in its use shall operate the saw.

3. The saw shall be maintained on a regular basis.
4. Always wear appropriate PPE when operating saw.
5. The saw is normally battery powered but has a converter to allow for 115V continuous operation.
6. To operate saw:
  - Ensure battery or converter fitted
  - Insert blade and lock in
  - Adjust foot
  - Select speed, 1 low speed, 2 high speed
7. On completion remove blade and clean saw.
8. Recharge battery.

## **110 HURST JAWS OF LIFE EQUIPMENT**

1. To facilitate the extrication of victims from MVC's and other incidents 2 power units and various tools are carried on 231.
2. Only personnel trained in the operation and techniques of extrication shall use the Hurst equipment.
3. The equipment shall be maintained on a regular basis.
4. Always wear appropriate PPE when operating the Hurst equipment.
5. The power units use straight gas only.
6. The term "Freeze" shall be used by any member of the team to immediately stop the operation when:
  - A problem is discovered
  - An unsafe condition develops
  - The tools may cause patient or team members harm

### **110.1 POWER UNITS**

1. To start the power units:
  - Open gas isolation valve
  - Ensure pump to bypass position
  - Put throttle in choke position
  - Pull cord
  - Put throttle in fast position
  - Attach hose and tools
  - Open discharge valve on pump

### **110.2 TOOLS**

1. Ensure pump is to bypass position prior to connecting tools and hydraulic lines to the power units.
2. Ensure all ports on the manifold are full prior to using.
3. Ensure spreaders have a 2.5cm gap between tips prior to storing.
4. Ensure cutters are fully open prior to storing.

### **110.3 CLEANING**

1. After use all tools and hydraulic lines shall be washed with warm soapy water and dried prior to storing.
2. Cutter blades shall be wiped with used Hurst fluid.

## **111 HURST AIR BAGS**

1. To facilitate the extrication of victims from MVC's and other incidents a high-pressure air bag system is carried on 231.
2. Only personnel trained in the operation and techniques of extrication shall use the air bag equipment.
3. The equipment shall be maintained on a regular basis.
4. Always wear appropriate PPE when operating the equipment.
5. Bags shall only be stacked 2 high, larger on the bottom
6. Always crib as you raise the object, never support with bags only.
7. The system uses air stored in 2 white bottles, from 231 or any SCBA bottle.
7. The term "Freeze" shall be used by any member of the team to immediately stop the operation when:

- A problem is discovered
- An unsafe condition develops
- The tools may cause patient or team members harm

#### 111.1 OPERATION

1. Select appropriate size of bag or bags to use, weight and height.
2. Have sufficient blocking readily assessable.
3. Place either plywood or rubber pads on the top and bottom of the air bags.
4. The bottom bag shall be inflated first.
5. The object shall be blocked or crib as it rises.
6. The second bag shall be inflated after the first bag is fully inflated.
7. When the lift is complete the object should be lowered so the cribbing or blocking has the weight.

#### 112 PRESSURE WASHER

1. To facilitate the cleaning of equipment and vehicles a pressure washer is available.
2. Only personnel trained in the operation of the pressure washer shall operate the unit.
3. The pressure washer is operated electrically and has a dedicated circuit with an outlet between the bay doors.
4. The pressure washer shall be maintained on regular bases.
5. Always wear appropriate PPE when operating the pressure washer.
6. Do not point the wand at personnel or self.
7. All soiled hose shall be washed with the pressure washer prior to reuse or storage.

#### 113 HAND TOOLS

1. The following hand tools are available to assist in completing tasks:
  - Shovels
  - Fire axes
  - Pry bars
  - Brooms
  - Pike poles
  - Haligan tool
  - Haligan bar
  - Hand saw
  - Screwdrivers
  - Spanners
2. All tools are shall be maintained on regular bases.
3. All personnel shall be trained in the use and operation of all hand tools.

#### 114 THERMAL IMAGING CAMERA (TIC)

1. To increase visibility in smoke, assist in locating lost people, and various other tasks a TIC camera is available.
2. Only personnel trained in the operation of the TIC shall operate the unit.
3. The TIC shall be maintained on a regular basis.
4. The TIC shall normally be on the first out unit, 211, unless otherwise directed by the IC.
5. On mutual aid responses the TIC shall only be operated by trained members of the Department only, and not by mutual aid Departments requesting assistance.

#### 114.1 OPERATION

1. To turn on, push the large GREEN button on the left side of the TIC. There is a 15 - 30 second warm up period for a self-check, before the TIC becomes operational.
2. Once the TIC is active, an image will be visible on the screen.
3. On the LEFT side of the display screen, 5 LED's allow the operator to see the amount of energy reserve that remains in the battery.

4. Forward of the GREEN power button and adjacent to the lens is a black knob, which selects that channel the TIC transmits on. All transmissions shall be on channel 1 unless there is interference on channel 1.
5. If the TIC is not to be used for a period of time but needs to remain in a state of readiness, press the YELLOW sleep button located next to the GREEN power button. By using the sleep feature, battery life is extended. When the TIC is in the sleep mode the screen will be blank, however, the battery power LED's will remain active and a sleep symbol will appear on the screen. To activate the TIC from the sleep mode, depress the YELLOW button.
6. If possible the IC should use the TIC to complete the initial size up of the incident.
7. During overhaul and incidents such as flue fires the TIC should be used to carry a quick scan of the entire scene prior to concentrating on individual hot spots.
8. The TIC team shall consist of a minimum of 2 personnel.
9. When the TIC is transmitting all transmissions should be recorded.
10. The tape shall be labelled with the incident number and stored upon completion of the incident
11. The TIC can transmit the image on its screen to a remote screen and video recorder on 232. A black transmit button located near the green power button. When transmitting the battery life is shortened by half.
12. The TIC operator should be directly behind the nozzle operator or should lead a team where hose lines are not deployed. The most efficient operation of the TIC occurs when its operator's view is not obstructed by other fire fighters.
13. TIC operators shall scan the area using the six-point technique. Ceiling level left right, waist level left right, and floor level left right.
14. TIC operators shall avoid walking with the TIC as trip hazards may be overlooked; use point to point navigation techniques with the assistance of a tool such as an axe.
15. When the battery power LED's indicate that the battery has less than 1/4 of its energy capacity remaining, it shall be replaced with a fully charged battery.
16. After the TIC has been deployed, the battery shall be replaced with a fully charged battery at the conclusion of the incident to insure that the TIC is always in a constant state of readiness. 2 fully charged spare batteries are stored in the TIC case.
17. The TIC's battery is located in a compartment directly below the viewing screen. To remove the battery, flip up the 2 black tabs and open the hinged door. Ensure that the replacement battery is reinserted with the same orientation so that the battery's contact points coincide with those of the camera.
18. Batteries can be recharged using the supplied battery charger, which has the ability of being powered from a 12-volt cigarette lighter outlet; the chargers supplied with the TIC's are rapid chargers, which can recharge batteries in less than 1 hour.

#### 114.2 LIMITATIONS

1. The TIC is not intrinsically safe.
2. The TIC gives limited depth perception.
3. The TIC does not see behind walls, but will show if the fire has heated the wall from within.
4. Water, plastic, and glass are all effective barriers for the TIC and may cause a reflective image.
5. A human will not provide sufficient thermal energy to penetrate standard construction materials or solid items such as furniture. Rescuers must look under/around beds, sofas and other objects and in closets where victims may have hidden.
6. The TIC is a mechanical device subject to failure.
7. Controls on the TIC may be bumped and deactivated the TIC.
8. Soot build up on the lens may blind the TIC.

#### 115 POSITIVE PRESSURE FAN

1. To assist in fire fighting and ventilation a positive pressure fan is available on 231.
1. Only personnel trained in the operation of the positive pressure fan shall operate the unit.
2. The positive pressure fan shall be maintained on a regular basis.

#### 115.1 OPERATION

1. The positive pressure fan shall be placed at the point of entry from the unburned side of the fire.

2. The positive pressure fan shall be positioned 3- 5 M back from the entry point.
3. The objective is to create a pressure cone effect around the door. This position will also allow access for crews to enter the building.
4. Turn on/off switch to on position.
5. Move fuel switch to open position.
6. Move choke to full choke position, unless unit is warm.
7. Pull the pull cord and release slowly.
8. Move choke to fully open position.
9. Increase speed by moving throttle.
10. Check positioning of fan by using hand to feel cone of air covering opening.
11. Avoid standing between fan and opening.
12. To stop the fan, move the on/off switch to the off position.

#### 115.2 PRECAUTIONS

1. Positive pressure ventilation can create problems if not effectively managed, monitored, and coordinated. Be aware of the problems listed below and take appropriate corrective action.
  - An exit must be in the burned area or the fire may be pushed into unburned portion.
  - Because of positive pressure, a blow torch effect of fire blowing far out of the exit may occur. This is normal and predictable; adjacent exposures may need to be protected.
  - Do not direct a fire stream into an operating PPV exit point.
  - All concealed spaces need to be checked for extension.
  - The fan does produce carbon monoxide; SCBA shall be required when PPV is used during overhaul operations.

#### 116 1KW GENERATOR

1. To provide electrical energy for lighting and power tools a 1 KW portable generator is carried on 231.
2. The generator is light enough to care by 1 member, allowing lighting to be quickly set up as required.
3. Ensure the AC circuit breaker is in the OFF position prior to starting to allow easier starting.
4. The output circuits are fitted with fuses to protect the generator, if they blow check appliance and load rating prior to resetting.
5. Spare fuses are in the glove box of 231.
6. When transporting the generator, turn the fuel valve to the OFF position and keep the generator level to prevent fuel spillage.

#### 116.1 SAFETY

1. When operating:
  - Place the generator at least 1 m away from equipment or buildings
  - Operate on a level surface to prevent possible fuel spillage
2. Never run the generator in an enclosed area, exhaust gases contain poisonous carbon monoxide,
3. Know how to stop the generator quickly and understand the operation of all controls.
4. Refuel in a well-ventilated area with the engine stopped.

#### 116.2 OPERATION

1. Open vent valve on fuel cap.
2. Slide choke switch to choke position.
3. Switch ON/OFF switch to on.
4. To start:
  - Pull the starter grip until compression is felt
  - Pull briskly, do not allow the starter grip to snap back, return it slowly by hand.
5. Slide choke switch to run position.
6. Plug in appliances.

### 116.3 SHUT DOWN

1. Unplug appliances.
2. Switch ON/OFF switch to off.
3. Shut fuel vent on cap.
4. Refill gas tank as required with straight gas