AKRON® BRASS COMPANY

STYLE 1494 ELECTRIC LADDER PIPE WITH CAN CONTROL
INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS

The following is intended to provide the basic instructions for installation, operating and maintenance of the Electric Ladder Pipe.

TOOLS REQUIRED

- Utility knife
- Medium Phillips screwdriver
- Small Phillips screwdriver
- Electrician's pliers (multipurpose, stripping and crimping)
- Medium flat screwdriver
- Small flat screwdriver
- 1/2 inch hex head wrench
- 3/16 Allen Wrench

PRODUCT RATINGS

Maximum motor current draw:

12 volt versions	14.0 amps for elevation motor 3.0 amps for nozzle pattern motor
24 volt versions	7.5 amps for elevation motor 1.5 amps for nozzle pattern motor

Normal operating current (depending on operating conditions—pressure, flow, etc.):

12 volt versions	3 - 10 amps for elevation motor 0.7 amps for nozzle pattern motor
24 volt versions	2 - 5 amps for elevation motor 0.4 amps for nozzle pattern motor

Minimum Voltage:

All 12 volt motors: 11.5 volts
All 24 volt motors: 23 volts
Mass: 30 lbs. (13.6 kg)

Maximum Flow: 1000 GPM

Maximum Pressure: 200 PSI

Noise Emission: 93 Db @ 1m with maximum flow

Safety Symbols

⚠ DANGER Indicates a hazardous situation which, if not avoided, WILL result in death or serious injury

⚠ WARNING Indicates a hazardous situation which, if not avoided, COULD result in death or serious injury

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

NOTICE Address practices not related to personal injury

Product Warnings, Cautions and Notices

⚠ WARNING Ensure the ladder being used has adequate structural strength to support the reaction force generated during operation.

⚠ WARNING Charge the unit slowly. Rapid charging may cause a pressure surge that has the potential to cause an injury, or damage the monitor.

⚠ WARNING Aim the unit in a safe direction before pumping water through it, e.g., away from power lines.

⚠ WARNING Do not use the electric controls when the manual override cranks are being used or are in position for use.

⚠ WARNING Make the connection of the vehicle and auxiliary battery the final step.

⚠ WARNING Do not exceed the maximum pressure or flow ratings of the monitor. Exceeding these ratings may lead to an injury or may cause damage to the monitor.

⚠ WARNING Do not install shutoffs on the outlet of the monitor. Shutoffs increase the potential for pressure surges due to water hammer, which have the potential to cause an injury or damage the monitor.

⚠ WARNING Disconnect power and disable flow before maintenance.

⚠ WARNING Keep all personnel out of the Danger Zone, in front of the outlet of the monitor when the water source is attached. Dangerous flow velocities can cause serious injury.

⚠ WARNING Not designed for explosive environments.

⚠ WARNING Use only for firefighting by trained operators.

⚠ WARNING Ensure the thread on the nozzle swivel matches the thread on the monitor outlet. Do not over-tighten the nozzle onto the unit.

⚠ WARNING Insufficient structural support at the inlet flange can lead to failure, which has potential to cause an injury.

⚠ WARNING Do not use monitor or nozzle as a forcible entry tool.

⚠ CAUTION During freezing conditions, the monitor must be drained to prevent damage.

NOTICE The monitor, nozzle, control box, tether controller and field adjustable stops are made for optimal performance. Do not alter in any manner.

NOTICE The monitor was designed for use with Akron nozzles. Use of any other nozzles could affect the speed or operation of the unit and should be tested before being put into service.

NOTICE Replace the identification tags if they should become worn or damaged.

NOTICE The monitor uses current limiting for both the monitor and nozzle. Use only appropriate Akron Brass Company nozzles.

NOTICE Designed for use in fresh water applications. If used with salt water, flush with fresh water.

NOTICE For use with water or standard firefighting foams only. After use with foam, flush with fresh water.

NOTICE Use a nozzle of the same material as the monitor to eliminate the effects of galvanic corrosion.

⚠ WARNING The Electric Ladder Pipe monitor contains moving parts. Keep hands, fingers and

objects away from pinch points.

E. MECHANICAL MONITOR ATTACHMENT

This unit is equipped with a quick acting clamp which is adjustable to fit the rung spacing of most aerial ladders. It is pre-set at the plant to fit a rung spacing of 15 1/4" and it may be necessary to adjust the spacing to your ladder.

NOTE: Round rung ladders require different clamps than square rung ladders. Do not use if clamps do not match rung shape. Contact Akron Brass for clarification.

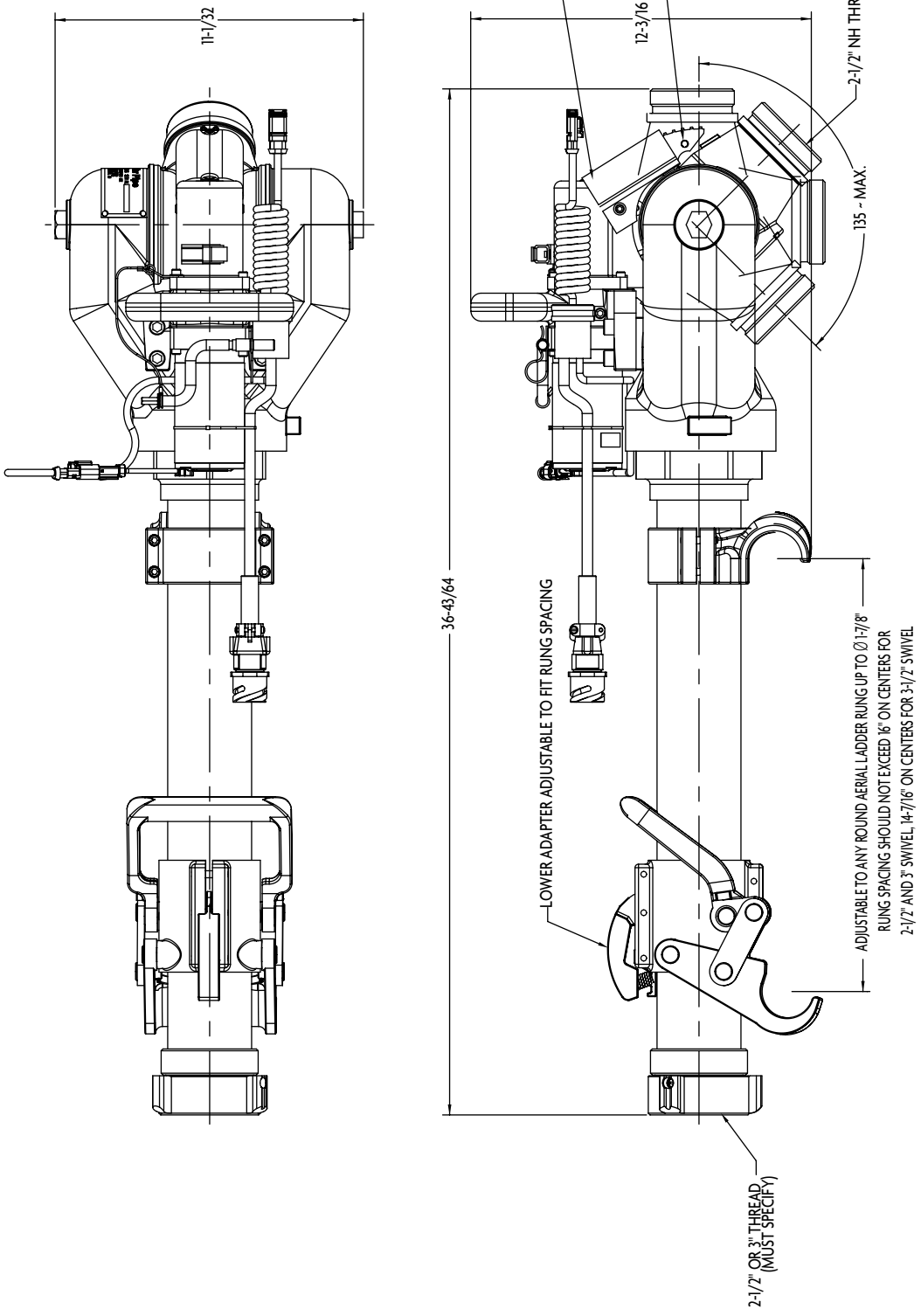
To install the pipe on your aerial, follow the simple steps outlined below (Figure 2).

1. Hook upper clamp (1) over top rung and drop the pipe into position.
2. To unlock the handle, compress the safety catch (2) completely with palm of your hand.
3. Raise locking handle (3) completely.
4. Place lower clamp (4) under the second rung and lower the locking handle into the fully locked position.
5. If your rung spacing is other than 15 1/4", you will need to adjust the position of the lower bracket.
6. Loosen the five screws both front (5) and rear (6).
7. With the handle in the locked position, slide the entire lower bracket until the second rung fits snugly into the bottom of the lower clamp. (You may need to lightly tap the bracket with a leather or rubber mallet.)
8. Unlock the handle as described in Steps 2 and 3 and slide the entire bracket upward approximately 1/16" to 1/8" or until the unit will lock into place tightly. **CAUTION:** Be careful not to have the clamps too tight when in the locked position.
9. Snug down rear screw (6) and then securely tighten front screw (5) and the rest of the screws (5 & 6) to approximately 100-125 in-lbs. Do not over-tighten middle screw (5).
10. Test the safety catch operation to ensure proper locking action before putting the unit into service.

NOTE: Periodically check for wear between the safety catch (2) and the locking handle (3). If excessive wear should become apparent, the locking mechanism should be replaced immediately.

Figure 1

DIMENSIONAL SPECIFICATIONS

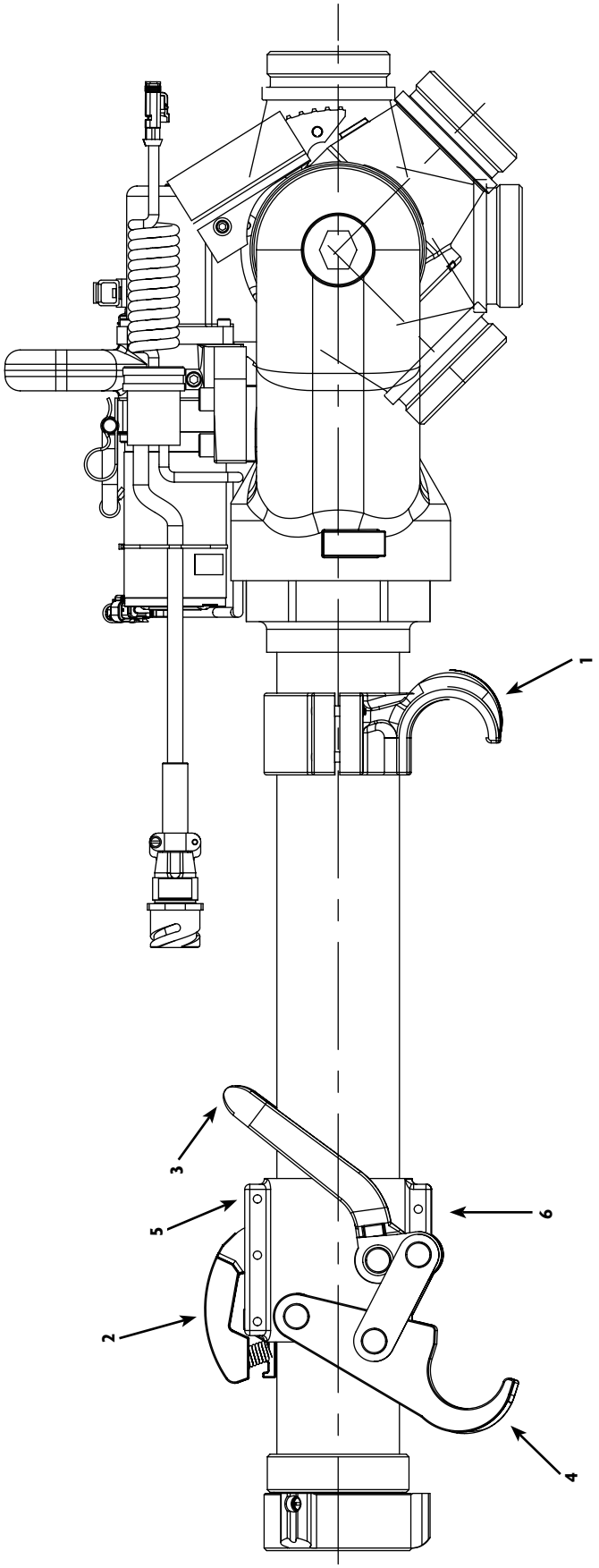


Note: View in unlocked position

Adjustable to any round aerial ladder rung up to $1^{7}/_{8}$" dia.
Rung spacing should not exceed 16" on centers for $2^{1}/_{2}$" and 3" swivel, $14^{7}/_{16}$" on centers for $3^{1}/_{2}$" swivel.

Figure 2

MONITOR ATTACHMENT

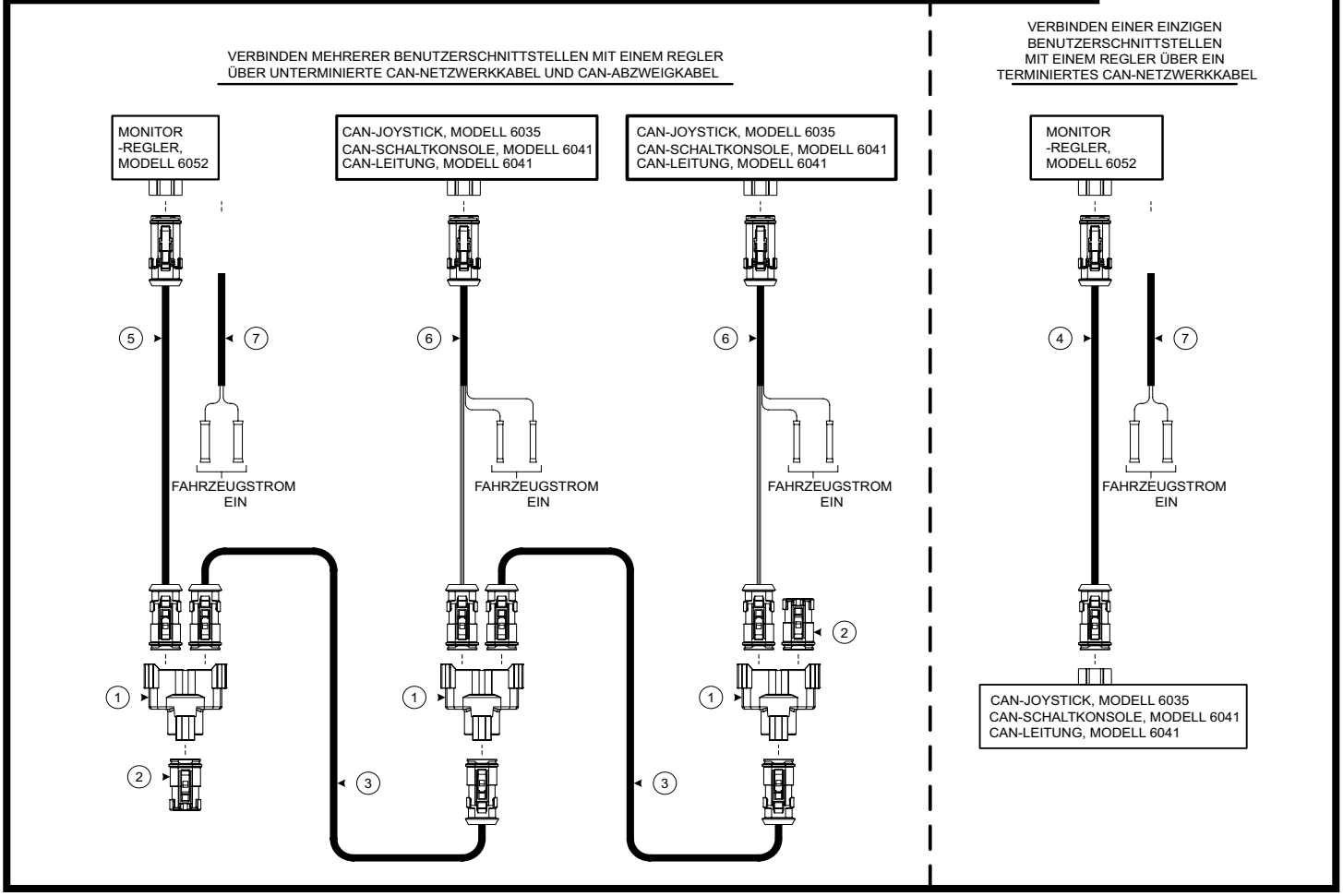


Electrical Installation Instructions

The Monitor Controller requires Vehicle Power and CAN connections. For a description of Akron Brass harnesses that can be used to make these connections, see the table below and figure 5. If it is desired to make harnesses, refer to figures 6 and 7, and the accompanying table for a description of the mating connectors.

HARNESSES FOR CONNECTING MONITOR CONTROLLER TO CAN DEVICES (See Figure 3)			
Item	**Description**	**Length**	**Akron Brass Part Number**
1	Receptacle Connector – CAN "Y" Adapter (Deutsch #DT04-3P-P007). Connects together two CAN Network Harnesses and one CAN Stub Harness.		758306
2	Plug Connector – CAN 120 ohm Terminator (Deutsch #DT06-3S-PP01). Two are required per system and plug into the CAN "Y" Adapters at each end of the CAN network.		742205
3	CAN Network Harness – Extends the CAN network to a CAN node device (an operator station for example). Connects between two CAN "Y" Adapters. There are no 120 ohm terminating resistors in the harness.	½ ft. (0.15 m) 2 ft. (0.61 m) 3 ft. (0.91 m) 5 ft. (1.52 m) 10 ft. (3.05 m) 20 ft. (6.10 m) 30 ft. (9.14 m) 40 ft. (12.19 m	721569 721667 721572 721573 721574 721570 721665 721575
4	CAN Network Harness – Connects a 6035 Joystick, 6041 Switch Box or 6041 Tether to the 6052 AeroMaster 12 Controller. There are 120 ohm terminating resistors at each end of the harness.	20 ft. (6.10 m) 30 ft (0.91 m)	721565 721634
5	CAN Stub Harness – Connects the CAN network to the 6052 Controller	3 ft. (0.91 m)	721589
6	CAN Stub Harness – Connects the CAN network to a 6035 Joystick, 6041 Switch Box, 6041 Tether or 6036 Direction Indicator. Includes wires for connecting power to the CAN device.	3 ft. (0.91 m) 10 ft. (3.05 m)	721579 721677
7	Power Harness – Connects Vehicle Power to the Monitor Controller.	4 ft. (1.22 m) 8 ft. (2.44 m) 10 ft. (3.05 m)	721695 721682 721696

Figure 3 – Harness Connections Between Monitor Controller and CAN Devices



MATING CONNECTORS FOR MONITOR CONTROLLER (See Figures Y and Z)				
Item	**Description**	**Manufacturer**	**Manufacturer Part Number**	**Akron Brass Part Number**
1	Connector – DTP plug, 2 position, 0.134-0.195" (3.40-4.95 mm) wire diameter range, end cap, gray	TE Connectivity (Deutsch IPD)	DTP06-2S-E003	742227
2	Wedgelock – For DTP 2-socket plug, orange	TE Connectivity (Deutsch IPD)	WP-2S	784188
3	Contact – Solid socket, size 12, 14-12 AWG (2.5-4.0 mm^2), 25 amps	TE Connectivity (Deutsch IPD)	0462-203-12141	707583
4	Connector – DT plug, 4 position, 0.053-0.120" (1.35-3.05 mm) wire diameter range, enhanced seal retention, shrink boot adapter, black	TE Connectivity (Deutsch IPD)	DT06-4S-CE13	742203
5	Wedgelock – For DT 4-socket plug, enhanced seal retention, green	TE Connectivity (Deutsch IPD)	W4S-P012	784199
6	Contact – Solid socket, size 16, 20-16 AWG (0.5-1.5 mm^2), 13 amps	TE Connectivity (Deutsch IPD)	0462-201-16141	769635

Figure Y – Power Connector

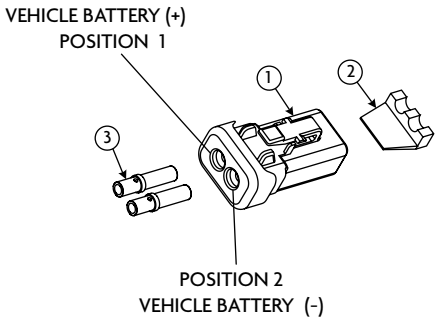
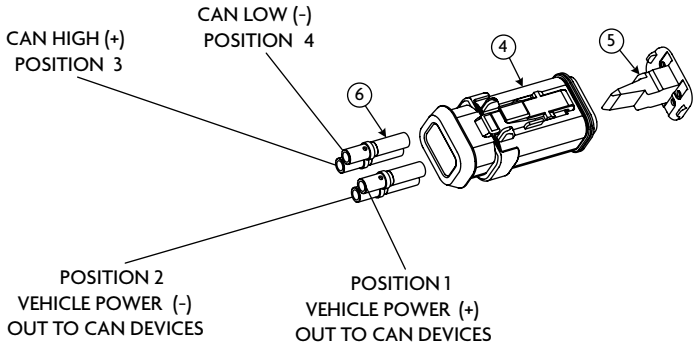


Figure Z – CAN Connector



OPERATING INSTRUCTIONS

A. CONTROL OPERATION

This monitor is compatible with Akron Brass controllers that use the CAN communication protocol. See figure x for wiring harness connections between the monitor controller and CAN devices. The monitor can also be controlled using the wire less handheld controller.

To change the nozzle pattern toward the “straight stream” or “fog” positons, press the proper control switch toward “STRAIGHT” or “FOG” respectively. To change the vertical monitor position upward or downward press the proper control switch toward “RAISE” or “LOWER” respectively.

OTHER CONTROL SWITCHES SUCH AS “RIGHT” OR “LEFT” OR “STOW” OR “DEPLOY” WILL HAVE NO EFFECT ON THE OPERATIONS FO THE ELECTRIC LADDER PIPE MONITOR.

B. ELEVATION STOPS

The elevation stop sets the upper limit of the elevation. The monitor is shipped with the elevation stop at 90° above horizontal and can travel 45° below horizontal. The vertical position of 45°, 60° and 75° above horizontal can be achieved by switching the stop to the desired locations located on the elevation gear (Figure 1).

C. MANUAL OVERRIDE CONTROL

THE MANUAL OVERRIDE CONTROL IS TO BE USED WHEN THE POWER TO THE MONITOR IS OFF. One override crank is attached, for the vertical control. It is 1/4 inch in size. A 1/4 inch Allen wrench will also actuate the overrides. To use the manual override pull the key pin which holds the override crank in place and insert the hex head end of the override crank in the hexagon shaped hole beside the crank storage bracket. Then rotate or spin the override crank either clockwise or counterclockwise to aim the monitor in the desired direction.

WHEN THE OVERRIDE CRANKS ARE NO LONGER IN USE PUT THEM BACK IN THE STORAGE POSITION. DO NOT USE THE ELECTRIC CONTROLS WHEN THE OVERRIDE CRANKS ARE BEING USED OR ARE IN POSITION FOR USE.

D. NOZZLE PRESSURE

Do not exceed the following discharge pressure with straight tips.

Tip Size	Pressure
1 1/4”	100 PSI (690 KPA)
1 3/8”	100 PSI (690 KPA)
1 1/2”	100 PSI (690 KPA)
1 3/4”	100 PSI (552 KPA)
2”	70 PSI (488 KPA)

Do not exceed 1000 GPM (3800 LPM) when using a fog nozzle.

MAINTENANCE INSTRUCTIONS

Your Electric Ladder Pipe monitor and nozzle should be inspected prior to and after each use, to ensure it is in good operating condition. Periodically, an unanticipated incident occurs where the Ladder Pipe is misused in a manner that is inconsistent with standard operating practices and those listed in IFSTA. A partial list of potential misuse includes:

- Not draining, and allowing water to freeze inside.
- Prolonged exposure to temperatures above 130°F, or below -25°F.
- Operating in a corrosive environment.
- Having the Ladder Pipe nozzle hit a fixed object during operating or transportation.
- Other misuse that might be unique to your specific environment.

Also there are many "tell tale" signs that indicate repair is in order, such as:

- Controls that are either inoperable or difficult to operate.
- Excessive wear.
- Poor discharge performance.
- Water leaks.

If any of the above situations are encountered, the Electric Ladder Pipe should be taken out of service, repaired, and tested by a qualified technician before placing it back in service.

MOTOR REPLACEMENT

To replace the vertical rotational motor:

1) Disconnect Power from the unit.
2) Loosen and remove the four socket screws (Item 23 on the Parts List) from the gearbox housing.
3) Slowly remove the motor assembly (25) and motor adapter (6) from the unit.
4) Loosen and remove the 4 socket head capscrews (26) from the inside of the motor adapter that hold the housing and the motor assembly together.
5) Remove motor adapter (6) from the motor assembly (25).
6) Replace both O-ring seals (21 & 27) on the motor adapter (6).
7) Attach the new motor assembly (25) to the motor adapter (6) making sure all four screws (26) are tight.
8) Install the motor and motor adapter assembly to the unit making sure all four socket screws (23) are tight. It may be necessary to rotate the motor slightly to get the motor gear to line up with the gears inside the gearbox.
9) Restore power to the unit.
10) Test the operation of the unit.

Call Akron Brass Customer Service Department if any problems are encountered.

AKRON BRASS COMPANY
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