

SECTION FOUR D – VECTOR 5000 MONITOR

DESCRIPTION

The Vector monitor is an advanced design portable monitor with a high flow rating. It is ideal for use where large quantities of water are required at an incident.

USE

The monitor is to be used where delivery of a water jet is required from a position of danger due for example to the risk of explosion or collapsing walls.

The monitor may also be used for the prolonged delivery of large quantities of water where it may be left unsupervised.

ISSUE AND LOCATION

One monitor at Shrewsbury on the Heavy Pumping Unit

OPERATING INSTRUCTIONS

To set up the monitor, lay on even ground wherever possible. The carbide tipped spikes on the monitor feet give excellent resistance and surface contact, and provide good stability on hard surfaces such as concrete. The spikes are replaceable.

Open up the far stainless steel loop by lifting the 2 black knobs situated at the base of the legs.

An orange safety strap is provided. It has adjustable length and a loop end and can be attached firmly to a fixed object where there is a possibility of slippage of the monitor when in use. The clip end is to be attached to a small metal bar at the base front of the monitor. Elevation is controlled by means of the lock lever at the rear of the vertical pipework under the handwheel. When the lever is lifted rotation is easily achieved, and to lock the monitor in place, the lever is pressed down. The hose inlets should be supplied by 70mm hose lines on all occasions, however, in emergency, one line can be used, due to the provision a double acting check valve at the double inlet which prevents water loss.

A pressure gauge is fitted for accurate pressure readings. A safety plunger and locking slide bars are provided on the sides of the monitor casing. The button is interlocked when under pressure, ensuring that once water is flowing, the top part of the monitor cannot be accidentally removed. Without water flowing, the plunger is easily depressed, to remove the top portion of the monitor.

When pressure drops below one bar, the automatic drain spins, allowing trapped water to empty.

NOZZLE CONTROL

Two types of nozzle are provided with the monitor:-

Mach 3 Mastermatic

- a) The Mastermatic diffuser nozzle is kept attached to the monitor, by means of screw thread attachment. The nozzle provides a main jet or fine spray protection screen and operates from 570 to 4500 litres per minute at a maximum of 12 BAR.
- b) Variable control is by the handgrip around the nozzle.

Stacker Tips

A selection of stacker tips are provided on the Heavy Pumping Unit, all connected together. After removal of the Mastermatic nozzle, the complete stacker tips are screwed onto the monitor. By unscrewing each stacker tip, a larger nozzle is provided as shown as detailed below:

25mm Tip	1000 LPM @ 6 BAR
30mm Tip	1500 LPM @ 6 BAR
36 mm Tip	2000 LPM @ 6 BAR
43 mm Tip	3000 LPM @ BAR

Whenever stacker tips are unscrewed, they should not be left on the ground where there is a possibility of loss, but returned to the HPU lockers.

SAFETY

Safe-Tak Valve

The Safe-Tak valve situated on top of the water inlet barrel consists of a lever operated butterfly valve connected to a foot on the monitor base. In normal conditions, the valve remains open allowing maximum flow.

However, should the monitor start to tip for any reason or become unstable, the valve closes across the inlet barrel, cutting the monitor flow rate by 90% and reducing the reaction force. By design, the valve does not close completely. By continuing the flow, water hammer is reduced in hose lines, and at the same time, the remaining flow can be used for protection until the monitor is re-aligned and the Safe-Tak Valve reset.

Before re-setting the Safe-Tak valve, the water supply **MUST** be shut down.

MAINTENANCE AND TESTING

The monitor should be subjected to a thorough visual examination every three months. Ensure the fold-away legs operate by opening out and locking into position with the monitor on the ground. The safety strap is to be fitted and secured. Particular attention should be paid to inspecting and practically testing the:

- Elevation control wheel station back lever.
- Safety plunger and locking slide bars.
- Carbide tipped leg spikes.

The high visibility gauge should read zero. The mastermatic nozzle and all stacker tips should be examined for indentations or other damage, and all screw threads should be examined. The monitor should then be put to work and checked to ensure all operations function correctly:

- All the following functions should be physically checked, i.e.
 - Rotation lock lever
 - Elevation control wheel
 - Mastermatic nozzle controls
 - Testing the SAFE TAK device

Ground Monitors should be tested:

- On Acceptance
- After Use
- Quarterly
- On such other occasions as deemed necessary by the Watch/Station Commanders.

TESTING THE SAFE TAK DEVICE

Set up the monitor in the normal way. Lay a separate 76mm uncharged hose line under one leg. Point water discharge from hose line in front of monitor and set monitor flow to at least 800 LPM.

After charging the monitor, charge the additional hose line from at least 7m away. The monitor will rise on one side until the safety valve trips. Valve trip is indicated by the Safe-Tak valve moving to the tripped position across the monitor barrel and subsequent reduction in flow. If the valve does not trip, stop all flow at pump and inspect valve and trip mechanism to determine the cause.

SIX MONTHLY

Turn the monitor elevation handwheel to highest elevation and pump grease (medium viscosity) into the fitting in the worm gear housing until excess appears.

Results of standard tests should be recorded on form **FB90**. Any defects should be reported to Technical Services.

TECHNICAL DATA

Twin Line Connection	
Weight	10.9Kg
Width – Folded	23cm
Length – Folded	51cm
Weight – Folded	23cm
Maximum flow	Up to 5000 LPM
Maximum pressure	12 BARS
Construction	Cast aluminium and stainless steel
Monitor tips	Mark 3 Mastermatic and stacker tips