Sports Panel Timed Flow Control

The Timed Flow Control (TFC) on the Horne Sports Panel is a relatively simple device. (See Fig 1).
The **casing** is a brass casting and is integral with the Sports Panel unit. (The sports Panel does not need to be removed from the wall for any likely maintenance.) The **sprayhead** is attached by a screw to the **replaceable TFC cartridge**, which in turn screws into the **casing** from underneath. The **replaceable TFC cartridge** contains a **piston**, a **cylinder** and a **spring**. The upper end of the **casing** is connected to the **pushbutton** by a **capillary tube**.

The timed flow is achieved by means of the **piston** traversing the **cylinder**. The **piston seal** is a uni-directional lip seal which permits the **piston** to move upwards but prevents it from moving downwards by locking in hydraulic pressure. A small leak path around the **piston seal** is provided which results in the **piston** moving downwards very slowly under the action of the **spring**.

How it works

See Fig 1. When connected to a water supply, the water enters the **casing** at the **inlet connection** at the top. It pressurises the internals of the **replaceable TFC cartridge**, but is prevented from reaching the **sprayhead** by the **flow control seal**. The water supply equally pressurises both sides of the **piston** and so exerts no net force on it. It also pressurises the **capillary tube,** which is sealed at the bottom by the **push button** valve.

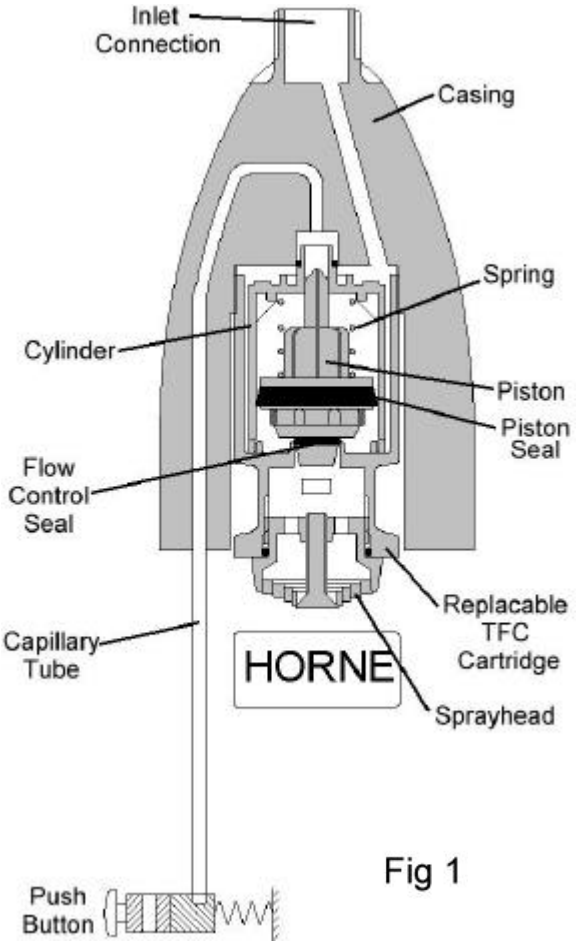

Fig 1

See Fig 2. When the **push button** is pressed, it opens a valve and the water pressure from the upper side of the **piston** is vented through the **capillary tube**. Inlet **supply water pressure** forces the **piston** upwards against the **spring** and this opens the **flow control seal**. The **piston** moves upwards as the contents of the top part of the **cylinder** are discharged through the **capillary tube**. Note that this **piston** takes a couple of seconds to traverse the length of the **cylinder** – the **pushbutton** must be held in for this time or the **piston** will start returning from a middle position. The duration of the flow is dependent on how long it takes for the **piston** to move back down the **cylinder** under spring pressure and for the flow control seal to close. (There is a small leak path built into the cylinder wall to permit the piston to move.) Any grit or debris finding its way into the TFC cartridge may increase the leak rate and thus reduce the flow duration time. Pressing the pushbutton for too short a time will also result in a reduced flow duration time.

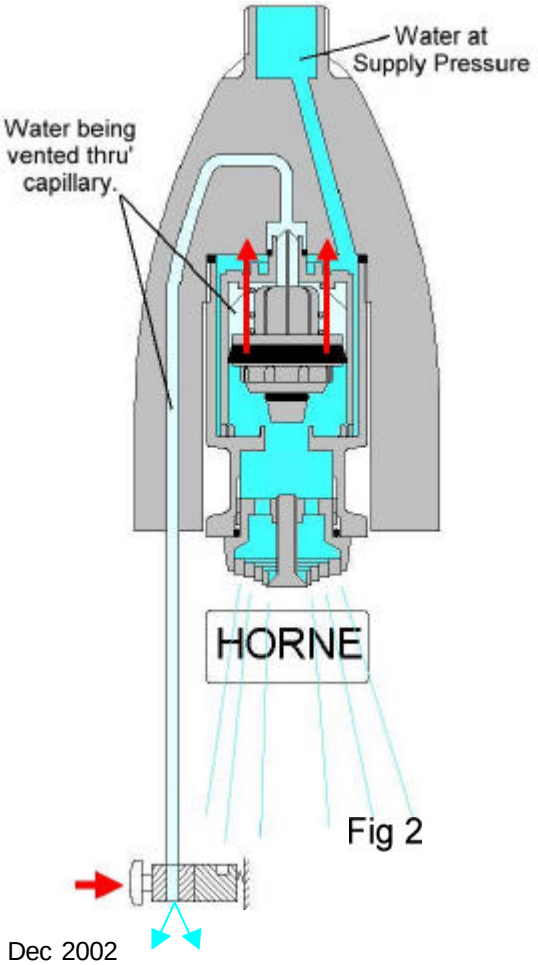

Fig 2

Note that when the panel is first installed, the capillary is full of air, which is compressible and so water will flow from the sprayhead until the air is purged out.

Note also that pressing the pushbutton releases a few ml of water from the valve behind the pushbutton. This is quite normal and is NOT a fault.

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