



# **TOM THUMB RESUSCITATION UNIT (TT400 SERIES).**

## **SERVICING MANUAL.**

### **ADJUSTABLE & PRECISION VALVES**



**ADJUSTABLE VALVE**



**PRECISION VALVE**

**CE 0086**



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This manual is intended to provide information to help qualified maintenance personnel service and repair the Tom Thumb Infant Resuscitation Units – Adjustable and Precision Valves. Basic engineering knowledge and the ability to follow technical instructions are assumed, as are knowledge of oxygen flow rates and the characteristics of operational pressures.

The equipment needed to service the Tom Thumb valves are laid down in this Service manual. In addition a calibrated “Manometer” will be required for test and calibration of the units.

Diagrammatic representations of disassembly and re-assembly are shown in this Service manual.

Servicing personnel must be aware of the potential clinical implications of incorrectly serviced equipment.



## **1. Introduction.**

### Service of the Tom Thumb Resuscitation Unit – Adjustable and Precision Valves.

The Tom Thumb has been designed to require minimal service with very few replaceable items. The accuracy of the pressure gauge, adjustable valve and precision valve should be checked at least every 12 months or when the gauge at zero pressure reads outside the black band.

It is recommended that all O-rings should be replaced every 2-3 years.

The adjustable valve has no user replaceable parts or parts that should suffer from wear; adjustment by the user is not recommended, as specialist tools are required to dismantle and reset. Should the user require in-house servicing of the adjustable valve then full service kits are available from Viamed

Setting of the adjustable valve pressure when carried out in accordance with the relevant procedure will ensure accuracy to  $\pm 2$  cmH<sub>2</sub>O.

The precision valve is factory pre-set and sealed; adjustment by the user is not recommended, as specialist tools are required to dismantle and reset. Should the user require in-house servicing of the precision valve then full service kits are available from Viamed

The precision valve pressure may have been set at manufacture to 20, 30, 40 & 50 cmH<sub>2</sub>O to a tolerance of  $\pm 2$  cmH<sub>2</sub>O, dependent on customer requirements. Setting of the precision valve when carried out in accordance with the relevant procedure will ensure accuracy to  $\pm 2$  cmH<sub>2</sub>O.

If the setting of either the adjustable valve or the precision valve is proven to be outside the required tolerance, the Tom Thumb should be returned to Viamed for servicing. Both valves require specialist tooling to dismantle and reset.



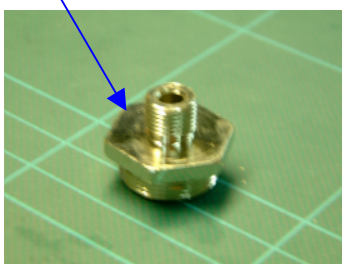
## 2. 0330211 Tom Thumb Adjustable Valve Servicing.

**Important:** Use only “O<sub>2</sub> Compatible” grease and threadlock, during assembly of Tom Thumb Adjustable Valves. Do not use or allow organic greases to enter the Tom Thumb or accessories. Ensure all parts are clean before assembly.

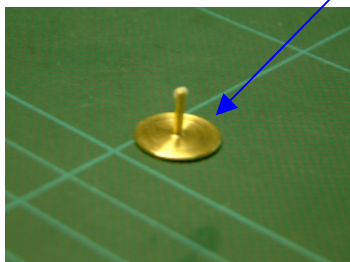
Equipment required. Small flat blade screwdriver, Insertion tool, Adjustable Spanner, Toothbrush, Isopropyl Alcohol, “O<sub>2</sub> Compatible” grease and threadlock.

### Servicing.

1. Unscrew the adjustable valve seating.



2. Remove the adjustable valve seat.

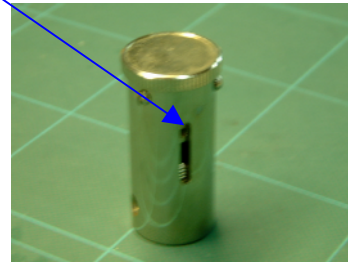
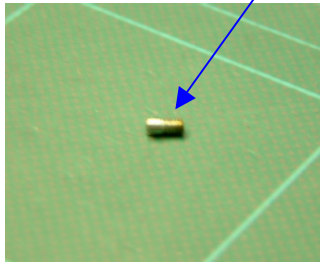


3. Remove the adjustable valve spring from the valve body.

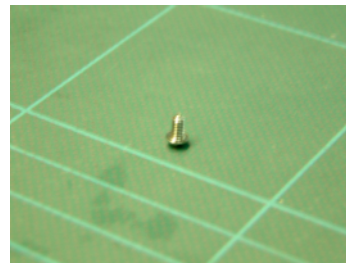
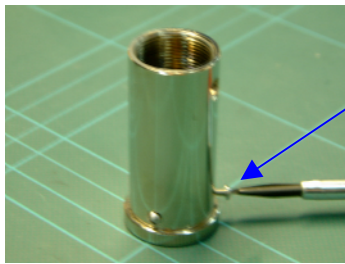




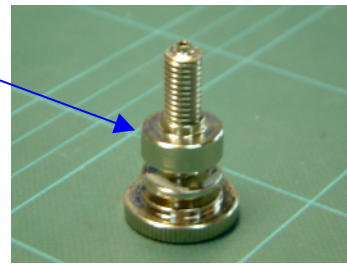
4. Remove the centre screw from the internal stop.



5. Unscrew the side screws from the adjustable valve body.



6. Remove the valve base & internal stop from the adjustable valve body & collar.

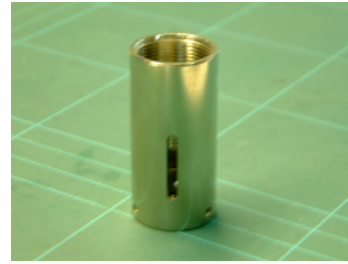


7. Unscrew the adjustable valve internal stop from the adjustable valve screw. Re-grease the thread and base of the adjustable valve screw and screw on the internal stop,  $\frac{3}{4}$  down the base thread.

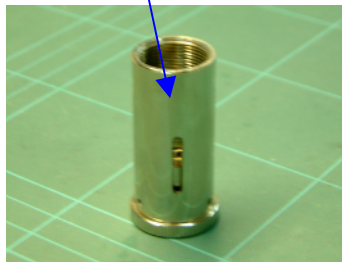




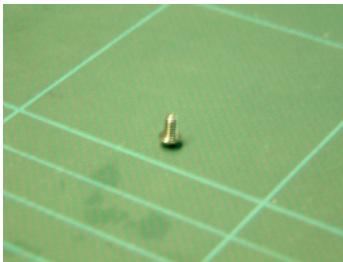
8. Remove the adjustable valve collar and clean. Replace the valve collar into the threaded end of the valve body until wholly visible through the closest end of the slot in the valve body with a gap of 1mm.



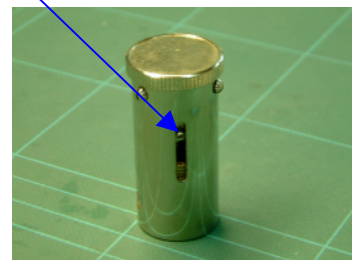
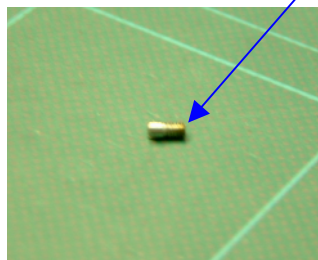
9. Insert the valve base & internal stop in the adjustable valve body & collar.



10. Screw in the side screws in to the adjustable valve body.



11. Gradually turn the adjustable valve screw until the threaded hole in the internal stop is visible through the slot in the body. Fix in place with a centre screw, fully flush with the body.

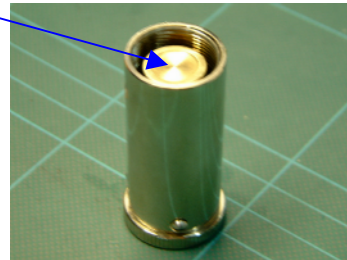
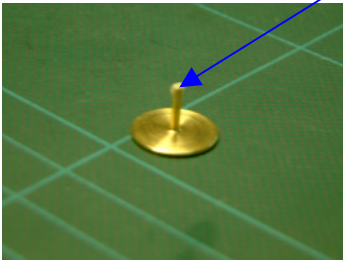




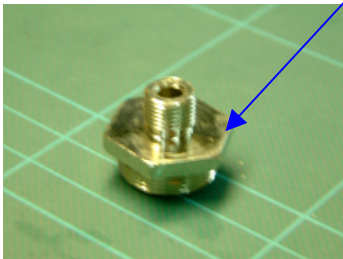
12. Insert the valve spring into the body, over the adjustable valve screw.



13. Lightly re-grease the spindle of the valve seat and insert through the spring. Ensure that the spindle engages with the hole in the adjustable valve screw.



14. Screw on the adjustable valve seating.



15. Ensure the unit is clean prior to assembly with the Tom Thumb.

### **Set up the adjustable valve:**

For the TT480, TT490, TT490-15 & TT495

Set the adjustable valve control to maximum. Cover the holes in the precision valve and the T piece adapter port. Alter the adjustable valve collar until a reading of 43 - 47 cmH<sub>2</sub>O is achieved on the TT pressure gauge. Ensure a reading of 42.2 – 46.1 mbar on the digital manometer. Slightly unscrew the adjustable valve and apply Oxygen-compatible threadlock to the exposed threads. Retighten the adjustable valve with the adjustable spanner.

Recording of all readings can be made on the appropriate Test / Calibration sheet.



### 3. 0330210 Tom Thumb Precision Valve Servicing.

**Important:** Use only “O<sub>2</sub> Compatible” grease and threadlock during assembly of Tom Thumb Precision Valves. Do not use or allow organic greases to enter the Tom Thumb or accessories. Ensure all parts are clean before assembly.

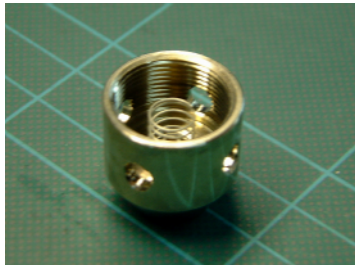
Equipment required. Small flat blade screwdriver, 6mm flat blade screwdriver, Adjustable Spanner, Toothbrush, Isopropyl Alcohol, “O<sub>2</sub> Compatible” grease and thread-lock.

#### Servicing.

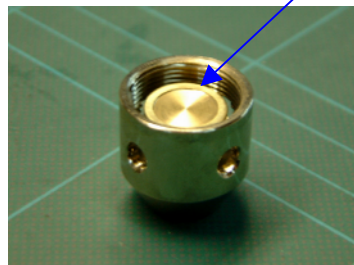
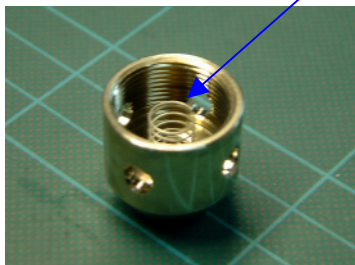
1. Unscrew the valve seating from the precision valve body and clean off any sealant.



2. Remove the valve seat and spring and lightly re-grease the valve seat spindle. Clean off any sealant from the valve body. Remove valve center adjusting screw and clean off sealant. Refit the adjusting screw.



3. Insert valve seat spindle through the spring and into the precision valve adjustable screw.





4. Apply oxygen compatible sealant and screw on the valve seating on the precision valve body and tighten.



5. Ensure the unit is clean prior to assembly with the Tom Thumb.

### **Set up the precision valve:**

For the TT480, TT490, TT490-15 & TT495

Slightly unscrew the precision valve adjustable screw and apply Oxygen-compatible threadlock to the exposed threads. Screw into the precision valve body until flush. Cover the holes in the adjustable valve and the T piece adapter port. Carefully adjust the precision valve screw in quarter turns to achieve a reading on the TT pressure gauge of 3.0 cmH<sub>2</sub>O greater than the reading recorded at (8) (clockwise adjustment on precision valve screw to increase).

For the TT460

Slightly unscrew the precision valve adjustable screw and apply Oxygen-compatible threadlock to the exposed threads. Screw into the precision valve body until flush. Cover the T piece adapter port. Carefully adjust the precision valve screw in quarter turns to achieve a reading on the digital manometer of 42.2 – 46.1 mbar (clockwise adjustment on precision valve screw to increase).

Recording of all readings can be made on the appropriate Test / Calibration sheet.

