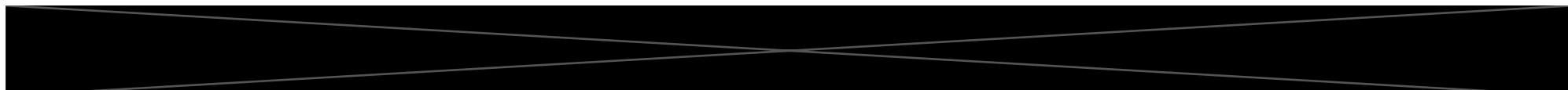


Record of installation relating to

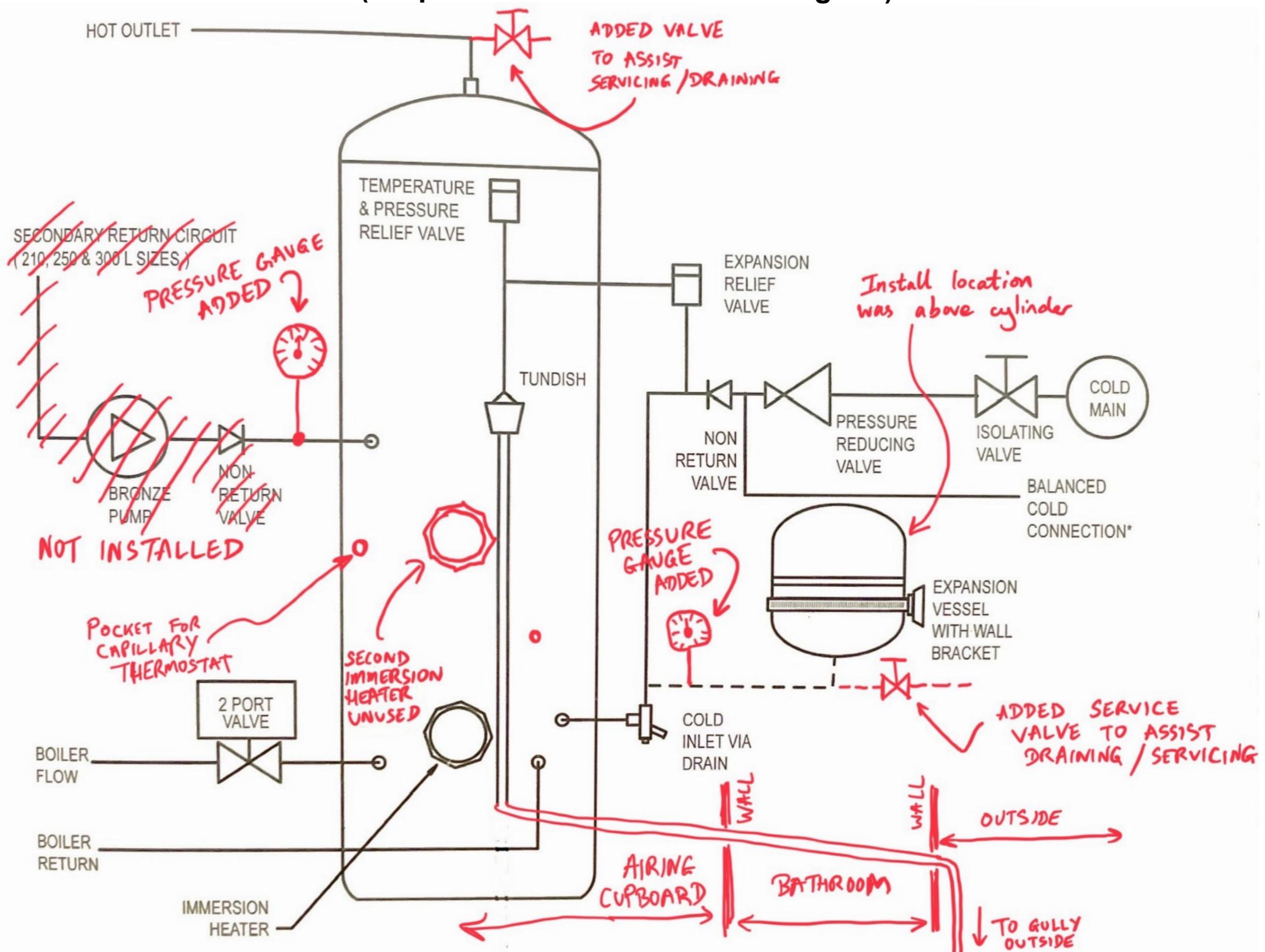
**Building notice
24/03535/BN**



28th Sept 2024

Schematic of new system as built

(adapted from manufacturer's diagram)



Product description

Hot Water Energy Storage
Unvented Cylinders
GB & NI

SPECIFICATION DETAILS

The unvented cylinder is made from Duplex stainless steel for excellent corrosion resistance. The cylinder has a strong rust-proofed steel case and is highly insulated with environmentally-friendly foam. Further details are below.

MATERIALS

- Inner shell - Duplex stainless steel
- Coil - 22mm diameter stainless steel
- Bosses - Stainless steel
- Polyurethane CFC- and HCFC-free foam insulation. This insulation has an Ozone Depletion Potential of Zero and a Global Warming Potential of 3.1.
- Casing - galvanized steel, durable finish
- Anode - none fitted/required

All cylinders are welded using our advanced TIG welding production methods, under a controlled oxygen purged process, to maximize the corrosion resistant qualities of the high-grade Duplex stainless steel. Every cylinder is checked using 15 bar pressure testing.

Table 3: Pressure specifications

Maximum Inlet Water Pressure	12.0 bar
Operating Pressure/Maximum Design Pressure	3.0 bar
Expansion Valve Opening Pressure	6.0 bar
Expansion Vessel Charge Pressure	3.0 bar
Maximum Operating Pressure	7.0 bar
Opening Pressure of T & P Valve	7.0 bar
Opening Temperature of T & P Valve	90°C
Maximum Pressure on Primary Circuit (Indirect, Heat Pump, Solar Coil)	3.5 bar

Table 4: Immersion element specifications

Element Rating	3kW 240V
Thread Type	1 1/4" BSP
Fuse Requirement	13A via Double Pole Switch
Control Thermostat for Element Temperature Range	45°C - 65°C
High Limit Thermostat for Element Temperature Set Point	85°C

Installation & Maintenance Instructions for an unvented hot water cylinder with external thermal expansion

IMMERSION HEATER

- 1 1/4" BSP parallel threaded head
- Long life incoloy sheathed low noise element and thermostat pocket
- Brazed construction
- Combined thermostat and safety cut-out
- Element rating 3kW at 240V A/C

Smart control fitted to the lower immersion heater on selected models only, please refer to insert sheet for details.

GUARANTEE

The inner cylinder carries a 25-year guarantee against faulty materials or manufacture on indirect and direct models, 10 years for all heat pump models. All parts supplied with the cylinder carry a 2-year guarantee. All guarantees must be registered at www.kingspanenviro.com/guarantee or by completing and returning the guarantee card on page 28.

FLOW RATES

Our cylinders are renowned for their fast flow rates. The graph on the insert sheet illustrates the speed at which hot water can be distributed reliably throughout the home.

Hot Water Energy Storage
Unvented Cylinders
GB & NI

PRODUCT DIAGRAMS (CONTINUED)

INDIRECT

Installation & Maintenance Instructions for an unvented hot water cylinder with external thermal expansion

CONNECTIONS:

- A 22mm Cold feed with dip pipe to diffuser in bottom of cylinder (1" Female BSP connection on 400 & 500L model with no defuser)
- B 22mm Hot water outlet (1" Female BSP connection on 400 & 500L model)
- C1 Immersion heater
- C2 Secondary immersion heater - 250 litre & above only
- D1 22mm Boiler coil connections
- D2 22mm Solar coil connections
- E 1/2" Temperature relief valve - 90L to 300L 3/4" Temperature relief valve - 400L & 500L (factory-fitted to cylinder)
- F 22mm Secondary return - for cylinders with a capacity of 210 litres and above only
- G1 Dry stat pocket
- G2 Dry stat pocket

H1 & H2: Destratification connections
400 & 500 litre cylinders only.

	H1 (mm)	H2 (mm)
400	197	1247
500	197	1547

THIS MODEL INSTALLED

Capacity (L)	Height (mm)	Dia (mm)	A (mm)	B (mm)	C1 (mm)	C2 (mm)	D1 (mm)	D2 (mm)	E (mm)	F (mm)	G1 (mm)	G2 (mm)
90	745	550	390	745	330	n/a	290	n/a	520	n/a	385	n/a
120	933	550	390	933	330	n/a	290	n/a	705	n/a	385	n/a
150	1120	550	465	1120	370	n/a	330	n/a	895	n/a	425	n/a
180	1308	550	465	1308	370	n/a	330	n/a	1080	n/a	425	n/a
210	1496	550	465	1496	405	n/a	365	n/a	1270	1150	465	n/a
250	1746	550	465	1746	405	950	365	n/a	1520	1400	560	n/a
300	2055	550	465	2055	405	1100	365	n/a	1830	1600	660	n/a
400	1657	693	197	1657	767	1057	692	n/a	1387	1347	827	n/a
500	1946	693	197	1946	767	1357	692	n/a	1687	1647	827	n/a

Note: Please refer to the specification insert sheet for performance details on individual cylinders.

10 APR 2018

14 APR 2018

Commissioning data for new system:

MAINS PRESSURE HOT WATER STORAGE SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

Customer Name _____
Address _____
Cylinder Make _____
Cylinder Serial Number **7573460**
Commissioned by (print name) _____
Company Name _____
Company Address _____

Commissioning Date **30th SEPT 2024**

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:
Building Regulations Notification Number (if applicable) _____

ALL SYSTEMS PRIMARY SETTINGS (indirect heating only)

Is the primary circuit a sealed or open vented system? Sealed Open **60** °C

What is the maximum primary flow temperature? _____

ALL SYSTEMS

What is the incoming static cold water pressure at the inlet to the system? **2.0 - 2.4** bar

Has a strainer been cleaned of installation debris (if fitted)? Yes No

Is the installation in a hard water area (above 200ppm)? Yes No

If yes, has a water scale reducer been fitted? Yes No

What type of scale reducer has been fitted? _____

What is the hot water thermostatic set temperature? **48** °C

What is the maximum hot water flow rate at set thermostat temperature (measured at high flow outlet)? **25** l/min

Time and temperature controls have been fitted in compliance with Part L of the Building Regulations? Y Plan S Plan Other

Type of control system (if applicable) Yes No **48** °C

Is the cylinder solar (or other renewable) compatible? Yes No

What is the hot water temperature at the nearest outlet? _____

All appropriate pipes have been insulated up to 1 metre or the point where they become concealed _____

UNVENTED SYSTEMS ONLY

Where is the pressure reducing valve situated (if fitted)? **ON WALL TOP RIGHT OF CYLINDER**

What is the pressure reducing valve setting? **2.0** bar

Has a combined temperature and pressure relief valve and expansion valve been fitted and discharge tested? Yes No

The tank and discharge pipework have been connected and terminated to Part G of the Building Regulations Yes No

Are all energy sources fitted with a cut out device? Yes No

Has the expansion vessel or internal air space been checked? Yes No

THERMAL STORES ONLY

What store temperature is achievable? _____

What is the maximum hot water temperature? _____

ALL INSTALLATIONS

The hot water system complies with the appropriate Building Regulations Yes

The system has been installed and commissioned in accordance with the manufacturer's instructions Yes

The system controls have been demonstrated to and understood by the customer Yes

The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer Yes

Commissioning Engineer's Signature _____
Customer's Signature _____
(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

benchmark
THE SOURCE OF QUALITY FOR THE HOTEL, RESTAURANT,
AND SEVERAL OTHER INDUSTRIES
www.centralheating.co.uk

Commissioning checklist required by Manufacturer.

- **Kingspan 250 litre unvented indirect hot water cylinder AUI250ERP:**

Max permitted inlet pressure: 12 bar, max operating pressure: 7 bar, volume 250 litres, 19 litre expansion vessel supplied by cylinder manufacturer.

- TPRV opens at 7.0bar or 90 degrees C.
- Static mains pressure at cylinder location is between 2.0 and 2.5 bar depending on time of day. Dynamic pressure is between 1.7 bar and 2.0 bar.
- Cylinder inlet pressure regulator has been set to 2.0 bar (lowest static mains pressure) and expansion vessel charge at 1.6 bar (just below minimum dynamic pressure to avoid bladder bottoming out).
- Boiler flow/return is vented system with head of 2.0 meter (0.2 bar) at location of coil.
- Indirect heating: primary temperature control is boiler thermostat, first safety is boiler over-temperature cutout (Part G: 3.21), second safety is TPRV, third safety is capillary thermostat in cylinder pocket interfaced to non-self resetting closure of flow valve.
- Immersion heating: primary temperature control is immersion thermostat, first safety is non-self resetting immersion cutout, second safety is TPRV (as Part G: 3.18).

**Next two slides show
old installation and its
removal:**

Old Indirect Vented HW Cylinder



New unvented cylinder beside old vented

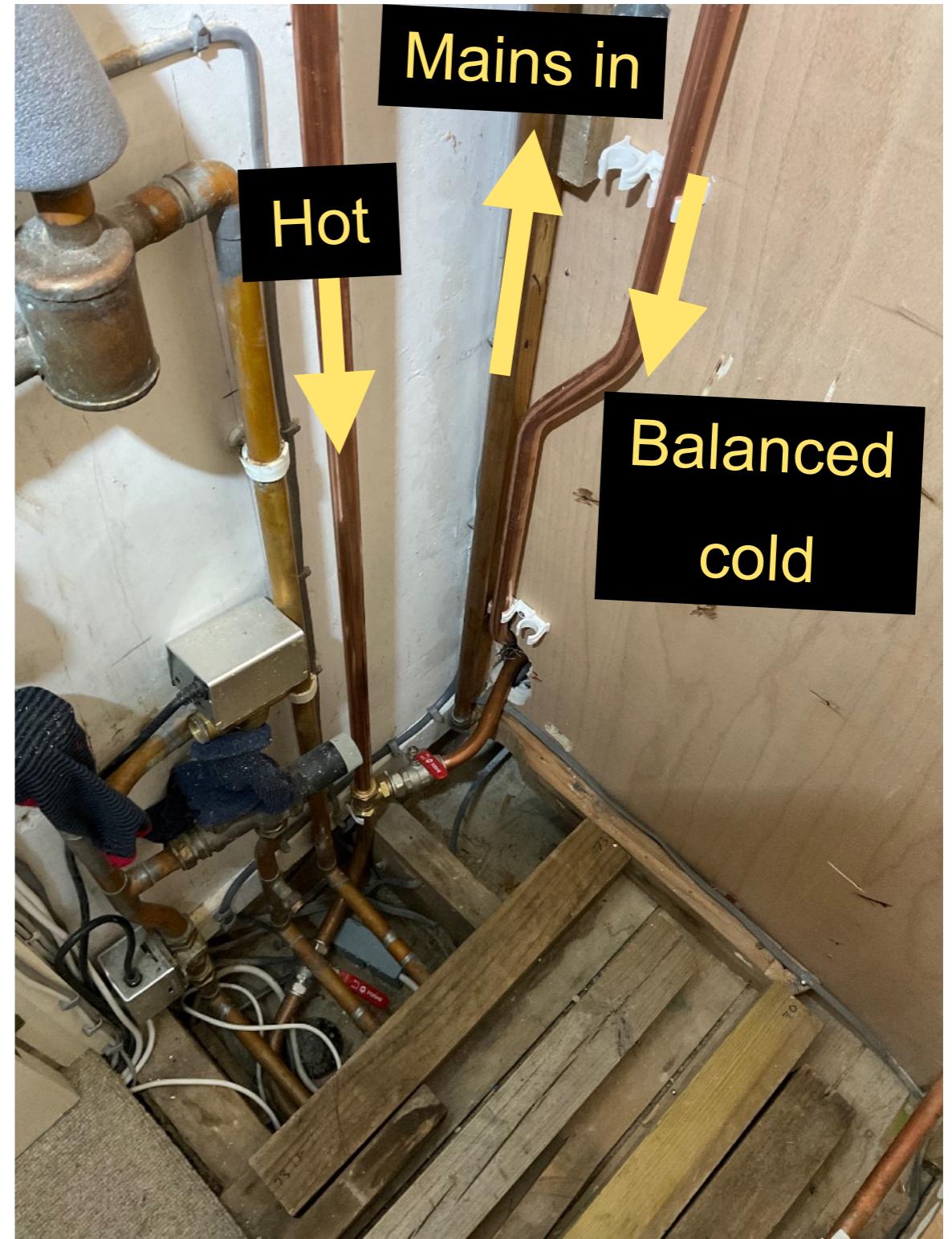
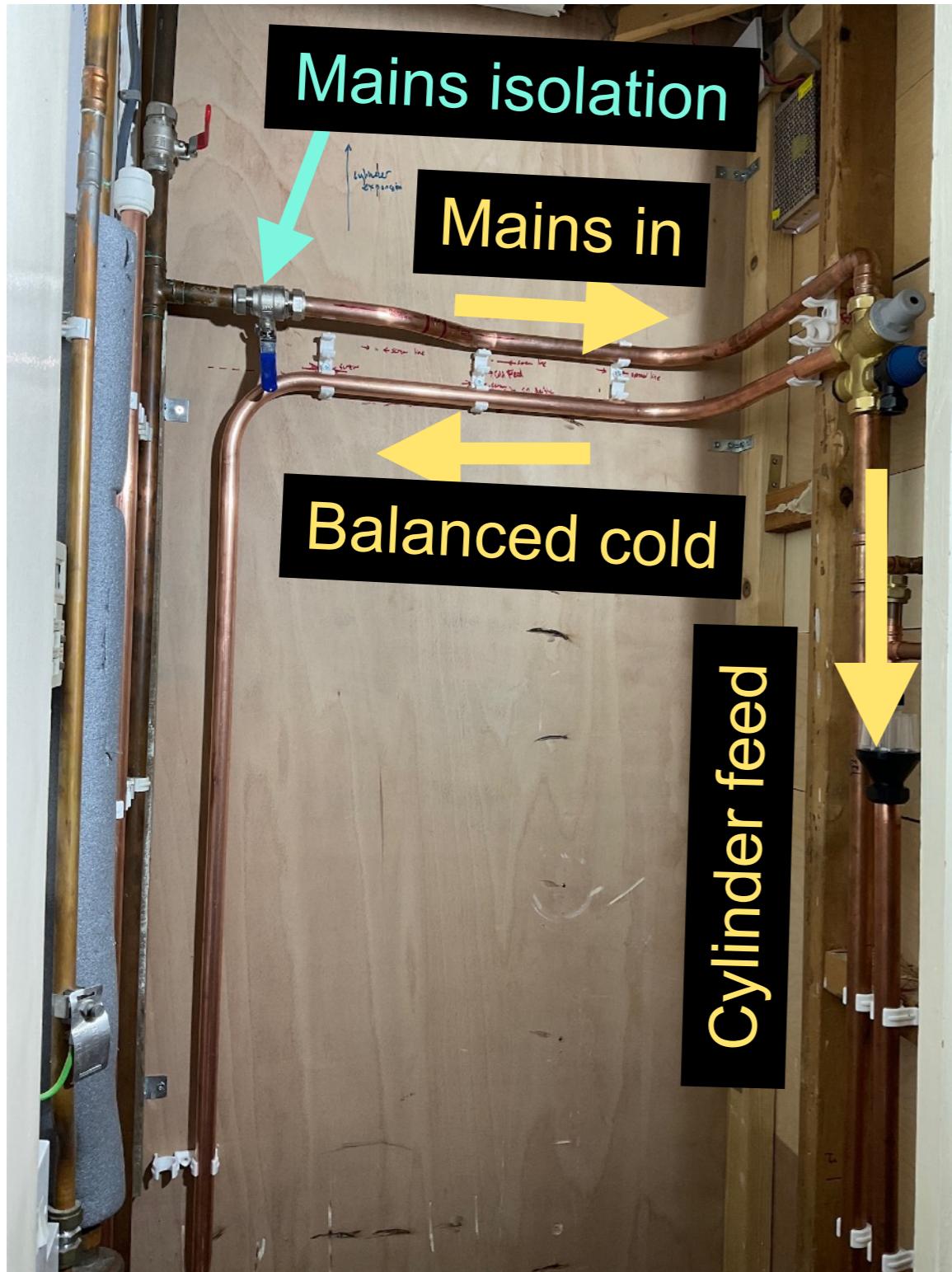


Old header tank: attic and its removal



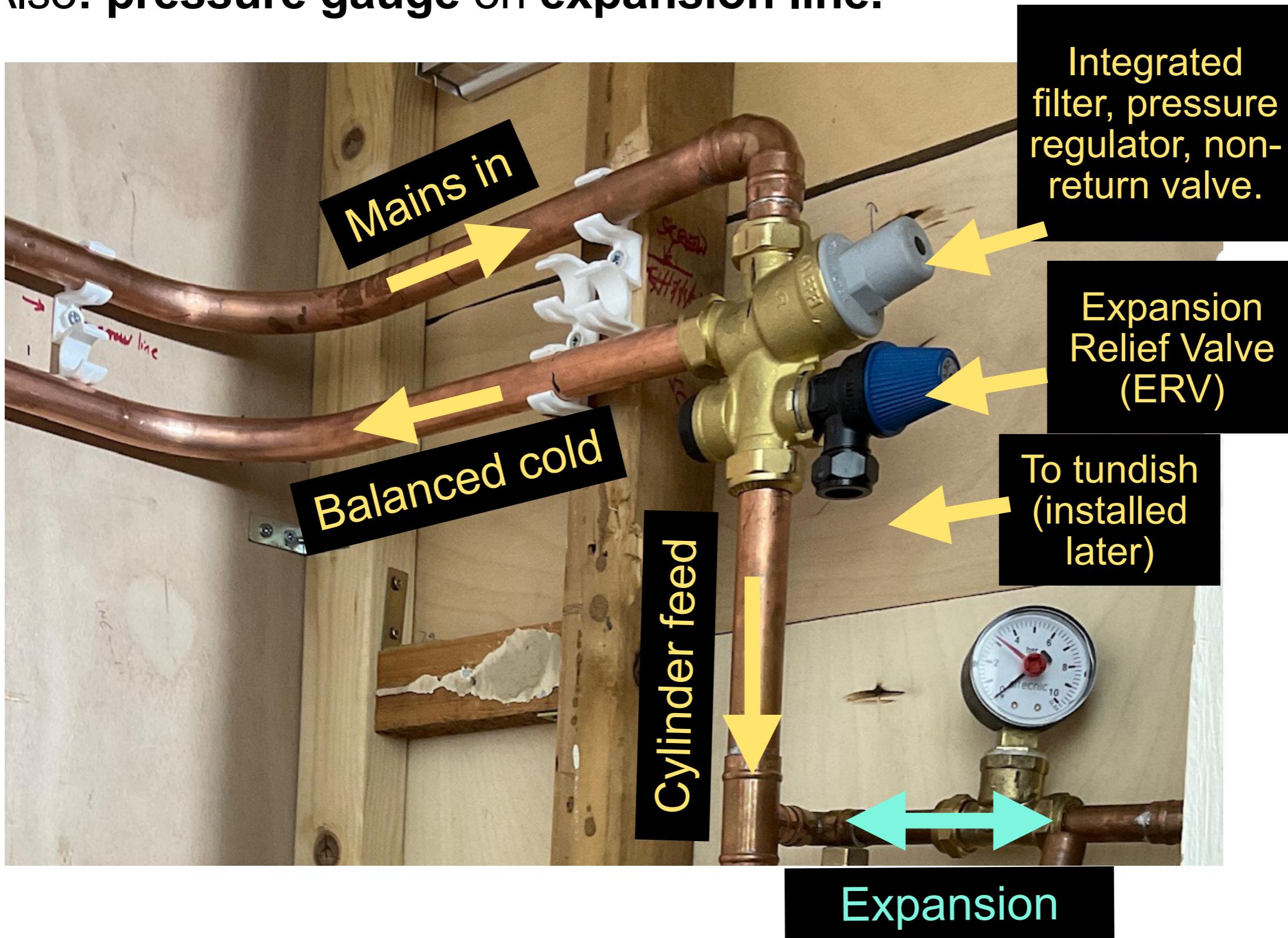
Subsequent pages
show **new** cylinder and
associated parts being
installed:

Cold feed (in) and balanced cold (out)



Combination valve: (i) filter, (ii) pressure regulator, (iii) expansion relief valve, (iv) non-return valve.

Also: pressure gauge on expansion line.



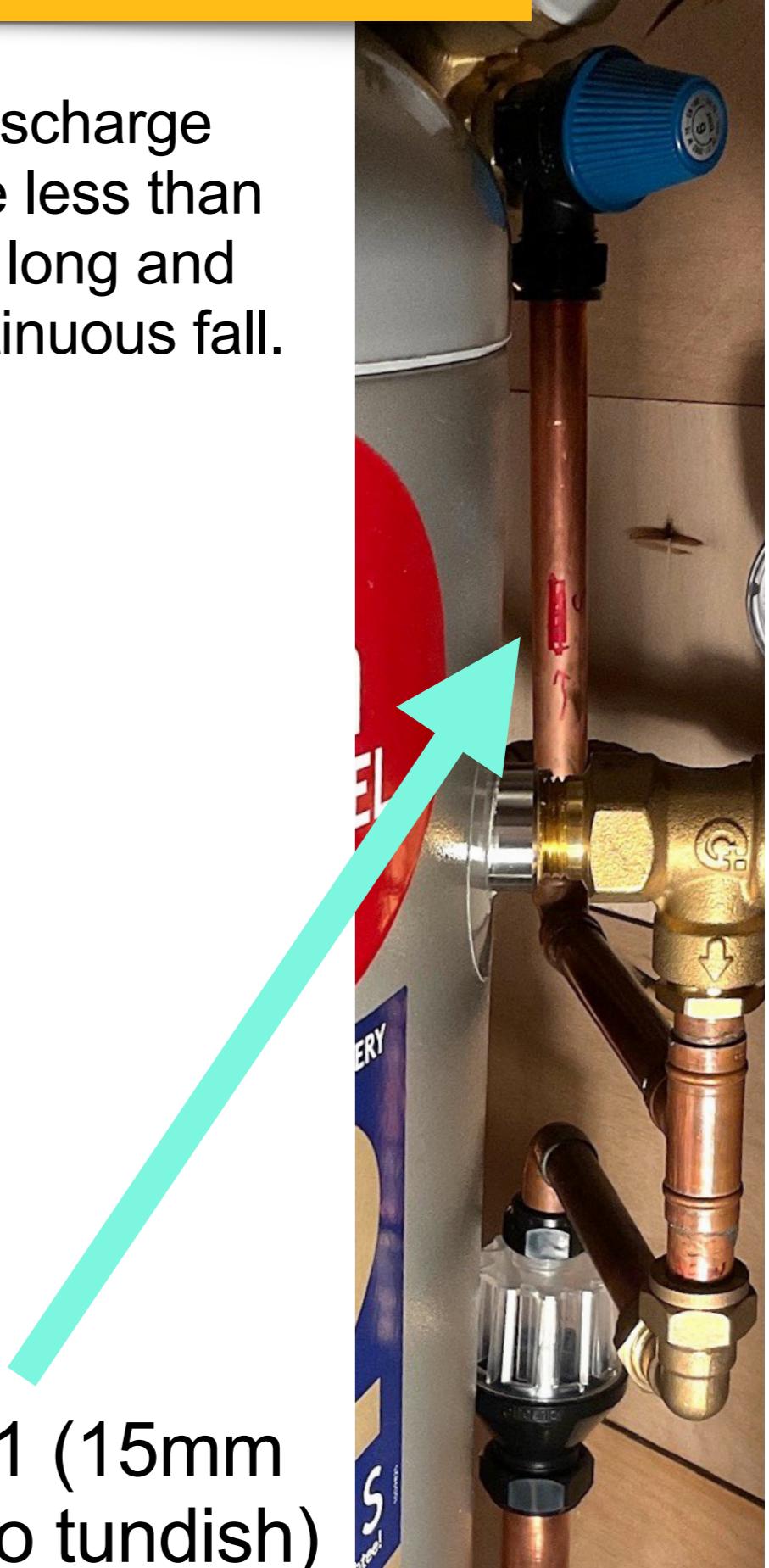
Pipework from pressure relief valve to tundish not installed a time of photo. See later pictures.

Discharge pipe D1 from TPRV and ERV to tundish



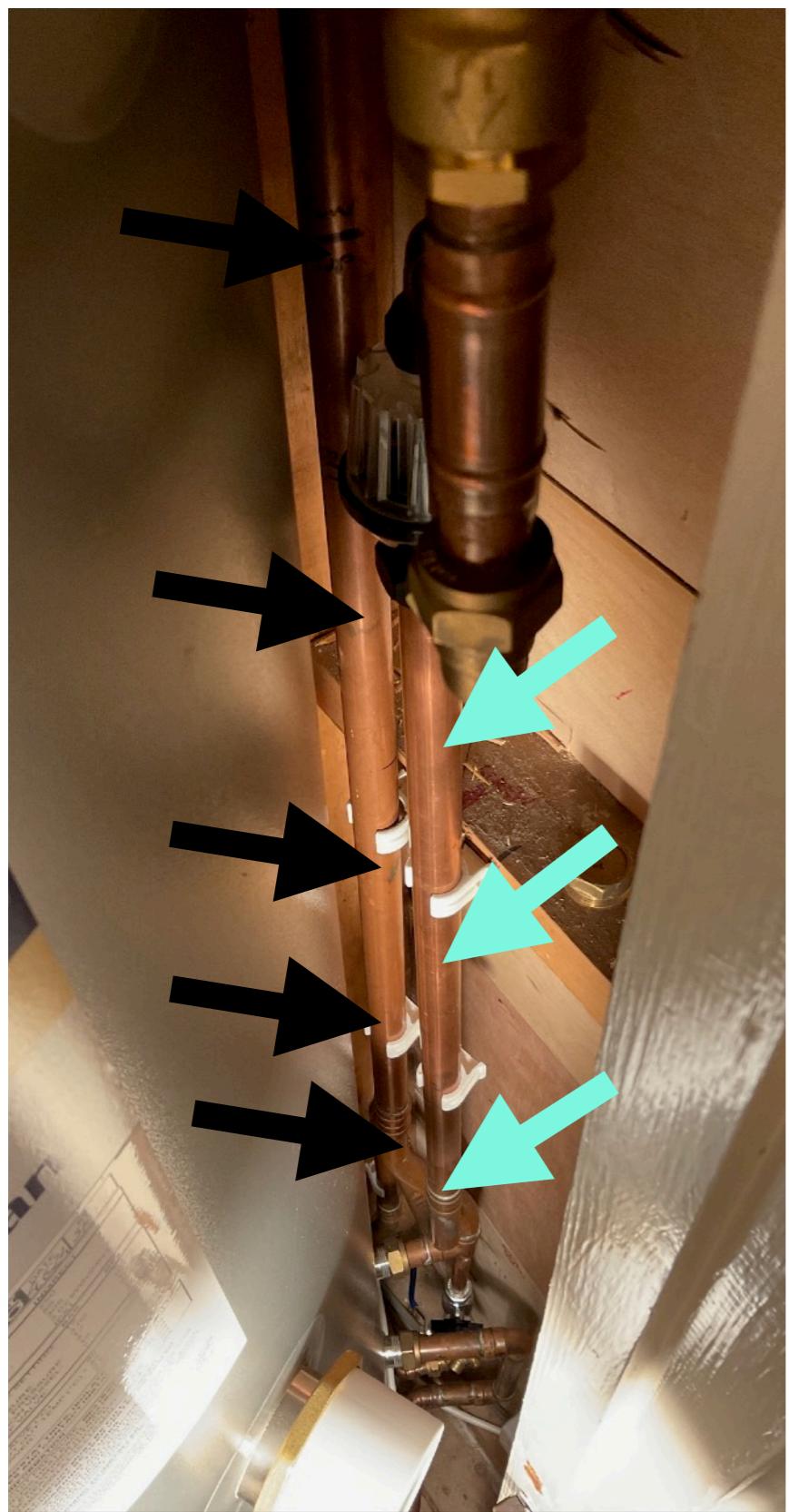
Discharge pipe D1 (15mm copper from **TPRV** to tundish)

Both discharge pipes are less than 600mm long and have continuous fall.

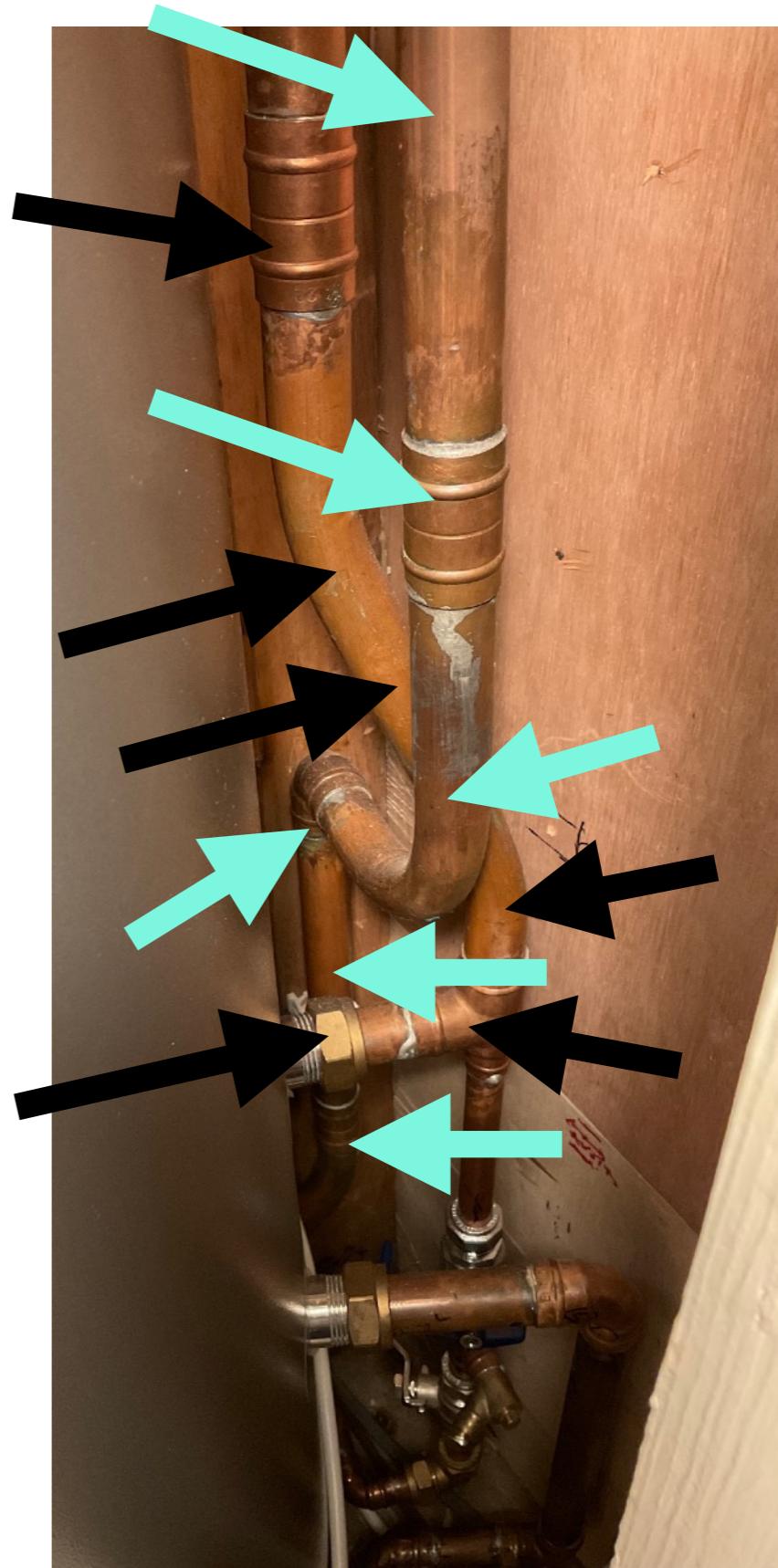


Discharge pipe D1 (15mm copper from **ERV** to tundish)

Discharge pipe D2 (22mm copper from tundish to drain (start))

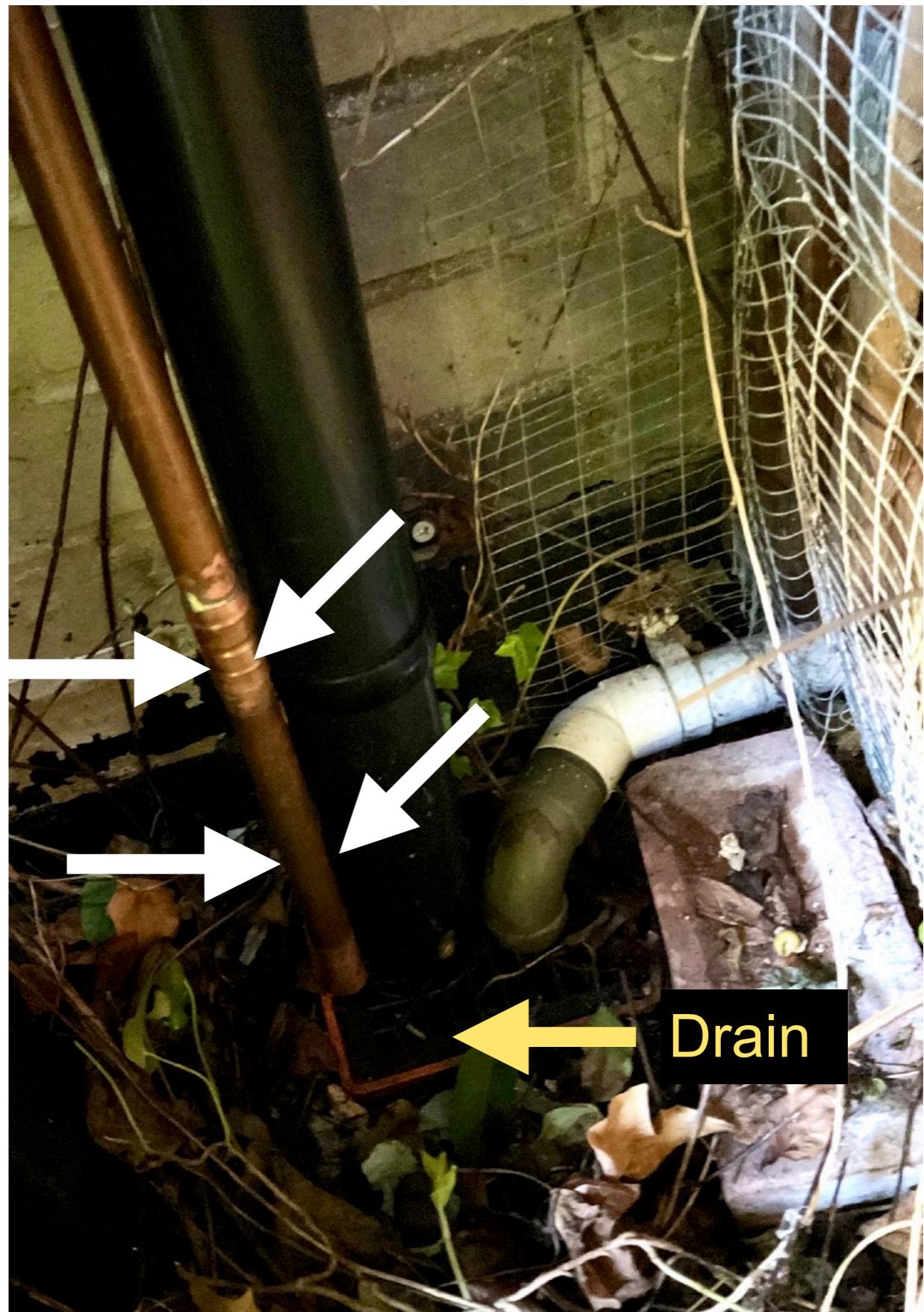


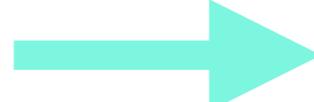
Vertical drop of D2 below tundish is approx 600mm
(and so exceeds minimum 300mm)



← Feed to Cylinder
← = D2 Discharge Pipe

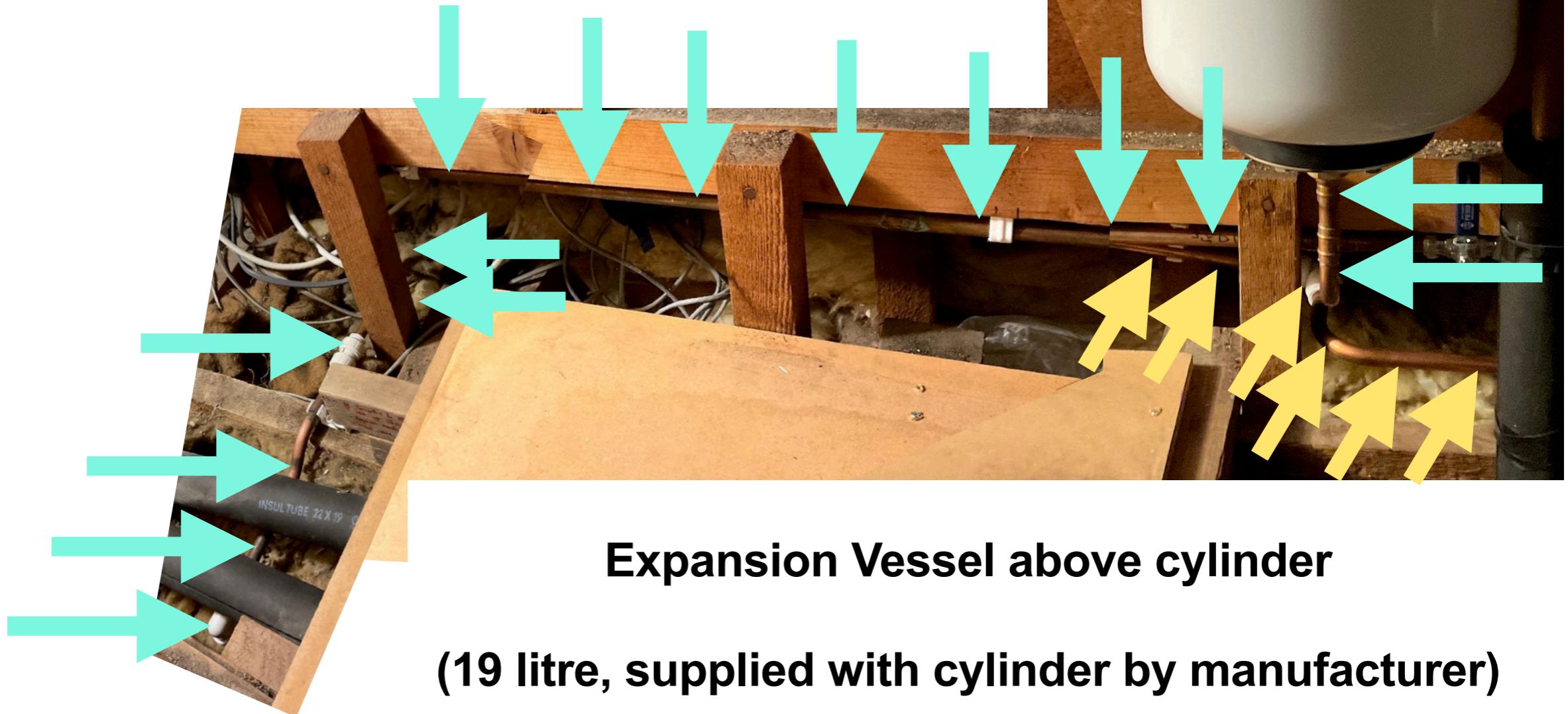
Discharge pipe D2 (22mm copper from tundish to drain (outside))



Expansion pipe = 

Unrelated pipe = 

Expansion pipe has no valves between expansion vessel and cylinder

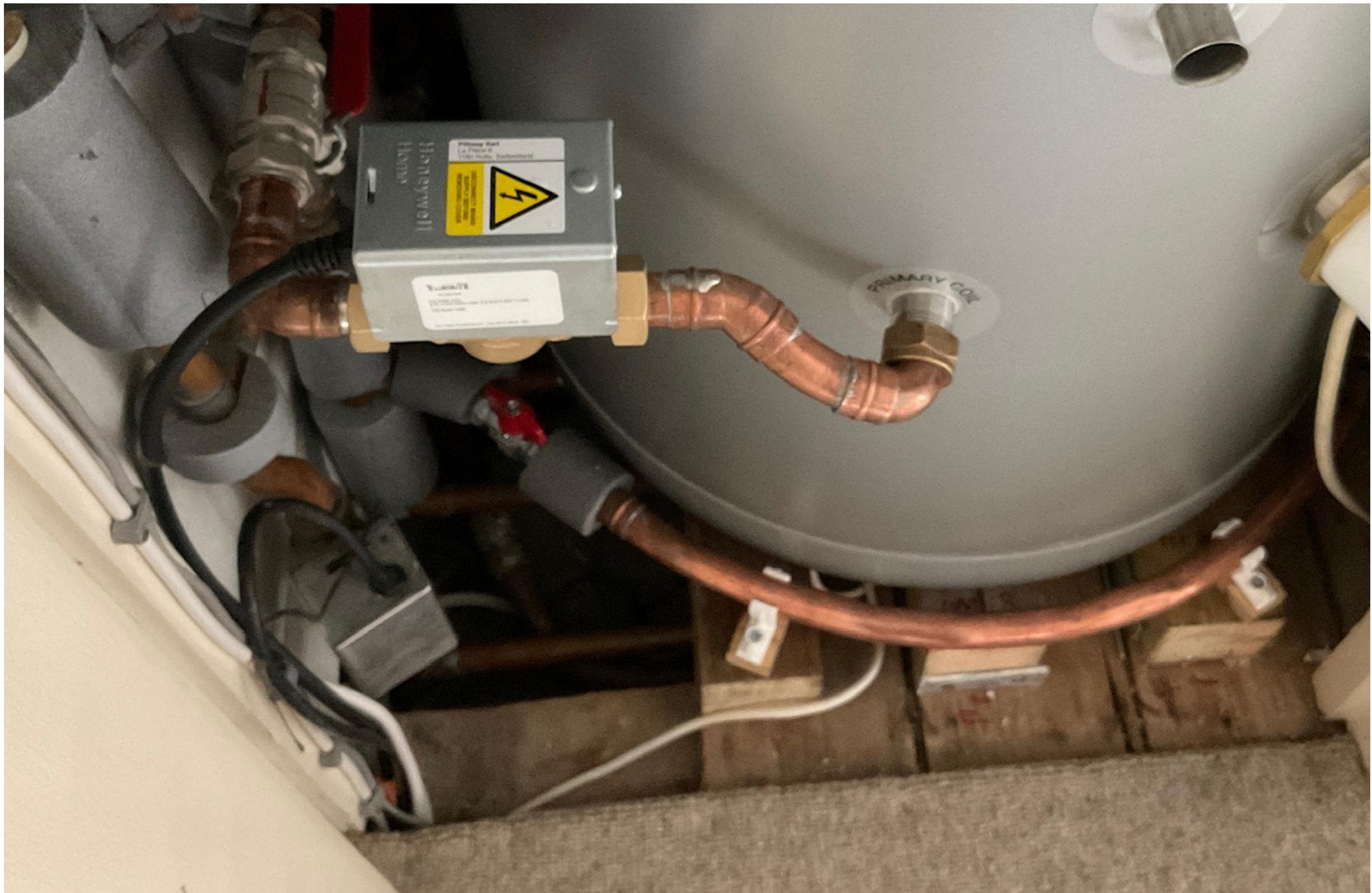


Pressure gauge and service valve on secondary return.

Capillary thermostat (and spare) is required secondary safety measure against over heating.

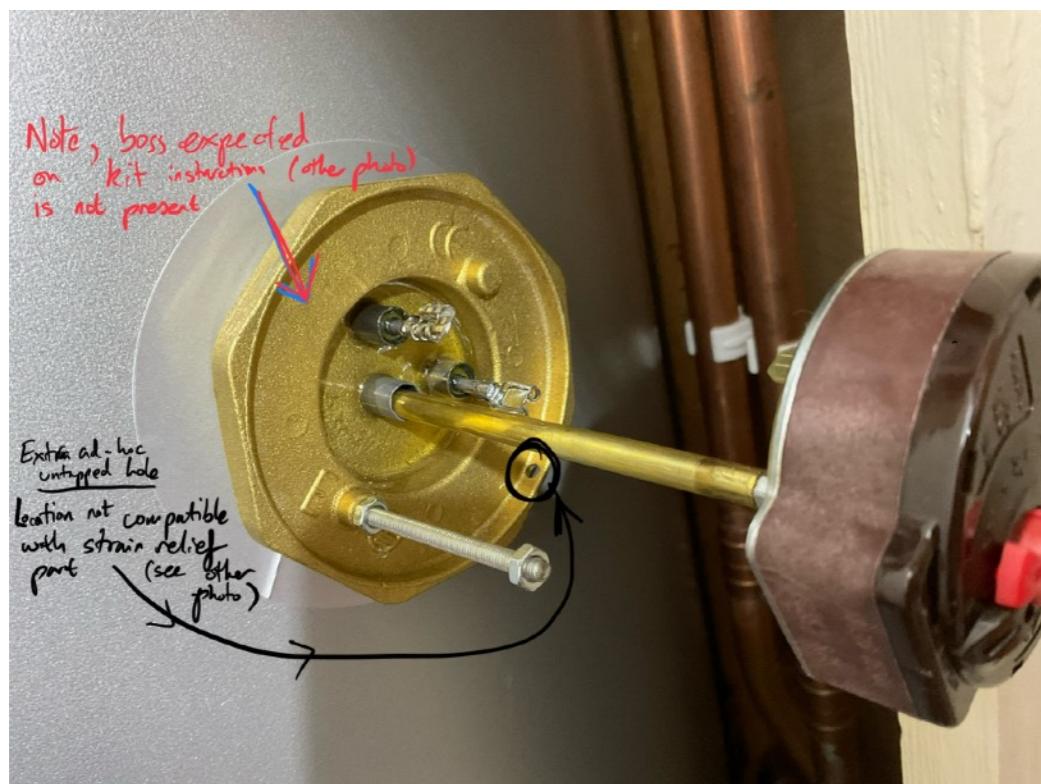
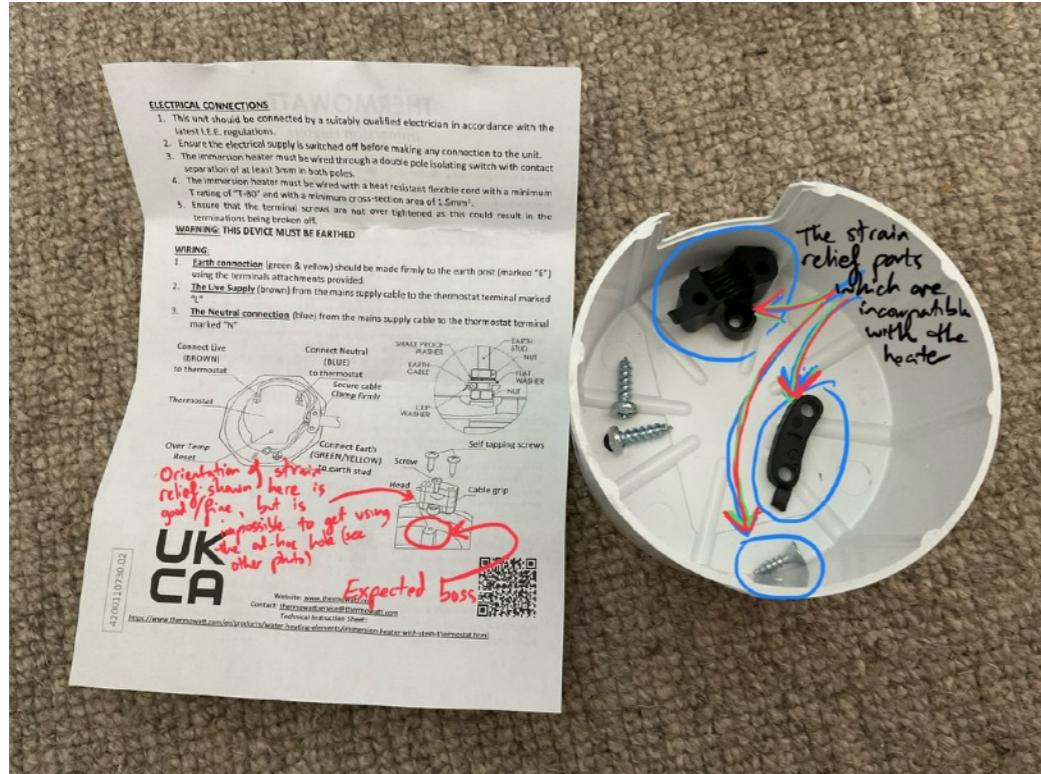


Repositioned HW control valve (on flow from boiler) and return to boiler (below)

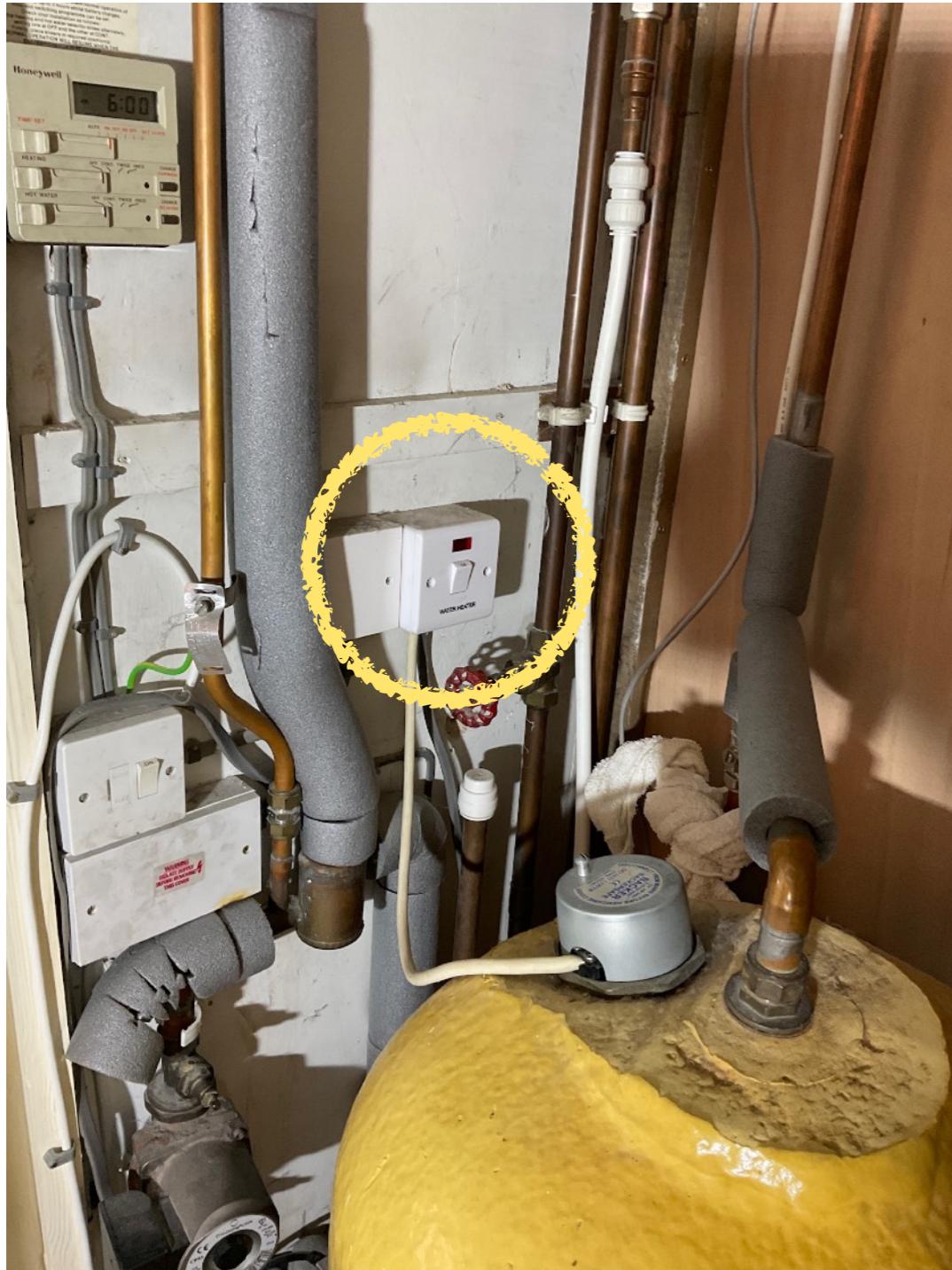


Manufacturer-supplied immersion heaters came unusable strain relief fittings for the cable ...

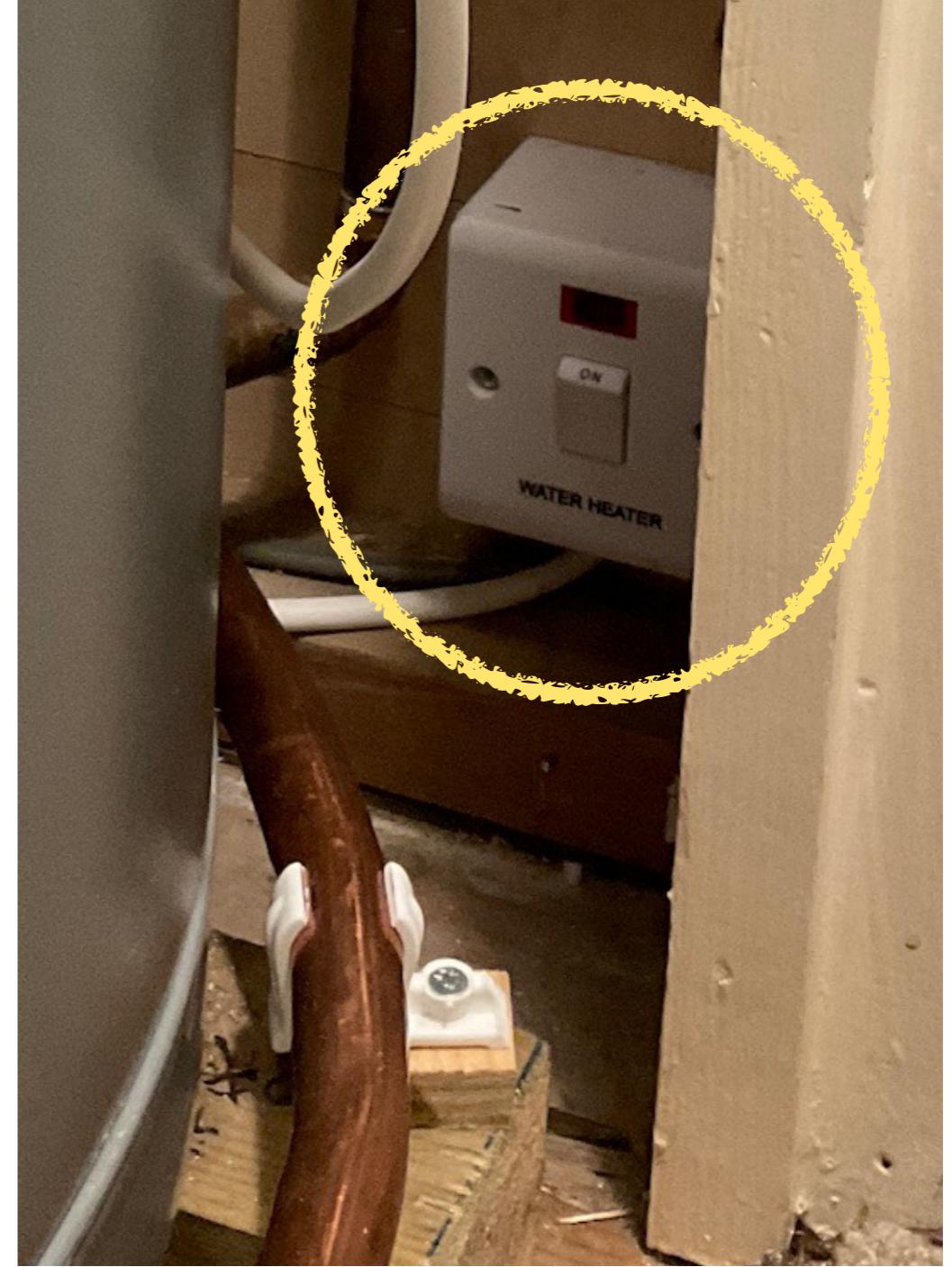
... so had to make own strain relief fitting to ensure cable properly supported.



Old immersion supply reused, but relocated.



Old location on **left** wall.



New location on **right** wall.

Finished cylinder

