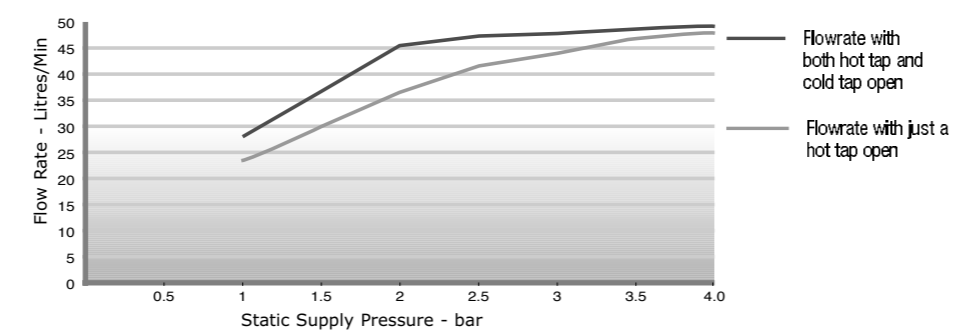


SPECIFICATION SUMMARY

Flowrate Performance

Greenskies Unvented v Flow Performance

(measured at 50% Backpressure to simulate the effect of the drawoff pipework and taps)



Materials

Inner shell - Stainless Steel
 Coil - 22mm Diameter 316L Stainless Steel
 Bosses - 316L Stainless Steel
 Every Greenskies cylinder is water tested to a pressure of 15 bar.

Insulation

Fire retardant polyurethane foam, nominal thickness 50mm.
 The foam is CFC-Free and HCFC-Free.
 The foam has an ozone depletion potential of ZERO.

Casework

Zintec corrosion proofed steels throughout
 Durable, oven hardened, gloss silver grey paint finish

Anode

None fitted / none required

Expansion Vessel

19 Litre size with 180, 210 and 250 Litre models
 24 Litre size with 300 Litre model

Control Settings

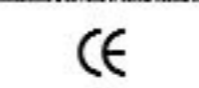
Pressure Reducing Valve - 3 Bar
 Expansion Relief Valve - 6 Bar
 Pressure and Temperature Relief Valve - 7 Bar/90°C
 High Limit Thermostat in Dual Thermostat - 85°C
 High Limit Thermostat in Immersion Heater - 85°C
 High Limit Stat Solar - 85°C

Immersion Heater

1½" BSP Parallel Threaded Head
 Long Life Incoloy Sheathed Low Noise Element 14" Long
 Long Life Incoloy Sheathed Thermostat Pocket 11" Long
 Brazed Construction
 11" Combined Thermostat and Safety Cut-Out
 Element Rating 3Kw at 240V A/C

Approvals

- WRAS Approved to the Water Regulations
 - WRC-NSF Approved to Building Regulations' G3 & L
 - CE Compliant and fitted with a
 BEAB Approved Immersion Heater



WORCESTER GREENSKIES

Twin coil indirect unvented solar cylinder



Only for use with one fossil fuel appliance and one solar package
 (the use of two fossil fuel appliances is not permitted)

IMPORTANT NOTE TO THE INSTALLER

Read these installation and maintenance instructions before commencing. Unvented cylinders are a controlled service as defined in the latest edition of the building regulations and should only be fitted by a competent person.

The relevant regulations are : England and Wales – Building Regulation G3, Scotland – Technical Standard P3, N Ireland – Building Regulation P5

After installation the benchmark log book must be completed and left along with these instructions with the householder for future reference.

Instruction Manual Installation Commissioning & Servicing



Worcester, Bosch Group
 Cotswold Way, Warndon, Worcester WR4 9SW

Tel. 01905 754624 Fax. 01905 754619

www.worcester-bosch.co.uk

Worcester Bosch Group is a trading name of BBT Thermotechnology UK Ltd.
 Part No. 8716-113-445
 Issue 1 Revision A





INTRODUCTION

The Worcester Greenskies cylinder is a Stainless Steel Unvented Twin Coil Storage vessel specifically designed to be installed in conjunction with the Worcester Greenskies solar package. Should installation with an alternative solar package be considered please seek guidance to ensure compatibility prior to commencing installation. The Greenskies cylinder is not compatible in an installation utilising two individual boilers. The Greenskies solar cylinder is made from Duplex Stainless Steel for excellent corrosion resistance. Greenskies cylinders have a strong rust-proofed steel case and are well insulated with environmentally friendly foam. It is available in a range of 4 sizes from 180 – 300 litres. The Greenskies cylinder is supplied complete with all the necessary safety and control devices needed to connect to the cold water mains. All are pre-adjusted. High quality controls have been selected to combine high flowrate performance with minimum pressure drop to make Greenskies cylinders perform well in most areas. Greenskies cylinders are WRAS approved to show compliance with Building Regulations G3 and Part L.

STORAGE PRIOR TO INSTALLATION

The Greenskies cylinder should be stored in its original packaging in an upright position in an area free from excessive damp.

TECHNICAL SPECIFICATION

Worcester Greenskies



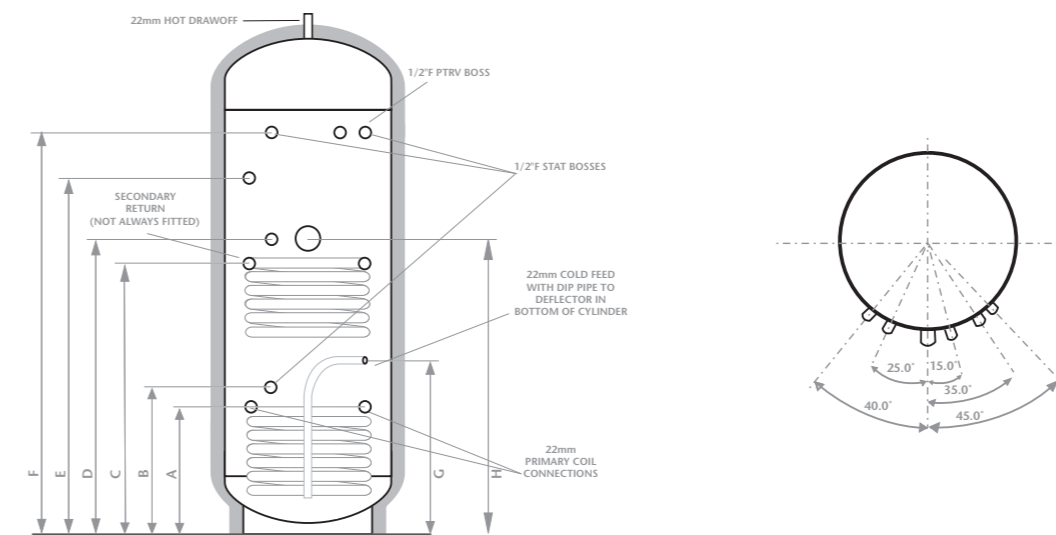
UNPACKING THE UNIT

The Greenskies cylinder comes complete with all the fittings you need to complete the installation.

TWIN COIL PARTS

- Inlet Control set
- Temp & Pressure relief valve
- 15mm / 22mm Tundish
- Expansion vessel
- Wall mounting bracket
- 1 x 15mm end feed tee
- Expansion vessel hose
- Immersion Heater
- 2 x Two port valves
- Wiring centre
- Dual Thermostat
- High limit Thermostat
- Installation & Maintenance Instructions inc Benchmark Logbook

<p>Expansion Vessel Part Nos.: 19Litre - 8-716-113-416-0 24 Litre - 8-716-113-418-0</p>		<p>Expansion Vessel Hose Part No. 8-716-113-414-0</p>	
<p>Wall Mounting Kit for Expansion Vessel Part No. 8-716-113-415-0</p>		<p>High Flow Rate Inlet Control Set Part No. 8-716-113-407-0</p>	
<p>10 Way Electrical Box Part No. 8-716-113-515-0</p>		<p>Two Port Valve Part No. 8-716-113-410-0</p>	
<p>Temperature and Pressure Relief Valve Part No. 8-716-113-408-0</p>		<p>Incoloy Long Life 3 kW Immersion Heater Part No. 8-716-113-412-0</p>	
<p>Acetal Tundish Part No. 8-716-113-409-0</p>		<p>Installation & Maintenance Instructions Part No. 8-716-113-445-0</p>	
<p>Dual Thermostat Part No. 8-716-113-411-0</p>		<p>95mm High Limit Thermostat Part No. 8-716-113-522-0</p>	



CODE	CAPACITY	HEIGHT	DIAMETER	A	B	C	D	E	F	WEIGHT (Kg-EMPTY)	WEIGHT (Kg-FULL)
7-716-192-554	180 L	1281	550	365	420	465	N/F	825	880	50	230
7-716-192-555	210 L	1469	550	365	420	465	1000	925	980	55	265
7-716-192-556	250 L	1719	550	365	420	465	1105	1050	1050	60	310
7-716-192-557	300 L	2032	550	365	420	465	1255	1200	1200	65	365

All Dimensions are in mm and are of the cased unit.
N/F = not fitted to 180 litre unit.

WATER SUPPLY

The Greenskies cylinder has an optimum working pressure of 3 bar (regulated by the inlet control set) and is capable of delivering up to 50 litres per minute. However the performance of any unvented system is only as good as the water supply.

The maximum possible water demand should be assessed taking into consideration that both hot and cold services are supplied simultaneously from the mains.

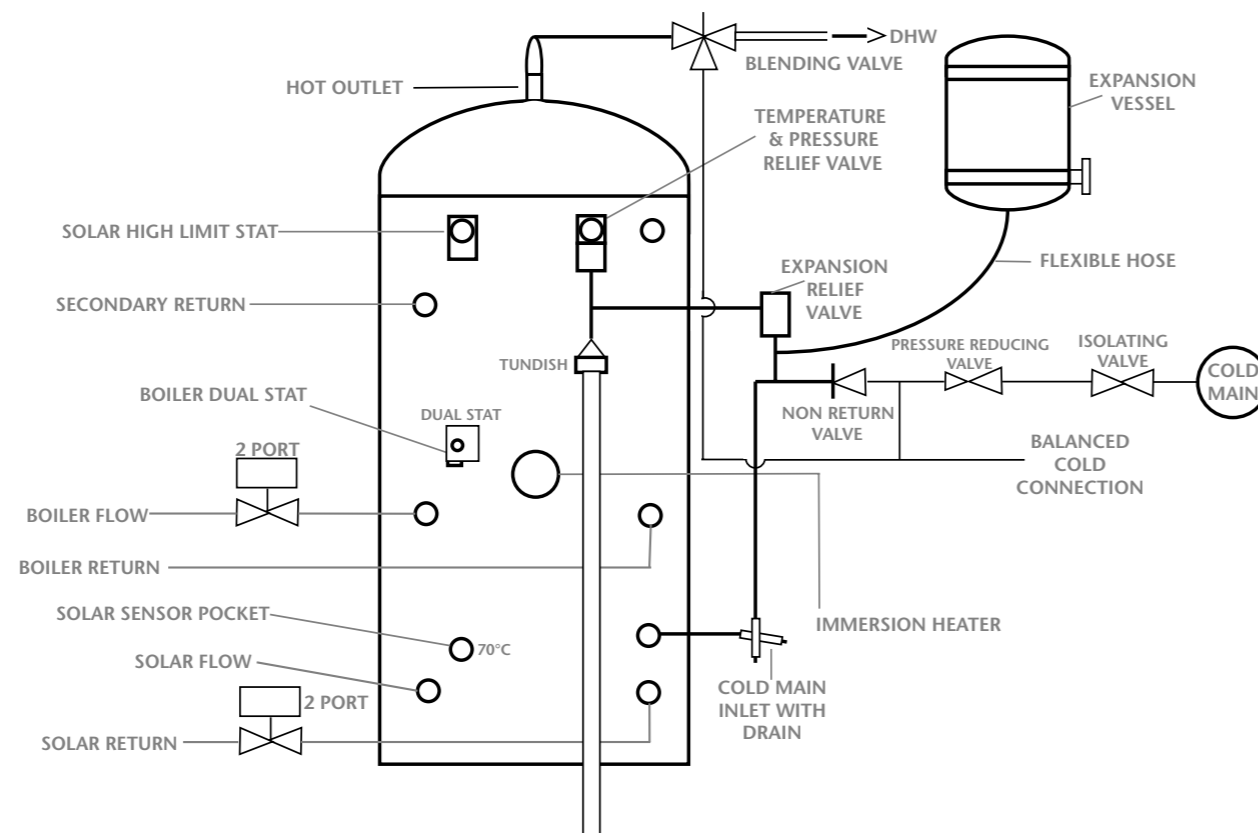
The water supply should be checked to ensure it can meet these requirements. If necessary consult the local water company regarding the likely pressure and flow rate availability.

If measuring the water pressure note that a high static (no flow) mains pressure is no guarantee of good flow availability. In a domestic installation 1.5 bar and 25 l/m should be regarded as the minimum for a single bathroom application. The maximum mains pressure for the inlet control set is 16 bar.

Consideration should be given to upgrading existing 1/2" (15mm) cold mains pipework to a larger size if the recommended minimum pressure/flowrate is not being achieved.

In the event of a low dynamic pressure situation, please use a break tank and pump set or an accumulator for low flow.

SCHEMATIC DIAGRAM



Notes

No valves must be fitted between the expansion valve and the storage cylinder.

Notes: The Pressure reducing valve, Non return valve and Expansion relief valve are combined together in the inlet control set.

On 180 litre sizes there is no dedicated secondary return boss and the secondary return circuit should be tee'd into the cold feed pipe just above the drain elbow

SITING THE UNIT

The Greenskies cylinder can supply outlets above it or at some distance from it. Site the unit to minimise "dead leg" distances especially to the point of most frequent use.

Outlets above the Greenskies cylinder will reduce the outlet pressure available by 0.1 bar for every 1m of height difference.

The Greenskies cylinder must be installed VERTICALLY on a flat base capable of supporting the weight of the cylinder when full (see technical specification section for weights). The minimum recommended cupboard size is 650mm square.

Access for maintenance of the valves should be considered. The immersion heaters are 375mm long and care should be taken that they can be withdrawn for servicing if required. The discharge pipework from the safety valves should fall continuously and terminate safely.

Regarding garage installation or any situation which is outside of the warm envelope of the building: Particular care is needed if siting in a garage or outbuilding. All exposed pipework must be insulated. Ensure the cylinder is frost protected recommended minimum temperature of 5 degree centigrade. Cylinder is installed vertically on a suitable base. Installation is in a vermin proof area. Installation is in a non flood area. Installation is not within a damp environment or subject to condensation. Installation must meet all legislation and good practice current at time of installation.

This product is made from stainless steel and can be recycled when disposing of unit.

GENERAL INSTALLATION

PIPEWORK CONNECTIONS

All water pipe connections on the Greenskies cylinder are 22mm compression bosses with 22mm olives and gland nuts provided in the component box. Ensure pipework connections are to 22mm Table X copper tube and that tube is pushed fully home prior to tightening the gland nut. Connections for the expansion valve and temperature pressure relief valve must not be used for any other purpose.

COLD MAINS PIPEWORK

Run the cold main through the building to the location where the Greenskies cylinder is to be installed. Take care not to position the cold pipe near hot water or heating pipe work so that the heat pick up is minimized. Identify the cold water supply pipe and fit an isolating valve (not supplied). A 22mm BS1010 stopcock can typically be used but a 22mm quarter turn full bore valve would be preferred as it does not restrict the flow as much. Do not use "screwdriver slot" or similar valves. Make the connection to the cold feed of the cylinder and incorporate a drain valve.

Position the inlet control just ABOVE the Temperature & Pressure Relief Valve (TPRV) mounted on the side of the cylinder. This ensures that the cylinder does not have to be drained down in order to service the inlet control set. Ensure that the arrow points in the direction of the water flow

Select a suitable position for the expansion vessel. Mount it to the wall using the bracket provided and connect to the inlet control set with the flexible hose provided. Ensure that the top of the vessel is accessible for servicing. It is recommended that a blending valve be fitted on the hot water outlet.



BALANCED COLD CONNECTION

If there are showers, bidets or monobloc taps in the installation then a balanced cold supply is necessary. There is a 22mm balanced connection on the inlet control set. An alternative method is to split the inlet control set into two parts.



Site the pressure reducing valve immediately after the incoming cold mains stopcock (typically under the kitchen sink.) All outlets in the house will be at 3 bar and thus automatically balanced. The expansion relief valve section must still be mounted just above the TPRV on the cylinder. A 3/4" F-22mm compression adaptor will be needed (not supplied).

HOT WATER PIPEWORK

Run the first part of the hot water distribution pipework in 22mm. This can be reduced to 15mm and 10mm as appropriate for the type of tap etc. Your aim should be to reduce the volume of the hot drawoff pipework to a practical minimum so that the time taken for the hot water to reach the outlet is as quick as possible. Do not use monobloc mixer taps or showers if the balanced cold connection is not used as these may cause the cylinder to back pressurise and result in discharge from the expansion valve.

SECONDARY CIRCULATION

The Greenskies cylinder can be used with secondary circulation. An appropriate WRAS approved bronze circulator should be used in conjunction with a non return valve to prevent backflow. On large secondary circulation systems it may be necessary to incorporate an extra expansion vessel into the circuit to accommodate the increased system water volume. Secondary circulation should be avoided for direct electrically heated units being used on off peak electricity tariffs. A secondary return boss is fitted as standard on 210, 250 & 300 litre models. On 180 litre tee into the cold feed pipe above the drain.

IMMERSION HEATERS

Only immersion heaters with a thermal cut out may be used. To help ensure this the immersion heaters have a special 1 1/4" thread. They are rated at 3 kW at 240 V and are of a low noise Incoloy construction. They have both a thermostat and a high limit cut out. When fitting ensure the 'O' ring is positioned correctly on the head of the immersion heater and lubricate before fitting. Fit it by hand until almost home then tighten gently as the 'O' rings will seal easily. The electrical supply to each immersion heaters must be fused at 13A via a double pole isolating switch to BS 3456. The cable must be 2.5mm² heat resistant (85°C HOFRR) sheathed flex complying to

BS 6141:1981 Table 8.

Do not operate the immersion heater/s until the unit is full of water. Do not operate the immersion heater/s if any sterilisation liquid is in the cylinder as this will cause premature failure.

PRIMARY COILS : CONNECTION AND CONTROL

UPPER COIL : FOSSIL FUEL BOILER

Connect to primary upper coil (connections C+C) page 3 using the compression connections provided. The primary circuit must be positively pumped. Gravity circulation is not possible. Either primary coil connection may be used as the flow. Re-heat times are identical either way.

The primary circuit can be open vented or system sealed up to a maximum pressure of 7 bar. Where the primary circuit is sealed an additional expansion vessel and safety valve is required if not already included within the boiler.

The boiler may be gas, oil or electric but must be under effective thermostatic control. Uncontrolled heat sources such as some AGAs, back boilers, solid fuel stoves etc are not suitable.

For both control and protection purposes the two port zone valve supplied must be fitted into the primary flow (page 4) and wired via the dual control and high limit aquastat positioned into pocket D, schematic page 3 with adherence to the wiring diagram on page 8.

LOWER COIL : GREENSKIES SOLAR SYSTEM

The lower coil is connected to the Greenskies solar panel collector and controls as per the Greenskies installation manual. Either of the coil connections A & A (fig. Page 3) may be utilised as the flow or return. Solar input is not compromised using either connection. The solar control cylinder sensor supplied as part of the Greenskies package inserts into pocket B (fig page 3)

To meet the requirement of the Building Regulation Part L it is necessary to install the two part valve provided in the return pipework between the cylinder and the solar pump station. The purpose of this valve is to provide system closure should the high limit thermostat activate. The high limit thermostat inserts into pocket F (fig page 3).

The preferred wiring option is fig 1 page 9 which when the high limit thermostat activates closes the two port valve and prevents further input by disconnection of the pump station.

Should this prove impractical fig 2 page 9 offers an option which just activates the two part valve but leaves the pump station live.

DISCHARGE ARRANGEMENT

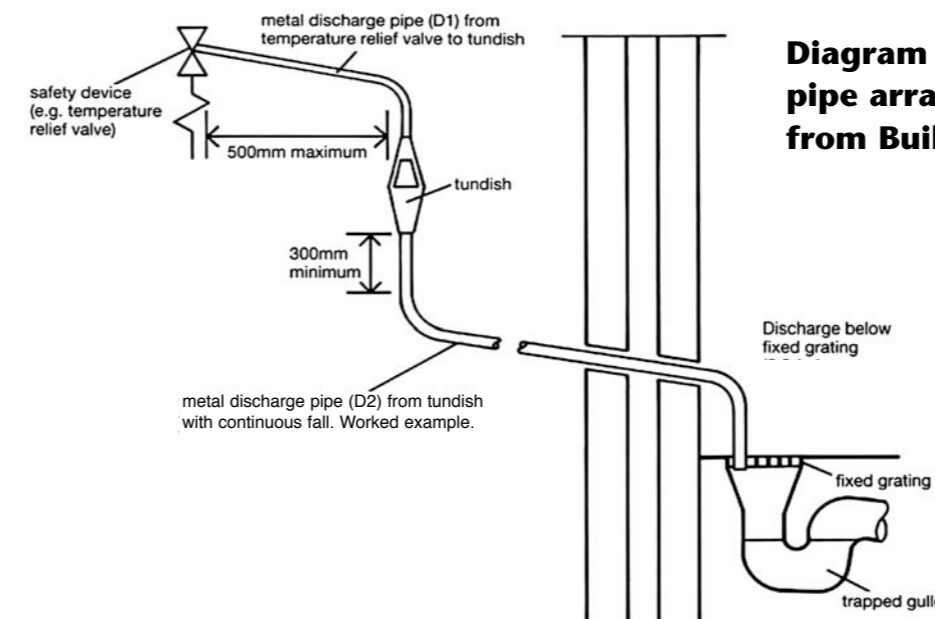


Diagram of a typical discharge pipe arrangement (extract from Building Regulation G3)

Position the inlet control group so that the discharge from both the two safety valves can be joined together via a 15mm end feed Tee. Connect the Tundish and route the discharge pipe. The discharge pipework must be routed in accordance with Part G3 of schedule 1 of the Building Regulations. The information that follows is not exhaustive and if you are in doubt you should seek advice.

The two safety valves will only discharge water under fault conditions. When operating normally water will not be discharged.

The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible and within 500mm of the safety device e.g. the temperature relief valve.

The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge, be of metal and:

- Be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9m long i.e. discharge pipes between 9m and 18m equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device, between 18 and 27m at least 3 sizes larger, and so on. Bends must be taken into account in calculating the flow resistance. Refer to diagram 1, Table 1 and the worked example.
- Have a vertical section of pipe at least 300mm long, below the tundish before any elbows or bends in the pipework.
- Be installed with a continuous fall.
- It is preferable for the discharge to be visible at both the tundish and the final point of discharge but where this is not possible or practically difficult there should be clear visibility at one or other of these locations. Examples of acceptable discharge arrangements are:
 - Ideally below the fixed grating and above the water seal in a trapped gully.
 - Downward discharges at a low level; i.e. up to 100mm above external surfaces such as car parks, hard standing, grassed areas etc. are acceptable providing that where children play or otherwise come into contact with

Note: The discharge will consist of scalding water and steam. Asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges.

Note: It is not acceptable to discharge straight into a soil pipe.

discharges, a wire cage or similar guard is positioned to prevent contact whilst maintaining visibility.

- Discharges at a high level; e.g. in to metal hopper and metal down pipe with the end of the discharge pipe clearly visible (tundish visible or not) or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastic guttering systems that would collect such discharges (tundish available).
- Where a single pipe serves a number of discharges, such as in blocks of flats, the number served should be limited to not more than 6 systems so that any installation can be traced reasonably easily. The single common discharge pipe should be at least one pipe size larger than the largest individual discharge pipe to be connected. If unvented hot water storage systems are installed where discharges from safety devices may not be apparent i.e. in dwellings occupied by blind, infirm or disabled people, consideration should be given to the installation of an electronically operated device to warn when discharge takes place.

WORKED EXAMPLE

The example below is for G1/2 temperature relief valve with a discharge pipe (D2) having 4 No. elbows and length of 7m from the tundish to the point of discharge.

From Table 1:

Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G1/2 temperature relief valve is: 9.0m Subtract the resistance for 4 No. 22mm elbows at 0.8m each = 3.2m

Therefore the maximum permitted length equates to: 5.8m

5.8m is less than the actual length of 7m therefore calculate the next largest size.

Maximum resistance allowed for a straight length of 28mm pipe (D2) from a G1/2 temperature relief valve equates to: 14m

As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

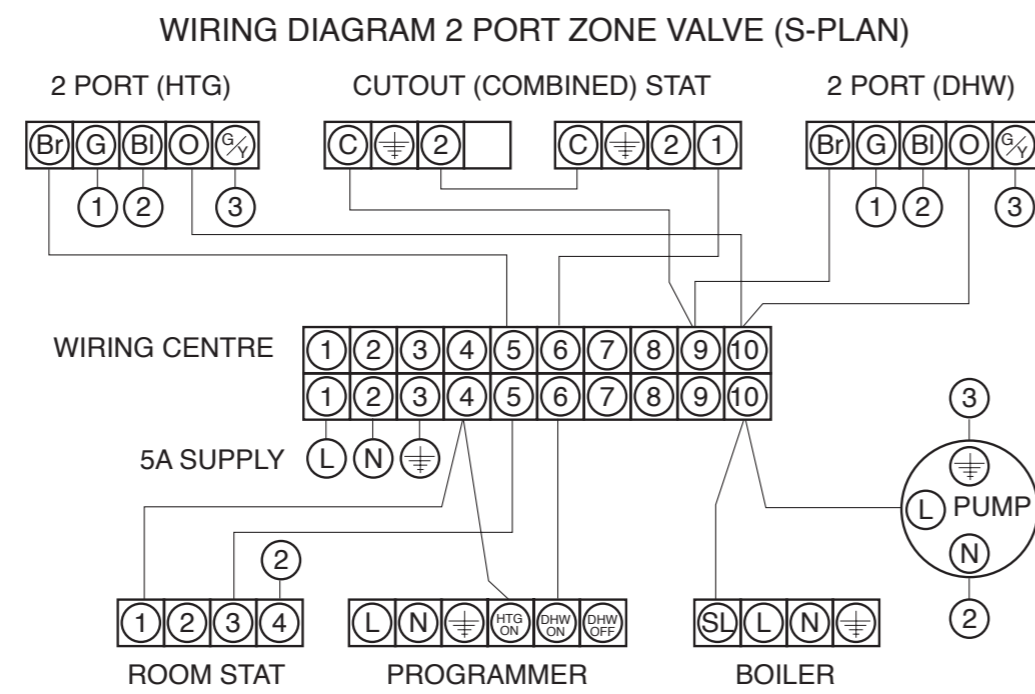
Table 1

Sizing of copper discharge pipe 'D2' for a temperature relief valve with a G 1/2-outlet size (as supplied).

Size of discharge pipework	Maximum length of straight pipe (no bends or elbows)	Deduct the figure below from the maximum length for each bend or elbow in the discharge pipe
22mm	Up to 9m	0.8m
28mm	Up to 18m	1m
35mm	Up to 27m	1.4m

WIRING DIAGRAM UPPER COIL TO BOILER

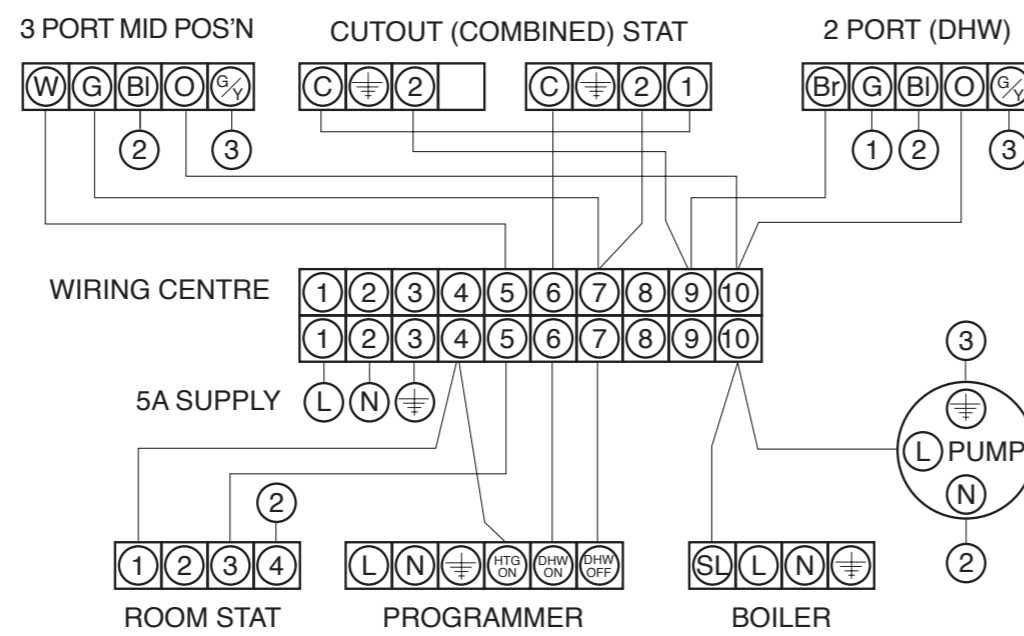
VARIANT DUAL THERMOSTAT WIRING



WIRING DIAGRAM 3 PORT MID POSITION VALVE (Y-PLAN) + 2 PORT VALVE

VARIANT DUAL THERMOSTAT WIRING

WIRING DIAGRAM 3 PORT MID POSITION VALVE (Y-PLAN) + 2 PORT VALVE



Key: W = White, G = Grey, Bl = Black, O = Orange, G/Y = Green / Yellow, Br = Brown,
L = Live, N = Neutral, C = Common Terminal, SL = Switched Live

Note: The boiler and programmer power can be taken either from the Wiring Centre or from elsewhere whichever is more convenient

WIRING DIAGRAM: SOLAR HIGH LIMIT CONTROL

Fig1: Isolation of Input: Closure of Two Port Valve & Disconnection Pump

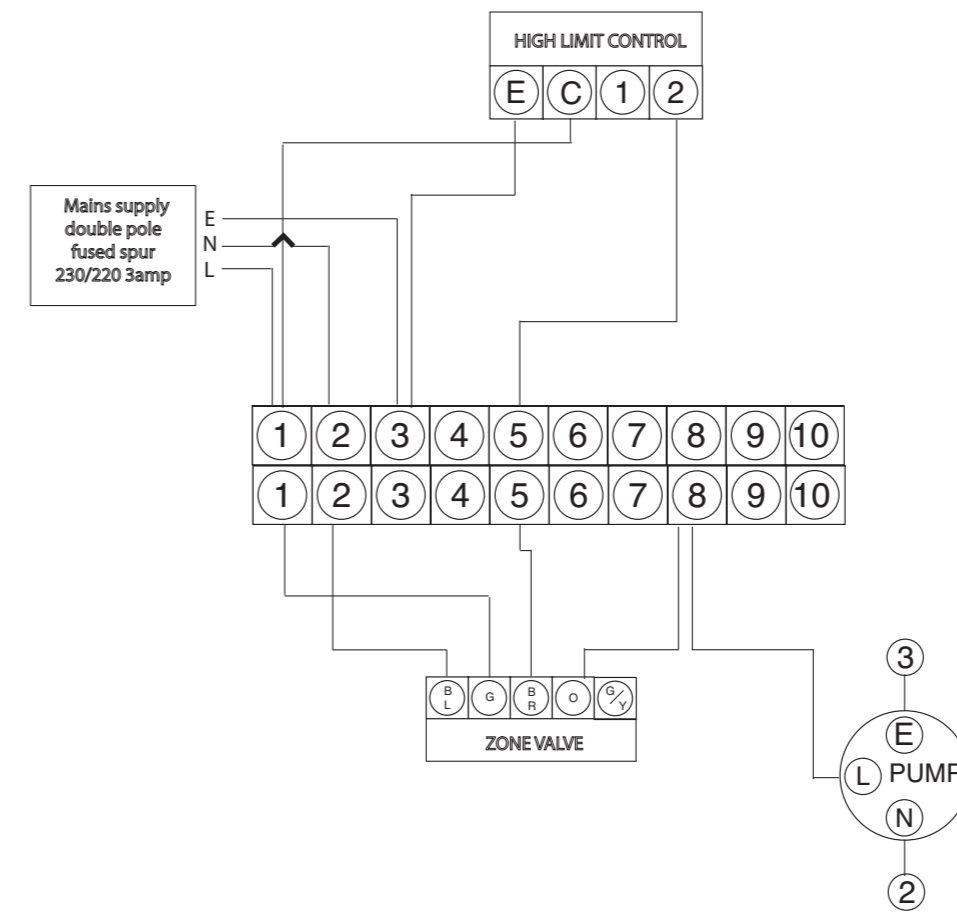
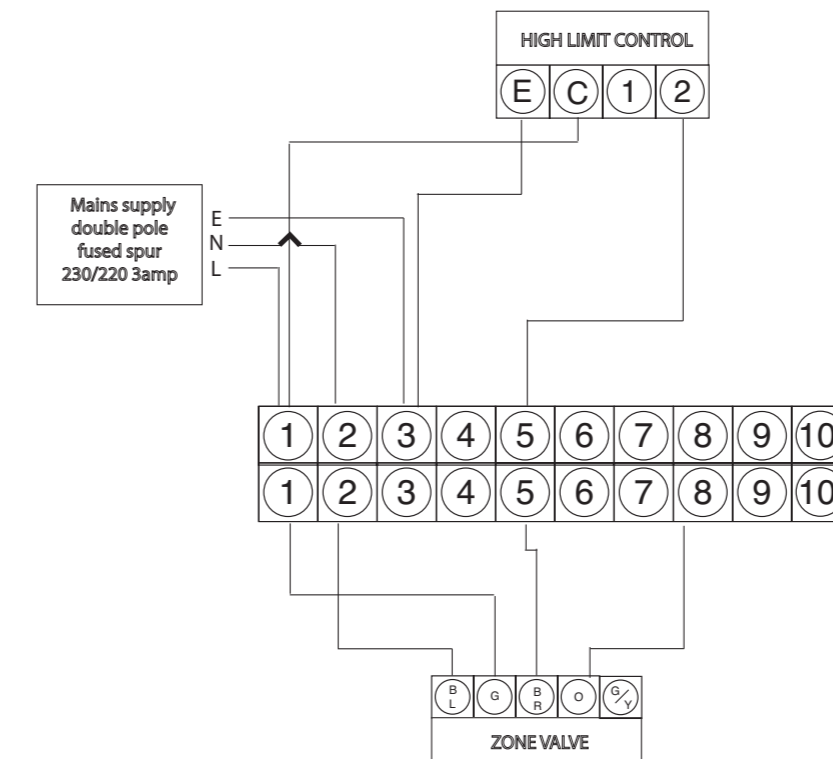


Fig2: Isolation of Input: Closure of Two Port Valve



COMMISSIONING

FILLING THE CYLINDER

Check the pressure in the DHW expansion vessel is 3 bar (45PSI). (I.e the same as the setting of the pressure reducing valve).

Before filling open the hot tap furthest away from the Greenskies cylinder to let air out. Open the cold main isolation valve and allow the unit to fill.

When water flows from the tap allow it to run for a short while to flush through any dirt, swarf or flux residue.

Close the tap and open every other hot tap in turn to purge all remaining air.

FILLING OF PRIMARY CIRCUITS

Upper Coil

Consult the boiler commissioning instructions and fill the primary circuit.

Ensure the wheel on the 2 port valve is set to the filling position. When full move the wheel back.

Switch the programmer to Domestic Hot water (DHW) and allow the unit to start to heat.

Adjust the dial of the dual thermostat to between 55°C and 65°C as required.

LOWER COIL

Fill and commission the lower coil solar circuit as per the Greenskies solar installation manual.

STORAGE TEMPERATURE/ BLENDING VALVE

The recommended DHW storage temperature is 60-65°C.

In many applications, the guidance on Legionella control and safe water delivery temperatures will require storing the water at 60-65°C and distributing at 50-55°C. This can be achieved by using a thermostatic blending valve to control the final temperature. Where storage temperatures in excess of 60°C may be achieved it is essential drawn hot water temperature is controlled to a maximum of 55°C with a blending valve.

SAFETY VALVE CHECKS

Fully open the expansion relief and the temperature/pressure relief valves to allow as much water as possible to flow through the tundish.

Check that the discharge pipework is free from debris and is carrying the water away to waste efficiently. Release the valves and check that they reseal properly.

During heat up there should be no sign of water coming from either the the expansion relief valve or the temperature/pressure relief valve.

For spares contact our Sales office on

Tel: 01905 752576 • Fax: 01905 754620

Technical Helpline: 08705 266241

SERVICING

GENERAL

Servicing should only be carried out by competent installers and any spare parts used must be purchased from Worcester Bosch Group.

NEVER bypass any safety devices or operate the unit without them fully operational.

DRAINING

Isolate from the electrical supply to prevent the immersion heaters burning out.

Isolate the unit from the cold mains. Attach a hose to the draining tap ensuring it reaches to a level below the unit (This will ensure an efficient syphon is set up and the maximum amount of water is drained from the unit).

Open the hot tap closest to the unit and open the draining tap
WARNING: WATER DRAINED OFF MAY BE VERY HOT!

ANNUAL MAINTENANCE

Greenskies cylinders require an annual service in order to ensure safe working and optimum performance.

It is essential that the following checks are performed by a competent installer on an annual basis. Commonly this is done at the same time as the annual boiler service.

- 1) Twist the cap of the expansion relief valve on the inlet control set and allow water to flow for 5 seconds. Release and make sure it resets correctly. Repeat with the pressure / temperature relief valve.

In both cases check that the discharge pipework is carrying the water away adequately. If not check for blockages etc. and clear.
WARNING: THE WATER DISCHARGED MAY BE VERY HOT!

- 2) Check that any immersion heaters fitted are working correctly and that they are controlling the water at a temperature between 55°C and 65°C.
- 3) Check the pressure in the expansion vessel is charged to 3 bar. Turn off the water supply to the unit and open a hot tap first. Air may be used to charge the expansion vessel.
- 4) Unscrew the head on the inlet control set and clean the mesh filter within.
- 5) The benchmark log book supplied with this unit should be updated at each service.

YOUR GUARANTEE MAY BE VOID WITHOUT PROOF OF ANNUAL SERVICING

SPARE PARTS

Worcester carry the full range of spares listed below in stock.

8-716-113-407-0	- Inlet control set (pressure reducing valve, strainer and expansion relief valve)
8-716-113-408-0	- Temperature & pressure relief valve
8-716-113-409-0	- Tundish
8-716-113-410-0	- 2 port valve
8-716-113-515-0	- 10 way electrical box
8-716-113-411-0	- Dual thermostat
8-716-113-412-0	- Immersion heater (same on all models)
8-716-113-416-0	- 19 litre Expansion vessel (180, 210 & 250 sizes)
8-716-113-418-0	- 24 litre expansion vessel (300 litre size)
8-716-113-414-0	- Expansion vessel hose (3/4" M x 3/4" F)
8-716-113-522-0	- 95mm Single Limit Thermostat

FAULT FINDING

FAULT	POSSIBLE CAUSE	SOLUTION
Water escaping from the case.	Compression fitting on hot drawoff not sealing	Check/remake joint with sealing paste
Cold water at taps	Direct – Immersion heater not switched on or cutout has triggered	Check / reset
	Indirect – Boiler not working	Check boiler – consult boiler manufacturers instructions
	Indirect – motorised valve fault	Check plumbing / wiring to motorised valve
	Indirect – cut-out in dual stat has operated	Reset and investigate cause
Water discharges from expansion relief valve	If continual – pressure reducing valve (part of inlet control set) may not be operating correctly	Check outlet pressure from inlet control set is 3 bar.
	If continual – expansion relief valve seat may be damaged	Remove cartridge – check seat and renew if necessary
	If intermittent – expansion vessel charge may have reduced / bladder perished	Check pressure in expansion vessel Recharge to 3 bar if necessary If bladder perished replace vessel.
Water discharges from temperature & pressure relief valve	Unit it being back pressurised	With cylinder cold check pressure in cylinder. If this is the same as the incoming mains pressure then you are getting backed. Install a balanced cold supply (see page 4)
	Unit has overheated – thermal controls have failed	Switch off power to boiler and immersion heaters. Leave water supply on. Wait until discharge stops. Isolate water supply and replace if faulty
Milky / cloudy water	Oxygenated water	Water from any pressurised system will release oxygen bubbles when flowing. The bubbles will settle out.
No hot water flow	Cold main off	Check and open stop cock
	Strainer blocked in pressure reducing valve	Isolate water supply and clean
	Inlet control set may be fitted incorrectly	Check and refit as required
Noise during hot water drawoff- typically worse in the morning.	loose airing cupboard pipework	Install extra clips
Hot or warm water form from cold tap	If tap runs cold after a minute or so the pipe is picking up seat from heating pipework.	insulate / reroute

THE GUARANTEE

The Greenskies stainless steel vessel carries a fully transferable, 25 year guarantee against faulty materials or manufacture provided that:

- It has been correctly installed as per this document and all the relevant standards, regulations and codes of practice in force at the time.
- It has not been modified in any way, other than by Worcester.
- It has not been misused, tampered with or subjected to neglect.
- It has only been used for the storage of potable water.
- It has not been subjected to frost damage.

- **The guarantee period starts from the date of purchase and no registration is required.**

Please note that invoices for servicing may be requested to prove that the unit has been serviced annually.

All the components fitted to / or supplied with the Greenskies cylinder carry a 2 year guarantee.

EXCLUSIONS –THE GUARANTEE DOES NOT COVER

The effects of scale build up.

Any labour charges associated with replacing the unit or its parts.

Any consequential losses caused by the failure or malfunction of the unit.

- The unit has been serviced annually.
- The benchmark log book has been filled in after each annual service.

USER INSTRUCTIONS

IF WATER IS FLOWING FROM THE SAFETY VALVES THROUGH THE TUNDISH THIS INDICATES A FAULT CONDITION AND ACTION IS NEEDED

If this water is hot turn the boiler and / or the immersion heater off. Do not turn off the water until the discharge runs cool. The discharge may also stop.

CALL A COMPETENT INSTALLER OUT TO SERVICE THE UNIT.

Inform them you have a fault on an unvented cylinder. Worcester stock all the spare parts listed on Page 10.



**The code of practice for the installation,
commissioning & servicing of mains pressure hot water storage**

Installation, Commissioning and Service Record Log Book

CUSTOMER DETAILS

NAME _____
 ADDRESS _____
 TEL No. _____

IMPORTANT

1. Please keep the Log Book in a safe place for future reference.
2. This Log Book is to be completed in full by the competent person(s) who commissioned the equipment and then handed to the customer. When this is done, the Log Book is a commissioning certificate that can be accepted as evidence of compliance with the appropriate Building Regulations.
3. Failure to install and commission this appliance to the manufacturer's instructions may invalidate the warranty.

The above does not affect your statutory rights.

The content of this Log Book has been produced in consultation with



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Benchmark is supported by



COMMISSIONING PROCEDURE INFORMATION

BOILER PRIMARY SETTINGS (INDIRECT HEATING ONLY) ALL BOILERS

IS THE PRIMARY A SEALED OR OPEN VENTED SYSTEM? SEALED OPEN
 WHAT IS THE BOILER FLOW TEMPERATURE? _____ °C

ALL MAINS PRESSURISED SYSTEMS

WHAT IS INCOMING STATIC COLD WATER PRESSURE AT THE INLET TO THE PRESSURE REDUCING VALVE? _____ bar
 HAS STRAINER (IF FITTED) BEEN CLEANED OF INSTALLATION DEBRIS? YES NO
 HAS A WATER SCALE REDUCER BEEN FITTED? YES NO
 WHAT TYPE OF SCALE REDUCER HAS BEEN FITTED? _____

UNVENTED SYSTEMS ONLY

ARE COMBINED TEMPERATURE AND PRESSURE RELIEF VALVE AND EXPANSION VALVE FITTED AND DISCHARGE TESTED? YES NO
 IS PRIMARY ENERGY SOURCE CUT OUT FITTED (NORMALLY 2 PORT VALVE)? YES NO
 WHAT IS THE PRESSURE REDUCING VALVE SETTING (IF FITTED)? _____ bar
 WHERE IS OPERATING PRESSURE REDUCING VALVE SITUATED? _____
 HAS THE EXPANSION VESSEL OR INTERNAL AIR SPACE BEEN CHECKED? YES NO
 WHAT IS THE HOT WATER TEMPERATURE AT THE NEAREST OUTLET? _____ °C

THERMAL STORES ONLY

WHAT IS THE OPERATING SETTING OF THE PRESSURE REDUCING VALVE (WHERE FITTED)? _____
 WHERE IS PRESSURE REDUCING VALVE SITUATED? _____
 WHAT STORE TEMPERATURE IS ACHIEVABLE? _____ °C
 WHAT IS THE MAXIMUM HOT WATER TEMPERATURE? _____ °C
 WHAT IS THE MAXIMUM HOT WATER FLOW RATE AT MAXIMUM TEMPERATURE? _____ lts/min

ALL PRODUCTS

DOES THE HOT WATER SYSTEM COMPLY WITH THE APPROPRIATE BUILDING REGULATIONS? YES
 HAS THE SYSTEM BEEN INSTALLED AND COMMISSIONED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS? YES
 HAVE YOU DEMONSTRATED THE OPERATION OF THE SYSTEM CONTROLS TO THE CUSTOMER? YES
 HAVE YOU LEFT ALL THE MANUFACTURER'S LITERATURE WITH THE CUSTOMER? YES

COMPETENT PERSON'S SIGNATURE _____ CUSTOMER'S SIGNATURE _____
(To confirm demonstrations of equipment and receipt of appliance instructions)

INSTALLER & COMMISSIONING ENGINEER DETAILS

INSTALLER DETAILS

COMPANY NAME	DATE
ADDRESS	
INSTALLER NAME	TEL No.
REGISTRATION DETAILS	
REGISTERED OPERATIVE ID CARD No. (IF APPLICABLE)	

COMMISSIONING ENGINEER (IF DIFFERENT)

NAME	DATE
ADDRESS	
TEL No.	
REGISTRATION DETAILS	
REGISTERED OPERATIVE ID CARD No. (IF APPLICABLE)	

APPLIANCE & TIME CONTROL DETAILS

MANUFACTURER	MODEL
CAPACITY	litres
TYPE	SERIAL No.
UNVENTED <input type="checkbox"/>	or THERMAL STORE <input type="checkbox"/>
TIME CONTROL	PROGRAMMER <input type="checkbox"/>
	or TIME SWITCH <input type="checkbox"/>

PLEASE FOLLOW THE INSTALLATION AND COMMISSIONING INSTRUCTIONS
IN THE INSTALLATION MANUAL SUPPLIED WITH THE EQUIPMENT

SERVICE INTERVAL RECORD

It is recommended that your hot water system is serviced regularly and that your service engineer completes the appropriate Service Interval Record below.

SERVICE PROVIDER

Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the manufacturer's instructions and in compliance with all relevant codes of practice.

SERVICE 1 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 2 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 3 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 4 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 5 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 6 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 7 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 8 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 9 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

SERVICE 10 DATE: _____

ENGINEER NAME _____

COMPANY NAME _____

TEL No. _____

COMMENTS _____

SIGNATURE _____

When all of the above services have been completed, please contact your Service Engineer for an additional service interval record sheet.