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Universal Marine 12v
Programmer / Timer Upgrade Kit

Airtop 2000 S
Airtop 2000 ST
Airtop 3900 EVO
Airtop 5500 EVO
Thermo Top C
Thermo Top E
Thermo 90 ST

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***** READ ME 1ST *****

Please read these instructions BEFORE beginning the installation!

Please ensure you have the correct upgrade kit for your particular heater!
Universal Marine 12v Programmer / Timer Upgrade Kit - Part Numbers:-

Airtop 2000 S & 2000 ST	4110556A
Airtop 3900 & 5500 EVO	4110555A
Thermo Top C & E	4110551A
Thermo 90 ST**	4110557A

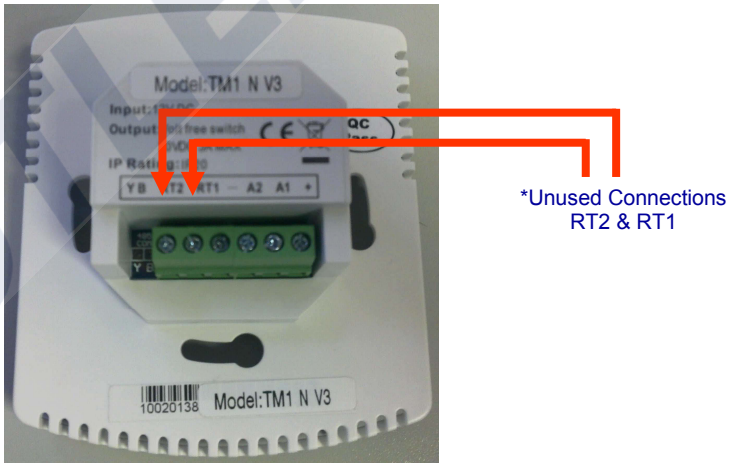
* Contents of Upgrade Kit:-

- 1x Timer (including operation guide)
- 1x Adapter Harness**
- 1x Installation Manual

* This installation manual is standardised and contains wiring schematics and detailed instructions for all the above supported heaters. The timer module, TM1-N is the same unit used in all the 3 upgrade kits. The only difference in the 3 kits is the type of wiring harness adapter supplied.
** The Thermo 90 ST kit does not include an adapter harness.

**** * * These mounting instructions apply to all models * * ****

Only 4 of the screw terminals are used, See below:



Rear view of timer showing the 2 unused wires

Detailed schematics are provided in this document for each of the supported Webasto heaters.

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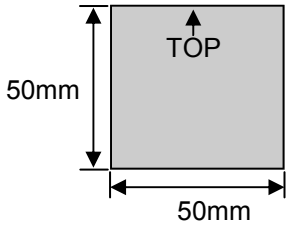
**** * * These mounting instructions apply to all models * * ****

In order to install the new TM1-N Timer Programmer follow the instructions below.

1 Turn off the heater and allow it to shut down in the correct manner and then isolate the power supply to the heater.
2 Decide upon the mounting position taking into account the location of the heaters existing wiring harness connection.

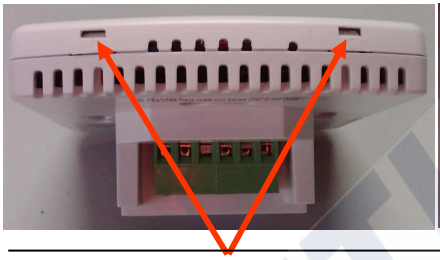
* In order to mount the new TM1-N timer you will need to cut out a square hole in the wall 50mm wide 50mm tall. See below:-



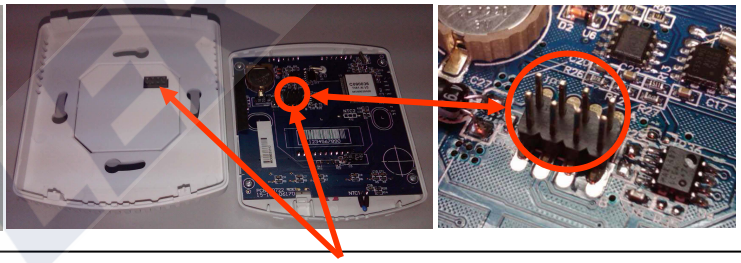
Size of cut-out for TM1-N Timer

Mounting the timer in the hole cut out as above

3 On the lower edge of the timer there are two small lugs that secure the display to the rear of the timer. Using a small flat screwdriver *Carefully* depress the lugs and gently lift away the display from the timer body as shown.



Depress the 2 lugs to release the display...
...and separate the two halves



Take care not to damage the 8 pin connector when re-assembling the two halves!

4 Insert the timer back body into the previously cut out hole and screw to the wall using the mounting holes provided.
5 *Carefully* refit the front display to the timer rear body making sure not to damage the internal 8 pin connector as shown above.
6 Make the electrical connections by referring to the specific heater instructions on the next few pages.

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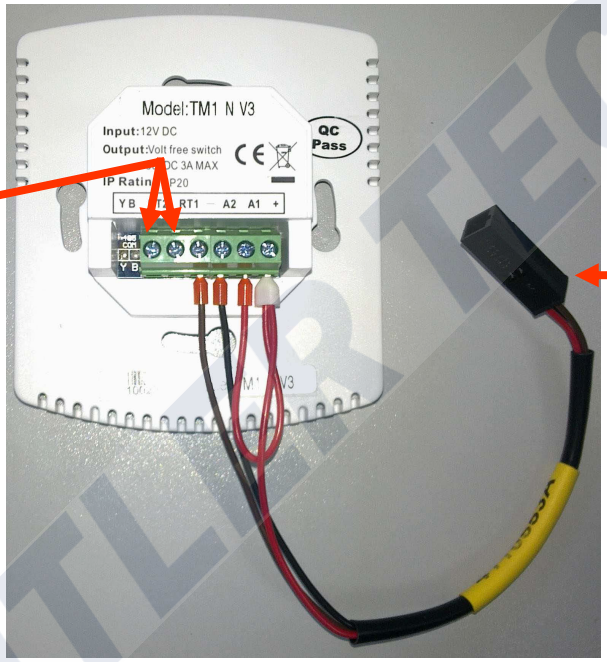
Webasto Thermo Top C & E Installation
Kit 4110551A

Electrical Connections

1 The adapter harness has on one end fitted a square black socket and on the other end 4 wires.
2 The 4 wires connect to the rear of the TM1-N timer as shown below.

RED	***+***
RED	***A1***
BLACK	***A2***
BROWN	***-***



These 2 connections are not used. (RT2 & RT1).

Plug the existing square plug from the heater into this connector.

3 The square black socket on the other end of the adapter harness should now be connected to the existing heater square black plug. Note the square plug and socket are polarised and will only fit one way!

The installation is now complete and all that remains is to set the clock on the new timer and enter the desired on / off periods you require.
Information on setting the time and programming can be found in the supplied Operating Instructions.

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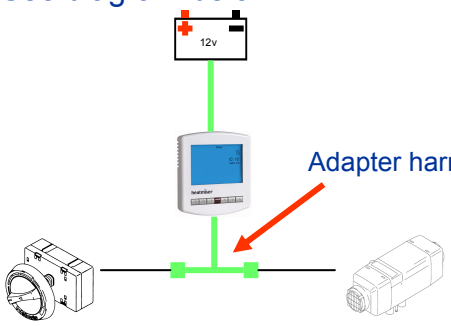
Webasto Airtop 2000S Installation
Kit 4110556A

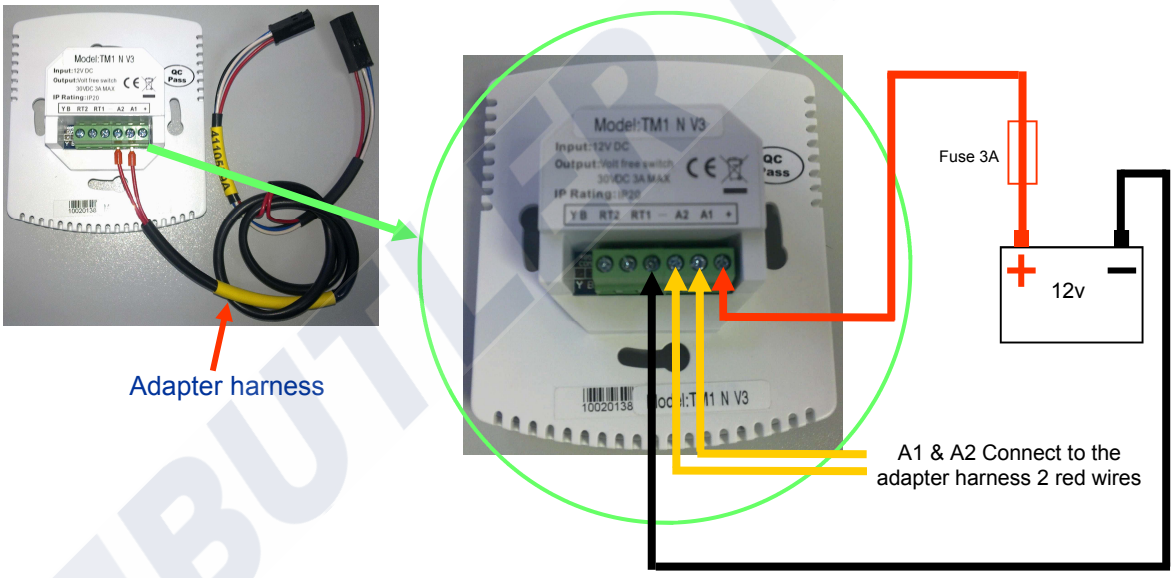
1 To connect the TM1-N timer to the Airtop 2000S heater, the adapter harness is plugged in between the existing heater control, (rheostat) and the heaters harness as shown below. Also a battery + & - connection is required to drive the timer electronics. See diagram below.



2 Disconnect the plug from the rheostat control and plug into the socket on the adapter harness.

3 Push the plug on the adapter harness in to the rheostat.

4 The 2 red wires on the adapter harness connect to the rear of the TM1-N timer as shown below to the terminals A1 & A2. They can fit either way around.



5 As mentioned above the timer needs power for its own internal electronics to operate. Connect 12v+ positive to the terminal marked (+)* and 0v– negative to the terminal marked (-).

* Ensure that the (+) 12v supply is fitted with a 3A fuse.

The installation is now complete and all that remains is to set the clock on the new timer and enter the desired on / off periods you require.
Information on setting the time and programming can be found in the supplied Operating Instructions.

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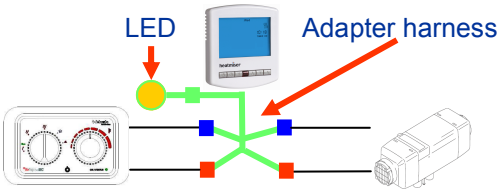
Webasto Airtop EVO 3900 & 5500 Installation
Kit 4110555A

1 To connect the TM1-N timer to the Airtop EVO series of heaters, the adapter harness is plugged in between the existing heater control, (*MC04*) and the heaters harness as shown below. Also an additional LED is also supplied for status indication and fault diagnosis.



2 Remove the plugs on the existing harness from the MC04 controller and plug them into the sockets on the adapter harness. Note the colour coding, *Red >< Red and Blue >< Blue!*

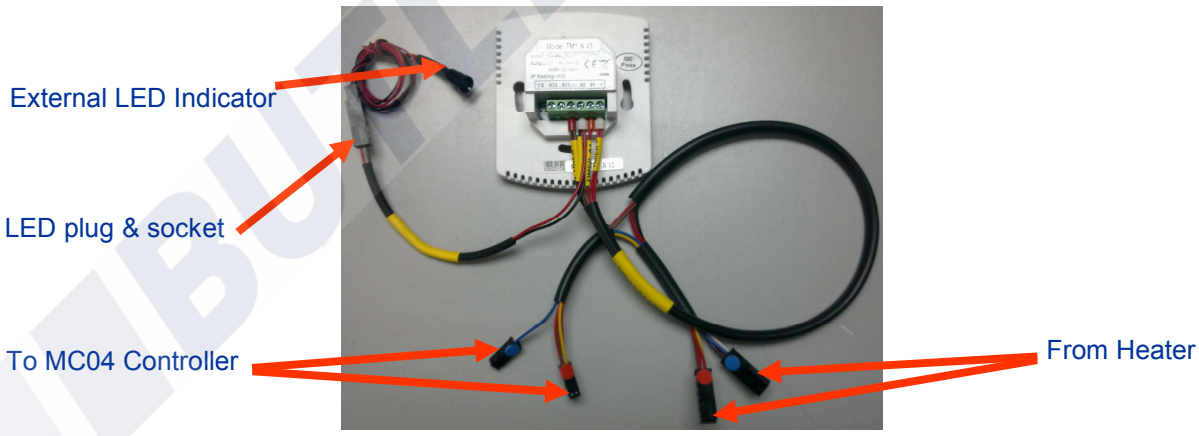
3 Push the plugs on the adapter harness in to the MC04 controller noting the colour coding as above!

4 Now connect the 4 marked up terminals to rear of the TM1-N timer. Each wire has the terminal number marked!

Terminal	(+)	1 Crimp with 2x RED Wires
Terminal	(A1)	1 Crimp with 1x RED Wire
Terminal	(A2)	1 Crimp with 1x RED & 1x BLACK Wire
Terminal	(-)	1 Crimp with 1x BLACK & 2x BROWN Wires

5 Drill an 8mm hole in a suitable location for the external LED indicator.

6 Feed the LED plug through the drilled hole and plug it in to its socket.



The external LED indicator replaces the one on the MC04 controller when using the TM1-N timer module. Also the I/O button on the MC04 controller is no longer used. The remainder of controls and features on the MC04 remain in operation.

The installation is now complete and all that remains is to set the clock on the new timer and enter the desired on / off periods you require.
Information on setting the time and programming can be found in the supplied Operating Instructions.

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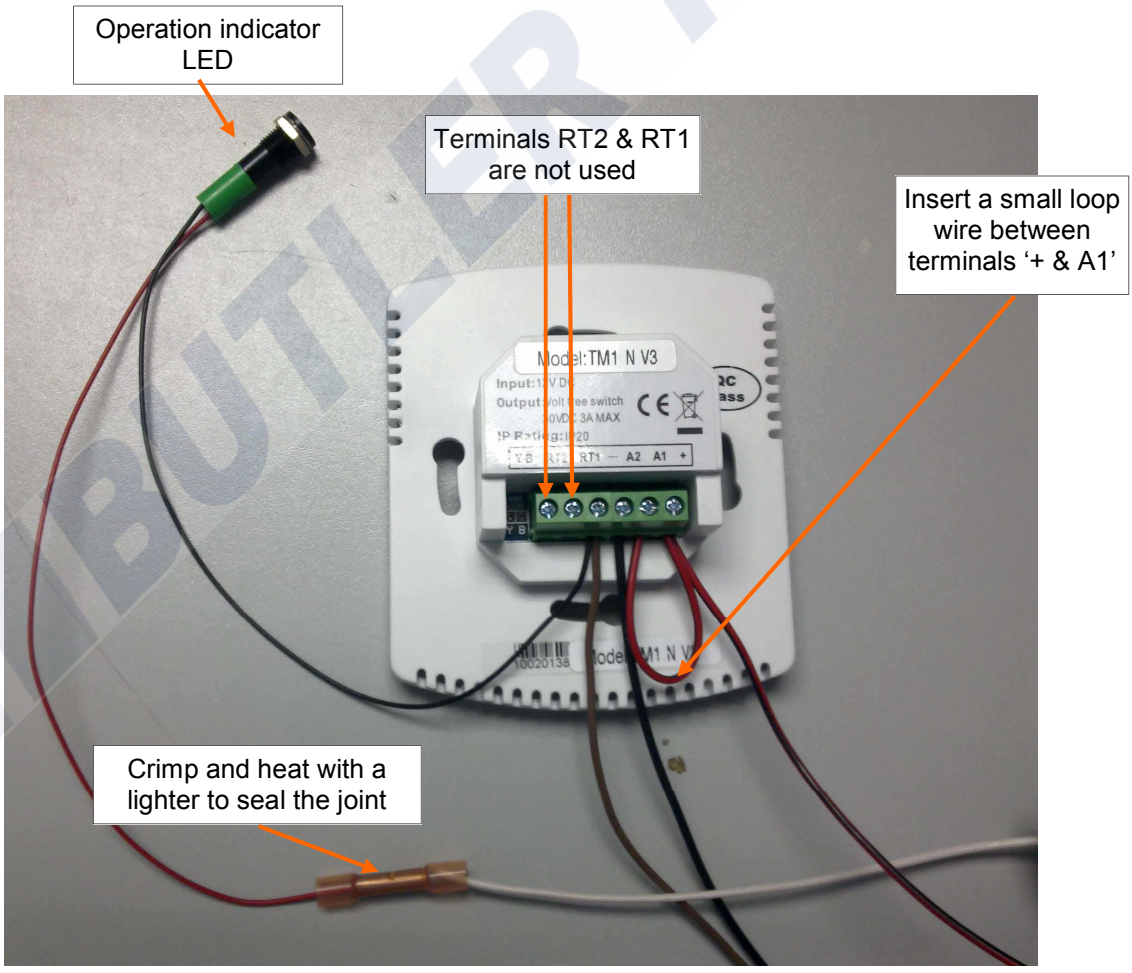
Webasto Thermo 90 ST Installation
Kit 4110557A

1 The Thermo 90 ST kit does not include an adapter wiring harness as one is not required with this type of heater.
2 The Thermo 90 ST timer kit consists of a Timer, LED & Butt Splice.
3 Drill an 8mm hole and mount the LED adjacent to the proposed timer location.
4 The original operating switch if fitted needs to be disconnected and removed and the four coloured wires from the old switch connected as follows:

Red	to	Timer '+'
Black	to	Timer 'A2'
Brown	to	Timer '-'
White	to	LED Red Wire

5 The other wire from the LED, (Black Wire) connects also to the Timer '-' terminal.
6 A link wire is needed to connect from the Timer '+' terminal to the adjacent 'A1' terminal as shown below.
7 Crimp the supplied butt splice between the White wire and the LED Red wire. Heat up the terminal using a gas lighter to seal the joint.



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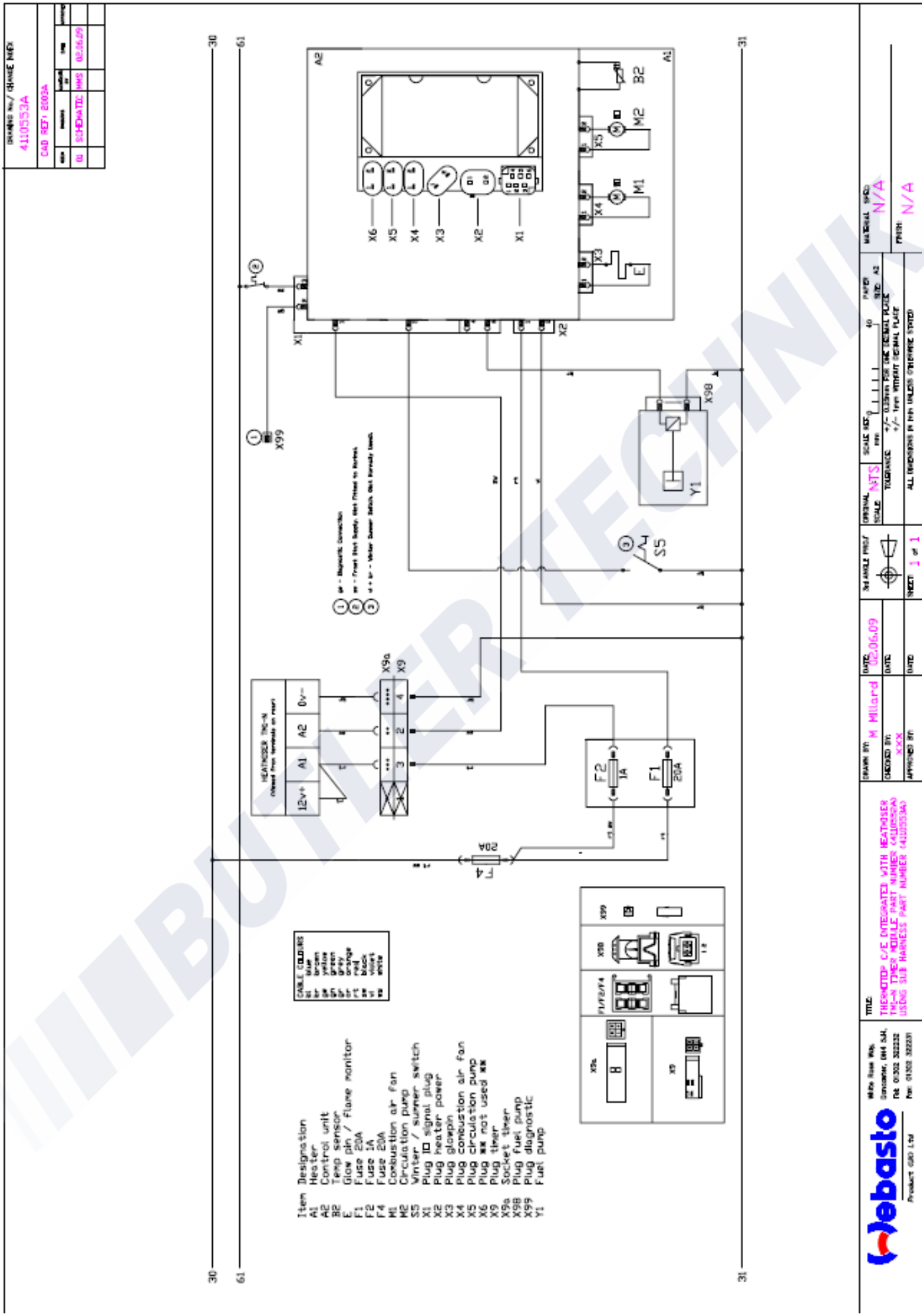

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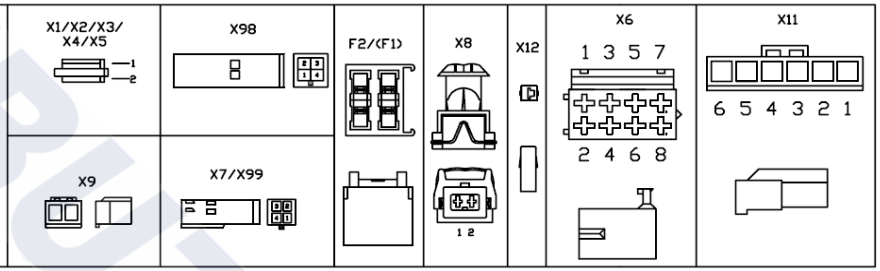
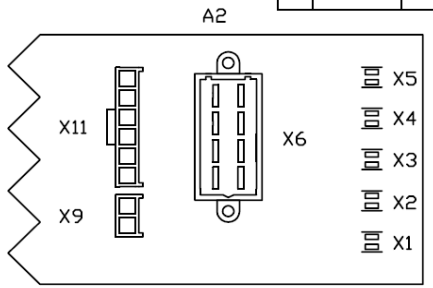
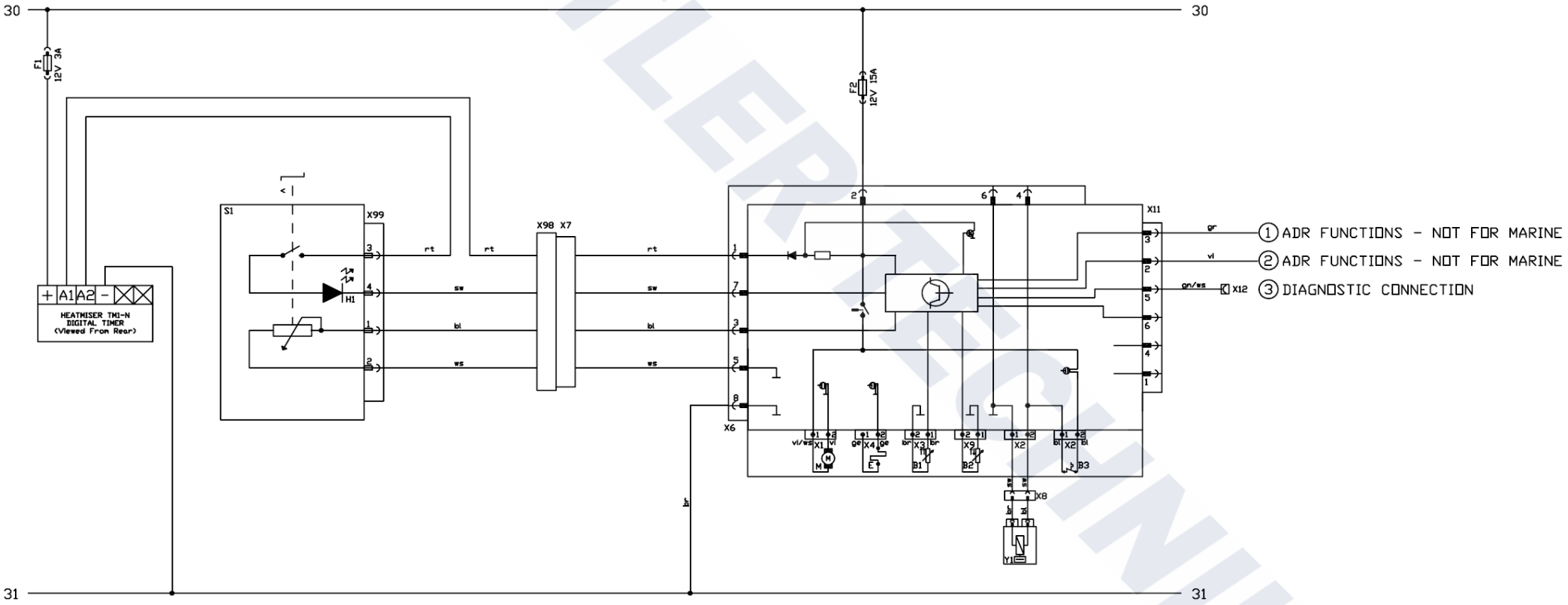
DRAWING No./ CHANGE INDEX				
4110559A				
CAD REF: 2003A				
ISSUE	REMARKS	AMENDED BY	DATE	APPROVED
01	SCHEMATIC	MMS	04.06.09	

Cable Colours		Item	Designation
bl	blue	A1	Heater
br	brown	A2	Control PCB
ge	yellow	B1	Flame detector
gn	green	B2	Temp sensor
gr	grey	B3	Overheat sensor
or	orange	E	Glow pin
rt	red	F1	Fuse 3A 12V
sw	black	F2	Fuse 15A 12V
vi	violet	H1	Green LED (Rheostat)
ws	white	M	Motor
		S1	Rheostat
		X1	Plug - Motor
		X2	Plug - Fuel pump link
		X3	Plug - B1 Flame detector
		X4	Plug - E Glow pin
		X5	Plug - B3 Overheat sensor

Item	Designation
X6	Plug - Main ID connector
X7	Plug - Rheosta plug
X8	Plug - Fuel pump plug
X9	Plug - B2 Air temp sensor
X11	Plug - Aux ID connector
X12	Plug - Diagnostic plug
Y1	Fuel pump







Webasto Product (UK) Ltd	White Rose Way, Doncaster, DN4 5JH, Tel: 01302 322232 Fax: 01302 322231	TITLE: Airtop 2000S TM1-N Timer Intergated with MC04 Heater Control using adapter harness Part Number 4110559A	DRAWN BY: M Millard	DATE: 04.06.09	3rd ANGLE PROJ	ORIGINAL SCALE: N.T.S	MATERIAL SPEC: N/A
			CHECKED BY: XXX	DATE:		SCALE REF. 0 40 mm	FINISH: N/A
			APPROVED BY:	DATE:	SHEET: 1 of 1	PAPER SIZE: A2	
						TOLERANCE: +/- 0.25mm FOR ONE DECIMAL PLACE +/- 1mm WITHOUT DECIMAL PLACE	
						ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED	

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DRAWING No./ CHANGE INDEX

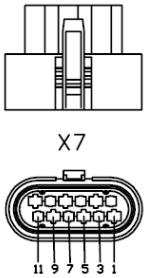
4110558A

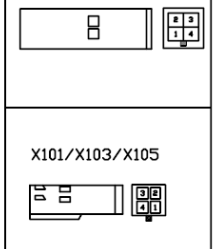
CAD REF: 2003A

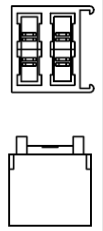
ISSUE	REMARKS	AMENDED BY	DATE	APPROVED
01	PROTOTYPE	MMS	19.05.09	

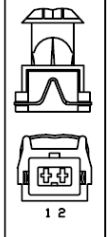
Cable Colours		Item	Designation
bl	blue	A1	Heater
br	brown	A2	Control Module - (ECU)
ge	yellow	B2	Temperature sensor - (Internal)
gn	green	B3	Overheating sensor
gr	grey	B4	Temperature sensor - (External)
or	orange	E	Glow pin / flame detector
rt	red	F1	Fuse 20A - (12v)
sw	black	F4	Fuse 1A - (12v)
vi	violet	H1	Green LED on MC04 device
ws	white	H5	White LED's on MC04 device
		H99	Supplementary Green LED - (Op indicator)
		M1	Fan motor
		R1	Resistor 620 ohm Terminator
		S	MC04 Control panel
		X1	Plug - (Fan motor)
		X2	Plug - (Glow pin / flame detector)
		X3	Plug - (overheat sensor)

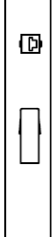
Item	Designation
X4	Plug - (Fuel pump internal cable)
X5	Plug - (External temperature sensor)
X6	Plug - (ADR functions - Not for marine use)
X7	Plug - (12pin Main ID connector)
X8	Plug - (Co2 emmisions setting contact)
X9	Plug - (Diagnostic / remote comms op)
X9a	Plug - (user interface adaptor harness BLUE)
X9b	Plug - (user interface adaptor harness RED)
X10	Plug - (2c cable to fuel pump harness)
X11	Plug - (2c fuel pump harness - If fitted)
X100	Plug - (harness adapter - to X9a)
X101	Plug - (harness adapter - to MC04 Blue)
X102	Plug - (harness adapter - to X9b)
X103	Plug - (harness adapter - to MC04 RED)
X104	Plug - (harness adapter to H99)
X105	Plug - (harness adapter from H99)
Y1	Fuel pump

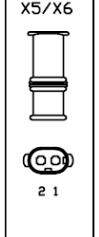


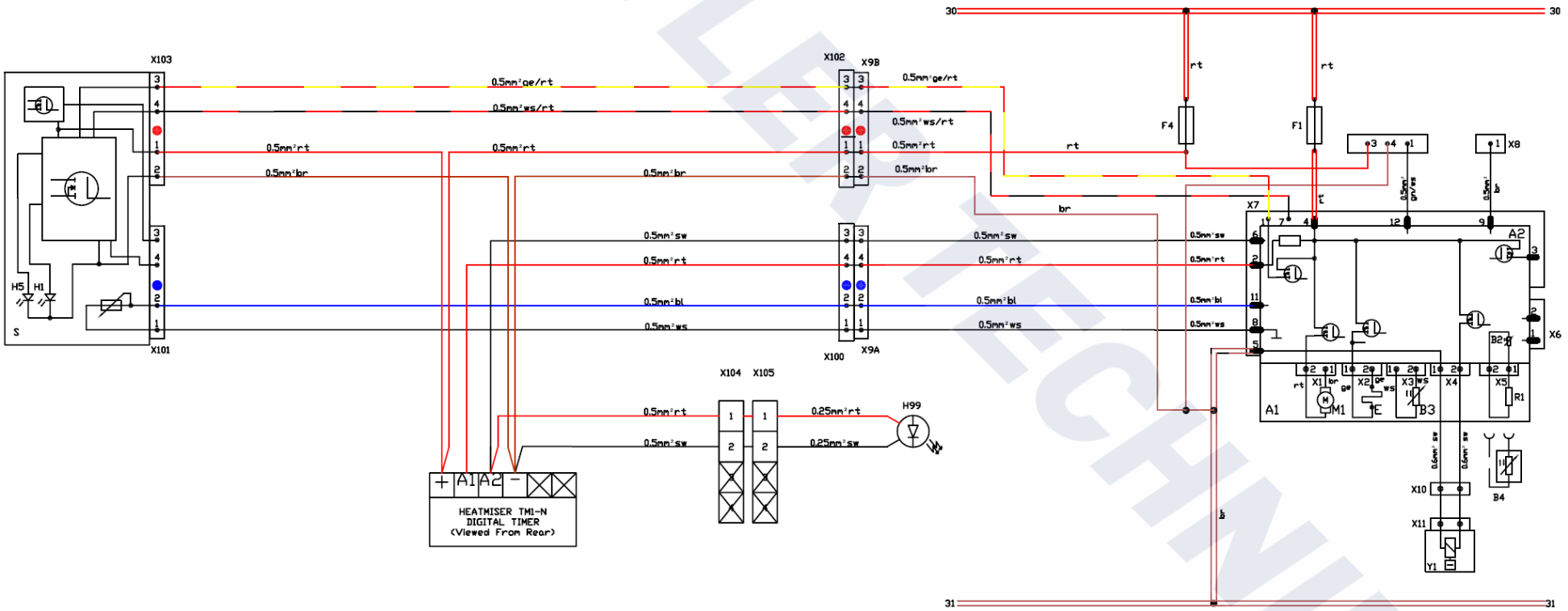












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White Rose Way,
Doncaster, DN4 5JH,
Tel: 01302 322232
Fax: 01302 322231

TITLE:

Airtop EVO TM1-N Timer Intergated with MC04 Heater Control using adapter harness Part Number 4110558A

DRAWN BY:	M Millard	DATE:	19.05.09
CHECKED BY:	xxx	DATE:	
APPROVED BY:		DATE:	

3rd ANGLE PROJ

SHEET: 1 of 1

ORIGINAL SCALE: N.T.S

SCALE REF. 0 40 mm

PAPER SIZE: A2

TOLERANCE: +/- 0.25mm FOR ONE DECIMAL PLACE
+/- 1mm WITHOUT DECIMAL PLACE

ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED

MATERIAL SPEC: N/A

FINISH: N/A

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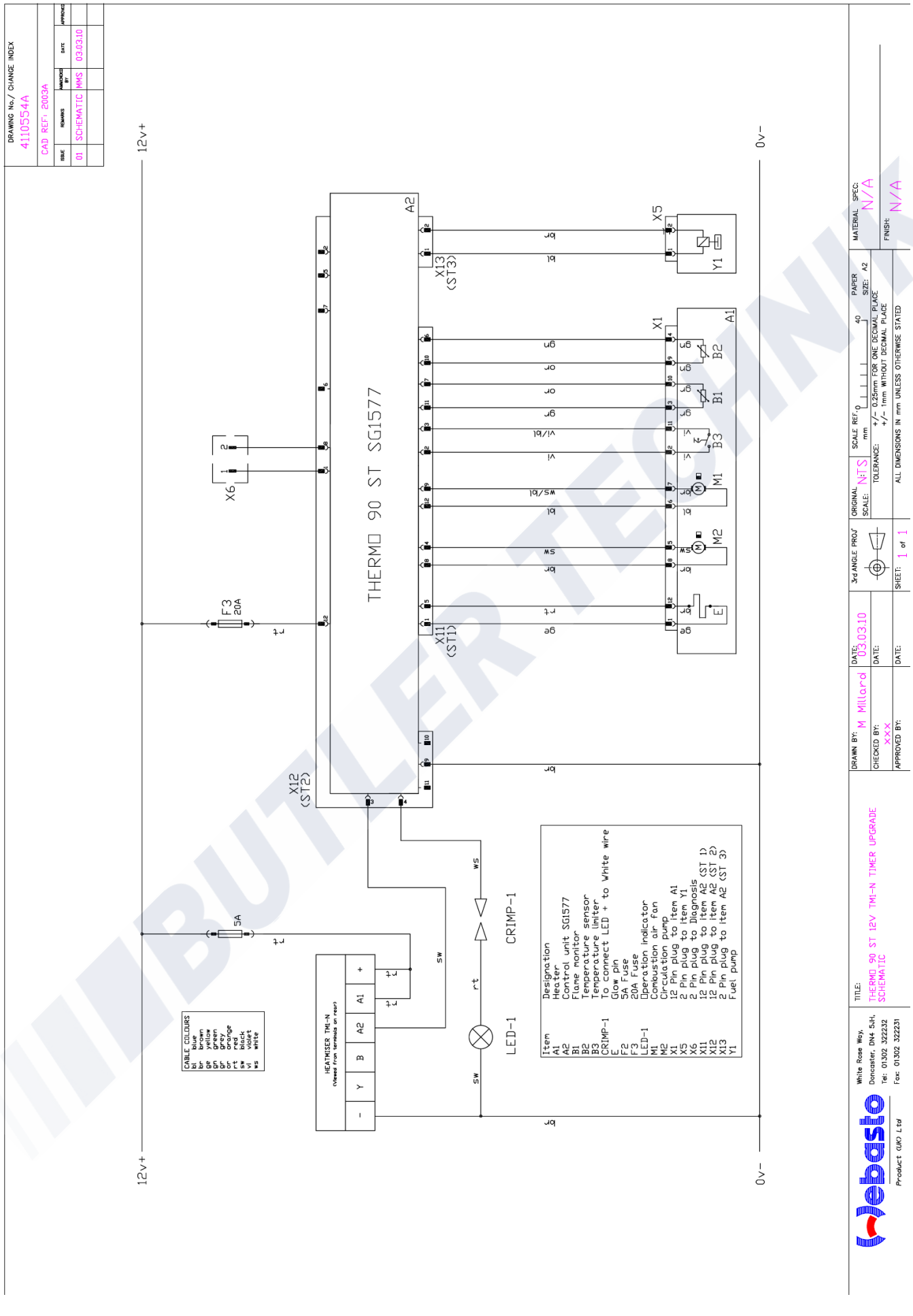

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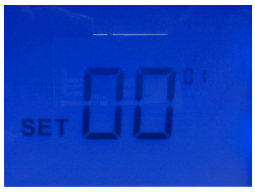
OPERATING INSTRUCTIONS

Setting the clock for the first time

The clock should be supplied set to the correct time. However the clock does not take into account daylight saving time changes, i.e. the transition between GMT & BST. The timer must also be initialised for 7 day 4 event operation also!

To initialise the timer proceed as follows:

1 If not already switched OFF turn the panel OFF by pressing and holding the ⟲ button until the display is switched off.
2 Press and hold the 🕒 key until the image below is displayed:



3 Press the 🕒 key again breifly until you see a small numer '02'.
4 Press the 🡻🡹 keys until you see a large '01'.
5 The end result should be as below: small digits to '02' and the large to '01':

6 To complete the initialisation press the 'A' button briefly to accept the changes.

To set the clock time proceed as follows:

1 To set the clock time first switch the panel ON by pressing the ⟲ button.
2 Press the 🕒 twice briefly.
3 Use the 🡻🡹 buttons to adjust the values and the 'H' button to scroll through hours, minutes and the day settings.
4 When finished press the 'A' to store the changes.

Programming the Timer Panel

The timer can be programmed with up to 4 on-off cycles a day for each 7 days.

To setup the heating ON / OFF periods proceed as follows:

1 The panel should be switched ON if not already on.
2 Press the 🕒 button once breifly and the word 'MON' will flash, (Monday).
3 Select the day you wish to setup by pressing the 🡻🡹 buttons and scrolling through until the day you want to program is highlighted.
4 Press the 'A' button to accept that day.
5 The time will then flash with the words 'TIMER ON' below. This is the start time for heating.
6 Enter the start time using the 🡻🡹 buttons and pressing the 'H' button to accept.
7 The time will flash again with the words 'TIMER OFF' below. This is the OFF time for the heating.
8 Enter the OFF time using the 🡻🡹 buttons and pressing the 'H' button to accept.
9 Repeat the process in steps 6– 8 for the other three ON / OFF times for that day.
10 When the other three ON / OFF times have been set the screen will then display the next day.
11 Continue setting the ON / OFF times for the remaining days and when complete press the 'A' button Twice to confirm and accept the changes.

Holiday mode:

The timer has an in built Holiday function that switches the heating system off for up to 99 days

1 To enable this function press the 'H' button once whilst the panel is switched ON.
2 To increase the amount of days the heating should be OFF use the 🡻🡹 buttons and then press 'A' to store the setting.
3 When holiday mode is active a 'suitcase' icon is displayed.
4 To cancel the holiday mode press the 'H' button and use the 🡻🡹 buttons to return the value to '00'.

Please note that no frost protection is afforded by this panel. For frost protection an additional frost stat must be installed.