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T1200 Spare Motherboard Software Issues

1 Background

A new version of software was released in October 2012 which supported the new T1200-C range of conventional marine panels [version T1200PB00 for T1204 panels and T1200PZ00 for T1216-C, T1216W-C and T1232-C panels].

This software implemented:

- Serial VDR data in line with the new C1714 serial VDR board [part number 2605068].
- Changes to the user selectable Crew Mode functionality in line with changes to the Marine Standards.
- A user selectable option on the T1216W-C panel to change the voting logic of the zonal outputs used to trigger watermist systems in line with the latest changes to Lloyds Register requirements.

2 Functional Differences between the new s/w versions mentioned above and the previous versions

The T1216W-C is now capable of initiating the Water Mist Systems in one of two selectable modes:

- Factory default mode – same as the current T1216W – i.e. operates a zonal relay output in line with the respective zonal fire condition on the T1216W-C panel. [I.e, zone 1 fire operates zone 1 output relay]. These zonal relay signals are used by the Watermist Controller to activate the watermist extinguishing system. The “double knock” voting logic required to activate an extinguishing system resides in the Watermist Controller.
- DIL switch selected “Lloyds Register” mode – the T1216W-C operates the zonal relay outputs for triggering the watermist system on a double-knock fire condition or double-knock zone fire and zone fault. I.e - When this mode is selected, a fire condition on one zone of a zone pair [say Z1 and Z2] will cause the first output of the pair to operate, e.g. a fire on zone 2 will cause output 1 to operate. Subsequently, if there is a fire or a fault condition on the other zone of the zone pair then both outputs will operate, e.g. if zone 1 then enters the fire or the fault condition then output 1 & 2 will operate activating the Watermist zone. A fault on either or both zones of a zone pair without a fire condition on one of the zones will not operate any outputs. The voting logic required to activate an extinguishing system resides in the T1216W-C panel.

The Crew mode feature in the T1200-C panels operates the panel sounder circuits slightly differently to the T1200 panels:

- Sounder Circuit 1 on the panel is assigned to operate immediately for a fire in a machinery space zone, otherwise it is delayed for two minutes.
- Sounder Circuit 2 on the panel is assigned to Bridge/Crew areas and is never delayed.
- Sounder Circuits 3 & 4 (and any expansion sounders) are always delayed for 2 minutes.

3 The Issues

The under mentioned spare PCBAs intended for the T1200 ranges should have been programmed with T1200 software PRENPB22 or PRENP22 but have been incorrectly programmed with the T1200-C software T1200PB/T1200PZ00. Use as replacements in T1200 panels could change the operating mode of the system.

- 509.023.001 - 2605092 T1204 [1.5Amp] motherboard [spare]

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- 509.023.002 - 2605093 T1204 motherboard, no PSU [spare]
- 509.023.003 - 2605094 T1216 motherboard, no PSU [spare]
- 509.023.004 - 2605095 T1232 motherboard, no PSU [spare]

The under mentioned panels have been programmed with T1200-C software T1200PB00/T1200PZ00 and use as replacement for T1200 panels could change the operating mode of the system. In addition, the user documentation accompanying these panels describes the functionality associated with the T1200 software PRENPB** or PRENPZ** and not that of the T1200PB/T1200PZ00.

- 508.023.004 - 2605303 T1216 110/230V AC Panel
- 508.023.005 - 2605304 T1216W 110/230V AC Panel
- 508.023.006 - 2605305 T1232 110/230 VAC Panel

For use in new installations – S/W T1200PB00/T1200PZ00 is approved and compliant with current marine standards and is fully compatible with the panels listed above.

4 Implications for replacing panel or motherboard

4.1 Crew Mode [All panels]

Replacement of an existing T1200 panel programmed with PRENPB** or PRENPZ** with a panel programmed with T1200PB00/T1200PZ00 or replacing the motherboard in a T1200 panel programmed with PRENPB** or PRENPZ** with a motherboard programmed with T1200PB00/T1200PZ00 will affect sounder operation if Crew Mode was configured on the existing system. Sounder circuit 1 on the existing T1200 [PRENPB** or PRENPZ**] system is assigned to Bridge/Crew areas i.e no delay. On the T1200-C [T1200PB00/T1200PZ00], Sounder circuit 1 is assigned to machinery space areas and will be delayed for a fire in a zone configured as a Machinery Space zone.

4.2 Watermist activation signals [T1216W panel]

Replacement of an existing T1216W panel programmed with PRENPB** or PRENPZ** with a panel programmed with T1200PB00/T1200PZ00 or replacing the motherboard in a T1216W panel programmed with PRENPB** or PRENPZ** with a motherboard programmed with T1200PB00/T1200PZ00 will introduce the user option to select the Lloyds Register double-knock voting logic. It will not affect the default mode of operation.

5 Corrective Actions

5.1 Spare Motherboards

- At ordering stage, check software version and PCB reference on existing panel motherboard. [See Fig 1 below]. The order for the spare board should specify the PCB reference and the software reference.
- Prior to installation, check software version and PCB reference on existing panel motherboard and replacement PCB. They should be the same.
- Any T1200 panel which has had the motherboard replaced since 4th Oct 2012:
 - The system test records covering the replacement work should be rechecked. Where the records do not allow verification of the configuration and testing of the Crew Mode feature or, where

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applicable, the T1216W/Watermist system interface, these features should be physically rechecked/retested.

- o NB. If the Crew Mode is not configured then there are no implications. If Crew Mode is used then the impact of the changed Crew Mode functionality should be evaluated. Any replacement T1216W panel should also be checked to ensure the required Watermist activation mode has been correctly configured.
- A copy of Addendum 1 [below] should be appended to the Installation/Commissioning and the User Operation Manuals for future reference.

5.2 Panel replacements

- At ordering stage, check software version and PCB reference on existing panel motherboard. The order should specify the software reference. [See Fig 1 below].
- Prior to installation, check software version and PCB reference on existing panel motherboard and replacement panel. They should be the same.
- Any existing T1200 panel programmed with PRENPB** or PRENPZ** which since 4th Oct 2012 has been replaced with a T1200 panel programmed with T1200PB00/T1200PZ00:
 - o The system test records covering the replacement work should be rechecked. Where the records do not allow verification of the configuration and testing of the Crew Mode feature or, where applicable, the T1216W - Watermist system interface, these features should be physically rechecked/retested. NB. If the Crew Mode is not configured then there are no implications. If Crew Mode is used then the impact of the changed Crew Mode functionality should be evaluated. Any replacement T1216W panel should also be checked to ensure the required Watermist activation mode has been correctly configured.
- Addendum 1 provides details of the Crew Mode and Watermist interface features as implemented in software T1200PB00/T1200PZ00. This detail should be appended to the system's Operating/Maintenance Manual for future reference.

Further details are available in the T1200 and T1200-C User Documentation. Additional information regarding the differences between T1200 and T1200-C product can be found in the T1200-C Training Manual.

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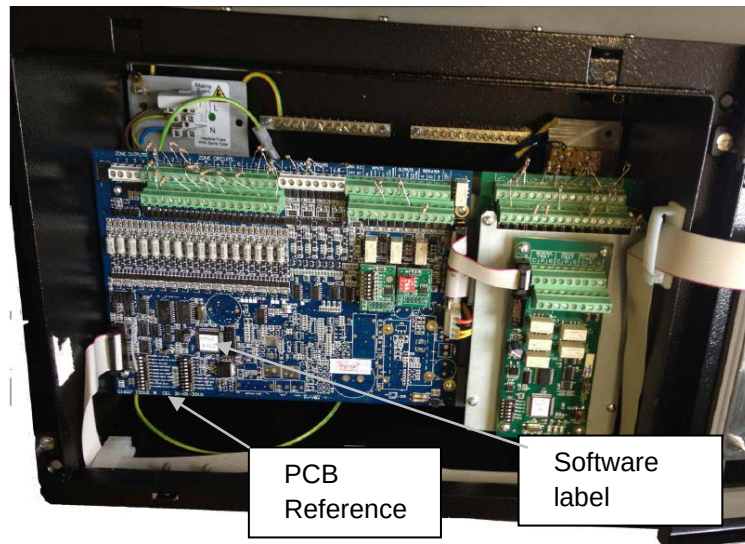


Figure 1 – Location of Software label and PCB Reference

6 Addendum 1 - Details of the Crew Mode and Watermist interface features implemented in software version T1200PB00/T1200PZ00

6.1 C1634 – Fire Protection Output Module

Two C1634 Relay Output boards are fitted to the T1216WC, configured to respond to Zones 1 to 8 and 9 to 16 respectively.

The outputs are used as single signals sent to the Watermist Panel, which then uses them as coincidence signals, assigned as follows:

- Board 1 O/P 1 & 2:- Main Engine Top.
- Board 1 O/P 3 & 4:- Generator Sets 1, 2 & 3.
- Board 1 O/P 5 & 6:- Generator Engine 4.
- Board 1 O/P 7 & 8:- Purifier Space.
- Board 2 O/P 1 & 2:- Boiler Firing Units.
- Board 2 O/P 3 & 4:- Incinerator Firing Units.
- Board 2 O/P 5 & 6:- Zone 7.
- Board 2 O/P 7 & 8:- Not Used.

In the default condition the boards are configured to operate zonally i.e. each output usually operates only for an alarm condition on the respective zone. Each Volt-free contact operates until the panel is reset.

A DIL switch on the panel motherboard (DIL switch 1/3 – DELAY ON AUTO) enables the outputs to be operated in compliance with Lloyds Register of Shipping requirements. When this switch is in the ON position, a fire condition on one zone of a zone pair will cause the first output of the pair to operate, e.g. a fire on zone 2 will cause output 1 to

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operate. Subsequently, if there is a fire or a fault condition on the other zone of the zone pair then both outputs will operate, e.g. if zone 1 then enters the fire or the fault condition then output 1 & 2 will operate. A fault on either or both zones of a zone pair without a fire condition on one of the zones will not operate any outputs.

6.1.1 Crew Alert Mode

- Operation of an automatic fire detector or alert manual call point on any zone operates sounder circuit 2 only [Bridge/Crew areas].
- Operation of an automatic fire detector or alert manual call point on any machinery space zone operates sounder circuits 1 & 2 only (circuit 1 is for machinery spaces only).
- After 2 minute delay, all delayed sounder circuits (including any expansion sounder outputs) operate.
- Operation of an Evacuate manual call point overrides the delay and operates all sounders.
- Manual Fire Alarm/Muster activation overrides delay and operates all sounders.
- Fire O/P and/or Fire Protection O/P can be optionally configured to be delayed along with the sounder circuits.
- DIL switch option to allow delay to restart on a new fire condition if Alarms are silenced before the end of the delay.

6.2 Turning the Delay Mode on/off

6.2.1 STANDARD (NON-CREW) MODE

The delay is automatically turned on when any of the outputs are configured to be delayed and automatically turned off when all of the outputs are configured not to be delayed. The DELAY LED illuminates to indicate that the delay is on. Pressing the DISABLE button will illuminate the relevant fault LEDs to show which circuits have been set to the delay mode.

6.2.2 CREW MODE

CREW mode is enabled by setting DIL switch 2/6 OFF & 2/7 ON.

The delay is automatically turned on in Crew mode and applies to all sounder circuits except circuits 1 & 2 on the panel motherboard.

Sounder circuit 2 is intended for Bridge/crew areas and is never delayed.

Sounder circuit 1 is intended for machinery space areas and is not delayed for a detector alarm in a machinery space zone but is delayed for a detector alarm in any other zone. The DELAY LED will not be illuminated unless the Fire O/P and/or the Fire Protection O/Ps are optionally configured for the delay mode.