Ultra Electronics
SERVICE BULLETIN

This Service Bulletin complies with British Civil Airworthiness Requirements, Sect. A, Chapter A5-3.

Signed . . . . . .

Approval Nos. CAA.JB.02019 and DAI/1501/39
October 1, 1999

SERVICE BULLETIN No. C8E38-75-003

ENGINE AIR - COMPRESSOR CONTROL - BLEED VALVE CONTROL

BLEED VALVE CONTROL UNIT

INTRODUCTION OF BVCU TYPE NUMBER C8E38-15

(R-R Mod. No. RB211-75-C824)

1. Planning Information

A. Effectivity

(1) Boeing 757 aircraft

RB211 engines: 535E4-37, -37/10, -37/11, -37/12, -37/14, -37/16, -37/17, -37/19, -37/20, -37/23, -37/24, -B-37, -B-37/15, -B-37/20, -B-37/21, -B-37/25.

(2) Tupolev TU204 aircraft

RB211 engines: 535E4-B-75.

(3) Bleed Valve Control Unit

Type Numbers C8E38-9, C8E38-11 and C8E38-12, all Serial Numbers.

B. Reason

(1) Problem

(a) Under certain conditions of electrical power loss and/or BVCU internal failures, in-flight engine surge or shut-down could occur.

(b) The presence of internal noise could result in the spurious generation of fault code No. 79.

(c) Failure of the +5V(B) supply could result in in-flight engine surge or shut-down.

(d) Under certain operating conditions, engine surge could occur at high altitude.

(e) There is an operational requirement to allow a rapid engine re-light.

(f) During flight testing, it was found that a reslam surge could occur at high altitude.

(2) Evidence

The problems highlighted above have arisen during airline service.

(3) Substantiation

The changes introduced by this Service Bulletin (Modification) have been shown by satisfactory unit, rig and flight testing to eliminate the problems

(4) Objective

Incorporation of this Service Bulletin (Modification) is designed to maintain the engine surge margins, to prevent spurious fault code generation and to allow for a rapid engine re-light.

The solution to the problem outlined in sub-para. B(1)(a) above involves a change to the engine wiring. The BVCU internal wiring has also been changed to ensure non-interchangeability with unmodified aircraft.

(5) Effect of this Bulletin on :

Operation	Affected
Maintenance	Affected
Overhaul	Affected
Repair Schemes	Not affected
Interchangeability of unit on/with engine	Affected
Interchangeability of parts within the unit	Affected

NOTE: It is essential that parts are installed in the BVCU as a set. The manufacturer recommends that all BVCUs in a shipset have the same Type No.

(6) Supplemental Information

Because this Service Bulletin introduces a new BVCU Type No., there is no manufacturer's Mod. No. The modification plate on new or modified units will be blank.

For all other information refer to R-R Service Bulletin RB211-75-C824.

C. Description

This Service Bulletin introduces a BVCU Type No. C8E38-15 which incorporates the following changes. Refer to Ultra Electronics CMM 75-32-02, Description and Operation, page 1, for details of the BVCU circuitry.

(1) Revised Logic for the HP2 Solenoid

This change inverts the sense of the HP2 solenoid drive voltage in the BVCU. A complementary change in the engine system also inverts the solenoid drive sense. Under normal operating conditions, these changes do not affect solenoid operation. However, for power loss or for certain internal failures the HP2 solenoid, which was to be closed in the safe state, will now be open.
Within the BVCU, this change is accomplished by a modification to the Rate and Scheduling 2 Board (R&S2). The override EPROM, IC24, which controls operation of the HP2 solenoid is loaded with a modified schedule. This logically inverts the sense of the HP2 drive signal at pin 13 (DQ2). It also ensures that the HP2 solenoid will be driven open in the event of certain internal failures occurring.

(2) Solution of the Code 79 Problem

This involves the addition of an R/C noise filter on the Fault Monitor 2 Board (FM2) at the HP2_CUR_MON input. This does not affect the functionality of the FM2 board and will ensure that no spurious code 79s are generated

(3) +5V(B) Supply Failure

This change ensures that the transient BVCU state is requested immediately failure of the +5V(B) supply is detected (as a precaution, this is also applied to the +5V(C) and +15V supplies).

Furthermore, in order to provide a latched transient condition, supply failure will also trigger the confirmation timer/latch circuit which was introduced by the C8E38-11 standard. This has a confirmation time of 10 seconds and latches the transient request for the remainder of the current flight.

These changed functions are implemented on the R&S2 Board by tracking changes and by use of a previously spare OR gate.

(4) Correction of a 42k Altitude Surge Problem

The operation of the IP2 bleed valve is rescheduled at high altitude. IP2 now closes at 333 $N_2/\sqrt{T_2}$ units for the steady state condition, and remains open up to 362 $N_2/\sqrt{T_2}$ units. The new 333 $N_2/\sqrt{T_2}$ switch has the same hysteresis as the -9 BVCUs and the existing 362 $N_2/\sqrt{T_2}$ switch retains the same hysteresis as in the -12 BVCUs.

At low altitude, the IP2 bleed valve operates to the existing schedule.

(5) Rapid Engine Re-light

The requirement to facilitate rapid engine re-lighting necessitates a change to the PLA back-up override schedule. This now takes control when $N_2/\sqrt{T_2}$ is outside the range 80 units to 474 units. The current lower limit is 120 units.

The 120 units switch will be used, as before, to control the HP3 bleed valve opening and closing in steady state, to set a demand for the transient bleed valve schedule and to hold the steady state settling timers reset below this 120 units.

(6) HP3.1 Bleed Valve Opening During High Altitude Transients

The 318 $N_2/\sqrt{T_2}$ units switch, controlling the opening and closing of the HP3.1 bleed valve, will be raised to 326 units. The current hysteresis is retained. This will result in the HP3.1 bleed valve opening during high altitude transients up to 326 $N_2/\sqrt{T_2}$ units. During steady state conditions, the bleed valve will be closed.

(7) SoftwareChanges

Consequent upon the changes described above, some routines in the FM2 Board have been revised and new software has been produced for these.

(6) Electrical Balking

Because of changes to the engine wiring resulting from the HP2 solenoid drive inversion, it has become necessary to ensure that unmodified BVCUs are not fitted to modified engines. This has been achieved by a wiring change on the motherboard/flexi-rigid assembly. The GROUND CHECK selection input now enters the unit on pin 18 of the front panel connector PL2, instead of pin 17.

D. Compliance

RECOMMENDED

The manufacturers recommend that this Service Bulletin is accomplished when the engine is disassembled to a level where access can be gained to the BVCU and to the

relevant part(s) of the engine wiring (see R-R Service Bulletin RB211-75-C824).

E. Approval

R-R Modification RB211-75-C824 was approved by a representative of the United Kingdom Civil Aviation Authority (CAA) on September 13, 1999.

Ultra Electronics Service Bulletin C8E38-75-003 was approved by Rolls-Royce on September 20, 1999.

F. Manpower

Not applicable - Operators are to return BVCUs to the manufacturer (Ultra Electronics Controls Division) or to an approved Repair Station for accomplishment.

G. Material Cost and Availability

The manufacturer will accomplish this Service Bulletin on request on BVCUs returned for investigation/repair.

H. Tooling - Price and Availability

Not applicable.

J. Weight and Balance

Weight and balance are not changed by this modification.

K. Electrical Load Data

Accomplishment of this Service Bulletin does not change the aircraft electrical load.

L. References

Ultra Electronics Component Maintenance Manual Ref. 75-32-02.

Rolls-Royce Service Bulletin No. RB211-75-C824.

2. Accomplishment Instructions - General Note

A. Accomplishment by Operators

As mentioned in paras. 1.F and 1.G, the manufacturer will accomplish this Service Bulletin on all BVCUs returned by Operators. Operators are, therefore, not required to carry out any shop work on BVCUs.

B. Accomplishment by the Manufacturer and by the Manufacturer's Agents

Detailed procedures for accomplishing this Service Bulletin on BVCUs Types C8E38-9, C8E38-11 and C8E38-12 will be found in the following pages.

(1) If you are modifying a BVCU Type C8E38-9, carry out the procedures detailed in paras. 3, 4, 5 and 8.

(2) If you are modifying a BVCU Type C8E38-11, carry out the procedures detailed in paras. 3, 4, 6 and 8.

(3) If you are modifying a BVCU Type C8E38-12, carry out the procedures detailed in paras. 3, 4, 7 and 8.

WARNING: ALL CRINKLE WASHERS USED IN THIS UNIT ARE MADE OF CADMIUM PLATED BERYLLIUM COPPER. ALL BERYLLIUM PRODUCTS, WHEN FRACTURED, ARE A TOXIC HAZARD. UNDER NO CIRCUMSTANCES MUST ABRASIVE MATERIALS BE USED ON BERYLLIUM PRODUCTS

CAUTION: WORK ON THE UNIT MUST BE CARRIED OUT IN A CLEAN ROOM WITH A CONTROLLED AND FILTERED ATMOSPHERE. DO ALL WORK AT AN APPROVED METAL-OXIDE SEMICONDUCTOR (MOS) WORKSTATION. USE APPROVED ANTI-STATIC PROCEDURES TO PREVENT STATIC DISCHARGE DAMAGE.

NOTE: Modification of the BVCU PCBs requires you to carry out soldering work on conformally coated boards. Read the procedures for this work in CMM 75-32-02, page 601 and up. Make sure that you are familiar with all the techniques involved before you start.

3. Accomplishment Instructions - All BVCUs - Initial Work

A. Remove the Lid Assembly and Labels

(1) Refer to CMM 75-32-02, Disassembly, and carry out the work detailed in para. 2.A.

(2) If you are working on a Type C8E38-9 BVCU, discard the lid but retain the lid gasket for future re-assembly. For other BVCU Types, retain the lids and gaskets for future re-assembly

(3) Remove and discard the identification and modification labels.

B. Remove all the PCBs

(1) Refer to CMM 75-32-02, Disassembly, and carry out the work detailed in para. 2.B.

(2) Discard the R & S 1 and R & S 2 PCBs.

C. Remove the Motherboard and Flexi-rigid Assembly

(1) Refer to CMM 75-32-02, Disassembly, and carry out the work detailed in paras. 2.C., 2.D. and 2.E.

(2) Retain all the disassembled items for future re-assembly.

(3) Taking care to avoid straining the flexi-rigid sub-assembly, place the motherboard on a flat work-surface, with the solder side uppermost.

4. Accomplishment Instructions for Specific BVCU Types

A. BVCUs Type C8E38-9

Carry out the detailed modification work in para. 5.

B. BVCUs Type C8E38-11

Carry out the detailed modification work in para. 6.

C. BVCUs Type C8E38-12

Carry out the detailed modification work in para. 7.

5 Modifications to Convert C8E38-9 BVCUs to C8E38-15

A. Modify the FM1 PCB

(1) Identify, remove and discard the following components :

R41, R42, R45, R46, C43, C44, C50, C51

(2) Using the equipment wire in the modification kit, fit a link between the PCB pads previously occupied by C50.

(3) Using the equipment wire in the modification kit, fit a link between the PCB pads previously occupied by C51.

(3) Remove and discard the old identification labels and fit the new labels from the modification kit, showing the new FM1 Pt.No. 012-CE-00-0020, REV. ISS. 2.

B. Modify the FM2 PCB

(1) Refer to CMM 75-32-02, Repair, page 601 and familiarise yourself with the procedures for soldering work on conformally coated PCBs.

(2) Using the latest issue of the self-test program 012-CE-00-0017, program the FM 2 PCB and test it.

(3) Erase the program and re-program, using the latest issue of PL Document 017-CE-00-0057.

(4) Refer to Fig. 1 and identify the place where the PCB tracking is to be cut.

(5) Using an approved tool, cut the tracking in two positions to isolate the R10A and R20A pads. Ensure that you remove all traces of swarf.

(6) Remove the conformal coating locally, as required, in the work areas.

(7) Drill four 1.98mm (±0.05mm) diameter holes in the positions shown in Fig. 1. Remove all traces of swarf.

(8) Obtain three pins Pt. No. 23352-656-0-8, and one pin Pt. No. K3334-753-0-8 from the Mod. Kit and fit as follows :

Pins Pt. No. 23352-656-0-8 in positions C29B, R19A and R19B.
Pin Pt. No. K3334-753-0-8 in position R20A.

(9) Obtain capacitor C29 and resistor R20 from the Mod. Kit.

(10) Fit C29 and R20 as shown in Fig. 1. C29 must be bonded to the PCB using Dow Corning adhesive RVT3145 (or its equivalent). In addition, the lead of C29 which is soldered to pin 'A' must be sleeved using sleeving from the Mod. Kit.

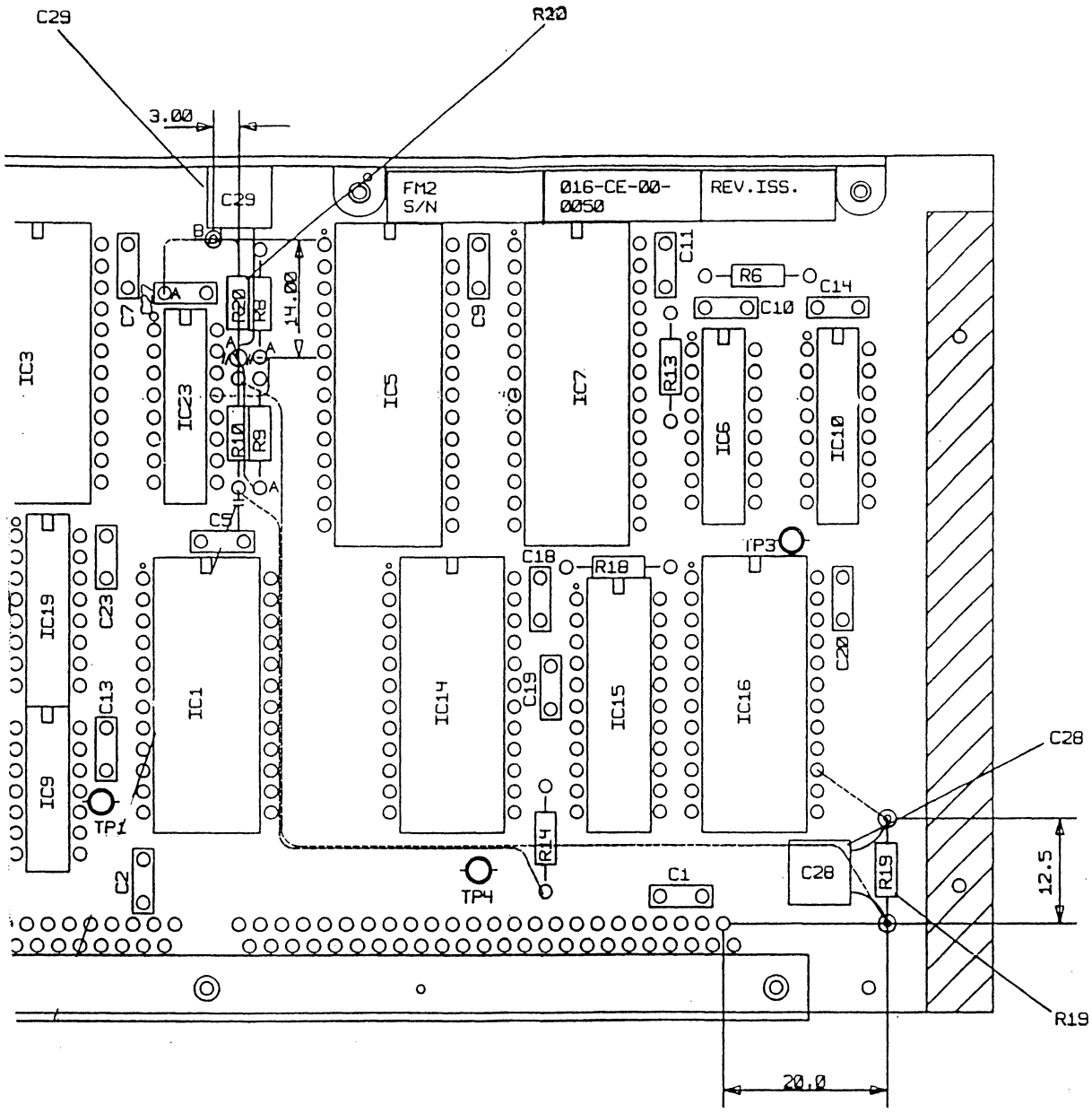
(11) Refer to Fig. 1 and identify the six links which are to be fitted. These are all on the solder side of the PCB and are :

FROM	TO	FROM	TO
C29/R20 (pin 'A')	R9A	R10 (pin 'A')	R14A
C29/R20 (pin 'B')	C27A	R10 (pin 'B')	R19B
IC23, pin 13	R8A	R19A	IC16, pin 15

(12) Using wire from the Mod. Kit, cut the links to size and form them as shown in Fig. 1.

(13) Solder the links in place.

(14) Using Dow Corning adhesive RTV3145 (or its equivalent), tack each link to the surface of the PCB at about 25mm intervals.



FM2 PCB Modification – C8E38-9 BVCU
Figure 1

(15) Remove and discard the original PCB labels and fit new labels from the Mod. Kit. Endorse the S/N label with the original PCB serial number. Endorse the Pt. No. label with the new part number, 017-CE-00-0050.

(16) Repair the conformal coating as detailed in CMM 75-32-02, Repair, page 605. Add a layer of conformal coating over the new labels.

(17) Store the modified FM 2 PCB in an anti-static bag until you are ready to install it into the BVCU.

C. Modify the Motherboard

(1) Refer to Fig. 2 in this Service Bulletin. On the motherboard, locate and identify the pin connections listed in the table in Fig. 2.

(2) Refer to CMM 75-32-02, Repair page 601 and up, and familiarise yourself with the procedures for soldering work on conformally coated boards.

(3) After removing the conformal coating locally around each pin connection, make up a set of links using Raychem Type 44, 7/0.0063 wire, Part No. 44A702926 (or its equivalent). Form the stripped ends of each link into tinned hooks of a size to fit over the protruding connector pins.

(4) Solder the links to the connector pins, ensuring that a good fillet of solder is formed around each hook.

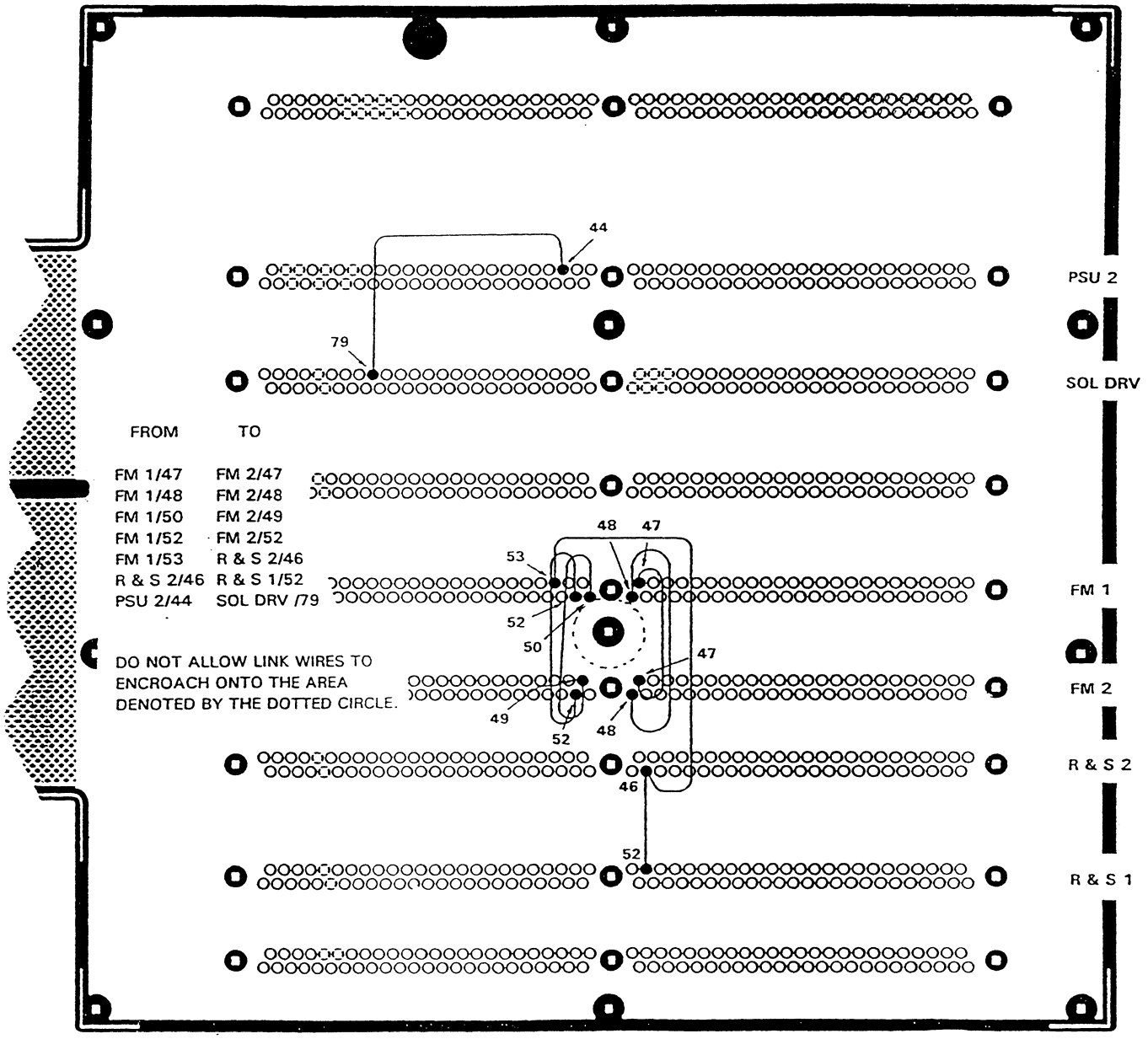
(5) Using Dow Corning adhesive RTV 3145 (or its equivalent), tack each link to the motherboard surface at frequent intervals.

(6) Refer now to Fig. 3 in this Service Bulletin, and locate resistor R7 and pins 17 and 18 of PL2.

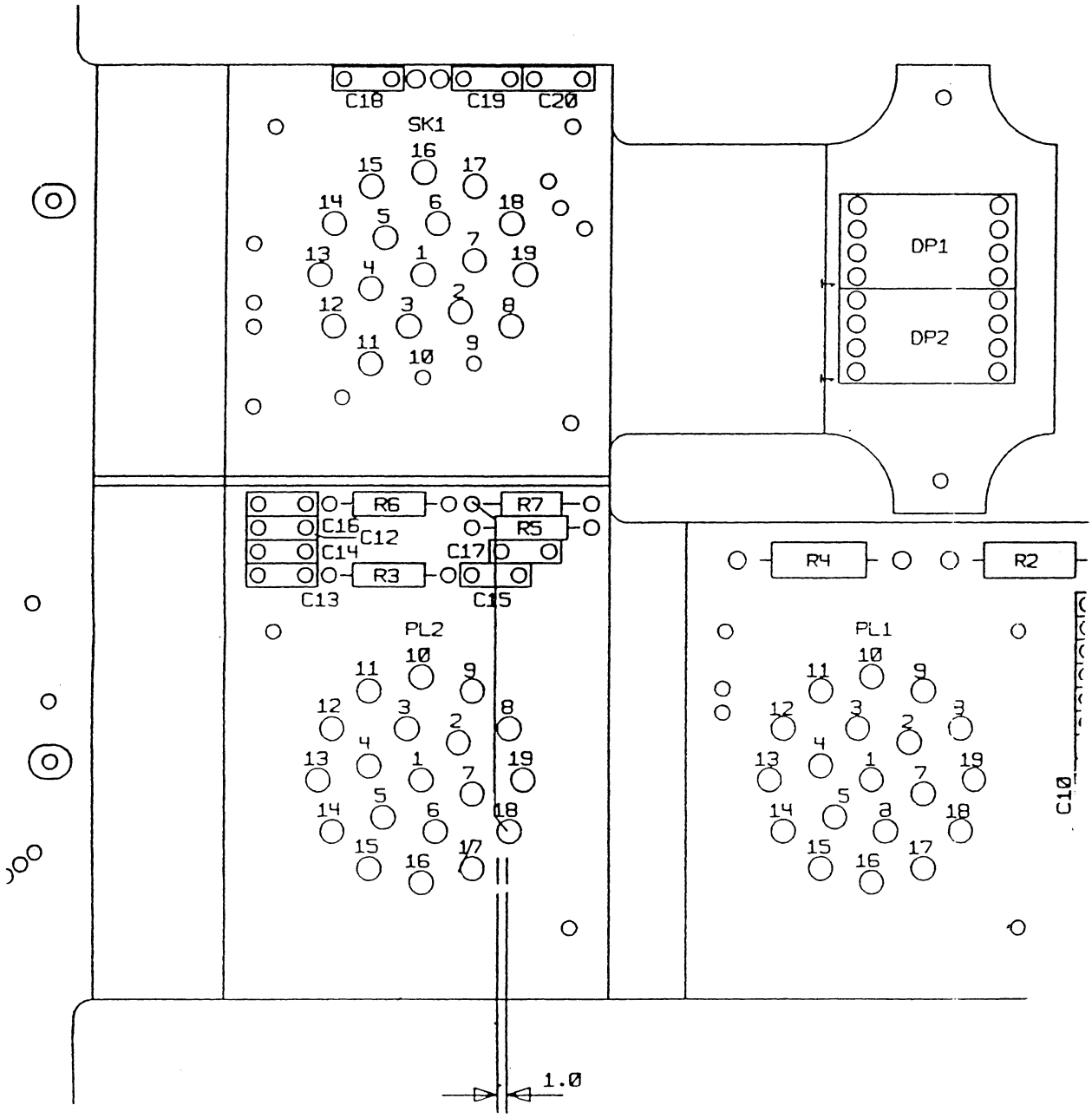
(7) Unscrew and discard the nine central polarising posts, one on each of the nine PCB connectors.

(8) Obtain nine new polarising posts from the Mod. Kit, apply a coat of Loctite 222 to the threads and install in place of the original posts.

(9) Remove the conformal coating locally as required in the work areas.



Motherboard Modifications (1) – C8E38-9 BVCU
Figure 2



Motherboard Modifications (2) – All BVCUs
Figure 3

(10) Using an approved tool, cut the PCB tracking between R7 and pin 17 of PL2, in the position shown in Fig. 3. Ensure that all traces of swarf are removed.

(11) Also, cut the track between pins 33 and 42 of the R & S 1 connector. Ensure that all traces of swarf are removed.

(12) Using a continuity tester, check that an open circuit exists between R7 and pin 17 of PL2 and between pins 33 and 42 of the R & S 1 connector.

(13) Obtain the link wire from the Mod.Kit. Trim and form it as shown in Fig. 3, so as to link R7 to pin 18 of PL2.

(14) Solder the link netween R7 and pin 18 of PL2 and tack the link to the rigid board using Dow Corning adhesive RTV3145 (or its equivalent). Ensure that the adhesive is not applied on top of component pads.

(15) Solder another link between pin 17 of the R & S 1 connector and pin 81 of the R & S 2 connector. Again, tack the link to the board.

(16) Remove and discard the original labels and fit new labels from the Mod. Kit. Endorse the S/N label with the original assembly serial number. Endorse the Pt. No. label with the new part number as follows :

ORIGINAL PT. NO.	NEW PT. NO.
007-CE-00-0110	016-CE-00-0090

(17) Repair the conformal coating as detailed in CMM 75-32-02, Repair, page 605. Add a layer of conformal coating over the new labels.

(18) Store the modified assembly until you are ready to install it into the BVCU.

D. Refit the Motherboard

(1) Refer to CMM 75-32-02, Assembly, page 705.

(2) Refit the motherboard in accordance with the procedures in para. 3.A.

E. Refit the Remaining Boards

(1) Refer to CMM 75-32-02, Assembly, page 706.

(2) Carry out the procedures detailed in para. 3.B, 3.C and 3.D and fit the following PCBs :

FM1 and FM2 (as modified above)
Solenoid Driver (original PCB)
PSU1 and PSU2 (original PCBs)
Signal Processing (original PCB)
DDU (original PCB)
R & S 1 and & S 2 (new PCBs from the Mod.Kit)

(3) Go to para. 8 of this Service Bulletin.

6. Modifications to Convert C8E38-11 BVCUs to C8E38-15

A. Modify the FM2 PCB

(1) Refer to CMM 75-32-02, Repair, page 601 and familiarise yourself with the procedures for soldering work on conformally coated PCBs.

(2) Using the latest issue of the self-test program 012-CE-00-0017, program the FM 2 PCB and test it.

(3) Erase the program and re-program, using the latest issue of PL Document 017-CE-00-0057.

(4) Refer to Fig. 4 and identify the place where the PCB tracking is to be cut.

(5) Using an approved tool, cut the tracking in two positions to isolate the R12 and in one position to isolate the R10 pad. Ensure that you remove all traces of swarf.

(6) Remove the conformal coating locally, as required, in the work areas.

(7) Drill a 1.98mm (±0.05mm) diameter hole in the position shown in Fig. 4. Remove all traces of swarf.

(8) Obtain a pin Pt. No. 23352-656-0-8 from the Mod. Kit and fit it in the hole.

(9) Obtain capacitor C29 and resistor R20 from the Mod. Kit.

(10) Fit C29 and R20 as shown in Fig. 4. C29 must be bonded to the PCB using Dow Corning adhesive RVT3145 (or its equivalent). In addition, the lead of C29 which is soldered to pin 'A' must be sleeved using sleeving from the Mod. Kit.

(11) Refer to Fig. 4 and identify the three links which are to be fitted. These are all on the solder side of the PCB and are :

FROM	TO
C29/R20 (pin 'A')	R9A
C29/R20 (pin 'B')	C27A
IC23, pin 13	R8

(12) Using wire from the Mod. Kit, cut the links to size and form them as shown in Fig. 4.

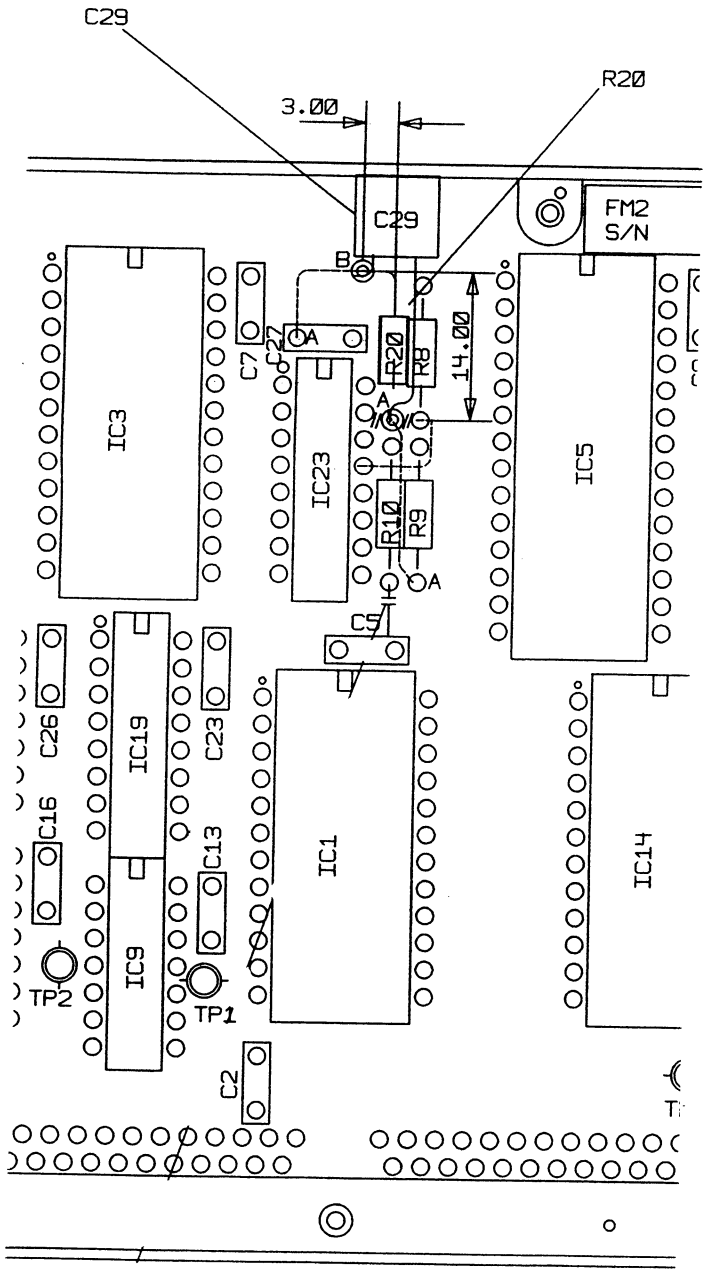
(13) Solder the links in place.

(14) Using Dow Corning adhesive RTV3145 (or its equivalent), tack each link to the surface of the PCB at about 25mm intervals.

(15) Remove and discard the original PCB labels and fit new labels from the Mod. Kit. Endorse the S/N label with the original PCB serial number. Endorse the Pt. No. label with the new part number, 017-CE-00-0050.

(16) Repair the conformal coating as detailed in CMM 75-32-02, Repair, page 605. Add a layer of conformal coating over the new labels.

(17) Store the modified FM 2 PCB in an anti-static bag until you are ready to install it into the BVCU.



FM2 PCB Modifications – C8E38-11 & -12 BVCUs
Figure 4

B. Modify the Motherboard

(1) Refer to Fig. 3 in this Service Bulletin, and locate resistor R7 and pins 17 and 18 of PL2.

(2) Unscrew and discard the nine central polarising posts, one on each of the nine PCB connectors.

(3) Obtain nine new polarising posts from the Mod. Kit, apply a coat of Loctite 222 to the threads and install in place of the original posts.

(4) Remove the conformal coating locally as required in the work areas.

(5) Using an approved tool, cut the PCB tracking between R7 and pin 17 of PL2, in the position shown in Fig. 3. Ensure that all traces of swarf are removed.

(6) Also, cut the track between pins 33 and 42 of the R & S 1 connector. Ensure that all traces of swarf are removed.

(7) Using a continuity tester, check that an open circuit exists between R7 and pin 17 of PL2 and between pins 33 and 42 of the R & S 1 connector.

(8) Obtain the link wire from the Mod.Kit. Trim and form it as shown in Fig. 3, so as to link R7 to pin 18 of PL2.

(9) Solder the link netween R7 and pin 18 of PL2 and tack the link to the rigid board using Dow Corning adhesive RTV3145 (or its equivalent). Ensure that the adhesive is not applied on top of component pads.

(10) Solder another link between pin 17 of the R & S 1 connector and pin 81 of the R & S 2 connector. Again, tack the link to the board.

(11) Remove and discard the original labels and fit new labels from the Mod. Kit. Endorse the S/N label with the original assembly serial number. Endorse the Pt. No. label with the new part number as follows :

ORIGINAL PT. NO.	NEW PT. NO.
012-CE-00-0030	016-CE-00-0080

(12) Repair the conformal coating as detailed in CMM 75-32-02, Repair, page 605. Add a layer of conformal coating over the new labels.

(13) Store the modified assembly until you are ready to install it into the BVCU.

C. Refit the Motherboard

(1) Refer to CMM 75-32-02, Assembly, page 705.

(2) Refit the motherboard in accordance with the procedures in para. 3.A.

D. Refit the Remaining Boards

(1) Refer to CMM 75-32-02, Assembly, page 706.

(2) Carry out the procedures detailed in para. 3.B, 3.C and 3.D and fit the following PCBs :

FM1 (original PCB)
FM2 (as modified above)
Solenoid Driver (original PCB)
PSU1 and PSU2 (original PCBs)
Signal Processing (original PCB)
DDU (original PCB)
R & S 1 and & S 2 (new PCBs from the Mod.Kit)

(3) Go to para. 8 of this Service Bulletin.

7. Modification to Convert C8E38-12 BVCUs to C8E38-15

A. Modify the FM2 PCB

(1) Refer to CMM 75-32-02, Repair, page 601 and familiarise yourself with the procedures for soldering work on conformally coated PCBs.

(2) Using the latest issue of the self-test program 012-CE-00-0017, program the FM 2 PCB and test it.

(3) Erase the program and re-program, using the latest issue of PL Document 017-CE-00-0057.

(4) Refer to Fig. 4 and identify the place where the PCB tracking is to be cut.

(5) Using an approved tool, cut the tracking in two positions to isolate the R12 and in one position to isolate the R10 pad. Ensure that you remove all traces of swarf.

(6) Remove the conformal coating locally, as required, in the work areas.

(7) Drill a 1.98mm (±0.05mm) diameter hole in the position shown in Fig. 4. Remove all traces of swarf.

(8) Obtain a pin Pt. No. 23352-656-0-8 from the Mod. Kit and fit it in the hole.

(9) Obtain capacitor C29 and resistor R20 from the Mod. Kit.

(10) Fit C29 and R20 as shown in Fig. 4. C29 must be bonded to the PCB using Dow Corning adhesive RVT3145 (or its equivalent). In addition, the lead of C29 which is soldered to pin 'A' must be sleeved using sleeving from the Mod. Kit.

(11) Refer to Fig. 4 and identify the three links which are to be fitted. These are all on the solder side of the PCB and are :

FROM	TO
C29/R20 (pin 'A')	R9A
C29/R20 (pin 'B')	C27A
IC23, pin 13	R8

(12) Using wire from the Mod. Kit, cut the links to size and form them as shown in Fig. 4.

(13) Solder the links in place.

(14) Using Dow Corning adhesive RTV3145 (or its equivalent), tack each link to the surface of the PCB at about 25mm intervals.

(15) Remove and discard the original PCB labels and fit new labels from the Mod. Kit. Endorse the S/N label with the original PCB serial number. Endorse the Pt. No. label with the new part number, 017-CE-00-0050.

(16) Repair the conformal coating as detailed in CMM 75-32-02, Repair, page 605. Add a layer of conformal coating over the new labels.

(17) Store the modified FM 2 PCB in an anti-static bag until you are ready to install it into the BVCU.

B. Modify the Motherboard

(1) Refer to Fig. 3 in this Service Bulletin, and locate resistor R7 and pins 17 and 18 of PL2.

(2) Unscrew and discard the nine central polarising posts, one on each of the nine PCB connectors.

(3) Obtain nine new polarising posts from the Mod. Kit, apply a coat of Loctite 222 to the threads and install in place of the original posts.

(4) Remove the conformal coating locally as required in the work areas.

(5) Using an approved tool, cut the PCB tracking between R7 and pin 17 of PL2, in the position shown in Fig. 3. Ensure that all traces of swarf are removed.

(6) Also, cut the track between pins 33 and 42 of the R & S 1 connector. Ensure that all traces of swarf are removed.

(7) Using a continuity tester, check that an open circuit exists between R7 and pin 17 of PL2 and between pins 33 and 42 of the R & S 1 connector.

(8) Obtain the link wire from the Mod.Kit. Trim and form it as shown in Fig. 3, so as to link R7 to pin 18 of PL2.

(9) Solder the link netween R7 and pin 18 of PL2 and tack the link to the rigid board using Dow Corning adhesive RTV3145 (or its equivalent). Ensure that the adhesive is not applied on top of component pads.

(10) Solder another link between pin 17 of the R & S 1 connector and pin 81 of the R & S 2 connector. Again, tack the link to the board.

(11) Remove and discard the original labels and fit new labels from the Mod. Kit. Endorse the S/N label with the original assembly serial number. Endorse the Pt. No. label with the new part number as follows :

ORIGINAL PT. NO.	NEW PT. NO.
012-CE-00-0030	016-CE-00-0080

(12) Repair the conformal coating as detailed in CMM 75-32-02, Repair, page 605. Add a layer of conformal coating over the new labels.

(13) Store the modified assembly until you are ready to install it into the BVCU.

C. Refit the Motherboard

(1) Refer to CMM 75-32-02, Assembly, page 705.

(2) Refit the motherboard in accordance with the procedures in para. 3.A.

D. Refit the Remaining Boards

(1) Refer to CMM 75-32-02, Assembly, page 706.

(2) Carry out the procedures detailed in para. 3.B, 3.C and 3.D and fit the following PCBs :

FM1 (original PCB)
FM2 (as modified above)
Solenoid Driver (original PCB)
PSU1 and PSU2 (original PCBs)
Signal Processing (original PCB)
DDU (original PCB)
R & S 1 and & S 2 (new PCBs from the Mod.Kit)

(3) Go to para. 8 of this Service Bulletin.

8. Accomplishment Instructions – All BVCUs – Final Assembly

A. Fit New Case Labels

(1) From the Mod. Kit, obtain the following labels :

Identification label 017-CE-00-0012
Identification label 017-CE-00-0013
Modification label 32436-127-0

(2) Peel off and discard the original labels, ensuring that the painted surface of the BVCU case is undamaged.

(3) Using a clean cloth moistened with iso-propyl alcohol, clean the mating faces of the new labels and the BVCU case.

(4) Apply a light coating of Loctite Multibond 330 to the mating faces of the new labels and the BVCU case.

NOTE : The following operation must be completed within 15 seconds.

(5) Place each label in its correct position and lightly flatten, using a small roller. Ensure than all air is excluded from between the label and the BVCU case.

B. Lid

If you have modified a BVCU Type C8E38-11 or C8E38-12, you may refit the original lid. If you have modified a BVCU Type C8E38-9, you must fit the new lid, which will be found in the Mod. Kit.

Refer to CMM 75-32-02, Assembly, page 707, and carry out the procedure in para. 3.E.

C. Electrically Test the Modified BVCU

(1) Refer to CMM 75-32-02, Testing and Fault Isolation, page 101.

(2) Carry out a full shop test of the modified BVCU.

D. Pressure Test the BVCU Case

(1) Refer to CMM 75-32-02, Check, page 502.

(2) Carry out all the case pressure tests in para. 4.

E. Record of accomplishment

After accomplishment of this Service Bulletin, the Operator must inform the manufacturer of the following :

- Service Bulletin number.
- Serial Numbers of the BVCU(s) modified.
- Serial Numbers of the PCBs and motherboards modified.
- Date of the modifications.

Send this data to :

North America

Support Manager North America,
Ultra Electronics,
10640 Main Street, Suite 200,
Fairfax, VA, 22030,
United States of America

Rest of the World

Product Support Manager,
Ultra Electronics Controls Division,
Bridport Road, Greenford, Middlesex
UB6 8UA
United Kingdom

In addition the Operator must enter the relevant data into the Aircraft/Equipment Technical Logs in accordance with normal procedure.

9. Material Information

New Pt. No.	Qty	Keyword	Old Pt. No.	Instr. Disp.
017-CE-00-0000 (C8E38-15)	1	Control Unit	007-CE-00-0000 (C8E38-9)	Old part is modified to create a new part. Return to manufacturer.
017-CE-00-0000 (C8E38-15)	1	Control Unit	011-CE-00-0000 (C8E38-11)	Old part is modified to create a new part. Return to manufacturer.
017-CE-00-0000 (C8E38-15)	1	Control Unit	012-CE-00-0000 (C8E38-12)	Old part is modified to create a new part. Return to manufacturer.