Ultra Electronics

LETTER OF TRANSMITTAL

TO: HOLDERS OF ULTRA ELECTRONICS SERVICE BULLETIN 6647-32-6

Introduction

This page transmits Revision No. 1 to Service Bulletin 6647-32-6. Pages 1 and 7 have been revised.

Purpose

Revision No. 1 introduces a revised test procedure associated with Modification No. 4.

Previous Revisions

There have been no previous revisions to, or reissues of, this Service Bulletin

Ultra Electronics
SERVICE BULLETIN

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

Signed .....

CAA Approval No. DAI 1501/39
15 January 1995

SERVICE BULLETIN No. 6647-32-6

LANDING GEAR - EXTENSION AND RETRACTION - CONTROL AND INTERFACE

MODIFICATION No. 4

INTRODUCTION OF MICROPROCESSOR PCB PT. NO. 001LG010450

IMPROVEMENTS TO POWER-UP AND LANE CHANGE TIMINGS

1. Planning Information

A. Effectivity

Airbus Industrie A319, A320 and A321, all models.

Landing Gear Control and Interface Units (LGCIUs), Part Nos. 664700500A4A and 664700500A4B, these serial numbers :

- for LGCIU 664700500A4A, all serial numbers.

- for LGCIU 664700500A4B, all serial numbers thru 1169.

B. Reason

During the production of the 6647 Series LGCIUs, the manufacturer has had problems with changes of tolerance spread in two components used on the microprocessor PCB. The changes occur from batch to batch and cause problems during final test.

In-service performance and reliability are not affected but Operators may have test problems after replacement of either of the two components.

C. Description

This Service Bulletin contains procedures to select, install and test two components on the microprocessor PCB. These procedures prevent subsequent test problems.

Capacitor C1 controls the timing of the first ARINC transmission after power-up. Changes of tolerance spread of C1 may cause problems during subsequent test. Modification No. 4 replaces C1 with a capacitor of lower value which will prevent test problems.

The integrated circuit latch IC14 controls the SELECT OUT pulse which is enabled during lane change. Again, tolerance spread in IC14 may cause problems during subsequent test. These problems occur because IC14 does not have a defined reset state. Modification No. 4 replaces IC14 with a different component which can be reset by a signal from the microprocessor. Test problems will not occur with the new IC14.

It is not necessary for Operators to accomplish this Service Bulletin unless C1 or IC14 are found to be unserviceable during test.

D. Compliance

Compliance with this Service Bulletin is recommended if Operators find that test problems occur in these areas :

- Timing of the first ARINC transmission after power-up (page 138 in CMM 32-31-39).

- Changeover test (page 131 in CMM 32-31-39).

E. Approval

The technical data in this Service Bulletin is approved by the authority of CAA Approval No. DAI/1501/39.

F. Manpower

The work necessary to accomplish this Service Bulletin is :

- Disassemble the LGCIU and remove the microprocessor PCB, Pt. No. 001LG01-0340.	0.25 man-hours
- Remove IC14, C1 and label from the microprocessor PCB	0.2 man-hours
- Install the new components, IC14, C1 and the new label	0.2 man-hours
- Repair the conformal coating on the microprocessor PCB.	0.2 man-hours *
- Install the modified microprocessor PCB into the LGCIU and assemble the LGCIU.	0.25 man-hours
- Do a full test of the LGCIU (on ATE)	0.5 man-hours

* NOTE:

A cure time of 72 hours must be added to the repair time. You may continue work on the LGCIU (to include the test procedure) during the cure time.

G. Material Cost and Availability

A modification kit, Ultra Electronics Part No. 001-LG-01-K010, will be made available to Operators free of charge (refer to para. 3 of this Service Bulletin). Operators must tell Ultra Electronics how many kits are necessary.

Operators must have these consumables; approved alternatives may be used :

- Toluene, purified, to BS6376 Pt. 2.

- Iso-propyl alcohol, to BS1595.

- Primer 1204 (Dow Corning).
- Conformal Coating 1-2577 (Dow Corning)
- Adhesive RTV3145 (Dow Corning)

H. Tooling - Price and Availability

No special tools are necessary.

J. Weight and Balance

Weight and balance are not changed.

K. Electrical Load Data

Modification No. 4 does not change the aircraft electrical load.

L. References

Ultra Electronics Component Maintenance Manual Ref. No. 32-31-39.

2. Accomplishment Instructions

CAUTION: YOU MUST WORK ON THE LGCIU ONLY 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.

A. Disassemble the LGCIU

(1) Refer to CMM 32-31-39, DISASSEMBLY, paras. 2.A and 2.B.

(2) Remove the microprocessor PCB (IPL Fig. 2, item 55).

B. Remove IC14 and C1

(1) Refer to Fig. 1 and find IC14 and C1 on the PCB.

(2) Apply small drops of toluene from a small brush on to the area of the conformal coating near IC14 and C1.

(3) Stop for one to two minutes.

(4) Clean the area with a strong, natural-bristle brush.

(5) If necessary, apply more toluene and clean the area again.

(6) Dry the area and then apply iso-propyl alcohol to the area to remove the toluene.

(7) Do the procedures in sub-paras. (2) to (6) on the other side of the PCB.

(8) Unsolder and remove IC14 and C1. Use a desolder tool to remove all solder from the plated-through holes.

(9) Discard IC14 and C1.

(10) Unsolder, remove and discard the wire link between pin 1 of IC14 and pin 8 of IC7.

C. Install the New Components and the New Identification Label

(1) Take the components from the Modification Kit, Pt. No. 001-LG-01-K010.

(2) Install the new C1 on the PCB and solder in position.

(3) Install the new IC14 on the PCB but do not solder its legs.

(4) Refer to Fig. 1. Install the PTFE sleeve (in the Mod. Kit) over IC14 pin 1 leg and push the sleeve through the plated-through hole until it touches the IC body.

(5) Cut the sleeve to the correct length and make a hook in the end of pin 1 leg. Make sure that there is no contact between pin 1 leg and the PCB track.

(6) Solder all the IC legs except pin 1 to their track pads.

(7) Take the connection wire from the Mod. Kit and make a hook in one end of the wire.

(8) Link the hooks in the IC leg and the wire together and solder the joint. Make sure that there is no contact between the joint and the PCB track.

(9) Refer to Fig. 1. Put the wire in position on the non-component side of the PCB, between IC14 and IC44.

(10) Cut the wire to the correct length and remove a small part of the insulation. Solder the wire to pin 8 of IC44, on the non-component side of the PCB.

(11) Use small amounts of adhesive RTV3145 at distances of 25mm (1 in) to bond the wire to the PCB.

(12) Cut off the unwanted wire from the legs of IC14 and C1. On the non-component side of the PCB, the maximum permitted height of wire above the PCB surface is 1.6mm (0.06in).

(13) Remove the PCB identification label. If necessary, cut around the label through the conformal coating.

(14) Apply the new label from the Modification Kit. Make sure that the new label shows the PCB Part No. 001LG01-0450.

D. Repair the Conformal Coating

(1) Apply iso-propyl alcohol to the repaired areas on both sides of the PCB. Clean these areas. Do not put iso-propyl alcohol on the new identification label.

(2) Apply one layer of primer 1204 to the repaired areas on both sides of the PCB. Apply the primer on to the undamaged coating and on to the new label.

(3) Put the PCB into a fume extraction cabinet for one hour.

(4) Apply one layer of conformal coating 1-2577 to the repaired areas on both sides of the PCB and on to the new label.

(5) Put the PCB into a fume extraction cabinet for 72 hours. To make the repair faster, you can continue to work on the PCB. If you do this, the air in the workroom must be not less than 16°C and not more than 75% relative humidity. Do not touch the coated areas until they are cured.

(2) Refer to CMM 32-31-39, ASSEMBLY, page 701. Do the procedure in para. 2.A.

(3) On the LGCIU front panel, add 'MOD. 4' to the Amendment Label.

F. Test

(1) Refer to CMM 32-31-39, make sure that you have Revision 4 of the CMM. Refer to TESTING AND FAULT ISOLATION, PAGE 101.

(2) Do all the tests in this section of the CMM thru para. 9, with the exception which follows.

Ignore the test in para. 7.E(3); instead, do this procedure :

Power up the LGCIU and check that the end of transmission of the first group of ARINC words occurs less than 225msec after power-up.

G. Notification

After accomplishment of this Service Bulletin, the Operator must tell the manufacturer this data :

- Service Bulletin Number.
- Serial Number(s) of the LGCIU(s) modified.
- Serial Number(s) of the Microprocessor PCB(s) modified.
- Date of modification(s).

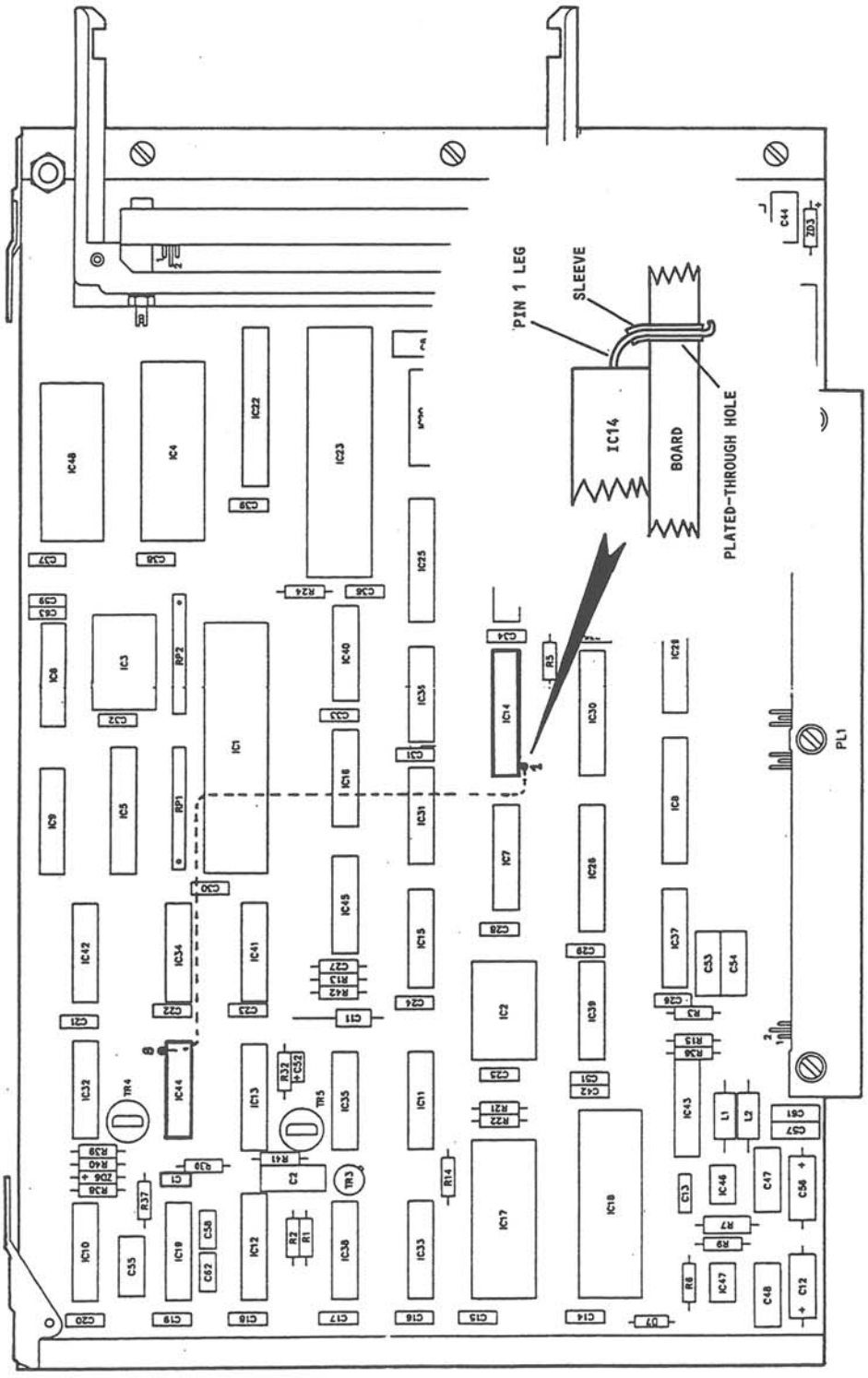
Send this data to :

Project Support Manager (A320),
Ultra Electronics Controls Division,
Bridport Road, Greenford, Middlesex,
UB6 8UA
United Kingdom

. Material Information

New Part Number	Qty.	Keyword	Old Part Number	Inst. - Disposition
001LG01-0450	1	PCB, microprocessor	001LG01-0340	Reworked part
28651-342-0-0	1	Circuit, integrated, IC14	28651-348-3-0	Discard old part. New part in Kit.
26584-565-0-2	1	Capacitor, 2.2μF, C1	26584-571-0-2	Discard old part. New part in Kit
J3414-121-0-3	A/R	Wire, 26AWG	Not applicable	New part in Kit.
18274-431-0-3	A/R	Sleeve, PTFE 1.0mm ID	Not applicable	New part in Kit.
29981-141-0-8	1	Label, identification	Not applicable	New part in Kit.

Modification No. 4 does not change the part number of the LGCIU.



Microprocessor PCB - Modification No. 4
Figure 1