


REV	APPLICATION			REVISIONS		
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DWG. NO.	150-042962					
	PRODUCT LINE	REV	DESCRIPTION	DATE	APPROVED	APPROVED
	C-5000	A	Initial Release per DCN W2730	06/11/03	V. Wallace	
		B	Revised per DCN W2902	06/13/03	R. DELONG	CE SH

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APPROVALS				DATE
DRAWN	V. Wallace	06/05/03		TITLE: SERVICE BULLETIN WSB C-5000-12 CONVERSION TO EXTERNAL DES ENCRYPTION
CHECKED	C. Estes	06/10/03		
PRODUCT MANAGER	S. Hovelsrud	06/10/03		
ENGINEER	G. Hayes	06/10/03		
ISSUED	V. Wallace	06/11/03		SIZE A
		CAGE CODE 1B7G3	DWG NO. 150-042962	REV B
Typed signatures indicate approval. Handwritten signature approval of this document is on file at Wulfsberg Electronics, Prescott, Arizona.		SCALE: NONE		DO NOT SCALE DRAWING



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SERVICE BULLETIN

EQUIPMENT: C-5000

DATE: June 13, 2003

BULLETIN NUMBER: WSB C-5000-12 Revision B

EFFECTIVITY

This service bulletin applies to all 31300-XX02-1XXX to be upgraded to 31300-XX02-4XXX.

REASON

This service bulletin is a customer requested enhancement.

DESCRIPTION

This is an upgrade to a digital capable control head with external DES (Red/Green) encryption.

COMPLIANCE

Upon customer request.

WARRANTY INFORMATION

This modification is an enhancement and is not covered under warranty.

APPROVAL

This modification does not affect the original approval.

MANPOWER

Not applicable.

REFERENCES

C-5000 Maintenance Manual (digital capable), P/N 150-041629.

MATERIAL INFORMATION

The parts required to modify this unit in accordance with this Service Bulletin are available from Wulfsberg Electronics at (928) 708-1518.

PARTS REQUIRED

ITEM	QTY	U/M	PART NUMBER	DESCRIPTION	REF
1	4	EA	234-014791-0000	Resistor, 0 ohm 1/8W SMD	R110, R187 R192, R196
2	1	EA	106-04101-0016	Capacitor, 100pf 5% SMD	C70
3	1	EA	234-014791-2001	Resistor, 2.0k ohm 1/8W SMD	R172
4	1	EA	156-017926-01	Label, Software Mod	
5	1	EA	156-031300-01	Label, C-5000 Control Head	

MODIFICATION PROCEDURE

CAUTION

ANY DISASSEMBLY/ASSEMBLY OF THIS UNIT MUST BE DONE AT A STATIC SAFE WORKSTATION. REMOVED MODULES SHOULD BE PLACED IN ANTISTATIC BAGS WHEN NOT INSTALLED IN THE UNIT.

- A. For 300-031320-01 System Interface cards - to improve wideband audio response, reroute microphone audio, change key erase to active low configuration, and add +5V to microphone bias. (Refer to DETAIL A and DETAIL B).

If the ALC daughter board is present, perform Steps 1-3:

1. Remove R187 from JP2 pads 1-2.
2. Remove the ALC module wire that is soldered to the R140 pad adjacent to R176.
3. Solder that wire on to JP2 (the center pad).

If the ALC daughter board is not present, perform Steps 4-5:

4. Remove R140. Located near JP2, TP15, CR27, and CR19 on component side.
5. Remove R187 from JP2 pads 1 & 2. Install item 1 (Resistor) onto JP2 pads 2 & 3. Located near TP15 on component side.
6. Verify or replace C70 with item 2 (Capacitor). Located near T1, U34, and CR34 on component side.
7. Add R110 using item 1 (Resistor). Located near center of 37 DSUB connector.
Note: This step should be skipped if Service Bulletin WSB 5000-5 is or will be installed. It replaces R110 with a short circuit protection device.
8. Verify R196 is moved from JP8 pads 1 and 2. Install item 1 (Resistor) onto JP8 pads 2 and 3. Located near E91, E81, R7, and R8 on solder side of board.
9. Remove R192 from JP3 pads 1 & 2. Install item 1 (Resistor) onto JP3 pads 2 & 3. Located near U4 on solder side.
10. Replace R172 with item 3 (Resistor). Located near U55 and TP12 on component side.
11. Change System Interface Board P/N to -02.

I. MODIFICATIONS TO MOTOROLA DVP MODULE P/N HLN4423B (FOR REF ONLY)

Reference Motorola Instruction Manual 68P80100W31-B and 68P81065E30-C for component and jumper location.

Reference WED DWG 100-014648 "FLEXCOMM MOTOROLA DVP/DES TECHNICAL CONSIDERATIONS".

The following modifications and jumper settings are recommended.

- A. Remove R44.
- B. Change C28 from a 1uF to a 15uF Dipped Tantalum Capacitor.
- C. Remove R71 and replace with a 1N914 Diode with Cathode toward J2-22.
- D. If security housing is being installed, verify the following jumper configuration:

JU-1	Out	Positive Ground
JU-2	In	Negative Ground
JU-3	Out	Positive Ground
JU-4	In	Negative Ground
JU-5	Out	Positive Ground
JU-6	In	Negative Ground
JU-7	Out	Positive Ground
JU-8	In	In Equalizer Used
JU-9	Out	In Equalizer Bypass
JU-12	In	Lamp Driver Enable
JU-13	In	Proper Code Out-PL Disable
JU-15	Out	DES/DVP Operation
JU-16	In	DES/DVP Operation
JU-17	In	Radio Alert Tone LVL
JU-18	In	Radio TX Audio In
JU-19	In	Radio Alert Tone LVL
J4	In	KeyLoad Switch Enable *shown w/o secure housing
J5	In	Operate/Standby Switch* shown w/o secure housing
J6	Out	Key Erase/Anti Tamper SW *shown w/o secure housing.

TESTING PROCEDURE

Reference the Maintenance Manual and align per "C-5000 Alignment Procedure for DES/DVP Encryption" then perform a complete functional test of the unit.

IDENTIFICATION PROCEDURE

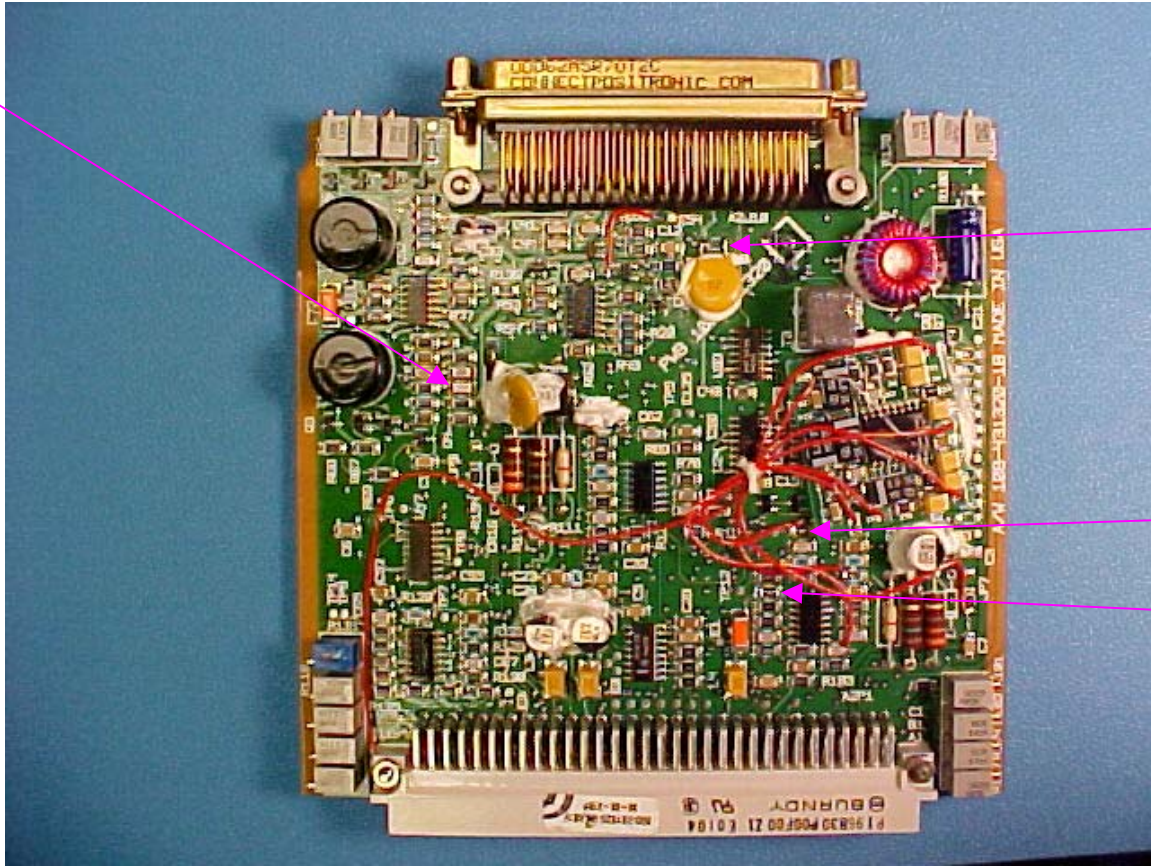
Remove the original labels and affix the new Control Head label (item 5) and Software Mod label (item 4) after marking per the following:

1. Transfer the unit serial number to the new label and mark a capital “M” in front of the serial number.
2. Mark the new part number, software Mod, and hardware Mod per the following table.

Original C-5000 P/N	Refurbished C-5000 P/N	Software MOD	Hardware MOD
31300-aa02-1de0	31300-aa02-4de0	07	3

a, d, e = Any digit

C70

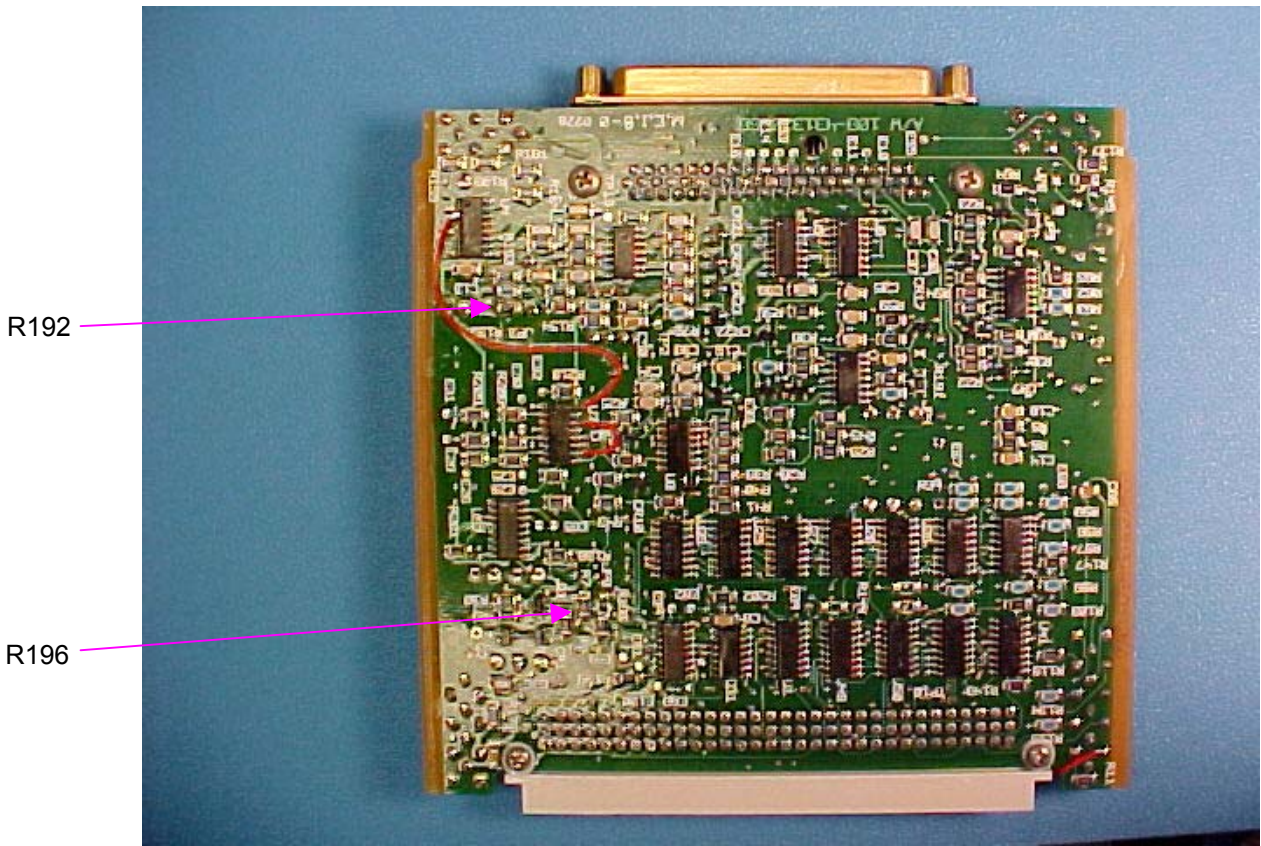


R110

R187

R172

DETAIL A



DETAIL B