



REVISIONS

LTR	ECO	DESCRIPTION	DATE	APPROVED
A	N/A	See DCN	12-8-80	<i>RFB</i>
B	N/A	See DCN	1-15-81	<i>RFB</i>
	N/A	See DCN		

8411200405 841105
PDR ADOCK 05000280
F PDR

SIGNATURE		DATE	TITLE	
PROD TEST	<i>J. King</i>	<i>12/11/80</i>	MC170AD-Q2 (Less Plug-In Cards)	
ENGINEERING	<i>R. R. Black</i>	<i>12/9/80</i>		
QUAL CONTROL	<i>R. P. Hunt</i>	<i>12-11-80</i>	NUMBER	REV
			ATP442	B
			SHEET 1	OF 9



ACCEPTANCE TEST PROCEDURE

MC170AD-Q2

(LESS PLUG-IN CARDS)

1.0 GENERAL

The tests herein will determine the functional integrity of the subject module case wiring, including fan function and insulation resistance between isolated circuits. These tests are performed on Module Cases which are being shipped without plug-in circuit cards.

2.0 EQUIPMENT DESCRIPTION

<u>Item</u>	<u>Description</u>	<u>Mfr/Model</u>	<u>Alternate</u>
1	Insulation Resistance Megohmmeter	General Radio GR 1864	Equivalent
2	Digital Multimeter	Data Precision DP248	Equivalent
3	Transducer Simulator	Validyne (VEC) VEC #1528	Equivalent
4	Carrier Demodulator	Validyne (VEC) CD173 (with Relay Cal Option)	None
5	Power Supply	VEC PS171	None
6	Power Supply	VEC PS294	None
7	Analog Board	VEC AB295	None
8	Digital Board	VEC AD296	None

3.0 EXAMINATION OF EQUIPMENT

3.1 Inspection

The Module Case traveler shall be verified for completed in-process inspection sign-offs.

A visual inspection of the completed unit will be made to verify conformance to the applicable engineering drawings. Verify that the Model I.D. and Serial Number label is installed.



3.1 Inspection (Continued)

Review that any special purchase order instructions pertinent to the units under inspection have been incorporated.

Perform the tests covered in Section 4.0.

4.0 PERFORMANCE TESTS

4.1 The tests contained herein verify the MD170AD wiring continuity, insulation resistance, and cooling fan operation.

4.1.1 Insulation Resistance Tests

(MC170AD without Plug-ins installed)

Test the insulation resistance using the GR1864 Megohm-meter, with a test potential of 500 VDC, between the circuits listed. The insulation resistance in every test shall exceed 100 Megohms.

- a) TB101, all pins (1-7) to chassis (one at a time)
- b) Power Line (HI) to Chassis
- c) Power Line (LO) to Chassis
- d) Each Channel Input Connector pins A thru G to Chassis. (25 connectors, 7 pins at a time)
- e) Digital output connector J102, Pin A, B, or C to Chassis

4.1.2 Continuity Tests

Use the DP248 DPM to measure the continuity between the points listed. The continuity shall measure 1.0 Ohms or less in every step.

- a) Power connector J101 Pin C to Chassis
- b) Each Channel Input Connector Pin F to TB101 Pin 3
- c) Each Channel Input Connector Pin G to TB101 Pin 5



4.1.3 Fan Test

Insert the PS171 Power Supply and connect 115 VAC, 60 Hz using power cord connected to J102. Apply power by depressing PS171 power switch.

Observe that the fan rotates efficiently and exhausts air out the right side of the Module Case.

4.1.4 Functional Tests

Connect the equipment as shown in Figure 1. With the simulator and CD173 connected in the Channel 1 position, monitor the DC voltage at the CD173 DC output test point. Calibrate the CD173 span and zero controls to give 0 ± 0.005 VDC at 0 mV/V input and $+ 9.000 \pm 0.005$ VDC at + 9 mV/V input respectively. (Use the LO balance range and 4-Arm input mode position, and 10 mV/V span range of the CD173.)

In each channel position the CD173 and simulator shall be connected and the appropriate test point shall be monitored (as listed on the data sheet). Extender card may be used for access to AB295 test points. The first seven channels are to be jumpered at the analog connector using the jumper connector as shown in Figure 1. With these jumpers in place, outputs will be duplicated in channels 26 thru 32 respectively when inputs are applied at channels 1 thru 7 respectively.

With the simulator set at +9 mV/V, the output of each monitored test point shall be within ± 0.030 VDC of the CD173 DC test point value noted in the Channel 1 position (nominal +9.00 VDC).

In each channel position, the CAL mode shall be momentarily applied (either via the switch at the front of the DB296 or by jumping TB101-2 to TB101-1).



4.1.4 Functional Tests (Continued)

During the CAL mode, the monitored voltage shall be more negative by approximately one Volt DC from the nominal +9 VDC value observed in the normal mode of operation.

Note that green LED is lit at front of AD296.

4.1.5 Digital Output Connections

4.1.5.1 Remove power from the MC170AD. Measure continuity of One Ohm maximum between points listed:

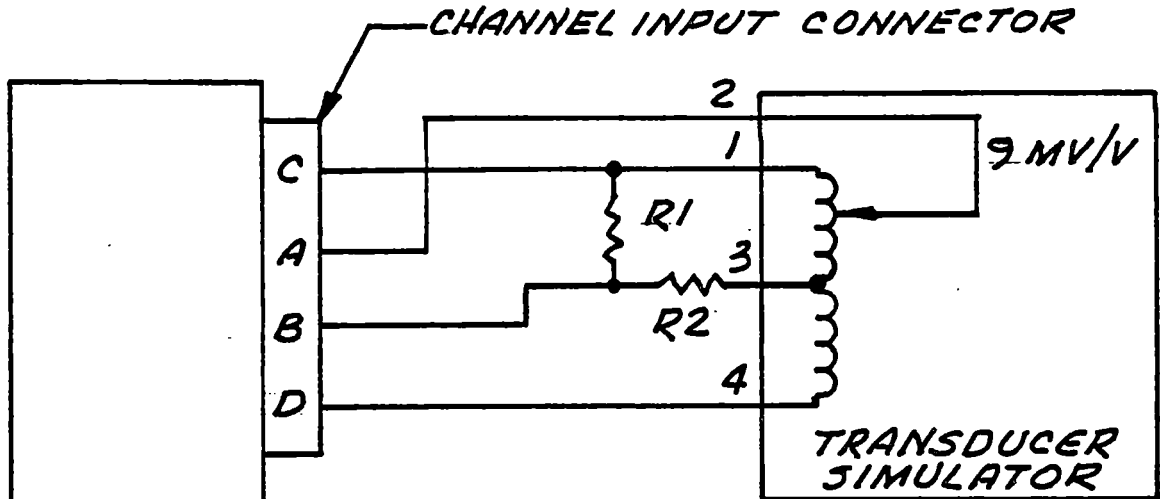
<u>J102</u>		<u>Mother Board</u>
A (RED)		HI
B (BRN)		LO
C (BLK)		D GND
D (GND)		C GND

4.1.5.2 If access to mother board is obscured by top cover, perform continuity test as listed below. Use AD296 extender card for access to AD296 connector pins.

J102-A	to	AD296-4
J102-B	to	AD296-3
J102-C	to	AD296-5
J102-D	to	Chassis



FIGURE 1 - TEST CONNECTIONS
MC170AD TEST PROCEDURE



MC170AD-Q2
 (UNIT UNDER
 TEST)

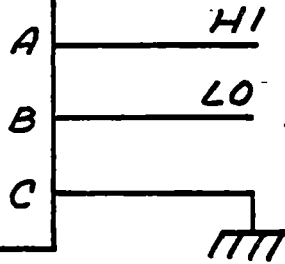
$R1 = 49.9K \pm 1\%$
 $R2 = 100 \Omega \pm 1\%$

J103

PINS JUMPERED:

- B-25 TO A-13
- A-25 TO B-12
- B-24 TO A-12
- A-24 TO B-11
- B-23 TO A-11
- A-23 TO B-10
- B-22 TO A-10

J101



115 VAC 60HZ
 POWER INPUT

CONTAINS: PS294, AB295, AD296,
 PS171 & CD173

(WITH CAL RELAY & - CAL RES = 51.1K ±1%)



TEST DATA SHEET

UNIT UNDER TEST: MC170AD-Q2

UNIT SERIAL NO. _____

TESTED BY _____ DATE _____

Para.

3.1 Visual inspection completed and Module Case traveler signed off
(Ready for Functional Test) _____
Model I.D & S/N label installed _____

4.1.1 Insulation resistance at 500 VDC:
(Greater than 100 Megohms)
with respect to chassis -

- a) TB101-1
-2
-3
-4
-5
-6
-7

- b) Power Line HI (J101-A)
c) Power Line LO (J101-B)

d) Each input CH. connector, Pins A thru G

- CH-1
-2
-3
-4
-5
-6
-7
-8
-9
-10

- CH-11
-12
-13
-14
-15
-16
-17
-18
-19
-20

- CH-21
-22
-23
-24
-25

- e) J102-A
-B
-C



TEST DATA SHEET

MC170AD-Q2 (WITHOUT PLUG-INS)

UNIT SERIAL NO. _____

TESTED BY _____ DATE _____

Para.

4.1.2 Continuity = 1.0 Ohms Maximum

- a) J101-C to Chassis _____.
- b) Each Input Channel Connector:

CH. NO.	PIN F TO TB101-3	PIN G TO TB101-5
CH. 1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____
13	_____	_____
14	_____	_____
15	_____	_____
16	_____	_____
17	_____	_____
18	_____	_____
19	_____	_____
20	_____	_____
21	_____	_____
22	_____	_____
23	_____	_____
24	_____	_____
25	_____	_____

4.1.3 Fan rotation satisfactory _____.



TEST DATA SHEET

MC170AD-Q2

UNIT SERIAL NO. _____

TESTED BY _____ DATE _____

<u>Para.</u>		AB295:	Voltage	-1 VDC Deviation
4.1.4	<u>CH. NO.</u>	LO Pass Filter <u>Test Point</u>	(Within ± 0.03 VDC of CD173 Output)	In CAL Mode
	1,26	A1-A, A7-B	_____	_____
	2,27	A1-B, A7-C	_____	_____
	3,28	A1-C, A7-D	_____	_____
	4,29	A1-D, A8-A	_____	_____
	5,30	A2-A, A8-B	_____	_____
	6,31	A2-B, A8-C	_____	_____
	7,32	A2-C, A8-D	_____	_____
	8	A2-D	_____	_____
	9	A3-A	_____	_____
	10	A3-B	_____	_____
	11	A3-C	_____	_____
	12	A3-D	_____	_____
	13	A4-A	_____	_____
	14	A4-B	_____	_____
	15	A4-C	_____	_____
	16	A4-D	_____	_____
	17	A5-A	_____	_____
	18	A5-B	_____	_____
	19	A5-C	_____	_____
	20	A5-D	_____	_____
	21	A6-A	_____	_____
	22	A6-B	_____	_____
	23	A6-C	_____	_____
	24	A6-D	_____	_____
	25	A7-A	_____	_____

Green LED at DB296 illuminated _____.

4.1.5

Continuity ≤ 1.0 Ohms

<u>J102</u>	4.1.5.1 <u>Mother Board</u>	4.1.5.2 <u>(Alternate)</u>
A (RED)---->	HI _____	AD296-4 _____
B (BRN)---->	LO _____	AD296-3 _____
C (BLK)---->	D GND _____	AD296-5 _____
D (GRN)---->	C GND _____	Chassis _____