



**REVISIONS**

LTR	ECO	DESCRIPTION	DATE	APPROVED
A		See DCN	5/28/81	RFB

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 PDR ADCK 05000280  
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SIGNATURE		DATE	TITLE	
PROD TEST	<i>[Signature]</i>	4/13/81	PS171-Q2 Power Supply for MC170 Acceptance Test Procedure	
ENGINEERING	<i>[Signature]</i> RFB	4/6/81	NUMBER ATP454	REV A
QUAL CONTROL	<i>[Signature]</i>	4/13/81		
			SHEET 1	OF 7



1.0 SCOPE

This document defines the Acceptance Test Procedure (ATP) for PS171-Q2. Either the end item ATP or special test procedure appropriate to a particular contract will define any additional requirements. A sample test report to be used with this ATP is contained in Appendix A.

2.0 EQUIPMENT REQUIRED

Table 1 lists the test equipment required to perform the ATP.

TABLE 1 - Equipment Required for ATP

Description	Manufacturer	Part No. or Model	Alternate
Tester T1097	Validyne	T1097	None
Variac	Superior Electric Co	116	Commercial Equivalent
Digital Multimeters-2	Data Precision	DP248	Commercial Equivalent
Oscilloscope	B & K	1470	Commercial Equivalent
Frequency Counter	Hewlett Packard	5314A	Commercial Equivalent
Megohmmeter	General Radio	1864	Commercial Equivalent

3.0 PRELIMINARY PROCEDURE

- 3.1 Refer to final assembly drawing no. Q10139 and wiring drawing no. Q10196 and visually inspect the unit for completeness and accuracy. Make sure the soldered connections are not touching the metal structural parts, especially under the bridge rectifier printed circuit board (centre board of the complete assembly).
- 3.2 Visually check the fuse rating of F1 on transformer board, it should be rated at 1A and check R31 and R32, on regulator board, these should be 10M ohms and 1k ohm respectively.
- 3.3 Set DMM to measure kOhms at 1kOhm range, connect DMM to chassis ground and ground pin of the power plug. The DMM should read 0.0±0.1ohm.
- 3.4 Connect megohmmeter between HI and chassis ground and set it to 1000V and 10 Megohm range. Measure the isolation resistance and it should be 10Megohm minimum.

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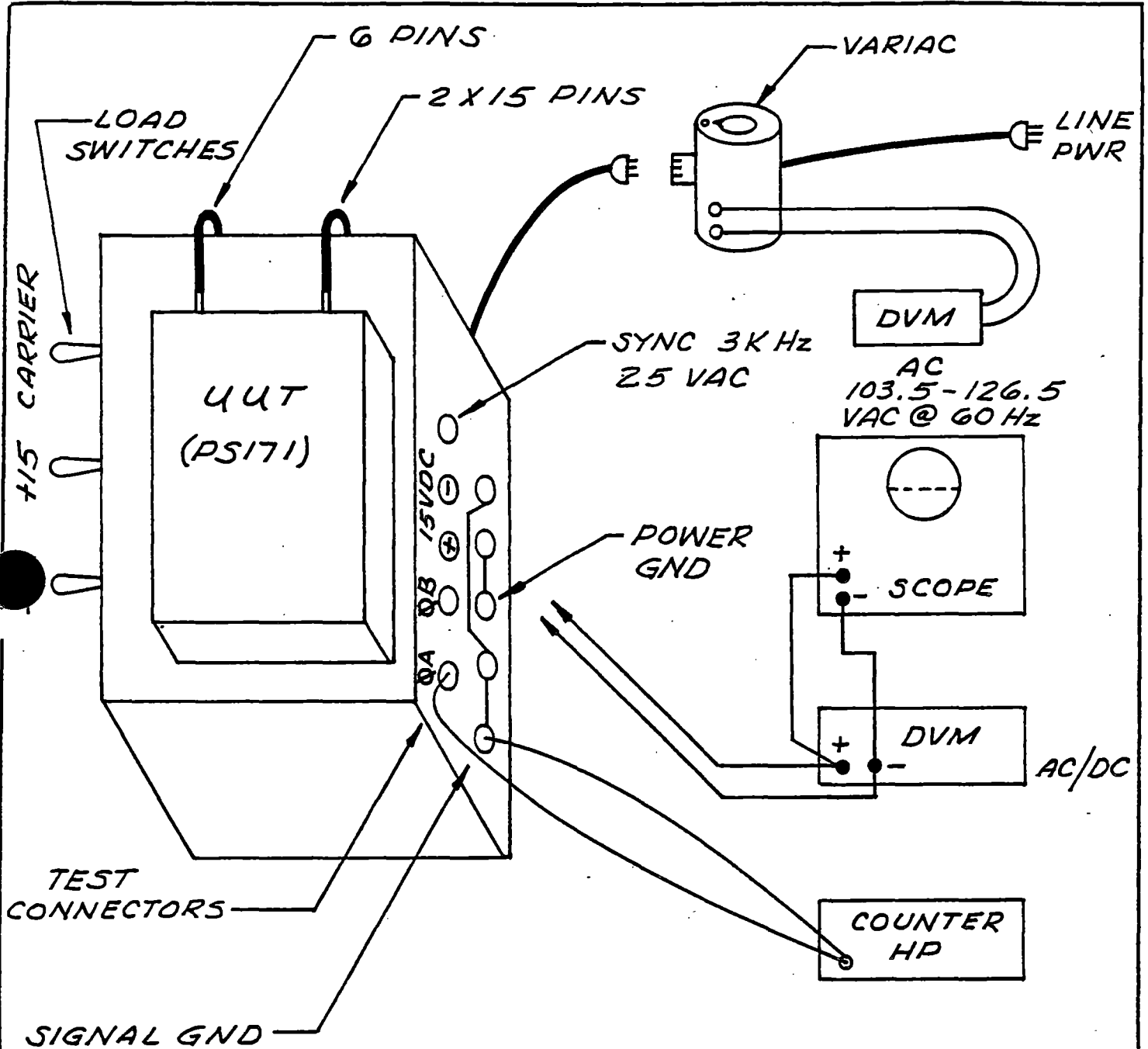


FIGURE 1

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- 3.5 Connect megohmmeter between L0 and chassis ground and repeat isolation resistance measurement. It should be 10 megohm min.
- 3.6 Connect megohmmeter between chassis ground and output ground, set it to 100V and repeat isolation resistance measurement. It should be 10 Megohm min. Disconnect megohmmeter.

#### 4.0 INITIAL TEST SET-UP

- 4.1 Connect the digital multimeters (DMM) PS171-Q2, variac, frequency counter and oscilloscope as shown in figure 1.
- 4.2 Adjust the variac to lowest dial setting.
- 4.3 Plug in the variac to 115V AC socket. Adjust the variac output to 115V AC.
- 4.4 Set carrier, +15 and -15 load/open/short switches, on tester, to open. Adjust +15V, -15V, carrier voltage and carrier frequency as follows:
  - 4.4.1 Adjust +15V potentiometer (R7) on PS171-Q2 to obtain  $-15.00 \pm 0.02V$  DC at +15V DC jacks on tester.
  - 4.4.2 Adjust -15V potentiometer (R13) on PS171-Q2 to obtain  $-15.00 \pm 0.02V$  DC at -15V DC jacks on tester.
  - 4.4.3 Adjust 5V AC potentiometer (R42) on PS171-Q2 to obtain  $2.500 \pm 0.005V$  AC at carrier  $\emptyset A$  on tester. Confirm  $\emptyset B$  is equal to  $\emptyset A \pm 0.002V$  AC.
  - 4.4.4 Adjust 3kHz potentiometer (R34) to obtain  $3.000 \pm 0.006kHz$  at connectors on tester at the carrier terminals and check the sine waveform on the oscilloscope, it should be noise free.

#### 5.0 FUNCTIONAL TESTS

##### 5.1 Load Regulation

All measurements are taken at tester jacks.

- 5.1.1 Measure the +15V DC output and call it E1. Set +15 load/open/short switch to load and measure the +15V DC output again and call it E2. The regulation (E1-E2) should be less than 15mVDC. Indicate acceptance on test report with checkmark.
- 5.1.2 Set +15 open/load/short to open position.

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5.1.3 Measure the -15V DC output and call it E3. Set -15 load/open/short switch to load position and measure -15V DC again and call it E4. The regulation (E3-E4) should be less than 15mV DC. Indicate acceptance on test report with checkmark.

5.1.4 Set -15 load/open/short switch to open position.

5.1.5 Set the DMM to read AC voltage and connect com. to output ground and HI to  $\emptyset$ A output.

5.1.6 Measure 2.5 VAC carrier and call it E5. Set carrier load/open/short switch to load position and measure carrier voltage again and call it E6. The regulation (E5-E6) should be less than 7mV AC. Indicate acceptance on test report with checkmark. Disconnect DMM.

## 5.2 Line Regulation

All output measurements are made at connectors on tester and at 100% load.

5.2.1 Set +15, -15 and carrier load/open/short switches to load positions.

5.2.2 Connect DMM to +15 output terminals and set it to read VDC.

5.2.3 Raise the AC line voltage, by adjusting variac, to 126.5V AC and note the +15V DC reading. Lower the AC line voltage to 103.5V AC and again note the +15V DC reading. The difference between two readings should be less than 10mV DC. Indicate acceptance on test report with checkmark. Disconnect DMM.

5.2.4 Connect DMM to -15 output terminals.

5.2.5 Note the -15V DC reading. Raise the AC line voltage to 126.5V AC and again note the -15V AC reading. The difference between two readings should be less than 10mV DC. Indicate acceptance on test report with checkmark.

5.2.6 Connect DMM to carrier  $\emptyset$ A terminals and set it to read AC volts.

5.2.7 Measure and note the 2.5V AC. Lower the AC line voltage to 103.5V AC and again measure and note 2.5V AC. The difference between two measurements should be less than or equal to 2mV AC. Indicate acceptance on test report with checkmark. Disconnect DMM from tester.

## 5.3 Output Ripple

Unless otherwise specified all measurements are done at 103.5V AC line, at 100% load on all outputs and at connector jacks on tester.

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5.3.1 Connect DMM to +15V DC output and measure the AC mV, the reading should be less than or equal to 5mV AC. Indicate acceptance on test report with checkmark. Disconnect DMM.

5.3.2 Connect DMM to -15V DC output and measure the AC mV the reading should be less than or equal to 5mV AC. Indicate acceptance on test report with checkmark. Disconnect DMM.

#### 5.4 Short Circuit Test

5.4.1 Adjust the AC line voltage to 115V AC.

5.4.2 Connect oscilloscope to +15V DC terminals, set it to DC coupling and 0.5V/Div. range. Set +15 load/open/short switch on tester to short. The output pulse, on oscilloscope, should be  $60 \pm 20$  mSec,  $0.75 \pm 0.2$  Vp-p (volts peak to peak). Indicate acceptance with checkmark on test report.

5.4.3 Set +15 load/open/short switch to open.

5.4.4 Connect oscilloscope to -15V DC terminals instead of +15V DC. Set -15 load/open/short switch to short. The output pulse on the oscilloscope should be  $60 \pm 20$  mSec and  $0.75 \pm 0.2$  Vp-p. Indicate acceptance with checkmark on test report.

5.4.5 Set -15 load/open/short switch to open.

5.4.6 Set carrier load/open/short switch to short. The carrier LED should be off in short position and should be fully on when the switch is either set to load or open position. Indicate acceptance with checkmark on the test report.

#### 5.5 Carrier Disable Test

5.5.1 Connect DMM to carrier terminals on the tester and set to read AC volts.

5.5.2 Set carrier ON/OFF switch to OFF position, the DMM should read zero and the carrier LED should be off. Indicate acceptance on test report with checkmark.

5.5.3 Set Carrier ON/OFF switch to ON position. The carrier should turn fully on and the carrier LED should light up. Indicate acceptance on test report with checkmark.

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Appendix "A"  
SAMPLE TEST REPORT

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# TEST REPORT

ASSY PS171-Q2 Power Supply for MC170

S/O \_\_\_\_\_

CUSTOMER \_\_\_\_\_

W/O \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

TESTED BY \_\_\_\_\_

DATE \_\_\_\_\_

<u>Paragraph/Step</u>	<u>Accepted</u>	<u>Specification</u>
5.1 Load Regulation		
5.1.1 +15V DC regulation	_____	15mVDC max.
5.1.3 -15V DC regulation	_____	15mVDC max.
5.1.6 Carrier regulation	_____	7mVAC max.
5.2 Line Regulation		
5.2.3 +15V DC regulation	_____	10mVDC max
5.2.5 -15V DC regulation	_____	10mVDC max
5.2.7 Carrier regulation	_____	2mVAC max
5.3 Output Ripple		
5.3.1 +15V ripple	_____	5mVAC max
5.3.2 -15V ripple	_____	5mVAC max
5.4 Short Circuit Test		
5.4.2 Voltage pulse & on time (+15V)	_____	0.75±0.2Vp-p 60±20mSec
5.4.4 Voltage pulse & on time (-15V)	_____	0.75±0.2Vp-p 60±20mSec
5.4.6 Carrier LED (with short)	_____	OFF
Carrier LED (without short)	_____	ON

QC \_\_\_\_\_

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# TEST REPORT

ASSY PS171-Q2 Power Supply for MC170

S/O \_\_\_\_\_

CUSTOMER \_\_\_\_\_

W/O \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

TESTED BY \_\_\_\_\_

DATE \_\_\_\_\_

Paragraph/Step

Accepted

Specification

5.5 Carrier Disable Test

5.5.2 Carrier LED

\_\_\_\_\_

OFF

5.5.3 Carrier LED

\_\_\_\_\_

ON

QC \_\_\_\_\_

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