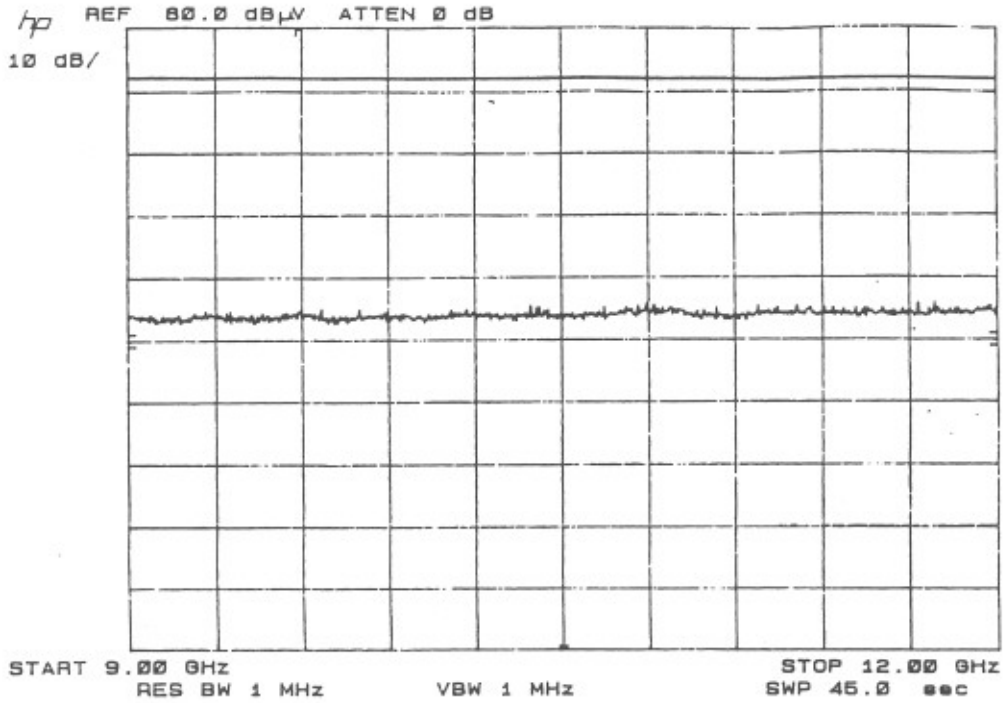

Figure 3-54 Radiated Emissions, Narrow Band 9.0 to 12.0 GHz

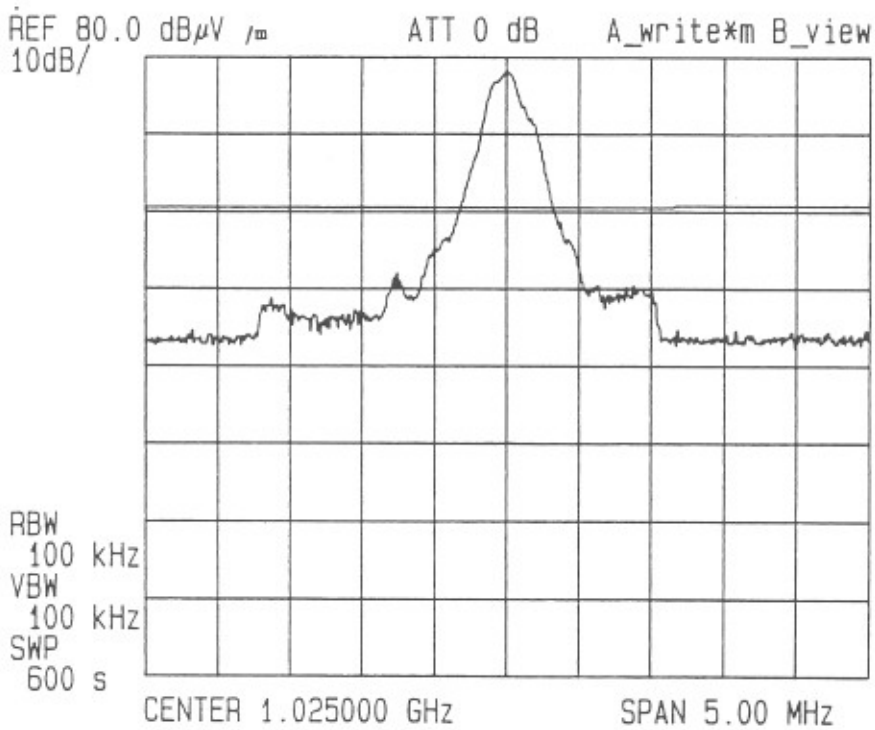

Figure 3-55 Radiated Emissions, Narrow Band Centered on Channel 1X

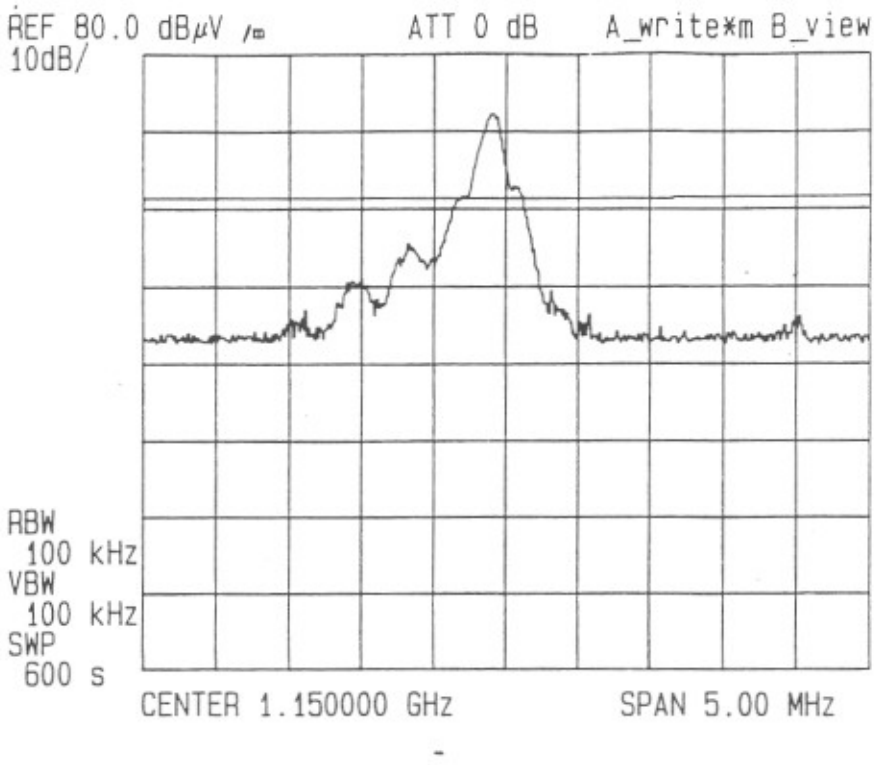

Figure 3-56 Radiated Emissions, Narrow Band Centered on Channel 126X

3.6 Frequency Stability (2.995)

The test equipment was set up as shown in Figure 3-57. The spectrum analyzer was set to a slow sweep and into a storage mode. The peak of the spectrum was assumed to be the carrier frequency and the maximum deviation of the peak from the desired carrier frequency was recorded as the error. An example of this technique is shown in Figure 3-58 for channel 1X and Figure 3-59 for channel 64Y.

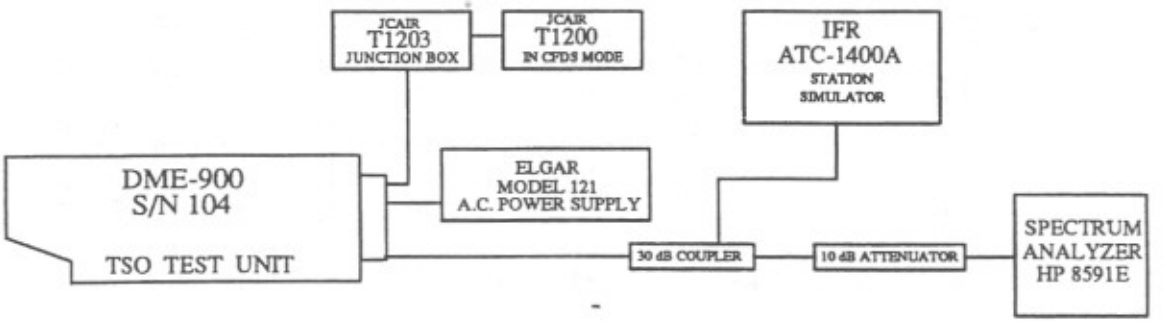

Figure 3-57 Equipment Set-up For Measuring Frequency Stability At The Antenna Port

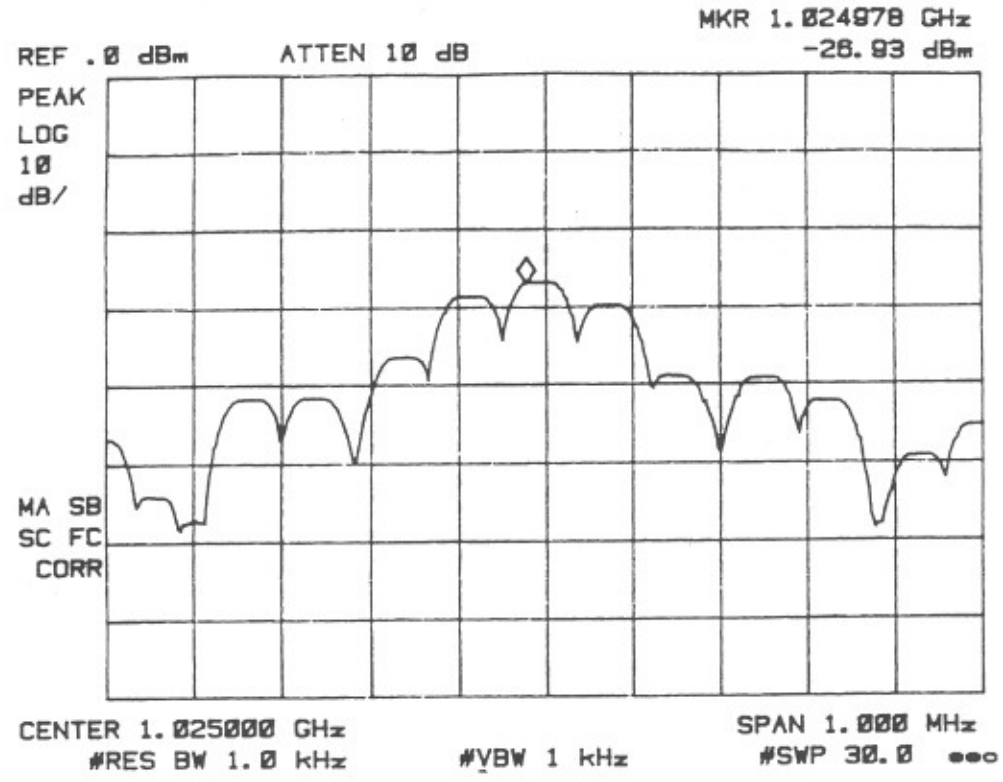

Figure 3-58 Frequency Stability of Channel 1X

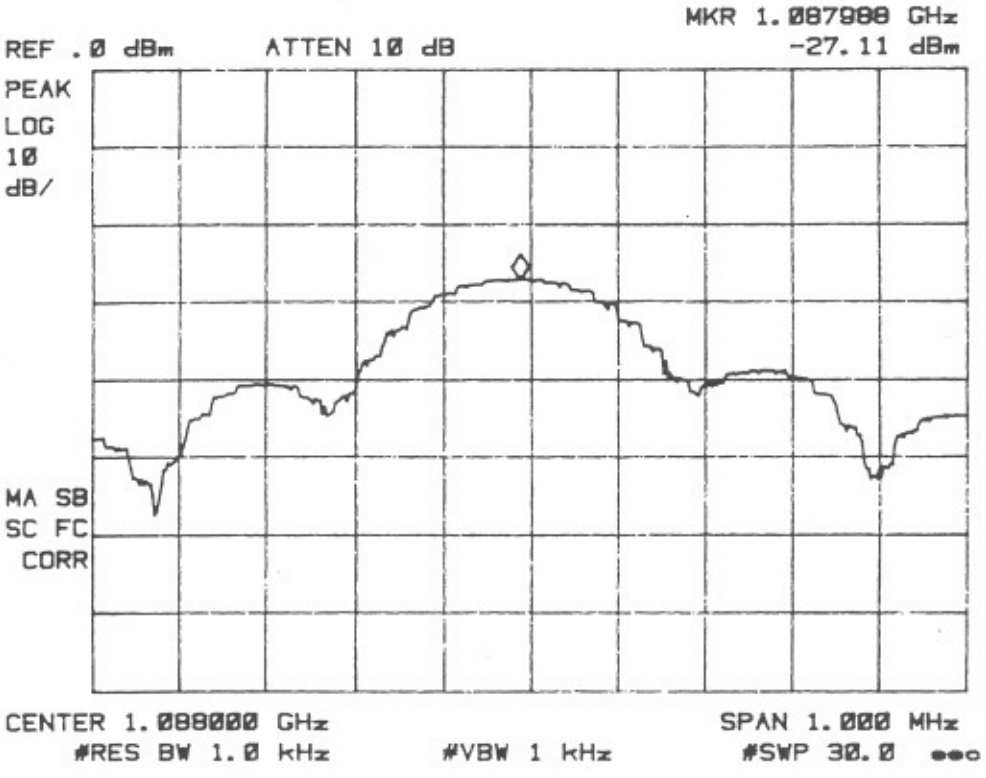

Figure 3-59 Frequency Stability of Channel 64Y

3.6.1 Frequency Stability With Temperature Variation (2.995 (a, b) (2))

The DME-900 was placed in the temperature chamber and stabilized on temperatures of -20,-10,0,10,20,30,40, and 50 deg c. The Local Oscillator (LO) output frequency (L-Band) was measured at the antenna port are recorded for each temperature for both X and Y channels.

3.6.1.1 Frequency Vs Temperature X-Channels

	Frequency Error ± *							
CHAN	-20 C	-10 C	0 C	+10 C	+20 C	+30 C	+40 C	+50 C
1	+50	+45	+33	+35	+28	+23	-25	-25
12	+48	+38	+33	+35	+25	-30	-30	-30
23	+43	+33	+28	+25	-35	-30	-32	-32
34	+50	+40	+35	+35	+30	+28	-25	-22
45	+55	+45	+40	+35	+35	+25	-27	-22
56	+58	+40	+40	+40	+35	+28	-30	-22
67	+55	+45	+40	+40	+28	+28	-25	-20
78	+48	+43	+43	+40	+30	-22	-30	-27
89	+45	+38	+33	+28	+20	-27	-30	-30
95	+43	+30	+33	+25	+20	-30	-35	-25
100	+40	+35	+28	+28	+23	-30	-30	-30
111	+33	+33	+20	+20	-32	-25	-32	-32
126	+35	+28	+25	+28	+18	-30	-32	-27

* data shown is the error in KHz from the assigned channel frequency

3.6.1.2 Frequency Vs Temperature Y-Channels

	Frequency Error ± *							
CHAN	-20 C	-10 C	0 C	+10 C	+20 C	+30 C	+40 C	+50 C
1	-10	+08	+05	-07	-10	0	-02	-05
12	-07	-10	-07	0	-02	-02	-30	-22
23	-30	-25	-17	-17	-10	-25	-30	-37
34	-10	-07	-15	-17	-17	+03	-07	-10
45	-10	+03	-12	-02	-17	-20	-20	-05
56	-20	-12	+03	-17	-07	0	-20	-10
67	-30	-10	-12	-02	-02	-20	-12	-10
78	-12	-12	-02	+10	-17	0	-10	-20
89	-17	+03	-20	-27	-07	-25	-20	-20
95	+10	-10	-20	-02	-10	-17	-22	-25
100	+13	-12	-15	0	-17	-27	-32	-07
111	+05	-27	-10	-25	-27	-32	-32	-35
126	-22	+03	-12	+08	-02	-05	-17	-07

* data shown is the error in KHz from the assigned channel frequency

3.6.2 Frequency Stability With Voltage Variation (2.995 (d) (1))

The LO output was measured at the antenna port with the line voltage set at 85%, 100%, and 115% of the nominal line voltage of 115 vac.

3.6.2.2.1 Frequency Vs Line Voltage X-Channels

CHAN	ASSIGNED FREQUENCY	FREQ ERROR * 97.75(85%)	115(100%)	132.25(115%)
1	1025	-22	-25	-30
12	1036	-27	-32	-35
23	1047	-32	-42	-40
34	1058	-27	-30	-35
45	1069	-30	-35	-37
56	1080	-27	-35	-40
67	1091	-30	-32	-37
78	1102	-27	-30	-35
89	1113	-25	-22	-27
95	1119	-30	-35	-37
100	1124	-27	-35	-37
111	1136	-27	-35	-35
126	1150	-37	-42	-40

* data shown is the error in KHz from the assigned channel frequency

3.6.2.1 Frequency Vs Line Voltage Y-Channels

CHAN	ASSIGNED FREQUENCY	FREQ ERROR * 97.75(85%)	115(100%)	132.25(115%)
1	1025	-20	-10	-12
12	1036	-15	-10	-07
23	1047	-05	-12	-15
34	1058	-22	-20	-17
45	1069	-10	-02	-07
56	1080	-07	-17	-17
67	1091	-40	-40	-22
78	1102	-40	-40	-40
89	1113	-30	-35	-37
95	1119	-10	-12	-15
100	1124	-10	-07	-07
111	1136	0	+05	+23
126	1150	-42	-42	-40

* data shown is the error in KHz from the assigned channel frequency

4. EQUIPMENT IDENTIFICATION PLATE (2.993 (f))

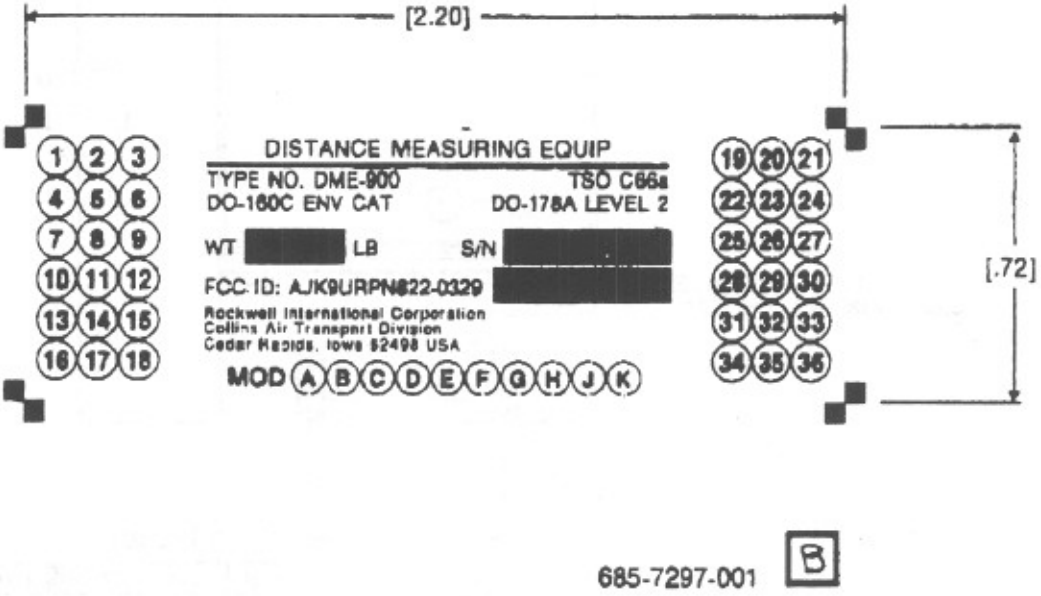

Figure 4-1 DME-900 Equipment Identification Plate

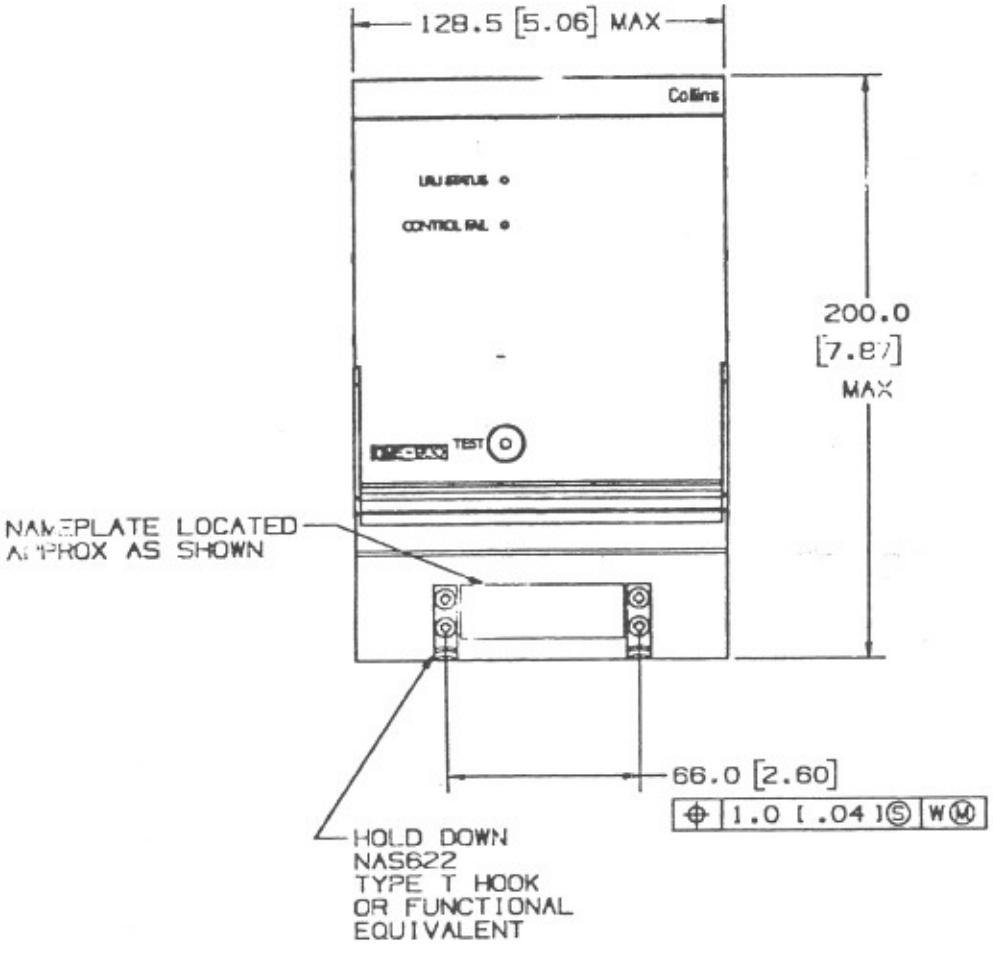

Figure 4-2 DME-900 Equipment Installation Drawing

5. EQUIPMENT PHOTOGRAPHS (2.993 (g))

5.1 List Of Photos

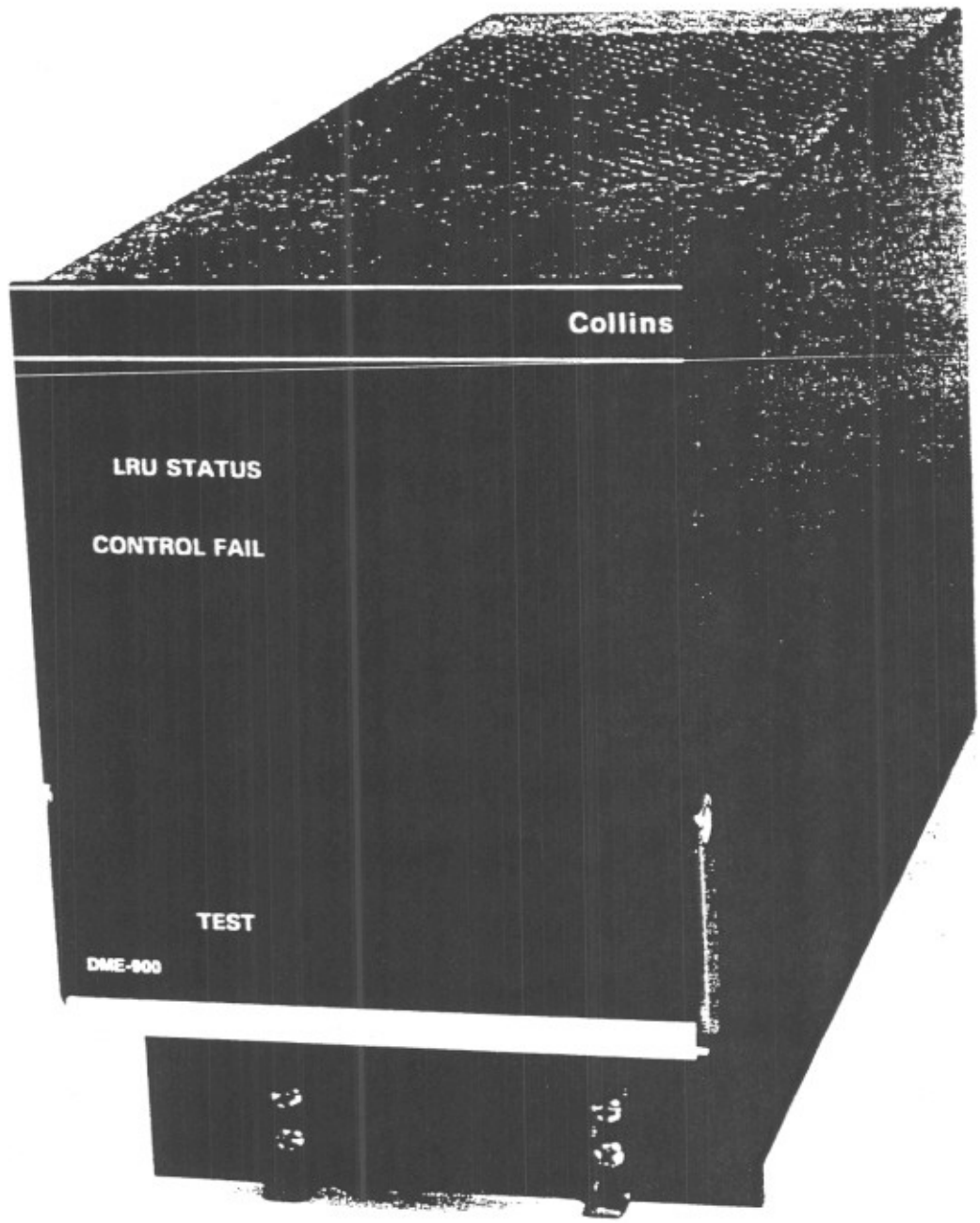

Figure 5-1 DME-900 Total Unit

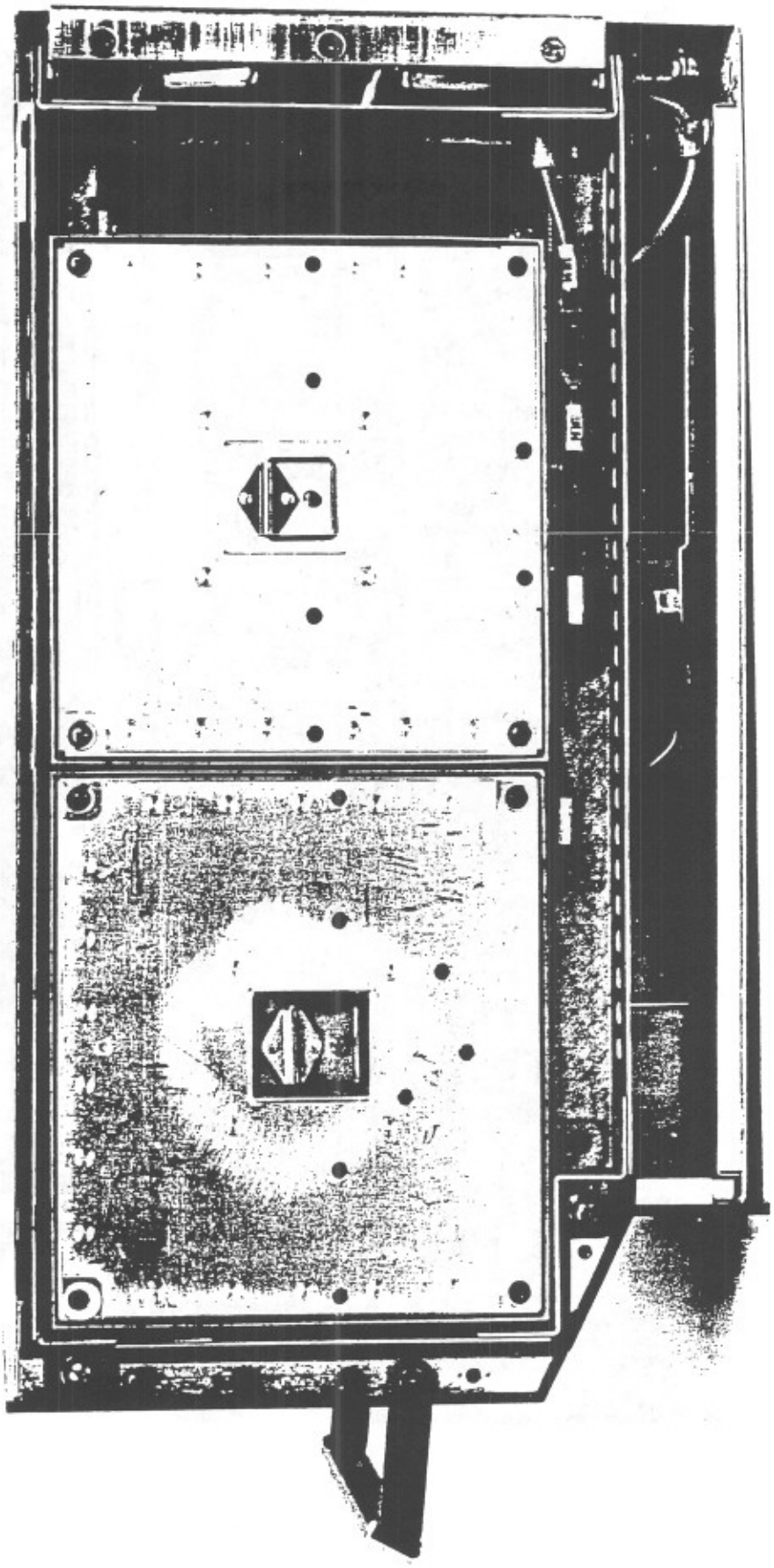

Figure 5-2 DME-900 Right Side Door

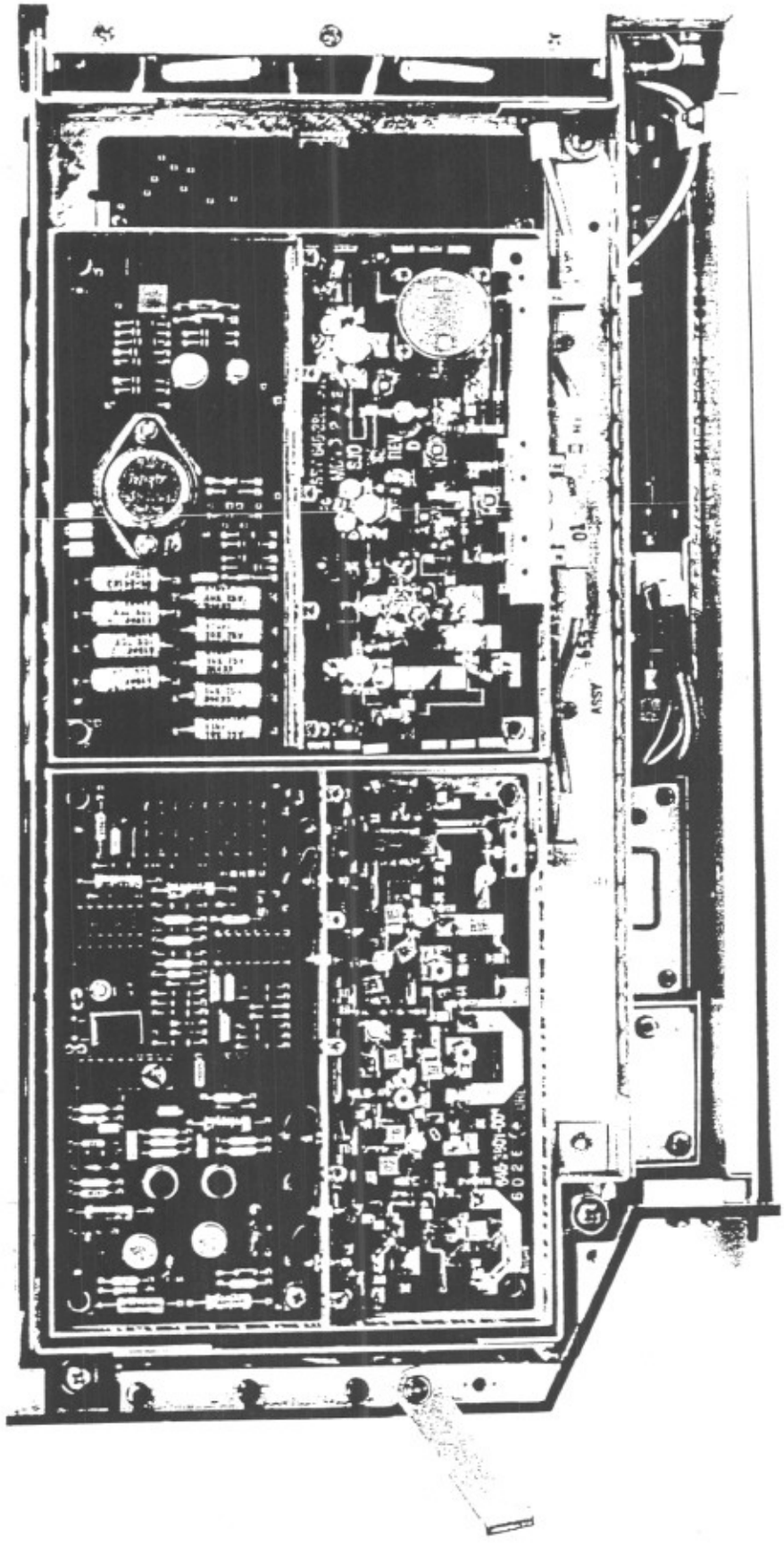

Figure 5-3 DME-900 Right Side Door Showing SMO and Driver

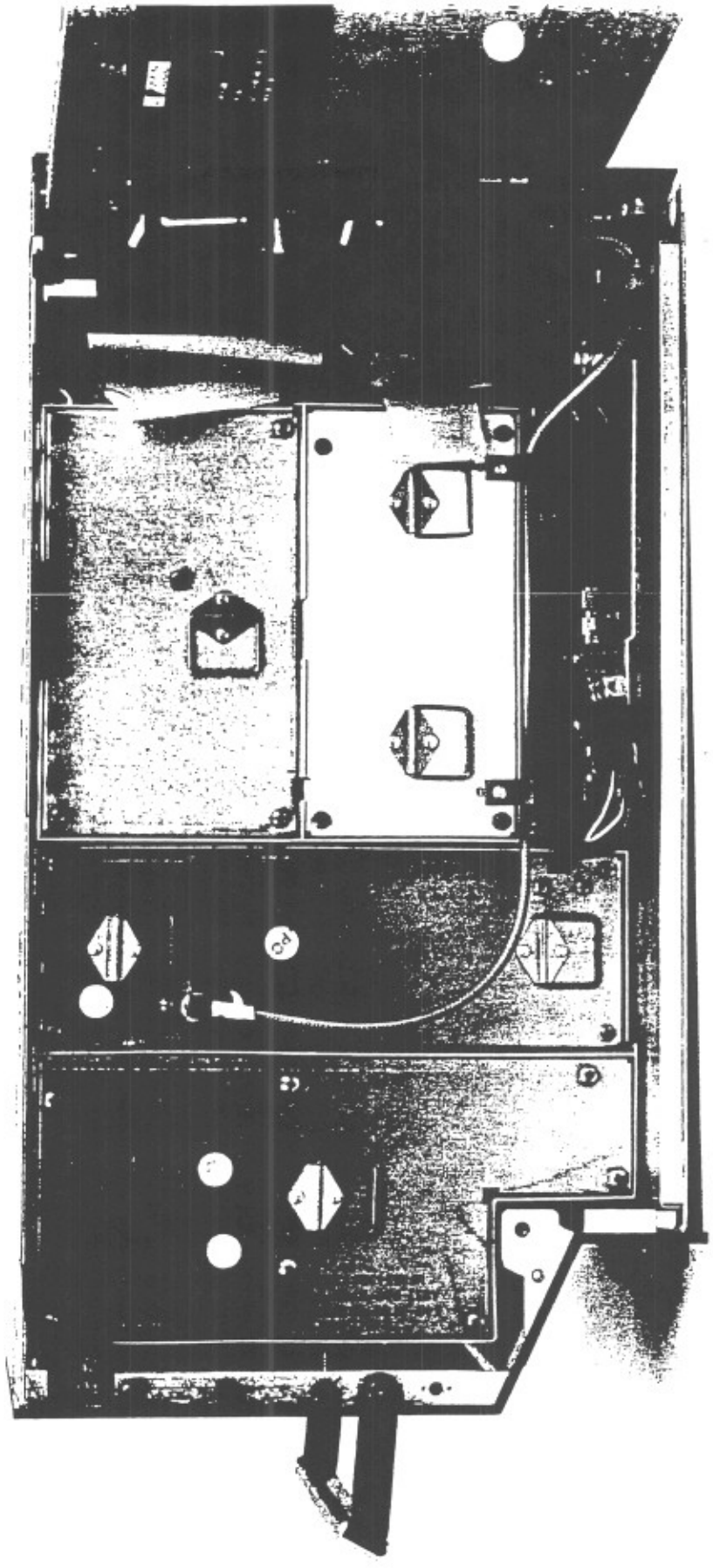

Figure 5-4 DME-900 Right Side Chassis

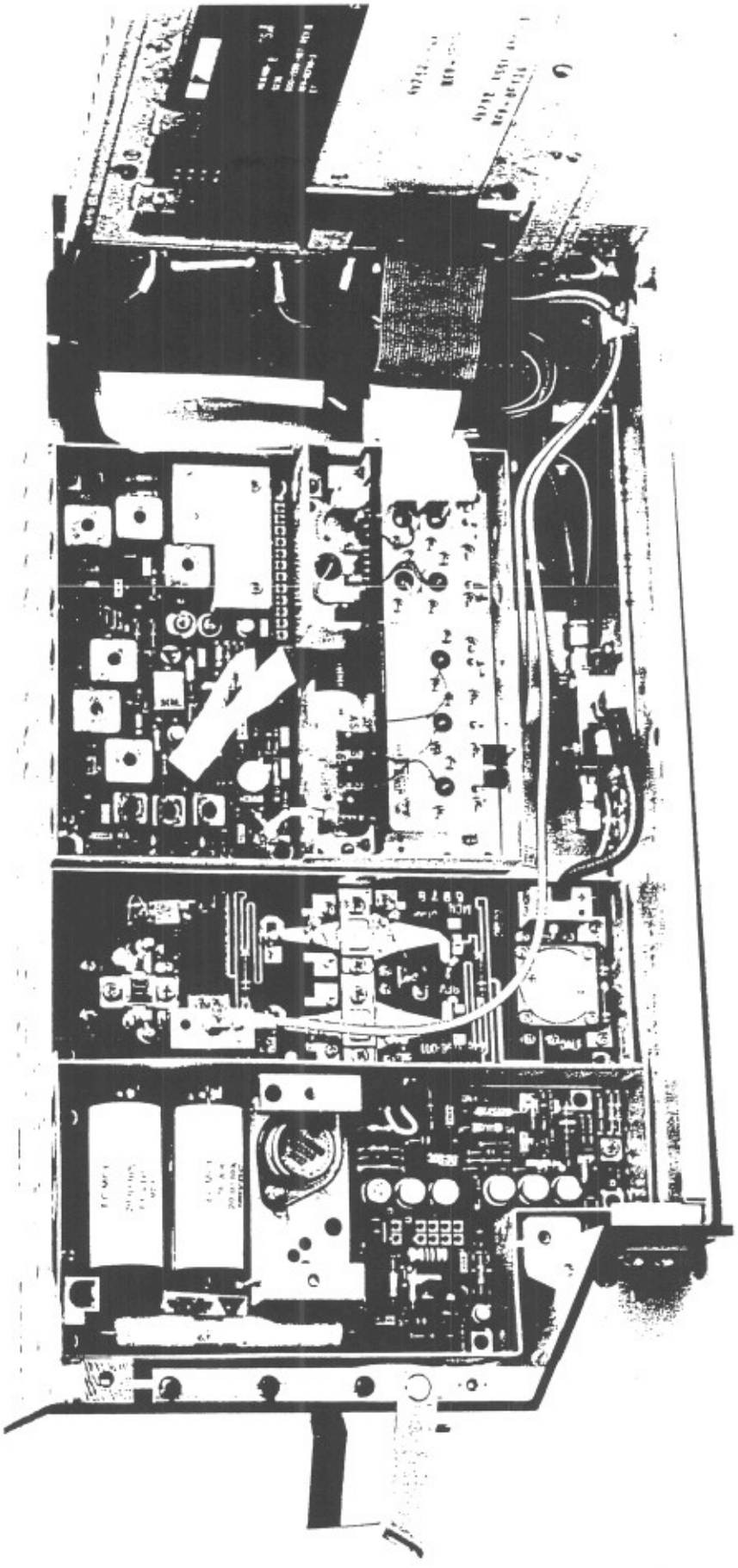

Figure 5-5 DME-900 Right Side Chassis Showing PA and Receiver

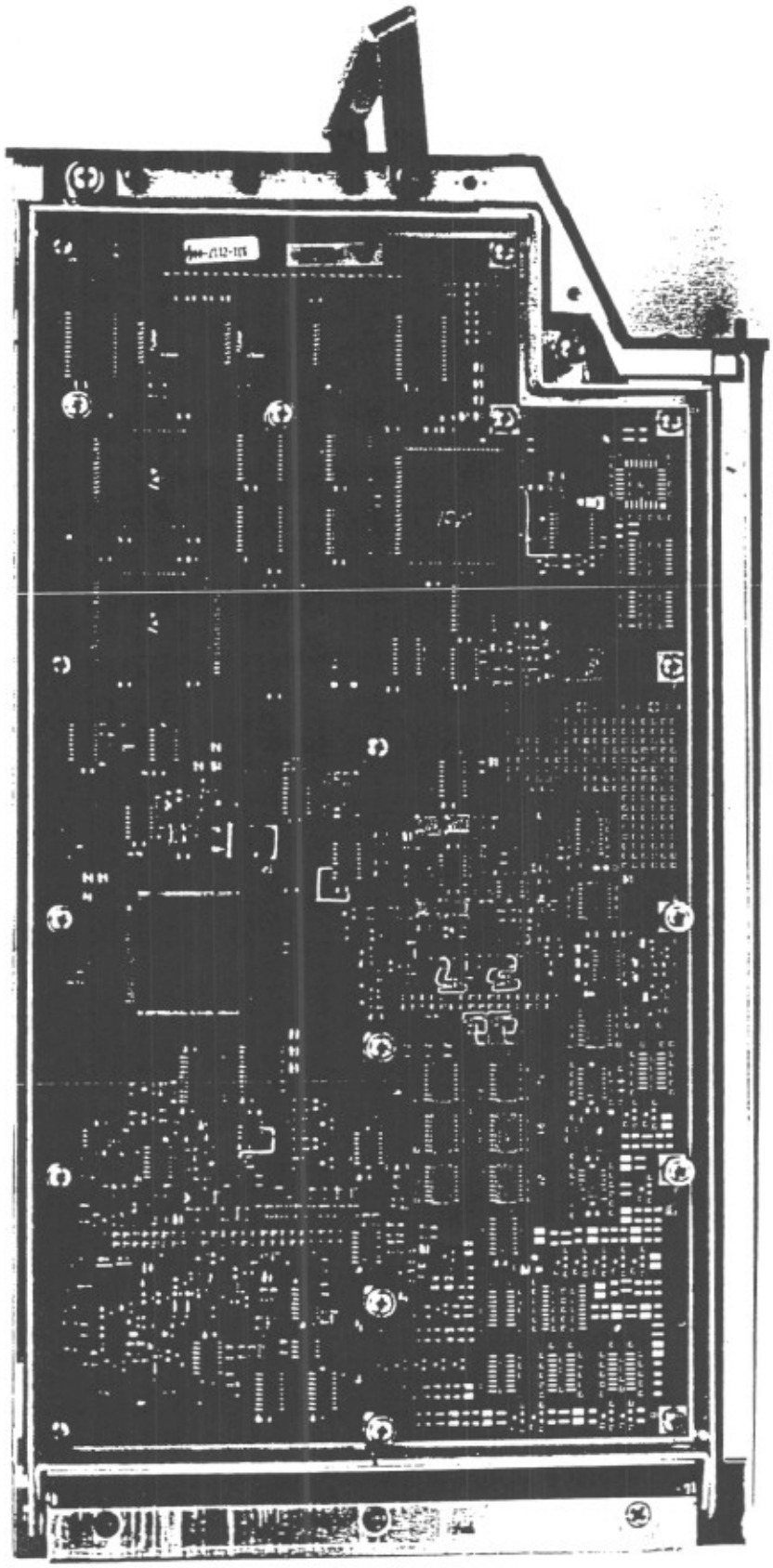

Figure 5-6 DME-900 Left Side Door Showing Digital Card

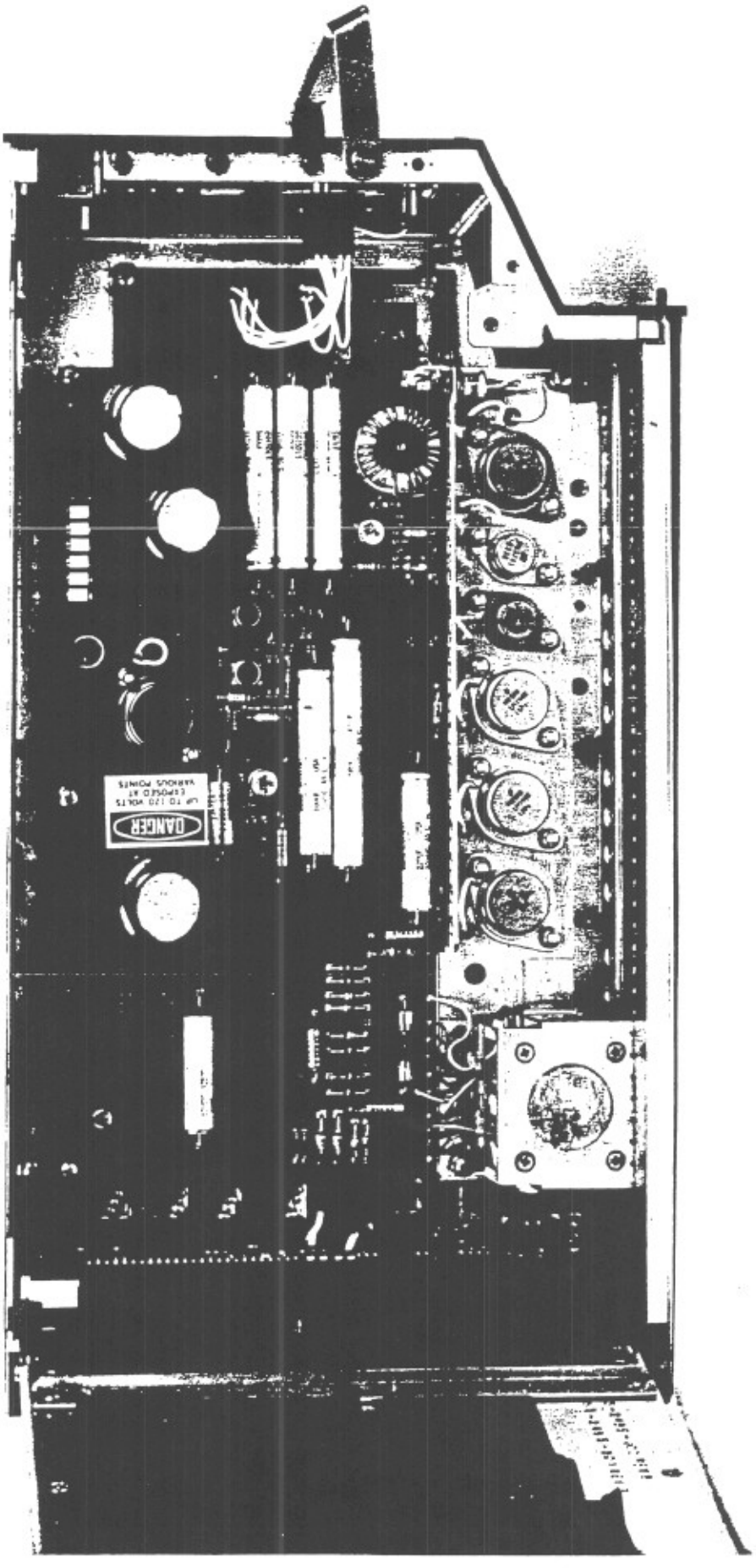

Figure 5-7 DME-900 Left Side Chassis Showing Power Supply

6. QUALIFICATIONS

6.1 Test Engineer

Gregory S. Haywood
Design Engineer
Pulse Navigation Section
Air Transport Engineering

Present Assignment

Hardware Design Engineer for the DME-900.

Experience at Rockwell Collins

1991 - 1994 Design Engineer DME-900 Collateral Design Engineer, DME-700 and 860E-5

1989 - 1991 Reliability Engineer, Commercial Avionics Products (ILS-720, TDR-94D, AHC-86, DGS-65, DAU-850,SDD-640)

1987 - 1987 Component Application Engineer

6.2 Oath Of Attestation, Project Engineer

The technical data supplied with this application has been taken under my supervision and is hereby duly certified.

Signed R.J Oswalt 29 July 94
R.J Oswalt
Project Engineer
DME-900

Experience at Rockwell Collins

1991 - 1994 Project Engineer for the DME-900

1990 - 1991 Design Engineer, DME-700 ALT-55

1988 - 1990 Design Engineer TDR-94

6.3 Oath Of Attestation, Supervisor

I certify that the above application was prepared under my direction and to the best of my knowledge and belief,the facts set forth in the application and accompanying technical data are true and correct.

C.E. Steen 29 July '94

Signed
C.E. Steen
Manager, Pulse Navigation Section
Air Transport Engineering