

SKYLAB
EXPERIMENT BRIEFING

S194
L-BAND RADIOMETER

Instructor
P. Taylor

SKYLAB CREW PREFLIGHT TRAINING

FOR TRAINING PURPOSES ONLY

MARTIN MARIETTA

DENVER DIVISION

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DENVER DIVISION

**PROJECT
SCIENTIST:**

MR. D. EVANS, MANNED SPACECRAFT CENTER

PURPOSE:

**MEASURE AND MAP THE BRIGHTNESS TEMPERATURE OF THE TERRESTRIAL
SURFACE TO A HIGH DEGREE OF ACCURACY.**

MEASUREMENTS	EQUIPMENT
FREQUENCY: 1.42 GHZ FIELD OF VIEW: 60nm SQUARE 80% OVERLAP RESOLUTION: APPROXIMATELY 1°K	L-BAND RADIOMETER L-BAND ANTENNA L-BAND ELECTRONIC PACKAGE

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FUNCTIONAL DESCRIPTION: THE RADIOMETER RECEIVER AND ANTENNA ASSEMBLIES OPERATION IS MONITORED BY AN ASTRONAUT AT THE C&D PANEL. SIGNALS RECEIVED BY THE ANTENNA FROM GROUND TARGETS ARE PROCESSED THRU THE EREP DATA SYSTEM AND CORRELATED TO GIVE A MEASURE OF THE SURFACE BRIGHTNESS TEMPERATURE.

HARDWARE CONTRACTOR: AIRBORNE INSTRUMENT LABORATORY
MELVILLE, LONG ISLAND, NEW YORK

WEIGHT/VOLUME: 75 POUNDS 10.5 FT³

LOCATION: MDA

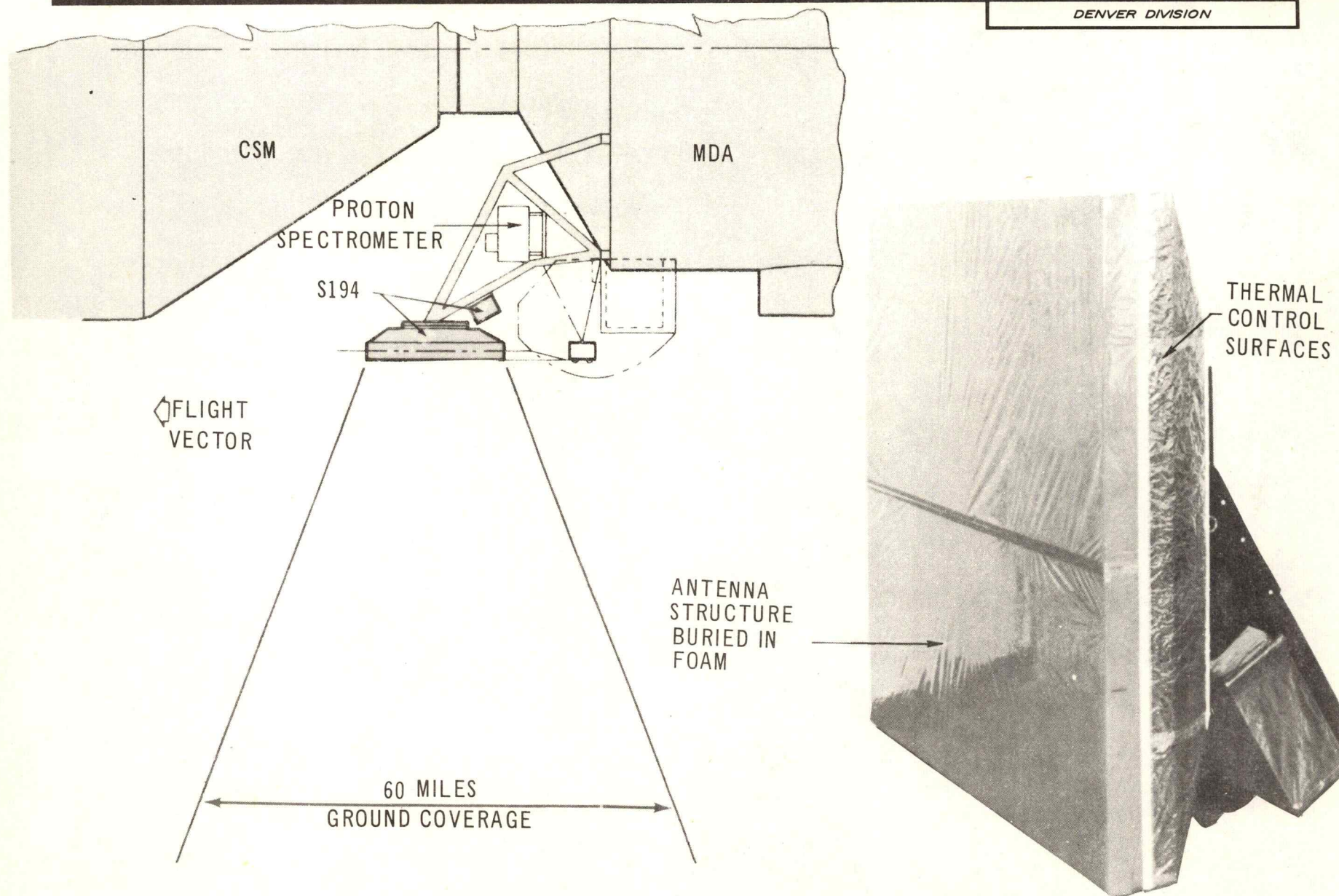
DATA RETURN: TAPE

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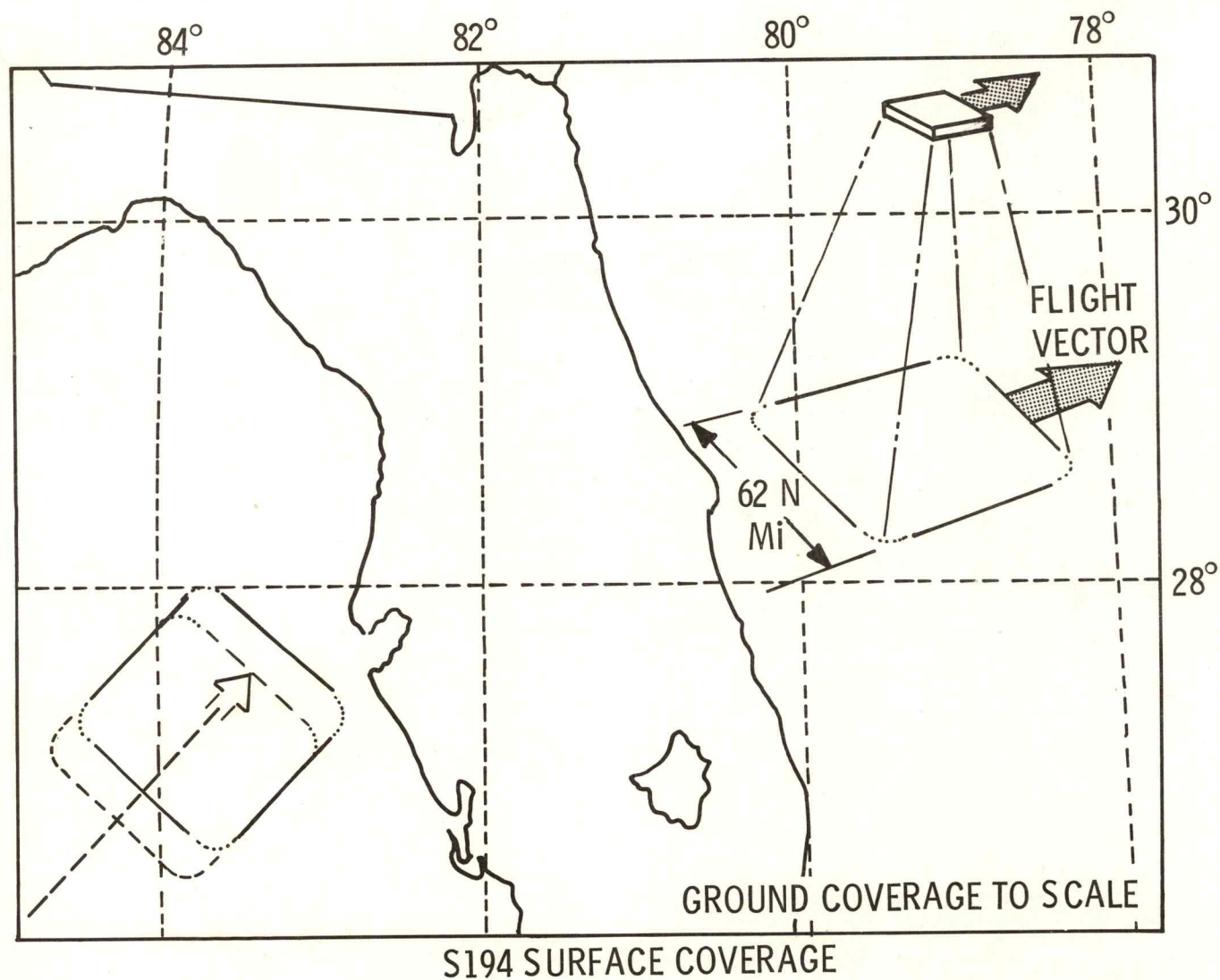


S194 L-BAND RADIOMETER GROUND COVERAGE

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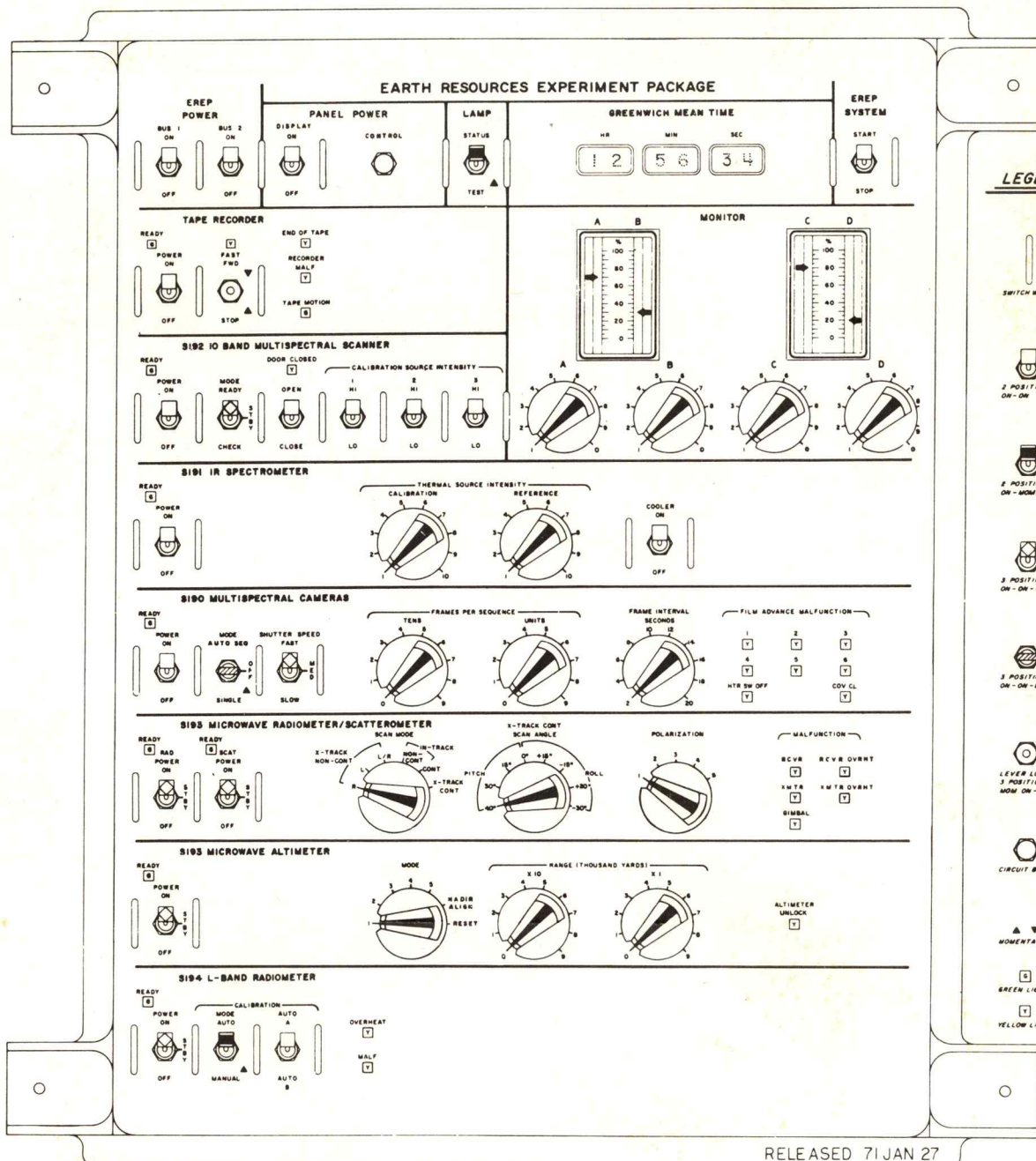


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EREP CONTROL AND DISPLAY PANEL



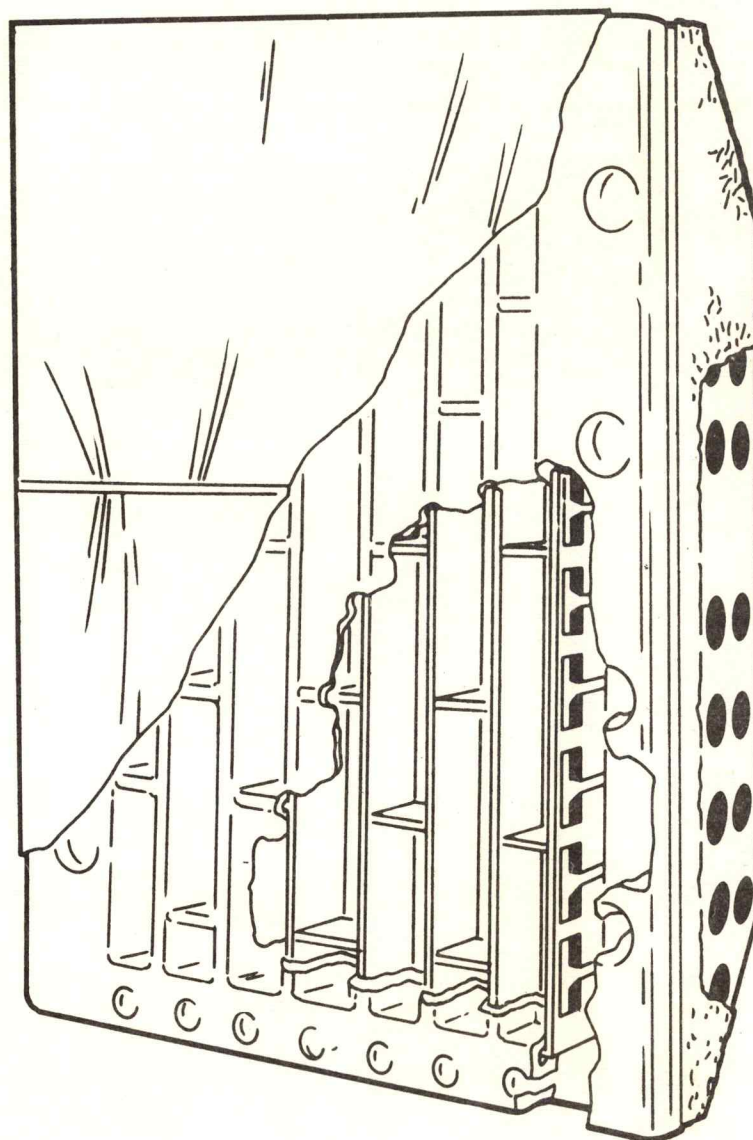
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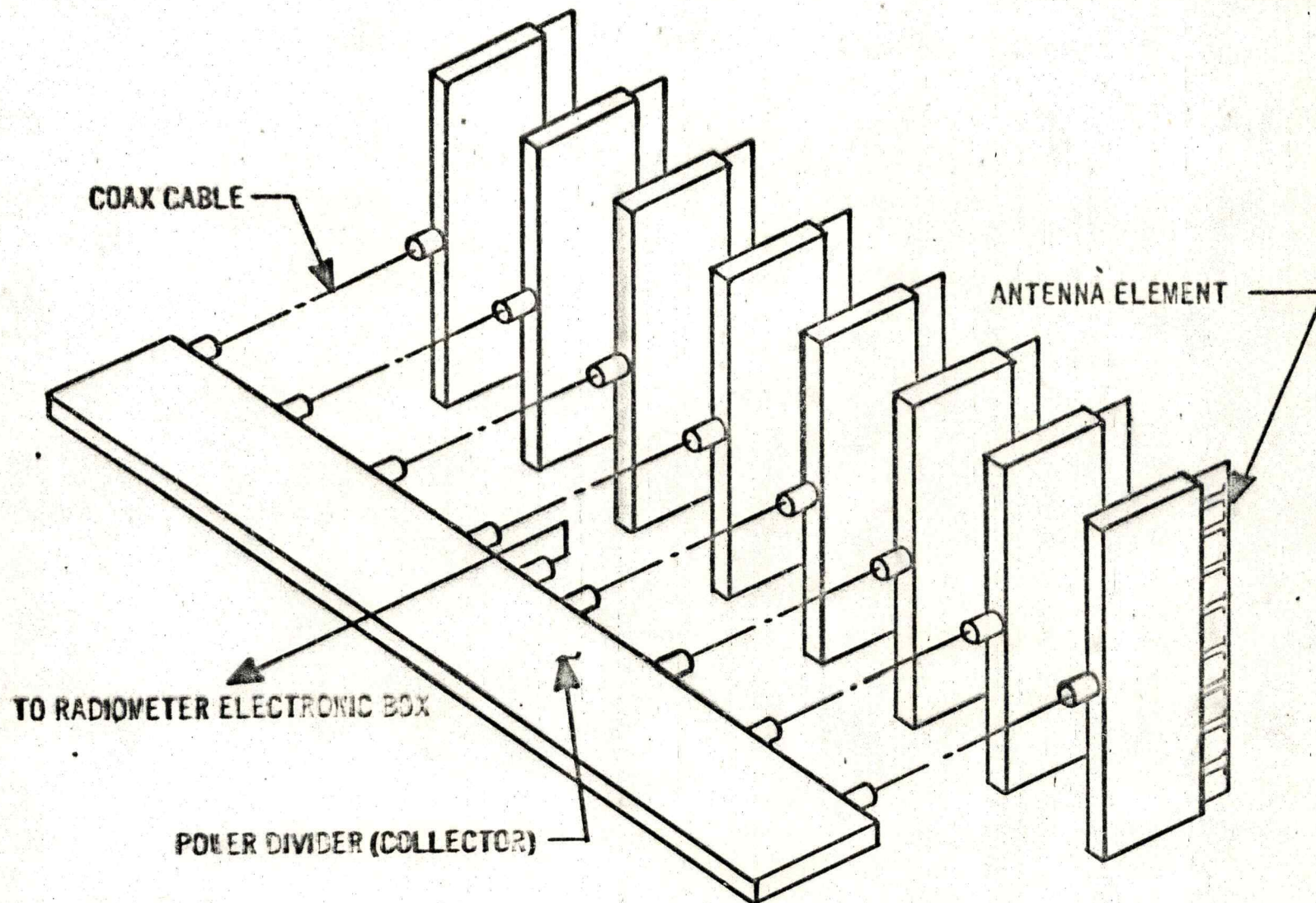
S 194 ANTENNA CUTAWAY

L-BAND ANTENNA ARRAY

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S194 - L-BAND RADIOMETER

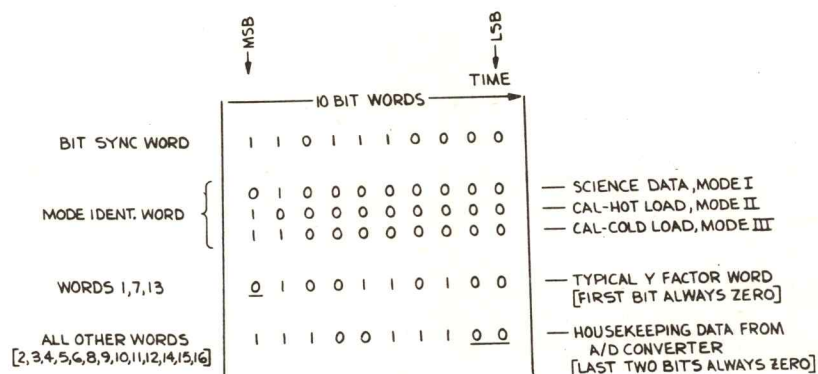
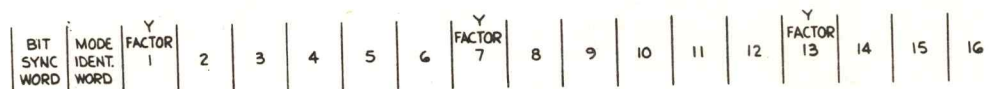
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DATA FRAME 1 SECOND $\pm 10\%$



DATA FORMAT

BIT RATE 180 Hz ± 4 Hz
ALL WORDS ARE 10 BITS IN DURATION [1/10 SEC $\pm 2\%$]
FRAME IS 1 SECOND $\pm 2\%$ IN DURATION
DATA READOUT IS NRZ-L FORMAT

CALIBRATION, MODES II AND III EACH HAVE DURATIONS OF 16 SECS.
INITIATED BY: (A) POWER TURN-ON
(B) MANUAL CALIBRATE MOMENTARY CONTACT
(C) AUTOMATIC CALIBRATION - 4 OR 34
MINUTE INTERVAL

S194 MEASUREMENT LIST

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S194 MEASUREMENT LIST

<u>WORD NO.</u>	<u>MEASUREMENT</u>	<u>S/S</u>
1	Sync	1
2	Mode ID	1
3	Y Factor	3 (1of3)
4	Cold Load 1 Temp	1
5	Hot Load Temp	1
6	Cold Load 2 Temp	1
7	Antenna Temp 1	1
8	Antenna Temp 2	1
9	Y Factor	3 (2of3)
10	Antenna Temp 3	1
11	Antenna Temp 4	1
12	Antenna Temp 5	1
13	+ 12 V Monitor	1
14	- 12 V Monitor	1
15	Y Factor	3 (3of3)
16	+ 5 V Monitor	1
17	- 5 V Monitor	1
18	Enclosure Temp	1

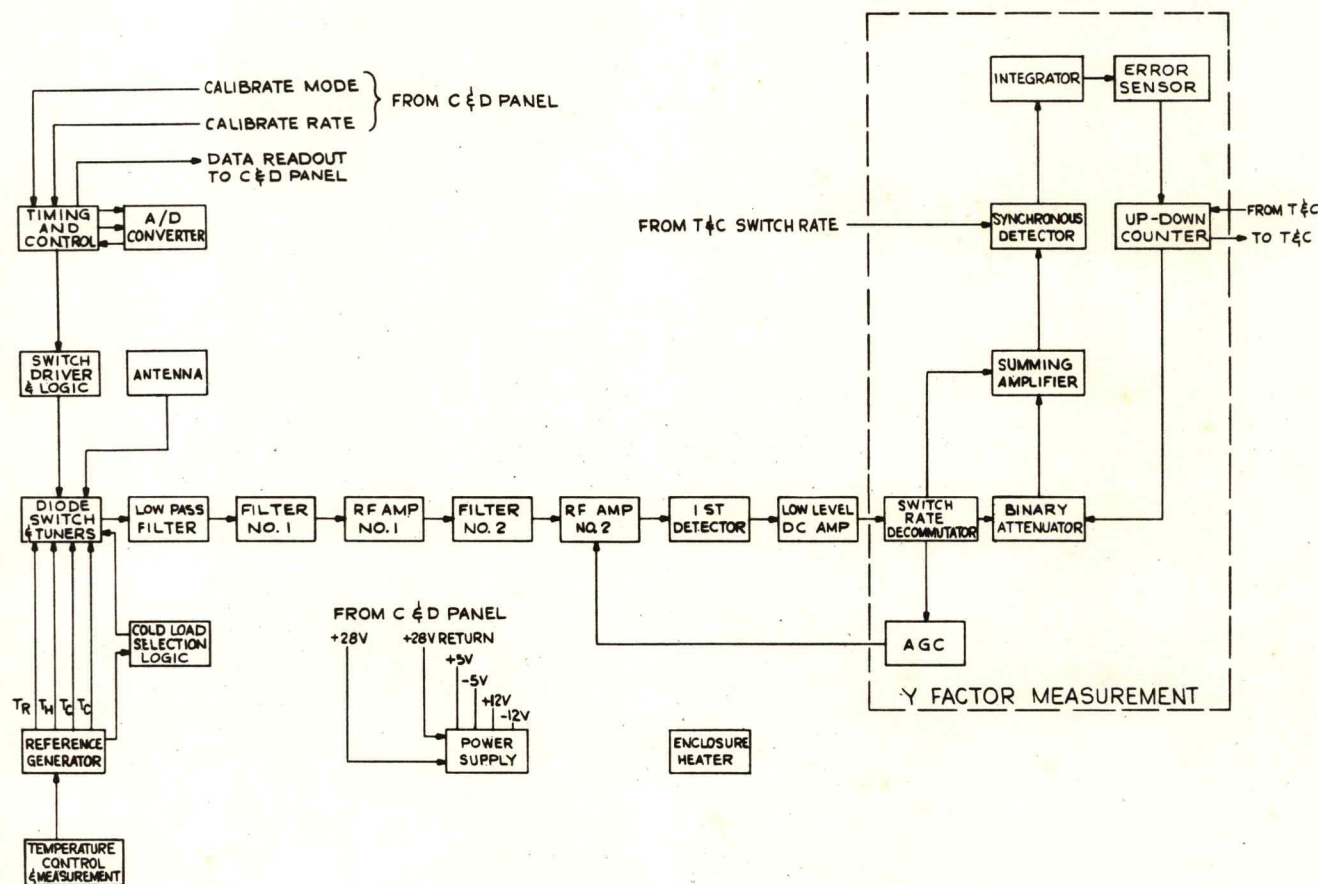
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BLOCK DIAGRAM OF L-BAND RADIOMETER