TYPE N1 CARRIER TELEPHONE SYSTEM — TERMINAL EQUIPMENT
GROUP UNIT LINE-UP — TRANSMITTING
TOTAL CARRIER POWER OUTPUT

This section is reissued to give the latest information for measuring the total power output of the transmitting group unit. Because the revisions are extensive, arrows to indicate changes in the section have not been used.

The carrier frequencies generated in the various channels combine in the combining multiple and are amplified in the transmitting group unit. The output of the transmitting group unit is fed into the transmitting cable pair. In this test the total carrier power output at the transmitting group unit is measured with the 2J test set.

The total carrier power at the output of a fully equipped terminal remains constant regardless of the carrier slope. The amount of power at the output of a partially equipped terminal will depend upon the number of channels used, the selection of channels and the carrier output slope.

A procedure for determining the total carrier output requirements on partially equipped systems is provided in this section. Tables are used to obtain the individual carrier levels of the channel placed in service. The values are given in milliwatts and can be added directly to determine the total output power. The total carrier power in milliwatts is then converted into dbm which is measurable on a 2J test set.

APPARATUS:

1 — 2J Repeater Test Set (J94002J)

MEASUREMENT OF TOTAL CARRIER OUTPUT

STEP	PROCEDURE
1	Check that both of the connectors are in J15 and J16.
2	Remove one of the connectors and connect the 2J test set into the vacant J jack as shown in Fig. 2.
3	Unless it has been otherwise specified, turn the NOISE potentiometer on the front of the transmitting group unit maximum counterclockwise (minimum noise).
4	Set the DBM switch on the 2J test set to the W-E position. Set the rotary switch on the 2J test set for the DBM range setting which will give a maximum on-scale reading on the meter. The reading on the meter should be —

STEP	PROCEDURE
4 (Cont'd)	***Requirements:***

J98703FA Channel Units

HGT	Terminals	
	Fully equipped systems	+12.0 ±1.5 dbm
	Partially equipped systems	value in Table III ±1.5 dbm (See Step 5)
LGT	Terminals	
	Fully equipped systems	+3.0 ±1.5 dbm
	Partially equipped systems	value in Table IV ±1.5 dbm (See Step 5)

J98703F Channel Units

HGT	Terminals	
	Fully equipped systems	+12.0 ±2.0 dbm
	Partially equipped systems	value in Table III ±2.0 dbm (See Step 5)
LGT	Terminals	
	Fully equipped systems	+3.0 ±2.0 dbm
	Partially equipped systems	value in Table IV ±2.0 dbm (See Step 5)

Note: Where an artificial line is used at the output of the transmitting group unit the corrections given in Table I should be added to the value read on the 2J test set before applying the requirements above.

5 The total carrier output requirements on partially equipped systems is determined as follows:

(a) Obtain the transmitting group unit output slope from the system circuit layout card.

(b) Check whether the terminal is LGT or HGT.

(c) From Table II, under the appropriate slope value, determine the amount of output power in milliwatts contributed by each channel to be placed in service.

(d) Add the values of power contributed by each of the individual channels used to determine the total output power in milliwatts contributed by all of the channels to be placed in service.

(e) Using Table III or IV, convert the total power in milliwatts to the amount of output power in dbm which should be measured at the transmitting group unit output.

TABLE I

CORRECTIONS FOR OUTPUT IRREGULARITY WHEN ARTIFICIAL LINES ARE USED

ART. LINES MILES	SPAN PAD (DB)	LOW GRP TRANS	HIGH GRP TRANS
	0	+0.3	+2.4
	2	+0.2	+1.5
1	4	+0.1	+0.9
	6	+0.1	+0.7
	8	+0.1	+0.4
	10	+0.0	+0.2
	0	+2.9	+4.8
	2	+1.9	+3.0
2 Or 4	4	+1.3	+1.6
	6	+0.7	+1.0
	8	+0.5	+0.6
	10	+0.3	+0.4

TABLE II

INDIVIDUAL CHANNEL CARRIER POWER

(values given in milliwatts)

CHAN. NO.	CXR FREQ. KC	HIGH GROUP TRANSMIT CARRIER SLOPE IN DB 0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10
1	168	1.32	1.15	0.98	0.85	0.72	0.62	0.53	0.46	0.40	0.35	0.32
2	176	1.32	1.17	1.03	0.89	0.78	0.69	0.60	0.52	0.48	0.44	0.40
3	184	1.32	1.20	1.08	0.95	0.85	0.77	0.69	0.62	0.56	0.52	0.49
4	192	1.32	1.23	1.13	1.02	0.93	0.85	0.78	0.71	0.66	0.63	0.60
5	200	1.32	1.26	1.18	1.10	1.00	0.93	0.87	0.81	0.78	0.76	0.74
6	208	1.32	1.29	1.23	1.16	1.10	1.04	1.00	0.95	0.91	0.91	0.91
7	216	1.32	1.29	1.26	1.23	1.20	1.15	1.12	1.10	1.07	1.10	1.12
8	224	1.32	1.32	1.32	1.31	1.31	1.29	1.29	1.29	1.26	1.32	1.38
9	232	1.32	1.35	1.38	1.39	1.42	1.45	1.45	1.48	1.48	1.58	1.70
10	240	1.32	1.38	1.44	1.48	1.54	1.62	1.66	1.70	1.74	1.91	2.09
11	248	1.32	1.41	1.50	1.57	1.66	1.78	1.86	1.95	2.04	2.29	2.57
12	256	1.32	1.44	1.56	1.68	1.82	1.95	2.29	2.04	2.51	2.82	3.16
13	264	1.32	1.47	1.62	1.77	2.00	2.19	2.40	2.63	3.02	3.47	3.98

CHAN. NO.	CXR FREQ. KC	LOW GROUP TRANSMIT CARRIER SLOPE IN DB 0	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10
1	136	0.17	0.19	0.22	0.24	0.27	0.31	0.35	0.38	0.42	0.46	0.50
2	128	0.17	0.19	0.21	0.23	0.25	0.27	0.30	0.33	0.35	0.37	0.40
3	120	0.17	0.18	0.20	0.21	0.23	0.25	0.27	0.29	0.29	0.31	0.32
4	112	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.26
5	104	0.17	0.17	0.18	0.19	0.19	0.20	0.21	0.22	0.21	0.21	0.21
6	96	0.17	0.17	0.17	0.18	0.18	0.18	0.19	0.19	0.18	0.18	0.17
7	88	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.15	0.15	0.14
8	80	0.17	0.17	0.16	0.16	0.15	0.15	0.14	0.14	0.13	0.12	0.11
9	72	0.17	0.16	0.16	0.15	0.14	0.13	0.13	0.12	0.11	0.10	0.09
10	64	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08
11	56	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06
12	48	0.17	0.15	0.14	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05
13	40	0.17	0.15	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04

TABLE III

HIGH GROUP TRANSMIT TERMINAL

IF THE TOTAL CHANNEL CARRIER POWER FROM TABLE II IS BETWEEN —	THE MEASURED TOTAL OUTPUT POWER SHOULD BE (WITHIN LIMITS SPECIFIED)
2.30 and 2.65 mω	+ 4.0 dbm
2.66 and 3.00 "	+ 4.5 "
3.01 and 3.30 "	+ 5.0 "
3.31 and 3.70 "	+ 5.5 "
3.71 and 4.20 "	+ 6.0 "
4.21 and 4.70 "	+ 6.5 "
4.71 and 5.30 "	+ 7.0 "
5.31 and 5.90 "	+ 7.5 "
5.91 and 6.60 "	+ 8.0 "
6.61 and 7.40 "	+ 8.5 "
7.41 and 8.30 "	+ 9.0 "
8.31 and 9.30 "	+ 9.5 "
9.31 and 10.40 "	+10.0 "
10.41 and 10.60 "	+10.5 "
10.61 and 13.20 "	+11.0 "
13.21 and 15.00 "	+11.5 "
15.01 or more "	+12.0 "

TABLE IV

LOW GROUP TRANSMIT TERMINAL

IF THE TOTAL CHANNEL CARRIER POWER FROM TABLE II IS BETWEEN —	THE MEASURED TOTAL OUTPUT POWER SHOULD BE (WITHIN LIMITS SPECIFIED)
0.22 and 0.26 mω	−6.0 dbm
0.27 and 0.29 "	−5.5 "
0.30 and 0.33 "	−5.0 "
0.34 and 0.37 "	−4.5 "
0.38 and 0.42 "	−4.0 "
0.43 and 0.47 "	−3.5 "
0.48 and 0.53 "	−3.0 "
0.54 and 0.59 "	−2.5 "
0.60 and 0.66 "	−2.0 "
0.67 and 0.74 "	−1.5 "
0.75 and 0.83 "	−1.0 "
0.84 and 0.93 "	−0.5 "
0.94 and 1.03 "	0 "
1.04 and 1.18 "	+0.5 "
1.19 and 1.33 "	+1.0 "
1.34 and 1.49 "	+1.5 "
1.50 and 1.67 "	+2.0 "
1.68 and 1.87 "	+2.5 "
1.88 or more "	+3.0 "

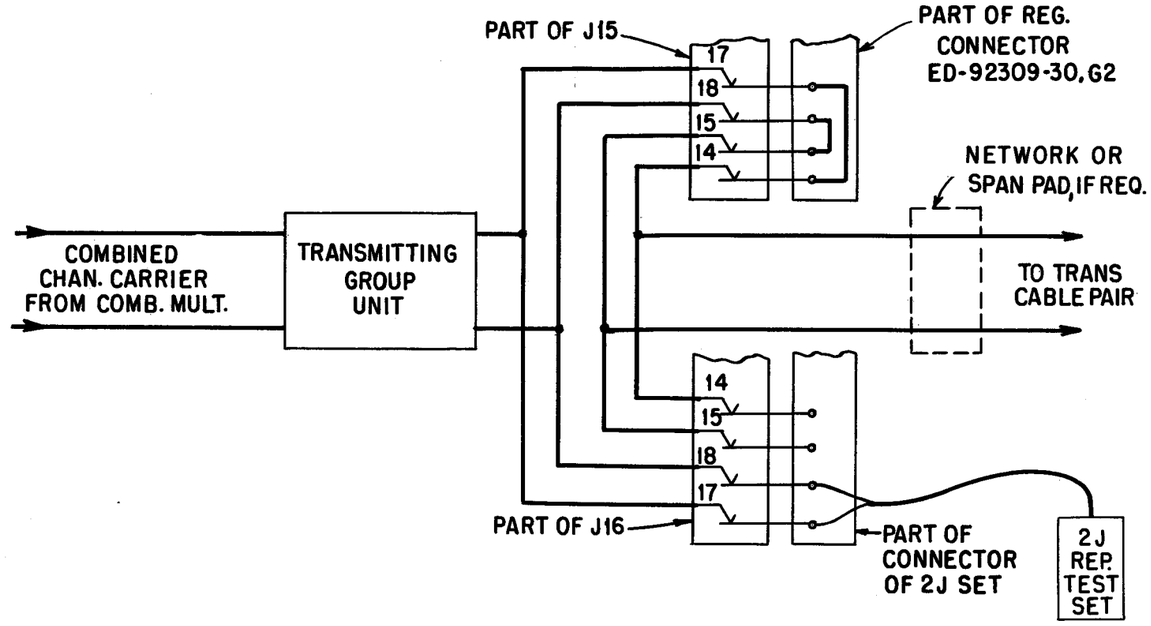

Fig. 1 – Jack Arrangements at Output of Transmitting Group Unit

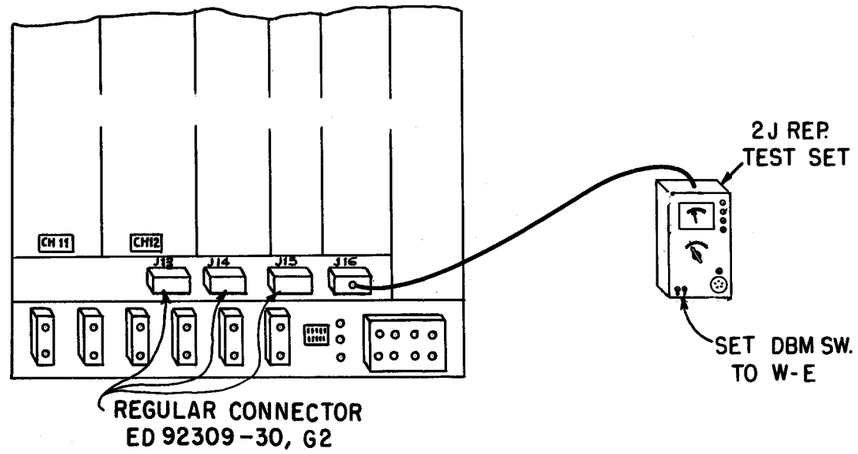

Fig. 2 – Test Setup