NUMBER ASSIGNMENTS
FOR RADIO UNITS AND SATELLITE UNITS

CONTENTS PAGE

1. GENERAL

1.01 This section provides the number assignments for radio and satellite units.

1.02 This section has been reissued to:

(a) Revise 2.01 and 2.02

(b) Change 3.01 to add reference to common language-location identification

(c) Remove 3.04 and revise 3.05

(d) Add 4 and 5

(e) Change tables to more closely identify blocks of numbers and to add blocks of numbers for more recently used frequencies

(f) Remove references to Form E-3957

(g) Make minor corrections.

Since this is a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 In some cases, particularly for the more complex radio units, it may be desirable to include a sketch of the radio unit.

2. DEFINITION OF A RADIO UNIT

2.01 A radio unit (R unit) is a one-way radio channel between (1) adjacent main switching stations, (2) a repeater bridging point and a side-leg main station, or customers location.

2.02 The R unit extends from the input of the IF switch at the transmitting end to the output of the IF switch at the receiving end. In case of a side-leg feed from a repeater point, the R unit extends from the input of the IF switch or bridging amplifier at the repeater bridging point to the output of the main IF amplifier or switch at the receiving end (Fig. 5).

2.03 In some frequency diversity systems, two channels are fed simultaneously. At the receiving end, a switching arrangement selects and uses the channel with the better signal. In other systems, electronic combiners are used instead of a switching arrangement. The R unit extends from the input of a bridging arrangement at the transmitting end to the output of the switching arrangement at the receiving end (Fig. 5). Separate R unit numbers should be assigned to each radio channel of a diversity pair as though each were permanently connected through at the repeater station.

2.04 For TV applications (other than TD or TH), the R unit extends from the video input of the radio equipment at the transmitting end to the video output of the radio equipment at the receiving end (Fig. 5).

3. DESIGNATING RADIO UNITS

3.01 Designate an R unit by a number and the names of the terminal main stations, or for

side legs, the names of the repeater bridging point and the receiving station. Always name the transmitting station first. Refer to Common Language—Location Identification Description — Section 795-100-100.

3.02 The numbering of R units is based on frequencies. Table A gives the blocks of numbers assigned to radio channels in the various frequency bands. One block of numbers in each band is used for W-E (or S-N) transmitting and the other for E-W (or N-S) transmitting. The same numbering plan is used for systems using the same channel frequencies whether of Western Electric Company or of non-Western Electric Company manufacture.

3.03 Tables B through G show the midfrequency assigned to each channel of systems using the 4-, 6-, and 11-GHz bands.

3.04 Each radio channel of a frequency diversity pair will be given individual R numbers.

3.05 Since E-W, W-E, S-N, and N-S designations do not necessarily have geographical significance, the assignment of R numbers should be coordinated through a centralized office responsible for a master numbering plan, associating R number and direction of transmission.

3.06 Since existing TD and TH systems may be converted to SSB on a per channel basis (one at a time), the following modification to the existing numbering plan is made for SSB systems:

(a) A "four" (4 GHz) will prefix the basic TD numbering plan; thus, if channels 1A and 1B were converted to AR-4A, their numbering would be 4101 and 4201. See Table B.

(b) A "six" (6 GHz) will prefix the basic TH numbering plan; thus, if channels 11T and 21T were converted to AR-6A, their numbering would be 6161 and 6261. See Table E.

3.07 When unlike types of systems (TD and TH) join at IF to make up a switching section, use the higher R unit designation.

4. DEFINITION OF A SATELLITE UNIT

4.01 The junction station is the domestic satellite (DOMSAT) point of connection to our existing terrestrial network. The facility between junction stations and earth stations will consist of one or more radio units (RU) and/or a section of IF cable at the earth station (Fig. 6). The facilities between earth stations will be known as satellite units (SU). A satellite unit consists of a satellite transponder channel capable of 1200 one-way voice circuits.

5. DESIGNATING SATELLITE UNITS

5.01 The overall section between two junction stations via satellite will consist of a satellite unit and two or more radio units to make up a message unit satellite (MUS), which is similar to our existing message unit radio (MUR), (Fig. 6). The MUS will use the same numbering scheme as the MUR, which reflects circuit capacity.

5.02 Table H shows the numbering plan for satellite units.

6. EXHIBITS

6.01 Exhibits in this section are block diagrams of typical R and S unit layouts.

6.02 The exhibits are:

Figure 1—Typical R units for 4-GHz Radio Systems

Figure 2—Typical R Units for 11-GHz Radio Systems

Figure 3—Typical R Units for 6-GHz Radio Systems (Regular Plan for TH and TM)

Figure 4—Typical R Units for 6-GHz Radio Systems (Normal Plan for TM)

Figure 5A—Typical R Units on TD-2 or TH Facilities Showing Feed to Side Leg at Repeater Point

Figure 5B—Typical R Units on Frequency Diversity Systems

Figure 5C—Typical R Unit on TV Systems

Figure 6—Typical Domestic Satellite System

TABLE A

BLOCKS OF NUMBERS TO BE USED

BELL RADIO SYSTEMS				
COMMON CARRIER BAND (GHz)	SYSTEM	SEE TABLE	TRANSMITTING	
			W–E OR S–N	E–W OR N–S
4	TD–2	B	101 - 113	201 - 213
	TE		114 - 119	214 - 219
	Unassigned		120 - 129	220 - 229
	TD–3	B	2101 - 2119	2201 - 2219
	AR–4A (Future Use)	B	4101 - 4113	4201 - 4213
6	TH–1, TH–3 (Regular Plan)	E	160 - 169	260 - 269
	TH–3 (Staggered Plan)	G	190 - 198	290 - 298
	TM–1, TM–2 (Regular Plan)	E	2161 - 2168	2261 - 2268
	TM–1, TM–2 (Normal Plan)	F	171 - 178	271 - 278
	TM–1, TM–2 (Staggered Plan)	G	2190 - 2198	2290 - 2298
	AR–6A (Regular Plan)	E	6160 - 6169	6260 - 6269
11	TL–1, TL–2 (Regular Plan)	C	131 - 142	231 - 242
	TL–1, TL–2 (Staggered Plan)	D	2145 - 2156	2245 - 2256
	TJ (Regular Plan)	C	143 - 154	243 - 254
	TN–1 (Regular Plan)	C	2121 - 2132	2221 - 2232
	TN–1 (Staggered Plan)	D	2133 - 2143	2233 - 2243
NON–BELL RADIO SYSTEMS				
All Freq.	All Systems	—	300 - 399	400 - 499

TABLE B

R UNIT ASSIGNMENTS FOR 4–GHz RADIO SYSTEMS
PLAN FOR TD

TD–2 RADIO UNIT		TD–3 RADIO UNIT		AR–4A RADIO UNIT		RADIO HOP 1 (OR 2)		RADIO HOP 2 (OR 1)	
W–E OR S–N	E–W OR N–S	W–E OR S–N	E–W OR N–S	W–E OR S–N	E–W OR N–S	CHAN.	FREQ (GHz)	CHAN.	FREQ (GHz)
101	201	2101	2201	4101	4201	1A	3.730	1B	3.770
102	202	2102	2202	4102	4202	2A	3.810	2B	3.850
103	203	2103	2203	4103	4203	3A	3.890	3B	3.930
104	204	2104	2204	4104	4204	4A	3.970	4B	4.010
105	205	2105	2205	4105	4205	5A	4.050	5B	4.090
106	206	2106	2206	4106	4206	6A	4.130	6B	4.170
107	207	2107	2207	4107	4207	7A	3.710	7B	3.750
108	208	2108	2208	4108	4208	8A	3.790	8B	3.830
109	209	2109	2209	4109	4209	9A	3.870	9B	3.910
110	210	2110	2210	4110	4210	10A	3.950	10B	3.990
111	211	2111	2211	4111	4211	11A	4.030	11B	4.070
112	212	2112	2212	4112	4212	12A	4.110	12B	4.150
113	213	2113	2213	4113	4213	13A	4.190	—	—

Note: Repeat channel designations for successive radio hops.

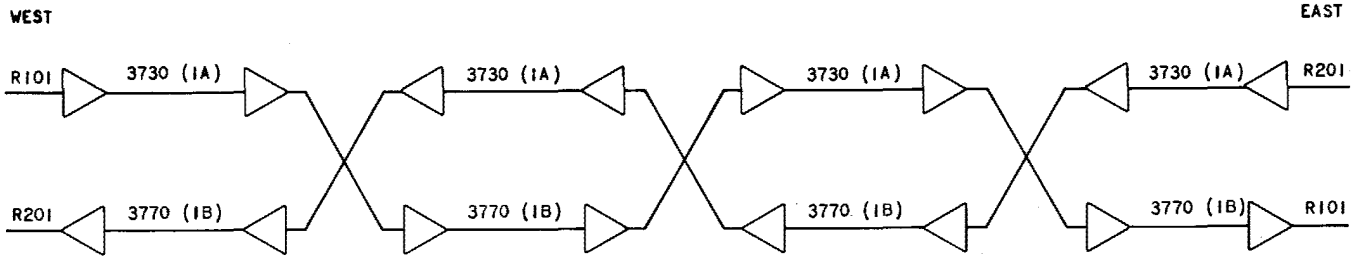


Fig. 1—Typical R Units for 4-GHz Radio Systems

TABLE C

R UNIT ASSIGNMENTS FOR 11-GHz RADIO SYSTEMS
REGULAR PLAN FOR TJ, TL, TN

TJ RADIO UNIT		TL RADIO UNIT		TN RADIO UNIT		RADIO HOP 1 (OR 2)		RADIO HOP 2 (OR 1)	
W-E OR S-N	E-W OR N-S	W-E OR S-N	E-W OR N-S	W-E OR S-N	E-W OR N-S	CHAN.	FREQ. (GHz)	CHAN.	FREQ. (GHz)
143 145	243 245	131 133	231 233	2121 2123	2221 2223	1P 3P	10.755 10.995	1J 3J	11.405 11.645
144 146	244 246	132 134	232 234	2122 2124	2222 2224	2P 4P	10.955 10.715	2J 4J	11.685 11.445
147 149	247 249	135 137	235 237	2125 2127	2225 2227	5P 7P	11.155 10.915	5J 7J	11.325 11.565
148 150	248 250	136 138	236 238	2126 2128	2226 2228	6P 8P	10.875 11.115	6J 8J	11.605 11.365
151 153	251 253	139 141	239 241	2129 2131	2229 2231	9P 11P	11.075 10.835	9J 11J	11.245 11.485
152 154	252 254	140 142	240 242	2130 2132	2230 2232	10P 12P	10.795 11.035	10J 12J	11.525 11.285

Note: Repeat channel designations for successive radio hops. Groupings are shown by regular diversity pairs.

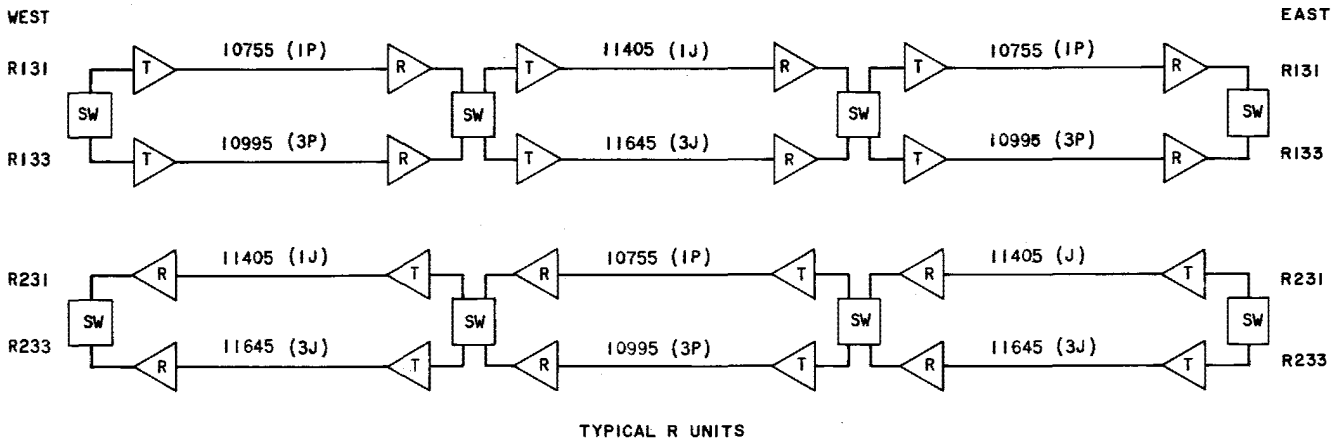


Fig. 2—Typical R Units for 11-GHz Radio Systems

TABLE D

R UNIT ASSIGNMENTS FOR 11-GHz RADIO SYSTEMS
STAGGERED PLAN FOR TL, TN

TL RADIO UNIT		TN RADIO UNIT		RADIO HOP 1 (OR 2)		RADIO HOP 2 (OR 1)	
W-E OR S-N	E-W OR N-S	W-E OR S-N	E-W OR N-S	CHAN.	FREQ. (GHz)	CHAN.	FREQ. (GHz)
2145	2245	2133	2233	1E	10.775	1D	11.385
2146	2246	2134	2234	2E	10.975	2D	11.665
2147	2247	2135	2235	3E	11.015	3D	11.625
2148	2248	2136	2236	4E	10.735	4D	11.425
2149	2249	— *	— *	5E	11.175	5D	11.305
2150	2250	2137	2237	6E	10.895	6D	11.585
2151	2251	2138	2238	7E	10.935	7D	11.545
2152	2252	2139	2239	8E	11.135	8D	11.345
2153	2253	— *	— *	9E	11.095	9D	11.225
2154	2254	2140	2240	10E	10.815	10D	11.505
2155	2255	2141	2241	11E	10.855	11D	11.465
2156	2256	2142	2242	12E	11.055	12D	11.265
†	†	2143	2243	9E	11.095	5D	11.305

Note: Repeat channel designations for successive radio hops.

* Not used in TN radio systems.
† Not used in TL radio systems.

TABLE E

R UNIT ASSIGNMENTS FOR 6–GHz RADIO SYSTEMS REGULAR PLAN FOR TH, TM

TH–3, TH–1 RADIO UNIT		AR–6A RADIO UNIT		TM RADIO UNIT		RADIO HOP 1 (OR 2)		RADIO HOP 2 (OR 1)	
W–E OR S–N	E–W OR N–S	W–E OR S–N	E–W OR N–S	W–E OR S–N	E–W OR N–S	CHAN.	FREQ. (GHz)	CHAN.	FREQ. (GHz)
*160	260	6160	6260			10T	5.9255	20T	6.1775
161	261	6161	6261	2161	2261	11T	5.9452	21T	6.1972
162	262	6162	6262	2162	2262	12T	5.9748	22T	6.2269
163	263	6163	6263	2163	2263	13T	6.0045	23T	6.2565
164	264	6164	6264	2164	2264	14T	6.0342	24T	6.2862
165	265	6165	6265	2165	2265	15T	6.0638	25T	6.3159
166	266	6166	6266	2166	2266	16T	6.0935	26T	6.3455
167	267	6167	6267	2167	2267	17T	6.1231	27T	6.3752
168	268	6168	6268	2168	2268	18T	6.1528	28T	6.4048
*169	269	6169	6269			19T	6.1725	29T	6.4245

Note: Repeat channel designations for successive radio hops.

*Assigned for TH—1 auxiliary channel use only.

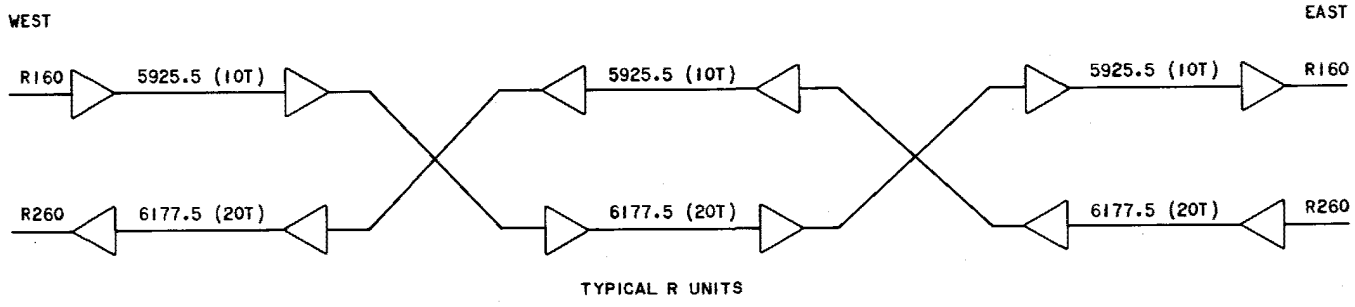


Fig. 3—Typical R Units for 6-GHz Radio Systems (Regular Plan for TH and TM)

TABLE F

R UNIT ASSIGNMENTS FOR 6-GHz RADIO SYSTEMS
NORMAL PLAN FOR TM

RADIO UNIT		RADIO HOP 1 (OR 2)		RADIO HOP 2 (OR 1)	
W-E OR S-N	E-W OR N-S	CHAN.	FREQ. (GHz)	CHAN.	FREQ. (GHz)
171	271	11C 21C	5.9378 6.1898	21U 11U	6.2047 5.9526
172	272	12C 22C	5.9674 6.2195	22U 12U	6.2343 5.9823
173	273	13C 23C	5.9971 6.2491	23U 13U	6.2640 6.0119
174	274	14C 24C	6.0267 6.2788	24U 14U	6.2936 6.0416
175	275	15C 25C	6.0564 6.3084	25U 15U	6.3233 6.0712
176	276	16C 26C	6.0860 6.3381	26U 16U	6.3529 6.1009
177	277	17C 27C	6.1157 6.3677	27U 17U	6.3826 6.1305
178	278	18C 28C	6.1453 6.3974	28U 18U	6.4122 6.1602

Note: Repeat channel designations for successive radio hops.

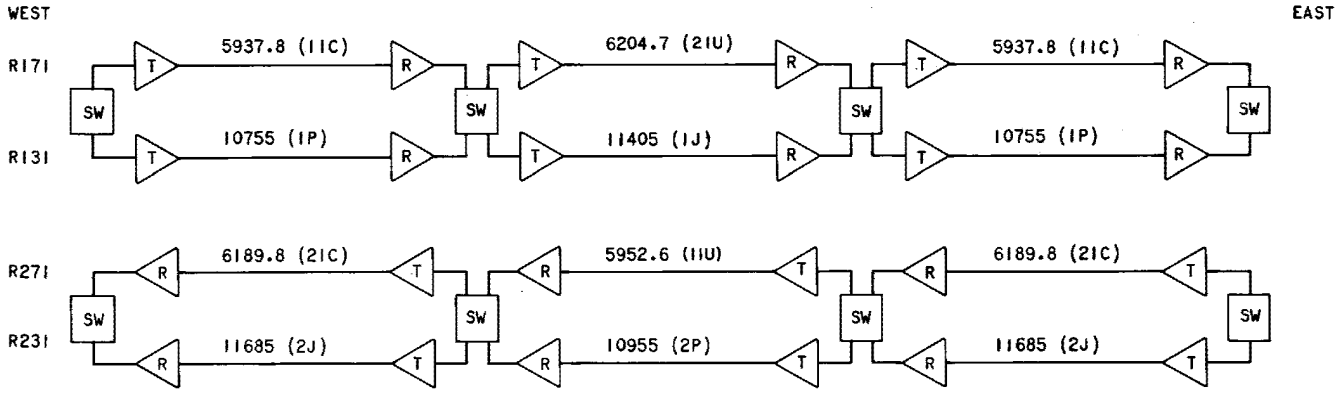


Fig. 4—Typical R Units for 6-GHz Radio Systems (Normal Plan for TM)

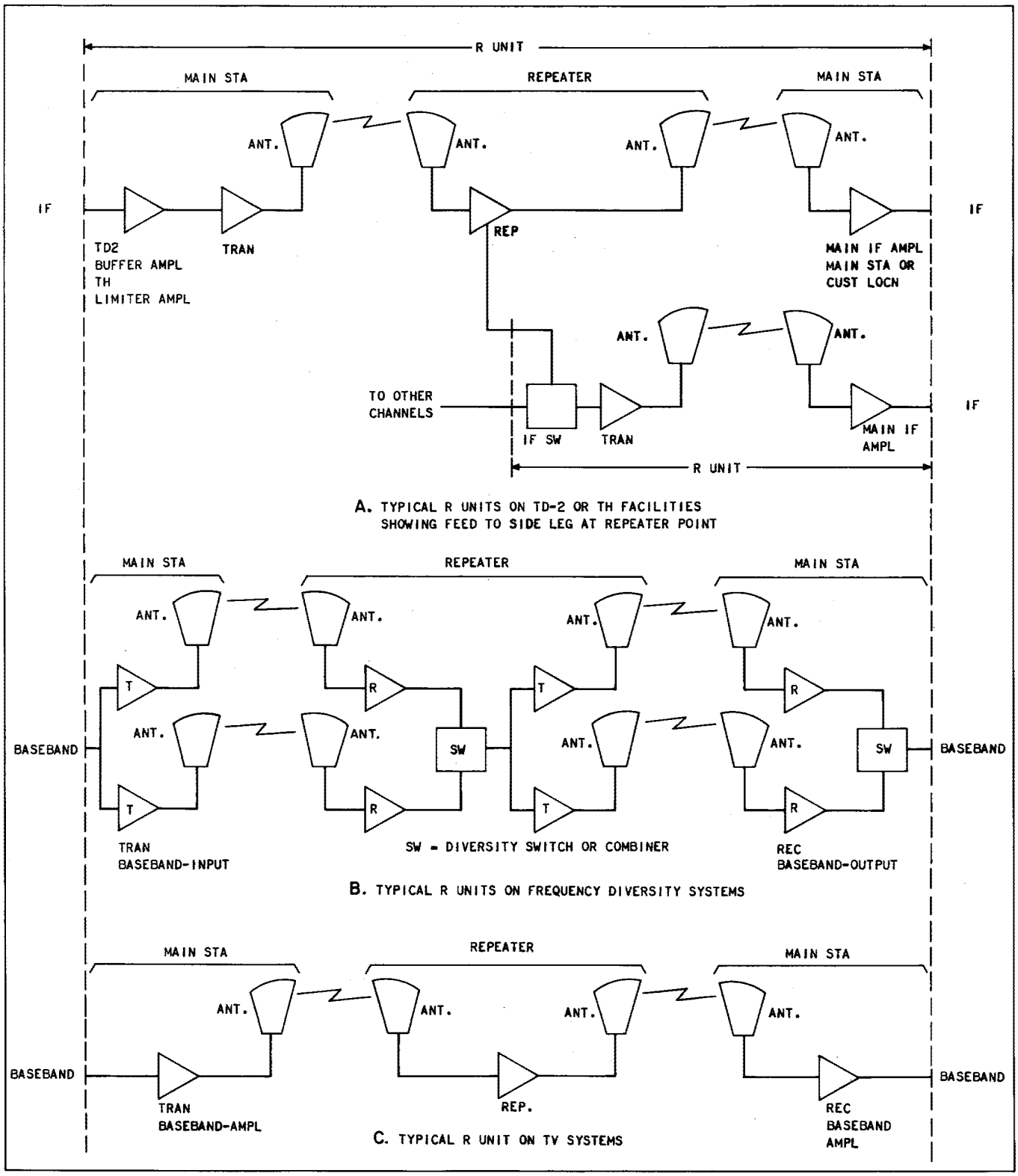


Fig. 5—Typical R Units

TABLE G

R UNIT ASSIGNMENTS FOR 6-GHz RADIO SYSTEMS
STAGGERED PLAN FOR TH-3, TM

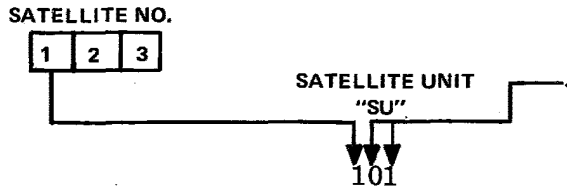
TH-3 RADIO UNIT		TM RADIO UNIT		RADIO HOP 1 (OR 2)		RADIO HOP 2 (OR 1)	
W-E OR S-N	E-W OR N-S	W-E OR S-N	E-W OR N-S	CHAN.	FREQ. (GHz)	CHAN.	FREQ. (GHz)
190	290	2190	2290	— *	— *	20S	6.1824
191	291	2191	2291	11S	5.9600	21S	6.2121
192	292	2192	2292	12S	5.9897	22S	6.2417
193	293	2193	2293	13S	6.0193	23S	6.2714
194	294	2194	2294	14S	6.0490	24S	6.3010
195	295	2195	2295	15S	6.0786	25S	6.3307
196	296	2196	2296	16S	6.1083	26S	6.3603
197	297	2197	2297	17S	6.1379	27S	6.3900
198	298	2198	2298	18S	6.1676	— *	— *

Note: For other channels repeat channel designations for successive hops.

* Assign radio unit associated with channel 18S or 20S regardless of channel number selected for the succeeding radio hop.

TABLE H

S-UNIT ASSIGNMENTS FOR 4-GHz/6-GHz SATELLITE UNITS



SATELLITE UNIT "SU"	TRANSPONDER TRANSMISSION CHANNEL NO.	POLARIZATION	CENTER FREQUENCY (MHz) UP PATH	CENTER FREQUENCY (MHz) DOWN PATH
101	1	V	5945	3720
102	1	H	5965	3740
103	2	V	5985	3760
104	2	H	6005	3780
105	3	V	6025	3800
106	3	H	6045	3820
107	4	V	6065	3840
108	4	H	6085	3860
109	5	V	6105	3880
110	5	H	6125	3900
111	6	V	6145	3920
112	6	H	6165	3940
113	7	V	6185	3960
114	7	H	6205	3980
115	8	V	6225	4000
116	8	H	6245	4020
117	9	V	6265	4040
118	9	H	6285	4060
119	10	V	6305	4080
120	10	H	6325	4100
121	11	V	6345	4120
122	11	H	6365	4140
123	12	V	6385	4160
124	12	H	6405	4180

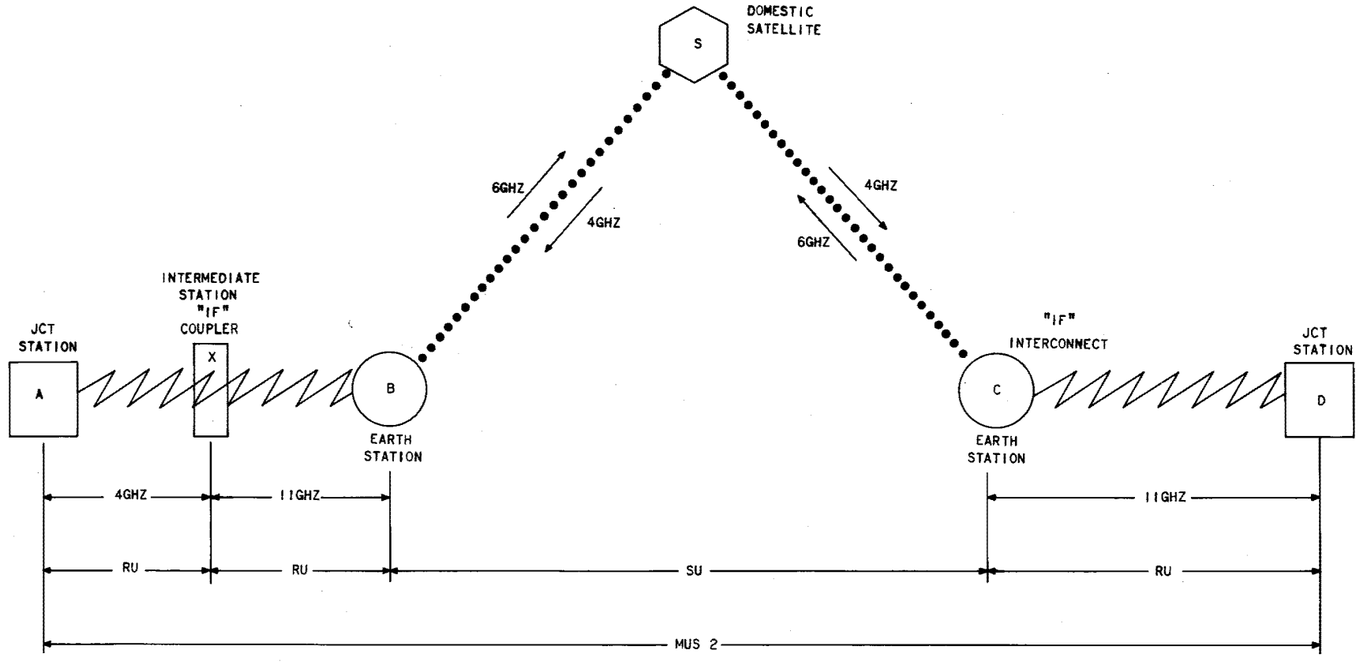


Fig. 6—Typical Domestic Satellite System