"PICTUREPHONE®" SERVICE
BASEBAND VIDEO TRANSMISSION
INITIAL SERVICE (PHASE 0)
CABLE EQUALIZERS
VIDEO LOOP FACILITY ALIGNMENT

This section contains, in chart form, step-by-step procedures for checking the cable equalizer test set and for adjusting the gain and equalization of the video loop facility. Preliminary procedures for installing networks and setting screw switches are also included.

This section affects Equipment Test Lists.

The material in this section is duplicated in Section 340-200-501.

This section provides information required for alignment of PICTUREPHONE video pairs which connect to the wideband line link side of the central office video switch. This includes the video pairs to customer, PBX, and wideband remote switch locations as shown in Fig. 2.

A ***video loop*** facility requires two pairs of wires in an underground telephone cable between a central office and a PICTUREPHONE customer. The ***control*** pair carries the video signals from the central office to the customer; the ***common*** pair carries the video signals from the customer to the central office.

Each pair includes equalizers which must be aligned to provide the required gain and a gain-frequency characteristic that is flat within 0.1 dB for signals up to 1 MHz.

Cable equalizers are installed at the central office and at the customer location. For long video loops between these locations, intermediate cable equalizers are installed. Equalizers are also installed at wideband remote switch, PBX, and key telephone system locations in video loops. A cable equalizer test set is required at each cable equalizer location during video loop alignment to produce and detect the test signals used.

Video loop alignment consists of three parts: preliminary procedures, flat gain adjustment at 1 kHz, and precision equalization at five frequencies below 1 MHz. During alignment a voice order wire may be used for communication between cable equalizer locations.

Prior to placing the cable equalizers in their housings along the video pairs, the plug-in networks must be selected and the various screw switches set as required by the location and conditions.

The installation of a PICTUREPHONE video loop involves the following steps:

(a) Verify that the cable pairs meet the requirements; such as limited bridge taps, soldered or equivalent splices, etc.

(b) Install and align the plug-in units of the loop cable equalizer facilities

(c) Install and test the station display unit and service unit

(d) Perform circuit order tests.

This section describes the procedures in Step (b) and assumes that Step (a) has been completed. The other steps are described in other sections.

CHART **PAGE**

CHART 1

PRELIMINARY PROCEDURES

The necessary information for selecting networks and setting screw switches is normally provided on the loop facility record card.

This chart includes procedures for setting the screw switches on central office line build-out networks.

Chart 8 gives the procedure for selecting the line build-out networks to be used in short video loops from a key telephone system.

CHART 1 (Cont)

Installation notes for 937-type equalizers and associated units are given on SD-1C346, for key telephone system cable equalizers on SD-69618, and for station set cable equalizers on SD-1C348.

Setting Screw Switches on Central Office Line Build-out Networks 874A:

An 874A line build-out (LBO) network is provided in each video pair in the loop and trunk circuits at a video switching central office. The LBO networks are mounted in cable equalizer bay J1C150A and are located between the wideband distributing frame and the X IN and X OUT jacks in the cable equalizer bay.

The LBO network simulates various lengths of cable at frequencies up to 1 MHz. Screw switches on the LBO networks must be set so the ***total electrical length*** of each video path between the cable equalizer bay and the wideband distributing frame is 350 ±25 feet regardless of the actual physical length.

If the screw switch settings on the LBO networks are ***not*** specified on the loop facility record card, perform the following steps.

APPARATUS:

2—Through-connection cards 874C

1—Resistance Bridge with 5 percent accuracy.

STEP	PROCEDURE
	At wideband distributing frame:
1	Short the tip conductor to the ring conductor for each video pair of the loop under test.
	At cable equalizer bay:
2	Remove the two 874A line build-out networks for the loop under test.
3	Insert the two 874C through-connection cards in place of the 874A networks removed.
4	Connect the resistance bridge to the tip and ring conductors of the X OUT jack of the loop under test.
5	Measure the dc resistance between the tip and ring conductors.
6	Refer to Table A for the 874A network screw switch settings for the measured dc resistance.
7	Set the screw switches.
8	Remove the resistance bridge connections from the X OUT jack.

CHART 1 (Cont)

STEP	PROCEDURE
9	Remove the 874C through-connection card from the outgoing (OG) 874A network position.
10	Insert the prepared 874A network in the outgoing position.
11	Connect the resistance bridge to the tip and ring conductors of the X IN jack of the loop under test.
12	Repeat Steps 5 through 7 to set the screw switches on the other 874A network.
13	Remove the resistance bridge connections from the X IN jack.
14	Remove the 874C through-connection card from the incoming (INC) 874A network position.
15	Insert the 874A network in the incoming position.
	At wideband distributing frame:
16	Remove the shorts placed in Step 1.

CHART 2

CHECK OF CABLE EQUALIZER TEST SET

A cable equalizer test set (CETS) is required at each cable equalizer location along the video loop to be aligned. Each CETS should be checked before leaving the central office to determine that it is in proper working order.

STEP	PROCEDURE
	Note: Perform the following steps, prior to equalizer alignment at the start of each day. For subsequent use, prior to the alignment of each loop perform Steps 1 through 5.
1	Operate the power switch to ON.
	Note: The CETS operates from self-contained batteries with a minimum operating life of ten working days. ***Always turn the power off*** when the CETS is not is use to conserve the batteries.
2	Allow a 1-minute warm-up for the CETS circuits to stabilize.
	Note: A warm-up is required only when calibrating the CETS.

TABLE A

LBO NETWORK LOCATIONS	VIDEO PAIR RESISTANCE IN OHMS (NOTE 1)	SCREW SWITCHES ON LBO NETWORKS (NOTES 2 AND 3)											
		A	B	C	D	E	F	G	H	J	K	L	M
Incoming (From X IN jack)	0 to 1.283	X			X		X	X				X	
	1.284 to 3.85	X			X					X		X	
	3.86 to 6.42	X				X		X				X	
	6.43 to 8.98	X							X			X	
	8.99 to 11.55		X				X	X				X	
	11.56 to 14.12		X							X		X	
	14.13 to 16.70			X				X				X	
	16.71 to 19.25										X		
Outgoing (To X OUT jack)	0 to 1.283	X			X		X	X					X
	1.284 to 3.85	X			X					X			X
	3.86 to 6.42	X				X		X					X
	6.43 to 8.98	X							X				X
	8.99 to 11.55		X				X	X					X
	11.56 to 14.12		X							X			X
	14.13 to 16.70			X				X					X
	16.71 to 19.25										X		

Note 1: The resistance of the video pair between the cable equalizer bay J1C150A and the wideband distributing frame.

Note 2: Each letter refers to a pair of screw switches.

Note 3: A screw switch is closed (X) when turned fully clockwise. A screw switch is open when turned two full revolutions counterclockwise.

CHART 2 (Cont)

STEP	PROCEDURE
3	Depress the BATT CHECK pushbutton. ***Requirement:*** An indication in the blue BATT OK region of the meter scale. ***Note:*** If an indication in the red REPLACE BATT region in obtained, replace the batteries.
4	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F6 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL ***Note:*** When calibrating the CETS, potentiometer P6 ***must always*** be adjusted first because it is the overall level control for the CETS test oscillator. Potentiometers P1 through P5 control the relative levels of the other five test signals.
5	Depress the CAL pushbutton and adjust P6 for a null indication. ***Note:*** Null for calibrating the CETS is indicated when the meter needle is on the center line of the meter scale.
6	Set the MODE switch to F1.
7	Depress the CAL pushbutton and adjust P1 for a null indication.
8	Set the MODE switch to F2-F6.
9	Set the SELECTOR switch to F2.
10	Depress the CAL pushbutton and adjust P2 for a null indication.
11	Repeat Steps 9 and 10 for SELECTOR switch positions F3, F4, and F5 to adjust P3, P4, and P5, respectively. ***Note:*** There is some interaction among these adjustments. After completing the adjustments, check that a null indication is obtained for SELECTOR switch positions F2 through F6 and readjust, if required.
12	Operate the power switch to OFF.
13	Check that the ground lead and the required 2-conductor cords are in the CETS cover.
14	The CETS is now ready for use in aligning the cable equalizers. Proceed to the appropriate chart for gain adjustment of the video loop pairs.

APPARATUS (For Charts 3 through 12):

Required at each cable equalizer location:

1—Cable Equalizer Test Set J1C150K (Section 103-930-100) equipped with a ground lead and six 2-conductor cords; two cords with the proper connector at one end and pin plugs at the other end, two cords with the proper connector at one end and a 310 plug at the other end, and two cords with the proper connector at one end and a 309 plug at the other end.

1—1011B, 1013, or 1014 Handset (for use on voice order wire).

1—KS-6854 Screwdriver

Required at the PICTUREPHONE switching office or wideband remote switch location:

1—Fault Location Test Set J1C150L (Section 103-935-100).

CHART 3

ADJUSTMENT OF FLAT GAIN IN VIDEO LOOP FACILITY FROM A PICTUREPHONE VIDEO SWITCHING OFFICE

The procedures in this chart and Chart 4 are used for a loop between a central office and a customer location, as shown in the upper part of Fig. 2.

To adjust the video loop flat gain, the cable equalizers must be installed and powered. A cable equalizer test set (CETS) is required simultaneously at each cable equalizer location.

Caution 1: High voltage is present on certain cable equalizer test points.

Caution 2: Do not insert uninsulated metal objects into a cable equalizer or a CETS.

Caution 3: Make certain the CETS is properly grounded.

Note 1: When an intermediate cable equalizer (ICE), key telephone system cable equalizer (KTSCE), or station set cable equalizer (SSCE) is not provided in the video loop, disregard that portion of the procedure.

Note 2: Cable equalizers include screw switches which must be opened and closed during equalizer alignment. A screw switch is closed when turned to maximum clockwise position. A screw switch is open when turned two full revolutions counterclockwise.

Note 3: A null for alignment of the equalizers is indicated when the CETS meter needle is in the ***green*** region of the meter scale. If a null indication can not be obtained when adjusting potentiometer F1 in a cable equalizer, replace the cable equalizer.

CHART 3 (Cont)

STEP	PROCEDURE
	A. Control Pair Flat Gain Adjustment
	At all locations:
1	Establish communication via the voice order wire, if necessary.
2	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
3	Operate the power switch to ON only during adjustments.
	At central office cable equalizer (COCE) location:
4	Set the outgoing (***control***) COCE screw switch, SW1, to the open position.
5	Connect the proper cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the outgoing (***control***) COCE pin jacks TP1 and TP3.
	Note 1: The black conductor on the cord always connects to TP1.
	Note 2: The CETS provides a 1-kHz test signal for control pair flat gain adjustments.
	Note 3: The CETS meter needle will deflect to the left.
	At intermediate cable equalizer (ICE) locations:
	Note: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the customer location.
6	Set the ***control*** ICE screw switch, SW1, to the closed position.
7	Connect a cord between the CETS INPUT connector and the ***control*** ICE pin jacks TP1 and TP2.
8	Adjust potentiometer F1 on the ***control*** ICE to obtain a null indication on the CETS meter.
9	Remove the cord.
	At key telephone system cable equalizer (KTSCE) location:
10	Set the ***control*** KTSCE screw switch, SW1, to the closed position.

CHART 3 (Cont)

STEP	PROCEDURE
11	Connect a cord between the CETS INPUT connector and the ***control*** KTSCE pin jacks TP1 and TP2.
12	Adjust potentiometer F1 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
13	Remove the cord.
	At single-line station set cable equalizer (SSCE) location:
14	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
15	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
16	Remove the cord.
	At a wideband remote switch (WBRS) or PBX location:
	Note: At a WBRS or PBX location, there is an equalizer in the receive pair from a central office only. The send pair to the central office does not include an equalizer.
17	Set the incoming ***(control)*** equalizer screw switch, SW1, to the closed position.
18	Connect a cord between the CETS INPUT connector and the control equalizer pin jacks TP1 and TP2.
19	Adjust potentiometer F1 on the control equalizer to obtain a null indication on the CETS meter.
20	Remove the cord.
	At COCE location:
21	Remove the cord.
22	Set the outgoing ***(control)*** COCE screw switch, SW1, to the closed position.
	B. Common Pair Flat Gain Adjustment
	At single-line SSCE location:
23	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
24	Connect the proper cord to the BALANCED OUTPUT connector on the CETS.

CHART 3 (Cont)

STEP	PROCEDURE
25	Connect the cord pin plugs to pin jacks R0 and T0 located on the connector board of the 1A service unit.
	Note 1: Either pin plug may be connected to either pin jack.
	Note 2: The CETS provides a 1-kHz test signal for common pair flat gain adjustment.
	Note 3: The CETS meter needle will deflect to the left.
	At KTSCE location:
26	Set the ***common*** KTSCE screw switch, SW1, to the open position.
27	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** KTSCE pin jacks TP1 and TP3.
	Note 1: The CETS provides a 1-kHz test signal for common pair flat gain adjustment.
	Note 2: The CETS meter needle will deflect to the left.
	At a WBRS location:
28	Connect the proper cord with 310 plug to the BALANCED OUTPUT connector on the CETS.
29	Insert the plug in the LINE IN jack in the ***common*** pair of the loop being aligned.
	Note: See ***Notes*** in Step 27.
	At a PBX location:
30	Connect the proper cord with 310 plug to the BALANCED OUTPUT connector on the CETS.
31	Insert the plug in the CO L IN jack of the loop being aligned.
	Note: See ***Notes*** in Step 27.
	At ICE location
	Note: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the central office.
32	Set the ***common*** ICE screw switch, SW1, to the closed position.
33	Connect a cord between the CETS INPUT connector and the ***common*** ICE pin jacks TP1 and TP2.

CHART 3 (Cont)

STEP	PROCEDURE
34	Adjust potentiometer F1 on the ***common*** ICE to obtain a null indication on the CETS meter.
35	Remove the cord.
36	Operate the CETS power switch to OFF.
	At COCE location:
37	Set the incoming (***common***) COCE screw switch, SW1, to the closed position.
38	Connect a cord between the CETS INPUT connector and the incoming ***(common)*** COCE pin jacks TP1 and TP2.
39	Adjust potentiometer F1 on the incoming (***common***) COCE to obtain a null indication on the CETS meter.
40	Remove the cord.
	At SSCE location:
41	Remove the cord.
42	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position.
	At KTSCE location:
43	Remove the cord.
44	Set the ***common*** KTSCE screw switch, SW1, to the closed position.
	At WBRS or PBX location:
45	Remove the cord.
	At all locations:
46	Proceed to Chart 4 for precision equalization of the video loop pairs.

CHART 4

PRECISION EQUALIZATION IN VIDEO LOOP FACILITY FROM A PICTUREPHONE VIDEO SWITCHING OFFICE

STEP	PROCEDURE
	At all locations:
1	Read the ***Cautions*** and the ***Notes*** at the beginning of Chart 3.
2	Operate the CETS power switch to ON only during adjustments.
	A. Control Pair Precision Equalization
	At COCE location:
3	Prepare the CETS, as follows: SWITCH — POSITION EQUALIZER ALIGN — REMOTE IMPEDANCE — NORMAL
	Note: The EQUALIZER ALIGN switch in the REMOTE position permits the CETS to be controlled from another location.
4	Set the outgoing (***control***) COCE screw switch, SW1, to the open position.
5	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***control*** COCE pin jacks TP1 and TP3.
6	Set the incoming (***common***) COCE screw switch, SW1, to the closed position.
7	Connect a cord between the CETS INPUT connector and the incoming *(**common***) COCE pin jacks TP1 and TP2.
	Note: This connects the audio frequency command signals received from another location which are used to select the test signals transmitted by the CETS.
	At ICE location:
	Note: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the customer location.

CHART 4 (Cont)

STEP	PROCEDURE
8	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
9	Set the ***control*** ICE screw switch, SW1, to the closed position.
10	Connect a cord between the CETS INPUT connector and the ***control*** ICE pin jacks TP1 and TP2. ***Note:*** This connects test signals received from the CETS at the central office.
11	Set the ***common*** ICE screw switch, SW1, to the open position.
12	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** ICE pin jacks TP1 and TP3. ***Note:*** This connects the audio frequency command signals which are used to select the test signals transmitted by the CETS at the central office.
13	Adjust potentiometer F1 on the ***control*** ICE to obtain a null indication on the CETS meter.
14	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
15	Adjust potentiometer F2 on the ***control*** ICE to obtain a null indication on the CETS meter.
16	Repeat Steps 14 and 15 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.

CHART 4 (Cont)

STEP	PROCEDURE
17	Repeat Steps 14 through 16 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note 1:*** A null indication may not be obtainable during the first few repetitions of the procedure. ***Note 2:*** If an indication within the green region can not be obtained for all SELECTOR switch positions after repeating the procedure approximately five to seven times, proceed to Chart 12 to isolate the trouble.
18	Remove the cords.
19	Set the ***common*** ICE screw switch, SW1, to the closed position.
	At KTSCE location:
20	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
21	Set the ***control*** KTSCE screw switch, SW1, to the closed position.
22	Connect a cord between the CETS INPUT connector and the ***control*** KTSCE pin jacks TP1 and TP2.
23	Set the ***common*** KTSCE screw switch, SW1, to the open position.
24	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** KTSCE pin jacks TP1 and TP3.
25	Adjust potentiometer F1 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
26	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 4 (Cont)

STEP	PROCEDURE
27	Adjust potentiometer F2 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
28	Repeat Steps 26 and 27 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
29	Repeat Steps 26 through 28 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
30	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***Note:*** This permits the CETS to be controlled from another location. ***At single-line SSCE location:***
31	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
32	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
33	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
34	Connect a cord between the BALANCED OUTPUT connector on the CETS and pin jacks R0 and T0 located on the connector board of the 1A service unit. ***Note:*** Either pin plug may be connected to either pin jack.
35	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
36	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 4 (Cont)

STEP	PROCEDURE
37	Adjust potentiometer F2 on the SSCE to obtain a null indication on the CETS meter.
38	Repeat Steps 36 and 37 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
39	Repeat Steps 36 through 38 until the CETS meter indicates within the green region for all positions of the SELECTOR switch.
	Note: See ***Notes*** in Step 17.
40	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position.
	Note: This permits the CETS to be controlled from another location.
	At WBRS location:
41	Prepare the CETS, as follows:

SWITCH	POSITION
MODE	F1
EQUALIZER ALIGN	LOCAL
IMPEDANCE	NORMAL

42	Set the incoming (***control***) equalizer screw switch, SW1, to the closed position.
43	Connect a cord between the CETS INPUT connector and the incoming (***control***) equalizer pin jacks TP1 and TP2.
44	Connect the proper cord with a 310 plug to the BALANCED OUTPUT connector on the CETS.
45	Insert the plug in the LINE IN jack in the ***common*** pair of the loop being aligned.
46	Adjust potentiometer F1 on the incoming ***(control)*** equalizer to obtain a null indication on the CETS meter.
47	Prepare the CETS, as follows:

SWITCH	POSITION
MODE	F2-F6
SELECTOR	F2
EQUALIZER ALIGN	LOCAL
IMPEDANCE	NORMAL

CHART 4 (Cont)

STEP	PROCEDURE
48	Adjust potentiometer F2 on the incoming (***control***) equalizer to obtain a null indication on the CETS meter.
49	Repeat Steps 47 and 48 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
50	Repeat Steps 47 through 49 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
51	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***Note:*** This permits the CETS to be controlled from another location. ***At PBX location:***
52	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
53	Set the ***control*** (receive) equalizer screw switch, SW1, to the closed position.
54	Connect a cord between the CETS INPUT connector and the ***control*** (receive) equalizer pin jacks TP1 and TP2.
55	Connect the proper cord with 310 plug to the BALANCED OUTPUT connector on the CETS.
56	Insert the plug in the CO L IN jack of the loop being aligned.
57	Adjust potentiometer F1 on the ***control*** (receive) equalizer to obtain a null indication on the CETS meter.
58	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 4 (Cont)

STEP	PROCEDURE
59	Adjust potentiometer F2 on the ***control*** (receive) equalizer to obtain a null indication on the CETS meter.
60	Repeat Steps 58 and 59 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
61	Repeat Steps 58 through 60 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
62	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***Note:*** This permits the CETS to be controlled from another location. **B. Common Pair Precision Equalization** ***At ICE location:*** ***Note:*** Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the central office.
63	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
64	Set the ***common*** ICE screw switch, SW1, to the closed position.
65	Connect a cord between the CETS INPUT connector and the ***common*** ICE pin jacks TP1 and TP2.
66	Set the ***control*** ICE screw switch, SW1, to the open position.
67	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***control*** ICE pin jacks TP1 and TP3.
68	Adjust potentiometer F1 on the ***common*** ICE to obtain a null indication on the CETS meter.
69	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 4 (Cont)

STEP	PROCEDURE
70	Adjust potentiometer F2 on the ***common*** ICE to obtain a null indication on the CETS meter.
71	Repeat Steps 69 and 70 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
72	Repeat Steps 69 through 71 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
73	Remove the cords.
74	Set the ***control*** ICE screw switch, SW1, to the closed position. ***At COCE location:***
75	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL ***Note 1:*** Make certain incoming (***common***) COCE screw switch, SW1, is in the closed position and outgoing (***control***) COCE screw switch, SW1, is in the open position. ***Note 2:*** The CETS unbalanced TP1-TP3 OUTPUT connector is connected to the outgoing (***control***) COCE pin jacks TP1 and TP3. The CETS INPUT connector is connected to the incoming (***common***) COCE pin jacks TP1 and TP2.
76	Adjust potentiometer F1 on the incoming (***common***) COCE to obtain a null indication on the CETS meter.
77	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 4 (Cont)

STEP	PROCEDURE
78	Adjust potentiometer F2 on the incoming (***common***) COCE to obtain a null indication on the CETS meter.
79	Repeat Steps 77 and 78 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
80	Repeat Steps 77 through 79 until the CETS meter indicates within the green region for all positions of the SELECTOR switch.
	Note: See ***Notes*** in Step 17.
	At KTSCE location:
81	Remove the cords.
82	Set the ***common*** KTSCE screw switch, SW1, to the closed position.
	Note: Check that the ***control*** KTSCE screw switch, SW1, is in the closed position.
	At SSCE location:
83	Remove the cords.
84	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position.
	At PBX location:
85	Remove the cords.
	Note: Check that the ***control*** (receive) equalizer screw switch, SW1, is in the closed position.
86	Connect a patch cord from the EQ OUT jack to the CO L IN jack of the loop being aligned.
	At WBRS location:
87	Remove the cords.
88	Connect a patch cord from the EQ OUT jack to the LINE IN jack of the loop being aligned.
	At COCE location:

CHART 4 (Cont)

STEP	PROCEDURE
89	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
90	Check that the CETS meter indication is within the yellow region of the meter scale.
91	Remove the cords.
92	Set the CETS IMPEDANCE switch to the LOW position.
93	Set the outgoing (***control***) COCE screw switch, SW1, to the closed position.
94	Connect the proper cord with 310 plug between the CETS INPUT connector and the incoming EQ OUT jack in the jack field in the PICTUREPHONE cable equalizer bay.
95	Connect the proper cord with 310 plug between the BALANCED OUTPUT connector of the CETS and the outgoing LINE IN jack in the jack field. ***Note:*** A 1-kHz test signal from the CETS is sent over the control pair to the KTSCE, SSCE, WBRS, or PBX where it is connected, via a loopback circuit or via the patch cord, to the common pair.
96	Check that the CETS meter indication is to the right of the null mark.
97	Remove the cords from the jack field.
	At PBX location:
98	Remove the patch cord.
	At WBRS location:
99	Remove the patch cord.
	At COCE location:
100	Perform ac fault location test procedure (Section 340-200-502) on the aligned loop to ensure that the fault location networks are properly installed and working.

CHART 5

ADJUSTMENT OF FLAT GAIN IN VIDEO LOOP FACILITY FROM A WIDEBAND REMOTE SWITCH

The procedures in this chart and Chart 6 are used for a loop between a wideband remote switch and a customer location, as shown in the middle part of Fig. 2.

STEP	PROCEDURE
	Note: Read the ***Cautions*** and the ***Notes*** at the beginning of Chart 3.
	A. Control Pair Flat Gain Adjustment
	At all locations:
1	Establish communication via the voice order wire.
2	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
3	Operate the CETS power switch to ON only during adjustments.
	At wideband remote switch (WBRS) location:
4	Connect the proper cord with 310 plug to the BALANCED OUTPUT connector on the CETS.
5	Insert the plug in the LINE IN jack of the loop being aligned.
	Note: There are two possibilities for a loop starting at a WBRS location. (a) If the equalizers in the loop are ***simplex powered,*** there will be an outgoing (***control***) equalizer at the WBRS location. (b) If the equalizers in the loop are ***locally powered,*** there will not be an outgoing (***control***) equalizer at the WBRS location.
6	Perform Steps 7 through 15 if there is a control equalizer at the WBRS location. If there is no outgoing (***control***) equalizer at the WBRS location, omit Steps 7 through 15.
7	Set the outgoing (***control***) remote switch unit cable equalizer (RSUCE) screw switch, SW1, to the closed position.
8	Connect a cord between the CETS INPUT connector and the outgoing (***control***) cable equalizer pin jacks TP1 and TP2.

CHART 5 (Cont)

STEP	PROCEDURE
9	Adjust potentiometer F1 on the outgoing (***control***) equalizer to obtain a null indication on the CETS meter.
10	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 IMPEDANCE — NORMAL
11	Adjust potentiometer F2 on the outgoing (***control***) equalizer to obtain a null indication on the CETS meter.
12	Repeat Steps 10 and 11 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
13	Repeat Steps 10 through 12 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note 1:*** A null indication may not be obtainable during the first few repetitions of the procedure. ***Note 2:*** If an indication within the green region can not be obtained for all SELECTOR switch positions after repeating the procedure approximately five to seven times, proceed to Chart 12 to isolate the trouble.
14	Remove the connection to pin jacks TP1 and TP2.
15	Set the CETS MODE switch to the F1 position. ***At intermediate cable equalizer (ICE) locations:*** ***Note:*** Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the customer location.
16	Set the ***control*** ICE screw switch, SW1, to the closed position.
17	Connect a cord between the CETS INPUT connector and the ***control*** ICE pin jacks TP1 and TP2.
18	Adjust potentiometer F1 on the ***control*** ICE to obtain a null indication on the CETS meter.
19	Remove the cord.

CHART 5 (Cont)

STEP	PROCEDURE
	At key telephone system cable equalizer (KTSCE) location:
20	Set the ***control*** KTSCE screw switch, SW1, to the closed position.
21	Connect a cord between the CETS INPUT connector and the ***control*** KTSCE pin jacks TP1 and TP2.
22	Adjust potentiometer F1 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
23	Remove the cord.
	At single-line station set cable equalizer (SSCE) location:
24	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
25	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
26	Remove the cord.
	At WBRS location:
27	Remove the cord.
	B. Common Pair Flat Gain Adjustment
	At single-line SSCE location:
28	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
29	Connect the proper cord to the BALANCED OUTPUT connector on the CETS.
30	Connect the cord pin plugs to pin jacks R0 and T0 located on the connector board of the 1A service unit.
	Note 1: Either pin plug may be connected to either pin jack.
	Note 2: The CETS provides a 1-kHz test signal for common pair flat gain adjustment.
	Note 3: The CETS meter needle will deflect to the left.
	At KTSCE location:
31	Set the ***common*** KTSCE screw switch, SW1, to the open position.

CHART 5 (Cont)

STEP	PROCEDURE
32	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** KTSCE pin jacks TP1 and TP3.
	Note 1: The CETS provides a 1-kHz test signal for common pair flat gain adjustment.
	Note 2: The CETS meter needle will deflect to the left.
	At ICE locations:
	Note: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the WBRS location.
33	Set the ***common*** ICE screw switch, SW1, to the closed position.
34	Connect a cord between the CETS INPUT connector and the ***common*** ICE pin jacks TP1 and TP2.
35	Adjust potentiometer F1 on the ***common*** ICE to obtain a null indication on the CETS meter.
36	Remove the cord.
37	Operate the CETS power switch to OFF.
	At the WBRS location:
38	Set the incoming (***common***) equalizer screw switch, SW1, to the closed position.
39	Connect a cord between the CETS INPUT connector and the incoming (***common***) remote switch unit cable equalizer (RSUCE) pin jacks TP1 and TP2.
40	Adjust potentiometer F1 on the incoming (***common***) equalizer to obtain a null indication on the CETS meter.
41	Remove the cord.
	At SSCE location:
42	Remove the cord.
43	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position.
	At KTSCE location:
44	Remove the cord.

CHART 5 (Cont)

STEP	PROCEDURE
45	Set the ***common*** KTSCE screw switch, SW1, to the closed position.
	At all locations:
46	Proceed to Chart 6 for precision equalization of the video loop pairs.

CHART 6

PRECISION EQUALIZATION IN VIDEO LOOP FACILITY FROM A WIDEBAND REMOTE SWITCH

STEP	PROCEDURE
	At all locations:
1	Read the ***Cautions*** and the ***Notes*** at the beginning of Chart 3.
2	Operate the CETS power switch to ON only during adjustments.
	A. Control Pair Precision Equalization
	At wideband remote switch (WBRS) location:
	Note: The flat gain and precision equalization adjustments of the WBRS outgoing (***control***) equalizer, if provided, were completed during the procedure in Chart 5.
3	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — REMOTE IMPEDANCE — NORMAL
	Note: The EQUALIZER ALIGN switch in the REMOTE position permits the CETS to be controlled from another location.
4	Set the WBRS incoming (***common***) equalizer screw switch, SW1, to the closed position.
5	Connect a cord between the CETS INPUT connector and the incoming (***common***) equalizer pin jacks TP1 and TP2.
	Note: This connects audio frequency command signals received from another location which are used to select the test signals transmitted by the CETS.
6	Connect the proper cord with 310 plug to the BALANCED OUTPUT connector on the CETS.

CHART 6 (Cont)

STEP	PROCEDURE
7	Insert the plug in the LINE IN jack of the loop being aligned. ***At ICE location:*** ***Note:*** Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the customer location.
8	Prepare the CETS, as follows: **SWITCH** — **POSITION** MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
9	Set the ***control*** ICE screw switch, SW1, to the closed position.
10	Connect a cord between the CETS INPUT connector and the ***control*** ICE pin jacks TP1 and TP2. ***Note:*** This connects test signals received from the CETS at the WBRS location.
11	Set the ***common*** ICE screw switch, SW1, to the open position.
12	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** ICE pin jacks TP1 and TP3. ***Note:*** This connects the audio frequency command signals which are used to select the test signals transmitted by the CETS at the WBRS location.
13	Adjust potentiometer F1 on the ***control*** ICE to obtain a null indication on the CETS meter.
14	Prepare the CETS, as follows: **SWITCH** — **POSITION** MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 6 (Cont)

STEP	PROCEDURE
15	Adjust potentiometer F2 on the ***control*** ICE to obtain a null indication on the CETS meter.
16	Repeat Steps 14 and 15 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
17	Repeat Steps 14 through 16 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note 1:*** A null indication may not be obtainable during the first few repetitions of the procedure. ***Note 2:*** If an indication within the green region can not be obtained for all SELECTOR switch positions after repeating the procedure approximately five to seven times, proceed to Chart 12 to isolate the trouble.
18	Remove the cords.
19	Set the ***common*** ICE screw switch, SW1, to the closed position. ***At KTSCE location:***
20	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
21	Set the ***control*** KTSCE screw switch, SW1, to the closed position.
22	Connect a cord between the CETS INPUT connector and the ***control*** KTSCE pin jacks TP1 and TP2.
23	Set the ***common*** KTSCE screw switch, SW1, to the open position.
24	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** KTSCE pin jacks TP1 and TP3.
25	Adjust potentiometer F1 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
26	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 6 (Cont)

STEP	PROCEDURE
27	Adjust potentiometer F2 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
28	Repeat Steps 26 and 27 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
29	Repeat Steps 26 through 28 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
30	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***Note:*** This permits the CETS to be controlled from another location. ***At single-line SSCE location:***
31	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
32	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
33	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
34	Connect a cord between the CETS BALANCED OUTPUT connector and pin jacks R0 and T0 located on the connector board of the 1A service unit. ***Note:*** Either pin plug may be connected to either pin jack.
35	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
36	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 6 (Cont)

STEP	PROCEDURE
37	Adjust potentiometer F2 on the SSCE to obtain a null indication on the CETS meter.
38	Repeat Steps 36 and 37 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
39	Repeat Steps 36 through 38 until the CETS meter indicates within the green region for all positions of the SELECTOR switch.
	Note: See ***Notes*** in Step 17.
40	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position.
	Note: This permits the CETS to be controlled from another location.
	B. Common Pair Precision Equalization
	At ICE location:
	Note: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the WBRS location.
41	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
42	Set the ***common*** ICE screw switch, SW1, to the closed position.
43	Connect a cord between the CETS INPUT connector and the ***common*** ICE pin jacks TP1 and TP2.
44	Set the ***control*** ICE screw switch, SW1, to the open position.
45	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***control*** ICE pin jacks TP1 and TP3.
46	Adjust potentiometer F1 on the ***common*** ICE to obtain a null indication on the CETS meter.

CHART 6 (Cont)

STEP	PROCEDURE
47	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
48	Adjust potentiometer F2 on the ***common*** ICE to obtain a null indication on the CETS meter.
49	Repeat Steps 47 and 48 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
50	Repeat Steps 47 through 49 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
51	Remove the cords.
52	Set the ***control*** ICE screw switch, SW1, to the closed position. ***At WBRS location:***
53	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL ***Note:*** The BALANCED OUTPUT connector on the CETS is connected to the LINE IN jack of the loop being aligned and the INPUT connector on the CETS is connected to the incoming (***common***) equalizer pin jacks TP1 and TP2.
54	Check that the incoming (***common***) equalizer screw switch, SW1, is in the closed position.
55	Adjust potentiometer F1 on the incoming (***common***) equalizer to obtain a null indication on the CETS meter.
56	Set the MODE switch on the CETS to the F2-F6 position.
57	Set the SELECTOR switch on the CETS to the F2 position.
58	Adjust potentiometer F2 on the incoming (***common***) equalizer to obtain a null indication on the CETS meter.

CHART 6 (Cont)

STEP	PROCEDURE
59	Repeat Steps 57 and 58 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
60	Repeat Steps 57 through 59 until the CETS meter indicates within the green region for all positions of the SELECTOR switch.
	Note: See ***Notes*** in Step 17.
	At KTSCE location:
61	Remove the cords.
62	Set the ***common*** KTSCE screw switch to the closed position.
	At SSCE location:
63	Remove the cords.
64	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position.
	At WBRS location:
65	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
66	Check that the CETS meter indication is within the yellow region on the meter scale.
	Note: A 1-kHz test signal from the CETS is sent over the control pair to the KTSCE or SSCE where it is connected, via a loopback circuit, to the common pair.
67	Remove the cord from the common equalizer pin jacks TP1 and TP2.
	Note: Check that the equalizer screw switch, SW1, is in the closed position.
68	Set the IMPEDANCE switch on the CETS to the LOW position.
69	Connect the proper cord with 310 plug between the CETS INPUT connector and the EQ OUT jack of the loop being aligned.
70	Check that the CETS meter indication is within the yellow region on the meter scale.
71	Remove the cords from the jack field.

CHART 6 (Cont)

STEP	PROCEDURE
72	Operate the CETS power switch to OFF.
73	Perform ac fault location test procedure (Section 340-200-502) on the aligned loop to ensure that the fault location networks are properly installed and working.

CHART 7

ALIGNMENT OF LONG VIDEO LOOP BETWEEN KEY TELEPHONE SYSTEM AND A STATION SET

STEP	PROCEDURE
	At all locations:
1	Establish communication between key telephone system equipment and station set locations.
	At key telephone system (KTS) location:
2	Close the KTS video switch in the 601A key telephone unit by applying ground to terminal 5 or terminal 19, according to which video loop is to be aligned.
3	Remove the loopback connection in the KTS cable equalizers on the central office side of the KTS video switch by: (a) applying -24 volts dc to terminal B21 of the 600A line circuit, and (b) applying ground to terminal A16 of the 600A line circuit.
4	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
5	Set the ***control*** KTSCE screw switch, SW1, located on the central office side of the KTS video switch, to the open position.
6	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the control KTSCE pin jacks TP1 and TP3. ***Note:*** The CETS meter needle will deflect to the left. ***Caution: Do not change potentiometer settings on this cable equalizer.***

CHART 7 (Cont)

STEP	PROCEDURE
	At station set cable equalizer (SSCE) location:
7	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
8	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
9	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
10	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
11	Connect a cord between the CETS BALANCED OUTPUT connector and pin jacks R0 and T0 on the connector board of the 1A service unit.
12	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position.
	At KTS location:
13	Connect a cord between the CETS INPUT connector and pin jacks TP1 and TP2 of the common KTSCE on the central office side of the KTS video switch.
14	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
15	Adjust potentiometer F1 on the common 607A cable equalizer, located on the station set side of the KTS video switch, to obtain a null indication on the CETS meter.
16	Set the MODE switch on the CETS to the F2-F6 position.
17	Set the SELECTOR switch on the CETS to the F2 position.
18	Adjust potentiometer F2 on the common 607A cable equalizer to obtain a null indication on the CETS meter.
19	Repeat Steps 17 and 18 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.

CHART 7 (Cont)

STEP	PROCEDURE
20	Repeat Steps 17 through 19 until the CETS meter indicates in the green region for all positions of the SELECTOR switch. ***Note 1:*** A null indication may not be obtainable during the first few repetitions of the procedure. ***Note 2:*** If an indication within the green region can not be obtained for all SELECTOR switch positions after repeating the procedure approximately five to seven times, proceed to Chart 12 to isolate the trouble.
21	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***At SSCE location:***
22	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
23	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
24	Set the MODE switch on the CETS to the F2-F6 position.
25	Set the SELECTOR switch on the CETS to the F2 position.
26	Adjust potentiometer F2 on the SSCE to obtain a null indication on the CETS meter.
27	Repeat Steps 25 and 26 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
28	Repeat Steps 25 through 27 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 20.
29	Remove the cords.
30	Operate the CETS power switch to OFF.
31	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position. ***At KTS location:***
32	Remove the cords.

CHART 7 (Cont)

STEP	PROCEDURE
33	Operate the CETS power switch to OFF.
34	Set the control KTSCE screw switch, SW1, to the closed position.
35	Check that the ***common*** KTSCE screw switch, SW1, is in the closed position.
36	Remove the -24 volts dc connected to terminal B21 of the 600A line circuit.
37	Remove the ground connected to terminal A16 of the 600A line circuit.
38	Remove the ground connected to terminal 5 or terminal 19 on the video switch in the 601A key telephone unit.

CHART 8

PREPARATION OF SHORT VIDEO LOOP BETWEEN KEY TELEPHONE SYSTEM AND A STATION SET

Selecting Station Set Line Build-out Networks 877A and 877B:

An 877A or 877B line build-out (LBO) network is provided in each video pair ***where*** the distance is less than approximately 500 feet between a key telephone system (KTS) cable equalizer and a display unit. The LBO network is inserted in the 1A service unit in place of the 939A or 939B cable equalizer, as shown in the middle part of Fig. 2.

The LBO network used and its orientation in the 1A service unit depends on the type and physical length of the cable between the KTS cable equalizers and the video display unit.

If the LBO network required is ***not*** specified on the loop facility record card, perform the following steps.

STEP	PROCEDURE
	Note: The length of cable between the service unit and the display unit must always be measured using a tape measure or ruler. The length of cable between the KTS equipment and the service unit may be measured with a tape measure or the length may be determined by a resistance measurement, as follows.
1	Place a short between test points R0 and T0 on the connector board of the service unit.

CHART 8 (Cont)

STEP	PROCEDURE
2	Disconnect the ***common*** video pair from the connecting block at the KTS equipment. ***Note:*** The common pair carries the video signals from the service unit to the KTS equipment. This is the pair that was shorted at the service unit in Step 1.
3	Measure the resistance between the tip and ring conductors of this pair at the KTS equipment location. ***Note:*** Use an ohmmeter or resistance bridge having an accuracy of 10 percent or better and having a x1 ohms scale. Determine the resistance as accurately as possible.
4	Convert the measured resistance value to feet of cable by multiplying by 31 feet per ohm for 22-gauge cable or by 19.5 feet per ohm for 24-gauge cable to the service unit.
5	Add the length obtained in Step 4 to the length of cable between the service unit and the display unit to obtain the total length of cable.
6	Refer to Table B to determine the proper 877-type network required for this total length of cable.
7	Reconnect the common video pair on the connecting block at the KTS equipment location.
8	Remove the short at the service unit which was placed in Step 1.
9	Insert the proper LB0 network oriented so the stamping indicates ***A, B, C,*** or ***D IN USE,*** as required.

TABLE B

LINE BUILDING-OUT NETWORKS

CIRCUIT BOARD	NETWORK	D-TYPE INSIDE WIRE 24-GAUGE	D-TYPE STATION WIRE 22-GAUGE	252A SWITCHBOARD CABLE 24-GAUGE
877A	A	Up to 125 feet	Up to 165 feet	Up to 140 feet
877B	B	126 to 225 feet	166 to 315 feet	141 to 260 feet
877A	C	226 to 325 feet	316 to 465 feet	261 to 380 feet
877B	D	326 to 425 feet	466 to 615 feet	381 to 500 feet

CHART 9

ADJUSTMENT OF FLAT GAIN IN VIDEO LOOP FACILITY FROM A PBX

The procedures in this chart and Chart 10 are used for a loop between a PBX and a customer location, as shown in the lower part of Fig. 2.

STEP	PROCEDURE
	Note: Read the ***Cautions*** and the ***Notes*** at the beginning of Chart 3.
	A. Control Pair Flat Gain Adjustment
	At all locations:
1	Establish communication via a voice order wire.
2	Prepare the CETS, as follows:

SWITCH	POSITION
MODE	F1
EQUALIZER ALIGN	AUX
IMPEDANCE	NORMAL

3	Operate the CETS power switch to ON only during adjustments.
	At PBX location:
4	Connect the proper cord with 310 plug to the BALANCED OUTPUT connnector on the CETS.
5	Insert the plug in the STA L IN jack of the loop being aligned.
	At intermediate cable equalizer (ICE) locations:
	Note 1: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the station set location.
	Note 2: All intermediate cable equalizers in PBX loops are ***locally*** powered.
6	Set the ***control*** ICE screw switch, SW1, to the closed position.
7	Connect a cord between the CETS INPUT connector and the ***control*** ICE pin jacks TP1 and TP2.
8	Adjust potentiometer F1 on the ***control*** ICE to obtain a null indication on the CETS meter.

CHART 9 (Cont)

STEP	PROCEDURE
9	Remove the cord.
	At key telephone system cable equalizer (KTSCE) location:
10	Set the ***control*** KTSCE screw switch, SW1, to the closed position.
11	Connect a cord between the CETS INPUT connector and the ***control*** KTSCE pin jacks TP1 and TP2.
12	Adjust potentiometer F1 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
13	Remove the cord.
	At single-line station set cable equalizer (SSCE) location:
14	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
15	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
16	Remove the cord.
	At PBX location:
17	Remove the cord.
	B. Common Pair Flat Gain Adjustment
	At single-line SSCE location:
18	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
19	Connect the proper cord to the BALANCED OUTPUT connector on the CETS.
20	Connect the cord pin plugs to pin jacks R0 and T0 located on the connector board of the 1A service unit.
	Note 1: Either pin plug may be connected to either pin jack.
	Note 2: The CETS provides a 1-kHz test signal for common pair flat gain adjustment.
	Note 3: The CETS meter needle will deflect to the left.
	At KTSCE location:
21	Set the ***common*** KTSCE screw switch, SW1, to the open position.

CHART 9 (Cont)

STEP	PROCEDURE
22	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** KTSCE pin jacks TP1 and TP3. ***Note 1:*** The CETS provides a 1-kHz test signal for common pair flat gain adjustment. ***Note 2:*** The CETS meter needle will deflect to the left. ***At ICE locations:***
	Note: Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the PBX location.
23	Set the ***common*** ICE screw switch, SW1, to the closed position.
24	Connect a cord between the CETS INPUT connector and the ***common*** ICE pin jacks TP1 and TP2.
25	Adjust potentiometer F1 on the ***common*** ICE to obtain a null indication on the CETS meter.
26	Remove the cord. ***At PBX location:***
27	Set the ***common*** (receive) equalizer screw switch, SW1, to the closed position.
28	Connect a cord between the CETS INPUT connector and the ***common*** (receive) equalizer pin jacks TP1 and TP2.
29	Adjust potentiometer F1 on the ***common*** (receive) equalizer to obtain a null indication on the CETS meter.
30	Remove the cord. ***At SSCE location:***
31	Remove the cord.
32	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position. ***At KTSCE location:***
33	Remove the cord.

CHART 9 (Cont)

STEP	PROCEDURE
34	Set the ***common*** KTSCE screw switch, SW1, to the closed position.
	At all locations:
35	Proceed to Chart 10 for precision equalization of the video loop pairs.

CHART 10

PRECISION EQUALIZATION IN VIDEO LOOP FACILITY FROM A PBX

STEP	PROCEDURE
	At all locations:
1	Read the ***Cautions*** and the ***Notes*** at the beginning of Chart 3.
2	Operate the CETS power switch to ON only during adjustments.
	A. Control Pair Precision Equalization
	At PBX location:
3	Prepare the CETS, as follows:

SWITCH	POSITION
MODE	F1
EQUALIZER ALIGN	REMOTE
IMPEDANCE	NORMAL

Note: The EQUALIZER ALIGN switch in the REMOTE position permits the CETS to be controlled from another location.

4	Set the PBX ***common*** (receive) equalizer screw switch, SW1, to the closed position.
5	Connect a cord between the CETS INPUT connector and the ***common*** (receive) equalizer pin jacks TP1 and TP2.
	Note: This connects audio frequency command signals received from another location which are used to select the test signals transmitted by the CETS.
6	Connect the proper cord with 310 plug to the BALANCED OUTPUT connector on the CETS.

CHART 10 (Cont)

STEP	PROCEDURE
7	Insert the plug in the STA L IN jack of the loop being aligned. ***At ICE location:*** ***Note:*** Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the station set location.
8	Prepare the CETS, as follows: **SWITCH** — **POSITION** MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
9	Set the ***control*** ICE screw switch, SW1, to the closed position.
10	Connect a cord between the CETS INPUT connector and the ***control*** ICE pin jacks TP1 and TP2. ***Note:*** This connects test signals received from the CETS at the PBX location.
11	Set the ***common*** ICE screw switch, SW1, to the open position.
12	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** ICE pin jacks TP1 and TP3. ***Note:*** This connects the audio frequency command signals which are used to select the test signals transmitted by the CETS at the PBX location.
13	Adjust potentiometer F1 on the ***control*** ICE to obtain a null indication on the CETS meter.
14	Prepare the CETS, as follows: **SWITCH** — **POSITION** MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 10 (Cont)

STEP	PROCEDURE
15	Adjust potentiometer F2 on the ***control*** ICE to obtain a null indication on the CETS meter.
16	Repeat Steps 14 and 15 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
17	Repeat Steps 14 through 16 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note 1:*** A null indication may not be obtainable during the first few repetitions of the procedure. ***Note 2:*** If an indication within the green region can not be obtained for all SELECTOR switch positions after repeating the procedure approximately five to seven times, proceed to Chart 12 to isolate the trouble.
18	Remove the cords.
19	Set the ***common*** ICE screw switch, SW1, to the closed position. ***At KTSCE location:***
20	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
21	Set the ***control*** KTSCE screw switch, SW1, to the closed position.
22	Connect a cord between the CETS INPUT connector and the ***control*** KTSCE pin jacks TP1 and TP2.
23	Set the ***common*** KTSCE screw switch, SW1, to the open position.
24	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***common*** KTSCE pin jacks TP1 and TP3.
25	Adjust potentiometer F1 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
26	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 IMPEDANCE — NORMAL

CHART 10 (Cont)

STEP	PROCEDURE
27	Adjust potentiometer F2 on the ***control*** KTSCE to obtain a null indication on the CETS meter.
28	Repeat Steps 26 and 27 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectiyely .
29	Repeat Steps 26 through 28 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
30	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***Note:*** This permits the CETS to be controlled from another location. ***At single-line SSCE location:***
31	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
32	Connect a cord between the CETS INPUT connector and the SSCE pin jacks TP1 and TP2.
33	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
34	Connect a cord between the CETS BALANCED OUTPUT connector and pin jacks R0 and T0 located on the connector board of the 1A service unit. ***Note:*** Either pin plug may be connected to either pin jack.
35	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
36	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL

CHART 10 (Cont)

STEP	PROCEDURE
37	Adjust potentiometer F2 on the SSCE to obtain a null indication on the CETS meter.
38	Repeat Steps 36 and 37 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
39	Repeat Steps 36 through 38 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
40	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***Note:*** This permits the CETS to be controlled from another location. **B. Common Pair Precision Equalization** ***At ICE location:*** ***Note:*** Where a video loop includes more than one intermediate cable equalizer location, perform the following steps at each location in turn, proceeding toward the PBX location.
41	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
42	Set the ***common*** ICE screw switch, SW1, to the closed position.
43	Connect a cord between the CETS INPUT connector and the ***common*** ICE pin jacks TP1 and TP2.
44	Set the ***control*** ICE screw switch, SW1, to the open position.
45	Connect a cord between the CETS unbalanced TP1-TP3 OUTPUT connector and the ***control*** ICE pin jacks TP1 and TP3.
46	Adjust potentiometer F1 on the ***common*** ICE to obtain a null indication on the CETS meter.

CHART 10 (Cont)

STEP	PROCEDURE
47	Prepare the CETS, as follows: SWITCH — POSITION MODE — F2-F6 SELECTOR — F2 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
48	Adjust potentiometer F2 on the ***common*** ICE to obtain a null indication on the CETS meter.
49	Repeat Steps 47 and 48 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
50	Repeat Steps 47 through 49 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17.
51	Remove the cords.
52	Set the ***control*** ICE screw switch, SW1, to the closed position. ***At PBX location:***
53	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL ***Note:*** The BALANCED OUTPUT connector on the CETS is connected to the STA L IN jack of the loop being aligned and the INPUT connector on the CETS is connected to the ***common*** (receive) equalizer pin jacks TP1 and TP2.
54	Check that the ***common*** (receive) equalizer screw switch, SW1, is in the closed position.
55	Adjust potentiometer F1 on the ***common*** (receive) equalizer to obtain a null indication on the CETS meter.
56	Set the MODE switch on the CETS to the F2-F6 position.
57	Set the SELECTOR switch on the CETS to the F2 position.

CHART 10 (Cont)

STEP	PROCEDURE
58	Adjust potentiometer F2 on the ***common*** (receive) equalizer to obtain a null indication on the CETS meter.
59	Repeat Steps 57 and 58 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
60	Repeat Steps 57 through 59 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 17. ***At KTSCE location:***
61	Remove the cords.
62	Set the ***common*** KTSCE screw switch to the closed position. ***At SSCE location:***
63	Remove the cords.
64	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position. ***At PBX location:***
65	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
66	Check that the CETS meter indication is within the yellow region on the meter scale. ***Note:*** A 1-kHz test signal from the CETS is sent over the control pair to the KTSCE or SSCE where it is connected, via a loopback circuit, to the common pair.
67	Remove the cord from the ***common*** (receive) equalizer pin jacks TP1 and TP2. ***Note:*** Check that the equalizer screw switch, SW1, is in the closed position.
68	Set the IMPEDANCE switch on the CETS to the LOW position.
69	Connect the proper cord with 310 plug between the CETS INPUT connector and the EQ OUT jack of the loop being aligned.

CHART 10 (Cont)

STEP	PROCEDURE
70	Check that the CETS meter indication is within the yellow region on the meter scale.
71	Remove the cords from the jack field.
72	Operate the CETS power switch to OFF.
73	Perform ac fault location test procedure (Section 340-200-502) on the aligned loop to ensure that the fault location networks, if any are provided, are properly installed and working.

CHART 11

ALIGNMENT OF VIDEO LOOP FACILITY TO PBX ATTENDANT LOCATION

The video loop to a PBX attendant location includes cable equalizers located as shown in Fig. 1. For ease in referring to the equalizers at the PBX location, the designations CE1, CE2, and CE3 are used in this chart.

Caution 1: High voltage is present on certain cable equalizer test points.

Caution 2: Do not insert uninsulated metal objects into a cable equalizer or a CETS.

Caution 3: Make certain the CETS is properly grounded.

Note 1: Cable equalizers include screw switches which must be opened and closed during equalizer alignment. A screw switch is closed when turned to maximum clockwise position. A screw switch is open when turned two full revolutions counterclockwise.

Note 2: A null for alignment of the equalizers is indicated when the CETS meter needle is in the ***green*** region of the meter scale. If a null indication can not be obtained when adjusting potentiometer F1 in a cable equalizer, replace the cable equalizer.

STEP	PROCEDURE
	At all locations:
1	Establish voice communication between the PBX location and the attendant location.
2	Operate the CETS power switch to ON only during adjustments.

CHART 11 (Cont)

STEP	PROCEDURE
	At PBX location:
3	Prepare the CETS, as follows: SWITCH — POSITION MODE — F1 EQUALIZER ALIGN — AUX IMPEDANCE — NORMAL
4	Connect the proper cord with 310 plug from the BALANCED OUTPUT connector on the CETS to the EQ IN jack in the attendant position jack field.
5	Set equalizer ***CE1*** screw switch, SW1, to the closed position.
6	Connect a cord between the CETS INPUT connector and ***CE1*** pin jacks TP1 and TP2.
7	Adjust potentiometer F1 on ***CE1*** to obtain a null indication on the CETS meter.
8	Set the MODE switch on the CETS to the F2-F6 position.
9	Set the SELECTOR switch on the CETS to the F2 position.
10	Adjust potentiometer F2 on ***CE1*** to obtain a null indication on the CETS meter.
11	Repeat Steps 9 and 10 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
12	Repeat Steps 9 through 11 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note 1:*** A null indication may not be obtainable during the first few repetitions of the procedure. ***Note 2:*** If an indication within the green region can not be obtained for all SELECTOR switch positions after repeating the procedure approximately five to seven times, proceed to Chart 12 to isolate the trouble.
13	Remove the cord from ***CE1*** pin jacks.
14	Set the MODE switch on the CETS to the F1 position. ***Note:*** If the PBX attendant does not have a PICTUREPHONE station set or if there is no station set cable equalizer (SSCE) installed in the 1A service unit, proceed to Step 43.

CHART 11 (Cont)

STEP	PROCEDURE
	At SSCE location:
15	Prepare the CETS, as follows:

SWITCH	POSITION
MODE	F1
EQUALIZER ALIGN	AUX
IMPEDANCE	NORMAL

16	Connect a cord between the CETS INPUT connector and SSCE pin jacks TP1 and TP2.
17	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
18	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position.
19	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the open position.
20	Connect a cord from the BALANCED OUTPUT connector on the CETS to pin jacks R0 and T0 located on the connector board of the 1A service unit.
	Note: Either pin plug may be connected to either pin jack.
	At PBX location:
21	Disable the loopback by operating the RLB key on the maintenance test panel.
22	Connect a cord between the CETS INPUT connector and ***CE2*** pin jacks TP1 and TP2.
23	Check that ***CE2*** screw switch, SW1, is in the closed position.
24	Prepare the CETS, as follows:

SWITCH	POSITION
MODE	F1
EQUALIZER ALIGN	LOCAL
IMPEDANCE	NORMAL

25	Adjust potentiometer F1 on ***CE3*** to obtain a null indication on the CETS meter.
26	Set the MODE switch on the CETS to the F2-F6 position.
27	Set the SELECTOR switch on the CETS to the F2 position.
28	Adjust potentiometer F2 on ***CE3*** to obtain a null indication on the CETS meter.
29	Repeat Steps 27 and 28 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.

CHART 11 (Cont)

STEP	PROCEDURE
30	Repeat Steps 27 through 29 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 12.
31	Set the EQUALIZER ALIGN switch on the CETS to the REMOTE position. ***At SSCE location:***
32	Prepare the CETS, as follows: **SWITCH** — **POSITION** MODE — F1 EQUALIZER ALIGN — LOCAL IMPEDANCE — NORMAL
33	Adjust potentiometer F1 on the SSCE to obtain a null indication on the CETS meter.
34	Set the MODE switch on the CETS to the F2-F6 position.
35	Set the SELECTOR switch on the CETS to the F2 position.
36	Adjust potentiometer F2 on the SSCE to obtain a null indication on the CETS meter.
37	Repeat Steps 35 and 36 for SELECTOR switch positions F3, F4, F5, and F6 to adjust potentiometers F3, F4, F5, and F6, respectively.
38	Repeat Steps 35 through 37 until the CETS meter indicates within the green region for all positions of the SELECTOR switch. ***Note:*** See ***Notes*** in Step 12.
39	Remove the cords.
40	Operate the CETS power switch to OFF.
41	Set screw switches S2R and S2T, located on the connector board of the 1A service unit, to the closed position. ***At PBX location:***
42	Restore the RLB key on the maintenance test panel to the unoperated position to enable the loopback.
43	Operate the CETS power switch to OFF.
44	Remove the cords.

CHART 12

TROUBLE ISOLATION

STEP	PROCEDURE
	Note: The following steps need be performed ***only*** when an indication within the green region on the CETS meter can not be obtained for all SELECTOR switch positions.
1	Perform the procedure in Chart 2 to check all cable equalizer test sets being used to align the equalizers.
2	Check all screw switch settings on the cable equalizers.
3	If a null indication can not be obtained for CETS SELECTOR switch positions F2, F3, or F4 and the meter indication is to the ***right*** of the null region, set the equalizer screw switches for the next ***shorter*** loop length (Table C) and attempt to align the equalizer again. If the meter indication is to the ***left*** of the null region, set the equalizer screw switches for the next ***longer*** loop length and attempt to align the equalizer again.
4	If a null indication is not obtained after the above procedure, or if there is no longer or shorter loop length setting available, replace the equalizer. ***Note:*** When an equalizer is replaced, the flat gain must be adjusted first according to the procedure in the appropriate chart.
5	Continue with the equalization procedure in the appropriate chart.
6	Additional loop facility trouble locating procedures are in Section 340-200-502.

TABLE C

EQUALIZER SCREW SWITCH SETTINGS

LOOP LENGTH	EQUALIZER SCREW SWITCHES		
	L	M	S
Long	C	C	O
Medium	O	C	O
Short	O	O	C

Note 1: A screw switch is ***closed*** (C) when the screw has been turned fully clockwise.

Note 2: A screw switch is ***open*** (O) when the screw has been turned two full revolutions counterclockwise.

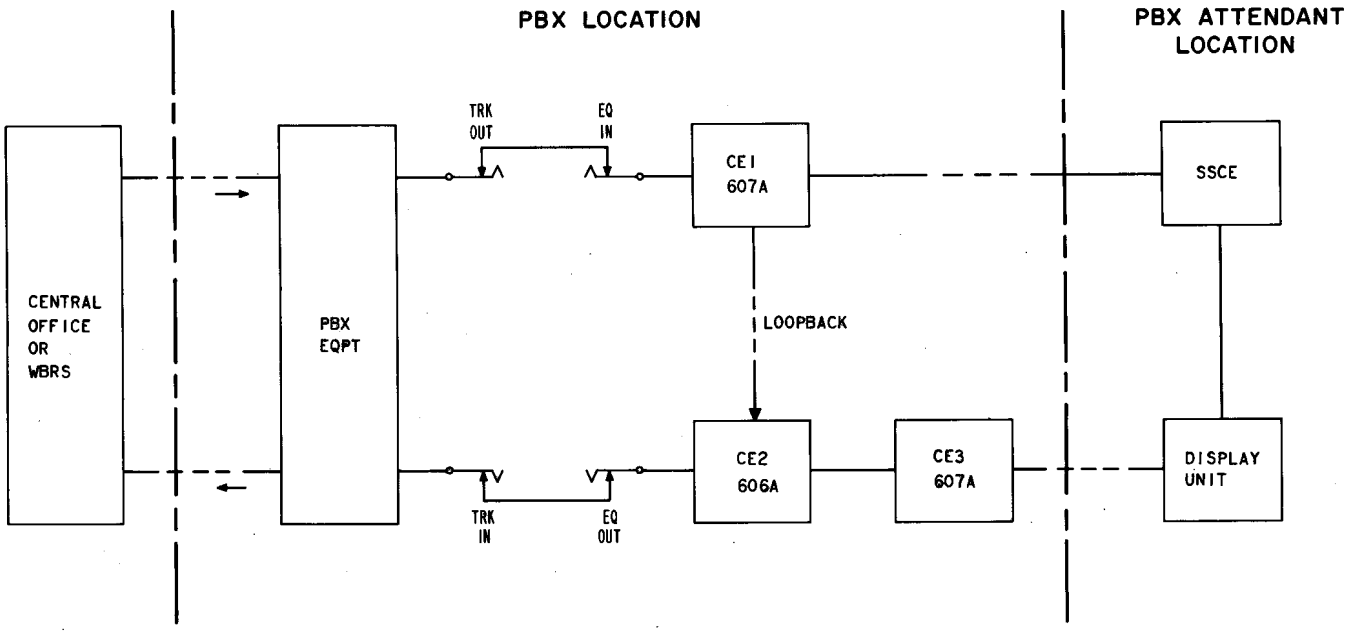
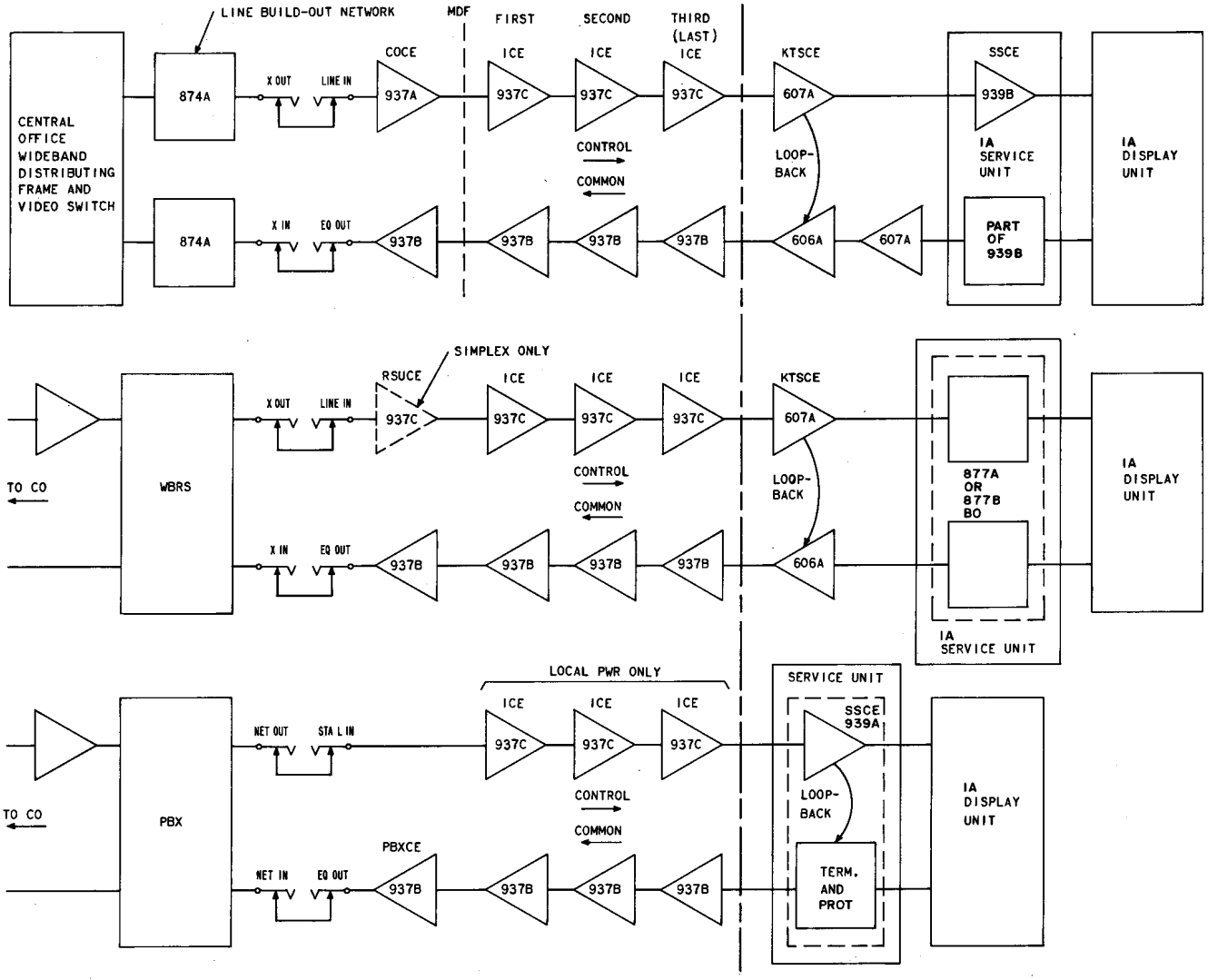


Fig. 1—Video Loop to PBX Attendant Location



NOTE:
THIS FIGURE IS INTENDED TO SHOW ALL EQUIPMENT THAT CAN BE INCLUDED IN A LOOP. IT IS NOT INTENDED TO REPRESENT A TYPICAL CASE.

Fig. 2—Video Loop Facilities