

P1 CARRIER TELEPHONE SYSTEM
ADJUSTMENTS AND MAINTENANCE
REPEATERS
ABBREVIATED ADJUSTMENT PROCEDURE

1.00 GENERAL

- 1.01** Charts I and II contain the abbreviated adjustment procedure for the high and low groups of the repeater.
- 1.02** The detailed step-by-step procedure for the high group is covered in Section 363-102-502.
- 1.03** The detailed step-by-step procedure for the low group is covered in Section 363-102-503.
- 1.04** Either the high group or the low group tests and adjustments may be performed without performing the other; however, the repeater must be prepared for either group of tests as indicated under Preparation on the charts.
- 1.05** Preparation made for previous tests will remain in effect until the end of the section (High Group or Low Group) unless otherwise specified.
- 1.06** If the repeater being tested is furnished power over the cable, refer to the detailed test and adjustment procedure covered in Sections 363-102-502 and 363-102-503.
- 1.07** If the reverse (REV) direction of transmission is used, refer to the detailed test and adjustment procedure in Sections 363-102-502 and 363-102-503.
- 1.08** After completion of the tests, the repeater should be prepared for connection to the line by re-establishing the connections removed under Preparation on the charts. For the detailed procedure, see Section 363-102-504.

CHART I
 ABBREVIATED ADJUSTMENT PROCEDURE
 REPEATER
 HIGH GROUP

Test or Adjustment	Preparation (See Note)	Misc		Send				Adjust			KS-14510 (12V Scale)			Receive				Output Power dbm	
		Eql Bd B	IN Pad Bd B	Freq kc	DB Level	Bd	TST Pt	Test Set	Bd	Pot. Desig	Bd	TST Pt	Voltage Reading	Bd	TST Pt	REC Switch	337-type Equalizer		
A	Load Test	Set ATTENUATOR to obtain approximately +10 db at HGT Line.	337 or None	8	72		E or 386A	LGT Line or 12-13	7F		ATT			E or 386A	HGT Line or 14-13	DET 600Ω	All	+10±0.5	
		Adjust						Adjust → 7F			CARR OSC OUTPUT						To Obtain →	+10.0	
		Decrease ATTENUATOR 5 db.							7F		ATT							+15 Approx	
	Decrease ATTENUATOR by 1-db steps*.							7F		ATT							To Obtain →	+18.0	
High Group Gain		337	8	72	-12												A	+8.5 to +12.0	
		None	24	72	0												B, C, or None	+8.0 to +11.5	
B	Total Power Regulator	Record DECIBEL meter reading—K.	337 or None	8	72			Adjust → 7F			ATT						All	+10±0.5=K†	
		Remove dummy REG and insert total power REG in position C.								C	ADJ OUT	C 386A	REG 15-13	800AH, Ser 1 4.0 to 6.5 Ser 2 3.0 to 4.0					K
	Regulator Range	Add 5 db on 7F ATTENUATOR.												Ser 1 1.5 to 3.5 Ser 2 1.0 to 2.2					K=L Max K-0.5=L Min
		Remove 10 db on 7F ATTENUATOR.												Ser 1 8.0 to 13.0 Ser 2 6.0 to 8.0					L+1.5 is Max K is Min
C	Pilot Regulator	Record DECIBEL meter reading—K.	337 or None	24	Pilot Pilot			Adjust → 7F		ATT							All	-22±0.5=K	
		Remove dummy REG and insert pilot REG in position C.								C	ADJ OUT							Any Reading on Scale	
		Slowly turn CARR OSC FREQ knob for minimum DECIBEL meter reading.																Min Reading	
	Regulator Range				Pilot					C	ADJ OUT	C 386A	REG 15-13	3.0 to 4.0					K
		Add 5 db on 7F ATTENUATOR.												1.0 to 2.2					K=L Max K-0.5=L Min
		Remove 10 db on 7F ATTENUATOR.												6.0 to 8.0					L+1.5 is Max K is Min
D	Pilot Oscillator	Remove dummy REG and insert pilot OSC. Remove send cord from repeater. Terminate LGT Line (12-13) in ohms.	337	8					C	PILOT								-22.0	

Note: Place dummy regulators in positions C and H. Place specified equalizer or none (strap 7 and 9) on board J. Place 8-db IN pad on board J for 337-type equalizer, or a 24-db IN pad on board J for no equalizer (strap). OUT pad screw terminals 1 and 3 on boards B and J must be strapped (0 db). Disconnect the lines from 386A binding posts 7, 8, 9, and 10. Measure voltage between screw terminals 12 and 11 (1 and 2) on 800AU line board E (22.5 volts); and between 11 and 26 (2 and 3) on 800AU line board E (6 volts). Measure voltage between screw terminals 27 and 26 (1 and 2) on

800AA line board E (22.5 volts); and between screw terminal 26 (2) and terminal connector 27 on rear of 800AA line board E (6 volts).
 * Increase of 0.5 db or less for 1-db attenuator step indicates amplifier overload. If a reading of -2.0 (±18 dbm) or higher is not obtained before overload occurs, replace the amplifier board (800AB).
 † Read 3.08 of Section 363-102-502.

**CHART II
ABBREVIATED ADJUSTMENT PROCEDURE
REPEATER
LOW GROUP**

Test or Adjustment	Preparation (See Notes 1 and 2)	Misc		Send				Adjust			KS-14510 (12V Scale)			Receive				Output Power dbm
		EqI Bd J	IN Pad Bd J	Freq kc	DB Level	Bd	TST Pt	Test Set	Bd	Pot. Desig	Bd	TST Pt	Voltage Reading	Bd	TST Pt	REC Switch	337-type Equalizer	
E	Load Test Set ATTENUATOR to obtain approximately +10 db at HGT Line.	337	0	36		E or 386A	HGT Line 14-13	7F		ATT				E or 386A	LGT Line 12-13	DET 600Ω	All	+10±0.5
		None	8			Adjust → 7F				CARR OSC OUTPUT	To Obtain →				+10.0			
									7F									
		Decrease ATTENUATOR 5 db.						7F										+18.0
	Decrease ATTENUATOR by 1-db steps*.						7F		ATT	To Obtain →								
Low Group Gain		337	8		-8												A or None B C	+8.0 to +11.5 +8.5 to +12.0 +3.0 to +6.5
		None	24		0													
F	Total Power Regulator If 337C equalizer Record DECIBEL meter reading—K.	337	0	36	Adjust → 7F				ATT	To Obtain → All				+10±0.5=K†				
		None	8						H	ADJ OUT	H 386A	REG 16-13	800AH, Ser 1 4.0 to 6.5 Ser 2 3.0 to 4.0					K
												Ser 1 1.5 to 3.5 Ser 2 1.0 to 2.2					K=L Max K-0.5=L Min	
	Regulator Range											Ser 1 8.0 to 13.0 Ser 2 6.0 to 8.0					L+1.5 is Max K is Min	
G	Pilot Regulator Record DECIBEL meter reading—K.	337 or None	24	Pilot	Adjust → 7F				ATT	To Obtain → All				-16.0±0.5=K				
								H	ADJ OUT								Any Reading on Scale Min Reading	
					Pilot				H	ADJ OUT	H 386A	REG 16-13	800AK, Ser 1 4.0 to 6.5 800AK, Ser 2 3.0 to 4.0 800AJ, Ser 1 3.0 to 4.0					K
	Regulator Range											800AK, Ser 1 1.5 to 3.5 800AK, Ser 2 1.0 to 2.2 800AJ, Ser 1 1.0 to 2.2					K=L Max K-0.5=L Min	
	Remove 10 db from 7F ATTENUATOR.											800AK, Ser 1 8.0 to 13.0 800AK, Ser 2 6.0 to 8.0 800AJ, Ser 1 6.0 to 8.0					L+1.5 is Max K is Min	
H	Pilot Oscillator Remove dummy REG. Insert pilot OSC in position H. Remove send cord from the repeater. Terminate HGT Line (14-13) in 600 ohms.	337	8						H	PILOT								-16.0
		None	24															

Note 1: Disconnect the lines from 386A binding posts 7, 8, 9, and 10. Measure voltage between screw terminals 12 and 11 (1 and 2) on 800AU line board E (22.5 volts); and between 11 and 26 (2 and 3) on 800AU line board E (6 volts). Measure voltage between screw terminals 27 and 26 (1 and 2) on 800AA line board E (22.5 volts) and between screw terminal 26 (2) and terminal connector 27 on rear of 800AA board E (6 volts).

Note 2: Place dummy regulators in positions H and C. Place specified equalizer or none (strap 7 and 9) on board B. Place 8-db IN pad on board B for 337-type equalizer, or a 24-db IN pad on board B for

no equalizer (strap). OUT pad screw terminals 1 and 3 on boards B and J must be strapped (0 db). * Increase of 0.5 db or less for 1-db attenuator step indicates amplifier overload. If a reading of -2.0 (+18 dbm) or higher is not obtained before overloading occurs, replace the amplifier board (800AB).

† Read 3.08 of Section 363-102-503.