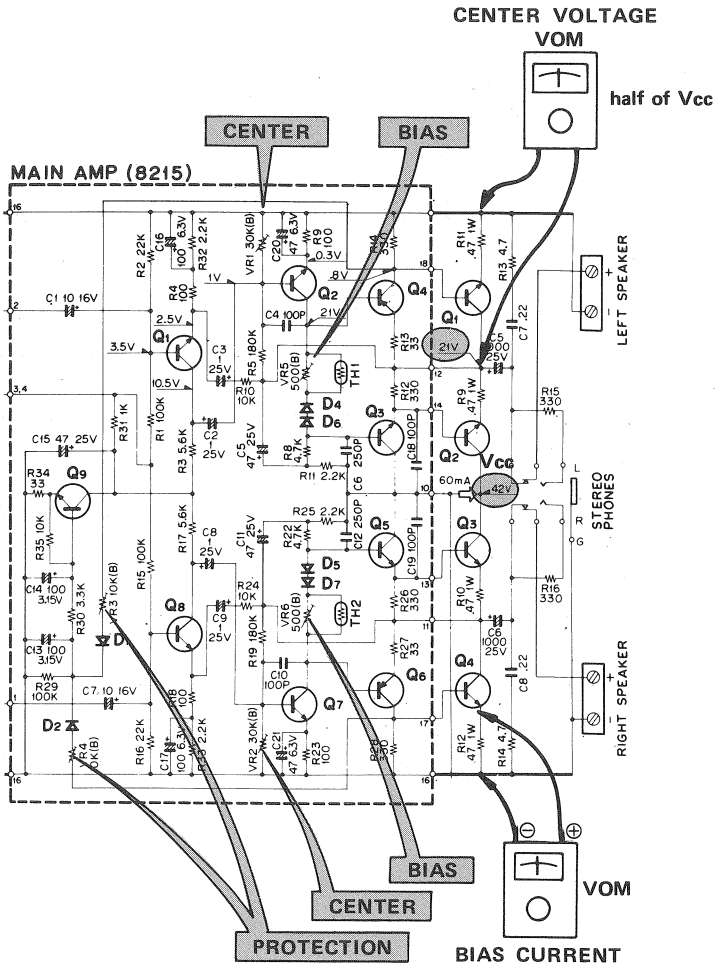
In most power amplifier and receiver, audio circuit of the unit has 2 adjusting points — the one is bias current adjustment, the other center voltage adjustment.
After transistor replacement, you should recheck the bias current and center voltage.

CENTER VOLTAGE ADJUSTMENT

1. Connect the VOM across the output terminal of amplifier.
2. Turn the center-voltage adjusting potentiometer so that the VOM's readings half of + Vcc.
   Some units have no potentiometers for center voltage.



Adjustment Points in Schematic

BIAS CURRENT ADJUSTMENT

There are several methods for bias current adjustment.
The most accurate method for adjusting bias current is measuring the voltage drop across the emitter resistor of power transistors under no signal.

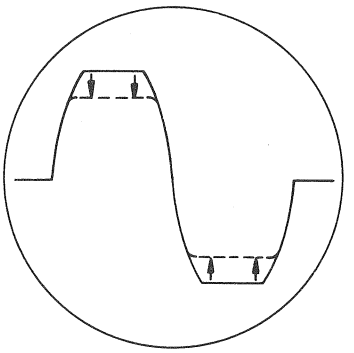
Method

1. Turn the Volume Control to its minimum position so that the power amplifier circuit has not input signal.
2. Connect the VOM across the emitter resistor of power transistor.
3. Turn the bias-current adjusting potentiometer so that the VOM's readings is proper value. (Refer to the bias-current value table page VIII.)

Ex. In case of 30 mA bias current.
Re12 × 30 mA = VOM's readings
0.47Ω × 30 mA = 14.1 mV
I.e. Turn the potentiometer so that the VOM's readings is 14.1 mV.

PROTECTION ADJUSTMENT

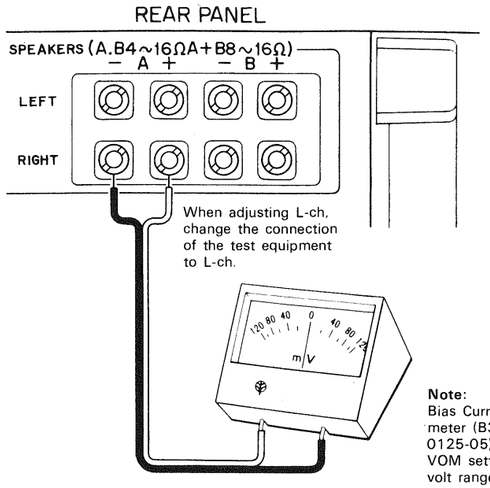
1. Connect the 8Ω dummy load to the output terminal of amplifier.
2. Connect oscilloscope across the dummy load and AG to AUX jack.
3. Turn the volume control knob of amplifier and attenuator of AG so that waveform becomes overload operation.
4. Change 4Ω dummy load to 8Ω.
5. Turn the protection potentiometer at the point of waveform becoming low.
6. Reconnect 8Ω dummy load to both output terminal of amplifier and drive amplifier under full power output: Comfirm the protection doesn't work.



In most power amplifier and receiver, audio circuit of the unit has 2 adjusting points — the one is bias current adjustment, the other offset voltage adjustment.
After transistor replacement, you should recheck the bias current and offset voltage.

OFFSET VOLTAGE ADJUSTMENT

1. Connect the VOM across the output terminal of amplifier.
2. Turn the offset-voltage adjusting potentiometer so that the VOM's readings 0.
   Some units have 2 potentiometers for offset voltage; the one is rough, the other fine.



Note:
Bias Current meter (B31-0125-05) or VOM setting volt range.

BIAS CURRENT ADJUSTMENT

There are several methods for bias current adjustment.
The most accurate method for adjusting bias current is measuring the voltage drop across the emitter resistor of power transistors under no signal.

Method

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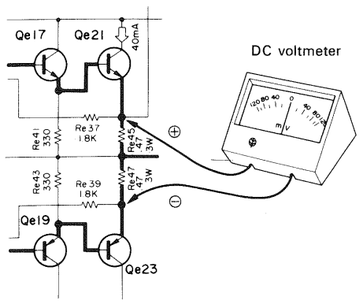
2. Connect the VOM across the emitter resistor of power transistor.
3. Turn the bias-current adjusting potentiometer so that the VOM's readings is proper value. (Refer to the bias-current value table.)

Ex. In case of 40 mA bias current.
(Re45 + Re47) × 40 mA = VOM's readings
(0.47Ω + 0.47Ω) × 40 mA = 37.6 mV
I.E. Turn the potentiometer so that the VOM's readings is 37.6 mV.



BIAS-CURRENT VALUE TABLE

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
KA-2000A	30 mA	KR-8140	15 mA
KA-2002	20 mA	KR-8340	30 mA
KA-2002A	20 mA	KR-9340	50 mA
KA-2600	20 mA		
KA-3004	20 mA	KSQ-400	20 mA
KA-3344	20 mA		
KA-4002	20 mA	MA-5100	20 mA
KA-4004	10 mA	MODEL-700M	50 mA
KA-5002	30 mA		
KA-6004	10 mA		
KA-7002	50 mA		
KA-8004	20 mA		
KA-8044	20 mA		
KM-8002	50 mA		
KR-33L	20 mA		
KR-33SW	20 mA		
KR-44SL	20 mA		
KR-44SW	20 mA		
KR-1110	20 mA		
KR-2120	20 mA		
KR-2200	10 mA		
KR-2300	20 mA		
KR-3130	20 mA		
KR-3200	20 mA		
KR-4050	20 mA		
KR-4130	20 mA		
KR-4140	20 mA		
KR-4200	20 mA		
KR-5150	30 mA		
KR-5170	15 mA		
KR-5200	20 mA		
KR-5340	20 mA		
KR-6140	20 mA		
KR-6160	20 mA		
KR-6170	30 mA		
KR-6200	20 mA		
KR-6340	20 mA		
KR-7200	20 mA		
KR-7340	30 mA		
KR-7070	50 mA		
KR-7070A	50 mA		

In most power amplifier and receiver, audio circuit of the unit has 2 adjusting points — the one is bias current adjustment, the other offset voltage adjustment.
After transistor replacement, you should recheck the bias current and offset voltage.

OFFSET VOLTAGE ADJUSTMENT

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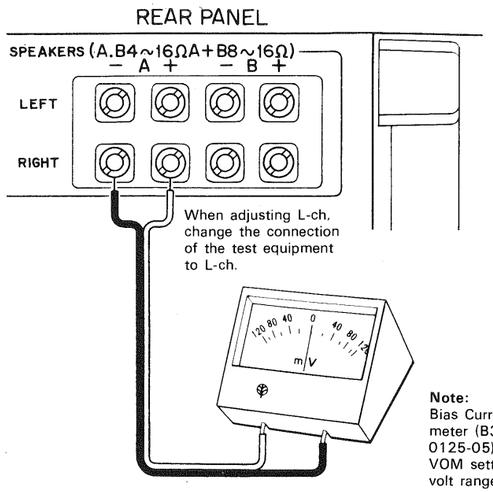
   Some units have 2 potentiometers for offset voltage; the one is rough, the other fine.



Note:
Bias Current meter (B31-0125-05) or VOM setting volt range.

BIAS CURRENT ADJUSTMENT

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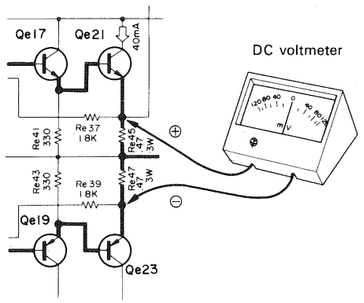

BIAS-CURRENT VALUE TABLE

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
KA-1200B	15 mA	KR-9040	25 mA
KA-1200G	15 mA	KR-9060	–
KA-1400B	20 mA	KR-9400	50 mA
KA-1400G	20 mA	KR-9600	–
KA-1500	30 mA	KR-9940	25 mA
KA-1600B	–	KR-10000	25 mA
KA-1600G	–	KR-10000II	45 mA
KA-3300	–		
KA-3500	40 mA	KS-3000	20 mA
KA-3550	40 mA		
KA-4002A	20 mA	L-07M	25 mA
KA-4006	30 mA		
KA-5500	45 mA	MODEL-ELEVEN	45 mA
KA-6006	30 mA	MODEL-ELEVEN II	45 mA
KA-7300	–	MODEL-500	25 mA
KA-8006	30 mA	MODEL-600	25 mA
KA-8300	–	MODEL-650	25 mA
KA-9800	–		
KE-2500	–		
KR-1400	30 mA		
KR-2400	30 mA		
KR-2600	25 mA		
KR-3060	30 mA		
KR-3400	30 mA		
KR-3600	30 mA		
KR-3600L	30 mA		
KR-4400	30 mA		
KR-4600	40 mA		
KR-5400	30 mA		
KR-5600	40 mA		
KR-6020	30 mA		
KR-6060	40 mA		
KR-6400	30 mA		
KR-6600	40 mA		
KR-7020	40 mA		
KR-7060	40 mA		
KR-7400	40 mA		
KR-7600	40 mA		
KR-8040	25 mA		
KR-8840	25 mA		

BIAS-CURRENT VALUE TABLE

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT	MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
KA-2000	30 mA	KS-33	30 mA	TK-20	30 mA	TK-140X	50 mA
KA-2500	30 mA	KS-505	20 mA	TK-30G	20 mA	TK-150U	30 mA
KA-4000	30 mA	KS-606	20 mA	TK-40	20 mA	TK-200	30 mA
KA-6000	30 mA	KS-707	30 mA	TK-40L	20 mA	TK-250	30 mA
				TK-40SW	20 mA	TK-350	10 mA
KR-33	20 mA	KT-10	30 mA	TK-50	30 mA	TK-400	10 mA
KR-44	20 mA			TK-55	30 mA	TK-600E	30 mA
KR-70	30 mA	MT-65	20 mA	TK-60	30 mA		
KR-77	30 mA			TK-66	30 mA	TSK-40U	20 mA
KR-100	30 mA	SUPRIME 1	30 mA	TK-80	30 mA		
KR-6140A	30 mA			TK-88	30 mA	TW-30	10 mA
KRS-44	20 mA			TK-140	50 mA		

BIAS-CURRENT VALUE TABLE

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
KA-300 (KA-300)	40 mA	KR-2090	15～110 mA	KS-4000	10 mA
KA-305 (KA-3055)	40 mA	KR-2090L	15～110 mA		
KA-405 (KA-4055)	5～50 mA	KR-3090	15～110 mA	L-05M	18 mA
KA-501 (KA-5011)	20～100 mA	KR-4070 (KR-4770)	30 mA	L-09M	35 mA
KA-601 (KA-6011)	20 mA	KR-4070L	30 mA		
KA-701 (KA-7011)	40 mA	KR-5030 (KR-5330)	35 mA	MODEL-9G (KR-9000G)	40 mA
KA-801 (KA-8011)	20 mA	KR-6030 (KR-6330)	20～200 mA	MODEL-9GX (KR-9000GX)	22 mA
KA-907 (KA-9077)	20 mA	KR-6050 (KR-6550)	40 mA	MODEL-11Ⅲ (KR-10000Ⅲ)	40 mA
KA-3700 (KA-3750)	30 mA	KR-7050 (KR-7750)	30 mA	MODEL-11G (KR-10000G)	50 mA
KA-5700 (KA-5750)	20～150 mA	KR-8010 (KR-8110)	50 mA	MODEL-11GX (KR-10000GX)	50 mA
KA-6100 (KA-6150)	60 mA	KR-8050 (KR-8550)	40 mA		
KA-7100 (KA-7150)	40 mA	KR-9050	20 mA		
KA-8100 (KA-8150)	40 mA				

BIAS CURRENT VALUE TABLE

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
DC-20X	20 ~ 120mA	KR-730	70mA
KA-70	30mA	KR-750	100mA
KA-80	6mA (Refer to Service manual)	KR-770	100mA
		KR-790	50mA
KA-400	70mA	KR-1000	90 ~ 100mA
KA-800	60mA	KRX-5	50mA
KA-900	30mA	KRX-5L	50mA
KA-1000	30mA	KRX-7	110mA
KR-710	30mA	L-01A	100mA
KR-710L	30mA	L-08M	60mA
KR-720	80mA	Super 11	50mA
KR-720L	80mA		
KR-725	80mA		

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
A-7	FIXED	KR-65L	FIXED (40mA)
A-9	30mA	KR-90	FIXED (20mA-100mA)
A-9D	30mA	KR-90L	FIXED (20mA-100mA)
BASIC M1	20mA-40mA	KR-810	NON ADJUST
BASIC M2	40mA	KR-820	FIXED
KA-5X	20mA	KR-820L	FIXED
KA-7X	20mA-40mA	KR-830	FIXED
KA-9X	20mA	KR-845G	FIXED
KA-31	FIXED	KR-850	50mA
KA-31G	FIXED	KR-865G	50mA
KA-33	FIXED	KR-910	FIXED (40mA)
KA-51	FIXED	KR-910L	FIXED (40mA)
KA-55	FIXED (10mA-100mA)	KR-920	FIXED
KA-71	30mA	KR-920L	FIXED
KA-77	30mA	KR-930	50mA (both X05 and X09)
KA-100	FIXED (100mA)	KR-950	50mA
KA-311	FIXED	KS-50	NON ADJUST
KA-470	NON ADJUST	KVA-503	50mA
KA-511	FIXED	KVR-510	FIXED (30mA-100mA)
KA-555	FIXED (10mA-100mA)	KVR-970B	50mA
KA-670	NON ADJUST	KVR-970BP	50mA
KA-770	30mA	L-02A	50mA
KA-990	30mA	R-5D	NON ADJUST
KA-2200	40mA	R-5DL	NON ADJUST
KR-65	FIXED (40mA)		

MODEL	BIAS CURRENT	MODEL	BIAS CURRENT
A-5G	FIXED (5 – 100mA)	KA-880SD	20mA
A-5S	FIXED (10 – 90mA)	KA-949	20mA
A-7G	30mA	KA-990SD	30mA
A-7S	FIXED (10 – 90mA)	KA-990V	20mA
BASIC M1A	20mA	KA-1100SD	20mA
BASIC M2A	40mA	KR-A10/L	NON-ADJUST
KA-32	FIXED (50mA)	KR-A20	NON-ADJUST
KA-34	NON-ADJUST	KR-A30/L	40mA
KA-44	50mA	KR-A50	40mA
KA-52	40mA	KR-A70	40mA
KA-54	50mA	KVR-A50	40mA
KA-72	40mA	KVR-A70R	40mA
KA-74	50mA	KVR-A90R	40mA
KA-92B	30mA	RX-5	NON-ADJUST
KA-94	20mA	RX-8	NON-ADJUST
KA-660	30mA		
KA-727	50mA		
KA-747	30mA		
KA-828	45mA		