

CLEANING

Tape Player: Keep tape slot and surrounding area on cabinet as free from dust as possible. If tape suddenly does not seem to play properly, do not assume that tape player needs servicing until it has first been checked with another cartridge you know is in good operating condition.

In normal use, small amounts of oxide from tape will be deposited on tape head and capstan shaft. If not cleaned frequently, in time this accumulation can cause erratic operation. To clean, hold door of cartridge slot open; use cotton swabs moistened with alcohol; clean tape head; then turn on motor by depressing motor switch with the eraser end of a pencil and clean capstan shaft.

A special cleaning tape cartridge is available that will clean the head surfaces automatically simply by inserting cartridge and allowing tape to run in the normal manner; however, these usually do not have provisions for cleaning the other surfaces.

PLAYBACK HEAD ADJUSTMENTS

Two adjustments are required to properly orient the tape playback head with respect to recorded tracks on the tape. Normally the adjustments are correctly set at the factory and need not be changed unless the playback head or its mounting parts have been replaced. The first adjustment, head **HEIGHT**, centers the head with respect to the recorded tracks. The second head adjustment, **AZIMUTH** provides for maximum high frequency output, by insuring the magnetic gap in the tape head is perpendicular to the recorded tracks. These adjustments require the use of a test tape such as RCA No. 321 and follow the instructions supplied with the tape. The height adjustment screw and the azimuth screw are shown below. Repeat the two adjustments as there is some interaction.

BATTERY DRAIN

1. Without Cartridge	180–200ma
2. With cartridge, no volume	200–220ma
3. Motor with belt, less cartridge	50–70ma
4. Motor without belt	30–40ma
5. AM-FM, no volume	40–65ma

50 CYCLE CONVERSION

This model is designed for 60 cycle – 120 volt AC operation or battery and can be used in 50 cycle – 120 volt areas without internal conversion. In foreign countries with higher line voltage, stepdown transformers are usually available in that country to adjust the AC line voltage for 120 volts.

TAPE CARTRIDGE STORAGE

Store cartridges vertically with the open tape end down, in a cool, clean, dry place. Avoid moisture, excessive heat, and direct sunlight. Keep player and cartridges away from sources of magnetism such as power lines, motors, heavy speaker magnets.

When tape player is disconnected from power, be sure cartridge is removed or pulled out at least 1 inch or more in slot, or pinch roller in cartridge may be damaged.

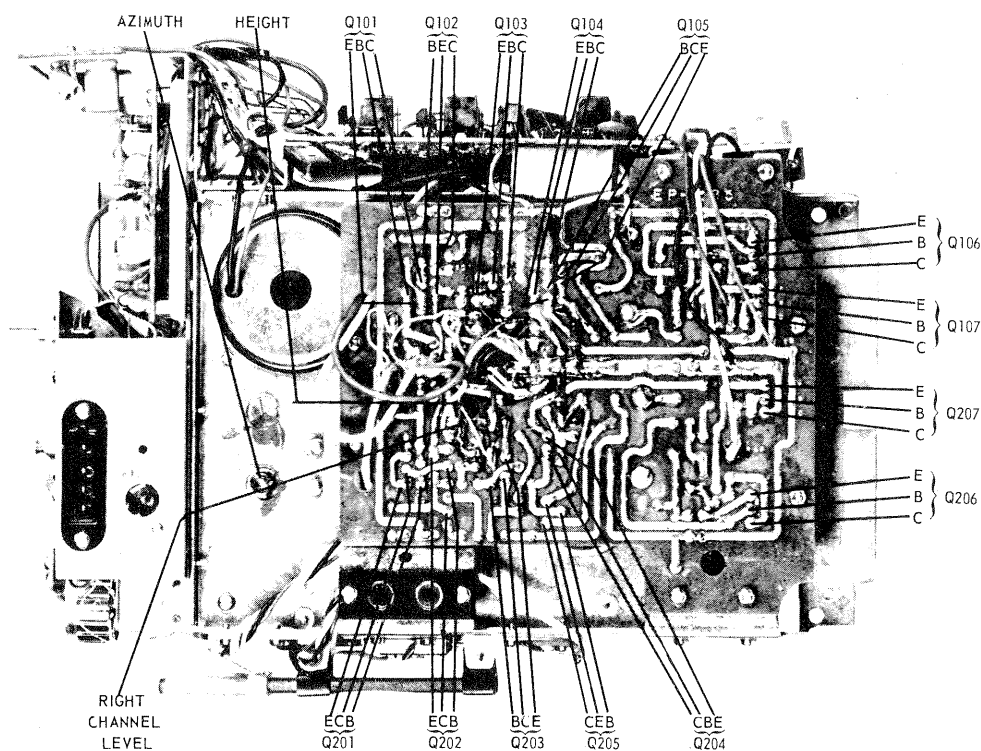
CHANNEL LEVEL ADJUSTMENT

A level control is provided in each channel for balancing the output. Adjust as follows:

1. Set the balance control to mid-range.
2. Insert a test tape.
3. Connect a VTVM on AC scale across the speaker of each channel and adjust the level controls through the holes provided in the circuit board for equal output.
4. If a test tape is not available, then make the adjustment while carefully listening to each channel for balanced output.

EXTERNAL TAPE OUTPUT JACKS

The output of these jacks can be used to provide a tape input signal to another amplifier for a master stereo system. Connect jumper cables from the appropriate "R" and "L" jacks to the corresponding "R" and "L" input jacks of the amplifier.



BOTTOM VIEW OF CHASSIS

AM ALIGNMENT PROCEDURE

1. Set the volume control to maximum and the function switch to AM.
2. Connect VTVM set on low AC scale across speaker. Set balance control to mid-range.
3. Perform AM alignment before FM alignment.
4. Set dial to high end. Radiate 455KHz, 30% modulated by 400Hz into a loop of several turns of wire or place the generator lead close to AM antenna for adequate signal transfer.
5. Adjust T3, T5 and T8 for maximum output as indicated by VTVM. See top chassis view for location and alignment points.
6. Set dial at low end and generator frequency at 535KHz. Leave modulation on and feed signal to antenna as in Step four.
7. Adjust L7 oscillator slug for maximum VTVM indication.
8. Set dial at high end and generator frequency at 1635KHz. Adjust AM oscillator gang trimmer C54 for maximum.
9. Repeat Steps 6 through 8 until band ends are obtained.
10. Set the dial and signal generator at 1400KHz and adjust AM antenna gang trimmer for maximum VTVM indication. Rock tuning gang while adjusting trimmer.
11. Check for low end tracking by tuning to approximately 600KHz and momentarily misadjusting AM antenna trimmer. If tracking is considerably off (indicated by noticeable increase in output), compromise band ends by setting L7 at 600KHz and AM antenna trimmer at 1400KHz. If band ends cannot be maintained, then loop inductance should be adjusted by moving L6 antenna coil on the ferrite rod.

FM IF SWEEP ALIGNMENT

1. Turn on sweep generator. Turn sweep generator RF controls to minimum output. Set generator "Trace Size" at maximum (on Eico 369). Connect FM matching pad with generator to FM oscillator gang lug.
2. Disconnect outside antenna.
3. Ground out FM oscillator with a short buss wire soldered or set tuning dial near high end where it does not disturb curve.
4. Solder detector network to R21 at Q5 collector. Ground to chassis. Connect scope to network.
5. Turn on receiver; turn volume to minimum; set to FM without AFC.
6. Turn up scope gain until residual noise from receiver is observed.
7. Now turn up sweep RF until curve obtained is just distinguishable from the residual noise. NOTE: Noise having a definite "pattern" indicates regeneration.

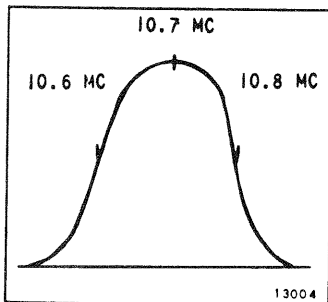


Fig. 1: IF RESPONSE CURVE

8. Turn scope horizontal gain to give full screen and adjust generator "Sweep Width" control for proper curve width.
9. Keep adjusting RF level as procedure continues to make curve just distinguishable from the residual noise on base line. Check for limiting and scope clipping by varying generator RF level.
10. Turn on marker at 10.7MHz (crystal calibrated). If preinjection marker is used, keep marker RF level as low as possible to prevent curve distortion. (A preinjection marker may be coupled in across a portion of the ground pattern.)
11. If curve is at some frequency other than 10.7MHz, set marker near the base line on the 10.7MHz side.
12. Adjust slugs of T1, T2, T4 and T6 for maximum depth (spacing) from base line.
13. Repeat IF transformer alignment until 10.7MHz marker is centered on curve at maximum.
14. Check 10.8MHz and 10.6MHz markers carefully. If bandwidth is too narrow (markers too low), adjust slugs. Avoid excessive loss of curve amplitude. Remove detector network.
15. Connect decoupling network to the plus end of C43. Connect scope to network; adjust scope for "S" curve.
16. Adjust T7 for 10.7MHz crossover point. Adjust T6 to correct the shape of the curve. Check for correct 10.6MHz and 10.8MHz marker points. Slightly adjust other IF transformers if necessary for correct "S" curve.

FM RF ALIGNMENT

1. Connect VTVM on low AC scale across speaker.
2. Warm up crystal calibrating generator for 20 minutes (RCA WR-99A, or equiv.). All other generators OFF.
3. Set dial at low end. Radiate signal into FM antenna by placing generator lead close to antenna.
4. Set generator at 87.5MHz and adjust L5 for maximum indication.
5. Set generator at 108.5MHz and dial to high end.
6. Adjust FM oscillator C13 trimmer for maximum. (Located on gang.) Repeat Steps 3 through 5 until band ends are obtained.
7. Set receiver dial at open space about 90MHz.
8. Using VTVM indication, set generator at this frequency. Tune carefully.
9. Adjust L3 for maximum reading.
10. Set receiver dial at open space about 106MHz.
11. Using VTVM indication, set generator at this frequency. Tune carefully.
12. Adjust C4 trimmer for maximum.
13. Repeat Steps 7 through 12 until no further increase in output can be obtained.

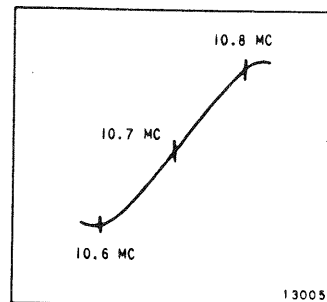
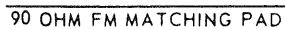
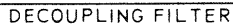
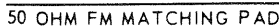
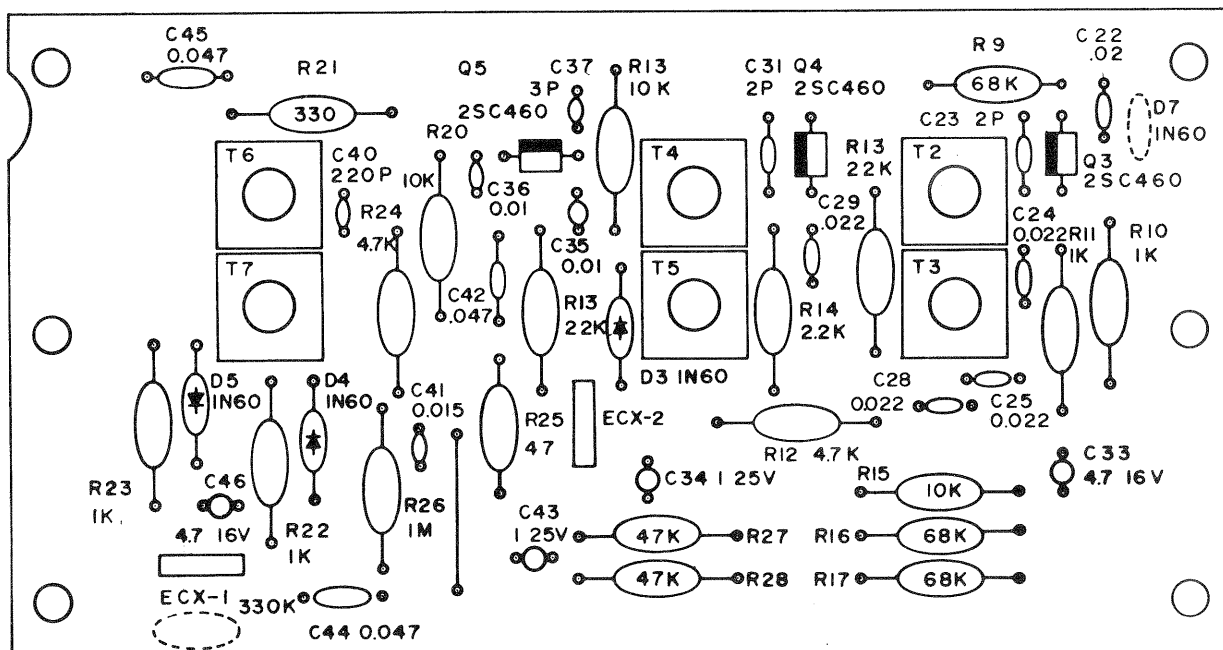
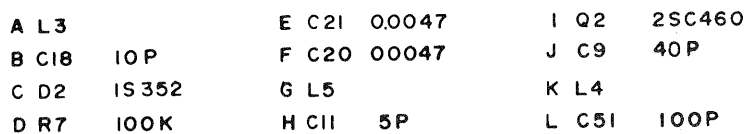
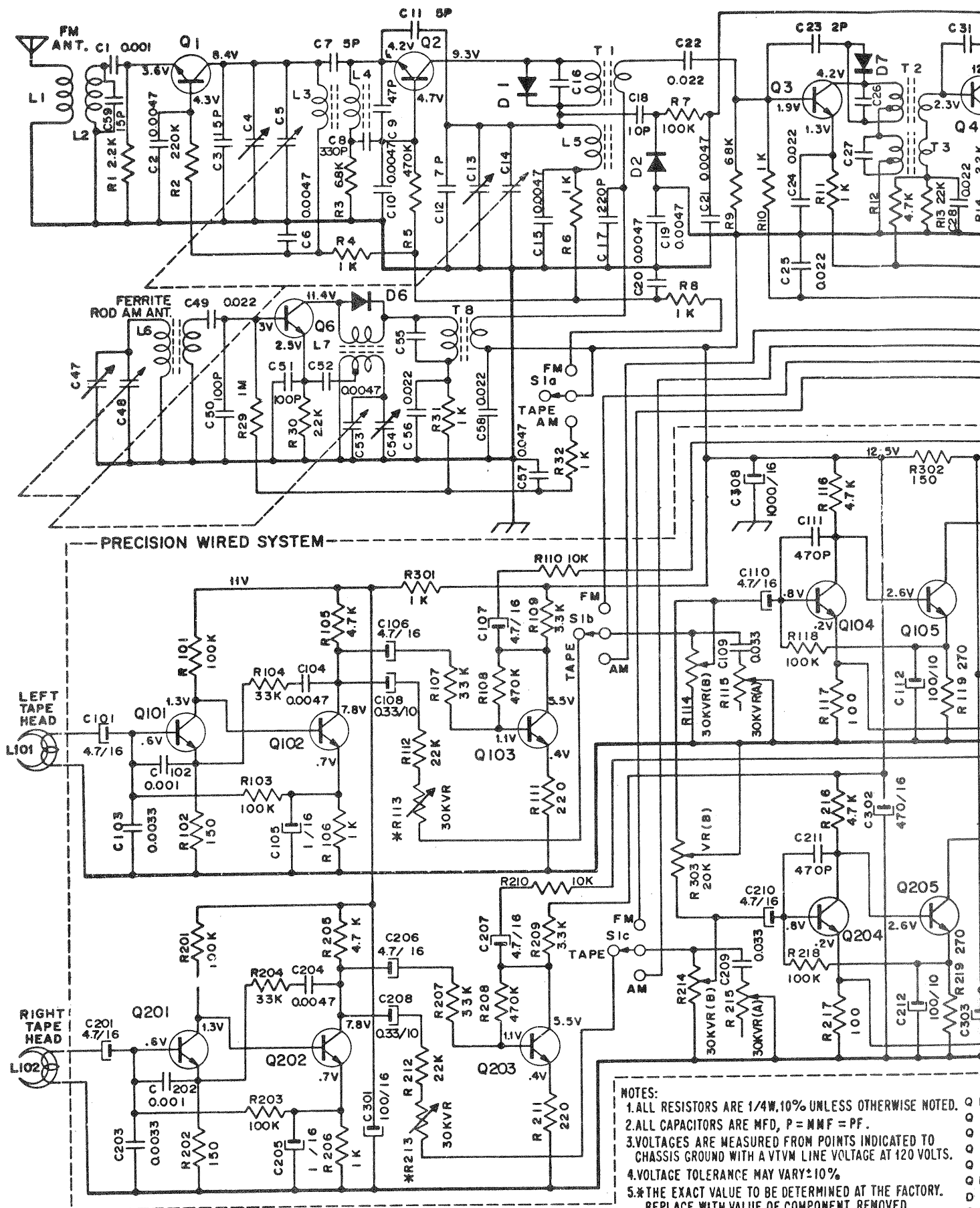


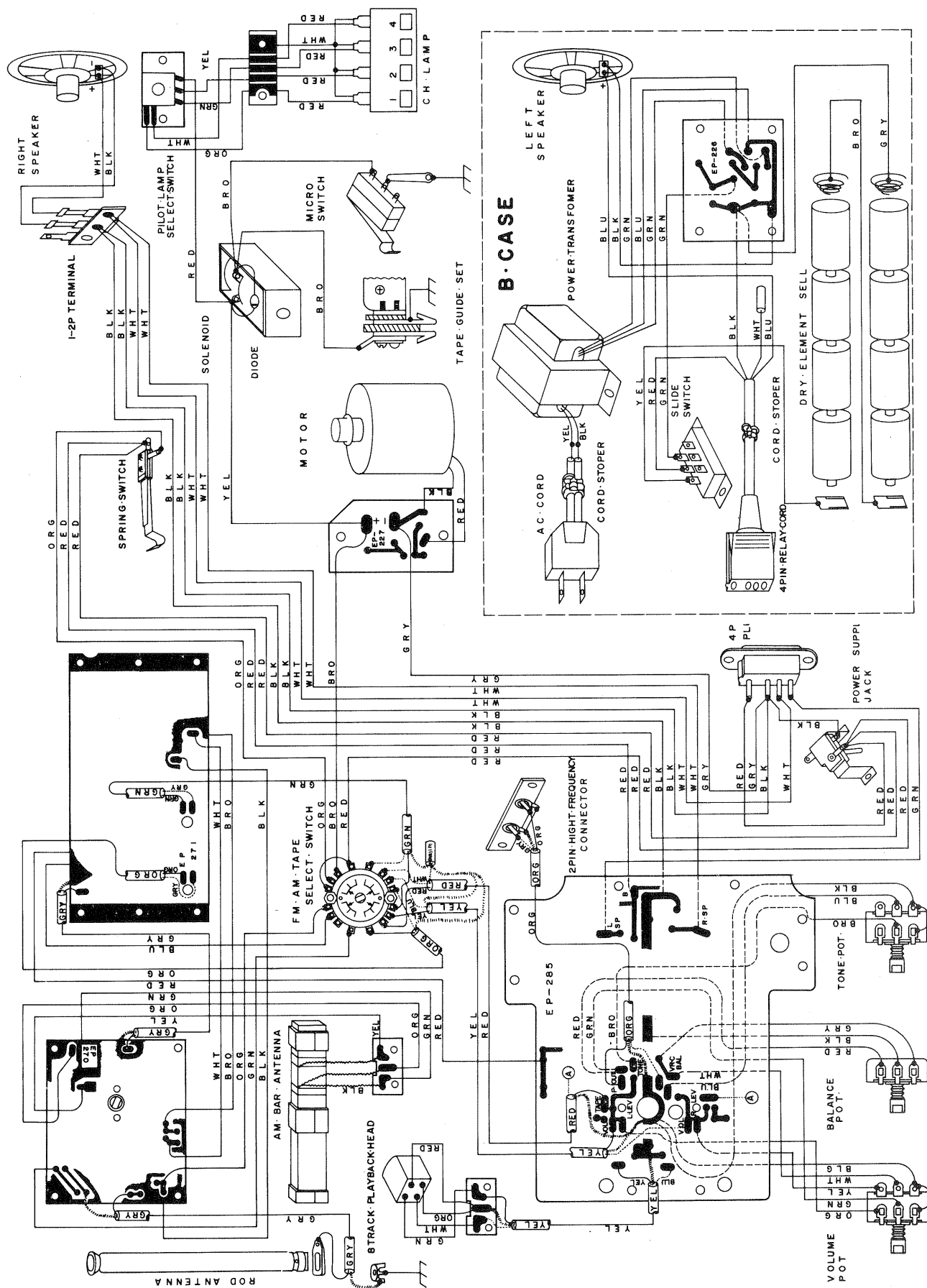
Fig. 2: RATIO DETECTOR 'S' CURVE











SEMICONDUCTORS

ITEM	PART NO.	TYPE
D1	93A41-2	
D2	2093A41-23	
D3	93A41-2	
D4	93A41-2	
D5	93A41-2	
D6	93A41-2	
D7	93A41-2	
D301	2093A41-78	
D302	2093A41-75	
Q1	2057A2-117	2SC460B
Q2	2057A2-117	2SC460B
Q3	2057A2-117	2SC460B
Q4	2057A2-117	2SC460B
Q5	2057A2-117	2SC460B
Q6	2057A2-117	2SC460B
Q101	2057A2-294	2SC458LG
Q102	2057A2-296	2SC458LGS
Q103	2057A2-297	2SC458
Q104	2057A2-295	2SC711
Q105	2057A2-295	2SC711
Q106	2057A100-10 (1)	
Q107	2057A100-10 (1)	
Q201	2057A2-294	2SC458LG
Q202	2057A2-296	2SC458LGS
Q203	2057A2-297	2SC458
Q204	2057A2-295	2SC711
Q205	2057A2-295	2SC711
Q206	2057A100-10 (1)	
Q207	2057A100-10 (1)	

ELECTROLYTIC / VARIABLE CAPS

ITEM	PART NO.	VALUE
C4	2068A105-53	Tuning Gang
C5		
C13		
C14		
C47		
C48		
C53		
C54		
C33	2067A64-138	4.7mfd 16V
C34	2067A64-51	1 mfd 25V
C43	2067A64-51	1 mfd 25V
C46	2067A64-138	4.7mfd 16V
C101	2067A64-72	4.7mfd 16V
C105	2067A64-51	1 mfd 25V
C106	2067A64-72	4.7mfd 16V
C107	2067A64-72	4.7mfd 16V
C108	2067A64-118	.22mfd 25V
C110	2067A64-72	4.7mfd 16V
C112	2067A64-69	100mfd 10V
C115	2067A64-165	500mfd 15V
C116	2067A64-129	3.3mfd 16V
C201	2067A64-72	4.7mfd 16V
C205	2067A64-51	1 mfd 25V
C206	2067A64-72	4.7mfd 16V
C207	2067A64-72	4.7mfd 16V
C208	2067A64-118	.22mfd 25V
C210	2067A64-72	4.7mfd 16V
C212	2067A64-69	100mfd 10V
C215	2067A64-165	500mfd 15V
C216	2067A64-129	3.3mfd 16V
C301	2067A64-96	100mfd 16V
C302	2067A64-165	500mfd 15V
C303	2067A64-96	100mfd 16V
C304	2067A64-166	1000mfd 25V
C305	2067A64-166	1000mfd 25V
C306	2067A64-165	500mfd 15V
C307	2067A64-96	100mfd 16V
C308	2067A64-120	1000mfd 16V

CONTROLS / SPECIAL RESISTORS

ITEM	PART NO.	DESCRIPTION
R113 & R213	2075A89-152	30K
R114 & R214	2075A89-149	30K Volume
R115 & R215	2075A89-151	30K Tone
R124	2060A60-29	3 ohm 1/2W WW
R125	2060A60-29	3 ohm 1/2W WW
R224	2060A60-29	3 ohm 1/2W WW
R225	2060A60-29	3 ohm 1/2W WW
R303	2075A89-150	20K Balance
R304	2060A60-26	1 ohm 1W WW
R305	2060A60-29	3 ohm 1/2W WW
R306	2060A60-29	3 ohm 1/2W WW
TH101	2061A45-64	Thermistor (D1A)
TH102	2061A45-64	Thermistor (D1A)
TH201	2061A45-64	Thermistor (D1A)
TH202	2061A45-64	Thermistor (D1A)

COILS / TRANSFORMERS

ITEM	PART NO.
L1	2073A72-141
L2	2073A72-142
L4	2073A72-143
L5	2073A72-144
L6	2069A296-19
L7	2072A254-313
L301	2073A72-118
T1	2072A254-314
T2	2072A254-315
T3	2072A254-316
T4	2072A254-317
T5	2072A254-318
T6	2072A254-319
T7	2072A254-320
T8	2072A254-321
T101	2079A1-34
T102	2079A1-34
T301	2080A1-33

MISCELLANEOUS

ITEM	NAME	PART NO.
ECX-1	Component Combination	2063A20-36
ECX-2	Component Combination	2063A20-37
L3	Solenoid, Eject	2083A1-21
L101 & L201	Head, Stereo Playback	2073A1-16
M3	Motor, Tape Drive	2091A1-18
S1	Switch, AM-FM-Tape	2077A1-24
S2	Switch, AC-Battery	2077A1-19
S3	Switch, Motor	2077A1-21
S4	Switch, Track Indicator	2077A151-110
S5	Switch, Auto Track Charge	2077A1-22
S6	Switch, Manual Track Change	2077A1-20
	Speaker	2078A203-68

CABINET PARTS

NAME	PART NO.
Escutcheon, Front	2034A1-67
Back, Cabinet	2034A1-68
Handle	2034A1-65
Knob, AM-FM	2033A1-28
Knob, Tuning	2033A1-29