

Bell

	Model: RT-65	Chassis:	Year: Pre 1952
	Power:	Circuit:	IF:
	Tubes:		
	Bands:		

Resources

[Riders Volume 22 - BELL 22-TAPE REC. 1](#)

[Riders Volume 22 - BELL 22-TAPE REC. 2](#)

[Riders Volume 22 - BELL 22-TAPE REC. 3](#)

[Riders Volume 22 - BELL 22-TAPE REC. 4](#)

[Riders Volume 22 - BELL 22-TAPE REC. 5](#)

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[Riders Volume 22 - BELL 22-TAPE REC. 7](#)

[Riders Volume 22 - BELL 22-TAPE REC. 8](#)

[Riders Volume 22 - BELL 22-TAPE REC. 9](#)

[Riders Volume 22 - BELL 22-TAPE REC. 10](#)

[Riders Volume 22 - BELL 22-TAPE REC. 11](#)

[Riders Volume 22 - BELL 22-TAPE REC. 12](#)

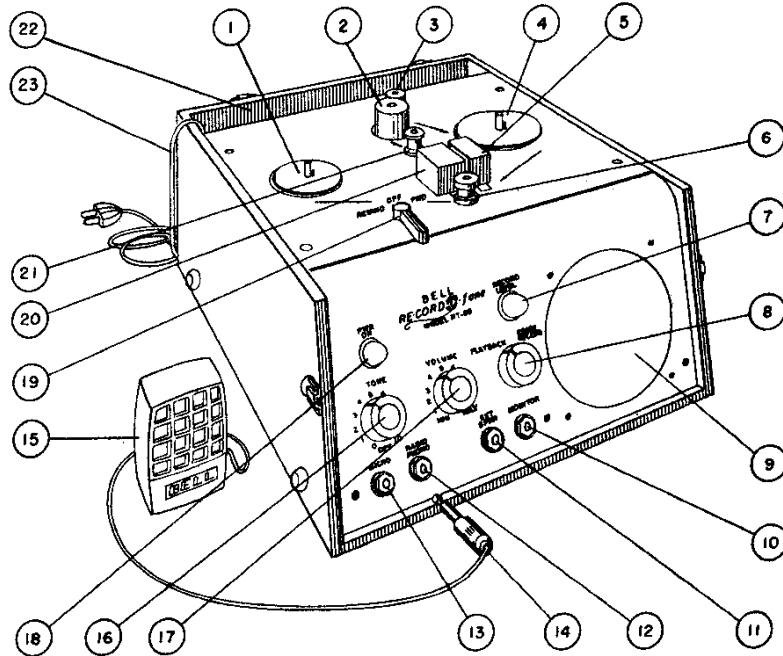


DIAGRAM SHOWING NAME AND LOCATION OF PARTS.

- | | |
|----------------------------------|---|
| 1. Supply Reel Platform | 13. Microphone Jack |
| 2. Capstan | 14. Microphone Plug |
| 3. Pressure Roller | 15. Microphone |
| 4. Take-up Reel Platform | 16. Tone Control & Master Power Switch |
| 5. Pressure Pads | 17. Volume Control |
| 6. Idler Roller & Tape Guide | 18. Pilot Light |
| 7. Recording Level Indicator | 19. Direction Control - 3 Position
Rewind-Off-Forward |
| 8. Erase Record-Playback Control | 20. Erase-Record-Playback Head |
| 9. Speaker | 21. Tape Guide Post |
| 10. Headphone Monitoring Jack | 22. Storage Compartment for Power
Cord, Reels and Microphone |
| 11. External Speaker Jack | 23. Power Cord |
| 12. Radio or Phono Jack | |

SPECIFICATIONS

POWER SUPPLY:	115 Volts 60 Cycles A. C.
POWER COMSUMPTION:	90 Watts maximum - 1.1 Amp.
TAPE SPEED:	7 1/2 inches per second
RECORDING TRACK WIDTH:	3/32 inch - dual track

MODEL RT-65

RECORDING MEDIUM: Plastic or Paper tape - Red or black oxide, (Plastic red oxide preferred.)

RECORDING TIME: 5 inch reel; 15 minutes each track, 30 minutes total.
7 inch reel; 30 minutes each track, one hour total.

FREQUENCY RESPONSE: 70 to 8,000 c.p.s.

REWIND SPEED: 6 to 1 ratio, 5" reel 2 1/2 minutes; 7" reel 4 minutes

TYPE OF ERASE AND BIAS: High Frequency A. C. 48 K.C.

RECORDING LEVEL INDICATOR: Neon Lamp NE-51

POWER OUTPUT: 3.5 Watts - 6V6GT output tube.

AMPLIFIER: 4 stages with inverse feedback - volume and tone controls - high and low frequency compensation in record and playback.

SPEAKER: 6 inch heavy duty, 8 watt capacity

INPUTS: Microphone 75 db gain - Phono or Radio 40 db gain.
Play back gain 85 db.

OUTPUTS: External speaker 3.2 ohm - Monitor for headphones or meter 500 ohm source with voltage divider.

- NOTE:** (1) Internal speaker disconnects when external speaker jack is used.
(2) 500 ohm output is available by shorting out 10,000 ohm resistor inside amplifier.
(3) A power amplifier may be driven from either external speaker or monitor jack. If external speaker jack is used a 3 ohm 5 watt resistor should be shunted across the connecting plug or amplifier input, to provide load on recorder amplifier.

FUSE: 2 Amp solder-in type GJV located underneath chassis.

HOW TO REMOVE TOP PLATE MECHANICAL ASSEMBLY FROM CABINET

This is necessary to gain access to tubes, controls, etc.

CAUTION - - USE EXTREME CARE IN REMOVING THIS ASSEMBLY TO PREVENT DAMAGE TO FAN.

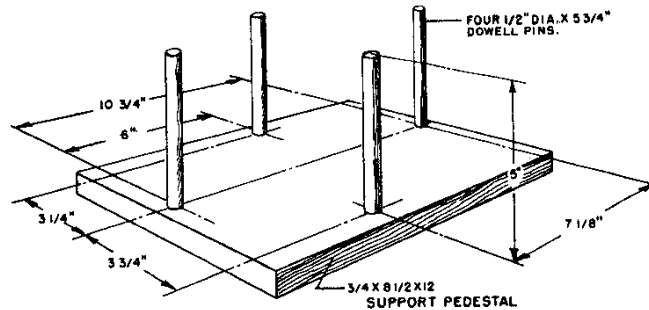
1. Remove four 10-32 large truss head screws along right and left edges of panel.
2. Lift plate up at right side by grasping take-up reel with left hand. Now, grasp right front corner of plate with right hand and left rear corner with left hand. Pull plate to the right enough for the casting to clear brackets on left side of cabinet and lift up. Top plate is now free except for head wires and 5 prong plug.
3. Push plate to extreme rear of cabinet and rest back of plate on vent grille. Prop front up with piece of wood or cardboard box while unsoldering four head leads. Remove 5 prong plug and mechanical assembly is now free.

NOTE: A. In some earlier models of recorders using a shorter motor, lift top plate up at front and pull forward until casting clears cabinet bracket on right side. Now move plate to right to clear left hand cabinet bracket, lift up and assembly is free except for head wires and plugs. See paragraph 3 above.

B. If in some models there is difficulty in removing top plate without striking fan, remove chassis and front panel by taking out 3 Phillips oval head screws from bottom of case and 2 on each side (7 total).

CAUTION: DO NOT SET THIS ASSEMBLY DOWN ON FAN BLADE.

4. See sketch below for details of a pedestal for supporting top plate assembly while making examination or repairs.



HOW TO REMOVE AMPLIFIER FROM CABINET

1. First it is advisable to remove top plate assembly (see above).
2. Remove 3 Phillips oval head screws and finish washers from bottom of case, remove 4 same type screws and washers from cabinet sides.
3. Push chassis toward front of cabinet while supporting front panel.
4. Unwind power cord if coiled up and push under cabinet vent partition. Remove cable clamp.
5. Unsolder 4 head connections located on slide switch, if not already detached, remove 5 prong plug. Amplifier is now free.

REMOVING TOP PLATE FROM MECHANICAL ASSEMBLY

1. If possible, rest unit on pedestal as described earlier - if this is not available remove fan blade and rest unit on motor shaft.
2. Remove pointer knob from control shaft. Remove four Phillips oval head 10-32 machine screws recessed in panel.
3. Top panel will now lift off of mechanical assembly. It is best to disconnect two wires to blade switch otherwise top panel must be placed to one side while working on either mechanical unit or top plate mechanism.

TOP PLATE MECHANICAL INSPECTION (See Drawing Fig. 2)

1. With top plate removed from mechanical assembly check the parts located on underneath side of top plate as follows:
 - Push bell crank (14) toward front edge of top plate, as far as possible, release slowly and note sliding parts. These should not bind or stick in any position. If they do, remove and check for burrs or rough places. Parts should be well lubricated with Sta-Put #18-H grease. See paragraph describing lubrication of recorder. To check roller slide assembly (10) alone, push bell crank forward and while holding against spring, move roller slide assembly and check for sticking friction. To check pressure pad slide assembly (7) alone, push roller slide assembly (10) toward rear of top plate and move bell crank in both directions. Check bell crank (14) to see that it works free and does not strike rubber grommet (17). Bend away slightly if necessary.
 2. Install top plate to mechanical assembly and check the following:
 - Rotate control knob to forward position. The pressure pad slide assembly (7) must be against its full travel stops when control is in the forward position and indexed. Check as follows:
 - (a) If pad slide assembly moves still further (is not against the stop) when control knob is pushed beyond the index point, the bell crank flange should be bent toward the cam which actuates the bell crank.
 - (b) If pad slide assembly hits its stops before the control is forward in the index position it is necessary to bend the bell crank flange slightly away from the cam.
 3. Check the blade switch (18), which is operated by the cam and bell crank (14), and make sure that it is closed in the forward position only. If the switch closes in off or rewind position, bend the angle bracket which mounts switch, by lessening the 90 degree angle.

MECHANICAL ASSEMBLY INSPECTION AND TESTS

(See Drawing Fig. 3)

1. Driving Surfaces:

All driving surfaces and surfaces which touch the tape must be free of oil or grease.

These includes:

- (a) Motor Shaft (53).
- (b) Idler wheel, rubber surface (34).
- (c) Supply or rewind drum, tapered driven surface (44).
- (d) Capstan drum, driven surface (8).
- (e) Take-up drum, driven surface (1D).
- (f) Belt (13).
- (g) Capstan rubber drive (8).
- (h) Capstan pressure roller (10C-Fig. 2)
- (i) Tape guide rollers (2) (12-Fig. 2)
- (j) Recording head surface (2-Fig. 2)
- (k) Felt pressure pads (2) (7D - Fig. 2)
- (l) Motor pulley groove (28 - Fig. 3)
- (m) Belt pulley groove (17)

Wipe off any oil or grease with a clean dry cloth. Carbon tetrachloride may be used but must be wiped off any rubber surface immediately or unit will not have good drive for several hours after application. Use sparingly.

2. Drive Tests:

With motor power off:

(a) With control knob in forward position, manually turn capstan clockwise. The idler should cause motor shaft to rotate, which will in turn rotate take-up drum. Oil or grease on idler, motor shaft, belt, belt pulleys, or take-up drum driven surface will cause a failure of this test. In off position, clearance between idler rubber surface and motor shaft should not be more than .031 inches. This clearance can be reduced by taking up clearance in 4 motor mounting bolts and 3 motor mounting plate screws, in the direction toward the idler. The idler cam part #2043 can cause too much clearance also. Replace cam or bend small stop (1/16" high) toward center hole.

(b) 1. AFTER MACHINE HAS BEEN RUNNING IN THE CABINET FOR FIVE MINUTES OR MORE AND CLUTCHES HAVE BEEN SLIPPING (Normal forward operation), CHECK AS FOLLOWS:

Place a full 5" plastic reel of tape on the take-up drum - hook a gram or ounce scale to end of tape and throw control to forward position. The pull should be 1-1/2 to 2 ounces (40-55 grams). Wipe oil off clutch if above this amount. Add a few drops of STA-PUT #360 if below this amount.

2. Place a full 5" plastic reel of tape on the rewind drum and hook scale to tape end as before. Motor control should be in off position. Measure pull necessary to unwind tape from reel, this should be 1/2 to 3/4 ounce (15 to 20 grams). Remove or apply lubricant as described in preceding paragraph. NOTE: - Addition of oil increases tension and pull of either clutch.

Clearances:

- (a) Idler roller to motor shaft 1/32" maximum, 1/64" minimum, control in "off" position.
- (b) Brake (24 Fig. 3) to take-up drum (1D) 1/32" minimum, control "rewind" position.
- (c) Idler roller edge to motor frame 1/32" minimum, control "off" position. "Forward" position same, 1/32" minimum. There must be a minimum of end play in idler shaft, idler lever assembly and idler pulley, so that idler does not rub motor, idler lever or motor pulley.
- (d) Belt to take-up drum, control "off" position, 1/32" minimum with motor running.
- (e) End play - take-up, capstan and rewind drums must have some end play but not to exceed 3/64". Motor shaft should also have slight end play.

4. Timing Tests:

- (a) Motor running, turn control knob slowly toward "forward" position. Capstan should start to rotate before take-up drum.
- (b) Motor running, turn control knob slowly from "rewind" to "off" At same time spin take-up drum manually. Brake should stop take-up drum before rewind drum stops rotating.
- (c) The speed of the tape thru the recorder can be checked with Minnesota Mining #43 Leader and Timing Tape. An 18.75 foot length of tape should run 30 seconds plus or minus .5 second. Unit should be tested after it has warmed up.

5. Miscellaneous Tests:

- (a) Motor running, control in off position, check belt position in large pulley groove. The belt should not climb or rotate about the center of a cross section. To remedy change pulley #2081 or take up all excess play in lever assembly #2080. Replace belt.

INSTRUCTIONS FOR LUBRICATION

DO NOT LUBRICATE THIS INSTRUMENT UNTIL YOU READ THESE INSTRUCTIONS AND OBTAIN THE CORRECT LUBRICANTS.

(1) All the wiping surfaces of mechanical linkages should be free of dirt and foreign material and be lubricated lightly with STA-PUT #18-H grease. This lubricant should be at point of friction only and wiped clean from other surfaces.

(2) The felt clutch washers on TAKE-UP AND REWIND drums should be lubricated ONLY after tests indicate the necessity. Use a small amount of STA-PUT oil #360 and make tension tests as outlined under "Mechanical Assembly Inspection and Tests." Wipe off excess oil from all surfaces including felts.

NOTE: IF tension tests cannot be met with addition of small amount of oil, the felts are worn and should be replaced.

(3) For all other bearings and shafts, use a light spindle oil such as Kensington #9. Clean surface to be lubricated first, then apply only two to three drops.

NOTE: The above lubricants can be obtained from the E.F.Houghton & Co. Pipe cleaners are excellent for applying either oil or grease.

AMPLIFIER TESTS AND REPAIRS

See paragraph on "How To Remove Amplifier From Cabinet."

1. See schematic wiring diagram (Fig.4) for all voltages.
2. Check all tubes, inspect wiring and slide switch for poor or open connections.
3. If indicated, test volume control for open or poor connections.
4. Always check head surface for dirt and clean thoroughly. Test for continuity if suspected of being open. Erase winding 11 ohms playback-record winding 170 ohms. Demagnetize head by operating in record position for short time.
5. Test jacks for open or shorted circuits. Microphone jack must be insulated from front panel.
6. Test bias oscillator as follows: Throw switch to record position. Connect A.C. vacuum tube voltmeter capable of measuring 50 K.C. across erase winding at slide switch. Close blade switch (18, Fig. 2) on top panel by hand. Voltage should be 40 volts or more. Check frequency with signal generator and scope. This should be 48 K.C. plus or minus 3 K.C.
7. Hum test in record position - this can be measured across monitor jack. Turn volume and tone control full on, insert dummy shielded open-circuited plug in microphone jack. Amplifier must have bottom shield plate in place and line cord in proper polarity. Voltage should be less than 3 volts. Be sure bias is off. For playback test it will be necessary to listen to the hum in the speaker as the minimum audible hum and minimum voltage reading are not the same.

The power transformer is mounted so that it can be rotated on its axis to cancel hum picked up by the head. THIS HAS BEEN ADJUSTED AT THE FACTORY FOR MINIMUM HUM AND SHOULD NOT HAVE TO BE READJUSTED UNLESS MAJOR REPAIRS ARE MADE SUCH AS REPLACEMENT OF POWER TRANSFORMER, ETC.

To do this it is necessary to remove both the top plate and chassis from the cabinet. The chassis must rest on a sheet of metal similar to the bottom plate in cabinet to be shielded properly. The top plate must be placed in exactly the same position as when installed in cabinet, i. e., the top plate must be level with top of front panel of chassis. It must also have about 1/8" space between flange of top plate and flange of front panel. It may be rested on cardboard boxes or pieces of wood. Loosen four transformer mounting screws, rotate transformer for minimum audible hum (volume control turned on full). Tighten screws. NOTE: There are two null points 180 degrees apart. One will have much lower audible hum than the other. Do not rotate transformer too far or leads may be broken underneath chassis.

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INSPECTION AND TEST OF COMPLETE RECORDER

The testing of the complete recorder can be accomplished by making recordings with microphone, record player, radio, etc., but if instruments are available a more accurate test can be made.

(1) VISUAL TESTS

First, visually inspect the recorder for mechanical defects which can be detected by eye. Check for dirt pile up on record-playback and erase poles of head, clean with cloth slightly dampened in carbon tetrachloride. Check tape guide rollers for easy turning, the outside surfaces should be free of oil and dirt. Check capstan and pressure roller surfaces, clean if necessary with carbon tetrachloride but wipe off immediately so that roller will not soften.

Turn control to rewind and forward positions. Control should index in both positions smoothly. In forward position, both felts should be against head, and roller against capstan.

In off position roller should move away from capstan and allow enough room for feeding tape between roller and capstan. This should be a gap of $1/16''$ or more. Also, felt pads should move away from head to allow threading of tape between pads and head. The gap should be $1/8''$ or more. CAUTION: Do not bend springs to meet this dimension. See (2) below.

Check controls on front panel, tone control and power switch and Erase-Record-Playback Switch. These should operate smoothly without binding. If Erase-Record-Playback knob does not operate properly, remove top plate and check slide switch mechanism and shaft rear bearing. Be sure slide switch throws to full extent each position. It may be necessary to position rear bearing on a slight angle to cause this action. Check the position of the shaft arm located on the bearing shaft. To change position of this shaft arm it will be necessary to remove amplifier unit and loosen set screw with screwdriver inserted from underneath chassis thru hole provided. NOTE: - When checking switch, chassis must either be bolted in cabinet or on flat surface.

(2) HEAD TESTS AND ADJUSTMENT

To properly check head alignment it is necessary to have a roll of pre-recorded head alignment tape of one mil wave length, or 7500 cycles (3M head alignment tape #119). Play this back through recorder with A.C. vacuum tube voltmeter connected to monitor jack. Volume control full on. CAUTION: Be sure switch is in PLAYBACK position so as not to erase tape. The meter should read 15 volts or higher. Three things can cause low meter readings, (provided amplifier and tubes are okay). (1) wrong head alignment angle, (2) dirty head or (3) improper pressure of felts. Remove right hand cover which protects the felts and springs. Check head and be sure there is no dirt on poles or bakelite. Dirt holds the tape away from the poles and lowers output. If dirty, clean with carbon tetrachloride and allow to dry. Start the recorder and turn volume full on. With one finger push the felt (farthest from front) toward head. This will increase pressure and indicate whether there was sufficient pressure. If the voltage increases more than one or two db (2 or 3 volts) check the pressure of the felts with a gram or ounce scale gauge. This may be two ounces (55 grams) but NO MORE.

To do this, turn off power switch but throw control to forward. Connect the gauge to the top of the felt and spring. Pull at right angles enough to just lift the felt off the head. Read gauge. If pressure is under 2 ounces, the springs can be bent forward by carefully applying pressure at bottom or by tightening set screws. The set screw adjustment is very critical, so caution must be used if screws are tightened.

NOTE: - Too much pressure will wear the head unnecessarily, cause dirt to accumulate too fast, cause tape to slow down and possibly cause wow. It may also cause tape to squeak and vibrate as it enters head.

(3) HEAD ALIGNMENT

If head is clean and felts have proper tension check the tightening of screws on both sides of head cover. If both are tight, loosen first one slightly, then tighten and loosen other slightly while watching meter. If meter reading goes up when either screw is loosened, make sure other screw is tight and adjust this one for a maximum of voltage, using 7500 cycle head alignment tape.

(4) FREQUENCY TESTS

To make overall frequency response and gain test, proceed as follows:

Connect a signal generator to phono input and adjust and hold the input voltage to .03 volts. Install a reel of 3M plastic tape (red oxide) and record the following frequencies: 70, 125, 250, 500, 1000, 2000, 4000 and 8000. Rewind and playback measuring the voltage

in the monitor jack with a 3.2 ohm (5 to 10 watt) load plugged in the external speaker jack. The output voltage should be approximately 5-7 volts at 1000 cycles. The various frequencies should be within a total of plus or minus 3 to 4 db. Use a good A.C. V.T.V.M. for all voltage readings at all frequencies.

If the unit does not record and play back within these limits it will be necessary to check the complete amplifier unit and make tests as outlined under "Head Tests." NOTE: Before condemning either amplifier or head adjustments be sure tests were made exactly as outlined above. Be sure V.T.V.M. has flat frequency response.

(5) ELECTRICAL TESTS

Amplifier Unit only:

- (a) Distortion Test - Connect signal generator to phono input and load resistor of exactly 3.2 ohms (5 watts or more) to external speaker output. At 1000 cycles it should be possible to obtain at least 3.35 volts at less than 8% distortion across load as measured on a "total distortion" type analyzer. This is 3.5 watts of power.
- (b) Gain Test - The voltage at the phono input should be within 2 db. of .145 volt to obtain 3.5 watts output at 1000 c.p.s. as outlined in (a).
- (c) Frequency Response - Connect signal generator to phono input and use 50, 100, 1000 and 10,000 cycles for test. Use .03 R.M.S. volts input (hold constant). Using 1000 c.p.s. reference 100 cycles should be plus 7 db when measured at monitor jack with 3.2 ohm plugged in internal speaker jack. 50 c.p.s. up 4.25 db, 10,000 c.p.s. up 5 db. These should be within plus or minus 1 db.
- (d) Tone control should drop response 27 db plus or minus 2 db at 10,000 c.p.s. when turned to minimum position and 10 db plus or minus 1 db at 1000 c.p.s.
- (e) See schematic wiring diagram (Fig. 4) for voltages of various parts of circuit both A.C. and D.C.

SOME COMMON FAILURES AND THEIR REMEDIES

The most common causes of failure are dirt on head (which should be cleaned regularly), defective tubes and oil on driving surfaces (see "Mechanical Assembly Inspection and Tests").

- | | |
|---|---|
| 1. Will Not Record:
(Neon Lamp Flickers) | A. Open record-playback head winding or leads.
B. Output transformer open or shorted 500 ohm winding.
C. Open 150 K resistor (R-19) in series with head.
D. Open or short section of slide switch. |
| 2. Will Not Play Back: | A. Amplifier inoperative. See "Amplifier Tests and Repairs."
B. Open or short section of slide switch.
C. Open or shorted speaker coil or external speaker jack. |
| 3. Tubes Will Not Light Up:
(Inoperative) | A. Fuse open. Replace with 2 Amp Littelfuse Type GJV.
B. Defect in line cord or attachment cap.
C. Open power transformer winding.
D. Open A.C. switch on volume control. |
| 4. Will Not Erase: | A. Open erase winding in head. Replace head.
B. Open or short in slide switch.
C. Bias Oscillator not working properly. See "Amp tests and repairs." |
| 5. Does Not Record or Play Back Properly:
(Distorts) | A. Dirt covering either or both poles of head. Clean head.
B. Bias oscillator weak or wrong frequency.
C. Amplifier defective. See "Amplifier Tests and Repair."
D. Check contact closure of bias switch under control lever in forward position. |
| 6. Piano and Sustained Notes Have Flutter or Wow. | A. Wow or waver. Check idler, capstan, belt, take-up drum and felt pressure disc for wow. These parts should not have flat spots or be oily or greasy with the exception of the felt disc. To find which part is at fault make a mark with chalk or crayon which can be seen while unit is running. Record a constant note of 400 to 1000 c.p.s. Play |

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back the recording and listen to wow while watching mark as it rotates. Correlate the rate of any severe fluctuation with the rotating speed of the mark. If the wow and mark are exactly synchronized, replace the part which is marked. NOTE: Slight fluctuations may be found on any recorder but these will not interfere with music as the constant note test is a severe one.

- B. Flutter. The cause of flutter, which is a very rapid wow, is more difficult to locate. (1) If the roller nearest front panel is bakelite, replace with an aluminum type, available from the factory, for a trial recording. (2) Check pressure pad tension against the tape. This must not exceed 55 grams (2 ounces) to start pulling pad away from tape. (3) Check motor for undue amount of vibration. Check for slightly bent shaft. Check shock mounts of motor mounting plate, these should be free vertically but must be firm against rubber sideways. Check spacing of idler wheel, check belt for abnormal vibration due to unevenness. Check fan blades and straighten if necessary.

AMPLIFIER PARTS LIST

Major Items

Resistors

R3	470,000	1/2W	10%
R4	270,000	"	"
R13	"	"	"
R14	"	"	"
R23	"	"	"
R6	3300	"	"
R7	130,000	"	5%
R12	"	"	"
R8	22,000	"	"
R9	2700	"	10%
R10	100,000	"	"
R16	"	"	"
R26	"	"	"
R35	"	"	"
R11	39,000	"	"
R15	360	1W	5%
R17	10,000	1/2W	10%
R18	"	"	"
R19	150,000	"	"
R20	6800	1W	"
R21	4700	1W	"
R24	3	5W	"
R25	27,000	1/2W	"
R28	500,000	Control Audio Taper	
R29	500,000	" w/sw. Audio Taper	
R31	150	1/2W. 10%	
R32	"	"	"
R33	10 Meg.	"	"
R34	10,000	2W	"
R35	100,000	1/2W	"
R36	82,000	1/2W	"

Capacitors

C1	.02 mfd.	600 Volt	Tubular
C2	.01 "	450 "	Ceramic
C4	" "	" "	" "
C3	.05 "	200 "	Tubular
C5	.05 "	600 "	"
C10	" "	" "	"
C11	" "	" "	"
C21	" "	" "	"
C6	200mmfd.	500 "	Mica 5%
C7	.01 mfd.	300 "	" "
C8	" "	" "	" "
C9	.015 "	600 "	Tubular 5%
C12	.005 "	500 "	Mica 5%
C13	.001 "	600 "	Tubular
C14	.002 "	" "	"
C16	200 mfd.	500 "	Mica
C17	20-20-20 mfd.	450-450-25 Volt	Electrolytic
C18	20-20-20-mfd.	450-450-25 Volt	Electrolytic
C19	40 mfd.	450 Volt	Electrolytic
C20	470 mmfd.	500 Volt	Mica

Miscellaneous

Bell Part No.

Power Transformer	B-20203
Output Transformer	B-20204
Oscillator Transformer	B-13793
(High frequency erase and bias)	
Slide Switch	B-13053P4
Blade Switch (on top panel)	A-13055
Fuse - 2 Amp. Solder in Type GJV - Littelfuse	
Pilot Lamp Socket	B-20045P18
Level Indicator Socket	B-20045P19
Loudspeaker - 6" P.M.	B-20111P17
Recording-Erase-Playback Head-Shure TR-5	B-13828

34	3	6-2030MS BURNS-STL-2.P.
35	1	6-2030MS BURNS-STL-2.P.
36	3	6-2030MS BURNS-STL-2.P.
37	3	6-2030MS BURNS-STL-2.P.
38	3	6-2030MS BURNS-STL-2.P.
39	3	6-2030MS BURNS-STL-2.P.
40	3	6-2030MS BURNS-STL-2.P.
41	3	6-2030MS BURNS-STL-2.P.
42	3	6-2030MS BURNS-STL-2.P.
43	3	6-2030MS BURNS-STL-2.P.
44	3	6-2030MS BURNS-STL-2.P.
45	3	6-2030MS BURNS-STL-2.P.
46	3	6-2030MS BURNS-STL-2.P.
47	3	6-2030MS BURNS-STL-2.P.
48	3	6-2030MS BURNS-STL-2.P.
49	3	6-2030MS BURNS-STL-2.P.
50	3	6-2030MS BURNS-STL-2.P.
51	3	6-2030MS BURNS-STL-2.P.
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62	3	6-2030MS BURNS-STL-2.P.
63	3	6-2030MS BURNS-STL-2.P.
64	3	6-2030MS BURNS-STL-2.P.
65	3	6-2030MS BURNS-STL-2.P.
66	3	6-2030MS BURNS-STL-2.P.
67	3	6-2030MS BURNS-STL-2.P.
68	3	6-2030MS BURNS-STL-2.P.
69	3	6-2030MS BURNS-STL-2.P.
70	3	6-2030MS BURNS-STL-2.P.
71	3	6-2030MS BURNS-STL-2.P.
72	3	6-2030MS BURNS-STL-2.P.
73	3	6-2030MS BURNS-STL-2.P.
74	3	6-2030MS BURNS-STL-2.P.
75	3	6-2030MS BURNS-STL-2.P.
76	3	6-2030MS BURNS-STL-2.P.
77	3	6-2030MS BURNS-STL-2.P.
78	3	6-2030MS BURNS-STL-2.P.
79	3	6-2030MS BURNS-STL-2.P.
80	3	6-2030MS BURNS-STL-2.P.
81	3	6-2030MS BURNS-STL-2.P.
82	3	6-2030MS BURNS-STL-2.P.
83	3	6-2030MS BURNS-STL-2.P.
84	3	6-2030MS BURNS-STL-2.P.
85	3	6-2030MS BURNS-STL-2.P.
86	3	6-2030MS BURNS-STL-2.P.
87	3	6-2030MS BURNS-STL-2.P.
88	3	6-2030MS BURNS-STL-2.P.
89	3	6-2030MS BURNS-STL-2.P.
90	3	6-2030MS BURNS-STL-2.P.
91	3	6-2030MS BURNS-STL-2.P.
92	3	6-2030MS BURNS-STL-2.P.
93	3	6-2030MS BURNS-STL-2.P.
94	3	6-2030MS BURNS-STL-2.P.
95	3	6-2030MS BURNS-STL-2.P.
96	3	6-2030MS BURNS-STL-2.P.
97	3	6-2030MS BURNS-STL-2.P.
98	3	6-2030MS BURNS-STL-2.P.
99	3	6-2030MS BURNS-STL-2.P.
100	3	6-2030MS BURNS-STL-2.P.

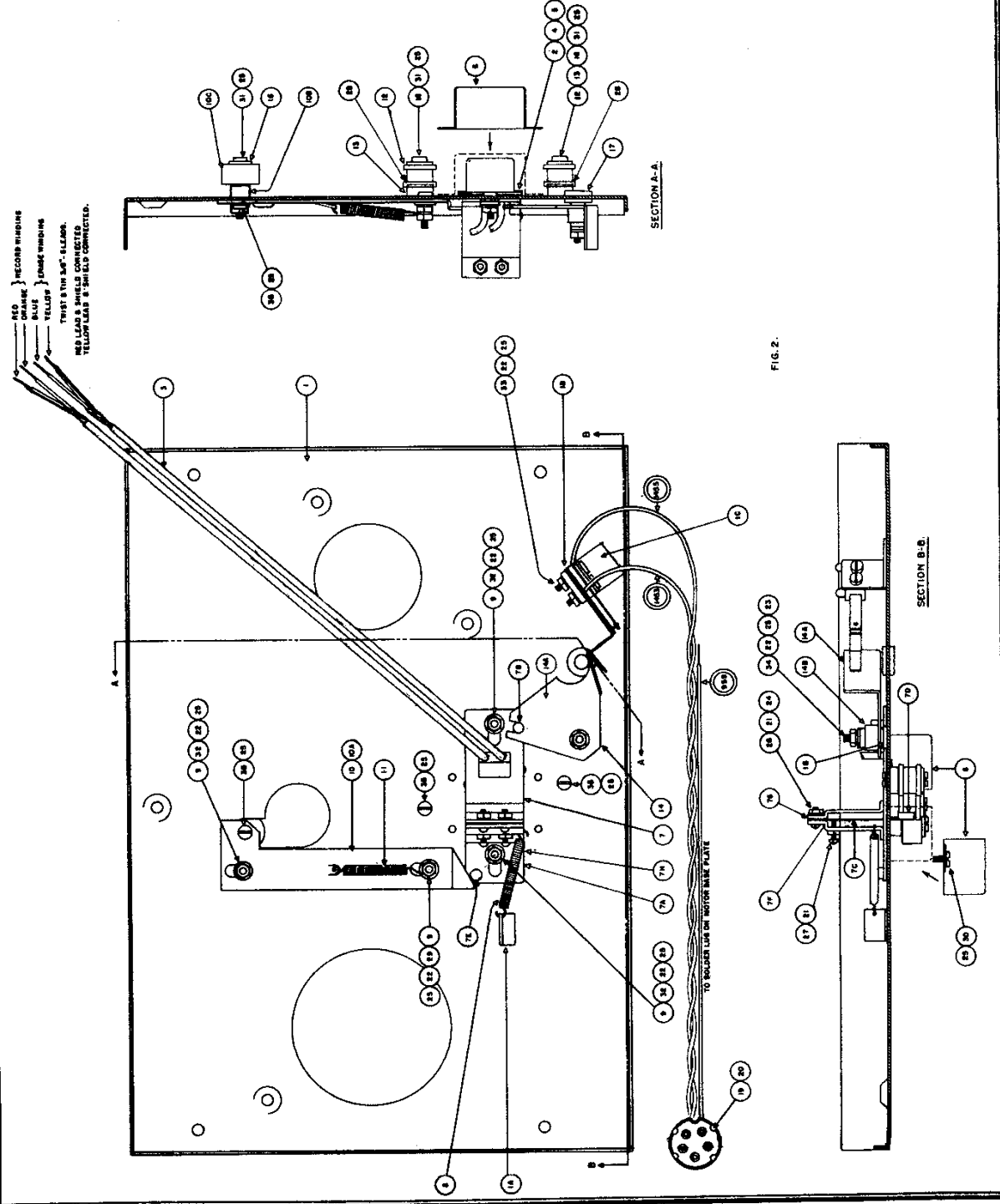
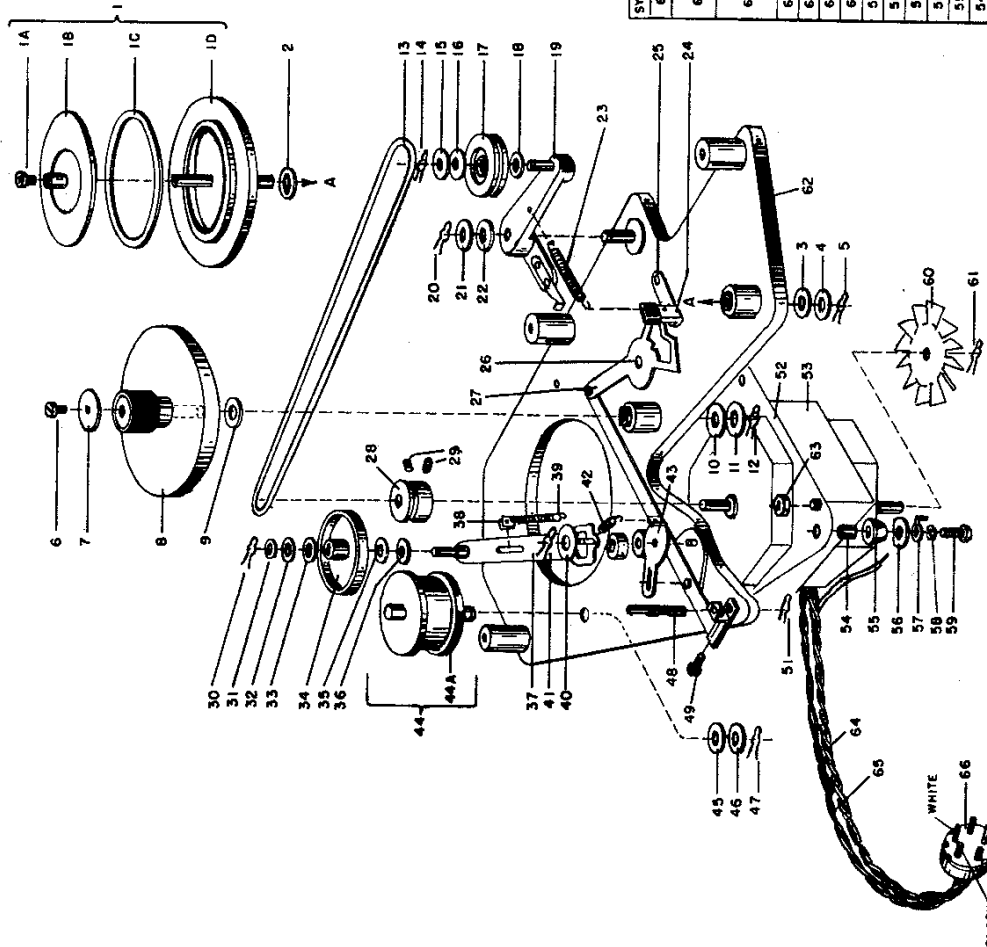


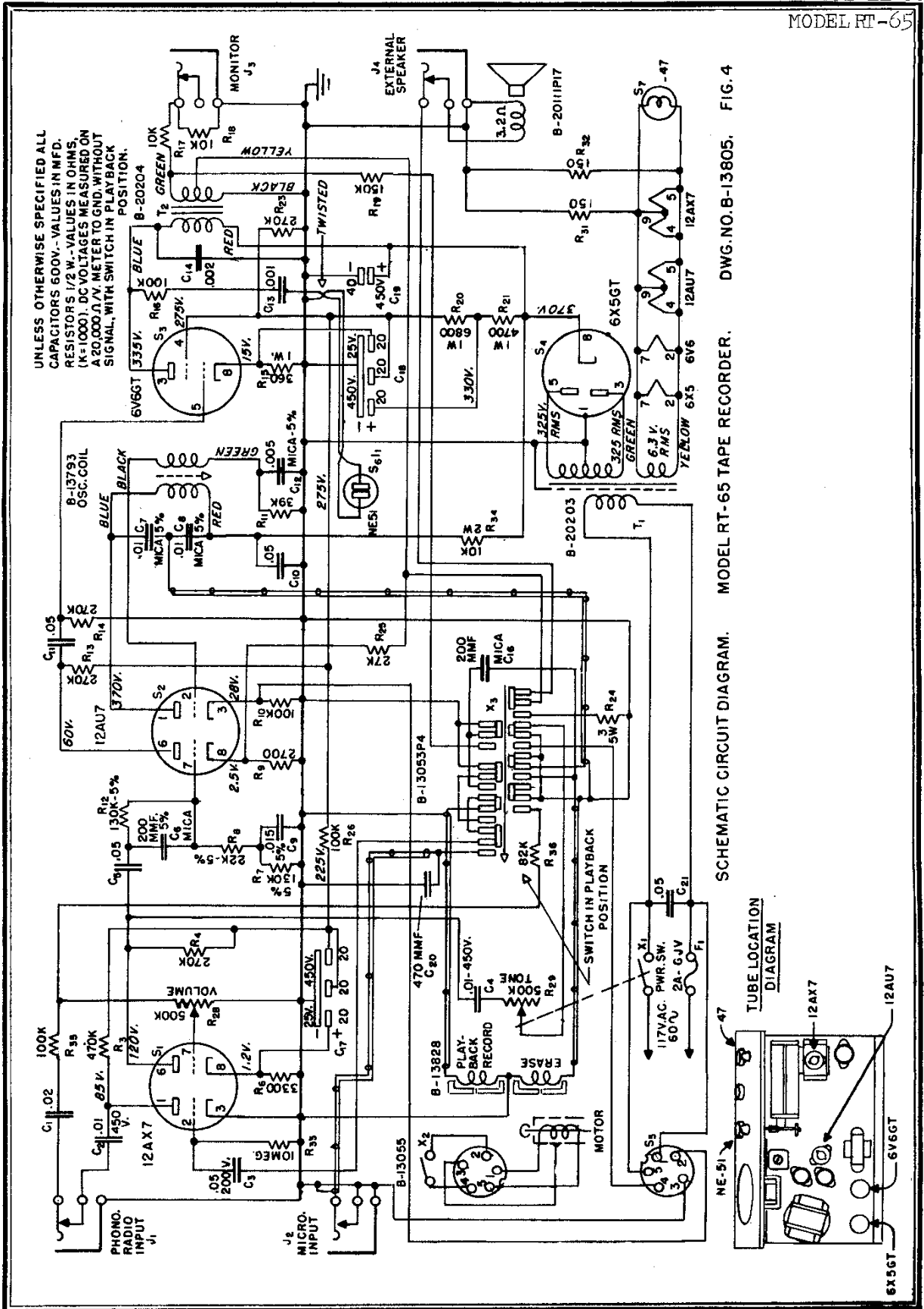
FIG. 2.

MODEL RT-65

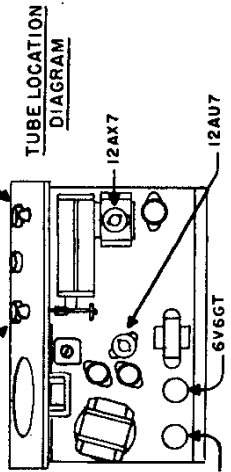
SYMB	DWG. NO	QTY.	DESCRIPTION.
49		1	8-32 BHMS-STL. CONTROL SHAFT
48	A-15804	1	SPRING RETAINER
47	2073	1	BAKELITE WASHER
46	2011	1	FELT WASHER
45	2070	1	FELT WASHER
44A	2060	1	REWIND DRUM ASSEMBLY
44	2082	1	1D-32 STAN. HEX. NUT
43	2043	1	1D-32 STAN. HEX. NUT
42	2039	1	1D-32 STAN. HEX. NUT
41	2071	1	SPRING RETAINER
40	2031	1	RETAINING WASHER
39	2038	1	IDLER LEVER SPRING
38	2042	1	IDLER LEVER SPRING CLIP
37	2089	1	IDLER LEVER ASSEMBLY
36	2044	1	BAKELITE WASHER
35	2065	1	FISHPAPER WASHER
34	2003	1	IDLER WHEEL
33	2065	1	FISHPAPER WASHER
32	2044	1	BAKELITE WASHER
31	2030	1	FELT WASHER
30	2073	1	SPRING RETAINER
29		2	8-32 ALLEN SET SCREW
28	2033	1	MOTOR BELT PULLEY
27	2091	1	CONTROL LINK ASSEMBLY
26	2021	1	RIVET
25	2021	1	RIVET
24	2094	1	BRAKE ASSEMBLY
23	B2019P4	1	BRAKE SPRING
22	2012	1	FELT WASHER
21	WAS-496	1	BAKELITE WASHER
20	2073	1	SPRING RETAINER
19	2080	1	BELT PULLEY LEVER ASSEM.
18	WAS-496	1	BAKELITE WASHER
17	2081	1	BELT PULLEY ASSEMBLY
16	2012	1	FELT WASHER
15	WAS-496	1	BAKELITE WASHER
14	2072	1	SPRING RETAINER
13	2002	1	"O"-RING BELT
12	2073	1	SPRING RETAINER
11	2011	1	BAKELITE WASHER
10	2070	1	FELT WASHER
9	2011	1	BAKELITE WASHER
8	2083	1	CAPSTAN ASSEMBLY
7	A-15832	1	CAPSTAN TOP PLATE
6		1	4-40 BHMS-STL.-NP
5	2073	1	SPRING RETAINER
4	2011	1	BAKELITE WASHER
3	2070	1	FELT WASHER
2	2011	1	BAKELITE WASHER
10	2087	1	TAKE-UP DRUM ASSEMBLY
1C	2061	1	FELT WASHER
1B	2079	1	TAPE DISC ASSEMBLY
1A		1	4-40 PH-BHMS-STL.-NP
1		1	TAPE DRIVE TAKE-UP ASSEMBLY

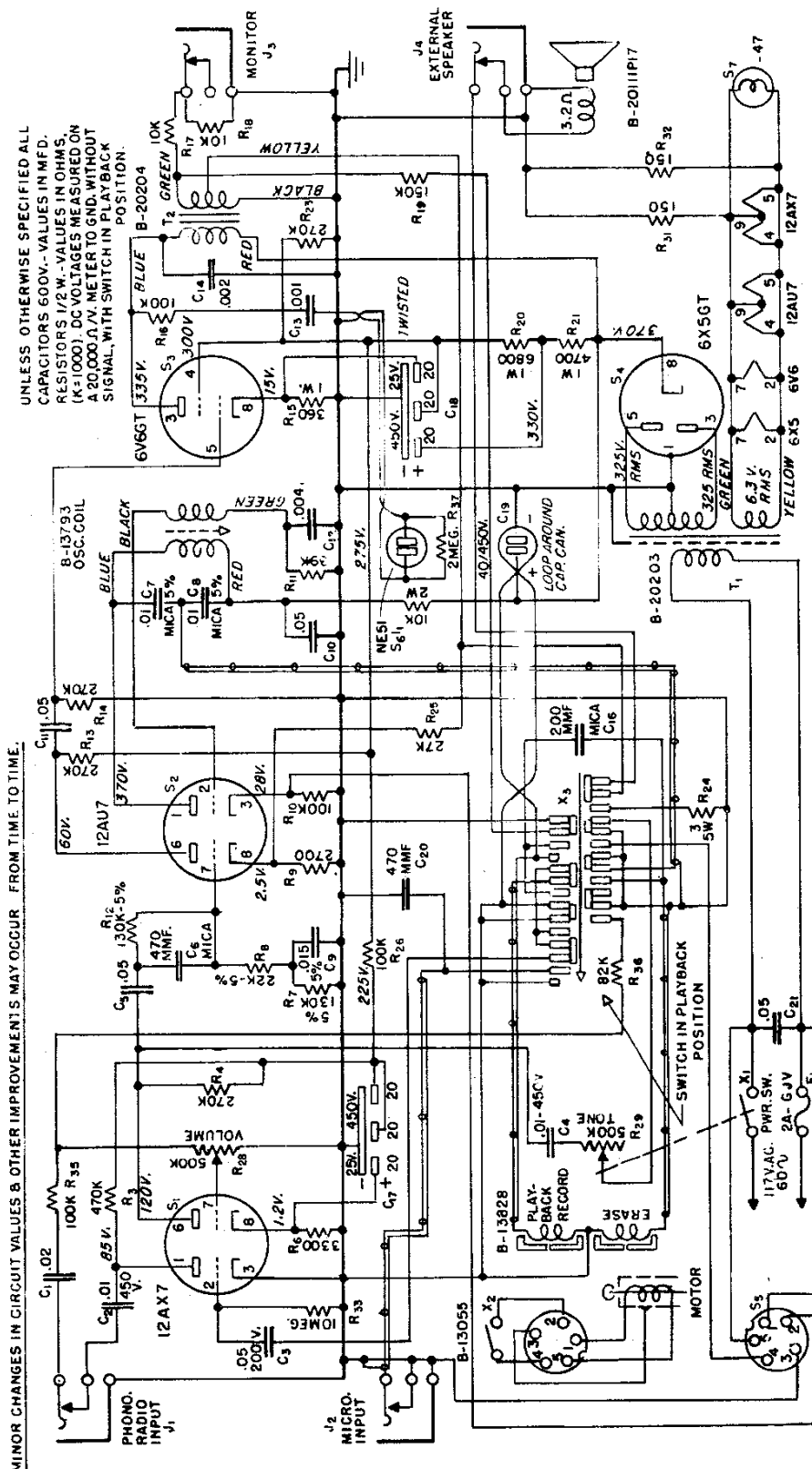


MECHANICAL ASSEMBLY.
FIG. 3.
MODEL RT-65 TAPE RECORDER



SCHEMATIC CIRCUIT DIAGRAM. MODEL RT-65 TAPE RECORDER. DWG. NO. B-13805. FIG. 4





UNLESS OTHERWISE SPECIFIED ALL CAPACITORS 600V.-VALUES IN MFD. RESISTORS 1/2 W.-VALUES IN OHMS. (K=1000). DC VOLTAGES MEASURED ON A 20,000 Ω/V. METER TO GND. WITHOUT SIGNAL, WITH SWITCH IN PLAYBACK POSITION.

MINOR CHANGES IN CIRCUIT VALUES & OTHER IMPROVEMENTS MAY OCCUR FROM TIME TO TIME.

SCHMATIC CIRCUIT DIAGRAM. MODEL RT-65 TAPE RECORDER. DWG. NO. B-13805-C.