PROJECTION TELEVISION EQUIPMENT

INSTALLATION INSTRUCTIONS

Tele-Video projection television equipment is capable of producing high quality pictures and sound provided these installation instructions are followed carefully.

The equipment is supplied with the following items:

| | |
|---|---|
| AR 101 | Master Control Unit |
| AR 102 | Driver Unit |
| AR 103 | Optical Barrel with front and rear tilting brackets, for rear projection, 3 x 4 ft. (AR 103A for front projection.) (AR 103L for rear projection 6 x 8 ft.) (AR 103AL for front projection 6 x 8 ft.) |
| AR 104 | Audio Amplifier |
| AR 106 | Connecting Cable (Master Control to Driver) (AR 106 S - shorter cables upon special request.) |
| AR 107 | Connecting Cable (Driver to Optical Barrel) (AR 107 S - Shorter cable upon special request.) |
| AR 109 | Connecting Cable (Driver to Audio Amplifier) |

A 12" P.M. Speaker with 25' of connecting cable
Rear view screen material, supplied with AR 103 and AR 103L.

PHYSICAL DIMENSIONS AND NET WEIGHTS

| | width | length | height | net weight |
|---|---|---|---|---|
| AR 101 | 13" | 22" | 21" | 70 lbs. |
| AR 102 | 13" | 20" | 16" | 65 lbs. |
| AR 103 | 17 3/8" | 27 1/8" | 21 7/8" | 70 lbs. |
| AR 104 | 10 1/4" | 19 3/4" | 10" | 30 lbs. |

Total net weight of equipment - 257 lbs.
Total shipping weight of equipment - 305 lbs.

The equipment is operated from a 115 volt, 60 cycle power supply line, and requires a total of only 660 watts.

| | |
|---|---|
| Master Unit | 200 W |
| Driver Unit | 360 W |
| Audio Unit | 100 W |

The antenna, antenna lead-in cable, viewing screen frame, and incidental hardware are not supplied, since each installation has its own particular requirements.

USE EXTREME CAUTION WHILE MAKING ANY INSTALLATION OF THIS EQUIPMENT! Television Equipment involves high voltage which can be very dangerous to installation personnel.

INSTALLING EQUIPMENT

Unpack the equipment and inspect for any damage due to shipment. Such damage should be reported at once to the carrier.

Optical Barrel

Remove the top curved portion of the Optical Barrel shield by removing the 12 screws which hold it in place. Inspect mirror mounting and surface, BUT do not touch surface! The mirror, corrector plate and Kinescope face are extremely fine and expensive optical units and should be treated with as much consideration as the highest quality camera lens. Dust should be removed from these surfaces with a camels-hair brush.

If the mirror, corrector lens, or Kinescope face have film and other foreign material on their surfaces, do the following:

Saturate a Kleenex in warm water and cautiously wipe across the surface removing foreign material. Rotate Kleenex so that collected foreign material does not scratch the surface. Keep Kleenex wet. After using wet Kleenex remove moisture by BLOTTING with dry Kleenex. DO NOT RUB SURFACES WITH DRY KLEENEX.

Handle the kinescope by the neck or edge of face of the tube at all times. Fingerprints on the face of the tube or on the Aquadag coating of the bulb may injure the performance of the kinescope and should be avoided.

It may be necessary to unscrew the knurled Optical Focus Knob counter clockwise to make room to insert the 5TP4.

Insert the kinescope, base end foremost, into the deflection yoke, and carefully work the tube all the way into place until the yoke and bulb seat. Plug the tube into its socket, and connect the high voltage lead to the tube. After the kinescope has been inserted, fasten the clamp near base of tube so tube is securely fastened. Remove the shipping tape from around the Video Amplifier tubes and check to see that all connectors are tight. The Optical Barrel is now ready for mounting.

Do Not put back on Optical Barrel because adjustments may have to be made within the unit.

The Optical Barrel can be mounted in the most convenient position on a stand or from the ceiling with the brackets supplied.

Carefully note the projection distances and limits shown by Drawing A 70. You must observe the limits on this drawing if you want to get the very best image from the equipment as shipped from the factory. If the mounting position shown by Drawing A 70 is found inconvenient in your particular installation, refer to Drawing A 69 and note the many other positions which can be used if necessary. Always mount the Optical Barrel at the smallest possible angle to the screen to avoid extreme adjustments of the Optical Alignment Knobs. See Appendix B for adjustment of the Optical Alignment Knobs. The screen can be tilted to reduce this angle, and, consequently, the amount of adjustment required. Because small projection angles produce better overall picture focus, it is advisable to tilt the screen to minimize optical alignment and reduce the keystoning effect. There should be very little need for changes in optical alignment when rear projection is used, because the Optical Barrel can, in the majority of cases, be mounted directly behind the screen.

Rear View Screen

Unroll the screen material on a clean surface, and carefully mount it on the screen frame you have previously constructed. A screen frame is not supplied since it has been found that each installation has a preferred method of mounting. In many cases the screen material has been mounted in a large picture frame which blended with the room trim and the picture projected through the wall from another room or closet.

Note that the rough or grain side of the screen material always faces the audience, while the smooth side faces the Optical Barrel.

Speaker

Do not unpack the loudspeaker until you are ready to mount it in place. Protect the cone surface. The audio system supplied is capable of very high quality reproduction of the FM sound if the loudspeaker is properly baffled and mounted. The Jensen Models 121, Altec Lansing or Stephens types of baffles are recommended for floor installations. If a recessed wall type of mounting is made, the mount should be made against a 1" or thicker wooden frame and the surrounding panels should be free from vibration. The conventional limitations for speaker installations should be observed. Additional speakers may be added if desired, since the output transformer has a multiple tapped secondary winding. For best high frequency response, use only porous screens or fabrics over the baffle opening.

Driver Unit and Audio Amplifier

The Driver Unit and the Audio Amplifier can be located up to 25 ft. away from the Optical Barrel. These units should be placed in a well ventilated, accessible location.

The Cable which connects the Optical Barrel to the Driver Unit is supplied in a 25 ft. length, which is the maximum length of cable to be used. However, shorter lengths of cable may be had upon request.

Master Control Unit

The Master Control Unit may be mounted in any position convenient to the operator. A 50 ft. Connecting Cable, AR 106, is supplied. Extension cables in assorted lengths are also available. The Master Unit may be mounted at any distance from the other units, however, if the distance is greater than 100 ft., the factory Engineering Department should be consulted for a special cable length to reduce the connector and cable losses.

After all the units are in place, make the cable connections as shown in Diagram A 79. The Master Unit requires 200 watts for its operation, while the Driver Unit requires 460 watts for its operation. These units can be connected to any convenient AC receptacle and do not necessarily have to be plugged into the same outlet. The Audio Amplifier plugs into the Driver Unit for power.

INSTALLATION ADJUSTMENTS

After all cable connections have been made, select a channel on which a station is known to be in operation. All controls on the Master Unit should be turned counter clockwise. Check the Audio Amplifier power switch to see that it is ON. The Audio Amplifier gets its power from the Driver Unit and once turned on does not have to be touched except for service adjustment. Then turn ON the power switch on the Master Control Unit, and check to see that the neon pilot light on the Master Control Unit and on the Audio Amplifier Unit light up. If the Audio Amplifier Unit pilot light does not light, turn OFF the Master Control Unit power switch and recheck all cable connections. The entire system is interlocked and removal of any power cable automatically turns the Driver Unit off.

Electrical Focusing

After a 90 sec. wait for warm-up, gradually advance the Brightness Control on the Master Unit until a raster appears on the screen or on the face of the Kinescope. (The raster is the rectangular brightly illuminated area approximately 3" x 4", on the face of the Kinescope and indicates that electronic scanning is in progress.) An auxiliary brightness control is provided on the rear of the Master Unit. To adjust the two brightness controls properly, turn the front panel control full clockwise and adjust the rear control until a raster just appears. Now make all brightness adjustments from front panel.

Advance the Picture (contrast) Control on the Master Unit until the station test pattern appears. It may be necessary to reduce the brightness control to get a clear image. The Vertical Hold and Horizontal Hold control may also require adjustment to stabilize the picture.

Note: The initial installation and any adjustments of the equipment should be made on a station test pattern rather than on a picture.

After you have the test pattern on the face of the Kinescope, adjust the Electrical Focus for a sharp image. This adjustment is located on the rear of the High Voltage power supply which is mounted on the back of the Optical Barrel. The adjustment is made by means of the plastic knob at the rear of the power supply. You should be able to pass through the point of sharp focus and still have out-of-focus adjustment on each side of rotation when the Electrical Focus Knob is adjusted. If sharp focus is not reached without turning the Adjustment Control to extreme positions either way, read Appendix A, for further instructions.

Optical Focus

After you have a sharp image on the Kinescope, the center of the test pattern should be focused upon the projection screen. This adjustment is made by turning the knurled focus ring located on the yoke assembly immediately in front of the plastic Corrector Plate. The picture should appear in sharp focus over the entire screen if the mounting dimensions suggested in Drawing A 70 have been observed If this is not the case; or you have selected to deviate from the optimum position as shown in the drawing, within the prescribed limiting projection angles, optical alignment adjustments will be required as described in Appendix B. However, do not make the optical alignment adjustments described in Appendix B until you have focused the center of the test pattern sharply on the screen. The picture should also be centered on the Kinescope tube face before making any optical alignment adjustments. Read the instructions under Driver Unit Adjustments. After optical focus has been established, it may be necessary to readjust the electrical focus to obtain the sharpest picture.

Picture tilt adjustment - At this time, before proceeding with optical alignment, adjust the tilt of the picture on the screen so that the TOP of the image is parallel to the TOP of the screen frame.

WARNING! DO NOT TOUCH ANY PART OF THE KINESCOPE OR YOKE ASSEMBLY BEFORE REMOVING POWER - EACH TIME!

This adjustment is made by loosening the clamp on the yoke assembly located immediately behind the Kinescope bulb flare and by rotating the yoke assembly in the required direction. Lock the assembly after the adjustment has been made.

Driver Unit

The picture test pattern is symmetrical and should be completely familiar to the installation engineer. Assuming that the test pattern which is being transmitted contains no flaws (is linear); and since this is not always true, as some TV stations broadcast a more linear pattern that others, a selection should be made if it is possible. Linearity discrepancies (non-circular shape of pattern) due to maladjustments of the Driver Unit can be corrected in the following manner. The adjustments required on the Driver Unit can be made after the outer cover is removed.
CAUTION! TURN OFF POWER BEFORE REMOVING DRIVER UNIT COVER AS DANGEROUS VOLTAGES EXIST!

Reading from left to right facing the control panel of the Driver Unit, you will see the following adjustment controls: (The function of each control is described to permit you to select those changes deemed necessary.)

1. Vertical Centering Control - This control moves the entire picture up or down on the screen.

2. Height Control - This control determines the vertical size of the picture.

3. Vertical Linearity Control - This control changes the shape of the circle in the test pattern in a vertical direction. The vertical Linearity and Height controls have some tendency to interact, so fine adjustments should be made back and forth to get the best pattern.

4. Service Test Switch - This switch removes the kinescope auto-protective circuit which is built into the equipment. It's use is further described in Appendix C.

DO NOT PRESS THIS SWTICH BEFORE CAREFULLY READING THIS APPENDIX OR YOU MAY DAMAGE THE KINESCOPE.

5. and 6. Horizontal Linearity Control, No. 1 and No. 2.- These controls change the shape of the test pattern circle in a horizontal direction. Two controls are provided and to some extent interact so these should be adjusted simultaneously. This important feature permits more latitude of adjustment on individual parts of the test pattern. An additional horizontal linearity control (no. 3) is available for service purposes only, inside the Driver chassis. This control is factory preset and it is not normally necessary to change its setting.

7. Horizontal Centering Control - This control moves the entire picture from side to side on the screen.

It should be noted at this time that while we have talked about the vertical and horizontal centering controls as moving the picture on the screen, we actually move the picture on the Kinescope tube face, and the reflected image therefore also moves on the screen as a direct result. It is apparent that best optical alignment will result if these centering adjustments are made so that the raster is centered on the kinescope face before any optical alignment adjustments are made.

A 250 ma fuse is provided within the Driver Unit to protect the horizontal deflection circuit. This fuse is located under the chassis, directly beneath the horizontal output transformer.

Audio Amplifier and Speaker

This unit has only one control, a volume control, in addition to the on-off power switch. To correctly set this control, turn the Volume Control on the Master Control Unit to full ON, maximum clockwise, then adjust the Audio Amplifier control to the maximum desired sound level. Sound level is then governed by the volume control on the Master Control Unit.

CAUTION: Since the audio amplifier may in some installations be required to drive two or more loudspeakers, it is built to supply 20 watts of output power. Each loudspeaker supplied is rated at 10 watts, therefore, the amplifier volume control should not be operated at maximum with only one speaker connected, for damage to the speaker may result.

APPENDIX A

Electrical Focus Control Adjustment

The following procedure is required if the Electrical Focus Control adjustment cannot be critically focused: (Normal manufacturing tolerances in the 5TP4 Kinescope may make this adjustment necessary whenever the tube is changed.)

No. 1 - CUT OFF ALL POWER!!!

No. 2. Remove the plastic protective cover from the High Voltage Power Supply. (6 RH Screws)

No. 3 - Note the two, 8.2 meg resistors mounted in series, on the terminal board at the lower right hand corner of the power supply. These resistors are also in series with the Focus Control Potentiometer. Unsolder the ground lead which is connected to one of the three positions, and shift it toward the right on the board if the focus potentiometer tends to focus the Kinescope at full clockwise rotation, and toward the left on the board if the focus potentiometer tends to focus the Kinescope at full counter clockwise rotation until focus is obtained at approximately the center of rotation of the focus control.

APPENDIX B

Optical Alignment

The Optical Alignment adjustment moves the face of the kinescope in its relationship to the mirror in order to provide a sharply focused screen image over the entire screen. See Drawing A 70 for the location of the optical alignment knobs.

The upper and lower knobs focus the top and bottom parts of the screen image. The side knobs control the focus of the sides of the picture.

To affect control adjustment the following precautions must be observed:

No. 1 - Loosen the four RED locking nuts located on the adjustment rods inside the barrel.

No. 2 - Use extreme care during this adjustment. The High Voltage Power Supply is directly in front of you !

No. 3 - Never adjust these knobs until you have a sharp image on the face of the kinescope and the center of the screen image has been sharply focused by means of the optical focus knob.

No. 4 - Remember that this adjustment tilts the kinescope. Therefore, the corresponding adjustment knobs in any given set must be turned in opposite directions at the same time. Viz., if you happen to be adjusting the top and bottom picture focus, turn only the upper and lower of the alignment knobs. As you tighten the upper knob, simultaneously loosen the lower knob, etc.

No. 5 - A piece of paper being held at the edge of the screen and moved between the screen and optical barrel will assist in making these focusing adjustments.

No. 6 - After flat focus is obtained lock adjusting screws with Red nuts.

## APPENDIX C

The test switch described under the Driver Unit controls is provided for service convenience.

The auto-protective circuit in the equipment removes the picture raster from the kinescope if either the vertical or horizontal sweep circuits become inoperative. Without the auto-protective circuit should either the horizontal or vertical sweep deflection be lost, an extremely brilliant line would result on the kinescope and injure the phosphor coating. The test switch removes this protective circuit and permits you to see which sweep circuit is still present if trouble occurs. Obviously the one which is absent is the circuit at fault. For instance, when the test switch is depressed, a vertical line shows immediately that the horizontal deflection circuits are at fault.

CAUTION! TURN DOWN THE PICTURE BRIGHTNESS CONTROL (TURN FULLY COUNTER CLOCKWISE) ON THE MASTER CONTROL UNIT BEFORE DEPRESSING THE TEST SWITCH AND APPLY ONLY A MOMENTARY CONTACT. If no line appears hold the test switch depressed while very gradually increasing the picture Brightness control until a barely visible line image appears. Release the test button at this time and do not change the picture Brightness control until the fault has been cleared.

If you have no horizontal deflection, before inspecting other circuits, always check the 250 ma protective fuse in the Driver Unit.

CAUTION! Remove power before removing the unit cover or the fuse.

The auto protective voltage should be adjusted (under the chassis) to be 250V after all linearity adjustments have been made and the set is operating correctly. This adjustment can easily be accomplished by pressing test switch and noting whether the picture gets brighter or dimmer. If it gets brighter increase the protective voltage until there is no change in brightness upon pressing test switch. If it gets dimmer decrease the protective voltage until there is no change upon pressing test switch.

## APPENDIX D

If it becomes necessary to reverse the picture (to change from rear view to front view or vice versa) use the following procedure.

1. Remove 5TP4 from optical barrel.
2. Loosen clamp around yoke immediately behind 5TP4.
3. Remove 5TP4 socket by taking socket apart. No soldering will be necessary. Note the position of the various colored wires for reassembly.
4. Gently remove yoke assembly (inward toward mirror). Note the soldering lugs and connections at rear of yoke. Reverse wires connected to lugs #1 and 3, making sure condenser is connected to lug to which green wire is connected. Refer to drawing E 4024 for schematic drawing.
5. Replace yoke assembly and put on 5TP4 socket.
6. Slightly tithten clamp and put in 5TP4.
7. Operate to check your change, and if necessary, adjust yoke for proper tilt. Tighten yoke clamp.

## APPENDIX E

If it becomes necessary to change a 3 x 4 ft. Optical Barrel to 6 x 8 ft. or vice versa, use the following procedure.

1.- Remove 5TP4 and 3 Video Amplifier tubes.

2.- Remove Video Amplifier, but do not disconnect leads.

3.- Remove yoke assembly (See Appendix D) and yoke sleeve and focusing knob.

4.- Loosen Hed locking nuts and unscrew aligning rods. This releases yoke spider.

5.- Carefully jockey yoke spider out of barrel. (This can be easily done if both outer half shells are removed.) Do not contact mirror.

6.- Remove old corrector plate and install new corrector plate.

7.- Align corrector lens as shown in drawing A 78.

8.- As you look into the Optical Barrel, you will see the corrector lens, corrector lens image, and blackened portion at center of mirmor. Moving the corrector lens image and corrector lens until all concentric by moving the corrector plate only. Take particular pains to make certain that the corrector plate is correctly aligned, as the resolution of the whole Optical system depends upon this adjustment.

8.- Tightly clamp corrector lens into position and again check alignment. Realign if necessary.

9.- Replace the spider and hold into place with adjusting screws.

10.- Replace yoke sleeve and focusing knob.

11.- Replace yoke assembly and Kinescope socket.

12.- Replace Video Amplifier and all tubes.

13.- Operate equipment and adjust alignment screws as outlined in Appendix B.

14.- Tighten locking nuts after correct focus is obtained.

15.- Replace all dust covers.

### Parts used in Model AR-100 Television Set

#### TRANSFORMERS

| OUR STOCK NO. | Description |
|---|---|
| 12-1 | Power Transformer - Remote Unit |
| 12-2 | Power Transformer - Audio Amplifier |
| 12-3 | Output Transformer- Audio Amplifier |
| 12-4 | Choke - Remote Unit |
| 12-5 | Choke - High Voltage Power Supply |
| 12-6 | Vertical Blocking Oscillator Transformer |
| 12-7 | Vertical Output Transformer |
| 12-8 | Horizontal Output Transformer |

## CONNECTORS AND SOCKETS

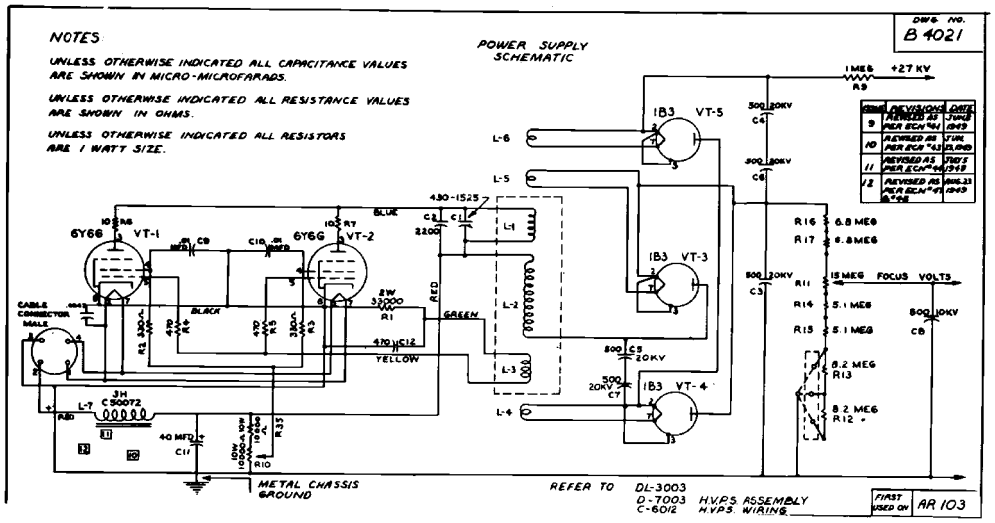
| | |
|---|---|
| 13-1 | 4 Prong Male Plug on High Voltage Power Supply |
| 13-2 | 7 Prong Female Socket on AR-106 Cable |
| 13-3 | 11 Prong Male Plug on AR-107 Cable |
| 13-4 | 11 Prong Male Plug on rear of Optical Barrel |
| 13-5 | 7 Prong Male Plug on Remote Unit |
| 13-6 | Connectors on AR-106-B - Video Cable Extension Adapter |
| 13-7 | Video Connector on AR-107 Cable at Remote Unit |
| 13-8 | Video Connector on Remote Unit Input, Master Unit Output & Optical Barrel Rear |
| 13-9 | Horizontal Drive Connectors on AR-106 Cable & AR-107 at Optical Barrel |
| 13-10 | Audio Connector on Remote Unit |
| 13-11 | Output Video Connector on Remote Unit |
| 13-12 | 11 Prong Female Socket on AR-107 Cable at Optical Barrel |
| 13-13 | 7 Prong Female Socket on AR-106 Cable at Remote Unit |
| 13-14 | Octal Socket for 8016/1B3 Tubes in High Voltage Power Supply |
| 13-15 | 4 Prong Socket on Rear of Optical Barrel for HVPS Power |
| 13-16 | 11 Prong Octal Socket on Remote Unit |
| 13-17 | Standard Octal Socket |
| 13-18 | 7 Prong Socket on Rear of Master Unit |
| 13-19 | Video Connectors on Cables to Video Amplifier in Optical Barrel, Horizontal Drive Connectors on AR-106 Cable, & Audio Connector on AR-109 at Audio Amplifier |
| 13-20 | Connectors on AR-106-B - Horizontal Drive Extension Cable |
| 13-21 | Horizontal Drive Output on Master Unit, Horizontal Drive Input on Remote Unit, Video Input & Output on Video Amplifier & Audio Input on Audio Amplifier |
| 13-22 | Shell for 11 Pin Connector on Remote Unit and Optical Barrel |
| 13-23 | 117 Volts A-C Outlets on Remote Unit |
| 13-24 | 2nd Anode Connector for 5TP4 in Optical Barrel |
| 13-25 | 7 Pin Socket on Video Amplifier in Optical Barrel |
| 13-26 | Socket for 5TP4 in Optical Barrel |
| 13-27 | 9 Pin Socket on Video Amplifier in Optical Barrel |
| 13-28 | Audio Connector on AR-109 at Remote Unit |

## MICA CAPACITORS

| | |
|---|---|
| 14-1 | 33 mmf, 500 volts |
| 14-2 | 51 mmf, 500 volts |
| 14-3 | 56 mmf, 500 volts |
| 14-4 | 470 mmf, 500 volts |
| 14-5 | 1000 mmf, 500 volts |
| 14-6 | 2200 mmf, 500 Volts |
| 14-7 | 4700 mmf, 500 Volts |
| 14-8 | .01 mf. 300 Volts |

## PAPER CAPACITORS

| | |
|---|---|
| 15-1 | .002 mf. 600 Volts |
| 15-2 | .01 mf. 400 volts |
| 15-3 | .01 mf. 600 Volts |
| 15-4 | .035 mf. 400 Volts |
| 15-5 | .05 mf. 400 Volts |
| 15-6 | .05 mf. 600 Volts |
| 15-7 | 0.1 mf. 400 Volts |
| 15-8 | 0.1 mf. 600 Volts |
| 15-9 | .25 mf. 400 Volts |
| 15-10 | .5 mf. 400 Volts |
| 15-11 | .02 mf. 400 Volts |




## SPECIAL CAPACITORS

| | |
|---|---|
| 18-1 | 2.2 mmf. CC 202 100 Volts |
| 18-2 | 430-1525 mmf. Variable |
| 18-3 | 100 mmf. 1200 WV |
| 18-4 | 500 mmf. 10 KV |
| 18-5 | 500 mmf. 20 KV |

## PAPER ELECTROLYTIC CAPACITORS

| | |
|---|---|
| 16-1 | 25 mf. 25 Volts |
| 16-2 | 25 mf. 50 Volts |
| 16-3 | 50 mf. 50 Volts |
| 16-4 | 4 mf. 450 Volts |
| 16-5 | 10 mf. 450 Volts |
| 16-6 | 20 mf. 450 Volts |
| 16-7 | Clamp for 20 mf. 450 Volts (Tangential) |

## CAN ELECTROLYTIC CAPACITORS

| | |
|---|---|
| 17-1 | 25 mf. 10 Volts/1000 mf. 6 Volts |
| 17-2 | 2 x 50 mf. 50 Volts |
| 17-3 | 4 x 10 mf. 450 Volts |
| 17-4 | 125 mf. 350 Volts |
| 17-5 | Fiber Cover for Can Electrolytic Capacitor |
| 17-6 | Ins. Wafer for 1-3/8" Diameter Capacitor |
| 17-7 | Metal Wafer for 1-3/8" Diameter Capacitor |

## RESISTORS - CARBON - 1/2 WATT

| | |
|---|---|
| 19-1 | 47 ohms |
| 19-2 | 180 ohms |
| 19-3 | 270 ohms |
| 19-4 | 560 ohms |
| 19-5 | 10 K ohms |
| 19-6 | 12 K ohms |
| 19-7 | 15 K ohms |
| 19-8 | 47 K ohms |
| 19-9 | 56 K ohms |
| 19-10 | 82 K ohms |
| 19-11 | 100 K ohms |
| 19-12 | 220 K ohms |
| 19-13 | 470 K ohms |
| 19-14 | 1 meg. |
| 19-15 | 2.2 meg. |
| 19-16 | 3.3 meg. |

## RESISTORS - CARBON - 1 WATT

| | |
|---|---|
| 110-1 | 10 ohms |
| 110-2 | 47 ohms |
| 110-3 | 100 ohms |
| 110-4 | 330 ohms |
| 110-5 | 470 ohms |
| 110-6 | 560 ohms |
| 110-7 | 1500 ohms |
| 110-8 | 1800 ohms |
| 110-9 | 2700 ohms |
| 110-10 | 3300 ohms |
| 110-11 | 4700 ohms |
| 110-12 | 8200 ohms |

| | |
|---|---|
| 110-13 | 10K ohms |
| 110-14 | 15K ohms |
| 110-15 | 22K ohms |
| 110-16 | 27k ohms |
| 110-17 | 47K ohms |
| 110-18 | 56K ohms |
| 110-19 | 100K ohms |
| 110-20 | 150K ohms |
| 110-21 | 330K ohms |

RESISTORS - SPECIAL

| | |
|---|---|
| 111-1 | 8.2 meg. 1 W High Voltage |
| 111-2 | 6.8 meg. 1 W. High Voltage |
| 111-3 | 5.1 meg. 1 W High Voltage |
| 111-4 | 25 meg. 1 Watt |
| 111-5 | 40K ±2% |
| 111-6 | 20 meg. 1 watt |
| 111-7 | 35 meg. 1 watt |

RESISTORS - CARBON - 2 WATTS

| | |
|---|---|
| 112-1 | 330 ohms |
| 112-2 | 3300 ohms |
| 112-3 | 10K ohms |
| 112-4 | 220 K ohms |
| 112-5 | 33 K ohms |
| 112-6 | 47K ohms |
| 112-7 | 51K ohms |
| 112-8 | 1 meg. |

POWER RESISTORS

| | |
|---|---|
| 113-1 | 150 ohms 10 Watts - Fixed |
| 113-2 | 200 ohms 10 Watts - Fixed |
| 113-3 | 1750 ohms 10 Watts - Fixed |
| 113-4 | 15K ohms 10 Watts - Fixed |
| 113-5 | 5K ohms 10 Watts - Fixed |
| 113-6 | 250 ohms 25 Watts - Fixed |
| 113-7 | 2K ohms 25 Watts - Fixed |
| 113-8 | 5K ohms 25 Watts - Fixed |
| 113-9 | 5K ohms 10 Watts - Variable |
| 113-10 | 500 ohms 25 Watts - Variable |
| 113-11 | 2 Brackets for 10 Watts - Variable |
| 113-12 | 2 Brackets for 25 Watts - Variable |

POTENTIOMETERS

| | |
|---|---|
| 114-1 | 20 ohms 2 Watts - Horizontal & Vertical Centering |
| 114-2 | 1000 ohms 2 Watts - Picture |
| 114-3 | 5K ohms 1 Watt - Vertical Linearity |
| 114-4 | 20K ohms 10 Watts - High Voltage Adjust. |
| 114-5 | 25K ohms - 1 Watt (20K) - Horizontal Linearity #1 |
| 114-6 | 250K ohms - 1 Watt - Horizontal Linearity #2 |
| 114-7 | .5 meg. 1 Watt - Treble and Bass |
| 114-8 | .5 meg. 1 Watt - Audio Gain on Audio Amplifier |
| 114-9 | 2.5 meg. 1 Watt - Height |
| 114-10 | 3 meg. 1 Watt - Audio Gain on Master Unit |
| 114-11 | 15 meg. 1 Watt - Focus |
| 114-12 | 50K ohms 1 Watt - Brightness Control |
| 114-13 | 50K X 1 meg. 1 Watt - Horizontal & Vertical Hold |
| 114-14 | 1 meg. 2 Watts - Protective Circuit Adjustment |
| 114-15 | 100K ohms 1 Watt - Brightness Adjustment |

MISCELLANEOUS PARTS

| | |
|---|---|
| 115-1 | Master Unit Receiver Chassis Section |
| 115-2 | Lens - 14" Reflecting |
| 115-3 | Lens - Corrector - 3Ft. throw for 1 1/2 ft. x 2 ft. pic. |
| 115-4 | Lens - Corrector - 7 1/2 ft. throw for 3 ft. x 4 ft. pic. |
| 115-5 | Lens - Corrector - 15ft. throw for 6 ft. x 8 ft. picture |
| 115-6 | 3 ft. x 4 ft. Viewing Screen - Rear view |
| 115-7 | 12 inch Loudspeaker |
| 115-8 | Pilot Lamp Assembly |
| 115-9 | Pilot Lamp |
| 115-10 | Power Switch in Master Unit |
| 115-11 | Power Switch in Audio Amplifier |
| 115-12 | Test Switch in Remote Unit |
| 115-13 | Fuseholder |
| 115-14 | Fuse Strip in Remote Unit - for 250 ma fuse |
| 115-15 | Fuse - 250 ma - Remote Unit for Horizontal Deflection Circuit |
| 115-16 | Fuse - 2 amp. - Audio Amplifier |
| 115-17 | Fuse - 5 amp. - Master Unit |
| 115-18 | Fuse - 10 amp. - Remote Unit |
| 115-19 | Relay - 6.3 Volts A-C Coil |
| 115-20 | Relay - Delay |
| 115-21 | RF Coil - 30 KV |
| 115-22 | Peaking Coil - 93 mh |
| 115-23 | Peaking Coil - 120 mh |
| 115-24 | Strain Relief |
| 115-25 | 6 x 8 ft. Viewing Screen - Rear View |

| | |
|---|---|
| 116-1 | Knob - Large Walnut |
| 116-2 | Knob - Small Black |
| 116-3 | Knob - Pointer - Black |
| 116-4 | Knob - Tuning - Coarse |
| 116-5 | Knob - Tuning - Fine |
| 116-6 | Knob - Vertical Hold |
| 116-7 | Knob - Horizontal Hold |
| 116-8 | High Voltage Socket Assembly |
| 116-9 | Grid Cap |
| 116-10 | Tele-Video Green Lacquer |
| 116-11 | Thinner for Tele-Video Green Lacquer |
| 116-12 | Vinylite Scotch Tape |
| 116-13 | Lacing Cord |
| 116-14 | Banana Plug |
| 116-15 | Insulated Phone Tip Jack |
| 116-16 | Banana Jack |
| 116-17 | Phone Tip |
| 116-18 | Deflection Yoke Assembly |

CABLE

| | |
|---|---|
| 117-1 | RG 62/U Coaxial |
| 117-2 | RG 11/U |
| 117-3 | 1 Cond. Rubber Covered-Shielded |
| 117-4 | 2 Cond. Rubber Covered |
| 117-5 | 1 Cond. Shielded |
| 117-6 | Line Cord & Plug |
| 117-7 | 1 Cond. PE Covered |
| 117-8 | Line Cord with Connectors |
| 117-9 | Cable for 106-A64 |
| 117-10 | Cable for 107-A66 |
| 117-11 | 4 Cond. Cable |

CABINET ASSEMBLIES & PREFABRICATED PARTS

| Our Stock No. | Description |
|---|---|
| 120-1 | Cabinet Cover Assembly for Master Unit |
| 120-2 | Cabinet Cover Assembly for Remote Unit |
| 120-3 | Cabinet Cover Assembly for Audio Amplifier |
| 120-4 | Bottom Plate for Master Unit |
| 120-5 | Bottom Plate for Remote Unit |
| 120-6 | Bottom Plate for Audio Amplifier |
| 120-7 | Handle - Master Unit |
| 120-8 | Handle - Remote Unit |
| 120-9 | Handle - Audio Amplifier |
| 120-10 | Tele-Video Name Plate |
| 120-11 | Control Panel Name Plate |
| 120-12 | Chassis Cover - Video Amplifier |

PREFABRICATED PARTS

| | |
|---|---|
| 121-1 | Back Plate (Mounting) - Plexiglas Parts for High Voltage Power Supply |
| 121-2 | Lid - Plexiglas Parts for High Voltage Power Supply |
| 121-3 | Side Plate - " " " " " " " " |
| 121-4 | Top Plate - " " " " " " " " |
| 121-5 | Base Plate - " " " " " " " " |
| 121-6 | Coil Support - Small" " " " " " " |
| 121-7 | Shelf " " " " " " " " |
| 121-8 | Coil Spt. Bkt. - Lg." " " " " " " |
| 121-9 | Mtg. Bracket - Pot." " " " " " " |
| 121-10 | Fil. Coil Mtg. Bkt. " " " " " " " |
| 121-11 | Tube Base Insulator " " " " " " " (3 used per set) |
| 121-12 | Z - Barrier " " " " " " " " |
| 121-13 | Flat Barrier - " " " " " " " " |
| 121-14 | L - Barrier " " " " " " " " |
| 121-15 | Focus Knob - " " " " " " " " |
| 121-16 | Insulation Tubing - For Resistor " " " " |
| 121-17 | H.V. Plug Mtg. " " " " " " " " . |
| 121-18 | Solvent for Plexiglas |
| 121-19 | Spacer - 3 Req. on RF Coil |
| 121-20 | Strip Spacer - 1 Req. on end winding of RF Coil |
| 121-28 | Strip Spacer - 1 Req. on 1 Center Winding of RF Coil |
| 121-21 | Spider |
| 121-22 | Centering Pin - 2 Req. - to keep Yoke level |
| 121-23 | Pivot Rod - 4 Req. on Spider |
| 121-24 | Disc. - in Yoke Assem. 2-5/16 D. x 1/4 thick |
| 121-25 | Knob - Mechanical Focus Ring |
| 121-26 | Disc. - In Yoke Assem. 3" D. x 1/8 thick |
| 121-27 | Disc. - In yoke Assem. 2-11/16 D. x 1/16 thick |

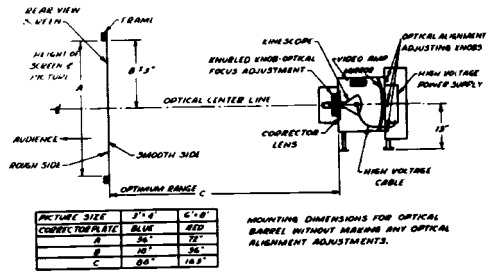
PREFABRICATED PARTS

| | |
|---|---|
| 122-1 | Term Board - In Yoke Assem. |
| 122-4 | Yoke Housing - Brass |
| 122-5 | Mounting Ring - Yoke Clamp |
| 122-6 | Cone Ins. Ring - Between Kinescope and Yoke |
| 122-7 | Kines Neck Support - Bakelite Tubing |
| 122-8 | Retainer Ring - Clamp at Base of Kinescope |
| 122-9 | Tube - Slotted for use under #122-8 |
| 122-10 | Power Supply Cover - Ventilated |
| 122-11 | Lens Housing - Rear Casting |
| 122-12 | Housing Shield - Bottom Cover |
| 122-13 | Housing Shield - Top Cover |
| 122-14 | Hood - Front |
| 122-15 | Front Casting |
| 122-16 | High Voltage Shield - to which H.V.P.S. is mounted |
| 122-17 | Mirror clip |
| 122-18 | Spacer - 11-31/32" long - 4 Req. |
| 122-19 | Pivot Adj. Rod - 4 Req. |
| 122-20 | Spacer - 2 11/16 Long - 4 Req. |
| 122-21 | Clip - Corrector Lens |
| 122-22 | Pivot Contact Bkt. - 4 Req. |
| 122-23 | Spacer Rod 1/4 - 20 x 16-1/32" long |
| 122-24 | Mounting Bracket - Optical Barrel - Rear |
| 122-25 | Bolt - 2 Req. on #122-24 |
| 122-26 | Spacer - 2 Req. on front mtg. Bkt. |
| 122-27 | Spacer - 4 Req. on Front casting to mount corrector lens. |

HARDWARE

| | |
|---|---|
| 123-1 | Connector Strip on Video Amplifier |
| 123-2 | Connector Strip on Audio Amplifier |
| 124-1 | Wing Nuts |
| 124-2 | Cap Nuts on Optical Barrel |
| 124-3 | Screw - FH - for Handles - Master & Remote Unit Cabinets |
| 124-4 | Screw - FH - for Handles - Audio Amplifier |
| 125-1 | Pipe "T" - Optical Barrel Front Mounting Bracket Parts |
| 125-3 | Pipe Flange - 2 hole Mounting - Optical Barrel Front Mounting Bracket Parts |
| 125-4 | Close Nipple - Optical Barrel Front Mounting Bkt. Parts |
| 125-5 | Coupling " " " " " " |
| 125-6 | 3" Nipple " " " " " " |
| 125-7 | Hex Head Bolt " " " " " " |
| 125-8 | Spacer - Fiber - to Support Fuse Strip on Remote Unit |

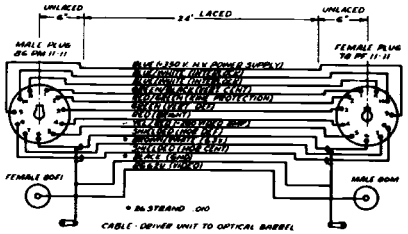
MODEL AR-100




| PICTURE SIZE | 3'-4" | 6'-8" |
|---|---|---|
| CORRECTOR PLATE | BLUE | RED |
| A | 36" | 72" |
| B | 18" | 36" |
| C | 66" | 165" |

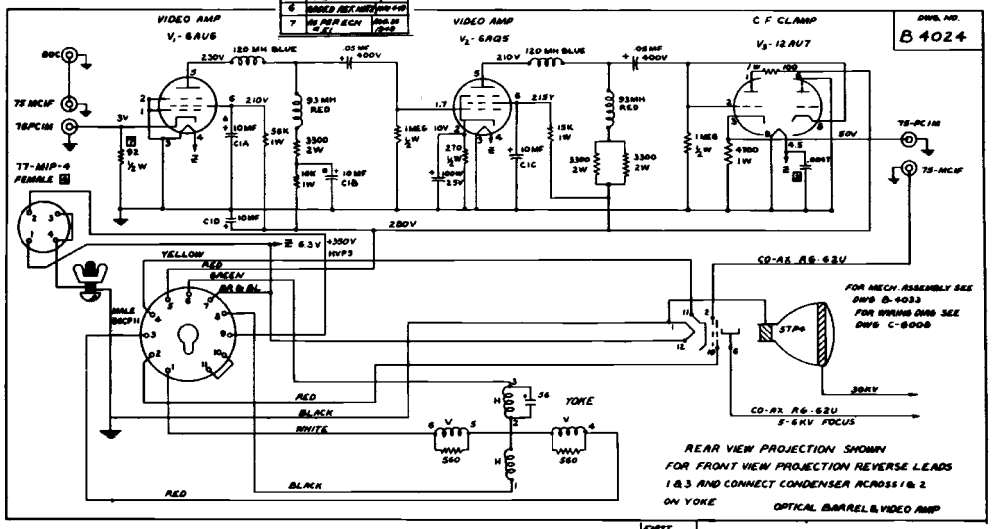
MOUNTING DIMENSIONS FOR OPTICAL BARREL WITHOUT MAKING ANY OPTICAL ALIGNMENT ADJUSTMENTS.

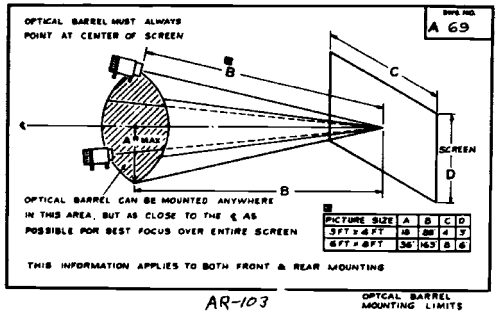
OPTICAL BARREL MOUNTING AR-103



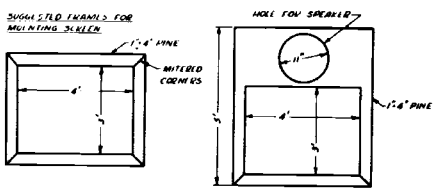

CABLE AR-107

| ISSUE | REVISIONS | DATE |
|---|---|---|
| 1 | SUPERCEDES 3R 8001 | JAN 11 1949 |
| 2 | CHANGED R3 FROM 82K TO 68K | FEB 17 1949 |
| 3 | ADDED CAPAC. ACROSS R3 | FEB 28 1949 |
| 4 | FEMALE PLUG WIRED TO DWG | MAR 29 1949 |
| 5 | CHANGED REV. NOTE & WIRE COLOR | APR 26 1949 |
| 6 | CHGD REF. NOTE | MAY 9 1949 |
| 7 | R4 PER ECN 242 | DEC 29 1949 |



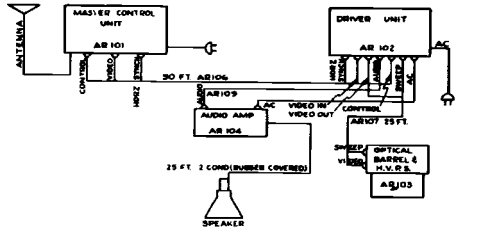

| PICTURE SIZE | A | B | C | D |
|---|---|---|---|---|
| 3FT x 4FT | 18 | 28 | 4 | 3 |
| 6FT x 8FT | 36 | 165 | 8 | 6 |



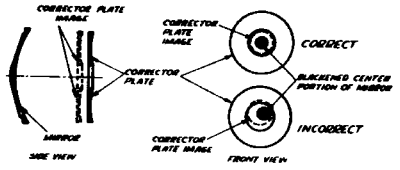

STRETCH SCREEN MATERIAL OVER BACK OF SCREEN, FASTEN WITH STRIPS OF WOOD. SMOOTH SURFACE OF SCREEN GOES TOWARD PROJECTOR - ROUGH SURFACE TOWARD AUDIENCE

FINISH FRAME IN DULL BLACK PAINT. ADJUST PICTURE TO OVERLAP ON ALL SIDES BY ABOUT 1" WITH TEST PATTERN

PROJECTION SCREEN AR-103

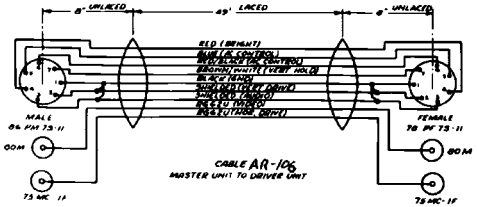


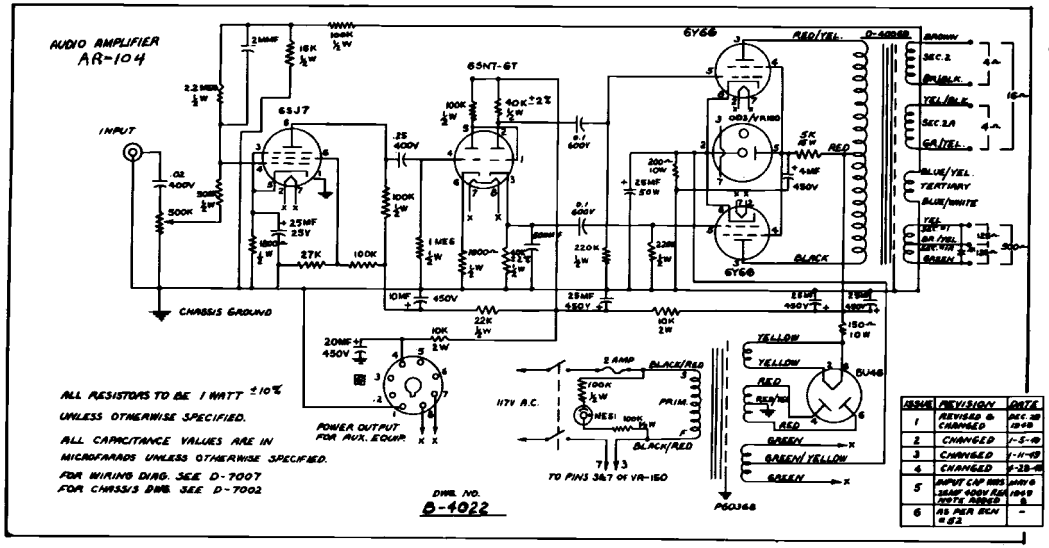

BLOCK DIAGRAM AR-100




LOOK INTO OPTICAL BARREL FROM THE FRONT. ALIGN THE BLACKENED CENTER PORTION OF THE MIRROR, CORRECTOR PLATE IMAGE, AND CORRECTOR PLATE, UNTIL ALL ARE CONCENTRIC BY MOVING THE CORRECTOR PLATE ONLY.

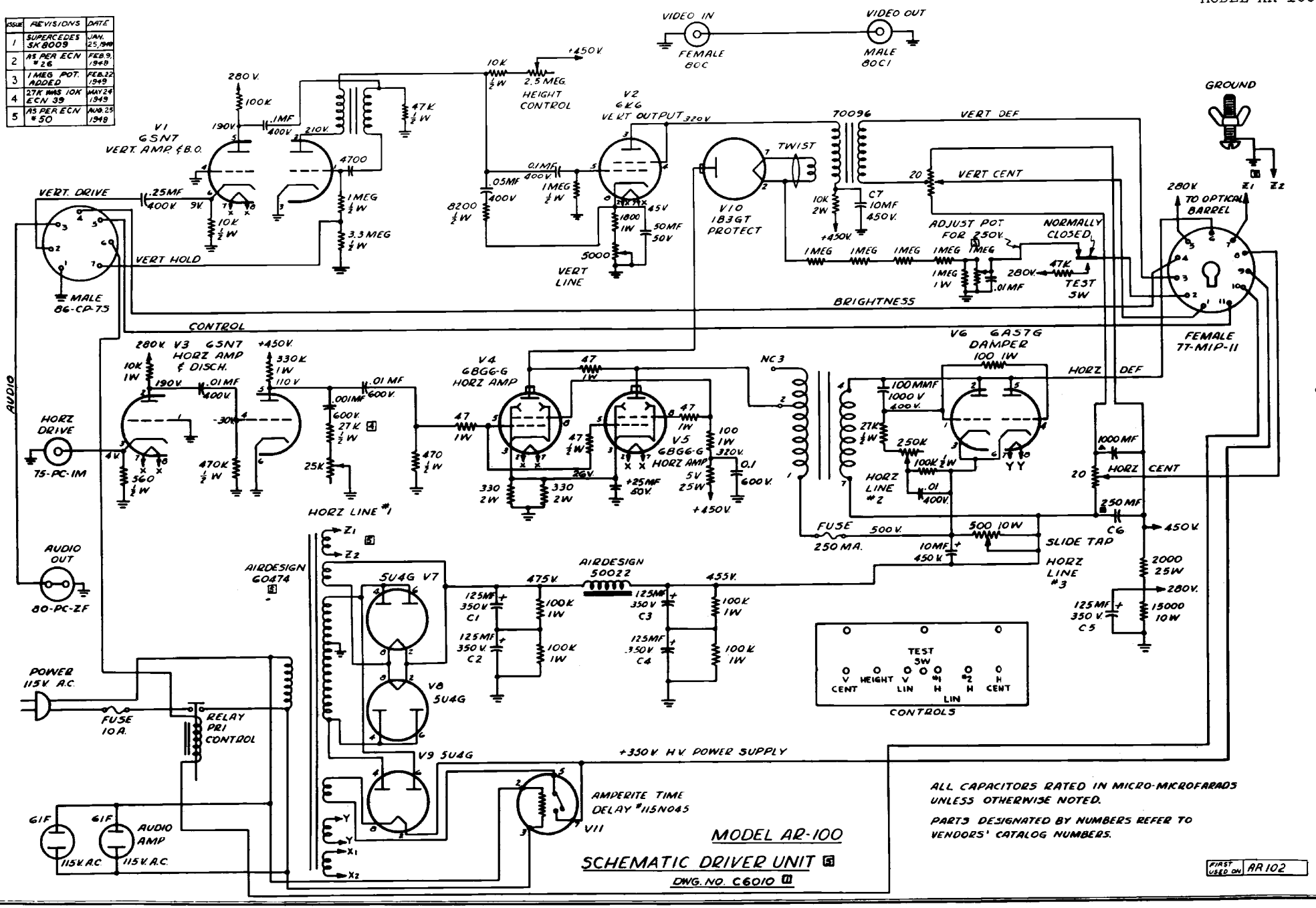
ALIGNMENT OF CORRECTOR PLATE AR-100



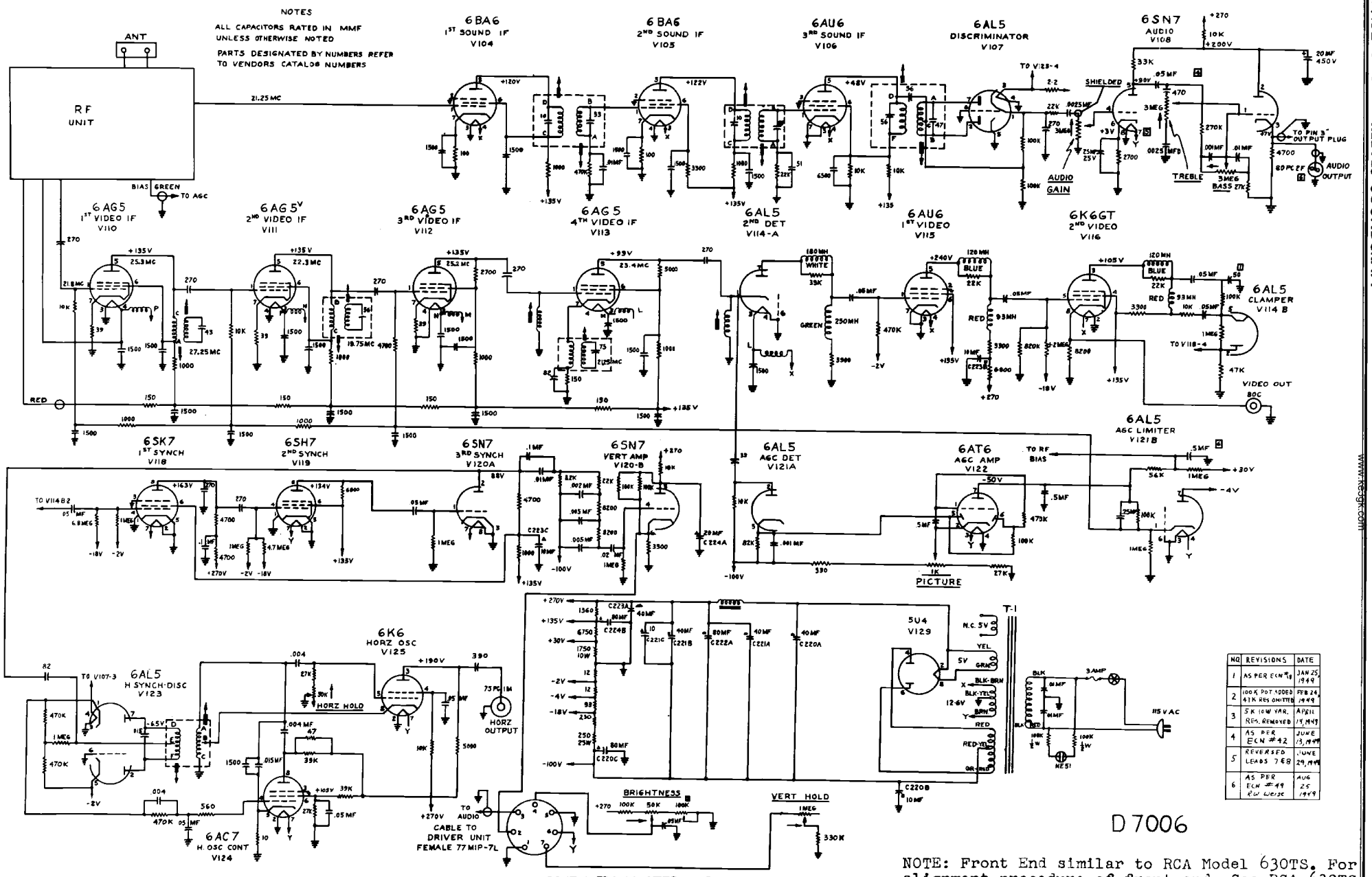




| ISSUE | REVISION | DATE |
|---|---|---|
| 1 | REVISED & CHANGED | DEC. 28 1948 |
| 2 | CHANGED | 1-5-49 |
| 3 | CHANGED | 1-11-49 |
| 4 | CHANGED | 1-25-49 |
| 5 | INPUT CAP 2MFD CHGD TO .05MF 400V PER ECN 243 NOTE ADDED | MAR 8 1949 |
| 6 | R5 PER ECN # 872 | - |

| ISSUE | REVISIONS | DATE |
|---|---|---|
| 1 | SUPERCEDES SK 8009 | JAN. 25, 1948 |
| 2 | AS PER ECN # 26 | FEB. 9, 1948 |
| 3 | 1 MEG. POT. ADDED | FEB. 22 1949 |
| 4 | 27K WAS 10K ECN 39 | MAY 24 1949 |
| 5 | AS PER ECN # 50 | AUG. 25 1948 |



MODEL AR-100




| NO | REVISIONS | DATE |
|---|---|---|
| 1 | AS PER ECN #38 | JAN 25, 1949 |
| 2 | 100K POT ADDED 47K RES OMITTED | FEB 24, 1949 |
| 3 | 5K 10W VAR. RES. REMOVED | APRIL 19, 1949 |
| 4 | AS PER ECN #42 | JUNE 13, 1949 |
| 5 | REVERSED LEADS 7 & 8 | JUNE 29, 1949 |
| 6 | AS PER ECN #49 R.W. WEISE | AUG 25 1949 |

D 7006

SCHEMATIC MASTER UNIT AR101

NOTE: Front End similar to RCA Model 630TS. For alignment procedure of front end, See RCA 630TS TV1 page 1-76 through 1-116.