

## CHAPTER 3

### FOURTH ECHELON REPAIRS

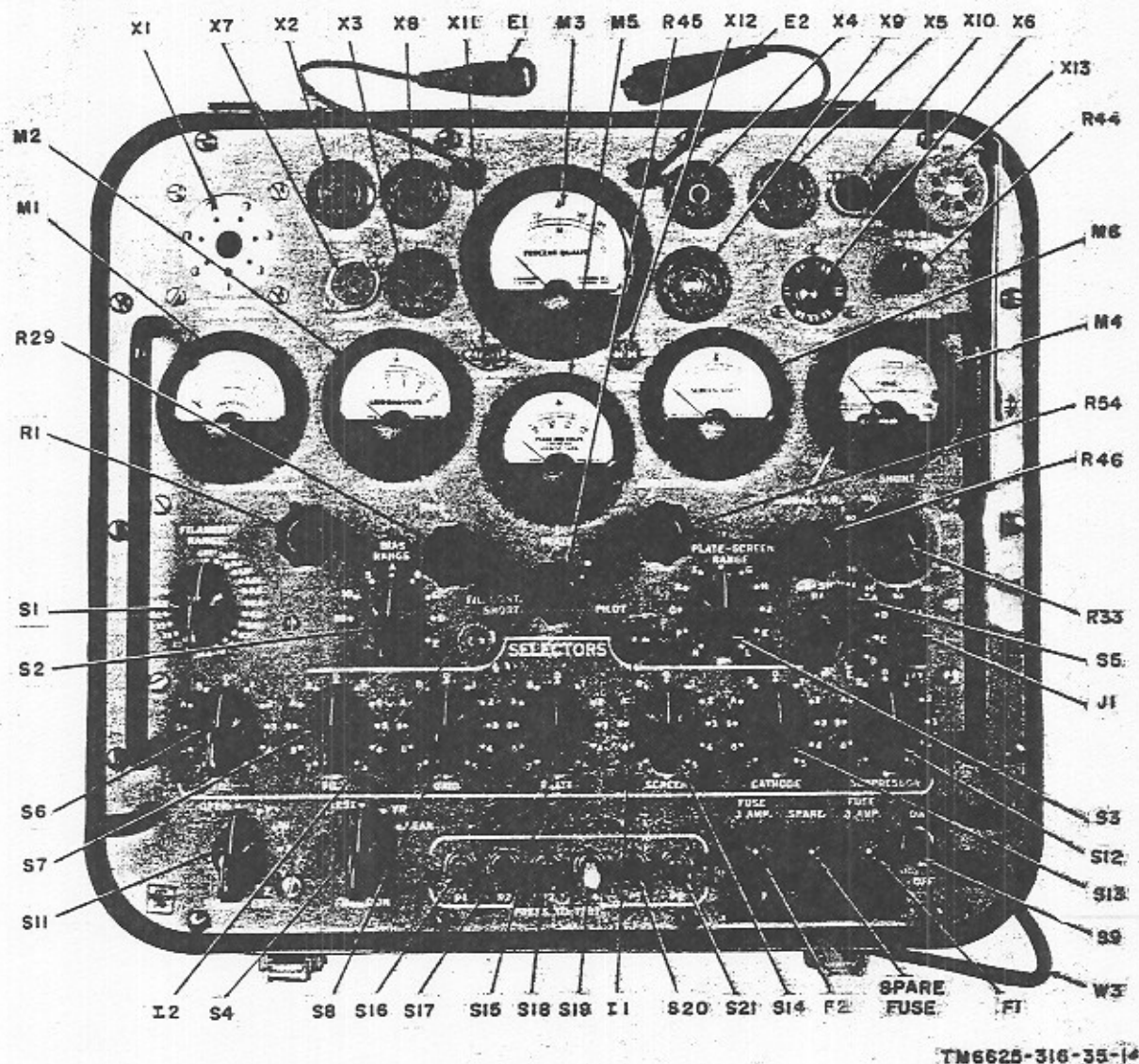
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#### 19. Parts Replacement Techniques

*Caution:* Be careful to avoid damage to delicate mechanisms, circuit parts, and wiring when the chassis of the tube tester is removed from the case. Only qualified maintenance personnel, equipped with the proper tools, should attempt repair and replacement of parts.

Most maintenance and repair can be performed on Test Set, Electron Tube TV-2(\*)/U

by removing the chassis from the case (TM 11-6625-316-12). However, for checking parts that are located on the front (fig. 14) of the chassis or parts that are mounted through the chassis where terminals on both sides must be available, the chassis must be lowered (par. 20). Some parts that are located beneath the chassis or near the resistor mounting board cannot be replaced unless the chassis is repositioned and the resistor mounting board is removed from the chassis.



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Figure 14. Panel of Test Set, Electron Tube TV-2(\*)/U, location of parts.

## 20. Lowering Chassis

(figs. 15-19)

If the part to be checked or replaced is located on the front of the tube tester chassis or mounted through the chassis, lower the chassis so that the part can be reached without removing the chassis from its mounting brackets; proceed as follows:

a. Place the panel of the tube tester face downward (fig. 15). Remove the chassis mount-

ing bolts on the bottom of each mounting bracket just behind the cutouts on the resistor mounting board (fig. 16).

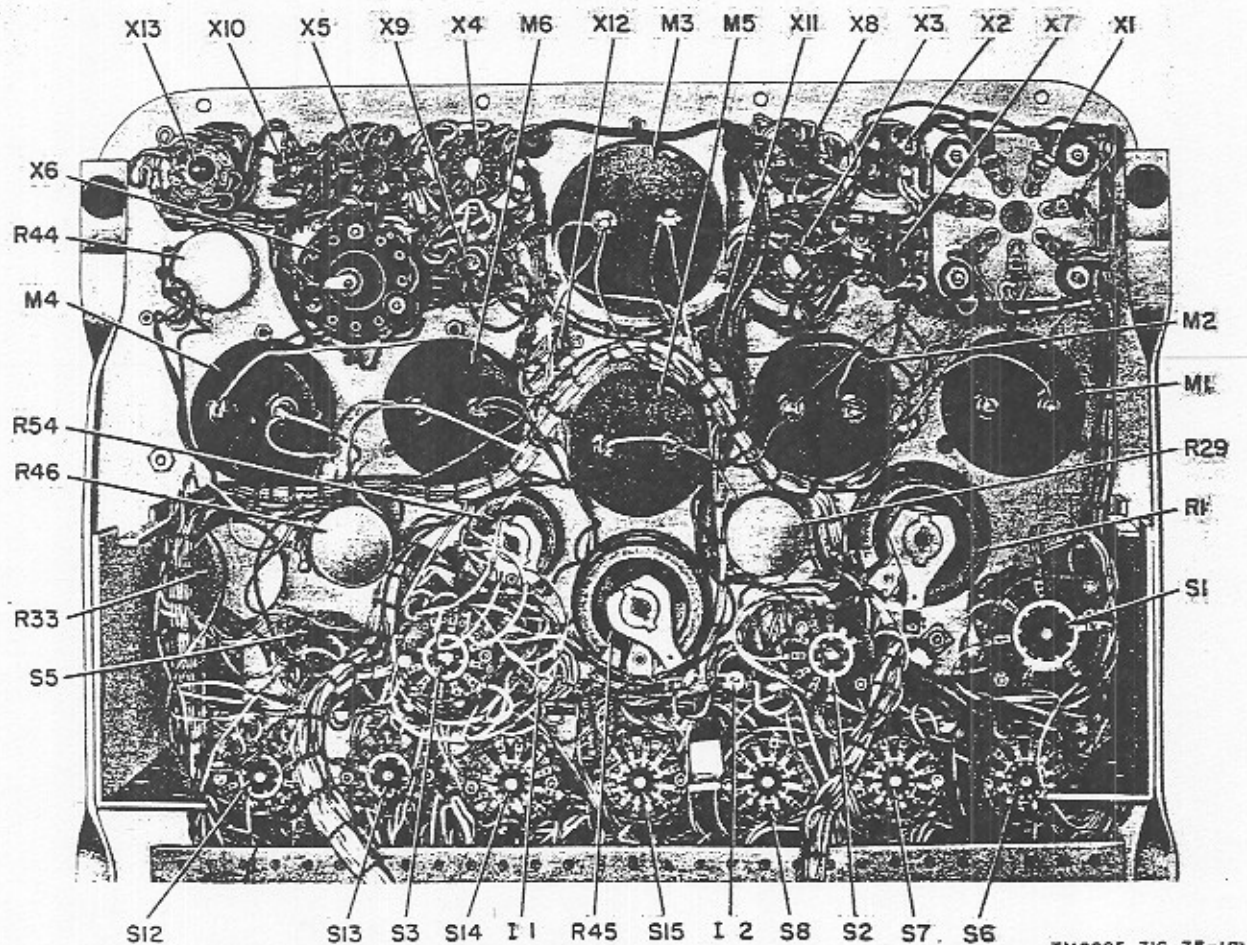
b. Raise the tube tester to a vertical position so that it rests on the bottom edge of the panel and the chassis supports. Remove the mounting bolts nearer the top of the chassis on both chassis mounting brackets (figs. 17 and 19).

Note. On the TV-2A/U only, remove the flathead bolt on the rear of the chassis (fig. 18).

c. Loosen the bolts in the slotted mounting bolt channels on each mounting bracket (figs. 17 and 19).

d. Slide the chassis up in the slotted channels,

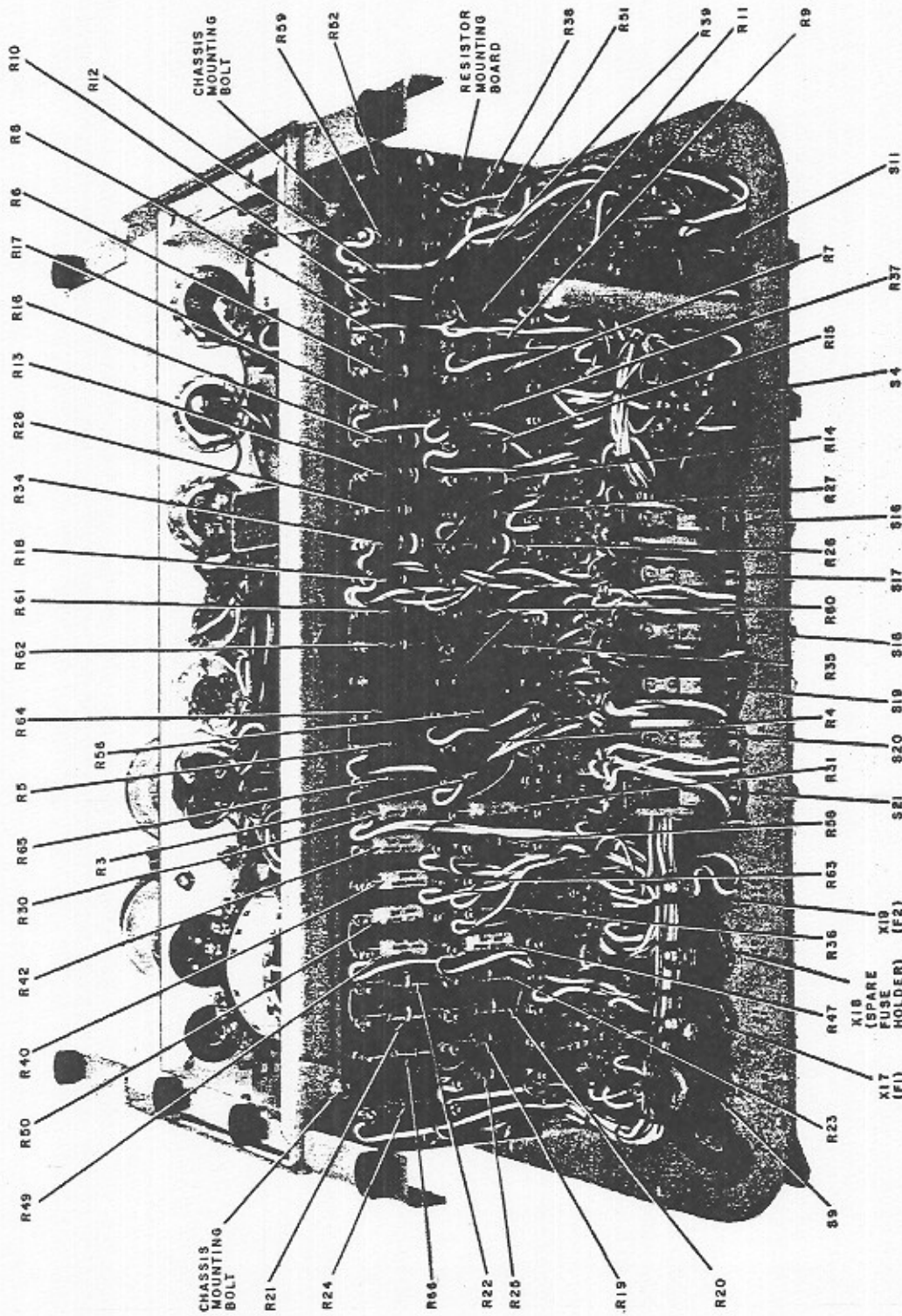
swing it away from the panel, and lower it until the front of the chassis is at right angles to the panel (fig. 19). The chassis will remain in this position.



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Figure 15. Rear of panel of Test Set, Electron Tube TV-2(\*)/U, location of parts.

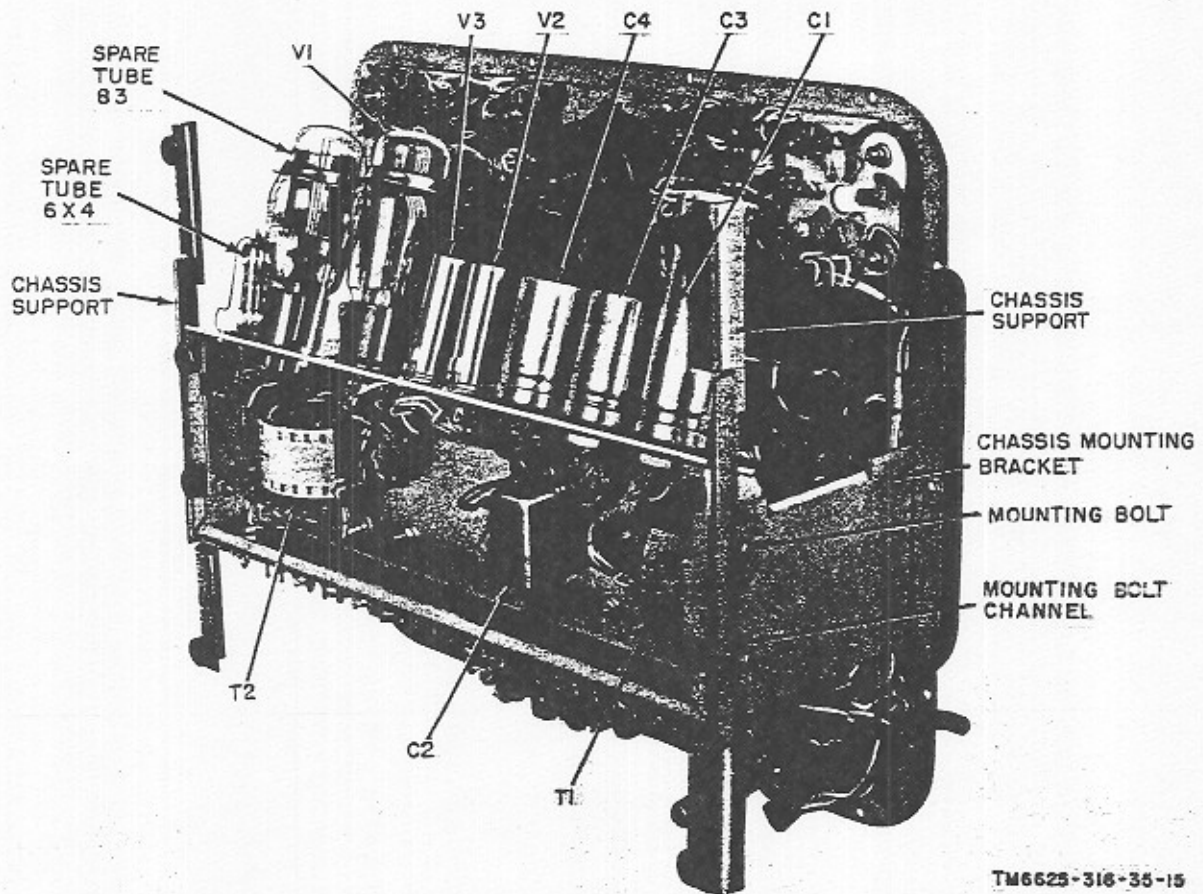




NOTE:  
ON THE TV-2A/U, RESISTORS R40 AND R42 ARE  
MOUNTED ON THE REAR OF THE CHASSIS.

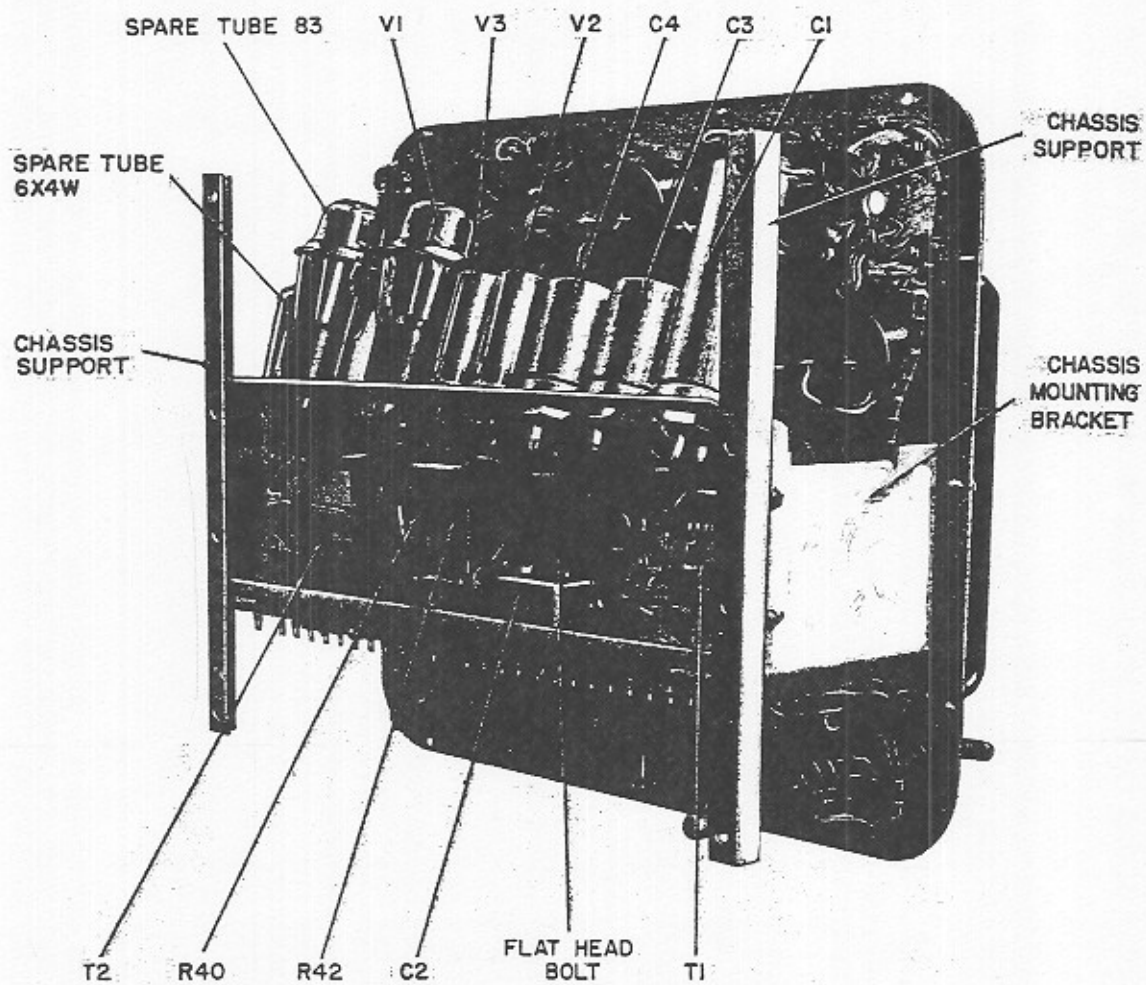
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Figure 16. Bottom of chassis and resistor mounting board of Test Set, Electron Tube TV-2(\*)/U, location of parts.



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Figure 17. Rear of chassis of Test Set, Electron Tube TV-2/U and TV-2B/U, and TV-2C/U, location of parts.



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Figure 18. Rear of chassis of Test Set, Electron Tube TV-2A/U, location of parts.



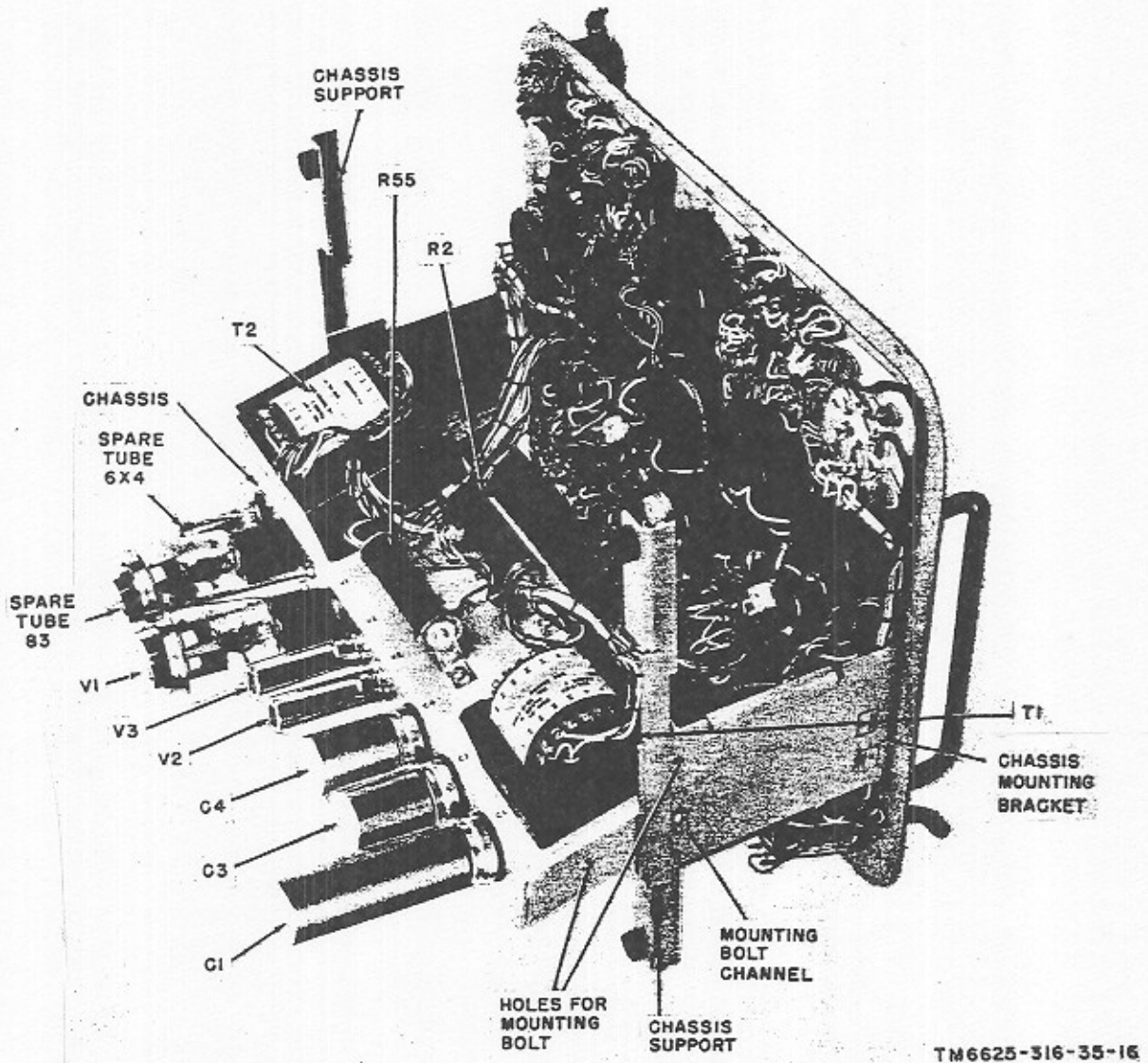


Figure 19. Front of chassis of Test Set, Electron Tube TV-2(\*)/U, location of parts.

## 21. Removal and Replacement of Transformers

### a. Removal.

- (1) Remove the chassis from the case and lower the chassis (par. 20). Transformers T1 and T2 are mounted through the chassis (figs. 17, 18, and 19).
- (2) Disconnect and tag the wiring to the terminals of the defective transformer on both the front and rear of the chassis.
- (3) Remove the bolts, the nuts, and the lockwashers that mount the transformer on the chassis. Pull the defective transformer away from the front of the chassis.

### b. Replacement.

- (1) Mount the transformer through the front of the chassis.
- (2) Replace the bolts, the nuts, and the lockwashers that hold the transformer on the chassis.
- (3) Connect the transformer wiring to the appropriate terminals on both the front and rear of the chassis as indicated on the tag.

## 22. Removal and Replacement of Resistor Mounting Board

**Caution:** To disconnect wire leads, remove the resistor mounting board or chassis completely; be sure to tag all disconnected leads so that they can be reconnected to the proper terminals when the tube tester is reassembled.

### a. Removal.

- (1) Lower the chassis (par. 20).
- (2) Remove the four screws that mount the resistor mounting board on the chassis mounting brackets.
- (3) Move the resistor mounting board away from the chassis mounting brackets.
- (4) Move the resistor mounting board forward or backward, as required, as far as the wiring will permit.

### b. Replacement.

- (1) Move the resistor mounting board forward or backward, as required, to line up the four holes with those on the chassis mounting bracket.
- (2) Replace the four screws.

## 23. Removal, Mounting, and Replacement of Tube Data Roll Chart

(fig. 20)

**Caution:** The roller gears are made of nylon and should never be lubricated.

When a new tube test data roll chart is to be installed in the tube tester, follow the instructions in *a* through *c* below.

### a. Removal.

- (1) The tube test data roll chart housing is bolted to two mounting brackets inside the cover of the tube tester (fig. 1, TM 11-6625-316-12). Remove the tube test data roll chart housing by removing the two bolts, the nuts, and the lockwashers that mount the housing to these brackets.
- (2) Remove the three screws that mount the roller guide plate to the housing. Pull the roller guide plate from the housing. *Do not* loosen the three screws that mount the tube test data roll chart guide plate to the gear end of the housing.
- (3) Remove the two rollers by sliding them away from the gear end of the housing.
- (4) Remove the old tube test data roll chart and the tape that mounts the tube test data roll chart to the rollers. To remove any adhesive from the old mounting tape that may be adhering to the rollers, clean the rollers with a cloth dampened with Cleaning Compound (Federal stock No. 7930-395-9542).

**Warning:** Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.

### b. Mounting.

- (1) Unroll 1 foot of the new tube test data roll chart. With the rollers positioned as shown in figure 20, place the top of the tube test data roll chart, with the printed side upward, parallel to the guideline marked on the upper roller.
- (2) Use two small tabs of pressure-sensitive tape, approximately one-half inch long, to anchor the top of the tube test data roll chart along the guideline.
- (3) Apply pressure-sensitive tape to the entire length of the roller, with half



the width of the tape on the tube test data roll chart and the other half on the roller.

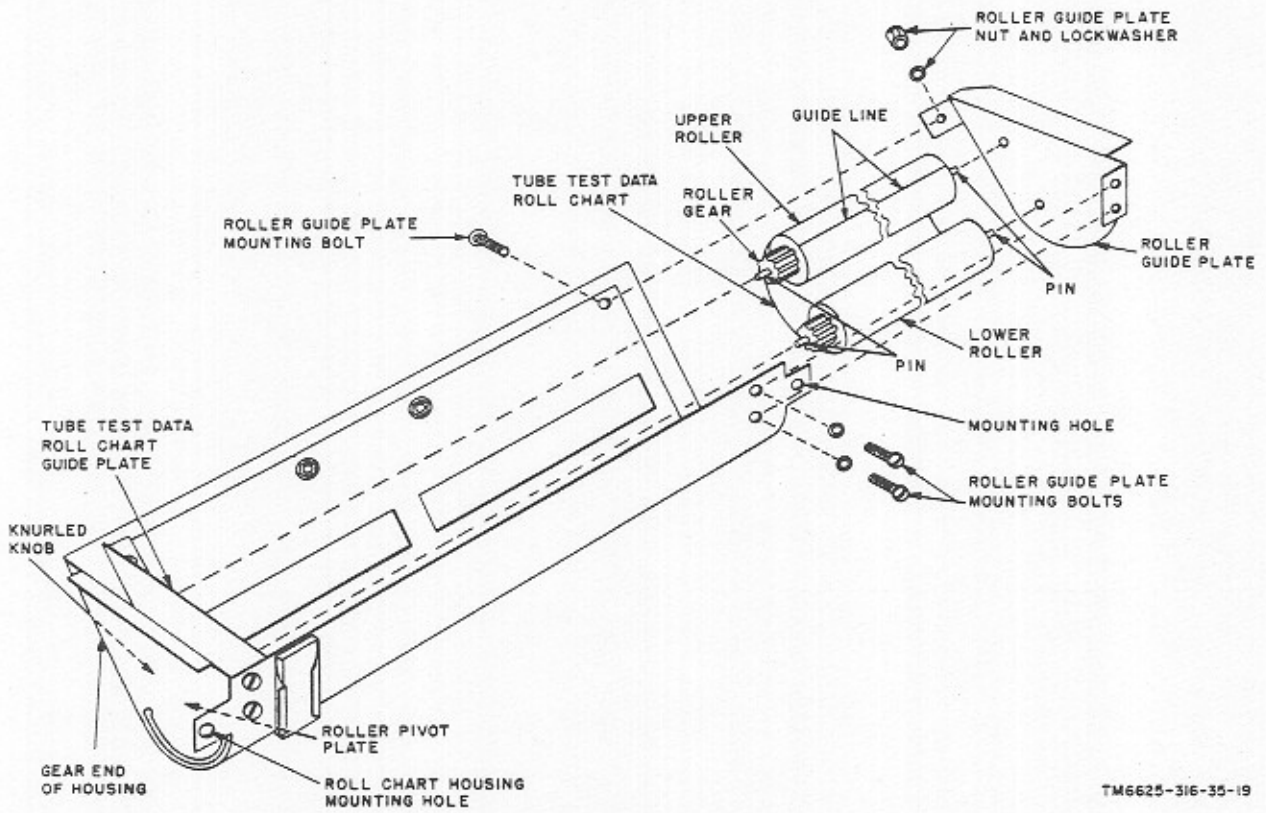
- (4) Roll the tube test data roll chart, with the printed side upward, onto the upper roller to within approximately 1 foot of the end of the tube test data roll chart. Be careful to keep the tube test data roll chart square with the edges of the upper roller. Keep the paper taut by hooking a rubberband over the pin on the gear end of the roller and stretching it over the pin on the other end of the roller.
- (5) Fasten the end of the tube test data roll chart to the lower roller with pressure-sensitive tape. Apply the tape as described in (2) and (3) above. Roll the remaining length of the tube test data roll chart onto the upper roller.

*c. Replacement.*

- (1) Place the tube test data roll chart housing on end, with the gear (closed) end on the bottom.
- (2) Hold the tube test data roll chart taut on both rollers. Insert the gear ends of the rollers through the tube test data roll chart guide plate and into the holes in the roller pivot plate. Move the knurled knob on the front of the housing, if necessary, to engage the gears and guide the pins into their pivots.
- (3) Replace the roller guide plate; at the same time, insert the pins on the right-

hand end of the rollers through the holes in the roller guide plate.

- (4) Replace the three roller guide plate mounting bolts, nuts, and lockwashers. Tighten the bolts with the fingers. There should be a clearance of approximately 0.06 inch (three thicknesses of old tube test data roll chart paper) between the faces of the rollers and the roller guide plate.
- (5) Check the knurled knob on the front of the tube test data roll chart housing for ease of operation by turning the tube test data roll chart once through its entire length. If the tube test data roll chart binds and the knurled knob is difficult to turn, or if the knurled knob turns so freely that the tube test data roll chart becomes slack, readjust for proper clearance between the faces of the rollers and the roller guide plate by loosening the bolts and again adjusting for a clearance of 0.06 inch ((4) above). The bolt holes through the roller guide plate end of the tube test data roll chart housing are slightly elongated to permit adjustment. When operation of the knurled knob is satisfactory, tighten the screws securely.
- (6) Remount and tighten the tube test data roll chart housing on the mounting brackets inside the cover of the tube tester.



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Figure 20. Tube test data roll chart housing assembly.