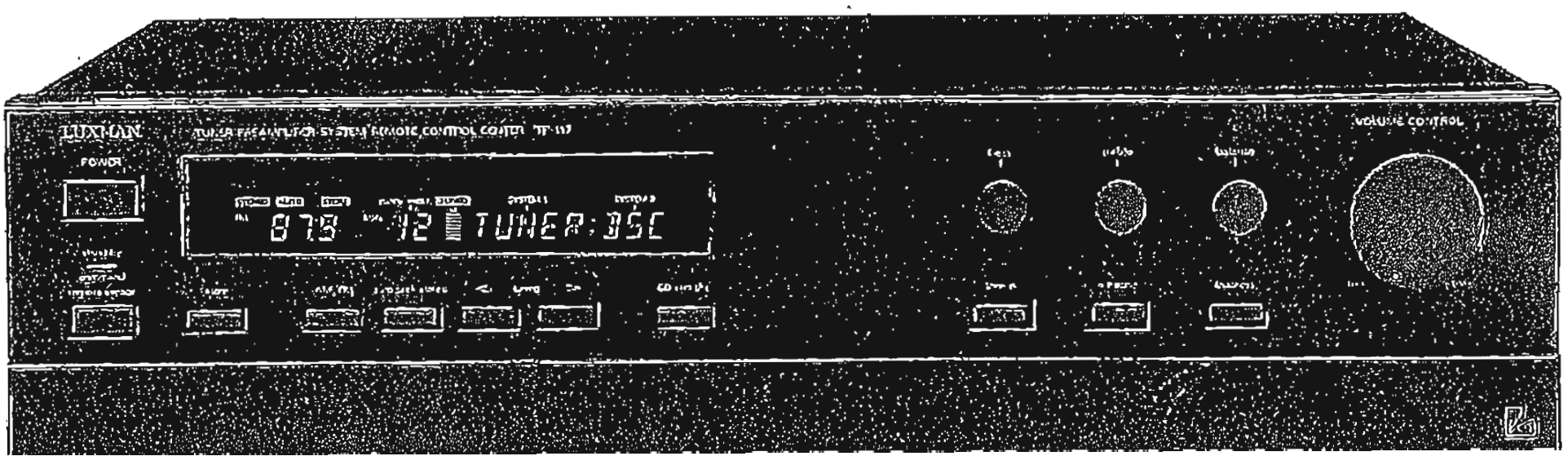
LUXMAN

OWNER'S MANUAL

TP-117

Tuner Preamplifier System Remote
Control Center



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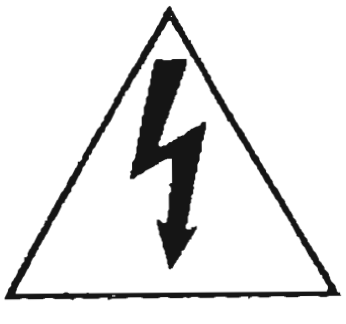
WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture

Note to the CATV system installer: This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

CAUTION: To prevent electric shock, do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

The lightning-flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating instructions in the literature accompanying the appliance.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTIONS: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE PARTS INSIDE, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

INTRODUCTION

WELCOME!

At Luxman, Ultimate Fidelity is a goal we consider to be most important. Your purchase of this component has told us you feel the same. We take great pride in the long tradition of excellence in sonic quality that the Luxman name represents. Now, as part of that tradition, we welcome you to the growing number of discerning audiophiles who own and operate Luxman products. This manual has been prepared to help you maximize your enjoyment of the outstanding performance and features of your new Luxman TP-117.

This tuner pre-amp system remote control center incorporates technological refinements and remote control flexibility second to none in the industry. Two independant stereo pre-amps, each with motor driven volume controls and separate source selection, allows multi-zone as well as multi-room capability (up to 6 zones with 3 TP-117's), 4 varactor MOSFET FM CAT tuner with 20 AM/FM random station presets, 7 inputs plus 4 pre-outs (including video switching and amplification), 5 remote sensor inputs, RF (TV) modulator, 8 switched AC outlets, high sonic quality design ..... are just a few of its many special features.

To realize the exceptional performance for which this tuner preamplifier is capable, it is necessary that all signal sources, power amplifier and speaker systems used with it are of the highest sonic quality. We recommend complementary Luxman components wherever possible.

Please study this manual carefully and become acquainted with all the special features, operation and capabilities of your new Luxman TP-117. Should you have any questions, or desire information on other Luxman products, please contact your local Luxman dealer or call Luxman Information direct at 1-800-4-Luxman.

WHEN YOU OPEN THE BOX

Before any Luxman product leaves the factory it is carefully inspected for physical imperfections as a routine part of Luxman's systematic quality control. This, along with full electrical testing, should insure quality craftsmanship and performance. After you have unpacked the unit, inspect it for any physical damage. Save the shipping carton and all packing materials, as they are essential to reduce to a minimum the possibility of transportation damage, should the product ever need to be shipped again. In the unlikely event that damage has occurred, notify your dealer immediately and request the name of the carrier so that a written claim to cover shipping damages can be initiated.

THE RIGHT TO ANY CLAIM AGAINST A PUBLIC CARRIER CAN BE FORFEITED IF THE CARRIER IS NOT NOTIFIED PROMPTLY AND IF THE SHIPPING CARTON AND PACKING MATERIAL ARE NOT AVAILABLE FOR INSPECTION. SAVE ALL PACKING MATERIALS UNTIL THE CLAIM HAS BEEN SETTLED.

INSTALLATION AND PLACEMENT

Because some heat is generated by the TP-117, adequate air circulation must be provided to maintain cool operation. Leave adequate space around the unit (at least 3 inches on the top and 1 inch on the sides and rear) for proper air circulation. Also, the Luxman TP-117 should not be completely enclosed with other heat producing components. If the Luxman TP-117 is going to be mounted in an enclosed cabinet, it is recommended that the back of the cabinet have vents to allow air to circulate around the unit. With these considerations implemented, the Luxman TP-117 should provide exceptional performance in any reasonable environment.

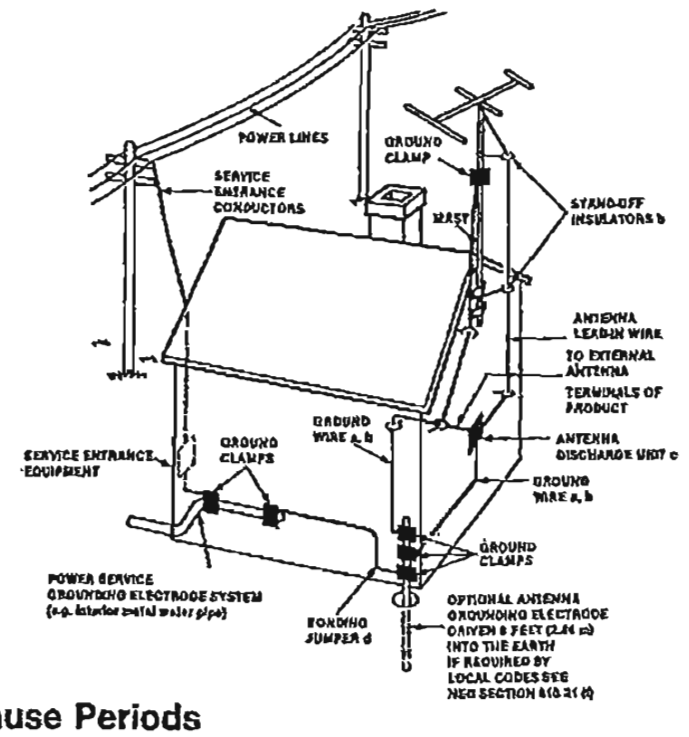
Of course, such normal considerations as protection from excessive dust and moisture should always be observed. The Luxman TP-117 tuner preamplifier has been carefully designed with high quality components so that long term undiminished performance may be expected when it is operated in accordance with the instructions provided.

SAFETY INSTRUCTIONS

1. **Read Instructions**
   All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions**
   The safety and operating instructions should be retained for future reference.
3. **Heed Warnings**
   All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions**
   All operating and use instructions should be followed.
5. **Water and Moisture**
   The appliance should not be used near water—for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. **Carts and Stands**
   The appliance should be used only with a cart or stand that is recommended by the manufacturer.

   An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. **Wall or Ceiling Mounting**
   The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation**
   The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat**
   The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources**
    The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Grounding or Polarization**
    Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
12. **Power-Cord Protection**
    Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Protective Attachment Plug**
    The appliance is equipped with an attachment plug having overload protection. This is a safety feature. See Instruction Manual for replacement or resetting of protective device. If replacement of the plug is required, be sure the service technician has used a replacement plug specified by the manufacturer that has the same overload protection as the original plug.
14. **Cleaning**
    The appliance should be cleaned only as recommended by the manufacturer.
15. **Power Lines**
    An outdoor antenna should be located away from power lines.
16. **Outdoor Antenna Grounding**
    If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70—1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

(a) Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as a ground wire.
(b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4—6 feet (1.22—1.83 m) apart.
(c) Mount antenna discharge unit as close as possible to where lead-in enters house.
(d) Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).



17. **Nonuse Periods**
    The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. **Object and Liquid Entry**
    Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. **Damage Requiring Service**
    The appliance should be serviced by qualified service personnel when:

(a) The power-supply cord or the plug has been damaged; or
(b) Objects have fallen, or liquid has been spilled into the appliance; or
(c) The appliance has been exposed to rain; or
(d) The appliance does not appear to operate normally or exhibits a marked change in performance; or
(e) The appliance has been dropped, or the enclosure damaged.

20. **Servicing**
    The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

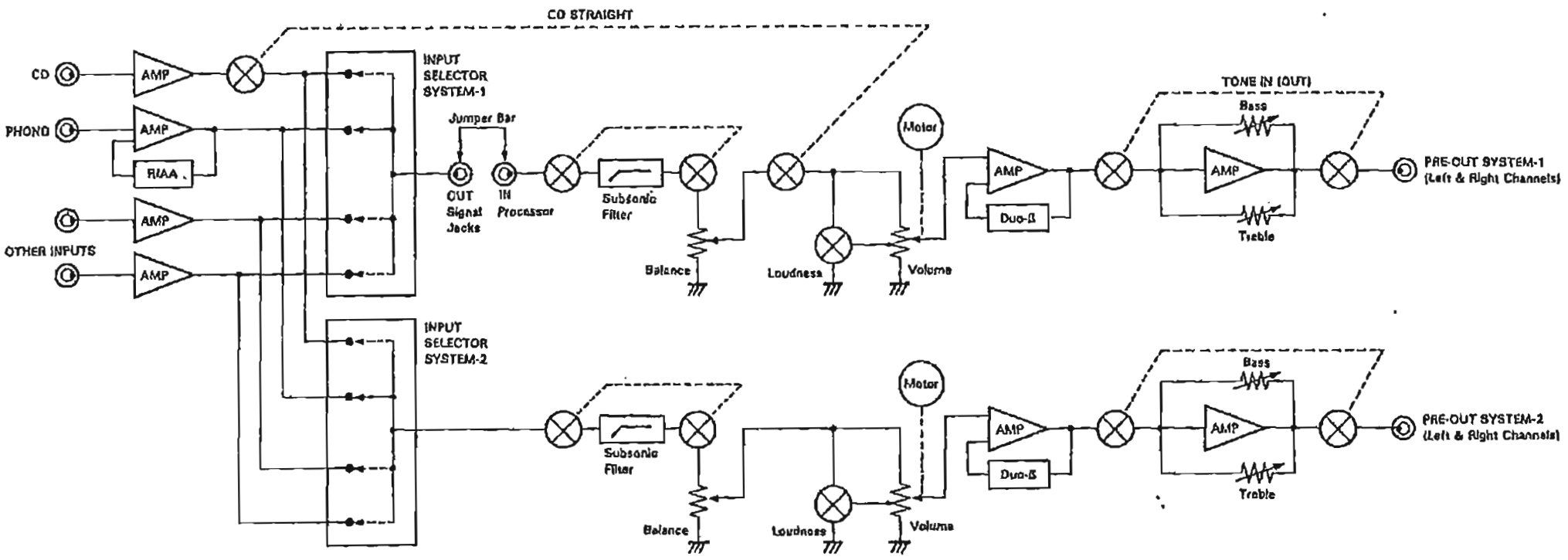
SPECIAL FEATURES

The TP-117 employs some of the most refined and advanced technology available to achieve Luxman's design goal for a comprehensive multi-zone multi-room remote control system combined with a tuner and pre-amp embodying highest sonic purity. Examples are as follows:

INDEPENDENT STEREO PREAMPLIFIERS

Two high sonic quality stereo preamplifiers (system 1 and system 2) are provided so that two rooms or two separate sets of rooms (zones) may have independent source and volume control. High quality motor drive is used for quick, smooth remote volume action and to avoid any possibility of digital switching noise.

2, 4, or 6 zones, each with independent source selection and volume control, are possible when 1, 2 or 3 (maximum) TP-117's are used.



AUTOMATIC VOLUME SET

When the power to the unit is first turned on, each volume control is automatically set to a comfortable listening position (approx. 20 to 30% of max rotation), regardless of its previous location. This prevents the possibility of sudden high levels, or, the inconvenience of always having to turn the volume up when the system is first turned on.

SYSTEM REMOTE CONTROL CAPABILITIES

Rear panel SERIAL REMOTE and DIN jacks allow the connection of other LUXMAN source components to provide unified system remote control. The inclusion of both SERIAL REMOTE IN and OUT jacks plus the ADDITIONAL POWER CONTROL IN and OUT jacks allow "daisy-chaining" of 2 or 3 TP-117's for large multi-zone systems.

In addition, when the RC-503 IR repeater is used with the TP-117, other non-Luxman units, such as VCR's, laser disc players, etc., can be controlled from remote room locations through the TP-117 system.

MULTI-FUNCTION REMOTE CONTROL UNIT

This hand held Infra-red remote control unit, the RTP-117, in addition to controlling all major functions on the TP-117, will also control all Luxman CD players having serial remote I/O jacks and cassette decks having DIN remote jacks. Two cassette or DAT decks can be independently controlled by use of the TAPE-1 and TAPE-2 switch on the RTP-117. Also, the same remote control unit can be used to control each system (zone) of 1 or more TP-117's.

SPECIAL FEATURES

8 SWITCHED AC OUTLETS

These outlets allow independent power switching for the power amps connected to system 1 and 2 when turning these individual systems on and off (1 or 2). They also provide the convenience of total system shut-down for all amplifiers and source equipment connected to these outlets. This can be done from the front panel power switch or from the remote control unit in any remote room.

BUILT-IN RF (TV) MODULATOR

A built-in RF modulator permits one of the three REMOTE SENSOR inputs on system 2 to send an RF signal (regular TV on ch. 3 or 4) down the co-ax line for viewing on a TV monitor in a remote room. It does this as well as handling the remote control signal, without the need of an external device.

PRE-OUT JACKS

Two pairs of pre-out jacks are provided for each pre-amplifier output (for system 1 and system 2), allowing 2 stereo power amplifiers to be driven for each zone. Of course, additional power amps may be "Y" connected as required (i.e. using Luxman "Y" adapters model RC-505).

SIGNAL PROCESSOR JACKS

An equalizer or other desired signal processing unit may be connected to these jacks without the need to give up a tape jack facility. These jacks operate on system-1 only.

VIDEO SWITCHING AND AMPLIFICATION

Four inputs, AV, V-DISC, TAPE-2 and VCR, combined with their corresponding input and output jacks on the rear panel, permit connection of audio/video (A/V) sources and a video monitor to the TP-117. Copying of video sources to a VCR and dubbing from one VCR to another is possible. Professional grade video buffer amplifiers are built in to maintain precision video levels and impedance matching for each video output, thus eliminating switching losses.

4 VARACTOR DUAL-GATE MOSFET FM FRONT END

The FM front end design combines a low noise dual-gate MOSFET and super linear varactors for outstanding sensitivity and spurious signal rejection.

20 RANDOM-ACCESS FM/AM STATION MEMORIES

A total of 20 FM and/or AM stations can be stored in memory in any random pattern. Any station can be instantly recalled by pressing the appropriate memory number on the TUNER/CD buttons of the RTP-117 remote control unit without any need to change the AM/FM band switching selector.

POWER SUPPLY

Separate precision regulated power supply sections provide stable operating voltages for each circuit function.

CABLE READY FM FINE TUNING

Some cable distribution systems providing FM service shift FM station frequencies by 25 or 50 kHz increments for various reasons. A switch located inside the TP-117 allows this tuner to be precision tuned to the exact frequencies of these cable carried stations (see page 27 for details).

C.A.T. (Computer Analyzed Tuning)

Automatically adjusts high frequency blend and other parameters to optimize stereo and mono reception under variable signal conditions.

AUTO-SEEK FM/AM TUNING

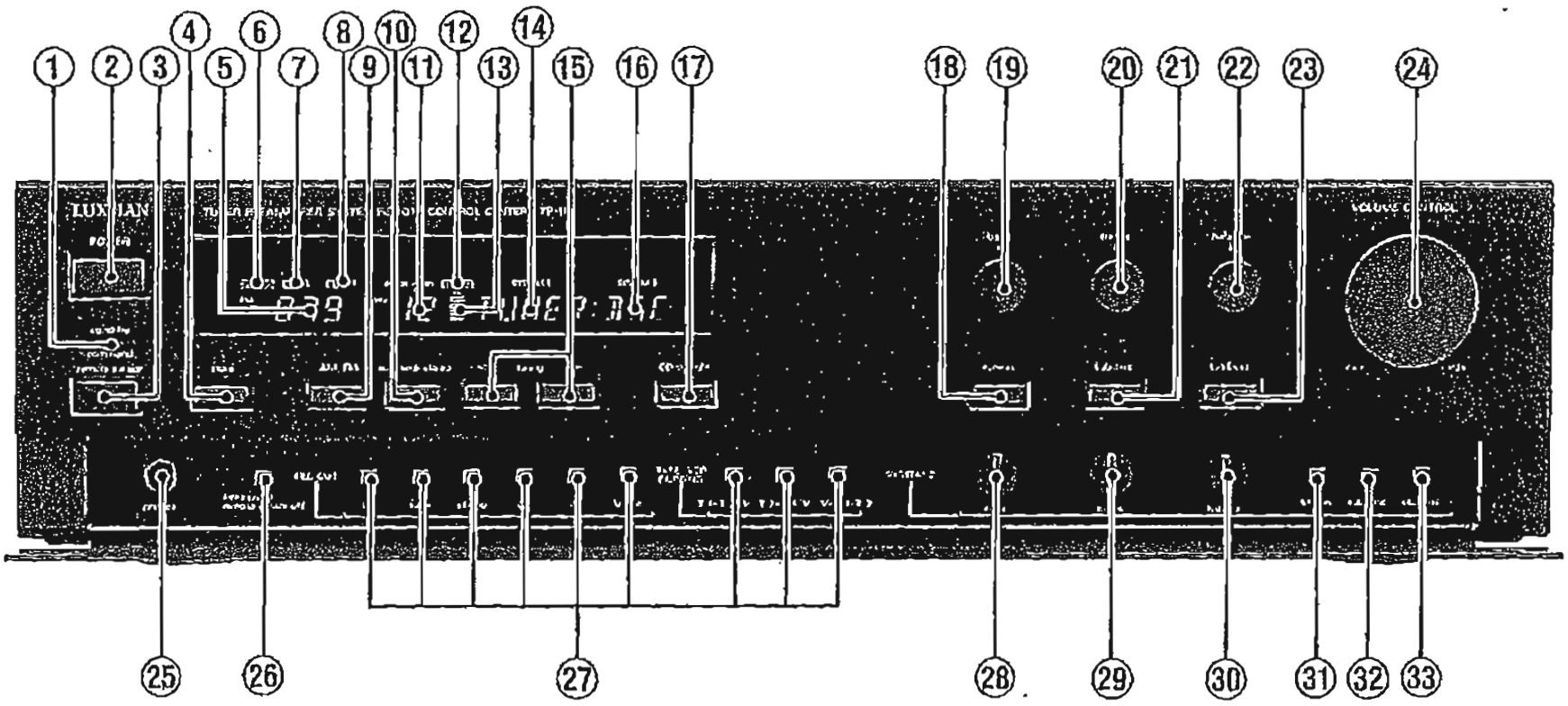
Allows automatic tuning of all stations (except weak stations below the muting level) on a station-by-station basis. This eliminates the tedium of manually fine tuning every station.

CD STRAIGHT

Direct connection from the CD input AMP to the volume control bypasses the input selector, REC OUT selector, signal processor, dubbing switches, sub-sonic filter and balance control. (It operates on system 1 only).
Bypassing these functions provides the shortest direct path to the power amplifier, thus ensuring the best accuracy, imaging and impact.

NOTE: BE SURE CD STRAIGHT BUTTON IS IN THE OUT POSITION (CD-ST IN THE DISPLAY IS OFF) WHEN USING SOURCES OTHER THAN CD.

CONTROLS & SWITCHES—FRONT PANEL



1. "stand-by/command" Indicator

This indicator will light in stand-by mode when power is turned off, or will light to show when the remote signal is actually received as a command by the TP-117.

2. POWER Button

Pressing this button turns system 1 on, along with other equipment that may be plugged into the rear panel source components and system 1 power amp AC outlets.

3. REMOTE SENSOR

When using the RTP-117 remote control unit, it must be pointed toward this sensor to activate operational functions.

NOTE: The "front panel remote sensor off" button (item #26) must be depressed to the "on (out)" position for this front panel remote sensor to operate.

4. "store" Button

Depressing this button will allow any tuned AM or FM station to be stored in any 20 AM/FM random station memory locations when used in conjunction with the RTP-117 remote control unit (see also item #81).
The STORE indicator will light when this button is depressed.

5. Digital Frequency Display

This display window shows the frequency of tuned AM and FM stations.

6. STEREO Indicator

Lights up when an FM stereo station is tuned in and when signal strength rises above the muting level.

7. AUTO Indicator

Lights up to show that auto seek mode has been selected (see item #10).

8. STORE Indicator

Lights up when the "store" button (item #4) is pressed.

9. AM/FM Button

Selects AM or FM operation for both auto seek and manual tuning modes.

10. "auto seek-stereo" Button

When depressed, this button activates the auto seek automatic tuning mode, in conjunction with the "tuning" buttons (item #15), for both AM and FM operation. In addition the AUTO indicator (item #7) will light.

CONTROLS & SWITCHES—FRONT PANEL

11. AM/FM STATION PRESET Number Indicator

A total of 20 AM and/or FM stations may be placed into memory in any random order. The station preset number currently chosen will show in the digital display area.

12. TUNED Indicator

Lights up when an AM or FM station is received.

13. SS (signal strength) Indicators

These strength indicators will light in an upward direction with increasing strength of AM or FM stations tuned.

14. SYSTEM-1 Function Display

This display shows system-1 sources, as selected by the INPUT SYSTEM buttons on the RTP-117 remote control unit (item #69).

15. Tuning Buttons

Allow manual up/down tuning and initiates auto tuning in the auto seek mode. See item #10.

16. SYSTEM-2 Function Display

This display shows system-2 sources as selected by the RTP-117 remote control unit on system 2.

17. CD straight Button

For optimum sound quality in CD operation, press this button to bypass control and switching functions. See "SPECIAL FEATURES" section, page 6, for further details. This feature operates on system 1 only.

NOTE: BE SURE **CD straight** BUTTON IS IN THE **OUT** POSITION WHEN USING SOURCES OTHER THAN **CD.**

18. "tone in" Button

When placed in the depressed (in) position, the tone controls are activated. When placed in the out (off) position, the tone circuits are completely bypassed, resulting in ruler-flat frequency response.

19. "bass" Control (System-1)

This control will increase or decrease low frequency content in the system-1 program material. At the center detent position, a flat frequency response results.

NOTE: The "tone in" button (system-1), item #18, must be depressed to the "in" position to activate the "bass" control (system-1).

20. "treble" Control (System-1)

This control will increase or decrease high frequency content in the system-1 program material. At the center detent position, a flat frequency response results.

NOTE: The "tone in" button (system-1), item #18, must be depressed to the "in" position to activate the "treble" control (system-1).

21. "subsonic" Button (System-1)

When depressed, a subsonic filter suppresses very low frequency rumble, below the audible range, to prevent excessive woofer cone excursions and distortion.

22. "balance" Control (System-1)

Adjusts for system-1 unequal volume level between channels. Normally, with today's high quality sources, it is seldom necessary to move this control from its precision center detent position.

23. "loudness" Button (System-1)

Depressing this button introduces a moderate boost of the very low and high frequencies when the volume control is set below the 12 o'clock position. This compensates for the human ear's characteristic at low listening levels.

24. VOLUME CONTROL

Allows precision, low noise adjustment of volume level. It is recommended that the volume control be set to a low position when switching between sources.
This control is also motor driven when used with the RTP-117 remote control unit (see page 30).

NOTE: Systems 1 and 2 volume sections are automatically set to a low position (20 to 30% rotation) when power is turned on.

25. "phones" Jack

Connection of stereophonic headphones to this jack allows private listening to system 1. There is signal at the jack at all times.

26. "front panel remote sensor off" Button

When using the remote control unit, this button must be depressed to the "on (out)" position to activate the remote sensor on the front panel (item #3). When placed in the depressed (in) position it allows use of an external RC-501 eye in the same room when connected to a system 1 sensor jack on the rear panel.

27. REC OUT and Dubbing Selector Buttons

Press one of the REC OUT buttons to choose any one of five sources for recording and one of the dubbing buttons for three way dubbing purposes; tuner (AM or FM), phono, CD, AV, V-DISC, T-1 ► T-2/V, T-2 ► T-1/V or V ► T-1/T-2.

NOTE: T-1 = Tape 1, T-2 = Tape 2, and V = VCR.

28. "Bass" Control (System-2)

This control will increase or decrease low frequency content in the system-2 program material. At the center detent position, a flat frequency response results.

NOTE: The "tone in" button (system-2), item #31, must be depressed to the "in" position to activate the "bass" control (system-2).

29. "treble" Control (System-2)

This control will increase or decrease high frequency content in the system-2 program material. At the center detent position, a flat frequency response results.

NOTE: The "tone in" button (system-2), item #31, must be depressed to the "in" position to activate the "treble" control (system-2).

30. "balance" Control (System-2)

Adjusts for system-2 unequal volume level between channels. Normally, with today's high quality sources, it is seldom necessary to move this control from its precision center detent position.

31. "tone in" Button (System-2)

When placed in the depressed (in) position, the tone controls are activated. When placed in the out (off) position, the tone circuits are completely bypassed, resulting in ruler-flat frequency response.

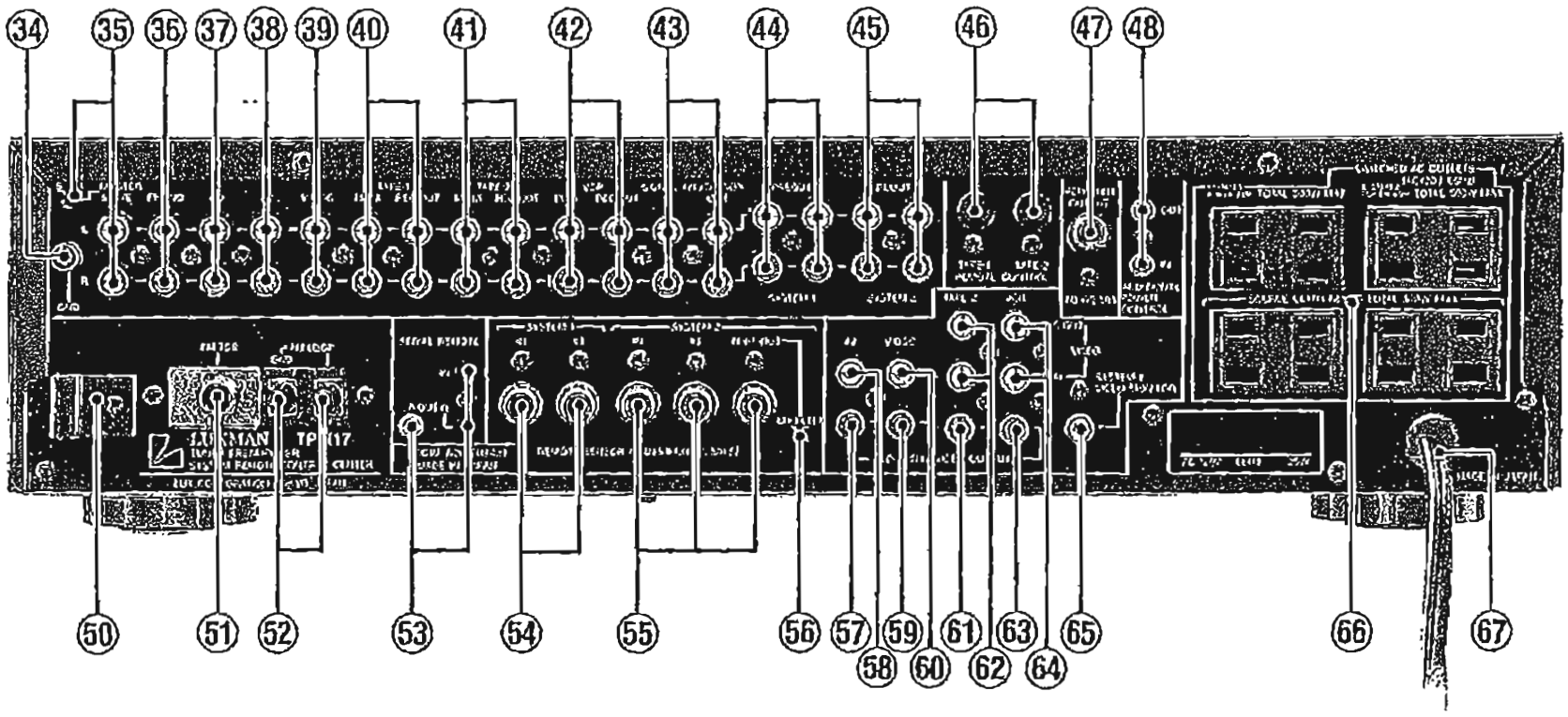
32. "subsonic" Button (System-2)

When depressed, a subsonic filter suppresses very low frequency rumble, below the audible range, to prevent excessive woofer corn excursions and distortion.

33. "loudness" Button (System-2)

Depressing this button introduces a moderate boost of the very low and high frequencies when the volume control is set below the 12 o'clock position. This compensates for the human ear's characteristic at low listening levels.

JACKS & TERMINALS—REAR PANEL



34. GND Terminal

Connect the common (ground) wire of your turntable to this terminal.

35. MASTER/SLAVE Switch and Jacks

When using one TP-117 and the phono input is used, set the MASTER/SLAVE (S M) switch to the "M" (MASTER) position.
If a 2nd or 3rd TP-117 is used and it is desired to use the same phono source for all three, place this switch in the "M" position on the first unit and to the "S" (SLAVE) position on the others.
A high level phono output signal is then available at the MASTER/SLAVE jacks of the first (or MASTER) unit for connecting to the MASTER/SLAVE jacks (which are now high level inputs) of the 2nd and/or 3rd (SLAVE) units.

NOTE: If phono operation is not required, the MASTER/SLAVE jacks may be used as an additional set of high level inputs by setting the S M switch to the "S" position and selecting them with the "PHONO" input selector on the RTP-117 remote control unit.

36. PHONO jacks

A moving magnet (MM) type phono cartridge may be connected to these inputs.

NOTE: A moving coil (MC) type cartridge, if used, would require a step-up transformer or head amplifier to provide the extra gain necessary to match the input sensitivity of these jacks.

37. CD Jacks

This set of jacks is for connection of a CD (compact disc) player. They may also be used for any other high level signal source.

38. AV Jacks

Connect the audio outputs of a monitor TV, VCR, laser/video disc player, etc. to these jacks.

39. V-DISC Jacks

Connect the audio LINE OUT jacks of a laser/video disk player, VCR, LD, etc. to the V-DISC jacks of the TP-117.

40. TAPE-1 REC OUT and MONI Jacks

Connect the LINE IN and LINE OUT jacks of your audio tape deck to these REC OUT and MONI (monitor) jacks respectively.

41. TAPE-2 REC OUT and MONI Jacks

Connect a 2nd tape deck or the audio jacks of a VCR to these jacks in the same manner as item #40 above.

JACKS & TERMINALS—REAR PANEL

42. VCR (AUDIO) REC OUT and PLAY Jacks

Use these for the connection of a video cassette recorder (VCR). Be sure to correctly connect the -audio- LINE IN and LINE OUT jacks of the VCR to the VCR (AUDIO) REC OUT and PLAY jacks of the TP-117 respectively.

43. SIGNAL PROCESSOR IN and OUT Jacks

For connection of an equalizer (G-100, G-111, etc.) or other signal processor as desired. To use these jacks, it is necessary to remove the IN to OUT jumper bars.

44. PRE-OUT 1 and 2 Jacks (System-1)

For connection to main power amplifiers having 1V input sensitivity.

45. PRE-OUT 1 and 2 Jacks (System-2)

For connection to main external power amplifiers for multi-speaker or multi-room applications having 1V input sensitivity.

46. REMOTE CONTROL DIN Jacks for TAPE-1, and TAPE-2

For a unified system remote control using Luxman tape decks, all controlled from the RTP-117 remote control unit supplied with the TP-117.

NOTE: Adapter cables, to connect from the small DIN to the large DIN (standard), are supplied with the TP-117.

47. REPEATER OUTPUT "F" Connector

For connection of Luxman's remote control command repeater, RC-503.

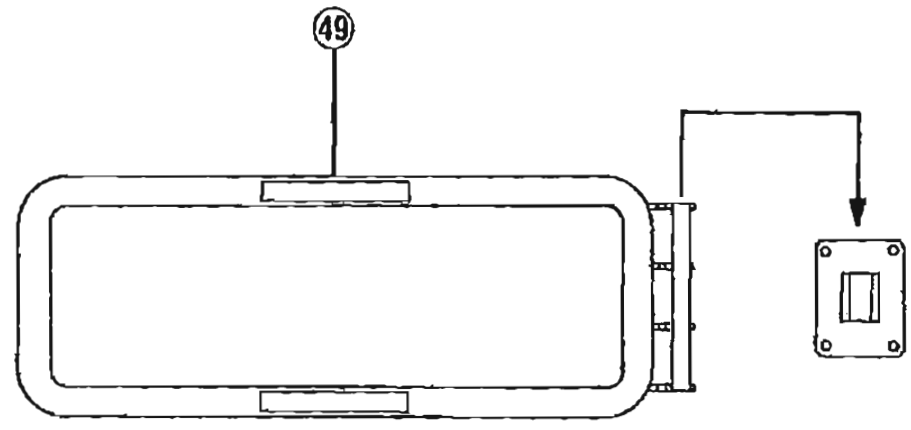
48. ADDITIONAL POWER CONTROL IN and OUT jacks

These jacks allow power feed to common sources for any single zone operation and feeds the IR repeater signal from each unit to the final slave unit when using 2 or 3 TP-117's in larger systems. See CONNECTION GUIDELINES for details.

NOTE: A STEREO mini phone cable, supplied with each TP-117, must be used for this connection.

49. AM Loop Antenna

This antenna can be rotated on its holder (item #50) for maximum pick-up, or removed and placed *elsewhere for best reception (within the limitation of its 32" lead length).



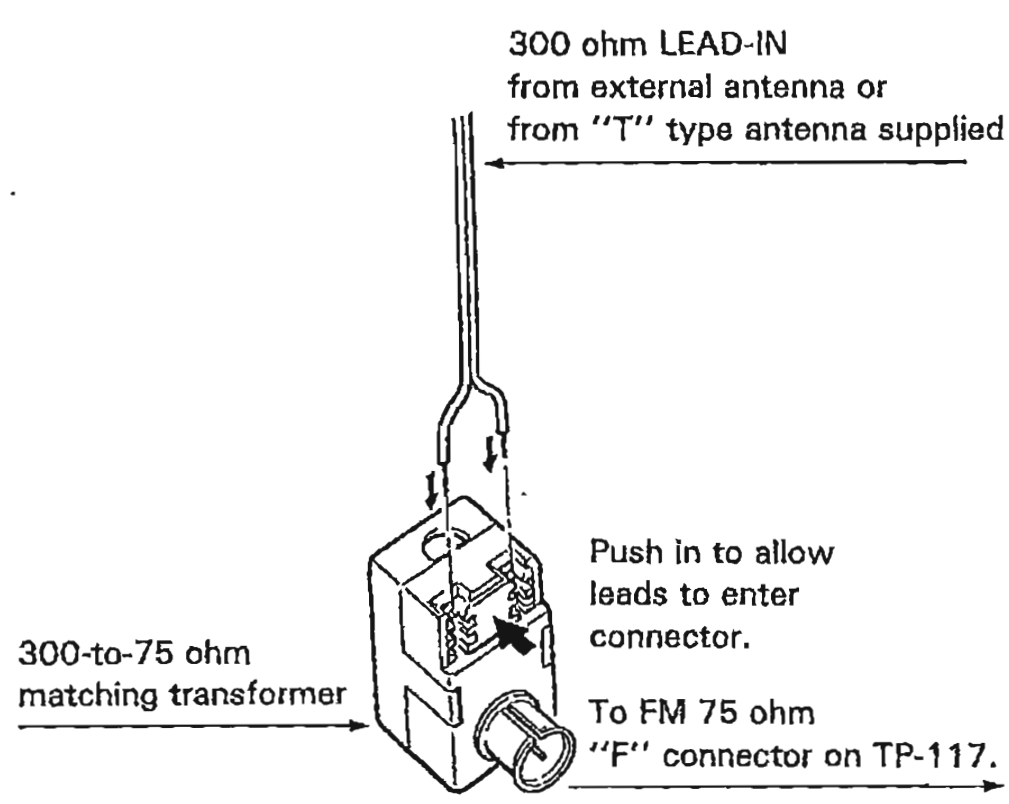
50. HOLDER-AM ANTENNA

This holder is designed for easy mounting or removal of the AM loop antenna. Align mating surfaces carefully and install with a firm push.

***NOTE:** An accessory holder for the AM loop antenna is supplied. Use to mount to a wall or other suitable surface to allow more room for the loop to be rotated for best pick-up. See diagram.
Remove adhesive backing and mount to surface with a firm press.

51. FM 75Ω Antenna "F" Connector

For connection of 75 ohm co-ax cable lead-in with "F" connector, or a 300 ohm lead-in used with the 300-to-75 ohm adapter supplied. See diagram below.



See also "CONNECTION DIAGRAM #1" page 13.

JACKS & TERMINALS—REAR PANEL

52. AM LOOP antenna Terminals

For connection of the leads of the AM loop antenna (item #49) supplied with the TP-117.

53. SERIAL REMOTE CONTROL IN, OUT A and B Jacks

For connection of Luxman's serial "Daisy Chain" Unified remote control system. These jacks also permit daisy chaining 2 or 3 TP-117's for control of common or individual Luxman component sources connected in the system. See CONNECTION GUIDELINES for details.

NOTE: A MONO mini phone cable, supplied with each TP-117, must be used for this connection.

54. SYSTEM-1 REMOTE SENSOR INPUTS

For connection of Luxman RC-501 infrared remote sensor units for total system remote control of system-1.

55. SYSTEM-2 REMOTE SENSOR INPUTS

For connection of Luxman RC-501 infrared remote sensor units for total system remote control of system-2. One of these jacks also provides a TV RF output signal.

56. SYSTEM-2 RF OUT CH3 and CH4 SELECT SWITCH

For selection of TV channels 3 or 4 at the SYSTEM-2 RF OUT jack.

57. AV ADDITIONAL VIDEO OUTPUT Jack

This jack feeds through the AV video signal from the AV video play jack (item #58).

58. AV VIDEO PLAY Jack

For connection of the video output from a VCR, laser/video disc Player, etc.

59. V-DISC ADDITIONAL VIDEO OUTPUT jack

This jack feeds through the V-DISC video signal from the V-DISC video play jack (item #60).

60. V-DISC VIDEO PLAY Jack

For connection of a laser/video disc player, etc., to this video play jack for playback purposes only. Connect the VIDEO OUT jack of the LD, etc. to this V-DISC VIDEO PLAY jack of the TP-117.

61. TAPE-2 ADDITIONAL VIDEO OUTPUT Jack

This jack feeds through the tape-2 video signal from the tape-2 video play jack (item #62).

62. TAPE-2 VIDEO REC OUT/PLAY Jacks

Use these jacks for the connection of a video cassette recorder (VCR). Be sure to correctly connect the VIDEO IN and VIDEO OUT jacks of the VCR to the VIDEO REC OUT and VIDEO PLAY jacks of the TP-117 respectively.

63. VCR ADDITIONAL VIDEO OUTPUT Jack

This jack feeds through the VCR video signal from the VCR video play jack (item #64).

64. VCR VIDEO REC OUT/PLAY Jacks

Use these jacks for the connection of a video cassette recorder (VCR). Be sure to correctly connect the VIDEO IN and VIDEO OUT jacks of the VCR to the VIDEO REC OUT and VIDEO PLAY jacks of the TP-117 respectively.

65. VIDEO MONITOR Jack (System-1)

Connect this video output jack to the video input jack of a video monitor or to a TV receiver that has a video input jack.

66. SWITCHED AC OUTLETS

For convenient AC power connection of other audio and video components in your system, 8 switched outlets (total 1300 watts max.) are available. The wider opening of each outlet indicates the ground side of the polarized AC line.

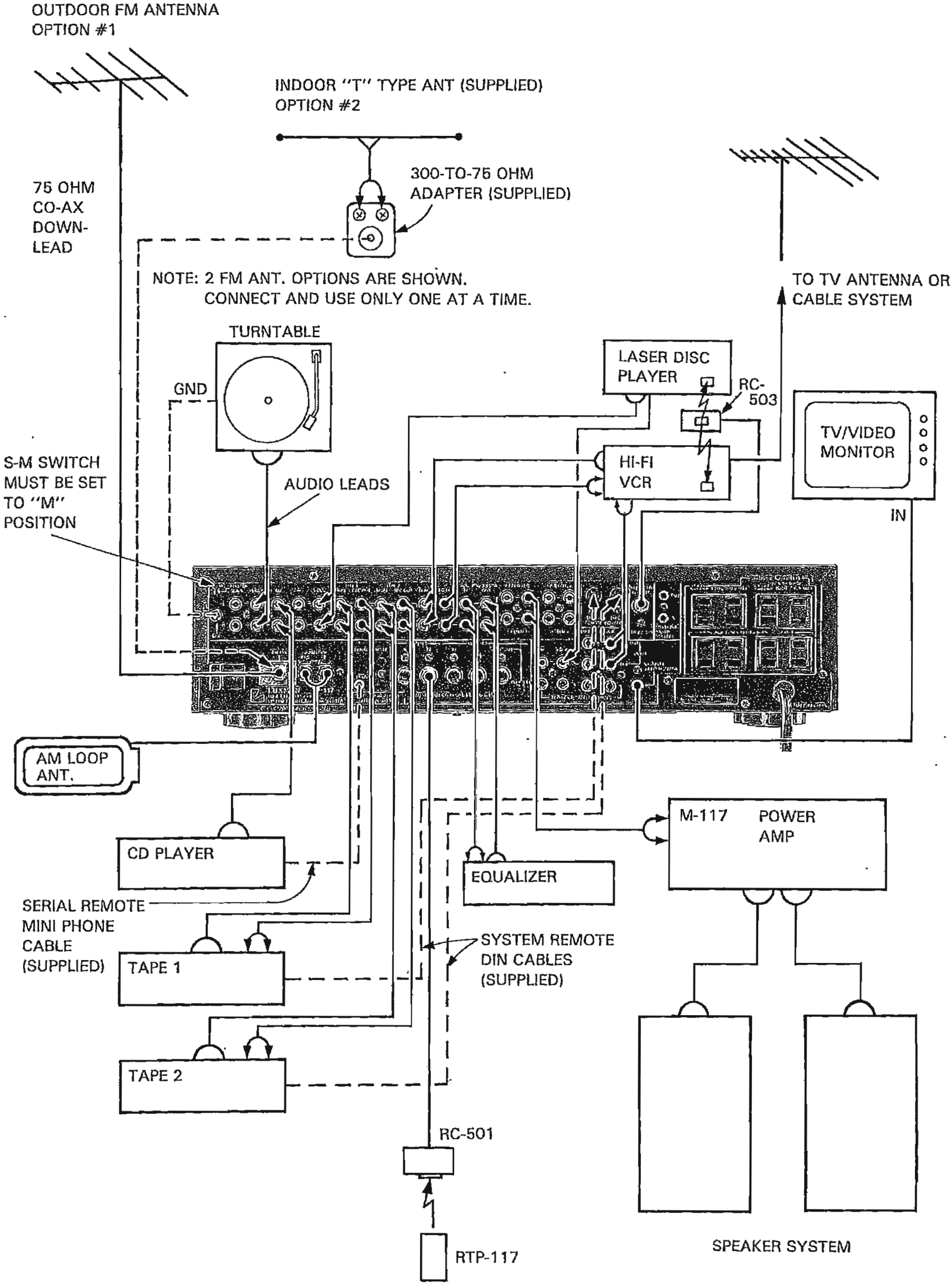
67. AC Power Cord

Insert the polarized plug of the TP-117 into any 120 V AC 60 Hz wall outlet.

NOTE: See CONNECTION DIAGRAMS, pages 13 through 16, for typical connections to all jacks and terminals (items 34 through 67).

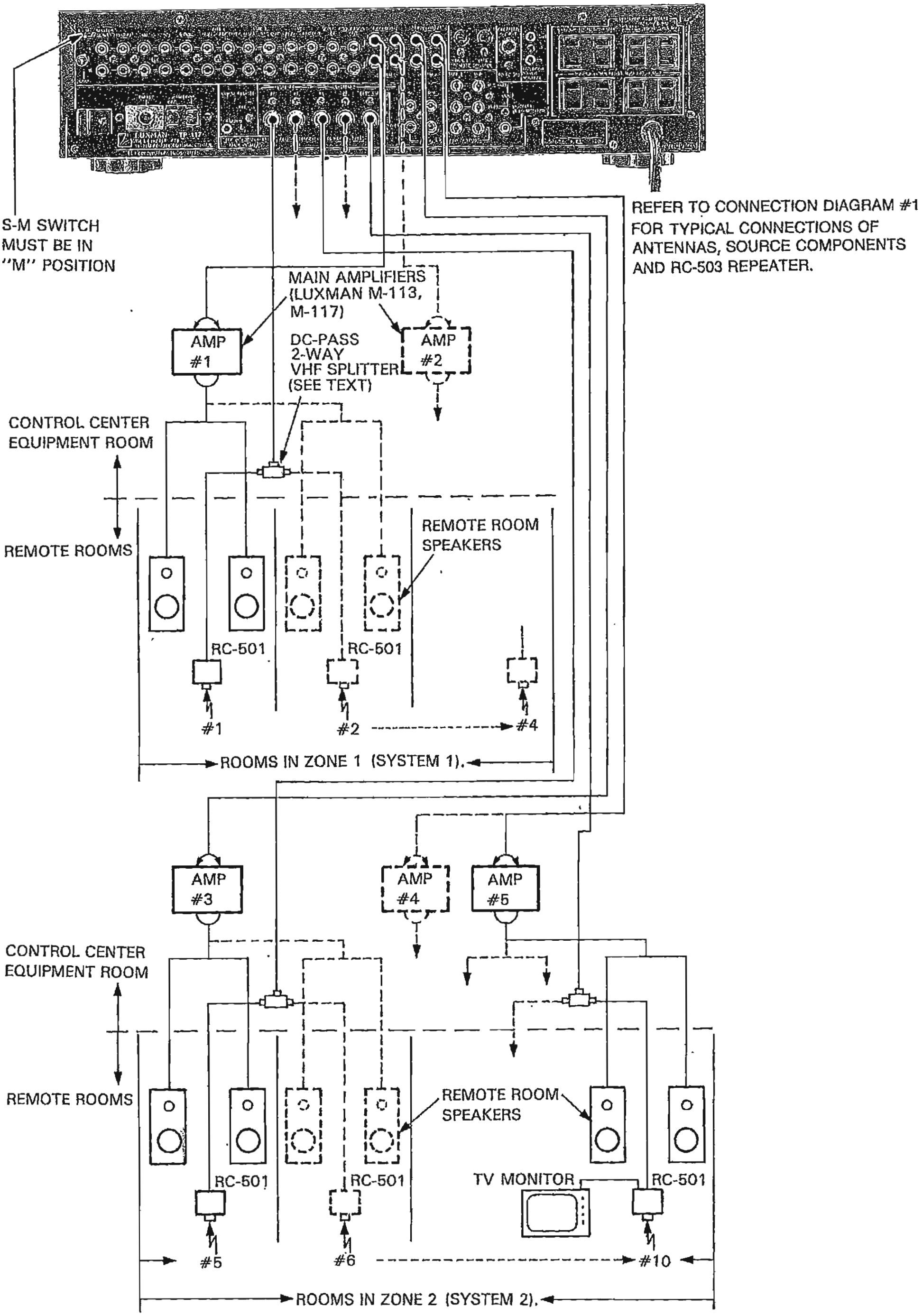
CONNECTION DIAGRAM

CONNECTION DIAGRAM #1



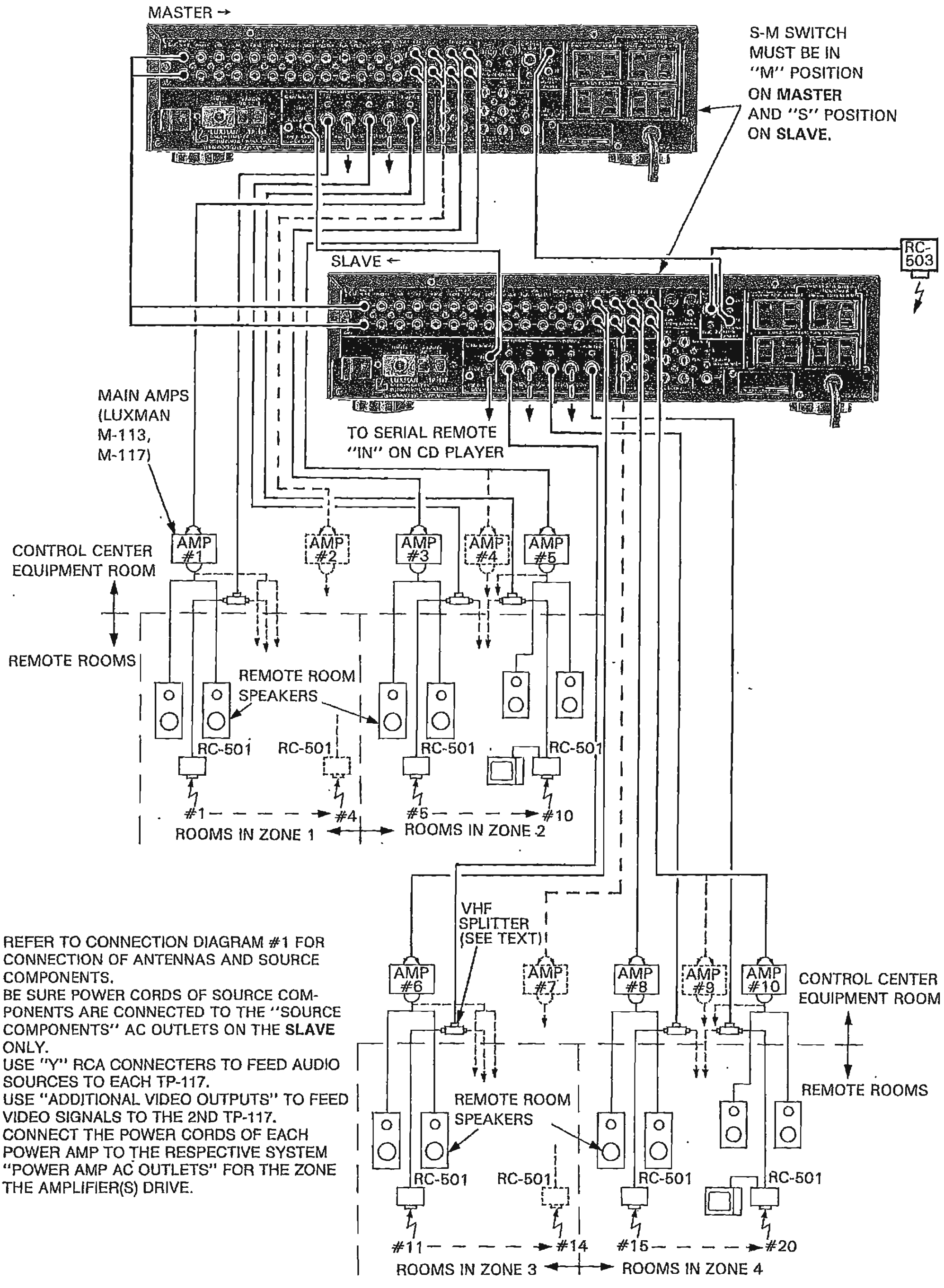
CONNECTION DIAGRAM

CONNECTION DIAGRAM #2



CONNECTION DIAGRAM

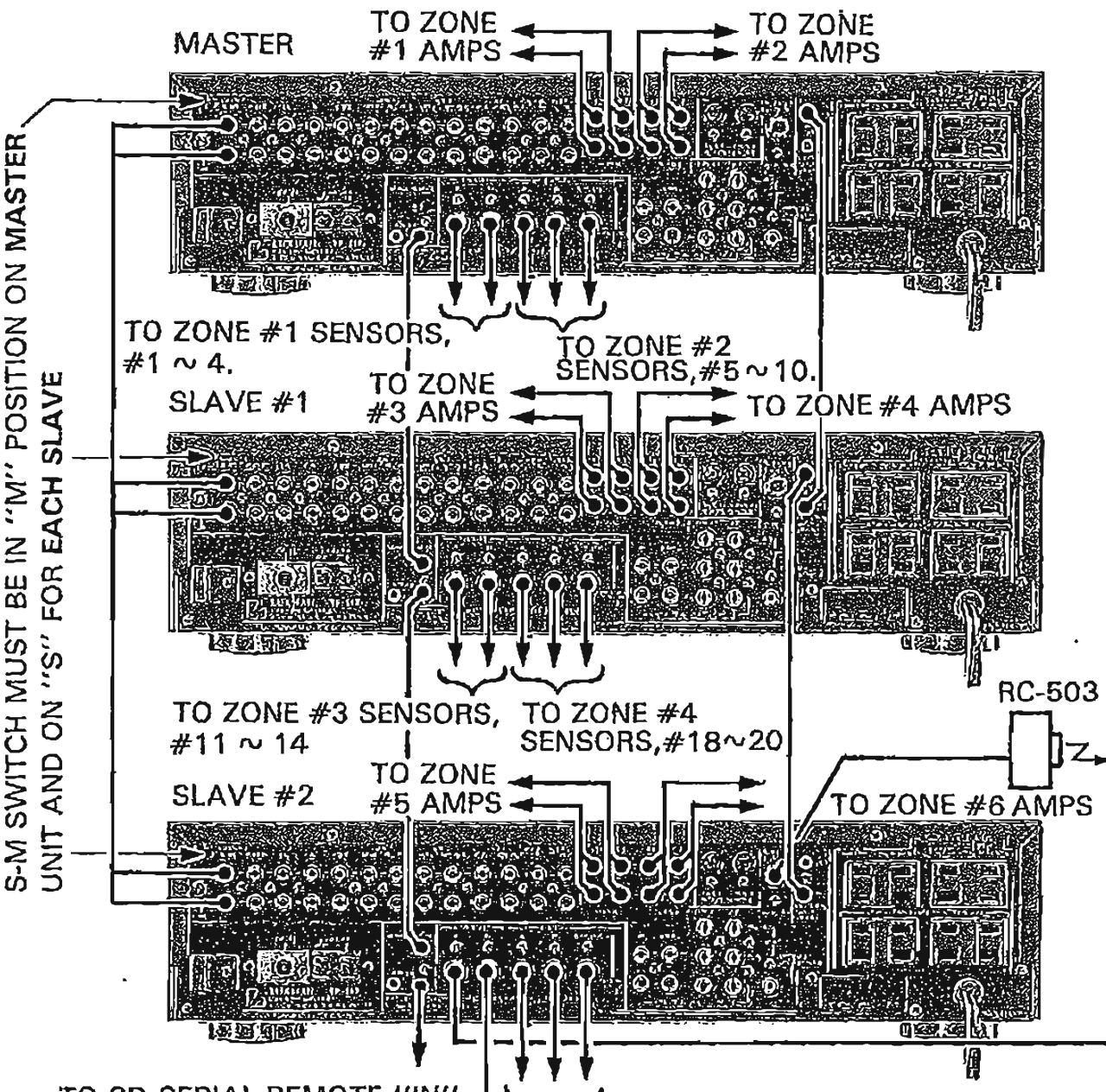
CONNECTION DIAGRAM #3

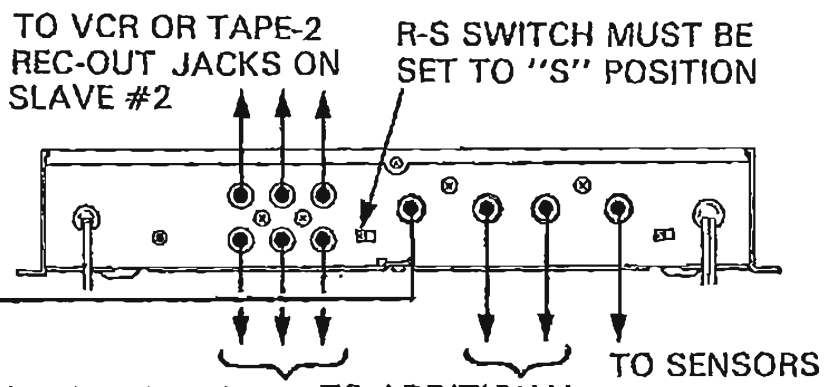


1. REFER TO CONNECTION DIAGRAM #1 FOR CONNECTION OF ANTENNAS AND SOURCE COMPONENTS.
2. BE SURE POWER CORDS OF SOURCE COMPONENTS ARE CONNECTED TO THE "SOURCE COMPONENTS" AC OUTLETS ON THE **SLAVE** ONLY.
3. USE "Y" RCA CONNECTERS TO FEED AUDIO SOURCES TO EACH TP-117.
4. USE "ADDITIONAL VIDEO OUTPUTS" TO FEED VIDEO SIGNALS TO THE 2ND TP-117.
5. CONNECT THE POWER CORDS OF EACH POWER AMP TO THE RESPECTIVE SYSTEM "POWER AMP AC OUTLETS" FOR THE ZONE THE AMPLIFIER(S) DRIVE.

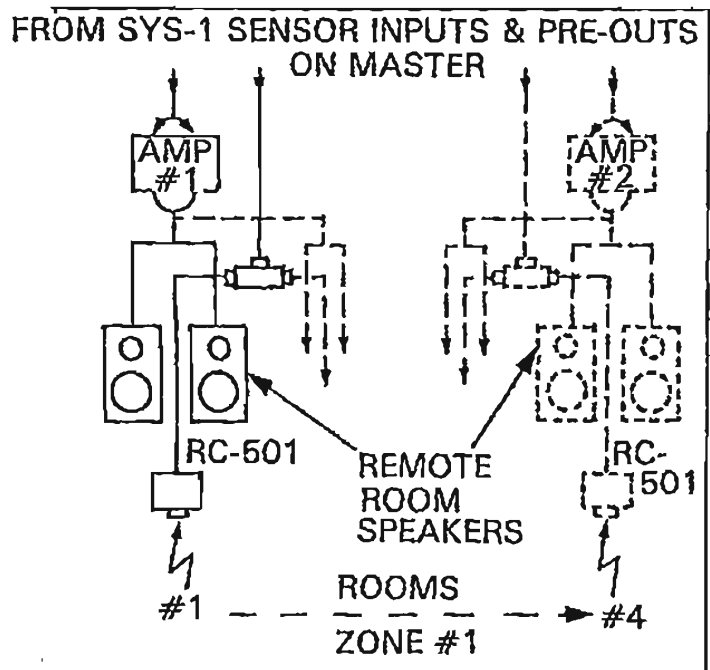
CONNECTION DIAGRAM

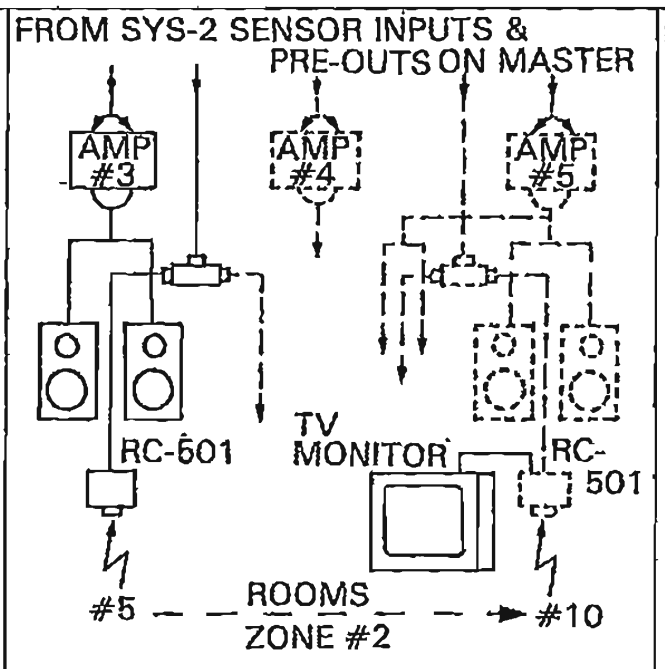
CONNECTION DIAGRAM #4

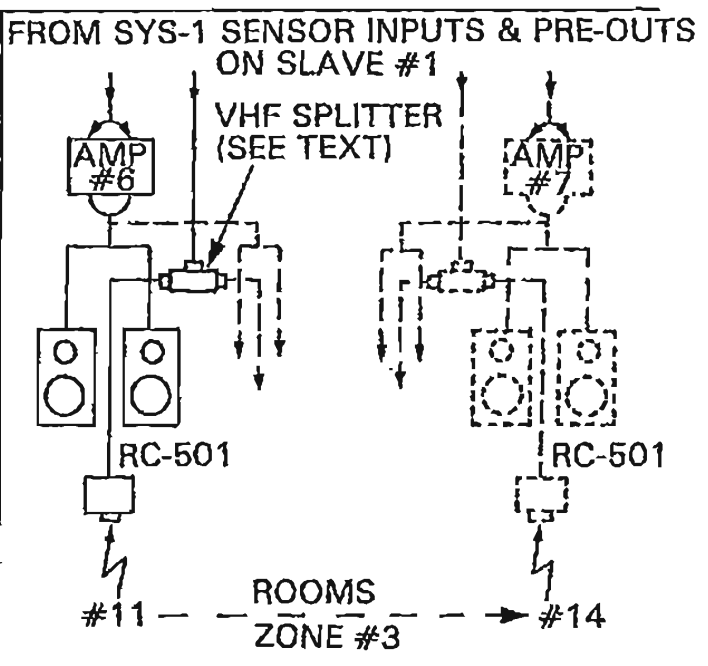


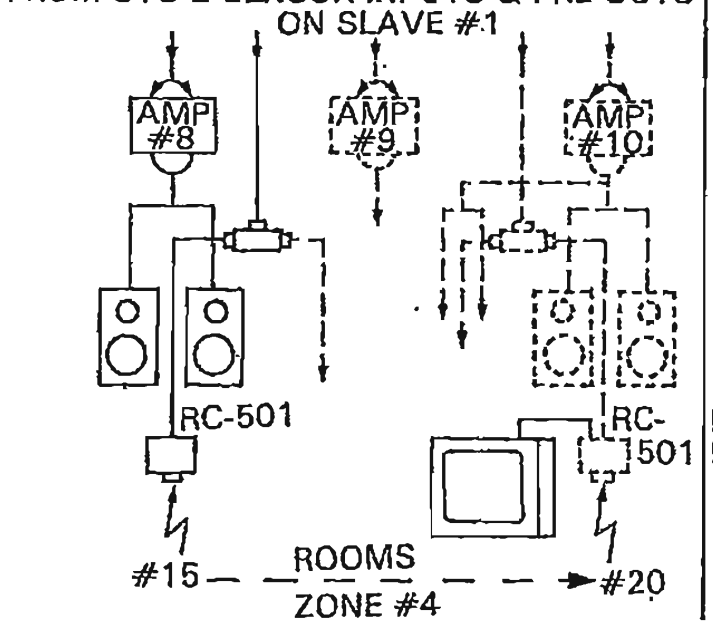


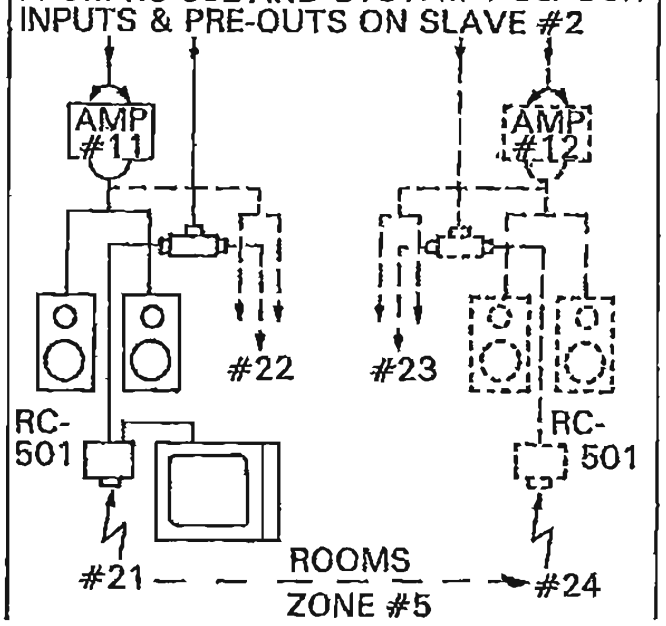
1. REFER TO CONNECTION DIAGRAM #1 FOR CONNECTION OF ANTENNAS AND SOURCE COMPONENTS.
2. BE SURE POWER CORDS OF SOURCE COMPONENTS ARE CONNECTED TO THE "SOURCE COMPONENTS" AC OUTLETS ON SLAVE #2 ONLY.
3. USE RCA TYPE "Y" CONNECTORS (LUXMAN RC-505) TO FEED COMMON AUDIO SOURCES TO EACH TP-117.
4. USE THE "ADDITIONAL VIDEO OUTPUTS" JACKS TO FEED VIDEO SIGNALS (FROM COMMON VIDEO SOURCES) FROM THE MASTER TO SLAVE #1, THEN FROM SLAVE #1 TO SLAVE #2.
5. CONNECT THE POWER CORDS OF EACH POWER AMP TO THE SYSTEM-1 OR -2 "POWER AMP" AC OUTLETS THAT CORRESPOND TO THE SPECIFIC ZONE THAT THE AMPLIFIER(S) DRIVES.
6. REFER TO TEXT, PAGES 18 & 19, CONNECTION DIAGRAMS 2 & 3 AND THE RC-503 OWNER'S MANUAL FOR ADDITIONAL DETAILS.

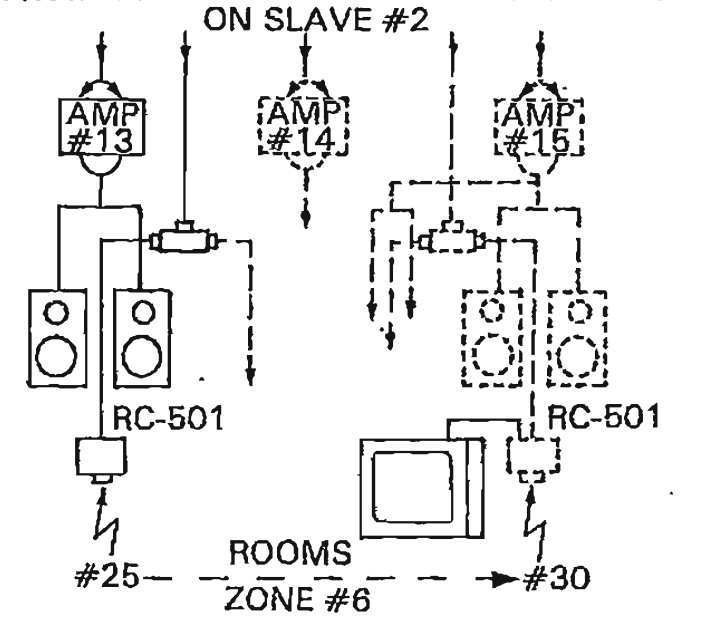












CONNECTION GUIDELINES

BEFORE MAKING CONNECTIONS

It is always wise to ensure that all AC power cords of the various components you are interconnecting are unplugged from the wall outlets during the hook-up procedure. This will prevent any inadvertent damage to your speakers or other equipment that could result from incorrect control settings or connections.

INTERCONNECTING LEADS (Audio and Video Patch Cords)

Be sure that left and right channel identification is correct when making interconnections. Most phono type (RCA) patch cords are color coded with RED ends for the right channel and BLACK or WHITE ends for the left channel, to make this job easier.

In addition, all jacks on the rear of the TP-117 have red centers for right channel, white for left channel and yellow for video, video monitor and green for the additional video output jacks.

When making connections, follow the connection diagrams, referring also to the descriptions for items #34 through #67 on pages 10 through 12.

CONNECTING A TURNTABLE (RECORD PLAYER)

1) In addition to the audio lead connections, be sure to always connect the ground lead from the turntable to the GND terminal (item #34) on the TP-117.
2) When using one TP-117, place the **MASTER SLAVE** switch (item #35) in the **M** (master) position.
3) When using 2 TP-117's, place the **MASTER SLAVE** switch in the **M** position on the **first** TP-117 and in the **S** (slave) position on the **second** TP-117.
4) Using a pair of RCA patch cords, connect the **MASTER SLAVE** jacks of the **first** TP-117 to the **MASTER SLAVE** jacks of the **second** TP-117. This allows both TP-117's to be driven from one turntable source.
5) Similarly, when using 3 TP-117's, place the **MASTER SLAVE** switch in the M position on the **first** TP-117 and in the S position on the **second** and **third** TP-117's.
6) Using a pair of "Y" adapters (i.e. Luxman model RC-505), connect the **MASTER SLAVE** jacks of the **first** TP-117 to the **MASTER SLAVE** jacks of the **second** and **third** TP-117's. This allows all three TP-117's to be driven from one turntable source.
7) Connect the AC power cord of the turntable to an unswitched wall outlet (to prevent possible power turn-off during a turntable cycle).

CONNECTION OF AUDIO AND VIDEO TAPE DECKS

One of the common problems in connecting tape decks is confusing the LINE IN and LINE OUT connections to a pre-amp or receiver, resulting in no output even for other sources.
To prevent this, always connect the LINE OUT jacks of the deck to the MONI (monitor) input jacks on the TP-117 and connect the LINE IN jacks of the deck to the REC OUT (record out) jacks on the TP-117.

CONNECTION OF VIDEO EQUIPMENT

Follow the connection diagram carefully when connecting video equipment to the TP-117. In addition, be sure to read the owner's manuals of such units fully, to ensure proper operation.
It is recommended that only the highest quality TV monitor, Hi-Fi VCR, LD, CD-V etc. be used to complement the high performance standards of the Luxman TP-117.

CONNECTION OF ADDITIONAL VIDEO OUTPUTS

The TP-117 is equipped with a set of 4 additional video outputs corresponding to the AV, V-DISC, TAPE-2 PLAY, and VCR PLAY inputs.
These are provided so that a common set of video sources may be fed to a 2nd or 3rd TP-117 for large multi-zone systems. Since they are buffered outputs, they aliminate the video impedance miss-match losses that would occur if simple "Y" connectors were used.

1) Using video RCA type patch cords, connect these outputs on the first (master) TP-117 to the corresponding inputs on the 2nd (slave) TP-117.
2) In like manner, connect a 3rd TP-117 (slave) unit to the 2nd TP-117, where applicable.
3) Connect the AC power cords of the common video equipment to the SOURCE COMPONENTS AC outlets of the last (slave) unit.

CONNECTION GUIDELINES

SIGNAL PROCESSOR CONNECTIONS

Like tape decks, most of these types of equipment have LINE IN and LINE OUT jack identifications. Be sure the LINE IN and LINE OUT jacks of the signal processor are connected to the TP-117 SIGNAL PROCESSOR OUT and IN jacks respectively.
In the event that the signal processor is removed for some reason, it will be necessary to re-insert the two jumper bars supplied with the TP-117 across the SIGNAL PROCESSOR OUT and IN jacks.

NOTE: Only System 1 is supplied with signal processor jacks.

CONNECTION OF REMOTE SENSOR INPUTS

There are two sensor inputs provided for system-1 and three for system-2. The 3rd input on system-2 also provides a VHF/RF output from a built-in RF modulator in the TP-117 that operates on either channel 3 or 4. This permits transmission of the video sources connected to the TP-117 to be sent down the same co-ax cable to a remote TV monitor as that used for the remote control signal.
Connect these inputs as follows:

1) Connect the SENSOR OUTPUT of up to two RC-501 IR remote eyes to each of the five REMOTE SENSOR inputs on the TP-117 and place them in remote rooms as desired. This means that up to 4 eyes may be used on system-1 and up to 6 eyes on system-2. Use a good quality co-axial cable (RG-59 or better).
2) When connecting 2 eyes to one input, a DC pass type VHF 2-way 75 ohm splitter must be used.

NOTE: This type of splitter will pass DC from the input to its outputs, but will be DC open between the input and the outputs to GND. It will also preserve a 75 ohm match between its input and the 2 outputs.

3) For operation of a remote TV monitor, connect 1 or 2 RC-501's to the 3rd remote sensor input (IN/RF OUT) on SYSTEM 2 in the same manner as above.
   Then, in the remote room or rooms, connect a TV monitor to the RF-OUT jack on one or both of the RC-501's as desired.
4) If it is desired to connect additional TV monitors and RC-501 eyes to system-1 or system-2, use the Luxman RC-502 Remote Signal Converter TV RF Modulator module. See the RC-502 instruction manual and Connection Diagram #4 page 16, for connection details.

SERIAL REMOTE AND TAPE-1 TAPE-2 DIN JACKS CONNECTIONS

When using one TP-117, the SERIAL REMOTE OUT A or B jacks may be connected to other Luxman models having serial remote in and out jacks in "daisy chain" fashion for unified system remote control. The TAPE-1 and TAPE-2 REMOTE CONTROL mini DIN jacks may be connected for remote operation of 2 Luxman cassette decks.

Using Common Sources With 2 or 3 TP-117's

When using 2 or 3 TP-117's, the SERIAL REMOTE IN and OUT B jacks (black) may be connected in "daisy chain" fashion between each other when control of the same common source (CD player, etc.) through each TP-117 is desired. Proceed as follows:

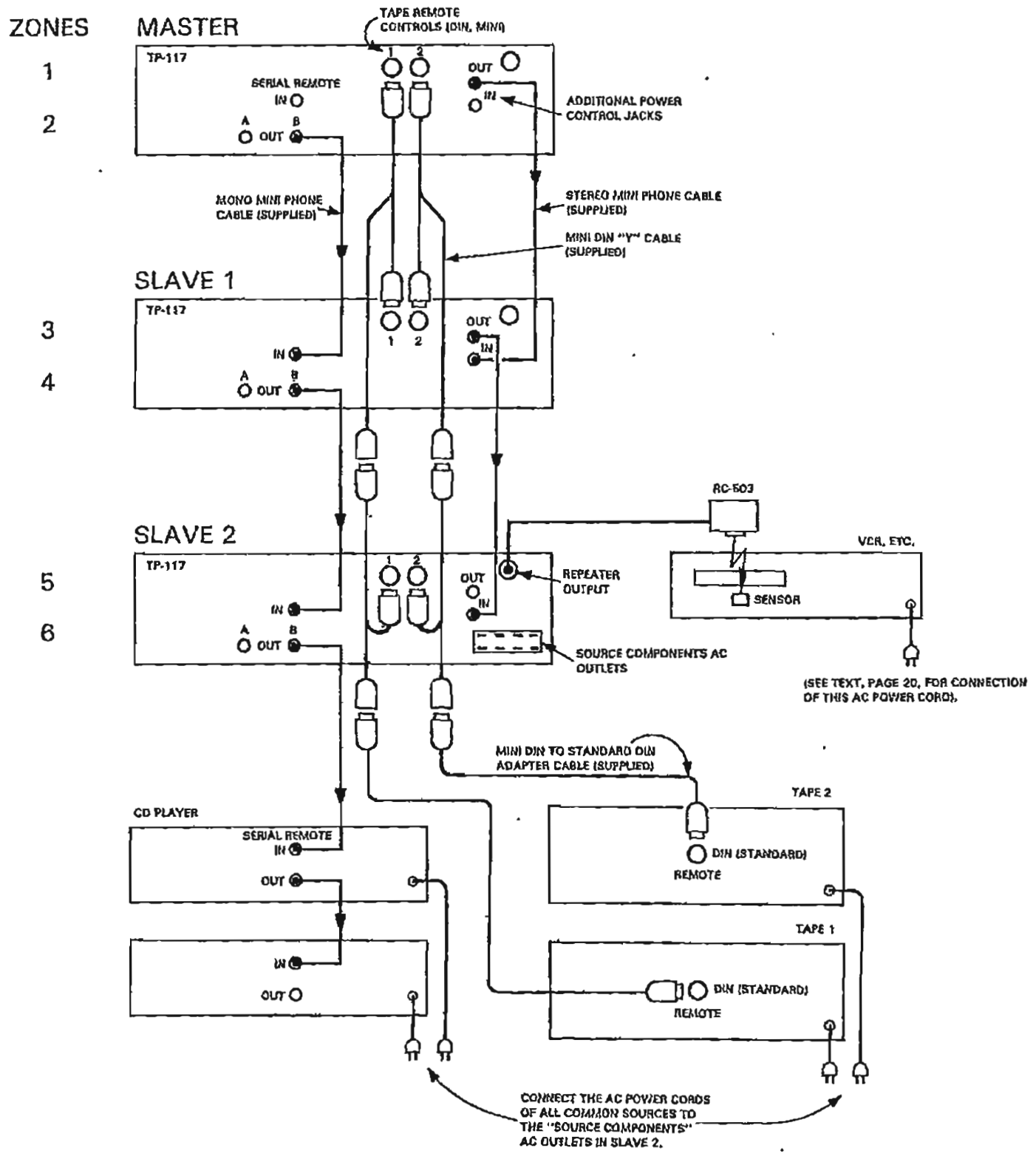
1) Connect the SERIAL REMOTE OUT B jack (black) on the 1st (master) TP-117 to SERIAL REMOTE IN jack on the 2nd (slave) TP-117.
2) In like manner, connect a 3rd (slave) unit, when desired.
3) Connect the SERIAL REMOTE OUT B jack (black) on the last TP-117 (slave) in the chain to the SERIAL REMOTE IN jack of the source, or sources, to be controlled.
4) Connect the TAPE-1 and TAPE-2 mini DIN jacks of each TP-117 to the pair of Luxman cassette decks, using the "Y" mini DIN to standard DIN converter cables supplied.

NOTE: These "Y" connectors are necessary so that the tape decks will continue to receive remote control signals from any active zone even if the other zones are turned off.

5) If common video sources are also used, their remote control signals may be repeated by connecting one RC-503 repeater to the last (slave) TP-117 in the chain.
6) Connect the ADDITIONAL POWER CONTROL IN and OUT jacks as outlined under the section "ADDITIONAL POWER CONTROL JACKS", page 22.
7) Connect the AC power cords of the components used as common sources into the SOURCE COMPONENTS AC outlets on the last unit (slave) in the chain.
   This prevents a source cut-off in any zone even if all other zones are turned off.
   Total system shut-off is also possible from the 1st (master) unit when the "Total Off" command is pressed 3 times on the RTP-117 remote control unit.
8) Refer to the following diagram, fig. 1, for a basic illustration of the remote jack connections for common sources.

NOTE: When connected in this manner, the front panel remote sensors of the slave units should be turned off (item #26). Only the 1st (master) unit front sensor should be left to operate. This prevents unintended operation of the slave zones when the master system-1 zone is operated from the front with the remote control unit in a stack of 2 or 3 TP-117's.

Fig. 1



REMOTE JACK CONNECTIONS FOR COMMON SOURCE CONFIGURATIONS

Using Individual Sources With 2 or 3 TP-117's

If it is desired to have more than one set of sources, connections may be made so that separate sources may be heard in the zones controlled by each TP-117. That is, zones 1 and 2, 3 and 4, and 5 and 6 may each have their own set of sources (3 sets of sources in this case). In essence, with this set-up, each TP-117 runs as a 2 zone system, independent of the others, unless a special total system shut-off hookup is added as explained later.

Refer to the diagram, **"REMOTE JACK CONNECTIONS FOR INDIVIDUAL SOURCE CONFIGURATIONS",** page 21, while making the following connections:

1) Connect the **SERIAL REMOTE OUT A** jack (blue) to the **SERIAL REMOTE IN** jack of the sources to be controlled by that particular TP-117. Do this for each TP-117.
2) Connect the **TAPE-1** and **TAPE-2** mini DIN jacks to the Luxman cassette decks, as desired, for each TP-117. Use the mini DIN to standard DIN ("Y") converter cables supplied (ignore the unused end of the "Y" DIN cable).
3) If individual video sources or other non Luxman audio sources are used, their remote control signals may be repeated by connecting an RC-503 repeater to each TP-117, as shown.
4) The **ADDITIONAL POWER CONTROL IN** and **OUT** jacks **do not** need to be connected for this configuration.
5) Plug the AC power cords of the source components for each TP-117 into the **SOURCE COMPONENTS** AC outlets on that particular TP-117. This permits AC power shut-off of all sources connected to any specific TP-117 when the "Total Off" command is pressed three times on the RTP-117 remote.

NOTE: When using VCRs in the system, you may consider two ways of connecting their power cords as follows:

A) If a VCR is used for playback purposes only, then you should plug it into the **SOURCE COMPONENTS** AC outlets on its related TP-117 as noted above. In this way the VCR will always be shut off with all the other source components, when the "Total Off" command is executed.

B) If a VCR is used for off-air timed recordings and the like, then it will be necessary to plug it into a wall outlet that is always on. Remember that for each of these conditions, it will always be necessary, when turning the VCR on, to use the POWER ON button on the VCR's own remote. Of cource, this may apply for other non Luxman units as well.

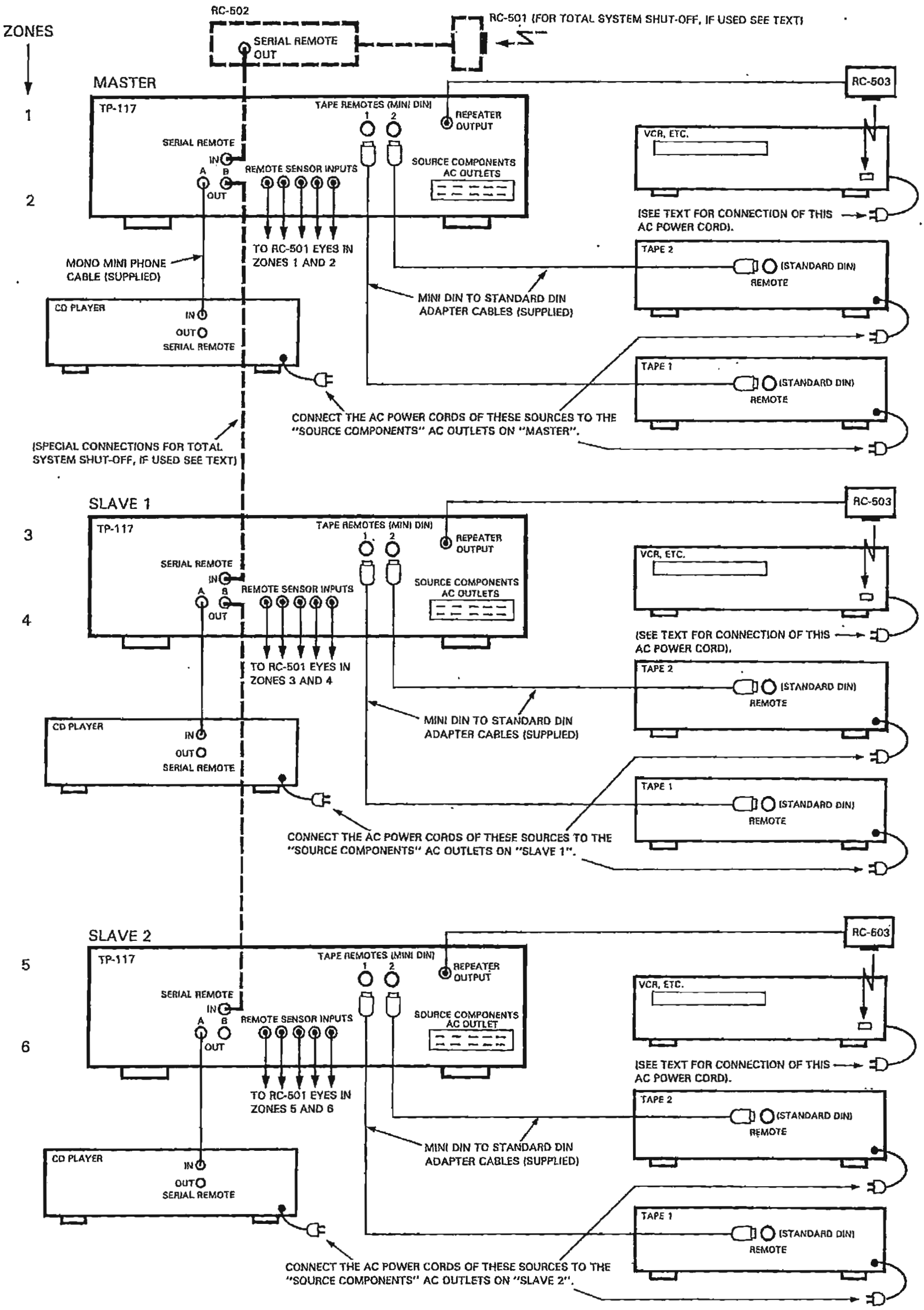
Total System Shut-off

With the system as described above, total shut-off for both zones of each TP-117 is possible, but not for the total 6 zone system. 6 zone shut-off may be desired, for instance, if the parents want the ability to turn off all systems (all zones) in the house from the master bedroom. To accomplish this, connect an RC-502 and an RC-501 according to the following additional hook-up procedure, which is also illustrated by the **dotted lines** in the diagram on page 21:

1) First, place a 2nd RC-501 eye in the master bedroom or other location where you wish to have total system shut down capability. **NOTE: This 2nd eye must be used only for the total shut-off function. If other commands are operated through it, they will cause interference to the tape deck operations in the other zones.** Therefore it must be placed and oriented in the room in such a way as to not receive the commands that are directed at the 1st eye that is used for normal operation of the system.
2) Connect the **SENSOR OUTPUT** of this 2nd RC-501 eye to one of the **SENSOR INPUTS** on the RC-502. Be sure the AC power cord of the RC-502 is plugged into a wall outlet that is always on.
3) Connect the **SERIAL REMOTE OUT** jack on the RC-502 to the **SERIAL REMOTE IN** jack on the **MASTER** TP-117.
4) Connect the **SERIAL REMOTE OUT B** jack (black) on the master TP-117 to the **SERIAL REMOTE IN** jack on the **SLAVE 1** TP-117.
5) In like manner, connect **SLAVE 1** to **SLAVE 2,** if used.

NOTE: MONO mini phone cables (one is supplied with each TP-117), must be used for all SERIAL REMOTE connections.

CONNECTION GUIDELINES



REMOTE JACK CONNECTIONS FOR INDIVIDUAL SOURCE CONFIGURATIONS

CONNECTION GUIDELINES

ADDITIONAL POWER CONTROL JACKS

These jacks provide 2 major functions when 2 or 3 TP-117's are used together to control common sources as follows:

1) When connected, they allow common source components to remain turned on for any given zone, even if all other zones, including the master unit, is turned off. For this to occur, however, all components used as common sources must have their AC power cords plugged into the SOURCE COMPONENTS AC outlets on the last (slave) unit in the chain.
2) The IR repeater signal is also fed through this connection to the last (slave) unit in the chain. This allows a single RC-503 IR repeater, connected to the last (slave) unit in the chain, to pass on remote control signals to non Luxman units from any zone.

When 2 TP-117's are used, connect the OUT jack of the master unit to the IN jack of the slave unit. When a 3rd TP-117 is connected in like manner, the unit having the unused IN jack will be the master unit.

NOTE: STEREO mini phone cables (one is supplied with each TP-117), must be used for these connections.

AC OUTLET CONNECTIONS

These outlets, item #66, may be used to feed AC power to the power amplifiers and most of the source components used with the TP-117. They are all switched outlets, so that the entire system may be switched on and off by the TP-117. Connect as follows:

1) Plug the AC power cords of the power amps used with system-1 into the SYSTEM-1 POWER AMP outlets.
2) Plug the AC power cords of the power amps used with system-2 into the SYSTEM-2 POWER AMP outlets.
3) Plug the AC power cords of the components used as sources into the SOURCE COMPONENTS outlets.

CAUTION: When connecting equipment to these outlets, be sure not to exceed their maximum power ratings of 500 watts total for each pair of POWER AMP outlets (500 watts on system 1 and 500 watts on system 2) and 300 watts total for the 4 SOURCE COMPONENTS outlets.

CONNECTION DIAGRAM 1

This diagram provides for:

1) Single room operation with one TP-117 using high quality main amplifiers, such as the Luxman M-113 or M-117.
2) Use of the RC-501 for a more convenient remote eye pick-up location.
3) Use of the RC-503 IR repeater to remote operate other non Luxman system units such as VCR's and Laser Disc players.
4) Operation of a full complement of audio and video equipment.

Refer to the owner's manual of the other units in the system, as necessary, when making connections to them.

CONNECTION DIAGRAM 2

This diagram provides for:

1) Two zone operation; up to 4 rooms on zone 1 (system 1) and 6 rooms on zone 2 (system 2), with independent source selection and volume control for each zone, using one TP-117 with high quality main amplifiers such as the Luxman M-113 and M-117.
2) Use of up to 10 RC-501's for remote eye locations in each room.
3) Use of an RC-503 IR repeater to remote operate other non Luxman units from any room, or VCR's and Laser Disc players from the room having a TV monitor in zone 2.
4) Operation of a TV monitor in one location in zone 2.
5) Operation of a full complement of audio and video equipment.

Refer to the owner's manual of the other units in the system, as necessary, when making connections to them.

CONNECTION DIAGRAM 3

This diagram provides for:
1) 4 zone operation; up to 4 rooms per zone in 2 zones (system 1) and 6 rooms per zone in 2 zones (system 2) with independent source selection and volume control for each zone, using 2 TP-117's with high quality main amplifiers such as Luxman M-113's and M-117's.
2) Use of up to 20 RC-501's for remote eye locations in each room.
3) Use of one RC-503 IR repeater for remote operation of non Luxman system units from any room within the zones controlled by a given TP-117 and control of VCR's and Laser Disc players from rooms with a TV monitor.
4) Operation of 2 TV monitors, one located in zone 2 (system 2) of each TP-117.
5) Connection of a common source, such as a CD player or any other choosen source, to feed both TP-117's, using audio cable "Y" adapters (i.e. Luxman model RC-505).
6) Individual power turn-on and turn-off of each zone plus total system power down of both TP-117's from one hand held remote at any remote eye location in the zones controlled by the **master** unit.
7) Operation of a full complement of audio and video equipment.

Refer to the owner's manual of the other units in the system, as necessary, when making connections to them.

CONNECTION DIAGRAM 4

This diagram provides for:
1) 6 zone operation; up to 4 rooms per zone in 3 zones (system 1) and 6 rooms per zone in 3 zones (system 2) with independent source selection and volume control for each zone, using 3 TP-117's with high quality main amplifiers such as Luxman M-113's and M-117's.
2) Use of up to 30 RC-501's for remote eye locations in each room.
3) Use of one RC-503 IR repeater for remote operation of non Luxman system units from any room within the zones controlled by a given TP-117 and control of VCR's and Laser Disc players from rooms with a TV monitor.
4) Operation of 3 TV monitors, one located in zone 2 (system 2) of each TP-117.
5) Connection of a single source, such as a CD player or any other choosen source, to feed all 3 TP-117's, using audio cable "Y" adapters (i.e. Luxman model RC-505).
6) Individual power turn-on and turn-off of each zone plus total system power down of all TP-117's from one hand held remote at any remote eye location in the zones controlled by the **master** unit.
7) Connection of an RC-502 for the adding of additional TV monitors or RC-501's in any zone.
8) Operation of a full complement of audio and video equipment.

Refer to the owner's manual of the other units in the system, as necessary, when making connections to them.

AM ANTENNA

An AM loop antenna comes packed with your TP-117. Carefully unwrap and mount it and connect leads referring to item #52 on page 12.

FM ANTENNA CONNECTIONS

Included also with your TP-117, is a T-type di-pole FM antenna. This type of antenna is simple and practical and will give adequate results in primary signal areas.
To use it, unfold it into a "T" shape and connect its leads to the Adapter, and plug into "F" connector (item #51) on the rear of the TP-117 (See page 11). The antenna is designed to operate in a horizontal position, and may be attached to a nearby wall.

The TP-117 is also capable of accommodating other types of cable, including 75 ohm coaxial cable and 300 ohm shielded transmission line. These types of cable are for use with outdoor antennas, which will be discussed next.

CONNECTION GUIDELINES

OUTDOOR FM ANTENNA

As stated before, the supplied folded dipole antenna will give satisfactory results in primary signal areas. However, if you are located in a fringe area where signals are weak, then an outdoor antenna will be necessary. Even if you live in a strong signal location, an outdoor directional antenna may be needed to eliminate "multipath" reflections.

Multipath reflections are responsible for much of the distortion and noise associated with poor FM reception. They occur when radio waves from the transmitter bounce off of nearby mountains and tall buildings. The reflected waves follow different, more roundabout paths to your TP-117 and arrive slightly delayed and out of phase with the direct signal (hence, the term "multipath"). This causes distortion in the same manner that "ghost" images are generated on television.

The way to minimize multipath is to use a "beam type" antenna that can be aimed toward the FM transmitter and away from the multipath reflections. The best types of antennas to use are either a "Yagi" or "Log-Periodic" configuration with six or more elements designed expressly for FM reception.

If you want to receive stations from more than one general direction, then you will need a good quality antenna rotor system. This will enable you to point the antenna in the direction giving the least multipath interference, by means of a control box located near the TP-117.

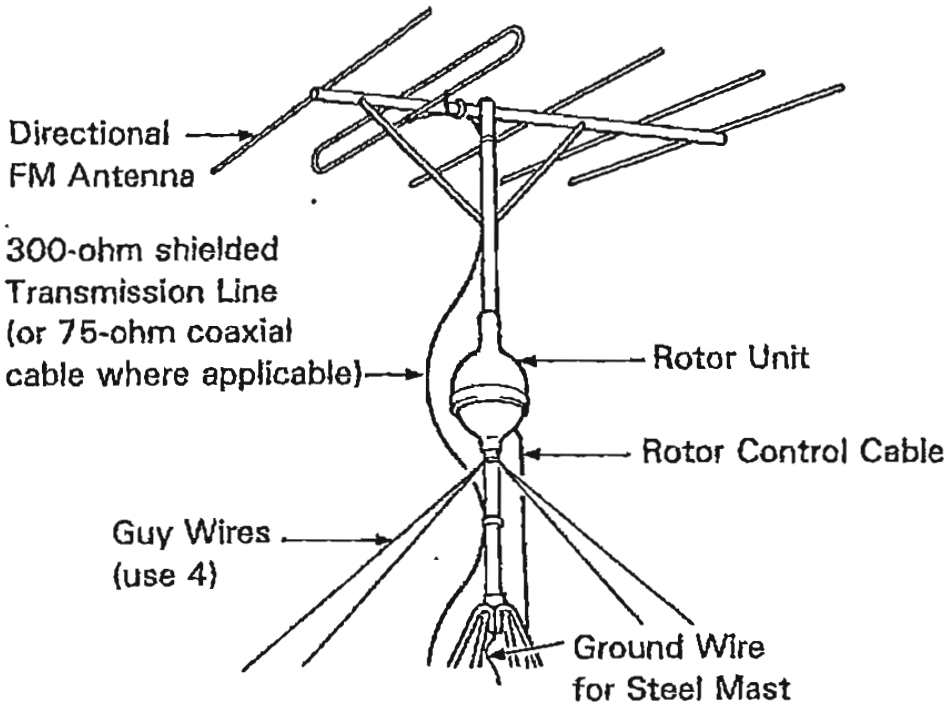
Another important factor is the type of lead-in wire to use. Unshielded lead-in wires, such as 300-ohm twin lead, can act as an omnidirectional antenna, and can cancel the directional benefits of your antenna. Therefore, we recommend using a balanced, shielded 300-ohm cable or a coaxial 75-ohm cable with a 300-to-75 ohm matching transformer at the antenna. These types of shielded cable effectively prevent the lead-in from contributing to multipath distortion.

If you decide to use 75-ohm coaxial cable, we recommend buying cable with "F" type connectors attached.
These will fit both the matching transformer and the terminal on the TP-117 (see page 11).

It is considered good practice to connect the antenna mast to an earth ground, both for reasons of safety and noise reduction. If 300-ohm shielded cable is used, connect the shield to ground (GND) at the receiver end only.

For rural areas, it is recommended to consult a local dealer about installation and lightning arrestor protection.

We don't recommend using master antenna systems, such as those found in apartment buildings. Such systems are usually designed expressly for television reception and frequently suppress or reduce the quality of the FM signals before distribution.



OPERATION GUIDELINES

The following guidelines assume that all connections have been made according to the "CONNECTION DIAGRAMS" on page 13 through 16.

POWER SWITCHING

Power switching operations are as follows:

1) The POWER button on the TP-117 front panel will turn system-1 (zone #1) on and will turn both system-1 and system-2 off when successively pressed.

2) The ON and OFF buttons of the RTP-117 remote control unit will also turn system-1 on and off, but will **not** turn system-2 off when aimed at system-1 sensors.

NOTE: It is recommended that the remote control unit always be used for all normal system-1 on and off switching to avoid the unintentional shut-down of system-2 (zone #2) that would otherwise occur with the operation of the front panel power button.

3) System-2 (zone #2) of the TP-117 can **only** be turned on with the RTP-117 remote control unit (through an RC-501 eye connected to a system-2 rear panel sensor jack).
Turn-off of system-2 is normally accomplished with the remote, but can be turned off with the front panel power button as mentioned above.

4) Total power shut-down of the system is possible from any remote control unit within the 2 zones of the TP-117 by pressing the TOTAL OFF button on the RTP-117 remote control unit 3 times.

5) When operating 2 or 3 TP-117's together in a larger system, the power switching operations for each individual TP-117 will be as noted above. In addition, however, total power shut-down of the entire 2 or 3 piece system is possible from any remote within the zones of the **master** TP-117 by pressing the TOTAL OFF button on the RTP-117 remote control unit 3 times.

FRONT PANEL OPERATIONS

The TP-117 has been arranged to minimize the number of front panel controls for simplification and ease of operation. In general, those requiring less frequent use are placed on the front panel and the rest are on the RTP-117 remote control unit.

The front panel power button, tuner functions, CD straight, tone controls, REC OUT, TAPE/VCR dubbing and system-1 volume control, would be used primarily for single room pre-amp use with one TP-117.

Source selection (tuner, CD, phono, V-disc, tape-1, tape-2, AV, VCR), some tuner functions (preset store and preset selection) plus system-2 volume control, are addressable **only** by the RTP-117 remote control unit.

TAPE RECORDING OPERATIONS (AUDIO)

To make a tape recording of any source, proceed as follows:

1) Depress a REC OUT selector button for the source you wish to record.

2) The source signal will now be fed, via the REC-OUT jacks, to each of the tape decks that you may have connected to the TAPE-1, TAPE-2, and VCR rear panel tape jacks. You may now record the selected source signal on one or all three of these audio tape decks (or on the audio tracks of a VCR). Follow the recording insutructions for the tape deck in use.

3) If you have a 3 head monitoring tape deck, you can monitor the actual signal just recorded on the tape, as it is being recorded, by pressing the corresponding "INPUT SYSTEM" buttons, TAPE-1, TAPE-2, or VCR on the RTP-117 remote control unit.

TAPE PLAYBACK

Playback from any of the 3 tape decks can be heard by pressing the corresponding "INPUT SYSTEM" buttons, TAPE-1, TAPE-2, or VCR on the RTP-117 remote control unit.

TAPE DUBBING (AUDIO)

Audio tape copies (dubs) may be made between any of the 3 tape decks connected to the TAPE-1, TAPE-2, or VCR jacks as follows:

1) Depress the T-1 ▶ T-2/V dubbing button if you wish to dub from the tape deck at TAPE-1 to the tape decks at TAPE-2 and VCR.

2) Place tape deck 1 in the PLAY mode and decks 2 and VCR in the RECORD mode.

3) If you wish to dub from the tape deck at TAPE-2 to the tape decks at TAPE-1 and VCR, depress the T-2 ▶ T-1/V dubbing button.

4) Place tape deck 2 in the PLAY mode and decks 1 and VCR in the RECORD mode.

5) If you wish to dub from the tape deck at VCR to the tape decks at TAPE-1 and TAPE-2, depress the V ► T-1/T-2 dubbing button.

6) If the tape decks you are dubbing to are 3 head monitoring decks, you can monitor the actual signal just recorded on the tape, as it is being recorded, by pressing the " INPUT SYSTEM" buttons TAPE-1, TAPE-2 or VCR on the RTP-117 remote control unit corresponding to the deck you wish to monitor. Of course, the SOURCE/ MONITOR switch on the 3 head tape deck itself must be in the MONITOR position.

SIGNAL PROCESSOR JACKS

When using this facility, the following items should be kept in mind:

1) The effects of other functions, such as the TONE controls, LOUDNESS, SUBSONIC filter, etc., should always be considered relative to the external processor.

   For instance, "double boosting" effects can occur with a connected equalizer, causing severe overload distortion, if both the equalizer and the tone controls are boosted together in the same frequency range.

2) When in CD straight operation, the SIGNAL PROCESSOR is completely bypassed.

3) The SIGNAL PROCESSOR functions on system-1 only ... not on system-2.

AM/FM TUNER OPERATIONS

The TP-117 utilizes several tuning methods to provide ease, yet great flexibility in station selection and use.
Proceed as follows:

MANUAL TUNING

1) Depress the TUNER select button on the "INPUT SYSTEM" area of the RTP-117 remote control unit.

2) Select AM or FM by the front panel AM/FM button on the TP-117 or the AM/FM/S-PLAY button on the RTP-117 remote control unit.

3) Depress the "auto seek-stereo" button on the front panel to ensure that the AUTO indicator (item #7) is off (not lit)

4) Depress the up ► down ◄ tuning buttons on the front panel to tune the desired station.

NOTE: These buttons can be pressed in one step increments for fine tuning or held down continuously for rapid tuning. Also, the tuning increment on FM has been factory set to the 25 kHz position (see the 25 kHz—200 kHz TUNING INCREMENT SWITCH paragraph, following, for further details). Therefore the Digital Frequency display (item #5) will successively show the numbers 25, 50 and 75 on the right side of the digital display, indicating the tuner is being stepped through 25 kHz tuning increments during the tuning process.

5) Adjust tuning for maximum upward movement of the SS (signal strength) indicator (item #13) and, until the TUNED indicator (item #12) is lit.

6) On FM, when the desired station is tuned, depress the **"auto seek-stereo"** button for mono or stereo operation as desired.

AUTO SEEK TUNING

1) Depress the TUNER select button on the "INPUT SYSTEM" area of the RTP-117 remote control unit.

2) Select AM or FM by the front panel AM/FM buttor on the TP-117 or by the AM/FM/S-PLAY button o the RTP-117 remote control unit.

3) Depress the **"auto seek-stereo"** button on the front panel to ensure that the AUTO indicator (item #7) is on.

4) Depress the up ► down ◄ tuning buttons on th front panel or the DOWN SEEK UP buttons on the RTP-117 remote control unit in the direction desired to initiate auto seek tuning.

NOTE: When the DOWN SEEK UP buttons are pressed on the RTP-117 remote control ur the tuner will automatically switch to **"aut seek-stereo"** operation without the need depress the **"auto seek-stereo"** button o the front panel.

5) The tuner will now automatically tune in 10 kHz increments on AM and 200 kHz increments on FM, until a station is found.

6) On FM, when the desired station is tuned, depress the **"auto seek-stereo"** button for mono operation, if desired.

NOTE: Due to interfering signals in some areas, there may be instances when the tuner will stop at some points off station. If this occurs, simply initiate auto seek tuning again with the tuning or SEEK buttons.

STATION MEMORY OPERATIONS

A total of 20 stations, in any combination of AM or FM stations, and in any random order, may be stored in the TP-117's AM/FM random station memory system.

STORE PROCEDURE

1) Select AM or FM as desired.

2) Tune desired stations using either manual or auto seek tuning modes.

3) Press the "store" button on the front panel or press the STORE/PROG button on the RTP-117 remote control unit.

4) Select a preset station memory location of 1 through 20 with the 10 key TUNER/CD buttons on the RTP-117 remote control unit. Use keys 1 ~ 9 and 1 + 0 ~ 9 for preset locations 1 ~ 19 and 2 + 0 for location 20.

5) Repeat the above procedure for each station you wish to store.

6) Each time "store" is activated, the store function and the STORE indicator (item #8) will remain on for 30 seconds.

7) To replace a station already in a preset location, simply tune the new desired station and repeat the above procedure.

NOTE: When you have finished storing stations, be sure to de-activate the store function by pressing the "store" button again. This will prevent an accidental overwrite of a previously stored station.

STATION RECALL

Stations stored in preset locations can be tuned (recalled) instantly by two methods:

1) Press the DOWN PRESET UP buttons on the RTP-117 remote control unit to step through each preset.

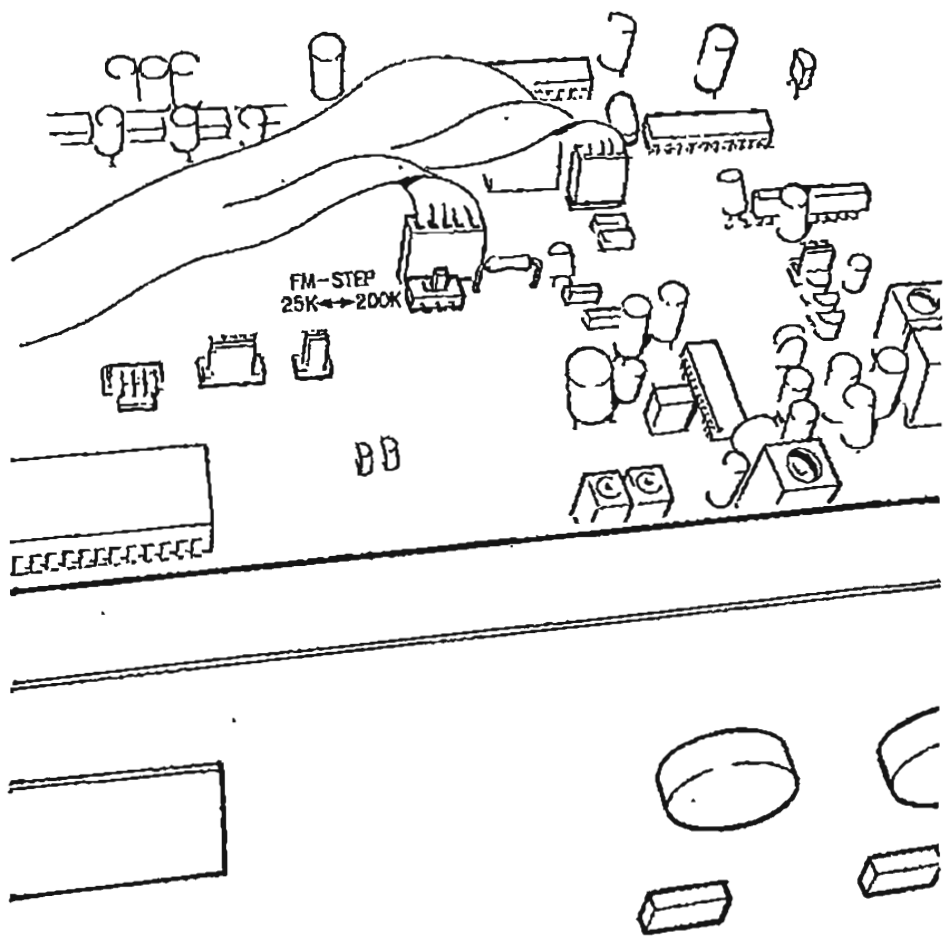
2) Select preset station locations 1 through 20 with the 10 key TUNER/CD buttons on the RTP-117 remote control unit.
Use keys 1 ~ 9 and 1 + 0 ~ 9 for preset locations 1 ~ 19 and 2 + 0 for location 20.

25 kHz/200 kHz FM TUNING INCREMENT SWITCH

Some cable systems require 25 kHz tuning increments rather than the standard FM broadcast increments of 200 kHz. The TP-117 is provided with an internal switch so that tuning in the manual mode can be done in either 25 kHz or 200 kHz tuning steps. The TP-117 comes factory adjusted to the 25 kHz increment.

If your cable system does not require the 25 kHz increment (consult with your cable company) and you desire faster manual tuning, the 200 kHz rate may be selected with the internal switch (SW101) located to the rear of the bass control. See diagram below for switch location.

CAUTION: Since the top cover must be removed to gain access to this switch, hazardous voltages will be exposed. Refer this adjustment to your dealer or other qualified service personnel.



OPERATION GUIDELINES

VIDEO PLAYBACK

Both audio and video playback from the connected A/V systems can be selected by depressing the TAPE-2, AV, VCR and V-DISC buttons on the "INPUT SYSTEM" area of the RTP-117 remote control unit.

VIDEO TAPE RECORDING

Both the audio sound tracks and video signals from any A/V source can be recorded by a video cassette recorder (VCR) through the TP-117.

To record any video source (LD, CD-V, TV stereo Tuner, VCR, etc.,) connected to the AV or V-DISC inputs, proceed as follows:

1) Depress the AV or V-DISC buttons, as desired, on the REC OUT selector located under the flip front panel.

2) The A/V signals will now be fed via the REC OUT jacks to the VCR(s) connected to the TAPE-2 and VCR jacks on the rear panel. Follow the recording instructions for the VCR in use, being sure to set its input selector to the "external" position.

NOTE: You may view and listen to the A/V signal at either the TAPE-2, AV, VCR or V-DISC source positions selected by the "INPUT SYSTEM" buttons of the RTP-117 remote control unit. However, since some switching noise may appear on the recorded image, it is recommended that these buttons not be manipulated during the recording process.

VIDEO DUBBING

Video dubs (copies) may be made between VCR's as follows:

1) Depress the T-2 ► T-1/V DUBBING button on the TP-117, to dub from the 1st VCR connected to the TAPE-2 jacks to a 2nd VCR connected to the VCR jacks.

2) Place the 1st VCR in the PLAY mode and the 2nd VCR in the RECORD mode.

3) If you wish to dub in the other direction from the 2nd VCR connected to the VCR jacks to the 1st VCR connected to the TAPE-2 jacks, depress the V ► T-1/T-2 DUBBING button on the TP-117.

4) In like manner, place the 2nd VCR in the PLAY mode and the 1st VCR in the RECORD mode.

TV OPERATIONS

You can watch and/or record off-the-air (or cable) TV programs with high quality sound, using a HI-FI VCR. With a video monitor or TV receiver connected according to CONNECTION DIAGRAM #1, page 13, proceed as follows:

1) Set the INPUT SELECTOR of the HI-FI VCR, connected to the VCR or TAPE-2 inputs, to the TV or TUNER position.

2) Depress the corresponding VCR or TAPE-2 buttons on the "INPUT SYSTEM" buttons of the RTP-117 remote control unit.

3) You can now view any channel selected by the HI-FI VCR's tuner.

4) A recording of the selected TV program can also be made, while watching and listening to high quality sound, by placing the VCR in the RECORD mode.

USING A TV MONITOR AS A SOURCE

If you have an MTS TV monitor with stereo audio output jacks, these may be connected to the AV input jacks on the TP-117 for independent TV operation with high quality stereo sound. Proceed as follows:

1) Depress the AV button on the "INPUT SYSTEM" buttons of the RTP-117 remote control unit.

2) Set the INPUT SELECTOR of the TV to the TV position and tune desired channels.

NOTE: Consult the owner's manuals of the VCR, TV monitor and other A/V units for cable and TV antenna connections and other specific operational details.

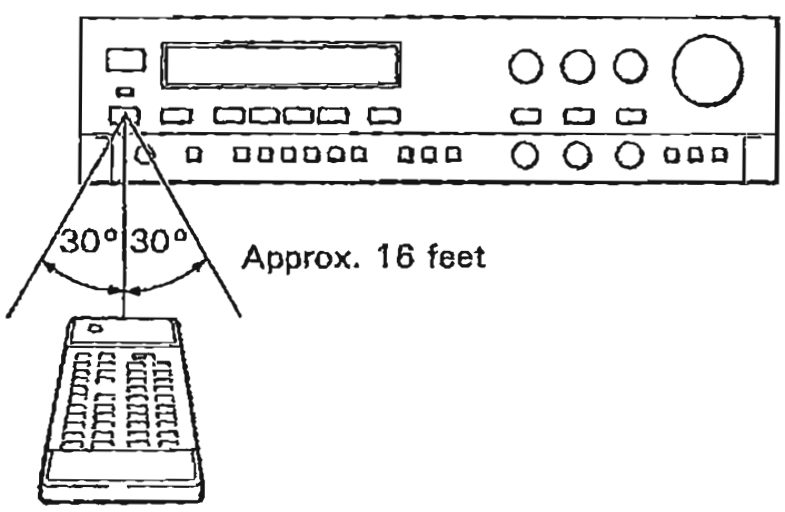
SYSTEM REMOTE CONTROL OPERATIONS

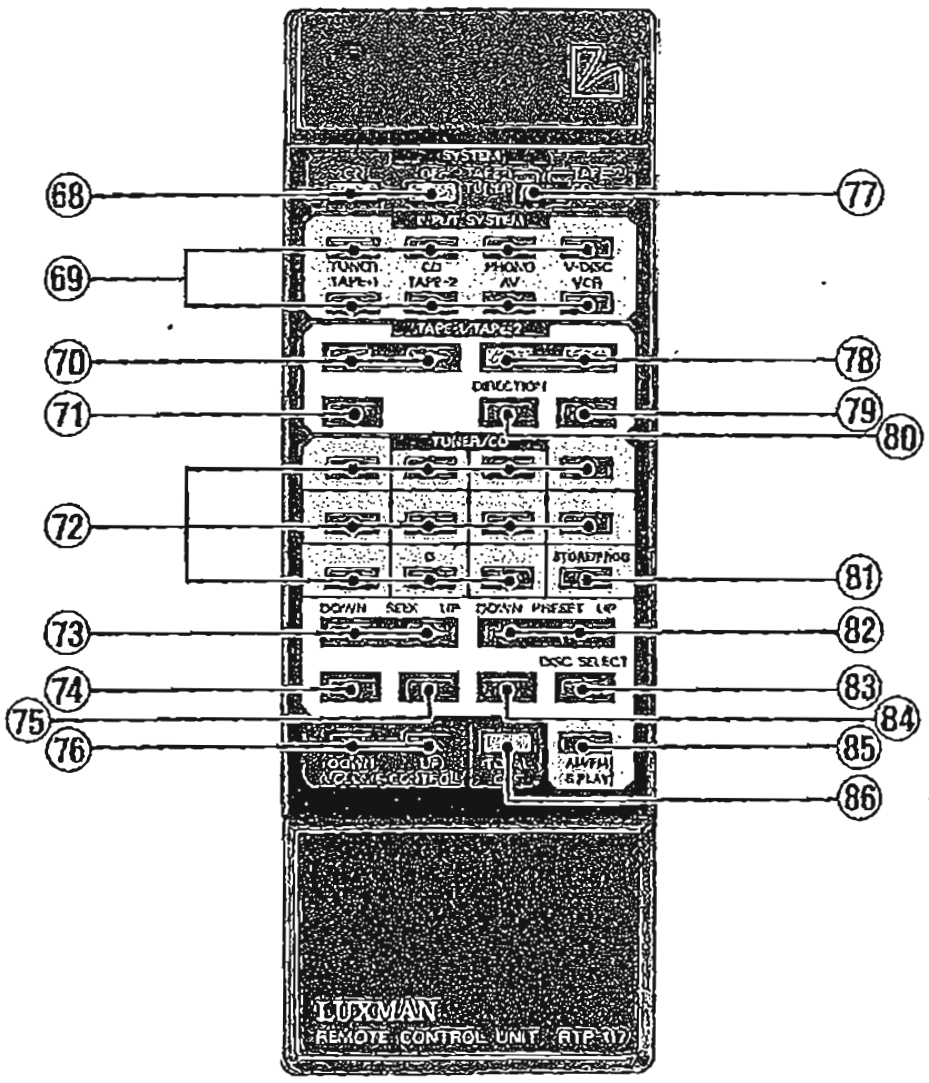
The TP-117 has been designed to operate as a fully integrated unified remote control system. This means that the RTP-117 remote control unit not only serves to control the primary functions of the TP-117, but controls the primary functions of other connected Luxman components as well. It also means that certain primary functions on the TP-117, such as source selection, cannot be operated without the use of the RTP-117 remote control unit, as mentioned earlier.

RTP-117 REMOTE CONTROL UNIT OPERATION

GENERAL

When aiming the RTP-117, stay within the basic dimensional area, as shown in the diagram below, for reliable operation.





DESCRIPTION AND OPERATION OF BUTTONS

SYSTEM Buttons

68. ON OFF

These turn the power on and off to a specific system (zone) without affecting the power to any other system or zone. This applies in systems of 1 or up to 3 TP-117's.

69. INPUT SYSTEM Buttons

TUNER

Selects the TP-117 tuner as a source.

CD

Selects a connected CD player as a source.

PHONO

Selects a connected phono turntable as a source.

V-DISC

Selects a connected video source, such as an LD, CD-V, etc.

TAPE-1

Selects a connected tape deck as a source or for monitoring purposes.

TAPE-2

Selects a connected audio or video tape deck (VCR) for source or monitoring purposes.

AV

Selects a connected video source, such as an LD, CD-V, MTS TV, etc.

VCR

Selects a connected video cassette deck (VCR) for source or monitoring purposes.

TAPE-1/TAPE-2 Buttons

For control of Luxman cassette or DAT audio tape decks connected to either the TAPE-1 or TAPE-2 jacks.

70. ◀◀/▶▶ (Fast Foward/Rewind) Buttons

For fast forward or rewind operations on connected audio tape decks.

71. ▶ (Play) Button

Activates the play mode of connected tape decks.

72. TUNER/CD Buttons

These 10 key buttons are operative for both the TP-117 tuner and connected CD players, depending on the setting of the SYSTEM switch, item #77.

For tuner operation, they provide a direct station preset selection and are also used in the storing of stations into the presets. See AM/FM TUNER OPERATIONS section, pages 26 and 27, for details.

For CD operation, they provide direct access to music tracks and are also used for programming of selections.
Refer to the owner's manual of the particular Luxman CD player for details.

73. ◀◀ DOWN SEEK UP ▶▶ Buttons

For tuner operation, they activate the AM or FM up or down automatic tuning seek mode.

For CD operation, they operate the forward and backward music scan modes.

74. ▶ (CD Play) Button

Places connected CD players in play mode.

75. ❚❚ (CD Pause) Button

Places connected CD players in pause mode.

76. ▼ DOWN ▲ UP VOLUME CONTROL Buttons

These buttons activate the motor driven volume controls on the TP-117 for smooth, precise, but quick volume action. They operate only the volume control for the zone in which the RTP-117 remote control unit is used.

Since there is no manual volume control for system-2, the RTP-117 remote control unit is the only means by which it can be controlled.

77. TAPE-1/TUNER, TAPE-2/CD SWITCH

In the TAPE-1/TUNER position, a tape deck connected to the TAPE-1 input jacks can be controlled by the buttons in the TAPE-1/TAPE-2 area of the remote control unit.

Also, in this position the TP-117 tuner functions can be operated by the 10 key buttons in the TUNER/CD area as well as by the SEEK, PRESET and AM/FM buttons just below.

In the TAPE-2/CD position a 2nd audio tape deck, connected to the TAPE-2 input jacks, can be controlled by the buttons in the TAPE-1/TAPE-2 area of the remote control unit.

Also, in this position the functions of a connected Luxman CD player can be operated by the 10 key buttons in the TUNER/CD area as well as by the DOWN UP (seek), DOWN UP (skip), DISC SELECT, and AM/FM/S-PLAY buttons just below.

78. ● ● (Dual Red Record Buttons)

Will put the connected tape decks into the RECORD mode when these buttons are both pushed simultaeneously.

NOTE: The dual button operation is intended to help prevent unintentional erasure of previously recorded tapes.

79. ■ (Stop) Button

Will stop tape motion from either the fast wind or play modes.

80. DIRECTION ❚❚ (Pause) Button

Will change the direction of the play mode on Luxman reversable decks, such as the K-105 and K-106. On all others, it will activate the pause mode.

81. STORE/PROG Button

For tuner operation, it activates the store function when storing stations to presets. See AM/FM TUNER OPERATIONS, STORE PROCEDURE section, page 27, for details.

For CD operation, this button places the connected CD player in the PROGRAM mode when programming music selections. Refer to the owner's manual of the particular Luxman CD player for programming details.

82. ⏮ DOWN PRESET UP ⏭ Buttons

For tuner operation, these buttons step through the station PRESETs in an upward or downward direction as desired.

For CD operation, they operate the forward and backward track skip modes.

83. DISC SELECT Button

To select discs or change disc selections on (future product) Luxman CD changers.

84. ■ (CD Stop) Button

Activates the stop mode of connected CD players.

85. AM/FM S-PLAY Button

For tuner operation, this button switches between the AM and FM bands.

During CD operation, this button selects the single play option on CD players so equipped (such as on the Luxman D-109 and D-117).

86. TOTAL OFF (Red) Button

This button, when pressed 3 times in succession, will turn the power off to the total TP-117 system from any remote sensor eye location within its 2 systems (zones).

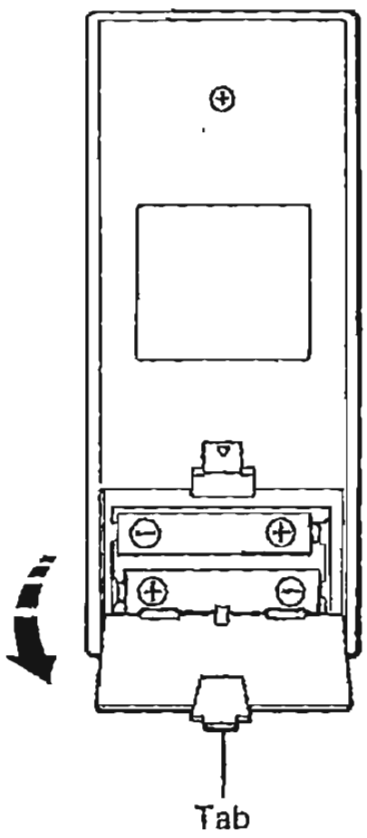
When 2 or 3 TP-117's are used in larger multi-zone configurations, total system power shut-off of all TP-117's can only be achieved from the zones controlled by the **master** TP-117. Refer also to "CONNECTION GUIDELINES", pages 18, 19 and 20.

NOTE: The 3 press requirement for this button was provided to prevent an accidental or unintentional shut-down of the whole system.

OPERATION GUIDELINES

Battery Replacement

1) Open the battery compartment cover on the rear of the remote control unit. The cover should open easily if you press on the tab with your thumbnail and lift up as illustrated.



2) Place two "AA" size dry batteries in the battery compartment in accordance with the diagram in the compartment, then replace the cover.

3) Press any buttons on the remote control unit and confirm that the red LED indicator flashes.

NOTE: Incorrect use of batteries may lead to leakage or rupture. Be sure to follow these guidelines:

a) Insert batteries so that the (+) and (–) polarities agree with the diagram inside the compartment.

b) Never mix new and used batteries together.

c) Both rechargeable and non-rechargeable batteries are available. Be sure to use your batteries in accordance with instructions printed on their outer surfaces.

CARE AND MAINTENANCE

CLEANING

The durable finish of the knobs and heavy aluminum front panel will last indefinitely with proper care and cleaning. Never use scouring pads, steel wool, scouring powders, or harsh chemical agents, such as lye solution. These will mar the finish. Clean with a soft, lint-free cloth or cotton swab slightly dampened with a mild solution of detergent and water.

REPACKING FOR SHIPMENT

Should it become necessary to ship your TP-117 for any reason, use the original packing materials. If these are no longer available, be sure that adequate materials, at least equivalent to the original, are used.

REPAIRS

Only the most competent and qualified service technicians should be allowed to service the TP-117 The Luxman company and its factory-trained warranty station personnel have the knowledge and special equipment needed for repair and calibration of this precision instrument.

In the event of difficulty, call the toll free telephone number listed on the Warranty to obtain the name and address of the Luxman Authorized Service Station nearest your home or business. In many cases the dealer where you purchased your Luxman unit will be equipped to provide service.

IN CASE OF DIFFICULTY

If you encounter a problem, please review the items in the following checklist. Also, be sure to thoroughly check other components, such as power amplifiers, speakers, speaker wiring, turntable, CD player, cassette decks, DATs, equalizer, etc.

PROBLEM	PROBABLE CAUSE AND SOLUTION
Power does not come on	● Check AC power cord(s) to ensure good contact at AC outlet(s). ● Check remote, remote eyes and remote eye wiring.
No output	● Incorrect input selected. Check input leads on rear panel (be sure they match input selected). ● CD straight switch on when using a source other than CD. ● Line inputs and outputs of a connected tape deck may be reversed. ● SIGNAL PROCESSOR IN/OUT jumper bars are removed (item #43). Replace.
No record signal	● One of the TAPE/VCR DUBBING buttons is on. Select the correct REC OUT button.
No phono signal	● MASTER/SLAVE switch in wrong position. Place in M (master) position unless unit is being used as a slave in a multi-zone system. Refer to connection diagrams.
No sound on tuner	● CD straight switch on. Set to off (out) position. ● FM or AM antenna not connected or there are defective antenna cable leads.
Some FM stations do not tune on cable systems	● Set switch (SW101) inside unit to the 25 kHz incremental tuning position. See page 27 for details.
FM sound is distorted or noisy	● Rotate FM antenna, both indoor and outdoor types, for cleanest sound (lowest multi-path interference). See pages 23 and 24. ● Use outdoor FM antenna if in a weak reception area (refer to page 24).
AM reception poor	● Rotate AM loop antenna on rear panel for best pick-up. ● If necessary, remove loop antenna from rear mount and try a different location (within limits of 32" lead length. See item #49). ● Determine if TV sets, fluorescent lights, CD players, computers, other appliances, etc., are causing interference.
Remote control(s) inoperative	● Outside of remote control range of operation. Refer to page 29. ● Some obstacle between remote control unit and the main unit. Make changes as necessary. ● In multi-room systems, check remote eyes and all related wiring. Be sure that any VHF splitters used in the co-ax lines are DC pass types. Refer to item #2 under CONNECTION OF REMOTE SENSOR INPUTS on page 18. ● If using the front panel sensor on the RTP-117, be sure the front panel sensor switch is set to the ON (out) position. ● Check remote eye (RC-501) position. Keep out or direct sunlight or away from other strong light sources. ● Weak batteries. Replace with same size "AA" type. See page 32.
Total system off inoperative	● Serial Remote jacks incorrectly connected in 2 and 3 TP-117 systems. Also, total off is only possible from the master unit. See Connection Guidelines section.
Common source shuts off even when a zone is still on	● Additional Power Control jacks incorrectly connected in 2 and 3 TP-117 systems. Refer to Connection Guidelines section. ● AC power cords of a source or sources are plugged into the sys-1 or sys-2 power jacks on rear panel. Plug into the Source Components AC jacks on the last (slave) unit only.
RC-503 repeater inoperative from some zones	● Additional Power Control jacks incorrectly connected in 2 and 3 TP-117 systems. Also, the RC-503 must be connected to the last (slave) TP-117 in the chain. Refer to Connection Guidelines section.

SPECIFICATIONS

AUDIO SECTION

Out Put Voltage
- Rated ..... 1 V
- Max ..... 8 V

Total Harmonic Distortion:
- AT 1 V Output 20 Hz – 20 kHz 0.006%
- AT 8 V Output; 1 kHz 0.008%

IM Distortion (SMPTE):
- AT 2 V Out 0.003%

Input Sensitivity/Impedance:
- Phono ..... 2.5 mV/47 KΩ
- CD, Tape, Video ..... 150 mV/50 KΩ

Input Overload:
- Phono ..... 150 mV
- CD, Tape, Video ..... 9 V

Signal-to-Noise Ratio (re 2 V Out, IHF-A):
- Phono ..... 86 dB (re 5 mV)
- CD, Tape, Video ..... 96 dB (re 0.5 V)

Frequency Response:
- Phono ..... RIAA, 20 Hz—20 kHz (±0.5 dB)
- CD, Tape, Video ..... 4.5 Hz—200 kHz (±3.0 dB)

Tone Control Range:
- Bass ..... ±10 dB at 100 Hz
- Treble ..... ±9 dB at 10 kHz

Subsonic Filter:
- Turnover Freq ..... 18 Hz
- Slope ..... 6 dB/octave

Loudness Compensation ..... +6 dB (at 100 Hz)
+4 dB (at 10 kHz)

FM TUNER SECTION

Usable Sensitivity (IHF):
- Mono (98.1 MHz) ..... 10.8 dBf

50 dB Quieting Sensitivity:
- Mono (98.1 MHz) ..... 14.8 dBf
- Stereo (98.1 MHz) ..... 38.0 dBf

S/N Ratio (IHF "A"):
- Mono (98.1 MHz, 65 dBf) ..... 78 dB
- Stereo (98.1 MHz, 65 dBf) ..... 72 dB

Total Harmonic Distortion:
- Mono 1 kHz (98.1 MHz, 65 dBf) 0.1%
- Stereo 1 kHz (98.1 MHz, 65 dBf) 0.15%

Stereo Separation 1 kHz (98.1 MHz, 65 dBf) .. 48 dB

Alternate Channel Selectivity ..... 68 dB

Capture Ratio (at 45 dBf) ..... 1.5 dB

Image Rejection (at 106.1 MHz) ..... 80 dB

Spurious Response Rejection ..... 100 dB

Frequency Response (30 Hz— 15 kHz) .....±0.5 dB

AM TUNER SECTION

Usable Sensitivity (1000 kHz) ..... 700 μV/m

S/N Ratio (1000 kHz, 100 mV) ..... 50 dB

Total Harmonic Distortion (30% Mod.) 0.5%

Image Rejection (1400 kHz) ..... 42 dB

IF Rejection ..... 52 dB

VIDEO SECTION

Frequency Response ..... 6 Hz—10 MHz ±1 dB

Video Input & Output ..... 1.0 Vp-p
75 Ω terminated for each of the above

GENERAL

Power Supply ..... 120 V AC/60 Hz

Power Consumption ..... 25 W

Dimensions ..... 17-1/4" (W) × 4-3/8" (H) × 13" (D
438 mm (W) × 112 mm (H) × 330 mm (D

Weight ..... (Net) 11.4 lbs. (5.2 kg
(Gross) 14.5 lbs. (6.6 kg

Design and specifications are subject to change without notice.

BLOCK DIAGRAM