

LUXMAN

OWNER'S MANUAL

R-117

Digital Synthesized AM/FM Stereo Receiver

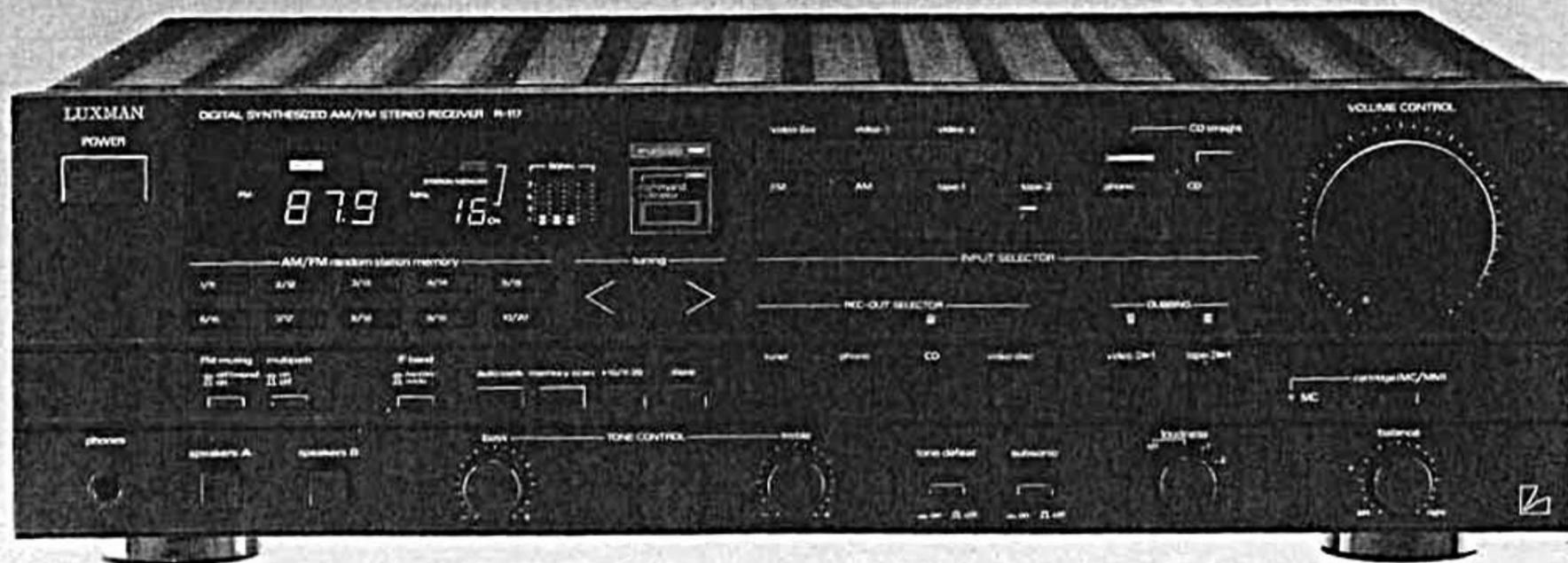


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WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture

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 R-117.

This AM/FM stereo receiver represents technological refinements and performance second to none in the industry. High power, large dynamic output into low impedance speaker loads, 5 varactor MOSFET FM tuner, CAT tuning, 20 AM/FM random station presets, full function remote control, video switching and amplification, 2 pre-out plus main in jacks, signal processor jacks — are just a few examples.

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.

To realize the exceptional performance for which this receiver is capable, it is necessary that all signal sources 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 R-117. Should you have any questions, or desire information on other Luxman products, please contact your local Luxman dealer or call the Luxman customer services department direct at (213) 326-8000.

INSTALLATION AND PLACEMENT

Because some heat is generated by the R-117, adequate air circulation must be provided to maintain cool operation. Leave adequate space around the receiver (at least 3 inches on the top and 1 inch on the sides and rear) for proper air circulation. Also, the Luxman R-117 should not be completely enclosed with other heat producing components. If the Luxman R-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 amplifier. With these considerations implemented, the Luxman R-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 R-117 receiver 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 unit is operated.

2. Retain Instructions

The safety and operating instructions should be retained for future reference.

3. Heed Warning

All warnings on the unit 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 unit 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, etc.

6. Carts and Stands

The unit should be used only with a cart or stand that is recommended by the manufacturer.

7. Wall or Ceiling Mounting

The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.

8. Ventilation

The unit should be placed where it is well ventilated. The unit should not be placed on a bed, sofa, rugs or similar surface or in an enclosure such as a bookcase or cabinet where there is a little or no ventilation.

9. Heat

The unit should be placed away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

10. Power Sources

The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

11. Grounding or Polarization

Precautions should be taken so that the grounding or polarization means of the unit 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. Pay particular attention to the plug receptacle, and the point where the cord meets the unit.

13. Cleaning

The unit should be cleaned only as recommended by the manufacturer.

14. Power Lines

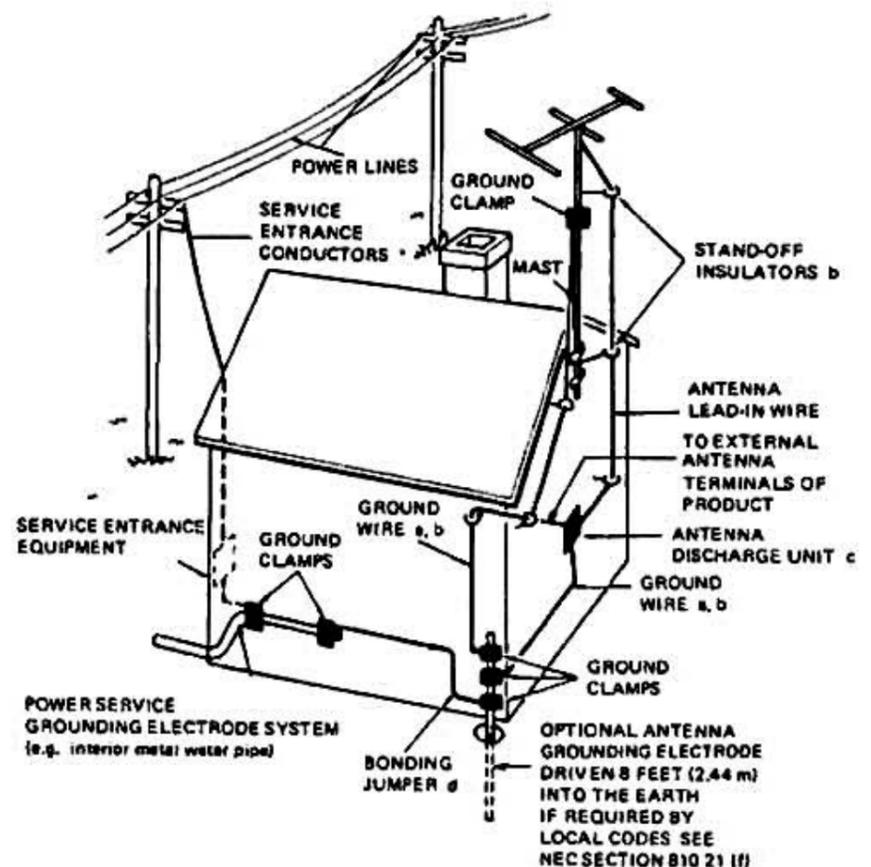
An outdoor antenna should be located away from power lines.

15. Outdoor Antenna Grounding

If an outdoor 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.

In the U.S.A. section 810 of the National Electrical Code, ANSI/NEPA 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 for the grounding electrode.

- Use No. 10 AWG (5.3mm²) copper wire, No. 8 AWG (8.4mm²) aluminum wire, No. 17 AWG (1.0mm²) copper clad steel wire, bronze wire or larger wire as ground wire.
- Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
- Mount antenna discharge unit as closely as possible to where lead-in enters house.
- Use jumper wire not smaller than No. 6 AWG (13.8mm²) copper or equivalent when separate antenna grounding electrode is used.



16. Non-use Periods

The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.

17. Object and Liquid Entry

Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

18. Damage Requiring Service

The unit should be serviced by qualified service personnel when:

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

19. Servicing

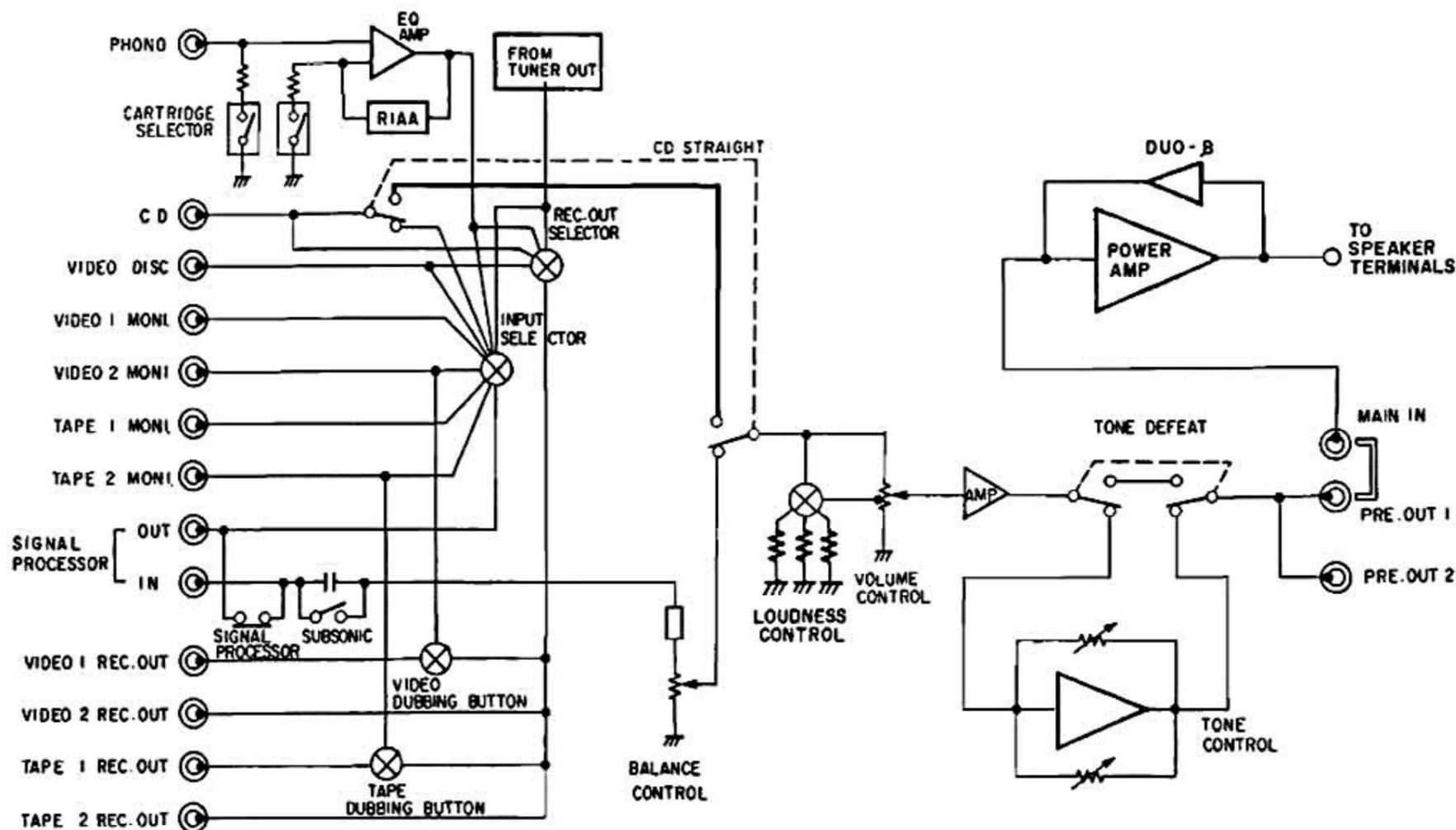
The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

SPECIAL FEATURES

THE R-117 CONTAINS SOME OF THE MOST REFINED TECHNOLOGICAL FEATURES ON THE MARKET TODAY. SOME ARE AS FOLLOWS:

CD STRAIGHT

Direct connection from the CD input terminals to the volume control is provided to bypass the input selector, REC OUT selector, dubbing switches, signal processor, sub-sonic filter and balance control.



By bypassing these functions, the shortest direct path to the power amplifier is thus achieved, ensuring the best accuracy, imaging and impact.

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

HIGH CURRENT, HIGH SPEED, POWER AMPLIFIER

A new power amplifier design utilizes a differentially-connected dual FET input stage and push-pull driver and output stages, with power transistors for drivers and dual paralleled output transistors. To provide the increased dynamic power, signal-controlled Darling-ton switches increase output stage supply voltages by sixty-seven percent for thirty-millisecond intervals when output power reaches one hundred and seventy watts. Monolithic high-current emitter resistors for the output devices eliminate any possible inductive distortion.

With an FTC rating of 160 watts per channel into 8-ohm loads, this amplifier has the capability to handle

real-life low-impedance reactive speaker loads without instability. It can deliver 700 watts into 2 ohm loads.

HIGH ENERGY POWER SUPPLY

A massive triple-shielded power transformer and fast-recovery rectifier diodes maintain steady supply voltages under all loading conditions, and speaker selection and protection relays are rated for sixty-ampere peak currents.

SPECIAL FEATURES

NEW 5 VARACTOR DUAL-GATE MOSFET FM FRONT END

Improved FM reception is obtained with a new tuner design using dual-gate MOSFET devices for both preselector and mixer stages, and five-gang varactor tuning instead of the usual four-gang. Separate buffer transistors for PLL and mixer outputs achieve increased oscillator stability. In the FM I.F. section, the three wide-band ceramic filters have been selected for superior group delay characteristics. An additional amplifier stage and ceramic filter and inserted in the signal path when the narrow-band mode is selected for increased selectivity. Quadrature FM detection and a PLL multiplex stereo decoder accomplish low-distortion audio recovery, and an automatic hi-blend circuit reduces high-frequency stereo separation for weak signals to improve reception quality.

MULTI-FUNCTION REMOTE CONTROL

This unified infra-red unit will also control a CD player, cassette deck or turntable in addition to the receiver and will work with Luxman's multi-room remote systems. Remote control connection jacks for these devices are located on the rear panel of the receiver.

PRE-OUT/MAIN IN JACKS

Two sets of pre-out and one set of main-in jacks permit the connection of additional power amplifiers to drive additional speakers in multiple-room sound systems, or connection of a tape recorder or other audio gear downstream of the tone controls and signal processor.

SIGNAL PROCESSOR JACKS AND SWITCH

An equalizer or other desired signal processing equipment may be connected without the need to give up the second tape jack facility.

20 RANDOM-ACCESS AM/FM STATION MEMORIES

A total of 20 AM and/or FM stations can be memorized in any random pattern. Any station can be instantly recalled by touching the appropriate memory selector button without any need to change the AM or FM tuning selector, and, the 20 stations can be scanned by local or remote control.

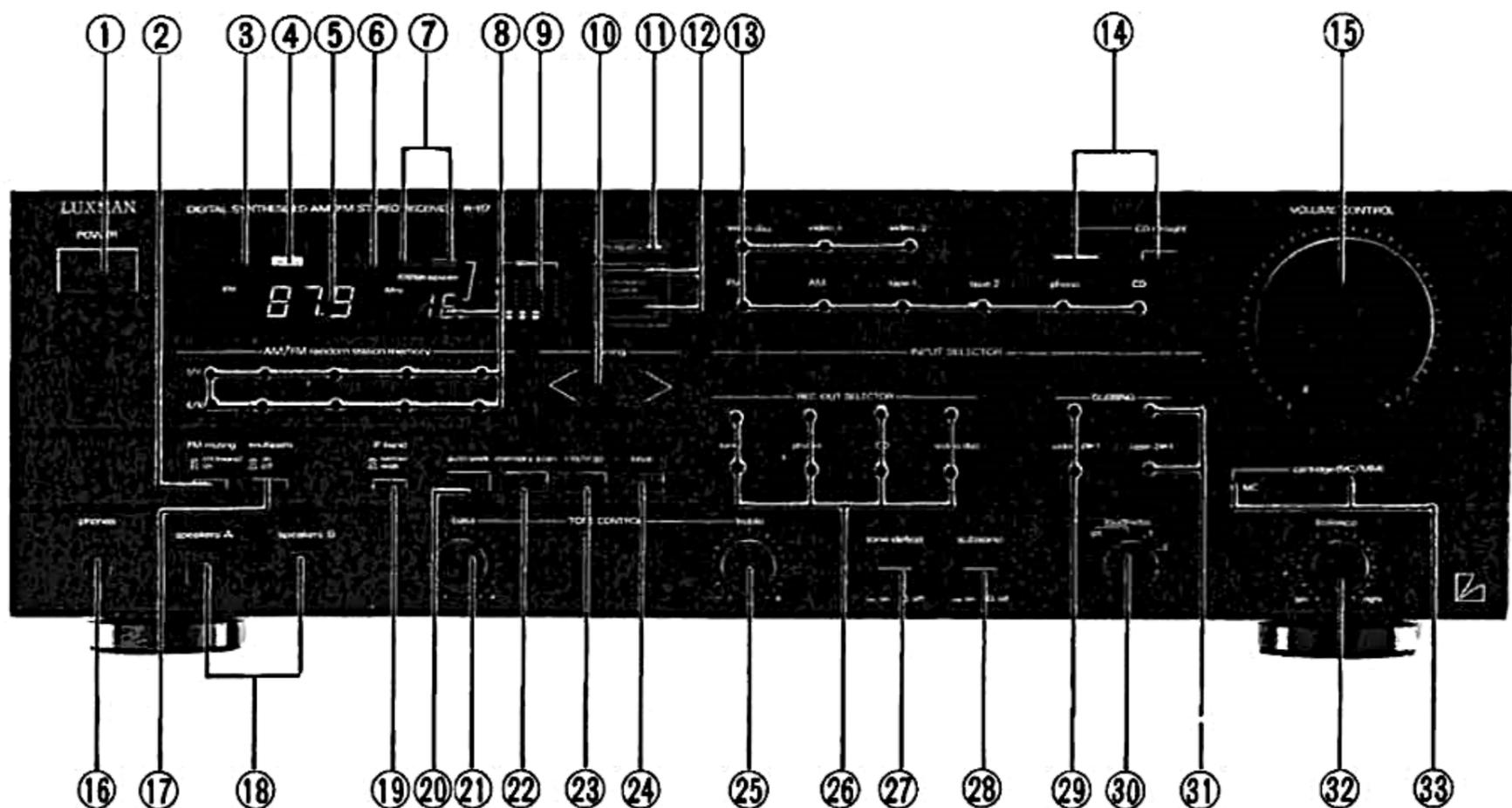
CABLE-READY FM FINE TUNING

Some cable distribution systems providing FM service shift FM station frequencies by 25 or 50 kHz increments to avoid interference with other cable channels. A switch located inside of the R-117 allows this receiver to be precision-tuned to the exact frequencies of these cable-carried stations.

VIDEO SOURCE SELECTION

Three buttons (VIDEO DISC, VIDEO-1 and VIDEO 2) on the input selector, and corresponding input and output jacks on the rear panel, permit connection of outputs from A/V sources to a monitor and dubbing from one VCR to another. Professional-grade video amplifiers eliminate switching losses.

CONTROLS & SWITCHES — FRONT PANEL



1. POWER Button

Pressing this button turns the unit on, along with other equipment that may be plugged into the rear panel switched AC outlets.

2. FM MUTING Button

When in the OUT position, muting is activated, to suppress interstation noise, and the unit is placed in the AM and FM stereo mode.

When pressed to the IN position, muting is removed and the unit is placed in MONO operation.

3. FM STEREO Indicator

Will light up when an FM stereo station is tuned in.

4. AUTO Indicator

Will light up to show that AUTO SEEK mode has been selected (see item #20).

5. DIGITAL DISPLAY

This display window shows the frequency of tuned AM and FM stations. In addition, the station pre-set number, currently selected from memory, is displayed to the right of the station frequency.

6. MEMORY Indicator

Lights up when the STORE button (item #24) is pressed.

7. FUNCTION Indicators

These show which set of memory presets are in use and are activated by the 1 — 10/11 — 20 button (see item #23).

8. AM/FM RANDOM STATION MEMORY Buttons and Indicators

A total of 20 AM and/or FM stations may be placed into memory in any random order and recalled for instant play, with these buttons. They work in conjunction with the STORE (item #24) and 1 — 10/11 — 20 (item #23) buttons. The station preset number will show in the digital display area for each memory preset selected.

9. SIGNAL STRENGTH Indicator

Four Strength indicator rows will light in an upward direction with increasing strength of AM or FM stations tuned or the relative strength of multipath interference if the MULTIPATH button, item #17, is depressed.

10. TUNING Button

Allows manual up/down tuning and initiates auto tuning in the AUTO SEEK mode. See item #20.

11. MULTIPATH Indicator

Will light up when the MULTIPATH button, item #17, is placed in the ON (IN) position.

CONTROLS & SWITCHES — FRONT PANEL

12. COMMAND SENSOR and Indicator

When using the hand held remote control, it must be pointed toward this sensor to activate operational functions. The "command indicator" will light to show when the remote signal is actually received.

13. INPUT SELECTOR/Indicators

Press one of these buttons to select any one of nine sources; FM, AM, TAPE-1, TAPE-2, PHONO, CD, VIDEO DISC, VIDEO-1 and VIDEO-2. A corresponding indicator will light up as each source is selected.

14. CD STRAIGHT Button/Indicator

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.

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

15. VOLUME CONTROL

Allows precision, low noise adjustment of volume level. It is recommended that the volume control be set to a low position prior to power turn and when switching between sources.

16. PHONES Jack

Connection of stereophonic headphones to this jack allows private listening. There is signal at the jack at all times. Placing the speakers A and B buttons (item #18) in the OUT position, will allow private listening.

17. MULTIPATH Button

When depressed, this button activates a multipath detection circuit in the receiver and the MULTIPATH indicator, item #11, will light. The relative strength of interfering multipath signals will be shown on the SIGNAL STRENGTH indicator, item #9.

To minimize multipath interference and distortion, rotate your FM antenna for minimum deflection on the indicator (item #9). See Connection Guidelines, page 13, for further details.

18. SPEAKERS A and B Buttons

Two sets of stereo speaker systems may be used with the R-117; A and B buttons corresponding with Speakers A and B terminals on the back panel (item #54). You may choose independent or simultaneous operation of the two systems by using these buttons.

NOTE: The impedance of each speaker system should equal or exceed 8 ohms when driving two sets at the same time.

19. IF BAND (WIDE/NARROW) Button

This function allows two choices of FM receiver selectivity. The -narrow- position provides increased selectivity and should be used in congested areas as needed to reduce interference. Use the -wide- position when interference is not noticeable for highest quality audio reproduction.

20. AUTO SEEK Button

When depressed, this button activates the AUTO SEEK automatic tuning mode, in conjunction with the TUNING button (item #10), for both AM and FM operation. In addition the AUTO indicator (item #4) will light.

21. BASS CONTROL

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

22. MEMORY SCAN Button

When depressed, each station in memory will be scanned for a 5 second interval. To defeat, press any tuner function other than memory scan.

23. 1 — 10/11 — 20 Button

Selects between two sets of 10 station memories provided by the dual function AM/FM RANDOM STATION MEMORY buttons. Selection of stations 1 through 10 or 11 through 20 are shown by the FUNCTION indicators (item #7).

24. STORE Button

Depressing this button will allow any tuned AM or FM station to be stored in any one of the 20 AM/FM RANDOM STATION MEMORY locations (see also item #8). The MEMORY indicator will light when STORE is depressed.

25. TREBLE CONTROL

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

26. REC-OUT SELECTOR Buttons/Indicators

Press one of these buttons to choose any one of four sources for recording purposes; TUNER (AM or FM),

CONTROLS & SWITCHES — FRONT PANEL

PHONO, CD, or VIDEO DISC. The corresponding indicator will light up.

27. TONE DEFEAT Button

When placed in the -OFF- position, the tone controls are activated. When in the -ON- position, the tone circuits are completely bypassed, resulting in ruler-flat frequency response.

28. SUBSONIC Button

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

29. DUBBING-VIDEO 2 ▶ 1 Button

When depressed, video tape copying (dubbing) from a VCR connected to the VIDEO-2 jacks to a second VCR connected to the VIDEO-1 jacks, is possible.

30. LOUDNESS Switch

Set to the number 1 position when listening at moder-

ate to low listening levels and to the number 2 position when listening at very low levels.

This gives more exact contouring to the human ear's characteristic than is possible with the usual single position switch.

31. DUBBING-TAPE 2 ▶ 1 Button

When depressed, audio tape dubbing from connected tape decks 2 to 1 is possible.

32. BALANCE CONTROL

Adjusts for 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.

33. CARTRIDGE (MC/MM) Button/Indicator

Allows the use of either a moving magnet (MM) or a moving coil (MC) magnetic phono cartridge. For MM cartridges, the button must be placed in the out position. For MC cartridges, the MC (in) position must be used (MC indicator will light).

JACKS & TERMINALS — REAR PANEL

34. AM LOOP ANTENNA*

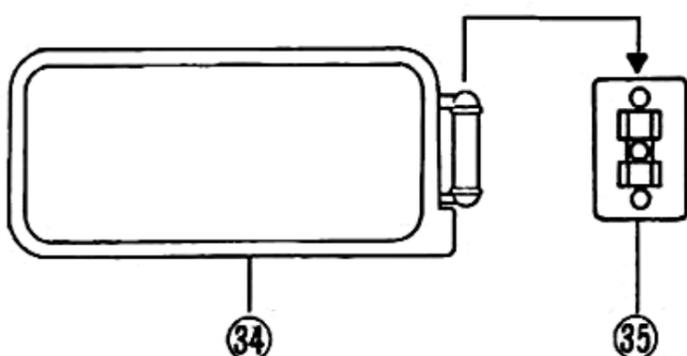
This antenna can be rotated on its holder (item #35) for maximum pick-up, or removed and placed *elsewhere for best reception (within the limitation of its 23" lead length).

35. 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.

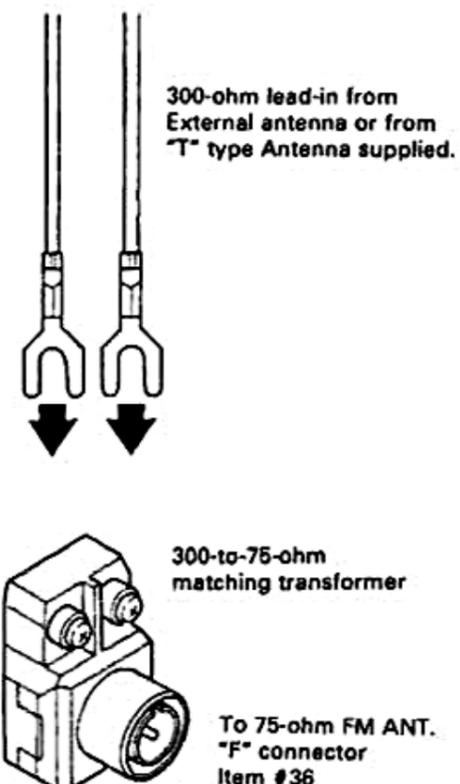
NOTE: An accessory holder for the AM loop antenna is supplied. Use to mount to a wall or other suitable surface to allow more room for the loop to be rotated for best pick-up. See diagram.

Remove adhesive backing and mount to surface with a firm press.



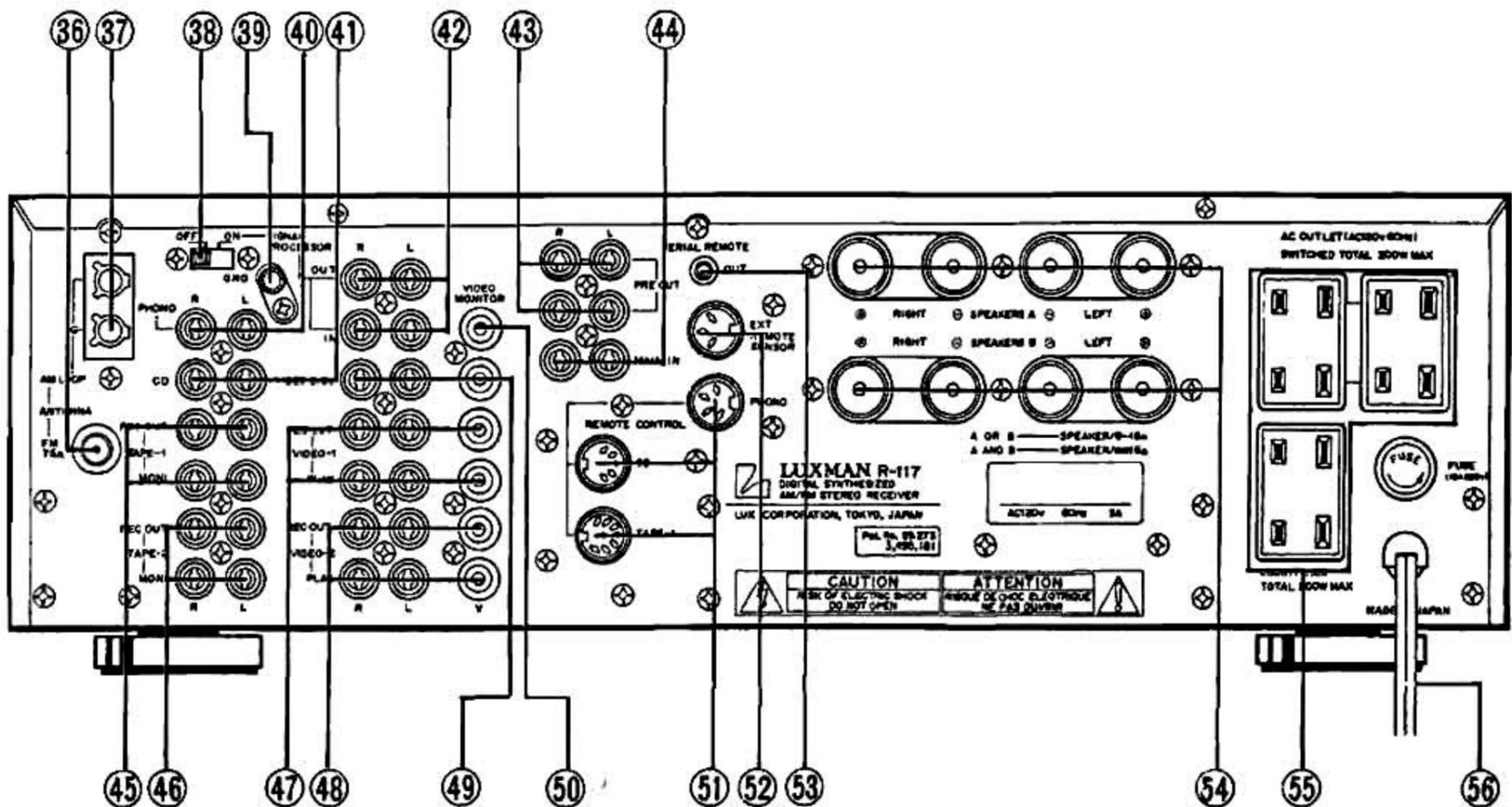
36. 75Ω FM ANT. "F" Connector

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", page 14.

JACKS & TERMINALS — REAR PANEL



37. AM LOOP ANT. Terminals

For connection of the leads of the AM LOOP ANTENNA (item #34) supplied with the R-117.

38. OFF-ON SIGNAL PROCESSOR Switch

When switched to the ON position, an equalizer or other signal processor connected to the rear panel SIGNAL PROCESSOR jacks (item #42) will be placed in the signal path.

NOTE: Be sure to always leave this switch in the OFF position if a signal processor is not connected.

39. GND Terminal

Connect the common (ground) lead of your record player to this terminal.

40. PHONO Jacks

MC or MM type cartridges may be connected to these inputs. Be sure to set the front panel CARTRIDGE select button (item #33) to match the cartridge type (MC or MM) being used.

41. CD Jacks

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

42. SIGNAL PROCESSOR IN and OUT Jacks

For connection of an equalizer (G-100), System remote control center (U-100, F-105) or other signal processor as desired. They are switched in or out by the rear panel OFF-ON switch (item #44).

43. PRE-OUT Jacks

For connection of external power amplifiers for multi-speaker or multi-room applications. To use the lower set of pre-out jacks, it is necessary to remove the pre-out to main-in jumper bars. This will disable the power amp in the R-117.

44. MAIN-IN Jacks

Use for connection of other audio gear, as desired, between the lower set of PRE-OUT jacks and the MAIN-IN jacks.

45. 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.

46. TAPE-2 REC OUT AND MONI Jacks

Connect a 2nd tape deck to these jacks in the same manner as item #45 above.

JACKS & TERMINALS — REAR PANEL

47, 48. VIDEO 1 and 2 REC OUT and PLAY Jacks

Use these for the connection of video cassette recorders (VCR's). Be sure to correctly connect the -audio- LINE IN and LINE OUT jacks of the VCR to the Video -AUDIO- REC OUT and PLAY jacks of the R-117 and the -VIDEO- IN and -VIDEO- OUT jacks of the VCR's to the -VIDEO- REC OUT and PLAY jacks of the R-117 respectively.

49. VIDEO DISC PLAY Jacks

Connect a VCR, Laser/Video Disc Player, etc., to these input jacks for playback purposes only. Connect the audio LINE OUT and VIDEO OUT jacks of the VCR, LD, etc. to the VIDEO DISC AUDIO PLAY and VIDEO PLAY jacks of the R-117 respectively.

50. VIDEO MONITOR Jack

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.

51. REMOTE CONTROL DIN Jacks for PHONO, CD, and TAPE 1

For a unified system remote control using other Luxman products, all controlled from the one hand held remote supplied with the R-117.

52. EXT. REMOTE SENSOR

For connection of Luxman's remote room sensor, RC-101 and other Luxman multi-room systems.

53. SERIAL REMOTE CONTROL OUTPUT Jack

For connection of Luxman's serial "Daisy Chain" unified remote control system, using Luxman models D-102, D-113, D-109, and future new models. This performs the same function as the DIN jacks (item #51) but in a much simpler manner.

54. SPEAKERS A and B Terminals

You may connect 2 pairs of stereo speaker systems to these terminals, one pair to the upper "A" terminals and a 2nd pair to the lower "B" terminals.

When connecting, be sure to observe correct PHASING by connecting of the RED (+) and the BLACK (—) terminals of the R-117 to the corresponding RED (+) and BLACK (—) terminals of your speakers on each channel.

The speaker systems may be switched on and off by the front panel SPEAKERS A and B buttons (item #18).

55. AC OUTLETS

For convenient AC power connection of other audio and video components in your system, 4 SWITCHED outlets (200 Watts max.) and 2 UNSWITCHED outlets (200 Watts max.) are available. The "W" mark on the lower side of each outlet indicates the ground side of the polarized AC line.

56. AC POWER CORD

Insert the polarized plug of the R-117 into any 120 Volt AC, 60 Hz wall outlet. The white lined side of the cord is the ground side.

NOTE: See CONNECTION DIAGRAM, page 14, for typical connections to all jacks and terminals (items 34 through 55).

CONNECTION GUIDELINES

AM ANTENNA

An AM LOOP ANTENNA comes packed with your R-117. Carefully unwrap and mount it and connect leads referring to item #37 on page 11.

FM ANTENNA CONNECTIONS

Included also with your R-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 #36, on the back of the receiver (See page 10 and 11). The antenna is designed to operate in a horizontal position, and may be attached to a nearby wall.

As shown on page 10 and 11, the R-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.

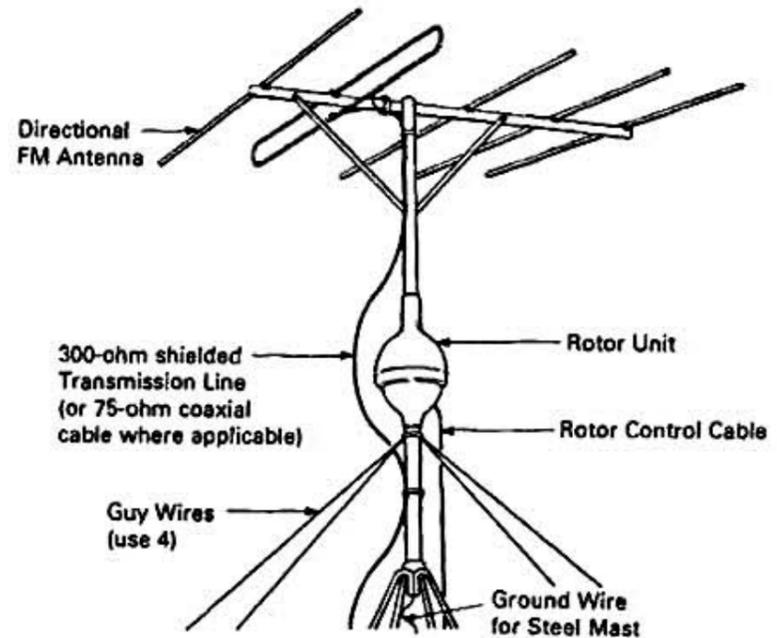
OUTDOOR FM ANTENNA

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 receiver 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 receiver. Adjust for minimum multipath indication. Refer to item #11, page 8.



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.

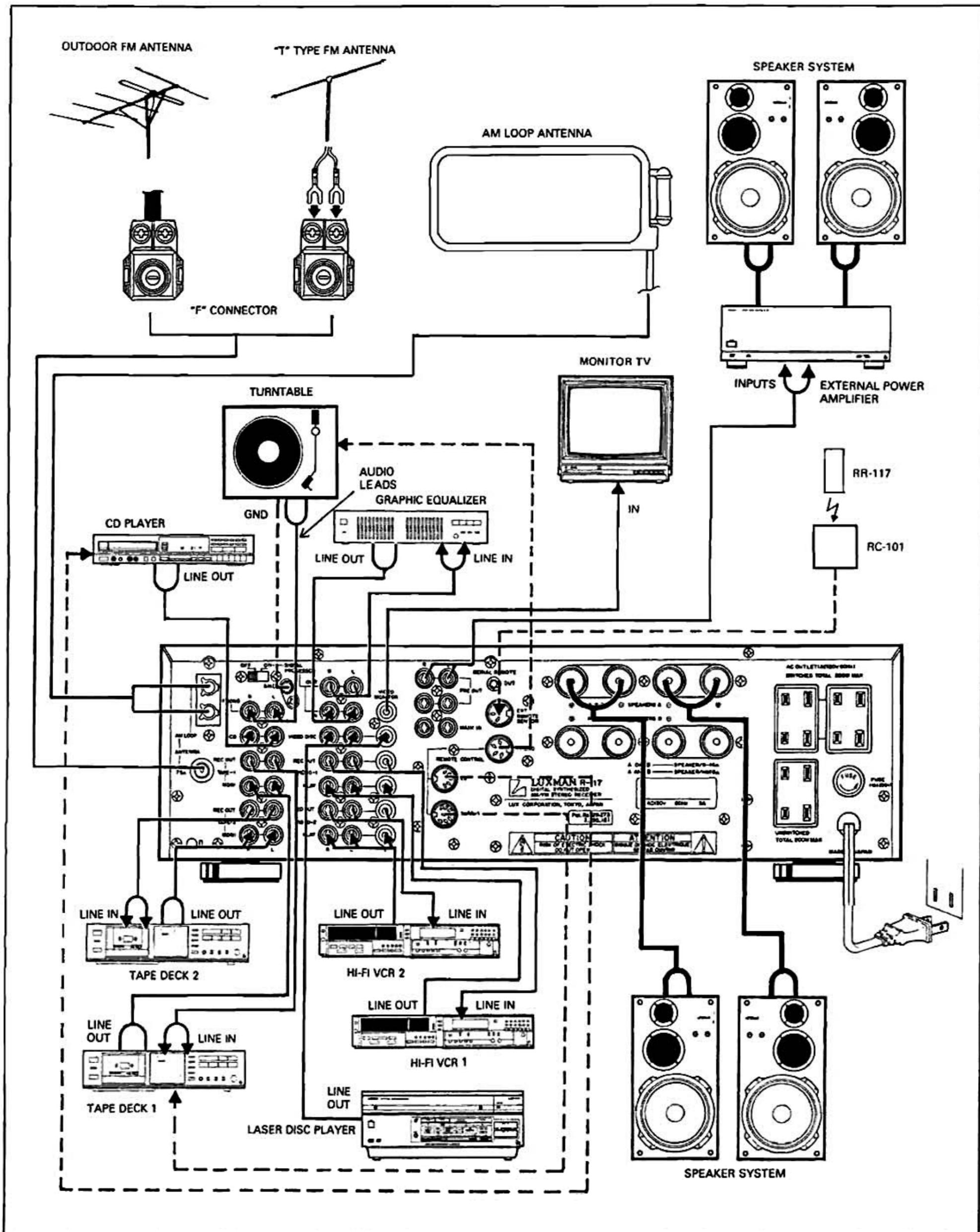
If you decide to use 75-ohm coaxial cable, we recommend buying cable with "F" type connectors attached. These will fit both the matching transformer and the terminal on the R-117 (See page 10 and 11).

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 (See page 10 and 11).

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.

CONNECTION DIAGRAM



CONNECTION GUIDELINES

BEFORE MAKING CONNECTIONS

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

INTERCONNECTING LEADS (Patch Cords)

Be sure that left and right channel identification is correct when making interconnections. Most 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 R-117 have red centers for right channel, white for left and yellow for each video jack.

CONNECTING THE RECORD PLAYER (TURNTABLE)

In addition to the audio lead connections, be sure to always connect the ground lead from the player to the GND terminal (item #39) on the R-117.

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 the receiver, resulting in no output even in the SOURCE modes. To prevent this, always connect the LINE OUT jacks of the deck to the MONI (monitor) input jacks of the receiver and connect the LINE IN jacks of the deck to the REC OUT (record out) jacks on the receiver.

CONNECTION OF VIDEO EQUIPMENT

Follow the connection diagram carefully when connecting video equipment to the R-117. In addition, be sure to read the owner's manuals of such equipment fully, to ensure proper operation.

It is recommended that only the highest quality TV monitor, Hi-Fi VCR, LD, etc. be used to complement the high performance standards of the Luxman R-117.

SPEAKER CONNECTIONS

The following items should be observed carefully when connecting your speakers:

1. Be sure PHASING is correct by connecting the RED (+) and the BLACK (—) terminals of the R-117 to the RED (+) and BLACK (—) terminals of your speakers on each channel. Failure to do so will result in drastically reduced bass response and unstable, irregular stereo imaging.
2. To prevent the possibility of shorts, strip back the ends of the speaker leads about 1/2 inch and carefully twist the strands together. Loosen the speaker terminal knob by rotating it counter-clockwise. Insert the twisted end and turn the knob clockwise to tighten.

Inspect carefully to ensure that no frayed strands exist that may cause shorts.
3. It is recommended that 16 AWG gauge wire, or larger, be used to prevent losses. You may wish to consider some of the commercially available speaker cables that are specifically designed to improve the receiver to speaker interface.

SIGNAL PROCESSOR CONNECTIONS

Like tape decks, most of these types of equipment have LINE IN and LINE OUT jack identifications. Be sure LINE IN and LINE OUT jacks of the signal processor are connected to the R-117 SIGNAL PROCESSOR OUT and IN jacks respectively.

AC OUTLET CONNECTIONS

These outlets, item 55, may be used for power connection of most of the equipment used with your R-117. In general, connect your CD player and Graphic Equalizer to the SWITCHED outlets. Connect your Record Player (turntable), Cassette Deck, VCR, etc. to the UNSWITCHED outlets.

CAUTION: When connecting equipment to these outlets, be sure not to exceed their maximum power ratings of 200 Watts for the UNSWITCHED outlets and 200 Watts for the SWITCHED outlets.

OPERATION GUIDELINES

POWER AND SOURCE SWITCHING

To prevent the possibility of excessive, sudden sound levels, it is recommended that the volume control be placed at a low level position each time the power switch is turned on or when switching between sources.

TAPE RECORDING OPERATIONS

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

- (1) Depress the REC OUT SELECTOR button for the source you wish to record.
- (2) The source signal will now be fed to the tape deck. Follow the recording instructions for the tape deck in use.
- (3) If you have a 3-head deck, you can monitor the actual recording by depressing the corresponding TAPE-1 or TAPE-2 button on the R-117 INPUT SELECTOR.

TAPE PLAYBACK

Playback from either tape deck can be heard by depressing the corresponding TAPE-1 or TAPE-2 button on the R-117.

TAPE DUBBING

Tape copies can be made from TAPE 2 to TAPE 1 as follows:

- (1) Depress TAPE-2 ► 1 DUBBING button on the R-117.
- (2) Place tape deck 2 in the PLAY mode and deck 1 in the RECORD mode.
- (3) If deck 1 is a 3-head machine, actual monitoring of the recorded dub can take place by depressing tape 1 on the INPUT SELECTOR.

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 operation of the external processor.

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

- (2) When in CD STRAIGHT operation, the SIGNAL PROCESSOR is completely bypassed.

AM/FM TUNER OPERATIONS

The R-117 incorporates several tuning methods to provide easy, yet great flexibility in station selection and use. Proceed as follows:

MANUAL TUNING

- (1) Depress AM or FM input selector button as desired.
- (2) Depress AUTO SEEK button to ensure that AUTO indicator (item #4) is OFF.
- (3) Depress FM MUTING switch, ON (stereo), OFF (mono) as desired.
- (4) Depress the up > down < TUNING button as required to tune the desired station.

NOTE: This button can be pressed in one step increments for fine tuning or held down continuously for rapid tuning.

- (5) On FM, when the desired station is tuned, depress the FM MUTING button for MONO or STEREO operation as desired.

OPERATION GUIDELINES

AUTO SEEK TUNING

- (1) Depress AM or FM input selector button as desired.
- (2) Depress AUTO SEEK button to ensure that AUTO indicator (item #4) is ON.
- (3) Depress the TUNING button in the direction desired to initiate auto seek tuning.
- (4) The receiver will now tune automatically in 10 kHz increments on AM and *200 kHz increments on FM, until a station is found.

NOTE: Due to interfering signals in some areas, it may be found that the tuner will stop at some points off station. If this occurs, simply activate AUTO SEEK again with the TUNING button.

STATION MEMORY OPERATIONS

A total of 20 stations, in any combination of AM and FM stations, and in any random order, may be stored in the receiver'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 1 — 10/11 — 20 button to choose memory locations 1 through 10 or 11 through 20 as desired.
- (4) Press the STORE button followed immediately by an AM/FM RANDOM STATION MEMORY button of your choice. Repeat for each station, AM or FM that you wish to store.
- (5) Each time STORE is pressed, the MEMORY indicator (item #6) will light for 5 seconds or until a MEMORY button is depressed.

- (6) Each time a MEMORY button is depressed, the memory (preset) number will appear in the display.
- (7) To replace a station already in memory, simply tune the new desired station and repeat the above procedure.

MEMORY SCAN

- (1) When MEMORY SCAN button is depressed, from any tuner mode, each station previously stored in memory will be tuned to automatically for a 5 second interval.
- (2) To cancel, press any tuner function button other than MEMORY SCAN.

STATION RECALL

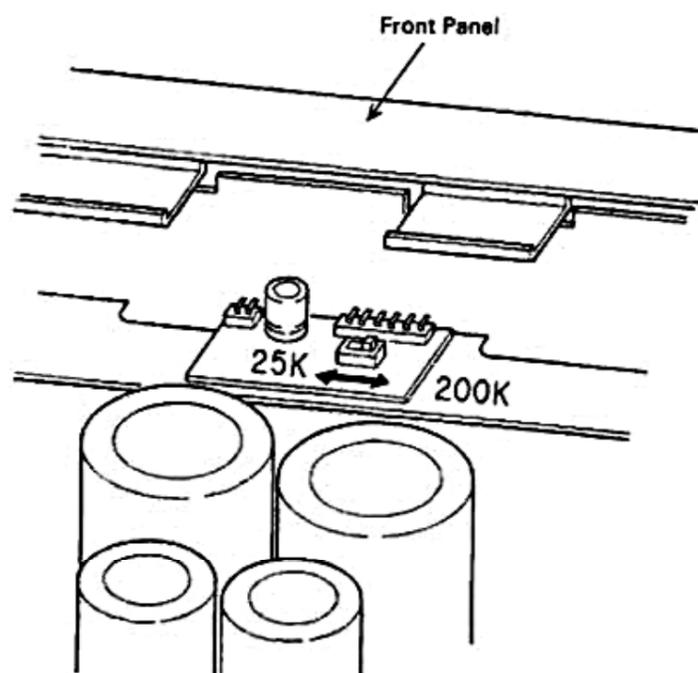
Stations stored can be played (recalled) instantly by pressing any MEMORY button, selecting locations 1 through 10 and 11 through 20 with the 1 — 10/11 — 20 button.

*25 kHz — 200 kHz TUNING INCREMENT SWITCH

Some cable systems require 25 kHz tuning increments. Consult your cable company. If required, the R-117 can be adjusted to this increment by a switch located inside the unit, just to the rear of the digital display. See below for switch location.

CAUTION: Since the top cover must be removed to gain access to this switch, hazardous voltage 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 VIDEO-1, VIDEO-2 or VIDEO DISC buttons on the INPUT SELECTOR.

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 R-117.

To record a laser disc (LD), a TV stereo tuner or a VCR connected to the VIDEO DISC inputs, proceed as follows:

- (1) Depress the VIDEO DISC button on the REC OUT SELECTOR.
- (2) The A/V signals will now be fed to the VCR connected to the VIDEO-1 or VIDEO-2 jacks. Follow the recording instructions for the VCR in use, being sure to set its input selector to "EXTERNAL" position.

NOTE: You can listen to and view the A/V signal at either the VIDEO-1, VIDEO-2 or VIDEO DISC positions of the INPUT SELECTOR. However, since some switching noise may appear on the recorded image, it is recommended that these switches not be manipulated during the recording process.

VIDEO DUBBING

VCR VIDEO Tape copies can be made from VIDEO-2 to VIDEO-1 as follows:

- (1) Depress VIDEO 2 ► 1 DUBBING button on the R-117.
- (2) Place VCR 2 in the PLAY mode and VCR 1 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 the CONNECTION DIAGRAM, page 14, proceed as follows:

- (1) Set the INPUT SELECTOR of the Hi-Fi VCR, connected to the VIDEO-1 or VIDEO-2 inputs, to the TV or TUNER position.
- (2) Depress the VIDEO-1 or VIDEO-2 button on the INPUT SELECTOR of the R-117.
- (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.

If you have a TV monitor with stereo audio outputs, these may be connected to the VIDEO DISC jacks for independent TV operation with high quality stereo sound. Proceed as follows:

- (1) Turn the power OFF to the VCR connected to the VIDEO-1 jacks on the R-117.
- (2) Place the INPUT SELECTOR of the R-117 in the VIDEO DISC position.
- (3) Set the INPUT SELECTOR of the TV to the TV position and tune desired channels.

NOTES:

- (1) The above procedures assume that you have made all connections according to the CONNECTION DIAGRAM, page 14.
- (2) Be sure to consult the owner's manuals of the VCR, TV monitor and other A/V units for specific operational details.

OPERATION GUIDELINES

REMOTE CONTROL OPERATIONS

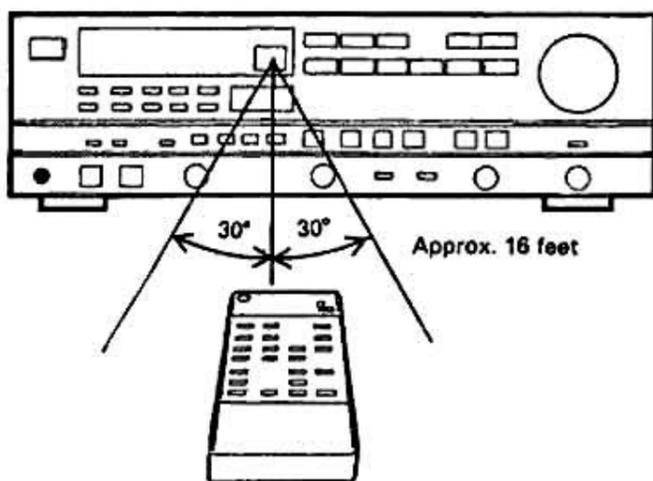
RR-117 HAND HELD REMOTE CONTROL UNIT

The RR-117 supplied with the R-117 receiver, not only controls the R-117 major functions but acts as a system as unified remote for other Luxman connected components as well (i.e. a CD player, tape deck and turntable).

CONNECTIONS FOR LUXMAN'S SYSTEM REMOTE CONTROL

Referring to CONNECTION DIAGRAM page 14, connect each Luxman component to the rear panel of the R-117. Make the audio connections, then connect the supplied remote DIN or serial cables to the respective DIN or serial jacks. If you connect each of the AC lines of these components to the SWITCHED AC OUTLETS (item #55) on the R-117, then all units will turn on and off together when the power button (3) is activated on the RR-117 remote.

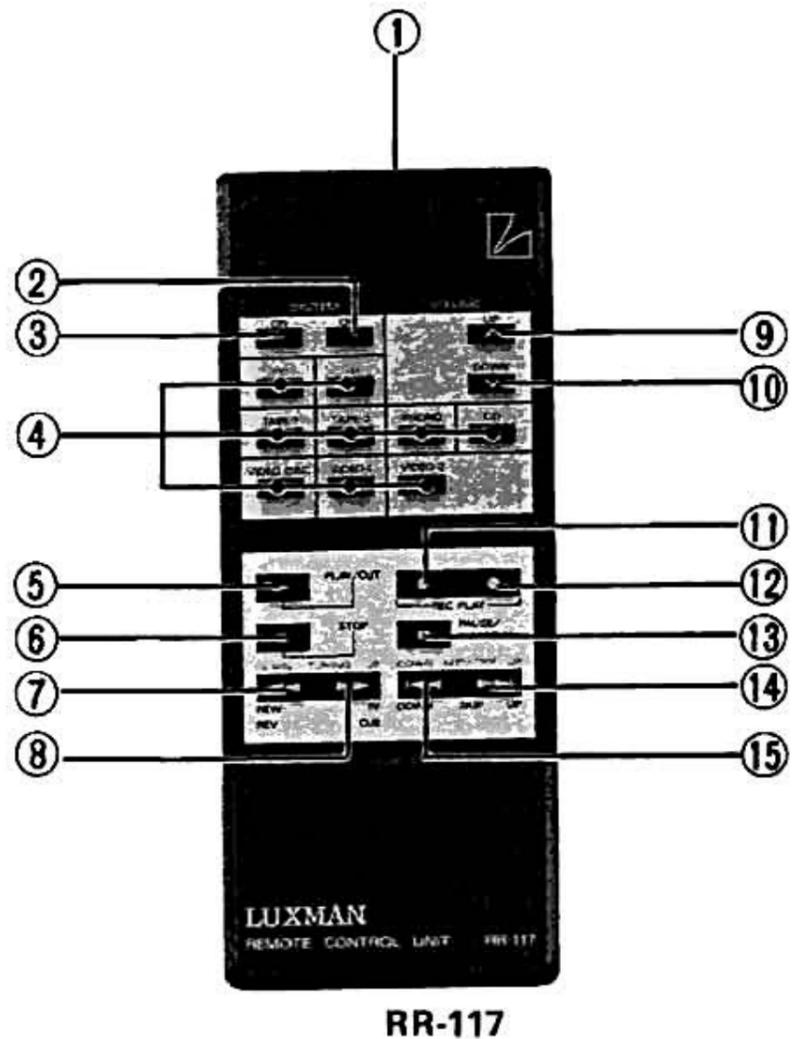
OPERATION



When aiming the RR-117, stay within the above basic dimensional area for reliable operation.

1. Turn power on by pressing ON button (3).
2. Choose and press desired source INPUT SELECTOR buttons (4).
3. The Volume UP (9) and DOWN (10) buttons function for all sources selected.
4. When FM or AM is selected, TUNING UP (8)/DOWN (7) and MEMORY UP (14)/DOWN (15) will operate.
5. When TAPE-1 (not TAPE-2) is selected, the deck connected to TAPE-1 on the R-117 can be controlled by the PLAY (5), STOP (6), FF/REW (7 and 8), REC PLAY (11 and 12), and PAUSE/DIRECTION (13).

NOTE: "DIRECTION" will only work with reversible decks.

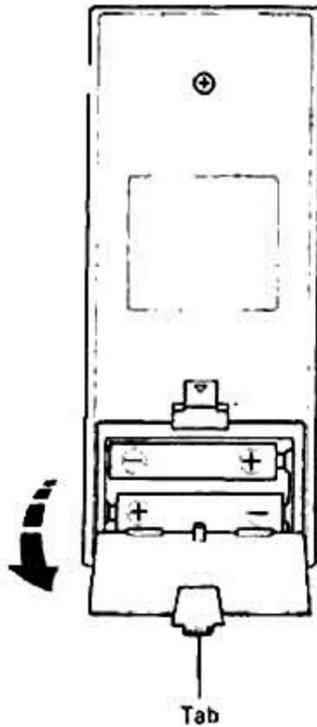


6. When PHONO is selected, the turntable can be controlled by the PLAY (5) and PAUSE (13) buttons.
7. When CD is selected, use the PLAY (5), STOP (6), PAUSE (13), FORWARD/BACKWARD (7 and 8) and SKIP UP/DOWN (14 and 15) for control operations.

NOTE: Each function selectable by remote, operates in the same fashion as the direct front panel buttons. Refer to the individual owner's manuals for details.

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 and push to the rear 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 the switches on the remote control unit and confirm that the red indicator flashes.

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

- A. Always insert batteries into the battery compartment correctly matching the positive (+) and negative (-) polarities as shown in the diagram inside the compartment.
- B. Never mix new and used batteries together.
- C. Batteries of the same size may have differing voltages, depending on brand. Do not mix different brands of batteries together.
- D. Both rechargeable and non-rechargeable batteries are available. Be sure to use your batteries in accordance with the instructions provided on the cells.

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 R-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 R-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 connected components, such as speakers, turntable, CD player, cassette deck, equalizer, etc.

PROBLEM	PROBABLE CAUSE AND SOLUTION
Power Does Not Come On.	<ul style="list-style-type: none"> ● Check line cord to ensure good connection at AC outlet.
No Sound.	<ul style="list-style-type: none"> ● Incorrect input selected. Check input leads on back panel (be sure they match input selected). ● SIGNAL PROCESSOR switch set to "IN" position (without processor turned on or connected). ● Incorrect SPEAKERS switch setting or rear panel SPEAKER LEAD connections. (Check for shorted speaker leads.) ● CD STRAIGHT switch on when using a source other than CD. ● Line inputs and outputs of a connected tape deck are reversed. ● PRE-OUT/MAIN-IN jumper bars are removed (item #43). Replace.
Distorted Sound. Shuts off at High Volume levels.	<ul style="list-style-type: none"> ● Speaker Impedance too low (less than 2 Ohms). Check speaker specifications. ● Two speaker systems of less than 4 ohms each are in use. Select only one system at a time when playing at high volume levels.
Sound, but No Video	<ul style="list-style-type: none"> ● Be sure line inputs and outputs of both the audio and video jacks of the connected VCR, LD, etc., are connected. See connection diagram.
No Sound on Tuner.	<ul style="list-style-type: none"> ● CD STRAIGHT on. Set to OUT (OFF) position. ● FM or AM Antennas not connected or defective cable leads. ● FM MUTING is on in a weak signal area. Improve antenna and/or place FM Muting in OFF (mono) mode.
Some FM stations Do Not Tune on Cable System.	<ul style="list-style-type: none"> ● Set switch inside of unit (see page 15) to the 25 kHz incremental tuning position.
FM Sound Distorted.	<ul style="list-style-type: none"> ● Rotate FM antenna, both indoor and outdoor types for cleanest sound (lowest multi-path interference), see page 13. ● Use outdoor FM antenna if in weak reception area (see page 13).
FM Interference	<ul style="list-style-type: none"> ● Select IF NARROW. See Item #19.
AM Reception Poor.	<ul style="list-style-type: none"> ● Rotate AM Loop Antenna on back panel for best pick-up. ● If necessary, remove Loop Antenna from rear mount and try a different location (within limits of 23" lead length, see item #34). ● Determine if other appliances, TVs, fluorescent lights, CDs, computers, etc. are causing interference.

SPECIFICATIONS

AUDIO SECTION

Continuous Power Output
(20 Hz — 20 kHz, 8Ω, 0.03% THD) 160 W x 2

Dynamic Power Output (1 kHz, 20ms).. 440W x 2 (8Ω)
600W x 2 (4Ω)
700W x 2 (2Ω)

Total Harmonic Distortion
(20 Hz — 20 kHz, rated power) 0.03%

IM Distortion (SMPTE)0.03%

Damping Factor 80 (50 Hz, 8Ω load)

Input Sensitivity/Impedance:

Phono (MC) 0.22mV/100Ω
Phono (MM) 2.5mV/47KΩ
CD, Tape, Video 150mV/47KΩ

Input Overload:

Phono (MC) 13.2mV
Phono (MM) 150mV
CD, Tape, Video 9V

Signal-to-Noise Ratio:

Phono MC70 dB (re 0.5mV)
Phono (MM) 88 dB (re 5mV)
CD, Tape, Video 100 dB (re 0.5V)
100 dB (re 150 mV)

Frequency Response:

Phono..... RIAA, 20 Hz — 20 kHz (± 0.5 dB)
CD, Tape, Video 5 Hz — 180 kHz (± 3.0 dB)

Tone Control Range:

Bass ± 10 dB at 100 Hz
Treble..... ± 10 dB at 10 kHz

Subsonic Filter:

Turnover Freq.....15 Hz
Slope 6 dB/octave

Loudness Compensation..... +3, +6 dB (at 100 Hz)
+2, +4 dB (at 10 kHz)

FM TUNER SECTION

Usable Sensitivity (IHF):

Mono10.3 dBf

50 dB Quieting Sensitivity:

Mono13.2 dBf
Stereo36.6 dBf

S/N Ratio (IHF "A"):

Mono80 dB
Stereo75 dB

Total Harmonic Distortion:

Mono 1 kHz..... 0.08%
Stereo 1 kHz..... 0.10%

Stereo Separation (1 kHz):

Wide I.F.....50 dB
Narrow I.F.35 dB

Auto Hi-blend Threshold (8 dB at 10 kHz).....35 dBf

Adjacent Channel Selectivity:

Wide I.F.....50 dB
Narrow I.F.75 dB

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

Image Rejection (at 106.1 MHz)..... 100 dB

Spurious Response Rejection..... 100 dB

Frequency Response (30 Hz — 15 kHz) +0.5,
-1.0 dB

AM TUNER SECTION

Usable Sensitivity (1000 kHz) 500 μ V/m

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

Total Harmonic Distortion (30% Mod.)..... 0.5%

Selectivity (± 10 kHz)50 dB

GENERAL

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

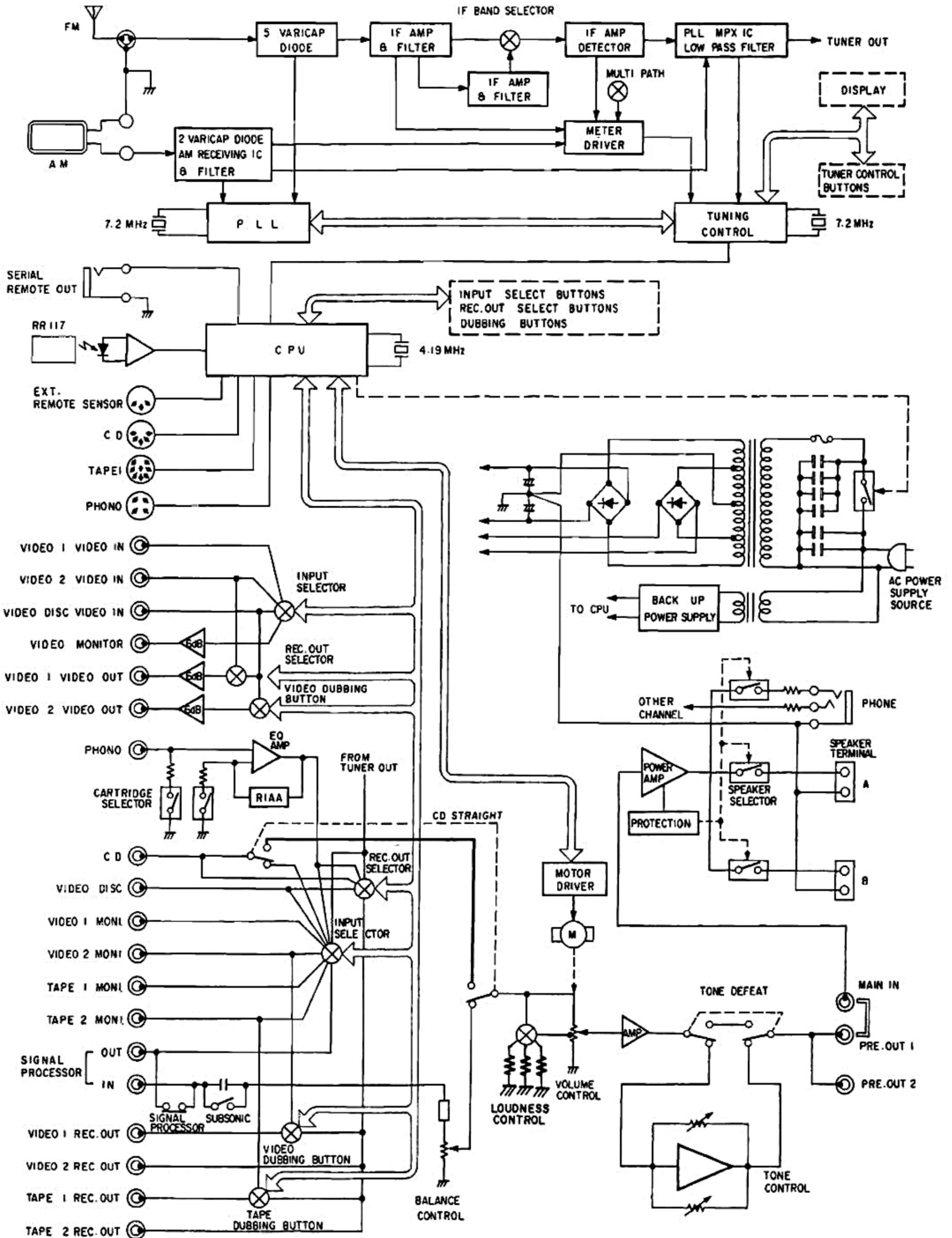
Power Consumption (No Signal)..... 66 Watts

Dimensions 17-1/4"(W) x 5-1/2"(H) x 16-11/16"(D)
438mm(W) x 139mm(H) x 424mm(D)

Weight33.6 lbs (15.2 kg)

Design and specifications are subject to change without notice.

BLOCK DIAGRAM





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