

YAMAHA AX-930/AX-730

Natural Sound Active Servo Processing Amplifier

Amplificateur à asservissement actif de la série "Natural Sound"

Verstärker mit aktivem Servo-Prozessor für natürlichen Klang

Natural Sound förstärkare med aktiv servoprocessor

Amplificatore per la servoelaborazione attiva di un suono naturale

Amplificador para servoproceso activo de sonido natural

CENTER

OWNER'S MANUAL
MODE D'EMPLOI
BEDIENUNGSANLEITUNG
BRUKSANVISNING
MANUALE DELL'UTENTE
MANUAL DE INSTRUCCIONES

Thank you for selecting this YAMAHA Active Servo Processing Amplifier.

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1. To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
2. Install this unit in a cool, dry, clean place – away from windows, heat sources, and excessive vibration, dust, moisture or cold. Avoid sources of hum (transformers, motors). To prevent fire or electrical shock, do not expose the unit to rain or water.
3. Never open the cabinet. If something drops into the set, contact your dealer.
4. Do not use force on switches, controls or connection wires. When moving the unit, first disconnect the power plug and the wires connected to other equipment. Never pull the wire itself.
5. The openings in the cabinet assure proper ventilation of the amplifier. If these openings are obstructed, the temperature inside the cabinet will rise rapidly and eventually damage the circuits. Therefore, avoid placing objects against these openings and do not install the amplifier where the flow of air through the ventilation openings could be impeded.
6. Always set the VOLUME control to “-∞” before lowering the tonearm to play a record; increase the volume after the stylus is in the groove.
7. Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
8. Be sure to read the “TROUBLESHOOTING” section regarding common operating errors before concluding that the unit is faulty.
9. To prevent lightning damage, disconnect the power cord's plug cord and disconnect the antenna cable when there is an electrical storm.

10. AC outlet (U.S.A., Canada and General models)
Do not connect audio equipment to the AC outlet on the rear panel if that equipment requires more power than the outlet is rated to provide.

11. Voltage Selector (General Model only)
The voltage selector on the rear panel of this unit must be set for your local mains voltage BEFORE plugging into the AC mains supply.
Voltages are 110-120 / 220-240 AC, 50/60 Hz.

IMPORTANT

Please record the serial number of this unit in the space below.

Serial No.:

The serial number is located on the rear of the unit.

Retain this Owner's Manual in a safe place for future reference.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION (FOR CANADA MODEL)

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.

Special Instructions for U.K. Model

IMPORTANT

THE WIRES IN THE MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:

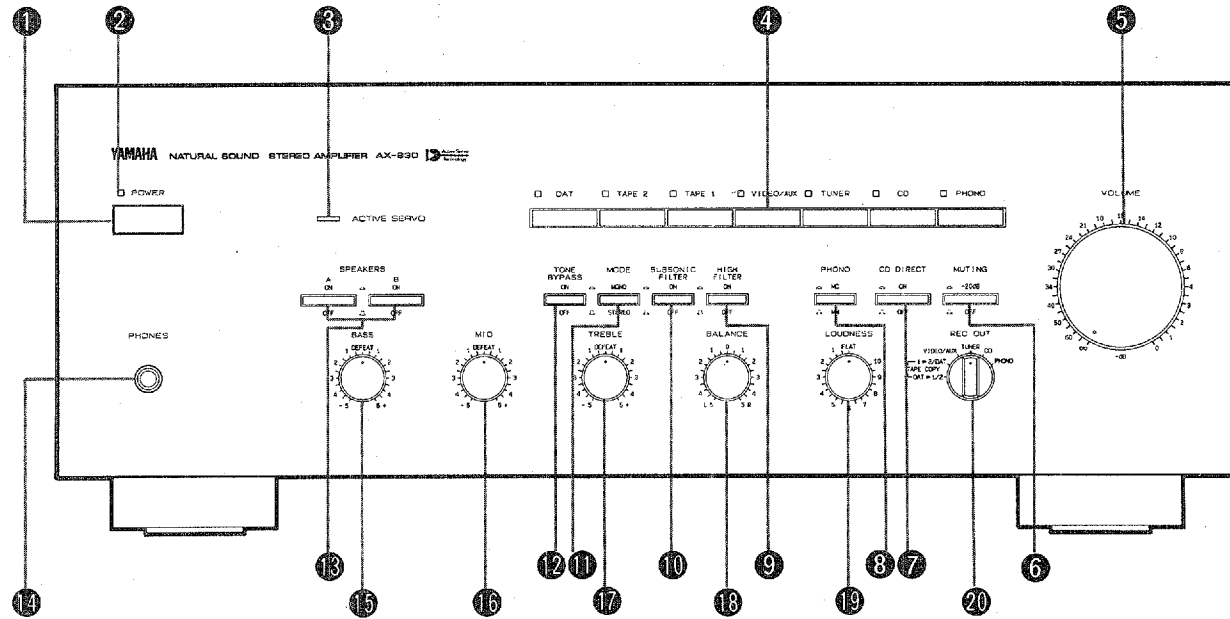
Blue: NEUTRAL

Brown: LIVE

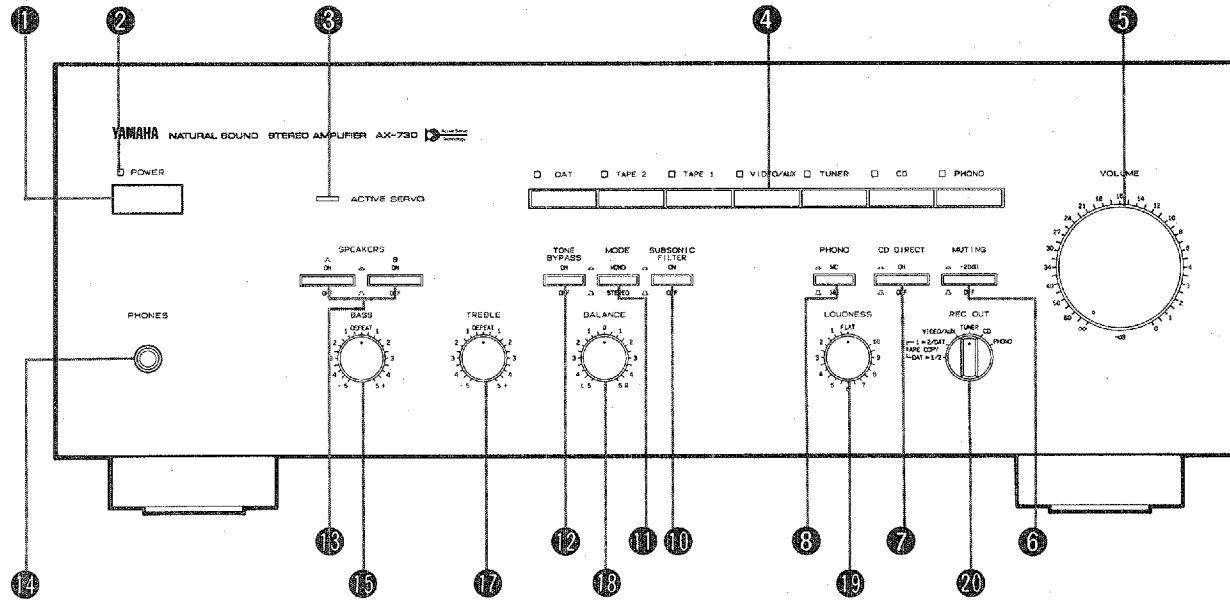
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

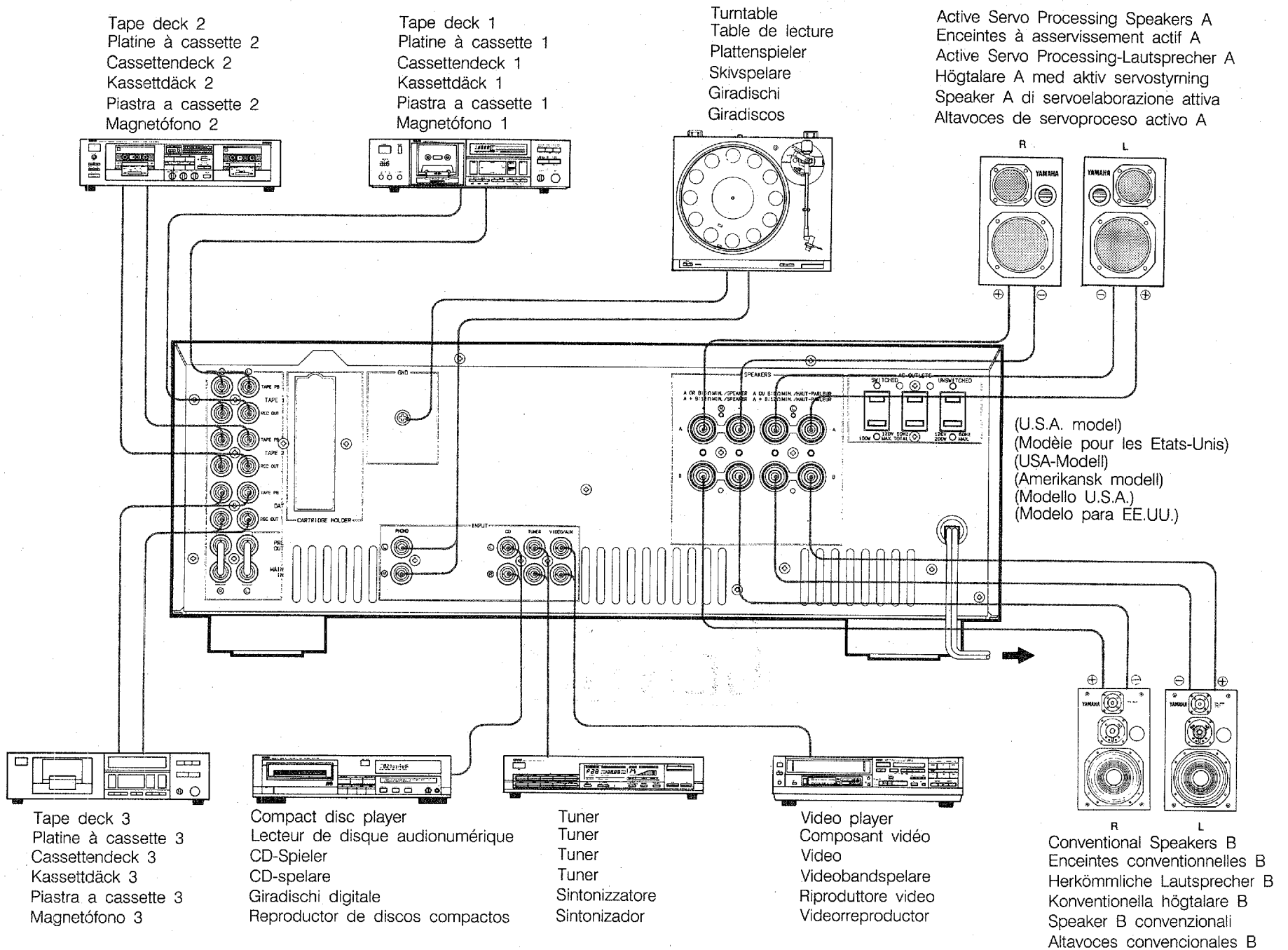
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

AX-930



AX-730





DIFFERENCES BETWEEN AX-930 AND AX-730

This Owner's Manual covers two models, the AX-930 and the AX-730. Before reading this Owner's Manual therefore, the user should note the differences, described below, between the two models.

| | AX-930 | AX-730 |
|---------------------------|-----------------|---------------------|
| HIGH FILTER switch | Provided | Not Provided |
| MID control knob | Provided | Not Provided |

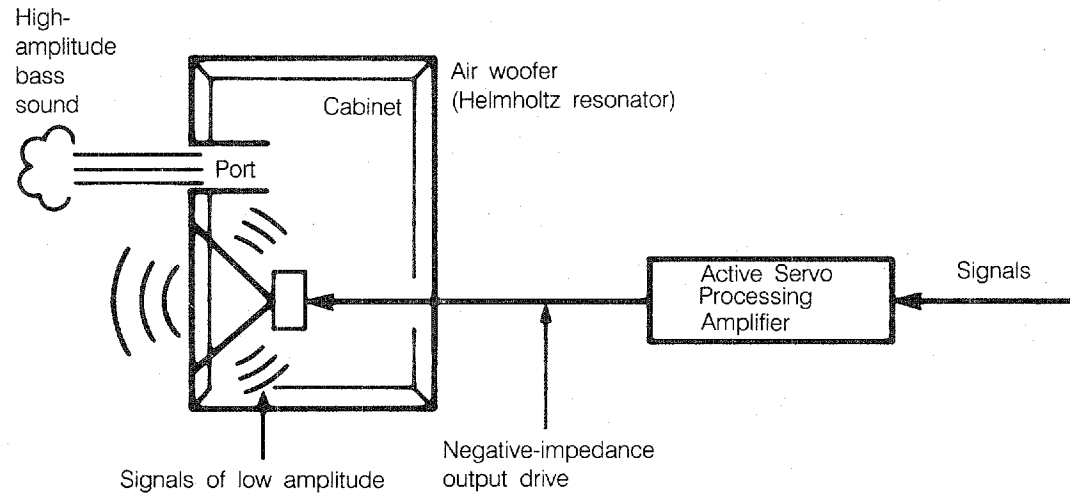
Because the specifications (such as output power, etc.) are also different, refer to "SPECIFICATIONS" on page 11.

THE ACTIVE SERVO TECHNOLOGY

The theory of the Active Servo Technology is based upon two major factors, the Helmholtz resonator and negative-impedance drive. Active Servo Processing speakers reproduce the bass frequencies through an "air woofer", which is a small port or opening in the speaker's cabinet. This opening is used instead of, and performs the functions of, a woofer in a conventionally designed speaker system. Thus, signals of low amplitude within the cabinet can, according to the Helmholtz resonance theory, be output from this opening as waves of great amplitude if the design is such that the size of the opening and the volume of the cabinet are in the correct proportion to satisfy a certain ratio.

In order to accomplish this, moreover, the amplitudes within the cabinet must be both precise and of sufficient power because these amplitudes must overcome the "load" presented by the air that exists within the cabinet.

Thus it is this problem that is resolved through the employment of a design in which the amplifier functions to supply the signals. If the electrical resistance of the voice coil is reduced to zero, the movement of the speaker unit would become linear with respect to signal voltage, and, to accomplish this, a special negative-impedance output-drive amplifier for subtracting output impedance of the amplifier is used. By employing negative-impedance drive circuits, the amplifier is able to generate precise, low-amplitude low-frequency waves with superior damping characteristics, and these waves are then radiated from the cabinet opening as high-amplitude signals. The system can, therefore, by employing the negative-impedance output drive amplifier and a speaker cabinet with the Helmholtz resonator, reproduce an extremely wide range of frequencies (28 Hz – 20 kHz) with amazing sound quality and less distortion. The features described above, then, are combined to be the fundamental structure of the Active Servo Technology.



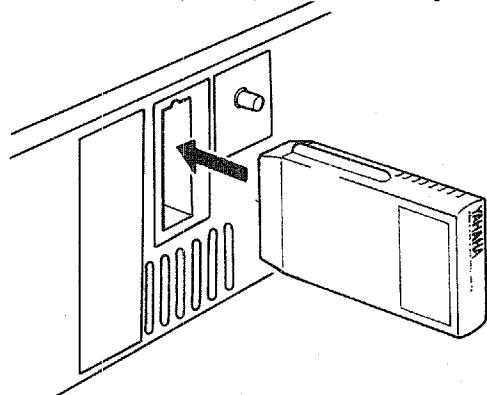
ABOUT THIS UNIT

The function of this unit differs depending on whether the Active Servo Processing cartridge is connected to this unit or not.

- If the cartridge is not connected to this unit, this unit functions only as an ordinary amplifier. In this instance, speaker system "A" (connected to SPEAKERS terminals "A") or "B" (connected to SPEAKERS terminals "B") can be used independently, or both "A" and "B" can be used at the same time.
- If the cartridge is connected to this unit, SPEAKERS terminals "A" are only for Active Servo Processing speakers and "B" only for conventional speakers. In this instance, either speaker system "A" or "B" can be used.

CONNECTING THE ACTIVE SERVO PROCESSING CARTRIDGE

Insert the cartridge (provided with Active Servo Processing speaker systems) into the cartridge holder.



NOTE

Be absolutely sure that this unit's power is OFF before connecting or disconnecting the Active Servo Processing cartridge to or from this unit.

CONNECTIONS

(See Fig. 2.)

Before making any connections switch OFF all equipment.

Be sure to connect the left (L) and right (R) channels consistently between components.

● CONNECTING THE SPEAKERS

Connect Active Servo Processing speaker systems to the "A" SPEAKERS terminals. If conventional speaker systems are used, connect them to the "B" terminals.

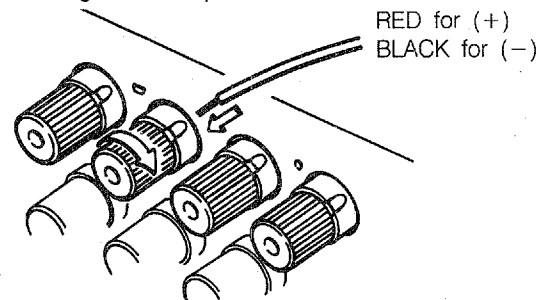
NOTE

There is the possibility of damages to both this unit and the speakers if conventional speaker systems are connected to the "A" terminals with the Active Servo Processing cartridge connected to this unit, and used.

How to connect speaker wires to the speaker terminals

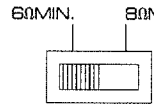
Connect the wires for the left speakers to the L terminals and the right speaker wires to the R terminals. Be sure that the polarity (+ and -) markings are observed. Be sure to do this consistently from component to component. If the polarity is reversed at either speaker, the sound will be unnatural and lack bass. Speaker wires should be cut as short as possible. Avoid coiling the wire on the floor or bundling it up with wires from other system components.

- ★ Strip about 1 cm (0.39 in.) of insulating material from the ends of the speaker wires and twist the strands of each end. Loosen the speaker terminal knobs, insert the exposed wire into the hole, and then tighten the speaker terminal knobs.



IMPEDANCE SELECTOR (on the rear panel) (Canada model only)

For ordinary use, set to "6ΩMIN.". To use two pairs (A and B) set to "8ΩMIN.".



● CONNECTING A TURNTABLE

Connect the output wires of the turntable to the PHONO terminals and connect the ground wire to GND terminal. Normally, connecting the ground wire produces minimum hum, but in some cases better results are obtained with the ground wire disconnected. The turntable component and its output wires should be positioned well away from sources of hum such as power cords or power transformers or other system components.

● CONNECTING A TUNER

Connect the wires from the tuner's output terminals to the TUNER terminals of this unit. Position the tuner so that its AM antenna is well away from this unit for best possible reception.

● CONNECTING A COMPACT-DISC PLAYER

Connect the output wires from the compact-disc player to the CD terminals. Please note that a turntable cannot be connected to these terminals (because they are not provided with the necessary RIAA equalization).

● CONNECTING A VIDEO CASSETTE PLAYER, etc.

Connect the output wires from the video cassette player's audio output terminals to the VIDEO/AUX terminals. Connection of a CD player or a video player is also possible in the same way. Please note that a turntable cannot be connected to these terminals (because they are not provided with the necessary RIAA equalization).

FRONT PANEL DESCRIPTIONS

(See Fig. 1.)

● CONNECTING TAPE DECKS

- **Tape deck 1**
Connect the wires from the tape deck's LINE IN terminals to the REC OUT terminals of TAPE 1. Then connect the wires from the tape deck's LINE OUT terminals to the TAPE 1 PB terminals.
- **Tape deck 2 and/or 3**
Connect tape deck 2 and 3 in the same way to the TAPE 2 and/or DAT terminals.

NOTE

The DAT terminals are also analogue-input terminals.

PRE OUT/MAIN IN terminals

Removing the jumper pins enables this unit to independently perform the functions of a control amplifier and a power amplifier. These terminals are for connection of a signal-processing system, such as a graphic equalizer or sound processor. If a sound processor or other component is connected, the VOLUME control of this unit can be used for overall adjustment of the level of sound. To connect such a unit, remove the jumper pins from the PRE OUT/MAIN IN terminals, connect the inputs of that unit to the PRE OUT terminals and its outputs to the MAIN IN terminals. For details, refer to the Owner's Manual included with the unit to be connected.

AC OUTLETS (U.S.A., Canada and General models)

For added convenience, this unit has 3 AC outlets. Two "switched" outlets (the power to these receptacles is switched ON and OFF by this unit's power switch) and one "unswitched" outlet (the power to this receptacle is independent of this unit's power switch). Be sure not to connect appliances totaling more than 100 watts to the two switched outlets or more than 200 watts to the unswitched outlets.

① POWER SWITCH (POWER)

Press once to switch the power ON and once again to switch the power OFF. Before switching the power ON, set the VOLUME control to the lowest volume level (fully counterclockwise), to protect the speakers from sudden high-level sound.

② POWER-ON INDICATOR

This indicator illuminates while the power is ON.

③ ACTIVE SERVO PROCESSING CARTRIDGE INDICATOR

This indicator illuminates when the Active Servo Processing cartridge is connected. The SPEAKERS switches are used to select output from Active Servo Processing speaker systems (connected to the "A" SPEAKERS terminals).

④ INPUT SELECTORS

These selectors are used to select the program source you wish to listen to. The LED indicator above the selected source will illuminate.

⑤ VOLUME CONTROL (VOLUME)

This controls the sound level. Turning it clockwise increases the sound volume, and turning it counterclockwise decreases it. Set this control to the minimum level before switching ON the power or using an input selector to select a different sound source, therefore protecting the speakers from sudden high-level sound.

⑥ MUTING SWITCH (MUTING)

This switch can be used to lower the volume level temporarily without disturbing the original setting. Pressing the switch lowers the volume level by 20dB and pressing it again restores the previous volume level setting.

⑦ CD-DIRECT SWITCH (CD DIRECT)

This switch can be used to route the CD input signals directly to the output stage, bypassing the input selectors, tone controls, MODE, LOUDNESS, BALANCE controls, SUBSONIC FILTER and HIGH FILTER switch except the VOLUME control and MUTING switch. By avoiding "muddying" caused by these switches and circuit routings, pure sound can be provided.

⑧ PHONO SELECTOR (PHONO)

This selector can be used to select either the MM (moving magnet) or MC (moving coil) position to match the phono cartridge used. However, in case of using high output MC cartridges, select the MM position.

⑨ HIGH-FILTER SWITCH (HIGH FILTER) (AX-930 only)

This switch provides a high-filter function, cutting out high-frequency noise above 10 kHz (such as record surface noise or tape hiss).

⑩ SUBSONIC-FILTER SWITCH (SUBSONIC)

This switch can be used to cut out ultra-low-frequency signals caused by turntable rumble or warped records, but without losing sound quality.

⑪ MODE SWITCH (MODE)

This switch can be used for switching between stereo and monaural operation. Normally this switch should be set to the stereo position.

⑫ TONE-BYPASS SWITCH (TONE)

Depress this switch to channel the input signals directly to the output stage of the amplifier, bypassing BASS, MID (AX-930 only), and TREBLE controls, thereby avoiding "muddying" caused by the switch, and circuit routing to provide a pure sound.

13 SPEAKERS SWITCHES (SPEAKERS)

Because one or two speaker systems can be connected to this unit, these switches allow you to select speaker system A or B, or both at once. However, when the Active Servo Processing cartridge is connected to this unit, both the A and B SPEAKERS switches are switched ON, the output from the A terminals (to which the Active Servo Processing speaker systems are connected) will automatically have priority, and sound will be output from the Active Servo Processing speaker systems only. When listening to the headphones only, press both the A and B switches to the OFF position.

14 HEADPHONES JACK (PHONES)

Stereo headphones with a standard plug can be connected to this jack. When listening to the headphones only, press both the A and B switches to the OFF position.

15 BASS CONTROL (BASS)

This controls bass response. Turn it clockwise to boost (or counterclockwise to attenuate) bass response. When this control is at the center (defeat) position, a flat response is obtained.

**16 MID CONTROL (MID)
(AX-930 only)**

This controls the mid-range response. Turn it clockwise to boost (or counterclockwise to attenuate) mid-range response. When this control is at the center (defeat) position, a flat response is obtained.

17 TREBLE CONTROL (TREBLE)

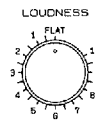
This controls treble response. Turn it clockwise to boost (or counterclockwise to attenuate) treble response. When this control is at the center (defeat) position, a flat response is obtained.

18 BALANCE CONTROL (BALANCE)

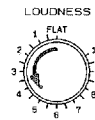
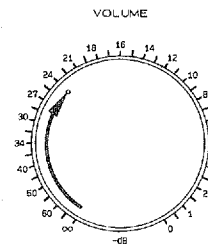
This is used to adjust the relative volume of the left and right channels, enabling you to compensate for unbalance created mainly by the locations of the speakers.

19 LOUDNESS CONTROL (LOUDNESS)

This control provides compensation for the human ears' loss of sensitivity to high and low-frequency ranges at low volume. Because the amount of compensation required is determined by the listening level, this control provides the most accurate compensation for any listening level.



Set the LOUDNESS control to the "FLAT" position and increase the volume to the loudest level desired.



Turn the LOUDNESS control knob counterclockwise to reduce the volume.

20 REC-OUT SELECTOR (REC OUT)

This switch can be used to select a program source and supply that source directly to the rear panel REC OUT terminals, independently of the settings of the input selectors. This function therefore allows you to record the selected program source while listening to another program source. This selector also permits you to record directly from TAPE 1 to TAPE 2 or DAT, and from DAT to TAPE 1 or TAPE 2.

• Normal listening

1. Turn the VOLUME control to the minimum level and then switch the power ON. The power indicator will then illuminate.
2. Select the desired program source by using an input selector. The corresponding input indicator will then illuminate.
3. Start the component to be used.
4. Adjust the VOLUME, LOUDNESS, BASS, MID (AX-930 only), TREBLE and BALANCE controls to provide the desired sound quality.

• To record to a tape deck from a sound source

1. Turn the VOLUME control to the minimum level and then switch the power ON. The power indicator will then illuminate.
2. Using the REC OUT selector, select the source to be recorded.
3. Start the sound source to be recorded.
4. To monitor the sound being played via the speakers (or headphones) use the corresponding input selector to select the source program.
5. To start recording, start the tape deck(s) to be used for recording. If the tape deck has three-head monitoring capability, you can monitor the just-recorded signal by selecting the corresponding tape deck with an input selector.
6. To listen to an alternate sound source, select the desired source by using an input selector (noting the procedures outlined above in "Normal listening"). This will have no adverse effect on the recording.

MODEL TYPES

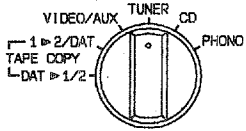
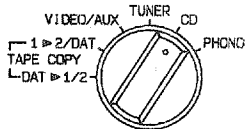
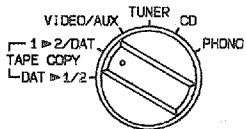
• Tape dubbing

Because as many as three tape decks can be connected to this unit, tape dubbing can be performed by using the REC OUT selector. When tape deck 3 is connected to the DAT terminals, refer to the instruction below.

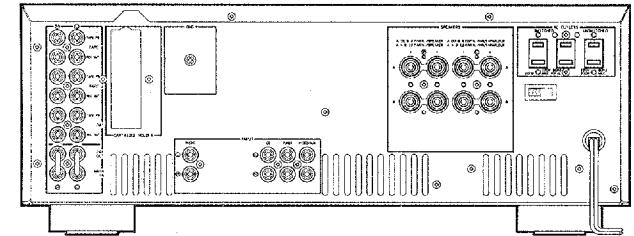
- To dub from tape deck 3 to tape deck 1
Set the REC OUT selector to the DAT ► 1/2 position.
 - To dub from tape deck 1 or tape deck 3 to tape deck 2
Set the REC OUT selector to either the 1 ► 2/DAT or DAT ► 1/2 position.
 - To dub from tape deck 1 to tape deck 3
Set the REC OUT selector to the 1 ► 2/DAT position.
- To start recording, start play back on the source tape deck and start recording on the recording tape deck.

- To monitor the sound being played, use the input selector to select the source deck. If the tape deck has three-head monitoring capability you can monitor the just-recorded signals by selecting the corresponding tape deck with an input selector.
- To listen to an alternate sound source, select the desired input source by using the input selector (noting the procedures outlined above in "Normal listening"). This has no adverse effect on the dubbing quality.

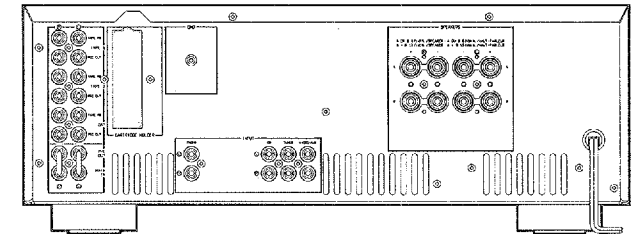
Recording while Listening Examples

| ACTION | INPUT SELECTOR | REC OUT |
|-------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------|
| Listening to a record through the speakers while recording an AM/FM broadcast. | <input type="checkbox"/> PHONO |  |
| Listening to a CD while recording it. | <input type="checkbox"/> CD |  |
| Listening to an AM/FM broadcast while "copying" a tape from tape deck 1 to 2 or a DAT recorder. | <input type="checkbox"/> TUNER |  |

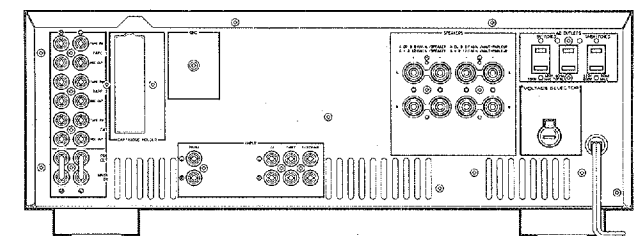
Canadian model



British, Australian and European model



General model



TROUBLESHOOTING

Before assuming that your unit is faulty, please check the following troubleshooting list, which details corrective actions you can take yourself without calling a service engineer. If you have any questions, contact your nearest Yamaha dealer.

| PROBLEM | POSSIBLE CAUSES | REMEDY |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Power is not supplied even though the POWER switch is ON. | The power plug is not securely connected. | Connect it securely. |
| There is no sound when any input selector is pressed. | The correct SPEAKER switch is not set. | Use the correct SPEAKER switch. |
| | The input wires are not connected securely. | Connect them securely. |
| | The speaker systems are not connected correctly. | Check and secure the connections. |
| Only CD output is possible. | The CD-DIRECT switch is ON. | Press the CD-DIRECT switch to the OFF position. |
| There is no sound from one speaker. | The speaker connections are not secure. | Secure the connections. |
| | The BALANCE control is set all the way to the left or right. | Adjust the BALANCE control correctly. |
| There is a lack of bass, and no ambience. | The + and - wires are connected in reversed at the amplifier or speakers. | Connect the speaker wires in the correct phase (+ and -). |
| There is a humming sound when playing records. | The input wires are not connected securely. | Connect the input wires securely. |
| | The turntable's ground wire is not connected. | Connect the ground wire. |
| There is a howling sound when playing records at high volume. | The turntable and the speakers are too close together, or the turntable is not located on a firm surface. | Change the location of the turntable or the speakers. |
| Turning the BASS, TREBLE or MID (only AX-930) control does not affect the tone. | The TONE-bypass switch is ON. | The TONE-bypass switch must be switched OFF to use the controls. |
| The sound suddenly stops. | Using outside the rated impedance range at high power for an extended period has activated the speaker protection circuit. | Switching this unit OFF and then ON will reset the speaker protection circuit. Use speakers within the rated impedance range. |
| | There is a malfunction in the amplifier. | Consult your Yamaha dealer. |

SPECIFICATIONS

Minimum RMS Output Power Per Channel

| | |
|----------------|--------------------------|
| AX-930 | |
| 20 Hz - 20 kHz | 0.005% THD 8Ω 130W |
| | 0.008% THD 6Ω 150W |
| AX-730 | |
| 20 Hz - 20 kHz | 0.005% THD 8Ω 110W |
| | 0.008% THD 6Ω 130W |

Dynamic Power Per Channel

(by IHF Dynamic Headroom Measuring Method)

| | |
|-------------|---------------------------|
| AX-930 | |
| 8Ω/6Ω/4Ω/2Ω | 190W/240W/300W/400W |
| AX-730 | |
| 8Ω/6Ω/4Ω/2Ω | 185W/225W/280W/335W |

DIN Standard Output Power Per Channel (European model)

| | |
|-----------------|------------|
| AX-930 | |
| 1 kHz 1% THD 4Ω | 200W |
| AX-730 | |
| 1 kHz 1% THD 4Ω | 150W |

Dynamic Headroom (U.S.A., Canadian and General models)

| | |
|--------|---------------|
| AX-930 | |
| 8Ω | 1.65 dB |
| 6Ω | 2.04 dB |
| AX-730 | |
| 8Ω | 2.26 dB |
| 6Ω | 2.38 dB |

IEC Power (European model)

| | |
|--------------------|---------------|
| AX-930 | |
| 1 kHz 0.01% THD 8Ω | 145W |
| | 6Ω 165W |
| AX-730 | |
| 1 kHz 0.01% THD 8Ω | 125W |
| | 6Ω 145W |

Power Bandwidth

| | |
|------------------|----------------------|
| AX-930 | |
| 0.03% THD 65W 8Ω | 10 Hz - 50 kHz |
| AX-730 | |
| 0.03% THD 55W 8Ω | 10 Hz - 50 kHz |

Damping Factor

| | |
|----------|-----------|
| 1 kHz 8Ω | 500 |
|----------|-----------|

Input Sensitivity/Impedance

| | |
|-------------------------------|--------------------|
| Phono MC | 160 μV 220Ω |
| MM | 2.5 mV/47 kΩ |
| CD/TUNER/VIDEO · AUX/TAPE/DAT | 150 mV/50 kΩ |
| MAIN IN | 1V/20 KΩ |

Input Sensitivity (New IHF) (U.S.A., Canadian and General models)

| | |
|-------------------------------|---------------|
| AX-930 | |
| Phono MC | 18.5 μV |
| MM | 0.27 mV |
| CD/VIDEO · AUX/TUNER/TAPE/DAT | 16 mV |
| AX-730 | |
| Phono MC | 17 μV |
| MM | 0.25 mV |
| CD/VIDEO · AUX/TUNER/TAPE/DAT | 15 mV |

Maximum Input level (1 kHz 0.01% THD)

| | |
|----------|---------------|
| Phono MC | 10.5 mV |
| MM | 155 mV |

Output Level/Impedance

| | |
|---------|-------------------|
| REC OUT | 150 mV 470Ω |
| PRE OUT | 1V/1KΩ |

Maximum Voltage Output

| | |
|--------------------------|------------|
| 20 Hz - 20 kHz 0.01% THD | 8.5V |
|--------------------------|------------|

Headphone Jack Rated Output/Impedance

| | |
|------------------|------------------|
| AX-930 | |
| 0.005% THD RL=8Ω | 0.45V/120Ω |
| AX-730 | |
| 0.005% THD RL=8Ω | 0.4V/120Ω |

Frequency Response

| | |
|-------------------------------|--------------------------------|
| CD/TUNER/VIDEO · AUX/TAPE/DAT | 20 Hz - 20 kHz, 0±0.5 dB |
| MAIN IN | 20 Hz - 20 kHz, 0±0.5 dB |

RIAA Equalization Deviation

| | |
|-----------------|---------------|
| 20 Hz - 20 kHz, | |
| Phono MC | ±0.3 dB |
| MM | ±0.2 dB |
| 20 Hz - 100 kHz | ±0.5 dB |

Total Harmonic Distortion 20 Hz - 20 kHz

| | |
|------------------------------------------|--------------|
| Phono MC to PRE OUT, 3V | 0.005% |
| MM to PRE OUT, 3V | 0.003% |
| CD/TUNER/VIDEO · AUX/TAPE/DAT to | |
| Pre Out, 3V | 0.003% |
| AX-930 | |
| CD/TUNER/VIDEO · AUX/TAPE/DAT to Sp Out, | |
| 65W/8Ω | 0.005% |
| MAIN IN to Sp Out, 65W/8Ω | 0.005% |
| AX-730 | |
| CD/TUNER/VIDEO · AUX/TAPE/DAT to Sp Out, | |
| 55W/8Ω | 0.005% |
| MAIN IN to Sp Out, 55W/8Ω | 0.005% |

Intermodulation Distortion

| | |
|-------------------------------|--------------|
| CD/TUNER/VIDEO · AUX/TAPE/DAT | |
| Rated Output/8Ω | 0.002% |
| 1W/8Ω | 0.003% |

Signal-to-Noise Ratio (IHF-A Network)

| | |
|-----------------------------------------|--------------|
| AX-930 | |
| Phono MC (500 μV Input Shorted) | 78 dB |
| MM (5 mV Input Shorted) | 93 dB |
| CD/TUNER/VIDEO · AUX/TAPE/DAT (Shorted) | 106 dB |
| MAIN IN (Shorted) | 114 dB |
| AX-730 | |
| Phono MC (500 μV Input Shorted) | 76 dB |
| MM (5 mV Input Shorted) | 92 dB |
| CD/TUNER/VIDEO · AUX/TAPE/DAT (Shorted) | 105 dB |
| MAIN IN (Shorted) | 113 dB |

Signal-to-Noise Ratio (New IHF)

| | |
|-------------------------------------|---------|
| AX-930 | |
| Phono MC | 75.5 dB |
| MM | 75.5 dB |
| CD/VIDEO · AUX/TUNER/TAPE/DAT | 86 dB |
| AX-730 | |
| Phono MC | 75 dB |
| MM | 75 dB |
| CD/VIDEO · AUX/TUNER/TAPE/DAT | 86 dB |

Residual Noise (IHF-A Network) 140 μ V

Channel Separation Vol -30 dB

| | |
|-------------------------------|-------------|
| Phono MC, MM Input shorted | |
| 1 kHz/10 kHz | 75 dB/60 dB |
| CD/TUNER/VIDEO · AUX/TAPE/DAT | |
| Input 5.1 k Ω | |
| Terminated 1 kHz/10 kHz | 75 dB/60 dB |

Tone Control Characteristics

| | |
|--------------------------|----------------------|
| Bass | |
| Boost / Cut | \pm 10 dB (20 Hz) |
| Turnover frequency | 350 Hz |
| Treble | |
| Boost / Cut | \pm 10 dB (20 kHz) |
| Turnover frequency | 3.5 kHz |
| Mid (AX-930 only) | |
| Control range | \pm 10 dB (1 kHz) |
| Center frequency | 1 kHz |

Filter Characteristics

| | |
|--------------------------|------------------|
| Subsonic | 15 Hz, 18 dB/oct |
| High (AX-930 only) | 10 Hz, 12 dB/oct |

Continuous Loudness Control (Level Related Equalization)

| | |
|-------------------|---------------|
| Attenuation | -40dB (1 kHz) |
|-------------------|---------------|

Audio Muting -20 dB

Gain Tracking Error

| | |
|--------------------|------|
| (0 - -60 dB) | 2 dB |
|--------------------|------|

Power Supply

| | |
|-------------------------------|------------------------------|
| U.S.A. and Canadian model .. | AC 120V/60 Hz |
| British and Australian models | |
| | AC 240V/50 Hz |
| European model | AC 220V/50 Hz |
| General model | |
| | AC 110/120/220/240V 60/50 Hz |

Power Consumption

| | |
|-------------------------------------|--------------|
| U.S.A. and Canadian model ... | 450W, 550 VA |
| British and Australian models | 600W |
| European model | 600W |
| General model | 250W |

AC Outlets (U.S.A., Canadian and General Models)

| | |
|----------------------|-----------|
| Switched (2) | 100W max. |
| Unswitched (1) | 200W max. |

Dimensions (W x H x D) 435 x 165 x 418 mm
(17-1/8" x 6-1/2" x 16-7/16")

Weight

| | |
|--------------|----------------------------|
| AX-930 | 15.0 kg (33 lbs. 0 oz.) |
| AX-730 | 12.0 kg (26 lbs. 6 oz.) |

* Specifications are subject to change without notice.