

CP-30

electronic piano operating manual



introduction

For the musician on tour, the CP-30 Electronic Piano combines the qualities of touch, expression and sound variety in a very portable, rugged package. Also, the CP-30 has a wide flat top, perfect for stacking your multi-keyboard system.

If you're a studio musician, the CP-30 gives you the ability to shift from one color sound to another—easily and quickly—on the same keyboard, a keyboard that feels very similar to an acoustic piano. In addition, the CP-30's two channels tune independently and electronically with a separate knob for each channel, and you know what kinds of problems that will solve.

If you're a composer, the CP-30's wide variety of sounds can help you overcome that "one-color" tired-out sound you may now be working with. The piano's flat top is just right for scoring. In fact, for any keyboard musician, the CP-30's unique combination of sound and features make this a very versatile instrument.

The CP-30 is velocity sensitive, just like a traditional piano. This means that when you strike the keys harder, it gets louder (continuous loudness variation, not a stepped change), yet the CP-30 has no strings or rods to get out of tune, no complicated action to stick or break. The CP-30 is an all electronic piano; the only moving parts in the keyboard are the keys and the reliable leaf switches they activate.

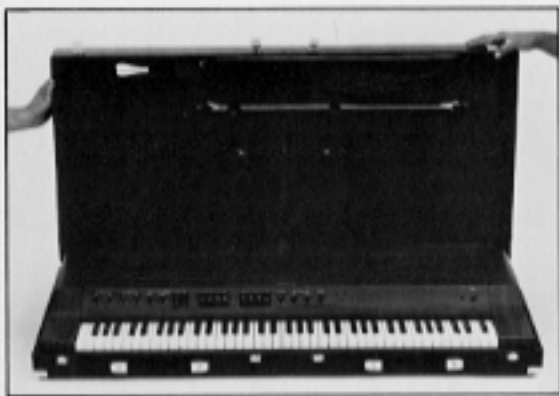
Yamaha worked closely with top performing artists during the CP-30's development. Their many valuable suggestions helped perfect the touch, the sound, the features—in fact, the whole concept—of the Yamaha Electronic Piano. Thus, the CP-30 is an instrument developed for you, the musician and artist. When you play the Yamaha CP-30 Electronic Piano, feel its responsiveness, and hear its repertoire of sounds, you will understand why Yamaha, with over nine decades of keyboard instrument experience, is the leader in contemporary keyboards.

table of contents

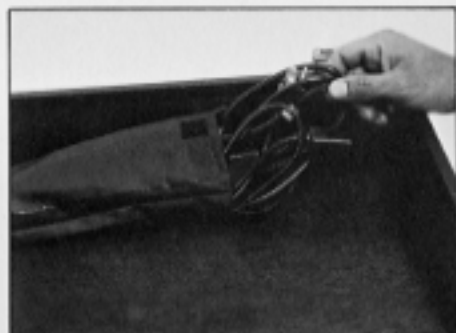
- 2 **setup**
- 4 **electronic connections**
 - AC Power
 - Output Jacks
 - Pedal Jacks
- 5 **controls and switches**
 - AC Power Switch & Pilot
 - Volume
 - Balance
 - Bass & Treble Tone Controls
 - Piano/Harpsichord Switches
 - Tremolo Switches
 - Speed & Intensity Controls
 - Decay I & II Controls
 - Sustain Pedal
 - Pitch Controls
- 6 **speaker/amplifier systems**
- 7 **electronic service**
 - travel case
 - CP-30 specifications
- 8 **A4115H amplifier controls & jacks**
 - A4115H amplifier specifications
 - A4115H speaker specifications

setup

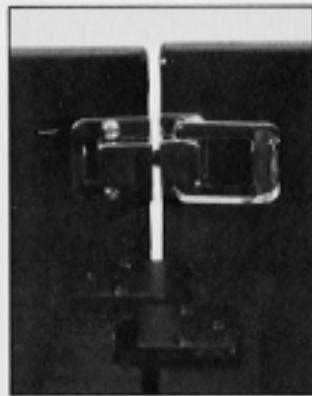
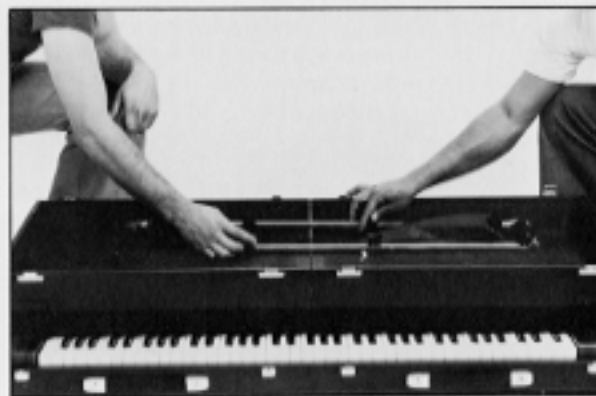
1. Remove the lid by lifting the four front catches and slipping the lid off its rear hinges.



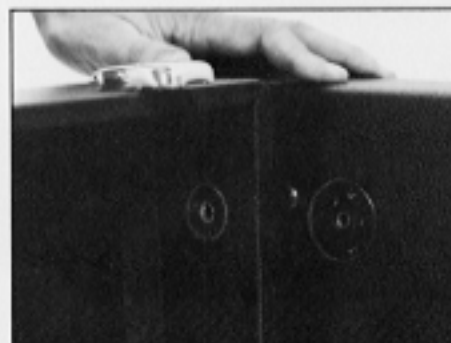
2. Remove the sustain pedal and the contents of the accessories pouch from the lid.



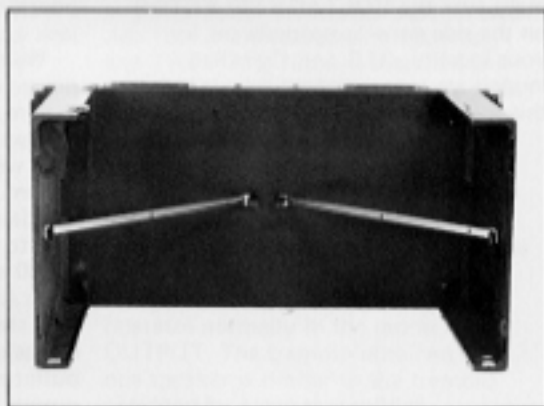
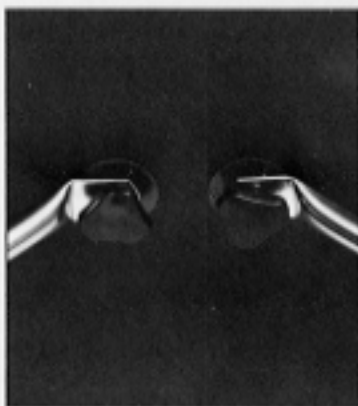
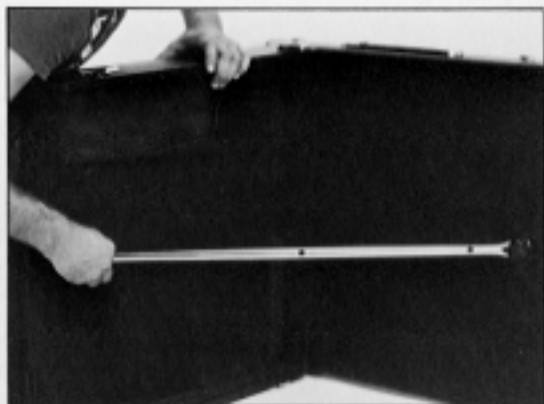
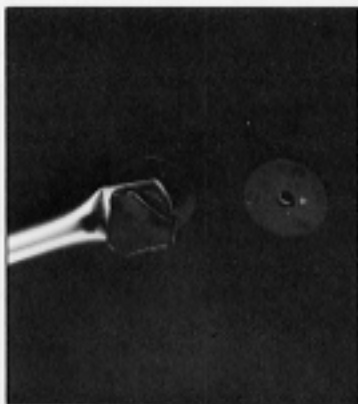
3. Split the lid into two parts by unscrewing and removing the two leg braces and unfastening the inside catch. *NOTE: The two halves of the lid become the CP-30's legs.*



4. Place the main body of the CP-30 on its back edge, and fasten one leg to each side of the piano using two of the large thumb screws. (Alternately, set the CP-30 on a stool or table and work from beneath.)



5. Using two of the large thumbscrews, fasten a leg brace between one leg and the nearest center hole in the CP-30's underside. Repeat this procedure using the remaining leg brace and thumbscrews.

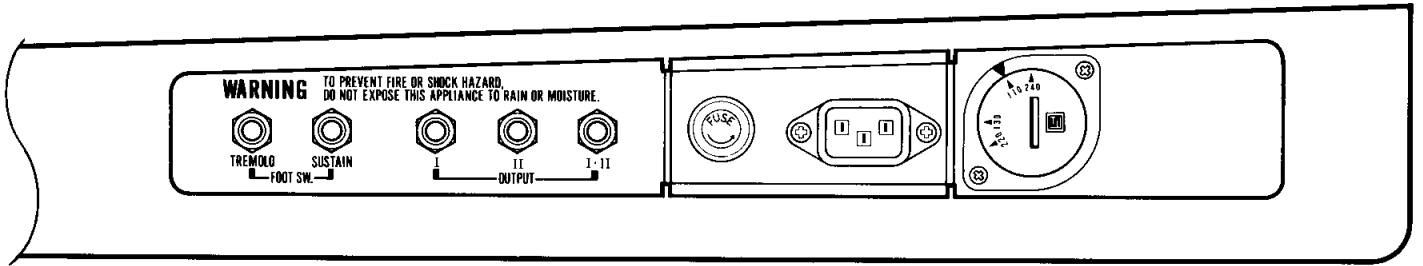


6. Set the CP-30 upright.



This completes the physical assembly of the CP-30.

To disassemble the CP-30, perform steps 1 through 6 in reverse order. The braces and thumbscrews hold the legs together to form the lid; the cables, the sustain pedal can be stored in the lid for traveling.



Voltage Selector

Before plugging in the power cord, make sure the VOLTAGE SELECTOR on the side panel is properly set for your locality. (U.S. and Canadian models are preset and thus don't have this feature.)

AC Power

Connect the female end of the AC power cable to the three prong AC jack on the CP-30's right side.

We recommend use of the self-powered Yamaha A4115H speaker system, due to its wide, flat frequency response. However, the CP-30 may be used with almost any speaker/amplifier system. When using the CP-30 with a standard guitar amplifier, it's a good idea to plug the AC cables of both the CP-30 and the guitar amplifier into the same AC outlet box or the same AC plug strip. By connecting the AC cables of both units to the same AC outlet and then connecting the CP-30's output to the guitar amp's input with a shielded cable (see following section), you insure that the chassis of both devices will be at the same ground potential, avoiding any possible shock hazard. (Not applicable for the model with the 2P-plug.)

Output Jacks

OUTPUTS I and II contain the stereo signals as discussed below. OUTPUT I + II is a mono mix of OUTPUTS I and II. Each jack is a high impedance, low line level, standard tip/sleeve phone jack. (Low line level is nominal -20dB or an average of 77.5 millivolts output). Use any high quality phone-to-phone patch cable to connect the CP-30 to a standard guitar amplifier, a high impedance mixer such as Yamaha's PM-170 or directly to an amplifier/speaker system combination such as the Yamaha A4115H*.

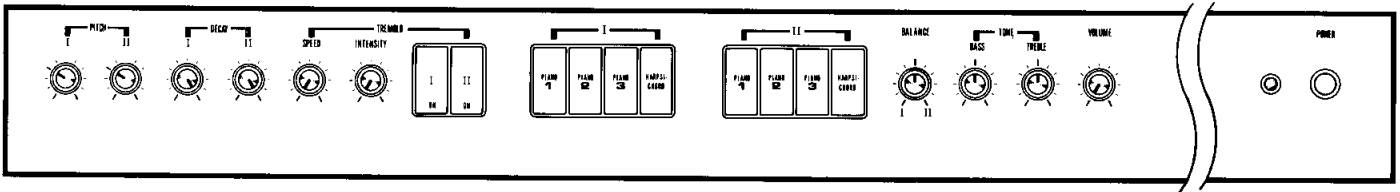
Pedal Jacks

Plug the SUSTAIN pedal into the SUSTAIN jack. Even if the SUSTAIN pedal is not plugged in, the keys will sustain normally when you hold them down.

Plug an optional footswitch into the TREMOLO jack. A footswitch will start or stop the TREMOLO effect if it has been set "on" by the front panel TREMOLO I and II rocker switches. If a footswitch is not connected to the TREMOLO jack, the front panel TREMOLO controls will operate normally, and the TREMOLO effect can be started or stopped with the TREMOLO I and II switches.

*Set the INPUT LEVEL switch on the PM-170 or the A4115H to the " -20dBm " position (for nominal -20dB sensitivity).

controls and switches



AC Power Switch and Pilot

Push the switch once to turn the CP-30 "on," and again to turn power "off." The Pilot lamp is illuminated when the AC power is "on."

Volume

The VOLUME control sets the overall level in all three output jacks.

Balance

The BALANCE control adjusts the relative level of OUTPUT I compared to OUTPUT II and is similar to a "panning" control on a stereo mixer. In addition, the BALANCE control sets the relative mix of OUTPUT I effects and OUTPUT II effects in the mono I + II OUTPUT.

Bass and Treble Tone Controls

The BASS and TREBLE controls both affect the entire keyboard, changing the sound in all three output jacks. Centering the controls (12 o'clock) provides "flat" frequency response. Experiment with the TONE controls to learn how they can alter the CP-30's sound.

Piano/Harpsichord Switches

To understand the function of these switches, one must recognize that the CP-30 is a true stereo instrument, not a split keyboard. There are two completely separate generator systems and each output channel carries the sound of all 76 keys.

The stereo output consists of channels I and II. OUTPUT I carries the sounds created by the four PIANO/HARPSICHORD switches labeled by the numeral "I" above them. OUTPUT II carries the sounds created by the four PIANO/HARPSICHORD switches labeled by the numeral "II" above them. (OUTPUT I + II is a mono mix of the sounds in OUTPUT I and OUTPUT II.)

The sound created in OUTPUT I by its PIANO 1 switch is different from the sound created in OUTPUT II by its PIANO 1 switch. The same is true for the PIANO 2, PIANO 3 and HARPSICHORD switches. The differences between channels I and II when the "same" sounds are selected are similar to the differences you might expect from two different acoustic pianos. Thus, by selecting different combinations of the eight PIANO/HARPSICHORD switches, you can create numerous and varied stereo effects from OUTPUT I and OUTPUT II, or you can add richness to the mono mix (OUTPUT I + II).

Tremolo Switches, Speed and Intensity Controls

The Tremolo controls further enhance the CP-30's available sounds. Tremolo automatically and smoothly varies the output volume up and down. The two TREMOLO rocker switches (I & II) start and stop the effect in OUTPUT I, OUTPUT II or both. Selecting either TREMOLO switch (I or II) puts TREMOLO in the mono output (OUTPUT I + II). The Tremolo footswitch allows you to remotely start or stop the Tremolo effect. However, the footswitch will not turn Tremolo on or off in an output unless the corresponding TREMOLO rocker switch has first been selected.

The TREMOLO INTENSITY control sets the depth of the tremolo effect (the modulation percentage). Lower settings yield a more shallow tremolo effect, and higher settings yield a more intense tremolo effect. The TREMOLO SPEED control varies the rate of the TREMOLO effect (the modulation frequency). Higher settings of the SPEED control cause the volume to vary more rapidly; lower settings cause the volume to vary more slowly.

When both OUTPUT I and OUTPUT II are connected to different amplifier/speaker systems (such as two A4115H amplified speaker systems), and TREMOLO rocker switches I and II are activated, TREMOLO lowers the volume level in OUTPUT I at the same time it raises the level in OUTPUT II, and vice-versa. The sound will seem to move from one speaker to the other in a "rotary" manner, similar to a rotary organ speaker. It is not necessary to use both outputs to obtain a TREMOLO effect, however, and TREMOLO operates normally in the mono I + II OUTPUT. The tremolo obtained from one speaker is similar to the tremolo provided by a guitar amplifier.

Decay I and II Controls and Sustain Pedal

The keyboard notes "sustain" when you hold down the keys or when you depress the SUSTAIN pedal, just like a standard acoustic piano. In other words, holding down the sustain pedal sustains a note just like holding down one of the keys. The maximum sustain time in each output is controlled from a very short staccato to a very long sustain by the corresponding DECAY control. Adjusting the sustain time differently for channels I and II can create many interesting sounds. For example, setting DECAY I for a short sustain and DECAY II for a long sustain means that any note played will appear in OUTPUT I with a staccato sound at the same time it appears in OUTPUT II with a long sustain.

Pitch Controls

The PITCH controls vary the pitch of their corresponding channels over a wide range. Each PITCH control tunes the entire keyboard for that channel. Thus, you can adjust the two channels separately for a "de-tuned" effect, or tune them exactly the same.



A4115H self-powered speaker system



EM-150 self-powered mixer



PM-170 mixer

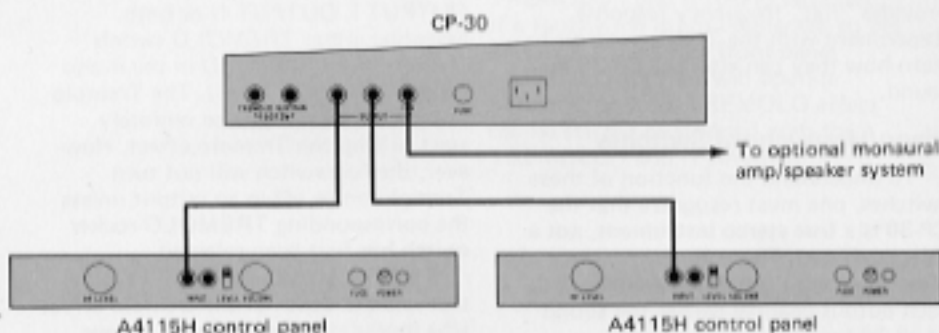
The sound of the CP-30 will depend to a large degree on the amplifier and speaker system. If you use several keyboards, you may also wish to use a keyboard mixer. In any case, it's a good idea to choose these items carefully.

If you have a multi-keyboard setup, we recommend the Yamaha PM-170, a six-input stereo output mixer with VU meters and BASS and TREBLE equalization on every input. This mixer can then feed any amplifier/speaker system. Alternately, use a self-powered mixer such as the Yamaha EM-150. The keyboard outputs, including the CP-30 outputs, can be fed to the mixer input, and the outputs can be connected directly to a pair of speakers such as Yamaha S4115H's.

For amplified speaker systems, we recommend the Yamaha A4115H, a self-powered, two-way speaker system with a very natural, accurate sound and a wide, smooth dispersion pattern. The A4115H can be driven directly from the CP-30's outputs, or from the output of a PM-170 or similar mixer. In the studio, the sound can be taken direct from the CP-30, or from a microphone placed near the A4115H. With this setup, there should be little or no audible difference whether the piano is "direct" or miked. On the stage, the A4115H's high sensitivity and high power output mean that you can have high volume levels free of audible distortion.

The A4115H's controls are simple to operate. If you are using just one A4115H, connect a phone-to-phone patch cable between the CP-30's mono (I + II) output and either one of the A4115H's input jacks. For two A4115H's, connect a cable from the I and II outputs on the CP-30 to one input on each A4115H. Set the A4115H's INPUT LEVEL switch to the "-20dBm" position, and set its INPUT VOLUME as required. The HF LEVEL control sets the volume level of the high frequency horn in relation to the low frequency woofer.

NOTE: If you wish to use three A-4115H's, one may be fed by the mono (I + II) output. To use more than three A-4115H's, you can "bridge" two or more A4115H's together; connect a phone-to-phone cable from the unused input jack of the A4115H being fed by the CP-30 to an input jack on the next A4115H.



Connecting the CP-30 to a pair of A4115H amplified speaker systems.

electronic service

If you suspect an electronic problem, first check all connecting cables, AC power cables and fuses. Make sure there is AC power at the AC outlet, and check the settings of all controls and switches. If you have two speakers connected, and the problem seems to occur primarily in one speaker, first check connecting cables (the best way to check a cable is to replace it with a known good one), then try reversing the cables at the CP-30's output jacks. If the problem remains in the same speaker, the fault is probably in that speaker or its amplifier. If the problem switches speakers when you reverse the cables, the fault is probably in the CP-30's electronics.

Any electronic malfunction should be referred to a qualified Yamaha service technician.

travel case

Disassembled, the CP-30 is compact, easy to carry and suitable for light duty traveling, such as in a station wagon or van. For heavy cartage (commercial trucking or air-freight as examples), we recommend that you use an additional travel case.

CP-30 specifications

Keyboard: 76 keys ($E_1 \sim g_4$)

Controls: PITCH; DECAY; TREMOLO; Eight PIANO/HARPSICHORD SWITCHES to alter the sound (four for each of the two stereo output channels); BALANCE; BASS and TREBLE Tone Controls; and VOLUME.

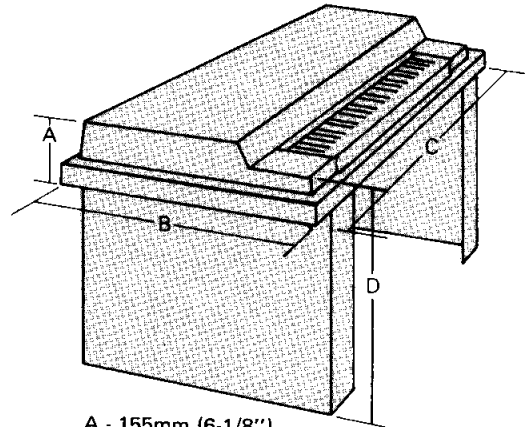
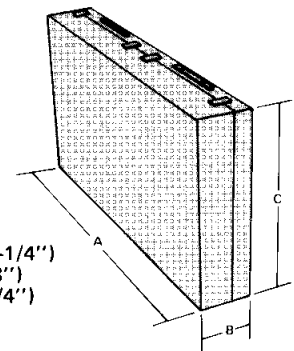
Jack Panel:

Foot Switch Jacks: TREMOLO; SUSTAIN

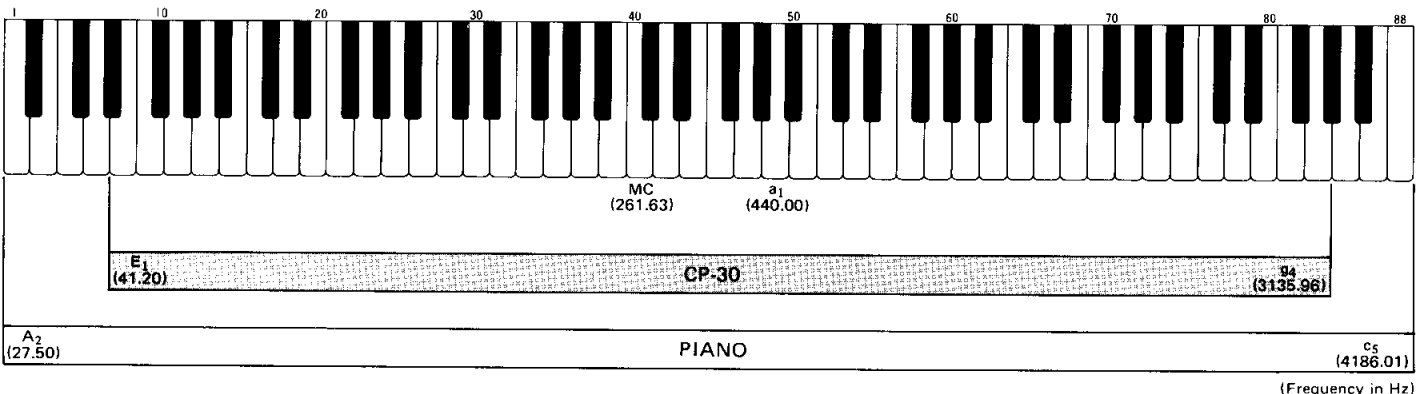
Output Jacks: CHANNEL I, CHANNEL II, MONO (I+II)

Dimensions:

Net Weight: 54Kg (119lbs.)



SCALE RANGE



A4115H amplifier controls & jacks

Input Jacks: Two (parallel) standard tip-sleeve phone jack which accept unbalanced, line level sources.

Input Level Control: An input attenuator controls the volume level of the amplifier.

Input Level Switch: A slide switch selects -20dBm or 0dBm nominal input level: for compatibility with low or high level lines.

H.F. Level Control: An "L-Pad" attenuator (for constant impedance) adjusts the volume level of the high-frequency driver.

A4115H amplifier specifications

Output Power: 100 Watts continuous average sine wave power into an 8-ohm load at 0.1% T.H.D.

Frequency Response: 10Hz to 30kHz +0, -1dB with the INPUT LEVEL switch in the "0dBm" position; 40Hz to 50kHz +0, -3dB with the INPUT LEVEL SWITCH in the "-20dBm" position.

Power Bandwidth: 20Hz to 20kHz (at 100 watts into an 8-ohm load at 0.1% T.H.D.).

Total Harmonic Distortion: Less than 0.01% at 80 watts into 8 ohms.

Damping Factor: 90 from 20Hz to 3kHz.

Hum and Noise: -73dB (0.17mV)†

Slew Rate: 25 volts per microsecond.

Input Sensitivity (input level for 100-watts into an 8-ohm load): 0dB (0.775 volts) with the INPUT LEVEL switch set at the "0dBm" position; -20dB (77.5mV) with the INPUT LEVEL switch set at the "-20dBm" position.

Input Impedance: 8k-ohms with the INPUT LEVEL CONTROL at the maximum clockwise position.

A4115H speaker specifications

System Impedance: 8-ohms nominal, 7-ohms minimum.

Sensitivity: 101dB SPL at 1 meter with 1 watt input (DIN and JIS standard)*; 52dB SPL at 30 feet, 1 milliwatt input (EIA standard).

Frequency Response: 70Hz to 15kHz, ±6dB (referred to 101dB SPL).

Dispersion: 70-degrees horizontal by 40-degrees vertical (angles between 6dB down points at 1kHz).

Crossover Transition Frequency and Slope: 2kHz at 12dB/octave

Enclosure Type: Combination—front-loaded horn/ducted-port bass reflex, with separate high frequency horn/compression driver.

Finish: Black leatherette with metal corner caps and black (removable) grille.

Dimensions:

Height: 908mm (35-3/4")

Width: 610mm (24")

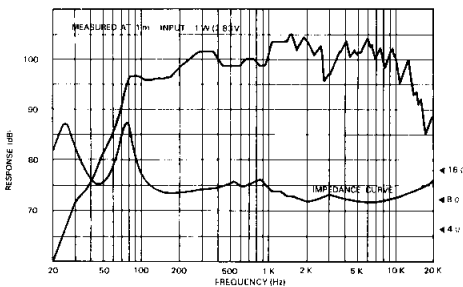
Depth: 452mm (17-3/4")

Weight: 58Kg (127.9lbs.)

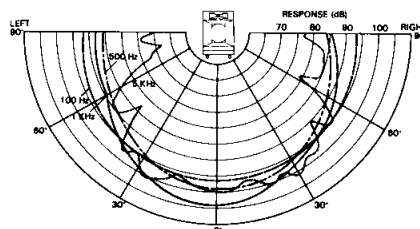
Driver (Loudspeaker)	Model	Nominal Cone Diameter	Voice Coil Diameter	Nominal Impedance	Sensitivity**	Continuous Pink-Noise Power Rating	Peak Power	Rated Power Bandwidth	Magnet Weight	Flux Density
Woofer	JA 3803	15" (38cm)	2.6" (6.6cm)	8 ohms	99dB	120 Watts	240 Watts	20Hz-20kHz	6.0Kg (13.2lbs.)	12,500 Gauss
Horn/Driver	JA 4201	—	1.6" (4.2cm)	8 ohms	104dB	20 Watts	40 Watts	2kHz-20kHz	2.2Kg (4.8lbs.)	16,000 Gauss

NOTE: The Yamaha S4115H speaker system is identical to the A4115H, except it contains no amplifier.

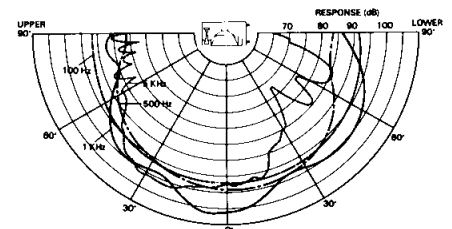
A4115H Frequency Response



A4115H Horizontal 180° dispersion



A4115H Vertical 180° dispersion



†Measured with a 6dB/octave filter at 12.5kHz (equivalent to a 20kHz filter with infinite dB/octave attenuation).

*Sensitivity at 4 feet, with 1 watt is 1.75dB below DIN/JIS standard.

**Sensitivity is extremely significant, since an increase of only 3dB in sensitivity is equivalent to doubling the amplifier power. In other words, a 50-Watt amp used with a speaker that is 3dB more sensitive than another speaker, will produce the same sound level as a 100-Watt amp used with the less sensitive speaker.

Specifications subject to change without notice.

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