

LUXMAN

CONTROL AMPLIFIER

C-70f

STEREO POWER AMPLIFIER

M-70f



LUXMAN CORPORATION

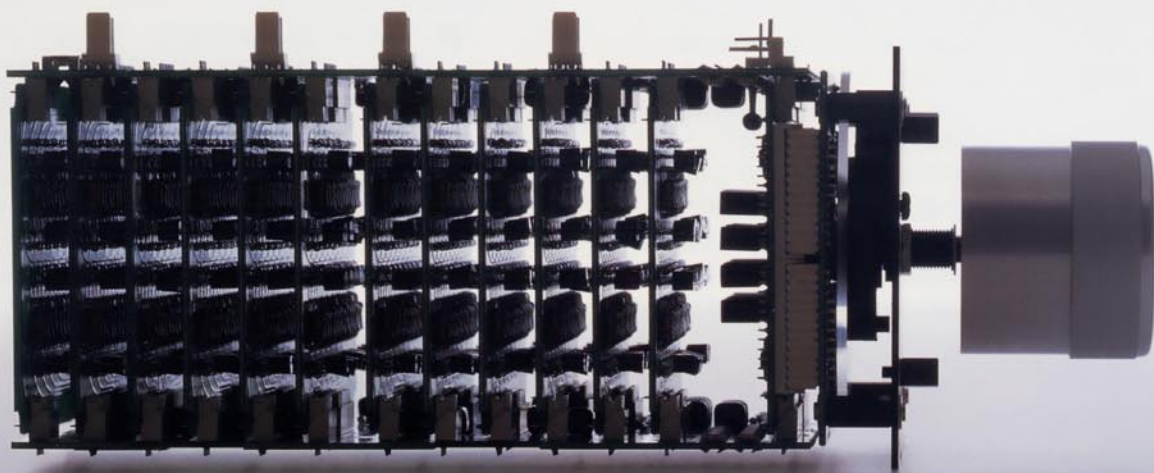
The exploration into the deep fields

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C-70f

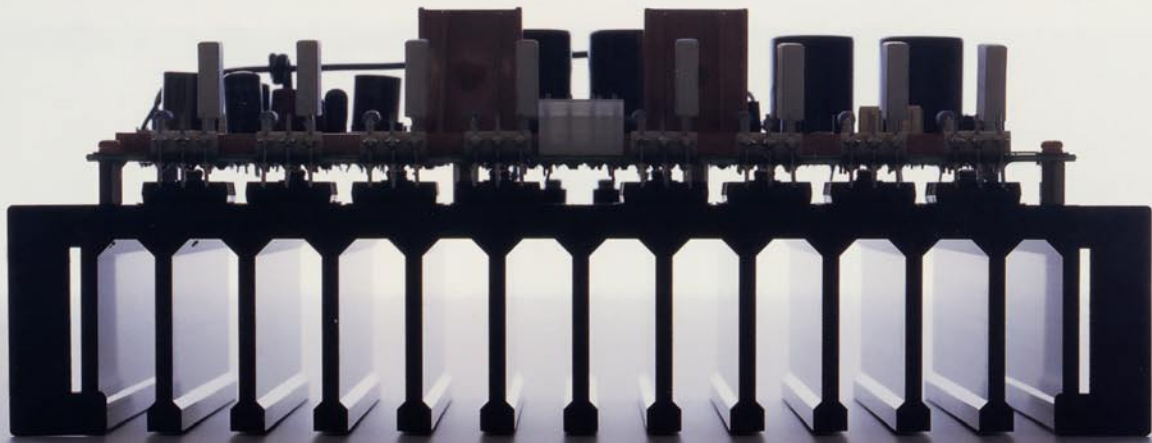
Attenuator

The position grabbing the key of the sound quality of control amplifier is the sound volume adjusting mechanism, namely the attenuator. In C-70f, the newly-developed high sound quality attenuator LECUA (LUXMAN Electric Controlled Ultimate Attenuator) which has positioned the super-higher fixed resistance switching type attenuator built in the Luxman's flagship control amplifier C-10 at a very high level was installed. LECUA is the attenuator which places the 48-position sound quality at the most prioritized position by carrying out the attenuation by just the normal 2-base fixed resistors. By supplying the mechanism which could activate the FET switch in non-contact mode with high-performance photo interrupter, the outstanding reliability without noise could be obtained. The LECUA initially built in the C-70f is composed of the independent 4 circuits that are equipped with hot side/cold side for transferring the stereo balance. It is a kind of large-scale electronic attenuator with totally 16 circuit boards and about 2,000 pieces of components. But the biggest feature of the most important signal pass lies in that it is composed of very simple circuits containing 2-base fixed resistors carefully manufactured for improving the sound quality. The 48 positions in total are the set up positions maintained for actual sound volume, and could offer an firm operation by click-touch with a light and joyful heart. A convenient unit-gain [gain-1] position was prepared for the introduction of home theatre processor. With the development of LECUA which could gain an overwhelming resolution and quietness even at the tiny level isolated from the left and right level errors, Luxman's control amplifier has reached a new peak.



The technical innovation aims at improving the reproduction of music

The technical innovation aims at improving the reproduction of music



M-70f

Power Block

The negative feed back (NF) circuit is not only one of the absolutely necessary parts for improving the features of the amplification, but also could exert impact on the sound quality as a whole. Here, the most important thing is nothing but the dynamic status of music reproduction, and the special attentions should be paid to the acquisition of neutral sound color, the rising of sound and the overall speed feeling, braking force, etc. The ODNF (Only Distortion Negative Feedback) circuit independently developed by Luxman is quite different from the existing method which feeds the output signal (music signal) back to the amplification circuit with only the differential signal which is the distorted element arising from the special circuit comparing and picking out the input waveform and output waveform, and was fed back to the amplification circuit as a distorted element to cancel it. Thus the DC servo amplifier controlling the phase perfection circuit and super-lower band could be omitted, and the sound in super-higher band could be realized by keeping the natural sound color as it was with the high slewing rate. Through the operation of repeating the trial listening and of improving the sophistication, the ODNF circuit has been evolving into Version 2. The natural sound quality and the drive feeling in the direction of lower band of M-70f will supply you with the lifelike reality of the passion poured into the music by the players while fully displaying the charm of integrated speaker system.

C-70f



Enjoy the feeling of sound full of reality. be intoxicated in the leaping of music full of warm felling.... C-70f was born from the pursuing of the ideal control amplifier challenging the audio era of next generation. The control amplifier in the mind of Luxman should be one that exists as a power amplifier drive which could receive the flexible and meticulous music signal from program source and could optimistically drive the power amplifier and speaker system. C-70f is a work full of confidence of Luxman which has built in the newly-developed high purity, high sound quality attenuator LECUA and adopted such things as the second generation ODNF circuit, 70 μ thick copper foil-FR-4 board, custom-made parts, etc. The fresh appearance processed by plaster white is an expression of mood enjoying sound and music from the heart.

STEREO POWER AMPLIFIER

■ Large capacity power transistor which could supply sufficient power to the instantaneous impulse

The large capacity toroidal transformer of power source part installed in M-70f has taken a special design which has fundamentally restudied the wound wires specifications of the former core material and wound wire material. Special efforts are paid to the improvement of the regulation features. The hitherto unknown power transformer is one of important key parts responsible for supplying sufficient power to each part of power amplifier. The stable power supply is guaranteed to the power needs of M-70f from the tiny sound volume to the full power by integrating with the custom-made parts of large-scale block condenser boasting totally a big volume as large as 44,000 μ F. Furthermore, the high inertia power source independently developed by Luxman which could supply power to the impulse element corresponding to each tone of sound was built in. So the

M-70f could naturally and vividly describe the vivid expression and the lively leaping feeling of music.

■ The efforts dedicated to the board of power block, lead-free tin solder, etc. for the improvement of sound quality

The FR-4 glass fiber epoxy board with lower capacitance was adopted in the power block board integrating with the large-scale heat sink with an excellent heat effect. By adopting the 70 μ thick copper foil on the single line on the board, the losses of energy was minimized. Still, by the using of lead-free tin solder material, the deterioration of sound quality at the contact part was kept at the lowest limit. The power section was supported by the bipolar transistor with a 4-parallel-push-pull construction. With the outstanding high-power designs with their powers respectively as high as 200W+200W under the load of 8 Ω , 300W+300W under 4 Ω and 600W (8 Ω load) under the monaural



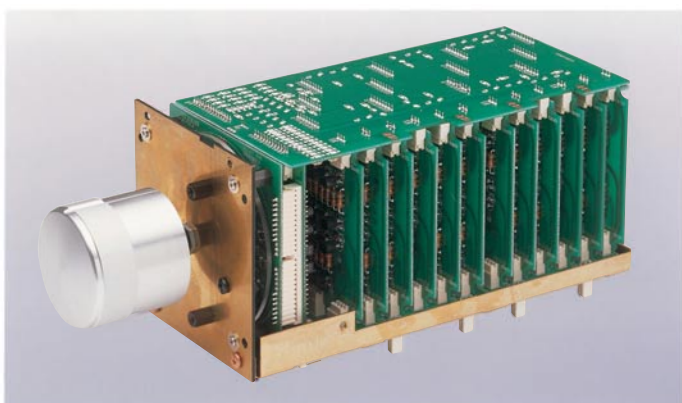
Large-capacity toroidal power transistor



The internal structure adopted the box

■ **The ODNF circuit upgrading to Version 2 and getting more proper**

In the negative feed back (NF) circuit aiming at improving the features of amplification, the method feeding one part of the output signals back to the amplification circuit was generally used. The ODNF circuit independently developed by Luxman could pick out the differential elements, namely only the distorted elements, which was obtained by comparing and detecting the input waveform and the output waveform, and could feed it back to the amplification circuit as a distorted element for canceling. Different greatly from the original method for controlling the distorted element according to the different music signal, the initial slewing rate occurred when the sound is generated could get a high speed and cover super-higher bands. With the development of ODNF circuit, it does not only make the phase perfecting circuit based on negative feed-back unnecessary, but also could make the canceling of DC servo amplifier, which exerts bad impact on the quality feeling description of lower bands, possible. The ODNF circuit built in the

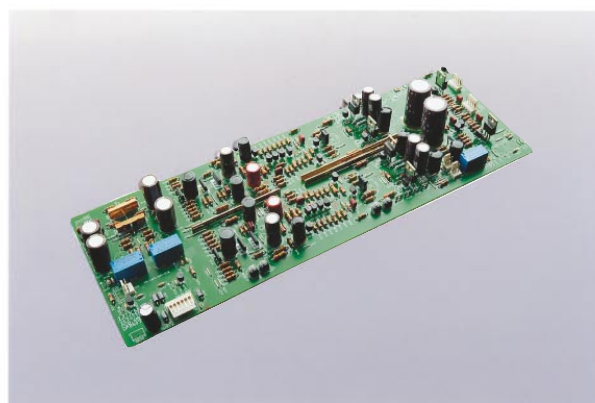


The newly-developed high purity attenuator LUCUA unit

C-70f could bring excellent sound quality than ever before with its latest specifications—Version 2.

■ **The glass fiber board, lead-free tin solder, etc. of attenuator circuit**

As a result of the studying on the improving of the sound quality, in the newly-developed attenuator circuit LECUA, the board of lower capacitance FR-4 glass fiber epoxy board, which has adopted the 70μ thick copper foil aiming at pursuing high grade audio, was adopted. The transferring of the rich music information sent from the program source machine without any losses and the directly transferring of the leaping feeling of music are what the Luxman is pursuing for. And for improving the sound quality, the lead-free tin solder material was adopted. The deterioration of sound quality at the contact part was suppressed at the irreducible minimum. This is a result earned from the devotion of efforts to the detailed parts with the fresh description of deep expression of music as target.



Flat amplifier board built in with ODNF circuit

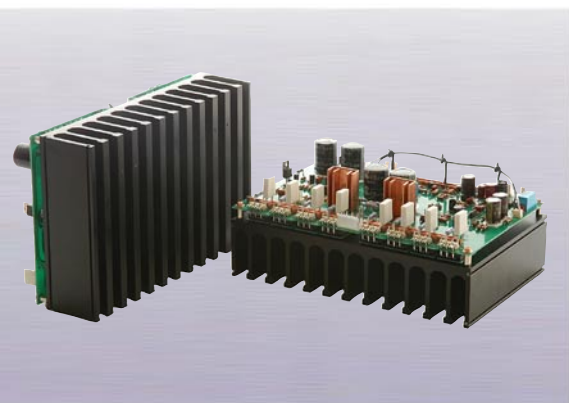
action at BTL connection, M-70f could realize an audiovisual description with a focus, as well as covering a wide range from the tiny sound volume to the full-power driving. And a quality above the specification could be gained.

■ **The perfect high sound quality circuit technology achieved by introducing the custom-made parts**

For really improving the purity of the sound, Luxman has developed and launched custom-made parts completely pursuing the traditional sound quality. The special resistor used for audio, copper styrol condenser, electrolytic condenser, copper-made bus bar, high purity cable, etc. are generously adopted in M-70f. All the things from the tiny expression of each sound to the rich information volume, as well as the fluent energy description in the fortissimo and overwhelming form, could be said the achievements contributed by the perfect circuit technology and the custom-made parts.

■ **The high rigidity body coated with plaster white color contributes to the sound quality**

The plaster white color is the color symbolizing the new era of Luxman. The M-70f, with its surface of material being carefully treated with blasting method and giving a high-grade sense, has taken an ideal body construction as the stereo power amplifier. The powerful power source part was built in the central part, and the high rigidity box separating construction was adopted in the power block of the left and right channels and the input part, the operation section, etc. Because the overall case body is supported by the thick FRP made chassis base with an excellent absorbed oscillation mode and the gradation cast iron-made legs, so the impact came from outside vibration could be removed to a possible extent, and the un-wanted noise elements could be effectively shut out. In the front part, the large-scale power meter displaying the dynamism of music was built in. While



Parallel construction of power block

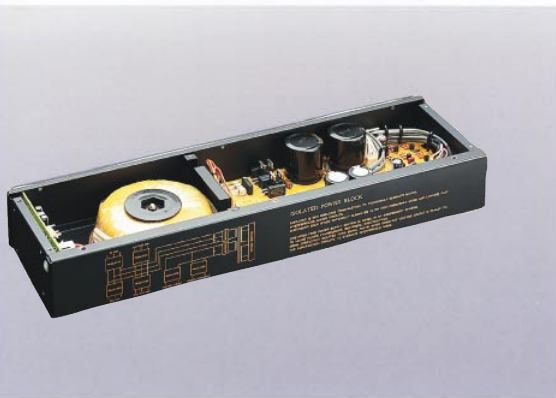


The large-scale block condenser being able to supply heavy current



■ **The high sound quality circuit technology contributed by custom-made parts**

The sound quality contributed by material. Luxman has paid its attention to the inherent sound quality of elements formerly adopted by it, and developed the Luxman's special custom-made parts. The research on elements pursuing the reproduction of the sound at the tiny level was transferred from the overall sound color trend to the multi-items and the accumulated data and performances have contributed a lot to the development of C-70f. A perfect system matching to the grandeur dynamism of the ever-changing music such as the Luxman independent high inertia power source which has adopted the electrolytic condenser with an excellent instantaneous discharge feature, the star socket forming a stable ground environment, etc. was established.



■ **The high rigidity body painted with plaster white color**

The plaster white color is a color that symbolizes the new era of Luxman. The C-70f, with its surface of material being carefully treated with blasting method and giving a high grade sense, has taken a high rigidity body construction with an optimized sound quality. On the foundation of FRP chassis base with an excellent absorbed oscillation mode, the gradation cast iron-made legs are built in. The efforts are paid to the countermeasures against the vibration of circuit board and the improvement of the rigidity of case construction as a whole. The internal parts are mounted in each construction. By separating the interior with blocks, the countermeasure – blocking the interference from the un-wanted noise, could be found even in the sound prospect of acoustic space to the tiny extent



inheriting the logarithmic display method which could easily read the action, the power meter is decorated with blue lights for pursuing harmony with the plaster white color. And a slim and square window design was adopted for getting a visual contrast when it was not used.

■ **The newly-developed large-scale speaker terminal, colorful input/output interface**

The newly-designed high grade and large-scale type was adopted in speaker terminal. The really tough contact is realized by adopting high-grade speaker cable with its terminal being processed like attaching Y lug, etc. Of course, it could also match to the 4mm banana terminal. The coaxial type and balance type (XLR) was built in the input terminals.

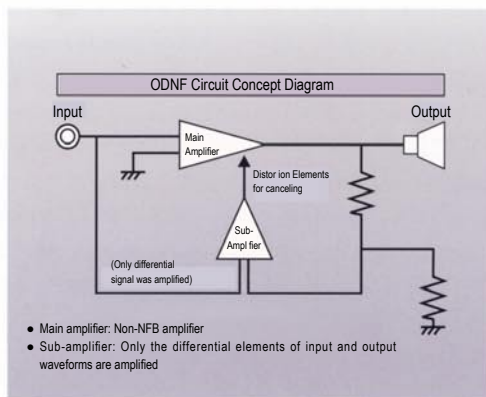
For integrating with other types of machines, the high quality attenuator switch mode equipped with the reference position which could get 100W output when the input was 1V, was adopted in the switching between the coaxial type and the balance type. The inlet power source connector which makes the connecting and disconnecting of AC cable easy, and the power line phase sensor solely supplied by Luxman was built in too. The selection of action/illumination of the large-scale power display meter in logarithmic display mode could be operated by turning on or turning off the switch in the front.

■ **Version Up**

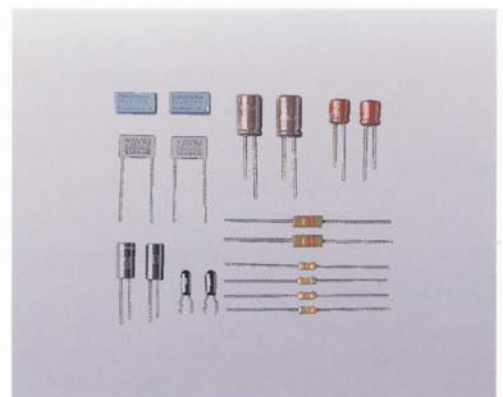
For the benefit of the lover of Luxman products, the version-up service with the former model M-7f as object is under plan for practice. The detailed information will be released on the home page, special shop, professional journal, etc. when it comes out.



The newly-developed large-scale speaker terminal



ODNF action concept diagram



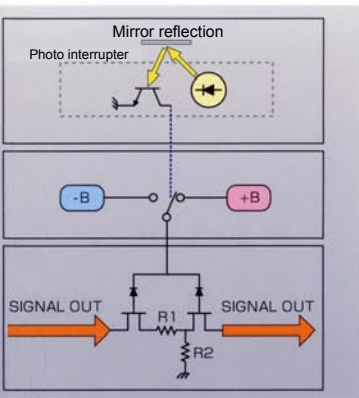
The high sound quality custom-made parts after finishing the repeated trial listening

■ The tough driving power for controlling power amplifier

The role of control amplifier is not just the volume-adjusting of program source. The power amplifier powerfully driving the speaker system is an existence something like magnifying glass which could reflect the quality of control amplifier. If the control amplifier had no sufficient driving power, no matter how good the power amplifier is, the music with leaping feeling like erupting spring will not be transferred. It is a kind of control amplifier that could be used as an excellent power amplifier driver. Luxman has been pursuing its existence meaning. The overall technique and substances devoted to C-70f was used for transferring the music full of force of life. The favorable speaker system will tell you the result through using it.

■ Version Up

For the benefit of the lover of Luxman products, the version-up service with the former model C-7f as object is under plan for practice. The detailed information will be released on the home page, special shop, professional journal, etc when it comes out



contact	R1(Ω)	R2(Ω)	Damping ratio(dB)	contact	R1(Ω)	R2(Ω)	Damping ratio(dB)	contact	R1(Ω)	R2(Ω)	Damping ratio(dB)
1	—	0	—∞	17	51k	160	-50.00	33	47k	2.7k	-25.50
2	51k	1.6	-90.00	18	51k	200	-48.00	34	47k	3.3k	-24.00
3	51k	2.2	-87.00	19	51k	240	-46.50	35	47k	3.9k	-22.50
4	51k	3.3	-84.00	20	51k	270	-45.00	36	47k	4.7k	-21.00
5	51k	4.7	-81.00	21	51k	330	-43.00	37	43k	5.1k	-19.50
6	51k	6.2	-78.00	22	51k	390	-42.00	38	43k	6.2k	-18.00
7	51k	9.1	-75.00	23	51k	470	-40.50	39	43k	7.5k	-16.50
8	51k	13	-72.00	24	51k	560	-39.00	40	43k	9.1k	-15.00
9	51k	18	-69.00	25	51k	680	-37.50	41	39k	10k	-13.50
10	51k	27	-66.00	26	51k	820	-36.00	42	36k	12k	-12.00
11	51k	36	-63.00	27	47k	910	-34.50	43	33k	15k	-10.00
12	51k	51	-60.00	28	47k	1.1k	-33.00	44	30k	20k	-8.00
13	51k	62	-58.00	29	47k	1.3k	-31.50	45	24k	24k	-6.00
14	51k	82	-56.00	30	47k	1.5k	-30.50	46	18k	30k	-4.00
15	51k	100	-54.00	31	47k	1.8k	-28.50	47	10k	39k	-2.00
16	51k	130	-52.00	32	47k	2.2k	-27.00	48	0	51k	0.00

Attenuator Constant Table

M-70f



The clear audiovisual positioning and broad stereophony space. The complex sound expression based on the tone balance offering the sense of stabilization could be described vividly. The M-70f of Luxman was carefully developed by highlighting the life sense of music. The real value of M-70f which intends to highlight the existence feeling of drive amplifier while activating the role of speaker system could be understood by the expressive forces of natural voice and acoustic music instruments. The brand-new M-70f with its plaster white painted body installed with blue meters is laid out in the atmosphere full of charm by adopting the tough driving force obtained from power transistor in a 4 parallel push-pull construction, the evolutionary second generation ODNF circuit and 70μthick copper foil, FR-4 board, as well as the custom-made parts.

C-70f



		250mV / 50K Ω
		250mV / 100K Ω
		1V / 300 Ω 7.5V
		1V / 600 Ω 7.5V
	1KHz	0.005%
	20~20KHz	+0, -0.1dB
	10~100KHz	+0, -2.2dB
	1KHz (IHF-A)	119dB
		5 / 2
		2 / 2
	REC ·	2
	467 () x 187 () x 435 () mm	
	22.6Kg	

M-70f



	8 Ω / 4 Ω	200W + 200W / 300W + 300W
	8 Ω , BTL	600W
	8 Ω , 200W	1V
		33K Ω
		66K Ω
	20~20KHz	+0, -0.1dB
	10~100KHz	+0, -1.0dB
	8 Ω , 1KHz	0.004%
	8 Ω , 20~20KHz	0.08%
	1 K H z (IHF-A)	118dB
	467 () x 212 () x 440 () mm	
	29.0Kg	

