

# SERVICE MANUAL



## P-700

### PROFESSIONAL AMPLIFIER



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# introduction

**Congratulations** on purchasing this Gemini P-700 Power Amplifier! You've made a really wise choice because this state-of-the-art amplifier has the latest features and technology and is backed by a three-year warranty! We know you're anxious to hook everything up and start mixing beats and cranking up the volume on those hot dance tracks, but we suggest reading this instruction manual first as there are some really cool features on this amplifier that we wouldn't want you to miss!

# features

- State-of-the-art circuitry for the finest sound quality and reliability
- High output power to drive professional speakers without clipping but also tame enough for home use
- Protection Circuitry (short circuit, thermal cut-off, sub/ultrasonic frequency filters, turn-on delay, main fuse, secondary fuses)
- Unbalanced stereo inputs with RCA type jacks
- Ground lift switch for achieving the quietest possible operation
- Large blue-light illuminated VU meters to give you greater control... and they look really cool
- Ultra-modern design with professional 19" rack mounts.
- Front-to-rear airflow with variable speed fan control for maximum cooling and quietest possible operation.
- Variable speed fan for quieter operation with softer music and home use.
- Compact 2U well balanced enclosure
- Steel reinforced chassis construction for durability and longevity.

# Common sense

Some of these things go without saying, but we're going to say them anyway!

- Read all operating instructions before using this equipment.
- To reduce the risk of electrical shock, do not open the unit. There are **NO USER REPLACEABLE PARTS INSIDE**. For all repairs or service questions please contact the Gemini Service Department or your authorized dealer to speak to a qualified Gemini Sound Products technician.
- Be sure to allow adequate front and rear ventilation to avoid possible heat damage to your equipment.
- Be sure that AC power is OFF and all level controls are set to MINIMUM before making connections. This will eliminate any chance of unexpected loud buzzes, pops or clicks that could damage your speakers.
- **DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.**
- Operators of electronic equipment should never be in contact with water
- Keep your power amplifier grounded for maximum safety by always using a 3-prong plug. If you are using an extension cord, always use a 3-prong cord as well.
- **DO NOT USE ANY SPRAY CLEANER OR LUBRICANT ON ANY CONTROLS OR SWITCHES.**

# hook it up

Okay, let's get connected!

## REAR PANEL

### Input Section:

**Input Jacks (1)** Your amplifier has unbalanced stereo RCA type jacks, with the tip of the jack being positive (+) and the sleeve part being negative (-)/ground.

Connect the output of your mixer here.

### Output Section:

Disconnect unit from the AC power source before making any connections. Pay close attention to polarity when connecting your speakers. (Connect the positive wire to the red terminal and the negative wire to the black terminal). Connecting your speakers using the wrong polarity will not damage your speakers, but will impact the quality of the sound (lack of bass and incorrect stereo image).

**Speaker Outputs (3):** the speaker output connectors are terminals that will accept a standard banana plug, or bare wire.

Make sure that all the connections are clean when using bare wire connections. If any strands of wire from one connector touch the connector next to it, the sound will distort, and your amplifier will overheat.

★ **NOTE: Total speaker impedance must not be lower than  $4\Omega$  (Ohm) per channel**

### AC Power Section:

- Fuse (4): replace with proper type and rating.
- AC Inlet (6) is used to attach the power cord to the unit.
- AC line voltage switch (5) allows reconfiguring amplifier for either 110-120 V or 220-240 V AC lines.
- Ground Lift Switch (2) is used to lift the ground from the chassis. (See the Ground Lift Switch Instructions for more detail.)

## FRONT PANEL

- Power Switch (10): turns the unit on and off.
- Power LED (9): the power LED lights when the power is on. If the power LED does not light, refer to the trouble-shooting guide.
- Level Controls (7): control the input levels for each channel.
- Large blue-light illuminated VU meters (8) display the output level of each channel.

# operation

## Stereo Operation

The unit has two channels for stereo operation. Each channel provides a separate signal at the speaker outputs. The following instructions are for use with  $4\Omega$  or  $8\Omega$  speakers of matched power ratings.

1. With the power OFF, connect your input cables to the Channel A and Channel B inputs using the RCA INPUT JACKS (1)
2. Connect your speakers to the Channel A and Channel B SPEAKER OUTPUTS (3). (*The total speaker load must be at least  $4\Omega$  per channel.*)
3. With the LEVEL CONTROLS (7) of both channels set to zero (fully counterclockwise), turn the POWER SWITCH (10) ON. Okay, now try playing some music and/or talking into your microphone, and set the level of your input as high as you think you'll need it. This way it will be as high above the amplifier's noise floor as possible so you'll get the best possible sound with the least amount of noise.
4. Now adjust your LEVEL CONTROLS for each channel to your desired listening level. You also have the choice of keeping the volume of both speakers equal, or for certain situations you can adjust the volume so one side will be louder than the other.

## Using the Ground Lift Switch

Depending on how your sound system is hooked up, sometimes applying the ground will create a quieter signal path. Sometimes lifting the ground can eliminate ground loops and that annoying hum to give you quieter and cleaner overall sound.

1. With the power amp ON, listen to the system in idle mode (no music or signal) with the ground ON. The GROUND LIFT SWITCH (3) will be in the left position.

2. Turn the power OFF before moving the GROUND LIFT SWITCH (3). Now lift the ground by moving the GROUND LIFT SWITCH to the right. Turn the power back ON and listen to determine which position makes the overall sound quieter with the least amount of noise and hum.

★ **CAUTION: DO NOT DISCONNECT THE AC GROUND ON THE POWER AMPLIFIER IN ANY WAY. THIS CAN BE VERY HAZARDOUS!!**

Should you experience any difficulties or problems, you can first refer to the TROUBLESHOOTING GUIDE located on the following page. If you still cannot fix the problem, please call 1 (732) 738-9003 for Gemini Customer Service.

# That's it !

Okay, that just about covers everything! NOW you're ready to grab a couple of great CD's or records, crank it up and get the party started!



# specifications

Output Power EIA: 1kHz @ 1% THD, Wrms

Both Channels Driven 8Ω: .....70

Both Channels Driven 4Ω: .....90

Dynamic Headroom, dB:

At 8Ω:.....1.5

At 4Ω:.....3.3

Frequency Response:.....30 Hz – 50 kHz

Total Harmonic Distortion: .....less than 0.1%,  
typical 0.05% at 1 kHz

Signal to Noise ratio:.....90 dB below rated power @ 8Ω

Damping factor: .....greater than 150 @ 8Ω

Slew rate:.....10 V/μS

Voltage gain, dB:.....27

Input Sensitivity (for rated power at 8Ω):.....1Vrms

Input Impedance (unbalanced):.....10 kΩ

Power consumption (at rated power at 4Ω,  
both channels driven): .....400 W

AC Power Requirements: .....110-120 V or 220-240 V  
60 / 50 Hz.

Indicators:.....1VU-meter per Channel  
1 Power LED

Cooling: .....Variable Speed Fan, Front-to-Rear Forced Air

Protection: .....Short Circuit, Thermal Cut-off,  
Sub/Ultrasonic Frequency Filters,  
Turn-on Delay, Main Fuse,  
Secondary DC Fuses

Connectors:

Inputs:.....RCA Jacks

Speaker Outputs:.....Binding Posts

Dimensions:.....19"W x 11"D x 3.5"H  
(483 x 280 x 89 mm)

Weight :.....12.9 lbs (5.85 kg)

★ **Specifications and design are subject to change without notice for purpose of improvement**

# troubleshooting

## SYMPTOM

## CAUSE

## SOLUTION

UNIT DOES NOT PRODUCE SOUND.  
POWER LED DOES NOT LIGHT.

- ◆ POWER SWITCH NOT IN ON POSITION.
- ◆ POWER CABLE NOT CONNECTED TO AMPLIFIER OR TO OUTLET.
- ◆ AC OUTLET NOT ACTIVE.
- ◆ MAIN AMPLIFIER FUSE DEFECTIVE.

- ◆ MOVE POWER SWITCH TO ON POSITION.
- ◆ CONNECT POWER CABLE TO AC SUPPLY.
- ◆ CHECK CONDITION OF OUTLET.
- ◆ REPLACE AMPLIFIER MAIN POWER FUSE ON REAR PANEL WITH CORRECT TYPE & RATING.

POWER LED LIGHTS, BUT NO SOUND IS PRODUCED BY AMPLIFIER.

- ◆ NO INPUT SOURCE SIGNAL.
- ◆ INPUT SOURCE NOT CONNECTED.
- ◆ DEFECTIVE INPUT CONNECTING CABLE.
- ◆ SPEAKERS NOT CONNECTED.
- ◆ DEFECTIVE SPEAKER CABLES.
- ◆ SPEAKER SYSTEM INOPERATIVE.
- ◆ AMPLIFIER'S LEVEL CONTROLS ARE SET TO ZERO.

- ◆ CHECK FOR PROPER FUNCTION OF INPUT SOURCE DEVICE (TUNER, CD PLAYER, ETC.).
- ◆ CHECK INPUT CABLES & CONNECTIONS.
- ◆ REPLACE CABLES IN QUESTION WITH KNOWN GOOD CABLES.
- ◆ CHECK OPERATING CONDITION, CABLES AND STATUS OF SPEAKER SYSTEM.
- ◆ BE SURE THE LEVEL CONTROLS ARE PROPERLY SET.

SOUND IS PRESENT BUT VOLUME IS TOO LOW EVEN THOUGH SOURCE DEVICE (i.e.: CD PLAYER, TUNER) OUTPUT IS SET TO A HIGH LEVEL.

- ◆ AMPLIFIER INPUT LEVEL CONTROLS ARE SET TOO LOW.

- ◆ ADJUST LEVEL CONTROLS AS PER INSTRUCTIONS.

LOUD 50/60 HZ OR 100/120 HZ HUM HEARD AT ALL TIMES THROUGH THE SPEAKERS.

- ◆ IMPROPER OR DEFECTIVE GROUND CONNECTION AT INPUTS.
- ◆ IMPROPER OR DEFECTIVE GROUND AT INPUT SOURCE DEVICE(S).
- ◆ IMPROPER OR DEFECTIVE GROUND CONNECTION ON AC OUTLET.
- ◆ GROUND LOOP THROUGH AC LINE CONNECTION / RACK MOUNTING.

- ◆ CHECK FOR PROPER AC LINE GROUND AT POWER AMP AND ALL INPUT DEVICES.
- ◆ CHECK INPUT CABLES FOR ALL DEVICES AND SIGNAL PROCESSING AS WELL AS INPUT CABLES TO POWER AMPLIFIER.
- ◆ CHECK POSITION OF GROUND LIFT SWITCH AS PER INSTRUCTIONS FOR LIFTING THE GROUND.
- ◆ NEVER LIFT THE AC LINE GROUND ON THE POWER AMPLIFIER. IF YOU ARE NOT TOTALLY FAMILIAR WITH GROUND LIFTING OR UNIFICATION PROCEDURES, DO NOT ATTEMPT THEM WITHOUT FIRST CONSULTING YOUR DEALER OR A QUALIFIED SOUND TECHNICIAN FOR MORE INFORMATION ON GROUNDING. IMPROPERLY DONE, SUCH PROCEDURES CAN POSE A SAFETY AND/OR FIRE HAZARD.

SOUND IS DISTORTED.

- ◆ DISTORTION OCCURRING IN SOURCE DEVICE (CD PLAYER, TUNER, ETC.).
- ◆ INPUT LEVEL IS SET TOO HIGH.

- ◆ CHECK VOLUME METERS
- ◆ ADJUST LEVEL CONTROLS AS PER INSTRUCTIONS.

FUSE BLOWS INTERMITTENTLY.

- ◆ SPEAKER LOAD IMPEDANCE IS TOO LOW.
- ◆ TYPE OR RATING OF THE FUSE IS NOT CORRECT.

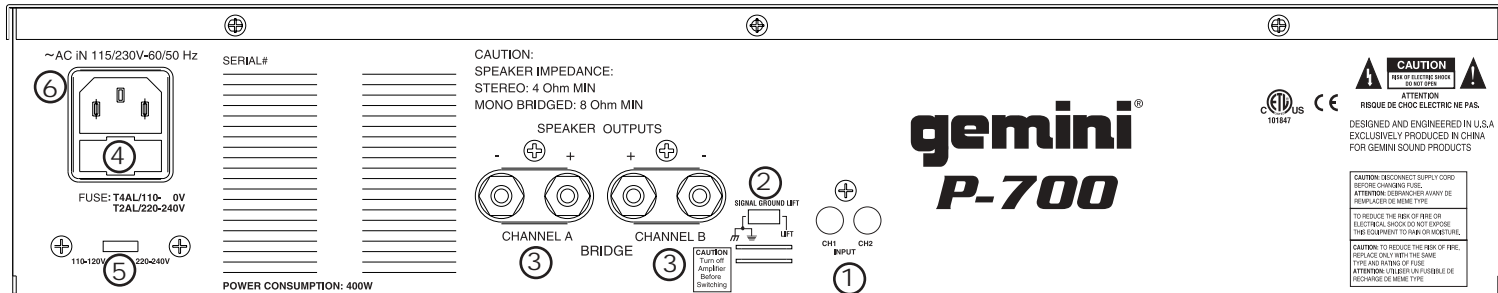
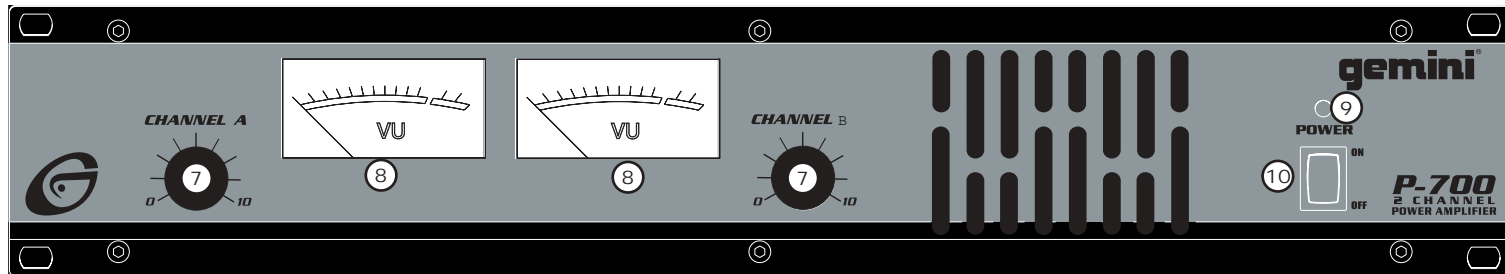
- ◆ CHECK FOR SHORTS ON THE OUTPUTS.
- ◆ CHECK YOUR SPEAKER IMPEDANCE.
- ◆ CHECK THAT THE FUSE TYPE AND RATING ARE CORRECT.

## email

For service-related questions you can email us at: [service@gemindj.com](mailto:service@gemindj.com)

For technical support you can email us at: [techhelp@gemindj.com](mailto:techhelp@gemindj.com)





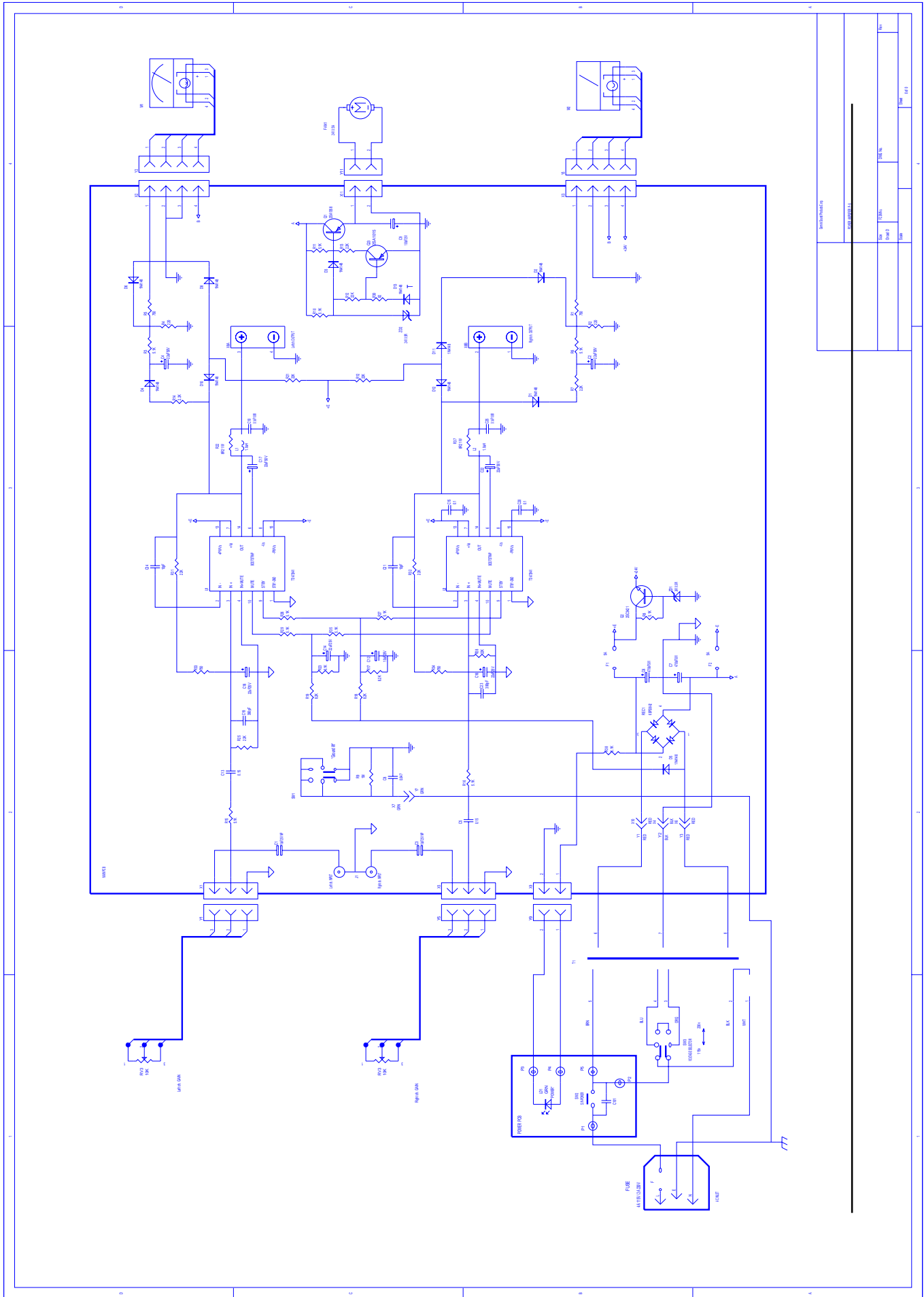




5	074-189	2	INTEGRATED CIRCUIT TDA7294V	33			
6				34	161-160	1	2P RCA JACK
7	076-075	1	SILICON TRANSISTORS 2SA1358	35	161-172	1	4P SPEAKER TERMINAL
8	076-077		SILICON TRANSISTORS OR 2SB631	36	161-109	4	FUSE CLIP JH-6
9	076-074	1	SILICON TRANSISTORS 2SC3421	37			
10	076-076		SILICON TRANSISTORS OR 2SD600	38	059-239	1	POWER TRANSFORMER EI-76x60
11	076-020	1	SILICON TRANSISTORS 2SA733 (Q)(P)	39	147-024	2	COIL 1.3μH 1.0φx9φx9 1/2T
12	076-023		SILICON TRANSISTORS OR 2SA1015 (GR)(Y)	40			
13				41	093-370	1	AC CORD SVT AWG 18x3C VW-1 UL
14	086-019	1	BRIDGE RECTIFIER KBPC804W	42	093-371	1	AC CORD 220V VDE
15	087-027	2	VU METER	43	093-410	1	AC CORD ARGENTINA
16				44	093-369	1	AC CORD 230V BS
17	079-003	11	SILICON DIODE 1N4148	45			
18	079-020	2	ZENER DIODE 1/2W 24V (RD24EB2)	46	061-102	2	METAL FILM RESISTORS 2W 8.2Ω
19				47	060-842	2	CARBON FILM RESISTORS 1/2W 22KΩ
20	080-086	1	LED (GREEN) 5φ	48	060-240	1	CARBON FILM RESISTORS 1/4W 82 Ω
21				49	060-250	2	CARBON FILM RESISTORS 1/4W 220 Ω
22	071-202	2	ROTARY VR 10KA L:15MM	50	060-263	4	CARBON FILM RESISTORS 1/4W 750 Ω
23	081-023	1	SLIDE SWITCH 2P2C UL	51	060-279	3	CARBON FILM RESISTORS 1/4W 2.2KΩ
24	081-030	1	SLIDE SWITCH	52	060-288	13	CARBON FILM RESISTORS 1/4W 5.1KΩ
25	083-099	1	POWER SWITCH	53	060-293	3	CARBON FILM RESISTORS 1/4W 8.2KΩ
26	001-613	1	DC FAN 24V (80x80x25mm)	54	060-303	5	CARBON FILM RESISTORS 1/4W 22KΩ
27				55	060-351	1	CARBON FILM RESISTORS 1/4W 1MΩ
28	092-105	1	AC INLET (IEC+FUSE)	56			
29				57	050-153	2	ELECTROLYTIC CAPACITORS N.P 10μ/50V
30	100-072	2	FUSE 20mm VBS UTE 5A 250V	58	050-162	1	ELECTROLYTIC CAPACITORS 10μ/50V
31	100-063	1	FUSE 20mm VBS UTE 4A 250V	59	050-121	7	ELECTROLYTIC CAPACITORS 22μ/50V
32	100-064	1	FUSE 20mm VBS UTE 2A 250V				

62			
63	051-010	2	CERAMIC CAPACITOR 10P/50V
64	051-048	2	CERAMIC CAPACITOR 390P/50V
65	051-156	1	CERAMIC CAPACITOR UL 0.0047 $\mu$ /400V
66			
67	054-022	1	POLYESTER CERAMIC CAPACITOR 0.047 $\mu$ /50V

82			
83	209-004	1	LEAD WIRE (WHITE) UL1015#18AWG 6x6 310mm
84	202-110	1	LEAD WIRE (RED) UL1015#18AWG 6x6 310mm
85	200-096	1	LEAD WIRE (BLACK) UL1007#24AWG 9x9 150mm
86			
87	060-703	4	JUMPER WIRE 0.7 $\phi$ T/52mm P=10mm
88	060-703	5	JUMPER WIRE 0.7 $\phi$ T/52mm P=15mm
89	060-703	1	JUMPER WIRE 0.7 $\phi$ T/52mm P=20mm
90			
91	146-509	4	PIN CONNECTOR
92			
93	190-075	1	HEAT-SHRINK TUBING UL 28 $\phi$ 35mm
94	190-230	2	HEAT-SHRINK TUBING UL 35 $\phi$ 35mm
95	190-063	2	TUBE 1 $\phi$ 5mm
96	190-063	2	TUBE 1 $\phi$ 10mm
97			
98	003-605	3	CABLE TIES CV-100



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