



DCM600, DCM1000, DCM1500

Pristine sound, brute power and no-fault reliability make the DCM amps the power amp of choice for pro audio. Massive Toroid power supplies with huge capacitors deliver the bass that kick drums demand. Designed for continuous operation, overheating is not a problem especially down at minimum impedances where other amps simply turn off.

Each DCM is hand built at our San Diego factory featuring all steel construction, recessed controls and heavy-duty power components. The rock-solid, efficient design with its superb testimonial-proven sound makes the USA built DCM an amp you'll own for years.

PURE—TRANSPARENT SOUND

Carvin considers the sound of an amp equally important as to its reliability. To insure pure, uncolored sound, we build one of the fastest power stages on the market today. High slew rates of 50v/μs deliver superb transient response. High frequencies are transparent and open—even at extreme levels. Linear feedback circuits reduce distortion to near the theoretical zero limit preventing harshness which would lead to ear fatigue. The DCM deliver transparent, unaltered sound—especially important to the studio user. Drive any type of reactive loads, including 70V transformer distribution systems.

ULTRA RUGGED FOR TOURING

Every chassis is made from heavy-duty 16 gauge steel that is plated before painted to prevent rust. All internal cabling is neatly tied and harnessed. Every circuit card is FR-4 MILITARY SPEC, double-sided, fire retardant glass epoxy. Plated through-holes insure that the solder flows on the top, bottom and through each hole of every component preventing components from shaking loose. Speakon™ connectors, heavy-duty power switches, recessed knobs, all give the DCM amps a “tank-like” ruggedness.

TOROID POWER SUPPLY

Toroids deliver massive amounts of “on demand” current for continuous 2 ohm operation. This gives the power supply a solid foundation, yielding more headroom for large subwoofer applications. Not only do toroids deliver high current, but they are known for reducing stray magnetic fields eliminating hum & noise. This is especially important to the recording industry.

MODULAR CONSTRUCTION

With the DCM Series, Carvin brings you totally modular construction. If you ever need an I/O (input/output) connector card because a connector wore-out, just unplug and re-install the replacement card. This applies to every aspect of the DCM Series amps including the power supply, power cards, heat sinks and fans. Everything is connected by heavy-duty AMP™ and MOLEX™ type connectors for easy replacement—even the Toroid transformer is a plug-in.

DISTORTION-FREE LIMITERS

The purpose of a limiter is to hold down peaks so the amp won't distort with extra hot input signals (helps protect speakers). In addition, a well designed limiter can increase your amp's average output as much as 3 dB allowing levels to be turned up without peak distortion. Part of Carvin's design uses the more expensive, distortion-free linear “opto isolators”. Unlike amps that use FET controlled limiters, which inject small amounts of distortion, the DCM Series limiters keep your sound pure and uncolored!

RECEIVING INSPECTION—read before getting started

INSPECT YOUR UNIT FOR ANY DAMAGE which may have occurred during shipping. If any damage is found, please notify the shipping company and CARVIN immediately.

SAVE THE CARTON & ALL PACKING MATERIALS. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.

SAVE YOUR INVOICE. It will be required for warranty service if needed in the future. SHIPMENT SHORTAGE. If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring.

RECORD THE SERIAL NUMBER on the enclosed warranty card for your records. Keep your portion of the card and return the portion with your name and comments to us.

USA customers register online at: www.carvin.com/registration

All other countries register online at: www.carvinworld.com/registration

FRONT PANELS & CONNECTING UP

The DCM Series feature front panel signal, peak and protect LEDs which let you monitor the status of the amp. Both channels use detente level controls allowing you to see your settings at a glance. Balanced TRS & XLR input connectors are used to eliminate hum & noise. Speaker outputs feature heavy-duty binding posts, Speakon™ connectors and 1/4” jacks.

The rear professional accessory group offers a GROUND switch to remove the chassis ground from the XLR input. A PARALLEL input switch connects the inputs together eliminating Y cables for patching multiple amp systems. The accessory group also features a BRIDGE MODE switch to deliver twice the power into a “mono” load or full power into a 70V distribution system, and a LIMITER ON/OFF switch gives the choice of using the internal limiter circuitry.

DCM POWER AMP SPECIFICATIONS:

MODEL	DCM600	DCM1000	DCM1500
Bridged RMS Continuous			
4Ω, (20-20k Hz, <1.0%)	600w	1000w	1500w
8Ω, (20-20k Hz, <1.0%)	450w	700w	1000w
Both Channels RMS Continuous			
2Ω (20-20k Hz, <1.0%)	300/300w	500/500w	750/750w
4Ω (20-20k Hz, <1.0%)	250/250w	350/350w	500/500w
8Ω (20-20k Hz, <1.0%)	125/125w	225/225w	300/300w
THD (20-20k Hz 50% power)	0.03%	0.03%	0.03%
THD (20-20k Hz 90% power)	0.1%	0.1%	0.1%
Damping Factor:	>500	>500	>500
Slew Rate: bridged mode	>50v/μs	>50v/μs	>50v/μs
Sensitivity: (4Ω, Vms)	1.0 V	1.0 V	1.0 V
Signal to Noise Ratio:	Above 100dB		
Frequency Response:	±0.5 dB, 20 Hz to 20kHz (±1.5 dB, 10 Hz & 40 kHz)		
Input Impedance:	>20K Ω, balanced		

Protection Circuits: Short Circuit • No Load Protection • SpeakerGuard™ • Thermal Shut-Off • Mute On/Off
Control and Indicators:

Front: Power switch • Recessed detente attenuators • Signal LED • Clip LED • Protect LED • Power Indicator

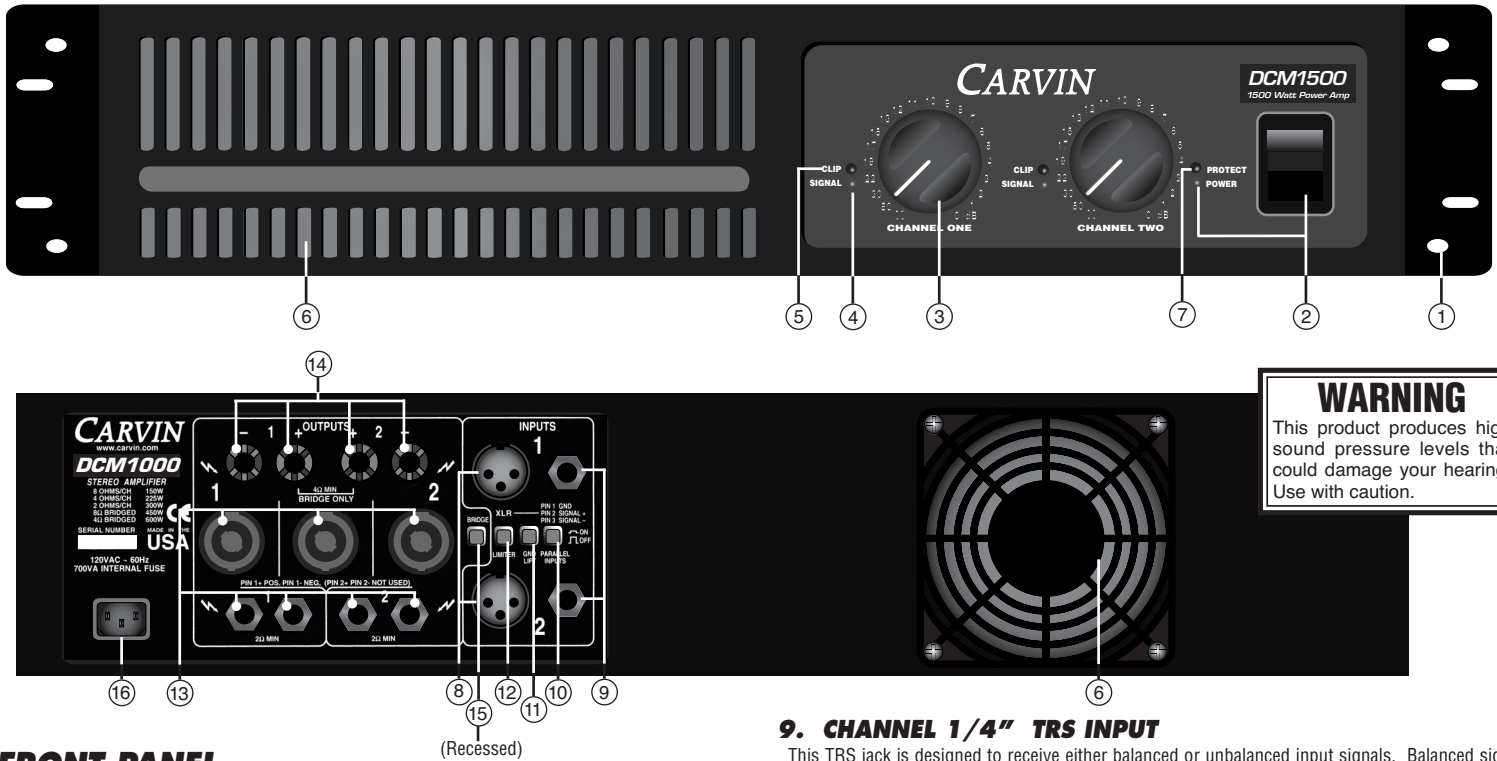
Rear: Ground Lift (each channel) • Parallel Input Switch • Speaker Output Bridge Switch • Limiters IN/OUT Switch • Input Connectors: Two each; Balanced XLR & 1/4” • Speaker Output Connectors: Dual heavy duty binding posts, three Speakon™ & four 1/4”

Internal Fuse SLOW BLOW - DCM600: 15A, **DCM1000:** 20A, 240V/10A, **DCM1500:** 20A, 240V/10A

Dimensions: 3 1/2” High x 19” Wide x 10” Depth (2-space); 8.8 x 48.3 x 25.3cm

Net Weight: **DCM600:** 19 lbs. **DCM1000:** 23 lbs. (10.3Kgs), **DCM1500:** 26 lbs. (11.9Kgs)

FRONT & REAR PANEL CONTROLS



FRONT PANEL

1. MOUNTING

Sturdy one piece 12 gauge steel face plate accommodates standard 19" rack installation. The rack mounting holes are designed on ISO standard spacing. Four 10-32 x .5" phillips machine screws are normally used to secure the amp. Rear support brackets are not required.

2. POWER SWITCH

Check the power amp connections and verify the AC line power source before engaging the POWER switch. The yellow LED unmistakably indicates that all circuits are properly powered up. Yellow is used so the operator can see the red indicators (clipping or protect) from a distance.

3. CHANNEL LEVEL CONTROL

A precision input LEVEL attenuate is used to adjust the volume levels. To deliver the amps maximum power without reducing the headroom of the signal source, the level controls should be turned full on.

4. CHANNEL SIGNAL INDICATOR

The green SIGNAL LED indicators will start to flash when there is a low signal passing to your speakers (-30dBμ). This lets you know when the amp is passing a signal to your speaker connectors.

5. CHANNEL CLIP INDICATOR

The red CLIP LED indicators flash when each channel has reached its maximum output. Occasional flashing caused by low frequencies is OK. However, consistent flashing caused by higher frequencies may damage high frequency drivers (excessive distortion). This does not cause damage to the amp.

6. COOLING VENTS/FAN

Upon rack installation, the rear of the amp must be fully exposed to room temperature air. The surrounding air should not be warmer than 120° or the thermal protection could activate the PROTECT LED. The front cooling vents are not to be restricted.

7. PROTECT LED INDICATOR

The red PROTECT LED provides the operator with information about the status of the amplifier. The PROTECT LED can come on under 3 different conditions (when this happens, both channels are muted and the speaker relays disconnect the speakers);

- 1) During power-up, the amplifier stays in a muted state for approx. 3 sec until it determines that everything is functioning normally (no output shorts or over temp conditions).
- 2) When the output load draws excessive current or a direct short is detected caused by a shorted speaker cable or speaker system, the RED PROTECT LED will illuminate. Reset this condition by turning the amp off for two seconds and then on again. Check for shorted cables and that the total speaker impedance is not below 2 ohms per channel (4 ohms bridged).
- 3) Overheating is usually determined when the amp stops in the middle of a performance and the PROTECT LED comes on. If this is the cause, leave the amp on for the fan to cool the amp down. The amp will automatically reset within 3 minutes. The PROTECT LED will turn off when ready. Check for the following conditions; a) The rear intake air is not restricted, b) The intake air is not extremely warm, c) The front exhaust vents are not restricted, or d) No excessive speaker load (try other speakers or remove speakers if you have more than one connected to each channel).

REAR PANEL

8. XLR CHANNEL INPUTS

For most applications, use the XLR balanced inputs. This will help to reduce hum and allow longer cable runs from your signal source (mixer, etc). Because this is a balanced input, the gain will be 6 dB higher than using the 1/4" input jack with non balanced lines. XLR pin configuration: Pin 1: Grounded through the GROUND LIFT switch, Pin 2: positive Bal. signal and Pin 3: negative Bal. signal.

9. CHANNEL 1/4" TRS INPUT

This TRS jack is designed to receive either balanced or unbalanced input signals. Balanced signals coming into this jack should be wired with the connector's tip going to signal + and the connector's ring to signal -. The connector's sleeve is then tied internally to ground through the GROUND LIFT switch.

10. PARALLEL OR "Y" INPUTS

The rear PARALLEL switch connects both channels together from either input. This eliminates Y adapter cables. This feature is used to "daisy chain" one piece of equipment to another. Just plug into the unused INPUT (TRS or XLR) and it will become the output for other equipment.

11. INPUT GROUND LIFT

Many times sound systems are connected in such a manner as to cause a grounded loop with the inputs which results in audible hum. The input GND LIFT switch (TRS & XLR) on the rear panel will help eliminate this problem. If not, install a Carvin's MTF55 "Ground lifter" between the amplifier input and the signal.

12. LIMITERS

To activate the LIMITERS, engage the rear limiter switch. The built-in "Optio" limiters are recommended to hold down peaks that could cause distortion. To check the effectiveness of the limiters when the channel starts to distort (under full output), engage the limiters and listen for the reduction of the distortion. If the distortion stops, you can try to turn the channel up for more power until distortion is heard. The lower bass frequencies are most affected. **WARNING:** Do not check in an environment where the sound level could damage your ears!

13. SPEAKER 1/4" AND SPEAKON™ OUTPUTS

The standard 1/4" SPEAKER jacks are offered for low power applications. Speakon™ connectors are provided for high power application. Secure the Speakon™ connection by turning to the right. The center Speakon™ is for the "Bridge" output only. Turn the amp off before connecting your speakers.

14. SPEAKER BINDING POSTS

For high power speaker connections, use the rear BINDING POSTS to connect your speakers. Wire sizes up to 7 gauge (50 amps) can be inserted into the binding post "side holes". Larger cable can be used with "banana" plugs which plug into the end of the binding posts (remove colored caps from end of binding posts). Binding posts are spaced on ISO standards. Use the two center RED binding posts to BRIDGE speaker connections (see 15 BRIDGE MODE).

15. BRIDGE MODE—25V/70V DISTRIBUTION SYSTEMS

The DCM's can be operated in bridge mode if you require a 25V / 70V mono distribution speaker system or a mono (single channel) amp, which doubles the power into a single load. With your amp off, push "IN" the rear (recessed) BRIDGE switch after you have made your connections to either the center bridge Speakon™ or the rear center RED binding posts (ch 1 is + and ch 2 is -). Carefully select or damage may result to the speakers (this is why the switch has been recessed). No other speaker connectors or binding posts can be used at the same time! The INPUT connector and LEVEL is handled by channel 1. Channel 2 is non-operational! The minimum speaker impedance is 4 ohms. **CAUTION:** The power developed by bridging your amp can destroy most speakers.

16. AC POWER

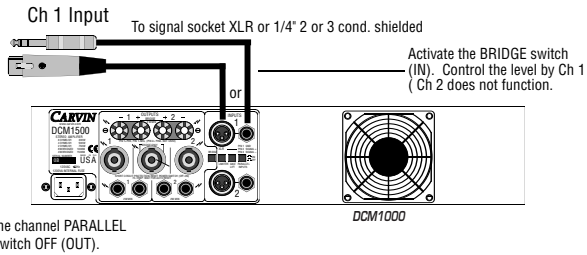
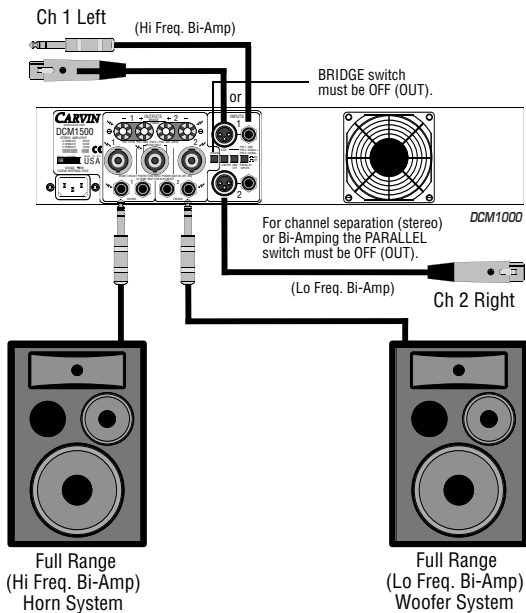
Your amp is designed to run on either 120V 60 Hz or 240V 50Hz depending on the model purchased. The voltage range for 120V model is 95V to 132V and for 240V model it is 195V to 255V. The rear heavy-duty AC receptacle will accept a universal grounded AC cord that is designed your country. Be sure to check your power source before plugging into a grounded (3 prong) outlet. Never defeat the grounded connection or electrocution may result! Firmly push the AC cord all the way into the receptacle.

FUSE: The fuse is located within the main chassis above the AC connector mounted on the rear, inside the PC card. Normally if the fuse fails, the amp will require service. See spec. chart for fuse values.

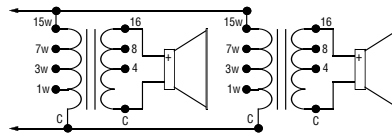
NOTE: Each amp will require a dedicated circuit if you are driving the amp to its full output. There will be a sustained loss of power if the AC voltage falls below the rated 120V or 230/240V. Use a heavy gauge power cable and power source.

TYPICAL STEREO SETUP (OR MONO BI-AMP)

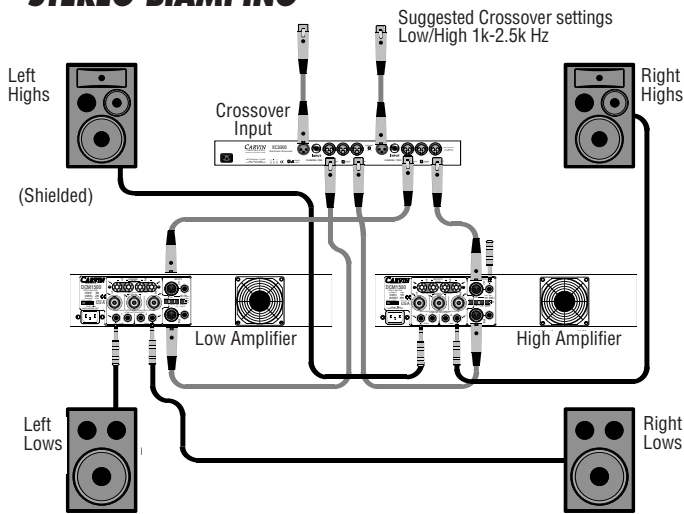
70V DISTRIBUTION SYSTEM



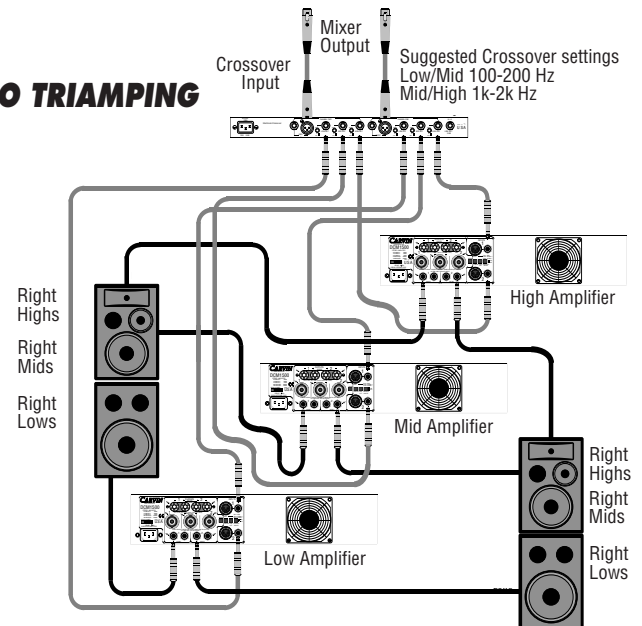
Connect the DCM600 & DCM1000 in "bridge mode" to deliver 70 volts. Higher powered amps will exceed 70v, damaging transformers and speakers.



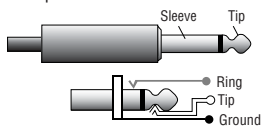
STEREO BIAMPING



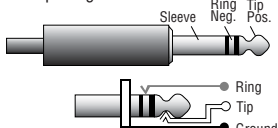
STEREO TRIAMPING



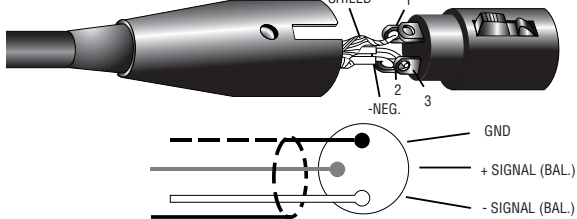
TS 1/4" Unbalanced Tip-Sleeve



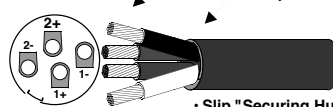
TRS 1/4" Balanced Tip-Ring-Sleeve



XLR

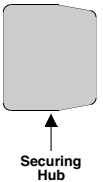
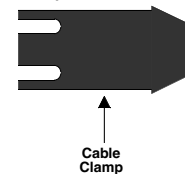
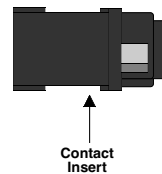
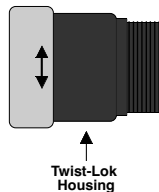


Solder tinned wires 1/4"
Strip cable insulation back 3/4"



Speakon™ □

- Slip "Securing Hub" then "Cable Clamp" over cable before attaching wires.
- Connection Configuration: □
- Black (1+) / positive
- White (1-) / negative
- Red (2+) / positive □
- Green (2-) / negative
- Solder wires in contacts or use hex screws provided.



HELPFUL HINTS

- 1) **NO SOUND FROM CH 2:** The rear (recessed) BRIDGE switch has been inadvertently pushed in.
- 2) **STEREO CHANNELS SOUND THE SAME:** The rear PARALLEL switch has been inadvertently pushed in.
- 3) **NO HIGH FREQUENCIES:** Tweeters or midrange drivers have been damaged or blown from feedback or too much power.
- 4) **SYSTEM HUM:** Switch the rear GND LIFT switch IN or OUT. If the hum is not eliminated, then install Carvin's MTF55 "Ground Lifter" between the amplifier input and signal source. This isolates the input ground from the AC power ground.
- 5) **POOR SOUND (BASS):** The speaker systems are wired out of phase to each other. To correct, reverse the wires on one speaker connector only and your sound, especially the bass response will improve.
- 6) **DEDICATED CIRCUIT BREAKER:** Each amp will require a dedicated circuit breaker for its full output. There will be a sustained loss of power if the AC voltage falls below the rated 120V or 230/240V input.

This symbol 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:
WATER AND MOISTURE: Appliance should not be used near water (near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

POWER SOURCES: The product should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

GROUNDING OR POLARIZATION: Precautions should be taken so that the grounding or polarization is not defeated.

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, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

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

FUSING: If your unit is equipped with a fuse receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

SAFETY INSTRUCTIONS (EUROPEAN)

The conductors in the AC power cord are colored in accordance with the following code.
GREEN & YELLOW—Earth BLUE—Neutral BROWN—Live
U.K. MAIN PLUG WARNING: A molded main plug that has been cut off from the cord is unsafe. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.

LIMITED WARRANTY

Your Carvin product is guaranteed against failure for 3 YEARS unless otherwise stated. Carvin will service and supply all parts at no charge to the customer providing the unit is under warranty. Shipping costs are the responsibility of the customer. CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. Carvin assumes no responsibility for horn drivers or speakers damaged by this unit. This warranty does not cover, and no liability is assumed, for damage due to: natural disasters, accidents, abuse, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

SERVICE:

In the USA, please call 800-235-2235 for a RMA # (return authorization number). Write this number on the box and enclose a description of the problem. Prepay to Carvin 12340 World Trade Drive, SD, CA 92128.

Outside the USA, contact your dealer or go to <http://www.carvinworld.com> for your nearest service center. Include a written description of the problem with serial number and date of purchase.

MAINTAINING YOUR EQUIPMENT

Avoid spilling liquids or allowing any other foreign matter inside the unit. The panel of your unit can be wiped from time to time with a dry or slightly damp cloth in order to remove dust and bring back the new look. As with all pro gear, avoid prolonged use in caustic environments (salt air). When used in such an environment, be sure the amplifier is adequately protected by rack, covers, etc..

REPLACEMENT PARTS LIST FOR DCM AMPS



REFER SERVICING TO QUALIFIED SERVICE PERSONNEL! THIS UNIT CONTAINS HIGH VOLTAGE INSIDE!

Parts list for DCM Series Power Amplifiers	Carvin P/N	C119	Capacitor 0.047µF 100V	Poly 10%	46-47312	P100	Pot. B10Kx2.41Clk Brkt Rot Knurled 90°	71-10301	R122	1/4W Resistor 4.7K .35% prep. 5% Carbon	50-47035
Binding Post, 2-way, Red/Black.....	03-10450	C120	Capacitor 0.001µF 100V	Poly 10%	46-10212	P101	Pot. B10Kx2.41Clk Brkt Rot Knurled 90°	71-10301	R123	1/4W Resistor 680Ω .35% prep. 5% Carbon	50-68025
Cover, Black 18GA Steel.....	10-82005	C121	Capacitor 0.068µF 100V	Poly 10%	46-68312	P200	Pot. B10Kx2.41Clk Brkt Rot Knurled 90°	71-10301	R124	1/4W Resistor 4.7K .35% prep. 5% Carbon	50-47035
Chassis.....	10-07509	C200	Capacitor 27PF 500V	Ceramic 5%	45-27052	P201	Pot. Trimmer 5K Vert PCB MTG	71-25000	R125	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035
Face panel.....	10-07503	C201	Capacitor 27PF 500V	Ceramic 5%	45-27052	Q1 <th>Transistor Darlington NPN MPSA14</th> <th>60-00014</th> <th>R126</th> <th>1/4W Resistor 1K .35% prep. 5% Carbon</th> <th>50-10035</th>	Transistor Darlington NPN MPSA14	60-00014	R126	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035
Face panel bezel.....	10-07504	C202	Capacitor 22µF 50V	Electrolytic 20%	47-22051	Q2 <th>Transistor 2N5400 PNP AMP TO-92</th> <th>60-54000</th> <th>R127</th> <th>1/4W Resistor 680Ω .35% prep. 5% Carbon</th> <th>50-68025</th>	Transistor 2N5400 PNP AMP TO-92	60-54000	R127	1/4W Resistor 680Ω .35% prep. 5% Carbon	50-68025
Trim Label.....	77-07521	C204	Capacitor 27PF 500V	Ceramic 5%	45-27052	Q100 <th>Transistor Darlington NPN MPSA14</th> <th>60-00014</th> <th>R128</th> <th>1/4W Resistor 2.2K .35% prep. 5% Carbon</th> <th>50-22035</th>	Transistor Darlington NPN MPSA14	60-00014	R128	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035
Fan, 24VDC 80mm.....	70-02408	C205	Capacitor 0.047µF 100V	Poly 10%	46-47312	Q101 <th>Transistor TIP31C 3A 100V NPN TO-220</th> <th>60-31000</th> <th>R129</th> <th>1/2W Resistor 4.7Ω 0.5 prep. 5% Carbon</th> <th>52-47005</th>	Transistor TIP31C 3A 100V NPN TO-220	60-31000	R129	1/2W Resistor 4.7Ω 0.5 prep. 5% Carbon	52-47005
Fan Guard, 80x80mm.....	03-90080	C210	Capacitor 0.001µF 100V	Poly 10%	46-10212	Q102 <th>Transistor MPSW42 HV 1.0W NPN TO-237</th> <th>60-00042</th> <th>R130</th> <th>1/4W Resistor 150Ω .35% prep. 5% Carbon</th> <th>50-15025</th>	Transistor MPSW42 HV 1.0W NPN TO-237	60-00042	R130	1/4W Resistor 150Ω .35% prep. 5% Carbon	50-15025
Power cord (120V).....	05-01603	C211	Capacitor 22µF 50V	Electrolytic 20%	47-22051	Q103 <th>Transistor CENW92 HV PNP 1.0W TO-92</th> <th>60-00092</th> <th>R131</th> <th>1/2W Resistor 4.7Ω 0.5 prep. 5% Carbon</th> <th>52-47005</th>	Transistor CENW92 HV PNP 1.0W TO-92	60-00092	R131	1/2W Resistor 4.7Ω 0.5 prep. 5% Carbon	52-47005
Power cord (230V).....	05-01903	C215	Capacitor 27PF 500V	Ceramic 5%	45-27052	Q104	Transistor TIP32C 3A 100V PNP TO-220	60-32000	R132	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
Handle, 2-space rack.....	05-01603	C216	Capacitor 56PF 500V	Ceramic 5%	45-56052	Q105	Transistor TIP31C 3A 100V NPN TO-220	60-31000	R133	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
Knob, Black, recessed.....	07-09011	C217	Capacitor 120PF 500V	Ceramic 5%	45-12052	Q106	Transistor TIP31C 3A 100V NPN TO-220	60-31000	R134	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
Power cord, 82".....	05-01603	C218	Capacitor 0.047µF 100V	Poly 10%	46-47312	Q107 <th>Transistor MJL21194 NPN 16A 250V 200W</th> <th>60-21194</th> <th>R135</th> <th>5W Resistor 0.22Ω Vert 5% Sand Bar</th> <th>55-02205</th>	Transistor MJL21194 NPN 16A 250V 200W	60-21194	R135	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
Stand-off, Al, 1.5" Hex, 6-32.....	03-63315	C219	Capacitor 0.047µF 100V	Poly 10%	46-47312	Q108	Transistor MJL21194 NPN 16A 250V 200W	60-21194	R136	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035
Toroid insulator pad 3.8" OD.....	03-15004	C220	Capacitor 0.001µF 100V	Poly 10%	46-10212	Q109	Transistor MJL21193 PNP 16A 250V 200W	60-21193	R137	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		C221	Capacitor 0.068µF 100V	Poly 10%	46-68312	Q110	Transistor Darlington NPN MPSA14	60-00014	R138	1/4W Resistor 100K .35% prep. 5% Carbon	50-10055
		D1	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q200	Transistor MPSW42 HV 1.0W NPN TO-237	60-00042	R140	2W Resistor 10Ω 0.8 prep. 5% Metal	54-10015
		D2	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q202	Transistor MPSW42 HV 1.0W NPN TO-237	60-00042	R141	2W Resistor 10Ω 0.8 prep. 5% Metal	54-10015
		D3	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q203	Transistor CENW92 HV PNP 1.0W TO-92	60-00092	R142	2W Resistor 10Ω 0.8 prep. 5% Metal	54-10015
		D4	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q204	Transistor TIP32C 3A 100V PNP TO-220	60-32000	R150	2W Resistor 10Ω 0.8 prep. 5% Metal	54-10015
		D5	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q205	Transistor TIP31C 3A 100V NPN TO-220	60-31000	R200	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		D6	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q206	Transistor TIP31C 3A 100V NPN TO-220	60-31000	R201	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		D7	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q207	Transistor MJL21194 NPN 16A 250V 200W	60-21194	R202	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		D8	LED Red small #204HD 3mm T-1.0 <th></th> <th>60-75320</th> <th>Q208</th> <th>Transistor MJL21194 NPN 16A 250V 200W</th> <th>60-21194</th> <th>R203</th> <th>1/4W Resistor 22K .35% prep. 5% Carbon</th> <th>50-22045</th>		60-75320	Q208	Transistor MJL21194 NPN 16A 250V 200W	60-21194	R203	1/4W Resistor 22K .35% prep. 5% Carbon	50-22045
		D9	LED Yellow small #204YD 3mm T-1.0 <th></th> <th>60-75320</th> <th>Q209</th> <th>Transistor MJL21193 PNP 16A 250V 200W</th> <th>60-21193</th> <th>R204</th> <th>1/4W Resistor 2.2K .35% prep. 5% Carbon</th> <th>50-22035</th>		60-75320	Q209	Transistor MJL21193 PNP 16A 250V 200W	60-21193	R204	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035
		D10	Diode 1N4003	Rect Gen 1A 200V	60-40030	Q210	Transistor MJL21193 PNP 16A 250V 200W	60-21193	R205	1/4W Resistor 220Ω .35% prep. 5% Carbon	50-22025
		D11	Diode 1N4003	Rect Gen 1A 200V	60-40030	R1	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035	R206	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055
		D12	Diode 1N4003	Rect Gen 1A 200V	60-40030	R2	1/4W Resistor 3.3K .35% prep. 5% Carbon	50-33035	R207	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055
		D13	Diode 1N4003	Rect Gen 1A 200V	60-40030	R3	1/4W Resistor 100K .35% prep. 5% Carbon	50-10055	R208	1/4W Resistor 10K .35% prep. 5% Carbon	50-10035
		D100	Diode 1N4003	Rect Gen 1A 200V	60-40030	R4	1/4W Resistor 150Ω .35% prep. 5% Carbon	50-15025	R209	Not Used	
		D101	Diode 1N4003	Rect Gen 1A 200V	60-40030	R5	1/4W Resistor 39K .35% prep. 5% Carbon	50-39045	R210	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055
		D102	LED Green small #204GD 3mm T-1.0 <th></th> <th>60-75330</th> <th>R6</th> <th>1/4W Resistor 39K .35% prep. 5% Carbon</th> <th>50-39045</th> <th>R212</th> <th>1/4W Resistor 470Ω .35% prep. 5% Carbon</th> <th>50-47025</th>		60-75330	R6	1/4W Resistor 39K .35% prep. 5% Carbon	50-39045	R212	1/4W Resistor 470Ω .35% prep. 5% Carbon	50-47025
		D103	LED Red small #204HD 3mm T-1.0 <th></th> <th>60-75320</th> <th>R7</th> <th>1/4W Resistor 470K .35% prep. 5% Carbon</th> <th>50-47055</th> <th>R215</th> <th>1/4W Resistor 10K .35% prep. 5% Carbon</th> <th>50-10045</th>		60-75320	R7	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055	R215	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		D104	LED Red small #204HD 3mm T-1.0 <th></th> <th>60-75320</th> <th>R8</th> <th>1/4W Resistor 470K .35% prep. 5% Carbon</th> <th>50-47055</th> <th>R216</th> <th>1/4W Resistor 10K .35% prep. 5% Carbon</th> <th>50-10045</th>		60-75320	R8	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055	R216	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		D106	Diode 1N4003	Rect Gen 1A 200V	60-40030	R9	1/4W Resistor 22K .35% prep. 5% Carbon	50-22045	R217	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035
		D107	Diode 1N4003	Rect Gen 1A 200V	60-40030	R10	1/4W Resistor 22K .35% prep. 5% Carbon	50-22045	R218	1/4W Resistor 47K .35% prep. 5% Carbon	50-47045
		D108	Diode 1N4003	Rect Gen 1A 200V	60-40030	R11	1/4W Resistor 20K .35% prep. 5% Carbon	50-20045	R219	1/4W Resistor 4.7K .35% prep. 5% Carbon	50-47035
		D109	Diode 1N4003	Rect Gen 1A 200V	60-40030	R12	1/4W Resistor 6.8K .35% prep. 5% Carbon	50-68035	R220	1/4W Resistor 100Ω .35% prep. 5% Carbon	50-10025
		D200	Diode 1N4003	Rect Gen 1A 200V	60-40030	R13	1/4W Resistor 2.2M .35% prep. 5% Carbon	50-22065	R221	1/4W Resistor 100K .35% prep. 5% Carbon	50-10025
		D201	Diode 1N4003	Rect Gen 1A 200V	60-40030	R14	1/4W Resistor 20K .35% prep. 5% Carbon	50-20045	R222	1/4W Resistor 4.7K .35% prep. 5% Carbon	50-47035
		D202	LED Green small #204GD 3mm T-1.0 <th></th> <th>60-75330</th> <th>R15</th> <th>1/4W Resistor 10K .35% prep. 5% Carbon</th> <th>50-10045</th> <th>R223</th> <th>1/4W Resistor 680Ω .35% prep. 5% Carbon</th> <th>50-68025</th>		60-75330	R15	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045	R223	1/4W Resistor 680Ω .35% prep. 5% Carbon	50-68025
		D203	LED Red small #204HD 3mm T-1.0 <th></th> <th>60-75320</th> <th>R16</th> <td>Not Used</td> <td></td> <th>R224</th> <th>1/4W Resistor 4.7K .35% prep. 5% Carbon</th> <th>50-47035</th>		60-75320	R16	Not Used		R224	1/4W Resistor 4.7K .35% prep. 5% Carbon	50-47035
		D204	LED Red small #204HD 3mm T-1.0 <th></th> <th>60-75320</th> <th>R17</th> <th>1/4W Resistor 22K .35% prep. 5% Carbon</th> <th>50-22045</th> <th>R225</th> <th>1/4W Resistor 2.2K .35% prep. 5% Carbon</th> <th>50-22035</th>		60-75320	R17	1/4W Resistor 22K .35% prep. 5% Carbon	50-22045	R225	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035
		D205	Diode 1N4003	Rect Gen 1A 200V	60-40030	R18	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035	R226	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035
		D206	Diode 1N4003	Rect Gen 1A 200V	60-40030	R19	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045	R227	1/4W Resistor 680Ω .35% prep. 5% Carbon	50-68025
		D207	Diode 1N4003	Rect Gen 1A 200V	60-40030	R20	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045	R228	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035
		D208	Diode 1N4003	Rect Gen 1A 200V	60-40030	R22	1/4W Resistor 5.6K .35% prep. 5% Carbon	50-56035	R229	1/2W Resistor 4.7Ω 0.5 prep. 5% Carbon	52-47005
		D209	Diode 1N4003	Rect Gen 1A 200V	60-40030	R23	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055	R230	1/4W Resistor 150Ω .35% prep. 5% Carbon	50-15025
		H1-A	Header 4 Pin AMP 9A 600V PCB MTG		23-08604	R24	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045	R31	1/2W Resistor 4.7Ω 0.5 prep. 5% Carbon	52-47005
		H1-B	Header 4 Pin AMP 9A 600V PCB MTG		23-08604	R25	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035	R32	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
		H2	Header 2 Pin Vert Panduit PCB MTG		23-11002	R26	1/4W Resistor 4.7K .35% prep. 5% Carbon	50-47035	R33	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
		H2-A	Header 4 Pin Vert SHS 2.5mm PCB MTG		23-11004	R28	1/4W Resistor 220Ω .35% prep. 5% Carbon	50-22025	R34	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
		H2-B	Header 4 Pin Vert SHS 2.5mm PCB MTG		23-11004	R31	1/4W Resistor 100K .35% prep. 5% Carbon	50-10045	R35	5W Resistor 0.22Ω Vert 5% Sand Bar	55-02205
		H3-A	Header 10 Pin Vert SHS 2.5mm PCB MTG		23-11010	R100	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045	R36	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035
		H3-B	Header 10 Pin Vert SHS 2.5mm PCB MTG		23-11010	R101	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045	R37	1/4W Resistor 10K .35% prep. 5% Carbon	50-10045
		H4-A	Header 10 Pin Vert SHS 2.5mm PCB MTG		23-11010	R102	1/4W Resistor 22K .35% prep. 5% Carbon	50-22045	R38	1/4W Resistor 100K .35% prep. 5% Carbon	50-10055
		H4-B	Header 10 Pin Vert SHS 2.5mm PCB MTG		23-11010	R103	1/4W Resistor 22K .35% prep. 5% Carbon	50-22045	R39	1/4W Resistor 100K .35% prep. 5% Carbon	50-10055
		H5	Header 2 Pin Vert Panduit PCB MTG		23-10002	R104	1/4W Resistor 2.2K .35% prep. 5% Carbon	50-22035	R40	1/4W Resistor 33K .35% prep. 5% Carbon	50-33045
		H5-A	Header 4 Pin AMP 9A 600V PCB MTG		23-08604	R105	1/4W Resistor 220Ω .35% prep. 5% Carbon	50-22025	R244	2W Resistor 10Ω 0.8 prep. 5% Metal	54-10015
		H5-B	Header 4 Pin AMP 9A 600V PCB MTG		23-08604	R106	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055	R250	2W Resistor 10Ω 0.8 prep. 5% Metal	54-10015
		H6	Header 9 Pin AMP 9A 600V PCB MTG		23-08609	R107	1/4W Resistor 470K .35% prep. 5% Carbon	50-47055	S1	Switch DPDT Push, Vert Small PCB MTG	52-02201
		H6-B	Header 4 Pin AMP 9A 600V PCB MTG		23-08604	R108	1/4W Resistor 1K .35% prep. 5% Carbon	50-10035	S2		