- MASTER - Do not send

OPERATING/SERVICING MANUAL

Carvin

DCA800 DCA300

Pro Line Professional Amplifiers

Please Read Before Operating Your Carvin Power Amplifier

UNPACKING

Carefully remove by opening the carton and holding the carton flaps out. Turn the carton upside down (referenced by the lettering on the outside of the box) and lift it off. Now turn the product right-side up. In the event the amp is moved or re-shipped "ALWAYS" use the original carton and packing material. If not, structural damage could deface the unit. Carvin or the Shipping Company will not be liable. SAVE ALL PACKING MATERIALS! Also, keep your invoice as it will be required for warranty servicing. If you did not receive all the items you ordered, allow several extra days as your order may have been separated in shipping.

INSPECTION

Inspect the unit for damage that may have occured in transit. If damage is found, notify the transportation company immediately, and file a damage claim. The claim must be instituted by yourself, the consignee. Save all cartons for proof of damage. Please notify Carvin of any damage done.

AMP SET-UP — Do Not Turn On Yet!

The Carvin Power Amp is designed for "table top" or "rack mounting". The Four rubber feet may be removed if amps are to be stacked in a rack.

Sufficient airflow must be provided, since air is drawn through the rear and exhausted through the side vents. The rack must have an open back. Do Not Operate the amplifier with the cover off (this will defeat the cooling system).

AMP POWER-UP

Connect the required input and speaker cables. Use the Input Mode Switch chart on the next pages to determine the proper mode switch to select for the amps desired function. Turn the A & B GAIN Controls down. Turn the amp ON and listen for the speaker relay to click on. Now turn the Gain Controls up and you should be running.

IMPORTANT

A. Do Not use Shielded or Coax cables for speakers.
B. Read paragraph 11 about Speaker Output Fusing.
C. Use your amplifier with common sense. This amp delivers enough power to harm any speaker.

AMP CIRCUIT DESCRIPTION

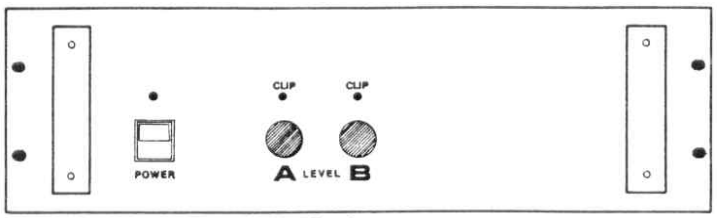
The Carvin Professional Series Amplifier is one of the most advanced designs currently on the market.

Unique design features make Carvin Amps virtually FAIL SAFE and free from accidental damage. A fast acting relay safeguards your speakers should there be a malfunction of D.C. voltage of more than 8 volts at the output. A time delay within the relay circuit postpones the signal to the speaker until the amp reaches its operating level, thus eliminating any unwanted pops or noises. Thermostatic controls monitor the amp's temperature continuously for any unsafe operating conditions. If such a condition exists, these controls will quickly turn the speakers off.

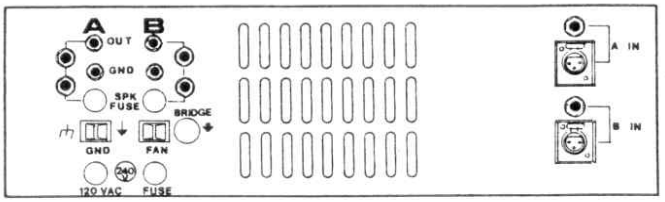
Advanced power amp circuitry employs wideband "Full Complementary" devices featuring triple diffused emitters for high safe operating areas. Not only are these devices fail-safe, but they offer the purest sound obtainable. THD distortion is almost unmeasurable, and guaranteed to be less than 0.05% with typical THD at 0.01%. These amplifiers maintain high accuracy and low THD by incorporating a high ratio of open-loop to closed-loop feedback networks. Thermal-tracing bias circuitry continually monitors the output stage to keep your amp running cool.

The mechanical design of your new amplifier is unlike ordinary amplifiers. The anodized heat-sinks and power transistors are modular designed to facilitate easy removal for servicing or exchange. Carefully thought-out wiring design incorporates military-type wire harnesses with Heavy-Duty pin connectors. All P.C. boards are ridges G10 fiberglass. The reinforced 16 gauge steel chassis and anodized aluminum front panel offer exceptional structural reinforcement.

Your Carvin amp is designed to give years of trouble-free service. If you have further questions about your amp or need hook-up assistance, please call or write us.



Front Panel



Rear Panel

FRONT PANEL

1. POWER SWITCH Push for ON. A speaker protection relay will engage the speakers within 3 seconds to mute any "turn-on" transients or pops. Push again for OFF. The protection will instantly disengage speakers eliminating any "turn-off" pops or noise.

2. The LED above the power switch denotes that there is power to the amp when turned on.

3. A & B LEVEL GAIN CONTROLS allow the operator to adjust the sensitivity of the power amp to match the mixer output levels. These Gain controls do not limit the amps output. Maximum output can be easily obtained at settings less than Full On. To properly adjust the Gain controls: set amplifier Gain to zero, set mixer or pre-amp master volume at mid position and raise amplifier gain for maximum volume desired. After adjustment, use mixer or pre-amp master volume control to control the power amplifier. Note: This usually gives the best signal-to-noise ratio.

4. LED CLIP INDICATORS are featured on both the DCA800 and DCA300 amplifiers. These LED "clip" indicators will start to flash when the amp runs out of clean power, giving you a very accurate indication when distortion starts. These indicators monitor the amps feedback circuits which will cause the Clip LED's to light at the instant your amplifier begins to clip. These "clip" indicators also function as a method to monitor the thermal condition of your amplifier. Also, an inadvertent short-circuited output (with signal) will cause the CLIP LED to remain on until the short is removed.

5. THERMOSTATIC CONTROLS are provided on each modular Heat-Sink assembly to turn the amp off if it should ever become over heated because of improper ventilation. The "clip" indicators are designed to light if this condition should ever exist.

REAR PANEL

6. LINE CORD All Carvin equipment is supplied with 3-conductor line cords, ending in grounding type plugs. This arrangement will greatly reduce the possibility of electrical shock when used with proper 3-conductor outlets.

7. The GROUND SWITCH enables the operator to remove the A.C. line ground off the chassis. This totally isolates the amps ground system. Select this switch for the quietest hum position.

8. PRIMARY FUSE AND DCA800 VOLTAGE SWITCH. All DCA800 amplifiers are wired for 120 VAC and are fused at 15 amps with an AGC type fuse. However, the DCA800 may be converted to 240 VAC by removing the Hole Plug (between the line cord and pri fuse), inserting a small screwdriver and selecting the proper voltage. The DCA300 requires an AGC 5 amp fuse.

9. FAN SWITCH for the DCA800 models only. A 2 position switch is provided for diverse applications. Select the LO position under average high power operations. Select the HI position if the amp is to be used under heavy continuous loads. Carvin employs a computer-grade fan. However, you will notice some increase of fan noise in time. This is normal. These fans are designed for continuous operation.

10. SPEAKER OUTPUTS Each amplifier's output has two Phone Jacks (wired in parallel) along with Dual 25 amp Banana plugs. Red denotes Positive and Black denotes negative speaker outputs.

11. OUTPUT FUSES are offered for added speaker protection. However, the 10AGC fuse supplied with your amp is too large to protect any speaker. This large value is supplied because some speaker systems like Carvin have their own protection. If you wish protection, remove the 10AGC and install the following suggested fuse values.
A. ¾AGC Fuse for Horn Drivers up to 50 Watts (Bi-Amped).
B. 1AGC Fuse for Horn Drivers up to 50 Watts using a Passive Crossover.
C. 2½AGC Fuse for Woofer rated between 100 and 150 Watts.
D. 2½AGC Fuse for 2 or 3 Way speaker system rated at 100 Watts.
These approximate fuse values are for 8 Ohm speakers. Double all fuse values when paralleling speakers speakers together. CAUTION This amplifier is powerful enough to destroy any speaker. The above fuse recommendations can only be used as a guide. Your requirements may be different.
PROCEED WITH CAUTION: WE ASSUME NO RESPONSIBILITY FOR ANY DAMAGE DONE TO SPEAKERS REGARDLESS OF CIRCUMSTANCE.

12. AMPLIFIER BRIDGING is only recommended for high powered monaural applications. To bridge your amp follow the below procedures.
A. Connect your speaker load across both "Red" speaker terminal posts (A&B Channels). The RED terminal post A is positive and the RED terminal post B red post is negative. The Black terminals are not used.
B. Locate the rubber cap next to the Fan Switch. Remove this cap and with a screw driver move the switch "down" to Bridge Mode.
C. Plug your input into the A amplifier. Use the A gain control for setting your levels. Note: The B gain control must also be turned to the Full On position.

13. INPUTS Your amplifier will accept either a Balanced Line through the D3F connector or an Unbalanced Line through the Phone Jack. The D3F Connector Wiring: Pin 1 is Ground, Pin 2 is Negative Bal., Pin 3 is Positive Bal. The Balanced cirucit features a transformerless Differential Amplifier designed for balanced lines down to 150 Ohms. Impedances as high as 50,000 Ohms can also be used but with some loss of high frequencies. The transformerless design incorporated offers superior THD and Frequency Response over conventional inputs.

General Specifications DCA300 and DCA800

Frequency Response:	+0, −1 dB, 20 Hz to 20K Hz
Small Signal:	+0, −2 dB, 5 Hz to 60K Hz
Slew Rate:	35 Volts per micro-second
Hum and Noise Level:	100 dB below rated output
Input Sensitivity:	2 Volts for maximum power
Input Impedance:	Greater than 10K ohms
Output Impedance:	Designed for any load equal or greater than 4 ohms. Min. Bridged Impedance: 4 ohms.
Damping Factor:	Greater than 200 referenced to 8 ohms at 1K Hz
Dimensions:	5¼" by 19" by 12" deep. Standard rack front panel.
Weight:	DCA800: 44 lbs. DCA300: 37 lbs.
Power Requirements:	DCA800: 120/220V 50-60 Hz DCA300: 120V 50-60 Hz
Warranty:	1 Year Parts & Labor.

DCA800 Stereo Amplifier

RMS Power Output Per Channel Both Channels Driven

RMS Output	8 ohms: 200 Watts RMS
less than 0.05% THD	4 ohms: 300 Watts RMS
from 20 Hz to 20K Hz	8 ohms Bridge: 600W
0.01% THD at 1k Hz	4 ohms Bridge: 800W

DCA300 Stereo Amplifier

RMS Power Output Per Channel Both Channels Driven

RMS Output	8 ohms: 100 Watts RMS
less than 0.05% THD	4 ohms: 150 Watts RMS
from 20 Hz to 20K Hz	8 ohms Bridge: 300W
0.01% THD at 1K Hz	

LIMITED WARRANTY

Your Carvin Professional Series Product is protected against failure for 1 YEAR. Carvin will service the unit, supply all parts, and pay the RETURN shipping charges at no charge to the customer providing the unit is under warranty. At no time will Carvin pay for Servicing or Parts except our own.

This warranty is extended to the original purchaser only (not transferable) and does not cover failures by incorrect use, inadequate care of unit, or natural disasters. A copy of the original invoice must be shown to verify warranty.

Carvin takes no responsiblity for any horn driver or speaker damaged by this unit.

This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products.

FACTORY SERVICING

We highly recommend utilizing our specialized servicing staff to bring your unit up to factory specifications. For Factory servicing "In" or "Out" of Warranty follow these requirements:

1. Enclose a full description of the malfunction. Use the "Service Authorization Form" included with this manual.
2. Include a copy of the original invoice to verify warranty.
3. Return the product in its original carton. Carvin and the Shipping Co. are not liable for damage caused by improper packing. Ship by United Parcel Service if possible. The shipment must be pre-paid by the customer.
4. Allow 5 working days for servicing plus shipping time to and from destination. All repairs in by Monday are ready the following Monday.
5. Carvin will pre-pay the shipping back to you providing the unit is under warranty. If you wish return shipment by AIR, you will be required to pay the difference COD.
6. If your unit is out of warranty, you will be charged a modest fee (generally lower than repair shops). You will also be required to pay shipping both ways. These charges will be collected COD.
7. If in doubt about the malfunction, please call a Carvin salesman first at 714-747-1710 as we've had units returned just because there was a oversight on its use or hookup.

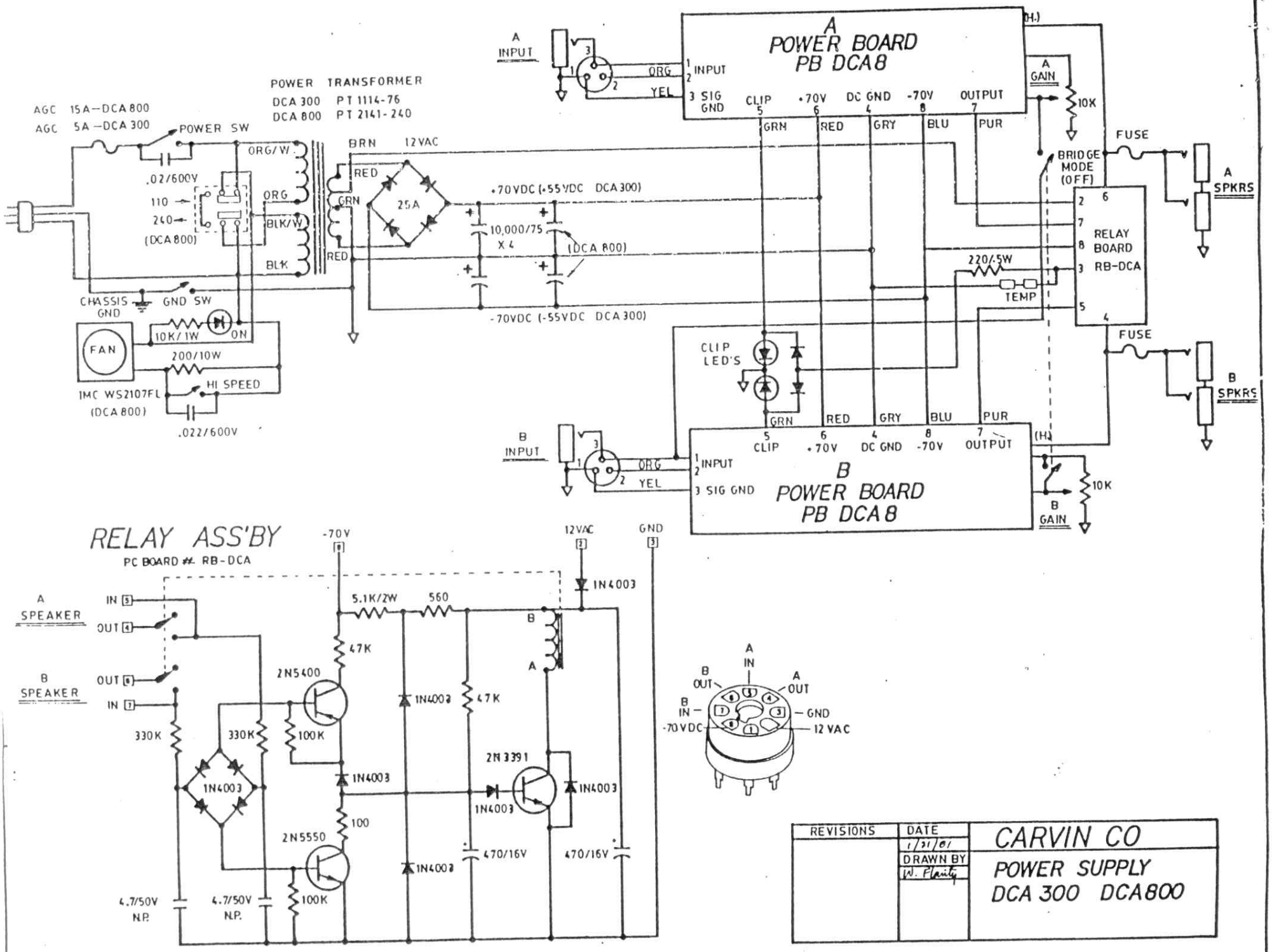
SERVICING IN YOUR AREA

You may select your own service center or have your qualified technician work on the unit at your own expense. This will not void the warranty for future repairs by us unless damage was done because of improper servicing or components. If damage was done, a normal fee for parts and servicing will be charged.

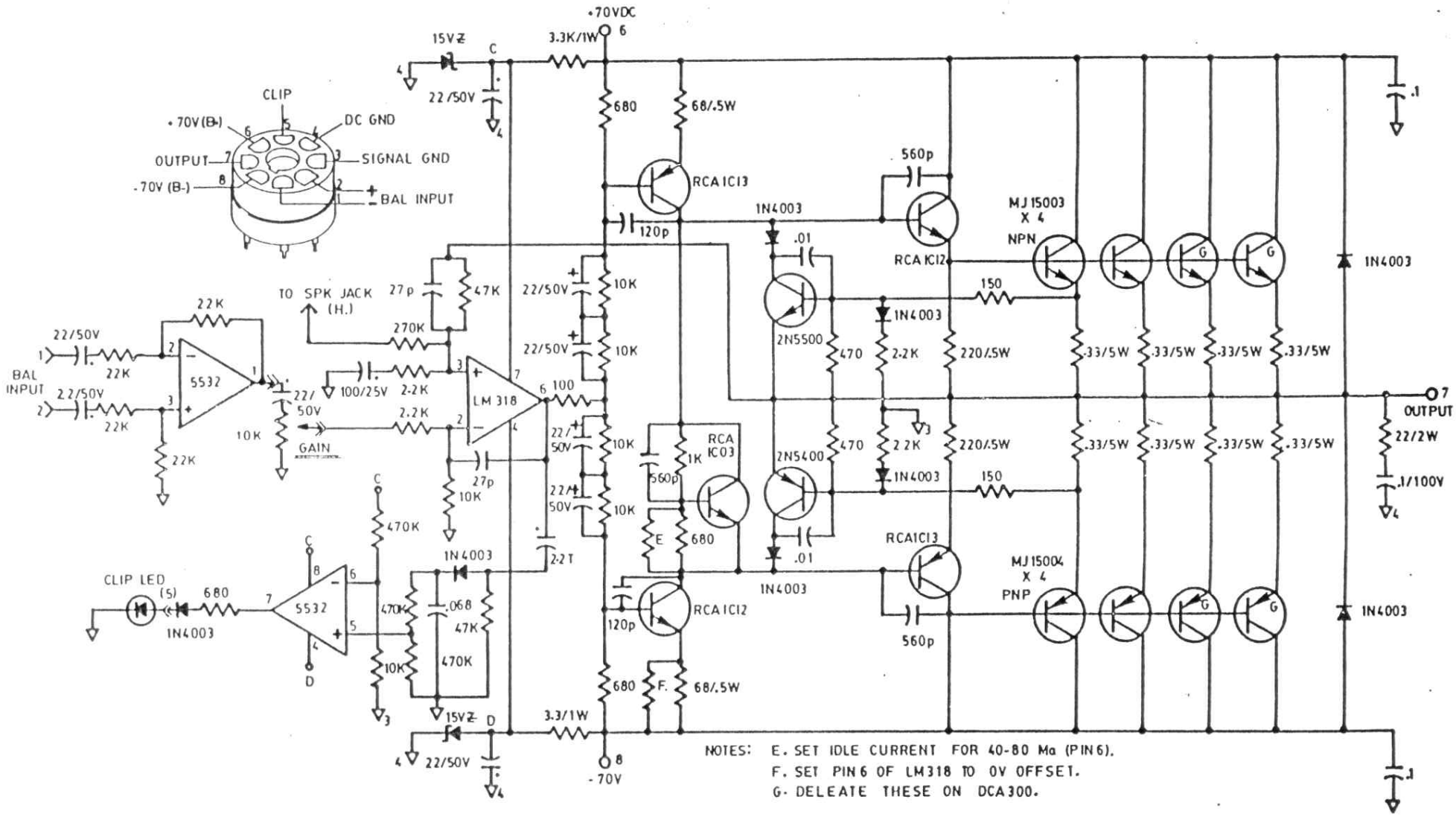
Under the 1 Year Warranty, Carvin will ship parts pre-paid to you or your technician providing the defective part(s) are returned first for our inspection.

If you do not have a qualified service person, we ask that you don't involve yourself in servicing the unit. By sending the unit back to us, you may save time and money in the long run, plus your unit will be factory serviced.

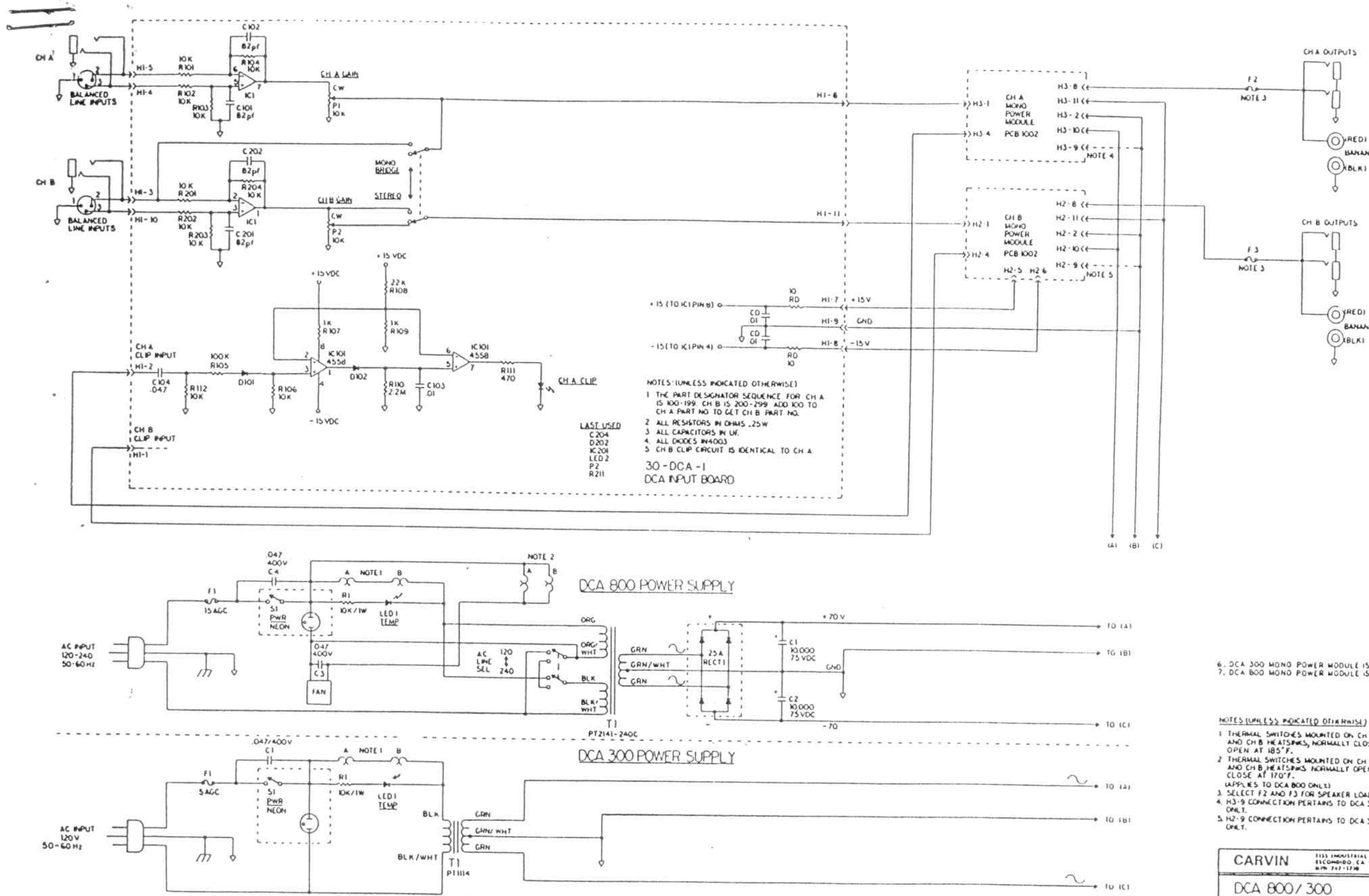
Reminder: Carvin Does Not Pay for Servicing or Parts except our own — No Exceptions. If you elect to have your own servicing done, these bills must be paid by you.



REVISIONS	DATE	CARVIN CO
	1/31/01	
	DRAWN BY W. Planitz	POWER SUPPLY DCA 300 DCA800



REVISIONS	DATE	CARVIN CO
	1-20-81	
	DRAWN BY W. Flatty	MODULAR POWER AMP ASS'BY DCA 300, DCA 600
		PC BOARD # PB DCA8



6. DCA 300 MONO POWER MODULE IS MP-150.
7. DCA 800 MONO POWER MODULE IS MP-800.

NOTES (UNLESS INDICATED OTHERWISE)

1. THERMAL SWITCHES MOUNTED ON CH A AND CH B HEATSINKS, NORMALLY CLOSED, OPEN AT 185°F.
2. THERMAL SWITCHES MOUNTED ON CH A AND CH B HEATSINKS NORMALLY OPEN, CLOSE AT 170°F. (APPLIES TO DCA 800 ONLY)
3. SELECT F2 AND F3 FOR SPEAKER LOAD.
4. H3-9 CONNECTION PERTAINS TO DCA 300 ONLY.
5. H2-9 CONNECTION PERTAINS TO DCA 300 ONLY.

CARVIN	1155 INDUSTRIAL AVENUE ESCONDIDO, CA 92025
DCA 800/300 SYSTEM SCHEMATIC	
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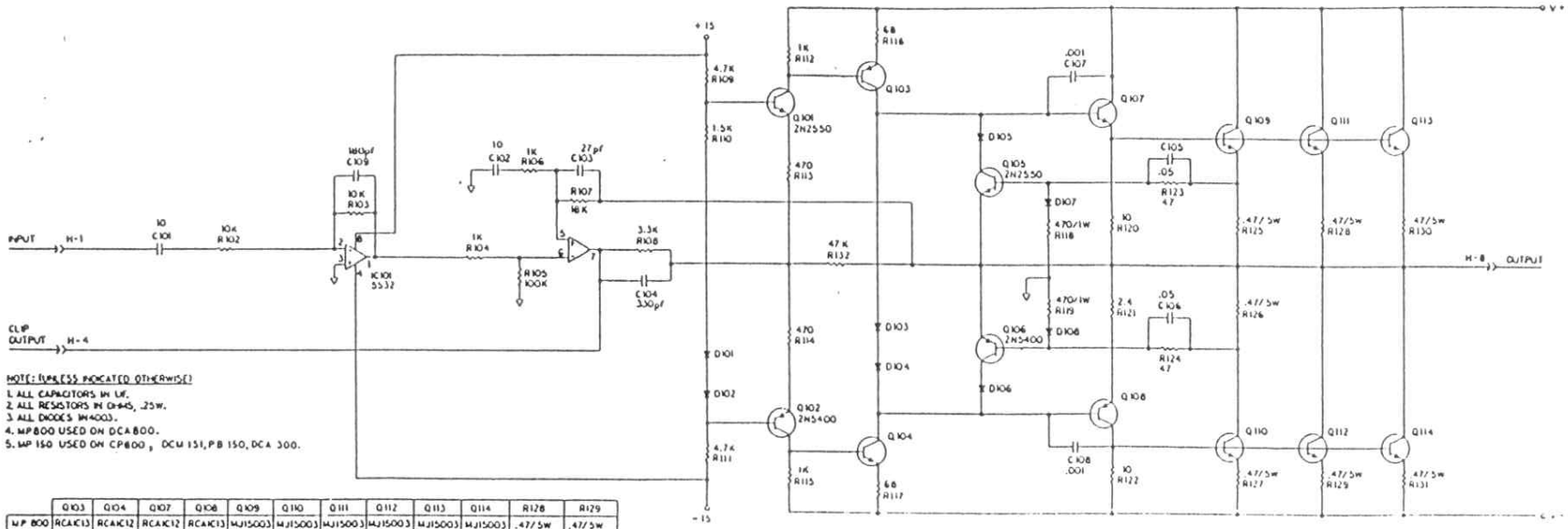
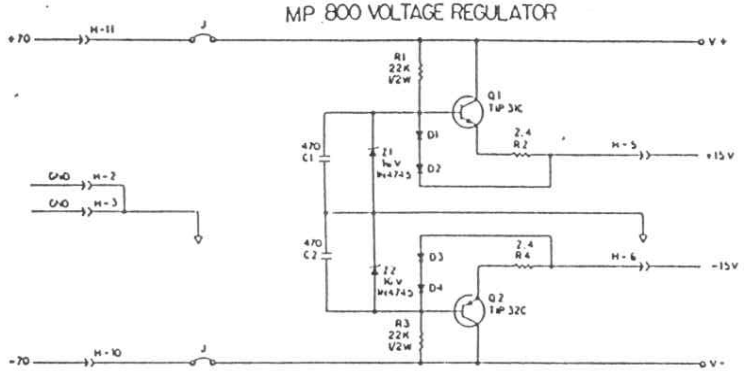


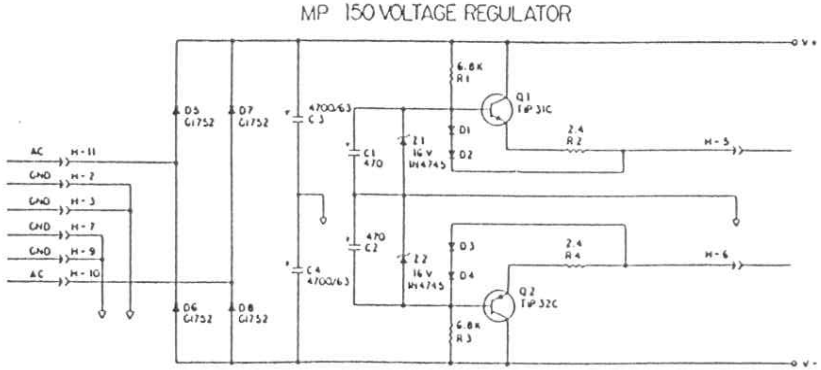
NOTE: (UNLESS INDICATED OTHERWISE)
1. ALL CAPACITORS IN UF.
2. ALL RESISTORS IN OHMS, .25W.
3. ALL DIODES IN4003.
4. MP800 USED ON DCA800.
5. MP 150 USED ON CP800, DCM 151, PB 150, DCA 300.

	Q103	Q104	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	R128	R129
MP 800	RCA IC13	RCA IC12	RCA IC12	RCA IC13	MJ15003	MJ15003	MJ15003	MJ15003	MJ15003	MJ15003	.47/5W	.47/5W
MP 150	TIP32C	TIP31C	TIP31C	TIP32C	MJ15015	MJ15015	NOT USED	NOT USED	MJ15015	MJ15015	NOT USED	NOT USED

MP 800 VOLTAGE REGULATOR



MP 150 VOLTAGE REGULATOR



CARVIN

MP800 / MP 150
MONO POWER MODULE
PCB 1002D (30-MONO-8)

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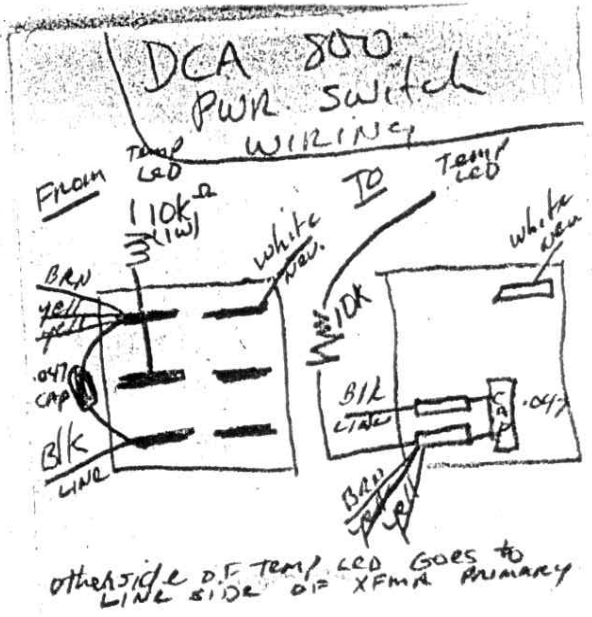
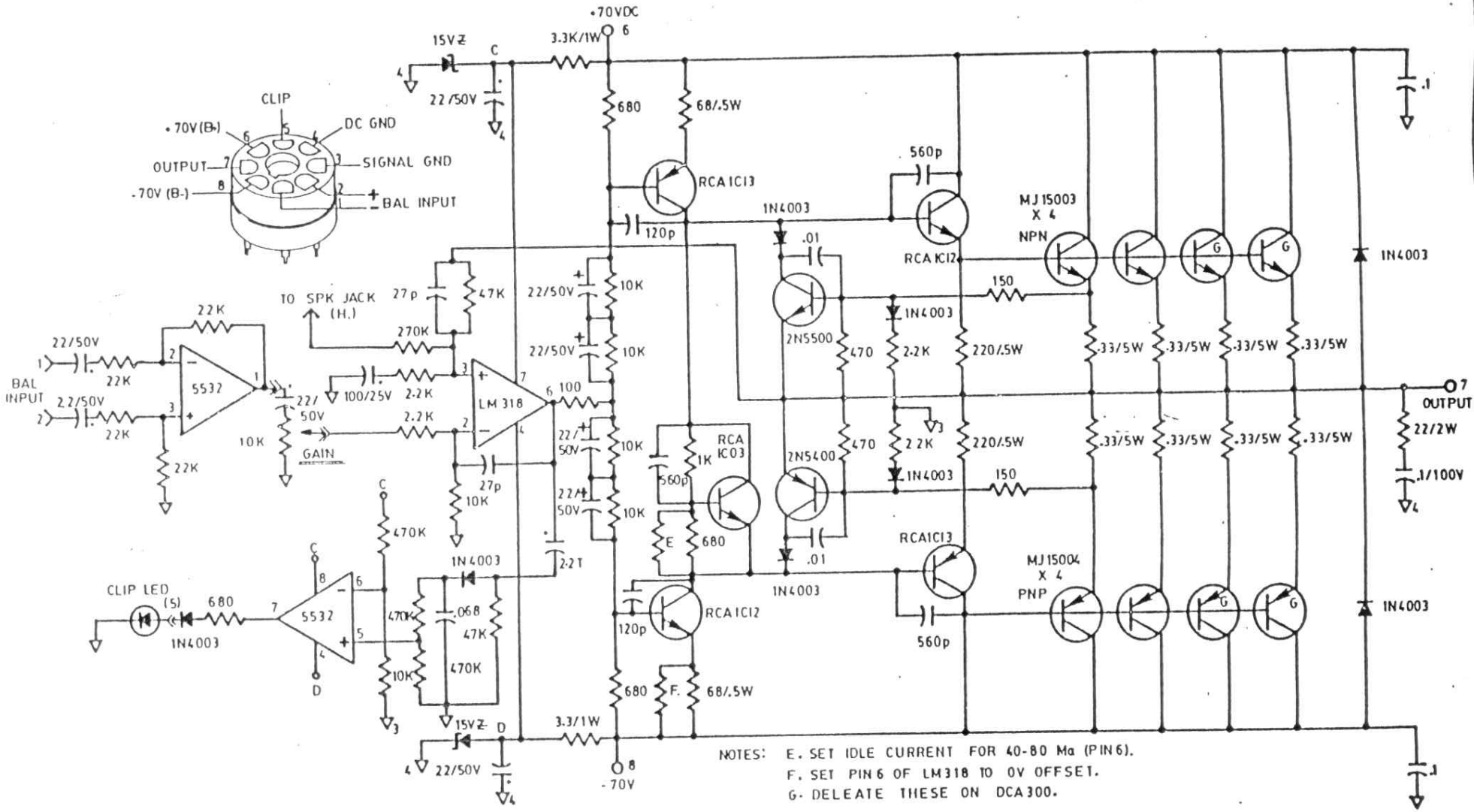
APPROVED: [illegible] DATE: 3 MAY 84
DRAWING NUMBER: 2033B


DCA 800
PWR Switch
WIRING
From
Temp LED
110K Ω (1W)
white wire
BRN
yell
.047 CAP
BLK
LINE
TO
Temp LED
white wire
110K
BLK LINE
.047
BRN
yell
Other side of Temp LED Goes to LINE SIDE of XFMR PRIMARY



REVISIONS	DATE	CARVIN CO
	1-20-81	
	DRAWN BY W. Hauty	MODULAR POWER AMP ASS'BY DCA 300, DCA 800
		PC BOARD # PB DCA8

Carvin

DCA800 DCA300

Pro Line Professional Amplifiers

LOOSE PAGE — ATE REPORT ON AMP

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- A) Content of Sections

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- A) Front Panel
- B) Rear Panel

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SECTION #7 — IMPORTANT (MUST READ)
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- B) Precautions
- C) Amp set up
- D) Powering up the amplifier
- E) Imp. Diff. Between DCM & DCA Amps

SECTION #8 — CONNECTIONS TO THE AMPLIFIER
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- B) Output connections
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- C) Bridging the Amp
- D) Hooking Up 3 & 4 way systems

SECTION #9 — BI-AMPING & TRI-AMPING

SECTION #10 — TECHNICAL INFORMATION
- A) Schematics & Component Layout

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- A) Include Service Authorization Form

Section #7 (Important! - Must Read) includes facts about the use of the DCA/DCM series amps, specific precautions, how to initially set up and power up the amp. This section offers information important to the reliable and safe operation of the high powered DCA/DCM series amplifiers. It is highly recommended reading for operators.

Section #8 (Connections to the Amplifier) offers information relating to the various types of connections made to the amp. In this section, special uses such as bridging, and hooking up 3 and 4 way systems will be discussed.

Section #9 (Bi-Amping & Tri-Amping) covers the basic differences between conventional and Bi-amped sound systems. differences between Bi-amping and Tri-amping as well as information covering the use of the active crossover in a Bi/Tri-amped situation is covered.

Section #10 (Service and Technical Information) includes the technical specifications, circuit schematics, and block diagrams for a detailed overview of the design, construction and performance of the DCA/DCM series amplifiers. Should the amplifier ever require servicing this section should provide all the needed information for a service technician.

Section #11 (Sercive & Warranty Information) offers information about the warranty and return proceedures for the amplifier. This section should be consulted for any units returned for factory servicing, or any servicing in your area.

caused by improper packing. (Replacement cartons are available from CARVIN at $14.00 dollars ea. & $2.00 shipping).

* Save your invoice. It will be required for warranty servicing of your unit in the event such servicing is necessary. Always check your invoice against the items you have received. If you find some items missing it may be that they were simply split up during shippment. Please allow several days for the rest of your order to arrive before inquiring. If you determine (after allowing an appropriate amount of time) that you have not received all your items, please call CARVIN in order that we may take the necessary steps to assure that you receive all the items in your order.

CAUTION - TO PREVENT ELECTRIC SHOCK DO NOT DEFEAT THE SAFETY GROUND CORD.

WARNING - TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE TO RAIN, MOISTURE, EXPLOSIVE ATMOSPHERE, OR INSTALL AN IMPROPER FUSE.

TOLL FREE CALIF. (800)-542-6070
TOLL FREE NATIONAL (800)-854-2235

Both series amplifiers also incorporate thermostatic protection on each modular output heatsink assembly. The temperature sensing devices will turn on the automatic forced air cooling (only on DCA-800 model). Normally the fan will be off, until a higher "safe" heatsink temperature is reached. Then the fan will turn on. This allows the DCA-800 amplifier to operate into heavy loads safely and efficiently. (The DCA-300, DCM-301 & DCM-151 amplifiers do not require a fan due to their generous heatsink ventillation. Both series amplifiers will shut down in the event of damaging high temperatures (indicated by the "TEMP" light on the front panel). They also incorporate short circuit protection that will limit the amps output voltage. This provides a wide latitude of protection from short circuited speaker lines. And, each of the speaker outputs offer speaker fuse protection. This extra added protection will further ensure the highest possible reliability for speaker systems as well as amplifier output circuitry.

The inputs of all CARVIN Pro-Line amplifiers feature "XLR type" transformerless, active balancing. This yields better frequency response, slew rates, and lower THD than competative transformer balanced inputs. Each input also features a 1/4" balanced phone plug "line" inputs. These inputs will accommodate impedances of 150 to 50K ohms.

All outputs feature either heavy binding posts, or 1/4" phone plugs. These are high quality output jacks that will offer years of trouble free use.

Both the DCA-800 and DCA-300 amplifiers are capable of being bridged for absolute maximum output wattage levels, or for transformer distributed "70V" line systems. (See Section #8 "Bridging the Amp" as well as Section #10" Technical Information" for further specs. on bridging & the performance of the "DCA" amps and associated circuitry design).

The DCA series mechanical design features all active audio circuit components carried on two modules, (one for each channel). (The DCM series amplifiers incorporate one heatsink module). These output "heatsink" modules are constructed using a glass epoxy circuit board mechanically coupled to a large aluminum anodized heatsink. The vertical fin arrangement and open grill assembly on each side of the amplifier offers maximum convective cooling of all critical electronics, radiating heat up and away from the amplifier. The removal of these modules is easily accomplished by simply removing the lid & then the four heatsink mounting screws (attaching the heatsink to the amp chassis), and removing the associated multi-pin electrical connection found on each module. Spare output modules can be ordered from CARVIN for instant amp repairs. DCA-800 & DCM-301 output modules cost $150 ea + $4 shipping. DCA-300 & DCM-151 modules cost $105 ea + $4 shipping.

FEATURES OF THE DCA SERIES AMPLIFIERS

FRONT PANEL

#1. POWER SWITCH - Pushing the power "Up" will apply power to your unit. The red "neon" light in the power switch will illuminate to indicate the power amplifier is operational. Sometimes the "neon" light in the power switch will not turn on instantly when the switch is depressed. This is normal and does not affect the operation of the amplifier.

#2. TEMP - The temperature light (Just above the power switch) will illuminate only when the amplifier has overheated. Under improper loading conditions, the "TEMP" light will illuminate to indicate that the amplifier has been shut down to properly cool itself. Allow approximately 15 minutes for the amplifier to cool down for normal operation. Then check to determine the reason for the over-heating.

Note: If the "Temp" light is consistently turning on you should check your system out thoroughly. This is an improper condition indicating that something is wrong.

#3 A & B LEVEL GAIN CONTROLS - These controls allow the operator to adjust the sensitivity of the power amp to match the mixer (or pre-amp) output levels. These controls do not limit the amps output power, and maximum output levels can be achieved at settings less than full on. To properly adjust the gain controls:

A. Set the amplifier gain to zero.

B. Set the mixer or pre-amp master volume to a "Mid" position. Now raise the amplifier gain to obtain the desired volume level.

C. After adjustment, use the mixer or pre-amp level control to adjust volume.

Note: The above proceedure usually delivers the best signal to noise ratio.

#4 LED CLIP INDICATORS - These "LED" clip indicators will light when the amplifier begins to run out of clean power. They will give you an accurate indication of when distortion of the signal is beginning. These indicators monitor the input and output circuits of the amplifier offering an accurate indication of any overloading. If the clip indicators are lighting, you should turn down either the pre-amp (mixer) gain or the gain at the amplifier until the light just stops flashing. These indicators feature a special stretch and hold circuit that will provide a very bright indication of overloads. Proper monitoring of the clip indicators from time to time will ensure that the cleanest possible signal is being fed to the amplifier.

REAR PANEL FEATURES

#1 A.C. LINE CORD - The DCA series amplifiers are supplied with 3 conductor line cords. This arrangement (3 pin grounding type plugs) greatly reduces the possibility of electrical shock when used with 3 conductor outlets. (NEVER DEFEAT THE 3RD PIN GROUND OF THE A.C. CORD). See "Important!-Must Read" section. The above grounding arrangement eliminates the need for a ground switch.

#2 THE A.C. PRIMARY MAIN FUSE - The DCA-800 amplifier utilizes a 15 amp fuse, whereas the DCA-300 utilizes a 5 amp fuse. These are standard "Slo-Blow" fuses and may be purchased from a local vendor. Never bypass or defeat the function of the A.C. fuse. The A.C. fuse offers protection both for the amplifier as well as your safety. If you are consistently blowing A.C. main fuses you should consult the warranty service section of this manual and/or call CARVIN.

#3 SPEAKER OUTPUTS - Channel "A" and Channel "B" speaker outputs feature two 1/4" phone plugs (wired in parallel). This allows for direct connection of 2 speakers to each side of the DCA series amplifiers. In addition to the two 1/4" phone jack outputs, each channel also features dual 25 amp Bananna jacks. The Red denotes positive output and the Black denotes negative output. (See section #6 "Bridging the Amp" for additional uses of the Bananna jacks."

#4 OUTPUT FUSES - The output fuses are offered for added speaker protection. However, the AGC 10 amp fuse provided with your unit is too large to protect any speaker. This value is supplied because some speaker systems like CARVIN's have their own protection. If your speaker system does not have protection, you may remove the AGC 10 amp fuse and replace it with the following suggested fuse values. (See Section #7 "Important! - Must Read" for additional information on fuse values.

A. 3/4 amp fuse for horn drivers up to 50 watts (bi-amped).
B. AGC 1 amp fuse for horn driver up to 50 watts using a passive crossover.
C. AGC 2.5 amp fuse for woofer rated between 100 to 150 watts.
D. AGC 2.5 amp fuse for 2 or 3 way speaker system rated at 100 watts.

These approximate fuse values are extremely conservative, but should offer exceptional volume levels with a wide safety margin.

Note: You should double fuse values when paralleling speakers together.

PROCEED WITH CAUTION - WE ASSUME NO RESPONSIBILITY FOR

FEATURES OF THE DCM SERIES AMPLIFIERS

Many of the front and rear panel features of the "DCM" series amplifiers are the same as found on the "DCA" series stereo amps. However, the DCM series amps are monaural (unlike the DCA series amps that are stereo). For those features that are the same as found on the DCA amps we will refer you to the appropriate section dealing with the feature as it refers to the "DCA" amp.

FRONT PANEL

#1 POWER SWITCH - See Section #5 "Front Panel Features of "DCA" series amps.

#2 TEMP - See Section #5 Front Panel Features of "DCA" series amps.

#3 GAIN - The "Gain" control on the DCM series amplifiers functions exactly as the A & B gain controls found on the "DCA" series stereo amps. The is only (1) "Gain" control on the "DCM amplifier because it is a monaural amplifier, and only one gain control is needed. For proper adjustment proceedures of this control see Section #5 "Front Panel Features of DCA series amps."

#4 LED CLIP INDICATOR - See Section #5 "Front Panel Features" for overview on the operation of the "Clip" indicator.

#5 EQ IN/OUT - This button (when depressed) will assign the built-in graphic equalizer "in line." This means that you will be able to switch between an equalized and non-equalized setting to compare any changes that may have been made. If the amplifier will be used without the graphic equalizer function, leave the switch "out." This disconnects the graphic equalizer fron the circuit and its function is totally eliminated from the signal path.

#6 GRAPHIC EQUALIZER - The graphic equalizer provides a graphic representation of the overall levels of volume at various frequency bands. Instead of calling each band "Bass, Midrange, or Treble," each band is listed according to its exact frequency reference. Therefore, the bands are listed as 60Hz, 120Hz, 250Hz, 500Hz, 1K, 2K, 4K, 8K & 16K. These numbers refer to the exact band in which you will be adjusting the volume (within the full frequency spectrum). Because there are a few more controls than found on a standard (3) band equalizer, setting up a graphic equalizer may initially appear more difficult. However, at this point the best way to set your equalizer would be to experiment with each band to become familiar with its respective sound. Set each of the bands at "0" then boost

#3 SPEAKER OUTPUTS - The DCM series monitor amplifiers are a monaural amplifier. So, only one speaker output is required. This output features two 1/4" speaker output jacks as well as 25 amp bannana plugs. These outputs are wired in parallel allowing (2) speakers to be connected directly to the outputs of the DCM series amp. Since these connections are wired in parallel you should consult Section #8 "Output Connections" for aditional information regarding parallel speaker loadings. Be careful not to excessively load the outputs of the DCM series amplifiers beyond (2) ohms. Consistent heavy loadings on the amplifier could affect reliability and overall performance. Loading your amplifier blow 4 ohms is not recommended. The 25 amp Bannana jacks are also output speaker connections. The "Red" terminal denotes the positive connection and the "Black" terminal denotes the "Negative" output.

#4 OUTPUT FUSE - See Section #5 "Rear Panel Features - DCA series amps" for a description of this feature and its proper function and use.

#5 INPUTS - See Section #5 "Rear Panel Features "DCA" series amps for a description of the specs and use of this feature.

#5 Both the DCA and DCM series amplifiers feature thermostatic controls that will shut the amp down if it should become too hot. This offers appropriate protection from improper operating conditions. The front "TEMP" light will come on to indicate that the amp has been shut down. Allow fifteen minutes for the amp to cool. Upon properly cooling down the amplifier will reset itself and again resume normal operation.

Note: you should check to determine the reason for over-heating. Usual causes are poor ventillation, speaker impedance below recommended minimums, direct sun overheating the chassis, etc.

#6 You will note that both series amplifiers do not have a ground reversal switch. It has been eliminated to prevent shock hazard. All grounding is done through the ground lug of the 3 conductor A.C. plug. This is the safe and proper way to ground all electrical appliances. If for any reason you require an A.C. line phase reversal, you may do so by utilizing a 3 to 2 prong adaptor and flipping the plug. NEVER DEFEAT THE USE OF THE 3RD PIN GROUND LUG ON THE AC RECEPTICLE. WHEN USING A 3 TO 2 PRONG ADAPTOR BE SURE THE GROUND LINE IS PROPERLY CONNECTED TO A "GOOD" GROUND. THIS IS TO PROVIDE THE BEST MARGIN OF SAFETY AND PERFORMANCE FROM YOUR AMP.

#7 Always be sure you are plugging the amp into the proper A.C. voltage. Be sure the voltage is properly regulated and will not fluctuate more than 10% above or below the 120V requirement of the DCA/DCM AMP. If the amplifier is going to be powered from a generator, be sure the generator has proper "electronic" voltage regulation and that the A.C. lines are free from voltage surges.

Note: It is recommended that you use a surge supressor and broad band noise supressor, especially when operating the amp off a generator. This will provide further protection against voltage surges and spikes.

#8 Whenever turning on or off your CARVIN amp you should follow this rule: "Last on - First off." This means that you will turn on all associated pre-amp (mixers) and associated equipment prior to turning on the amp. When you are finished with a performance, the amplifier will be the first item shut down. Following this proceedure will help eliminate pops & power surges (created by preceding equipment) that are annoying to audiences and potentially harmful to speakers.

#9 Do not remove the amplifiers cover at any time while the amp is plugged in or powered up. THERE ARE POTENTIALLY LETHAL VOLTAGES INSIDE THE AMP.

AMP SET UP - Do Not Turn On Yet!

The DCA/DCM series amplifiers are designed for "table top" or "rack mounting." The four rubber feet may be removed if amps are to be stacked.

When "rack mounting" the amp, be sure to allow for sufficient air flow. The rack must have an open back to allow for the normal flow of hot air up and away from the rack.

Make all connections to the amplifier (input and output) prior to turning on the unit. Be sure all cords are well maintained and of the proper type for the input and output connections to the amp. (All input connections should be shielded cable, and all output connections should be non-shielded 16AWG guage wire or greater).

POWERING UP THE AMPLIFIER

After all connections have been made to the amp, be sure all the gain controls are fully counter clockwise (off). Turn on all the pre-amp (mixer) equipment and then depress the power switch to apply power to the amp.

Note: Be sure the amplifier is plugged into a properly rated A.C. source. (120V regulated power supply source).

Note: When the power switch is depressed the light in the switch will come on to indicate the amp is operational. Sometimes there is a slight delay in the illumination of light within the switch, due to the characteristics of neon lights. This is normal & does not affect normal operation of the amp. If the light does not illuminate, check to be sure the amplifier is plugged into a live power outlet or source.

With all the pre-amp (mixer) controls fully off, turn up the the gain controls to approximately the 12 o'clock position (half way up). There should be no audible hum or excessive hiss. If you do hear hum or excessive hiss, check your input and output cables as well as connections & gains of the pre-amp equipment driving your power amp.

Now advance the pre-amplifier (mixer) gain until the desired volume is attained. Try to keep the pre-amp (mixer) controls at a minimum setting with the power amp controls at a relatively higher setting. This will help assure that the cleanest possible signal is driving the power amp. And, it helps assure the best signal-to-noise performance from your system.

IMPORTANT DIFFERENCES BETWEEN THE DCM AND DCA SERIES AMPLIFIERS

In every respect the operation of the DCM series amplifiers is identical to the DCA series amps (using one channel). Both amplifiers offer thermostatic protection against overheating and feature nearly identical signal specs. The following are a few important areas of consideration when operating your DCM series amplifier:

#1 Please refer to Section #7 "Important Must Read" for information regarding the reliable operation of your DCM series amplifier. This section (athough targeted toward the DCA series amps) also refers directly to the operation of the DCM series amps. Also, read the "Precautions" portion of that section for additional information on the reliable and safe operation of your new amp.

#2 Section #8 "Input" and "Output" connections also deals with information relating to the use of the DCM series amps. Reading over these areas of Section #8 should help further clarify the use of the DCM series amps in a sound system and obtaining maximum performance and reliability from your amp.

#3 Section #8 "Bridging the Amp" does not relate to the DCM series amps. An internally bridged amplifier requires (2) power amp output sections. Since the DCM series amps are "Monaural" they do not have this capability of "internal bridging."

#4 Section #8 "Hooking Up 3 & 4 way systems" deals with some pictorial examples of typical system setups. We have incorporated some examples using the DCM series amps for illustration.

#5 The Technical section of this manual contains sections dealing with the internal circuitry and design of both the DCA and DCM series amps. Should your unit ever require servicing this section should provide all the necessary information. If for any reason you require additional information, please feel free to contact CARVIN directly. Our sales & technical staff are eager to lend a hand.

#6 All service and warranty information are the same for both the DCA and DCM series amplifiers. And, if you have any questions in this area, please feel free to contact CARVIN.

BI-AMPING & TRI-AMPING

DIFFERENCES BETWEEN CONVENTIONAL "PASSIVE" AND BI-AMPED/TRI-AMPED SOUND SYSTEMS

We have discussed how to set up a conventional sound system where a full range audio signal passes through one amplifier and feeds a high level crossover within the speaker. This crossover then divides the "lows" from the "highs" and the outputs of the respective signals are fed to the low and high frequency drivers. In "bi-amping", the system utilizes a low level or "active" crossover, receiving the output signal from the pre-amp outputs of your mixing console. Internally, the active crossover divides the signal into its high and low frequency parts. The low frequency outputs of the crossover are then fed to the amplifier that directly drives the low frequency drivers (woofers). The high frequency output of the active crossover similarly feeds the amplifier dedicated to high frequency amplification, which drives the high frequency drivers (horns). Bi-amplification requires the use of a power amplifier dedicated to high frequencies as well as another power amplifier for the low frequency drivers. It will deliver a clean sound with minimal distortion and will more efficiently drive the loudspeakers. Bi-amping will offer better control over the crossover points as well as the relative volume levels of the high and low frequency components.

Tri-amping is the same as bi-amping except it utilizes a midrange output within a three-way system. In tri-amping, the output of the mixing console (full range audio signal) is fed to an active crossover that splits the audio into three frequency ranges. The outputs are fed to their respective amplifiers subsequently driving the high, mid, and low frequency drivers. Tri-amping offers exceptional control over the relative levels of each element's volume while offering selectivity for each of the two crossover points. Tri-amping is often used in high-quality high-level sound reinforcement applications. Please see the following block diagram for conventional versus Bi/Tri-Amped sound systems.

BENEFITS OF BI-AMPING & TRI-AMPING

Bi/Tri-Amping provides a great degree of efficiency that is typically lost by a conventional "Passive" crossover. Conventional crossovers utilize inductors, resistors, and capacitors in their design. These electronic devices can affect the output response of the power amplifier or waste much of its available output power. Since Bi-Amping or Tri-Amping circumvents these problems a more efficient delivery of power from the amps to the speakers is achieved. This results in greater efficiency from the sound system. The components of a passive crossover are used "In line" with the outputs of the power amplifier and they affect the way in which the amplifier responds. This interaction can reduce the damping of the amplifier (See damping in Glossary). Bi-amping bypasses the passive crossover and offers a more direct output from the amplifier effectively improving the damping performance of the system.

Bi-Amping & Tri-Amping also provides real power output "Headroom" advantages. Higher frequencies tend to "Ride" on top of the higher energy low frequencies being amplified. As the output of the amplifier begins reaching its total output power capacity these high frequencies may begin to reach the "Peak output" of the amplifier before the low frequency material. This effectively clips the high frequency material. Since the human ear is very sensitive to high frequency distortion this type of "High frequency" clipping is very noticeable. By dividing the high and low frequency material prior to amplification by the systems power amplifiers this headroom problem

audio product, its inputs and outputs are balanced (and will accept high impedence sources). It will interface with any professional audio system, and addresses correct input and output impedences for maximum signal quality and performance. Carvin highly recommends the use of this crossover with any of our professional Bi-amp or Tri-amp systems.

Some of the recommended settings for Bi-Amping and Tri-Amping Carvin's speakers are as follows;

Speaker	Recommended Crossover Freq.
3000E&M	500Hz or lower
1200E&M	2kHz or lower
1330E&M	1500Hz or lower
R-540H&E (Horn)	1.2k or higher
980E&M	1.2k
960E&M	1.2k
850E&M	1.2k

If you have any questions regarding how many speakers you can run off your amplifier, please do not hesitate to call CARVIN. We will be more than happy to help you determining if you are operating your amplifier properly.

Note: See Section #7 "Facts About Use" and Section #5 & #6 "Rear Panel Features" reagrding speaker fuses.

HOOKING UP 3 & 4 WAY SYSTEMS

There are several ways to hook-up the DCA series amplifiers with sound systems. In order to best illustrate the use of the DCA series amplifier with various systems we have created the following illustrations. In these illustrations you will find basic hook-ups utilizing the DCA series amps in passive systems, bi-amped, tri-amped, and four way systems.

Although this section really does not go into the operation of the CARVIN amps, it will show you various configurations where the DCA/DCM series amps may be used in sound reinforcement systems.

PASSIVE "FULL RANGE" DIAGRAM (Show Mon Conn.)

BI-AMPED DIAGRAM

TRI-AMPED DIAGRAM

4-WAY SYSTEM

ILLUSTRATION OF DCA AS 70V LINE TRANSMITTION AMP

General Specifications DCA300 and DCA800

Frequency Response: Small Signal:	+0, −1 dB, 20 Hz to 20K Hz +0, −2 dB, 5 Hz to 60K Hz
Slew Rate:	35 Volts per micro-second
Hum and Noise Level:	100 dB below rated output
Input Sensitivity:	2 Volts for maximum power
Input Impedance:	Greater than 10K ohms
Output Impedance:	Designed for any load equal or greater than 4 ohms. Min. Bridged Impedance: 4 ohms.
Damping Factor:	Greater than 200 referenced to 8 ohms at 1K Hz
Dimensions:	5¼" by 19" by 12" deep. Standard rack front panel.
Weight:	DCA800: 44 lbs. DCA300: 37 lbs.
Power Requirements:	DCA800: 120/220V 50-60 Hz DCA300: 120V 50-60 Hz
Warranty:	1 Year Parts & Labor.

DCA800 Stereo Amplifier

RMS Power Output Per Channel Both Channels Driven

RMS Output less than 0.05% THD from 20 Hz to 20K Hz 0.01% THD at 1k Hz	8 ohms: 200 Watts RMS 4 ohms: 300 Watts RMS 8 ohms Bridge: 600W 4 ohms Bridge: 800W

DCA300 Stereo Amplifier

RMS Power Output Per Channel Both Channels Driven

RMS Output less than 0.05% THD from 20 Hz to 20K Hz 0.01% THD at 1K Hz	8 ohms: 100 Watts RMS 4 ohms: 150 Watts RMS 8 ohms Bridge: 300W

General Specifications DCM151 and DCM301

Frequency Response: Small Signal:	+0, −1 dB, 20 Hz to 20K Hz +0, −2 dB, 5 Hz to 60K Hz
Slew Rate:	35 Volts per micro-second
Hum and Noise Level:	100 dB below rated output
Input Sensitivity:	2 Volts for maximum power
Input Impedance:	Greater than 10K ohms
Output Impedance:	Designed for any load equal or greater than 2 ohms.
Damping Factor:	Greater than 200 referenced to 8 ohms at 1K Hz.
Dimensions:	5¼" by 19" by 12" deep. Standard rack front panel.
Weight:	DCM301: 35 lbs. DCM151: 30 lbs.
Power Requirements:	DCM301 & DCM151: 120V 50-60 Hz
Warranty:	1 Year Parts & Labor.

DCM301 Monaural Amplifier

RMS Output less than 0.05% THD from 20 Hz to 20K Hz. 0.01% THD at 1K Hz	8 ohms: 100 Watts RMS 4 ohms: 160 Watts RMS 2 ohms: 300 Watts RMS

DCM151 Monaural Amplifier

RMS Output less than 0.05% THD from 20 Hz to 20K Hz. 0.01% THD at 1K Hz	8 ohms: 70 Watts RMS 4 ohms: 100 Watts RMS 2 ohms: 150 Watts RMS

LIMITED WARRANTY

Your Carvin Professional Series Product is protected against failure for 1 YEAR. Carvin will service the unit, supply all parts, and pay the RETURN shipping charges at no charge to the customer providing the unit is under warranty. At no time will Carvin pay for Servicing or Parts except our own.

This warranty is extended to the original purchaser only (not transferable) and does not cover failures by incorrect use, inadequate care of unit, or natural disasters. A copy of the original invoice must be shown to verify warranty.

Carvin takes no responsiblity for any horn driver or speaker damaged by this unit.

This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products.

FACTORY SERVICING

We highly recommend utilizing our specialized servicing staff to bring your unit up to factory specifications. For Factory servicing "In" or "Out" of Warranty follow these requirements:

1. Enclose a full description of the malfunction. Use the "Service Authorization Form" included with this manual.
2. Include a copy of the original invoice to verify warranty.
3. Return the product in its original carton. Carvin and the Shipping Co. are not liable for damage caused by improper packing. Ship by United Parcel Service if possible. The shipment must be pre-paid by the customer.
4. Allow 5 working days for servicing plus shipping time to and from destination. All repairs in by Monday are ready the following Monday.
5. Carvin will pre-pay the shipping back to you providing the unit is under warranty. If you wish return shipment by AIR, you will be required to pay the difference COD.
6. If your unit is out of warranty, you will be charged a modest fee (generally lower than repair shops). You will also be required to pay shipping both ways. These charges will be collected COD.
7. If in doubt about the malfunction, please call a Carvin salesman first at 714-747-1710 as we've had units returned just because there was a oversight on its use or hookup.

SERVICING IN YOUR AREA

You may select your own service center or have your qualified technician work on the unit at your own expense. This will not void the warranty for future repairs by us unless damage was done because of improper servicing or components. If damage was done, a normal fee for parts and servicing will be charged.

Under the 1 Year Warranty, Carvin will ship parts pre-paid to you or your technician providing the defective part(s) are returned first for our inspection.

If you do not have a qualified service person, we ask that you don't involve yourself in servicing the unit. By sending the unit back to us, you may save time and money in the long run, plus your unit will be factory serviced.

Reminder: Carvin Does Not Pay for Servicing or Parts except our own — No Exceptions. If you elect to have your own servicing done, these bills must be paid by you.