

GEODYNETM

PROFESSIONAL POWER AMPLIFIER

OWNER'S MANUAL

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P.O. Box 1000
Elkhart, IN 46515-1000

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FULL THREE-YEAR WARRANTY



SUMMARY OF WARRANTY

AMCRON, a division of Crown International, Inc., 1718 West Mishawaka Road, Elkhart, Indiana U.S.A. 46517-4095 warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Amcron product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Amcron product is free of defects in materials and workmanship, and we further warrant the new Amcron product regardless of the reason for failure, except as excluded in this Amcron Warranty.

ITEMS EXCLUDED FROM THIS AMCRON WARRANTY

This Amcron Warranty is in effect only for failure of a new Amcron product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Amcron Warranty also does not extend to the new Amcron product if the serial number has been defaced, altered, or removed.

WHAT THE WARRANTOR WILL DO

We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers. We will remedy the defect and ship the product from the service center within a reasonable time after receipt of the defective product at our authorized service center. All expenses in remedying the defect, including surface shipping costs to the nearest authorized service center, will be borne by us. (You must bear the expense of all taxes, duties, and other customs fees when transporting the product.)

HOW TO OBTAIN WARRANTY SERVICE

You must notify us of your need for warranty service not later than ninety (90) days after expiration of the warranty period. All components must be shipped in a factory pack. Corrective action will be taken within a reasonable time of the date of receipt of the defective product at our authorized service center. If the repairs made by our authorized service center are not satisfactory, notify our authorized service center immediately.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE NEW AMCRON PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.

WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Amcron Warranty. This Amcron Warranty is not extended by the length of time which you are deprived of the use of the new Amcron product. Repairs and replacement parts provided under the terms of this Amcron Warranty shall carry only the unexpired portion of this Amcron Warranty.

DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

LEGAL REMEDIES OF PURCHASER

No action to enforce this Amcron Warranty shall be commenced later than ninety (90) days after expiration of the warranty period.

THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR AMCRON PRODUCTS.

Amcron, P.O. Box 1000, 1718 W. Mishawaka Rd., Elkhart, Indiana U.S.A. 46515-1000.
Telephone: 219/294-8000. Facsimile: 219/294-8346.

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CAUTION

RISK OF ELECTRIC SHOCK – DO NOT OPEN.
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC
SHOCK, DO NOT EXPOSE THIS EQUIPMENT
TO RAIN OR MOISTURE!

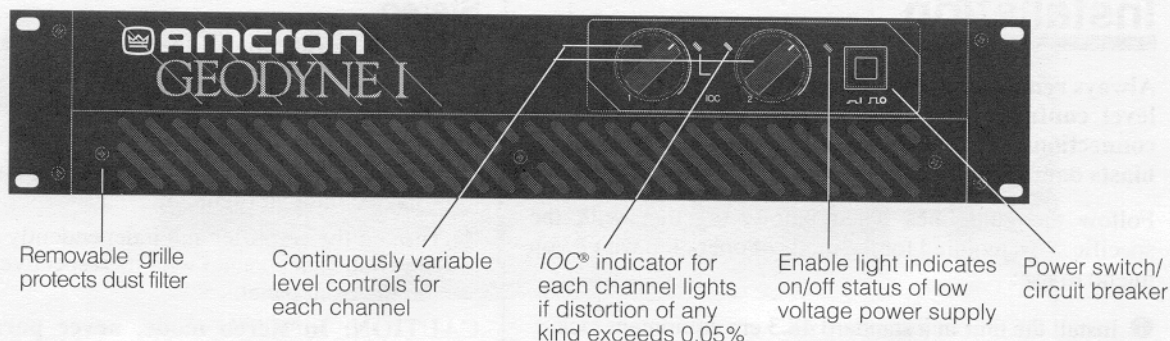
ATTENTION

RISQUE DE CHOC ÉLECTRIQUE – NE PAS OUVRIR.

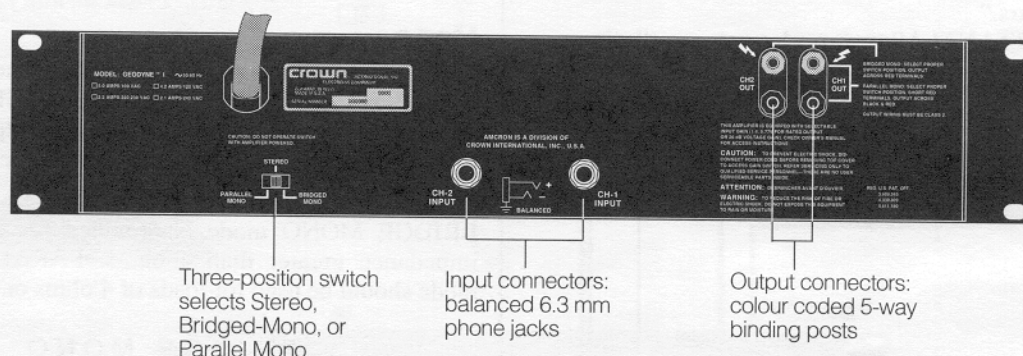
The information furnished in the accompanying manual does not include all of the details of design, production, or variations of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance. If you need special assistance, beyond the scope of this manual, please contact your Amcron Representative or the Amcron Technical Services Department.

Amcron, P.O. Box 1000, Elkhart, Indiana 46515-1000
Phone: (219) 294-8200 Fax: (219) 294-8346

Geodyne Front Panel Features



Geodyne Back Panel Features



Welcome

Congratulations on your purchase of an Amcron *GEODYNE*[™] amplifier. The *GEODYNE* I and II are compact, professional stereo power amplifiers which are engineered to meet the demanding sound reinforcement needs of the performing musician. *GEODYNE* amplifiers compare very favourably to amplifiers costing much more, providing clean sound and high signal to noise ratio.

This manual will help you successfully install and use your amplifier—we strongly recommend you read all the instructions, warnings and cautions contained within. If you plan to operate in one of the two MONO modes be sure to read the Mono section. Also, for your protection, please save your bill of sale since it is your **official proof of purchase**.

Unpacking

Please inspect your new amplifier for any damage that may have occurred during transit. If damage is found, notify the transportation company immediately. Only you may initiate a claim with the carrier for damage resulting during shipment. Even if the unit arrived in perfect condition, as most do, save all packing materials so you will have them if you ever need to transport the unit. **NEVER SHIP THE UNIT WITHOUT THE FACTORY PACK.**

Features

- ❑ Full, uncoloured stereo power into a wide variety of loads.
- ❑ BRIDGE MONO or PARALLEL MONO operation provides optimum performance for high or low impedance mono loads.
- ❑ Patented *ODEP*[®] circuitry keeps amplifier running under adverse conditions without risk of damage.
- ❑ Unique heatsink/forced air cooling system dissipates heat rapidly to protect your investment and provide greater power.
- ❑ Triple input sensitivity switch can be set to 1.4 V, 0.775 V, or a fixed voltage gain of 26 dB.
- ❑ Full protection against shorted outputs, open circuits, mismatched loads, overheating, RF burnout, input DC, and input overload.
- ❑ Front panel power switch/circuit breaker.
- ❑ Front panel *IOC*[®] indicator.
- ❑ Turn on delay protects load against transients.
- ❑ Fault protection circuit shuts off power supply in the rare event abnormal current is detected in output circuits.
- ❑ Full three year "No-Fault" warranty.

Installation

Always remove power from the unit and turn the input level controls fully counterclockwise while making connections. This will eliminate any chance of loud blasts damaging loudspeakers.

Follow the guidelines listed below, together with the specific steps required for the mode of operation which you intend to use:

- 1 Install the unit in a standard 48.3 cm equipment rack or place it on a stable surface. Mounting dimensions: 48.3 cm wide, 8.9 cm tall, and 40.6 cm deep behind rack "ears."

IMPORTANT! Allow for adequate ventilation and DO NOT BLOCK THE AIR VENTS.

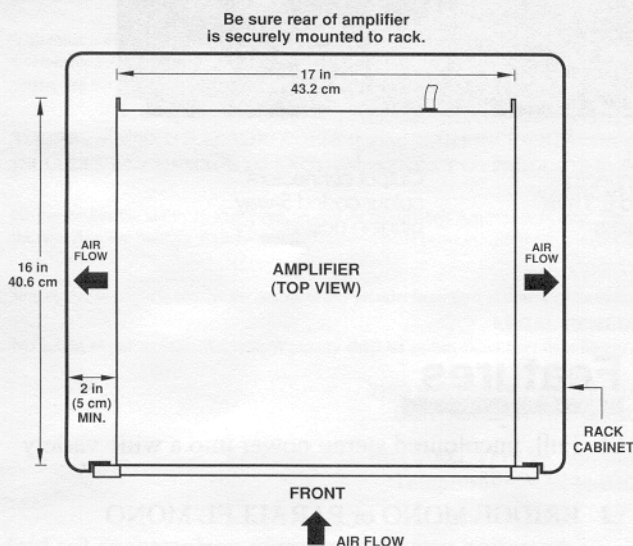


Fig. 1 Do NOT Block Air Flow

- 2 Use high-quality loudspeaker cables between the load and the output binding posts on the rear panel. Banana plugs are recommended at the amplifier end.
- 3 Use shielded cables to connect the output of your mixer to the inputs of the amplifier. Either balanced (tip, ring, sleeve) or unbalanced (tip, sleeve) 6.3 mm phone plugs can be used.

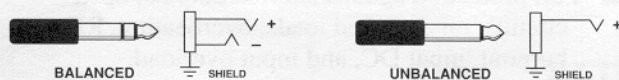


Fig. 2 Use 6.3 mm Phone Plugs to Connect to the Input

- 4 Amplifier usable at any AC voltage from 100-240, $\pm 10\%$, at 50 or 60 Hz, depending on internal settings. Your amplifier comes pre-configured for your country's voltage. Should it be necessary to change the line voltage setting, contact the nearest Amcron Service Center.

Stereo

- 1 Turn the level controls fully counterclockwise and turn off the amplifier.
- 2 Set rear panel switch to STEREO. (Remove PARALLEL MONO jumper if present.)
- 3 Connect the input and output cables as shown in the first example in Figure 3.
- 4 Turn on the amplifier and independently adjust the level of each channel with its respective level control on the front panel.

CAUTION: In stereo mode, never parallel the two outputs by directly tying them together or parallel them with the output of any other amplifier.

Mono

The mono operating modes provide twice the power to one channel as the STEREO mode. In BRIDGE MONO, the outputs are wired in series for twice the output voltage. In PARALLEL MONO, the outputs are paralleled for greater current capacity.

BRIDGE MONO mode is provided for loads with an impedance greater than 4 ohms. PARALLEL MONO mode should be used for loads of 4 ohms or less.

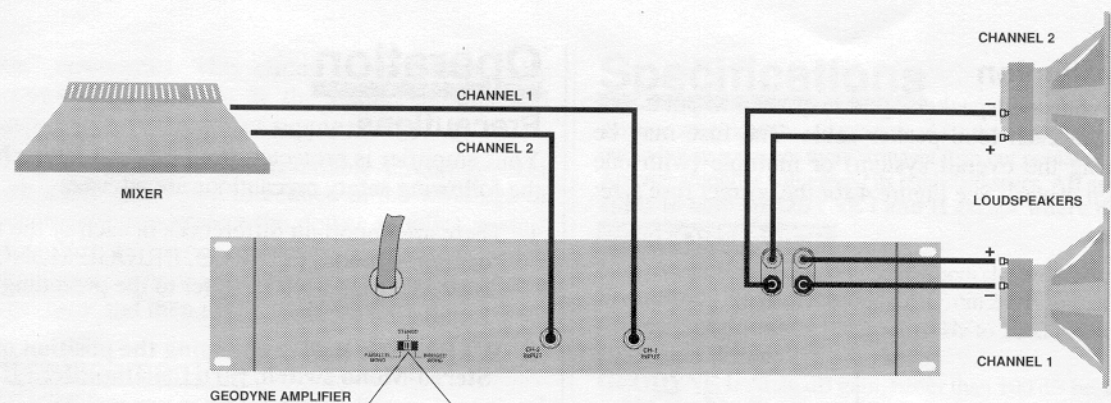
BRIDGE MONO

- 1 Turn the level controls fully counterclockwise and turn off the amplifier.
- 2 Set rear panel switch to BRIDGE MONO. (Remove PARALLEL MONO jumper if present.)
- 3 Connect the input and output cables as shown in the second example in Figure 3. Use only the Ch. 1 input and level control.
- 4 Make sure the load is balanced (neither side shorted to ground) and do not use the black (-) binding posts.
- 5 Turn on the amplifier and adjust the level using only the Ch. 1 level control on the front panel.

PARALLEL MONO

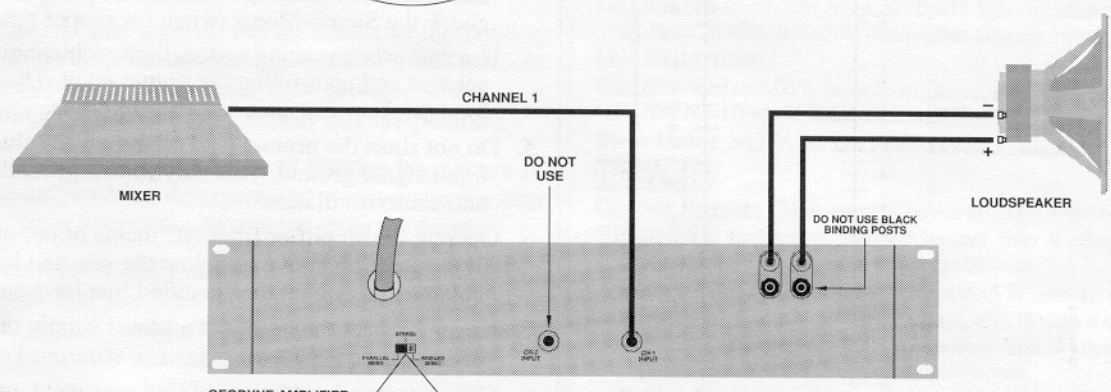
- 1 Turn the level controls fully counterclockwise and turn off the amplifier.
- 2 Set rear panel switch to PARALLEL MONO.
- 3 Install a jumper (at least 1.5 mm², solid) across the output between the two red (+) binding posts.
- 4 Connect the input and output cables as shown in the third example in Figure 3. Use only the Ch. 1 input.
- 5 Turn on the amplifier and adjust the level using only the Ch. 1 level control on the front panel.
- 6 In PARALLEL MONO mode it is normal for the CH 2 IOC light to glow.

CAUTION: When wired for PARALLEL MONO mode, do not attempt to operate the amplifier in STEREO or BRIDGE MONO mode until the output jumper is removed. Failure to do so will result in inefficient operation, distortion and excessive heating.



STEREO MODE

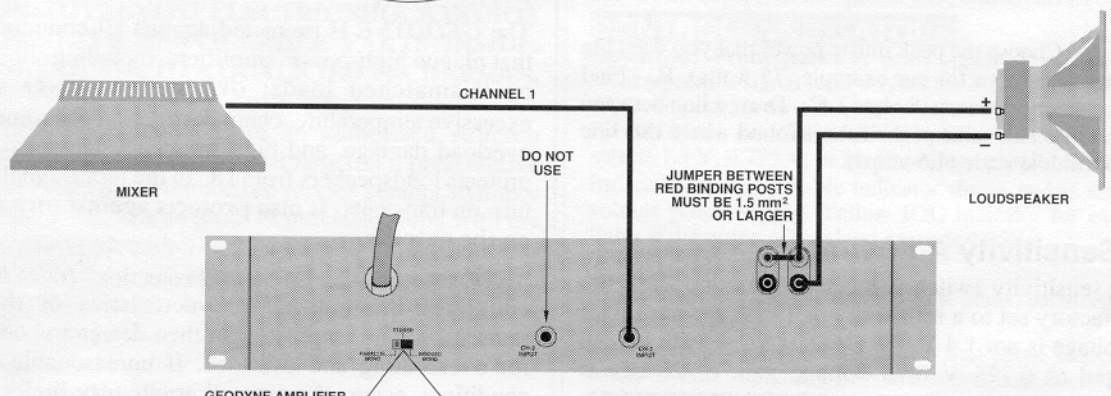
CHANGE THE STEREO-MONO SWITCH ONLY WITH THE AMP TURNED OFF.



BRIDGE MONO MODE

(TURN CH-2 LEVEL CONTROL DOWN IN MONO MODE)

CHANGE THE STEREO-MONO SWITCH ONLY WITH THE AMP TURNED OFF.



PARALLEL MONO MODE

(TURN CH-2 LEVEL CONTROL DOWN IN MONO MODE)

CHANGE THE STEREO-MONO SWITCH ONLY WITH THE AMP TURNED OFF.

Fig. 3 Three System Connection Methods

Load Protection

To protect your loudspeakers, you may want to put a fuse in series with each loudspeaker cable. The fuse may be single (fusing the overall system) or multiple (with one fuse on each driver). See Figure 4 for the correct fuse size:

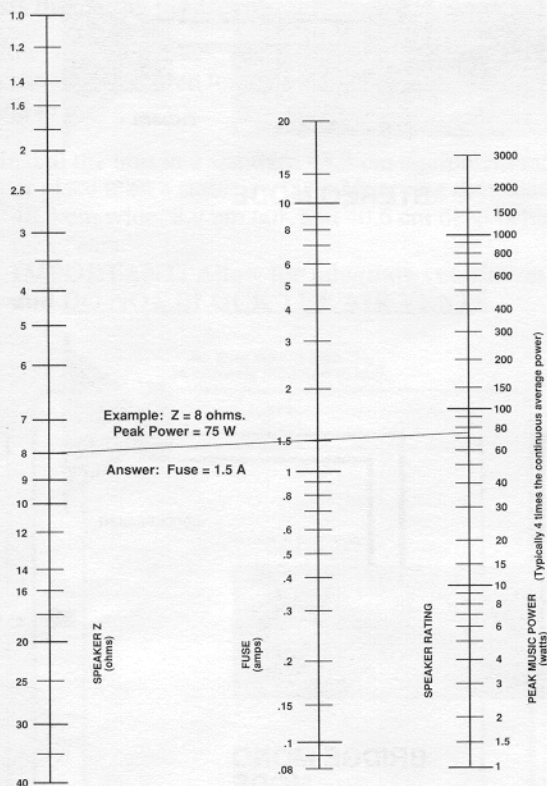


Fig. 4 Fuse Selector Nomograph for Loudspeaker Protection

Example: A – Choose the peak music power that you want the loudspeaker to receive (in our example, 75 watts). B – Find the loudspeaker impedance (8 ohms). C – Draw a line between points A and B. The value of the fuse is found where this line crosses the middle scale (1.5 amps).

Input Sensitivity Adjustment

An input sensitivity switch is located inside the amplifier and was factory set to a sensitivity of 1.4 V. If your mixer output voltage is not 1.4 V, the *GEODYNE* sensitivity can be changed to 0.775 V or a voltage gain of 26 dB as follows:



- ① Turn off and unplug the amplifier from the AC source.
- ② Remove the top cover.
- ③ Locate the access hole for the sensitivity switch, identified by a label.
- ④ Set the switch to the desired position.
- ⑤ Replace the top cover.

Operation

Precautions

Your amplifier is protected from external faults; however, the following safety precautions are advised:



1. There are important differences in each of the three operating modes (STEREO, BRIDGE MONO and PARALLEL MONO). Refer to the preceding Installation section.
2. **WARNING:** Before changing the position of the Stereo-Mono switch, turn the amplifier off.
3. **CAUTION:** In PARALLEL MONO mode, a jumper is used between the red banana posts (amplifier outputs). Be sure to remove this jumper for BRIDGE MONO or STEREO mode; otherwise inefficient operation, high distortion and excessive heating will definitely occur. Also, check the Stereo-Mono switch for proper position.
4. Use care when making connections, selecting signal sources and controlling the output level. The loudspeakers you save may be your own.
5. Do not short the ground lead of an output cable to the input signal ground. This may form a ground loop and cause oscillations.
6. Operate the amplifier from AC mains of not more than 10% variation above or below the selected line voltage and only at the specified line frequency.
7. Never connect the output to a power supply output, battery or power main.
8. Circuit tampering by unqualified personnel, or making unauthorised circuit changes voids the warranty.

Remember: Amcron is not liable for any damage resulting from overdriving other components in your system.

Protection

The *GEODYNE* is protected against all common hazards that plague high-power amplifiers, including shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage, and high frequency blowups. The unit protects loudspeakers from DC in the input signal and from turn on transients. **It also protects against unwanted DC on the outputs.**

An "Output Device Emulator Protection" (ODEP®) circuit simulates the internal characteristics of the output transistors. The amplifier can then detect and compensate for overheating and overload. If unreasonable operating conditions occur, the protection circuitry limits the drive level to protect the output transistor stages, particularly in the case of elevated temperature. Controlled slew rate voltage amplifiers protect against RF burnouts. Input overloads are stopped at the input to limit current.

The *GEODYNE* engineers have added still another protection scheme. In the rare event of an output power transistor failure, your loads are protected by the "Fault

Protection" electronics. This circuit detects abnormally high instantaneous currents in the output circuits and immediately removes the power supply energy.

The front panel power switch/resettable circuit breaker along with a thermal switch imbedded in the windings of the power transformer protect the power supplies against overload. If the transformer overheats, the thermal switch shuts off automatically, waits until the unit has cooled to a safe temperature and then resets itself.

Fuse Replacement

The *GEODYNE* low energy power supply does use an internal fuse for protection against catastrophic failure. You should never have a need to replace this fuse. In the rare event that this fuse blows, refer the amplifier to your Amcron service agent.

Cleaning

A dust filter is provided on the air intake to the cooling system. If this filter becomes clogged, the unit will not cool as efficiently as it should and may produce lower than normal output levels due to high heat sink temperature.

To clean, remove the filter grille (3 phillips head screws). Use mild dishwashing detergent and warm water for best cleaning. New filters may be ordered from the factory.

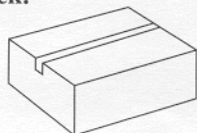
Dust filters are not 100% efficient—over the long term this will require that the internal heatsinks be cleaned by a qualified technician. Internal cleaning information is available from your nearest service center.

Service

Your amplifier has very sophisticated circuitry which should only be serviced by a fully trained technician:

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT OPEN. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO A QUALIFIED TECHNICIAN.

Service may be obtained from an authorised Amcron Service Center. (Contact your local Amcron representative or our office for a list of authorised service centers.) Simply present your bill of sale as proof of purchase along with the defective unit to an authorized Amcron Service Center to obtain service. They will handle the necessary paperwork and repair. **Remember to transport your unit in the original factory pack.**



Amcron will pay the surface shipping costs both ways **for warranty service** to the authorized service center nearest you after receiving copies of all shipping receipts. You must bear the expense of all taxes, duties, and customs fees when transporting the unit.

Specifications

Amcron specifications are guaranteed for three years. Further, because our in-house specs are more stringent than our published specs, every Amcron amplifier will *exceed* its published specs. **All specifications apply to both GEODYNE I and II except where noted.**

PERFORMANCE

Note: Measurements made in Stereo, both channels driven into 8 Ω .

Frequency Response: ± 0.1 dB from 20 Hz to 20 kHz at 1 watt.

Phase Response: $\pm 10^\circ$ from 10 Hz to 20 kHz at 1 watt.

Hum and Noise:

GEODYNE I: At 26 dB gain, better than 100 dB below (20 Hz to 20 kHz) 220 W.

GEODYNE II: At 26 dB gain, better than 100 dB below (20 Hz to 20 kHz) 320 W.

Total Harmonic Distortion (THD):

GEODYNE I: $< 0.05\%$ from 20 Hz to 1 kHz, increasing linearly to 0.1% at 20 kHz at 200 W continuous average power into 8 Ω .

GEODYNE II: $< 0.05\%$ from 20 Hz to 1 kHz, increasing linearly to 0.1% at 20 kHz at 310 W continuous average power into 8 Ω .

I.M. Distortion:

GEODYNE I: $< 0.05\%$ from 10 milliwatts to 200 W at 26 dB gain.

GEODYNE II: $< 0.05\%$ from 10 milliwatts to 310 W at 26 dB gain.

Slew Rate: > 13 V per microsecond.

POWER

Output Power: (Max. average power at 1 kHz with 0.1% THD.)

GEODYNE I: Stereo—300 W/channel into 4 ohms, 220 W/channel into 8 ohms, both channels driven.

Bridge Mono—575 W into 8 ohms, 435 W into 16 ohms.

Parallel Mono—575 W into 2 ohms, 435 W into 4 ohms.

GEODYNE II: Stereo—400 W/channel into 4 ohms, 320 W/channel into 8 ohms, both channels driven.

Bridge Mono—965 W into 8 ohms, 680 W into 16 ohms.

Parallel Mono—955 W into 2 ohms, 680 W into 4 ohms.

Load Impedance: Rated for 16, 8, 4, 2 ohm use. Safe with all types of loads, even reactive ones.

AC Requirements: Available for use at 100, 120, 220/230 and 240 VAC, 50/60 Hz.

AC Connector: Market specific three wire grounded connector.

CONTROLS/INDICATORS

Controls: **Front panel**—A push on/off power switch/circuit breaker; also, a signal level control for each channel. **Back panel**—A three position switch which selects Stereo, Bridge Mono, or Parallel Mono mode. Inside the amplifier, a three position switch selects 1.4 V, 0.775 V, or 26 dB voltage gain input sensitivity.

Indicators: Red **Enable** indicator shows on/off status of low voltage power supply. Yellow **IOC** indicator for each channel lights if distortion of any kind exceeds 0.05%.

INPUT/OUTPUT

Input Impedance: Nominally 20 K ohms, balanced, and 10 K ohms, unbalanced.

Connectors: **Inputs** — balanced 6.3 mm phone jacks. **Outputs** — colour-coded 5-way binding posts on 19 mm centers; spaced 19 mm apart.

CONSTRUCTION

Black splatter coat steel chassis with specially designed flow through ventilation system.

Dimensions: 48.3 cm wide, 8.9 cm high, 40.6 cm deep behind front mounting surface.

Weight: **GEODYNE I** 13.6 kg
GEODYNE II 14.5 kg

Mounting: Standard EIA 310 front panel rack mount with supports for supplemental rear corner mounting.