INSTALLATION AND ELECTRICAL CONNECTION OF THE TROY AMBISONIC SURROUND SOUND SYSTEM

INSTALLING THE SYSTEM

Installation should prove to be trouble free, as long as you are properly prepared and follow certain precautions. The final section of this manual helps you to check that the system has been correctly fitted and gives advice on fault finding. It is important that you read the final section before operating your system.

BEFORE INSTALLATION

1. First, be sure you have the tools you will need. If not, or if you do not feel confident in your ability to install the units, we recommend that you have the system professionally installed by a specialist car stereo dealer.

2. Before attempting any electrical connections, disconnect the negative (-) terminal of the car battery to avoid short circuits.

GENERAL PRECAUTIONS

1. Always use the fitting accessories supplied or recommended. They have been provided to facilitate safe and secure installation.

2. Care should be taken to avoid installing the units in locations which could impair driving safety.

3. If in doubt, contact your dealer for advice.

INSTALLING THE AMBISONIC PROCESSOR TA-110P

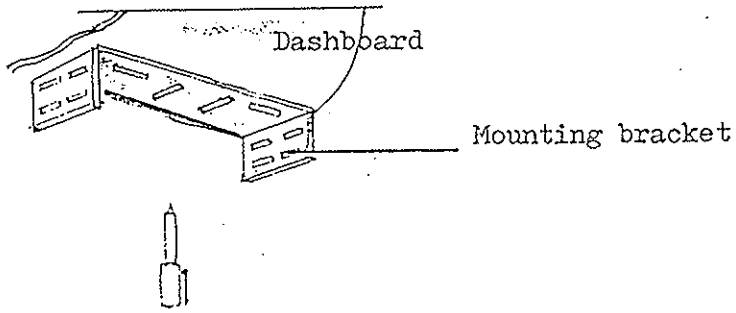
1. After deciding on the location for the processor, use a felt pen to mark the positions where holes are to be made (Fig.1). Be sure to check that there is sufficient clearance at the rear of the processor for the connecting cables to be inserted.

2. Use an electric or hand drill to drill 2 holes at the marked positions.

3. Secure the mounting bracket on the dashboard (Fig.2).

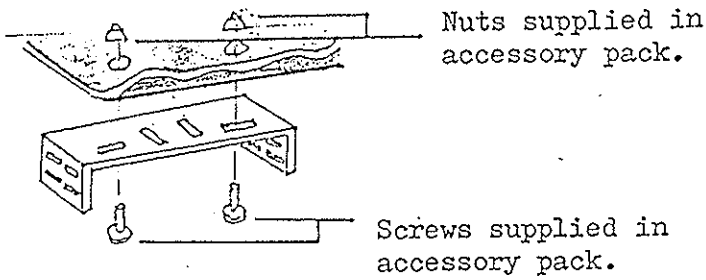
4. Install the processor into the mounting bracket using the screws provided, having ensured that there is access to the rear of the processor for inserting the connecting leads. If there is insufficient access, connect the leads prior to installing the processor into the mounting bracket (Fig.3).

Fig.I



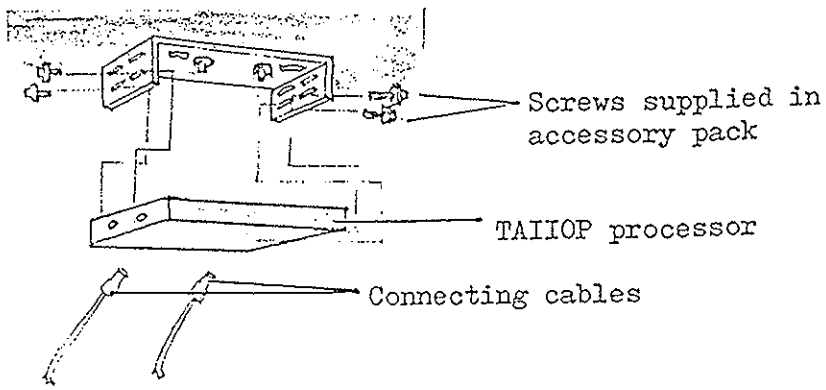
Mark positions where holes are to be made.

Fig.2



Secure the mounting bracket under the dashboard.

Fig.3



Install the processor into the mounting bracket with the screws provided. Ensure that you will be able to plug in the connecting cables when the processor is installed.

INSTALLING THE AMPLIFIER TA-100W

1. Choose a suitable location for the amplifier, taking the following precautions: -

   * Do not install the amplifier in a very enclosed location or near heater outlets as this will adversely affect cooling efficiency.

   * Do not install in areas where there may be contact with water.

   * Do not install in locations which may cause distraction to the driver or danger to passengers in the event of a sudden stop.

2. After deciding on the location for the amplifier, mark the positions where holes are to be made (Fig.4). Avoid mounting the amplifier upside down. If the amplifier is to be mounted under dash, use metal straps or spacers and long bolts.

3. Use an electric or hand drill to drill 4 holes at the marked positions (Fig.5).

4. Mount the amplifier by passing fixing screws through the lugs provided on the body of the amplifier. Install securely (Fig.6). Use self-tapping screws (not supplied) if there is not access to both sides of the panel onto which the amplifier is mounted. Ensure that the screws will not pass through wiring or other components on the reverse of the panel. If in doubt, contact your dealer for advice.

ELECTRICAL CONNECTION

CONNECTION OF RADIO / CASSETTE OR OTHER SIGNAL SOURCE UNIT

GENERAL PRECAUTIONS

* Ensure that you have disconnected the negative terminal of the car battery to avoid short circuits.

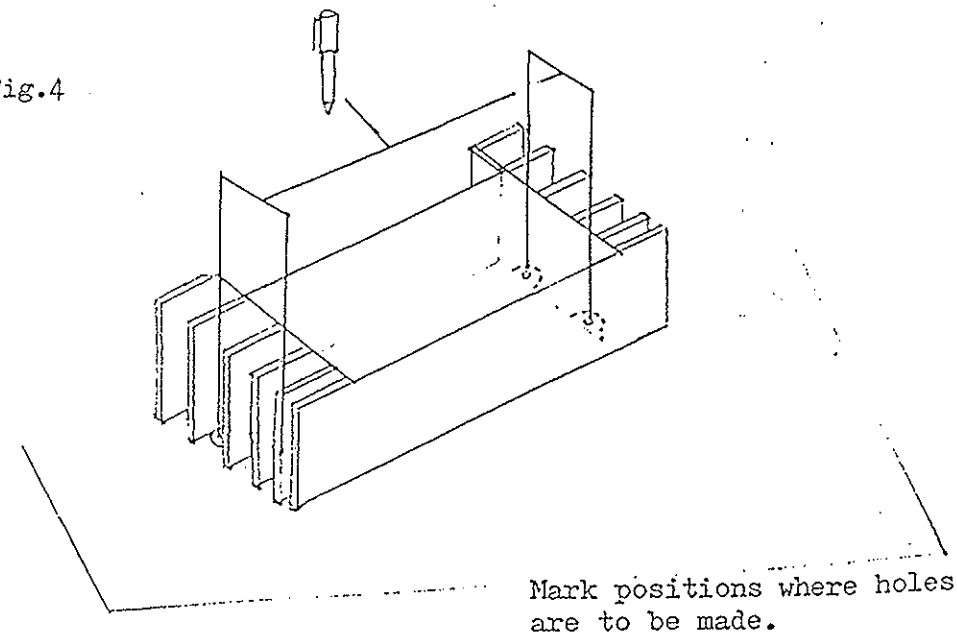
* NEVER connect a radio / cassette or other signal source directly into the TA-110P Ambisonic processor, even if the unit has a Din plug which would fit. Electrically the connectors will differ and this may cause damage. Every radio / cassette or other signal source requires a Troy Ambisonic interface lead, available from your dealer. Ensure you have the correct interface for your unit.

1. CONNECTION USING REGULAR INTERFACE TA-11F

Interface lead TA-11F is for use where the radio / cassette or other signal source gives a standard output power of around 8 watts per channel (maximum 2 x 10 watts).

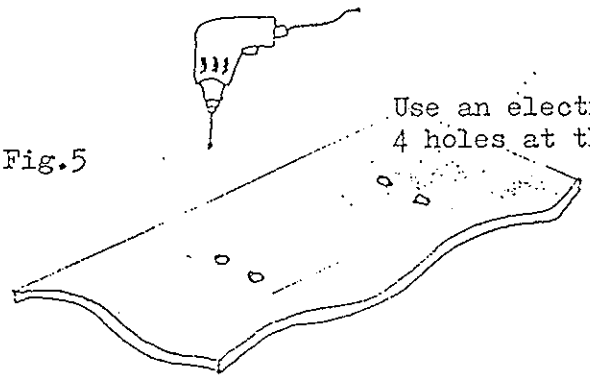
Firstly, disconnect the lead which supplies 12 volts to the radio/cassette or other signal source. This will no longer be required, but be sure to insulate the unused power lead with electrical tape, or remove it completely.

Fig.4



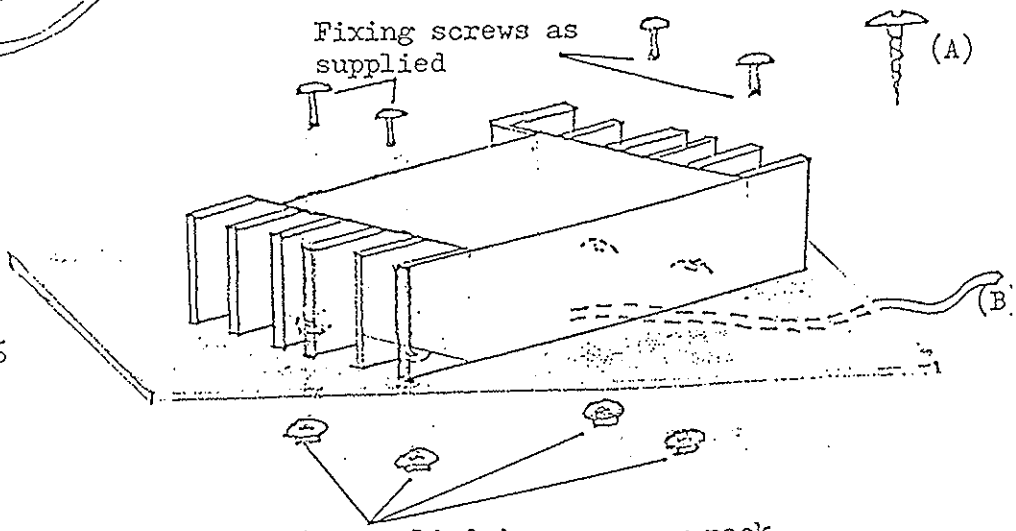
Mark positions where holes are to be made.

Fig.5



Use an electric or hand drill to drill 4 holes at the marked positions.

Fig.6



Nuts supplied in accessory pack

(A) Use self-tapping screws (not supplied) if there is no access to the underside of the panel, ensuring that the screws will not pass through wiring (B) or other components.

There are 5 colour coded wires at one end of the Regular interface, which should be connected as follows (Fig.7):-

* GREEN Connect to LEFT positive speaker output of Radio/Cassette.
* GREY Connect to RIGHT positive speaker output of Radio/Cassette.
* BLACK Connect to NEGATIVE (-) speaker output of Radio/Cassette.
* RED Connect to the lead (normally also red) that comes from the Radio/Cassette which accepts the + 12 Volts supply (any fuse in the + 12 Volt supply line to the Radio/Cassette must be retained between the interface lead and Radio/Cassette).
* ORANGE DO NOT CONNECT. See 'System check/Fault finding' section.

Connect the 8 pin Din plug to the INPUT of your TROY AMBISONIC processor TA-110P, or Fader TA-15F. NEVER connect directly to the TA-100W amplifier.

2. CONNECTION USING HIGH POWER INTERFACE TA-31HP

Interface lead TA-31HP is for use where the radio/cassette or other signal source gives a high power output of over 10 watts per channel. Such car stereo units employ BPTL amplifier circuits, and it is imperative that care is taken to ensure that the correct connections are made.
Firstly, disconnect the lead which supplies 12 volts to the radio/cassette or other signal source. This will no longer be required, but be sure to insulate the unused power lead with electrical tape, or remove it completely.

The colour coded wires at one end of the interface should be connected as follows (Fig.8):-

* BLACK — Connect to chassis of car stereo. N.B. Be sure to make connection before switching on system
* GREEN — Connect to LEFT positive (+) speaker output of car stereo.
* GREEN/BLACK — Connect to LEFT negative (-) speaker output of car stereo.
* GREY — Connect to RIGHT positive (+) speaker output of car stereo.
* GREY/BLACK — Connect to RIGHT negative (-) speaker output of car stereo.
* RED — Connect to the lead (normally also red) that comes from the radio/cassette which accepts the + 12 volt supply (any fuse in the + 12 volt supply line to the radio/cassette MUST be retained between the interface lead and radio/cassette.)
* ORANGE — DO NOT CONNECT. See 'System check / Fault finding' section.

Ensure the POSITIVE (+) and NEGATIVE (-) speaker leads are correctly connected. NEVER connect speaker leads together or to earth, such as the chassis of the car.
Connect the 8 pin Din plug to the INPUT of your TROY AMBISONIC processor TA-110P. NEVER connect directly to the TA-100W amplifier.

REGULAR INTERFACE TAIIF

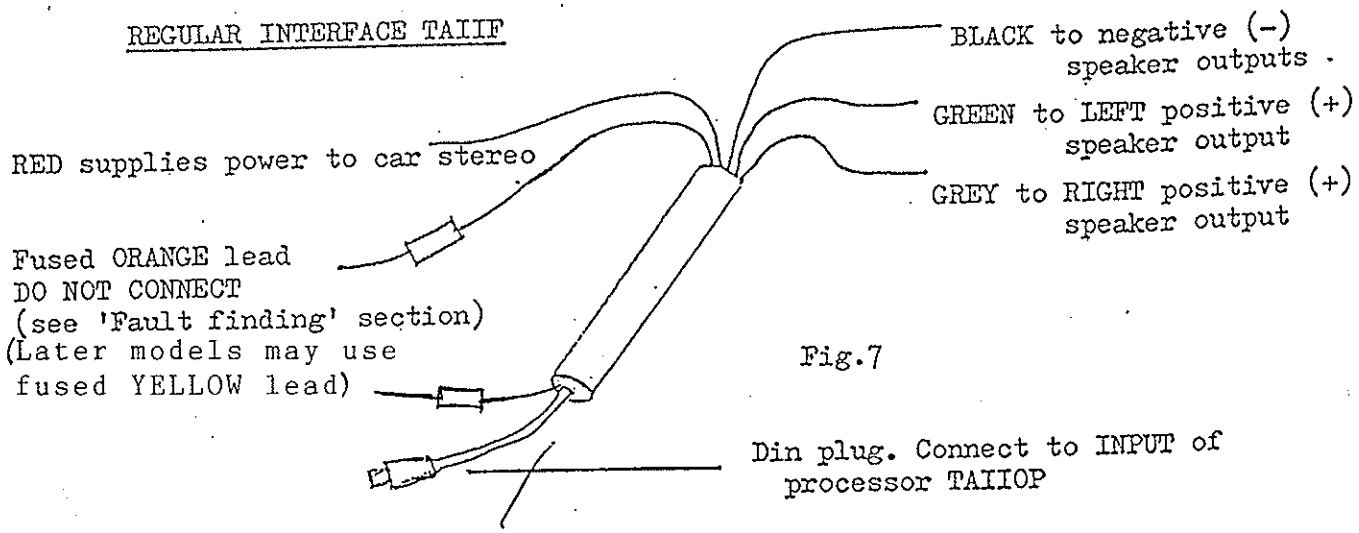


Fig.7

HIGH POWER INTERFACE TA3IHP

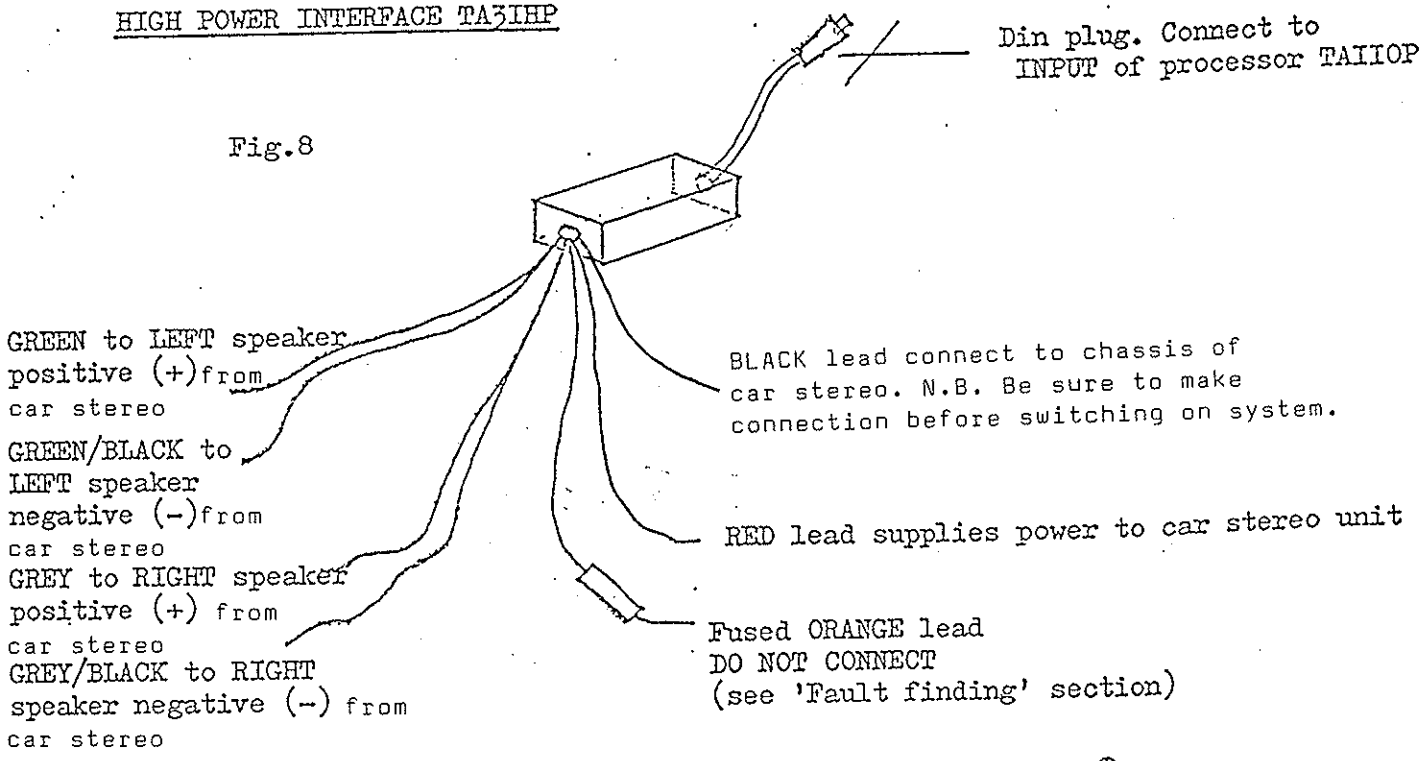


Fig.8

VARIETY OF PRE-AMP INTERFACES

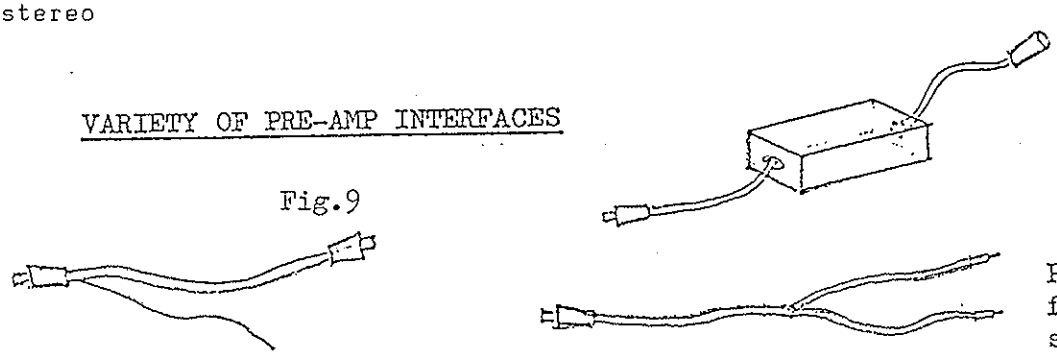


Fig.9

Din to Din cable with colour coded fly-lead. The 'processor end' is always clearly marked.

3. CONNECTION USING PRE-AMP LEVEL INTERFACE

Where your radio/cassette or other signal source has no built in power amplifier of its own, it will have a pre-amp output for connection to a separate external amplifier. In many cases, this pre-amp output can be used for connection of the TROY AMBISONIC system.
Many car stereo units, particularly those of higher specifications, feature a pre-amp output, either in addition to speaker outputs or in isolation where the car stereo has no built-in power amplifier of its own.
TROY AMBISONIC have produced a range of interface leads for use with a variety of manufacturers' products, and these are obtainable from your dealer.

3.1 Ensure you have the correct TROY AMBISONIC interface lead for your radio/cassette or other signal source.

3.2 Each lead has a colour code to denote its type, and this is located close to the plug which connects to the INPUT of the TROY AMBISONIC processor TA110P.
The other end has either a DIN plug, a DIN socket or phono (RCA) leads for connection to the car stereo pre-amp output (Fig.9)

3.3 Where an interface has an additional colour coded fly-lead (yellow, orange, red, or green) refer to the instructions supplied with the interface pack.

EARTHING OF THE TA-110P PROCESSOR

Connect the black lead supplied with the TA-110P from the earthing point on the rear of the processor, using the small screw provided, to the chassis of the radio/cassette or other signal source. (See also 'Amplifier electrical connection' 5)

CONNECTION OF TROY AMBISONIC TA-100W 4 CHANNEL AMPLIFIER

GENERAL PRECAUTIONS

* Ensure that you have disconnected the negative terminal of the car battery to avoid short circuits.

* NEVER connect a radio/cassette or other signal source directly into the TA-100W amplifier, even if the unit has a Din plug which would fit. Electrically the connectors will differ and this may cause damage. Use only the 3 metre cable supplied with the TA-100W for connection to the TROY TA-110P processor or TROY TA-15F Fader.

CONNECTING THE SPEAKERS

Observe the following precautions:-

* Some models of car are pre-wired with stereo speaker leads. If there is a separate Fader (Front/Rear) control already installed, this must be by-passed, and is replaced by the Fader control on the processor TA-110P, or by the TA-15F Fader.

* If there is only ONE common ground (-) lead to a PAIR of speakers, DO NOT connect these leads to the TA-100W as this will cause damage. The speakers must be re-wired so that each speaker sends 2 wires to the amplifier, one positive (+) and one negative (-) (Fig.10). Rewire the speakers if necessary using good quality speaker wire, obtainable from your dealer.
If in doubt, contact your dealer before making any connections.

* The TA-100W amplifier employs BPTL output circuits. NEVER connect speaker leads together or to an earth, such as the chassis of the car.

* Use high power speakers capable of handling an input of 20 watts or more.

1. Installation of the speakers should be done in accordance with the instructions supplied by the manufacturer of the speakers.

2. You should have a pair of speaker leads from each speaker. Ensure that each speaker lead is long enough to reach the amplifier without stretching.

3. Label each pair of wires according to the speaker they connect: Front Right, Front Left, Rear Right, Rear Left.

4. At the rear of the amplifier you will find 2 terminal blocks, marked FRONT and REAR. Of the 2 wires connecting each speaker, one is normally black or has a black stripe - this is the earth lead (-). Connect the front left and right speaker leads to the terminal block marked FRONT. Ensure that the positive (+) speaker wire is connected to the corresponding positive (+) terminal on the amplifier, which is clearly marked. Repeat this procedure for the rear speaker connections to the terminal block on the amplifier marked REAR (Fig.11).

AMPLIFIER ELECTRICAL CONNECTION

1. Connect the red lead from the amplifier to a permanent + 12 volt supply, capable of handling upto 10 amps of current. We do not recommend that the power supply be taken from the ignition switch, as high current consumption may damage ignition switch contacts.

2. If you cannot find a permanent + 12 volt supply (ie. a supply which always gives + 12 volts, even with the ignition off) then purchase a length of cable, rated at 10 amps or more, from your local dealer.

3. Connect the cable directly from the positive (+) terminal of the car battery to the red lead of the TA-100W amplifier. Ensure that where the cable enters the passenger compartment a rubber grommet is used to protect the cable (Fig.12) where it passes through metal. If in doubt, contact your dealer for advice.

Fig.I0 Each speaker must send 2 wires to the Amplifier (see below)

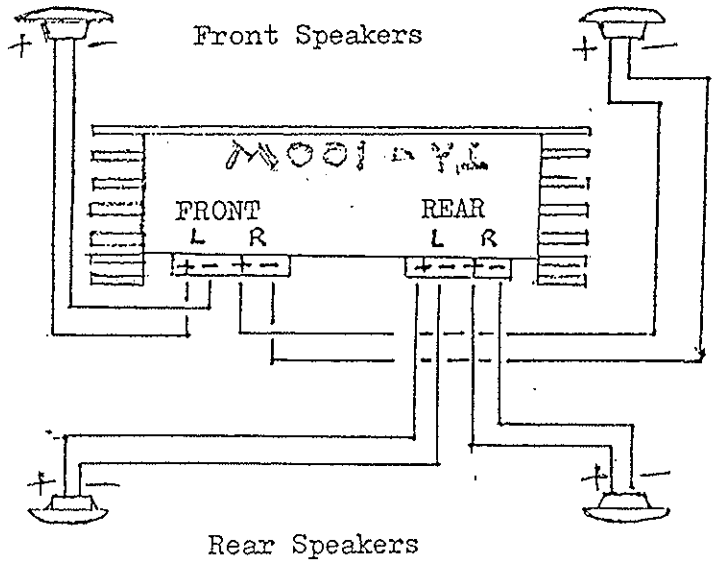
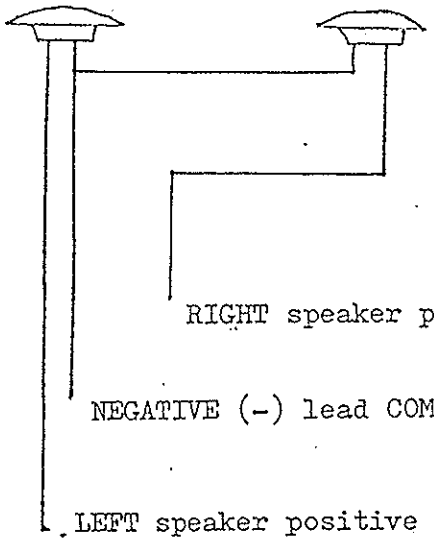


Fig.II

Connect FRONT and REAR speaker wires to the terminal blocks on the amplifier.



AN EXAMPLE OF PRE-WIRED (FACTORY INSTALLED) SPEAKER SYSTEM, WHERE THE NEGATIVE (-) LEAD IS COMMON TO BOTH SPEAKERS.

* YOU MUST REWIRE THE SPEAKERS SO THAT EACH SPEAKER SENDS 2 WIRES TO THE AMPLIFIER, AS ABOVE.

4. Ensure that all connections are secure, and that the fuse holder supplied in the red lead of the TA-100W is in place.

5. Connect securely the BLACK lead from the TA-100W amplifier (extended if necessary with additional cable) to the chassis of the radio/cassette or other signal source. The black lead from the casing of the TA-110P processor should be connected to this same point on the chassis of the radio/cassette (normally at the rear). A further lead should then be taken from this point on the radio/cassette to a suitable earth on the chassis of the vehicle. This is known as the 'Star method' of earthing and ensures that 'earth loops' are not developed, which would result in annoying interference (Fig.13). (See also 'System check / Fault finding' section).

6. Connect the Din cable supplied with the TA-100W from the output of the TA-110P processor or TA-15F fader to the input socket on the rear of the amplifier. (See also section on 'TA-25B Bass Enhancer').

CONNECTION OF 2 STEREO AMPLIFIERS AS AN ALTERNATIVE TO TROY TA-100W

For output levels upto 100 Watts (4x25) we recommend the TROY TA - 100W is used. However, if your present car audio system comprises of a radio/cassette or other signal source with pre-amp output, and 2 stereo power amplifiers, you have a 'component' car stereo system. In many cases, it is possible to use the 2 stereo amplifiers instead of the TROY TA-100W 4 channel amplifier, with the addition of a 'Dual Amplifier Adaptor'.

1. The 'Dual Amplifier Adaptor' is similar to the 'pre-amp level' interface and permits the use of a variety of manufacturers' amplifiers.

2. Each adaptor has a multi-colour code to denote its type, and this is located close to the plug which connects to the **OUTPUT** of the TROY AMBISONIC processor TA-110P. At the other end are connectors suitable for your amplifier, and these are coded with a single colour to denote **FRONT** channels (WHITE) and **REAR** channels (BLUE). (See also section on 'TA-25B Bass Enhancer'). (Fig.14).

. Where an interface has additional colour coded fly-leads (yellow, orange, red or green) refer to the notes at the end of this manual.

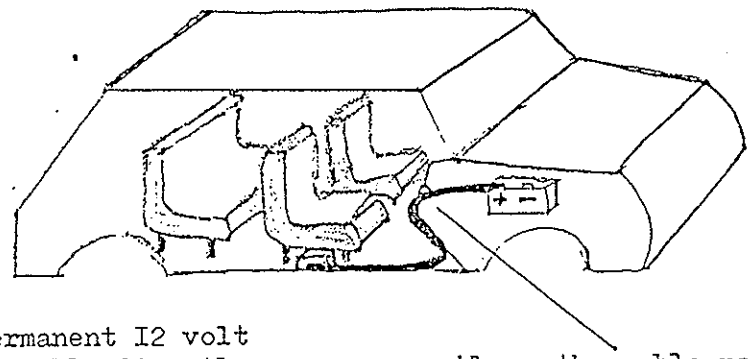
TA-25B BASS ENHANCER

The optional TA-25B Bass Enhancer is for use where rear speakers, by virtue of their size or method of installation, produce the majority of bass performance within the car.

1. The TA-25B is an 'in-line' unit, and should be connected to the output of the TROY AMBISONIC processor TA-110P. The amplifier connecting cable (or Dual Amplifier Adaptor) should then be connected into the Din socket of the TA-25B. (Fig.15).

2. Alternatively, but only where using the TROY TA-100W 4 channel amplifier, the TA-25B may be connected to the INPUT of the TA-100W amplifier. The Din cable between processor and amplifier should then be connected from the output of the TA-110P processor to the Din socket of the TA-25B. This method can be useful where there is insufficient space behind the TA-110P processor, once installed, for the TA-25B. However, this method CANNOT be adopted when using a 'Dual Amplifier Adaptor'.

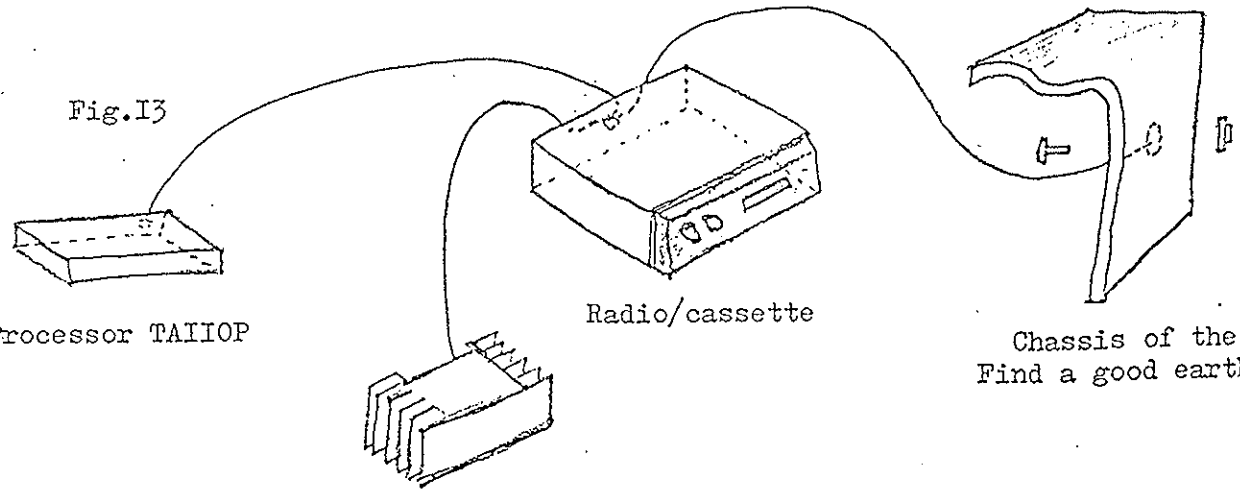
Fig.I2



If there is no permanent I2 volt supply, connect a cable directly from the positive (+) terminal of the car battery to the RED lead of the amplifier TAIOOW

Where the cable passes through metal, use a rubber grommet as protection

Fig.I3



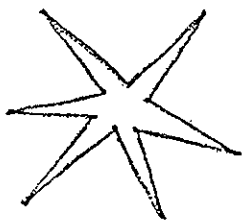
Processor TAIIOP

Radio/cassette

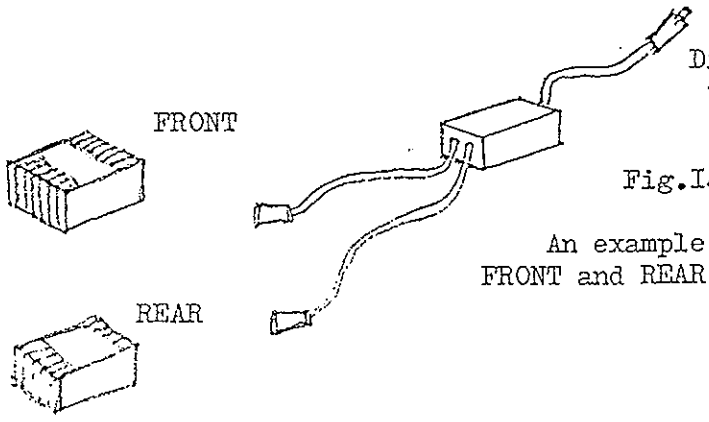
Chassis of the vehicle. Find a good earth point.

Amplifier TAIOOW

STAR METHOD of system earthing. The processor earth lead (BLACK) and the amplifier earth lead (BLACK) are taken to the rear of the radio/cassette and securely attached to the chassis of the unit. From this same point, a further lead is taken to a good earth point on the chassis of the vehicle.



The radio/cassett is the centre of the star, to whic all leads attach, avoiding earth 'loops'.



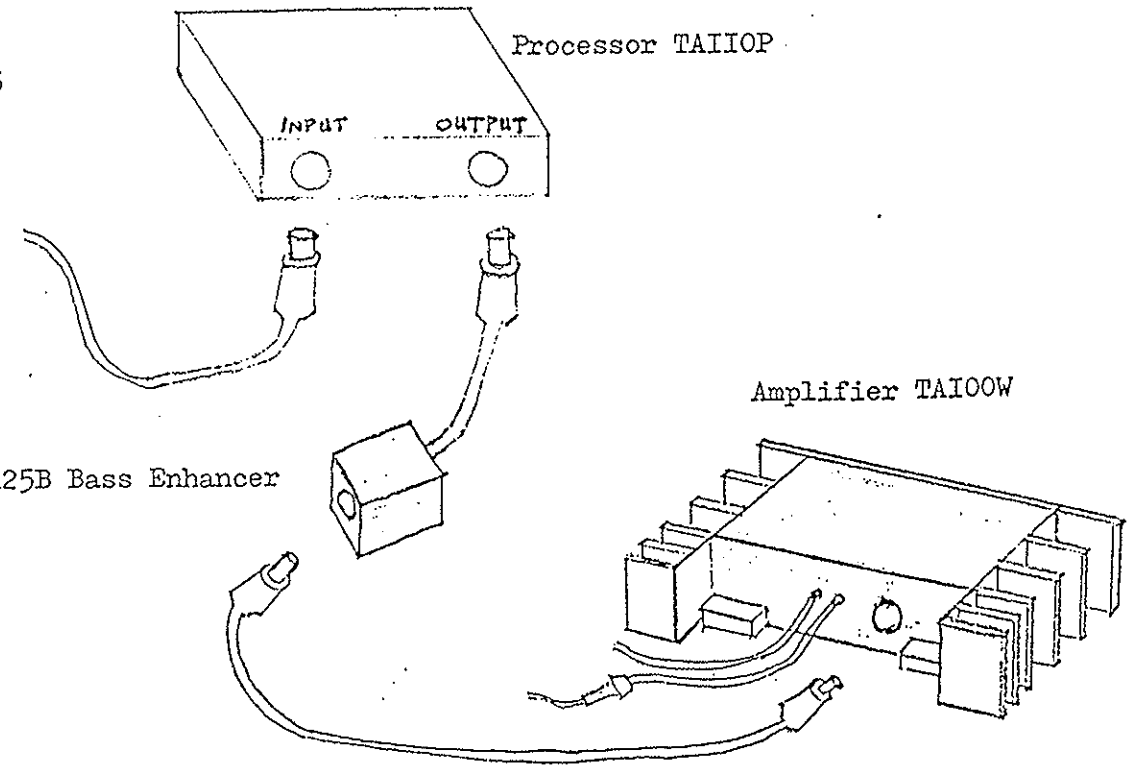
Din plug for connection to OUTPUT of processor TAIIOP.

Fig.I4

An example of a 'DUAL AMPLIFIER ADAPTOR'. FRONT and REAR amplifier cables are clearly marked.

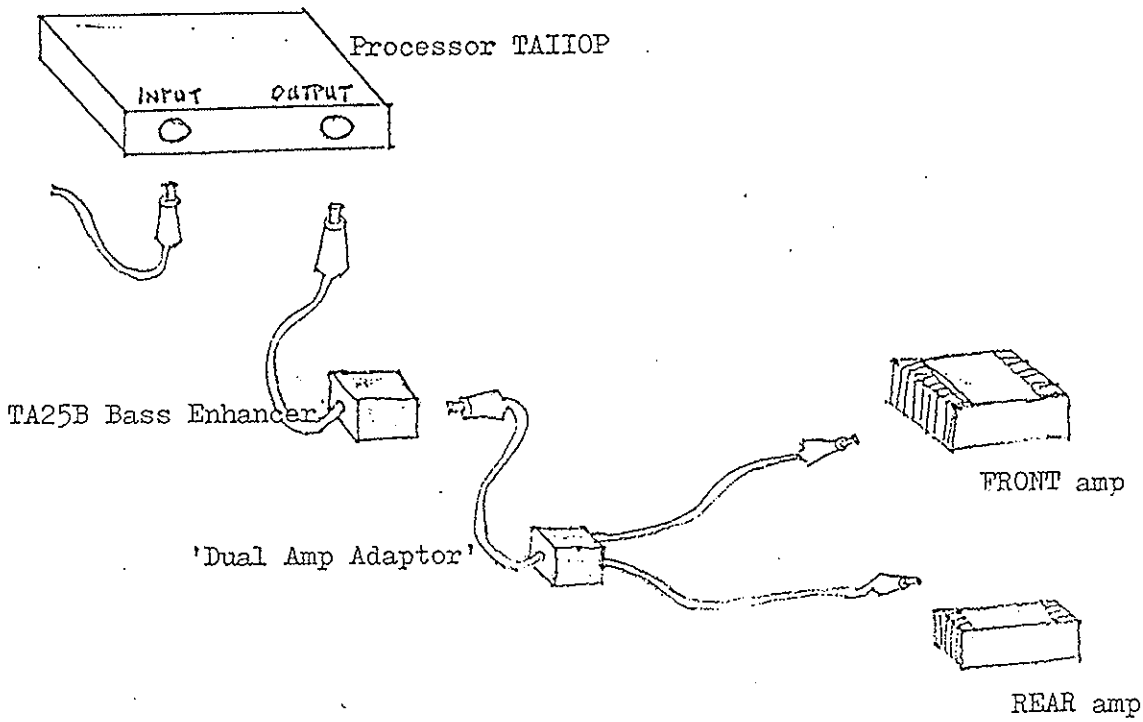
CONNECTION OF TA25B BASS ENHANCER

Fig.I5



Connection of TA25B where a 'Dual Amplifier Adaptor' is used.

Fig.I5a



SYSTEM CHECK / FAULT FINDING

Having installed and connected the system as described, it is important that you read this section BEFORE reconnecting the negative (-) terminal of the car battery and switching the system on.

ENSURE THAT : -

1. You have used the correct TROY AMBISONIC Interface lead between your radio/cassette or other signal source and the TA-110P processor.

2. NEVER connect any signal source directly into the TA-110P processor.

3. Where applicable, you have used the correct TROY AMBISONIC 'Dual Amplifier Adaptor' for your 2 stereo amplifiers.

4. NEVER connect any amplifier other than the TROY TA-100W directly to the output of the TA-110P processor.

. The speaker NEGATIVE (-) wires are separate for each speaker.

6. All connections are secure, and no wires have been cut or otherwise damaged.

You should now reconnect the negative terminal of the battery and operate the system by switching on the radio/cassette or other signal source in the normal way.

FAULT FINDING

The following offers guidance in the event of poor performance or malfunction. However, we would suggest that in the event of difficulty you contact your dealer.

PRE-AMP LEVEL INTERFACE LEADS

USE OF COLOUR CODED FLY-LEADS

Many of the Pre-amp interface leads include additional colour coded fly-leads. The fly-leads provide for flexibility, allowing the use of one manufacturers' radio/cassette or other signal source with an alternative manufacturers' amplifier.

The colour coding is represented as follows:-

YELLOW	Illumination
RED	Unswitched supply
ORANGE	Switched supply
GREEN	For mute circuits (future development)
BLACK	Earth

FAULT	CAUSE	CURE
When using Regular interface TA11F or High-Power interface TA31HP, the TROY system will not switch off when radio/cassette is switched off.	Sensing constant power being supplied to the radio/cassette.	1. For safety, disconnect the negative (-) terminal of the car battery. 2. Disconnect the red lead of the Regular or High-Power interface and insulate it carefully with electrical tape. 3.Reconnect the original power supply to the radio/cassette. 4. Connect the ORANGE lead of the Regular or High-Power interface to the wire from the radio cassette which supplies power to the motor of an electric aerial. NEVER connect BOTH the red and orange leads at the same time. It must be one OR the other.
Alternator interference (constant buzz which changes tone with engine revs) or ignition noise (Constant ticking noise).	1. Badly suppressed vehicle. 2. Poor system earthing.	Contact your local specialist for advice. Refer to CONNECTION OF TA100W, item 5, 'Star Method' of earthing.
No power to systems or to radio/cassette.	Fuse blown in TA100W red lead.	Check system wiring before replacing fuse. Check for short circuits, poor connections or incorrect wiring.
Loss of bass response when selecting stereo ENHANCE or AMBISONIC UHJ.	Rear loudspeakers which normally produces the majority of bass in the system, are not receiving sufficient low frequency information.	Add TA25B Bass Enhancer to the system.
Front speakers overpower rear speakers. Fader set almost all to rear position.	If front speakers are much smaller than those in the rear, or because of the way they are installed, there may be speaker system mismatch where front speakers are much more sensitive than the rear.	Reverse the speaker wires on the amplifier so that the REAR speakers are connected to the amplifier output marked FRONT, and vice- versa. This should produce a pleasant 'Reverse field' effect, and overcome speaker mismatch. The WIDTH control will now act as a useful 'Fine' control to arrive at an ideal FRONT/REAR balance.

Low output from rear speakers.	1. See above. 2. Fader incorrectly set. 3. Width control incorrectly set.	As above. Adjust fader control. Adjust Width control clockwise.
Electrical noise when processor is touched.	Processor casing not earthed.	Earth processor casing as instructed.