



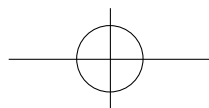
owner's manual

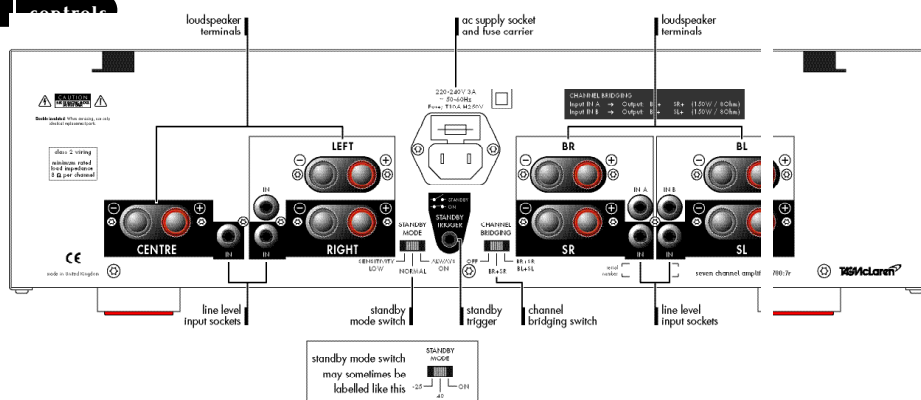
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700:7r





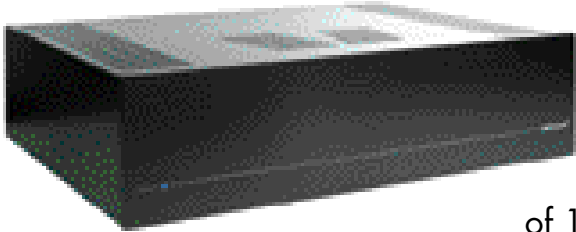
The 700:7r is designed for the simplest possible operation, and the only controls are two mode switches on the rear panel. One sets the standby mode and the other the channel bridging. Details of these are given on pages 11 and 15.

Specification shown may vary for different countries

04

introduction

5, 6 or 7 speaker system? All are catered for by the 700:7r.



The 700:7r is a high-performance seven-channel amplifier that delivers sound reproduction of outstanding clarity and purity together with the flexibility to handle a wide range of home theatre applications.

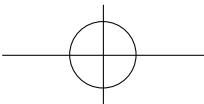
The 700:7r provides seven channels of 100W into 8 Ohm (7.1 set-up), or can be instantly switched to give five channels of 100W and one channel of 150W (6.1 set-up), or three channels of 100W and two channels of 150W (5.1 set-up). For details see page 11.

The seven channels could be assigned as:

Channel	Left	Right	Centre	Surround Left	Surround Right	Back Left	Back Right
Rear panel text	LEFT	RIGHT	CENTRE	SL	SR	BL	BR
Power	100 W	100 W	100 W	100 W	100 W	100 W	100 W

The amplifier switches itself to a standby mode when not in use, to minimise power consumption. It returns from standby to active on receiving a signal input or external contact closure; alternatively it can be set to stay permanently in the active mode. For details see page 15.

The 700:7r includes comprehensive but completely unobtrusive protection against overload, excessively prolonged clipping, DC offsets, and high temperatures.



An Optimal Mix of Global and Local Negative Feedback

The 700:7r gives excellent linearity and low distortion without relying on excessive global negative feedback, which can present difficulties with stability and the handling of rapidly-changing signals. The 700:7r design is implemented by giving each amplifying stage controlled amounts of local feedback, which not only linearises it but also defines the gain and other vital parameters closely. Each stage is thus configured for dependable and predictable operation, so that when they are joined together to build a complete amplifier, and a carefully chosen amount of negative feedback applied around it, the results are highly dependable and predictable.

Cascode Compensation

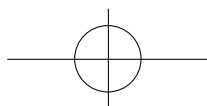
The 700:7r uses an advanced loop stabilisation concept called Cascode Compensation. To the best of our knowledge TAG McLaren Audio is the only manufacturer to use this sophisticated and elegant system in an audio amplifier.

Its advantages are as follows:

Excellent stability. All the active components involved are operated under circuit conditions that maximise their bandwidth. This results in greater stability when the negative-feedback loops are closed.

Inherently good supply-rail rejection. Components that are essential for power-supply filtering in a conventional amplifier are no longer required, saving weight and cost and enhancing reliability.

Reduction of DC drift. In a normal high-power amplifier transistors in sensitive parts of the circuitry get warm, which means their characteristics vary depending on the air flow around them. Variations in cooling can appear as DC drift at the output. Cascode compensation transfers the heat dissipation to non-critical parts of the circuit and DC drift is virtually eliminated.



The Output Devices

The output devices are bipolar junction transistors chosen for maximum linearity in terms of sustained current gain at high collector currents. The advanced MT-200 package is used which gives a greater area for heat transfer than the traditional TO3. This reduces junction temperatures and further enhances reliability.

Exceptional Quiescent Stability

It is universally accepted that accurate setting and stability of quiescent conditions is crucial to optimal Class-B operation. The bias range over which the best linearity is obtained is narrow, and on either side of it crossover distortion increases markedly. This consists of high-order harmonics that are acknowledged by all as undesirable; it is therefore of the first importance that an amplifier stays in its optimal bias range, despite the many varying conditions it will face in operation.

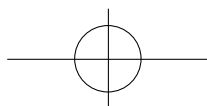
The 700:7r has extremely accurate quiescent control. Quiescent conditions are stabilised against:

Output level and load impedance changes

This is implemented by a unique sensing configuration that gives much faster and more accurate assessment of output device junction temperatures than the conventional methods.

Mains voltage changes

It is not widely known that changes in mains voltage can affect amplifier quiescent conditions even if all of the small-signal and biasing circuitry is made immune to these variations. The effect is subtle and complex, but is dealt with authoritatively by circuitry unique to TAG McLaren Audio.



Comprehensive protection

The 700:7r has sophisticated and dependable protection for both its own circuitry and connected loudspeakers. An instantaneous overload protection system monitors the current and voltage conditions in the output devices and limits power dissipation in critical circumstances. If the excessive loading persists, an intelligent long-term protection algorithm disconnects the load to prevent excessive thermal stress which can shorten component life.

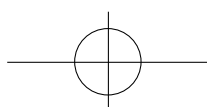
Sophisticated muting

The 700:7r has a sophisticated muting system, which stops you hearing loud, annoying switching noises and protects both the amplifier and the loudspeakers.

Particular care has been taken to make sure that the muting circuitry, when switched off, doesn't affect the sound quality. For this purpose carefully selected relays with minimal crosstalk between coil and contacts have been used.

Low distortion

A theoretically ideal amplifier reproduces sound perfectly over an infinite range of frequencies - starting from well below the audible range and extending far above the capabilities of human hearing. Although sound outside the human hearing range of approximately 20 Hz to 20 kHz cannot be heard, it can significantly distort the quality of music reproduction through an effect which audio engineers call 'intermodulation distortion'. This type of distortion moves imperfections that originate outside the hearing range back into the audible frequencies. To minimise this effect, TAG McLaren Audio amplifiers have a frequency response which extends both above and below the range of normal human hearing.



08 | technology**Straight line technology**

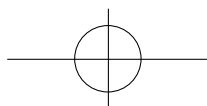
An amplifier must respond to very low frequencies but block any Direct Current (DC) to prevent intermodulation distortion. This is traditionally achieved using capacitors, which also block some of the low-frequency signals. In the 700:7r a feedback circuit eliminates DC offset voltage and allows the signal path to be direct coupled without any capacitors, an arrangement called 'straight line' technology. The result is a very precise reproduction of the lowest bass.

Supersonic frequency response

In order to reproduce high frequencies, the 700:7r is constructed using highly-rated, high-precision components. The circuit has been painstakingly designed to minimise audio signals picking up interference and intermodulating. Exceptional transparency and purity of sound are the result.

mixed technology construction

With surface mount components for fast digital signal transfer and leaded through-hole components for perfect audio signals, the 700:7r incorporates mixed technology construction to optimise performance. The result is uncompromised sound in a small size.



preparation



We know you are keen to get your 700:7r working. This section will have you listening as quickly as possible. The controls diagrams located on pages 2 and 3 of this manual will help you find your way around your 700:7r⁽¹⁾.

safety first

To prevent the risk of electric shock follow these instructions carefully. If in doubt consult a qualified electrician

before you start

Make sure that all the components of your system are disconnected from the AC supply whenever you change any connection.

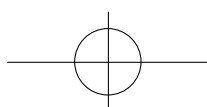
positioning

The 700:7r is capable of consuming approx. 2000 Watts of electrical power during demanding presentations. This results in significant heat being dissipated.

- Please ensure that there is adequate ventilation above and below the unit.
- The ventilation of the 700:7r should not be impeded by covering the ventilation slots with items such as newspapers, table cloths, curtains etc.
- Place the 700:7r on an open flat surface.
- Do not use in a cabinet or on a soft surface such as a carpet.
- Do not place any other piece of equipment on top of the 700:7r.
- Do not place naked flame sources such as lighted candles on the 700:7r.
- Do not expose the 700:7r to dripping or splashing liquids.
- Do not place objects filled with liquids, such as vases, on or near the 700:7r.

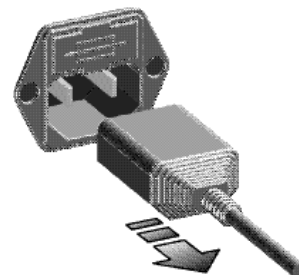
Make sure there is adequate ventilation for the amplifier. It is important that the cooling slots in the top and bottom are not obstructed, and there is sufficient space around the unit to allow for the free circulation of air. Avoid operating the amplifier on a soft surface, such as thick carpet, which is likely to block the slots underneath,

1. Throughout this manual, **bold** print indicates the lettering that you will find on the rear panel of your 700:7r



remove power

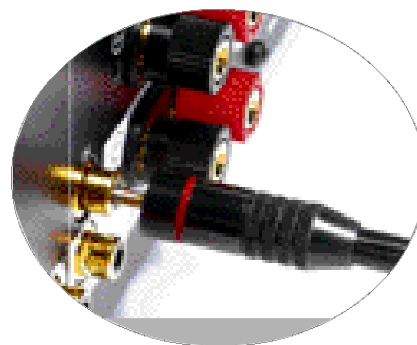
Before making any signal connections ensure the amplifier is not connected to the mains supply.



signal connection

Ensure that the amplifier mains plug has been removed from the wall socket before making loudspeaker connections.

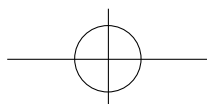
Connect your pre amplifier/av processor using good quality analog interconnects.



loudspeaker connection

Ensure that the amplifier mains plug has been removed from the wall socket before making loudspeaker connections.

When making the connection, ensure that the spade terminal is correctly located and the loudspeaker terminal is fully tightened.



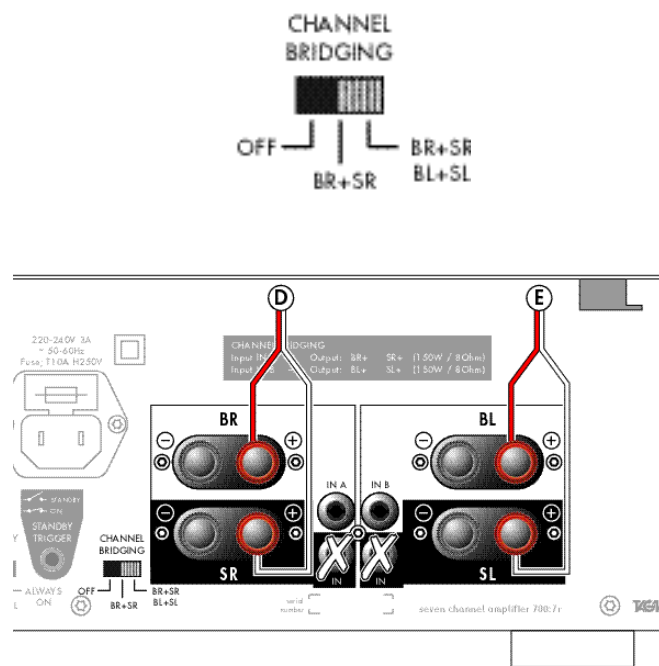
5 channel set-up

The channel bridging switch is put in the right position marked "BR+SR BL+SL"

The BL and SL amplifiers are now also bridged, and the + lead of the speaker cable connects to the BL+ output terminal, and the - lead of the speaker cable connects to the SL+ output terminal, as shown.

To apply signal to the BL-SL bridged channel use the upper RCA input (marked "In B"). The lower RCA (SL in) is not used.

To apply signal to the BR-SR bridged channel use the upper RCA input (marked "In A"). The lower RCA (SR in) is not used.

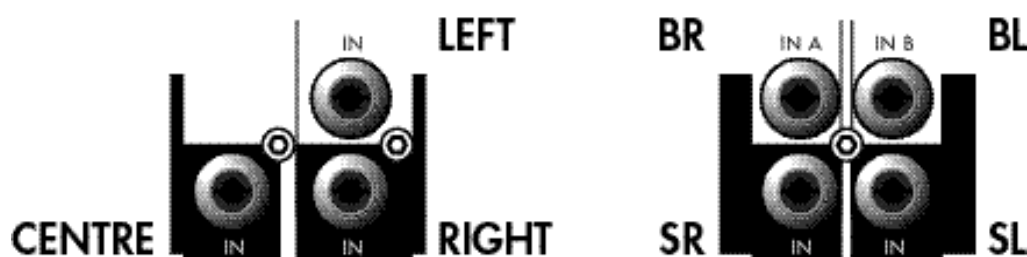


It is not advisable to change the position of this switch when the amplifier is powered and connected to loudspeakers. No damage to the amplifier will result, but you may apply an unexpectedly high level to the loudspeakers.

av processor or preamplifier connection



Before making signal connections make sure the av processor/preamplifier and all connected source units, such as a CD player are switched off and their mains plugs have been removed from the wall sockets.

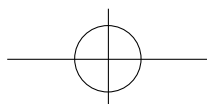


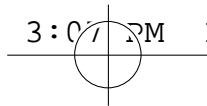
You will require an av processor, such as the AV32R or a preamplifier, such as the DPA32R to provide the signals to drive the 700:7r.

Each output is connected the appropriate RCA input on the 700:7r.

To connect the source equipment to the 700:7r you should use a hi-quality, well screened RCA-RCA audio cable, such as our RCA/RCA F3-10-ANA interconnect. All the RCA-RCA cables should be arranged so they are bundled as closely together as possible, especially at the rear of the amplifier. This minimises the chances of loops of cable picking up magnetic fields and possibly degrading performance.

When you have completed the set-up and have connected all cables between all components, ensure that the volume control on the av processor/preamplifier is set to minimum.

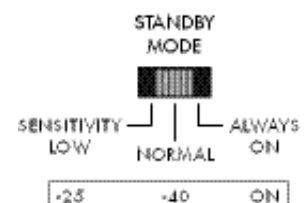
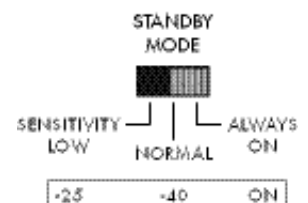




power connection

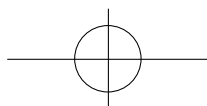
Connect the mains cable to the amplifier, and then switch on at the wall socket. The blue power LED will glow dimly to indicate that power is applied but the amplifier is in the standby state. In this condition the loudspeakers are disconnected by the internal muting relays and power is removed from the amplifier circuitry.

If the standby mode switch on the rear is set to '**ALWAYS ON**' (rightmost position), then after a short delay the amplifier will go to the active state and the blue power LED will glow brightly. In the two other positions the amplifier will remain in standby until it receives an audio signal of sufficient amplitude, or a contact closure is connected to the rear jack socket. This switch may be freely operated when the unit is powered.



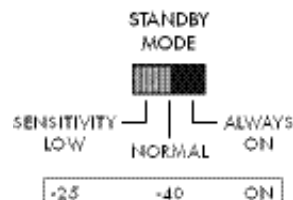
Audio signal activation

If the standby mode switch on the rear is set to '**NORMAL**' (middle position) and there is no external contact closure (see page 16) then the amplifier will remain in the standby state until an audio signal that exceeds the threshold is applied to at least one of the seven inputs. It will then enter the active state and the blue power LED will glow brightly. The amplifier will remain active for 15 minutes after all audio signals disappear and will then return to standby. This delay period is to prevent the amplifier going to standby on brief interruptions, eg while changing CDs.



16 operation

If the standby mode switch on the rear is set to '**LOW SENSITIVITY**' (leftmost position) then operation is as for high sensitivity except that the incoming audio signal must be at a higher level before it will be acted upon. This setting should be used in electrically noisy environments if there are problems with spurious activation.



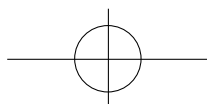
If it is desired to shorten the 15-minute delay before standby, moving the standby mode switch to '**ALWAYS ON**' and then back to one of the audio activation positions will cancel the delay and if there is no signal present the amplifier will go immediately into standby. This switch may be operated freely when the amplifier is powered and connected to loudspeakers.

Contact closure activation

If a piece of equipment providing a contact closure is connected, and active so that the contact is closed, then as above, after a short delay the amplifier will go to the active state and the blue power LED will glow brightly. A contact closure will always bring the amplifier into the active mode, whatever the position of the standby mode switch on the rear.



The contact closure is applied to the 700:7r via the 3.5mm jack socket on the rear panel. The circuit between the tip and the sleeve of the jack must be closed. A stereo 3.5mm jack (with tip, ring and sleeve) can be used- the ring is not connected.



Protection

If the amplifier finds it necessary to protect itself against abnormal conditions, then it will go into the standby state, with the loudspeakers disconnected and power removed from the amplifiers.

It will then attempt to re-enter the active state after a short delay. If the conditions causing the protection to operate persist, then on the third time it enters standby, the amplifier will stay there indefinitely until manually reset by removing and reinserting the mains cable. There are several ways in which the 700:7r will protect itself and the loudspeakers connected to it, and the 700:7r will signal why it reverted to standby by flashing the power LED a certain number of times. More details on this are given in the next section.

Protection modes:

Short-term overload protection

This is implemented by instantaneously by sophisticated circuitry that assesses the voltage, current, and power dissipation conditions in the power output devices.

Long-term overload protection

Caused by sustained short-circuit, overload or heavy clipping in any of the seven amplifier channels. The unit will go into standby.

After a few seconds the unit will attempt to return to the active state. If the conditions causing the protection to operate persist, then after the third time the amplifier enters standby, it will stay in that state until the mains power is cycled by removing and reinserting the mains cable. The cable must be removed for at least one second to ensure that the unit resets itself; if the power LED has gone out then enough time has elapsed.

Overload protection signal: Power LED dim but gives one short flash of bright every 1 second.

18 protection system

Overtemperature protection

Caused by overheating of either the internal heatsink or the mains transformer, as a result of blocked ventilation slots or some other abnormal condition. The unit will go into standby. After a few seconds the unit will attempt to return to the active state. If the conditions causing the protection to operate persist, then after the third time the amplifier enters standby, it will stay in that state until the mains power is cycled by removing and reinserting the mains cable. The cable must be removed for at least one second to ensure that the unit resets itself; if the power LED has gone out then enough time has elapsed.

NB: Even when the mains power is cycled the unit will not become active unless it has cooled down sufficiently. Allow time for cooling.

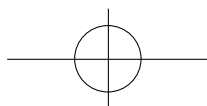
Overtemperature signal: Power LED dim but gives two short flashes of bright every 1 second.

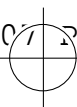
DC offset protection

Caused by internal amplifier error or fault or a large DC input signal. Unit will go into standby. After a few seconds the unit will attempt to return to the active state; if it identifies the fault again, it returns at once to standby without unmuting the amplifiers. If the conditions causing the protection to operate persist, then after the third time the amplifier enters standby, it will stay in that state until the mains power is cycled by removing and reinserting the mains cable. The cable must be removed for at least one second to ensure that the unit resets itself; if the power LED has gone out then enough time has elapsed.

DC offset protection signal: Power LED dim but gives three short flashes of bright every 1 second.

It is most unlikely you will ever see this indication; if you do unplug the amplifier at once and arrange for it to be checked by competent service personnel.





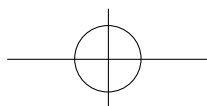
optimum performance for many years

running in

Just like a high quality car, the performance of your 700:7r will improve during the first hours of operation. The electronic components will then have reached and settled down to near perfect specification.

warming up

Every time you switch on your 700:7r the performance will improve until the components reach their optimum operating temperature.



20 care and maintenance**fuses**

There is a fuse in the power socket on the back of your 700:7r. To change the fuse, unplug the power cable and carefully pull out the fuse carrier drawer⁽¹⁾. The fuse carrier contains a spare fuse; this is the first one that you see when you open the carrier. You cannot open the fuse drawer while the plug is in the socket.



There are no user-serviceable parts inside the 700:7r.

service

The only service you should do to your 700:7r is described on the previous page. All other servicing should only be carried out by one of our authorised service agents.

If service is required, please contact your authorised TAG McLaren Audio retailer. If your 700:7r is still under guarantee, please refer to the guarantee card which gives you details on how to claim against the guarantee.

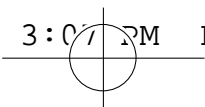
Please keep the original packaging and use it whenever your 700:7r is transported.

cleaning

In order to maintain the appearance of your 700:7r, you can clean it as follows:

- before cleaning always disconnect your 700:7r from the AC supply;
- any grease or dirt on the case may be removed with a soft, lint free dry cloth. Do not use any other solutions. Do not use water or any solvents or abrasives;
- take great care not to get any liquid inside the case. If this happens, you should have your 700:7r serviced.

1. You cannot open the fuse drawer while the plug is in the socket



Power output or or	7 x 100W into rated load impedance (8 Ohm) 5 x 100W and 1 x 150W (8 Ohm) 3 x 100W and 2 x 150W (8 Ohm)
Input for rated power	1.05 Vrms
Input impedance	47 KOhm
Gain	+28.8 dB at 1 kHz
Signal to noise	better than 90 dB (relative to 0 dBW) unweighted
Frequency response (-3 dB)	1.5 Hz - 150 kHz
operating temperature range	10 - 35°C
ac supply voltage	220 - 240 V (the voltage is marked on the rear of the product)
ac supply frequency	50 - 60 Hz, depending on country
dimensions	445 mm wide x 130 mm high x 340 mm deep (including feet, terminals and controls)

We reserve the right to alter design and specification without notice.
Specification may vary for different countries.

