

Westrex Cinema Divison

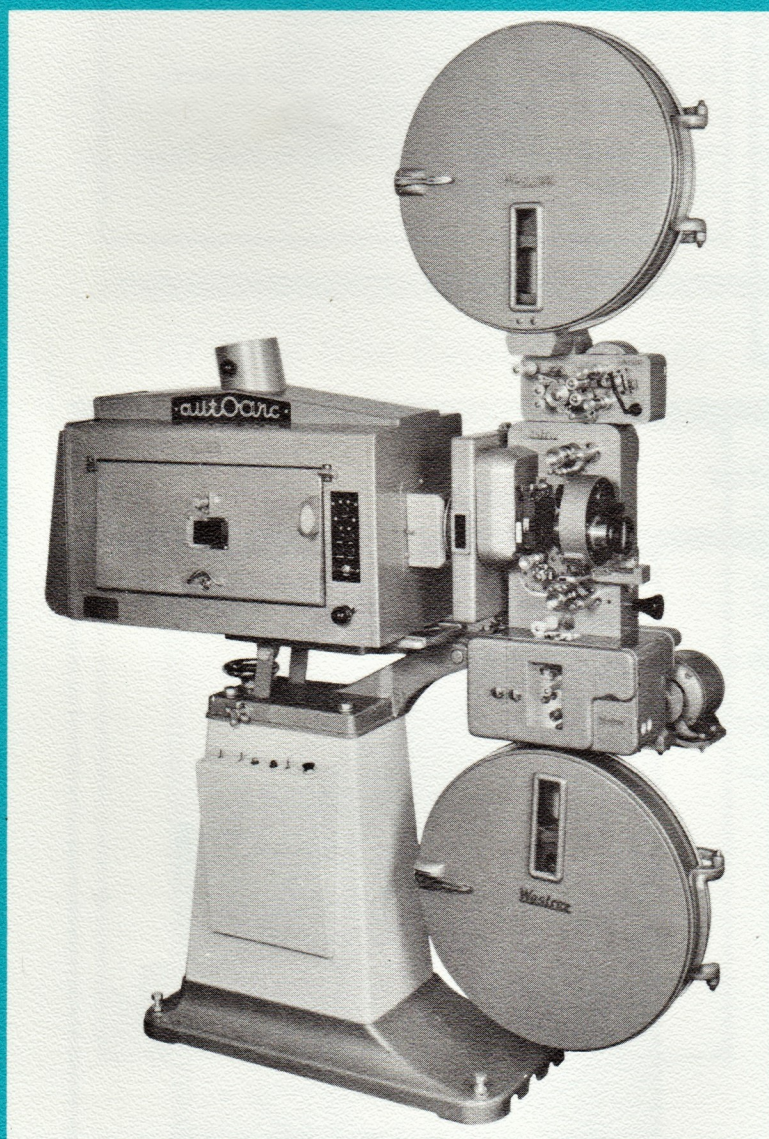




Westrex

A DIVISION OF LITTON INDUSTRIES

Westrex *Sound and Scene*



The Westrex 5000 Series of Projection equipments are the latest in a line of cinema sound and film projection apparatus which has been in the forefront of technical development since sound was first added to the motion picture more than forty years ago.

This new British made range has been designed expressly to cover comprehensively the requirements of all current and foreseeable formats for all types of Cinema Theatres.

The 5000 Series 35/70 Projector combines maximum facilities with straight forward design and rugged construction. It can project films in 70 mm and all 35 mm formats with minimum operator adjustment. Provision for automatic and/or remote control are a feature of the design.

The 5006-A Photographic Sound Reproducer Set incorporates a photo voltatic cell which provides greater freedom from background noise.

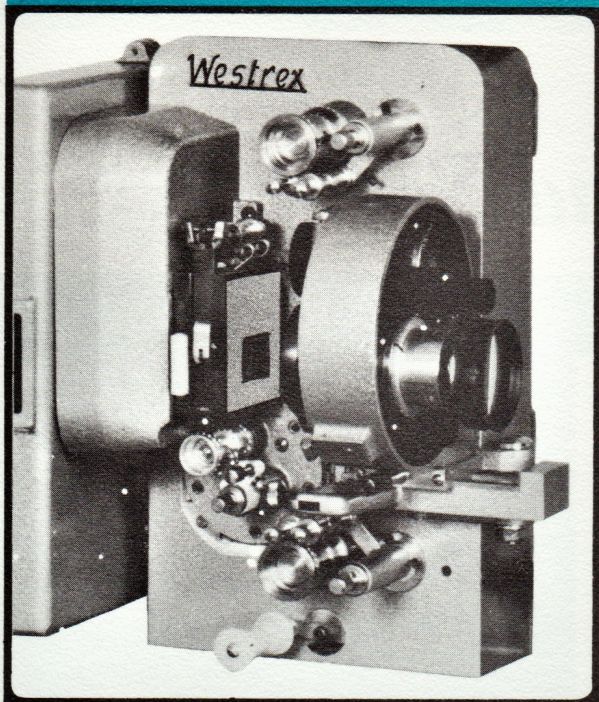
The 5008-A Magnetic Reproducer is available in either 4 or 4/6 track versions. The 5009 Series Amplifier Set caters for single track photographic and/or single track magnetic recordings.

Each amplifier channel is fully transistorised with a power output of 40 watts and extremely low noise and distortion factors.

Westrex will custom-engineer a modern installation that will guarantee your ability to keep up with all the cinema formats. Westrex representatives will be happy to go over your theatre's plan with you to show you how logical and how simple complete modernization can be.

Cinema Division

5000A 35/70mm Film Projector



This Projector caters for both 35 and 70 mm film and has the following main features:

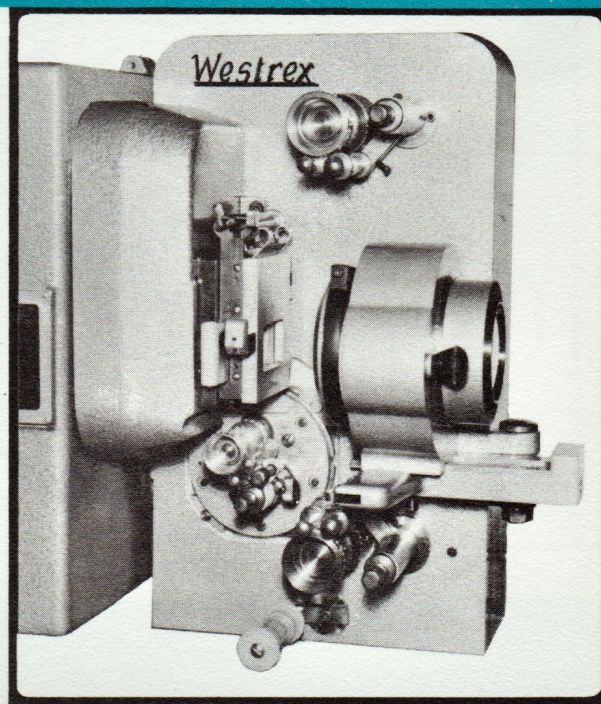
- Triple lens turret for 70 mm diameter lenses.
- Single rear shutter.
- Picture changeover device.
- Water cooled gate mounting.
- Interchangeable curved gate assemblies.
- Low voltage framing lamp.
- Toothed rubber belt drive for smooth power take-off from sound reproducer.

For full technical specification refer to Data Sheet DS/T 103

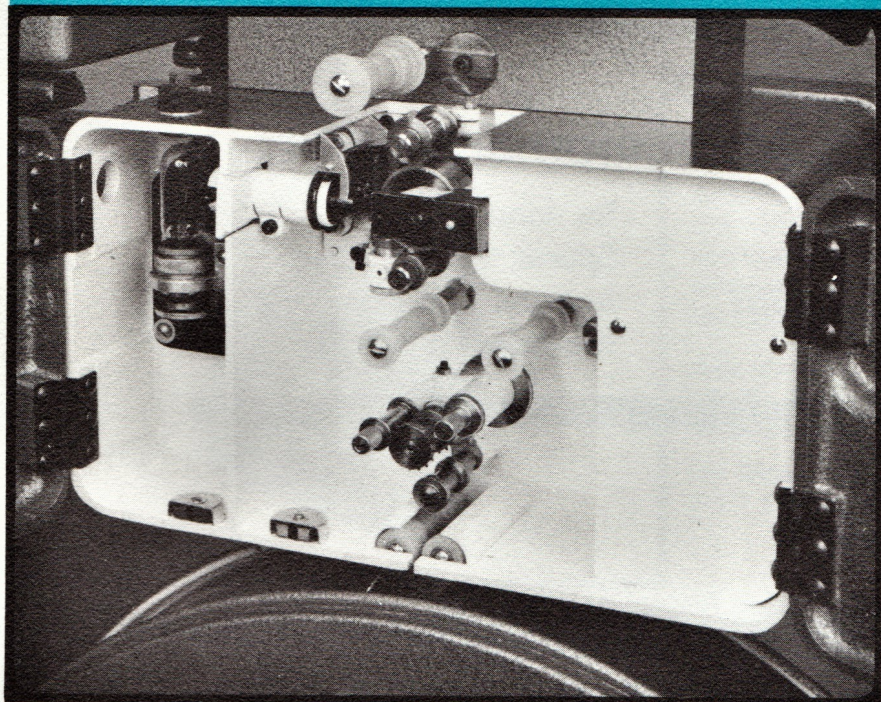
5000C 35/70mm Film Projector

This Projector has the same main features as the 5000A with the exception that it is equipped with a single lens mount and focussing device for a 101.60 mm diameter lens in place of the lens turret.

For full technical specifications refer to Data Sheet DS/T 104.



5006A Photo Sound Reproducer



For use with 35mm Single Photo Sound Track Film. This reproducer employs a photo voltaic cell giving greatly improved signal to noise ratio. Other outstanding features include:

- Pre-Set exciter lamp assy.
- Twin V Belt drive from motor.
- Toothed rubber belt drive to projector.
- Simple by-pass for 70 mm film.

Used normally with 5007-A Motor assembly.

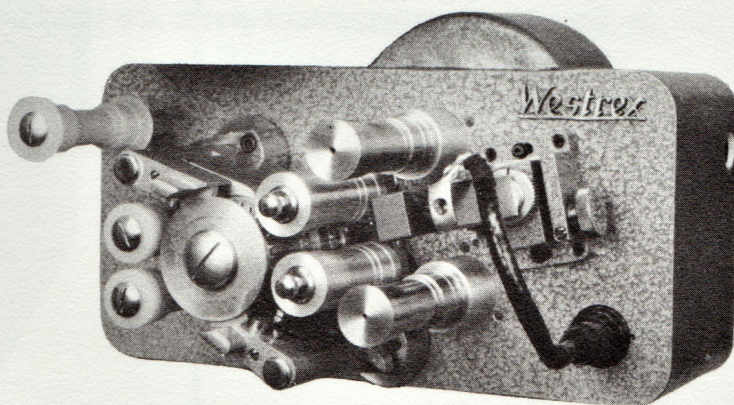
For full technical specification refer to Data Sheet DS/T 105

5008 A & B Magnetic Sound Reproducer

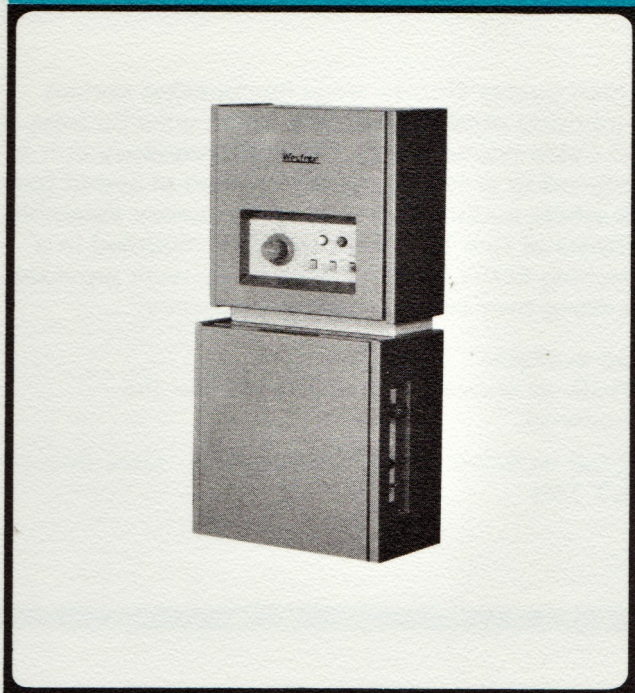
Pull through type Magnetic Reproducer.

- Caters for 6 track 70 mm, 4 track 35 mm and 1 track 35 mm formats.
- Plug in magnetic replay heads with adjustable azimuth mounting.
- Double drum scanning system for minimum "wow" and "flutter".

For full technical specifications refer to Data Sheet DS/T 106



5009 A & B Single Channel Photo/Mag. Wall Mounting Amplifier Set



The 5009 type wall mounting solid state amplifier and control system employs silicon transistors throughout. This set is designed to achieve a low distortion figure with high stability against temperature and load changes. Provision is made for remote Fader operation.

- The 5009A type system caters for photo track reproduction from 2 projectors.
- The 5009B system caters for single track photo and magnetic track reproduction from 2 projectors.

For full technical specification refer to Data Sheet DS/T 107.

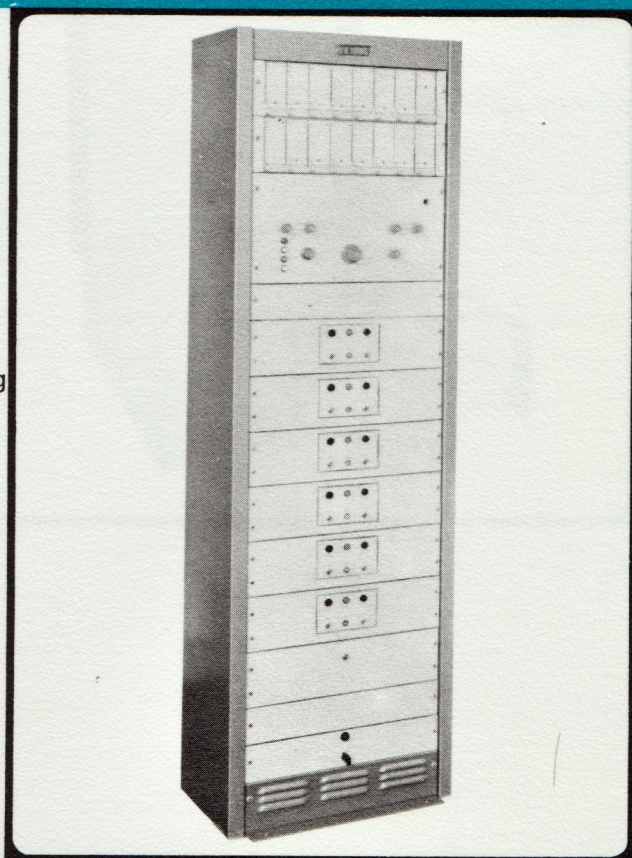
5011A and 5012A Multi Track Magnetic Sound Amplifier Set

These amplifier systems cater for the whole range of multi track film recordings.

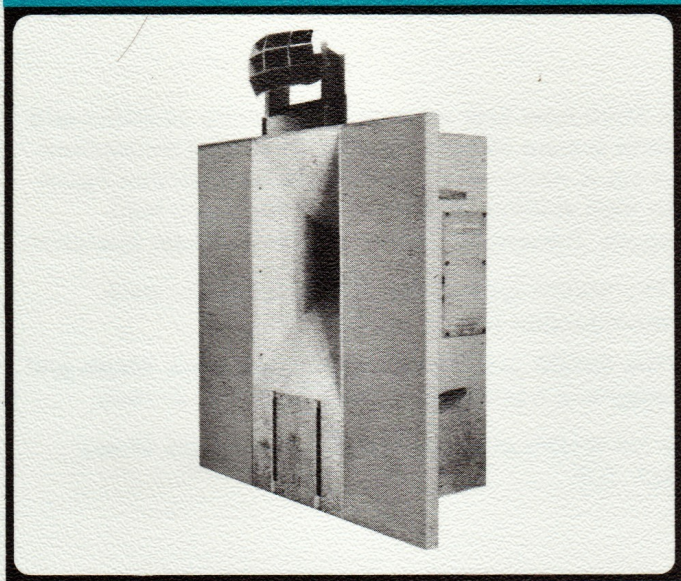
- 5011-A for 4 track Cinemascope magnetic and single track photographic.
- 5012-A for 6 track 70 mm, 4 track Cinemascope magnetic and single track photographic reproduction.

Full use is made of plug in modules to facilitate servicing and easy replacement.

For full technical specifications refer to Data Sheet DS/T 108.



5010A Back Stage Auditorium Loudspeaker



A high quality Duplex stage loudspeaker system comprising separate high efficiency units for bass and treble reproduction. The high frequency unit is designed to provide even distribution of sound over the whole auditorium. The low frequency assembly consists of two 15" direct radiators mounted in a matching baffle. The half section network provides for cross-over at the optimum frequency.

Also available
5010B, as above but supplied without the
woodwork.

For full technical specification refer to Data Sheet
DS/T 109.

2567 Type Disc Reproducer Set



Mono/Stereo 4 speed Transcription Disc
Reproducer. Design features include plug in
transistor pre-amplifiers, volume control, tone control
and power supply unit.

For full technical specification refer to Data Sheet
DS/T 112

Westrex have available a complete range of projection suite equipment *Full details on request*

Arc Lamps

Xenon Lamps

Arc and Xenon Rectifiers

Carbons

Re wind equipment

Spools and Lenses

Screens and screen frames

Motorised masking.

Service

- A full team of Service Engineers operating throughout the British Isles, on a countrywide basis, is at your disposal
- This service operates seven days a week during normal Cinema opening hours.
- Westrex combine a unique blend of skill and experience which has been established for over 40 years.
- Stocks of replacement parts are held in all local Westrex offices.

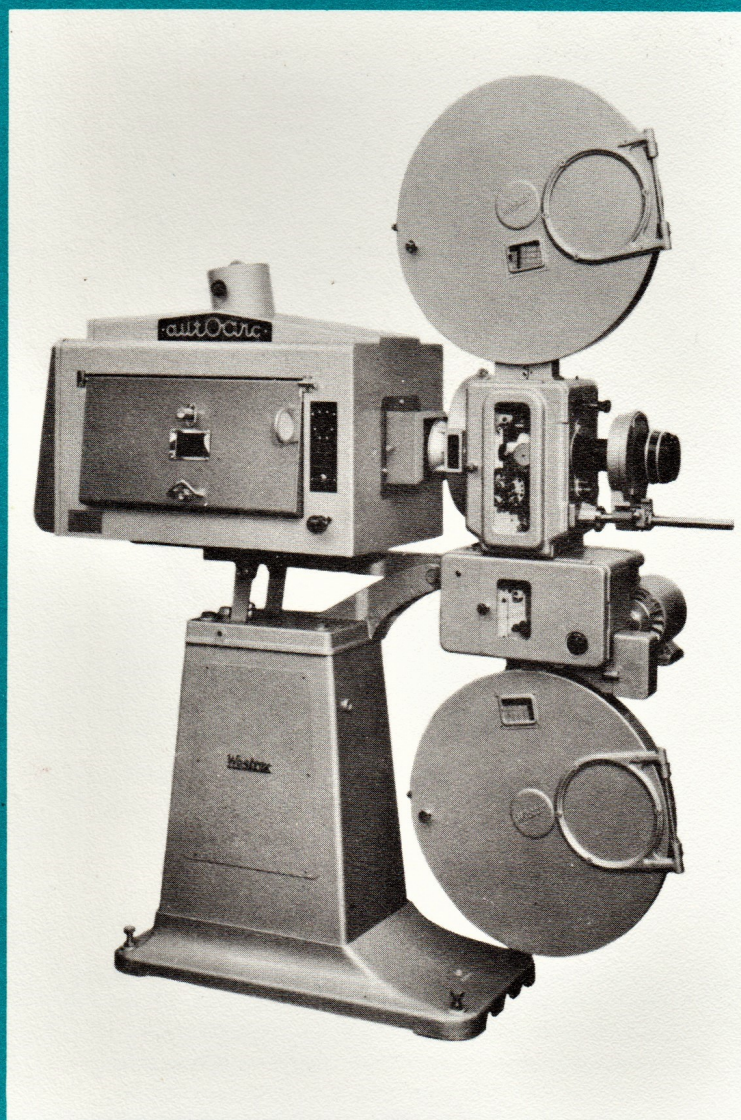


Westrex

WESTREX COMPANY LTD

A DIVISION OF LITTON INDUSTRIES 152 Coles Green Road, London N.W.2 Telephone 01-452 5401

Westrex Westar Thirty Five



The British-made 2001 is the latest in a famous line of Westar 35mm Projectors which were first introduced by Westrex more than 20 years ago. Because these machines were so reliable, robust and uncomplicated with their steadiness of picture presentation obtainable, and simplicity of service — that some thousands have been installed over the years in projection rooms throughout the United Kingdom and abroad. In every respect the Westar is already renowned for its fundamental soundness of design, manufacture and operation.

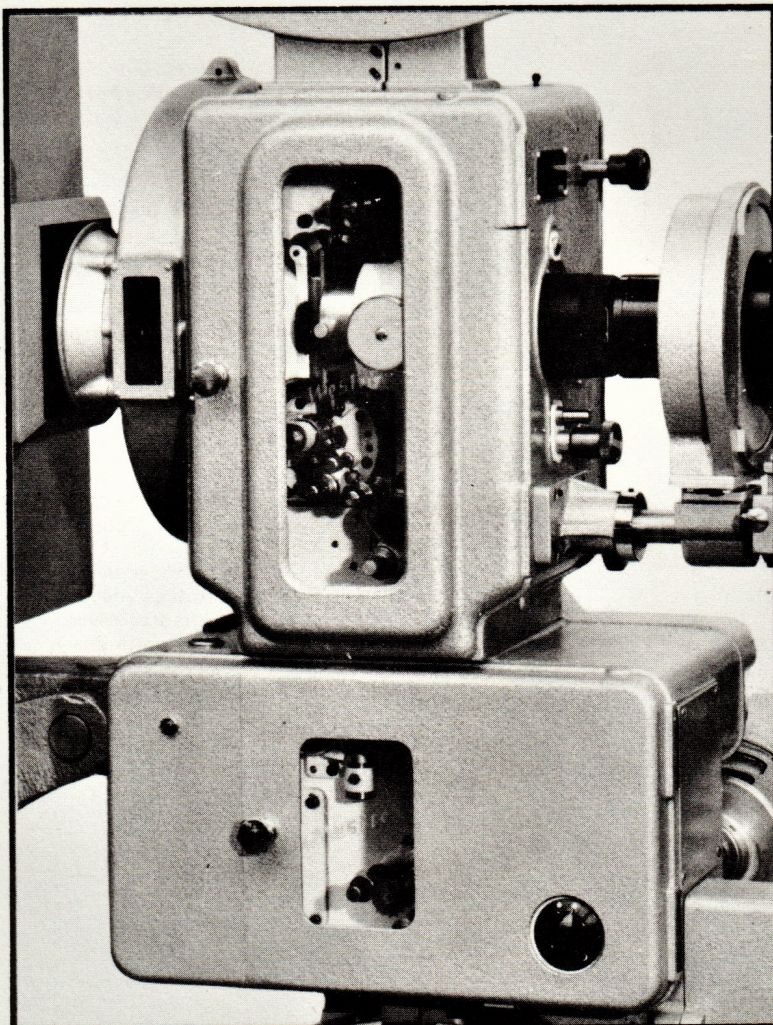
The modern version of the 2001 Type Westar has been developed to include all the major attributes of its predecessors. The immediate accessibility of all working parts allows modifications or adaptations to be made on site, thus eliminating any necessity to return the projector to the factory. This is especially appreciated by overseas users. The main drive shaft, vertical shaft and shutter shaft are all removable as complete units. All shaft assemblies are interchangeable with minimum loss of time. The gate is easily removable for cleaning and inspection.

The intermittent oil cup and gauge are on the operating side of the mechanism and there are only three points to lubricate. The grease-sealed ball bearings are factory filled and require no additional lubrication.

The high quality of Westrex theatre equipment, together with the unrivalled backing of the Westrex service organisation, means that exhibitors and theatre managers can be assured of 100% operational success.

Cinema Division

WESTAR 2001 PROJECTOR



APERTURE PLATES

The 77498 aperture plate is provided for all purposes (i.e. standard, wide-screen and Cinemascope). This plate is of thin brass and a start hole, 0.650 ins. x 0.300 ins. (16.5 mm x 7.6 mm), is provided which can be opened up to any desired ratio within the limits of the scribed lines indicating maximum dimensions.

WATER COOLING

The "G" type projector is fitted with water-cooling cell in place of the normal heat shield at the rear of the picture gate. A flow of 0.8 to 1.2 pints (0.5 to 0.7 litres) per minute is required for correct operation. The supply can be obtained from the mains or from a closed-circuit system. When the mains supply contains heavy lime deposits or other impurities, Westrex strongly recommend the use of a closed-circuit system with distilled water.

OPTICAL SPEED

The projector gate system is designed for use with an arc lamp to obtain an optical speed equivalent to f.i. 9.

DRIVE ADAPTATION

Drive adaptation parts can be provided for many types of sound reproducer. Details are available for specific applications on request.

DIMENSIONS

Overall height	16½ ins.	(42 cms.)
Back to front	15 1/8 ins.	(38.4 cms.)
Side to side	14 11/16 ins.	(37.3 cms.)
Weight	85 lbs.	(38.5 kgs.)
Base to optical centre	8 9/16 ins.	(21.749 cms.)

TYPES

Single shutter	2001—E
Single shutter — water-cooled gate	2001—G

ANAMORPH MOUNTING

A swing-away bracket is provided which will accept most types of cylindrical or prismatic anamorphs of British, Continental or American origin.

Bracket assemblies (35050—A) with Anamorph Adapter, Cylindrical (LS 09749) or Anamorph Adapter, Prismatic (92077) or Anamorph Adapter, Delrama (82588).

GEARS & BEARINGS

Gears are made from high-grade, low-temperature hardening, tool steel and "Tufnol" laminated, synthetic resinoid material. The vertical and horizontal shafts run in ball races. They are grease-packed and

require no additional lubrication. Sprocket shafts are run in oil-impregnated bearings and require an occasional drop of oil.

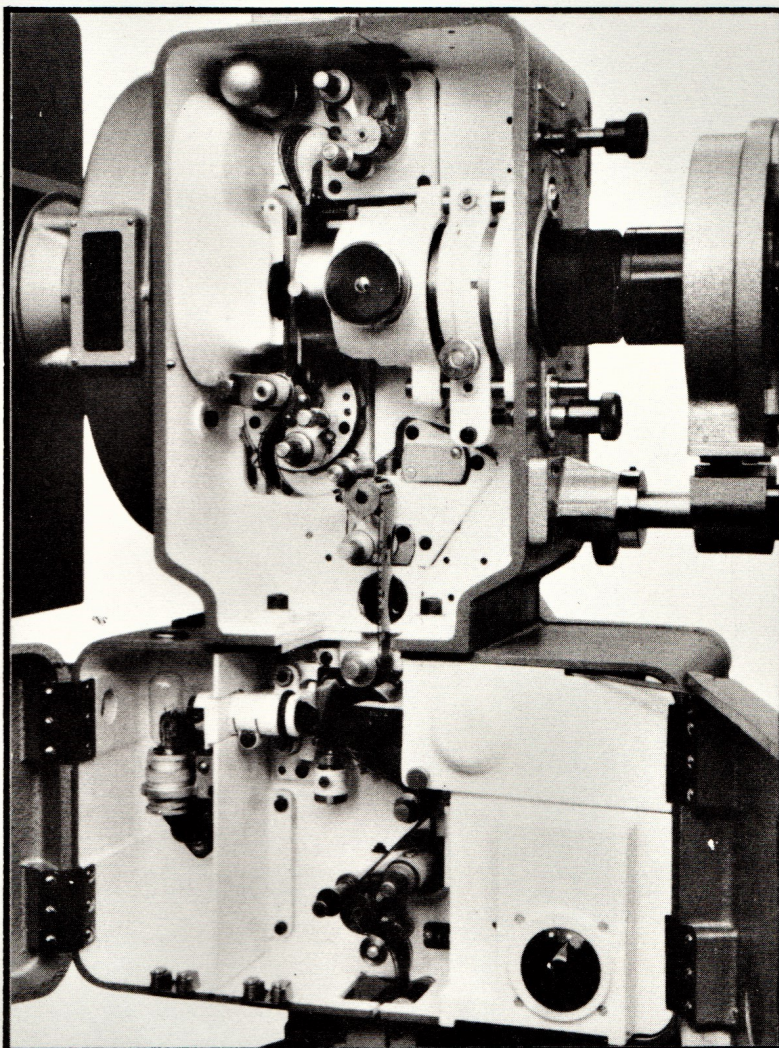
INTERMITTENT ASSEMBLY

The design of this unit is conventional, employing a maltese cross cam and pin. The assembly can be rapidly removed for inspection or service by loosening four screws. Replacement is equally simple. The casing is of robust, close-grain cast iron, fitted with oil-impregnated and low-friction cast iron alloy bearings. The cam and striking pin are of dissimilar steel, to minimise wear. The assembly runs in a sealed oil bath and an inspection window is provided to show the oil level. A simple adjusting device is incorporated to vary the cam-striking pin meshing.

SPROCKETS

Each sprocket has 16 teeth and they are suitable for standard and small perforations. Feed and holdback sprockets can be replaced with the machine in situ, and the intermittent assembly is removed from the frame for this purpose. In order to ensure an accurate fit of the intermittent sprocket, an identification on each sprocket is shown by one, two or

WESTREX 2003 REPRODUCER



three dots. When ordering replacements, the number of dots on the fitted sprockets should be stated.

CONTROLS

Focus, framing and shutter phasing controls are arranged in convenient positions on the main frame, and remote focusing and framing can be provided if required.

LENS ACCOMMODATION

Projection lenses of British, Continental and American origin can be accommodated, having fitting diameters of 2.062 ins. (52.5 mm.) 2.461 ins. (62.5 mm.) or 2.781 ins. (70.7 mm.) by using appropriate sleeves. It is not possible to list the many combinations of sleeves and pre-focus stop-rings, due to the variations in primary focal lengths of lenses of different manufacturers. The type and focal lengths of lenses to be used should be stated when ordering projectors.

CHANGE-OVER DEVICES

All models can be fitted with "Thide", "Zippa" or "Easifit" change-over controls.

ANCILLARY

The following ancillary equipment can also be supplied, if required: 2003-C Comopt Photographic Sound Reproducer; 2004 Commag Reproducer for Single and 4-Track Cinemascope Reproduction; Double Film Attachment for Sepmag Operation; Pedestals; Magazines; Spools; Rewinders; Splicers; Lenses etc. (See separate data sheets).

FORWARD & REVERSE RUNNING

To meet the current trend of studio and preview practice, the basic 2001-E or 2001-G Projectors can be modified to provide for independent or in-lock forward and reverse drive which, when fitted with a torque motor-driven upper magazine, and torque motor-driven double film lower magazine, enables the film producer to edit or carry out his recording programme in the minimum time, without the need of removing the film from the machine.

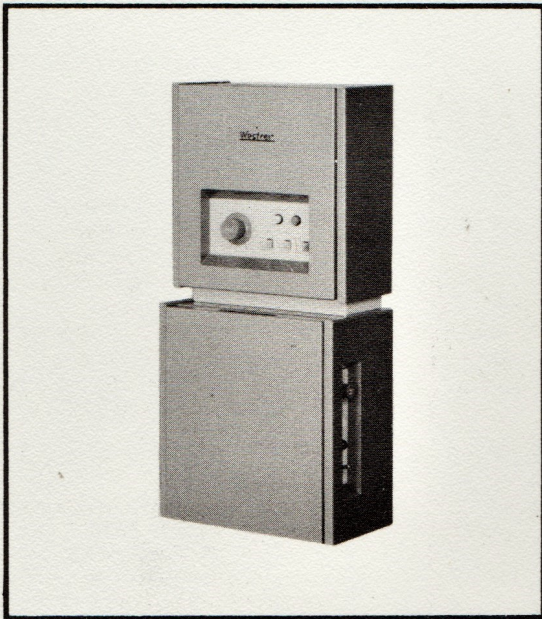
2003-C 35 mm PHOTO-TRACK SOUND REPRODUCER

The Westrex Photo-Track Sound Reproducer 2003-C (shown as part of the projection equipment in the illustrations on these pages) features a film transport which employs a tight-loop system with an award-winning flutter-suppressor. The drive consists of a flexibly-mounted motor, fitted with a double "V" pulley. Two matched "V" belts transmit the drive to the main shaft of the reproducer. A range of drive motors is available to cater for most power supplies. Two exciter lamp brackets are provided so that both can be adjusted for correct focus, and immediate replacement can be effected, should a lamp fail.

The film filtering mechanism consists of a solid fly-wheel, mounted on a scanner shaft, which supplies the inertia element, and a flutter suppressor which operates against the film to smooth out irregularities in tension which would otherwise produce "flutter" and "wow".

The total integrated "flutter", from 2 to 200 o/s does not exceed $\pm 0.09\%$, while no disturbance between 2 o/s and 200 o/s is greater than $\pm 0.05\%$.

5009 A & B Single Channel Photo/Mag. Wall Mounting Amplifier Set

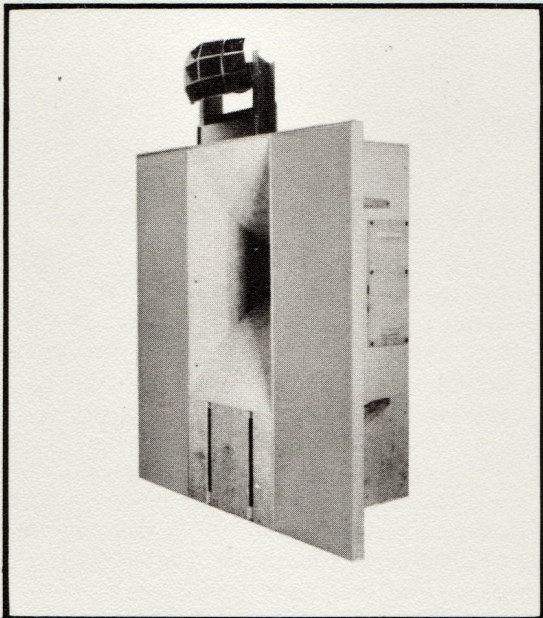


The 5009 type wall mounting solid state amplifier and control system employs silicon transistors throughout. This set is designed to achieve a low distortion figure with high stability against temperature and load changes. Provision is made for remote Fader operation.

- The 5009A type system caters for photo track reproduction from 2 projectors.
- The 5009B system caters for single track photo and magnetic track reproduction from 2 projectors.

For full technical specification refer to Data Sheet DS/T 107.

5010A Back Stage Auditorium Loudspeaker



A high quality Duplex stage loudspeaker system comprising separate high efficiency units for bass and treble reproduction. The high frequency unit is designed to provide even distribution of sound over the whole auditorium. The low frequency assembly consists of two 15" direct radiators mounted in a matching baffle. The half section network provides for cross-over at the optimum frequency

Also available 5010B as above but supplied without the woodwork.

For full technical specification refer to Data Sheet DS/T109.



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DATA SHEET

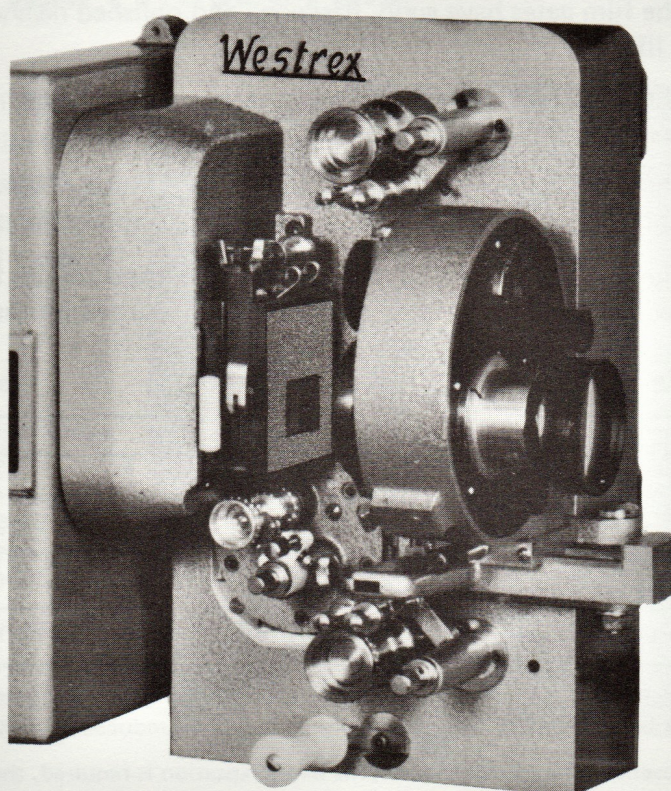
CINEMA DIVISION

5000A 35/70 mm FILM PROJECTOR

INTRODUCTION

The British-made Westrex 5000 series of system-engineered equipments has been designed to meet the needs of all current and anticipated formats for all types of cinema theatres.

The 5000-A 35/70mm Projector combines maximum facilities with rugged, enduring construction. It can project films in 70mm and in all 35mm formats with minimum operation adjustment. Future developments will include the provision for automatic and/or remote control.



MAIN FEATURES

The open-type mechanism of the 5000A Projector (for both 35 and 70mm film) incorporates the following important features :

- (a) Triple lens turret for 70mm diameter lenses.
- (b) Single rear shutter.
- (c) Picture changeover device.
- (d) Water-cooled gate mounting.
- (e) Easy access for inspection or cleaning.
- (f) Interchangeable gate assemblies and pad arms for 35mm and 70mm film.
- (g) One each interchangeable 35mm standard, 35mm Cinemascope and 70mm aperture plates with pilot aperture.
- (h) Toothed rubber belt drive for smooth power take-off from sound reproducer.

SPECIAL POINTS

1 The application of the projector and its associated Westrex sound reproducers (See Data Sheets DS/T 105 and 106) can be changed with a minimum of operator effort for 35 or 70mm film, employing any aspect ratio.

2 Three 70mm diameter lenses are rapidly interchangeable by use of the triple lens turret. Or the lens turret can be replaced by a single lens mount for 101.60mm diameter lenses (used with 70mm film where a shorter focal length lens is required). There is independent focussing for each of the three lenses.

SPECIAL POINTS continued

3 The swing-away 'anamorph' mounting (Westrex 5004-A) provides maximum rigidity and stability, with a rock-steady picture. It will accept most types of cylindrical 'anamorphs' of British, Continental or American origin.

4 A straightforward assembly of gears and shafts — with fewer than the usual number of parts — drives the mechanism and reproducer, keeping stress and wear at a minimum. There are no oil baths or sprays. Bearings are grease-sealed. Glass hard steel gears drive non-metallic gears for quiet operation. High-speed gears drive low-speed gears to achieve stable smoothness.

5 The film gates have solid, hardened and polished heavy-duty steel runners for longer service life.

6 The film can be run with very light tension, resulting in sharper overall in-focus pictures. The clean simple design permits easy, fast film threading.

7 The design (of the gate, tensioning device, water-cooled gate mount and rear shutter) avoids problems of defocussing, permits sharper focus and protects the film.

8 Simultaneous change-over of both picture and sound, from one machine to the other, is achieved by depressing a single push-button mounted on the pedestal.

DIMENSIONS & WEIGHTS (APPROX.)

DIMENSIONS	ANGLE OF PROJECTION		
	17° NEG. (DOWN)	ZERO	5° POS. (UP)
A OVERALL HEIGHT	89in. (226.1cm)	92 1/8 in. (234 cm)	93 in. (236.2 cm)
B FRONT WALL TO PEDESTAL	21in. (53.3 cm)	17 3/8in. (44.1 cm)	19 in. (48.3 cm)
C PORTHOLE HEIGHT	39 in. (99.1 cm)	49 3/8 in (125.4cm)	52½ in. (133.4 cm)

If a pedestal 3 in. shorter is required, the maximum negative and positive angles of projection are reduced to 7° & 5° respectively and dimensions A, B & C are reduced by 3 in. (7.62 cm.)

In the event that a special anamorphic lens adaptation is required, the Westrex Planning Engineer should be consulted for any slight correction to dimension B.

WEIGHTS	lb.	kg.
5000 Projector Head (with 3 lens turret or 5005 Single Lens Holder)	100	45.4
5001 Upper Spool Box	56	25.4
5002 Lower Spool Box	70	31.8
5003 Pedestal	282	127.9
5004 Anamorphic Lens Holder	3½	1.6
5006 Photographic Track Reproducer	48	21.8
5008 Commag Reproducer (1, 4 or 6 Track)	23	10.4



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DATA SHEET

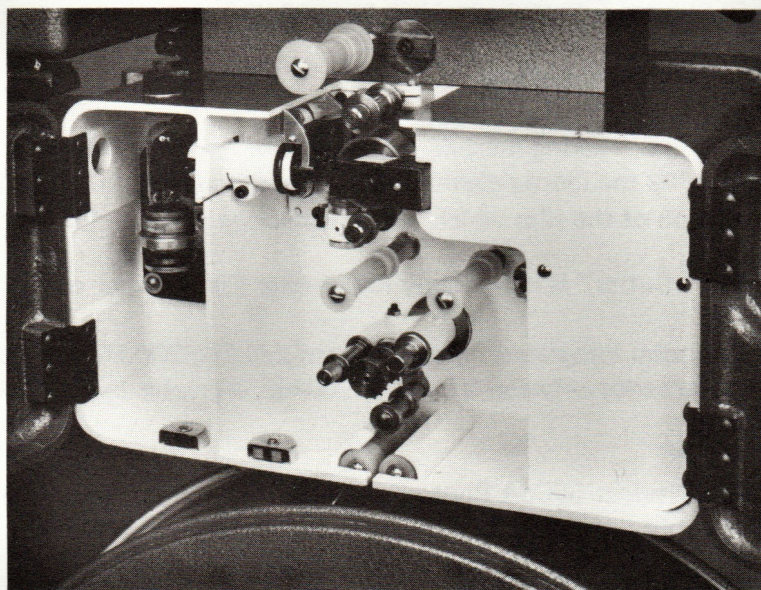
CINEMA DIVISION

5006A PHOTO SOUND REPRODUCER

INTRODUCTION

The British-made 5006A Photo-Track Sound Reproducer forms part of the Westrex 5000 series of system-engineered equipments, designed to meet the needs of all current and anticipated film formats for all types of cinema theatres.

The Westrex 5006A Photo Sound Reproducer is designed for use with 35mm single photo sound-track film and supports the Westrex 5000 Projector. It employs a photo-voltaic cell giving an exceptionally high signal to noise ratio. The film transport employs a specially designed tight loop system with a flutter-suppressor which was the subject of an award given by the Academy of Motion Picture Arts and Sciences. The 5007A drive consists of a resilient mounted



induction motor (a separate item) fitted with a double "V" pulley. Two matched "V" belts transmit the drive to the main shaft of the reproducer. Drive motors are available to cater for most power supplies. Two exciter lamp brackets are provided so that both can be adjusted for correct focus, and immediate replacement can be effected should a lamp fail. For studio or pre-view theatre purposes synchronous drive motors and electrical interlock systems can be provided to lock together two or more similarly equipped machines.

MAIN FEATURES

The 5006A Photo Sound Reproducer incorporates the following features:

- (a) Photo-voltaic cell.
- (b) Presettable exciter lamp assembly.
- (c) Toothed rubber belt drive from reproducer to 5000 type Projector.
- (d) Twin "V" belt drive from the 5007A Drive Motor Assembly.
- (e) Simple by-pass for 70mm film.

SPECIAL POINTS

1. The photo-voltaic cell, with the large output and little or no hiss, has enabled Westrex to achieve a signal to noise ratio comparable to that obtained from magnetic film reproduction.
2. The unit has few moving parts and is easy to service. It features protective doors, both for the exciter lamp and the film compartment.
3. The twin "V" belt drive from the 5007A motor follows a successful principle utilised in previous Westrex 35mm sound reproducers refined to provide adjustment for accurate film speed.

SPECIAL POINTS continued

The two belts give a factor of safety. Together they balance out any unevenness that might be experienced with one belt. Twin belts give greater flexibility.

4. The economical and reliable toothed rubber belt drive to the projector maintains accurate speed relationship between the projector and the sound reproducer.
5. The reproducer is only required to scan optically a 35mm photographic track but facilities are provided in the new 5006A unit whereby 70mm film can be by-passed through the mechanism without damage to the 5002A Lower Film Magazine.
6. The 5006A Reproducer also incorporates a shock-loop absorption roller assembly to prevent film damage when starting up the machine.

PERFORMANCE DATA

The film filtering mechanism consists of a solid flywheel mounted on a scanner shaft which supplies the inertia element and a damper arm assembly to filter out irregularities in the motion of the film which would otherwise produce "flutter" and "wow".

The "flutter" is remarkably low, better than 0.1 per cent.

The total integrated "flutter", from 2 HZ to 200 HZ does not exceed 0.09 per cent, while no disturbance between 2 HZ and 200 HZ is greater than ± 0.05 per cent.

MOTOR

The Westrex 5006A Photo Sound Reproducer is normally driven from a 5007A Motor Assembly which in turn drives the Westrex 5000 Projector.

STARTING EQUIPMENT

This is located in the 5003 pedestal.

DIMENSIONS AND WEIGHTS

Reproducer

Width	15¾ ins.	(40.0 cms.)
Depth	8¾ ins.	(22.2 cms.)
Height	13½ ins.	(34.3 cms.)
Weight	48 lbs.	(21.8 kgms.)

Motor (5007) with Drive Pulley.

Weight	28 lbs.	(12.7 kgms.)
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NOTE. The Westrex 5006A Photo Sound Reproducer is British-made throughout. It can be installed as part of the 5000 series of up-to-the-minute, integrated installations, ensuring that every conceivable facility is available now and in the foreseeable future.



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DATA SHEET

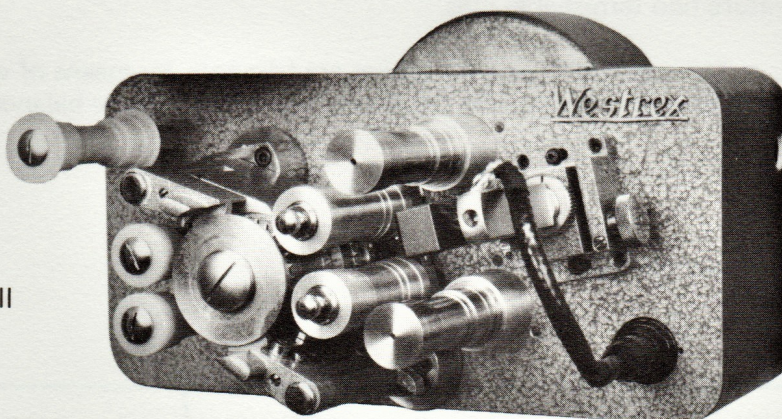
CINEMA DIVISION

5008A, B & C MAGNETIC SOUND REPRODUCER

INTRODUCTION

The British made 5008A, B or C Magnetic Sound Reproducers form part of the Westrex 5000 series of system-engineered equipments designed to meet the needs of all current and anticipated film formats for all types of cinema theatres.

The Westrex 5008 A, B or C Magnetic Sound Reproducer fits easily on top of the projector. These are rugged double-drum pull-through scanning mechanisms for magnetic reproduction and incorporate a free-running composite sprocket for 35 or 70mm film and easily interchangeable single, four or six track plug in magnetic head assemblies.



TYPES

The difference between the 5008A, B and C Reproducers are as follows: –

- (1) The plug-in Magnetic Head and Azimuth Mount in 5008A cater for single-track 35mm reproduction.
- (2) The plug-in Magnetic Head and Azimuth Mount in 5008B cater for 4-track 35mm CinemaScope reproduction only.
- (3) The plug-in Magnetic Head and Azimuth Mount in 5008C cater for 6-track 70mm Todd A.O. reproduction only.

NOTE. The 5008C can have a 4-track 35mm Magnetic Head assembly for CinemaScope, interchangeable with the 6-track 70mm Todd A.O. Head.

MAIN FEATURES

The pull-through type 5008 Magnetic Reproducer mechanism incorporates the following features:

- (a) Efficient versatility in catering for full range of 35 and 70mm formats.
- (b) Plug-in magnetic replay heads having adjustable Azimuth Mounting.
- (c) Double-drum scanning system ensuring minimum "wow" and "flutter".

SPECIAL POINTS

1. The fully stabilised pull-through drive scanning mechanism (as opposed to the driver mechanism) isolates the reproducer from mechanical interference that might otherwise be transmitted from the projector. The composite 35/70mm sprocket is free-running on its own shaft to enable the film to pull it round.

SPECIAL POINTS continued

2. The head assemblies (complete with connector) are easily inter-changeable from one type of track to another and are individually set for correct azimuth so that no resetting is required when changing over from one type of film to another.
3. The unit employs a tight-loop double-drum scanning system and a silicon fluid dashpot damped supression system which reduces "flutter" and "wow" to a minimum. The dashpot is made of perspex so that the quantity of silicon fluid it contains at any given time can be seen at a glance.
4. The plugs provided for use with the magnetic replay heads are of a robust type and feature non-tarnishable pins.
5. The connections to the socket are trimpots, by means of which the high-frequency projector self-reproduction from each track head can be balanced.

DIMENSIONS AND WEIGHTS

Reproducer

Width	12 ins.	(30.5 cms.)
Depth	9 ins.	(22.9 cms.)
Height	7 $\frac{1}{4}$ ins.	(19.7 cms.)
Weight	23 lbs.	(10.4 kgms.)

NOTE. The Westrex 5000 series of cinema projection and sound equipments are British made throughout. The Westrex Installation Planning Department is freely available to give advice on any aspect of film presentation.

5009A & B SINGLE CHANNEL PHOTO/MAG. WALL MOUNTING AMPLIFIER SYSTEM

INTRODUCTION

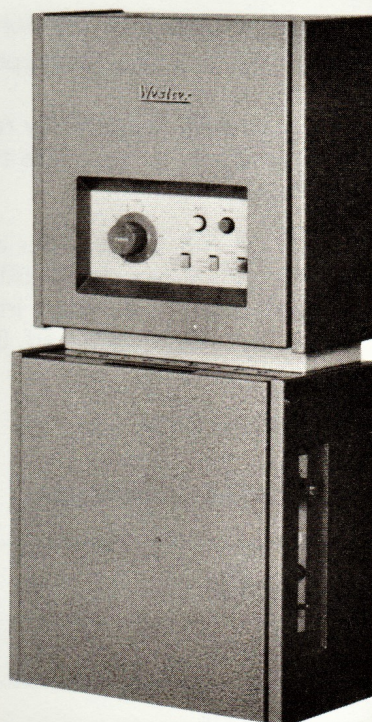
The British-made 5009A and B Single Channel Photo/Mag. Wall Mounting Amplifier System forms part of the new Westrex 5000 series of system-engineered equipments, designed to meet the needs of all current and anticipated film formats for all types of cinema theatres.

The Westrex 5009 type is wall mounting and features a solid state amplifier with control system, employing silicon transistors throughout. The assembly is designed to achieve a low-distortion figure with a high factor of stability. Provision is made for the fitting of an extension or auditorium "Fader".

SYSTEMS A & B

The 5009A system caters for photo track reproduction only from 2 projectors.

The 5009B system caters for photo track and single track Magnetic Reproduction from 2 projectors.



MAIN FEATURES

The wall mounting Amplifier and Control Systems incorporate the following units:

- (a) Two transistor Photographic Reproduction pre-amplifiers to work from a photovoltaic cell.
- (b) Two transistor low level line amplifiers.
- (c) Two interchangeable transistor 40 watt power amplifiers each with a power supply unit (one for the auditorium loudspeaker drive and one for the projection room monitor loudspeaker drive).
- (d) One Control Panel with operational mode selection switches for two machines, machine changeover relay, master fader, auxillary input (Disc Reproducer) switch and remote fader switch.
- (e) Two transistor Magnetic Reproduction pre-amplifiers. (For type B only).

SPECIAL POINTS

1. The circuitry of the 5009 is designed to achieve distortion of less than 0.1 per cent; stability against temperature and open circulated load; protection of the power transistors against inadvertant load short-circuit; and a signal to noise ratio not previously practicable.

SPECIAL POINTS continued

2. In order to allow efficient, easy and speedy service, pre-amplifiers, line amplifiers and power amplifiers are constructed on easily-interchangeable, plug-in circuit cards.
3. The speech transformers are also of the plug-in type.
4. Because the auditorium LS drive and monitor LS drive amplifiers are identical, they can, in an emergency, be interchanged completely by carrying out a simple plug change. This uniquely important feature ensures continuity of sound in problem circumstances.
5. Provision is made for the use of a remote (Auditorium) Fader if required.
6. Provision is also made for the switching into the system of a completely self-contained Disc Reproducer Set (e.g. Westrex type 2567).
7. Whilst the assembly is normally retained as one unit, it is, if necessary for mechanical convenience, practicable to segregate the sections 33244A & 33245A by simply elongating the interconnecting wires.

NOTE. The 5009 A & B Amplifier and Control System will operate from 220/240 V or 110/120 V one phase, 50/60 HZS supply.
Output capacity 40 watts into 8 ohms.
Maximum power required 90 VA single phase.

DIMENSIONS AND WEIGHTS

33244A Pre-amplifier and Control Section

Width	13 1/8 ins.	(33.3 cms.)
Depth	6 5/8 ins.	(16.8 cms.)
Height	13 5/8 ins.	(34.6 cms.)

33245A Power Amplifier Section

Width	13 1/8 ins.	(33.3 cms.)
Depth	8 ins.	(20.3 cms.)
Height	14 1/4 ins.	(36.2 cms.)

TOTAL WEIGHT of Control Unit and Amplifier 58 lbs. (26.3 kgms.)

N.B. The Westrex 5000 series of cinema projection and sound equipments are British-made throughout. The Westrex Installation Planning Department is freely available to give advice on any aspect of film presentation.

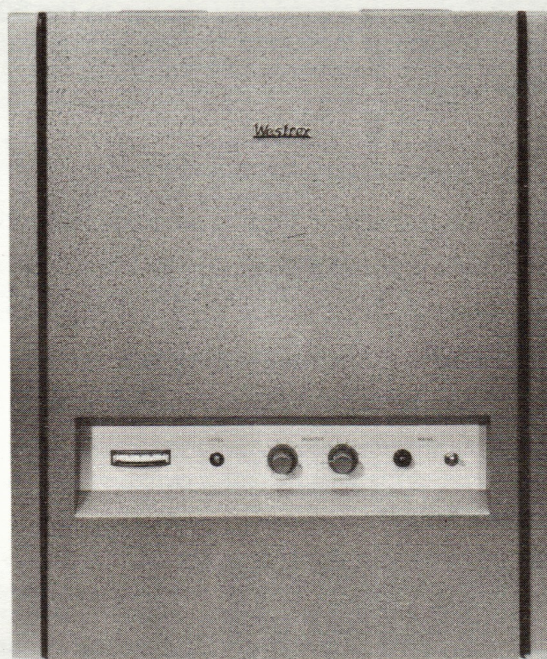
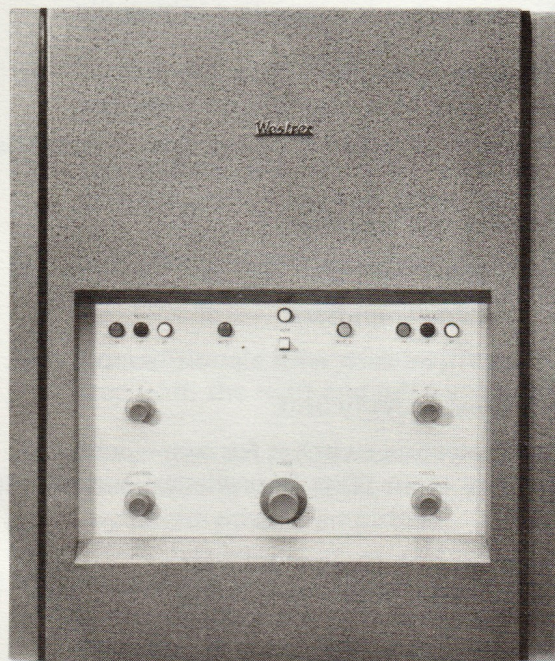


A DIVISION OF LITTON INDUSTRIES

DATA SHEET

CINEMA DIVISION

5011A & B and 5012A & B MULTI-TRACK SOUND AMPLIFIER SYSTEMS



INTRODUCTION

The British-made 5011 A & B and the 5012A & B Single Track Photographic and Multi-Track Magnetic Sound Amplifier Systems form part of the Westrex 5000 series of system-engineered equipments, designed to meet the needs of all current and anticipated film formats for all types of cinema theatres.

The Westrex 5011A & B and the 5012A & B Single Track Photographic and Multi-Track Magnetic Sound Amplifier Systems cater for all current single and multi-track film recordings and feature compact plug-in modules to facilitate servicing and easy replacement. The "A" versions are floor-mounting in one cabinet, and "B" versions are wall-mounting in two cabinets. This offers maximum choice to exhibitors in locating the equipment in the operating box.

SYSTEMS

The 5011A System caters for 4-track CinemaScope magnetic and single-track photographic reproduction from 2 projectors, and is supplied in a floor-mounting cabinet rack.

The 5011B is electrically similar to the 5011A system except that it is supplied in 2 wall-mounting cabinets. One of these contains the plug in pre-amplifiers and control panel. The other contains the main amplifiers and output control unit.

The 5012A system caters for 6-track 70mm magnetic, 4-track CinemaScope magnetic and single-track photographic reproduction from 2 projectors. It is supplied in a floor-mounting cabinet rack.

The 5012B System is electrically similar to the 5012A, except that it is supplied in 2 wall-mounting cabinets as indicated for the 5011B System.

MAIN FEATURES

1. The 5011A & B 35mm Single Track Photographic and Four Track Magnetic Sound Amplifier and Control Systems incorporate the following

- (a) Two transistor photographic reproduction pre-and line amplifiers.
- (b) Eight transistor magnetic reproduction pre- and line amplifiers.
- (c) One regulated power supply unit for the pre- and line amplifiers.
- (d) Five interchangeable transistor 40-watt main amplifiers each with a power supply unit.
- (e) One transistor 40 watt monitor amplifier with power supply unit.
- (f) One input control panel with operational mode selection switches for two machines, machine changeover relay, master fader and auxiliary input (Disc Reproducer) and remote fader switch.
- (g) One output control panel with monitor volume control, channel selector switch, volume indicator meter and sensitivity control, on-off switch and mains indicator lamp.

2. The 5012A & B Single Track Photographic, 4-track CinemaScope and 6-track 70mm film Amplifier and Control System incorporate identical units to the 5011 System, but with the addition of:

Four transistor magnetic reproduction pre- and line amplifiers.

Two transistor 40 watt main amplifiers each with power supply unit.

SPECIAL POINTS

- (1) Full use is made of plug-in modules to facilitate servicing and easy replacement.
- (2) The wall mounting cabinets of the 5011B & 5012B Systems provide easy access via the removable front and side panels. The floor mounting rack for the 5011A & 5012A Systems provides access via a front or rear door.
- (3) The 8 solid-state 33223A amplifiers use silicon transistors throughout and are interchangeable.
- (4) Every consideration has been taken in design to ensure that, should one unit of the equipment fail for some unforeseen reason, the system will remain operative by means of inter-change of plug-in units and duplication of units that are not pluggable.
- (5) To this end, each machine is provided with one photographic and 4 or 6 magnetic pre- and line amplifiers, each of which has its own individual, level-balancing control.
- (6) The control panel provides switching, whereby each machine can be pre-set for photographic, 4-track magnetic or 6-track magnetic reproduction.
- (7) In addition, switching is provided to enable a 2567 Type monophonic or stereophonic disc replay unit to be fed into any of the 4 or 6 channel amplifier systems.
- (8) An additional factor of safety is provided by the use of separate 33223A amplifiers to feed both the right and left hand ambient loudspeakers.
- (9) For projection room monitoring a 33223A power amplifier is used, identical with those used for the auditorium loudspeakers, and thus becomes an emergency spare for any of the other 7 amplifiers.
- (10) Provision is made, with an output control panel, to switch the monitor loudspeaker to any channel and to connect a volume indicator meter across the output of each loudspeaker channel to enable each channel to be tested for balance and frequency characteristic.
- (11) All amplifiers have a 40-watt output and feed into the 5010A Back Stage Auditorium Loudspeakers.
- (12) To facilitate the most economical use of manpower, the volume from both projectors and the disc reproducer is controlled by the master fader, a switch on the same panel selects the source of sound, i.e. projectors or disc reproducer.
- (13) Should it be the exhibitor's intention to fit some form of automatic machine change-over, a switch is provided to divert control from the manually operated push buttons to the film changeover switching device.
- (14) The sturdy 5011A & B and 5012A & B cabinet assemblies are intended for use with 2 projectors, each incorporating independent photographic and magnetic reproduction pre-amplifiers.
- (15) A point of particular interest to both overseas and U.K. exhibitors will be that the equipment (like other units in the Westrex 5000 range) can be connected to operate from 220/240 volts or 110/120 volts single phase 50/60 HZ supply.
- (16) Installation is a simple matter when carried out under the supervision of a Westrex field engineer, who will also carry out film commissioning tests on both projectors and sound reproduction system in general.

DIMENSIONS AND WEIGHTS (Approx.)

"A" Units Floor Mounting

Width	22¼ ins.	(56.5 cms.)
Depth	15¼ ins.	(38.7 cms.)
Height	76 3/16 ins.	(193.5 cms.)
Weight	300 lbs.	(136.1 kgms.)

"B" Units Wall Mounting

(a) Pre-amp & control assembly 33246

Width	22¾ ins.	(57.8 cms.)
Depth	13 3/8 ins.	(29.6 cms.)
Height	28 ins.	(71.0 cms.)
Weight	160 lbs.	(72.6 kgms.)

(b) Power Amplifiers and output control assembly 33247

Width	22¾ ins.	(57.8 cms.)
Depth	13 3/8 ins.	(29.6 cms.)
Height	28 ins.	(71.0 cms.)
Weight	140 lbs.	(63.5 kgms.)

NOTE.

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A DIVISION OF LITTON INDUSTRIES

DATA SHEET

CINEMA DIVISION

5010A BACK STAGE AUDITORIUM LOUDSPEAKER

INTRODUCTION

The British-made 5010A Back Stage Auditorium Loudspeaker is part of the Westrex series of system-engineered equipments designed to meet the needs of all current and anticipated film formats for all types of cinema theatres.

The Westrex 5010A is a high-quality Duplex stage loudspeaker system, the design of which is based on many years of experience and very recently up-dated to take advantage of new magnetic materials and plastics. It offers separate high-efficiency units for bass and treble reproduction, the response of which can be balanced and directed as required by the auditorium.

Also available is the 5010B in kit form, without the baffle woodwork 2084C. A set of drawings accompanies each kit so that the baffle can be made locally. This is particularly useful to overseas customers.

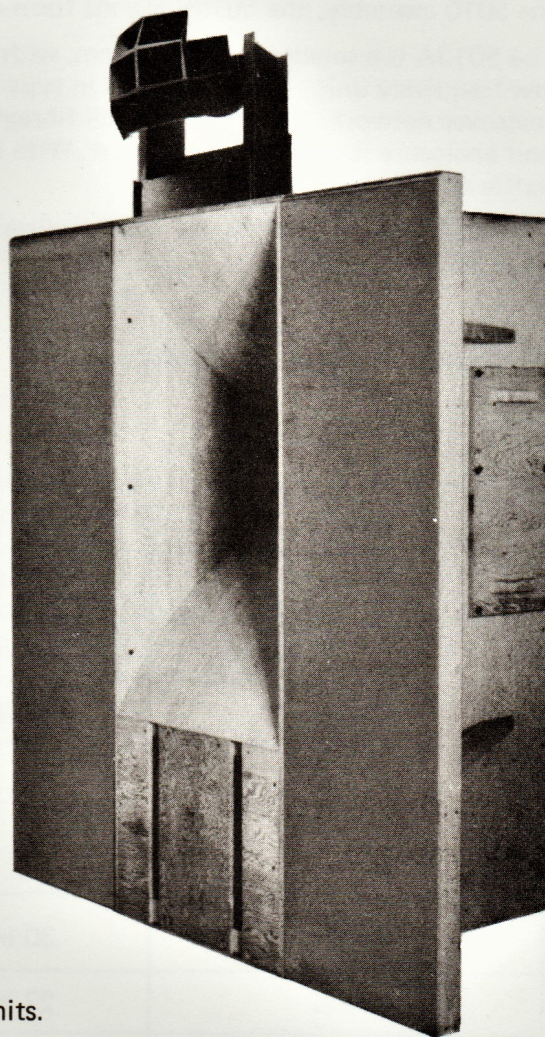
MAIN FEATURES

The 5010A Back Stage Auditorium Loudspeaker incorporates the following units:

- (a) Two 2080-F low-frequency loudspeaker units.
- (b) One 2090-G high-frequency loudspeaker unit.
- (c) One 2084-C low-frequency baffle assembly.
- (d) One 2092-B 12-cell high-frequency horn.
- (e) One 31772-C 675 HZ cross-over network.

SPECIAL POINTS

1. The high-quality Duplex system has been updated by the employment of ceramic magnets for both the high-frequency and the low-frequency units.
2. To achieve optimum distribution of sound in the auditorium, several multi-cellular and acoustic lens types of high-frequency horn are available to suit auditoria differing in size and shape.
3. Among types available are a 12-cell fibreglass assembly, an 8-cell fibreglass assembly, and a single-cell fibreglass horn with acoustic lens for wide-angle distribution of high-frequency sound.
4. The low-frequency assembly consists of two 15" direct radiators, mounted in a matching baffle.
5. The baffle is designed for side entry, so that the low-frequency units can be easily serviced.



6. The half-section 675 HZ network provides for crossover at the optimum frequency and includes an HF balancing attenuator.
7. An impressive loudspeaker efficiency with a wide frequency band response free from distortion is the hallmark of the 5010A. As the loudspeaker is normally operated in a cinema at only a fraction of its handling capacity, vulnerability to failure is for practical purposes non-existent.

ALTERNATIVE

Where it is totally impracticable to use the 5010A loudspeaker assembly because of its size, an alternative is available in the 5013 Back Stage Auditorium Loudspeaker assembly. As with the 5010 assembly, the 5013B is a kit form of the 5013A less the LF Unit wood enclosure.

The 5013A is a smaller Duplex system, with one 2090G high frequency unit, one 2080F low-frequency unit – both identical in type to those used in the larger system, with an identical crossover network. The 209 eight cell fibreglass HF horn replaces the 12 cell horn and the LF unit enclosure is considerably smaller. With both the 5010B & 5013B kits, drawings of the LF Baffle and Enclosure are included.

The 5013A is very suitable for small auditoria (where backstage space is at a premium) or in small review theatres.

DIMENSIONS AND WEIGHTS (Approx.)

5010A

Width	80½ ins.	(204.5 cms.)
Depth	39½ ins.	(100.3 cms.)
Height (overall)	102 ins.	(259.1 cms.)
Weight	450 lbs.	(200 kgms.)

5013A

Width	30 ins.	(76.2 cms.)
Depth	27 ins.	(68.6 cms.)
Height (overall)	60 ins.	(152.4 cms.)
Weight	180 lbs.	(81.6 kgms.)

NOTE.

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Westrex

A DIVISION OF LITTON INDUSTRIES

Westrex Cinema Divison

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"WESTREX 70"
EQUIPMENT LIST

<u>Quantity</u>	<u>Model</u>	<u>Description</u>
2	5000 A	Projector
2	5001 A	Upper film magazine, 25" diameter, with adjustable spring loaded hold
2	5002 A	Lower Film Magazine, 25" diameter, with independent Torque Motor/Clutch driven 1/2" diameter take-up film spool shaft for ASA standard spools
1	5003 A	Projector Pedestal with hand wheel control of the projection angle and housing the Projector Drive Motor Control, starting devices, simultaneous picture and sound changeover control button, picture change-over power supply, exciter lamp power supply and framing lamp control
1	5003 B	Projector Pedestal with hand wheel control and incorporating all the items listed under 5003 A but less the picture changeover power supply
2	5004 A	Swing-away Anamorphic Lens Mount (for cylindrical type Anamorphic Lenses)
2	5006 A	Photographic Sound Reproducer with operational Exciter Lamp, Photovoltaic Cell Pick-up, Twin "V" Belt driven Pulley, matched pair of "V" Belts and toothed rubber belt drive details for Westrex Projector mechanism and Drive Mounting Plate
2	5007 A	Motor, induction, 1/4 HP, 220/240 volts or 110/120 volts AC, one-phase, 50 or 60 HZS, split phase start, supplied with Drive Pulley for 50 HZS operation
2	5008 C	Magnetic Sound Reproducer for 35 and /or 70 mm film, pull-through type with plug-in Magnetic Head and Azimuth Mount for 70 mm six track Todd-AO reproduction only

Total For
Above
\$12,500.00

<u>Quantity</u>	<u>Model</u>	<u>Description</u>	
	5009 A	Wall-mounting Amplifier and Control System for photographic reproduction only from two projectors	\$2,000.00
	5009 B	Wall-mounting Amplifier and Control System for photographic and magnetic reproduction from two projectors	\$2,115.00
	5011 A	Amplifier and Control System, single track mounting for photographic and four track Cinemascope reproduction only from two projectors	\$7,190.00
	5011 B	Amplifier and Control System, wall-mounting	\$7,190.00
	5012 A	Amplifier and Control System single track mounted for photographic four track Cinemascope and six track 70mm film reproduction from two projectors	\$8,460.00
	5012 B	Amplifier and Control System, wall-mounting in two cabinets of identical dimensions for photographic, four track Cinemascope and six track 70mm film reproduction from two projectors	\$8,460.00
	33236 A	Magnetic Head, six track	\$175.00
	33237 A	Magnetic Head, four track	\$145.00

Total For
Above
\$12,500.00

"WESTREX 70"
EQUIPMENT LIST

<u>Model</u>	<u>Description</u>	<u>Model</u>	<u>Description</u>
5000 A	Open type mechanism catering for both 35 and 70mm film and incorporating: Triple Lens Turret for 70mm diameter Lenses Single Rear Shutter Picture Changeover Device Water-cooled Gate Mounting Interchangeable Curved Gate Assemblies and Pad Arms for 35 and 70mm film One each interchangeable 35mm standard, 35mm Cinemascope and 70mm Aperture Plates with Pilot Aperture		back clutch and 1/2" diameter film spool shaft for ASA standard spools
		5002 A	Lower Film Magazine, 25" diameter, with independent Torque Motor/Clutch driven 1/2" diameter take-up film spool shaft for ASA standard spools
		5003 A	Projector Pedestal with hand wheel control of the projection angle and housing the Projector Drive Motor Control, starting devices, simultaneous picture and sound changeover control button, picture changeover power supply, exciter lamp power supply and framing lamp control
		5003 B	Projector Pedestal with hand wheel control and incorporating all the items listed under 5003 A but less the picture changeover power supply
5000 B	Open type Projector mechanism, catering for 35mm film and convertible for 70mm film and incorporating all the items listed under 5000 A but less Curved Gate Assembly, Pad Arm and Aperture Plate for 70mm film	5004 A	Swing-away Anamorphic Lens Mount (for cylindrical type Anamorphic Lenses)
5000 C	Open type Projector mechanism catering for 35 and 70mm film and incorporating: Single Lens Mount for 101.4mm diameter Lenses Single Rear Shutter Picture Changeover Device Water-cooled Gate Mounting Interchangeable Curved Gate Assemblies and Pad Arms for 35 and 70mm film One each interchangeable 35mm standard, 35mm Cinemascope and 70mm Aperture Plates with Pilot Aperture	Options	Spare Aperture Plates with Pilot Aperture (state whether required for 35 or 70mm film) Lens Adapters to facilitate the mounting of Lenses in the Turret having a diameter less than 70mm (state diameter and purpose of the lens to be fitted) Lens Adapters to facilitate the mounting of Lenses in the single lens mount having a diameter of less than 101.6mm (state diameter and purpose of the lens to be fitted)
		5006 A	Photographic Sound Reproducer with operational Exciter Lamp, Photo-voltaic Cell Pick-up, Twin "V" Belt driven Pulley, matched pair of "V" Belts and toothed rubber belt drive details for the Westrex Projector mechanism and Drive Mounting Plate
5000 D	Open type Projector mechanism catering for 35mm film and convertible for 70mm film and incorporating all the items listed under 5000 C but less Curved Gate Assembly, Pad Arm and Aperture Plate for 70mm film	5007 A	Motor, induction, 1/4 HP, 220/240 volts or 110/120 volts AC, one-phase, 50 or 60 HZS, split phase start, supplied with Drive Pulley for 50 HZS operation
5001 A	Upper film magazine, 25" diameter, with adjustable spring loaded hold-	5007 B	Motor, induction, 1/4 HP, 220/240v or 110/120v AC, one-phase, 50 or 60 HZS, split phase start, complete with Drive Pulley for 60 HZS operation

<u>Model</u>	<u>Description</u>	<u>Model</u>	<u>Description</u>
5008 A	Magnetic Sound Reproducer for 35mm film, pull-through type with plug-in Magnetic Head and Azimuth Mount appropriate to the particular type of 35mm Commag (single track) film to be used		watt main amplifiers and power supply units
5008 B	Magnetic Sound Reproducer for 35 and/or 70mm film, pull-through type with plug-in Magnetic Head and Azimuth Mount for 35mm four track Cinemascope reproduction only	1	Transistor 40 watt monitor amplifier power supply unit
5008 C	Magnetic Sound Reproducer for 35 and/or 70mm film, pull-through type with plug-in Magnetic Head and Azimuth Mount for 70mm six track Todd-AO reproduction only	1	Input Control Panel with operational mode selection switches for two machines, machine changeover relay, master fader and auxiliary input (non-sync) and remote fader switch
5009 A	Wall-mounting Amplifier and Control System for photographic reproduction only from two projectors including: <ul style="list-style-type: none"> 2 Transistor Photographic Reproduction pre-amplifiers 2 Transistor low-level line amplifiers 2 Interchangeable Transistor 40 watt Power Amplifiers and power supply units (one for monitoring) 1 Control Panel with operational mode selection switches for two machines, machine changeover relay, master fader and auxiliary input (non-sync) and remote fader switch to operate from 220/240 or 110/120 volt, one-phase, 50/60 HZS supply 	1	Output Control Panel with monitor volume Control, channel selector switch, volume indicator meter and sensitivity control, on-off switch and mains indicator lamp to operate from 220/240 or 110/120v, one-phase 50/60 HZS supply
5009 B	Wall-mounting Amplifier and Control System for photographic and magnetic reproduction from two projectors including all the details listed under 5009 A but in addition: <ul style="list-style-type: none"> 2 Transistor Magnetic Reproduction pre-amplifiers 	5011 B	Amplifier and Control System, wall-mounting in two cabinets of identical size containing all the items listed under 5011 A
5011 A	Amplifier and Control System, single track mounting for photographic and four track Cinemascope reproduction only from two projectors including: <ul style="list-style-type: none"> 2 Transistor Photographic Reproduction pre-amplifiers 2 Transistor low-level line amplifiers 8 Transistor Magnetic Reproduction pre-amplifiers 8 Transistor low-level line amplifiers 4 Interchangeable Transistor 40 	5012 A	Amplifier and Control System, single track mounted for photographic four track Cinemascope and six track 70mm film reproduction from two projectors including: <ul style="list-style-type: none"> 2 Transistor Photographic Reproduction pre-amplifiers 2 Transistor low-level line amplifiers 12 Transistor Magnetic Reproduction pre-amplifiers 12 Transistor low-level line amplifiers 7 Transistor 40 watt main amplifiers and power supply units 1 Transistor 40 watt monitor amplifier and power supply unit 1 Control Panel with operational mode selection switches for two machines, machine changeover relay, master fader, auxiliary input (non-sync) and remote fader switch
		5012 B	Amplifier and Control System, wall-mounting in two cabinets of identical dimensions for photographic, four track Cinemascope and six track 70mm film reproduction from two projectors including all the items listed in 5012 A
		33236 A	Magnetic Head, six track, plug-in Azimuth mount for use with 5008 B and C Magnetic Reproducer
		33237 A	Magnetic Head, four track (Cinemascope), plug-in Azimuth mount, for use with 5008 B or C Magnetic Reproducer