Strand Lighting

FACT sheet

Number 6 May 1992

HOIST SYSTEMS FOR TELEVISION STUDIOS

Lighting Solutions

In television studios the quality and effectiveness of the lighting approach not only has a direct influence upon the technical quality of the resultant pictures produced from the studio, but on the efficiency of the studio operation and ultimately its competitiveness as a production facility. Suspension systems have become an important part of the total lighting design consideration.

For a new studio project the opportunity exists to consider not only the capital cost of the project itself, but also the costs of operating that studio, evaluating capital investment against the costs of ownership.

The major capital investments in lighting equipment can be summarised as:

- suspension systems
- automated luminaires
- digital dimmer system
- control system

The benefits could include:

- Reduction in structural costs
- Reductions in installation costs
- Avoidance of later expensive refurbishment

Operating cost benefits could include:

- Reduction in labour level and costs
- Faster set-up and turn round times
- Simplification of maintenance tasks
- Quality consistency
- Improved studio utilisation

Today's suspension systems from Strand Lighting comprise a unique range of equipment based on the helical winding drum. This system offers a great many benefits when compared with the conventional pile winding (yo-yo) drum. This Fact Sheet provides a brief introduction and overview of the benefits of Suspension Systems for TV Studio applications.

Reasons For Suspensions Systems

Whatever the size of the studio the available usable floor area is one of the most important facilities. Lighting and scenery can of course be rigged on the studio floor using stands, tripods and other rigging aids. The result is a maze of electrical cables and other obstructions and restrictions around the floor. The available floor area for the sets, actors and camera travel is therefore greatly reduced. At the same time the facility offered by the studio height is greatly under utilised.

The solution is to install a suitable overhead suspension system.

Efficient studios must include suspension systems capable of providing short rigging and de-rigging times and minimise the manpower involved.

The solution is to install a suitable overhead suspension system.

No matter how thoroughly a program is planned, the studio lighting plot will be refined on the day. Most overhead suspension systems allow these changes to be completed from the studio floor.

The solution is to install a suitable overhead suspension system.

The systems must provide a high degree of versatility to satisfy the requirements of Lighting Directors and Studio Managers. Over the last ten years close involvement with the BBC and other major broadcasting organisations, has led to the development of a lighting hoist concept to suit the exacting operational and safety requirements of television studios.

Reasons For Hoist Type Selection

PROGRAMME/PRODUCTION TYPES
Production studios must now be capable of satisfying the needs of a great variety of programme types. There are a number of ways that suspension systems can help this to be achieved:

Studios of around 300 square metres (3300sq.ft) or more justify a full saturation rig using lighting barrel hoists with a comprehensive scenery hoisting system. Self Climbing or Roof Mounted Lighting Hoists could be used with typical barrel lengths between 1.8m and 4 metres (6ft to 13ft)

The system must of course include a powerful control system to maximise its benefits.

Suspension Forms

The table below outlines the general types of studio suspension equipment we recommend for particular studio sizes. While there are no firm rules the optimum product type, (ignoring budgets) is based on studio area, cyclorama height and grid height.

Studio/Suspension Type	**Maximum Typical Grid/Track Height**	**Typical Studio Area**	
Pipe grid/ Track and Barrel	m (ft)	m^2	(ft^2)
Lighting Suspension Form: Strand Lightrig	4 (13')	20-100	(200-1000)
Spring Pantograph	5 (16')	100-300	(1000-3300)
Hand Wound Pantograph	6 (20')	100-400	(1000-4300)
Motorised Pantograph	7.5 (25')	100-400	(1000-4300)
Roof/ Grid Support Structure			
Lighting Suspension Form:			
Motorised or Manual Telescope	10 (33')	600-800	(6500-8600)
Self Climbing Hoist	15 (50')	300-1500	(3300-16000)
Grid Mounted Hoist	15 (50')	600-1500	(6500-16000)
Scenery Suspension Form			
Grid Mounted Hoist with Trolley	15 (50')	600-1500	(6500-16000)
Track Mounted Hoist with Trolley	15 (50')	600-1500	(6500-16000)
Portable Scenery Hoist	15 (50')	600-1500	(6500-16000)

Cost Factors

An effective suspension system represents an important initial capital investment. However a Strand system fully integrated with the building structure generally offers substantial financial and weight savings. Strand's project involvement at

the building design stage is therefore very important.

The facility must remain in use for as much time as possible. Equipment reliability and minimal maintenance and inspection periods are therefore essential for an efficient operation.

Safety inspectorates are progressively becoming more involved with suspension equipment for public access buildings. Similarly insurance companies are becoming more insistent on regular

and thorough equipment inspections. Hoists must usually be inspected at 12 monthly intervals. The system design must allow for quick and thorough inspection, Strand hoists are noted for this feature.

Building Form

Production Studios containing adequate facilities require a substantial structure to support both the roof of the building with its associated loadings and the suspension equipment.

To achieve the optimum layout the design of the suspension system and the design of the suspension system support structure must be closely coordinated.

One of the most efficient operational and structural systems in a medium sized studio is a lattice truss arrangement. This can be used to support a wide range of hoist systems and can be used as the basis of a full walk over grid. An effective design can generally reduce the overall building height. The various services (air conditioning and electrical trunking for example) can be passed through the lattice truss without affecting or restricting the available studio headroom.

Lighting Hoists

There are many different forms of lighting hoist available. On a medium size studio the main distinction is between a barrel hoist system and a telescope system. There is always a great deal of discussion between lighting directors as to the best system.

Strand can offer equipment to suit any requirement, typical suspension systems currently available are:

LIGHTING HOISTS

Barrel Hoists

- Self Climbing Hoists
- Roof Mounted Hoists

Single Point Hoists

- Motorised Telescopes
- Manual Telescopes
- Motorised Pantographs
- Pole Operated Pantograph
- Spring Pantograph

SCENERY HOISTS

- Portable Hoists
- Track Mounted Hoists
- Roof Mounted Hoists

RIGGING ACCESSORIES

- Lightrig (Track and Beam)
- Clamps (various forms)
- Trolleys (various forms)

Hoist Control

Without an effective control system the benefits of a motorised suspension system cannot be fully utilised. The control system is the only interface between the studio user and the suspension equipment. It must therefore provide all the flexibility a lighting director requires while reducing the manpower necessary to achieve it.

One of the most important features is the ability to operate hoists in groups. This facility allows a number of hoists to be selected at the same time and positioned using a single raise/lower button. Greater flexibility can be achieved by allowing control of more than one group. This allows the studio to be rigged by a number of people at the same time (by allocating one group to each). A particular lighting plot may physically link a number of hoists together. Groups can be used in this situation to ensure those hoists selected into a particular group always move together.

We have already mentioned the developing requirement for thorough regular hoist inspection. The hoist and any associated control system have many obvious safety implications that must be accommodated at the equipment design stage.

Strand currently offer two forms of hoist control console, a wall mounted console and portable (trolley mounted) console. Both systems offer control of up to eight groups with a geographic mimic of the studio hoist layout to enable hoists to be quickly located.