STRAND SYSTEM IDM/RI.
OPERATING INSTRUCTIONS.

DRAFT

1. INTRODUCTION.

The operator should keep in mind at all times that IDM is an instant dimmer memory system and in consequence lighting changes and cues should be seen in terms of recording and playback. This is at the moment a novel principle, but in the future will become common-place. It is thus up to the operator and lighting designer whether they opt for the methods of the future or try to make this control ape the practices of the past. Cues, however complex the change of level, which use the memory to the full and rely on one Master Fader only or just the CUT button to put them into effect, will be easy cues to carry out. Furthermore during rehearsal they will involve negligible writing down on the part of the operator, and can be returned to instantly and repeated in and out of order instantly.

To begin the control should be set with one Master at full and the other at zero. This done the window above the first will show Green and above the other Red. The windows will both display 000 indicating that no memory has been READ. The three Inhibitor group masters should be set at full and care taken that no inhibitor selector pushes on the wing are set 'On' (i.e. are alight). It is recommended that every effort is made to plan the carrying out of each lighting cue without resort to the inhibitors. They have to be hand selected using the 600 or so on-off luminous push buttons and of course add to the number of master controls in play at a particular moment. In the event of the inhibitors being used for a particular sequence, an omnibus memory should be set to cover the total state at the end of the sequence thus enabling all Inhibitor masters to be put to full (i.e. out of action) at the earliest possible moment. There is however one particular convenient use of an inhibitor which is an exception to the above, namely action as a Front of Tabs Master. All channels which would present an untidy appearance as spots and patches of light on the house tabs or act-drop are selected on an Inhibitor. It is then only necessary to raise or lower this one master as the tabs come in or out, and any cue will be deprived of the light on the curtain without affecting the set-up backstage.

2. CHANNEL CONTROLS (on the wing Unit).

All control and display of individual channels is by means of a ROCKER tablet sprung either side of a centre neutral position. It is internally illuminated in Red and/or Green to half intensity and full. There is no operational significance in the mounting of the Green lamp inside the top and the Red in the bottom of the rockers. This has merely/been adopted to give the operator a clear display when both are in use. The performance of the rocker is governed by the SPEED regulator lever and TOP positioner lever described under masters below.

Integral with the rocker is the AMBER PUSH in its centre. The action of this continues only under finger pressure and is subject to the MODE switch below.

3. MASTER CONTROLS (in the desk)

There are two master FADERS which alternately are responsible for incoming and outgoing lighting. These are direct acting and rely on manual operation. The incoming fader at the time is shown by a RED background to the numerical INDICATOR window over it, and a GREEN represents the outgoing. Choice of role and therefore the change of colour both here and at rockers is automatically determined.

Immediately over the centre of the two windows is the READ push and above that the CUE SELECTOR. This latter is electro-mechanically operated by two sprung centre tab switches underneath. The right-hand one operates vertically and it is pushed up once to obtain the NEXT number to the one already displayed there. (e.g. 7 will follow 6, or 100 will follow 99). When the tab is held down, the indicator will CANCEL to zeros. The left-hand tab works horizontally, and when pushed to the right gives the next digit in the tens column, or to the left the next in the hundreds column, in each case leaving the other columns unchanged. The operation of the READ push collects the number from the CUE selector to display it as Red in the INDICATOR of the FADER at zero. (If both are at zero it chooses one only).

Between the two FADERS is the CUT push button which transposes the number in the RED and GREEN INDICATORS and of course the content in playback they represent. The tab switch below gives HOLD and RED MOD. In its normal off condition all modification is assumed to take place on the Green (existing lighting) and to modify the Red (incoming lighting) it will be necessary to use the RED MOD or HOLD switches (see below). CANCEL is a push covered by a hinged lid and wipes the content of both the RED and GREEN playbacks, but not the contents of the magnetic MEMORY.

To the left of the FADERS is the CROSSFADER which is switched in to take over from them by the tab switch alongside. Further over to the left are the C,D and E INHIBITOR faders which when in the zero position prevent chosen channels from lighting on the stage no matter what may be done with the other controls. Choice is made by the auxiliary luminous on and off push buttons of three colours on the wing unit. When any of these push buttons are put 'on' the luminous scale of the appropriate INHIBITOR fader will light in the same colour thereby providing a warning that its position now needs to be taken into account when working a cue.

The LEVEL indicator window over responds to the centre PUSH of each rocker normally to give information in 5% steps of the level of the particular channel in playback. This is determined by the MONITOR GREEN position of the tab type MODE switch above and use of the AMBER PUSHES in the rockers. The other positions of this MODE switch cause these to MONITOR RED and to FLASH the channel dimmer to off for identification purposes.

Two further controls to the right of the master FADERS are also associated only with the channel ROCKERS. These are the SPEED regulator and the TOP positioner. The first sets the rate at which a ROCKER will change the level of its dimmer. Slowest speed is at the bottom. The TOP positioner when placed other than at 100% (10) cuts out the SPEED regulator and substitutes an instantaneously attained channel level for any ROCKER touched.

RECORD and RE-RECORD at the top of the master panel must be illuminated by turning the safety keyswitch between them before they will operate. The function of both is exactly the same, namely to file instantly in the magnetic memory the complete dimmer levels at that time in action. The number associated with this file is governed by the SELECT-OR immediately under the push. The SELECTOR on the right is reserved for RECORD only whereas that in the centre is more normally used with READ in   order to playback hence the use of the expression RE-RECORD in that case.

4. To RAISE and LOWER LIGHTS INDIVIDUALLY to FORM A LIGHTING PICTURE.

The SPEED regulator is set to for example 6, and the top of the ROCKER for the channel concerned is depressed. Immediately the Green pilot inside the rocker will come on at half and the dimmer will steadily increase to full. At full no further gain being possible, the Green pilot lamp switches suddenly to full. This process can be interrupted at any time by removing the finger. The actual level of the dimmer can be checked by using the AMBER PUSH in the centre of the rocker. To lower the light the bottom end of the rocker is pressed and completion of dim is indicated by extinction of the light in the rocker. Any number of channels can be raised or dimmed or a mixture of both simultaneously the only limitation being the dexterity of the operator's fingers.

The rockers of channels which have been operated will also show an amber light in the centres as a warning of an unrecorded state. This display can only be cancelled by allocating a memory number and recording. Any number except 000 may be used and whether or not the combination set up is likely to be used, it is a wise precaution to give it a number as often after a series of second thoughts and mods

the Director decides that the first shot was best and one wishes the combination had not been cancelled. Even if the combination has been completely rejected and a fresh start has to be made, this procedure may be used to clear the desk so to speak and get rid of Amber indications untidily left over from the previous abortive exercise.

5. To set DIMMERS to PREDETERMINED LEVELS to FORM A LIGHTING PICTURE.

Instead of the 'up a little', 'down a little' procedure in 4 above, it may be desired to set dimmers to a known level or levels. Thus if the lighting channels to make up a particular effect were set at for example 7, then the picture could subsequently be composed or balanced when the cast is present by raising some channels and dimming others, where-as if they had been set to full initially only dimming down could be practiced.

To do this with the minimum trouble the TOP positioner is pulled down to 7 (for example). From then on any channels where ROCKERS are touched at the top will instantly take up position 7. This will happen whether the channel is already at full or zero, or at an intermediate level. The TOP limit regulator can of course be altered to differing positions to set several channels to a series of differing levels. When using this method it will have been noticed that the SPEED regulator is cut out and it can be left as remains convenient for normal working. To obtain switching full-on instantaneously the TOP limit is set half a division down from the top to 9.5 This is sufficient to invoke the instant-aneous speed without representing a change of level.

6. To FADE OUT or FADE IN ALL LIGHTING.

To fade out is simply a matter of moving the FADER which displays Green at the time. The two FADERS Red and Green are however interlocked and the normal operational procedure requires that if the Red is put to full and the Green is taken to zero, then the content of the latter is automatically tripped and it displays Red (this now being the fader for incoming lighting). At the same time the previous Red FADER being at full turns Green since it now represents the lighting in use. (i.e. so far nothing = blackout). To inhibit the loss of lighting from the FADER when taken to zero, the on-off luminous push RETAIN should be put on (white light displayed). To set up an alternative picture, or what in effect is a second manual preset at this stage, with RETAIN on proceed as before to set up the next required combination of channels at chosen levels.

Using the two FADERS in conjunction with RETAIN, two groups of lights are under master control and the ROCKERS associated also change colour to correspond to that of their FADER always. Selection for or modification to the Green at the time requires normal action as in 4 or 5 above, but for the Red requires RED MOD to be put on in addition.

7. To BLACKOUT.

Lift cover of CANCEL and press momentarily. This action wipes both the master fader playback stores simultaneously and in consequence light can only be restored by Re-Reading a memory or setting up the channels again individually by hand.

To provide a Blackout in which the lighting can be restored SELECT 000 (all channels at zero) and READ whereupon this will appear on the incoming Red FADER. This is kept at zero and the CUT button operated instead. This immediately exchanges the contents of the two FADERS and the result is Blackout. CUT again and the lights come on - a process which can be repeated as often as required whether RETAIN is on or not being immaterial. This also provides a method for a partial blackout leaving some lights on, by ensuring that some channels are in fact selected on the incoming Red master although it is at zero. For example channels 1 to 20 might be selected on Green and 1 to 5 at exactly the same level on Red. The effect in this case will be to switch first off and then on 6 to 20 each time the CUT push is used. This could be extended to cross-cutting between two groups while retaining 1 to 5 as commons, by selecting 21 to 30 (for example) as well as 1 to 5 on Red.

It may be preferred to carry out blackouts using the two FADERS There is no objection to this method and speed of response is only determined by the operators skill in banging down either or both faders - RETAIN being put on if the same lighting is to be restored. From the operators point of view this method of blackout keeps the drill both for switching and dimming identical and acts as a reminder that using Thyristors the same electrical process is involved, switching so to speak is fast dimming and dimming is slow switching.

8. OPERATION using INSTANT DIMMER MEMORY.

While a little thought will show that using the basic principles outlined in 4,5,6 & 7 above it is possible to go on and perform a number of common lighting changes, it is obviously the complete negation of the reason for installing an IDM if this is done. Even if the lighting only requires half a dozen memories then the system should still be used fully and such use will increase familiarity with the method of control with consequent benefit when a really big show comes along. It is a good idea before beginning any rehearsal to have some common groups of lighting already memorised. Some of these might be common to all work in the particular theatre, and never be changed, others may be set in anticipation of the needs of the layout of the particular show. This could be deduced from the patching instructions. For these fixed or semi-fixed memories the very high numbers say above 200 would be appropriate since they would be unlikely to be disturbed, by subsequent recording of actual production cues.

The lighting represented by four of these memories might be cyclorama dark-blue, light-blue, green and red, memorised as full on. They can be then added as a group with any degree of reduction if desired using the FADERS as in 14 below. The existence of such set memories is assumed in some of the instructions below, but they would of course have themselves first to be set using the procedures outlined in the earlier parts of these instructions (above and below).

The expression RECORD is used to describe the process of magnetically filing the contents of a cue or stage lighting picture or preset (call it what you will) in the Memory. It should not, however, be confused with the familiar slow sequential process of tape recording, being instead an instant process happening as fast as the operator can press and release the push button.

9. REHEARSAL.

The paragraphs 10 to 14 which follow cover the early building up of lighting, as in a lighting rehearsal, to form a series of pictures each later to be played back and brought in as a cue using FADERS or CUT, as appropriate to the needs of the action on the stage. This later repetition may still involve modification and constitute action rehearsals – run throughs with or without interruption. Paragraph 15 onwards is more concerned with that   later stage. For the present RETAIN should be put on and kept on. One FADER should be up, the other down.

10. To SET UP A LIGHTING EFFECT or STAGE PICTURE.

Touch rocker of required channel at top allowing light to increase at SPEED chosen. To reduce light touch bottom of rocker. At required level remove finger to allow return to neutral.

Continue process using one or more rockers at a time as necessary until lighting picture on the stage is complete (at any rate for the moment). The panel will now display a number of Green pilot lights in the rockers, some at half intensity and others at full. Except in the case of the later the Green pilots represent various intermediate levels of stage lighting. To monitor or examine a level (if requested) the AMBER PUSH in the centre of the appropriate rocker should be used to show it as a percentage in the LEVEL indicator. All rockers which have been used even if subsequently returned to zero as unwanted will in any case be showing pilot lights in their AMBER PUSHES as a warning of an unrecorded state.

To confirm or identify the contribution of a particular lighting channel to the lighting on the stage the mode switch is moved from MONITOR GREEN to FLASH and the rocker push used. The stage light will then flash to off. Return mode switch to MONITOR GREEN immediately after.

11. To RECORD A LIGHTING PICTURE.

Make sure right-hand keyswitch is turned on (clockwise) thereby Illuminating the RECORD and Re-RECORD pushes. Set the required cue number in the window under RECORD using the tab controls as described in 3 above. Touch RECORD and the warning lamps in the channel rocker AMBER PUSHES will immediately be extinguished. Always set next free number in RECORD window after using it. This SELECTOR should show the state at the bank so to speak. Thus when it shows 57 it should mean that 56 memories have been used. To avoid disturbing the RECORD SELECTOR it is not used when re-recording an earlier number to incorporate modifications on subsequent run throughs (see 19 below).

What is recorded at any time are all the actual dimmer levels which go to make the stage picture at the time. There is no general erase of the magnetic memory because however many precautions and interlocks are incorporated it has been found from actual experience possible for an operator to go berserk for a wild moment, and lose the entire show. Erasing the memory therefore only takes place one at a time as each new picture is RECORDED or RE-RECORDED. Thus if the new show has required recording of cues 1 to 50 then 51 onwards will still hold the residue of the old show. Once magnetically recorded the results are enduring and only deliberate recording of fresh information will erase them. This explains why the general aids (fixed and semi-fixed memories) described in 8 above are recorded on the highest numbers where inadvertent disturbance is unlikely.

12. To RECORD FURTHER LIGHTING PICTURES.

The next lighting required may represent a complete change from that just memorised or may only represent a modification of it. In the first case make sure RETAIN is on and pull down the GREEN FADER and push up the RED. These then exchange colours and the new lighting is set exactly as just described in 10 above. In the second case the FADERS are not moved and the next lighting is built out of or upon that which exists. All that is necessary is to add, take out or modify channels using their rockers appropriately. When this lighting is completed there will be the usual display of Green pilots at half and full and some rockers (those used for modification) will be showing Amber. The picture is recorded and the Amber automatically tripped.

13. DEALING with CHANNELS AT COMMON LEVELS.

The crucial decision as to which of the two methods in 12 above to use rests on the likelihood of common levels on certain channels. This is why even if the first method is used the old lighting should be retained on the outgoing fader. Setting new levels by the 'up a little' 'down a little' visual method to the directors instructions is simple and direct,

whereas the matching of even a few channels which remain the same in a series of pictures can present difficulty. The reason for this is that generally speaking an operator does not want to concern himself with actual dimmer levels. After all what is an instant dimmer memory for if he has to write them down as well.

Thus in a lighting effect requiring a CROSSFADE involving a hundred or more channels which change it is the half dozen that are not to alter their levels which dictate the procedure. These half dozen must be recorded at exactly the same level on each memory.

Using the modification method just described this will be easy. Channels not touched can be RECORDED over and over against as many cue numbers as desired and provided the FADERS or CROSSFADER is used appropriately (see 17 below) during the performance they will not alter. Suppose however the director has announced that the next lighting represents a complete change, the first method of building up a new picture may have been adopted only to find much later on that he still requires some channels at the levels of the previous picture to be incorporated, and these are not to change. Two solutions present themselves, one is to put on HOLD* The RED FADER can be put to full and display the total content of the previous lighting picture in red at the rockers, but will not add this lighting on the stage itself. The levels of the wanted channels are then discovered using MONITOR RED and the channel pushes. The Red FADER can now be returned to zero, HOLD put off and the channels set to the exact levels on Green using TOP positioner.

Another method, appropriate where a relatively large number of channels are concerned, is to use the Red display at the rockers with the fader kept at zero. Put RED MOD on, the TOP positioner to zero then touch all unwanted Red displaying rockers. They will be cut instantly so this will take only a moment or so. Put off RED MOD and TOP. The RED FADER can now be put up and those channels which are allowed to remain add their lighting to the stage effect.

The rockers now display a mixture of Red and Green plus of course Ambers indicating an unrecorded state. Use of the RECORD will memorise the entire content both Green and Red under the one number; in consequence subsequent re-play will only require the usual one FADER.

* HOLD incorporates a Blackout.

14. To RECORD TWO or MORE LIGHTING PICTURES to MAKE A THIRD.

The facility of simultaneous Recording of the piled content of both faders has applications beyond the mere duplication of levels just described in 13 above. Any two already Recorded pictures can be combined in any proportion using the two master faders at full or at any intermediate levels. The one memory is recalled using READ and the FADER is put to full then another is called up on the other FADER. The two can then be adjusted relative to one another as required, and the combined result RECORDED under a new number or Re-recorded using the last number read, provided it is not required again in its original form.

This is an instantaneous process the only time limit being the operators dexterity. A whole series of memory numbers can be so added. Whether exactly as they stand or in varying proportions or modified merely depends on whether the FADERS are purposely kept to full and whether any ROCKERS are used meanwhile. The drill is to READ first number (for example 001) in the usual way; this then becomes the lighting in use (Green) by putting that FADER up and the other down (Red). READ the next memory (002) onto this latter fader which is then put full (or wherever) and RECORD the piled result (as for example 010). The two faders are left at full unless it is wished to vary proportions. The new number (010) is now called up so Red FADER has 010 (= 001 + 002) while the Green has the original 001 only. Turn 010 into Green using CUT. Call up 003. Record as 010. Call up 010 (now = 001 + 002 + 003). Turn into Green using CUT. Call up 004 etc, etc.

This piling of memories can be especially useful at rehearsals if a practice is made of setting-up as fixed or semi-fixed memories block of channels in advance as was suggested in 8 above. Another advantage of the facility is that sometimes, a series of cues associated with a sunset for example, the light on the sky and general lighting can be progressively reduced on one master while the various changes associated with lighting of first this set of artificial lighting, then that can be piled using the second master and each combined picture RECORDED to be returned as one number using one FADER only or the CUT push only. (see also 23)

15. PLAYBACK FOR FURTHER REHEARSAL or FOR PERFORMANCE.

The main difference between a rehearsal run-through and a performance is that the need to modify and to go back and repeat is very likely in the first case, but rare in the second. It is recommended therefore that RETAIN is left on only for initial Rehearsals, but is used less and less
and certainly
and certainly at subsequent run-throughs /not for performance.

In the latter case cues should be carried out, in all but very exceptional cases by progressing from Red to Green. Outgoing lighting being automatically tripped from that master each time. This lessens the risk of forgetting to READ the next cue onto the now incoming fader. A practice should be made of glancing at the number in a fader window before using it. A second safeguard is a quick look at the wing for a red display which is to replace the Green on working the cue.

The RECORD keyswitch should be kept with the key in ready, but in the off position for rehearsal run-through using already recorded material. The key should be removed altogether during public performances in order to remove temptation. To begin one FADER should be at full the other at zero. The window over the first will show 000 on a Green ground and over the second 000 on a Red ground.

16. To PLAYBACK THE FIRST CUE.

SELECT the first cue number (for example 001) using method described in 3 above. and press READ push. This number will appear in Red in the INDICATOR over the fader at zero. Raise fader at required speed (the timing is entirely governed by the operators manual movement) to full. Take out the Green FADER and when it reaches zero, its window turns Red. This now represents the incoming lighting and the other fader window turns Green to represent the existing 'outgoing' lighting.

17. To CROSSFADE INTO THE NEXT CUE.

SELECT NEXT number required (for example 002) and READ. The Red INDICATOR will now display 002 and the green 001. Raise the Red FADER to full, then take the Green to zero. 002 will now appear on a Green ground and RETAIN being off/will show on a Red ground over the zero FADER.

The visual impact of the crossfader can be varied. Should there be channels common to both incoming and outgoing lighting which must not change, the incoming fader must be raised to full before moving the outgoing fader. An alternative is to use the integrating CROSSFADER as described below. However it should be remembered that this latter is designed to provide a constant voltage across its travel - as the outgoing decreases so the incoming increases to ensure that the two always add up to the same figure. When voltage is converted into light the effect of these two voltage curves is to cause the outgoing lighting to drop away before the incoming lighting has begun to establish itself.

Common lighting remains constant and whether the gap effect makes its presence felt depends on the amount of common lighting - the more the better. Speed of Crossfade/also relevant, a very slow opera Cross-fade would give the audience plenty of time to notice the loss of light though a subtle increase of speed at the middle of CROSSFADER travel could help.

For most purposes the normal drill of FADER in then FADER out gives best results. The new lighting comes in before the old is removed. Further two different rates can be adopted if required - come in slow and take out fast for example. Where there are no common channels to the two lighting pictures or where such commons are not obvious then any kind of lap over can be used, as it is not necessary to ensure the incoming FADER is at full before starting the outgoing one.

Where it is decided to use the CROSSFADER it should first be matched to the state of the other two FADERS by placing its lever at the end with a pilot lamp alight. It can then be switched in without a jump.

To switch out CROSSFADER the two other FADERS must be positioned so as to light the pilot at the end where the CROSSFADER lever stands at that moment.

18. To MODIFY A CHANNEL or GROUP OF CHANNELS WHEN PLAYBACKS ARE IN USE.

There is no difference from the normal procedure when setting up from zero described in 4 above. A ROCKER will take over control instantly without need to match for level. Thus if for example the memory as played-back puts a channel at 50% then touching its ROCKER at the top will increase the dimmer level progressively until full on. Likewise touching the bottom will take it out. Both processes can be interrupted at any time and the rate of change is governed by the SPEED regulator. Modification normally takes place on the Green but Red will be altered instead of Green if RED MOD is put on.

Modifications can be made at any time but the position of the FADERS is important. Obviously if the GREEN is at 75% only this is going to limit the extent a channel can be raised. It can only become full on in respect of its master which means in this instance 75%. Contrariwise if both RED and GREEN faders are piled and the particular channel is fed from both it will be necessary to take it out on the GREEN and then use RED MOD to get it out on the RED. This is no different from the situation on any orthodox preset control in which a pair of levers are fed from masters piled at the time.

When modification has to take place in-scene without the audience being aware, the SPEED should be put at the slowest and this perhaps plus some inching can be as discreet as you like.

19. TO MODIFY A CHANNEL OR CHANNELS ON PLAYBACK JUST BEFORE USE.

It is sometimes necessary to remove from or add to at the last minute, a channel in a series of cues which have already been Recorded. For example a spotlight may have got knocked out of position or some new piece of lighting been incorporated to cover an unforeseen contingency.

To do this RED MOD is put on and used in conjunction with the TOP positioner. To kill lights this is put at zero and each time READ is used so any unwanted ROCKERS are touched and instantly removed before the Red FADER is raised. If instead of zero a different level is required TOP is positioned for this and if several channels are involved to several levels then the hand is kept on the TOP positioner to move it accordingly. The modification to channels using the TOP positioner is instantaneous and the Red FADER is then raised on cue in the normal way.

Whether or not the ultimate result is Re-RECORDED to include the modifications depends on whether they are temporary expedients or not. Such use of Re-RECORD should never be made while both FADERS are in play. This would ruin the effectiveness of the Cue by piling on the one memory number the content of both incoming and outgoing lighting. Re-RECORD can be used either immediately after the Crossfade has been completed or just before. In this latter case HOLD is put on instead of RED MOD and the Red FADER put to full. The RED modification and Re-RECORDING then goes on under cover of an automatic blackout. When completed the Red FADER is returned to zero and HOLD put off to be ready to begin the revised cue.

20. TO PREVIEW THE CONTENT OF AN INCOMING PLAYBACK BEFORE IT TAKES EFFECT AS LIGHTING.

Read the memory with the Red FADER of course at zero. The content is displayed in red at full and half intensities. Put the MODE switch to RED MONITOR to obtain detail information of the latter where required.

21 FOLLOW ON CUES AFFECTING SEVERAL GROUPS

This type of cue, which is sometimes described as processional, would on orthodox controls be grouped up on several submasters. Then first this group then that makes its entry and proceeds at different speeds, as far as the dexterity of the operator allows, ultimately to arrive at some grand concluding effect.   Bearing in mind that there are three INHIBITORS - C, D, & E - it is possible to select using the auxiliary push buttons on the wing three groups and progress then as usual with some manual play on the INHIBITORS thrown in as required. However certain problems may arise because the INHIBITORS must not be put on to hold back lighting in advance in such a way as to affect the existing lighting.   Thus if for example a three part follow-on Cue is required for channels I - I0, II - 20 and 2I - 30 respectively but II - 20 are already in use - albeit perhaps at different levels - then obviously an INHIBITOR cannot be used for that particular group and the alternative method set out below in 22 will provide a better solution.   However, assuming the follow-on entries begin from a dark stage or from unrelated channels then no less than four groups are possible.   The INHIBITORS are put on (in the bottom position) and the memory covering the final levels of all the channels concerned including some that are not to be inhibited is READ.   The Red FADER is raised and the first group will come in with it.   At the required moment on its travel further groups are introduced by releasing the INHIBITORS appropriately.

22. ALTERNATIVE TO 2I ABOVE.

The use of INHIBITORS as above is one method but another more logical and far more precise is to split the processional Cue into separate pictures at each entry.   This method could not be adopted on orthodox controls because of the limited number of presets, but with 250 instant ones the operator can afford to use half a dozen or so for a follow-on Cue.   Procedure is to record exactly the state of light just before the first entry, second entry, third entry and so on.   The relative levels so recorded will automatically determine which channels creep, which channels have to overtake and which channels cease to move at all. Once recorded, all the operator has to do is to read down the cue numbers and concentrate on the timing of his crossfader between each Cue. No complicated operation, giving this master a push, then/being that necessary.

23 SLOW CHANGES WITH SWITCH CUES INTERVENING

The commonest examples are sunsets or dawns, in which, as the general light slowly increases or reduces, various practical fittings are switched in or out together with the spots representing their lighting. There may be several such cues. Using system IDM/R they can be precisely and simply performed by a variant of the second method outlined in (22) above. In this case, instead of each picture representing an entry in a progressive dimmer change, there are particular moments when the identical lighting is recorded as a second cue but with the channels representing the lighting from the fitting added. Thus a gradual fade takes place on the crossfader and is completed just before the switch cue itself is read on the FADER next due to come in. Whichever it is, it is put to full, but has no effect. However, at the moment of the switch cue, the crossfader is cut out, thereby giving an immediate switch over to the cue with the added lights. Many variants can be used: for example if two switch cues follow quickly one on the other after the fade period, then the next cue will be recorded to include the additional lights representing the second practical fitting. The necessary switching effect is given by pressing the CUT push. Alternatively the two faders can be banged in and out. If, however, a further fade has to take place before this happens, the first fitting lights are repeated on the intervening cue but the background lights are reduced before recording it. A further cue is then recorded with the second fitting's lights added.

For some reason or other, the very precision of these methods seem to breed mistrust. In questioning them it is implied that the actor may dart over, flip the switch on and jump clear before the operator has completely finished the fade which precedes the switch cue. A hasty cut in under these circumstances could also affect the background. The proper solution is to keep an eye on the action and hurry the fade if necessary.

24. GO BACK TO CUE "X"

Select the number required, press READ and then press CUT

25. USE OF PUNCHED TAPE RECORD

The operation procedure to punch the tape and programme the magnetic memory is dealt with in the technical rather than operational instructions. However the following points should be made here as they are relevant to the lighting operator's work.

25. CUES REQUIRING MANUAL AND MEMORY ACTION.

There are still likely to be cues involving one or two channels
at a time which can be better performed by riding the individual ROCKERS
than by using the memory.   A certain amount of practice is advisable in
order to get the feel of what may be done and when.   It is a principle
of IDM/R that any channel can be modified instantly - taking over without
any need to match levels to avoid flicker or jump.   However, it is also
a fundamental principle that each cue number when read must bring back
exactly the lighting as recorded.   Where these two principles are in
opposition it has been determined that the memory overrules any modifica-
tion.   Thus any amount of manual modification can be done to the light-
ing in use but this will be supplanted by the next memory when brought
in and the present fader taken out.   Such modifications if still required
would have to be duplicated using RED MOD to avoid this as already ex-
plained under 19 above.

The type of modification we are at present dealing with is
assumed to be part of the show routine and this is a different matter.
For example as a follow on part of cue 27 it may be desired to bring in
channels 1 to 20 one at a time for a dance routine until all are present.
This can be done using the channel ROCKERS to provide normal green
modification.   They are therefore not recorded at all on cue 27 but
if they are required to endure they must be pre-recorded on cue 28 and
any others which follow.

26. PREPARING THE WRITTEN PLOT.

It is a good discipline to make the sheet for this quite small.
A packet of plain postcards or at any rate cards not much larger ensure
that only vital information is written down.   The key is the number of
the cue for this is what has to be read and then faded in so that the
previous lighting can be taken out.   There is no need to write all this
down;   it can be assumed as normal procedure.   So the cue becomes for
example, "27 in 10 secs".   The time given being that for raising the

fader; the taking out of 26 to complete the operation could be assumed
to be the same unless otherwise stated - a total of 20 secs all told in
this case. Even if practice is to "go" on light cue from the Stage
Manager, the action on the stage should be summarised "Enter Jacob with
ladder" or whatever so that all risk of being a cue out of step is
eliminated. Where methods of cue change other than fader in and fader
out are required these are amplified as necessary: "27 CUT" or "27
Crossfade". It should be remembered that the automatic realisation of
dimmer levels in IDM allows the operator to concentrate on using his
master controls with a finesse seldom before possible. His written
plot should tell him precisely what his aim is - a fader may be required
to move from end to end in 20 secs but not at the same rate of travel
throughout. In particular the entry of new lighting can often be a
matter of great subtlety if lamp filaments are not to come in with a
sudden rush.

27. USE OF PUNCHED TAPE RECORD.

The operation procedure to punch the tape and programme the
magnetic memory is dealt with in the technical rather than operational
instructions. However the following points should be made here as they
are relevant to the lighting operator's work. At first sight the
punched tape equipment exists to make a permanent record from the Ins-
tant Magnetic Memory. This is not because the Memory cannot retain
its recorded content indefinitely but because other productions in rep-
ort ~ playing such as is common in Opera and Ballet will require Re-
programming of this memory each time they return. The combination of
tape and magnetic memory provides on the one hand a permanent record
easily stored and handled along with on the other hand the facility for
instant access and modification to suit the playing of the actual pro-
duction. It is worth remarking that with 250 memories the magnetic
memory may well be capable of holding the whole repertoire of some
visiting companies without resort to punched tape at all. Items in
the repertoire could of course be played in any order.

The process of punching the tape takes 45 minutes for the full number of cues and the same period using it to re-programme. Both processes are automatic once started and the time taken is not therefore serious.

The punched tape once made can be used in conjunction with the automatic print-out to give a complete lighting plot which can be examined and read like any other stage plot or can it ? This needs examination.

After hours of automatic chugging away a paper print-out is provided giving 250 cues in terms of 32 levels in respect of 200 or more channels. Assuming that is the IDM/R has been fully used. What is one to do with a plot of this kind ? It is certainly a formidable affair made up as a vast concertina of sheets hinged together. Where to begin and where to end ? One thing is certain, this lighting plot conceived in terms of the 200 or so presets of IDM/R I is never going to be carried out in that manner outside the Ottawa National Arts Centre or theatres with Strand IDM controls - whether Type R or DL or something very like them. So far only Strand has done any large installations and although some twenty are around or about to be around in the world - it is a large place - which makes them to say the least thin on the ground. This inevitably means that the transcribed plot has to be edited heavily so that is can be performed elsewhere.

The labour involved can be greatly reduced if a note is made during the later rehearsals as to which are the really important cues - the stage lighting pictures that really count. As transcribed they will each resemble the normal stage manager's record of dimmer levels and the editing can be concentrated on the mechanics of how the lighting is going to be realised elsewhere, rather than resemble a post-mortem on how IDM did it. This is best but not essentially done using the IDM itself to pick out the cues and try the effect in the first place; the IDM facility of crossfading or cutting smoothly however wide the gaps which have to be skipped being extremely useful.

Even where the production is not going elsewhere it is a good idea
to have established and set the machine to print out the really essential
lighting changes then this will always enable the main essence of the
plot to be put over on the 2-presets of the auxiliary panel in the remote
event of a serious failure of the IDM control.