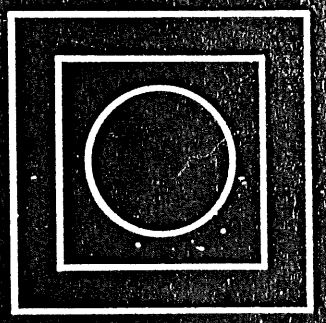


JOHN TANN GROUP

Synchronome

SYSTEMS

The Synchronome Company Limited

PROGRAMME CONTROLLER

INSTRUCTIONS FOR ERECTION, SETTING UP PROGRAMME and SETTING TO TIME

The object of this instrument is to sound signals automatically at prearranged times, selectable to any five minutes of the day or night. Provision can be made for silencing on certain days (usually weekends) or, if requested on ordering, for changing the programme from one day to another.

Providing each circuit requires no change during the week other than silent periods, four circuits can be arranged for, all circuits having a common battery or all operated from the mains current. Other variations are possible, but it would be desirable when ordering to let us have full particulars of your programme so that we can build the instrument to suit, although many changes are easily possible after installation of the instrument.

The soundings are for a duration of 10 seconds, but longer or shorter periods are easily arranged and in fact it is possible to give a signal of 2 seconds or to switch on a circuit for some minutes or hours.

The contacts are suitable for the operation of electric bells, hooters, sirens, lighting lamps and all other forms of warning signals, being capable of handling up to 5 amps at 230 volts. Special relays and contacts can be fitted for heavier loads.

ERECTION

(a) Metal Case Type

To remove cover, unlock and slide cover away from the lock; now lift cover straight off, taking care when lifting cover not to damage the mercury tubes. Having selected the position for the instrument, proceed to plug the wall for a top central fixing screw to enable the instrument to be hung on its hanging plate. When hung, see that the instrument is squarely on the wall and mark through the fixing holes on to the wall. (The four fixing holes will be recognised by the tubular pillars mounted on the underside of the baseplate.) Remove instrument and plug the wall at the four positions marked off. Screw up instrument into position; we recommend using 4 x No. 12 x 2½" round head wood screws with Rawlplugs.

(b) Polished Hardwood Case Type

A hanging plate will be seen fitted to the top batten at the back of the case. Having selected the site for the position of the controller, plug the wall and fit screw (No. 12 round head wood screw 1½" long) so that the head projects only about ¼" from the wall. Hang the instrument by its hanging plate in position, unlock the case, lift cover and whilst holding the instrument straight, mark through the four holes in the baseboard on to the wall. Remove instrument and plug the wall in the four positions, re-hang and screw back to the wall with 4 x No. 12 round head wood screws, 2½" or 2¼" long.

SETTING TO TIME

The terminals are appropriately marked TIME BELLS or whatever is necessary. The two wires from the half minute impulse circuit must be attached to the terminals marked TIME, so putting the timing mechanism of the instrument in series with the rest of the time circuit.

The terminals marked BELLS, or other appropriate naming for the sounding circuit are 'dead' electrically, so that the battery or mains will need to be brought into circuit with the bells or other sounding device when wiring up.

When any departure is made from this normal arrangement, due to customer's requirement, additional instructions will be given.

The programme controller should now be in working order and, assuming the required programme has been set up at our Works, it only remains to set the instrument to time. To do this there are three indications to look for:-

1. The main impulse operated whool D which is numbered every five minutes and which makes one revolution per hour. When the engraved line against any number lines up with the driving point of the click or pawl A it indicates the minute of any hour. The wheel D has 120 teeth. Therefore, each tooth represents a step on of half a minute.

2. The 12" diameter disc revolves once in 24 hours and the row or rows of holes around it are drilled and threaded at intervals of five minutes from one hole to the next. The engraved numbers with their lines indicate the hour spacings and the intermediate lines the half-hours. The half diameter with the black band represents night hours. It will be seen that pins are always fitted to the holes suitable for the sounding programme; these pins close to the contacts with which they engage at the time indicated by each pin, so the time should be read at the contact roller position.

3. On the right centre of the bar is the dial showing the days of the week together with a cam or cams on the same centre behind the dial. These cams allow the contacts on which they operate to be open or closed according to whether signals are wanted on that day or not. The position for reading the time on this dial is again at the centre of the contact roller. It should be understood that the contacts 1, 2 and 3 must be closed before a signal can get through, as they are all in series with each other, also that when more than one set of contacts are used on 2 and 3 only, those contacts are wired together between 2 and 3 to form a particular circuit. 1 is common to all circuits. The lower contacts on the 24-hour disc are joined to the contacts immediately behind the 7-day dial and so the contacts on the 24-hour disc step up one, so its relative contact on the 7-day dial steps back one.

If the programme has not been set up by us, because the customer wishes to do so himself, the day cams are left blank so that the contacts are kept closed, the customer cutting away as required to allow the contacts to open. This is fully explained later on.

TO SET TO TIME

Lift backstop lever C, pressing it upwards firmly against the click or pawl so that the click or pawl is pulled away from the wheel D, which is then free to be turned.

Press down lever B so that the pin in this lever which is resting on the cam is lifted clear of it.

Now revolve wheel D in either direction to set the instrument to time. Keep spinning the wheel D until the day dial is within a few hours of the time.

Continue turning, but now watch the large 24-hour disc and bring that to within a few minutes of the time.

Finally, observe the position of wheel D and put this to correct time, and release backstop C and lever B. If difficulty is found in setting the wheel D to exact time put it a few minutes slow, release levers C and B and and step armature E on with the finger until the right time is indicated.

The programme controller is now set to operate all signals at the correct time.

ALTERATIONS TO SOUNDING PROGRAMME

The programme controller will give signals at any five minutes of the day or night and it is only necessary to alter the positions of the pins in the 24-hour disc to alter the sounding times. More pins may be added if more signals are wanted, and pins may be removed if signals are to be dispensed with. Attention must be paid to the day cam, however, that the new ring will find it in a closed position.

If this is not the case a new blank cam may be obtained from us which can be suitably cut or, if you let us know the new programme, we can cut it for you before despatch.

SETTING UP PROGRAMME WHERE NO PROGRAMME HAS BEEN ARRANGED

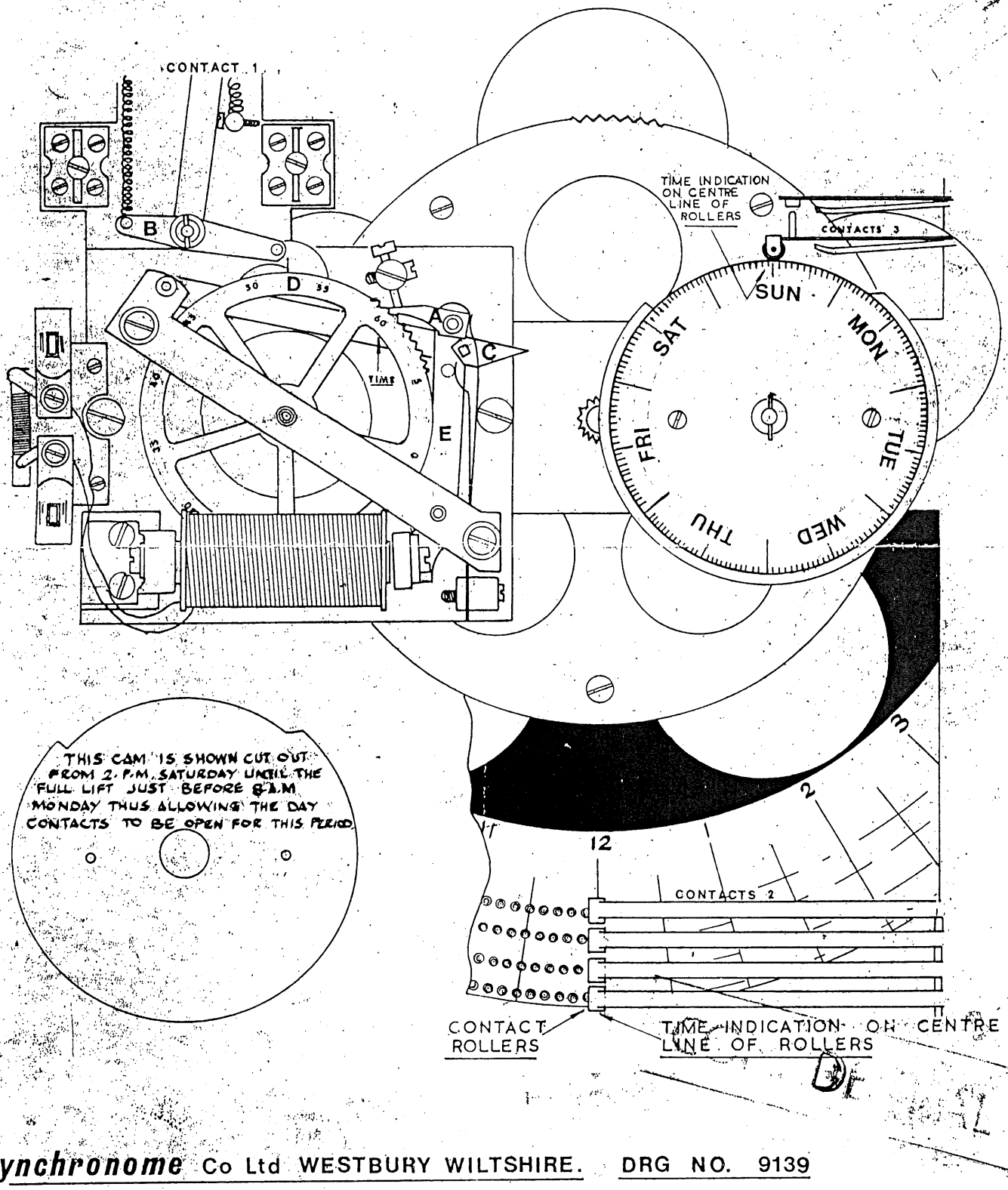
In this case no pins have been fitted to the 24-hour disc, nor have the day cams been cut for the silencing periods. Proceed to set the programme by screwing the pins, which will be found with the instrument, into the appropriate holes in the 24-hour disc; a key is provided for this. It is necessary to see that the pins are screwed right down without too much force as the thread in the disc may be stripped or the pin break. Having put all the required pins in, try the signals out by setting the instrument to within a minute of the time for each ring and allowing the clock impulses to operate over the signal period. Having satisfied yourself that all signals are correct for time, nothing more, except setting to time, need be done if the same set of signals is required for every day of the week.

If a silent period is required on one or more days, the day cam must be cut away as shown on the print, to allow the day contacts to open after the last desired signal and to close again before the next wanted signal. Assuming the last signal required is at 1.00 p.m. Saturday and the next signal required is 8.00 a.m. Monday, proceed as follows.

Remove the day cam unit complete by withdrawing the small pin in the bearing stud and sliding the cam unit forward, at the same time gently lifting the contacts so that they do not get caught between the blanks. Scratch lines on the cam blank to be cut at the last and the first signal times, as indicated by the day dial. Take out the two screws holding the dial to the cam blank and remove dial. Loosen the grub screws holding the cam to the bearing tube and remove cam from the bearing tube. Now proceed to cut away the blank between the two marks to a depth of $\frac{1}{8}$" as shown on the diagram. Do not cut quite up to the marks but within about 1/16" unless you have a signal close after 1.00 p.m. Saturday which you must prevent sounding, or a signal just before 8.00 a.m. Monday, in which case it will be necessary to cut right up to the line. When the cam has been cut satisfactorily, replace the dial so that the silenced period lines up with the appropriate times on the dial, replace cam on its bearing tube, tighten grub screws and replace the unit on the stud, taking care to slightly lift the contacts clear whilst doing so. Note the time indicated by the 24-hour disc and turn the day disc accordingly and drop it into gear with the pinion. Replace washer and pin.

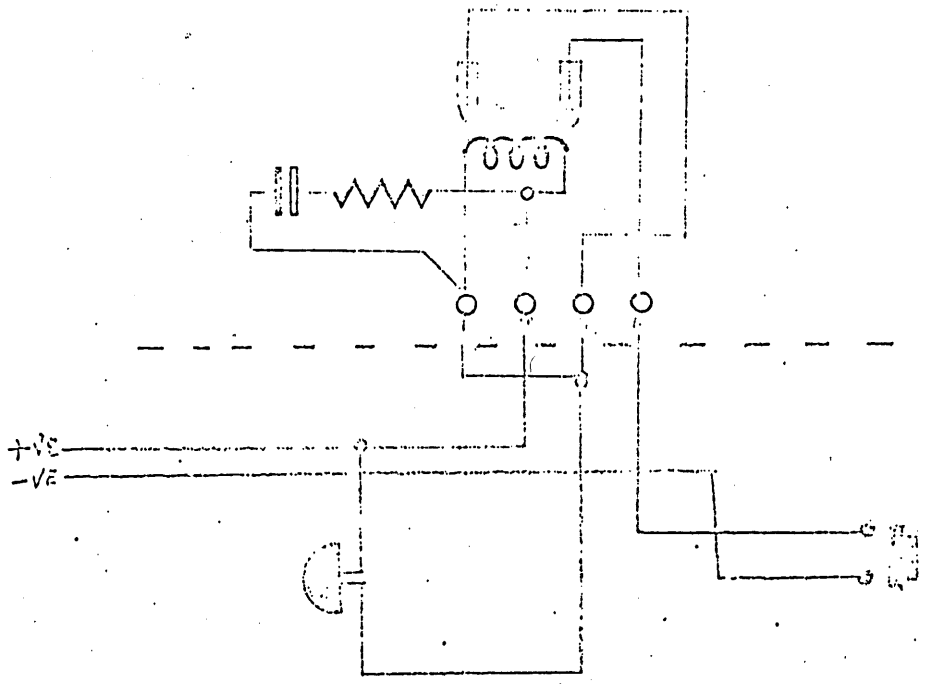
Whether there are one or four cams, they can all be dealt with in the same way, the day dial may be removed from its cam blank and screwed to any other cam blanks for the purpose of marking off, but when reassembling a number of cams care must be taken to see that they are put back on the bearing tube in the correct order and with the cut-out positions of each cam in the proper place. New cam blanks can be supplied in the event of the existing cam being unsuitable for a change of programme.

INSTRUCTION PRINT FOR PROGRAMME CONTROLLER



Synchronome Co Ltd WESTBURY WILTSHIRE. DRG NO. 9139

CONFIDENTIAL



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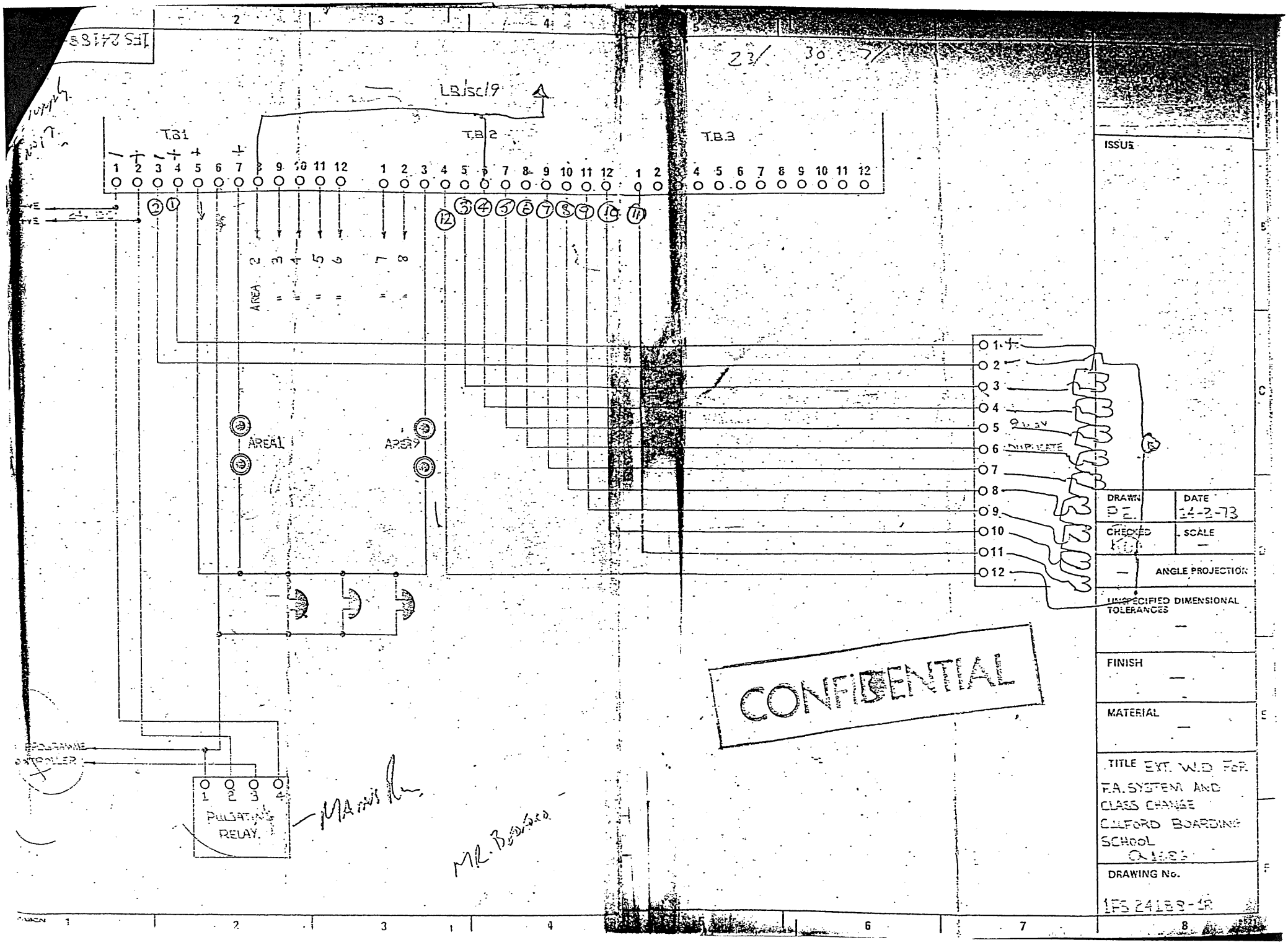
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ISSUE
DRAWN P.E.
DATE 14-2-73
CHECKED K.M.
SCALE —
ANGLE PROJECTION
UNSPECIFIED DIMENSIONAL TOLERANCES —
FINISH —
MATERIAL —
TITLE EXT. W.D. FOR F.A. SYSTEM AND CLASS CHANGE CLIFFORD BOARDING SCHOOL
DRAWING No.
1FS 24189-1R

THE RESERVE MASTER CLOCK

The Reserve Master clock transmits one minute impulses of alternate reverse polarity at 24volts DC from the AC mains supply via a transformer and rectifier, which is fitted in the clock case. The impulse has a duration of approximately two seconds, the maximum load should not exceed 300 milliamps unless a relay is incorporated from which a further circuit can be operated from the same 24volt DC supply up to a maximum of 500 milliamps. The clock is fitted with a half seconds pendulum which is temperature compensated, it is driven by a dead beat escapement the wheelwork of which is kept wound by a motor fed from the mains AC supply, via the transformer.

In the event of a mains failure the Master clock continues working and automatically counts the time period of the mains failure and on restoration of the supply all secondary clocks are automatically stepped on until they reach correct time, as indicated by the dial in the Master clock, when all clocks resume normal working. The period of mains failure can be anything up to 12 hours.

The Master clock is fitted in dull mahogany, case measuring 21" in height x 11¾" wide x 7" deep and is fitted with an 8" dial, Silver finish with Black Arabic figures and minute marks and has Black hour and minute hand.

Instructions for the erection of Reserve Master Clock

Unpack the Master clock with great care and see that the clock has not been damaged in transit. The clock should be mounted on a good substantial wall, free from vibration and extreme temperature changes, preferably at a convenient height for attention and servicing.

Before fitting the clock on the wall lay it down on its back on a desk or table and remove the cover by unlocking it with the key provided from the back board, the lock being at the bottom of the cover. When unlocked lift the bottom of the cover about half an inch, push it upwards towards 12 o'clock and lift it right off.

The clock dial with its movement should next be removed but to do so the wires from the clock to the baseboard must be first unplugged by pulling out the two plugs in the back-board. Next about 2½" behind the dial at between 5. and 6.o'clock will be seen a screw rod with a black knob pointingdownwards turn this knob in an anti-clockwise direction for several turns, then lift the movement up by lifting the dial at 6 o'clock by about ¼" push the dial towards 12 o'clock and lift the dial with its movement off the two hooked top pillars and right clear. Place the movement face downwards in a safe place being very careful not to damage the movement or contacts.

Remove the pendulum from its clamps and lay aside until it is required.

The backboard should now be fitted onto the wall. Put a screw into the wall on which to hang it on its hanging plate, the screw should project just far enough from the wall to enable the backboard to be held firmly against the wall at the top. The fixing screws will be found in the leatherette pocket attached to the backboard.

If the clock is being fitted to a brick or similar hard wall, No. 8 rawl plugs will be required about 1½" long. It should be ascertained that the wall is upright, if it is not, packing of the right thickness should be used behind the top or bottom battens to fetch the backboard upright.

The pendulum should now be hooked onto the suspension spring, the claws of the pendulum hook facing the wall. As the pendulum hangs stationary, move the backboard round until the bottom point of the pendulum is in line with 0 on the beatplate. Mark through the three holes in the backboard onto the wall the positions for the three fixing screws, one is underneath the leatherette pocket, another is in a similar position on the opposite side and the third is about ⅝" from the top of the right hand side of the brass plate on which the pendulum is hung.

/Continued.....

Remove the pendulum and take the backboard off the wall, drill and plug the three positions for the screws, replace the backboard by its hanger onto its screw. Put the two bottom screws into hold the backboard firmly, the third screw should be carefully screwed in so that it is holding the backboard against the wall but not bearing down too hard against it, undue pressure here may buckle the backboard.

Replace the pendulum with the hook facing the wall, be very careful not to damage the suspension spring. Put the movement back carefully onto the two top pillars and allow it to drop down onto the hooks of these pillars, the bottom of the movement can then be pushed back onto the lower pillar and the screw red with the Black knob turned clockwise until the movement is firmly held. Whilst doing this, see that the projecting part of the hanging crutch of the movement rests against the right side of the pin on the pendulum and that the crutch is free to move to the right, this is most necessary as the clock will not work otherwise.

Replace the electrical plugs from the movement into the backboard sockets observing that the pins in the plugs are the correct way to enter the sockets. Connect the AC mains into the terminals on the right hand top side of the backboard selecting the voltage which corresponds to the mains. Start the pendulum up and listen to its beating, it must beat evenly, if it is not then turn the screw head which is situated on the pendulum just under where the crutch engages with it, one way or the other until correct even beats are obtained.

To Start the Clock

Disconnect the AC mains supply from the clock and stop the pendulum. Put the hands forward about 10 hours re-connect the Mains when the impulse mechanism will run, let it run until it stops of its own accord. This is necessary in order to wind the reserve spring up. Whilst the impulse mechanism on the Master clock is running all the secondary dials should be made in readiness to connect into the Master clock but first see that all dials are connected in parallel to each other and indicate the same time as the Master clock dial. Connect the dials to the appropriate terminals in the master clock. Now start the pendulum, put the Master clock to the correct time by moving the hands forward only, never backward. This will start the impulse mechanism and all dials will automatically advance to the correct time indicated by the Master clock.

Regulation

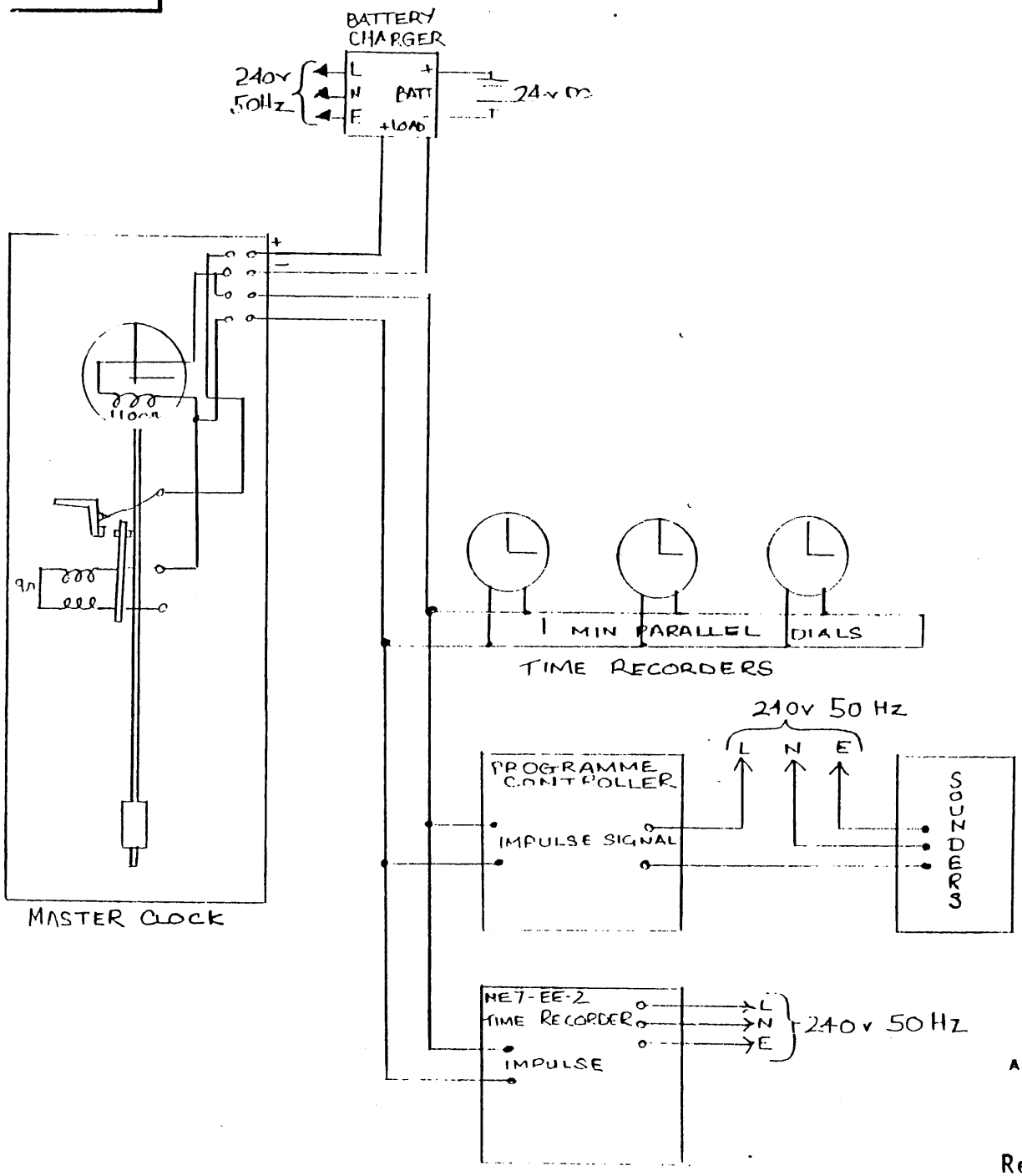
The Master clock has been carefully regulated but should it need further regulation the rating nut on the pendulum should be turned to the right to make the clock go faster and to the left to make it go slower. When turning the rating nut, which is underneath the bob, hold the bob firmly with one hand whilst turning the rating nut with the other, to prevent damaging the suspension spring.

/Continued.....

One division on the rating nut equals 12 seconds per day. When replacing the cover, loop it over the backboard at the top at the same time holding the bottom well away from the pendulum, when the top is looped on allow the bottom of the cover to close down onto the backboard.

When removing the cover pull the bottom of it away by 3" or 4" before lifting it off at the top to prevent knocking the pendulum.

DO NOT SCALE



ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

Remove sharp edges and burrs.

ISSUE 1

DRAWN	DATE
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ANGLE PROJECTION

UNSPECIFIED DIMENSIONAL TOLERANCES

FINISH

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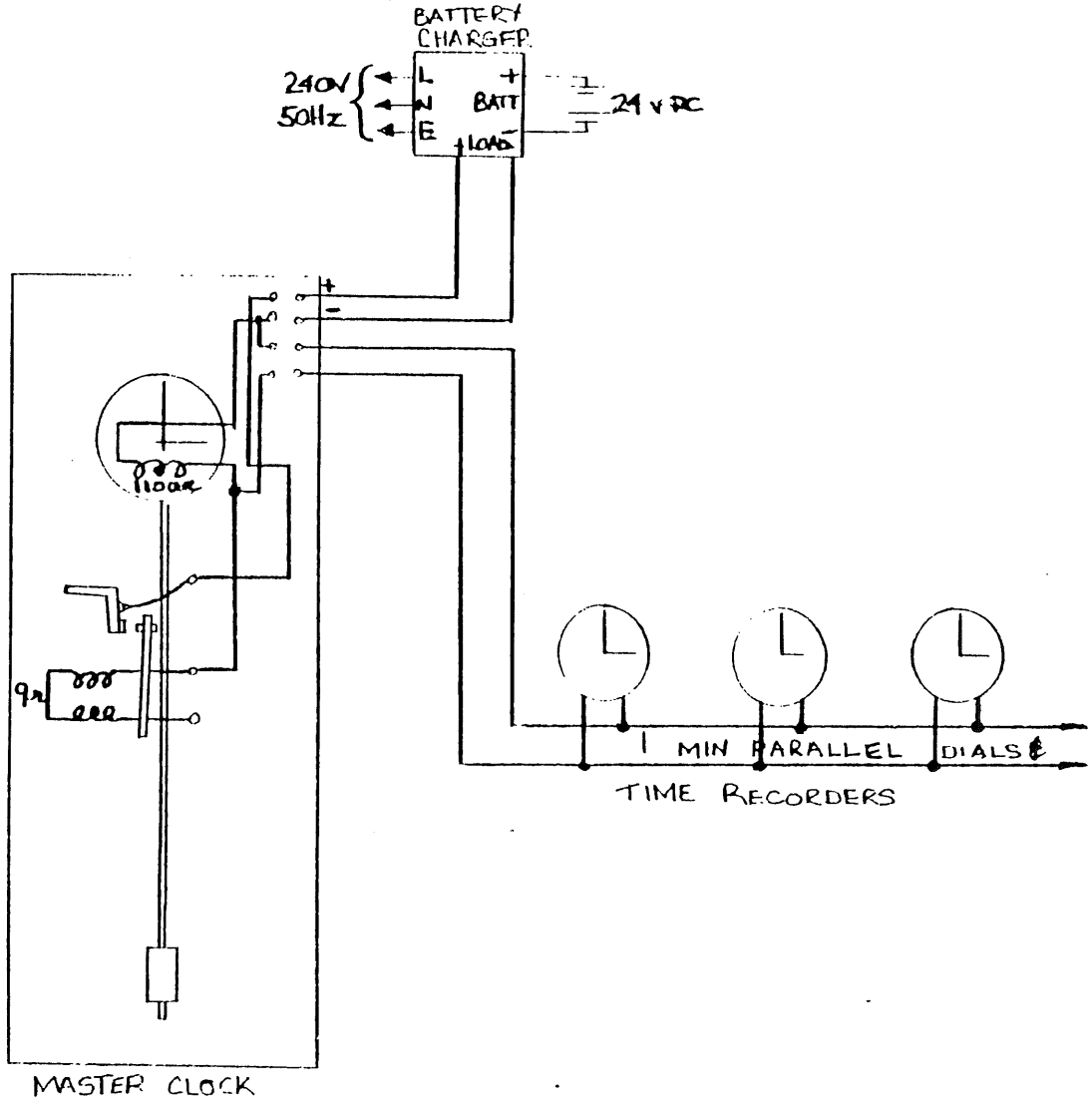

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ISSUE 1	
DRAWN	DATE
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UNSPECIFIED DIMENSIONAL TOLERANCES	
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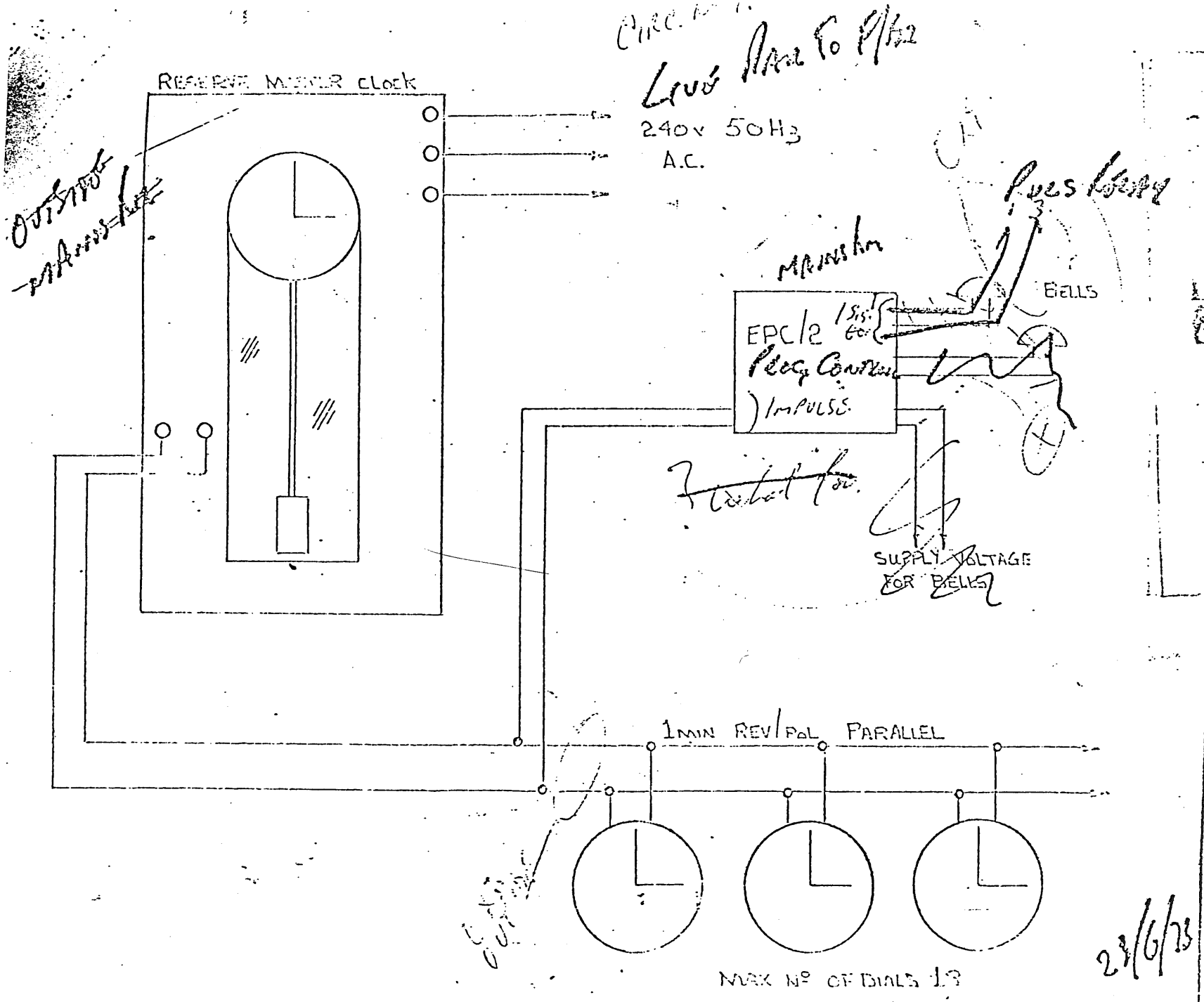
DRAWING No. E 1101	

OZALID (U.K.) LTD



ISSUE 1

DRAWN	DATE
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— ANGLE PROJECTION

UNSPECIFIED DIMENSIONAL TOLERANCES

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23/6/73