

'FIREMAN' RANGE OF CONTROL SYSTEMS.

There are six different, simple to operate systems described as follows:-

NON INDICATING versions - series SR.300.

The purpose of this instrument is to switch off the kiln at a pre-set temperature. By turning the dial in a clockwise direction, it is possible to set the required 'cut-off' temperature - indicated by a red pointer. The kiln will commence to operate when the start button is depressed and will automatically cut off when the set temperature is reached. It will not re-start until the start button is again depressed.

312/C
LIMIT

The operation of the instrument is as described above. However, a soak/cut off switch is provided in lieu of a push button. When the pre-set temperature has been reached the kiln will either continue to soak indefinitely or automatically cut off - according to the setting of the switch.

312/CS
OPTION.

With this system it is possible to carry out the following functions.

D/312/DT.
SOLO.

- A. By setting the 'DELAY ON' timer in a clockwise direction the commencement of firing can be delayed by up to 15-hours - for example when set for seven hours at NOON the kiln will switch on at 7 p.m., possibly taking advantage of night tariff electricity.
- B. The setting of the temperature controller determines the required firing temperature - described previously (see 312/C LIMIT above).
- C. The third function is a "DWELL" timer to enable the operator to plan up to 2-hours top temperature soak (if required). To start the whole system this "DWELL" timer must be set to a few minutes, i.e. when the red light illuminates - the system is set. The kiln will automatically cut off after the period of time set on the "DWELL" timer.

TEMPERATURE INDICATING versions - series SR.5000.

Before setting this system ensure that controller light indicates supply is on. Set the required maximum operating temperature on the circular scale, (by turning in a clockwise direction) and set the "DWELL" timer to provide up to two hours soak at this pre-set temperature. A green light on the temperature controller will illuminate whilst the kiln is on, also the temperature can be checked at any time by observing the indicating pointer on the controller. When the kiln has reached the pre-set temperature, the red or green light will illuminate until the dwell timer has timed out, when the kiln will automatically switch off.

5102/DT
PROCESS.

The function of this system is exactly as described in the D/312/DT. SOLO (see above) - except that there is also a temperature indicator to enable the operator to check the temperature throughout the firing. The controller has two lights, the green light illuminates when the kiln is below pre-set temperature, changing over to the red light when "DWELL" time is being maintained. The kiln will switch off automatically when the "DWELL" time is completed.

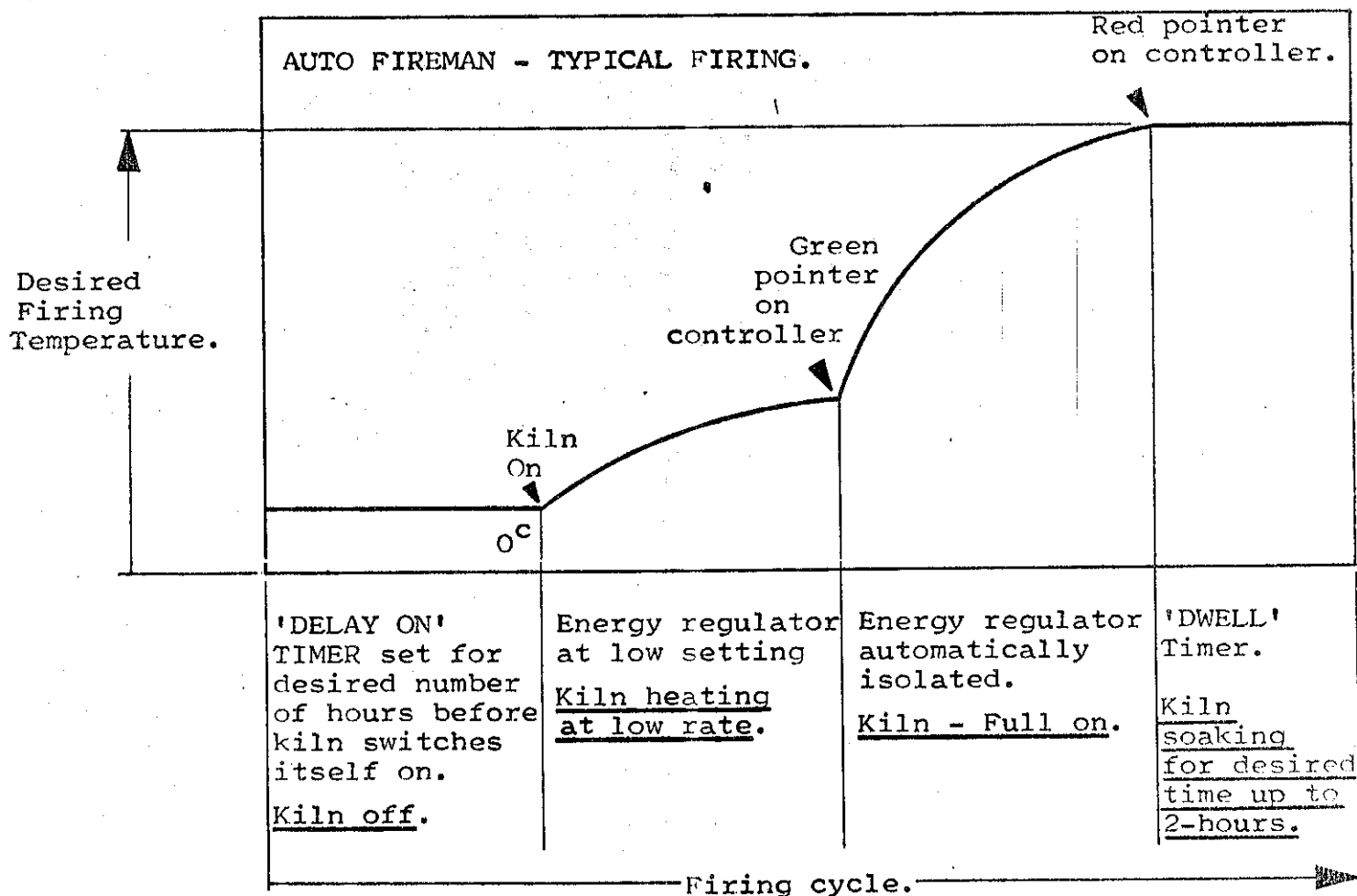
D/5102/DT
EARLYSET.

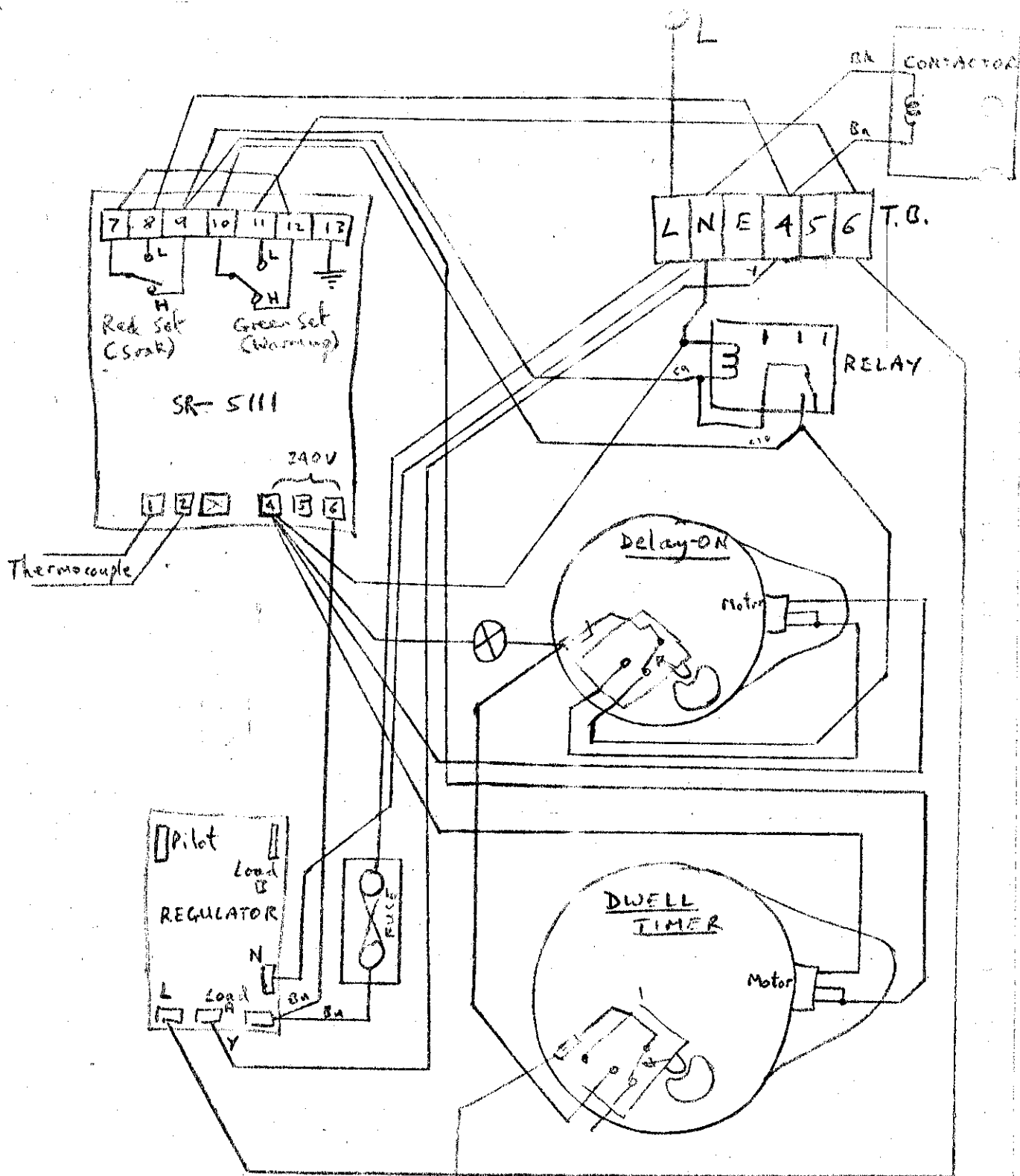
'Fireman' Range of Control Systems. (contd.)

D/5111/DT
AUTO.

With this system it is possible to semi-programme the firing cycle, as follows:-

- A. By setting the "DELAY ON" timer in a clockwise direction, commencement of firing can be delayed by up to 15-hours.
- B. To obtain a slow heat build up to a pre-set temperature (ideally between 400°C. - 600°C. when firing biscuit) turn the internal GREEN pointer to the required temperature and set the energy regulator on the kiln to a low setting. (When this pre-set temperature has been reached the kiln will automatically switch over to full rate and the left hand side green indicator light will change colour to red).
- C. Set the second, external RED pointer to the desired maximum operating temperature. The kiln will continue to fire at full rate until this is reached, at which point the right hand green indicator light will change colour to red.
- D. The "DWELL" timer provides up to two hours soaking facility (if required) at maximum temperature. To set the whole system in operation the "DWELL" time must be set to a minimum of a few minutes - after which the "SYSTEM SET" light will illuminate. The kiln will automatically shut down once the "DWELL" time has expired.



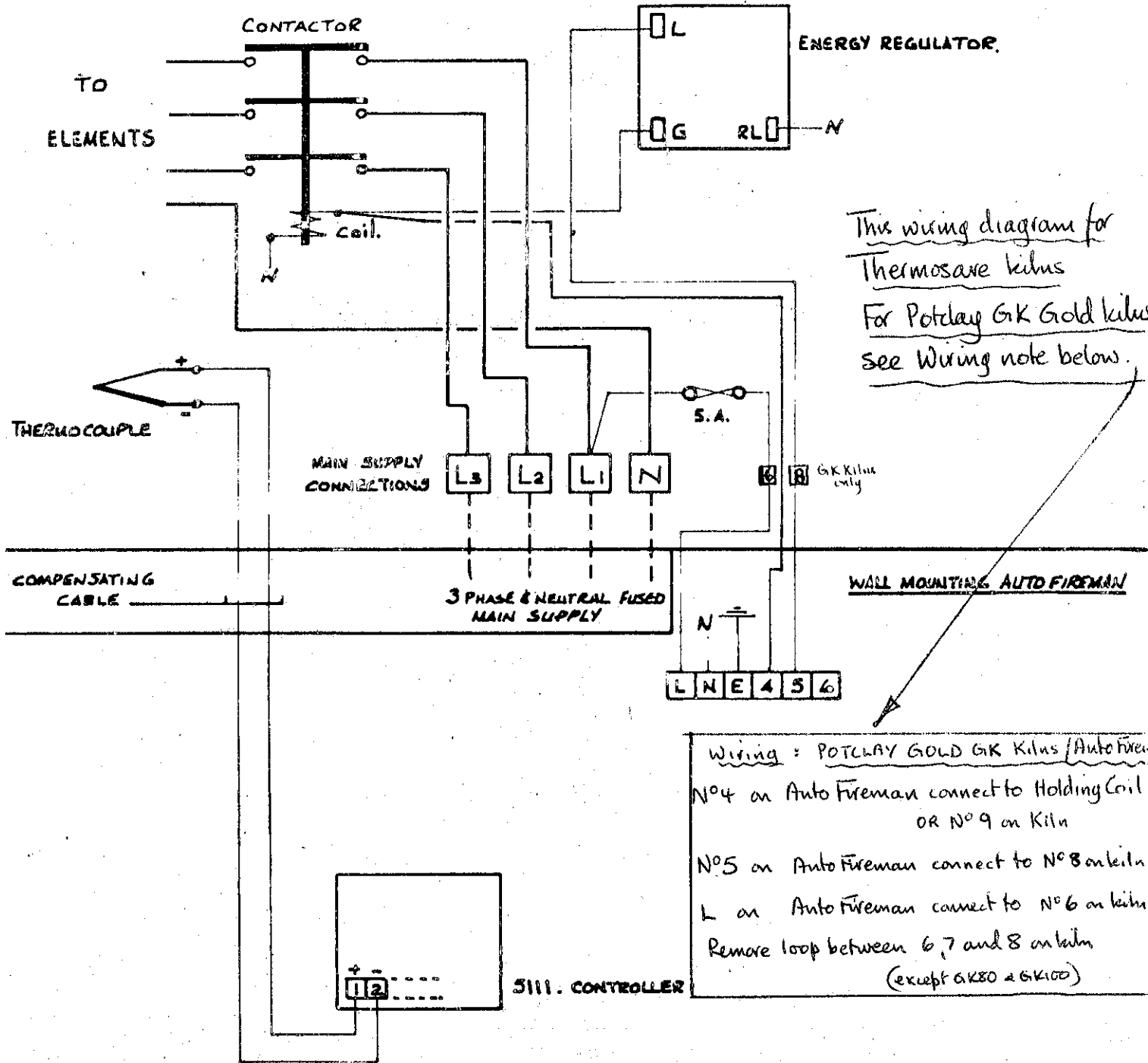


Circuit to Mr. Baker's
film (Northampton)

ON

KILN CONNECTION CHAMBER
OR WALL MOUNTING CONTROL BOX

Auto Fireman to Kiln
wiring details

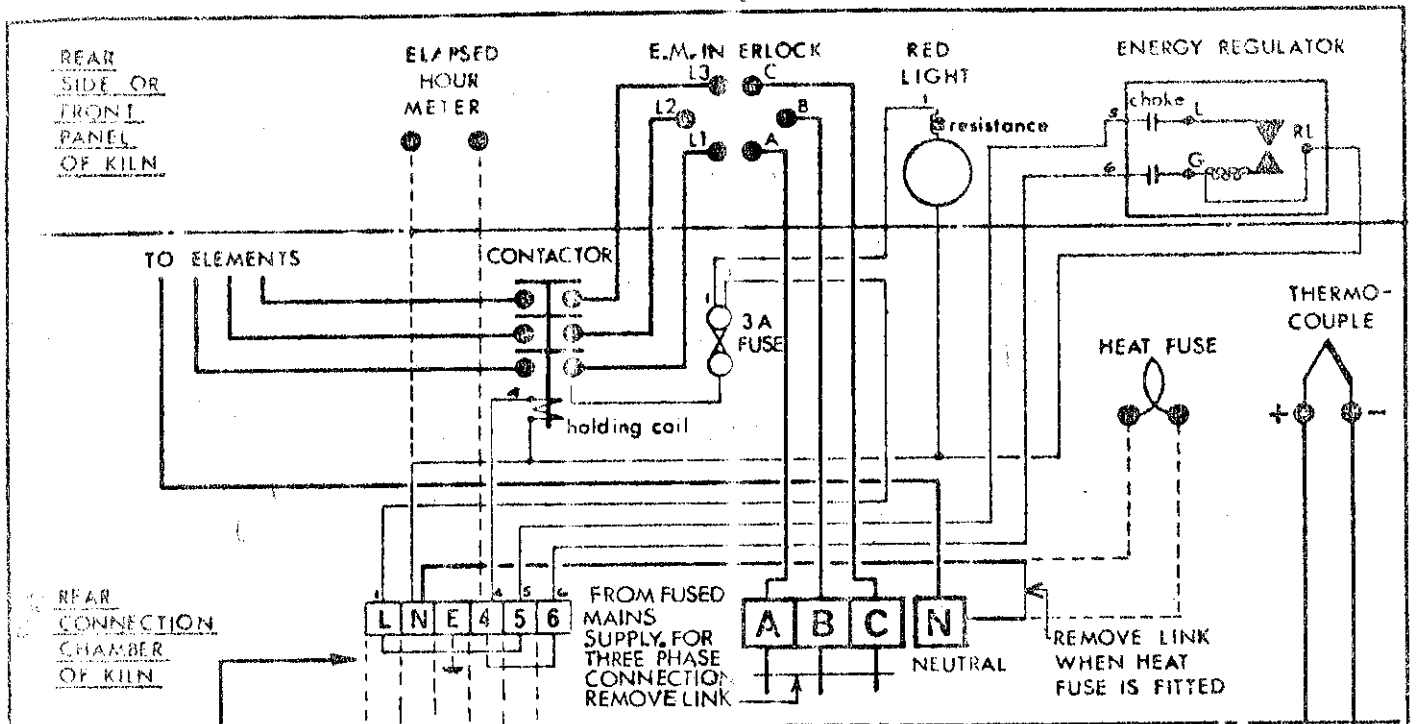


ELECTRICAL INSTALLATION

- a) Check label for details of power rating and phasing. ELECTRICAL
CONNECTING
INSTRUCTIONS
- b) Install suitable capacity mains isolator in close proximity to the kiln.
- c) Remove rear connection chamber covers to expose mains terminals.
- d) Mains terminals are always arranged for single phase. When three phase connection is desirable REMOVE link between the three terminals A.B.C. and connect three phase accordingly. (This only applies where kiln has been manufactured to suit the two different phasing arrangements). Neutral to neutral terminal.
- e) Where a separate control panel containing 'FIREMAN' control system has been supplied, this panel must be mounted vertically on to a nearby wall. Under no circumstances must the 'FIREMAN' control panel be mounted on the kiln. 'FIREMAN'
CONTROL
EQUIPMENT.
- f) For electrical connection to 'FIREMAN' CONTROL SYSTEMS the minor terminal block in rear connection chamber of the kiln should be located. This terminal block is marked LNE456 and is for control connections only. Under no circumstances connect mains supply to this block, refer to diagram overleaf for correct connections.
- g) Refer to separate instructions for mounting and connecting the PROGRAMME CONTROLLER. PROGRAMME
CONTROLLER.
- h) Ensure compensating cable is used to connect between thermocouple and control instrument.
- j) Replace rear connection chamber cover ensuring that kiln and control equipment are efficiently earthed.
- k) If a "Megger" test is employed this may produce a low reading - however this will quickly improve as the heating elements dry out the brickwork. TESTING

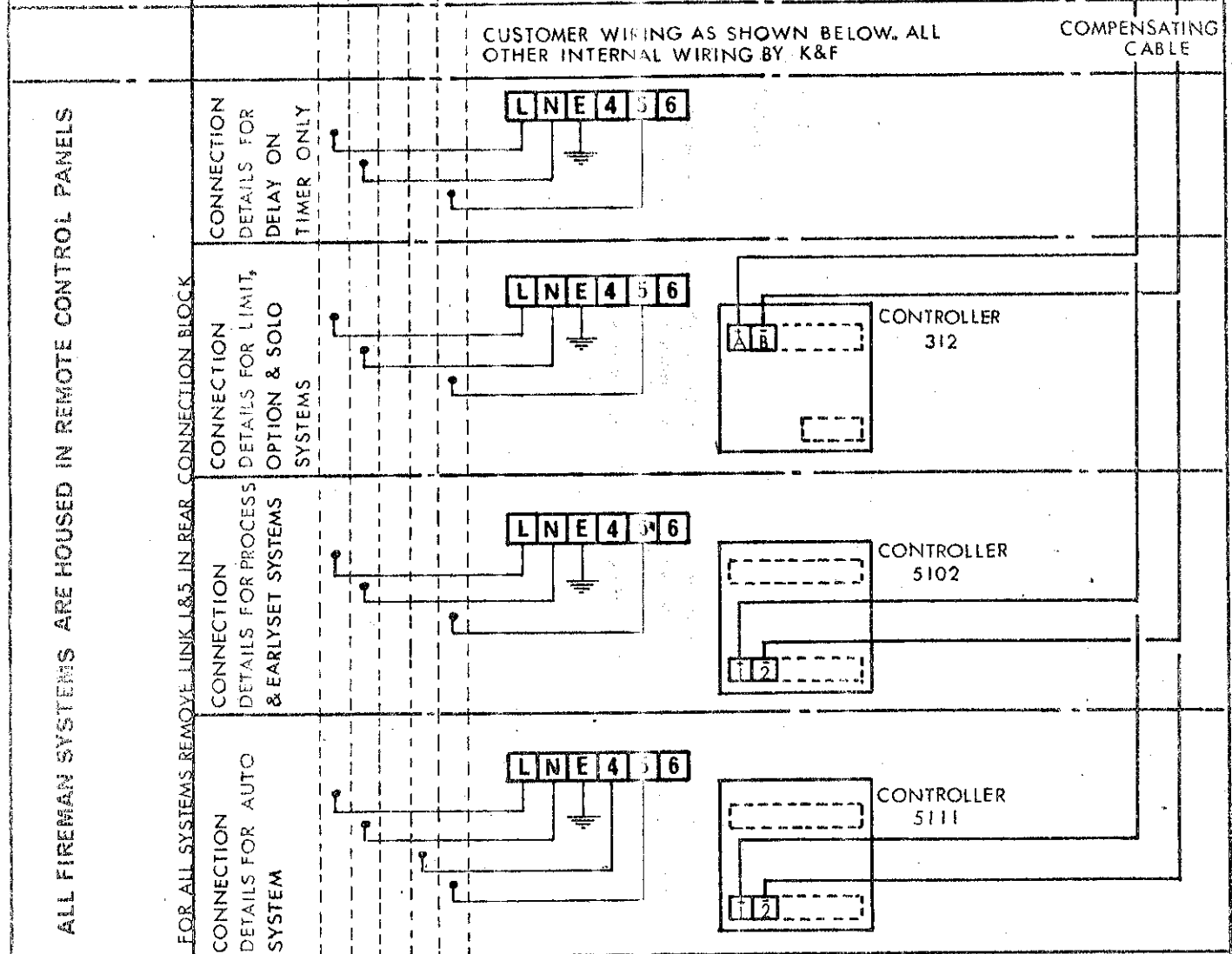
NOTE If 0-15 hour DELAY ON TIMER only is supplied at later date it cannot be used in conjunction with an ASBW programme controller.

DELAY ON
TIMER



CUSTOMER WIRING AS SHOWN BELOW. ALL OTHER INTERNAL WIRING BY K&F

COMPENSATING CABLE



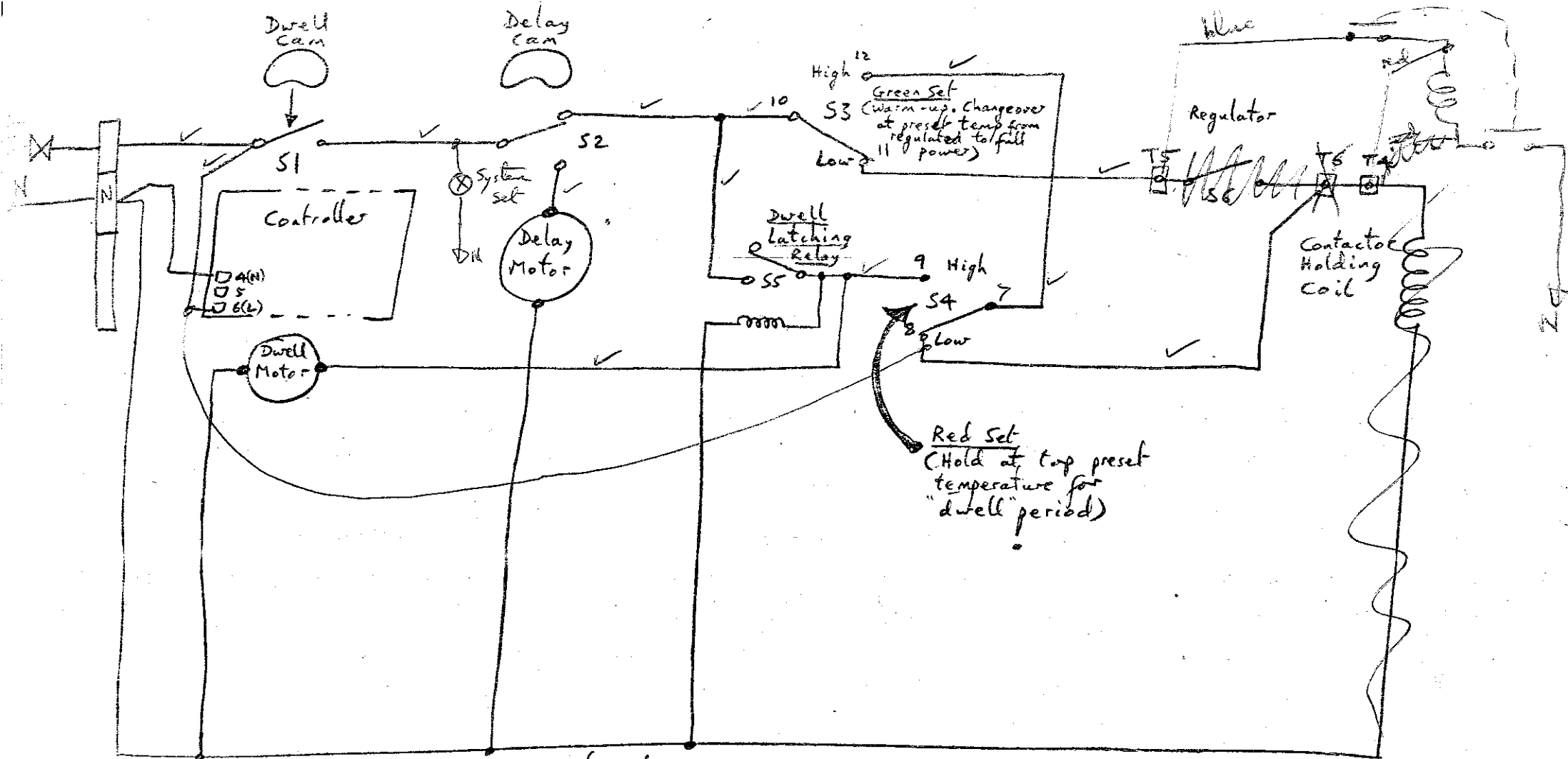
KILNS & FURNACES LTD
STOKE ON TRENT
ENGLAND

TITLE **fireman** CONTROL SYSTEMS

DRN HL

DATE 1-1-80

DRG. N° 3181



AUTO-FIREMAN Theoretical Circuit

- S1 = Microswitch on Dwell Timer (= Closed while any dwell time remains)
- S2 = Microswitch on Delay Timer (= Transfers supply from Delay Motor to Control Circuit at end of Delay Period)
- S3 = c/o contacts in Controller, bi-passes regulator when preset temperature is reached
- S4 = c/o contacts in Controller, latches-in Dwell Motor when top preset temperature is reached and maintains this temperature for Dwell Period.
- S5 = Latching relay tripped by S4
- S6 = Regulator load-contacts.