240 Grays Inn Rd (2018/2011/L, 2018/1788/P and 2018/1783/A)

For the attention of:

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Justification for Retaining Electricity Meter and Related Mains Electrical Installation

The London Electricity Board

The electricity meter for the shop at 240 Gray's Inn Road [Figure 1] is inscribed with the "LONDON ELECT BD", that is, the London Electricity Board, which was established on 1 April 1948 following the Electricity Act 1947. The Board was subsequently privatised under the Electricity Act 1989 becoming London Electricity plc in 1990. Therefore, it is immediately clear that the provenance and installation of the meter cannot have been subsequent to 1990.

Development and Modifications Timeline of the Landis & Gyr CH1 Meter

The development and modifications timeline of the Landis & Gyr Type CH1 Single Phase Watt Hour Meter presented here is based on the contents of National Archives record no. POWE 14/656 and is summarised in Table 1 below. (Documentary evidence in the record pertaining to the CH1d two-rate meter and the CH1 credit meter have been excluded here.)

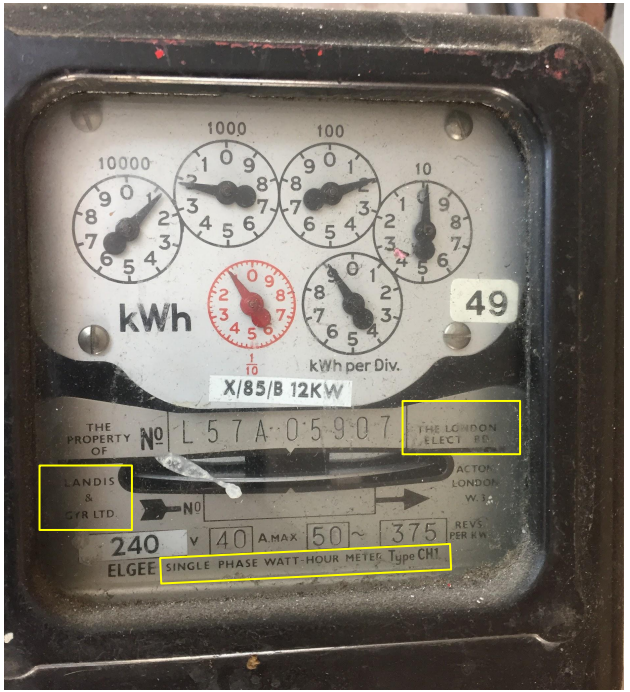

Figure 1. Existing Landis & Gyr Single Phase Watt Hour Type CH1 meter with 6-dial cyclometer. Provenance information highlighted in yellow.

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Development and Modifications Timeline of the Landis & Gyr CH1 Meter (continued)

The sequence of development and modifications to the CH1 meter as documented in the aforementioned record strongly supports the inference we have already presented that the existing electricity meter is of a pre-1974 design. Due to the highly-regulated nature of the manufacture and use of electricity meters for precision measurement and accurate billing, it is implicit that the original installation date for the meter would have been limited to within a few years of the meter's manufacture date. In fact, the regulatory process ca. 1950s-60s required inspection by the National Physical Laboratory and formal approval by the Ministry of Fuel and Power being valid only within 3-years of the meter's manufacture date [See Figures 2 and 3]. It would be highly unlikely for reasons of safety, compliance and commerciality to expect electricity boards and subsequent electricity companies to install older, less accurate models when newer models with improved precision, accuracy, and readability become available.

Furthermore, the sequence of modifications [see Table 1] include several visibly assessable features for relative dating, these being:

1. the modification towards use of a metal casing (9th Dec 1952) [Figure 9] and
2. modifications for the use of roller (18 Sept 1957 and 28 Dec 1961, respectively) [Figures 11 and 12] or jumping counting train cyclometers (18 April 1963) [Figure 13].

Conclusion

The meter at 240 Gray's Inn Road is encased in "moulded black insulating material" as described in the original specification [Figure 4] and does not have a metal casing. It also retains a 6-dial cyclometer as described in its original specification [Figures 5 and 6] and not a later roller or jumping train cyclometer [Figures 10-13] . Therefore, it is reasonable to deduce the meter is an early CH1 meter from ca. 1952. Hence, it would be disproportionate and unreasonable to expect our client to move or regularise fixtures undertaken prior to the listing of the building, especially in cases like this where relocation would require significant building works to alter the mains electricity connection and subject the listed building to further interventive works that are presently unnecessary.

Table 1. Development and Modifications Timeline for Single Phase Watt Hour CH1 Meter (1952 - 1972)

Date	Development Milestone	Documentary Sources and their issue dates
18 March 1952	Initial submission and approval of Single Phase Watt Hour CH1 meter pattern and configuration	Meter drawings, specifications document (14 Dec 1951) and correspondence between Landis & Gyr (14 Feb 1952), the National Physical Laboratory (18 Feb 1952) and the Ministry of Fuel and Power (18 Mar 1952).
10 July 1952	Modifications to nameplate and dialplate, bearings, counter worm wheel material	Meter drawings, and correspondence between Landis & Gyr (17 June 1952), the National Physical Laboratory (23 June 1952) and the Ministry of Fuel and Power (10 July 1952).
9 December 1952	Modification to a metal casing with standard fixings	Meter drawings and correspondence between Landis & Gyr (10 Nov 1952), the National Physical Laboratory (2 Dec 1952) and the Ministry of Fuel and Power (9 Dec 1952).
29 June 1953	Modified low-load vane	Meter drawings and correspondence between Landis & Gyr (9 June 1953), the National Physical Laboratory (17 June 1953) and the Ministry of Fuel and Power (29 June 1953).
2 Sept 1953	Modified rotor complete and top bearing screw	Meter drawings and correspondence between Landis & Gyr (13 Aug 1953), the National Physical Laboratory (17 Aug 1953) and the Ministry of Fuel and Power (2 Sept 1953).
21 March 1955	Renewed Approval	Letter from Ministry of Fuel and Power (21 March 1955).
18 Sept 1957	Modified cyclometer dial with 6 rollers and changes to spindle bearings	Meter drawing and correspondence between Landis & Gyr (12 July 1954; 7 Aug 1957), the National Physical Laboratory (9 Sept 1957) and the Ministry of Fuel and Power (18 Sept 1957).
1959	Renewed Approval	Referenced in Landis & Gyr letter (1 June 1972) see below.
28 December 1961	A further modification of the 6-figure cyclometer to use CL7 meter's cyclometer design	Meter drawings and correspondence between Landis & Gyr (6 Dec 1961), the National Physical Laboratory (14 Dec 1961) and the Ministry of Fuel and Power (28 Dec 1961).
18 April 1963	Modification to jumping and non-jumping counting train cyclometer	Drawings and correspondence between Landis & Gyr (14 March 1963), the National Physical Laboratory (28 March 1963) and the Ministry of Fuel and Power (18 April 1963).
16 June 1972	Modified voltage coil	Correspondence between Landis & Gyr (1 June 1972) and the Department of Trade and Industry (successor to the Ministry of Fuel and Power) (16 June 1972).

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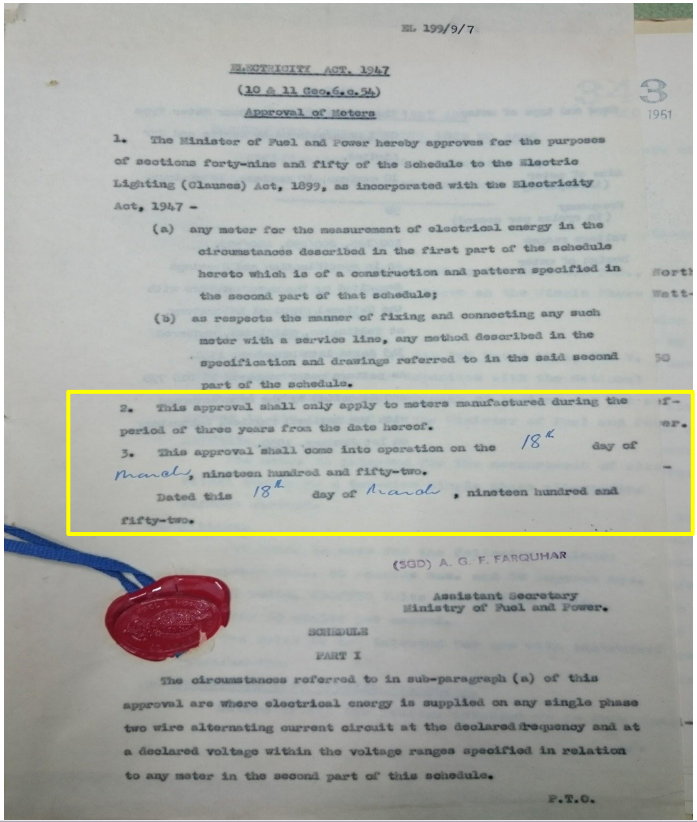


EL 199/9/7

ELECTRICITY ACT, 1947
(10 & 11 Geo.6.c.54)
Approval of Meters

1951

1. The Minister of Fuel and Power hereby approves for the purposes of sections forty-nine and fifty of the Schedule to the Electric Lighting (Clauses) Act, 1899, as incorporated with the Electricity Act, 1947 -

(a) any meter for the measurement of electrical energy in the circumstances described in the first part of the schedule hereto which is of a construction and pattern specified in the second part of that schedule;

(b) as respects the manner of fixing and connecting any such meter with a service line, any method described in the specification and drawings referred to in the said second part of the schedule.

2. This approval shall only apply to meters manufactured during the period of three years from the date hereof.

3. This approval shall come into operation on the 18th day of March, nineteen hundred and fifty-two.

Dated this 18th day of March, nineteen hundred and fifty-two.

(SGD) A. G. F. FARQUHAR

Assistant Secretary
Ministry of Fuel and Power.

SCHEDULE

PART I

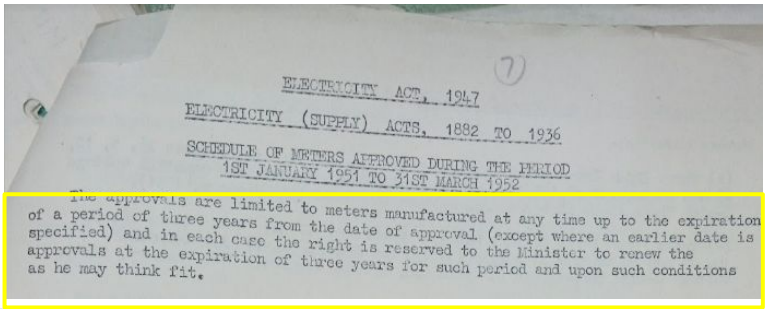
The circumstances referred to in sub-paragraph (a) of this approval are where electrical energy is supplied on any single phase two wire alternating current circuit at the declared frequency and at a declared voltage within the voltage ranges specified in relation to any meter in the second part of this schedule.

P.T.O.

Figure 2 (left). In accordance with the Electricity Act, 1947, the Minister of Fuel and Power issued Landis and Gyr a formal approval for the CH1 meter on 18 March 1952.

The document specifies that: “This approval shall only apply to meters manufactured during the period of three years from the date hereof.” (highlighted).

Figure 3 (below). This limitation of approval for 3 years is reiterated in a ministry document consisting of a schedule of approved meters between 1 January 1951 to 31 March 1952.



ELECTRICITY ACT, 1947

ELECTRICITY (SUPPLY) ACTS, 1882 TO 1936

SCHEDULE OF METERS APPROVED DURING THE PERIOD 1ST JANUARY 1951 TO 31ST MARCH 1952

The approvals are limited to meters manufactured at any time up to the expiration of a period of three years from the date of approval (except where an earlier date is specified) and in each case the right is reserved to the Minister to renew the approvals at the expiration of three years for such period and upon such conditions as he may think fit.

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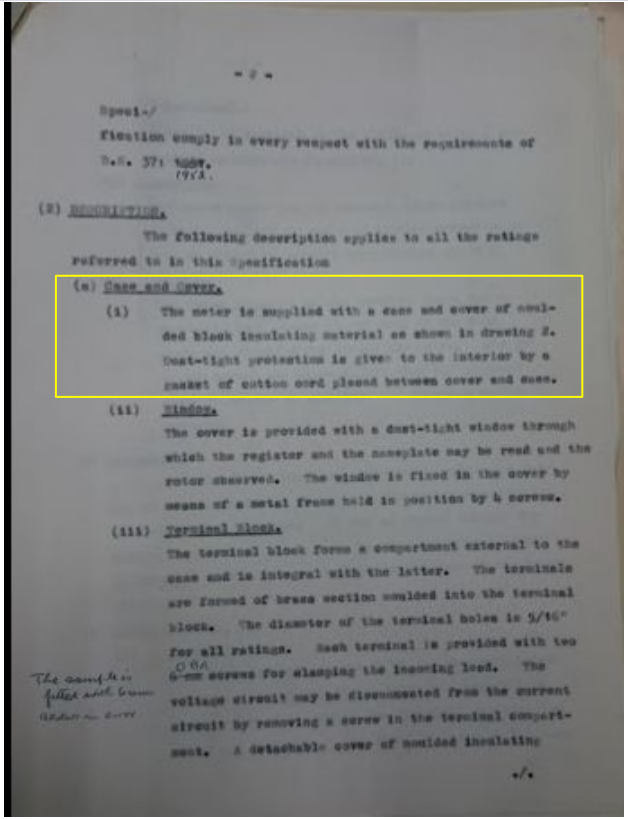

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Specification comply in every respect with the requirements of
B.S. 37: 1937.
1951.

(2) DESCRIPTION.

The following description applies to all the ratings referred to in this Specification

(a) Case and Cover.

(i) The meter is supplied with a case and cover of moulded black insulating material as shown in drawing 2. Dust-tight protection is given to the interior by a gasket of cotton cord placed between cover and case.

(ii) Window.

The cover is provided with a dust-tight window through which the register and the nameplate may be read and the rotor observed. The window is fixed in the cover by means of a metal frame held in position by 4 screws.

(iii) Terminal Block.

The terminal block forms a compartment external to the case and is integral with the latter. The terminals are formed of brass section moulded into the terminal block. The diameter of the terminal holes is 5/16" for all ratings. Each terminal is provided with two 6-BA screws for clamping the incoming load. The voltage circuit may be disconnected from the current circuit by removing a screw in the terminal compartment. A detachable cover of moulded insulating

The sample is fitted with brass

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Figure 4. Page 2 of the original specification document (14 Dec 1951) submitted by Landis & Gyr as part of the meter approval process to the Ministry of Fuel and Power. Section 2.a.1. (highlighted) regarding the case and cover specifies that: "The meter is supplied with a case and cover of moulded black insulating material". This matches the existing presentation of the meter at 240 Gray's Inn Road.

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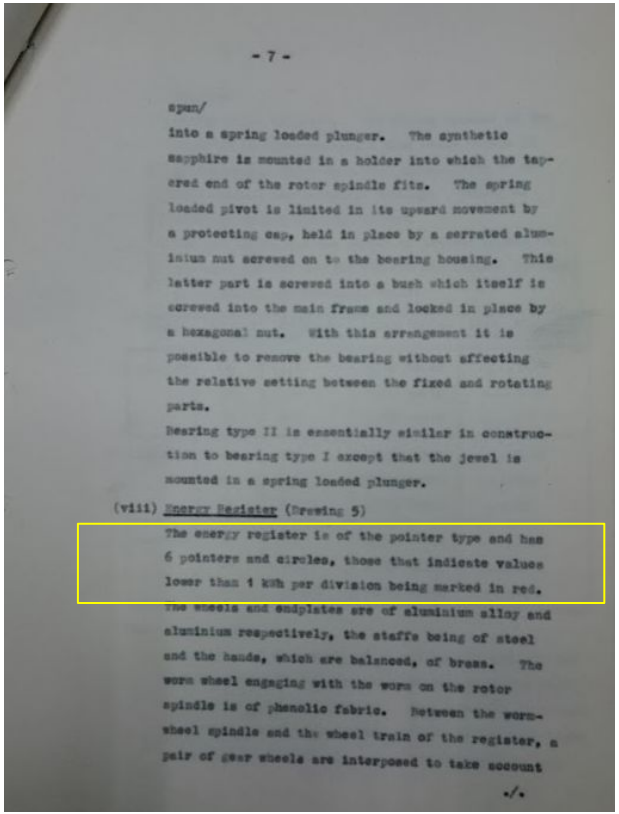

- 7 -

spun/

into a spring loaded plunger. The synthetic sapphire is mounted in a holder into which the tapered end of the rotor spindle fits. The spring loaded pivot is limited in its upward movement by a protecting cap, held in place by a serrated aluminium nut screwed on to the bearing housing. This latter part is screwed into a bush which itself is screwed into the main frame and locked in place by a hexagonal nut. With this arrangement it is possible to remove the bearing without affecting the relative setting between the fixed and rotating parts.

Bearing type II is essentially similar in construction to bearing type I except that the jewel is mounted in a spring loaded plunger.

(viii) Energy Register (Drawing 5)

The energy register is of the pointer type and has 6 pointers and circles, those that indicate values lower than 1 kWh per division being marked in red. The wheels and endplates are of aluminium alloy and aluminium respectively, the staffs being of steel and the hands, which are balanced, of brass. The worm wheel engaging with the worm on the rotor spindle is of phenolic fabric. Between the worm-wheel spindle and the wheel train of the register, a pair of gear wheels are interposed to take account

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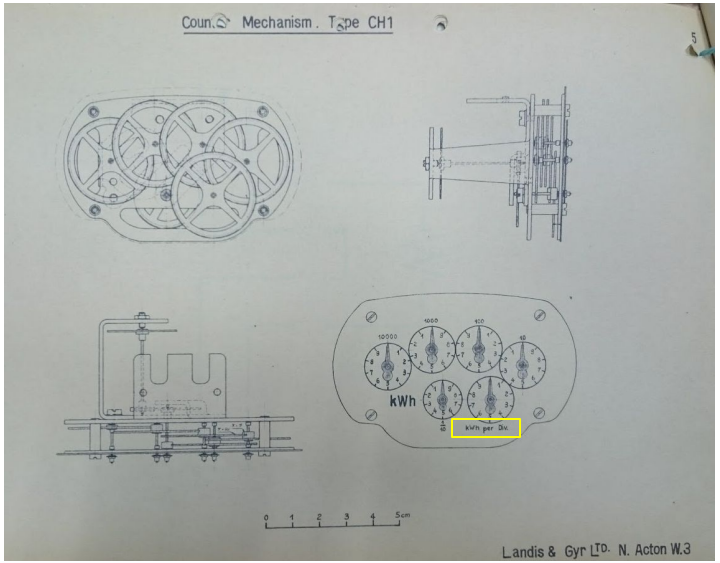
Figure 5 (left). Page 7 of the original specification document (14 Dec 1951). Section 1.e.viii. (highlighted) regards the energy register "of the pointer type and has 6 pointers and circles, those that indicate values lower than 1 kwh per division being marked in red." The register is detailed in Drawing no. 5 [**Figure 6** below] and matches the existing presentation of the meter at 240 Gray's Inn Road. Note the inscription highlighted below for "kWh per Div" matches that found on the *in situ* meter.



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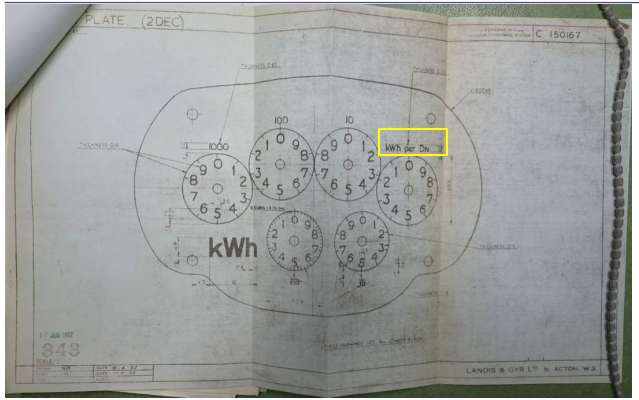

Figure 7. First modifications (10 July 1952) of the Landis & Gyr CH1 meter affecting the 6-dial cyclometer register design. Note the location for the "kWh per Div" inscription has been relocated since the original specification.

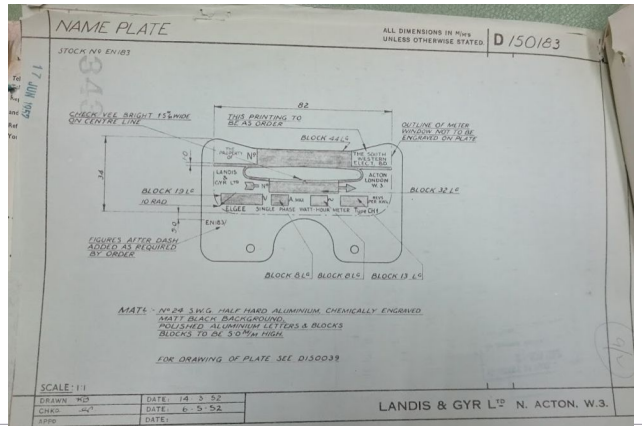

Figure 8. First modifications (10 July 1952) of the Landis & Gyr CH1 meter altering the nameplate design to have a matt black background, but is otherwise similar in layout and inscriptions to that found at 240 Gray's Inn Road.

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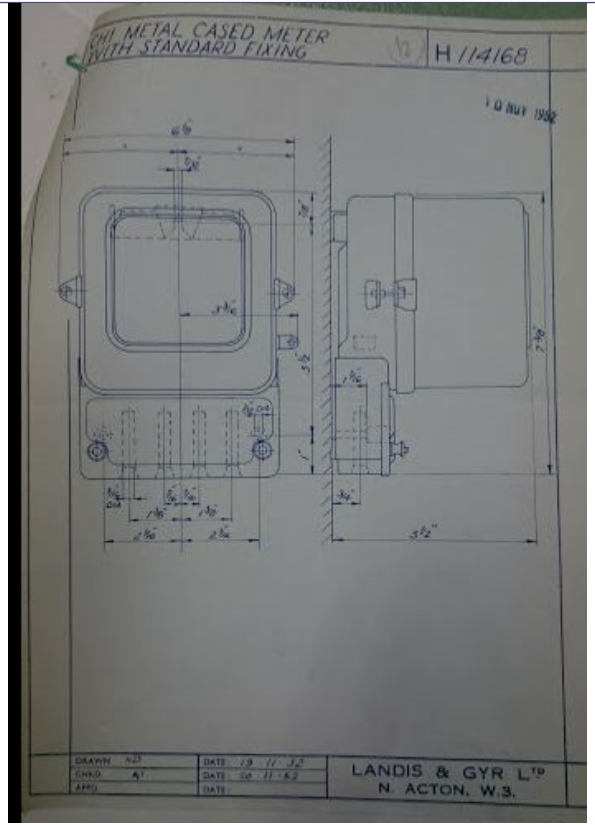
Figure 9 (right). Drawing H114168 for a metal casing submitted (10 Nov 1952) to the National Physical Laboratory and Ministry of Fuel and Power for approval.



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SPECIFICATION FOR TYPE CH1 METER FITTED
WITH CYCLOMETER COUNTING TRAINS.

The cyclometer type counting train will consist of 6 rollers, the general design of which is shown on the drawing attached hereto. The ratio wheels and decimal places for the dial plates are also shown on attached drawing, and in all other respects, the meter would be identical to the type CH1 meter which has already been Approved.

For LANDIS & GYR LIMITED.

AEC/DM.
12.7.54.

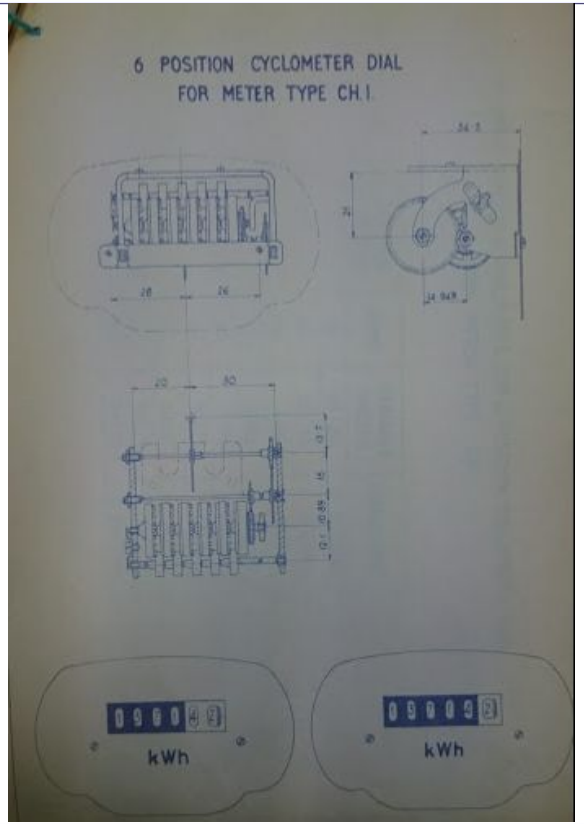

Figure 10 (above). Letter and [**Figure 11 (**right)] drawing from Landis & Gyr (12 July 1954) for a 6 rollers dial cyclometer submitted to the National Physical Laboratory and Ministry of Fuel and Power for approval.

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Figure 12. Drawing submitted by Landis and Gyr (6 Dec 1961) for approval to use a 6-figure cyclometer previously approved for use with their CL7 meters.

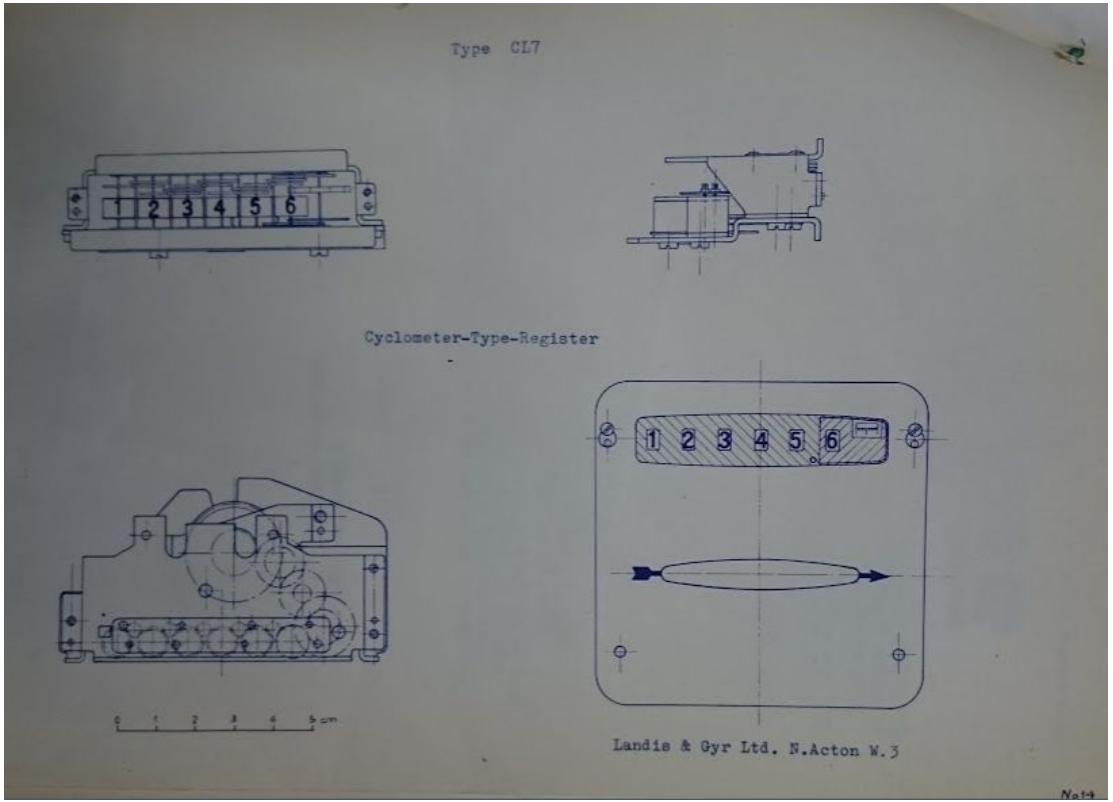

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Figure 13. Drawing submitted by Landis and Gyr (14 March 1963 for the approved use of a jumping train cyclometer.