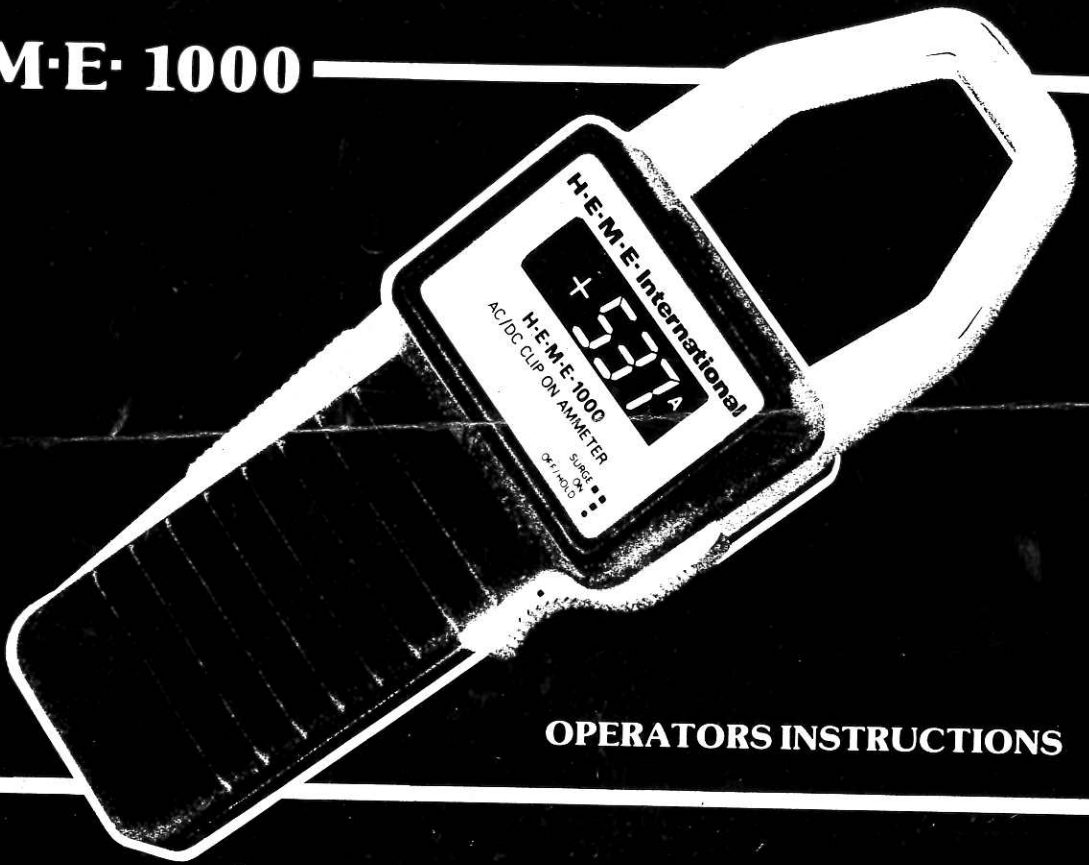
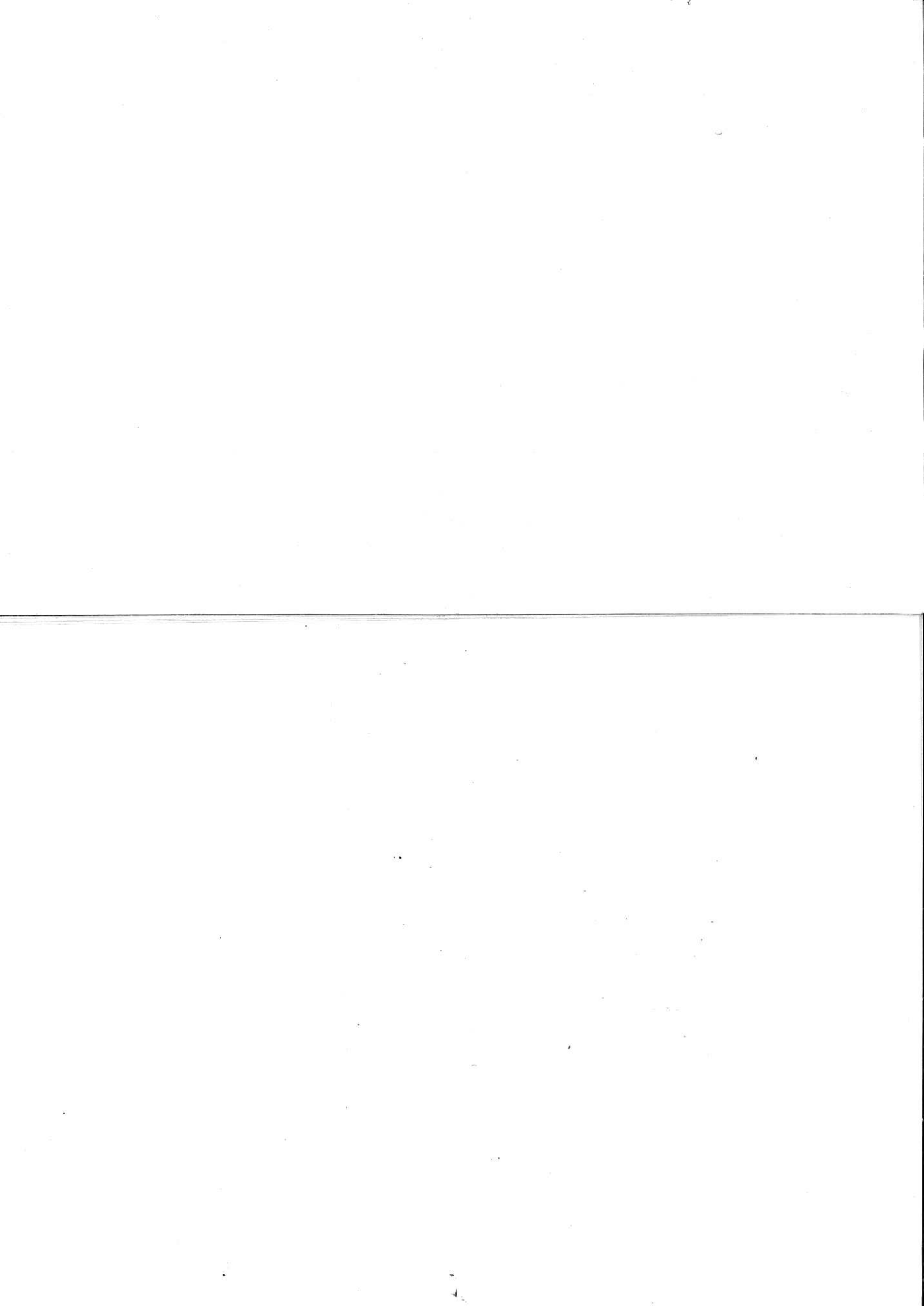


H·E·M·E· 1000



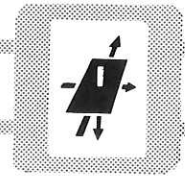
OPERATORS INSTRUCTIONS



H·E·M·E· 1000

OPERATORS INSTRUCTIONS

H·E·M·E· International Limited



Warranty

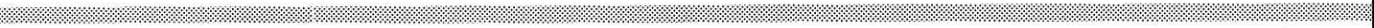
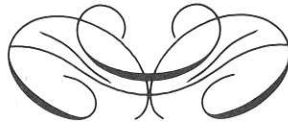
Your H.E.M.E. 1000 Clip-on Ammeter is warranted for one year from date of purchase against defects of material or workmanship.

In the event a defect develops during the warranty period we will repair or replace the instrument at our discretion with a new or reconditioned one provided we are satisfied that the defect is due to defects of material or workmanship.

To make a claim under warranty the instrument should be returned to us, postage prepaid, with a description of the defect.

Goods alleged by the buyer to be defective shall not form the subject of any claim for injury, loss, damage or any expense howsoever incurred whether arising directly or indirectly from such alleged defects other than death or personal injury resulting from the seller's negligence.

No condition is made or to be implied nor is any warranty given or to be implied as to the life or wear of the goods supplied or that they will be suitable for any particular purpose or for use under specific conditions, notwithstanding that such purpose or conditions may be made known to the seller.



Introduction

The use of advanced Hall Effect technology has produced an instrument which measures current accurately from DC to 1kHz and up to 1000 Amperes. Measurements are made without breaking the circuit or disturbing the insulation.

The H.E.M.E. 1000 is accurate to $\pm 1\%$ of range and will indicate true RMS even when a complex waveform AC current is superimposed on DC (eg in electronically rectified current). An additional feature is an analogue output which provides instantaneous output to oscilloscope or RMS values for chart recorder.

Accuracy of the instrument and output are only minimally affected by the position of the conductor within the jaws, the proximity of the return current conductor and by stray magnetic fields from adjacent components.

The instrument has an advanced $3\frac{1}{2}$ digit LCD which is autoranging to provide 0.1 Ampere resolution from 0 to 199.9 Amperes and 1 Ampere resolution from 0 to 1000 Amperes. A low battery warning is provided as are DC polarity and AC indications. For measuring starting and other transient currents, a surge reading facility is

provided and surge or normal readings can be held on the display.

Unlike conventional clip-ons, the H.E.M.E. 1000 is a truly universal instrument which can handle all current measurement jobs including variable speed drives, motor vehicles, battery-powered equipment, electric vehicles, welding equipment and electroplating.

Measurement Theory

Ampere's Law states that current flowing in a conductor produces a proportional magnetic field around the conductor. The H.E.M.E. 1000 measures current accurately by measuring the strength of this attendant magnetic field. When the jaws of the instrument close around a conductor, the magnetic field is concentrated into a magnetic circuit within which a thin semiconductor is placed. When a current is applied to the semiconductor a voltage occurs across the lateral edges (this is the Hall Effect). The voltage (known as the Hall voltage) is proportional to the product of the magnetic field normal to its surface and the control current flowing through it. Since the control current is held precisely constant, the Hall voltage is proportional to the magnetic field and hence to the current flowing in the conductor.

Operating Instructions

Switch positions

- ■ Surge readings
- Normal readings
- Off/hold

To read current

1. Switch to normal reading (■) position.
2. Wait (typically 5 seconds) for instrument to auto-zero, (± 3 least significant digits).
3. Open jaws and encircle conductor.
4. Allow the jaws to close smartly, ensuring a good contact between the closing faces of the magnetic circuit.
5. Wait for reading to stabilise.
When measuring current in excess of 199.9 Amps, the display will automatically change to the 0—1000 Amp Range, and will remain in this range until the instrument is switched off.
6. To hold reading on the display, move switch to off/hold (●) position.

Reading will be held on display for six seconds before disappearing. This feature enables the

instrument to be removed from conductor for remote viewing of the L.C.D. if required. A polarity indication of “+” indicates current is flowing in the direction shown by the arrow on the case. Current flowing in the opposite direction is indicated by “-”. AC current is indicated by “~” (indeterminate below 10 Amps).

To measure surge currents

1. Switch to normal reading (■) position.
2. Wait for instrument to auto-zero.
3. Move operating switch to surge reading (■ ■) position.
4. Open jaws and encircle conductor.
5. Allow the jaws to close smartly.
6. Initiate surge current in conductor.
7. Wait for reading to stabilise.
Reading will be automatically held on display. It will begin to gradually decay after a few seconds. Operation of the surge facility automatically ranges the instrument to 0—1000 Amps. Accuracy cannot be warranted below 50 Amps.

NO WARRANTY

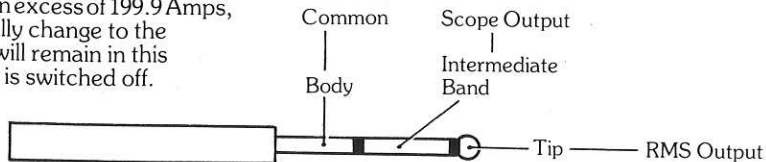
WARRANTY

To use analogue output

The leads provided with your H.E.M.E. 1000 enable the analogue output to be connected to most oscilloscopes and chart recorders.

1. With the leads connected between the H.E.M.E. 1000 and the scope/recorder, switch to the normal reading (■) position.
2. Wait for the instrument to auto-zero.
3. Open jaws and encircle conductor.
4. Allow jaws to close smartly.
5. Current waveform will be shown on an oscilloscope or RMS current on a chart recorder. To facilitate the production of other configurations of lead, the following diagram shows the relevant connections to the jack plug.

When measuring current in excess of 199.9 Amps, the output will automatically change to the 0—1000 Amp Range and will remain in this range until the instrument is switched off.



Battery replacement

"Low Batt" will appear on the display when the minimum operating voltage is approached. Remove the screw which secures the base of the serrated operating lever and remove the lever. The battery is then accessible. Replace the battery and re-fit the lever by sliding the upper end into position so that the lower bush aligns with its fixing hole. Replace the screw.

Safety

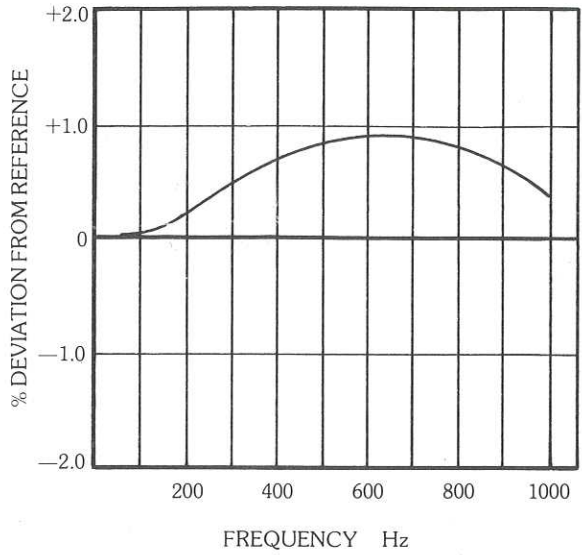
Whilst the H.E.M.E. 1000 is manufactured to be as safe as possible, safety in its use is the responsibility of the operator, who must be a suitably qualified person.

Specification

Current Range	0—1000 Amperes DC or AC (True RMS)	Analogue output	Two analogue outputs are provided via a 3 pole jack socket.
Frequency Range	DC to 1kHz (see graph)		Instantaneous current signal via lead with BNC connector.
Crest Factor (peak/RMS ratio)	7 for stated accuracy		RMS current signal via lead with two terminal plugs
Operating Temperature	0 to 35°C	Signal Level	500mV=Full Scale (0—199.9 Amp Range)
Storage Temperature	—40°C to +50°C with battery removed		250mV=Full Scale (0—1000 Amp Range)
Humidity	0—85% Rh	Output Burden	1 milliamp
Battery life	Approximately 1 year of typical use or 40 hours continuous operation	Output Impedance	50 ohms
Battery Type	PP3 Alkaline	Case Material	Polycarbonate
Display	3½ digit LCD, 15mm high characters	Conductor Size	Up to 50mm circular section, 8mm x 65mm rectangular section
Display facilities	Autoranging, (0—199.9 Amps and 0—1000 Amps) low battery, AC symbol polarity of DC current Maximum RMS current can be stored and indicated on the display	Voltage Withstand	5.0kV
Surge Values		Overload Capacity	1000%
Hold Reading	Displayed current is held for 6 seconds to allow disengagement from the conductor	Reading Accuracy (at 25°C)	±1% of Range (i.e. ±2A in 0—199.9 Amp range; ±10A in 0—1000 Amp range)
		Temperature Coefficient	±0.2% per degree C
		Resolution of Display	0.1 Amp (0—199.9 Amp range) 1 Amp (0—1000 Amp range)

Surge Accuracy	$\pm 2\%$ of Range (i.e. $\pm 20\text{A}$ in 50—1000 Amp range)
Surge Response Time	100 milliseconds
Weight	585 grams
Overall Length	260mm
Overall Width	90mm
Overall Depth	70mm
Accessories	Real leather carrying case. Oscilloscope connecting lead. Chart recorder connecting lead

H·E·M·E· 1000 Typical Frequency Response at Reference Current



WARNING

**THIS INSTRUMENT IS NOT FOR
USE ON BARE CONDUCTORS
ABOVE 50V. r.m.s. TO EARTH.**

Due to our policy of continual product improvement, we reserve the right to revise the above specification without notice.

A member of the Pilkington Group

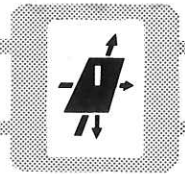


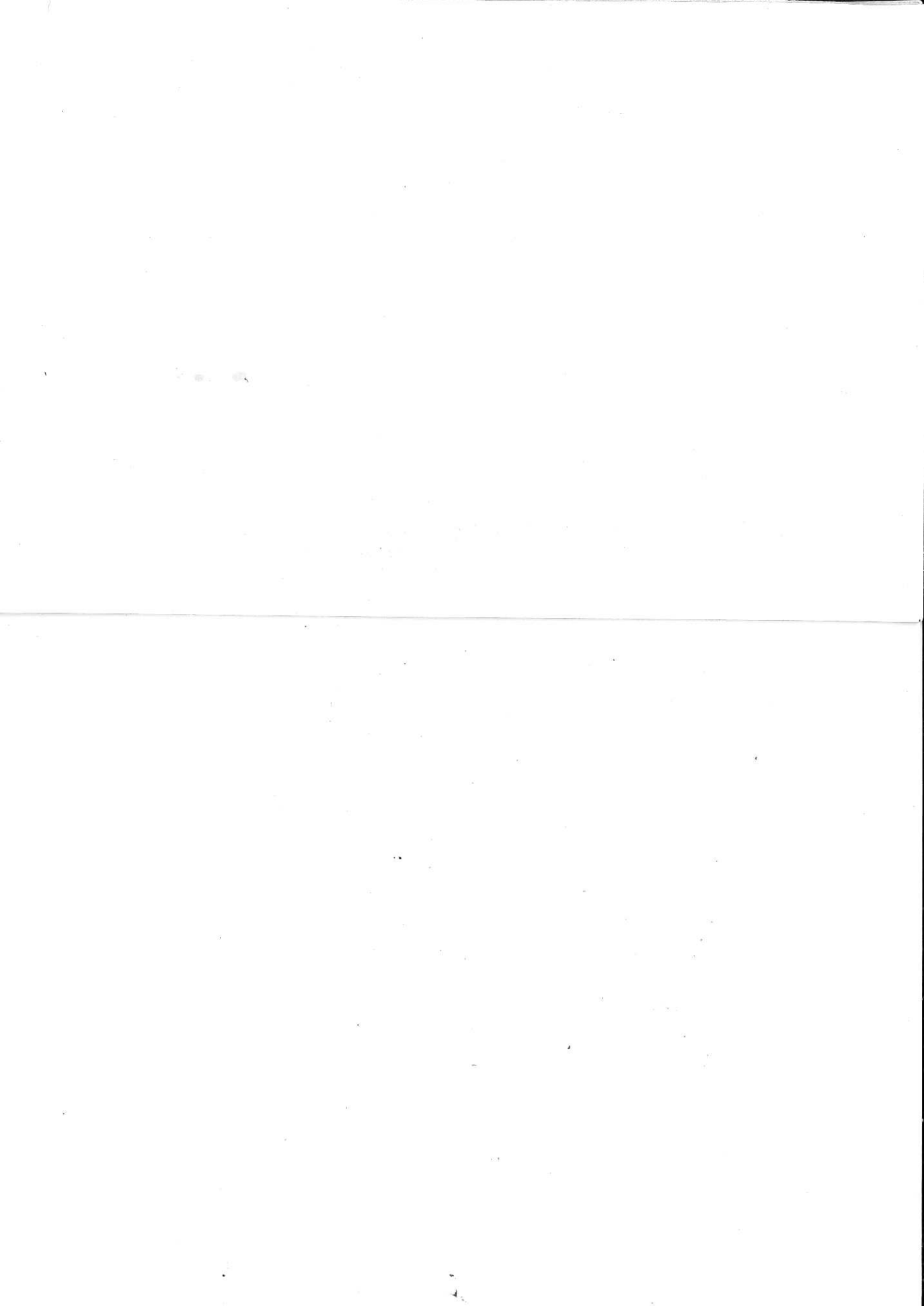
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