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CMR0011
ISSUE 10 01/04

Metrohm®

7A501

EXTRA SAFE
INSULATION & CONTINUITY
TESTERS

INSTRUCTION MANUAL

LIMITED WARRANTY

Martindale Electric Company Ltd warrants instruments and test equipment manufactured by them to be free from defective material or factory workmanship and agree to repair or replace such products which, under normal use and service, disclose the defect to be the fault of our manufacturing, with no charge for parts and service. If we are unable to repair or replace the product, we will make a refund of the purchase price. Consult the Instruction Manual for instructions regarding the proper use and servicing of instruments and test equipment. Our obligation under this warranty is limited to repairing, replacing or making refund of any instrument or test equipment which proves to be defective within twenty four months from the date of original purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorised persons in any way so as, in our sole judgement, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced or removed. Accessories, not of our manufacture used with this product, are not covered by this warranty.

To register a claim under the provisions of this warranty, return the instrument or test equipment to. Martindale Electric Company Ltd, Metrohn House, Penfold Trading Estate, Imperial Way, Watford. Upon our receipt and inspection of the product we will advise you as to the disposition of your claim.

ALL WARRANTIES IMPLIED BY LAW ARE HEREBY LIMITED TO A PERIOD OF TWENTY FOUR MONTHS, AND THE PROVISIONS OF THE WARRANTY ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES EXPRESSED OR IMPLIED.

The purchaser agrees to assume all liability for any damages and bodily injury which may result from the use or misuse of the product by the purchaser, his employees, or others, and the remedies provided for in this warranty are expressly in lieu of any other liability Martindale Electric Company Ltd may have, including incidental or consequential damages.

TABLE OF CONTENTS

SAFETY RULES

WARNING

DISCONNECT TEST LEADS
BEFORE OPENING TESTER.

This tester has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when lack of caution or poor safety practices are used.

When using this tester to monitor high voltages turn off the power before connecting the tester.

Where possible, do not touch the tester or its leads when the power is on.

Turn off the power before disconnecting the tester.

READ THE MANUAL

Read this Instruction Manual carefully and completely. Voltages within the capability of this tester can be hazardous. Follow the instructions in this manual for every measurement. Read and understand the general instructions before attempting to use this tester.

CLASS	CLASS GAS OR VAPOUR	
2c (cont.)		*Esters*
		methyl formate
	(ii) **Compounds**	ethyl formate
	containing oxygen	methyl acetate
	Oxides (including ethers)	ethyl acetate
	carbon monoxide	butyl acetate
	methoxyethanol	amyl acetate
	ethoxyethanol	methyl acetoacetate
	ethyldigol	diethyl oxalate
	butyldigol	methyl acrylate
	dibutyl ether	ethyl acrylate
	(iii) **Compounds**	(iv) Compounds
	Containing Halogens	Containing Nitrogen
	Compounds without	*Amines*
	oxygen	methylamine
	chloromethane	dimethylamine
	chloroethane	trimethylamine
	bromoethane	diethylamine
	chloropropane	triethylamine
	chlorobutane	propylamine
	bromobutane	butylamine
	dichloroethane	cyclohexylamine
	dichloropropane	ethanolamine
	chlorobenzene	diethylaminoethanol
	benzyl chloride	diaminoethane
	dichlorobenzene	aniline
	allyl chloride	dimethylaniline
	dichloroethylene	amphetamine
	chloroethylene	toluidine
		pyridine
	Compounds with	
	oxygen	*Amides*
	acetyl chloride	formdimethylamide
	chloroethanol	
	chlordimethyl ether	*Nitro-compounds*
		nitromethane
		nitroethane
		nitrobenzene
	Acids	
	acetic acid	(v) **Compounds**
		Containing Sulphar
		ethyl mercaptan
		diethyl sulphate

CLASS	CLASS GAS OR VAPOUR	
1	Methane (firedamp)	
2a	Ammonia	
†2c	(i) **Hydrocarbons**	Alcohols and Phenols
	Alkane	methanol
	methane*(industrial)	ethanol
	ethane	propanol
	propane	butanol
	butane	pentanol
	pentane	hexanol
	hexane	octanol
	heptane	nonanol
	nonane	cyclohexanol
	cyclobutane	methylcyclohexanol
	cyclohexane	diacetone alcohol
	methylcyclohexane	phenol
	decahydronaphthalene	cresol
	Benzenoid	*Aldehydes*
	benzene	formaldehyde
	toluene	acetaldehyde
	xylene	octaldehyde
	ethylbenzene	paraformaldehyde
	trimethylbenzene	paraldehyden
	aphthalene	metaldehyde
		benzaldehyde
	Alkene	butyraldehyde
	butene	
	cyclohexene	*Ketones*
	styrene	acetone
	di-isobutylene	ethyl methyl ketone
		propyl methyl ketone
	Mixed Hydrocarbons	butyl methyl ketone
	turpentine	amyl methyl ketone
	coal tar naphtha	acetylacetone
	petroleum	cyclohexanone
	naphtha	
	kerosene	

SAFETY CHECK

Double check the switch setting and lead connections before making measurements. Are you following instructions? When changing the battery or removing the cover to access the internal circuitry, always disconnect the test leads.

DON'T TOUCH

Don't touch exposed wiring, connections or other 'live' parts of an electrical circuit. If in doubt, check the circuit first for voltage before touching it. Turn off the power to a circuit before connecting test probes to it. Be sure there is no voltage present before you touch the circuit. Do not use cracked or broken test leads.

HIGH VOLTAGE IS DANGEROUS

Always start with the power turned off. Be sure these is no voltage present before making connections to the circuit. Before disconnecting the tester, turn the circuit off and wait for the meter to return to 'zero'.

HAZARDOUS LOCATIONS

In hazardous locations where inflammable gases may be present, it is important to remember certain precautions must be taken

These are:

1 **DO NOT FLICK THE TEST LEADS**
2 **CONNECT TEST LEADS SECURELY TO CIRCUIT UNDER TEST**
3 **RELEASE OPERATING BUTTON BEFORE DISCONNECTING TEST LEADS**

NOTE: BS1259 is now obsolescent and has been superseded by BS5501. Under BS1259 the tester by itself was approved whereas under BS5501 approvals also consider applications of the tester.

For example when carrying out insulation testing at 500V DC on wiring installations the inherent self-capacitance of the wiring will charge up and could create an incendive spark if discharged accidentally. It is necessary therefore to have a good working code of practice so that this hazard is eliminated and to ensure that the charge held in the wiring capacitance is discharged safely via the tester at the end of each insulation test.

THIS INSTRUMENT SHOULD ONLY BE USED BY A COMPETENT, SUITABLY TRAINED PERSON.

REMEMBER: SAFETY IS NO ACCIDENT

(C) ENVIRONMENTAL

Operating Temperature: 0 to 40ºC
Storage Temperature: -20ºC to 60ºC

SPARES AND ACCESSORIES (7A501)

Leads:		METDFK0113
Carry Case:	7A501	METPA24249A
Battery:	1.5V IEC R6B	CEJ0035

REPAIRS

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web: www.martindale-electric.co.uk

7A501 SPECIFICATION

(A) ELECTRICAL

Insulation MΩ

Range:	0 - 50MΩ
Test Voltage:	500V DC±10% across 1MΩ
Short Circuit Current:	<2mA
Accuracy:	±1.6mm of scale arc length

Continuity Ω

Range:	0 - 50Ω
Test Voltage:	Nominal 200mV
Short Circuit Current:	<26mA
Accuracy	: ±1.6mm of scale arc length

Battery: 6 off 1.5V AA IEC R6B

EMC: Meets BS EN 50081-1
BS EN 50082-1

(B) MECHANICAL

Size:	132 X 82 X 60mm
Material:	ABS
Weight:	0.6kg
Movement:	Nominal1.0mA sensitivity - taut band
Scale Length:	70mm
Test Leads:	914mm long with crocodile clips

GENERAL DESCRIPTION

The 7A501 has been approved to BS1259 (1958) and carries the Ministry of Power Certificate Number IS1428 (Class 1)and the Factory Inspectorate Certificate Number 2148 (Class 2A and 2C) which covers Methane, Ammonia and Hydrocarbons.
Table 1 gives a full list of gases and vapours that are covered.

The testers have an analogue display and 500V DC insulation test voltage with a short circuit current of less than 2mA. On continuity the test voltage is nominally 200mV with a short circuit current of 26mA maximum. A special allen key is required to access the batteries so that they may not be changed in a hazardous area.

This tester does not comply with The ATEX directive.

7A501 OPERATING INSTRUCTIONS

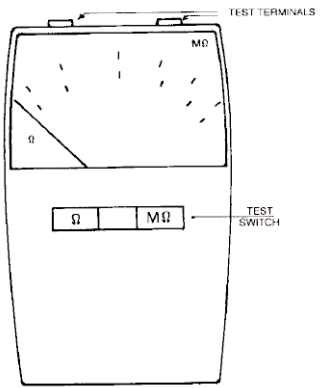

Fig. 1 Front Layout of 7A501

The test switch is operated with a rocker button so that depressing and holding the left side measures continuity and depressing and holding the right side measures insulation. Readings are displayed on an analogue meter.

If the pointer deflects upscale when the test leads are connected to a circuit it indicates that the circuit is live and operating the test switch could result in damage to the tester. Disconnect the leads from the circuit.

Before using the tester check the pointer zero and the battery condition.

ZERO ADJUST

If the pointer does not coincide with the zero on the left side of the scale, adjust as required with a screwdriver inserted through the hole in the back of the case.

BATTERY TEST

Connect the test terminals together with the test leads and operate the right (MΩ) side of the test switch. The pointer should read zero on the top MΩ scale. If not replace the batteries.

BATTERY REPLACEMENT

The batteries must never be replaced in a hazardous area. The carry case must first be removed by unscrewing the allen screw (with the special key provided) in the retaining strap. To access the batteries remove the battery lid by undoing the screw at the rear of the tester with the special key. Remove the spent batteries, insert new ones and reassemble.

CONTINUITY 0 - 50Ω.

Continuity resistance is displayed on the meter when the left side (Ω) of the test switch is operated.

INSULATION 0 - 50MΩ.

Insulation resistance is displayed on the meter when the right side (MΩ) of the test switch is operated.