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UltraTest

Motorised Test Stand
Operating Instructions

It is essential that you Familiarise yourself with the contents of these instructions befor attempting to operate the UltraTest

English 431-085-01

Mecmesin

Thank you for choosing this Mecmesin instrument, with correct use it will give many years of reliable service. Upon receiving the unit please check that no obvious physical damage has been sustained by the packaging material or the instrument itself. If any damage is evident, or if any of the items in Appendix 1 are missing, please notify Mecmesin or their Authorised Agent immediately. We strongly recommend that ***all*** the packaging and fixings are retained for any future transit requirements. When using the UltraTest please ensure that the ventilation holes situated on the back and bottom of the unit are not obstructed. Also attach (hand tight only) the four rubber feet to the UltraTest with the screws provided.

SAFE OPERATION OF THE ULTRATEST

Appendix 2 give guidance notes on the safe use of mains powered test frames. You should read this before proceeding any further. Within the European Union (EU), a copy of this Appendix is supplied in a language appropriate to your country.
Failure to adhere to the guidelines for safe use given in these operating instructions may result in irreparable damage to the unit and personal injury to the operator.

INTRODUCTION TO THE ULTRATEST

The UltraTest is a single column ballscrew-driven test frame with a load rating of up to 1000 Newtons (N). It must not be used with load ratings above 1000N. Complemented by a Mecmesin loadcell or force gauge (as illustrated in the photograph), together with special fixtures and accessories it constitutes a key component in force measurement systems suitable for accurately and reproduceably testing a wide range of products.

There is only one standard model of the UltraTest. The dimensions, speed range and capacity have been carefully optimised to cover the test procedures and specimen sizes most often needed by quality departments within many sectors of manufacturing industry.

The UltraTest has been designed and manufactured in a controlled system to ensure compliance with all relevant European Community Directives. See Appendix 3.

Additional information on the UltraTest can be found in Mecmesin publication M/1000.

OPERATING INSTRUCTIONS

Speed Setting

The UltraTest has variable speed control in either upward and downward directions (not both). Speed can be independently set and controlled by the knob (A, in fig.1) on the front panel. The white pointer on the speed control knob gives an indication of the speed setting. Some test Standards place particular requirements upon speed accuracy/ reproduceability, which may exceed the normal performance of the UltraTest. Under such circumstances calibration of each individual test stand may be appropriate.

Start-up Procedure

Set the limit switches (B, in fig 1); turn each plastic thumbscrew anticlockwise, move to approximately 50mm either side of the moving crosshead (C, in fig.1) and re-tighten.

Connect your UltraTest to an appropriate mains supply, turn on the power switch (a, in fig 2.) The green power bar should illuminate.

Emergency Stop

Pressing the red ‘Emergency Stop’ button will, at any time, stop the crosshead moving.
Note: Both red LED direction lights will illuminate when the stop button is depressed. To disengage the stop button turn either clockwise or anticlockwise and then release.

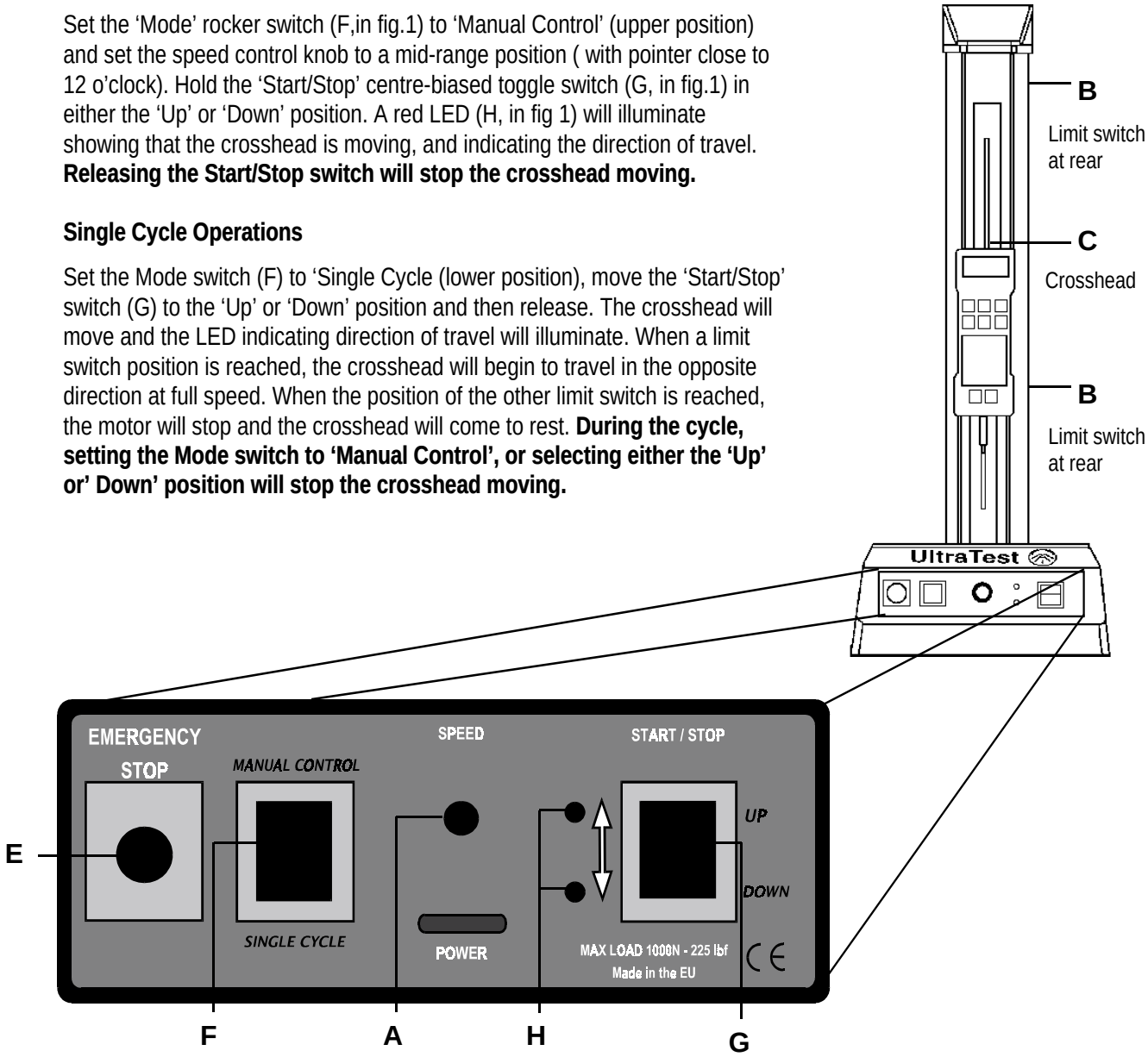
Manual Operation

Set the 'Mode' rocker switch (F,in fig.1) to 'Manual Control' (upper position) and set the speed control knob to a mid-range position (with pointer close to 12 o'clock). Hold the 'Start/Stop' centre-biased toggle switch (G, in fig.1) in either the 'Up' or 'Down' position. A red LED (H, in fig 1) will illuminate showing that the crosshead is moving, and indicating the direction of travel. **Releasing the Start/Stop switch will stop the crosshead moving.**

Single Cycle Operations

Set the Mode switch (F) to 'Single Cycle (lower position), move the 'Start/Stop' switch (G) to the 'Up' or 'Down' position and then release. The crosshead will move and the LED indicating direction of travel will illuminate. When a limit switch position is reached, the crosshead will begin to travel in the opposite direction at full speed. When the position of the other limit switch is reached, the motor will stop and the crosshead will come to rest. **During the cycle, setting the Mode switch to 'Manual Control', or selecting either the 'Up' or' Down' position will stop the crosshead moving.**

Fig 1



FORCE GAUGES, LOADCELLS AND YOUR FIXTURING

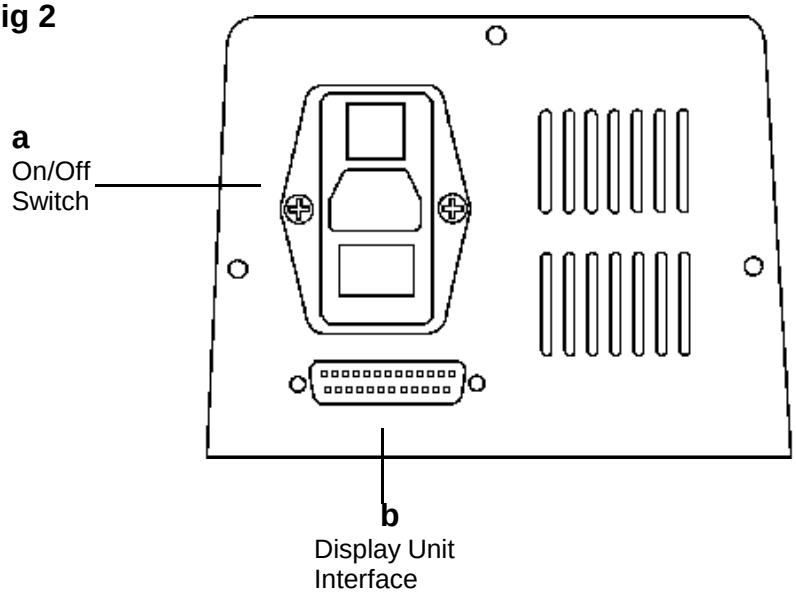
You will need to attach a force measuring device to your UltraTest; this will usually be an Advanced Force Gauge (AFG), Portable Force Indicator (PFI) or an S-beam loadcell. Attach an AFG or PFI by screwing a dovetail extension bracket to the back of the AFG, slide it (with the loadcell stud pointing downwards) onto the moving crosshead dovetail (C), and then tighten with the Allen key provided. Attach an S-beam loadcell by screwing it into a tension block module, then proceed as for an AFG. If you have purchased special fixturing, attach this to the gauge/loadcell and/or your UltraTest.

Note: Loadcells and force gauges are delicate pieces of equipment and can easily be damaged irreparably. One way of doing this would be to drive the test stand downwards until the loadcell (or loadcell stud on AFG) hits something 'solid'. This is a risk when a user is not yet familiar with operating a new test stand. Consequently it is essential to set the limit switches (B), so that upwards/downward travel of the crosshead is limited to prevent over travel and drive the gauge into the grips, stand or apply excessive load to the sample. Adjust the limit switches (B) according to your sample dimensions and testing requirements.

COMMUNICATION WITH EXTERNAL DEVICES

There is an external control port at the rear of the UltraTest. The Display Unit Interface (b,in fig.2) enables the UltraTest to respond, via the appropriate Mecmesin cable, to signals from an AFG. For further information please refer to the AFG operating instructions.

Fig 2



The UltraTest must be powered off when attaching the cable. When the display unit interface is not in use please ensure that it is covered with the supplied shield at all times.

Note: The external cable must not exceed 3 metres in length

ULTRATEST TECHNICAL SPECIFICATION

MODEL	**ULTRATEST**
Load capacity:	1000N/100kgf/220lbf
Power consumption:	60 watts (maximum)
Weight (stand only):	18kg (39lb)
CROSSHEAD MOTION	
Travel range:	290mm
Maximum daylight:	440mm
Maximum headroom (as in photograph):	330mm
Speed range:	12.5-500mm/min (0.5-19.7in/min)
Speed accuracy:	±10% of setting
Up and down settings:	By toggle switch
Speed indicated on stand:	By potentiometer/ graduated dial
Direction of travel indicated on stand:	Yes, by LED
Limit switch repeatability:	<0.5mm (0.020ins)
Over-run at top speed:	<2mm (0.008ins)
Operating modes:	Manual & single cycle with fast return
Reverse on alarm point:	Yes, with AFG or AFTI cable
Reverse on sample break:	Yes, with AFG or AFTI cable
ENVIRONMENTAL OPERATING CONDITIONS	
Temperature range:	5°C to 40°C
Humidity:	<92.5%
STANDARD LOAD MEASUREMENT OPTIONS	
Force gauge & dovetail bracket	Yes
Anvil Plate	Yes
S-beam loadcell, tension block module & AFTI	Yes
SPECIAL OPTIONS (details available on request)	Yes
Increased crosshead travel:	NO
Increased crosshead depth:	Yes, reduced load capacity
Machine guard:	Yes
Horizontal operation:	No
Simple logging/plotting PC software:	DataPlot (see M/501201)
Full computer control:	PCM (see M/512071)

APPENDIX 1

Your UltraTest should be supplied with the following accessories:

- These operating instructions
- Translation of Appendix 2 (does not apply to English- speaking countries, or countries outside the European Union (EU)
- Dovetail bracket (fitted to the crosshead)
- Appropriate mains cable
- Allen key for crosshead dovetail
- Four rubber feet, four attachment screws and Allen key if necessary

APPENDIX 2

A GUIDE TO THE SAFE USE OF MAINS POWERED TEST FRAMES

MECMESIN TEST STANDS HAVE BEEN DESIGNED AND MANUFACTURED IN A CONTROLLED SYSTEM TO ENSURE COMPLIANCE WITH ALL RELEVANT EUROPEAN COMMUNITY DIRECTIVES.

Receiving and Unpacking

1 Upon receiving the Mecmesin test frame ensure adequate equipment is available to safely lift the test frame from the packaging. Trying to lift heavy items without adequate assistance or the correct equipment may lead to accidental personal injury.

2 Once safely removed from the packaging place the test frame on a stable work surface. Inspect the machine for any signs of obvious transit damage.

IF ANY DAMAGE IS DISCOVERED DO NOT GO ANY FURTHER WITH INSTALLATION AND DO NOT CONNECT TO MAINS SUPPLY UNDER ANY CIRCUMSTANCES.

Contact your local supplier immediately who will decide the most appropriate action to rectify the situation as quickly as possible.

Installing the Machine

3 After placing the machine on a stable and level work surface, check that the mains inlet voltage corresponds to your electrical installation - either 230 Vac or 110 Vac. The machine has a label close to the mains inlet connector which advises which voltage is set for.

If the machine does not correspond to your supply, inform your local Mecmesin supplier who will rectify the situation.

Connecting a mains powered test frame to the wrong supply will almost certainly cause extensive damage to the equipment.

The Mecmesin test frames must only ever be connected to a mains power installation that has a fully installed earthing system.

CONNECTING A MAINS POWERED TEST FRAME TO AN ELECTRICAL POWER OUTLET WITHOUT AN EARTH CONNECTION IS EXTREMELY DANGEROUS AND COULD LEAD TO A RISK OF ELECTROCUTION.

4 After all the above points have been checked and confirmed to be correct you may connect the machine to the mains outlet only with the supplied mains lead.

When power is applied with the ON/OFF switch in the ‘ON’ position the mains indicator light will illuminate. This shows power is reaching the machine and is therefore ready for use.

Check its basic operation with reference to operating manual.

Operator Training

5 Each person who is to use the machine should be fully trained in the safe use of the motorised testing machines. The machine has the ability to generate forces large enough to cause permanent damage to human limbs if placed between the crosshead and the base.

Always disconnect the machine from the mains power supply when not in use to avoid inadvertent actuation of the machine by untrained personnel.

Protective Clothing

6 Eye protection should always be used in the form of an approved pair of safety spectacles. They should be replaced if they are scratched or damaged in any way. They should be kept clean and clear to give maximum visibility to the user.

Extra bodily protection may be necessary if destructive testing or volatile failure of a test piece is likely. A risk assessment should be carried out prior to using the test frame to ensure that all necessary safety measures have been considered and carried out.

Machine Guarding

7 If, after the assessment, it is considered that machine guarding is needed, then contact your local supplier who, through the Mecmesin Application Engineering Department, can arrange the supply of a suitable guard to offer the required level of protection.

Continued Safe Use

8 Once the machine is installed it should provide a reliable long term resource for universal testing. If however the machine fails, or appears to behave in an unusual manner, contact your local supplier for support. Do not continue to use the machine until it has been checked and if necessary, repaired and returned to a safe working condition.

9 If the machine is damaged in use, advise your local supplier and have the machine repaired to a safe working condition. Do not use the machine until it is repaired.

IF IN DOUBT CONSULT YOUR LOCAL SUPPLIER TO ENSURE CONTINUED SAFE USE

CAUTION: Hands must be kept clear of the crosshead and shroud opening at all times **during** machine operation.

LIFTING INSTRUCTIONS: Before attempting to lift the UltraTest turn off the power switch and unplug from the mains. When lifting the UltraTest, support must be provided at the base, as well as at the back of the shroud, with care being taken to avoid pressing against the adjustable limit stops.

EC DECLARATION OF CONFORMITY

This is to certify that the:

ULTRATEST

Manufactured by:

Mecmesin Limited, Newton House, Spring Copse Business Park
Slinfold, West Sussex RH13 7SZ
Tel: 01403 799979

Conforms to:

- the protection requirements of Council Directive 89/336/EEC, relating to Electromagnetic Compatibilty, through the application of the Electromagnetic Compatibility Regulations 1992 when tested against Standards EN 50081-1:1992 and EN 50082-1:1998, during a self certification process and development of a technical report for this product, through EMC compliance testing performed at HCD Research Ltd, 179 Junction Road, Burgess Hill, West Sussex, RH15 0JW on 11/09/1998 to acceptance criteria set by Mecmesin.
- the essential requirements of Council Directive 73/23/EEC relating to The Low Voltage Directive, assessed during compliance development of the Technical Construction File by Mecmesin through cognisance of The Electrical Equipment (Safety) Regulations:1989, and The Electrical Equipment (Safety) Regulations:1994, when tested against Standards EN 60204-1:1992, EN 61010-1:1993 and EN 60950:1992.
- the essential requirements of Council Directive 89/392/EEC relating to The Machinery Directive, assessed during compliance development of the Technical Construction File by Mecmesin through cognisance of The Supply of Machinery (Safety) Regulations:1992, and The Supply of Machinery (Safety) (Amendment) Regulations:1994, referenced to Standards EN 60204-1:1992, EN 61010-1:1993 and EN 60950:1992.

Declaration Issue Date: 28th October 1998

Mecmesin Representative: F.C. Mose

F.C. MOSE

Position: TECHNICAL DIRECTOR

Date: 22/10/98 *Issue 02*