Marconi
Instruments

2380
DISPLAY

Operating Precautions

DISPLAY

2380

Code No. 52380-900E

Part No. 46881-576Z
Print code : F-4/90, MI 1.0c

CONTENTS

HAZARD WARNING SYMBOLS

The following symbols appear on the equipment:

Symbol	Type of hazard	Reference in manual
⚠	Static sensitive device	Page (5)
⚠	Dangerous voltages present	Page (4)
⚠	Supply voltage	Page (4)

Note ...

Each page bears the date of the original issue or the code number and date of the latest amendment (Am. 1, Am. 2 etc.). The title page always shows the amendment status of the manual. New or amended material of technical importance introduced by the latest amendment is indicated by triangles positioned thus ▶ ..... ◀ to show the extent of the change.

Any changes subsequent to the latest amendment state of the manual are included on inserted sheets coded C1, C2 etc.

GENERAL INFORMATION

INTRODUCTION

These Operating Precautions have been published to encourage safe practices by a user who receives a 2380 Display before a compatible RF Unit such as the 100 Hz - 400 MHz 2382 Spectrum Analyzer.

No display is obtainable on the cathode ray tube (CRT) without a compatible RF unit connected.

No connection should be made to a 2380 Display before following the instructions under CONNECTING TO SUPPLY.

Refer to the appropriate Operating Manual for full information.

VERSIONS AND ACCESSORIES

2380 Display

52380-900E	Display.

Supplied accessories

43123-076Y	AC supply lead.
46881-576Z	Operating precautions.

Optional accessories

46662-088D	Carrying case.
46883-267B	Camera hood for Polaroid type camera.
54127-305R	Rack mounting kit for 2380 and RF unit.
54150-022P	Viewing hood for high ambient light conditions.
46881-488S	Service Manual - H 52380-900E Vol. 2.
43129-189U	GPIB lead.
46881-365R	The GPIB Manual (contains details of general GPIB protocols) H 54811-010P.
46883-408K	IEEE/IEC adapter block for GPIB socket.
46883-735V	Conversion kit: beeper, analogue pen plot, monochrome and RGB video outputs. Includes RGB monitor connecting lead.
54711-035Y	Support kit: comprises 3 extender boards for 2380, signal injector assembly, extended power and data cable assemblies and coaxial cables.
46884-486X	Stowage cover kit : provides stowage for leads etc. Fitted to the front of the instrument.

NOTES AND CAUTIONS

ELECTRICAL SAFETY PRECAUTIONS

This equipment is protected in accordance with IEC Safety Class 1. It has been designed and tested according to IEC Publication 348, 'Safety Requirements for Electronic Measuring Apparatus', and has been supplied in a safe condition. The following precautions must be observed by the user to ensure safe operation and to retain the equipment in a safe condition.

Defects and abnormal stresses

Whenever it is likely that protection has been impaired, for example as a result of damage caused by severe conditions of transport or storage, the equipment shall be made inoperative and be secured against any unintended operation.

Removal of covers

Removal of the covers is likely to expose live parts although reasonable precautions have been taken in the design of the equipment to shield such parts. The equipment shall be disconnected from the supply before carrying out any adjustment, replacement or maintenance and repair during which the equipment shall be opened. If any adjustment, maintenance or repair under voltage is inevitable it shall only be carried out by a skilled person who is aware of the hazard involved.

Note that capacitors inside the equipment may still be charged when the equipment has been disconnected from the supply. Before carrying out any work inside the equipment, capacitors connected to high voltage points should be allowed to discharge through the bleed resistors fitted for the purpose; do not attempt to remove the safety covers from the power supply until the lamp under the top cover stops blinking. Should the unit be reconnected to the supply with the safety covers removed then disconnected, do not attempt to discharge the power supply unit's main reservoir capacitors using a shorting link as the equipment may be damaged. Discharge should always be allowed to occur gradually.

Note also that the 12 kV EHT circuit for the cathode ray tube retains its charge for a considerable time after switch off. Therefore, before any handling is carried out in the vicinity of the cathode ray tube or EHT unit, it is essential that the supply is disconnected from the instrument and the final anode lead is shorted to the chassis several times immediately after unplugging. The residual charge on the CRT itself must also be removed by shorting the anode connection to ground.

AC Supply plug

The supply plug shall only be inserted in a socket outlet provided with a protective ground contact. The protective action shall not be negated by the use of an extension lead without protective conductor. Any interruption of the protective conductor inside or outside the equipment is likely to make the equipment dangerous. Before fitting a non-soldered plug to the supply lead, cut off the tinned ends of the supply lead. Otherwise cold flowing of the solder could cause intermittent connections.

Fuses

Note that there is a supply fuse in both the live and neutral wires of the supply lead. If only one of these fuses should rupture, certain parts of the equipment could remain at supply potential.

To provide protection against breakdown of the supply lead, its connectors, and filter where fitted, an external supply fuse (e.g. fitted in the connecting plug) should be used in the live lead. The fuse should have a continuous rating not exceeding 6 A.

Make sure that only fuses with the required rated current and of the specified type are used for replacement. The use of mended fuses and the short-circuiting of fuse holders shall be avoided.

CAUTION : STATIC SENSITIVE COMPONENTS

Components identified with the symbol ⚠ on the circuit diagrams and/or parts lists are static sensitive devices. The presence of such devices is also indicated in the equipment by flags or labels bearing the ⚠ symbol. Certain handling precautions must be observed to prevent these components being permanently damaged by static charges or fast surges.

(1) If a printed board containing static sensitive components (as indicated by a warning disk or flag) is removed, it must be temporarily stored in a conductive plastic bag.

(2) If a static sensitive component is to be removed or replaced the following anti-static equipment must be used.

A work bench with a grounded conductive surface.

Metallic tools grounded either permanently or by repeated discharges.

A low-voltage grounded soldering iron.

A grounded wrist strap and a conductive grounded seat cover for the operator, whose outer clothing must not be of man-made fibre.

(3) As a general precaution, avoid touching the leads of a static sensitive component. When handling a new one, leave it in its conducting mount until it is required for use.

(4) If using a freezer aerosol in fault finding, take care not to spray programmable ICs as this may affect their contents.

WARNING : HANDLING HAZARDS

This equipment is formed from metal pressings and although every endeavour has been made to remove sharp points and edges care should be taken, particularly when servicing the equipment, to avoid minor cuts.

Cathode ray tube. When exposing or handling the tube take care to prevent implosion and possible scattering of glass fragments. Handling should only be carried out by experienced personnel and the use of a safety mask and gloves is recommended. A defective tube should be disposed of in a safe manner by an authorized waste contractor.

WARNING : TOXIC HAZARD ⚠

Many of the electronic components used in this equipment employ resins and other chemicals which give off toxic fumes on incineration. Appropriate precautions should therefore be taken in the disposal of these items.

CAUTION - INTEGRITY SEALS

If, during the warranty period of this product, an integrity seal is broken, by removing the covers for example, the warranty may be invalidated.

Similarly, if a module with a broken seal is returned on an exchange basis, it will not be acceptable under the terms and conditions of the exchange service.

CAUTION - FAN FILTER CLEANING

The Display Unit is cooled by a fan whose filter is fabricated from wire gauze. This must be removed and cleaned periodically. Clean with a suction cleaner and, if necessary, with hot soapy water. Do not use a solvent cleaner.

CAUTION - VDU SCREEN CLEANING

Clean the Display Unit screen using a lint-free cloth damped with alcohol or else use an anti-static cleaner. Under no circumstances should an arklone-based cleaner be used.

INSTALLATION

UNPACKING AND REPACKING

Retain the container, packing material and the packing instruction note (if included) in case it is necessary to reship the instrument.

If the instrument is to be returned for servicing attach a label indicating the service required, type or model number (on rear label), serial number and your return address. Pack the instrument in its original container using the materials supplied and in accordance with the packing instruction note. If an instruction note has not been included the method of packing is probably self evident because of the shape of the materials used. In general the procedure will be as follows:

(1) Place supply lead in suitable plastic bag and tape it to the instrument's rear panel.

(2) Place the instrument within its plastic cover.

(3) Ensure that the padded fitting is in place within the inner cart and slide the instrument in, rear panel first, leaving the front par exposed at the open end.

(4) Fit the separate front panel protecting cover over the panel and close and seal the inner carton.

(5) Place one of the moulded plastic cushions in the bottom of the outer carton and insert the inner carton to locate in the cushion recess.

(6) Place the other plastic cushion over the other end of the inner carton and close and seal the outer carton.

(7) Wrap the container in waterproof paper and secure with adhesive tape.

(8) Mark the package FRAGILE to encourage careful handling.

Note ...

If the original container or materials are not available, use a strong double-wall carton packed with a 7 to 10 cm layer of shock absorbing material around all sides of the instrument to hold it firmly. Protect the front panel controls with a plywood or cardboard load spreader; if the rear panel has guard plates or other projections a rear load spreader is also advisable.

MOUNTING ARRANGEMENTS

Excessive temperatures may affect the instrument's performance; therefore completely remove the plastic cover, if one is supplied over the case. Ensure that the fan air vent and other ventilation holes are not obstructed otherwise the maximum temperature specification is reduced resulting in imperfect operation. Avoid standing the instrument in the vicinity of large transformers or other possible magnetic fields or where X-rays are present. If the source of such fields cannot be isolated Mumetal shields should be used to provide the necessary screening.

RACK MOUNTING

The instrument is normally supplied ready for bench mounting. A rack mounting kit (Part no. 54127-305R), consisting essentially of a set of mounting brackets, is available as an optional accessory.

CONNECTING TO SUPPLY

Before connecting the instrument to the AC supply check the position of the voltage selector switch. The range selected can be seen on the side of the switch situated on the rear panel. The instrument is normally despatched set to the 210-240 V range. To select the 105-120 V range operate the LINE VOLTS SELECTOR switch and change the value of the AC supply fuses to that shown below.

110 V range 4 A-T (4 amp time lag)
230 V range 2.5 A-T (2.5 amp time lag)

Fuses are 30 mm x 5 mm cartridge type.

Note that the instrument employs double fusing with a fuse in both the live and neutral supply leads.

The supplied AC supply cable is fitted at one end with a female plug which mates with the LINE VOLTS INPUT connector at the rear of the instrument. When fitting a supply plug ensure that conductors are connected as follows:-

Ground (Earth)	-	Green/Yellow
Neutral	-	Blue
Line	-	Brown

Any interruption of the ground conductor is liable to make the equipment dangerous.

Once the selection of line volts and fuses is known to be correct for the local supply, the AC supply lead may be connected. Turn the SUPPLY ON knob on the front panel clockwise to make it click into the ON position. The SUPPLY ON LED above the knob and the rear panel OVERHEAT OR NO RF UNIT LED should be lit almost instantaneously.

Switch OFF until a compatible RF unit is available by turning the SUPPLY ON knob counter clockwise.

Page 55 [28] Delete the first two sentences 'With ... TIME. A... operative'.

[28]

This AUTO control (green letters), in horizontal scale FULL SPAN or /DIV mode sets the video bandwidth in association with SWEEP TIME. Pressing AUTO when it's ON, indicated by the green light, will deselect AUTO and fix the video bandwidth at its current value.

Page 54 [26] Delete and insert as follows:

[26] RF ATTEN
AUTO (green letters)

When in the AUTO mode, shown by the green indicator light, the r.f. attenuators and i.f. gain will be set for the relevant display selected, in accordance with the REF LEVEL controls, filter bandwidth settings and, when appropriate, the SAVE A and SAVE B keys.

Pressing the AUTO key when ON turns automatic selection OFF, (fixing r.f. attenuation and i.f. gain at their current values). Pressing the key when OFF turns automatic selection ON again.

Care should be taken in the HORIZONTAL LOG mode however - refer to para. 111 [29] LOG.

Page 59 [32] Delete SWEEP TIME paragraph 'These keys ..... AUTO mode is operative.' Insert the following:

These keys in conjunction with the horizontal scale FULL SPAN,/DIV or ZERO SPAN control enable the sweep time for the display to be set or automatically adjusted.

Pressing the AUTO key when ON, as shown by the green indicator light, turns automatic selection OFF (fixing sweep time at its current value). Pressing this key when OFF turns automatic selection ON again.

Pressing ↓ or ↑ key turns automatic selection off and manually sets the sweep time. When the sweep time is less than the AUTO value, the message 'Sweep uncal' may be displayed at the top of the display area. This indicates that the sweep through the particular filter is too fast. Increasing sweep time when in the AUTO video BANDWIDTH mode will increase noise filtering and aid the identification of low level signals. When the selected sweep time is greater than 0.1 s/div. a bright-up facility is activated. This can be de-selected by pressing the 2ND FUNCT then START keys (IDENTIFY REFRESH).

The time/div annotation is displayed on the bottom line of the screen in reverse video if AUTO is not selected.

Page 60 [33] Delete FILTER BANDWIDTH from 'these controls ..... is operative.'
Insert the following:

These controls, when pressed, select the resolution filter bandwidth. Pressing the AUTO key when ON, as shown by the green indicator light, turns automatic selection OFF (fixing the resolution bandwidth at its current value). Pressing this key when OFF turns automatic selection ON again. Pressing ↓ or ↑ key turns automatic selection OFF and manually sets the resolution bandwidth. The bandwidths available range from 3 Hz to 1 MHz in a 1, 3, 10 sequence and the selection made is annotated on the screen - in reverse video if AUTO is not operational.

Page 60 Delete AUTO (with /DIV or METER) whole paragraph and insert as follows:

AUTO (with /DIV or meter)

When AUTO is pressed the optimum filter bandwidth for the current frequency span (SPAN/DIV) is selected. The appropriate sweep time is also selected provided AUTO SWEEP TIME is active.