

CHANGE/ERRATA INFORMATION

ISSUE NO: 3

10/80

This change/errata contains information necessary to ensure the accuracy of the following manual. Enter the corrections in the manual if either one of the these conditions exist:

1. The revision letter stamped on the indicated PCB is equal to or higher than that given with each change.
2. No revision letter is indicated at the beginning of the change/errata.

MANUAL

Title: 8020A DIGITAL MULTIMETER
Print Date: April 1979
Rev. and Date: -----

C/E PAGE EFFECTIVITY

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CHANGE #1 - 12282

On page 5-3:

FROM: MP1|TEST LEADS (NOT
SHOWN)|506428|89536|506428|1TO: MP1|TEST LEADS (NOT
SHOWN)|516666|89536|516666|1FROM: MANUAL, INSTRUCTION|459339|89536|459339|1
TO: MANUAL, INSTRUCTION|515825|89536|515825|1

ERRATA #1

On page 5-7:

FROM: MP6|450957|89536|450957|
TO: MP6|459057|89536|459057|

On page 5-8:

FROM: U1|RESISTOR NETWORK (INPUT
DIVIDER)|513565|89536|513565|1|1TO: U1|RESISTOR NETWORK (INPUT
DIVIDER)|513655|89536|513655|1|1DELETE: If Assembly is white, order |
453050|89536|453050|

ERRATA #2

On page A-1:

FROM: | - | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
A-3 8020A PCB Assy 450783 | | | | X | | | | | | | | | | | |TO: | - | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
A-3 8020A PCB Assy 450783 | . | . | . | . | . | . | . | . | . | . | X | | | | | |

CHANGE #2 - 12630

Rev. - M, A-3 8020A PCB Assembly (8020A-4001)

Documentation Change, does not affect manual.

ERRATA #3

On page 2-3, place the following note after para. 2-18:

NOTE

WHEN THE 8020A IS POWERED WITH THE
A81 BATTERY ELIMINATOR THE " BT "
INDICATOR MAY COME ON. HOWEVER,
INSTRUMENT OPERATION WILL REMAIN
NORMAL.

ERRATA #4

On page 2-7, Figure 2-3:

FROM: Loading Error in % = $100 \times R_s (R_s + 10^7)$

TO: Loading Error in % = $\frac{100 \times R_s}{R_s + 10^7}$

Replace the portions of step 2 as follows:

$C_{in} = 100 \times 10^{-12}$ Farads

Then, determine source loading error as follows.*

Loading Error in % = $100 \times \frac{Z_s}{Z_s + Z_{in}}$

DELETE: R_s = source resistance

ADD: *Vector algebra required.

ERRATA #5

On page 2-2, change the caution under para. 2-10 as follows:

FROM:

CAUTION

EXCEEDING THE MAXIMUM INPUT LIMITS
CAN DAMAGE THE MODEL 8020A.

TO:

CAUTION

EXCEEDING THE MAXIMUM INPUT OVERLOAD LIMITS CAN DAMAGE YOUR INSTRUMENT. THE TRANSIENT OVERLOAD PROTECTION CIRCUIT IS INTENDED TO PROTECT AGAINST SHORT DURATION HIGH ENERGY PULSES. THE COMPONENTS USED LIMIT THE PROTECTION TO APPROXIMATELY FIVE PULSES PER SECOND FOR 6KV 10 MICROSECOND PULSES, AND ABOUT 0.6 WATTS AVERAGE FOR LOWER AMPLITUDE PULSES. FAST REPETITION RATE PULSES AS FROM A TV SET CAN DAMAGE THE PROTECTION COMPONENTS; RV1 - RV4, R1 AND R2*. IF REPLACED, USE ONLY FLUKE REPLACEMENT PARTS TO MAINTAIN PRODUCT SAFETY.

* R2 IS A FUSIBLE RESISTOR. USE EXACT REPLACEMENT TO INSURE SAFETY.

On page 5-6:

FROM: C4|CAP, CER, 33 PF $\pm 2\%$,
100V|354852|80031|2222-631-10339|1

TO: C4|CAP, CER, 27 PF $\pm 2\%$,
100V|362749|80031|2222-638-10339|1

On page 5-7:

Add an asterisk to R2, and at the end of the page add the following flagnote:

* R2 is a fusible resistor. Use exact replacement to insure safety.

On page 5-8:

FROM: U8|IC, MOS, A/D CONVERTER DISPLAY DRIVER
486464|89536|486464|1|1

TO: U8|IC, C-MOS, LCD INTERFACING
(40-PIN)|429100|89536|429100|1|1

On page 7-2:

FROM: C4, 33 pF TO: C4, 27 pF

CHANGE #3 - 13025, 13121, 13175
Rev.- N, A1 8020A PCB Assembly (8020A-4001)

On page 1-4, replace Figure 1-2 with Figure 1.

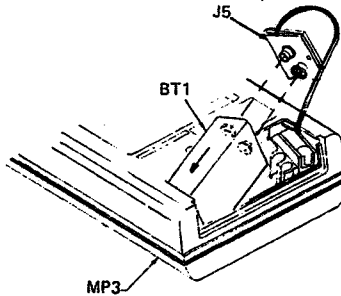


Figure 1.

On page 1-2:

CHANGE: 1-7. Battery Installation/Replacement
TO: 1-7. Battery or Fuse Installation/Replacement

Change the first line of the WARNING:

FROM: BATTERY REPLACEMENT SHOULD ONLY BE
TO: BATTERY OR FUSE REPLACEMENT SHOULD ONLY BE

On page 1-3:

Replace step 4 with the following:

4. Tilt the battery out as shown in Fig. 1-2.

Add step 4a as follows:

- 4a. If fuse F1 is to be replaced, use a pointed tool, such as a probe tip or small screwdriver to pry F1 from its holder. Replace the defective fuse with type AGX2 (or with metric type 171100-2).

On page 2-3, replace para. 2-15 with the following:

2-15. All ac and dc current ranges are fuse protected. Two series fuses are used: (1) F1, 2A @ 250V, replaceable at the battery compartment (see section 1 "Battery or Fuse Installation/Replacement") and in case of severe overload, (2) F2, 3A @ 600V, replaceable by removing the 8020A top cover (see section 4 "Fuse (F2) and Calibration Access").

NOTE

A pointed tool, such as a probe tip will be needed to pry either of the above mentioned fuses from their respective holders.

On page 4-2:

FROM: 4-9. CALIBRATION ACCESS
TO: 4-9. FUSE (F2) AND CALIBRATION ACCESS

FROM: 6. All adjustments...
TO: 6. Fuse (F2), and all adjustments ...

On page 5-3:

FROM: BT1|Battery, 9-Volt (not shown)|
TO: BT1|Battery, 9-Volt|

FROM: MP1|Test Leads (not shown)|506428|89536|506428|1

TO: MP1|Test Leads (not shown)|516666|89536|516666|1

On page 5-5, replace figure 5-1 with Figure 2.

SEE DETAIL 1
FOR INSTALLATION
OF BATTERY

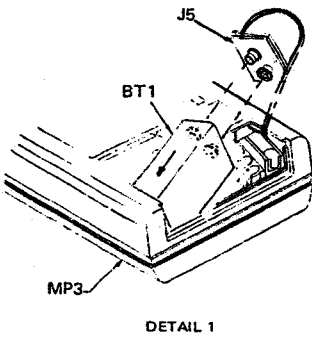


Figure 2.

On page 5-6:

ADD: F2|FUSE, 3 AMP/600 V|475004|89536|475004|1

On page 5-7:

FROM: J5|Contact Assembly, Battery/Fuse|1
American Version|453910|89536|453910|
Metrix Version|454413|89536|454413|

TO: J5|Contact Assembly|535278|89536|535278|1

ADD: MP6|FUSE, CLIP|534925|89536|534925|1

ADD: MP7|FUSE, SPRING (NOT
SHOWN)|535211|89536|535211|1

ADD: MP7-1|FUSE, SPRING, EUROPEAN (NOT
SHOWN)|535229|89536|535229|1

ADD: MP8|FUSE CLIP|535203|89536|535203|1

On page 5-8:

ADD: XF2|FUSE CASE|540716|89536|540716|1

FROM: U9|IC, LCD, 3 1/2
DIGITS|453100|89536|453100|1|1

TO: U9|IC, LCD, 3 1/2
DIGITS|504324|89536|504324|1|1

On page 5-9, revise figure 5-2 as shown in Figure 3.

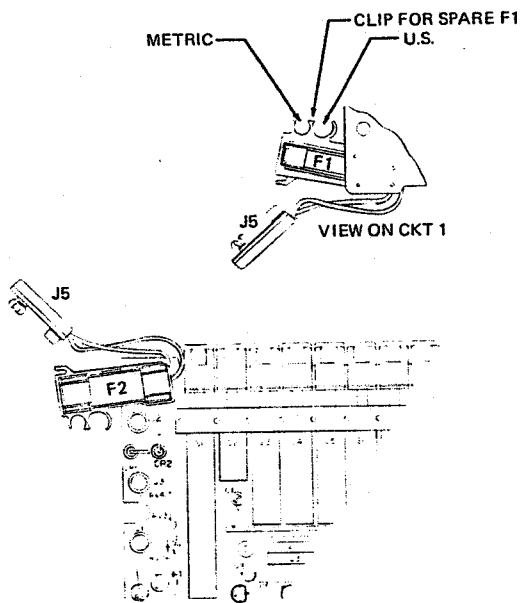
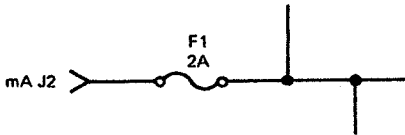


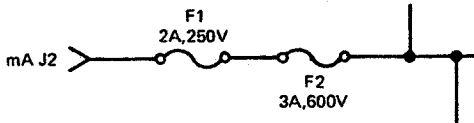
Figure 3.

On page 7-3:

FROM:



TO:



ERRATA #6

On page 1-10 and 1-11:

FROM: Overload Protection: 2A/250V fuse
 TO: Overload Protection: 2A/250V fuse, in series with 3A/600V fuse.

On page 1-10, Under the "BURDEN VOLTAGE" column:

FROM: 0.7V max
 TO: 0.9V

On page 1-11, under the "BURDEN VOLTAGE" column:

FROM: 0.7V rms max.
 TO: 0.9V rms max.

On page 2-2, two places under the "MAX. INPUT OVERLOAD" column:

FROM: 250V , TO: 600V

On page 2-7, replace the WARNING under Figure 2-3 with the following:

WARNING

INSTRUMENT DAMAGE AND OPERATOR INJURY MAY RESULT IF THE FUSE BLOWS WHILE CURRENT IS BEING MEASURED IN A CIRCUIT WHICH EXHIBITS AN OPEN CIRCUIT VOLTAGE GREATER THAN 600V.

On page 2-7, third line of para. 2-32:

FROM: voltage of less than 700 mV.
 TO: voltage of less than 900 mV.

On page 2-8, Figure 2-4 (working from the top down):
Change R1 in the figure TO: RL.

FROM: I_M = Measured current (display reading in amps)
TO: I_M = Measured current (display reading in mA)

FROM: 2000 mA | 0.7V
TO: 2000 mA | 0.9V

FROM: Current error due to Burden Voltage
TO: Maximum currnt error due to Burden Voltage

FROM: IN AMPS = TO: IN mA =

FROM: 1M = 1.497A TO: 1M = 1497 mA

FROM: X 0.7 (from Table =
TO: x 0.9 (from Table) =

FROM: 74.9% of 0.7 = 0.524V
TO: 74.9% of 0.9 = 0.674V

FROM: Error in % = $100 \frac{.524}{14 - .524} = 100 \frac{.524}{13.48} = 3.89\%$

TO: Max. Error in % = $100 \frac{.674}{14 - .674} = 100 \frac{.674}{13.326} = 5.06\%$

FROM: Increase displayed current by 3.98% to obtain true current.

TO: Increase displayed current by 5.06% to obtain true current.

FROM: Error in amps = $\frac{.524 \times 1.497}{14 - .524} = \frac{.784}{13.48} = .058A$

TO: Max. Error in amps = $\frac{.524 \times 1497}{14 - .674} = \frac{784}{13.326} = 74 \text{ mA}$

FROM: Increase displayed current by 0.058A to obtain true current.

TO: Increase displayed current by 74 mA to obtain true current.

On page 5-3:

FROM: European Source|467365|89536|467365|
TO: European Source|505214|89536|505214|

FROM: MP2
TO: MP12

FROM: MP3|Case, Carrying (8020A-8020)
TO: MP13|Case, Carrying (not shown)

On page 6-5, add the following sentence to the end of para. 6-27:

" The battery does not need to be removed from the circuit. "

On page 1-2, add the following warning between para. heading 1-7 and para. 1-8:

WARNING

INSTRUMENT DAMAGE MAY OCCUR IF THE
8020A IS OPERATED FOR MORE THAN 10
HOURS AFTER THE BT INDICATOR COMES
ON. REPLACE BATTERY AS SOON AS
POSSIBLE TO AVOID DAMAGE.

On page 1-2, para. 1-8:

CHANGE: Your 8020A will operate properly for at least 20 hours after BT appears.

TO: The 8020A battery should be replaced as soon as possible once the BT indicator comes on.