8617

Technical Manual

INTRODUCTION

This publication is provided solely as a guide for individuals who have received METTLER TOLEDO Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
Training Center
P.O. Box 1705
Columbus, Ohio 43216
(614) 438-4400

FCC NOTICE

This equipment has been testes and found to comply with the limits of the United States of America FCC rules fr Class A digital devices, pursuant to Part 15 of the OCC Rules and Radio Interference Regulations of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance wtih the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IMPORTANT

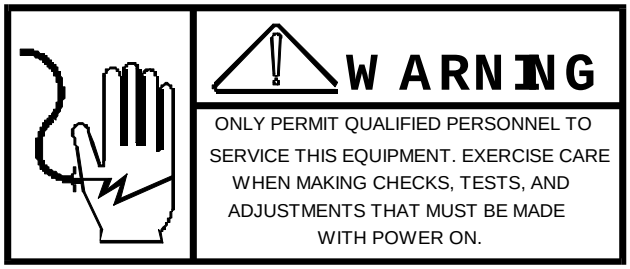
It is important that the correct part number is used when ordering replacement parts. Parts orders are machine processed, using the part number and quantity as shown on the order. Orders are not edited to determine if the part number and description agree.

PRECAUTIONS

- **READ** this manual before operating or servicing this equipment.

- **ALWAYS REMOVE POWER** and wait at least 30 seconds **BEFORE** connecting or disconnecting any internal harnesses. Failure to observe these precautions may result in damage to, or destruction of the equipment.

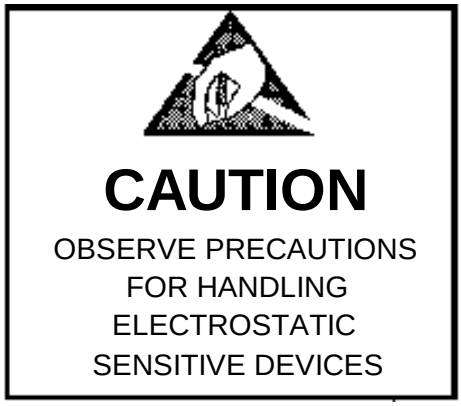
- **ALWAYS** take proper precautions when handling static sensitive devices.



- **DO NOT** connect or disconnect a load cell scale base to the equipment with power connected or damage will result.

- **SAVE** this manual for future reference.

- **DO NOT** allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.



- **ALWAYS DISCONNECT** this equipment from the power source before servicing.

- **CALL** METTLER TOLEDO for parts, information, and service.

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93/12/20 2pm

****ADDENDUM****

This addendum is intended to accompany shipment of Models 9323,9325, and 8617 until such time as revised manuals are released.

The serial receive PCB for all Mettler Toledo Models 9323,9325, and 8617s share the same P/N Eprom (Currently 90073800A or A90073800A). The program that is executed is selected by dip switch settings unique to each model.

A number of upgrades have recently been made to the programs in this Eprom. In honor of this, a new number has been created to identify it (P/N 90192000A). It is backward compatible with all versions of the listed models. Changes common to all the listed models are 100% compatible with Masstron format data, and fully compatible with Mettler ID5 Data format.

Additional enhancements have been amde to the program for the 8617 scoreboard. These are summarized below:

1. An additional setup selection (F12) has been added; F12 allows reception of data with or without checksum. Default is [F12 0]; No checksum is required.

2. A separate selection for receiving Masstron data has been created. To receive Masstron data set SW 3 to [OFF-OFF-ON-ON]. Toledo and Mettler Data reception is as described in the present manual.

3. The LED Blink Error Codes have been changed:
   A) 5 Blinks = Overcapacity/Under Zero
   B) 6 Blinks = LB/KG Accumulator Error
   C) 7 Blinks = Data Receive Error

4. If the weight accumulation mode is active and the accumulated amount exceeds the scoreboards display capability, the display will blink on and off.

90193300A

1.0 GENERAL DESCRIPTION

The Mettler- Toledo Model 8617 is a six digit Scoreboard intended for installations where a larger more visible weight indication is required.

1.1 MODES OF OPERATION

The Model 8617 is designed to operte with all current Mettler-Toledo and Mastron digital indicators capable of transmitting its weight data in an ASCII format.

The 8617 operates in three different modes of operation. The first mode is intended for operation wtih a standard digital indicator which transmits the weight data in either a Demand or Continuous format. The second is a special mode of operation intended for operation with programmable products such as the model 9360 and used as part of a custom scale system. And third, a scale multi-drop mode. In the multi-drop mode up to five scales can be read through a single serial communication loop. In addition, the Model 8617 can output weight information to other accessories such as additional remote displays or printers.

In addition to the three modes of operation described above, the scoreboard may also be used with other options and accessories. The scoreboard can receive a remote print input (momentary contact only) via a current loop to print out weight data, via 8855 printer, which is selectable through jumpers and softswitch swttings on the scoreboard. By using the Toledo Scale Model 9330 Clear, Tare, Print and Zero module the scoreboard may be setup for a cattle scale operation wtih remote ASCII inputs, from the 9330, to the scoreboard for Subtotal, Total, Print/Unfreeze. Additional setup selections permit display blanking after a print or unfreeze command is received. The display will remain blank until the weight value comes to within ± 10 increments of zero. The scoreboard also has an accumulator which can accumulate up to eight (99,999,999) digits of weight data.

2.0 SPECIFICATIONS

2.1 ELECTRICAL INPUT VOLTAGE

The input power is wiring selectable for 115 or 230 volts (±10%). Refer to Section 3.2 for voltage selection. Input frequency is 50-60 Hz.

2.2 MECHANICAL CONFIGURATION

PACKAGING

The scoreboard is packaged in a NEMA 4 constructed enclosure (rain tight). There are two digit heights, one with 4 inch and one with 6 inch height digits. Both scoreboards have a lift off hinge door assembly for easier installation and maintenance. When the carter pin is removed from the left hand hinge, the door assembly can be slid off to the left. By removing the door assembly the weight of the scoreboard is divided in half for easier installation and maintenance.

2.3 TERMINATIONS

All wiring to the PC boards for power, data and signal cables are via termina strips. A fiber optic receiver connector is mounted on the interface PC board for direct connection to fiber optic cables (receive ony).

2.4 OPERATING/STORAGE TEMPERATURE AND HUMIDITY

Storage Temperature:	50 to 100ºC 58 to 212ºF
Operating Temperature:	0 to 40ºC

32 to 104ºF

Humidity Range: 10% to 95% relative humindity non-condensing

2.5 CONFIGURATION GUIDE

Model 8617 - 0001 4 inch display
Model 8617 - 0002 6 inch display

3.0 INSTALLATION INSTRUCTIONS

3.1 MOUNTING INSTRUCTIONS

When installing the scoreboard, make sure that the location will permit access to the front of the scoreboard for maintenance and inspection. The location of the scoreboard should minimize the possibility of dirt, excessive water, and other harmful materials dropping on or around the enclosure. It is recommended that a rain shield be provided if the unit is installed outside. Dimensions for the scoreboard are shown in Figure 1.

All external wiring to the scoreboard must be installed by a qualified licensed electrician. The external wiring diagram furnished with this manual identify the external wiring connection. Ref. W/D 901320.

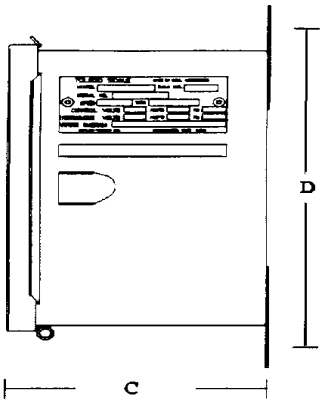
WARNING
EACH DISPLAY SEGMENT CONTAINS PERMANENT MAGNETS. IF DRILLING OF THE ENCLOSURE IS REQUIRED FOR CONDUIT ENTRANCES, MAKE SURE THAT STEEL CHIPS DO NOT FALL INTO THE DISPLAYS. KEEP ALL STEEL CHIPS, FILLINGS, ETC. AWAY FROM SCOREBOARD DIGITS.

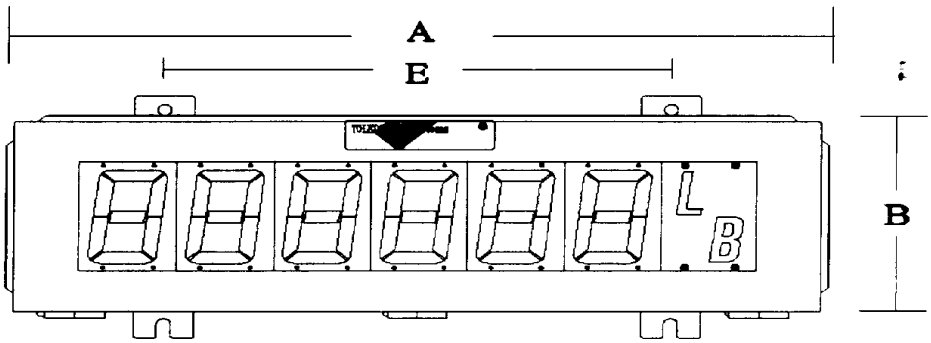
Mounting hole
size .43 dia.
weight

Scoreboard
Weight

4 inch
scoreboard
24 lbs., 10.8 kg.

6 inch
scoreboard
40 lbs., 18.1 kg.





Digit Size	DIMENSIONS					Maximum Recommended Viewing Distance
	A	B	C	D	E	
4 inches	26.74	8	5.5	9.29	17	100 ft
101.6 mm	679.2	203.2	139.7	236.0	431.8	30.48 M
6 inches	39.7	10.43	8	11.72	33.37	150 ft.
152.4 mm	1008.4	264.9	203.2	297.7	847.6	45.72 M

Figure 1 Scoreboard Dimensions

3.2 ELECTRICAL INSTALLATION

WARNING
This modules and its associated equipment must be installed, adjusted, and maintained by a qualified personnel, who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. Failure to observe these precautions could result in bodily injury.

3.2.1 POWER CONNECTIONS

Verify that the AC wiring connections at TB4 of the scoreboard driver PCB , assembly number 901320 are correct. The 8617 scoreboard is wired at the factory for 120 VAC input. If 240 volt input is required, the white wire in terminal TB4-2 must be moved to terminal TB4-1. Terminal connections are shown below.

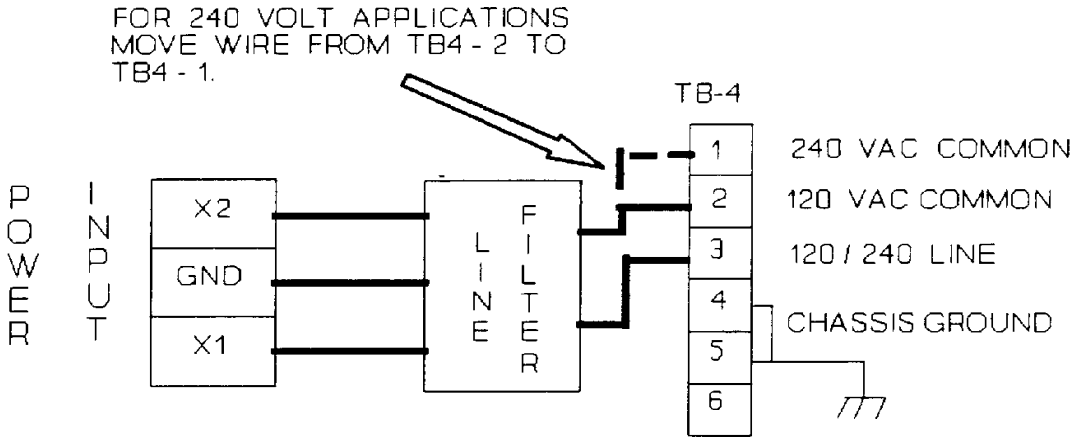


Figure 3.2.1 AC Input Power Wiring

3.2.2 SERIAL DATA WIRING

Connect the serial interface cable to TB 2 connector on the serial interface PCB, board number A90074000A. The serial interface connections are shown in Figure 2. Also refer to the external wiring diagram 901320. When connecting a serial device to the scoreboard, jumper W2 must be set for the type of data transmission used, fiber optic, 20mA current loop, RS-232, or RS422/485. The maximum recommended cable lengths are 50 feet for RS-232, 200 feet for fiber optic, 1000 feet of 20mA and 2000 feet for RS422/485.

TB2 SERIAL INTERFACE

1. RS232 TxD
2. RS 232 RxD
3. Signal Ground
4. RS485 TA
5. RS485 TB
6. RS485 RA
7. RS485 RB
8. 20mA RCL Sink
9. 20mA RCL Source
10. 20mA TCL Sink
11. 20mA TCL Source
12. Shield

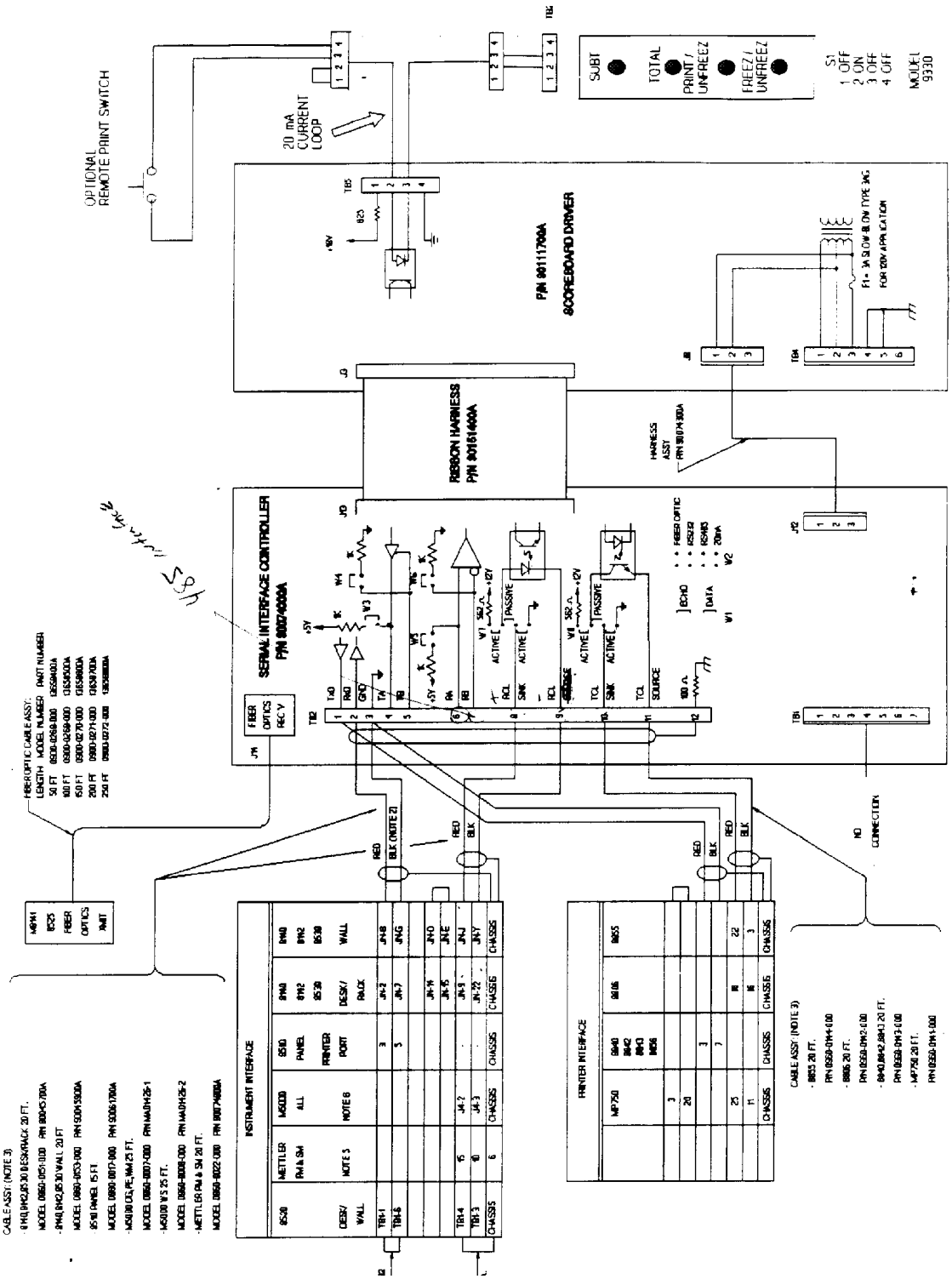


Figure 2 Scoreboard Communications

3.2.3 JUMPER DESCRIPTION

The scoreboard interface boardm assembly number A90074000A includes several jumpers that must be installed according to application. Refer to Figure 2 for circuit jumper locations.

W1 Jumper W1 is used to select weather the serial output port is to echo data received, or to output print data. If interfacing the serial output to anotuher device or accessory requiring data in a continuous data format being recieved, pleace the jumper in the ECHO position. If interfacing the serial outpu to a printer, place the jumper in the DATA position.

W2 Jumper W2 is used to select the type of serial receive interface to be used. Place the jumper in the location corresponding to the receive interface used. (FIBER OPTIC, RS232, RS422/485, 20mA).

W3,W4 Jumpers W3 and W4 are used to install or remove termination resistors for the RS485 receive lines. When the unit is connected on a RS 485 network, these jumpers should be installed on the board if the unit is installed at the end of a node. The jumpers should also be installed on a point to point interface if a long interface cable is used in order to eliminate signal raflections or cross talk in the cable. Otherwise, these jumpers should be removed.

W7 Jumper W7 is used to configure the 20mA receive port to either active or passive. If the indicator is active, then the jumper must be placed in the PASSIVE position. If the indicator is passive, the jumpers must be places in the ACTIVE position.

W8 Jumper W8 is used to configure the 20mA transmit port either active or passive. If the printer or accessory is active, then the jumpers must be places in the PASSIVE position. If the printer or accessory is passive, then the jumpers must be placed in the ACTIVE position.

4.0 HARDSWITCH DESCRIPTIONS

4.1 SELCET SCOREBOARD OPERATION SWITCH S3

Switch S3 on the interface board A90074000A selects the addressing for the EPROM that is used on the interface board. The interface board is the same assembly as used in the Mettler-Toledo Model 9323 BCD module, and the 9325 Analog module. The difference in the setup of the three PCBs is the addressing of the EPROM. Therefore, the switches on S3 must be set as shown below for the correct selection of the scoreboard program.

SCOREBOARD OPERATION SELECTION

S3-1	S3-2	S3-3	S3-4
ON	OFF	ON	ON

4.2 SCOREBOARD SETUP SWITCH S4

Multidrop Address Selection (Simple ASCII Mode Only)

MULTIDROP ADDRESS SELECTION

S4-1	S4-2	S4-3	S4-4	ADDRESS SELECTION
OFF	OFF	OFF	OFF	ADDRESS #0
ON	OFF	OFF	OFF	ADDRESS #1
OFF	ON	OFF	OFF	ADDRESS#2
ON	ON	OFF	OFF	ADDRESS #3
OFF	OFF	ON	ON	ADDRESS #4
ON	OFF	ON	OFF	ADDRESS #5
OFF	ON	ON	OFF	ADDRESS #6
ON	ON	ON	OFF	ADDRESS #7
OFF	OFF	OFF	ON	ADDRESS #8
ON	OFF	OFF	ON	ADDRESS #9
OFF	ON	OFF	ON	ADDRESS #10
ON	ON	OFF	ON	ADDRESS #11
OFF	OFF	ON	ON	ADDRESS #12
ON	OFF	ON	ON	ADDRESS #13
OFF	ON	ON	ON	ADDRESS #14
ON	ON	ON	ON	ADDRESS #15

Switch S4-5 and S4-6 are not used.
Switch S4-7 Scoreboard Digit Self-Test

The Model 8617 has a built in display test feature. This feature is activates by palcing switch S4-7 to the ON position and applying power to the scoreboard. No serial sata input is required. Once enabled, the test feature will cycle through 0-9 on all six digits indeoendantly. This action will continue until all digits have been cycled. This test will then start again wtih the first (most significant) digit. This acion wil continue until S4-7 is placed in the OFF position.

Switch S4-8 Set-up Mode

Switch S4-8 ON allows the operator to enter the setup mode. Set switch S4-8 to the OFF position, after the scoreboard displays “dOnE” and the scoreboard will return to normal operation. See “Accesssing the Setup Mode” for further explanation of softswitch settings.

5.0 POWER UP SEQUENCE

When power is applied to the scoreboard the display will show the program number “90160100A” and then “r-1” which indicates the revision number of the program. An error code “3” may be displayed after the program revision is displayed, while the program is in the auto baud mode. As part of the power up sequence, the program searches for the baud rate og the data being received from the transmitting device. Once the baud rate is matched the display will show the weight data being transmitted.

6.0 OPERATIONAL PROGRAMMING

6.1 ACCESSING THE SETUP MODE

This section og the manual describes the carious setup prompts which are used to configure the operation of the scoreboard. To access the Setup Mode you must first turn switch S4-8 to the ON position. Once the Setup Mode is entered the display will show the first setup prompt (F1 X), where the X indicatees the current option selected.

With the prompt displayed, pressing the S1 button (located on the interface OCB) will cause the next valid parameter to be displayed. When the proper selection is displayed, press the S2 button to select this value and adnvace to the next prompt.

6.2 QUICK REFERENCE CHART FOR SOFTSWITCHES

Following is a quick reference chart for the Model 8617 softswitches . The softswitch number (SSW#) will be listed first followed by the initial default setting at powerup. Refer to the correct chart for the defaults for your current mode of operation.

6.2.1 STANDARD OPERATIONAL MODE REFERENCE

SSW#/DEFAULT	DESCRIPTION	DEFAULT OPERATION
[F1---0]	Mode Select	Standard Mode
[F2---0]	Display Format	Displayed Weight
[F3---1]	Receive Time-Out	Enable Time-Out
[F4---0]	Update On-Demand	Continuous Update
[F5---0]	Blank During Motion	Disable Blinking
[F6---0]	Freeze/Unfreeze Operation	Normal Display
[F7---0]	Accumulator Enable	Disable Accumulator
[F8---0]	Remote Port Function	Remote Print
[F9---0]	Output Port Baud Rate	Output = Input
[F10--0]	Expanded Print	Normal Size Print
[F11--0]	Print Format	Displayed Weight

6.2.2 SIMPLE ASCII MODE REFERENCE

SSW#/DEFAULT	DESCRIPTION	DEFAULT OPERATION
[F2---2]	Baud Rate	Baud Rate = 4800
[F3---0]	Receive Time-Out	Disable Time--Out

6.3 SOFTSWITCH SETTINGS

The first prompt is used to select the mode of operation. Depending on the selection, the setup will continue in one of the three formats.

Note: Prompt selections marked with an "*" are the default setting.

[F1] Mode Select

*0 - Standard Mode of Operation
1 - Simple ASCII Mode Operation
2 - Scale Multi-drop mode.

6.3.1 STANDARD MODE OPERATION

[F2] Display format

*0 - Displayed Weight
1 - Gross Weight
2 - Tare Weight
3 - Net Weight
4 - Total Weight (display lower 6 digits)
5 - Total Weight (display upper 6 digits)

[F3] Receive Time-Out

0 - Disable the time-out feature of 3 seconds.
*1 - Enable the time-out feature.

[F4] Update On-Demand

*0 - Continuous Update.
1 - Update On-Demand.

[F5] Blank During Motion

*0 - Display Always Active
1 - Blank Display on Motion.

[F6] Freeze/Unfreeze Operation

*0 - Normal Display After Unfreeze
1 - Blank Display After Unfreeze.

[F7] Accumulator Enable

*0 - Accumulator Disabled.
1 - Accumulator Enabled.

[F8] Remote Port Function

*0 - Remote Print
1 - Remote Total
2 - Remote Freeze/Unfreeze
3 - Serial Input for C-T-P-Z (Model 9330), where the characters received have the following commands.

C - Subtotal
T - Total
P - Print
Z - Freeze/Unfreeze

[F9] Output Port Baud Rate

*0 - Same As Received Data Baud Rate
1 - Output at 300 Baud.

[F10] Expanded Print

*0 - Normal Print Size.
1 - Expanded Print Size

[F11] Print Format

*0 - Print Displayed Weight Only
1 - G-T-N on Single Line
2 - G-T-N on Three Lines

6.3.2 SIMPLE ASCII MODE

The simple ASCII mode is selected in Funtion 1 above the F2, changes to the baud rate selection for the model 9360 type device or the host capable of transmitting a string of ten characters. When this mode is selected the auto baud configuration feature is disabled. The scoreboard is able to display all numbers and as many alpha characters as possible using the seven segment display. In this mode the unit is programmed to receive a string of ten charaters in the following format.

<STX><ADDR><X><YYYYYY><CR>

Where X is any character (dummy position not used by the 8617).

ADDR- Single characterdrop address where the lower 4 bits corresponds to the address selection via the dip switches. Address selections are 0 through 9 and A through F. When 0 is selected, the unit displays all recieved data. Address selection is valid in this mode only. Refer to the setup paragraphs for switch setting details.

YYYYYY- <YYYYYY> is the value of the message displayed.

[F2] Baud Rate

0 - 1200
1 - 2400
*2 - 4800
3 - 9600

[F3] Receive Time-Out

*0 - Diable the time-out feature of 3 seconds
1 - Enable the time-out feature.

If the time out feature is disabled an error code will not be displayed if data transmission has stopped. If the time out feature is enables, an error code “6” will be displayed when there has not been any data received within three seconds.

Multi-scale mode [F1 2]

In the multi-scale mode up to 5 indicators can be connected to a current loop for display on the scoreboard. This type of setup assumes that all indicators are all on the same current loop, and transmitting at thesame baud rate. The multidrop addressing is shown below.

<X><STATUS A><STATUS B><STATUS C><YYYYYY><ZZZZZZ><CR><CHECKSUM>

Status C = Tare Weight

Status B = Indicator Weight

Multi-Drop Address

01 HEX = SCALE #1
02 HEX = SCALE #2
03 HEX = SCALE #3
04 HEX = SCALE #4
05 HEX - SCALE SUM

7.0 SERIAL DATA INPUT/OUTPUT

7.1 SERIAL DATA INPUT

The Model 8617 is capable of receiving data from all current Mettler-Toledo indicators and the Masston model M5000. The unit will automatically recognize the data format and the baud rate; however, the data must conform to the following specifications.

Interface Type
The interface type must be RS232, RS422/485, 20mA current loop r fiber optic, all jumper selectable.

Message Format
Accepts serial data either Toledo continuous data format with cheksum, the Masston M5000 continuous data format. The demand mode and also a multi-drop mode is also acceptable.

Data Format
1 start bit, 7 data bits, and 1 or 2 stop bits. Parity may be even, odd or none.

Baud Rate
1200, 2400, 4800 and 9600, for Toledo continuous format and 4800 for Masstron M5000 continuous format.

7.2 SERIAL OUTPUT INTERFACE

The serial output port may be configured to output data to a printer, pr ot may be configured to echo the data received to provide an interface to additional accessories. It cannot be configured for both simultaneously.

PRINTER OUTPUT

Interface Type
RS 232, RS 422/485 and 20mA current loop.

Message Format
Suitble to output display weight data only, single line G-T-N, or three line G-T-N. Output is upon demans and is triggered by the indicator print button or the remote print button of the remote print input from the scoreboard. This printer output is not available when interfaced using the Masstron continuous data format. See printer output shown in Figure 3.

Data Format
1 start bit, 7 data bits, 1 even parity bit, and 1 stop bit.

Baud Rate
The baud rate is selectable at either 300 baud, or the same as the baud rate of the data being received.

ECHO DATA FORMAT

Interface Type
RS 232, RS 422/485 and 20mA current loop.

Message Format
The message format is identical to the format of the message being received.

Data Format
The data format is identical to the data format being received.

Baud Rate
The Baud rate is the same as the baud rate of the data being received.

The power up message is available to the output of the 8617. Jumper W1 determines wether the data will be transmitted or not.

CR	LF	M	O	D	E	L	SP	8	6	1	7	CR	LF	S	O	F	T	W	A	R	E

SP	N	U	M	B	E	R	SP	*	9	0	1	6	0	1	0	0	A	CR	LF

* May be space or letter indicating software revision.Power up message format.

GROSS
WEIGHT
ONLY

STX	MSD	-	-	-	-	->	LSD	SP	L/g	B/g	CR	LF

OR

NET
WEIGHT
ONLY

STX	MSD	-	-	-	-	->	LSD	SP	L/k	B/g	SP	N	E	T	CR	LF

DISPLAYED WEIGHT ONLY - NORMAL PRINT

GROSS
WEIGHT
ONLY

STX	SO	MSD	-	-	-	-	->	LSD	SP	L/g	B/g	SP	SI	CR	LF

OR

NET
WEIGHT
ONLY

STX	SO	MSD	-	-	-	-	->	LSD	SP	L/k	B/g	SP	N	E	T	SI	CR	LF

DISPLAY WEIGHT ONLY - EXPANDED PRINT

GROSS
WEIGHT

STX	MSD	-	-	-	-	->	LSD	SP	L/k	B/g	CR	LF

TARE
WEIGHT

MSD	-	-	-	-	->	LSD	SP	T	R	CR	LF

NET
WEIGHT

MSD	-	-	-	-	->	LSD	SP	L/k	B/g	SP	N	E	T	CR	LF

[WEIGHT DATA]

GROSS, TARE, NET - MULTIPLE LINE - NORMAL PRINT

GROSS
WEIGHT

STX	MSD	-	-	-	-	->	LSD	SP	L/k	B/g	CR	LF

TARE
WEIGHT

MSD	-	-	-	-	->	LSD	SP	L/k	B/g	SP	T	R		CR	LF

NET
WEIGHT

SO	MSD	-	-	-	-	->	LSD	SP	L/k	B/g	SP	N	E	T	SI	CR	LF

[WEIGHT DATA]

GROSS, TARE, NET - MULTIPLE LINE - EXPANDED PRINT

STX	MSD	-	-	-	-	>	LSD	SP	L/k	B/g	SP	MSD	-	-	-	-	>	LSD	SP	L/k	B/g

(continued)

SP	T	R	SP	MSD	-	-	-	-	>	LSD	SP	L/k	B/g	SP	N	E	T	CR	LF

GROSS, TARE, NET - SINGLE LINE - NORMAL PRINT

STX	MSD	-	-	-	-	>	LSD	SP	L/k	B/g	SP	MSD	-	-	-	-	>	LSD	SP	L/k	B/g

(continued)

SP	T	R	SP	SO	MSD	-	-	-	-	>	LSD	SP	L/k	B/g	SP	N	E	T	SI	CR	LF

GROSS, TARE, NET - SINGLE LINE - EXPANDED PRINT

8.0 TROUBLESHOOTING

8.1 TEST MODE

The Model 8617 has a built in display test feature. This feature is activated by placing switch S4-7 to the ON position and applying power to the scoreboard. No serial deata input is required. Once enabled, the test feature will cycle 0 through 9 on all six digits independantly. After all digits have gone throught the test, all digits will blank and the test routine will start again. The test routine will continue until 54-7 is placed in th OFF position and the test cycle is completed.

8.2 TROUBLESHOOTING HINTS

8.2.1 Check to ensure that the appropriate AC voltage is present at the correct termainls of TB4 on the driver PCB assembly (A/N 90111700A). No voltage input is required on the serial interface PCB assembly (A/N A90074000A). Refer to the external wiring diagram 901320 located in the back of this manual.

8.2.2 Check the AC line fuse F1 (3/10 Amp. 250 V S.B.) located on the scoreboard driver PCB assembly number 90111700A to make sire the fuse is not blown. The line fuse (1/4 Amp. 250 V S.B.) on the Serial Interface PCB assembly number A90074000A is not used.

8.2.3 Observe the LED on the Serial Interface PCB (A90074000A). Refer to the error code chart in Section 9 for error codes and possible causes.

8.2.4 If the LED does not show a legitimate error code, check the setting of the dip switches on S3 (S3-1 ON, S3-2 OFF, S3-3 ON, S3-4 ON). If an invalid setting is selected, the microprocesor will not run. If the LED still fails to light or show a legitiamate error code, replace the Serial Interface Controller PCB with an A90074000A or later revision, and check for proper operation. IF the serial interface board is operating properly the LED, on the Serial Interface PCB, will turn on for one second and then off for one second continuously.

8.2.5 If a digit does not display the correct weight data, which may indicate that one of the digits are bad or the drive has gone bad, the self test mode may be used to determine which component has failed. After running the self test mode, described above, and a single digit appears to be bad, swap the bad digit

connector with a known digit. If the bad digit changes to the location with the known good digit, the bad digit must be replaced. Ifthe bad digit remains in the same place then the driver PCB (90111700A) must be replaced.

9.0 ERROR CODE DISPLAYS

The unit is capable of detecting several operational errors and displaying the appropriate error code. A summary of these codes follow.

9.1 ERROR CODE CHART

-- 1 --	Not applicable
-- 2 --	RAM Error
-- 3 --	Autobaud in Progress or Loss of scale data
-- 4 --	Eprom Error
-- 5 --	LB/kg Accumulator Error
-- 6 --	Receive Error
-- 7 --	Over/Under Capacity Error
Flashing Display	The Accumulator Memory Has Exceeded 6 Digits.

9.2 CORRECTIVE ACTION FOR ERROR CODES

ERROR CODE - 2 RAM ERROR

The microprocessor has detected an error on its internal RAM. Replace the Serial Interface Controller Board.

ERROR CODE - 3 AUTO-RECOGNITION ERROR

The unit is waiting to receive valid data from the indicator. Make sure that the jumpers W1 through W8 are in the correct position for the type of interface used. Check the interface wiring between the indicator and the terminal strip TB2 on the interface PCB 90074000A. Also, make sure that the indicator is sending data within the checksum at one of the specified baud rates.

ERROR CODE - 4 EEPROM ERROR

The serial interface PCB has never been set up, or the microprocessor has detected a checksum error for the setup stored in the EEPROM. Try recalibrating the unit. If the problem persists, replace the serial interface controller PCB assembly A90074000A.
Then go through the setup mode and check for proper operation.

ERROR CODE - 5 LB/kg ACCUMULATOR ERROR

Error code 5 will be displayed if while accumulating weight data the weigh information is switched from pounds (LB) to kilograms (kg) or vice versa on the indicator.

ERROR CODE - 6 RECEIVE ERROR

The unit has lost valid weight data from the indicator. Check the interface wiring betweem the indicaor and the teminal strip TB2 on the interface PCB 90074000A. Also make sure that the indicator is sending data within the checksum at one of the specified baud rates.

ERROR CODE - 7 OVER CAPACITY/UNDER ZERO

Error code 7 will be displayed if the scale indicator goes over capacity or under zero.

10.0 REPLACEMENT PARTS

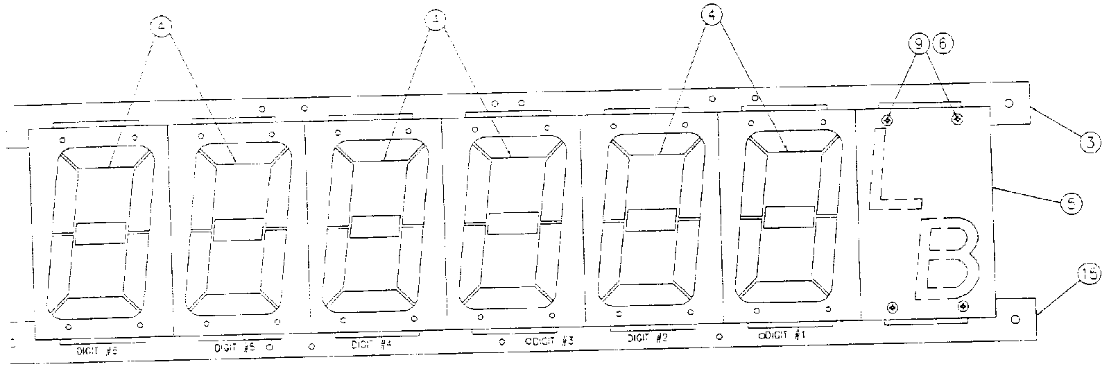
90111700A	Drive PC board
A90074000A	Serial Interface
90134700A	6 Inch Display Digit
90115800A	4 Inch Display Digit
11707800A	3/10 Amp. S. B. Fuse

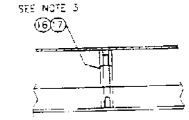
NOTES:

1) BUILD THIS ASSEMBLY AS SHOWN AND THEN INSTALL INTO THE ENCLOSURE AS SHOWN ON SHEET 2 OF 2.
2) AFTER MOUNTING DIGITS, NUMBER DIGIT CONNECTOR WITH CORRESPONDING DIGIT NUMBER AS SHOWN.
3) SCREW 3/8" STANDOFF ONTO 1" STANDOFF. THIS ARRANGEMENT IS TO PROVIDE A SUPPORT POST FOR THE DRIVER PCB.

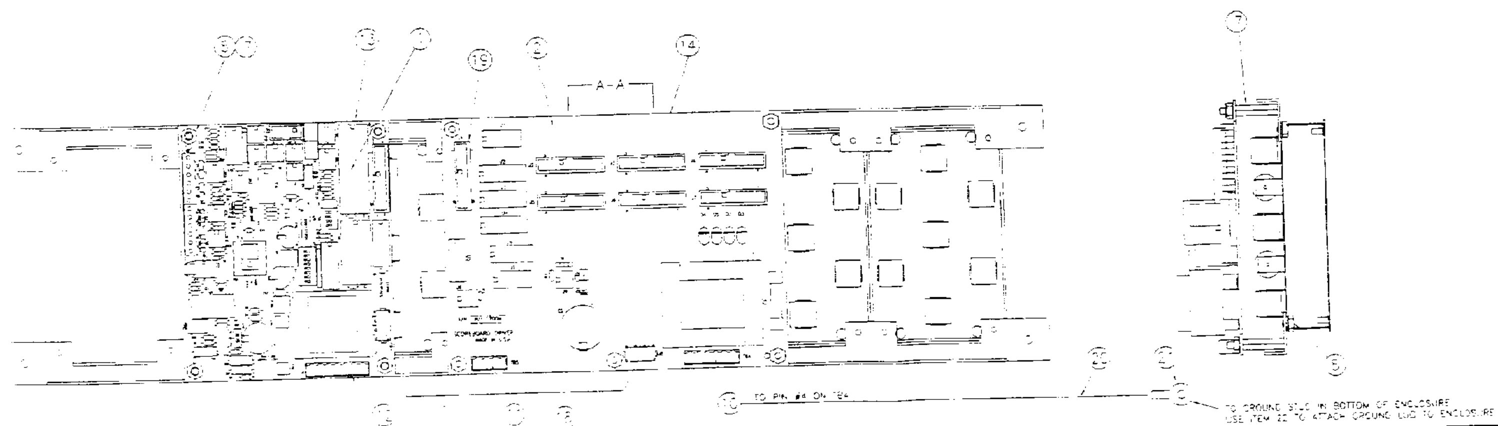
ITEM	REQ'D	DESCRIPTION	PART NUMBER
1	1	PC BOARD, SERIAL INTERFACE CONTROLLER	[illegible]
2	1	PC BOARD, SCOREBOARD DRIVER	901[illegible]200A
3	REF	BRACKET, DIGIT MOUNTING 8614 (TOP)	901[illegible]5300A
4	6	DISPLAY, 4" SCOREBOARD DIGIT	90[illegible]37500A
5	REF	PLATE, LB-kg 4" SCOREBOARD	90131600A
6	4	STANDOFF, 1 X 1/4 F-F	KN7[illegible]39500A
7	9	STANDOFF, HEX 6-32 x 1 3/8	KN77[illegible]394020
8	33	NUT, 6-32 HEX WITH LOCKWASHER	R0328300A
9	4	SCREW, 6-32 x 5/16 MACH PHILL (BLACK)	R0397900A
10	1	TERMINAL BLOCK, 6 POSITION	[illegible]162500A
11	1	TERMINAL BLOCK, 4 POSITION	13457200A
12	1	TERMINAL BLOCK, 7 POSITION	[illegible]524100A
13	1	FISHPAPER, SERIAL	90[illegible]38900A
14	1	FISHPAPER, DRIVER	90138800A
15	REF	BRACKET, DIGIT MOUNTING (BOTTOM)	90139100A
16	1	STANDOFF, 1 X 1/4 M-F	KN771533020
17	1	STANDOFF, 3/8 X 1/4 F-F NYLON	KN772396004
18	1	POWER CABLE	90074300A
19	1	RIBBON CABLE	90151600A
20	REF	GROUND WIRE (GREEN) 15 INCH	411118555
21	REF	EYE LUG	12471400A
22	1	8-32 NUT WITH LOCKWASHER	R0329800A
23			
24			
25			
NOT SHOWN			

SEE NOTE 2





SECTION A-A



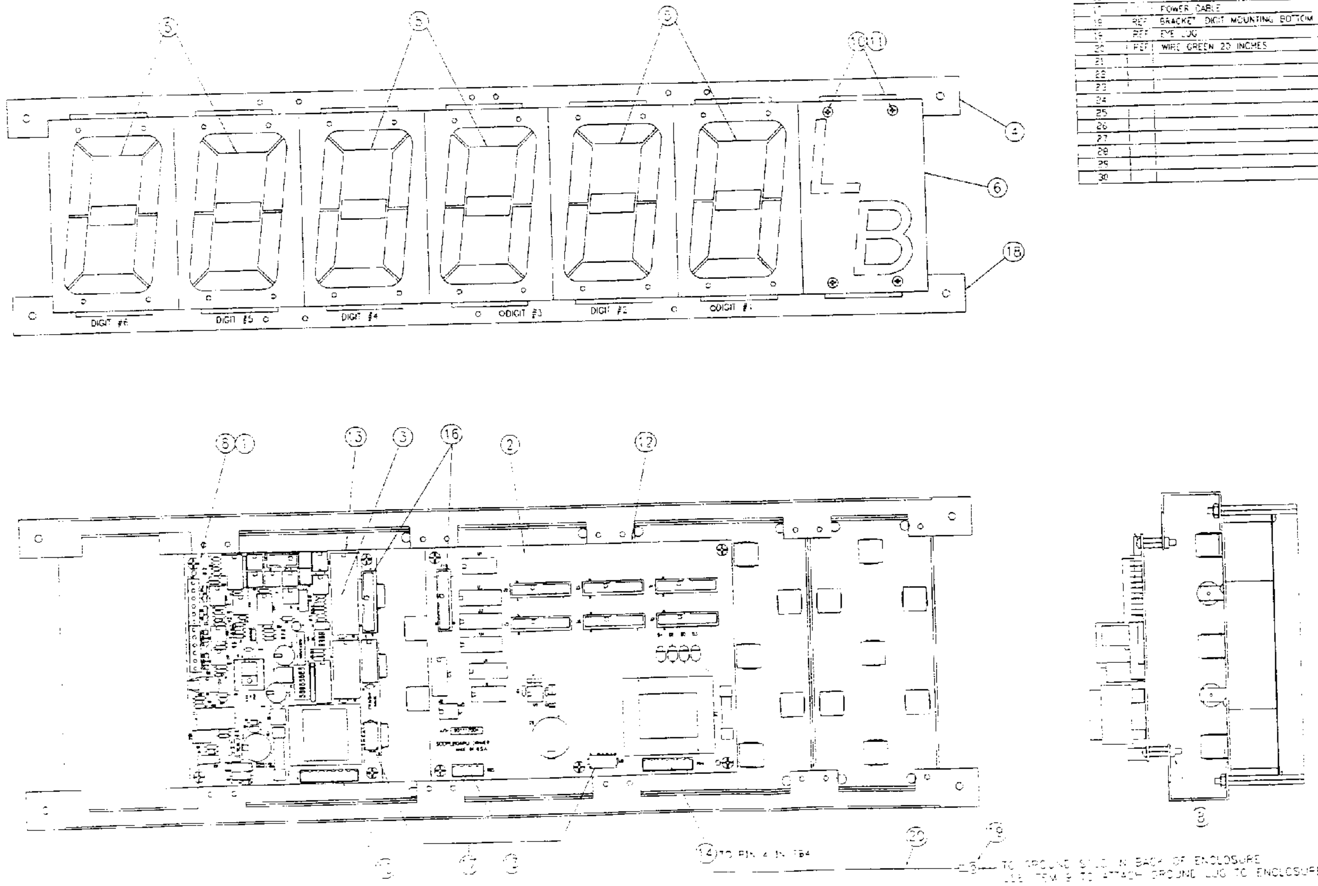
METTLER TOLEDO

NOTES
1) BUILD THIS ASSEMBLY AS SHOWN AND THEN INSTALL INTO THE ENCLOSURE AS SHOWN ON SHEET 2 OF 2
2) AFTER MOUNTING DIGITS, NUMBER DIGIT CONNECTOR WITH CORRESPONDING DIGIT NUMBER AS SHOWN

BILL OF MATERIAL

SYMBOL	REQ'D	DESCRIPTION	PART NUMBER
1	8	STANDOFF, HEX 8-32 x .5"	KN76637502C
2	1	PC BOARD, SCOREBOARD DRIVER	90111700A
3	1	PC BOARD, SERIAL INTERFACE CONTROLLER	090074000A
4	REF	BRACKET, DIGIT MOUNTING TOP	90115200A
5	6	DISPLAY, 6" SCOREBOARD DIGIT	90127400A
6	1	PLATE, LB-kg 6" SCOREBOARD	90131700A
7			
8	6	SCREW, 8-32 x .375 & WASHER	R01036050
9	36	NUT, 8-32 HEX WITH LOCKWASHER	R0329800A
10	4	SCREW, 8-32 x 1/4	R0050200A
11	4	STANDOFF, 8-32 x 1 1/4	KA562054
12	1	STANDOFF, 8-32 x 1/2 NYLON	KN772456
13	1	TERMINAL BLOCK, 4 POSITION	13457200A
14	1	TERMINAL BLOCK, 6 POSITION	13162500A
15	1	TERMINAL BLOCK, 7 POSITION	11974100A
16	1	RIBBON CABLE	90151600A
17	1	POWER CABLE	90074300A
18	REF	BRACKET, DIGIT MOUNTING BOTTOM	90151500A
19	REF	EYE LUG	12471400A
20	REF	WIRE, GREEN 20 INCHES	41118555
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

SEE NOTE 2



TTLER TOLEDO

AS SHOWN