3205

Technical Manual
and
Parts Catalog

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
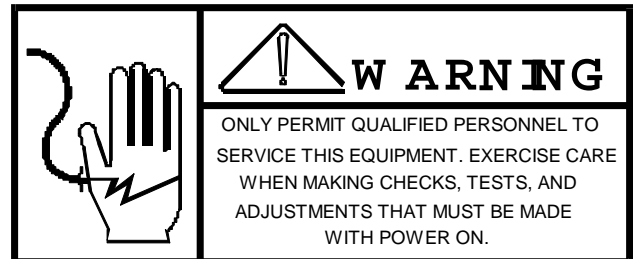Columbus, Ohio 43216
(614) 438-4400

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.

⚠ **WARNING**

DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.
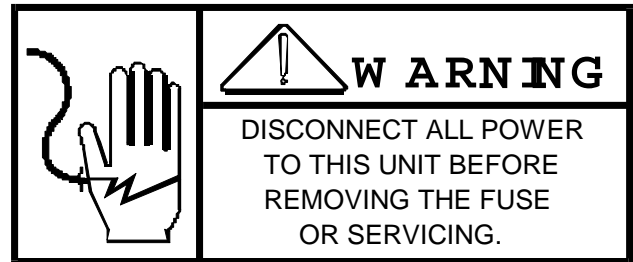
- **ALWAYS** take proper precautions when handling static sensitive devices.

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

⚠ **WARNING**

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON.

- **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.

CAUTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

1. GENERAL DESCRIPTION

The Toledo Model 3205 is an electronic digital indicator, which provides a visual digital readout for the operator and has 100% tare capability. Data output for printers is provided.

2. SYSTEM DESCRIPTION

Model 3205 uses Toledo's "gated power supply" technique to provide zero stability with temperature, and a multislope, self compensating, A/D converter with precision thin film resistors to provide span stability with temperature. An active linear filter circuit reduces effects of vibration of the scale mounting surface. A/D logic and counting functions are controlled by a microprocessor, which also provides additional data filtering, tare storage and net weight calculation. LB - KG conversion, auto - zero maintenance, and weight in motion detection.

Weight display is via six digits of 7 segments vacuum fluorescent, and a keyboard provides pushbutton zero, as well as pushbutton and keyboard tare entry provisions.

3. SPECIFICATIONS

1.   ELECTRICAL AND PHYSICAL

3.1.1   Power Requirements
120 VAC ±10%, 50/60 Hz; single phase; 0.25 amperes.

3.1.2   Capacity
25 LB X .005 or 10 KG X .002
50 LB X .01 or 25 KG X .005
100 LB X .02 or 50 KG X .01

3.1.3   Digital Display
Six digits including minus sign, seven segment vacuum fluorescent - 0.55 inches high.

3.1.4   Lighted Legends
Six lighted spots adjacent to printed legend are available.

3.2   INTERNAL FUNCTIONS AND INTERLOCKS

3.2.1   Display Message or Signals
a).   Weight greater than 5 increments over capacity blanks weight display.

b).   Under zero display reads true negative numbers with minus sight. Blanks at about 5% under with minus sign ON.

c).   Display blinks on power up until the scale is zeroed.

d).   Alternate action of the CLEAR button displays all segments and legends ON or all OFF.

3.2.2   Motion Detection
Zero, tare and printing functions are inhibited whenever motion is detected.

3.2.3   Automatic Zero Maintenance

Weight variations within ±0.2 increments per second are compensated to zero. Compensation range is ± 2% of capacity from true zero (as calibrated) or a total of 4% of capacity.

3.2.4   Resolution
Display - One Part in 5,000

Internal - Weight is 10 minor increments for each displayed increment. Weight is rounded to nearest increment. Internal calculations use minor increments.

3.2.5   Pushbutton Zero
When the weight displayed is within the zero correction range and no motion is present, pressing the zero pushbutton will cause the weight display to be zero.

The range of this correction is ± 2% of scale capacity.

3.2.6   Tare
Platform tare and keyboard entered tare may be used at any time unless tare interlock is selected.

32.7   Data Output
Data Output is via 20 mA current loop (source by scale) ASCII code, 300 baud, even parity. Data Output occurs when the PRINT button is pressed.

3.2.8   Keyboard Entry Time Out
When using the keyboard to enter tare, sample size or average piece weight the data entered will appear on the display immediately. You then have three seconds after the last numerical entry to depress the function key. If you do not enter the function in time, the data will clear the display. To correct, just enter the data again and select the function desired within three seconds.

3.3   EXTERNAL CONTROLS

3.3.1   Display Switch
The display switch is located under the right side. This switch is on a signal line to the microprocessor which is held at 5 VDC by a pull-up resistor when the switch is open. In this open position the display is OFF. Closing the display switch brings the signal to ground and the display is then turned ON.

CAUTION: WHEN THE LINE CORD IS PLUGGED INTO A POWER SOURCE, THE LINE VOLTAGE IS PRESENT AND THE SCALE IS ON. TO SERVICE THE UNIT, UNPLUG THE LINE CORD AND OBSERVE SAFETY PRECAUTIONS.

3.3.2   Keyboard
See specific type of scale.

4. INSTALLATION INSTRUCTION

4.1   SET - UP PROCEDURE

4.1.1   Inspect for visual damage.

4.1.2   Install indicator as needed.

4.1.3   Level the scale.

4.1.4   Apply power.

4.1.5   Depress the zero key.
a).   Pushbutton span calibration.

b).   Press CALIB.

c).   Indication will read - CALIB-.
d).   Place 25 LB weight on scale. (10 KG is metric only).

e).   Press CALIB.

f).   Indication should read 25.000 LB.
           Correction limited to ±0.2% of the test load or ±0.05 LB or ±20g.

4.1.6   Apply test weights to check the calibration.

4.2   CALIBRATION CHECK LIST

4.2.1   Weighing Accuracy
a).   Remove the bezel keyboard assembly.

b).   Check setting of capacity switches on SW2.

c).   Adjust zero with the zero potentiometer. (See Fig. 1).

d).   Place full capacity on center of platform.

e).   Adjust span potentiometer. (See Fig. 1)

f).   Check step c through e until no further adjustments are needed.

g).   Set program switches as needed for customer application (See program switch
           summary for type of scale).

h).   Replace the bezel keyboard assembly.

i).   Place test weight on platform and check the indicated weight. Scale should now
           be calibrated.

4.2.2   Shift Test
         See Technical Manual for the scale used.

4.3   PROGRAM SWITCH SUMMARY

See listing is Section for type of scale used.

4.4   DATA OUTPUT

TYPICAL CONNECTIONS WITH 20 MA LOOP OUTPUT

The 3205 uses a 20 milliamp current loop output (ASCII, 300 Baud, even parity, output at scale
print command) for printers and other devices. The output is designed so that it can be used with
various types of interconnections to other devices. It can be used with an internal power source
inside the 3205 or with an external power source depending on what terminals are connected on
the 3205 printer connector.

3205 INTERCONNECTING CABLES		
PRINTER	LENGTH	PART NUMBER
301	6'	A113210 00A
301	20'	A113222 00A
8805	6'	B113208 00A
8805	20'	B113220 00A
8810 Series	6'	113209 00A
8810 Series	20'	113221 00A
8855	6'	117141 00A
8855	20'	117142 00A

PRINTER I/O SERIAL CONNECTOR					
		FIGURE 2		FIGURE 4	
SIGNAL NAME	3205-J6	301-J9	8805-J1	8855-J1	8810-J25
N.C.	9				9
+20 mA	14	7	28	22	18
20 mA Current Loop Supply	15	6	26	3	
Logic Ground	16				
N.C.	18		18		2
-20 mA	19				7
N.C.	22		25		
Jumpers shown are in the indicator end of the interconnecting cable			⌐16 ⌐17 ⌐ 3 └ 5		
Jumpers shown are in the printer end of the interconnecting cable.					⌐ 9 ⌐19 ⌐16 └17

25 PIN CONNECTOR VIEWED
FROM REAR OF INSTRUMENT
(DESK TOP ONLY)

CONNECTOR IS SHOWN TO AID
IN PIN NUMBER IDENTIFICATION

5. MAINTENANCE

5.1   PARTS COMMON

1-117119 00A Main PCB
          or
1-C113950 00A Main PCB
1-095920 00A Fuse .25A Slo Blo
1-A115136 00A Power Supply Harness

5.2   TROUBLESHOOTING

The Model 3205 is designed to be serviced by identifying and replacing defective modules. The modules are the keyboard assembly, MAIN PCB, PROM PCB, Power Supply Harness and the Load Cell.

Referring to Figure 5 for the location of the connections on the MAIN PCB, you can then use the information on Figure 6 to determine which module should be replaced.

6. PARTS COUNTING SCALE

6.1   PROGRAM SWITCH SUMMARY

6.1.1   SW1-1 Expand
When this switch is ON, the count is by ten times. This is used only for manual calibration purposes. In normal use this switch must be OFF>

6.1.2   SW1-2 Initial
When this switch is ON, a 1985 with a 14 X 14 platform may be used.

6.1.3   SW1-3 Sample Size
When this switch is ON, the minimum sample weight required is one-half (0.5) increment. When OFF, the sample must be ten (10) increments. (COUNT OUT and COUNT UP are always possible).

6.1.4   SW1-4 Calibrate Disable
When this switch is ON, the CALIB key will not operate. When this switch is OFF, the CALIB key will work only at initial power up and calibrate.

6.1.5   SW2-1 NOT USED

6.1.6   SW2-2 Capacity Select

6.1.7   SW2-3 Capacity Select

SW2-2	SW-3
ON	ON
OFF	ON
ON	OFF
OFF	OFF

6.1.8 SW2-4 LB/KG
When this switch is ON, LB/KG switching may be done by keyboard entry when the scale is at ZERO. When this switch is OFF, only KG can be used.

6.1.9 SW2-5 Tare Inhibit
When this switch is ON, no tare may be taken. When this switch is OFF, tare is required.

6.1.10 SW2-6 Auto Clear Enable
When this switch is ON, the scale will clear all data when the platform returns to ZERO. When this switch is OFF, the data is kept for further use and the CLEAR key must be used before entering new sample or average piece weight.

6.1.11 SW2-7 Print Format

6.1.12 SW2-8 Print Format

SW2-7	SW2-8
OFF	OFF
ON	OFF
OFF	ON
ON	ON

6.1.13 SW2-9 Quick Sample
When this switch is ON, the sample size switch is ignored. Minimum sample to start quick sample is two increments. Total sample size is ten increments.

6.1.14 Comma
A jumper at this position will provide a comma in the display instead of a decimal point. It does not change the printed data.

6.2 FUNCTION KEY'S AND LED'S

6.2.1 C or Clear
Used to erase last data and reset scale to accept new information. Reverts to GROSS weight on display and appropriate LED is flashing to prompt next operator action.

6.2.2 Z or Zero
Used to zero the scale platform weight.

6.2.3 Calib
May be used only on initial power up of scale. At zero, press once and display -CALI-. Place test weight on platter and press CALIB second time. If the span weight is within correction range, the display will update to the test weight value (25 LB or 10 KG).

6.2.4   LB/KG
        PRINT
        LB/KG selection is available only at zero and is indicated by appropriate LED. Print command is active only after count has been obtained.

6.2.5   Sample/APW
        Sample or Average Piece Weight mode is selectable only at ZERO and is indicated by an LED. Up scale, the key is used to enter keyboard data. When the count is displayed, pressing the key will switch the display to APW and pressing again will return display to COUNT. LED will also indicate that display is COUNT or APW.

6.2.6   Tare
        Used to enter keyboard tare or tare platform weight to ZERO. LED, when flashing, indicates that TARE is the next operator function. When LED is ON steady, TARE has been taken. When LED is OFF, TARE is not taken and cannot be taken.

6.3   PRINTER OUTPUT

6.3.1   See Section 4.4 for general data. The 3205 scale will interface to the Toledo 301, 8805, 8810 series and 8855 Printers.

6.3.2   To Use A 301 Printer
        a).   Turn all 301 program switches OFF.

        b).   Select SW1-8 ON for 60 Hz or OFF for 50 Hz.

        c).   Select SW2-4 ON for a 4 inch label or OFF for a 3 inch label. (For WT - APW- COUNT you must use 4 inch label).

        d).   Set SW2-8 ON (300 Baud).

        e).   Program print format on 3205. Set 3205 program switches to get 301 print per example.

                1).   SW2-4 ON
                        SW2-7 OFF
                        SW2-8 OFF
                                                                                74716 PCS

                2).   SW2-4 ON
                        SW2-7 ON
                        SW2-8 OFF
                                                                                137436 PCS

                3).   SW2-4 ON
                        SW2-5 OFF
                        SW2-7 OFF
                        SW2-8 ON
                                        9.99LB NET   0.0001LB APW 99810 PCS

                4).   SW2-4 ON
                        SW2-5 ON
                        SW2-7 OFF
                        SW2-8 ON
                                        7.00LB 0.0001LB APW 69950 PCS

                5).   SW2-4 OFF

SW2-7 OFF
                    SW2-8 OFF

                                                              000181 PCS

6).   SW2-4 OFF
           SW2-7 ON
           SW2-8 OFF

                                                              000272 PCS
7).   SW2-4 OFF
           SW2-5 OFF
           SW2-7 OFF
           SW2-8 ON
                       00.905 kg NET 0.00095kg APW   000955 PCS

8).   SW2-4 OFF
           SW2-5 ON
           SW2-7 OFF
           SW2-8 ON
                       09.965 kg O.0009kg APW   010792 PCS

6.3.3   To Use An 8805 Printer.
        a).   Turn all 8805 program switches OFF.

        b).   Set SW1-4 ON (Weight print to the left).

        c).   Set SW2-7 and SW2-8 ON (serial input).

        d).   General Considerations.

               1).   For a single width piece count at 12 characters per inch (SW2-4 ON), you
                      may select either or both consecutive number (SW1-3 OFF) and time
                      and date (SW1-5 ON and SW1-6 ON), you may use only one option,
                      either consecutive number or time and date.

                             (CN and T&D)

                                 114243 PCS 030004 09:18 AM JL 02 81

                             (CN Only)

                                 114280 PCS 030005

                             (T&D Only)

                                 114252 PCS   09:19 AM JL 02 81

               2).   For double width piece count at 12 characters per inch (SW2-4 ON), you
                      may use only one option, either consecutive number or time and date. At
                      10 characters per inch (SW2-4 OFF), you have only the option of
                      consecutive number.

                             (CN Only)

                                 114271 PCS 030006

                                       8

(T& D Only)

114271 PCS   09:21 AM JL 02 81

(CN Only)

114252 PCS 030007

3).   For single line WT - APW - COUNT, set SW1-3 ON (no consecutive number), SW1-5 and 1-6 OFF (no time and date), SW2-4 ON (12 characters per inch), and SW2-9 ON (1 line message). The only option occurs when the 3205 SW2-5 (Tare Inhibit)is used. When SW2-5 is ON, the weight figure is a Gross weight and when 3205 SW2-5 is OFF, the weight figure is NET.

(Net Weight)

7.021LB NET 0.0010LB APW   6919 PCS

(Gross Weight)

7.24LB   0.0001LB APW 65782 PCS

4).   For three line WT-APW- COUNT-SW2-9 MUST be OFF for 3 line buffer. At 12 characters per inch (SW2-4 ON), you may select either or bother consecutive number (SW1-3) and time and date (SW1-5 and 1-6). At 10 characters per inch (SW2-4 OFF), you may select either consecutive number (SW1-3) or time and date (SW1-5 and 1-6).

(CN and T&D)

0.26ILB NET   000033 04:10PM MA 23 81
0.00083LB APW
251 PCS

(CN Only)

0206LB NET   000034
0.000832LB APW
251 PCS

(T & D Only)

0.206LB NET 04:09 PM MA 23 81
0.00082LB APW
251 PCS

6.3.4   To Use An 8810 Printer
a).   Must use as a Ram 1.

b).   Single line, single width only.

c).   See TM 008810 I00.

6.3.5   To Use an 9855 Printer.
Program the 3205 before applying power to the 8855 printer.

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6.4   OPERATION INSTRUCTIONS

6.4.1   Usual operation to count parts added to the scale or count up.
   a).   Zero the scale.

   b).   Take tare, if required.

   c).   Add sample to scale and enter sample count or average piece weight as needed.

   d).   Add balance of parts and count is displayed. Print if desired.

6.4.2   Operation to count parts removed from each scale or count down.
   a).   Zero the scale.

   b).   Place parts on the scale (with or without container).

   c).   Tare platform to zero.

   d).   Remove pieces until the display stops flashing and enter this count.

<div align="center">OR</div>

   Enter known average piece weight.

   f).   Remove number of pieces desired.

   d).   Tare may be taken after each batch is removed to allow count for next batch.

6.4.3   Quick sample mode of operation, (SW2-9 ON), is used to permit the operator to count out a smaller initial sample. The sample must weight at least 10 increments for the 3205 to accept the sample data. This means that in regular use an operator would have to count and place pieces on the scale until the weight was equal to 10 increments.

   Quick sample allows the operator to count out a sample equal to at least 2 increments in weight. The scale will accept this as a preliminary input. The operator now may add a quantity of pieces less than twice the first count and then press the Sample/APW key. This new information is now added and the APW recalculated. Proceed in this manner until, after the last entry of the Sample/APW key, the display stops flashing. Now you may continue the weigh count in the usual manner.

   a).   -----LO on display means that a sample weight of less than 2 increments was attempted. To set you must remove sample, clear the scale and restart by adding a count totaling more than 2 increments.

   b).   ----- on display means that too many pieces were added. Remove pieces until a count is displayed and then press the Sample/APW key and proceed.

   c).   XXXXXX display flashing a number means that the sample is not large enough.

   d).   --CALI-- on display means that the calibration sequence has been started. See 4.1.5, f) .

6.4.4   PARTS, SPECIAL
   Parts Counting Scale Uses.

   1-114715 00A Keyboard
   1-117107 00A Prom PCB

   See the PC 003205 I00 for the commodity equipment.

7. STRAIGHT WEIGH SCALE

7.1   PROGRAM SWITCH SUMMARY

7.1.1   SW1-1 Expand
When this switch is ON, the count is by ten times. This is used only for manual calibration purposes. In normal use this switch must be OFF.

7.1.2   SW1-2 Initial
When this switch is ON, a 1985 with a 14 X 14 platform may be used.

OFF is not used.

7.1.3   SW1-3 Averaging Enable
When this switch is ON, eight successive readings will be added; then divided by eight and scale will update to new data.

7.1.4   SW1-4 Calibrate Enable
When this switch is ON, the CALIB key will work only at initial power up and calibrate. When this switch is OFF, the CALIB key will not function.

7.1.5   SW2-1 Not Used.

7.1.6   SW2-2 Capacity Select

7.1.7   SW2-3 Capacity Select

SW2-2	SW2-3	RESULT
ON	ON	25 LB X .005 or 10 KG X .002
OFF	ON	50 LB X .01 or 25 KG X .005
ON	OFF	100 LB X .02 or 50 KG X .01
OFF	OFF	NOT USED

7.1.8   SW2-4 LB/KG
When this switch is ON, LB/KG switching may be done by keyboard entry at any time. when this switch is OFF, only KG will function.

7.1.9   SW2-5 Tare Interlock Enable
When this switch is ON, tare can be taken once only and to enter a different tare requires a CLEAR either from the keyboard or auto clear. Tare may be either platform or keyboard tare. When this switch is OFF, tare may be taken at any time.

7.1.10   SW2-6 Auto Clear Enable
When this switch is ON, the scale will clear all data when the platform returns to zero providing that 10 or more weight increments above zero have been on the scale. When this switch is OFF, auto clear does not function.

7.1.11   SW2-7 Print Format

7.1.12   SW2-8 Print Format

SW2-7	SW2-8	RESULT
OFF	OFF	Single Width Display Print
ON	OFF	Double Width Display
OFF	ON	1 Line - Gross - Tare - Net
ON	ON	3 Line - Gross - Tare - Net

7.1.13 SW2-9 Motion Track Enable
When this switch is ON, the display will continuously update. When OFF, the display will update with no motion signal (must be OFF when SW1-3 is on).

7.2 FUNCTION KEYS AND LED'S

7.2.1 C or Clear
Used to erase last data and reset scale to accept new information. Returns scale to gross weight on display.

7.2.2 Z or Zero
Used to zero the scale platform weight.

7.2.3 Calib
May be used only on initial power up of scale. At zero, press once and display -CALI- with LED ON. Place test weight on platter and press CALIB a second time. If the span weight is within correction range, the display will update to the test weight value (25 LB or 10 KG).

7.2.4 Print
Will initiate the print command.

7.2.5 LB/KG
Will select LB or KG as indicated by LED at any time when SW2-4 is ON.

7.2.6 Tare
Will enter keyboard or platform tare. See also SW2-5, Section 7.19. During keyboard entry the TARE LED will be on. When tare is entered , the NET LED will remain on while a tare is in use.

7.3 PRINTER OUTPUT

7.3.1 See Section 4.4 for general data. The 3205 scale will interface to the Toledo 301, 8805, 8810 series and 8855 Printers.

7.3.2 To Use A 301 Printer.
a). Turn all 301 program switches OFF.

b). Select SW1-8 ON for 60 Hz or OFF for 50 Hz.

c). Select SW2-4 ON for a 4 inch label or OFF for a 3 inch label (for GROSS, TARE, NET you must use a 4 inch label).

d). Set SW2-8 ON (300 Baud).

e). Program print format on 3205. set 3205 program switches to get 301 print per examples.

    1).   SW2-4 ON
                 SW2-7 OFF
                 SW2-8 OFF

Gross

16.231 B

With Tare Taken

19.93 LB NET

    2).   SW2-4 ON
                 SW2-7 ON
                 SW2-8 OFF

Gross

25.221 B

With Tare Taken

24.93 LB NET

    3).   SW2-4 ON
                 SW2-7 OFF
                 SW2-8 ON

Gross

25.221 B

With Tare Taken

25.22LB   0.22 LB TR   25.00LB NET

7.3.3   To Use A 8805 Printer.
        a).   Turn all 8805 program switches OFF.

        b).   SET SW1-4 ON (weight print to the left).

        c).   Set SW2-7 and SW2-8 ON (serial input).

        d).   General Considerations.

            1).   For single width piece count at 12 characters per inch (SW2-4 ON), you may select either or both consecutive number (SW1-3 OFF) and time and date (SW1-5 ON and SW2-4 OFF, you may use only one option, either consecutive number or time and date.

12 CHARACTERS/INCH

(CN and T & D)

1.68LB   002005 09:16AM JL 02 81

(CN Only)

1.68LB   09:16AM JL 02 81

(T & D Only)

1.68LB   002004

10 CHARACTERS/INCH

(T & D Only)

1.68LB   O9:18AM JL 02 81

(CN Only)

1.68LB   002007

2).   For double width display print at 12 characters per inch (SW2-4 ON), you may use either consecutive number (SW1-3) or time and date (SW1-5 and SW1-6) except with tare when only consecutive number is valid.

(CN Only)

1.68LB 002008

(T & D Only)

1.68LB   09:20AM JL 02 81

(CN Only)

1.43LB NET   002009

3).   For single line GROSS - TARE - NET no 8805 options may be used. Set SW2-9 ON (1 line message). Set SW2-4 ON (12 characters per inch).

1.68LB   0.25LB TR   1.43LB NET

4).   For three line, GROSS - TARE - NET SW2-9 MUST be OFF for 3 line buffer. In the first line, the same restriction applies as in 7.33, d, 1)..

12 CHARACTERS/INCH

(CN and T & D)

1.68LB 002012 09:24AM JL 02 81

0.25LB TR
1.43 LB NET

(CN Only)

1.68LB   002013
0.25LB TR
1.43LB   NET

14

            1.68LB   9:26AM JL 02 81
             0.25LB TR
             1.43 LB NET

7.3.4   To Use An 8810 Printer.
         a).   Must use as a Ram 1.
         b).   Single line, single width only.

         c).   See TM 08810 I00.

7.3.5   To Use An 8855 Printer
        Program the 3205 before applying power to the 8855 printer.

7.4   OPERATION INSTRUCTIONS

7.4.1   Usual weighing mode of operation is typical of Toledo weighing systems.

7.4.2   Averaging mode of operation is peculiar to this scale. With SW1-3 ON, (Averaging Enable) the scale will take eight readings average them and update.
         a).   With SW2-9 ON, (Motion Track Enable) and SW2-5 OFF (Tare Interlock Enable), the scale with update on each consecutive eight counts.

         b).   With SW2-9 ON, (Motion Track Enable) and SW2-5 ON (Tare Interlock Enable), the scale will wait for motion to cease, then start eight readings, average and then update.

7.5   PARTS, SPECIAL

Straight Weigh Scale Uses.

1-114714 00A Keyboard
1-117108 00A Prom PCB

See the PC 003205 I00 for the commodity equipment.

8.0   BATTERY OPTION

8.1   GENERAL DESCRIPTION

Three Model 3205 Battery Power Accessories consists of the following:

8.1.1   Battery Power Pack.

8.1.2   Battery Power K.O.P. (consisting of:)
         a)   Battery Power Pack.

         b).   Battery Pack Mounting Assembly.
         c).   Internal Charger/ Power Supply K.O.P.

8.1.3   Remote Battery Charger

        These options are approved for use in all Model 3205 Rams and scales or controllers utilizing Model 3205 electronics.

The products approved for use with this auxiliary power supply option will have provisions (mounting holes, hardware, harnesses) for externally mounting the battery pack to the scale base and internally mounting the charger/power PCB in the enclosure. After the addition of the service installed battery K.O.P., scale operation, starting with a fully charged battery, can continue for a minimum of 8 hours before requiring the input of 120, 220, or 240 VAC to the scale in order to operate the scale and/or internally recharge the battery to 80% of full charge in 8 hours and to a full (100%) charge in 14-16 hours. the battery pack can also be removed from the scale and recharged with the remote battery charger accessory in the same time frame.

8.2   SPECIFICATIONS

8.2.1   Battery Power Pack

a).   Components/Construction
The power pack assembly consists of a 12 VDC battery which is secure to a formed steel chassis and enclosed by a vacuum formed cover in which (2) LED battery status indicators are located. A quick disconnect scale connector is free hanging from the assembly.

b).   Battery
1).   Type   - rechargeable, sealed, gelled electrolytic, lead dioxide battery.

2).   Nom. output - 12 VDC.

3).   Nom. capacity - 6.0 amp. - hr. (20 hr. rate at .3A to 10.5 VDC).

4).   Service rating - frequent cycle.

5).   Operating temperature range
-60 C to 60 C discharge
-20 C to 50 C charge.

c).   Battery Status Indicators
(2) LED's mounted on top of the vacuum formed cover are functional when power pack is attached to the scale or external charger.

1).   LED color - green ("RUN")
Lamp ON indicates battery has charged to 80% of capacity and scale can operate for 6 hours minimum.

2).   LED color - red ("Low Battery)
Lamp ON indicates battery has insufficient terminal voltage to operate the scale with guaranteed display accuracy (display also blanks).

d).   Attachment/Connections
1).   A slide pad which is attached to the chassis bottom is retained by plastic guides and a spring clip on the battery pack mounting assembly.

2).   A free hanging harness attached to the battery pack connects to the scale thru a harness included in the mounting assembly. The harness caries scale supply or battery charging voltages and LED indicator voltages.

8.2.2   Battery Pack Mounting Assembly
a).   Components/Constructions
This assembly consists of (2) overlapping steel channels to which plastic extruded slide guides, a spring retainer and a wire harness are assembled for retaining the battery power pack and transmitting power supply voltages to and from the scale.

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b). Attachment/Connections
This assembly mounts on the bottom and at the rear of the scale base using mounting bosses and hardware included in the scale build. The harness in the mounting assembly attaches to the internal scale harness at a chassis mounted connector in the base.

8.2.3 Internal Charger/Power Supply PCB
a). Components/Operation
This K.O.P. consists of a PCB, a bridge rectifier harness and a power supply harness. When these components are inserted in the existing power supply arrangement, 130.220/ or 240 VAC line voltage input and/or 12 VDC battery voltage input will operate the scale and line voltage input will charge the attached battery. An attached battery pack's output voltage to the scale or input current from the charge is monitored on the PCB and appropriate "battery status" LED's on the power pack are turned ON or OFF.

b). I/O Specs. for Charger/Power Supply PCB
1). XFMR input - to Charger/Power PCB - 10 VAC.

2) Charger/Power PCB output to display PCB - +48, -+7, +19 VDC.

3). Battery pack input to Charger/Power PCB - 12 VDC nominal.

4). Charger/Power PCB output to battery pack; 14 VDC max. w/full charge, 10.5 VDC min. to operate scale; 5 VDC to "low battery" LED when battery input is less than 10.5V;
5 VDC to "Run" LED when battery current draw is 300 mA max. (line voltage must be supplied);
14.1 VDC and .1-1.2 A to battery terminals

8.2.4 Power
a). The indicator is provided with a switchable power supply which permits operation at 120, 220, & 240 VAC, -15 + 10%, 50 or 60 Hx.

b). The 12 VDC battery in the system, when fully charged, will operate the scale for a minimum of 8 hours.

c). The battery can be internally recharged to full charge capacity in 16 hours maximum and to a level of 80% in 8 hours maximum which will operate the scale for a minimum of 6 hours. (see battery status 8.2.1, c)1.).

d). The power is interrupted to the display and the display blanks when he battery terminal voltage is insufficient (less than 10.5 VDC) to accurately display data. (see battery status 8.2.1, c)2.).

8.2.5 Remote Battery Charger

The remote charger consists of the cover and chassis, the XFMR power cord, battery connector and the charging/power supply PCB.

8.3 INSTALLATION INSTRUCTIONS

Installation instructions for the battery option are packed with the Battery Pack Mounting assembly K.O.P..

3205 indicators used with 1985 scale bases will require drilling and tapping mounting holes in the 1985. Tools required will include drill bits and taps to make 8-32 and 10-32 tapped holes. Drilling Templates are included in the K.O.P.

8.4   ADJUSTMENTS

Two voltage adjustments are provided. (Figure 7)

8.4.1   Input adjustment is at R7.

        J9-1   Ground
        J9-2   14.2V

Adjust R7 as needed to provide 14.2V. Battery plug must be in place and the line cord plugged in to obtain this adjustment.

8.4.2   Output adjustment is at R21.

        J8-1   Ground
        J8-5   7V

Adjust R21 to obtain 7V. P8 may be removed to access J8. Display switch MUST be ON.