



CANCELLED

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31-12-90

## NATIONAL STANDARDS COMMISSION

### WEIGHTS AND MEASURES (PATTERNS OF INSTRUMENTS) REGULATIONS

#### REGULATION 9

#### SUPPLEMENTARY CERTIFICATE OF APPROVAL No S102

This is to certify that an approval has been granted by the Commission that the pattern and variants of the

Toledo Model 8132 Digital Indicator

submitted by Toledo Scale Pty Ltd  
525 Graham Street  
Port Melbourne, Victoria, 3207

are suitable for use for trade in any Commission-approved weighing instrument.

The approval is subject to review on or after 1/4/85.

Instruments fitted with a digital indicator purporting to comply with this approval shall be marked NSC No S102 in addition to the approval number of the instrument.

The approval may be withdrawn if instruments are used other than in accordance with the drawings and specifications lodged with the Commission.

#### Condition of Approval

The number of scale intervals applicable to the weighing instrument in which this indicator is fitted, shall not be greater than the number of verification scale intervals approved for the basework, or the load cell, or the indicator whichever is the smallest.

Signed

Executive Director

#### Descriptive Advice

Pattern: approved 20/6/80

. Toledo model 8132 digital indicator.

Variants: approved 20/6/80

1. In an industrial-type housing.
2. With analogue verification facility.

Technical Schedule No S102 dated 4/7/80 describes the pattern and variants 1 and 2.

Variant: approved 29/9/80

3. With a maximum number of 8005 scale intervals.

Technical Schedule No S102 Variation No 1 dated 17/10/80 describes variant 3.

25/1/84

...../2

Variant: approved 23/6/82

4. With interfacing to an Intel 8085A microprocessor and associated keyboard, displays and controls, and known as a Toledo model 8192 Draftmaster III.

Technical Schedule No S102 Variation No 2 dated 5/7/82 describes variant 4.

Variant: approved 13/12/83

5. With provision for up to 4 set points.

Technical Schedule No S102 Variation No 3 dated 25/1/84 describes variant 5.

Filing Advice

Certificate of Approval No S102 dated 5/7/82 is superseded by this Certificate and may be destroyed.

The documentation for this approval now comprises:

- Certificate of Approval No S102 dated 25/1/84
- Technical Schedule No S102 dated 4/7/80 (including Table 1)
- Technical Schedule No S102 Variation No 1 dated 17/10/80
- Technical Schedule No S102 Variation No 2 dated 5/7/82
- Technical Schedule No S102 Variation No 3 dated 25/1/84
- Test Procedure No S102 dated 5/7/82
- Figures 1 to 3 dated 4/7/80
- Figures 4 and 5 dated 5/7/82.



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No S102

Pattern: Toledo Digital Indicator Model 8132

Submitter: Toledo-Berkel Pty Ltd,  
525 Graham Street,  
Port Melbourne, Victoria, 3207.

Date of Approval: 20/6/80

### 1. Description of Pattern:

A digital mass indicator displaying up to 3005 scale intervals (Figure 1). It may be substituted for Toledo Indicator Model 8130 or 8134 in any of the patterns listed in Table 1.

#### 1.1 Zero:

Pressing the button marked Z zeroes the instrument to within 0,25e; the word ZERO is then illuminated. An automatic zero-correction device resets zero within 0,25e whenever the mass indicator indicates zero.

#### 1.2 Tare:

- (a) A semi-automatic subtractive taring device allows a mass on the load receptor of up to 3000e to be tared to within 0,25e.
- (b) A non-automatic subtractive taring device is provided so that an operator can enter a tare in 1e increments up to 3000e by using the 0 to 9 keyboard\*.
- (c) A tare mass indicator indicates that a tare has been entered.

#### 1.3 Check Button:

Pressing the button marked C will cause all indicators to blank. Pressing it again will cause mass and tare mass indicators to display all 8's and all other indicators to illuminate.

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\* Approval of the non-automatic taring device may become effective on 1/1/81. Until such time as this device is **approved** it must be rendered inoperable.

1.4 Markings:

Instruments which incorporate this headwork are marked on the indicator with the following data:

|  |                       |
|--|-----------------------|
| Manufacturer's name                      |                       |
| Accuracy class in the form:              | (III)                 |
| Serial number of instrument              |                       |
| Maximum capacity in the form:            | Max .....             |
| Minimum capacity in the form:            | Min .....             |
| Verification scale interval in the form: | $d_a = e =$ .....     |
| Maximum subtractive tare in the form:    | T = - .....           |
| NSC approval numbers in the form:        | Headwork NSC No ..... |
|  | NSC No S102           |
|  | Basework NSC No ..... |
| Load cell serial number                  |                       |

1.5 Sealing:

- 1.5.1 A lead and wire seal passes through a retaining screw and a lug on the indicator (Figure 1).
- 1.5.2 One or two output sockets, which may be used to provide information to peripheral devices are sealed in the manner illustrated in Figure 2.

2. Description of Variants:

- 2.1 In an industrial type housing (Figure 3).  
  
The instrument is sealed with lead and wire through a lug on the front and a bracket on the side of the housing.
- 2.2 With an analogue verifying circuit. This circuit automatically checks that the analogue part of the instrument is performing satisfactorily whenever the instrument returns to zero, or when the button marked AV is pressed with the instrument at zero. The detection of an error is indicated by the instrument displaying ERROR U.

TABLE 1

| <u>Original Certificate</u> | <u>Toledo Model No's</u>   |
|-----------------------------|----------------------------|
| 6/4C/25                     | 3165-8130 and<br>3185-8130 |
| 6/9C/30                     | 2184-8130                  |
| 6/9C/42                     | 2084 and 280               |
| 6/9C/44                     | 2154-LCF                   |
| 6/9C/45                     | 2154-8130                  |
| 6/9C/46                     | 2503-8130                  |
| 6/9C/50                     | 2154-LCE                   |
| 6/10B/23                    | 840-8130                   |
| 6/14B/9                     | 2352-8130                  |
| 6/18/6                      | 2250-8130                  |
| 6/18/7                      | 1150-LCD                   |



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No S102

### VARIATION No 1

Pattern: Toledo Digital Indicator Model 8132

Submitter: Toledo-Berkel Pty Ltd,  
525 Graham Street,  
Port Melbourne, Victoria, 3207.

#### 1. Description of Variant

The digital mass indicator displaying up to 8005 scale intervals.

#### 1.2 Tare

- (a) Subtractive taring can be achieved up to the full 8005e in either semi automatic or keyboard entered conditions.
- (b) The conditional statement applied to non-automatic tare (that is, footnote to para 1.2(b)) is removed.



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No S102

### VARIATION No 2

Pattern: Toledo Model 8132 Digital Indicator

Submitter: Toledo Scale Pty Ltd,  
525 Graham Street,  
Port Melbourne, Victoria, 3207.

#### Description of Variant

##### 1. Variant 4

A Toledo model 8132 digital indicator interfaced with an Intel 8085A microprocessor and associated alpha-numeric display, keyboard and controls, in a single housing and known as a Toledo model 8192 Draftmaster III (Figures 4 and 5).

##### 1.1 Zero

The push-button zero of the pattern is replaced by a zero adjusting screw accessible through the front panel.

##### 1.2 Display Check

As for Technical Schedule No S102 dated 4/7/80 but with the display check button positioned under a flap in the top right-hand corner of the front panel.

##### 1.3 Keyboard

The keyboard is used to control the delivery process and to enter and access managerial data, and is not the subject of Pattern Approval.

##### 1.4 Marking

As per Technical Schedule No S102 dated 4/7/80 except for the load cell serial numbers which may be on a metal tag sealed to the housing.

##### 1.5 Sealing

- (a) The two halves of the housing are sealed together. A typical method using a lead and wire seal is shown in Figure 5.
- (b) When remote devices are connected to the instrument the plug/socket connection is sealed, or if no remote devices are connected, then the output socket is sealed.

## TEST PROCEDURE No S102

The following tests should be carried out in conjunction with any test procedures in the Technical Schedule of the instrument to which the pattern or variants are connected.

All load applications to the instrument should be in accordance with the Commission's recommended testing procedure for the elimination of rounding error as set out in Document 104.

The maximum permissible errors are:

- ± 0.5e for loads between 0 and 500e;
- ± 1e for loads between 501e and 2000e; and
- ± 1.5e for loads above 2000e.

### 1. Zero Range

The maximum range of operation of the zero device should not exceed 4% of the capacity of the instrument (± 2% approximately). Satisfactory setting may be checked by the following method:

With zero balance indicated apply a load of, say, 2.5% of maximum capacity to the instrument and adjust the tool-operated zero; the instrument should not re-zero.

### 2. Zero Test

- (a) Check by means of Document 104 that when the ZERO light is lit, zero is set within 0.25e.
- (b) As the automatic zero correction device (where fitted) resets zero when the weighing mechanism is in equilibrium within 0.5e of zero, zero should be checked as described in Document 104, with a load equal to, say, 10e on the load receptor. The indications with 0.25e and 0.75e additional mass on the load receptor will then be 10e and 11e respectively.

### 3. Range of Indication

- (a) The maximum mass indicated should not exceed the maximum capacity (Max) by more than 10 scale intervals; above this indicated mass the indicator should be blank.
- (b) Below zero the indication may blank or the mass may be indicated prefixed by a minus sign.

### 4. Taring

- (a) Attempt to tare a mass above maximum capacity. On removal of the mass no tare should have been entered, and the indicator should display all zeroes.
- (b) The tare function should reset the mass indicator to zero within 0.25e at any load within its tare capacity. This may be checked as described for Zero Test - 2(a).

### 5. Test Loads

Test loads are to be applied to the complete weighing instrument increasing in not less than 5 approximately equal steps to maximum capacity, followed by decreasing loads in not less than 5 approximately equal steps.

### 6. Multiple Indicators

Where the existing headwork is retained and used in conjunction with the pattern, the variation between indications or printings for the same load shall not be greater than the absolute value of the maximum permissible error for that load on the device with the largest verification scale interval.





# NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No S102

VARIATION No 3

Pattern: Toledo Model 8132 Digital Indicator

Submittor: Toledo Scale Pty Ltd  
525 Graham Street  
Port Melbourne, Victoria, 3207.

1. Description of Variant 5

With provision for up to 4 set points which provide output signals when the displayed mass coincides with the amount set by the operator.

The set point data may be selected and displayed on demand.



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NOTIFICATION OF CHANGE

Supplementary Certificates of Approval Nos S102  
S104  
S106  
S108  
S113  
S116

The changes given below are made to the descriptions of the following Supplementary Certificates:

| <u>Certificate No.</u> | <u>Title</u>                        |
|------------------------|-------------------------------------|
| S102                   | Toledo Digital Indicator Model 8132 |
| S104                   | Toledo Digital Indicator Model 8134 |
| S106                   | Avery Digital Indicator Model 8652  |
| S108                   | Ultra Indicator Model 9000          |
| S113                   | Avery Digital Indicator Model 8653  |
| S116                   | Toledo Digital Indicator Model 8136 |

1. Certificate

Add to end of first paragraph:

.... or when replacing the indicator in any other Commission-approved weighing instrument.

2. Technical Schedule

Add to end of paragraph 1:

.... or for the indicator in any other Commission-approved weighing instrument.

Signed

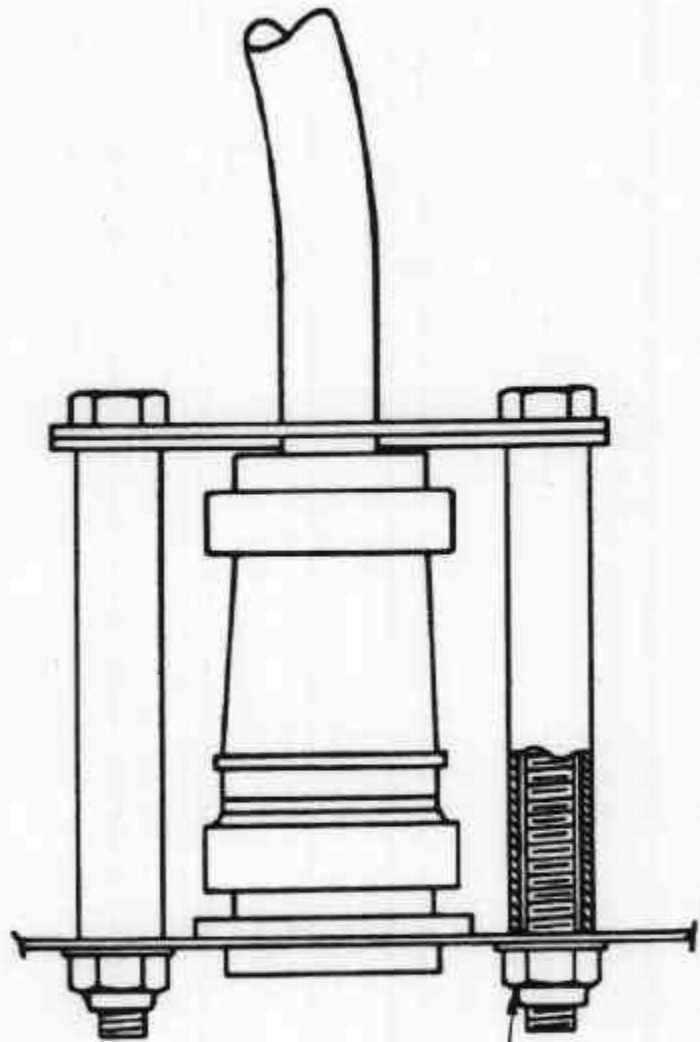
Executive Director

Note: These changes have been made as a result of increased confidence in the performance of the indicators in conjunction with widely varying makes and capacities of lead cells.

27/4/81



FIGURE S102 - 2

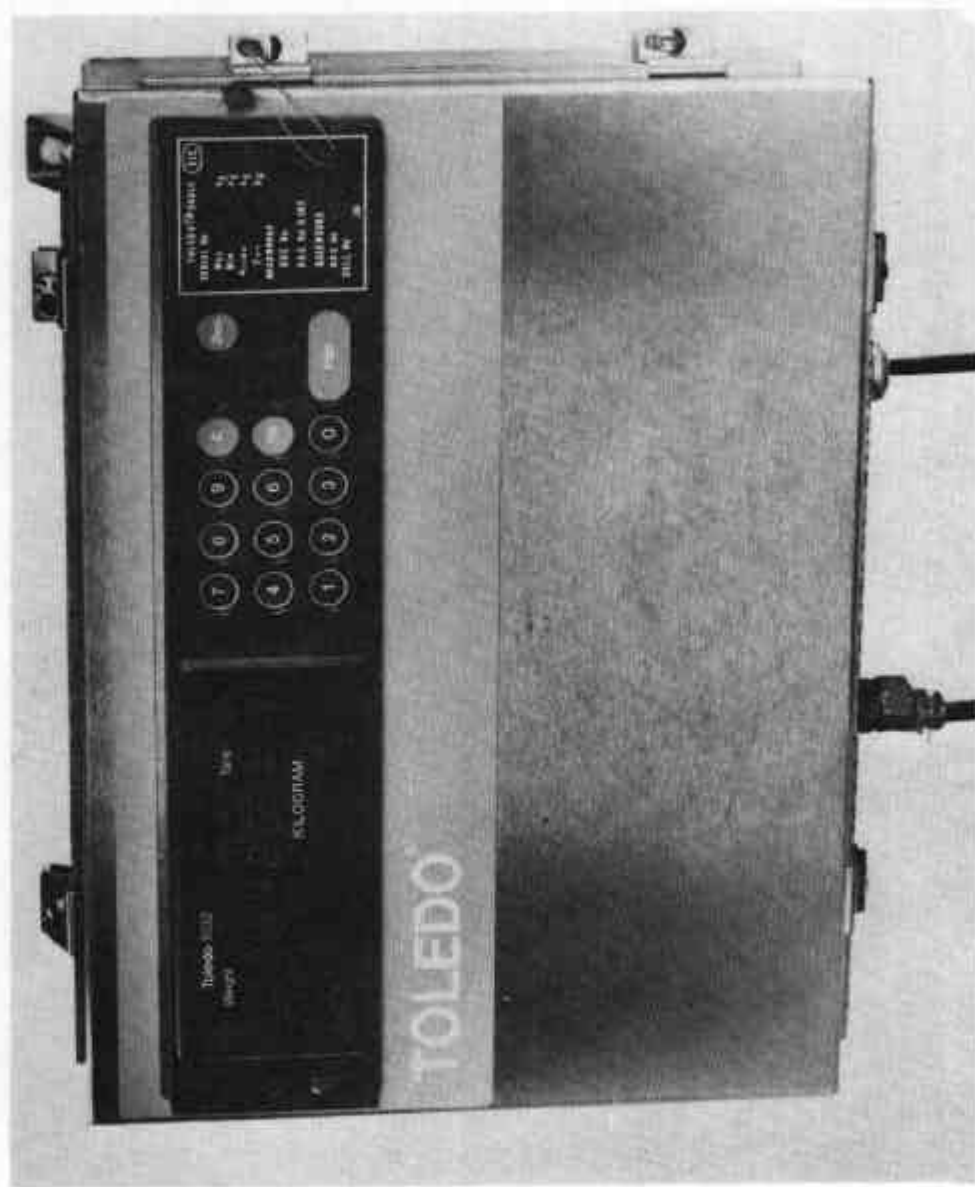


LOCKING NUTS LOCATED  
INSIDE SEALED HOUSING

Example of Sealing of Output Socket

4/7/80

FIGURE S102 - 3



Model 8132 - Industrial Housing

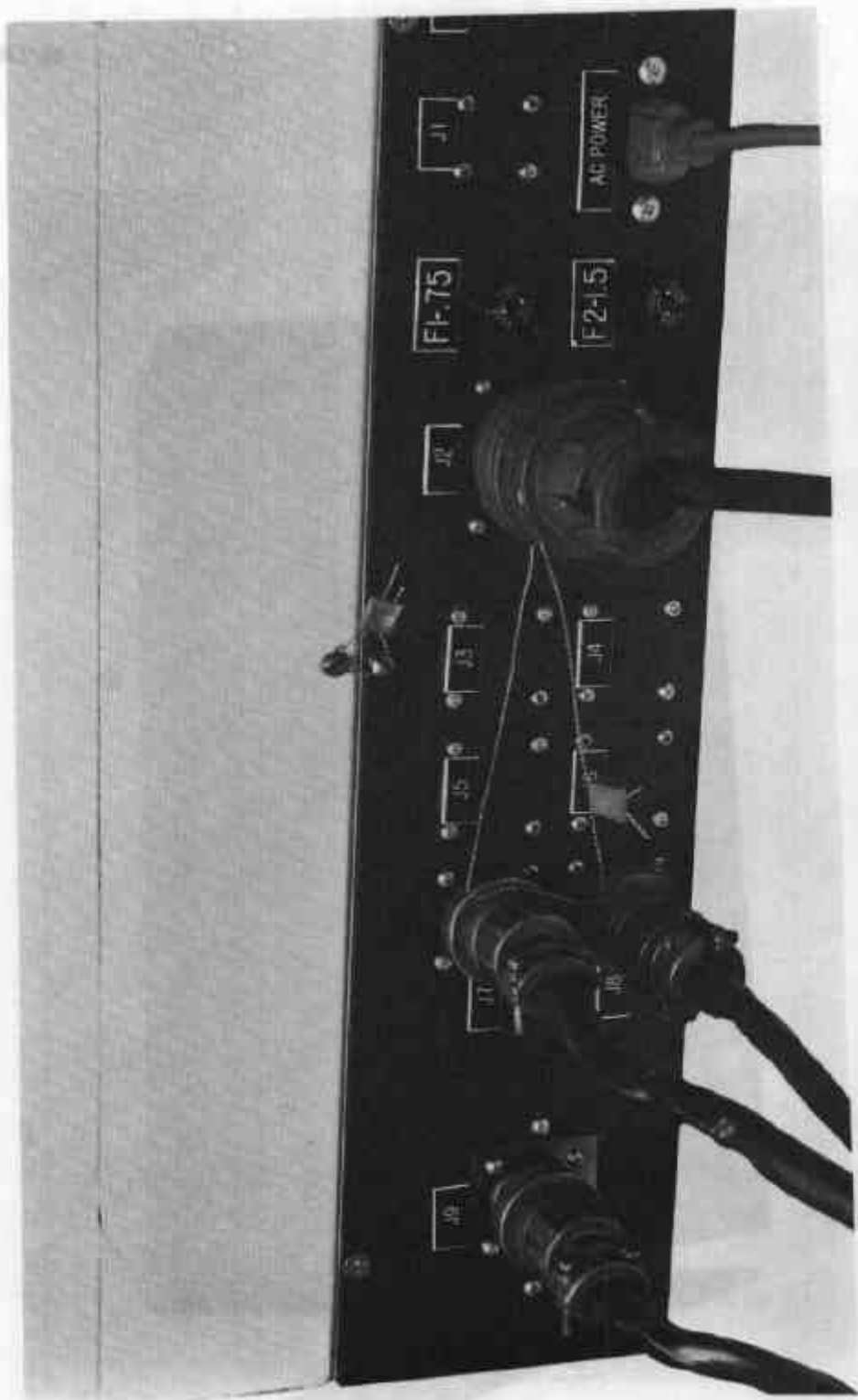
FIGURE S102 - 4



Model 8192 Draftmaster III - Variant 4

5/7/82

FIGURE S102 - 5



Model B192 Showing Sealing