# National Standards Commission

## Certificate of Approval

## No 6/14D/14

Issued under Regulation 63
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the

Web-Tech Model WTS4 Belt Conveyor Weighing Instrument

submitted by     Web-Tech Australia Pty Ltd
11 Electronics Street
Eight Mile Plains      QLD      4113.

**NOTE:** This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

## CONDITIONS  OF  APPROVAL

This approval becomes subject to review on 1 March 2002, and then every 5 years thereafter.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the Commission and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with the Commission's Document 106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

**Special:   For Variant 3**

The submittor shall advise the Commission in writing of the proposed location and specifications of each instrument prior to it being verified/certified.

Instruments shall not be verified/certified until the person intending to carry out the verification/certification has been advised in writing by the Commission of the suitability of the instrument.

## DESCRIPTIVE  ADVICE

**Pattern:**   provisionally approved  17 February 1997
              approved  16 December 1999

•       A Web-Tech model WTS4 class 1 belt weigher.


**Variants:**  provisionally approved  17 February 1997
              approved  16 December 1999

1.       The WTS4 model weighframe with up to 8 idler rollers, and with various inclines.

2.       The pattern and variants as class 2 belt conveyor weighing instruments.

3.       With various maximum and minimum flow rates, with weighframes of various capacities.
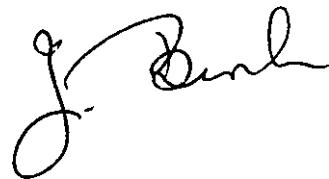
Technical Schedule No 6/14D/14 describes the pattern and variants 1 to 3.

FILING  ADVICE

Provisional Certificate of Approval No 6/14D/14 dated 27 June 1998 is superseded by this Certificate (which removes the Provisional status) and may be destroyed. The documentation for this approval now comprises:

> Certificate of Approval No 6/14D/14 dated 23 December 1999
> Technical Schedule No 6/14D/14 dated 27 June 1998 (incl. Test Procedure)
> Notification of Change No 1 dated 23 December 1999
> Figures 1 to 4 dated 27 June 1998

Signed and sealed by a person authorised under Regulation 63 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

TECHNICAL SCHEDULE No 6/14D/14

**Pattern:**     Web-Tech Model WTS4 Belt  Weighers.

**Submittor:**     Web-Tech Australia Pty Ltd
11 Electronics Street
Eight Mile Plains     QLD     4113.

## 1.     Description of Pattern

A Web-Tech model WTS4 class 1 belt conveyor weighing instrument of 2160 t/h maximum flow rate, approved for use over a flow rate of 20% to 100% of maximum flow rate.

The instrument is approved with a weigh length of 4 m and a belt speed of $3.0 \text{ m.s}^{-1}$ .

Means are provided to ensure that the conveyor cannot move in the reverse direction.

### 1.1   Basework

The model WTS4 weighframe (Figure 1) has 4 idler rollers mounted on a frame. A central "axle" longitudinally supports two half frames each of which carries two idler rollers. The weighframe is supported by four Kelba model KA-1000-C3 load cells of 1000 kg capacity (Figure 2), and the weighframe is stabilised by lateral cable restraints. The basework is installed at an incline of up to 16° from horizontal.

### 1.2   Belt Speed Sensor

A Web-Tech model WTX-100 digital speed sensor is used. This sensor supplies 100 pulses per revolution.

### 1.3   Computing and Totalising Unit

A Web-Tech model Masterweigh 1 integrator is used (Figure 3). The instrument may be fitted with output sockets for the connection of auxiliary and/or peripheral equipment.

Note: If the belt speed and belt speed sensor are arranged such that the speed sensor frequency supplied to the totalising unit exceeds 400 Hz, the minimum totalised load shall be chosen such that the time required to deliver the minimum totalised load at the maximum flow rate (Qmax) represents at least 20 000 speed sensor pulses.

## 1.4    Verification/Certification Provision

Provision is made for a verification/certification mark to be applied.

## 1.5    Sealing Provision

Provision is made for the calibration adjustments to be sealed by sealing the (hinged) main circuit board to the chassis of the integrator/totaliser (Figure 4). A switch on the power supply circuit board (located underneath the main circuit board) disables the ability to access calibration and configuration options from the instrument keyboard (access to zero adjustment capabilities continues to be accessible).

## 1.6    Markings

Instruments are marked with the following information, on one or more permanently attached nameplates:

| | |
|---|---|
| Manufacturer's mark, or name written in full | |
| Indication of accuracy class | class 1 or class 2 |
| Type designation (model number) of the instrument | |
| Serial number of the instrument | |
| Pattern approval mark for the instrument | NSC No ............ |
| Maximum flow rate | $Q_{max}$ =…..… kg/h or t/h |
| Minimum flow rate | $Q_{min}$ =….…… kg/h or t/h |
| Minimum totalised load | $S_{min}$ =…....... kg or t |
| Maximum capacity of the weighing unit | Max =….….. kg or t |
| Totalisation scale interval | d =…........... kg or t |
| Belt speed | v =............. m/s |
| Weigh length | L = ............ m |
| Temperature range | -10°C / 40°C |
| Designation of product(s) to be weighed (if not fixed by installation conditions). | |

In addition to the above markings the instrument shall bear the inscription:

"Zero testing shall have a duration of at least ... revolutions".

The number of revolutions in this statement shall be a whole number of revolutions (at least one) and of a duration as close as possible to 3 minutes.

## 2. Description of Variants

### 2.1 Variant 1

The WTS4 model weighframe with from 5 to 8 idlers. The weighframe may be installed at an incline of up to 15° from horizontal.

### 2.2 Variant 2

The pattern and variants as class 2 belt conveyor weighing instruments.

### 2.3 Variant 3

The pattern or variants with various maximum and minimum flow rates, with weighframes of various capacities using Commission-approved beam type load cells of various capacities.

The instruments may be of various weigh lengths, and with various belt speeds.

The minimum flow rate shall be not less than 20% of the maximum flow rate.

Included in this Technical Schedule is a set of calculations which should be used to determine the suitability of the load cells in a particular belt conveyor weighing instrument. Refer to the Special Conditions of Approval.

## TEST PROCEDURE

Instruments should be tested in accordance with the procedures of OIML Recommendation R50-1 (1997) and R50-2 (1997). The Commission should be contacted for details of these procedures.

**Maximum Permissible Errors at Verification/Certification**

The maximum permissible errors for belt weighers are:

Class 1:  ±0.5%.
Class 2:  ±1.0%.

CALCULATIONS

1. Load cell(s) – number of verification intervals

Class 1: $n_{max} \geq 1000$

Class 2: $n_{max} \geq 500$

2. Load cell(s) – capacity

$$E_{max} \geq \frac{Max + DL}{N.r}$$

3.      Temperature effect on the minimum load on the load cell(s)

$$\text{Class 1:} \quad v_{min} \le \frac{0.0005 \; Max}{r.\sqrt{N}}$$

$$\text{Class 2:} \quad v_{min} \le \frac{0.001 \; Max}{r.\sqrt{N}}$$

where:

$E_{max}$ = Maximum capacity of the load cell(s)

Max = Capacity of the weigh frame at maximum flow rate

$$= \frac{Q_{max}.L}{V}$$

DL = Dead load of weighframe

N = Number of load cells supporting weighframe

r = Lever ratio (r = 1 if system does not use levers)

L = Weigh length

V = Belt speed

$Q_{max}$ = maximum flow rate

$v_{min}$ = Minimum value of verification interval for the load cell(s)

$n_{max}$ = Maximum number of verification intervals for the load cell(s)

# National Standards Commission

## Notification of Change

## Provisional Certificate of Approval No P6/14D/14

## Change No 1

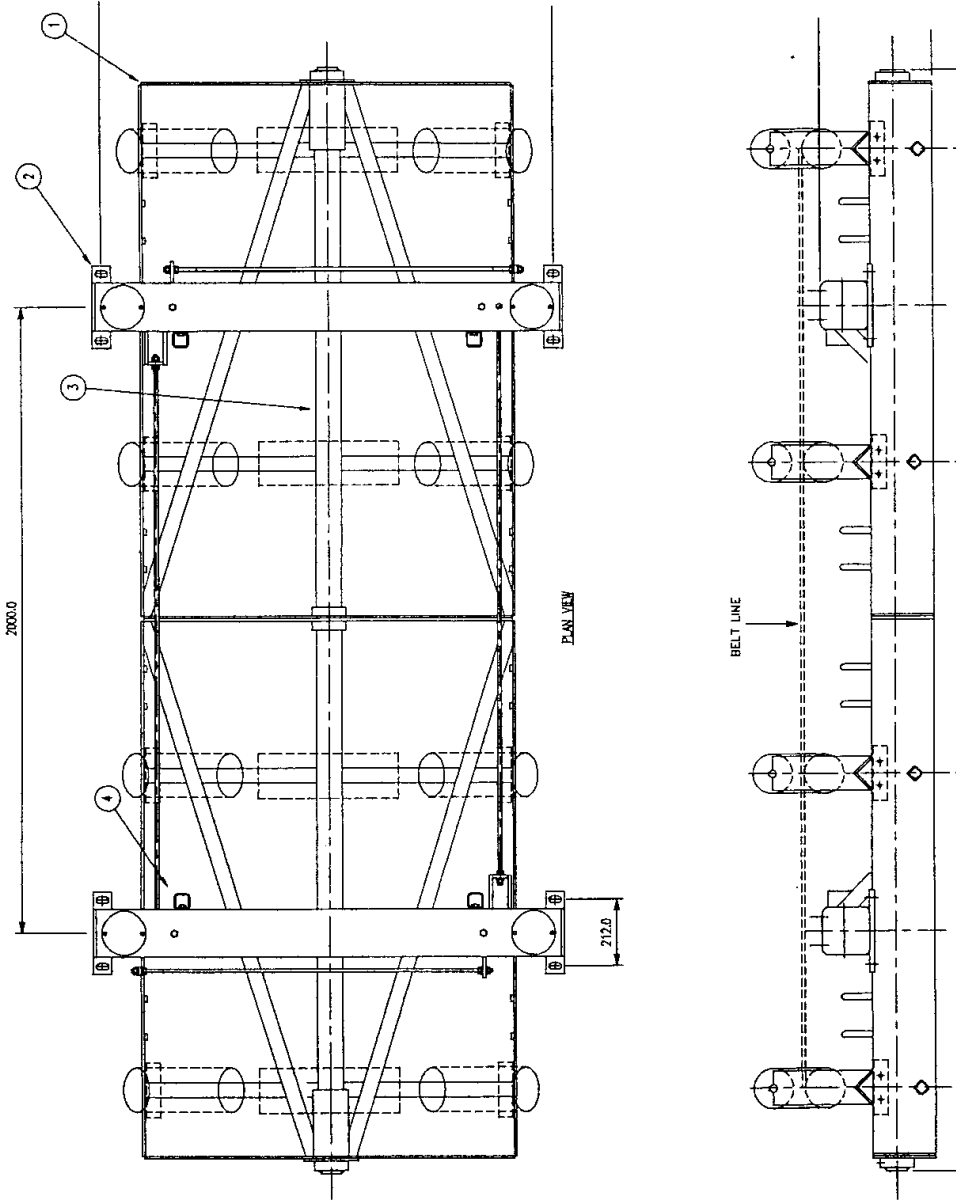The following changes are made to the approval documentation for the

Web-Tech Model WTS4 Belt Conveyor Weighing Instrument

submitted by     Web-Tech Australia Pty Ltd
11 Electronics Street
Eight Mile Plains     QLD     4113.

A.     Provisional Certificate of Approval No 6/14D/14 dated 27 June 1998 is superseded by the Certificate attached herein in which the Provisional status has been removed and the review date amended.

B.     In Technical Schedule No 6/14D/14 dated 27 June 1998, clause **1.6 Markings** should be amended by changing the symbol for *Minimum totalised load* to be "$\Sigma_{min}$".
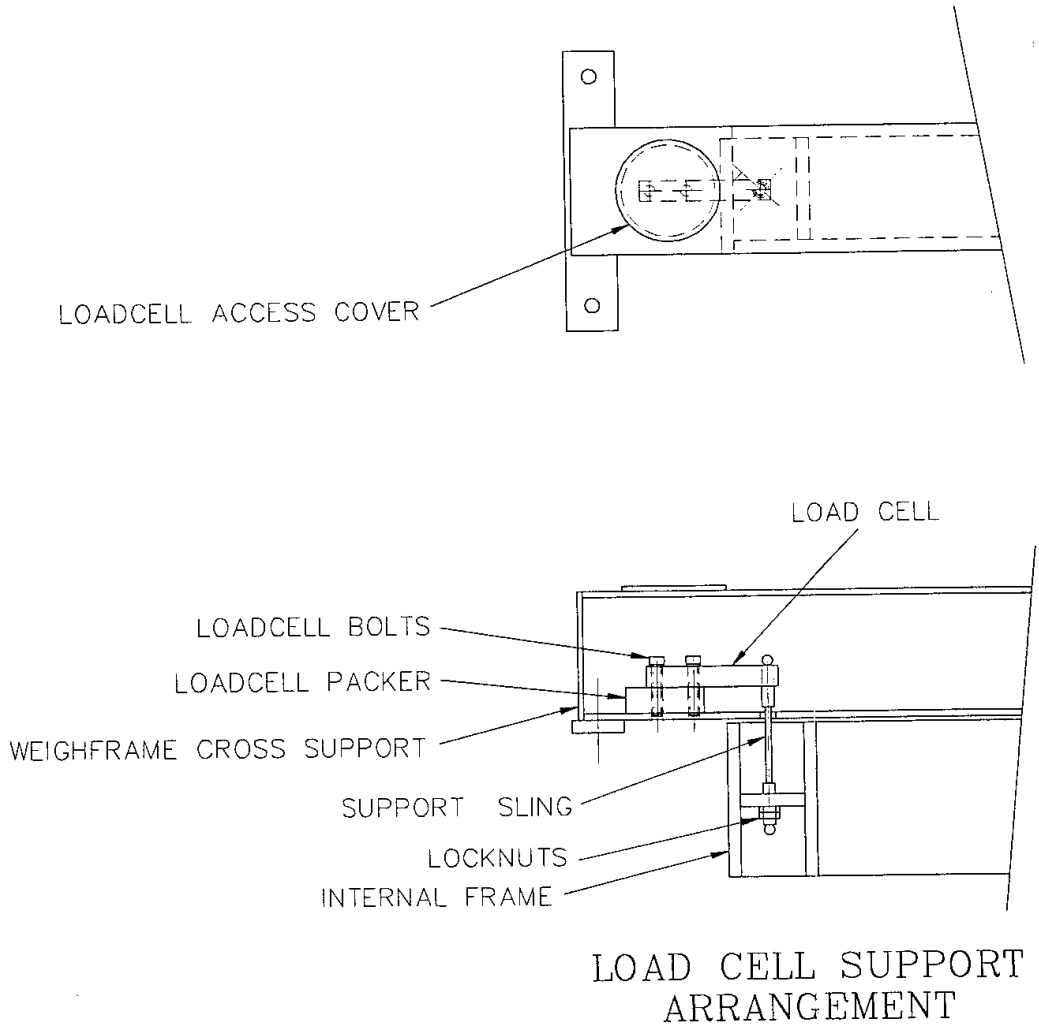
Signed and sealed by a person authorised under Regulation 63 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

FIGURE 6/14D/14 - 1

PLAN VIEW

2000.0

212.0

BELT LINE

Web-Tech Model WTS4 Weighframe

FIGURE 6/14D/14 - 2

LOADCELL ACCESS COVER

LOAD CELL

LOADCELL BOLTS

LOADCELL PACKER

WEIGHFRAME CROSS SUPPORT

SUPPORT SLING

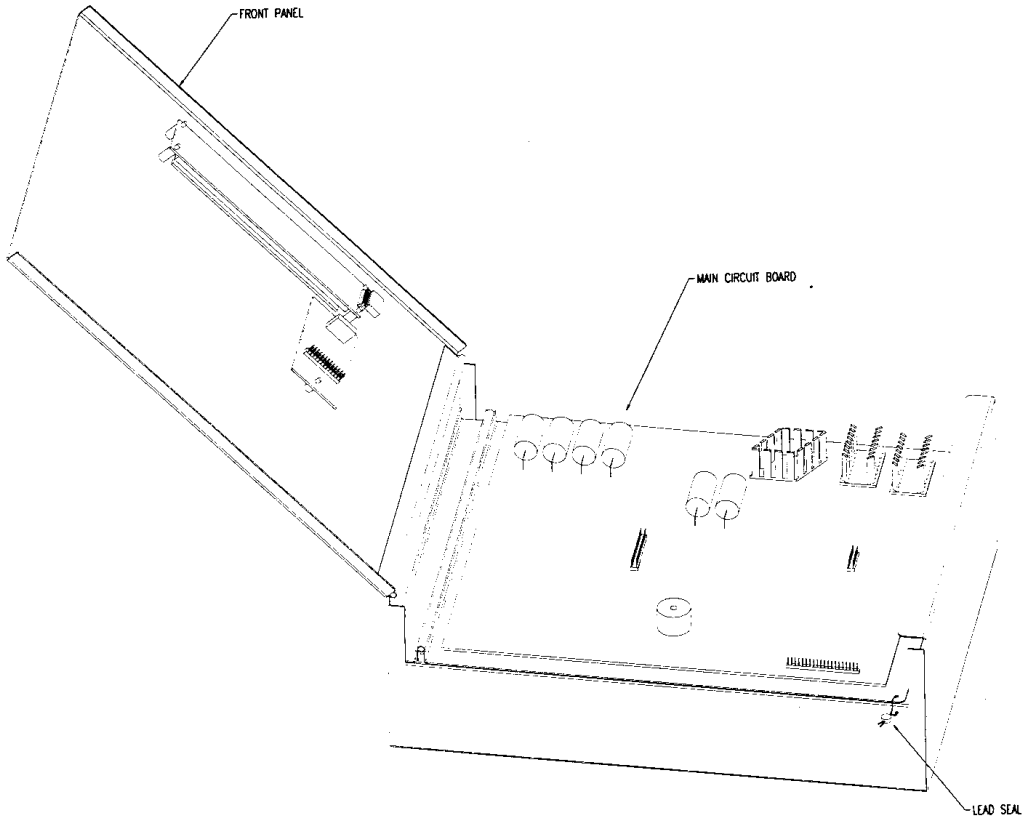LOCKNUTS

INTERNAL FRAME

LOAD CELL SUPPORT
ARRANGEMENT

Showing Load cell Mounting

FIGURE 6/14D/14 - 3



Web-Tech Model Masterweigh 1 Integrator

FIGURE 6/14D/14 - 4



FRONT PANEL

MAIN CIRCUIT BOARD

LEAD SEAL

Showing Sealing