Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Approval

NMI 6/20A/7

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

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

Accuonboard Model Binweigh LFT RL Wheeled Loader Weighing Instrument

submitted by Accucorp Pty Ltd
12 Kembla Way
WILLETTON WA 6155

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.

This approval has been granted with reference to document NMI R 51, *Automatic Catchweighing Instruments,* dated August 2009.

This approval becomes subject to review on 1/06/20, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 5 approved – interim certificate issued	20/05/15
1	Pattern & variants 1 to 5 approved – certificate issued	2/07/15
2	Variant 6 approved - certificate issued	19/04/17

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/20A/7' and only by persons authorised by the submittor.

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 National Measurement Institute (NMI) 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 document NMI P 106.

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

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

Special Conditions of Approval

For this type of instrument, the ability to perform within the specified maximum permissible errors may be influenced by characteristics of the vehicle or lifting system to which it is fitted.

It is the responsibility of the submittor (Accucorp) to exercise control over any installation to ensure compliance with this approval and to ensure performance within the appropriate maximum permissible errors.

In the event of unsatisfactory performance this approval may be withdrawn.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.

Dr A Rawlinson

TECHNICAL SCHEDULE No 6/20A/7

1. Description of Pattern approved on 20/05/15

The Accuonboard (*) model Binweigh LFT RL class Y(b) automatic catchweighing instrument (Figure 1) of 200 kg maximum capacity. The instrument is configured in a multi-interval arrangement with a verification scale interval of 1 kg up to 50 kg, and a verification scale interval of 2 kg for loads above this up to the maximum capacity of the instrument. The minimum capacity is 10 kg.

Note (*): May also be known as Accuweigh or Accucorp instruments of the same model.

The system is intended for the determination of the net weight of the contents of a waste bin picked up by (emptied into) a waste bin pick up vehicle, to which the instrument has been fitted. Thus each single weighing is the result of a gross (full) and a tare (empty) weighing of the waste bin. The system may also be suitable for other similar applications.

1.1. Weighing Mechanism

The Accuonboard model Binweigh LFT RL comprises a weighing module incorporating a DIGI SENS AG model ED21/SO 1500 load cell (Figure 2a) of 1500 kg maximum capacity, mounted as part of the waste bin lifting mechanism at the rear of the vehicle (Figure 3a). The system also includes one or two DIGI SENS AG Type BB accelerometer sensors (Figure 2b), and additional proximity sensors to sense the location of the lifting mechanism and hence determine an appropriate ‘weighing window’ for the weight determination (Figure 3b).

1.2 Weighing Calculator and Indicator

The load cell and other sensors are connected to a DIGI SENS model METIRON+MESTORE weighing calculator, which utilises data from the sensors to determine the weight value (Figure 4).

The DIGI SENS model METIRON+MESTORE weighing calculator also incorporates a display and provides the operator interface of the system.

The system uses POLYPHAG version 2.0.66 software – later software versions in the series 2.0.xx are also approved.

1.3 Power Supply

The system is powered from the power supply of the vehicle (10 – 40 V DC).

1.4 Additional Information Regarding System

The following is additional information regarding operation of the system.

- The system utilises information from the DIGI SENS AG model Type BB accelerometer(s), to compensate weight values for out-of-level conditions, and prevents weighing where the degree of tilt is beyond an acceptable range (or if other conditions occur such as excessively jerky lifting).
- In some cases the sequence of operation of the lifting (and lowering) mechanism may affect the performance of the weighing operation. Where this is the case, a prominent notice to the operator detailing the correct sequence of operation shall be provided, unless alternative arrangements to ensure the correct sequence are in place.

- The system is intended to only weigh whilst the vehicle is not moving, and a sensor/interlock to ensure this is provided.
- Additional (optional) sensors may be provided (e.g. GPS location input or RFID tag reader).
- Additional outputs may be provided (e.g. to provide feedback to the operator regarding the status of the weighing operation).
- The system may incorporate memory devices ('MESTORE' in the weighing calculator name indicates the presence of this device) for the storage of transaction data, or a printer may be provided for printout of a receipt.
- Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

The system may have additional features, including a totalisation facility (accumulated net weight). Such features (other than the indications of measured net weight values – displayed either on the instrument's indicator or an auxiliary or peripheral device), are not approved for trade use.

1.5 Data Storage/Printout

The system may incorporate memory devices ('MESTORE' in the weighing calculator name indicates the presence of this device) for the storage of transaction data, or a printer may be provided for printout of a receipt/transaction record.

Any printout shall comply with the requirements of NMI General Supplementary Certificate S1/0B.

1.6 Display Check

A display check is initiated whenever power is applied.

1.7 Sealing Provision

Provision is made for the calibration to be sealed as shown in Figure 5.

- Sensors on the weighing window shall be sealed (using lead & wire or similar type seals) to seal against adjustment.
- The load cells shall be sealed (using lead & wire or similar type seals) to seal against replacement.
- The acceleration sensor shall be sealed (using lead & wire or similar type seals) to restrict any change in position.
- An adjustment switch is located in the METIRON, a bracket covering the adjustment switch shall be sealed using a destructible adhesive label.

1.8 Verification Provision

Provision is made for the application of a verification mark.

1.9 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	.....
Indication of accuracy class	Class Y(b)
Pattern approval number for the instrument	NMI 6/20A/7
Maximum capacity	Max ..... kg *
Minimum capacity	Min ..... kg *
Verification scale interval	e = ... kg *
Serial number of the instrument	.....

* These markings shall also be shown near the display of the result if they are not already located there.

2. Description of Variant 1 approved on 20/05/15

The system with two weighing modules (each with its own load cell) fitted to the same lifting mechanism, and both operating through the same METIRON and METERM units. Other sensors (e.g. accelerometer and proximity sensors) may be shared between the two modules).

In this arrangement the system may operate in either of the following modes:

(a) Weighing smaller bins individually (two may be weighed during the same lift).

In this case each instrument operates in a multi-interval arrangement with a verification scale interval of 1 kg up to 50 kg, and a verification scale interval of 2 kg for loads above this up to the maximum capacity of the instrument (200 kg).

(b) Weighing a single larger bin utilising both weighing modules (Figure 6a).

In this case the bin is supported by both weighing modules and operates in a multi-interval arrangement with a verification scale interval of 2 kg up to 200 kg, and a verification scale interval of 5 kg for loads above this up to the maximum capacity of the instrument (600 kg). The minimum capacity is 20 kg.

Where operation in mode (b) above is possible, an additional sensor is provided which is intended to determine when a single larger bin is in use, and hence to automatically switch the system into this mode (Figure 6b).

3. Description of Variant 2 approved on 20/05/15

The system using a DIGI SENS model METIRON+MEDISP weighing calculator which is similar to the METIRON+MESTORE described for the pattern (including display and operator interface) but does not incorporate the memory device mentioned for the pattern.

4. Description of Variant 3 approved on 20/05/15

The system using a DIGI SENS model METIRON weighing calculator which is similar to the METIRON+MESTORE described for the pattern, but does not incorporate the display and operator interface, nor the memory device (Figure 7a). The display and operator interface is provided by a separate DIGI SENS model METERM indicator/control unit (Figure 7b).

5. Description of Variant 4 approved on 20/05/15

The system, similar to variant 3, but using a DIGI SENS model MEOUT indicator/control unit rather than the METERM unit described for variant 3.

The MEOUT is similar to the METERM but is intended to be waterproof for outdoor operation.

6. Description of Variant 5 approved on 20/05/15

With the system (pattern or variants) mounted to the side or front of the waste transport vehicle, in which case the system may be known as a DIGI SENS model BinWeigh LFT SL (side lift) or BinWeigh LFT FL (front lift) instrument respectively.

7. Description of Variant 6 approved on 19/04/17

The Accuonboard model Binweigh LFT FL (front lift) automatic catchweighing instrument (Figure 8) similar to the pattern and variants 1 to 4 but fitted with two (2) DIGI SENS AG model ED21/SO 10000 load cell of 10200 kg maximum capacity.

Instruments are approved for use in a multi-interval arrangement with a verification scale interval e_1 of 5 kg up to 600 kg and a verification scale interval e_2 of 10 kg from 600 kg to 2500 kg.

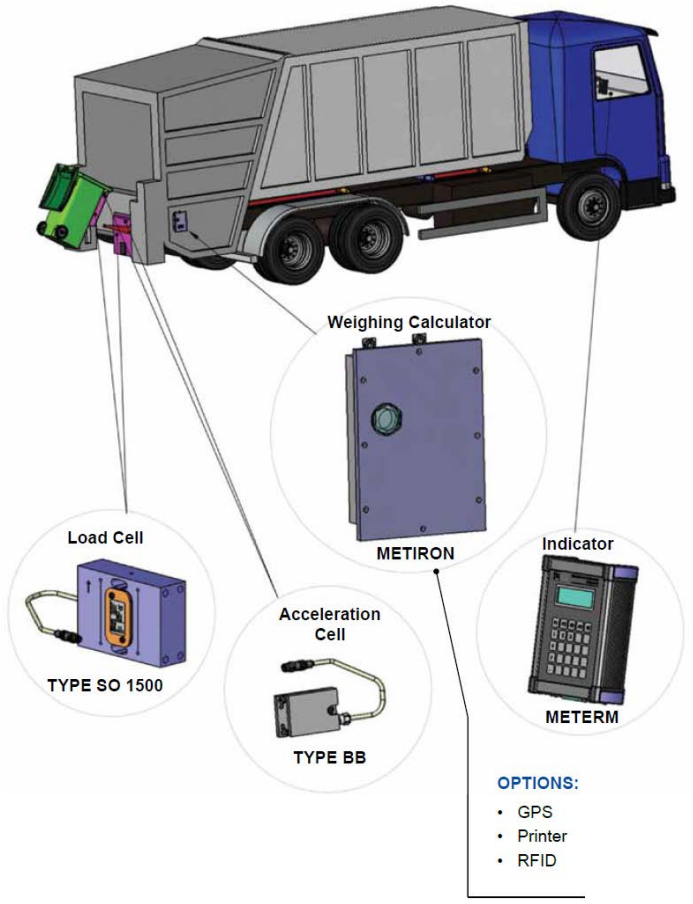
TEST PROCEDURE No 6/20A/7

Instruments shall be tested in accordance with any relevant tests for this category of instrument.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE 6/20A/7 – 1



Example of Rear-lift Configuration

Load Cell (installed behind the load receiver plate)

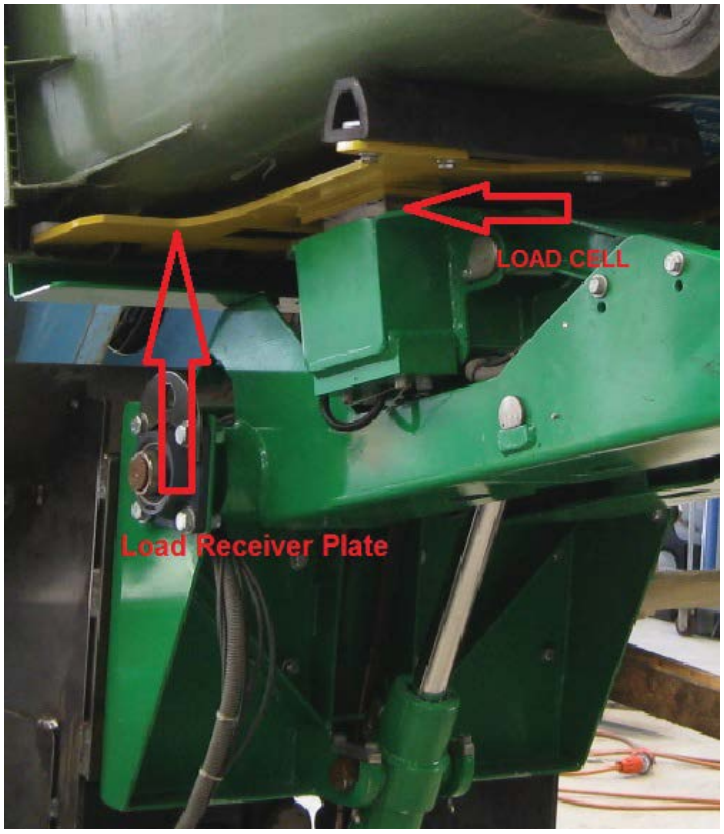
Accuonboard Model Binweigh LFT RL Wheeled Loader Weighing Instrument

FIGURE 6/20A/7 – 2

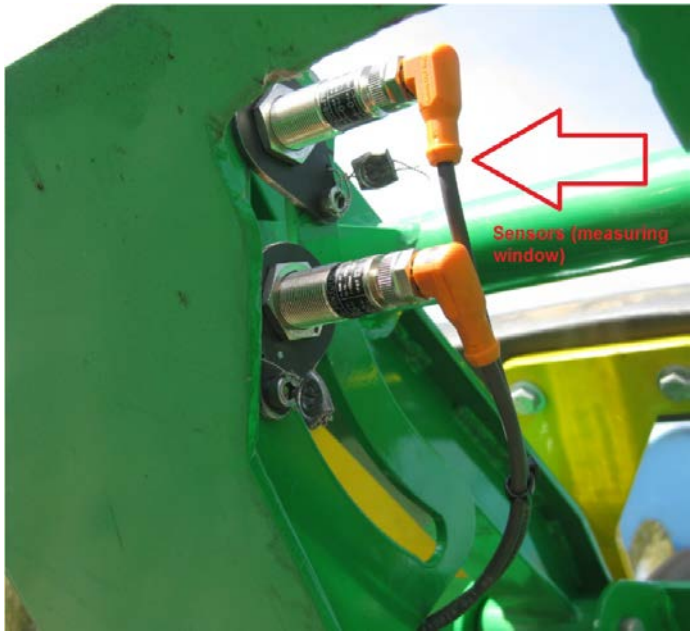
(a) DIGI SENS AG Model ED21/SO 1500 Load Cell

(b) DIGI SENS AG Model Type BB Accelerometer Sensor

FIGURE 6/20A/7 – 3



(a) Load Cell (Installed Behind The Load Receiver Plate)

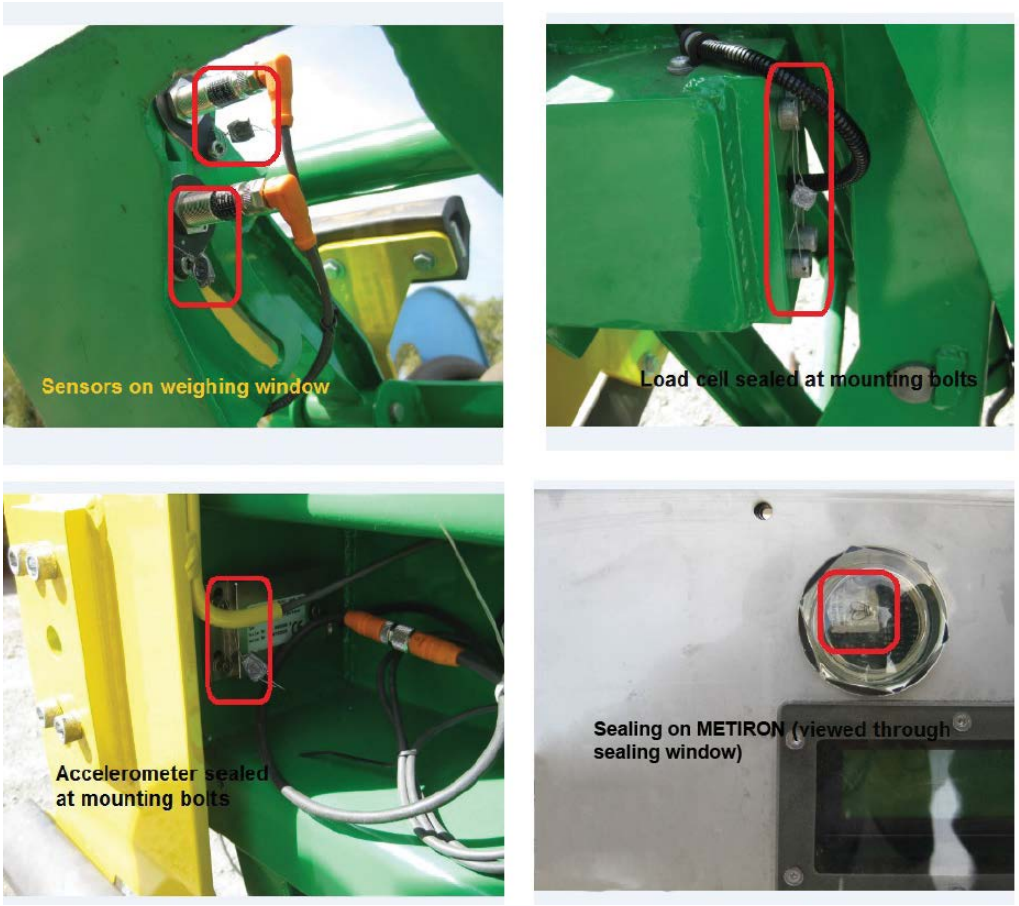


(b) Sensors Located to Define Measuring Window

FIGURE 6/20A/7 – 4

DIGI SENS Model METIRON+MESTORE Calculator/Indicator

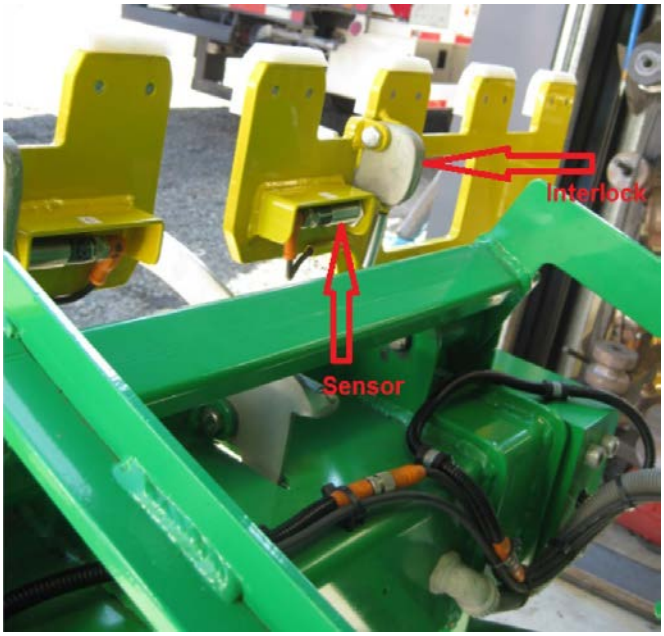
FIGURE 6/20A/7 – 5



Sealing Arrangements

FIGURE 6/20A/7 – 6

(a) Accuonboard Model Binweigh LFT RL operating in mode weighing single larger bin



(b) Interlock and Sensor (for identification of weighing module in use)

FIGURE 6/20A/7 – 7

(a) DIGI SENS Model METIRON Calculator/Indicator

(b) DIGI SENS Model METERM Indicator Control Unit

FIGURE 6/20A/7 – 8

Accuonboard Model Binweigh LFT FL Wheeled Loader Weighing Instrument

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