The SOLAS treaty and, how do I weigh my containers accurately? by Roger Sack, Managing Director,

Tramanco Pty Ltd.



Tramanco



Designed and manufactured in Australia since 1982.



Tramanco's *CHEK-WAY® Eliminator* series of electronic scales are *modular*, *user friendly* and *tested* in both Australia and overseas.



CHEK-WAY® CWE-5000 Series



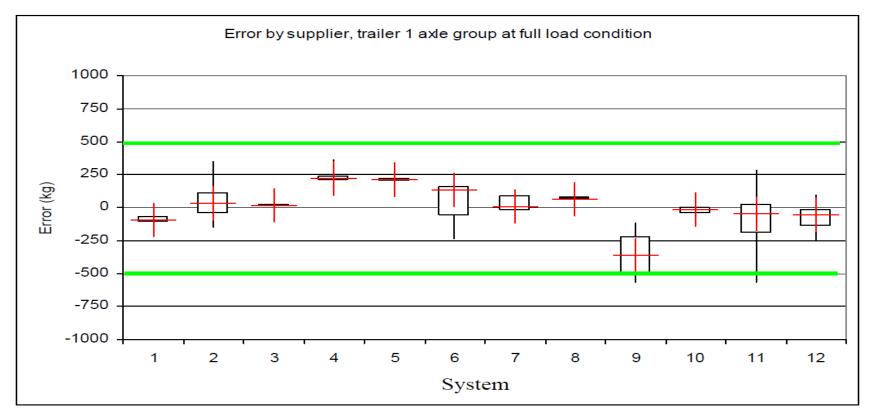


Introduction

- Topics to be covered:
 - Tramanco Pty Ltd who we are, what we do
 - In business since May 1975 (41 years next month)
 - Totally Australian owned write software in-house
 - Accuracy, Repeatability, Interoperability, Tamper Evidency, A.R.R.B. tests in 2008/09 for the T.C.A.'s Industry Reference Group
 - The NHVR, C.O.R., O.H.&S. and Reasonable Steps
 - Applications Transport Reform Last Mile Access
 - Questions?



ACCURACY - Box and Whisker chart.



• Figure 1. Indicative kg error findings for typical 20,000kg trailer group across the 12 OBM systems available and tested in Australia in 2008 (from Karl, Davis, Cai et al, 2009).

Tramanc

Accuracy - Explanation



Figure 2. Detail of each box-and-whisker" entry from Figure 1. The range of all measurements for the OBM system being measured is indicated by the length of the vertical line going through each box corresponding to that system's measurements. The 75th and 25 percentile values are shown by the top and bottom of the box respectively. **The average of all measurements is indicated by the value** at the centre of the red cross.

TETTETTO

Results of the A.R.R.B. tests for T.C.A.

Regarding Figure 1 and taking in the box-and whisker plot explanations of Figure 2, it may be seen that the rigorous testing undertaken for the OBM system report showed that the CHEK-WAY® OBM systems reported (at worst) readings that were in error, on average, by 50kg in 20,000 kg over the 110 or so readings taken across all the tests covered in the report. In other words, the CHEK-WAY® OBM systems read (say) an average of 19,950 kg whenever 20,000kg was present on the test axle group. Further, 50% of measurements across the 110+ test readings were (at worst) corresponding to an error of 200kg for an axle group reading equivalent to 20,000kg. This means that the CHEK-WAY® OBM systems read an average of 19,800 kg when 20,000kg was present on the test axle group which translates to a 1% error reading or an effective "legal for trade" status for CHEK-WAY® OBM systems.





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STATEMENT OF ACCURACY

February 2016

Tramanco Pty Ltd guarantees its Australian designed CHEK-WAY® ELIMINATOR and KWIK-CHEK® Electronic Weighing & Data Logging Systems which we design and manufacture at our premises at 21 Shoebury St, Rocklea, QLD 4106, Australia, to have an installed or operating accuracy range of +/- 0.75% (or botter) of applied load if used and maintained as recommended.

This means that a load of 20, 000 kgs will be weighed and displayed as either 19, 850 kgs or as 20, 150 kgs (or better).

These percentages are variations and are not accumulative. In other words, the weight will be displayed as accurate to within 0.75%, or better, of the correct or actual mass of each load.

System precision is available in the following selectable increments:

STATIC WEIGHING (i.e. Tramanco weighbridges):

- a) +/- 1.0 kg, or
- b) +/- 10.0 kg

ON-BOARD STATIC WEIGHING (i.e. installed on transport vehicles):

- (i) +/- 10.0 kg, ar
- (ii) +/- 20.0 kg. or
- (iii) +/- 50.0 kg, ar
- (iv) +/- 100.0 kg

ON-BOARD DYNAMIC WEIGHING (i.e. installed on transport vehicles):

- (i) 1/-20.0 kg, or
- (ii) +/- 50 0 kg, or
- (iii) +/- 100.0 kg

The values are interchangeable in either kilograms or pounds weight with the calibration software automatically allowing for the conversion.

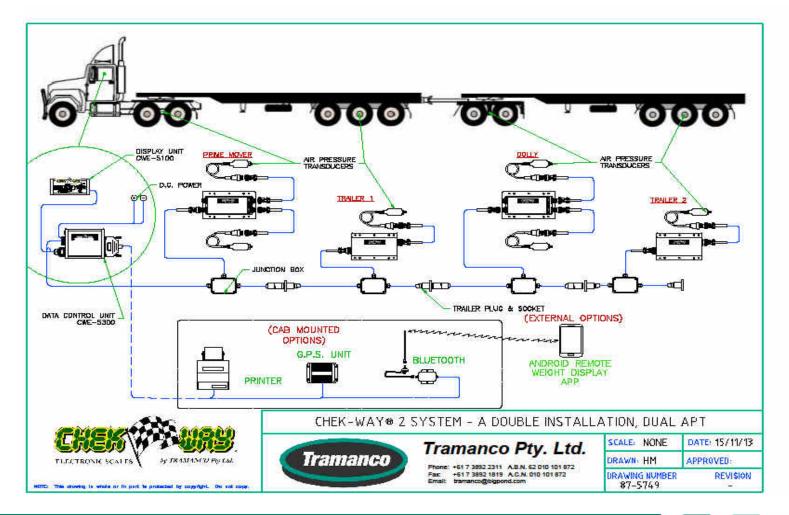
Please refer to the appropriate Owner's or Operator's Manual for further details on the operation, calibration and maintenance of our CHEK-WAY® and KWIK-CHEK® Australian designed and manufactured Electropic Weighing and Data Logging Systems.

Roger Sack Managing Director

TRANSPORT SOLUTIONS FOR TODAY AND TOMORROW

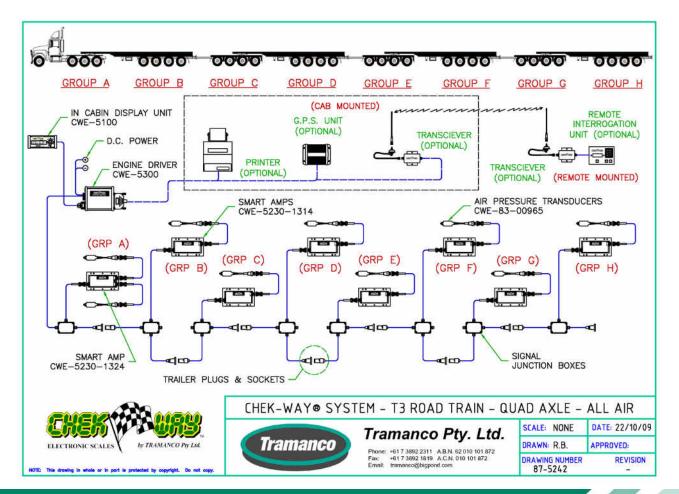
Shipping: 21 Shoebury Street, Rocklea, Old 4106 Postal: P.O. Box 193, Indoorcopilly, Old 4068 Brisbane ~ Australia

TYPICAL A- DOUBLE with Options





CHEK-WAY® CWE-5000 Series







CHEK-WAY® CWE-5000 Series Display

- Typical B-Double installation 3 channels
 - Dual line back-lit LCD display for day/night
 - Allows user input/output of the CHEK-WAY® system
 - Password protected
 - All weights and total on the one screen no button pushing
 - Nett / Gross weight toggle
 - In-built Data-Log and Print functions





CHEK-WAY® CWE-5000 Series

CWE-5000 Features

- Anti-Tamper
 - Password protection on all programmes and calibration
 - Time Date Stamps plus numeric log of all changes
 - Lead Seals on all connectors on Smart Amps
 - Warranty stickers on all components
- GPS Transmission
 - Send weights and serial numbers of Smart Amp ID to GPS
- Data logging
 - Record of weight by driver and/or automatically
 - Print function (see sample print-out)
 - R.F. and Blue Tooth interfaces





Typical Data String explanations

- The following extracts are strings of Data from an actual B-double Tanker operating in a fleet in Newcastle when it is loaded, unloaded, overloaded and has a trailer disconnected or is not communicating and in that order.
- **CWGS**, **A47321**, +23320, **B46454**, +20720, **C46798**, +20260, PG, 11480, +64300, 301120 15,070505, -32.868833, 151.533910,0118,3294, BA, DDD, 081,049,081,049,1007,0152
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- CWGS,A47321,+23260,B46454,%21340,C46798,+20780,**AG**,11480,+65380,301120 15,082550,-32.528108, 151.043988,0000,2987,5C,DDD,061,059,060,059,1007,0153
- CWGS,A47321,+11940,B46454,+06420,C46798,?00000,PG,11480,+18360,3011201
 5,110719,-32.860830, 151.537600,0211,2241,0B,DDA,083,000,081,000,1003,0155



Typical Print-out

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Typical B-Double print out with explanations

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| | ne: (07) 3075 | | | | | |
| | le: (07) 3075 | | | | | |
| | wt@bigpond. | | | | | |
| | 010101010 | | | | | |
| | 010101010 | | | | | |
| CHEK-V | VAY LOAD F | PPORT | * | TYPICAL B 1 | RAIN (3 channels) | |
| OHERV | | | | TH TOME D. T | | |
| VEHICLE ID 22311 | | | * | Meter, Prime Mover & Both Trailer I.D. | | |
| | B24198 C2 | 24176 | | , | | |
| SECURI | E T-01 1006 | 613 C-02 120613 | * SECURITY DATA | | | |
| PRINT D | DATE 15/06/ | 2013 1654 (time) | | | | |
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| END: | | | | | * END OF DOCKET WITH SPACE FOR A SIGNATURE | |
| END: | | CG | +21550 | CHN WGT | | |

•

Tramanco



CHEK-WAY® CWE-5000 Series

- CWE-5000 Features
 - $-INS-COM \mathbb{R}$
 - Trials completed in 2006 in conjunction with TMR to prove Suspension Functionality and for Monitoring Road Degradation (M.R.D.)reports





CHEK-WAY® CWE-5000 Series

| | lay Activity Lo 0/09/2008 | g for A | od H | lannite | y | View Auxiliary Data 💶 |
|--------|--|--|------|--|--|--|
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| | Ignition On | 11:12 | - | 0.00 | 0.0 Stradbroke Street, FOREST LAK | 31 38 31 35 36 20 4 32 37 38 37 20 2B 3 |
| 9 | Timed Update | 11:17 | - | 0.00 | 0.0 Stradbroke Street, FOREST LAK | 32 37 36 37 20 20 3 |
|) | Timed Update | 11:22 | - | 15.00 | 0.1 Logan Motorway, FOREST LAKE | |
| | Ignition Off | 11:23 | | 0.00 | 0.1 Stradbroke Street, FOREST LAK | |
| | Ignition On | 12:16 | ~ | 0.00 | 0.0 Stradbroke Street, FOREST LAK | Shoraunh Mishward 39 |
|) | Timed Update | 12:21 | ~ | 93.00 | 4.1 Logan Motorway, FOREST LAK | 34 20 49 47 20 32 3 |
|) | Timed Update | 12:26 | - | 83.00 | 11.0 Centenary Motorway, RICHLANE | Landsborough Highway Carnarvon Highway 20 31 41 3 30 35 30 31 20 36 4 |
| Ð | Timed Update | 12:31 | - | 93.00 | 16.6 Ipswich Motorway, ROCKLEA, BI | |
|) | Timed Update | 12:36 | - | 32.00 | 20.1 57-70 Grindle Road, ROCKLEA | Landsborough Highway |
| | Ignition Off | 12:38 | | 0.00 | 20.5 1.71km / 1.07miles NW of Archer | Close |
| | Ignition On | 12:54 | - | 0.00 | 0.0 1.71km / 1.07miles NW of Archer | |
| | Ignition Off | 12:55 | T | 0.00 | 0.0 1.76km / 1.09miles NW of Archer | |
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Monitoring Road Conditions – 1.7g Bump at 82Kph



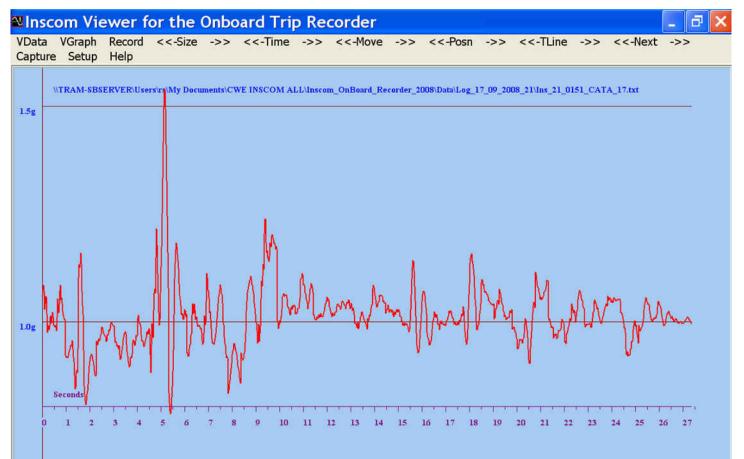
CHEK-WAY® CWE-5000 Series

| eplay Activity Log for Rod H | Tannifey | Oxley St | OMianu Annilianu Data |
|--|--|-------------------------------|---|
| n 10/09/2008 | i di initi di | | 🔍 View Auxiliary Data 💶 🗖 |
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| Ignition On 12:54 | 0.00 0.0 1.71km / 1.07miles NW of Archer | Douglas Street | |
| Ignition Off 12:55 | 0.00 0.0 1.76km / 1.09miles NW of Archer | Douglas Street | Enright Street |
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Expanded view – dynamic weights and location

Tramanco

CHEK-WAY® CWE-5000 Series



Impulsive loads generated by the 1.7g bump



Applications



Tramanco



Applications

Kenworth 8 air bag suspension with APT's – one each load sharing side





Applications





Applications





Research and Development



The John H Taplin Prize

is swarded to

Lloyd Davis, Stephen Kel and Roger Sack

Paper IIIe

Further Development of In-Service Suspension Testing for Heavy Vehicles

The splant Type a provide awarded by the ATATIN the family appendix and only one on some of the Forum?

The winning paper must display an evenil stands dief accelence. Consideriy and electly of them, the paper will fix die out out out on an electrication of the course the second antimative must contribute supplication. Intervolved prior provider in that mercell is different provider extended that provider provider interviewell ensates the fix area. Should several paper supported and any one year mest these offents, prior the provider will be source on the basis of the most effective presentation.

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9. Rose d

Dr Jenny Morris Co-Cher, 4TRF Organising Committee Director, Transport: Policy Policy and intergovernmental Relationa Origination Department of Intergrupture V AVProf Geoff Rose Co-Char. ATBF Organising Committee Director: Institute of Transport Studies Dispattment of Civil Englishering Monash Chivens tv

Tramanco

CHEK-WAY® in the Media

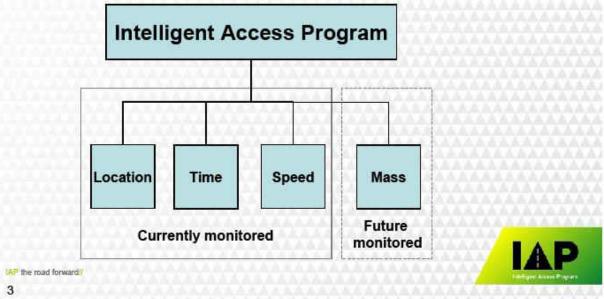




Transport Reform

Background

The IAP is a voluntary program which provides heavy vehicles with access, or improved access, to the Australian road network in return for monitoring of compliance with access conditions.





Transport Reform

Truck operators to pay for road repairs: ALGA

By Staff Writer

Councils across Australia have called for major road reform to ensure that local roads keep up with the demands of freight transport.

Speaking at the Australian Roads Summit 09 in Brisbane, the Australian Local Government Association (ALGA) president, Cr Geoff Lake, called on the Commonwealth and States to begin trialing incremental pricing.

"Local government supports the need for road funding reform and that is why we support the introduction of incremental pricing," Cr Lake said.

"The Commonwealth and the states should now get on with finalizing the concept and commencing trials."

Developed by the independent National Transport Commission, incremental pricing would enable truck operators to buy additional weight on a vehicle above the legal limit.

The Council of Australian Governments (COAG) agreed to pilot the initiative two years ago, but trials are yet to begin.



Transport Reform



COAG Road Reform Plan Funding and Implementation Issues Paper 13 April 2011

This document is available now for public comment DO NOT DELAY.



A-Double Project

- Pilot study by TMR, TransTech, Tramanco and South East Queensland Hauliers (SEQH) for new A-Double combinations
- CHEK-WAY® electronic scales used to provide weight data to TransTech GPS
- Woods Transport recently adopted CHEK-WAY® electronic scales for it's A-Double combinations also.



A-Double Project



20 September 2010

Mr Shaun Owen Transtech Driven Partnership 993 Toerak Road CAMBERWELL VIC 3124

Dear Mr Owen

Approved IAP-SP and QLD Interim OBM Supplier

The Department of Transport and Main Roads (the department) would like to advise that the Transtach Driven Partnership (TTD) (ABN 38 394 577 968) has been approved as a Queensland Interim On-Board Mass (OBN) supplier. This approval is granted as TD has demonstrated that the combination of its certified IAP system and the Transacc CHEK. PLAT-5000 OBM scales most the requirements specified in the Queensland Interim CBM Implementation Requirements.

TTD is responsible for emaring that the OBM system continues to meet the requirements outlined in the Quavanland Interim OBM Implementation Requirements. The department reserves the right to add the approved OBM system both on an ad hoc basis and periodically. Should the system on longer meet the requirements, the department may withdraw this approval in writing. Prior to this occurring, TTD will be given the opportunity to rectify the issue(s) and the results will be provided to the department in writing. Additionally, should an OBM system in a particular vahicle fail to meet the requirements, it will no longer be covered by this approval.

Should there be a change to either the certified (AP system or the OBM system it is required that the department be notified in advance. Depending on the level of change the department may require additional testing or information to retain segmental of the system.

Should TTD wish to discontinue provision of approved interim OBM services, TTD is to give 30 days notice to the department in writing.

When a Transport Certification Australia (TCA) cortified OBM becomes available as part of IAP, it will be a requirement that this replaces the interim OBM solution. When this occurs there will be consultation to identify suitable timeframes around requirements to upgrade to the TCA certified OBM.

Department of Trensport and Main Roade Road System Ciperation Read System Ciperation Spring MC Office Complex Recrupted, 4000 (2HC) Bain Hol 2 Statutes GLD, 4021 Curind E20156 Yournel Enguites Gastrain Taylor Telephane +41.3 300x 21.12 Researce +41.3 300x 21.12 Researce +1.12 300 2000 Website even this git prices Eneral ginthers (Sapholgher, pit prices) Interim On-Board Mass (OBM) supplier. This approval is granted as TTD has demonstrated that the combination of its certified IAP system and the Trananco CHEX-WAT-5000 OBM scales meet the requirements specified in the *Queensland Interior OBM Implementation Reguleraments*.



A-Double Project







A-Double Project

- SEQH A-Double
 - Mack Prime Mover
 - Haulmark Trailers and Dolly
 - TransTech Driven GPS
 - Tramanco CHEK-WAY® Electronic Scales
- Combination load
 - Maximum 4 x 20ft containers
 - Maximum 2 x 40ft containers
 - Any combination of above for 79.0 tonne up to 85.0 tonne with H.M.L.



A-Double Project

| - | OBM SYSTEM (KG) | WEIGH BRIDGE (KG) | ACTUAL VARIATION (KG) | VARIATION PERCENTAGE (TOLERANCE IS < 1.5%) | REASON FOR VARIATION (IF APPLICABLE) | ACTION TAKEN TO RECTIFY IF VAIATION IS < 1.5% (EG RECALIBRATION OR REPAIR) | OBM SYSTEM READING AFTER ACTION (KG) |
|------------------------|-----------------------|-------------------------|-----------------------------|---|---|---|---|
| Steer axle | | 5540 | | | | | ah 19 14 |
| Channel A | 21700 | 16200 | - 100 | -0.46% | | - | |
| Channel B | 20470 | 20460 | 10 | to.05% | | a 19 | |
| Channel C | 15470 | 15460 | 10 | +0.06% | | | |
| Channel D | 20210 | 20/60 | 50 | 0.25% | | | |
| Total Mass (TCM) | 77850 | 77880 | -30 | -0.04% | | | |

Department of Transport and Main Roads

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A-Double Project







A-Double Project

- Woods Transport A-Double
 - Kenworth Prime Mover
 - O'Phee Trailers and Dolly
 - TransTech Driven GPS
 - Tramanco CHEK-WAY® Electronic Scales
- Combination load
 - Maximum 4 x 20ft containers
 - Maximum 2 x 40 ft. containers
 - Any combination of above



A-Double Project

| 1 A | Axle group readings | | | | | | | | | |
|------------------------|-----------------------|-------------------------|-----------------------------|---|---|---|---|--|--|--|
| | OBM SYSTEM (KG) | WEIGH BRIDGE (KG) | ACTUAL VARIATION (KG) | VARIATION PERCENTAGE (TOLERANCE IS < 1.5%) | REASON FOR VARIATION (IF APPLICABLE) | ACTION TAKEN TO RECTIFY IF VAIATION IS < 1.5% (EG RECALIBRATION OR REPAIR) | OBM SYSTEM READING AFTER ACTION (KG) | | | |
| Steer axle | *) | 6100 | | | | | - | | | |
| Channel A | 19400 | 13300 | O | 0% | | | | | | |
| Channel B | 18260 | 18260 | 0 | 0% | ÷ | | | | | |
| Channel C | 13070 | 13060 | HO | 0.08% | | | | | | |
| Channel D | 18420 | 18420 | Ø | 0% | ×€ 0 | | | | | |
| Total Mass (TCM) | 69150 | 69140 | +10 | 0.01% | | | | | | |

Name: R.KUHLMORGEN

Signature:

Date: <u>[| || || |0</u>

Department of Transport and Main Roads

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Questions



