
PACCAR & DEALER
TMC
Technical &
Maintenance
Conference

Chris Loose

Australian Trucking Association

Safety Alerts and

Technical Advisory Procedures

About ATA Industry Technical Council (ITC)

- A standing committee of the Australian Trucking Association (ATA), est. '95.
- The ITC's mission is to improve trucking equipment, its maintenance and maintenance management.
- Brings operators, workshop, suppliers, engineers and other specialists together for expert and independent advice to benefit stakeholders and the heavy vehicle industry.
- Provides the ATA with robust professional advice on technical matters to help underpin the ATA's evidence based policymaking.

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Safety Alerts, new for 2015

Short, to get safety information out quickly!

- 2015-1
  Mixing metric/imperial brake airlines and fittings
- 2015-2
  Drawbar units and brake airlines
- 2015-3
  Non-approval of use of HC's as refrigerants in vehicle air/con systems

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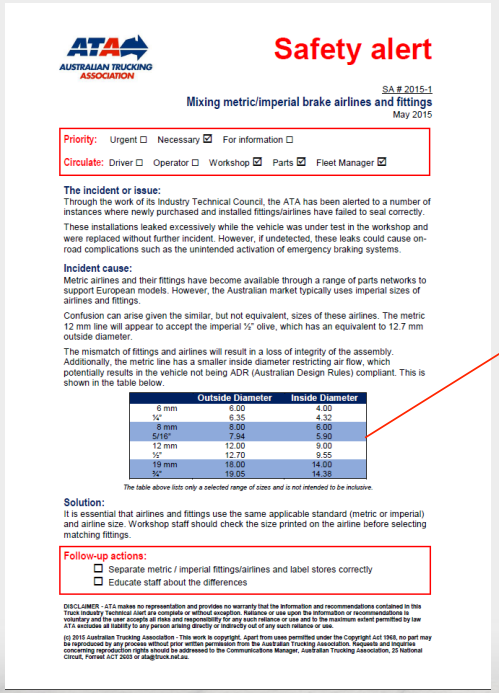
2015-1 Mixing metric/imperial brake airlines and fittings



ATA AUSTRALIAN TRUCKING ASSOCIATION

Safety alert

SA # 2015-1

Mixing metric/imperial brake airlines and fittings

May 2015

Priority: Urgent ☐ Necessary ☑ For information ☐

Circulate: Driver ☐ Operator ☐ Workshop ☑ Parts ☑ Fleet Manager ☑

The incident or issue:

Through the work of its Industry Technical Council, the ATA has been alerted to a number of instances where newly purchased and installed fittings/airlines have failed to seal correctly.

These installations leaked excessively while the vehicle was under test in the workshop and were replaced without further incident. However, if undetected, these leaks could cause on-road complications such as the unintended activation of emergency braking systems.

Incident cause:

Metric airlines and their fittings have become available through a range of parts networks to support European models. However, the Australian market typically uses imperial sizes of airlines and fittings.

Confusion can arise given the similar, but not equivalent, sizes of these airlines. The metric 12 mm line will appear to accept the imperial ½" olive, which has an equivalent to 12.7 mm outside diameter.

The mismatch of fittings and airlines will result in a loss of integrity of the assembly. Additionally, the metric line has a smaller inside diameter restricting air flow, which potentially results in the vehicle not being ADR (Australian Design Rules) compliant. This is shown in the table below.

	Outside Diameter	Inside Diameter
6 mm	6.00	4.00
¼"	6.35	4.32
8 mm	8.00	6.00
5/16"	7.94	5.90
12 mm	12.00	9.00
½"	12.70	9.55
19 mm	18.00	14.00
¾"	19.05	14.38

The table above lists only a selected range of sizes and is not intended to be inclusive.

Solution:

It is essential that airlines and fittings use the same applicable standard (metric or imperial) and airline size. Workshop staff should check the size printed on the airline before selecting matching fittings.

Follow-up actions:

☐ Separate metric / imperial fittings/airlines and label stores correctly

☐ Educate staff about the differences

- Don't mix and match metric and imperial stuff
- European metric vs the others

	Outside Diameter	Inside Diameter
6 mm	6.00	4.00
¼"	6.35	4.32
8 mm	8.00	6.00
5/16"	7.94	5.90
12 mm	12.00	9.00
½"	12.70	9.55
19 mm	18.00	14.00
¾"	19.05	14.38

The table above lists only a selected range of sizes and is not intended to be inclusive.

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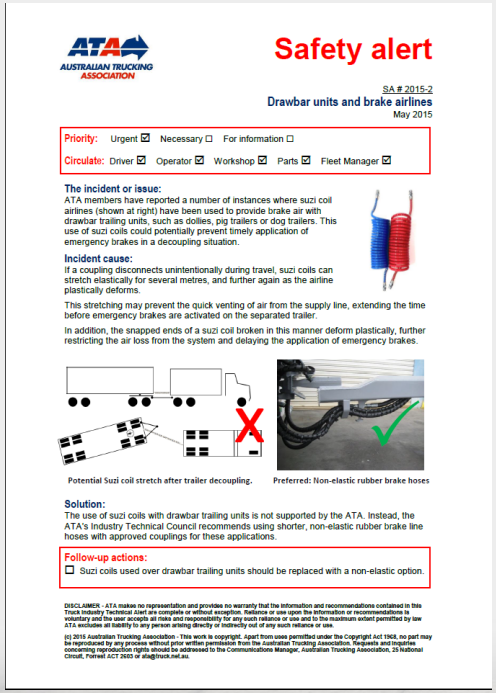
2015-2 Drawbar units and brake airlines



AUSTRALIAN TRUCKING ASSOCIATION

Safety alert

SA # 2015-2

Drawbar units and brake airlines

May 2015

Priority: Urgent ☑ Necessary ☐ For information ☐

Circulate: Driver ☑ Operator ☑ Workshop ☑ Parts ☑ Fleet Manager ☑

The incident or issue:
ATA members have reported a number of instances where suzi coil airlines (shown at right) have been used to provide brake air with drawbar trailing units, such as dollies, pig trailers or dog trailers. This use of suzi coils could potentially prevent timely application of emergency brakes in a decoupling situation.

Incident cause:
If a coupling disconnects unintentionally during travel, suzi coils can stretch elastically for several metres, and further again as the airline plastically deforms.

This stretching may prevent the quick venting of air from the supply line, extending the time before emergency brakes are activated on the separated trailer.

In addition, the snapped ends of a suzi coil broken in this manner deform plastically, further restricting the air loss from the system and delaying the application of emergency brakes.

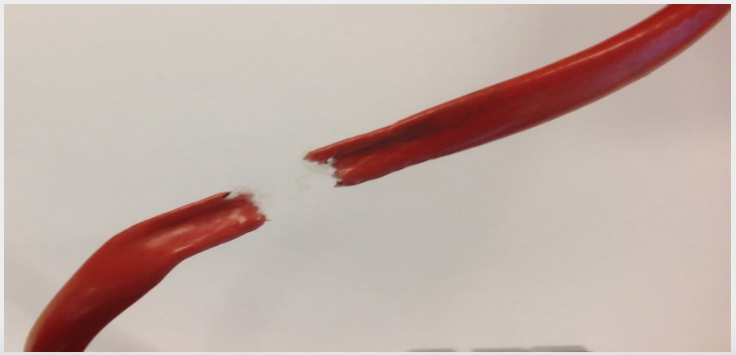
Potential Suzi coil stretch after trailer decoupling.

Preferred: Non-elastic rubber brake hoses

Solution:
The use of suzi coils with drawbar trailing units is not supported by the ATA. Instead, the ATA's Industry Technical Council recommends using shorter, non-elastic rubber brake line hoses with approved couplings for these applications.

Follow-up actions:
☐ Suzi coils used over drawbar trailing units should be replaced with a non-elastic option.

- Don't use suzi coil air lines for drawbar couplings.
- The line will stretch and could seal off the end -> preventing the correct operation of the emergency trailer brakes.



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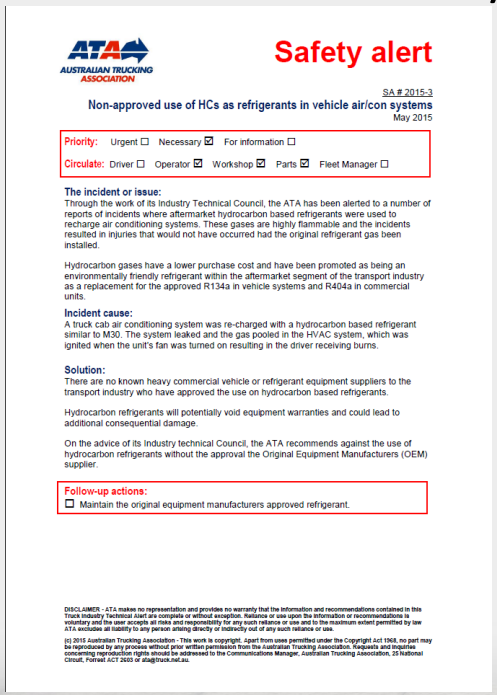
2015-3 Non-approval of use of HC's as refrigerants in vehicle aircon systems



AUSTRALIAN TRUCKING ASSOCIATION

Safety alert

SA # 2015-3

Non-approved use of HCs as refrigerants in vehicle air/con systems

May 2015

Priority: Urgent ☐ Necessary ☑ For information ☐

Circulate: Driver ☐ Operator ☑ Workshop ☑ Parts ☑ Fleet Manager ☐

The incident or issue:

Through the work of its Industry Technical Council, the ATA has been alerted to a number of reports of incidents where aftermarket hydrocarbon based refrigerants were used to recharge air conditioning systems. These gases are highly flammable and the incidents resulted in injuries that would not have occurred had the original refrigerant gas been installed.

Hydrocarbon gases have a lower purchase cost and have been promoted as being an environmentally friendly refrigerant within the aftermarket segment of the transport industry as a replacement for the approved R134a in vehicle systems and R404a in commercial units.

Incident cause:

A truck cab air conditioning system was re-charged with a hydrocarbon based refrigerant similar to M30. The system leaked and the gas pooled in the HVAC system, which was ignited when the unit's fan was turned on resulting in the driver receiving burns.

Solution:

There are no known heavy commercial vehicle or refrigerant equipment suppliers to the transport industry who have approved the use on hydrocarbon based refrigerants.

Hydrocarbon refrigerants will potentially void equipment warranties and could lead to additional consequential damage.

On the advice of its Industry technical Council, the ATA recommends against the use of hydrocarbon refrigerants without the approval the Original Equipment Manufacturers (OEM) supplier.

Follow-up actions:

☐ Maintain the original equipment manufacturers approved refrigerant.

- OH&S reports have highlighted instances of failures.
- No OEM supports the use of HCs as a replacement for the original gas – R134a or R404a.
- Systems are just not designed for HC refrigerants.
- Possible impact on warranty!

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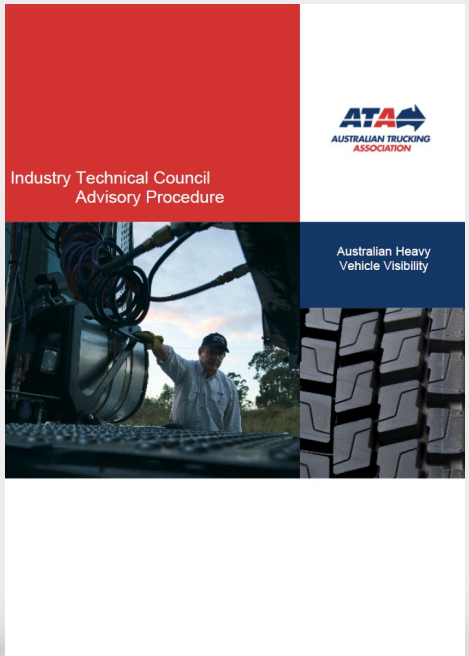
Technical Advisory Procedures (TAPs)

Detailed information is critically reviewed & approved by ITC

- Heavy vehicle visibility
- Compliant brake actuators
- Side Underrun Protection
- Park brake operation
- Truck and dog trailer combinations
- HV electrical wiring systems
- Commercial vehicle wheel security
- Truck impact chart
- RSC and ESC systems for trucks and trailers - draft
- Roller brake testing procedure - draft

HV visibility



- ©2003, to be updated in 2016
- Termed a Code of Practice, but is an advisory guide based on the UN ECE R104 requirements.

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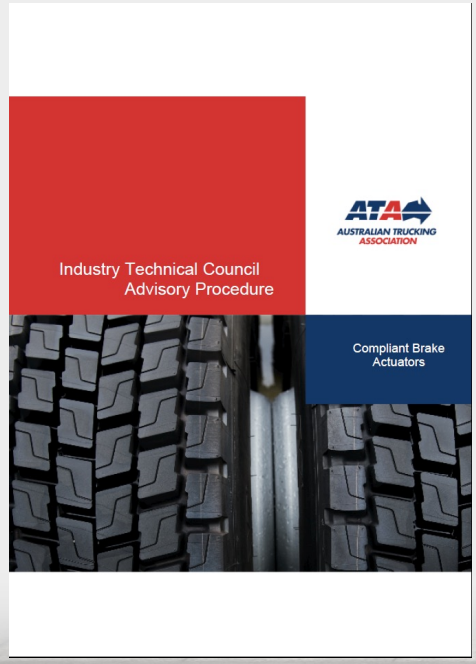
Compliant brake actuators



- ©2011, to be updated in 2016
- Highlights standards actuators should comply with, after industry feedback about premature equipment failures.

	SAE - Standards					
Make	Airbrake actuator diaphragm test procedure SAE J1450	Airbrake actuator test Procedure SAE J1469	Long stroke airbrake actuator marking SAE 1817	Airbrake actuator test performance requirements SAE J2318	Brake stroke indicator design guideline for cam or disc airbrake actuators SAE J1953	Marketed/distributed by:
Di-Pro	YES		YES	YES		BPW Transpec
FUWA BTC	YES	YES	YES	YES	YES	IVECO
Haldex		YES		YES		IVECO as Anchor-Lok
Haldex		YES		YES		PBR as Anchor-Lok
MGM				YES		Arvin Meritor
MGM				YES		DANA
MGM				YES		HDTE
MGM				YES		IVECO
TRUCKRAFT		YES		YES		Australian Brake Centre
TSE	YES	YES	YES	YES	YES	Air Brake Corporation

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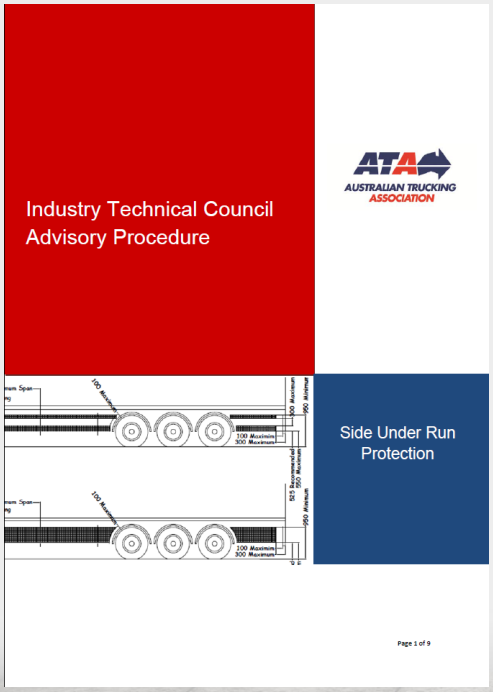
Side underrun protection



- ©2012, no plans to review
- Provides recommendations for the general construction and fitment of side underrun for the protection of cyclists and pedestrians.
- There is no significant strength requirement as per front (ADR84/00 – UN ECE R93) and rear underrun protection regulations.
- Based on UN ECE R73.

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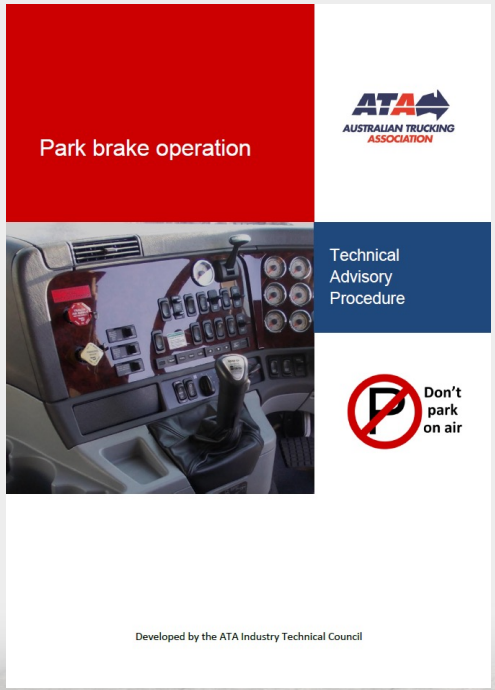
Park brake operation



- ©2015
- Highlights the issue that ADR35/05 alternative standard, UN ECE R13, which allows trailers to be parked on air.
- Drivers must disconnect red supply before blue signal (which will bring the park brakes on!)

Trailer airline coupling procedure:

1) Connecting trailer airline order - blue signal before red supply line.
2) Disconnecting trailer airline order - red supply before the blue signal line.

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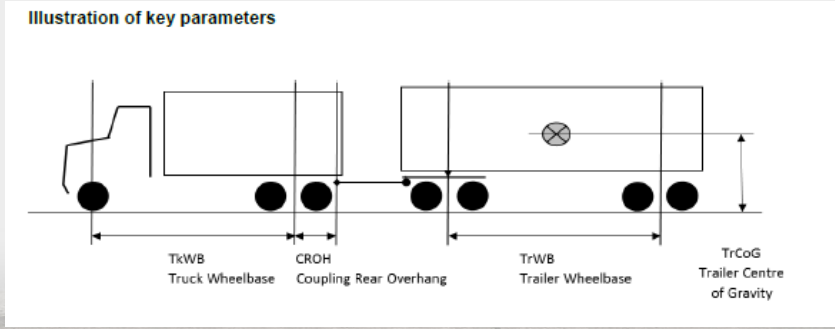
Truck and dog combinations

- ©2008, updated 2015
- These are inherently unstable combinations
- Applies to truck and 3 / 4 axle dogs, GCM< 50T.
- Using an established equation and factors provides recommendations for combination stability.



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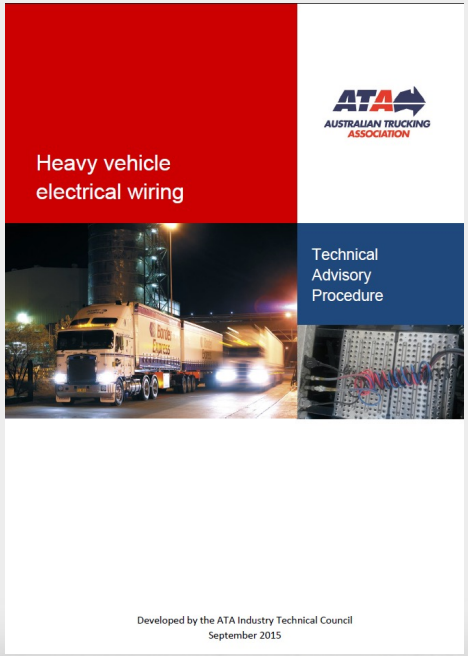
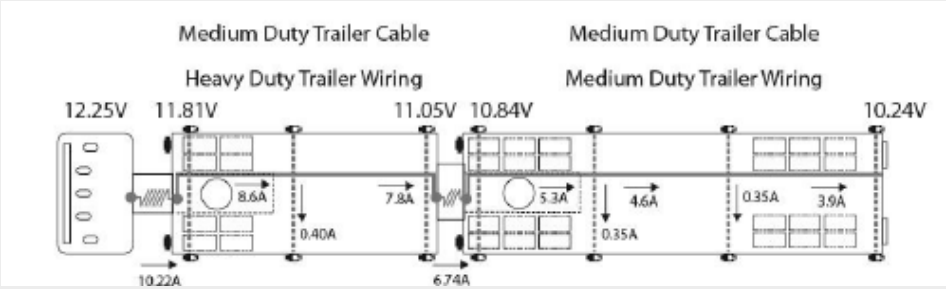
HV electrical wiring



- ©2002, updated 2015
- Recommendations for lighting and CAN wiring



For multi volt TEBS units	EBS Communications	ABS / load sensing functionality	RSC functionality
12V power / 12V CAN signal	YES	YES	YES
24V power / 24V CAN signal	YES	YES	YES
12V power / 24V CAN signal	NO	YES	NO
24V power / 12V CAN signal	NO	YES	NO
12V or 24V power / no CAN signal	NO	YES	YES

Table 7: Impact of mix and matching power and CAN signal format

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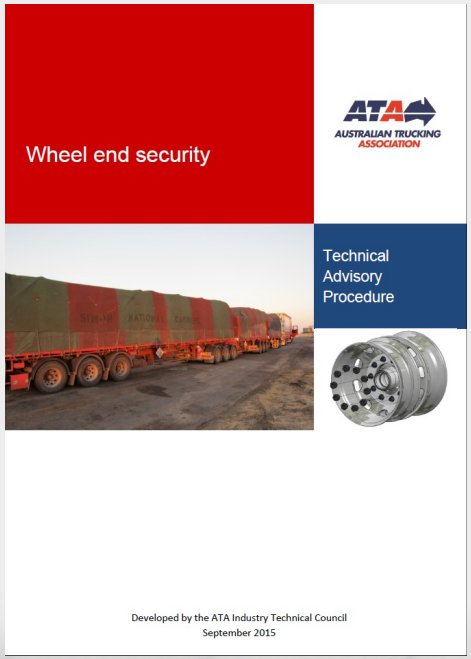
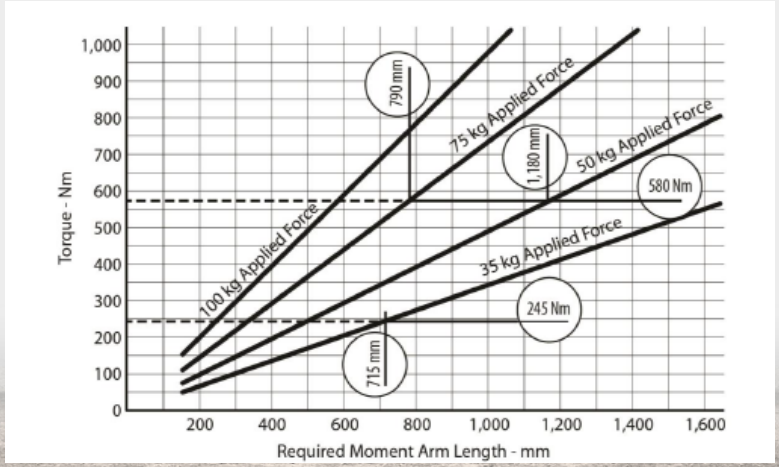
Wheel end security



- ©2008, updated 2015
- 4 different methodologies for wheel end fixing.
- Has been cited in coroner's reports.
- No excuses ……..



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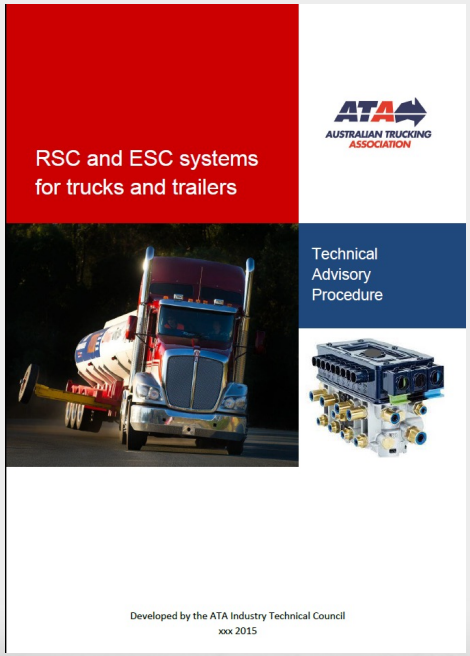
RSC and ESC systems for trucks and trailers



- ©2012, updated 2015
- Companion guide to the National Truck/Trailer Compatibility Guide
- Covers
  - Component generation identification
  - Fitment recommendations
  - Risk management
  - FAQ
  - Glossary

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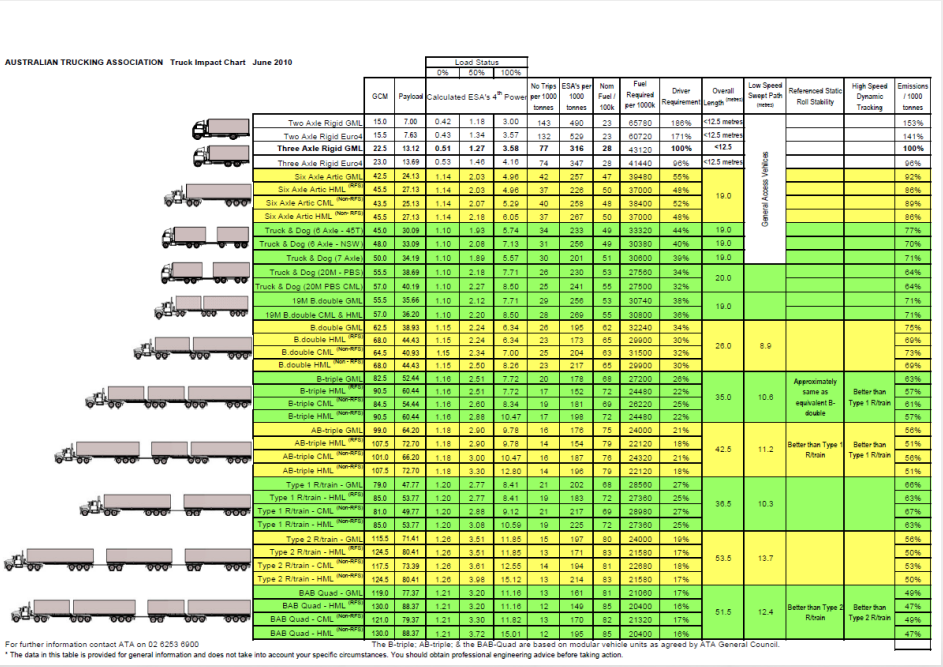
ATA's Truck Impact Chart



AUSTRALIAN TRUCKING ASSOCIATION Truck Impact Chart June 2010

	GCM	Payload	Load Status 0% Calculated ESA's 4th Power	Load Status 50% Calculated ESA's 4th Power	Load Status 100% Calculated ESA's 4th Power	No Trips per 1000 tonnes	ESA's per 1000 tonnes	Nom Fuel / 100k	Fuel Required per 1000k	Driver Requirement	Overall Length (metres)	Low Speed Swept Path (metres)	Referenced Static Roll Stability	High Speed Dynamic Tracking	Emissions / 1000 tonnes
Two Axle Rigid GML	15.0	7.00	0.42	1.18	3.00	143	490	23	65780	186%	<12.5 metres	General Access Vehicles			153%
Two Axle Rigid Euro4	15.5	7.63	0.43	1.34	3.57	132	529	23	60720	171%	<12.5 metres				141%
Three Axle Rigid GML	**22.5**	**13.12**	**0.51**	**1.27**	**3.58**	**77**	**316**	**28**	43120	**100%**	<12.5				**100%**
Three Axle Rigid Euro4	23.0	13.69	0.53	1.46	4.16	74	347	28	41440	96%	<12.5 metres				96%
Six Axle Artic GML	42.5	24.13	1.14	2.03	4.96	42	257	47	39480	55%	19.0				92%
Six Axle Artic HML (RPG)	45.5	27.13	1.14	2.03	4.96	37	226	50	37000	48%					86%
Six Axle Artic CML (Non-RPG)	43.5	25.13	1.14	2.07	5.29	40	258	48	38400	52%					89%
Six Axle Artic HML (Non-RPG)	45.5	27.13	1.14	2.18	6.05	37	267	50	37000	48%					86%
Truck & Dog (6 Axle - 45T)	45.0	30.09	1.10	1.93	5.74	34	233	49	33320	44%	19.0				77%
Truck & Dog (6 Axle - NSW)	48.0	33.09	1.10	2.08	7.13	31	256	49	30360	40%	19.0				70%
Truck & Dog (7 Axle)	50.0	34.19	1.10	1.89	5.57	30	201	51	30600	39%	19.0				71%
Truck & Dog (20M - PBS)	55.5	38.69	1.10	2.18	7.71	26	230	53	27560	34%	20.0				64%
Truck & Dog (20M PBS CML)	57.0	40.19	1.10	2.27	8.50	25	241	55	27500	32%					64%
19M B-double GML	55.5	35.66	1.10	2.12	7.71	29	256	53	30740	38%	19.0				71%
19M B-double CML & HML	57.0	36.20	1.10	2.20	8.50	28	269	55	30800	36%					71%
B-double GML	62.5	38.93	1.15	2.24	6.34	26	195	62	32240	34%	26.0	8.9			75%
B-double HML (RPG)	68.0	44.43	1.15	2.24	6.34	23	173	65	29900	30%					69%
B-double CML (Non-RPG)	64.5	40.93	1.15	2.34	7.00	25	204	63	31500	32%					73%
B-double HML (Non-RPG)	68.0	44.43	1.15	2.50	8.26	23	217	65	29900	30%					69%
B-triple GML (RPG)	82.5	52.44	1.16	2.51	7.72	20	178	68	27200	26%	35.0	10.6	Approximately same as equivalent B-double	Better than Type 1 R/train	63%
B-triple HML (RPG)	90.5	60.44	1.16	2.51	7.72	17	152	72	24480	22%					57%
B-triple CML (Non-RPG)	84.5	54.44	1.16	2.60	8.34	19	181	69	26220	25%					61%
B-triple HML (Non-RPG)	90.5	60.44	1.16	2.88	10.47	17	198	72	24480	22%					57%
AB-triple GML (RPG)	99.0	64.20	1.18	2.90	9.78	16	176	75	24000	21%	42.5	11.2	Better than Type 1 R/train	Better than Type 1 R/train	56%
AB-triple HML (RPG)	107.5	72.70	1.18	2.90	9.78	14	154	79	22120	18%					51%
AB-triple CML (Non-RPG)	101.0	66.20	1.18	3.00	10.47	16	187	76	24320	21%					56%
AB-triple HML (Non-RPG)	107.5	72.70	1.18	3.30	12.80	14	196	79	22120	18%					51%
Type 1 R/train - GML (RPG)	79.0	47.77	1.20	2.77	8.41	21	202	68	28560	27%	36.5	10.3			66%
Type 1 R/train - HML (RPG)	85.0	53.77	1.20	2.77	8.41	19	183	72	27360	25%					63%
Type 1 R/train - CML (Non-RPG)	81.0	49.77	1.20	2.88	9.12	21	217	69	28980	27%					67%
Type 1 R/train - HML (Non-RPG)	85.0	53.77	1.20	3.08	10.59	19	225	72	27360	25%					63%
Type 2 R/train - GML (RPG)	115.5	71.41	1.26	3.51	11.85	15	197	80	24000	19%	53.5	13.7			56%
Type 2 R/train - HML (RPG)	124.5	80.41	1.26	3.51	11.85	13	171	83	21580	17%					50%
Type 2 R/train - CML (Non-RPG)	117.5	73.39	1.26	3.61	12.55	14	194	81	22880	18%					53%
Type 2 R/train - HML (Non-RPG)	124.5	80.41	1.26	3.98	15.12	13	214	83	21580	17%					50%
BAB Quad - GML (RPG)	119.0	77.37	1.21	3.20	11.16	13	161	81	21060	17%	51.5	12.4	Better than Type 2 R/train	Better than Type 2 R/train	49%
BAB Quad - HML (RPG)	130.0	88.37	1.21	3.20	11.16	12	149	85	20400	16%					47%
BAB Quad - CML (Non-RPG)	121.0	79.37	1.21	3.30	11.82	13	170	82	21320	17%					49%
BAB Quad - HML (Non-RPG)	130.0	88.37	1.21	3.72	15.01	12	195	85	20400	16%					47%

For further information contact ATA on 02 6253 6900

* The data in this table is provided for general information and does not take into account your specific circumstances. You should obtain professional engineering advice before taking action.

The B-triple; AB-triple; & the BAB-Quad are based on modular vehicle units as agreed by ATA General Council.

- ©2010, to be updated 2016
- Used for first and last mile access.
- Compares HPFV for improvement.
  - Pavement damage (ESA's)
  - Payloads
  - # of trips
  - # of drivers
  - Fuel
- Survey underway for the update.

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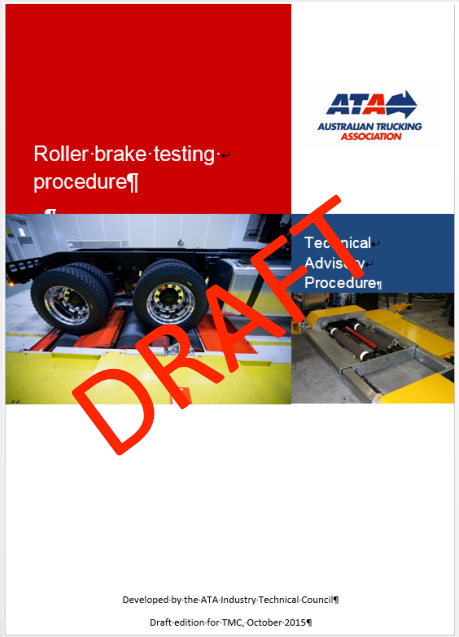
Roller brake testing procedure



- Draft at TMC, release late 2015
- 4.5 kN/tonne is the new minimum brake force.
- Details test conditions for
  - Equipment layout.
  - Vehicle setup and preparation.
  - Qualifies test results.
- Details on this procedure were detailed in the Nepean Transport, VIS-Check, Tuesday 11:30 am

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New SAs and new TAPs

- Your ideas?

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Thank you for your interest!

- All the finalised publication are available at
  http://www.truck.net.au/resource-library

- For further information on these and other technical matters
  - chris.loose@truck.net.au
  - 02 6253 6924