
TMC
TECHNICAL & MAINTENANCE
CONFERENCE
PACCAR & DEALER
2017

FIFTH WHEELS – COUPLING ISSUES AND MAINTENANCE

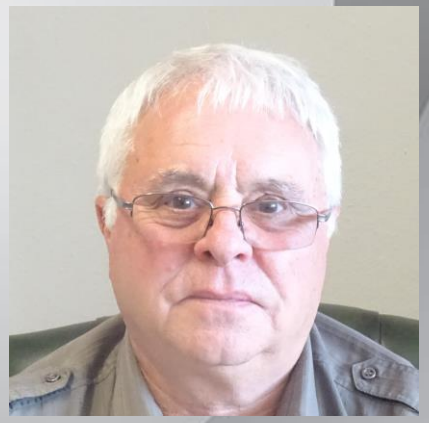
- Bob Edwards – Fifth wheel plating requirements and the role of Authorised Examiners (AVEs)
- Adam Taylor – Technical overview, operation, and installation, VASS inspections
- Bob Martin – Fifth wheel maintenance
- Andrew Archibald – ‘On the road’ what happens when things go wrong
- Chris Blanchard – The operator’s perspective
- Simon Skazlic – The operator’s perspective

Bob Edwards

Authorised Vehicle Examiner

Managing Director

Transport Engineering and Management (TEAM)



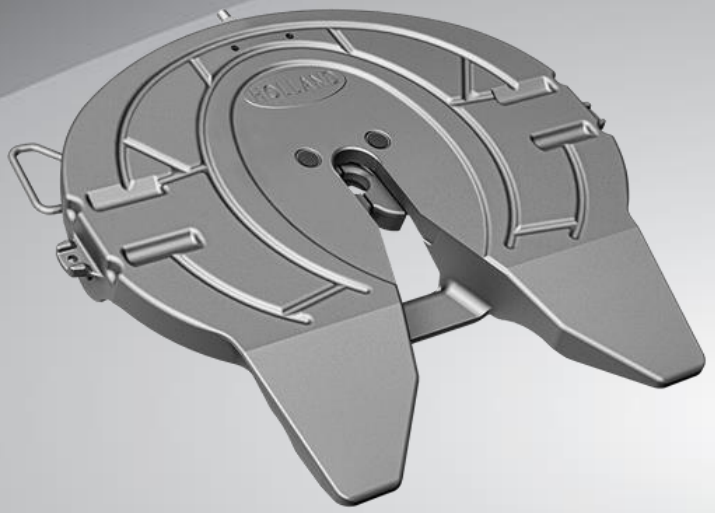
Adam Taylor

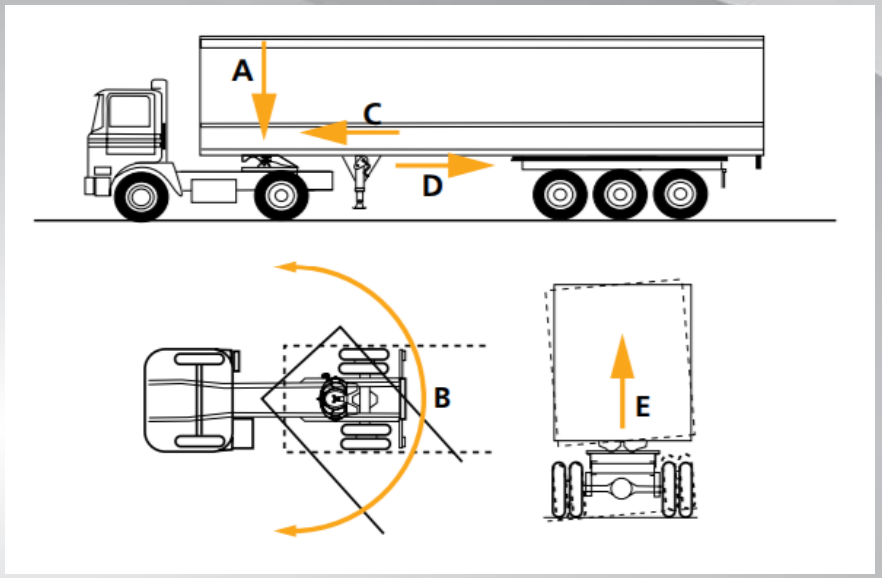
Technical Services Officer

VASS examiner

SAF-HOLLAND

Fifth wheel basics





WHAT DOES IT DO?

Support the weight of the trailer imposed on it **(A)**
Allow the trailer to articulate (trailer pivots relative to tractor on inclines) **(B)**
Resist the forces of:

- the trailer pushing forward e.g. under braking **(C)**
- the trailer "pulling back" on it e.g. starting off / accelerating **(D)**
- the trailer trying to lift off e.g when cornering due to roll **(E)**

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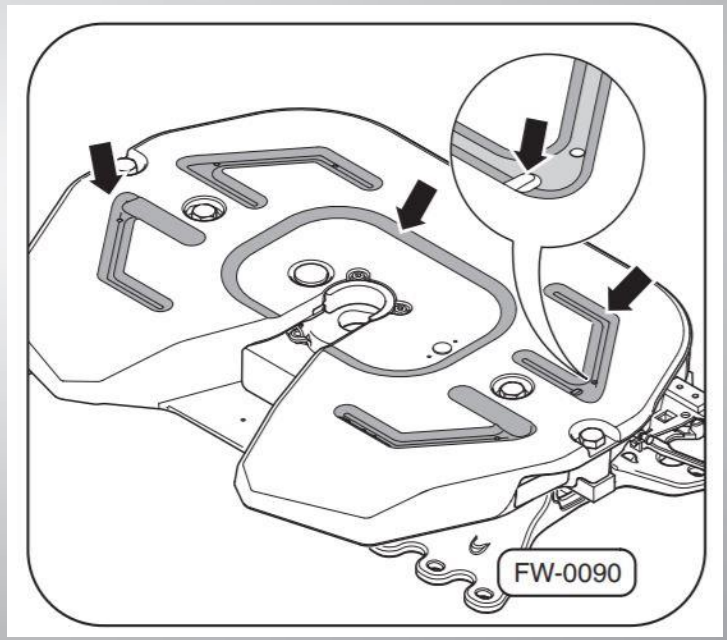
Fifth wheel basics

Critical safety components

- top plate
  - not cracked or worn past its wear limits
- the locking mechanism (e.g. jaw, cam plate)
  - complete, in good condition, and unmodified
  - correctly adjusted
- the handle and release mechanism
  - operational and in good condition
- Foot pins and foot pockets
  - free of cracks and other damage, not worn past wear limits

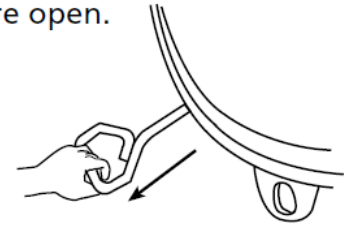
Top plate wear limits

- Top plates are designed to wear and some have wear indicators for this purpose
- If a top plate is worn down to the wear indicator or to the manufacturer's specifications (some say the base of the grease groove) it must be replaced



Locking mechanism – manual test

Make sure the locks are open.
To open locks,
pull release handle.



LOCKS ARE OPEN LOCKS ARE CLOSED

If locks are closed, pull release handle all the way out.

Open the lock with safety handle

1. Push the safety handle down by thumb Fig. 8, –arrow 1– and swivel the release handle to the left –arrow 2–.
2. Pull the release handle out completely –arrow 3– and hook the release device onto the edge of the plate.

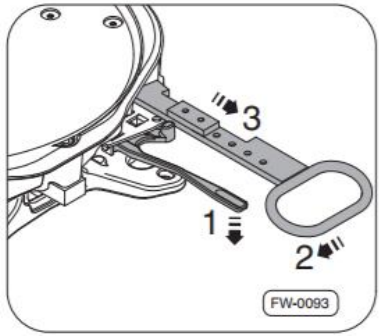


Fig. 8 · Open the lock

3. Ensure that the lock part swings open fully and the handle remains in a position to engage Fig. 9.

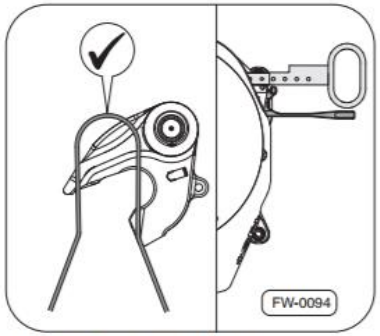
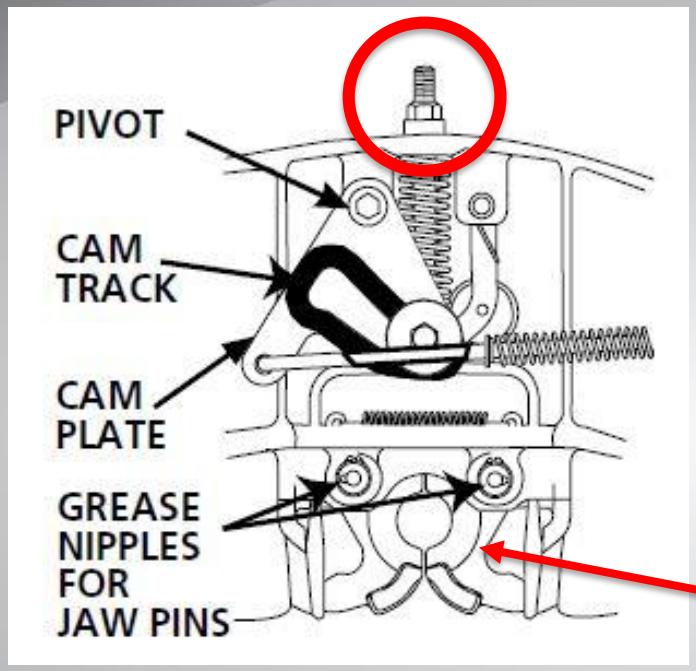
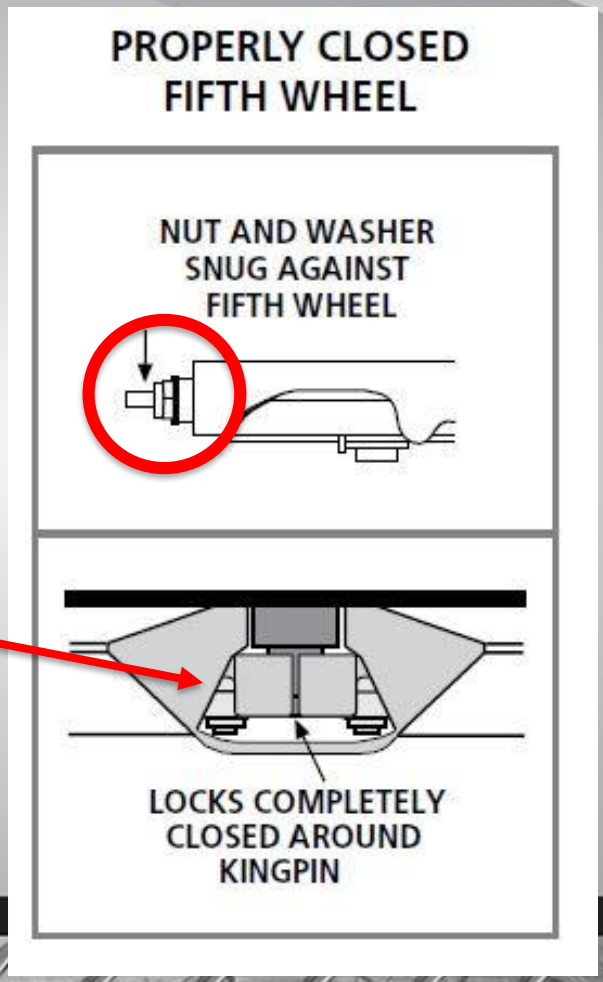


Fig. 9 · Opening the lock part

Locking mechanism – inspection



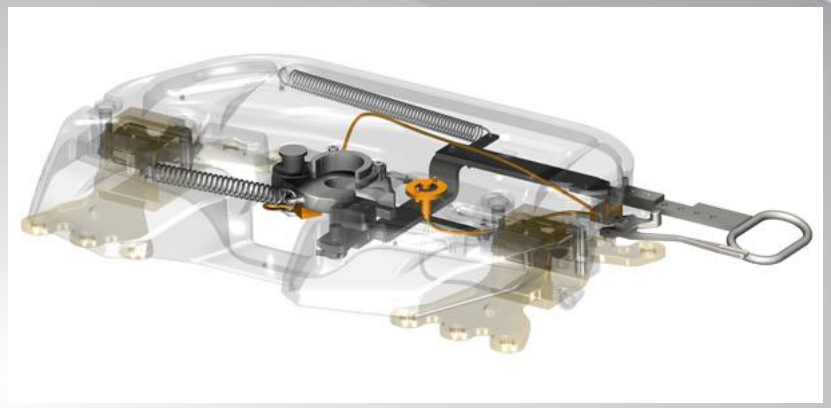


Always refer to the manufacturer's specification!

Correct lock aids

ELI-te for FW-series

RECOSS for G36



Foot pins, pocket inserts, bushes

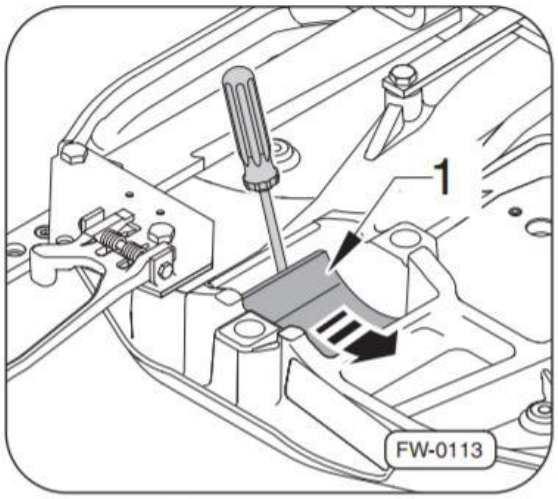


Fig. 39 · Replace bearing

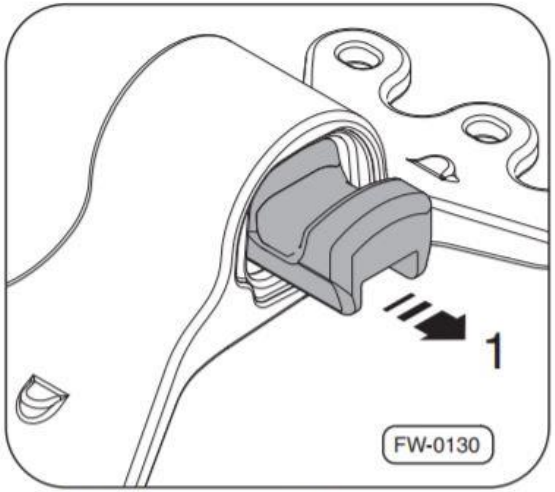
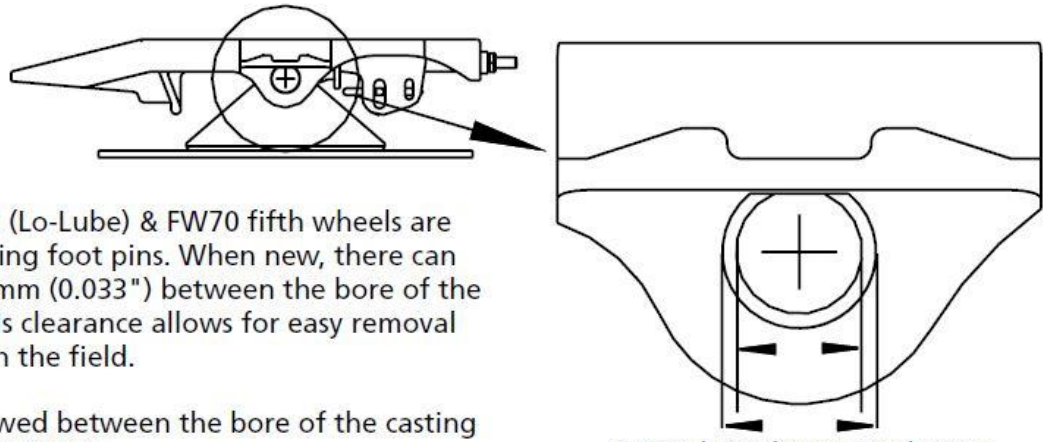


Fig. 40 · Remove rubber dampers



Holland Hitch FW351, FW342 (Lo-Lube) & FW70 fifth wheels are manufactured with loose fitting foot pins. When new, there can be a clearance of up to 0.85 mm (0.033") between the bore of the casting and the pivot pin. This clearance allows for easy removal and fitment of the foot pin in the field.

The maximum clearance allowed between the bore of the casting and the pivot pin is 3.2 mm (0.125").

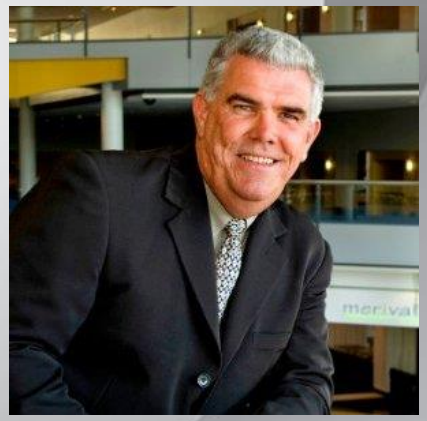
3.2 mm (0.125") Maximum clearance between casting bore and a new foot pin.

Installation and VASS inspections

Bob Martin

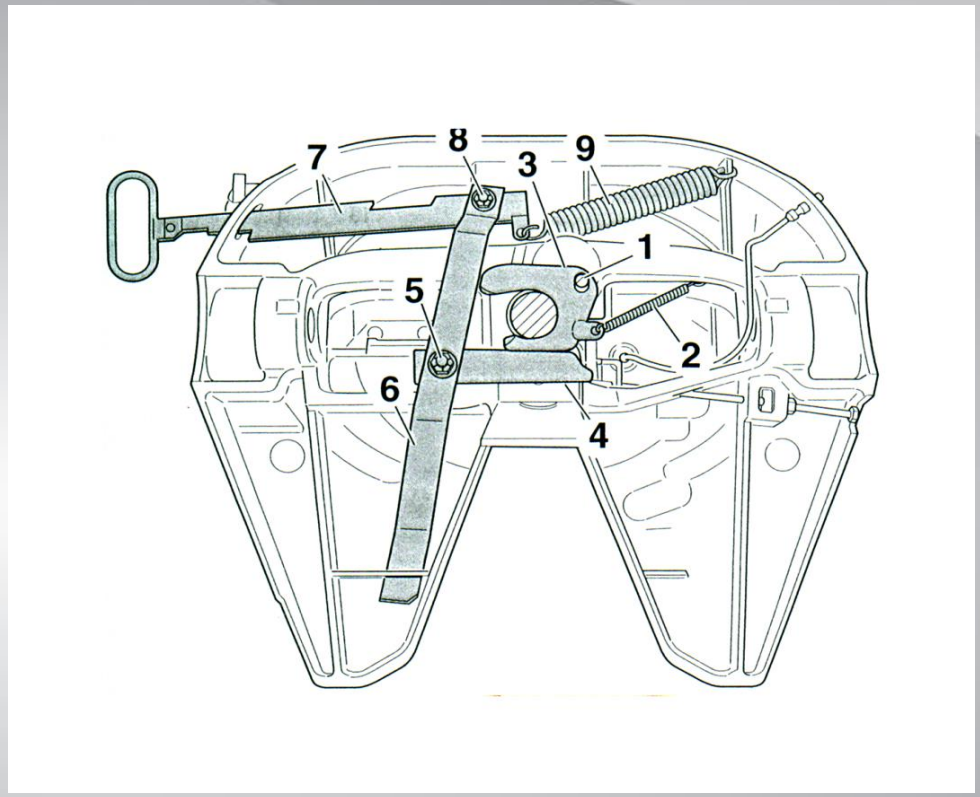
Branch Manager - Brisbane

Jost Australia

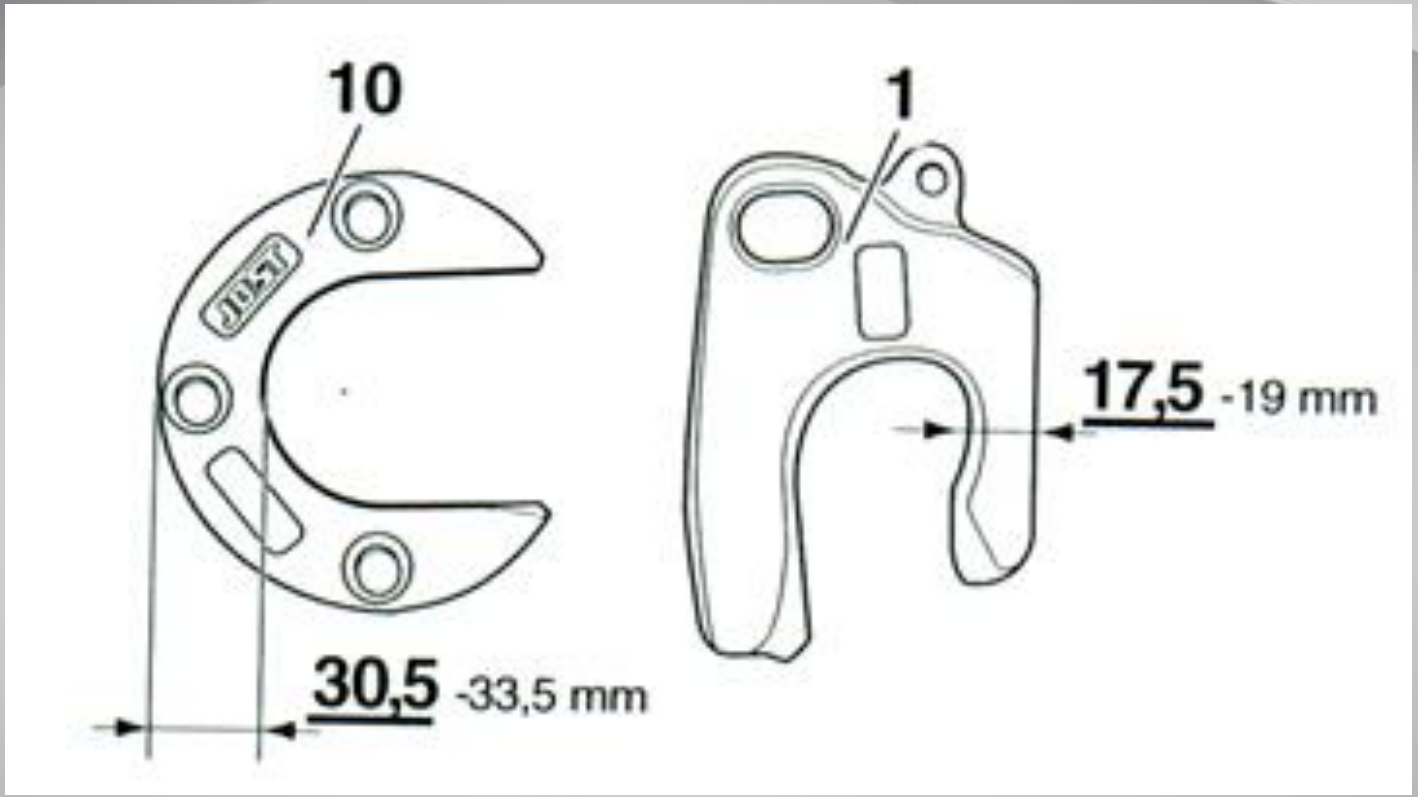


Typical Jost fifth wheel

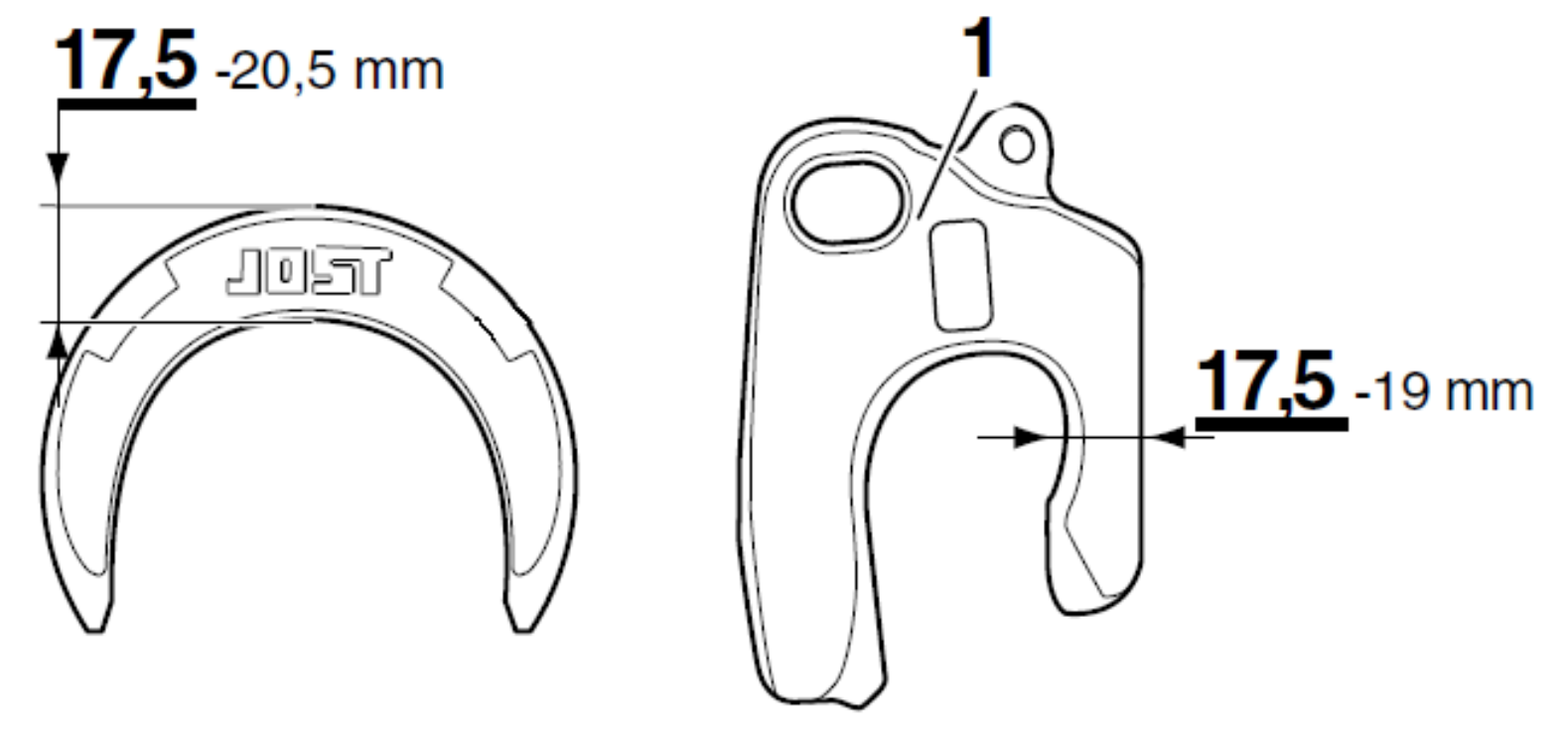
1. Pivot for lock jaw
2. Lock jaw return spring
3. Lock jaw
4. Locking bar
5. Lock bar bolt
6. Lever
7. Operating handle
8. Socket head bolt
9. Double tension spring



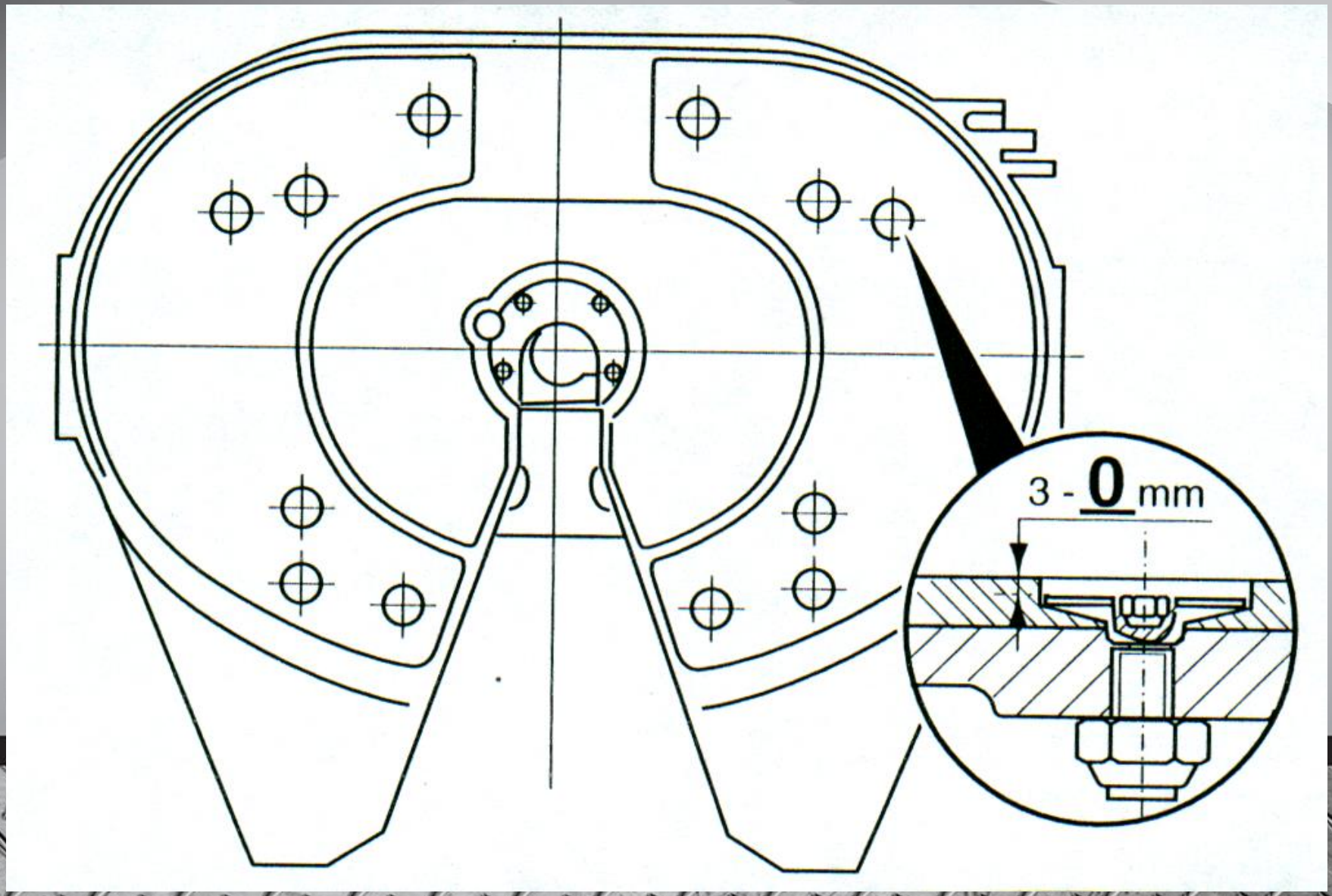
JOST 37 CZ Series



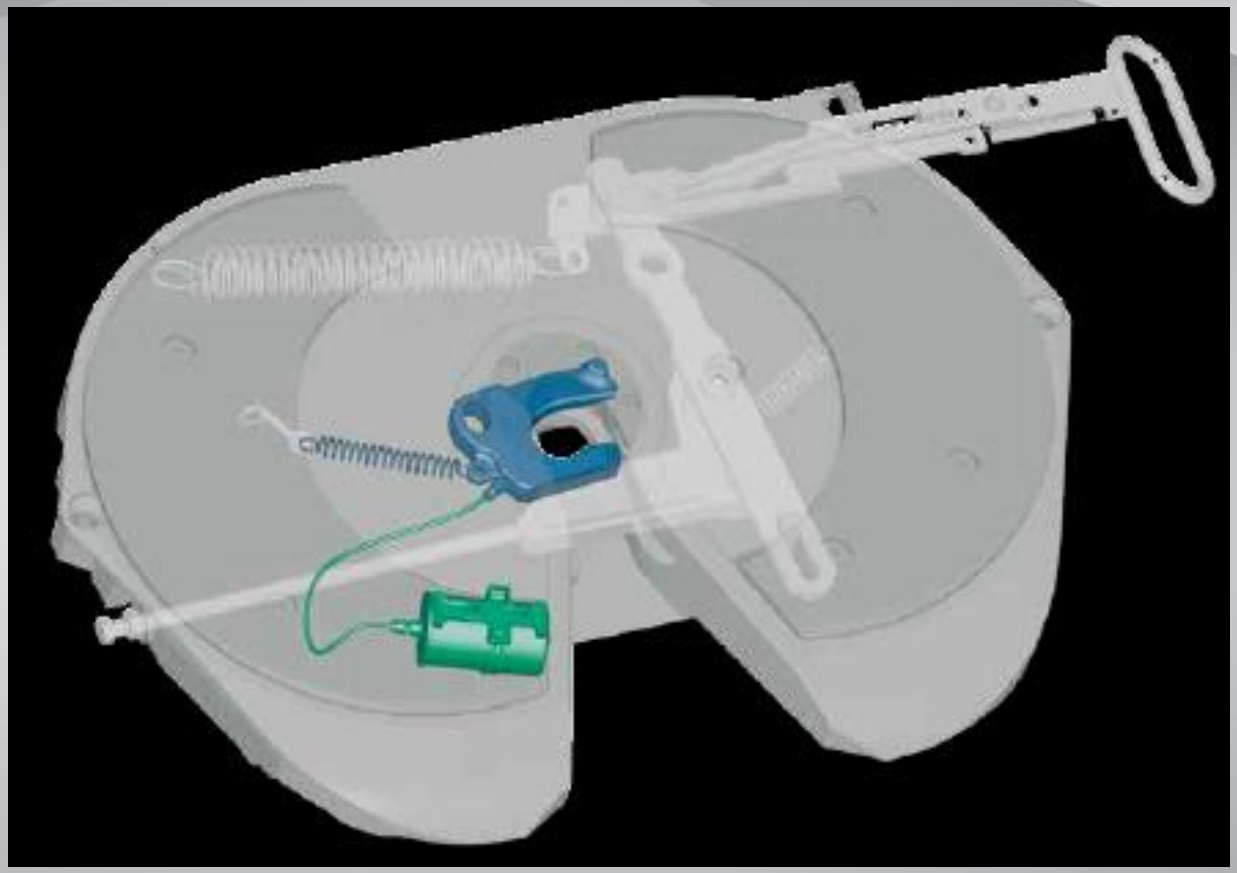
JOST 37 CZW Series



Maximum wear of greaseless insert



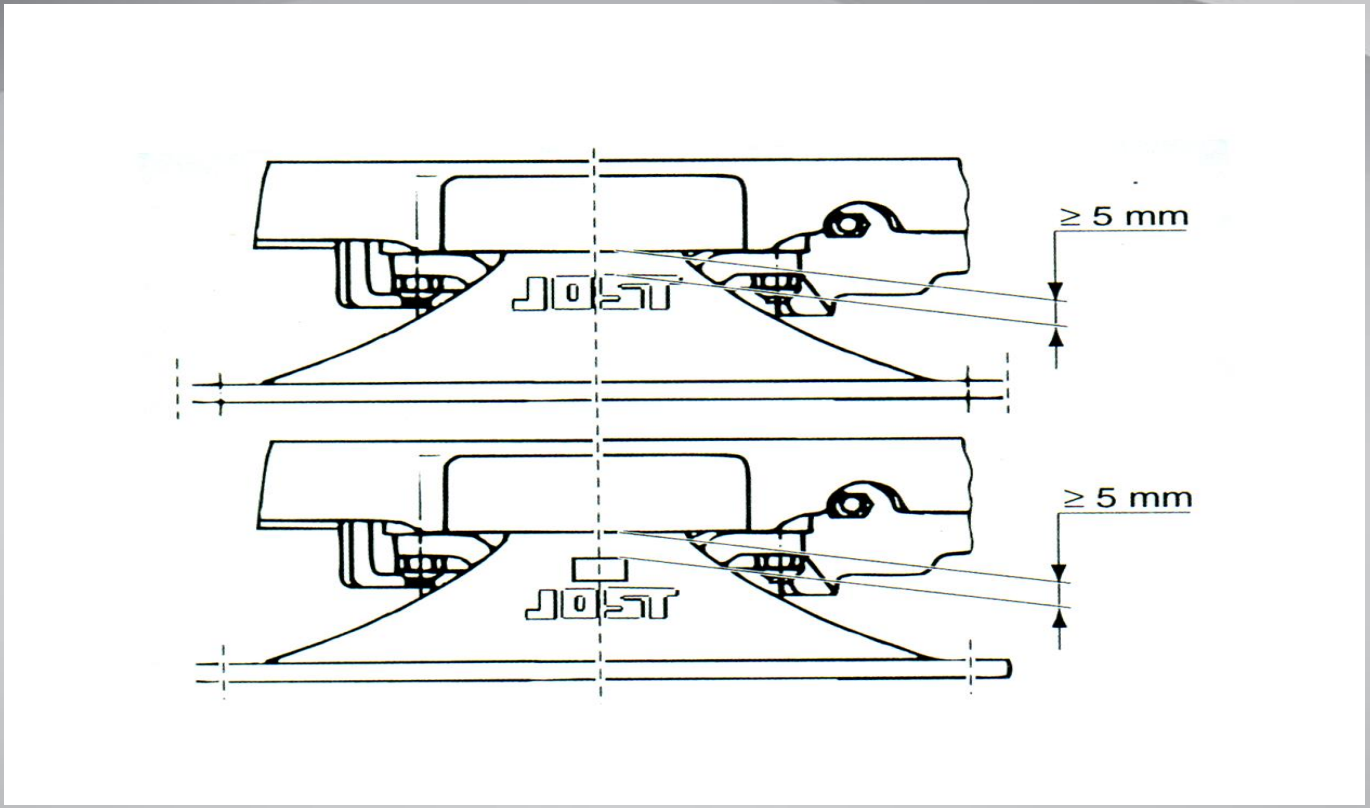
Automatic lubrication system



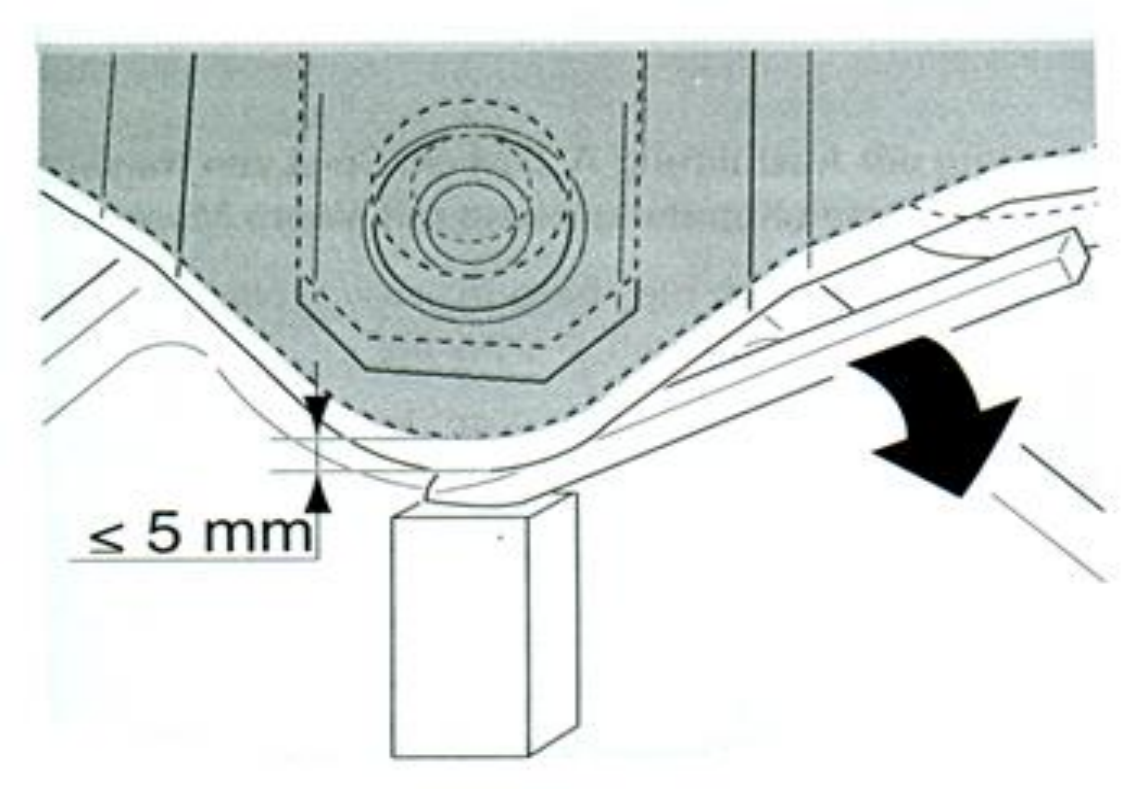
Lubrication system canister

- Lasts for three years in service
- LED flashes every 2 minutes, normal operation
- LED flashes every 5 seconds, replace canister

JSK 36/37 C type pedestals



JSK 37 E Pin & Bush-type pedestals



Customer Name:		Date:	
Vehicle Rego/Fleet No:		Odometer:	
Fifthwheel Model/Serial:			

= please inspect/maintain and tick in green boxes

JOST

JSK37CZ & CW Series Service Checklist

Service Interval		5,000km Weekly	25,000km Monthly Harsh Conditions	50,000km 6 Months Maximum
Clean	Remove enough grease to enable a visual inspection			
Visual Inspect	Check for broken, bent, missing or cracked items			
Function Check	Use trailer kingpin or SK-76000-00 Tester. If test fails, refer to service manual			
Wear Checks	Refer to diagram pg. 2			
Torque Checks	Refer to Inspection Criteria opposite			
Adjustment	Refer to diagram and instructions pg. 2			
Lubricate*	Refer to Inspection Criteria opposite			

Inspection Criteria		CZ Series	CW Series
Wear Checks	Top Plate		
	Bushes		
	Wear Ring		
	Locking Jaw		
	Inserts		
Visual Checks	ID Plate		
	Secondary Latch		
	Cracks, Damage, Bent Components		
Torque Checks	Wear Ring	140Nm	49Nm
	Saddle Bolts	170-180Nm	170-180Nm
	Mounting Bolts	210Nm	210Nm
	Inserts		16Nm
Lubricate	Top Plate		
	Lock Jaw		
	Locking Bar		
	Wear Ring		
	Points on Lever		

JOST Specialised Tools

* Ask your local JOST representative or reseller for information on these, and other available service tools

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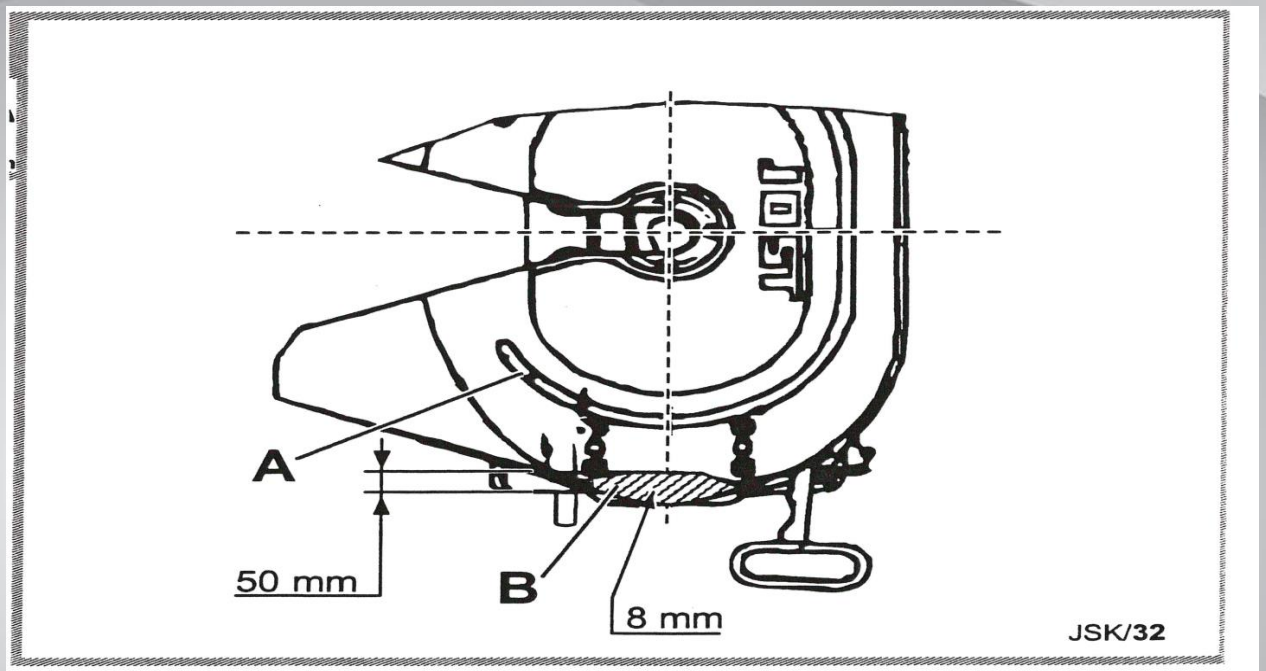
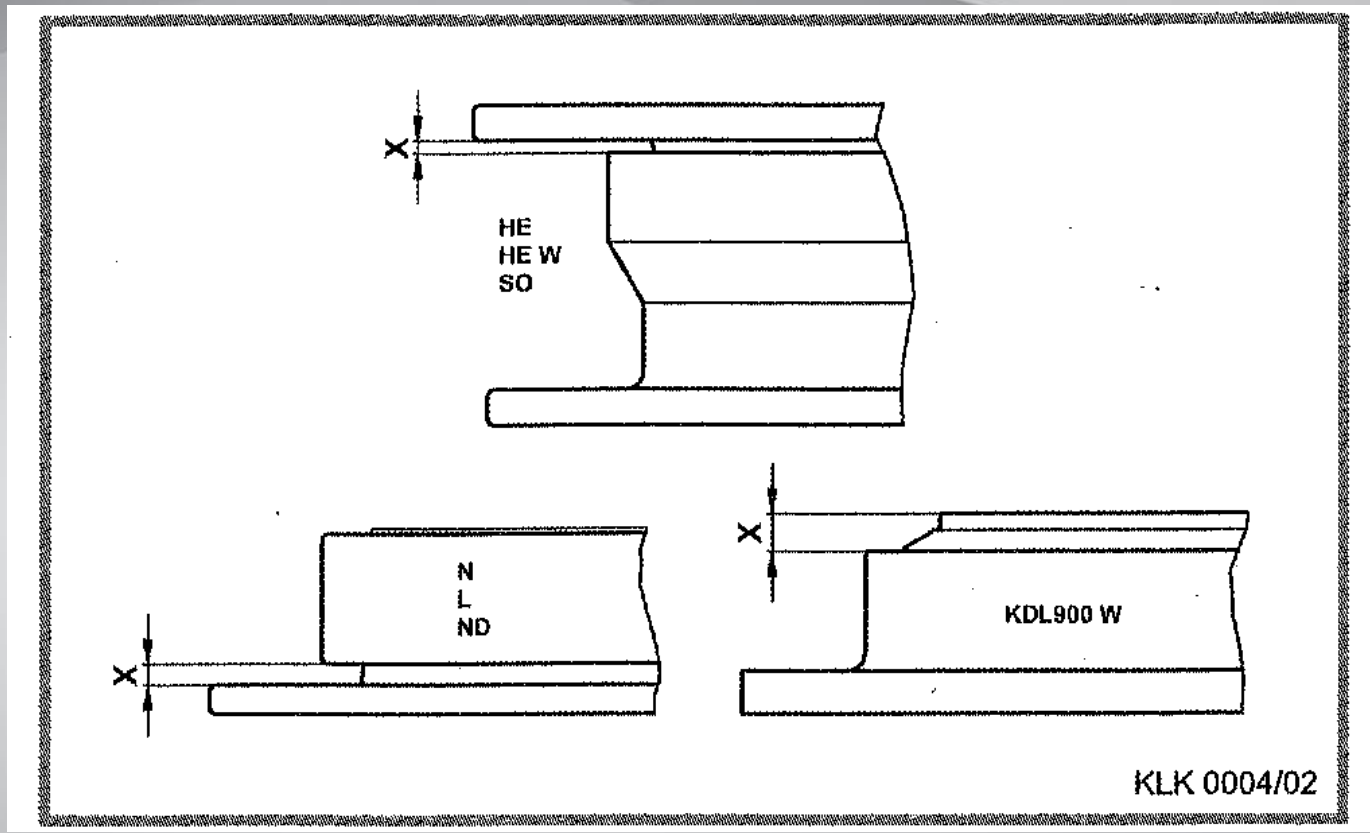
Lubricate*	Refer to Inspection Criteria opposite			

CZ top plate wear limit



The fifth wheel coupling must be replaced if: The top of the plate is worn to the bottom of the **lubricating groove depth "A"** at any point. Material wear of up to approx. 8 mm, in other words up to approx. 3 mm lower than the bottom of the lubricating groove, is permitted in **exterior part "B"** over the bearings. **This does not apply to the W version.**

Ball race wear limits



Series	Maximum axial play	Minimum air gap X	Maximum radial play
HE/SO	3.5 mm	0.0 mm	2.0 mm
KLK DR	3.0 mm	0.0 mm	2.0 mm
KDL 900 W	3.5 mm	7.5 mm	2.0 mm
L/N	2.5 mm	0.0 mm	1.5 mm

Andrew Archibald

Senior Transport Inspector

Department of Transport and Main Roads, Queensland

Sumner Park incident

Cunninghams Gap

Chris Blanchard

Workshop supervisor

Herb Blanchard Haulage

Fifth wheel coupling and uncoupling guidelines

Technical Advisory Procedure

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Background

- The issue was raised at ITC October 2016 - Jaw Inspection - Driver safety - Crush hazards
- Focus in previous years has been on Ringfeeder style coupling issues
- Exception - VSB6 5th wheel mounting
- Simple Operation - Complicated procedure
- European Vs American - ADR 38/05 v UN ECE R13
- Comprehensive document without being cumbersome
- Technical vs Procedural

Interests Coupled

- Dropped semi trailers
- Large issue - Elephant in the room
- Recorded incidents + Unrecorded
- 12 months - Several national carriers issued alerts re: fifth wheels
- Stakeholders combining resources & experience
- ALC - Own document
- On road compliance + WH&S

Pinning it down

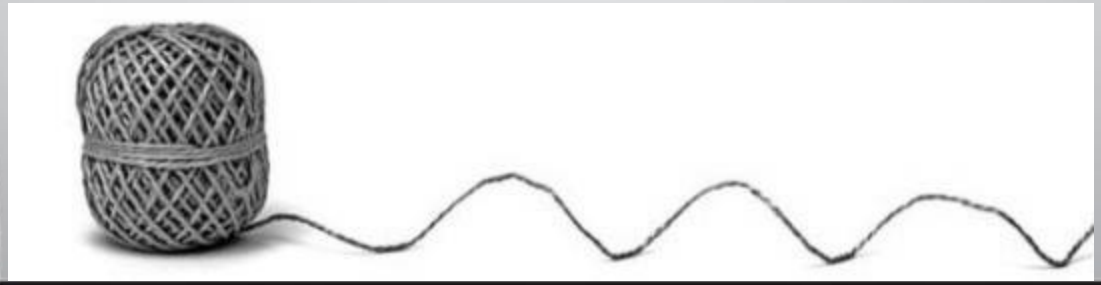
- Feedback from operators - networking
- Incorporate stakeholder input
- Base universal procedure
- Technical content
- Draft feedback

Simon Skazlic

General Manager – HS&E compliance

K&S Freighters

???



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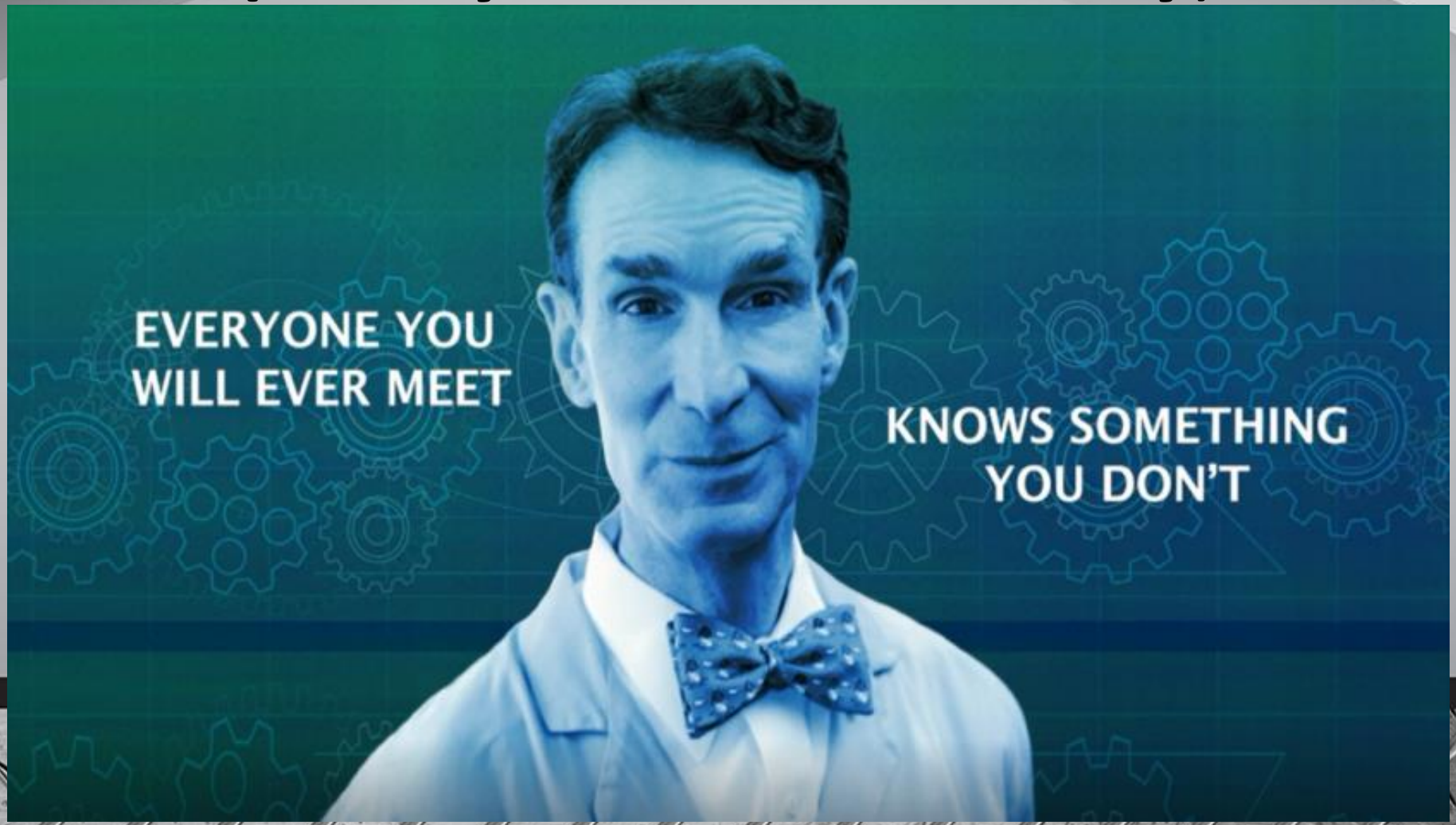
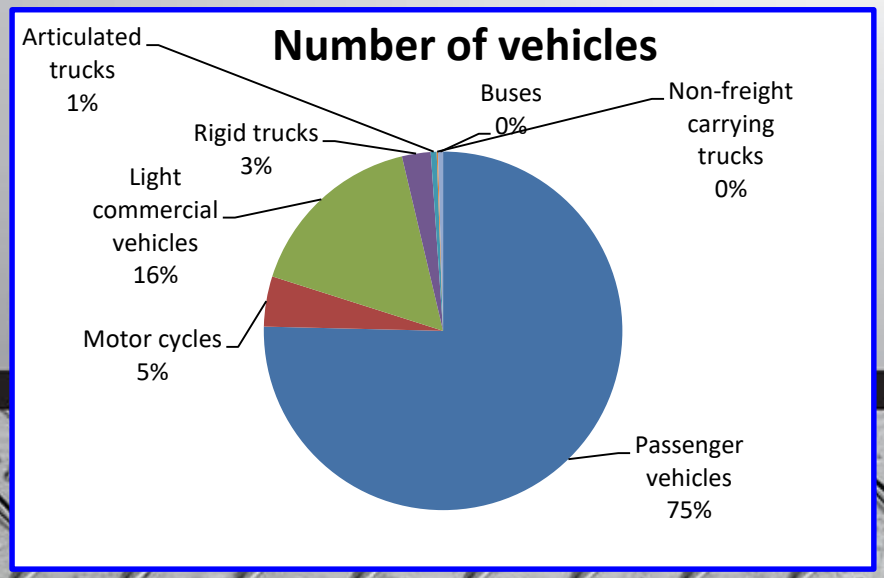
William Sanford Nye
(Bill Nye the Science Guy)

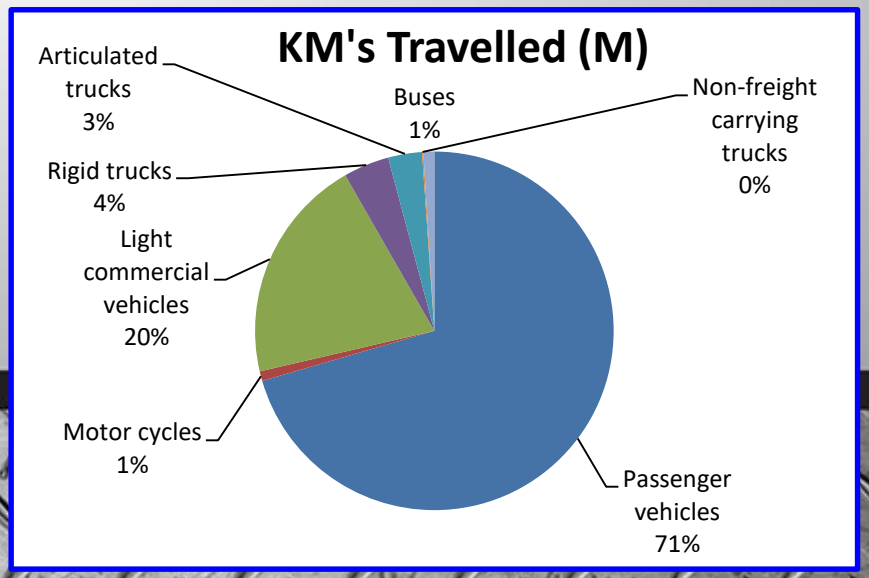


What numbers do we have?

Australian Bureau of Statistics

2016 (Type / Item)	Number of vehicles	%	KM's Travelled (M)	%
Passenger vehicles	13,712,810	75.4%	175,899	70.5%
Motor cycles	824,572	4.5%	2,176	0.9%
Light commercial vehicles	2,983,034	16.4%	50,778	20.4%
Rigid trucks	470,849	2.6%	10,301	4.1%
Articulated trucks	96,214	**0.5%**	7,613	**3.1%**
Non-freight carrying trucks	21,581	0.1%	290	0.1%
Buses	82,615	0.5%	2,456	1.0%
Total	18,191,675	100%	249,513	100.0%
			249.5 Billion KM's	





WHS Act

- The *Work Health and Safety Act 2011 (WHS Act) and Work Health and Safety Regulations 2011 (WHS Regulations) - have been adopted in most of the Australian states and territories.*
- Section 35 of the WHS Act defines a category of incidents called '**notifiable incidents**'.
- Section 38 requires a person who conducts a business or undertaking (PCBU) to ensure that the **Regulator is notified immediately**.
- Section 39 deals with the related topic of **preservation** of incident sites.
- Section 35 of the WHS Act defines a 'notifiable incident' as:
  - the death of a person, or
  - the serious injury or illness of a person, or
  - a **dangerous incident**.
- Under section 37 of the WHS Act, a dangerous incident is an incident in relation to a workplace that ***exposes a worker or any other person to a serious risk to a person's health or safety emanating from an immediate or imminent exposure*** to:
  - ***the fall or release from a height of any plant, substance or thing***

What's changed?

Includes, but not limited to:

- Greater number of articulated combinations across the fleet(s).
- Increase in number of trailer splits.
- Increase in drop out / quick hitch tasks.
- Warehouse / Distribution Centres - Finger docks.
- Air bag's.
- Driver / Operator skill sets.
- Distractions.

PANEL DISCUSSION

- Chair - Adam Ritzinger - SAF-Holland

- Panel members
- Bob Edwards - TEAM
- Adam Taylor - SAF-HOLLAND
- Bob Martin – Jost Australia
- Andrew Archibald - TMR inspector
- Simon Skazlic - K&S
- Chris Blanchard - Herb Blanchard Haulage