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AXLES, STUB AXLES AND WHEEL BEARINGS

APPLICATION

This inspection applies to the steered wheels of all vehicles.

PROCEDURE AND STANDARDS

A steered axle is one which has a king pin or ball joints and can be turned to a left and right lock. An axle ceases being steered when it is fixed in the straight ahead position.

When assessing excessive wear, play or lift account must be taken of any information given below and/or manufacturers' recommendations.

Check for excessive lift between stub axle and axle beam or between swivel joint and housing. For vehicles fitted with a " Hives" type thrust bearing any lift greater than 1.6 mm would be considered excessive and in the case of any other type of bearing lift greater than 1.0 mm.

Note: Mercedes Sprinter range of vehicles have suspension ball joints without springs, these joints are allowed up to 3.0 mm of axial play (lift) and 3.0 mm of radial play.

Note: Steered axles manufactured by BPW have a maximum lift of 12 mm.

Note: Renault Mascot vehicles with a design weight of 3.5 to 6.5 tonnes have a maximum king pin lift of 1.2 mm.

Note:
This inspection may be carried out either while lifting and lowering the axle with a jack or by lifting each wheel with a heel bar whilst the vehicle is raised off the ground.

Whilst the wheel is rocked, by using wheel play detector plates in the side to side mode, check for movement between

a. Stub axle and axle beam.

b. King pin and bushes. Any movement greater than 10 mm on a 500 mm diameter wheel is considered excessive. For wheels of different diameter the maximum allowable movement should be in proportion to this figure.

c. Wheel bearings and housing.

d. Swivel joint and housing.

e. Swivel joint housing and stub axle.

f. Swivel joint housing and suspension arms.

Note:
Wheel bearing free play can be isolated by applying the service brake.

- Check axle beam and stub axle for cracks.
- Check king pin retaining device for presence and security.
- Check swivel joint retaining and locking devices for presence and security.

REASONS FOR FAILURE

		Deficiency Category
1.	Stub axle and axle:	
a.	Excessive clearance between stub axle and axle beam.	MAJOR
b.	Excessive clearance between stub axle and axle beam which obviously affects directional stability.	DANGEROUS
c.	Fractured, cracked or deformed.	DANGEROUS
d.	Unsafe modification to an axle.	MAJOR
e.	Unsafe modification to an axle that obviously affects stability, functionality or gives insufficient clearance to other vehicle parts or the ground.	DANGEROUS
2.	King pin:	
a.	Excessively loose in axle beam.	MAJOR
b.	Excessively loose in axle beam which obviously affects directional stability.	DANGEROUS
c.	King pin or bush excessively worn.	MAJOR
d.	Retaining device missing or insecure.	MAJOR

3. Swivel joint:

a.	Excessively worn.	MAJOR
b.	Excessively worn to such an extent that directional stability is impaired.	DANGEROUS
c.	Insecure.	MAJOR
d.	Retaining or locking device missing or insecure.	MAJOR

4. Wheel bearing:

a.	With excessive free play.	MAJOR
b.	Wheel bearing with excessive free play which obviously affects directional stability.	DANGEROUS