



## WHEEL BEARINGS



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## 1 PLAY IN BEARINGS

There is a widely held misconception that there should be no play in a wheel bearing. This is untrue. A running clearance is essential to the long term performance of wheel bearings and this clearance can be felt if the wheel is rocked from side to side.

Detectable play on its own is not sufficient reason for changing a bearing. If the bearing is damaged or worn, there will be other symptoms such as noise or roughness when the wheel is rotated.

Play in cup and cone bearings can increase during normal use but this can be adjusted out during servicing.

## 2 BEARING TYPES

With the exception of the P6e, there have been three types of wheel bearing in use at Ifor Williams Trailers.

Early trailers were fitted with bearings of the separate "cup and cone" type. Trailers fitted with these bearings can be identified by the deep pattern hub and Al-Ko brakes. Cup and cone bearings can be greased and adjusted.

In September 1992, the hub design was changed to incorporate one-piece "unitized" bearings. These bearings are sealed for life and are not user serviceable.

In December 1995, the size of the unitised bearing was changed. The bearings are not interchangeable and the earlier unitised bearing is no longer available as a spare. IWT Spares department can supply a kit comprising of a hub with the new size bearing already installed and a collar to allow it to be fitted to the original size axle.

## 3. BASIC CHECK

3.1 Raise the trailer from the ground and chock securely

3.2 Rotate each wheel in turn. The wheel should rotate freely, smoothly and quietly. Noise, roughness or stiffness indicate a bearing problem.



## 4. UNITIZED BEARINGS

### 4.1 Clearance

The final design clearance of the unitized bearing is achieved by a combination of the manufacturer's internal clearance and the effects of the interference fit of the bearing in the hub/drum unit. This installation is approved by the bearing manufacturer and IWT. It is very unlikely that a used hub will still have the correct bearing housing size to achieve the correct running clearance. For this reason new bearings should be fitted as part of factory built hub/drum/bearing units.

### 4.3 Check Bearing Clearance

Raise the trailer from the ground and support securely.

Remove the hub cap and mount a Dial Test Indicator (DTI) to the end of the axle spindle using a magnetic base or a special end nut (available from the factory, torque to 350 Nm). The axle tube may be used if access is available to the back of the wheel. Do not mount to any other part of the trailer.

The DTI should read from the outer flat side of the bead well.

Rock the wheel from side to side with an estimated load of 5Kg. The free play in the bearing will be felt quite distinctly. Observe the total indicator reading (TIR) of the DTI – that is the total movement of the dial gauge needle

Note that 5 Kg is enough to move the wheel through the full range of the free play in the bearing. More force will cause flexing of the bearing surfaces and the wheel and the resulting reading will indicate more than bearing wear.

The limits for new and worn bearings are shown below. A "new" bearing is defined as a bearing fitted to a trailer which has never been run on the road.

Wheel rim diameter inches	Maximum TIR new mm	Maximum TIR used mm
10	0.10	0.15
12	0.12	0.18
13	0.13	0.20
16	0.16	0.24



## 5 CHECK AND ADJUST CUP AND CONE BEARINGS

- 5.1 Raise the trailer off the ground and support securely.
- 5.2 Rotate each wheel in turn. The wheel should rotate freely, smoothly and quietly. Noise, roughness or stiffness indicate a bearing problem.
- 5.3 Remove the grease cap. If the bearing appears dry or shows corrosion in the roller area then damage is certain and the bearing must be replaced.
- 5.4 If the bearing appears sound, remove the split pin and adjust.
- 5.5 Tighten the nut until no movement can be felt while rocking the wheel. (not much more than hand tight).
- 5.6 Slacken the nut until the next slot lines up with the hole in the axle.
- 5.7 Fit a new split pin.
- 5.8 Add more grease if necessary.
- 5.9 Replace the grease cap.