# CHAPTER 5. TRANSPORT AND LAND FORMING

## 5.1 FARM CARTS

## 5.1.2. REPAIR OF FARM CARTS

### TYPES OF REPAIR WHICH THE BLACKSMITH CAN UNDERTAKE

The local blacksmith can carry out many repairs on the farm cart with only basic tools (see **Fig.2, Module 3.6.1**). The methods which may be adopted do not necessarily require any welding equipment and may be undertaken in the village. They include repairs to the drawbar, the frame and the running gear. The local carpenter can also, of course, carry out any repairs to the wooden components.

### REPAIRS TO THE DRAWBAR

The tubular section drawbar used on many carts, particularly in West Africa, may sometimes become bent or fractured (**Fig.1**).

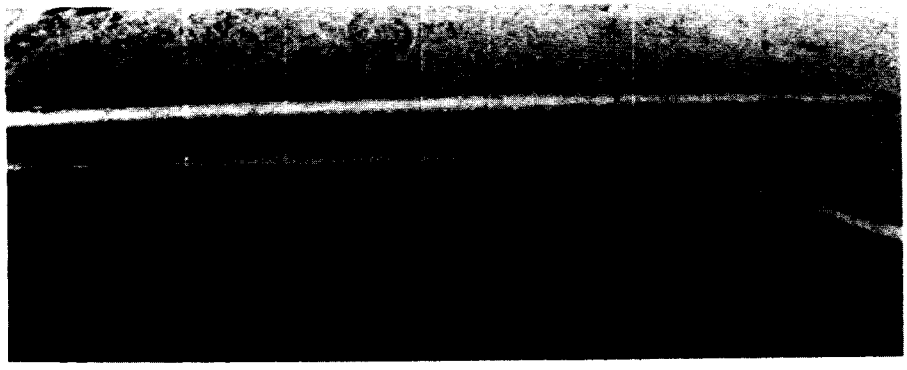

*Fig. 1 Typical damage to the tubular drawbar of a farm cart.* *Source: FAO, 1991*

This may be repaired by cutting out the damaged section, reshaping the ends of the tube and making a sleeve to fit round the outside of the two ends. The sleeve is made from 3 mm (1/8") thick scrap sheet metal measuring about 300 mm long and 240 mm wide (**Fig.2**).

The ends of the sleeve should overlap sufficiently so that a hole may be punched through both the sleeve and the drawbar to hold it firmly in place with a rivet. The other part of the drawbar is riveted in a similar manner so that the completed repair remains as shown (**Fig.3**).

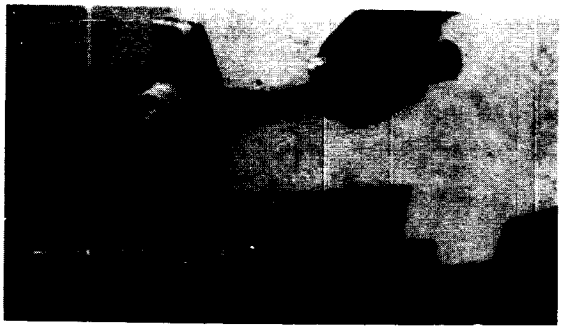

*Fig. 2 Shaping the sleeve to repair the tubular drawbar of a farm cart.*
*Source: FAO, 1991*

*Fig. 3 The completed repair to the drawbar with the sleeve firmly riveted into place.*
*Source: FAO, 1991*

## REPAIRS TO THE CART FRAME

The cart frame sometimes becomes fractured due to the frequent vibration on rough roads. Damage is more likely when the attachment bolts have not been regularly tightened during the routine maintenance procedures, described already in **Module 5.1.1**.

The cart should be dismantled sufficiently to allow the damaged part to be fully exposed so that the repair may be carried out. The progressive repair of a bent and fractured angle iron by riveting into place reinforcement is shown below (**Figs.4, 5 and 6**).

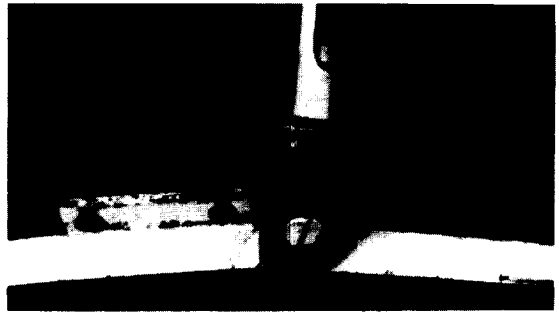

*Fig. 4 The bent or fractured angle iron of the frame is first hammered into its correct shape.* *Source: FAO,1991*

*Fig. 5 A piece of angle iron is cut to reinforce the fractured frame and holes punched for placing the rivets.* *Source: FAO, 1991*

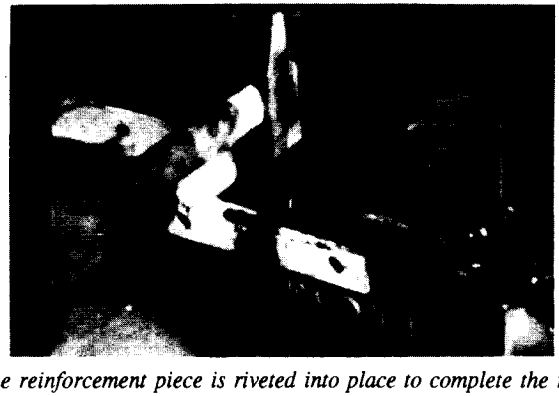

*Fig. 6 The reinforcement piece is riveted into place to complete the repair.*
*Source: FAO, 1991*

## ADJUSTING AND REPAIRING THE AXLE HUBS

At least once a year, the running gear of the cart should be dissembled and the bearings inspected for wear or damage. With the wheel jacked up clear of the ground, the hub cap is removed and then the split pin which holds the lock nut in position (**Fig.7**).

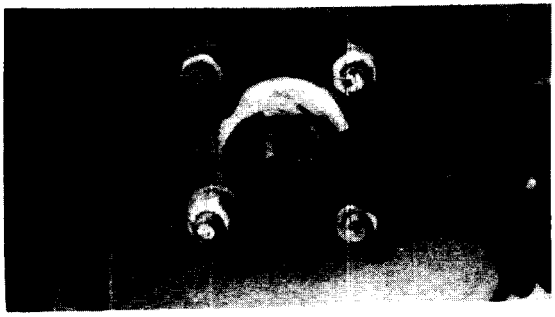

*Fig. 7 Removing the split pin which holds the lock nut in place for the wheel bearings.*
*Source: FAO,1991*

Unscrew the lock nut with a tubular spanner and remove the wheel, complete with the hub and outer bearing. All parts should be carefully cleaned with petrol, thoroughly inspected for wear (**Fig.8**) and dried before reassembly. The bearings and the interior of the hub are greased and remounted on the axle.

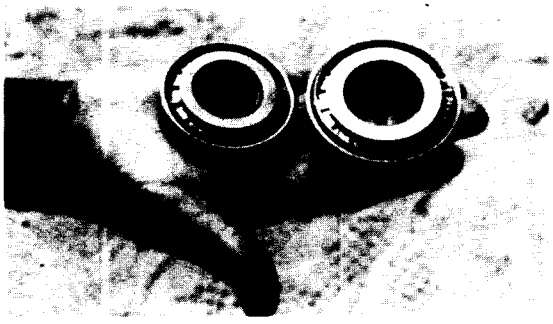

*Fig. 8 Inspecting the cleaned bearings.* *Source: FAO, 1991*

The lock nut should be firmly tightened so that there is no lateral play on the wheel but that it can turn freely. Replace the split pin and hub cap, making sure the fit completely is dust-tight.