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| <b>Commercial and Consumer Services,<br/>Transportation and Utilities Sector<br/>(CACTUS)</b> |               | <b>SIM 05/1999/52</b><br>(formerly SIM 03/1999/17) |                                  |
| <b>Cancellation Date</b>  | 30/07/2007    | <b>Open Government Status</b>                      | Fully Open                       |
| <b>Version No &amp; Date</b>  | 1: 30/07/1999 | <b>Author Unit/Section</b>                         | Engineering and Utilities Sector |

Target Audience:  
Regional Directors  
Heads of Operations  
HM Inspectors of Health and Safety

**BICYCLES USED BY ROYAL MAIL DELIVERY STAFF**

This SIM draws inspectors attention to various mechanical faults which have been identified and the remedial action taken. Also it gives details of a national structure to be put in place to ensure consistent inspection and maintenance of bicycles by Royal Mail

**INTRODUCTION**

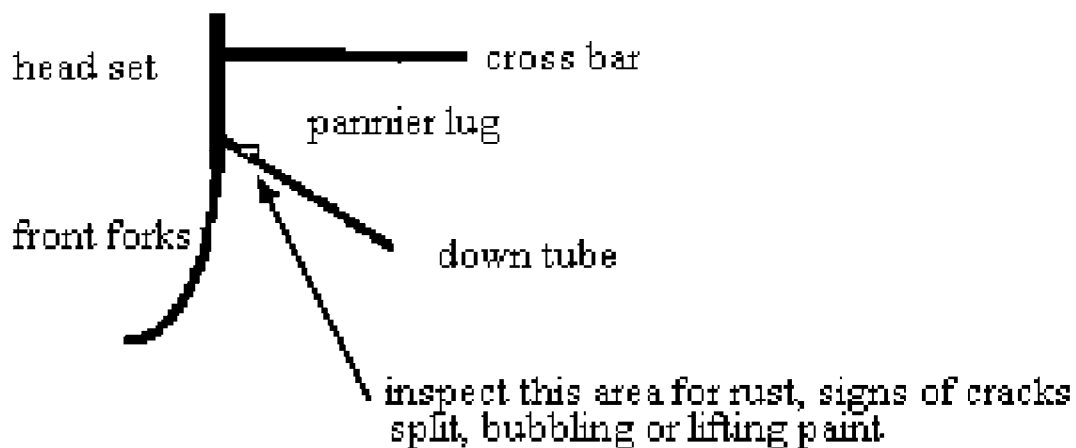
1 Royal Mail currently owns 32,000 bicycles used to deliver mail on approximately 29,000 cycle 'walks'. It is estimated that delivery staff cover 157,000,000 km per year. In 1998 there were 240 lost time accidents due to mechanical failures. Fortunately most of these were minor however any failure in traffic can lead to a more serious road traffic accident.

2 Royal Mail purchases a minimum of 3,000 bicycles per year. A frame is normally expected to last seven years with other parts such as brakes, tyres etc. replaced when required. Staff are expected to report any faults. There should also be an annual inspection by a bicycle mechanic. Work is being done to establish an optimum inspection period with trials currently taking place of 3 and 6 monthly inspections schemes.

3 Two specific failure modes have been identified (a) frame failures and (b) pedal failures. It also became apparent that existing bicycle maintenance had become fragmented. The national scheme for maintenance had become ineffective as local managers had been given considerable discretion as to what maintenance cover to provide. An improvement notice was served on the York sorting office to bring in a suitable scheme. This has now been achieved and is to be progressively implemented throughout the country.

**FRAME FAILURES**

4 In 1992 Royal Mail produced its own bicycle specification which it tested against BS 6102 which is the standard for leisure bicycles, there being no appropriate standard for commercial bicycles. Frame failures in the cross bar version have begun to occur on those bicycles manufactured between 1992 and 1996. Each frame has a unique identification number which identifies its year of manufacture. The failure occurs where the down tube pushes up into the side leg of the head set, close to the pannier lug. Corrosion normally occurs on the upper surface of the down tube with a slowly propagating crack around the diameter of the tube which eventually leads to failure.



5 Currently there are 6,000 bicycles manufactured between 1992 and 1996. The current replacement programme should have removed these from service by March 2002. In the meantime a 'Cycle Safety Notice' has been released requiring all bicycles manufactured during this period to be examined every three months by a Royal Mail bicycle mechanic. Due to the slow propagation of the crack this is considered adequate. Each bicycle already has a maintenance log sheet which will be used to record this inspection. Any suspect frames are to be scrapped.

6 Due to the current variations in maintenance regimes HSE has requested Royal Mail carries out its own internal audits to ensure the inspections are being done. This will be achieved by the following:

- (1) Within each of the 9 Operating Divisions a manager has been designated with the responsibility for ensuring that the safety checks are monitored (the cycle champion). They will make random checks on record keeping and compliance with the safety notice both by random visits and from randomly requested returns from units.
- (2) Unit managers will be responsible for ensuring adequate local records are being kept. They will also have to ensure that an inspection schedule has been produced and followed. Any resource implications will have to be resolved at this level.
- (3) Royal Mail Safety Officers will also make random checks to ensure that

Units continue to comply with the safety notice.

7 Further improvements have been made both in the design of the frame and the specification for the tube to remove the problem. The millennium model which is to be released shortly has the side leg of the head set extended further along the down tube to strengthen the area where failure has previously occurred. Currently there is no evidence to suggest there are any similar frame failure problems with bicycles manufactured after 1996, which have a better tube metal specification.

#### PEDAL FAILURE

8 During 1998 failures began to occur to the spindle on individual pedals. A pedal assembly consists of the two rubber blocks connected to a metal tube. The spindle passes through this tube to connect the pedal assembly to the pedal arm. These failures were occurring on new bicycles and those recently having had their pedal set replaced. No detailed figures are available as to how many failures there have been nor the resulting accidents, though one such failure lead to a major injury. The numbers occurring were sufficient for the matter to be raised by the cycle mechanics with both management and the union.

9 The pedal set are a standard unit bought from Marwi GMBH in Germany. These pedal sets are mass produced for domestic bicycles. The manufacturers of the bicycle, W R Pashley Ltd, have used this supplier for several years without any problems. It appears that the supplier of the pedal sets moved production to a factory in the Czech Republic with a resultant drop in quality.

10 Royal Mail and Pashleys have independently inspected a sample of partially used and new pedal sets. A range of defects were found, some occurring as a result of poor assembly by the manufacturer. However no evidence was found of any cracking or fracture on any of the spindles examined. Also there was no relationship between time in service and damage.

11 The problem of wear has been highlighted as a result of the poor quality of the pedal sets provided during 1998. It is likely that such damage was previously taking place but it did not have time to progress to the complete failure of the pedal spindle before the set was replaced.

12 Royal Mail have been unable to source a heavy duty pedal set. Therefore the problem of variable quality is being taken up with the supplier. In the mean time all bicycles are to have their pedal sets changed at least annually. This will also help reduce the number of accidents caused by the foot slipping as new rubber blocks are to be used. There has been a steady increase in such accidents. Whilst the pedal blocks have not changed more employees are wearing footwear with synthetic soles which provide less grip on the pedal. The new maintenance procedures can be used to monitor the effectiveness of this approach. Whilst this is not an ideal solution it is the best that can be achieved at present.

#### BICYCLE MAINTENANCE

13 A few years ago in preparation for a possible privatisation Royal Mail devolved greater management control to local managers. A consequence of this was that maintenance resourcing became subject to other commercial criteria. This led to variations in maintenance standards, with little or no preventative maintenance in some areas.

14 Historically cycle mechanics have been volunteers from within the delivery staff. Little formal training was provided with reliance placed on an experienced mechanic showing the new starter how to do different jobs.

15 There are approximately 500 mechanics in Royal Mail. Technical problems are raised through the 'Cycle Forum' which meets quarterly. Nine mechanics attend, one from each Operating Division. Amongst the management representatives are staff from Royal Mail Consulting who provide engineering expertise. As part of their support service they have produced a bicycle maintenance manual. They have also been investigating suitable training courses for bicycle mechanics.

16 Whilst good progress is being achieved at national level this is not always penetrating to unit level. The following component parts of the national scheme should begin to appear at local level during the course of 1999:

- (1) a clear line of management responsibility extending up through Royal Mail, a manager from each division has been appointed as 'cycle champion';
- (2) each mechanic should have available a copy of the maintenance manual, this is a controlled document so there should be a record of all updates;
- (3) there should be a record for each bicycle showing all repair work and inspections;
- (4) a fault recording system should be in operation;
- (5) all newly appointed cycle mechanics should eventually attend a suitable training course;
- (6) management should be able to demonstrate the criteria for establishing the staffing levels for bicycle maintenance; and
- (7) management must also be able to demonstrate that sufficient spare bicycles are readily available to cover for likely breakdowns.

#### ACTION BY INSPECTORS

17 HSE has agreed to a national programme for the inspection and replacement of suspect bicycle frames. A similar agreement has been reached over replacement pedal sets. There can be no excuse for not delivering these objectives. Inspectors should ensure that programmes are on target and if necessary check for their completion. Lack

of resources should not be accepted as an excuse for delay.

18 As regards the national scheme for bicycle maintenance the various component parts are at different stages of development. Inspectors should enquire from local management how far the system has developed at their premises thereby providing a further impetus to the process.

## ENFORCEMENT

19 Sufficient information is available from the Sector to support any inspector considering serving an Improvement Notice for failure to carry out regular frame inspections as required by the Provision and Use of Work Equipment Regulations 1998 (PUWER) reg. 6.

20 Similar support can also be provided for failure to replace annually the pedal sets. To dismantle a pedal set for inspection effectively destroys it. Therefore, reg. 5 should be used for any enforcement action.

21 An Improvement Notice was served on the York sorting office using reg. 5 of PUWER This was assisted by a major injury occurring because of a pedal failure. The notice was highly effective at raising this issue with senior Royal Mail management. However, care should be exercised with further notices as to what does or does not constitute an effective maintenance programme. Definite evidence of a clear local failing should be sought to support any such notice. Engineering and Utilities Sector Nottingham can be contacted on VPN 513 2800 to discuss any such course of action.

Date first issued: July 1999

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