MINISTRY OF DEFENCE

Strategy & Policy Directorate

Defence Infrastructure Organisation

SAFETY ALERT

Inspection of Runway Surfaces around Rotary Hydraulic Arrester Gear (RHAG) cables

Number: SA 04/11

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Who Should Read this: CEstOs, Top Level Budget Holders, MOD Project Managers, SETLs & SEATs, Commanding Officers/Heads of Establishment, Defence Infrastructure Organisation (DIO) Deputy Heads (Estates), DIO Intl, DIO Advisors and Maintenance Management Organisations.	
When it takes effect: Immediately	When it is due to expire: 31 December 2012

1 Document Aim

a. To inspect the runway surfaces around Rotary Hydraulic Arrestor Gear (RHAG) cables to ensure it is free from defects that could cause hook bounce from an aircraft trying to engage the RHAG cable.

2 Introduction

a. COMPLIANCE WITH THE CONTENTS OF THIS ALERT WILL ENABLE COMPLIANCE WITH THE HEALTH & SAFETY AT WORK ETC ACT 1974 AND ITS SUBORDINATE REGULATIONS.

b. The appropriate MOD officer shall arrange for the RPC/ Maintenance Management Organisation (MMO) contractor to carry out all actions in accordance with this Alert.

c. Any work required as a result of this Alert must be carried out in accordance with JSP 554 – Aerodrome Standards and Design and Maintenance Guide 27 – A Guide to Airfield Pavement Design and Evaluation.

d. On MOD Establishments occupied by United States Visiting Forces (USVF) responsibility is jointly held by USVF and DE (USF). At base level this jointly managed organisation is to take appropriate action to implement the contents of this Alert. Where this Alert contains

procedures which differ significantly from USVF practice the USVF practices should be adopted.

3 Background

a. This Safety Alert has been raised in response to COMMAND ACTION LETTER – TORNADO GR4 ZA596 – 20 JUL 09.

4 Required Action

a. To complete a detailed inspection before the end of July 2011 and then every two years as detailed below. Between detailed inspections to monitor the condition of the runway to ensure critical defects do not occur and if they are suspected to complete a detailed inspection.

b. The inspection methodology and criteria are outlined below.

Runway Surface Conditions and Inspections for Installed and new Installations

The hook of an engaging aircraft is released and dragged for 180-300m on the runway surface before it engages the cable. The smoothness of the runway, which deteriorates with time and usage, is important because even small steps or local gradients taken at high speed may cause the hook to skip over the cable.

The 60m of pavement on both the approach and departure sides of the arresting cable for a width equal to the off centre capability of the system are critical areas. For a RHAG installation the off centre engagement capability is 12m. Protruding objects, excessive paint build up, excessive joint sealant material and undulating surfaces are detrimental to successful tail hook engagements and are not allowable. High spots exceeding 3mm are to be removed; depressions exceeding 3mm are to be rectified.

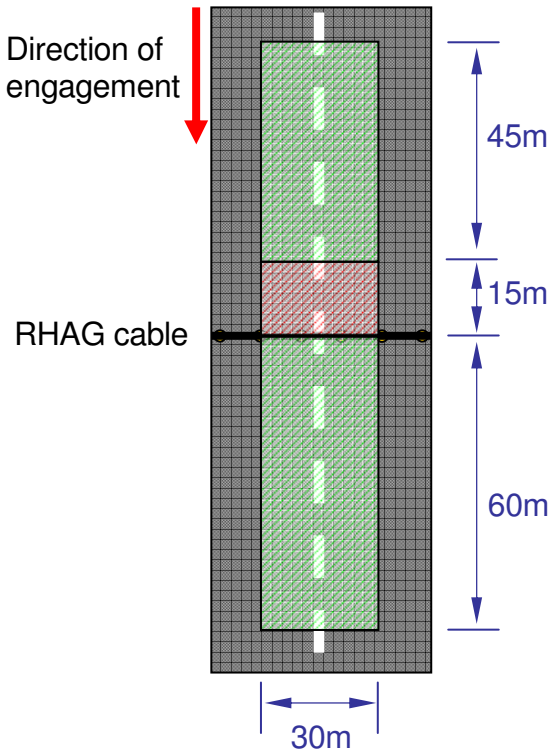
Spring hooks fitted to some aircraft, including Tornado, do not have dampers to control hook motion. These aircraft need a particularly smooth surface to ensure satisfactory operation. The area within 15m each side of the cable for a width equal to the off centre capability of the system should be very smooth to further guarantee satisfactory engagement of aircraft with spring hooks. The maximum acceptable imperfections, measured in the direction of engagement are:

Step up:	3 mm under a 3m straight edge
Step down:	12.7 mm under a 3m straight edge
Protrusions:	3mm under a 3m straight edge
Local rising gradient:	5mm change over a 3m straight edge

These areas of the runway must be visually inspected at least monthly for indications of the above noted conditions. Suspect areas, such as pavement cracks and joints must be inspected more closely and increased attention will be necessary after a freeze thaw cycle. Any problem areas identified are to be reported to the SATCO in order that a more detailed inspection can be performed by Works Service Pavement Specialists. Any repairs to the surface as a result of the detailed inspections are to be undertaken under a work service order.

Detailed inspections of suspect areas can be performed both longitudinally and transversely using a 3m straight edge without feet. A 3m x 3m grid covering the width of engagement extending 15m from the RHAG cable before engagement (red area, see below). High spots exceeding 3mm are to be removed; depressions exceeding 3mm are to be rectified. Engineering judgement must be exercised for areas between the grid and ad hoc readings taken if needed.

The area 60m either side of the RHAG cable (green area, see below) should be visually inspected looking for defects as specified above.



Where a new arrestor cable system is to be installed, the runway surface must be inspected within the areas specified as specified above and the results promulgated prior to the installation proceeding.

Minor defects that can be confined within a 150mm diameter core should be cored and reinstated. Larger defects should be addressed in accordance with Functional Standard 06. Further advice can be sought from Defence Estates, Professional and Technical Services, Airfield Pavements.

Please confirm in writing to the DIO Hd Airfield Pavements, Professional and Technical Services that the runway complies with the above requirements by 31st July 2011.