



TECHNICAL INSTRUCTION

KZN OU

Title: **REPLACEMENT PROCESS FOR
WORKING AT HEIGHT PPE
STANDARD**

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1. INTRODUCTION

This technical Instruction is deemed necessary to assist the Operating Unit in making an informed decision on the replacement process of in-service Working at Height (**WaH**) PPE. Currently the OU depends on the recommendations made by the WaH equipment manufacturer, which bases its product on a life expectancy of between 5 to 6 years. On the 03 February 2017 an impact loading tests was performed on two 5 year old FAS units that were removed from service and the results were positive. Based on this result, the manufacturer has agreed to increase the life expectancy to 7 years, with the intention of extending the replacement period to ten years.

The checklist in annexures A, B and C was developed with the current approved manufacturer and is aimed at the end user and will assist in the conditioning monitoring of the units. Take note that WaH PPE can be removed from service at any time based on its condition before the recommended life expectancy is reached.

These checklists shall supersede all previously used checklists.

2. SUPPORTING CLAUSES

2.1 Scope

This Technical Instruction covers all Working at Height equipment and includes the following:

- Fall Arrest System (FAS)
- Rescue Kit
- Rope Grab System

2.1.1 Purpose

The aim of this document is to enlighten the Operating Unit on the changes that affect the replacement of WaH PPE.

Take note that the details in this instruction are based on the advice of our current approved manufacturer and suppliers and is subject to change.

2.1.2 Applicability

This document shall apply throughout KZN Operating Unit.

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2.1.3 Effective date

This instruction shall become effective from the date of authorisation.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] Annexure A: Fall Arrest System Checklist
- [3] Annexure B: Rescue Kit Checklist
- [4] Annexure C: Rope Grab System
- [5] 229995 -Install, use and perform basic rescues from fall arrest systems and implement the fall protection plan
- [6] 229998 -Explain and perform fall arrest techniques when working at height

2.2.2 Informative

- [7] Occupational Health and Safety Act and Regulations 85 of 1993.

2.3 Roles and Responsibilities

2.3.1 The End User

The end user is someone that has been trained and found competent as per 229998 and 229995 and his/her roles and responsibilities shall be as follows:

- To conduct pre-inspection on WaH PPE before use.
- To report on any defects found on the WaH PPE and to ensure that such defective equipment are removed from service.
- To ensure defective equipment are replaced timeously.

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2.3.2 The Competent Person

The competent person is someone who has been trained as per 229998 and 229995 and appointed in writing to inspect all WaH PPE within a specified section and his/her role and responsibilities shall be as follows:

- To ensure a register of WaH PPE is maintained.
- To ensure all WaH PPE are inspected on three monthly basis.
- To report on any defects found on the WaH PPE and to ensure that such defective equipment are removed from service.

2.3.3 Head of Departments/Senior Supervisors

This person is someone who is responsible for the overall control of WaH PPE within his/her area of control and whose roles and responsibilities shall be as follows:

- To ensure user of WaH PPE are trained and found competent.
- To ensure that all users are issued with serviceable WaH PPE.
- To ensure that all WaH PPE are on a register.
- To ensure that all WaH PPE are inspected by a competent person on a three monthly basis.
- To ensure that defective equipment is removed from service and replaced timeously.

2.4 Process for Monitoring

The process for monitoring WaH PPE shall be executed as follows:

- During pre-use and post use.
- Checks should be done as listed in Annexure A, B and C.
- An appointed competent person shall conduct three monthly inspections and maintain a registry.
- Co-ordinated effort to remove in-service WaH PPE for batch testing where and when necessary.

3. REPLACEMENT PROCESS OF WAH PPE

With years of experience on working with WaH PPE, coupled with structured training that is now available to end users and competent persons, the Operating Unit has decided to move away from a replacement process based on product life expectancy to that of conditioning monitoring.

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Henceforth the replacement process adopted in the OU will be as follows:

- Where WaH PPE has been maintained on a registry, with three monthly inspections signed off by an appointed competent person and having passed the latest evaluation criteria in Annexure A, B or C, such equipment need not be replaced if it is within the prescribed manufacturer's life expectancy.
- Where WaH PPE has reached the prescribed manufacturer's life expectancy but has been maintained on a registry, with three monthly inspections signed off by an appointed competent person and having passed the latest evaluation criteria in Annexure A, B or C, such equipment needs to be batch tested to determine suitability for further use. **Batch testing process was discussed and agreed upon with current WaH manufacturer.**
- Where WaH PPE has not been maintained on a registry, with no three monthly mandatory inspections and having passed the latest evaluation criteria in Annexure A, B or C, such equipment must be removed from service for batch testing.
- Where a WaH PPE has been maintained on a registry, with three monthly inspections signed off by an appointed competent person but failed the latest evaluation criteria in Annexure A, B or C, such equipment must be removed from service and replaced.
- Finally where there is any disagreement between the end user and competent person on the serviceability of WaH PPE, such equipment must be withdrawn and replaced.

4. BATCH TESTING PROCESS

The current manufacturer-Quality Safety has agreed to conduct impact load tests on at least 1% of the total in-service WaH PPE that have reached their desired life expectancy of 7 years. The Senior Supervisor in consultation with the appointed competent person shall identify the 1% of units within his area of control for batch testing. Take note that WaH PPE that are selected for batch testing will be tested to destruction and must therefore be replaced with new units.

The Senior Supervisor must then notify the authors of this document, via e-mail the details of the WaH PPE identified for batch testing. Arrangements will then be made to collect these identified units.

Units for testing must be clearly marked with CNC name, make and model number.

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Each CNC that submitted units for batch testing will be notified of the impact load test results for their respective actions. Should a unit fail the impact load test, then all units manufactured within that year of the failed unit need to be withdrawn from service and replaced.

5. ACCEPTANCE

This document has been seen and accepted by:

Name	Designation
Riaz Asmal	Standards Implementation Manager-KZN OU
Ian McFadden	Technical Support Manager

6. REVISION

Date	Rev.	Compiler	Remarks
March 2017	1	C. Shunmugam F.Werner	Impact Loading test conducted-life expectancy increased from 5 to 7 years. Added section 4 – Batch Testing Process
March 2017	1	C. Shunmugam F.Werner	Published
December 2016	0.2	C. Shunmugam F.Werner	Resent for final comments
June 2016	0.1	C. Shunmugam F.Werner	First Draft

7. DEVELOPMENT TEAM

The following people were involved in the development of this document:

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Annexure A – Fall Arrest System Checklist

Doc No: KZN16CSTI-168 Annexure A: Fall Arrest System Checklist			
Manufacturer's Name:		Model No:	
Dept. Name:			
Eskom's Asset No:			
Full Body Harness- Serial No.			
Webbing	Pass	Fail	Comments
Grasp the webbing in your hands and bend the webbing, checking both sides. This creates surface tension making damaged fibres and cuts easier to see. Webbing damage may not show up through a visual sight inspection only-manual touching of harness is equally important			
Visual & Touch Inspection	Pass	Fail	Comments
Cuts, nicks and tear			
Broken fibres/cracks			
Overall deterioration			
Modifications by users			
Fraying/Abrasion			
Discoloration of material-(dependant on cause of dislocation)			
Hard or shiny spots-indicates heat damage			
Webbing thickness uneven-indicates possible fall			
Mildew-clean harness			
Missing straps			
Undue stretching-indicates possible fall			
Burnt charred or melted fibres-indicates heat damage			
Material marked with permanent marker-check with manufacturer			
Excessive hardness or brittleness-indicates heat or UV damage			
Stitching	Pass	Fail	Comments
Visual & Touch Inspection			
Pulled stitches			
Stitches that are missing			
Hard or shiny spots-indicates heat damage			
Cut stitches			
Discoloration of stitches-dependant on cause of discoloration			

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Annexure A (cont.) - Fall Arrest System Checklist

Metal Parts	Pass	Fail	Comments
Visual & Touch inspection			
Distortion-(twist, bends)			
Rust or corrosion			
Rough or sharp edges			
Cracks or breaks			
Modifications by users-like additional holes			
All springs must be in working order			
Karabiner-ensure at least two consecutive free movements to open			
Safety Lanyard Inspection-Serial No.	Pass	Fail	Comments
Visual and Touch inspection			
Cuts, nicks or tears			
Broken fibre/cracks			
Overall deterioration			
Modification by user			
Fraying/Abrasions			
Discoloration of material-dependent on cause of discoloration			
Hard or shiny spots-indicates heat damage			
Change in core size-indicates possible fall			
Mildew-clean lanyard			
Missing or popped flag-indicates possible fall			
Undue stretching-indicates possible fall			
Burnt, charred or melted fibres-indicates heat damage			
Material marked with permanent marker-check with manufacturer			
Excessive hardness or brittleness-indicates heat or uv damage			
Knots in lanyard			
Stitching	Pass	Fail	Comments
Visual & Touch Inspection			
Pulled stitches			
Stitches that are missing			
Hard or shiny spots-indicates heat damage			
Cut stitches			
Discoloration of stitches-dependant on cause of discoloration			

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Annexure A (cont.) - Fall Arrest System Checklist

Metal Parts	Pass	Fail	Comments
Visual & Touch inspection			
Distortion-(twist, bends)			
Rust or corrosion			
Rough or sharp edges			
Cracks or breaks			
Modifications by users-like additional holes			
All springs must be in working order			
Karabiner-ensure at least two consecutive free movements to open			
Work Positioning Lanyard Inspection-Serial No.	Pass	Fail	Comments
Visual and Touch inspection			
Cuts, nicks or tears			
Broken fibre/cracks			
Overall deterioration			
Modification by user			
Fraying/Abrasions			
Discoloration of material-dependent on cause of discoloration			
Hard or shiny spots-indicates heat damage			
Change in core size-indicates possible fall			
Mildew-clean lanyard			
Missing or popped flag-indicates possible fall			
Undue stretching-indicates possible fall			
Burnt, charred or melted fibres-indicates heat damage			
Material marked with permanent marker-check with manufacturer			
Excessive hardness or brittleness-indicates heat or uv damage			
Knots in lanyard			
Stitching	Pass	Fail	Comments
Visual & Touch Inspection			
Pulled stitches			
Stitches that are missing			
Hard or shiny spots-indicates heat damage			
Cut stitches			
Discoloration of stitches-dependant on cause of discoloration			

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Annexure A (cont.) - Fall Arrest System Checklist

Metal Parts	Pass	Fail	Comments
Visual & Touch inspection			
Distortion-(twist, bends)			
Rust or corrosion			
Rough or sharp edges			
Cracks or breaks			
Modifications by users-like additional holes			
All springs must be in working order			
Karabiner-ensure at least two consecutive free movements to open			
1.5m Attachment Straps-Serial No.	Pass	Fail	Comments
Visual & Touch Inspection			
Cuts, nicks and tear			
Broken fibres/cracks			
Overall deterioration			
Modifications by users			
Fraying/Abrasion			
Discoloration of material-(dependant on cause of discoloration)			
Hard or shiny spots-indicates heat damage			
Webbing thickness uneven-indicates possible fall			
Mildew-clean harness			
Missing straps			
Undue stretching-indicates possible fall			
Burnt charred or melted fibres-indicates heat damage			
Material marked with permanent marker-check with manufacturer			
Excessive hardness or brittleness-indicates heat or uv damage			
Storage Bag	Y	N	
Is there a storage bag?- Mark with 'x' the appropriate block			
Is the bag clean-free from oil solvent t- Mark with 'x' the appropriate block			
Overall Evaluation: Mark with 'x' the appropriate block	Pass	Fail	
Inspected By:			
Date Inspected: _____ Signature: _____			

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Annexure B – Rescue Kit Checklist

Doc No: KZN16CSTI-168 Annexure B: Rescue Kit Checklist			
Manufacturer's Name:		Model No:	
CNC Name:			
Eskom Asset No:			
Serial No:			
Metal Parts	Pass	Fail	Comments
Visual & Touch inspection			
Distortion-(twist, bends)			
Rust or corrosion			
Rough or sharp edges			
Cracks or breaks			
Modifications by users-like additional holes			
All springs must be in working order			
Karabiner-ensure at least two consecutive free movements to open			
Kermantle Rope	Pass	Fail	Comments
Cuts, nicks and tear			
Broken fibres/cracks			
Overall deterioration			
Modifications by users			
Fraying/Abrasion			
Discoloration of material-(dependant on cause of discoloration)			
Hard or shiny spots-indicates heat damage			
Mildew-clean harness			
undue stretching-indicates possible fall			
Burnt charred or melted fibres-indicates heat damage			
excessive hardness or brittleness-indicates heat or uv damage			
Any knots on rope?			
Descender Alloy 2 way stop -Indy			
Check if mechanism is in working order			
Check for cracks and corrosion			

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Annexure B (cont.) - Rescue Kit Checklist

Webbing Cutter	Pass	Fail	Comments
Rust			
Corrosion			
Attachment-Is it intact?			
Blade Retractable -is it smooth operating?			
Protection Bag	Y	N	Comments
Is there a storage bag?			
Is the bag clean-free from oil solvent			
Overall Evaluation : Mark with 'x' in the appropriate block	Pass	Fail	
Inspected By:			
Date Inspected:	Signature:		

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Annexure C – Rope Grab Checklist

Doc No: KZN16CSTI-168 Annexure C : Rope Grab Checklist			
Manufacturer's Name:		Model No:	
CNC Name:			
Eskom Asset No:			
Serial No:			
Metal Parts	Pass	Fail	Comments
Visual & Touch inspection			
Distortion-(twist, bends)			
Rust or corrosion			
Rough or sharp edges			
Cracks or breaks			
Modifications by users-like additional holes			
All springs must be in working order			
Kermantle Rope	Pass	Fail	Comments
Cuts, nicks and tear			
Broken fibres/cracks			
Overall deterioration			
Modifications by users			
Fraying/Abrasion			
Discoloration of material-(dependant on cause of discoloration)			
Hard or shiny spots-indicates heat damage			
Webbing thickness uneven-indicates possible fall			
Mildew-clean harness			
missing straps			
undue stretching-indicates possible fall			
Burnt charred or melted fibres-indicates heat damage			
material marked with permanent marker-check with manufacturer			
excessive hardness or brittleness-indicates heat or uv damage			
Protection Bag	Y	N	Comments
Is there a storage bag?- Mark with 'x' in the appropriate block			
Is the bag clean-free from oil solvent -Mark with 'x' in the appropriate block			
Overall Evaluation : Mark with 'x' the appropriate block	Pass	Fail	
Inspected By:			
Date Inspected:	Signature:		

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