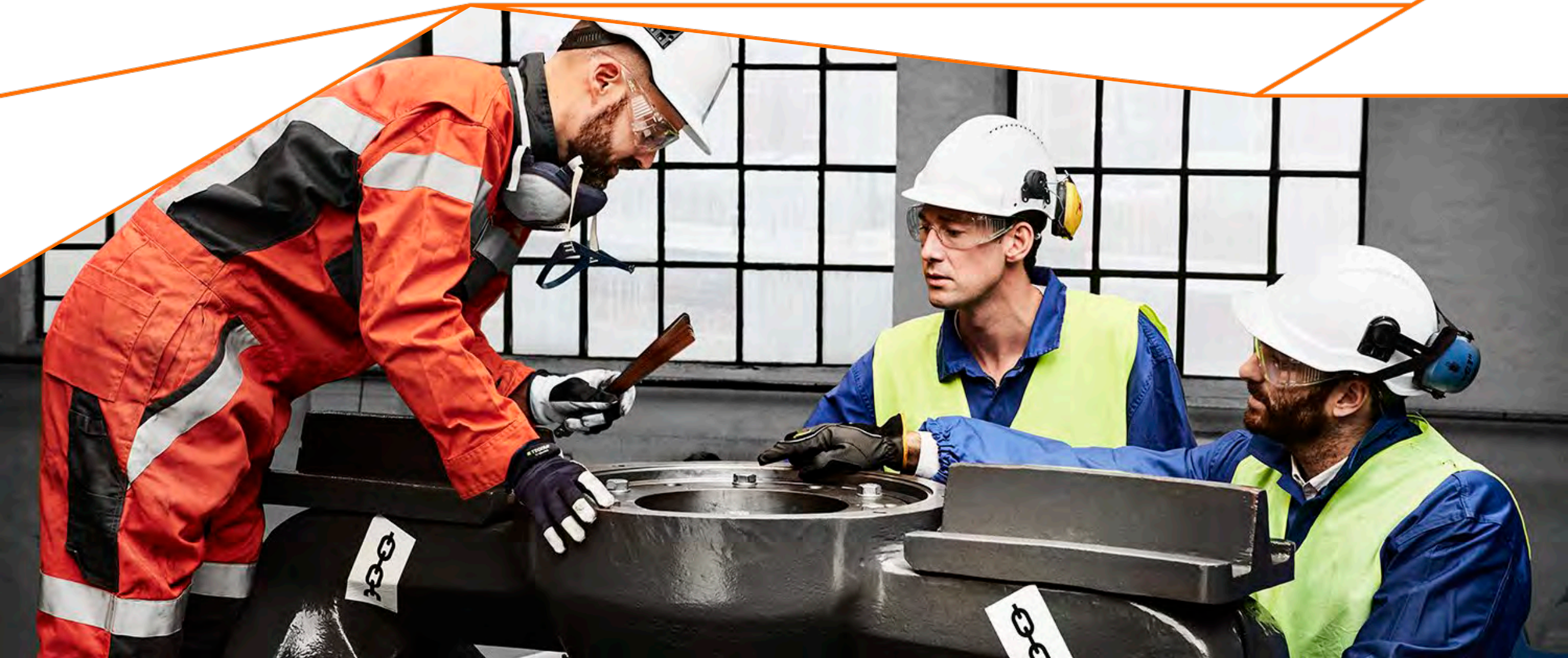
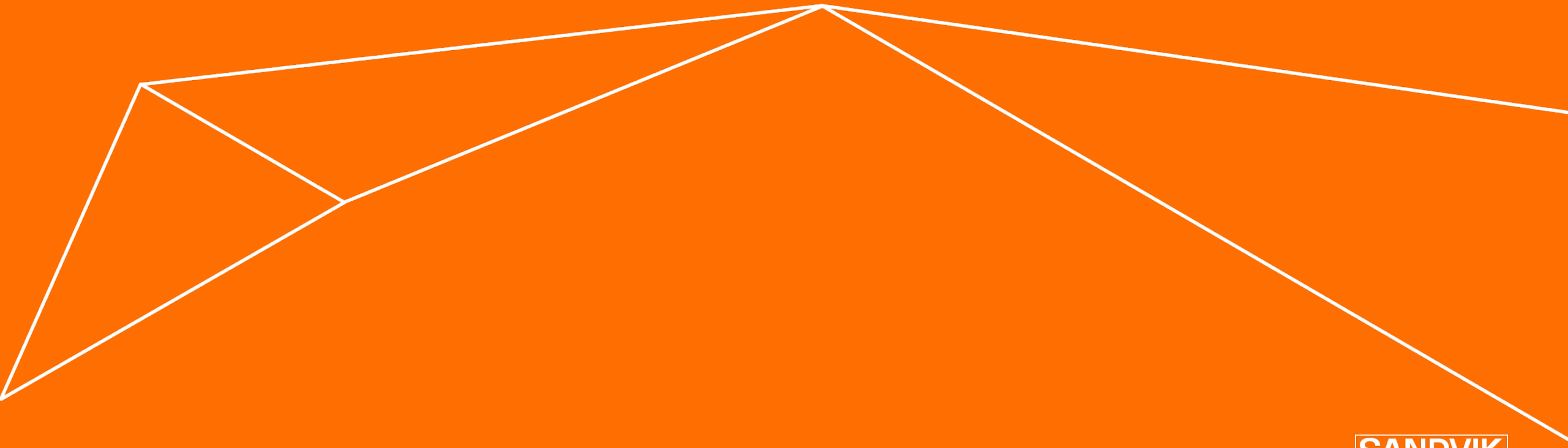
MECHANICAL CUTTING DIVISION

DIGITAL INSPECTION PLATFORM QUICK CHECK TRAINING



INTRODUCTION

BENEFITS AND APPLICATIONS OF QUICK CHECK INSPECTION



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4 REASONS WHY

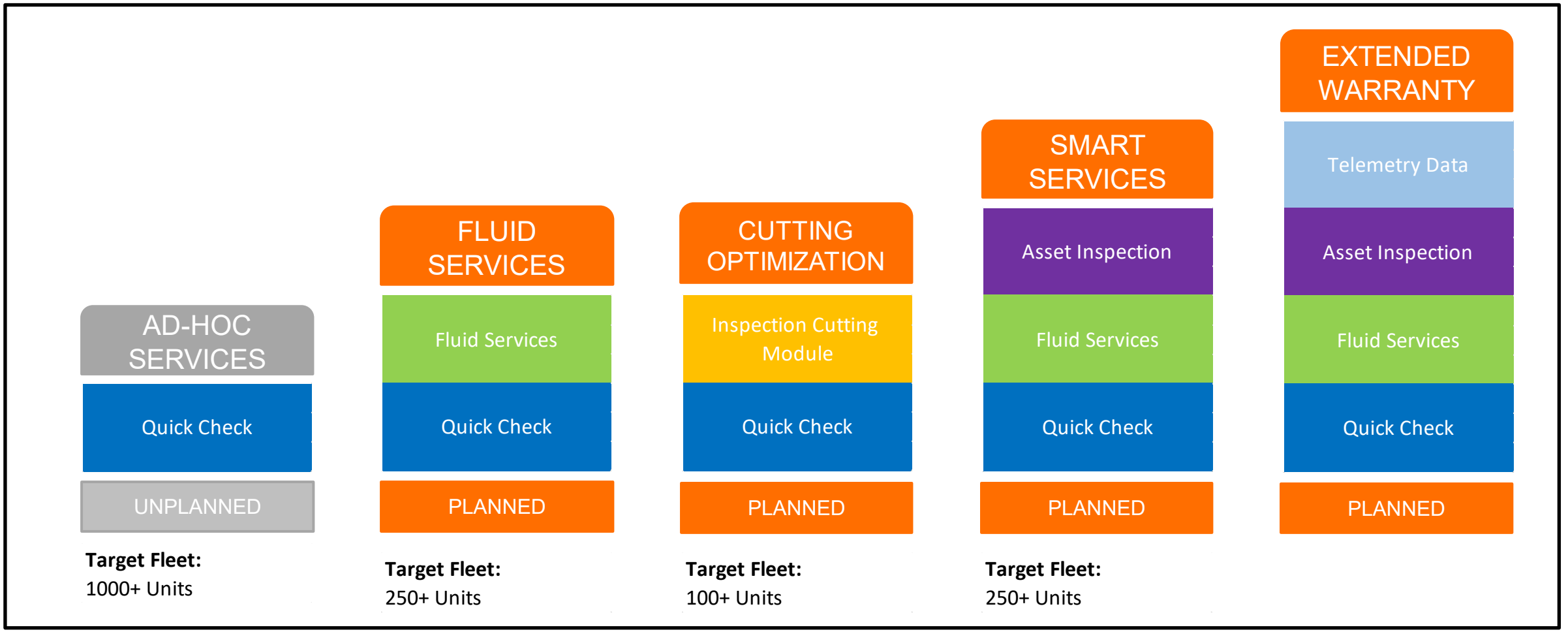
SANDVIK QUICK CHECK INSPECTIONS

4

- Improved safety for personnel and machine by enabling early detection of potential hazards
- Quick view of machine status as the inspection was designed to be carried out in only a few minutes by any Sandvik field service employee
- Maximum productivity when additional agreement for future SMART Inspections offering is signed
- Time saving due to Quick Check being designed to be carried out in only a few minutes

DIGITAL INSPECTION PLATFORM

DIFFERENT MODULES FOR DIFFERENT SERVICE OFFERINGS



DIGITAL INSPECTION PLATFORM

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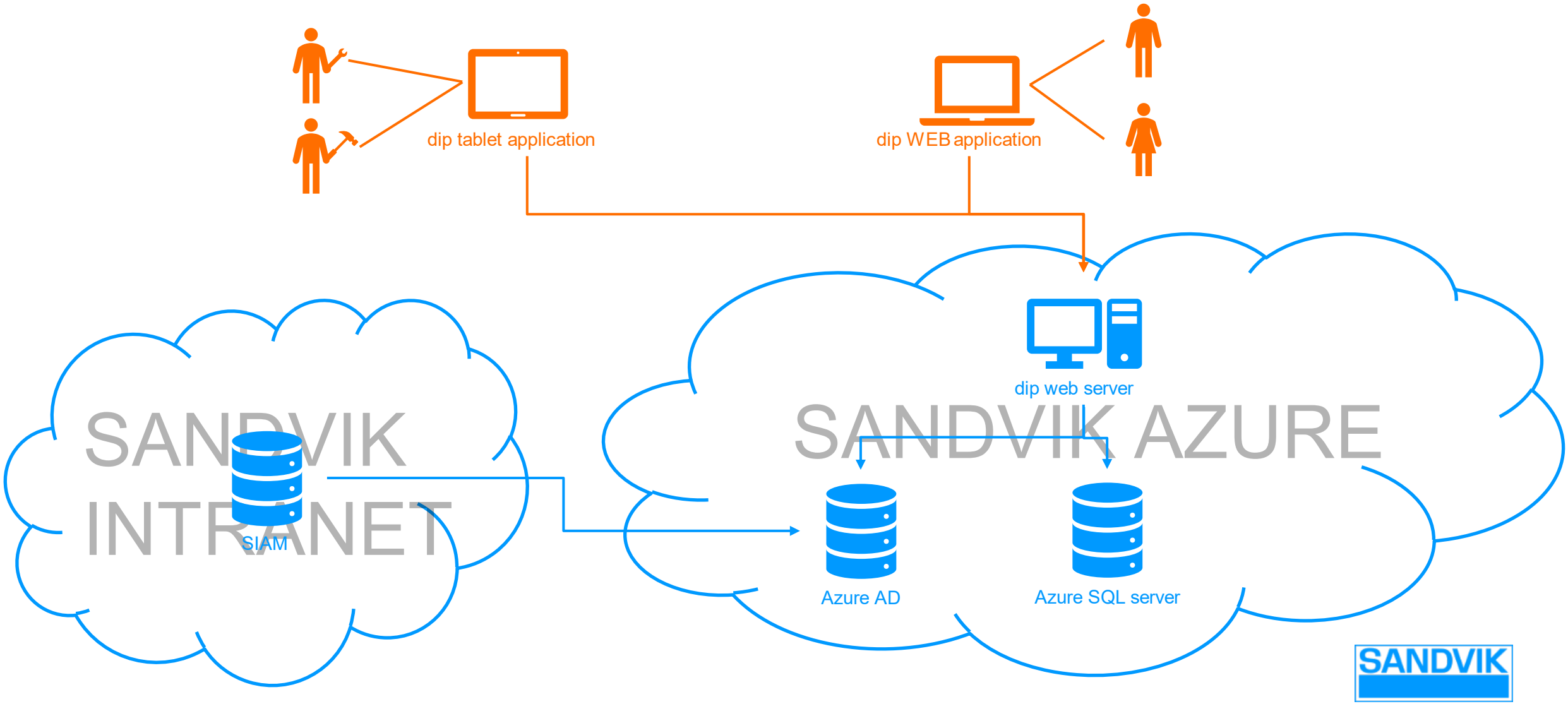
DIGITAL INSPECTION PLATFORM

WHY?

- **Digitized tool to secure protocol standardization, improve inspector efficiency and improve service perception**
- **Stakeholders receive a clear written report that suggests corrective actions and proactive improvements**
- **Reports are created and distributed same day**
- **Allows for trend analysis to help increase customer availability and lower machine operation cost**
- **Manage risk and improve traceability in service agreements**

GENERAL SERVICE ARCHITECTURE DIP



HARDWARE (NON-FLP APPLICATIONS)

APPLE IPAD

Processor	2.49 GHz A12Z Bionic chip
Main Display Resolution	2388 x 1668
Main Display Size	11"
Weight	473 gr
Product Dimensions	178.5 x 257.6 x 5.9 mm
Camera	12.0 MP (rear), 7.0 MP (front)
Internal Memory	6GB RAM, 128GB Storage
Wi-Fi	802.11 a/b/g/n/ac/6 2.4+5GHz
Mobile	Nano-SIM, eSIM, 2G GSM, 3G HSDPA, 4G LTE FDD, 4G LTE TDD
External Memory	N.A.

HARDWARE (FLP APPLICATIONS)

I.SAFE MOBILE IS930.M1

Processor	2.4 GHz (Octa-Core)
Main Display Resolution	1200 x 1920 (RugDisplay-Glass)
Main Display Size	8.0"
Weight	890g
Product Dimensions	237 x 156 x 22 mm
Camera	13.0 MP (rear), 5.0 MP (front)
Internal Memory	4GB RAM, 64GB Storage
Wi-Fi	802.11a/ b/g/n/ac/e/k/r/h 2.4+5GHz
Mobile	Single-SIM(Nano-SIM (4FF)), 2G GSM, 3G WCDMA UMTS B1/2/4/5/8, 4G LTE FDD, 4G LTE TDD
External Memory	MicroSD (Up to 128GB)

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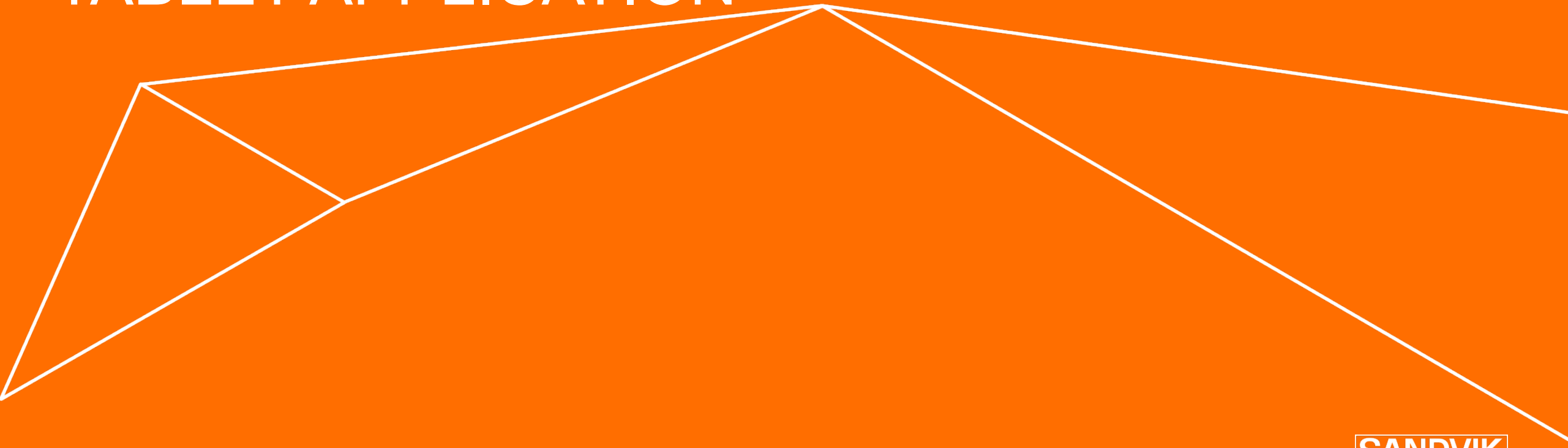
USER INTERFACES

TABLET APPLICATION



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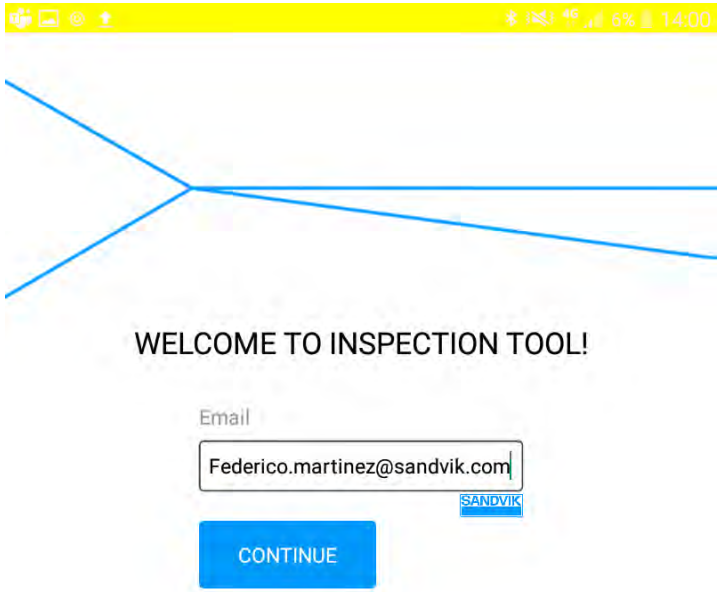
INTRODUCTION

The following slides explain basic uses of the DIP application. They show how to perform an inspection and in some areas also present alternative flows of the application.

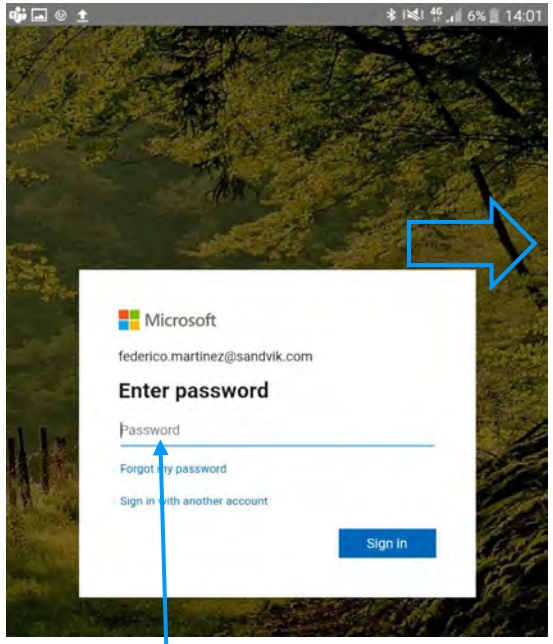
In case you prefer to get the overview in video format, there is similar content available in dip Sharepoint: https://sandvik.sharepoint.com/teams/dip/SitePages/Training-videos(1).aspx

For access to the web app: https://sandvik-dip-dev.azurewebsites.net/

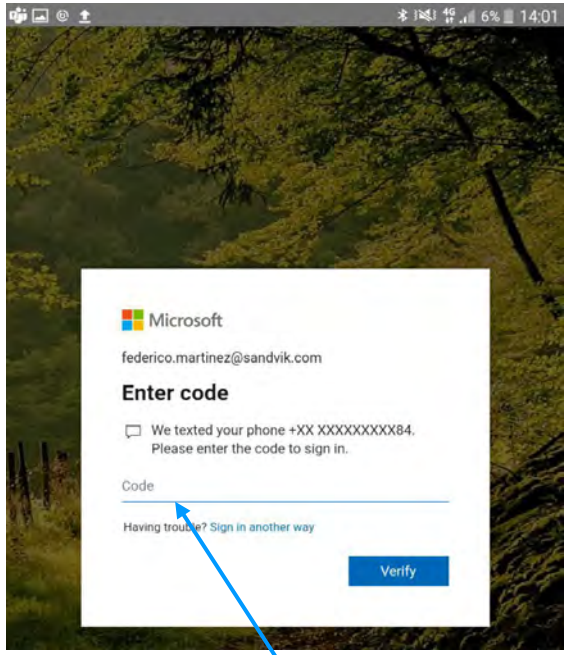
LOGIN PROCESS



Enter your email address and click CONTINUE



Insert your Sandvik password



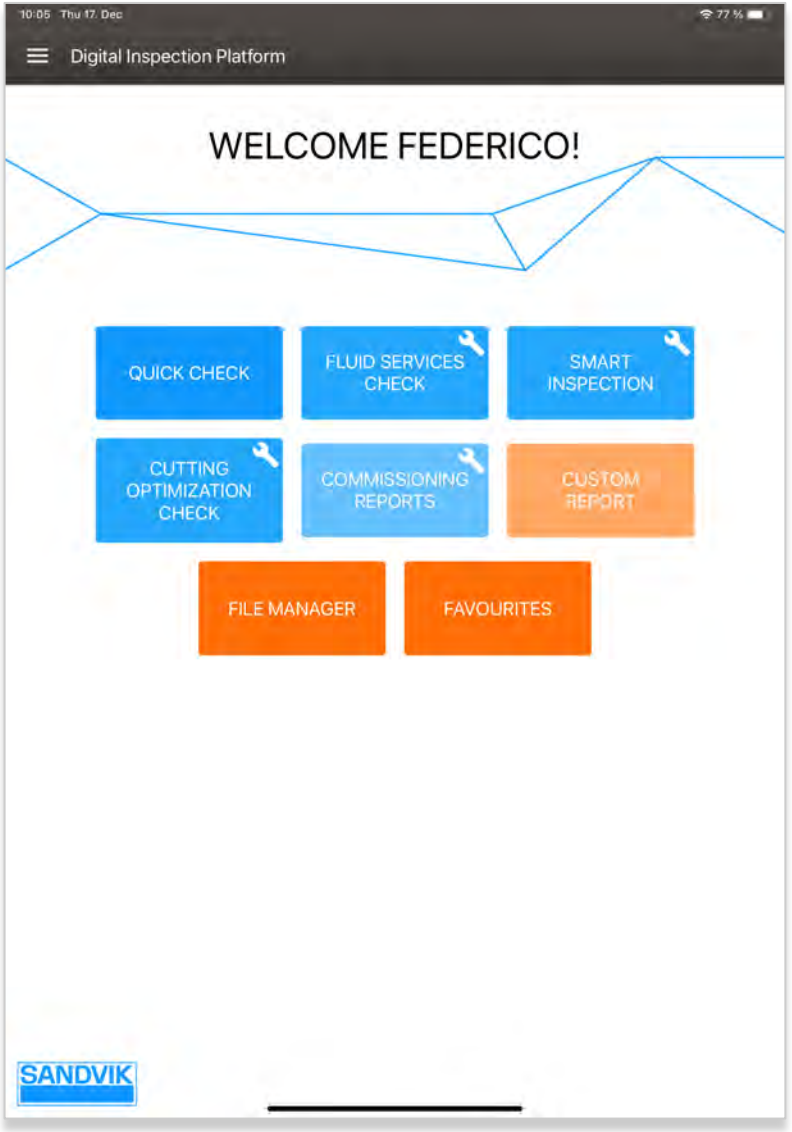
Application uses multi-factor authentication via SMS. Once you have inserted your password system sends SMS to your work mobile phone. SMS contains 6-digit code that needs to be inserted here.

NOTE:

- **Login process needs to be completed only once when tablet application is in active use.**
- **If login session gets expired as tablet application hasn't been used for a while you need to complete the steps again.**

QUICK CHECK INSPECTIONS

CHECKLIST STRUCTURE – LANDING PAGE



The Landing Page of the Digital Inspection Platform contains the following options:

- Quick Check: 20-30 min inspection which can be carried out by nearly all Sandvik personnel
- Fluid Services: check of fluid-containing components. Includes oil sampling steps
- SMART Inspection: various time and module-based inspections
- Cutting Optimization Check: check of cutting performance and rock sample analysis
- Commissioning Reports: commissioning reports for use as end-of-line checks by Sandvik QA
- Custom Report: allows user to create their own report
- File Manager: access to files containing training material and inspection point support
- Favourite: access to a user's favourite (most often used) inspections without entering additional information

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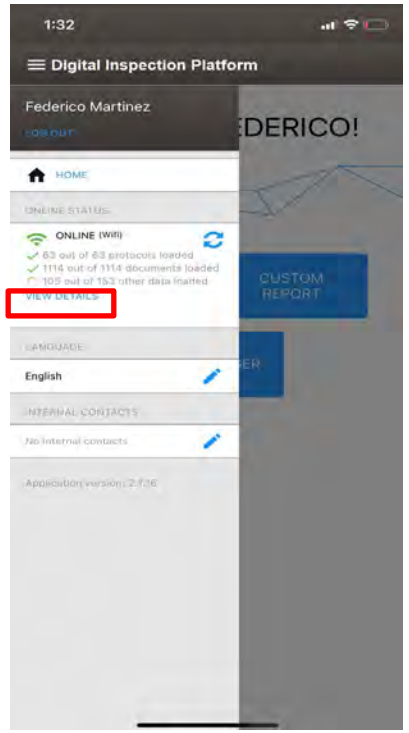
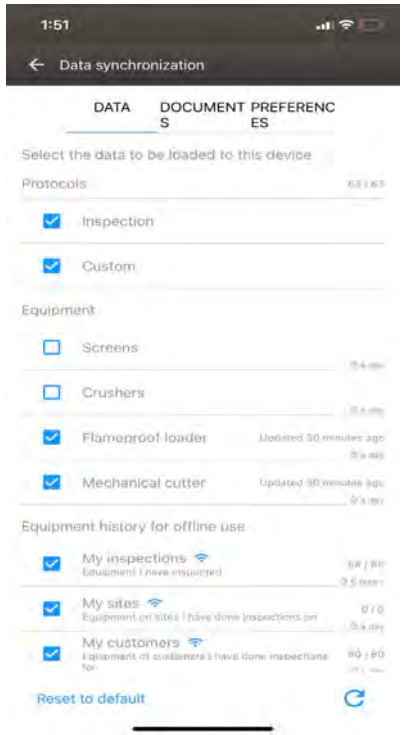
FILE SYNC PROCESS

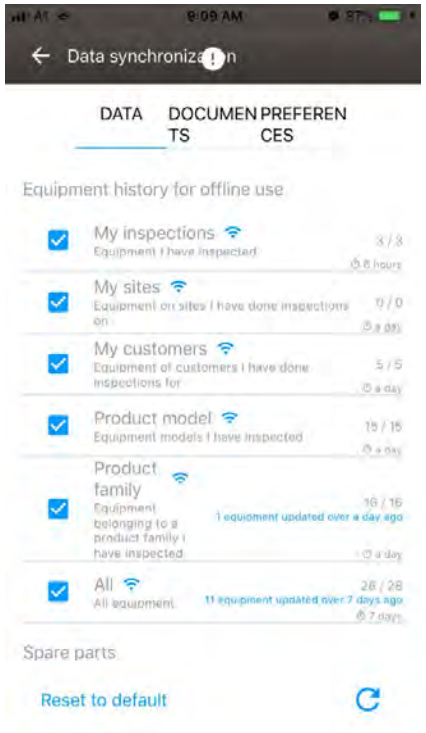
1. On side menu, in the Online Status section, click on View Details in order to select the files to be synced.



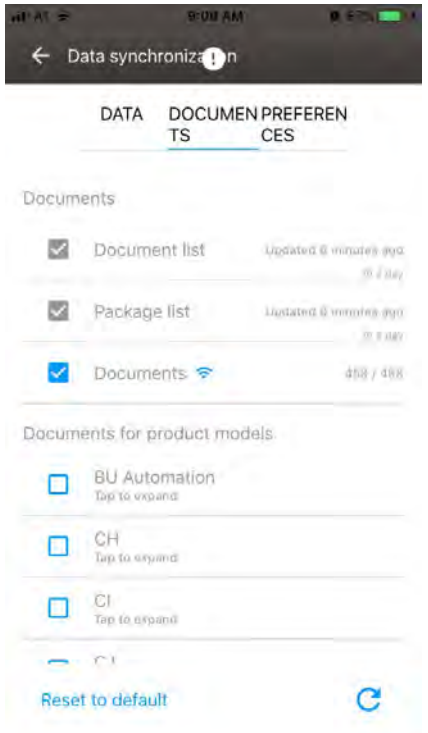
2. In the Data tab, choose inspection and custom as the protocols and the right equipment as shown below.



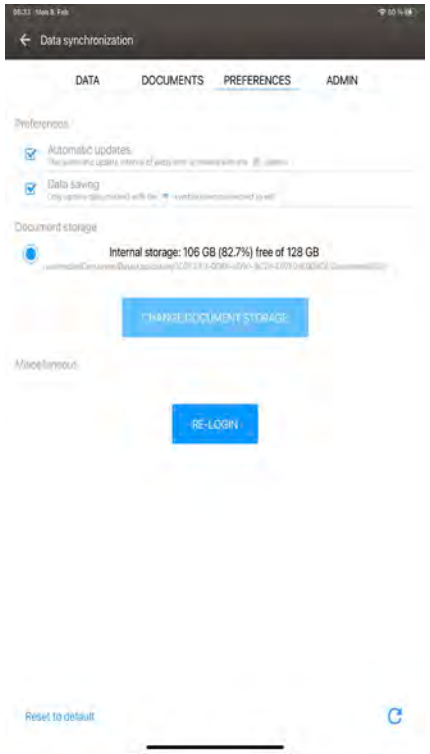
3. In the Data tab, also make sure to choose “All” of the equipment history. This is key for trending history within the app.



4. In the Documents tab, choose all documents in order to have all files available for offline use.

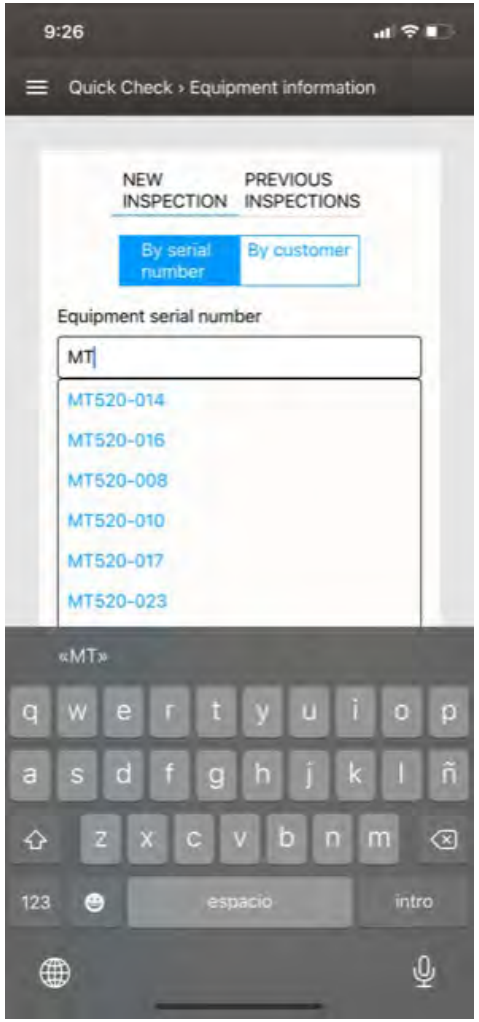


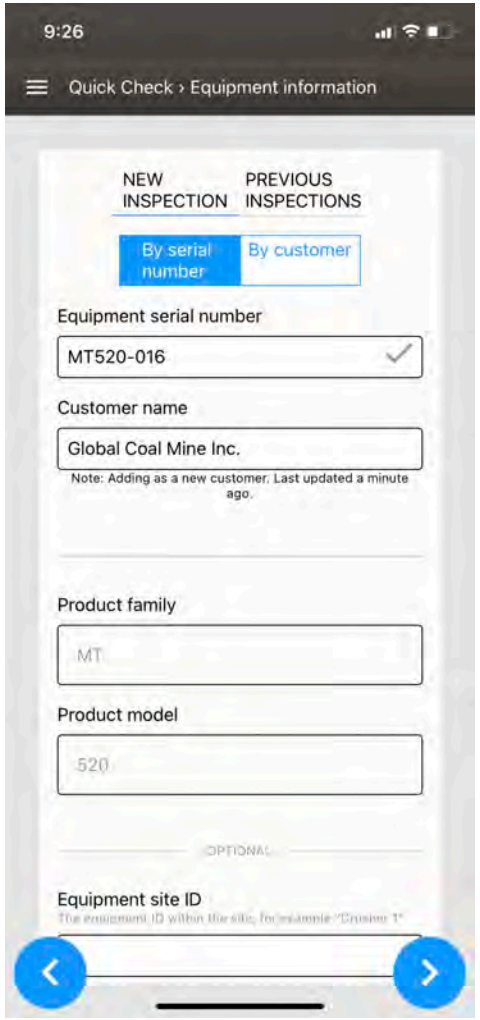
5. Finally, choose the machine family model as shown below and click on the sync icon.



Note: when performing a file sync for the first time, the app might take about 20 minutes (depending on wifi speed) due to the large amount of data. Further, automatic, synching requires just a few minutes.

NEW MACHINE INSPECTION

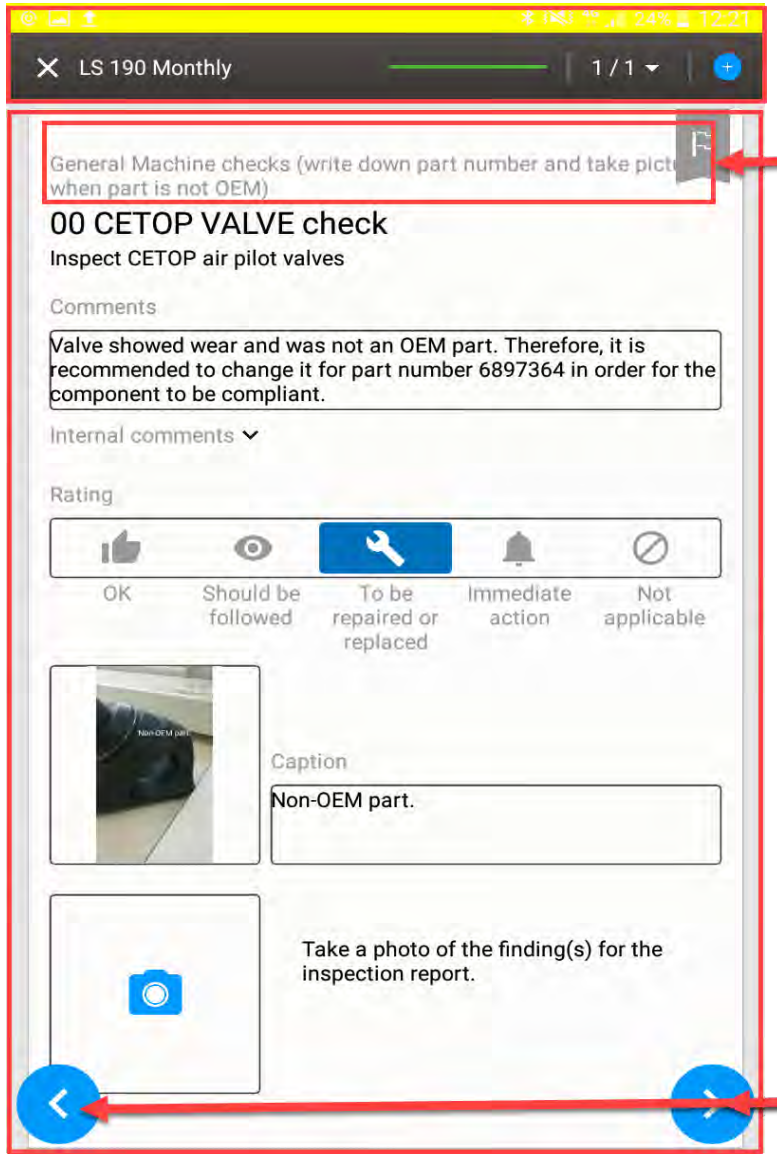




DIP is connected to MDG. If the serial number sought is in the database, the model and customer information will appear. In a contingency, manual entry of information is also possible.

New serial number user must select product family and model

INSPECTION POINT VIEW OVERVIEW



Header

Category title indicates importance of checking for OEM parts and non-compliance notification.

Content

- Inspection point view consists of header and content parts.
- Header part offers actions to cancel the inspection, shows the name of the inspection and provides easy navigation between inspection points.
- Upper area of content area varies between inspection point types but bottom area contains always comment and rating sections.
- Comments is free text field that is used to collect any extra information that is relevant for inspection
- Rating is providing 5 resolutions for inspection point. In case Should be followed, To be repaired or replaced or Immediate action is selected user can take picture of the problem.

Navigation to next or previous inspection point

INSPECTION POINT VIEW HEADER

Side menu for files and language options

Inspection name, contains information about selected product model and inspection type

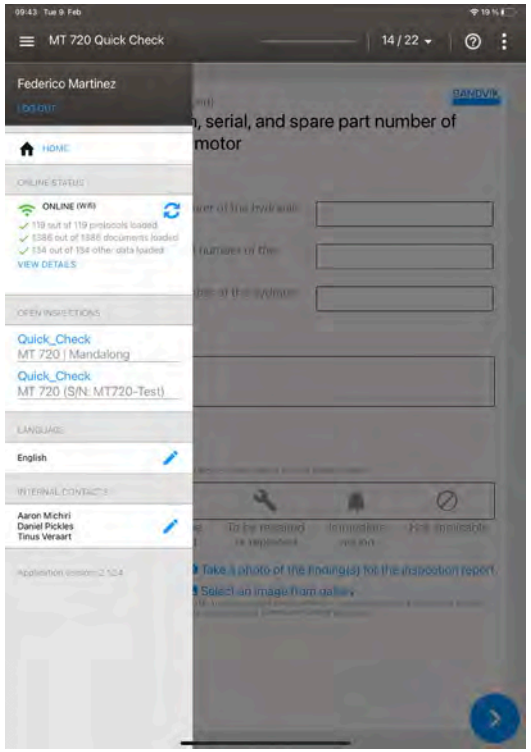
Inspection progress, shows how many inspection points have rating set

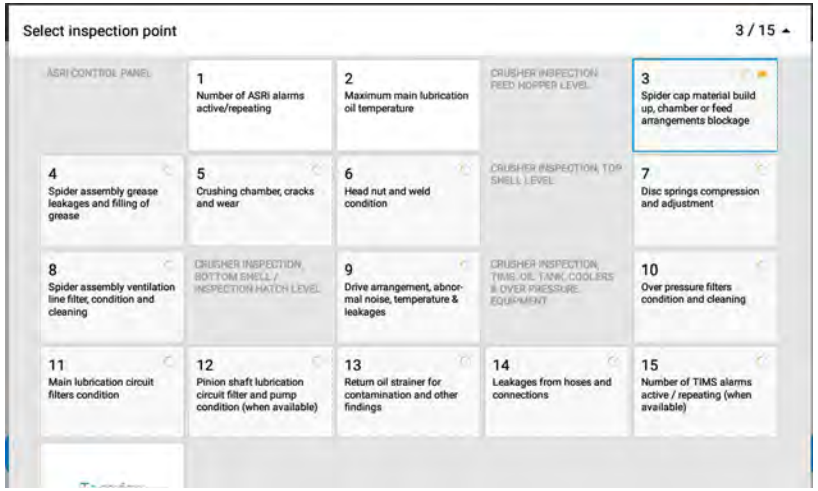
Shows current inspection point number and total amount of inspection points. Clicking opens inspection points overall view.

Procedures

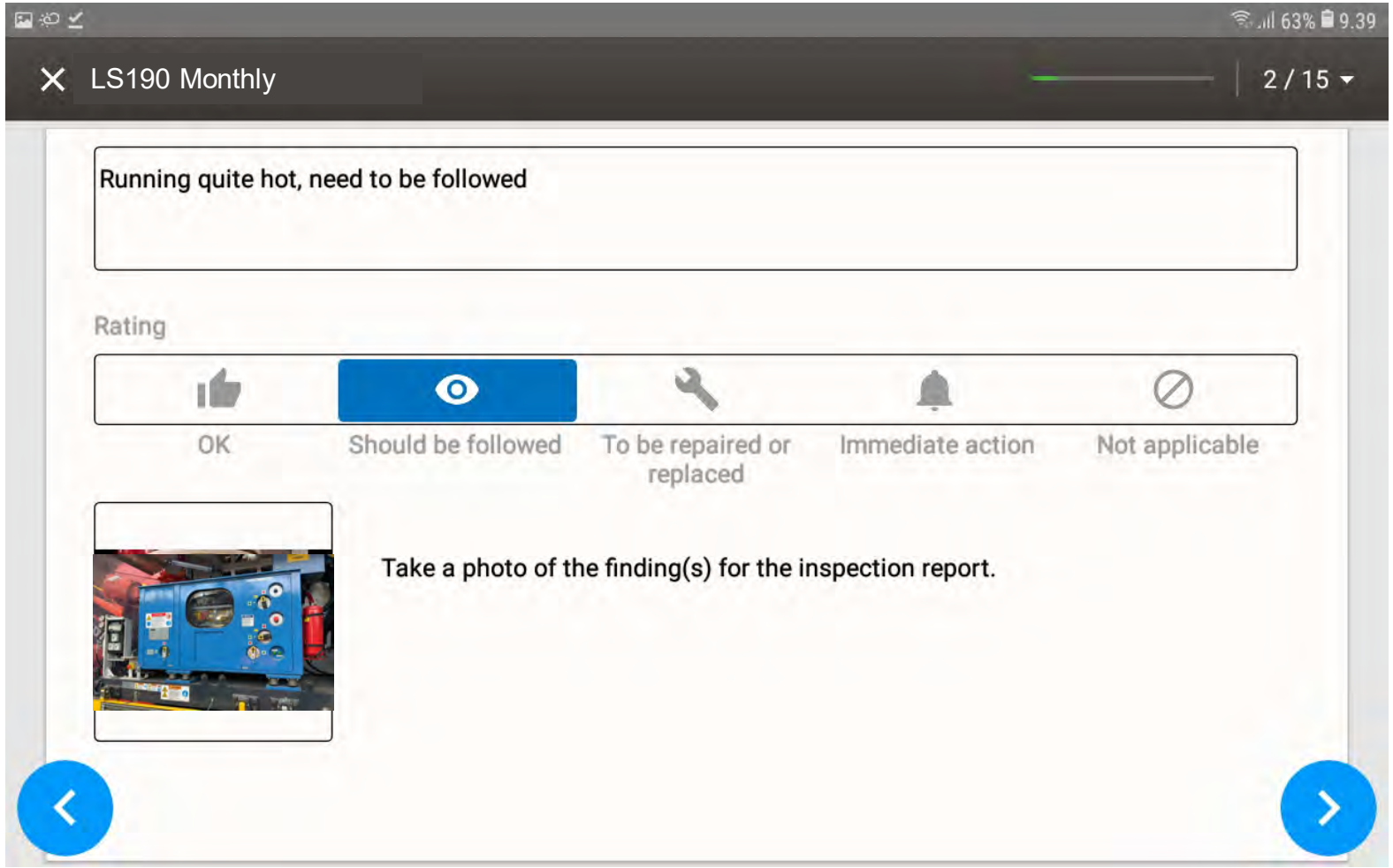
Save Menu

- Add inspection point
- Priority status and history
- Save and upload to server
- Add as favourite
- Cancel inspection
- Flag inspection point





INSPECTION POINT WITH PROBLEM



- Inspector can easily document the problem by taking a picture of it and save it to certain inspection point.
- Photos are stored in the server and can be added to the final report if needed.
- User can add annotations to pictures so that problem gets more evident, see details on next slide.

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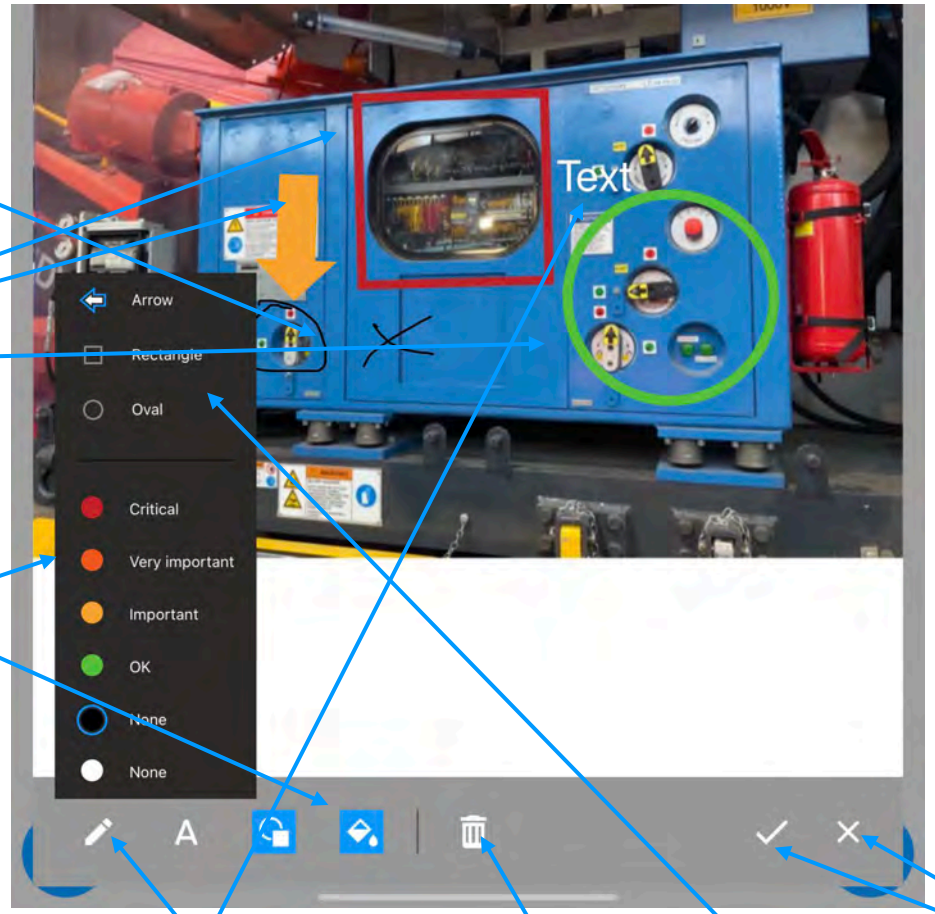
PICTURE ANNOTATIONS

Freehand tool allowss you to draw in the top of the picture

Predefined shapes helps you to point certain areas or spots in the picture. Arrow, rectangle and oval are supported.

Color selector allows you to define which color the object should be

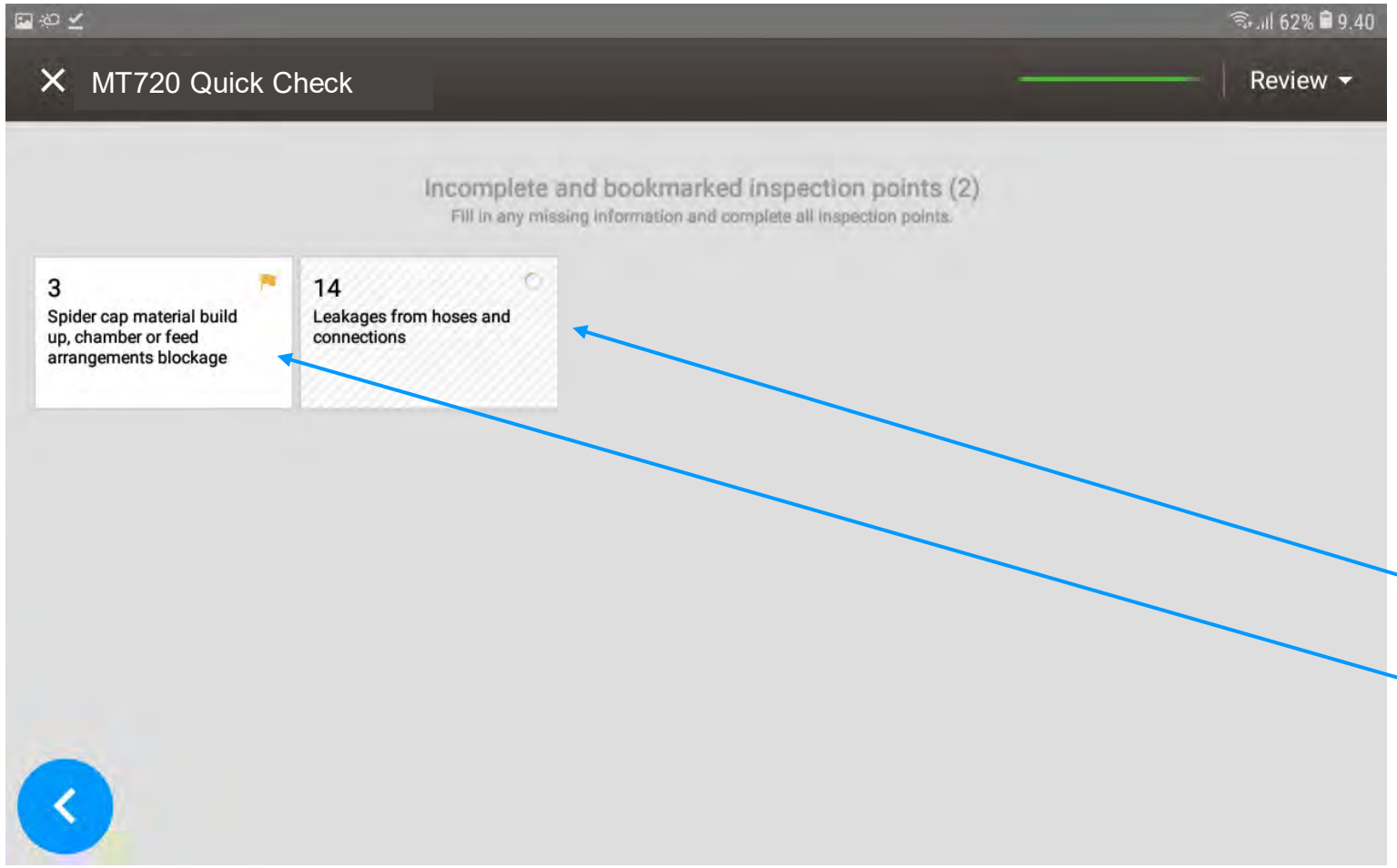


Text tool allows you to add text over the picture

Trash can allows you to remove already drawn objects and camera icon allows to take new picture.

Ok and Cancel buttons

COMPLETING INSPECTION

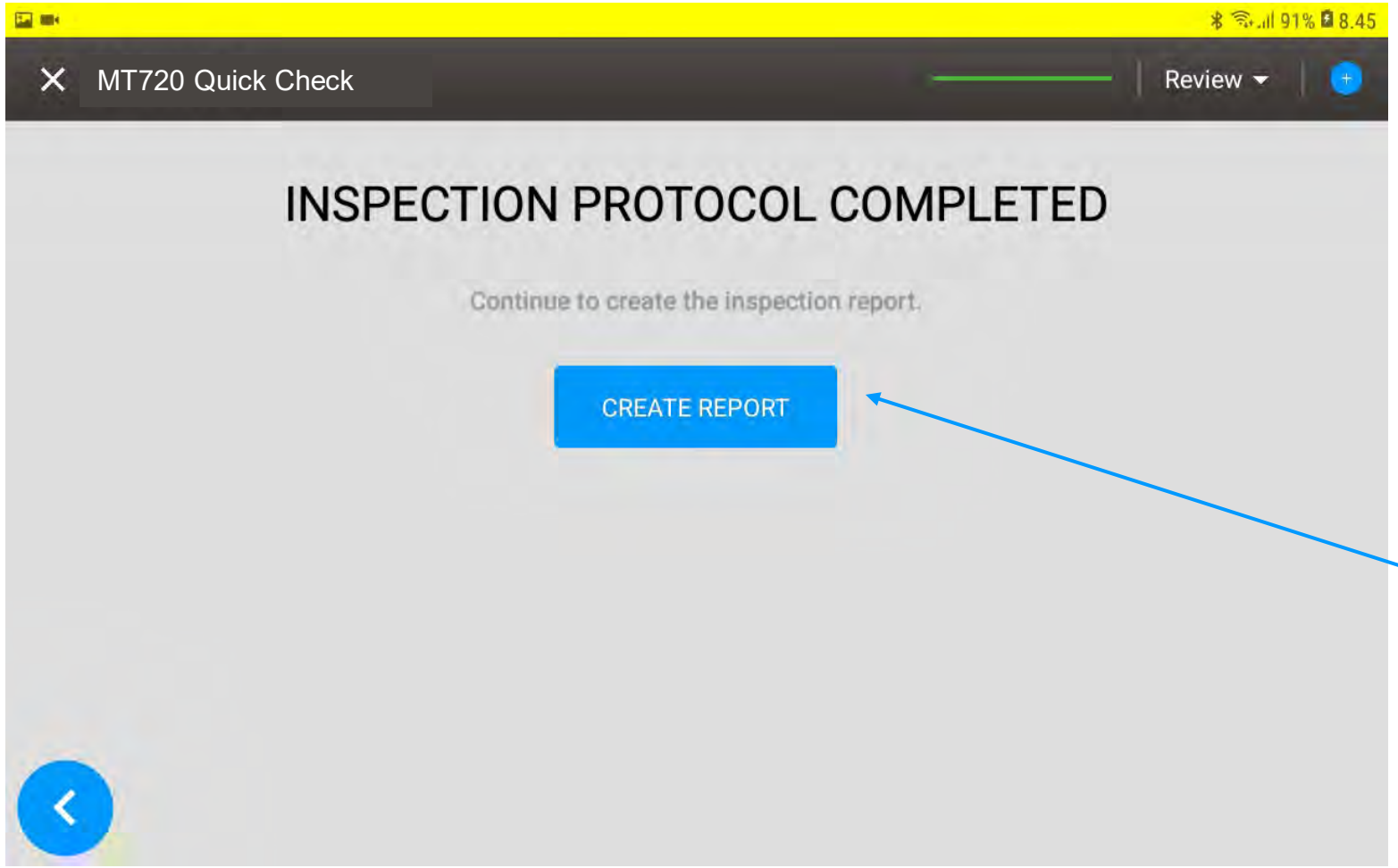


- Inspection report cannot be generated before each inspection point has certain rating set and all flags have been cleared.
- You can easily navigate to inspection point requiring action by clicking it.

Inspection point without rating

Inspection point with active flag

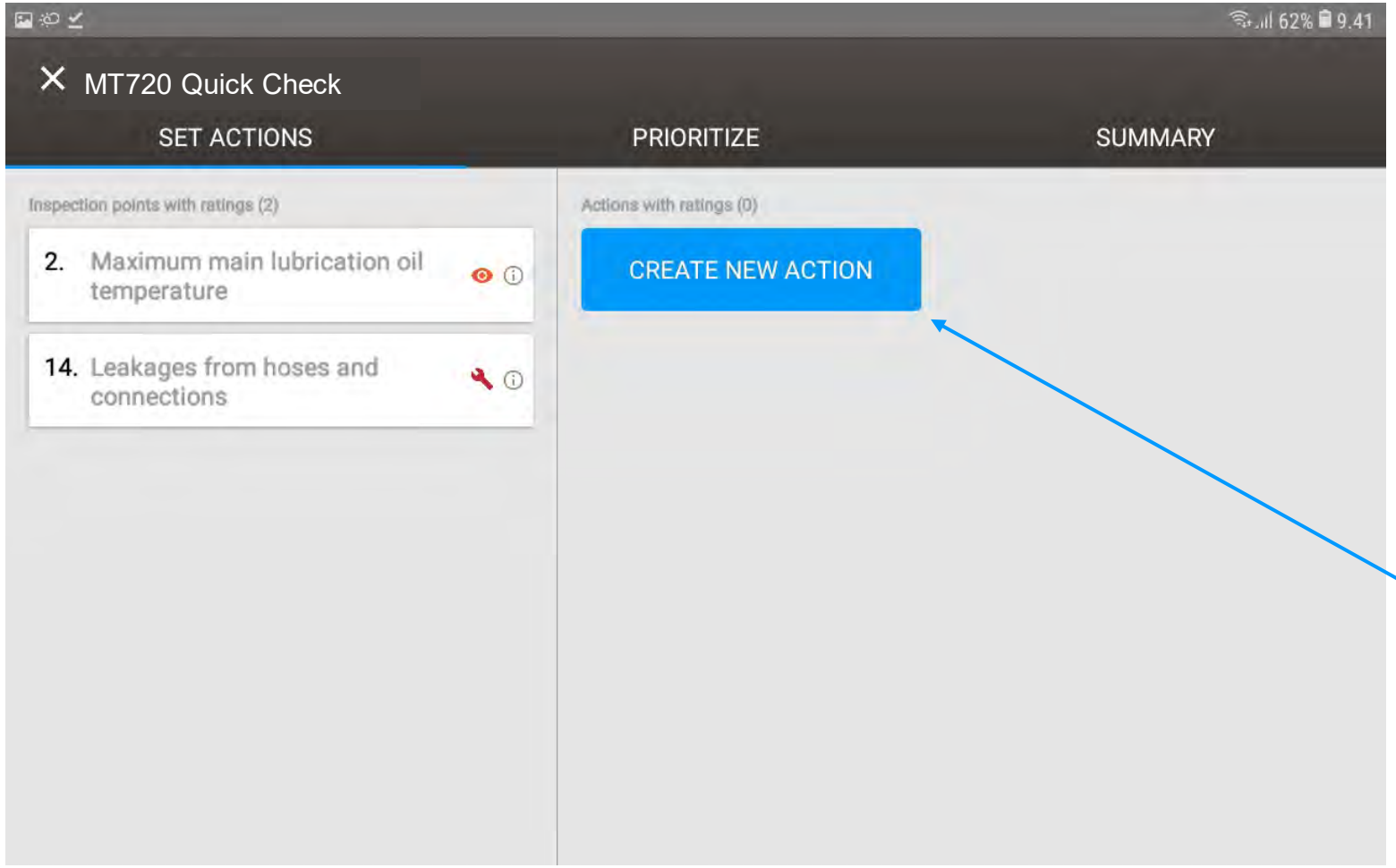
INSPECTION COMPLETE



- When all inspection points have been completed inspector proceeds to create a summary report.

Click CREATE REPORT to start report creation

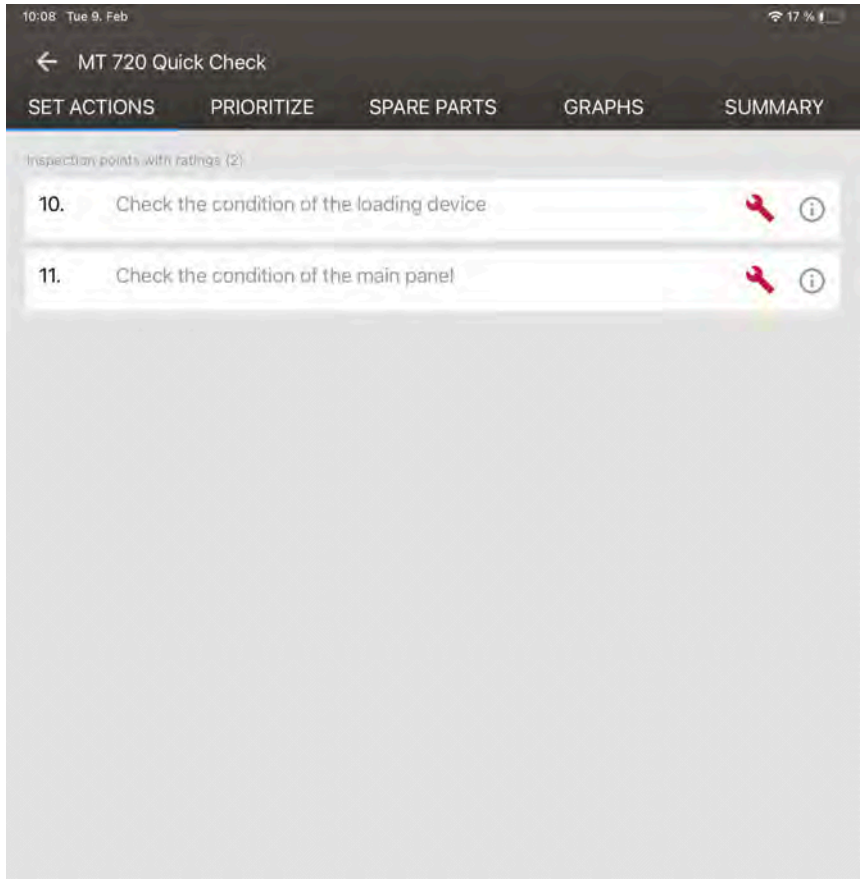
INSPECTION SUMMARY

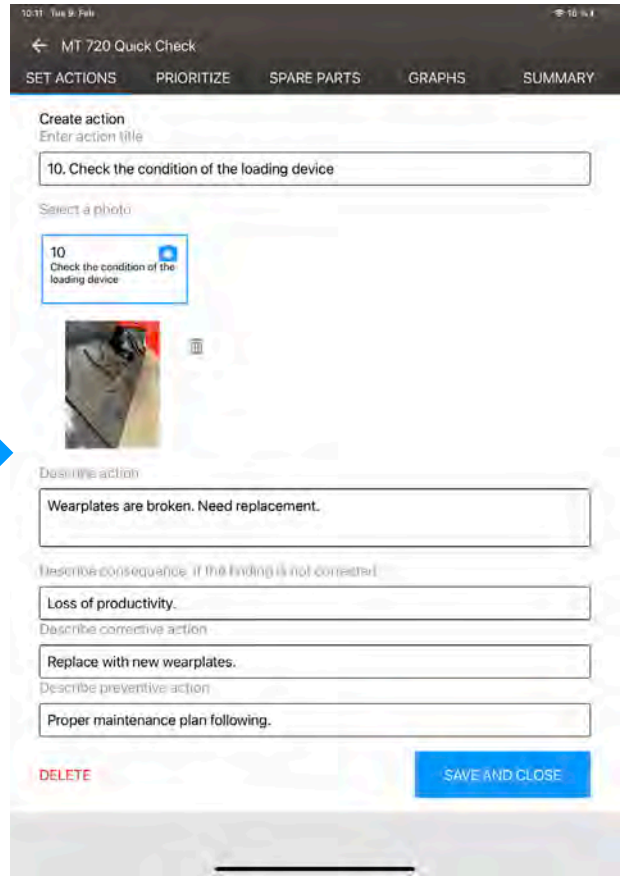


- Section on the left-hand side shows all inspection points that are available for actions attention.
- Inspector can create necessary actions that are suggested to fix the problems

Click CREATE NEW ACTION to specify an action based on the inspection.

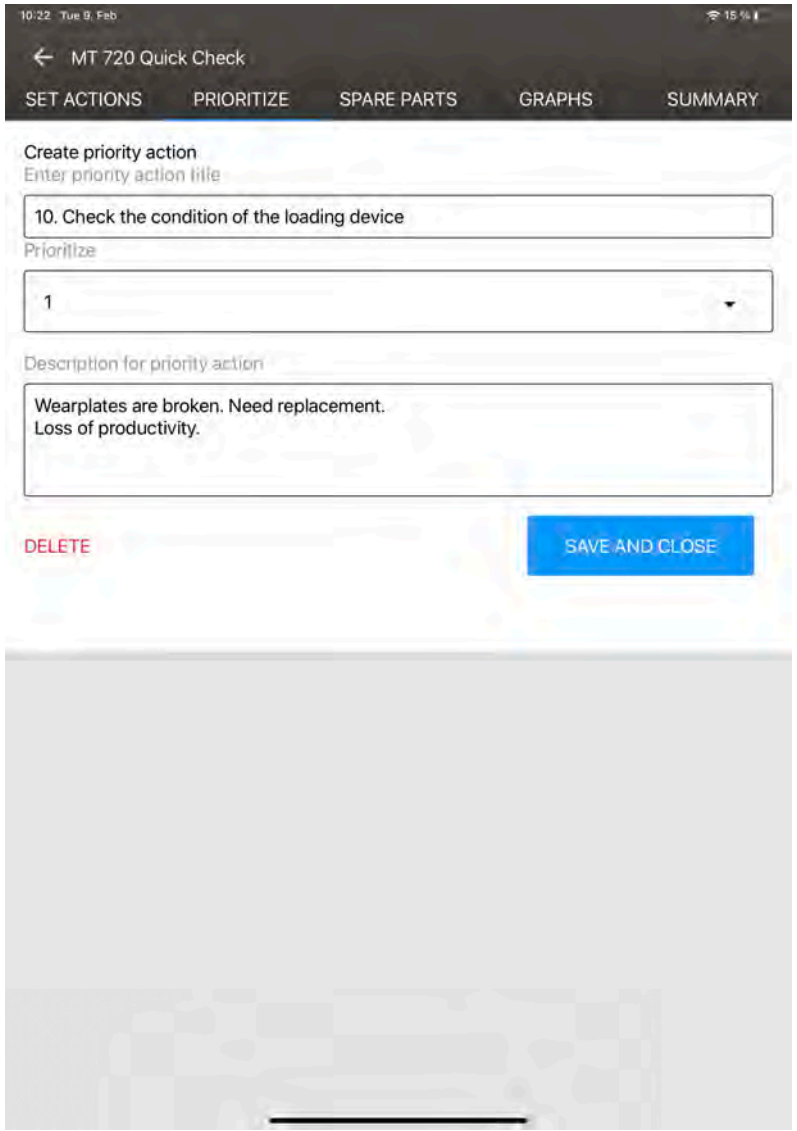
CREATING ACTION





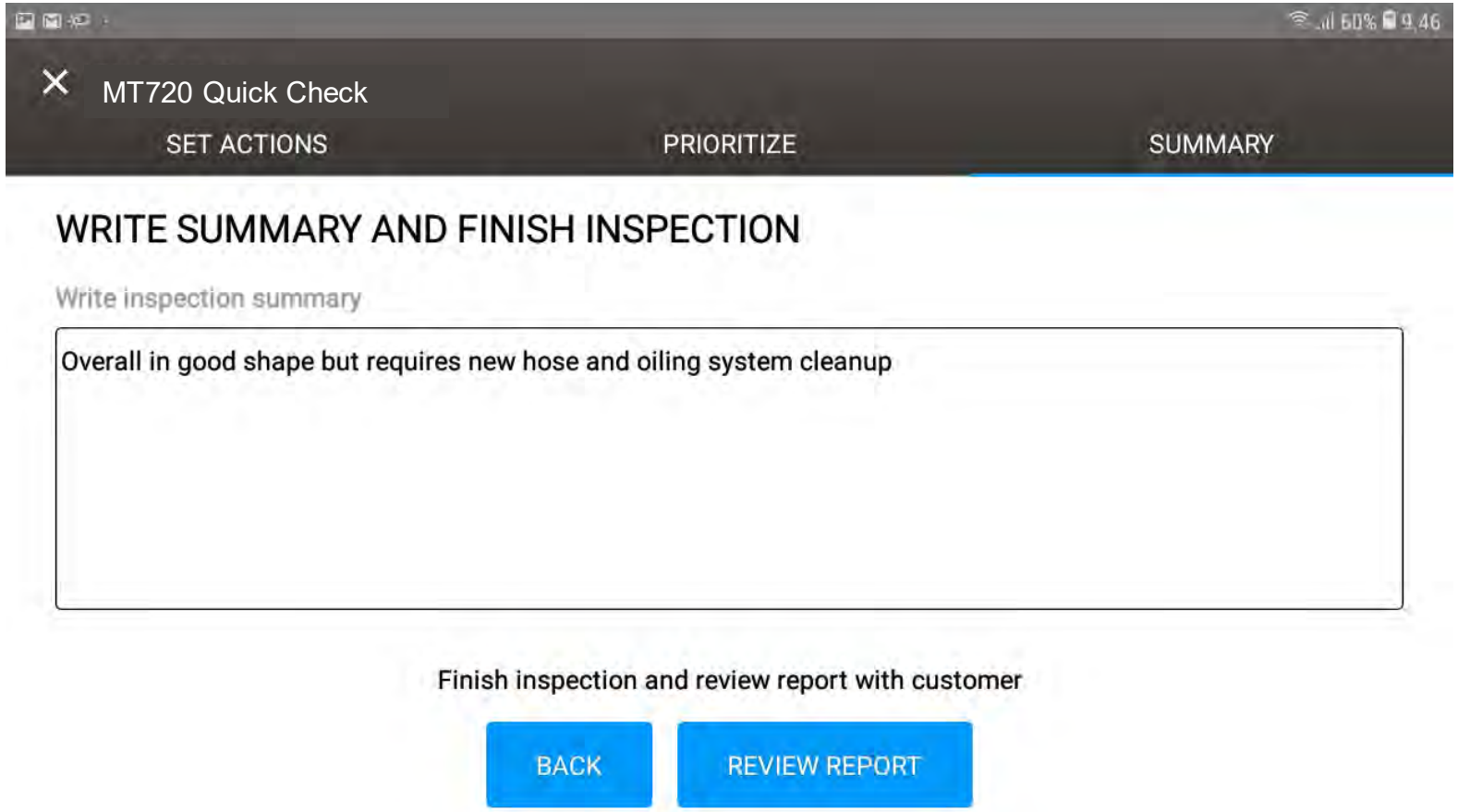
- Action can be linked to multiple inspection points.
- Picture can be also linked to action to bring clarity on proposed action.
- Action has also text input fields for description, consequence and proposed corrective and preventive actions.
- User can add multiple actions.

PRIORITIZING ACTIONS



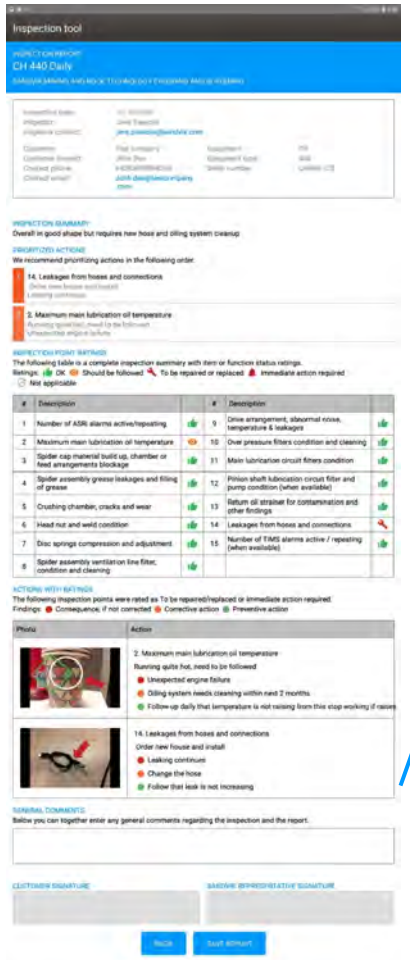
- Inspector can select how to prioritize actions from the set of all proposed actions. These are presented in the report in own section.

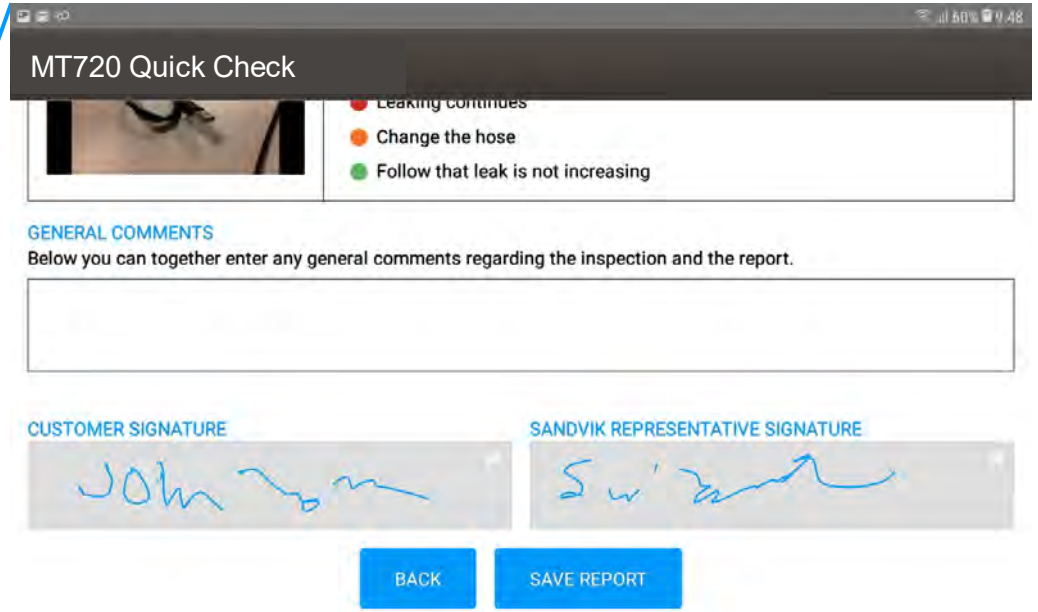
SUMMARY



- Lastly inspector can write summary for the report.

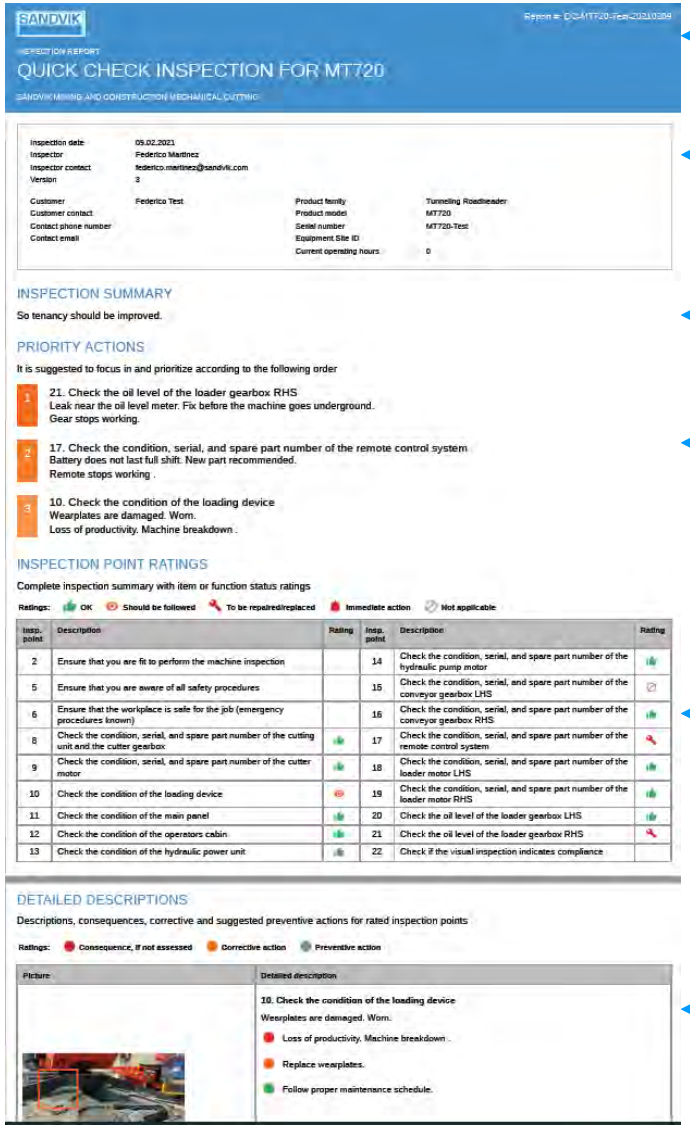
FINISHING INSPECTION





- Next inspection report is generated and customer and Sandvik representatives can give their signature.
- Saving the report will save the report to dip database and send it via email to customer.
- In case network connection is missing then report is saved when network connection is next time available.

REPORT STRUCTURE



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INSPECTION REPORT

QUICK CHECK INSPECTION FOR MT720

SANDVIK MINING AND CONSTRUCTION MECHANICAL CUTTING

Inspection date	05.02.2021		
Inspector	Federico Martinez		
Inspector contact	federico.martinez@sandvik.com		
Version	3		
Customer	Federico Test	Product family	Tunneling Roadheader
Customer contact		Product model	MT720
Contact phone number		Serial number	MT720-Test
Contact email		Equipment Site ID	
		Current operating hours	0

INSPECTION SUMMARY

So tenancy should be improved.

PRIORITY ACTIONS

It is suggested to focus in and prioritize according to the following order

1. 21. Check the oil level of the loader gearbox RHS
   Leak near the oil level meter. Fix before the machine goes underground.
   Gear stops working.
2. 17. Check the condition, serial, and spare part number of the remote control system
   Battery does not last full shift. New part recommended.
   Remote stops working .
3. 10. Check the condition of the loading device
   Wearplates are damaged. Worn.
   Loss of productivity. Machine breakdown .

INSPECTION POINT RATINGS

Complete inspection summary with item or function status ratings

Ratings: OK · Should be followed · To be repaired/replaced · Immediate action · Not applicable

Insp. point	Description	Rating	Insp. point	Description	Rating
2	Ensure that you are fit to perform the machine inspection		14	Check the condition, serial, and spare part number of the hydraulic pump motor	
5	Ensure that you are aware of all safety procedures		15	Check the condition, serial, and spare part number of the conveyor gearbox LHS	
6	Ensure that the workplace is safe for the job (emergency procedures known)		16	Check the condition, serial, and spare part number of the conveyor gearbox RHS	
8	Check the condition, serial, and spare part number of the cutting unit and the cutter gearbox		17	Check the condition, serial, and spare part number of the remote control system	
9	Check the condition, serial, and spare part number of the cutter motor		18	Check the condition, serial, and spare part number of the loader motor LHS	
10	Check the condition of the loading device		19	Check the condition, serial, and spare part number of the loader motor RHS	
11	Check the condition of the main panel		20	Check the oil level of the loader gearbox LHS	
12	Check the condition of the operators cabin		21	Check the oil level of the loader gearbox RHS	
13	Check the condition of the hydraulic power unit		22	Check if the visual inspection indicates compliance	

DETAILED DESCRIPTIONS

Descriptions, consequences, corrective and suggested preventive actions for rated inspection points

Ratings: Consequence, if not assessed · Corrective action · Preventive action

Picture	Detailed description
	10. Check the condition of the loading device Wearplates are damaged. Worn. Loss of productivity. Machine breakdown . Replace wearplates. Follow proper maintenance schedule.

Title

Inspection date, inspector, customer, equipment info

Summary

Priority actions

Inspection point ratings

All actions

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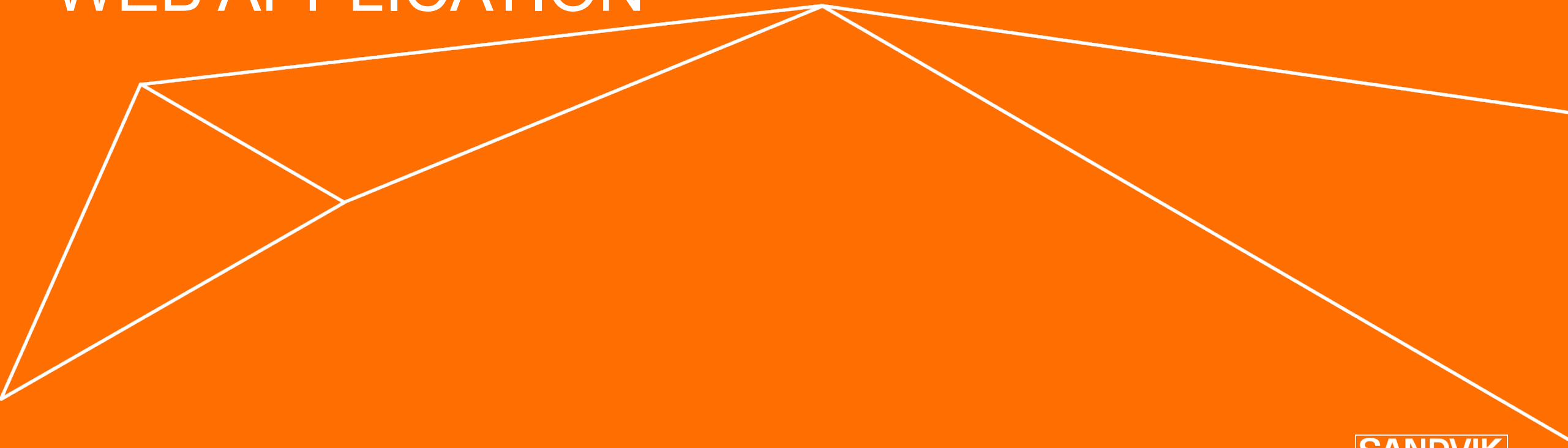
USER INTERFACES

WEB APPLICATION



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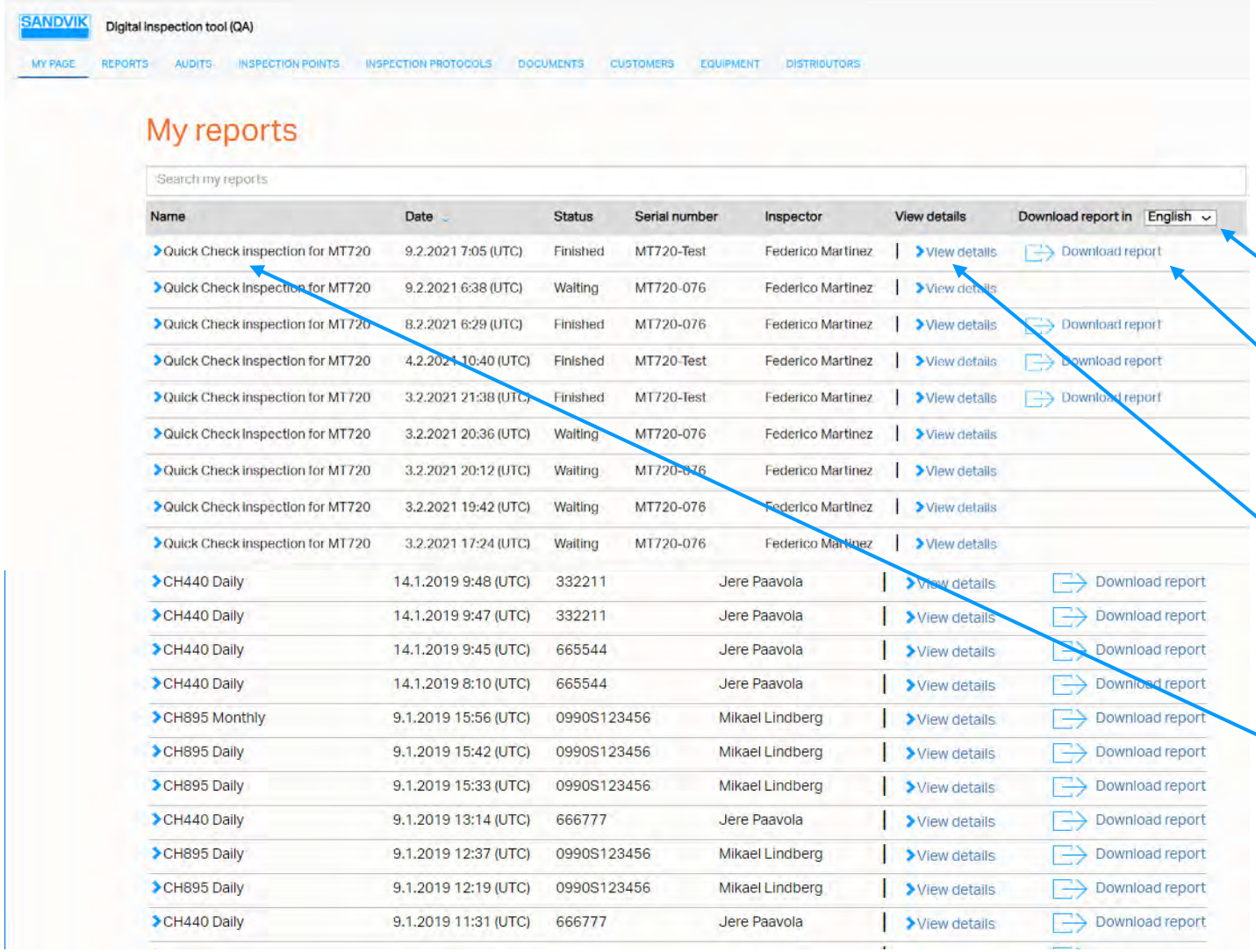
WEB APPLICATION REPORTS PAGE



Link to WEB application: https://sandvik-dip.azurewebsites.net/

Inspector users will be able to view / download reports and protocols for all completed inspections.

The language dropdown menu defines in which language the PDF report will be downloaded in.

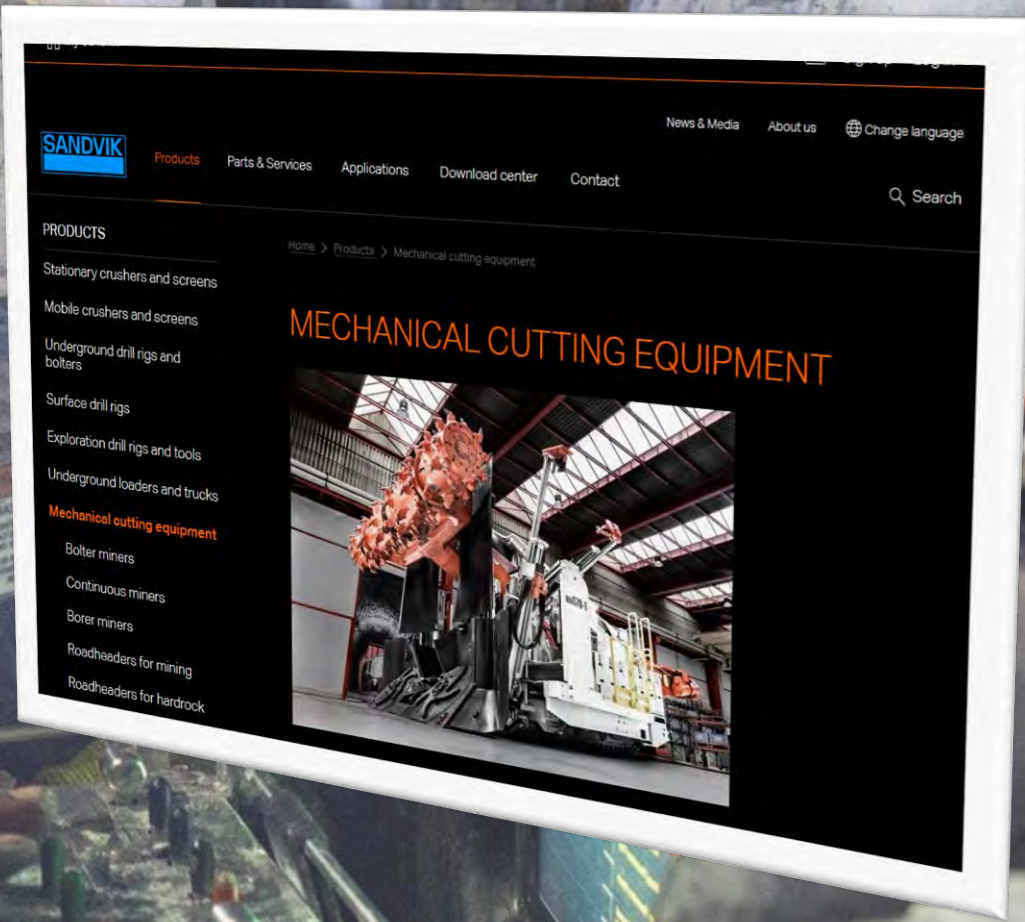
Clicking this link downloads report in PDF format

Shows detailed information about the inspection (data, comments and pictures that is not included in the report)

Clicking the row shows the report as web page

THANK YOU! DISCOVER MORE…

ROCKTECHNOLOGY.SANDVIK



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