How to improve OEE with Contactor Maintenance and Set-Up Checks

by Eugene Batilo, Johnstech Sales Engineer

Improving OEE (Overall Equipment Efficiency) is not only optimizing the performance of the Handler or Tester. It also includes the hardware interface and peripherals. Interface plays a major role in the OEE measurements such as contactors, loadboards as well as change kits and docking plates.

Readiness of the hardware, change kits and peripherals are one of the key factors in the whole process of improving the OEE. This needs to be coupled by defining a process controls for each factors to ensure the whole interface and peripherals are within the acceptable specifications, limits and standards.

In this article, we will be discussing the establishments of contactor process controls in improving the OEE. This includes the following;

- Contactor Readiness Program
- Contactor Repair (Maintenance and Inspection Process)

Contactor Readiness – is the process of defining the check in and check out transactions of contactors in the central shop. This is to record the availability and status of every contactors in the system (data base) to support production demand based on material loadings. Below is the sample process flow in managing the contactor readiness.

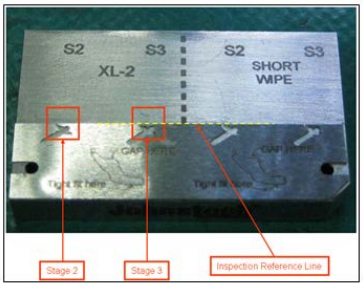
Contactor Repair (Maintenance and Inspection Process Control) – is the process of performing the contactor repair by following the step by step procedure to ensure the contactors are maintained properly and within the acceptable specifications, limits and standards.

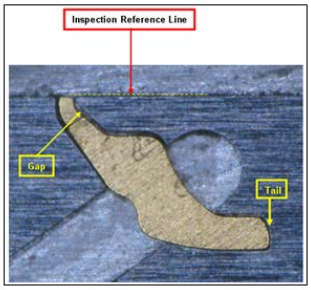
We have provided and established a reference specs and guidelines to customer in order to help the technicians to perform the inspections process effectively and quickly. Work instruction was established to help guide the technicians to perform the contactor maintenance effectively through the following;

- Contactor Repair Process
- Contactor PM (Preventive Maintenance) Process
- Contactor Offline Process
- Contactor Pin Replacement Process

Classifying and assigning contactor pin stages (Stage 1, 2 and 3) help improve OEE performance by preventing premature equipment downtime caused by hardware or contactor issues. Instead it helps improve MTBA and equipment utilization by producing more output.

For applications with NiPdAu plating on the devices, we have provided customer with the **Go/No-Go Tool or the Gage Wear Tool** to help the technician to classify the pin wear through visual inspection check. Below photo is the gage wear tool use to check the contact tip wear.

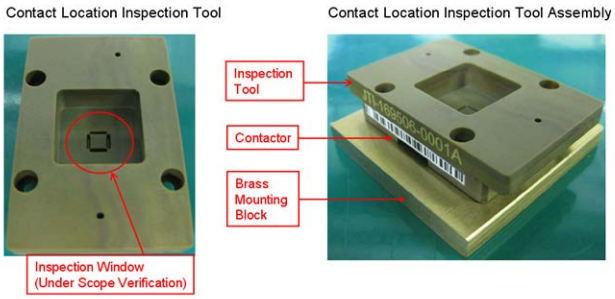




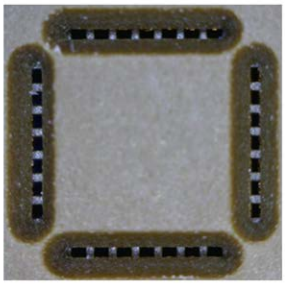
Assessments for contacts used in applications with Matte Tin plating on the devices can be determined by monitoring test performance criteria and recording cleaning frequency.

In the process of ensuring that the contactor will function correctly, QA inspection will be performed on the contactor as part of the process after the contactor had undergone rebuild.

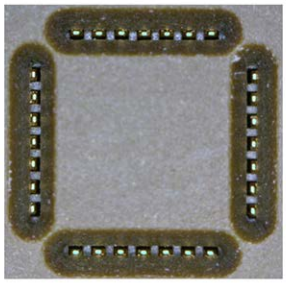
We again introduced the **Contact Location Inspection Tool** to serve as another go / no-go tool to check the contact tips are all aligned properly in the assigned location window. Inspection windows will varies according to the device package sizes. This tool can also be use to verify contactors coming directly from the test floor to check the alignment conditions of the contacts. Below photo is the sample contact location inspection tool we have provided to customer.



Un-Mounted (Pins are not visible and caught under the inspection window)



Mounted (Pins are actuated and visible within the specified location of inspection window)



To further help improve OEE, the above process controls and procedures should be also establish and define for the handlers/tester for the preventive maintenance activity. This process should also apply for the loadboards as part of the whole process of inspection.

With the proper and correct combinations of everything on the set-up, good performance with higher equipment utilization can be achieved. Lastly, continuous manpower skills trainings are very important to support the implementation of the defined process controls.