

Analysis of Piston Seal ID Cut B2RU004020

Customer: Endurance Tech. Ltd.

Submitted By: Fukoku India Pvt. Ltd.

Date: 05/06/2023

Problem Description

Occurrence Place: Endurance Tech. Ltd.

Reported Date: 29th May 2023

Reported Qty.: 01 nos.

Part No. - B2RU004020

Actual Ng Part



In actual Ng part ID cut observed due to which leakage in Caliper Assembly

Containment Action

Date : 30.05.2023

Segregation Detail

Qty : 10000 Nos

AT Endurance / W/H: All Lots to be checked for 100% Segregation by visual)

Qty : 1000 Nos.

AT FUKOKU END : @1000 nos. No NG (Start Date- 30th May 23)

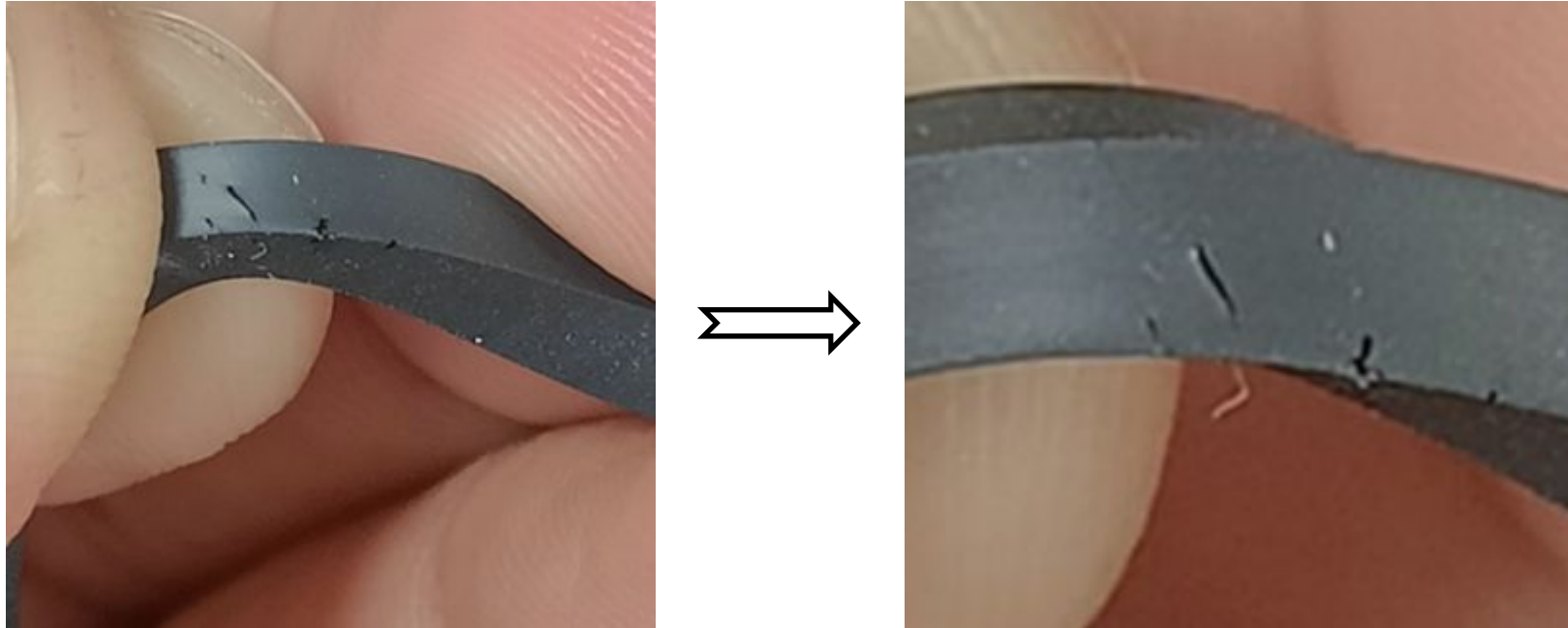
No Stock at Transit

Checking Method:

Visual by squeezing the ID of Piston Seal



Analysis Facts



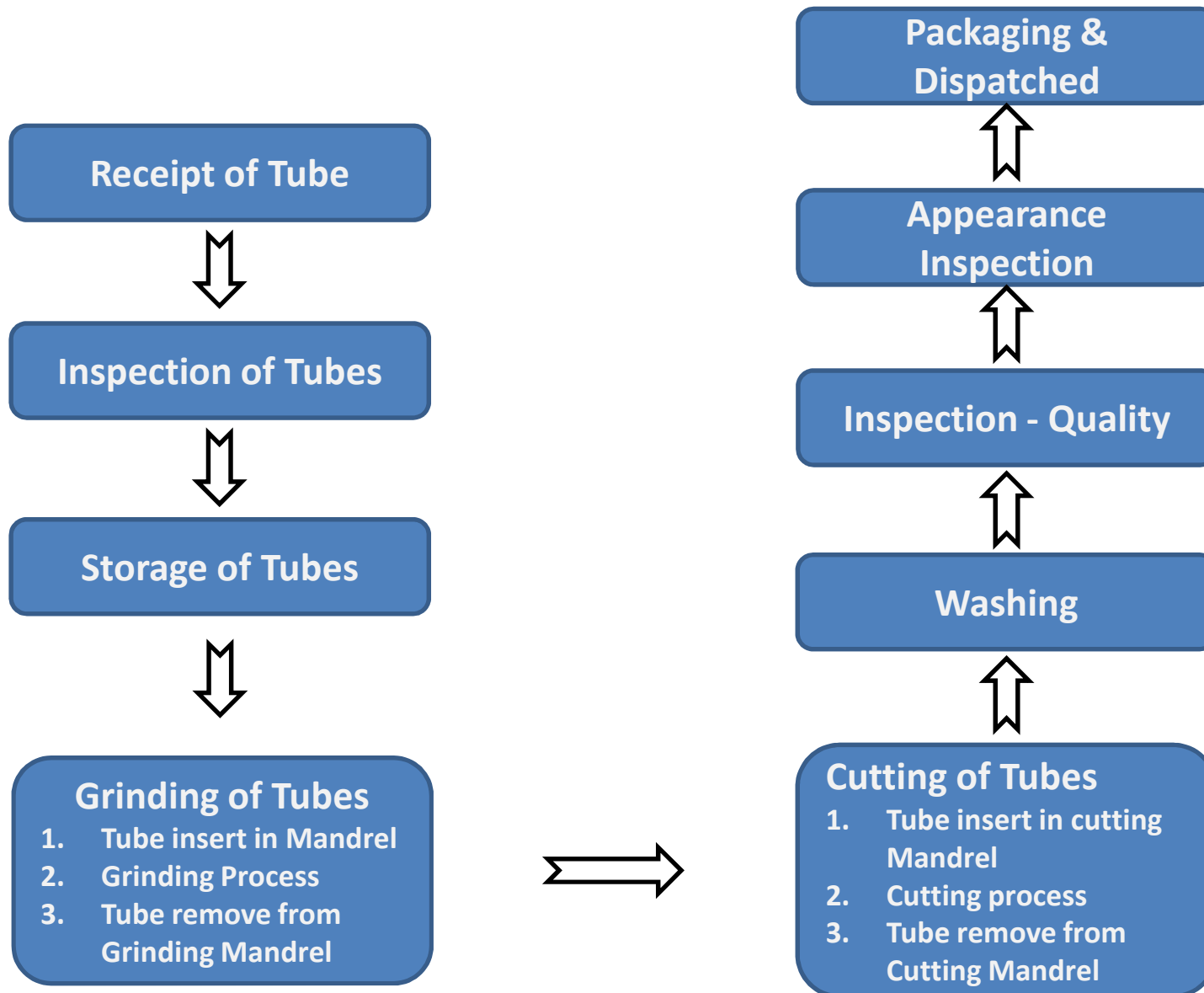
Initial Analysis:

After physical part verification it is observed that Cut is in only one side of the seal at ID and there is side cut mark is also observed




Dimensional Verification:

ID Specification :- 28.240~28.660	Actual Observation : - 28.516-28.573	→ OK
Cut Width : - 3.050~3.300	Actual Observation : - 3.214-3.222	→ OK
Thickness Spec. : - 2.860~2.960	Actual Observation : - 2.891 – 2.941	→ OK




Process Flow






Process Verification and Analysis

Sr. No	Process Name	Photos	Process activity	Process Verification	Remark
1	Receipt of Tube		Tubes are received from Supplier	Tubes are received in box so there is no any probability of Tube cut	Invalid
2	Inspection of Tubes		Tube Inspection as per Receiving Inspection Standard	There is no any possibility of abnormal cut on Tube, as this is handled visually	Invalid
3	Storage of Tubes		Tubes are stored in defined location as in supplier packing	Storage is done in Bins so no any handling related issue	Invalid

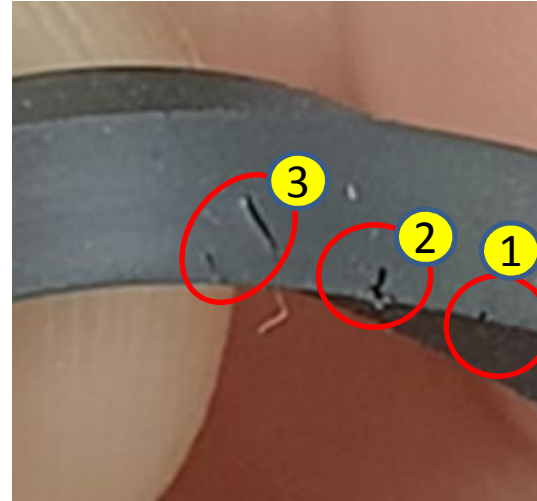
Process Flow

Sr. No	Process Name	Photos	Process activity	Process Verification	Remark
4	Grinding of Tubes 1. Tube insert in Mandrel		Tube is inserted into the mandrel and grinding is done on the OD of entire tube	Verified the Grinding Mandrel and there is no any abnormality is observed so no possibility of inside edge cut	Invalid
5	Cutting of Tubes 1. Tube insert in Mandrel		Existing mandrel is removed and tube inserted in to cutting mandrel and load on cutting machine. Tube is cut into Piston seals	In cutting process, Circular cutter is stationary and Tube with Mandrel is rotating. There is no ID cut generates in this process	Invalid
6	Washing		Washing done is in Net bag to remove the rubber flash in conventional washing machine	Washing is done in washing machine so there is no any possibility of cut.	Invalid

Process Flow

Sr. No.	Process Name	Photos	Process activity	Process Verification	Remark
7	Inspection - Quality		Piston Tube inspection as per Inspection standard	Inspection is done on Microscope so there is no possibility of such type of cut	Invalid
8	Appearance Inspection		Visual Inspection verification as per Inspection Manual	Visual inspection is done without any tools or gauges so no possibility of cut	Invalid
9	Packaging & Dispatched		Packing as per Customer Packing Approval	After visual inspection, parts are packed in polybag and box as per defined packaging standard	Invalid

Final Analysis and Conclusion



Conclusion:

1. After verification of our different process we observed that, in our past we don't have such past trouble history for this type of defect.
2. There is no any possibility of ID corner cut in our any process. (Pt. 1 & 2)
3. We observed there is running cut mark (one is deep and other is small at Pt.3) on the side wall of piston seal which can not be occurred in our process as the slicing is done at cutting process where the marked area doesn't come in to the picture of process.
4. While inspecting the Cut area we feel that the cuts are generated by sharp external object.
5. By the measurement result on said part , all the fit / Function parameters are within Spec., so there could be some other reasons for the leakage, which is beyond our scope of investigation.

So, we feel that such defect could have generated while removing the seal from Seal Groove as it is difficult to remove by fingers and so ,is not a cause of assy. leakage.

Thank You