**FLP HARNESSES - STAR MY25 MERCURY AND X9**

**SITUATION**

I WILL TALK ABOUT A SUPPLIER ISSUE I HANDLED ON THE GO AND ALSO PROACTIVELY BEFORE WE SEE FAILURES IN THE FILEDs.

FORWARD-LOOKING PERCEPTION (FLP) IS AN AUTOMATION FEATURE ON OUR LATEST COMBINES. FUNCTIONAL ACCURACY OF HARNESSES FOR THIS FEATURE (AXE105253) IS CRITICAL. HARNESSES ARE USED TO RECEIVE SIGNALS FOR CONTROLLER FROM CAMERA AND THERE IS A CRITICAL ASPECT OF HARNESS ASSEMBLY – NECESSARY TO HAVE TWISTED AND JACKETED CABLES AT FOUR DIFFERENT CONNECTIONS ON THIS HARNESSES. THIS HARNESS IS USED FRO S SERIES AND X SERIES MACHINES.

IF THE HARNESSES ARE NOT TWISTED AS PER THE SPECIFICATIONS, THE SIGNALS WE RECEIVE WILL BE LOW OR ATTENUATED AND WILL CAUSE INTERMITTENT CONTROLLER FUNCTIONS. IN SHORT THIS IS A CRITICAL HARNESS. SO, I WAS CHECKING THESE HARNESSES FOR MINUTE THINGS ALONG WITH MY CROSS FUNCTIONAL TEAM.

ONE IMPORTANT THING TO NOTE THAT SIGNAL RELATED ISSUES ARE NOT DETECTABLE IN OUR SMART TESTS OR END OF THE LINE TESTING.

WE HAVE WITNESSED A FEW FUNCTIONAL ISSUES IN THE FIELDS IDENTIFIED TO BE QUALITY ISSUES BY SUPPLIER DURING LPB-2023. SO, I WAS CAUTIOUS ALONG WITH ALL OTHER TEAMS ABOUT SOP HARNESSES. SUPPLIER CAPABILITY IS QUESTIONABLE AND SUPPLIER NEVER BUILT THESE TYPE OF HARNESSES BEFORE LPB AND ARE USED BOTH ON S AND X SERIES MACHINES. THESE HARNESSES ARE SUPPLIED BY MURAT IN TURKEY.

**TASK**

MY TAKS WAS TO MAKE SURE THAT THE HARNESSES WE WILL INSTALL ARE GOOD AND WE DO NOT SEE ISSUES AFTER THE MACHINE LEAVES THE FACTORY PREMISES. GOOD QUALITY PARTS GO TO THE CUSTOMER.

**ACTION**

I HAD CHECKED SOME OF THE SIMILAR HARNESSES FROM THE SUPPLIER IN WAREHOUSE BEFORE THEY COME TO FACTORY. I WAS CHECKING THIS HANESSES ON THE X SERIES LINE AND MY PRODUCT OWNER TOLD ME ABOUT SOME NON-FUNCTIONAL BUT OPERATOR EFFICIENCY RELATED ISSUE WHILE WE WERE CHECKING THE HARNESSES.

THAT LEAD TO ME INVESTIGATING ON THAT TOPIC AND ALSO REVIEWING THE HARNESS FOR TWIST. REALIZED THAT APARANTLY THE HARNESS WERE NOT TWIESTED TO SPEIFICATION AND THIS WAS REVELEAD ONLY WHEN WE PULLED SOME TAPE AND WHEN IT WAS SEEN THAT INSTEAD OF 10 MM OF UNTWIST THE UNTWIST WAS 30 MM PLUS, A QUALITY ENGINEER IN ME WOKE UP. I WANTED THE WHOLE CONDUIT TO BE REPED OFF. HOWEVER, I DID NOT WANT TO SPOIL THE HARNESS.

FORTUNATLY, I HAD TALKED WITH THE SUPPLIER REP IN WATERLOO ON OTHER TOPICS AND HE MENTIONED TO ME THAT HE WAS GOING TO CHICAGO. I IMMEDIELY CALLED HIM AND TOLD THAT I EXPECT HIM TO STOP BY IN THE FACTORY ON THE WAY. IT WORKED OUT WELL.

HE CAME AFTER A COUPLE OF HOURS AND WE PULLED THE HARNESS APART. REVEALED THAT THE UNTWIST WAS MORE THAN 70 MM AND IT WAS THE CASE ON ALL THE CONNECTORS ON THE PERTICULAR HARNESS. IT WAS INDICATOR THAT THE SUPPLIER DID NOT FOLLOW THE STANDARDS AND FOR SURE THAT HARNESS WAS GOING TO BE A TROUBLEMAKER IN THE FILED. NOTE THAT THIS IS SOP AND WE ARE LOOKING AT 1000S HARNESSES OF MACHINES. IMMEDIATELY I CALLED THE LINE QE AND ME – EDUCATED THEM ON PROBLEM AND SEVERITY OF IT, TOOK THE OPINION OF PRODUCT OWNER AND ASKED ABOUT IMPACT OF REPAIRING VS REPLACING THE HARNESSES ON THE GO AND DIRECTED THE LINE QE TO WRITE THE QNOTES ON MACHINES WE BUILT SO FAR AND A FEW MORE THAT WE WILL BE FOR THE NEXT COUPLE OF WEEKS. GAVE HIM THE SPECIFICS OF THE ISSUE. I

DOCUMENTED THE BUILD ISSUE. I WROTE AN EMAIL WITH URGENT AND IMPORTANT IN ITS HEADING WITH SUPPLIER CONTACTS INCLUDING THE REP I WORKED WITH. I IMMEDITELY SET UP A MEETING WITH JOHN DEERRE TEAM, INCLUDING ALL CROSS-FUNCTION TEAM, LEADS, PMs and SM FOR FIRST THING ON MONDAY MORNING. I ASKED THE SUPPLIER REP TO TALK WITH THEIR FOLKS URGENTLY AND CHANGE THE MANUFACTURING PROCESS OVER THE WEEKEND. NOTE THAT THIS WAS DONE FRIDAY AFTERNOON AT AROUND 5 PM. WORKED LONG HOURS.

ON MONDAY, CAME EARLY TO WORK, CHECKED THE S SERIES HARNESS AND REALIZED THAT IT WAS THE SAME ISSUE THERE TOO AND REALIZEED IT IS MORE COMPLEX TO REPAIR OR REPAIR THE HARNESS BASED ON THE ROUTING. MONDAY I HELD INTERNAL MEETING, DISCCUSSED THE SITUATION, PROVIDED THE PLAN AND I ASSIGNED THE TASKS TO RELATED CROSS FUNCTION TEAM MEMBERS, QNOTED ALL THE MACHINES THAT WILL BE BUILD BASED ON THE RATE. LATER CONNECTED WITH WAREHOUSE, AND PDC TO QUARANTINE THE PARTS.

REQUESTED SM FOLKS TO GET WITH SUPPLIER AND SHIP THE CORRECTED PARTS. ASKED FOR IDENTIFICATION ON THE CORRECTED PART. PLANNED THE REWORK STRATEGY AND ESTIMATED REPAIR TIME. APPROXIMAELY 10 MINUTES FOR X SERIES AND 20 MINUTES FOR S SERIES. SENT THE DETAILS OF ACTION ITEMS AND MEETING NOTES.

**RESULTS**

WE WERE ABLE TO EXPEDITE THE CORRECTED HARNESS FROM THE SUPPLIER. MADE THEIR PROCESS BETTER, EDUCATE THEM ON THE PROCESSES AND EXPECTATION AND THEN CONTINUE TO BUILD THE MACHINE ON THE GO. AROUND 50 MACHINES ON S SERIES AND X SERIES EACH NEEDED TO REPLACEMENT OF THE HARNESSES. 20 HOURS OF REWORK ALL TOGETHER. SAVED POTENTIAL SPEC UPDATES OF 10S OF THOUSANDS OF DOLLARS TO THE COMPANY.

**Lesson Learned: you're someone who does a retrospective. Bonus: if you can mention how you've used that lesson learned again, after this experience.**

**Go back in time: you're someone who cares about process improvement. Bonus: you actually implemented a process change.**

**3 tiers of an example (1 to 5 star):**

**(3 – star at Deere) – did what was assigned/asked.**

**(4 – star at Deere) – went above and beyond what was asked (process improved, huge effort to accomplish, had to learn something huge)**

**(5 – star at Deere) – influence/impact was spread far and wide**