LANCE INDUSTRIES CUSTOM TOOLS SINCE 1971

History:

- We are a family owned business located in Madison Heights Michigan (around 10 miles north of Detroit).
- Lance Industries was founded in 1971 by the Lance Family.
- ► In 2010 the Floore family purchased Lance Industries
- We pride ourselves on these fundamental principles: Quality, ontime deliveries, communication, and exceeding our customers expectations.



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Standard Sockets:



Extensions available in all standard drive sizes (male and female) and lengths.

Sockets: available in all standard drive sizes, hex sizes (metric and standard) and hex formations (standard hex, 12 point hex, surface drive and torx)

Gap protector placed between socket and extension (shown in image) eliminates the pinch point between the socket and the extension.





Understand the Problem (3G/5G)

Clearly Explain what problem we are attacking and why we are attacking i

Production Technicians are tasked to replace the sockets being used to secure the fasteners in their respective areas. The sockets that are currently being floated in tool stores are clearly creating this phenomena. Most technicians prefer the spring loaded magnets that come with the APEX MB socket line. However, when the circlip wears, the sockets usually pop out and the magnet comes out as well. As a result, the technicians replace them instead of repairing them, and this replacement comes at a high frequency by chart provided.

PLAN Understand the Problem



Description of sketch to explain defect. As can be seen in the above photograph, the sockets are easily worn and ran to fail

Results Before Countermeasure

STEP

6



Day / Week / Month 6 months data required for Hard savings if available

5W1H



INITIAL PROBLEM DESCRITION:

WHAT	 WHAT PRODUCT? WHAT MACHINE? WHAT MATERIAL? WHAT SIZE? 	Apex MB(Size) spring loaded sockets
WHEN	 WHEN DID THE PROBLEM OCCUR? WAS IT CONTINUOS RUNNING OR INTERMITTENT? WAS IT ON START-UP? WHEN DURING THE SEQUENCE OF THE OPERATION DOES THE PROBLEM OCCUR? WHAT TIME PERIOD OR TIME? 	This phenomena occurs after the socket has been used for short period, however, cycle time is the root cause. The collapse of the spring during the tightening phase loosens the circlip to the point of failure
WHER E	 WHERE DID YOU SEE THE PROBLEM (LINE /MACHINE) WHICH PARTICULAR PART DID YOU SEE THE PROBLEM ON? WHERE ON THE MATERIAL DID YOU SEE THE PROBLEM? 	Trim, Chassis, Final areas
₩НΟ	 IS THE PROBLEM SKILL RELATED? WHO IS EFFECTED UPSTREAM OR DOWNSTREAM IN THE PROCESS? IN OTHER WORDS DOES ANY INDIVIDUAL AFFECT THE PROBLEM VS. ANOTHER? (OPERATOR TO OPERATOR / SHIFT TO SHIFT / ENGINEER TO OPERATOR) 	No, the incidents are created by the production process and the cycle time is paramount.
WHIC H	 WHICH TREND OR PATTERN DOES THE PROBLEM HAVE? (TIME OF DAY?, TYPE OF MODEL?, WHICH CREW?, ETC.) IS THERE A PROBLEM IN A PARTICULAR DIRECTION? 	This phenomena occurs wherever production is utilizing a spring loaded socket to complete a task during the production phases
REVISED PRO	 BLEHOW IS THE STATE OF THE EQUIPMENT CHANGED FROM OPTIMAL RUNNING CONDITION? HOW MANY TIMES DOES THE PROBLEM OCCUR (Daily, Weekly, Monthly)? HOW DOES THE UNDESIRABLE EVENT OCCUR? 	The sockets affected do not hold the fasteners being installed



5 WHY



Potential Phenomena	1 st Why	Check	2 nd Why	Check	3 rd Why	Check	4 th Why	Check	5 th Why	Check	Countermeasure
	Circlip retainer is damaged by the head of the fasteners	NOK	Head if the fasteners is allowed to drop down to cirlip retainer	NOK	Poor shelf design for all spring loaded magnetic Apex sockets	NOK					Replace with newly designed
Carriag loaded											
magnets are falling out of sockets											

omena and Countermeasure



No.	Description of Actions Required	Responsibil ity Tool Engineer	Target Date	Comments or Details Regarding Progress Made Sockets lasted for a period of approximately 4	Closed Date Feb 14, 2020			
2	Sockets need to be coded and ordered	Tool Engineer	December 10.2019	After trial period sockets were coded and 10 units were ordered and installed in stations	January 13, 2020			
3	Sockets need to be implemented and floated to replace existing APEX units	Tool Engineer	TBD					
4								
<u>5</u>			<u> </u>					
5 Sketch Phenomena (The event that caused the problem) A CIPCI IP A SpPING SpPING								
	Jefferson North Assembly Plant – Focused Improvement 10							

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BC Ratio Check Benefit / Cost Analysis Describe each item and show the	e calculation	STEP 7 B/C Ratio :
Benefit Summary	\$	
1 82396/80.85 = 1019/12= 85 per month. Now @85 per month, Apex(\$80.85 x 80) = \$6800 - Lance(\$50.00 x 80) = \$4000 = \$2800 x 12mths = \$33,600 Annual Socket Cost Reduction	\$ \$33,6000	67,780 / 336 = 201.8
2 Trialed usage over a 3 month period is 2 to 1. 1019/2 = 510. And (510 x \$50) = \$25,500 Less Sockets	\$ 25,000	
3 Hourly labor Savings : 510 sockets x .5 = 255 x \$36.00	\$ 9180	
Total Benefit	\$ 67,780	
Cost Summary	\$	
1 Tool Engineer labor (\$42.00 x 8 hr.) = \$336.00	\$ 336.00	BENEFIT COST
2	\$ O	
3	\$	

³/₄" Square Drive Covered Socket



- By using a shoulder bolt for a "pin" we have eliminated the need for an O-Ring on the socket
- Allowing for much easier removal all while maintaining the covered socket.

Magnetic Bit Holders



- Bit is recessed into the machined Delrin cap ELIMINATING and In-system-damage.
- Cap retracts to allow for full engagement of bit into fastener.
- Modular design to allow for all components to be easily interchangeable.
- Magnets completely hold fastener into place allowing operator to keep hands clear of any rotating parts.



Quick Change Magnetic Bit Holders



Quick Change Magnetic Bit Holders



Hold and Drive Sockets



Spring Loaded Extensions



Guided Anti-Wobble Extensions



- Threads directly onto the nut-runner angle head.
- Eliminates any lateral-runout.
- Increases the longevity of angle head
- Ideal for applications with extensions over 8" long.





Lift Gate Ajar Fixtures/Lift Gate Assist Tools

JNAP Lift Gate Ajar Fixture



WTAP Lift Gate Ajar Fixture





D2 (Mack) Lift Gate Ajar Fixture



Paint Clip Puller



Replacement Crowfoot & Tubenut Parts





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