

Promoting Safety Awareness with Just Culture: Case study of China Airlines efforts

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Outline

- Human Factors to Flight Safety
- Safety Awareness
- Just Culture and Approach
- Results
- Conclusion

Human Factors to Flight Safety

- From Kitty Hawk to A380, so far air transportation has been proven the safest way of travel.



Dec 17, 1903

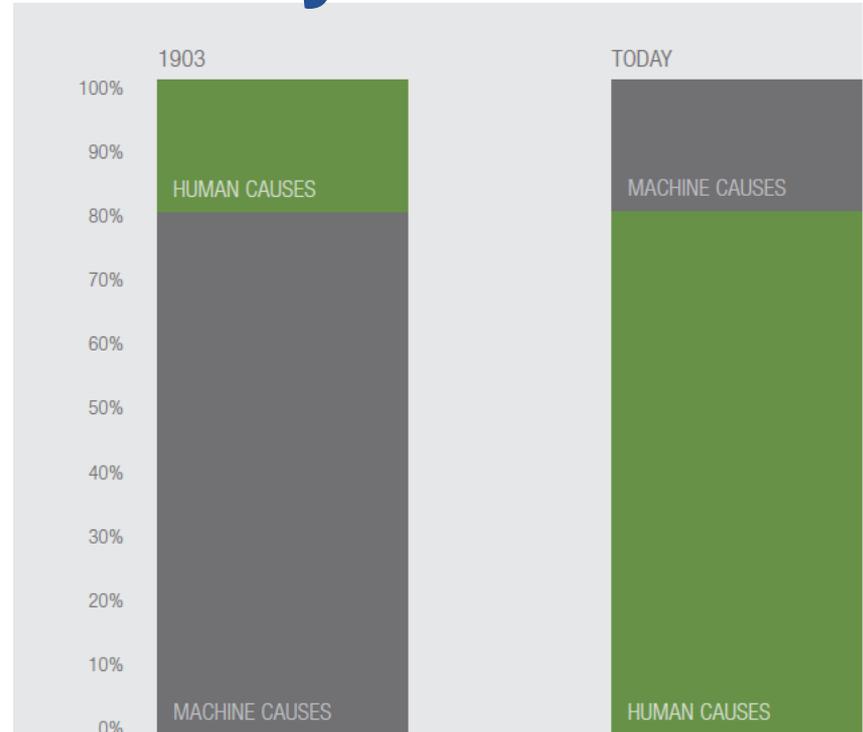


Apr 27, 2005



Human Factors to Flight Safety

- Nevertheless, the human cause of accidents have increased from about 20% to 80% since the beginning of flight to today.
- Human → Less Reliable??? or
- Machine → More Reliable???



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From Boeing AERO Magazine QTR-02/07

Human Factors to Flight Safety

- When machine performance is getting more consistency and reliable, human performance becomes the weak link of flight safety, the Dirty Dozen below is well summarized causes of error in Human Factors.

- Lack of awareness
- Lack of communication.
- Complacency
- Lack of knowledge
- Distraction
- Lack of teamwork
- Fatigue
- Lack of resources
- Pressure
- Lack of assertiveness
- Stress
- Norms

Safety Awareness

- Lack of awareness could leave the hazards, safety concerns or errors around the working area unattended and eventually lead to accidents.
- Therefore increase of Safety awareness is critical in eliminating above situation, the concept is simple: Aware → Report → Eliminate.
- How to encourage staff to be more aware of their surrounding safety concerns or hazards and further to report them is the key factor of success, and Just Culture can just be the right tool for it.

Just Culture

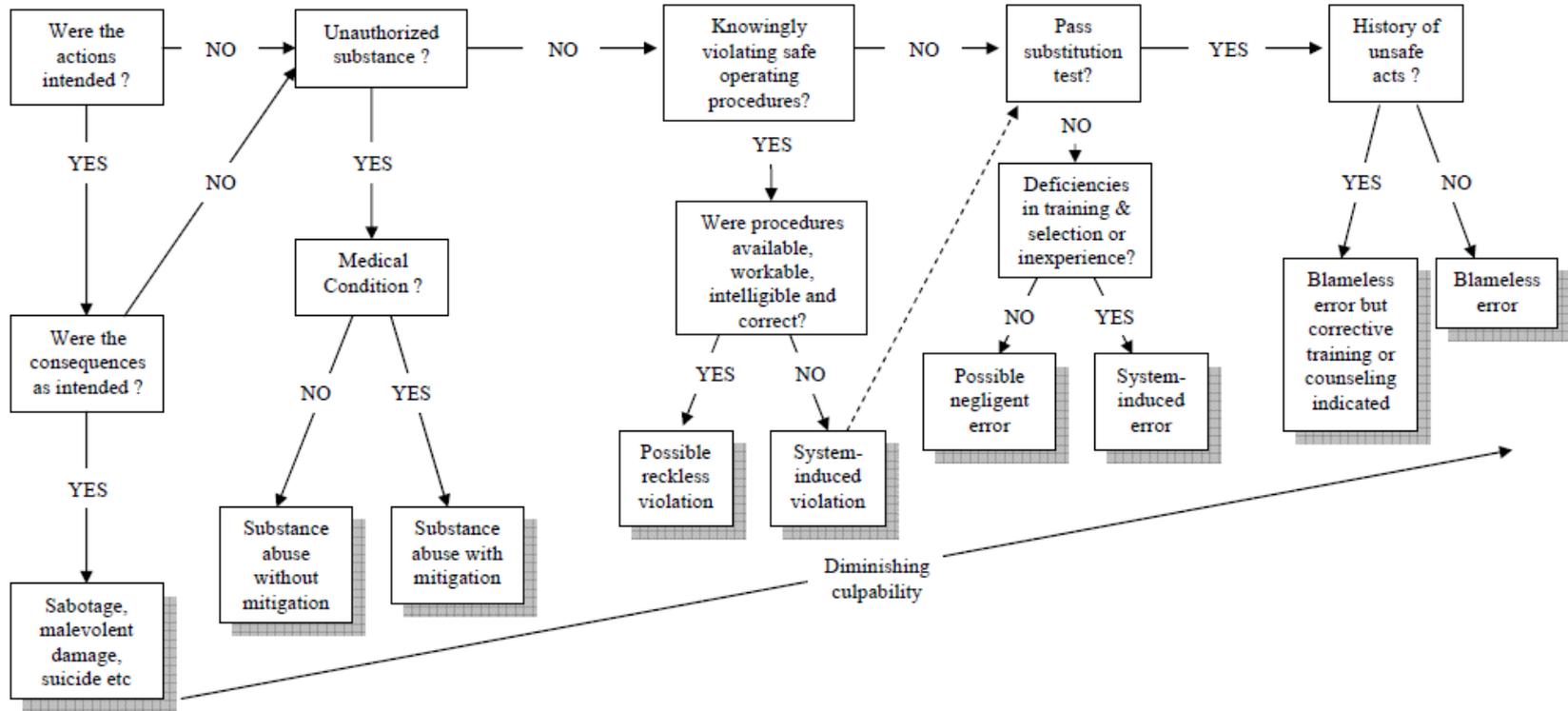
- Why is Just Culture essential in promoting Safety Awareness?
 - In Just Culture, errors and unsafe acts will not be punished if the error was unintentional. However, those who act recklessly or take deliberate and unjustifiable risks will still be subject to disciplinary action.
 - FAIRNESS
 - If staff can feel they will be treated fairly, they will be more confident to report hazards, safety concerns, and errors. In other words, Just Culture is the premise for successful Reporting Culture

Just Culture

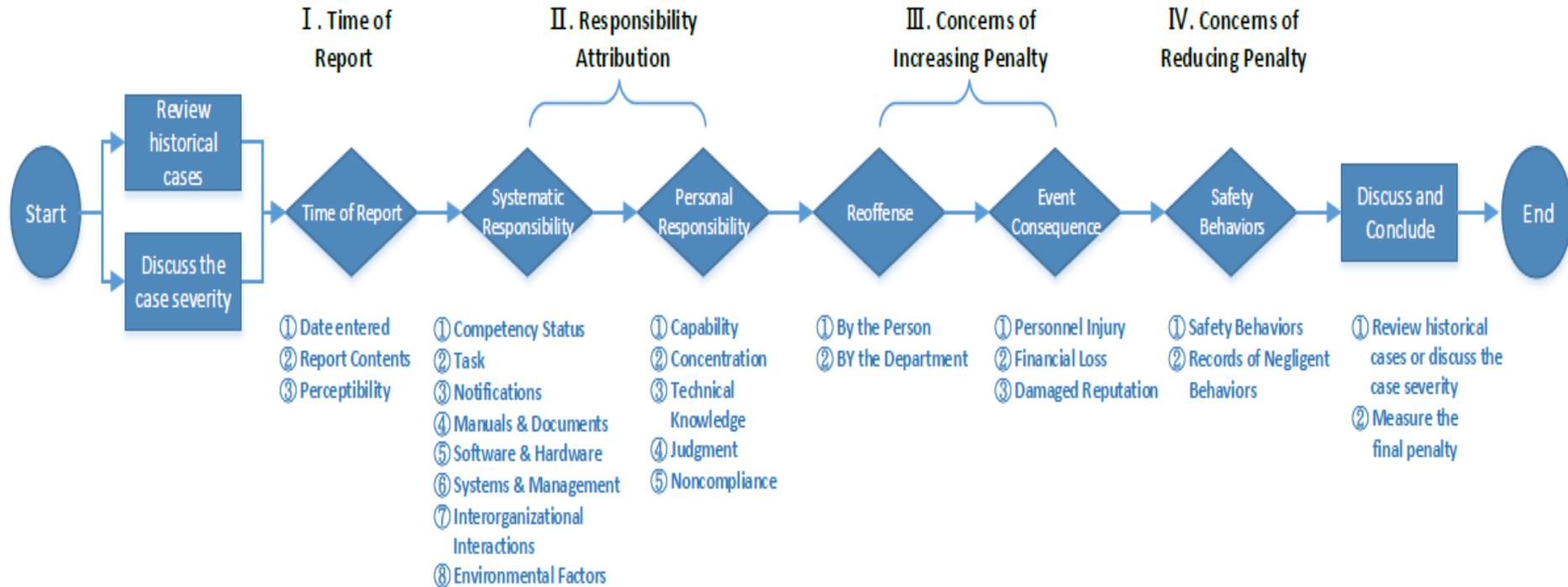
- If staff can not trust fairness can be built by the management, then the mentality of “ I don’t want to be a snitch” or “I don’t want to cause any trouble” will not be changed.
- The management has the responsibility to set up the pathway for such trust, only after the foundation of trust is laid, everything else after has the chance to build up.



Just Culture Reason's Just Culture Culpability Chart



Just Culture CAL Just Culture Decision Aid (JCDA)



Just Culture

- By using Just Culture Decision Aid
 - Level of acceptance is clear
 - No room for manipulation
- After successfully establishing the Just Culture, and the system is trusted by staff, the environment and atmosphere in the organization are cultivated for Reporting Culture.

Just Culture

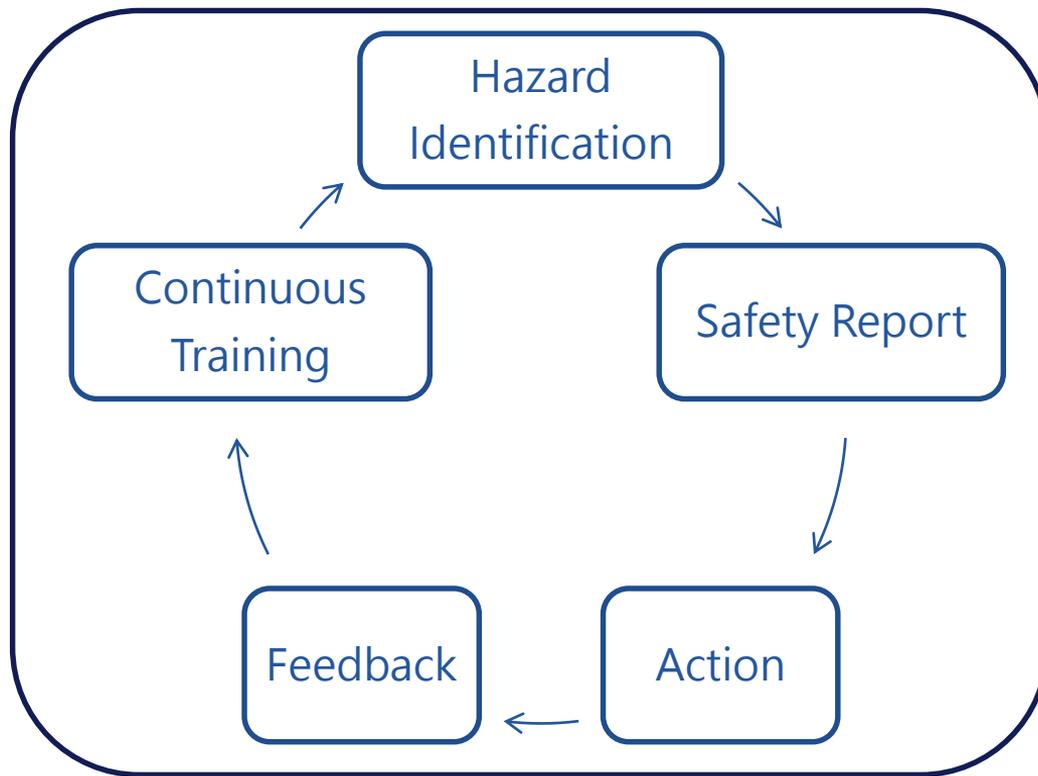
- The development of Safety Culture are the mutual responsibility of both the management and staff.
 - Resources need to be distributed by the organization, ie. Continuous training on safety issues need to be provided, and willing to bear the production time spent on training.
 $50 \text{ \$/hour} \times 10 \text{ hour/year} \times 2000 \text{ man} = \underline{\underline{1 \text{ million USD/Year}}}$
 - Prejudice should be thrown away by the staff, ie. The trust issue with the management, believe there is no hidden agenda.

Just Culture

- In every organization, there are always some staff with more passive personality. For those staff, they need more encouragement and assurance to participate.
- In China Airlines Engineering and Maintenance Organization, rewards are awarded to good safety reports to encourage participation and show good faith.

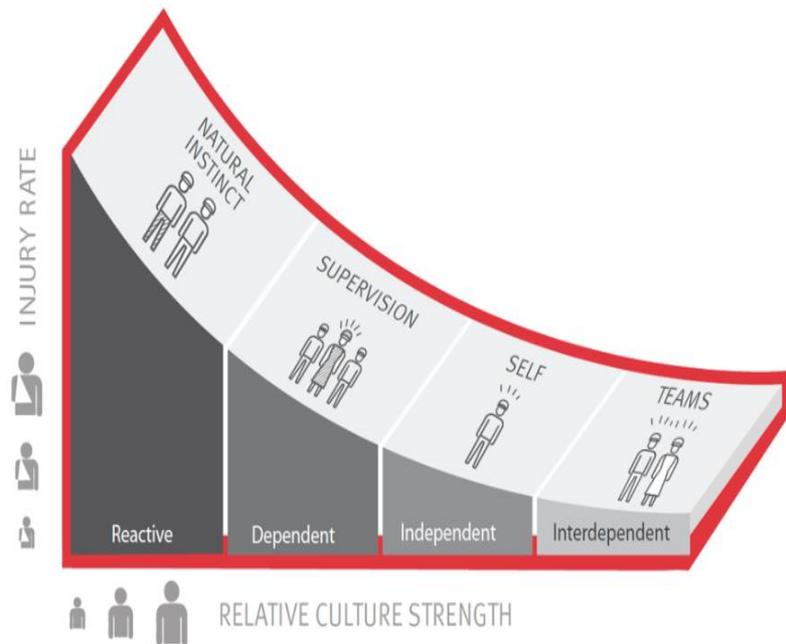
Just Culture

Just Culture



Results

- With years of training and promotion about Safety Culture in China Airlines, a survey was taken in 2017, 2602 employee took the survey and 90 % has positive opinion about organization Safety Culture.
- Analysis of the this survey also suggests China Airlines is in the early Independence stage of Safety Culture.
 - staff take responsibility and believe they can make a difference with actions.



The DuPont Bradley Curve

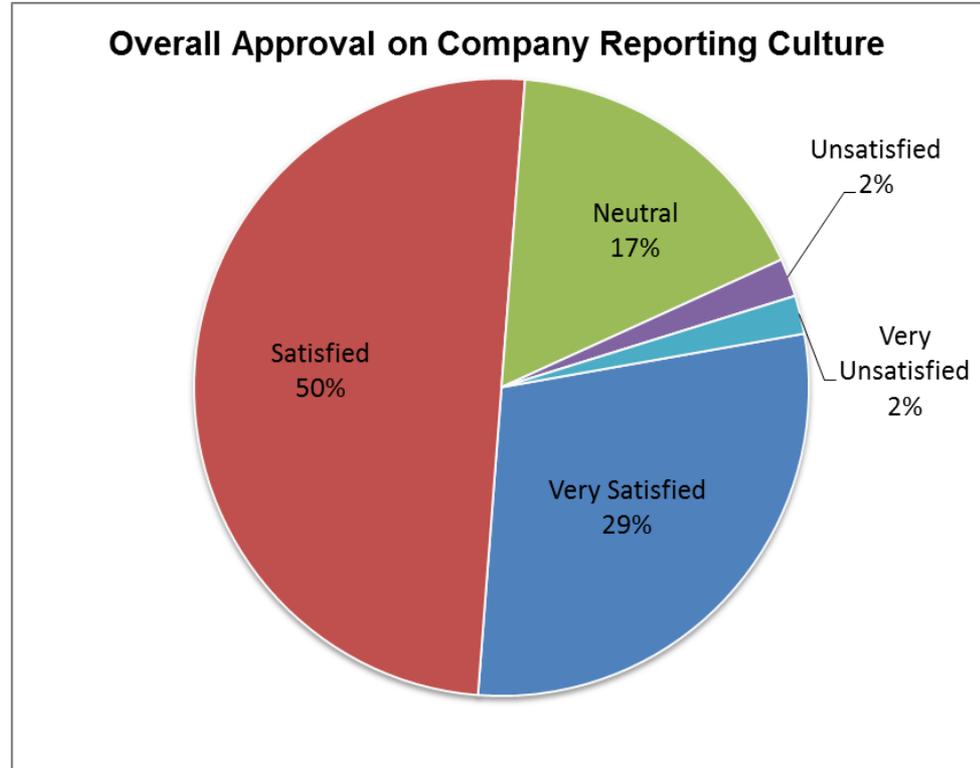
Results

- The safety reports collected from China Airlines Engineering and Maintenance Organization (EMO) are gradually increasing over the years. It shows the confidence of the staff is increasing and more willingly to participate.
- The contents of the safety reports varies from:
 - Aircraft maintenance
 - Ground handling
 - Equipment...etc



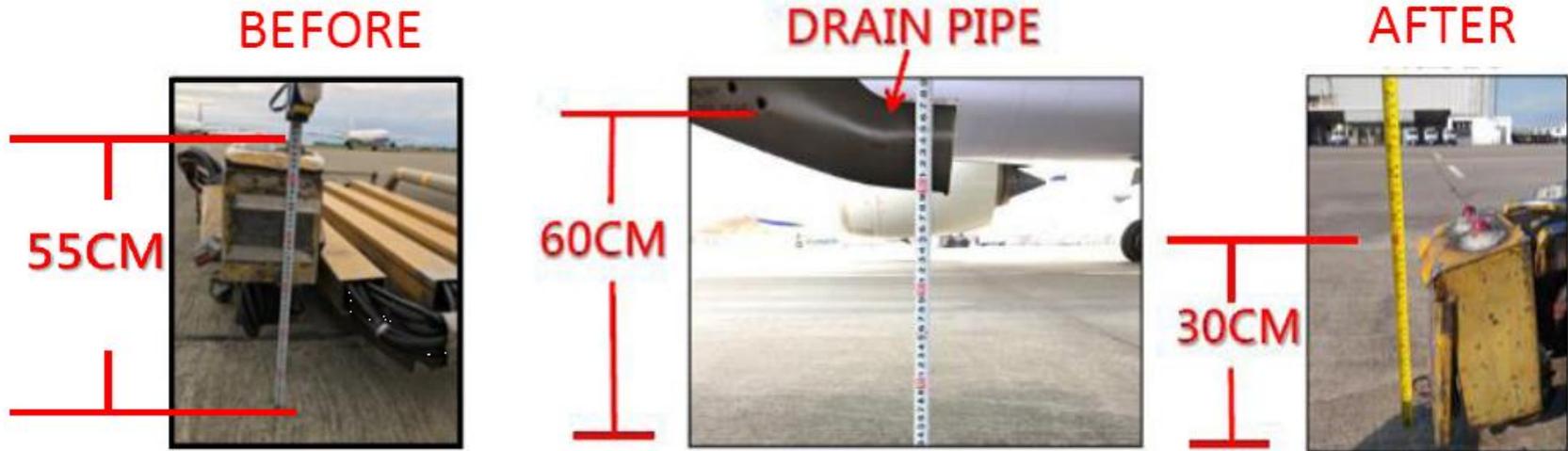
Results

- Survey on reporting culture in China Airlines Engineering and Maintenance Organization in 2018 shows about 80% of staff has positive opinion about the Reporting Culture.



Case 1 (Report number: O1712-17)

- Ground power supply control panel box only has 5-10 cm clearance to A350 drain pipe. Increase of load on aircraft could further reduce the clearance and damage the aircraft. (Year 2017)
- Action: Clearance is increased

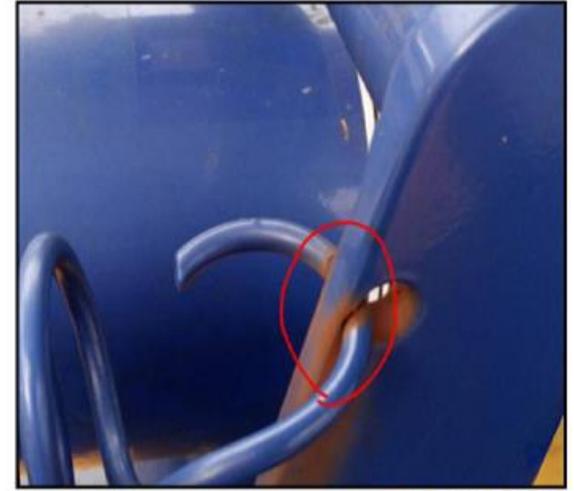


Case 2 (Report number: O3898-18)



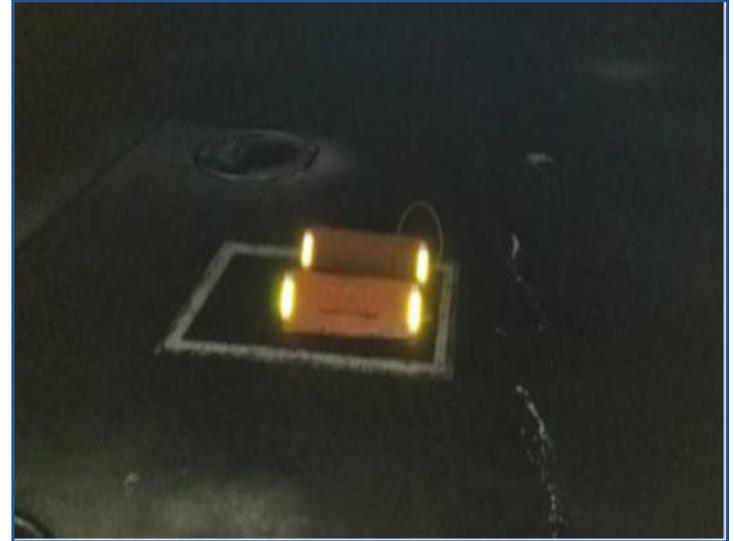
- Cargo safety net was incorrectly attached on handle in the cargo compartment by ground handling agent. (Year 2018)
- Aircraft part could be damaged if not used or treated correctly .
- Action: Refresh training was given to ground handling agent.

Case 3 (Report number: O590-18)



- The locking spring hole of the tow bar has the trend to enlarge, if leave it unattended, the spring could snap and cause serious damage to personnel and aircraft. (Year 2018)
- Action: Tow bar repaired, and full scale inspection is conducted.

Case 4 (Report Number: O300-19)



- Due to the appearance of wheel chock , in low visibility environment, vehicles or personnel could run over or trip over it. (Year 2019)
- Action: Reflectors are added to chocks.

Conclusion

- Potential safety issues can be successfully prevented with increasing of Safety Awareness after the foundation of Trust is laid in the organization with effective tool of Just Culture.

Just Culture Implemented → Trust Built → Safety Issues gone

CONCLUSIONS

What role should the Foundation consider in terms to further the state of understanding, awareness or implementation of the themes of this presentation?

1. Approach member MROs for collecting internal method of promoting safety reporting and results.
2. Convene a group of experts and member MROs around the world to discuss the effectiveness of different method, and develop multiple approach for trial implementation in member MROs.
3. Approach member MROs for follow-up and further collaboration.
4. Assemble an AeroSafety World article or website media to share the successful experience of increasing safety awareness_for others to adopt.

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