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AI 2023-07

Marking and Placards

Presented by: G. Gibilisco (Leonardo Helicopters)

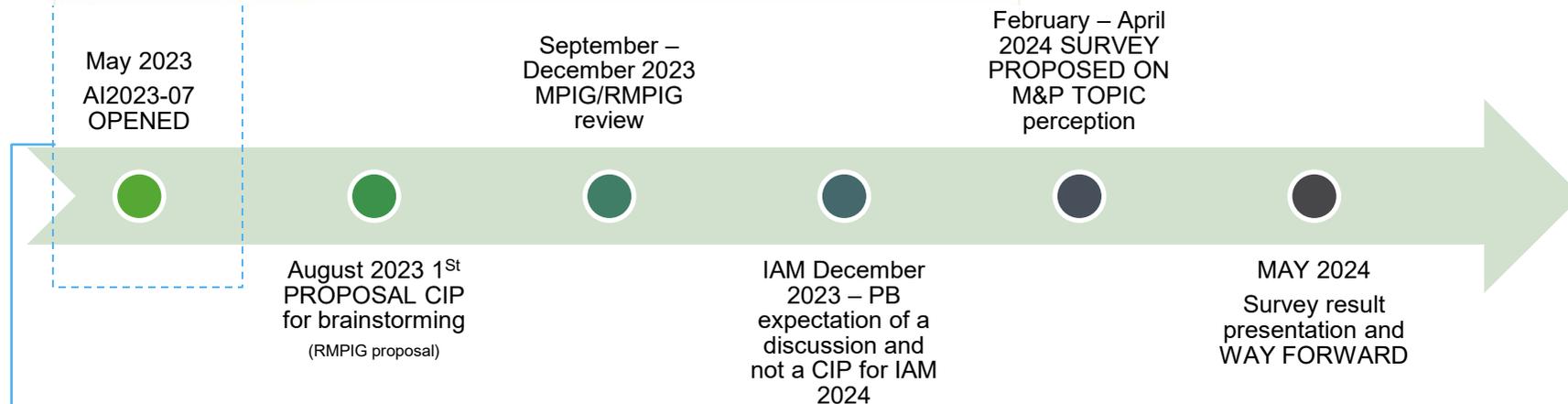
May 12-17th, 2024
IAM

Marking and Placard – ACTION ITEM 2023-07

Action Item 2023-07: to investigate the possibility/implications to cover "Placard and Markings" in the MRB process making use of MSG-3 analysis.

Action Owner: MPIG/RMPIG

Due Date: IIM 2023



Brainstorming have considered:

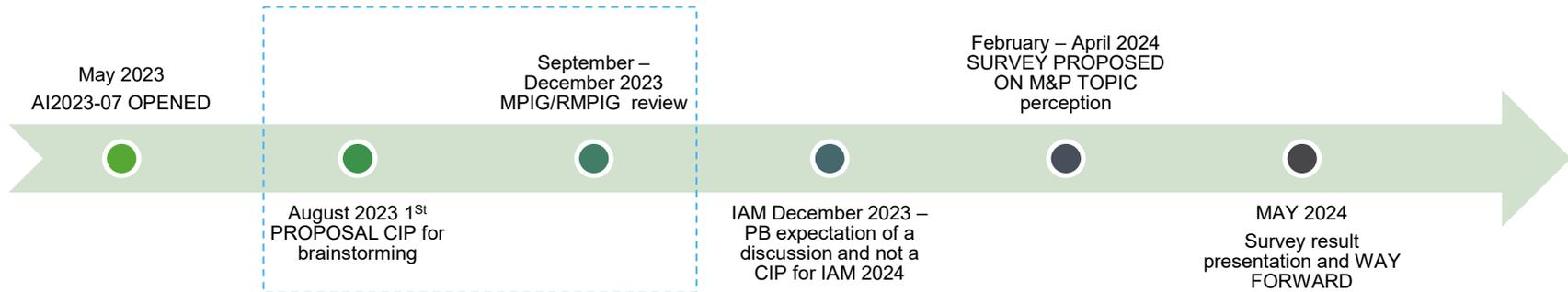
- Available definition research (if any)
- Certification Requirements referring to marking and placards (exercise done for CS29)
- Available lists of M&P object of today in service inspections (i.e. Ramp-up check list)



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Marking and Placard – PROPOSAL OF a DRAFT CIP (from RMPIG)



DRAFT CIP with 2 options – to start a DISCUSSION

PLACARDS/MARKING as MSI
item with related function

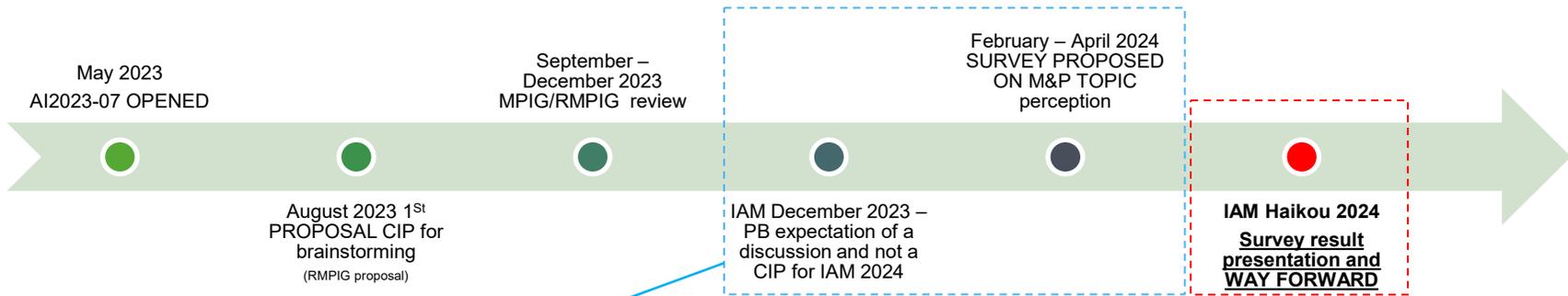
PLACARDS/MARKING as part
of ZONAL analysis

- ✓ Topic not shared by all stakeholders. Different perception if there is a problem.
- ✓ General understanding that not all the placards/markings would be required to be assessed

CONCLUSION: FURTHER DISCUSSION AND
DIRECTION REQUIRED BEFORE MOVING TO CIP



Marking and Placard – CONSULTATION poll



... the Policy Board would expect more a presentation of the study of the topic rather than a CIP, we perfectly understand it is not an easy topic to be tackled in the MSG-3 analysis context....
(MoM of IIM DECEMBER 2023)



Survey on Marking and Placards (M&P)

This survey is proposed to MPIG/RMPIG participants to collect opinions about if/how the MRB process should consider the marking and placards as part of the analysis of the A4A MSG-3 methodology. A DRAFT CIPs presented in RMPIG/MPIG in Q4 2023 on this topic can be found on A4A collaboration site [here](#). This activity is proposed in support of the IMRBPB request (Action item AI 2023-07)

[Survey](#)

Marking and Placard – Who answered ?

Gordon Bruce /
GKN FK
Aerospace B.V.

Wayne
Thompson/British
Airways

Hans Moen
(Fokker services)

Airbus
Commercial
Europe - Maint.
Prog.Engineering

John
Sullivan/Oliver
Wyman CAVOK

Virgin Galactic

Leonardo
Helicopters

Embraer

AeroTechna
Solutions

Southwest
Airlines

Marcelo Ramos /
Gulfstream
Aerospace Co.

David Piotrowski /
Delta

Aurore FANUTZA
/ DASSAULT
AVIATION

Dither Flores /
Wisk

Bombardier

Anonymous_1

Kevin Berger /
A4A

Avril Benson /
American Airlines

REYNAUD
AIRBUS
HELICOPTERS

Anonymous_2

Shaun Julian
(Textron Aviation)

Nellie Suess /
Horizon Air

Mark
Rasmussen/Virgin
Galactic

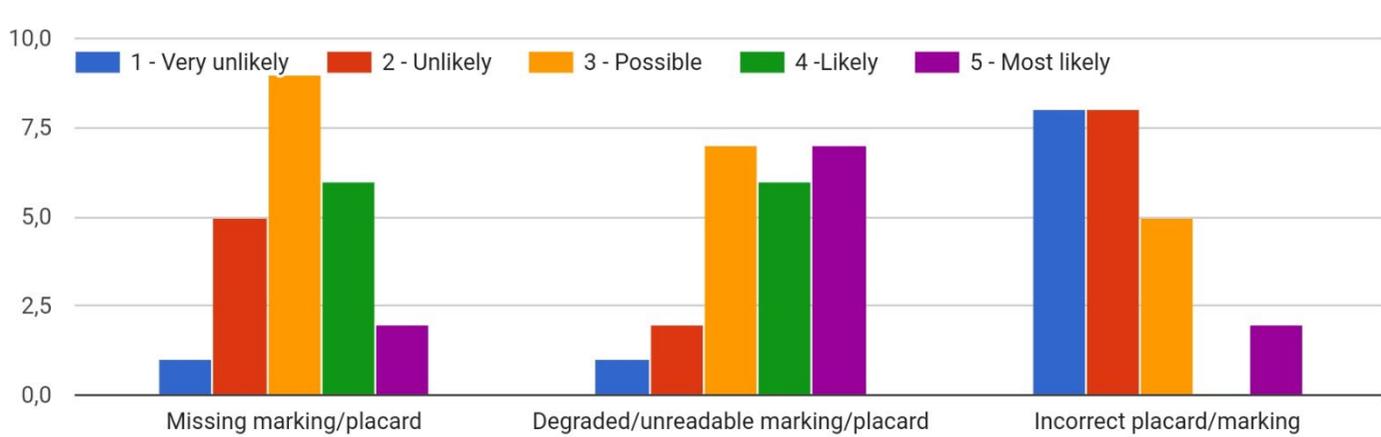
23 Participants



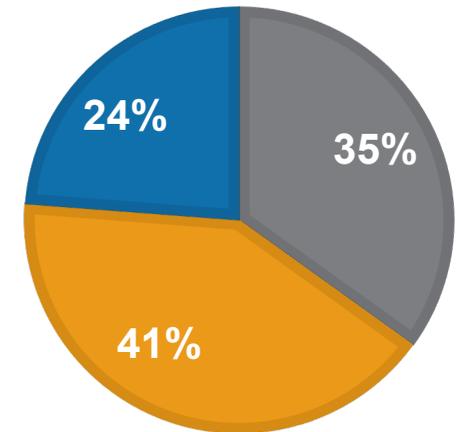
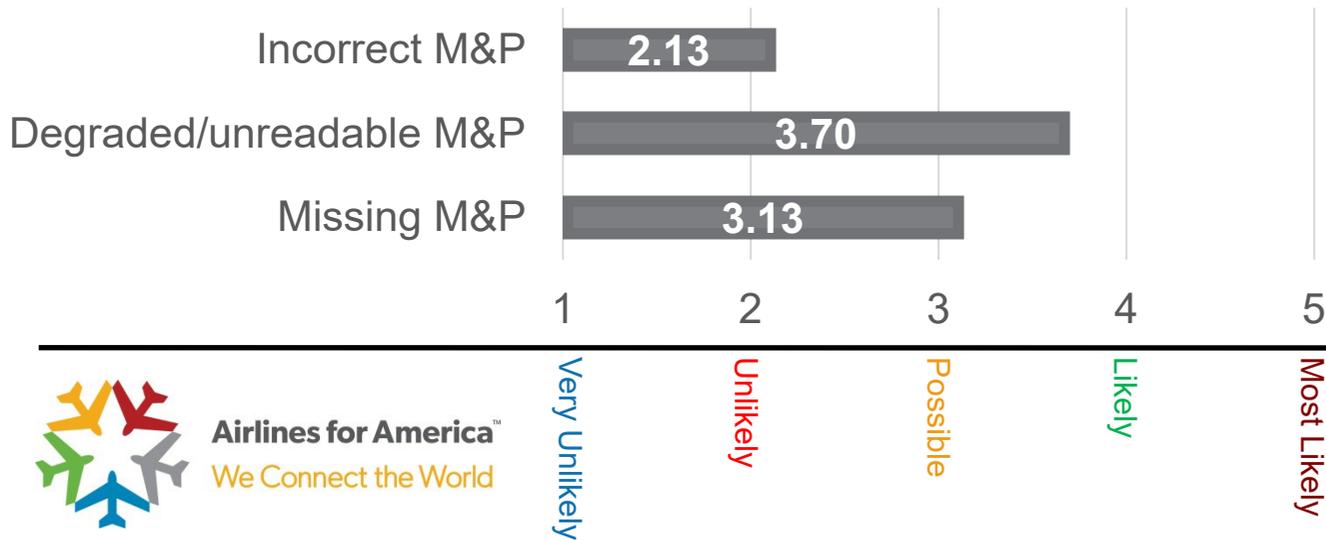
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Marking and Placard – Survey Results

QUESTION 1: Based on your experience which is the most likely failure mode or defect related to placards or markings as applied to the aircraft in accordance with the TCH type design specifications (Score 1-5)



- Missing M&P
- Degraded/unreadable M&P
- Incorrect M&P



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Very Unlikely

Unlikely

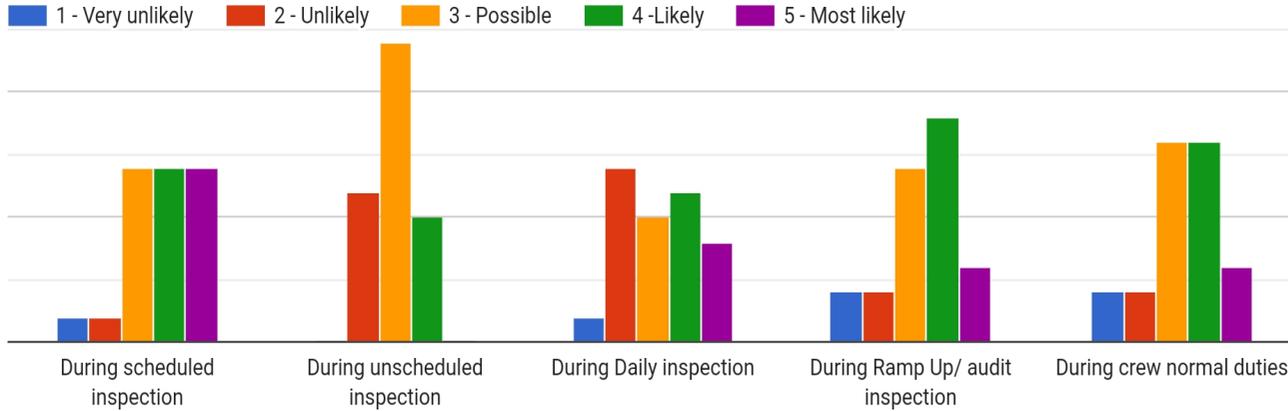
Possible

Likely

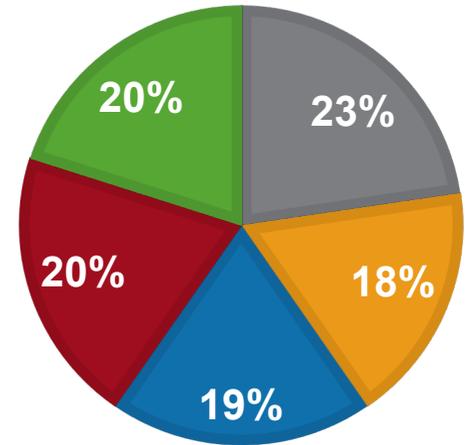
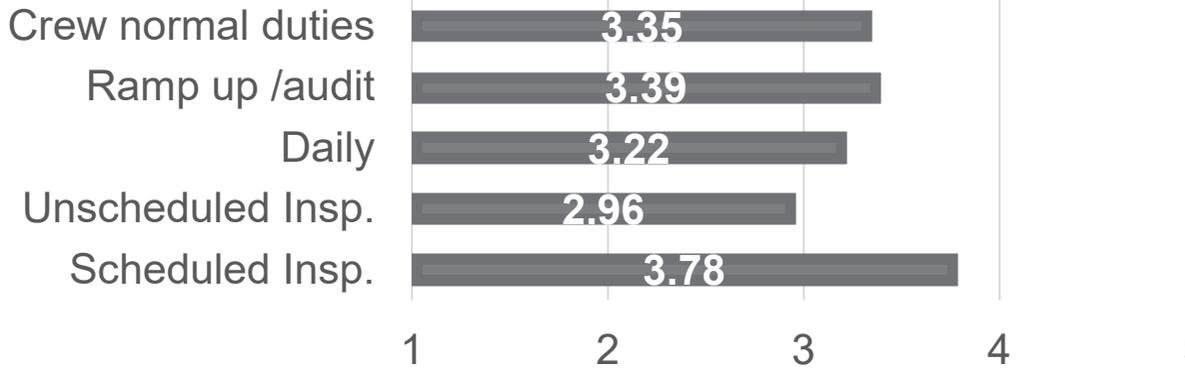
Most Likely

Marking and Placard – Survey Results

QUESTION 2: During which operational activity are the marking and placard «defect» more frequently discovered ? (Score 1-5)



- Scheduled Insp.
- Unscheduled Insp.
- Daily
- Ramp up /audit
- Crew normal duties



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Very Unlikely

Unlikely

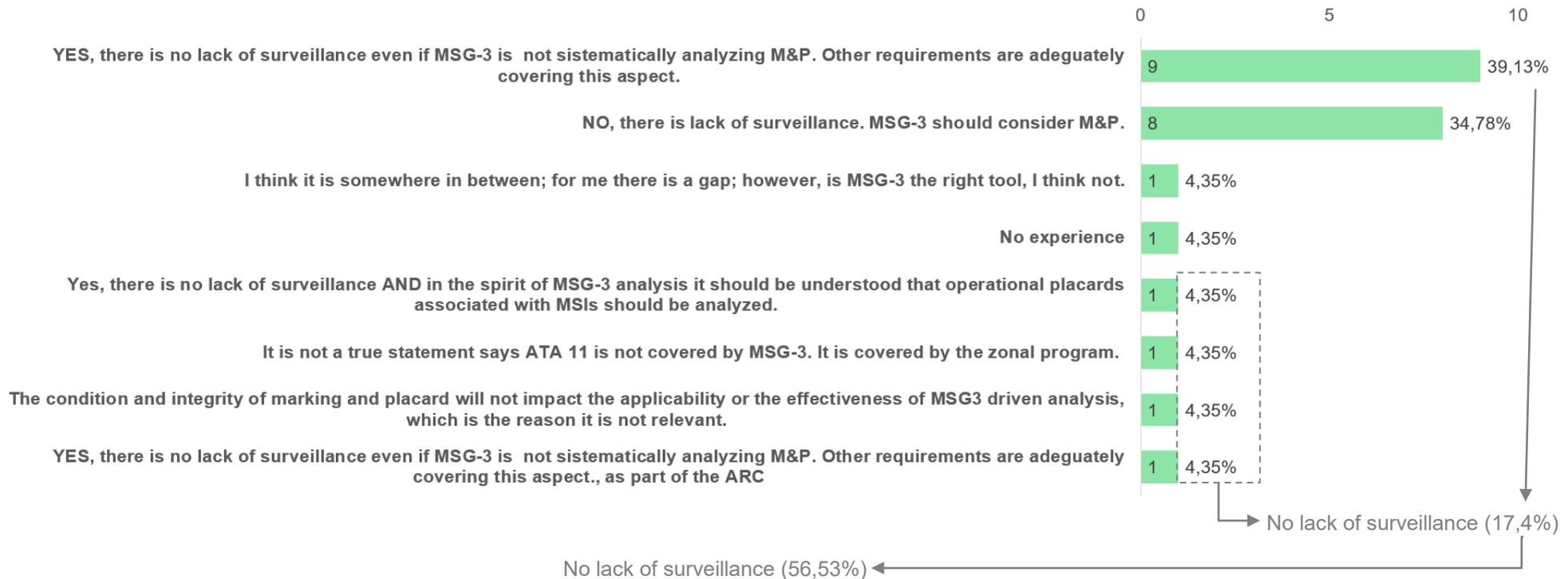
Possible

Likely

Most Likely

Marking and Placard – Survey Results

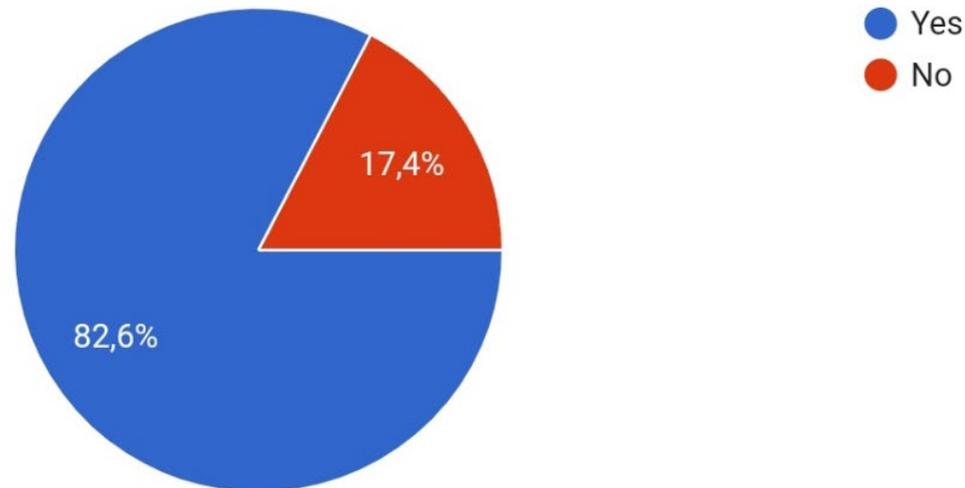
QUESTION 3: Marking and Placards (ATA 11) are not systematically analyzed as part of MSG-3. Based on your experience with NAA, is this topic adequately managed by other existing regulatory requirements to ensure compliance with aircraft type design to meet continuing airworthiness for the state of registry. (e.g. NAA requirement, RAMP UP inspections)



Marking and Placard – Survey Results

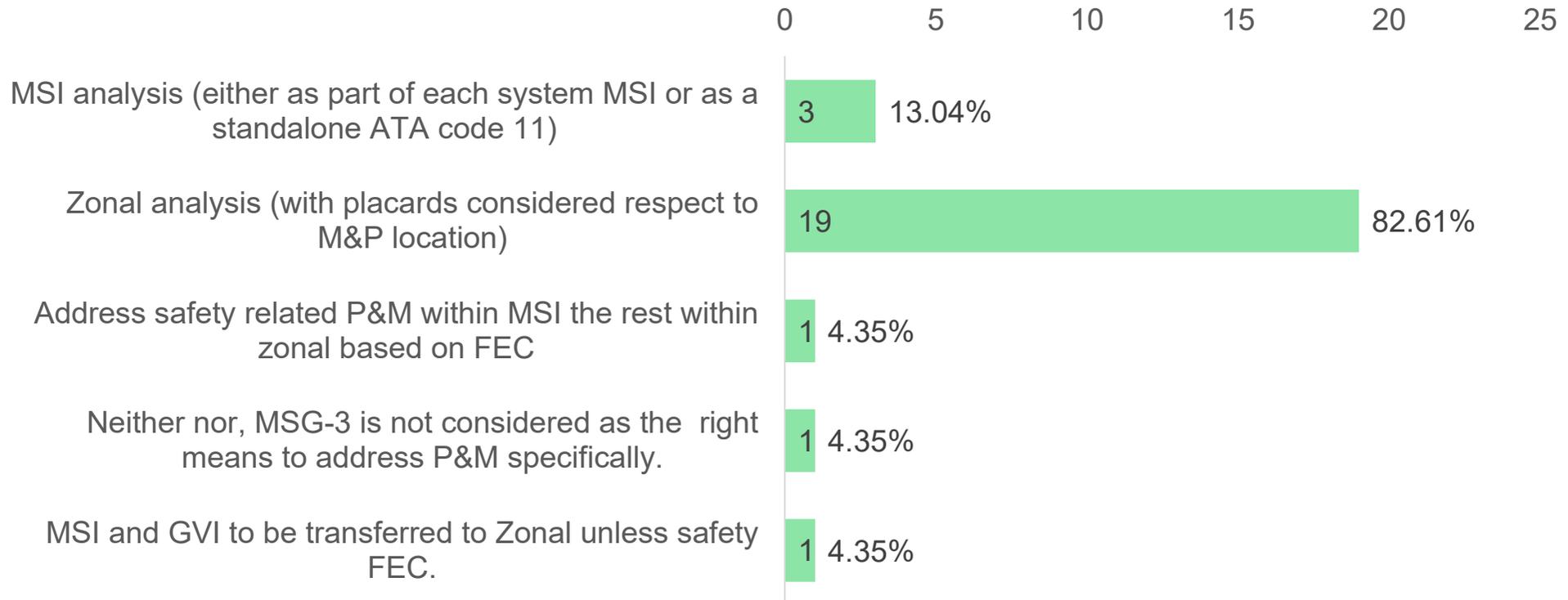
QUESTION 4: In your inspection experience should marking and placard degradation be managed as normal wear and tear resulting from aircraft utilization in accordance with the AFM and the performance of maintenance activities in accordance with the AMM, expecting defects to be identified during the performance of flight crew AFM duties, maintenance actions and/or the current zonal inspection scope. Options: Y/N

23 answers



Marking and Placard – Survey Results

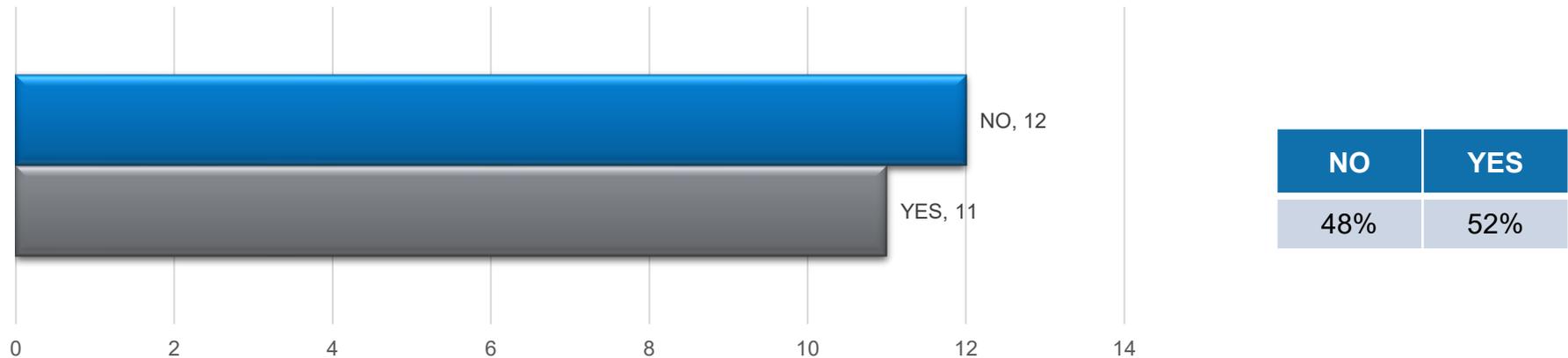
QUESTION 5: If MSG-3 should include the Marking and Placards as part of the analysis, which should be the most likely type of analysis to be considered*?



* Multiple answers accepted. % is respect to the participants preferences

Marking and Placard – Survey Results

QUESTION 6: If MSG-3 should analyze M&P as MSI with regards to the current rules and definitions, in your opinion can missing or deteriorated placard or marking have a direct adverse effect on safety (i.e., FEC 5 or 8)?



No, a missing placard is not within the MSG-3 definition of "direct adverse effect" FEC 5 & 8

theoretically, a missing placard could be categorized as a FEC8 (A missing required placard in combination with inappropriate flight crew operation may have an adverse effect on operating safety) but the placard itself cannot be defined as a MSI

This is what caused the FAA auditors to ground planes; Yes

No. I'm excluding placards that are used that are placed for MEL awareness.

Neither nor, MSG-3 is not considered as the right means to address P&M specifically.



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Marking and Placard – Survey Results

QUESTION 6: If MSG-3 should analyze M&P as MSI with regards to the current rules and definitions, in your opinion can missing or deteriorated placard or marking have a direct adverse effect on safety (i.e., FEC 5 or 8)?

Not direct effect for deteriorated placard. Potential safety effect could be foreseen for missing placards limited to those reporting limitations or emergency instructions/info.

No, I can't conceive of a situation where missing or deteriorated placards would have direct adverse affect on safety. Any placards that are required for dispatch or used during normal operations are checked prior to flight and therefore would be corrected if missing or deteriorated. You can't beat a pre-flight with a scheduled maintenance task.

Unlikely to have an affect on airworthiness safety as such but can have an affect we have seen on operational safety - Consider Cargo door opening instructions or other operational placards.

It could have, specially for those M&P associated to systems whose functional failures could lead to a safety issue. For example, pitot tubes, AOA, TAT probes have M&P warning to not "hand grip" them. If M&P are not there, someone without knowledge of the system can hang on them and cause issues that could affect the aircraft airworthiness.

Also, landing gear components installed in the wheel well area may be serviced wrongly due to missing M&P containing information about their service.

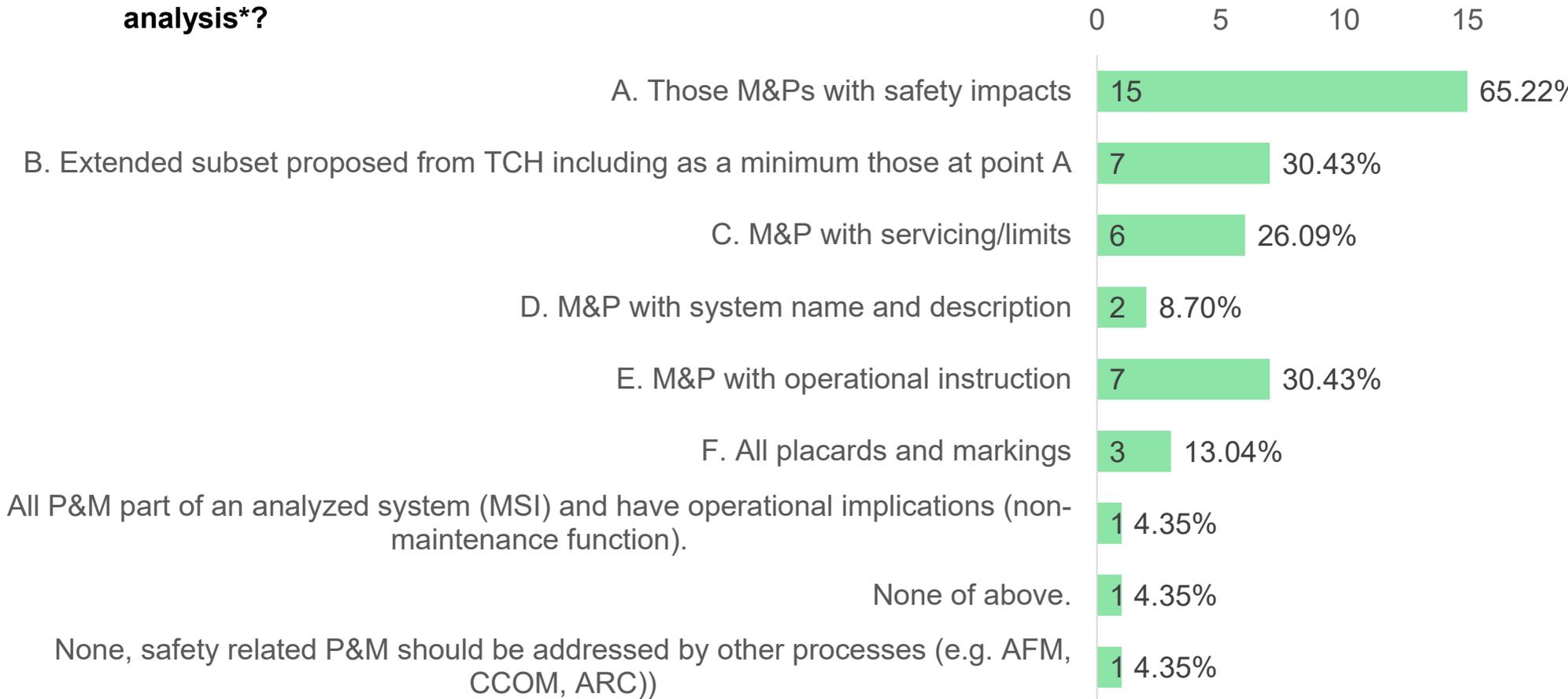
Possibly, but not likely. In my 45 years of supporting business jets, I have never heard of a missing or illegible placard contributing to an actual safety issue (injury to a person or damage to the airplane). But it is a liability concern for OEMs and maintainers if the placard is required for type design, then it could become a liability if it is missing or eligible. There are certification requirements, such as <https://www.ecfr.gov/current/title-14/chapter-1/subchapter-C/part-25/subpart-G/subject-group-ECFR5e2d9256426c579?toc=1>) that OEMs must include in designs, but I believe all of these placards have redundant ICA procedures associated to them (IPC, MM, AFM, Fire Fighting Procedures Manual, Passenger Briefing Card, etc.), so placards are not the only way information is available to operators. Even though some placards may be the only way certain information is available to the public, I think each required placard would need to pass the MSI questions and not have associated primary AFM procedures to result in a MSG-3 tasks.

If a degradation of M&P affects safety, it should evaluated iaw 2X.1309 and be part of SSA, which does not seem to be the case. It is not expected to be 5 nor 8.

No, the adverse effect on safety should be dependent on system redundancy/maintenance practice/regulatory mandate, not on placard.

Marking and Placard – Survey Results

QUESTION 7: Which Marking and placards should be considered as part of the MSG-3 analysis*?



* Multiple answers accepted. % is respect to the participants preferences

Marking and Placard – Survey Results

QUESTION 8: Are there other consideration you would like to add related to Marking and Placards for the continuous airworthiness management of the aircraft?

Markings and placards are different, however each may have a purpose, neither has a function, additionally each state of registry and operational environment have variable requirements

Until 2014 in Dassault, the placards were studied through a dedicated MSI, leading to an inspection scheduled every 12M (FEC8). During an ISC in 2014, the MSI has been cancelled, due to the fact that placards cannot be considered as a MSI. We have kept a dedicated inspection of all placards required by the certification, as a manufacturer recommendation (and not through MSG-3 process). This inspection has been put at a dedicated interval but some operators have changed it according to the recommendations of their local authorities.

Overreach by the FAA; now having to cover our butt with more work; Ticked off

Are we creating a solution to a problem that does not exist' meaning, is there evidence to support this activity? Are there instances that can be cited where and incident has occurred due to a missing, degraded or incorrect M&P?

Considering a placard as an MSI would be a bit hard to understand as the "highest manageable level". Moreover if placards are removable item with a PN, markings are not LRU by nature (unless the ink is considered as the item). If a real issue exists on survey of M&P which on helicopter is not so perceived (probably due also the dimension of the aircraft itself compared to an A380) a zonal recommendation of placards surveillance could be a first step.

I think if there is concern about M&Ps, a simple clarification note in the ATA reminding that all analyzed systems with operational placards must include the placard and associated function in the analysis would suffice to remedy the issue.

If we analyze them as MSI (which could be problematic), they will mostly like end up transferred to zonal anyway.

We have added a number of specific placard inspections into our AMP based on findings from Audits and SAFA/SANA inspections. Whilst we communicate that ALL placards are part of the zonal GVI and they are important, it is not until we raise a specific targeted inspection that the situation improves.



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Marking and Placard – Survey Results

QUESTION 8: Are there other consideration you would like to add related to Marking and Placards for the continuos airworthiness management of the aircraft?

Yes, 2X.1585 guides Flight Ops Engineering to take out All “basic airmanship” from AFM.

Being so, if it is not in the AFM, current MSG-3 will not take advantage of flight crew activities.

If the industry proposes optional maintenance or best practice on placards, it would both benefit OEM and operators.

Topic has to be addressed by operations and not to be considered under MSG-3 scope. MSG-3 methodology would rather fail, as P&M damage/missing is random.

Advisory Circular 43-213 Parts Marking Identification

All of our MSG-3 programs already cover placards in the zonal inspection program, where the Zonal ICA task procedures has a step that details things that may be detected during a Zonal General Visual Inspection. Illegible labels and placards is the first item on the list.

Covering M&P can significantly increase the effort for all the stakeholders of the MRB Process if not done in a smart way e.g. include in zonal.



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Marking and Placard – Conclusions

- Marking and Placards defects are equally identified during scheduled, unscheduled, daily, audit and crew normal duties inspections (all categories 18-23%) with slightly more perceived effectiveness during scheduled inspection.
- Degraded/unreadable is the most credible failure mode experienced (41%).
- 56% of participants consider that there is no general lack of surveillance about M&P in service
- Marking and Placards are generally considered monitored by existing rules in place (82%)
- There is an equal distribution weather or not a missing/degraded placards has by itself a direct consequence on operating safety (NO 48% - YES 52%).
- If analyzed, a limited set of Marking and Placards with a potential effect of safety should be considered to avoid overlooking the topic.
- Marking and Placards - if analyzed – is preferred to be considered as part of the zonal considerations (80 %) rather than as an MSI (20 %)

THANK YOU

It is proposed to close Action 2023-07 with this presentation



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