



REPUBLIC of SAN MARINO CIVIL AVIATION AUTHORITY

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SAFETY NOTICE

No. 02/2015

FLIGHT CREW PRE FLIGHT EXTERNAL CHECK

Persons affected - Operators and flight crewmembers

1. Description

A Flight Crew Pre Flight External Check is part of the basis for the Captain's Aircraft Acceptance which must be formally recorded in the Aircraft Technical Log prior to every flight departure. It is primarily, therefore, a general visual inspection of those aspects of fitness of the aircraft for flight which can be verified wholly or partly in that way. Incidentally it also provides an opportunity to observe the environment in which the aircraft is parked and may sometimes allow the observation of aspects of aircraft hold loading and routine aircraft servicing. It is entirely unrelated to the separate requirements for appropriately qualified aircraft maintenance technicians to carry out scheduled checks and inspections necessary for the Certificate of Release to Service to be signed and, in some cases, to remain valid for the specified duration.

2. Allocation of Duty

It is the pilot designated as aircraft commander for the forthcoming flight who must determine who carries out the duty. It is quite common for aircraft commanders to decide to carry out the external inspection prior to the first flight of a particular flight crew duty period themselves. It does not matter which pilot has been assigned PF duties for the departure and, provided that the person delegated to carry out the check is on duty, under the command of the designated aircraft commander, and aircraft type qualified, they do not need to be a member of the operating crew; they could be heavy crew' on long haul flights or present because of pilot line training activity.

3. Timing and Co-ordination

An external check should normally be conducted only after the Aircraft Technical Log is available at the aircraft and has been properly examined by the aircraft commander. However, in practice on commercial airline service, the time available before departure is tight so the crew member carrying out the external check will often commence the External Check immediately on arrival at the aircraft prior to boarding. This will require good communication on eventual arrival on the flight deck regarding any issues from the Aircraft Maintenance Log and what has been seen outside the aircraft.



Since some flight crew pre-flight internal checks will also be conducted before every flight, the timing of the two sets of checks may need co-ordination to maximise the benefit of the external check and minimize any interference from internal system checks. This is especially relevant prior to the first flight of the day or before any flight which is the first for that flight crew on that particular aircraft that day, if the aircraft is boarded without an informal on-board handover from a previous flight crew.

Depending on the provision of ground services, it may be necessary to delay completing the external check until hold loading, refuelling, and other on-stand servicing activities have finished.

4. Personal Safety Risk

The Ramp at any busy airfield is a hazardous place, with many vehicular and machinery operations taking place in close proximity. Personal Safety when conducting an External Check on an airport ramp requires high levels of Situation Awareness on the ramp. A constant and careful lookout is essential. Attention is required in regard to slippery or hazardous surfaces, vehicles, jet efflux, aircraft aerials, masts and protruding pieces of the aircraft structure such as landing gear doors that can cause injury. Substances such as fuel, oil and hydraulic fluid not only pose a slip hazard but also may drip from the aircraft. It is important to know where to access first aid materials such as eye washes etc. in case of accident to crew or others.

Wearing a high visibility tabard or jacket is recommended, even when not mandated by the airport authority. Ambient noise levels of airport aprons can be high and the use of ear defenders should be considered, noting that these may also reduce the wearer's situational awareness of events taking place in the vicinity. An external check will normally be conducted from ground level; any intended exception to this should be carefully assessed against the risk of falling from height and sustaining injury.

5. Content and Conduct

The foundation of conducting an effective External Check is knowing the aircraft. Damage from a previous flight that is missed during an External Check can be attributed to the new crew who either conducted the External Check poorly or caused it! Knowledge, attention to detail and vigilance will prevent things being missed. As well as checking technical items, crews must keep an eye on the big picture on the ramp and be alert to suspicious people or packages.

It is important that flight crew conducting an External Check know:

- what all the visible probes, vents, ports and indicators such as fire bottle discharge indicators are for and what they look like normally. That will make it easier to spot any abnormality.
- what the landing gear locks and steering pins look like and where they are located when fitted. Hydraulic leaks and problems with gear legs can be difficult to spot, particularly by night.
- what the brake wear indicators should look like, if fitted, and when they indicate the need for a brake change. Tyre condition can often seem poor yet be within tolerances. If in doubt get a second opinion.



- which gear doors should be closed and which open. The landing gear bays have been used by stowaways and may even contain a deceased stowaway hidden from a previous flight.
- the potential hiding places for foreign objects – whether equipment, human or a potential Improvised Explosive Device (IED).
- what the flying controls will look like with the hydraulics un-pressurised to help identify anything abnormal.
- In modern aircraft made from composite materials damage to the fuselage from vehicle contact can be hard to spot yet from incident history such minor impacts can have a severe effect on the integrity of the structure when it is pressurised.
- how the engine(s) and cowlings are secured, correct reverser stowage and how to spot other things that may indicate damage or previous abnormal engine performance.

The prescribed content of the external check will be detailed in the Aircraft Operator's Operations Manual in the form of an expanded check list, and the remarks which follow are generic in nature, highly selective and in no particular order of significance. External checks which are carried out during the hours of darkness require that a torch of effective brightness be carried and used; apron lighting alone is not sufficient.

- Checking tyre inflation visually, especially on multi wheel axles, is difficult if not impossible
- Damage or localised wear can be concealed by ground contact or by restricted visibility of inner tyre walls on multi wheel assemblies. Tyre condition can often seem poor yet be within tolerances. If in doubt get a second opinion.
- Dependent upon the level of confidence in ground service provision, it may be advisable to check that access points are correctly set following the uplift of fluids and toilet servicing.
- Aircraft returning to service following maintenance should be checked with particular care, not only in conducting the normal external checks but also in giving particular attention to those panels that were disturbed during maintenance and their associated fastenings.
- During turn round external checks after longer flights mainly above the freezing level, a specific check for the possible presence of clear ice on the underside of wing surfaces is appropriate even if the ambient ground temperature is above freezing.
- The fitting of covers, flight control locks and landing gear pins should have been recorded in the Aircraft Technical Log, but these items should be checked in case an unrecorded action has taken place.



- If propeller restraints are left fitted after a pre-flight external inspection, there should be a formal procedure in place to ensure that they are removed before any attempt is made to start engines.

Operating in low temperatures requires particular care for personal safety on slippery or icy surfaces; it also provides an ideal opportunity to inspect the ramp surface and to view the taxiway behind/ in front of the aircraft for any potential pushback or taxi problems. The aircraft operations manual will provide detailed guidance on what if any frost/ ice is permissible on the aircraft structure before flight. The old adage of 'make it clean and keep it clean' is usually a good one. Crews conducting External Checks in low temperatures should also:

- pay particular attention to the pitot static system and ensure that all ports/vents are clear.
- ensure that landing gear doors are free of slush/ snow/ ice to ensure correct function on departure.
- Inspect flying control surfaces and flaps for potential damage from thrown or impacted slush/ snow during landing/ taxiing.

There can occasionally be pressure from ground personnel when asked to carry out de-icing/ ant-icing procedures. Crews must form their own view of the requirement and the final status of their aircraft; it is they who will be flying in it!

CAUTION: This article provides general guidance. The procedures detailed in the AFM and Operations Manual take absolute precedence where an conflict exists or is perceived.

Operators are recommended to add these procedures in their Operations Manual.

In the interests of flight safety,

Eng. Marco Conti
Director General

11/06/2015