

STAR 001
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Minimum Safe TurnAround Time

Rushing an aircraft turnaround creates a risk to safety; therefore, flight schedules that include inadequate time for a turnaround(s) can be considered as a hazard. As most schedules rely on a standard turnaround time, many local factors are not always considered, and the chances are high that some turnaround times will be inadequate.

In 2002 the ERA ASG produced a briefing paper which provides schedulers with guidelines on the factors to be considered when establishing a Minimum Safe TurnAround Time (MSTAT). The benefits are improved safety, punctuality, and less impact on crew rostering, therefore leading to better efficiency.

→ **To reduce the hazard from rushed turnarounds each scheduled turnaround time should be based on the known conditions at the location, aircraft type, and planned tasks to be undertaken.**

To achieve this, a system of analysis and calculation is required. This STAR details the key points.

A number of factors affect the MSTAT. Some of these are unavoidable; others are variable.

Unavoidable factors include the following (this list is not comprehensive):

- Flight planning
- Preparation and checking of loadsheet
- Crew change
- Aircraft cleaning
- Refuelling
- Catering replenishment
- Airframe change
- Load characteristics
- Security checks and searches.

Variable factors, because they are unpredictable, cannot be included in the MSTAT calculation. Variable factors include the following:

- Crew debriefing
- Crew recovery
- De-icing and other non-scheduled maintenance tasks
- Security issues
- Training.

The above lists are not exclusive; other factors may affect MSTAT for particular aircraft types, for specific operations, or for certain locations (or, any combination of these).

The calculation of an MSTAT is not an exact science, what may suite one operator may not suite another operator. Note that MSTAT may not only be different at different airports, but may vary considerably between parking bays or terminals at the same airport, ie distance from services.



For any aircraft type, the MSTAT may be determined in ideal conditions. Ideal conditions might include the following:

- Computer flight-plan available or flight planning completed prior to arrival
- Computer load-sheet available
- No crew change
- No cleaning required
- No catering replenishment required
- No refuelling required
- Moderate passenger load.

For example this “ideal” MSTAT might be as short as 15-minutes. To calculate the MSTAT for non-ideal conditions, a correction factor can be added if any of the above conditions are not met, for example:

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| • No computer load-sheet: | + 5 minutes |
| • No Ground Engineer for pre-flight inspection: | + 5 minutes |
| • Crew Change: | +20 minutes |
| • Cleaning by crew: | +10 minutes |
| • Refuelling: | +10 minutes |
| • Security aircraft search: | +10 minutes |
| • More than 50 passengers: | +12 minutes |

Note: Some of these tasks (cleaning and refuelling for example) may be combined, and therefore a practical maximum time penalty should be considered, e.g. +30 minutes.

As an added benefit to flight operations, the MSTAT calculation will reveal where critical departure times cannot be safely achieved. This will focus attention on the reasons for delays, permitting appropriate remedial action such as changing the location of crew changes, tanking fuel, or improving ground handling facilities.

- **Flight Safety Managers should examine departure punctuality statistics for evidence of inadequately scheduled turnaround times.**
- **Flight Safety Managers should use this paper as a briefing guide with which they can raise awareness, within their planning and operations departments, of the factors that affect turnaround times, and the benefits that can be gained from realistic scheduling.**
- **Line pilots should provide necessary feedback on these matters to the Flight Safety and Flight Operations departments.**

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