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Federal Aviation Administration

MMEL Policy Letter (PL) 114, Revision 1

Date: October 9, 2012
To: All Region Flight Standards Division Managers
All Aircraft Evaluation Group Managers
From: Manager, Air Transportation Division, AFS-200
Reply to Attn of: Manager, Technical Programs Branch, AFS-260

SUBJECT: Nose Gear Steering Systems

MMEL CODE: 32 (LANDING GEAR)
REFERENCE: PL-114 revision 0, dated February 6, 2004

PURPOSE:
To provide standardized Master Minimum Equipment List (MMEL) relief policy for nose gear steering systems.

DISCUSSION:
Revision 1 changes title of PL from “MMEL Policy for Inoperative Rudder Pedal Steering” to “Nose Gear Steering Systems”; removes the GC designation; Updates discussion to include tiller-bar steering; addresses the redundancy requirement; Updates criteria for assessing potential relief to an inoperative nose gear system.

An operative nose gear steering system, in both part 23 and 25 aircraft, is essential to a flight crew’s ability to safely maneuver (steer) most aircraft during ground operations including taxi, takeoff and landing. Depending on the aircraft, these systems may vary from a single rudder-pedal steering system to multiple steering systems that include rudder pedal steering and wheel steering (tiller-bar).

In many aircraft, tiller-bar steering is the flight crew’s primary means of ground steering an aircraft at taxi speeds. In most transport aircraft, the tiller-bar is located on the left side of the cockpit although some aircraft types have them installed on both sides. The tiller-bar turns the nose wheel 60 degrees or more left or right and allows precise aircraft ground handling while negotiating the 90 degree taxi turns of today’s modern airports. It is very responsive to pilot inputs and allows maximum maneuverability during ground operations. In aircraft with tiller-bar steering, it is the primary steering mode used up to and including runway alignment for takeoff. It is also used after initial deceleration from landing and exiting the runway.

In many aircraft, rudder pedal steering may be the primary mode of ground steering. However, in most aircraft that use tiller-bar steering, rudder pedal steering is still used for runway alignment during the takeoff roll and during the landing rollout to maintain runway alignment until a safe taxi speed is attained to transition to tiller bar steering, if available. In aircraft equipped with tiller-bar steering, rudder pedal steering normally allows nose wheel steering turns of approximately seven degrees right or left of center. Depending on the aircraft, rudder pedal steering may not allow for the steering required to maneuver on taxiways or in the ramp area unless differential braking and/or thrust is used to achieve a greater angle of turn.
Some aircraft may have multiple steering systems with built-in redundancy to ensure safe aircraft operations should one become inoperative. Others may have no redundancy and, with an inoperable nose gear steering system, may require towing or differential braking and engine power to steer the aircraft on the ground.

Due to the variability of aircraft designs, standardized relief is not practicable. The following policy and associated criteria will be used by all FOEBs to assess appropriate relief for inoperative nose gear steering system(s).

This policy will be included in the next update to FAA Order 8900.1 volume 8, chapter 2.

POLICY:

Each FOEB Chair will review their MMELs to identify those that provide relief for inoperative nose gear steering systems and reevaluate that relief using the following criteria. The criteria will be used by all future FOEBs when considering relief for inoperative nose gear steering systems.

Criteria for Nose Wheel Steering System(s) Inoperative:

1. MMEL relief for inoperative tiller-bar steering is authorized only when a redundant tiller-bar steering system is available that allows for normal aircraft taxi.

2. FOEB Chairs will use the following criteria when determining the safety impact and considering MMEL relief for inoperative rudder pedal steering:
   a. System Redundancy;
   b. Time limit repair category A depending on the design of the aircraft and the impact of operating without it under conditions expected to be encountered;
   c. Placing restrictions based on surface (runway, taxiway, etc.) contamination (e.g. rudder pedal steering may not be inoperative if surface is wet, slippery, icy, etc.);
   d. Specific training and/or flight manual (operations manual) guidance on subjects such as: normal taxi/landing/takeoff techniques, transfer of control between captain and first officer, Abnormal Procedures, engine out landings, low visibility taxi, Flight Standards Board (FSB) evaluation, etc;
   e. The need for restricting types of approaches/landings (e.g. Cat II or Cat III approaches/landings, autoland, etc.);
   f. Restricting maximum winds or crosswinds (also consider the combined effect of winds and surface contamination);
   g. The need for the pilot with the operative rudder pedal system or tiller-bar steering system to make all taxi, takeoff, and landings;
   h. Any other factor(s) determined by the FOEB that effect the controllability and maneuverability of the aircraft while on the ground.

Each FOEB Chair should apply this Policy to affected MMELs through the normal FOEB process.

Leslie H. Smith
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