



**Interstate Aviation Committee
Aviation Register**

AIRWORTHINESS DIRECTIVE

November 06, 2013

No. 2012-27-01 Revision 3

Applicability – RRJ-95B, RRJ-95LR-100 aircraft

State of Manufacturer - Russia

The corrective actions prescribed by this Airworthiness Directive, are mandatory. No persons may operate an aircraft to which this Airworthiness Directive applies, except in accordance with the requirements of this Airworthiness Directive.

In the course of RRJ-95B aircraft operation during approaches were observed events of failure to extend slats accompanied with EWD CAS-messages F/CTL SLATS FAULT, F/CTL SLATS LOCKED. Failures to extend slats were caused by slat control system transmission's torque limiter tripping. Aircraft have been landing with non-extended slats and flaps in PLAPS 1 position pursuant to FCOM recommendations.

The results of investigations performed by Sukhoi Civil Aircraft Company (SCAC) and analysis of slat's failure to extend causes showed that in some cases combinations of flight loads lateral (diagonal) offset of tracks relative to the actuator output gear axis occurs that can lead to the excess of torque limiter margin upon slat breakout in the course of their extension.

SCAC has developed Engineering Solutions No. RRJ000-OR-008-3331/A dated 04.06.2012, No. RRJ0000-OR-008-3640/A dated 23.10.2012 and No. RRJ0000-OR-001-3720/A dated 14.11.2012, on the basis of which IAC Aviation Register has issued the Airworthiness Directives No. 2012-27-01 dated 05.06.2012, No. 2012-27-01 Revision 1 dated 26.10.2012 and No. 2012-27-01 Revision 2 dated 19.11.2012.

Based on the results of the performed activities SCAC has developed and implemented in the operating fleet Service Bulletin No. RRJ-57-00022-БД regarding installation of additional side stops on the slat tracks.

In addition, operators performed designated inspections of slats and forward part of the wing according to SCAC Engineering Solution.

However, in the course of subsequent RRJ-95B operation during approaches the recurrent events of failures to extend slats were observed: RRJ-95B RA-89006 (s/n 95014) on 02.06.2013 and on 07.09.2013, RA-89005 (s/n 95013) on 01.09.2013, RA-89015 (s/n 95029) on 20.10.2013.

Joint investigations carried out by SCAC together with the Designer / Manufacturer of the control system – Liebherr-Aerospace Lindenberg GmbH (LIEBHERR) showed possible moisture accumulation in the slat control system geared rotary actuators (GRAs) due to high humidity of the atmosphere that is characteristic of a spring-autumn period. It was identified that at low temperatures corresponding to a cruise flight altitude the frozen moisture can result in GRA non-breakout due to torque limiter tripping.

In order to prevent moisture accumulation in the GRAs LIEBHERR is developing a set of corrective actions to insure operability of the slat control system GRAs at high atmosphere humidity.

Furthermore, for improvement of the wing high-lift device control system reliability SCAC and LIEBHERR are approaching the final stage of a new FCS SW version certification that will allow to unblock the control system for the second attempt of high-lift device extension in the event of failure to extend slats.

Before completion of outlined activities and implementation of design measures under development by Liebherr-Aerospace Lindenberg GmbH

THE IAC AR PROPOSES:

1. For RRJ-95B, RRJ-95LR-100 aircraft operators to follow the guidelines of a Temporary Revision No. 212 dated 21.10.2013 of the Flight Crew Operation Manual (FCOM) for RRJ-95 aircraft (M7.92.FCOM.000.000.RU Revision A) developed on the basis of the Aircraft Flight Manual (AFM) Section 4.27 for RRJ-95 aircraft (M7.92.0AFM.000.000.RU Revision D, Version 08 and subsequent).
2. To address all issues related with technical contents of this Airworthiness Directive to the aircraft Designer / Manufacturer Sukhoi Civil Aircraft Company.

Appendix:

1. "Engineering Solution on continuing airworthiness of RRJ-95 aircraft" SCAC No. RRJ0000-OR-001-4639/A dated 05.11.2013
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IAC AR General Director

A.Donchenko