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SERVICE BULLETIN

SB-032420-C

ID NUMBER & REVISION:	SB-032420-C
SUBJECT:	(Mandatory) Recurring Inspection of Nose Landing Gear (NLG) Actuator Rigging and NLG Actuator Stop Switches
RELEASE DATE:	16 May 2024
EFFECTIVE DATE:	16 May 2024
SUPERSEDES NOTICE:	SB-032420-B
AIRCRAFT AFFECTED:	**MAKE & MODEL:** ICON A5 **SERIAL NUMBERS:** 00001-00015, 00018-00027, 00029-00033, 00035, 00036, 00038-00049, 00051-00072, 00074, 00076-00083, 00085, 00086, 00088-00182, 00184-00188
REQUIRED ACTION:	Recurring Inspection of the NLG actuator rigging, and NLG actuator stop switches.
TIME OF COMPLIANCE:	Recurring every 50 hr or 6 months (whichever comes first). **This is mandatory.** **NOTE**: This Service Bulletin (SB-032420-C) is obsolete if Service Bulletin SB-080323 (Nose Gear Collapse) or SB-012724 (NLG Limit Switch Retrofit) has been complied with.
REVISION HISTORY:	**A** Initial Release **B** Updated Aircraft Affected; Updated Time of compliance; Added step to re-install MLG fuse; Updated various syntax and spelling **C** Revise time of compliance from 100hr/1yr to 50hr/6mo, until SB-012724-A Retrofit is completed, and upgrade to mandatory. Update list of aircraft affected. Add inspection of bellcrank movement to test actuator health. Add requirement to charge aircraft battery to 14.0 V and change requirement for rigging with weight on wheels. Add reference to SB-012724 for any failed inspections. Add extra photo to Figure 2.

LEVEL OF CERTIFICATION REQUIRED (any level checked can perform task):	☐	Pilot/Owner	☒	A & P
	☐	LSA Repairman – Inspection	☒	Certified Repair Station
	☒	LSA Repairman – Maintenance	☒	Manufacturer

PURPOSE:

ICON Aircraft has received service reports of the Nose Landing Gear (NLG) collapsing during ground operations while performing high power runups or taxiing, along with reports of incorrect landing gear indications in flight. ICON has determined that the cause of these incidents is the degradation (or failure) of the NLG actuator stop switch, which can be a result of inadvertent switch damage, poor performance of the switch, or long-term degradation of the switch itself. There have also been several cases of NLG collapses following inadvertent retraction of the landing gear handle with weight on the wheels. If for any reason the NLG is retracted with weight on wheels, the NLG actuator should be replaced since internal damage to the actuator has likely occurred. This bulletin will detail a recurring inspection of the

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NLG actuator rigging and NLG actuator stop switches.

ASSEMBLIES AND PARTS:

PART NUMBER	DESCRIPTION	QUANTITY	ALTERNATE	
			PART NUMBER	DESCRIPTION
TY24MX	Cable-Tie, Nylon 6-6, 30LB, 5.50,	1	N/A	N/A

Special Tools:

1. ITL001714 REV B (For Aircraft Serial Numbers (ASN) 00001-00011 and 00013-00020 only)
2. NLG Rigging pin 0.1885-.1875 in. diameter (for ASN 00012, 00021 and subsequent)
3. NLG go-no-go checking pin 0.163-.164 in. diameter (for ASN 00012, 00021 and subsequent)
4. Electrical Multimeter with resistance function
5. Aircraft Battery Charger
    - Must be capable of charging battery to 14 V
    - Ex: Battery Tender 12V, 10 Amp Selectable Chemistry Battery Charger
    - Note: If charger automatically switches to a “maintenance” or “trickle charging” mode, charging may need to be reset to maintain 14 V.

INSTRUCTIONS:

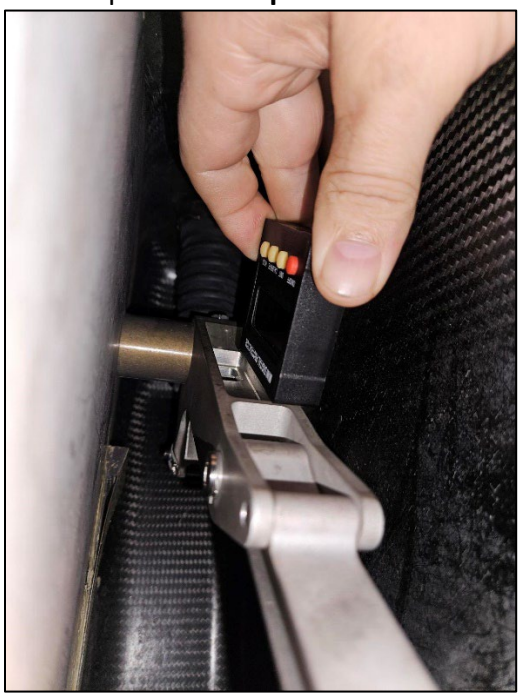
Preparation:

1. Remove the main landing gear 15A fuse from the overhead console. Save this fuse as it will be reinserted after the test is complete.
2. In accordance with the latest release of maintenance manual, remove right hand Instrument panel top to gain access to the NLG actuator connector. This may require removal of the cable tie that secures the connector to the NLG box.
3. Fold and secure the wings of the aircraft, this will move the center of gravity aft such that it will be easier to lift the nose up and down during the NLG rigging checks.
4. Charge aircraft battery to 14.0 V ± 0.1 V (measured using a multimeter at the remote charging terminals) as measured with the MASTER switch in the ON position (this is higher than standard trickle charging).
    a. This may be accomplished using a manually selectable chemistry charger set to “Lithium” mode.
    b. CAUTION: Monitor battery voltage while charging to avoid damaging battery by over-charging.
    c. The battery voltage must be maintained at 14.0 V ± 0.1 V, as measured with the MASTER switch in the ON position, prior to any landing gear extend and/or retract cycles.
5. Have a foam block or equivalent nearby which, when placed under the aircraft, on the keel aft of the NLG wheel well, ensures the nose wheel of the aircraft will have approximately 1 inch or more of clearance from the ground. This block will need to be removed numerous times during the

procedure to place weight on the NLG. An alternative option is to gently tip the aircraft nose slightly upward, using a fabric strap on the tail tiedown lug and a towel or cardboard beneath the tie down lug.

Checking the movement of the NLG bellcrank

1. With gear extended, validate that the difference between the forward and aft bell crank positions is less than 1.5°:
    a. With the weight off the nose landing gear, gently rotate the NLG bell crank forward with moderate hand pressure. Measure the angle with a digital protractor. Record measurement.
    b. With the weight off the nose landing gear, gently rotate the NLG bell crank backward with moderate hand pressure. Measure the angle with a digital protractor, taking care to take the measurement in the same location as before. Record measurement.
2. If the measured difference is greater than 1.5°, the actuator, and all mounting hardware (bushings, bolts, etc), must be replaced. **Complete SB-012724.**



Checking the resistance of the NLG stop switches.

1. Verify that master power is off.
2. Disconnect the NLG actuator 8 pin connector shown in Figure 1.

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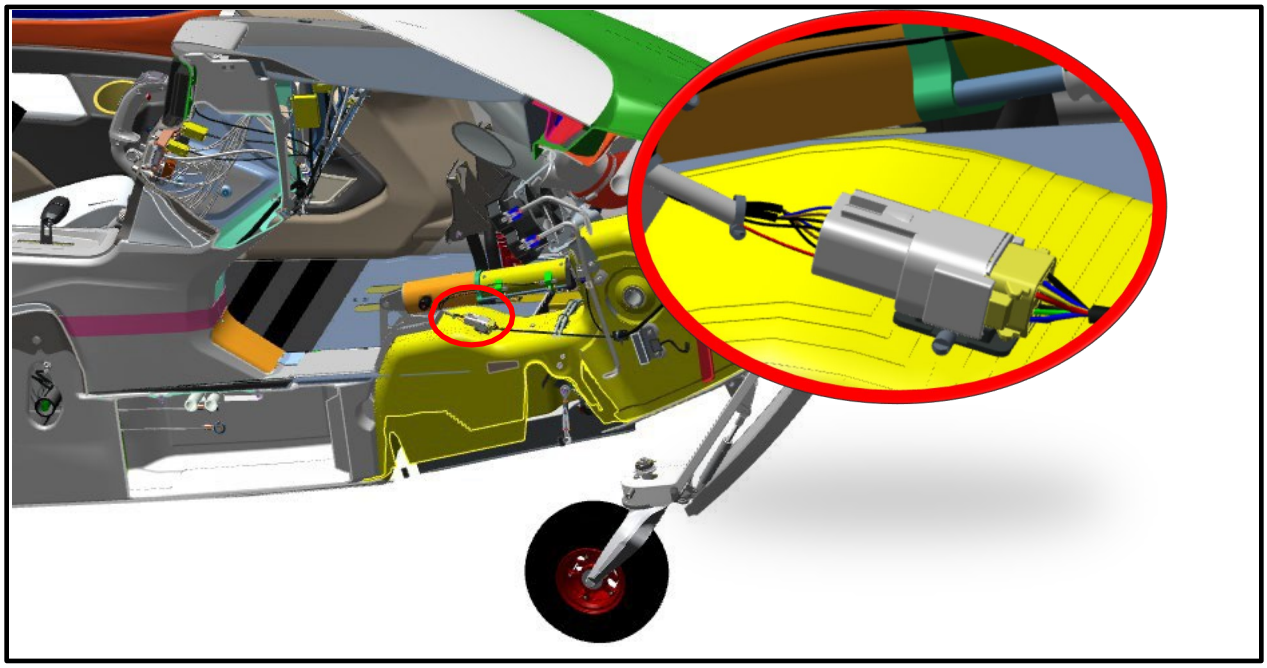


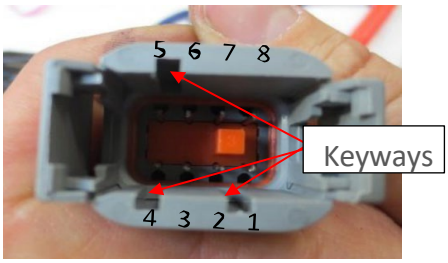
Figure 1 NLG Electrical Connector

3. On the NLG actuator side of the connector the pins are labeled 1-8 as shown below.
4. Using a multimeter, set it to measure resistance (ohms). Measure the resistance between the following pins and record the value:

Note: It is important that the meter not be set to just an audible continuity setting. A resistance reading in Ohm, range is required.

Table 1 Resistance Measurement of the NLG Stop Switches

Between Pins	Value if NLG is down	Measured Value
2 & 3	Open	
3 & 4	< 1 Ohm	
2 & 4	Open	
5 & 6	Open	
6 & 7	< 1 Ohm	
5 & 7	Open	



5. The resistance value of the above list of pins should be either **Open** or **less than 1 ohm.** If you get a value greater than 1 Ohm during any of the resistance checks, then STOP this procedure. - This reading indicates the stop switch is bad. **Complete SB-012724 to retrofit to the latest NLG design and replace the actuator.**
6. After completing the stop switch resistance checks, reconnect the NLG actuator connector and re- secure the connector to the ty-block using a TY24MX cable tie. The landing gear should be

swung to confirm satisfactory actuation after reconnecting this connector.

Nose Landing Gear Rigging Check (Aircraft Serial Numbers 00001-00011 and 00013-00020)

1. With aircraft wings extended, both HT tips installed, and weight on wheels, check rig with NLG bellcrank manually rotated aft (over-extended position) **AND** with NLG bellcrank manually rotated forward (under-extended position).
    a. Note: To manually rotate the bellcrank, have a second technician lift up on the bow handle to reduce the weight on the gear.
    b. Hold ITL001714 in position. Reference the tool off-of-drag link wrist pin head and bell crank body. Verify drag link is fully in the **"in tolerance" window (Figure 2)**. If within tolerance, move to step 2.
    c. If **not in tolerance (Figure 2),** the nose landing gear needs to be re-rigged within the "nominal range" using ITL001714 Rev B and rigging procedure section below.
2. Lift the aircraft nose high enough to slide a block, or equivalent, under the keel allowing the nose wheel to be approximately 1" or greater off the ground. An alternative option is to tip the aircraft lightly onto its tail tiedown lug gently using a towel or cardboard scrap as protection. (Same revision as in "Prep, No. 5")
3. Ensure that the battery is charged as required in Preparation section, step 4.
4. Verify the 15-amp Main landing gear fuse is removed.
5. Turn the Master switch to "ON".
6. Move the landing gear handle to the "UP" position. This will result in the NLG actuating to the full up position and stop.

Note: The landing gear position indicator will still show "IN TRANSIT" during this operation of the test since the main landing gear is still down. This is normal for this step of the inspection.

7. Move the landing gear handle to the down position. The NLG will actuate to full down and stop.
8. Lift the aircraft nose enough to remove the block, or equivalent, from under the keel or, if resting on the tail tie down lug, allow the aircraft weight to rest onto the nose wheel. Push down on the nose of the aircraft, preloading the nose landing gear, then release.
9. Check the NLG rigging using ICON Tool No. ITL001714 with NLG bellcrank manually rotated aft (over-extended position) AND with NLG bellcrank manually rotated fwd (under-extended position).
    a. Note: To manually rotate the bellcrank, have a second technician lift up on the bow handle to reduce the weight on the gear.
    b. If drag link falls within the "in tolerance" range, repeat Steps 2-9 an additional 24 times for a total of 25 times. Reinstall the 15A MLG fuse.
    c. **If the drag link indication is not "in tolerance" (Figure 2),** and the nose landing gear has not been re-rigged in step 1, ensure that the battery is charged as required in Preparation section, step 4 and rig the NLG actuator to the "nominal range" using ICON

Tool No. ITL001714 by following the procedure in the ICON A5 Maintenance Manual (ICA000833, section 100391 or 100392) and repeat steps 2-9 of this section 24 additional times. Reinstall the 15A MLG fuse.

d. If at any time the NLG has been re-rigged once during this process and the drag link falls outside the “in tolerance” range during the 25 NLG cycles, the actuator stop switch is not functioning correctly. **Complete SB-012724 to replace the actuator and retrofit to the latest NLG design.**

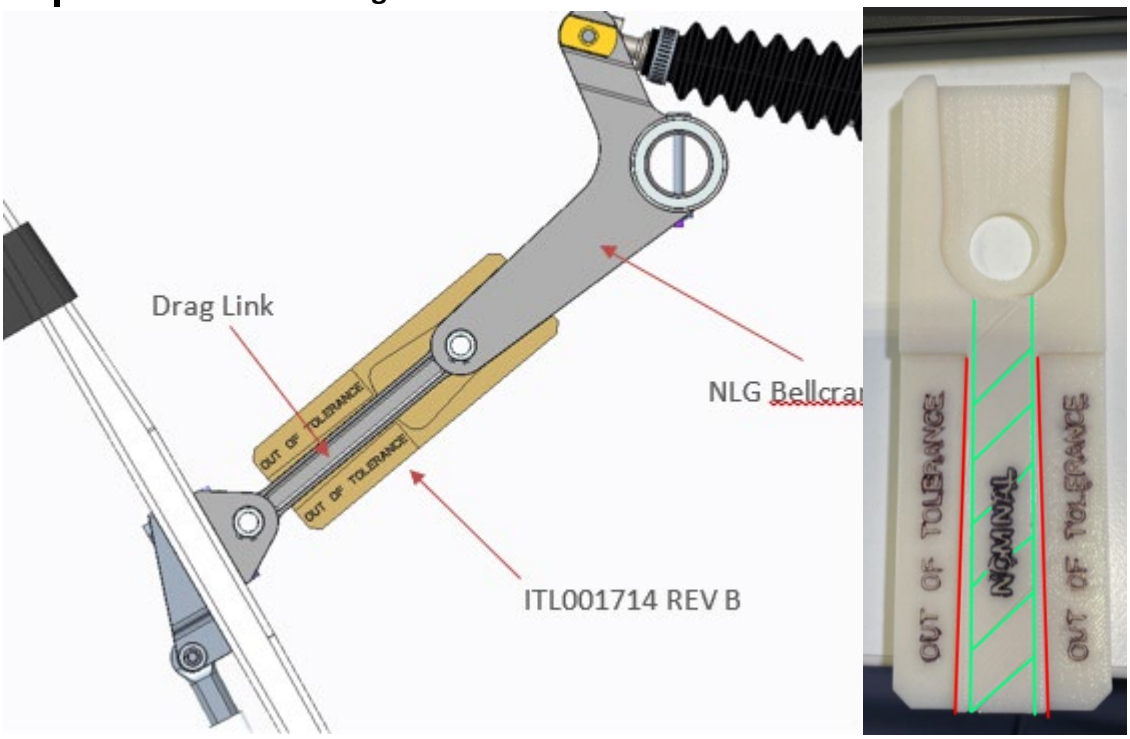


Figure 2 ITL001714 Rev B Indexed on NLG Bellcrank showing the drag link within the "in tolerance" range.

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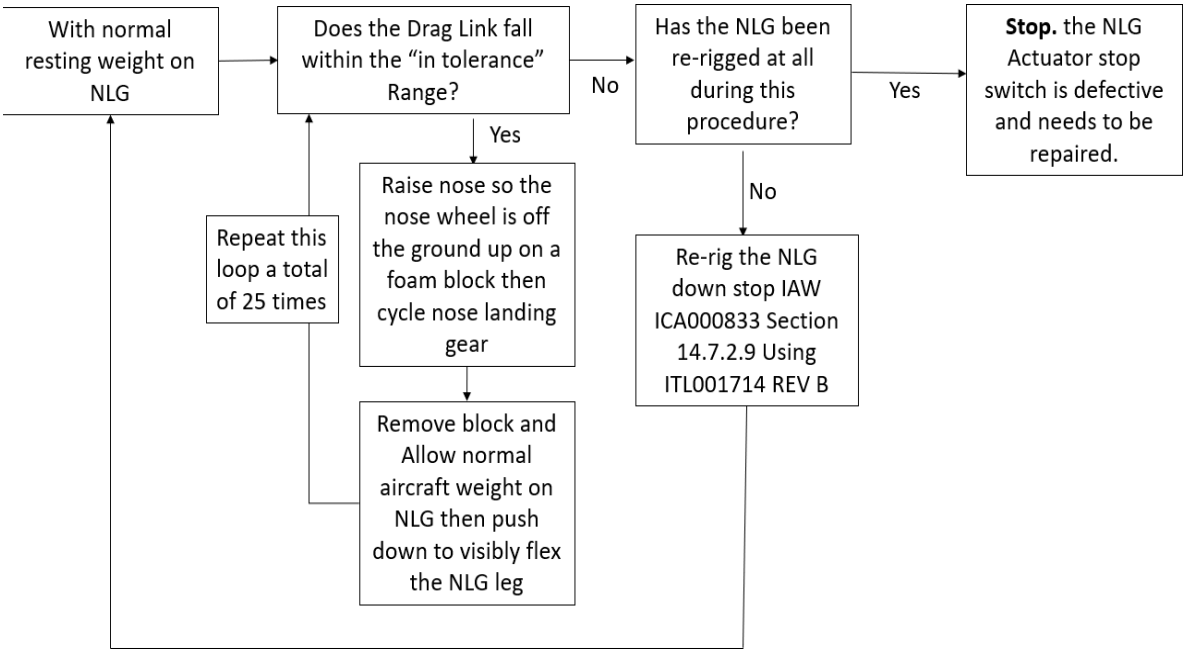

Figure 3 Summarized flow chart of the NLG rigging test procedure using ITL001714 Rev B

Nose Landing Gear Rigging Check (Aircraft Serial Numbers 00012, 00021 and subsequent)

1. With aircraft wings extended, both HT tips installed, and weight on wheels, check rig with NLG bellcrank manually rotated aft (over-extended position) **AND** with NLG bellcrank manually rotated fwd (under-extended position).
    a. Note: To manually rotate the bellcrank, have a second technician lift up on the bow handle to reduce the weight on the gear.
    b. If a 0.163-inch rigging pin **can be inserted** into the NLG rigging hole and pass through the bellcrank and drag link (Figure 4), then proceed to step 2 of this section.
    c. If a 0.163-inch rigging pin **cannot be inserted** into the NLG rigging hole (and pass through the bellcrank and drag link)**,** then the nose landing gear needs to be re-rigged using a 0.1885"-0.1875" rigging pin in accordance with the ICON A5 Maintenance Manual (ICA000833, section 100391 or 100392).
2. Lift the aircraft nose enough to slide a block or equivalent under the keel to allow the nose wheel to be approximately 1" or greater off the ground. An alternative option is to gently tip the aircraft nose slightly upward, using a strap on the tail tiedown lug. An alternative option is to gently tip the aircraft nose slightly upward, using a fabric strap on the tail tiedown lug and a towel or cardboard beneath the tie down lug.
3. Ensure that the battery is charged as required in Preparation section, step 4.
4. Verify the 15-amp Main landing gear fuse is removed.
5. Turn the Master switch to "ON".
6. Move the landing gear handle to the "UP" position. The NLG will move to the full up position and stop.

Note: The landing gear position indication will still show "IN TRANSIT" during this test since the main landing gear is still down. This is normal for this inspection.

7. Move the landing gear handle to the down position. This actuates the NLG to the full down position and stops.
8. Lift the aircraft nose enough to remove the block or equivalent from under the keel and allow weight back on to the nose wheel. Push down on the nose to preload the landing gear then release. An alternative option is to gently tip the aircraft nose slightly upward, using a fabric strap on the tail tiedown lug and a towel or cardboard beneath the tie down lug.
9. Check the NLG rigging using a 0.163-inch rigging pin with NLG bellcrank manually rotated aft (over-extended position) AND with NLG bellcrank manually rotated fwd (under-extended position).
    a. Note: To manually rotate the bellcrank, have a second technician lift up on the bow handle to reduce the weight on the gear.
    b. If a 0.163 in rig pin **can be installed** into the NLG rigging hole, repeat Steps 2-9 of this section an additional 24 times for a total of 25 times. Reinstall the 15A MLG fuse.
    c. If a 0.163-inch rig pin **cannot be installed**, and nose landing gear has not been re-rigged in step 1, rig the NLG actuator using a 0.1885-0.1875 rigging pin in accordance with the ICON A5 Maintenance Manual (ICA000833, section 100704) and repeat steps 2-9 of this section, 24 additional times. Reinstall the 15A MLG fuse.
    d. If at any time the NLG has been re-rigged once during this process and 0.163 in. rig pin is unable to be inserted during the 25 NLG cycles, the actuator stop switch is not functioning correctly. **Complete SB-012724 to replace the actuator and retrofit to the latest NLG design.**

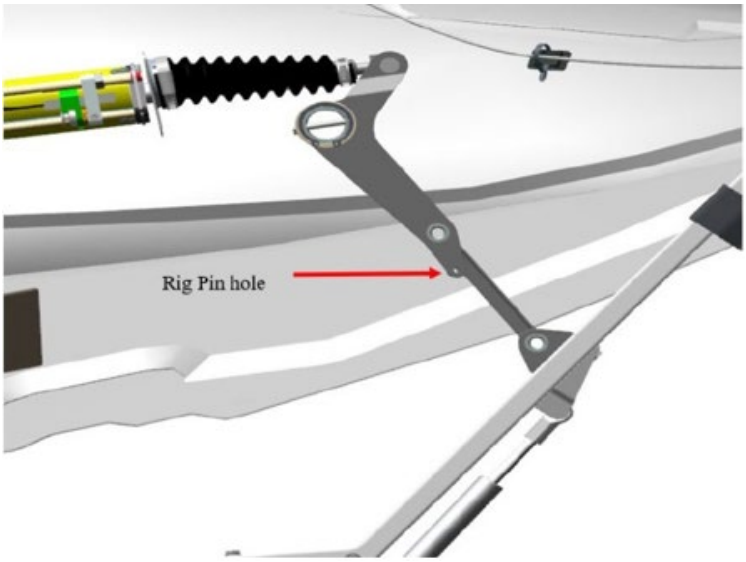

Figure 4 Location of the NLG rig pin hole.

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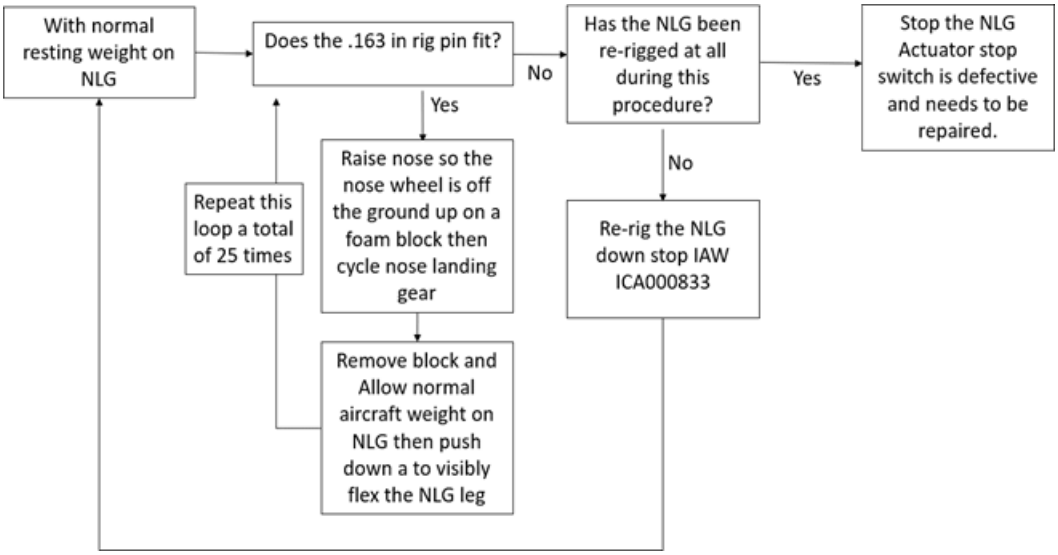

Figure 5 Summarized flow chart of the NLG rigging test procedure using a rig pin.

Logbook Entry:

"I hereby certify the inspection and/or repair has been completed in accordance with Service Bulletin (SB-032420-C, Recurring Inspection of Nose Landing Gear (NLG) Actuator Rigging and NLG actuator Stop Switches) and all referenced documents. Potentially unclear procedures have been clarified with ICON Aircraft. (ref. FAA Exemption 10829C)".

For aircraft registered outside the U.S., omit "(ref. FAA Exemption 10829C)"

If you have questions, comments, or concerns about this Service Bulletin and/or if you are no longer owner/operator of this aircraft, please forward this information to the present owner/operator and notify ICON Aircraft at:

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Please include the aircraft registration number, serial number, your name, and if known the contact information of the new owner/operator.