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SERVICE BULLETIN

SB016-0032

Subject: Gear Down Lock Valve
Date: 12-28-2016
Pages: 5
Status: Recommended

Background:

In March 2016, a Service Advisory, SA016-0028 was sent out including a turn limit decal for the nose strut and a tow procedures card to reinforce the proper handling of the aircraft. Since then, we have designed another option to enhance the reliability of the gear system. This kit is a simple but robust electric solenoid valve that closes when power is removed from the aircraft. If you install this solenoid valve and the associated hardware correctly, your gear system pressure should remain fully charged when the battery is off. The added benefit of this option is that it will help you monitor the condition of your system when you leave the aircraft parked. When the aircraft is powered up, you should only notice the pump running for a few seconds to top off the pressure. If the pump runs more than three-to-ten seconds you may have an internal leak that should be addressed before continued operation.

Note:

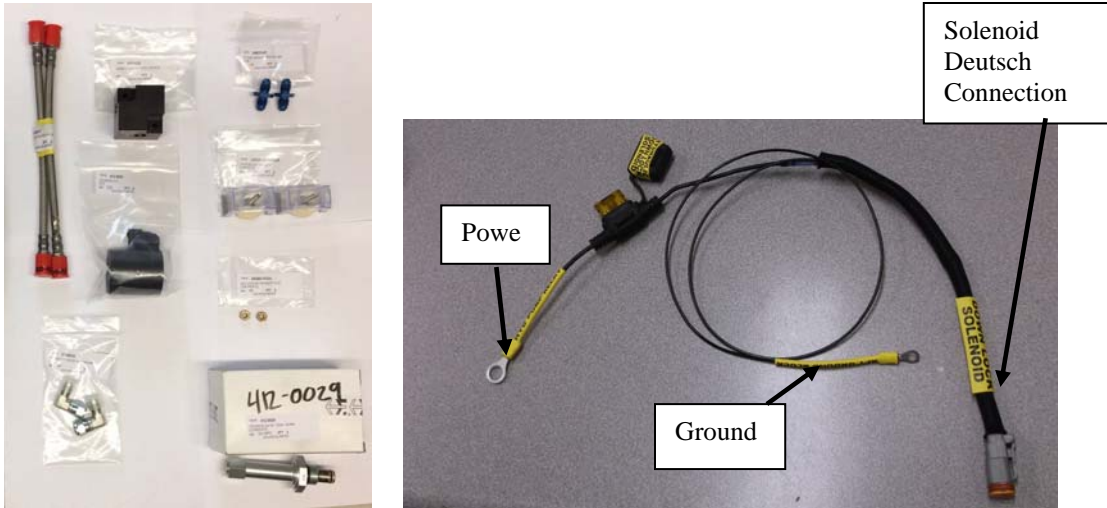
Service Advisory, SA016-0028 detailed a nose gear warning decal that was to be placed on the nose strut. This decal specified turn limits during tow and warned to NOT tow without following the tow procedures laid out in the card and the Pilots Operating Handbook. The tow procedure card gave three options for towing: Use external ground locks OR open the emergency dump valve when getting out of the aircraft OR turn the battery on before towing.

This optional solenoid valve removes the need to open the emergency dump valve or turning on the battery before towing. The current nose decal instructions for handling the nose gear are still applicable.

In the event of an emergency, the current emergency gear extension procedures are still in place.

Action:

This optional kit (Part Number SB016-0032) can be purchased from Evolution Aircraft Company. A copy of the instructions and picture of the kit follow:



**190-0009 o-rings not pictured*

031-0016: Installation Instructions: Down Lock Manifold – Retro

1. Install the 412-0029 valve into the 415-0015 new manifold body. Observe that the o-rings do not become unseated or damaged during installation. If damage occurs, replace the o-ring seals. Remove the end nut on the valve and slide the 412-0008 solenoid over the valve body. Attach the solenoid using the end nut.



2. Install the two AN815-4D straight fittings with two 190-0009 o-rings and two C5506x4 90 degree fittings into the other two ports on the manifold, positioning the swivel angle pointing in the direction needed.

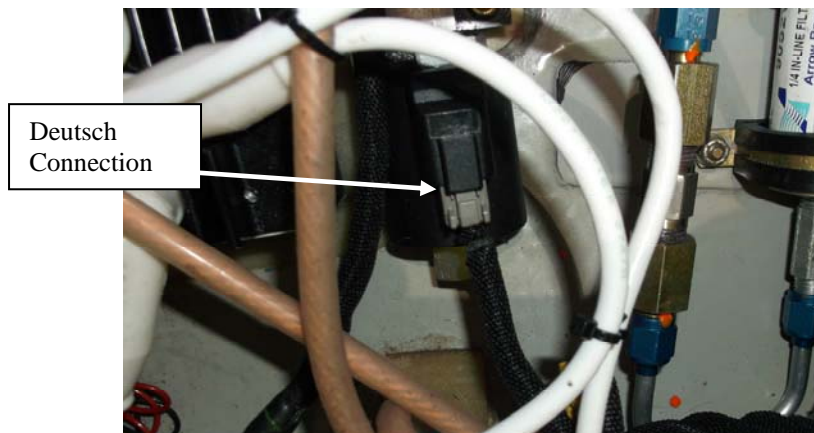


3. Locate an area below the accumulator that is approximately 3" x 5" in size.
4. Temporarily install the ClickBond studs on the manifold with the two AN364-1032 nuts. Bond the ClickBond studs onto the fuselage in the area that was located. Mount the ClickBonds such that the ports can be easily reached.
5. Once the ClickBond studs have cured, permanently install the solenoid valve with the AN364-1032 nuts.



New Manifold Body (415-0015)

6. Remove the hydraulic down line leaving the main aft manifold and replace it with one 140-0017 hose, routing the hose to 415-0015 manifold.
7. Route the other 140-0017 hose from 415-0015 manifold to join the main down line as before.
8. Plug the deutsch connector of the 401-0185 harness to the solenoid. The connector is labeled "Down Lock Solenoid".

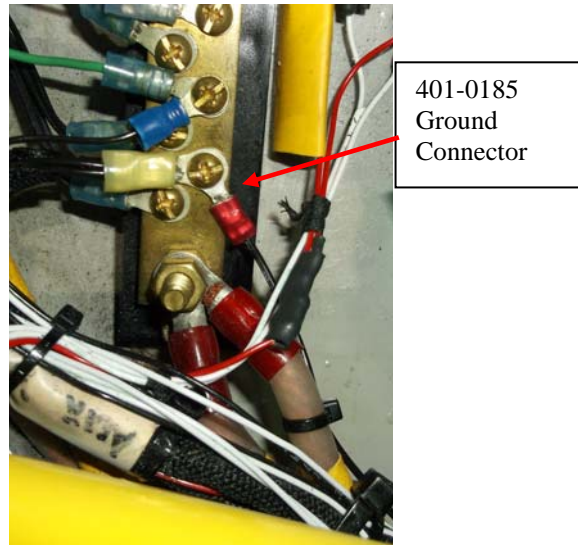


Deutsch Connection

9. Locate the power side of the gear relay (should be labeled power with +). Remove the jam nut, connect 401-0185 harness (connection shown above in kit picture), and return the jam nut. The ring terminal is labeled “Hyd Pump Relay”.



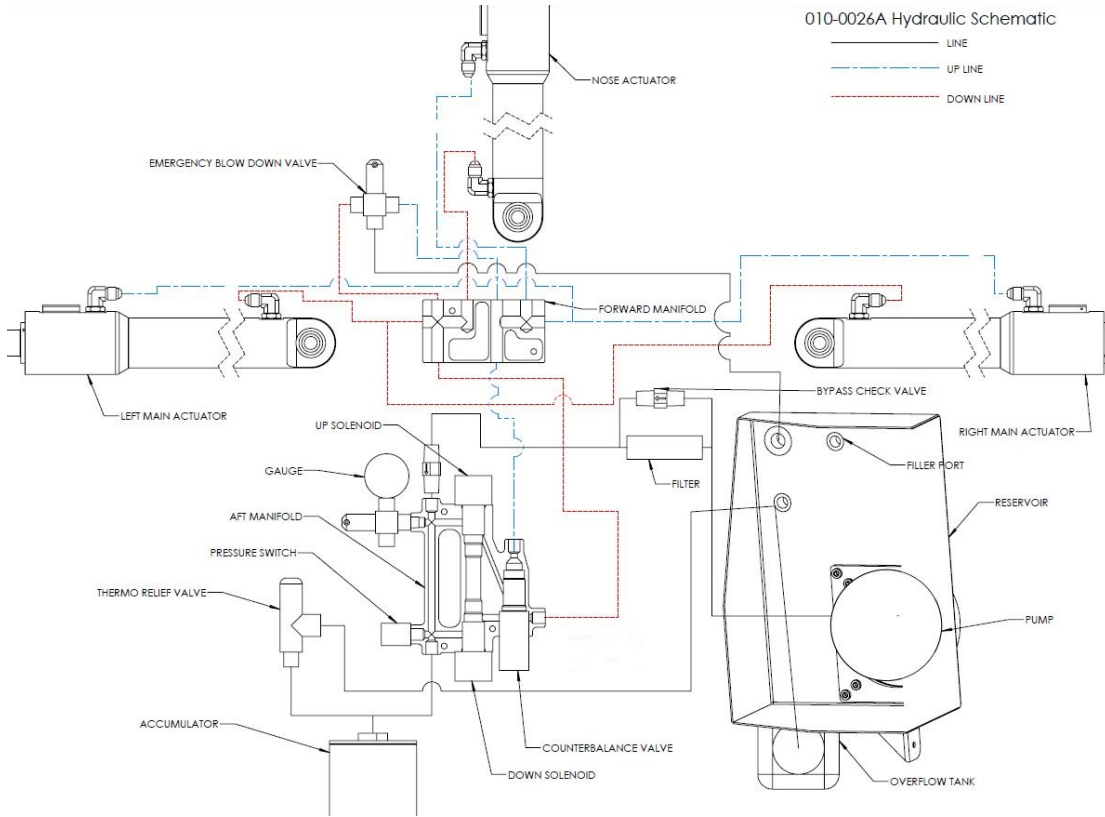
10. Locate aft ground block. Remove one screw connection, connect 401-0185 harness, and return screw. The ring terminal is labeled “Aft Ground Block”.



11. Secure all wires to the existing aircraft harness as necessary.

NOTE: Installations may vary based on individual aircraft configurations.

Original Hydraulic Schematic



New Hydraulic Schematic

