A Textron Company

INFORMATION LETTER **407-21-124**

21 April 2021

TO: **All owners and operators of model 407 helicopters**

SUBJECT: THROTTLE CABLE ASSEMBLY 1608750-001, INTRODUCTION OF.

Bell received several reports of throttle cable assemblies failing during throttle manipulation by the pilot. The reported failures occurred when rolling the throttle from the FLY position to IDLE to perform the cooldown before shutting the engine down. In these cases, rolling the throttle to IDLE had no effect on the engine or main rotor speeds as mechanical control of the engine Hydromechanical Unit (HMU) was lost.

Following root cause investigations, several locations of the fractures of the center race material (Figure 1) occurred due to fatigue cracks that propagated over time. The majority of the failures occurred at the first bend under the pilot seat (Figure 2). During installation of the throttle cable assembly, it was noted that in certain areas the throttle cable assembly could have high stress loads applied, or kinked, while routing the cable assembly through the various areas of the airframe structure where the cable assembly could be exposed to high bend radii.

A primary symptom that a throttle cable assembly is cracked, but not yet failed, is an increase in stiffness requiring additional force to move the throttle to various positions. It is important not to lubricate the throttle cable assembly as a remedy to the symptom of stiffness, as it will increase the degradation of the throttle cable Teflon ball guide material (Figures 1 and 3) and accelerate a premature failure. It is recommended to troubleshoot the root cause of the increased friction, and if no root cause is identified, replace the existing throttle cable assembly as it is likely caused by internal degradation of the cable assembly not able to be detected visually.

To minimize the possibility of future throttle cable assembly failures, Bell introduced the throttle cable assembly 1608750-001 into the production configuration of the 407 at serial number 54129 through 54166 (analogue 407) and 54388 through 54762 (407GX and 407GXP). In conjunction with the new design (Figure 4), improved installation procedures

(DMC-407-A-76-04-01-00A-720A-A) and handling procedures (DMC-407-A-76-04-01-00A-912A-A) were incorporated to the 407-MM Maintenance Manual.

Older throttle cable assembly part numbers have been superseded to the new part number, and replacement only required by attrition.

The 407 serial numbers 54304, 54567, and 54805 and subsequent (407GXi) have a Linear Variable Displacement Transducer (LVDT) which provides electrical outputs of throttle position to the FADEC system through the ARINC429 bus, therefore not susceptible to similar mechanical failures of previous throttle cable assemblies.

For any questions regarding this letter, please contact:

Bell Product Support Engineering
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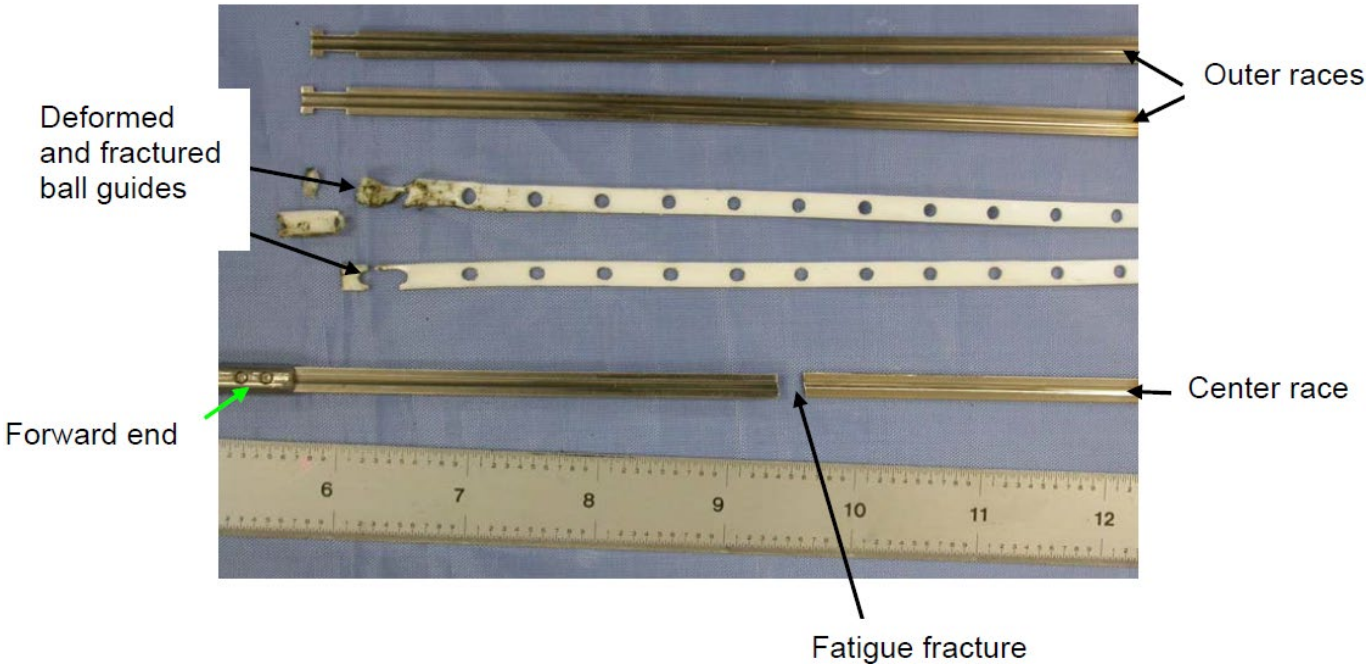

Figure 1 – Example of Failed Throttle Cable Assembly

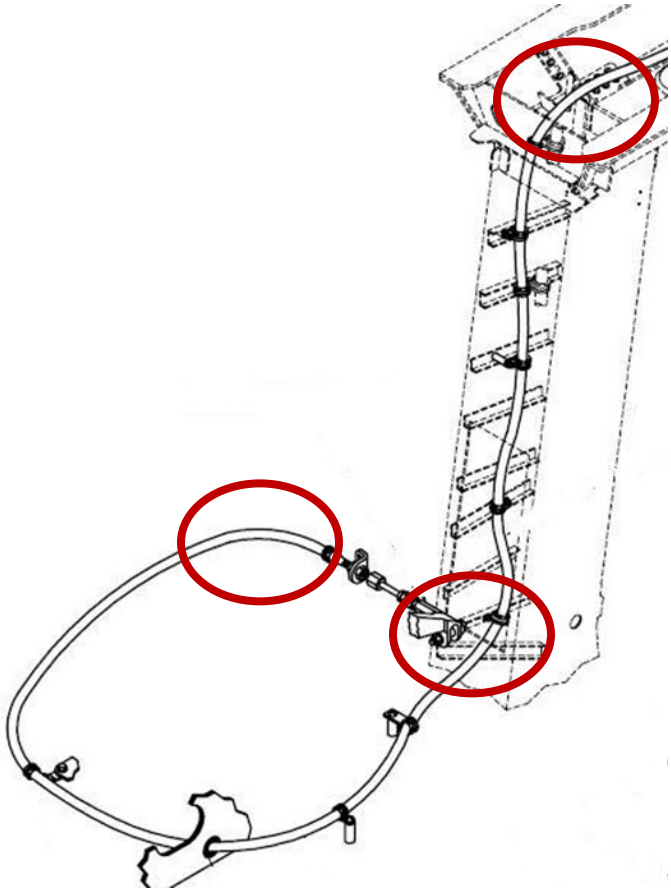

Figure 2 – Locations of Reported Throttle Cable Assembly Failures

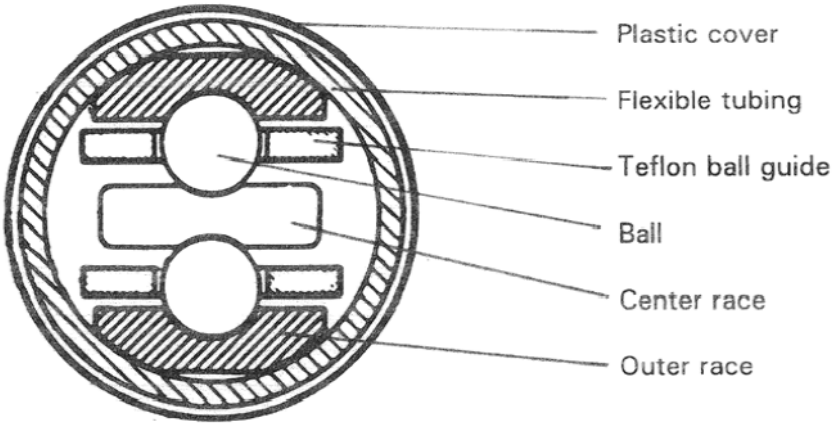

Figure 3 - Typical Cross Section of Throttle Cable Assembly Design

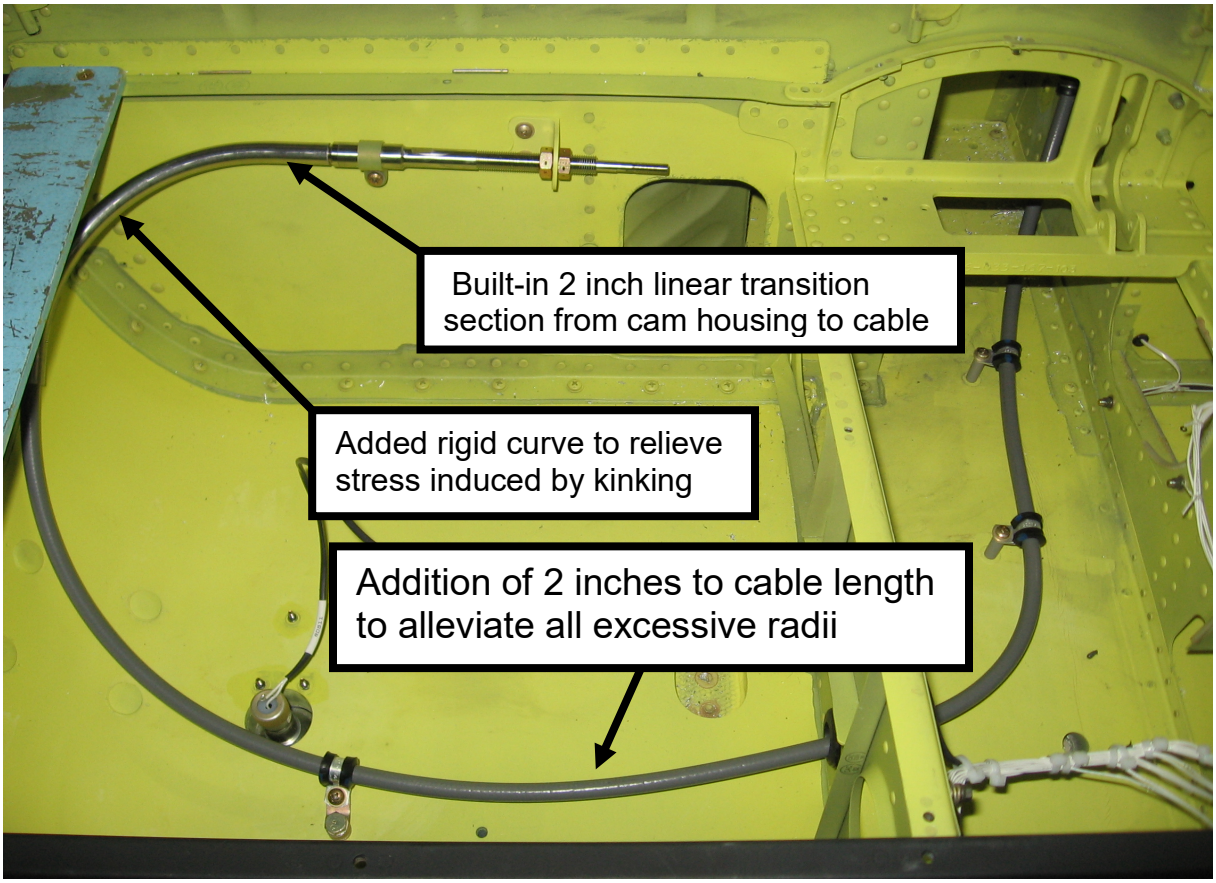

Figure 4 – Throttle Cable Assembly 1608750-001 Design Improvements (206L4 Installation Shown as Reference)