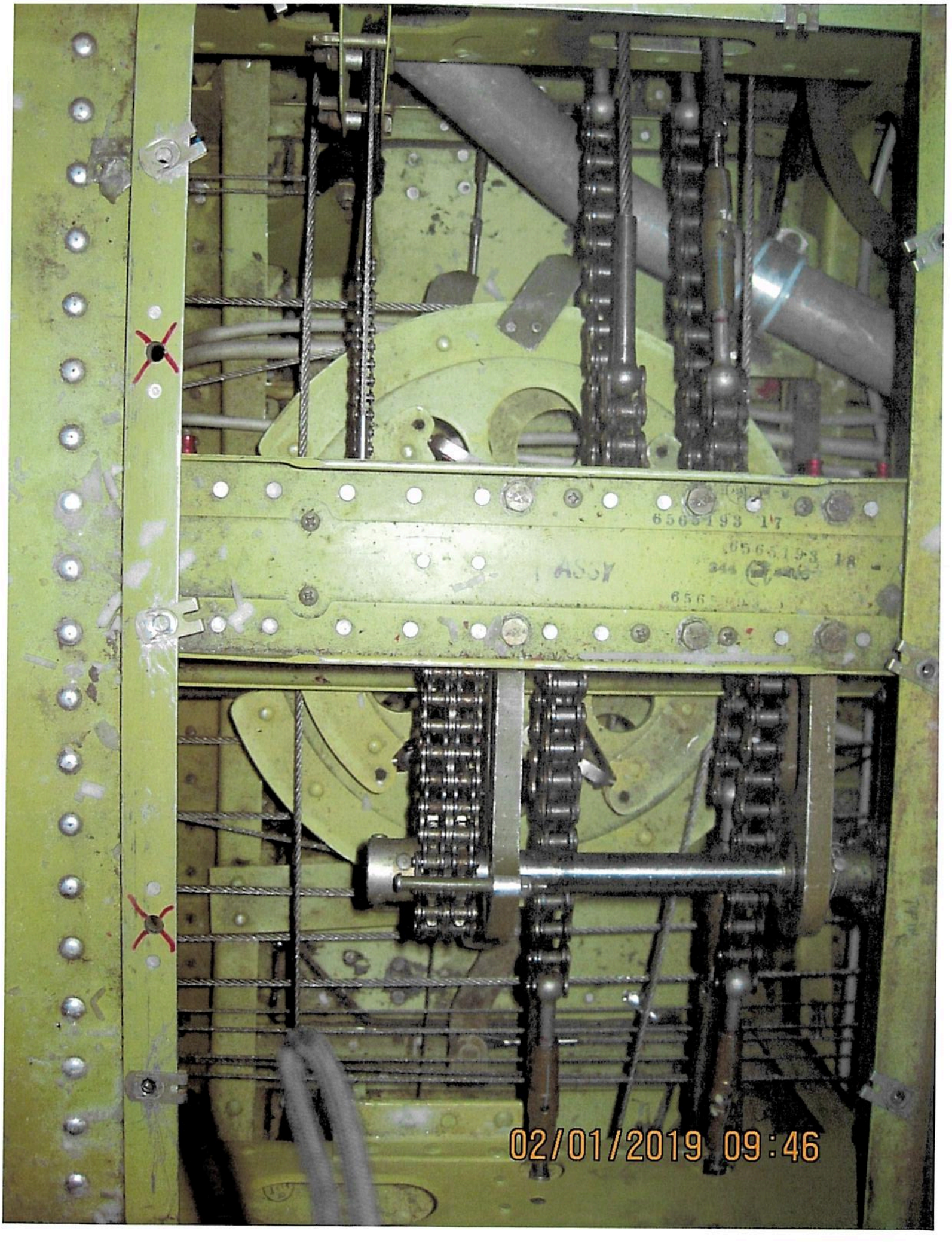
Inspector Statement
N941JM Cessna Citation 550
Brent Allen Fargo FSDO

Friday February 1, 2019 Inspectors Gary Kwasniewski and Robert Laux and myself went to the Fargo, ND airport to verify flap position based on cable and drive chain position at the motor on N941JM Cessna 550 S/N 550-0146.
We removed the aft baggage compartment center and left floor panels and examined the cable and chain positions in reference to the Cessna 550 Maintenance Manual section 27-51-00 Adjustment and Test, paragraph 4.B.(2). The number of chain links visible confirmed the flaps were in the full up position at the time of the accident. Also confirmed the movement of the flap selector/indicator cable moved the indicator up on the quadrant, which was also in the full up position.
Both cables primary and secondary for the left and right flaps were both in the same position and the cables and surrounding structure did not show signs of damage.
See Attached selection of the 550 MM. and pictures of the cable drive.

BRENT W ALLEN

Digitally signed by BRENT W ALLEN
Date: 2019.02.11 08:02:33 -06'00'


6565193 17
ASSY
02/01/2019 09:46

FLAPS - ADJUSTMENT/TEST

1. General

A. This section provides maintenance personnel with procedures for rigging the flap system and a procedure for checking the flap system.

(1) Rigging the flap system requires adjustment of switches, bellcranks and cable tension. Refer to Figure 501, Flap System Adjustment for the figure reference of the flap switch(es), bellcrank(s) or cable(s) to adjust. To gain access to the switches, bellcranks and cables, removal of cabin floor panels and control pedestal access panels and for wing access panels. Refer to Chapter 6, Access Plates and Panels Identification - Description and Operation.

(2) Flap system check procedure may be performed to verify the just completed flap rigging or it may be performed any time to satisfy a preventive maintenance condition.

B. The flaps are driven by parallel electric motors that are variable with preselection from zero degrees flaps position to 40 degrees flaps position. A switch-cam follow-up arrangement in the control pedestal provides position preselect capability. Refer to Flaps System - Troubleshooting Figure 102, for electrical schematic.

C. The adjustment procedures describe the left wing actuation (primary) and interconnect (secondary) systems. The right wing flap adjustments are typical and must be performed concurrently.

D. When the flap system is rigged, the angle-of-attack system is affected and must be rigged. Refer to Chapter 34, Teledyne Angle-of-Attack System - Adjustment/Test or Safe Flight Angle-of-Attack System - Maintenance Practices.

2. Tools and Equipment

A. For Tool and Equipment listing, refer to Flight Controls - General.

3. Rigging Criterion

A. Flap system rigging procedure is described to provide reference to individual component adjustment. However, the procedure shall be performed in sequence. Two starting points are recommended for flap rigging. They are as follows:

(1) Complete Flap System Rigging - Start at the beginning of the adjustment/test and perform the procedure in sequence as described. This procedure is required when all flap actuation (primary) cables are replaced in one wing or in both wings.

(2) Partial Flap System Rigging - Start with Adjustment/Test paragraph, step 4.F, 5 Degrees Flaps- Set Cable Tension, and complete remainder of the flap rigging procedure in sequence as described. This procedure is required when any component adjustment is performed.

B. All rigging procedures are to be performed with the airplane defueled and resting on its landing gear.

4. Adjustment/Test

NOTE: Prior to performing the flap rigging procedure, review paragraph (3), Rigging Criterion, and review the airplane maintenance log for entries on flap rigging.

A. Primary and Secondary Cables.

(1) Cable Installation Information.

NOTE: Select the cable installation information according to the maintenance condition to be performed.

(a) Install flap actuation (primary) cables and flap interconnect (secondary) cables in accordance with flap cable installation procedures.

(b) It is recommended to perform the chain wrap on the flap drive assembly and set the bellcranks to zero configuration as described in the paragraph 4.B., Set Bellcranks. Comply with the procedures described in Set Bellcranks and cable installation when performing procedures simultaneously.

(c) The flap preselect cable and flap indicator cable are normally installed after part of the rigging procedure is performed. If a complete flap system rigging is required (Refer to Rigging Criterion), it is recommended to disconnect the preselect cable turnbuckle at this time.

(2) Tighten actuation (primary) cable turnbuckles alternately to remove cable slack.

(3) Tighten interconnect (secondary) cable turnbuckles alternately to remove cable slack.

B. Set Bellcranks.

(1) The bellcranks and the chain wrap on the flap drive assembly shall be rigged in sequence to the position described in the following procedure. The rig position described shall be performed without applying electrical power to the flap

drive assembly. Once the chain wrap and bellcranks are set and the flap drive assembly electrically operated, the chain wrap and bellcranks may not return to their original setting.

(2) Zero flaps configuration (flaps may not be connected or installed) at this portion of the rigging procedure is determined by chain wrap on flap drive assembly and bellcrank position described as follows:

(a) Chain Wrap or Coupling Installation (Refer to Figure 504).

CAUTION: Ensure alignment clocking of duplex sprockets or duplex couplings on shaft prior to chain wrapping.

1 Left Wing - The actuation cable (primary cable), viewing from above, shall have eleven chain links in view to the left of the actuator bracket. The interconnect cable (secondary cable), viewing from above, shall have eleven chain links in view to the left of the actuator bracket.

NOTE: Eleven links in view with Part Number 6565007-210 Primary Cable or ten links in view with Part Number 6565007-87 Primary Cable.

2 Right Wing - The actuation cable (primary cable), viewing from above, shall have three chain links in view to the right of the actuator bracket. The interconnect cable (secondary cable), viewing from above, shall have three chain links in view to the right of the actuator bracket.

(b) Bellcranks (Refer to Figure 503).

1 Inboard Bellcrank, Left and Right Wing - Position the inboard bellcrank arm 4.75 inches, +0.10 or - 0.10 inch, from the centerline of the pushrod/bellcrank attach bolt and the aft side of the wing rear spar. This measurement is a rigging reference to be used only during initial bellcrank rigging.

2 Outboard Bellcrank, Left and Right Wing - Position the outboard bellcrank arm 2.00 inches, +0.20 or -0.00 inch, from the centerline of the pushrod/bellcrank attach bolt and the aft side of the wing rear spar. This measurement is a rigging reference to be used only during initial bellcrank rigging.

3 Center Bellcrank, Left and Right Wing - Position the center bellcrank arm 2.00 inches, +0.20 or -0.00 inch, from the centerline of the pushrod/bellcrank attach bolt and the aft side of the wing rear spar. This measurement is a rigging reference to be used only during initial bellcrank rigging.

(3) To accomplish proper bellcrank rigging in respect to chain wrap around flap drive, it may be necessary to manipulate the cable lengths with cable turnbuckles. Loosen one turnbuckle while tightening the corresponding turnbuckle. Refer to Figure 503 for turnbuckle location.

NOTE: The bellcrank position and chain wrap on flap drive shall be as described before continuing flap rigging.

C. Set Down Limit Switch (Refer to Figure 502).

(1) Attach flap test cable (Refer to Figure 505) to A1 of flaps down relay (K43), A1 of flaps up relay (K44) and ground clip to structural ground.

CAUTION: Over driving flap system will damage the bellcranks, pulleys and brackets.

(2) Operate the test cable switch to flaps down driving bellcranks down until the outboard bellcrank is 2.80 inches, +0.20 or -0.20 inches, from the bellcrank (opposite pushrod) cable channel and the aft side of the wing rear spar. The down limit switch (S59) mounting screws shall be loose to position switch and to prevent inadvertent switch actuation.

NOTE: The flap down limit switch (S59) shall be adjusted with the bellcranks in down travel.

CAUTION: Over driving flap system will damage the bellcranks, pulleys and brackets.

(3) Should the measurable distance between the bellcrank and rear spar exceed the distance described in step (2), use the flap test cable and drive the flaps up and repeat step (2). It may be necessary to drive the flaps down in steps to obtain the proper distance between the bellcrank and rear spar.

(4) Position the down limit switch (S59) to actuate (open to remove electrical power from flap motors) and secure down limit switch mounting screws.

(5) Operate the test cable switch to flaps up and back to flaps down to verify down limit switch operation and adjustment. The adjustment is the measurable distance described in step (2).

D. Install Flap.

(1) Normally, the flaps are removed or disconnected when the entire flap system requires rigging and are installed at this time, and the flap installation becomes part of the flap rigging procedure sequence. In the event that the flap rigging procedure sequence starts with paragraph F, 5-Degree Flaps - Set Cable Tension, the flaps will be installed.

Figure 504 : Sheet 1 : Flap Driver Assembly Rigging