MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

B. ENGINE GROUP (Continued)	MECH.	INSP.
27. Check voltage regulator, starter relay and master switch relay for secure mounting and proper operation		
28. Install cowl, checking for proper engagement of air intake duct and cowl latches		
C. CABIN GROUP	**MECH.**	**INSP.**
1. Remove front seats, fold rear seat forward, remove cover from rear seat support and remove console side panels		
2. Check windshield, windows and canopy for cracks and secure mounting. Clean and lubricate canopy rails. Check canopy operation and locking devices		
3. Check seat belts and shoulder harnesses for condition and secure mounting		
4. Check elevator trim control for condition, secure mounting, proper operation and indication		
5. Check rudder pedal and brake system for proper operation and condition. Check brake fluid level. Replace rudder pedal springs at 1000 hours		
6. Check control "T" for secure mounting and adequate clearance from other equipment		
7. Check chains, cables, pulleys, turnbuckles and cable ends for condition, secure attachment and safeties. Specifically check cables at pulleys for fraying while actuating controls through full travel. (Max. of four broken wires acceptable)		
8. Check cable tension at the average temperature for aircraft operation		
9. Check all controls for clearance and proper operation		

Inspection Procedures Guideline
Figure 201 (Sheet 6 of 13)

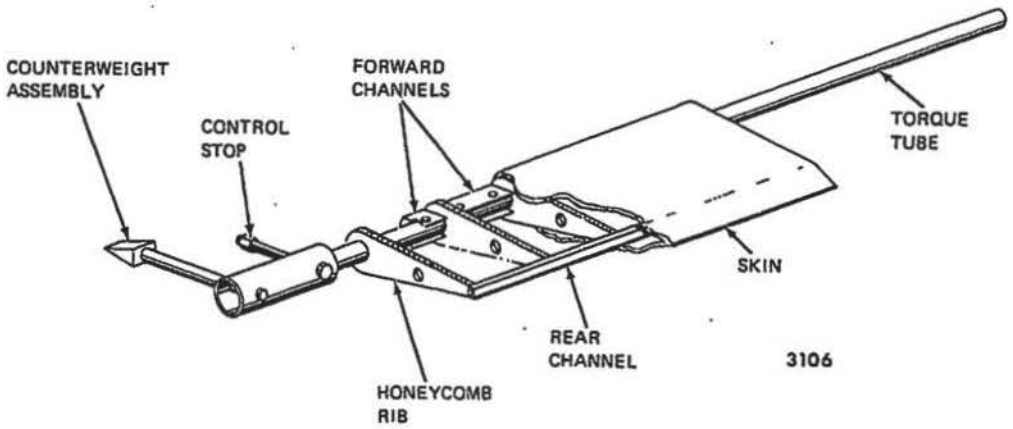
AILERON & TAB - DESCRIPTION/OPERATION

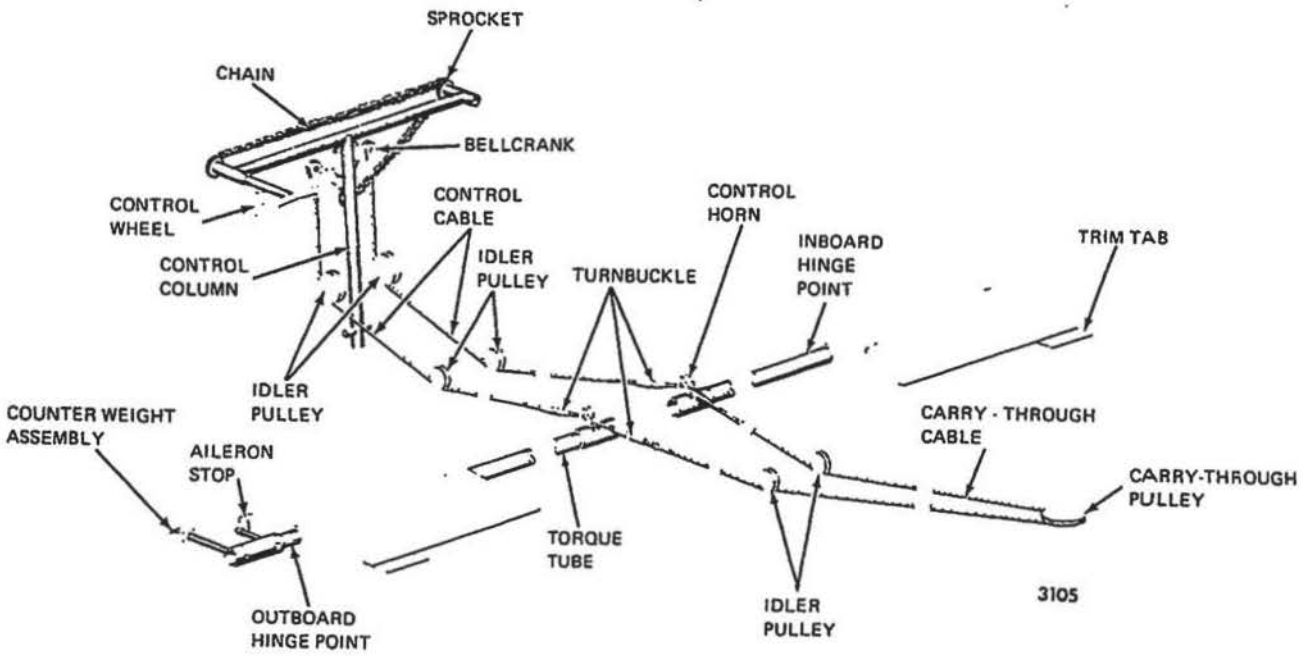
1. General (See Figure 1.)

As the control wheel is rotated its angular displacement is transmitted through a sprocket and chain arrangement on the control column to the bellcrank. Control cables attached to the bellcrank are routed through idler pulleys to the control horns attached to the aileron torque tubes. The control horns rotate the torque tubes, thus positioning the aileron control surfaces in direct proportion to control wheel displacement. A carry-through cable, attached to the control horns, extends aft to the carry-through pulley in the aft fuselage. This cable provides completion of the aileron control loop such that as one aileron moves up the other aileron moves down.

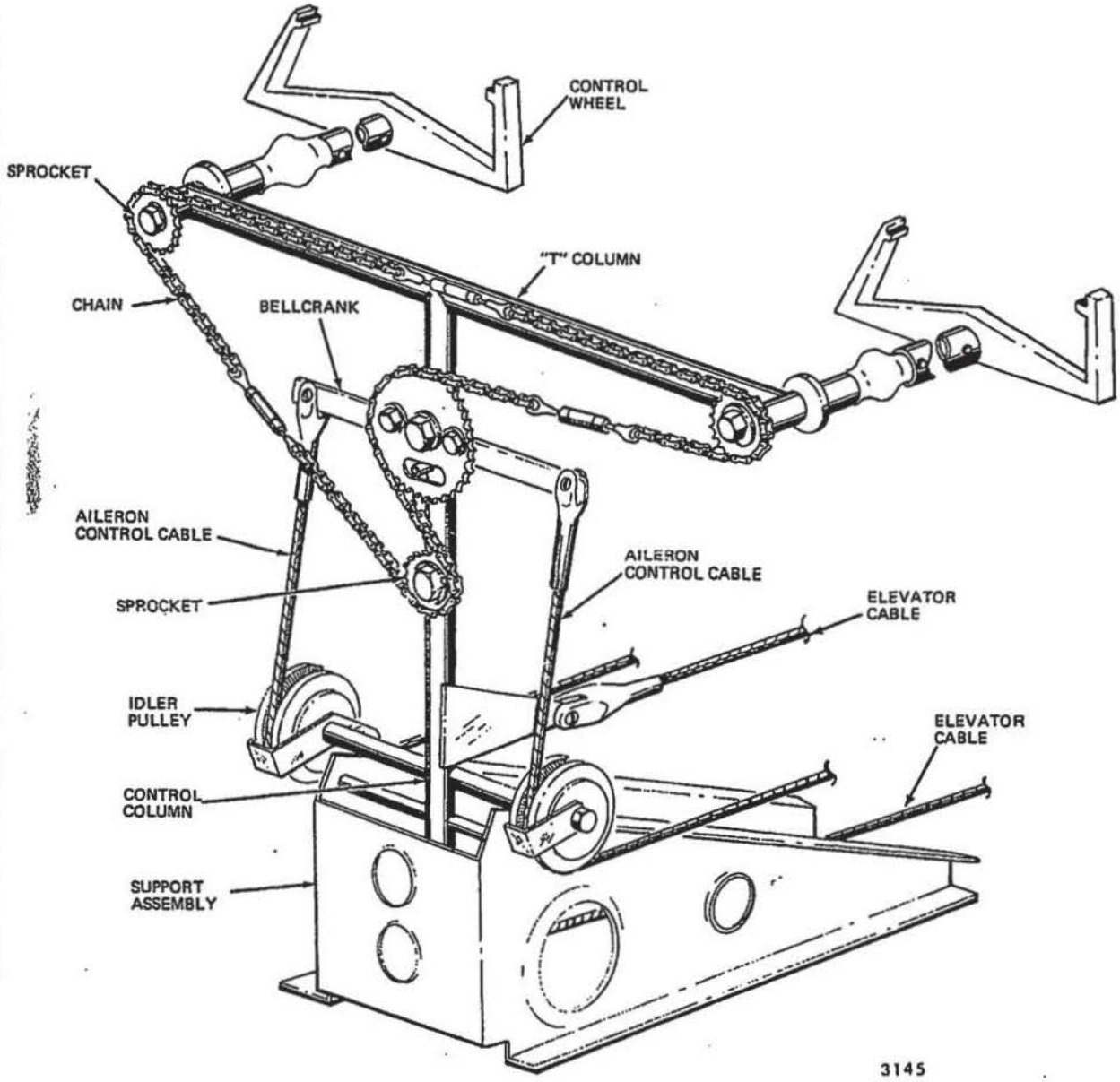
The aileron control surfaces are mounted on bearings that fit over the torque tube at each end of the control surface. Each aileron is composed of a formed metal skin which is bonded to seven internal ribs. The internal ribs are made of aluminum honeycomb. The torque tube extends the length of the aileron through the flap, and into the fuselage. The torque tube forms the aileron hinges. The aileron counterweight and control stop are mounted on the outboard end of the torque tube. The forward channels are riveted to the torque tube and form the contour of the aileron leading edge. The skin is bonded to the channels along its forward seam. In addition, the torque tube is bonded to the ribs. This type of structure enables rotational movement of the torque tube to position the control surface. Ground adjustable trim tabs are attached to the trailing edge of the control surfaces at their outboard ends.

The control column (Figure 2) consists of a "T" column, the bottom of which is attached to the aircraft through a needle bearing hinge. A bicycle-type chain extends around sprockets attached to the control wheel shafts, around an idler sprocket, and around a sprocket attached to the bellcrank. The three turnbuckles on the chain enable adjustment of chain tension, adjustment of the relative control wheel positions, and adjustment of the bellcrank in relation to control wheel position. The shaft of each control wheel is attached through a universal joint to the "T" column. This allows forward and aft movement of the control column (for elevator action) while ensuring that the angular movement of the control wheel is transmitted to the sprocket. Needle bearings in the "T" column and in the sprockets minimize control system friction.

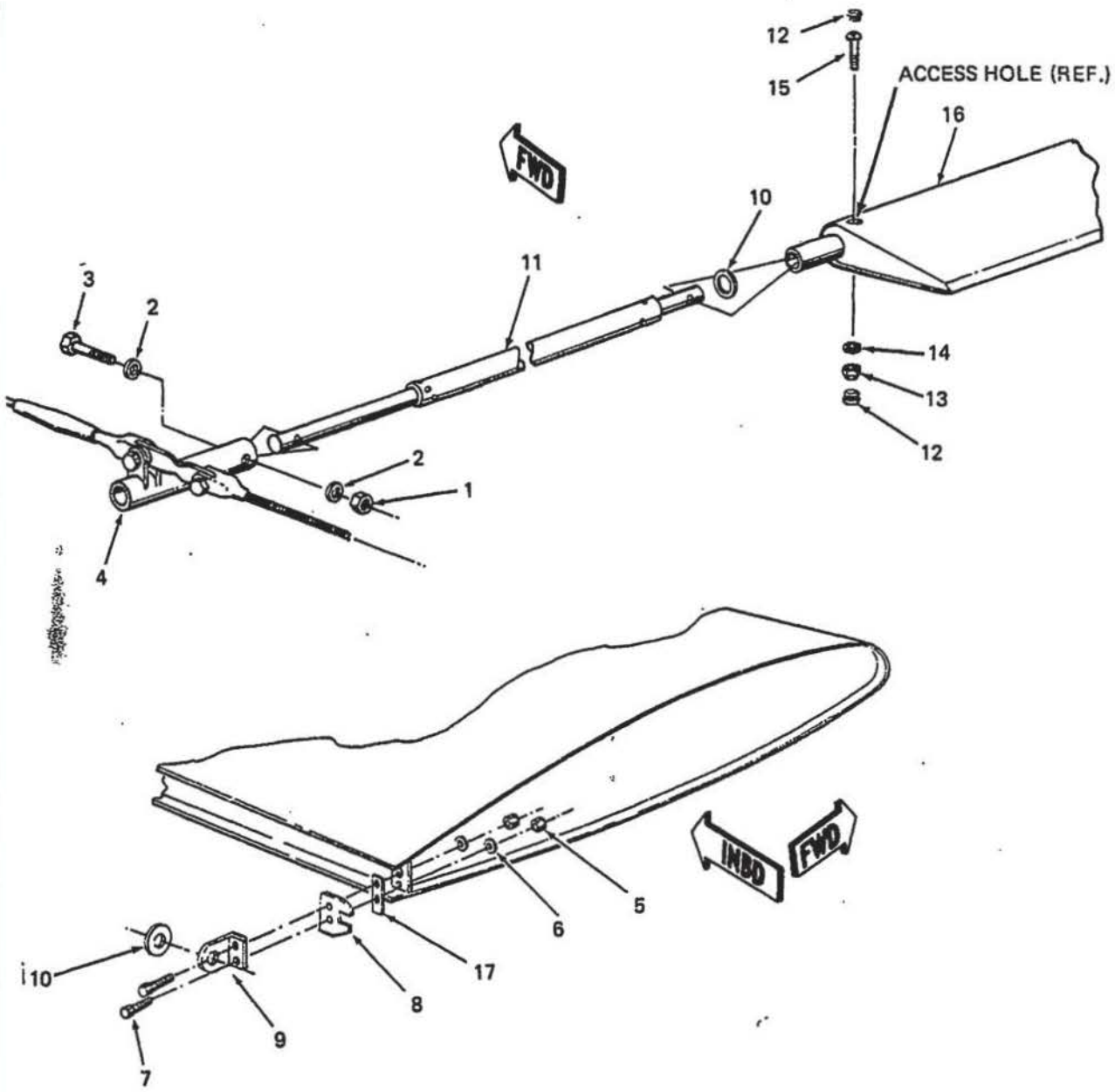




Aileron Control System
Figure 1

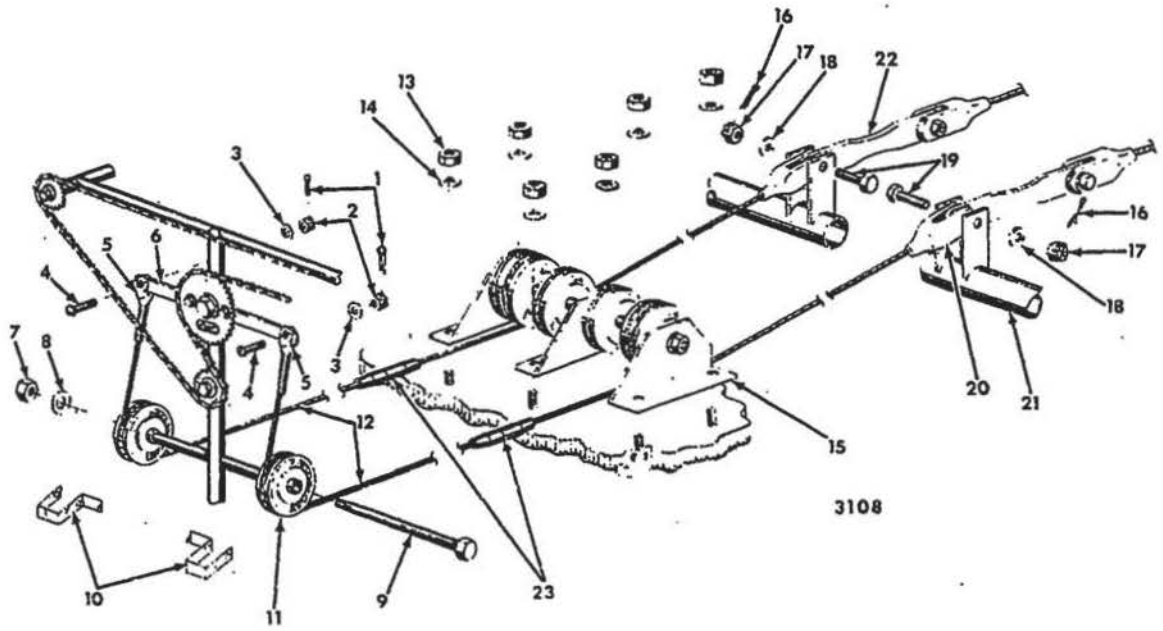


Control Column
Figure 2



1. NUT
2. WASHER
3. BOLT
4. CONTROL HORN
5. NUT
6. WASHER
7. BOLT
8. CONTROL STOP
9. BEARING BRACKET
10. SPACERS
11. AILERON TORQUE TUBE
12. PLUG
13. NUT
14. WASHER
15. BOLT
16. AILERON
17. SHIMS

Aileron and Torque Tube Removal/Installation
Figure 401



1. Cotter Pin
2. Nut
3. Washer
4. Bolt
5. Clevis
6. Bellcrank
7. Nut
8. Washer
9. Bolt
10. Guard
11. Pulleys
12. Cable
13. Nut
14. Washer
15. Pulley Bracket
16. Cotter Pin
17. Nut
18. Washer
19. Bolt
20. Clevis
21. Control Horn
22. Link
23. Turnbuckle

Aileron Cable Removal/Installation
Figure 404