



American Aviation Corporation  
318 Bishop Road Cleveland, Ohio 44143

# SERVICE

SERVICE KIT NO. SK-118-1

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DATE: December 21, 1972

TITLE: Large Pulley Installation - 2-place Control System

SERIALS AFFECTED: AA1-0001 thru AA1-0459, AA1A-0001 thru AA1A-0470 and  
AA1B-0001 thru AA1B-0049

WEIGHT AND BALANCE CHANGE: Negligible

## Parts List

<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	607009-503	Support Assembly
6	MS20220-2	Pulley
3	601054-1	Bracket
2	SST-8H-D	Clamp
1	MS24665-132	Cotter Pin

## Description of Modification

This modification covers the installation of larger diameter pulleys in the control system pulley group located under the console just forward of the center spar. This requires installing new larger pulleys, larger group support brackets, a new trim wheel drive support bracket, moving an electrical wire bundle and shortening the trim drive torque tube.

## Modification Instructions

1. Remove seats.
2. Remove flap handle, fuel selector valve handle and microphone jack.
3. Remove console.
4. Remove baggage floor covering and inspection cover.
5. Rotate trim wheel aft to the full nose up position.
6. Remove the tailcone.
7. On bungee, mark the position of the bungee/trim shaft. This position is important as the bungee shaft must be in this same identical position when reassembly is made.
8. Disconnect the trim drive flex shaft from the torque tube under the center spar.
9. Remove the flap switch and the flap position indicator cable from the trim drive support bracket.
10. Remove the trim drive support bracket from the center spar.
11. Remove the control pulley group located just forward of center spar.
12. Inspect all control cables for wear and broken wires, paying particular attention to the pulley area. (Reference Service Bulletin No. 127). Cables with more than four (4) broken wires must be replaced.

NOTE: The following steps must be followed exactly to assure that the proper rigging relationship is maintained between the trim drive assembly located on the spar and the bungee drive unit located inside the tailcone on the aft fuselage bulkhead.

13. Remove empennage inspection covers and any optional electronic equipment installed here to allow access to trim drive torque tube below.
14. Disconnect trim drive torque tube from bungee shaft and remove from aircraft through cable hole in aft bulkhead. Do not rotate bungee shaft.

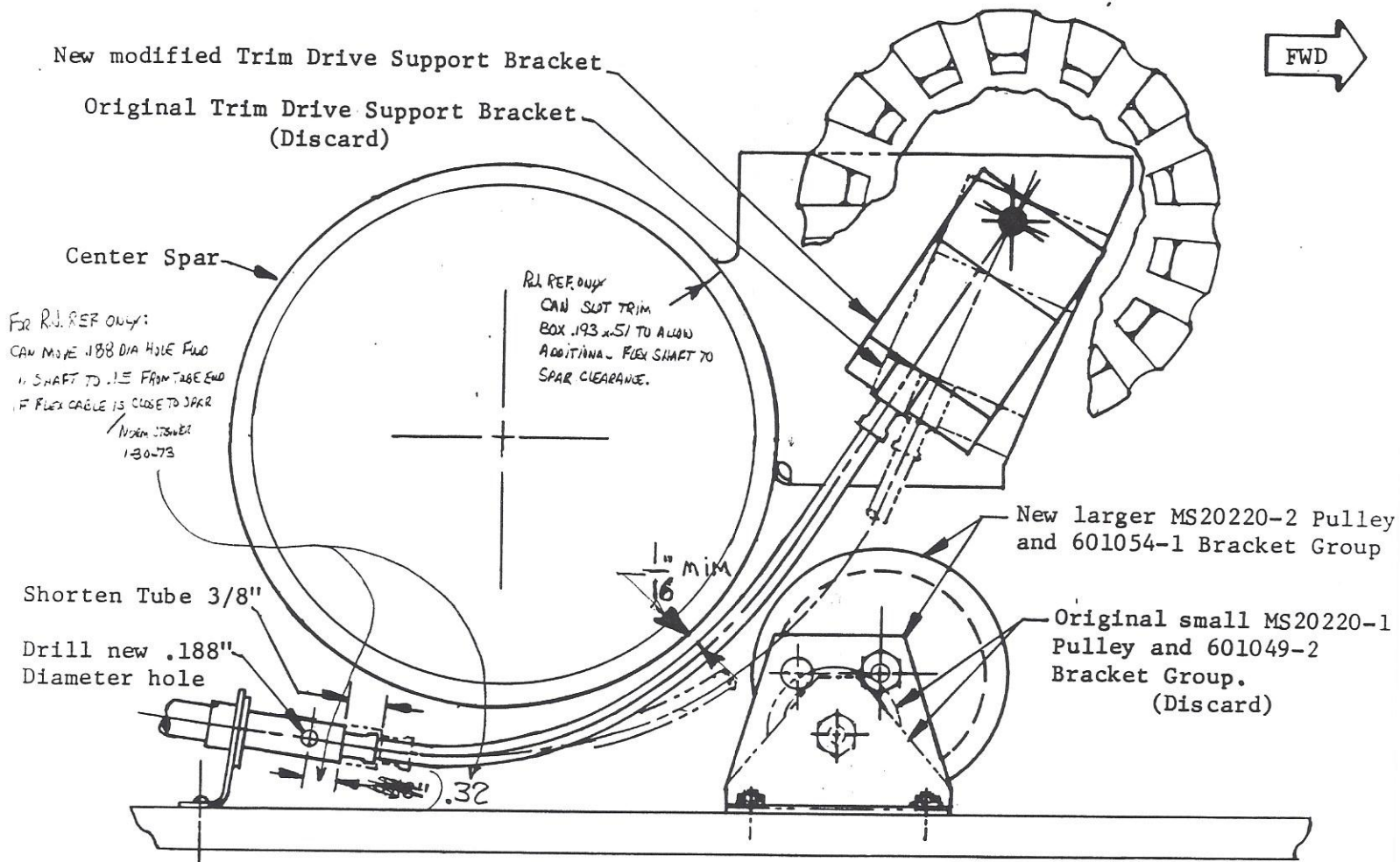


Figure 1. Large Pulley Installation and Trim Drive Modification

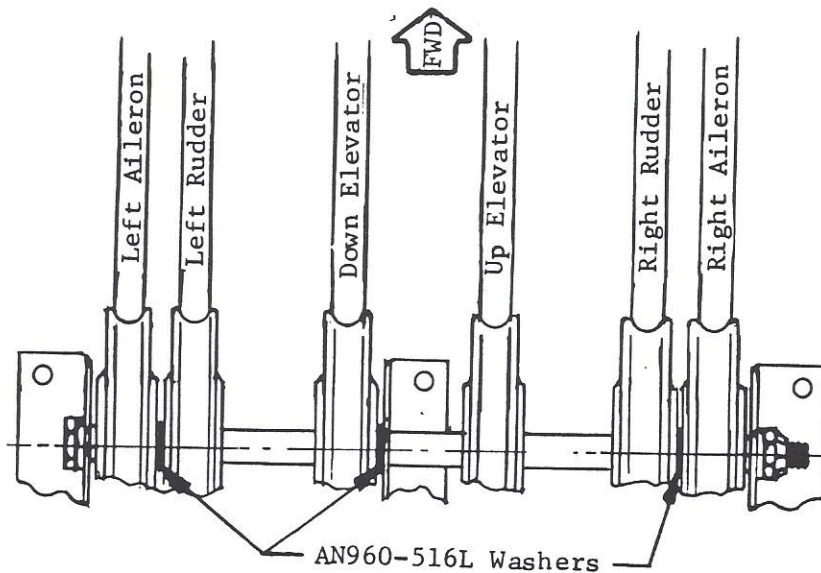


Figure 2. Cable Routing (View looking down)



15. Shorten forward end of torque tube 3/8" and drill a new .188" diameter hole through the tube .32" from the end to match the flex shaft end fitting.
16. Disassemble the trim drive unit parts from the support bracket, carefully noting position of all parts.
17. Assemble trim drive unit parts on new support bracket assembly supplied with kit. Apply a light coating of general purpose grease to all moving surfaces, including gears. Check to assure that bevel gears have even engagement, then back off trim wheel nut until gears are disengaged. The gears will be re-engaged later.
18. Disassemble control pulley assembly and reassemble using the large pulleys and the new brackets supplied with kit. Assemble with pulley shaft in the forward bracket holes as shown in Figure 1.
19. Reinstall trim drive torque tube in the aircraft, being careful not to rotate the bungee shaft.
20. Install new pulley assembly in aircraft, being sure all control cables are on correct pulley. (See Figure 1.)
21. Reinstall trim drive support bracket on center spar, install flap switch and flap position indicator cable.
22. Connect flex shaft to forward end of torque tube.
23. Verify that bungee shaft is in the original position as established in step 7.
24. With trim wheel bevel gears disengaged, rotate trim wheel aft to the full nose up position.
25. Tighten trim wheel nut and engage bevel gears. Tighten nut until Belleville washer is approximately 50% compressed and install cotter pin. Trim system assembly is now complete. Check system for freedom of movement.
26. Check bungee and trim tab rigging as follows:
  - AA-1 - with trim wheel in the full nose up position trim tab is  $11^{\circ} \pm 2^{\circ}$  down
  - AA-1A and AA-1B - with trim wheel in the full nose up position trim tab is  $18^{\circ} \pm 2^{\circ}$  down
  - All angles are measured with respect to the top skin surfaces with the elevators in the neutral position.
27. Move electrical wire bundle on spar as required for positive clearance with new pulleys and clamp in place with clamps provided in kit.
28. Check cable tension as follows:
  - Ailerons =  $25 \pm 5$  lbs.
  - Elevator =  $35 \pm 0 - 5$  lbs.
29. Check travel of all control surfaces as follows:
  - Ailerons -  $25^{\circ} \pm 2^{\circ}$  up travel and  $20^{\circ} \pm 2^{\circ}$  down travel
  - Elevator -  $25^{\circ} \pm 2^{\circ}$  up travel and  $15^{\circ} \pm 2^{\circ}$  down travel
  - Rudder -  $25^{\circ} \pm 2^{\circ}$  left and right

NOTE: Complete rigging procedures are described in the aircraft Service Manual.
30. Reinstall any electronic equipment previously removed in empennage area.
31. Reinstall empennage inspection covers and tailcone.
32. Reinstall baggage floor inspection cover and floor covering.
33. Reinstall console, flap handle, fuel selector handle and mike jack.
34. Reinstall seats.