



SERVICE BULLETIN

No. 674

Piper Aircraft Corporation
Modification FAA DOA EA-1 Approved

Lock Haven, Pennsylvania, U.S.A.
January 23, 1980 M

Subject: Rudder Trim Mechanism Modification and Trim Tab Rigging

Models Affected: Serial Numbers Affected:

PA-31T Cheyenne/Cheyenne II
PA-31T1 Cheyenne I

31T-7400002 through 31T-8020007
31T-7804001 through 31T-8004008

Compliance Time: Within the next one hundred (100) hours of operation or at the next scheduled inspection event, whichever occurs first.

Purpose:

It has been determined that in the above listed aircraft, rudder trim tab travel may not meet the specified requirements.

This service release provides instructions for modification of the Rudder Trim Tab actuating mechanism to allow easier attainment of specified travel and for rigging tab travel.

Instructions:

Instructions are on the attached Sketch/Instruction data.

Material Required:

One (1) each per aircraft Bushing - Rudder Trim Tab Screw Stop, Piper Part Number 48437-04.

One (1) each per aircraft MS20392-2C25 Clevis Pin, Piper Part Number 424 181.
MS20995-C32 Safety Wire, Piper Part Number 151 296.

Availability of Parts:

Your Piper Field Service Facility.

Effectivity Date:

This service release is effective upon receipt.

(over)

Summary:

Please contact your Piper Field Service Facility to arrange for compliance with this service release in accordance with Compliance Time, above. Reimbursement for material and labor is available through the respective credit application procedure of your Piper Field Service Facility.

This offer remains in effect for a period of time not to exceed 180 days from the date of this service release.

INSTRUCTIONS

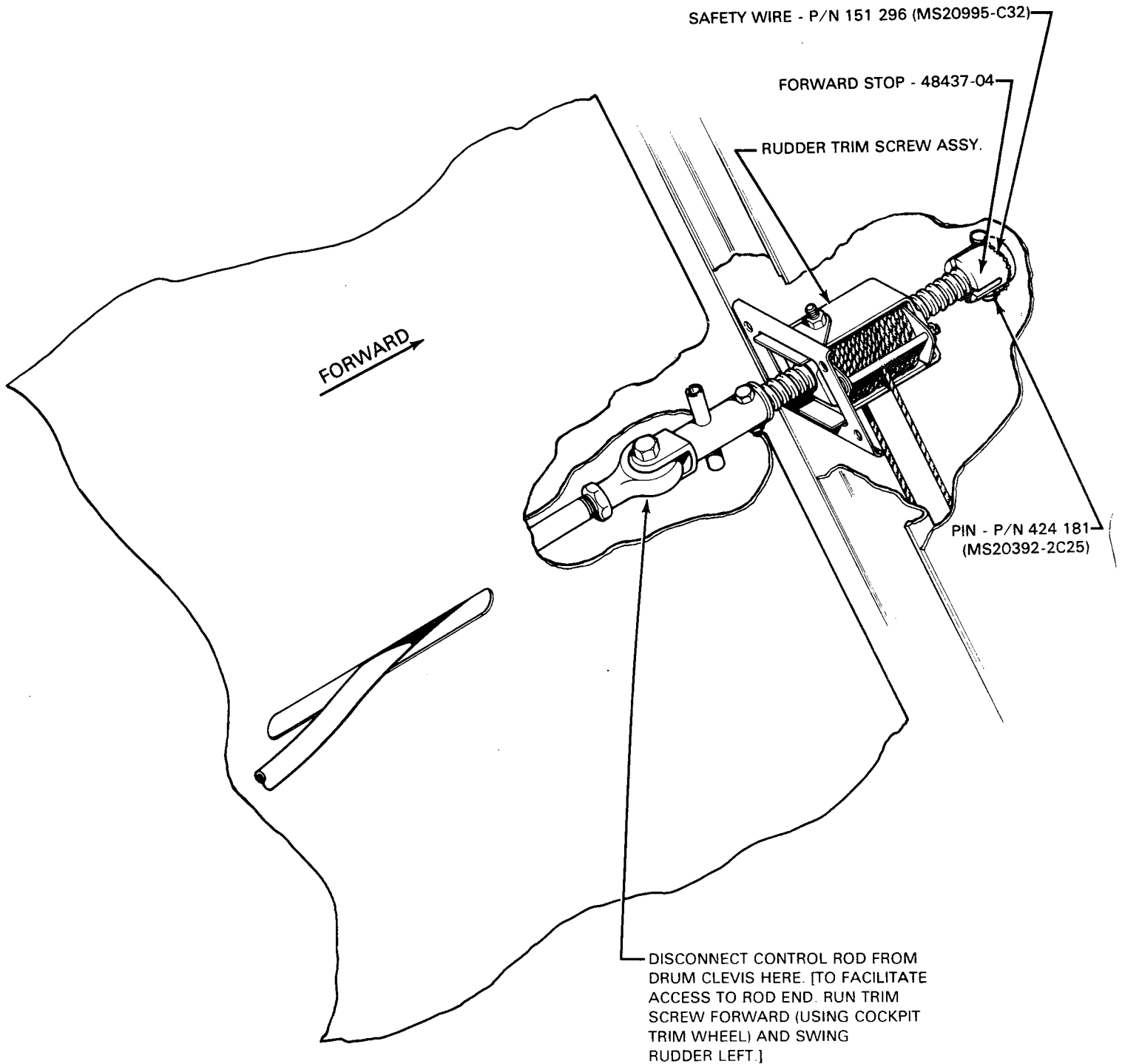
1. Remove the access plate on right side of vertical fin to gain access to the rudder trim screw assembly.
2. Remove and discard the rudder trim screw forward stop and attaching bolt.
3. Refer to Sketches "A" and "B". Check the rudder trim tab for proper travels as follows.
 - a. Position the rudder and rudder trim tab in the neutral position as shown on Sketch "B", Figure 1.

NOTE

When measuring left and right trim tab travel, linear dimensions must be taken between centerline of rudder trailing edge and centerline of trim tab trailing edge (along bottom of trim tab) as shown on Sketch "B", Figure 2.

- b. Move the rudder trim tab, using trim wheel on pedestal, to the extreme left position and obtain $5 \frac{3}{16}$ (46° ref.) initial travel. Insure at least 1/4 turn of cable remains on aft end of drum as shown on Sketch "A" and Sketch "B", Figure 3.
 - (1). If the $5 \frac{3}{16}$ (46° ref.) initial travel can be obtained and 1/4 wrap of cable remains on aft end of drum, proceed to step c.
 - (2). If the $5 \frac{3}{16}$ (46° ref.) initial travel and/or 1/4 (Minimum) wrap of cable cannot be obtained, disconnect rudder tab control rod from trim screw. Turn trim screw 1/2 to 1 full turn counterclockwise and reattach to rudder trim control rod. NOTE: $5 \frac{3}{16}$ " (maximum travel setting) will allow for up to 1/8" adjustment on right tab travel per step 3e.
 - c. With the rudder trim tab left travel set at $5 \frac{3}{16}$ (46° ref.) install new stop p/n 48437-04 on forward end of trim screw as shown on Sketch "A". Insure stop bottoms against drum housing and insert pin p/n 424 181 (MS20392-2C25). Safety pin to trim screw using wire p/n 151 296 (MS20995-C32) as shown.
 - d. Inspect the forward rudder trim drum, at pedestal, with trim tab extreme left to insure at least 1/4 turn of cable is remaining.
 - e. Move the rudder trim tab to the extreme right position as shown in Figure 1. Adjust trim tab rod end bearings, per Figure 4, as necessary to attain the $2 \frac{1}{4} \pm \frac{1}{16}$ (20° \pm 1° ref.) dimension.
 - f. Refer to Figure 5. Remove access plate on right side of fuselage, between sta. 317 and sta. 332. Inspect trim control cables to insure turnbuckles do not interfere with pulleys when trim tab is in the full right position.
 - g. With the rudder in the neutral position, recheck the trim tab travel dimensions per Sketch "B", Figure 1. Readjust left tab travel to $5 \frac{1}{8} \pm \frac{1}{16}$ (45° \pm 1° ref.) per step 3b(2) if necessary.
4. Refer to Sketch "C". Inspect the rudder trim tab screw assembly and pivot links for interference with rudder spar as follows.
 - a. Position the rudder assembly to the extreme right position and the rudder trim tab to its extreme left position as shown in Figure 1.

- b. Inspect the forward rudder spar area, as shown in Figure 2, for interference with trim screw roll pin and pivot links. (NOTE: Trim screw forward stop must be able to bottom against housing without roll pin and/or pivot links touching rudder spar).
 - (1). If trim screw forward stop has bottomed against drum housing and no interference is evident, proceed to step 5.
 - (2). If trim screw forward stop is unable to bottom against the drum housing, mark interference point(s) as shown in Figure 2.
 - (3). Move rudder and rudder trim tab to a suitable position to enable interference point(s) to be reworked. NOTE: It is helpful to disconnect control rod from drum to gain access for filing.
 - (4). Carefully rework rudder spar as marked per step (2), and dimensions given in Figure 2.
5. Position the rudder and rudder trim tab into the neutral position at the control surfaces.
6. Refer to Sketch "D". The rudder trim wheel indicator marker, "N" position, must be aligned with the center of placard on pedestal as shown. If the neutral mark on the indicator does not align with center of placard on pedestal proceed as follows.
 - a. Remove the rudder trim wheel from shaft.
 - b. Loosen the three screws which hold the indicator marker to the indicator mechanism.
 - c. Rotate the indicator marker to align the "N" position with the center of placard on pedestal as shown.
 - d. Tighten the three indicator marker attachment screws and replace the trim control wheel.
7. Reinstall access plates on vertical fin and fuselage.
8. Make proper logbook entry of Service Bulletin 674 compliance.



SKETCH "A"

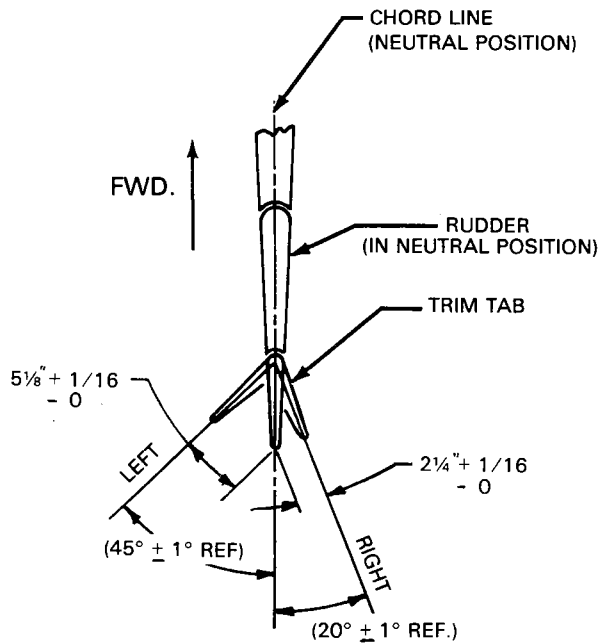


FIGURE 1

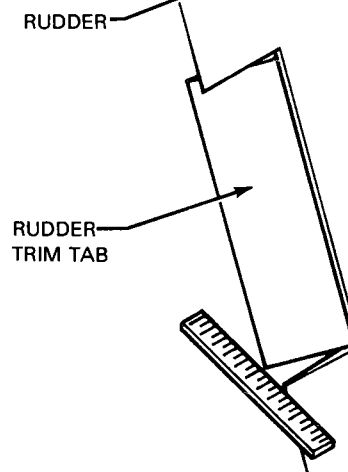


FIGURE 2

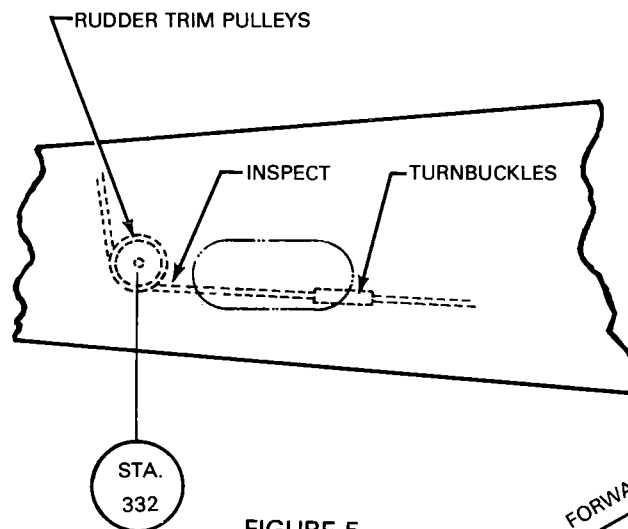
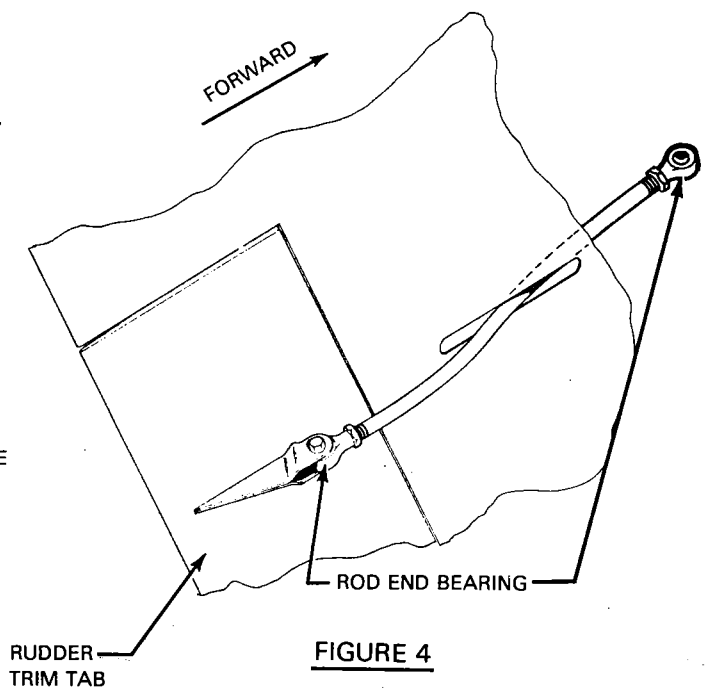
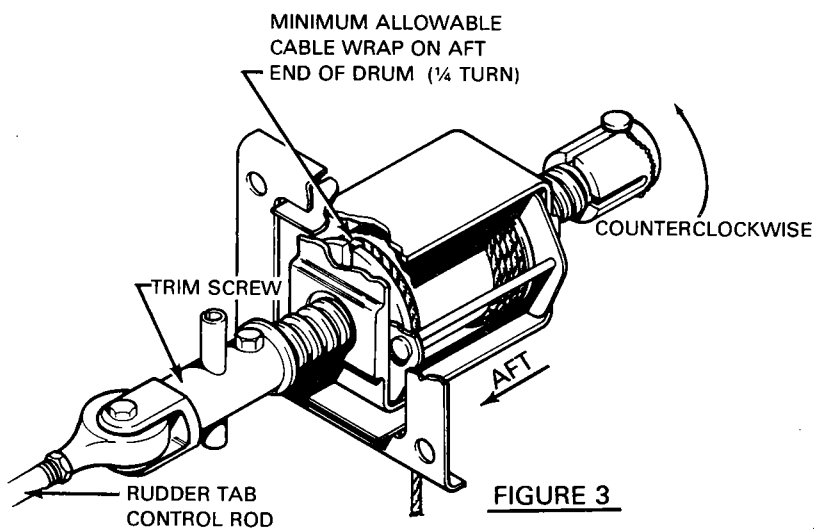
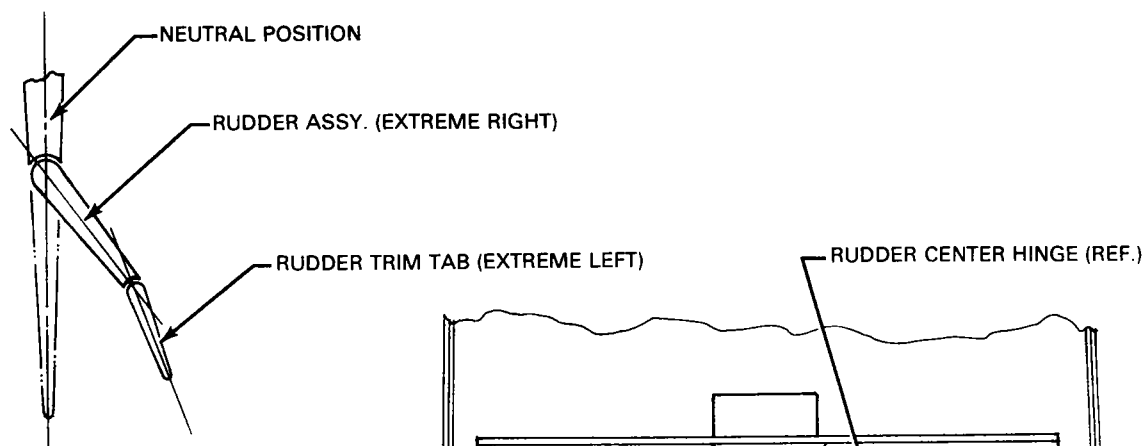
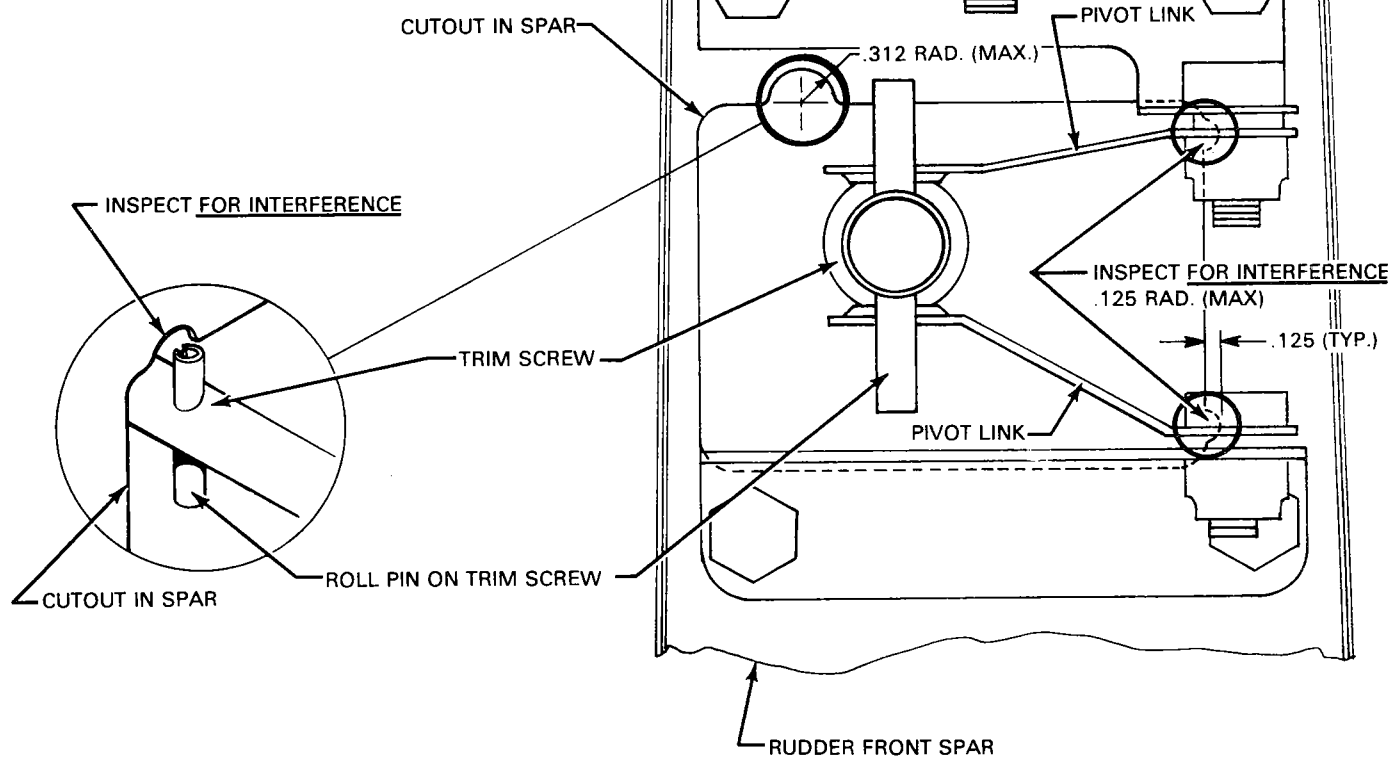


FIGURE 5



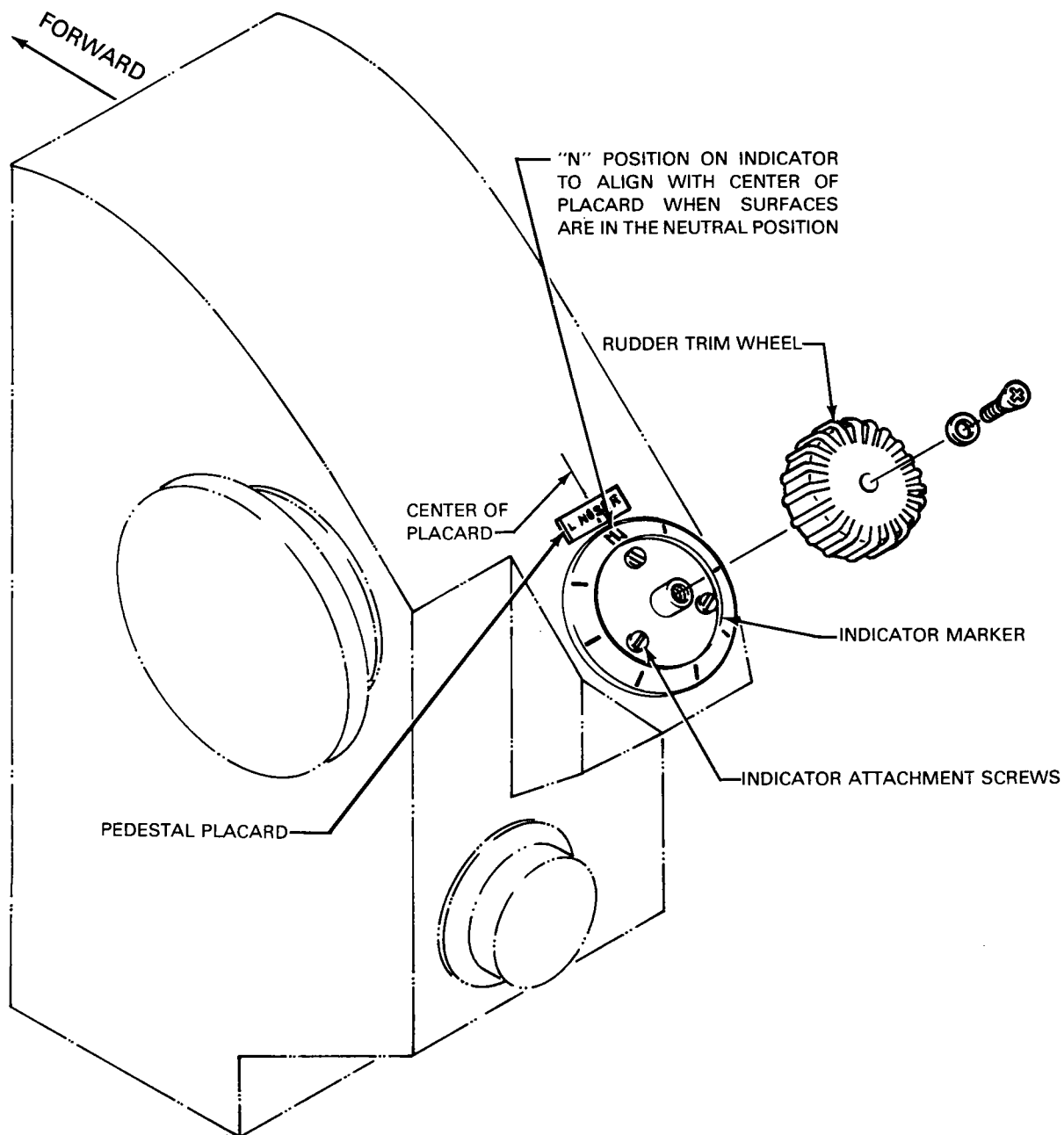
SKETCH "B"

**FIGURE 1****FIGURE 2**

FRONT VIEW OF RUDDER SPAR SHOWN

SKETCH "C"

REF: S.B. 674



SKETCH "D"