SERVICE BULLETIN

Beech

TITLE: FLIGHT CONTROLS - INSPECTION FOR RUDDER CONTROL CABLE SEPARATION, DAMAGE, OR MISROUTING

1. Planning Information

A. Effectivity

(1) Airplanes

BEECHCRAFT Bonanza Model A36, serials E-2519 through E-3140;

BEECHCRAFT Bonanza Model B36TC, serials EA-501 through EA-608;

BEECH Baron Model 58, serials, TH-1576 through TH-1838.

If you are no longer in possession of the airplane, please forward this information to the present owner.

(2) Spares

None.

B. Reason

This Service Bulletin is being issued to correct improper routing of rudder control cable assemblies at FS 233.50. Three incidents have been reported in which rudder control cables were routed over the cable guard pins rather than between the cable guard pins and the cable pulleys. This condition could result in guard pin wear and separation or fraying of the cables with loss of rudder control.

C. Description

WARNING

In all of the reported cases, the airplanes should have undergone an annual inspection during which the misrouting of rudder control cables should have been found. Each owner should admonish his/her maintenance facility to inspect for proper cable routing during annual or 100 hour inspections.

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(a) RAC Authorized Service Centers.

(b) Owners of record on the FAA Aircraft Registration Branch List and the RAC International Owner Notification/Registration Service List.

(c) Those having a publications subscription.

Information on Owner Notification Service or subscription can be obtained through any RAC Authorized Service Center. As Mandatory Service Bulletins and Service Bulletins are issued, temporary notification in the Service Bulletin Master Index should be made until the index is revised. Warranty will be allowed only when specifically defined in the Service Bulletin and in accordance with the RAC Warranty Policy.

Unless otherwise designated, RAC Mandatory Service Bulletins, Service Bulletins and RAC Kits are approved for installation on RAC airplanes in original or RAC modified configurations only. RAC Mandatory Service Bulletins, Service Bulletins and Kits may not be compatible with airplanes modified by STC installations or modifications other than RAC approved kits.

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Rudder control cable assemblies are inspected for proper routing at FS 233.50. Rudder control cable assemblies that are improperly routed shall be rerouted between the cable guard pins and the rudder cable pulleys. Rudder cable pulley brackets are inspected for damage and wear and replaced if such is found. Damaged and worn guard pins are replaced. Rudder control cable assemblies shall be inspected for separation, broken wires, fraying of cables and wear. Damaged rudder control cables shall be replaced. Rudder control cable assemblies shall be checked for correct tension and control surface travel.

D. Compliance

Raytheon Aircraft Company considers this to be a mandatory inspection/modification and it should be accomplished at the next scheduled inspection after receipt of this Service Bulletin, but no later than the next 50 flight hours.

An Airworthiness Directive will be requested on the matter covered by this Service Bulletin.

E. Approval

The engineering data contained in this Service Bulletin is FAA approved.

F. Manpower

The following information is for planning purposes only:

Estimated man-hours for inspection: 1 hour.

Suggested number of men for inspection: 1 man.

Estimated man-hours for each rudder control cable replacement: 4 hours.

Suggested number of men for each rudder control cable replacement: 1 man.

Estimated man-hours for each rudder pulley bracket replacement: 2 hours.

Suggested number of men for each rudder pulley bracket replacement: 1 man.

The above is an estimate based on experienced, properly equipped personnel complying with this Service Bulletin. Occasionally, after work has started, conditions may be found which could result in additional man-hours.

G. Weight and Balance

None.

H. Electrical Load Data

Not changed.

I. Software Accomplishment Summary

Not applicable.

J. References

BEECHCRAFT Bonanza Series Maintenance Manual, P/N 36-590001-9A20 or subsequent revision, Chapters 5-20, 20-04, and 27-20;

BEECH Baron Models 55 and 58 Shop Manual, P/N 55-590000-13E16 or subsequent revision, Sections 4 and 16;

AC 43.13, Chapter 7, Section 8.

K. Publications Affected

It is recommended that a note “See Service Bulletin No. 27-3265” be made in the following:

BEECHCRAFT Bonanza Series Maintenance Manual, P/N 36-590001-9A20 or subsequent revision, Chapter 20-04 and 27-20;

BEECHCRAFT Baron 58 Series Shop Manual, P/N 102-590000-13E17 or subsequent revision.

L. Interchangeability of Parts

Not applicable.

M. Warranty Credit

Warranty credit for labor and parts to the extent noted under MANPOWER and MATERIAL will be allowed on all affected airplanes.

Warranty coverage offered in this Service Bulletin will expire 12 months from the last day of the month this Service Bulletin is issued. After that date, the owner/operator assumes the responsibility for compliance cost. Raytheon Aircraft Company reserves the right to void warranty coverage in the area affected by this Service Bulletin until the date the Service Bulletin is accomplished by a Raytheon Aircraft Company Authorized Service Center.

All warranty work must be accomplished by a Raytheon Aircraft Authorized Service Center rated to perform maintenance on the specific model of Beech Airplane.

All warranty reimbursements are handled through Raytheon Aircraft Company Authorized Service Centers. The owner/operator should arrange for an Authorized Service Center to perform the work and the Authorized Service Center must submit the standard Raytheon Aircraft Company warranty claim form.

2. Material Information

A. Materials - Price and Availability

Contact a Raytheon Aircraft Authorized Service Center for information.

B. Industry Support

Not applicable.

C. Airplanes

The following parts required for this modification may be ordered through a Raytheon Aircraft Authorized Service Center or RAPID:

Part Number	Description	Quantity Per Airplane
MS24566-3B	Pulley, Rudder Cable, LH/RH	As Required
MS20392-1C23	Guard Pin	As Required
106-524047-1	Cable Assembly, Rudder, LH Aft, Black	As Required
106-524047-3	Cable Assembly, Rudder, RH Aft, Blue	As Required

Raytheon Aircraft Company expressly reserves the right to supersede, cancel and/or declare obsolete, without prior notice, any parts or publications that may be referenced in this Service Bulletin.

The following materials may be obtained locally:

Part Number	Description	Quantity Per Airplane
A-A-1491	Cotton Cheesecloth	As Required
MIL-C-16173, Class 2, Grade 1	Corrosion Preventive Compound, Solvent Cutback, Cold-Application	As Required
MIL-C-81309, Type II, Class 2	Corrosion Preventive Compound, Water Displacing, Ultra-Thin Film	As Required
MIL-G-12223 or MIL-G-87066	Gloves, Chemical Protective	As Required
KK-G-476 or A-A-50022	Gloves, Leather	As Required
P-D-680, Type III, White or Mineral Spirits	Dry Cleaning Solvent	As Required

D. Spares.

None.

3. Accomplishment Instructions

This Service Bulletin shall be accomplished as follows:

NOTE

Should any difficulty be encountered in accomplishing this Service Bulletin, contact Raytheon Aircraft Company at 1-800-429-5372 or 316-676-3140.

A. Airplane

WARNING

Observe all Warnings and Cautions contained in the airplane manuals referred to in this Service Bulletin.

Whenever any part of this system is dismantled, adjusted, repaired or renewed, detailed investigation must be made on completion to make sure that distortion, tools, rags or any other loose articles or foreign matter that could impede the free movement and safe operation of the system are not present, and that the systems and installations in the work area are clean.

(1) Remove all power from the airplane and disconnect the battery. Display warning notices prohibiting reconnection of airplane electrical power.

(2) Open appropriate doors and panels to gain access to rudder control cables. Refer to applicable airplane Maintenance Manual or Shop Manual.

(3) Inspect rudder control cables that are routed around the pulley and through the brackets at FS 233.50. Refer to Figure 1, Detail A (Sheet 1 of 2). Make sure each rudder control cable passes between the pulley and the cable guard pin rather than over the cable guard pins. Scratches, missing primer and/or paint from abrasion on pulley brackets, worn or shiny cable guard pins, and frayed wires are indications of misrouted control cables. Figure 1, Detail B (Sheet 2 of 2) shows examples of correct and incorrect rudder cable routing at cable pulleys. Replace any misrouted rudder control cables. Replace any worn or damaged guard pins. Inspect pulley brackets for wear and damage. Replace any pulley brackets that are damaged or worn. If rudder cables are routed properly, check the airplane log book to determine if a misrouted control cable was detected during maintenance and the misrouting was corrected. If a misrouting has been recorded or found during this inspection, proceed to step 4. If no misrouting is recorded or found during this inspection, proceed to step 5.

WARNING

P-D-680, Type III dry cleaning solvent is toxic to skin, eyes, and respiratory tract. Use eye and skin protection. Use only in a well-ventilated area.

WARNING

Avoid using too much solvent to remove corrosion preventive compounds. Removal of the cable's internal lubricant can result in corrosion of the center strand.

WARNING

Wear protective gloves to prevent injury to hands when handling worn or broken cables.

(4) Install replacement rudder control cables in accordance with the following:

WARNING

MIL-C-81309 and MIL-C-16173 corrosion preventive compounds are flammable and toxic to eyes, skin, and respiratory tract. Use skin and eye protection. Avoid repeated or prolonged contact. Avoid prolonged breathing of vapors. Keep away from open flames or other heat or ignition sources. Failure to comply may result in explosion or fire.

WARNING

Do not allow MIL-C-81309 and MIL-C-16173 corrosion preventive compounds, or any oil-based solvents, to come in contact with pure oxygen. These materials are not oxygen compatible, and will cause explosion and fire. If corrosion preventive compound is applied adjacent to areas of oxygen storage or transfer, make sure oxygen lines have been thoroughly leak-tested. Keep corrosion preventive compound away from oxygen lines. Apply corrosion preventive compound cautiously using a brush only. Do not spray. Failure to comply may resulting injury to personnel and damage to the airplane.

WARNING

Control cables must have a thin coating of corrosion preventive compound. Thick coatings will gum up pulleys and prevent cables from functioning properly.

WARNING

P-D-680, Type III dry cleaning solvent is toxic to skin, eyes, and respiratory tract. Use eye and skin protection. Use only in a well-ventilated area.

(a) Apply corrosion preventive compounds, as necessary, to provide corrosion protection. Apply MIL-C-81309, Type II, Class 2 corrosion preventive compound for water displacement applications. Coat external cables strands with a thin coat of MIL-C-16173, Grade 1 corrosion preventive compound. Use P-D-680, Type III dry cleaning solvent to thin the corrosion preventive compound. Mix at a 40/60 ratio of corrosion preventive compound to dry cleaning solvent for brushing or dipping applications and apply to control cables at installation.

(b) Install rudder control cables in accordance with the applicable airplane Maintenance Manual or Shop Manual.

(c) Adjust rudder control cables to correct tension and adjust control surface travel in accordance with the applicable airplane Maintenance Manual or Shop Manual.

(d) Perform an operational checkout of the flight control system to ensure proper operation of installed rudder control cables, pulley brackets, guard pins and attaching hardware. Refer to the applicable airplane Maintenance Manual or Shop Manual.

(5) Reconnect the airplane battery, remove warning notices, and restore power.

(6) Close doors and panels which were removed to gain access to rudder control cables. Refer to applicable airplane Maintenance Manual or Shop Manual.

(7) Ensure all work areas are clean and clear of tools and miscellaneous items of equipment.

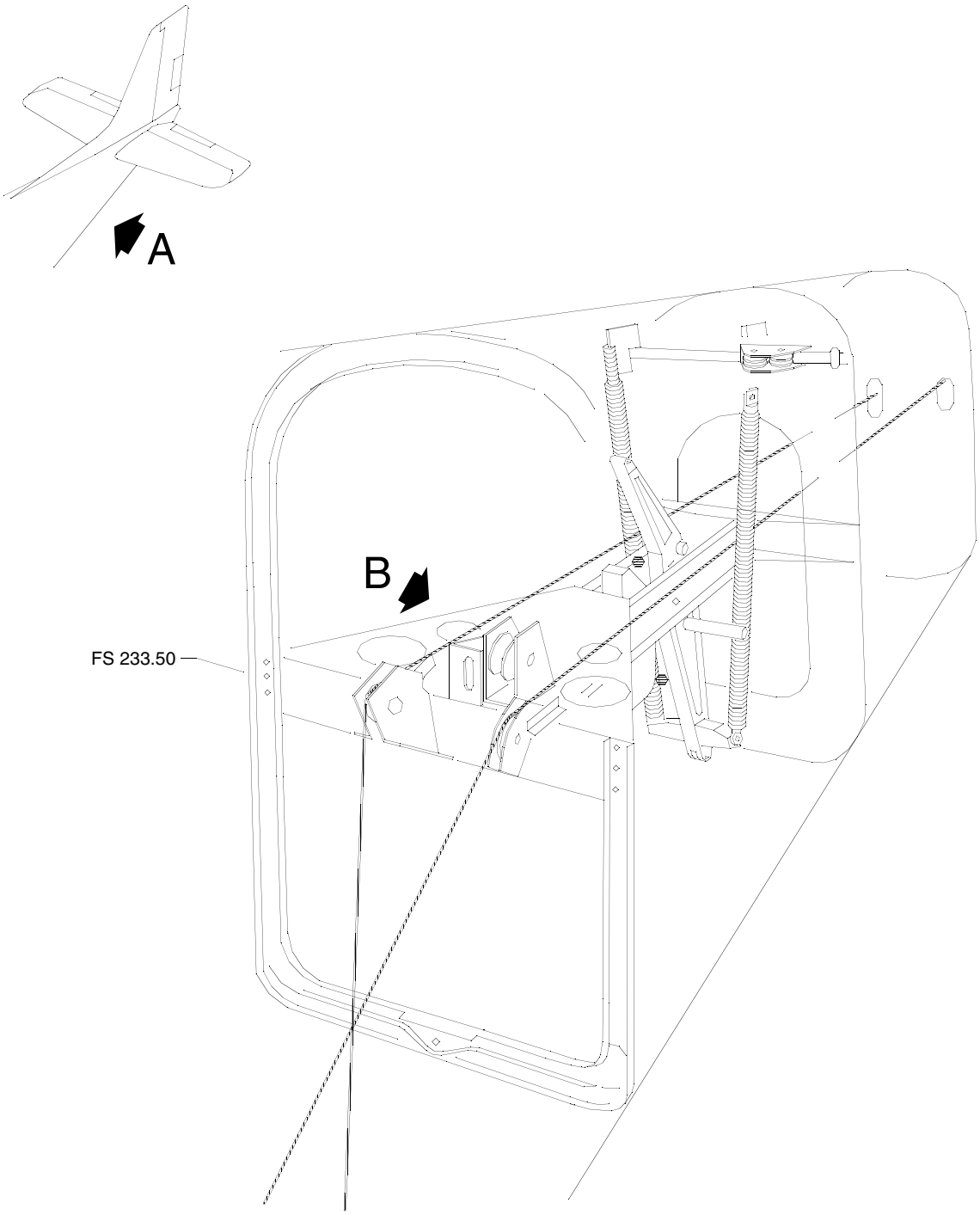
(8) Return airplane to service.

B. Spares

Not applicable.

C. Record of Compliance

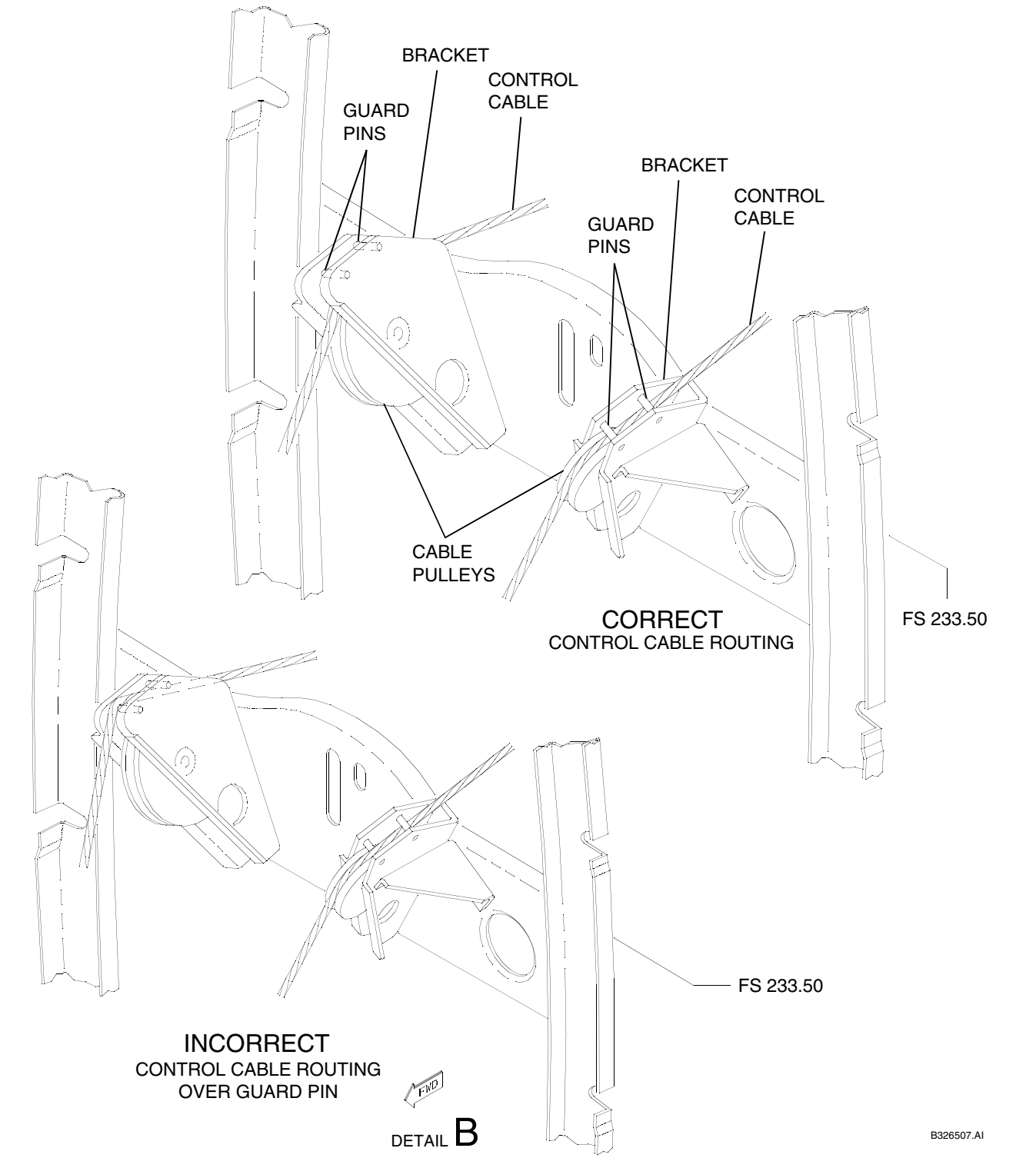
Upon completion of this Service Bulletin, make an appropriate maintenance record entry.



DETAIL A

Typical Cable Routing, Rudder System (Sheet 1 of 2)

Figure 1



Typical Cable Routing, Rudder System (Sheet 2 of 2)

Figure 1