SERVICE BULLETIN

Beech

TITLE: **ENGINE INDICATING - TACHOMETER SIGNAL STABILIZATION**

1. Planning Information

A. Effectivity

(1) Airplanes

Bonanza Model A36, Serials E-1946, E-2104, and E-2111 through E-3053;

Bonanza Model B36TC, Serials EA-320 and EA-389 through EA-593;

BEECHCRAFT Baron Model 58, Serials TH-1389 and TH-1396 through TH-1801.

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 provide a means of improving the tachometer signal line and stabilizing the signal.

C. Description

A loading resistor is added to the tachometer signal line to load and stabilize the signal, thus reducing sporadic or spurious signals.

D. Compliance

Raytheon Aircraft Company considers compliance to be at the owner's/operator's option.

E. Approval

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

Raytheon Aircraft Company (RAC) issues Service Information for the benefit of owners and fixed base operators in the form of two classes of Service Bulletins. The first class, Mandatory Service Bulletins (red border) includes changes, inspections and modifications that could affect safety or crashworthiness. RAC also issues Service Bulletins with no red border which are designated as either recommended or optional in the compliance section within the bulletin. In the case of recommended Service Bulletins, RAC feels the changes, modifications, improvements or inspections will benefit the owner/operator and although highly recommended, Recommended Service Bulletins are not considered mandatory at the time of issuance. In the case of Optional Service Bulletins, compliance with the changes, modifications, improvements or inspections is at the owner/operator's discretion. Both classes are mailed to:

(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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F. Manpower

The following information is for planning purposes only:

Estimated man-hours for single tachometer wiring harness: 1.5 hours.

Estimated man-hours for twin tachometer wiring harnesses: 2.5 hours.

Suggested number of men: 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 36-590001-9A19 or subsequent revision, Chapter 39-10.

Beechcraft BARON Shop Manual, P/N 55-590000-13E16 or subsequent revision, Chapter 2-9 and 13-4.

K. Publications Affected

It is recommended that a note "See Service Bulletin No. 77-3304" be made in the following:

Beechcraft BONANZA Series A36, B36TC Wiring Diagram Manual, P/N 35-590102-11C or subsequent revision, Chapter 77-11-01.

Beechcraft BARON 58 Wiring Diagram Manual, P/N 96-590011-29B1 or subsequent revision, Chapter 77-11-01.

L. Interchangeability of Parts

Not applicable.

M. Warranty Credit

None.

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:

Part Number	Description	Quantity Per Airplane
M81824/1-2	Splice	2 per wire harness
RLR20C3001GS (132371C3001EBC)	Resistor	1 per wire harness
131681AA22-9	Wire, Electrical - Insulated	As Required
201328-1	Socket	As Required
106242C44-00400 or equivalent	Heat Shrink Tubing	As Required
106242A26-00008 or equivalent	Tubing	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
200893-2	Insertion Tool	As Required
305183-R	Extractor Tool	As Required
45099	Crimp Tool	As Required
90281-1	Crimp Tool	As Required

D. Spares

Not applicable.

E. Reidentified Parts

None.

F. Tooling - Price and Availability

Not applicable.

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 aircraft 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) Open cowling(s). Refer to the applicable airplane Maintenance Manual or Shop Manual.

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

(3) Remove the glareshield to gain access. Refer to applicable airplane Maintenance Manual or Shop Manual.

(4) Remove the tachometer(s). Refer to applicable airplane Maintenance Manual or Shop Manual.

(5) For Model A36 and B36TC airplanes, refer to Figure 1 and accomplish the following to install a P/N RLR20C3001GS resistor and jumper wires to the tachometer indicator wiring harness:

(a) Locate wires E35A20 and E37A20 in the wire bundle connected to plug P25 on the M13 TACHOMETER INDICATOR.

(b) Remove wire E37A20 from pin 3 and wire E35A20 from pin 4 of plug P25 using P/N 305183-R extractor tool.

(c) Slide a section of P/N 106242C44-00400 heat shrink tubing over both wires, using enough tubing to cover the resistor and wire splices. Temporarily slide the tubing past the installation area.

(d) Crimp a P/N 201328-1 socket to one end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 6.5 inch maximum length) and install at pin 3 of plug P25.

(e) Slide a section of P/N 106242A26-00008 tubing over each lead wire of the P/N RLR20C3001GS (R5) resistor.

(f) Mate the opposite end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 6.5 inch maximum length) to one end of P/N RLR20C3001GS (R5) resistor and wire E37A20 using a P/N M81824/1-2 wire splice. Crimp with appropriate crimp tool.

(g) Crimp a P/N 201328-1 socket to one end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 3.0 inch maximum length) and install at pin 4 of plug P25.

(h) Mate the opposite end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 3.0 inch maximum length) to the opposite end of P/N RLR20C3001GS (R5) resistor and wire E35A20 using a P/N M81824/1-2 wire splice. Crimp with appropriate crimp tool.

(i) Position sealing sleeves over each P/N M81824/1-2 wire splice and shrink the sealing sleeves on each wire splice using a suitable heat source per best shop practice.

(j) Slide heat shrink tubing over P/N RLR20C3001GS (R5) resistor, making sure it extends a minimum of 0.25 inch beyond the P/N M81824/1-2 wire splices. Apply a suitable heat source to heat shrink tubing per best shop practice.

(k) Connect plug P25 to the M13 TACHOMETER INDICATOR.

(l) Install the tachometer. Refer to the airplane Maintenance Manual.

(m) Install the glareshield. Refer to the airplane Maintenance Manual.

(n) Proceed to step 7 for follow-on procedures for Model A36 and B36TC airplanes.

(6) For Model 58 Baron series airplanes, refer to Figure 2 and accomplish the following to install a P/N RLR20C3001GS resistor and jumper wire to each of the tachometer indicator wiring harnesses:

(a) Locate wires E35A20 and E37A20 in the wire bundle connected to plug P25 on the M13 L (LEFT) TACHOMETER INDICATOR.

(b) Remove wire E37A20 from pin 3 plug P25 using P/N 305183-R extractor tool.

(c) Locate existing wire splice with wires E35A20, E82A20, and E35B20 installed. Cut the wires on both sides of the wire splice per best shop practice.

(d) Slide a section of P/N 106242C44-00400 heat shrink tubing over the wires, using enough tubing to cover the resistor and new wire splices. Temporarily slide the tubing past the installation area.

(e) Crimp a 201328-1 socket to one end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 3.0 inch maximum length) and install at pin 3 of plug P25.

(f) Slide a section of P/N 106242A26-00008 tubing over each lead wire of the P/N RLR20C3001GS (R5) resistor.

(g) Mate the opposite end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 3.0 inch maximum length) to one end of P/N RLR20C3001GS (R5) resistor and wire E37A20 using a P/N M81824/1-2 wire splice. Crimp with appropriate crimp tool.

(h) Insert the other resistor lead and wire E35A20 into one end and wires E35B20 and E82A20 into the opposite end of a new P/N M81824/1-2 wire splice. Crimp with appropriate crimp tool.

(i) Locate wires E34A20 and E36C20 in the wire bundle connected to plug P26 on the M12 R (RIGHT) TACHOMETER INDICATOR.

(j) Remove wire E34A20 from pin 3 of plug P26 using P/N 305183-R extractor tool.

(k) Locate existing wire splice with wires E36C20, E83A20, and E36A20 installed. Cut the wires on both sides of the wire splice per best shop practice.

(l) Slide a section of P/N 106242C44-00400 heat shrink tubing over the wires, using enough tubing to cover the resistor and wire splices. Temporarily slide the tubing past the installation area.

(m) Crimp a P/N 201328-1 socket to one end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 3.0 inch maximum length) and install at pin 3 of plug P26.

(n) Slide a section of P/N 106242A26-00008 tubing over each lead wire of the P/N RLR20C3001GS (R6) resistor.

(o) Mate the opposite end of new jumper wire labeled JMPR 22 (P/N 131681AA22-9, 3.0 inch maximum length) to one end of P/N RLR20C3001GS (R6) resistor and wire E34A20 using a P/N M81824/1-2 wire splice. Crimp with appropriate crimp tool.

(p) Insert the other resistor lead and wire E36C20 into one end and wires E36A20 and E83A20 into the opposite end of a new P/N M81824/1-2 wire splice. Crimp with appropriate crimp tool.

(q) Position sealing sleeves over each M81824/1-2 wire splice and shrink the sealing sleeves on each wire splice using a suitable heat source per best shop practice.

(r) Slide heat shrink tubing over each P/N RLR20C3001GS (R5 and R6) resistor, making sure it extends a minimum of 0.25 inch beyond the P/N M81824/1-2 wire splices. Apply a suitable heat source to heat shrink tubing per best shop practice.

(s) Connect plugs P25 and P26 to their respective M13 L TACHOMETER INDICATOR and M12 R TACHOMETER INDICATOR.

(t) Install the tachometers. Refer to applicable airplane Maintenance or Shop Manual.

(u) Install the glareshield. Refer to applicable airplane Maintenance or Shop Manual.

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

(8) Reconnect the airplane battery and restore power.

(9) Close cowling(s). Refer to the applicable airplane Maintenance Manual or Shop Manual.

(10) Perform an operational checkout of the tachometer installation to make sure the system is indicating properly.

(11) Remove warning notices.

(12) Return airplane to service.

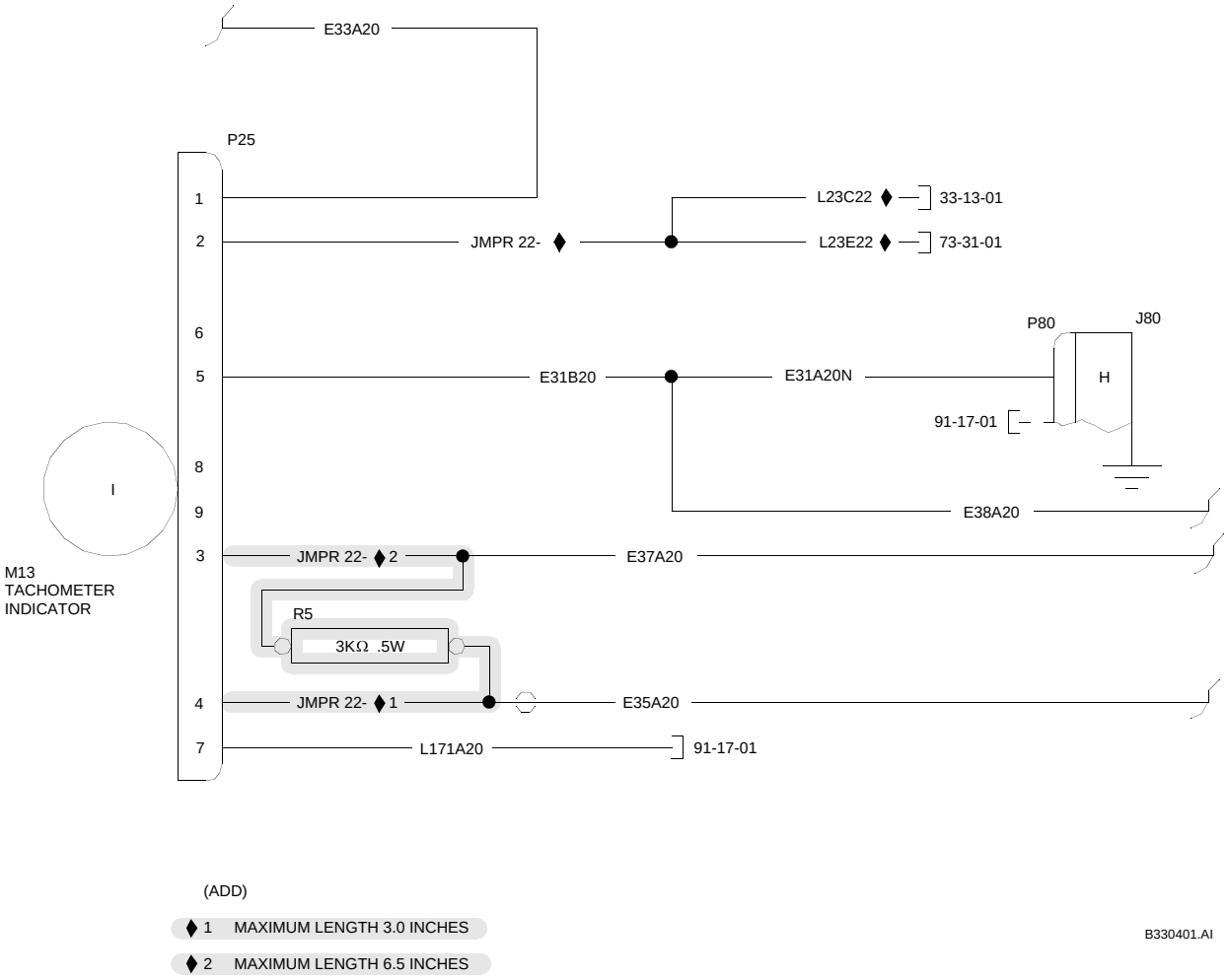
B. Spares

Not applicable.

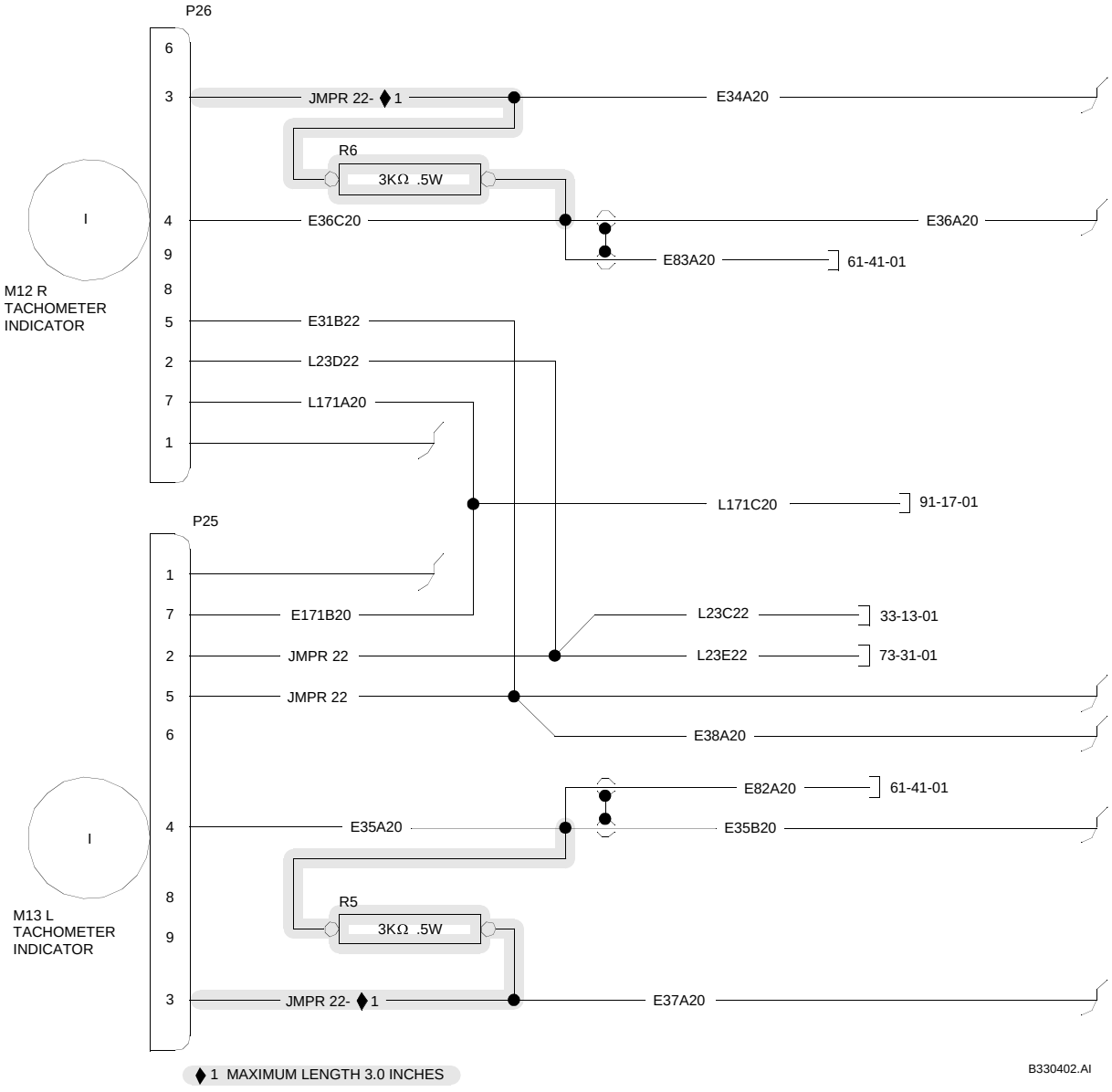
C. Record of Compliance

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

SERVICE BULLETIN



Resistor Addition for Tachometer Signal Stabilization, Model A36, B36TC Bonanza
Figure 1



Resistor Additions for Tachometer Signal Stabilization, Model 58 Baron
Figure 2