



Service Bulletin **SB 2X-78-04 R1**

Revision 1: 2004/01/30

Model SR22

ATA 78-20: Exhaust Replacement of #4 and #5 Exhaust Headers

COMPLIANCE

Mandatory: Accomplish this Service Bulletin within 100 Flight Hours or within the next 12 calendar months, whichever occurs first. Compliance time begins upon receipt of this Service Bulletin.

EFFECTIVITY

Serial Numbers

Cirrus Design SR22 serial numbers 0002 through 0319.

Operators who have modified the airplane in accordance with repair R6737 (0125 & 0139), with repair R6673 (0156), and with kit drawing 70048-001 (0053, 0091, 0127, 0149, 0161, 0164, 0181, 0208, 0226, & 0249) and who have obtained approval by FAA form 337, meet the requirements of this Service Bulletin and need take no further action.

Operators who verify minimum exhaust header engagements per Procedures I. and J. in this Service Bulletin need take no further action for an additional 100 hours or 12 calendar months if the minimum engagements are maintained and there is no evidence of excessive shifting of exhaust components.

APPROVAL

FAA approval has been obtained on all technical data in this Service Bulletin that affects type design.

PURPOSE

The engagement between the upper and/or lower slip joints on the #4 and #5 exhaust headers may fail on some of the affected airplanes. This condition has the potential of scorching or damaging engine components, cowling and/or other components. To correct this condition, this Service Bulletin replaces the existing #4 and #5 exhaust header assemblies with single-piece header weldments.

DESCRIPTION

This Service Bulletin describes instructions to disassemble the exhaust assembly, inspect the engagement of the exhaust header weldments, reassemble the exhaust system with replacement #4 and #5 single header weldments, and verify the upper and/or lower slip joint engagements are correct.

WARRANTY INFORMATION

Cirrus Design will cover parts and labor costs for this Service Bulletin if the work is accomplished within the standard airplane warranty period and the work is accomplished at an authorized Cirrus Design Service Center or at the Cirrus Design factory. The Warranty Claim Form must be properly filled out and submitted with the removed parts to Cirrus Design in order to obtain a warranty credit.

Shipping parts via ground transport will be covered by Cirrus Design. Air freight shipping costs will not be reimbursed.

Cirrus Design Corporation
4515 Taylor Circle
Duluth, Minnesota 55811
PH (218) 727-2737

SB 2X-78-04 R1
1 of 4

MANPOWER REQUIREMENTS

Approximately 4.0 manhours are required.

OTHER PUBLICATIONS AFFECTED

SR22 Airplane Maintenance Manual (p/n 13773-001)

SR22 Illustrated Parts Catalog (p/n 13774-001)

WEIGHT AND BALANCE

Change is negligible.

MATERIAL INFORMATION

The following parts are required to comply with this Service Bulletin. Parts can be obtained from Cirrus Design Spare Part Sales or an authorized Cirrus Design Service Center.

Order kit 70048-001 to obtain the following parts.

Item No.	Description	P/N or Spec.	Supplier	Quantity
1	Service Bulletin (this document)	SB 2X-78-04	Cirrus Design	1
2	Weldment, Header #4	70048-101	Cirrus Design	1
3	Weldment, Header #5	70048-102	Cirrus Design	1

ACCOMPLISHMENT INSTRUCTIONS

- A. Remove key from ignition.
- B. Ensure BATTERY and AVIONICS master switches are in OFF position.
- C. Remove engine cowling. (Refer to AMM 71-10)
- D. Disconnect battery. (Refer to AMM 24-30)

Note: Do not remove muffler or tailpipe assembly.

- E. Carefully mark and remove exhaust header assemblies. (See Figure 01)
 - 1. Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Sharpie® Permanent Fine Point Marker	30001 (Black)	Sanford Bellwood, IL 60104 800-323-0749	Mark measurement lines on headers.
Masking Tape	PG27, 1 inch Wide	Any Source	Label headers #4 and #5.
Scotch-Brite™ Scour Pads	07447	3M Company St. Paul, MN 55144 651-737-6501	Clean header ends for better engagement.

Note: All marked lines should be a minimum of 1.00 inch (2.50 cm) in length.

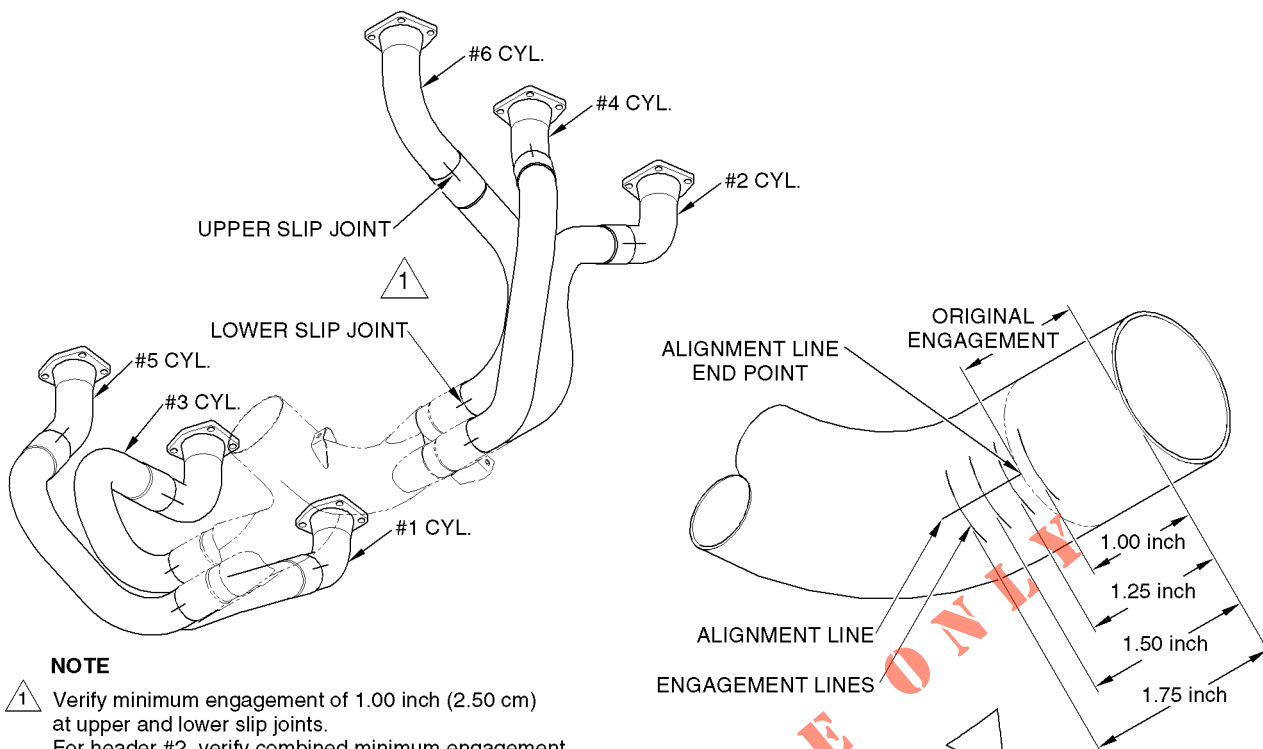
CAUTION: Do not use a pencil to mark headers. Use a black permanent marker.

2. At all header assemblies, make alignment line perpendicular to upper and lower slip joints.
 3. Remove exhaust system. (Refer to AMM 78-10)
 4. Determine original engagement measurement for each upper and lower slip joint by measuring from alignment line end point to end of pipe. Record measurements on the Compliance Response Card.
 5. Tag and identify headers #4 and #5 with masking tape indicating aircraft serial number and hour meter reading.
 6. Use scouring pad to clean the engagement ends of headers #1, #2, #3, and #6.
- F. For headers #1, #2, #3, and #6, mark engagement lines on upper and lower slip joints as follows:
1. Extend alignment line to end of pipe.
 2. From end of pipe working up, mark engagement lines perpendicular to alignment line at intervals of 1.00 inch (2.50 cm), 1.25 inch (3.18 cm), 1.50 inch (3.80 cm), and 1.75 inch (4.45 cm).
- G. For replacement #4 and #5 header weldments, mark engagement lines on lower slip joints as follows:
1. From end of pipe working up, mark engagement lines perpendicular to pipe centerline at intervals of 1.00 inch (2.50 cm), 1.25 inch (3.18 cm), 1.50 inch (3.80 cm), and 1.75 inch (4.45 cm).

Note: Use of light force may be required to obtain optimum exhaust installation.

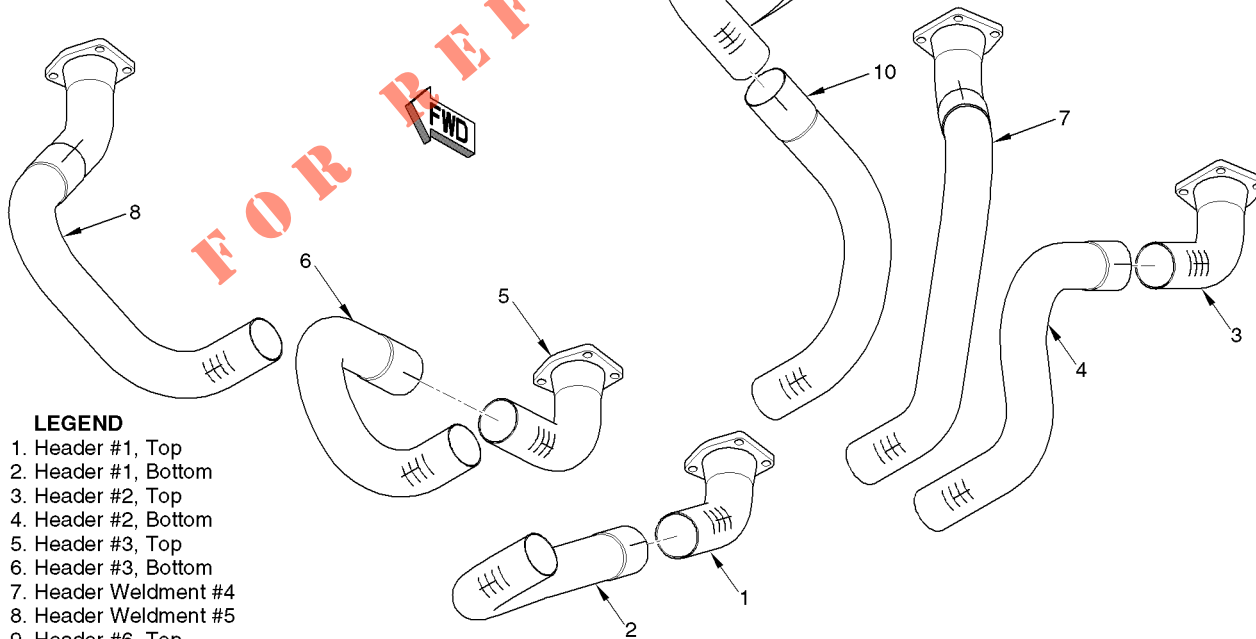
During exhaust installation, verify that slip joints do not exhibit excessive looseness. Maximum slip joint gap should not exceed 0.015 inch (0.38 mm).

- H. Install exhaust system using replacement #4 and #5 header weldments. (Refer to AMM 78-10)
- I. For headers #1, #2, #3, and #6, inspect for minimum engagement as follows:
1. Verify minimum engagement of upper and lower slip joints is not less than 1.00 inch (2.50 cm).
 2. For header #2, verify combined minimum engagement of upper and lower slip joints is not less than 2.50 inch (6.25 cm).
 3. For headers #1, #3, and #6, verify that no more than one of the three headers (#1, #3, #6) have a combined minimum engagement of upper and lower slip joints of not less than 2.50 inch (6.25 cm).
 4. For remaining headers, verify combined minimum engagement of upper and lower slip joints is not less than 2.75 inch (7.00 cm).
 5. Record current engagement measurements for each slip joint on Compliance Response Card.
- J. For #4 and #5 header weldments, inspect for minimum engagement as follows:
1. Verify minimum engagement of lower slip joints is not less than 1.00 inch (2.50 cm).
 2. If #4 and #5 headers are not welded, verify upper and lower slip joints have a 1.00 inch (2.50 cm) minimum engagement and a combined minimum engagement 2.75 inch (7.00 cm).
 3. Record current engagement measurements of each slip joint on Compliance Response Card.
- K. Connect battery. (Refer to AMM 24-30)
- L. Install engine cowling. (Refer to AMM 71-10)
- M. Send completed Compliance Response card and existing #4 and #5 exhaust header assemblies to Cirrus Design Customer Service.
- N. Complete airplane records by noting compliance with SB 2X-78-04 in Airplane Logbook.



NOTE

- 1 Verify minimum engagement of 1.00 inch (2.50 cm) at upper and lower slip joints.
 For header #2, verify combined minimum engagement of upper and lower slip joints is not less than 2.50 inches (6.25 cm).
 For headers #1, #3, and #6, verify that no more than one of the three headers (#1, #3, #6) have a combined minimum engagement of upper and lower slip joints of not less than 2.50 inches (6.25 cm).
 For remaining headers, verify combined minimum engagement of upper and lower slip joints of not less than 2.75 inches (7.00 cm).

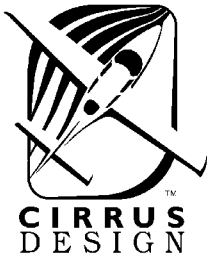


LEGEND

1. Header #1, Top
2. Header #1, Bottom
3. Header #2, Top
4. Header #2, Bottom
5. Header #3, Top
6. Header #3, Bottom
7. Header Weldment #4
8. Header Weldment #5
9. Header #6, Top
10. Header #6, Bottom

SR2_SB78_1022

Figure 01 - Exhaust Header Alignment and Engagement



Service Loop

SB 2X-78-04 R1

Feedback and Evaluation Form

ATA 78-20: Exhaust Replacement of #4 and #5 Exhaust Headers

Use this form to tell us what you think of the quality of this Service Bulletin. We will use the data you provide us to improve the quality of our Service Bulletins.

Organization: _____

Telephone No.: _____

Prepared By: _____

Fax No: _____

Title: _____

E-Mail: _____

Today's Date: _____

Please rate the quality of this Service Bulletin.

(good) 4 3 2 1 (poor)

Please rate the quality of the illustrations.

(good) 4 3 2 1 (poor)

Is this Service Bulletin easy to understand?

Yes No If not, please explain:

Is this Service Bulletin easy to use?

Yes No If not, please explain:

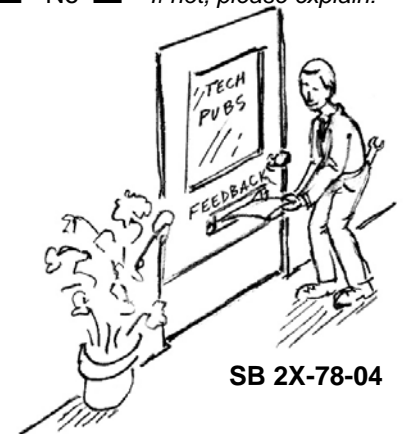
Are the Material and Accomplishment Instructions accurate?

Yes No If not, please explain:

Is the Manpower estimate accurate?

Yes No If not, please explain:

FOR REFERENCE ONLY



SB 2X-78-04

Cirrus Design Corp
4515 Taylor Circle
Duluth, MN
55811-1548

STAMP



CIRRUS DESIGN CORPORATION
MANAGER, TECHNICAL PUBLICATIONS
4515 TAYLOR CIRCLE
DULUTH, MN
55811-1548

FOR REFERENCE ONLY