AIRPLANE ATTITUDE GAGE ASSEMBLY

08-06-01

BOEING P/N F70043

CUSTOMER P/N

THIS SUBJECT APPLIES TO THE FOLLOWING BOEING AIRPLANE MODELS:

707 STRATOLINER	707 INTERCONTINENTAL	720	727	737
ALL	ALL	ALL	ALL	ALL

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT

(CONTINUED)

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT

CHECK LIST

* Indicates pages revised, added or deleted in latest revision

F Indicates foldout pages - print one side only

PAGE	DATE	PAGE	DATE	PAGE	DATE
08-06-01					
* T-1	Oct 1/67				
* T-2	Oct 1/67				
* C/L-1	Oct 1/67				
C/L-2	BLANK				
* T/C-1	Oct 1/67				
T/C-2	BLANK				
* 1	Oct 1/67				
* 2	Oct 1/67				
* 3	Oct 1/67				
* 4	Oct 1/67				
* 5	Oct 1/67				
* 6	Oct 1/67				
* 7	Oct 1/67				
* 8	Oct 1/67				
9	BLANK				
* 10	Oct 1/67				
* 11	Oct 1/67				
12	BLANK				

TABLE OF CONTENTS

Paragraph Title	Page
Description and Operation	1
Disassembly	3
Cleaning	4
Inspection/Check	4
Repair	6
Assembly	7
Fits and Clearances	7
Testing	8
Trouble Shooting	8
Storage Instructions	8
Special Tools, Fixtures, and Equipment	8
Illustrated Parts List	10
Numerical Parts List Index	NONE

AIRPLANE ATTITUDE GAGE ASSEMBLY

Boeing Part No. F70043

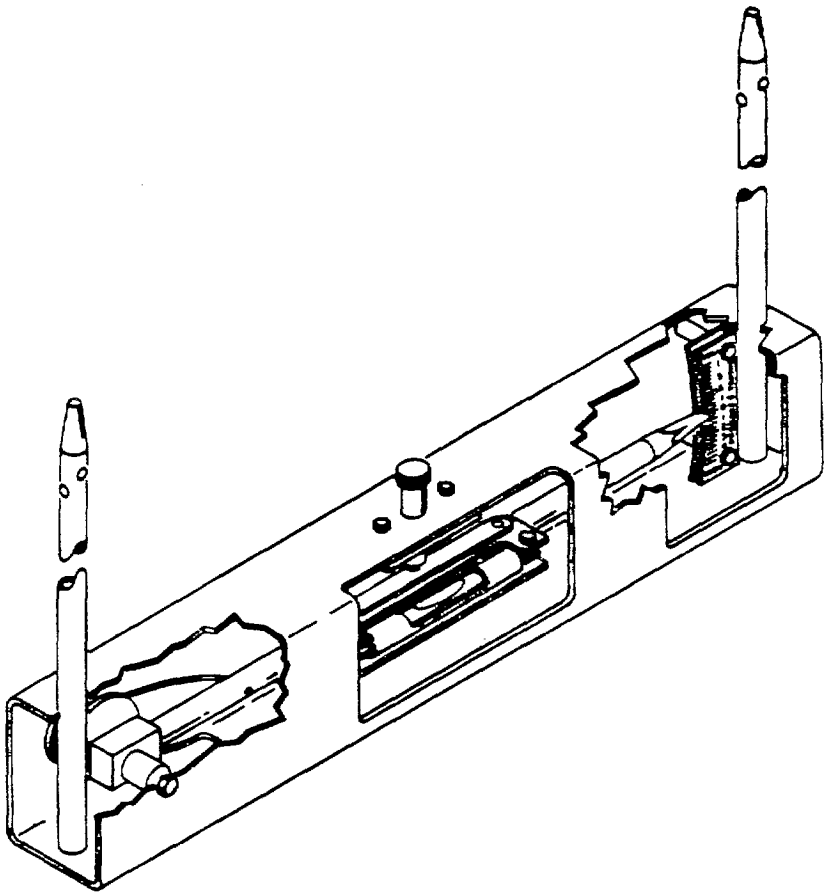


Figure 1. Airplane Attitude Gage Assembly

1. DESCRIPTION AND OPERATION

A. Description

(1) The airplane attitude gage assembly is an item of ground support equipment. The gage consists basically of a structural case, two leveling probes, and an arm with a bubble level.

B. Operation

(1) The gage is used to determine the attitude of the airplane on the ground prior to a fuel quantity check. It also may be used to determine the degree of pitch and roll. The gage is pointed either fore and aft or spanwise depending upon the measurement desired. It is positioned in such a manner that the ends of the two leveling probes contact the lower surface of the keel beam. An adjusting screw is turned until the bubble in the bubble level is properly centered. A spring bears against the arm to keep it seated against the adjusting screw. This permits the gage to be moved from the keel beam for easy reading of the angular tilt of the airplane on the scale.

2. DISASSEMBLY (See figure 3.)

A. General

(1) Remove level vial assembly (2) from tube assembly (11) by loosening nuts (1) and withdrawing bolt (3).

CAUTION: THE LEVEL VIAL (3) IS FRAGILE AND SHOULD BE PROTECTED FROM DAMAGE.

(2) Remove adjuster screw (4) to reduce the preload on spring (8).

(3) Remove block (6) from case assembly (26) by loosening two bolts (5).

(4) Loosen and remove nut (7) and withdraw bolt (14) to release spring (8), spool (9), tube assembly (11), and spacer (13) from case assembly (26).

WARNING: SPRING (8) IS STILL COMPRESSED BEFORE REMOVAL. CARE SHOULD BE TAKEN TO PREVENT SPRING FROM UNCOILING UNEXPECTEDLY.

(5) Remove two screws (15) from tube assembly (11).

(6) Remove tube assembly (11) by rotating it 90° to its normal position and withdrawing through end of case assembly (26).

(7) Remove nuts (16), spacers (17), locating plate (18), spacers (19), scale (20), and bolts (21) from case assembly (26).

B. The following items do not require disassembly unless a specific repair is necessary.

(1) Rivets (22) and nameplate (23)

(2) Bearings (10) and bushing (12)

(3) Probe tips (24) and rivets (25)

(4) Case assembly (26)

(5) Tube assembly (11)

3. CLEANING

A. General

(1) Wash all metal parts, except bearings (10), with dry cleaning solvent, Federal Specification P-D-680, or equivalent.

(2) Use a stiff bristle brush to remove stubborn accumulations of foreign matter.

(3) Drain and dry thoroughly with a lint-free cloth or with clean moisture-free air.

B. Bearings

(1) Wipe bearings (10) with a cloth dampened in cleaning solvent, Federal Specification P-D-680 or equivalent, and dry with a clean, dry, lint-free cloth. Do not allow dry cleaning solvent to enter bearings.

(2) For further information refer to "Cleaning and Relubricating Antifriction Bearings," Subject 20-30-01.

4. INSPECTION/CHECK

A. Visually check following items:

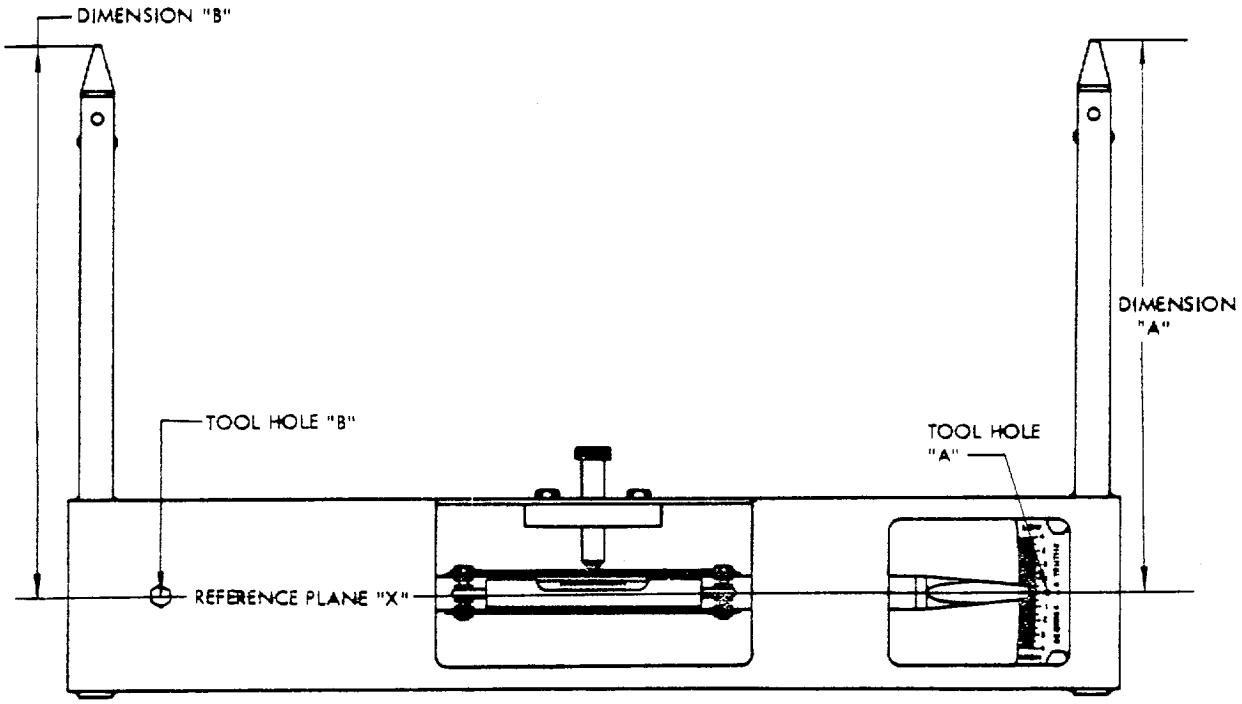
(1) All threads for cross threading and stripping

(2) All plated or painted surfaces for blisters or flaking

(3) All metal parts for cracks, burrs and corrosion

(4) Pointer on end of tube assembly (11) for distortion

B. Measure dimensions "A" and "B" shown in figure 2. Dimensions should be within ± 0.010 inch of each other.



Dimension Tolerance Diagram
Figure 2

5. REPAIR

A. Repair

(1) Chase minor thread damage with a triangular file or thread chaser.

(2) Remove minor scratches, nicks and corrosion by polishing with abrasive cloth. Refinish as required for protection against corrosion.

(3) If dimensions "A" and "B" (figure 2) are not equal to each other within ± 0.010 inch, grind probe tips as required to obtain required dimensions.

B. Refinish (See figure 3.)

NOTE: Refer to Section 20-30-02 for stripping of protective finishes and to Subject 20-41-01 for decoding of F and SRF finish symbols and their BAC equivalents. Refinish only if necessary.

(1) Plate, Locating (18) -- F-4.201 for brass; if aluminum is used, F-3.21

(2) Scale (20) -- (Same as (1) above)

(3) Screw Adjuster (4) -- F-1.191

(4) Block (6) -- F-1.191

(5) Bolt (14) -- F-4.201

(6) Spacer (13) -- F-4.201 or optional, F-2.20

(7) Spring (8) -- F-1.191

(8) Spool (9) -- F-4.201 or optional, F-2.20

(9) Tube Assembly (11) -- F-4.201

(10) Case Assembly (26) -- F-4.201 or optional, F-2.20

C. Replacement

(1) Replace all parts found unservicable or damaged beyond simple repair.

(2) If replacement of bearings (10) is required, remove old bearings (10). Press new bearings (10) in end of tube assembly (11). Apply grease, Specification MIL-G-23827 on faying surfaces prior to installation. See Subject 20-50-03, "Bearing Installation and Retention."

6. ASSEMBLY (See figure 3.)

A. Assembly Procedure

(1) Place scale (20), spacers (19), plate (18), and spacers (17) onto bolts (21), and secure to case assembly (26) using nuts (16).

(2) Slide tube assembly (11) into case assembly (26).

(3) Replace two screws (15), and rotate tube assembly (11) 90° to normal operating position.

(4) Slip bolt (14) into hole on front of case assembly (26), and through spacer (13), tube assembly (11), spool (9), and spring (8).

NOTE: When installing tube assembly (11) make sure that slot in end of pointer is engaged with scale (20). Installation of spring (8) may be facilitated by using a simple restraining clamp which will allow the spring to be compressed outside case assembly (26). When the upper end of spring (8) is inserted into the hole in tube assembly (11) and nut (7) is installed, the spring restraining clamp may be removed.

(5) Place block (6) into position and secure with two bolts (5).

(6) Add adjuster screw (5), and screw in until index mark on pointer is aligned with "zero" mark on scale (20).

(7) Position vial assembly (2) on tube assembly (11) and install bolts (3) and nuts (1).

NOTE: The two innermost nuts (1), which position vial assembly (2) should be left loose. (See paragraph 8.A., Calibration Adjustment.)

7. FITS AND CLEARANCES

None

8. TESTING

A. Calibration Adjustment

(1) Level gage within tolerance of ± 0.010 inch, using tool holes "A" and "B" or both probe tips.

(2) Adjust pointer to scale mark zero, within ± 0.010 inch, by means of adjuster screw (4).

(3) Adjust nuts (1) until bubble in level vial assembly (2) indicates level, within ± 0.010 inch.

NOTE: Following adjustment, nuts (1) shall be sealed with paint.

9. TROUBLE SHOOTING

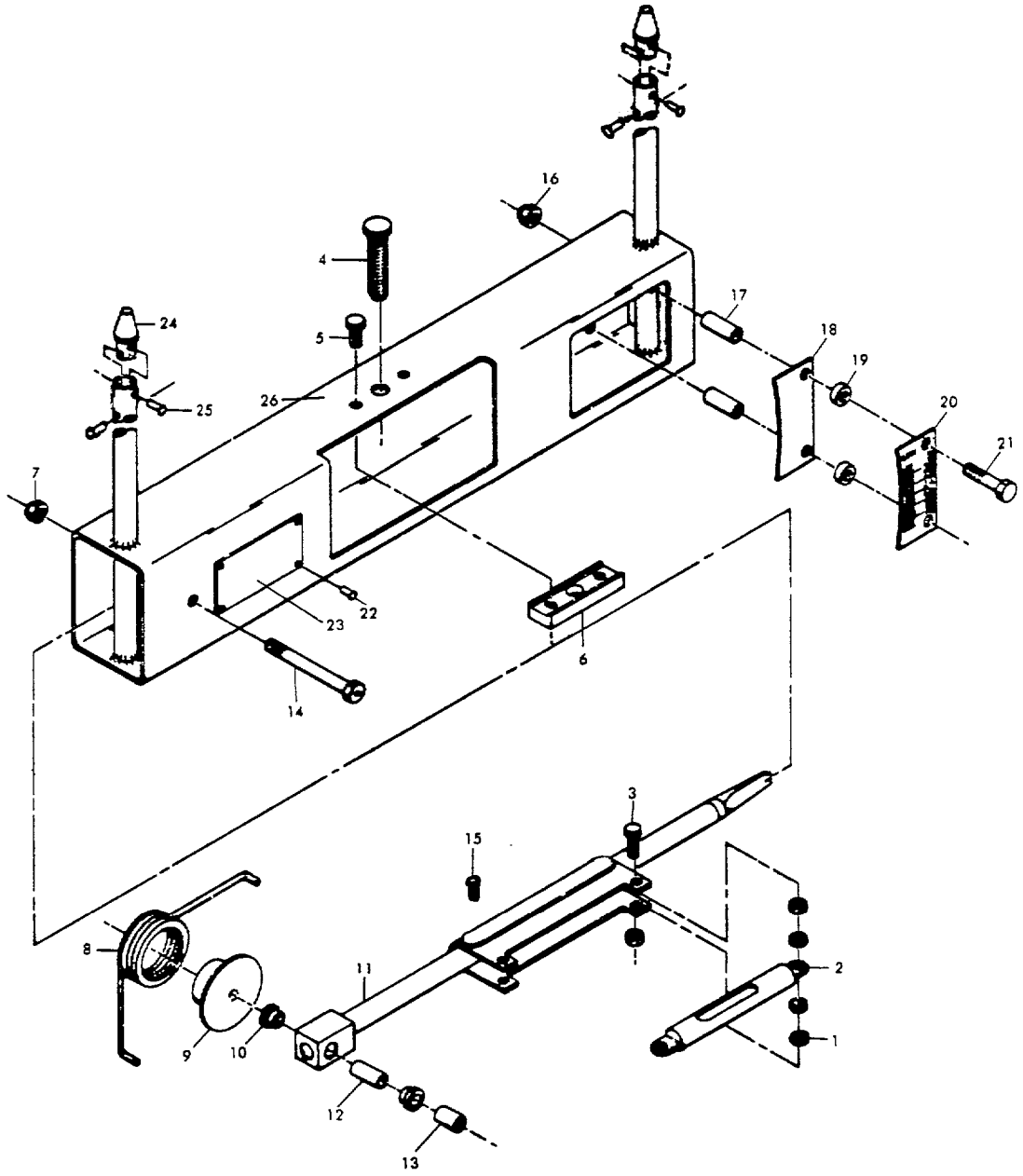
None

10. STORAGE INSTRUCTIONS

None

11. SPECIAL TOOLS, FIXTURES AND EQUIPMENT

None



Airplane Attitude Gage Assembly
Figure 3

12. Group Assembly Parts List (See figure 3.)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-	F70043		GAGE ASSY, Airplane altitude		
1	MS20582-3		. NUT		10
2	X-254		. VIAL ASSY, Level, V76883		1
3	NAS563-31		. BOLT		2
4	F70043-17		. SCREW ADJUSTER		1
5	AN4-4A		. BOLT		2
6	F70043-16		. BLOCK		1
7	AN364-428		. NUT		1
8	F70043-18		. SPRING		1
9	F70043-19		. SPOOL		1
10	CF441C-0438		. BEARING, V71129		2
11	F70043-5		. TUBE ASSY (Brazed)		1
12	NAS72-4-100		. BUSHING		1
13	F70043-20		. SPACER		1
14	F70043-22		. BOLT		1
15	AN504-6R6		. SCREW		2
16	AN364-428		. NUT		2
17	NAS43-4-80		. SPACER		2
18	F70043-15		. PLATE, Locating		1
19	NAS43-4-8		. SPACER		2
20	F70043-14		. SCALE		1
21	AN4-17A		. BOLT		2
22	AN470A2-4		. RIVET		4
23	F70043-21		. NAMEPLATE		1
24	F70043-8		. TIP		2
25	MS20470B4		. RIVET		4
26	F70043-1		. CASE ASSY (Welded)		1

VENDOR CODE

Code	Name and Address
V71129	Bound Brook Bearing Co. of America Bound Brook, N.J.
V76883	Ohio Thermometer Co. Springfield, Ohio