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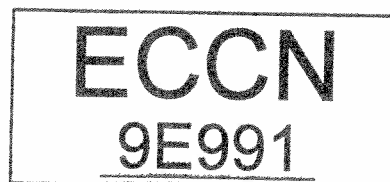
INSTRUCTIONS
for
CONTINUED AIRWORTHINESS
for
Pc SAFETY VALVE™ KITS
P/N 250-956 SERIES
for

Rolls-Royce Allison 250-C28 and 250-C30 Series Engines

Report No. AA-99066

Revision A

November 1, 2001



LOG OF REVISIONS

REV.	DATE	DESCRIPTION	EFFECTED PAGES
-	7/19/99	Original Release.	All
A	11/1/01	Added step 1 to section 7.1.1	9
		Revised step 5 in section 7.2.1.	11
		Added Note after step 5 in section 7.2.1.	11
		Added step 6 in section 7.2.1.	11
		Added steps 7, 8, 9, 10, 11 to section 7.2.1.	11, 12
		Revised step 5 in section 7.2.2.	13
		Added Note after step 5 in section 7.2.2.	13
		Added step 6 in section 7.2.2.	13
		Added item 11 – CLAMP KIT.	16
		Added Table 4.	16
		Added Figure 7.	24
		Added Figure 8.	25

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LIST OF REVISIONS Initial Release (IR) July 19,1999
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These Instructions for Continued Airworthiness (ICA), except for the Airworthiness Limitation Section, have been reviewed and found to comply with the applicable requirements of Appendix A to the Federal Aviation Regulations Part 33

FAA Acceptance Manuel F. Lopez Date 11/29/01
Fort Worth Aircraft Evaluation Group

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1.0 INTRODUCTION

These instructions contain the information necessary to inspect and maintain the **AERONAUTICAL ACCESSORIES, INC. PC SAFETY VALVE™ KIT** on Rolls-Royce Allison 250-C28 & 250-C30 Series Engines.

1.1 DISTRIBUTION

These instructions are provided to all current **PC SAFETY VALVE™ KIT** owners and provided with each kit sold. Any airworthiness or flight safety revisions will be immediately sent to all affected **PC SAFETY VALVE™ KIT** owners.

2.0 DESCRIPTION

The **AERONAUTICAL ACCESSORIES, INC. PC SAFETY VALVE™ KIT** provides a safe means of isolating the engine fuel control system Pc sense line during required rinses and engine compressor wash operations. The previous compressor wash procedure required the removal and "capping-off" of the Pc sense line to prevent water, washing-solvents and other contaminants from entering the fuel control system. The Pc Safety Valve™/Bracket has been in service for thousands of flight hours. During that time, the Valve/Bracket has been monitored to determine if any product improvements should be considered for production incorporation. Table 1 provides a summary of the Pc Safety Valve™/Bracket design improvements to date.

TABLE 1: Pc SAFETY VALVE™/BRACKET DESIGN IMPROVEMENTS

VALVE/BRACKET P/N	IMPROVEMENT
250-958-103	Original Valve/Bracket.
250-958-203	Incorporated Safety Clip & Coated Stem.
250-958-203M	Incorporated Vespel® Stem, Vespel® Knob, and cup style seals. Deleted Body Cap and Screws.
250-958-207	New production Body without Cap & Screws.
250-958-257	New material Bracket.

3.0 CONTROL, OPERATION INFORMATION

The Pc Safety Valve™ is to be used solely for the purpose of performing engine compressor rinse and wash operations. The basic compressor rinse and wash procedures in the Rolls-Royce Allison Operation and Maintenance Manual are to be accomplished as described therein, with the exception of the Pc sense line removal procedures. Pc Safety Valve™ operating procedures to be used during the compressor rinse and wash operation are defined below:

CAUTION

The Pc Safety Valves™ are designed for hand operation only. Do not use tools to rotate the knob.

1. Release the Safety Clip from the indicated port of the Pc Safety Valve™ prior to rotation of the Knob.
2. Position the Pc Safety Valve™ to the "closed" position. The "open/closed" positions of the Pc Safety Valve™ are shown for reference in Figure 4.
3. Perform compressor rinse and wash in accordance with the instructions defined in the Rolls-Royce Allison Operation and Maintenance Manual.
4. Return the Pc Safety Valve™ to the "open" position.
5. After completion of the compressor rinse or wash operation, and prior to attempting to start the engine, secure the Pc Safety Valve™ Knob in the "open" position and lock the Safety Clip.

WARNING

Ensure that the Pc Safety Valve™ knob is in the open position and the Safety Clip is locked prior to engine start per Figures 4 through 6.

4.0 SERVICING INFORMATION

N/A

5.0 MAINTENANCE INSTRUCTIONS

5.1 GENERAL PROCEDURE

If any connecting lines are loosened or removed, a leak check must be performed. Run the engine at idle and check each fitting for leaks with Snoop liquid leak detector or equivalent.

5.2 100HR INSPECTION

The 100HR inspection consists of the following items:

NOTE

If any damage or malfunction is noted during the 100HR inspection, refer to Section 6.0 Troubleshooting Information.

1. Check the Pc Safety Valve™ Knob for security and force required to rotate. If the knob is loose or difficult to rotate (cannot be actuated by hand), return the Pc Safety Valve™/Bracket to Aeronautical Accessories Inc. for repair/overhaul.

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2. Inspect all connecting lines to the Pc Safety Valve™ for chafing, dents (not to exceed .125 in. depth or having sharp radius), or cracking (none allowed), replace if damaged beyond limits.
3. Check for the proper torque on each Pc line B-nut (80-120 in-lbs).

CAUTION

Lines should be tightened only when the proper free state alignment of lines is obtained.

4. Examine the Decals and the Flow Tape on the connecting lines for discoloration or cracking. Replace any Decal or Flow Tape that is not legible.
5. Inspect the Safety Clip and the Valve contact surfaces for wear (not to exceed .005). Report any anomalies to Aeronautical Accessories Inc. (Phone 423-538-5151). Ensure the Pc Safety Valve™ Knob is Safety Clipped in the open position per Figures 4 through 6.
6. Inspect the Bracket Assembly for cracks in the Bracket or welds (none allowed). Check the safety wire on the Valve to Bracket attaching Nut and the torque on the Pc Filter Retaining Clamp Bolt (30-40 in-lbs).

5.3 ANNUAL INSPECTION

Airworthiness of the **PC SAFETY VALVE™ KIT** will be assured by completion of the 100HR inspection presented above during the Annual Inspection of the aircraft.

5.4 REPAIR

CAUTION

NO DISASSEMBLY OF THE Pc SAFETY VALVE™ IS PERMITTED. IF THE Pc SAFETY VALVE™ SHOULD REQUIRE MAINTENANCE, RETURN TO AERONAUTICAL ACCESSORIES, INC.

5.5 CLEANING REQUIREMENTS

N/A

5.6 ADJUSTMENTS

N/A

6.0 TROUBLESHOOTING INFORMATION

In the event that the Pc Safety Valve™ is inadvertently left in the "closed" or partially closed position (a valve knob angle of approximately 45 degrees will close the sense line), the following operational abnormality may occur:

Pc Safety Valve™ Closed

Operational Abnormality

Fuel Control/Governor

- Engine will "Hang" during start cycle.

TABLE 2: Pc SAFETY VALVE™ TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
Valve leaks.	Stem is worn or damaged.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
	Seals are worn or damaged.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
Knob is difficult to rotate (cannot be actuated by hand)	Seals are damaged or deteriorated.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
Knob is loose	Knob roll pin is worn or damaged.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
	Knob to Stem mounting hole is worn or elongated.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
	Stem is worn.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
Excessive Knob rotation.	Stem stop pin is damaged.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
	Knob roll pin is worn or damaged.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.
	Knob to Stem mounting hole is worn or elongated.	Return Valve to Aeronautical Accessories, Inc. for repair/overhaul.

7.0 REMOVAL AND REPLACEMENT INFORMATION

7.1 REMOVAL - Pc SAFETY VALVE™ KIT

(Refer to Figures 1 through 6 for part orientation and identification.)

7.1.1 250-C28 and 250-C30 Series Engines (Except C30R)

1. Remove the compressor discharge duct clamp (MS21919WCJ33).
2. Remove the Sense Line Assembly (250-957-103) from the Pc filter to the Pc Safety Valve™ Assembly.

3. Remove the Sense Line Assembly (250-957-105) from the compressor scroll to the Pc Safety Valve™ Assembly.
4. Remove the Pc filter clamp (MS9825-20) from the Pc Safety Valve/Bracket Assembly (250-958-XXX).
5. Remove the Pc Safety Valve/Bracket Assembly (250-958-XXX) and replace with the Pc filter bracket (23004224).
6. Install the Pc filter clamp (MS9825-20) onto the Pc filter bracket (23004224) as removed in step 3.
7. Install the Pc sense line from the compressor scroll to the Pc filter per applicable Rolls-Royce Allison Operation and Maintenance Manual instructions.
8. Remove the Pc Safety Valve™ Warning Label.

7.1.2 250-C30R Engines

1. Remove the Sense Line Assembly (250-957-107) from the union to the Pc filter.
2. Remove the Sense Line Assembly (250-957-103) from the Pc filter to the Pc Safety Valve™ Assembly.
3. Remove the Sense Line Assembly (250-957-105) from the compressor scroll to the Pc Safety Valve™ Assembly.
4. Remove the Pc filter and clamp (MS9825-20) from the Pc Safety Valve/Bracket Assembly (250-958-XXX).
5. Remove the Pc Safety Valve/Bracket Assembly (250-958-XXX) from the oil filter housing.
6. Install the Pc filter and clamp (MS9825-20) onto the oil filter housing.
7. Install the Pc sense line from the output side of the Pc filter to the union and the Pc sense line from the compressor scroll to the Pc filter per applicable Rolls-Royce Allison Operation and Maintenance Manual instructions.
8. Remove the Pc Safety Valve™ Warning Label.

7.2 INSTALLATION - Pc SAFETY VALVE™ KIT

(Refer to Figures 1 through 6 for part orientation and identification.)

7.2.1 250-C28 and 250-C30 Series Engines (Except C30R)

1. Remove the Pc sense line from the compressor scroll to the Pc filter per the applicable Allison Operation and Maintenance Manual instructions.
2. Remove the Pc filter clamp (MS9825-20) from the Pc filter bracket (23004224).
3. Remove the Pc filter bracket (23004224) and replace with the Pc SafetyValve/Bracket Assembly (250-958-XXX) using washers (NAS1149C0332R) and nuts (MS21043-3).

NOTE

Retain washers at the three stud locations under the Pc filter bracket (23004224). Refer to Figure 3.

4. Install the Pc filter clamp (MS9825-20) onto the Pc Safety Valve/Bracket Assembly (250-958-XXX) as removed in step 2 using the bolt (AN3C4A) and washer (NAS1149C0332R). Torque the bolt to 30-40 in-lbs.
5. Install the Pc Sense Line Assembly (250-957-105) from the compressor scroll to the Pc Safety Valve™ Assembly. Orientate per the following:

All engines **with** an increased thickness compressor scroll.

Attach the shorter end of Sense Line Assembly (250-957-105) to the compressor scroll.

All engines **without** an increased thickness compressor scroll.

Attach the longer end of Sense Line Assembly (250-957-105) to the compressor scroll.

NOTE

Refer to Rolls-Royce Allison CEB 72-3250 for information pertaining to the increased thickness scroll compressor.

6. Assure proper alignment of Pc Sense Line to Pc Safety Valve™ by hand tightening Pc line B-nuts up to final one half turn. Secure the Pc line by torquing nuts to 80 to 120 inch pounds.
7. If an air induction screen is present, remove attaching bolt (AN3-3A) from the air induction screen and retain washer. Refer to Figure 7, items 1 and 2.
8. Position clamp (MS21919WCJ33) around the compressor discharge duct and attach to air induction screen nut plate using bolt (AN3-5A) provided and the washer retained in step 7. Refer to Figure 8. Do not tighten bolt (AN3-5A) at this time.

9. If an air induction screen is not present, use same hole with nut (MS21042-3) provided to secure clamp.
10. Adjust the compressor discharge duct and clamp (MS21919WCJ33) as necessary so that the compressor discharge duct arches over Pc Sense Line Assembly (250-957-105) without touching it. Refer to Figure 8.
11. Torque bolt (AN3-5A) provided 20-25 in-lbs.
12. Ensure that there is proper clearance between the Pc lines, cowling and the compressor discharge duct. Position as required.
13. Wrap 2" of Flow Tape (250-953-003) around the Pc sense line (250-957-103), with the arrows pointing up as shown in Figure 1. Pinch the ends of the tape together and trim to approximately 1/4".

CAUTION

Ensure that the Pc Safety Valve™ knob operates properly and is clear of obstructions.

WARNING

Ensure that the Pc Safety Valve™ Knob is in the open position and the Safety Clip is locked prior to engine start per Figures 4 through 6.

14. Install the self adhering warning label (250-953-006) on access door or bulkhead in close proximity to Pc Safety Valve™ location. Surface area should be cleaned prior to attaching label.

7.2.2 250-C30R Engines

1. Remove and discard the compressor discharge duct. Remove the Pc sense line from the output side of the Pc filter to the union. Remove the Pc sense line from the compressor scroll to the input side of the Pc filter.

NOTE

Do not remove L-brackets. Retain line clamps.

2. Remove the Pc filter and the clamp (MS9825-20) from the oil filter housing.
3. Attach the Pc Safety Valve/Bracket Assembly (250-958-XXX) using washers (NAS1149C0332R) and nuts (MS21043-3).
4. Install the Pc filter and clamp (MS9825-20) onto the Pc Safety Valve/Bracket Assembly using the bolt (AN3C4A) and washer (NAS1149C0332R). Torque bolt to 30-40 in-lbs.

5. Refer to Figure 2 and install the Pc Sense Line Assembly (250-957-105) from the compressor scroll to the Pc Safety Valve™ Assembly. Orientate per the following:

All engines **with** an increased thickness compressor scroll.

Attach the shorter end of Sense Line Assembly (250-957-105) to the compressor scroll.

All engines **without** an increased thickness compressor scroll.

Attach the longer end of Sense Line Assembly (250-957-105) to the compressor scroll.

NOTE

Refer to Rolls-Royce Allison CEB 72-3250 for information pertaining to the increased thickness scroll compressor.

6. Assure proper alignment of the Pc Sense Line to the Pc Safety Valve™ by hand tightening the Pc line B-nuts up to one half turn. Secure the Pc line by torquing the B-nuts 80 to 120 in-lbs.
7. Refer to Figure 2 and install the Sense Line Assembly (250-957-105) from the compressor fitting to the Pc Safety Valve™ Assembly. Assure proper alignment of the Pc Sense Line to the Pc Safety Valve™ by hand tightening the Pc line B-nuts up to one half turn. Secure the Pc line by torquing the B-nuts 80 to 120 in-lbs.

NOTE

If the Pc line does not align with the Pc Safety Valve™ Assembly, a washer can be placed under each of three mounting points for the Pc Safety Valve™ Assembly (See Figures 1 and 3).

8. Refer to Figure 2 and install the Pc Sense Line Assembly (250-957-107) from the union to the Pc filter. Assure proper alignment of the Pc Sense Line to the Pc Safety Valve™ by hand tightening the Pc line B-nuts up to one half turn. Secure the Pc line by torquing the B-nuts 80 to 120 in-lbs. Clamp the line in place using the existing L-brackets and line clamps.

NOTE

Route the new Sense Line Assembly (250-957-107) between the compressor discharge tube and the gearbox as depicted in Figure 2.

9. Make a final check of the torque on all fittings.
10. Wrap 2" of Flow Tape (250-953-003) around the Pc Sense Line (250-957-103), with the arrows pointing up as shown in Figure 1. Pinch the ends of the tape together and trim to approximately 1/4".

CAUTION

Ensure that the Pc Safety Valve™ knob operates properly and is clear of any obstructions.

WARNING

Ensure that the Pc Safety Valve™ Knob is in the open position and the Safety Clip is locked prior to engine start per Figures 4 through 6.

11. Install the new compressor discharge duct (250-956-001) ensuring there is no contact with the Pc lines or cowling.
12. Check the clearances between the cowlings, sense lines and the compressor discharge duct.
13. Install the self adhering Pc Safety Valve™ Warning Label (250-953-006) on the access door or bulkhead in close proximity to the Pc Safety Valve™. The surface area should be cleaned prior to attaching the label.

8.0 DIAGRAMS OF ACCESS PLATES AND INFORMATION

N/A

9.0 SPECIAL INSPECTION REQUIREMENTS

N/A

10.0 APPLICATION OF PROTECTIVE TREATMENTS

N/A

11.0 STRUCTURAL FASTENER DATA

N/A

12.0 SPECIAL TOOLS NEEDED

A torque wrench is required for checking torque values.

13.0 COMMUTER CATEGORY AIRCRAFT

N/A

14.0 RECOMMENDED OVERHAUL PERIODS

At 3500 hours of service the Pc Safety Valve™/Bracket must be returned to Aeronautical Accessories Inc. for overhaul. Aeronautical Accessories Inc. will maintain an exchange pool to allow continued operation. Valves/Brackets not previously tracked for time toward overhaul should be assigned a usage rate of 500 hours per year of operation. Component Cards as shown in Figure 5 have

been provided with each Pc Safety Valve™ Kit sold beginning with the P/N 250-958-207 Valves/Brackets. Additional Component Cards are being furnished with the initial distribution of this ICA for use with Valves/Brackets not previously tracked. Refer to Figures 8 and 9 for additional information on usage rate calculation and Component Card use.

NOTE

Component Cards are to be returned with the Pc Safety Valves™/Brackets when the Valves/Brackets are returned for overhaul/repair.

NOTE

Upon initial calculation of time toward overhaul for Pc Safety Valves™/Brackets not previously tracked; if a Valve/Bracket is determined to be over 3500 hours, the Valve/Bracket should be returned for overhaul within the next 100 hours of operation.

15.0 AIRWORTHINESS LIMITATIONS

No airworthiness limitations associated with this type design change.

16.0 REVISION

A Log Of Revision section is included in these instructions and will be utilized to document all changes. Change recommendations should be submitted to:

AERONAUTICAL ACCESSORIES INC.
P.O. Box 3689
Bristol, TN 37625-3689

17.0 PARTS BREAKDOWN

Table 3 contains a Parts Breakdown for the Pc SAFETY VALVE™ KIT, as illustrated in Figures 1 and 2.

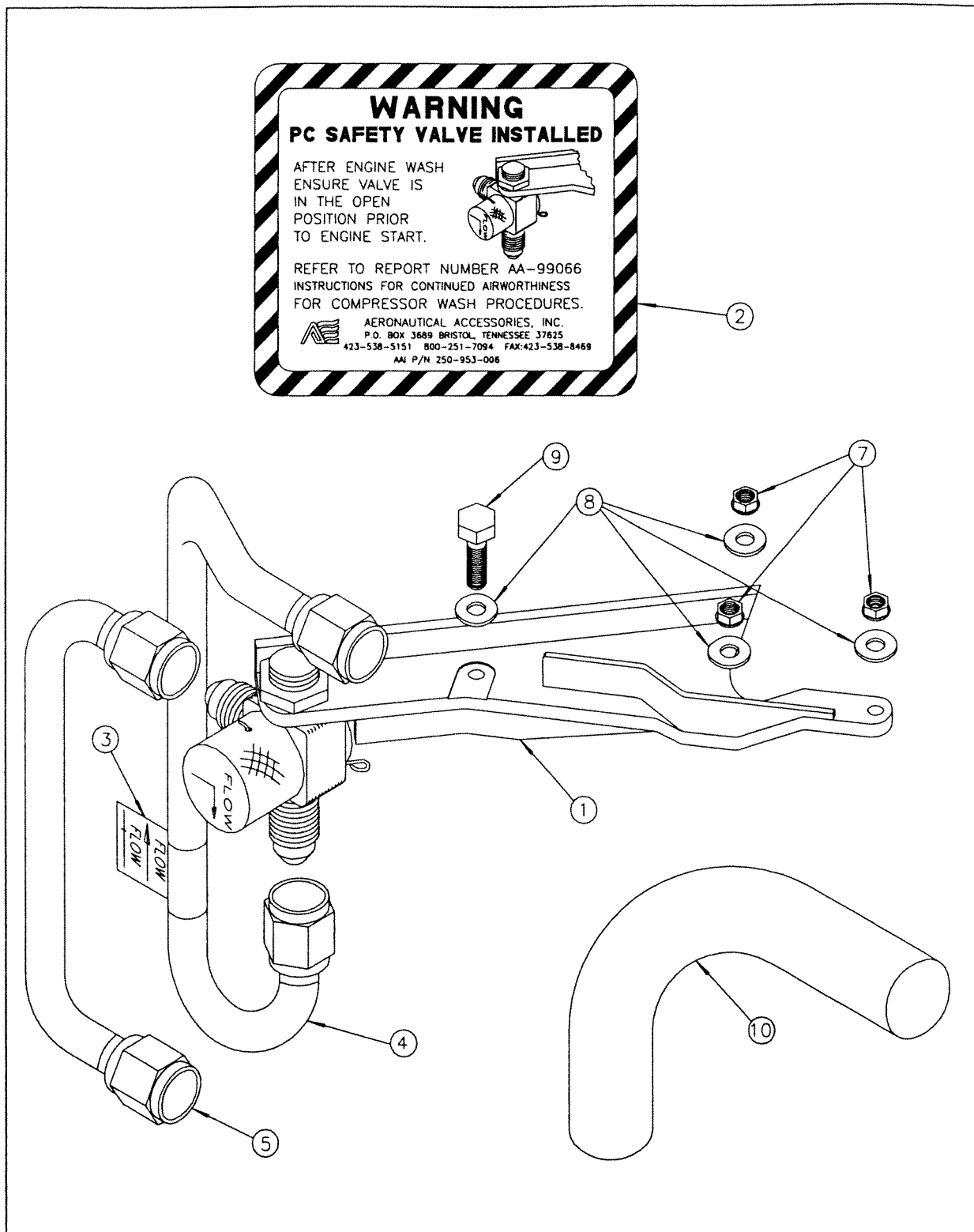
TABLE 3: Pc SAFETY VALVE™ KIT PARTS BREAKDOWN

INDEX NUMBER	QTY	PART NUMBER	ITEM NAME
1	1	250-958-257	Pc SAFETY VALVE™/BRACKET
2	1	250-953-006	Pc SAFETY VALVE™ WARNING LABEL
3	4"	250-953-003	FLOW TAPE
4	1	250-957-103	SENSE LINE ASSY.
5	1	250-957-105	SENSE LINE ASSY.
6	1	250-957-107	SENSE LINE ASSY. (FOR 250-C30R KITS ONLY)
7	3	MS21043-3	NUT
8	4	NAS1149C0332R	WASHER (7 WITH 250-C30R KITS)
9	1	AN3C4A	BOLT
10	1	250-956-001	COMPRESSOR DISCHARGE DUCT, 2" DIAMETER (FOR 250-C30R KITS ONLY)
11	1	250-956-200	CLAMP KIT

TABLE 4: 250-956-200 CLAMP KIT PARTS BREAKDOWN

QTY	PART NUMBER	ITEM NAME
1	MS21919WCJ33	CLAMP
1	AN3-5A	SCREW
1	MS21042-3	NUT

NOTE: Refer to Table 1 to cross reference current Valve/Bracket P/N to previous Valve/Bracket P/N's.



Note: Component part numbers shown in Table 3.

FIGURE 1
Pc SAFETY VALVE™ KIT

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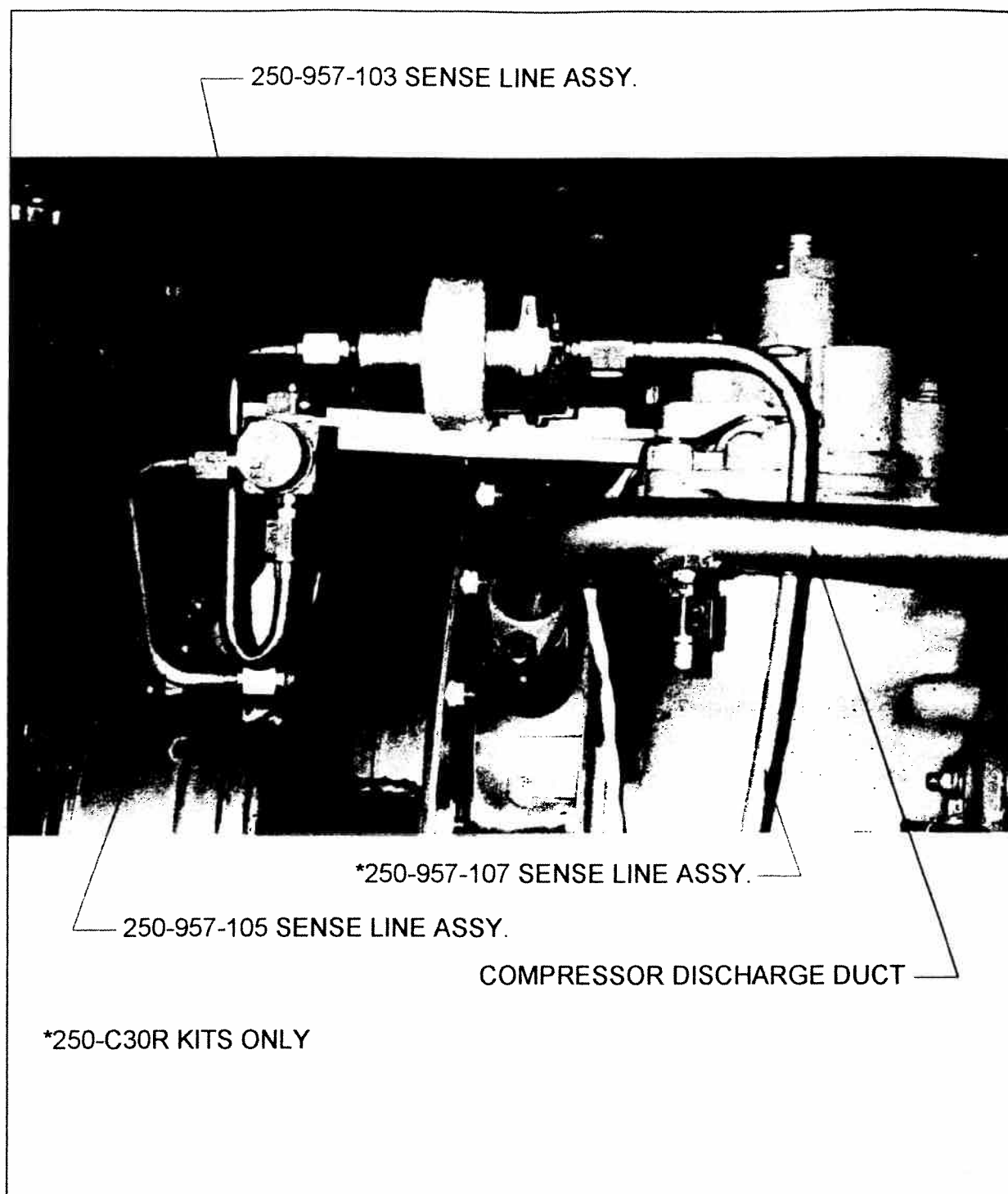


FIGURE 2
Pc SAFETY VALVE™ KIT

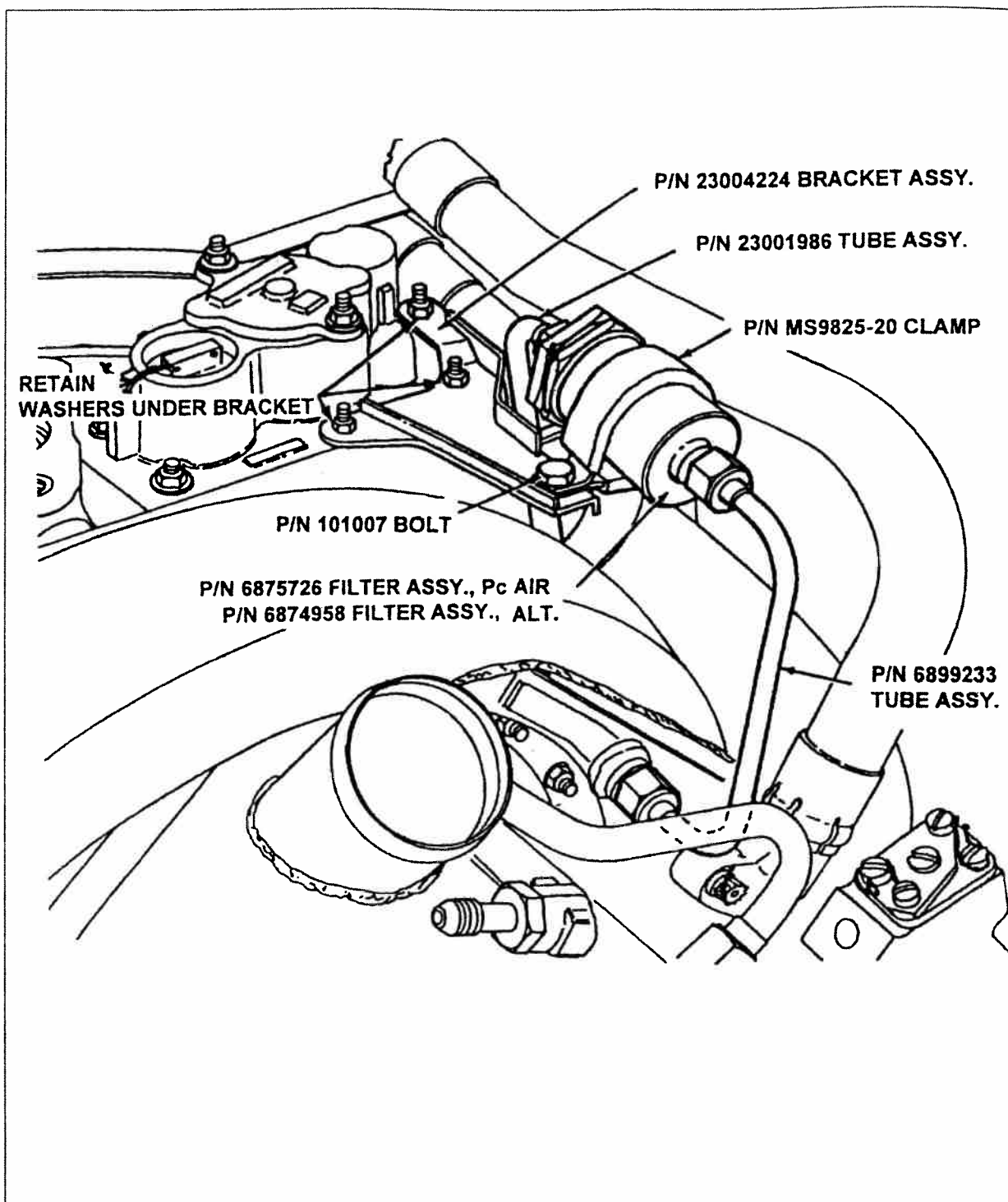


FIGURE 3
Pc FILTER AND BRACKET

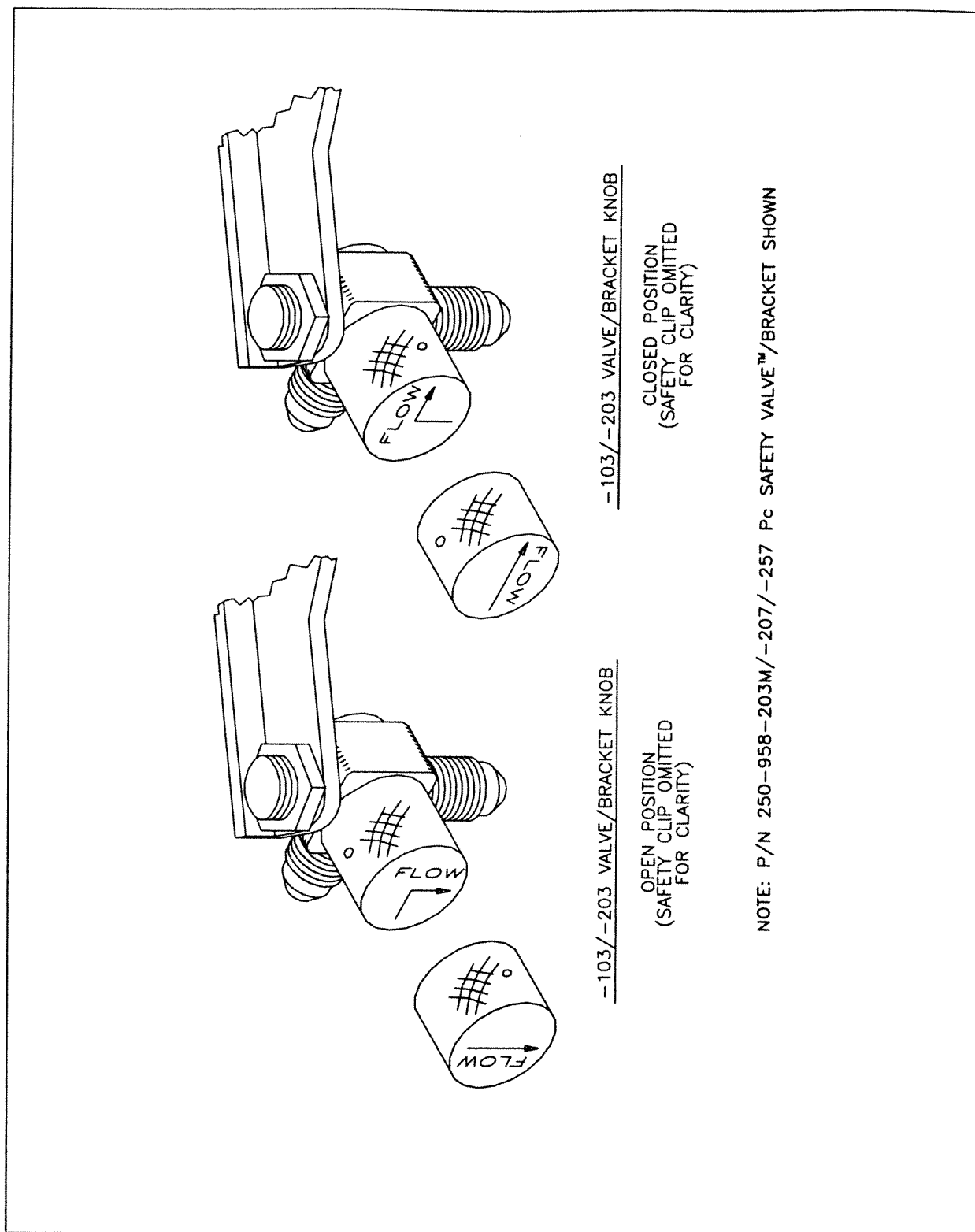


FIGURE 4
Pc SAFETY VALVE™ OPEN/CLOSED POSITIONS

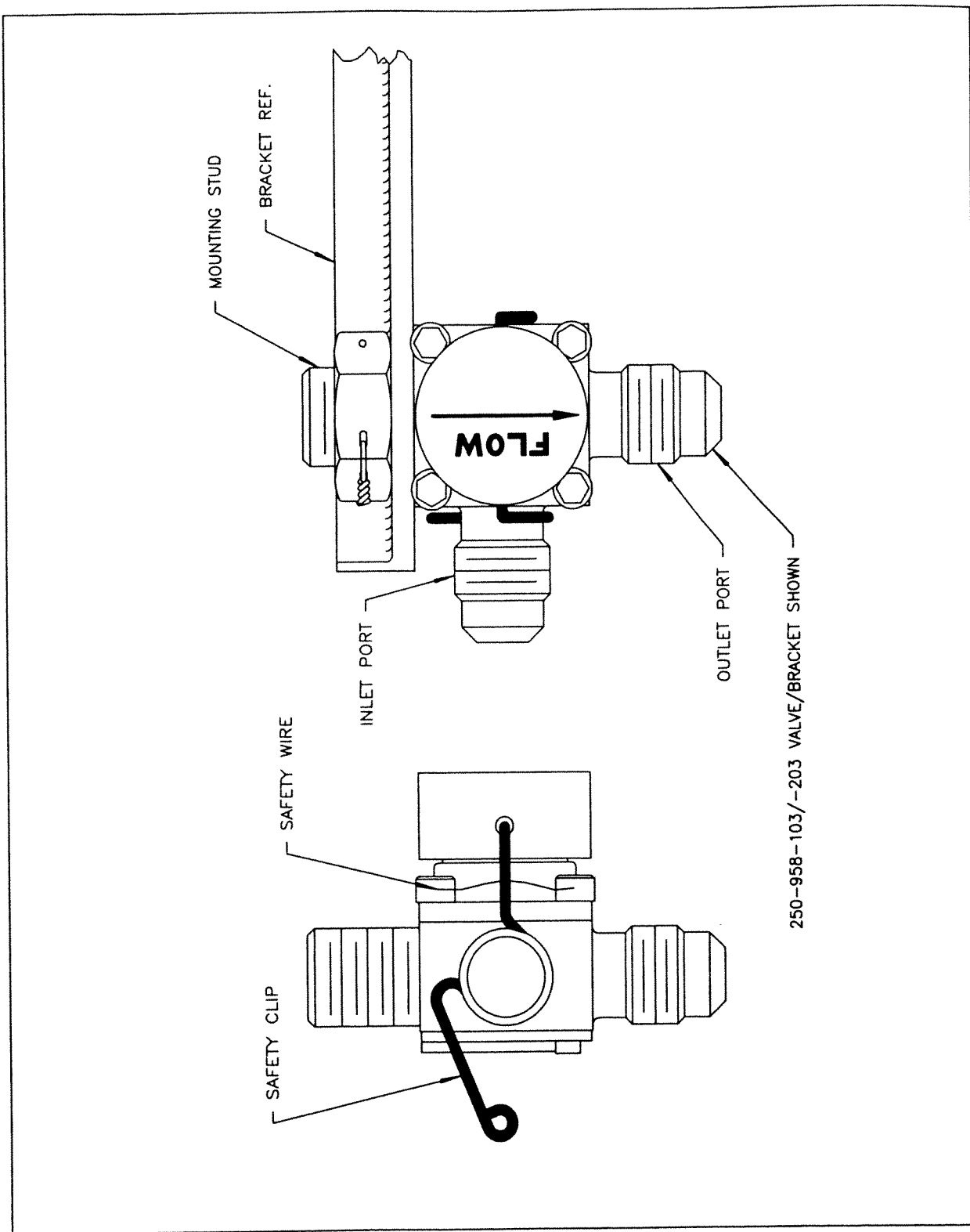


FIGURE 5
Pc SAFETY VALVE™

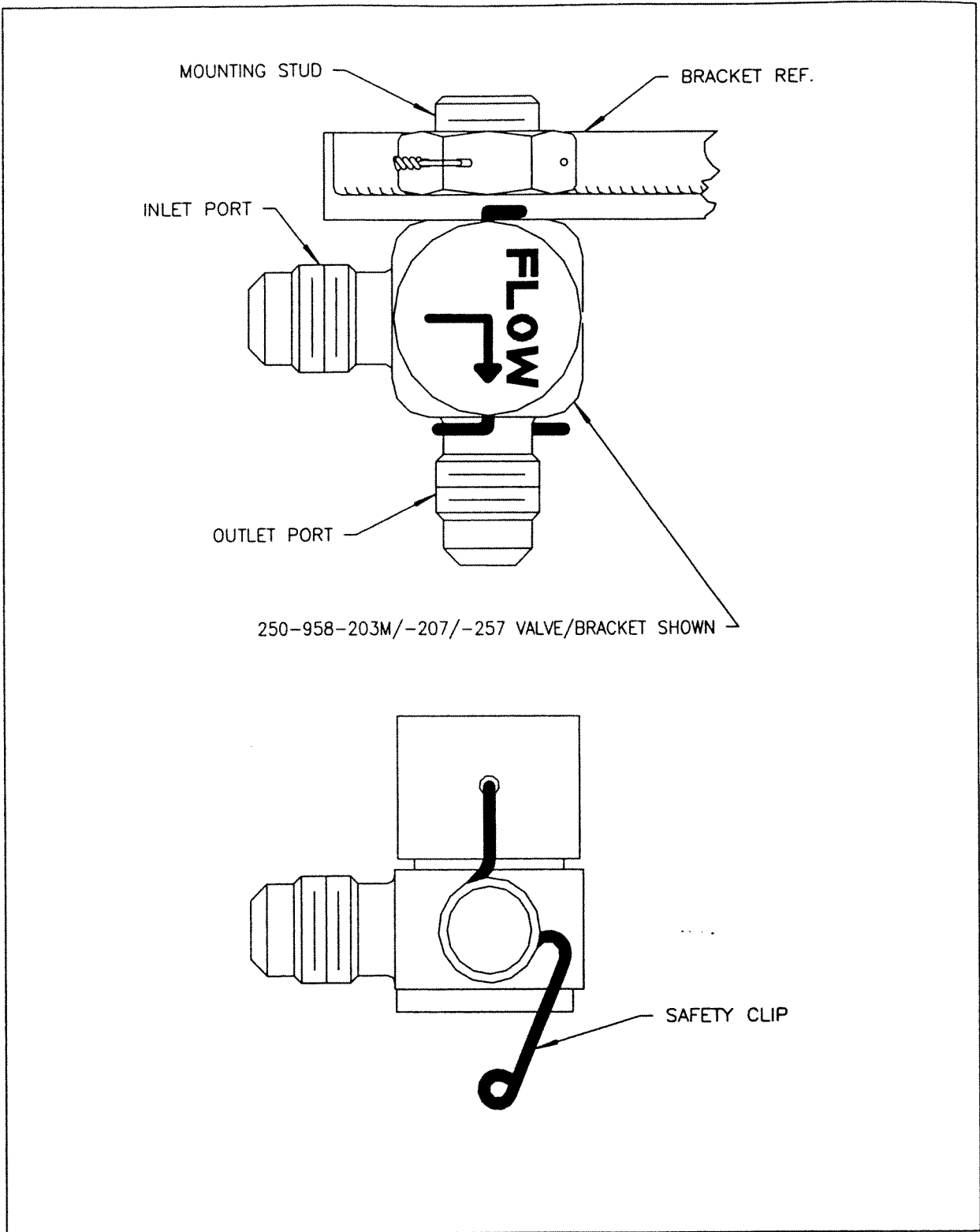


FIGURE 6
Pc SAFETY VALVE™

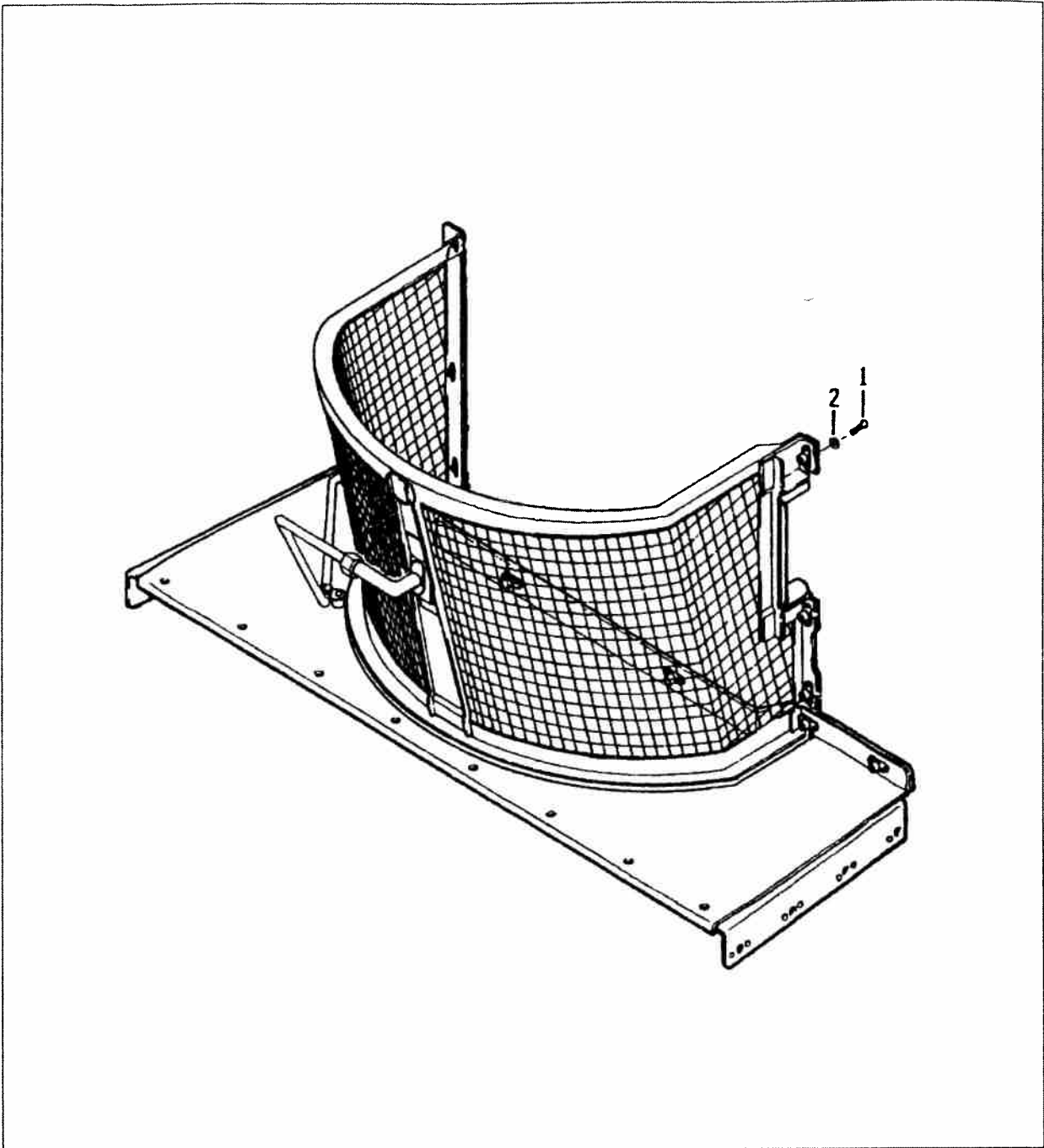
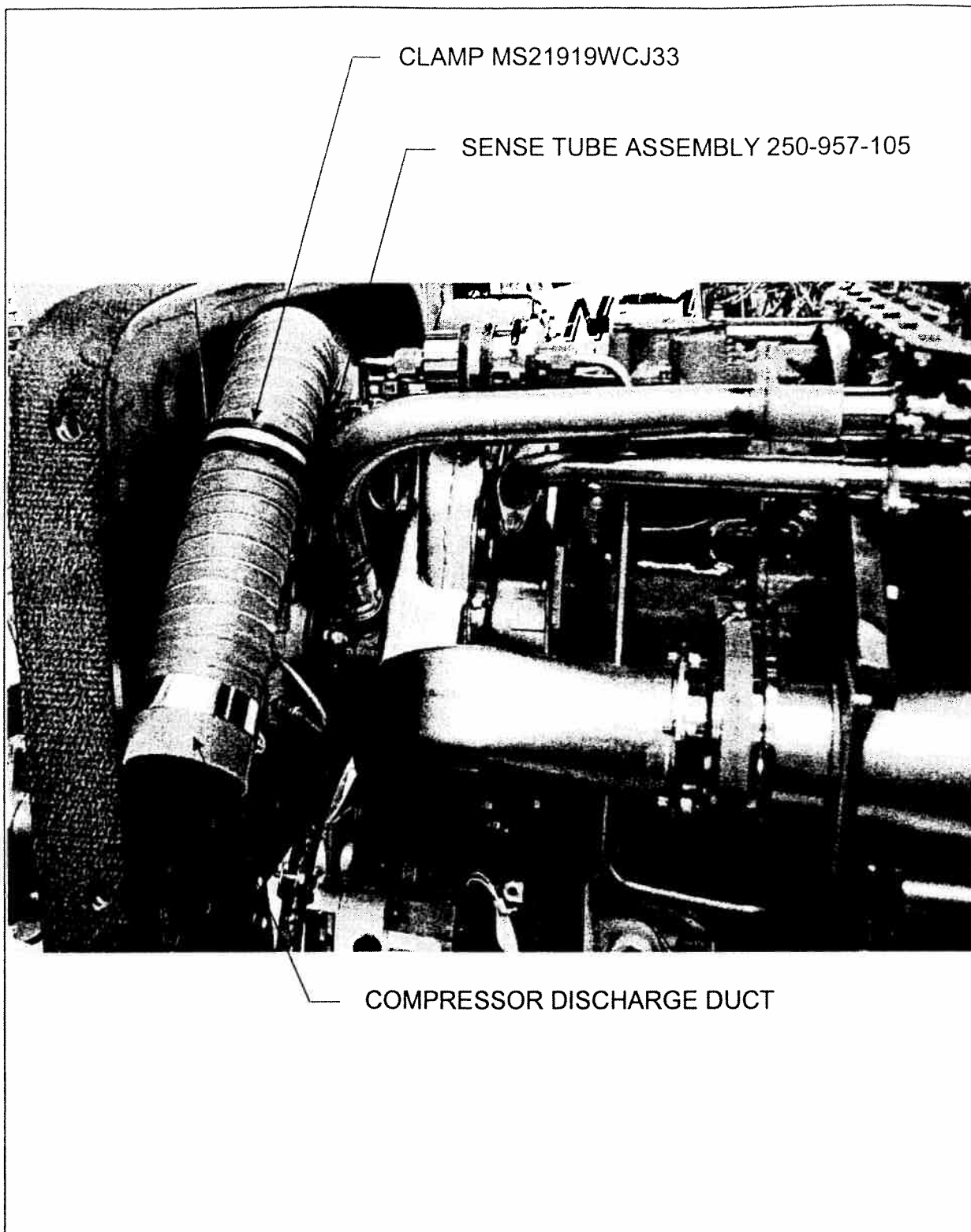


FIGURE 7
AIR INDUCTION SCREEN



**FIGURE 8
CLAMP INSTALLATION**

FIGURE 9 COMPONENT CARD

Valves not previously tracked for time toward overhaul should be assigned a usage rate of 500 hours per year of operation. The 500 hours per year may be pro-rated. For example, a valve in operation for 2 years and six months would be assigned a time to overhaul of $500 \times 2 + 500/2 = 1250$ hours.

NOTE
Component Cards are to be returned with the Pc Safety Valves™/Bracket when the Valves/Brackets are returned for overhaul/repair.

[illegible]

**FIGURE 10
COMPONENT CARD**

The Transfer Record portion of the Component Card is used to document all transfer actions and component hours. Upon transfer, the appropriate Pc Safety Valve™/Brackets shipping and receiving information shall be recorded in the corresponding blocks of the Transfer Record.

APPENDIX – A

Annual/100 Hour Inspection Record

Work Order Number: _____
Registration Number: _____
Serial Number: _____
Total Time: _____
Date: _____

Inspect the Pc SAFETY VALVE™ KIT for the following in accordance with Section 5.2: 100HR INSPECTION.

- _____ 1. Check the Pc Safety Valve™ Knob for security and force required to rotate. If the knob is loose or difficult to rotate (cannot be actuated by hand), return the Pc Safety Valve™ to Aeronautical Accessories Inc. for repair/overhaul.
- _____ 2. Inspect all connecting lines to the Pc Safety Valves™ for chafing, dents (not to exceed .125 in. depth or having sharp radius), or cracking (none allowed), replace if damaged beyond limits.
- _____ 3. Check for the proper torque on each Pc line B-nut (80-120 in-lbs).

CAUTION

Lines should be tightened only when the proper free state alignment of lines is obtained.

- _____ 4. Examine the Decals and the Flow Tape on the connecting lines for discoloration or cracking. Replace any Decal or Flow Tape that is not legible.
- _____ 5. Inspect the Safety Clips and the Valve contact surfaces for wear (not to exceed .005). Report any anomalies to Aeronautical Accessories Inc. (Phone 423-538-5151). Ensure the Pc Safety Valve™ Knob is Safety Clipped in the open position per Figures 4 through 6.
- _____ 6. Inspect the Bracket Assembly for cracks in the Bracket or welds (none allowed). Check the safety wire on the Valve to Bracket attaching Nut and the torque on the Pc Filter Retaining Clamp Bolt (30-40 in-lbs).

Signature _____ A & P No. _____

Signature _____ Inspector