

PIPER AIRCRAFT CORPORATION  
PA-38-112, TOMAHAWK  
MAINTENANCE MANUAL

CHAPTER 78 - EXHAUST

TABLE OF CONTENTS

| <u>SUBJECT</u>      | <u>SECTION</u> | <u>PAGE</u> |
|---------------------|----------------|-------------|
| <u>GENERAL</u>      | 78-00-00       | 1           |
| Exhaust System      |                | 1           |
| 100 Hour Inspection |                | 1           |

PIPER AIRCRAFT CORPORATION  
PA-38-112, TOMAHAWK  
MAINTENANCE MANUAL

THIS PAGE INTENTIONALLY BLANK

PIPER AIRCRAFT CORPORATION  
PA-38-112, TOMAHAWK  
MAINTENANCE MANUAL

GENERAL

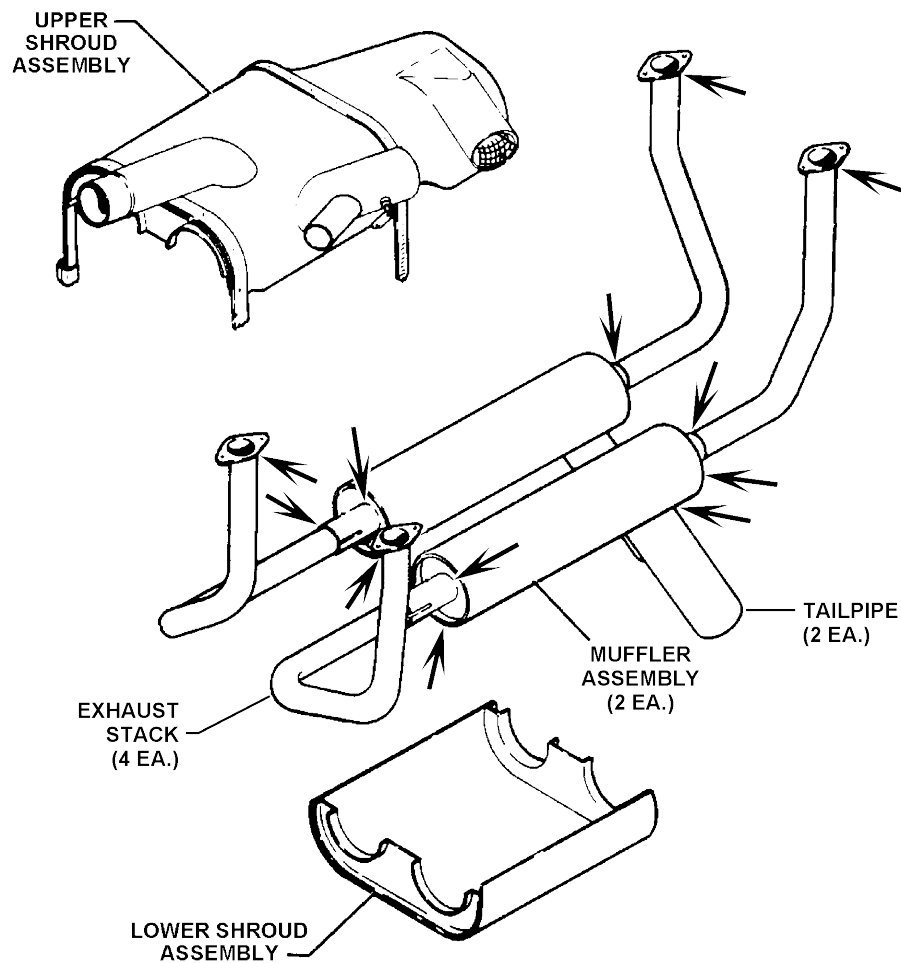
WARNING: A VERY THOROUGH INSPECTION OF THE ENTIRE EXHAUST SYSTEM, INCLUDING EXHAUST SHROUD ASSEMBLY, MUFFLER AND MUFFLER BAFFLES, STACKS AND ALL EXHAUST CONNECTIONS AND WELDS MUST BE ACCOMPLISHED AT EACH 100 HOUR INSPECTION.

Exhaust System

100 Hour Inspection

See Figure 1

The entire exhaust system, including upper and lower shroud assemblies, muffler assembly, stack assemblies, and all exhaust clamps and connections must be rigidly inspected each 100 hours. The possibility of exhaust system failure increases with use. Check the system even more carefully as the number of hours increase; for example an inspection at the 700 hour period would be more critical than one in the 100 hour period. The system should also be checked carefully before winter operation when cabin heat will be used.



Exhaust System Inspection Points  
Figure 1

**PIPER AIRCRAFT CORPORATION  
PA-38-112, TOMAHAWK  
MAINTENANCE MANUAL**

CAUTION: WHEN REMOVING OR INSTALLING COUPLING CLAMPS, SLIDE CLAMP OVER END OF PIPE BEFORE ASSEMBLY. EXCESSIVE SPREADING CAN LEAD TO PREMATURE FAILURE OF CLAMP.

- (1) Remove upper and lower shroud assemblies to inspect the muffler assembly.
- (2) Removal of the tail pipe and stacks are required for inspection of the muffler baffles.
- (3) Remove or loosen all exhaust shields, cabin heat shroud, heat blankets, etc., as required to permit inspection of the complete system.
- (4) Perform the necessary cleaning operations and inspect all external surfaces for dents, cracks and missing parts.
- (5) Pay particular attention to welds, clamps, supports, support attachment lugs, slip joints, stack flanges, and gaskets. Inspect internal baffles or diffusers. Any cracks, warpage, or severe oxidation are cause for muffler replacement.
- (6) If any component is inaccessible for visual inspection, do the following:
  - (a) Do submerged pressure check of muffler and exhaust stack at 2 psi air pressure.
  - (b) Ground test using carbon monoxide indicator by heading airplane into wind, warming engine on ground, advancing throttle to full static rpm with cabin heat valves open, and taking readings of heated airstream inside cabin at each outlet. If carbon monoxide concentration exceeds 0.005 percent or if a dangerous reading is on an indicator not calibrated in percentages, muffler must be replaced.

NOTE: See latest revision of AC 43.13-1 for additional information on inspecting exhaust systems and components.

NOTE: Mufflers should be replaced at or before 1000 hours time-in-service.