

SECTION 2. FUEL SYSTEMS

8-30. GENERAL. Maintain, service, and adjust aircraft fuel systems and fuel system components in accordance with the applicable manufacturer's maintenance instructions. Certain general fuel system maintenance principles are outlined in the following paragraphs.

8-31. FUEL LINES AND FITTINGS. When fuel system lines are to be replaced or repaired, consider the following fundamentals in addition to the applicable airworthiness requirements. Additional inspection and repair practices for aircraft tubing systems may be found in the Chapter 9, Aircraft Systems and Components.

a. Compatibility of Fittings. All fittings are to be compatible with their mating parts. Although various types of fittings appear to be interchangeable in many cases they have different thread pitch or minor design differences which prevent proper mating and may cause the joint to leak or fail.

b. Routing. Make sure that the line does not chafe against control cables, airframe structure, etc., or come in contact with electrical wiring or conduit. Where physical separation of the fuel lines from electrical wiring or conduit is impracticable, locate the fuel line below the wiring and clamp it securely to the airframe structure. In no case should wiring be supported by the fuel line.

c. Alignment. Locate bends accurately so that the tubing is aligned with all support clamps and end fittings and is not drawn, pulled, or otherwise forced into place by them. Never install a straight length of tubing between two rigidly-mounted fittings. Always incorporate at least one bend between such fittings to absorb strain caused by vibration and temperature changes.

d. Bonding. Bond metallic fuel lines at each point where they are clamped to the structure. Integrally bonded and cushioned line support clamps are preferred to other clamping and bonding methods.

e. Support of Line Units. To prevent possible failure, all fittings heavy enough to cause the line to sag should be supported by means other than the tubing.

f. Support clamps.

(1) Place support clamps or brackets for metallic lines as follows.

Tube O.D.	Approximate distance between supports
1/8"-3/16"-----	9"
1/4"-5/16"-----	12"
3/8"-1/2"-----	16"
5/8"-3/4"-----	22"
1"-1 1/4"-----	30"
1 1/2"-2"-----	40"

(2) Locate clamps or brackets as close to bends as possible to reduce overhang. (See figure 8-12.)

8-32. FUEL TANKS AND CELLS. Welded or riveted fuel tanks that are made of commercially pure aluminum, 3003, 5052, or similar alloys, may be repaired by welding. Tanks made from heat-treatable aluminum alloys are generally assembled by riveting. In case it is necessary to rivet a new piece in a tank, use the same material as used in the tank undergoing repair, and seal the seams with a compound that is insoluble in gasoline. Special sealing compounds are available and should be used in the repair of tanks. Inspect fuel tanks and cells for general condition, security of attachment, and evidence of leakage. Examine fuel tank or cell vent line, fuel line, and sump drain attachment fittings closely.

PIPER CHEROKEE SERVICE MANUAL

TABLE III-I
INSPECTION REPORT - PA-28-140/150/160/180/235

NATURE OF INSPECTION	Inspection Interval (Hrs)	
	50	100
B. ENGINE GROUP (CONT.)		
33. Inspect exhaust stacks, connections and gaskets per "Exhaust System Inspection" on page III-79. Replace gaskets as required	O	O
34. Inspect muffler, heat exchange and baffles per "Exhaust System Inspection" on page III-79	O	O
35. Inspect breather tube for obstructions and security		O
36. Inspect crankcase for cracks, leaks, and security of seam bolts		O
37. Inspect engine mounts for cracks and loose mounting		O
38. Inspect all engine baffles		O
39. Inspect engine compartment wiring for condition (chafing, cracked insulation, general deterioration), security, proper routing, and correct installation		O
40. Inspect rubber engine mount bushings for deterioration. Replace as required . .		O
41. Inspect firewall seals		O
42. Lubricate alternator idler pulley; remove front grease seal and add grease per Lubrication Chart in Section II. Disregard if sealed bearing is installed . . .		O
43. Inspect condition of alternator and starter		O