



cherokee

SERVICE MANUAL

PA-28-140

PA-28-150

PA-28-160

PA-28-180

PA-28-235

PA-28R-180

PA-28R-200

PIPER AIRCRAFT CORPORATION

PIPER CHEROKEE SERVICE MANUAL

- f. Disconnect the cabin heat and defroster tubes from the muffler.
- g. Disconnect the primer line at the tee connection.
- h. Disconnect the throttle and mixture cables at the carburetor and carburetor heat control. The carburetor may be removed if it is found desirable.
- i. Disconnect the mechanical fuel pump supply line at the pump.

NOTE: When a question may arise as where to reconnect hose, line or wire, the item at the separation should be identified (tagged) to facilitate reinstallation. Open fuel, oil, vacuum lines and fittings should be capped to prevent contamination.

- j. Disconnect the engine oil cooler lines from the cooler.
- k. Disconnect the magneto "P" leads at the magnetos. Insert a protective cover over the connection.
- l. Disconnect the engine oil temperature lead at the aft end of the engine.
- m. Disconnect the tachometer drive cable from the rear of the engine.
- n. Untie the ignition harness, hoses and lines from the aft end of the engine.
- o. Disconnect the vacuum pump lines at the pump.
- p. Disconnect the oil pressure line from the rear of the engine.
- q. Disconnect the generator or alternator leads and the cable attachment clamps.
- r. Attach a one-half ton (minimum) hoist to the hoisting straps and relieve the tension from the mount.

NOTE: Place a tail stand under the tail of the airplane before removing the engine.

- s. Check the engine for any attachments remaining to obstruct its removal.
- t. Drain the engine oil, if desired, and close the drain.
- u. Remove the four engine mount assemblies and swing the engine free, being careful not to damage any attaching parts.

8-19 INSTALLATION OF ENGINE. (PA-28-140, -150, -160, -180) (refer to Figure 8-6 or 8-7)

- a. Prior to installing the engine, be certain that all components of the engine such as exhaust stacks, carburetor, etc. are installed.

NOTE: On PA-28-140 aircraft with serial numbers 28-25000 and up, refer to paragraph 8-20 and Figure 8-8 for shock mount installation instructions. When using these instructions, step c through e, of paragraph 8-19 may be skipped.

NOTE: When installing an exhaust clamp having an alignment pin, be certain that the pin engages the mating holes in exhaust pipe and muffler to prevent separation of components.

- b. Attach a one-half ton (minimum) hoist to the engine hoisting straps and swing the engine into alignment with its attaching points.
- c. Insert an engine mount bolt, with washer against head, in the engine mount and slide half of the mount assembly on the bolt. Repeat this procedure for the other three attachment points.
- d. Position the mounting lugs of the engine so that they align with the engine mount attaching points, then move the engine rearward onto the mounts.
- e. Slide onto each mounting bolt a spacer washer, spacer and the forward half of the mount. Install washer and nuts, and torque the nuts of the to 450 to 500 inch pounds.

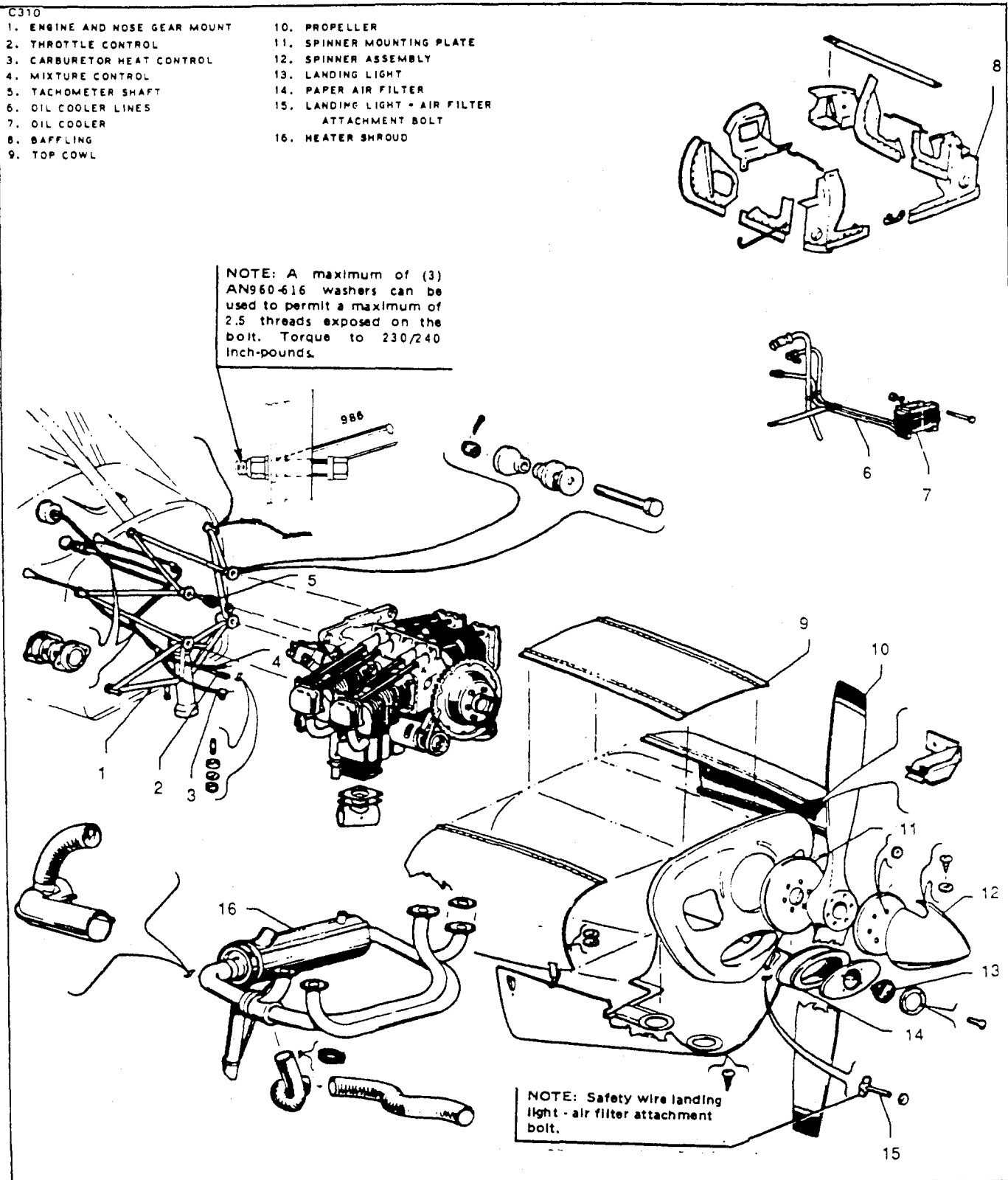


Figure 8-6. Engine Installation (PA-28-140, -150, -160, -180;
Serial Nos. 28-1 to 28-1760.)

PIPER CHEROKEE SERVICE MANUAL

1. ENGINE AND NOSE GEAR MOUNT
2. THROTTLE CONTROL
3. CARBURETOR HEAT CONTROL
4. MIXTURE CONTROL
5. TACHOMETER SHAFT
6. ENGINE SHOCK MOUNT
7. OIL COOLER
8. BAFFLING
9. TOP COWL

10. BOTTOM COWL
11. SPINNER MOUNTING PLATE
12. PROPELLER
13. SPINNER SUPPORT PLATE
14. SPINNER
15. HEATER AND MUFFLER ASSEMBLY
16. AIR FILTER
17. FRESH AIR INTAKE
18. POWER PLANT ASSEMBLY
19. PLATE ASSEMBLY, BUSHING, RETAINING RING, WASHERS, NUTS

NOTE: A maximum of (3) AN960-616 washers can be used to permit a max. of 2.5 threads exposed on the bolt. Torque to 230/240 inch-pounds.

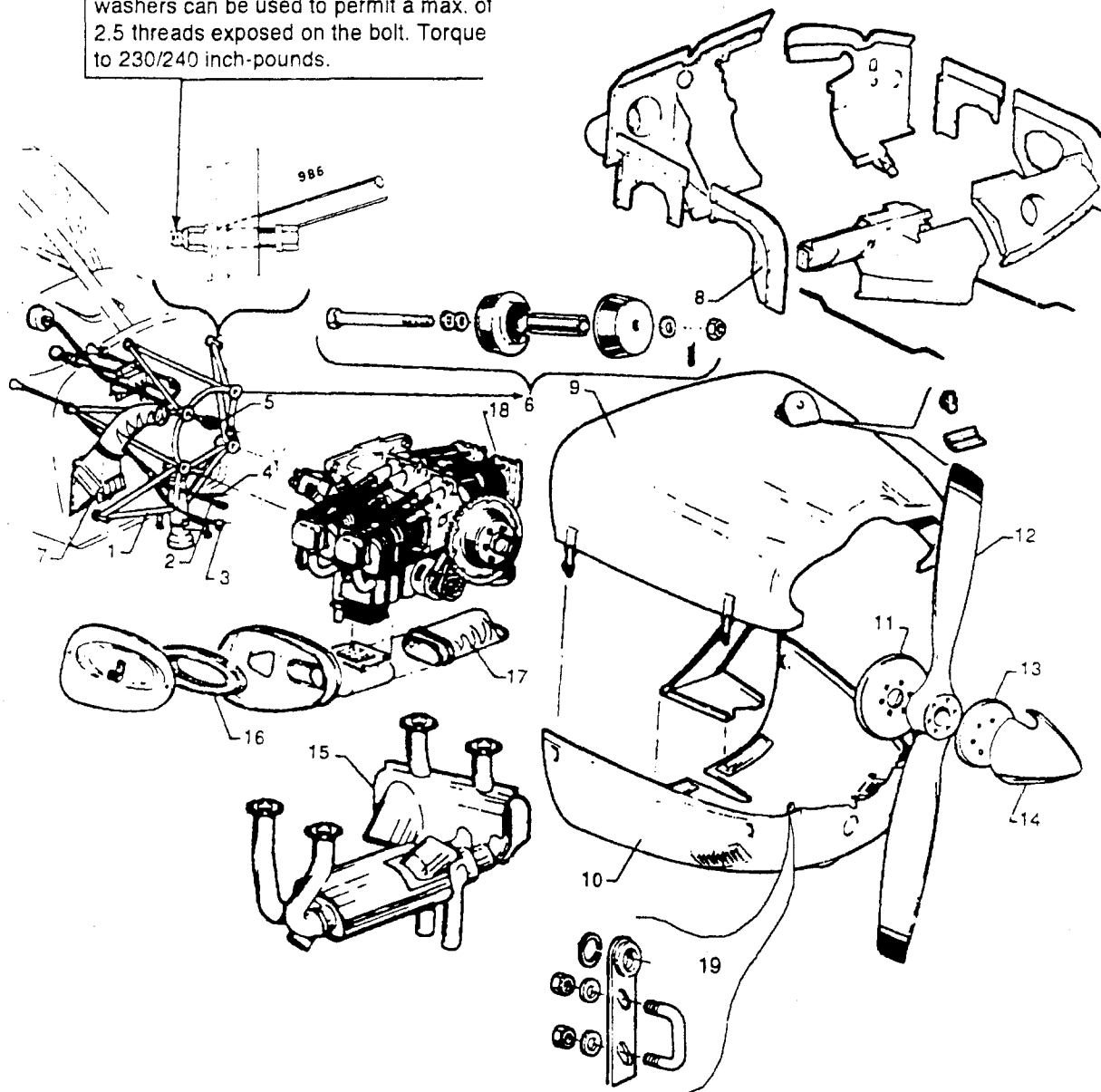
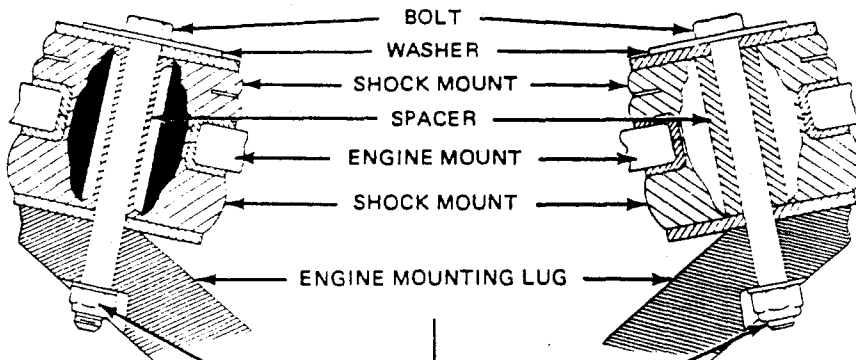
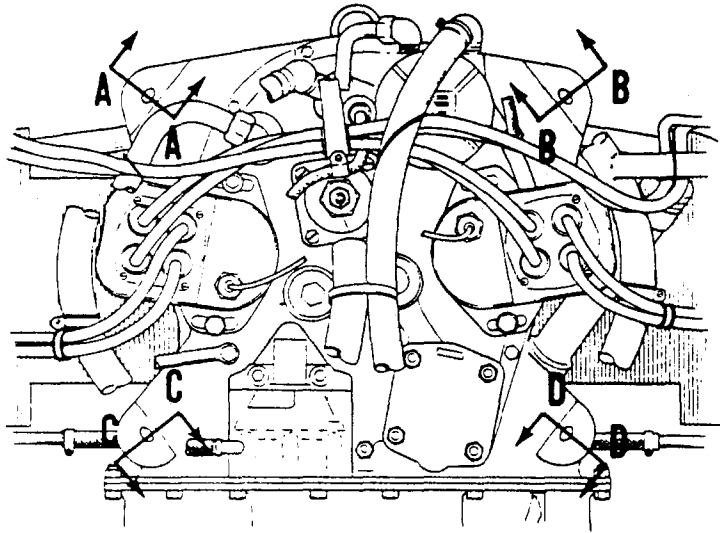


Figure 8-7. Engine Installation
(PA-28-140, -150, -160, -180, Serial Nos. 28-1761 and up)

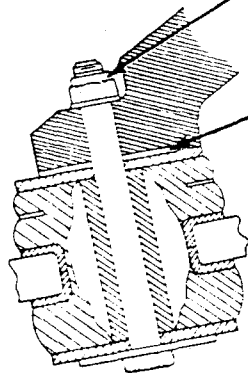
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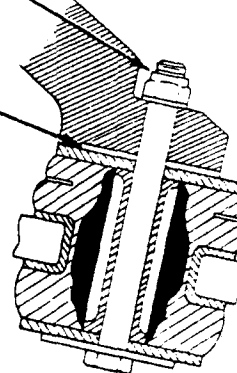
SECTION A-A

SECTION B-B

TORQUE - 450-500 IN. LBS.



SECTION C-C



SECTION D-D

Figure 8-8. Engine Shock Mount Installation (PA-28-140, Serial Nos. 28-25000 and up)

99516-E

- f. Connect the generator or alternator leads and secure cables with clamps.
- g. Connect the oil pressure line, tachometer drive cable, oil temperature lead and the engine vent tube to the aft end of the engine.
- h. Connect the vacuum pump line at the pump.
- i. Secure the ignition harness, hoses and lines at the aft end of the engine using koroseal lacing.
- j. Connect both lines to the oil cooler.
- k. Connect the mechanical fuel pump supply line at the pump.
- l. Connect the magneto "P" leads to the magnetos.
- m. Connect the throttle, mixture and carburetor heat cables at the engine components.
- n. Connect the cabin heat and defroster tubes to the muffler.
- o. Connect the starter positive and ground leads at the starter and secure with attachment clamps.
- p. Be certain that the magneto switches are OFF and install the propeller per paragraph 8-8.
- q. Install the proper grade and amount of engine oil. Refer to Lubrication Chart, Section II.
- r. Connect the battery ground wire at the battery.
- s. Open the throttle and fuel valve completely. Turn on the electric fuel pump and check the fuel line for leaks.
- t. Install the engine cowlings and remove the tail stand.

NOTE: To avoid a possible high speed bearing failure resulting from a lack of lubrication during initial starts, refer to the latest revision of Avco-Lycoming Service Instruction No. 1241 for information on pre-oiling the engine.

- u. Perform an engine operational check. Refer to the engine manufacturer's appropriate operator's manual.

8-20. INSTALLATION OF ENGINE SHOCK MOUNTS. (PA-28-140, Serial Nos. 28-25000 and up.) (Refer to Figure 8-8.)

- a. Assemble the engine shock mounts on the engine mount as shown in Figure 8-8. Note the position of each mount carefully. The upper right and lower left mounts are the same, as are the upper left and lower right.
- b. Swing the engine into place, positioning the engine mounting lugs so they align with the engine mount attachment points.
- c. Position the shock mount bolts through the mounting lugs and secure with nuts. Torque the nuts progressively, following a circular sequence until a torque value of 450-500 inch pounds is reached.