Authority: 49 U.S.C. App. 1354(a), 1421 and 1423; 49 U.S.C. 106(g); and 14 CFR 11.89

§ 39.13 [Amended]

2. Section 39.13 is amended by removing AD 93–21–12, Amendment 39–8763 (58 FR 65104, December 13, 1993), and by adding a new AD to read as follows:

Piper Aircraft Corporation: Docket No. 92–CE-63–AD. Supersedes AD 93–21–12, Amendment 39–8763.

Applicability: Models PA–25–150, PA–25–235, and PA–25–260 airplanes (all serial numbers), certificated in any category.

Compliance: Required within the next 12 calendar months after the effective date of this AD, unless already accomplished, and thereafter at intervals not to exceed 24 calendar months (except as noted in paragraph (h) of this AD).

To prevent possible in-flight separation of the wing from the airplane caused by a cracked or corroded wing forward spar fuselage attachment assembly, accomplish the following:

- (a) Gain access to the left and right wing forward spar fuselage attach fittings by removing the screws retaining the wing fairing. Dismantle the wing fillet by removing the screws on the aft edge top and bottom and removing the wing fairing (see Figure 1 of the Appendix to this AD).
- (b) Remove the wing attach bolts and wing. Remove paint from the wing forward spar fuselage attachment fittings and surrounding areas; do not sand blast because it may obscure surface indications.
- **Note** 1: Saturation of the bolts with a penetrating oil may facilitate removal.
- (c) Visually inspect the wing forward spar tubular fuselage attach cluster for damage (cracks, corrosion, rust, or gouges). Prior to further flight, repair or replace any damaged tubular member with equivalent material in accordance with FAA Advisory Circular (AC) No. 43.13–1A, Acceptable Methods, Techniques, Practices—Aircraft Inspection and Repair.
- (d) Inspect (using both dye penetrant and ultrasonic procedures) the wing forward spar fuselage attach fitting assembly, part numbers (P/N) 61005–0 (front spar fitting assembly) and 61006–0 (front spar fitting) for Model PA–25–150; and P/N 64412–0 (front spar fitting assembly) and 64003–0 (front spar fitting) for Models PA–25–235 and PA–25–260, for corrosion and cracks in accordance with the Appendix to this AD.
- (1) If any corrosion is found that meets or exceed the parameters presented in the Appendix to this AD or any cracks are found, prior to further flight, replace the forward spar fuselage tubular attach cluster with serviceable parts as specified in the Appendix to this AD.
- (2) The inspection procedures in the Appendix of this AD, except for the dye penetrant inspection procedures, must be accomplished by a Level 2 inspector certified using the guidelines established by the American Society for Non-destructive Testing, or MIL–STL–410 or equivalent. A

mechanic with at least an Airframe license may perform the dye penetrant inspection.

(e) Replacement parts required by this AD shall be of those referenced and specified in either Figures 3a and 3b, 4a and 4b, or 5a and 5b (as applicable), included as part of the Appendix of this AD.

(f) Prime and paint all areas where parts were replaced or where paint is bubbled or gone. Use epoxy paint and primer, and, after paint has cured, rust inhibit the entire area.

(g) Reinstall all items that were removed.(h) If a new cluster is installed into the fuselage frame, repetitive inspections are not

required until five years after the replacement date on the respective fuselage side. This cluster may be replace every five years as an alternative to the repetitive inspections.

(i) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

(j) an alternative method of compliance or adjustment of the initial or repetitive compliance times that provides an equivalent level of safety may be approved by the Manager, Atlanta Aircraft Certification Office (ACO), Campus Building, 1701 Columbia Avenue, suite 2–160, College Park, Georgia 30337–2748. The request shall be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Atlanta ACO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

(k) Appendix 1 of this AD may be obtained from the Atlanta ACO at the address specified in paragraph (j) of this AD. This document or any other information that relates to this AD may be inspected at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri.

Appendix—Procedures and Requirements for Wing Forward Spar Attachment Assembly Inspection of Piper PA-25 Series Airplanes

Equipment Requirements

- A portable combination ultrasonic flaw detector with both an LED thickness readout and an A-trace with thickness gate display.
- 2. An ultrasonic probe with the following: a 15 MHz 0.25-inch diameter with a 0.375-inch plastic delay line. An equivalent permanent delay line transducer that provides adequate sensitivity and resolution to measure a 0.050-inch steel shim can also be used.
- 3. Three steel shims within the range of 0.050 to 0.100 inches are required. To ensure proper calibration, the steel shims should be smooth and free of dirt. In order to verify the shim thickness, use a calibrated micrometer to measure the steel shims.

4. Either glycerin, 3-in-1 oil, or equivalent ultrasonic couplants are used to conduct this test set-up and inspection. Water-based couplants are not permitted because of the possibility of initiating long-term corrosion of the wing forward spar fuselage attachment fittings.

Note: Couplant is defined as "a substance used between the face of the transducer and test surface to improve transmission of ultrasonic energy across this boundary or interface."

Note: If surface pitting is found on either side of the fitting ears, lightly sand the surface to obtain a smooth working surface. Removal of surface irregularities such as pits, rust, scale, and paint will enhance the accuracy of the inspection technique.

Instrument Calibration

1. Turn the instrument power on and check the battery charge status. The instrument should have at least 40-percent of available battery life. The screen brightness and contrast of the display screen should match the environmental conditions (i.e., outside sunlight or inside a hangar).

2. Depending on the ultrasonic instrument used, select or verify the single element transducer setting from the probe selection menu. If a removable delay line is used, unscrew the plastic delay line from the transducer. Add couplant to the base of the delay line,

then reattach the delay line.

- 3. Obtain steel shims with known or measured thickness at or near 0.050, 0.075, and 0.100 inches. At least one steel shim shall be greater than 0.095 inches, one less than or equal to 0.050 inches, and one between these two values. Place the probe on the thickest steel shim using couplant. Adjust the gain setting to increase the backwall signal from this steel shim. An A-trace will appear on the screen and a thickness readout will appear on the display. The signal on the screen from left to right shows: the initial pulse, the delay line (the front surface of the steel shim) and the backwall echo of the steel shim. A second and third multiple backwall echo may also be seen on the A-trace. Enable the thickness gate. Adjust the thickness gate to initiate at the delay line to steel shim interface and terminate at the first backwall echo.
- 4. Place the probe on the thinnest steel shim using couplant. Adjust the damping, voltage and pulse width to obtain the maximum signal response and highest resolution on this steel shim. These settings can vary from probe to probe and are somewhat dependent on operator preferences.
- 5. To stabilize the interface synchronization, adjust the electronic