

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA

REPORT NO. 939

CONVERSION INSTRUCTIONS

MODEL PA-18A"150"

INCLUDED HEREIN ARE CONVERSION INSTRUCTION FOR CHANGING MODEL PA-18A "150" AIRPLANE FROM NORMAL AND UTILITY CATEGORY (STANDARD AIRWORTHINESS CERTIFICATE) TO RESTRICTED CATEGORY (RESTRICTED AIRWORTHINESS CERTIFICATE)

DATE: AUGUST 6, 1957

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CONVERSION INSTRUCTIONS FOR CHANGING MODEL PA-18A"150" AIRPLANE FROM NORMAL AND UTILITY CATEGORY (STANDARD AIRWORTHINESS CERTIFICATE) TO RESTRICTED CATEGORY (RESTRICTED AIRWORTHINESS CERTIFICATE.)

SPRAYER EQUIPMENT INSTALLATION INSTRUCTIONS

Note: Refer to drawings 13546 and 14918 for complete installation details.

1. Remove front and rear seats, including all tubes, supporting rear seat.
2. Remove battery and battery box (if previously installed,)
3. Remove control cable cover plates from floor of baggage compartment.

Note: If single stick torque tube is installed, disregard following steps 4, 5, 6, 7, 8 and 9.

4. Remove all metal panels from belly of fuselage.
5. Detach lower elevator cable at bottom of elevator horn and then from the front, pull cable thru fuselage until it stops at the fairlead under the front torque tube bearing.
6. Remove upper elevator cable.
7. Remove torque tube and replace with new single stick torque tube.
8. Install new upper elevator cable (new cable is longer and attaches to front control stick stub.
9. Reinstall lower elevator cable.
10. Remove topdeck cover and topdeck support frame from top of fuselage.

Refer to drawing 13546 for following steps 11 thru 23.

11. Attach hopper tie rods, part nos. 13284-5 (2 req.), 13284-4 (2 req.) and 13284-3 (2 req.) to fuselage stub tubes, using one nut on each side of stub tube as shown on drawing.
12. Lower hopper into position thru topdeck opening, keeping bottom as far aft as possible until top can be pushed forward into position; then slide bottom of hopper forward on floorboards until it drops in place.

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13. Adjust hopper until tie rod, part no. 13284-2 (this is the same rod used to attach rear seat) can be inserted thru tube in hopper; tighten nuts on ends of tie rod. (See Sect. D-D Dwg. 13546)
14. Attach top of hopper to fuselage structure, using same 3/16" bolts and Elastic Stop Nuts (8 req.) previously used to attach topdeck support frame (see step 10.)
15. Attach topdeck cover to top of hopper using same #10-32 flat head machine screws (36 req.) previously used (see step 10). Butt joint in rubber gasket between topdeck cover and hopper should be located on front side of opening to prevent leakage.
16. Attach topdeck cover to fuselage structure, using the same #8-32 round head machine screws (21 req.) previously used (see step 10.)
17. Install hopper retaining straps, part numbers 13521, and 13467 on ends of tie rods.
Note: In tightening nuts do not pull upper part of hopper out of position.
18. Attach rear end of connector rod between two lower retaining straps (see fig. 7, drawing 13546.)
19. Cut out two rectangular grommets on belly of fuselage between landing gear vees.
20. Remove four #10-32 machine screws in rear floorboard adjacent to slots (nuts under floorboard are anchored to fuselage.) Place control lever, part no. 14828, in position and attach with these four screws, omitting washers.
21. Attach pressure regulating valve to hopper.
22. Install pressure gauge in instrument panel (see fig. 9, dwg. 13546) and connect line, part no. 11987-47, to elbow at pressure regulating valve.
23. Install hopper contents gauge on right side (see fig. 3, dwg. 13546.)
24. Reinstall battery (if previously installed) and cable covers.
25. Replace all belly panels. Fit Leather grommets, part no. 13557, around holes through which hopper extends before replacing panels at this point.

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26. Install spray system manifold assembly (see view AA dwg. 14918)
27. Install "T" shaped line, part no. 14126, which connects to pressure regulating valve.
28. Install propeller mount, part no. 14235-2 and pump.
29. Attach brake shoe assy., part no. 13119, to mount.
30. Insert 14130-2 key in slot in pump shaft.
31. Install propeller and brake drum assy., part no. 14139 (see fig. 6, dwg. 14918).
32. Connect brake cable assy., part no. 13520-4 (fig. 6, dwg. 14918) and check operation of brake.
33. Cut out rectangular inspection openings, two at rear spar and one at front spar, on each wing.
34. Attach boom braces, part nos. 13543, and 13545, to wing spars.
35. Install boom supports, part nos. 13542-2 and 13542-3, and make safety wire attachment (see section B-B and fig. 4 dwg. 14918).
36. Install boom brace tubes, part nos. 13680, and 13680-2.
37. Clamp booms, part nos. 14917 and 14917-1 to boom supports, using special clamp, part no. 14914 (see section A-A, dwg. 14919).
38. Install boom support clamps, part no. 13514, on rear lift struts. Align booms fore and aft, drill clamp stub, and attach with machine screw (see section K-K dwg. 14918).
39. Connect inboard ends of booms.
40. Install boom nozzles.
41. Reinstall front seat.
42. Install "Restricted" placard under clips on inside of upper enclosure door.

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DUSTER EQUIPMENT INSTALLATION INSTRUCTIONS

Note: Refer to drawings 13546 and 14365 for complete installation details.

1. Install hopper and related parts as outlined in "Sprayer Equipment Installation Instructions."
 Note: On the "Hopper Installation" drawing 13546, parts peculiar to either the Sprayer or Duster are so noted.
2. Attach agitator plate and gates to bottom of hopper (see sections A-A and F-F, dwg. 14365).
3. Install propeller mount, part no. 14827 and gear box.
4. Attach brake shoe assy., part no. 14358 to mount.
5. Install propeller and brake drum assy. Part no. 14359 (see section D-D dwg. 14365).
6. Insert Woodruff key in slot in gear box shaft.
7. Make agitator drive connections (section H-H, dwg. 14365).
8. Connect brake cable assy., part no. 13420 (fig. 4, dwg. 14365).
9. Adjust gate control rods to provide equal travel of gates.
10. Bolt venturi assembly to agitator plate (section H-H, dwg. 14365).
11. Install "Restricted" placard under clips on inside of upper enclosure door.

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CARGO COMPARTMENT INSTALLATION INSTRUCTIONS

Note: Refer to drawing 13714 for complete installation details.

1. Remove front and rear seats, including all tubes supporting rear seat.
2. Remove control cable cover plates from floor of baggage compartment.
 Note: If single stick torque tube is installed, disregard following steps 3, 4, 5, 6, 7 and 8.
3. Remove all metal panels from belly of fuselage.
4. Detach lower elevator cable at bottom of elevator horn and then from the front, pull cable thru fuselage until it stops at the fairlead under the front torque tube bearing.
5. Remove upper elevator cable.
6. Remove torque tube and replace with single stick torque tube.
7. Install new upper elevator cable (new cable is longer and attaches to front control stick stub).
8. Reinstall lower elevator cable.
9. Install cargo floor panel and fittings.
 Note: If fuselage belly panels have not been removed (step 3 preceding) it will be necessary to remove one of these panels to install the rear cargo panel fittings.
10. Reinstall fuselage belly panels.
11. Reinstall rear seat back tube between lugs on upper longerons.
 Note: This tube is a structural member. It may be removed for loading but must be in place during flight.
12. Reinstall front seat.
13. Install "Restricted" placard under clips inside of upper enclosure door.

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RECONVERSION OF TWO-PLACE MODEL

Reconversion from either agricultural version (sprayer or Duster to the two-place model can be accomplished as follows:

1. Remove agricultural equipment by reversing instructions outlined previously for "Sprayer Equipment Inst." or "Duster Equipment Installation."

Note: Units of this equipment not objectionable in the two-place airplane (such as hopper contents gauge, spray fluid pressure gauge, etc.) may remain in the two-place airplane.

2. Remove single stick torque tube and upper elevator cable if dual controls are to be used.
3. Install dual stick torque tube with standard cable and push-pull tube between sticks.
4. Install rear seat frame, rear seat support tube (see sec B-B, dwg 13275) rear seat cushions and safety belt as shown on dwg. 13275.
5. Install belly plates to close openings in bottom of fuselage.
6. Install top deck support frame (this replaces the top structure of the hopper) and topdeck cover.

Reconversion from the cargo version to the two place model can be accomplished as follows:

1. Remove cargo floor panel.
2. If dual controls are desired, replace single stick torque tube with dual stick torque tube and reinstall standard upper elevator cable and push-pull tube between sticks.
3. Reinstall rear seat.

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