Ayres corporation
Albany, Georgia 31702

custom kit **No. CK-AG-21**

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Custom Kit CK-AG-21

AILERON SERVO FIELD CONVERSION

(1). Remove the ailerons and clean them thoroughly, top and bottom. Pay particular attention to the four ribs in the center and the trailing edge section. Refer to DWG CK-AG-21 sheet 1 of 3 and lay out the trim lines on the top aileron skin. Drill out the rivets marked ⊕.

NOTE: When cutting aileron skins as described below, it is recommended that you do not cut right up the trim lines initially. Cut just short of the lines, then finish trim up to the line after removing skin section.

(2). Cut through the skin from the trailing edge going forward to the corners. Cut across from corner to corner. NOTE: When cutting across rib flanges, cut just deep enough to sever the rib flange without cutting into the rib web any more then necessary.

(3). Turn the aileron over and lay out the trim lines as shown on DWG CK-AG-21 sheet 2 of 3. Drill out the marked ⊕ rivets and cut the skin up to but into the center skin lap edge.

Remove the skin section.

(4). Mark the two center ribs as shown on DWG CK-AG-21 sheet 2 of 3. The rib section may be cut out with scissors and used as a template if desired. Trim off ribs.

(5). Finish trim up to lines. Debur and final dress edges, radius the corners nicely.

(6). Trail fit the 52081-80 close out spar. With the aileron top side up and the flange on the right end touching the rib web, the two center ribs should just contact or be about 1/16” short of the spar with the upper flange aft edge of the spar flush with the aileron skin edge. Ref view A on CK-AG-21 sheet 1 of 3. Check the fit of the lower flange of the spar sandwiched between the aileron skin and the lower skin stiffener. Minor trimming of the two center ribs may be required for best fit.

(7). With the spar clamped temporarily in place, locate the 52081-77 angle on the left end of the spar. The angle can be attached to the spar only at this time. Unclamp and remove the spar now.

(8). Install the two 52081-78 clips on the ribs with the flange to the right, (as seen from the trailing edge) positioned to mate with holes in the spar. After installing the angles, fit the spar temporarily in place again and mark through the holes in the spar onto the angle flanges with a pencil. Also mark the lower flange through the holes where the rivets were drilled out. Pull the spar out and check the flange and angles for good edge distance from the marks before riveting the spar in place.

(9). With close out spar properly fitted and riveted into place in the aileron, except for the top flange, slide the servo tab hinges into the gap between the spar and top skin. The tab should end up with its trailing edge even with the aileron trailing edge. The forward hinge halves should have enough penetration under the top skin so that the hinge screws will have good edge distance after drilling holes per CK-AG-21 sheet 1 of 3. Because of normal manufacturing tolerances, the tab trailing edge may be slightly ahead of or aft of the aileron trailing edge. Be sure that the tab is not so far forward that the aileron top skin scrapes the tab hinge half when tab is moved.

(10). Drill the nine screw holes on assembly through the top skin, hinge and spar flange. Also drill now the rivet holes between the hinges, chase chips and rivet the top flange and skin, install the hinge screws. Drill off the old fixed tab and plug holes with cherry lock rivets provided.

(11). Prime and paint exposed bare surfaces and check static balance of each aileron assembly per specs on CK-AG-21 sheet 3.

(12). Reinstall the ailerons and recheck aileron rigging and travel per specs on CK-AG-21 sheet 3. Block ailerons in neutral after rigging and travel check of the ailerons.

(13). Adjust the 21366-3 pushrod to have 5 to 7 threads showing on each end with an overall length of 15 ¾ inches from bolt hole to bolt hole, install the 21370-1 pushrod attach bracket on the center aileron hinge tube. The pushrod attach bracket should be positioned fore and aft to have the tab trailing edge in neutral with ailerons blocked in neutral. Tighten all nuts, bolts and check-nuts on the pushrods.

(14). Unblock the ailerons. Have someone in the cockpit move the ailerons slowly from stop to stop while you observe operation of the servo tabs. Tabs move up when ailerons go down, tabs go down when ailerons go up. Check to see that there is no binding or mechanical interference when ailerons are cycled stop to stop.

NOTE: Because of the fixed geometry of the hinge points, the total tab travel is not adjustable. Travels will automatically be right if the neutral point and push rod attach bracket are properly set. The initial flight setting of the servo tabs push pull rod should be 15 ¾ inches from bolt head center to bolt head center.

(15). During the initial flight test in smooth air, check for any wing heaviness and out of trim conditions. Adjust trim for hands off flight by turning the rod ends on the push-pull rods. It is recommended that adjustments be made one rod end turn at a time, on one side only. Alternate between left and right sides if more than one adjustment is required. This will help to

keep the neutral settings of both tabs as close to streamlined as possible. If left wing is heavy, move left tab up or right tab down, or both if required.

(16). Complete FAA Form 337 and logbook entries. The change in the airplane empty weight and center of gravity are negligible and do not require computing.