Manufacture: Ryan A. Newell

Model: Newell Hatz CB-1

Serial: 956

Rigging Instructions for Newell Hatz CB-1 N705SR

Top wing dihedral: 0 degrees

Bottom wing dihedral: 2.5 degrees

Incidence: 0 degrees

Preparation

Equipment needed for rigging is a way to hoist the aircraft, several horses and jacks, level (or protractor), and at least four plumb- bobs.

Raise the aircraft to take weight off of the landing gear. Raise the aircraft to flying position with the weight off the gear. Place the level across the upper longerons and level the airplane laterally.

Next, place the level along one of the upper longerons and bring the jack up or down until the airplane is level fore and aft.

Center Section

Rig the center-section first. Drop the plumb-bob between the center-section and the outer panel just in front of the front spar. Drop a plumb-bob over the leading edge as close to the ends as possible. With your rule, measure the distance from the lower longeron to the plumb-bob over the end of the center-section. The two sides should be within 1/32" of each other.

To shift the center section from side to side, loosen the cross-wire on the short side and tighten the wire on the long side. These side measurements show that the center-section is equally disposed on the two sides.

From the plumb-bob that is dropped over the leading edge of the center section, measure to the leading edge of the lower wing. Both sides should be near the same.

Care should be taken in making all measurements to see that your rule is held at right angles to the plumb- bob and to the point to which you are measuring. The incidence is now checked by placing a level on the bottom of the center section at the root rib on each side. Incidence for the Hatz CB-1 is 0 so the level should read 0 or level. Adjust the incidence of the center section by raising or lowering the rear center strut adjustments until a reading 0 or level is achieved. Stagger for the center section is built into the struts and cannot be changed. Care should be taken to make sure the center section remains level horizontally or span wise as well.

Tighten and streamline all wires and check the entire assembly over again. Secure all nuts, bolts, locknuts and check all struts to see that they are on safely.

Wings

Be sure that all flying wires and the rear landing wires are loose leaving the front landing wire only to support the wings. Set the dihedral for the upper wing first. Dihedral for the upper wing is 0. Place the level span wise on the bottom of the forward spar of the top wing. Adjust the dihedral by tightening/ loosening the front landing wire. Do this until a reading of 0 or level is achieved. Do this for both wing panels. Both wing panels and the center section should read 0 or level.

Dihedral for the lower wings is near 2.5 degrees. This is controlled by the top wing and cannot be changed.

The next step is to box the wings. What is meant by boxing is simply this: putting the same amount of incidence in both the upper and lower wings regardless of what it is. This is done by placing a level chord wise on the bottom of the rib on the lower wing just outside of the outer struts and taking a reading. Next, place the level on the bottom of the rib outside of the struts on

the upper wing and take a reading. Adjust the outer struts in or out so that the upper wing has exactly the same incidence (reading on the level or protractor) as the lower. Care should be taken to keep all struts reasonably short. Box both sides and don't worry if they don't read the same or match the center section at this point

Once both wings are boxed, set the incidence equal to the center section. Again incidence on the Hatz CB-1 is 0 so this is achieved by adjusting the wings until they read 0 or level by placing the level on the bottom of the rib outside of the outer struts on the upper wings. If there is to much incidence tighten the front flying wire to bring the outer panels forward. If there not enough incidence adjust the rear flying wires. When finished incidence for all four outer panels and the center section should read 0 or level.

Tighten and streamline all wires and check the entire assembly over again. Wires should be of **even tension** and not loose. If you have access to a tensionometer tension can be set to a range of 600-800 lbs. Secure all nuts, bolts, locknuts and check all struts to see that they are on safely.

Tail

Finally rig the tail. Horizontal stabilizers should be adjusted to read level and the vertical fin adjusted to read vertical. This is achieved by tensioning the **rear** set of top and bottom wires only. Adjust these wires until a reading of 0 or level is achieved on a level placed on the rear tube of the horizontal stabilizer and a reading of 0 or vertical is achieved on the fin. Make sure wires are of even tension and not loose. Once this is achieved tighten the front wires to a tight tension but not enough to deform the fin or place a load on it. The front wires are for vibration control of the fin only.