**Applies To:**

In January, 2000 we changed the Falcon 225 (ONLY) to the new type of crossbar center ball and socket fitting. All Falcon 225's serial # 26718 and later are affected. The Redbook revision code is "B" (i.e. the Revision Code field will contain a "B" among other things.)

All Eagles have the new style ball and socket fittings.

Falcon 140's and 170's were converted to the new style fittings in May 2000. There is no clean break in serial numbers, but the approximate change over point is #26798. If a glider is within 20 or 30 numbers of this number, you can only determine it for sure by checking the revision code in the Redbook.

Falcon 195's were changed over in August 2000 at approximately serial #26849.

Note: The parts replacement implications for this change are not very significant. The ball and socket parts are virtually indestructible, and the new style parts are backwards compatible. The primary reason one would need to know about this is for a request to retro-fit a glider to the "new style short bolts" crossbar center hardware.

**Introduction:**

All current production gliders with conventional crossbars (since the Falcon and XC models) use a set of machined plastic (UHMW) ball and socket fittings in the crossbar center section. (See any owner's manual for drawings.) One crossbar has a ball fitting, the other has a socket, and the ball fits into the socket and provides for the pivoting and load bearing where the crossbar halves meet in the center. Each fitting has a "shank" portion which is machined so as to fit down inside the end of the crossbar, and at the end of the shank there is a lip which bears against the end of the tube.

There is also a pair of stamped steel brackets on the back side of the crossbar center, which provide for the hinging action of the crossbar during set up and break down when the ball is disengaged from the socket.

On the original design, the steel hinge bracket is secured in place by a bolt and a clevis pin. The bolt also passes through and secures the ball or socket fitting.

The nut on the bolt, and the safety ring on the clevis pin are on the front side of the crossbar, and when the glider is broken down, these can cause wear on the sail or leading edge tube.

**Design Change:**

We have designed a new type of ball and socket fitting which eliminates this wear. On these fittings, the shank is extended in length so that both fasteners that secure the hinge bracket pass through the shank of the ball or socket. Shorter fasteners are used, which are inserted into the inside of the shank of the ball or socket, and extend out through only the rear wall of the crossbar tube. On the front of the tube are only two open holes, which are used to gain access via a screwdriver to the head of the fasteners securing the ball or socket and hinge bracket.

The new fasteners used in the new setup are:

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|---|---|
| 10C-5071 | BOLT NAS 623-4-7 |
| 10C-4081 | BOLT NAS 623-3-8 |

The 623-4-7 bolt uses the same ¼ inch clinch nut that was used before on the ¼ inch bolt, but now it's on the back side of the xbar. The 623-3-8 bolt, which replaces the clevis pin, uses a 10N-1730 3/16 inch clinch nut.

**Retrofitting:**

On the Falcon 225 and 195, a partial retrofit only is possible. The customer needs:

| | | |
|---|---|---|
| 2 | 10C-5071 | BOLT NAS 623-4-7 |
| 2 | 10U-1140 | WASHER ¼" THICK |

He will also need to obtain a very small diameter shank Phillips head screw driver, or modify one so that the shank is ¼ inch diameter or less.

The ¼ inch bolt that secures the hinge bracket and ball can be replaced by this bolt, re-using the original nut, but mounting it on the hinge bracket on the back side of the crossbar. The bolt is inserted from inside the hollow of the shank of the ball or socket fitting, with the washer under the head of the bolt.

On the Falcon 140 and 170, a complete retrofit is possible. The customer needs:

| | | | |
|---|---|---|---|
| 2 | 10C-5071 | BOLT NAS 623-4-7 | |
| 2 | 10C-4081 | BOLT NAS 623-3-8 | |
| 2 | 10N-1730 | CLINCH NUT 3/16 | |
| 2 | 10U-1140 | WASHER 1/4 inch | |
| 2 | 10U-1130 | WASHER 3/16 inch | |
| 1 | 15J-2112 | SOCKET XBAR CNTR BALL JOINT 52 | Specify Revision B |
| 1 | 15J-2122 | BALL XBAR CNTR BALL JOINT 52 | Specify Revision B |

The ¼ inch bolt that secures the hinge bracket and ball is replaced by the 623-4-7 bolt, re-using the original nut, but mounting it on the hinge bracket on the back side of the crossbar. The bolt is inserted from inside the hollow of the shank of the ball or socket fitting, with the washer under the head of the bolt.

The 3/16 inch clevis pin is replaced by the 623-3-8 bolt in the same manner, except that the 3/16 inch washer is installed under the 3/16 inch clinch nut.