

JUNIOR TRAILER PROCEDURE (N106DS)

July 14, 2009

ASSEMBLY

Read each section from start to finish before you commence procedures in that section.

A) Setup and Fuselage

1. Position trailer, nose into any wind if possible. Chock wheels. Set parking brake (lever next to trailer hitch). Set rear trailer jack and front crank-up wheel so that trailer floor slopes down with back end of trailer about 6 inches off ground.
2. Have ready paper towels or rags, grease and wing tape.
3. Have one or two wing stands available.
4. Select a soft, secure place to temporarily set horizontal stabilizer when it is removed from trailer.
5. Unlock and lower tailgate. Locate handle for fuselage dolly (round tube painted black).
6. Remove stabilizer-securing arm from right rear trailer rail and set aside.
7. Remove horizontal stabilizer from trailer and place in secure storage location.
8. Loosen wing nuts at base of horizontal stabilizer cradle and remove stabilizer cradle from trailer.
9. Unstrap fuselage boom. Lift tail wheel out of trailer socket and roll on floor to end of trailer. Lift tail and roll fuselage out until tail can be placed on ground, then continue until fuselage dolly rests on ground.
10. Remove canopy cover. Check cockpit contents.
11. Insert battery. Test power to radio, etc.

B) Wings

1. Locate wing assembly lever inside top of fuselage behind cockpit above wing spars.



Remove retaining pin and lever; leave lever accessible in cockpit.

2. Remove access plate from turtledeck above wing spar holes; store in cockpit.
3. Remove protective tape and plastic that was placed on wing roots and spars for transport. Note control connection fittings in wing roots and corresponding fittings on side of fuselage. Note how steel pin on end of each spar will fit into hole in root of other wing -- alignment of these pins and holes will be critical to getting wings to come together on glider.
4. Remove rod that attaches to right side of fuselage dolly from forward wing mounting pin, and swivel forward onto ground out of the way. Remove tie-down strap that runs through wing-spar holes in fuselage, and coil up under glider where you won't trip on it.
5. Clean main spar holes and fuselage connecting pin holes in wing roots; clean pins on spar ends and corresponding holes inside wing roots. Clean and grease connecting pins that protrude from fuselage, and pins on spar ends. Place wing stands near where wingtips will be when glider is assembled.

6. Remove safety pin from handle of main spar pin. Clean and grease main spar pin and set on paper towel or rag in cockpit.
7. Remove tie-down strap from right wingtip.
8. When ready to lift wing out of trailer, remove T-bolt and clamping pad that hold right wing spar to trailer; store these in front of trailer.
9. With one person at wing tip and one at spar, lift right wing over trailer side. Rotate wing and insert in wing spar opening, inserting fully. Place wing stand under right wing tip. Tape the top of right wing / fuselage gap to hold wing in place.
10. Repeat for left wing (but don't tape the gap). Make sure both wingtips are fully supported at all times until main spar pin has been inserted -- if wingtips are allowed to drop while wings are being inserted, damage to fuselage may occur.
11. To get wings to come fully together you will need to use wing assembly lever. Fit slot in lever over metal knob protruding from top of front spar, use side of lever to push against metal knob protruding from top of rear spar. Don't try to fit onto both knobs -- it won't come off once wings are assembled.



12. Alignment of wing spar ends is critical for assembly. If the alignment is correct, the wings will pop together with little force. If alignment is not correct, you can push on the wings all day and they won't go together. Also make sure control fittings in wing roots are aligned with corresponding fittings in side of fuselage.

13. Have assistants lift on wing tips as needed to align spar pin holes. Insert main spar pin. Align handle end into recess in baggage shelf, and lock handle in place with safety pin.



14. Replace spar clamp-down pads and T-bolts on spar mounting points at front of trailer.

C) Horizontal Stabilizer

1. Clean and lubricate elevator connection at top of vertical stabilizer. Make sure retaining sleeve moves up and down easily.
2. Set trim full back so elevator control rod extends as little as possible from fin.
3. Clean engagement points on horizontal stabilizer mounting brackets.
4. Remove safety pin from horizontal-stabilizer mounting rod at front of vertical fin. Pull out mounting rod -- easiest if small Phillips-head screwdriver is inserted through hole in front of mounting rod.



You may need to rotate the mounting rod 90 degrees before it will disengage. Clean and grease machined surfaces on mounting rod, and set aside in a clean place.

5. Lower stabilizer onto vertical fin. Insert mounting rod into front of vertical fin, and rotate so large hole at front of mounting rod is horizontal. When fully inserted, lock in place with safety pin.



Safety pin inserted properly.

6. Connect elevator control rod. Make certain locking sleeve on connector is fully engaged (small retaining button should pop forward and fully engage with sleeve). Make certain again. Have someone else make certain. (Do you get the impression this is a potential problem area, plus it is critical to safety of flight?)



*Example of locking sleeve **not** fully engaged. Note how sleeve is not pushed up all the way, and retaining button has not popped forward all the way.*

7. Install total energy probe.

D) Preparation for Flight

1. Remount wing assembly lever inside fuselage.

2. Check battery and radio. Close canopy. Insert fuselage dolly handle into engagement slot in left side of dolly. Push dolly up a little so you can disengage lock on folding mechanism, then lower dolly. Push glider clear of fuselage dolly.
3. Perform positive control check.
4. Replace and tape fuselage access plate. Tape wings and horizontal stabilizer. Tape TE probe connection.

E) Prepare Trailer for Retrieve

1. Secure fuselage dolly at front of trailer. Store handle separately in front of trailer.
2. Remount horizontal stabilizer cradle in rear of trailer and tighten wing nuts at base of horizontal stabilizer cradle. Mount stabilizer-securing arm on right rear trailer rail.
3. Close and lock rear of trailer.
4. Gather up all loose odds and ends into spares box. Aileron locks should go in spares box – don't leave on wings as the felt gets wet and moisture damages wing surface. Put battery charger in appropriate location.

JUNIOR TRAILER PROCEDURE (N106DS)

DISASSEMBLY

Read each section from start to finish before you commence procedures in that section.

A) Setup

1. Spray WD-40 or other lubricant into elevator connector of glider.
2. Position trailer, nose into any wind if possible. Chock wheels. Set parking brake (lever next to trailer hitch). Set rear trailer jack and front crank-up wheel so that trailer floor slopes down with back end of trailer about 6 inches off ground.
3. Select a soft, secure place to temporarily set horizontal stabilizer when it is removed from trailer.
4. Make sure pads are clean on trailer floor where wing leading edges rest.
5. Have paper towels or rags available, also duct tape, wing tape and plastic bags.
6. Remove stabilizer-securing arm (painted blue with wedge-shaped end) from right rear trailer rail and set aside.
7. Unlock and lower tailgate. Loosen wing nuts at base of horizontal stabilizer cradle and remove stabilizer cradle from trailer. Pull out fuselage dolly and place on ground at rear of trailer. Locate handle for fuselage dolly (round tube painted black).



We got a little out of sequence in this picture -- Eric is removing the horizontal stabilizer cradle after we pulled out the fuselage dolly. Note that the handle has been inserted into left side of fuselage dolly to show where it fits -- it should be removed before the glider is positioned over the fuselage dolly.

8. Remove wing spar hold-down clamps at front of trailer and leave them accessible in front of trailer.



9. Position glider nose over fuselage dolly. Use towel to protect fuselage belly from rough spots on dolly surface.



Roll dolly back until dolly frame almost touches glider main wheel.



10. Insert handle into dolly and lever up the dolly to lift glider fuselage; make sure dolly latch is engaged so it is locked in "up" position.



Note position of locking pawl just forward of handle tube.

11. Remove wing tape, horizontal stabilizer tape and TE probe tape, but leave some tape on top of right wing joint.
12. Locate wing assembly lever inside fuselage behind cockpit above wing spars.



Remove retaining pin and lever; leave lever accessible in cockpit.

13. Remove access plate from turtledeck above wing spars; store in cockpit.
14. Remove battery and store in 6DS spares box.

B) Horizontal Stabilizer

1. Remove total energy probe and stow safely in cockpit.
8. Set trim full back. Unhook elevator connection by pushing in on retaining button and pulling down on sleeve. If retaining sleeve won't move, use screwdriver blade to gently pry it loose, while simultaneously pushing in on retaining button on front side of sleeve. Be patient -- this may take a while.



Screwdriver blade is wedged between top of retaining sleeve and bottom of connection axle. Note that index finger of other hand is pushing in on retaining button (out of sight on front side of sleeve).



Locking sleeve is partly disengaged. Note retaining button at bottom left.



Locking sleeve pulled down all the way -- fully disengaged.

Push forward on connecting rod to unhook from elevator fitting.



Control connection disengaged.

Push locking sleeve back up all the way so retaining button pops into place.

9. Remove safety pin from horizontal-stabilizer mounting rod at front of vertical fin. Pull out mounting rod -- easiest if small Phillips-head screwdriver is inserted through hole in front of mounting rod.



You may need to rotate the mounting rod 90 degrees before it will disengage.

2. Remove horizontal stabilizer by lifting upwards (one person on each end), and store in a safe, soft place.



3. Re-insert mounting rod into fin and lock in place with safety pin.
4. Use foam pipe insulation or other padding to immobilize and protect top of elevator control connection.

C) Wings

1. Remove tie-down eye-bolts from wingtips and store in 6DS spares box.
2. Position wing stands under wings if available.
3. Remove safety pin from main spar pin handle, allowing handle to move.



Main spar pin with safety pin still inserted in handle.

4. If you have two assistants have them lift both wingtips; otherwise put wing stand under right wingtip and have assistant lift left wingtip. Pull out main spar pin, clean and store wrapped in rag or paper towel, with safety pin reattached to handle. Make sure both wingtips are fully supported at all times once main spar pin has been removed -- if wingtips are allowed to drop while wings are being removed, damage to fuselage may occur.
15. To get wings to come loose you will need to use wing assembly lever, which fits onto two metal knobs protruding from top of spars. Fit slot in lever over metal knob protruding from top of front spar, use side of lever to push against metal knob protruding from top of rear spar.



5. Remove **left** wing by having assistant rock side to side (if necessary) while pulling outward. Walk wing up to side of trailer. Lift over trailer side, place leading edge in mounting pad on rear floor of trailer and simultaneously place spar on forward mounting pad with spar hole over bolt hole. Mount top clamping pad over wing spar and tighten down T-bolt.



6. Repeat the procedure for the **right** wing (remove remaining wing tape first).
7. Place aileron locks at outboard ends of ailerons; thread nylon straps through slots on aileron locks and through clamps on trailer floor; pull to tighten.



Threading straps through clamps on floor can be difficult. Make sure strap does not pull loose easily -- if it does, you have it threaded the wrong way through the clamp.

D) Fuselage

1. Rod that swivels up from right side of fuselage dolly goes over forward wing mounting pin that protrudes from right side of fuselage; attached bungee goes over corresponding pin on left side. May need to pull fuselage forward or back on dolly to line up rod end with pin. Connect retaining straps from fuselage dolly through wing spar holes in fuselage.
2. Replace fuselage access plate.
3. Remount wing assembly lever inside fuselage.
4. Check documents, T/E probe, seat cushion, parachute, anything else being stored in cockpit.
5. Close and lock canopy for transport.
6. Note where blue paint has been scuffed off nose of glider by seams inside canopy cover during transport. Pad this area with paper towel, using wing tape to secure in place. Place canopy cover over canopy and secure in place; rear bungees can be secured inside wing spar holes.
7. Make sure tail is vertical. Align wheels of fuselage dolly with tailgate ramps. Walk fuselage up and into trailer, tilting horizontal stabilizer cradle out of the way. Lift tail into trailer and walk fuselage forward until nose is nested in nose cradle.
8. Belt the after-fuselage down onto the trailer.
9. Remount horizontal stabilizer cradle in rear of trailer and tighten wing nuts at base of horizontal stabilizer cradle. Place horizontal stabilizer in cradle. Mount stabilizer-securing arm on right rear trailer rail, with top end holding stabilizer in place. Use nylon strap to tie down top end of securing arm so it cannot vibrate loose during travel. Use wing tape to immobilize elevator.



10. Close and latch rear of trailer.
11. Use duct tape and plastic bags to cover exposed wing spar pins and other mounting hardware on wing ends, and to cover holes in wing ends so dirt does not blow inside wings during travel.
12. Gather up all loose odds and ends into spares box. Don't forget battery charger. Bring a parachute with the glider to new base location. Bring wooden mouse barrier that fits around main wheel of parked glider.