



# NEICO AVIATION INC.

2244 Airport Way, Redmond, OR 97756 (541) 923-2244 Fax (541)923-2255

Service Bulletin 005-91

Subject: Shell DPL-862 resin, TETA curing agent

Date: 4-9-91 (2 pages)

First of all, please check to verify that your airframe kit is supplied with the above resin system. This system is considered superior in many respects to previous systems used. As with any system, there are always tradeoffs so please read and follow the following directions carefully regarding use of these materials.

### 1. **Mix Ratio** (BY WEIGHT)

14-18 parts TETA to 100 parts DPL-862 resin

2. You will note that the curing agent is very runny, almost water like in viscosity. This makes for a very strong system since the resin is diluted very little, but in turn, proper mixing does become much more important.

### **WARNING:**

It will be your responsibility to thoroughly mix all batches of resin/curing agent and also to verify, on a regular basis, the accuracy of your ratio mix. If you are using an epoxy pump that has been calibrated for this ratio, it is still MANDATORY to check the ratio on a REGULAR basis. There is a multitude of factors that can adversely affect the ratio such as a clogged port or a seal that has an impurity stuck under it, etc. YOU MUST REGULARLY CHECK THE RATIO MIX AND VERIFY IT TO BE CORRECT. Failure to do so could result in improper or insufficient cure properties of the resin, which in turn could result in bond failure.

### 3. **Epoxy Pump Setup:**

When setting up your epoxy pump, it is very important to align the two dispensing spouts such that they will pour their respective fluids closely together in the mixing cup. To achieve this, bend the two spouts together such that the curing agent spout (smaller diameter and smaller container) is within 3/16 of the resin spout. This will allow the curing agent to land in the cup, essentially on top of the larger volume of resin and it greatly promotes a good mix.

4. To verify the accuracy of your pump, you'll need a very accurate ounce scale. Set the scale to zero out with you mixing cup on it (this is to zero out the "tare" weight).
5. Pump at least ten to 15 full strokes from the pumper into individual cups.
6. Weigh the resin cup and note the weight.
7. Multiply that weight by 0.18. This arrived at number is what the curing agent cup should weigh. Ratios as low as 14 per hundred are acceptable however the mixing then becomes even more critical. The ratio should be very accurate, however if it is off, correction must be made either to the pump itself (perhaps cleaning) or correct the ratio through noting the additional pumps required of which ever part requires increasing.
8. After pumping the desired amounts into your mixing cup, carefully stir the resin and "fold" in the curing agent with crossing stir movements. With a relatively low volume of curing agent, it is critical to stir the mixture very thoroughly. Do not allow any resin on the bottom or corners of the cup to not get fully mixed - this is the most common error in mixing. Mix thoroughly for at least two to four minutes before using or before mixing in any other materials such as micro or flox.

9. Be ready to apply the mixed resin immediately. While you do not have to work at a hectic pace, the resin will “kick” much more quickly when piled up thick in your cup. This is due to the “exotherm” characteristic of this and most resin systems.
8. Keep the lids secured on both resin and curing agent containers and do not heat excessively. Keeping the resin at a steady 72-78°F is ideal. This can be accomplished using a small watt light bulb placed in the pumper box. Typically a 25 watt bulb works well, but do check the temperature and adjust if it gets too hot or too cold.
9. The curing time will vary greatly depending on ambient temperature and thickness of resin (ie: number of plies of BID tapes, amount of micro or fox mixed in, etc.). Generally, setting times will vary between one hour and 12 hours. Full cure at room temperature will require several days and an elevated temperature post cure is always recommended. At room temperature, for a relatively normal 3 BID layup, the resin should firm up within 4-6 hrs. A partial cup of resin will exotherm” and “kick” often within 30 minutes thus it should not be left thick in a cup for long prior to use. At room temperature, the resin system will actually continue to gain strength for up to 30 days.

#### 10. CAUTION

While this resin system is by no means the most toxic, in fact it is less toxic than most systems used by kit suppliers, proper handling is critical to good health. The curing agent is typically the most toxic of the two elements and extreme care must be exercised to keep this agent off your skin. You should wear protective gloves and have adequate ventilation when ever using any resin system. Read and follow all printed warning / usage statements by the manufacturer.

#### NOTE:

Also read and follow the instructions supplied with by the pumper Manufacturer regarding the removal of air bubbles in the pumper system.