



## **Fay Butler/Randy Carlson/Tri State Aviation Metal Shaping Seminar March 2, 3, 4 2013**

World-renowned metal shaper/educator Fay Butler is teaming up with Randy Carlson, at Tri-State Aviation, to offer a two-day lecture and demonstration, with an optional hands' on third day for a limited number who want to make something. If you've ever wanted to learn the art and science of metal shaping, here's your chance.

Fay Butler, the 2012 recipient of the Lee Iacocca award, has been teaching metal shaping for 25 years, to amateurs and professionals alike.

Randy Carlson/Tri-State Aviation is a past graduate of the Fay Butler metal shaping school and apprentice program. He is the lead metal shaper at Tri-State Aviation that specializes in complete air worthy WWII P-51 Mustang airplane recreations. Tri-Sate Aviation and Randy have assembled a professional metal shaping facility. Some of the machines consist of air planishing hammers, Pullmax machines, wheeling machines and even an 8 ft tall power hammer.

**Location:** Tri-State Aviation, 1251 Pegasus Road, Wahpeton, ND 58075  
Harry Stern Airport BWP [www.tri-stateaviation.com](http://www.tri-stateaviation.com)

**Date:** March 2, 3, 4, 2013

**Time:** 8:00 to 5:00, lunch included.

**Limited space:** 35 participants maximum for March 2, and 3.

8 participants maximum with hands on work time March 4.

**Fee:** \$350.00 per day, the first two days.

\$595.00 for the two days.

\$595.00 for the third day. \*Currently day three is full but we have a cancellation list\*

Full payment is required prior to attending.

**Student discounts:** \$295.00 for the two days and \$395.00 for the third day. Discounts available for special considerations, please call Fay directly.

### **Course Outline:**

**Day One:** Basic Metallurgy, overview of steel, history of refining steel and its numbering systems, how to purchase, hand tools. Gas welding of steel, how to get started on a project, paper patterning, blank development and cutting out. Use of hand tools, body hammers, aviation snips, sand bag, Lancaster hand operated shrinker/stretcher and bead roller. Demonstration of making parts, installing patch panels using hand tools, installing wire edge, turning a flange.

**Day Two:** Brief review of day one. History of aluminum and its number system. What is a compound curve and how to track. Set-up and operation of wheeling machine, air planishing hammer, Pullmax machine and the "Yoder" style power hammer. Stretching and shrinking principals. TIG welding; how to set up parameters, choosing filler rods, tungsten sizes and amp settings. Demonstration of making larger parts, installing turned flanges, beads and detailing panels.

**Day Three:** Review of last two days and moving into more advanced metal shaping operations. High crowns, low crown, reverse curves. Hands on time for participants to make actual parts they need, or test pieces directed by Fay Butler to explore metal shaping either by hand or with power. Prerequisite is to have taken the first two days. Space is limited to 8 participants due to the hands on nature. The third day, which is for hands on experience, requires participation in the first two days. Bring along a project to work on. Participation in day three along with a project needs to be pre-approved by Fay.

**Question and answer period:** All three days will involve Fay answering questions. Bring along any projects that you are having problems with to any of the three days, and Fay will help you understand that specific problem. He might even use it as part of a demonstration. Also bring in any favorite tools or books that you have, hand hammers, dolly's etc for Fay to comment on. This is your opportunity to have all aspects of metal shaping discussed face to face.

**What everyone should bring:** Safety equipment, eyeglasses, ear protection, gloves, notebook, an open mind and positive inquisitive attitude.



**Enroll Now:** For more information or to register contact: Fay Butler [www.faybutler.com](http://www.faybutler.com), Randy Carlson or Cindy at Tri-State Aviation [www.tri-stateaviation.com](http://www.tri-stateaviation.com).

**Lodging:** Here is a list of hotels that are in the area for the seminar participants.

AmericInn (800) 634-3444  
BayMont Inn & Suites (800) 337-0550  
Rodeway Inn (701) 642-1115  
Super 8 (701)642-8731  
Select Inn (Breckenridge Mn) (218) 643-9201