Fuel For Thought
with "Landspeed Louise" Ann North

Were cosmic forces at work when the steroidally-buff orange beast from Montana first took shape in the mind of Tom Burkland back in December of 1985? On assignment at Kadena AFB on Okinawa, Japan, engineer Burkland mailed his mom and dad design drawings for a streamliner that could challenge Bob & Bill Summers' world land speed record of 409.4 mph. It took five more years to collect a pile of parts. This, like most land speed racing dreams, is a self-sponsored operation and a pair of aluminum Donovon engines don't come cheap. Construction began when Tom, an aerospace engineer took an unpaid leave of absence from his job in January of 1990.

Working in mom and dad's garage in Great Falls, Montana; he went back to work when the streamliner was completed - October 1991! Contrary to some reports, "411" was never a speed target number. The family's first car, a Studebaker, built in '71 used the numerals because, according to Tom "It was all straight lines and it was easy to spray paint."

The faster you want to go in land speed racing is akin to an inverted pyramid when talking about wheels and tires because options are few to none. The 411 streamliner was originally designed to roll on F16 fighter jet tires, but the tires exploded too soon and too often on the Burkland's performing a variety of tasks that would never have rebuilt the streamliner.

Gene, Betty, Tom pointed out mom Burkland. That crew, who have varied duties depending on what's going on with the car, include: Cookie the Chihuahua, Herb and Nicky Ferguson, Keith, Bill and Steve Hunter, Al Maynard, Gary and Leah Stauffer, Mel Sudweeks, Rex Svoboda and Bill York.

"My biggest job driving the car is managing the amount of power to get optimum acceleration," observed Tom, "It only required 52% throttle to go 438MPH, but I was still spinning the tires. It's like trying to climb an ice-covered hill while shifting four times and matching things up each time. I'm getting pretty good at it, of the 12 shifts last October, ten were good, but two were pretty grim."

Sensitive to crosswinds under power, Burkland has to be careful, especially around the 4 mile mark where the surrounding salt flats mountains dip down to nothing; he's gotten into the habit of deliberately moving to the far left of the track knowing that the wind out of that mountain pass will push him to the right.

"The biggest challenge of this project is to get stopped," Tom stated. "The most critical performance piece of the car is the parachute system. With the speeds that we run, and the relatively short stopping distance, we need two parachutes to get stopped safely, one will not do it."

An elusive "full-pass" milestone came at Speedweek 2000 when the car accelerated through all five miles and then hit critical five gears to scupper past the last timing light at 360MPH. Elation continued the following month when the car squeaked past 400MPH in the fourth mile, tacked on 38MPH in the fifth mile and charged out the back door ticking off 450 MPH earning the 411 team the USFRA's World of Speed "Top Speed Of The Meet."

"I've driven a good handful of pretty fast single engine cars," remarked Tom, "I am pretty relaxed driving down the salt. However, even after 16 runs in 411, there is no relaxing. The cockpit workload is very busy, 12 instruments along with 15 switches and control slide handles all have to be actuated on a run. I'm always counting down a checklist. From letting the clutch out to pull away from the push truck to stopping eight miles away only takes 90 seconds."

Betty and Gene were just about as happy as they could get about the full pass run until both risers on the high-speed parachutes broke and the low-speed parachute failed. The car stopped nearly three miles past the end of the racecourse entrenched in mud so deep that the rear fenders were damaged ending racing for the season.

The family paid extra attention to stopping over the winter. The 2001 season started with a parachute test run before rolling past 400MPH to again pick up the USFRA's World of Speed Top Speed of the Meet in September clocking 421MPH.

The speedy success soured again too soon when 411's right tail air brake clipped the top rim of a mostly-submerged water tank so that the seven-mile marker as Tom was turning off the course. Slowed down to 135MPH and vectored towards the left side of floating mountain, the impact launched the car up into the air and kicked the rear end sideways to the left forcing the car into a non-recoverable skid. The 24-foot long, 5,000 pound streamliner rolled forward 12 barrel rolls knocking the ground only five times over a distance of 790 feet coming to rest with the nose facing back towards the starting line. The orange twister performed the widening, seat-puckering performance in a mere 3 seconds.

For those who have not had the pleasure of chatting up Tom Burkland, let me clue you into a bit of his psyche - this guy is a perpetual calculating analyzer and dissecting dervish of the first order, a.k.a. an engineer who determined that as he was spinning in space a dozen times it was only at a gentle 166 revolutions per minute. Biological analyzing component Burkland broke both bones in his right arm precisely at where the arm restraints were sewn into his fire-suit, and bursting so many blood vessels in his eyes that daughter Carly, 7 at the time, wanted him to stay that way until Halloween so he could answer the door and scare everyone who came for a treat. Interestingly, Tom suffered no bruising at his safety belt points confirming his theory that being strapped in extra tight is a safer way to drive fast.

"His analytical brain blows my mind," chuckled mom who is also a lifetime 200mph Club member, "That car is his second skin. On one run, when something had broke, Tom had presence of mind to shut down the engines but continue to drive on the lights in order to generate non-powered time slips to double check his coefficient of drag figures. Who thinks of things like that strapped into a racecar? I don't."

Crashing is one of those tests you never want to do, but they can be rather informative. That pesky barrel was a blessing because the enhanced product it caused to be built. The Burklands made lots of changes that would never have been done had they not been subjected to that little incident.

Structurally, the car came through the accident with flying colors," explained Gene Burkland that had the crash been the car's fault they would never have rebuilt the stream-
Tom Burkland’s “desert” office at Bonneville. There are 12 instruments, 15 switches and control slide handles to make systems work. Because every one has to be actuated on every run down the racetrack Tom has no time to sight-see while driving. Tom now slips on plastic, “Wonder Woman” cuffs to distribute the stress loads on his arms around the arm restraints. Furthermore, the parachute knowledge gained was invaluable and they are willing to share all their experience and data with anyone who asks. That’s the “espirits de corps” that makes this sport so fabulous.

Racing has been known to pull families apart, but in this case it has bonded them closer together. The Burklands began land speed racing when Tom was 11 and his younger brother Bill was only seven. Today Bill, a former Peace Corps worker, is also an engineer, but prefers bicycles. “We have one son who wants to go 500MPH and one son who wants to get 100 miles per gallon, mused Betty the mom, “Because of the car we see more of Tom. When we sat down with those drawings, we knew that between the three of us we had all the skills to pull it off.”

In 1978, Gene drove the family Studebaker to a 255MPH record in B/CC (blown competition coupe) class. Next came the B210 Datsun competition coupe, a college engineering project for Tom; he set a class record of 294mph in B/BNI (blown fuel competition coupe). During the ’86 - ’88 seasons, Betty drove most of the time as they performed engine development for the streamliner using the Donovan engines perfecting the dry sump oil systems, cooling jackets and fuel curves in their rolling dyno lab.

“Dad and I were talking on the way home from the salt in ’85,” recalled Tom, “I mentioned that I’d like to build a streamliner and without much more thought, dad agreed, but I don’t think he really understood just how deep we would eventually get into this streamliner program.”

What I believe is the most brilliant modification – one that EVERY streamliner and lakester ought to adopt in some form, is the helmet restraint system, a bumper that holds the head in place. Forget the HANS device, it’s unusable, even dangerous in a LSR tight cockpit, but Burklands “head bumper” spreads across the front of the rollcage and is part of the canopy release that will swing out of the way allowing the driver an easy exit.

This season we may see Al Teague’s long-held 409MPH record move a line down in the record books. Gene made it clear about what the “Dreamsicle” orange 411 streamliner represents, “This is Tom’s dream, it’s his kite and we are just strings tied to the tail, along for the ride.”

Louise