**Jerry Klages**

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**I was born April 1947 in Owen Sound Ontario. I was named Gerrald but my mom insisted that I be called Jerry, I don’t know why. As a sign of things to come I did not make it to my home for nearly a month because a snowstorm had filled the roads that were eventually dug out mostly by hand.**

**My parents lived on a mixed livestock farm near the village of Desboro. Our largest crop was hay and mixed grains. I am the oldest of eleven siblings. I have 2 sisters and 8 brothers. Most of them still live in the Owen Sound area and some still farm. When I was 7 years old I became the No. 1 tractor driver and held this position until I left the farm. When driving in the fields you have a lot of time to dream and think things over and that is what I did. I liked the outdoors and walking. I still do. One of my nicknames was the road runner.**

**I attended the same one room public school my dad had attended but by now it had indoor washrooms. I was known as the ‘scientist’ as I was interested in planes, cars and engines. I went to high schools in Chesley and Walkerton. After graduation I left home and studied at Ryerson Polytechnical Institute. I graduated with honours as a Mechanical Technologist in 1969. I had now turned into a city boy with no farming in my future.**

**My first job was a mechanical design position at Electrohome in Kitchener. I worked in the stereo department on things like speakers, stereo chassis, 4 & 8 track tape decks. I worked mostly on new company products. One of my projects was an 8 track tape player. This was a very stylized unit with the tape mechanism mounted at an angle. The engineering department was composed mostly of electronic engineers and technicians. I argued for a different type of construction using a high temperature injection moulding as the chassis. The electronics engineer objected to using plastics to mount the transformer and my boss objected to the high tooling cost. However the numbers were not bad due to the many functions built into the plastic moldings. The use of plastic was approved some with extra testing. One afternoon I noticed the downtown Kitchener Electrohome dealer had made a large fancy window display with one small item displayed. It was my 8 track player. It mimicked the concept and looked good. I was so proud. The unit sold beyond expectations but 8 tracks were popular for only a few years. Electrohome was a good place to work but the future for mechanical personnel was limited.**

**I was always interested in the automotive industry and in the summer of 1972 I answered an ad for the Standard Tube engineering department in Woodstock. I moved to Woodstock and started my career in the automotive industry. I started working with the tube mills and the cutting department. During this time I designed many things including the overhead crane cabs that are still used today. I supervised the installation of the Brehm high speed tube cutting machines and the spin type friction welder. I designed a long tube ID seam grinding machine and the insert style ID scarfing unit now used on the mills. I checked and had refurbished many sets of mill rolls. Stainless steel used for exhaust tubes caused a lot of roll damage and wear.**

**Later I started working mostly on automotive applications including developing the process of making variable wall tubes. It is an extruding and ironing process that makes a thick wall where welding or machining is required and a high strength thin wall else where to reduce weight. The correct lube for the tube blank was critical in order to strip the part off the forming mandrels. The formed tubes were developed as axle tubes for live rear axles. These are now used in Dodge and GM pickups. The company received a patent and awards for this process.**

**I also designed a cold form die that made a cup that was welded to an axle tube. It was a single stage process that reformed a steel tube blank by enlarged some diameters, reducing others and thickening some local areas while thinning others. A problem developed with this die. The operator would remove the finished part from a shuttle system and then load in a new tube blank. The operator would put his finger in the eject hole to feel for the part before it was ejected. One day a finger was lost, the machine was shut down and I had to redesign the eject mechanism. I was always learning.**

**I was next involved with hydroforming. This is a process where water is used to a form material. Tubing was seldom used in hydroforming because high internal pressure causes the material to elongate locally and fail. General Motors was developing a new car model, the W car or GM10, and a proposal was made to use some tubular elements. I got to design the first bent and hydroformed tube. It is quite difficult to design complex shapes on a drawing board without changing the circumference. An incorrect centroid location meant starting over again. A design was completed and a pattern maker made a wooden model. The model was used to cut a die and after some time and effort parts were made. The prototypes passed the General Motors requirements but manufacturing would not accept the risk of parts made with a new process. However GM engineering was intrigued and worked with Standard Tube to evaluate the process. A complete tubular chassis was made for a project called the XC100. I did some of the part design and developed all of the welded joints and supervised the forming of the joints at a company in Brantford. The hydroformed parts had tolerances about an order of magnitude better than a stamping. A hydroformed part could replace many stampings, was lighter and stronger with less high stress areas. This process was called pressure sequence hydroforming.**

**Due to the complex design requirements of a hydroformed parts Standard Tube invested in a CALMA computer, a wireframe CAD system. All design from this time on used this now antique system. Although complicated, it worked great. The Chrysler minivan used a tubular instrument support that did not meet their manufacturing requirements. A hydroform proposal was made and accepted. Using the new computer we made the production design. I then designed all the hydroform tooling. A bent tube was put into a die and a part with all the forms and about 30 holes would come out 20 seconds later. Only the ends needed to be sheared. This was the first production high volume hydroform part and the die made millions of parts. Shortly after I designed a very light weight hydroformed instrument beam used in the Ford minivan. Many other companies now started making hydroformed parts used particularly in truck frames. The Corvette uses a chassis of long hydroformed tubes.**

**The parent company sold Standard Tube but kept the hydroforming part of the engineering department and the hydroforming production plant in Strathroy. The new company name was Vari-Form.**

**Over the years many hydroform parts were made. I was the senior designer and made all the production die concepts and layouts. I developed the tooling standards for a hydroform die including the sealheads, the punching units and punching systems. Another part that l developed was an engine cradle for the Ford Mondeo. I made all the prototype designs including all the stampings. The prototype tube was made in Canada and the stampings and assembly were made in England. I did the production hydroform tube design which took an entire year to complete. During this time the car width and suspension changed, the engine position changed and a new transmission had to be accommodated. These hydroformed parts were made in Canada and England. In North America the car was known as a Ford Contour or Mercury Mystique.**

**In 1998 I became a project engineer. I assumed engineering responsibility for the IP beam and a new radiator support for the Chrysler minivan. This required regular meetings with engineering at the Chrysler Tech center. These people were demanding but good to work with. The biggest problem I had was getting a parking spot. I would drive in circles trying to get a spot except for the day I had a 7 am meeting, the traffic was light and I barely stopped at the border. I was 1 1/2 hours early for the meeting.**

**Vari-Form also had licensee’s and I was the technical support for the products. This included in England support for the Mondeo production (it lasted a long time) and for the BMW Mini engine cradle. In Canada and Japan support for a licencee that made Honda Civic engine cradles.**

**I was involved with design meetings in England for the Mini engine cradle and in Japan for the Civic engine cradle. In England I remember getting in the wrong side of the car and looking the wrong way at intersections. My first time in Japan the licencee company had only a few women working and they were all dressed in Kimono’s. During a meeting they would serve tea and would deeply bow when entering the room and when leaving would deeply bow and walk out backwards. The last time I was in Japan the women dressed in the common company uniforms and worked everywhere in the offices. I did not see any women in senior positions.**

**My last project was involved with a new process called Hydroplast. It was developed with the General Electric and Carlisle companies. Hydroplast was plastic injection molded around a hydroformed tube to make an economical subassembly. The parts were mechanicaly connected by molded in buttons. This was a difficult design since the injection molding would normally collapse the tube. The process was refined, prototypes made and assembled into cars, then tested and marketed. It was interesting to see vehicles being destroyed in the lab. The process was considered ideal for radiator supports because of the structural requirements, the number of required functions and parts attached to it. Ford of Australia selected this process for their radiator support on their main car line. We had many phone and video meetings at strange hours and places. This car has just went out of production.**

**I retired in 2008. By this time I had acquired 12 patents. My work had been interesting and challenging, the way I like it.**

**I got married in 2006 and it was a long time coming. We met through an ad. Judy worked with developmentally handicapped adults in Simcoe. I inherited 4 stepchildren and their families. Chris lives in Orleans with Alana and their two children. Craig and Priscilla and their two children in Dartmouth, Adam in Halifax and Aric in Hamilton. We get to travel to see family or get visitors. It works out okay.**

**We did have a family tragedy. Craig was a deep see diver with the Canadian Navy, Fleet diving unit. He was a demolition expert and a trainer. He helped in training the US Navy Seals. In 2010 he accepted a posting to Afganistan to disarm explosive devices. He was 37 when he died by an IED located by a footpath on 3 May 2010 just 10 days after he arrived. He was the first member in the Navy and the 143 rd Canadian killed in Afganistan. Craig was very active in youth sports and bicycle racing. A park in Dartmouth and a new ferry in Halifax were named after him.**

**About 2 years later my wife had a stroke. It was considered minor and she did not change or suffer much although it took a couple of years for her to feel normal.**

**Since retiring I keep busy in my woodworking and repair shop. I fix, make things for and help my neighours. I am a member of the Cockshutt club and I am slowly restoring a 1961 Cockshutt 540 tractor that was made in Brantford. I am active in my church and am now chairman of the congregation. We are members of the Historical society. We try to participate in community events. We try to take a trip each year. We have traveled through the USA, Canada, Caribbean and Hawaii. We have been holidaying in Florida for the past few years.**

**I have a CAD program on my computer where I design for myself. My first retired project was to make a family room addition to keep Judy happy. I did almost everything except the concrete work, the bricklaying, gas fireplace and eavestrough. It took me 2 months to dig out the basement by hand. It included landscaping with 49 yards of topsoil moved and stacking 13 tons of rocks to make a wall. I wore out 3 round mouth shovels and a wheelbarrow but I felt good. Don’t worry I fixed the wheelbarrow.**

**I also promised Judy a new kitchen. I had a cabinet maker make doors and I made the cabinets and installed everything. We now have a granite counter top, deep sink, painted baltic birch cupboards, new floors and new appliances. I have one bathroom renovation left to do and some other things which she will remind me of.**

**I like to have projects to do. I was not good in sports nor like watching them. I do enjoy watching car racing. I enjoy our family get togethers. I like to be active in the things I do.**