

## LONG DISTANCE MODEL MAKERS

Roland Morrison and Marvin Hedberg met in 1998 at a model engine show in Eugene, OR. They were both showing model engines at the show and Roland stopped by to look at Marvin's engines. Marvin showed Roland a picture of the Lightning Balanced Engine owned by an elderly friend of his and told him that it was the next engine he was going to model.

Roland's response was "That's the engine I would like to model as well!" The engine was at a farm about 1/2 hour away from where Marvin lived at Rush City, MN and Roland lived 1500 miles away in Benton City WA. Even so, they decided to work together on the project.

Marvin measured, took pics and built the 1/4 scale prototype model Lightning. Roland got it running and painted it. After the design was proven, Marvin made the molds and Roland injected the wax patterns to make the investment castings. These make exquisite castings for the Quarter Scale Model Lightning Balanced Engine kits that Morrison & Marvin occasionally sell.

In 2015 they showed their models and also the real full size Lightning Balanced Engine.



*When not working with his engines, you may have seen Marvin scooting around the grounds on Charlie. Marvin says, "Since I got Charlie I don't get Charley horses anymore from walking the hills of Rollag"*

Marvin and Roland are no strangers to WMSTR. Roland's wife, LuElla, has known Jerry since she was a little girl.



Jerry Swedberg and LuElla Morrison

## THE UNION ENGINE by Roland Morrison



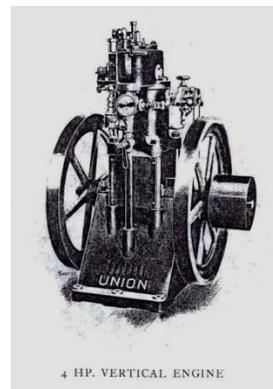
*Roland Morrison and Marvin Hedberg with their Half Scale Model Union Gas Engine*

Marvin Hedberg & I brought a 1901 Half Scale Union Gas or Gasoline Engine to display at WMSTR in 2015. This is the only Union Model known and we built it from 1 of 3 sets of castings made 18 years ago by the California Engine Collector, Larry Snow.

Engines built in California are very special. Unknown to most engine collectors, California built engines are very sought after and extremely rare. Early California Engines were very advanced for their time as explained by Jack Alexander in his book "The Regan Vapor Engine" (available from Lulu.com).

The Regan Engine was made in San Francisco, California in 1879 to power sewing machines. What made his engine so great is Daniel Regan invented and patented, in 1884, the "Make and Break" ignitor which became the most popular type of engine ignition for many years. In 1889 The Regan Vapor Engine Company was incorporated to manufacture Regan Vapor Engines and Vapor Engine Launches.

In 1889, Daly, Cavanagh & Barrett organized the Pacific Gas or Gasoline Engine Company for the purpose of manufacturing Pacific Engines. Regan sued because some of the features were also on the Regan Engines under his patents. After many long court battles and appeals with sides winning and losing, the companies were unable to continue so the parties involved agreed to join companies and build engines together.



The name of this company, founded on May 16, 1892 was UNION Gas Engine Company. Union engines are exceedingly rare, especially the early ones.

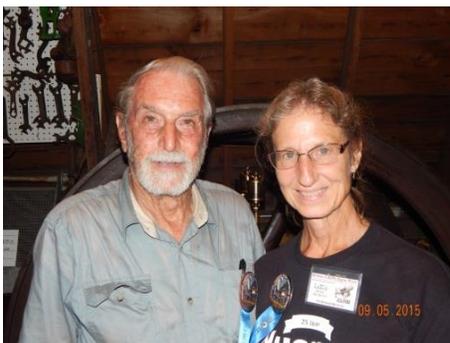
The model castings are based on a 1901 Union but with features from earlier engines. There were no plans, no dimensions, and hardest of all, we had no actual engine to measure. No problem, impossible things just take a little longer. Details were gleaned from catalogs, scaled from old photos, the few pictures we had and various parts and pieces we could borrow from Larry.

As Marvin lives in Minnesota and I live in Washington there was a lot of long distance discussion and shipping. The head and valves were made in Marvin's shop and the lower crankcase, sids shaft and cylinder were made in my shop. For final assembly in Washington, Marvin came out with his parts and we enlisted Dave Otto, of Idaho, to come supervise the final fitting.



On the left is the 1/2 scale model of the Union Engine. Picture on right, left to right is Dave Otto from Idaho, Marvin Hedberg from Minnesota and Roland Morrison from Washington putting the final touches to the model in Roland's shop in Washington.

This model Union is not quite finished and when we are happy with the way it runs, it will go to Larry Snow and we will start on the other two sets of castings to make Unions of our own.



Roland and LuElla Morrison

**Union Gas Engine Company.**  
San Francisco,  
California,  
U.S.A.

## THE LIGHTNING BALANCED ENGINE

by Marvin Hedberg

In 2015 I displayed a 10hp Kansas City Hay Press Company Lightning Engine and its companion 3/4 scale model at Rollag. This came to be after many years of waiting and hoping that one day this engine could be mine.



This 10hp Lightning Balanced Gas Engine built by the Kansas City Hay Press Company is owned by Marvin Hedberg.

About 25 years ago I started visiting Morris Blomgren who lived near Alpha, WI. He had a big collection of old engines, tractors and other antiques. In the yard, under a pine tree by the house, sat a large gas engine.



The engine came from a farm near Alpha, WI. This picture shows one of the unique features of the engine. The cart is actually the frame of the engine.

I was intrigued by this engine as it was different from any other that I had seen. The two pistons facing each other in the same bore. The crankshaft has three throws – the center one with a connecting rod to the back piston and the outer two throws are 180 degrees opposed with a large U-rod that pulls on the front piston. The valves are on the bottom center of the cylinder and an igniter is on the side. It is a hit and miss engine, fly ball governed, ported exhaust, with a gearless timer mechanism to actuate the igniter and exhaust valve.

The cart is the frame of engine holding the cylinder in position with the crankshaft. With the opposed pistons, there is no stress on the frame and so is known as a "Lightning Balanced Engine".

I had already started to build model gas engines and this engine was fascinating. I started taking pictures, measurements and drawing all of the parts on my computer. I made many trips to visit 80+ year old Morris and always oiled and kept the engine loose. It took about 3-4 years to build my model Lightning engine from scratch.



*The 1/4 scale model of the Lightning Balanced Engine built by Marvin Hedberg*

Many times I asked Morris if I could take the big engine home to get it running for him but each time his answer was “but then you wouldn’t come visit me”. I continued to visit Morris, and with his niece, take care of him so he could continue to live in the house he was born in. He died in 2009 at 93 years old. After his death I was able to get the engine from his estate.



*The Lightning Balanced engine now runs very well and belt powers it’s companion restored Kansas City Hay press to bale straw.*



*On left is the original piston cut into sections and padded in order to get the correct size for the casting of new piston. Picture on right – “What would a display of an Lightning Balanced Engine be without lightning rods?”*

During the winter of 2013/2014 I went through the engine trying to keep it as original as possible. It was worn out and the 7” cylinder needed to be honed .030 over and new pistons cast. I also needed new valve linkage, water tank, battery box, ball guard, etc.