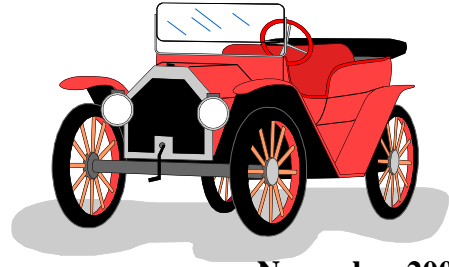


# T-TIME

## IN CANYON COUNTRY



November 2008

### Canyon Country Model T Club

3545 Kiltie Loop  
Flagstaff, AZ 86001

E-mail:  
1stnow@msn.com

Website:  
[canyoncountrymodeltclub.com](http://canyoncountrymodeltclub.com)

#### OFFICERS

Russ Furstnow  
President

Gary Hays  
President-Elect

Marilyn Petersen  
Sec./Treas.

Kathy Furstnow  
Tour Chairperson

Canyon Country Model T Club  
is affiliated with

Model T Ford Club  
of America

P.O. Box 126  
Centerville, IN 47330-0126

YEARLY DUES  
\$29 U.S.  
\$35 Canada  
\$36 All other countries

## T-TIME WITH THE PRESIDENT

Our last tour at Grand Canyon Caverns was very well attended and turned out to be a real blast. The weather was spectacular, warm and sunny, and the drive along Route 66 was perfect. Thanks to Gary Selig for planning the event and for bringing the wood for the campfire!

Our final tour and poker run will take place on November 15<sup>th</sup>, and will include a morning breakfast at Cracker Barrel restaurant in Flagstaff. We will leave Cracker Barrel and visit the homes/garages of four CCMTC families, receiving a playing card at each stop. We will end up at our home, receive the final card and hand out the grand prize for the best hand. Kathy will have a special homemade soup for everyone and then we will have our final meeting of the year.....a jammed packed day of fun and fellowship. I hope everyone can make this final tour of 2008. Please call us at (928) 526-1343 to let us know that you will be attending.

*Russ*

# T-TIME ON TOUR

By Russ Furstnow

## Grand Canyon Caverns Tour

On October 17<sup>th</sup>, CCMTTC families drove to Grand Canyon Caverns, on old Route 66, for a campout and driving tour. The Caverns restaurant planned a wonderful buffet meal Friday night (all you could eat prime rib!!), and everyone enjoyed the wonderful food. We even had a "special" wild-west show put on by the Santa Fe Kid. Families on the tour included Harold and Karen Crutcher (with Model T friends Ken and Shirley), Dick and Joyce Erfert, Russ and Kathy Furstnow, Art and Tommie Wimmer, Marilyn Petersen, Gary Selig, Tate McReynolds (and friend Becky), and John and Montana Renkema.

Saturday morning was perfect Model T weather, and the tops went down for the beautiful day. Dick and Joyce Erfert "back seated" with Harold and Karen Crutcher in their 1914 touring, and they commented about how much they enjoyed the "wind in their faces". Route 66 proved to be a great highway with minimal traffic, and there were small towns in which to stop for "potty breaks". We stopped in Truxton as Art's car was misbehaving, but we could not make the necessary repairs, and the 1927 coupe continued to miss and sputter (Art would later determine the timer roller spring had collapsed). We drove further and stopped at the general store in Hackberry, a cute little tourist trap.

When we reached the outskirts of Kingman, we stopped at a flea market and Karen Crutcher and Shirley had a great time. John Renkema bought a set of Craftsman wrenches, and by the time we left we were ready for lunch. We stopped at Cracker Barrel in Kingman (Russ couldn't believe we didn't stop at In 'n Out Burger!! Sorry, Russ. Ed) We decided to return to the Caverns after lunch as it was getting late, and Art's car was not running any better. On the way back, Art's car decided it had enough and put its fan into the radiator...so it went on the trouble trailer. We were very glad that Tate decided to bring the trouble trailer...thanks, Tate! Further down the road, Harold's touring had an attitude and the coilbox switch gave up the ghost...and the battery was dead. Harold re-wired the switch, got the car started and drove to the Caverns with no further trouble. Arriving at the Caverns, everyone went to dinner and then sat around the campfire talking about the day's drive. John and Montana were extremely pleased with their

car, a newly purchased 1925 runabout. The car was purchased with the intent of taking the Ruckstell and wire wheels off the car and putting the parts on a 1926 coupe...BUT the car turned out to be a very reliable and FAST car, so now the car is going to stay intact, and, according to Montana, "is a keeper!"

On Sunday morning, we went to breakfast and toured the Caverns. We had a great guide, who explained that the Caverns are one of the largest "dry caves". The tour took about 45 minutes and we walked around  $\frac{3}{4}$  of a mile, but it was well worth it! The tour was a fun event, and we thank Gary and Tate for sponsoring the tour...thanks guys!



## **T-TIME WITH OUR MEMBERS**

**Dave and Jeannie Chance** will be attending tours in style since they just purchased a new "toy hauler". The new Gear Box fifth-wheel trailer can haul Dave's Model T or Model A, and it comes with all the bells and whistles. We look forward to seeing Dave and Jeannie on tour with their new toy.

Speaking of new toys, **John and Montana Renkema** decided to join the "motor home" group and purchased a 1999 Rexhall motor home. It is in wonderful condition and made its debut on the Grand Canyon Caverns tour. John reports that it rides very smoothly, and that no beer fell out of the refrigerator (if you have not heard the "beer on the floor" story, talk to John.). Along with the 1925 runabout, Montana reports the motor home "is a keeper".

Speaking of MORE new toys, **Harold and Karen Crutcher** added a new vehicle to their collection! Karen has always wanted a Model A, and they found a beautiful 1930 Model A roadster on the Internet. The car was located in Massachusetts and shipped to Arizona. The car, named "Latte", has a cream colored body and chocolate brown fenders, a striking combination. Congrats to the Crutchers!

## T-TIME CLASSIFIEDS

**2008 Open Trailer**, tandem axle with four-wheel brakes. Titled and licensed, will include tie downs and new Tekonsha braking system for your tow vehicle. \$2300, Call Russ at 928-526-1343

**Car for Sale**: 1924 Model T tudor, excellent condition, runs great, everything works, glass and interior intact. \$7000.00. Can deliver to western states. 1926 running chassis with hubs and wire wheels. Totally restored and painted. \$3500.00. Pics available.

Larry Ciuffo <[lcuffo1@sbcglobal.net](mailto:lcuffo1@sbcglobal.net)>  
760-233-1263 2215 N Nutmeg St, Escondido, CA

**Parts for Sale**: I have 5 - 21" wire wheels. I thought they were for a Model T but they are not. They have 3 1/4" bolt pattern so they are for a Model A. All have been cleaned, painted and mounted on used tires. \$500.00 for all FOB Escondido CA Can trade for Model T wheels.

Larry Ciuffo <[lcuffo1@sbcglobal.net](mailto:lcuffo1@sbcglobal.net)>  
760-233-1263 2215 N Nutmeg St, Escondido, CA

## T-TIME WITH MARILYN

Please send your 2009 dues payment of \$10 to

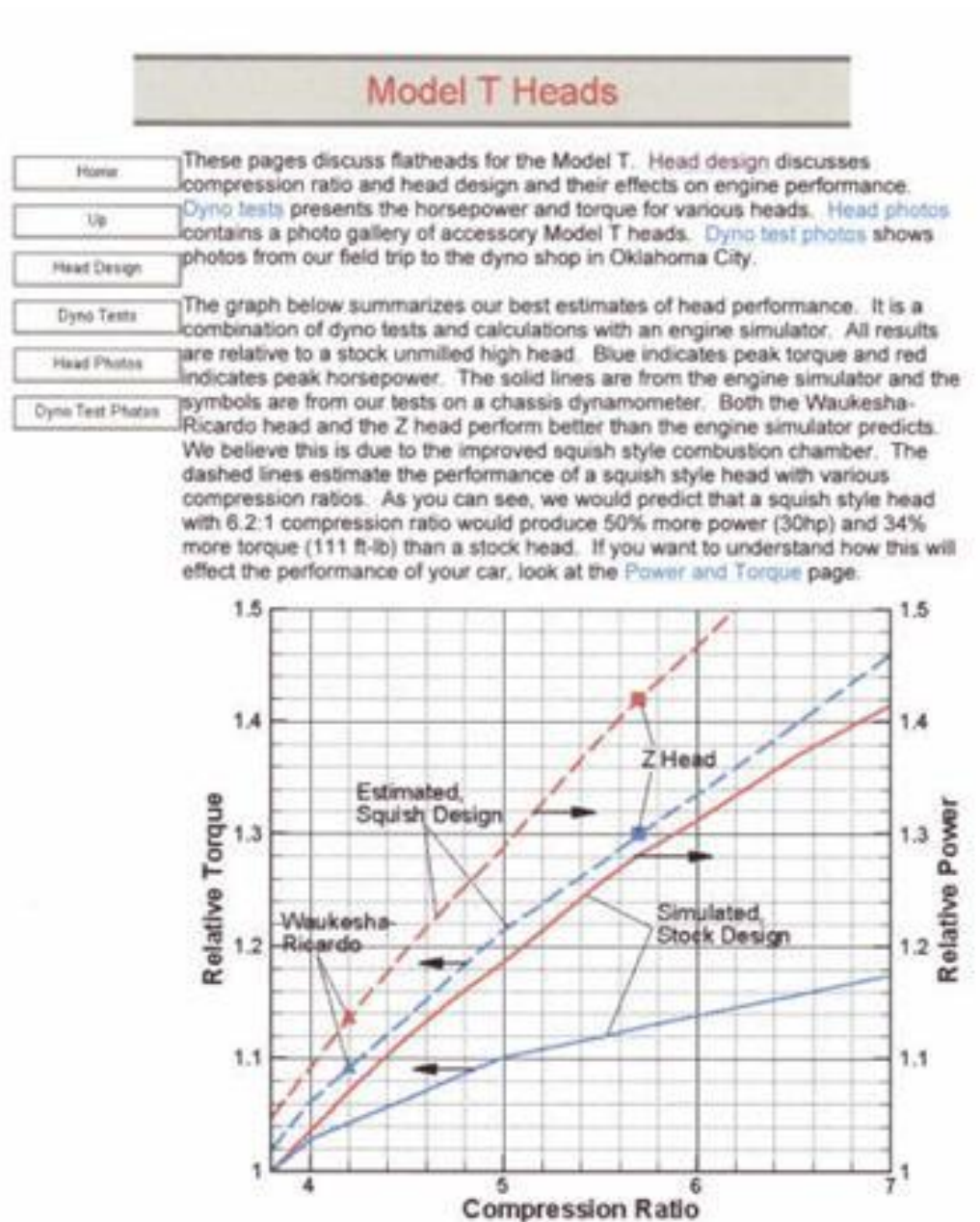
Marilyn Petersen  
5770 Heppel Drive  
Flagstaff, AZ 86004

# T-TIME TECHNICAL INFORMATION

## Model T Heads

Taken from the MTFCA Tulsa Chapter newsletter

There have been many discussions as to what cylinder head provides the best power, and the following article provides the best explanation yet.



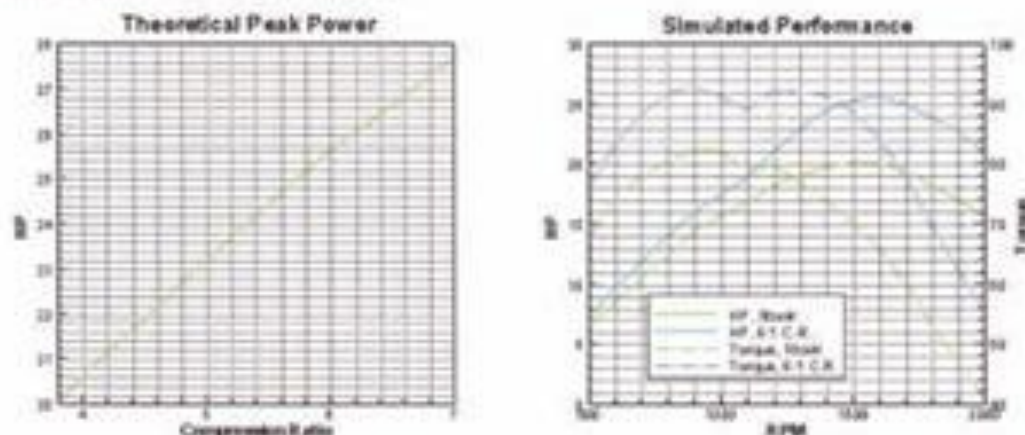
## Head Design

[[Technical Page](#)] [[Head Page](#)]

Due to the poor quality of gasoline during the Model T era, the compression ratio of the Model T engine was intentionally held at about 4:1. Since good quality gasoline is now available, an easy way to improve the performance of your engine is to increase its compression ratio. Compression can be increased by milling a stock head, installing pop up pistons, or by installing a high compression head. The increased compression will not only improve the power of your car, but also increase its fuel economy.

### Theoretical Effects of Compression Ratio

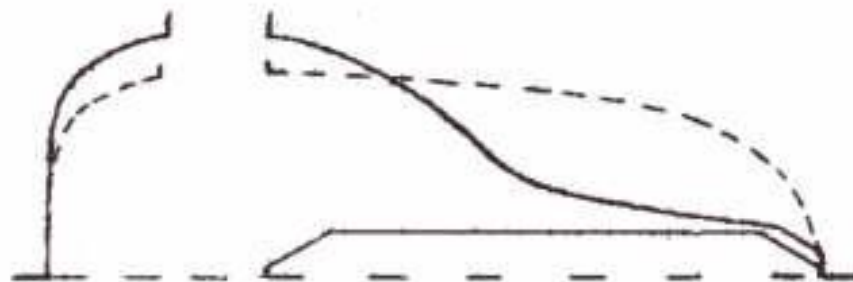
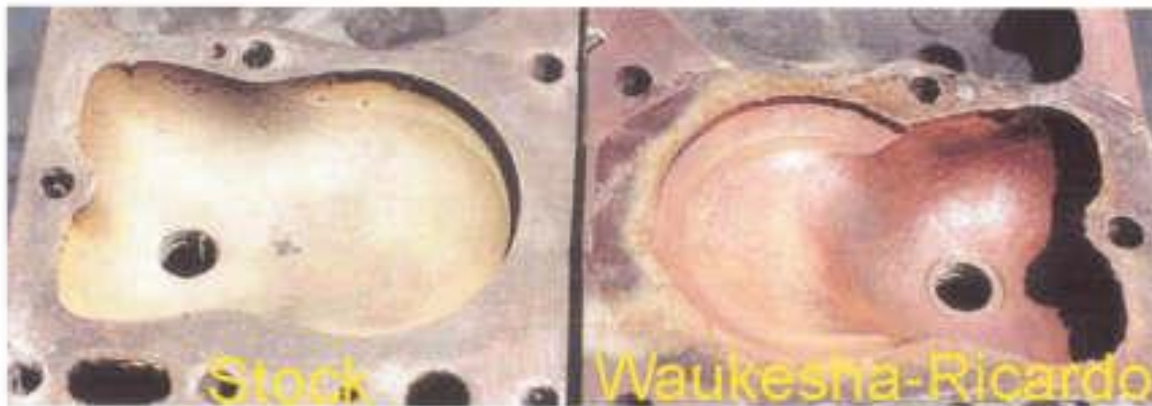
Compression ratio is strictly a ratio of volumes, i.e. the volume in the cylinder and head when the piston is at the bottom of its stroke divided by the volume when the piston is at the top of its stroke. Many factors effect engine performance, however, if air flow, volumetric efficiency and other factors are equal, a theoretical relationship (see Huntington\*, p. 67) can be used to estimate the effect of compression ratio on engine power. For the Model T engine, this relationship is plotted on the following graph. An engine simulator can also be used to estimate the power from increased compression (see [Cams/Simulation](#)). The results of two computer simulations are plotted below to show the effect of compression ratio on the horsepower and torque curves. A nice feature of this modification is that unlike other modification (cams, carbs, etc.) it increases power and torque for all engine speeds.



### Combustion Chamber Design

A key phrase in the preceding discussion is the one, "if air flow, volumetric efficiency and other factors are equal". Generally, these factors are not equal. Huntington\* states that increased compression is usually accompanied by poorer air flow, so that one generally does not achieve the theoretical power increase. However, the Model T combustion chamber is antiquated even compared to other flathead engines, e.g. Model A or flathead V-8. These later engines employed squish style combustion chambers patterned after the work of Harry Ricardo. The Waukesha-Ricardo head produces a significant power increase with only a small increase in compression. The photo and sketch below show a stock high head and a Waukesha-Ricardo head. The

cross-section sketch of the combustion chambers compares the shape of a stock head (dashed lines) and Ricardo head. The Ricardo design employs a small clearance over the piston and a larger cavern around the valves for good air flow. For best results, the clearance above the piston should be 0.050 to 0.080 inches (Huntington, p. 70).



We have started a photo gallery of Model T heads (see [Photos](#)). Most of the aftermarket heads have a squish style combustion chamber. The Reeder head is a notable exception. The combustion chambers for the Haibe, Giant and Simmons heads appear to be identical. The combustion chamber for the Z head is quite similar. Unlike the Ricardo head, all of these heads have a "valley" in the combustion chamber.

## Compression Ratios for Model T Heads



The photo at left (click to enlarge) shows the method we use to determine head volume. A Plexiglas plate with a small hole is clamped onto the head with a little silicon sealer. The head is filled with water using a 100cc syringe. The compression ratios can be determined from the measured volume. A stock high head has a volume of about 294 cc or 17.9 cu in. The volume is reduced by 2.8 cu in because the piston rises 5/16 inch above the deck. The volume is increased about 0.8 cu in due to the head gasket. For a stock head, the combustion chamber volume is  $17.9 - 2.8 + 0.8 = 15.9$  cu in. An engine with stock bore and stroke has 44.2 cu in displacement per cylinder, so the total volume when the piston is at the bottom of its stroke is  $44.2 + 15.9$ , and the compression ratio is  $(44.2 + 15.9)/15.9 = 3.8$ . The values determined for other heads are shown in the table below. The volumes for milled heads were calculated using the open area of 18.3 sq in and the thickness of material removed. This works out to about 3 cc

for each 0.010 in milled. For example, milling a head 1/8 inch reduces the volume by  $18.3(0.125) = 2.3$  cu in or 37.5 cc. The compression ratio calculations can be modified for other cases. The table shows compression ratios for a engine with stock bore and stroke and values for one modified with an 0.060 overbore and a Model A crank (48.5 cu in per cylinder). The rare antique heads (Green and Riley) could have been modified at some time in their past, so the head volumes may differ from their original values.

Head	Head Vol. (cc) (cu in)		Corrected Vol. (cu in)	Compression Ratio	
	cc	cu in		Stock	Modified
Stock Low, 1909-10	262	16.0	14.0	4.2	4.5
Stock Low	278	17.0	15.0	4.0	4.2
Stock High	294	17.9	15.9	3.8	4.0
Waukesha-Ricardo	272	16.6	14.6	4.0	4.3
Haibe	255	15.6	13.6	4.3	4.6
Green Engineering	218	13.3	11.3	4.9	5.3
Riley Multi-Ford	183	11.2	9.2	5.8	6.3
Z Head	203	12.4	10.4	5.3	5.7
Reeder	200	12.2	10.2	5.3	5.8
Stock, milled 0.125	257	15.7	13.6	4.2	4.6
Waukesha-Ricardo, milled 0.050	257	15.7	13.6	4.2	4.6
Z, milled 0.050	188	11.5	9.4	5.7	6.1

### References:

\*Huntington, Roger , *Souping the Stock Engine*, Fisher Books, 1950