

# ***A SMOOTH RIDE WITHOUT VIBRATIONS***

***ENJOY YOUR MODEL A RIDE***

***BY LES ANDREWS***

# INTRODUCTION



- It can be tiring to ride in your Model A that has lots of Vibration and Noises.
- This seminar will identify most major causes of Vibration and Noises.
- Many of these Vibrations and Noises can be eliminated.
- You'll be amazed at how enjoyable it is to drive and ride in your Model A without Vibrations.
  - ***THAT'S HOW HENERY BUILT IT.***



# TOPICS

- **1.** ENGINE VIBRATIONS
- **2.** DRIVELINE VIBRATIONS
- **3.** BODY VIBRATIONS
- **4.** MOTOR MOUNT VIBRATIONS

# ENGINE VIBRATIONS



- Most engine vibrations can be prevented during ENGINE REBUILD
- 1. All Rods **MUST** be weight balanced to within 2 grams of each other. (total rod weight and crank end weight)



# WEIGH AND BALANCE RODS

## Gram Scale

Weigh the total rod and piston together. Make note of weight.



# WEIGH AND BALANCE RODS

Weigh the crank end of each rod and make note.

The lightest rod should be the standard.

Remove material from heavier Rods.





## WEIGH AND BALANCE RODS

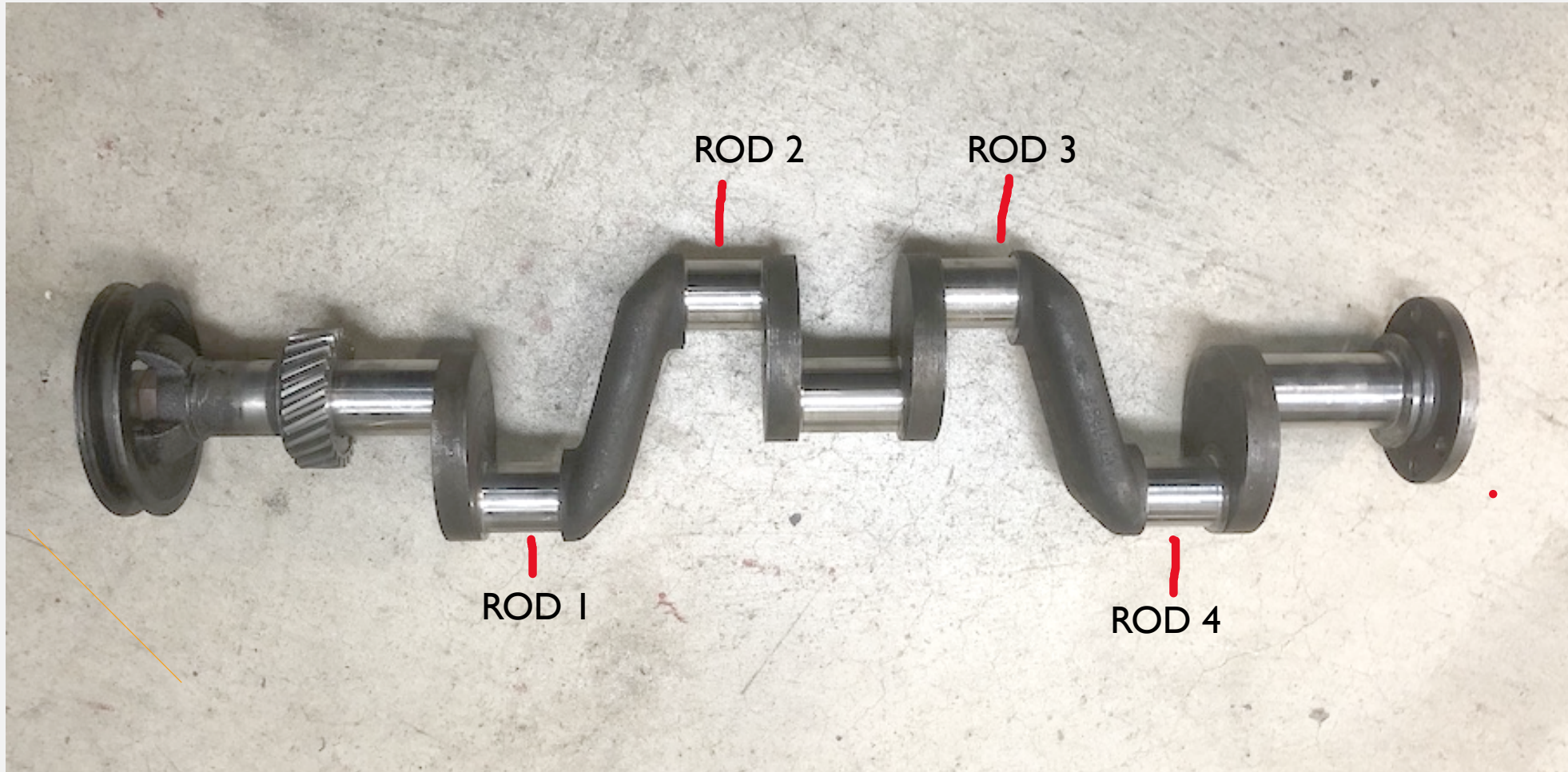


Using a file or Dremel Tool carefully remove material from the areas indicated

Weigh after each material removal



# WEIGH AND BALANCE RODS



RODS 1 AND 4 WEIGHT SHOULD EQUAL RODS 2 AND 3 WEIGHT



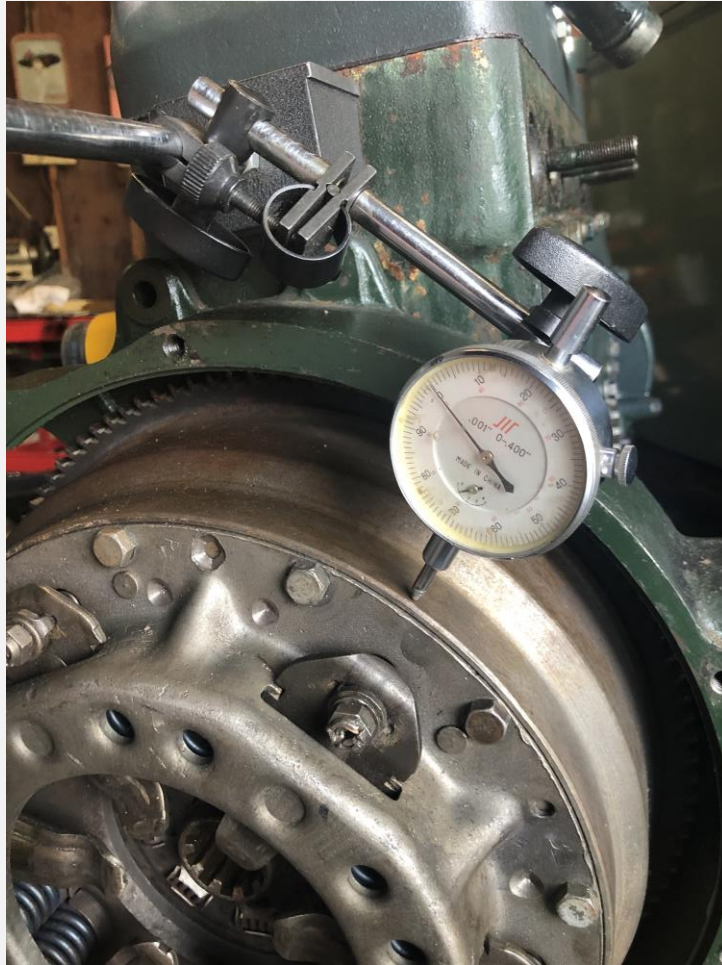


## ENGINE VIBRATIONS

- The Model A cam shaft has 3 Main Bearings.
- The center Main Bearing receives the most wear. Most center mains are worn .003 to .005. The bouncing center main bearing causes engine vibration.



# ENGINE VIBRATIONS



- Flywheel/Pressure Plate out of balance.
- After Flywheel is mounted, use dial indicator to check wobble. Must be less than .003” wobble measured at outside edge of flywheel.
- Flywheel wobble is caused by :
  - Bent crank flange
  - Dirt, grease, or grit on crank flange or flywheel.

# ENGINE VIBRATIONS



- Crank flange and Flywheel mating surface must be inspected and perfectly clean before mating.
- A .002" spec of dirt or grease on the crank flange or on the flywheel mating surface when mating the two together will create a .010 to .012" wobble at the outside edge of the flywheel.







# ENGINE VIBRATIONS

- Check crank flange for burrs
- Check that flange is not bent

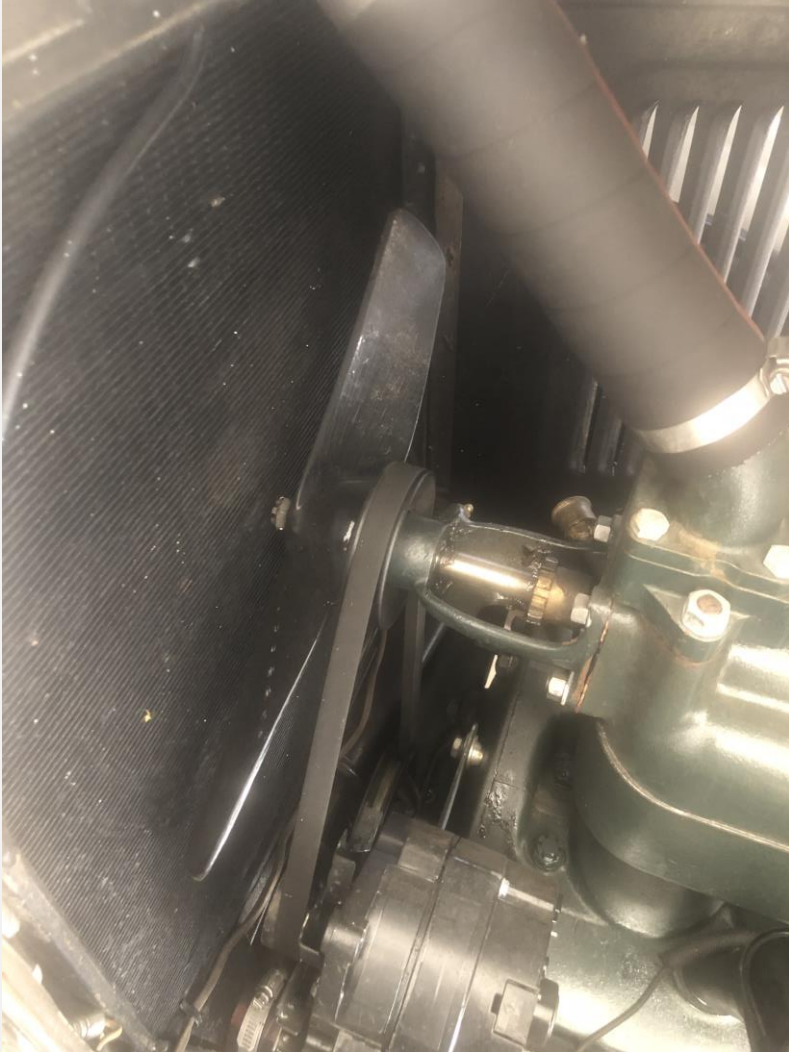




# ENGINE VIBRATIONS

- .010 to .012” wobble at the outside edge of the flywheel, ***spinning 64 pounds at 2,000 rpm*** will generate a great vibration that can not be dampened with motor mounts.



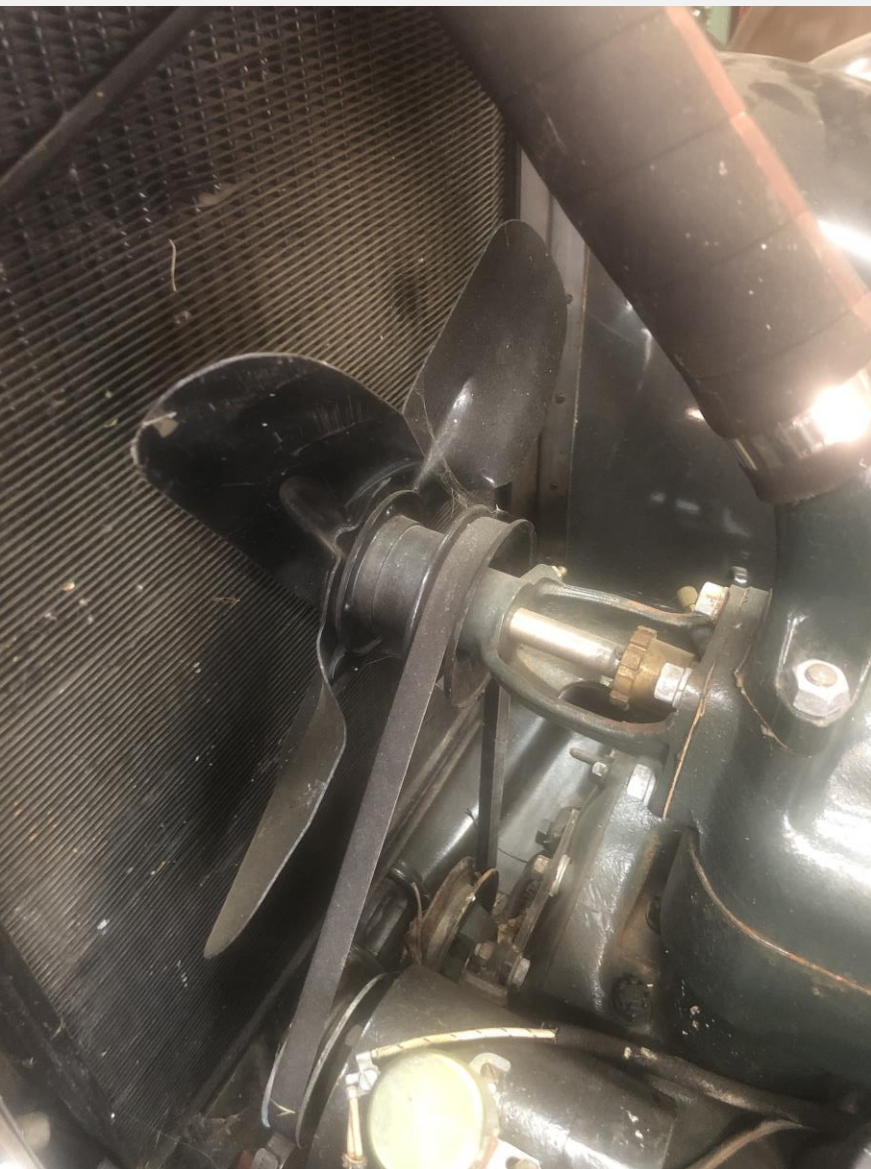


2 BLADE FAN

# ENGINE VIBRATIONS

- Fan Blade not Balanced.
- 2 Bladed Fan runs smoother than 4 bladed fan and actually provides more airflow





4 BLADE FAN

# ENGINE VIBRATIONS

- Original 4 bladed fan from a 1934 through 1939 are usually way out of balance or have loose rivets. Cause lots of vibration.
- Remove fan belt to check how much vibration is from fan.



# ENGINE VIBRATIONS

The 5 Blade Plastic fan (after market) is perfectly balanced, very quiet running and provides the most airflow



5 BLADE FAN



# ENGINE VIBRATIONS



- Front Motor Mount Must Be Correct.
- (only the ORIGINAL style front motor mount will dampen front motor vibrations.)
- None of the after market front motor mounts will properly dampen vibrations.

- **Note**

- *Engine vibrations are transmitted*
  - *to the front of the engine.*



# ENGINE VIBRATIONS

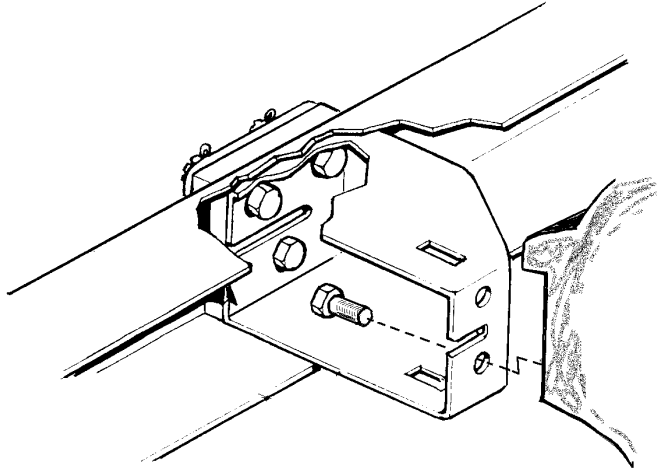


- This After Market front motor mount spring is too stiff and does not reduce engine vibrations as well as the original 3-spring style. This spring had rubber inserts in the two windings.

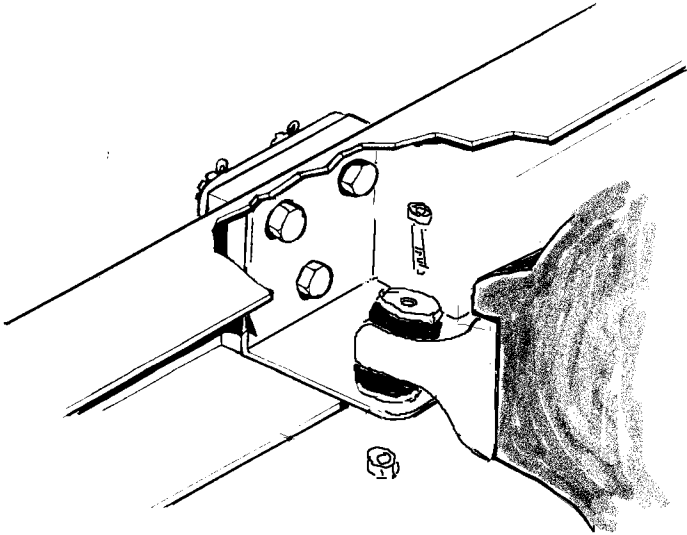


# ENGINE VIBRATIONS

- Original Rear Motor Mounts work well to dampen vibrations when all rubber pads have been replaced.



# ENGINE VIBRATIONS



float a motor mnt instal

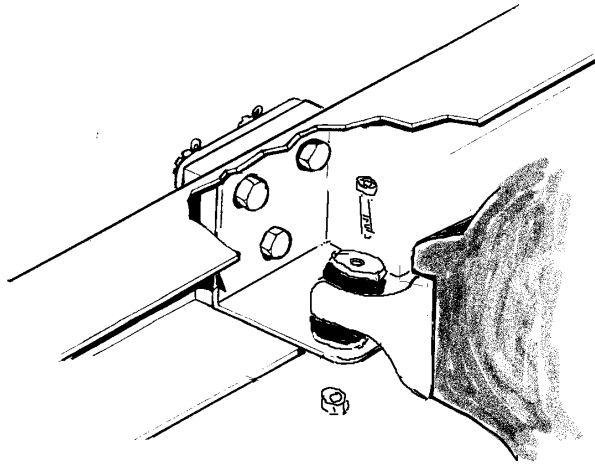
- Float-A-Motor Motor Mounts provide better vibration damping. Must be installed correctly. Tighten Center Mounting Bolt only enough to lower rear of engine to same distance from garage floor as with original Motor Mount.





# ENGINE VIBRATIONS

- The center bolt through the two round rubber pads serve two purposes.
- 1. Attaches the flywheel housing to the frame base plate.
- 2. When the center bolt is tightened it lowers the rear of the engine.



float a motor mnt instal



# ENGINE VIBRATIONS

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# ENGINE VIBRATIONS



- Float-A-Motor mounting bracket
- Measure from this point to the floor for correct engine height.



# ENGINE VIBRATIONS



Snyder 5.5 Head



Another cause of engine vibrations is incorrect high compression cylinder head. All High Compression heads have a triangle shaped combustion chamber as shown in photo. This directs the ignition flame over the piston for proper combustion. Too high of compression can cause erratic ignition firing resulting in vibrations.

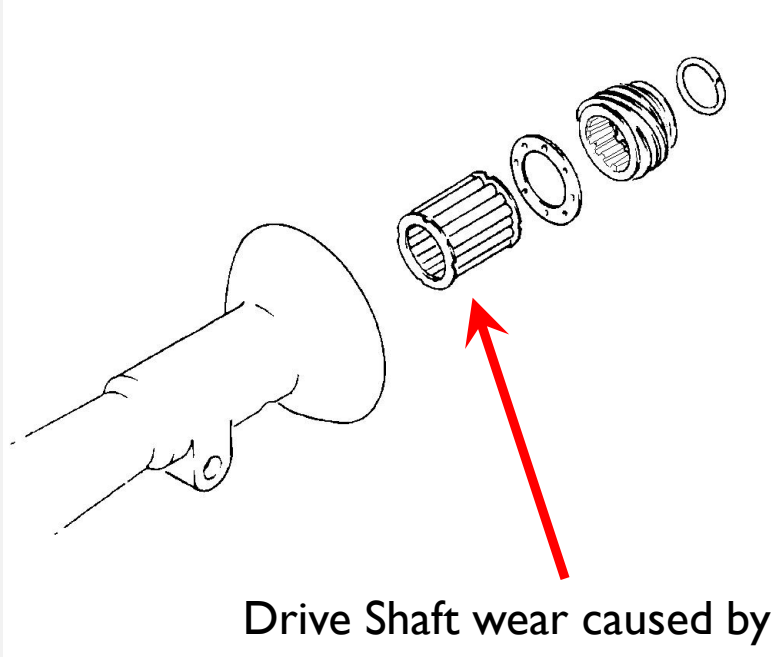


# ENGINE VIBRATIONS

- Milling any Head more than .030” will add to engine vibration.
- Through research and lots of trial and error it was found that the best smooth running Head for the Model A (other than original) is Snyders 5.5 High Compression Head. The combustion chamber is a near perfect match for the Model A timing.



# VIBRATIONS



Drive Shaft wear caused by  
this bearing with NO grease

- Excessive wear at front end of Drive Shaft (.025" or more) at bearing surface will cause wobble, creating a vibration.
- A bent drive shaft will also wobble and create vibrations .





# VIBRATIONS

- Lots of VIBRATION can be caused by out of round or out of balance wheels.



# NOISES AND RATTLES

- Noises and Rattles (sometimes caused by vibration) can be your worst enemy for a smooth ride. Noises can be translated as vibrations.
- Eliminate the noise and rattles and enjoy a smooth ride.



# NOISES AND RATTLES



- Brake Rods can rattle very loud.
- Eliminate the brake rod noise by adjusting the brake rod antirattler brackets.







# NOISES AND RATTLES

- Worn or loose Door Hinge are a source of rattles



# NOISES AND RATTLES



- Worn or loose Window Channels are a source of rattles.



# CONCLUSION

- **Major Causes of Vibration:**
- **1. Engine not balanced correctly**
- **2. Flywheel not balanced**
- **3. Wheels not balanced**



- In conclusion,
- The Model A is 90 years old. Very few people have rebuilt or repaired it the way Henry built it.
- You can have an enjoyable ride in your Model A

