DO IT YOURSELF WHEEL STRAIGHTENING
For the FORD MODEL A

Straight wheels will provide for a more pleasant driving experience and stop those annoying comments about crooked wheels from those following you while on tour. It is not hard to complete the wheel straightening process yourself. It is a pretty straight forward process and the following instructions and photos should help you complete the project. I think it is worth the effort to straighten your wheels if you are considering repainting or powder coating.

Safety first: Wear safety glasses and protective gloves when attempting to straighten wheels with the methods shown below. Start by setting up in an area that has adequate room to work. You will be using your Model A initially to spin test your wheels so jack up one side of the front axle and set it on a sturdy jack stand. Set the parking brake and if you don't trust the parking brakes to be very good, block the rear wheels so the car won't move. You are going to use this elevated hub and brake drum as your work center. Part of the process is going to involve pulling and pounding on the spokes, for safety sake, please make sure you have a rock solid setup. Do not try to work with the front of the car elevated on a jack alone. Please use a solid jack stand to support the front axle.

Back off the brake adjustment on the elevated wheel so there is little or no drag. Remember to count the number of clicks as you loosen as you will need to tighten it that number of clicks when you are finished with the session of wheel work. Remove the wheel from the elevated side of the car and test spin the hub and look carefully for wobble in the hub and drum. If you can see any wobble, stop and try the other side of the vehicle to see if it is straighter. Use the straightest front hub and drum assembly you have to continue with the process.

Before starting the process of straightening any wheel:
Clean up the wheel…get rid of excess grease and dirt.

Check for cracks in the hub area.

A wheel with a cracked hub will not straighten. Repair the cracks first.

The photo to the left shows a crack that can be repaired.

I use the following method: Follow the crack from the edge of the hub to a point where it appears to stop. Drill a very small hole at the end or just beyond the end of the crack to halt the travel of the crack. Clean up the surface of the crack on the inside (hidden area) of the hub. I remove about 1/3 the thickness of the metal with a die grinder following

the crack just short of the drilled hole to the end of the crack. I then fill the area with weld and add additional welds to the sides of the first weld to distribute the pressures over a greater area. No one sees the welds, so they do not have to look great. The weld can not be too thick or it will not clear the outside of the brake drum, especially new cast iron brake drums which appear to have a greater outside diameter than original drums. Grind the welds to provide the needed clearance. I fill the hole and any visible crack on the outside of the hub with flexible auto body seam filler and paint over it.

The wheels should be cleaned and preferably the paint removed from them along with the rim liner. The spokes will be heated and the resulting fumes from burning paint can't be the best for your health. Clean wheels will also be easier to work with.

STRAIGHTEN ALL BENT SPOKES. I AM USING THE SPOKE STRAIGHTENING STATION ON MY HYDRALIC PRESS TO DEMONSTRATE THE PROCESS BUT YOU WILL BE USING THE FRONT AXLE OF YOUR CAR TO COMPLETE MOST OF THE OPPERATIONS OF SPOKE STRAIGHTENING.
(The photo above was staged for the development of this document. Note that safety glasses are missing and should be worn.)

THIS TOOL IS MADE FROM BAR STOCK. IT IS USED TO STRAIGHTEN SHARP BENDS IN THE SPOKES. YOU CAN ALSO USE A CRESENT WRENCH WITH A LARGE SCREWDRIVER THROUGH THE HOLE IN THE HANDLE TO TWIST THE WRENCH.

THIS PHOTO SHOWS THE USE OF THE BAR TO ACT AS A GAUGING TOOL TO STUDY THE WOBBLE OF THE WHEEL. ANY THING WILL WORK FOR THIS PURPOSE. (HAMMER HANDLE, LONG SCREWDRIVER, YARD STICK) HOLD THE GAUGING DEVICE AGAINST ANYTHING FIXED NEXT TO THE WHEEL AND SPIN THE WHEEL SLOWLY NOTING THE AREAS THAT NEED TO MOVE "OUT" OR AWAY FROM THE BRAKE DRUM SIDE OF THE WHEEL. SHRINKING THE LONG SPOKES IN THE AREAS THAT NEED TO MOVE OUT WILL PULL THE WHEEL INTO ALIGHNMENT.

The heating of the spokes could be done while the wheel is on your car, but I would strongly recommend that it be taken off the hub and moved to a safer location. Dripping gas from a carburetor or an accumulation of grease around the axle are all sources of fuel for an unexpected fire. If you really think heating the spokes while the wheel is on your car would save you time, you need to stop and do a couple things before you proceed. First: Check that you have adequate

insurance on your car and also on your home if you are doing the work in your attached garage. Second: Try to think of a logical excuse for burning up your car and home before you do it as there is not a lot of time to think from the time you place a call to the fire department and when they arrive. Firemen typically ask what started the fire and it may be hard to come up with a good excuse when put on the spot. (Sorry…my attempt at a little bit of humor!)

HEAT THE BASE OF THE SPOKE YOU HAVE CHOSEN TO SHRINK FROM THE TIRE SIDE OF THE WHEEL AND ALONG THE ENTIRE LENGTH OF THE SPOKE AT THE SAME TIME. HEATING THE RIM AT THE BASE OF THE SPOKE GIVES THE SPOKE SOME ABILITY TO EXPAND INTO THE DROP RIM AREA WITH THE APPLICATION OF THE HEAT. IF YOU USE ANYTHING HOTTER THAN A PROPANE TORCH, BE VERY CAREFUL TO AVOID OVERHEATING. OVERHEATING THE SPOKE WILL CAUSE IT TO BEND OUT OF SHAPE AND YOU WILL HAVE TO ALLOW IT TO COOL AND RESTRAIGHTEN IT BEFORE YOU PROCEED.

THE SPOKES NEED TO BE QUICKLY COOLED TO CAUSE THE “SHRINK” OF THE SPOKE. THE SPOKE AND RIM WILL BE VERY HOT AND STEAM WILL DEVELOP DURING THE PROCESS. I USE A NITRILE GLOVE INSIDE A DURABLE MECHANIC’S GLOVE TO PROTECT MY HAND FROM THE STEAM.

I USE A SOAPY MIXTURE OF COLD WATER TO COOL THE SPOKES. AN OLD SECTION OF A COTTON TOWEL WORKS WELL TO HOLD A LOT OF WATER.

COOL THE OUTER AREA OF THE RIM FIRST BY HOLDING THE WET RAG ON THE AREA PREVIOUSLY HEATED UNTIL THE SIZZLING STOPS AND THEN QUICKLY MOVE TO THE SPOKE AS SHOWN IN THE NEXT PICTURE.

THE RAG IS SURROUNDING THE SPOKE AND QUICKLY MOVED UP AND DOWN THE LENGTH OF THE SPOKE UNTIL THE SPOKE IS COOLED. THE PROCESS IS REPEATED AS OFTEN AS NECESSARY TO PROVIDE THE CORRECTION DESIRED. IT MAY BE NECESSARY TO HEAT TWO OR THREE CONSECUTIVE SPOKES TO ACHIEVE A LARGE AREA CORECTION. THE PROCESS IS THE SAME FOR ALL YEARS OF MODEL A WHEELS.

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I would like to thank Brent Terry, of B.Terry Vintage Automobile Restorations, for his comments and suggestions regarding straightening wheels over the past 18 months. He suggested I try the spoke shrinking method…I did and it works rather well. I now employ the spoke shrinking method and finish with pressing as required when straightening wheels. Brent is very generous with his time in supporting us all in our Model A hobby. Check out his website at: http://www.model-a-ford.com/