The Drip Pan – Miscellaneous

Belt Replacement Pin

A replacement pin for belts joined by a pin through belt hooks may be made from a piece of weed trimmer or weed eater string cut to length. This is just as durable as the rawhide or catgut normally supplied, easier to find and inexpensive.

Ralph Zajicek

Bushing Tool

Bushings – what a pain they can be, especially when you don't have the right sized reamer or want to make an extra good fit. Brake cylinder hones can always be used to get the bush to the size you want but the hones are expensive especially when you break a few. An inexpensive tool that does the job well is a piece of 1/4 inch round bar stock about 6-inches long. Cut a slot in the end with a hacksaw blade about 1-1/2 inch long. Then you can use any grit emery paper of sand paper. Make your emery strips the length or the width of a standard sheet, depending on how much room you have, and wrap it around the bar stock. As the paper loads up with removed babbit or brass you can cut off the loaded end to expose fresh surface.

Contributor Unknown

Chemotherapy For Rot (Wood) And Epoxy Know How

By **James O Behrens (Bigjunglejim)** on Sunday, November 24, 2002 - 05:54 pm With all the wood used in Model T's, I thought the following information would be of interest to many.... Jungle Jim

Dave Carnell's Boatbuilding Page CHEMOTHERAPY FOR ROT

CHEMOTHERAPY FOR ROT

Once rot gets a toehold in wood it is difficult to cure completely -- it is like a cancer. Digging out the rotted wood will still leave spores and water in the sound wood. After you fill in the cavity with something like epoxy, the rot continues to flourish underneath. Products promoted to make rotted wood sound and stop rot penetrate only until
they meet water, with which they do not mix. Under the solid repair rotting goes on. With one exception (more later), the commercial products sold to treat dry wood to prevent rot are completely ineffective against established rot in wet wood because they are dissolved in petroleum solvents and oil and water do not mix. There are two commonly available inexpensive materials that will kill rot in wood and prevent its recurrence. First, there are borates (borax-boric acid mixtures) which have an established record in preventing rot in new wood and in killing rot organisms and wood-destroying insects in infested wood. Second, there is ethylene glycol, most readily available as auto antifreeze-coolant. Glycol is toxic to the whole spectrum of organisms from staphylococcus bacteria to mammals. All of the published material on its effectiveness against wood-destroying fungi and insects that I am aware of is the result of my investigations over the past 15 years.Both borate solutions and glycol penetrate dry and wet wood well because they are water-soluble; in fact, penetration by glycol is especially helped by its extreme hygroscopicity -- its strong attraction for water. For both, the fact that they are water-soluble means they are not permanent solutions to rot in wood that is continually exposed to water-below the waterline and in ground-where they will eventually be extracted-dissolved out.I first was interested in glycol as a wood-stabilizing agent, where it is in many ways superior to polyethylene glycol (PEG), and it was during this work that I realized the useful effect of glycol on organisms, though I was pretty dense in interpreting the first experiment. The ladies immerse the stems of greenery such

as magnolia branches in glycerin to keep them green. Glycol is very similar to glycerin in all its physical properties and much cheaper, so I stuck a magnolia branch in antifreeze. The next day it was brown. After the third attempt I tumbled to the fact that the glycol was killing the greenery. This was the reason that glycol never replaced glycerin in applications such as a humectant for tobacco and an ingredient of cosmetics and pharmaceutical ointments, though it had all the desirable physical properties. I had two 2" thick slabs of a 14" diameter hickory tree that had just been cut. I treated one with antifreeze and left one untreated. I was looking at wood stabilization, not rot prevention. After about six months stored inside my shop the untreated control was not only cracked apart, but it was sporting a great fungal growth, while the treated slab was clean. The local history museum wanted to exhibit two "turpentine trees", longleaf pines that had many years ago been gashed to harvest the sap that made everything from turpentine to pine tar. The trees delivered to us after cutting were infested with various beetles and had some fungal growth. I treated them with antifreeze outside under a plastic tarpaulin every few days for three weeks. They were then free of insects and fungus and have remained so after being moved inside and installed in an exhibit over four years ago. I took three pieces from a rotting dock float that were covered with a heavy growth of fungus, lichens, etc. I treated one with antifreeze painted on with a brush, the second with a water solution containing 23% borates (as B2O3), and left the third untreated as a control. They were left exposed outdoors and were rained on the first night. By the next morning the growth on the antifreeze-treated piece was definitely browning and the borate-treated piece showed slight browning. After two months exposure to the weather the growth was dead on the antifreeze- and borate-treated pieces and flourishing on the control. I have a simple flat-bottomed skiff built of plywood and white pine, which has little resistance to rot. After ten years some rot developed in one of the frames. It may have begun in the exposed end grain. It consumed the side frame, part of the bottom frame, and part of a seat brace fastened to the side frame. The plywood gusset joining the side frame to the bottom frame was not attacked. I excised the rotted wood, saturated all with ethylene glycol antifreeze to kill all the rot organisms, and there has been no further deterioration in four more years afloat with wet bilges. I have not replaced any pieces, as I am building another boat that can replace it; that is more fun, anyway. I have a 60+-year old case of the fungus infection known as "athlete's foot". Many years ago it infected the toenails extensively. The whole thing was pretty grotesque. My dermatologist and druggist both assured me there is no known cure. About six years ago I started using antifreeze applied under the nails with a medicine dropper about every five days. The professionals are technically right. I have not completely cured it, but the nails have grown out pink and thinned almost to the ends and I never have any trouble with blistering, peeling, or itching between the toes as I had had for six decades. No drug company is going to have any interest in this because the information has been in the public domain for so long that there is no opportunity for any proprietary advantage. The various wood-rotting organisms cannot be anywhere near as tough. There are two types of borate products commercially available for treating wood-solid sodium octaborate for making solutions in water (Tim-Bor® and Ship-Bor®) and a 40% solution of sodium octaborate in ethylene glycol (Boracare®). Their equivalents and more concentrated solutions can be easily prepared from borax, boric acid, and antifreeze at much lower cost. Keith Lawrence, editor of Boatbuilder offered to sell me advertising if I wanted to go in the business, but I might run afoul of patents (preparation for individual use is not prohibited), I would have to get EPA registration, and I could not deliver products anywhere near as cheaply as they can be made from raw materials available at your supermarket, drugstore, and discount store. Glycol by itself has one big advantage over solutions of borates in either water or glycol. Glycol penetrates rapidly through all paint, varnish, and oil finishes (except epoxy and polyurethanes) without lifting or damaging those finishes in any way. You can treat all of the wood of your boat without removing any finish. The dyes in glycol antifreeze are so weak that they do not discolor even white woods. Once bare wood has been treated with glycol or the borate solutions and become dry to the touch it can be finished or glued. If a borate solution leaves white residues on the surface, it will have to be washed off with water and the surface allowed to dry. This is my preferred process to treat rot. Once you find soft wood or other evidence of rot, soak it with antifreeze even if you cannot do anything else at the moment. Paint it on or spray it on with a coarse spray. Avoid fine mistlike spraying because it increases the likelihood that you will breathe in unhealthy amounts of glycol. Put it on surfaces well away from the really damaged wood, too. Use glycol lavishly on the suspect wood, which will readily absorb 10-20% of its weight of antifreeze. Next dig out wood that is rotted enough to be weak. Add more glycol to wet the exposed wood thoroughly. Then add the 25% borate solution of the recipe below so long as it will soak in in no more than 2-3 hours. Then fill in the void with epoxy putty and/or a piece of sound treated wood as required. The reasons I use borates at all are: 1) it is a belt-and-suspenders approach

to a virulent attack, and 2) over a long period glycol will evaporate from the wood; especially, in areas exposed directly to the sun and the high temperatures that result.If there is any question about water extracting the glycol or the borates, you can retreat periodically with glycol on any surface, painted or bare, and with borate solutions on bare wood. Glycol's toxicity to humans is low enough that it has to be deliberately ingested (about a half cup for a 150 lb. human); many millions of gallons are used annually with few precautions and without incident. It should not be left where children or pets can get at it, as smaller doses would harm them, and they may be attracted by its reported sweet taste that I have confirmed by accident. The lethal dose of borates is smaller than of glycol, but the bitter taste makes accidental consumption less likely.

BORATE WOOD PRESERVATIVES:COMMERCIAL AND HOME-BREWED

Tim-Bor®: Solid sodium octaborate; dissolves in water to make approx. a 10% solution containing 6.6% borate (B_2O_3); about $3/lb. plus shipping. Ship-Bor®: Same as Tim-Bor®; $19.95/lb. plus $2 shipping. Bora-Care®: 40% solution of sodium octaborate in ethylene glycol; 27% borate content; $70/gal. plus shipping. Home-Brew Water Solution of Borates: Based on U.S. Navy spec. of 60% borax-40% boric acid (this ratio gives the maximum solubility of borates in water); 65% water, 20 %borax, 15% boric acid; 15.8% borates; borax costs 54 cents/lb. (supermarket), boric acid costs about $4/lb. in drug stores (sometimes boric acid roach poison, 99% boric acid, is cheaper in discount stores); equiv. to Tim-Bor® or Ship-Bor® at 30 cents/lb. To make this solution mix the required quantities and heat until dissolved. The boric acid, in particular, dissolves slowly. This solution is stable (no crystals) overnight in a refrigerator (40°F.), so can be used at temperatures at least as low as 40°F.Home-Brew Glycol Solution of Borates: This is equivalent to Bora-Care® diluted with an equal volume of glycol to make it fluid enough to use handily; 50% glycol antifreeze, 28% borax, 22% boric acid. To make a stable solution you mix the ingredients and heat till boiling gently. Boil off water until a candy thermometer shows 260°F. This removes most of the water of crystallization in the borax. This solution is stable at 40°F and has a borate content of 26%. With antifreeze at $6/gal. and borax and boric acid prices as above, this is equivalent to Bora-Care® at about $15/gal.

Dave Carnell's Boatbuilding Page : **EPOXY KNOW HOW**

INVISIBLE BUTT JOINTS

In 1978 I first used a plywood butt joint of fiberglass cloth and epoxy resin to avoid having to make a scarph joint (not easy and loses length)or use butt blocks (hard to work around). The joint is so thin that careful feathering of the edges makes it invisible. In 1986 I wrote about the joint in Small Boat Journal. About the same time "Dynamite" Payson wrote in Boatbuilder about a similar joint concept. Years later I discovered that Joe Dobler had used the principle well before our publication, as had Jack Chippendale in England. A piece of plywood bent around the side of a boat is carrying most of the load in its outer and inner plies. The load (stress) on the convex side (usually the outer) is a tension load trying to pull the wood apart. On the concave side (usually the inner), the load is compressive-the wood is being pushed together. The invisible butt joint makes two pieces of plywood one by building a skin of fiberglass and epoxy on each side. When you flex the joint, the load is carried entirely by those two skins you have built. I made joints in various thicknesses of plywood and tested them by breaking them in flexure with the maximum stress applied at the joint. Joints that passed were ones where the plywood, not the fiberglass-epoxy resin joint broke. My design basis for invisible joints in plywood is: for 1/4" plywood, 1 layer of 6 oz. fiberglass cloth on each side; for 3/8", two layers on the top (outside of bend) and one layer on the bottom; for 1/2", three layers on top and two on the bottom; for 3/4", four layers on top and two on the bottom. Make the first fiberglass strip on top 2" wide and each succeeding one an inch wider. On the bottom side make the first strip 2" wide and the second one (if used) as wide as the widest strip on the top side. After you lay up the joint cover it with a piece of 4 mil polyethylene film and squeegee or roll it out. This presses the cloth layers together and feathers out the excess epoxy onto the plywood. Peel the film off after the joint! ! cures and the surface is smooth and faired so that very little filling or sanding is required. If you use woven tape instead of pieces cut from cloth, the selvage may make a ridge at each side of the joint. A joint with a single layer of 6 oz. cloth on each side is about 0.020 in. thicker than the plywood at its thickest point and tapers off to zero at each side. Two layers on each side adds about 0.030 in. at the thickest point. The joint in 3/4" plywood with four layers outside and two inside is only about 0.045 in. thicker at its thickest point. These joints are designed to use a minimum of material to get the ultimate strength. I would only make them with epoxy resin (not polyester resin) because: 1) epoxy bonds the

glass cloth to the plywood in a stronger joint that will not peel apart; 2) epoxy will always eventually complete its cure; 3) there is no fire hazard with epoxy; and 4) there is less of a toxic hazard with epoxy. Originally, both Payson and I made the joint on one side and turned the piece over to complete the joint. The turning over is fraught with danger of destroying the joint that is very weak at that point. I have gone to laying polyethylene film on a smooth surface, laying the wetted out fiberglass tape (I use cloth to avoid the selvage) on that, epoxy coating the face of the plywood that goes against that, laying the plywood on the wet tape, filling any least void between the plywood edges with thickened epoxy (this is critical, as any voids between the butting plywood edges can make the joint weak), epoxy coating the upper plywood joint surface, laying on fiberglass and wetting it out, covering with poly film, laying on a smooth board, and weighting the assembly with concrete blocks. In fact, the last time I did it I laid up a sandwich of two 16' by 20" pieces for the side planks of a sailing skiff and cured them all in one operation. If you are making joints in plywood thicker than -1/4", make the bottom side of the layup the one with the fewer number of fiberglass strips.

EPOXY IN A NUTSHELL

This is a distillation of my experience in using epoxy for 30 years and improving my techniques. I started using epoxy for boatbuilding in the 1960s. This was before Gougeon came out with their West® system. I was using generic epoxy from Defender and an amine hardener that was mixed 1:10 with the resin. Later I switched to Epon® resin and Versamid® hardener from a surplus outfit in CA. This was a 2:1 mix and far easier to use. Then, as now, all resins and hardeners were made by a few major chemical companies. The companies selling products at retail develop their formulations from commercial products. Resin and hardener are ingredients that have to be mixed in the correct proportion to cure to a solid with the desired strength and hardness. If you want the mix to cure faster or slower, you pick a different hardener. You don't change the mix ratio. Epoxy is far superior to polyester resin because it sticks to just about all materials, while polyester is not even a reliable adhesive for laminating glass cloth to wood. If you mix your epoxy in the correct ratio it will eventually cure. If the catalyst you add to polyester does not kick it off, it will never cure. Epoxy resin and hardeners have shelf lives of many years. I am still using a two-part surplus military epoxy putty that was manufactured almost 25 years ago. The only exception to unlimited shelf life I have found with epoxy resins is that the hardener for 1:1 mix systems thickens and cannot be used after about a year.

GLUING LAMINATING

The most important use of epoxy resin is as glue, including gluing fiberglass to wood. Its advantage over most other glues is that it will fill gaps; in fact, there always has to be some gap. If you clamp too tightly the epoxy will be squeezed out so that the joint will be weak. Adding filler to epoxy used as glue makes stronger joints, perhaps because the filler keeps too much resin from squeezing out of the joint. One-inch boards edge glued will break apart in the joint when it is flexed; add about 20% pulverized limestone and the glued joint breaks in the wood. I add about 10% limestone to resin when laminating fiberglass onto wood, also.

FILLERS

Fillers are added to epoxy resin to make putties for two kinds of uses that have greatly different requirements. Those used for structural joints alone or in combination with fiberglass should be as strong as possible. Putties used for filling and fairing must sand easily. The best filler for structural uses is pulverized limestone (flour fine, not gritty as ground limestone is). It mixes to a putty that doubles the resin volume and is dense and strong. It is universally available as a fertilizer material at under a nickel a pound. It is difficult to sand. Portland cement is pretty much equivalent. Talc, another mineral, is almost as strong and sands easily. It also is thixotropic (the putty does not flow, but will spread). It is available from fiberglass supply houses at around a dollar a pound. For filling and fairing applications hollow bead type fillers sand most easily because they are hollow and break. There are three kinds of beads: thermoplastic (Microlight®) which can soften with heat; phenolic, which are usually dark-colored; and glass (Scotchlite®), which are white. The glass beads make the lowest density filler and are the lowest cost. White wheat flour from the kitchen is a pretty good filler for finishing putt! ! ies.

STRUCTURAL JOINTS

A fiberglass-epoxy butt joint of plywood can be as strong as the plywood itself. See "Invisible Butt Joints" above. Right-angle joints in -1/4" plywood for rowing seat boxes, etc. can be made with just a 1/4" radius bead of epoxy putty on the inside of the joint. I tack such a box together with brass brads and then make the epoxy fillet joints. For angle joints such as chines in -1/4" plywood a 1-1/2" fiberglass strip laid over a -1/4" radius epoxy fillet on the inside and a 1-1/2" strip on the rounded outside edge gives a joint that breaks by pulling the plywood apart. Bulkheads secured by a 1-1/2" glass strip over a -1/4" radius epoxy fillet on each side fail in the plywood. All joints must have the weave of the glass cloth filled smooth for maximum strength. Many designs specify much more glass than needed. Make up short specimens of your joints, cure them, and test them-in a vise, by standing or jumping on them, or by running your truck over them. If ! ! the joint holds and the material breaks, your joint is strong enough.

SAFETY

The principal hazard of working with epoxy resins is from skin contact. The hardeners are the offenders. As a general rule, the lower the mix ratio, the less the hazard (2:1 is less apt to irritate than 4:1), but you should avoid all skin contact and wash thoroughly after any contact. Wash thoroughly before eating, drinking, or going to the bathroom. Gloves and clothing help protect you, if they are clean.

ENCAPSULATION

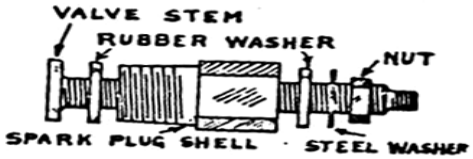
You will note that I have not mentioned epoxy encapsulation; i.e., coating both sides of everything with several coats of epoxy resin. It has no advantages and is a waste of money and time that adds useless weight. It won't turn lauan underlayment into marine plywood, though it will make it cost nearly as much. It does not keep the water out of the wood boat that lives in the water and a dry sailed boat doesn't need it.

Note: The percentages are by weight. My article included a recipe for making an antifreeze solution that includes boiling away the water of crystallization in the borax. I don't know your applications, but in the five years since I wrote the article I have found that just antifreeze is usually more effective because it penetrates farthest fastest. Dave

Submitted by: Dennis Sanford

Cylinder Compression Tester

To make a compression gauge, take a spark plug shell and the valve stem from and old inner tube. Use rubber washers (cut from an inner tube) between the base of the valve and the bottom of the spark plug shell, and between the spark plug shell and a steel washer placed next to the nut at the top of the valve stem.

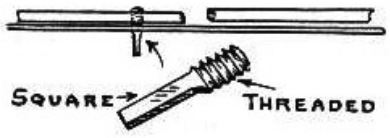


By screwing this device into each spark plug hole, and holding a tire gauge on the valve stem while the starter is spinning the engine, one can determine whether or not all four cylinders have normal compression.

George B. Kingsbury, Rutland, MA

"Do-Funnies" Help When Replacing Crank Case Cover

When replacing the crank case lower cover, difficulty is often experienced due to the U-shaped steel reinforcing bars moving out of place and making it impossible to start the cap screws. To overcome this shifting of the bars, make four "do funnies" like the sketch, and screw them into the threaded holes, using two into each bar on opposite sides. Now, place the cover over the squared shanks, and insert the cap screws. The do-funnies may be removed by taking hold of the square shanks and unscrewing them, after which the remaining cap screws may be installed.



The do-funnies may be made by taking a piece of soft pine and whittling it round. Then forcing it into the threaded holes, thus forming threads on the stick. The stick may then be cut into pieces about an inch long, and the unthreaded portion cut square. Of course, these do-funnies may be made of steel if desired.

Ralph Stults, Fremont, OH

Eliminate Those Rattles

Brake Rods, Splash Aprons, Front End Brake Rod Clevis, Rear End Gear Noise, Door Hinges, Hood

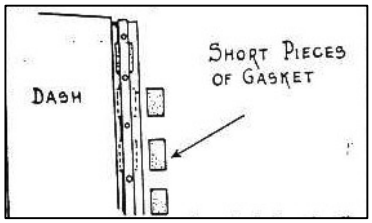
To quiet down those jangling brake rods, clean off the oil and squirt a little doughnut of clear or black RTV silicone rubber around the pin. The clevis can still be removed when needed because the rubber doesn't bond well to the slightly oil metal. RTV is also good for making instant rubber pads to cushion the edges of the splash aprons where they rattle against the frame and body blocks.

The front end brake rod clevises on my Rocky Mountain brakes were making a rattle when crossing bumps. The problem was solved by squeezing a wiring gromet in between the clevis and equalizing bar, then inserting the pin through the whole stack. The grommet fills in the extra clearance and keeps the joint tight. Several club members are using a short length of rubber hose over the brake rods where they pass near the fenders and the emergency brake rods. Helps keep down the clatter when bumping down those dirt or country roads.

I am using a gear oil additive in the rear end of my T which will quieten the gear noise after a few hundred miles of running. The additive is a moly disulfide suspension made for industrial transmissions by Dow Corning. It is called Molykote M Gear Guard and is available from Motion Industries. The price is about $20 for a quart bottle, which is the smallest size. A T rear end would take about 4 ounces, so a quart will last a long time. I ran this additive for several thousand miles in my roadster, and when the rear end was torn down to install a Ruckstell, the gears looked like the wear surfaces were chromed!

The hinge halves on the doors of my roadster were too worn for even new hinge pins to take up the clearance. I found that the unthreaded shank of a 1/4 bolt was a nice tight fit and removed yet another rattle from my T. Chuck the bolt in a lathe or drill and file a nice round contour on the head then cut the threaded part off so you have a smooth pin.

John Witt, Lone Star T News, 198?
These tips came from John Witt and those of us who knew him know he had the quietest T in the club (Judy)



The hood can be kept from rattling and squeaking by placing short pieces (cut from felt transmission cover gasket No. 3363) underneath the tpe which is riveted to the dash and radiator shell.

Nolan Renfro

Frame Riveting Made Easy

Recently several of us helped Jim McGehee rerivet part of his truck frame. The frame looks good and we all had fun learning how to rivet. The following members took part, can you figure out who did what? Jim McGehee, John Albright, Jim Mullen, Nolan Renfro, and Prestley Morris.

Needed:

1. One hard working person to line up and redrill the holes.
   Time Required: - One day.
2. Someone to saw the rivets to the correct length.
   Time Required – One hour and a strong arm.
3. Someone to heat the rivets in place with a torch.
   Time Required – Two hours and a good aim.
4. Someone to buck the rivets on the backside.
   Time Required – Two hours and lots of courage.
5. Someone to pound the rivet into a head like Henry did.
   Time Required – Two hours and even better aim.
6. Someone to help hold the frame and the parts in place.
   Time Required – Two hours and the ability to hold a very hot frame.

That's all you need?

Jim Mullen

Get the Most From Your Grinding Wheel

After a short time the wire ends of the wire wheel become rounded and lose effectiveness. When this happens hold a worn out grinding against the wire wheel while it is running. This will sharpen the ends of the wires and point them in the direction opposite rotation. Next turn the wire wheel over so that the sharpened points point in the direction of rotation. Presto! the wire wheel works like new, maybe even better. For safety remember to use goggles or a face shield for all work with a rotating wire wheel.

Hugo Richter, Lone Star T Newsletter, 1990

Front Axle Adjusting Tool

As every restorer knows, straightening, or rather adjusting, the front axle and steering system is a frequent operation. Unless the Model T Ford front axle is tilted at just the proper angle, so that the center lines of the spindle body bolts strike the ground ahead of the axle, the car does not steer easily, or with safety. To adjust the steering, it is necessary to tilt the front axle forward, or backward a little by the use of a very large and heavy wrench; or, more conveniently, by means of the light, but strong bending tool here described.

The bending tool is made of a piece of structural steel or iron, using either a I-beam angle, or a T-bar, whichever is most easily procured. This piece should be from four to five feet long. Angle iron, of say 3x3 inch section, is of ample strength. A block of steel is cut in half, in a diagonal manner, and the two halves are bolted to the angle iron with half-inch bolts. A couple of extra bolt holes can be drilled in the angle iron and the tool will be adjustable for use on other parts of the car. At the other end of the angle iron a block of wood is used as a filler, and is bolted into place to form a handle, the block of wood and the angle iron forming a square handle, the corners of which can be rounded off.

Contributor Unknown

Hardened Steel Nuts

Ford used a hardened steel nut on the drive shaft pinion and the rear axle nuts. Don't use mild steel replacement nuts, look for some originals. The original nuts cannot be touched with a file. Ford also used hard steel nuts in many other places.

Royce Peterson

Can anyone tell me where else these nuts were used? We'll print a list here. Ed...

Headless Rivet Removal

Headless rivets (or pins if you prefer) are found several places on the Model T Ford. They can be the "very devil" to remove - or "easy as pie" if you do it right.

One example of the headless rivet is in the assembly of the emergency brake cam levers on the backing plate. 1905-1925 had two such rivets on each lever!

Each end of the rivet will be peened over so the first step is to remove one peened over end. Do this with a hack saw or file. Next, carefully select a drill bit just slightly smaller than the diameter of the rivet From the headless side - drill toward the remaining peened end to a depth of about 75-80% of the total length of the rivet. Caution - it is very important that you not drill all the way through. Next, select a pin punch slightly smaller than the hole size. Insert punch into hole - strike sharply with a hammer and the rivet will come right out!

Fred Houston (of Tulsa)

Homemade Sand Blaster

The diagram is to show the basic parts. All fittings and pipe connections can be whatever you can scrounge up. The only hard part to locate is the ceramic nozzle. You need one with no longer than 3/16" hole or smaller. I use #4 or #3 sand blast sand. You also need to supply plenty of regulated air (@60 psi) so you need a fair size compressor. At least 2 hp would be advisable. The diagram should be self explanatory. You could just run the air straight to the bottom below the flow valve, and cut the top of the freon bottle off, but I don't think they work as well. You may want to add some legs for stability. Be sure to wear some kind of eye protection as the sand and rust debris go everywhere. I have used my homemade blaster for many years and have had great results.

Nolan Renfro

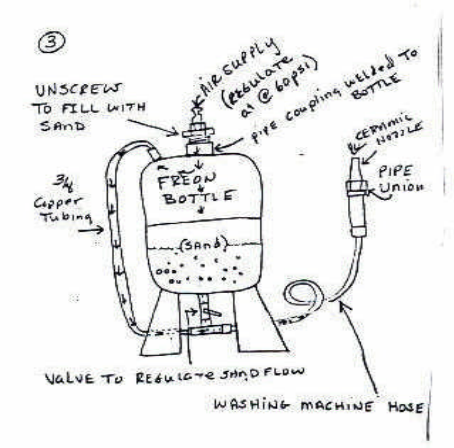


Chart Showing Lever Positions for Various Conditions of Operation

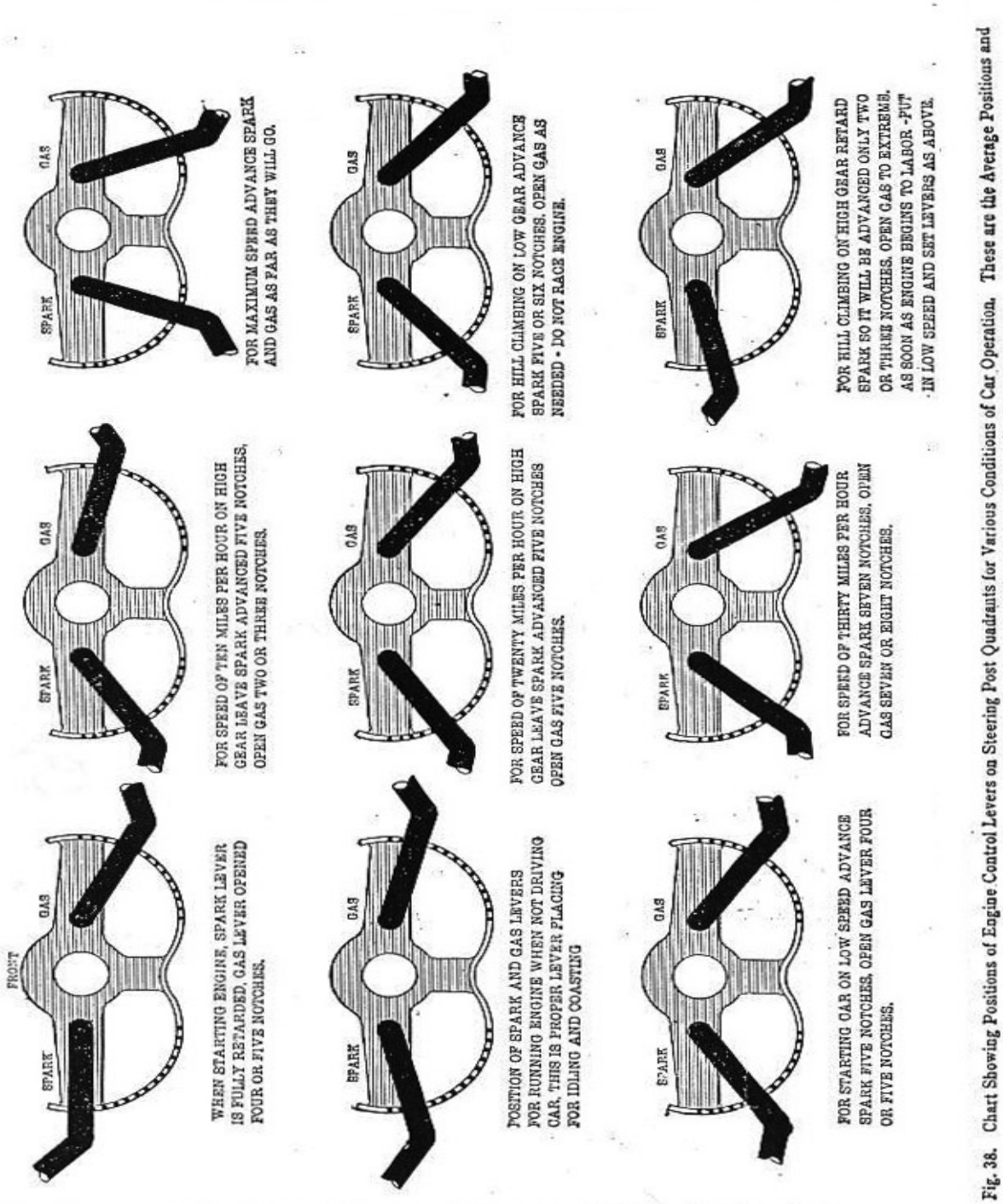
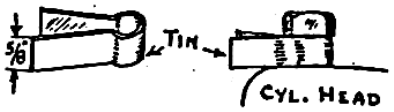


Fig. 38. Chart Showing Positions of Engine Control Levers on Steering Post Quadrants for Various Conditions of Car Operation. These are the Average Positions and May Vary Slightly on Different Ford Cars.

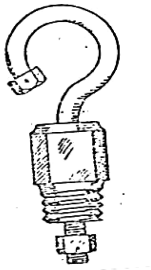
Holder for Cylinder Head Bolts

When replacing the cylinder head, the two rear bolts must be in the head, because the dash prevents inserting them afterwards. But these bolts are apt to cause grief, because they catch and move the cylinder head gasket. A couple of pieces of tin can be bent and placed under the bolts, thus holding the bolts up so that the ends will be raised above the bottom of the cylinder head.



Elden E. Beck, Twin Falls, ID

Hook Lifts Engine



A bolt for lifting Ford engines out of the car, instead of using a cumbersome rope 'sling', can be made from a discarded spindle body bolt, and the base of a Champion spark plug.

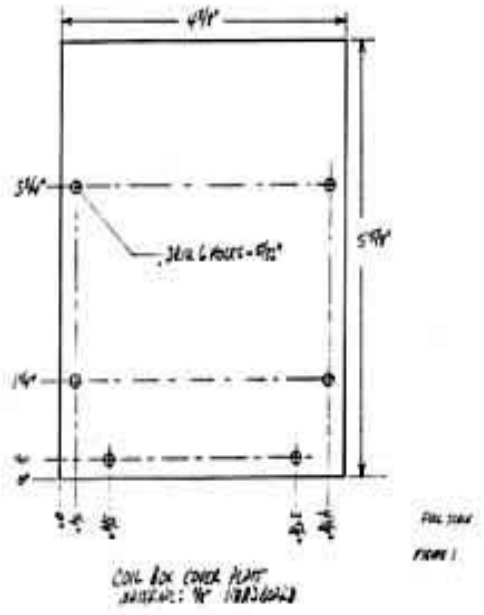
Bend the spindle bolt to form the hook and place the bolt through the spark plug base. Grind off the corners of the nut, and cotter pin the nut so that the nut can pass through the spark plug opening in the cylinder head. Insert this hook in place of No. 3 spark plug and the engine can be lifted out easily.

P.A. Miller, Highland Park, MI

Make Your Own Coil Tester

Gary Vriezen., Lone Star T's Newsletter, September/October 2004

Sooner or later, every Model T owner will need to do some repair work or point replacement on their T coils. Aside from condenser replacement, the most frequent work will be changing the points on top of the coil. Replacement points are available at several parts suppliers, making them easy to obtain. Installation is relatively easy also following the instructions in the Electrical Manual published by the MTFCA. So, you cleaned/repaired the coil and replaced the points. Now, how do you set the coil points to draw the proper current for use? Build your own Coil Tester as shown in this article. You will gain many T friends in a short time when word gets out you have a Coil Tester of your own!



Begin by making the coil box and cover plate as shown in Figures 1-4. The material I used for both the coil box

cover plate and the control panel is 1/8" thick hardboard with a melamine surface on one side. This material is used in bathtub areas. A sample might be obtained from your local building center. Be sure you can keep the sample you are given and that it is large enough to make both pieces. The material for the coil box sides and bottom is 1/2" thick pine from the scrap box.

continued next page

Make Your Own Coil Tester (continued)

You might have to ask a friend with a table saw to cut these for you. Access to a drill press is also helpful, but not necessary to make all the parts for this project.

After the above parts are complete, proceed to make the base frame pieces, Figures 5 and 6. These are just rectangular pieces of 3/4" particleboard, but could also be wood. I used particleboard because I had some scrap available.

The last piece to be made is the control panel, Figure 7. This panel is the most complicated part, but a little patient layout work will reward you with a nice finished panel. All the dimensions start from the bottom left corner. Work your way across the bottom and draw all the lines upward at the intervals shown. Do the same up the left side. Draw circles at the correct line intersections for the holes as shown. I did not dimension holes A-D because you may have parts other than shown in the Parts List. Size these four holes to fit the parts you are going to use.

Now assemble the Coil Tester. Refer to Photos 1 and 2 showing the arrangement of all the parts. The first pieces to assemble are the coil box sides and top. Tack them together at the bottom with the 4 - 1" brads. Next attach the 2 - 1" corner braces to the coil box right side using 2 - 3/16 x 3/4" carriage bolts., 10/24 hex nuts and coil box inner contacts. Install the 2 - 10/24 x 1 1/4" threaded rods into the corner brace legs with 4 - 10/24 hex nuts. Leave about 1/4" between the pointed ends for a spark gap. Now assemble the bottom coil box contact with another 3/16 x 3/4" carriage bolt and 10/24 nut into the coil box bottom. Be sure to position all three coil box contacts where they will contact the buttons on the coil side and bottom. Finally, put on the coil box cover plate with six of the #6 x 1/2" Phillips Pan Head tapping screws. Next, attach the coil box assembly to the control panel using six more #6 x 1/2" screws. Position the coil box over the holes in the control panel and drive in the screws from the back side of the control panel.

The next step is to mount the meter, pilot light, switches, fuse holder, and transformer in their respective holes. The transformer is mounted using the 2 - 8/32 x 1/2" round head machine screws and nuts. All the other parts are supplied with their own fasteners or hardware. Refer to Photo 3 for the meter mounting method.

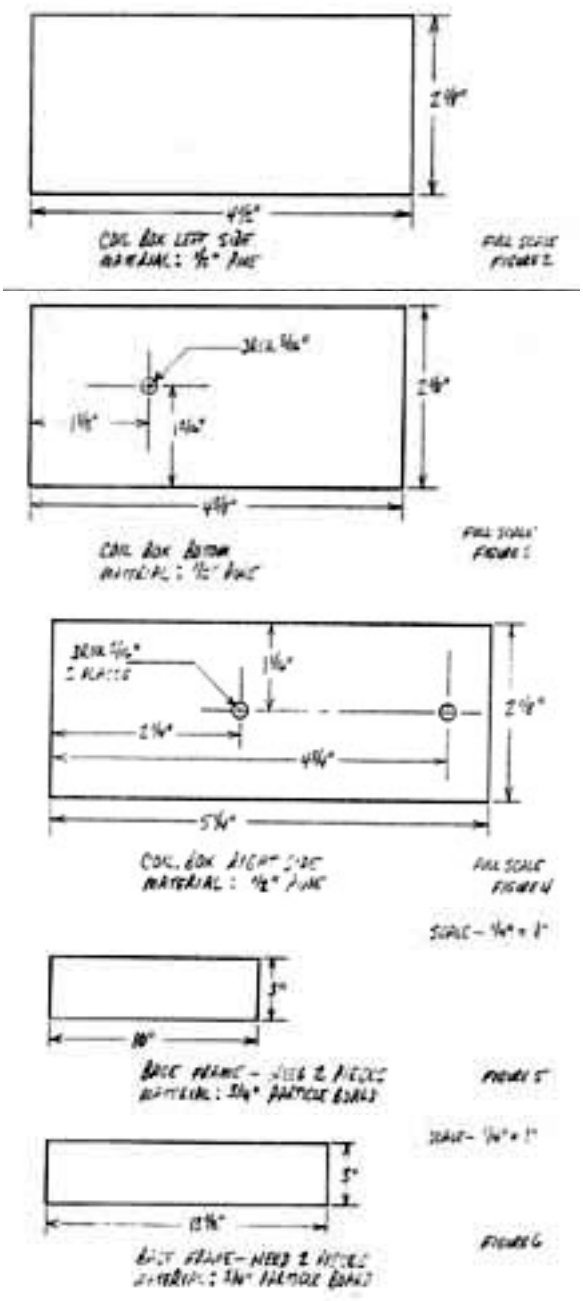


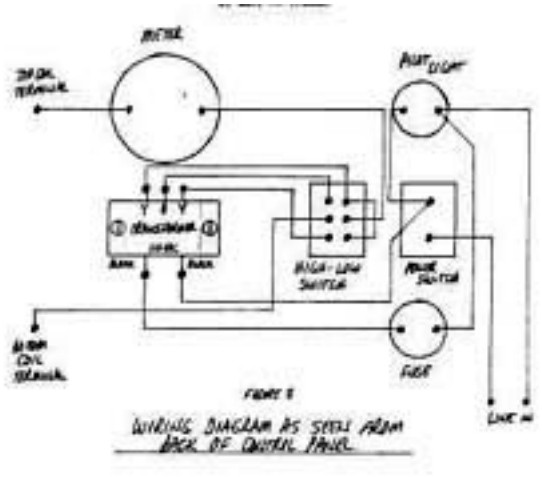
Figure 7 at end of article

Make Your Own Coil Tester (continued)

Assemble the base frame pieces with the 8 - 4d finish nails. These pieces are simply nailed together to form a frame for the control panel to attach to. Assemble the control panel to the frame with 8 - #6 x 1/2" Phillips Pan Head tapping screws. Refer now to Photo 3 and Figure 8. Both of these show the coil tester from the back side. Wiring is not complicated - just a few short pieces are needed. I used #18 solid wire. As diagrammed in Figure 8 - wires only connect at the dotted terminals - not where they cross each other. You will have to drill two small holes for the wire diameter you use. Be sure the wire insulation goes thought the hole - not the bare wire. Attach these two wires to the screws on the front side with the last 2 - 10/24 hex nuts. (Thought I forgot them didn't you!)

The power cord I used was salvaged from an old computer - what better way to use a junk computer. I should have drilled a hole though the base frame for the wire (See Photo 3). I did use a small plastic hold-down for the cord inside the base frame (also visible in Photo 3) right side. (This part was not in the Parts List.)

One more thing remains. You will need a piece of cardboard in the coil box. This is a thin piece of cardboard from a scratch pad or a cereal box. The purpose of it is to keep the old coils from marking up the panel with old tar that has leaked from the coils. As you slide the coils in and out of the box they tend to leave their mark - on your clean panel. I followed the MTFCA Electrical Book and adjusted my coils to their specifications. The pilot light will remind you if you left your Tester on with no coil in it. The voltage on my Tester on Low is about 7 VAC, High is around 14 VAC. Either setting can be used to test the coils. I made the Tester this way because the transformer is able to supply both voltages. I hope you enjoy this project. When finished it is a handy item to have. Just tell all your T friends you test coils in trade for ice cream. (Isn't that what T people do most — mmmmmm, eat ice cream?)



WIRING DIAGRAM AS SEEN FROM BACK OF CONTROL PANEL

HARDWARE REQUIRED

QUANTITY	SIZE	ITEM
8	4D	Finish Nails
4	1"	Brads
20	6 x 1/2"	Phillips Pan Head Tapping Screws
3	3/16" x 3/4"	Carriage Bolts
2	10/24 x 1-1/4"	Threaded Rod - Point Each On One End
2	8/32 x 1/2"	Round Head Machine Screws
2	8/32	Hex Nuts
9	10/24	Hex Nuts
2	1" x 1"	Corner Braces
3		Coil Box Inner Contact - from A Junk Coil Box

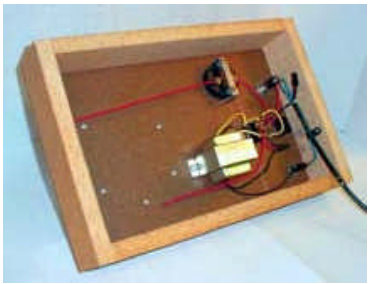
OTHER COMPONENTS

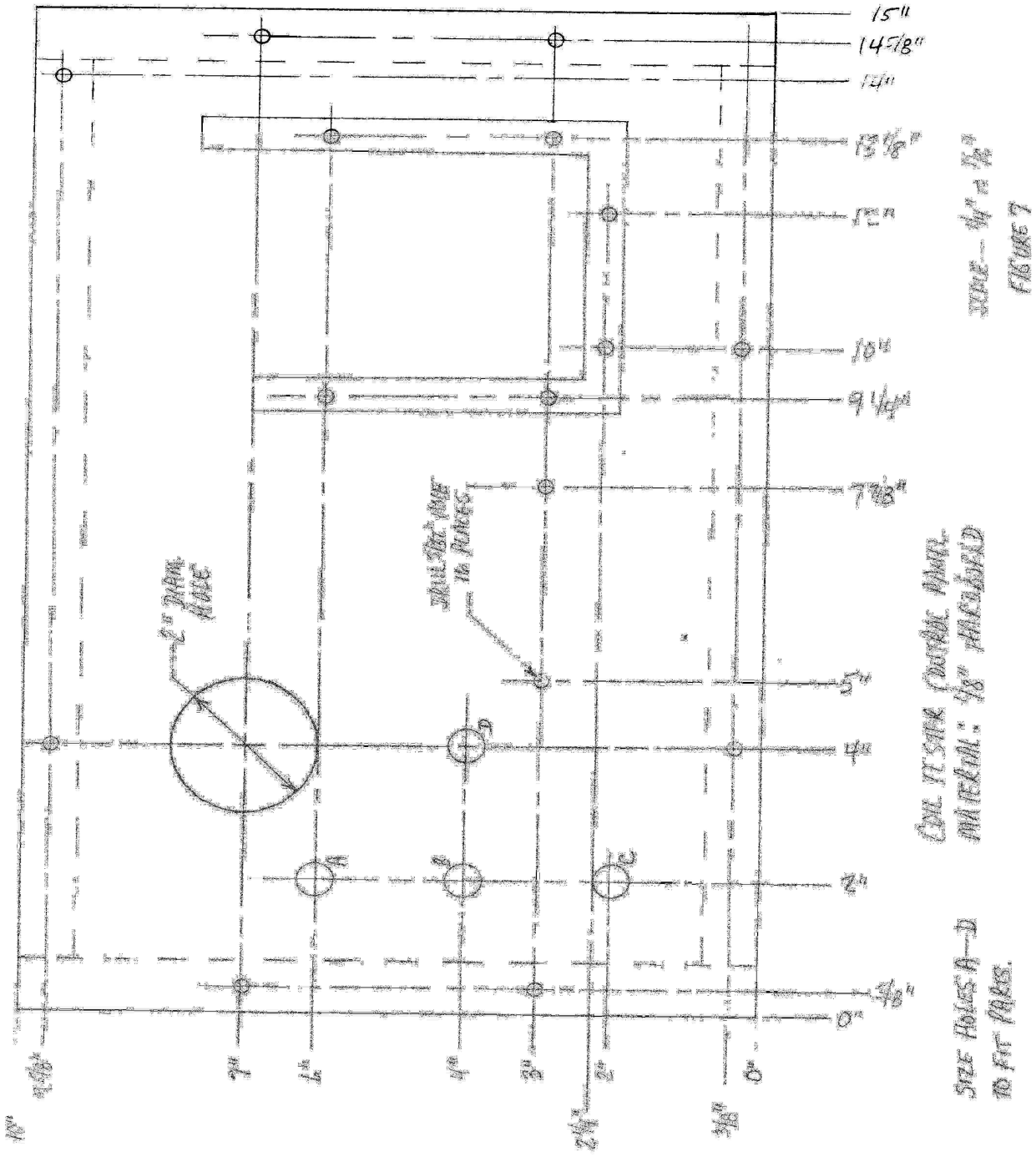
QUANTITY	SIZE	ITEM	APPROX PRICE
8	0 - 5 AC AMPS	Meter - Shurite #8503 Available From: Fistell's Electronics Supply 1001 Bannock St., Denver, CO 80204 Phone: 303-629-1312	$16.00

ALL OTHER ITEMS AVAILABLE AT RADIO SHACK

QUANTITY	PART #	ITEM	APPROX PRICE
1	270-364-E	Fuse Holder	$ 1.59
1	270-1009	3 AMP Fuse	$ 1.49
1	272-710D	Pilot Light	$ 1.99
1	275-602A	Power Switch	$ 1.49
1	275-646A	High-low Switch	$ 1.99
1	273-1511B	Transformer - 12.6 VAC, 3.0 AMP	$ 9.99

Figure 7 Next Page

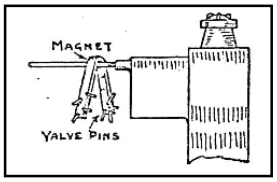




Pin Holder (Valve Pins, Cotter Pins, Etc.)

The valve pins are often lost when removed for valve grinding. But, if a discarded magnet, from a Ford magneto, is hung over the radiator-to-dash rod, then the pins can be help by the magnet where they are always handy, and not in danger of becoming lost.

Another magnet can be hung on the rod to take care of the cotter pins, removed from the control connections, so that no time will be lost when assembly the parts of the car.



S.E. Gibbs, Corydon, IA

Repairing Broken or Chipped Hard Rubber Steering Wheel or Ruckstell Knob

When repairing a broken or chipped hard rubber steering wheel rim or Ruckstell shift know use "Devcon 5 Minute Clear Epoxy" to fill in the gaps or cracks. Mix the epoxy with filings from an old steering wheel-rim. After the repairs are dry, sand with 400 grit paper and polish with rubbing compound. Shift knobs can be covered with clear epoxy for a high gloss look.

Contributor Unknown, November 1979

Replacement Pin for Belts

A replacement pin for belts joined by a pin through belt hooks may be made from a piece of weed trimmer or weed eater string cut to length. This is just as durable as the rawhide or catgut normally supplied, easier to find and inexpensive.

Ralph Zajicek

Sloshing Compound and the Fuel Tank

Be sure when you restore a T, to use sloshing compound in the fuel tank, there were several cases on the tour up in Nacogdoches , of carburetor problems, due to stuff breaking loose in the old tanks, clogging the carburetors!

WARNING: If you have used sloshing compound as a sealer inside an old gas tank, DO NOT use GASAHOL, OR ANY ALCOHOL PRODUCT, in your fuel system, as this will dissolve and you have a gooey mess!!!

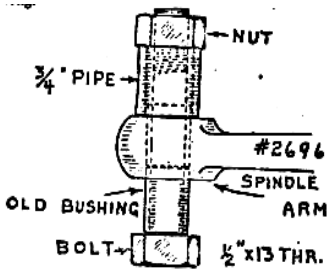
From the Texas Hill Country Chapter

Spindle Arm Bushing Puller

A spindle arm bushing puller can be made from a 1/2 inch bolt, 13 threads per inch, with nut to fit. An old spindle arm bushing is ground slightly smaller, so that it will be an easy slip fit through the hole in the spindle arm. And a piece of 3/4 inch iron pipe is cut 1 1/8 inches long.

Now to remove a spindle arm bushing, slice the old bushing on the cap screw next to the head. Then insert screw through spindle arm, place pipe on top, and tighten up the nut, thereby forcing out the worn spindle arm bushing. No. 2714. To insert a new bushing, simply reverse this operation.

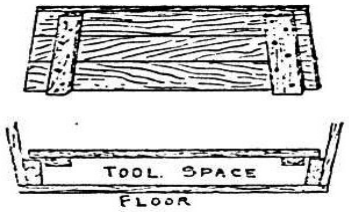
William Weisslinger, Newton, MA



Storage for Tools

When one is contemplating a tour, every inch of space is usually allotted to some portion of the equipment and while the space under the back seat is generally used for tools, this space would be convenient for clothing, food, etc., if the tools could be put somewhere else.

I have found it satisfactory to keep the tools between the tonneau floor, and a removable false floor, a couple of inches above the regular floor. The rear floor boards of the Ford touring car are about two inches below the body sills, and the second floor can be made of three pieces of matched lumber—cut to fit, with two cleats nailed across the underside of the boards, to hold them together. The slight loss of foot room is hardly noticeable, especially if other packages are piled in, or if children occupy the rear seats.



J.S. Chapman, Glen Mary, TN

Worn Out Brake Handle Pawl (Repair)

After just so many years the old, mild steel, pawl just looses its point and won't keep the handle where it belongs. A weld repair using stainless steel welding rod gives a nice, strong surface that should outlast you. Be sure to make a template before you start to weld so you can dress it down to the right shape.

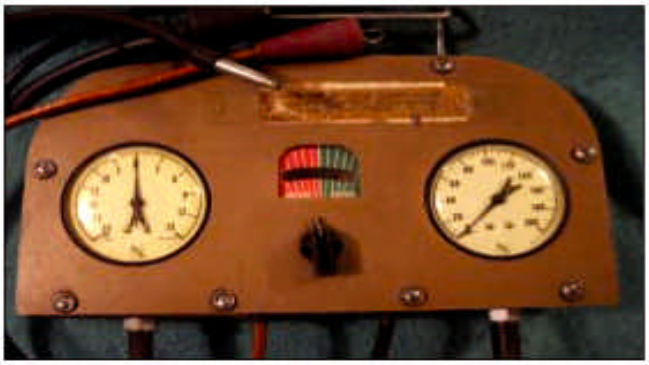
The Flivver Flash

Vintage Shop Equipment – Engine Testers

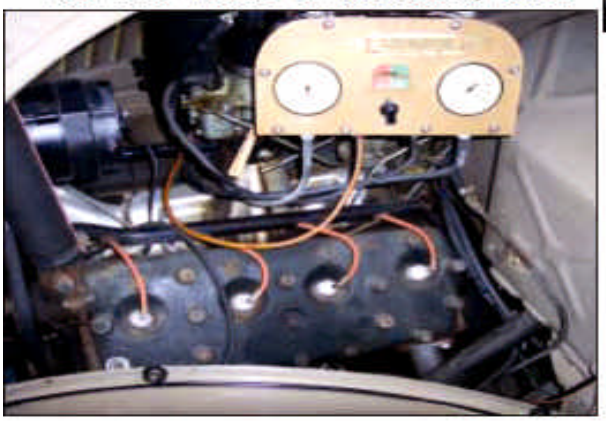
Terry Plata (June 2006)

Vintage shop equipment can be as interesting as the automobiles it was designed to diagnose. A couple of pieces of test equipment in my collection are the "Motor Tester" and "Motoscope".

The Motor Tester was found brand new in its original box at a garage sale in the late 1970's for the princely sum of $5.00. The unit is designed to hang on the radiator rod under the hood so the leads and hoses could be attached to the engine. It includes a vacuum/ fuel pump pressure gage, compression tester and ignition strength tester. The latter is an adjustable air gap under the small window in the center of the front panel with a small neon tube that flashes every time the plug fires. (Could you imagine hanging this on a modern computer controlled engine? I wonder if it would void the warranty) I actually still use the Motor Tester and it works great.



Motor Tester "installed" on hood rod ready for use



The Stromberg MotoScope is a smaller unit in a bakelite case with a locking wooden box. This unit came with directions for use and costs $18.75 new; a lot of money in the late 1920's! A nice advertising pamphlet included claims that garage owner will pay for the Motoscope on the second day of use by "selling service work". The business end of this tester is a "Vacameter" and "Sparkmeter". Similar to the other tool, the sparkmeter section connects in series with your spark plug or coil wire and forces the juice to jump an ever widening gap with the twist of a knob. A "normal" range is identified on the faceplate so the auto owner could be shown the relative strength of his ignition system.