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FEBRUARY 1975 ISSUE

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Articles

Gas Welding	Rod & Custom Magazine-March 1973
Arc Welding	Rod & Custom Magazine-August 1973
Sheet Metal Replacement	Street Rod Magazine-October 1972
Typing	Jane Robertson
Reproduction	Logicon, Inc.

7:00

LADIES NIGHT

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7:00

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BY GENE GEORGE

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SHOW ADDITIONAL CARS ON BACK

MONTHLY MEETING CALENDAR

Tentative Schedule of Events for 1975

23 January, 7:00 pm	Welding and repair of castings - Bud Jolley
21 February, 7:00 pm	Ladies Night, Hickory House Restaurant, Motion Picture Show by Gene George
13 March, _____	Attend Florence AACA meeting and program
24 April, _____	Pot luck supper. George & Betty Case and Doc & Barbara Becraft
22 May, 7:00 pm	Evaluation and design of various U. S. Engines - Gene George
26 June, Sunday	Auction Day - Don Pryor and Carl Berry
24 July, Sunday	Ice Cream Freeze - Dave Marty
28 August, Sunday	Garage Tour - Jim Fultz
25 September, 7:00 pm	Seminar on cloth upholstery - Jim Varner, Decatur
23 October, 7:00 pm	Talk on the Huntsville-made Keller car - Gene George and Tom Holley
20 November, 7:00 pm	Elections/Handling, treatment and preservation of leather upholstery - Gene George
December	Christmas Party - George Fore and Al Parrott

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Weekend Activities

May	Mystery Tour - Bernie Gier and Dan Shady
October	Fall Picnic - Carl Berry and Ernie Cross

SHOWS

Division	Dates	Sponsor	Location
Southeastern	June 26-28	Southeastern	Callaway Gardens, Pine Mountain, GA
Eastern	Oct. 9-12	Hershey Region	Hershey, Penn.
Southeastern	Oct. 9-12	Peach Blossom	Spartanburg, S.C.

OTHER SHOWS

	Feb. 23	Frontier Ford 815/332-4367	Rockford, Illinois "Little Hershey Swap Meet"
	Feb. 27-Mar. 2	AACA	Ft. Lauderdale, Fla. 2647 NE 27 Ave 33306
	Feb. 28-Mar. 1	Earl Nickerson Wauchula, Fla. 33873	Zolfo Springs, Fla. Flea Market
	Mar. 22	Bob Allen P. O. Box 3604	Charlotte, N.C.

BUYER'S GUIDE: ARC WELDERS

Here's a number of currently available units, and how to make them perform.

Plan to build a car in the ensuing weeks, months, or years? Then chances are good that you'll have need for an electric arc welder. Now it can be that this need has already arisen, and you took the easy way out by farming out what few arc welding jobs came up. Unless the fellow doing the welding for you was indeed near by, think of all the hassle you went to in hauling or towing that machine across town. The ironic part of all this is that for the price of a few jobs you farmed out, you could have bought yourself a complete arc welding outfit. New units cost just about 100 bucks, and some dealers may even have good used welders for sale (possibly trade-ins or repossessions) at a somewhat lower price.

Another ironic fact is that arc welding is relatively simple to master. In fact many people have learned to arc weld, whereas they never did learn to oxy-acetylene weld. All it takes is a little patience and a lot of practice, but this is required in many areas, automotive-related or not.

Generally speaking, most of the smaller home or shop arc welders are nearly identical in size, cost, amperage ranges, features, or whatever. Still, there are some differences. To give you an idea of what to look for in an arc welder, we'll cover some of their features and learn what we're getting for our money.

While these welders are not large industrial units, neither are they cheaply made, like the little buzz-boxes one sees advertised daily at prices between $14.00 and $25.00. These latter units are not even worth considering, let alone mention. The arc welders discussed herein are inexpensive enough that any of us can afford to own one, yet are made well enough to give trouble-free service for many years, and perform just about any task we may demand of them.

Most of them come complete, ready to be plugged into your 230-volt (220-240-V) electrical outlet, and fired up. Included with the welder is a ground cable and clamp and an electrode holder (torch) and cable. Here is where the difference lies in some outfits. Whereas some welders come with heavy-duty (like 300 amps) cables, electrode holder and ground clamp, others don't. Generally, it has been found that the quality of the fact shields is somewhat lacking, evidently in an effort to keep the overall package cost down. These shields will suffice for awhile, but later on you'll probably want to pop

for a better quality helmet, and one that has a flip-front lens holder. All of these welders, with the exception of the Trindl, must be operated on 230-volt, single phase, 60 cycle circuits. This is the only drawback to their ownership, but since many homes are wired for 220 anyway, it's not all that tough to get a line and outlet wired into the garage.

An accompanying chart lists the minimum and maximum available amperage figures for all the welders discussed. It also lists a Duty Cycle for each, but this may need explaining, so here goes. Duty cycle is the length of time you can weld without overheating or damaging your welder. A 20% duty cycle means one can weld for two minutes out of ten, or 20% of that ten minute period. A 100% duty cycle means you can weld ten minutes out of ten. The smaller, or lighter the welder the hotter it gets and the shorter its life expectancy. So, naturally, one would be wise to buy a welder with as great a duty cycle as possible. A welder that is rated at a 20% duty cycle at any amperage setting would be one to give double thoughts to as you may end up spending more time waiting for it to cool down than you would welding. There are many welders available today with a maximum of say 180 amps, or even 100 amps, that are good units. But most likely these would be in the 20% duty cycle range. There are also a number available offering amperages higher than say 235 that are still in the shop-type category, and within our price range, that will probably prove more suitable where you expect to do a lot of welding.

While most of these welders offer a maximum amperage figure of 225-235 amps, it is seldom that you would ever have to rely on so much heat in building your car.

While some of these welders offer fixed amperage settings, between 12 and 21 individual choices, others offer an infinite number via a sliding lever or control wheel. Some pieces of literature extoll the virtue of being able to "dial in" say 132-1/2 amps, but I seriously doubt whether the welding electrode and the materials being bonded together can really feel the difference between that setting and one 2-1/2 amps more or less.

So what we're really looking for is an arc welder that will permit us to weld just about any gauge of steel up to and including 1/2-inch stock, let us weld for a reasonable amount of time without overheating, and come equipped with heavy duty cables, ground clamp, and electrode holder. These latter items are important, as light duty models tend to get hot after a bit of use. Check with your local welding supply dealer or other store for additional information on any of these units you may be interested in. These people can be of considerable help when called upon.*

*Russell Welding Company, 2204 Holmes Avenue N.W., Huntsville, Alabama, 205/539-3433, Bud Jolley

ARC WELDER SPECIFICATION CHART

Make/Model	Lowest Amp Setting	Highest Amp Setting	Duty Cycle	No. of Amp Settings	Electrical Input
Linde 230	20	230	20%-100%	Infinite	230 Volt, Single Phase, 60 Cycle
Hobart T225	45	225	20%	18	230 Volt, Single Phase, 60 Cycle
Lincoln 225	40	225	20% except on 75 amps	12	230 Volt, Single Phase, 60 Cycle
Sears 20791N	40	225	20%	12	
Sears 20125N	40	230		Infinite	220-240 V, Single Phase, 60 Cycle
Westinghouse UW235	40	235	20%-100%	Infinite	230 Volt, Single Phase, 60 Cycle (208 & 460 V. units available)
Marquette 235	40	235	20%	21	230 Volt, Single Phase, 60 Cycle
Wards 5941R	20	230	20%-100%	Infinite	230 Volt, Single Phase, 60 Cycle
Trindl M130A	38	130	20%	Infinite	115 or 230 V., same unit, Single Phase, 60 Cycle
20th Century 230	20	230	20%-100%	Infinite	230 Volt, Single Phase, 60 Cycle
Miller 225	30	225	20%	Infinite	230 Volt, Single Phase, 60 Cycle
Forney 225	30	225	20%	15	230 Volt, Single Phase, 60 Cycle

STRIKE AN ARC!

If you're serious about building your
own chassis, then get an Arc Welder and ...

If you haven't operated an arc welder before, just keep the faith, a lot of other people haven't either, nor had any accomplished arc welder before he tried it that first time. There's nothing mysterious about it, and as long as one selects the right rod, or electrode, for the material he intends to weld, and adjusts the welder for the heat a specific gauge of metal requires. Practice will teach you how fast to move the electrode, how high to hold it above the work, which angle is best, and so forth. The intention in presenting this how-to article on arc welding is not to give you the illusion you can become an overnight sensation in the welding arts, but to erase any mysteries about arc welding that may be present in your mind. So, without further ado, let's go to it.

Before plugging the power cord into the 220 Volt receptacle, first turn off the main switch in the light meter box, then check the receptacle to make sure its ground is connected to the welder's ground. Make sure the fuse, or circuit breaker, on that particular line is sufficient to handle your welder. If it is too light, the breaker will jump, or the fuse will blow, when you do very much welding. This can be nerve wracking.

After your welder is connected, you'll probably want to try it out, so the next step involves connecting the ground clamp to the work to be welded. Make sure the connection is super-good, as you don't want to waste power and heat up the ground clamp. Use clean, dry welding rod (electrodes), and be sure of a positive grip on the rod in the electrode holder.

The thickness of the metal to be welded will determine the amount of heat required to weld it. In general, the heavier and thicker a piece of metal is, the more heat (amps) it requires. Many welders come with guides that give you an idea as to what diameter of electrode to use for specific metal thicknesses as well as amperage required. But because conditions vary in line voltage, rod fluxes, speed of the operator, type and condition of metal, no hard and fast rule will tell you the exact amperage to use. Your own experience after following these initial guide lines will quickly tell you whether you have too much heat, or too little.

If you use too much heat, you will burn holes in light metals, or the bead will be flat and porous. The bead will also likely "undercut" the work, caused by rapid movement along the work (due to the high heat), and not allowing sufficient time for the crater to be filled.

Using too little heat will result in beads that are too high, as though they lay on top of the work. The bead will also be irregular because of the difficulty you'll have in holding an arc. With the amperage too low, you'll have trouble striking an arc, and the electrode will tend to stick to the work, and it will frequently "go out."

But where you use the "right" heat, the bead will lay smoothly over the work without ragged edges. The "puddle" will be at least as deep in the base metal as the rod is thick. The sound of the welding operation will "crackle" as the sound of eggs frying.

GAUGE & DECIMAL THICKNESS OF METAL - U. S. Standard

Gauge	Thickness	Gauge	Thickness
3	.250"(1/4")	13	.093"
4	.234"	14	.078"
5	.218"	15	.070"
6	.203"	16	.062" (1/16")
7	.187"	17	.056"
8	.171"	18	.050"
9	.156"	19	.044"
10	.141"	20	.037"
11	.125" (1/8")	21	.034"
12	.109"	22	.031" (1/32")

Your rate of travel over the work affects the weld as much as the heat setting. Move the arc slowly to insure proper penetration, and enough deposit of rod. Rod movement must be at a constant speed, too. But first let's delve into the act of "striking an arc."

The purpose of the arc is to create an intense heat between the end of the electrode and the surface of the metal to be welded (called the work or base metal). The heat energy generated by the arc is so great that the base metal almost immediately is heated to a liquid state at the point where the arc is directed. This creates a molten pool (puddle) of metal which is always present on the base metal during the welding process.

This same heat also melts down the electrode. As it melts, the metal from the electrode falls through the arc into the molten pool, or puddle. This adds additional molten metal which mixes thoroughly in the puddle, resulting in complete fusion of the two metals. As more metal from the electrode is added and the electrode is moved forward, the material added from the electrode forms a uniform pile of metal along the base metal. This is known as "the bead."

Now that you have a general idea of what happens when you are arc welding, let's find out how you actually start to weld. The first thing to do is to "strike an arc." This is accomplished by scratching the end of the electrode across the surface to be welded. With a short stroke, scratch the rod end across the base metal, close to where you want to weld. You will soon hear a sputter and see an arc. You MUST be wearing a helmet anytime you strike an arc. There is no way you can see what is going on without one, and you'll burn your eyes severely trying to "play the role." Also, use the darkest lens possible in your helmet, as extra protection. Protective gloves will keep your hands from being burned, too.

As soon as an arc begins burning between the electrode end and the base metal, raise the electrode about 1/8-inch above the work. If you do not, it will stick to the work. When this happens, rock the electrode back and forth and it will break loose. Keep practicing in the art of striking an arc before considering trying to lay a bead. Use different gauges of metal and different amperages, too, practicing until you can do it right on the first or second attempt.

Now we're ready to lay a bead. Strike an arc, lift the electrode slightly off the base metal. If you lift it too high, the arc will break. After striking the arc, hold it at the starting point for a short time before moving the electrode forward to insure good fusion and to allow the bead to build up slightly. Bear in mind that the electrode continues to melt off as you move across the work, so you must move the electrode down into the puddle as well as along the path you are following. The electrode should be held at an angle, with the end held at a maintained height above the work surface. To insure proper penetration and evenness of the weld, learn to watch the molten pool of metal forming just behind the arc.

The easiest bead to lay is called a string bead. It is made by making one continuous pass over the work metal, without trying any weaving or oscillating movements. If you are right-handed, move from left to right when you start practicing. If left-handed, reverse the process. With the electrode tipped back towards the direction of travel (about 15 degrees), the arc will throw the molten metal of the puddle away from itself, insuring good penetration. The average bead, when using a 1/8-inch electrode, will be about 1/8-inch high. Practice the stringer bead until you are able to make a smooth weld of consistent width and height, with uniform ripples.

Another bead that is commonly used is known as a weave bead. Its purpose is to deposit metal in a wider space than would normally be possible with the stringer bead. It is accomplished by weaving from one edge of the space to be filled in to the other edge (see illustrations) and continuing this motion along with a forward speed of travel that will give the most satisfactory results. It is a good policy to hesitate momentarily at each edge of the weave so that you will provide the same heat at the edges as that which is obtained in the middle.

ARC WELDER SETTING LIMITS

This is a guide to the range of setting limits, which will vary with the operator speed, or line voltage.

Welding		Carbon Size	Rod Size	Amps Setting
Mild Steel, up to 1/8" metal			3/32"	Min.-90
Mild Steel, up to 1/4" metal			1/8"	70-160
Mild Steel, 1/4" to 1/2" metal			5/32"	120-180
Hard Steel, up to 1/8" metal*			3/32"	50-100
Hard Steel, 1/8" and heavier metal			1/8"	90-150
Cast Iron**	Nickel Rod (is easy to work and machinable.)		3/32"	50-70
	Cast Iron Rod (is harder to work and non-machinable.)		1/8"	80-120
Brazing	With use of Twin Carbon Torch, Clamp torch cable ends into ground clamp and electrode holder.	Carbon Size		
Brazing, light sheet metal		1/4"	3/32"	Min.-40
Brazing, med. sheet metal		5/16"	or	Min.-50
Brazing, heavy sheet metal, cast iron		3/8"	1/8"	Min.-100
Heating, melting, bending, shaping		1/2"		100-180

* Use stainless steel rod when in doubt about the hardness of your metal.
** Weld a little, cool a lot, in beads about 1" long, followed by light peening.

It is recommended that anytime you butt weld two pieces of metal together, where their thickness is 3/16-inch or more, that the edges be beveled by grinding or whatever. This will permit a much better weld as you are insuring complete penetration of the weld filler metal (electrode). Where necessary, you can even make a second or third pass over an initial weld as long as you completely remove all slag from previous beads. It is seldom that we will be making

butt welds in construction of our antiques, but Tee joints and lap joints are very common. About the only place I can think of a butt weld being used on a car is where a channel frame is being boxed.

It will often happen that you're laying a beautiful bead, and before you're finished, you run out of rod. For best results, the crater, or depression, remaining at the unfinished end of the weld should be thoroughly cleaned with a wire brush before again starting to weld. After this has been done a new arc should be struck just ahead of the crater and then moved nearly to the back of the crater. After the crater is filled, the weld can be carried on as before.

In closing, we would like to advise you that most welding supply outlets offer one or more books on arc welding for beginners. One such manual, entitled "New Lessons in Arc Welding," is available from Lincoln arc welder dealers, and is quite thorough. It covers just about every phase of arc welding, and in more detail than this article could ever attempt.

Like the rest of these units, the Westinghouse UW-235 AC welder comes with cables, electrode holder, ground clamp, and face shield. Also like the others, it is a transofrmer type welder ideal for working with metals such as we use in building.

Craftsman welder by Sears, providing an infinite number of heat ranges between 40 and 230 amperes. Model 20125N, it is a good unit to have. Sears also has a smaller model, #20791N, that is okay for small jobs.

The Linde 230 Amp welder is quite versatile, and provides a duty cycle of 100% up to 110 Volts, tapering to 20%, amperage selections are infinite, and unit comes with heavy-duty 300 Amp electrode holder and ground lamp.

Of all the Hobart welders, their "Miami T-225," is perhaps the best for garage or shop use. Dial permits easy change of amp setting, and it has a tap to maintain full current where line voltage is as low as 208 V.

Montgomery Ward's Powr-Kraft welder offers an amperage range between 20 and 230 amps, in addition to an infinite selection of amp settings. Its low amp setting means you can weld light gauge metal, something you can't with others.

The Lincoln Electric 225 Amp AC arc welder is a real popular unit. It comes ready to go, with 20 foot electrode cable, 15 foot ground cable, and 6 foot power cable. This means you can reach work about 22 feet away from your power source, sufficient for any garage.

BUYER'S GUIDE: INEXPENSIVE GAS WELDING OUTFITS

Selecting an oxy-acetylene outfit
that will perfrom the jobs you
expect of it -- at home.

There are many "economy-sized" welding outfits on the market today, a number of which are shown here and all of those are comparable. Many of these outfits include both a welding and cutting torch, while others include only a welding torch. Some sets offer a selection of two or three different sizes of tips with the initial set, while additional sizes are available for individual purchase. All of the units shown here are suitable for any work you may plan for your own car. In addition to welding and cutting tips, some firms offer heating tips designed for bending tubing, etc. This is something to consider if you have in mind to fabricate your own shop equipment and so forth.

Just about all welding outfits come with everything one will need to get started. This includes oxygen and acetylene regulators, hose, torches, tips, striker, and goggles. Aside from cylinders, about the only other items you may want would be tip cleaners and welding gloves.

Speaking of cylinders, this is something even the finest welding outfit is worthless without. You have to have a cylinder of acetylene and one of oxygen if you're going to make use of that torch. If you've already settled on a welding outfit that will take care of any job you may have in mind, then your next consideration is the size of containers, or bottles, that you should get. Check with a local Linde distributor.*

It's also best to confer with an informed welding supply salesman with respect to any welding outfit you may wish to purchase. Tell him your needs, and he should be able to tell you exactly which equipment will do the trick.**

1) Smith Welding Equipment's low cost Cavalier welding and cutting outfit would be ideal for the beginner. It costs about $89.00 for both regulators, siamese hose, torch body and two tips, cutting attachment, and so forth.

2) Welding and cutting set by Airco known as their Handicrafter comes complete with four sizes of welding tips, cutting attachment with two tips, hose, tip cleaners, striker, oxygen regulator and preset acetylene regulator, along with goggles and wrench. Average price is $99.50, including a heating tip as shown on torch.

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* Union Carbide Corporation, Linde Division, New Hobbs Island Road, Huntsville, Alabama, 205/881-1441.

** Russell Welding Company, 2204 Holmes Aveneu N.W., Huntsville, Alabama, 205/539-3433, Bud Jolley.

3) Purox Metalmaster 200 welding, cutting outfit goes for about $101.00. With the few tips it comes with, unit can weld material up to 3/16-inch, cut up to 3/4-inch. By adding tips, range can be extended.

4) For about $109.00 one can pick up Victor Deluxe Performer set. It's a bare minimum welding and cutting outfit, but you can add other tips as needed.

5) A rather complete welding and cutting outfit is Sears Craftsman single-stage model No. 624.54131. Like others, it comes with safety goggles and complete instructions. Price on this light-duty outfit is about $100.00. Craftsman "Commercial" is excellent two-stage outfit selling for $160.00.

6) The Metalist by Victor is one of their better models, and comes with 25-foot fo 1/4-inch hose, more than most outfits. Two black valves just below the safety goggles are reverse flow safety check valves which are designed to prevent the reverse flow of gases, which is a common cause of explosions. The Metalist sells for about $169.00, and is capable of welding up to 1/4-inch steel and cutting through 6 inches of steel with tips supplied.

7) An ideal outfit for light-duty work is this Purox package, No. 40L43, which lists for about $144.00. It is capable of welding to 3/8 inch, cutting up to 2 inches. Lightweight torches such as these are easy to handle.

8) Another Smith combination cutting and welding outfit is the Silver Starr Special, listing at about $150.00. It comes with three heavy wall copper welding tips, one "slip-in" cutting tip. Tips on most welding outfits no longer have to be wrench tightened, cutting down on wear.

9) American Welding & Industrial Sales offers a portable welding and cutting outfit that's nice to have around just in case -- a fine little package. It consists of the bottle cart, "R" oxygen bottle, "MC" acetylene bottle, goggles and torches and hose from the Purox 40L43 set. It's all yours, to keep, for only $175.00. Without the cutting attachment and goggles, the price drops to $159.00. These are the smallest bottles around.

10) From left to right, is the "WS" acetylene, "S" oxygen, "WQ" acetylene, and "Q" oxygen containers. The first two are medium in size and will last quite a while. The smaller pair are commonly seen in the antiquer's garage.

USING THE GAS WELDER

Assuming you've wanted to buy a gas welding outfit for a long time but until now didn't know what to go for and have begun to think about using said equipment, it would be helpful to give you a quick rundown on some basics for firing up that torch.

Initially, it takes a very high degree of heat to melt or cut steel, or even metals with a lower melting point. We need a "needle-like" flame which will burn consistently, with its maximum heat concentrated at the tip. Therefore, we use acetylene as fuel, and use pur oxygen to "feed" it. When acetylene is combined with oxygen, it will burn the hottest of all gases (approximately 6000 degrees F). Acetylene gas is highly flammable; but it is perfectly safe if used with reasonable care. NEVER apply heat to the cylinder, nor drop it. ALWAYS keep the cylinder upright (valve at top). Oxygen is not harmful in any way. It can, however "puff" a tiny spark into a roaring flame--can even cause oily or greasy rags to burst into flame from spontaneous combustion. NEVER oil or grease any part of the equipment, the cylinders or the valves--under any circumstances.

The first step you should take before any attempt at welding is taken is to secure your acetylene and oxygen cylinders in their cart, or to a permanent post, etc. This will prevent their being knocked over. After removing the valve protection cap, examine the cylinder valve threads and wipe them clean with a CLEAN cloth. Next, slightly open (called "cracking") then close both the oxygen and acetylene cylinder valves to make sure they do not stick and to blow out any dirt or moisture that may have been lodged in the valve.

Loosen both regulator adjusting screws (turn them counterclockwise) until they turn freely, then install the regulators on their appropriate cylinders, tightening firmly, but without force. You can't make a mistake here, as the oxygen regulator is fitted with a femal fitting, the acetylene with a male fitting. Standing to one side of the oxygen regulator, open the cylinder valve very slowly so the high pressure gauge needle will move up slowly until full pressure is registered. Now the valve should be opened completely. The acetylene cylinder valve should be opened a MAXIMUM of one complete turn only.

Connect the green (oxygen) hose to the outlet of the oxygen regulator. This hose has "right" hand thread connections. If you have new hose, it probably has talcum powder in it to protect the hose lining while in storage. Or, if the hose has been lying around, it is probably full of dust. In either event, without the torch connected up yet, turn the adjusting screw on the oxygen regulator clockwise until a reading of 5 pounds shows on the low pressure gauge. Allow the oxygen to escape until you are sure the hose is clean on the inside.

Connect the fuel hose (red) to the acetylene regulator outlet. This hose has "left" hand thread connections. Again, you can't get the hoses crossed up due to the different threads. Blow out the acetylene hose in the same manner as you did the oxygen hose. Remember that this gas will burn. Keep it away from open flames as you are blowing out the hose.

Now you can connect the welding torch to the hoses. In addition to having "right" hand threads, the oxygen side will always be marked "OXY" or "Oxygen." The fuel side of the torch will be marked "FUEL," "ACY" or "Acetylene," and will feature "left" hand threads. Select the welding tip size that is suitable for the job you are to do -- rule of thumb being, small tip for light work, middle size, large tips for medium and heavy work. Then install it in the torch, but not too tight.

Let's make an assumption, for sake of illustration, that you wish to weld sheet metal 1/32-inch thick. Your welding manual states a size "O" tip is required, and maximum oxygen and acetylene pressure should be at 3 p.s.i. Now partially open the torch oxygen valve and adjust the oxygen regulator until the pressure rises to 3 p.s.i. Close the torch oxygen valve. Being careful that no open flame is about, partially open the torch acetylene valve and adjust the regulator pressure to 3 p.s.i., then close the valve. All pressures in welding and cutting charts are flowing pressures with the torch valves open. If you change tip sizes in the middle of a job, and must change pressures, do so with the torch valves open.

You have finally arrived at the point where you can light that fire. Open the torch acetylene valve approximately 1/2 turn and ignite the acetylene with your striker, pointing the flame away from persons, the cylinders or any flammable materials. Keep opening the torch fuel valve until the flame stops excessive smoking and leaves the end of the tip about 1/8-inch, then reduce slightly to bring flame back to the tip.

Open the torch oxygen valve now until a bright inner cone appears on the flame. The point at which the feathery edges of the flame disappears and a sharp inner cone is visible is called the "Neutral Flame." Adjust the torch oxygen valve back and forth until you are sure you have a neutral flame. If too much oxygen is flowing, you'll have an "Oxidizing Flame" that will burn the metal you're trying to weld, making it brittle and weak. It will have a flame that is pale blue in color without the clearly defined inner cone of the "Neutral Flame." Should you attempt to weld with a flame that is acetylene-rich, you will have a "Carburizing Flame," distinguished by its long carbuizing feather. This is the flame you have just before reaching the "Neutral Flame." A "Carburizing Flame" introduces excess carbon into the metal.

There are two methods one may employ in oxy-acetylene welding-forehand and backhand welding. The forehand method is usually used where you're

welding material under 1/8-inch thickness. It is performed by pointing the torch down at an angle, towards the direction you plan to lay the bead, with the rod preceding the torch. The flame tip preheats the edge of the joint, and the oscillating motion you use with both rod and torch, moving them in semi-circular paths along the joint, will distribute the heat and molten metal uniformly.

In backhand welding, the torch is moved along in front of the rod in the direction of welding, with the flame pointed back toward the molten puddle and completed weld. The end of the welding rod is placed in the flame between the tip and the weld. The torch needs to be moved slowly along the joint in front of the weld puddle, while the rod may be merely rolled from side to side in the puddle. Better fusion between the metals at the root of the weld is normally achieved with this method.

Enough emphasis cannot be placed on the need to achieve full penetration to the bottom of the materials being joined together, and complete fusion along the sides of the joint. Where two pieces are being joined together, and the joint is quite long, you must take into consideration the expansion of metals in heating and contraction on cooling. For steel plate being welded together, you should tack the pieces lightly where you are going to begin welding, then space the pieces out on down the joint, figuring about 1/4-inch per foot. Tack the two pieces very lightly at frequent intervals, to hold them in alignment, but still allowing closing of the joint.

In the long run, you're going to have to practice, and practice a lot, if you're going to learn how to weld. There is no other way out. All the books in the world can't be of assistance, if you don't apply yourself.

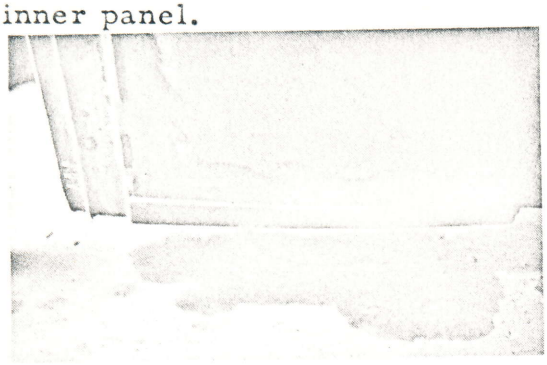
REPAIRING THE RUSTED PANEL

More often than not, while constructing a car, the builder will run across situations that go beyond the paint-over-it, bolt-up-to-it techniques.

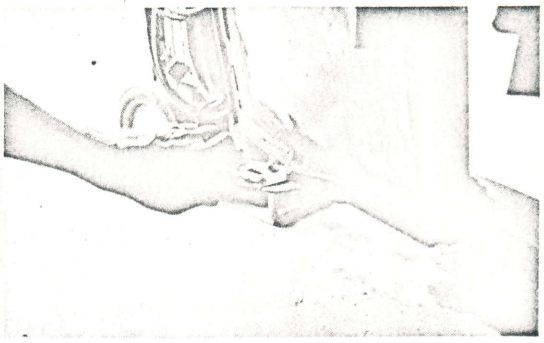
Many times when rebuilding a metal body, badly rusted panels are present. The lower cowl on the driver's side was rusted completely through and required attention. There are several ways to repair areas like this, but only one good way: remove the rusted area and weld in a new panel.

1) The lower cowl panel was rusted through on the driver's side. This was caused from dirt getting between the outer sheet metal and the inner panel.

1.



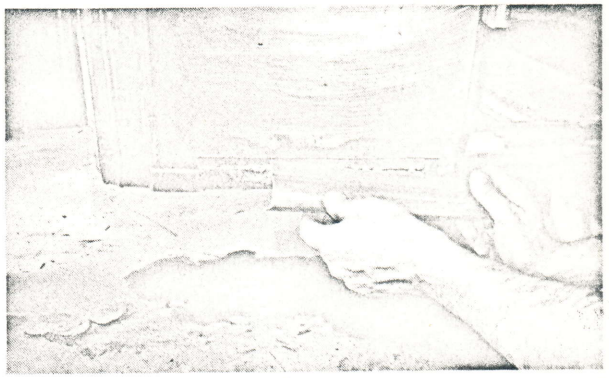
2.



2) With a pair of aviation snips, cut out the section to be replaced. Be careful to remove all of the rusted material to have good metal to weld to.

3) After removing all of the rusted outer material, you can see that part of the inner panel is rusted also, and this needs to be welded up, sand blasted and primed.

3.



4.

4) After welding the inner panel, all dirt and rust was cleaned out. A new outer panel of 20-gauge cold rolled sheet metal is checked for fit.

5) Trim the piece to fit both the opening and curve of the body.

5.

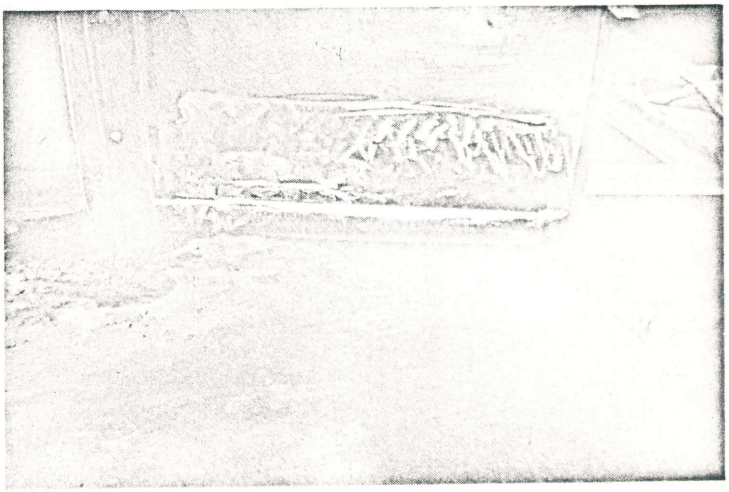
6) Now the new panel is tack welded into place with tack welds about one-half inch apart, before welding solid. There was no way to get behind this panel to work it, so kept the heat down to prevent warping the panel more than necessary.

6

7) The panel is now welded solid. The heat was kept low, so very little warpage has occurred, and it will take little lead to finish the job.

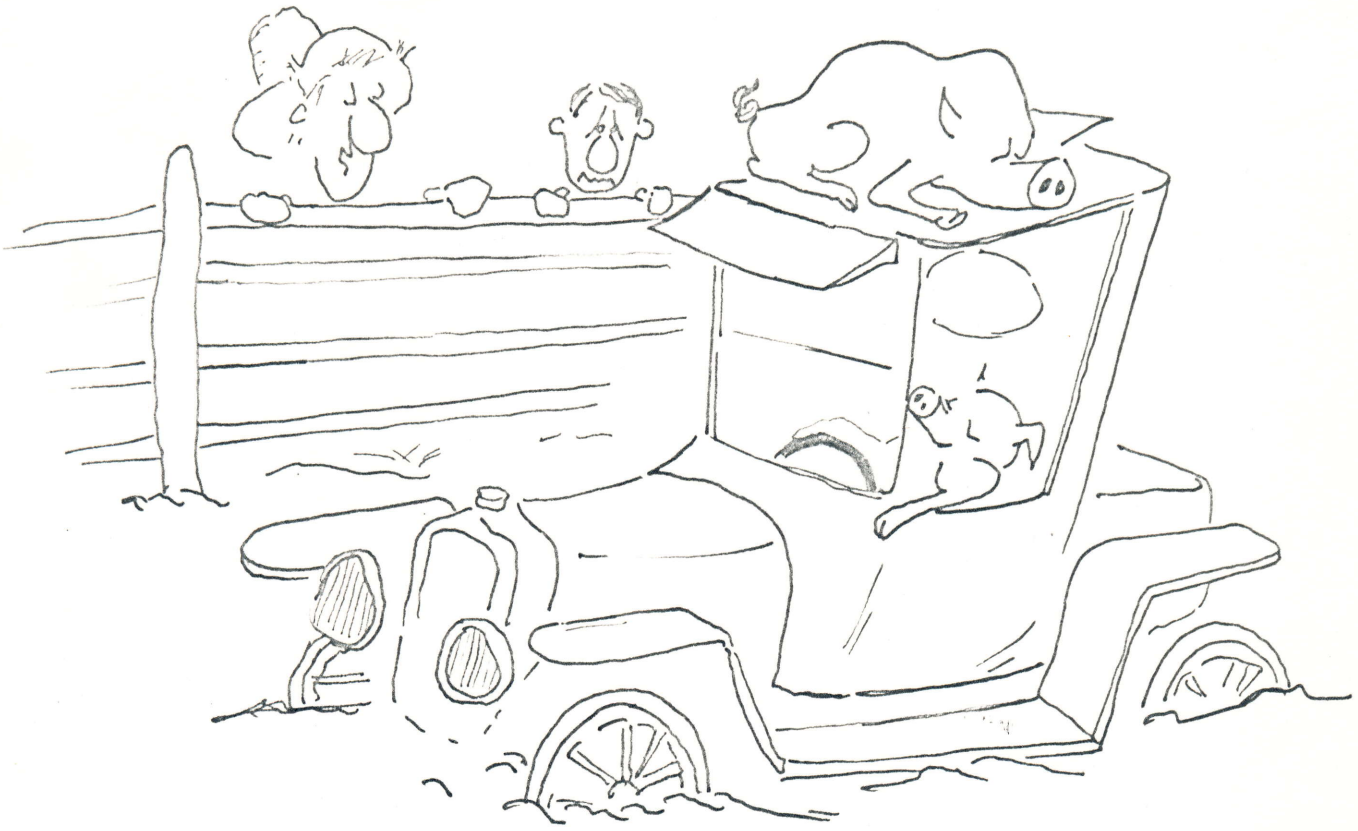
8) The panel is ground clean, and the area is ready to tin and then lead.

7.



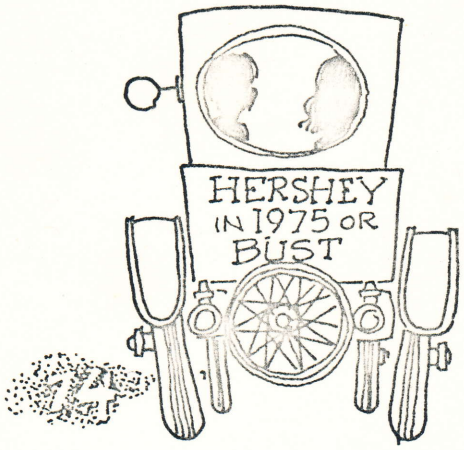
8.

AS WE FIND THEM



I DON'T KNOW; I'LL HAVE TO TALK IT OVER WITH THEM.
I COULDN'T SELL IT OUT FROM UNDER THEM.

THE PRICE IS A LITTLE HIGH, BUT YOU DON'T EXPECT ME TO GET RID OF A PERFECT HORN BUTTON.



North Alabama Region AACA

"Idea Ballot"

The Board of Directors, having convened earlier, came up with a few new ideas. These, along with other activities are listed below. Please answer Yes (I would like), or No (I would not like) a particular activity. Any and all comments are welcome.

1. ☐ Occasionally combine business meeting with a weekend outing. (Nashville does this)
2. ☐ For new or prospective members: Have a few members visit their homes to show interest, give advise, or just to say Hi!
3. ☐ Winter ☐ Spring ☐ Summer ☐ Fall Give Rest Home folks a ride in your antique.
4. ☐ Have a mystery tour and picnic.
5. ☐ Schedule a garage tour.
6. ☐ Have another regular club meeting with an auction afterwards.
7. ☐ Continue door prizes as last year.
8. ☐ Have an ice cream freeze at some scenic spot.
9. ☐ Have a covered dish supper (good family activity).
10. ☐ Show available applicable technical or auto related films at some regular meetings to create added interest.
11. ☐ Have Antique Car Club sponsor a car wash--to raise funds--good advertisement for Club.
12. ☐ Have a future Christmas Banquet held where? ? _____
13. ☐ Ladies Night (dinner and short business meeting outing at some local restaurant)
14. ☐ Would you be interested in chartering a bus for a trip to:
    1. An antique car auction 2. Hershey 3. Other _____

---------- POUR YOUR HEART OUT ----------

Please give us any additional ideas you have concerning:

Meetings, Programs, Publications, Club activities or any area of the Club.

DENNIS MC C NN
2621 ROCKWELL RD
HUNTSVILLE AL 35810