ELECTRICAL, ALTERNATOR, SWITCHES, INSTRUMENTS, AND RADIO

NOTICE

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GM ALTERNATOR CONVERSION

Skill Level D

In Volume IV, Supplement 5 of the TR-6 Owners Club newsletter Greg Lund, their Competition columnist, included a very good article in his column on the use of Deco - Remy alternators (used on virtually all GM cars with air conditioning in the early '80s) in TR-6s. I love this type of substitution because it not only "beats the system" of ridiculous prices for inferior products but it significantly improves the performance of the car. Greg explained the electrical benefits of using this 63 Amp unit and described the rather simple modifications required for the installation. Unfortunately, his accompanying sketches never were published. This conversion is very practical because, among other reasons, GM alternators go for about $25 at most any junkyard in the U.S. The following is not intended to take the place of Greg's article, merely to supplement it to the level where a person with 'D' level mechanical skills can make the change. I highly recommend you get a copy of the newsletter with Greg's article. The following also shows how to retain your original alternator plug in case you ever want to go purist in the future or carry your good Lucas unit around as an emergency spare.

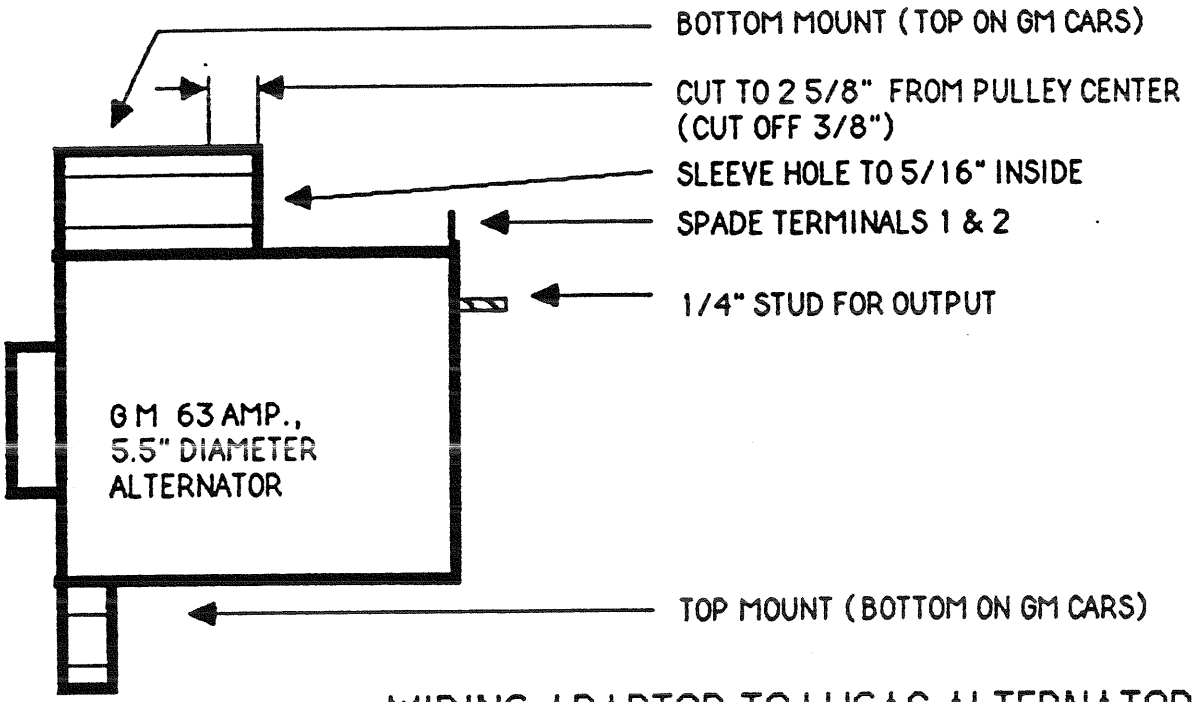
Before starting, get the things you will need in addition to the alternator.

Try to get the cover for the stud terminal when you get the alternator at the junkyard. Get the wire and the male, female and ring electrical terminals shown. The ones for the #14 wire will have blue plastic ends and the ones for the #10 will have yellow. A pair of inexpensive wire stripping and crimping pliers is highly recommended as is a low cost electrical multi-tester (about $10 at Radio Shack). Get a one foot piece of 5/16" inside diameter copper tubing at the hardware store to make the sleeve for the mounting hole in the alternator bracket. Get a <u>top quality</u> fan belt 1" or 1 1/2" longer than stock. I used a Dayco15445 which you may or may not be able to get. However, that number should tell any parts counter man what belt you need. A shorter mounting bolt (4") is needed. You will also need to buy, make, or

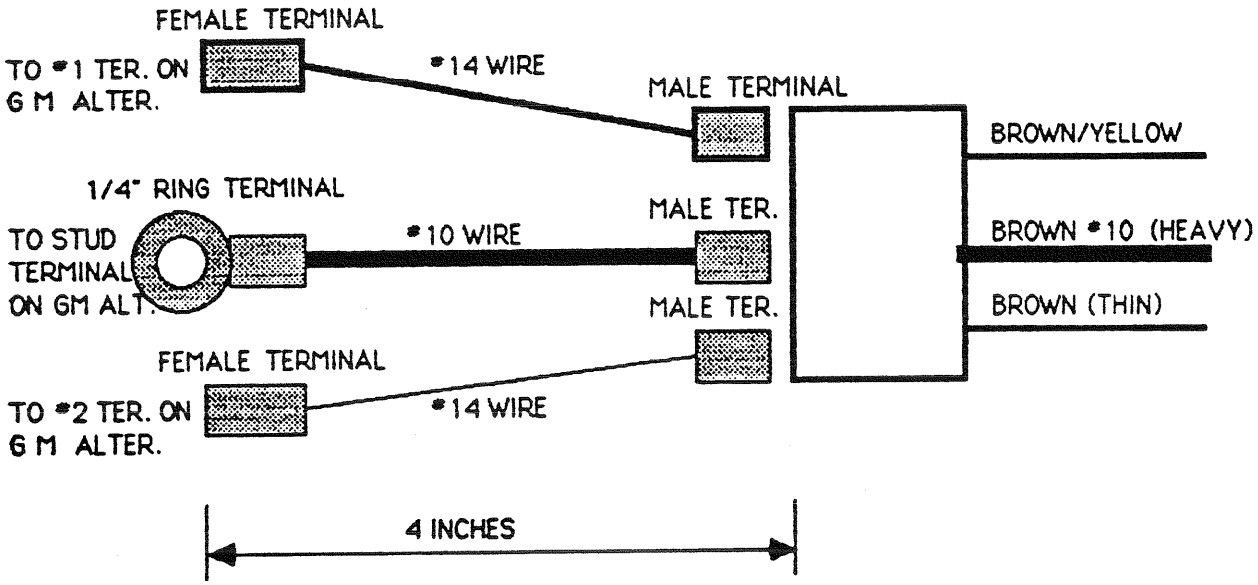
have made the adjusment bracket shown from 1/8" or thicker steel. The junkyard will probably sell you one that will do the job for a buck or two extra when you get the alternator. If you have a late (air pump equipped) car, see Greg's note on mount changes.

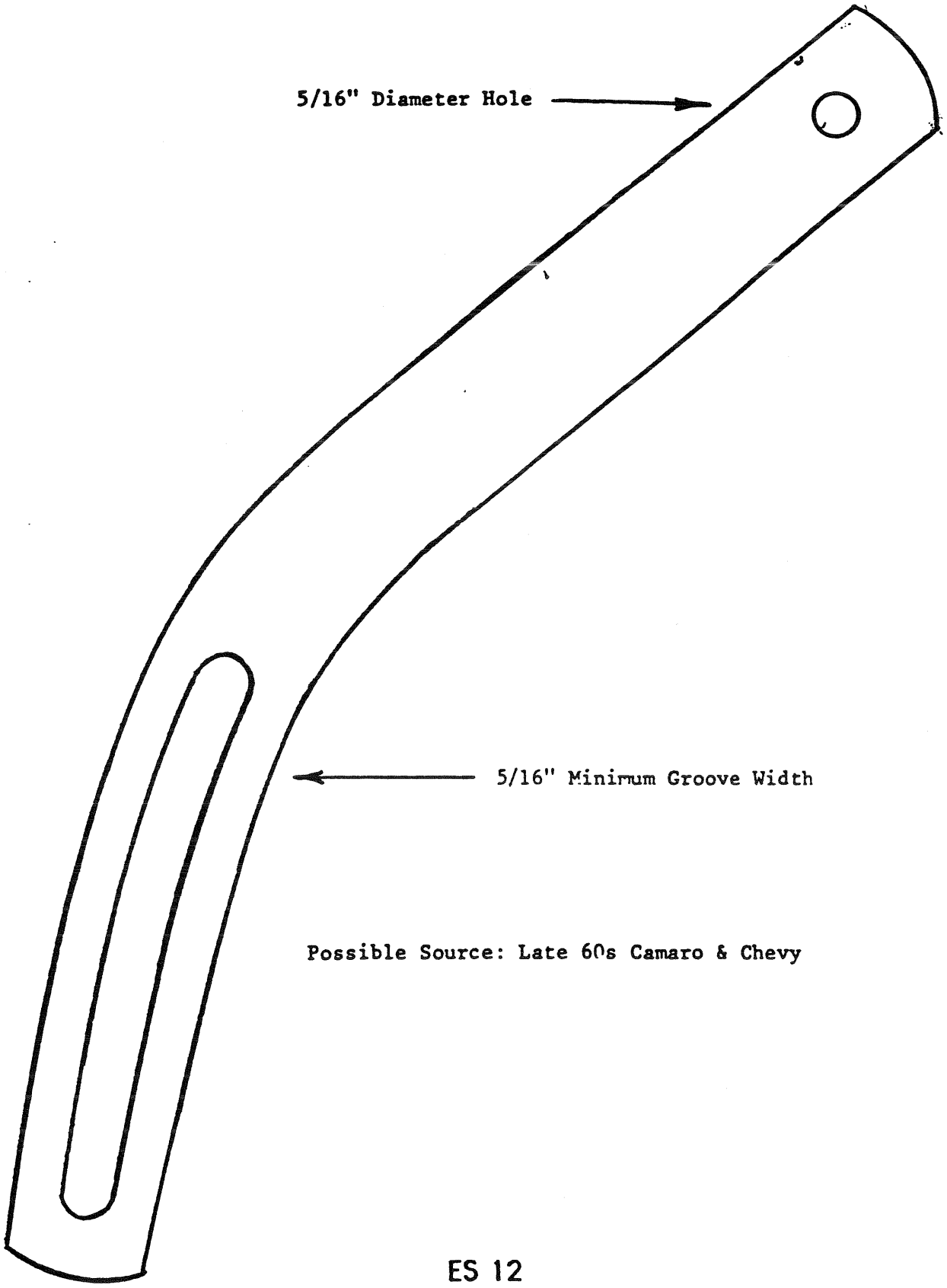
Disconnect the positive terminal of the battery. Remove the Lucas alternator and the fan belt. Sometimes TR-6 fan belts are pure hell to get over the fan extension. Use a 24" crowbar between the left front corner of the engine at the top of the oil pan and the frame bracket to move the engine back for clearance. Install the new belt on the engine. Check your alternator against the GM unit for distance from the center of the pulley groove to the back of the mount. You should need to remove 3/8" from the back of the GM unit Do this carefully to remove the correct amount and to keep the end square. Cut a length of the copper tubing for a sleeve required to bring the 3/8" diameter hole in the GM unit down to the size of the TR-6 mounting bolt. This must not be longer than the modified mount. Usually the tubing will be a tight fit on the bolt so you may want to put it on the bolt first then mount the alternator. with the GM unit mounted loosely, put the fan belt on the pulleys and pull the alternator over to where the belt is close to proper tension. Try your new adjustment bracket. If all is well, adjust the tension, bolt it up and the mounting job is done.

The adaptor wiring drawing is self explanatory but you should check the wiring diagram in your owners manual or shop manual to be sure you have the proper wires. Don't be concerned if you have too many wires. Many early cars have a heavy black ground wire in the adaptor and a second small white adaptor. Above all, make sure you have the heavy #10 wire connected right. The thinner brown wire will be one that shows 12 volts on a multi-tester with the ignition turned off. Reconnect the battery. Start the car and watch the ammeter or voltmeter. Don't be concerned if your ammeter goes out of sight on the charge side for a second.



WIRING ADAPTOR TO LUCAS ALTERNATOR PLUG





Possible Source: Late 60s Camaro & Chevy

WIPER SWITCH REPLACEMENT, "ORIGINAL" OR CHEAP

Skill Level C

Original:

Those Clear Hooter switches we have all learned to curse are now no longer available. Clear Hooter has gone male connectors up and they deserve it! The Roadster Factory has found a replacement Lucas switch which can easily be made to look like the original. However, the bad side of this is it takes a fair amount of work to modify the dash.

If you look at the hole in your dash you'll see a silvery metal plate. This is fastened to the back of the wooden dash panel by three screws. In addition, behind this is the metal dash panel. Your choices are two - spend the next week filing the hole to the size of the opening in the wood dash (if you try a rotary file and electric drill you probably will hit the wood) or partly remove the wood dash which entails removing all instruments, removing the plate on the back of the dash, and still having to file the dash hole.

Then there is the wiring. The terminals are not in the same places and are too close to the edge. Bend the terminals inward slightly for the wire connectors to clear the dash hole (always connect the wires outside the dash, not behind). Do not connect the wires to the same numbered terminals as on the original switch. John Swauger of the Roadster Factory has advised that the proper connections are: Terminal 1 - Blue/ Lt. Green, 2 - Green, 4 - Red/Lt. Green, 5 - Brown/ Lt. Green.

If you're going to go to all this trouble, maybe you should consider doing the other dash jobs in the related articles at the same time.

Cheap:

The quick and dirty answer is to simply use a <u>12 volt 20 amp rated</u> on/off toggle switch. Most available at Radio Shack

and car parts stores have a threaded body which is just right to fit through the behind dash bracket. Put two narrow type male spade connectors on the wires and connect these to the red and green/red wires for the original switch. If any metal of the spade is showinng, wrap with electrical tape. The wiring must be connected behind the dash and the switch pushed through but this is no big deal. Aside from aesthetics, the only disadvantage to this is that you must be coordinated enough to turn the wipers off at the end of a sweep. They will not automatically return as with a regular wiper switch.

SPEEDOMETER AND TACH REPAIR

I've had two speedos fixed by Foreign Speedometer Service, 3061 Morse Rd., Columbus, Ohio 43229. Phone 475-2511. The results have been good and the price was about $35.00 plus about $2.50 for shipping. I'n not really sure it that is a flat rate or if it varies with the unit. In any case, it beats a hundred clams for a new one. Incidentally, one of the ones I had fixed was new, having only 500 miles on it. Damn Brits can't make anything right anymore. Come to think of it, their kids look a little funny lately.

STOP LIGHT/TAIL LIGHT WOES

Skill Level C&D

Here we go again knocking Joe Lucas. In this case maybe he doesn't deserve it because as near as I can recall these items worked reasonably well for the design life of the car. However, stop lights are damn important and I'll bet a lot of you don't have them. The items involved are the fuse block found at the rear of the veritcal face of the inner drivers side fender, the stop light switch (a plastic plunger type) found at the top of the brake pedal, and the stop/tail lamp bulbholders. The quick and easy (and really probably the best) thing to do is buy all this trash new and just change parts.

The problem is the $50.00 plus price and the fact that you usually need them like now, not a week from now.

For the parts changing option you won't need any special tools. For testing you'll need a multi-meter (about $8.00 at Radio Shack) or similar electrical tester. To cure the bulbholder problem you'll need a soldering gun and a little skill operating it.

The stop light switch is seldom at fault but it is the quickest and easiest to test. Remove the two connectors. Place your multi-meter on the ohms (or resistance) setting. This is usually 1,000 ohms. Touch the red and black test leads together. The meter should peg itself. Now place the leads on the stop light switch terminals. The meter shouldn't move. With your third hand, depress the brake pedal and the meter should peg itself. If not replace the switch. Note that the switchs length is adjustable to make it turn on at the right time.

Now set the meter on the next higher setting than 12 volts (usually 15 or 50). Place the red test lead in the plain green wire from the stop light switch (usually two wires in one spade connector but check the wiring diagram or else test both wires). Turn on the ignition switch and then touch the black test lead to a good ground. The meter should read 12 volts more or less. If not, the problem is probably in the fuse block. The second fuse from the top should be the one that controls the stop lights, but check for the double green wire on the foreward side and a heavy white wire on the rear side of the fuse. Remove the fuse and push the fuse holders ends together to make them grip the fuse tighter. Clean them, the spade connectors and the female connectors of the wires with a grease remover like lacquer thinner, then use muriatic acid (rinse and dry thoroughly after), sandpaper, electrical contact cleaner, or even chrome cleaner and a toothbrush to remove corrosion. Test the white wire with the ignition on to see if it reads 12 volts. Replace the wires and fuse and again test at the stop light switch wire.

Next move to the bulb holders. The problem here is occasionally a loose conductor strap that runs from the outside

of the plastic case, but inside the rubber boot, and ends as the male spade connector. If it is loose, or the tab at the bulb base is dirty, it won't make contact.

About 99% of the time the problem is the ground. Look closely inside the plastic bulb holder and you'll see a copper tab about 1/8" wide and 1/4" long projecting from between the plastic bulb holder and the metal ring portion that snaps into the mounting hole in the tail light. This is the ground and the fact that it is not physically fastened to the ring is the key to the problem. This tab was just inserted in the plastic. With age the plastic shrunk and the tab no longer makes good contact with the metal ring. The cure is quick and easy. Use a Dremel tool, or anything you can think of like a file or nail, to clean and roughen the surface of the copper tab and especially the metal ring. Solder the two together using a soldering gun. This should do the job, but if you're still not sure or want an alternate method, solder a wire to the tab and put a ring or spade terminal on the other end. Drill a hole at a convenient spot on the body and attach this wire with a metal screw for a fail-proof ground.