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ADDING AIR HORNS

ADDING AIR HORNS, SWITCH SELECTABLE

The following material describes a method of adding air powered horns to your car, while still retaining the original horns. This gives you the option of using your original horns around town, while having the louder air horns available when circumstances warrant it. With the selector switch in one position, your original horns operate when you push the horn button in the steering wheel; in the other position, the air horns operate. I recommend keeping the switch in the “air horn” position in normal usage, as you won’t have time to switch in an emergency. If you are only wanting to get someone’s attention, you can then switch to the standard horns.

Two sets of instructions are given - one for cars that already have a horn relay to operate the existing horns, and one for cars that operate the horns directly from the horn pushbutton, without a relay. To determine the setup for your particular car, refer to chapter 18, Horn Circuit.

A: IF YOUR CAR HAS A HORN RELAY

Refer to the schematic diagram below, **figure 1**, for wiring details.

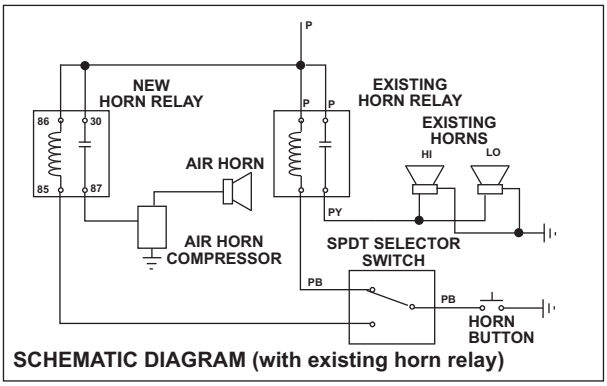

FIGURE 1

MATERIALS REQUIRED:

SPDT switch. These can be found at most Home Depot, Lowes, or similar stores, but they won't have the typical "car" look. If you can't find a SPDT switch that looks like you want, you can use half of a DPDT switch, which are readily available at most automotive supply stores. Just be sure NOT to get one with a "center off" position -- most of those sold in an auto parts store are of this type, so use care when buying. If you use a switch with a center-off position, neither horn will work if the switch is in the center position. Contact rating is not a concern, as this switch will only be switching the relay coils -- less than ½ amp.

Relay. A simple SPST relay, readily available in most auto parts store. Current ratings on these are usually 30 amps, which is more than adequate. Often, the relay is included with the air horns, especially if you buy a kit.

Miscellaneous wire. Wire size from the switch to the new relay is not important, as the relays are low current. The wire from the new relay to the horns, and from the relay to the power source, should be 14 gauge at least, unless the maker of the horn recommends larger. The remainder of the wire can be as small as 16 gauge with no problems.

PROCEDURES:

Mount the air horn and its compressor per the manufacturer’s instructions.

Mount the relay in a convenient location. I recommend putting it next to the existing relays located near the fuse box, using one of the relay mounting screws to hold it. If you use a relay with a metal mounting tab, you can bend the tab 90º and the relay will be almost invisible. See **photo 1** below for an example. If you mount the relay here, you can pick up a purple wire at the fuse box, or perhaps at one of the relays.

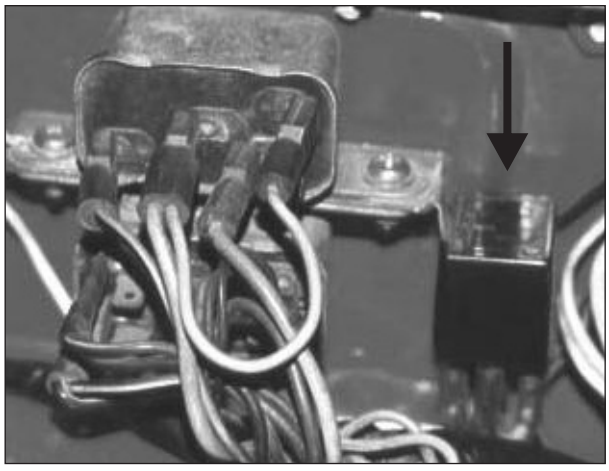

PHOTO 1

Install the selector switch in a location that is easily reachable by the driver. The dash support is a good location for the switch if you want it to be visible. If you prefer to maintain originality, you can make a metal bracket with a hole for the switch, and mount the bracket

to one of the holes in the bottom lip of the dash.

Wire pins 30 and 86 of the new relay together, and connect them to the nearest purple wire, using at least 14 gauge wire. Refer to **figure 2**, for physical wiring details.

Wiring to the relay must be as shown. Orientation of the switch is not important, as long as the wiring looks like that shown. Wired one way, the switch toggle will be "up" for the existing horns, and "down" for the new horn. Wired the other way, the switch function will be just the opposite. The switch can be turned after wiring to make "up" and "down" functions as you wish.

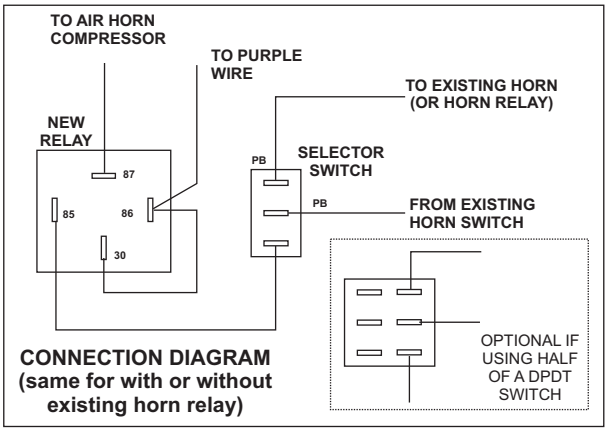

FIGURE 2

Run a wire from pin 85 of the new relay to the selector switch, using 16 gauge wire.

Run a wire from pin 87 of the new relay to the power input terminal on the horn compressor, using 14 gauge wire minimum. Ground the compressor, using either its mounting screws or a short piece of 14 gauge wire, depending on its construction.

The horn push button wire (purple/black) runs from the steering column to a bullet/sleeve connector just under the dash, adjacent to the column, and from here to the existing horn relay. Disconnect this bullet/sleeve connector from both of the purple/black wires. Splice extension wires to each of these, using crimp or solder terminals, or lineman's splices and heat shrink tubing, and route the extensions to the selector switch, per the diagram above.

Use care when running the new wires, making sure that they do not come into contact with sharp edges, or rub against a moving component. As much as practical, follow the routing of the existing wire harness, making liberal usage of cable ties.

B: IF YOUR CAR DOES NOT HAVE A HORN RELAY

Refer to **figure 3**, above right, for the schematic, and **figure 2**, above, for wiring details.

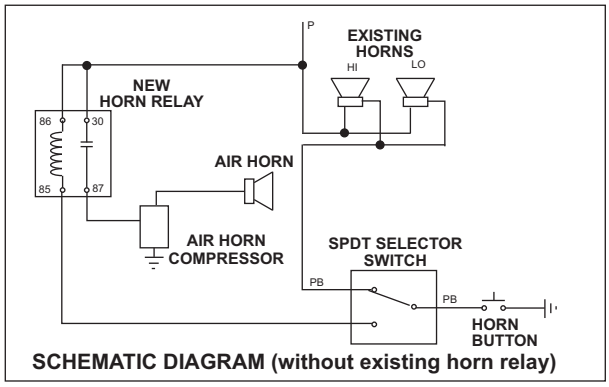

FIGURE 3

MATERIALS and PROCEDURES

These are the same as above for the "with relay" installation, except for the current rating of the selector switch. This switch will have to carry the full current of the existing horns when they are selected, so it will have to be rated accordingly. 10 amps should be sufficient, as long as you don't operate the switch while the existing horns are actually blowing.

STAND ALONE AIR HORNS

You may wish to add a set of air horns using a separate switch from the factory horn switch. This would allow you to toot the horn of your choice without having to preselect it. Hit the horn push button in the center of the steering wheel, and the factory horns sound; hit another switch, and the air horns sound.

To install air horns using this scheme, refer to the schematic and connections diagrams in **figure 4**, below.

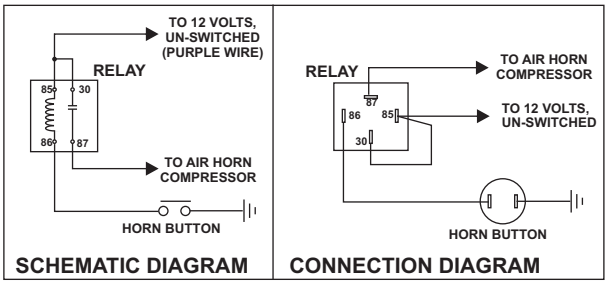

FIGURE 4

MATERIALS AND PROCEDURES

The materials and procedures for this installation are very similar to the instructions for the previous circuits.

The wire from terminal 86 of the relay to the horn button can be just about any size, as this wire only carries the load of the relay coil, and it is switched to ground. A short on this wire will just cause the horn to blow, but will not cause a fire hazard.

The other wires carry the full load of the horns, and should

be sized according to the manufacturer's directions - at least 14 gauge.

HORN REPLACEMENT

You might just want to do away with the stock horns altogether, and just use a set of air horns instead. This would make life a bit simpler, as you would only have one button to be concerned with.

A: IF YOUR CAR HAS A HORN RELAY

In this case, the horn relay is already mounted for you, so all that is required is to reroute the purple/yellow wire from the relay to the new air horn compressor. The horn on the left side of the car will have two P/Y wires, while the horn on the right side will have only one. The second wire on the left side is the wire that goes to the right side horn. See **figure 5**, below, for more information.

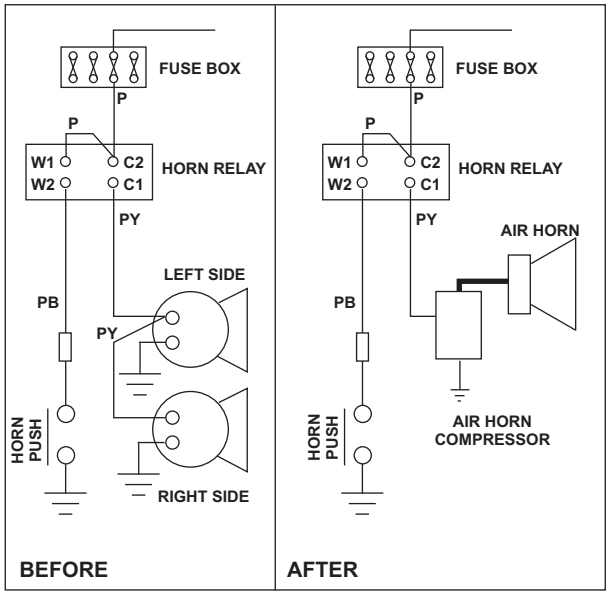

FIGURE 5

Disconnect the P/Y wires from the left side horn and separate them if necessary (depending on the particular model of horn your car has). Connect a voltmeter or a test lamp to one of the leads while someone presses the horn button. If you have voltage, this is the wire from the relay; if not, it is the wire to the right side horn.

Once you have identified the correct wire from the relay, reroute this wire to the positive terminal of the air compressor for your new horns. Depending on where you mount the compressor, you may have to splice an extension wire onto this wire. The wire from the left side horn to the right side is now a dead wire, and can be simply left in place. If the ends of the wire hanging from the harness are very long, you may want to tie them up out of the way, and, just to prevent possible confusion in the future, you may want to put insulated terminals on them. Ten years from now, long after you've forgotten the installation details, seeing bare wire connectors hanging about may give you a bit of needless concern. The existing horns may be removed or just left in place (if you leave them in place, you can also just leave the crossover wire connected).

If your air horn compressor doesn't draw excessive current, over 15 Amps or so, you can get by with the existing wiring. If you should, however, use a heavy duty compressor, drawing much more than 15 Amps, you will need to upgrade the wiring. In this case, use a short piece of wire (14ga minimum) with ¼" female spade terminals on each end to jumper from the brown wire on the "purple" fuse to the spare fuse position in the fuse box. Run a 14 gauge minimum wire from this fuse to the relay, and bypass the purple/yellow wire to the old horns in the harness with a 14 gauge or larger wire. Route the wire from the relay to the compressor very carefully, following the routing of the existing harness as much as possible, and support it liberally with cable ties

B: IF YOUR CAR DOES NOT HAVE A HORN RELAY

Because the related wiring is tied up in the wiring harness, with no convenient way to get to it, I recommend placing the relay up front near the existing horn location. The horn on the left side of the car will have two purple and two purple/black wires, while the horn on the right side will have only one of each. The second wire of each pair on the left side is the wire that goes to the right side horn. See **figure 6**, below, for more information.

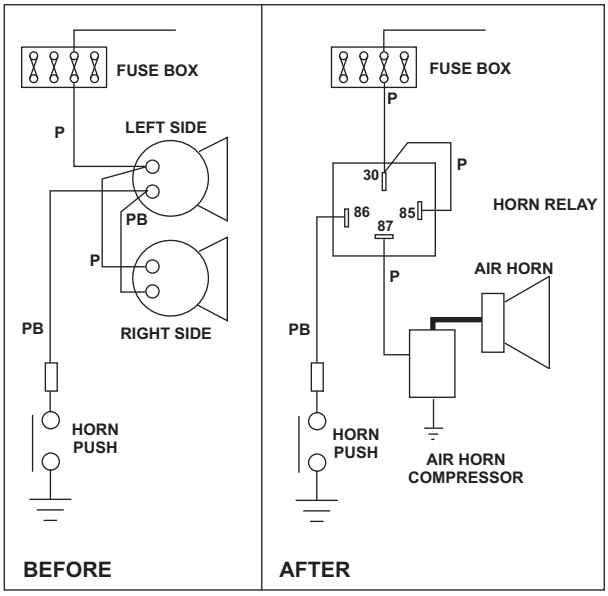

FIGURE 6

Remove the purple wires from the left side horn and separate them if necessary, depending on the model of horn in your car. Use caution, as the purple wires are hot at all times, key on or off, and you will need to have the battery connected for the next step. Using a voltmeter or a test lamp, determine which of the two purple wires has

voltage. The one with voltage on it is the wire from the fuse box, and the other wire is the crossover connector to the right side horn. Once you have identified the wires, I recommend removing the negative battery cable for safety sake, as you will be moving several wires that may be hot.

Next, you will need to identify which of the purple/black wires is the one coming from the horn pushbutton. Probably the best way to do this is to disconnect the purple black wire from the right side horn as well, and use an ohmmeter or continuity checker. The two horns are close enough together that this is a one man operation, and no helper is needed.

Once you have identified these two wires, the two right/left crossover wires can be attended to. After these two wires have been disconnected from the left side horn, they are dead wires, and can be simply left in place if you wish, or, if you are leaving the stock horn in place, they can remain terminated on the horns as found. If you remove the horns, I recommend putting insulated connectors on the wires, and tying them out of the way, especially if the ends are very long. As stated above, ten years from now, after you've forgotten the installation details, it may be a bit disconcerting to see bare wire connections flopping around.

Reroute the purple and the purple/black wire from the left side horn to the horn relay, as shown in **figure 6**, previous page. Depending on where you mounted the relay, you may need to splice extension wires to reach the relay. Connect the purple wire to terminal 30, and connect a short jumper wire from terminal 30 to terminal 85. Connect the purple/black wire to terminal 86.

Run a 14 gauge wire from relay terminal 87 to the air compressor for the air horns, and ground the compressor with a 14 gauge wire.

If you are using a high powered air horn, one that uses a very heavy duty air compressor, and it requires a wire larger than 14 gauge, you will need to run a new wire all the way from the fuse box to the relay, bypassing the existing purple wire. The end of the purple wire at the old horn will also have to be insulated, and tied off out of the way. If you prefer, you can cut the purple wire at the fuse box, rather than insulating the horn end. In many cases, though, the purple wire to the horn is in the same push-on terminal as another purple wire, so you will have to cut off the terminal, separate the wires, and use an ohmmeter or continuity checker to determine which wire is for the horn. The remaining wire will then have to be re-terminated, along with the new wire. The old wire will now be dead at both ends, so no insulation is needed, but you may want to insulate it anyway for the reasons given above.

If you choose this approach, I recommend you mount the relay close to the fuse box for convenience sake. The new wire should be routed alongside the original harness, and well supported with cable ties at frequent intervals.