YOU CAN DO IT  EASY UPGRAD  ES  

by Randy Irwin

1963 GEN IV SUREFIT VINTAGE AIR CONDITIONING INSTALLATION

Randy Irwin - Technical Writer

One of the greatest upgrades that can be added to your Late Great Chevy is the addition of aftermarket air conditioning. In the next two issues of Chevy Classics we will be showing you step by step installation of A/C on this 1963 Impala. I will be installing one of Vintage Airs new Gen IV SureFit systems on this Impala. The new SureFit system features electronic Servo motor controls with no cables; it mounts completely behind the dash. For years Vintage Air has been the leader in aftermarket air conditioning, be sure to contact your Ecklers sales representative for information on a Vintage Air unit for your year application. Now, follow along as we give this Impala a great new cool interior!

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Parts Needed:

<table>
<thead>
<tr>
<th>Catalog price</th>
<th>Member price</th>
</tr>
</thead>
<tbody>
<tr>
<td>551063 Air Conditioning Kit</td>
<td>1299.99</td>
</tr>
<tr>
<td>563650 Crankshaft Pulley</td>
<td>52.99</td>
</tr>
<tr>
<td>563652 Water Pump Pulley</td>
<td>79.99</td>
</tr>
<tr>
<td>541004 Belt - SB</td>
<td>19.99</td>
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Tools Needed:

- 3/8" Socket
- 1/2" Socket
- 1/2" Wrench
- Philips Screw Driver
- Straight Blade Screw Driver
- Grinder
- Vise Grips
- Electric Drill
- 1/8" Drill Bit
- 5/8" Drill Bit
- Silicone
- 1-1/4" By-Metal Hole Saw Cutters
- Time Frame: Approximately 16 Hours

Air Gen IV air conditioning system. To remove the blower motor box and blower motor, the passenger side inner fender will need to be removed. Disconnect the battery cables and remove the battery and battery tray. The battery tray is bolted to the radiator core support and inner fender. Next remove all the inner fender to outer fender bolts, the inner fender can now be removed from the car.

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To order parts or inquire about other Vintage Air systems call: 1-800-683-1961 or visit us at www.lategreatchevy.com

Photo #1a & 1b & 1c: The original blower motor box and blower motor will be removed and replaced with a new flat panel from the Vintage Air Gen IV air conditioning system. To remove the blower motor box and blower motor, the passenger side inner fender will need to be removed. Disconnect the battery cables and remove the battery and battery tray. The battery tray is bolted to the radiator core support and inner fender. Next remove all the inner fender to outer fender bolts, the inner fender can now be removed from the car.

Photo #2a & 2b: The blower motor box is held to the firewall by several 7/16” nuts and two 7/16” bolts. With the nuts and bolts removed, the box can be removed from the firewall. The box is sealed to the firewall with dumb gum so a small amount of prying may be necessary. This would be a good time to drain the coolant from the heater core - (our heater core was bypassed... must of had a leak.)
Next we move to the inside the car; here we will remove the heater box which is located up under the dashboard. To save a lot of aggravation, and the possibility of damage to the interior, we removed the front seat.

The first thing we do inside the car is remove the glove box door and box liner. This will allow a clear view of the original heater box; this is also where the new air conditioning unit will be located. The glove box door hinge is held to the dashboard with three Phillips head screws. The glove box liner is held to the dashboard with four Phillips head screws.

The heater control panel is held to the dashboard by two 3/8" nuts at the bottom of the panel. Remove the two nuts and the panel can be removed from the dashboard. Next disconnect the power wires to the blower motor switch and the light socket from the control panel.

and bolts removed from the blower motor box, the inner heater box cables and panel can be removed as one unit.

Next we will remove the defroster duct from the cowl; this turned out to be the hardest part of the entire installation. This duct is spot welded to the cowl and will be replaced with a new plastic manifold. The duct “should” be spot welded in place with five to seven spot welds. I think our guy at Fisher Body got a new spot welder that day and he went crazy on our '63. If the car were completely disassembled a cut off wheel and grinder could be used to remove this duct. Our car is assembled, so we couldn’t use a grinder; it would create a mess under the dashboard. This duct is made of 18 gage steel; so using a pair of vise grips and some elbow grease; we basically tore the duct out one small piece at a time.

The defroster duct is a one piece manifold that will match up to the original defroster hole in the dashboard and is held in place with two #8 self tapping sheet metal screws. To drill the two new holes in the cowl we had to loosen, but not totally remove the instrument cluster, to get the drill in behind the dashboard. We left all the wires and speedometer cable connected to the cluster. Using the defroster manifold as a guide we drilled our two 1/8" holes into the cowl and mounted the manifold in place using the supplied #8 sheet metal screws.
**Photo #10a & 10b & 10c & 10d:** The fresh air vent of the passenger side will no longer be used. Remove the two Phillips head screws from the fresh air vent grille. Next disconnect the cable from the fresh air vent door and remove the cable and push pull knob from the dash board. Now remove the five sheet metal screws that hold the vent assembly to the cowl. You can now remove the vent assembly.

**Photo #11a & 11b & 11c:** A steel cover is included in the kit to cover the original hole in the firewall where the blower motor was located. Place a small bead of silicone or seam sealer around the edge of the cover, then using the cross bar and 1/4” bolt, bolt the cover into place. The cross bar will be located up inside the hole of the fresh air vent.

**Photo #13a & 13b & 13c & 13d & 13e:** A panel is supplied to cover the large hole in the fire wall where the original heater box was. Install the supplied grommet in the small hole of the panel; this hole will be used for the heater valve and air conditioning compressor wires. Place a small bead of silicone or joint and seam sealer around the outer edge of the panel and install the panel from the inside of the car. This panel is held in place with three 1/4” bolts and nuts. (See diagram)

**Photo #12:** Now reinstall the fresh air vent and glue the vent door shut with silicone or joint and seam sealer.

**Photo #14:** This system is self contained, the heater core, blower motor, evaporator core and computer that operates the Gen IV SureFit system is all included in one unit, very neat and clean!
Photo #15a & 15b: Two hard lines are supplied to route the heater core connections through the firewall. Install the O-rings on the end of the lines and lubricate these rings with the supplied grease. Attach the lines to the heater core with the lines facing straight forward.

Photo #16a & 16b & 16c & 16d: The evaporator unit requires two mounting brackets, one bracket mounts to the front of the unit and the other bracket mounts to the back of the unit. The front bracket will wrap around the heater hose tubes and is held to the evaporator unit with four 5/16” bolts. There are two 1/4” bolts that are held to the bracket with one-way washers, these will be used to hold the evaporator unit to the firewall.

Photo #17: The rear bracket is held to the evaporator unit with two 5/16” bolts and will bolt to the bottom of the dash board using the speaker bracket screw.

Photo #18a & 18b: Two hard lines are supplied to route the evaporator core connections through the firewall. Install the O-rings on the lines and lubricate these rings with the supplied grease. Attach the lines to the evaporator core with the lines facing straight forward.

Photo #19: The large line of the evaporator core will receive some insulation tape around the fitting. We will not install the tape at this time. Once the system has been vacuumed down, and we're sure the system is sealed properly we will install the insulation tape. This fitting is easily accessible through the glove box opening in the dash board.

Photo #20a & 20b: The two bolts in the front bracket will feed through two of the original holes in the firewall where the heater box was once bolted. The rear bracket has a tab at the top that will match up to the dash speaker bracket.
**Photo #21a & 21b & 21c:** Remove the #12 sheet metal cap screw from the dash board speaker bracket and raise the evaporator unit up into place. With the unit in place, the two 1/4” bolts on the front bracket will protrude through two of the original heater box holes in the firewall. Install the supplied 1/4” nuts with serrated washer. Leave these nuts loose at this time. Now anchor the rear bracket of the evaporator core to the dash board speaker bracket.

**Photo #22a & 22b:** There is a supplied round plate with four holes, two holes are for the lines from the heater core and two are for the lines from the evaporator core. Install the two supplied grommets for the evaporator lines, place a small bead of silicone or joint and seam sealer around the edge of the plate and using the supplied #8 sheet metal screws anchor the plate in place.

**Photo #23a & 23b & 23c:** There is a drain tube in the bottom of the evaporator core; water from the evaporator must be routed to the outside of the car. Drill a 5/8” hole in the firewall 1” down and 1-1/2” over to the left from the drain tube location. With a razor knife carefully cut a hole in the carpet; now using the supplied hose route the drain out through the firewall.

**Photo #24a & 24b:** Using two of the exhaust manifold bolts and one water pump bolt, the compressor bracket will mount on the passenger side of the engine. This bracket does not require the cylinder head to have any mounting holes.

**Photo #25:** The air compressor belt P/N 541004 is routed around the forward groove on the water pump pulley and second groove on the crank shaft pulley. If your engine has a single groove water pump pulley you will need to purchase a double groove pulley P/N 563652. If the crankshaft has a single groove pulley you will need to purchase a double groove pulley P/N 563650.

**Photo #26a & 26b & 26c:** There is a large and a small rubber air conditioning hose. The larger hose will connect from the large fitting on the evaporator at the firewall to the larger fitting on the A/C compressor. Install the supplied O-rings on the end of hose, lubricant using the supplied lubricant, then install the hose. The large fitting at the fire wall will receive insulation tape but once again we will not install the tape until we vacuum the system down and make sure we have no leaks.
The condenser and receiver dryer will mount between the radiator and radiator core support with the inlet and outlet of the condenser on the passenger side of the car. Install the condenser brackets on the backside of the condenser using the supplied machine screws and nuts. Next mount the receiver dryer, bracket and aluminum tubes to the front side of the condenser on the passenger side of the car.

The two lines from the condenser will be routed through the radiator core support; these lines are down low and out of sight for a super clean look! A template is supplied with the kit to show the location of this core support hole. Cut the template out of the supplied 8-1/2” x 11” sheet of paper and position it onto the core support. The hole will be drilled just above the core support to frame mount. The core support does not need to be removed to drill the hole; we’re using a support out of a car for photo purposes only. Once you have determined the proper location drill a 1-1/4” hole using a by-metal hole saw. The hole can be drilled from the backside of the core support. The radiator does not need to be removed to drill this hole. We'll be installing a new Griffin aluminum radiator along with the new Gen IV SureFit air conditioning system.

The two condenser lines will protrude into the engine compartment about 2”. With the condenser in place, install the supplied two-hole rubber grommet in the core support.

The smaller rubber air conditioning hose will connect from the air conditioning compressor to the larger line from the condenser. Install the supplied O-rings on each end of the hose, lubricate the O-rings and install the hose.

A #6 aluminum line is used to connect the smaller fitting on the evaporator core, at the firewall, to the smaller fitting on the condenser. The line will run along the inner fender well just above the a-arm dust shield.

The heater control valve has an arrow that will face the heater core. The heater valve will install in the upper heater hose and connect to the heater hose nipple on the intake manifold. The lower heater hose will connect to the heater hose nipple on the water pump.
Photo #35a & 35b: The evaporator housing has two 2" male outlets for the defroster manifold and four 2-1/2" male outlets for the four air conditioning ducts. Using figure 19 in the kit directions; plumb the vents using the supplied duct hose.

Photo #36a & 36b & 36c & 36d: The new lens will be placed over the original heater/defroster lens to read FAN, MODE and TEMP. Remove the stock lens assembly by straightening the tabs on the control panel. The new lens is a peel and stick. The lens will cover the stock lens and also attach to the front face of the light shield. With the new lens installed, install the assembly back into the control panel and twist the tabs holding the assembly in place.

Photo #37a & 37b & 37c & 37d: The original heater control panel will be used to control the new GEN VI air conditioning system. The SureFit conversion kit includes slider switches; switch mounting brackets, retaining clips, zip ties and the wiring harness. First, using a pair of sharp cutters shorten the switch arm so that there are three holes left in the arm. Next anchor the body of the new switch to the stock heater control panel using the squeeze clamp. The arm for the new switch is held to the arm from the stock heater control panel with the new retaining clip. All three switches are the same, repeat the procedure on the other two switches. Make sure all three switches are oriented in the same direction.

Photo #33a & 33b & 33c & 33d: Now we’ll move back inside the car. A single air conditioning vent will be installed to the left of the steering column. Using the bezel as a guide, drill two 3/16” holes and attach the bezel to the dashboard using the supplied machine screws and nuts. With the bezel in place, snap the vent into the bezel.

Photo #34a & 34b & 34c: Next install the center and passenger side vent assemblies. The right hand side of the bezel is held to the bottom of the dashboard using the original screw for the right hand courtesy light. Again using the bezel as a guide, drill two holes in the bottom of the dashboard and attach the rest of the bezel to the dashboard. With the bezel installed, install the three vent assemblies.
Photo #38a & 38b: The control harness has four 3-wire male jacks; three of these jacks will be used. Each jack has a RED wire, a WHITE wire and a WHITE wire with a colored chaser. Connect the jack with the GREEN chaser to the left hand switch. Connect the jack with the YELLOW chaser to the center switch and connect the jack with the RED chaser to the right switch. The jack with the BLUE chaser will not be used in this application. With the jacks connected to the switches, use the supplied zip ties to anchor the jacks, switches and harness, to the stock control panel.

Photo #39a & 39b: Install the converted control panel back into the dashboard and route the wiring harness across the dash to the evaporator unit. The male jack on the end of the wiring harness will plug into right hand female jack on the back face of the evaporator unit.

Photo #40a & 40b: The main power harness will plug into the left hand female jack on the evaporator core. This harness also connects to the blower motor, the heater valve, the binary switch on the receiver dryer, a key on 12-volt source, to a ground, and a good constant 12-volt source.

Photo #41: The two pin female jack with the red and white wire will plug into the male jack on the right hand side of the evaporator core unit, this jack is for the blower motor.

Photo #42a & 42b & 42c & 42d: In the main harness there is a green wire, this wire will attach to one of the terminals on the heater control valve. Also included in the main harness is a 10” long white wire with a female spade connector on one end and a round lug on the other end. This wire will connect to the other terminal on the heater control valve and to a good body ground. After connecting the round lug on the white wire to a good body ground, feed the white and green wire out through the grommet on the firewall filler panel, then connect the two wires to the heater control valve. A female spade connector is supplied for the green wire.

Photo #43a & 43b & 43c: The blue wire from the main harness will connect to the binary switch on the receiver dryer. Remove the plug in the receiver dryer, lubricate the O-ring on the binary switch and install the switch. Feed the blue wire through the grommet in the firewall filler panel and connect the wire to one of the terminals on the binary switch using the supplied female spade connector.
There is a large and a small white wire in the main harness; both of these wires will need to be connected to a good body ground.

Programming Procedure:
With the wiring harness installed the control panel will now need to be programmed before the system can be charged.

**Step 1)** Turn the ignition switch “ON” but do not start the engine.

**Step 2)** Move the FAN, MODE and TEMP levers on the control panel to their maximum position.

**Step 3)** Connect the gray wire to the white wire, the speed of the blower motor will change when step 3 is completed. It will take about 10 seconds.

**Step 4)** With the key still on and the gray wire still connected move all three levers to their minimum position.

**Step 5)** Next disconnect the gray wire from the white wire, the blower motor speed will change again. With the system programmed, tape the end of the gray wire so there is no chance of it ever grounding out.

**Step 6)** Next the engine can be started and the system can be charged.

The purple wire will connect to a “key on” fused 12-volt power source. This wire can be connected to the original black wire that connected to the original blower motor switch or to the fuse box.

There is a large and a small white wire in the main harness; both of these wires will need to be connected to a good body ground.

The large red wire in the harness is the main power wire for the complete system. This red wire will need to be connected to the positive (+) battery terminal, or the large battery cable stud on the starter.

A 6” long white wire is included in the main harness kit. This wire has a female spade connector on one end, and a round lug end on the other. This wire will connect to a good body ground and the gray wire in the main harness marked “PRGM” momentarily to program the computer that operates the GEN IV Air Conditioning system. Attach the round lug end to a good body ground, leaving the female spade connector UN-PLUGGED from the gray wire at this time.

With the system programmed, it’s now ready to be charged. First the system will need to be vacuumed down with a vacuum pump. After you have determined there are no leaks in the system, wrap the large fitting at the firewall, and the fitting large on the evaporator core with the provided insulation tape.
Photo #51a & 51b & 51c: The stock glove box will no longer work per the size of the evaporator unit under the dash. Vintage Air supplies a new smaller plastic glove box. The top of the glove box is held to the bottom of the glove box with four self tapping screws. First assemble the glove box on the work bench, allowing the screws to cut holes in the top and bottom of the box. Now disassemble the box, install the bottom into the dash first and than the top. Now attach the top of the box to the bottom of the box.

Photo #52: Next, have the system charged.

Now enjoy that ice cold air during the summer and the hot heater during the winter.

Good Luck.