



**Owners Manual
For
400 Series Low Profile
Heater**

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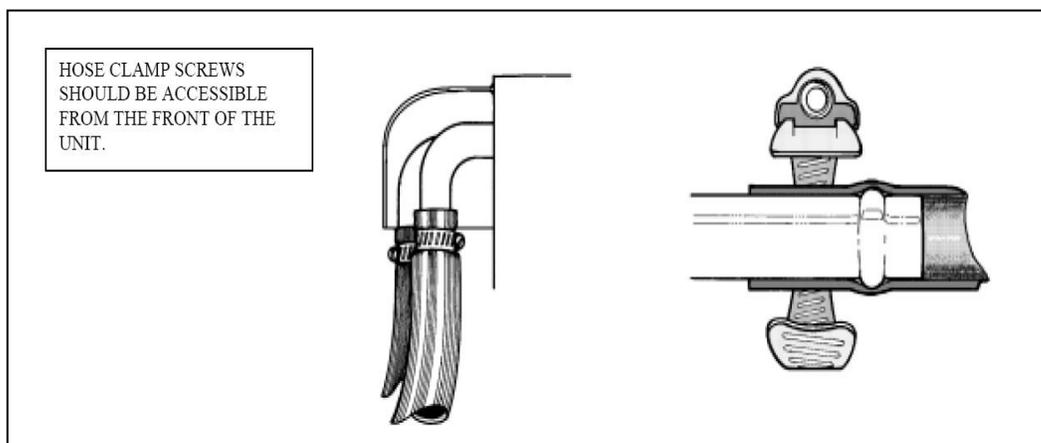
Installation Instructions

Caution: Before punching or drilling any hole in panels, dash, floorboards or firewall. Make sure other side is clear of components, lines, wire harnesses or other obstructions. When routing hoses, avoid kinks, sharp edges, high temperature surfaces and interference with any linkage components. Use tie wraps, linestakes and grommets where needed to keep hoses properly secured to avoid future damage.

Heater Installation: The 400 low profile heaters are designed to be mounted in a variety of positions. The requirements are a protected area with free air access to intake vents and space for proper hose routing.

Bolt or screw heater to the floor through the brackets on each side. Be sure the screws do not hit any other components below the floor. Drill two 7/8" diameter holes through the floor in a convenient spot, making sure there are no obstructions on the other side. If possible, the holes should be on the same side as the connections on the heater. Install a grommet into place at each hole.

Place a worm gear screw type clamp onto each hose and connect to hose to the nipples on the heater. Tighten the clamps to 30 in-lbs. Route the hoses down through the floor holes and seal around the hoses with silicone sealant.





Installation Instructions

Electrical Connections: Make sure the heater is grounded to the vehicles chassis through the black wire. Remove the paint and use a star washer at the attaching point to make a good connection. Protect the insulation on the wires wherever they go through panels by means of grommets or by sheathing on wires. Do not rely on the wire insulation alone to protect from short. Make sure the vehicles wires connected to the heater leads are heavy enough to carry the current requirements of the heater. The maximum amperage draw, with the motor running at high speed can be determined by checking the amp draw chart below. The minimum wire gauge should follow set standards. Circuit protection must be added to the power wire. Please refer to the amp draw chart.

Amp Draw at 13.4 Volts	
435LP/445LP.....	4
465LP.....	8



Installation Instructions

Water Flow: The correct water flow path is out of the engine block into a water control flow valve, (*if required*), out of the valve and into the lower core fitting, out of the top core fitting and into the engine water pump fitting. If the water control flow valve is marked to indicate flow direction be sure to follow this instruction. If core fittings are at the same level, either fitting can be the inlet. Since the heaters are not equipped with an air bleed valve, air locks can be avoided by holding the outlet end of the discharge hose above the radiator level and run the engine. When a solid stream of coolant is coming out of the hose, connect it to the water pump fitting. Check coolant level in radiator and add more as necessary.

Avoid sharp bends or kinks in the water hose, as they cause restricted water flow rate. Fasten the hoses to the chassis or body at a point close to the heater core fittings so the core nipples do not have to support the weight of the hoses. Use linestakes and tie wraps to support the hoses. Make sure the remote control mechanism for the variable flow valve is adjusted to allow the valve operating lever to move from fully open to the fully closed position. ProAir recommends installing some type of water valve, manual, electric or cable controlled. This will stop the flow of hot water in warm weather.

Booster Pump Required:

All diesel powered vehicles.

All gas vehicles with overhead unit and hoses longer than twenty feet.

All gas vehicles with floor unit and hoses longer than thirty feet.



Installation and Maintenance Checklist

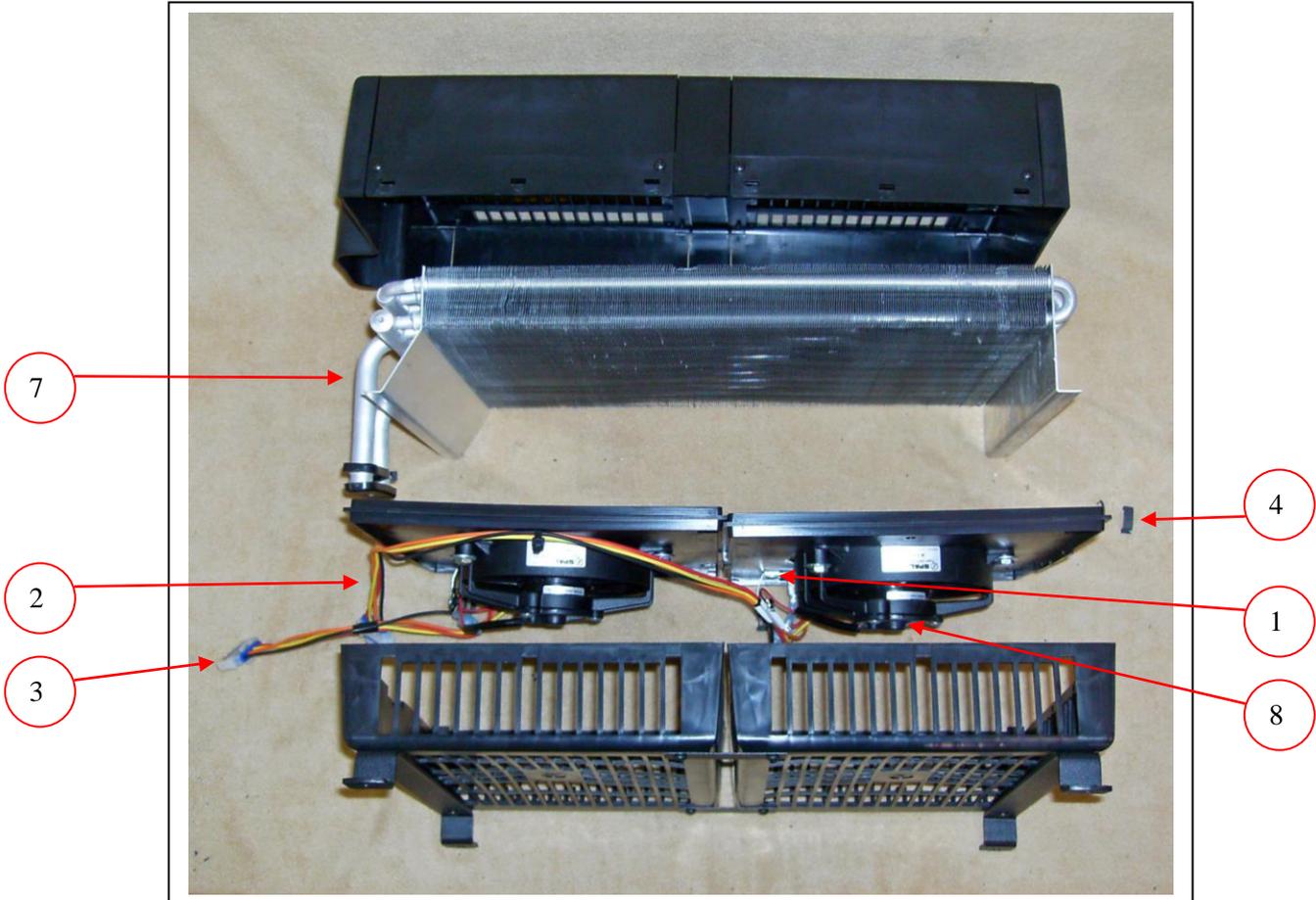
Electrical: Make sure the heater is grounded to the vehicles chassis through the black wire. Remove the paint and use a star washer at the attaching point to make a good connection. Protect the insulation on the wires wherever they go through panels by means of grommets or by sheathing on wires. Do not rely on the wire insulation alone to protect from short. Make sure the vehicles wires connected to the heater leads are heavy enough to carry the current requirements of the heater. Too, light of wire results in excessive voltage drop thereby reducing the output of the heater motor.

Water flow: Avoid sharp bends or kinks in the water hose, as they cause restricted water flow rate. Fasten the hoses to the chassis or body at a point close to the heater core fittings so the core nipples do not have to support the weight of the hoses.

Airflow: Heater must have space around it for air intake and air exhaust.

General: If heater is equipped with an intake filter, keep it clean. If possible, periodically brush or vacuum the core face. A clean core is necessary for maximum heat transfer. Prior to the heating season, check blower operation on all speeds. Check control operations. Check water hoses. Replace any worn parts. If replacing water hoses prevent air locks by bleeding as outlined in manual.

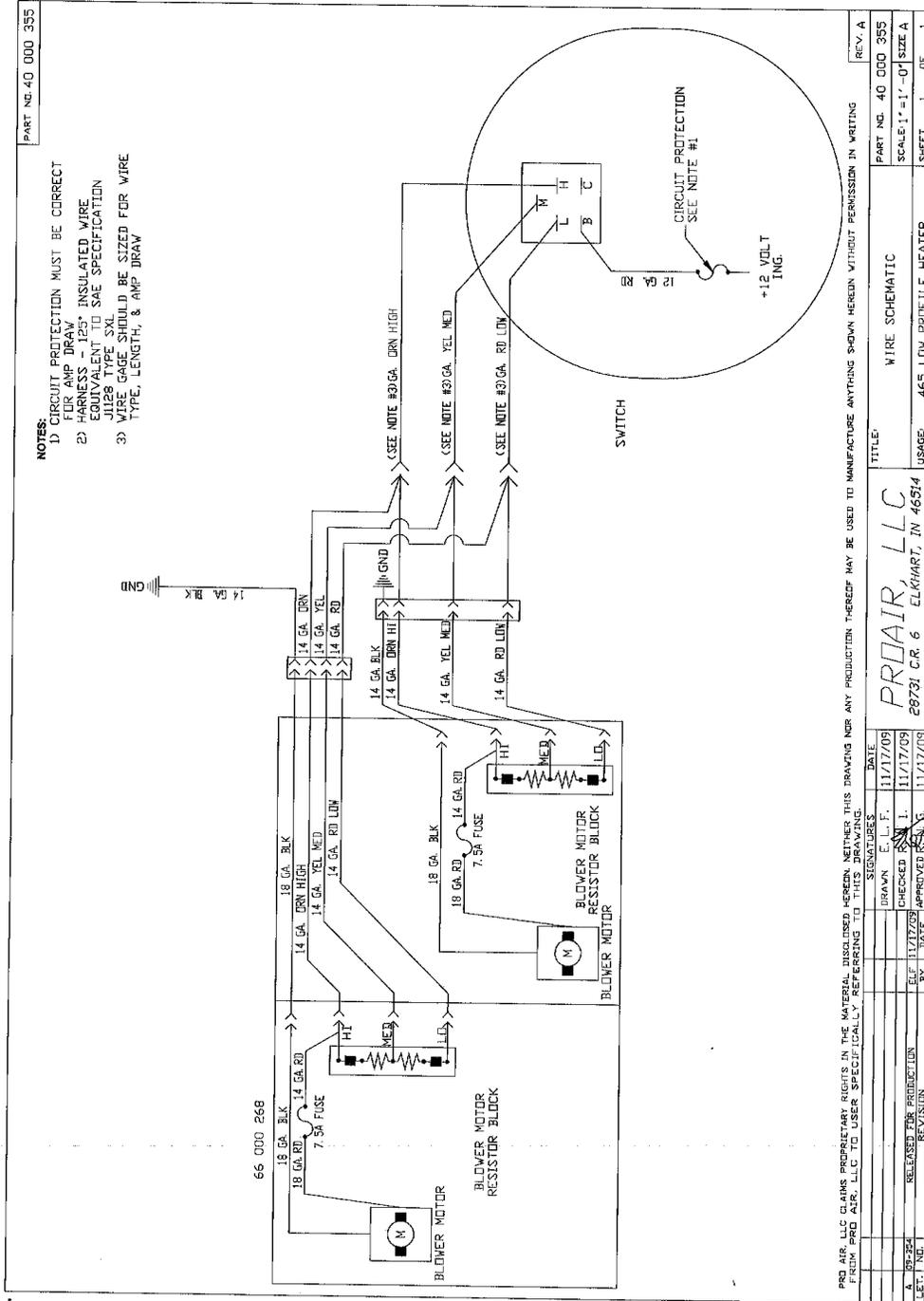
Parts Breakdown



	Part Number	Model Part Used	Description
1	01 000 423	All	Resistor
2	01 000 426	465LP	Harness, Long
3	01 000 427	All	Harness, Short
4	02 000 122	All	Clip
5	03 000 072	435LP	Coil
6	03 000 073	445LP	Coil
7	03 000 074	465LP	Coil
8	15 000 013	All	Fan

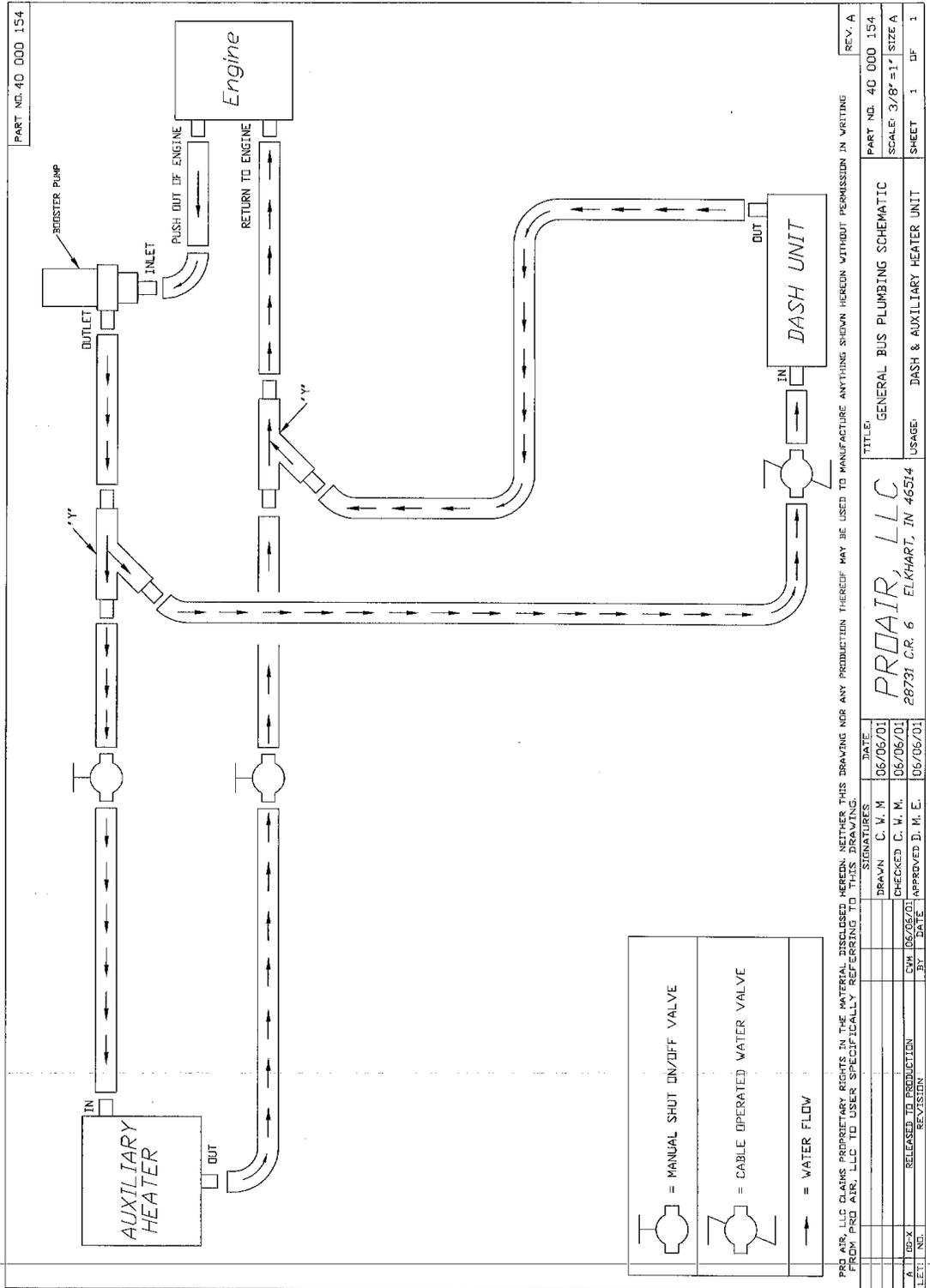
PROAIR™

465 Wiring Schematic



PROAIR™

Plumbing Schematic



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SIGNATURES		DATE	
DRAWN	C. W. M.	DRAWN	06/06/01
CHECKED	C. W. M.	CHECKED	06/06/01
RELEASED TO PRODUCTION	C.W.	APPROVED I. H. E.	06/06/01
A	06-X	BY	DATE
REV.	NO.	REVISION	

TITLE: GENERAL BUS PLUMBING SCHEMATIC
 USAGE: DASH & AUXILIARY HEATER UNIT

REV. A
 PART NO. 40 000 154
 SCALE: 3/8" = 1" SIZE A
 SHEET 1 OF 1



400 Series Low Profile Thirty-Six Month Limited Warranty

1. ProAir warrants every low profile heater unit produced by ProAir to be free from defects in material and workmanship under normal use for a period of thirty-six months unlimited miles.
2. If a repair or adjustment under the warranty is required, the product should be taken to an authorized Pro Air service center or, if possible, taken to the original installer. The owner's registration certificate should be presented. If the ProAir service center is too far away, the customer may find a repairing facility nearby and contact ProAir. We will attempt to allow the repair facility authorization to address the concern.
3. **Before repairs are started, the repairing service center must contact Pro Air by calling 574 264 5494 or 800 338 8544, asking for the customer service department and describing the type of warranty repair needed.** The following additional information is required at that time: ProAir serial number and model number, vehicle identification number (VIN), mileage, retail purchase date, and retail customer's name. The installers of Pro Air's air conditioning units apply an installation sticker to the passenger-side door jamb. The information on this sticker indicates what model of unit was installed, the unit's serial number, and date of installation; this information is very helpful when requesting warranty parts and/or technical assistance. In the event that this sticker cannot be found, there is a duplicate sticker on the housing of the unit itself. If the ProAir service center is too far away, the customer may find a repairing facility nearby and contact ProAir. We will attempt to allow the repair facility authorization to address the concern.
4. **ProAir reserves the right to supply warranty parts.** All warranty parts are shipped on a memo (*no-charge*) billing and are sent the same day, if possible. An authorization number accompanies the replacement parts. Also noted on the memo billing is Pro Air's labor allowance for the repair; labor allowances are based on Pro Air's flat-rate standards multiplied by the repair facility's standard warranty or retail labor rate, whichever is less. This warranty does not include consequential damages, and ProAir shall not be responsible for any such damages. ProAir does not make and does not authorize any person to make for it any warranty other than the foregoing warranty. Such other warranties, if any as may be imposed or implied by law, are limited in duration to the duration of this written warranty.
5. All defective parts must be returned to Pro Air. **No warranty claim will be paid without the return of replaced part(s) to ProAir.** Shipping charges – by the most economical method – to return these parts to ProAir may be added to the cost of the repair.



6. **ProAir reserves the right to deny a claim if, upon testing, no problem is found with allegedly defective part(s).**
7. Warranty claims submitted to Pro Air must include the following: Pro Air authorization number, Pro Air serial number, vehicle serial number, mileage, and authorized labor amount. ProAir does not pay tax or miscellaneous shop supplies. ProAir uses no special warranty-claim forms; the repair facility's standard repair order or invoice will suffice. All claims must be submitted within 180 days of the date of repair, and all parts must be returned in order to receive payment on these warranty claims.
8. ProAir reserves the right to deny any warranty claim that is without proper documentation or that was for an improper repair. Service management is responsible for implementing controls to eliminate improper or unnecessary repairs and for providing accurate information on the warranty claim. This includes a complete and clear description of the customer's original concern, the underlying cause of this concern, and the subsequent correction.
9. This warranty does not cover any product which has been subject to misuse, neglect, alteration, accident, improper installation, or improper maintenance, or which has been repaired outside of an authorized Pro Air service center in any way so as to affect adversely its performance or reliability. This warranty does not cover material or labor used in normal maintenance services or the replacement of service items. Normal wear of service items will not be considered a defect under this warranty. **This warranty does not cover customer's lost time, vehicle towing, vehicle rental, or lodging.**
10. This warranty does not include consequential damages, and ProAir will not be responsible for any such damages. Pro Air does not make and does not authorize any person to make for it any warranty other than the foregoing warranty. Such other warranties, if any as may be imposed or implied by law, are limited to the duration of this written warranty.



Warranty registration for new product is available on our website or by telephone.

Web address: www.proairllc.com
Click on owner registration icon.

Phone: 1-574-264-5494 and ask for
Customer Service