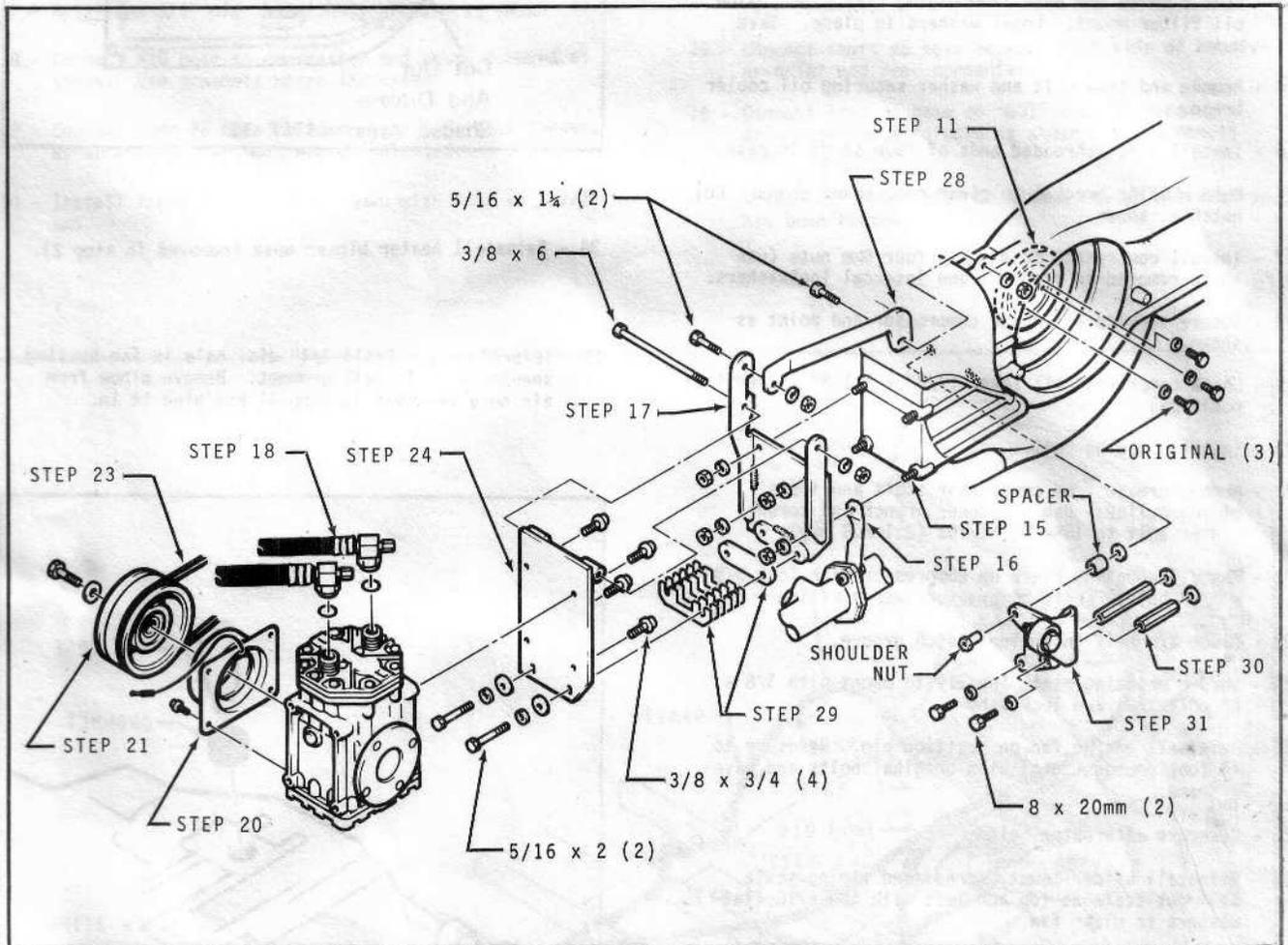


# VPC

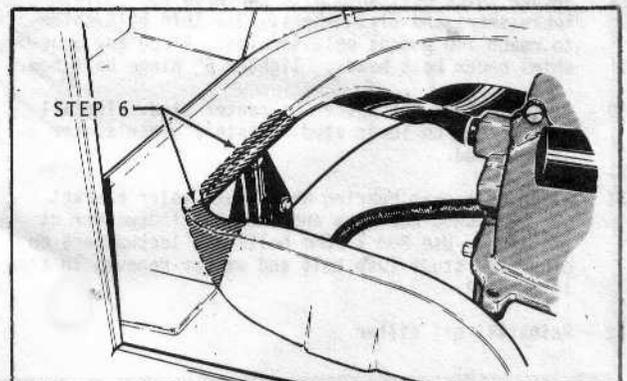
## 1976-78 TYPE 2 CAMPER (UNDERDASH) ZVW 203 225 AIR CONDITIONER INSTALLATION INSTRUCTIONS

### ENGINE COMPARTMENT



#### STEP

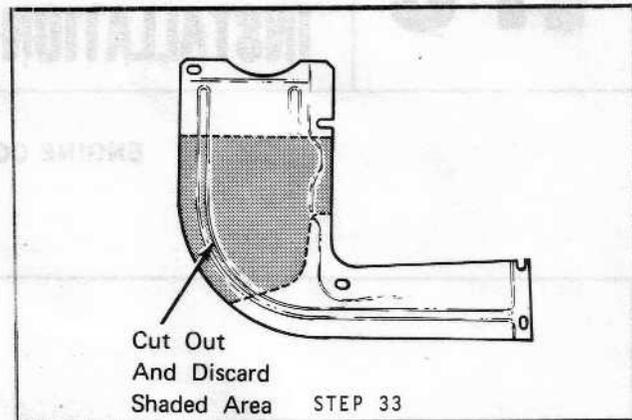
- 1 - Disconnect battery.
- 2 - Disconnect heater blower hose at vertical heater pipe.
- 3 - Remove engine cover panel on rear left side.
- 4 - 1976-77 only: Disconnect small air hose to left side of fan housing. Pull out stub and insert rubber plug. Stub can be used in Step 35, page 2.
- 5 - Bend in vertical heater pipe approximately 1/2" on rear side to clear clutch.
- 6 - Remove insulation strip and cut away sheetmetal. Use template VPL 432 780.



## ENGINE COMPARTMENT (continued)

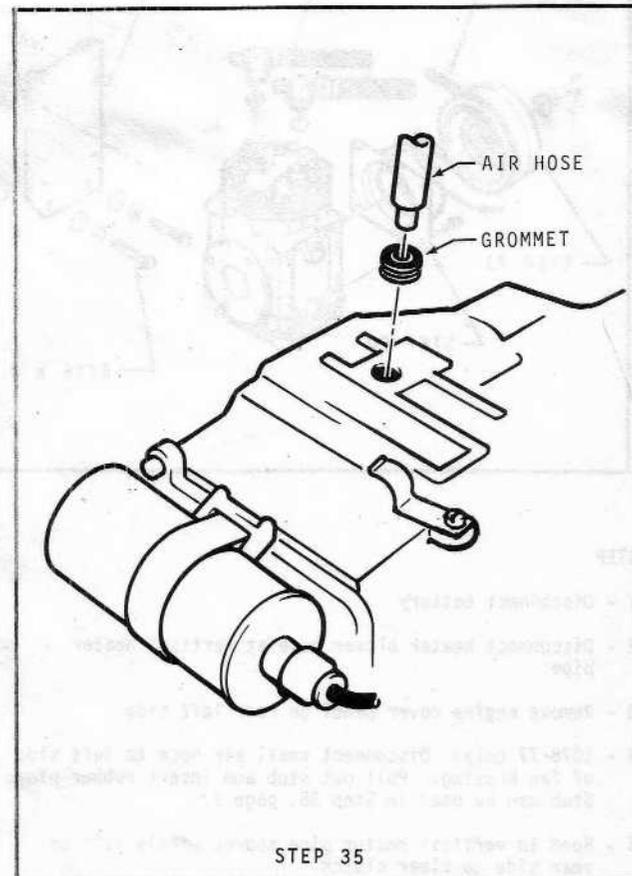
- 7 - Remove spider mount for air pump pulley along with timing scale, screen and belt. Save pulley bolts and wavewashers.
- 8 - Loosen alternator belt.
- 9 - Remove engine fan. Discard spacer washer.
- 10 - Insert a/c belt from left side of fan housing.
- 11 - Insert drive pulley with red spot towards engine. Put belt over pulley. Align pulley on crankshaft position pin.
- 12 - Remove oil filter.
- 13 - Remove three 8mm nuts from engine case studs below oil filter mount. Leave washers in place. Save nuts.
- 14 - Remove and save bolt and washer securing oil cooler brace.
- 15 - Install long, threaded ends of four studs in case.
- 16 - Bend muffler bracket to clear compressor mount. Cut notch as shown.
- 17 - Install compressor mount with four 8mm nuts (use three removed in step 13) and internal lockwashers.
- 18 - Secure service valves to compressor and point as shown.
- 19 - Check compressor oil level (7/8" - 1-1/8" in vertical position).
- 20 - Install holding coil.
- 21 - Remove grease from compressor shaft and install clutch pulley. Use a spanner wrench and torque center bolt to 15 - 20 ft/lbs (2.1-2.8 mkg).
- 22 - Install mounting plate on compressor with four 3/8 x 3/4" bolts. Lift compressor into position.
- 23 - Place a/c belt in inside clutch groove.
- 24 - Secure mounting plate loosely to mount with 3/8 x 6" bolt, nut and lockwasher.
- 25 - Reinstall engine fan on position pin. Resecure to 14 foot pounds (2mkg) with original bolts and wavewashers.
- 26 - Resecure alternator belt.
- 27 - Reinstall spider mount, screen and timing scale. Shim out scale at top and left with two 5/16 flatwashers to clear fan.
- 28 - Install compressor brace with two 5/16 x 1-1/4" bolts, nuts and lockwashers.
- 29 - Secure thick belt shim with two 5/16 x 2" bolts, lockwashers and flatwashers. Use thin belt shims to reach 140 pounds belt tension. Place any unused shims under bolt heads. Tighten 6" hinge bolt now.
- 30 - Install short hex spacer on center stud. Install long spacer on lower stud. Install other spacer on top stud.
- 31 - Align belt over bearing and secure idler bracket with 8mm shoulder nuts and internal lockwasher at top stud. Use 8mm x 20mm bolts and lockwashers on other two studs (use bolt and washer removed in step 14 on one).
- 32 - Reinstall oil filter.

- 33 - Use paper template ZVW 219 741A to modify panel (removed in step 3) and reinstall insulation strip (removed in step 6).



- 34 - Reinstall heater blower hose (removed in step 2).

- 35 - 1976-77 only: Drill 3/4" dia. hole in fan housing sheetmetal. Install grommet. Remove elbow from air hose (removed in step 4) and plug it in.



## CONDENSERS

### STEP

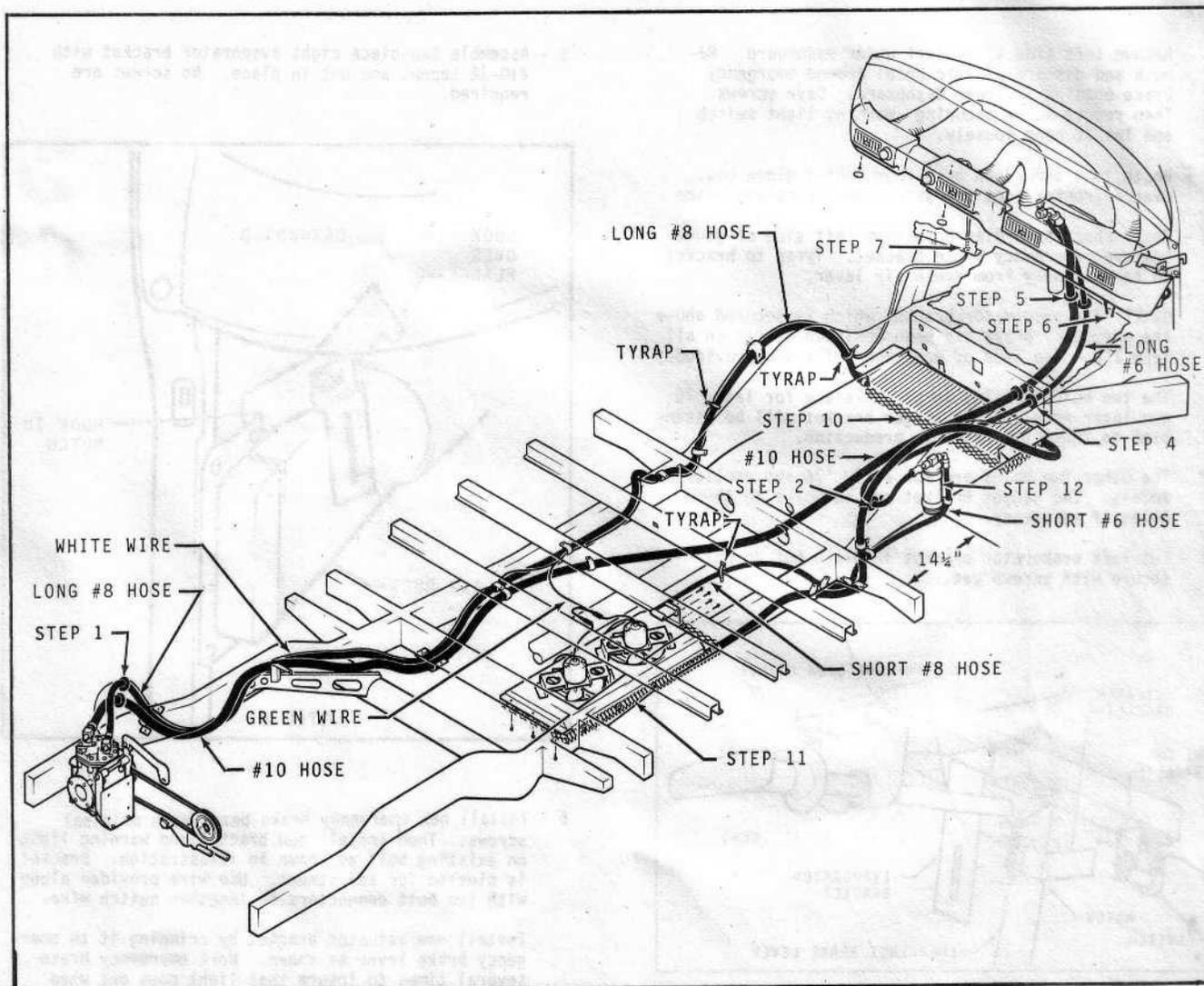
- 1 - Drill two 1-1/4" dia. holes in rear of left rear wheel well as shown.
- 2 - Drill one 1-1/4" dia. hole in sidemember as shown. (In some vehicles this hole may have been predrilled)
- 3 - Remove skid plate from underneath front end.
- 4 - Drill two 1-1/4" holes in crossmember as shown.
- 5 - Drill two 1-1/4" dia. holes in floorboard as shown.
- 6 - Drill two 1/2" dia. holes in floorboard as shown.
- 7 - Drill one 3/4" dia. hole in floorboard as shown.
- 8 - Connect #10 hose to compressor and route forward as shown. Use grommets where indicated.
- 9 - Connect long #8 hose to compressor and route forward as shown. Use grommet where indicated.
- 10 - Install front condenser as shown with four #8 x 1/2" sms.

- 11 - Install rear condenser as shown. Use three #8 x 1/2" sms on rear. (#8 x 1" sms when spacers are used) Use two-piece hanger bracket on front. Attach bottom portion of bracket to condenser with two #8 x 5/8" sms. Hang top portion on crossmember and secure to bottom portion with two #10 x 1/2" sms.

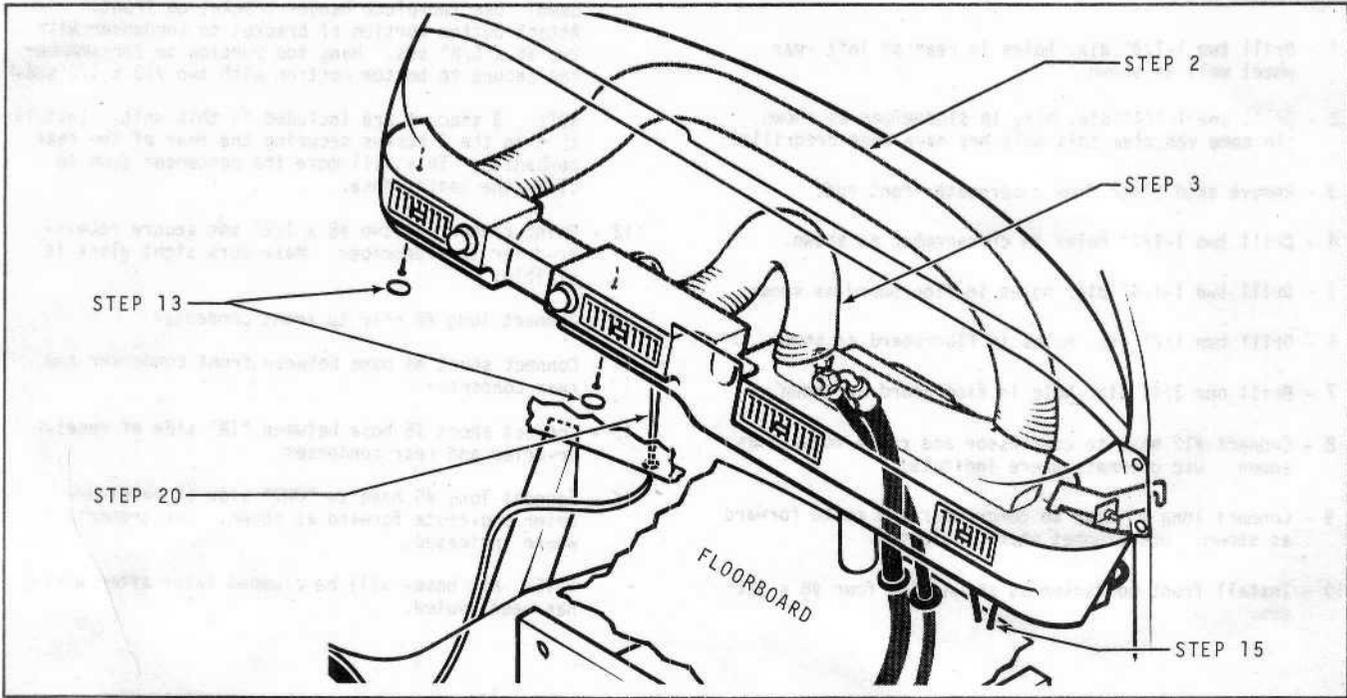
NOTE: 3 spacers are included in this unit. Install them on the 3 screws securing the rear of the rear condenser. This will move the condenser down to clear the heater hose.

- 12 - Using clamps and two #8 x 1/2" sms secure receiver-drier to sidemember. Make sure sight glass is visible.
- 13 - Connect long #8 hose to front condenser.
- 14 - Connect short #8 hose between front condenser and rear condenser.
- 15 - Connect short #6 hose between "IN" side of receiver-drier and rear condenser.
- 16 - Connect long #6 hose to "OUT" side of receiver-drier and route forward as shown. Use grommets where indicated.

NOTE: All hoses will be clamped later after wiring has been routed.



# PASSENGER COMPARTMENT



## STEP

- 1 - Remove left side kick panel under dashboard. Remove and discard plastic bezel around emergency brake opening in lower dashboard. Save screws. Then remove screw securing warning light switch and let it hang loosely.
- 2 - Route long accordion hose from behind glove box, over defroster duct and over steering column brace.
- 3 - Route short accordion hose from left side of glove box over emergency brake bracket. Tyrap to bracket to keep it away from fresh air lever.

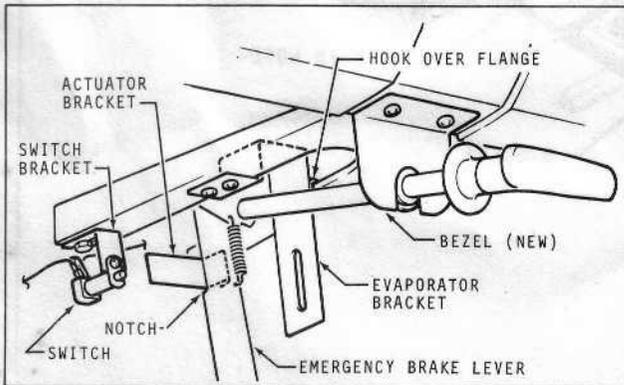
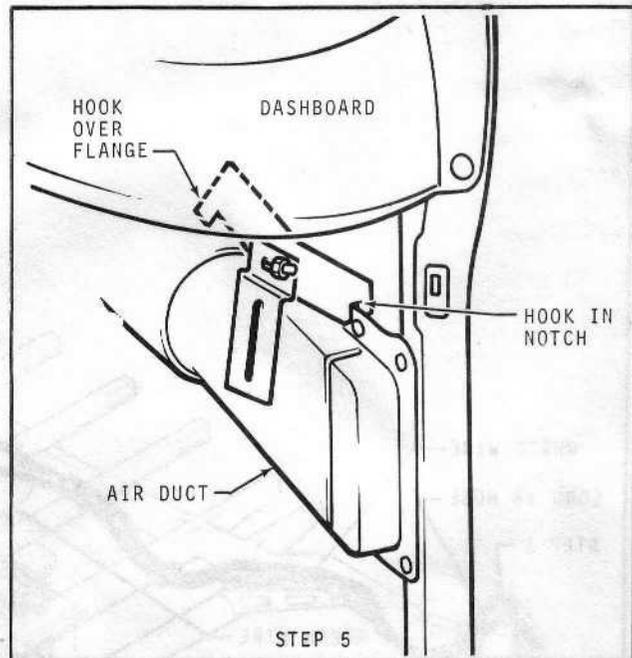
NOTE: The evaporator bracket which is secured above the emergency brake has been modified to fit on all Type 2's. Two sets of mounting holes are provided.

The two holes drilled at an angle are for late '76 and later models. The hanger bracket will be assembled to these two holes in production.

The other two holes are for early '76 and earlier models. The hanger bracket may be moved to these holes if necessary.

- 4 - Put left evaporator bracket in place but do not secure with screws yet.

- 5 - Assemble two-piece right evaporator bracket with #10-32 kepnut and put in place. No screws are required.



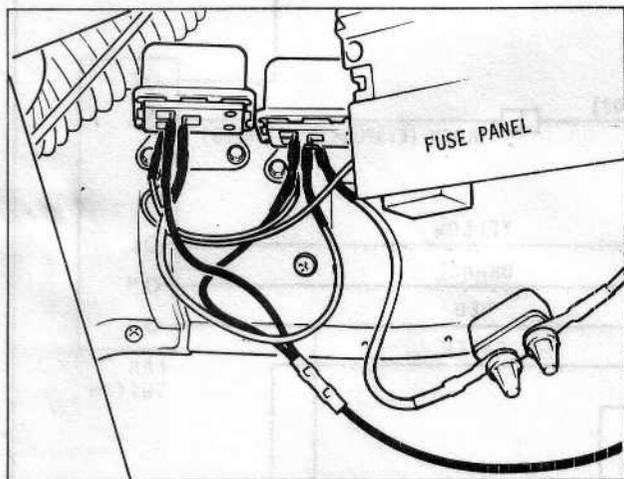
STEP 4 and 6.

- 6 - Install new emergency brake bezel with original screws. Then install new bracket and warning light on existing bolt as shown in illustration. Bracket is slotted for adjustment. Use wire provided along with two butt connectors to lengthen switch wire.

Install new actuator bracket by crimping it to emergency brake lever as shown. Work emergency brake several times to insure that light goes out when brake is released. Adjust light bracket if required.

## PASSENGER COMPARTMENT (continued)

- 7 - Lay evaporator on floor and connect #6 and #10 hoses. Wrap #10 hose connection with prestite tape.
- 8 - Begin to evacuate system now.
- 9 - Tape accordion hoses to evaporator connections as shown.
- 10 - Lift evaporator up and with it aligned secure to each bracket with #10-32 kepnuts. Be sure it is centered around steering column and emergency brake. Check to see that it is flush at each end of dashboard.
- 11 - Secure bezel to underdash through access holes with two black oxide #8 x 1-1/4" sms and washers. Install bezel caps in holes.  
  
NOTE: Make sure screws go through sheetmetal.
- 12 - With evaporator aligned secure left bracket to emergency brake bracket with two black oxide #8 x 1/2" sms.
- 13 - Install drain tubes and seal with permagum.
- 14 - Ground fan motor with an existing screw on kick panel.
- 15 - Secure the two relays to the steel air duct as shown. Secure with 4 #8 x 1/2 hex washer head sheet metal screws.
- 20 - Reinstall kick panel.
- 21 - Route harness as shown. Connect GREEN wire to condenser fans. Connect WHITE wire to clutch lead.
- 22 - Clamp and tyrap hoses and wiring as shown.
- 23 - Reinstall skid plate.
- 24 - Reconnect battery.
- 25 - With clutch on (engine not running) recheck torque on clutch center bolt.
- 26 - If evacuation is complete charge system with 28 oz. of R-12. (800 grams)
- 27 - Attach window decal on window where state law permits.
- 28 - Set idle speed at high end of specification found in shop manual.



STEP 15

- 16 - Loosen central electric. Use wire harness ZVW 432 505 and connect single RED wire to battery terminal #9. Disconnect BLACK/YELLOW wire at #10 terminal. Plug in piggyback terminal of BLUE wire at #10. Reconnect BLACK/YELLOW wire to piggyback terminal. Resecure central electric.
- 17 - Connect RED wires to the #1 terminals of both relays. Use the ZVW 432 510 wire and connect each end to the #2 terminals of both relays. Connect the BLUE wire from the central electric to the relay which has the piggyback terminal on #2. Use the ZVW 439 503 harness and connect the two 12 ga BLACK wires to terminals #3 on both relays. Connect other end to 10 ga BLACK wire from evaporator. See wiring diagram.
- 18 - Tape accordion hoses to bezel connections as shown.
- 19 - Plug connector on harness with GREEN and WHITE wires to connector from evaporator. Route harness down through hole in floorboard. Install grommet.



# VPC

VOLKSWAGEN PRODUCTS CORP., FT. WORTH, TEXAS 76106

MODEL

## PACKING LIST FOR AIR CONDITIONER

ZVW  
203 225

Installation of this air conditioner must be made by authorized installers in accordance with installation instructions published by Volkswagen Products Corporation.

QTY	PART NUMBER	DESCRIPTION
1	ZVW 447-001	Evaporator
1	ZVW 432-300	Condenser, Front
1	ZVW 432-331	Condenser, Rear
1	ZVW 217-103	Compressor
1	ZVW 234-130	Clutch
1	ZVW 447-406	Hose, Cond./Receiver-Drier
1	ZVW 447-411	Hose, Evap./Receiver-Drier
1	ZVW 447-416	Hose, Comp./Evap.
6.7'	ZVW 418-708	Hose, Cond./Cond. (bulk)
1.7'	ZVW 432-047	Air Duct (bulk)
4.2'	ZVW 432-047	Air Duct (bulk)
1	VPL 448-930	Window Decal
1	VPL 500-201	Warranty Registration Card
1	ZVW 432-772	Owners Manual Insert
1	ZVW 218-170	Maximum Load Sticker
1	ZVW 219-741	Template
1	VPL 432-780	Template (engine)
1	VPL 447-772	Installation Instructions
1	ZVW 447-651	Loose Parts Sack contains:
1	ZVW 219-217	Drive Pulley
1	ZVW 219-222	Belt
1	ZVW 420-213	Compressor Mount Plate Assembly
1	ZVW 420-208	Compressor Brace
1	ZVW 420-201	Engine Plate Assembly
1	ZVW 234-230	Idler Bracket Assembly
1	ZVW 432-366	Condenser Bracket
1	ZVW 402-367	Condenser Bracket
1	ZAW 428-432	Receiver-Drier
2.0'	ZVW 418-025	Drain Tube
3.0'	ZVW 418-025	Drain Tube
2	ZVW 227-709	Hose Clamp Assembly
1	ZVW 432-801	Brake Light Kit
1	ZVW 447-671	Parts Sack "M" contains:
9	ZVW 216-210	Adjustment Shim
1	ZVW 234-669	Cannister Tube Plug
1	ZAW 253-600	Cannister Tube Grommet
1	ZVW 447-681	Misc. Hardware
1	ZVW 447-681	Parts Sack "C" contains:
2	ZVW 213-714	#10 Hose Clamp
7	ZVW 226-402	#8 Hose Clamp
4	ZVW 225-701	#6 Hose Clamp
4	ZVW 218-464	Hose Clamp (gear)
3	ZVW 215-714	#10 Hose Grommet
1	ZVW 215-712	#8 Hose Grommet
3	ZVW 215-711	#6 Hose Grommet
1	ZVW 217-718	Wire Harness Grommet
2	ZVW 213-579	Receiver-Drier Bracket
3	ZVW 226-608	Tyrap
1	ZVW 432-501	Wire Harness
1	ZVW 225-632	O-Ring Sack contains:
3	ZVW 425-706	#6 O-Ring
1	ZVW 425-710	#10 O-Ring
1	ZVW 447-691	Misc. Hardware
1	ZVW 447-691	Parts Sack "E" contains:
2.0'	ZVW 225-026	Prestite Tape
2 oz.	ZVW 225-626	Permagum
3	ZVW 226-608	Tyrap
2	ZVW 401-610	Plastic Plug
1	ZVW 432-063	Left Evaporator Bracket
1	ZVW 432-068	Right Evaporator Bracket
1	ZVW 432-066	Right Support Bracket
1	ZVW 432-505	Relay Wire Harness
1	ZVW 432-510	Relay Wire
1	ZVW 439-503	Jumper Wire
2	ZAW 435-546	Relay
		Misc. Hardware

040478

VPL 447 762

This air conditioner and components have been carefully inspected when packed. Should any discrepancy exist between the contents of this box and this list, please complete and return this form to your supplier with comments. Do not use this form for transit damage or damage caused through installation.

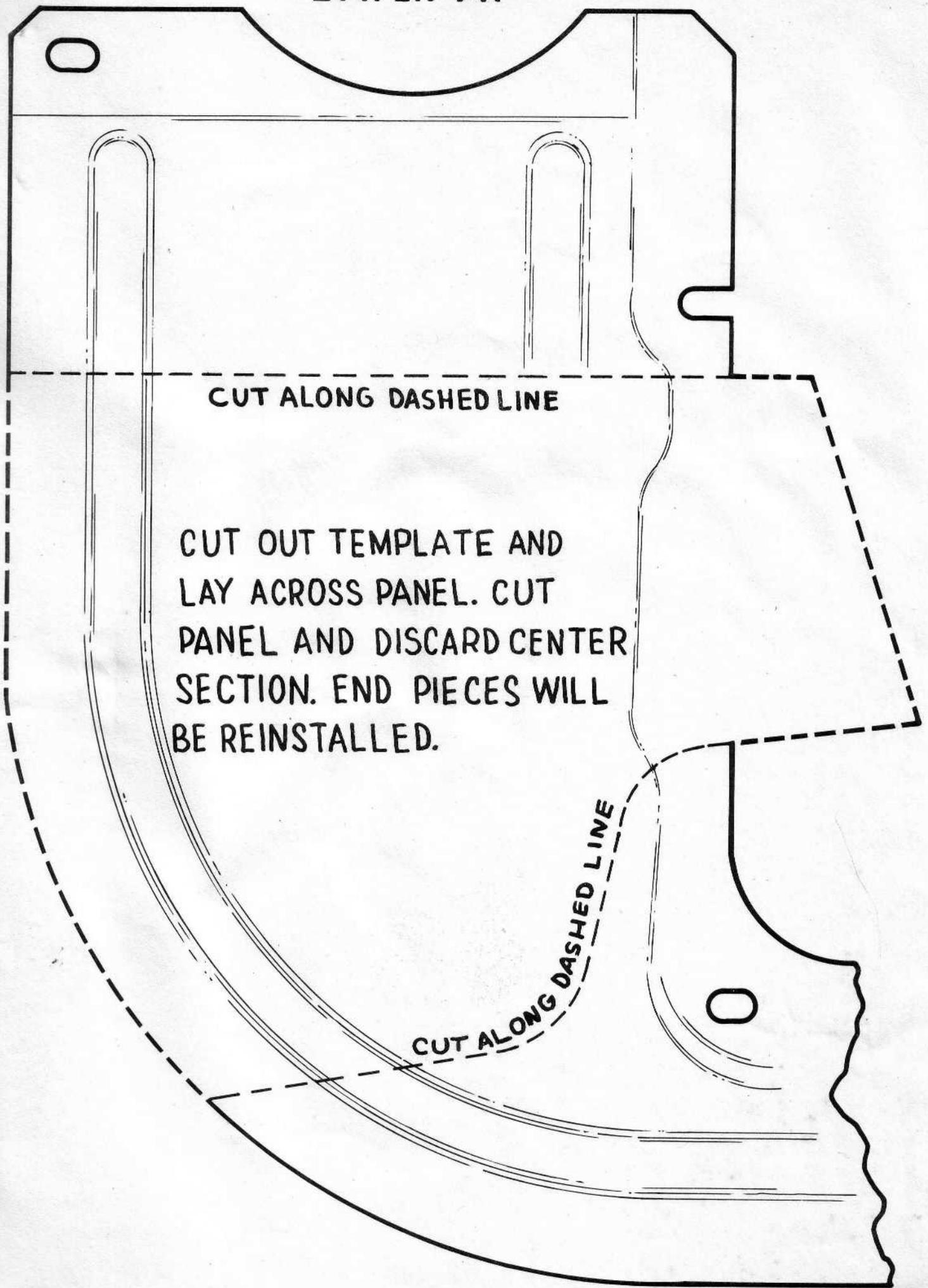
Air Conditioner Serial No. \_\_\_\_\_

Date of Installation \_\_\_\_\_

Name of Supplier \_\_\_\_\_

Name of Installing Company \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_



CUT ALONG DASHED LINE

CUT OUT TEMPLATE AND  
LAY ACROSS PANEL. CUT  
PANEL AND DISCARD CENTER  
SECTION. END PIECES WILL  
BE REINSTALLED.

CUT ALONG DASHED LINE

↑  
FRONT OF CAR  
THIS SIDE UP

CUT ALONG THIS LINE

CUT ALONG THIS LINE

CUT ALONG THIS LINE

CUT ALONG THIS LINE

FOLD DOWN HERE

TYPE 2 ENGINE  
COMPARTMENT  
CUTOUT TEMPLATE  
VPL 432 780

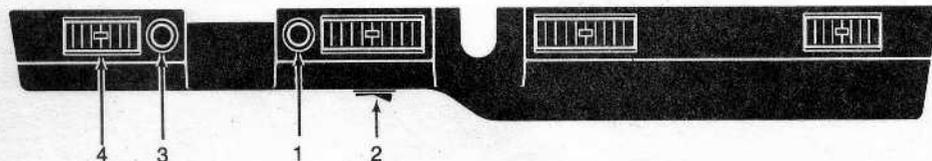
RIDGE IN SHEET METAL

FOLD UP HERE

# Insert

for OWNER'S MANUAL

## VW AIR CONDITIONER — UNDERDASH (Optional Equipment)



### Operating Controls

#### 1-Air volume switch ("FAN")

This switch serves two functions. It turns the air conditioning system on and off and controls the fan speed. The sequence of the fan positions is: OFF-LOW-MEDIUM-HIGH ("MAX")

#### 2-Fan Speed Range Selector

This switch changes the speed range of the fan. With the toggle-type switch pushed in on the left side the fan is in the low speed range. When it is pushed in on the right side the fan is in the high speed range. Using the range selector and the volume switch together, six separate fan speeds can be obtained.

#### 3-Air temperature control ("TEMP")

This switch controls the thermostat. By progressively turning the control to the right, the desired cooling range can be selected. It is in the coldest position ("MAX") when turned as far as possible to the right. Turn the knob fully to the left to turn the thermostat off.

#### 4-Air discharge louvers

The four rectangular louvers can be adjusted by moving the vanes up, down or sideways to direct the air flow in the desired direction.

### Starting the Air Conditioner

With the windows closed and the fresh air ventilation turned off, turn the air temperature control to the desired position and select the air volume speed desired. On extremely hot days turn the air volume to full capacity and open a window. Within a few minutes, the hot air will be forced out of the car and the window can be rolled up as cooling starts. Adjust the air discharge louvers to the desired position.

### Stopping the Air Conditioner

Turning the air volume switch to the "OFF" position stops the entire air conditioning system. When restarting a stalled engine, it is not necessary to turn off the air conditioner. The current to the air conditioner is interrupted during the starting process. This is to reduce the load on the electrical system and conserve the battery.

### Operational hints

For best overall comfort do not aim the air flow directly at a person, but allow the cooling air to circulate throughout the vehicle.

If the car interior becomes too cold after adjusting the air volume, turn the air temperature switch to the left until the desired comfort level is reached.

If the windows fog over on the exterior on warm

humid days, turn the air temperature control to the left until the windows clear up, or turn the windshield wipers on.

If the windows fog over on the interior, they can be quickly cleared by turning on the air conditioner. During highway driving, set the air temperature control in approximately the middle position.

### Maintenance hints

During the winter season, it is advisable to operate the Air Conditioner for a short time every week. This will help keep the seals and fittings properly lubricated.

After the winter months and before extended summer usage, the air conditioner should be checked and, if necessary, serviced by an Authorized VW Dealer.

The condensers should be checked periodically for cleanliness. If the condensers are clogged with dirt or insects, they should be washed down with water.

If the condensers are bent, the car should be taken to an Authorized VW Dealer for straightening of the condenser fins.

An air-conditioned Volkswagen should only be raised on a lift that provides adequate clearance to prevent damage to the condensers and refrigerant hoses.

### Circuit breaker

A circuit breaker for the current supply of the air conditioning system is located next to the fuse panel under the dashboard.

### Note:

When a VW Air Conditioner is installed, the vehicle capacity weight will be reduced accordingly (see sticker behind the driver's seat).

# VPC

AIR CONDITIONER

UNIT INSTALLED IN

WARRANTY REGISTRATION

PRODUCT QUALITY CONTROL

DELIVERY INSPECTION

THE WARRANTY  
COMMENCES AT

DEALER NO.	6	
CHASIS NO.	3 / 7	
EQUIP CODE	1	
MILES	5	
INST DATE	4	MO / YEAR
DAMAGE CODE	10	

UNIT IN  
PERFECT CONDITION

CHECK

PART NUMBER

KIND OF DAMAGE

EVAPORATOR **231-8 01206**

COMPRESSOR

TYPE WARRANTY:

UNDER NEW VEHICLE WARRANTY POLICY?

YES  NO

-----  
SERVICE MANAGER'S SIGNATURE

# AIR CONDITIONER FOR VOLKSWAGEN

Manufactured by Volkswagen Products Corporation, Fort Worth, Texas 76106

Distributed by Volkswagen of America, Inc., Englewood Cliffs, N.J. 07632

VPL 448 930

AFFIX TO INSIDE DOOR OF GLOVE BOX

When equipped with air conditioner, the

**Max. Load** (vehicle capacity weight) is  
reduced by 92 lbs.

---

#### **MAINTENANCE HINTS FOR YOUR AIR CONDITIONER**

If the air conditioner is not used for a long period, "exercise" it for about five minutes every week with AIR volume on high and TEMP on maximum cooling. This keeps the seals lubricated.

Never let the car be lifted without checking condenser and refrigerant hose clearance. Your Authorized Dealer knows how to handle this.

ZVW 218-170

©Volkswagen Products Corporation

AFFIX TO INSIDE DOOR OF GLOVE BOX