

alternate adjustments and test flights before the desired setting can be reached. The stall warning should actuate, ideally, at 7 to 9 mph ahead of the complete stall, although from 5 to 10 mph ahead of the complete stall will meet FAA requirements. The switch setting should be checked and adjusted as necessary whenever a wing or wing leading edge is replaced or extensively repaired, or if a new switch is installed. The switch should require no adjustment in normal service.

HEATING AND VENTILATING SYSTEM

INSPECTION

Inspect the air intake duct leading to the heater; all connections and clamps should be checked for tightness and the duct for holes or cracks. Check the screen at the intake duct; remove and clean as necessary.

Inspect the heater control box and the condition of the air ducts leading to the windshield defroster and cabin heat outlets. Seal or tape openings around wires, tubes, or cables passing through the firewall.

Inspect around the removable web on the lower half of the cabin rear bulkhead for leaks. This panel may be made airtight by cementing felt strips to the edge of the bulkhead where the web attaches. Openings, cutouts or cracks may be filled with sealing compound between the bulkhead and the skin by removing the upper upholstery panel on the bulkhead. The small ventilation door in the top of the bulkhead may be sealed by cementing felt strips around its edge. Also plug the leveling lug holes in the baggage doorframe to prevent entry of cold air.

INSPECTION OF HEAT EXCHANGER

The heat exchanger should be checked at each 100 hour inspection for cracks and leaks which could introduce carbon monoxide gas into the heating system. This can be accomplished as follows:

- a. Remove both heater ducts from the heater.
- b. Remove the screws from the heater shell and slide the shell off the heater.
- c. Make a close visual inspection of the heat exchanger on all surfaces with particular attention to the areas adjacent to the heat transfer pins (prior to serials D-7977) or the heat transfer corrugation (D-7977 and after) and end closures.

NOTE

If any indication of a defective heat exchanger is found, the unit should be removed and air pressure tested at 30 psi with the heat exchanger submerged in water. If any leaks are apparent, replace the heat exchanger. This test is also recommended for the heat exchanger at every engine change.

- d. If inspection indicates a good heat exchanger, replace the outer shell and reinstall the heat ducts.

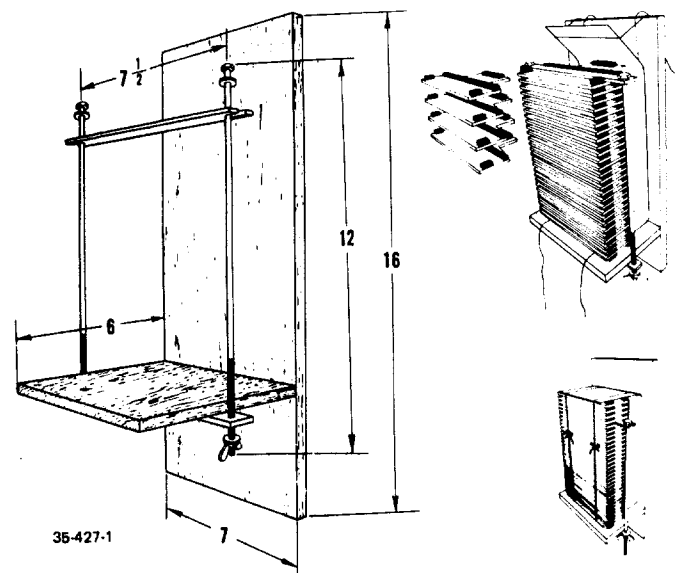


Figure 3-13B. Air Conditioner Wick Jig

AIR CONDITIONER (EVAPORATIVE)

SERVICING

At least twice a year the air conditioner should be drained to remove dirt and other foreign particles from the wick box, drain line, and overflow lines. Open the drain valve and allow all water to drain. Disconnect the drain and overflow lines, and unsnap the four fasteners holding the wick box. Remove the baffle from the wick assembly. The wicks should be flushed with, or soaked in distilled water.

If tap water has been used in the air conditioner continuously, the drains and wicks may be filled with salts and mineral deposits. If so, replace the wicks as follows:

1. Fill the wick box with water and soak the wick assembly for a few hours to loosen the salts and minerals around the wicks.
2. Construct a jig similar to the one shown in Figure 3-13B. The jig will simplify installation of the wicks, as considerable pressure is required to insert all of the wicks in the rack.
3. Remove the wicks from the rack and thoroughly clean the rack and baffle.
4. Make new inter-wick seals from 1/8-inch sheet cellular sponge rubber, 3/8 inch wide and cut to fit the wicks as shown. Dip the sealers in thinned EC-870 cement (Minnesota Mining and Manufacturing Co.) and allow them to dry before installation.
5. Place the jig in a vise. Lay two pieces of heavy twine, approximately thirty inches long, on the jig as shown. The twine is used to temporarily hold the wick assembly together until it is placed in the wick box.
6. Place the rack on the jig with the cut-out for the overflow tube at the top right hand side of the jig, and clamp the rack to the back of the jig with four C-clamps. Tie a string to the top of the rack to hold it open.
7. Place sixteen 35-554022-2 wicks in the rack with the inter-wick sealers between the wicks.
8. Place the aluminum bar across the top of the

wicks and pull it up tight before installing the three 35-554022-4 wicks and the remaining twelve 35-554022-2 wicks.

9. Release the string holding the top of the racks, and tie the heavy twine tightly around the complete assembly. Loosen the wing nuts and slide the aluminum bar out from the side of the wicks.

10. Check the cellular rubber seals in the wick box for deterioration. If new seals are required for the wick box, cut two strips of 1/8-inch cellular sponge rubber to 3/8 x 9-3/4 inches, and two strips to 3/8 x 9-3/16 inches. If new wick box seals are not required, cut only one long rubber strip and one short rubber strip. Cement one longer strip over the inter-wick seals on the front side, and the other inside the box, where the old one was peeled off. Cement one short strip over the inter-wick seals in the rear, and the other on the box. Make certain the two short strips clear the left rear corner of the box by 3/8 inch. Use any good rubber-to-metal cement such as EC-870.

11. Place the wicks in the wick box, making certain that the overflow standpipe has sufficient clearance. The three 35-554022-4 wicks and the cut-out in the rack must align with the overflow standpipe.

12. Cut and remove the heavy twine, and replace the baffle in the box. Position the wick box and secure the fasteners; connect the overflow and drain lines to the rear of the wick box.

AIR CONDITIONING SYSTEM (REFRIGERATIVE) (D-9787, D-9806 and after)

The optional air conditioning system is a recirculating 12,000 BTU cooling system. The system is controlled by a switch on the fuel control panel and 2 pressure sensing switches. The circuit breaker, and switch which control the system are located on the fuel control panel (console) and placarded A/C CIR BKR or AIR COND OFF HI LO respectively. At D-10097, D-10120 and after the circuit breaker was moved to the right hand sub panel.

The air conditioner is wired through the right landing gear uplock position switch, the left landing gear safety switch, and the normally closed full throttle switch. With the air conditioner operating on the ground the control circuit is wired through the left landing gear safety switch, which fully opens the condenser air scoop door located under the airplane. With the gear extended and the throttle fully opened action of the full throttle switch will remove power from the compressor clutch coil, and drive the condenser air scoop door closed. When the airplane is airborne and the landing gear is retracted, power is transmitted from the normally open contacts of the full throttle switch (actuated closed when the throttle is fully open) through the right landing gear uplock position switch (actuated closed when the gear is up and locked) to the compressor clutch permitting the compressor to operate. Also power from the circuit just de-

scribed is transmitted to the condenser air scoop door actuator, through the normally open contacts of the door flight position limit switch located at the aft end of the door (actuated closed when the door is closed) causing the actuator to open the door to the flight position.

The entire air conditioner system is protected by a 30 amp circuit breaker. The compressor and condenser air scoop door have the added protection of a 10 amp fuse located on the forward side of the firewall in front of the copilot. This allows the evaporator fan to be operated after the compressor has been removed from the system by a blown fuse.

On D-9818 thru D-10119, except D-10097, the entire air conditioner system is protected by a 30 amp circuit breaker. The compressor and condenser air scoop door have the added protection of two separate 10 amp fuses. On D-10097, D-10120 and after, the entire system is protected by a 10 amp circuit breaker. The compressor and condenser air scoop door are protected by two separate 5 amp fuses. The fuses are located on the forward side of the firewall in front of the copilot. This allows the evaporator fan to be operated after the compressor has been removed from the system by a blown fuse.

A light independent of the air conditioner circuit is actuated by the condenser air scoop door, through the left landing gear uplock position switch's normally closed contacts (closed with the landing gear extended) which will indicate a door open condition while the gear is extended.

The high pressure sensing switch monitors the pressure of the refrigerant from the compressor to the expansion valve. The normally closed high pressure switch will actuate, causing an open circuit to the compressor clutch coil when the pressure in the line reaches 390 ± 10 psi, which disables the compressor. The high pressure switch automatically resets to the normally closed position when the refrigerant falls to a safe pressure. There is also a high pressure poppet relief valve, located on the forward side of the firewall, which will relieve the system if the pressure reaches 450 psi, and will reseal again at 400 psi.

The low pressure switch, normally open (actuated closed when the system is charged with refrigerant) senses system pressure. The switch closes, actuating the compressor clutch coil, when the line pressure exceeds 5 to 8 psi. The low pressure switch will prevent damage to the compressor should oil and/or refrigerant loss occur.

The condenser air scoop door under the airplane automatically opens when the air conditioner is turned on. On the ground the door opens to approximately 3 inches. In flight the door opens to approximately $3/4 + 1/4 - 0$ inch. The air scoop door actuator limit switches are preset with no adjustment required.

MODEL 35 THRU G35 PARTS CATALOG

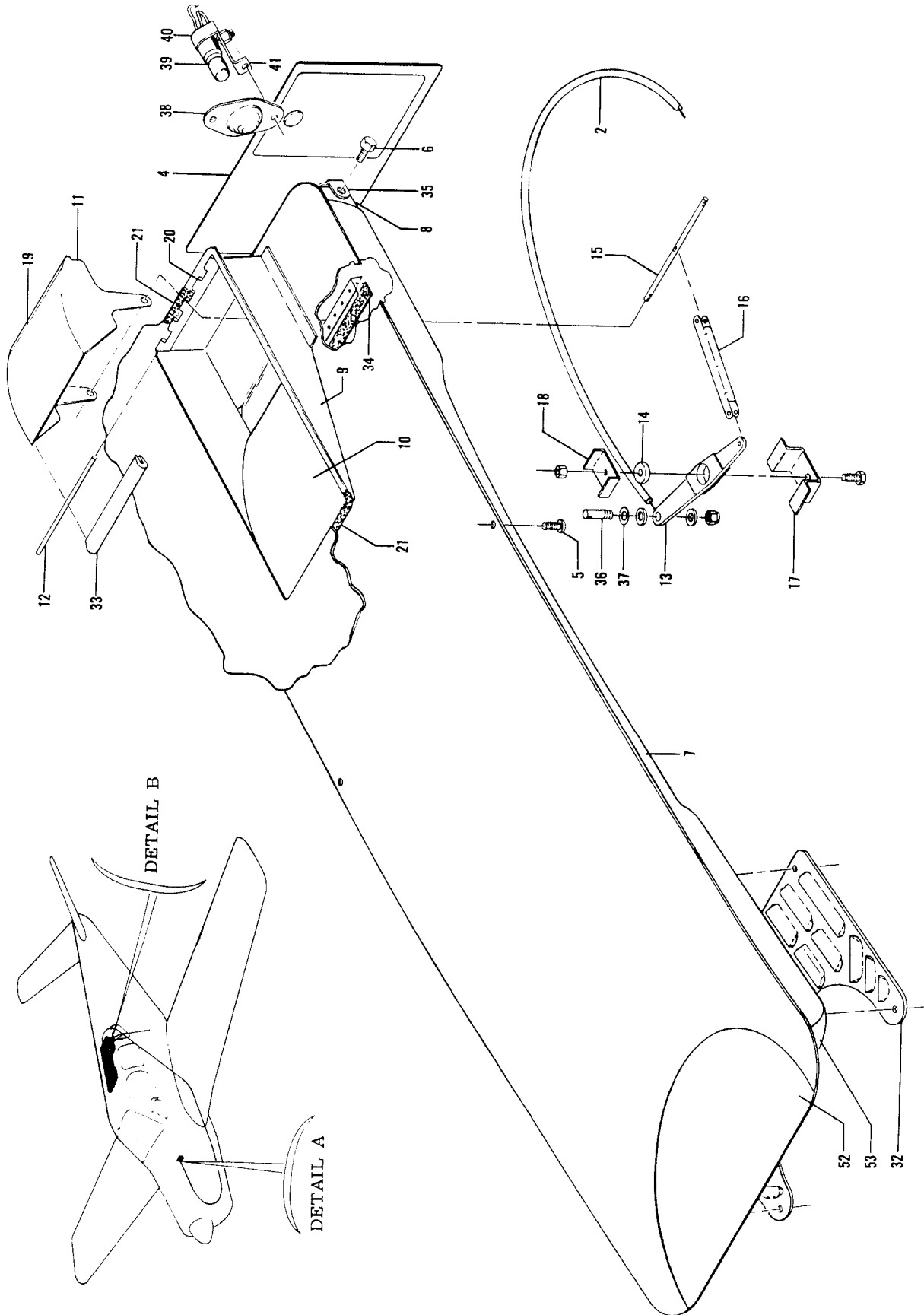
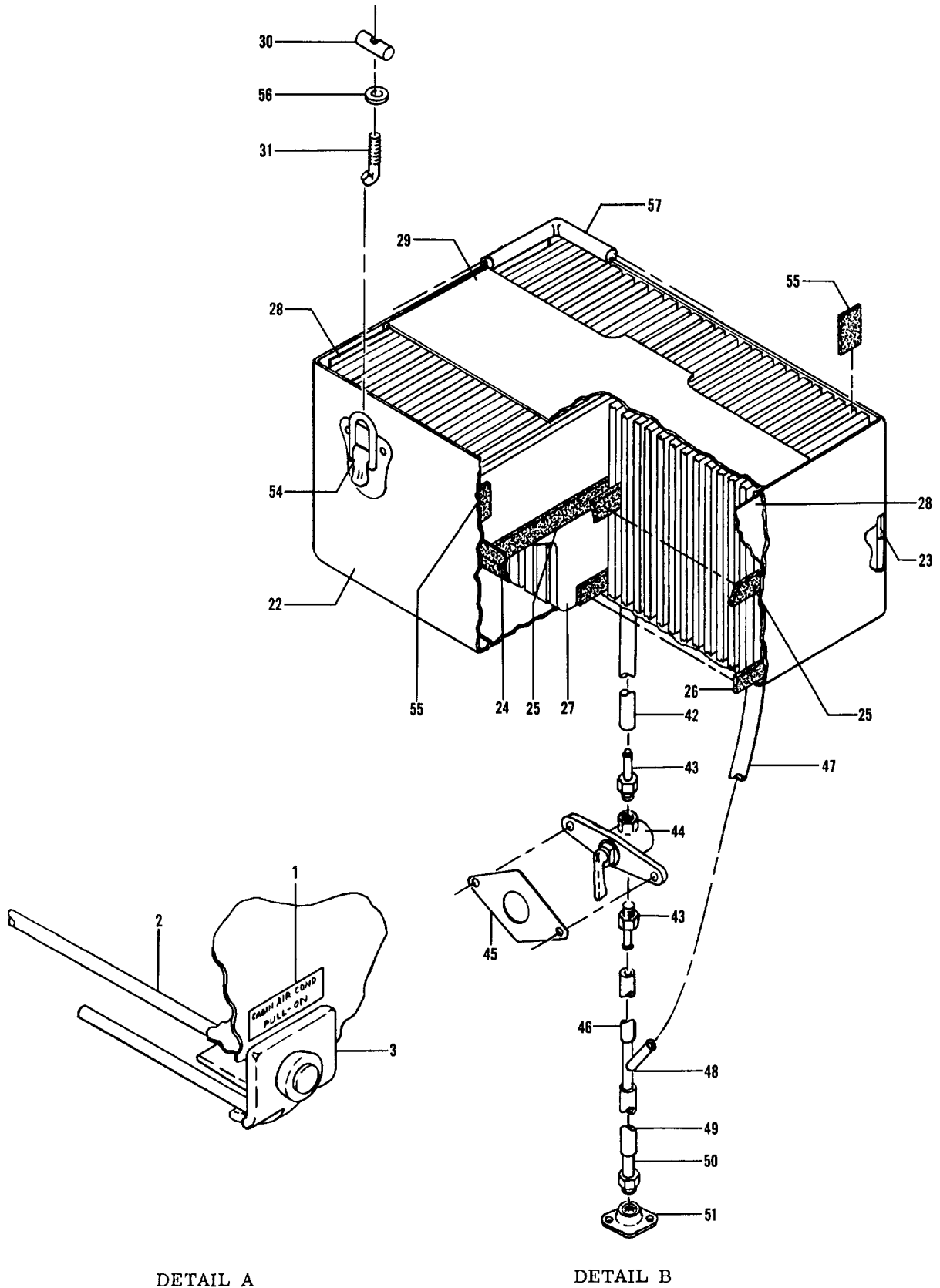


Figure 138. Cabin Air Conditioner (Sheet 1 of 2 sheets)

MODEL 35 THRU G35 PARTS CATALOG



DETAIL A

DETAIL B

Figure 138. Cabin Air Conditioner (Sheet 2 of 2 sheets)

MODEL 35 THRU G35 PARTS CATALOG

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
		1 2 3 4 5 6 7		
138		CABIN AIR CONDITIONER INSTL		
	35-324188-2	. PLACARD, Cabin Air Conditioner Pull-On	1	A, B
	35-324188-4	. PLACARD, Cabin Air Conditioner Pull-On	1	C
	35-324188-6	. PLACARD, Cabin Air Conditioner Pull-On	1	D
	35-324188-8	. PLACARD, Cabin Air Conditioner Pull-On	1	E, F4
- 1	35-324188-10	. PLACARD, Cabin Air Conditioner Pull-On	1	F5, G
- 2	35-554002	. CONTROL ASSY	1	
- 3	35-944009	. HANDLE	1	
- 4	35-410160-26	. COVER ASSY	1	
	35-554001SA7	. AIR CONDITIONER ASSY (Supercedes 35-554001).	1	A, B
	35-554001SA10	. AIR CONDITIONER ASSY (Supercedes 35-554001-2).	1	C, D, E, F, G
	35-554003	. . DUCT ASSY	1	A, B
	35-554003-24	. . DUCT ASSY	1	C, D, E, F, G
		(ATTACHING PARTS)		
- 5	AN525-1032-12	. . SCREW	2	
	10K75	. . RIVNUT	2	
- 6	AN3-3A	. . BOLT	2	
	AN960-10	. . WASHER	2	
	AN365-1032	. . NUT	2	
		----*----		
	35-554001SA11	. . . PAN ASSY, Air Duct (Supercedes 35-554001-8)	1	
- 7	35-554001SA12	. . . PAN ASSY, Air Duct (Supercedes 35-554001-22)	1	C, D, E, F, G
- 8	35-554015	. . . BRACKET, Attaching LH	1	
	35-554015-1	. . . BRACKET, Attaching RH	1	
- 9	35-554016	. . . CHANNEL, Inlet	2	
-10	35-554017	. . . FAIRING, Inlet	1	
		(ATTACHING PARTS)		
	AN515-6R7	. . . SCREW	26	
	AN960D6L	. . . WASHER	26	
	WIS632-BC100	. . . NUTPLATE	26	
		----*----		
-11	35-554018	. . . SCOOP ASSY, Air Inlet	1	
		(ATTACHING PARTS)		
-12	105774C-ZA00410	. . . HINGE PIN	1	
		----*----		
	35-554019	. . . ARM ASSY, Scoop Control	1	
		(ATTACHING PARTS)		
	AN3-6A	. . . BOLT	1	
	AN960-10	. . . WASHER	1	
	AN365-1032	. . . NUT	1	
		----*----		
-13	35-554019-6	. . . , ARM	1	
-14	LS-3	. . . BEARING	1	
-15	35-554020	. . . TUBE, Scoop Control	1	
		(ATTACHING PARTS)		
	AN960-416L	. . . WASHER	2	
	AN380-2-2	. . . COTTER PIN	4	
		----*----		
-16	35-554021	. . . LINK, Scoop Control	1	
		(ATTACHING PARTS)		
	AN392-11	. . . PIN	2	
	AN380-2-2	. . . COTTER PIN	2	
		----*----		
-17	35-554003-14	. . . BRACKET	1	
-18	35-554003-16	. . . BRACKET	1	
-19	35-554003-10	. . . HINGE, Scoop Half	1	
-20	35-554003-12	. . . HINGE, Fairing Half	1	
-21	35-554010	. . . GASKET, Top Skin	1	
	35-554004	. . PAN ASSY, Evaporative	1	

MODEL 35 THRU G35 PARTS CATALOG

FIG. & INDEX NO.	PART NO.	1	2	3	4	5	6	7	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
138											
-22	35-554004-16	.	.	.	WELD ASSY, Pan	.	.	.	.	1	
-23	35-554004-4	.	.	.	SEAL, 9.18 In. Long	.	.	.	.	2	
-24	35-554004-8	.	.	.	SEAL, 9.75 In. Long	.	.	.	.	2	
-25	35-554004-6	.	.	.	SEAL, 6.75 In. Long	.	.	.	.	32	
-26	35-554004-10	.	.	.	SPACER	.	.	.	.	32	
-27	490	.	.	.	WICK, Air Conditioner (Supercedes 35-554022-2 & -4)	.	.	.	.	31	
-28	35-554023	.	.	.	RACK, Wick	.	.	.	.	1	
-29	35-554025	.	.	.	BAFFLE, Wick	.	.	.	.	1	
-30	35-554012	.	.	.	NUT, Pan Attaching	.	.	.	.	4	
-31	35-554013	.	.	.	HOOK, Pan Attaching	.	.	.	.	4	
-32	35-554014	.	.	.	PLATE, Air Diffuser	.	.	.	.	1	
					(ATTACHING PARTS)						
	AN530-4-8	.	.	.	SCREW	.	.	.	.	8	
					-----*-----						
-33	114232-00408	.	.	.	EXTRUSION, Air Scoop	.	.	.	.	1	
-34	35-554003-26	.	.	.	GASKET, Pan	.	.	.	.	1	
-35	35-554011	.	.	.	BRACKET, Mounting	.	.	.	.	1	
					(ATTACHING PARTS)						
	AN3-4A	.	.	.	BOLT	.	.	.	.	2	
	AN960-10	.	.	.	WASHER	.	.	.	.	2	
	AN365-1032	.	.	.	NUT	.	.	.	.	2	
					-----*-----						
-36	35-554026	.	.	.	PIN, Control Attaching	.	.	.	.	1	
-37	102933S5ZH0096	.	.	.	SPACER	.	.	.	.	1	
	AN960-416	.	.	.	WASHER	.	.	.	.	1	
	AN365-428	.	.	.	NUT	.	.	.	.	1	
-38	35-344006	.	.	.	COVER, Antenna Signal Light	.	.	.	.	1	
					(ATTACHING PARTS)						
	AN526-632-8	.	.	.	SCREW	.	.	.	.	2	
	AN960-6	.	.	.	WASHER	.	.	.	.	2	
	AN365-632	.	.	.	NUT	.	.	.	.	2	
					-----*-----						
-39	NE48	.	.	.	BULB	.	.	.	.	1	
	35-554001SA8	.	.	.	LIGHT ASSY, Antenna Signal	.	.	.	.	1	
-40	2610	.	.	.	SOCKET, Light	.	.	.	.	1	
					(ATTACHING PARTS)						
	AN515-8-6	.	.	.	SCREW	.	.	.	.	1	
	AN365-832	.	.	.	NUT	.	.	.	.	1	
					-----*-----						
-41	35-554028	.	.	.	ANGLE, Antenna Signal Light Attaching	.	.	.	.	1	
-42	1/4 ID X 1/16	.	.	.	DRAIN TUBE, Air Conditioner To Shutoff Valve	.	.	.	.	1	
-43	AN840-4D	.	.	.	ADAPTER	.	.	.	.	2	
-44	104HD1/8X1/8	.	.	.	VALVE, Drain Shutoff	.	.	.	.	1	
-45	35-050048-6	.	.	.	ESCUTCHEON, Drain Shutoff Valve	.	.	.	.	1	F, G
					(ATTACHING PARTS)						
	NAS222-10	.	.	.	SCREW	.	.	.	.	2	
	AN365-428	.	.	.	NUT	.	.	.	.	2	
					-----*-----						
-46	1/4 ID X 1/16	.	.	.	DRAIN TUBE, Shutoff Valve to Y	.	.	.	.	1	
-47	1/4 ID X 1/16	.	.	.	OVERFLOW TUBE, Air Conditioner to Y	.	.	.	.	1	
-48	35-554027	.	.	.	Y CONNECTOR ASSY, Drain & Overflow Lines	.	.	.	.	1	
-49	1/4 ID X 1/16	.	.	.	DRAIN & OVERFLOW TUBE, Y Connector to Skin	.	.	.	.	1	
-50	AN840-4D	.	.	.	ADAPTER	.	.	.	.	1	
-51	AC-865-1	.	.	.	FLANGE	.	.	.	.	1	
-52	35-050048-2	.	.	.	COVER	.	.	.	.	1	
-53	35-050048-4	.	.	.	PAN	.	.	.	.	1	
-54	5952-1/4	.	.	.	LATCH, Wick Pan	.	.	.	.	4	
-55	35-554004-20	.	.	.	SPACER	.	.	.	.	64	
-56	100951N032ZB	.	.	.	WASHER	.	.	.	.	4	
-57	112416-03400	.	.	.	EXTRUSION, Wick Pan	.	.	.	.	1	