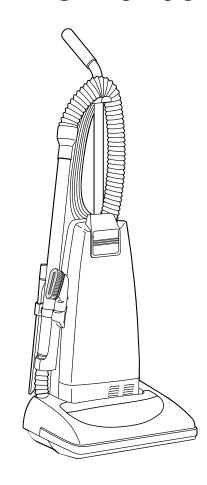
Service Manual Commercial Vacuum Cleaner

MC-V5203



■ SPECIFICATIONS

Model	MC-V5203	
Power Source	AC 120V (60 Hz)	
Power Consumption	10.0 Amps	
Cord Length	50 Ft.	
Motor Protector	Yes	
Height Adjust	Automatic	
Weight	17 lbs.	

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Panasonic_®

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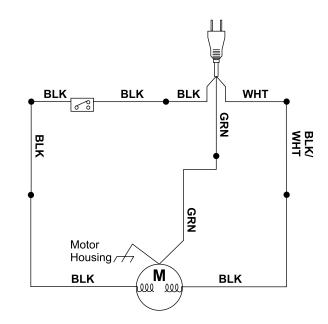
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■ NOTES

- 2 -

■ NOTES

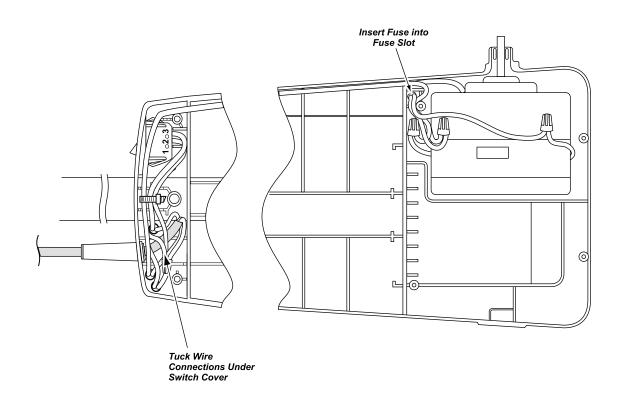
■ SCHEMATIC DIAGRAM



NOTE: For general servicing, it is necessary to eliminate pinching of any wire during reassembly. After servicing any electrical component or electrical enclosure, the unit should be reassembled and checked for dielectric breakdown or current leakage.

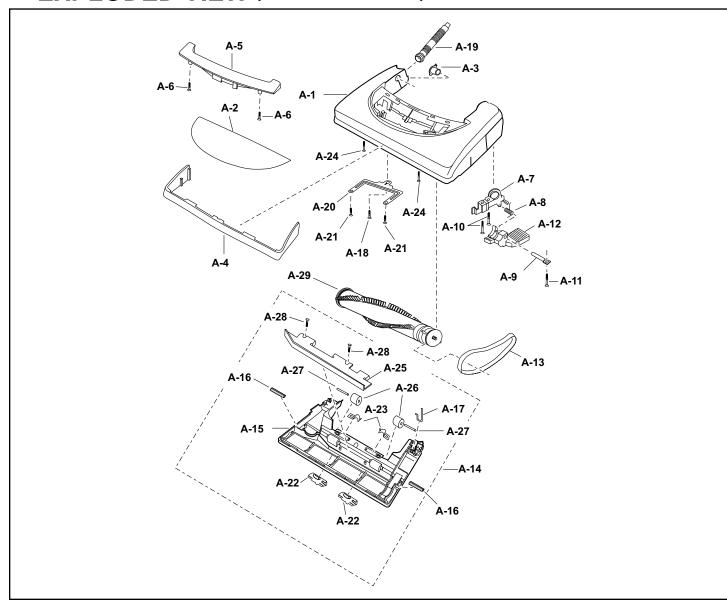
■ WIRING MANAGEMENT DRAWING

NOTE: Do not pinch any wires during reassembly. After servicing any electrical component or electrical enclosure, the unit should be reassembled and checked for dielectric breakdown or current leakage.

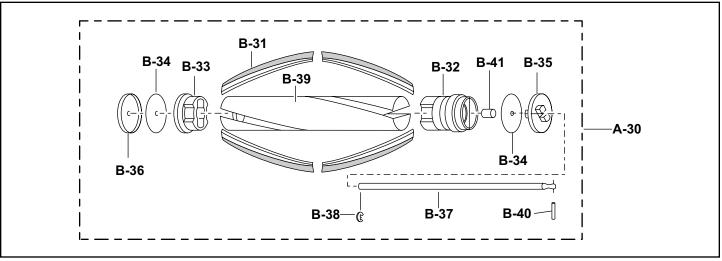


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■ EXPLODED VIEW (NOZZLE HOUSING)... A BLOCK



EXPLODED VIEW (AGITATOR ASSEMBLY)... B BLOCK



■ MOTOR FAN REPLACEMENT

Removal

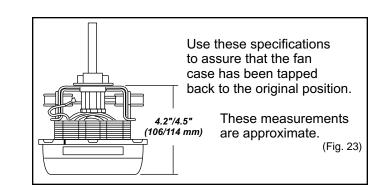
- **1.** Mark the position of the fan case's location on the motor with a pencil, or score it with a sharp object before disassembly. This will aid you in reassembling the fan case, (*Fig. 21*).
- **2.** The fan case has three (3) crimped sections on it to hold the case onto the motor. These will have to be straightened by using a pair of needle nose pliers and by tapping out on the crimp area with a flat blade screwdriver. Be sure and straighten all three (3) crimped areas, (*Fig. 21*). Remove the fan case from the motor unit.
- **3.** Tools required to remove the fan from the shaft will be a 1/8 inch Allen wrench, a 1/2 -inch offset box wrench, torque wrench, and a hammer.

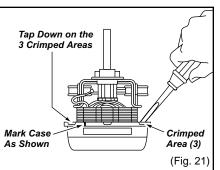
NOTE: Be careful when handling the sheet metal parts as there could be sharp edges. Do not scratch or bend the motor shaft. Scratches will cause belt breakage during operation.

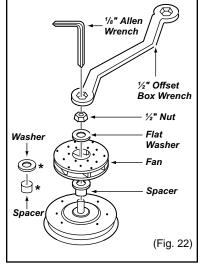
- **4.** Place the 1/2 inch box wrench over the 1/2 -inch hex nut that holds the fan onto the motor shaft, (*Fig.* 22). While holding the wrench on the nut, place the 1/8 -inch Allen wrench into the end of the motor shaft and loosen the nut while holding the Allen wrench still. The nut will have to be turned clockwise as it is a left-hand thread. After removing the nut, remove the fan, (*Fig.* 22). There is a spacer left on the motor that is not required to be removed. If spacer is removed, reassemble per exploded view, (*Fig.* 22).
- * Some models will have this washer and spacer.

Installation

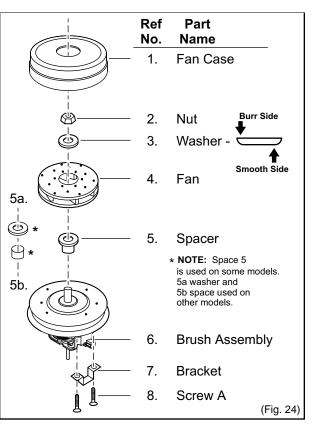
- 1. Place the new fan onto the motor shaft, making sure that the spacer is still on the motor. The large diameter hole, approximately 1 1/8 inch, will be on the top of the fan as you install it.
- 2. Install the flat washer with the burr side of the washer facing away from the fan, (*Fig. 23*). Screw the nut onto the motor shaft, turning it counterclockwise, left-hand threads, and torque to 20-30-inch pounds. Be sure to hold the motor shaft by placing the 1/8-inch allen wrench into the motor shaft end while torquing the nut, (*Fig. 22*).
- **3.** Align your marks on the fan case as you put the fan case back on and tap around the case uniformly. Tap the three (3) crimped areas over and then use a flat blade screwdriver to recrimp them.
- 4. See (Fig. 24) for reassembly specifications.







EXPLODED VIEW



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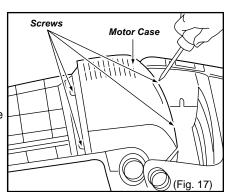
■ MOTOR REPLACEMENT

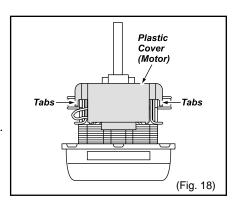
Removal

- **1.** Remove the dust cover by grasping the top near the ON/OFF switch and pulling sharply out toward you.
- **2.** Remove the lower plate, agitator assembly, belt, the plastic shaft, and the nozzle housing as instructed in the respective removal sections.
- **3.** Turn the vacuum over to the front side and remove the four (4) screws from the motor case and then remove the motor case, (*Fig. 17*).
- **4.** Disconnect the motor leads and ground wire and remove the motor.
- **5.** Remove the plastic motor cover by carefully prying out the tabs which secure it to the motor, *(Fig. 18)*. Snap the motor cover onto the new motor.
- **6.** Remove the motor support rubber (rear), noise suppressor, and the motor support rubber (front). Place these items on the new motor. See the **C Block** for a view of these.

Installation

- 1. Connect all wires according to the SCHEMATIC DIAGRAM.
- **2.** Place the motor into the dust compartment with brushes aligned to the front edge of the dust compartment. The motor support (rear) must also align with the tabs in the same direction.
- 3. Route all wires according to the WIRE MANAGEMENT DRAWING.
- 4. Replace the motor case and the four (4) screws.
- **5.** Turn the vacuum back over and replace the plastic shaft, nozzle housing, belt, agitator assembly, and lower plate according to the respective installation instructions.





CARBON BRUSH REPLACEMENT

Removal and Installation

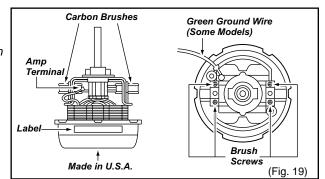
- **1.** After removing the motor and plastic motor cover, see MOTOR REPLACEMENT, make sure that you have properly identified it. *Note specifically that this motor is made in the U.S.A. as identified by the label on the side of the motor, or Made in U.S.A. stamped on the bottom.*
- 2. Remove the amp terminals located on each brush end, (*Fig. 19*). Replace the brush assembly which should include the brush holder. Reinstall the amp terminals onto the new brush assembly. Complete brush change on one side before starting on the other side.

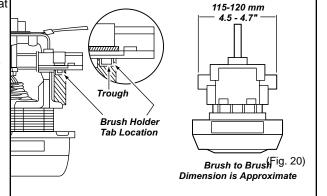
NOTE: Do not drop screws into the motor.

3. There are two (2) brushes located on the motor as identified in (*Fig. 19*). A phillips head screwdriver will be required to remove the four (4) screws that hold the brush holders onto the motor. See (*Fig. 19*) for screw location.

NOTE: When inserting the brush assembly, be sure that the TAB on the bottom of the brush holder is positioned in the trough as shown in (*Fig. 20*).

- 4. Check and clean commutator.
- **5.** Replace the brush holder bracket with two (2) Phillips screws on each side of the motor.
- **6.** As a final check to assure proper installation of brushes, measure across the brushes for the approximate dimension as shown in (*Fig. 20*).





7. Place the plastic motor cover back on the unit and re-install the motor back into the unit by following the installation instructions in the MOTOR REPLACEMENT.

■ PARTS LIST (NOZZLE HOUSING)... A BLOCK

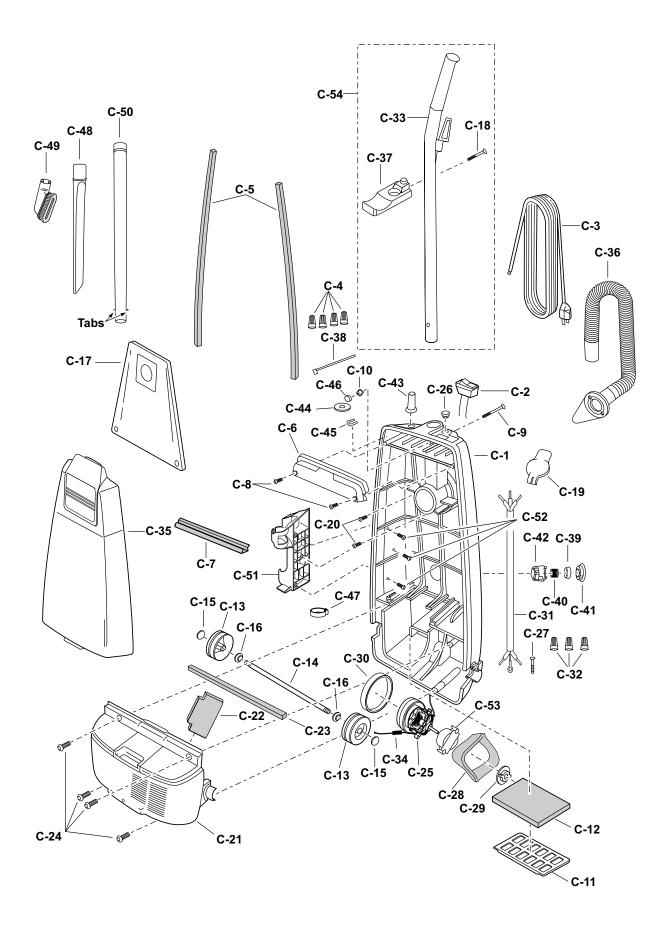
Ref. No.	Part Name & Description	Part No.	Quantity	Remarks
A - 1	Nozzle Housing	ACØ1ACCAZUU3	1	
A - 2	Window	AC21HAFVZUØ3	1	
A - 3	Plastic Shaft	AMC25S-VØØ	1	
A - 4	Furniture Guard	AC1ØAAGZVØ7	1	
A - 5	Light Cover	AC24HAFVZUØ3	1	
A - 6	Screw, Light Cover	AXTN4+2ØBFY	2	
A - 7	Frame	AMC43A-2VØ	1	
A - 8	Pedal Spring	AC58AAFVZØØ	1	
A - 9	Pedal Shaft	AMC51A-V3Ø	1	
A - 10	Screw, Pedal Assembly	AXTN4+1ØBFY	2	
A - 11	Screw, Pedal Assembly	AXTN4+16BFY	1	
A - 12	Pedal, Handle Release	AMC47A-2VØU	1	
A - 13	Belt	AC28SJPZØØ	1	
A - 14	Lower Plate Assembly	AC91AATEZVØ7	1	(Includes A-15, A-16, A-17, A-22, A-23,
				A-24, A-26, A-27, A-28, A-29)
A - 15	Lower Plate	AC27AATEZVØ7	1	
A - 16	Lower Plate Packing	AC19AARKZVØØ	1	
A - 17	Belt Cover	AC43SAFVZØØ	1	
A - 18	Screw, Slider Support	AC68AZAZØØ	1	
A - 19	Nozzle Hose	AC34PAJDZVØ6	1	
A - 20	Slider Support	AC53KAFVZØØ	1	
A - 21	Screw, Slider Support	AXTN4+16BFY	2	
A - 22	Latch, Lower Plate	AMC68N-AVØK	2	
A - 23	Stop Latch Spring	AC7ØNYUZØØ	2	
A - 24	Screw, Latch	AMC68A-V3Ø	2	
A - 25	Body, Lower Plate	ACØ6AAJUZØØ	1	
A - 26	Wheel	AC9ØQNGZVØ6	2	
A - 27	Roller Shaft	AC16CNXZØØ	2	
A - 28	Screw, Lower Plate	AXTN4+16BFY	2	
A - 29	Agitator Assembly	AC92SATEZØØ	1	(Includes B-31 thru B-41)

■ PARTS LIST (AGITATOR ASSEMBLY)... B BLOCK

Ref. No.	Part Name & Description	Part No.	Quantity	Remarks
B-31	Brush, Strips (Set of 4)	AC85RBFTØØØØ	1	
B-32	Pulley, Agitator	AC29SARGZØØ	1	
B-33	Holder, Agitator	AC41SJM1ØØ	1	
B-34	Filter, Agitator	AC44KJMZØØ	2	
B-35	Cap, Left End	AC97DJMZØØ	1	
B-36	Cap, Right End	AC96DJMZØØ	1	
B-37	Shaft, Agitator	AC57RATEZØØ	1	
B-38	E-Clip	AMC-XUC4FY	1	
B-39	Holder, Brush	AC84RJMZØØ	1	
B-40	Pin, Spring	AMC-XPL16A8WFR	1	
B-41	Spacer	AC74SATEZØØ	1	

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EXPLODED VIEW (BODY, MOTOR HOUSING, AND MOTOR)... C BLOCK



POWER CORD/ON-OFF SWITCH REPLACEMENT (Cont.)

Installation

- 1. Insert the new power cord (power cord replacement only) into the dust compartment as far as necessary in order to place a new cord retainer in proper location on power cord. The proper location is approximately one and one eighth inches/thirty millimeters (1 1/8"/30 mm) of new power cord yellow outer jacket extending past the cord retainer and washer. The washer goes between the cord retainer and the dust compartment. Attach wires with wire connectors according to the wiring diagram in the front of this manual. **ONLY USE A NEW CORD RETAINER, DO NOT REUSE A CORD RETAINER.**
- **2.** For switch replacement only, insert the new ON/OFF switch with the numbers 1,2,3, facing toward you, into the dust compartment until secured by the retaining tabs. Use a wire tie with the part number listed in the **C Block** parts list and place it in the location shown in (*Fig. 15*) taking care not to overtighten it. Tuck the wire connectors back into the dust compartment as shown in the close-up view in (*Fig. 15*).
- **3.** Ensure that the Insulator Packing is installed correctly, (see Fig. 16).
- **4.** Replace the switch cover, the two (2) switch cover screws, and the dust cover. Care should be taken not to pinch wires and make sure that the switch cover goes on easily and stays flat. If there is resistance to the switch cover lying flat and in place, stop, remove the cover and make sure that no wires are being pinched. **DO NOT USE A POWER SCREWDRIVER TO SECURE THE COVER.**

NOTE: Any service involving the handle or switch cover area should be followed up with a dielectric or current leakage check of the unit. If you do not have the equipment or are not familiar with the test procedures, take the unit to an authorized servicer.

■ HOSE REPLACEMENT

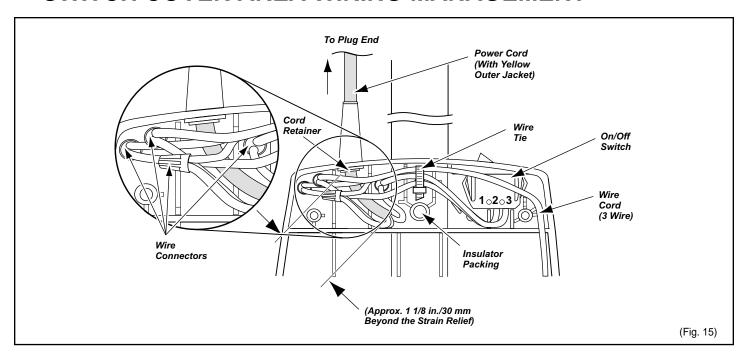
Removal

- 1. Remove the dust cover and dust bag
- 2. Remove the end of the hose from the wand. Remove the hose by removing the two screws which secure it to the dust container.

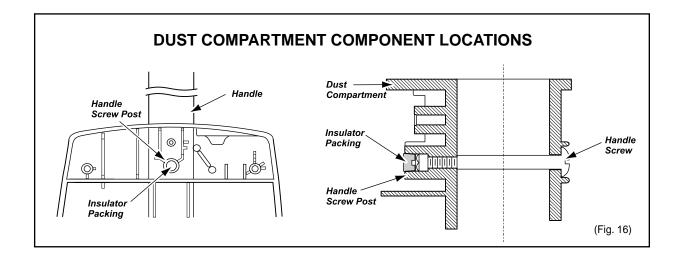
Replacement

- 1. Install the new hose by replacing the two screws which secure it to the dust container.
- 2. Replace the hose onto the wand.
- 3. Replace the dust bag and dust cover.

■ SWITCH COVER AREA WIRING MANAGEMENT



POWER CORD/ON-OFF SWITCH REPLACEMENT



Removal

- 1. Remove the dust cover and switch cover to expose the electrical connections of the power cord, ON/OFF switch, and wire cord.
- 2. Pull the power cord into the dust compartment in order to remove the strain relief (for power cord replacement) by prying or cutting, remove the wire connectors, and wire tie, if present.
- **3.** Remove the ON/OFF switch (for ON/OFF switch replacement) by depressing the switch retaining tabs while pushing up out of the dust compartment at the same time.
- 4. Pull the power cord out of the dust compartment (for power cord replacement).

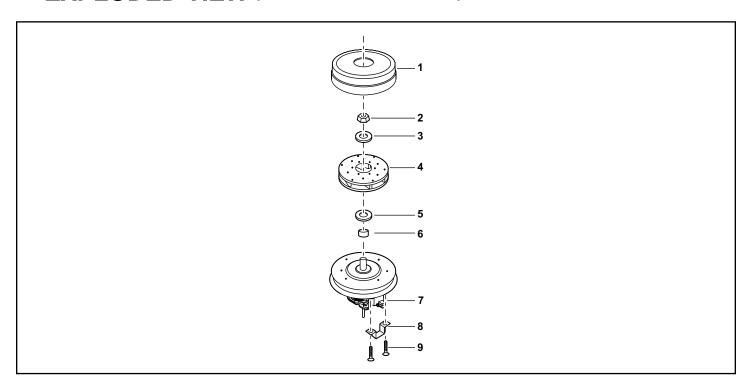
(Continued on p. 14)

PARTS LIST (MOTOR HOUSING, MOTOR, HANDLE, AND BODY)... C BLOCK

Ref. No.	Part Name & Description	Part No.	Quantity	Remarks
C-1	Dust Container, Machined	AC88KAPNZV17	1	(Includes C-38, C-44, C-45, C-46, C-47, C-48)
C-2	Switch, ON/OFF	AMC98E-VØØØU	1	(Includes C-38, C-46)
C-3	Power Cord	AC94EAPNZYØ2	1	(Includes C-38, C-44, C-45, C-46)
C-4	Wire Nut	AMC-1CTCE23	4	,
C-5	Packing Dust Container	AC66KVØ1VØ6	2	
C-6	Switch, Cover	ACØ3EVØ7VØ6	1	(Includes C-46)
C-7	Packing Switch Cover	AC73KVØZVØ6	1	
C-8	Switch Cover Screw	AXTN+16BFY	2	
C-9	Screw, Handle	AMC73B-VØØ	1	
C-10	Nut, Handle Screw	AMP21B-17Ø	1	
C-11	Supporter, Filter	AMC32K-VØØ	1	
C-12	HEPA Filter, Secondary	AC37KAAEZØØ	1	
C-13	Wheel	AMCØ1C-VØØU	2	
C-14	Roller Shaft	AC16CUSZØØ	1	
C-15	Wheel Stopper	AC74SUSZØØ	2	
C-16	Washer	AXWG6E115FY	2	
C-17	Dust Bag	AC16KBYTZØØØ	1	
C-18	Screw, Hose Holder	AXTN4+45BFY	1	
C-19	Cover, Inlet	ACØ2HYUZVØ6	1	
C-20	Screw, Inlet	AXTN4+16BFY	2	
C-21	Motor Case	AC99FAAEZVØ7	1	
C-22	Packing, Rear Cover	AMCØ2L-VØØ	1	
C-23	Packing, Motor Case	AC19FJPZVØ6	1	
C-24	Screw, Motor Case	AXTN4+2ØBFY	4	
C-25	Fan Motor	AC92FAPNZØØ	1	
C-26	Cover Cap	AC38HAPNZØU	1	
C-27	Screw, Ground	AXYN4+E1ØFFY	1	
C-28	Noise Suppressor	AC99GAMMZØØ	1	
C-29	Motor Support, Rear	AMCØ3F-VØØ	1	
C-30	Motor Support, Front	AMCØ2F-EØØ	1	
C-31	Wirecord	AC37GTEZØU	1	
C-32	Wire Nut	AMC-1CTCE23	3	
C-33	Handle	AC64BATNZØØ	1	
C-34	Motor Lead Assembly	AC99WARGZØØ	1	
C-35	Dust Cover	AC6ØKCCAZUU3	1	
C-36	Stretch Hose	AC84PJPZVØ6	1	
C-37	Hose Holder	AC23PJPZVØ7	1	
C-38	Tie Cable	AMC596-7ØØ	1	
C-39	Motor Protector	AC69KJMZVØ6	1	
C-40	Protector Spring, Silver	AC7ØKJMZØØ	1	
C-41	Protector Support	AC18MJMZVØ6	1	
C-42	Protector Case	AC68KJMZVØ6	1	
C-43	Rubber Protector	AC51E4GZUØ1	1	
C-44	Flat Washer	AXWE1ØJ223FE	1	
C-45	Cord Retainer	ACØ6WAPNZØØ	1	
C-46	Packing	AC61LAGMZØØ	1	
C-47	Hose Hook	AC53RJPZVØ7	1	
C-48	Crevice Tool	AC6ØRZFZVU6	1	
C-49	Dusting Brush	AC88RYUZVØ6	1	
C-50	Wand, Extension	AC4ØPJP1VØ6	1	
C-51	Wand Holder	AC7ØPJPZVØ7	1	
C-52	Screw, Tool Holder	AXTN4+16BFY	3	
C-53	Cap, Motor	AC93FTEZØU	1	
C-54	Handle Assembly	AC95BATNZVØ7	1	(Includes C-18, C-33, C-37)

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EXPLODED VIEW (MOTOR FAN ASSEMBLY)



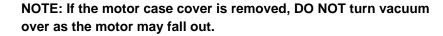
■ PARTS LIST (MOTOR FAN ASSEMBLY)

Ref. No.	Part Name & Description	Part No.	Quantity	Remarks
1	Fan Case	AMC53F-AVØØU	1	
2	Nut	AMC33F-ACØØU	1	
3	Washer	AMC62F-AVØØU	1	
4	Fan	AC98FRFZØØ	1	
5	Washer	AC62FRFZØØ	1	
6	Spacer	AC6ØFRFZØØ	1	
7	Brush Assembly	AC27FRFZØØ	1(Set)	
8	Bracket	ACØ2DV3ZØU	2	
9	Screws	AC4ØDV3ØØU	4	

■ NOZZLE HOUSING AND SHORT HOSE REPLACEMENT

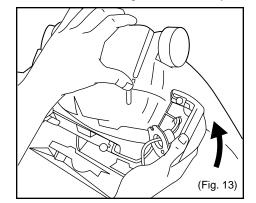
Removal

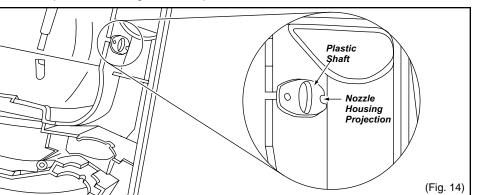
- **1.** Remove the lower plate as outlined in the LOWER PLATE REMOVAL/INSTALLATION section.
- **2.** Remove the belt and agitator assembly as outlined in the respective sections.
- **3.** Remove the nozzle hose by pulling it up out of the nozzle housing and then pulling it, while twisting, out of the wand holder.
- **4.** Insert a flat blade screwdriver between the nozzle housing and the plastic shaft, pry out the plastic shaft as illustrated, (*Fig. 10*).
- **5.** Remove the nozzle housing as illustrated, (Fig 11).
- **6.** Remove the handle release assembly as outlined in its removal section.
- **7.** Remove the light cover, (*Fig. 12*) by removing the two (2) screws from the nozzle housing and pushing out on the cover (*Fig. 12*).
- 8. Remove window, furniture guard and slider support.

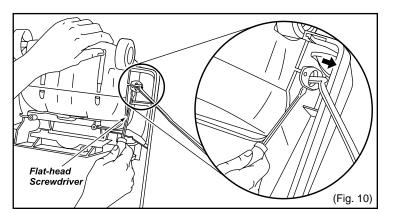


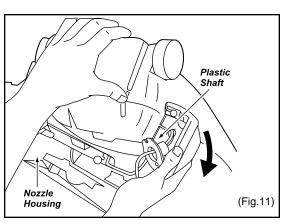
Installation

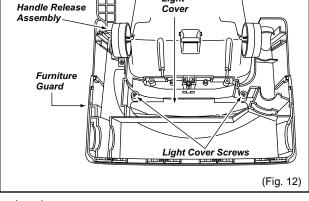
- **1.** Install the light cover, handle release assembly, furniture guard, window and slider support in the new nozzle housing. (*Fig. 12*).
- **2.** Fit the nozzle from the motor shaft side first and rotate it into place on the dust container as illustrated, (*Fig. 13*).
- **3.** Slide the plastic shaft through the nozzle housing and into the dust container. Make sure that the slot on the bottom of the plastic shaft is down and fitted onto the projection.
- **4.** Reassemble the nozzle hose by inserting it into the wand holder then place the other end into the nozzle housing with the tab fitting into the slot.
- **5.** Install the belt, agitator assembly, and the lower plate according to the respective instructions.











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■ BRUSH REPLACEMENT

When to replace brushes

1. The agitator brushes should be replaced when they are worn. Brushes should be checked by holding a card across the lower plate, (*Fig. 5*). If the bristles on the agitator assembly **do not** touch the card you **should** replace all the brushes for best cleaning results.

Removal

may be present.

NOTE: Use extreme care when prying or depressing these items with a screwdriver in order to help prevent personal injury or damage to the vacuum.

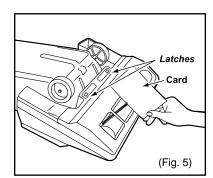
Be careful when working around the ends of the metal brush holder since sharp edges

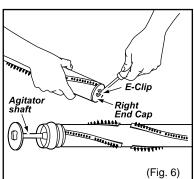
- **1.** Remove the lower plate as outlined in the LOWER PLATE REMOVAL/INSTALLATION section.
- **2.** Remove the agitator assembly as outlined in the AGITATOR ASSEMBLY REMOVAL/INSTALLATION section.
- 3. The agitator assembly may now be dissassembled and the brushes replaced.
- **4.** Using a small screwdriver, carefully remove the E-clip from the agitator shaft, (*Fig. 6*), DO NOT misplace. Remove the right end cap. Pull the agitator shaft out of the opposite end of the agitator.
- **5.** Pull or pry out the agitator pulley and agitator holder, (Fig. 7).
- **6.** The brushes can now be replaced, (*Fig. 8*). Each brush must be inserted so that the end with eleven (11) tufts is placed on the side of the brush holder closest to the belt pulley. Push each brush as shown in the illustration until it is free from the agitator body. Install the new brushes by reversing the procedure.

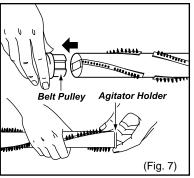
Installation

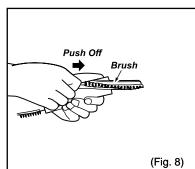
- 1. Pull the new brushes into the slots in the brush holder.
- **2.** Reinstall the agitator holder and agitator pulley, making sure they are completely and firmly inserted. See (*Fig. 9*) for an exploded view.
- **3.** Reinstall the agitator shaft, brush support, and the small E-clip.
- **4**. Reinstall the agitator assembly as outlined in the AGITATOR ASSEMBLY REMOVAL/INSTALLATION section.
- **5**. Reinstall the lower plate as outlined in the LOWER PLATE REMOVAL/INSTALLATION section.

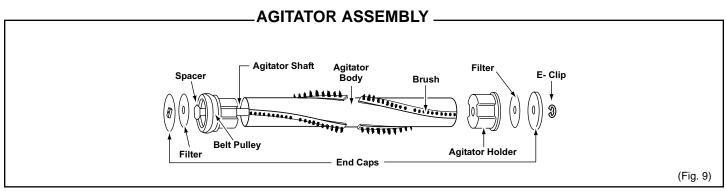
NOTE: When the brushes are properly installed they will not hit the lower plate as the agitator assembly rotates.



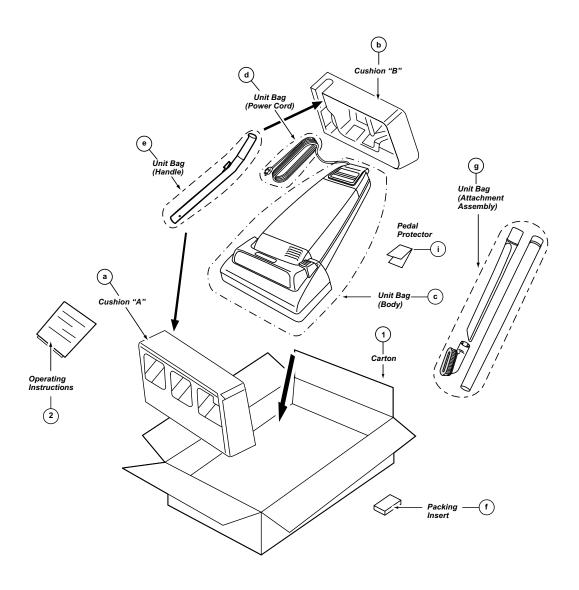








■ EXPLODED VIEW (PACKAGING)



PARTS LIST (PACKAGING)

Ref. No.	Part Name & Description	Part No.	Quantity	Remarks
1	Packaging Assembly	AC61ZCCAZØØØ	1	Includes 1 and items a-i
2	Operating Instructions	ACØ1ZCCAZØØØ	1	

■ LOWER PLATE REMOVAL/INSTALLATION

Removal

- 1. Place the handle in the upright position.
- 2. Turn the vacuum cleaner over exposing the underside. Release the lower plate by pressing inward the two (2) latches and depressing the two locking tabs that secure the lower plate, (Fig. 1).
- 3. Remove the lower plate and remove any residue that may exist in the belt area.

Two Locking Tabs (Fig. 1)

Installation

- 1. Hook the front of the lower plate into the slots on the front of the nozzle housing. Press the lower plate down until the locking tabs snap into place.
- 2. Press outward on the two (2) lower plate latches to fasten.

NOTE: For general servicing, it is necessary to eliminate pinching of any wire during reassembly. After servicing any electrical component or electrical enclosure, the unit should be reassembled and checked for dielectric breakdown or current leakage.

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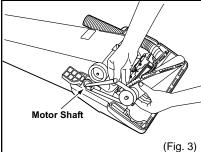
AGITATOR ASSEMBLY REMOVAL/INSTALLATION

Removal

The brushes are replaceable separately. When the brushes need replacing, the agitator assembly will have to be removed.

- 1. Remove the lower plate as outlined in the LOWER PLATE REMOVAL/ INSTALLATION section.
- 2. Carefully lift up on the agitator assembly until it clears both sides of the nozzle housing, (Fig. 2).
- 3. Remove the belt from the motor shaft by sliding it off between the end of the shaft and the nozzle housing.

(Fig. 2)

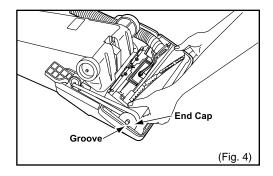


Installation

- 1. Place the belt around the motor shaft, (Fig. 3).
- 2. Start the agitator assembly back into the nozzle housing by placing the side opposite the belt partially into the slot. This will hold the agitator in place and leave both hands free to place enough tension on the belt to allow that side of the agitator to return to the nozzle housing slot.
- **3.** Place the belt around the agitator pulley on the agitator assembly.

NOTE: There is a place for the belt to fit on one end of the agitator assembly only. This is the agitator pulley.

- 4. Use both hands to pull the belt tight, (Fig. 4), and slide the agitator assembly firmly into the slots on each end of the nozzle housing.
- 5 Rotate the agitator assembly by hand to insure nothing rubs and to check for correct assembly.
- 6. Replace the lower plate as outlined in the LOWER PLATE REMOVAL/INSTALLATION section.



■ BELT REPLACEMENT

Removal

1. Follow all of the removal instructions outlined in the AGITATOR ASSEMBLY REMOVAL/INSTALLATION section.

Installation

2. Place the new belt around the motor shaft and follow the installation instructions in the AGITATOR ASSEMBLY REMOVAL/INSTALLATION section

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