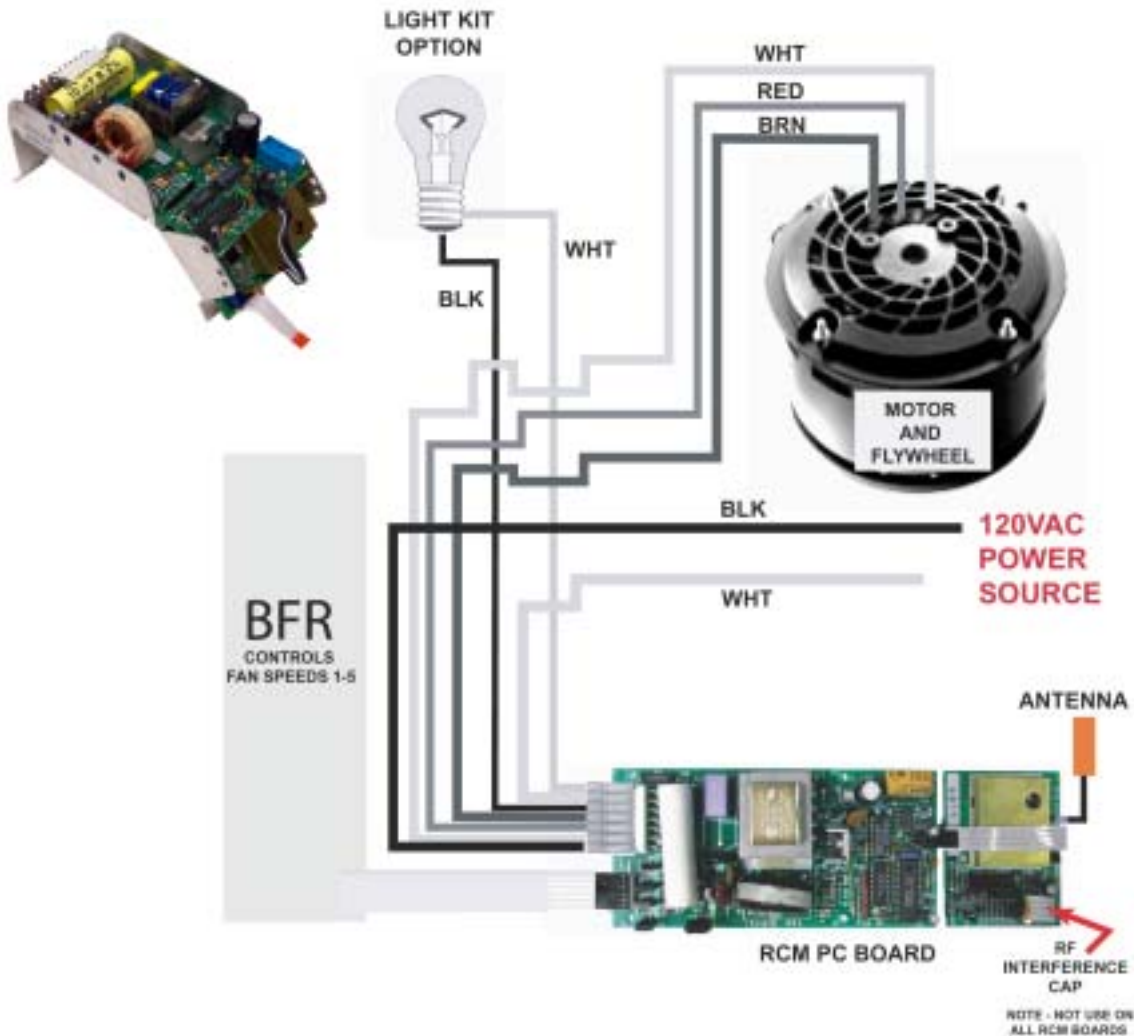




**2 RCM**  
(Recive & Compute Module)

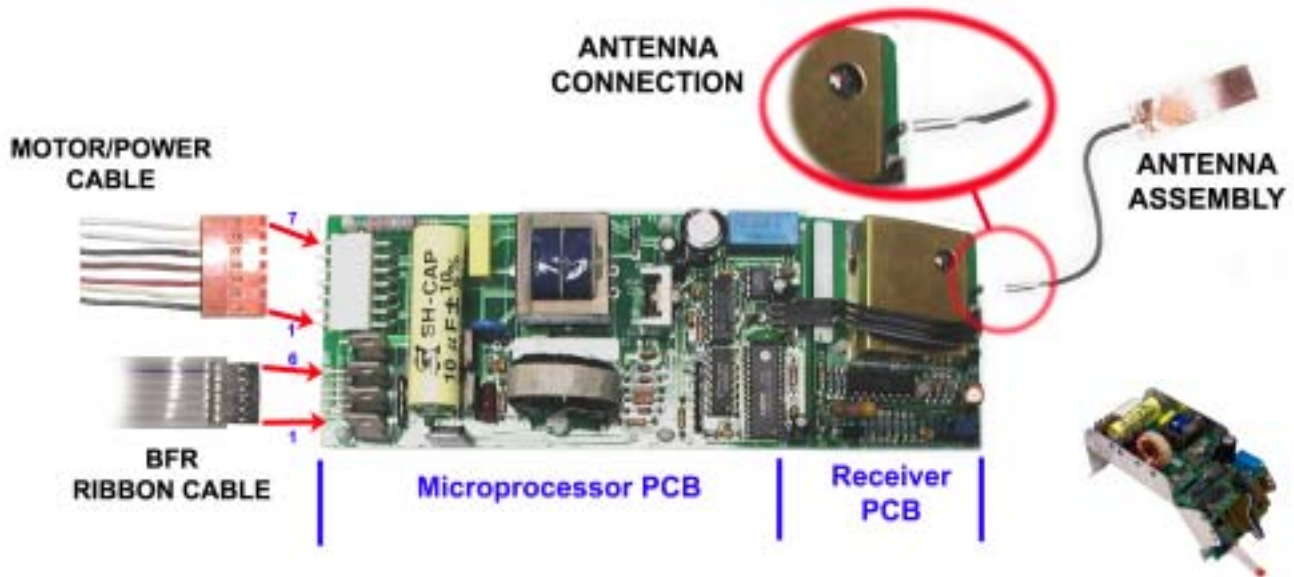


**Description**

The microprocessor sends commands to the light drive section of the RCM, which in turn controls the on/off and dimming range of the light fixture.

The microprocessor also controls the direction of the fan through a small reversing relay mounted on the RCM circuit board.

To control motor speed, the microprocessor selects one of six outputs, each of which turns on an electronic switch known as a triac. These six triacs are located on the RCM circuit board. In high speed, a triac drives the motor directly. In all other speeds, a triac drives the motor through one or all five dropping resistors contained within the BFR. This reduces power to the motor while maintaining a pure sine wave drive.



The W-21 remote control unit uses a radio signal to communicate with the RCM printed circuit board in the fan. Each time you press a W-21 control button to change a fan setting a short 'package' of instructions is sent to the RCM.

The 'package' of instructions contains:  
 The channel number identity code and a complete set of fan operating instructions.  
 You may have only changed the light intensity but the signal sent to the fan included all previously active settings, i.e., fan speed, blade direction and light intensity.

### Auto-speed

In order for the auto-speed mode to operate and make changes to the fan speed the control signal is sent automatically whenever the temperature changes enough to require a speed increase or decrease.  
 NOTE: In auto-speed mode an increase or decrease in temperature of approximately 1.5°F will cause the fan to increase or decrease speed by one step.

### Normal Operation

When the fan is not set in the auto-speed mode the

instruction 'package' is automatically sent every thirty minutes to keep the fan operating correctly. This feature is especially convenient if you have left the fan in the 'security mode' as it resets the fan to the pre-set operating setting even after a complete power failure!

### Signal Decoding

The 'package' of instructions sent to the RCM is decoded and read by the microprocessor chip on the RCM board. The first part of the 'package' sent by the control contains the channel identification code, which is then compared to the 'set' channel number of the RCM.

### Channel Recognition

Once the RCM board has recognized the transmitted 'package' as having the matching channel number, the rest of the information is allowed to pass to the microprocessor chip. If the transmitted channel number does not match the fan's own number the rest of the 'package' instructions are ignored. This allows many different fans to be run in the same room (using different channels), all operated independently from their own remote W-21.



### Channel Number Storage

The channel number assigned to an individual fan is contained in a NOVRAM chip on the RCM board and can be changed by the remote control using a special "start-up" procedure. The channel number is 'burnt' into the NOVRAM chip so that its memory is not lost when the power is turned off.

### IMPORTANT NOTE!

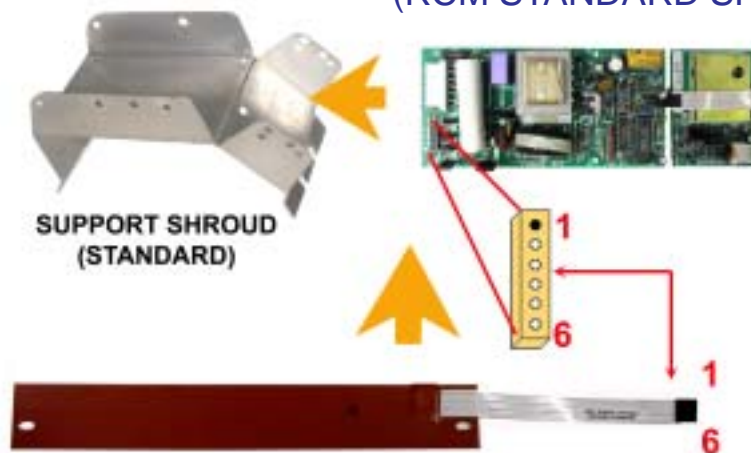
There are no field serviceable components on the printed circuit board. If a fault condition is determined the complete assembly must be changed.

Be sure to inspect the run capacitor to identify that it is a standard 10 $\mu$  used on the K-55 and XLP2000 motors. The XLP 21000 motor uses a 11 $\mu$  capacitor.

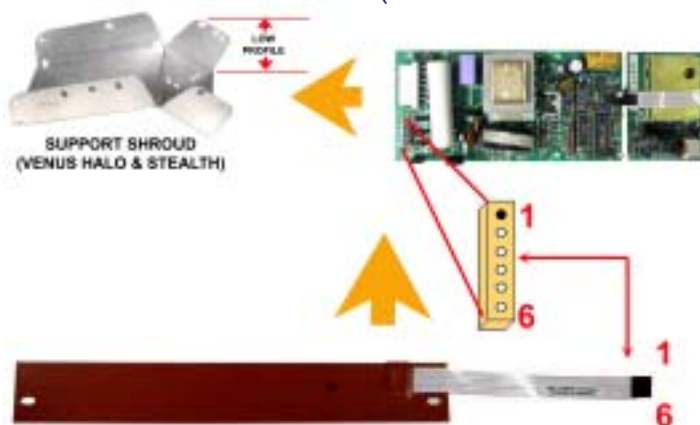
If a 9 $\mu$  capacitor is found the PCB must be replaced by the same type.

## COMFORT-TOUCH ELECTRONIC COMPONENTS

(RCM STANDARD SHROUD)



(RCM VENUS & STEALTH SHROUD)





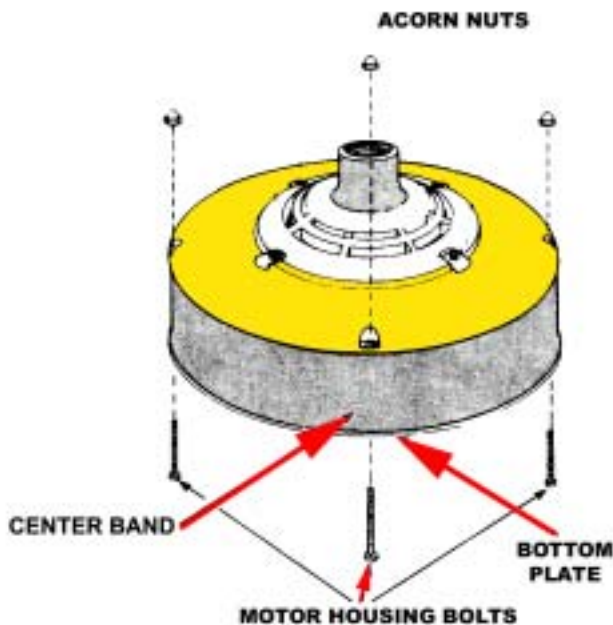
### RCM Testing & Replacement

#### Testing the RCM

To test or replace an RCM assembly, it is necessary to partially disassemble the fan. Proceed as follows:

**TURN POWER OFF!**

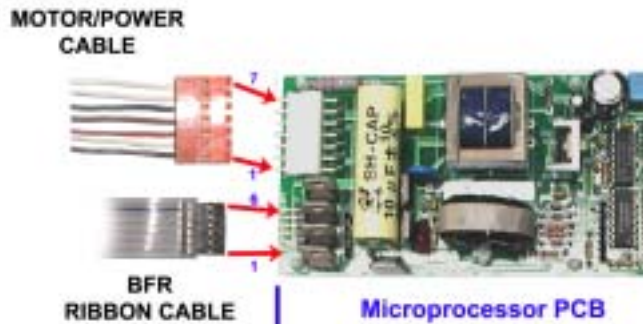
1. Remove the blades and blade holder assemblies.
2. Remove the housing thru-bolts while holding the bottom plate in place.
3. Remove the bottom plate and center band.



4. To test for a defective RCM assembly, remove the three connectors (AC/Motor, Antenna & BFR) by grasping the edges and gently pulling out with a very slight rocking motion.



5. Plug the connectors into a new RCM board. Be sure that the connector and jumper pin positions are aligned and pin #1 is inserted into socket #1.



#### Replacing the RCM

If the problem is eliminated, replace the defective RCM assembly.

1. To remove the RCM assembly, loosen the two holding screws in the motor, and gently pull the unit away from the motor as shown below.

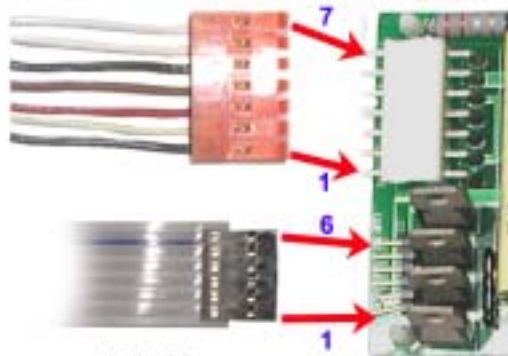




RCM PC BOARD Replacement - **CONTINUED**

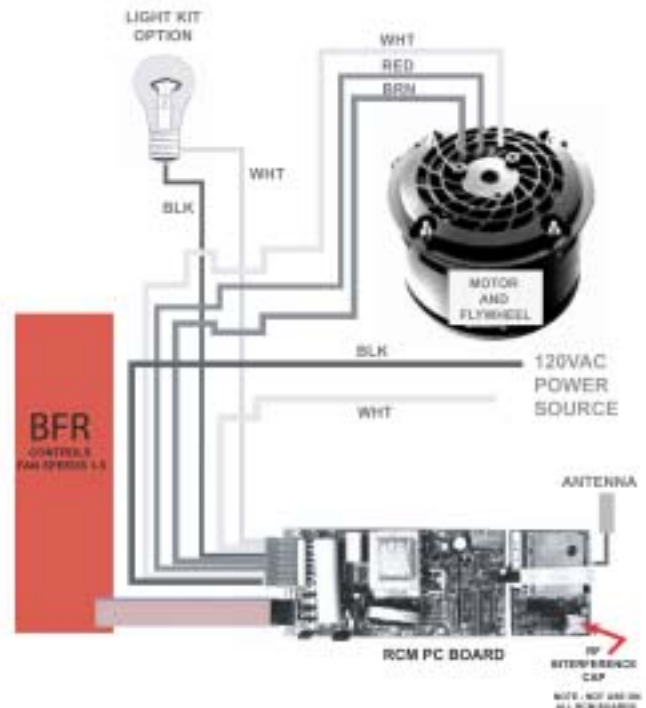
2. Plug the connectors into the new RCM board. Be sure that the connector and jumper pin positions are aligned and pin #1 is inserted into socket #1 as shown below.

**MOTOR/POWER CABLE**



**BFR RIBBON CABLE**

**3 BFR Type-3**  
 ( Bi-directional Flow Regulator )



**Description**

The BFR is a flexible, printed circuit resistance network with an adhesive backing. It contains five resistors for the motor drive, that drive speeds 1 through 5. The BFR also contains two power resistors used in the power supply circuitry for the RCM.

To test or replace a BFR it is necessary to partially disassemble the fan.

**CAUTION: SHARP BENDING OR FOLDING OF THE BFR WILL DAMAGE IT. HANDLE WITH CARE.**

**TURN POWER OFF!**

Disassemble fan as necessary.



## BFR Testing & Replacement

### Testing the BFR

If after running the W-21 in the TEST mode you suspect that the BFR is at fault, test as follows:

1. Disconnect the BFR ribbon cable from the RCM by using a gentle side- to- side motion.

NOTE THAT THE RIBBON CABLE BLUE STRIPE FACES THE RCM.

2. Carefully plug in your test BFR and recheck fan operation.
3. If the problem is eliminated, replace the BFR.

### Replacing the BFR

1. To remove the defective BFR, the RCM support shroud must first be removed.
2. IMPORTANT! First remove antenna by pulling lead off pin on RCM receiver board.
3. Then remove both connectors from the RCM microprocesor board by grasping the edges and gently pulling out with a very slight rocking motion.
4. Loosen the two support screws to remove the RCM support.
5. Now completely remove the two support screws. CAREFULLY peel the BFR from the motor housing, starting at one end.
6. Clean any remaining adhesive from the motor using naphtha or lighter fluid.
7. CAREFULLY peel the paper backing from the new BFR.
8. CAREFULLY position one end over the support screw hole, then gently but firmly wrap the BFR around the motor.

9. CAREFULLY keep the BFR in alignment so that the holes and slots in the ends of the BFR will align with the holes in the motor. Make sure there are no air bubbles or wrinkles in the BFR; it must adhere as tightly as possible to the motor.

10. Reinstall the two support screws and slide the RCM support into place. Tighten the screws and CAREFULLY reinstall the connectors, insuring the cable connector pin #1 matches with jumper pin #1.

**REMINDER! Make certain that you have re-connected the antenna to the RCM.**

After testing reassemble fan and light kit.

