FM-200 COOLING FAN & MOTOR v1.0
ASSEMBLY & INSTALLATION INSTRUCTIONS

WARNING: Voltages inside the amplifier CAN & WILL KILL YOU! You MUST know how to work around HIGH VOLTAGE safely. If you do not, get assistance from someone who does. You MUST also be able to read your specific amplifier schematic and understand the design, theory and wiring of your amplifier to properly perform this upgrade.

FM-200 MOTOR PREPARATION

( ) **Read, re-read and fully understand these instructions prior to beginning this upgrade.** Make sure to perform the steps in the order they are listed. Also, be sure to label wires as they are disconnected from various points inside the amplifier. This will help when the time comes to re-attach the wires that will be disconnected during installation of the kit.

( ) Go through the Bill of Materials (BOM) and compare that list with the parts in the kit to make sure all parts are present. If you are missing any parts, please contact Harbach Electronics, LLC.

( ) One at a time, remove black hex head screws holding the two rotor halves together and replace each with a #8 lock washer and a #8-32x1-¼" screw.

( ) Secure the aluminum mounting blocks to the shaft side of the motor frame using four #6-32x ¾" screws. Note: The larger hole in the mounting blocks should be nearest the outside edge of the motor frame.

FM-200 COOLING FAN & MOTOR INSTALLATION

( ) Unplug the amplifier power cord from the AC mains and let any high voltage stored in the electrolytic capacitors bleed down. Verify the HV has bled down as shown on the HV meter. Remove any input, output and control cables that may be connected to the back of the amplifier.

( ) **Be sure that all high voltage has been properly bled to ground before removing any covers or putting your hands inside the amplifier. You CAN BE KILLED by the high voltages inside this equipment!**

( ) Remove the chassis from the case and then remove the perforated sheet metal shield from the top of the chassis.

( ) Carefully remove the tubes and set them aside.

( ) Drill a ¼" hole in the left side of the tube compartment 5-¾" inches from the rear of the chassis and about 3/16" up from the underside of the chassis. This will be the screwdriver access hole for the fan blade setscrew.

( ) Cut the 2 black fan power wires. Cut them near the motor winding.

( ) With the amplifier right side up, bend the fan blades up until you find the setscrew in the fan hub.

( ) Put your narrow screwdriver through the hole you drilled and remove the fan blade by unscrewing the setscrew.

( ) Remove the (2) #10-32 screws that attach the fan motor to the chassis and discard them, along with any washers.

( ) Remove and discard the 2 rubber grommets that padded the motor mounting screws. Clean any debris out of the holes.

( ) Install the new rubber grommets in the motor mounting holes.

( ) Pass 1 of the #8-32x½" screws through a shoulder washer. The shoulder of the washer should face away from the screw head.

( ) Set the new fan motor in place with its mounting holes aligned with the holes in the rubber grommets.

( ) Pass the screw through the grommet into the adapter block on the fan motor.

( ) In a like manner, repeat for the other #8-32x½" screw and shoulder washer.

( ) Tighten both screws firmly, but **DO NOT** over-compress the rubber grommets.

( ) Place the fan blade over the motor shaft with the hub and setscrew toward the chassis.

( ) Lower the fan blade until there is about ¼" clearance between the fan blade and the chassis. Now tighten the setscrew. Spin the fan blade to assure that there is clearance with the chassis, tubes and other nearby components.

( ) With the chassis upside down, determine where the motor leads should be cut so they can be spliced with the black power leads. Cut and strip both motor wire leads and power leads.

( ) Turn the amplifier back right side up and replace the tubes.

( ) Replace the perforated shield and install the chassis back into the outer cabinet.

This completes the installation of the FM-200 replacement cooling fan and motor.

FM-200 BILL OF MATERIALS (BOM)				
Verification	**Part Number**	**Quantity**	**Description**	**PCB Designation**
[ ]	ALN-100	1	3/32” Allen Wrench	N/A
[ ]	CON-101	2	Blue Wire Nut	N/A
[ ]	FAN-102	1	3-1/2” Fan Blade	N/A
[ ]	GRO-101	2	3/8” Rubber Grommet	N/A
[ ]	MOT-101	1	FM-200 Fan Motor	N/A
[ ]	SPA-103	2	FM-200 Motor Mounting Block	N/A
[ ]	SCR-106	4	#6-32 x 3/4" Machine Screw	N/A
[ ]	SCR-107	2	#8-32 x 1-1/4" Machine Screw	N/A
[ ]	SCR-108	2	#8-32 x 1/2" Truss Head Screw	N/A
[ ]	WAS-106	2	#8 Fiber Shoulder Washer	N/A
[ ]	WAS-107	2	#8 Internal Tooth Lock Washer	N/A

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