

Photo Guide to AM/FM Stereo Repair

There are many books on repairing and servicing stereo systems, but there's never been one like this. Clear and thorough and written so anyone can understand it, it goes straight to the heart of specific stereo problems and tells you what causes them and how to fix them. There are chapters on receivers, amplifiers, speakers, record players, and cassette and cartridge tape decks. Each contains descriptive captions with illustrations that tell you how to repair each trouble symptom.

This pictorial guide covers the most popular stereos—AM/FM stereo units, amplifiers, phonographs, cassette players, and 8-track tape decks—those in the middle and upper-middle price brackets. There are no exotic, once-in-a-lifetime troubles covered but, rather, plenty of specific solutions for 99% of the breakdowns you're likely to encounter...with some good hints on handling the "tough dogs," too. It's a practical book, written by an expert with good common sense who knows that when a transistor's running so hot you can't touch it, you don't need an oscilloscope to tell something's wrong. Homer Davidson tells you what causes that overheating and, in clear and simple language, exactly what to do to fix it. And you don't need many tools to use this volume, either—most repairs require little more than a screwdriver and a soldering iron.

When there's a simple way to a complex job, this Photo Guide shows you how. You can align tape heads with an oscilloscope, a VTVM, or your ears; all three methods are detailed in this book. The chapter on receivers takes you from restringing a dial cord to replacing panel lights, through locating intermittent faults and transistor replacements. The chapter on amplifiers covers everything in the heart of the system: AF transistors, signal tracing techniques, intermittent channels, distortion, even installing a headphone jack.

Other chapters treat cassette and cartridge tape deck problems, including periodic cleanup and lubrication, head alignment, units that damage tapes, speed problems, the channel-changing mechanism, and electronic and mechanical noise. There's a comprehensive section on record players and turntables covering stylus and cartridge replacement, tone arm troubles, motor and speed problems, changer malfunctions, and maintenance and lubrication. The speaker section shows you how to check continuity in open and sealed systems, connect additional speaker jacks, repair damaged cones, and phase speakers for optimum response.

It's all here—stereo repair from alpha to omega, in down-to-earth language and sparkling, step-by-step illustrations. For pro or amateur, for anyone looking for a commonsense approach to stereo repair that really works, this is the book.

The author is a veteran technician and technical writer and has published numerous articles in leading hobbyist and technical magazines. He is also the author of several TAB titles on electronics servicing. His home is Ft. Dodge, Ia.

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easy-to-use, step-by-step troubleshooting guide!

By Homer L. Davidson

Photo Guide to AM/FM Stereo Repair



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Preface

There are tens of millions of stereo systems in vehicles and homes in the United States. Some are made up of discrete amplifiers, tape decks, radios, receivers, record players, and speakers connected in a variety of combinations, and some have all components housed in one case or console. Their prices range from a few dozen dollars to many thousand for systems, and their quality ranges from horrendous to near-perfect.

However, they all suffer from one common problem: they break down. Some may seem to last forever; others may seem to last only a few days. But sooner or later, for good cause or for no apparent cause, they quit. Some warble, some flutter, some work only when they feel like it, and some just stop.

This book will show you in text and with 261 illustrations how to get sick stereos back on the job. It deals primarily with the most popular stereos, those in the middle and lower-middle price range. It's written in language that both layman and technician can understand, requires few tools, and describes and illustrates solutions for 99% of stereo system troubles, with special attention to the most common problems.

Many manufacturers have contributed circuits and servicing data for use in this volume, and I thank them all. Without them the book would have been much more difficult to prepare. I would also like to thank Bess Benson, who typed the manuscript. And with love and determination to keep driving onward, I dedicate this book to my six grand-daughters—Angelia, Claudette, Rachel, Tara, Emily, and Stephanie—who make life most interesting.

Homer L. Davidson

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Chapter 1

AM-FM Multiplex Receivers

REMOVING THE BACK COVER

For most repairs, the radio chassis must be removed from the cabinet. First, remove the back cover by removing all screws (Fig. 1-1.) In some models, a slot at the top of the cabinet holds the top half of the cover: removing the bottom screws will release it. In other models, the metal chassis serves as a cover and is screwed to the cabinet.

Back cover markings identify most sets' plugs and terminals. You may wish to mark the chassis similarly for correct connections. Typical markings are *ground*, *FM antenna*, *main speakers*, *remote* or *satellite speakers*, *auxiliary input*, *phono input*, *tape recorder input* and/or *output*. In some models these jacks and connections are mounted on a Bakelite strip bolted to the back cover. The strip must be unbolted before the back is removed.

REMOVING THE CHASSIS

Before the chassis can be pulled from the cabinet, all bottom chassis screws must be removed (Fig. 1-2). In this particular model, bolts fasten the stereo tape player to the cabinet, giving a total of seven bolts to be removed to hold the cabinet.

In other models the rubber feet don't attach to the chassis, but just screw into the wooden cabinet. You can tell the

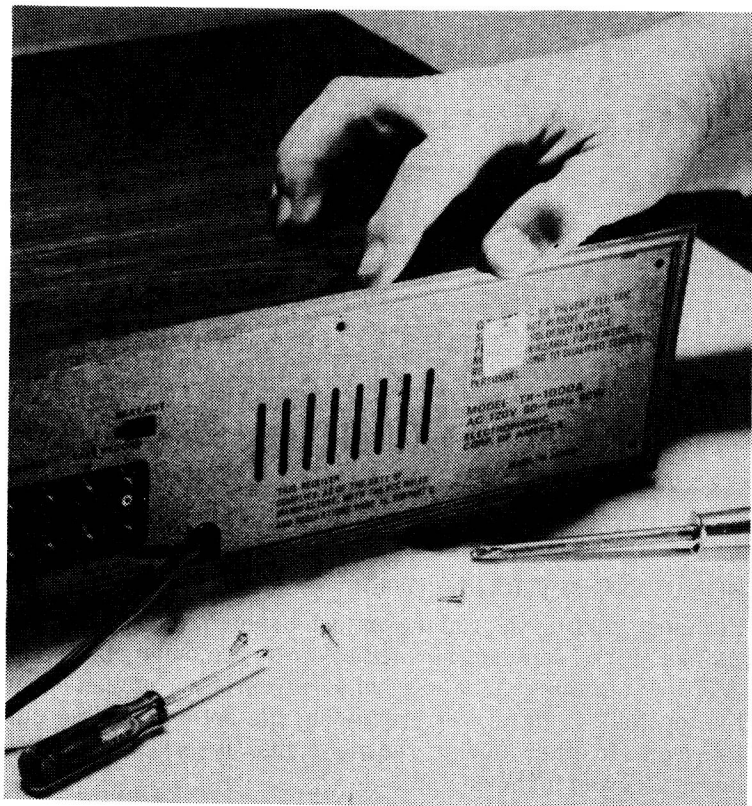


Fig. 1-1. Removing the back cover of an Electro-Phonic stereo unit.

difference easily—the screws are smaller and fasten only to the wood. Feet fastened to the chassis always use a longer bolt or machine screw and washer. When reassembling, replace the bolts exactly as removed so the controls and shafts will line up properly.

You might find the chassis won't come out after removing all the bolts. A little patient investigation and experimentation is all that's needed at this point. Does it come out the front or back? If there's a phonograph player on top, remove it and take a closer peek at the front piece. Some chassis come right out the front of the cabinet with the front piece intact, while in others you may have to remove the knobs and earphone nut and slide it out the rear. Also, a ground strap may have to be removed before the cabinet will slide out.

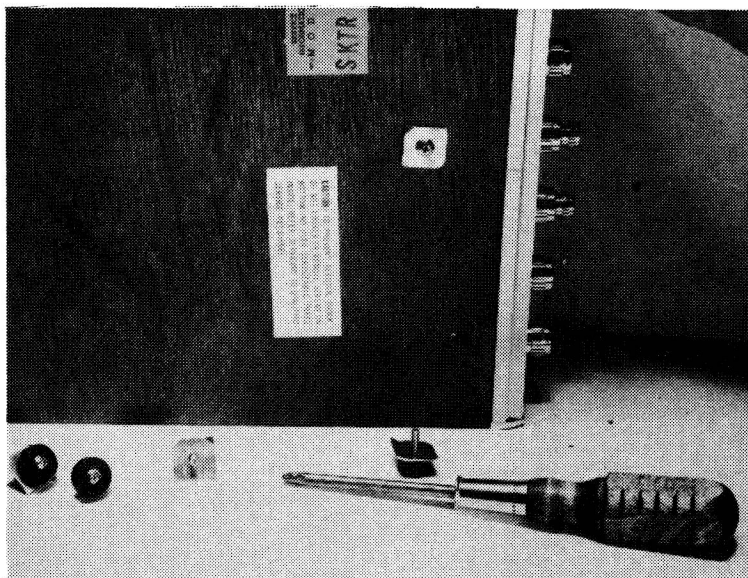


Fig. 1-2. Removing the chassis bolts in a K-Mart SKTR 118.

REMOVING THE FRONT PIECE

To replace light bulbs or repair the dial cord you may have to remove the front piece (Fig. 1-3). First, remove all the knobs and the screws holding the front piece. The screws may

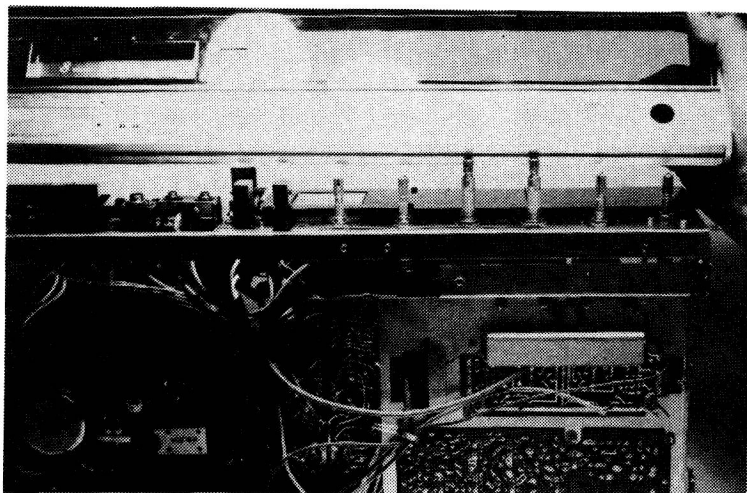


Fig. 1-3. To replace light bulbs or repair the dial cord you may have to remove the front piece.

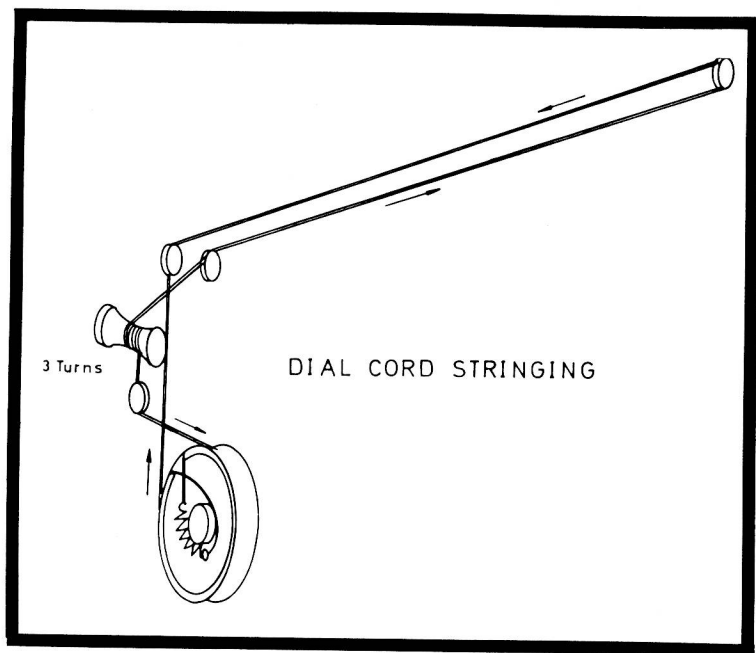


Fig. 1-4. A simple dial cord stringing arrangement.

have a coat of glue over them—scrape it off for easy removal. Watch for loose push buttons such as channel-changer knobs. Sometimes they just rest in their slots and fall out when the cover is removed. If the dial cord is fastened directly to the front piece, be careful, or you may end up restringing it.

When replacing the front piece, make sure the 8-track cartridge lid is positioned correctly and not binding. Since it's spring-loaded, it's sometimes very uncooperative. Replace all the knobs before tightening the front piece screws.

A SIMPLE DIAL CORD

Figure 1-4 shows part of a simple dial cord arrangement. Most dial cord assemblies include several plastic pulleys, a tuning drum, a dial pointer, cord, and shaft. The pulleys form a path for the pointer and keep the cord on track. The dial shaft is attached to the dial knob and moves the dial cord, pointer, and tuning drum, which is connected directly to the tuning capacitors. A small spring keeps the dial cord tight.

The arrows indicate the direction of dial cord and pointer travel. If the pointer moves in the wrong direction you can