

CAUTION-ELECTRICALLY OPERATED PRODUCT:

NOT RECOMMENDED FOR CHILDREN UNDER 8 YEARS OF AGE. AS WITH ALL ELECTRIC PRODUCTS CERTAIN PRECAUTIONS SHOULD BE OBSERVED DURING HANDLING AND USE TO PREVENT ELECTRICAL SHOCK.

PARENTS PLEASE NOTE!

AS YOU WOULD USUALLY DO WITH ANY ELECTRICAL HOUSEHOLD PRODUCT DURING ITS USE; PERIODICALLY EXAMINE TRANSFORMER AND WIRING. TO DETERMINE IF ANY DAMAGE HAS OCCURRED OR ANY HAZARD EXISTS. ALL SUCH CONDITIONS SHOULD BE CORRECTED IMMEDIATELY.

#1442-100 INPUT: 120VAC 60 HZ ONLY
(AFX-Wall Pak) OUTPUT: 4.8 VA DC
14.0 V.D.C. MAX.

#1442-200 INPUT: 120VAC 60 HZ ONLY
(AFX-Wall Pak) OUTPUT: 4.0 VA DC
14.0 V.D.C. MAX.

READ SEPARATE INSTRUCTION SHEET FIRST BEFORE READING THIS MANUAL

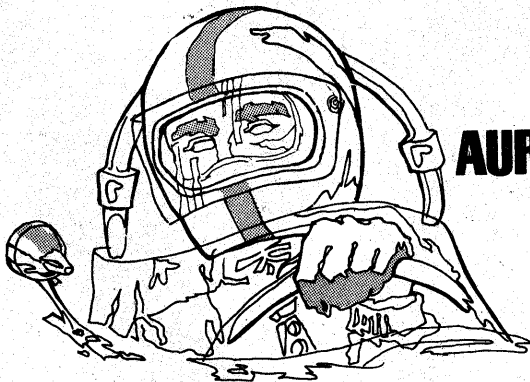
Congratulations on purchasing your new Aurora AFX Model Motoring Racing Set! Your set has been specially engineered for ease of assembly and years of trouble-free enjoyment with reasonable care. With the component parts of your set such as the Russkit Speed Controllers, Quikee assembly Terminal Track, Guard Rails, etc., you will enjoy a new experience in H.O. Scale Model Motoring.

Aurora is very concerned with your safety. Our sets operate efficiently on a very safe, low voltage which will not cause electrical shock.

First read through all the assembly steps on your separate instruction sheet to assemble your AFX set. Then, should you require more "Technical" assembly information, read through the assembly steps on page 2 through 4 in this manual. The following pages will give you additional information on Maintenance and Trouble Shooting, necessary for the proper operation of your Aurora AFX set.

Periodically wipe down your tracks with a clean cloth and have fun racing!

NOTE: DO NOT ASSEMBLE OR OPERATE YOUR SET ON A CARPET SURFACE.



AURORA®
AFX®
MODEL MOTORING®

06777

TECHNICAL MANUAL

THE ONLY TOOLS REQUIRED FOR ASSEMBLY ARE YOUR QUIKEE-
LOK KEY (ENCLOSED) AND IN SOME SETS, A PAIR OF SCISSORS.



QUIKEE-
LOK KEY

1 SEPARATE AND STACK ALL TRACKS IN YOUR SET, ACCORDING TO SIZE

NOTE: SIZE SHOWN ON UNDERSIDE OF TRACK

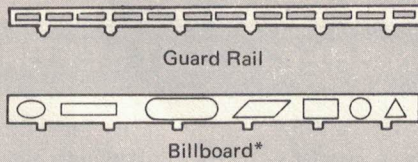
2 CLEAN RAILS ON ALL TRACK



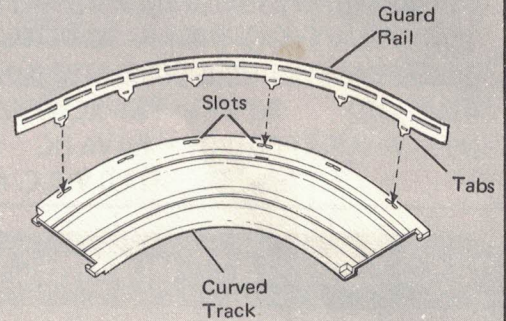
Using your **RAIL CLEANER** (supplied) clean all Track Rails. Wipe off eraser particles with a clean, dry cloth.

3 ASSEMBLE GUARD RAILS and BILLBOARDS*

- A. Your AFX Guard Rail and Billboards are designed to be inserted on all curved tracks as shown.
- B. Cut off ends of Guard Rail and Billboards to match various sized curved Track.

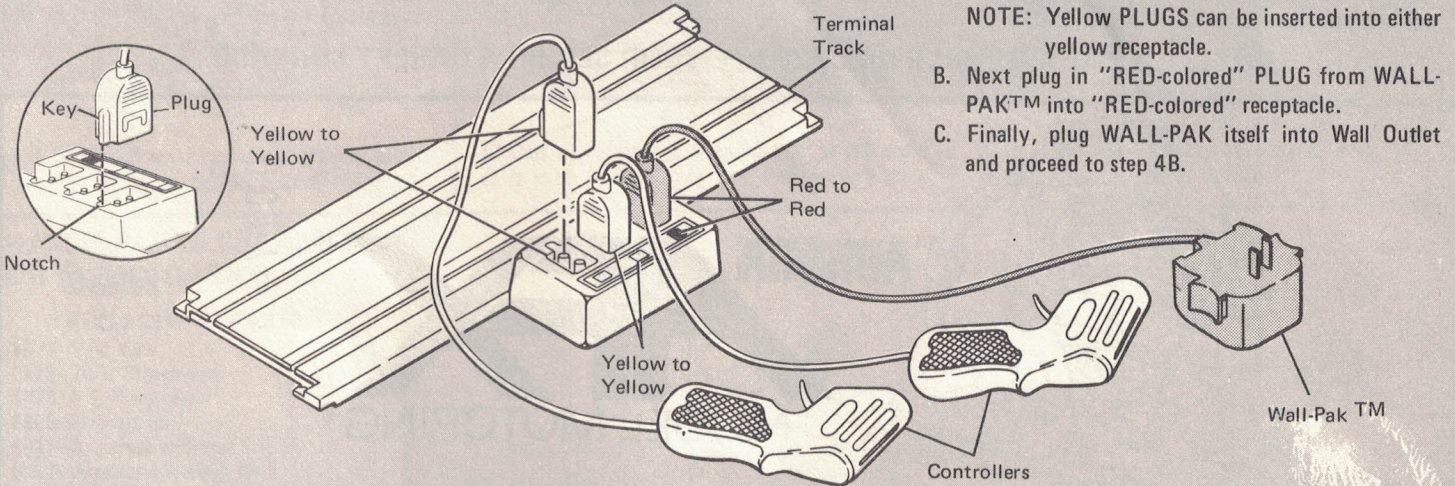


*OPTIONAL in some sets. Check parts list.



Refer to track layout illustration on separate instruction sheet for correct placement of Billboards and/or Guard Rail.

4A PLUG CONTROLLERS AND WALL-PAK™ INTO TERMINAL TRACK (2 LANE SETS)

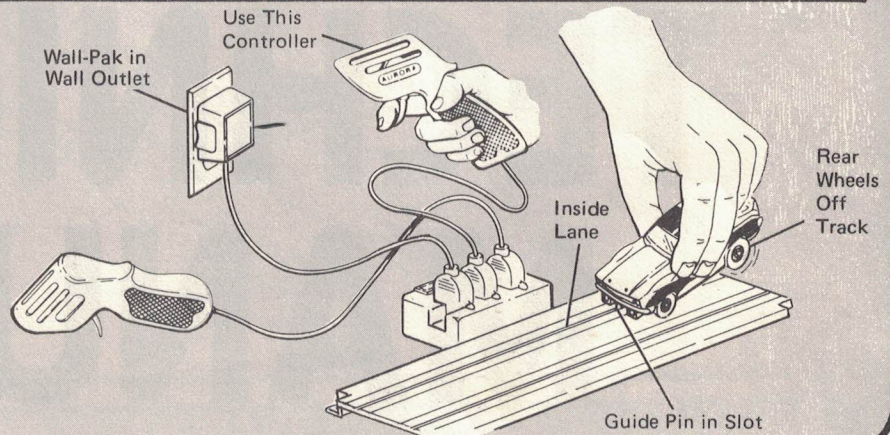


- A. First plug in "yellow-colored" PLUGS on Controllers into "yellow-colored" Receptacles on TERMINAL TRACK as shown.
- NOTE: Yellow PLUGS can be inserted into either yellow receptacle.
- B. Next plug in "RED-colored" PLUG from WALL-PAK™ into "RED-colored" receptacle.
- C. Finally, plug WALL-PAK itself into Wall Outlet and proceed to step 4B.

4B NOW TEST FOR POWER

- A. Place Guide-Pin of a car in SLOT on inside lane of Terminal Track.
- B. Raise rear wheels off track slightly, and press trigger on same Controller shown in picture.
- C. Rear wheels will start "spinning" indicating power in track.
- D. Repeat same procedure on other lane using other Controller.

NOTE: EVERY CONTROLLER HAS A PROTECTIVE COATING ON THE INTERNAL RESISTORS TO PREVENT RUST. THIS MAY BURN OFF AND SMOKE SLIGHTLY WHEN CONTROLLERS ARE NEW.



4C TO ATTACH SPEED CONTROLLERS ON 4-LANE SETS TURN TO PAGE 4.

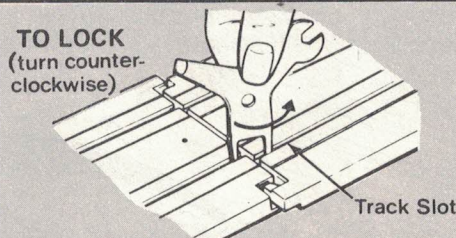
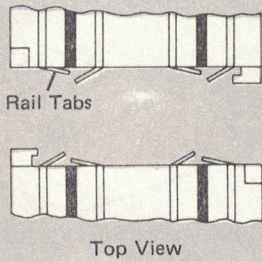
5

NOW COMPLETELY ASSEMBLE YOUR TRACK LAYOUT AS SHOWN ON SEPARATE INSTRUCTION SHEET STARTING WITH TERMINAL TRACK.

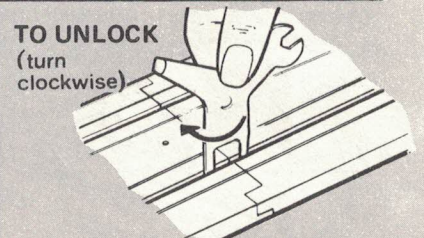
NOTE: As you assemble your layout continue to test for power continuity from one track to another.

RAIL TABS MUST TOUCH

If the wheels of the car do not spin on a particular track section, separate tracks with Quickee-Lok Key and rebend RAIL TABS to angle shown before re-assembling. After re-assembling check power again.



TO LOCK (turn counter-clockwise)
A. To assemble tracks, join two sections so they just touch. Then using QUIKKEE-LOK KEY (supplied) insert the pronged end in the TRACK SLOTS and twist in the direction of arrow, until tracks snap together.

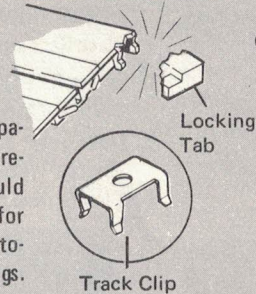


TO UNLOCK (turn clockwise)
B. To disassemble tracks, twist KEY in opposite direction.

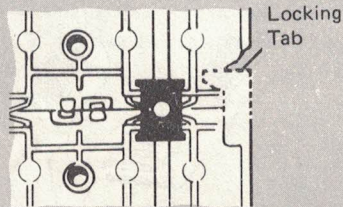
TRACK REPAIR CLIPS

USED IN CASE LOCKING TABS ON TRACKS BREAK OFF

Several Track Clips have been included in a separate poly-bag with your set. They are not required to assemble your layout. However, should the Locking Tabs on a track section break off for any reason, the track sections can be held together using the clips as shown in the drawings.

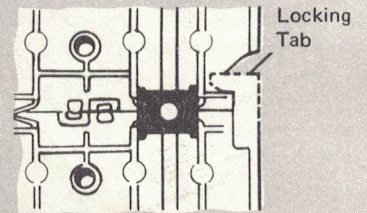


ATTACH THIS WAY ON ALL BANKED CURVES



View of Underside of Tracks

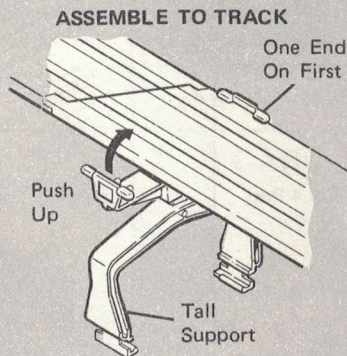
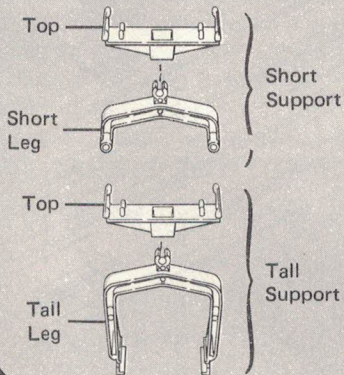
ATTACH THIS WAY ON ALL REGULAR TRACK



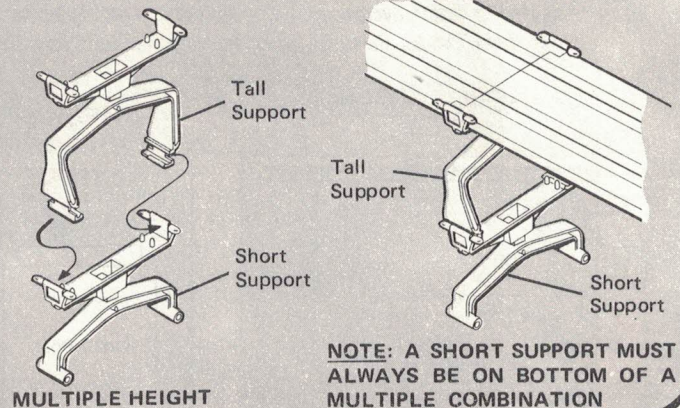
6A

ASSEMBLE AND ATTACH TRACK SUPPORTS

A. There are two types of supports in AURORA AFX Sets, a Short Support and a Tall Support. You must assemble a TOP piece to either a Short LEG or a Tall LEG to complete a Support assembly as shown below.



B. By combining the various Support Assemblies, you can elevate your track sections to the required height. See your separate track layout diagram for correct amount of support combinations needed.



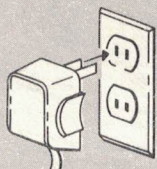
NOTE: A SHORT SUPPORT MUST ALWAYS BE ON BOTTOM OF A MULTIPLE COMBINATION

6B TO ATTACH 6" BRIDGE BEAMS AND POSTS ON 4 LANE SETS, TURN TO PAGE 4

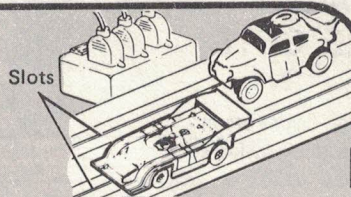
7

RACING INSTRUCTIONS

A. Make sure Wall-Pak is plugged in wall outlet.



B. Place cars in lanes on Terminal Track with Guide Pins in Slots. Slowly drive them around your Layout by squeezing triggers on Speed Controllers.



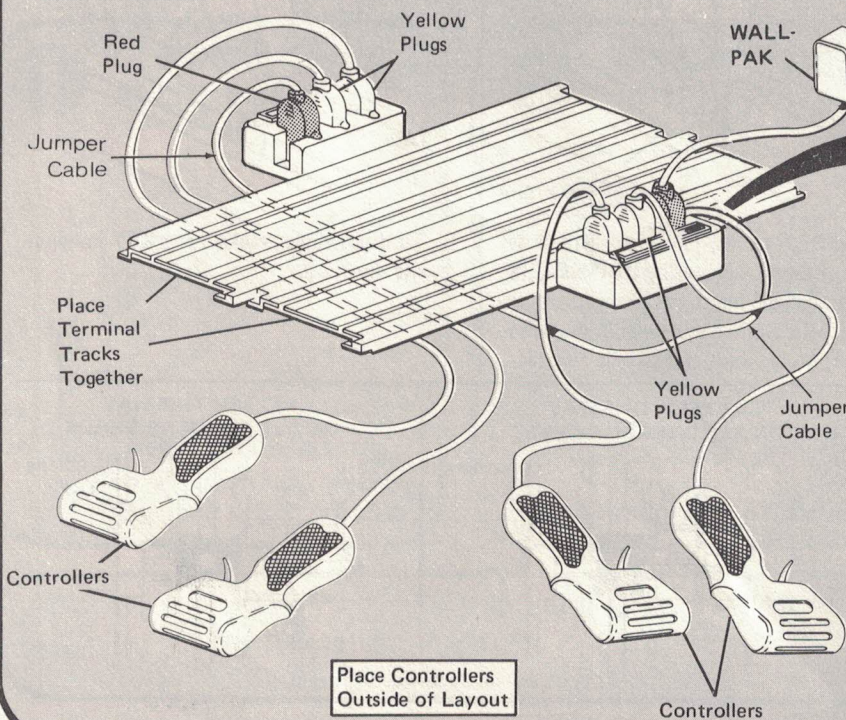
IMPORTANT NOTE: Your cars may hesitate at first. This is due to a protective coating on the rails which will normally wear off after your cars travel around the layout a few laps.

IF YOUR SET DOESN'T OPERATE PROPERLY, REFER TO YOUR TROUBLE SHOOTING CHART ON PAGE 6.

4 CONTROLLERS

4C

PLUG IN JUMPER CABLE, 4 CONTROLLERS AND WALL-PAK™ INTO TERMINAL TRACKS (4 LANE SETS)



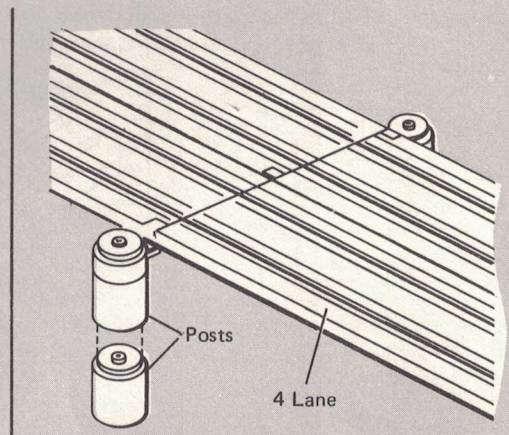
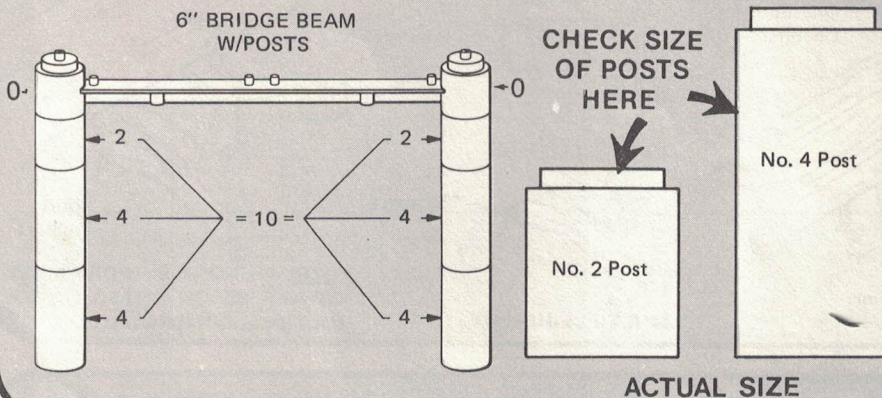
- A. First place Terminal Tracks together as shown.
- B. Then insert RED plug on JUMPER CABLE into matching "RED colored" receptacle in TERMINAL TRACK.
- C. Place RED Terminal Lug on JUMPER CABLE over Front post of "RED colored" receptacle in Terminal Track. Place Second Terminal Lug over back post.
- D. Insert RED plug on WALL-PAK "firmly" over Terminal Lugs.
- E. Next insert YELLOW plugs on Controllers into "YELLOW colored" receptacles in Terminal Tracks.
- F. Finally insert WALL-PAK into Wall Outlet for POWER TEST.

TO TEST FOR POWER FOLLOW THE SAME PROCEDURE EXPLAINED IN STEP 4B PAGE 2.

6B

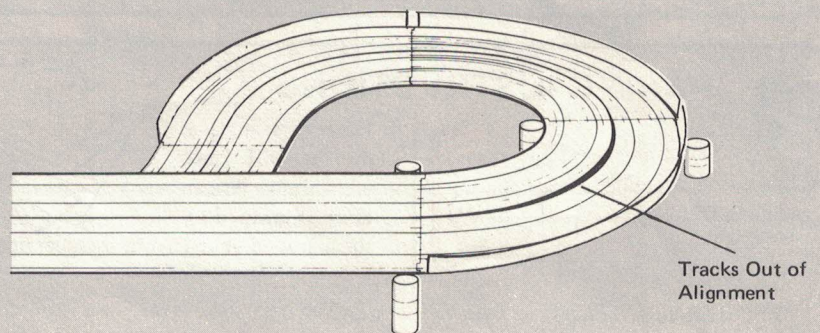
BRIDGE BEAMS AND POSTS (4 LANE SETS)

Aurora AFX Modular Bridge Beams and Posts can be snapped together in various heights to create overpasses (i.e.: A numeral 10 indicated for a post on your track layout sheet can be made by snapping together post sizes 2+4+4 for a total of 10.)



HOW TO CHECK TRACK ALIGNMENT ON 4-LANE SETS

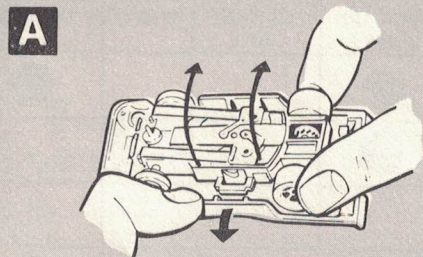
- A. After your tracks are assembled and Bridge Beams are in position under tracks, you may find some track surfaces out of alignment, especially in elevated areas.
- B. This situation can be remedied by properly seating the tracks on the Bridge Beams until track surfaces are level.
- C. Slight re-positioning of Bridge Beams may also help to correct this problem.



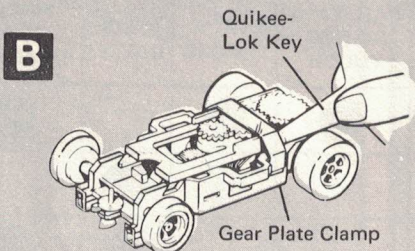
MAINTENANCE INSTRUCTIONS FOR AFX CARS WITH MAGNA-TRACTION ONLY.

NOTE: See maintenance instructions on page 8 if your set includes G-PLUS cars.

During the normal course of operating your set, various parts will eventually wear out and need replacing. Instructions below will help guide you in the disassembly of your AFX "Magna-Traction" cars, to make the necessary replacements.

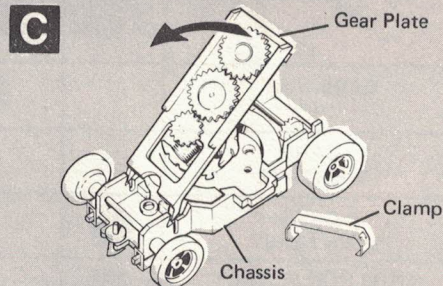


Easy disassembly is a feature of your AFX car. The bodies snap off easily by holding the car as shown and pulling the edge of the body away from chassis. To replace the chassis simply pull the body side and snap the chassis into place.

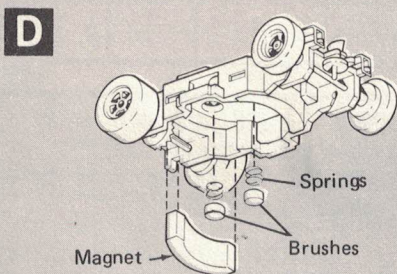


Disassembling the chassis is easy with the AFX. First of all, refer to the exploded view of the chassis to see where all the parts go.

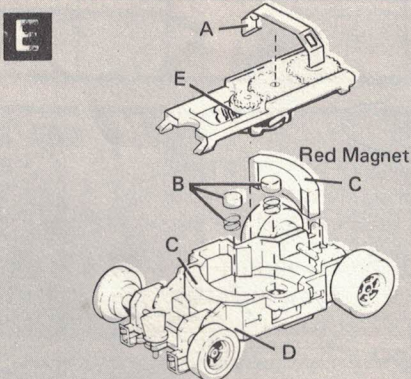
The gear plate is removed by placing a screwdriver or QUIKEE-LOK KEY under the edge of the clamp and carefully prying it off.



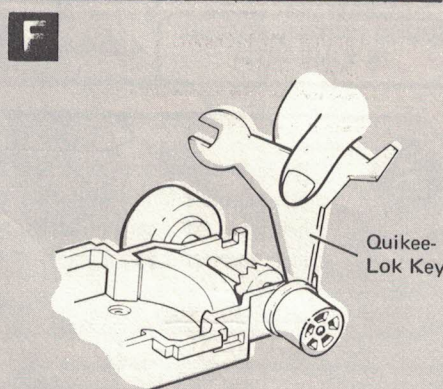
With the GEAR PLATE CLAMP removed simply lift the GEAR PLATE and armature from the chassis. Note how the gear plate snaps into place at the front of the chassis.



To remove the magnets, commutator brushes and springs simply turn the chassis upside down and they will fall out. Be sure to replace the magnets in their original position, with Red Magnet in rear position or cars will run backwards.



Here is the chassis with: A-Clamp, B-Commutator Brushes and Springs, C-Magnets, D-Chassis, E-Gear Plate and Armature.

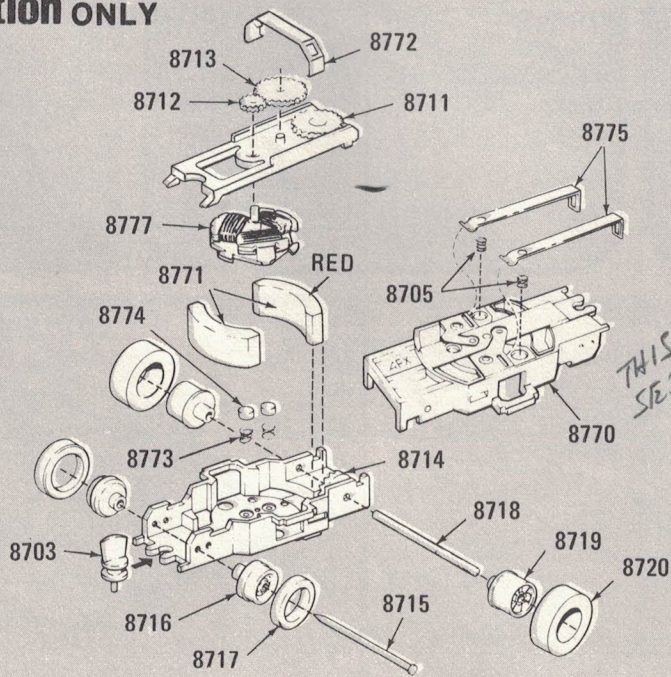


Should WHEELS need replacing, remove them by prying off with QUIKEE-LOK KEY, as shown.

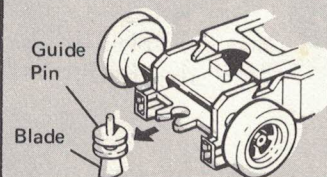
CHASSIS PARTS BREAKDOWN FOR CARS WITH magna-traction ONLY

REPLACEMENT PARTS

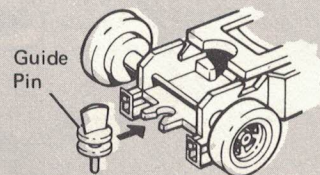
- 8703—Guide Pin
- 8705—Pick Up Shoe Springs (Pr.)
- 8711—Gear Plate and Cluster Gear
- 8712—14 Tooth Pinion Gear
- 8713—24 Tooth Idler Gear
- 8714—15 Tooth Crown Gear
- 8715—Front Axle
- 8716—Front Wheels (Pr.)
- 8717—Front Tires (Pr.)
- 8718—Rear Axle
- 8719—Rear Wheels (Pr.)
- 8720—Rear Tires (Pr.)
- 8770—Chassis
- 8771—Magnets
- 8772—Gear Plate Clamp
- 8773—Motor Brush Springs (Pr.)
- 8774—Motor Brushes (Pr.)
- 8775—Pick Up Shoes (Pr.)
- 8777—Armature



AFX REVERSIBLE GUIDE PIN



AFX cars come with Reversible Guide Pins for every racing condition. The Blade side provides an extra handling edge on AFX Speed-Lok Tracks. (For old style Aurora HO track simply reverse it and use the pin side.)



TROUBLE SHOOTING CHART

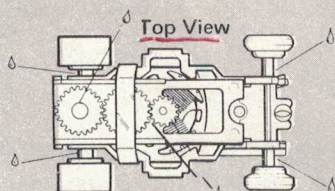
Refer to the Trouble Shooting Chart below for your particular problem. Then look for the diagram or diagrams shown below for the best solution.

PROBLEM	A	B	C	D	E	F	G	H	I	J
	LUBRI-CATION	INCORRECT WIRING	RAIL TABS DO NOT TOUCH	DIRTY TRACKS	CARS DIRTY	WHEEL BODY INTERFER.	DIRTY OR WORN PICK-UP SHOES	MORE THAN ONE CAR IN LANE	DIRTY TIRES	EXCESSIVE OILING
CARS WON'T RUN		●	●	●		●	●			●
CARS HESITATE				●	●		●			
CARS RUN NOISY	●				●	●				
CARS RUN SLOWLY OR OVERHEAT	●				●	●	●	●		●
CARS SPIN OUT				●					●	
CONTROLLERS HOT or SMOKE								●		
SOUND UNITS (OPTIONAL IN SOME SETS)		● (SEE ACCESS INSTRUCTIONS)								

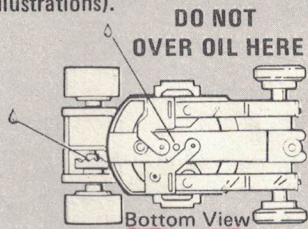
LUBRICATION

A

Proper lubrication is important for maintaining a high performance car. Aurora's Model Motoring Special Racing Oil is formulated to help your AFX car run better, faster and smoother. Apply oil sparingly to specific oiling points (see illustrations).



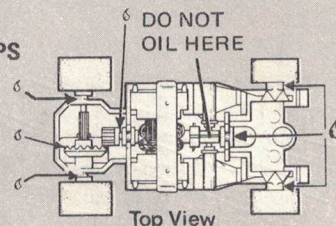
MAGNA-TRACTION CAR



MAGNA-TRACTION CAR

NOTE: See MAINTENANCE SECTION on page 5 for dis-assembly instructions of Magnatraction cars. See MAINTENANCE SECTION on page 8 for dis-assembly instructions of G-PLUS cars.

G-PLUS OILING TIPS ONLY

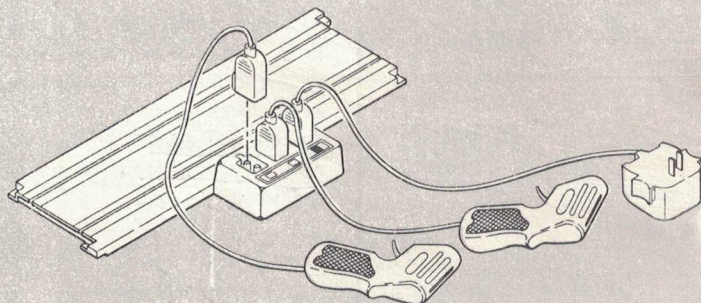


G-Plus Car

B

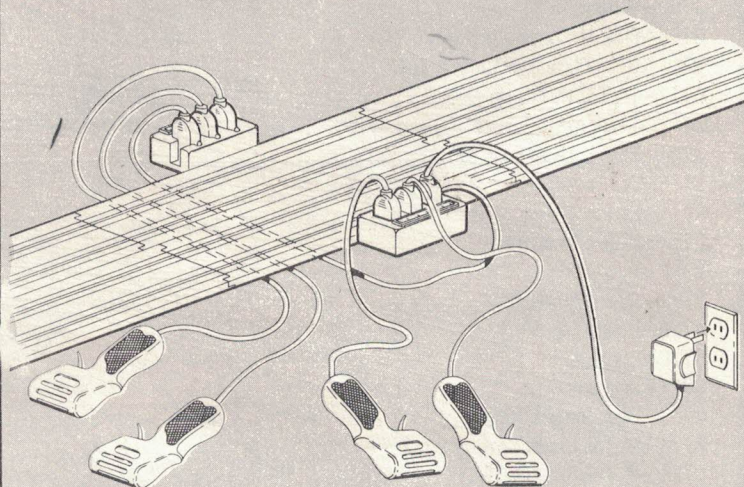
RECHECK 2 LANE SET WIRING

Make sure Yellow Plugs are inserted in Yellow Receptacles and Red Plug is in Red Receptacle in Terminal Track.



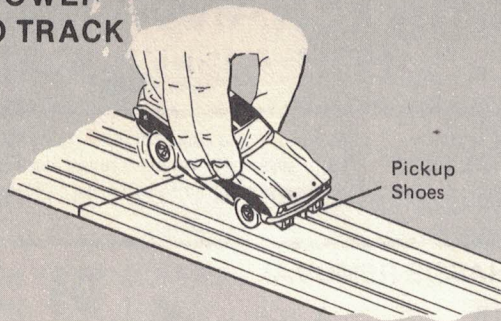
RECHECK 4 LANE SET WIRING

Make sure Yellow Plugs are inserted in Yellow Receptacles and Red Plugs are in Red Receptacles in Terminal Tracks.



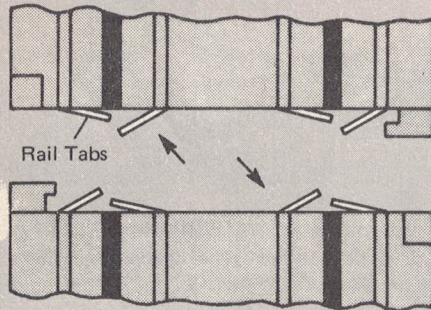
C CHECK TRACK POWER FROM TRACK TO TRACK

Check for track power by squeezing trigger on your controllers and placing the PICK-UP-SHOES, of a car, on the rails of both lanes on all track sections. Rear wheels should spin, indicating track power.



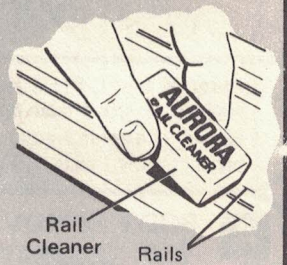
RAIL TABS MUST TOUCH

If the wheels of the car do not spin on a particular track section, separate tracks with Quikee-Lok Key and rebend RAIL TABS to angle shown and after reassembling check power again.

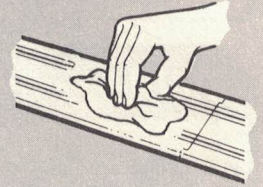


D CLEAN TRACK

A. Take your RAIL CLEANER (included) and clean rails on all tracks.

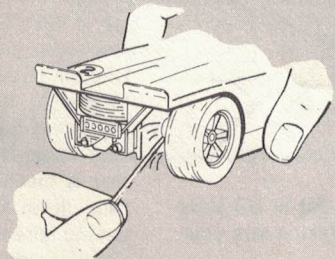


B. Wipe down your tracks with clean cloth to remove lint, dust and eraser particles.



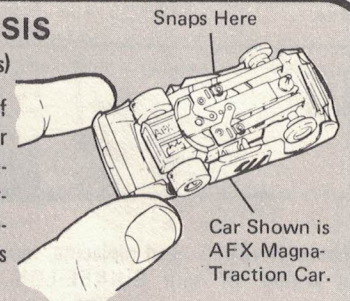
E REMOVE LINT FROM AXLES

When racing your cars over long periods, lint and dust may accumulate around the axles. Remove with a toothpick or small tweezers, as shown.



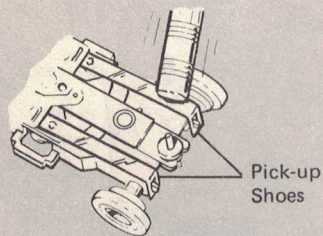
F REALIGN CHASSIS (Magna-Traction, or G-Plus)

After a crash, the snap-on body of AFX cars (Magna-Traction, or G-plus) may shift and cause tire-body interference. This can be corrected by holding the car upside-down and centering the chassis until it snaps back into position.

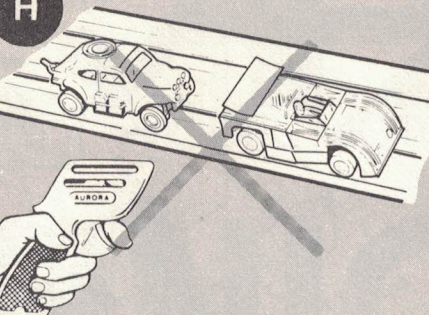


G CLEAN PICK-UP SHOE

The PICK-UP SHOES on your cars should be cleaned regularly by rubbing them with a pencil eraser as shown. When PICK-UP SHOES become worn replace them with new ones available at your dealer.



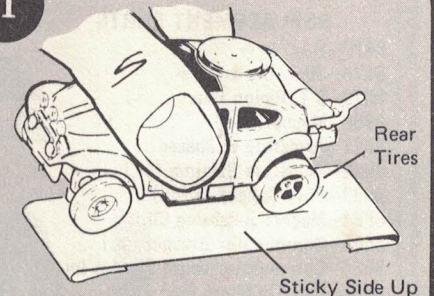
H



Do Not race more than one car at a time in one lane. It will cause your Controller to get hot and possibly burn out.

I CLEAN REAR TIRES

One very effective way to clean tires is to place a piece of tape on a table as shown and roll rear tires on it a few times.



J CLEAN OFF EXCESSIVE OIL (PERTAINS TO AFX CARS WITH MAGNA-TRACTION ONLY)

Great care should be taken not to over oil your cars, especially at the bottom armature bearing hole.

If this happens use a cotton-tipped swab, saturated with rubbing alcohol to clean the chassis completely. See Figure 1.

Using a pencil eraser carefully clean the Commutator. New Motor Brushes should now be installed, car reassembled and carefully oiled. See Figure 2.

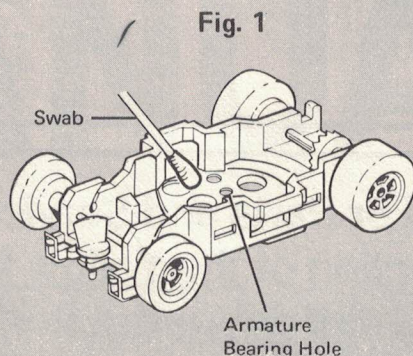


Fig. 1

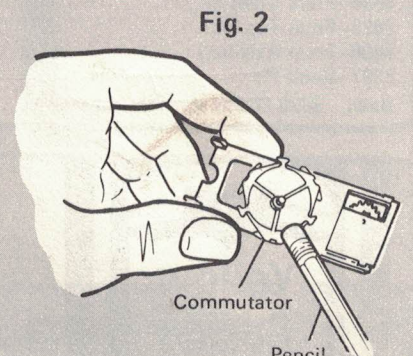
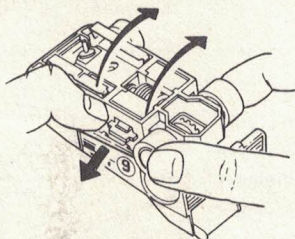


Fig. 2

AURORA**G-PLUS™****MAINTENANCE INSTRUCTIONS
FOR G-PLUS™ CARS ONLY**

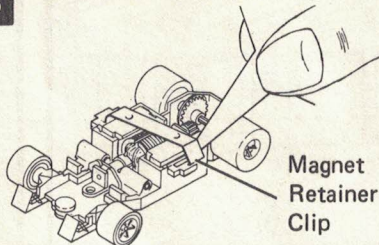
Aurora's new G-PLUS race car brings a new dimension of speed and realism to HO Model Motoring. Magnetic downforce, precision engineering and careful attention to detail has made the G-Plus the fastest production HO scale race-car ever.

During the normal course of operating your set, various parts will eventually wear out and need replacing. Instructions below will guide you in the disassembly and proper care of your G-Plus car.

A BODY REMOVAL

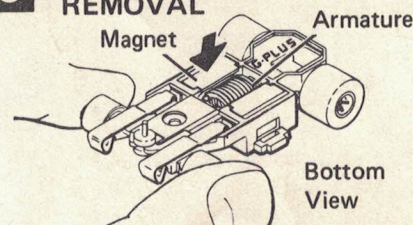
G-Plus bodies are designed for easy removal. Hold the rear wheels firmly, gently, pull out slightly one side of the body until it clears the side chassis tab. Then snap the body off.

To replace the body, simply reverse this procedure.

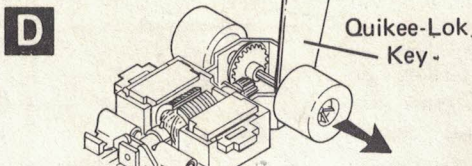
B CHASSIS REMOVAL

Disassembling the chassis is easy with the G-PLUS. First of all, refer to the exploded view of the chassis to see where all the parts go.

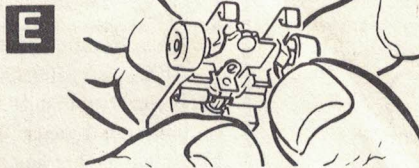
The magnet retainer clip is removed by placing a screwdriver or QUIKEE-LOK KEY under the edge of the clip and carefully prying it off.

C ARMATURE and MAGNET REMOVAL

To remove MAGNETS and other internal parts, start by rotating ARMATURE to position shown. Push down on one Magnet first until it drops out. Then remove other Magnet in same manner. Now ARMATURE and other internal parts can be removed.



Should WHEELS need replacing, remove them by prying off with QUIKEE-LOK KEY.



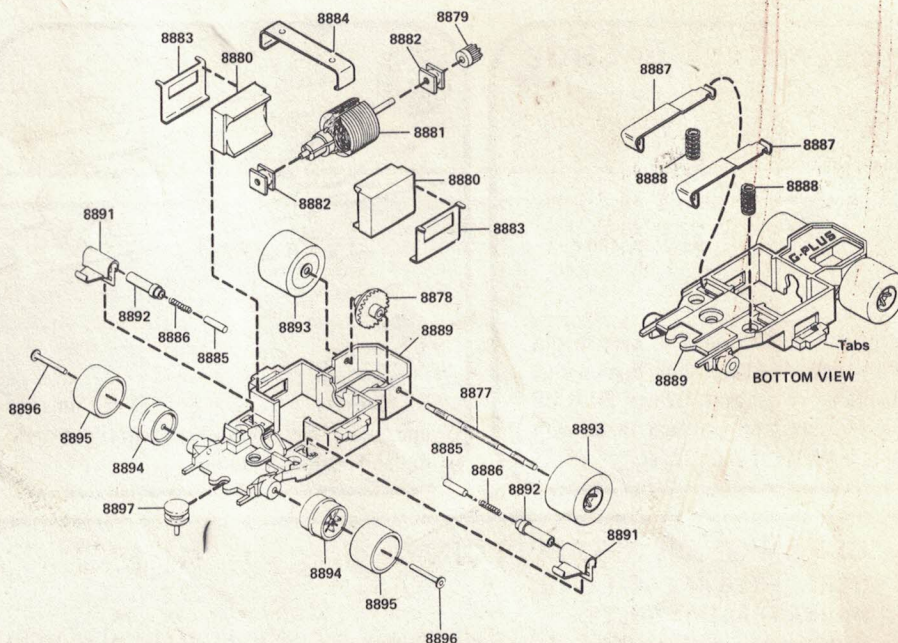
Chassis adjustment is as important in HO scale as it is on full-size race cars. Making sure your

car is "flat," can give you an important edge over your competition. To check for flatness, take the body off and place the car on a piece of straight track. Look closely to see if both front tires are touching. If one is not, all you have to do is carefully bend up the front tire that is touching until both tires touch. Don't bend down the "high" tire because that may tend to raise the car up to high.

**CHASSIS PARTS BREAKDOWN
FOR G-PLUS CARS ONLY****REPLACEMENT PARTS**

- 8877—Rear Axle
- 8878—20 T. Crown Gear
- 8879—8 T. Pinion Gear
- 8880—Magnets (pr.)
- 8881—Armature w/Spacer
- 8882—Armature Bearings (pr.)
- 8883—Flux Collectors (pr.)
- 8884—Magnet Retaining Clip
- 8885—Commutator Brushes (pr.)
- 8886—Commutator Brush Springs (pr.)
- 8887—Pick Up Shoes (pr.)
- 8888—Pick Up Shoe Springs (pr.)
- 8889—Chassis w/ Tabs
- 8890—Chassis w/o Tabs
- 8891—Brush Holder (pr.)
- 8892—Brush Barrel (pr.)
- 8893—Rear Wheel and Tire Assy. (pr.)
- 8894—Front Wheel (pr.)
- 8895—Front Tire (pr.)
- 8896—Front Axle (pr.)
- 8897—Guide Pin

Note: 8890 Chassis w/o Tabs not shown.



**For Parts and Service refer to the Hobby
Section of the Yellow Pages for your nearest
authorized Aurora Parts and Service Center.**