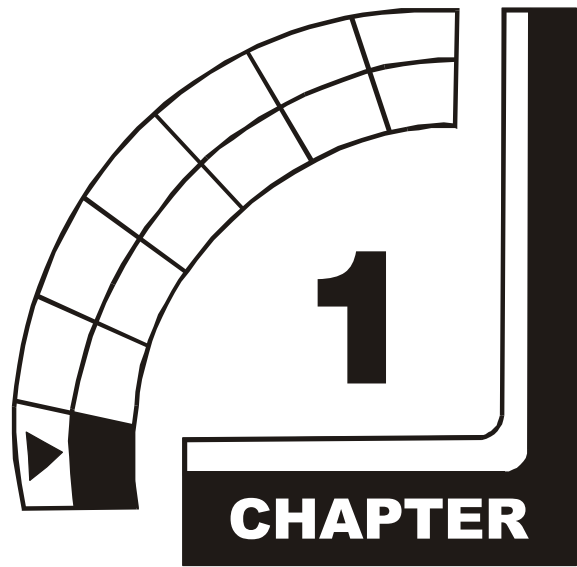




# OFFROAD

# THE THUNDER™



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## SETUP

	<p>Fill out and mail in the Game Information Card. Include the product serial number from the label on the rear of the cabinet. For your records, write the product serial number in the manual.</p> <p>SERIAL NUMBER _____</p>
	<p><b>NOTICE:</b> The term VGM refers to the video game machine.</p>

## SAFETY INSTRUCTIONS

The following safety instructions apply to operators and service personnel. Read these instructions before preparing your VGM (*video game machine*) for play. Other safety instructions appear throughout this manual.





### DEFINITIONS OF SAFETY TERMS








**DANGER** indicates an imminent hazard. If you fail to avoid this hazard, it *will* cause death or serious injury.

**WARNING** indicates a potential hazard. If you fail to avoid this hazard, it *could* cause death or serious injury.

**CAUTION** indicates a potential hazard. If you fail to avoid this hazard, it *may* cause minor or moderate injury. CAUTION also alerts you about unsafe practices.

**NOTICE** indicates information of special importance.

	<p><b>WARNING: TRANSPORTING VGMS.</b> This VGM contains glass and fragile electronic devices. Use appropriate care when transporting this VGM. Avoid rough handling when moving the cabinet. Don't move this VGM with the power on.</p>
	<p><b>WARNING: DISCONNECT POWER.</b> Always turn the power OFF and unplug the VGM before attempting service or adjustments. Installing or repairing PC boards with power ON can damage components and void the warranty. Be sure that you securely install ground wires.</p>
	<p><b>WARNING: GROUND VGMS.</b> Avoid electrical shocks! Don't plug in a VGM until you have inspected and properly grounded it. Only plug this VGM into a grounded, three-wire outlet. Don't use a "cheater" plug, or cut off the ground pin on the line cord.</p>
	<p><b>WARNING: HAZARD TO EPILEPTICS.</b> A small portion of the population has a condition which may cause epileptic seizures or momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons experience seizures while watching some television pictures or playing certain video games. People who have not had seizures may nonetheless have an undetected epileptic condition.</p> <p>If anyone in your family has experienced symptoms linked to an epileptic condition (e.g., seizures or loss of awareness), consult your physician before using video games.</p> <p>Parents should observe their children while they play video games. If you or your child experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions, <i>discontinue use immediately</i> and consult your physician.</p>

	<b>WARNING: AVOID ELECTRICAL SHOCKS.</b> This video game machine does not utilize an isolation transformer. Internal, cabinet AC isn't isolated from the external, AC line.
	<b>WARNING: HANDLE FLUORESCENT TUBE AND CRT WITH CARE.</b> If you drop a fluorescent tube or CRT and it breaks, it will implode! Shattered glass can fly eight feet or more from the implosion.
	<b>CAUTION: CHECK POWER SELECTOR.</b> Set the 110/220VAC selector on the power supply for the correct line voltage. Check the selector setting before switching on the VGM.
	<b>CAUTION: USE PROPER FUSE.</b> Avoid electrical shock! Replacement fuses must be of the same type as those they replace. Fuse voltage and current ratings must match ratings on the original fuse.
	<b>CAUTION: ATTACH CONNECTORS PROPERLY.</b> Be sure that printed circuit board (PCB) connectors mate properly. If connectors don't slip on easily, don't force them. A reversed connector may damage your VGM and void the warranty. Connector keys only allow a connector to fit one set of pins on a board.
	<b>CAUTION: TAKE CARE WHEN SHIPPING HARD DISKS.</b> The hard disk drive must be packed in an anti-static bag. When shipping the drive for repair or replacement, pack it in an approved container (P/N 08-8068). Never stack or drop hard disk drives.
	<b>NOTICE:</b> This manual is subject to change without notice. Midway reserves the right to make equipment improvements as engineering progress warrants.

## PRODUCT SPECIFICATIONS

### Operating Requirements

<b>Location</b>	<b>Electrical Power</b>	<b>Temperature</b>	<b>Humidity</b>
Domestic	120VAC @ 60Hz 4.0 Amps	32°F to 100°F	Not to exceed 95% relative
Foreign	230VAC @ 50Hz 2.0 Amps	(0°C to 38°C)	
Japan	100VAC @ 50Hz 4.0 Amps		

### Cabinet Statistics

<b>Shipping Dimensions</b>	<b>Shipping Dimensions</b>	<b>Shipping Weight</b>
Cabinet	Seat Pedestal	Cabinet
Width 32.0" (81.3 cm)	Width 22.0" (55.8 cm)	Boxed, 360 lbs. (163 kg.)
Depth 42" (169 cm)	Depth 36.0" (91.4 cm)	Seat pedestal
Height 76.0" (193 cm)	Height 51.0" (130 cm)	Boxed, 125 lbs. (56.8 kg.)

### Equipment Characteristics

<b>Video Monitor</b>	<b>Audio System</b>	<b>Currency Acceptors</b>
Medium Resolution RGB 27" (63.5 cm) CRT	Digital Stereo Sound Two 5.5" (14 cm) and One 6.5" (16.5 cm) Spkr	2 Coin Mechanism, Coin Counter Dollar Bill Validator Ready Electronic Coin Acceptor Ready

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## PRODUCT CONFIGURATION

- **Standalone Units**

Each VGM (*video game machine*) is ready to play right out of the box. You can use the VGM Menu System to set player variables in advance. Or you can leave these choices to players.

- **Linked Units**

Linking allows players to compete against each other (on one course). Operator menus are the same as in stand-alone VGMs. With a coupler and linking cable, you can connect two VGMs. (You can connect up to four VGMs with the optional Hub Linking Kit.) You'll find a coupler in the spare parts envelope. Look in the cashbox. The linking cable is factory installed.

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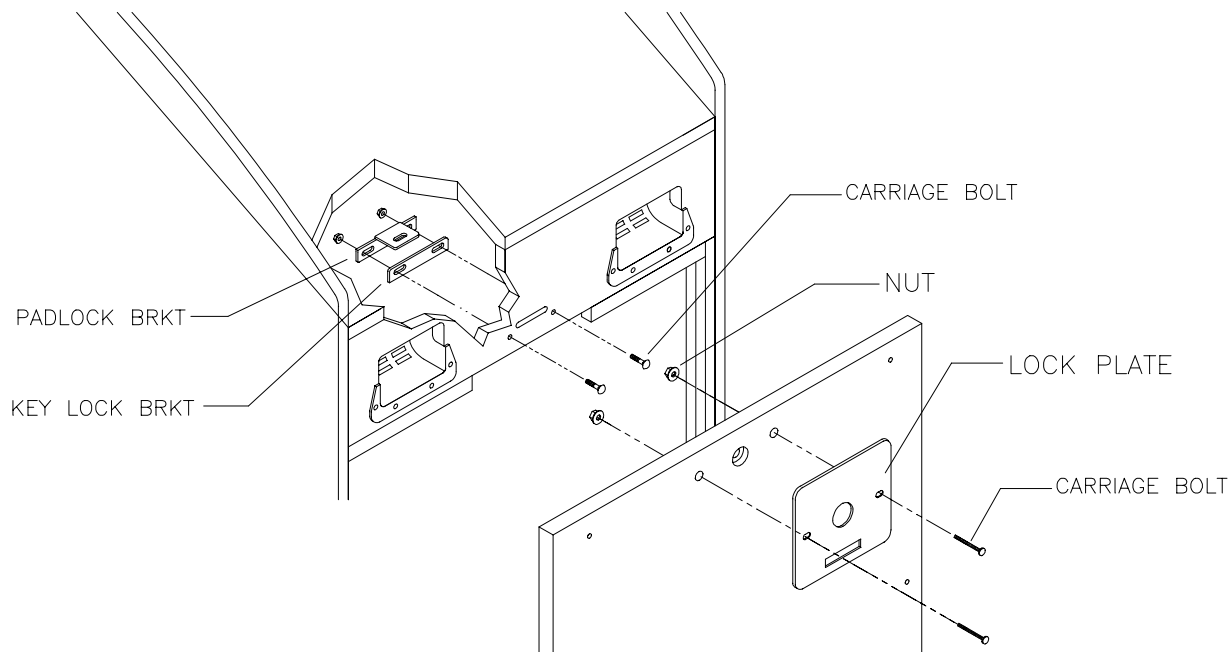
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## INSTALLATION & INSPECTION



**WARNING:** The cabinets are top-heavy. While moving the cabinets, don't push against plastic parts.

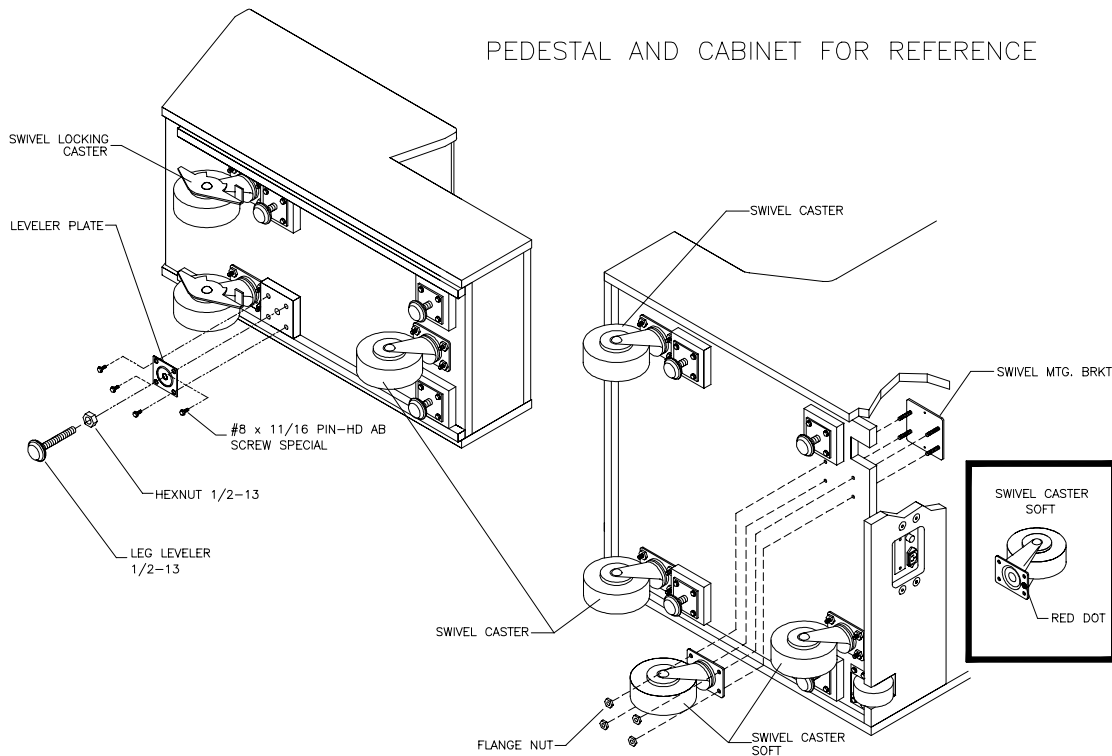
- [ ] 1. Remove and set aside items from the shipping containers. Remove all packing material. Inspect for damage. Check the main cabinet exterior, the control section and the seat pedestal.
- [ ] 2. Remove the keys from the steering wheel. Unlock and open the coin, cash box, and rear doors. You'll find electrical cords, mechanical components, and VGM spare parts inside the cash box.
- [ ] 3. You can install an extra padlock to secure the rear door. You'll find a hasp in the spare parts bag. Remove the two lock bracket nuts from inside the cabinet, above the rear door opening. Slide the hasp onto the bolts. Now the hasp should protrude from the hole in back of the cabinet. Reinstall and tighten nuts.



### CABINET SECURITY MODIFICATIONS

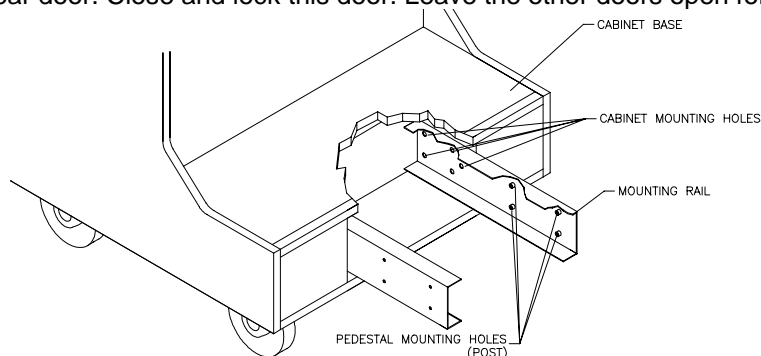
- [ ] 4. Modify the lock plate at the top of the rear door. Remove the bolts and nuts from the lock plate. Rotate the plate so that the slot will be above the door. Reinstall and tighten the bolts and nuts.

- [ ] 5. Install one nut onto each leg leveler. Tilt the cabinet onto its side. Locate four threaded holes under the cabinet. Install a leveler and nut into each hole. Don't tighten the nuts yet.
- [ ] 6. Tilt the seat pedestal onto its side. Locate three threaded holes under the seat pedestal. Install a leveler and nut into each hole. Don't tighten the nuts yet.
- [ ] 7. Locate the caster wheel assemblies. Attach one caster onto each group of threaded studs. The cabinet uses four swivel casters. The seat pedestal uses three. Place the swivel caster in front. Place two locking casters in back. Tighten the caster mounting nuts very firmly.




### INSTALL CASTERS AND LEVELERS

- [ ] 8. Stand the cabinet upright and make certain that it rests in a stable position. Move cabinet to its play location. Maintain clearance between the cabinet and walls, drapes, other VGMS, etc. Lower each leg leveler until the cabinet is stable and level. Adjust the levelers to raise the wheels up off the floor. Distribute the cabinet's weight equally on each corner. Tighten the leveler nuts.
- [ ] 9. Install the rear door. Close and lock this door. Leave the other doors open for now.

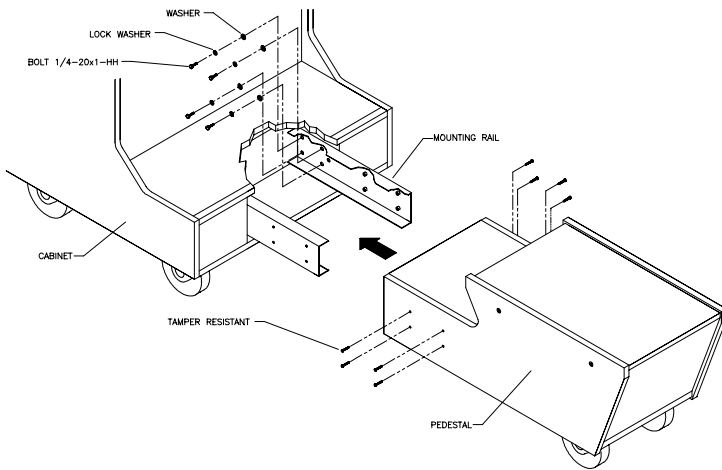


### LOCATION OF SEAT PEDESTAL MOUNTING HOLES

- [ ] 10. To protect seat pedestal mounting rails during shipment, the factory bolts them inside the cabinet. Remove the 1/4-20 hex-head bolts that secure the rails. Slide the rails partway out of the bottom-front cabinet opening. (See the nearby diagram for proper placement.)
- [ ] 11. Fasten down the rails in this new position. Firmly tighten the rail bolts, but don't torque them down. Slide the seat pedestal onto the rails. Vertically position the rails. Remove the seat pedestal. Tighten the rail bolts with a wrench.

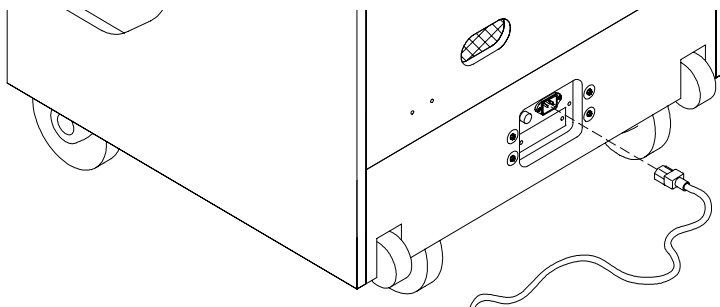
	<p><b>NOTICE:</b> When you install the seat pedestal, take care to avoid pinching wires!</p>
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- [ ] 12. Roll the seat pedestal near the cabinet. Leave enough space to attach the wiring harness. Mate each seat pedestal cable connector with its cabinet cable connector. Press connectors firmly to seat contacts.



- [ ] 13. Align the seat pedestal opening with the rail ends. Slide the seat pedestal forward onto the extended mounting rails. Align holes. Attach the seat pedestal using 1/4-20, tamper-resistant screws and large flat washers. You'll find a T27 wrench with the spare parts. Use it to tighten these screws firmly.

- [ ] 14. The power cord is in the cashbox. Match the holes on the IEC plug with the prongs in the receptacle. Push the plug firmly to seat it.



- [ ] 15. Before you plug in the VGM, verify line voltage compatibility with the machine. Then plug the VGM into a grounded (3-terminal) AC wall outlet. Switch on the VGM at the on/off switch. (This switch is on the cabinet roof. Face the cabinet's back. Find the on/off switch to your right.) The VGM will power up and begin self-diagnostics. If diagnostics find no errors, the VGM enters Attract Mode. (Racing scenes and sounds, player scores, messages, etc.)

**INSTALL THE LINE CORD**

- [ ] 16. Unlock and open the coin door. Locate the control switches. Press TEST MODE to enter the Menu System.
- [ ] 17. Select "DISK TESTS" at the Diagnostics Menu. Run all the tests in order to verify correct drive operation.
- [ ] 18. Select "SWITCH TESTS" at the Diagnostics Menu. Check to be sure that all control switches work.
- [ ] 19. Select "SOUND TESTS" at the Diagnostics Menu. Verify operation of each speaker.
- [ ] 20. Select "FORCE FEEDBACK TESTS" at the Diagnostics Menu. Verify the presence of steering resistance.
- [ ] 21. Select "CALIBRATE CONTROLS" at the Main Menu. Set steering and throttle limits for maximum accuracy.
- [ ] 22. Select "START THE GAME" at the Main Menu. The system should enter Attract Mode. Open the coin door and press the SERVICE CREDITS button to allow game play. Press the START button to begin play. Listen to the audio while playing the game. Note sound irregularities (phase problems, no low frequencies, mono audio from stereo speakers, etc.). If necessary, check the wiring harness for internal shorts or strapped connections.
- [ ] 23. Change the volume and make adjustments as necessary. Close and lock all open doors. Tighten the leveler nuts. Engage the caster locks.

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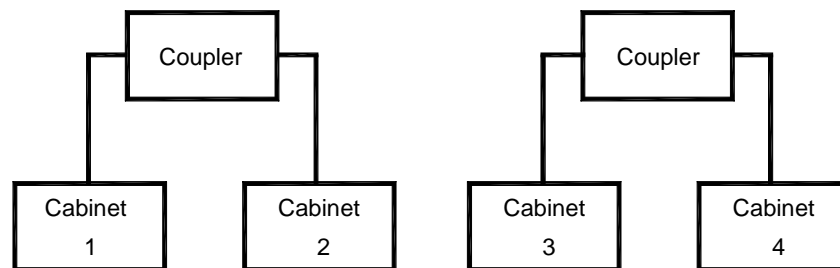
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## LINKED OPERATION

### Equipment Requirements

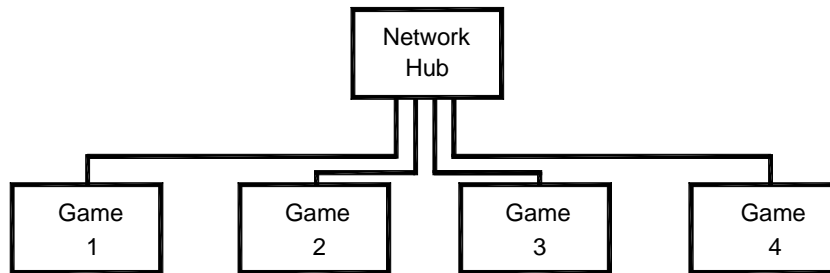
Linked Mode permits players to compete between networked cabinets in real time. The linking program is player selectable, so that each cabinet serves player needs.

To achieve linked operation, you must connect cabinets. The factory installs one linking cable in each cabinet.




### ***Link Two Cabinets with a Coupler***

- **TO LINK TWO CABINETS**, use a crossover coupler. All cabinets contain a crossover coupler to connect two cabinets together. Use *only one* coupler between each pair of cabinets. The coupler employs passive electronics. Passive electronics limit the cable length and number of cabinets that you can link. Most operations attach linked cabinets, but you can separate cabinets by up to 25 feet. You can add linked cabinet pairs as necessary.



### ***Link Up to Four Cabinets with a Hub***

- **TO LINK MORE THAN TWO CABINETS**, use a network hub. Notice that the *hub replaces the coupler* between cabinets. Each hub can connect several cabinets. In fact, the hub's active electronics permits use of large networks. You can add linked cabinets as necessary. The network hub's active circuits also allow you to use long cables. Most operations attach linked cabinets, but you can separate cabinets by up to 300 feet.
- **THE DELUXE LINKING KIT (Model 25735)** contains a lighted, overhead sign and cabinet connector brackets.

	<p><b>NOTICE:</b> You can't link more than four cabinets.</p>
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### **Networking Pointers**

- Protect exposed wiring from player foot traffic, cleaning crews, service personnel, etc. Use approved conduit or wire channels to support cables. Network modular connectors don't include strain relief.
- Keep cables away from heat, moisture and electromagnetic fields. (Avoid neon signs, fluorescent fixtures, two-way radios, cordless telephones, power circuits, speaker wiring, etc.).
- Universal RJ-45 modular plugs aren't keyed, numbered, or coded. Clearly mark cabinet network connections. Otherwise, someone could confuse them with computer or telephone circuits.
- The factory supplies network cables with the cabinets. These cables will reach the hub in networks of four or fewer cabinets.
- Use only Category 5, twisted pair cable.
- If you want to monitor network activity, you can locate the hub remotely. You can use long cables, if they satisfy these requirements: (1) Cables must not exceed a length of 328 feet or 100 meters. (2) Cables must be Category 3 (or higher), 100 ohm, unshielded, twisted pair, communications-grade wiring. (3) You must not use standard telephone cables.



## Wiring the Network



**NOTICE:** Don't use crossover couplers in a hub installation. Otherwise, your network won't operate properly.

- [ ] 1. Raise the leg levelers. Roll the cabinets to their destination. Lower the leg levelers.
- [ ] 2. Verify VGM operation. Make necessary repairs or adjustments before making changes to the cabinets.
- [ ] 3. Shut down all machines.
- [ ] 4. Place the hub near the center of the linked cabinet array.
- [ ] 5. You'll find a linking cable coiled up inside each cabinet. Cut the cable tie. Locate the cable's free end. Uncoil enough cable to reach the hub through the rear box of the cabinet.
- [ ] 6. Check the other end of the cable. It should attach to an Arcade Computer network jack. You'll find this jack in the middle cabinet box.
- [ ] 7. Recoil and retie the remainder of the cable. Repeat the cable connection steps at the other cabinets.
- [ ] 8. Plug the cabinet linking cables into any of the jacks on the hub rear panel.
- [ ] 9. Plug the hub's AC power adapter into its jack on the hub.
- [ ] 10. Set the hub front panel switch to the LNK (link) position.
- [ ] 11. Retract excess cable into the cabinet coils so that the cables don't touch the floor. Retracting the cable keeps it away from cabinet wheels during relocation.
- [ ] 12. Connect the AC Adapter and line cords to AC power. Turn on each of the cabinets. Examine the screens of all cabinets.



**CAUTION:** Don't connect or disconnect cables to the VGM electronics or hub with the power on. Otherwise, you may damage the electronics and void your warranty.

- [ ] 13. Restart all machines.
- [ ] 14. The cabinets will begin the Power-On Self Test. If the test doesn't find any errors, each cabinet enters its Attract Mode automatically.
- [ ] 15. Start up linked cabinets and ensure that each cabinet's player controls affect the same vehicle on all screens. The CPU and hub LEDs will indicate communication activity between the two cabinets.
- [ ] 16. Close and lock the coin doors. Reinstall and lock the rear cabinet doors. Lower all leg levelers until wheels lift off of the floor. Then level the cabinets.

## Network Software Setup

- [ ] 1. Unlock the coin doors of all cabinets.

- [ ] 2. Find the diagnostic switches behind each cabinet's coin door. Press and hold each cabinet's TEST MODE button to enter the Menu System.
- [ ] 3. From each cabinet's Operator Menu, select the Adjustments Menu.
- [ ] 4. From each cabinet's Adjustments Menu, select the Linked Play Adjustments Menu.
- [ ] 5. **LINKED PLAY.** At each cabinet, set the LINKED PLAY option to YES.
- [ ] 6. **UNIT ID.** Each cabinet must have a unique unit ID. Set the option UNIT ID to a separate number for each cabinet.
- [ ] 7. **EXIT** the menu system. If you changed any unit IDs, turn off all machines.
- [ ] 8. **RESTART ALL CABINETS.** After the machines reinitialize, they'll operate in Linked Mode.
- [ ] 9. **TEST THE SYSTEM.** Test the network by playing a Linked Mode game on all linked machines.