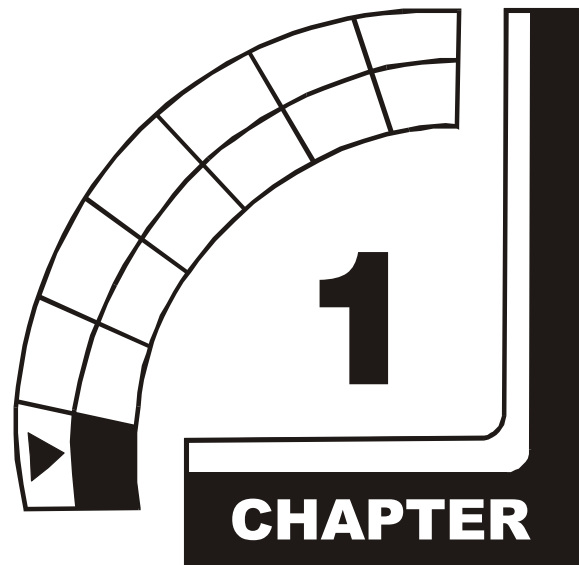


# OFFROAD

# THE THUNDER™



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## SETUP



**NOTICE:** This manual is subject to change without notice. Midway reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods warrant.

Fill out and mail in the Game Information Card. Include the game serial number from the label on the rear of the cabinet. For your records, write the game serial number in the manual. SERIAL NUMBER \_\_\_\_\_

## SAFETY INSTRUCTIONS

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






### DEFINITIONS OF SAFETY TERMS




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

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

**CAUTION:** 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 GAMES.</b> This game contains glass and fragile electronic devices. Use appropriate care when transporting this game. Avoid rough handling when moving the cabinet. Don't move this game with the power on.</p>
	<p><b>WARNING: DISCONNECT POWER.</b> Always turn power OFF and unplug the game before servicing or adjusting. Installing or repairing PC boards with power ON can damage components and void the warranty. Be sure to securely install ground wires.</p>
	<p><b>WARNING: GROUND GAMES.</b> Avoid electrical shocks! Don't plug in a game until you have inspected and properly grounded it. Only plug this game 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. 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 a physician.</p>
	<p><b>WARNING: AVOID ELECTRICAL SHOCKS.</b> This video game system does not utilize an isolation transformer. Internal, cabinet AC isn't isolated from the external, AC line.</p>
	<p><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.</p>
	<p><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 game.</p>

	<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 game 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.

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## 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 Section	Control Section	Universal Pedestal	
Width 58" (147 cm)	41" (104 cm)	Width 22.0" (55.8 cm)	Cabinet, 475 lbs (215 kg)
Depth 36" (91 cm)	33" (83.8 cm)	Depth 36.0" (91.4 cm)	Control Section, 300 lbs (137 kg)
Height 79" (201 cm)	42" (107 cm)	Height 51.0" (130 cm)	Universal Pedestal, 125 lbs (57 kg)

### Equipment Characteristics

<b>Video Monitor</b>	<b>Audio System</b>	<b>Currency Acceptors</b>
Medium Resolution RGB	Digital Stereo Sound	1 Coin Mechanism, Coin Counter
39" (99 cm) CRT	Two 5.5" (14 cm) and Two	Dollar Bill Validator Ready
	6.5" (16.5 cm) Speakers	Electronic Coin Acceptor Ready

### Game Characteristics

<b>Player Variables</b>	<b>Operator Variables</b>	<b>Diagnostics</b>
1 to 4 players per game (with linking)	Coinage, Game Options,	Automatic Power-Up Self-Test
Choice of vehicle and course	Difficulty, Force, Volume,	Manual, Multi-Level Menu System
High Score Recognition	Audits, Statistics	

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## PRODUCT CONFIGURATION

- **Standalone Units**

Each game is ready to play right out of the box. You can use the game 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 games. Crossover couplers and linking cables to connect two games are factory installed. You can interconnect up to four games. To do this, use the optional Hub Linking Kit.

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## GAME SETUP



**WARNING:** The cabinet is top-heavy. Don't use the pedestal seat as a handle or lever. When moving the game, use the two handles on the back of the cabinet.

- [ ] 1. Remove and set aside items from shipping containers. You'll find casters, levelers, and mounting hardware packed with the pedestal. Inspect the exterior of the cabinet for any signs of damage.
- [ ] 2. Remove the keys from the steering wheel. Unlock and open the coin, cash box, and rear doors. You'll find electrical cords and spare parts in the cash box.

- [ ] 3. Unlock and remove the monitor cabinet's rear door. Inspect the cabinet interior for damage. Check major assemblies to assure secure mounting. Assure that nothing blocks fan airflow.
- [ ] 4. Replace and lock the monitor cabinet's rear door. Locate the casters. Notice that two of the swivel casters have red dots on their bases. These two are special-purpose, high-compliance casters. Tilt the dash cabinet. Install the two casters with red dots at the rear of the dash cabinet. Each caster mounts to a group of threaded studs. Tighten caster-mounting nuts firmly.
- [ ] 5. Tilt the dash cabinet. Install two swivel casters without dots at the front of the dash cabinet. Each caster mounts to a group of threaded studs. Tighten caster-mounting nuts firmly.
- [ ] 6. The pedestal uses three casters. Tilt the pedestal. Install a swivel caster on the front studs. Install locking casters on the rear studs. Tighten caster-mounting nuts firmly.
- [ ] 7. Stand the dash cabinet upright and make certain it is stable. Move the game to its intended location. Level the cabinet. We've designed this game for use only in a fixed position. Assure that final leg leveler adjustments raise the swivel casters off the floor. Distribute weight equally on each cabinet corner. Tighten the leveler nuts.

### ***Location of Pedestal Assembly Mounting Holes***

- [ ] 8. To protect seat pedestal mounting rails during shipment, the factory bolts them inside the dash 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.)
- [ ] 9. 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.



**NOTICE:** When you mate the cabinets, take care to avoid pinching wires!

- [ ] 10. Roll the seat pedestal near the dash 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.
- [ ] 11. 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.
- [ ] 12. Fasten the cabinet joining brackets to the monitor cabinet. Align the dash and monitor cabinets. Carefully slide the dash cabinet between the cabinet joining brackets. When the cabinets are flush, attach the cabinet joining brackets to the dash cabinet.
- [ ] 13. Attach the wiring harness. Mate each dash cable connector with its monitor cabinet cable connector. Press connectors firmly to seat contacts.
- [ ] 14. 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 doorway. Slide the hasp onto the bolts. Now the hasp should protrude from the hole in the cabinet back. Reinstall the nuts.
- [ ] 15. 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 bolts and nuts.
  
- [ ] 16. The power cord is with the spare parts. Remove and save four screws from the line cord cover at the cabinet rear. Match the holes on the IEC plug with the prongs in the receptacle. Push the plug firmly to seat the line cord. Hold the cord flat against the cabinet and reinstall the cover plate. (Point the indentation downward, so that the cord exits toward the cabinet bottom.)
- [ ] 17. Refer to the cabinet wiring diagram (elsewhere in this manual). Check to see that cable connectors are correctly secured. Inspect for damaged connectors. *Don't force connectors*. Most connectors are keyed to prevent reversed connections. Before you plug the line cord into an A.C. outlet, verify that game electronics are set to correct local A.C. line voltage.

### ***Line Cord Installation***

- [ ] 18. Plug the game into a grounded (3-terminal) AC wall outlet. Switch on the game 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 game will power up and begin self-diagnostics. If diagnostics find no errors, the game enters its Attract Mode of operation. (Attract Mode includes scenes and sounds from typical races, player's scores, messages, etc.)
- [ ] 19. Unlock and open the coin door. Locate the control switches. Press TEST MODE to enter the Menu System.
- [ ] 20. Select "DISK TESTS" at the Diagnostics Menu. Run all the tests in order to verify correct drive operation.
- [ ] 21. Select "SWITCH TESTS" at the Diagnostics Menu. Check to be sure that all control switches work.
- [ ] 22. Select "SOUND TESTS" at the Diagnostics Menu. Verify operation of each speaker.
- [ ] 23. Select "FORCE FEEDBACK TESTS" at the Diagnostics Menu. Verify the presence of steering resistance.
- [ ] 24. Select "CALIBRATE CONTROLS" at the Main Menu. Set steering and throttle limits for maximum accuracy.
- [ ] 25. 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.
- [ ] 26. 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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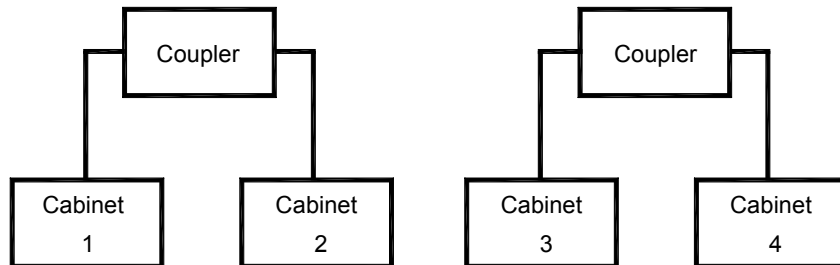
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## LINKED OPERATION

### Equipment Requirements

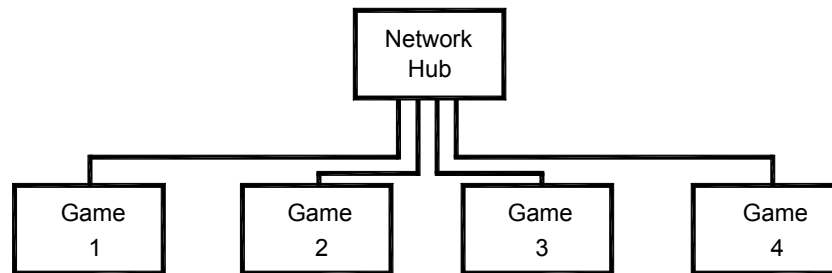
Linked Mode permits players to compete between networked cabinets in real time. The linking program is player selectable, so that each cabinet serves player needs.

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. 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 pairs as necessary.



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

- **TO LINK MORE THAN TWO CABINETS**, use a network hub. The network hub's active circuits allow you to use more and longer cables. Notice that the *hub replaces the coupler* between cabinets. Each hub can connect several cabinets. The hub's active electronics permits use of larger networks. Most operations attach linked cabinets, but you can separate cabinets by up to 300 feet. You can add linked cabinets as necessary.



**NOTICE:** You can't link more than four *Offroad Thunder* cabinets.



## 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 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.

## Network Wiring Setup



**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 game 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 switches 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 game 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.

## **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.
- [ ] 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.