

MFG: TRIPLE QUEST LTC
NAME: M-4 PERSONAL MOTION
THEATER
TYPE: NON-KIDDIE



Owners Manual

M-4 Owners Manual
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Version 1.1, Revision 4

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1.0 General Description

1.1 Introduction

This manual provides operation and maintenance information for the M-4 Personal Motion Theatre, hereinafter known as the M-4. The M-4 is designed and manufactured by Triple Quest, Inc., 412 39th Street NW, Fargo, ND 58102, and marketed by Adventure Quest, LLC., 412 39th Street NW, Fargo, ND 58102.

1.2 Purpose

The M-4 is a portable, 2 passenger motion system based amusement ride which provides the rider with a simulated adventure enhanced by sight, sound, and feel. The M-4 uses no hydraulics to accomplish smooth, precise movements creating the illusion of reality!

1.3 Warranty

The M-4 system components provided by Triple Quest, Inc are warranted for a period of one year from the date of purchase. Warranty conditions will be according to the contract. Normal wear parts such as coupler inserts, floor carpet, seat covers, and cables are excluded. Video projection lamps, also excluded, will carry the bulb manufacturer's normal pro-rated warranty.

The M-4 is designed and built with ease of parts replacement as one of the main considerations. In most circumstances, the end user is able to replace any component vital to the operation of the M-4. However, Triple Quest technicians are available to go to M-4 installations for qualified warranty claims under the terms of the contracts.

1.4 Components and Parts Supplied

Each M-4 comes with the motion base platform, control counsel, and cables. Also included with each M-4 is this Operation and Maintenance Manual.

An inventory of maintenance and spare parts is also maintained at the factory in Fargo, North Dakota, U.S.A. for immediate shipment worldwide.

1.5 About this Manual

This manual, is designed to assist the owner/operator of the M-4 with proper operation, maintenance, and troubleshooting guidelines.

The manual is divided into chapters and appendixes. The user is urged to read through each of the chapters and acquainted with the overall operation of the equipment.

The chapters are designed to address specific systems, procedures, or components of the M-4 felt by Triple Quest, Inc. to be necessary for continued trouble free operation.

Although the manual should provide all of the answers necessary to solve and problem, Triple Quest Technicians are available by phone, fax, or in person. If you need to contact Triple Quest, Inc., see the appendix near the end of the manual for a list of names and phone numbers.

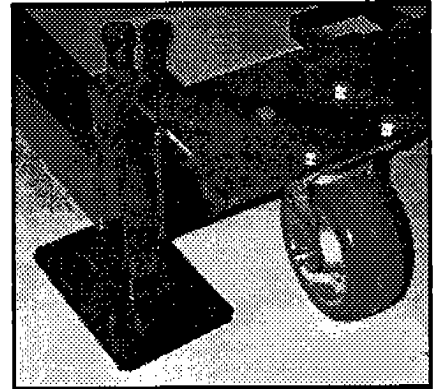
2.0 Setup and Operation

2.1 Location

Choose a suitable location to set up your M-4 insuring that there is adequate space around all sides. Space should be such that prohibits on lookers from being able to get their hands anywhere near the M-4 which may cause harm. The recommended size for the location of the M-4 is about 15 feet across and 12.5 feet deep.

2.2 Secure the M-4

In order to make sure that the M-4 does not move during operation, it needs to be raised off the wheels. Once the location has been chosen, raise the M-4 off the wheels, using the leveler jacks located on all four corners of the M-4. Turn each jack until the wheel next to it spins free.



2.3 Connections

The M-4 has been designed to insure ease of setup. There are only a few connections that need to be made in preparation to operate your M-4.

Unpack your laserdisc player from the box and insert it onto the shelf space in the control rack. There are four connections related to the laserdisc player.

- 1) Plug the **AC power cord** into the rear of the battery backup.
- 2) Connect the **grey 15-pin control cable** (other end is connected to the computer).
- 3) Connect the **video cable** the the video out connector.
- 4) Connect the **audio cable** to the 1/L (audio out) connector.

The touch screen computer monitor also needs to be attached. There are only two connections to the computer.

- 1) The 9-Pin cable to the serial port, there will only be one place that this connection will fit. Insert it and screw in the connection. Be sure not to overtighten as this will make it difficult to remove.
- 2) The remaining cable attaches to the video card. It simply pushes on with a light click to secure it. To remove the connector, there are two push buttons on the edges, just squeeze and pull.

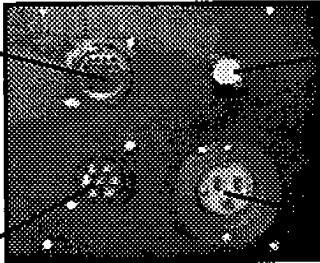
At this point you may re-attach the rear cover on the control rack.

There are 3 connections that need to be made on the lower frame of the M-4

- 1) The **encoder cable** (24-pin, 2 being blank, black cable) to the front most silver box. The connector faces the rear of the M-4. The connection is made by inserting the cable, with the large tab up, into the connector on the M-4, and slowly turning the outer ring until the cable is pulled into place.
- 2) The **power cable** (7-pin black cable) to the other silver box under the M-4. The connection is made in the same manner described above.
- 3) The **video cable** (COAX style with BNC connectors, black) is connected by inserting the connectors together and turning the collar about one half turn. You should feel a click as the collar is fully turned.

All of the cables mentioned above have the same connectors on each end, thus it does not matter which end is connected.

There are 4 connections that need to be made to the control counsel, the first three of which are the other end of the connections made under the M-4.

- 1) **Encoder cable**, connect as described above.
 - 2) **Power cable**, once again, as described previously.
 - 3) **Video cable**, same as video connection under the M-4.
 - 4) **Power cord**, insert into the control counsel to the remaining connector.
- 



Note: You must make sure that the AC power source you are using to power the M-4 is able to supply you with a full 20 amps of current at 120 volts. This is very important, failure to supply required current will result in abnormal operation of the M-4.

Now would be a good time to set up the perimeter fence and M-4 entrance steps. The M-4 is now setup and ready for operation.

2.4 Starting up the M-4

Turn on main power switch, wait about 10 seconds, then turn on the battery backup. A slight delay will occur before the system will power up. This is just the battery backup resetting and in turn powering up the rest of the system.

Enter the M-4 and turn on the video projector by pressing the round power switch

located on the front of the projector. Also at this time make sure that the seat belts are latched, this will insure that no damage occurs to the video projector during initial test runs. Make sure the door is closed as you exit the M-4.

If the laserdisc is not already loaded in the player, load it at this time. The computer will open the tray on the player if the disc was not inserted. After the disc is placed on the tray, making sure that the red side of the disc is down, press play on the laserdisc player.

After about 20 seconds, the frame counter will appear on the lower portion of the computer screen. At this time, turn on the motor switch. If the M-4 has the parking brake installed, remove the pins that hold it in place, move the ride forward, and remove the parking brake.

If the M-4 needs to be leveled (homed), enter the home screen and level it out. From the main screen, run the M-4 one full cycle.

You are now ready to load riders for normal operation.



2.5 M-4 Operation

The M-4 is designed to operate best with two riders. Before the riders enter the M-4, it is a good idea to extend the seat belts to full extension. This will make the process of buckling them in easier once the passengers have entered the M-4. Buckle each rider by inserting the strap with the hole in (on the riders right side) through the two shoulder straps, and insert it into the locking buckle (on the rider left side). Make sure that the latch lever is locked down. Tighten the belt by first pulling on the lap belt straps, then pull the shoulder straps tight.

Exit the M-4 and close the door by pushing it firmly shut in the center and rotating the latch counter-clockwise. Double check the door latch by lightly pulling on the lower half of the door.

Step over to the control console. If the ride needs to be homed, do it now. It is not necessary to home the ride if it is only off by a little bit. Start the M-4 by pressing the appropriate selection for the ride you choose to run.

When the M-4 has completed its cycle, (the computer display will return to the main menu) open the door and reach in and release the seat belt and ask the riders to step out. It is a good idea to support the ride so that does not rotate as passengers exit.

You are now ready to start the cycle over again.

2.6 Shutting down the M-4

Shut off the **motor** power switch. Enter the M-4 and turn off the video projector by pressing the same button that was used to turn it on.

Touch the lower right corner of the screen on the control counsel, this enters the hidden menu. Press eject disc on the screen or player. Remove the laserdisc from the tray and insert it into the protective case. Press close button on the laserdisc player.

Make sure that the following have occurred before proceeding.

- 1) There is no flashing green light on the laserdisc player.
- 2) The red light on the front of the video projector is off.

If you have battery backup installed: Shut off the **Main** power switch, the counsel will start beeping, press the **OFF** button on the battery (the bottom component in the control rack). The power will now be disconnected.

If you do not have a battery backup: Simply turn off the **Main** power switch. The power will now be disconnected.

3.0 M-4 Maintenance

3.1 Changing the Lower Power Transfer Cable

The steel cable on the lower frame of the M-4 should be inspected daily. If it exhibits signs of excessive wear, it should be changed.

Procedure to change to cable:

- 1) With the M-4 powered up, move the M-4 fully forward using the home screen on the control counsel.
- 2) Shut off the motor power switch.
- 3) Detach the cable by removing the nut that secures it at each end.
- 4) Remove the bolts that secure the pulleys at the front and rear of the M-4.
- 5) Remove the cable by unwrapping it from the drum under the M-4.
- 6) Secure the new cable at the front of the M-4, turn on the nut until the threads just pass through, do not fully tighten at this time.
- 7) Re-install the front cable pulley.
- 8) Pass the cable over the top of the drum.
- 9) Wrap the cable around the drum 5 times (6 rows of cable across the top).
- 10) Re-Install the rear cable pulley.
- 11) Attach the cable to the rear of the M-4 with a nut.
- 12) Tighten the front nut about half way, and take out most of the slack with the rear nut.
- 13) Turn on the motor power switch.
- 14) Using the home screen, move the M-4 all the way to the rear, stopping just before it hits the frame.
- 15) Continue to tighten the rear nut.
- 16) Move the M-4 forward.
- 17) Tighten the front nut.
- 18) Repeat 14-17 until the cable feels tensioned.
- 19) Home the M-4 forward and back about 6 more times to work the cable into place around the drum, making sure that the cable is not overlapping itself.

3.2 Video Projector

Your M-4 is equipped with a Sharp video projector. There are only 2 maintenance issues concerning it.

There is a filter tray located on the front of the projector. It is near the bottom of the unit. It need only be cleaned periodically. Recommended cleaning intervals are every 1-2 months of operation. If you find that the environment you operate your M-4 in has more airborne dust, you may wish to clean this filter more often.

The only other maintenance item concerning the projector is the projection lamp. It is located on the right side of the unit (when you are facing it), opposite the lens on the projector. It need not be touched until it fails. It is recommended that you have a spare projection lamp on hand at all times. It is changed by removing the carrier from the projector, replacing the lamp in the carrier, and replacing the carrier into the projector. If you have further questions concerning the Sharp projector, please contact our office or any authorized Sharp dealer..

3.3 Gear Reduction Systems

The two gear reducers used on the M-4 contain a synthetic gear oil. It should be drained and replaced every 6 months or 3000 cycles of the M-4.

There are 3 plugs to deal with when changing gear oil on the M-4.

- 1) The **fill** plug located at the top of the gear reducer.
- 2) The **drain** plug located at the bottom of the gear reducer.
- 3) The **level** plug located at the center of the gear reducer.

Follow this procedure to change oil in the gear reducers.

- 1) Remove the fill plug.
- 2) Remove the drain plug, making sure that you have a pan to catch the used oil. A pie tin works well under the lower gear reducer.
- 3) After all the oil has drained out, replace the drain plug.
- 4) Remove the level plug.
- 5) Add gear oil in the fill plug until it runs out of the hole for the level plug.
- 6) Replace both the level and fill plugs.



3.4 Computer System

The only maintenance that needs to be done on the computer system is cleaning the filter. This is done by removing the screws that secure it to the rack system, and sliding it out from the rack about 1 inch. You will see a phillips screw located at the front on the top of the computer case. Remove this screw and lift out the tray that holds the filter. After you have blown out the filter, reverse the procedure to re-assemble the computer and rack system.

3.5 Amplifier System

The sound in the M-4 is amplified by a amplifier located on the floor, in the rear of the M-4, just behind the sub-woofer. The power switch is located on the front of the unit, and it never need to be turned off. The volume controls are located on the front of the unit. Channel 1, on the side nearest the door, powers the subwoofer. Channel 2, far-

thrust from the door, powers the front speakers. If you feel that you need to change to volume levels on the speakers, make sure that there is sound playing into the M-4, and make the volume changes slowly, as not to over-power the speaker system.

3.6 General Appearance of the M-4

The M-4 body, nose, and door are made of fiberglass. Recommended cleaning method is to use a mild spray cleaner such as Glass Plus, or similar. The body should be cleaned as per the instructions of the cleaning product being used. You will find that even in what seems to be a clean environment, the M-4's appearance will look best if cleaned before each day of use.

The interior carpet and sidepanels should just be vacuumed as needed.

The front projection screen is made of a formica laminate, Glass Plus or similar product should also be used.

Appendix A - How to reach us by phone

Triple Quest Phone Numbers

Triple Quest Office

Toll Free800-279-0352

Local701-277-0352

Always leave a message on the office machine if you have a problem.

Doug Anderson

Mobile701-238-1746

Home701-277-9227

Tom Berglind

Mobile701-238-9546

Home701-281-2562

Keith Kosky

Mobile701-261-3538

Home701-239-5928

Jon Halverson

Home701-293-5633

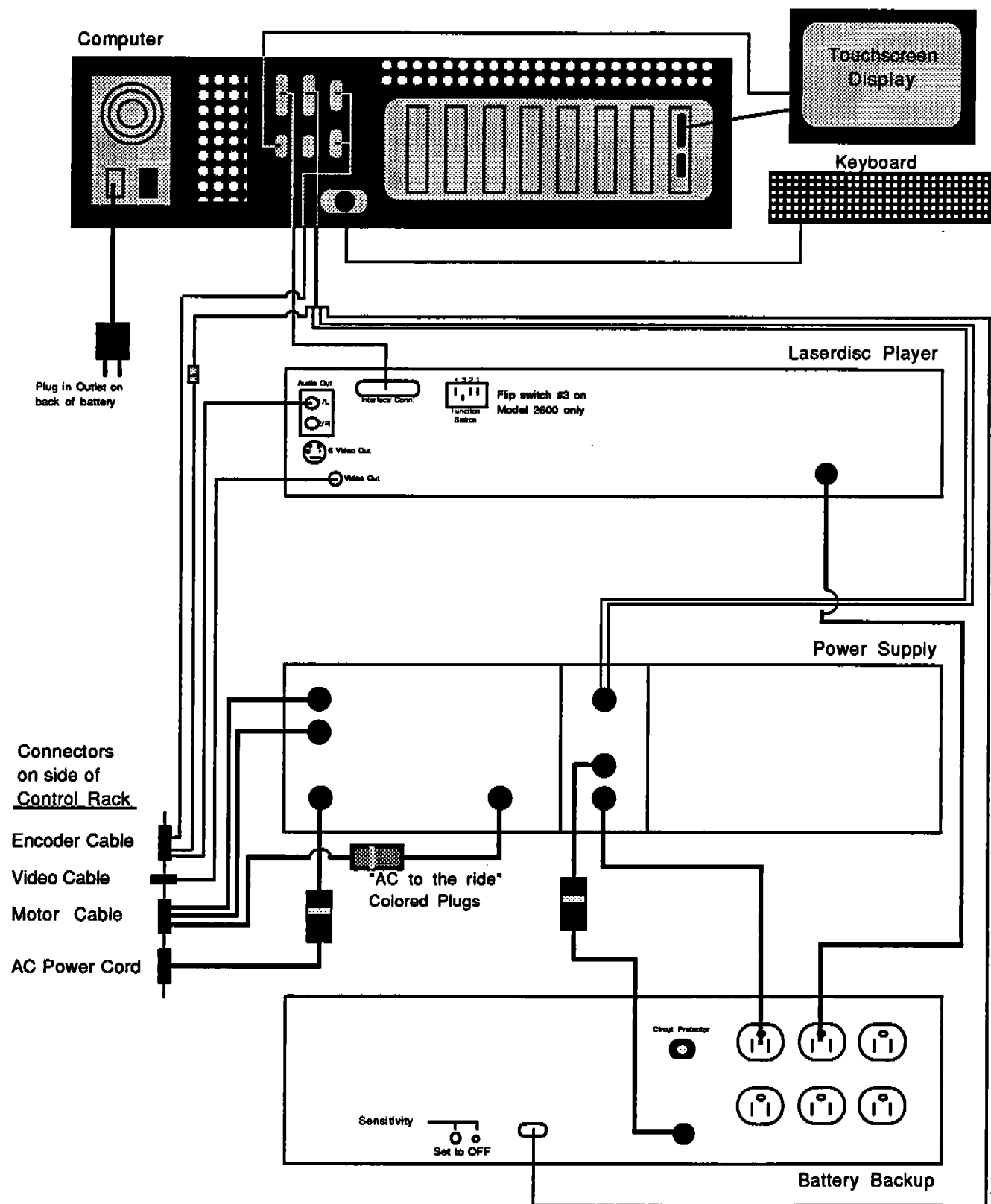
For Sales Related Questions, Call Adventure Quest at:

Adventure Quest

Toll Free800-990-8378

Local701-277-1332

Appendix B - Wiring Diagram for the M-4 Control Rack



Appendix C - Power Problems

There are several symptoms that the M-4 will exhibit when the power source is not sufficient:

- 1) The computer that controls the M-4 will reboot by itself, this indicates a sever power shortage. In this case the M-4 will stop, and after about 20-30 seconds it will return to the main screen, at which point you can use the home screen to return the ride to level position.
- 2) The laserdisc player will "park". This is indicated by the letters "LD" displayed on the front of the laserdisc player. When this happens, press the abort button in the touchscreen and the ride will return to the level position.
- 3) The computer will report "AC Power Failed". This message is caused when the battery senses a lower voltage situation. The battery then reports this to the computer, which in turn stops the ride and returns it to the level position.

Here are the suggested solutions:

- 1) Split the power. This is done by separating the colored AC plugs in the control rack (located near the bottom center). And plugging the male plug into a second extension cord, preferably connected to a separate circuit. Make sure that the projector is powered OFF and cooled down before conducting this operation.
- 2) By-pass the battery. This is done by unplugging the battery from its power source, inserting a 3-way power splitter into the outlet that the battery was plugged into, and plugging the three cords that are plugged into the battery into the 3-way power splitter.

If these suggestions do not work by themselves or in combination, please contact our office for further suggestions.

Appendix D - M-4 Keyboard Commands

The following keys may be used to operate the M-4 should the touchscreen become inoperable.

At the MAIN Screen:

SPACE	Enter Home Screen
1	Run MUSTANG
2	Run SURVIVAL 2006
3	Run JET INTERCEPT
4	Run MISSION LIFEFORCE
5	Run CANYON RIDER
6	(Blank, not yet used)
7	Run DEMO

At the HOME Screen:

Arrow Keys	Move M-4 for homing
SPACE	Exit HOME Screen and reset counters
ESC	Exit HOME Screen without resetting counters

There are no keyboard equivalents for the laserdisc control screen.