HAPPIJAC®
A Division of Lippert Components, Inc.

PNP BED-LIFT
USERS MANUAL
And Troubleshooting Guide

Product Usage:

This product is designed and intended **ONLY** to be used as a Bed-Lift mechanism. Any other use of this system will void any and all written or expressed warranties and indemnify HAPPIJAC COMPANY from any harm which may occur as a result of any other use or misuse of this product.

Operating Precautions:

CHECK.... To be sure the attaching pins are securely fastened at all 4 corners of the bed platform before towing the trailer, or using the bed(s).

ALWAYS.. Raise the bed(s) to the **FULL UP** position when the trailer is being towed **TO AVOID DAMAGE TO THE BED(s)** as a result of bouncing**.**

NEVER.... Operate the bed(s) with any items other than bedding on the bed platform.

NEVER.... Travel with any items other than bedding on the beds. Loose items can become projectiles.

NEVER.... Operate the bed(s) when persons are on the bed platform.

NEVER.... Hang from, or hang more than 20 pounds from the cross-connecting shaft.

ALWAYS.. Ensure that the areas above, below and adjacent to the bed(s) are free from obstructions before operating the bed(s).

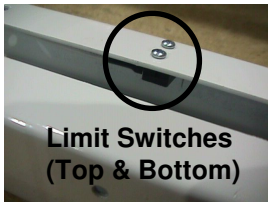
ALWAYS.. Check before operating bed(s) to ensure bedding is not over-hanging the ends of the beds where it could become entrapped.

ALWAYS.. Exercise care when loading cargo/vehicles in the bed area to avoid damage to the bed mechanism.

ALWAYS.. Properly secure loads in the bed area to avoid damage to the bed mechanism from shifting or falling loads.

Operating Instructions:

The bed(s) is/are operated from the control switch. Pressing and holding the switch in the UP position moves the bed(s) upward. Pressing and holding the switch in the DOWN position, moves the bed(s) downward.



Limit switches are used to stop the bed(s) at their maximum travel range. However, the bed(s) can be stopped and used at any desired height. Once the control switch is released, the brake sets securing the bed(s) in that position.

User configuration options:

The following user configuration options are possible.

Trolley Tab Settings

The “Trolley tabs” are the angular pieces which support the bed platform. These can be adjusted upward or downward, or flipped 180 degrees. The purpose for this adjustment option is to provide greater flexibility in configuring the system for users specific needs. Examples would include: Creating more headroom when the beds are up or creating more spacing between the beds in a “bunk bed” (2 bed) system. *See the following illustrations.*

Examples of optional Trolley Tab configurations.

Single bed units can be easily upgraded to bunk bed (2 bed) units by installing the trolley tabs to the existing second trolley and adding a bed platform and mattress.

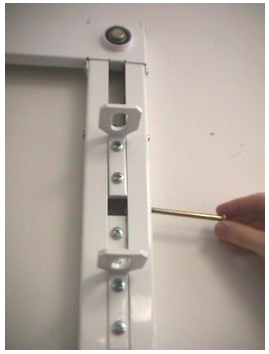
Bunk Stop Settings (Upper trolley stop):
The upper bunk trolley is free floating and is carried by the lower trolley. The height at which this trolley stops is set by "stop blocks" which sits inside the trolley rails. To change this stop, remove the 2 screws which hold it in place and move it to the desired height. (All 4 corners)

Stowing The Top Bunk: (2 BED CONFIGURATION)
The bed lift system has a stow feature for the top bunk which leaves it in the travel position at the ceiling while allowing the lower bunk to be set at a usable height.

To Stow

1. Run the beds to the FULL UP stop.
2. Insert the locking pins through the trolley rails as shown in the adjacent photo.
3. Lower bottom bunk to desired height.

NOTE: The bunk platforms removed for photo clarity only. Platform removal not necessary to stow bunk.



To Un-stow

1. Run the beds to the FULL UP stop.
2. Remove the locking pins.
3. Lower both bunks until the top bunk rests on the bunk stop and the lower bunk is at desired height.

Maintenance:

The HAPPIJAC Bed-Lift system requires very little maintenance. The chains are pre-lubricated and nickel plated to prevent corrosion. All bearings are sealed and all parts are either plated or finished with a durable powder-coat finish.

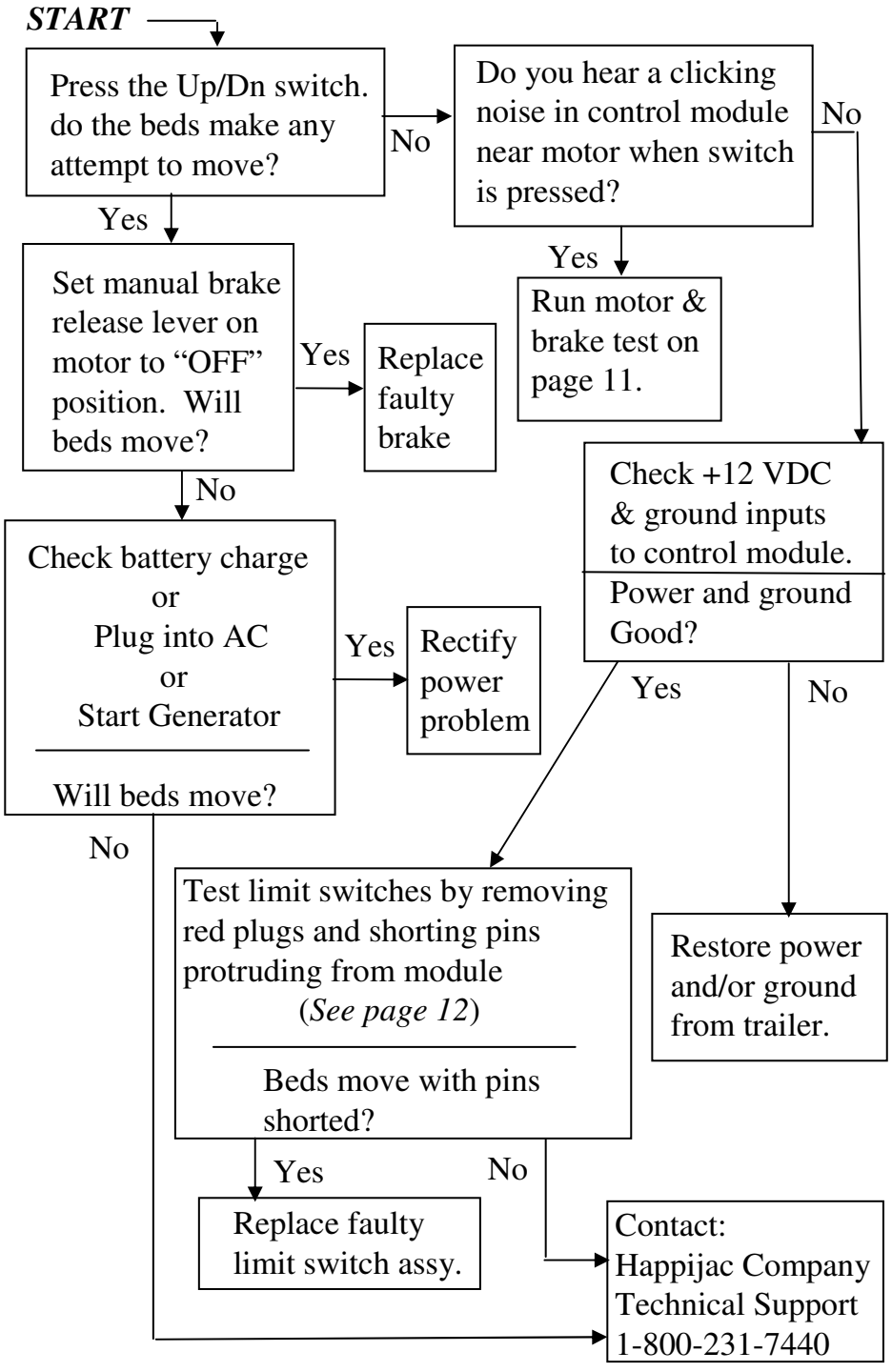
The only required maintenance involves keeping the mechanism clean and free of debris. When cleaning the trailer after use, inspect the vertical trolley channels for dirt or debris and clean as necessary. After cleaning, a light application of silicone spray on the inner sides of the trolley channels will improve performance and reduce noise and amperage draw.
(Silicone spray can be purchased at hardware & auto parts stores. Look specifically for the brands which provide a small spray tube. This makes application much easier.)

Troubleshooting & Repair:

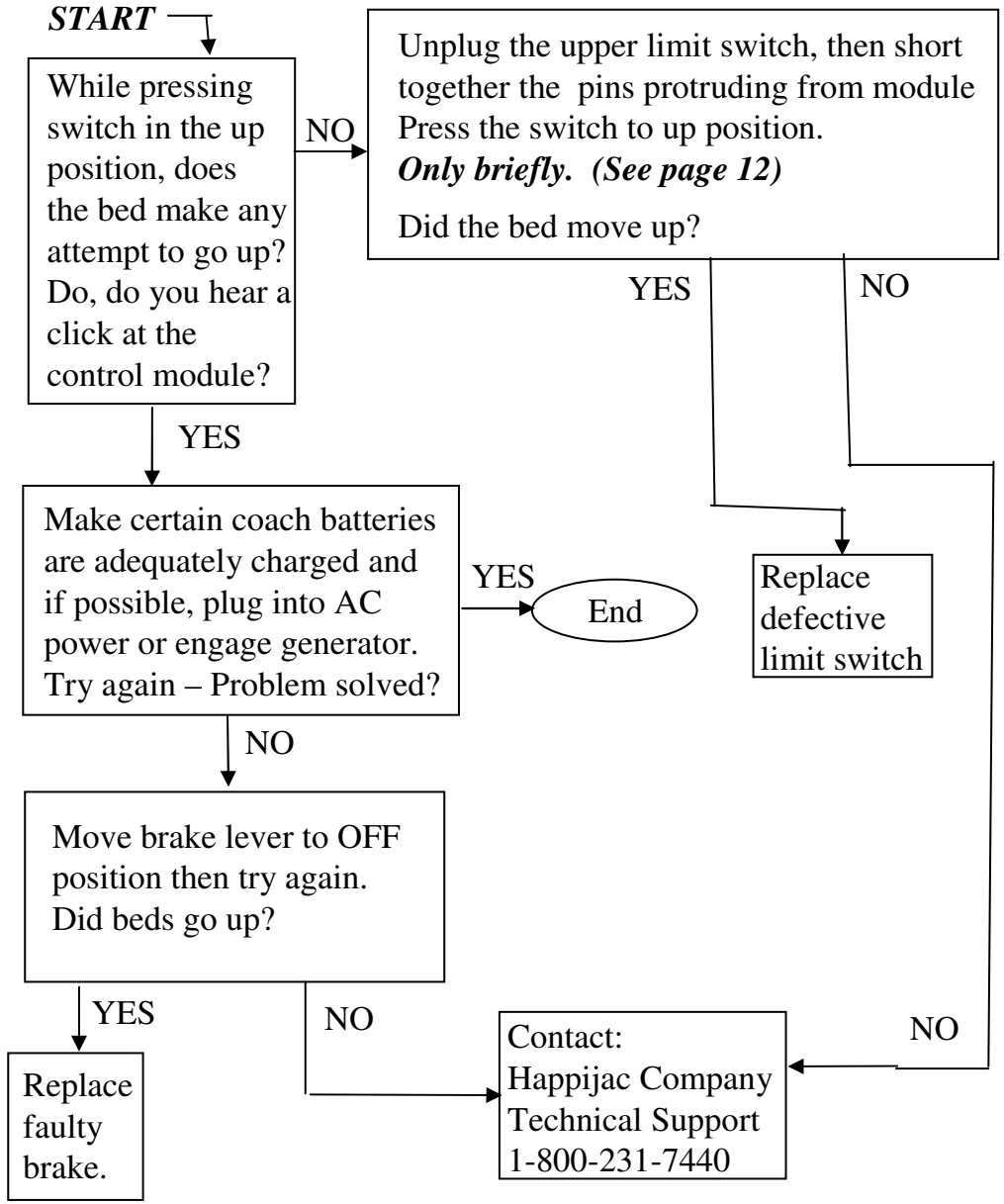
Symptom	Possible Cause
Bed will not move either up or down when switch is pressed. ***See diagnostic flow chart page 5***	1… No or insufficient power to operate bed 2… Faulty control module 3… Faulty switch 4… Defective motor
Bed will go one direction well but not the other. ***See diagnostic flow charts pages 6 & 7.***	1… Defective limit switch 2… Faulty control module 3… Faulty up/dn switch 4… Faulty Brake
Bed operates well going down, but stops part way going up.	1… Insufficient power to bed. 2… Defective motor/brake assembly. ***See test on page 10.***
Bed will not stay level side to side, or front to back.	1… Broken or loose timing shaft. 2… Broken chain sprocket.
Bed fails to stop at preset stop point coming down.	1… Motor brake not engaging. ***See test on page 10.*** 2…. Defective limit switch.
Bed fails to stop ad preset stop point going up.	1… Defective or damaged limit switch
Upper bunk *(2 bed system)* Does not come down smoothly.	1… Sticky bed carrier. Spray a small amount of Silicone lubricant up both inner sides of all 4 rails. *(See maintenance section.)*

Troubleshooting Flow Charts:

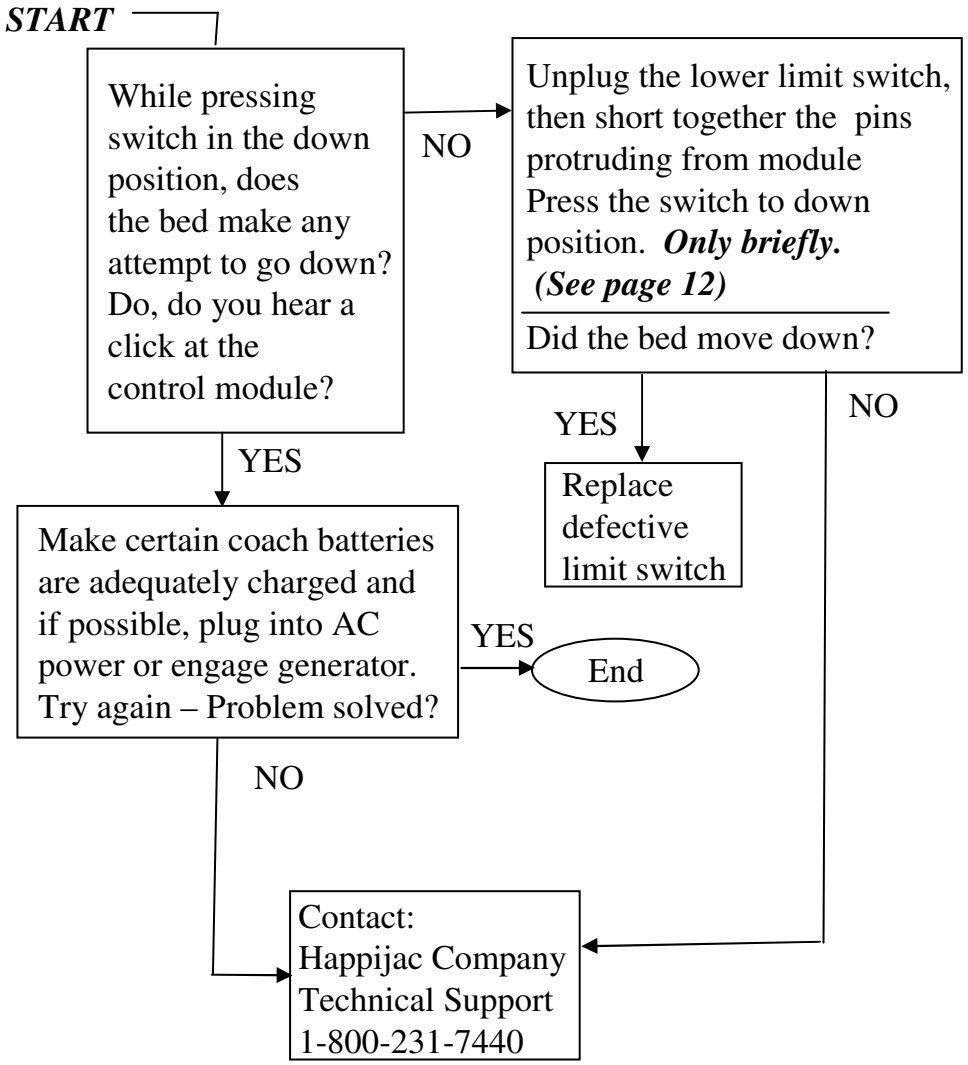
Problem: Bed(s) will not move either up or down When switch is pressed..



Problem: Bed will go down but will not go up.



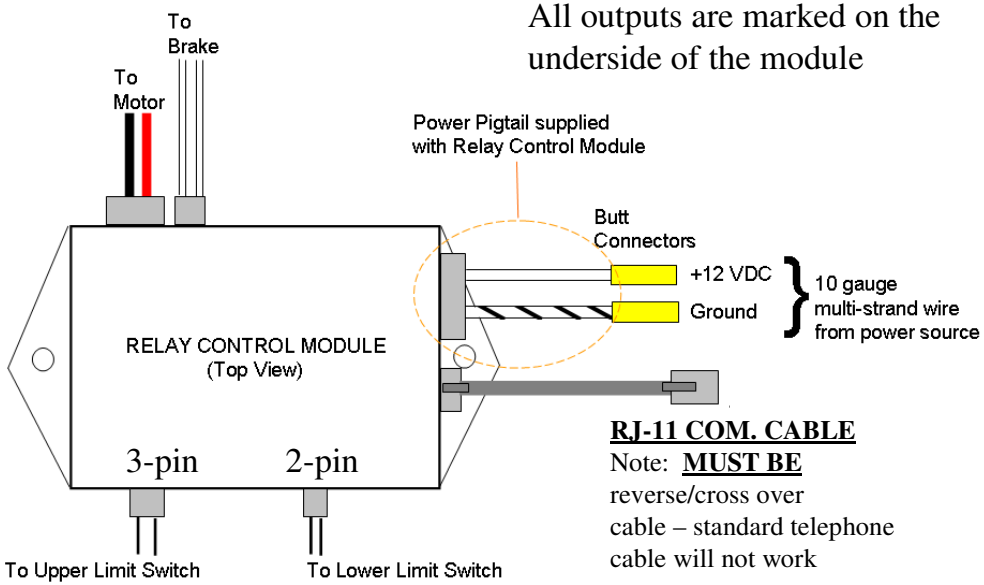
Problem: Bed will go up but will not go down.



Wiring Diagram

Relay Control Module location … RVIA wiring requirements restrict the length of exposed motor leads to a maximum of ten (10) inches. Therefore, the Relay Control Module must be placed above the motor or on the wall of the coach in close enough proximity to the motor that the 10" motor lead will reach.

All outputs are marked on the underside of the module



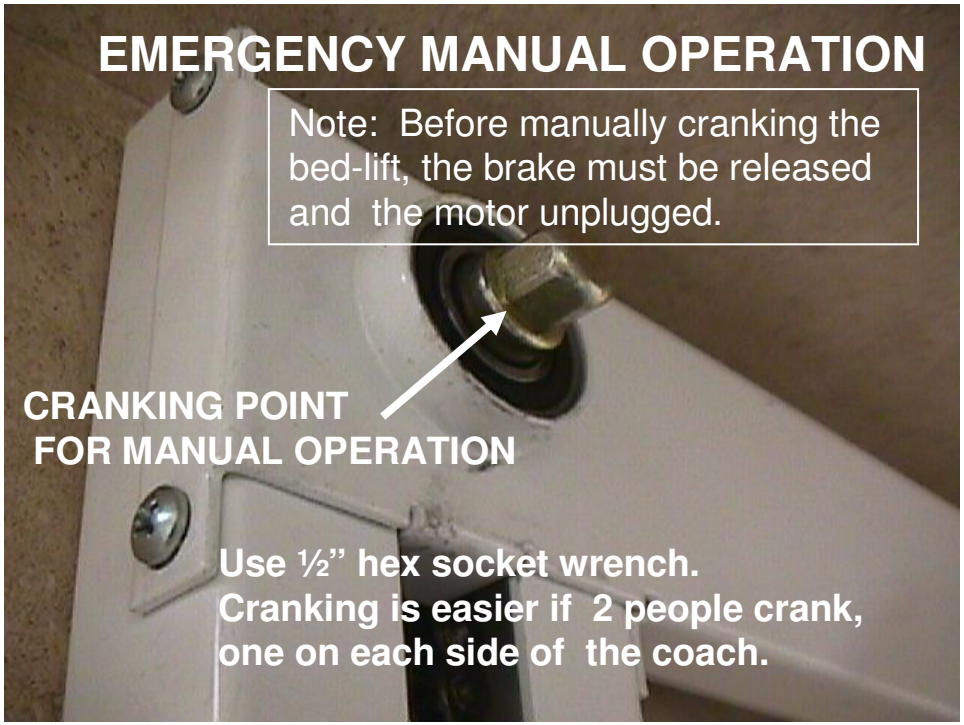
RJ-11 COM. CABLE
Note: **MUST BE** reverse/cross over cable – standard telephone cable will not work

OPERATIONAL NOTES:

Within the control module is a tri-state relay. This relay transfers bi-directional power from the trailer power source to the bed lift motor and to the brake solenoid to release the brake.. The up/down switch when activated closes the ground path to one of two solenoid coils within the relay causing the coil to energize and close the appropriate set of relay contacts. IE: the up contacts to move the beds up and the down contacts to move the bed down.

The limit switches are normally closed switches and are wired in series with the up/down switch. Therefore, until the beds reach and trip (open) the limit switch, there is a ground path through the micro switch and up/down switch and the bed moves. Once the micro switch is reached and tripped (opened), this ground path is broken and the motor stops and the brake sets

In some systems, the trailer manufacture may have added and additional switch as an "ON/OFF" or "LOCK'OUT SWITCH". If so, this switch may be wired in one of two ways. It will either be used to break the switch common lead to the Up/Down switch, in which case there will be additional wires coming to the back of the up/down switch, or it may be used to kill the primary power from the trailer to the PNP Control Module, in which case there will be no power at the modules main power input until this switch is closed.

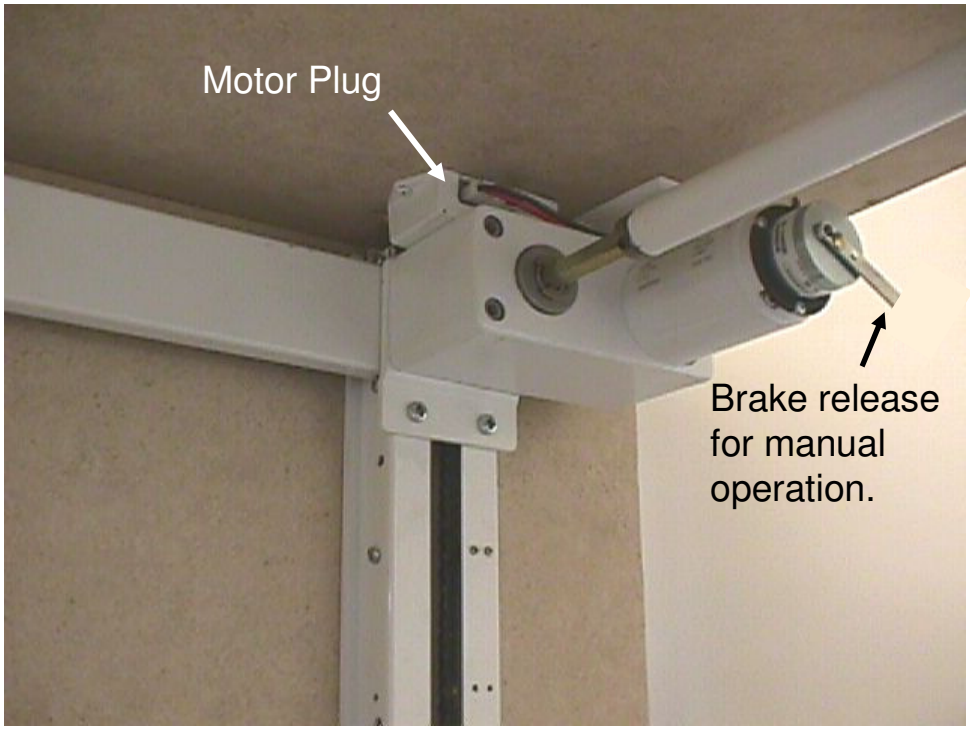


To Manually Raise the beds:

1. Unplug the motor
2. Release the brake
3. Turn hex shaft using a ½" ratchet wrench.
4. Re-apply brake at desired bed height.
5. Reconnect motor plug.

To Manually Lower the beds:

1. Unplug the motor
2. Release the brake
3. Apply downward pressure to the bed platform. Bed will slowly drift downward.
4. Re-apply brake at desired bed height.
5. Reconnect motor plug.



CAUTION: When beds are not being manually raised or lowered, the **BRAKE MUST BE SET** or beds will drift down and will damage objects or vehicles placed below the beds.

Motor & Brake Test

The motor and brake assembly is best tested by jumping 12-14 VDC directly to the motor. This is done as follows

1. Position the bed(s) well out of the upper & lower limit switches if possible. If not, exercise extreme caution during the following steps to avoid damage to the system.

2. Remove the motor plug from the PNP Control Module & release the brake lever on the end of the motor (if beds are up, they will drift downward).

3. Briefly jump 12 VDC from a known good source to the motor wires. Be careful not to contact limit switches. If moving close to limit switch – reveres the wires. Run the beds this way only long enough to verify motor operation. The **Limit Switches** are no longer active in the circuit and will not stop the bed. ***Damage to the switches, mechanism, or coach could occur.*** Reversing the leads will reverse motor direction.

4. If the motor does not operate well in this test mode, the problem may still be unrelated to the motor. Motor failures are extremely rare and motors are expensive. If uncertain of failure, before replacing the motor, contact Happijac technical support at 1-(800)-231-7440.

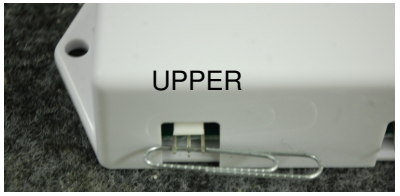
System Specifications: (Lifting mechanism only)

Voltage = 12 VDC.
Nominal current draw = 8 amps (1 bed going up)
12 amps (2 beds going up)
Load limit* = 450 pounds dynamic (moving) load.
600 pounds static (stationary) load.

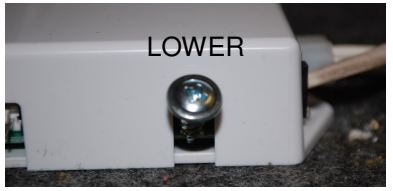
* Note: These ratings are for the lifting mechanism only. Happijac does not manufacture and therefore does not rate any attachments, such as bed platforms, sofas, etc. Load ratings for these items would be the responsibility of the manufacturer.

TESTING LIMIT SWITCHES

To determine if there is a problem in a limit switch circuit, the best test is to eliminate the switch from the circuit. This can be done by removing the small red plugs from the PNP Control Module, and shorting the pins of the module, then briefly depressing the up/down switch to see if the motor energizes. If it does, the problem is in the limit switch circuit and it needs to be replaced. If the motor does not energize the problem is elsewhere. (Refer to the photo diagrams below for shorting and testing limit switches).



The 3 pin output can be shorted by lacing a paper clip or stiff wire alternately over and under the pins, or shorted with an alligator clip.



The 2 pin output can be shorted by wedging a small screw or other metallic object between the pins. Or shorting with an alligator clip.

TESTING UP / DOWN SWITCH

(Happijac Supplied Switch Only)

The up/down rocker switch can be bypassed for testing purposes. Remove the screws from the switch bezel to gain access to the back of the switch. The switch is plugged into a circuit board which transitions the signal from the switch to the communication cord. You can bypass the switch by shorting the center contact of the switch to the outer contacts. If the beds move while shorting, but not when the switch is depressed, the switch is defective.

With switch plugged in short from center silver lug to each outside lug. One side should move beds up – the other side down,

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