Troubleshooting Guide for Limoss Systems

NOTE: Limoss is a manufacturer and importer of linear actuators (motors) hand controls, power supplies, and cables for motion furniture. They are quickly becoming a leading designer and manufacturer of motion systems for the furniture industry, providing German Engineered, high quality and competitive priced solutions for all branches of the furniture industry. As far as troubleshooting and repair, Limoss components are almost identical to the Okin system.

There are four components to a standard Limoss system, and we will mention all of them in the symptoms below. Here they are in order of the most often experienced problem:

1) **Hand control**: The hand control is **by far the part that we sell the most**. Limoss hand controls have a circuit board built into them (why, I don't know, except that's the way the West German engineers designed the system). We could get into a long discussion as to what the circuit board does, but we don't really need to know (and besides, very technical electronics explanations just give me a headache…). The problem is that as the hand control is used — and abused (dropped, sat on, water spilled on it, chair let down on it, etc.), the solder contacts loosen and the control will start working intermittently. Then at some point it quits altogether…

2) **Transformer**: This is the Limoss part that we have the second most problems with. It's not that they are abused that much (except when liquids get spilled into them or it somehow gets under the chair and the chair comes down on it), but the fact is that it's operating

24/7, and nothing lasts forever. A simple check you can do is to feel the transformer to see if it's warm. It should be warm, but not so hot that you don't want to hold onto it. If it is that hot, it needs to be replaced, no matter if it's still working or not – house fires are really inconvenient… If the chair won't do anything and the transformer is cold to the touch (assuming it has been plugged in for awhile), that well may be the problem.

3) **Motor**: Many people that call in say that their chair isn't working, and they think the motor is out. In fact, I spend a great deal of my days talking people out of ordering new motors… It's sort of like if you come into your house in mid-summer and the house is hot; you automatically assume the compressor is out; many times (unless you have my luck…) that's not the case. In fact, the motor is one of the last things I suspect in a lift chair problem… Usually, if a defective motor is the problem, it will be pretty obvious; the motor will smoke, or it will run but not pick up the chair, or you can hear gears grinding, etc. The motor is hardly ever the problem if it is just dead silent and not making any noise at all…

4) **Power Cord**: Unless the cord has obvious damage (which does happen, as a loose cord can easily get caught in the chair mechanism when it moves), cords hardly ever cause any problem. In 24 years, I can count on two hands how many power cords I have found that were bad without showing any external damage.

Problems

1) **Nothing about the chair will work.**

The most common problem is that the chair is not connected to the electrical supply or the electrical supply is not working due to a breaker, a fuse or a loose wall outlet in the home.

- Make sure there is electrical current at the outlet.
- Try plugging a working lamp into the outlet the chair is plugged into. If the lamp lights up, wiggle the lamp plug in the outlet a little to make sure the lamp doesn't go out because of a short in the wall receptacle. Then make sure the chair is connected to the outlet (don't roll your eyes at how stupid this sounds – you don't want to know the number of miles I have driven to a call, only to find that the chair wasn't plugged in or the wall plug was loose).
- If the power is OK, then the first step is to check the transformer.

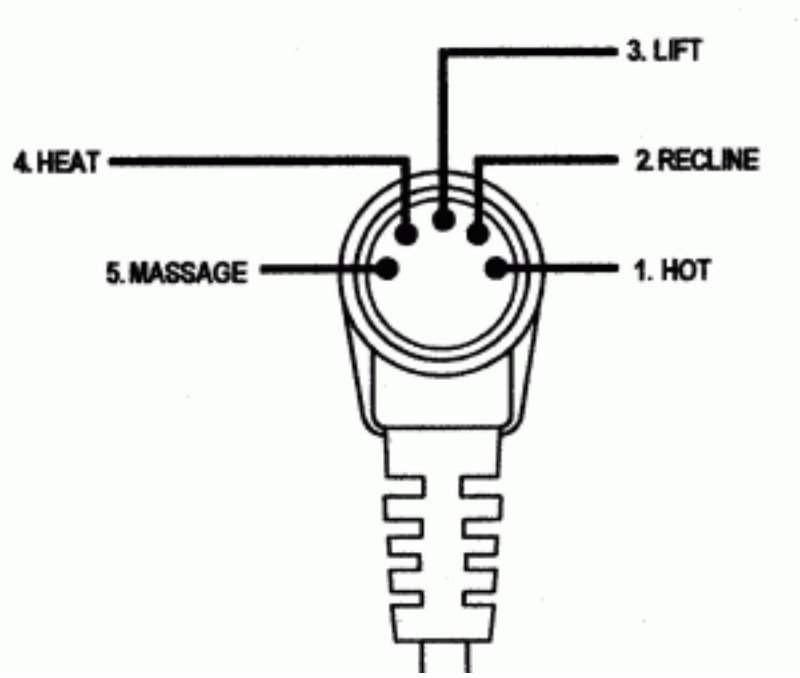
a) **Check Transformer/Motor Power Lead:**

- Turn the chair on its side and find the leads coming from the motor housing
- At the motor, disconnect the small two-prong wire coming from the transformer.
- Plug the chair into the wall, if not already done (the Limoss motor is a low volt system, greatly minimizing the danger of electrical shock).
- Set your multimeter to the DC Volts setting, put your RED lead into the SMALLER of the two openings on the cord; you will probably have to put a paper clip or pin into the holes, then put your lead onto that; (I don't understand why they made the contact points so small, but then again, they didn't ask me…) then your BLACK meter lead into the LARGER opening. Your meter should read from 24 -38 volts DC current. If you get a reading, then both the transformer and power cord are OK.

- If you get no current reading, then unplug the wire lead coming out the end of the transformer, and do the same check described above directly at the transformer end connector. If you get a voltage reading there, then the power cord from the transformer to the motor is defective. If no voltage reading, then the transformer is defective.
- If there is power going to the motor, then checking the hand control is the next step:

b) **Check the Hand Control**:

Note: The following procedure is very difficult to do by yourself with your own two hands; it's very hard to hold the plug with one hand and your two meter leads with the other, and get both the leads on those small pins without it touching the adjacent pins and giving a false reading. Either have another person hold the plug for you, or put the plug in a vise or some other holding device.



- Unplug the chair from the power source.

- Disconnect the hand control lead from the motor connector.
- Set your multimeter to the OHMS setting.
- Using the diagram above, place the RED multimeter lead on PIN 1 of the hand control cord.
- Place the BLACK lead on PIN 2.
- Press the switch to the DOWN position. A low reading means the hand control is operating properly in the “recline” position.
- Move the BLACK lead to PIN 3.
- Press the switch to the UP position. A low reading means the hand control is operating properly in the “lift” position.
- If either test fails, replace the hand control

Another note: With a hand control that is working intermittently, it is possible that you could get a good reading if everything is lined up correctly, but if you move the cord around a little, the test will fail. If you can, have someone wiggle the hand control housing and cord while you take the reading. If the reading fails then, replace the hand control.

Most of the time, you will find that the hand control is the problem. In fact, if all this is confusing, and you just want to try the “warm feeling” method of repair, try ordering a hand control; most of the time, you’ll be correct. We have an inside joke around the shop (“it’s always the hand control”) when customers send in their parts for us to check. It isn’t always, of course, but it sure seems that way.

c) **Check the motor**:

- Unplug the chair from the power source.

- At the motor, disconnect the small two prong wire coming from the transformer.
- Set your multimeter to the OHMS setting.
- Place one lead on each pin coming from the motor.
- If less than one (1) ohm is read on the meter (in other words, if you have a digital meter, and the reading ever changes), then consider replacing the motor.

Note: Please refer to the notes about the motor above. I have seen a great many Okin motors that checked OK with the test above (that is, it tested to the 1 ohm reading) but the motor was bad. In reality, **there is no really good electrical test that will definitely show a bad motor**. The best thing to do (if you don't have a known good part to test with) is to eliminate everything else in the system and if you're fairly sure everything else is OK, then try replacing the motor.

IMPORTANT: When you receive the new motor, try it by plugging the wires into the motor without mounting the motor in the chair; we can't take the motor back if it has been installed in the chair (it would show use,and no one else wants to buy a used motor).

Another Note: An Okin motor cannot be checked by applying voltage directly to the motor power leads. There is a circuit board in the hand control and also another in the Okin motor that keeps direct voltage from running the motor. This can be done with Dewert motors, but not with Okin…

A Final Note: I want to repeat and re-emphasize what I said earlier in the component section above: Most people automatically think if their chair isn't working, that the motor is out. As I said earlier, I spend a great deal of my day talking people out of ordering new motors. In

fact, the motor is one of the last things I suspect in a lift chair problem. Usually, if a defective motor is the problem, it will be pretty obvious; the motor will smoke, or it will run but not pick up the chair, or you can hear gears grinding, etc. The motor is hardly ever the problem if it is just dead silent and not making any noise at all. Don't get me wrong: motors do go bad, it's just not nearly as common as most people think.

2) The chair will raise up but not recline, or will recline but won't raise (in other words, the chair will run one way but not the other).

The cause of this in a Limoss system is almost **always** a defective hand control. The reason is that in a Limoss system, power is continually going to the motor from the transformer; if the chair runs one way but not the other, that means the transformer and the power cord from the transformer to the motor are both good (if they weren't, the motor would not move at all). Limoss motors almost **never** go bad when they will work one direction but not the other; in fact, I can't remember the last time I heard of a Limoss motor that did that. The only other component to the Limoss system is the hand control, and as mentioned above, is the part that causes the most trouble.

3) The chair will raise up to a standing position OK, and it goes back down to a sitting position OK, but when the chair gets to the point that the footrest should extend and the back recline, the chair stops moving, and you hear a grinding or squeaking noise.

This is usually caused by a broken spindle nut inside the actuator (our part #6258). As mentioned in the introduction above, a lift chair motor pushes the chair to the lift position and pulls the chair to recline. If the spindle nut is cracked or broken, it holds together to push the chair

up; the weight of the operator helps to take the chair to the sitting position. But when the chair goes back any further, the spindle nut has to pull to get the chair to recline; if the nut is damaged, it can't do that. To tell for sure, do the following test:

a) **Checking the spindle nut**:

Run the chair to the standing position, then push the down button to get the chair back to the sitting position. Hold the down button to get the chair into the recline position, until the footrest stops going out and the chair stops going back and the problem starts.

Then, turn the chair on its side, and take the clevis pin out of the end of the stroke tube, so that end of the motor is now detached from the chair.

Now, check to see if the stroke tube (the long round shaft that goes in and out of the motor) is loose inside the actuator tube; In a normal motor, you would have to unscrew the tube out of the motor (the tube has left hand threads). A motor with a broken spindle nut will be loose inside the housing; usually, you can simply pull it out of the housing without unscrewing. Replace the spindle nut, and all should be well again.

If the spindle nut is OK, the problem may be a bent scissor mechanism or damaged framework under the chair. Please do the following:

b) Check for scissor or frame damage:

Turn the chair on its side, Examine the entire base of the chair for bends or breaks. Check the scissor mechanisms for excessive wear or broken welds. Examine the wood and the lift frame near the scissors for scrapes or damage; The problem may lie with those

instead of the scissors. Check the end of the motor lift tube, where it bolts to the chair; that is our Limoss metal connector (our part #7252) , and often was the “weak point” of the motor assembly. If you can’t tell if the noise is coming from the chair frame or the motor, try removing the motor from the chair and manually move the chair to its various positions; sometimes you can find the squeak easier that way. You can also run the motor while it is off the chair; if you hear loud noises from the motor that way, then the motor needs replacing.

4) The chair is suddenly running very slowly, and sometimes won’t work at all if someone is stilling in the chair.

It could be that the transformer is not working correctly with the household current, and it is now trying to work off the emergency battery backup. In certain conditions, the transformer won’t run on standard 120 volt power, but will still run off the batteries. To test this, do the following:

Replace the two 9 volt batteries in the transformer with new batteries.

Try running the chair without anyone sitting in the chair; see if the chair is running up and down, even if it still runs slower than normal.

Now, with the chair still plugged into the wall receptacle, unplug the two 9 volt batteries

Try running the chair again; if it doesn’t run this time, then the transformer is defective and must be replaced.

5) The battery backup system is not working.

The batteries may be dead, or battery leads may be damaged.

SOLUTION: Batteries need to be changed every 6 months (a good idea is to do this when you change your smoke detector batteries), or

after every time they are activated due to power failure (the batteries only have enough power to run the chair for a cycle or two, then they will be dead). If, after you change the batteries, the backup system still doesn't work, examine the battery leads for breaks, cracks, etc. You can try replacing the battery connectors If you have the room; if not, replace the transformer, if the battery backup is important to you (probably 90% of chairs with this feature don't have any batteries installed, or the batteries are dead, but manufacturers know that it is a good selling point, so they still use them).

INSTALLATION INSTRUCTIONS FOR LIMOSS MOVING BLOCK

Thank you for your purchase of the replacement moving block for your Limoss motor. This moving block should make the motor work as it was when new, but it must be installed correctly in order to function properly. There are several different ways to install the block, but we have found that following the steps below are the fastest and easiest:

Remove the plastic cap on the end of the aluminum shaft by removing the two Phillips screws.

Shine a flashlight into the end of the shaft; you will find a small limit switch on the top end of the shaft that has two wires soldered to connections on the switch.

Take a small paper clip, and straighten it out except for a bend in one end of the clip. Put the paper clip (with the bend end first) in the shaft by the limit switch, hooking the wire furthest from you with the bend of the clip. Then, use the body of the paper clip to touch the other wire connector on the switch; in effect, you are "shorting" the switch out with the paper clip.

While holding the paper clip in place, push the “up” button on the hand control; if the paper clip is positioned correctly, the rest of the old moving block should move past the limit switch and off the end of the shaft. If the block stops when hitting the limit switch, then the paper clip is not positioned correctly. Push the “down” button to back off the block, reposition the paper clip to ensure that the clip is touching both connections on the switch, and push the “up” button again. When you have the paper clip positioned correctly, the rest of that old block will “walk itself” off the end of the shaft.

When the old block is off the shaft, IT IS VERY IMPORTANT to shine a light down the length of the opening on the shaft to be sure that all the little plastic parts of that old block are out of the aluminum shaft; if you leave any little parts of that old block in the shaft housing, then the new block will lock up when it is installed.

To install the new block on the motor, you don’t have to use the paper clip anymore; position the new block as it should go upon the end of the shaft, make sure that the steel worm screw is hitting the threads on the block (the worm screw will drop down a little after the old block is off), and push the “down” button on the hand control, and the new block should “walk itself” on the motor.

Reinstall the plastic cap on the end of the shaft, and you are done.