

MediCepts SpineSix™ Biomotion Spinal System



Service Manual

November 2010 (Preliminary)

IMPORTANT NOTE: This is a preliminary copy of the *SpineSix* Service Manual that has not been completely tested or reviewed. Contact the MediCepts Service Department at 866-555-1212 for questions.

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Replacing Lead Screw Stepper Motors

All of the stepper motors that drive a lead screw are mounted in the same manner.

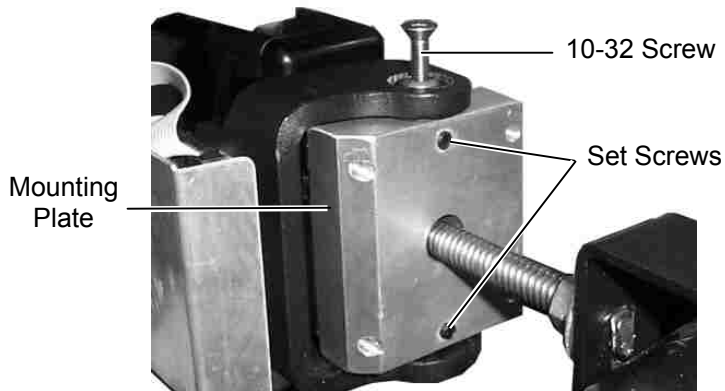
Tools needed:

- Allen wrench

1. Disconnect the bracket on the end of the lead screw from the module that the lead screw is driving.

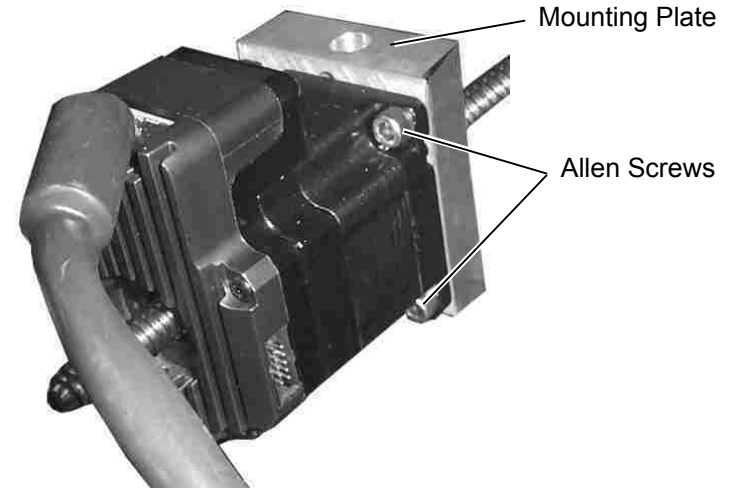
⇒ **Note:** The manner in which the bracket is attached to the module is different, depending on which motor is being removed. Consult the appropriate section of this *Service Manual* for information on how the bracket is attached.

2. Disconnect the cable from the motor driver board.
3. Loosely insert a 10-32 screw into the threaded hole in each of the two motor mounting pins.



4. Loosen the two set screws that secure the motor mounting pins to the mounting bracket.
5. Pull the two mounting pins to free the motor and mounting plate.

6. Remove the lead screw and bracket from the old motor by unscrewing the lead screw.
7. Remove the motor from the mounting plate by removing the four Allen screws.



8. Position the new motor on the mounting plate and replace the four Allen screws.
9. Place the lead screw and bracket on the new motor by screwing it in to the same approximate position.

⇒ **Note:** The lead screw will be automatically repositioned during calibration.

10. Reinstall the motor by following the reverse of the removal procedure.

Replacing Stepper Motor G

Stepper Motor **G** is used to raise and lower the calf rest by means of a transmission and roller chain. Refer to page 42 for the procedure to replace Motor **G**.

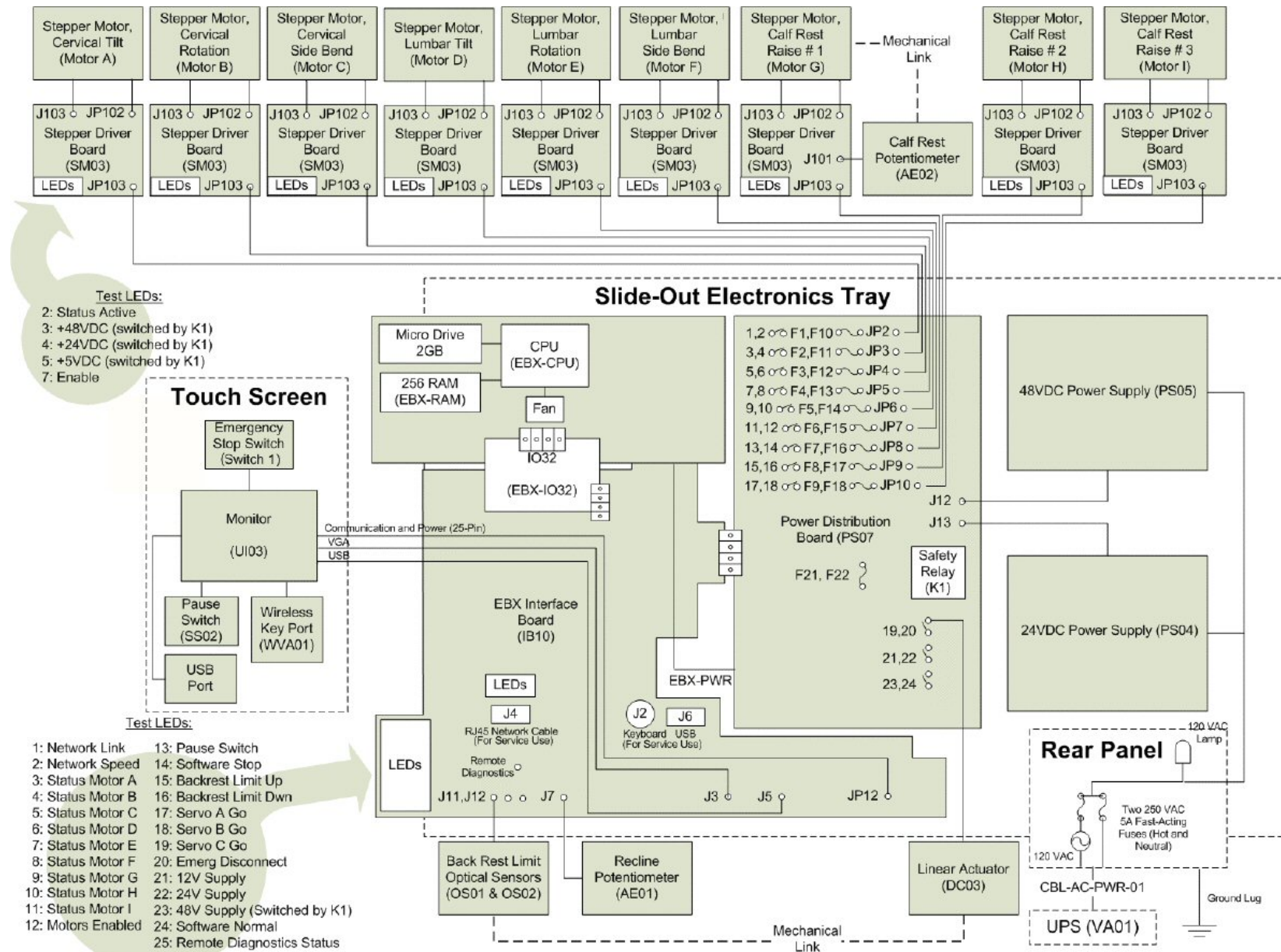
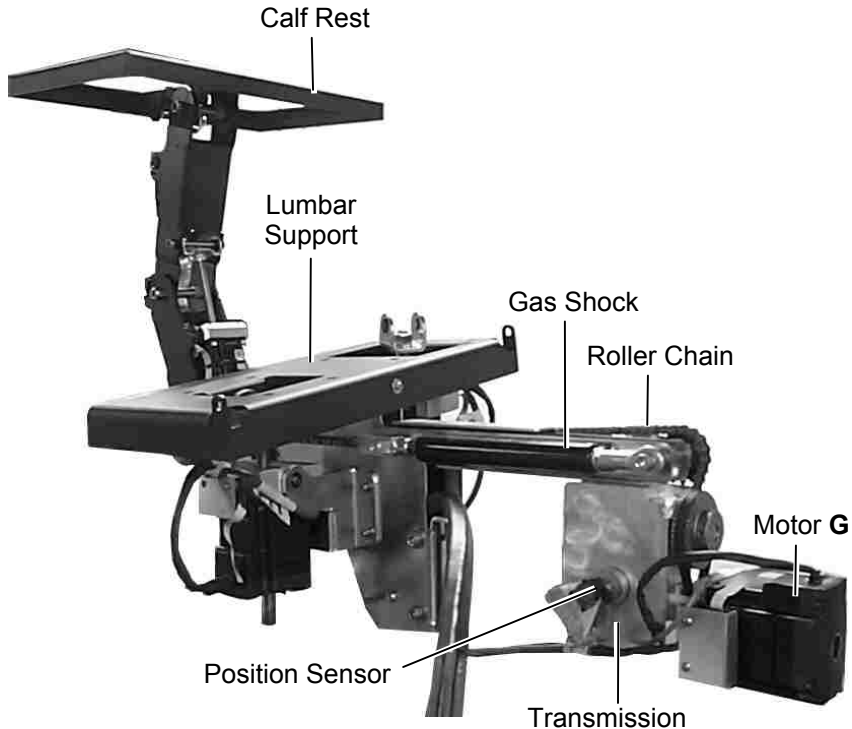


Figure 4. SpineSix Electronics Block Diagram

Calf Support Assembly

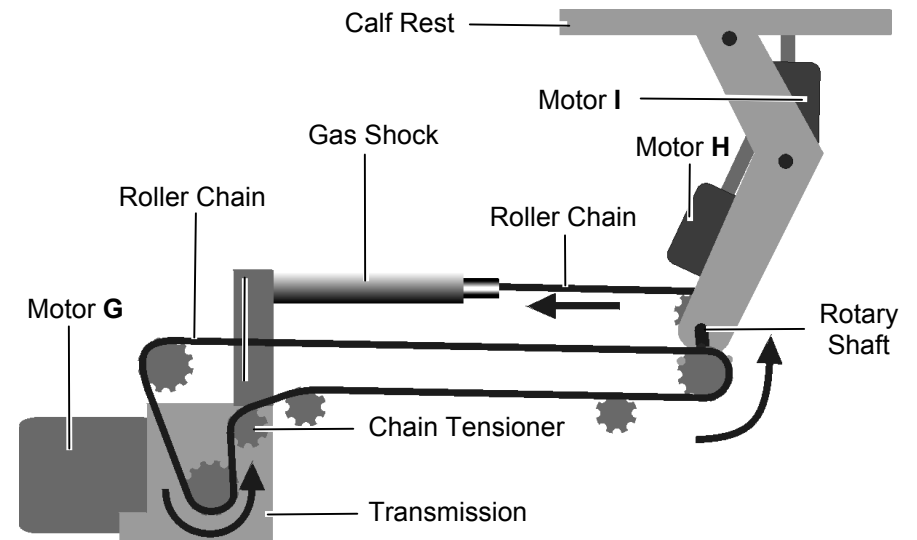
The calf support assembly raises and lowers the calf rest. The assembly is mounted in the base of the system, although many of the components are located outside of the base.



Operational Principles

Lifting of the calf rest assembly is depicted in the following diagram. Motor **G** rotates a roller chain sprocket at a high mechanical advantage provided by a transmission. The roller chain drives a rotary shaft, which in turn raises the calf rest.

Lifting of the calf rest assembly is aided by the gas shock, which is connected by means of a roller chain to a second sprocket on the rotary shaft. As the calf rest is raised, the pressurized gas shock pulls on the roller chain and counterbalances the weight of the calf rest.



As the calf rest is raised, Motor **H** and Motor **I** operate to maintain the calf rest in a horizontal position.

The process is reversed when the calf rest is lowered. Lowering of the calf rest assembly pulls out the gas shock piston and re-energizes the gas shock.



DANGER, CRUSH HAZARD: A very large amount of mechanical energy is stored in the gas shock when the calf rest is lowered. **Never** service the calf rest assembly with the calf rest lowered.

Always verify that the gas shock is de-energized before servicing the calf rest assembly. Refer to page 49 for details.