



**SUBJECT: Replacement of Non-Volatile Random Access Memory Chip (NV-RAM) in the DSD 412 DC Elevator Drive**

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**Issue**

A customer complained that he had a DSD 412 Elevator Drive at a 10 year old site that would not retain entered parameters.

**Investigation**

Investigation showed that the DSD 412 NV-RAM chip (U56 on the Main Control printed circuit Board) was defective.

**Analysis**

The DSD 412 NV-RAM chip holds Parameter set-up data, Fault logs, etc, and has an *internal non-replaceable battery*.

The manufacturer spec sheet for the NV-RAM chip calls out a battery life of 10 years. **The customers NV-RAM chip had a defective internal battery due to age.**

Note: On start-up, the EPROM derived initialization will check for a valid copy of the EPROM checksum to be stored and a valid CRC number regarding the NV-RAM data storage areas. If these checks don't pass, the data storage will be declared corrupt or the NV-RAM chip virgin. ***The drive will then initialize the whole device starting with loading program defaults to all parameter set points.***

**Replacement of NV-RAM Chip**

1. Record previous Parameter set point data.
2. Turn power off.
3. Use ESD precautions.
4. The NV-RAM chip is in a socket. Pull old device and replace with new device. Make sure all pins are seated.
5. Flip Memory Protect switch to OFF.
6. Turn Power ON. The NV-RAM chip will automatically initialize with the program default values.
7. Manually load all the parameter values that are different from the factory defaults (you did write them down, didn't you!). If you don't have the data, you will have to start from scratch and re-tune the entire drive again. \*
8. Save the entered parameters to NV-RAM using the 994 Save Function. (see DSD 412 Technical Manual for details on using the 994 Save Function)
9. Flip Memory Protect switch to ON.
10. Replacement process is complete.

\*Note: Some car controllers with a serial link to the DSD 412 will allow read/write to any parameter. If parameters are stored in the Car Controller, they could be reloaded via the serial link. This will be explained in the Elevator System Manufacturer's Car Controller Tech Manual.