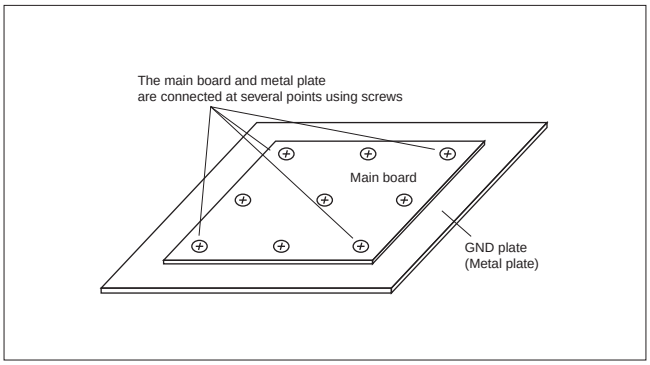
6 Example of Noise Suppression in Printers

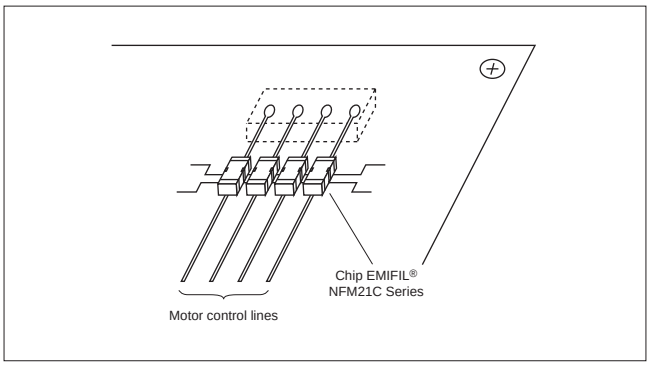
Improving the GND

To reduce the level of noise from the main board, a GND plate (metal plate) is installed onto the rear face of the main board to improve the GND. The main board GND and GND plate are connected at several points.
However, if the connection points are inappropriate, the noise level may increase. Therefore, great care must be given when selecting the connection points. Connections should not be made at points where the noise level is especially strong, such as the oscillator circuit GND.
Improving the GND is also intended to prevent static electricity from causing a malfunction. Improving the GND suppresses any potential difference between the GND generated when current from static electricity flows into the board.



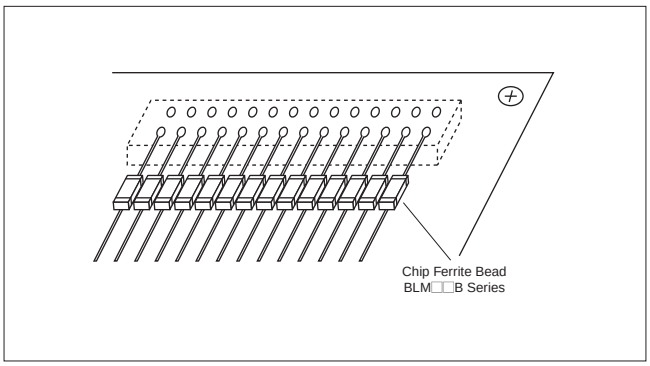
Installing EMI filters on Motor Control Lines

Noise generated by the motor is conducted to the main board and other cables via the motor cable and radiated. EMI filters are installed near the motor to suppress the noise.
In case that EMI filters cannot be installed near the motor, NFM21C series (Chip EMIFIL®) are installed on cable connections to the motor. However, the noise suppression effect may not be as much as that obtained by installing EMI filters near the motor.



Installing EMI filters on the Parallel Interface

If noise is conducted to the printer cable, high levels of noise are radiated. Therefore, EMI filters are installed on the cable port (parallel interface) to suppress noise. Note that installing a filter with a large impedance value may sometimes hinder communication between the printer and personal computer.
Using a BLA31 series (Array type) decreases the mounting surface area.



Installing EMI filters on the DC Power Supply Input and Lines

Noise is conducted from the DC power supply and GND lines to the switching power supply and radiated from the AC power supply cable. To suppress the noise, the BLM□□P series (Chip Ferrite Bead) is inserted onto each power supply line (including the GND line).
If the noise level is high, the NFM□□P series (Chip Solid EMIFIL® for DC power supply circuits) is installed in addition to the chip ferrite bead to achieve more noise suppression effect.