TECHNICAL GUIDE

Electric Motor and Servo Drive Repair and Reconditioning

A Practical Guide: Diagnostics, the Repair Process, and the Repair-or-Replace Decision

A failed electric motor or servo drive means production downtime, and the cost of that downtime often exceeds the cost of the repair itself. This guide briefly covers how standard motors differ from servo drives, how to recognize common failure symptoms, and when reconditioning makes more sense than buying new equipment.

Standard Motor vs. Servo Drive — Key Differences

| Feature | Standard Motor | Servo Drive |

|---|---|---|

| Control | Open loop, no feedback | Closed loop with feedback |

| Control signal | Voltage (0–10 V), current (4–20 mA), fieldbus | Position/speed setpoint + PID controller |

| Feedback | Usually none | Encoder, resolver, or tachometer |

| Positioning accuracy | Limited | High |

| Typical application | Pumps, fans, conveyors | CNC machine tools, robots, positioning systems |

Common Failure Symptoms and Possible Causes

| Symptom | Possible Cause |

|---|---|

| Motion instability (position/speed oscillation) | Feedback errors, poor controller tuning |

| Bearing noise or grinding | Bearing wear or lack of lubrication |

| Encoder faults | Loss of signal from the encoder or resolver |

| Motor overheating | Increased winding resistance, cooling problems |

| Loss of torque | Winding or permanent magnet damage |

| Incorrect position/speed readings | Damage to the feedback loop |

Stages of Professional Repair

1. Initial assessment and diagnosis of the motor and encoder
2. Disassembly of the unit and cleaning of contaminants
3. Repair or replacement of components (bearings, windings, brushes, seals)
4. Repair or replacement of feedback devices (encoder, resolver, tachometer)
5. Calibration and adjustment according to factory data
6. Static, dynamic, and load testing per OEM specifications
7. Final inspection and packaging for shipment
8. Service report and operational warranty (typically 1 year)

When Reconditioning Makes Sense

- High-precision servo motors requiring exact position control
- Legacy or specialized equipment with no new replacements available
- Critical applications where downtime is unacceptable
- Integrated systems where replacement would require rebuilding the entire production line

Brands and Series Serviced

| Manufacturer | Typical Series |

|---|---|

| Siemens | SIMOTICS, SIMOVERT, 1FK7, 1FT7 |

| ABB | ACS, DCS, M2104, M3104 |

| Fanuc | Ai, Servo Drive, A06B |

| Rexroth Indramat | DKC, KDS, MSK, MDD |

| Baldor | MintDrive, FlexDrive |

| Allen Bradley | PowerFlex, 2198 |

| Reliance / GE | industrial motors and drives |

Why consider reconditioning: most repairs take 5–10 days, and in many cases even 24 hours — thanks to diagnostics, stocked inventories of rebuilt motors, and exchange options. Every repair comes with a service report and an operational warranty, typically for 1 year.

Need a quote for repairing or reconditioning a motor or servo drive? Contact Enetiv via enetiv.com — we'll check parts availability and propose the fastest repair path.