Trendsetter VLF Power-Loss Brake
Field Upgrade Procedure

Revision History

Revision	Date	Author	Comments
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1. OVERVIEW

This is the procedure to field retrofit the power-loss resistive brake into the Trendsetter VLF (TS VLF). This procedure applies to all types of TS VLF power-loss brake retrofits:

- Mandatory upgrades to existing Autoloaders (kit number 05-0236);
- New V-speed upgrades of the semi-automatic TS VLF.
- Any other brake retrofit to a TS VLF in the field as required.

This is an important safety feature for the Autoloader option. Please follow the instructions carefully to ensure that the power-loss brake operates correctly.

The power-loss resistive brake stops the spinning drum in about 5 seconds if AC power is switched off or interrupted for any reason. See the Theory of Operation section for more details.

If any part of the procedure is unclear, please contact the VLF Trendsetter Product Support Specialist in Product Development through the Response Center.

2. REQUIRED EQUIPMENT

- 3mm allen wrench
- 4mm allen wrench
- 8mm allen wrench

3. MATERIALS INCLUDED IN UPGRADE KIT

The parts of the upgrade kit are shown and listed below. Refer to the bill of materials 11-1013A for complete details.



- Resistive brake assembly 10-4928A
- Self-sticking mounting bracket prepared with double sided tape, 50-2443A
- Relay-PDB cable 10-4972A
- Ground wire 10-4976A
- Rubber edge trim, 180 mm long
- Scotch Brite scouring pad
- Isopropyl alcohol wipe single packet (not shown in photo)
- 10cm cable ties (4 pieces)
- 7 inch cable ties (2 pieces, not shown in photo)
- M5x8 screws and M5 lock washers (4 pieces)
- M4x8 screw and M4 lock washer for attaching ground wire to servo amp mount (not shown in photo.

4. UPGRADE PROCEDURE

4.1 Key steps

Some key steps in this procedure are:

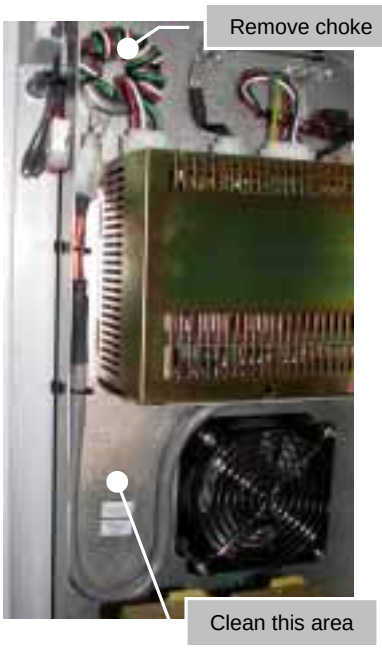
- CLEAN - Clean the mounting area before sticking the mounting bracket.
- CHECK MOUNTING POSITION - Check the position before sticking the mounting bracket.
- ATTACH GROUND WIRES - Screw the ground wire to the servo amp before mounting the brake relay/resistor assembly. Screw all three ground wires to the brake and mounting bracket.
- TEST - Test the brake and TS VLF operation before leaving the site.

4.2 Preparation

1. Turn off the AC power switch.

WARNING: Dangerous voltages could be present while the machine is operating. For maximum safety, please switch off AC power before proceeding with the installation.

2. Remove the right-hand front panel to open the power box.
3. Cut the two cable ties that hold the drum motor cable in place.
4. Cut the two cable ties that hold the choke in place and remove the choke.



5. Clean the area between the cooling fan and the front edge. Scrub with the scouring pad then wipe with the alcohol wipe. Cleaning the surface ensures that the bracket will stick properly.

4.3 Install mounting bracket and ground wire

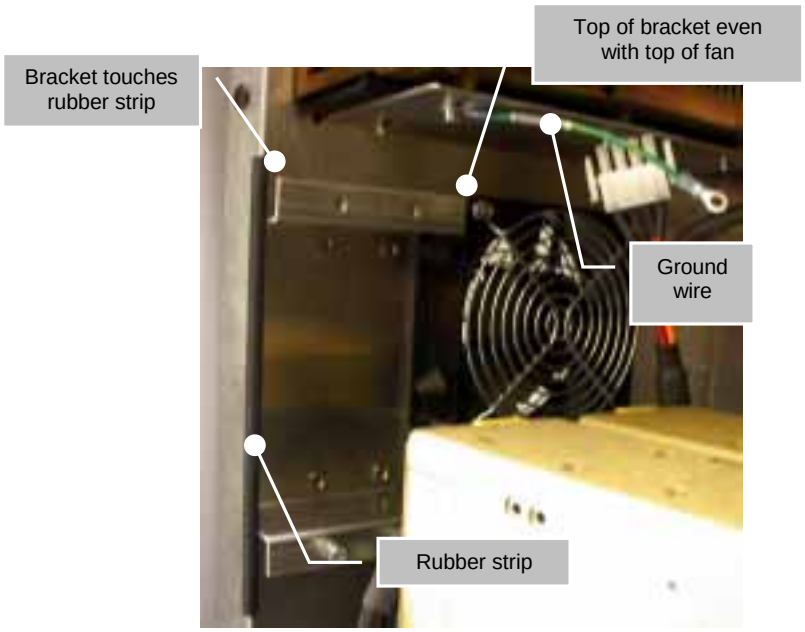
6. Install the protective rubber strip on the front edge of the power box beside where the brake will be installed.

7. Before peeling off the tape backing, try positioning the bracket to ensure you understand the alignment instructions. Install the bracket before attaching the brake assembly to make positioning easier.

   Note: Position bracket as follows:

   TOP - Align the top of the flange on the bracket with the top of the fan. This position leaves clearance to access to the screws that hold the servo amp.

   FRONT - Position at the front edge of the electrical box, touching the rubber strip.



8. Peel the backing off the tape and stick the mounting bracket into the correct position.

Note: At some time in the future (probably serial numbers above 600), the power box will have pre-drilled holes for mounting the brake bracket. If the holes are present, you have the option of attaching the bracket using screws without peeling the backing off the tape. The air filter outside the power box is removed temporarily to access the four mounting holes.

9. Once the mounting bracket is in place, press firmly to ensure the double sided tape is well set.

10. Remove the M4 screw on the bottom of the servo amp closest to the brake mounting bracket. This screw is replaced with a longer one in the next step.

11. Install a new M4 x 8 screw with an M4 split lock-washer and the smaller ring terminal of the grounding cable into the bottom of the servo amp. (Revision B of the grounding cable will have M5 ring terminals at both ends.)

12. Partially install two M5 screws into the bottom end of the mounting bracket. Use an M5 split lock-washer on each screw. Turn the screws in only about half way so the slots on the brake assembly can slide in under the washers.

4.4 Connect cables



13. Locate J8 on the Power Distribution Board on the right half of the back wall of the Power Box.

14. Connect the PDB-Relay cable (10-4972A) to J8 on the Power Distribution Board (PDB).

15. Install the PDB-Relay cable into the cable guide just to the left of the PDB.

16. Run the PDB-Relay cable along the bottom of the power box and plug it into the bottom of the Brake Assembly.

17. Connect the drum motor cable to the receptacle on the brake assembly. Coil the excess cable neatly in the rear of the power box.

18. Connect the long cable with the choke to the servo amp.

4.5 Install brake assembly



19. Slide the bottom of the Brake Assembly (10-4928A) onto the screws in the mounting bracket. The relay terminals face inside the power box, near the fan.

20. Install the other two M5 screws, split lock-washers, and the three ground wires at the top end of the mounting bracket. Attach the grounding cable (10-4976A) onto one of the screws, and the other two ground wires onto the other screw.

21. Tighten all four M5 screws.

22. Use two cable ties to hold the choke in place, and two cable ties to hold the wires from the ferrite, down the side of the power box.

23. Use a cable tie to neatly secure the excess coil of drum motor cable.

24. Double check all screws, washers, and cable connections.

25. Replace the front panel to close the power box.

4.6 Testing

26. Turn on the Trendsetter VLF and Autoloader if present.
27. Spin the drum with the command drum spin 150.
28. While the drum is spinning, switch off AC power and verify that the drum stops spinning in about 5 seconds or less.
29. If the drum fails to turn when the drum spin command is issued, or braking takes longer than 5 seconds, refer to the troubleshooting section below.
30. Ensure the Trendsetter VLF is operating normally and able to image plates. The installation is complete.

5. TROUBLESHOOTING

Each power-loss brake assembly is factory tested for correct operation to prevent problems during installation. If the brake fails to operate properly when installed, here are some possible failure symptoms and troubleshooting guidelines.

5.1 Drum does not turn

Drum servo errors and no movement of the drum may indicate a bad connection between the drum servo amp and the drum motor.

- Check that all cable connections have been made. Inspect connectors for defects.
- Watch the relay contacts to see that they move normally when AC power is turned on or off.
- Verify that the PDB board is providing 24V DC to the relay coils.
- Disconnect the servo amp and motor connections from the brake with AC power turned off, then check continuity through the brake with an ohmmeter when AC power is on.

5.2 Braking takes longer than 5 seconds

Extended braking time and noisy, imbalanced braking when the brake is tested may indicate that one or more connections or relay contacts between the drum motor and braking resistors are faulty.

- Check that all cable connections have been made. Inspect connectors for defects.
- Watch the relay contacts to see that they move normally when AC power is turned on or off.
- With AC power off, inspect the push-on wiring terminals that connect the brake resistors to the relays to ensure all are properly inserted.

6. THEORY OF OPERATION

6.1 Description

The power-loss resistive brake stops the spinning drum in about 5 seconds if AC power is switched off or interrupted for any reason. Double-throw relays connect the servo amp to the drum motor when the relay coils are energized. Loss of AC power cuts power to the 24V DC power supply which in turn de-energizes the relay coils, releasing the relay contacts to the normally closed position. In this normally-closed state, the relay contacts connect the drum motor windings to the braking resistors. The energy of the spinning motor and drum is then dissipated as heat in the brake resistors and the motor windings.

6.2 Block Diagram

Below is a simplified block diagram shown in the power-off state when the brake resistors are connected to the motor windings. The detailed schematic should be available on-line through the Tech Library.

