

**SHOTCRETE**

# CASE STUDY



## PROJECT SCOPE

Complete mechanical and cosmetic refurbishment of a Dieci F7000 concrete re-mixer to return the unit to full operational condition and extend service life.

## KEY WORK PACKAGES

- Diagnosis and repair/replacement of all non-functioning components (hydraulics, electrical, driveline, etc.)
- Full strip-down, preparation and professional re-spray of chassis, cab and ancillary items
- Specialist repair of damaged fibreglass bonnet (structural reinforcement and gel-coat finish)
- Safe removal, inspection, repair/reline and refitting of the mixing drum
- Final testing, calibration and commissioning

## CLIENT

Shotcrete

## LOCATION

Cranbrook, Kent

## COMPLETION DATE

2025

## SECTOR

Repair & Restore

[www.shotcrete.co.uk](http://www.shotcrete.co.uk)

# PRIMARY CHALLENGES

- Fibreglass bonnet repair requiring specialist composite skills and materials
- Mixing drum removal and reinstallation (heavy, awkward component requiring precise rigging and alignment)

## TIMELINE

12 weeks

## PERSONNEL

Lead Technician: Tim Pay

Support Technician: Rob Jones

## OUTCOME

A fully refurbished, reliable and visually restored Dieci F7000 ready for immediate return to site operations with improved longevity and resale value.



# THE PROCESS



Fibreglass bonnet was badly damaged, both cosmetically and structurally. An extensive amount of labour went into repairing the surface and structural damage before prepping and painting. We also fabricated and added a bespoke flat steel re-inforcing brace to the hinge side where the bonnet was weak. This was resined into the structure to prevent further damage.



The entire machine had extensive corrosion. We decided not to remove the mixer drum as the process posed significant safety risk as well as a huge amount of time and labour. Instead, we carefully prepped the machine by removing many ancillaries and protected all remaining parts of the machine which did not require grit blasting. We then grit blasted the entire structure back to bare metal.





## FAULT DIAGNOSIS PROCESS – DIECI F7000 RE-MIXER

The systematic fault-finding process on the Dieci F7000 focused on three primary issues:

1. Loss of High/Low Range Selection
  - Checked transmission control solenoid operation and wiring integrity using a multimeter and diagnostic laptop (ZF ErgoControl system).
  - Confirmed correct oil level and condition in the drop-box; identified and replaced a failed range-selection solenoid and repaired damaged wiring in the chassis harness.
2. DPF Fault (Regeneration Inhibited / Derate)
  - Connected diagnostic tool (Dieci/DANA) to read active DTCs (typically P20EE, P1031, or exhaust back-pressure faults).
  - Performed static and forced regeneration cycles; monitored differential pressure sensor readings and EGT sensors.
  - Inspected DPF for soot/ash overload and dosing unit for crystallisation.
  - Outcome: filter was cleaned, differential pressure sensor repaired and successfully completed multiple times to restore normal operation.
3. Full Service of Filters and Fluids
  - Replaced all filters: engine oil, fuel (primary + secondary), hydraulic return/suction, air intake, and cab air.
  - Drained and refilled engine oil, coolant, transmission/drop-box oil, hydraulic oil, and axle oils to manufacturer specifications.
  - Greased all pivot points and checked/adjusted track rod ends and steering rams.

Post-repair road test and diagnostic health check confirmed full high/low range functionality, clear DPF system with no active faults, and optimal performance across all systems.

# CONCLUSION / OUTCOME

## CONCLUSION & PROJECT OUTCOME – DIECI F7000 RE-MIXER REFURBISHMENT

The 12-week refurbishment programme, completed on schedule in August 2025 with a successful outcome. All identified mechanical and electrical faults were systematically diagnosed and rectified, with particular attention to the previously inoperative high/low range selection and recurring DPF regeneration issues – both now fully resolved with no fault codes present.

The fibreglass bonnet has been structurally repaired, reinforced, and finished to a high standard.

A complete strip-down and professional re-spray has restored the machine's appearance to near-new condition.

Following final commissioning and extended load testing, the Dieci F7000 has been returned to service in full working order, significantly improved performance, and a markedly enhanced aesthetic and resale value.

The machine is currently working on hire to a client in the south west.



# THANK YOU

FOR YOUR INTEREST IN SHOTCRETE.

**SHOTCRETE**

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