

LONG TERM PAVEMENT PERFORMANCE



PROGRAM DIRECTIVE

For The Technical Direction Of The LTPP Program

Program Area: Monitoring

Directive Number: FWD-8

Supersedes: N/A

Date: January 8, 2003

Subject: Guidelines for Maintenance and Overhauls of the LTPP FWDs

The purpose of this directive is to clarify the responsibilities of the various parties involved in maintaining the Long Term Pavement Performance (LTPP) Falling Weight Deflectometers (FWDs), and to establish procedures which will minimize the potential for conflict in the most efficient manner possible. This directive applies primarily to FWD Serial Numbers 8002-129 through 8002-132, and the tow vehicles for FWD Serial Numbers 058, 059, 060, and 061, for which an active maintenance contract is in effect.¹ However, the underlying philosophy is applicable to all Government owned FWDs used in LTPP testing.

General Provisions

Each Regional Coordination Office Contractor (RCOC) is responsible for routine maintenance and repair of the LTPP FWDs operated within its respective region, with the proviso that the terms of the manufacturer's warranty are to be observed at all times. In order to avoid disputes as to potential warranty violations, the following guidelines shall be observed.

¹As of the date of this directive contractual arrangements for major overhaul of FWDs 058, 059, 060, and 061 are in progress. It is anticipated that this work will be complete in the winter 1994 time frame.

- **The troubleshooting and repair procedures recommended by the manufacturer in writing (or verbally, only if followed up by written confirmation), shall be correctly followed at all times.**
- **Repairs to the FWD and electrical systems shall be limited to those for which the manufacturer has provided recommended procedures (verbally, or in writing).**
- **Modification of the electrical system and components, including wiring, loadcell assemblies, deflectors, PCBs, and charging system elements installed by the manufacturer are not to be undertaken without written authorization and guidelines from the manufacturer.**

The FWD manufacturer is to inspect and overhaul each FWD once per year. Under the terms of the purchase contract, the first, third, and fifth such overhauls are to be conducted at the manufacturer's premises, and the second and fourth such overhauls are to be conducted in appropriate facilities (to be arranged by the RCOC) at or near the LTPP Regional Coordination Offices out of which the FWDs are operated on the Government's behalf. If suitable arrangements, satisfactory to the manufacturer, the RCOC, and the cognizant Regional Engineer can be made to complete the overhauls at alternative locations, at no increase in the overall cost to the Government, such arrangements are acceptable.

For each FWD, the first overhaul is to be scheduled for a mutually agreeable date not less than 10 months, or more than 14 months after the date of final acceptance. Subsequent overhauls are to be scheduled for mutually agreeable dates each 10 to 14 months after the previous overhaul.²

Annual overhauls are intended to supplement routine daily, weekly, and monthly preventative maintenance of the FWD and tow vehicle. As such, they are to address all aspects of the FWD and those components of the towing vehicle which are specifically related to its function as an FWD tow vehicle. They are not intended to address vehicle-specific items such as the engine, transmission, vehicle braking system, tires, etc., or "cosmetic" items, except to the extent that such items affect the operation of the FWD itself. They are intended to address power invertors, distance measuring instruments and other devices installed in the vehicle by the FWD manufacturer, which are outside the expertise of most automotive service facilities.

Procedures:

- 1. The RCOC shall contact the FWD manufacturer to schedule annual overhauls at**

²The time frames for overhauls are part of the contract provisions, and are based on a 1-year warrantee, with some leeway added for scheduling convenience.

a mutually agreeable time and place within the specified time frame. The time frame, location, and telephone and facsimile numbers for primary and backup RCOC contacts shall be confirmed in writing.

2. One month prior to the scheduled start of the overhaul, the Regional Coordination Contractor shall furnish the manufacturer with the following:

- A written list of items requiring special attention during the overhaul
- A videotape showing the following
 - general condition
 - trailer frame with special focus on joints & cross members
 - load cell area from underneath, with plate up
 - trailer tire wear
 - camber of wheels (with vertical level across each tire rim)
 - both side roller channels (while stopped and running)
 - condition of each sensor and holder
 - motor and battery area
 - hydraulic fluid leaks
 - center cylinder and inside flange with catch raised
 - sub-assembly structure
 - side cylinder (while stopped and running)
 - multi-signal cable and connections
 - inside of manual control box (LEDs while running)
 - general condition of processor
 - charging system
 - any other items needing attention
- Five (5) drift screens with sensor bar in down position
- Voltage screen
- Print xducers screen
- Print load cell calibration screen
- Print head file from field program
- Most recent calibration results (relative and reference)

3. Based on the information provided, the manufacturer shall prepare a written overhaul plan and cost and time estimate (generally parts only) and transmit it via facsimile to the LTPP Division Office and the designated representative at the Regional Coordination Office. Recommended repairs or maintenance regarded as outside the scope of the annual overhaul shall be clearly identified as such and priced separately. The plan shall include signature lines for approval by both the Regional Coordination Contractor, and an LTPP Division Office representative. Separate signature lines shall be provided for services considered to be outside the scope of the annual overhaul.

- 4. The RCOC shall review the proposed plan. If the plan is found to be generally reasonable, the RCOC shall transmit a signed copy, annotated and amended as appropriate, to the cognizant LTPP Division Office personnel within 2 business days. If the plan is found to require major revisions, the RCOC shall advise the LTPP Division staff of that fact, and coordinate with the manufacturer until a satisfactory plan is received.**
- 5. Within 2 business days of receipt of a plan approved by the RCOC, the LTPP Division Office staff will review the plan, and respond in writing, with copies to both the manufacturer and the RCOC.**
- 6. After approval of the overhaul plan, the RCOC shall apprise the manufacturer of any changes in the operational condition of the FWD which might impact the overhaul plan at the earliest possible date.**
- 7. The complete FWD system (including the tow vehicle, system processor, etc.) shall be made available to the manufacturer for a period of 14 calendar days, unless a longer or shorter period is fully acceptable to both the manufacturer, and the Regional Coordination Contractor.**
- 8. The FWD and towing vehicle shall be delivered to the manufacturer in a clean, well-maintained, and fully assembled condition. Routine (daily, weekly, and monthly) maintenance and repairs shall have been completed. Any required service on the tow vehicle (except that within the scope of the overhaul) which might interfere with the operation of the FWD shall have been completed.**
- 9. The manufacturer's overhaul supervisor shall inspect the FWD in the presence of the FWD operator, and discuss the required maintenance and repairs with him/her.**
- 10. Any necessary or recommended work identified after approval of the overhaul plan shall be discussed with the RCOC contact in advance. Items which will have a cost impact for the RCOC require advance written approval from the RCOC.**
- 11. The manufacturer shall complete the overhaul as approved. Work performed at facilities not under the control of the manufacturer shall be completed during normal business hours, unless alternative arrangements have been made in advance, and addressed in the overhaul plan.**

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