**FLORIDA DEPARTMENT OF TRANSPORTATION**
State Materials Office
5007 NE 39th Avenue
Gainesville, Florida 32609

January 12, 2023

# Florida Method of Test
# for
# DYNAMIC PAVEMENT DEFLECTION MEASUREMENTS

**Designation: FM 5-526**

Obsolete January 2023

## 1. SCOPE

1.1 The Dynaflect dynamic deflection device and the procedures used by the State of Florida for determining dynamic deflections are described in this test method.

## 2. APPLICABLE DOCUMENTS

2.1 AASHTO Standards
T 256-77 - Standard Recommended Practice for Pavement Deflection Measurements

2.2 Operators' Manual For Dynaflect:
S.I.E., Inc.
Route 5, Box 214
Ft. Worth, Texas 76126

## 3. APPARATUS

3.1 Nature of Apparatus - The deflection measuring device consists of a series of sensors that measure pavement movements when subjected to some loading.

3.2 Dynaflect - This device (Figure 1) is an electro-mechanical system for measuring the dynamic deflection of a roadway surface produced by an oscillatory load. This device consists of a dynamic force generator together with a motion measuring instrument, a calibration unit and a series of five motion sensing geophones mounted on a small trailer. The geophones are located as shown in Figure 2 for Florida DOT testing. The trailer in a stopped position exerts a 1,000 pound (454 kg) peak to peak oscillatory load onto the pavement surface through two rubber covered steel test wheels. The resulting amplitude of deflection is picked up by the geophones and is read as a deflection measurement on a digital display located in the tow vehicle.

## 4. RECONNAISSANCE OF PROJECT AREA

4.1 Technical data, such as, but not limited to, existing structural section, design traffic information, foundation and drainage conditions, vertical control limitations, and problems in original construction should be obtained for roads to be tested.

4.2 Preliminary field work should be performed prior to actual accumulation of deflection data. This could include recording the nature, extent and limits of distressed areas on the project, locating test sections for deflection testing and obtaining photographs of each test section.

4.3 To determine the interval for measurements within a test section, the length of the area should be taken into consideration as well as the condition. For example if a particular condition exists in a confined area additional testing may be required, when if the evaluation was being conducted on several miles of roadway exhibiting a uniform condition, then the testing interval could be extended to a greater distance.

## 5. PROCEDURE

5.1 All dynamic deflection procedures described refer to the use of the Dynaflect only.

5.1.1 Determine ambient and pavement temperatures to the nearest degree. Temperatures may be acquired using any reliable method.

**Note:** Florida does not apply temperature corrections to deflection data. No temperature restrictions are placed on the accumulation of deflection values if in normal expected range of 30°F to 100°F.

5.2 Dynaflect

5.2.1 Set up and prepare unit for deflection testing.

5.2.2 Calibrate the following items on a daily basis in compliance with operators' manual.

5.2.2.1 Frequency of calibrator oscillation.

5.2.2.2 Frequency of Dynaflect system oscillation produced by flywheels.

5.2.2.3 Geophones.

5.2.3 Bring test vehicle into position with the test wheels located at the test site.

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5.2.4 Obtain five deflection measurements, one per geophone, at each measurement interval as specified.

5.2.5 Record pavement deflections and location measurements on appropriate data sheets.

**Note:** The measurement locations transverse to the roadway centerline are normally taken either in both wheel paths or the wheel path which exhibits the most distress. For distress conditions occurring in transverse locations other than the wheel paths specific transverse locations should be designated.

## 6. PRECAUTIONS

6.1 Because this method consists of on site testing of existing pavements safe and adequate traffic control procedures are necessary.

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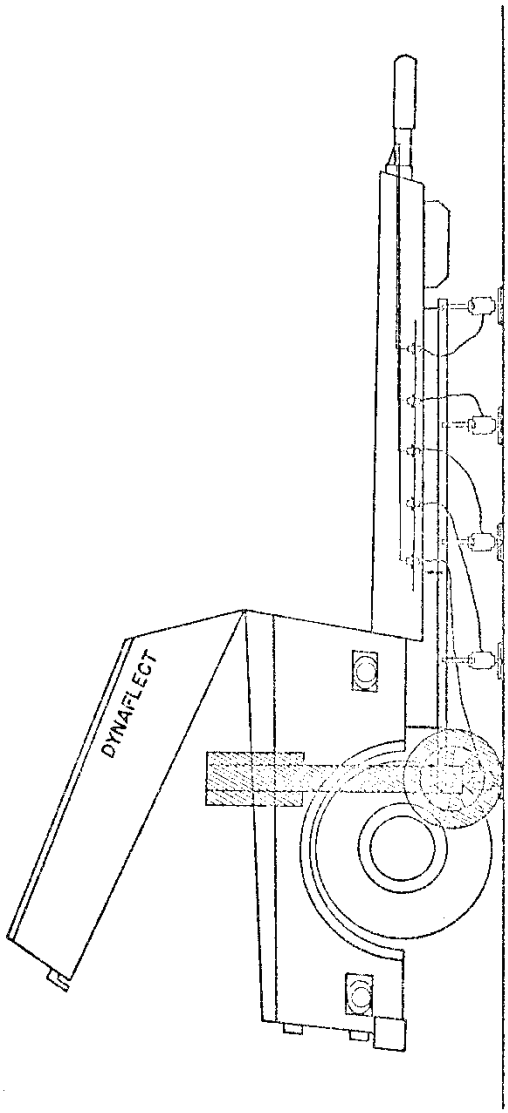


DYNAFLECT IN TEST POSITION WITH FORCE WHEELS AND GEOPHONES DOWN

FIGURE 1

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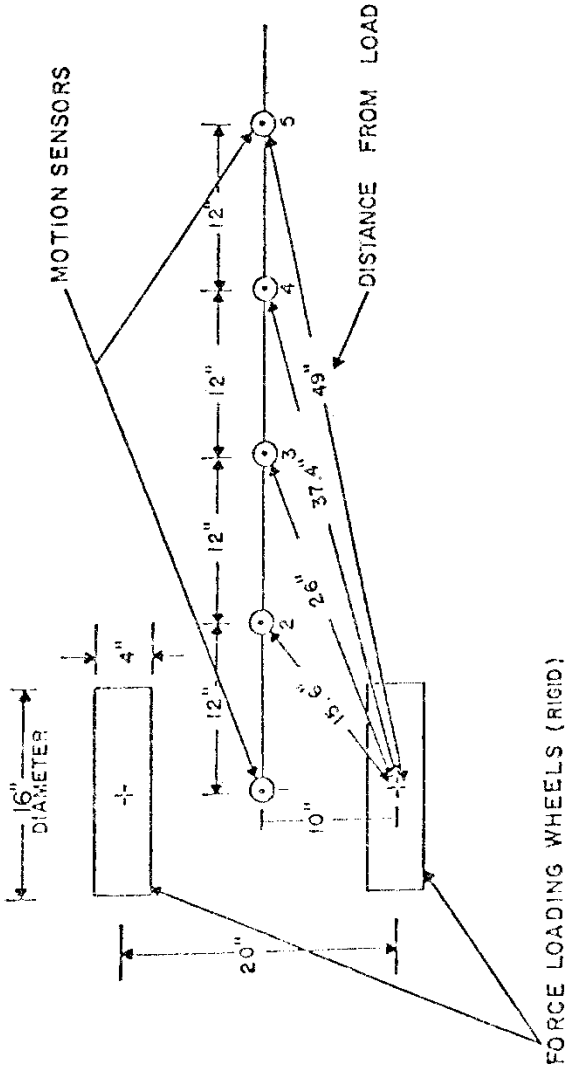


DYNAFLECT MEASURING ARRAY
FIGURE 2

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