

**DESCRIPTION**

This work shall consist of applying Ultrasonic Impact Treatment in accordance with the contract documents and as directed by the Engineer.

**MATERIALS**

None Specified.

**CONSTRUCTION DETAILS**

**A. Ultrasonic Impact Treatment (UIT) Contractor Qualifications**

The contractor shall engage a firm competent and proficient in the use of ultrasonic impact treatment. The UIT firm shall have had experience with similar types of work on treatment of bridge details in previous projects. The list of projects, their locations, key personnel directly involved in the performance and supervision of the work and the names of a current contact person for each of the projects shall be submitted for approval by the Deputy Chief Engineer of Structures (DCES).

**B. Equipment Requirements**

The UIT firm shall furnish complete UIT tooling requirements, including, but not limited to, one electronic control unit with power source, one UIT tool, all required tool tip sets; additional treatment pins, as required; closed circuit cooling system; a complete set of extension cables, and equipment consumables required during the application of UIT. The UIT shall be performed using equipment with a frequency of either 27 kHz or 36 kHz, using a power output rating of at least 800 Watts.

The Contractor shall furnish 110 V, 60 Hz, 3 kW AC power supply.

**C. Training**

The UIT firm shall provide training for the Contractor's personnel. The training includes the setup of all necessary equipment and the establishment of quality control procedures. Specifically, the UIT firm shall provide:

1. A technical procedure manual defining the treatment methodology and parameters for the successful operation of the tool to achieve the desired results.
2. A technical procedure inspection guide covering the details of the quality assurance program to be conducted to ensure that the treatment methodology has been applied in accordance with the instructions given in the technical procedure manual.
3. UIT treatment training of Contractor personnel. A minimum of two individuals shall be trained on-site with a comprehensive training program on the general operation of the tool and the guidelines for the technical treatment application for this project.
4. Quality inspection training of Contractor and inspection personnel. A minimum of two individuals working for the Contractor, other than those applying the treatment, and one Inspector working for the Department shall be trained to carry out complete and thorough inspections of the treatment being undertaken.

The contractor shall furnish adequate personnel assigned to the UIT work.

**ITEM 586.3001 16 - ULTRASONIC IMPACT TREATMENT**

D. Procedures

The application of UIT will begin at a minimum of 1" from the beginning of the taper on one edge of the connection plate through the full taper and ending at a minimum of 1" beyond the taper along the other edge of the connection plate. The application of UIT shall follow the weld toe in the zone between the weld filler material and the girder flange.

Prior to the application of UIT the welds shall be inspected. Any weld defects or cracks at or near the weld shall be repaired. Cracks shall be ground out and then repair welded. Any weld repair will require the application of UIT on the entire weld area. In the case of any weld repairs carried out on the flange, the weld must be treated using UIT and an additional area of 13 mm around the entire weld area must also be treated using UIT.

**METHOD OF MEASUREMENT**

This work will be measured as the number of Ultrasonic Impact Treatment locations satisfactorily repaired.

**BASIS OF PAYMENT**

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.