



Specifications Section B
Routing-Crack Sealing
RCS 1.01 – 4.04

PART 1 - INTRODUCTION

1.01 SCOPE OF WORK

This section contains information on materials, equipment, and procedures used in cleaning and sealing cracks in bituminous concrete pavements.

1.02 References

- ASTM Standards
- D6690 Type II Joint and Crack Sealants, Hot-Applied, for Asphalt Pavements (formerly ASTM D3405 and AASHTO M301)

1.03 PURPOSE

MAINTENANCE OF PAVEMENT

The purpose of sealing cracks in asphalt is to protect the structure of the pavement from premature failure. Cracks left unsealed allow water intrusion and incompressible debris retention in the crack opening. Water intrusion in the cracks can penetrate into the base materials creating a diminution of strength in these materials. The undermined pavement structure can result in load-related failures such as fatigue or “alligator” cracking. The retention of incompressible debris in the crack causes the pavement to heave at the cracks edges as the pavement expands due to thermal changes. These failures and deficiencies decrease the lifespan of the pavement and raise the overall cost by requiring increased maintenance, or replacement.

PART 2 – MATERIALS AND EQUIPMENT

2.01 MATERIAL

2.01.1 CRACK SEALANT: A hot-applied rubberized asphalt product used to seal cracks and joints in bituminous concrete pavement.

a. Federal Specifications

- SS-S-1401C Sealant, Joint, Non-Jet Fuel Resistant, Hot-Applied, for Portland Cement and Asphalt Concrete Pavements

b. American Society for Testing and Materials (ASTM)

- D 1190-97 Concrete Joint Sealer, Hot-Applied Elastic Type
- D 3405-96 Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements

2.01.2 DETACK AGENT: A suitable detack agent shall be applied over freshly sealed cracks to allow vehicular traffic prior to cure.

2.02 EQUIPMENT

The equipment used to prepare cracks for cleaning and sealing will depend on the condition of asphalt, size of the crack, and advanced determination of appropriate work to be performed.

2.02.1 A router is used to create a sealant reservoir by enlarging meandering cracks to the desired depth and width. A multi-blade rotary cutter router is used.

2.02.2 Air compressors shall be portable or fixed and capable of furnishing not less than 100ft³ of per minute at not less than 90 psi pressure at nozzle. The compressor shall be equipped with traps that maintain the compressed air free from oil and water.

2.02.3 Manually operated gas powered air broom designed especially for cleaning pavement surfaces shall be used to remove a sufficient amount of debris, dirt and dust from cracks.

2.02.4 Hot air lances for blowing clean cracks shall be a compressed air device.

2.02.5 Melting kettles shall be of the double-boiler, indirect fired, portable type. The space between the inner and outer shells shall be filled with suitable heat transfer oil having a flash point of not less than 530 F. The kettle shall be equipped with a satisfactory means for agitating the crack sealant. This may be accomplished by continuous stirring with mechanically operated paddles. The kettle shall be equipped with a thermostatic control calibrated between 200 F and 550 F. The kettle shall be mounted on rubber tires and shall be equipped with a metal shield beneath the firebox to protect the pavement.

2.02.6 Wand applicator shall be connected to the holding tank through a heated applicator hose that ensures the safety of the operator and allows the operator to control flow of material.

2.02.7 Hand tools shall consist of brooms, shovels, metal bars with chisel shaped ends and any other tools that may be required to accomplish the work.

PART 3 – EXECUTION

3.01 PREPARATION

3.01.1 RESHAPING: Random, previously unsealed cracks less than ½ " in width shall be reshaped to a minimum of ½" and shall have a minimum depth of ½". Cracks over ½" in width do not require reshaping. No alligator cracking or cracks less than 1/4" shall be reshaped.

3.01.2 VEGETATION: When cracks show evidence of vegetation, it shall be removed.

3.01.3 CLEANING: All cracks will be thoroughly cleaned by use of compressed air lance.

3.01.4 DEBRIS REMOVAL: All old material and debris removed from cracks shall be cleaned from pavement surface by means of manually operated air broom, compressed air or by hand brooms as necessary.

3.02 PREPARATION OF CRACK SEALANT

3.02.1 Crack sealant material shall be heated and applied at temperatures specified by the manufacturer.

3.03 INSTALLATION OF CRACK SEALANT

3.03.1 Crack sealant shall be applied to the cracks using a heated wand applicator following cleaning by compressed air lance.

3.03.2 Crack sealant shall be bonded to the pavement and may be slightly concave.

3.03.3 When necessary a suitable detack agent shall be applied over sealed crack to allow traffic to pass over.

3.04 PRECAUTIONS

A. No crack sealant shall be applied in wet cracks or where frost, snow or ice is present or when ambient temperature is below 40_F.

PART 4 – WORKMANSHIP

4.01 All workmanship shall be of the highest quality.

4.02 The contractor shall furnish all labor, materials, equipment and supervision required to complete this project with the outlined specifications.

4.03. The contractor shall examine the work site prior to submitting a bid. The submitting of a bid shall be the evidence that this requirement has been met.

4.04 All rubbish shall be removed and the job site shall be kept clean, neat and orderly at all times. All excess and spilled sealer shall be removed from the pavement and discarded.

