

## Troubleshooting Guide

This guide provides information to assist the maintenance personnel with troubleshooting problems that may arise when applying a bonded wearing course (BWC).

Note that some specifications described in the following content may not be the same as the specifications followed by your agency. Always check with your State agency's standards and specifications when using these guidelines.

### Problems and Solutions

Problem	Solutions
<b>Surface Waves</b>	<ul style="list-style-type: none"> <li>• Ensure the head of material in front of the paver screed is at the correct height and does not fluctuate (i.e., rise and fall).</li> <li>• Ensure the screed is not worn or set incorrectly.</li> <li>• Ensure the mix is not too stiff or has not fallen below 275 °F.</li> <li>• Ensure the dump trucks do not bump the paving unit as this can cause long frequency waves resulting in increased pavement roughness.</li> <li>• Ensure grade control equipment (if in use) is functioning properly.</li> </ul>
<b>Wash Boarding</b>	<ul style="list-style-type: none"> <li>• Reduce the speed of the roller.</li> </ul>
<b>Tearing</b>	<ul style="list-style-type: none"> <li>• Ensure the paving unit is being operated correctly.</li> <li>• Ensure the mix is not too cold (i.e., below 275 °F) or too stiff.</li> <li>• May be fixed by adjusting the degree of crown and ensuring mix temperature is correct.</li> <li>• Ensure application is not too thin.</li> </ul>

**Flexible Pavement Preservation Treatment Construction –  
Ultra-thin, Hot Mixed Asphalt, Bonded Wearing Course  
AT-TC3PP012-16-T1-JA02**



Problem	Solutions
<p><b>Non-Uniform Texture-Segregation</b></p>	<ul style="list-style-type: none"> <li>• Ensure the mixture is not separating in the hopper or during transportation.</li> <li>• Ensure the paving unit is set up properly.</li> <li>• Ensure the mix temperature is at least 275 °F.</li> <li>• Check the mix design for poor grading. Adjust if necessary.</li> </ul>
<p><b>Screed Marks</b></p>	<ul style="list-style-type: none"> <li>• Ensure the paving unit is set up correctly and that the screed is not worn or dirty.</li> <li>• Ensure the mix temperature is at least 275 °F.</li> <li>• Check the mix design for poor grading. Adjust if necessary.</li> <li>• Ensure mix is in specification.</li> </ul>
<p><b>Roller Checking &amp; Marks</b></p>	<ul style="list-style-type: none"> <li>• Ensure the roller does not cause a wave in the mat in front of the roller (i.e., mix too hot). Wait until the mix cools further.</li> <li>• Check the mix design for too much asphalt in the mix, or too much middle size sand in the gradation. Adjust design if necessary.</li> </ul>
<p><b>Bleeding &amp; Fat Spots</b></p>	<ul style="list-style-type: none"> <li>• Ensure the mix temperature is not too hot (greater than 177 °C (350 °F)).</li> <li>• Check the mix design for too much asphalt or for too coarse an aggregate grading. Adjust design if necessary.</li> <li>• Ensure there is no moisture in the mix or on the pavement.</li> <li>• Ensure the tack coat application rate is not too high for the surface to which it is applied. Tight, smooth surfaces require less tack coat than do more open surfaces. Reduce application rate on existing surfaces that exhibit bleeding.</li> <li>• Ensure spray bar equipment is operating properly.</li> <li>• Ensure aggregates are dry before mixing with asphalt in the hot mix plant, that pavement is not bleeding, that pavement is dry, and that the mix is correctly designed for the traffic and aggregate.</li> </ul>

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Problem	Solutions
<b>Delamination</b>	<ul style="list-style-type: none"> <li>• Ensure an adequate tack coat is applied.</li> <li>• Ensure the mix is above the minimum application temperature (135 °C (275 °F)).</li> <li>• Ensure the mix is not below the minimum compaction temperature (90 °C (195 °F)).</li> <li>• Ensure the existing pavement surface temperature is above the minimum (i.e., 7 °C (45 °F)) before paving.</li> <li>• Ensure the surface is cleaned immediately before paving.</li> <li>• Ensure roller drums are not dirty and have working spray systems.</li> </ul>
<b>Poor Transverse Joints</b>	<ul style="list-style-type: none"> <li>• Ensure butt joints are properly constructed.</li> </ul>
<b>Poor Longitudinal Joints</b>	<ul style="list-style-type: none"> <li>• Ensure proper joint construction practices are followed, especially when compacting thin layers.</li> </ul>
<b>Excessive Ravel</b>	<ul style="list-style-type: none"> <li>• Ensure the mix design meets project specifications, particularly that the mix contains sufficient binder.</li> <li>• Ensure compaction is carried out above the minimum temperature (i.e., 90 °C (195 °F)).</li> </ul>