Installation Instructions

Single Pole Target Auto-Calibration (SPTAC) Camera Alignment

OVERVIEW

The following instructions describe how to calibrate a Bendix® FLC-20™ Camera using the Single Pole Target Auto-Calibration (SPTAC) procedure.

NOTE: This process is typically required when the camera indicates Diagnostic Trouble Codes (DTCs) 59 and/or 19. Using SPTAC calibration is not typically associated with mounting-related DTCs, such as the DTC 60.

⚠ WARNING

Whenever re-installing or replacing a camera, the recommended camera mounting location for the vehicle must be used. Failure to install the camera in the correct location can result in system Diagnostic Trouble Codes (DTCs) being set, system performance degradation, and/or a collision causing property damage, serious injuries, or death.

If the camera is found to be installed incorrectly, reinstall the camera per the instructions in the *Bendix™ AutoVue® FLC-20™ Camera Service Data Sheet (SD-64-20124, available on B2Bendix.com)*, clear the DTCs, and attempt to test drive the vehicle prior to proceeding. ONLY PROCEED IF THE DTC RETURNS.

REQUIRED TOOLS

The following tools are required for the alignment procedure:

- SPTAC: Bendix Part Number K159472
- Bendix® ACom® Diagnostic Software (2023 or newer)
- Tape measure, digital tape measure, or laser range finder

⚠ WARNING

Improper use and/or maintenance of the Bendix® Wingman® Fusion™ Active Safety System or any of its components can result in a collision causing property damage, serious injuries, or death.

Be sure to read, understand, and carefully follow the instructions in the *Operator's Manual (BW2681, available on B2Bendix.com)*.

REQUIREMENTS

Before starting the camera calibration, verify the following requirements:

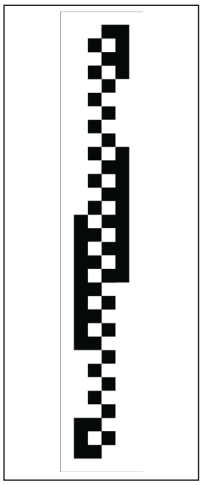

Figure 1 – Target

- All vehicle DTCs related to the engine, transmission, instrument cluster, engine cruise control, and Bendix® Antilock Braking System (ABS), Automatic Traction Control (ATC), or Electronic Stability Program (ESP®) must first be resolved – with no DTCs present during the vehicle operation – before trying to resolve camera DTCs.
- The vehicle must be parked on a flat, level surface.
- The camera must be properly mounted on the windshield per the instructions in the *Bendix® AutoVue® FLC-20™ Camera Service Data Sheet, SD-64-20124,* available on B2Bendix.com.
- The system air pressure must be < 100 psi.
- The suspension must be pressurized and at the vehicle's normal operating level when the vehicle is in motion.
- Only one (1) target may be visible in the camera field of view during the calibration.
- The target must be in line with the longitudinal center line (i.e., the hood ornament) of the vehicle and parallel to the bumper.
- Sufficient lighting must be provided on the front of the target and ambient lighting in the background.
- The battery voltage must be 12 volts.

NOTE: Direct or bright light should not be visible in the camera field of view. The camera cannot see the target image when the background is bright.

PROCEDURE

1. Ensure the bottom edge of the border around the patterned target is 35 in. ± 7/16 in. (90 cm ± 1 cm) above the ground.

NOTE: The target must be on the same level surface as the vehicle. There should be no steps, cracks, or surface variations that would alter the height of the target.

2. Using Bendix® ACom® Diagnostic Software, perform the *SPTAC Camera Alignment procedure* defined in ACom Diagnostic Software.
3. Follow the steps in the *Camera Alignment procedure* to complete the SPTAC camera alignment.

CAMERA CALIBRATION

Near Target (*Position A*)

See Figure 2.

1. Position the SPTAC target on the longitudinal center line of the vehicle (i.e., the hood ornament) at the front bumper of the vehicle (*Position A*). Measure the distance from the camera to the SPTAC target. Record the value as *Distance A*. The minimum distance for the near position of the target is 170 cm (67 in.) from the camera.
2. Execute the *SPTAC Near Target Calibration procedure* using ACom Diagnostic Software.

NOTE: Before the test, the window is gray. The window turns green if the test is successful and red if the test is not successful.

a. If the SPTAC *Near Target Calibration* is successful, continue to the *Far Target Calibration*.

b. If the SPTAC *Near Target Calibration* is not successful, reset the camera by cycling off the ignition for 30 seconds then back on. Confirm all suspension and cab ride-height air bags are properly inflated and the vehicle cab is in its normal operating state. Reposition the SPTAC target within tolerances, and repeat the *Near Target Calibration*.

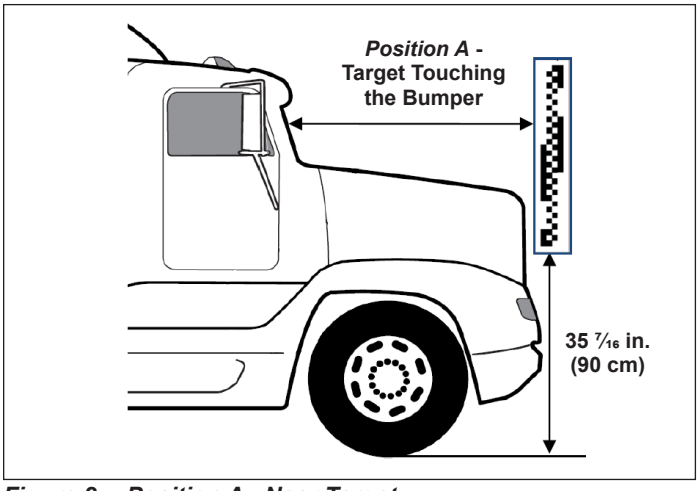

Figure 2 – Position A - Near Target

CAMERA CALIBRATION

Far Target (*Position B*)

See Figure 3.

1. Position the SPTAC target on the center line of the vehicle (*Position B*). *Position B* should be 1.6 times the length of *Distance A*; for example, if *Distance A* is 203 cm (80 in.), *Distance B* should be 325 cm (128 in.). Measure the distance from the camera to the SPTAC target. Record the value as *Distance B*.

NOTE: Use a range finder to measure the distance.

2. Execute the *SPTAC Far Target Calibration procedure* using ACom Diagnostic Software.

NOTE: Before the test, the window is gray. The window turns green if the test is successful and red if the test is not successful.

a. If the SPTAC *Far Target Calibration* is successful, cycle the ignition power and check for DTCs. If no DTCs return, return the vehicle to service per the OE or maintenance facility procedure.

b. If the SPTAC *Far Target Calibration* is not successful, reset the camera by cycling off the ignition for 30 seconds then back on. Confirm all suspension and cab ride-height air bags are properly inflated and the vehicle cab is in its normal operating state. Reposition the SPTAC target within tolerances, and repeat the *Target Calibration, starting with the Near Target Calibration procedure*.

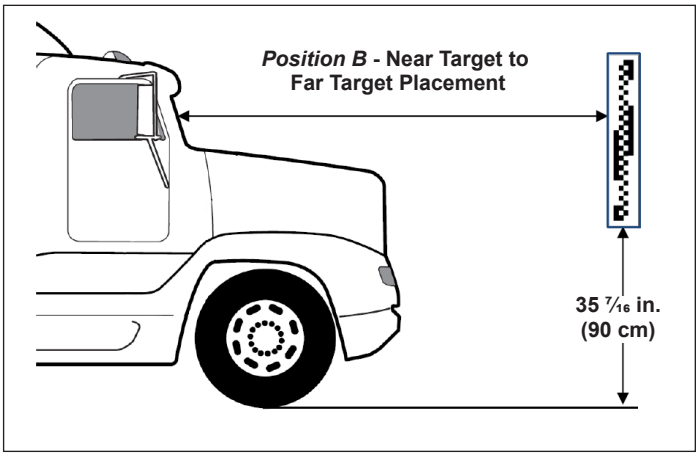

Figure 3 – Position B - Far Target

Tolerance Description	Tolerance
Near Target to Far Target Placement Distance	± 1 15/16 in. (5 cm)
Lateral Position Near Target	± 1 3/16 in. (3 cm) from truck symmetry line
Lateral Position Far Target	± 1 15/16 in. (5 cm) from truck symmetry line
Target Height Floor to Bottom Pattern	± 7/16 in. (1 cm)
Target Out of Plane Rotation Around the Vertical Axes	± 10 degrees

Table 1 – Target Position Tolerances