Semi-Annual Checkout Procedure

Banner Engineering highly recommends performing the System checkouts as described. However, a Qualified Person (or team) should evaluate these generic recommendations considering their specific application and determine the appropriate frequency of checkouts. This will generally be determined by a risk assessment, such as the one contained in ANSI B11.0. The result of the risk assessment will drive the frequency and content of the periodic checkout procedures and must be followed.

Perform the procedure contained on this Semi-Annual Checkout card every six months following System installation or after changes are made to the System (either a new configuration of the EZ-SCREEN System or changes to the machine). Semi-Annual checkouts must be performed by a Qualified Person (as defined by OSHA and in the Safety Glossary of the manual). A copy of the checkout results should be kept on or near the machine: see OSHA 1910.217(e)(1).

The Instruction Manual is p/n 112852.

To prepare the System for this checkout, set the System configuration as it will be during machine operation.

☐	1	Examine the guarded machine to verify that it is of a type and design compatible with the EZ-SCREEN System. See the Instruction Manual for a list of misapplications.
☐	2	Verify that the minimum separation distance from the closest hazard point of the guarded machine to the defined area is not less than the calculated distance, determined in the Calculating the Safety Distance section of the Instruction Manual and indicated here: _____.
☐	3	Verify that: • Access to any dangerous parts of the guarded machine is not possible from any direction not protected by the EZ-SCREEN System, hard guarding, or supplemental safeguarding, and • It is not possible for a person to stand between the safety light screen and the dangerous parts of the machine, or • Supplemental safeguarding and hard guarding, as described by the appropriate safety standards, are in place and functioning properly in any space (between the safety light screen and any hazard) which is large enough to allow a person to stand undetected by the EZ-SCREEN System.
☐	4	If used, verify that: • The reset switch is mounted outside the guarded area, out of reach of anyone inside the guarded area and • The key or other means of preventing inadvertent use is in place.
☐	5	Examine the electrical wiring connections between the EZ-SCREEN System OSSD outputs and the guarded machine's control elements to verify that the wiring meets the requirements stated in the instruction manual.
☐	6	Inspect the area near the defined area (including work pieces and the guarded machine) for reflective surfaces. (Reflective surfaces may cause System beams to reflect around a person in the light screen, preventing the person from being detected and not stopping the machine motion.) Remove the reflective surfaces as possible by relocating them, painting, masking or roughening them. Remaining problem reflections will become apparent during step 10.
☐	7	Apply power to the EZ-SCREEN System. Ensure that power to the guarded machine is OFF. Remove all obstructions from the defined area. If the System is configured for Latch mode, the receiver Reset indicator will be double-flashing. Perform a manual reset (close the reset switch for 1/4 to 2 seconds, then open the switch). Verify that the Reset indicator is ON steady.
☐	8	Observe the receiver Diagnostic Display to verify that the System is set to the desired operating mode (Trip Output - "–"; Latch - "L"). Observe the status indicators on the receiver to determine System status: • Lockout: Status flashing Red All others OFF • Blocked: Status ON Red One or more Zone indicators ON Red Reset ON Yellow • Clear: Status ON Green* All Zone indicators ON Green Reset ON Yellow • Latch (defined All Zone indicators ON Green area clear) : Status ON Red Reset flashing Yellow * The Green indicator will be flashing if Reduced Resolution is enabled.
☐	9	If in a Clear condition, go to step 10. If in a Lockout condition, refer to the Troubleshooting section of the instruction manual. A Blocked condition indicates that one or more of the beams is misaligned or interrupted. To correct this situation: 1. Check carefully for any obstruction in the beam path. 2. Check for contamination. Clean the emitter and receiver windows as required by the instruction manual. 3. If the defined area is completely clear of obstructions, realign the emitter and receiver, as described in the manual. If the System is in a Latch condition, perform a manual reset.

Continued on page 2

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Continued from page 1

☐	10	Once the Status indicator and all Zone indicators are steady Green, perform the trip test (described on the Daily Checkout card) to verify proper System operation and to detect possible reflection problems.
		WARNING: • **Trip test failure** • Using a system that has failed a trip test can result in serious bodily injury or death. If the trip test has failed, the system might not stop dangerous machine motion when a person or object enters the sensing field. • Do not attempt to use the system if the system does not respond properly to the trip test.
☐	11	Apply power to the guarded machine and verify that the machine does not start up. Insert the test piece into the defined area and verify that it is not possible for the guarded machine to be put into motion while a beam is blocked.
		WARNING: • **Clear the guarded area before applying power or resetting the system** • Failure to clear the guarded area before applying power could result in serious injury or death. • Verify that the guarded area is clear of personnel and any unwanted materials before applying power to the guarded machine or before resetting the system.
☐	12	Initiate machine motion of the guarded machine and, while it is moving, insert the test piece (ordered separately) into the defined area. Do not attempt to insert the test piece into the dangerous parts of the machine. Upon blocking any beam, the dangerous parts of the machine should come to a stop with no apparent delay. Upon removal of the test piece from the defined area, verify that the machine does not automatically restart, and that the initiation devices must be engaged to restart the machine.
☐	13	Remove electrical power to the EZ-SCREEN System. All OSSD outputs should immediately turn OFF, and should not be capable of turning ON until power is re-applied and, if in Latch Output mode, a manual reset is performed (Trip Output mode requires no manual reset).
☐	14	Test the machine stopping response time, using an instrument designed for that purpose, to verify that it is the same or less than the overall system response time specified by the machine manufacturer. **Do not continue operation until the entire checkout procedure is complete and all problems are corrected.**
☐	15	If any decrease in machine braking ability has occurred, make the necessary clutch/brake repairs, readjust separation distance (Ds) appropriately, record the new Ds calculation on the Daily Checkout Procedure card and/or in the manual, and re-perform the Daily Checkout procedure.
☐	16	Examine and test the machine primary control elements (MPCEs) and any intermediary controls (such as interface modules) to verify that they are functioning correctly and are not in need of maintenance or replacement.
☐	17	Inspect the guarded machine to verify that no other mechanical or structural problems could prevent the machine from stopping or assuming an otherwise safe condition when signaled to do so by the EZ-SCREEN System.
☐	18	Examine and inspect the machine controls and connections to the EZ-SCREEN System to verify that no modifications have been made that adversely affect the System.
		WARNING: • **Do not use the system until the checkouts are verified** • Attempts to use the guarded/controlled machine before these checks are verified could result in serious injury or death. • If all these checks cannot be verified, do not attempt to use the safety system that includes the Banner Engineering Corp. device and the guarded/controlled machine until the defect or problem has been corrected.

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