Daily Checkout Procedure for the Scanner System

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.

Daily Checkout and checkouts after tooling and machine changes must be performed by a Designated Person (appointed and identified in writing by the employer). During continuous machine run periods, this checkout must be performed at regular intervals. A copy of the checkout results should be kept on or near the machine: see OSHA 1910.217(e)(1).

WARNING:
- **Perform periodic checkouts**
- Failure to perform checkout procedures could create a dangerous situation that could result in serious injury or death.
- The appropriate personnel must perform the commissioning, periodic, and daily safety system checks at the suggested times to ensure that the safety system is operating as intended.

Perform the following procedure at every power-up, shift change, and machine set up.		
☐	1	Verify that: • Access to the guarded area is not possible from any area not protected by the Scanner System. Hard guarding or supplemental presence-sensing devices must be installed, wherever needed, to prevent any person from reaching over, under or around the defined area or entering into the hazard area. • All supplemental guarding devices and hard guarding are in place and operating properly.
☐	2	Verify that the minimum safety distance from the closest hazard of the guarded machine to the Safety Zone(s) is not less than the distance calculated in the instruction manual and recorded here _____. Record and post this information (e.g., printout of Safety Zones) at the machine for quick reference.
☐	3	Verify that it is not possible for a person to stand inside the guarded (dangerous) area, undetected by the Scanner System or other supplemental safeguarding.
☐	4	Verify that: • If used, the Reset switch is mounted outside the guarded area, in full view of the guarded area, and out of reach of anyone inside the guarded area, and • The means of preventing inadvertent use (e.g., rings or guards) is in place.
☐	5	Test the effectiveness of the Scanner System with power on by performing a trip test. Select the appropriate test piece (that matches the Scanner System configuration resolution).
	5a	Trip Test (Safety and Warning Zone Verification) **CAUTION:** Ensure that no individuals are exposed to any hazard while verifying the Safety and Warning Zones. **Note:** The PC interface can assist in monitoring the position of objects and the status of the Safety and Warning Zones, but when possible, use the LED indicators and display to determine whether a Zone has been interrupted. Verify the Scanner System is in Run mode, the Safety and Warning Zones are clear of intrusions, and the display shows:  Fields clear, scanner system waiting for reset  Fields clear, OSSDs are on
	5b	If a Warning Zone is used: 1. With the guarded machine at rest, use the appropriate test piece (that matches the configured/expected resolution) to interrupt the Warning Zone perimeter. 2. Verify the display turns yellow as expected. 3. Remove the test piece and verify the display returns to the clear state. 4. Repeat this along the entire Warning Zone perimeter as shown below.  Pay special attention at needle and cone-shaped areas.

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Perform the following procedure at every power-up, shift change, and machine set up.		
	5c	1. With the guarded machine at rest, use the appropriate test piece (that matches the configured/expected resolution) to interrupt the perimeter of the Safety Zone. 2. Verify the display changes to a red STOP. 3. Remove the test piece and verify that the clear status returns. 4. Repeat this along the entire Safety Zone perimeter and verify: • That the configured field responds to the intrusion of the test piece • That the configured field has no unmonitored areas. • That the separation (safety) distance is as calculated and recorded.  Pay special attention at needle and cone-shaped areas **Note:** For stationary applications, verify that the marking of the perimeter of the Safety Zone on the floor corresponds to the display. If the floor has not been marked, do so now, if possible, with the aid of the response of the display. The Display must show a Red STOP while the test piece remains in the Safety Zone. If the display returns to the clear state at any time while the test piece is interrupting the Safety Zone, the installation has failed the trip test. Via a PC, check for correct Safety Zone orientation and for unguarded areas. **Do not continue with this checkout procedure or operate the guarded machine until the situation is corrected and the indicators respond properly as described above.**
	5d	Verify the height of the Safety Zone at the perimeter is at the expected level (e.g., 150 mm for mobile applications). • Protective Fields 180° to 275°: In at least four locations, approx. 90° apart from each other. • Protective Fields 90° to 180°: In at least three locations, approx. 90° apart from each other. • Protective Fields 90° or less: In at least two locations, 90° apart from each other.
☐	6	Repeat steps 5b, 5c, and 5d for each of the Zone Sets that have been configured if Zone Set Switchover is used. Ensure all zones correspond to the expected zones as determined by the risk assessment. **If not, do not continue until the situation is corrected.** **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.
		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.
	7	If remote scanners are configured, repeat steps 5 and 6 for each configured remote scanner.
☐	8	After the Warning and Safety Zones have been verified, **initiate machine motion of the guarded machine or mobile vehicle.** While it is moving, use the appropriate test piece to interrupt the Safety Zone. **Do not attempt to insert the test piece into the dangerous parts of the machine or directly in the path of the moving vehicle. Upon interrupting the Safety Zone (at any point), verify that:** • For stationary applications: The dangerous parts of the machine come to a stop with no apparent delay. Remove the test piece from the Safety Zone; **verify that the machine does not automatically restart,** and that the initiation device(s) must be engaged to restart the machine. • For mobile applications: The vehicle stops within the identified/predetermined distance. Remove the test piece from the Safety Zone; **verify that the vehicle does not unintentionally restart,** and, if required, that the initiation device(s) must be engaged to restart the mobile vehicle. **This must be accomplished at numerous points along the entire route** (i.e., testing each of the Zone Sets in the configuration)
☐	9	With the guarded machine at rest, insert the test piece into the Safety Zone and verify: The guarded machine cannot be put into motion while the test piece is in the Safety Zone.
☐	10	Check carefully for external signs of damage or changes to the Scanner System, the guarded machine, and their electrical wiring. Immediately report any damage or changes found to management. **Do not continue operation until the entire checkout procedure is complete and all problems are corrected.**

WARNING:
- **Do not use machine until the system is working properly.**
- Attempts to use the guarded machine under such conditions may result in serious injury or death.
- If any of these checks cannot be verified, do not attempt to use the SX/guarded machine until the defect or problem has been corrected (see the *Troubleshooting* section of the Instruction Manual).

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