Semi-Annual Checkout Procedure for the SX5 Scanner

Semi-Annual 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.

Perform the procedure contained on this Semi-Annual Checkout card every six months following system installation, or whenever changes are made to the System (either a new Scanner System configuration 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).

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

Perform the following procedure every six months following the system installation.		
☐	1	Examine the guarded machine to verify that it is of a type and design compatible with the Scanner System. Refer to the Instruction Manual for a list of misapplications.
☐	2	Connect the PC to the 4-pin M12/Euro-Style Ethernet port and verify the correct configuration of all Safety and Warning Zones. Ensure the reference points (surface) monitoring is correct (especially in stationary vertical Safety Zone applications).
☐	3	Verify that the minimum safety distance from the closest hazard point of the guarded machine to the Safety Zone(s) is not less than the calculated minimum distance as determined in the Instruction Manual and recorded here _____. Report this information (e.g., printout of Safety Zones) and keep it at the machine for quick reference.
☐	4	Verify that: • Access to any dangerous parts of the guarded machine is not possible from any direction not protected by the Scanner System, hard guarding, or supplemental safeguarding. • It is not possible for a person to stand between the Safety Zone(s) and the dangerous parts of the machine. • Supplemental safeguarding and hard guarding, as described by the appropriate safety standards, are in place and functioning properly in any space (between the Safety Zone(s) and any hazard) which is large enough to allow a person to stand undetected by the Scanner System.
☐	5	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. • The means of preventing inadvertent use (e.g., rings or guards) is in place.
☐	6	Examine the electrical wiring connections between the Scanner System OSSD outputs and the guarded machine's control elements to verify that the wiring meets the requirements stated in the Instruction Manual.
☐	7	Verify that power to the guarded machine is OFF and apply power to the Scanner System. Remove all obstructions from the Safety Zone(s). Observe the Display to identify the Scanner System Status.
		Typical LED indications (assumed a Warning Field is configured):

Safety and Warning Zones clear	OSSD and Warning outputs ON	
Safety Zone clear, Warning Zone interrupted	OSSD outputs ON; Warning output OFF	
Safety and Warning Zones interrupted	OSSD and Warning outputs OFF	
Reference Point Surface moved	OSSD outputs OFF	
Safety and Warning Zones clear	OSSD outputs OFF and waiting for reset; Warning output ON	

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Perform the following procedure every six months following the system installation.		
☐	8	If the zones are in a clear condition (step 7), go to step 9. If in a Lockout condition, refer to the *Troubleshooting* section of the instruction manual. A Blocked condition indicates that one or more obstructions are within the Safety Zone. To correct this situation: 1. Check carefully for any obstruction(s) in the Safety Zone and remove them. 2. If the defined area is completely clear of obstructions, check alignment. If the System is configured for Start/ Restart (Manual Reset) mode, perform a manual reset (close the reset switch for 1/2 to 4 seconds, then open the switch). Verify that the display shows the green GO.
☐	9	When the display shows the Green GO, perform the trip test for each Safety Zone (described on the Daily Checkout card) to verify proper System operation and to detect possible unmonitored areas.
		⚠ **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.
☐	10	Apply power to the guarded machine and verify that the machine does not start up. Insert the test piece into the Safety Zone and verify that it is not possible for the guarded machine to be put into motion while a beam is blocked.
☐	11	After the Warning and Safety Zones have been verified, **initiate the 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 a 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).
☐	12	Remove electrical power to the Scanner System. All OSSD outputs should immediately turn OFF and should not be capable of turning ON until power is re-applied and, if in Start/ Restart (Manual Reset) mode, a manual reset is performed (Automatic Start (Reset) mode requires no manual reset).
☐	13	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.
☐	14	If any decrease in machine braking ability has occurred, make the necessary clutch/brake repairs, readjust minimum safety distance ("Ds" or "S") appropriately. Verify that this information is recorded (e.g., a printout of Safety Zones) and located at the machine for quick reference.
☐	15	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.
☐	16	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 SCANNER SYSTEM.
☐	17	Examine and inspect the machine controls and connections to the Scanner System to verify that no modifications have been made which adversely affect the system. Verify that any changes made to the Scanner System configuration and Safety/Warning Zones dimensioning have been recorded. **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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