

ONE 50//25 METRIC TON TOP RUNNING BRIDGE, UNDER HUNG HOIST

FOR

SRF-JRMC Sasebo, Japan

FIELD TEST PROCEDURES

1. FIELD QUALITY CONTROL

Customer: _____ **Date of Inspection/Test:** _____

Contract No.: _____

Crane Number: _____

Names and Titles of Participating Representatives:

Government Representative:

Contractor Representative:

1.1 General Instructions

The crane shall be tested in accordance with the applicable paragraphs of this guide. The contractor shall assure that all components and features that affect load bearing, load controlling, or operational safety devices of the cranes are properly tested. The contractor shall perform all the tests described below along with any other tests required to verify that the crane meets the contract requirements including any contract modifications. The sequence of testing shall be at the option of the test director except that the no-load test shall be performed first. The contractor shall develop data sheets for tests that require data recording. The data sheets shall include the expected results along with the allowable tolerance in accordance with the requirements of the specification. The contractor shall determine the tools, meters, measuring devices, etc. that are required to perform the test and have them available at the site. When measuring currents less than 5 amps, a 10-amp series type amp meter is recommended instead of an amp probe or use of the drive monitoring display. All equipment shall be calibrated.

1.2 Equipment Monitoring

During the load test, check for the proper operation and condition of safety devices, electrical components, mechanical equipment, and structural assemblies. Observed defects critical to continuing testing shall be reported immediately to the test director, who shall suspend the testing until the deficiency is corrected.

1.3 Preparing For Load Testing

- a) A safe test area shall be selected and all traffic and unauthorized personnel and equipment shall be cleared from test area. This test area shall be roped off or otherwise secured to prevent entry of unauthorized personnel and equipment.
- b) All rigging used in crane load testing shall be previously tested to applicable ASME B30 standards. Note that the test loads INCLUDE the weight of rigging used to connect them to the load block.

1.4 Precautions during Load Testing

- a) Extreme caution shall be observed at all times.
- b) Personnel shall remain clear of suspended loads and areas where they could be struck in the event of component failure.
- c) Test load shall be raised only to a height sufficient to perform the test.
- d) Current and voltage measurements may be made at the floor disconnect if there is no catwalk on the crane or if there is a safety concern with taking measurements in the panels

1.5 List of equipment / Consumables

Calibration Date

Amp Meter	_____
Multi-meter	_____
Vernier Calipers sized for Hook Tram Measurement	_____
Tape measure	N/A
Mechanical and Electrical Hand Tools	N/A
Stopwatch	N/A
Flashlight	N/A
Yellow/Red CAUTION tape	N/A

1.6 Inspection Codes

SAT = Satisfactory, UNSAT = Unsatisfactory, NA=Not applicable

1.7 Hook and Hook Nut

1.7.1 Hook and Hook Nut Non Destructive Test (NDT)

Review documents to verify the hooks and hook nuts meet all NDT requirements on section SD 06.1 of the contract.

Main Hook and Nut NDT SAT UNSAT

1.7.2 Hook and Hook Nut Evaluation

Record hooks and hook nuts identification numbers. Check operation of the safety latches. Install or verify two tram points on each hook. Before the load test measure and record the distance ($\pm 1/64$ inch) between tram points to establish the base tram dimension for hook throat opening. Upon completion of the load test, re-measure and record new tram dimension. Hook(s) showing twist or increase in throat spread from base dimension after the 125% load test is not acceptable.

Bridge West	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Warning Horn	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

2.2 Clearance

Travel the crane and the trolley on the runway and bridge rails from stops to stops as space permits; operate hooks to all limits. Verify all clearances meet the requirement in Appendix A.

SAT UNSAT NA

2.3 Bumper Stops

- a. At slow speed, travel the crane to contact the runway rail stops with the bridge bumpers. Verify satisfactory performance and the alignment of the bumpers with the stops.

Bridge Bumper Stops SAT UNSAT NA

- b. At slow speed, travel the trolley to contact the trolley rail stops with the trolley bumper. Verify satisfactory performance and the alignment of the bumpers with stops.

Trolley Bumper Stops SAT UNSAT NA

2.4 Motor Controls

Controls shall be tested to verify that sequencing and timing are in accordance with the requirements of the specification. Record the voltage and current as specified and measure minimum and maximum speeds for all functions (in both directions) in FPM. The maximum tolerance on speeds is $\pm 10\%$.

Disconnect Switch Voltage _____ Volts

2.4.1 Hoist Controls

2.4.1.1. Main Hoist Motor

	<i>Motor Nameplate</i>	<i>Actual</i>	
Current (Max Speed) Up	_____ Amps	_____ Amps	
Voltage (Max Speed) Up	_____ Volts	_____ Volts	
Current (Max Speed) Down		_____ Amps	
Voltage (Max Speed) Down		_____ Volts	
			SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

	<i>Actual</i>	<i>Required</i>	
Up (Min Speed)	_____ FPM	.32MPM (1 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Up (Max Speed)	_____ FPM	4.5MPM(14.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Min Speed)	_____ FPM	.32MPM (1 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Max Speed)	_____ FPM	4.5MPM(14.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

2.4.1.2. Aux Hoist Motor

Motor Nameplate *Actual*

Current (Max Speed) Up _____ Amps _____ Amps
Voltage (Max Speed) Up _____ Volts _____ Volts
Current (Max Speed) Down _____ Amps
Voltage (Max Speed) Down _____ Volts
SAT UNSAT NA

	<i>Actual</i>	<i>Required</i>	
Up (Min Speed)	_____ FPM	.48MPM (1.6 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Up (Max Speed)	_____ FPM	7.5MPM(24.6 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Min Speed)	_____ FPM	.48MPM (1.6 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Max Speed)	_____ FPM	7.5MPM(24.6FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

2.4.2 Trolley Controls

	<i>Motor Nameplate</i>	<i>Actual</i>
Current (Max Speed) North	_____ Amps	_____ Amps
Voltage (Max Speed) North	_____ Volts	_____ Volts
Current (Max Speed) South		_____ Amps
Voltage (Max Speed) South		_____ Volts
		SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

	<i>Actual</i>	<i>Required</i>	
North (Min Speed)	_____ FPM	1 MPM (3.3 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
North (Max Speed)	_____ FPM	10 MPM (32.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
South (Min Speed)	_____ FPM	1 MPM (3.3 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
South (Max Speed)	_____ FPM	10 MPM (32.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

2.4.3 Bridge Controls

	<i>Motor Nameplate</i>	<i>Actual</i>
Current (Max Speed) East	_____ Amps	_____ Amps
Voltage (Max Speed) East	_____ Volts	_____ Volts
Current (Max Speed) West		_____ Amps
Voltage (Min Speed) West		_____ Volts

			SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
	<i>Actual</i>	<i>Required</i>			
East (Min Speed)	_____ FPM	2.5MPM (8.2 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
East (Max Speed)	_____ FPM	25MPM (82 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
West (Min Speed)	_____ FPM	2.5MPM (8.2 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
West (Max Speed)	_____ FPM	25MPM (82 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

2.5 Limit Switches

Test all limit switches of each hoist to determine that they function and that all associated functions occur in accordance with specifications.

2.5.1 Main Hoist Upper Geared Limit Switch (Primary)

Slowly raise the hoist into the upper-gear limit switch and verify that the hoist stops when the limit switch is tripped and the hook is only capable of lowering. Ensure that the full speed runout distance is less than the distance to the weighted upper limit. Test the upper limit again, gradually increasing speed to full speed and verify that the weighted limit is not tripped when the geared limit is engaged at full speed. If the hoist is equipped with a slow down function, verify that the hoist speed decreases before engaging the primary limit switch.

- Hoist upper geared limit switch tripped and hoist stops

Hoist SAT UNSAT NA

- Hoist can lower only

Hoist SAT UNSAT NA

- Hoist slows before tripping primary limit (if hoist is equipped with slow down function)

Hoist SAT UNSAT NA

- Full speed runout distance

Hoist SAT UNSAT NA

2.5.2 Main Hoist Upper Weighted Limit Switch (Secondary)

Using the geared limit switch by-pass key switch to bypass the hoist upper-gear limit switch and continue slowly raising the hoist. Once the weighted switch is tripped, verify that the hoist motion stops and hoist drive is inoperable. Ensure that the full speed runout distance is less than the distance to the two block condition. Test the upper limit again, gradually increasing speed to full speed and verify that the hoist is not two blocked when the weighted limit is engaged at full speed.

- Hoist Upper Weighted Limit Switch tripped and all hoist motion stops

Hoist SAT UNSAT NA

- Hoist drive inoperable

Hoist SAT UNSAT NA

- Full speed runout distance

Hoist SAT UNSAT NA

Using the hoist reset key switch, reset the hoist drive and verify that the hoist is only operable in down direction until the primary upper limit switch is deactivated.

- Hoist Up inoperable; hoist can only lower until primary limit deactivated

Hoist SAT UNSAT NA

2.5.3 Main Hoist Lower Geared Limit Switch

Slowly lower the hook into geared lower limit switch. When the limit switch is tripped, verify that the hoist lowering motion stops. Verify hoist can raise only.

- Hoist Lower Geared Limit Switch tripped and hoist stops lowering

Hoist SAT UNSAT NA

- Hoist can raise only

Hoist SAT UNSAT NA

- Verify two wraps of wire rope remain on the drum at the lower limit position

Wire rope wraps SAT UNSAT NA

2.5.4 Aux Hoist Upper Geared Limit Switch (Primary)

Slowly raise the hoist into the upper-geared limit switch and verify that the hoist stops when the limit switch is tripped and the hook is only capable of lowering. Ensure that the full speed runout distance is less than the distance to the weighted upper limit. Test the upper limit again, gradually increasing speed to full speed and verify that the weighted limit is not tripped when the geared limit is engaged at full speed. If the hoist is equipped with a slow down function, verify that the hoist speed decreases before engaging the primary limit switch.

- Hoist upper geared limit switch tripped and hoist stops

Hoist SAT UNSAT NA

- Hoist can lower only

Hoist SAT UNSAT NA

- Hoist slows before tripping primary limit (if hoist is equipped with slow down function)

Hoist SAT UNSAT NA

- Full speed runout distance

Hoist SAT UNSAT NA

2.5.5 Aux Hoist Upper Weighted Limit Switch (Secondary)

Using the geared limit switch by-pass key switch to bypass the hoist upper-geared limit switch and continue slowly raising the hoist. Once the weighted switch is tripped, verify that the hoist motion stops and hoist drive is inoperable. Ensure that the full speed runout distance is less than the distance to the two block condition. Test the upper limit again, gradually increasing speed to full speed and verify that the hoist is not two blocked when the weighted limit is engaged at full speed.

- Hoist Upper Weighted Limit Switch tripped and all hoist motion stops

Hoist SAT UNSAT NA

- Hoist drive inoperable

Hoist SAT UNSAT NA

- Full speed runout distance

Hoist SAT UNSAT NA

Using the hoist reset key switch, reset the hoist drive and verify that the hoist is only operable in down direction until the primary upper limit switch is deactivated.

- Hoist Up inoperable; hoist can only lower until primary limit deactivated

Hoist SAT UNSAT NA

2.5.6 Aux Hoist Lower Geared Limit Switch

Slowly lower the hook into geared lower limit switch. When the limit switch is tripped, verify that the hoist lowering motion stops. Verify hoist can raise only.

- Hoist Lower Geared Limit Switch tripped and hoist stops lowering

Hoist SAT UNSAT NA

- Hoist can raise only

Hoist SAT UNSAT NA

- Verify two wraps of wire rope remain on the drum at the lower limit position

Wire rope wraps SAT UNSAT NA

2.7 Crane Fault Simulation

2.7.1 Motor Over-Temperature

Simulate a motor over-temperature condition for EACH drive motor / motor pair. Verify the **Red** (FAULT) status light illuminates and the appropriate function is locked out (for hoists, only raise direction is locked out).

- Red Fault Light SAT UNSAT NA

- Functions Disabled SAT UNSAT NA

2.8 Brakes

2.8.1 Normal Operation

Verify the brakes set after control is returned to neutral and drive decelerates.

Main Hoist SAT UNSAT NA

Aux Hoist SAT UNSAT NA

Trolley	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Bridge	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

2.8.2 Loss of Power

Verify brakes set on loss of power.

Main Hoist	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Aux Hoist	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Trolley	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Bridge	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

2.8.3 Secondary Brake Delay

Verify secondary hoist brakes set with a minimum of 1 second time delay compared to the primary brakes during normal operation.

Main Hoist Brake Delay Normal Stop	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Aux Hoist Brake Delay Normal Stop	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

Verify secondary hoist brakes sets with a minimum of a 1 second time delay compared to the primary brakes during loss of power operation.

Main Hoist Brake Delay Loss of Power	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Aux Hoist Brake Delay Loss of Power	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

3. RATED LOAD

3.1 Main Hoist 100 Percent (+0%, -5%) of Rated Capacity Load Test (99,207 lbs – 94246 lbs)

Record the actual certified weight, including rigging that will be used: _____ Lbs.

3.1.1 Capacity Overload Lockout

When lifting the rated load, the hoist capacity overload (set at 100%) will most likely activate. Upon activation, verify that the hoist can be lowered, but, not raised. After verification, defeat the hoist capacity overload using the bypass keyswitch. Verify lifting of the load is possible and continue with the test. If the chosen test weight does not activate the hoist overload capacity lockout; then the lockout can be verified using the test load in section 4.2.1 and this section can be marked as NA.

Hoist lowers only	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Capacity Overload Bypass Keyswitch	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Overload Light	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

3.1.2 Girder Deflection

a. Maximum Allowable Girder Deflection = 1/888 (cambered) or 1/600 (uncambered) of crane span = _____

b. Measure and record the baseline measurement (±1/8 inch) for the girder deflection at the center of the span with the trolley UNLOADED and positioned as close to an end truck as possible.

Baseline Measurement: _____ inch.

c. Place the 100% (-0%, +5%) load on the main hook. Travel the trolley to the center of the bridge. Measure and record the loaded measurement for girder deflection at the center of the span.

Max Loaded Measurement: _____ inch.

d. The difference between the baseline and the loaded measurement defines the maximum girder deflection. Compare the maximum girder deflection with the allowable value in step (a).

Max Girder Deflection = Baseline Measurement – Max Loaded Measurement = _____ inch.

Girder Deflection SAT UNSAT NA

3.1.3 Main Hoist Load Test

a. Start at ground level and hoist up to one foot below upper limit using the full range of speeds. Hoist down to one foot above ground level using full range of speeds.

b. Stop the load during hoisting and lowering to verify that brake stops and holds the load.

SAT UNSAT NA

c. Measure and record the motor current, voltage, and hook maximum and minimum speed in FPM in both directions. Record the following:

<i>Main Hoist Motor</i>	<i>Nameplate</i>	<i>Actual</i>
Current (Max Speed) Up	_____ Amps	_____ Amps
Voltage (Max Speed) Up	_____ Volts	_____ Volts
Current (Max Speed) Down		_____ Amps
Voltage (Max Speed) Down		_____ Volts

	<i>Actual</i>	<i>Required</i>	
Up (Min Speed)	_____ FPM	.32MPM (1 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Up (Max Speed)	_____ FPM	4.5MPM(14.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Min Speed)	_____ FPM	.32MPM (1 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Max Speed)	_____ FPM	4.5MPM(14.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

Note: Max speed tolerance is ± 10%

3.1.4 Main Hoist Loss of Power Test at Rated Load

Raise the test load to an adequate distance above the floor. Lower the test load at SLOW speed. Disconnect the main power source and return the controller to the neutral position to simulate a power failure. Restart hoist in a downward direction and allow the drive to reach an INTERMEDIATE speed (if available). Re-perform the simulated power failure. Restart hoist in a downward direction and allow the drive to reach MAXIMUM operating speed. Re-perform the simulated power failure. Verify that the hoist stops and that the brake sets properly to bring the test load to a stop at all speeds.

SAT UNSAT NA

3.1.5 Main Hoist Rollback Check

With the load approximately 2 feet above the ground, engage the main hoist up controller to the slowest hoist position. Verify that the motor turns in raise direction only.

SAT UNSAT NA

3.2 Trolley Load Test

a. Operate the trolley the full distance of the bridge in both directions with rate load on the main hoist. Measure and record the distance required to come to a full stop from rated speed. Verify that the brake operates properly.

Trolley Stopping Distance _____ Ft.

Trolley Brakes SAT UNSAT NA

b. Measure and record the motor current, voltage, and trolley maximum and minimum speed in FPM in both directions. Record the following:

<i>Trolley Motor</i>	<i>Nameplate</i>	<i>Actual</i>
Current (Max Speed) North	_____ Amps	_____ Amps
Voltage (Max Speed) North	_____ Volts	_____ Volts
Current (Max Speed) South		_____ Amps
Voltage (Max Speed) South		_____ Volts

	<i>Actual</i>	<i>Required</i>	
North (Min Speed)	_____ FPM	1 MPM (3.3 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
North (Max Speed)	_____ FPM	10 MPM (32.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
South (Min Speed)	_____ FPM	1 MPM (3.3 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
South (Max Speed)	_____ FPM	10 MPM (32.8 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

Note: Max speed tolerance is ± 10%.

3.2.1 Trolley Loss of Power Test at Rated Load

Raise the test load approximately midway between the trolley and any permanent obstructions on the operating floor. Starting at a safe distance from walls or other obstructions, attain a SLOW speed of trolley travel. While maintaining a safe distance from obstructions, disconnect the main power source to simulate a power failure. Restart trolley travel and allow the drive to reach an INTERMEDIATE speed (if available). Re-perform the simulated power failure. Restart trolley travel and allow the drive to reach MAXIMUM operating speed. Re-perform the simulated power failure. Verify that the trolley stops and that the brake sets properly at all speeds.

SAT UNSAT NA

3.3 Bridge Load Test

a. Operate the bridge the full distance of the runway rails in both directions with rated load on the main hoist. Measure and record the distance required to come to a full stop from rated speed. Verify that the brake operates properly.

Bridge Stopping Distance _____ Ft.

Bridge Brakes SAT UNSAT NA

b. Measure and record the motor current, voltage, and hook maximum and minimum speed in FPM in both directions. Record the following:

<i>Bridge Motor</i>	<i>Nameplate</i>	<i>Actual</i>			
Current (Max Speed) East	_____ Amps	_____ Amps			
Voltage (Max Speed) East	_____ Volts	_____ Volts			
Current (Max Speed) West		_____ Amps			
Voltage (Min Speed) West		_____ Volts			
			SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

	<i>Actual</i>	<i>Required</i>			
East (Min Speed)	_____ FPM	2.5MPM (8.2 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
East (Max Speed)	_____ FPM	25MPM (82 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
West (Min Speed)	_____ FPM	2.5MPM (8.2 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
West (Max Speed)	_____ FPM	25MPM (82 FPM)	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

Note: Max speed tolerance is ± 10%.

3.3.1 Bridge Loss of Power Test at Rated Load

Raise the test load approximately midway between the trolley and any permanent obstructions on the operating floor. Starting at a safe distance from walls or other obstructions, attain a SLOW speed of bridge travel. While maintaining a safe distance from obstructions, disconnect the main power source to simulate a power failure. Restart bridge travel and allow the drive to reach an INTERMEDIATE speed (if available). Re-perform the simulated power failure. Restart bridge travel and allow the drive to reach MAXIMUM operating speed. Re-perform the simulated power failure. Verify that the bridge stops and that the brake sets properly at all speeds.

SAT UNSAT NA

3.4 Aux Hoist 100 Percent (+0%, -5%) of Rated Capacity Load Test (55,115 lbs – 52359 lbs)

Record the actual certified weight, including rigging that will be used: _____ Lbs.

3.4.1 Capacity Overload Lockout

When lifting the rated load, the hoist capacity overload (set at 100%) will most likely activate. Upon activation, verify that the hoist can be lowered, but, not raised. After verification, defeat the hoist capacity overload using the bypass keyswitch. Verify lifting of the load is possible and continue with the test. If

the chosen test weight does not activate the hoist overload capacity lockout; then the lockout can be verified using the test load in section 4.2.1 and this section can be marked as NA.

Hoist lowers only	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Capacity Overload Bypass Keyswitch	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Overload Light	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

3.4.2 Aux Hoist Load Test

a. Start at ground level and hoist up to one foot below upper limit using the full range of speeds. Hoist down to one foot above ground level using full range of speeds.

b. Stop the load during hoisting and lowering to verify that brake stops and holds the load.

SAT UNSAT NA

c. Measure and record the motor current, voltage, and hook maximum and minimum speed in FPM in both directions. Record the following:

<i>Main Hoist Motor</i>	<i>Nameplate</i>	<i>Actual</i>
Current (Max Speed) Up	_____ Amps	_____ Amps
Voltage (Max Speed) Up	_____ Volts	_____ Volts
Current (Max Speed) Down		_____ Amps
Voltage (Max Speed) Down		_____ Volts

	<i>Actual</i>	<i>Required</i>	
Up (Min Speed)	_____ FPM	.48MPM (1.6 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Up (Max Speed)	_____ FPM	7.5MPM(24.6 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Min Speed)	_____ FPM	.48MPM (1.6 FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>
Down (Max Speed)	_____ FPM	7.5MPM(24.6FPM)	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/> NA <input type="checkbox"/>

Note: Max speed tolerance is $\pm 10\%$

3.4.3 Aux Hoist Loss of Power Test at Rated Load

Raise the test load to an adequate distance above the floor. Lower the test load at SLOW speed. Disconnect the main power source and return the controller to the neutral position to simulate a power failure. Restart hoist in a downward direction and allow the drive to reach an INTERMEDIATE speed (if available). Re-perform the simulated power failure. Restart hoist in a downward direction and allow the drive to reach MAXIMUM operating speed. Re-perform the simulated power failure. Verify that the hoist stops and that the brake sets properly to bring the test load to a stop at all speeds.

SAT UNSAT NA

3.4.4 Aux Hoist Rollback Check

With the load approximately 2 feet above the ground, engage the hoist up controller to the slowest hoist position. Verify that the motor turns in raise direction only.

SAT UNSAT NA

4. TEST LOAD

4.1 Main Hoist 125 Percent (+5%, -0%) of Rated Capacity Load Test (130209 lbs –124008lbs)

Record the actual certified weight, including rigging that will be used: _____ Lbs.

4.2 Dynamic Load Test

4.2.1. Capacity Overload Lockout

If the capacity overload lockout test was not performed with rated load, then the lockout shall be tested at the test load. When lifting the test load, the hoist capacity overload (set at 100%) will activate. Upon activation, verify that the hoist can be lowered, but, not raised. After verification, defeat the hoist capacity overload using the bypass keyswitch. Verify lifting of the load is possible and continue with the test.

Hoist lowers only	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Capacity Overload Bypass Keyswitch	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Overload Light and Alarm	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

Note: If the capacity overload lockout was tested at rated load, the section may be marked N/A.

4.2.2 Hoist

Place the 125% (+5%, -0%) on the main hook. Raise and lower the test load and visually observe smooth control. Stop the load during hoisting and lowering to verify that the brake stops and holds the load.

SAT UNSAT NA

Measure and record the motor current and voltage at maximum speed in both directions. Record the following:

<i>Main Hoist Motor</i>	<i>Nameplate</i>	<i>Actual</i>
Current (Max Speed) Up	_____ Amps	_____ Amps
Voltage (Max Speed) Up	_____ Volts	_____ Volts
Current (Max Speed) Down	_____ Amps	_____ Amps
Voltage (Max Speed) Down	_____ Volts	_____ Volts

4.2.3. Main Hoist Loss of Power Test

Raise the test load a minimal distance. Lower the test load at slow speed. Disconnect the main power source and return the controller to the neutral position to simulate a power failure. Verify that the hoist stops and that the brake sets properly to bring the test load to a stop.

SAT UNSAT NA

4.3 Main Hoist Brake

a. Raise the test load approximately 1 foot from the floor and record this distance. Inactivate the secondary holding brake while testing the primary holding brake. Hold the load for 10 minutes. Observe for noticeable lowering of test load that may occur which will indicate the malfunction of hoisting components or brakes. After 10 minutes verify the distance from the floor has not changed.

SAT UNSAT NA

b. Re-engage the secondary holding brake. Reposition the test load approximately 1 foot from the floor. Release the primary holding brake. Hold the load for 10 minutes. Observe for noticeable lowering of test load that may occur which will indicate the malfunction of hoisting components or brakes. After 10 minutes verify the distance from the floor has not changed. Re-engage the primary holding brake. Check proper operation of time delay and ensure smooth positive stopping.

SAT UNSAT NA

c. Rotate the load a full circle to verify the hook bearing smooth operation.

SAT UNSAT NA

4.4 Trolley

Operate the trolley the full distance of the bridge in both directions with test load on main hoist (if clear trolley space is available). Verify smooth control and proper brake operation.

SAT UNSAT NA

4.5 Bridge

With the trolley at one end of the bridge, operate the bridge the full distance of the runway with test load on main hoist (if clear bridge travel space is available). With the trolley at the opposite end of the bridge, operate the bridge in the opposite direction. Verify smooth control and proper brake operation. Observe for any binding of the bridge trucks. Land the test load.

SAT UNSAT NA

4.6 Aux Hoist 125 Percent (+5%, -0%) of Rated Capacity Load Test (68894 lbs – 72338 lbs)

Record the actual certified weight, including rigging that will be used: _____ Lbs.

4.7 Dynamic Load Test

4.7.1. Capacity Overload Lockout

If the capacity overload lockout test was not performed with rated load, then the lockout shall be tested at the test load. When lifting the test load, the hoist capacity overload (set at 100%) will activate. Upon activation, verify that the hoist can be lowered, but, not raised. After verification, defeat the hoist capacity overload using the bypass keyswitch. Verify lifting of the load is possible and continue with the test.

Hoist lowers only	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Capacity Overload Bypass Keyswitch	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>
Overload Light and Alarm	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>	NA <input type="checkbox"/>

Note: If the capacity overload lockout was tested at rated load, the section may be marked N/A.

4.7.2 Hoist

Place the 125% (+5%, -0%) on the aux hook. Raise and lower the test load and visually observe smooth control. Stop the load during hoisting and lowering to verify that the brake stops and holds the load.

SAT UNSAT NA

Measure and record the motor current and voltage at maximum speed in both directions. Record the following:

<i>Aux Hoist Motor</i>	<i>Nameplate</i>	<i>Actual</i>
Current (Max Speed) Up	_____ Amps	_____ Amps
Voltage (Max Speed) Up	_____ Volts	_____ Volts
Current (Max Speed) Down	_____ Amps	_____ Amps
Voltage (Max Speed) Down	_____ Volts	_____ Volts

4.7.3. Aux Hoist Loss of Power Test

Raise the test load a minimal distance. Lower the test load at slow speed. Disconnect the main power source and return the controller to the neutral position to simulate a power failure. Verify that the hoist stops and that the brake sets properly to bring the test load to a stop.

SAT UNSAT NA

4.8 Aux Hoist Brake

a. Raise the test load approximately 1 foot from the floor and record this distance. Inactivate the secondary holding brake while testing the primary holding brake. Hold the load for 10 minutes. Observe for noticeable lowering of test load that may occur which will indicate the malfunction of hoisting components or brakes. After 10 minutes verify the distance from the floor has not changed.

SAT UNSAT NA

b. Re-engage the secondary holding brake. Reposition the test load approximately 1 foot from the floor. Release the primary holding brake. Hold the load for 10 minutes. Observe for noticeable lowering of test load that may occur which will indicate the malfunction of hoisting components or brakes. After 10 minutes verify the distance from the floor has not changed. Re-engage the primary holding brake. Check proper operation of time delay and ensure smooth positive stopping.

SAT UNSAT NA

c. Rotate the load a full circle to verify the hook bearing smooth operation.

SAT UNSAT NA

5. Final Verifications

5.1.1 Hour Meter

Upon completion of field testing, record the hour meter reading.

Meter reading at end of test _____

5.1.2 Hooks

Upon completion of all load tests, measure tram dimensions of the hooks and record the data into section 1.7.2 of this test and complete the hook evaluation.

5.1.3 Capacity Overload Bypass

Return each hoist capacity overload keyswitch to the normal position.

