

1414 Motion and Performance Indicating or Prevention Devices

KEY: F = Floating Cranes (B30.8)

M/U = Monorail, Underhung Cranes Standard (B30.11)

O/G = Overhead, Bridge, and Gantry Cranes (B30.2, B30.17)

T = Tower Cranes (B30.3, B30.4)

U = Underhung Cranes (B30.16)

COE = U.S. Army Corps of Engineers Standards

SCRA = Specialized Carriers and Rigging Association Glossary of Common Crane and Rigging Terms

ANSI = American National Standards Institute

ISO = International Organization for Standardization

MOTION DEVICES

- (1) Access/Egress Systems (Bernie; ISO; fall protection???)
- (2) Backstop (SCRA) *or* (Attachment) Backstop (ISO)
- (3) Back-Up Limit Switch (ISO) (O/G)
- (4) Bail Limiter (Mike)
- (5) Boom Angle Indicators (ANSI, SAE, COE, OSHA) *or* (Attachment) Angle Indicators (ISO)
- (6) Boom Hoist Limiting Device (SCRA) *or* [Crane] Boom Hoist Disengaging Device (SAE, COE)
- (7) Boom Hoist Shut-Offs/Disconnect/Hydraulic relief/Automatic Boom Stop (ANSI, SCRA)
- (8) Boom Length Indicator (ANSI, SAE) [issue as to how we define “boom;” includes jib, jib extensions, boom extensions???] *or* Attachment Length Indicator (ISO)

- (9) [Limiting Device to Stop] Boom or Jib Luffing at Lower and/or Upper Limits of Boom or Jib Movement (ANSI) (T)
- (10) Boom Hoist Kick-Outs (Bernie)
- (11) Boom Stops (ANSI, COE) *and/or* Telescoping Boom Stops (SCRA)
- (12) Bridge Bumpers (ANSI) (O/G)
- (13) Buffer (ANSI)
- (14) Bumper (Buffer) (ANSI) (O/G)
- (15) Fifth Outrigger on Front Bumper (SCRA)
- (16) Counter-Weight Removal Systems Devices (Bernie)
- (17) Counter-Weight Sensors (Bernie)
- (18) Crane-Travelling Speed Limiter (ISO)
- (19) Crab-Traversing Limiter (ISO) (O/G???)
- (20) Crab-Traversing Speed Limiter (ISO)
- (21) Crane Level Indicator (ANSI, EU prEN, COE)
- (22) Crane Slope Indicator (ISO)
- (23) Slope Indicator (ISO)
- (24) Crane-Travelling Limiter (ISO) (O/G???)
- (25) [Limiting Device to Limit] Crane Travel At Both Ends of the Runway Tracks (ANSI) (T)
- (26) Cross-Track Switch (B30.11) (ANSI) (M/U)
- (27) Cut-Out Limit Switch (ISO) (O/G)
- (28) Deadman Control/Switch (SCRA)
- (29) Deceleration Limits for Trolley Travel In and Out or Boom Up and Down (Peter)
- (30) Deceleration Limits for Hoist Up Prior to Two-Blocking Limit (Peter)

- (31) Derrick *or* Derricking *or* Boom Luffing Limiter (ISO)
- (32) Derricking-Speed Limiter (ISO)
- (33) DOT devices, i.e. seat belts, low air pressure tires, brake lights/headlights/turn signals, etc. (Mike)
- (34) Drag Brake (SCRA)
- (35) Emergency Stop Switch (ANSI) (O/G)
- (36) End Stop (ISO) (O/G)
- (37) Engine Clutch/Power-Take Off/Torque Converter Controls??? (ANSI, SCRA)
- (38) Foot Pedal Brake Locks (SCRA)
- (39) Glide (Slider) Switch (B30.11) (ANSI) (M/U)
- (40) Grouser (SCRA)
- (41) Main/Auxiliary/Boom/Jib/Trolley Hoisting –
 - (a) Holding Brake (ANSI)
 - (b) Dog/Ratchet/Pawl (Positive Holding Devices) (ANSI)
 - (c) Secondary Braking Device
- (42) Integrally Mounted Holding Device (ANSI)
- (43) Jib Angle Indicator (ISO)
- (44) Jib Backstops (ANSI, COE)
- (45) Jib Hoist Kick-Outs (Bernie)
- (46) Jib Stops
- (47) Jib-Telescoping Limiter (ISO)
- (48) Limit Switch (ANSI) (O/G)
- (49) Lowering Limiter (ISO, EU prEN)

- (50) Lower Over-Travel Limit Switch (ANSI) (F)
- (51) Low Pressure Warnings (Bernie)
- (52) Main Disconnect Switch (Crane Disconnect Switch???) (ANSI) (O/G)
- (53) Main Power Circuit Interrupt Device (ANSI) (T, O/G)
- (54) Master Spring-Return Switch (ANSI) (O/G)
- (55) Master Switch (ANSI) (O/G, M/U)
- (56) Mechanical Load Brake (ANSI)
- (57) Motor Disconnect (ANSI) (T, O/G)
- (58) Movable Cabin Limiter (ISO)
- (59) Outrigger or Stabilizer Control/Monitor/Sensor
- (60) Pontoon or Barge List Device (ANSI) (F)
- (61) Powered-Controlled Lowering *or* Controlled Load Lowering (ANSI, OSHA 550(g)(3)(ii)(D), 751)
- (62) Primary Upper-Limit Device (ANSI) (O/G)
- (63) Push-Button Station (ANSI) (M/U)
- (64) Rail Clamps (ANSI)
- (65) Rail Sweeps (Bridge and Trolley?) (ANSI) (O/G, T)
- (64) Remote Control
 - (a) Cable or pendant control (limited by the length of the cable)
 - (b) Radio-based systems including microwave (these have a long range and can operate when there are obstacles between the crane and control unit)
 - (c) Infrared systems (these require a “line of sight” between the control unit held by the operator and the receiver on the crane)
- (65) Remote Control Emergency Stop (ANSI) (T)

- (66) Reverse Signal or Back-Up Alarm (COE)
- (67) Runway Disconnect Switch (ANSI) (O/G)
- (68) Skew Indicator (ISO)
- (69) Skew Limiter (ISO)
- (70) Slack Rope Limiter (ISO)
- (71) Slewing Brakes (ANSI) (T)
- (72) Slow-Down Device (ISO) (O/G)
- (73) Stop (ANSI) (O/G, M/U)
- (74) Swing *or* Slew Indicator (ISO)
- (75) Swing *or* House Lock (SCRA)
- (76) Travel Swing *or* Two Position Swing Lock (SCRA)
- (77) Three Hundred Sixty Degree (360°) Swing Lock (SCRA)
- (78) Swing Warning Lights/Swing Alarms (Bernie)
- (79) Swinging *or* Slewing Limiter (ISO)
- (80) Swinging- *or* Slewing-Speed Limiter (ISO)
- (81) Switch (Valve) (ANSI) (O/G)
- (82) Tongue Switch (B30.11) (ANSI) (M/U)
- (83) Track Switch (B30.11) (ANSI) (M/U)
- (84) Trolley Bumpers (ANSI) (O/G)
- (85) Trolley Stops (ANSI) (O/G)
- (86) [Limiting Device to Limit] Trolley Travel at Both Ends of Boom *or* Jib (ANSI) (T)
- (87) Turntable (B30.11) (ANSI) (M/U)
- (88) Wind Speed Indicator (ISO)

(89) Wind Velocity Device (ANSI) (T)

(90) Wind Direction Indicator?

PERFORMANCE DEVICES

(1) Anti-Two Block Device/Systems (OSHA, ANSI, ISO, SAE, COE [note duty cycle operations exception])

(a) Two-Block Damage *Prevention* Feature

(b) Two-Block *Warning* Feature

(2) Closed-Circuit Television to Watch Load and Equipment Activities/ Functions/Movement/Placement (for example, to watch the rope drums turn) (Mike)

(3) Device to Stop Load Block Down Prior to Last Two (2) Wraps of Cable Coming Off Hoist Drum (T) (Peter)

(4) Device to Limit Load Lifted in Each Gear if Crane is Equipped with Multiple Speed Gearbox (T) (Peter)

(5) (Rope) Drum Rotation Indicator (ANSI, ISO, SAE, COE)

(6) Electric Baffles (ANSI) (M/U)

(7) Environment Limiting and Indicating Devices (ISO)

(8) Fairlead (SCRA)

(9) Function Kick-Out System (SAE)

(10) Ground Straps (SCRA) (to dissipate static electricity during refueling)

(11) Hoisting Limiter (ISO)

(12) Hoist Limit Indicator (ISO)

(13) Hoisting Speed Limiter (ISO)

(14) Hook Safety Latch (Bernie)

(15) [Limiting Device to Limit Pressures in] Hydraulic Pressure or Pneumatic Circuits (ANSI) (T)

- (16) Lifted Load Limiter (ANSI) (T)
- (17) Load Indicator/Load Weighing/Load Sensor (ANSI, ISO, COE, DOE)
- (18) Load Radius Indicator (ANSI, ISO, COE)
- (19) Lowering-Speed Limiter (ISO)
- (20) Magnet Circuit Disconnect Switch (ANSI) (O/G, F)
- (21) Operating Radius Limiter (ANSI) (T) (Load Radius Indicator???)
- (22) Operating Radius Indicator (T) (Peter)
- (23) Overload Protection System (SCRA)
- (24) Pressure Relief Valves in Hydraulic Systems (ISO)
- (25) Rated Capacity Indicator/Load Moment Indicator (LMIs)/Safe Load Indicator/Rated Load Indicator System (ANSI, ISO, EU prEN, SAE, COE)
- (26) Rated Capacity Limiters (ANSI, ISO, EU prEN, SAE)
- (27) Rigging Switch/System Override Switch (SCRA) (this may be an operational aid that limits operational aids)
- (28) Rope-Winding/Unwinding Limiters (ISO)
- (29) Slack Rope Indicator (ISO)
- (30) Stripper (ANSI) (U)
- (31) Upper Over-Travel Limiting Device (Anti-Two-Block Device?)

ALSO, keep these motion and performance devices in mind for the Electric Power Lines discussion:

- (1) Grounding Mat
- (2) Grounding Rod
- (3) Insulating Link
- (4) Proximity Alarm