CHECKLIST: HAND OPERATED CONTROLS					
	CRITERIA	YES	NO	N/A	COMMENTS
1.	When a control or an array of controls is needed for momentary contact or for activating a locking circuit, particularly in high-frequency-of-use situations are push buttons used?				
2.	Are push buttons concave to fit the finger or provided with a high degree of frictional resistance to prevent slipping?				
3.	Is a positive indication of control activation provided?				
4.	When it is imperative to prevent accidental actuation of controls is a channel or cover guard provided?				
5.	Are thumbwheels controls used only if the function requires a compact digital control input device and a readout of these manual inputs for verification?				
6.	Does each position around the circumference of a discrete thumbwheel have a concave surface or is it separated by a high-friction area which is raised from the periphery of the thumbwheel?				
7.	Does the thumbwheel allow viewing of the digits within 30º viewing angle to the left and right of a perpendicular to the thumbwheel digits?				
8.	When thumbwheels are used as input devices is the switch OFF or NORMAL position color coded?				
9.	Does moving the thumbwheel edge forward, upward, or to the right increase the setting?				
10.	For areas in which ambient illumination will provide display brightness below 3.5cd/m^2 is the thumbwheel internally illuminated?				
11.	When illuminated do thumbwheel digits appear as illuminated characters on a black background and do their dimensions approximate the following: height 0.2 in. (4.8 mm); height-to-width ratio 3:2; height-to-stoke width ratio 10:1?				
12.	For areas in which ambient illumination will provide display brightness above 3.5cd/m^2 and internal illumination is not required are the digits bold black numerals engraved on a light background and are the dimensions the same as illuminated digits?				
13.	Does thumbwheel design permit viewing of in-line digital read-out from all operator positions?				
14.	Are detents provided for discrete position thumbwheels?				
15.	Is thumbwheel resistance elastic, building up and then decreasing as each detente is approached so that the control maps into position without stopping between adjacent detents?				
16.	Is the separation between adjacent edges of thumbwheel controls sufficient to preclude accidental actuation of adjacent controls?				
17.	Are toggle switches used for functions that require two discrete positions or where space limitations are severe?				
18.	Are three position toggle switches used only when other switch types are not feasible?				
19.	Are three position toggle switches with springload to center-off used only when release from the spring-loaded position does not result in switch handle travel beyond the off position?				
20.	When the prevention of accidental actuation is of primary importance are channel guards, lift-to-unlock switches, or other equivalent prevention mechanisms provided?				

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CRITERIA	YES	NO	N/A	COMMENTS
21. When lift-to-unlock mechanisms are used is the resistance less than 3 lbs?				
22. If cover guards are used is their location such that when open they do not interfere with the operation of the protected switch or adjacent controls?				
23. Is an indication of control actuation provided (e.g.. snap feel, audible click. associated or integral light)?				
24. Are toggle switches vertically oriented when OFF is down and horizontal only for compatibility with the controlled function or equipment location?				
25. Unless otherwise specified are barriers provided on critical switches and on switches likely to be accidentally actuated?				
26. When barriers are used do they have rounded edges and are they prevented from obscuring visual access to controls, labels, or displays?				
27. Is the legend switch provided with a detente or click for positive indication of switch actuation?				
28. When touch sensitive switches are used is a positive indication of actuation provided?				
29. Is the legend legible with or without internal illumination?				
30. When the MTBF is less than 100,00 hours is a lamp test or dual lamp/filament reliability test provided for switches				
31. Are legend switch lamps replaceable from the front of the panel by hand?				
32. Are legends or covers keyed or controlled to prevent the possibility of interchanging the legend covers?				
33. Is there a maximum of three lines of lettering on the legend plate?				
34. Are rocker switches used in lieu of toggle switches when the toggle switch handle protrusions might snag or when there is insufficient panel space for separate labeling of switch positions?				
35. When the prevention of accidental actuation is of primary importance are channel guards or equivalent protective measures provided?				
36. Is an indication of control actuation provided (e.g. snap feel, audible click, associated or integral light)?				
37. Are rocker switches vertically oriented with OFF in the down position and horizontal only for compatibility with the controlled function or equipment location?				
38. For areas in which ambient illumination will provide display brightness below 3.5cd/m^2 is the rocker switch internally illuminated?				
39. When illuminated do rocker switch digits/characters dimensions approximate the following: height 02 (4.8 mm); height-to-width ratio 3:2; height-to-stoke width ratio 10:1?				
40. Are alternate colors used to denote the ON and OFF portions of a rocker switch?				
41. When slide switch controls are used for functions requiring more than two discrete positions are the switches arranged in a matrix to permit easy recognition of relative switch settings?				
42. When mispositioning of controls is to be avoided is the use of slide switches avoided?				

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CRITERIA	YES	NO	N/A	COMMENTS
43. When the prevention of accidental actuation is of primary importance are channel guards or other equivalent prevention mechanisms provided?				
44. Are detents provided for each slide switch control setting?				
45. When slide switches are used does the resistance gradually increase and then drop when the switch snaps into position?				
46. Are the slide switches incapable of stopping between positions?				
47. Where practicable are slide switches vertically oriented and horizontal only for compatibility with the controlled function or equipment location?				
48. Are slide switches involving more than two positions designed to provide positive indication of control setting?				
49. Are push=pull controls used sparingly and for applications in which such configurations are typically expected?				
50. Are push-pull control handles keyed to a non-rotating shaft unless the control is to be used for special application such as a combination push-pull/rotate?				
51. When a combination push-pull/rotate control is used with a round style knob is the rim of the knob serrated?				
52. Are mechanical detents incorporated into push-pull controls to provide tactile indication of position?				
53. Is the use, location, and operating axis of push-pull controls precluded from the possibility of the operator's bumping a control getting into or out of position?				
54. Is the use, location, and operating axis of push-pull controls precluded from the possibility of the operator's snagging clothing, communications cables, or other equipment items on the control?				
55. Is the use, location, and operating axis of push-pull controls precluded from the possibility of the operator's inadvertently deactivating the control setting while reaching for another control?				
56. Does the control pull towards the operator for ON and away for OFF with clockwise for actuation or increase for combination pull/rotary switches?				
57. Is the force required for pulling a panel control with fingers less than 4 lbs and for pulling a T-bar with four fingers less than 10 lbs?				
58. Are rotary selector switches used for discrete functions when three or more detented positions are required?				
59. Are the rotary selector switches designed with a moving pointer and a fixed scale?				
60. Are moving pointer knobs bar-shaped with parallel sides and with the index end tapered to a point?				
61. When a rotary switch is not visible to the operator during normal system operations is it designed to have no more than 12 positions?				
62. When a rotary switch is constantly visible to the operator during normal system operations is it designed to have no more than 24 positions?				
63. When rotary switch positions are placed opposite each other is the knob shaped to preclude confusion as to which end of the knob is the pointer?				

CHECKLIST: HAND OPERATED CONTROLS				
CRITERIA	YES	NO	N/A	COMMENTS
64. Are rotary switches designed with resistance that is elastic, building up than decreasing as each position is approached so that the control snaps into position without stopping between adjacent positions?				
65. Is a reference line provided on rotary controls with at least 6:1 luminance contrast with the control color under all lighting conditions?				
66. Is the knob pointer mounted sufficiently close to its scale to minimize parallax between the pointer and the scale markings?				
67. Are key operatedswitches (KOS) used primarily to prevent unauthorized operation?				
68. When illumination is adequate is color used to aid in identifying keys by function or location red reserved for emergency functions?				
69. When shape coding is used to identify a given key by feel are sharp comers avoided?				
70. Does the keylock switch include appropriate positional markings and labels?				
71. Do keys with teeth on both edges fit the lock with either side up or forward?				
72. Are keys with a single row of teeth inserted into the lock with the teeth pointing up or forward?				
73. Are locks oriented so that the key's vertical position is the OFF position?				
74. Is the keylock switch designed so that normally the operator can not remove the key from the lock unless the switch is turned OFF?				
75. Is activation of an item accomplished by turning the key clockwise from the vertical OFF position?				
76. Are knobs used when low force or precise adjustments of a continuous variable are required?				
77. Is a moving knob with a fixed scale used in preference to a moving scale with fixed index?				
78. When panel space is extremely limited do knobs approximate minimum values and is resistance as low as possible?				
79. Are rotating knobs easily distinguished from each other by sight and touch?				
80. While ganged knob assemblies may be used if panel space is at a premium, is their use avoided when accurate or rapid operations are required or frequent changes are necessary or gloves must be worn by the operator or equipment is exposed to weather or equipment is used under field conditions?				
81. Is an indexing mark or pointer provided on each knob and is it clear which knob is associated?				
82. When it is critical to prevent inadvertent activation of one knob as the other is being advanced is a secondary knob control moved designed into the operation?				
83. Is the run of the thumbwheel serrated or provided with a high-friction surface?				
84. Does marking and labeling conform to requirements for visibility of markings and legibility of label alphanumerics?				
85. Is a detente position provided for continuous thumbwheels that have an OFF position?				

CHECKLIST: HAND OPERATED CONTROLS				
CRITERIA	YES	NO	N/A	COMMENTS
86. Are keypads used when alphabetic or special function information is to be entered into a system?				
87. Are numeric keypads designed to either the telephone or calculator style with the zero on the bottom row?				
88. Do alphanumeric keypads conform to the standard "QWERTY" arrangement?				
89. Are two-dimensional cursor controls provided for text processing applications?				
90. When systems contain more than one keypad is the same configuration for alphanumeric, numeric, and special function keys maintained throughout the system?				
91. Do keypads provide feedback to inform the operator whether the key was activated, whether the intended key was pressed, and what the next operation may be (when applicable)?				
92. Are the dimensions of actuators sufficiently high to permit error-free manipulation by the operator when using some commonly available stylus?				
93. Is the resistance of the actuator sufficiently high to avoid inadvertent actuation under expected conditions?				
94. When actuators are slide-type do they have sufficient travel to permit easy recognition of switch setting with a minimum travel of twice the length of the actuator?				
95. When actuators are rocker-type is the actuated wing flush with the surface of the module?				
96. Do actuators have sufficient separation to permit error-free manipulation by the operator?				
97. Is the surface of the actuator indented to accept the point of the stylus and is the indentation sufficiently deep to avoid slippage of the stylus during manipulation?				
98. Are levers used when large amounts of force or displacement are involved or when multidimensional movements of controls are required?				
99. When several levers are grouped in proximity to each other are the lever handles coded?				
100. Are all levers labeled as to function and direction of motion?				
101. When levers are used to make fine or continuous adjustments is support provided for the appropriate limb segment?				
102. Is the length of a lever determined by the mechanical advantage needed?				
103. In general are controls requiring operator forces exceeding the strength limits of the lowest segment of the expected user population avoided?				
104. Are high-force controls avoided except when the operator's nominal working position provides proper body or limb support?				
105. Are sustained high-force requirements avoided?				
106. Are miniature controls used only when severe space limitations exist?				
107. Are miniature controls avoided when available space is adequate or when heavy gloves or mittens will be worn?				

CHECKLIST: HAND OPERATED CONTROLS				
CRITERIA	**YES**	**NO**	**N/A**	**COMMENTS**
108. When design constraints dictate the use of miniature controls are the dimensions and separations of the controls the maximum permitted by the available space?				
109. Does the resistance and displacement of miniature controls conform to the criteria specified for standard size of that type control?				
110. Do other design considerations (e.g. labeling, orientation) conform to the requirements specified for the standard size of the control?				
111. Are cranks used for tasks requiring many rotations of a control particularly where high rates or large forces are involved?				
112. Is the crank grip handle designed so that it turns freely around its shaft?				
113. If a crank handle could become a hazard to persons passing by or it is critical that the handle not be inadvertently displaced is a folding handle type control used?				
114. Are folding handle controls designed so that the handle is spring-loaded to keep it extended in the cranking position when in use and folded when not in use?				
115. In applications where resistance is light is the crank balanced to prevent the handle weight from turning the crank from its last setting?				
116. Are handwheels designed for nominal two-hand operation used when the breakout or rotational forces are too high to be easily overcome with a one-handed control?				
117. Is knurling, indentation, high-friction covering, or a combination of these built into the handwheel to facilitate operator grasp?				
118. Are spinner handles avoided where the projecting handle is vulnerable to inadvertent displacement or it creates a safety hazard?				
119. Except for valves do handwheel controls rotate clockwise for ON or INCREASE and counterclockwise for OFF or DECREASE?				