

Category 2 and Cab-Operated Category 3 Crane Safety (NCC-C2CS-02) Instructor Guide Revision 02 Changes

Introduction

1. Added an Introduction Module with Welcome and Course Objectives Topics Prior to the NAVFAC P-307 Module in the IG

NAVFAC P-307 Training Overview

2. Added a NAVFAC P-307 Training Overview module to the course and wording to the IG prior to the NAVFAC P-307 Module that states this module is not required to be discussed during Instructor led training

NAVFAC P-307

3. Added “for operation” to the end of the NAVFAC P-307/Objectives narration paragraph and modified the screen with similar.
4. Modified the wording of the Purpose screen and narration.
5. Modified the narration, and screen wording of the Applicability section.
6. Added additional wording to the narration in the Maintenance and Inspection Requirements section.
7. Updated/changed the screen of the Posting of Certification Information section with a picture of a Certification of Load Test and Condition Inspection form, and reformatted the narration text.
8. Modified the screen text on the Types of Equipment screen.
9. Deleted/removed the two questions in Knowledge Check 1 and replaced with new questions.
10. Moved NAVFAC P-307/Knowledge Check 1 in front of Overview Section 1
11. Modified the narration wording and screen text in the P-307 Section 1 topic
12. Modified the narration wording in the Cat 1 Cranes topic to include the crane types mentioned on the screen
13. Added a Crane Components section after the Category 1 Cranes topic
14. Removed the word “dual” from the screen and narration paragraph in the Mobile Boat Hoist topic
15. Changed the screen title of the LCRU topic to Landing Craft Retrieval Unit
16. Added a Rubber Tire Gantry narration section to the IG (it was missing) and modified the bulleted text on the screen
17. Modified the narration and screen text under the CAT 2 and 3 Cranes topic
18. Modified the second paragraph text on the Bridge or OET Crane screen in the Cat 2 and 3 Crane Examples topic
19. Added a Knowledge Check section after the Cat 2 and 3 Crane Examples topic
20. Moved the Category 4 topic after the Components tab under the Cat 4 Cranes topic

21. Modified the Considerations tab screen text and narration wording (screen after the Pedestal topic)
22. Added a Maintenance, Certification, and Alterations topic after the Category 4 Cranes topic
23. Modified the narration and screen text in the Licensing (Sections 6, 7, and 8) topic
24. Added an Operator Training topic after the Licensing topic
25. Removed the Knowledge Check after the Operator Training topic
26. Added an Operator Checks (Section 9) after Operator Training
27. Added Operation Safety and Additional Requirements (Sections 10 and 11) section after Operator Checks
28. Added "and 5100.23" to the end of the first paragraph of the narration in the Accidents (Section 12) topic
29. Modified the first sentence of the Training (Section 13) topic and deleted "All Personnel must be trained. The screen was also modified to similar.
30. Modified Knowledge Check 3 after Rigging Gear and Miscellaneous Equipment (Section 14)
31. Deleted the NAVFAC P-307 Module Exam Questions and Answers after the Summary topic

Crane Components

32. Changed the title of the Instructional Objectives topic to Learning Objectives and modified the narration text and bulleted text items on the screen
33. Added a Category 1 and 4 Crane Power Types topic after the Learning Objectives topic
34. Added a Category 2 and 3 Crane Power Supply topic after the Category 1 and 4 Crane Power Types topic
35. Added a Principal Crane Components/Category 1 and 4 Cranes topic after the Category 2 and 3 Crane Power Supply topic
36. Added a Principal Crane Components/Category 2 and 3 Cranes topic after the Category 1 and 4 Cranes topic
37. Modified the Load Bearing Parts/Carrier Frame Structures topic narration text
38. Modified the Load-Controlling Parts/Examples 2 topic narration text
39. Added a Knowledge Check section prior to the Safety Devices topic
40. Modified the narration text in the Safety Devices topic
41. Modified the Operational Safety Devices/Limit Switches narration text to include the purpose of a limit switch and the definition of two-blocking
42. Added a Knowledge Check section after the General Safety Devices topic
43. Deleted the Crane Components Module Exam

Operator's Daily Checklist (ODCL)

44. In the ODCL/Introduction topic, removed the words “specifically developed for each type of crane” from the first sentence in the narration and the word “daily” from the second sentence. Also, removed the first bulleted item from the screen and the word “daily” from the last bulleted item.
45. Added the following sentences to the Frequency topic narration: “When a crane is used in construction, a complete pre-use check must be performed by each operator.” And, “A documented pre-use check is not required for non-cab operated Category 3 cranes; however, for bridge, wall, and gantry cranes, a documented pre-use check shall be performed at least once each calendar month the crane is in use.”
Also: two bulleted items addressing the added narration were added to the screen.
46. In the Sections topic, the words “no-load” were removed from the first sentence in the narration. Also, added the following sentence to the end of the narration: “The operator may perform the check from the various groupings in parallel.”
47. Added a Knowledge Check section after the “Sections” topic
48. Added a “Warning Tags” topic, screen and narration after the Knowledge Check section.
49. Added a “Who Can Remove These Tags” topic, screen and narration after Warning Tags.
50. Added the following wording to the last sentence of the Critical Crane Components topic narration: “..., and the crane shall not be operated until resolved.”
51. Added a “Limit Switches” topic, including screen and narration, after the Critical Crane Components topic.
52. Added the following sentences to the Unsatisfactory Conditions topic: “The item shall be marked by the operator as unsatisfactory on the ODCL and the deficiency shall be described in the remarks block. Minor deficiencies must be marked as unsatisfactory on the ODCL and the operator shall describe the deficiency in the remarks block. The supervisor shall provide the ODCL to the organization responsible for corrective action.”
53. Modified the screen of the Recording topic to include a picture of an Operator's Daily Check List. Also, added the following sentence to the end of the narration: “The ODCL shall be turned in to the supervisor after the last use of the crane each day.
54. Added a Knowledge Check section after the Recording topic
55. Added a “Safety Guards and Plates” topic, including screen and narration, after the Walk Around Check topic.
56. Moved the General Hardware topic after the Safety Guards and Plates topic
57. Added a “Wire Rope and Reeving” topic, including screen and narration, after the General Hardware topic.

58. Added a "Block and Hook" topic, including screen and narration, after the Wire Rope and Reeving topic.
59. Added a "Sheaves or Sprockets" topic after the Block and Hook topic.
60. Modified the narration wording and the picture and bulleted items in the "Walkways, Ladders, Handrails" topic
61. Changed the title of the "Rail Sweeps and Bumpers" topic to "Stops and Bumpers" and modified the narration wording, screen picture, and text
62. Deleted the "Bridge and Trolley Structure" topic
63. Added a "Wheels and Tracks" topic, including narration and screen picture and text, after the Stops and Bumpers topic
64. Added a "Leaks" topic after the Wheels and Tracks topic.
65. Added a "Load Chain" topic after the Leaks topic.
66. Added an "Area Safety" topic after the Load Chain topic.
67. Deleted the Trolley Rails and Stops topic
68. Deleted the Safety Guards and Plates topic
69. In the Machinery House Check topic, added the word "House" to the screen title and added an asterisk beside Electric Motors on the screen ODCL card picture.
70. Modified the "Housekeeping" topic screen picture, bullets, and narration.
71. Moved the "Leaks" topic in front of the "Lubrication" topic and modified the bulleted items on the screen (deleted "Brake fluid and Gear case oil", and added "Lubricating oil, Fuel, Coolant, and Hydraulic oil")
72. Modified the "Lubrication" topic screen text and narration.
73. Added a "Clutches and Brakes" topic after the Lubrication topic
74. Deleted the "Brake Linings" topic
75. Modified the "Electric Motors" topic screen picture and text, and narration.
76. Added a "Danger/Caution Tags" topic after the Electric Motors topic.
77. Added a "Fire Extinguishers" topic after the Danger/Caution Tags topic.
78. Added a Knowledge Check section after the Fire Extinguishers topic.
79. In the "Operator Cab Check" topic, added the following to the narration: "The operator should enter the cab and ensure all controls are in the neutral or off position prior to starting the engine. Start the engine and check the items in the Operator Cab Check section. Also, added an asterisk beside the Boom Angle/Radius Indicator item on the screen picture of the Operator Cab Check ODCL section.
80. Added a "Gauges, Indicator and Warning Lights" topic after the Operator Cab Check topic.
81. Added a "Visibility" topic after Gauges, Indicator and Warning Lights.
82. Added a "Load Rating Charts" topic after Visibility.
83. Added a "Fire Extinguishers" topic after the Load Rating Charts topic.
84. Added a "Danger/Caution Tags" topic after the Fire Extinguishers topic.
85. Deleted the "Posting Requirements" topic.

86. Deleted the “Cab Controls” topic.
87. Deleted the “Warning Tags” topic.
88. Deleted the “Visibility and Glass” topic.
89. In the “Operational Check” topic, modified the screen picture to include “d Control Action*” and added an asterisk after Emergency Stop. Also added the following to the narration: “When performing the operational check portion of the ODCL in cold weather or icy conditions, the operator should raise the blocks and boom before lowering them to avoid damage when sheaves may be frozen. Operators should inform rigging personnel to stand clear of the area below the blocks and boom prior to operation. The operator should hoist up slowly, in small increments, to break any ice and/or snow free, and monitor the sheaves to ensure proper movement and operation of the sheaves and wire rope.
90. Added an “Area Safety” topic after the Operational Check topic.
91. Added a “Unusual Noises” topic after the Area Safety topic.
92. Added a “Control Action” topic after Unusual Noises.
93. Deleted the “Wire Rope” topic and added a “Wire Rope or Chain” topic after the Control Action topic.
94. Deleted the “Controls and Brakes” topic and added a “Brakes and Clutches” topic after the Wire Rope or Chain topic.
95. Added a “Limit Switches” topic after the Brakes and Clutches topic.
96. Added a “Emergency Stop” topic after the Limit Switches topic.
97. Added a “Other Operational Safety Devices” topic after the Emergency Stop topic.
98. Deleted the “Horns and Alarms” topic and added a “General Safety Devices” topic.
99. Deleted the Knowledge Check questions 1-5 and inserted a new Knowledge Check section after the General Safety Devices topic.
100. Deleted the ODCL Module Exam section.

Complex & Non-Complex Lifts

101. Changed the name of the Instructional Objectives topic to “Objectives” and changed the word “Identify” in the first bulleted item to “Define” in the screen text.
102. Modified the screen text (removed the third bulleted item) and changed the 2nd bulleted item wording on the Complex Lifts Overview topic
103. Modified the narration and screen text of the “Complex Lift Categories” topic.
104. Modified the narration and screen text of the “Complex Lift Procedures” topic.
105. Added the following wording to the last sentence of the narration in the “Complex Lift Exeptions” topic: “...; except for lifts using tilt fixtures, lifts where binding may occur, lifts of submerged loads, multiple crane or multiple hook lifts.” Also, modified the screen text.
106. Added a Knowledge Check section after the Complex Lift Exceptions topic.
107. Changed the picture on the “Large and Complex Shapes” topic screen
108. Modified the “Personnel Lifts” topic screen bulleted items and narration.

109. Modified the narration of the first and next to last sentence in the “Multiple Crane Lifts” topic.
110. Added a Knowledge Check after the Multiple Crane Lifts topic.
111. Added the following wording to the last sentence of the narration in the Complex and Non-Complex Lifts Summary: “except for lifts exceeding 80 percent of the capacity of the crane’s hoist, lifts using tilt fixtures, lifts where binding may occur, lifts of submerged loads, and multiple crane or multiple hook lifts”
112. Deleted the Complex and Non-Complex Lifts Module Exam

Determining Load Weight

113. Added the following statement to the screen text in the Instructional Objectives topic: “Upon successful completion of this module you will be able to.”
114. Modified the narration text in the Acceptable Methods topic
115. Modified the narration text in the Unacceptable Methods topic
116. Modified the screen text in the Finding Weight topic
117. Modified the second sentence of the narration text in the Calculating Area topic
118. Added the definition of the height of a triangle to the narration text in the Triangle Area topic
119. Added a Knowledge Check after the Area Example – Circle/Rounding topic
120. In the last Knowledge Check, deleted the first question and added three additional questions. It now contains 4 questions.

Load Weight Distribution

121. Added the following sentence to the end of the narration in the Center of Gravity topic: “The hook must be centered over the CG before lifting.”
122. Modified the wording of the 3rd and 4th paragraphs of the narration in the Number of Legs that Really Carry the Load topic.
123. Removed the following sentence from the narration in the Determining Leg Weight topic: Weight distribution is proportional to the distance between the object’s Center of Gravity and its attachment points”. Also, removed the similar statement from the screen text.
124. Added three additional questions to the Knowledge Check

Sling Angle Stress

125. Modified the last sentence of the narration in the Choosing Your Gear topic.
126. Added a Summary screen after the 15 degree sling angle screen in the Examples topic

D/d Ratio

No Changes

Rigging Gear Marking and Record Requirements

127. Changed the title of the Rigging Gear Selection and Use – Marking and Record Requirements module to: “Rigging Gear Marking and Record Requirements”
128. Changed the title of the module in the narration of the Welcome topic
129. Added an additional paragraph to the narration and a statement to the screen text in the NAVFAC P-307 Section 14 topic
130. Added a note to the bottom of the screen text in the Why Test and Inspect topic
131. Modified the narration and screen text in the Covered Equipment topic
132. Modified the narration and screen text in the Additional Covered Equipment topic
133. Added the following sentence to the narration in the Equipment Not Covered topic: “Where OEM provided specialized rigging equipment is used, the activity shall ensure that the equipment is in good condition and that personnel using the equipment know how it is to be used.”
134. Added a Knowledge Check section after the Equipment Not Covered topic
135. Modified the narration and added a bulleted item (Unique serial number) to the screen text in the Equipment Markings topic
136. Modified the narration and screen text in the Wire Rope Endless Slings topic
137. Modified the narration and screen text in the Chain Sling Markings topic
138. Changed the picture on the screen in the Equipment Markings II/Lashing topic
139. Deleted the Markings on Below the Hook Lifting Devices topic
140. Modified the narration and screen title in the Multi-Part Wire Rope Slings topic
141. Modified the narration wording of “Julien Date” to “day of the year” in the Required Records/Gear Marking Example topic.
142. In the last Knowledge Check, deleted the two questions and added four additional questions

Rigging Gear Inspection

143. Added a Rigging Gear Inspection module to the Instructor Guide and Student Guide

Rigging Gear General Use

144. Changed the module title from Rigging Gear Selection and Use – General Use to Rigging Gear General Use
145. Changed the title of the module in the narration and the screen text of the Welcome topic
146. Modified the screen text in the General Safety Rules topic
147. Modified the narration and screen text in the Chafing Gear/Protective Materials topic
148. Modified the narration in the Hoists and Crane Usage/Usage Do’s topic
149. Added four additional questions to the Knowledge Check

Rigging Hardware

150. Changed the module title from Rigging Gear Selection and Use – Hardware to Rigging Hardware
151. Changed the title in the Narration and Screen test of the Welcome topic
152. Modified the narration, screen text, and picture in the Side Loading Shackles topic
153. Moved the Eyebolt Types topic after the Side Loading Shackles topic
154. Moved the Non-Shouldered Eyebolts topic after the Eyebolt Types topic
155. Moved the Shouldered Eyebolts topic after the Non-shouldered Eyebolts topic and modified the narration, screen text, and capacity percentages on the screen
156. Moved the Installing Shouldered Eyebolts topic after the Shouldered Eyebolts topic and modified the narration
157. Modified the narration and screen text in the Backing Nuts topic
158. Moved the Shim Usage/Eye Alignment topic after the Backing Nuts topic
159. Modified the narration in the Swivel Hoist Rings topic
160. Modified the screen text in the Swivel Hoist Rings (Continued) topic
161. Modified the screen text in the Threaded Attachment Point topic
162. Added one additional question to the Knowledge Check

Sling Use

163. Changed the module title from Rigging Gear Selection and Use – Sling Use to Sling Use
164. Changed the module title name in the narration and screen text of the Welcome topic
165. Modified the narration and screen title and text in the Wire Rope (Continued) topic
166. Modified the narration in the Chain Sling Use topic
167. Modified the narration and screen text in the Chain Sling Temperature Restrictions topic
168. Modified the narration and screen text in the Metal Mesh Sling Temperature Restrictions topic
169. Modified the narration wording and added a note on natural fiber rope sling use to the screen in the Types of Synthetic Slings topic
170. Modified the narration in the Synthetic Web Sling Use topic
171. Modified the narration and screen text (changed the temperature from 180 to 194) in the Web Sling Temperature Restrictions topic
172. Modified the narration in the Synthetic Rope Use topic
173. Modified the narration and screen text in the Synthetic Rope Temperature Restrictions topic
174. Modified the narration and screen text in the Roundsling Use topic
175. Modified the narration and screen text in the Eye and Hook Considerations topic
176. Modified the narration in the Attaching Slings to Hooks/Correct Use topic

177. Modified the narration and screen efficiencies for choker hitches in the Choker Hitch Efficiency topic
178. Added a Knowledge Check section

Crane Communications

179. Changed the Instructional Objectives topic title to Learning Objectives and modified the screen text (added an additional bulleted item and changed the screen title)
180. Added the following narration to the “Communications” topic: “When making lifts where hand signals are not feasible (such as when the operator cannot see the signal person), the rigger giving the signals shall remain in constant voice communication with the operator. The operator shall stop the crane at any time and in any situation judged to be unsafe or when communication is lost or unclear. If communication is lost, the operator shall stop operation until communication is reestablished. In addition, the operator shall immediately respond to a direction from any person to stop the crane.”
181. Added: “Only one signaler communicates with the crane operator at a time” to the bulleted items on the screen in the Hand Signaling Rules topic
182. In the “Radio” Communications topic, modified the screen text to cover additional narration added. The following narration was added: “Radio guidelines: The device, or devices, used shall be tested on-site prior to crane operations. Use an isolated channel and clear the line of other traffic. Limit background noise. The operator’s reception of signals shall be by a hands-free system. Radio work practices: Voice directions given to the operator shall be given from the operator’s directional perspective. Identify the crane and yourself. Each voice signal *shall* contain the following elements, given in the following order: function (such as hoist, boom), direction; distance and/or speed; function, stop command. Allow time between commands. Verify the command. Note: the operator shall stop the crane at any time and in any situation judged to be unsafe or when communication is lost or unclear. In addition, the operator shall immediately respond to a direction from any person to stop the crane.”
183. Added a Knowledge Check after the “Radio Communications” topic.
184. Added 9 Boom Signal topics after the Move Slowly topic
185. Moved the Stop Signals, Stop, Emergency Stop, and Dog Everything topics in front of the Magnet Signals topics
186. Added 7 additional questions to the Knowledge Check after the Magnet Disconnected topic.
187. Deleted the Crane Communications module exam.

Crane Team Concept

188. Changed the Instructional Objectives topic title to Learning Objectives and modified the screen text (changed the screen title)
189. Added a Knowledge Check section after the Crane Team Members topic.
190. In the Common Responsibilities/Communications topic, added the following sentences to the narration: "When making lifts where hand signals are not feasible, the rigger giving the signals shall remain in constant voice communication with the operator. It shall be understood that if the communication ceases, the operator shall stop operation until communication is re-established."
191. Deleted the Knowledge Check after the Common Responsibilities/Safety topic.
192. In the Crane Operator Responsibilities topic, added the following sentences to the beginning of the narration: "The crane operator must ensure that his or her license is not expired, and that the certification of the crane is not expired prior to operation. These are the two expiration dates that are of particular importance to crane operators. Also, modified the second paragraph, or third sentence, of the narration.
193. In the Crane Operator Responsibilities/Pre-Use Check topic, deleted the words "no load" from the last bulleted item on the screen.
194. Added a Knowledge Check section after the Crane Operator Responsibilities/Stop for Safety topic.
195. In the Crane Rigger Responsibilities/Assisting with ODCL topic, replaced/changed the pictures on the screen.
196. In the Crane Walker Responsibilities/Pre-use Check topic, replaced/changed the picture on the screen.
197. In the Crane Walker Responsibilities/Safe Travel topic, removed the links to Obstructions and Alignment of track switches, and modified the text in the first bulleted item on the screen. Also, modified the narration wording to include: "..., monitoring portions of the crane such as the gantry, boom, and counterbalance to ensure adequate clearance is maintained...".
198. In the Crane Walker Responsibilities/Communicating Stop topic, modified the narration wording and the screen text.
199. In the Supervisor Responsibilities/Responsibilities topic, modified the screen text of the second bulleted item, and added the following narration: "The supervisor designates crane team personnel, reviews and inspects site conditions for potential safety problems and complex lifts, reviews procedures for operations near electrical lines, investigates and reports crane accidents, and supports the team anytime they feel they need to stop a lift due to safety concerns."
200. In the Supervisor Responsibilities/Complex Lifts topic, modified the narration, screen text and picture.

201. In the Supervisor Responsibilities/Accidents topic, replaced the word “authorities” with “personnel” in the narration.
202. Added a Knowledge Check after the Supervisor Responsibilities/Accidents topic.
203. Deleted the Complex Lifts topic after the Knowledge Check
204. Deleted the Crane Team Module Exam.

Safe Operations

205. In the Instructional Objectives topic, changed the topic title to Learning Objectives on the screen, added the following wording to the narration: “...understand the requirements when working near overhead power lines ...”, and modified the wording of third bulleted item on the screen.
206. Modified the narration wording and screen text in the “Understanding the Crane” topic.
207. Added an “Operator Training” topic after the Understanding the Crane topic.
208. In the Pre-Operational Check topic, added the following to the screen: “When performing the operational check portion of the ODCL in cold weather or icy conditions, the operator should raise the blocks and boom before lowering them, to avoid damage when sheaves may be frozen.” and modified the narration wording.
209. Added a Knowledge Check section after the Pre-Operational topic.
210. Added an Overhead Lines and Limit of Approach topic
211. In the Overhead Lines topic, modified the narration to include: “Follow the requirements of NAVFAC P-307 paragraphs 10.11.1 through 10.11.1.6 for crane operations near or below overhead electrical transmission lines, operation near communication towers, and travelling below power lines.” Modified the screen text to include the added narration. Also, and modified the Danger Zone NAVFAC P-307 linked distance figures.
212. In the Limit of Approach topic, modified the narration and the screen text.
213. In the Operating Practices topic, modified the narration and the screen picture and text.
214. In the Lifting Loads topic, modified the narration.
215. Modified the narration and screen text in the Landing Loads topic.
216. Modified the narration in the Securing the Crane topic.
217. Deleted the Knowledge Check after the Securing the Crane topic.
218. In the Traveling Cranes with Loads topic, added “Maintain communication and operate under the direction of a signaler” to the bulleted items on the screen and in the narration.
219. Added a Crane Operating Characteristics topic after the Operations topic
220. Modified the narration and screen text in the OET and Gantry Cranes – Operating I topic
221. Added an Operating Techniques topic prior to the Securing topic

- 222. Modified the narration and screen text in the Securing topic
- 223. Added a Knowledge Check section after the OET and Gantry Cranes/Securing topic.
- 224. Modified the Summary topic narration and screen text.
- 225. Deleted the Safe Operations Module 1 exam.

Crane and Rigging Gear Accidents

- 226. Added an “Accident Categories” topic after the Instructional Objectives topic.
- 227. Added a Knowledge Check section after the Rigging Gear Operating Envelope topic.
- 228. Added a “Near Misses” topic after the Knowledge Check section.
- 229. Added a Damaged Rigging Gear topic after the Accident Examples topic.
- 230. Modified the Accident Causes topic narration.
- 231. Added a “Accident Actions” topic and a “Crane Accident Actions” topic after the Operator Responsibilities topic.
- 232. Modified the “Accident Reporting Procedures – General” topic narration and screen text.
- 233. Added/modified the narration in the Contractor Accident Reporting Procedures topic
- 234. Added/modified the narration in the Contracting Officer Accident Reporting Procedures topic
- 235. Added a Knowledge Check section after the Accident Reporting Procedures – Contracting Officer topic.
- 236. Deleted the Crane and Rigging Gear Accidents Module Exam.

Final Exam

- 237. Added additional questions from NAVFAC P-307, Appendix H