SIEMENS

QUICK REFERENCE GUIDE

WSD-E WHEEL DETECTOR

JUNE 2016

DOCUMENT NO. SIG-QG-16-01
VERSION A

Siemens Industry, Inc. Rail Automation
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PRINTED IN U.S.A.

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CUSTOMER SERVICE: (800) 626-2710
TECHNICAL SUPPORT: (800) 793-7233
FAX: (270) 918-7830

FCC RULES COMPLIANCE

The equipment covered in this manual has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	JUNE 2016	----------	Initial Release

Table of Contents

List of Figures

NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:

WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.

CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE

Generally used to highlight certain information relating to the topic under discussion.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Industry, Inc. has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/inserter tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

GLOSSARY

TERM	DESCRIPTION
AC	Alternating Current
ASNI	Interface board for wheel sensors and proximity switches
DC	Direct Current
DEK	(Doppelter Elektronischer Kontakt) Double Electronic Contact
DPC	Decentralized Point Controller
EBO	German Railway Building and Operation Regulations
EMC	Electromagnetic Compatibility
EN	European standard
FTGS	(Ferngespeister Tonfrequenz-Gleisstromkreis von Siemens) Remote-fed Audio-frequency Track Circuit made by Siemens
ITC	Intermittent Train Control
LC	Grade-crossing Protection System
MSR32	32-bit microcomputer system for shunting
MTBF	Mean Time Between Failures
NAMUR	User Association of Automation Technology in Process Industries
Simatic	Siemens Automation System
WSD	Wheel Sensor Double
WSD E	Wheel Sensor Double EOP (electrically operated points)
WSR	Wheel Sensor Relay
WSS	Wheel Sensor Single

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WSD-E WHEEL DETECTOR QUICK REFERENCE GUIDE

1.0 QUICK REFERENCE GUIDE

This Quick Reference Guide is to be used in conjuction with the WSD-E Wheel Detector Installation and Operation Manual (Document Number: SIG-00-16-01) for detailed information on the installation and operation of the WSD-E.

1.1 SAFETY INFORMATION

WARNING

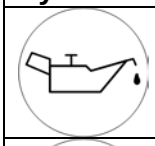
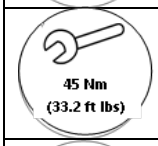
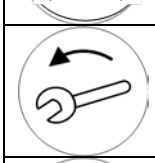
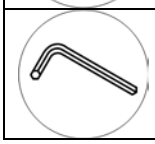
DANGEROUS OPERATING CONDITIONS!

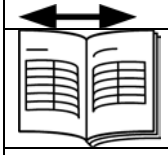
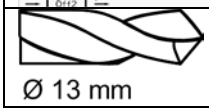
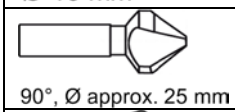
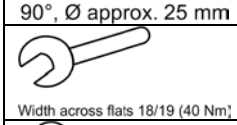
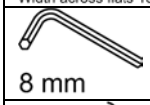
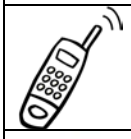
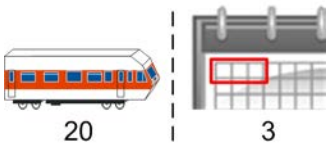
IMPROPER ACTION MAY RESULT IN OPERATIONAL DISRUPTIONS. THIS QUICK REFERENCE GUIDE WILL ILLUSTRATE INDIVIDUAL INSTALLATION IN A SIMPLIFIED FORM FOR THE STANDARD TYPE OF INSTALLATION ONLY.

ONLY USE THIS QUICK REFERENCE GUIDE IF FAMILIAR WITH THE DETAILED INSTRUCTIONS OF THE INSTALLATION & OPERATIONS MANUAL (DOCUMENT NUMBER: SIG-00-16-01).

IN CASE OF DOUBT, ALWAYS FOLLOW THE WSD-E I&O MANUAL DETAILED INSTRUCTIONS.

1.2 SYMBOL DEFINITIONS

Symbol	Meaning
	Grease the bolt threads with Molykote G-N Plus or G-Rapid Plus before installation.
	Tighten the bolt finger-tight.
	Tighten the bolt with a torque wrench at the indicated torque.
	Loosen the bolt slightly (about one turn) but do not unscrew it completely.
	Use an Allen wrench as a counter-holding measure (when tightening the associated nut).

Symbol	Meaning
	Move in the indicated direction.
	Can be moved in both directions
	Observe the information in the WSD-E Wheel Detector Installation and Operation Manual (Document Number: SIG-00-16-01) for additional and detailed information.
	If required by the rail profile, rotate the component by 180° around the axis of rotation: • Adapter plate when mounting inner wheel detectors on the rail web. See Section 1.3. • Bearing plate for rail base mounting. See Section 1.6.
	Observe the indicated period of time.
	Adjustment gauge
	Drill bit, Ø 13 mm
	Countersink, 90°, approx. Ø 25 mm (1.0 in)
	Torque wrenches, widths across flats 18 and 19, torque range 45 Nm (33.2 ft lbs)
	Allen wrench 8 mm
	Portable transceiver or mobile phone
	Metal objects
	Incorrect setting, not permissible
	Correct setting, permissible
	After 20 train runs or three days at the latest

1.3 MOUNTING OF INNER WHEEL DETECTOR ON THE RAIL WEB

1.3.1 Preparation for Drilling Rail Web Holes

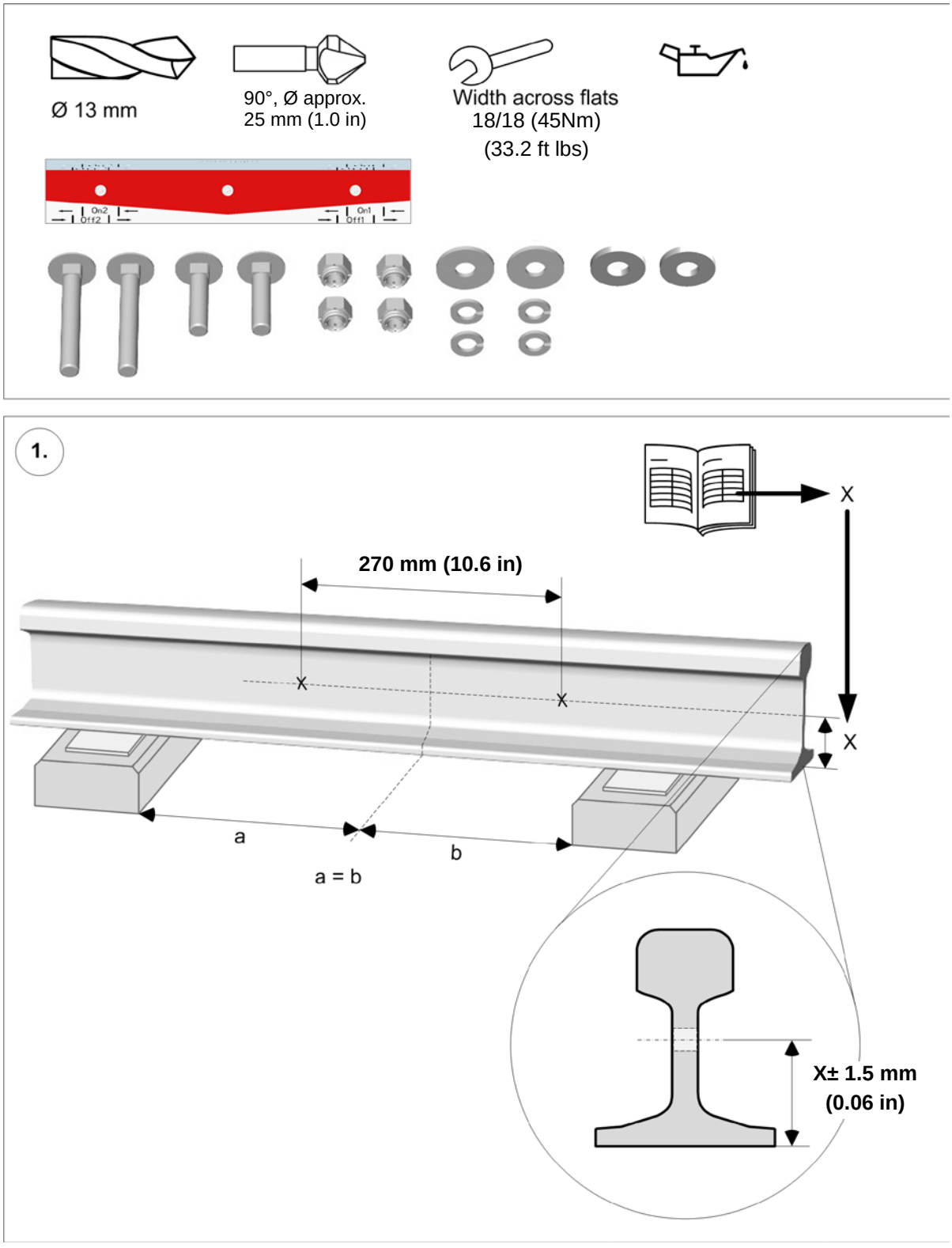


Figure 1-1 Preparation for Drilling Rail Web (Inner Wheel Detector)

1.3.2 Drilling Rail Web Holes

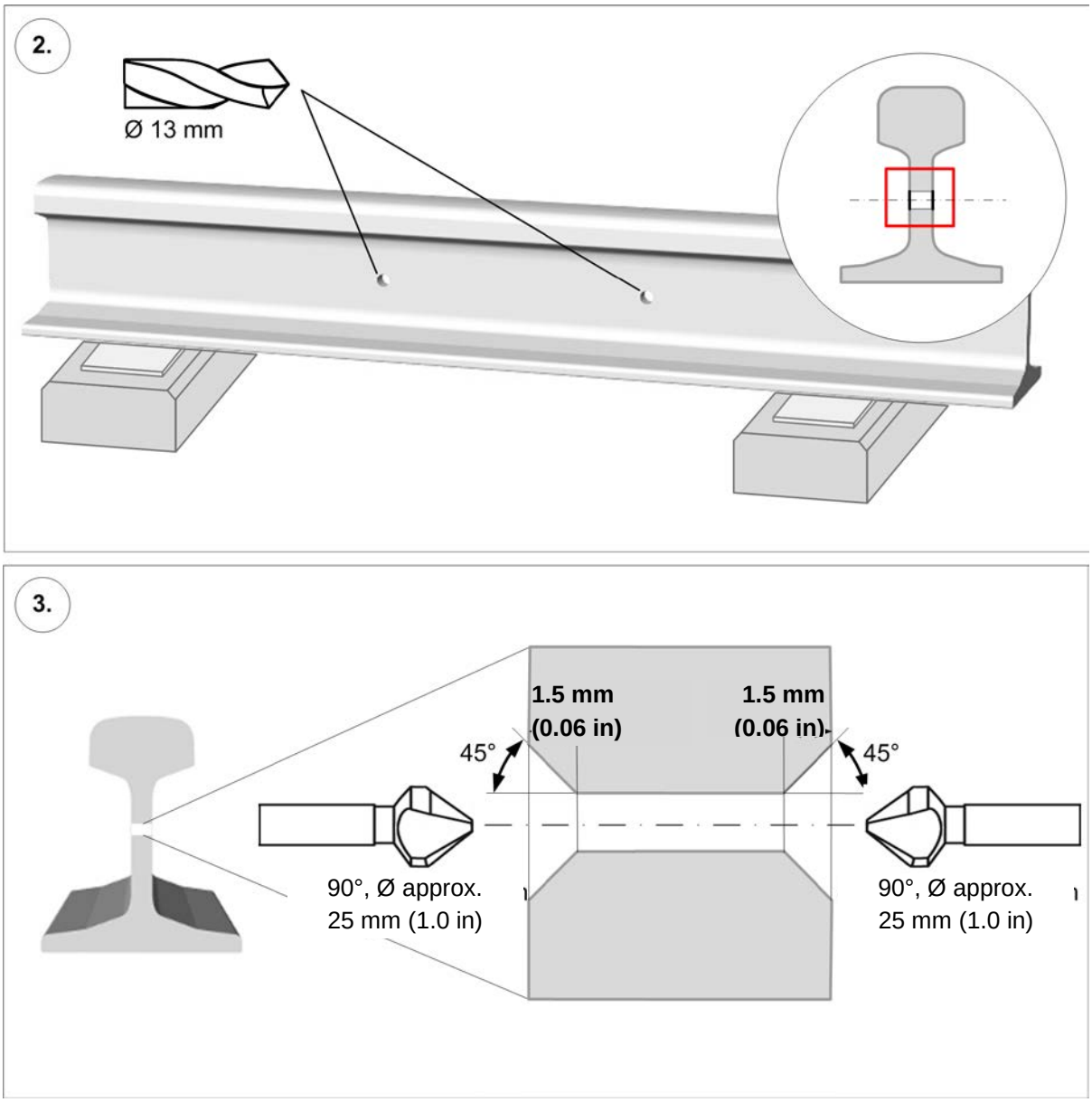


Figure 1-2 Drilling Rail Web Holes (Inner Wheel Detector)

1.3.3 Attaching Bolts

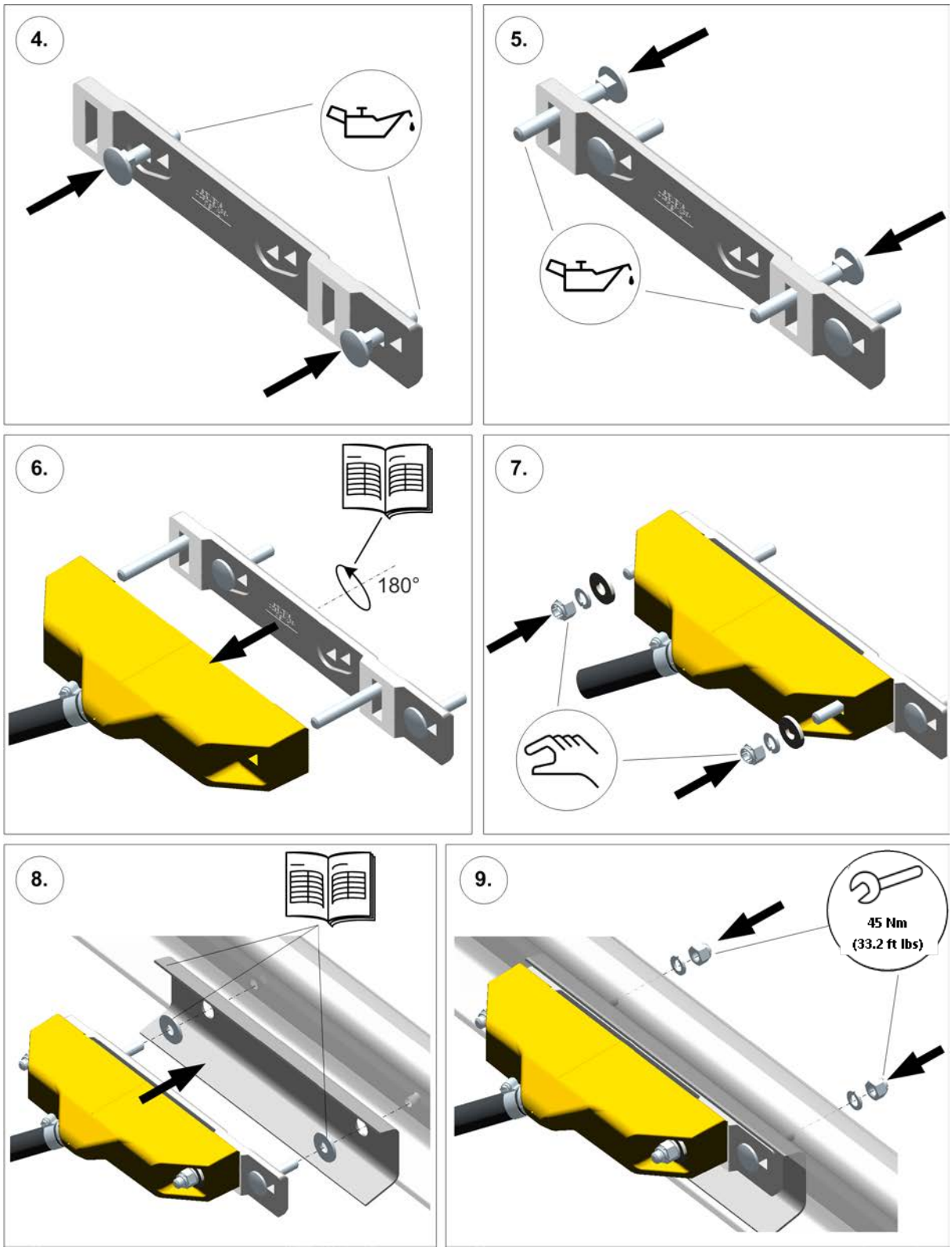


Figure 1-3 Attaching Bolts of Inner Wheel Detector to Rail Web

1.3.4 Adjustment of Wheel Detector Height and Re-securing Hardware

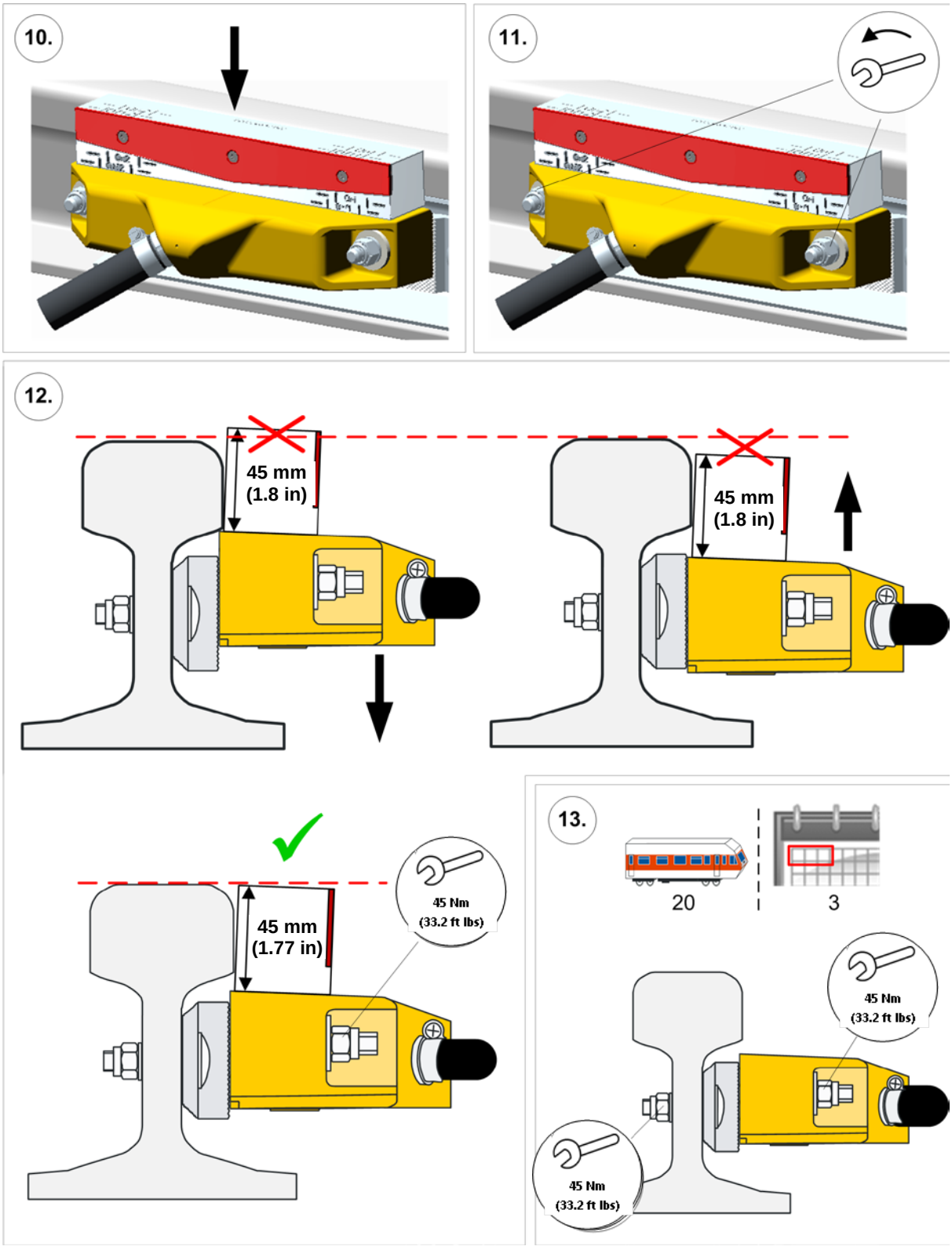


Figure 1-4 Adjusting Inner Wheel Detector Height and Re-securing Hardware

1.4 MOUNTING OF OUTER WHEEL DETECTOR ON THE RAIL WEB

1.4.1 Preparation for Drilling Rail Web Holes

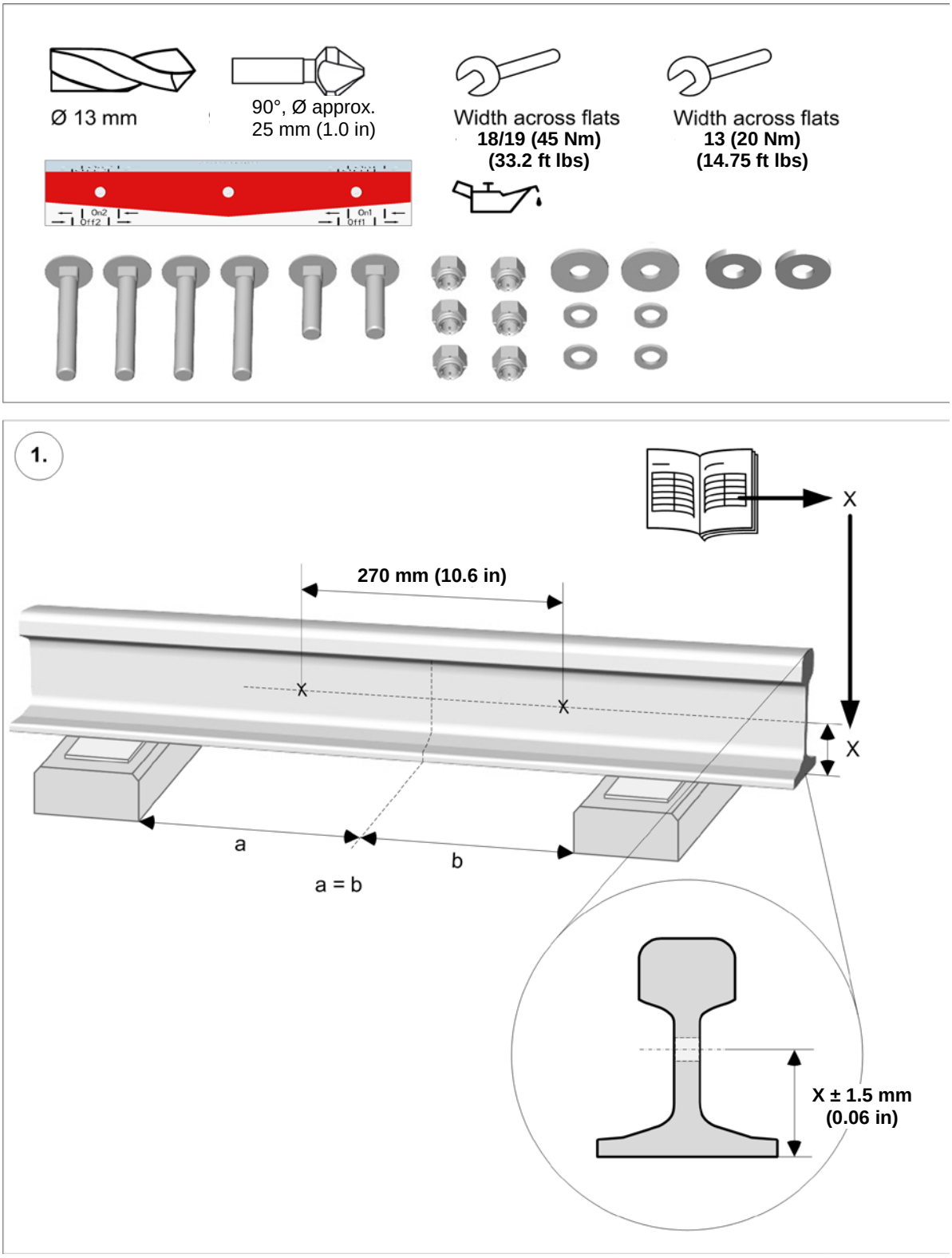


Figure 1-5 Preparation for Drilling Rail Web (Outer Wheel Detector)

1.4.2 Drilling Rail Web Holes

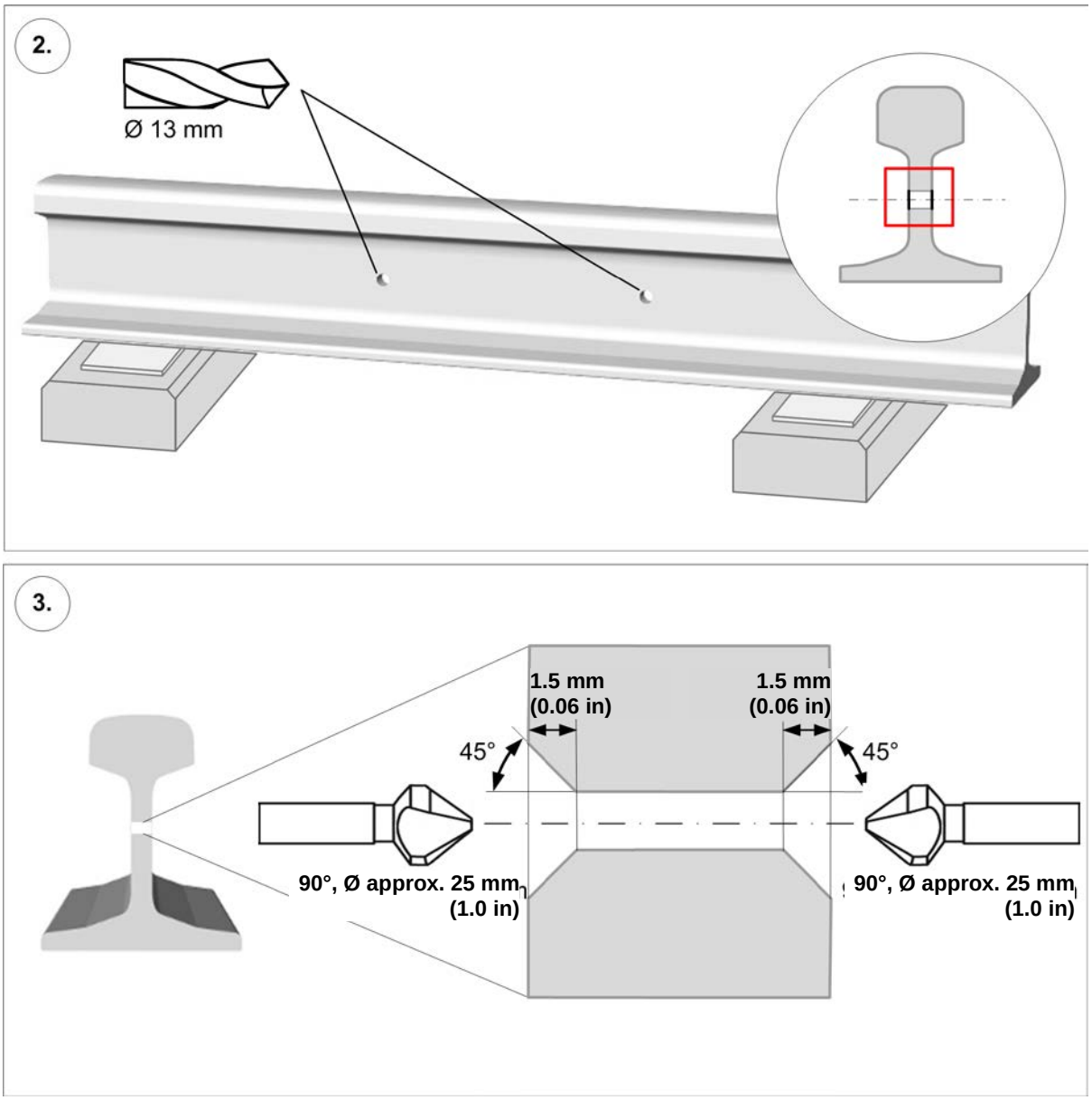


Figure 1-6 Drilling Rail Web Holes for Outer Wheel Detector

1.4.3 Attaching Bolts to Wheel Detector

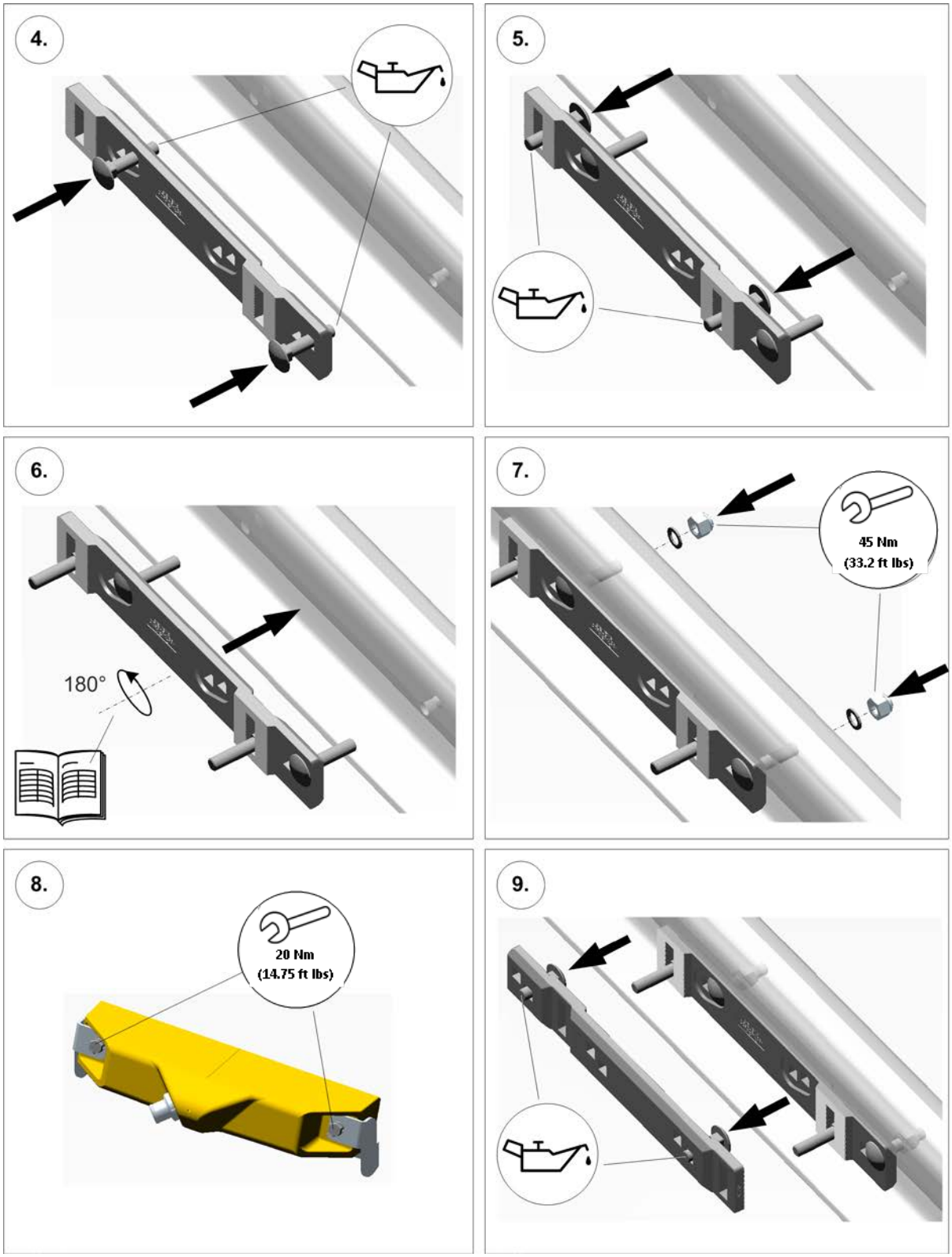


Figure 1-7 Attaching Bolts to Outer Wheel Detector (Part 1)

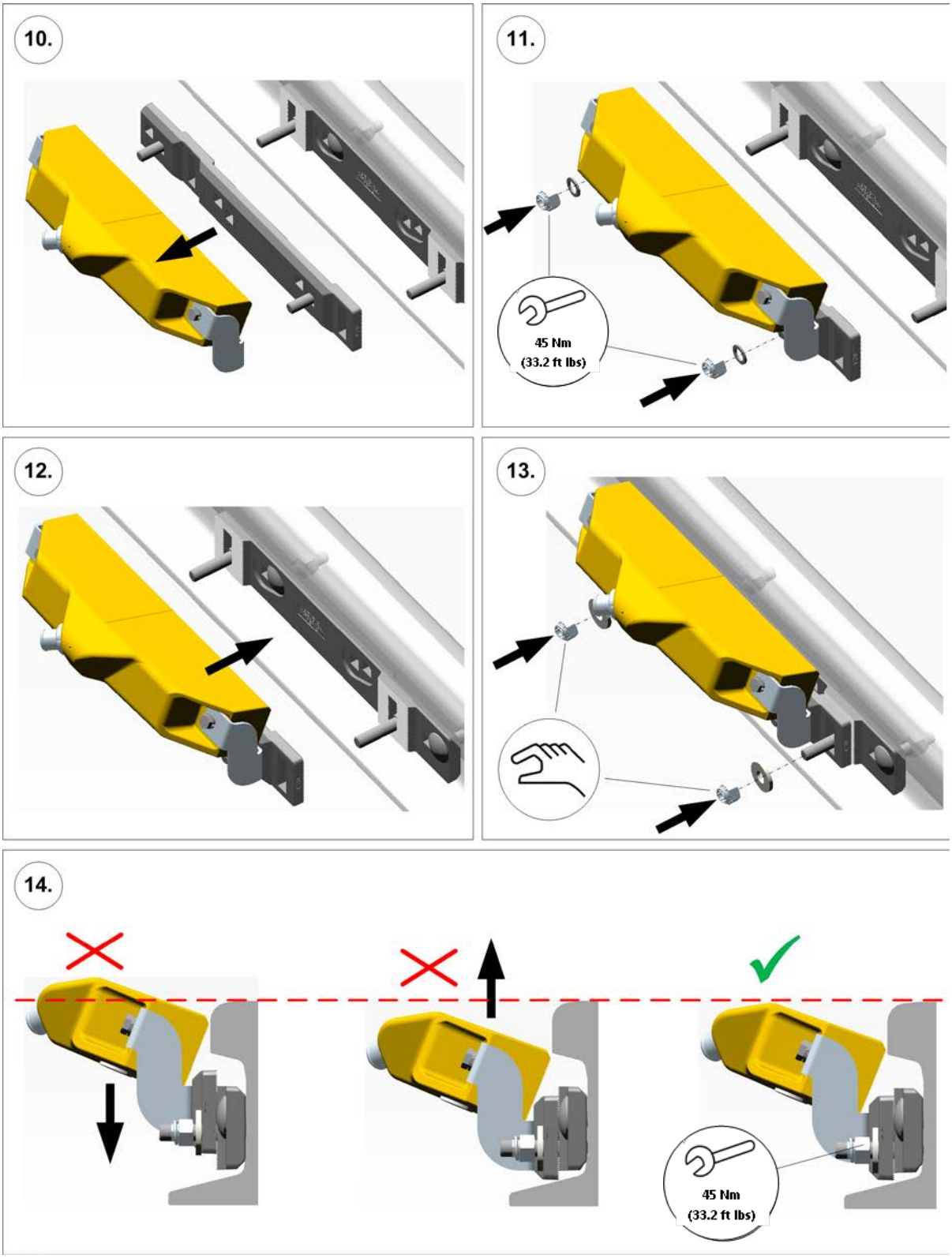


Figure 1-8 Attaching Bolts to Outer Wheel Detector (Part 2)

1.4.4 Checking Clearances and Re-securing Hardware

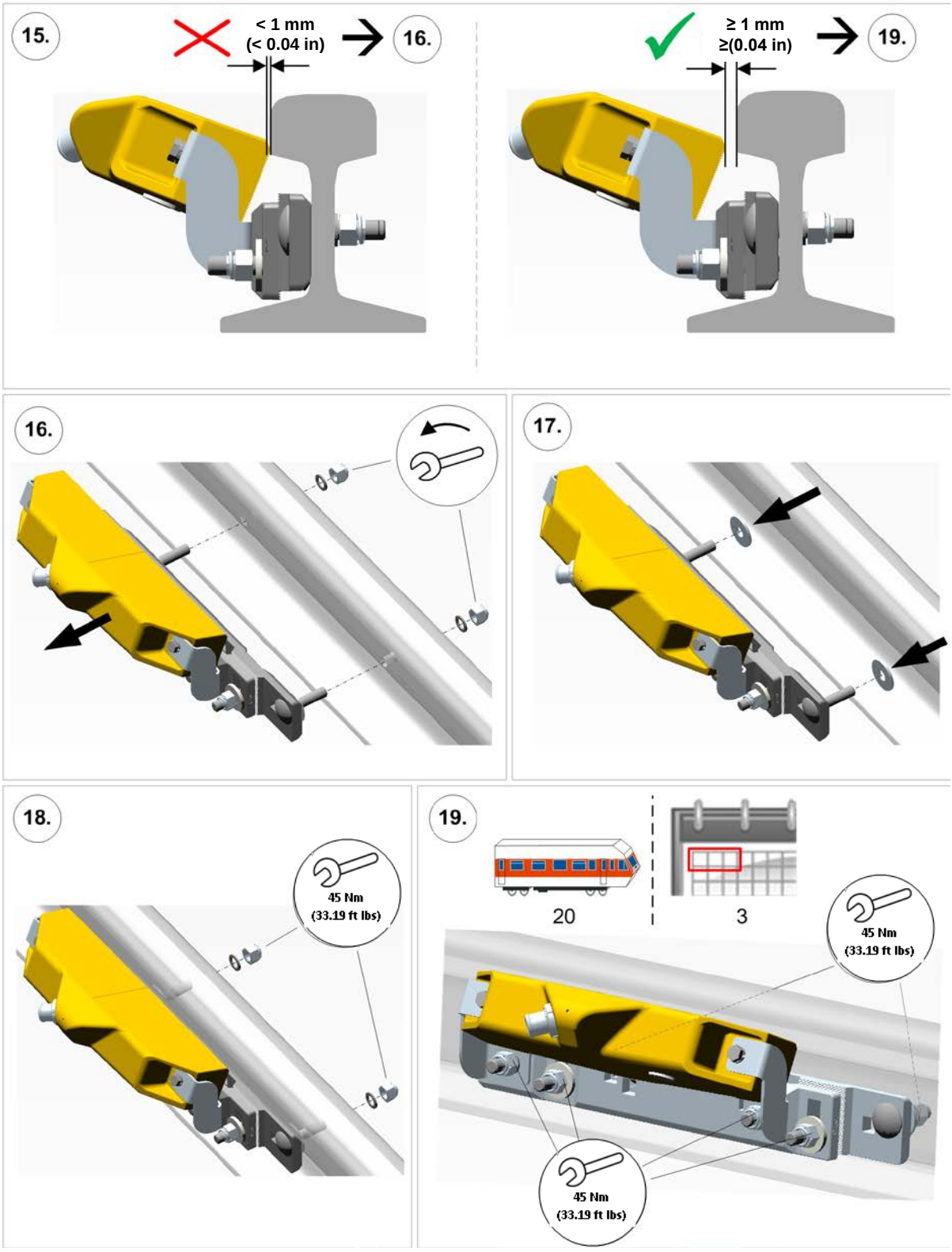


Figure 1-9 Checking Clearances and Re-securing Hardware on Outer Wheel Detector

1.5 MOUNTING OPTION (A3) OUTER WHEEL DETECTOR (NO PROTRUDING BOLTS)

1.5.1 Preparation for Drilling Holes in Rail Web

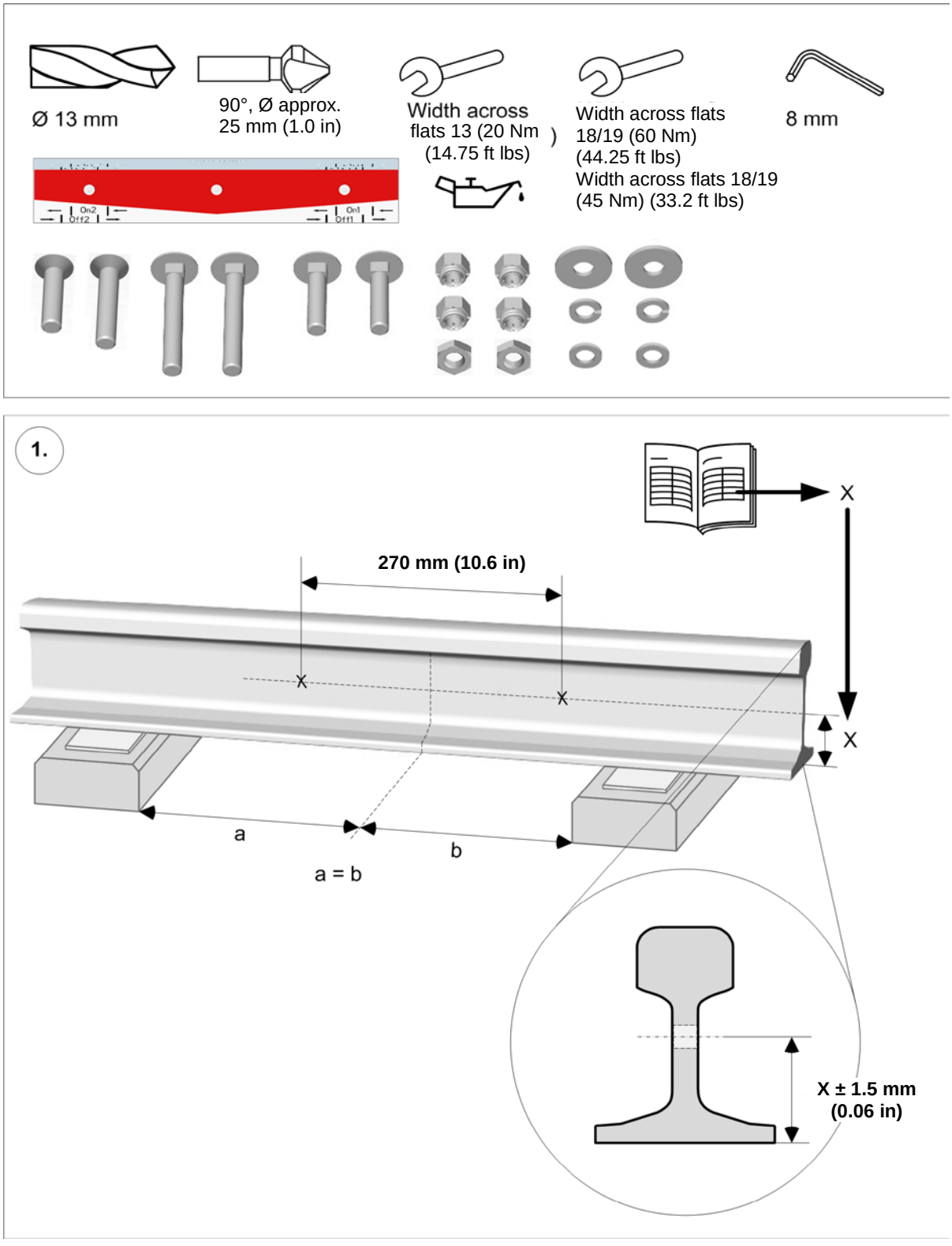


Figure 1-10 Preparation for Drilling Holes in Rail Web for Option A3 Mount

1.5.2 Drilling Holes in Rail Web for Option A3 Mount

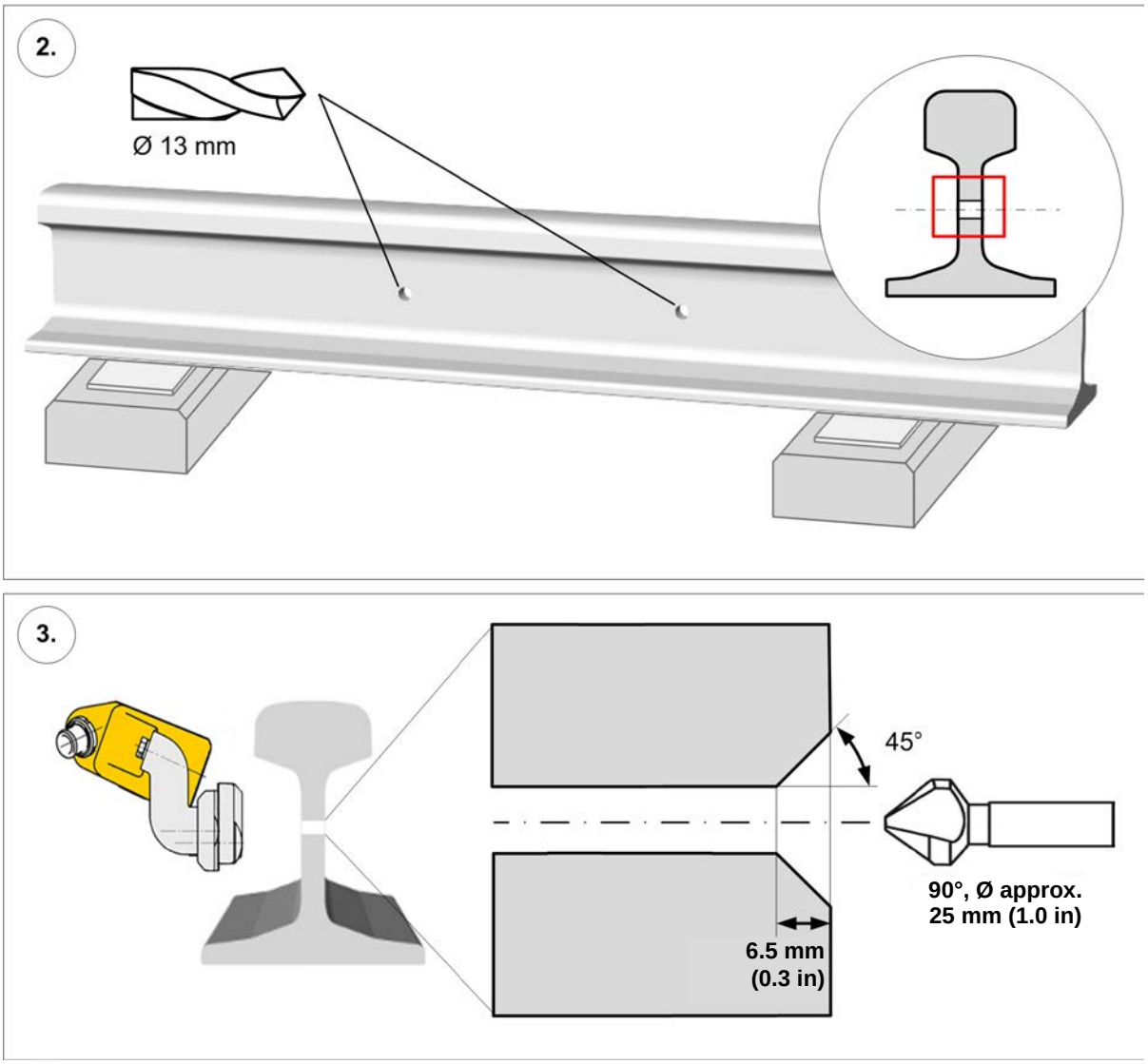


Figure 1-11 Drilling Holes on Rail Web for Option A3 Mount

1.5.3 Attaching Bolts on Wheel Detector for Option A3 Mount

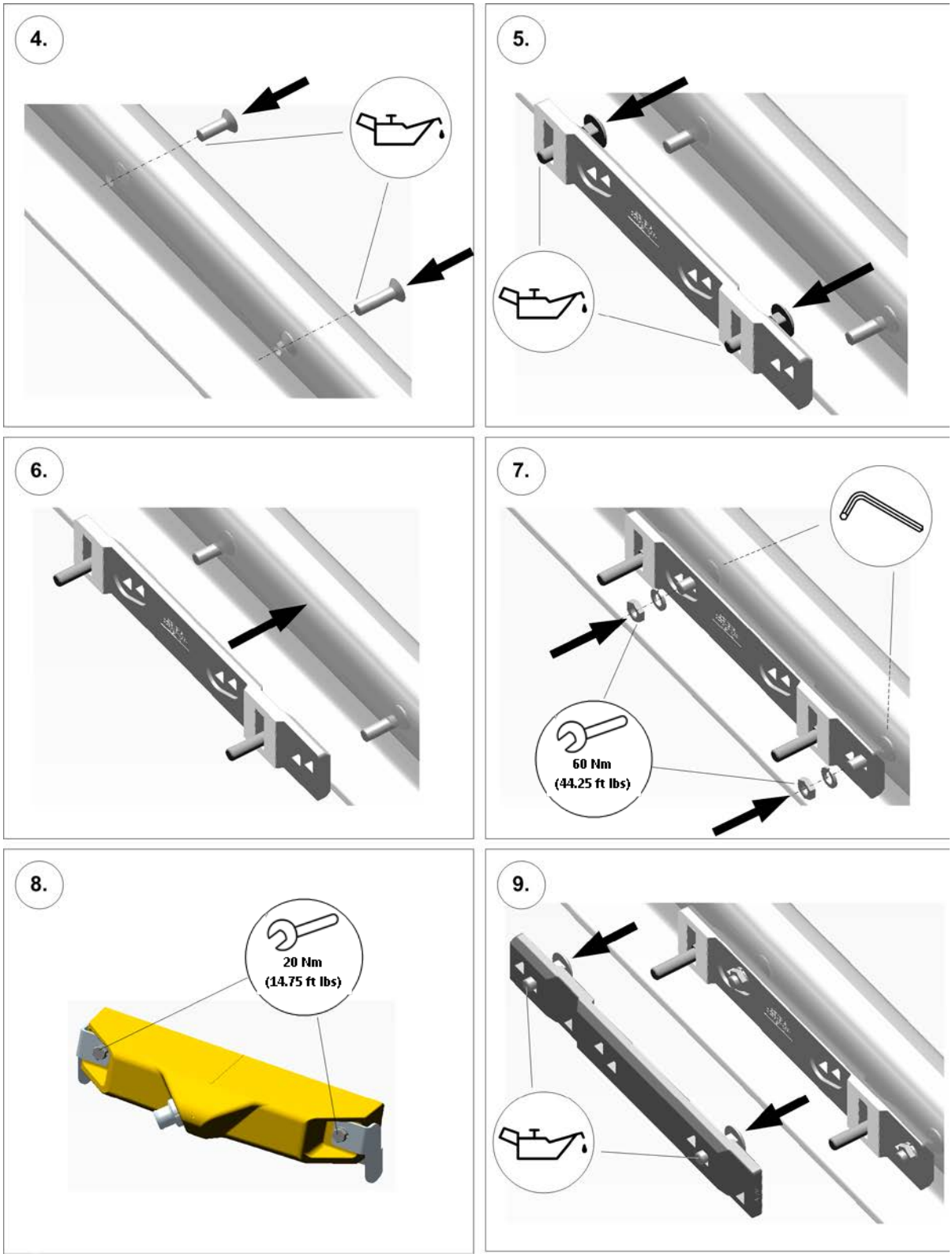


Figure 1-12 Attaching Bolts on Wheel Detector for Option A3 Mount (Part 1)

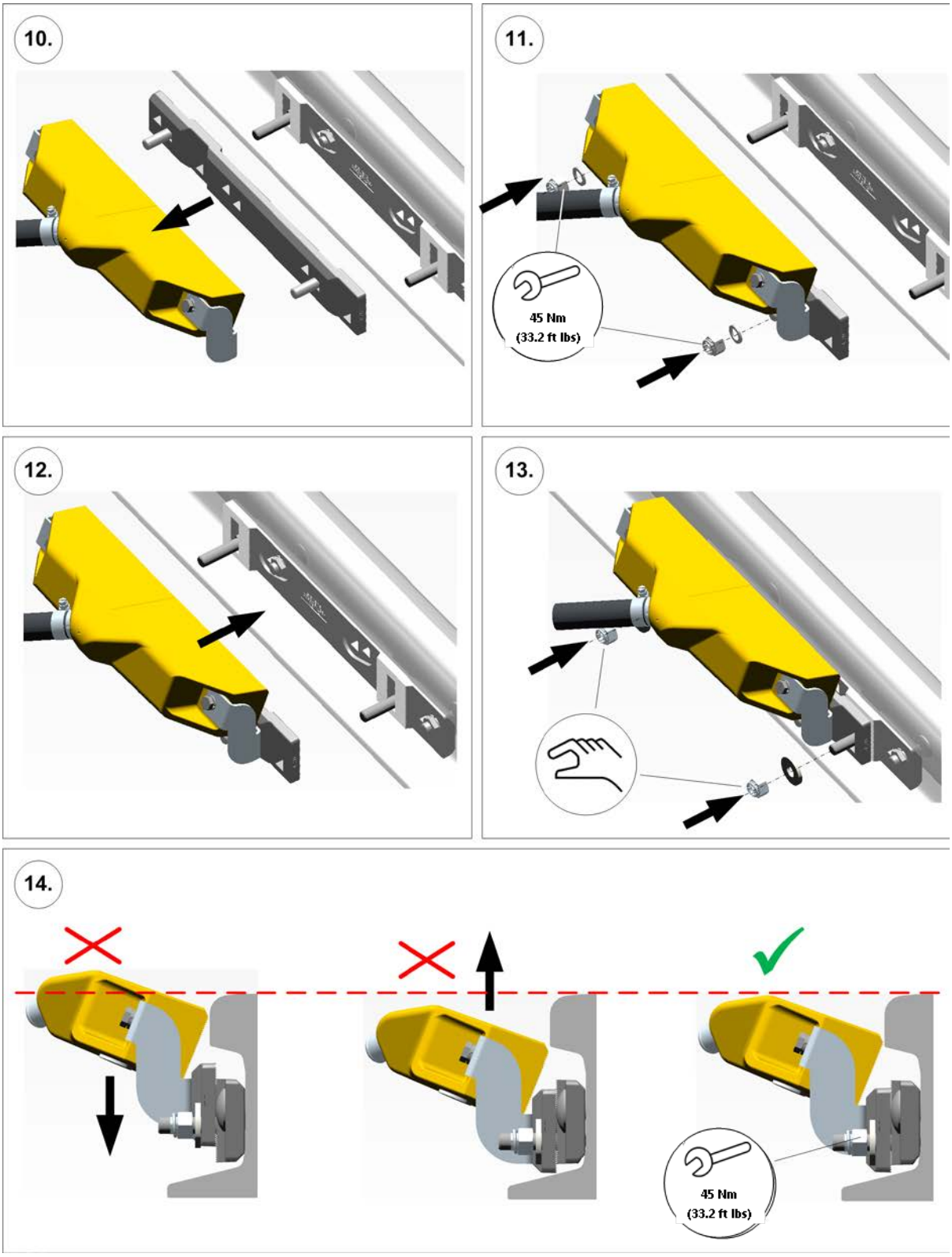


Figure 1-13 Attaching Bolts on Wheel Detector for Option A3 Mount (Part 2)

1.5.4 Checking Clearances and Re-securing Hardware on Option A3 Mount

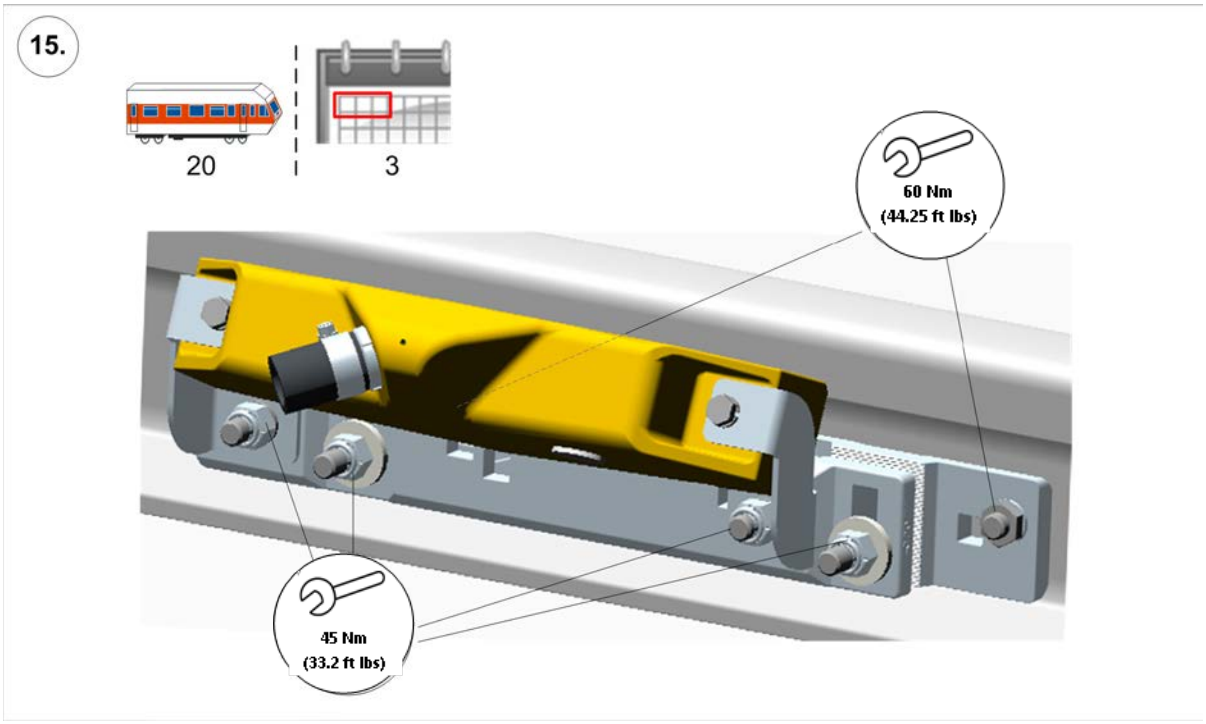


Figure 1-14 Checking Clearances and Re-securing Hardware on Option A3 Mount

1.6 INNER WHEEL DETECTOR WITH RAIL BASE MOUNTING

1.6.1 Attachment of Rail Base Mount to Rail

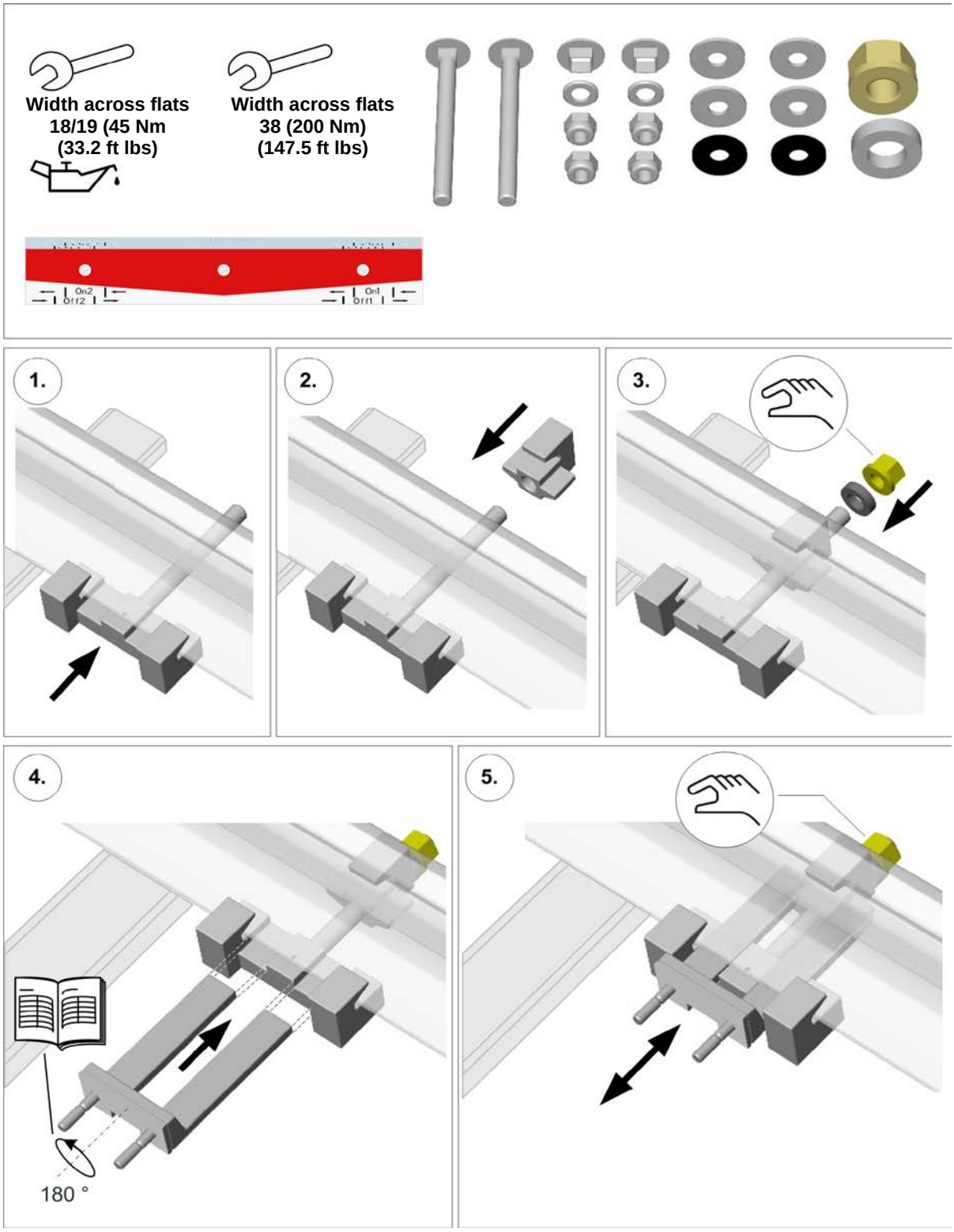


Figure 1-15 Attachment of Rail Base Mount to Rail

1.6.2 Attaching Wheel Detector to Rail Using Rail Base Mount

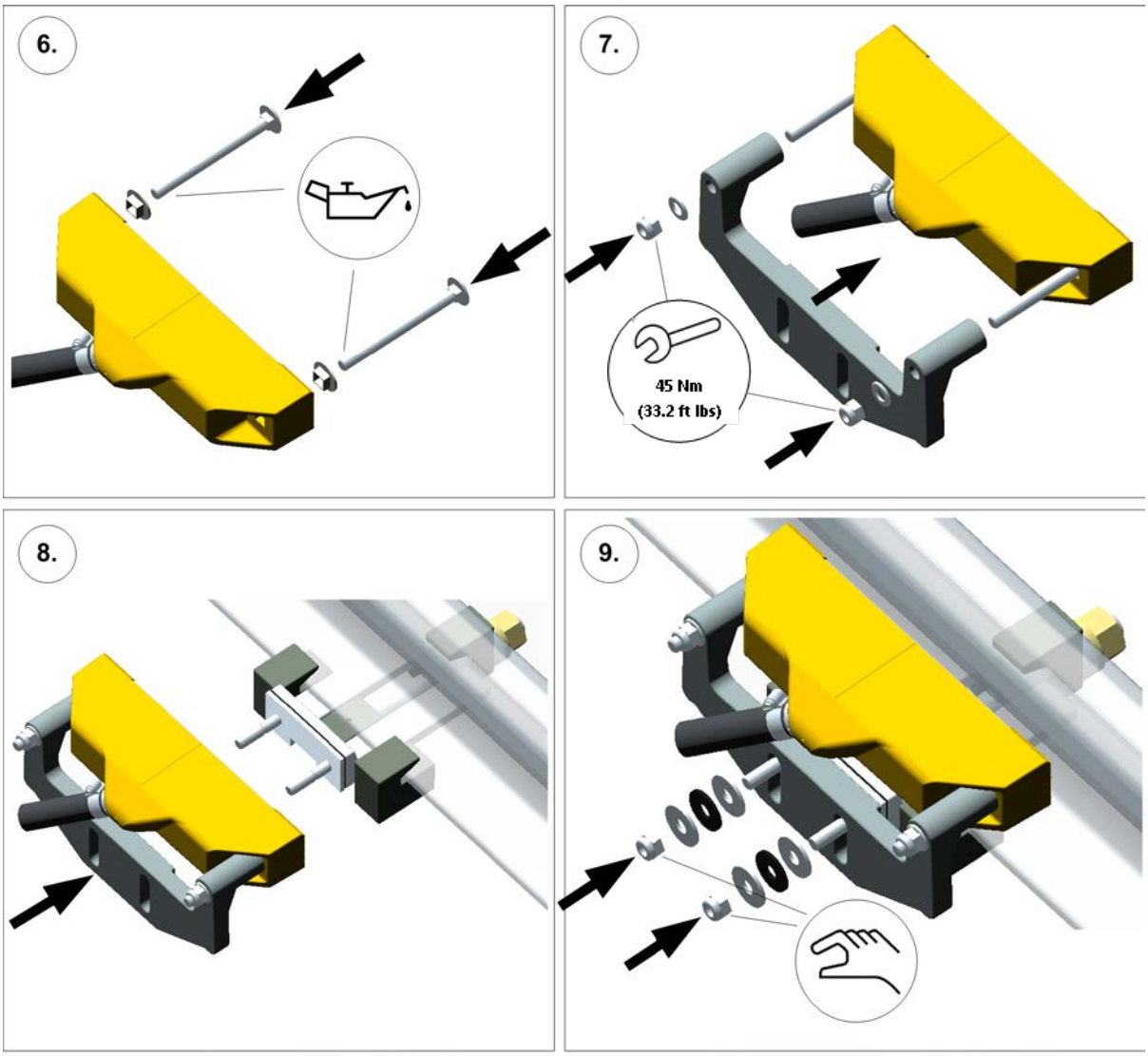


Figure 1-16 Attaching Wheel Detector to Rail Using Rail Base Mount

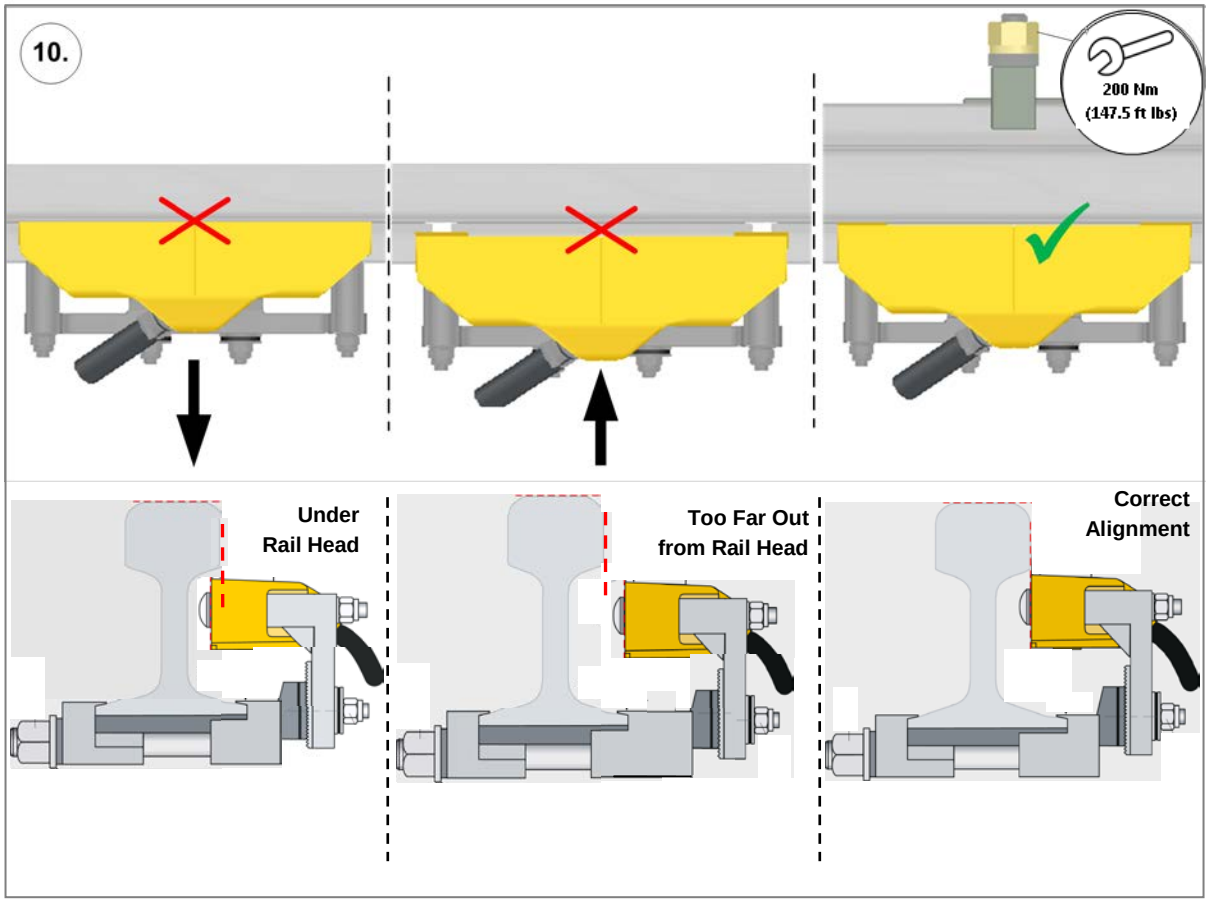


Figure 1-17 Aligning Detector to Rail Head

1.6.3 Adjustment of Wheel Detector Height using Elevation Adjust Mounting Bracket

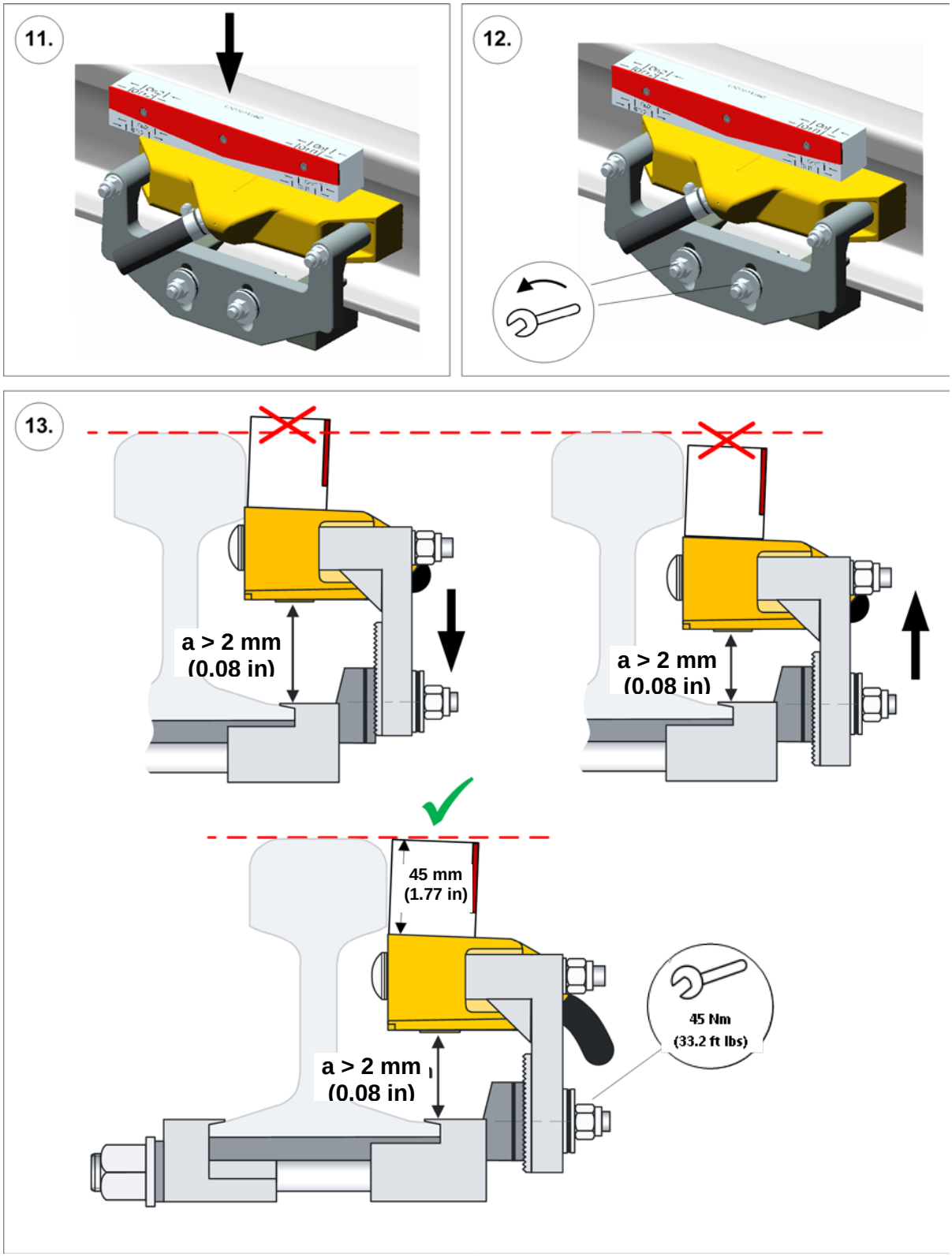


Figure 1-18 Adjusting Wheel Detector Elevation

1.6.4 Adjusting Wheel Detector Clearance and Re-securing Hardware

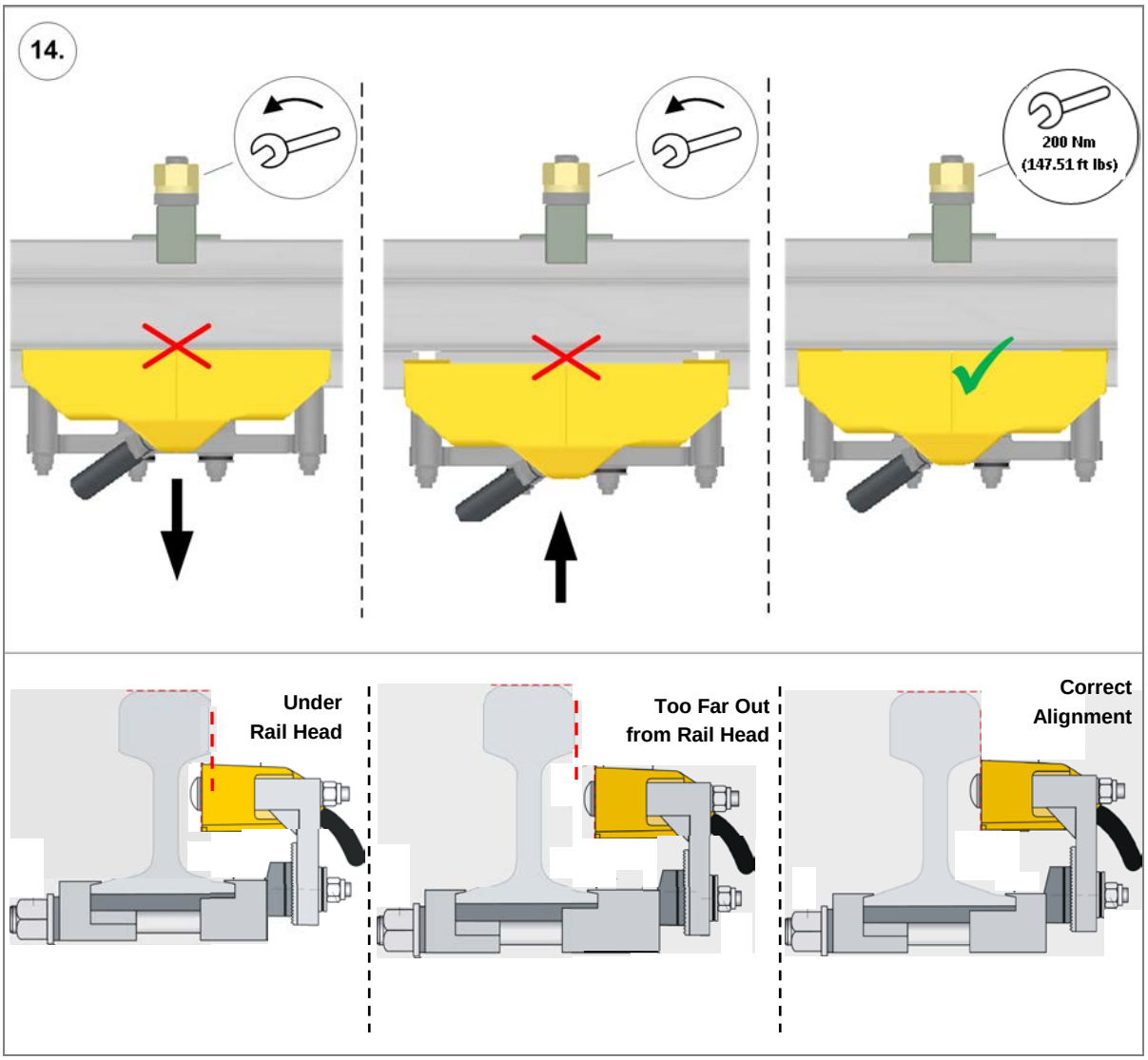


Figure 1-19 Adusting Wheel Detector Clearance

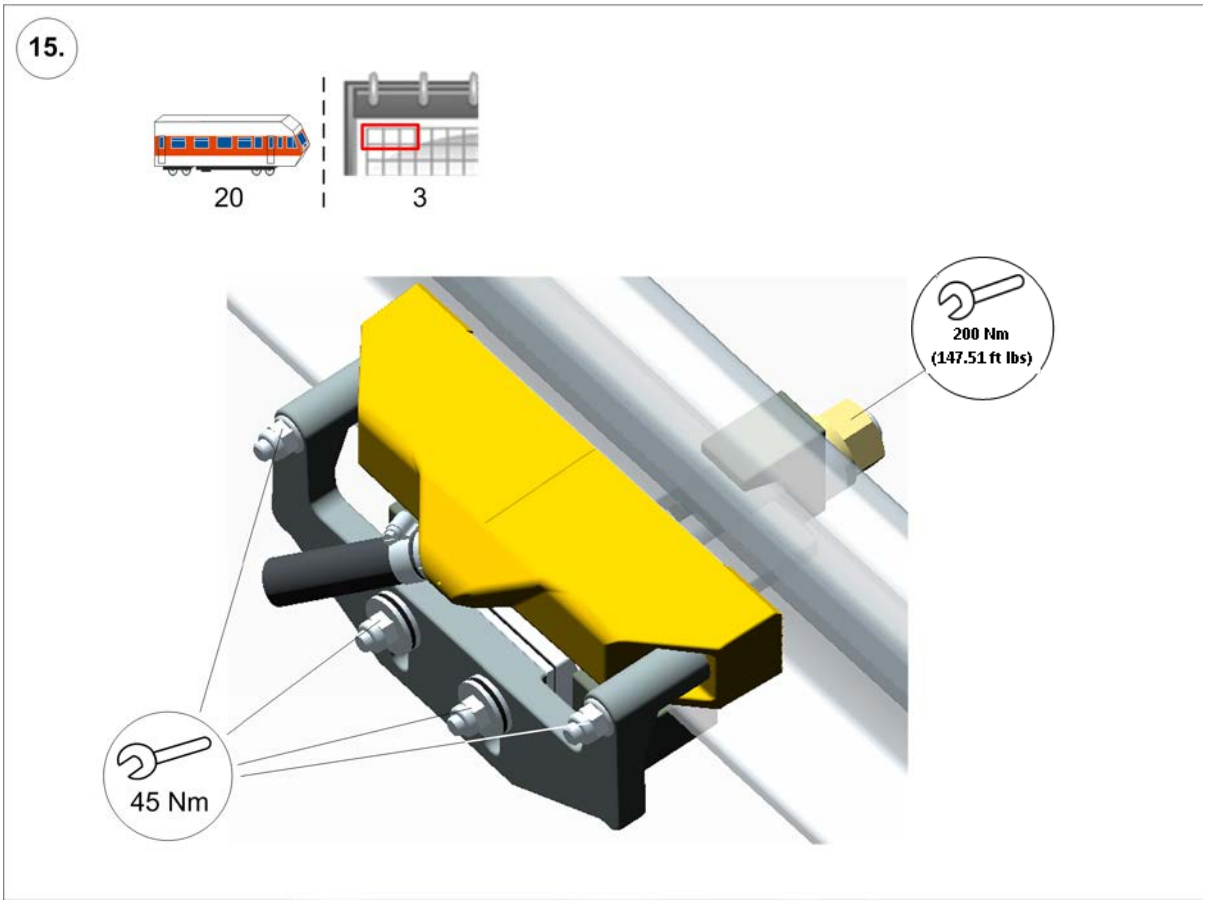


Figure 1-20 Re-Securing Hardware

1.7 WHEEL DETECTOR CALIBRATION

1.7.1 Subsystem 1 Calibration

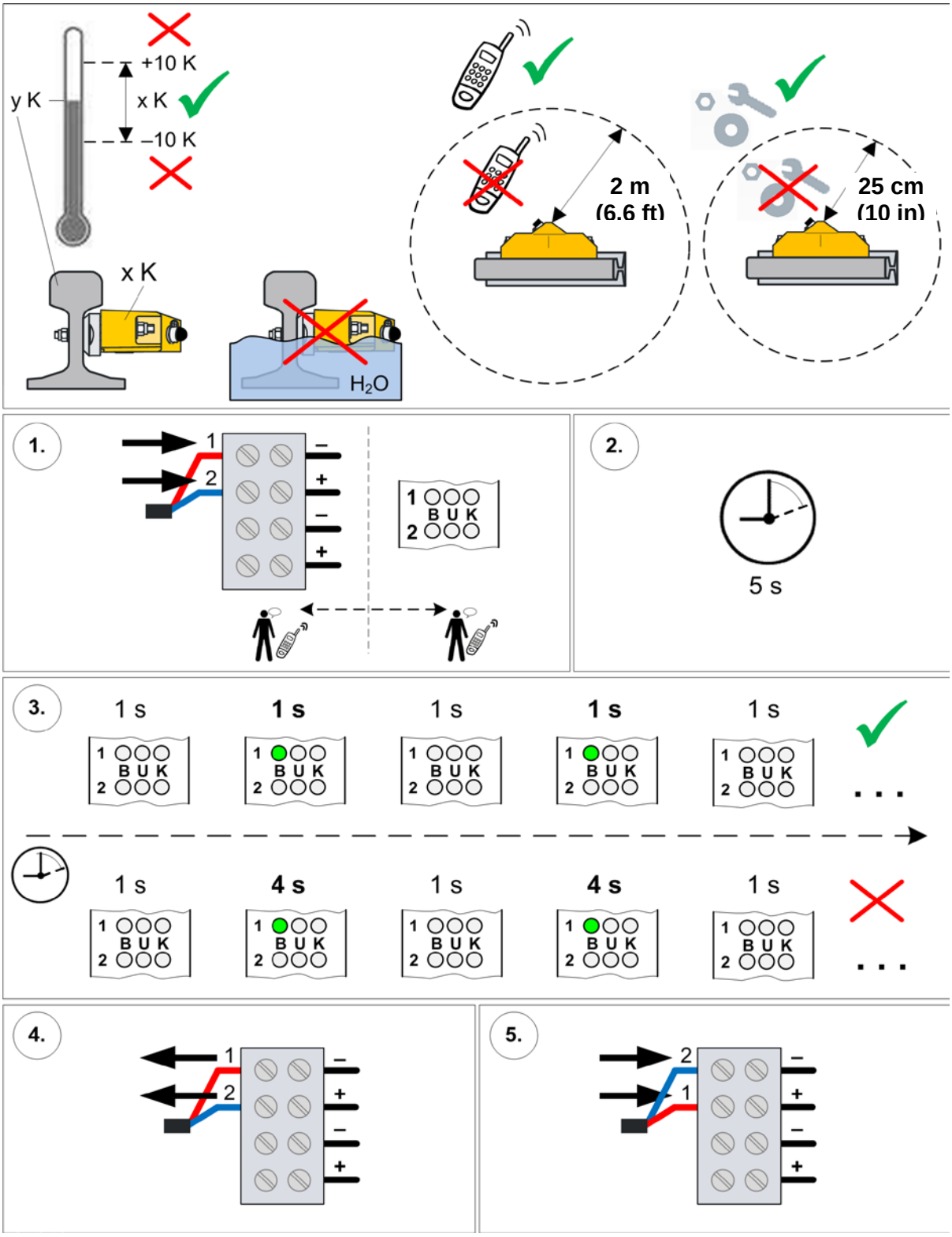


Figure 1-21 Subsystem 1 Calibration

1.7.2 Subsystem 2 Calibration

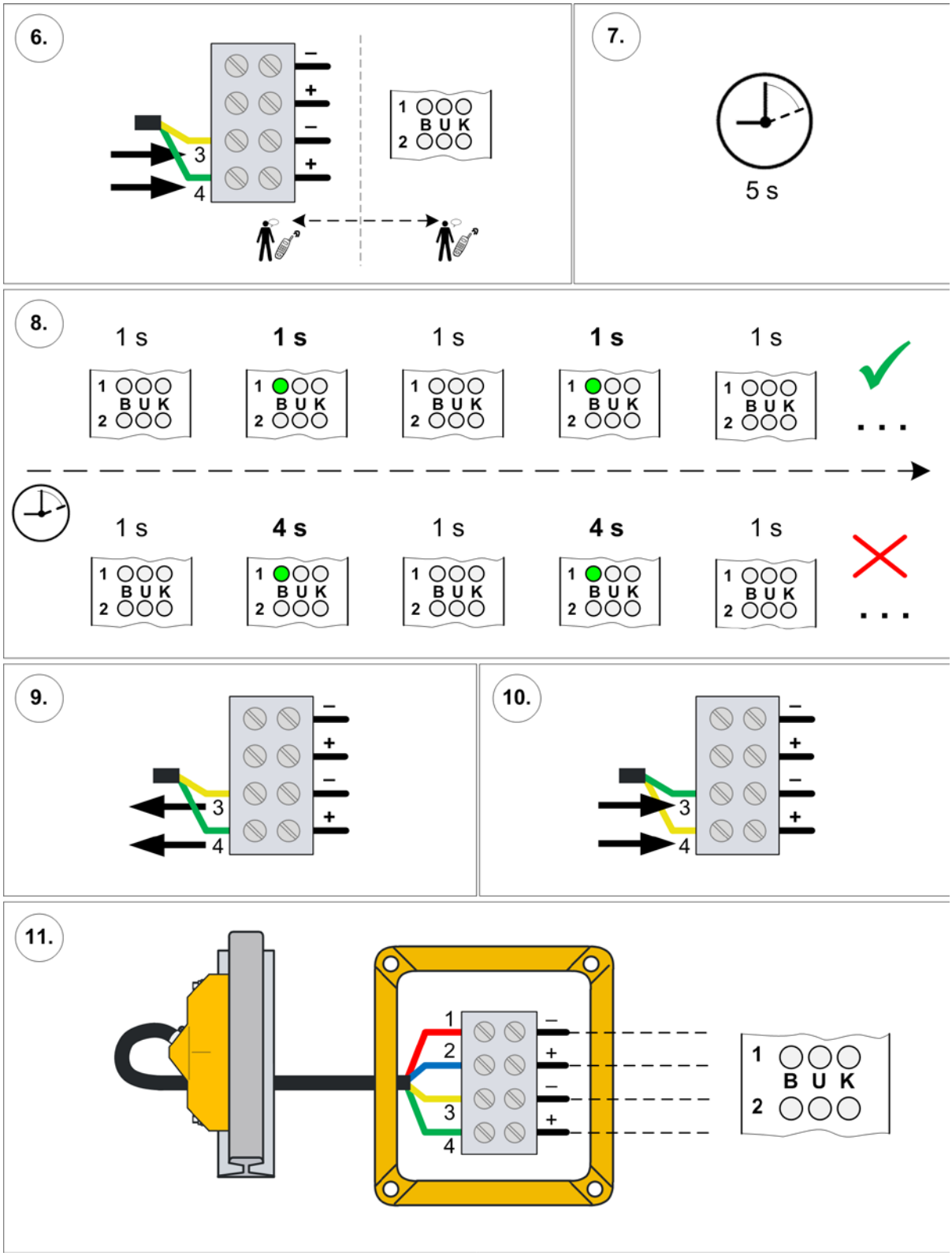


Figure 1-22 Subsystem 2 Calibration

1.8 FUNCTIONAL TESTING

1.8.1 Functional Testing Using an Evaluation Unit

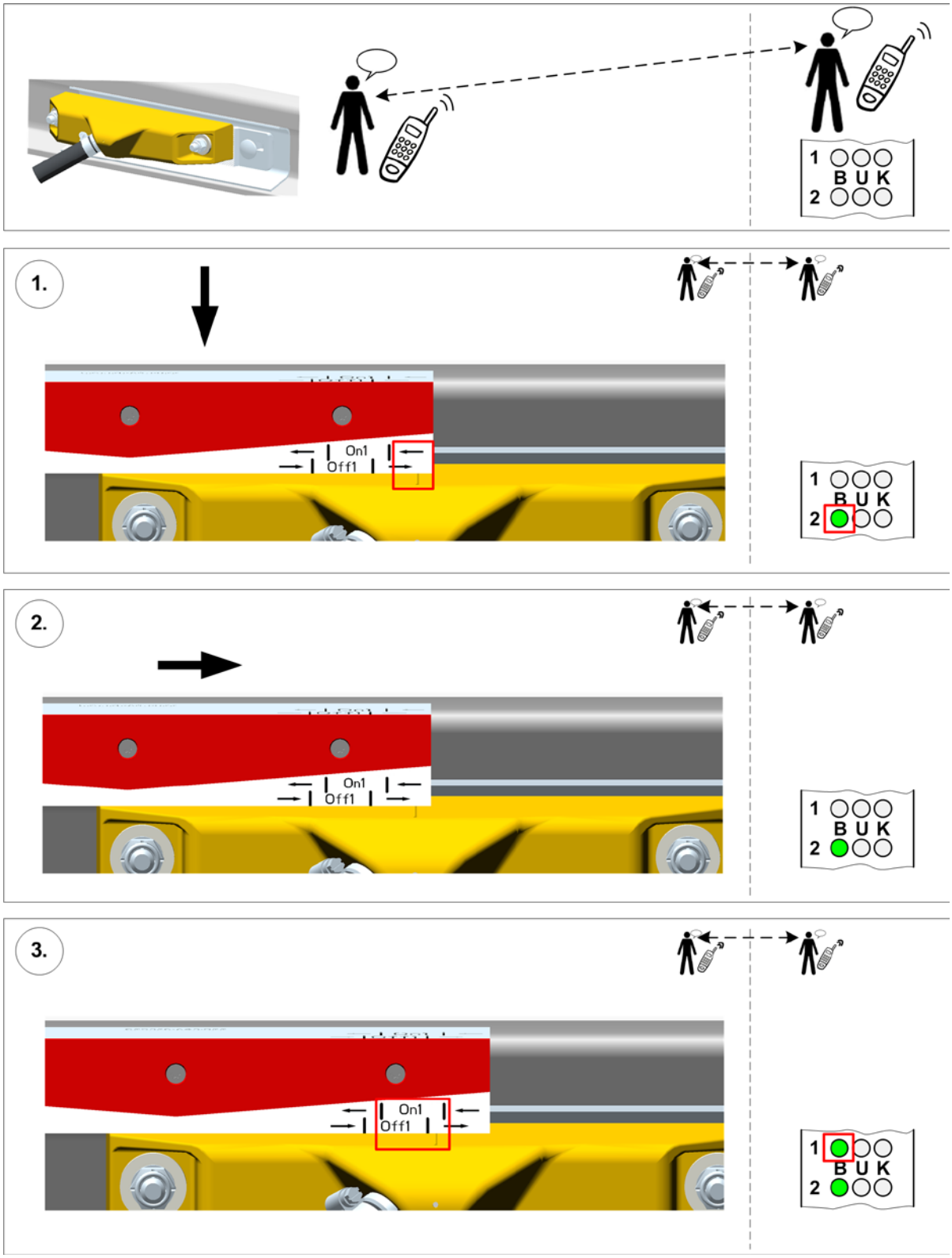


Figure 1-23 Functional Testing (Part 1)

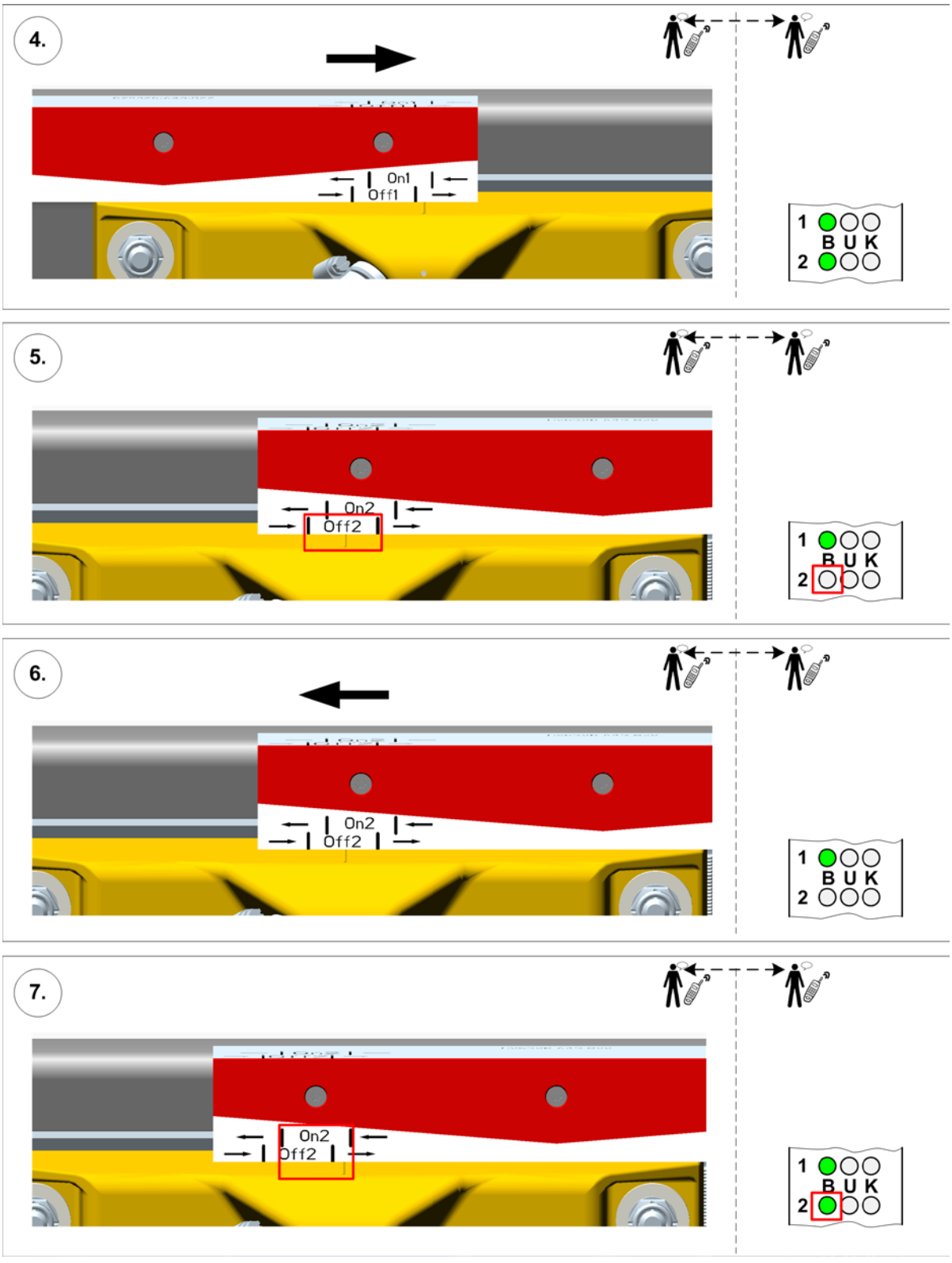


Figure 1-24 Functional Testing (Part 2)

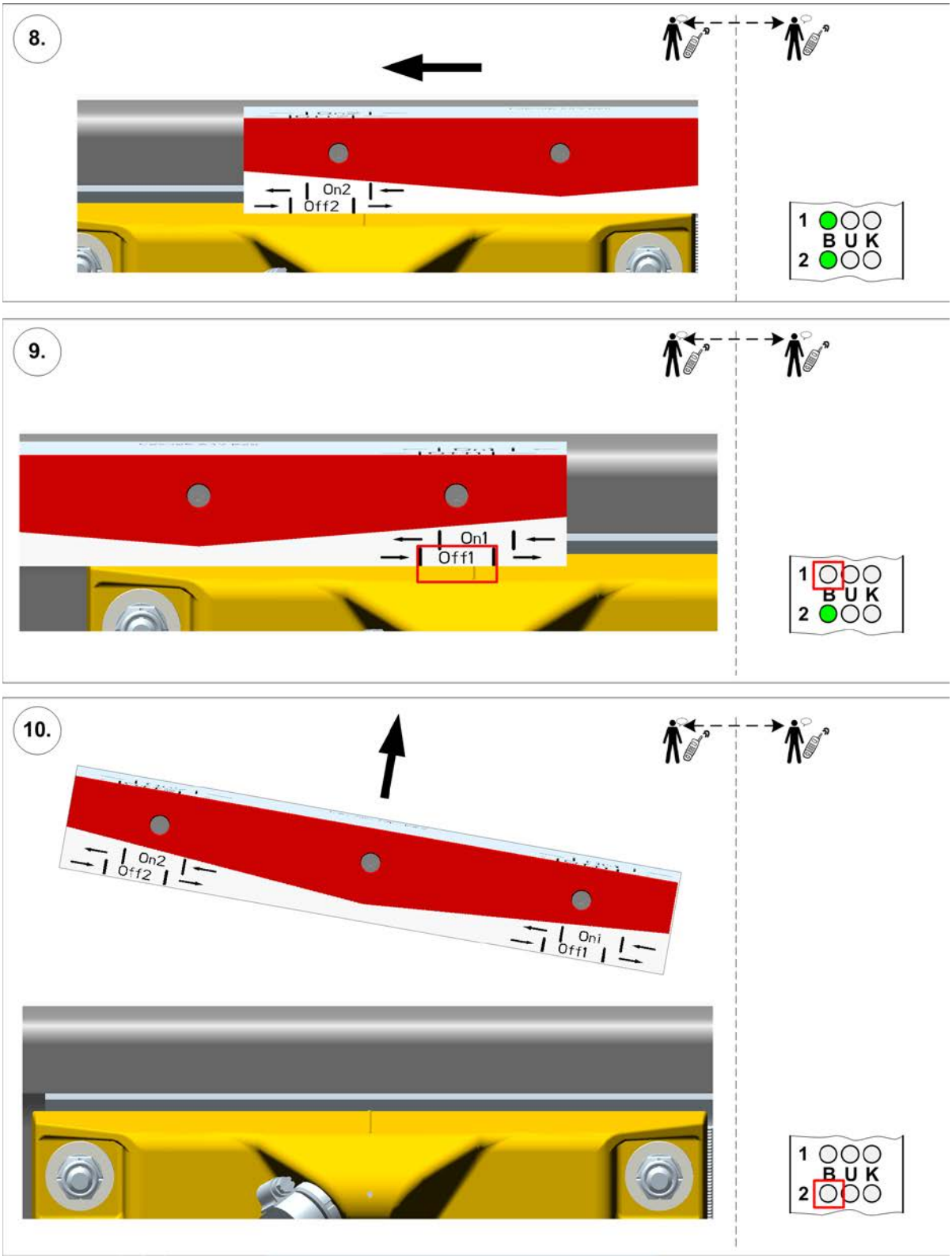


Figure 1-25 Functional Testing (Part 3)

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NOTES

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