Advanced Torque Products – "Torque Challenge"

Overview

Total Time: **7 minutes**
Total Number of Teams Competing at one time: **2**
Total Number of team members required to finish: **1**

Rules

- 30 second time penalties will be appended for the following:
  - Damage to parts
  - Misuse of Alarm
  - Recording torque outside ± 50 in-lbs from target
  - Recording angle outside ± 15 minutes from target

Part Key

SOCKET
NUT & WASHER
CONTROLLER & CABLE
RATCHET
DIGITAL TORQUE MULTIPLIER
REACTION STAND

- ***See back for Procedure*** -

Advanced Torque Products – "Torque Challenge"

Procedure

Task 1) Initial Tool Setup:

1) Apply washer to stud and tighten nut by hand
2) Position socket onto nut
3) Mount reaction stand to base plate
4) Engage Digital Torque Multiplier pawl in neutral orientation
5) Position Digital Torque Multiplier onto reaction stand
    a) Line up drive bar with socket
    b) Rotate wrench to align reaction pins with holes in top of reaction stand
        i) Base of Digital Torque Multiplier should be flush with top of reaction stand
6) Tether controller cable between controller and Digital Torque Multiplier
7) Attach controller to controller bracket and fix to top of Digital Torque Multiplier

Task 2) Torque Procedure: (Refer to Operator's Manual for guidance)

1. Turn controller on and toggle to "TRACK" mode
2. Toggle controller units to in-lbs
3. Toggle alarm on and set to 600 in-lbs
4. Zero out controller
5. Engage Digital Torque Multiplier pawl and input ratchet in clockwise orientation
6. Toggle to "PEAK ANGLE" mode
7. Using the input ratchet, torque nut to 600 ± 50 in-lbs in the clockwise direction
8. Toggle alarm off
9. Record the peak torque displayed on the controller
10. Zero out controller to reset angle
11. Apply 20 degrees ± 15 minutes of clockwise rotation
12. Record the angle and peak torque displayed on the controller

Task 3) Breakaway Procedure:

1. Toggle controller to "TRACK" mode
2. Zero out controller
3. Apply slight clockwise pressure in order to switch pawl to counter-clockwise orientation
4. Toggle to "PEAK ANGLE" mode
5. Using the input ratchet in the counter-clockwise orientation, apply 180 degrees ± 3 degrees of counter-clockwise rotation to completely break nut free
6. Record the peak torque displayed on the controller

Task 4) Teardown:

1) Safely remove all components and place them back on the bench
    a) Turn off controller
    b) Remove controller cable from controller and Digital Torque Multiplier
    c) Remove controller from bracket and bracket from top of Digital Torque Multiplier
    d) Remove Digital Torque Multiplier from reaction stand
    e) Remove reaction stand from base plate
    f) Remove socket from nut
    g) Run nut and washer off of stud by hand