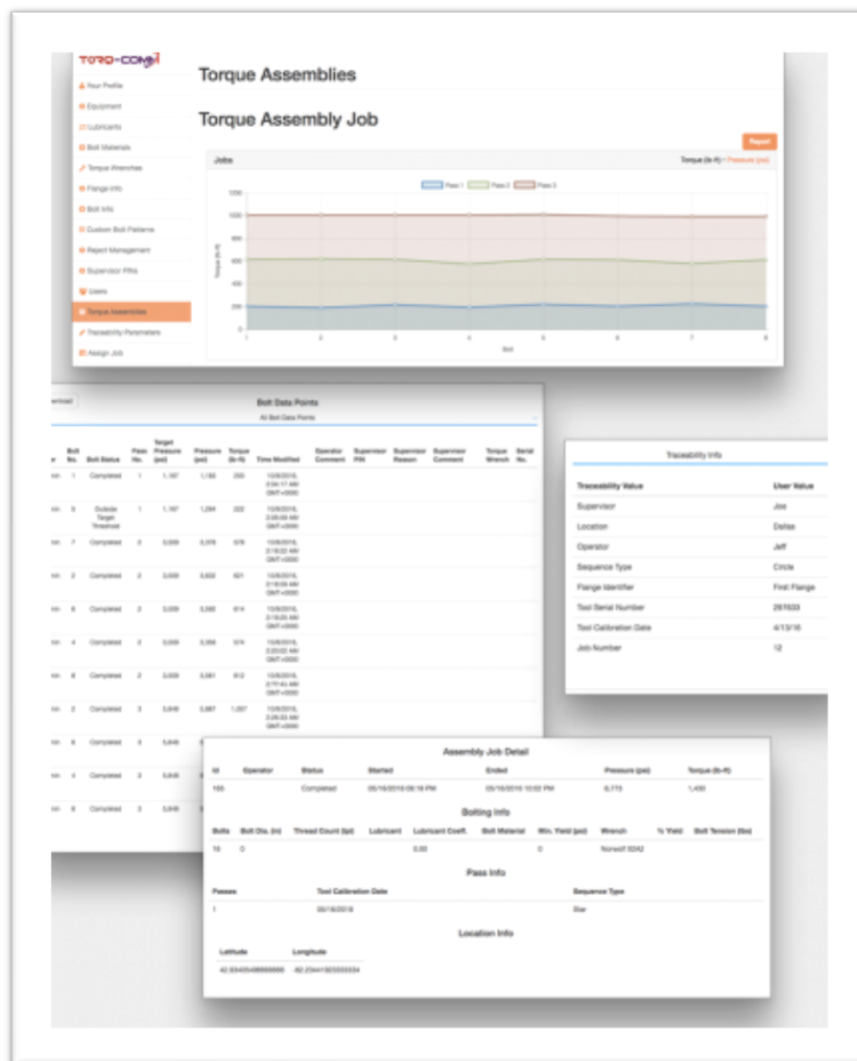


COMMANDER CLOUD User Manual



COMMANDER CLOUD *User Manual*

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ABOUT THE COMMANDER CLOUD COMMANDER SOFTWARE

The Commander Cloud software is your company's storage facility for its hydraulic torqueing work. It is available anywhere in the world where internet or cellular access is found. It contains all of the related databases such as inventory of torque wrenches, flanges and bolts needed for any bolting job.

It allows a manager, who is half a world away for the job site, access to the up-to-date production information necessary to job completion, productivity and progress.

FEATURES:

- Global viewing of up to date information, analysis, and job creation for production control
- A library of bolting standards for Commander XT access
- Extensive reporting options include:
 - Out of Spec issues
 - Calibration, assembly data
 - Flange Assemblies Detail
 - Operator Performance
 - Job Status
- Data export options include PDF and CSV with a single click!

CAUTION!

Do Not Use Tool Without Reading This First!

Before using any Torq-Comm tool, READ THIS MANUAL! Your safety, and the safety of others, may depend on your proper use of this tool. This manual provides information about the proper use of this tool that is important for your protection and for the protection of your work. If you don't understand any part of this manual **do not use the tool**. Instead, seek assistance from your distributor or from Torq-Comm customer support.

Torque can be critical! Incorrect torque can be dangerous! Although Torq-Comm, Inc.'s tools are designed to be safe when used properly, improper use of these tools may create unsafe conditions resulting in catastrophic failures and other accidents, causing severe **injury** or **death**, significant property damage, expensive shut down of industry equipment or infrastructure, and environmental damage.

Understand torqueing specifications, conditions, and variables. The software embedded in this Torq-Comm tool makes preliminary torque calculations required for different applications based upon published specifications such as ASME PCC-1 2013, API flange specifications, ANSI material specifications, and other specifications that are common in the industry. Nonetheless, there are a number of variables that affect final torque calculations that must be properly accounted for when using this tool. These variables include, *but are not limited to*:

- design specifications for the work to which the tool is applied
- other information input by the tool user
- dirt or debris in a tapped hole
- grease or oil on the threads
- damaged threads
- hole misalignment

Don't ignore calibration and warnings. Your tool communicates with the digital pressure gauge and other components using wireless communications technology that must be properly calibrated and maintained. The digital pressure gauge is calibrated when it is shipped, but it is up to the user to re-calibrate it as required by the appropriate internal calibration schedule. Also, do not ignore or circumvent built-in safety features such as the requirement for supervisor approval of out-of-specification readings.

DISCLAIMER AND LIMITATION OF LIABILITY

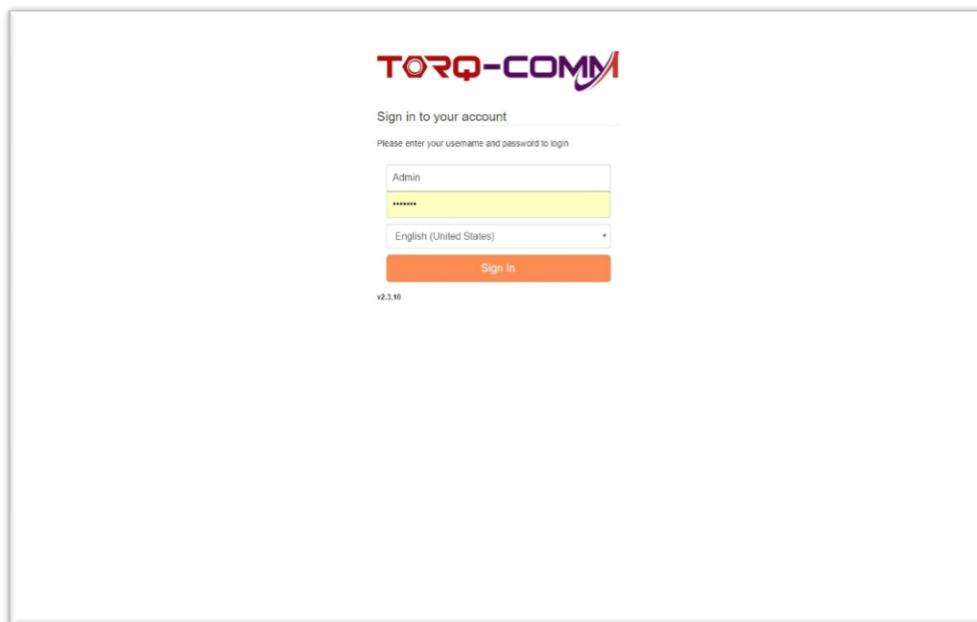
EXCEPT FOR THE LIMITED PRODUCT WARRANTY PROVIDED WITH THE TOOL, THIS TOOL IS DELIVERED BY TORQ-COMM, INC., WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF DESIGN, ANY IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR FOR A GENERAL PURPOSE, AND ANY WARRANTY ARISING BY LAW OR STATUTE, COURSE OF DEALING, OR USAGE OF TRADE.

IN NO EVENT, REGARDLESS OF CAUSE, SHALL TORQ-COMM, INC., BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHETHER ARISING UNDER BREACH OF CONTRACT, TORT, STRICT LIABILITY, PRODUCTS LIABILITY, OR OTHERWISE.

COMMANDER CLOUD

GETTING STARTED

Your System Administrator can help you find the Commander Cloud web address and assign a unique Username and Password to each Engineer, Supervisor or Operator. Your Username and Password is your signature that ensures access to your torque assemblies and identifies you as a participant.



LOGGING IN

1. Tap the **USERNAME** box to type in your username.
2. Tap the **PASSWORD** box to type in your password.
3. Select the language by tapping on the drop-down menu. The language you choose will populate all columns and data in the Cloud screens.

Current language options are English and Mandarin.

4. Tap **SIGN IN** to log into the Commander CLOUD.

DESKTOP VIEW

The desktop view provides an up-to-minute overview of the work in the field or on the floor by providing the status of each job. With just a quick glance, you can see the status of any job; past, present and future.

You will have an understand of each Operator's productivity by comparing when a job was started and when it was finished for each individual. You can also review the reports for each job to note any comments made by the Supervisor. Together they may indicate which Operators may need more training to bring them up to expected levels.

Torque Assemblies

Download Clear Sorts

ID	Operator	Job Status	Date/Time Started	Date/Time Ended	Torque (lb-ft)	Pressure (psi)	
100	Jeff	Completed	4/14/2016, 1:39:21 AM UTC+0000	4/14/2016, 1:44:48 AM UTC+0000	2,000	1,285	Details
101	Jeff	Completed	4/5/2016, 12:45:17 AM UTC+0000	4/5/2016, 12:51:42 AM UTC+0000	5,500	45,899	Details
103	Jeff	Completed	4/14/2016, 1:30:15 AM UTC+0000	4/14/2016, 1:37:38 AM UTC+0000	1,250	483	Details
104	Jeff	Completed	4/4/2016, 4:59:31 PM UTC+0000	4/4/2016, 5:05:12 PM UTC+0000	1,687	654	Details
104	Dallas Jordan	Completed	5/14/2016, 10:36:10 PM UTC+0000	5/14/2016, 10:47:19 PM UTC+0000	330	2,538	Details
148	Jordan	Completed	5/14/2016, 10:22:08 AM UTC+0000	5/14/2016, 11:58:25 AM UTC+0000	496	3,043	Details
100	Dallas Jordan	Completed	5/14/2016, 10:51:25 PM UTC+0000	5/14/2016, 10:55:06 PM UTC+0000	330	2,538	Details
106	Dallas Jordan	Completed	5/14/2016, 10:59:31 PM UTC+0000	5/14/2016, 11:06:46 PM UTC+0000	330	2,538	Details
107	Dallas Jordan	Completed	5/14/2016, 11:29:08 PM UTC+0000	5/14/2016, 11:42:04 PM UTC+0000	1,430	8,773	Details
108	Dallas Jordan	Completed	5/14/2016, 11:48:11 PM UTC+0000	5/14/2016, 11:54:20 PM UTC+0000	737	4,521	Details

1 2 3 4 5 10 25 50 100

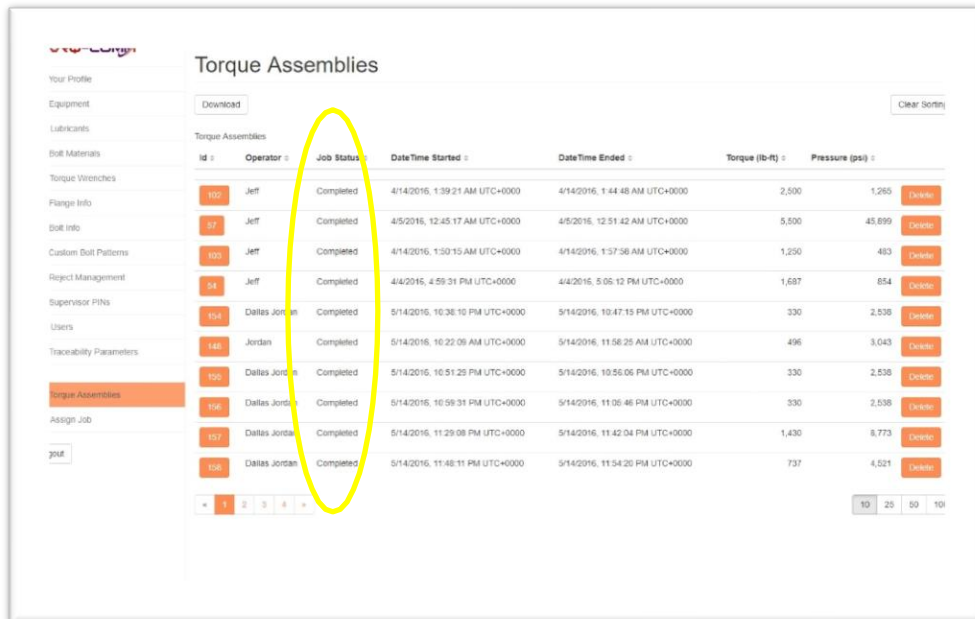
It also contains all of the databases of information necessary to create and maintain the torque assemblies and manage your field or factory assets. These databases are completely configurable by your System Administrator, Engineer or Supervisor to reflect your unique processes and procedures. The system is flexible enough to adapt to your work styles rather than the other way around.

TORQUE ASSEMBLY STATUS

Each Torque Assembly is tracked to determine the up to date status. The current status is displayed under **JOB STATUS**. When a single bolt is complete in the field, the information is immediately transmitted to the cloud and available for review.

The various statuses are:

1. **ASSIGNED** – The torque assembly was created on the Cloud and has been scheduled and assigned to an operator but has not yet begun.
2. **ASSEMBLY** – The torque assembly was created on the handheld but has not yet begun.
3. **SAVED TO BE RESUMED** – The torque assembly has been started but has been stopped before it has been completed. There may be an issue at the site or the operator simply went to lunch. The data has been saved and will be started from where they left off.
4. **COMPLETED** – The torque assembly has been successfully completed and all data uploaded to the Cloud.

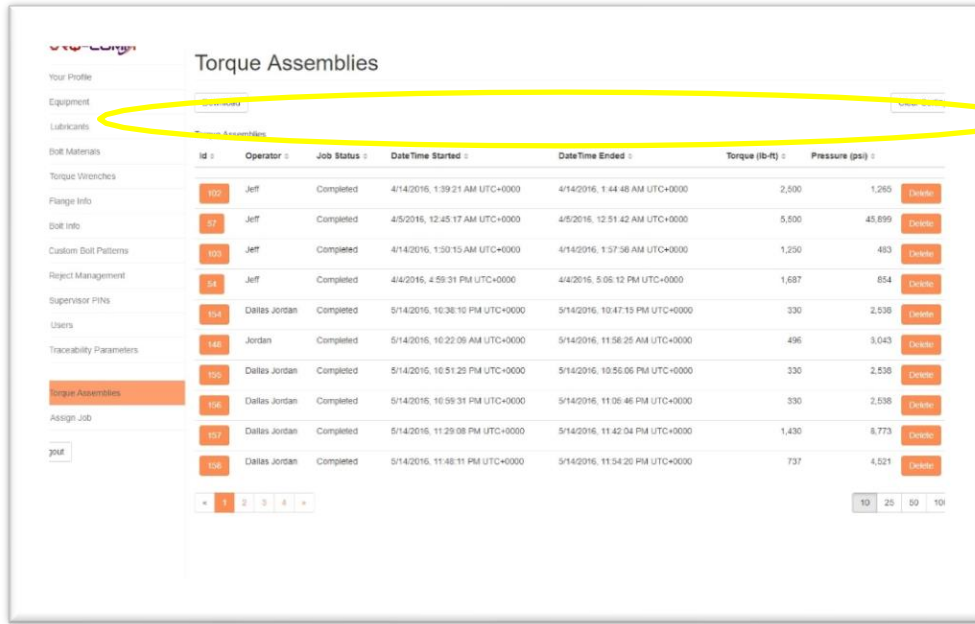


The screenshot shows a web application interface for 'Torque Assemblies'. On the left is a sidebar with navigation links: Your Profile, Equipment, Lubricants, Bolt Materials, Torque Wrenches, Flange Info, Bolt Info, Custom Bolt Patterns, Report Management, Supervisor PINs, Users, Traceability Parameters, Torque Assemblies (highlighted), and Assign Job. The main area displays a table titled 'Torque Assemblies' with columns: Id, Operator, Job Status, DateTime Started, DateTime Ended, Torque (lb-ft), and Pressure (psi). A yellow oval highlights the 'Job Status' column, which contains the word 'Completed' for every row. At the bottom of the table, there is a pagination control showing '1' of 10 items.

Id	Operator	Job Status	DateTime Started	DateTime Ended	Torque (lb-ft)	Pressure (psi)
100	Jeff	Completed	4/14/2016, 1:39:21 AM UTC+0000	4/14/2016, 1:44:48 AM UTC+0000	2,000	1,265
101	Jeff	Completed	4/5/2016, 12:45:17 AM UTC+0000	4/5/2016, 12:51:42 AM UTC+0000	5,000	45,899
102	Jeff	Completed	4/14/2016, 1:30:15 AM UTC+0000	4/14/2016, 1:37:58 AM UTC+0000	1,250	483
103	Jeff	Completed	4/4/2016, 4:59:31 PM UTC+0000	4/4/2016, 5:05:12 PM UTC+0000	1,687	854
104	Dallas Jordan	Completed	5/14/2016, 10:36:10 PM UTC+0000	5/14/2016, 10:47:19 PM UTC+0000	330	2,538
105	Jordan	Completed	5/14/2016, 10:22:09 AM UTC+0000	5/14/2016, 11:58:28 AM UTC+0000	496	3,043
106	Dallas Jordan	Completed	5/14/2016, 10:51:29 PM UTC+0000	5/14/2016, 10:56:06 PM UTC+0000	330	2,538
107	Dallas Jordan	Completed	5/14/2016, 10:59:31 PM UTC+0000	5/14/2016, 11:06:46 PM UTC+0000	330	2,538
108	Dallas Jordan	Completed	5/14/2016, 11:29:08 PM UTC+0000	5/14/2016, 11:42:04 PM UTC+0000	1,430	8,773
109	Dallas Jordan	Completed	5/14/2016, 11:48:11 PM UTC+0000	5/14/2016, 11:54:25 PM UTC+0000	737	4,521

SORTING AND ORGANIZING

You can sort the information on any screen easily and quickly by tapping the appropriate column header. The Torque Assemblies will be arranged according to your preferences for easy viewing.



The screenshot shows the 'Torque Assemblies' screen. A yellow oval highlights the column headers: 'id', 'Operator', 'Job Status', 'DateTime Started', 'DateTime Ended', 'Torque (lb-ft)', and 'Pressure (psi)'. The table contains 10 rows of data, each with a 'Delete' button. At the bottom, there is a pagination bar showing '1' of 10 items and a dropdown menu for '10', '25', '50', and '100' items per page.

id	Operator	Job Status	DateTime Started	DateTime Ended	Torque (lb-ft)	Pressure (psi)	
100	Jeff	Completed	4/14/2016, 1:39:21 AM UTC+0000	4/14/2016, 1:44:48 AM UTC+0000	2,500	1,265	Delete
101	Jeff	Completed	4/5/2016, 12:45:17 AM UTC+0000	4/5/2016, 12:51:42 AM UTC+0000	5,500	45,899	Delete
102	Jeff	Completed	4/14/2016, 1:50:15 AM UTC+0000	4/14/2016, 1:57:36 AM UTC+0000	1,250	483	Delete
103	Jeff	Completed	4/4/2016, 4:59:31 PM UTC+0000	4/4/2016, 5:05:12 PM UTC+0000	1,687	854	Delete
104	Dallas Jordan	Completed	5/14/2016, 10:36:10 PM UTC+0000	5/14/2016, 10:47:13 PM UTC+0000	330	2,536	Delete
105	Jordan	Completed	5/14/2016, 10:22:09 AM UTC+0000	5/14/2016, 11:56:25 AM UTC+0000	496	3,043	Delete
106	Dallas Jordan	Completed	5/14/2016, 10:51:25 PM UTC+0000	5/14/2016, 10:56:06 PM UTC+0000	330	2,536	Delete
107	Dallas Jordan	Completed	5/14/2016, 10:59:31 PM UTC+0000	5/14/2016, 11:06:46 PM UTC+0000	330	2,536	Delete
108	Dallas Jordan	Completed	5/14/2016, 11:29:08 PM UTC+0000	5/14/2016, 11:42:04 PM UTC+0000	1,430	6,773	Delete
109	Dallas Jordan	Completed	5/14/2016, 11:48:11 PM UTC+0000	5/14/2016, 11:54:20 PM UTC+0000	737	4,521	Delete

VIEWING A TORQUE ASSEMBLY

You can get the up to the minute data for any Torque Assembly. The complete set of Traceability Information and bolting data will be presented in easy to read charts and tables

1. Tap on the associated **ID Number** for the Torque Assembly you wish to view.

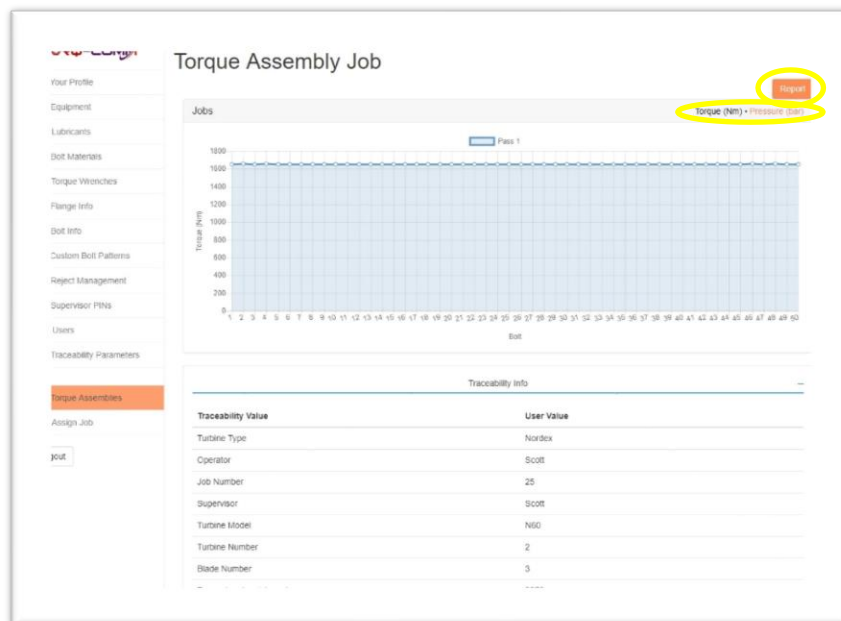
Torque Assemblies

Download Clear Sorting

ID	Operator	Job Status	Date/Time Started	Date/Time Ended	Torque (Nm)	Pressure (bar)	
554		Assigned			1,650	263	Delete
555		Assigned			1,650	263	Delete
556		Assigned			1,650	263	Delete
557		Assigned			1,650	263	Delete
558		Assigned			1,650	263	Delete
546	Scott	Completed	7/12/2018, 3:38:45 PM UTC+0100	7/12/2018, 4:40:54 PM UTC+0100	1,650	263	Delete
547	Scott	Completed	7/12/2018, 2:17:07 PM UTC+0100	7/12/2018, 3:29:59 PM UTC+0100	1,650	263	Delete
548	Scott	Completed	7/12/2018, 1:29:22 PM UTC+0100	7/12/2018, 2:08:17 PM UTC+0100	1,650	263	Delete
549	Scott	Completed	6/27/2018, 4:45:51 PM UTC+0100	6/28/2018, 1:19:47 PM UTC+0100	1,650	263	Delete
550	Scott	Completed	6/28/2018, 1:22:50 PM UTC+0100	6/28/2018, 2:24:58 PM UTC+0100	1,650	263	Delete

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

2. The chart of bolting data can be configured to show Torque vs Bolt or Pressure vs Bolt. Tap the key on the top right corner of the chart to change the display. How it is displayed on the screen is how it is displayed on your report.



The Traceability Information is presented for the job as it is configured in Traceability database. Each time the Operator enters the Torque Assembly job on the handheld, the information is collected and displayed.

To create a report of the Torque Assembly, simply tap **REPORT** on the screen to create a pdf file. This file contains all of the Assembly Job Detail, Traceability Information, Bolting Data, Charts and Images in one electronic file that can easily be sent or printed.

3. The Assembly Job Detail is presented as configured during the Assembly Job set up. In the Expert mode, a minimum of job details is required in order to expedite the job creation. Therefore, there are fields in the Assembly Job Detail that are left blank. Conversely, Flange mode and Guided mode for job creation captures the complete set of job details and all fields are populated.

Assembly Job Detail

ID	Operator	Status	Started	Ended	Pressure (bar)	Torque (Nm)
545	Scott	Completed	7/12/2016, 3:38:45 PM UTC+0100	7/12/2016, 4:40:54 PM UTC+0100	263	1,630

Bolting Info

Bolts	Bolt Dia. (mm)	Thread Pitch (mm)	Lubricant	Lubricant Coeff.	Bolt Material	Min. Yield (MPa)	Wrench	% Yield	Bolt Tension (N)
50	30	3.5	MolyKote G Rapid Plus	0.10	10.9	940	MXT 3	74.57	292,950

Passes

Passes	Tool Calibration Date	Sequence Type
1		Circle

Location Info

Latitude	Longitude
53.14323966666666	0.2336265000000002

Bolt Data Points

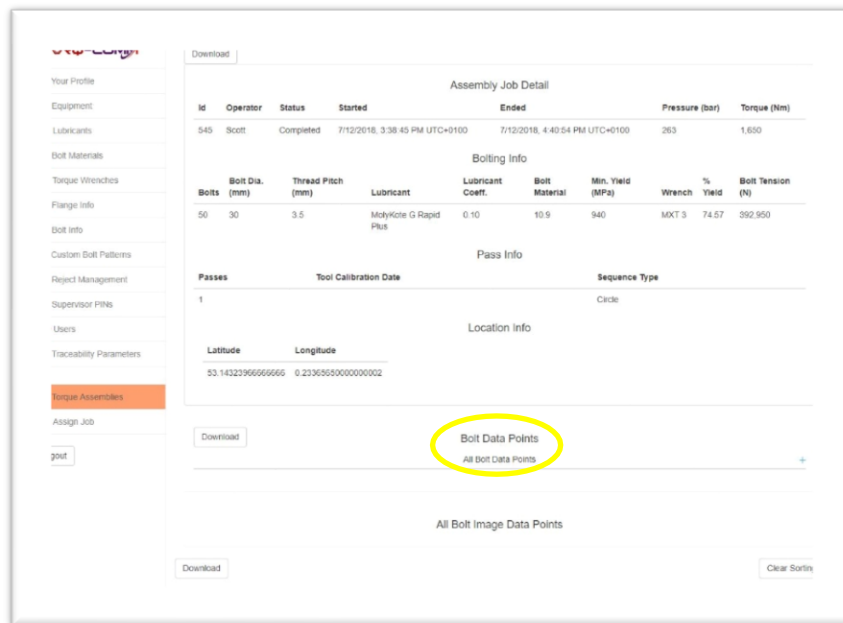
All Bolt Data Points

All Bolt Image Data Points

The Latitude and Longitude for a particular Assembly Job may not be displayed if the work is being performed inside a building or at a site with no cellular connection. In these cases, no satellite can be acquired to provide coordinates.

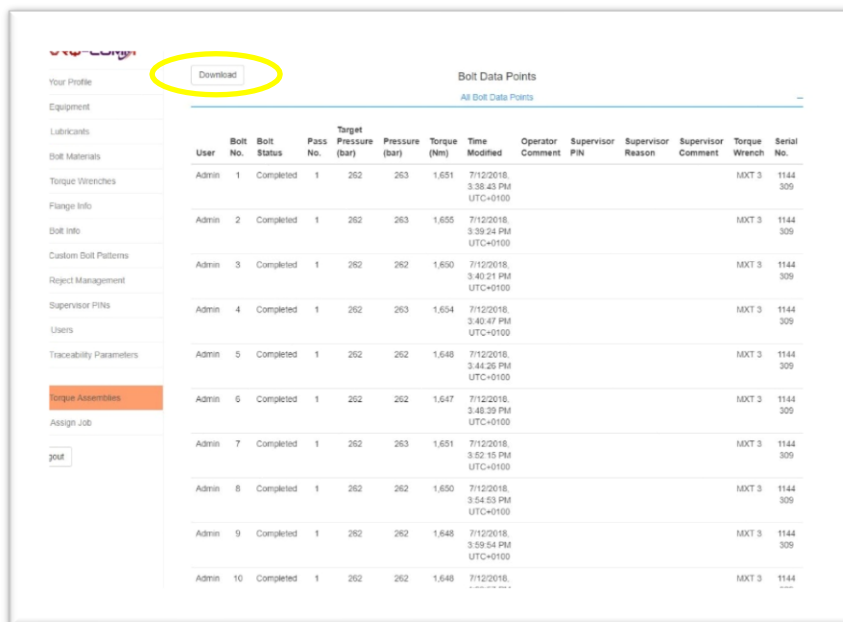
The Assembly Job Detail can easily be exported in a csv file by tapping **DOWNLOAD**. This file can be open and sorted in Excel program.

4. Tapping on **Bolt Data Points** will present all of the bolting information acquired.



The Bolt Data Points lists the bolting information for each bolt in each pass.

Included in the data is the Target Pressure, the actual Pressure, the resulting Torque produced at that pressure using the particular Torque Wrench.



The Bolt Data Points can easily be exported in a csv file by tapping **DOWNLOAD**. This file can be open and sorted in Excel program.

5. Tapping on **Bolt Image Data Points** will present all of the pictures taken during the Torque Assembly.

The screenshot shows the 'Torque Assemblies' section of the web interface. The left sidebar contains a navigation menu with options like 'Your Profile', 'Equipment', 'Lubricants', 'Bolt Materials', 'Torque Wrenches', 'Flange Info', 'Bolt Info', 'Custom Bolt Patterns', 'Reject Management', 'Supervisor PINs', 'Users', 'Traceability Parameters', 'Torque Assemblies' (highlighted), and 'Assign Job'. The main content area displays 'Assembly Job Detail' for a specific job. It includes a table with columns: Id, Operator, Status, Started, Ended, Pressure (bar), and Torque (Nm). Below this, there are sections for 'Bolting Info' (Bolts, Bolt Dia., Thread Pitch, Lubricant, Lubricant Coeff., Bolt Material, Min. Yield, Wrench, % Yield, Bolt Tension) and 'Pass Info' (Passes, Tool Calibration Date, Sequence Type). The 'Location Info' section shows Latitude and Longitude. At the bottom, there are links for 'Download', 'Bolt Data Points', and 'All Bolt Image Data Points' (highlighted with a yellow circle). A 'Clear Sorting' button is also present.

Each high-resolution picture is associated with a particular bolt for a particular pass. The date and time stamp provide additional detail regarding the image. The images and information are included in the report.

The screenshot shows the 'All Bolt Image Data Points' section of the web interface. The left sidebar is the same as in the previous screenshot. The main content area displays a table with columns: Bolt Image Data Point Id, User Id, Bolt No., Image Taken Date/Time, and Image. The table contains one row of data. To the right of the table, a large image shows a close-up of a bolt being torqued by a wrench. The image is labeled 'Image'.

Bolt Image Data Point Id	User Id	Bolt No.	Image Taken Date/Time	Image
52	1	8	3/8/2017, 12:05:58 PM UTC-0600	

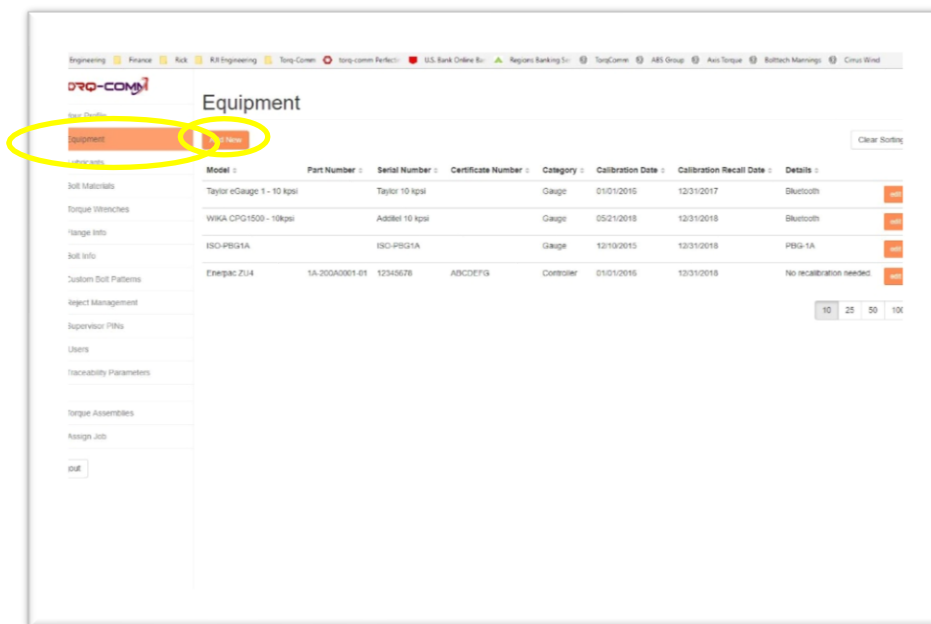
POPULATING the DATABASES

The databases contain all of the information necessary to complete your Torque Assemblies from equipment to materials to personnel. And they are completely customizable to your procedures and methods. Not the other way around!

EQUIPMENT

The Equipment database contains information on all of your equipment other than Torque Wrenches. There is a separate database for those.

Equipment such as pressure gauges, calipers, leak detectors, etc. can be listed and their calibration cycles tracked. Virtually any piece of equipment can be listed.



1. To add an additional piece of equipment, tap **ADD NEW**.

Equipment

Model: * Part Number: Serial Number: Certificate Number: * Category: Calibration Date: Calibration Recall Date: Details: **ADD** **CLOSE**

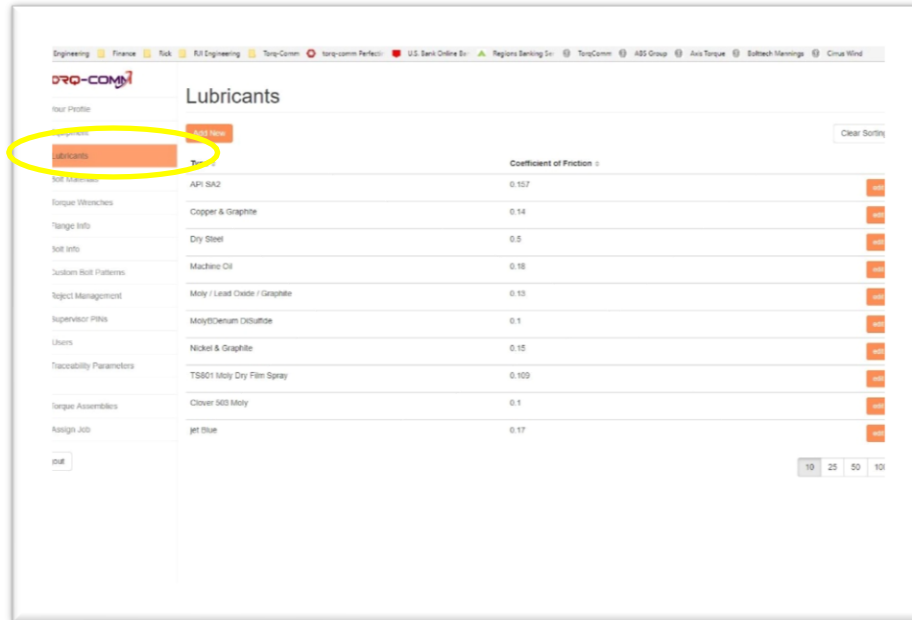
Model	Part Number	Serial Number	Certificate Number	Category	Calibration Date	Calibration Recall Date	Details
Taylor eGauge 1-10 kpsi		Taylor 10 kpsi		Gauge	01/01/2016	12/01/2017	Bluetooth EDIT
WKA CPQ1500-10kpsi		Additel 10 kpsi		Gauge	05/21/2016	12/01/2018	Bluetooth EDIT
ISO-PDG1A		ISO-PDG1A		Gauge	12/10/2015	12/01/2018	PDG-1A EDIT
Energac Z34	1A-2004001-01	12345678	ABCDEF0	Controller	01/01/2016	12/01/2018	No recalibration needed. EDIT

10 25 60 100

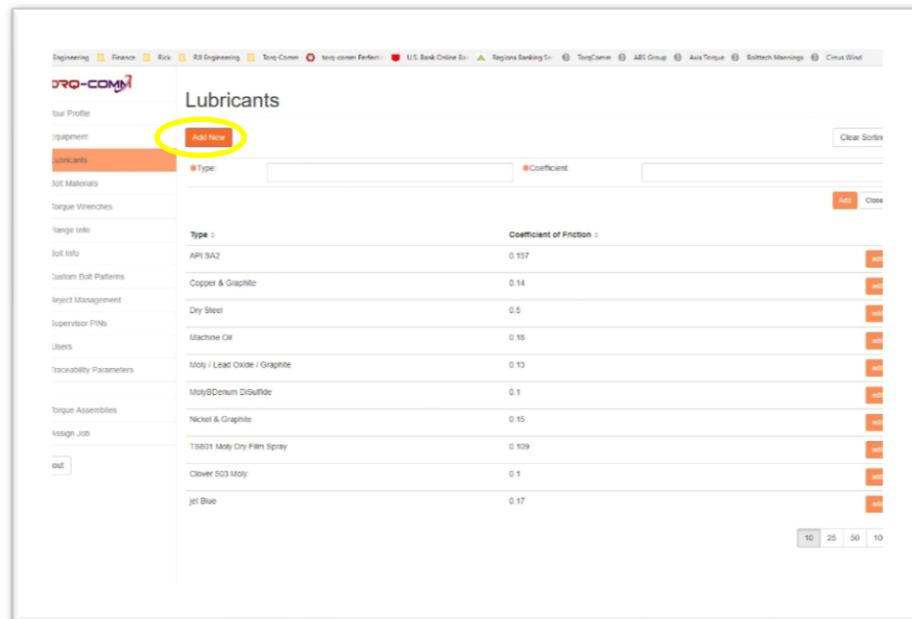
2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

LUBRICANTS

You can add any lubricant that your team commonly uses if you know the coefficient of friction as published by the manufacturer. Other material coefficients of friction, such as dry steel on dry steel, can be obtained in engineering handbooks and inputted for use.



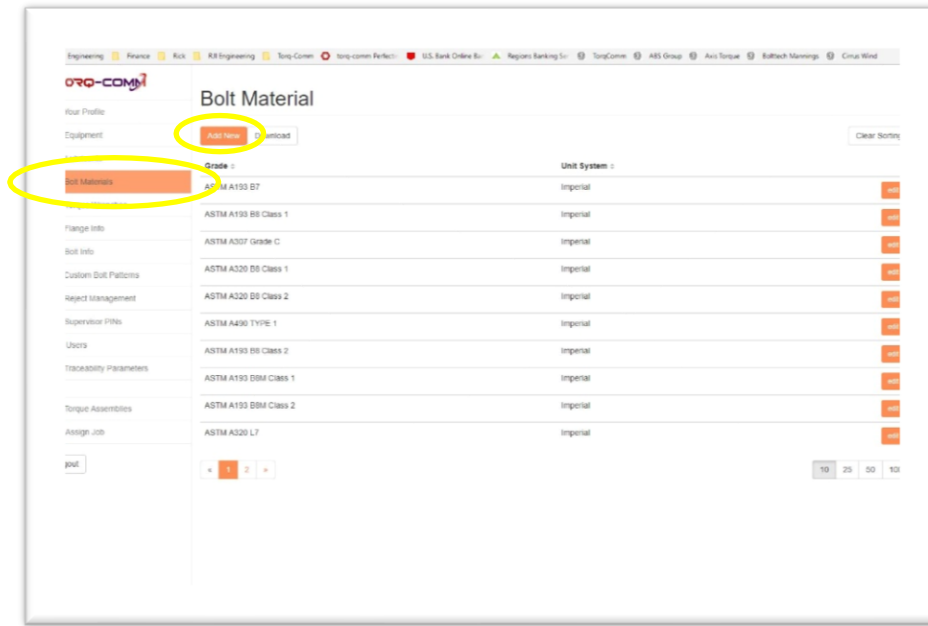
1. To add an additional piece of equipment, tap **ADD NEW**.



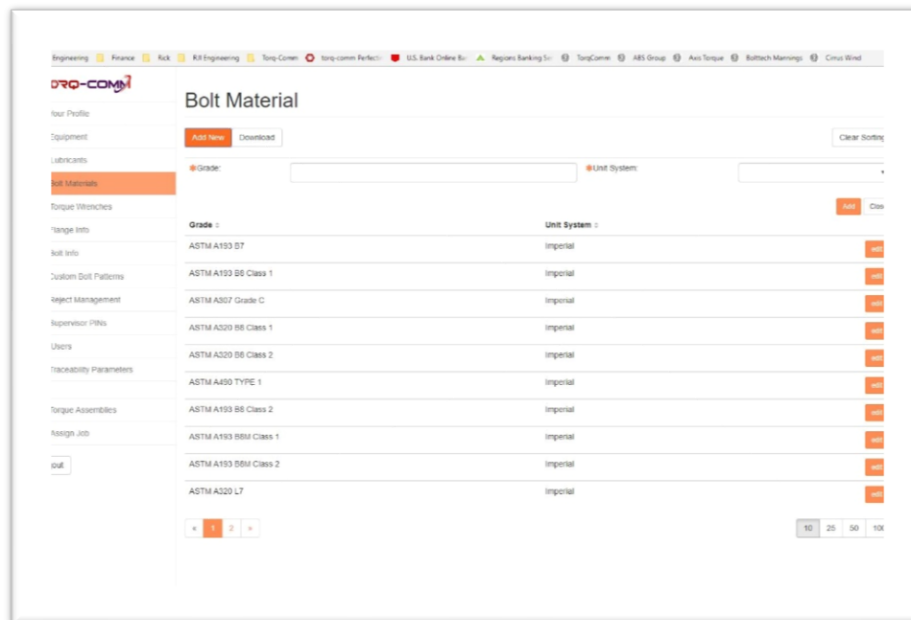
2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

BOLT MATERIALS

Any material specification, whether it is ASME, DIN, JIS, ISO or others, can be added to the database whether it is Imperial or Metric units. Only the Minimum Yield Strength is needed.



1. To add an additional piece of equipment, tap **ADD NEW**.



2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

The screenshot shows the 'Bolt Material' entry screen. At the top, there's a navigation bar with various icons. Below it, the 'Bolt Material' title is displayed. The main area contains a table with the following columns: 'Lower Bolt Diameter (in)', 'Upper Bolt Diameter (in)', and 'Minimum Yield Strength (psi)'. The table has three rows of data. To the right of the table, there are buttons for 'ADD NEW', 'EDIT', and 'DELETE'. The 'ADD NEW' button is highlighted with a yellow circle. Below the table, there are additional fields for 'Grade' and 'Unit System'.

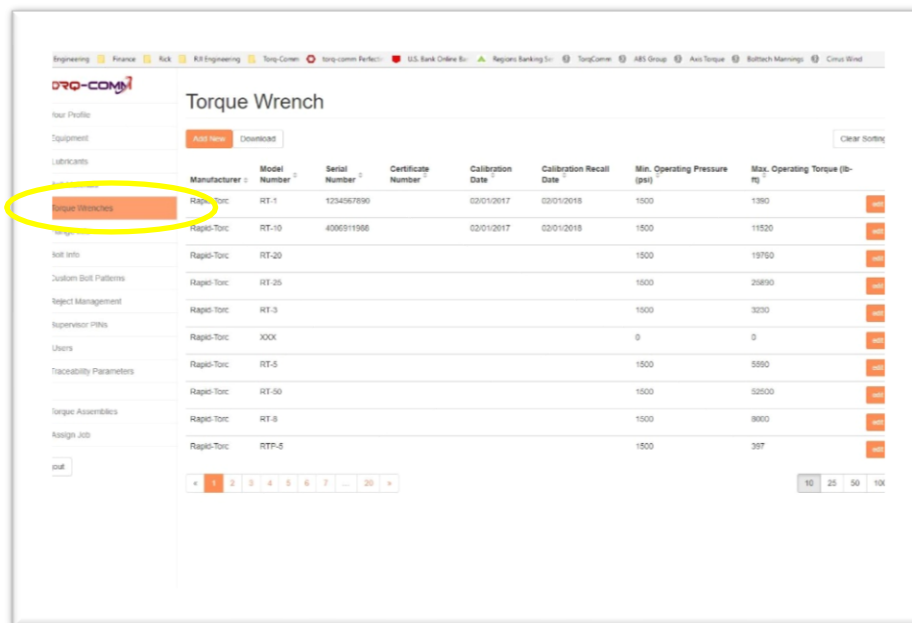
Lower Bolt Diameter (in)	Upper Bolt Diameter (in)	Minimum Yield Strength (psi)
0	2.5	105000
2.625	4	55000
4.125	7	75000

5. Some materials have a different Minimum Yield Strength depending on the bolt diameter. In these cases, tap **ADD NEW** to the entry field to add another set of data as shown above.

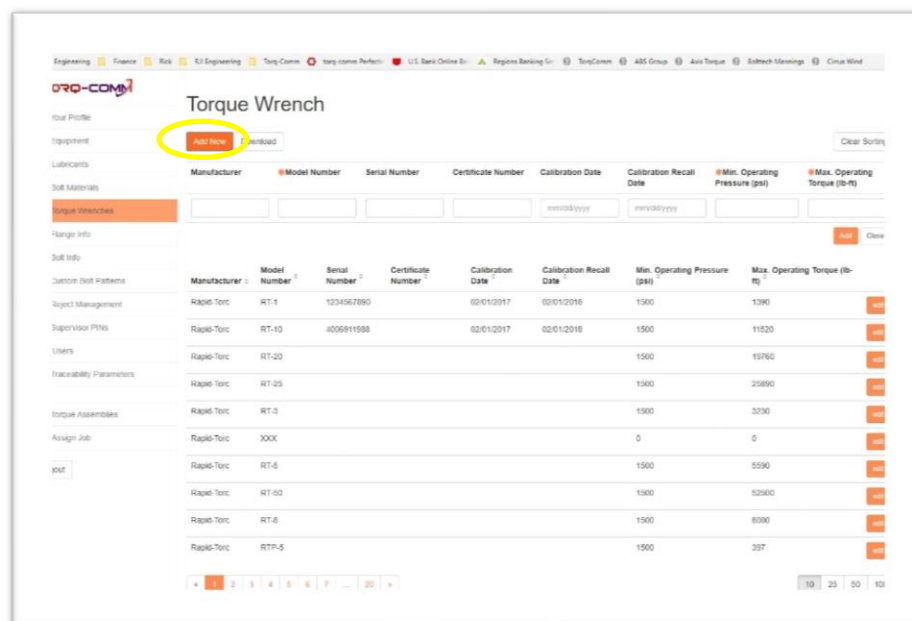
TORQUE WRENCHES

You can build your database to include every Torque Wrench in your tool crib and track them by serial number if you wish.

Each Torque Wrench's Pressure vs Torque profile information can be added to the database. You can use the Manufacturer's default profile or a wrench specific profile from its latest calibration testing.



1. To add an additional piece of equipment, tap **ADD NEW**.



2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

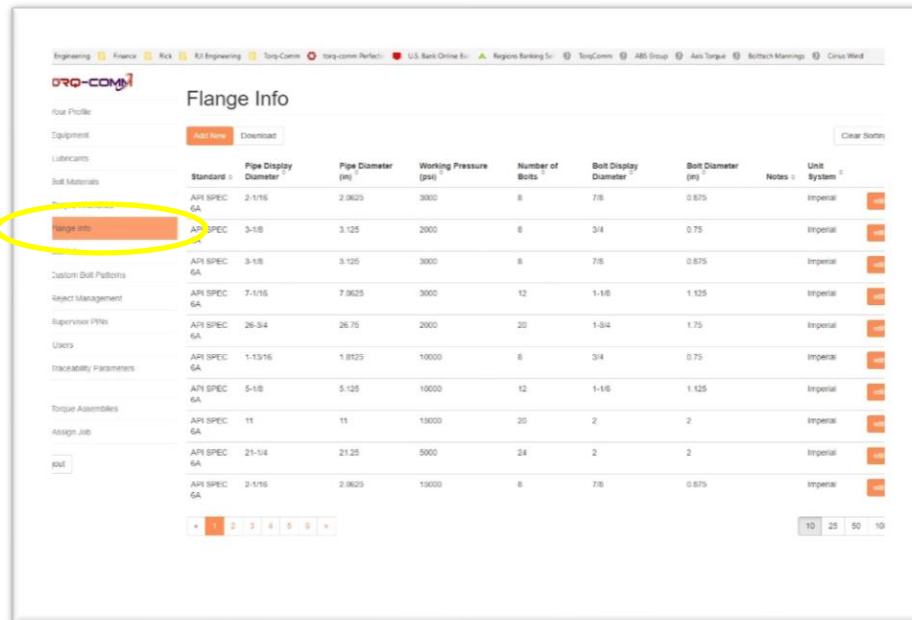
The screenshot shows the 'Torque Wrench' application interface. At the top, there's a navigation bar with various icons. Below it, a sidebar lists different categories like 'Four Profile', 'Equipment', 'Lubricants', 'Bolt Materials', 'Torque Wrenches', 'Range Info', 'Bolt Info', 'Custom Bolt Patterns', 'Project Management', 'Supervisor Profile', 'Users', 'Traceability Parameters', 'Torque Assemblies', and 'Assign Job'. The main content area is titled 'Torque Wrench' and contains a form for entering wrench details. The form includes fields for Manufacturer, Model Number, Serial Number, Certificate Number, Calibration Date, Calibration Recall Date, Min. Operating Pressure (psi), and Max. Operating Torque (lb-ft). Below the form is a table titled 'Torque to Pressure Conversions' with columns for Pressure (psi) and Torque (lb-ft). The table contains 10 rows of data. At the bottom right of the table, there is a yellow circle highlighting the 'ADD NEW' button. Below the table, there are buttons for 'Add New' and 'Download', and a pagination control showing '10', '25', '50', '100' and a 'Clear Sorting' button.

Pressure (psi)	Torque (lb-ft)	
1000	352	edit
2000	729	edit
3000	1129	edit
4000	1533	edit
5000	1928	edit
6000	2342	edit
7000	2729	edit
8000	3123	edit
9000	3506	edit
10000	3879	edit

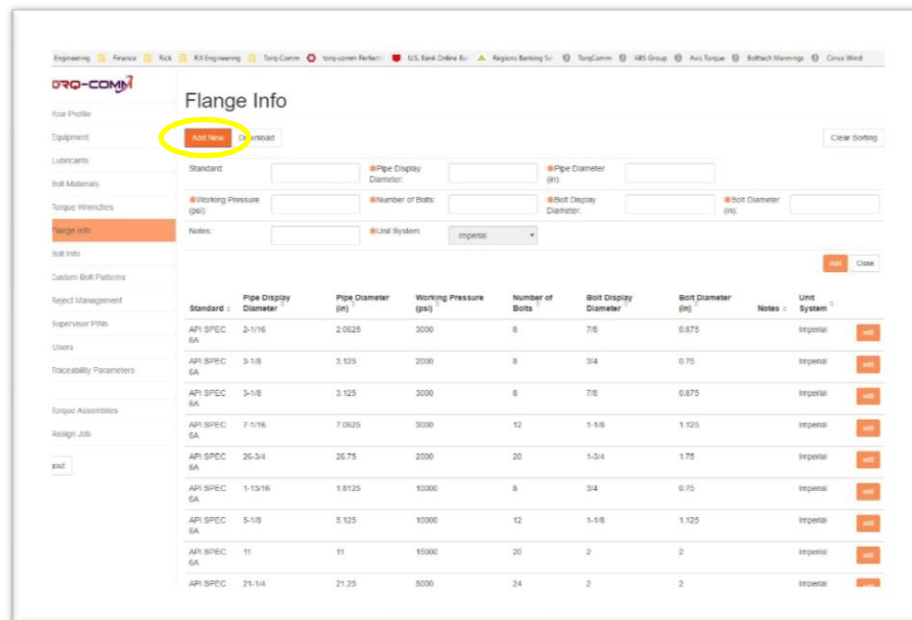
5. Continue to add profile information by adding Pressure vs Torque information for that particular wrench. Tap **ADD NEW** to provide another entry line to complete the table.

FLANGE INFO

The Flange Info database contains information on industry standard or custom circular flanges. It can be populated with Imperial or metric flanges.



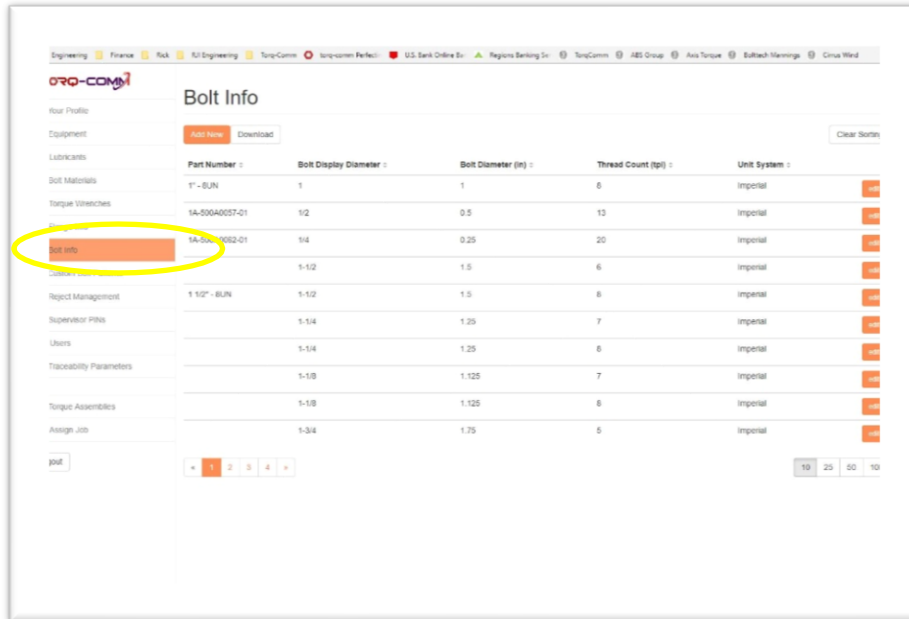
1. To add an additional piece of equipment, tap **ADD NEW**.



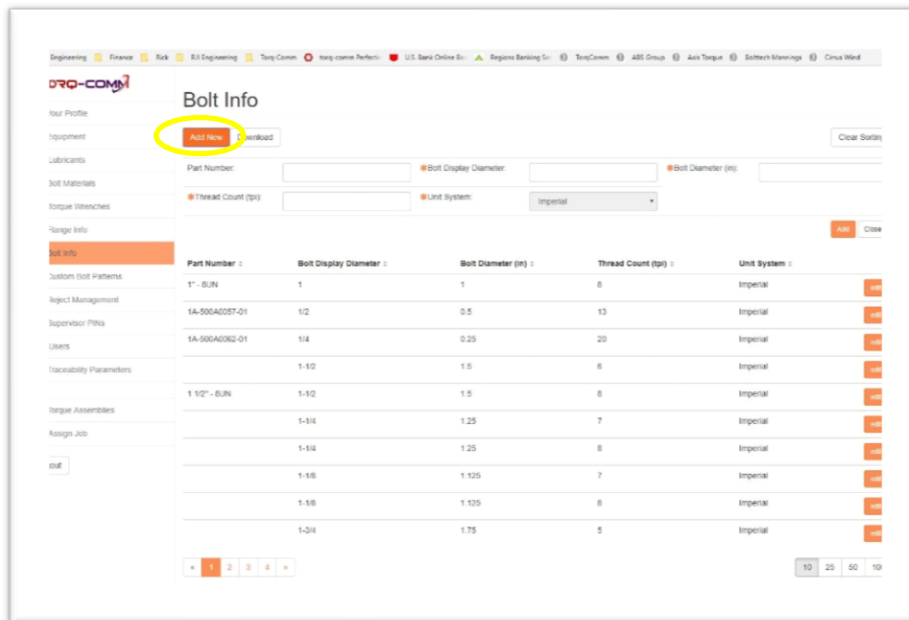
2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

BOLT INFO

The Bolt Info database contains information on industry standard or custom bolts or studs. It can be populated with Imperial or metric flanges.



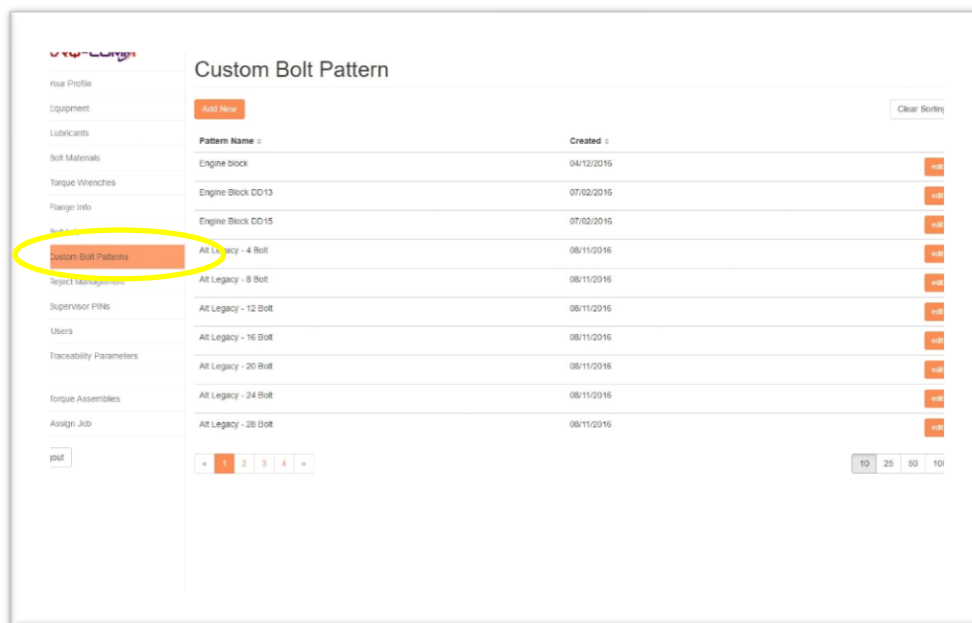
1. To add an additional piece of equipment, tap **ADD NEW**.



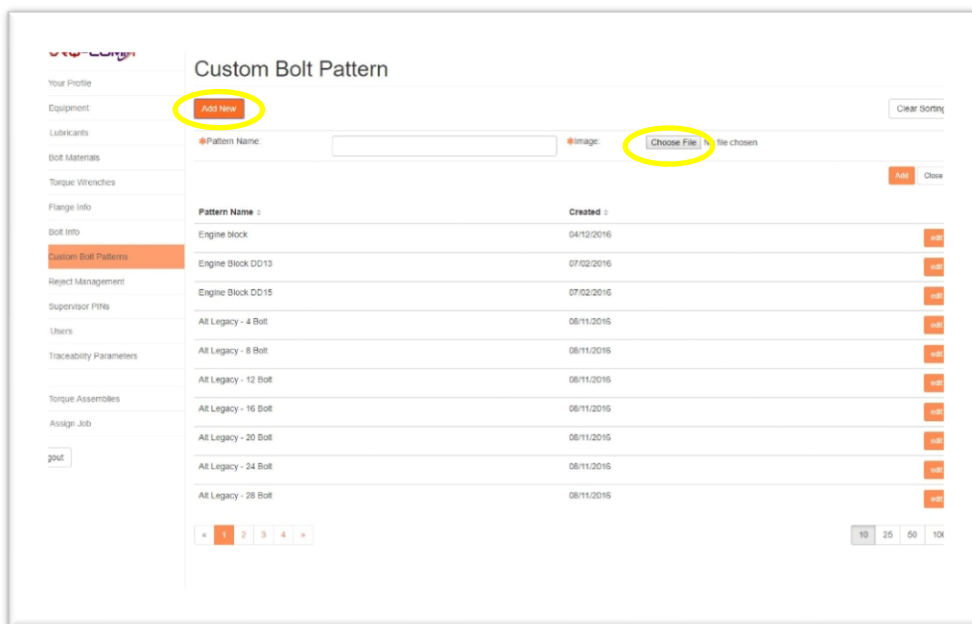
2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

CUSTOM BOLT PATTERNS

The COMMANDER XT1000 and XT2000 are not limited to circular flanges. Any bolting pattern you can image can be accommodated if you can simply supply an image file. The jpeg can be from a picture or a CAD file.

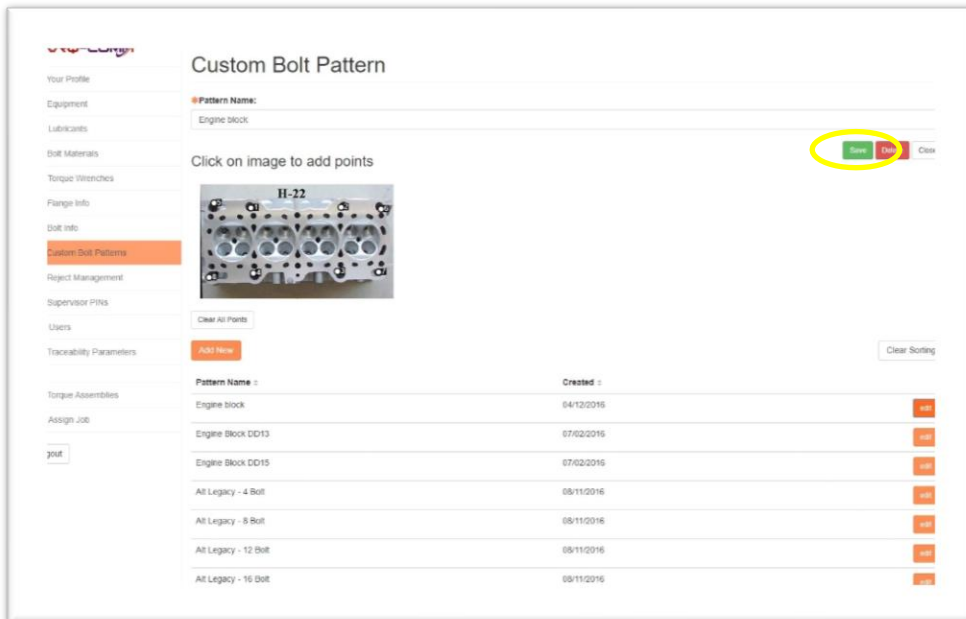
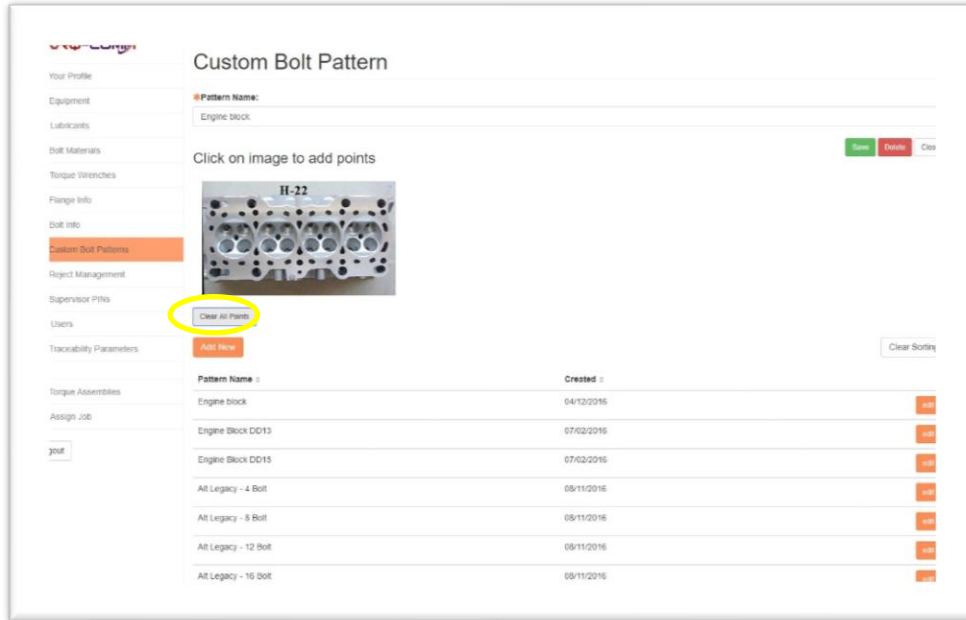


1. To add an additional piece of equipment, tap **ADD NEW**.



2. Tap **CHOOSE FILE** to search your computer for the correct jpeg file.

3. Assign the bolting sequence as designed by simply tapping on the right location on the image. A bolt sequence number will appear on the image. Continue to identify and assign the bolting sequence until completed.
4. At any time, you can tap **CLEAR ALL POINTS** to remove the bolt sequence numbers from the image and start again.

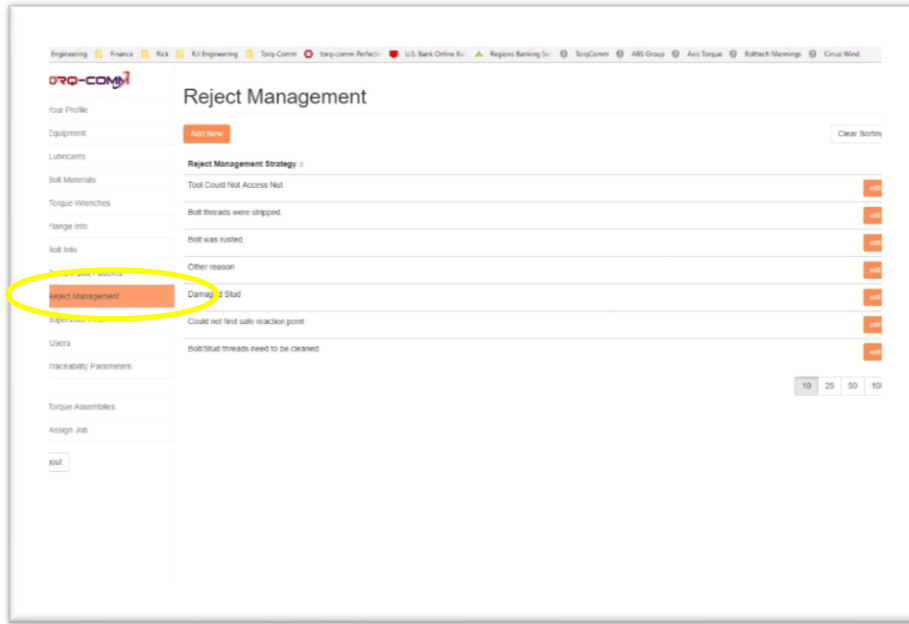


5. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.

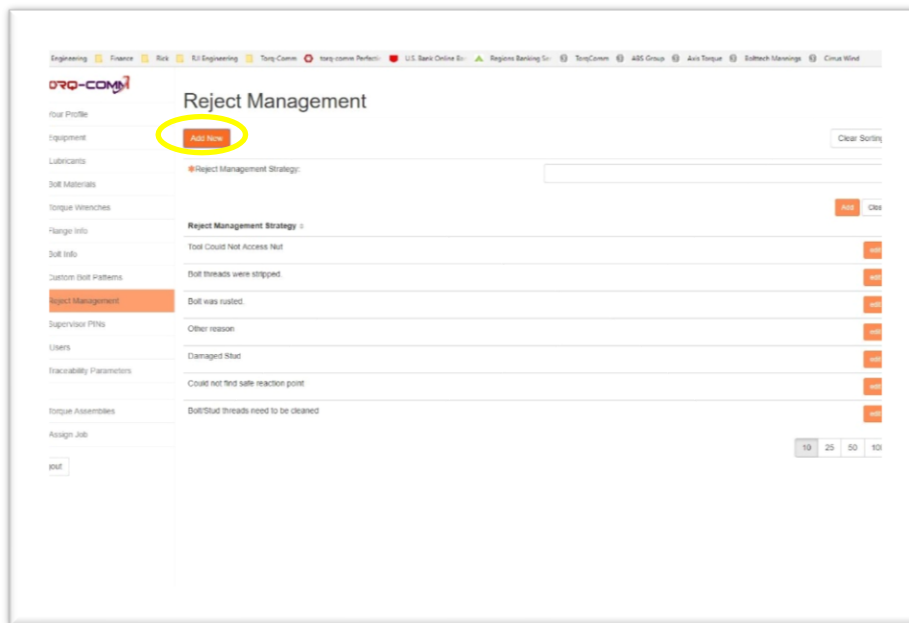
6. Tap **SAVE** to complete the entry or **CLOSE** to cancel the entry.
7. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.
8. The picture of the Custom Bolting Sequence will be displayed on the handheld. The COMMANDER will guide the operator through the bolting sequence.

REJECT MANAGEMENT

The Reject Management database contains standard statements regarding skipped bolts or quality issues associated with a Torque Assembly. The Operator may choose one of these statements in a drop down menu or type in their own on the Commander.



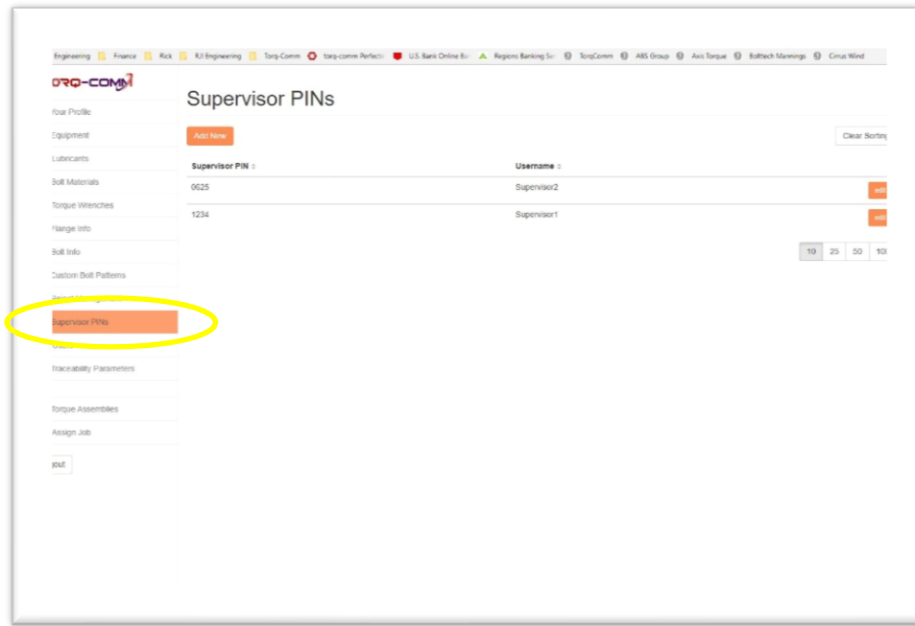
1. To add an additional piece of equipment, tap **ADD NEW**.



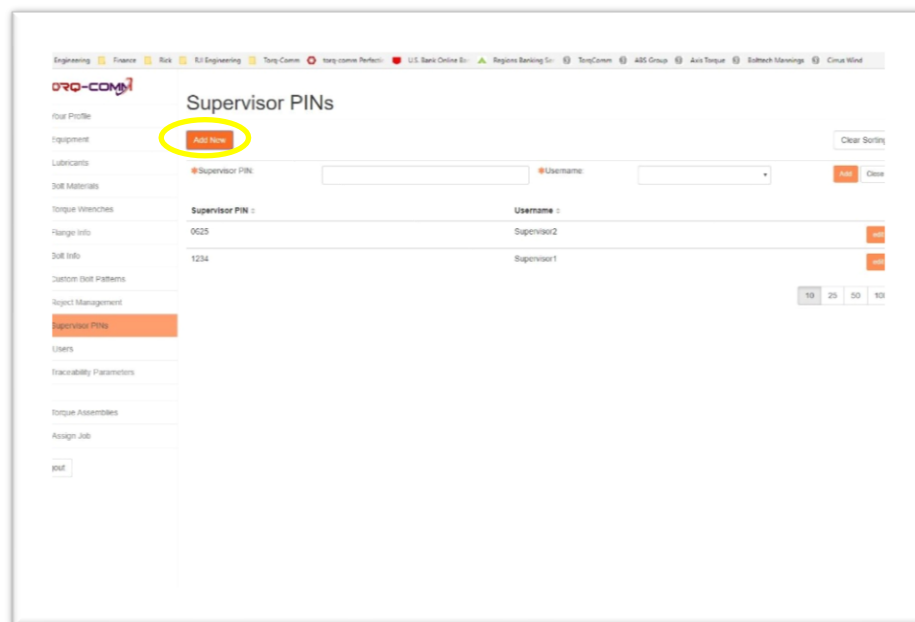
2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

SUPERVISOR PINs

The Supervisor PIN is their signature in the field. It indicates that an deviation is being made during a Torque Assembly, such as skipping a bolt or TorqTag, and who specifically is making the decision. It is noted in the report.



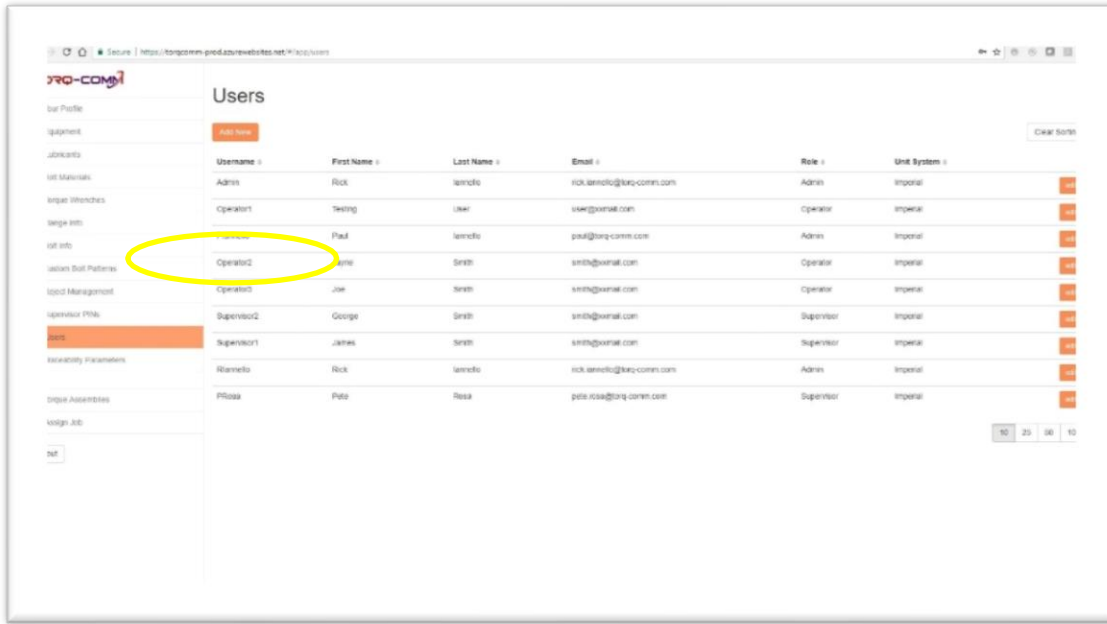
1. To add an additional piece of equipment, tap **ADD NEW**.



2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

USERS

The User database contains the list of individuals who are allowed to log into the Commander Cloud or onto the Commander handheld. It also lists each one's role and therefore their permissions.



Username	First Name	Last Name	Email	Role	Unit System
Admin	Rick	Sanicola	rick.sanicola@key.com	Admin	Imperial
operator1	Terrell	Law	user@key.com	Operator	Imperial
Operator	Paul	Sanicola	paul@key.com	Admin	Imperial
Operator2	Terrell	Smith	smith@key.com	Operator	Imperial
operator3	Joe	Smith	smith@key.com	Operator	Imperial
Supervisor2	George	Smith	smith@key.com	Supervisor	Imperial
Supervisor1	James	Smith	smith@key.com	Supervisor	Imperial
Blamello	Rick	Sanicola	rick.sanicola@key.com	Admin	Imperial
Phosa	Pete	Rosa	pete.rosa@key.com	Supervisor	Imperial

Roles of the Users listed in the database:

Admin - This is the system administrator for the Cloud and each Commander handheld. Only one user should be given this authority. The Admin can do everything on the system except manipulate the data. No one can alter the data once it has been collected by the Commander.

Supervisor - The Supervisor can do everything the Admin can except adding additional Users or assigning Supervisor PINs on the Cloud or change the WEB API Address on the handheld. They can add or modify anything in the Cloud data bases and create assembly jobs on the Cloud or handheld, pair and manage devices on the Commander and accept out of tolerance torque data with their unique PIN.

Operator - On the Cloud, the Operator can only view Torque Assemblies and print out reports. They will not even see the databases listed on the side of the Cloud. On the Commander, they can Retrieve Jobs and Go to Assemblies in order to complete the assembly jobs. They can Manage Devices in case they have to change pumps and gauges for a particular job. This way they can communicate with the gauge. However, they cannot Pair Devices. Also, they cannot create a new job on the Commander. Their privileges are limited to just those necessary to complete an assembly job on their own. If an out of tolerance situation occurs, a Supervisor will have to be called for their approval and PIN.

1. To add an additional piece of equipment, tap **ADD NEW**.

The screenshot shows the 'Users' management page. On the left sidebar, the 'Add' button is highlighted in orange. The main form has the following fields:

- Username ***: Text input field
- First Name ***: Text input field
- Last Name ***: Text input field
- Email ***: Text input field
- Password ***: Text input field
- Confirm Password ***: Text input field
- Role ***: Dropdown menu
- Unit System ***: Dropdown menu

Below the form is a table of existing users:

Username	First Name	Last Name	Email	Role	Unit System
Admin	Rick	Sanabria	rick.sanabria@trng.com	Admin	Importal
Operator1	Testing	Oliver	woi@gmail.com	Operator	Importal
Operator2	Paul	Sanabria	paul@trng.com	Admin	Importal
Operator3	Jayne	Smith	smith@gmail.com	Operator	Importal
Supervisor1	Joe	Smith	smith@gmail.com	Operator	Importal
Supervisor2	George	Smith	smith@gmail.com	Supervisor	Importal
Supervisor3	James	Smith	smith@gmail.com	Supervisor	Importal
Admin2	Rick	Sanabria	rick.sanabria@trng.com	Admin	Importal
Flow	Pete	Flow	pete.flow@trng.com	Supervisor	Importal

2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.

TRACEABILITY PARAMETERS

Traceability Parameters are the unique details of a Torque Assembly that should be collected to allow an assembly to be repeated. The User can collect as many parameters that they wish.

The screenshot shows the 'Traceability Parameters' screen in the DRG-COMM application. The left sidebar contains a menu with options like 'Equipment', 'Lubricants', 'Torque Materials', etc. The 'Add New' button is highlighted with a yellow circle. The main area displays a table of parameters with columns: Label, Control Type, Values, Is Required, and Operator Edit.

Label	Control Type	Values	Is Required	Operator Edit
Supervisor	ComboBox	Supervisor1, Supervisor2, Supervisor3	✓	✗
Operator	ComboBox	Operator1, Operator2, Operator3	✓	✗
Job Number	TextBox		✓	✗
Location	TextBox		✓	✗
Tag No	NumericTextBox		✓	✗
Flange No	NumericTextBox		✓	✗
Wellhead	NumericTextBox		✓	✗

1. To add an additional piece of equipment, tap **ADD NEW**.

The screenshot shows the 'Add New' form for Traceability Parameters. The 'Add New' button is highlighted with a yellow circle. The form includes fields for 'Label', 'Control Type', 'Values', 'Is Required' (checkbox), and 'Operator Edit' (checkbox). The 'Is Required' and 'Operator Edit' checkboxes are also highlighted with yellow circles.

2. Fill in the boxes with the appropriate information. The boxes marked with a * are required to complete the entry. Other boxes are optional.

The Control Type describes the method of data entry on the Commander handheld.

ComboBox – Allows the Operator to select from a list of options listed in Value. This entry option reduces the amount of typing need in the field. ComboBox values are separated by a comma (,).

DatePicker – Allows the Operator to select a date from a calendar.

NumericTextBox – Allows the Operator to type only numeric values. A barcode can be scanned to input the data thus eliminating any typing in the field reducing time and the potential for error.

TextBox - Allows the Operator to type alpha-numeric values. A barcode can be scanned to input the data thus eliminating any typing in the field reducing time and the potential for error. There are additional options for the Traceability Information.

Is Required – By checking this box, the Operator must input a value on the Traceability field before proceeding with the Torque Assembly. The system will not allow them to proceed without an input.

Operator Edit – By checking this box, the Operator can input data other than listed in a drop down menu by typing in the box.

Traceability Parameters

Label: Control Type:
 Values:
 Is Required: ☐ Operator Edit: ☒

ADD **EDIT** **CLOSE** **Clear Sort**

Label	Control Type	Values	Is Required	Operator Edit
Supervisor	ComboBox	Supervisor1, Supervisor2, Supervisor3	✓	ADD
Operator	ComboBox	Operator1, Operator2, Operator3	✓	ADD
Job Number	TextBox		✓	ADD
Location	TextBox		✓	ADD
Tag No	NumericTextBox		✓	ADD
Flange No	NumericTextBox		✓	ADD
Weldhead	NumericTextBox		✓	ADD

10 25 50 100

3. Tap **ADD** to complete the entry or **CLOSE** to cancel the entry.
4. You can update or change the information of any existing entry by tapping **EDIT** on the appropriate line.
5. There are four key Traceability Parameters that must be included and in the following format to ensure proper operation.

Supervisor **Combo**

Operator **Combo**

Location **Text**

Job Number **Text**

CREATING JOBS ON THE CLOUD

You can create torqueing jobs on the COMMANDER CLOUD just as you can on the COMMANDER XT1000/XT2000. Step by step, each of the three methods is exactly the same using the same database of equipment and materials.

Torque Assemblies

Download Clear Sorting

ID	Operator	Job Status	DateTime Started	DateTime Ended	Torque (lb-ft)	Pressure (psi)	
100	Jeff	Completed	4/14/2016, 1:39:21 AM UTC+0000	4/14/2016, 1:44:48 AM UTC+0000	2,500	1,265	Delete
99	Jeff	Completed	4/5/2016, 12:45:17 AM UTC+0000	4/5/2016, 12:51:42 AM UTC+0000	5,500	45,899	Delete
100	Jeff	Completed	4/14/2016, 1:30:15 AM UTC+0000	4/14/2016, 1:57:58 AM UTC+0000	1,250	483	Delete
94	Jeff	Completed	4/4/2016, 4:59:31 PM UTC+0000	4/4/2016, 5:05:12 PM UTC+0000	1,687	854	Delete
104	Dallas Jordan	Completed	5/14/2016, 10:38:10 PM UTC+0000	5/14/2016, 10:47:19 PM UTC+0000	330	2,538	Delete
146	Jordan	Completed	5/14/2016, 10:22:09 AM UTC+0000	5/14/2016, 11:56:25 AM UTC+0000	496	3,043	Delete
105	Dallas Jordan	Completed	5/14/2016, 10:51:29 PM UTC+0000	5/14/2016, 10:56:06 PM UTC+0000	330	2,538	Delete
106	Dallas Jordan	Completed	5/14/2016, 10:59:31 PM UTC+0000	5/14/2016, 11:06:46 PM UTC+0000	330	2,538	Delete
107	Dallas Jordan	Completed	5/14/2016, 11:29:09 PM UTC+0000	5/14/2016, 11:42:04 PM UTC+0000	1,430	8,773	Delete
108	Dallas Jordan	Completed	5/14/2016, 11:48:11 PM UTC+0000	5/14/2016, 11:54:20 PM UTC+0000	737	4,521	Delete

10 25 50 100

1. From the Home screen, tap **ASSIGN JOB**

Assign Job

TRACEABILITY INFORMATION ASSEMBLY INFORMATION JOB CONFIRMATION

Traceability Information

Job Number:

Supervisor:

Assembly Type:

Assembly Information

Location:

Operator:

Job Confirmation

Sequence Type:

2. Enter the Torque Assembly Job information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
3. The Supervisor and Operator drop downs are populated by the User database.

TORQUE ASSEMBLY MODES

There are three Assembly Modes to create a Torque Assembly. All three will take the User to the same conclusion by requiring different input based on the application. They are all based on PCC-1 2013 guidelines.

Expert Mode - is for the service provider who is given a complete specification for a torque assembly job from their customer.

They are told the number of bolts and the final torque to be applied. The service provider's only input is what wrench they use based on their inventory. The Commander then determines the required pressure to reach the necessary torque for each pass.

It is the fastest way to enter a job. Just three questions (# of bolts, # of passes and final pressure) and one input (wrench) will give you the required final pressure.

Flange Mode - is used when the pipe has a working fluid (liquid or gas) under pressure.

The first question is the pipe size / diameter. Based on the selection, the Commander defaults to the options for that pipe size based on the specifications entered in the database.

Once the pipe size selected, the pressure selection defaults to the pressures possible for that size pipe. Based on the pressure that is selected, the number and size of the bolts are default selections.

The next selections are based on the company's standard practices. The thread pitch of the bolts, bolt material and lubrication are what they typically use. Their databases are customized to their current practices. The Commander checks to make sure their standard practices are correct and within the range of the wrench and within an acceptable range of the yield strength.

Guided Mode - is similar to the Flange mode however it does not involve a working pressure. It can be applied to everything from a wind tower that is bolted together, a bridge or the engine block of a large earth moving tractor. Most of your custom Bolting patterns will be used with this mode.

SEQUENCE TYPES

The screenshot shows the 'Assign Job' web application. The left sidebar contains a list of navigation items: Your Profile, Equipment, Lubricants, Bolt Materials, Torque Wrenches, Flange Info, Bolt Info, Custom Bolt Patterns, Reject Management, Supervisor Pins, Users, Traceability Parameters, Torque Assemblies, and Assign Job (highlighted in orange). The main content area is titled 'Assign Job' and is divided into three tabs: TRACEABILITY INFORMATION, ASSEMBLY INFORMATION, and JOB CONFIRMATION. The TRACEABILITY INFORMATION tab is active and contains fields for Job Number, Supervisor, and Assembly Type. The ASSEMBLY INFORMATION tab is also visible and contains fields for Location, Operator, and Sequence Type. The Sequence Type dropdown menu is open, showing options: Circle, Star, and Custom. The 'Assign Job' button is highlighted in orange in the left sidebar.

Multiple bolting sequences are available.

Circle – As the name implies, the bolting pattern is for circular flange and proceeds in a clockwise direction.

Star – Is based on the Legacy bolting pattern described in PCC-1 2013. The Star sequence is defined as “cross-pattern bolt-tightening sequence and multi-round tightening are necessary to count the elastic interaction that occurs when tightening bolts”.

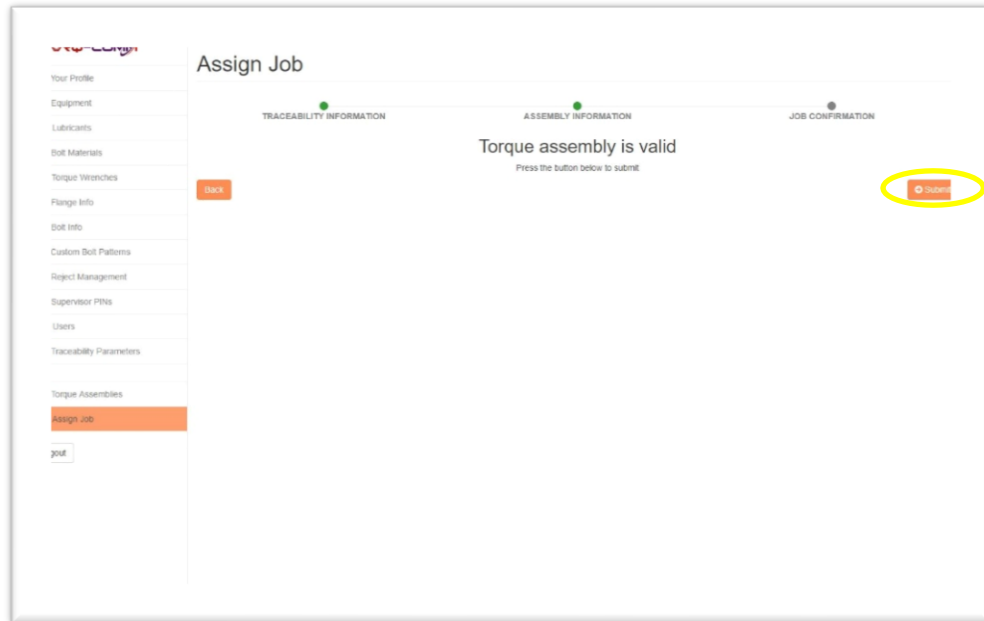
Custom – These are the patterns that are defined in the Custom Bolt Patterns database.

EXPERT ASSEMBLY MODE

The screenshot shows the 'Assign Job' screen in Expert Assembly mode. The interface is divided into three main sections: TRACEABILITY INFORMATION, ASSEMBLY INFORMATION, and JOB CONFIRMATION. The ASSEMBLY INFORMATION section contains several input fields: 'Number of Bolts' (with a red asterisk), 'Passes' (with a red asterisk), 'Torque Wrench' (with a red asterisk), 'Torque (lb-ft)' (with a red asterisk), and 'Pressure (psi)' (with a red asterisk). The 'Torque Wrench' field has a dropdown menu. The 'Torque Wrench Traceability' section has a checkbox for 'Require capture of serial number'. The 'Calculate' button is located below the 'Pressure (psi)' field. The 'Next' button is located at the bottom right of the screen and is highlighted with a yellow circle.

1. Enter the Torque Assembly Job information. The boxes marked with a * are required to complete the entry. Other boxes are optional.
2. The Supervisor and Operator drop downs are populated by the User database.
3. Enter the number of bolts, passes, torque wrench, sequence type and the required final torque. The drop-down menus can be accessed by tapping on each block.
4. Tap **CALCULATE** to determine the required final pressure.
5. Tap **NEXT**

The COMMANDER XT1000 will review the information for accuracy and present the bolting sequence based on the number of bolts and the sequence type. It will present Valid Sequence if correct.



6. Tap **NEXT** to complete the assignment. The Torque Assembly is now listed on the Cloud desktop and ready to be downloaded to the handheld.

FLANGE ASSEMBLY MODE

Assign Job

TRACEABILITY INFORMATION ASSEMBLY INFORMATION JOB CONFIRMATION

Flange Assembly Setup

Pipe Diameter (in) Working Pressure (psi)

Select Pipe Diameter (in) Select Working Pressure (psi)

Back Next

1. Tap the Pipe Diameter block to access the pull-down menu. Select the appropriate size.
2. Tap the Working Pressure block to access the appropriate pressure for that Pipe Diameter.

Assign Job

TRACEABILITY INFORMATION ASSEMBLY INFORMATION JOB CONFIRMATION

Flange Assembly Setup

Pipe Diameter (in) Working Pressure (psi)

11 3000

Number of Bolts Bolt Diameter (in)

16 1.375

Thread Count (tpi) Lubricant

Select Thread Count (tpi) Select Lubricant

Bolt Material Bolt Tension (lbs)

Choose Bolt Material Bolt Tension (lbs)

Torque Wrench Torque Wrench Traceability

Select Tool Require capture of serial number

Pressure (psi) Torque (lb-ft) Passes

Percent Yield Calculate

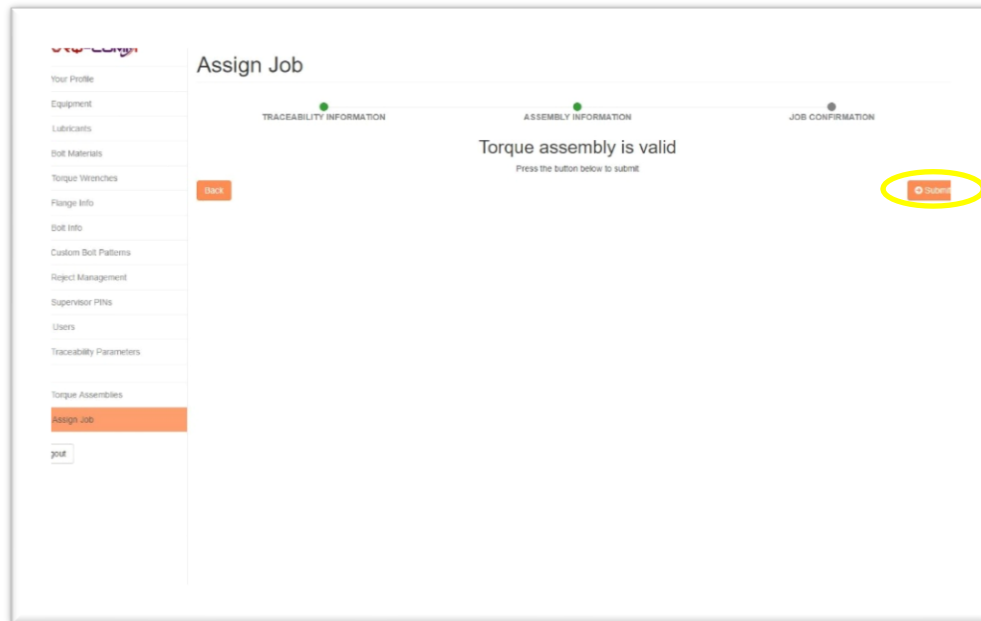
Bolt Order

1.5, 5, 13.3, 11.7, 15.2, 10.6, 14.4, 12.8, 16

Back Next

3. Tap **NEXT** to continue.
4. Enter the number of bolts, bolt diameter, thread pitch, lubricant. The drop-down menus can be accessed by tapping on each block.
5. Enter the bolt material, bolt tension, torque wrench, sequence type and number of passes. The drop-down menus can be accessed by tapping on each block
6. Tap **CALCULATE** to determine the required final pressure.
7. Tap **NEXT**

The COMMANDER XT1000 will review the information for accuracy and present the bolting sequence based on the number of bolts and the sequence type. It will present Valid Sequence if correct.

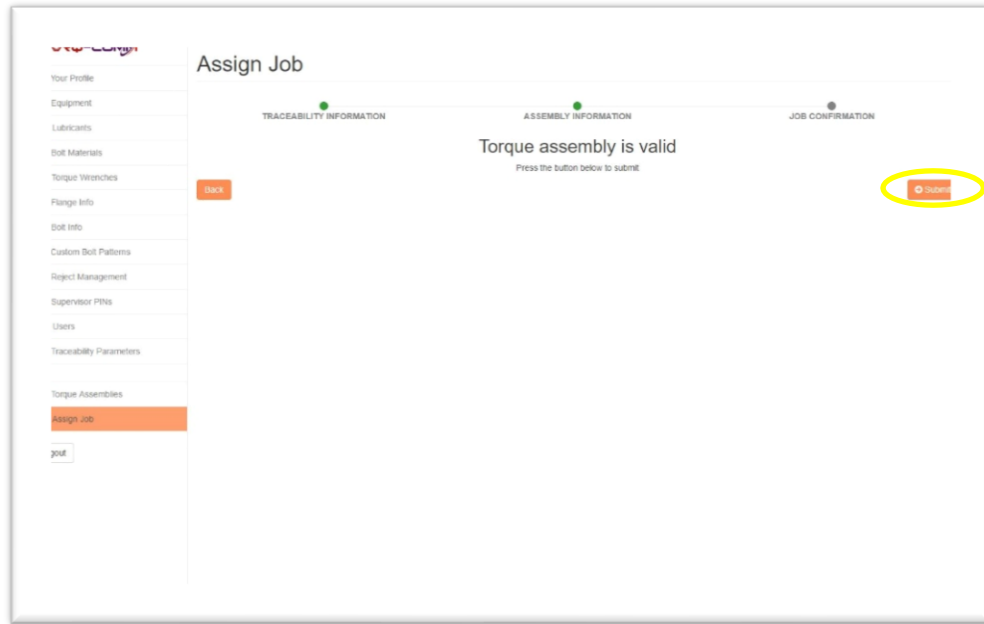


7. Tap **NEXT** to complete the assignment. The Torque Assembly is now listed on the Cloud desktop and ready to be downloaded to the Commander.

GUIDED ASSEMBLY MODE

1. Enter the number of bolts, bolt diameter, thread pitch, lubricant. The drop-down menus can be accessed by tapping on each block.
2. Enter the bolt material, bolt tension, torque wrench, sequence type and number of passes. The drop-down menus can be accessed by tapping on each block.
3. Tap **CALCULATE** to determine the required final pressure.
4. Tap **NEXT**

The COMMANDER XT1000 will review the information for accuracy and present the bolting sequence based on the number of bolts and the sequence type. It will present Valid Sequence if correct.



8. Tap **NEXT** to complete the assignment. The Torque Assembly is now listed on the Cloud desktop and ready to be downloaded to the Commander.

Assign Job

TRACEABILITY INFORMATION ASSEMBLY INFORMATION JOB CONFIRMATION

Torque assembly is valid
Press the button below to submit

[Back](#) [Submit](#)

Navigation Menu:

- Your Profile
- Equipment
- Lubricants
- Bolt Materials
- Torque Wrenches
- Flange Info
- Bolt Info
- Custom Bolt Patterns
- Reject Management
- Supervisor PINs
- Users
- Traceability Parameters
- Torque Assemblies
 - Assign Job**

[Logout](#)

ERROR MESSAGES

1. If the Percent Yield is above 60%, the system will warn you but allow you to proceed.

Tap **OK** to proceed.

2. After tapping OK to the Alert, the Authorization screen appears. A Supervisor must enter a pre-assigned four-digit PIN in order to accept the out of specification. After typing in the PIN, tap AUTHORIZE PIN.

Tap **CANCEL** to return to the input screens.

3. If the resulting pressure is below the minimum recommended by the wrench manufacturer, the system will present a warning message. However, tapping **OK** will allow you to proceed should you choose.

4. If the resulting torque is above the recommended torque by the wrench manufacturer, the system will present a warning message. It will not allow you to proceed.

Tapping **OK** will take you to the previous screen to adjust the values or tools