AllTorque Gen II ©

USER MANUAL

AllTorque Control Systems | Gen II | 2019

USER MANUAL

AllTorque Control Systems Inc.

Unit 108 – 239 Spruce Street

Red Deer County, Alberta

Canada, T4E 1B4

1-888-506-TORQ (8677) service@alltorque.ca

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Introduction

The AllTorque Gen II Torque Control System is a Computerized System that is built to handle the rig floor environment.

The AllTorque Gen II Torque Control System is reliable, accurate and easy to use, whether it being hardware setup for running a job or completing the job with the proper reports.

The Gen II Torque Control System can be updated remotely with an internet connection. This simplifies adding features and functions as they are developed. When connected to the internet, the job information and updates are then sync'd with the AllTorque Cloud Server. Regular syncing ensures the jobs are backed up and the computer itself is ready to go to work.

System Components

Components of the Gen II Torque Control System:

Computer

- o Windows 10 Tablet

Hardware

- o Control Box and Cables
- o Load Cells and Cables
- o Dump Valve and Cables
- o Proximity Sensors, Rotary Encoders and Cables

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Admin Features & Information

Installing AllTorque Software

- When installing the AllTorque Software, install steps are only needed on Computers that **DO NOT** come from AllTorque. All Computers that are sold by AllTorque come ready to use for the job.

- If needing to install the AllTorque Software go to the AllTorque website http://www.alltorque.ca and scroll near the bottom of the main page to find the link to download "Computer Torque Control Software", Diagram 1.0

Diagram 1.0
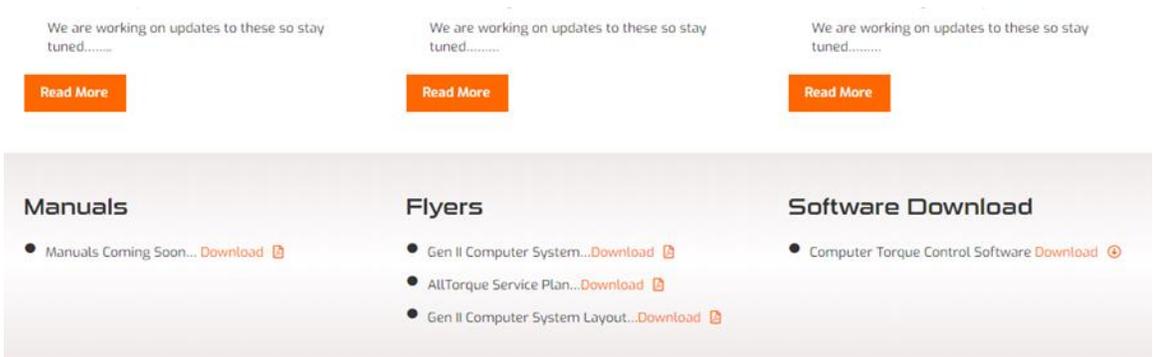
- Once the AllTorque Software is downloaded install the Software by double clicking the download file. (Find at the bottom of the web browser or in the downloads folder on your Computer, it will appear, next allow the program to make changes to the Computer when prompted, this is a standard Windows security measure.)

NOTE: This Software is for **WINDOWS** based Computers **ONLY**.

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Initial setup for server information is only needed the first time a new Computer is setup.

- Next startup the AllTorque Software by double clicking on the AllTorque icon on the desktop window on the Computer screen.
- Once you see the following screens shown in Diagram 1.1 & 1.2, click on the "Add Account" button.

Enter the information supplied from AllTorque for your company

Account Name: _____

Primary IP Address: _____

Fallback IP Address: _____

Port: _____

Password: _____

Diagram 1.1
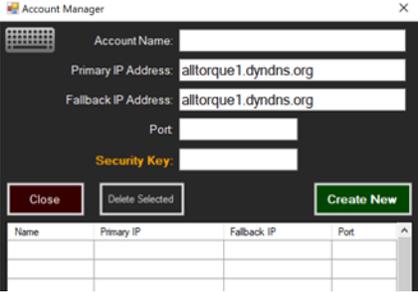
Once the Information is entered click on the button "Create New"

Diagram 1.2

- Once you are able to see the server on the list above shown in Diagram 1.2, click on the "Close" button.

NOTE: To use the AllTorque Software there must be a company account. If needing account setup information contact your company manager or whoever is responsible for the Computers. AllTorque will be your technical support company, managing the data in the database and AllTorque will provide the information. (Server information will be treated confidentially for security purposes)

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Software Login

- Start by launching the AllTorque Software by clicking on the AllTorque icon on the Computer desktop.

NOTE: To use the AllTorque Software there must be a username and password setup for the company using the Computer. If you are needing an accounts login information contact your company manager or whoever is responsible. (Account login information can only be setup by an administrator on the account.)

Diagram 1.3

- Login to the Software with the username and password provided by the account administrator. All users should have their own login information to avoid security risks.

NOTE: Capital letters, spaces, numbers and symbols are a must when it comes to the username and password entry. (This is for security reasons.)

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Home Screen

- Diagram 1.4 is showing the screen you will see once you are logged into the AllTorque Software.

Diagram 1.4

Onscreen Keyboard Use this button when no keyboard is available.

Jobs Use this button to start a job and access past jobs.

Config Use this button to setup tongs, pipe, notes, etc. in the database.

User Name This shows what user is currently logged into the software.

Status Indicator This shows when the software is online vs. offline.

Start Button This will launch the windows start menu.

System ID The ID # for the computer in use is shown above.

Settings Use this button to setup hardware and computer settings.

Logout Logout of AllTorque software.

Company Logo When setup this is where the logo for your company will show.

Admin Use this button to access administrator features. Only visible when an Admin user is logged in.

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Software Verisons & Updates

- To find out what Software verison is currently running on the Computer simply launch the AllTorque program by clicking the AllTorque icon on the Computers desktop.
- Once the login screen appears you will see what verison of the Software is listed in the top right corner of the screen, shown below in Diagram 1.5

Diagram 1.5
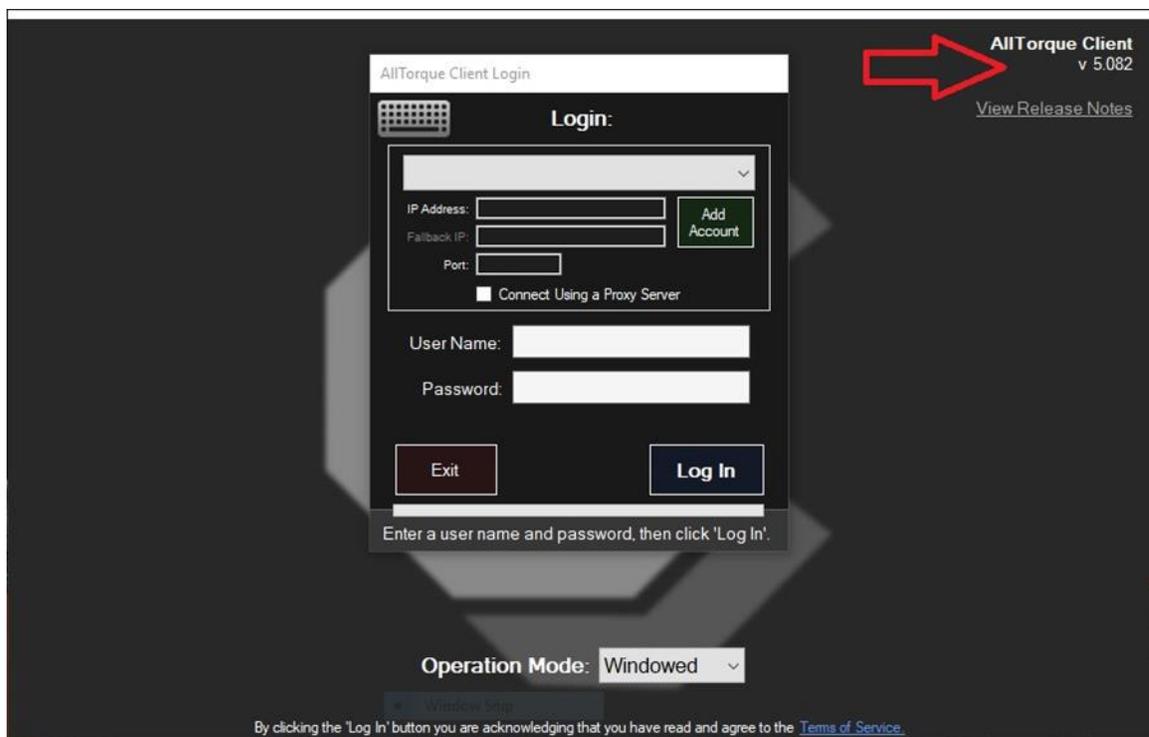
- If a Software update is needed it will automatically process.
- Ensure the Computer that you are working on is connected to an internet connection.
- The Software will check for updates the next time you try and login to the AllTorque program.

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Oil & Casing Company Information

Diagram 1.6
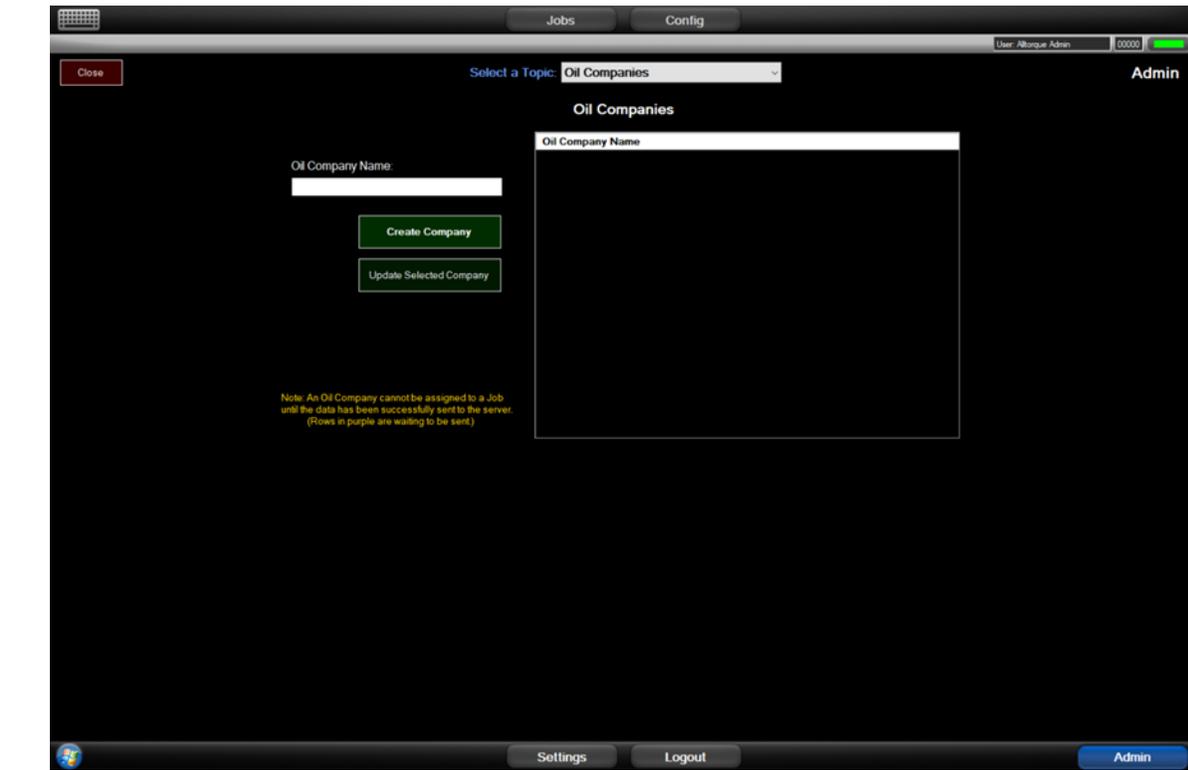
- Oil & Casing Companies are controlled lists that must be be setup while online. This ensures that duplicate company names and spelling are correct. This is critical for use of filtered searches and user access features.

  (For further detailed support on admin functions & features contact AllTorque Support)

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Job Management

Diagram 1.7

- **Job Management** shows job status and information, such as the parent computer, archived jobs and finished jobs. Jobs can be released from a parent computer. Admin control can change any of these. This section of the program is setup with warnings and user passwords.

  (For further detailed support on admin functions & features contact AllTorque Support)

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Company Logo
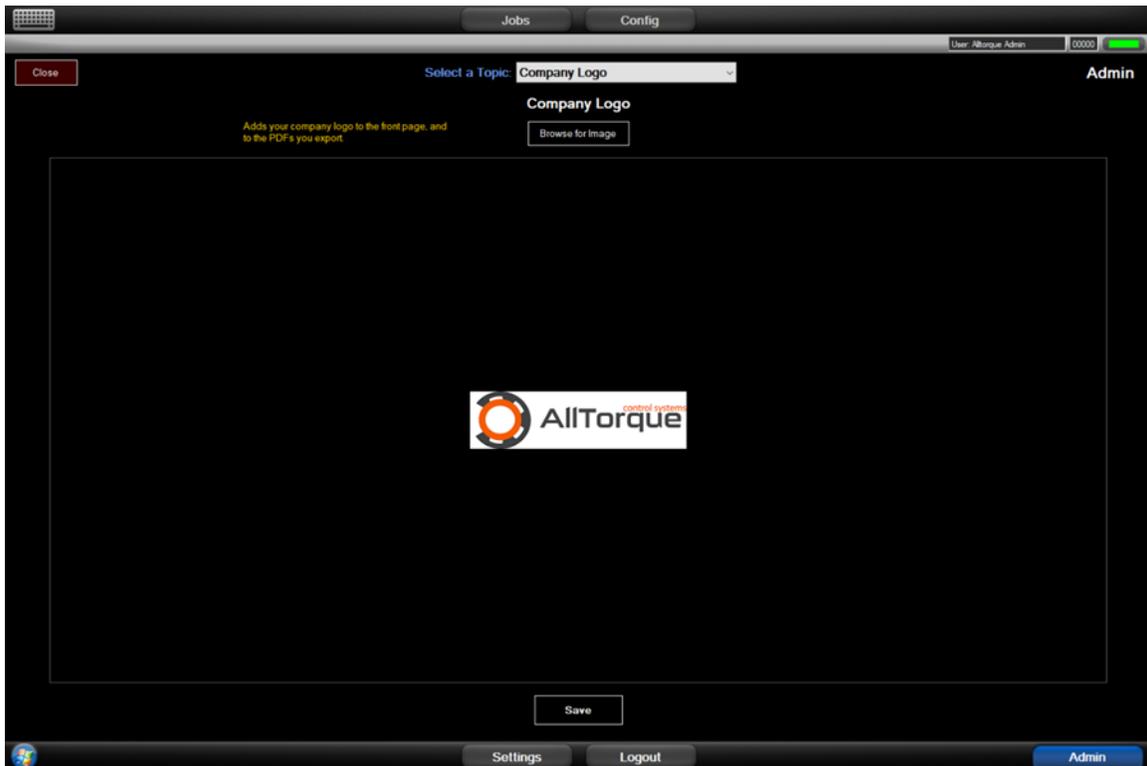
- In Diagram 1.8, this is used to setup your company logo that is displayed on the main menu screen of the program, as well as in the title page of the PDF Reports. There are size and format restrictions on the logo. If it is too big it can not be used by the PDF generator. (File formats with a transparent background look best.)

  (For further detailed support on admin functions & features contact AllTorque Support)

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User Accounts

Diagram 1.9
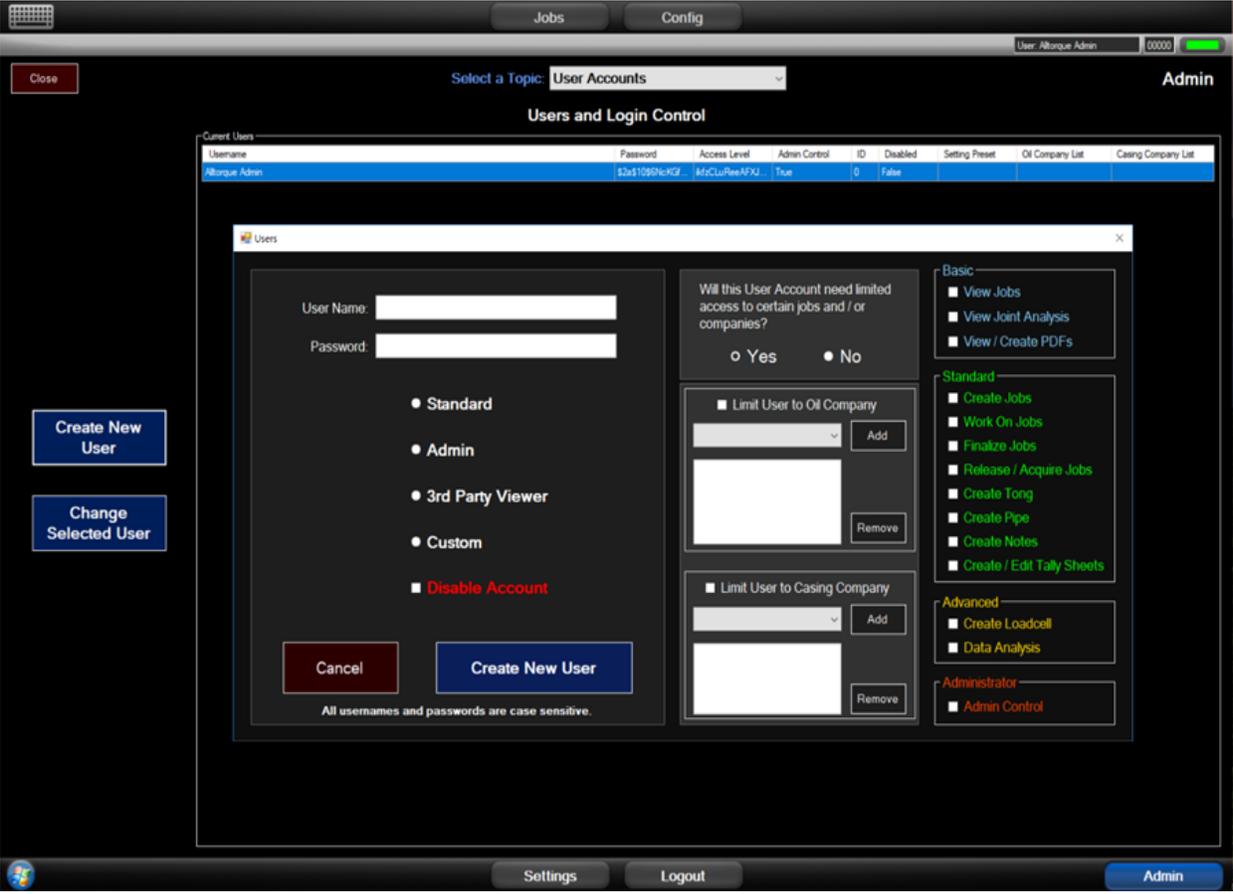
- Diagram 1.9 is where Admin Users:
    - add or disable user accounts
    - reset passwords
    - change the permissions that users that have on the account
    - There is also the ability to setup user accounts for customer login, so the self-serve options are also available. In order to do this, there are limits put onto the account so only jobs done for each customer can be accessed.

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Company & Hardware Settings

Diagram 2.0
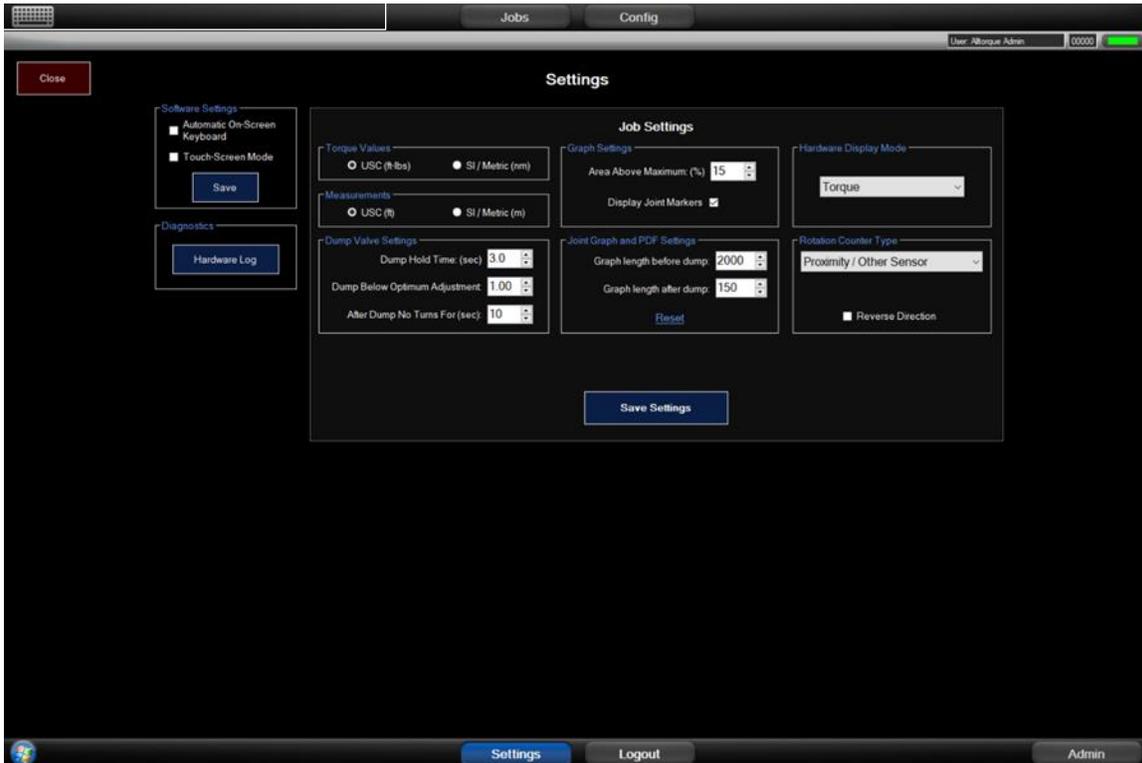
- Diagram 2.0 is used to
  - setup the parameters that the Computer uses on every job. These parameters are **ONLY** applied to the Computer that is being used. These changes **DO NOT** sync across all Computers in the company fleet. If you change something that is not normally needing to be changed , it may be necessary to change the setting adjustments back to previous settings.

NOTE: After any changes are made on the screen in Diagram 2.0 above, click on the **SAVE SETTINGS** button to ensure the changes are maintained.

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Software Settings

- Use these settings in Diagram 2.0, to ensure a keyboard and mouse are defualt onscreen tools.

Diagnositics

- This feature is used for troubleshooting with the Control Box.

Torque Values

- Use this to switch between imperial or metric readings.

Measurements

- Use this to switch between imperial or metric values for lengths.

Dump Valve Settings

- **The Dump hold time** keeps the Dump Valve open for a period of time after being triggered for a torque limit dump. Some prefer short hold times, and others like longer hold time to ensure the tong hydraulics do not over torque the pipe a second time once the Dump Valve resets. This time should not be too long as it can prevent a tong hand from getting the tong off the pipe after a joint is complete. In some cases, the tong can get stuck on the pipe and may need good hydraulic pressure to bump the tong in reverse to release the jaws.
- **Dump Optimum Adjustment**, is a setting used to adjust the value that the Computer uses to trigger the dump. In cases where a user is not able to lower the Optimum Torque Value but still wants to lower the resulting joint peak Torque, this feature will adjust the Torque while leaving the Optimum Torque Value alone. Do not adjust this value by too much at one time, as this can overcompensate in some situations.
- **After Dump no turns**: This controls how long the System will stop recording turns.
  - Once the joint is done and the System dumps the hydraulics, the joint is complete. The tong hand will remove the tong from the pipe and line the mouth of the tong up for the start of the next joint. The AllTorque Software resets and gets

ready for the next joint, ingoring the time right after the dump giving the tong hand time to get reset. If the tong hand is slow, increase the time or make sure computer hand resets the turns before the next joint is started.

- o If the tong hand rotates the tong before doing the next joint, it will be necessary to manually reset the turns in the job to ensure accurate joint information.

Graph Settings

- The area above the graph, is used to control how much screen is shown above the maximum Torque Value, normally only a small amount of area is needed to show a joint that might be torqued.
- Display joint markers is used to turn off the joint markers on the screen. The only reason for this is if the joint marker is covering up some detail that someone wishes to review.

Graph & PDF

- AllTorque Software collects data nonstop. **The PDF graph is only the data that is around the joint make up.** AllTorque uses the final Torque Value as the point to reference from.
- **Graph length before dump**. Used to control the amount or length of joint data leading up to the joint marker point. Joints where the tong RPM is slow can collect data over a longer period of time. It is not always necessary to show a long graph. Graph length before dump can be used to trim the graph to show the most important information that is close to the joint make up or increased to show more joint data at the beginning of the joint. **Becareful not to make this value to high it will show data from the previous joint.**
- **Graph length after dump** is the opposite of the previous value. Use this feature to show data after the joint marker. There is little need to change this from the default. Most joints will drop off with nothing to see once the tong hand is off the pipe. Increase this value if there is missing data due to a tong hand that is holding the torque on after dump. Keep this value short for a clean looking graph.

NOTE: The PDF settings can be adjusted and tested by making a PDF going back and making changes to the values and making another PDF. This can be done multiple times until it

looks just right. Do not save the PDF until the format is what you are seeking, then you can save the PDF. This does not change the data in the job, only controlling the PDF of data that is shown from the job. This setting cannot do any damage, and can be gone back and changed at any time to fix any formatting issues that may occur.

Joint Settings

- This feature is used to control at what point the Computer will automatically call out a joint. If this is set at the Optimum, then the Computer will have to see the Torque hit Optimum Torque Values before a joint will be made. This feature is most useful when a tong hand is bringing the Torque Value over minimum Torque letting off on the Torque and then going back into the joint until Optimum is reached.
- Alternately this setting can be set to Minimum where it makes a joint, only if the Torque has gone over the Minimum Torque Valve. This method follows the technical description of acceptance criterial for a joint. It is useful in situations where stopping just below Optimum Torque is **OK** and the Computer should accept.

Control Box Display Modes

- To set what the tong hand sees on the Control Box screen during the job. There are three options
    - Torque (Default)
    - RPM will help the tong hand achieve the target speed.
    - Turns position shows how many turns the pipe has gone together. Usefull to make up position based connections to ensure the joint position is correct/consistant. The tong hand can slow down and stop at certain points to check on position.

Rotation Counter

- There are three sensor options
    - **Proximity Sensor**. (Default) Use this setting in all application where you are trying to capture turns data.

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- NOT USING THE TURNS COUNTER. This setting is used if there is **NO** Sensor connected to the input. This turns off and ignores the turns input.
- **AllTorque Encoder**, this setting should **ONLY** be used with an Encoder supplied by AllTorque. These are added features of this setting:
  - Doubling the pulses the computer sees for one turn of the Encoder (more accurate).
  - The encoder can tell direction, forward and reverse direction. This is useful for troubleshooting or interpreting what a tong hand was doing during a job.
- **Reverse Direction (Only applies to AllTorque Encoder setting)** It may be necessary to reverse what direction is considered a positive rotation of the tong. This may be required due to location of the encoder on the tong such as top or bottom.

Configuration Setup

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NOTE: Everything that is setup in the software can be used in reports, such as a Job Report that is given to the customer in PDF form.

Diagram 2.1
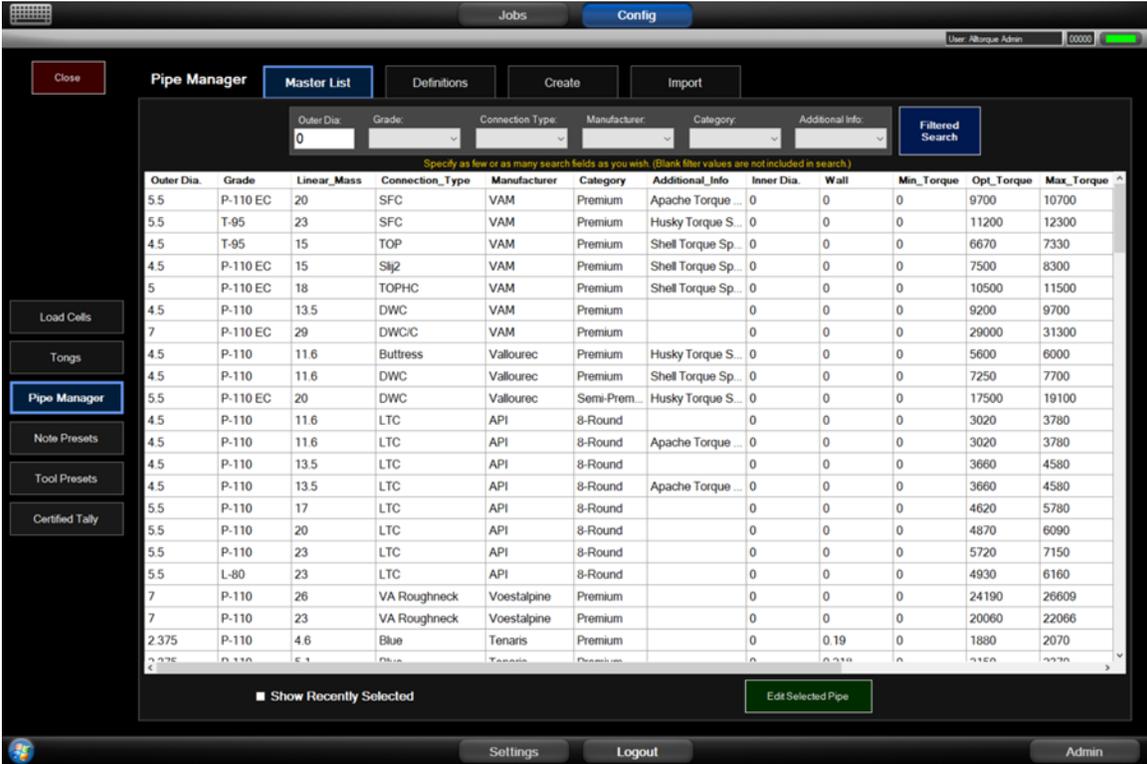
Configuration screens, Diagram 2.1 above, are where the library is built for use fleet wide. If a change is made in this area, it will become updated on every computer in the fleet. This list of equipment, pipe, comments, tools and accessories are available to all computers. **Keep these lists clean and accurate for better reports.**

Once the library is built, it becomes less necessary to work in this area of the program.

Load Cell Tab

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- This tab is locked out. This is where Load Cell Calibrations are kept.(AllTorque Only Access)

Tong Tab

- This is the area where tongs can be added to the library of availble tongs for the job. **Keep these lists clean and accurate for better reports**.

Pipe Manager

- Start in the definitions tab, enter the categories that will be used for the library.
- Once the categories are setup a pipe can be made. The following in Diagram 2.2 are the fields that need to be filled in or selected at a minimum for a pipe to be created. The recommended fields MUST BE filled in, if they are not filled into the database the ability to find the pipe will be extremely limited. This will result in poor search functions and missing information on the PDF Job Reports.
- The RED below (Diagram 2.2) require minimum information to be filled in. BLUE is recommended. **Keep these lists clean and accurate for better reports.**

Diagram 2.2

Recommended Minimum

- Category
- Manufacturer
- Grade
- Connection Type
- Pipe
- Outer Diameter

Required Minimum

- Minimum Torque
- Optimum Torque
- Maximum Torque
- Target Turns
- Max RPM

Optional Required Minimum

(Shoulder option is turned ON)

- Shoulder Min Torque
- Shoulder Max Torque

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Target Turns

- This setting defines the scale that is used to display the Torque vs.Turns graph. It is recommended to set the value at 1.5x - 2x the expected make up for that joint. If this setting is too low the live Torque vs. Turns graph will not show the end of the joint make up and maybe noticeable when doing a double make up where extra turns are needed to complete the joint. This setting can be changed once the job has started.

Max RPM

- Used to limit the speed of the tong. The Software will trigger the Dump Valve if the tong hand goes over the set RPM. The computer hand will need to reset the Dump Valve to allow the joint make up to continue. If there is no requirement to control the speed of the tong, enter a valve that is higher than the tong can go (Example: 100 RPM).

Optimum Torque

- Used to control the dumping point of the tong that the computer will dump the tong at. There are many real world conditions that can cause the torque to be slightly different than the set point at Optimum. This is completely normal and should be managed on a job to job basis. (The troubleshooting section will have more information on how to deal with over torqueing problems.)

Shoulder Torque

- Selecting "Enable" on the Shoulder Torque option will turn it on. It is necessary to enter the Shoulder minimum and the Shoulder maximum if this feature is Enabled. **(If you do not do this the software will not allow the pipe creation.)**

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Completing Jobs - PDF Reports

Diagram 2.3
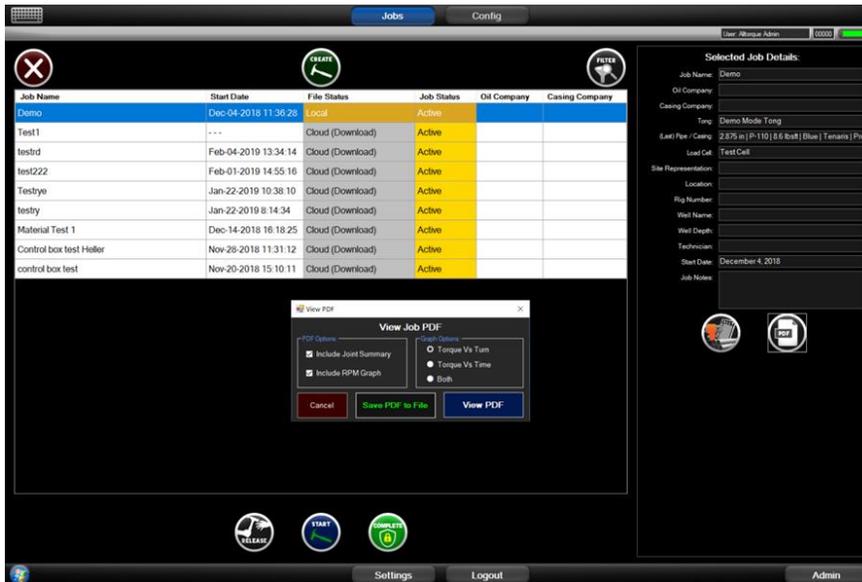
Once the job is complete

- Select the job in the list (Diagram 2.3) and click on the PDF button on the right hand side of the screen.
- The window to select the options you would like to use to create a PDF will open.
- Select the options desired
- Click View or Save PDF.

NOTE: If the layout of the graph is not correct, close the PDF viewing window and start over by selecting the layout needed. PDFs can be created as many times as needed and save it when the results are correct.

- After the job is done and there is a good place to connect the Gen II System to the internet, login to the software with the computer online (if not already connected). The completed job should then be "Released" or "Completed", depending on the company's procedures. This ensures that the job will be backed up and management can review or change the job as required.

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Hardware Setup

Diagram 2.4

- Diagram 2.4 Layout of the frequent parts used to rig up a tong.

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Pre-Job Shop Preparation

- Plug in the Main Power Cable into the system by lifting the hinged panel to access the connectors on the inside. Charge for 1-2 hours to confirm that the batteries are fully charged. (**When connecting the WEIPU connectors the** **RED** **dots go** **RED** **to** **RED****, the connector will not go into place otherwise)**.

- Confirm under settings on the tablet that the latest Windows updates are installed. Also check the AllTorque program to see if any updates need to be installed.

- It is important to look over and inspect **ALL** Sensors and Cables, confirming that they are in proper working condition.

- Function test on all equipment.
    - Hook up the equipment such as Diagram 2.4
    - Turn on the Computer first with the power button (located at the top of the tablet, left of the volume button in the small opening)
    - Press the power switch located on the panel of the System (will turn blue when on) to fully power on the Torque Control System.
    - Run a Test Job in the AllTorque Program (always select AllTorque as the Company under Job Name when preforming a Pre Job Test, to ensure that everything is working properly)
    - Confirm function of Load Cells, Proximity Sensors, Rotary Encoders and Dump Valves.
        - Proximity Sensors can be checked by moving a piece of metal (that contains iron, not aluminum) past the tip of the Sensor. Parts of the tong or even a shaft of a screwdriver can be picked up by the Proximity Sensor.

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Job Preparation on Site

Computer

- o Plug in the Main Power Cable into the system (**always remember when connecting the WEIPU connectors that the RED dots go RED to RED, the connector will not properly go into place otherwise)**.
- o Start up the AllTorque program confirming operation.

Control Box

- Mount the Control Box on the tong it is in a safe location, protected away from pipe and other equipment. If the Control Box is not protected it can result in damage. An additional mounting bracket can be fabricated or purchased (similar to a Torque gauge mount).
- Run the Control Box Cable (AKA…CT Cable or Main Cable) from the Computer in the doghouse to the Control Box on the rig floor (Pick a route that protects all the Cables from damage during the job.)
  - o Try to AVOID running the Cables out through the man door of the doghouse.
  - o If possible, AVOID putting cables on the floor of the rig floor, so the Cables will be prevented from being crushed.
  - o It is also important to keep the Cables away from objects that can be caught and snagged.

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Load Cell

Diagram 2.5
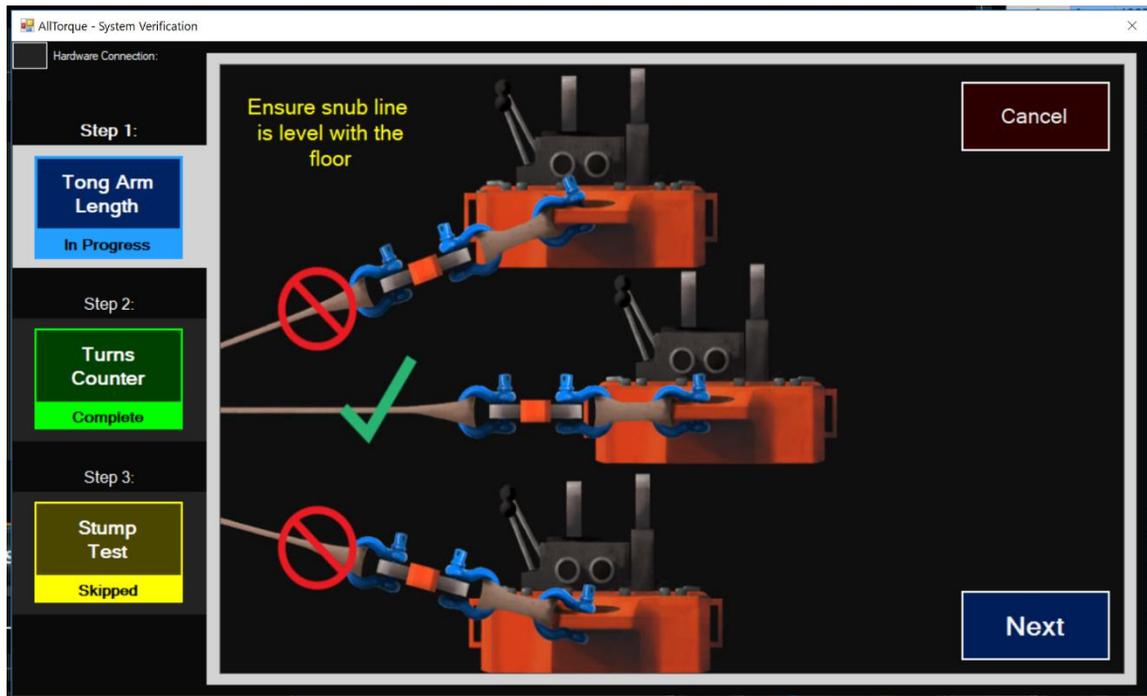
Diagram 2.5 is shown in the AllTorque software at the beginning of the job setup.

Rig up the Load Cell with the following tips in mind.

- Ensure the snub line is at the same height as the tong.

- Check that the Load Cell is not directly installed on the tong.

- Keep the Load Cell at least 1-2 shackles away from the tong. (Diagram 2.5) Then if the tong is swinging around the Load Cell is not being bent or caught in the back of the tong.

- Common Load Cell damage happens when a tong hand backs out of a joint and the Load Cell is bent around the back of the tong. The tong can bend the Load Cell rather than pulling straight on the Load Cell.

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Diagram 2.6

Intergral Power Tong

Compression Load Cell
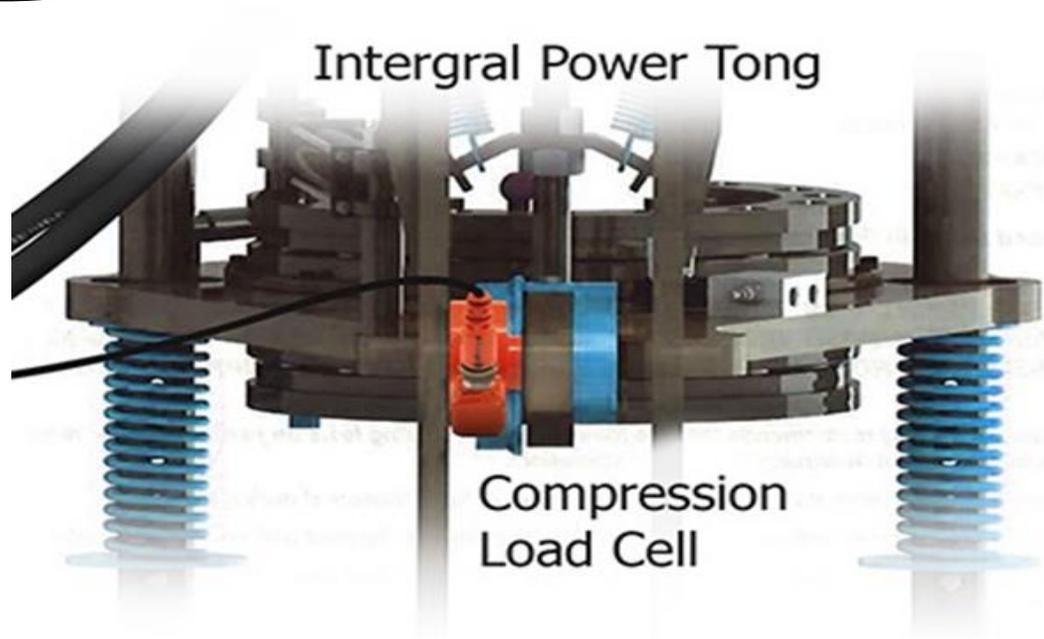
- Rigging up a tong with a backup (Diagram 2.6)
  - o Confirm that the Load Cell is positioned so that the Cable is not being pinched or damaged by the tong or the backup in any way.
  - o Once the Load Cell is in the holder on the tong, the button on the Load Cell should be unscrewed to take up extra slop so the Load Cell will not be banged up or impacted in the backup. If this happens, large Torque spikes will occur on the graph when there is no load on the Load Cell. This is not an indication that the Load Cell is bad. It is a sign that it is being impacted. Impact will not be seen if the Load Cell has load applied during make up.

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Diagram 2.7
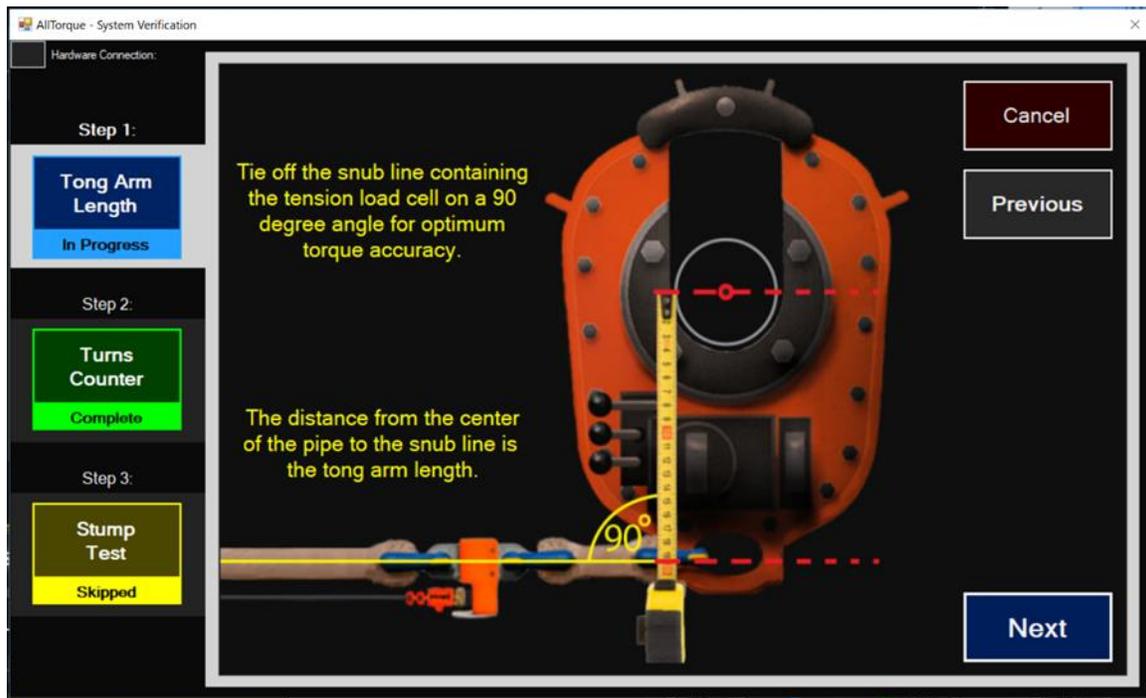
- Measure arm length
  - **If this Value is not set correctly the Computer will not calculate the correct Torque Value.**
  - The distance from the center of the pipe to the snub line is the tong arm length, however only when the snub line is at a 90 degree angle to the tong. (+/- 15 degrees) (Diagram 2.7)

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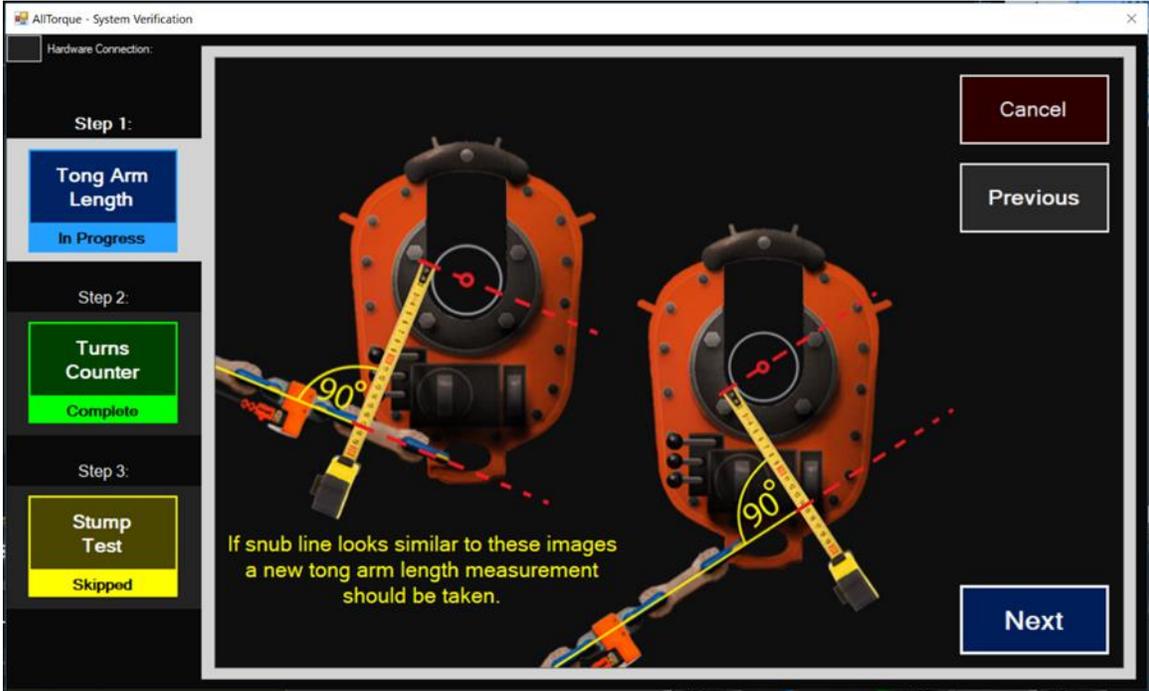
Diagram 2.8

- If the snub line is connected on an angle that is +/- 15 degrees from a 90 degree angle a new tong arm length should be used. (Diagram 2.8). Excessive angles are sometimes used due to the setup of the tong on the rig floor. The excessive angles need to be compensated for as the Load Cell will notice an increased load in both cases (Diagram 2.8) The arm length can only get shorter that the 90-degree (normal) arm length.

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Proximity Sensor & Rotary Turns Encoder
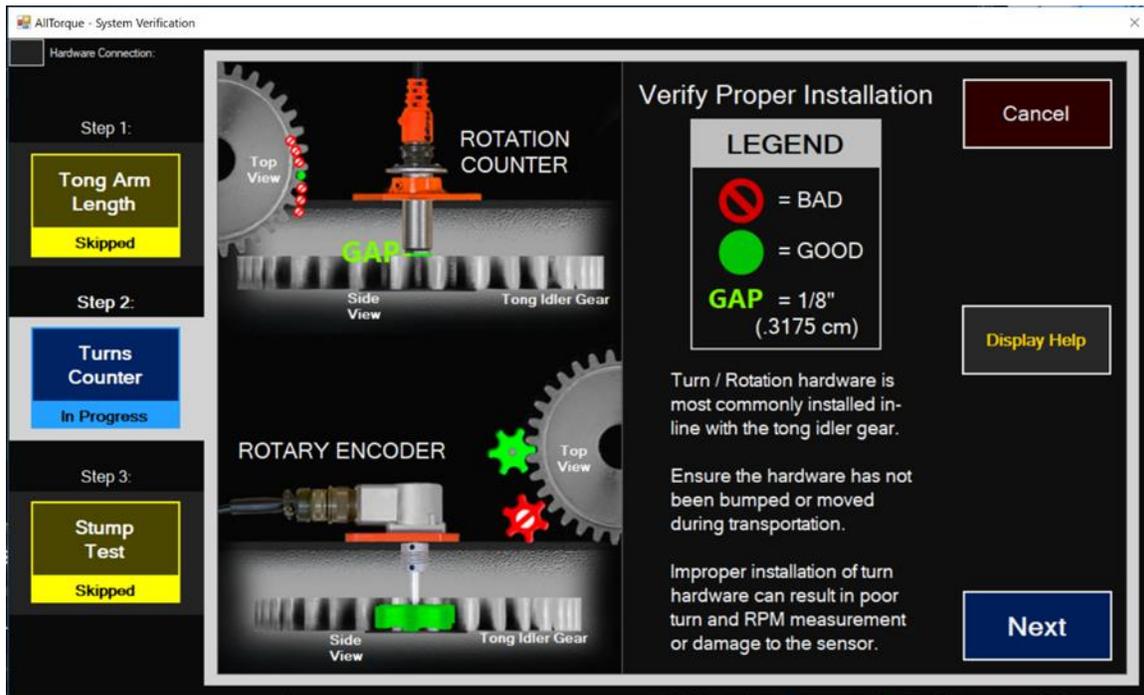
Diagram 2.9

Installing a Proximity Sensor and a Rotary Turns Encoder, (Diagram 2.9).

- Set the Computer to read the turns in the turn's calibration step.
    - The Control Box on the tong will read out a raw count of the pulses.
- Check that the Proximity Sensor or the Turns Encoder are working correctly before installing them to the tong. This will help sort out if there is a Sensor, Cable, or installation problem.
- If the pulses are counting the Sensor is working.
    - If there are no counts on the control screen something is not setup correctly with the Sensor and this should be fixed before doing a complete turns calibration.

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- Proximity Sensors
  - o Set to the correct height by lowering the Proximity Sensor down to the gear until a pulse is found.
  - o Once able to receive a pulse there is **NO** need to install closer to the gear. Damage will occur if the Proximity Sensor is too close and has contact with the gear.
- Rotary Turns Encoder
  - o Check the Flex coupler in the housing of the Turns Encoder before installing. Confirm it is not loose or broken.

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Dump Valve
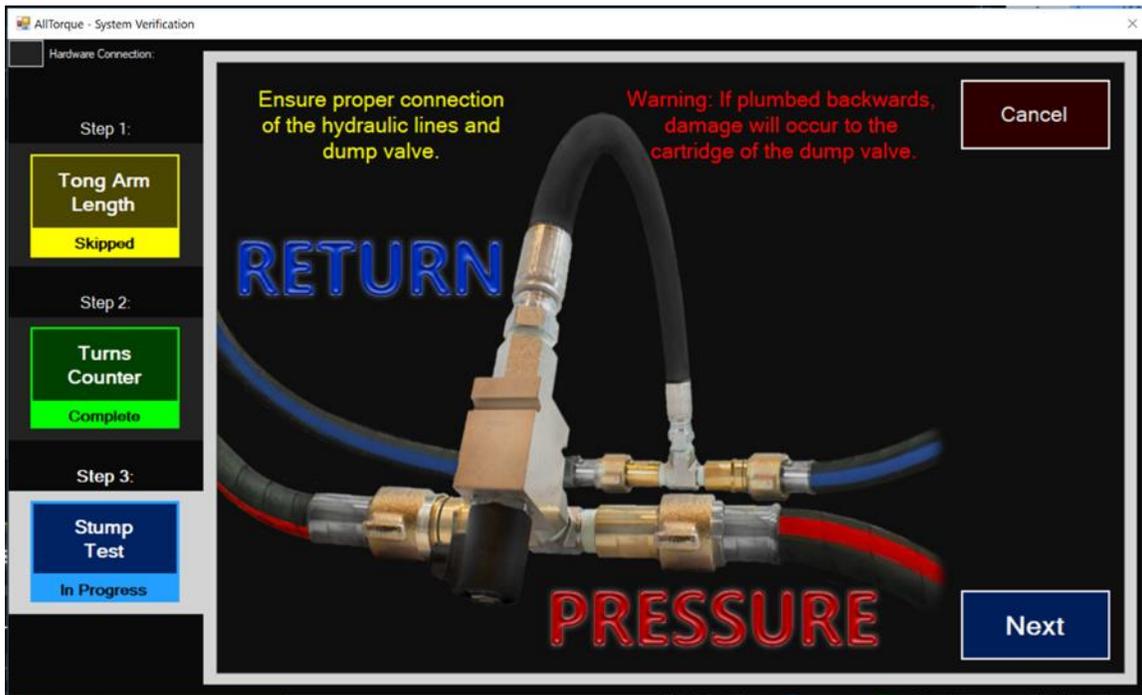
Diagram 3.0

Diagram 3.0 Dump Valve Setup

Dump Valve Function Test

- Spin the tong freely then…..
    - The computer hand can turn the Dump Valve on and off in the Software.

      or
    - Actiate the dump valve then go out to the rig floor and Unplug the Dump Valve Cable from the Control Box. Sometimes this is a preferred check during the setup as the tong hand can see the results directly on the rig floor. **If the speed of the tong changes, the Dump Valve is working**.

NOTE: Dump Valves will not flow 100% of the hydraulic fluid through, unless there is enough back pressure from the flow going through the tong. In a free spinning condition the Dump Valve will only slow the speed of the tong and not fully stop it.

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Job Setup

Diagram 3.1
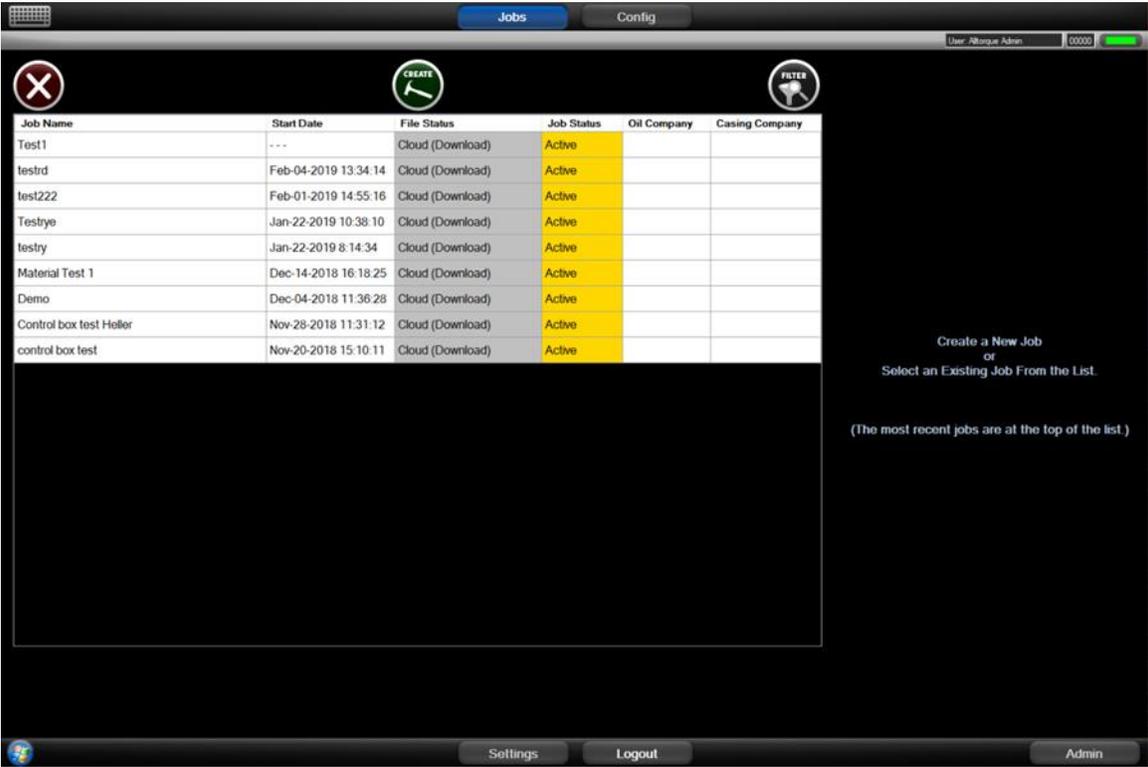
Diagram 3.1 shows jobs started, finished and to start a new job.

- Each job is shown on the list as being local to the Computer or the database for viewing. It is recommended that all jobs be completed. When a job is completed it will be removed from the default list. To find jobs that are completed, click on the filter button at the top of the list and the option to show completed or archived jobs. The jobs will appear on the right column of the screen. Click on a job in the list and the job details will appear in the right column.

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Running a Job

Diagram 3.2

- Start a new job start by clicking on the create button on the jobs screen. The create new jobs screen will appear, (Diagram 3.2).
- Fields with a star * next to them are required to be filled in. Other fields are recommened to be filled out completely for an accurate record keeping and reporting. **Keep these fields clean and accurate for better reports.**

NOTE: It is important for computer hands to keep notes on every part of the job they are able to. This helps for accurate reports.

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Diagram 3.3

Small Graph

In this screen shot the small graph is showing live Torque vs. Turns.

Swap Graphs

Use this button to change what graph is on the large vs. small area.

Large Graph

In this screen shot the large graph is showing live Torque vs. Time vs. RPM vs. Turns

Gauges

These show live Torque, Turns, and RPM

- Once a job has been setup and the hardware checks are finished, Diagram 3.3 will be the screen you see while a job is running. The Gen II System runs a continuous graph while powered on. There is no part of the job without information. Everything is monitored.

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Diagram 3.4
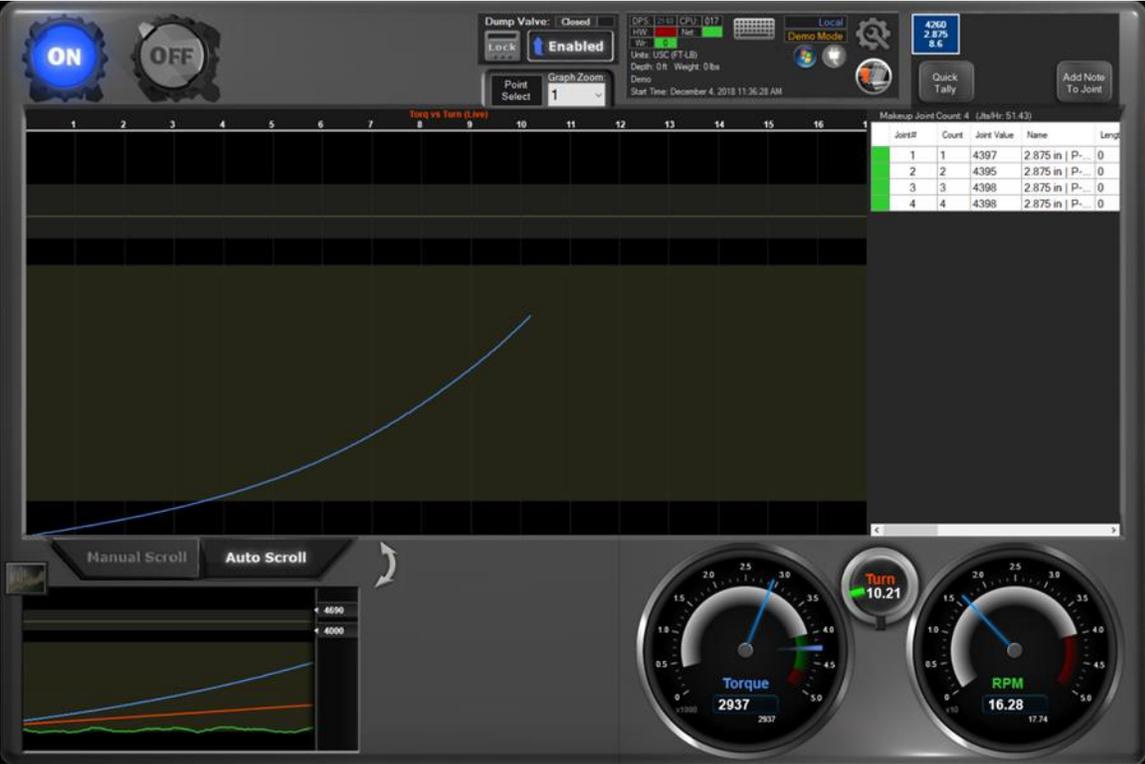
- Diagram 3.4 The large graph area is Torque vs. Turns. Torque vs. Time vs. Turns vs. RPM is shown on the small area in the corner.

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Diagram 3.5

- Once a joint is compeleted the joint review screen will appear (Diagram 3.5).
    - The computer hand will need to adjust the shoulder point on the graph and review the joint.
    - The option for the computer hand to reject or retest a joint is also available.

NOTE: If a computer hand does not correctly approve or reject a joint on this screen it is okay. The joint can be labled correctly after this step.

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Diagram 3.6

- Diagram 3.6, is showing how a user can review exactly what the values are at any point in time. (This can help in troubleshooting a problem on the job.)

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Tally

Diagram 3.7

Tally's are done differently rig to rig. The data on the graphs cannot be changed, however the way that it is labeled and organized in the Tally can be changed to the match different formats.

- **Quick Tally-**
  - A small pop up screen that is used for the observing of pipe length and inserting double make up joints and so on.

- **Pipe Tally Page**
  - A full list of the Tally and has more features to add, remove and adjust the order of the items throughout the Tally. This page is accessed while the job is not running, as larger edits should not be done while running pipe.

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Power Sources

Power availability and quality on a rig site can vary. Every rig is different and the rig-up from well to well can and will change. The AllTorque Gen II Torque Control System has filtering and isolation capabilities however additional devices such as power conditioners, power supplies, inverters or battery backup units are recomended. These devices will improve the results and give extra protection to the hardware.

The AllTorque Gen II System is self contained and does not need a power supply to operate for a period of time. If there is a concern about rig power causing problems, unplug the Computer from the power source. If the problem goes away then you have determinded the issue to be caused by the rig power. If does not resolve the problem it will not be the power supply.

Running the Job off the Battery Power

- Many jobs have been ran for 20 plus hours off of only battery power. Follow these steps to ensure you can finish the job before running out of battery power:
    - Start with a fully charged system
    - Run the job off of battery power when running pipe
    - Use battery power only if needed.
        - If the job is stopped, on hold to circulate, down for troubleshooting time or any other reason for the job to be at a standstilll, plug the system into rig power to charge the batteries when no joints are being ran.
    - Turn off the WiFi on the Computer when not connected to the internet. (Computers use an excessive amount of power to search for a WiFi signal draining the battery).
    - Turn the Screen brightness down when possible. The lower the brightness the less battery life is consumed.
    - Do not leave the Dump Valve open for long periods of time. Such as manual override or turning the Software recording off while leaving the power to the Control Box on. **The Dump Valve uses lots of power and will drain the battery if left on.** Normal use of the dump during a job will not result in a dead battery.

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Troubleshooting

Problem	Possible Solution
Dump Valve will not work	1. Check that the Control Box has power and is correctly reading loads and turn information. If the Control Box is **NOT ON** move to troubleshooting for the Control Box. If the Control Box **IS ON** and reading other information, the Control Box should be replaced 2. Inspect the Dump Valve Cable and connections, if damaged or worn replace the Cable. Check the connection on the cable is securely pushed on. It should lock on the connector so it will not be pulled off. Di-Electric Grease is recommended. 3. Inspect the Coil for physical damage. If the Coil has been damaged replace the coil. 4. Confirm that power is magnetizing the Coil. 　- Use a metal object such as a screwedriver and place it in the center of the Coil. 　- Control Box must say **NO** PC or have the Dump Valve manually turned ON. If the Coil can hold the item securely, the Coil and Computer are working. If the Coil does not magnetize and hold the item replace the coil and cable. 5. Place the functioning Coil on the Dump Valve and check if the Dump will change either the speed or torque of the tong. If the tong responds to the Dump being turned on or off the unit is working. If there is no response, inspect the Dump Valve and possibly replace.
Will not read Turns Sensor data	1. Confirm the propper turns counter is selected. 2. Make sure the Computer is in the hardware setup screen for turns calibration. 　- This will show the raw counts from the Sensor showing the best information for troubleshooting. 3. Check that the Control Box has power and is correctly reading loads and turn information. If the Control Box is **NOT ON** move to troubleshooting for the Control Box. If the Control Box **IS ON** and reading other information, the Control Box should be replaced 4. Inspect the Cable and conectors for damage and replace if necessary. Check the connections on the cable are securely pushed on. It should be locked on the connector so it will not be pulled off. Di-Electric Grease is recommended. 5. Remove and inspect the Proximity Sensor (if using) for damage. If the tip end of the sensor is damaged from coming into contact

	with the gear teeth replace it. 6. Remove and inspect the Turns Encoder Sensor (if used). Ensure the small flex coupler in the housing is not broken and set screws are tight. Turn the black gear on end of shaft confirming it turns the Encoder. The Encoder should turn freely. 7. If turning the Encoder does not result in pulses (counts) on the Computer after checking the above list, the Encoder should be replaced.
Does not read Torque	1. Check that the Control Box has power and is correctly reading loads and turn information. If the Control Box is **NOT ON** move to troubleshooting for the Control Box. If the Control Box **IS ON** and reading other information, the Control Box should be replaced 2. Inspect the Losd Cell Cable and connections, if damaged or worn replace the Cable. 3. Check the connection on the cable is securely pushed on. It should lock on the connector so it will not be pulled off. Di-Electric Grease is recommended. 4. Remove and inspect the Load Cell. If damaged replace the load cell.
Torque is not correct	1. Use all the same steps as noted above in "Does not read torque". 2. Ensure the arm length used in the hardware setup screen is correct. It is common for this to be incorrectly entered due to assumptions or misunderstanding the setup on the rig floor.
Control Box has NO Power & Computer is showing Error Message	1. Make sure the blue power light is on for the hardware. Located on the base of the Computer right near the power cable connection. Make sure the control box cable (CT cable) is plugged in and the connections are good on both ends. Di-Electric Grease is recommended. 2. Make sure the control box cable (CT cable) is not damaged.If damaged replace cable. 3. Make sure the batteries are not dead. The computer should be plugged in for 1 hour or more if the batteries are completely dead. It takes time for the charger to get a battery from completely dead to useable. Charge the Computer fully before every job.
Control Box has Power but is saying NO PC	1. Confirm the Computer Software is in the running mode and the ON button is lit up in Blue color. 2. The Control Box will be ready to run when doing calibration steps, or in the running mode only.
Control Box has Power but Control	1. Inspect the Main Control Box Cable (CT cable) for damage, if it has been pinched at any time the wires inside maybe damaged and the Cable will not work correctly. Replace the cable

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Box is saying NO PC and Computer has Error Message	2. Unplug the CT Cable on each end (Control Box and Computer). Then check for cleanliness. Plug the ends back in and see if the communication is fixed. If connections are dirty or damaged the Cable will not work correctly. Di-Electric Grease is recommended. 3. One at a time, unplug the load cell cable, turns cable and dump valve cable from the Control Box. If the communication comes back while a cable is unplugged, troubleshoot the problem cable or sensor as there is a ground fault. Replace the faulty part. 4. If there is still an issue, reboot the Computer. Exit the AllTorque Software, restart windows and try to run the job again. 5. Make sure the Computer and the battery have enough power to run at full power. If the batteries are run too low there may not be enough power to correctly run the communication.
Torque is bouncing and not stable	1. Use all the same steps as noted above in "Does not read Torque." 2. If the job is running and there is lots of variation in the readings, unplug the power cord from the wall or power source. The system has a battery and will run on battery. - See Running the Job off the Battery Power
Torque is spiking randomly	1. Use all the same steps as noted in "Does not read torque." 2. This can also be caused by a tong hand hitting the Load Cell with a "jerking movement" or the tong swinging and hitting items on the rig floor. Confirm the Load Cells are not being impacted by a sudden load. The AllTorque System is sensitive and will pick up changes in loads.
Cannot login to AllTorque Software	1. Ensure the account selected at the top of the login screen is the correct company. 2. Ensure the login user name and password is using the correct CAPITAL letters, spaces or any other symbols. The User name and password are CASE sensitive and punctuation sensitive.

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