Tangram
Technology

TORQUECHART SERIES 9000

Computer Control Torque / Turn System for Power Tong

User Manual

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User Manual

Introduction

Thank you for purchasing our TorqueChart 9000 STANDARD Model Computer Control Torque/Turn System for Power Tong. The TorqueChart 9000 STANDARD Model with high precision and high speed Torque/Turn control is designed to work on our NewMatic Tong. It can be also retrofitted on any Power Tong with the assistance from our consultants. For even greater precision and higher speed control, please contact our consultants for more information.

This model is designed to operate under normal conditions (see chapter 1:Specifications for details). To operate in a high temperature, high humidity environment for example an offshore oilrig, we recommend the more rugged EX Model

DO NOT USE THIS SYSTEM IN HAZARDOUS AREA. Refer to our consultants for EX model.

An optional data management system allows you to save thousands of Torque/Turn graphs on hard disk for future reference (See Chapter 2: Features for more detail). For those who do not need this function, STANDARD Model is a more cost effective alternative. Please check with our sales personnel for promotional package.

For light users (4 hrs or less per day), the control system require little maintenance except for the industry standard once in every 4 months system calibration. Heavy users are recommended to perform system check once a month. Check with our sales personnel for attractive maintenance packages that include system calibration.

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1

Specifications

Three versions are available, designed for different operation environment and with different functionalities,

Model	Ex	**STANDARD**
Operating Environment	For Rugged Environment	**Standard Environment**
Temperature	5 to 45 ^{o}C	**10 to 35 ^{o}C**
Relative Humidity	5 to 90%	**10 to 85%**
Data Management System	YES	**NO**
OS	Window 2000	
Computer	Pentium Class	
RAM	128 MB	
Monitor	LCD Display with VGA	

Note : This version is not designed for operation in hazardous area. Please upgrade to our EX version if you need to operate in hazardous environment.

Chapter

2

Before Operation

Before operating the system, make sure you have perform the following

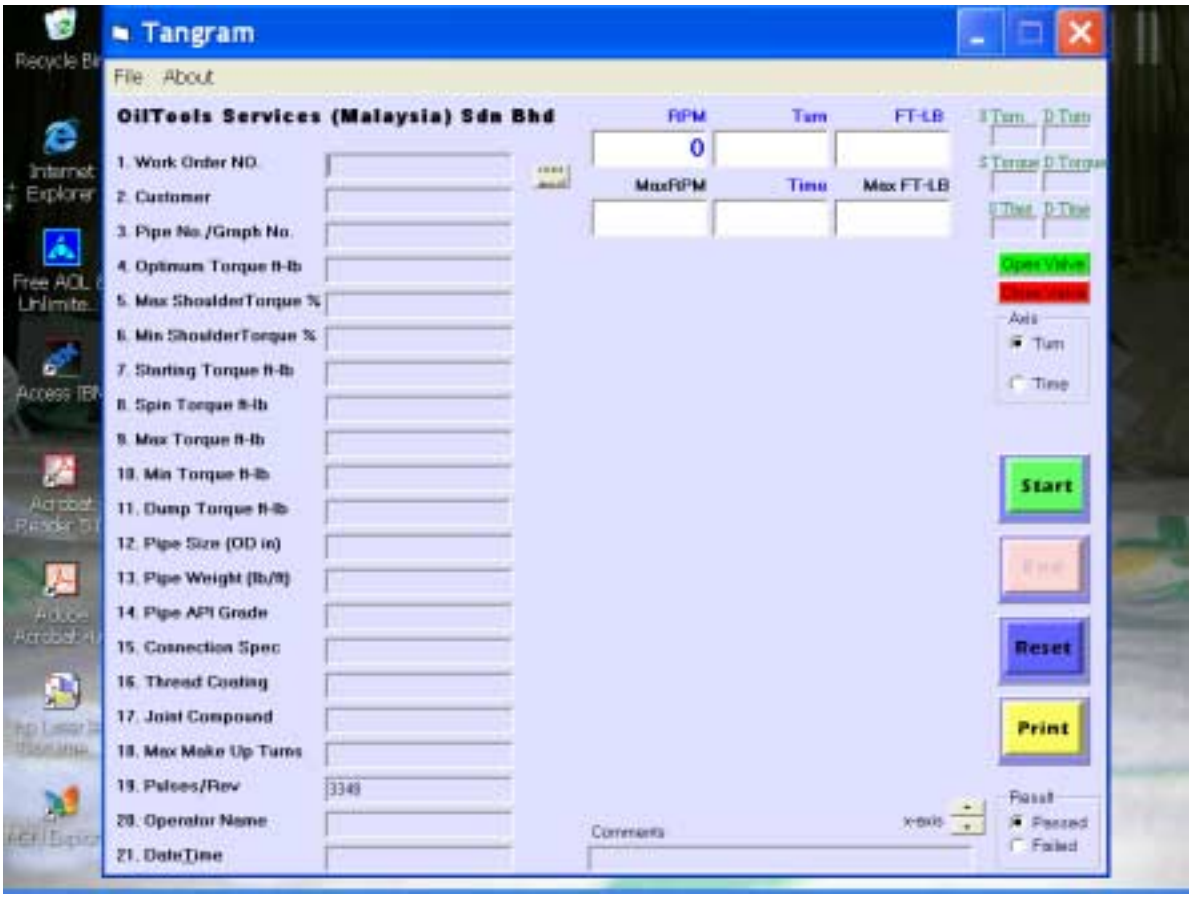
- **Valid Testing & Commissioning certificate**
- **Valid Load Cell Calibration certificate**
- **Valid Encoder Calibration certificate**
- **Valid System Calibration certificate**
- Make sure that overall system is well maintained. Last maintenance should be last than 4 moths ago.
- Operators must have undergone Operation Training provided by our qualified trainers or consultants
- Make sure all personnel are clear of the Power Tong area before switching on the system

Chapter

3

Basic Operation

1. Switch on the computer and launch the program. You will see a window like the one shown below



2. There are 3 ways of entering job parameters

    - Enter the Job parameters in the fields to the left number 1 to 21, some fields are compulsory, some are optional.

    - From the "FILE" menu, select "OPEN PROFILE…"

    - From the "FILE" menu, select "OPEN DATA…"

3. Press the START button when you are ready to make-up the pipes.

4. You may stop plotting the graph anytime by pressing the END button

5. When the DUMP torque is attained, the system will send a signal to the solenoid valve to STOP the make-up process.

6. The graph will be saved and printed automatically.

7. You can print another copy by clicking on the PRINT button..

8. Press the RESET button to start a new make-up.

9. Graph number will increment automatically by 1.

10. Repeat step 1.

    Note:

    - The file name of the "Automatically-Saved" file is a catenation of the work order number and the graph number with an extension of **.dax** .

    - Another "Automatically-Saved" file is also catenation of the work order number and the graph number but with an extension of **.bmp** . This is a bitmap file that allows you to print from almost any computer.

Chapter

4

Advanced Operation

Saving makeup Data

- You can save a copy of the work profile from the FILE menu by selecting SAVE PROFILE AS…. This will save you precious time having to enter all the data again. You can retrieve the profile data easily by selecting OPEN PROFILE.

- You can save an extra copy of the graph to a different file name from the FILE menu and selecting SAVE AS…,

- If you do not provide an extension, the default extension is .dat .

- You can retrieve previously saved graphs from the same FILE menu by selecting OPEN….You may print a copy of this graph for reference.

Scaling the Graph

- You can view the graph with different x scale by clicking on the scroll button at the bottom right corner of the graph.

Checking Dump Valves

- You can check the operation of the dump valve by clicking on the “OPEN VALVE” and “CLOSE VALVE” buttons.

Chapter

5

After Operation and Maintenance

- Backup your graph data if necessary. You can speak to our consultants for backup options.
- Lightly dust off any dirt or debris on the exterior.
- Be careful with cabling at the back of the computer. Any tension or pulling force may affect the connections and consequently the readings.
- Please note that some electronic components are extremely sensitive to heat, humidity and vibration. Please keep it within the operation limits at all time.
- It is recommended that on a monthly basis, lightly clean off the interior of dust and dirt. Be careful with the electronics while cleaning. Do Not use detergent.
- Lock the computer after use to keep it from saboteurs and intruders.
- **If system may flag warning and shut down if it detects any error that may affects its proper operation. Contact our Engineer or Technician immediately.**

Chapter

6

Calibration

- Should be done every 4 months to maintain system integrity. Only our qualified engineers or technicians have the right tools and equipment to perform a proper calibration.
- Proper Calibration will ensures the system runs smoothly.
- Duration of calibration is half a day to one day.
- Our Engineers will measure the load cell's zero and output mv/V values.
- Our Engineers will check encoder's pulses per revolution.
- Our Engineers will program the new values into the system.
- Note : System will sound warning and shut down if the error exceed 1%. The system will need immediate calibration or that load cell/encoder is damaged.