MCCOY GLOBAL

TECHNICAL MANUAL

weCATT™

Wireless Torque Sub
Featuring WINCATT® 8 Software

SPECIFICATIONS | INSTALLATION | OPERATION | MAINTENANCE | PARTS

MCCOYGLOBAL.COM

ORIGINAL INSTRUCTIONS

This technical manual applies to all standard models of this equipment type. McCoy has made an effort ensure that all illustrations are accurate, but please note that some illustrations used in this manual may not exactly visually match your equipment.

PATENTED & PATENTS PENDING

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Published by McCoy Corporation, Technical Publications Department
14755 - 121A Avenue • Edmonton, AB, Canada, T5L 2T2

McCoy has made every effort to ensure the information contained in this document is accurate and current. This manual is intended to provide equipment operation and safety instructions for your equipment. However, McCoy does not warrant or guarantee that the information is either complete or accurate in every respect and the user of the manual should consult with its McCoy sales representative for any clarifications and updates.

The user of the manual shall protect, indemnify, and hold harmless McCoy and its directors, officers, employees, and agents from and against all liability for personal injury, death, or property damage resulting directly or indirectly from the use of the information contained in this manual.

Observance of all descriptions, information and instructions set out in this manual is the full responsibility of the user. This manual is intended for guidance and informational purposes and must be used in association with adequate training and on-the-job supervision to provide safe and effective equipment use.

It is the responsibility of the user to conform to all regulations and requirements issued by an authority or agency which may affect the operation, safety or equipment integrity, that may overrule the content of this documentation.

The user will acknowledge and obey any general legal or other mandatory regulation in force relating to accident prevention, safety, and equipment integrity.

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Summary Of Revisions				
Date	**Section**	**Page**	**Description Of Revision**	**Approved**
FEB 2013	N/A	N/A	Initial Release	R. Bali
MAR 2013	Intro	v	Added warnings WRT part modification and replacement	R. Bali
	1	1.4	Updated customer specification page to Rev. 1	
		1.5	Revised and corrected specifications	
			Revised weCATT™ equipment label	
	3	3.7	Added new subsection 3.4, “Battery Handling & Disposal”	
JUL 2013	1	1.4	Updated customer specification sheet to Rev. 2	R. Bali
	2	2.7	Inserted new illustration & information for rigging in pin-up model	
		2.9	Inserted new illustration for clamping to pin-up model	
	3	3.7	Added new subsection 3.5, “Calibration”	
AUG 2013	1	1.4	Added warning statement	M. Gerwing
		1.5	Updated customer specification sheet to Rev. 3	
		1.6	Inserted illustration 1.1.3, weCATT™ CSA nameplate	
		1.6	Added descriptions of CSA symbols	
		1.7	Inserted illustration 1.1.4, weCATT™ ATEX nameplate	
		1.7	Added descriptions of ATEX symbols	
	3	3.3	Revised section 3.2 “Cleaning”. Added warning statement	
JAN 2014	ALL		Updated manual to new branding standard	M. Gerwing
	1	1.4	Removed reference to safety factors from specs (designed to API 8C which has its own safety factor)	

Continued on next page...

SECTION 1: INTRODUCTION

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1.0 INTRODUCTION & CONTACT INFORMATION

Congratulations, and thank you for purchasing quality tubular connection equipment from McCoy Global. This unit will provide years of outstanding performance. Proper maintenance and care will extend its life and ensure years of excellent performance and reliability. The installation and commissioning, operating, and maintenance instructions in this manual will assist you in giving your equipment the care it requires. Please read the manual before installing and using your equipment. Replacement parts are readily available from McCoy Global. Should you need replacement parts, or should you experience any difficulty not covered in this manual, please contact:

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Fax: 780.455.2432

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70518

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Fax: 337.837.8839

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www.mccoyglobal.com/tubular-products

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Standard Terms and Conditions of Sale (including warranty information):

http://www.mccoyglobal.com/tcs.pdf

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1.1 SCOPE

This technical manual is the main document supplied by McCoy Global for the equipment identified on Page iii of the preamble. The intent of this document is to provide descriptions of the systems, installation, commissioning and operating instructions, maintenance guidelines, spare parts information, and technical drawings and schematics (where applicable).

The OEM-recommended installation and commissioning practices, and operation, maintenance, and troubleshooting instructions are to be regarded as guidelines, and are not intended to be a comprehensive operating guide for your specific application. Due to the wide variety of operating conditions it remains the responsibility of each equipment owner to use these guidelines together with an experienced manager to develop safe operating procedures that conform to American Petroleum Institute (or equivalent) standards, applicable State/Province or local regulations, and the regulations and operating practices dictated by your company.

1.2 GENERAL HEALTH AND SAFETY

AUTHORIZED USE ONLY!

READ THIS MANUAL BEFORE USING EQUIPMENT

Only authorized, trained, and competent personnel shall operate, maintain, and repair this equipment.

Fully review this manual and comply with all safety and environmental protection instructions before operating equipment.

1.2.1 Hazard Labels

McCoy Global uses four levels of hazard / notice labels to describe items of four levels of importance:

DANGER is represented by a hazard symbol coupled with a "**DANGER**" signal word, and identifies items of the highest level of risk. Failure to heed information identified by a **DANGER** symbol may result in severe bodily injury or death.

⚠ DANGER

THIS IDENTIFIES AN EXTREME HAZARD OF PERSONAL INJURY OR DEATH

A **WARNING** is represented by a hazard symbol coupled with a bold "**WARNING**" signal word, and identifies items of medium risk. Failure to heed information identified by a **WARNING** symbol may result in significant injury to personnel, catastrophic equipment failure, or harmful environmental contamination.

⚠ WARNING

THIS IDENTIFIES A WARNING REGARDING POTENTIAL INJURY OR CATASTROPHIC EQUIPMENT DAMAGE

A **CAUTION** is represented by a hazard symbol coupled with a bold "**CAUTION**" signal word, and identifies items of low risk. Failure to heed information identified by a **WARNING** symbol may result in injury to personnel or equipment damage.

⚠ CAUTION

THIS IDENTIFIES A CAUTION REGARDING SAFE OPERATION OR THE POTENTIAL OF EQUIPMENT DAMAGE

A **NOTICE** highlights information or items of importance unrelated to personal injury that may aid the user during installation, commissioning, assembly, or operation of your equipment.

NOTICE

THIS HIGHLIGHTS ITEMS OF IMPORTANCE UNRELATED TO PERSONAL INJURY

1.2.2 General Safe Operation Guidelines

Only authorized personnel shall operate equipment delivered by McCoy. Equipment shall be in a proper technical condition prior to use, and shall be used only for the purpose for which it is intended. Malfunctions or damages must be rectified before operation to ensure personnel safety and avoid equipment damage.

The user is responsible for ensuring the safety of all personnel while operating any McCoy product. McCoy is not responsible for injuries or equipment damage that arises from improper use of the equipment.

McCoy recommends that a hazard assessment of the work area be performed by a designated safety representative before commencing operations. A designated safety representative is responsible for verifying that all operators have adequate equipment and safety training.

1.2.2 General Safe Operation Guidelines (Continued):

Always wear all personal protective equipment (PPE) specified by your company's HSE policy, and follow all of your company's safety guidelines.

1.2.3 Maintenance Safety

All personnel are responsible for performing maintenance tasks in a manner that ensures worker, equipment, and environmental safety, and may require taking additional steps that are not identified in this section.

Maintenance of equipment shall be performed only by designated qualified maintenance personnel. Do not begin a maintenance task without the proper tools or materials on hand, or the proper drawings and documentation necessary.

Isolate the location of the maintenance under way to prevent unaware personnel from inadvertently exposing themselves to a hazard. Use tape, rope, or signage to clearly indicate "off-limits" area.

Where applicable ensure electrical circuits within the affected equipment are deactivated or de-energized by an authorized, qualified person and locked out if necessary. Do not disconnect a live electrical circuit unless location is known to be non-hazardous.

DANGER

ALWAYS MEASURE ELECTRICAL CIRCUITS TO CONFIRM DEACTIVATION BEFORE PROCEEDING WITH MAINTENANCE

1.2.4 Replacement Parts

All consumable and replacement parts must meet or exceed OEM specifications in order to maintain equipment integrity. Do not replace protective equipment such as hydraulic switches, circuit breakers and fuses without first consulting with McCoy. Do not replace electrical or control hardware without consulting with McCoy Global. Using non-OEM replacement parts without the approval of McCoy Global may void your equipment warranty.

Do not modify or alter any component or assembly on this equipment.

WARNING

DO NOT MODIFY OR ALTER ANY COMPONENT OR ASSEMBLY ON THIS EQUIPMENT

1.2.5 Environmental Impact

Your equipment uses materials that may be harmful to the environment if improperly disposed of (hydraulic fluid, grease, fuel, electrical components, etc.). Dispose of all materials according to your company's stated environmental protection regulations and published federal, state, provincial, and civic legislation.

In all cases observance of the following is the full responsibility of the user:

- **all descriptions, information and instructions set out in this manual**
- **any regulation or requirement issued by an authority or agency which may influence operation, safety or integrity of the equipment that overrules the content of this document.**
- **any legal or other mandatory regulation in force governing accident prevention or environmental protection.**

1.3 ACRONYMS AND TERMINOLOGY

1.3.1 Acronyms and Definitions

ACRONYM	DEFINITION
ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ATEX	Appareils destinés à être utilisés en **AT**mosphères **EX**plosibles
BDC	Bottom dead centre
CBU	**CLINCHER**®-style backup
CE	Conformité Européenne
CCW	Counter-clockwise
COG	Centre of gravity
CW	Clockwise
DS	Driller's side
EU	European Union
HMI	Human-machine interface
HPU	Hydraulic power unit
HSE	Health, Safety, and Environmental (context: protection)
ID	Inside diameter
ISO	International Organization for Standardization
JDK	Jaw die kit
JSA	Job safety assessment
LH	Left-hand
LJBU	LOCKJAW™ backup
MBU	"McCoy style" backup
N/A	Not applicable or Not available (context-dependant)
NLGI	National Lubricating Grease Institute
ODS	Off-driller's side
OEM	Original equipment manufacturer
OSHA	Occupational Safety and Health Administration
OD	Outside diameter
PLC	Programmable Logic Controller
PPE	Personal Protective Equipment
PSI	Pounds per square inch (pressure)
RH	Right-hand
VAC	Volts, alternating current
VDC	Volts, direct current

1.3.2 Terms and Definitions

TERM	DEFINITION
ATEX-certified	Conforms with the EU “ATEX” directive for equipment operated within an explosive atmosphere.
Backup	The component of a tong-backup arrangement that mechanically attaches to the stationary side of a tubular connection and provides resistance to the tong when making up or breaking out a joint.
Box	The female side of a pipe connection
Break Out	Loosening, unthreading, and disconnecting a connection (typically a tubular connection). The term may also apply to a general threaded connection.
CE-marked	CE compliant. Conforms with the essential requirements of the applicable Conformité Européenne directives.
Clamp	To grasp the stationary side of a pipe joint with a backup.
Die	A component of a jaw die kit that provides the mechanical contact between the tong and the tubular.
Joint	Also called a “pipe joint”. A threaded tubular connection.
Load Cell	A hydraulic device that transmits a proportional signal to a torque gauge for the purpose of measuring connection torque.
Make Up	Threading together a connection (typically a tubular connection) and tightening to a specified torque. The term may also apply to a general threaded connection.
Pin	The male side of a pipe connection
Ring Gear	The rotating component, mechanically coupled to a hydraulic motor through a gear train, which provides rotation to the pin-side of a tubular connection through the use of jaw assemblies
Safety Door	A device mechanically connected to the door of a hydraulic power tong that uses hydraulic switching to prevent rotation of the cage plates when the tong door is open.
Sling	A rigid or non-rigid device used to hoist a piece of equipment using a crane.
Tank	Hydraulic fluid reservoir
Tong	The component of a tong-backup arrangement that mechanically attaches to the pin side of a tubular connection, and rotates the pin to make up or break out a connection
Un-clamp	To release the stationary side of a pipe joint with a backup.
WINCATT®	Data acquisition and torque/turns management system manufactured by McCoy Global

SECTION 2: EQUIPMENT DESCRIPTION & SPECIFICATIONS

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2.0 EQUIPMENT DESCRIPTION

weCATT™ combines McCoy Global's unique explosive atmosphere-rated wireless torque sub with their WINCATT® 8 monitoring and recording software.

The torque sub transmits tubular connection data to a remote laptop computer via an antenna using line-of-sight transmission, where the data is processed by the computer, displayed on the monitor, and recorded to the computer hard drive.

Illustration 2.0.1: Torque Sub

2.1 MAJOR COMPONENT IDENTIFICATION

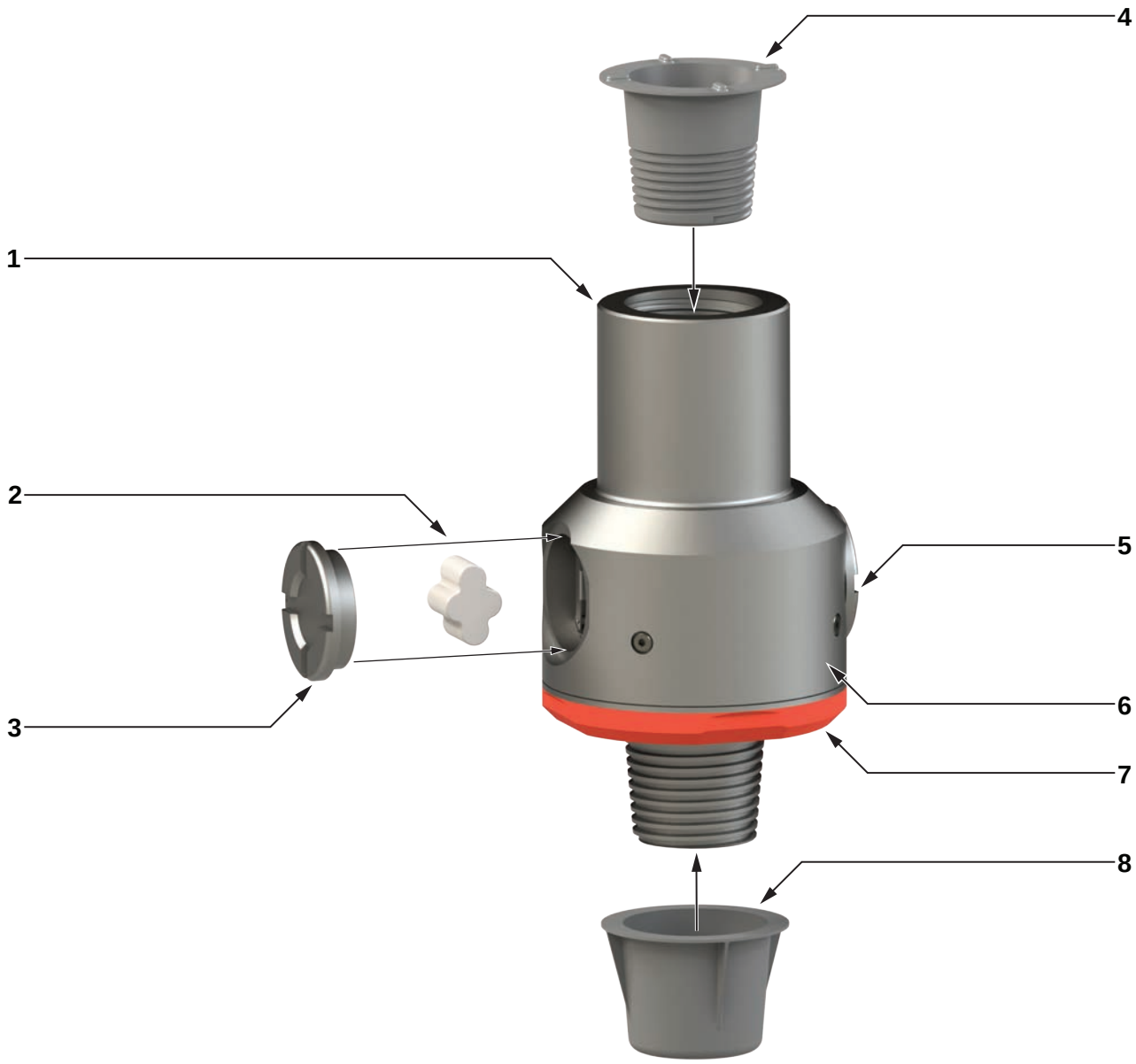

Illustration 2.1.1: Component Identification

Item	Description
1	Torque Sub Body
2	Battery Pack
3	Battery Cover Panel
4	Box-end Thread Protector
5	PCB Board Cover Panel (Do not remove unless instructed to do so by McCoy)
6	weCATT™ Enclosure (Body & electronic housing)
7	Antenna Ring
8	Pin-end Thread Protector

2.2 CUSTOMER SPECIFICATION FORM

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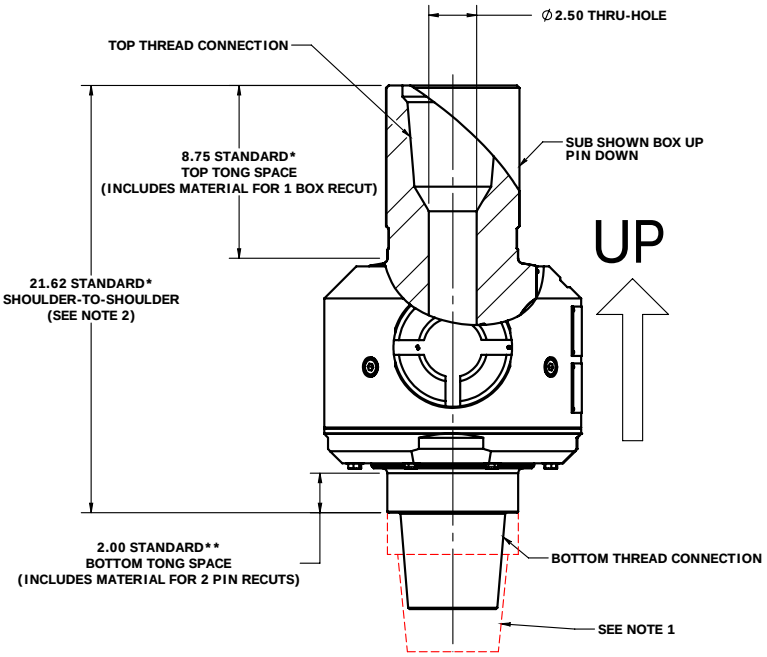
weCATT CUSTOMER SPECIFICATION FORM
(DRAWING SHOWS STANDARD DIMENSIONS)

THREAD	TORQUE	HOOK LOAD
API 4 1/2" NC50 (IF)	+\- 35,000 ft.lb.	350T
API 6 5/8" REG	+\- 50,000 ft.lb.	500T
OTHER	CALL 1-780-453-3277	



INTERNAL USE ONLY

SALES QUOTATION #: _____

CUSTOMER ACKNOWLEDGEMENT

EXAMPLE LABEL OF weCATT SHOWN BELOW:

CUSTOMER COMPANY NAME, SIGNATURE AND DATE ARE REQUIRED AS PROOF OF ACCEPTANCE THAT THESE CERTIFICATIONS FULFILL THE INTENDED END-USE OF THE PRODUCT.

IT IS A REQUIREMENT OF THE END USER TO ENSURE THAT THIS PRODUCT IS NOT USED IN AN AREA OR APPLICATION FOR WHICH IT IS NOT DESIGNED OR CERTIFIED

CUSTOMER COMPANY NAME:_____

CUSTOMER SIGNATURE:_____

CUSTOMER NAME (PLEASE PRINT):_____

DATE:_____

60 - TSA - ___ ___ - ___ ___ - ___ ___ - ___ ___ - ___ ___

1 2	3 4	5 6	7 8	9 10

BOX THREAD (1 2)	PIN THREAD (3 4)	BOX RECUTS (5 6)	PIN RECUTS (7 8)
01 - API 4 1/2" NC50	**01** - API 4 1/2" NC50	**00** - NO BOX RECUT ALLOWANCE	**00** - NO PIN RECUT ALLOWANCE
02 - API 6 5/8" REG	**02** - API 6 5/8" REG	**01** - 1 BOX RECUT*	**01** - 1 PIN RECUT
		0X - X = # of BOX RECUTS	**02** - 2 PIN RECUTS**
			0X - X = # OF PIN RECUTS

THREAD ORIENTATION (9 10)

00 - BOX UP, PIN DOWN

01 - PIN UP, BOX DOWN

MAX TOTAL # RE-CUTS (BOX RE-CUTS + PIN RE-CUTS) MUST NOT EXCEED 12

EXAMPLE: TS-01-01-01-00-00

TORQUE SUB WITH API 4 1/2" NC50 BOX THREAD, API 4 1/2" NC50 PIN THREAD,
1 BOX RECUT, 0 PIN RECUTS, BOX UP, PIN DOWN (S-2-S = 19.63")

NOTES:

1. ADDING RECUT TO STANDARD TORQUE SUB WILL INCREASE THE SHOULDER-TO-SHOULDER DISTANCE BY 1" FOR EACH RECUT
2. MINIMUM SHOULDER-TO-SHOULDER DISTANCE CAN BE 18.62" IF STANDARD RECUTS ARE NOT REQUIRED
3. MAXIMUM SHOULDER-TO-SHOULDER DISTANCE IS 30.63" (WITH 12 RE-CUTS TOTAL)

QF-103 - weCATT CUSTOMER SPECIFICATION FORM
REV 3 - ECN-002209- ISSUE DATE: 16 AUG 2013

X-PROOF SCHEDULE
NO CHANGES PERMITTED
see QF-100 and WI-730-7

Approval Function: DESIGN ENGINEERING
Approved By: M. GERWING DATE: 5 JULY 2013

Illustration 2.2.1: weCATT™ Customer Specification Form

2.3 SPECIFICATIONS

	TORQUE SUB SIZE	
PARAMETER	**6-⅝**	**4-½"**
Torque Capacity	-50,000 to +50,000 lbs-ft (-67,791 Nm to +67,791 Nm),	-35,000 to +35,000 lbs-ft (-47,454 Nm to +47,454 Nm),
Hoist Capacity	-200,000 to 1,000,000 lbs (-90,909 to +454,545 kg) tension, dependant upon thread type.	-200,000 to 700,000 lbs (-90,909 to +318,182 kg) tension, dependant upon thread type.
Sampling Rate	Dynamic, up to 480 samples per second	
Torque/Hook Load Accuracy	1% of full scale ±1%	
Turns Resolution	0.001 turns	
Temperature Range	-40ºC to 70ºC (-40ºF to 158ºF)	
Battery Life	30 days continuous use (can be extended up to 3 years depending on frequency of use of sleep mode).	
New Battery Shelf Life	3 years from date of purchase	
Transmission	2.4 GHz (approved Canada, USA, Europe)	
Transmission Type	Line of sight up to 90 meters depending on metal obstructions	
Enclosure Rating	Type 4X and IP 66	
Hazardous Area Classification	See weCATT™ nameplates (illustration 1.1.3)	
Design Specification	Designed to API 8C specifications	
Thread Specification	Manufactured to API 7 specifications	
Weight	Approximately 350 lbs (159.1 kg)	
Length	18.63 in (47.3 cm) shoulder-to-shoulder minimum if zero recut allowance 21.62 in (55 cm) shoulder-to-shoulder standard - may vary based on customers' requirements	

⚠ DANGER

BE ADVISED THAT THIS PRODUCT DOES NOT MEET REQUIREMENTS FOR "SURFACE RESISTANCE TEST OF PARTS OF ENCLOSURES OF NON-METALLIC MATERIALS" (CLAUSE 26.13, IEC/EN 60079-0) DUE TO THE POTENTIAL FOR ELECTROSTATIC DISCHARGE. DO NOT REMOVE WECATT™ ENCLOSURE COVERS IN AN EXPLOSIVE ENVIRONMENT.

⚠ DANGER

DO NOT MODIFY OR ALTER ANY COMPONENT OR ASSEMBLY ON THIS TOOL.

⚠ WARNING

USE ONLY PARTS SUPPLIED BY MCCOY, OR AN AUTHORIZED MCCOY REPRESENTATIVE.

2.4 CSA NAMEPLATE

The equipment in this manual complies with all standards identified in Canadian Standards Association (CSA) Certificate of Compliance # 2497668. Please refer to Appendix One.

McCoy Drilling and Completions (FARR CANADA CORP.)
14755 - 121 A Ave., Edmonton, Alberta, Canada, T5L 2T2
60-4000 (60-TSA) weCATT Wireless Torque Sub

MODEL No.: 60-TSA-0X-0X-0X-0X-XX
Serial No.: 201XXX-XXX YOC: 20XX
PIN: XX
BOX: XX
HOOK LOAD: XX

C US
CSA FILE #:254103

Class I Division 1, Group C and D; T4
Ex d [ib] IIB T4
Class I Zone 1 AEx d [ib]IIB T4
Rated 5 to 15 Vdc, 70mA max; 63mW max RF output
-40°C <=Tamb<= +70°C IP66 TYPE 4
IECEx CSA 13.0006X/00
Ex d [ib Gb] IIB T4 Gb
Designed to API Spec 8C PSL 1 and API Spec 7G

WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS
WARNING: DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
CAUTION: USE FASTENERS WITH YIELD STRESS >= 210MPa (30.5Kpsi)

Illustration 2.4.1: weCATT™ CSA Nameplate

C US
CSA FILE #:254103

Complies with all standards identified in Canadian Standards Association (CSA) Certificate of Compliance # 2497668. Identifies Master Contract Number 254103.

Ex d	Conforms to CENELEC standard of explosion-proof protection, flameproof protection method
[ib]	Protection methods: intrinsically safe output circuit
IIB	Ethylene gas group
T4	Temperature class 4. Maximum surface temperature of 135 °C.
Gb	Denotes certification of equipment for explosive gas atmospheres, having a “high” level of protection. Will not provide an ignition source during normal operation or during expected malfunctions.
AEx d	Conforms to CENELEC standard of explosion-proof protection, flameproof protection method as identified for hazardous locations in the United States of America.
IECEx	Denotes CSA confirmation that equipment complies with all relevant requirements as identified in Certificate of Compliance # 13.0006X/00
[ib Gb]	Protection methods: intrinsically safe output circuit suitable for an explosive gas atmosphere under the conditions identified in the CSA file.

2.5 ATEX NAMEPLATE

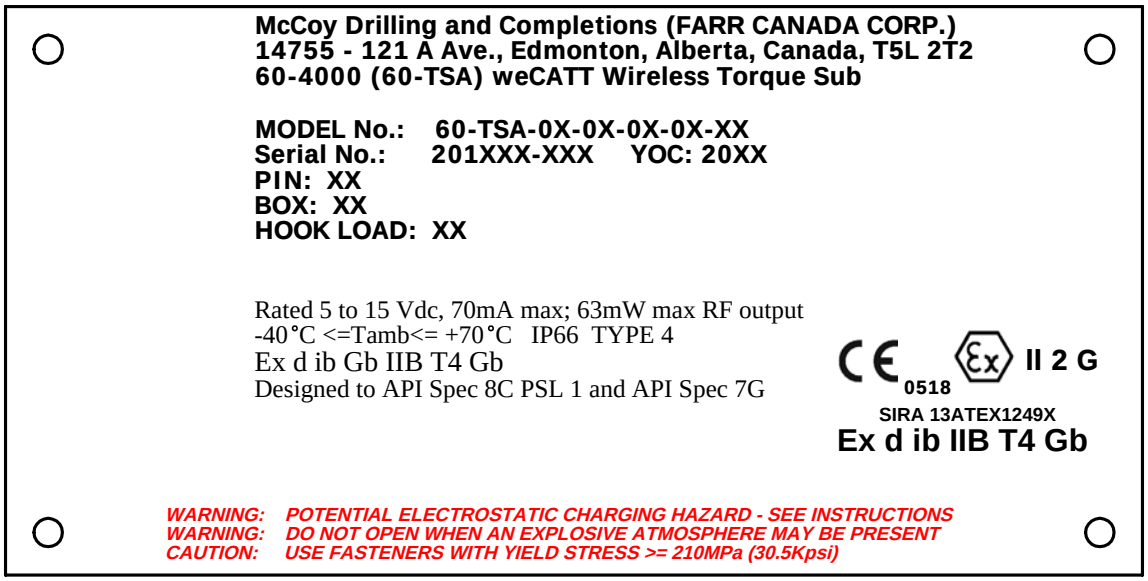


Illustration 2.5.1: weCATT™ ATEX Nameplate

CE 0518 — CE compliant. Conforms with the essential requirements of the applicable Conformité Européenne directives. Provides I.D. number of the notified body of the QA system (Sira).

Ex — EU Explosive Atmosphere certified

II — Equipment Group (surface, non-mining)

2 — Equipment Category - high level of protection

G — Certified for use in a gas environment

Ex d — Conforms to CENELEC standard of explosion-proof protection, flameproof protection method

ib — Protection methods: intrinsically safe output circuit

IIB — Ethylene gas group

T4 — Temperature class 4. Maximum surface temperature of 135 °C.

Gb — Denotes certification of equipment for explosive gas atmospheres, having a “high” level of protection. Will not provide an ignition source during normal operation or during expected malfunctions.

SECTION 3: INSTALLATION & OPERATION

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Adequate setup and proper hydraulic connections are essential in ensuring reliable operation of your tong. For best results and long term reliability, read and obey the start-up instructions in this section.

3.0 INITIAL RECEIPT AND INSPECTION OF EQUIPMENT

NOTICE

YOUR EQUIPMENT HAS BEEN THOROUGHLY TESTED AND INSPECTED AT THE FACTORY. HOWEVER, MCCOY GLOBAL ADVISES INSPECTING YOUR EQUIPMENT FOR SHIPPING DAMAGE UPON RECEIPT AND TESTING YOUR EQUIPMENT BEFORE RELEASING TO AN OPERATIONAL ENVIRONMENT.

Inspect impact/shock indicator before removing pallet cover. Suspected impact damage must be reported to the shipping company immediately, and consult McCoy before installing battery pack.

Perform a visual inspection following removal of all packaging material. Immediately identify any shipping damage to the shipping company, and correct all damage before installing battery pack, initializing torque sub and placing in an operational environment.

3.1 MAINTAINING EXPLOSION-PROOF INTEGRITY

Proper handing is an essential component of maintaining the explosion-proof integrity of your wireless torque sub. Follow the guidelines in this subsection, and always contact McCoy's WinCATT service division if any questions regarding the handling or condition of your wireless torque sub arise.

Four blanking plugs are arrayed around the perimeter of the weCATT™ enclosure. These plugs are installed as part of the manufacturing process and should not be removed by the customer. Use of the wireless torque sub in an explosive environment is prohibited if any of these plugs is removed. Additionally, all four plugs require regular re-torquing to confirm continuing explosion-proof integrity.

Illustration 3.1.1: Blanking Plug Identification

Trauma to the weCATT™ enclosure may be indicative of heavy impact to or clamping of a tubular connection tool to the enclosure. Significant stress to the weCATT™ enclosure may cause the enclosure to lose its round shape and become slightly elliptical, thus losing the ability to properly seal to the torque sub body. A poor seal between the torque sub body and the weCATT™ enclosure may create a flame path.

3.1 MAINTAINING EXPLOSION-PROOF INTEGRITY (CONTINUED):

Following removal of the wireless torque sub from the shipping pallet McCoy recommends always transporting or lifting the equipment in the vertical position using a lifting nubbin. Store vertical, and restrain to avoid toppling while in storage.

Do not allow the wireless torque sub assembly to impact any object when hoisting or moving with overhead lifting equipment.

Do not under any circumstances remove either weCATT™ enclosure cover in an explosive environment.

⚠ DANGER

DUE TO THE POTENTIAL FOR ELECTROSTATIC DISCHARGE DO NOT REMOVE WECATT™ ENCLOSURE COVERS IN AN EXPLOSIVE ENVIRONMENT.

3.2 INSTALLATION

3.2.1 Battery Pack Connection

Connect the battery pack before removing torque sub from the shipping pallet prior to installation on the rig:

1. Identify the battery cover. The battery cover has an image of a battery scribed on to it.

Battery Cover (Outside) **Battery Cover (Inside)**

Illustration 3.2.1: Battery Cover

2. Locate the provided cover plate removal tool bar in its storage location on the shipping pallet (see illustration 3.2.2). Loosen the set screw on the battery cover. Use the tool bar to turn the battery cover counter-clockwise to loosen. Continue to loosen by hand until it comes free, and remove and place in a secure location to avoid contamination of threads.

3.2.1 Battery Pack Connection Continued):

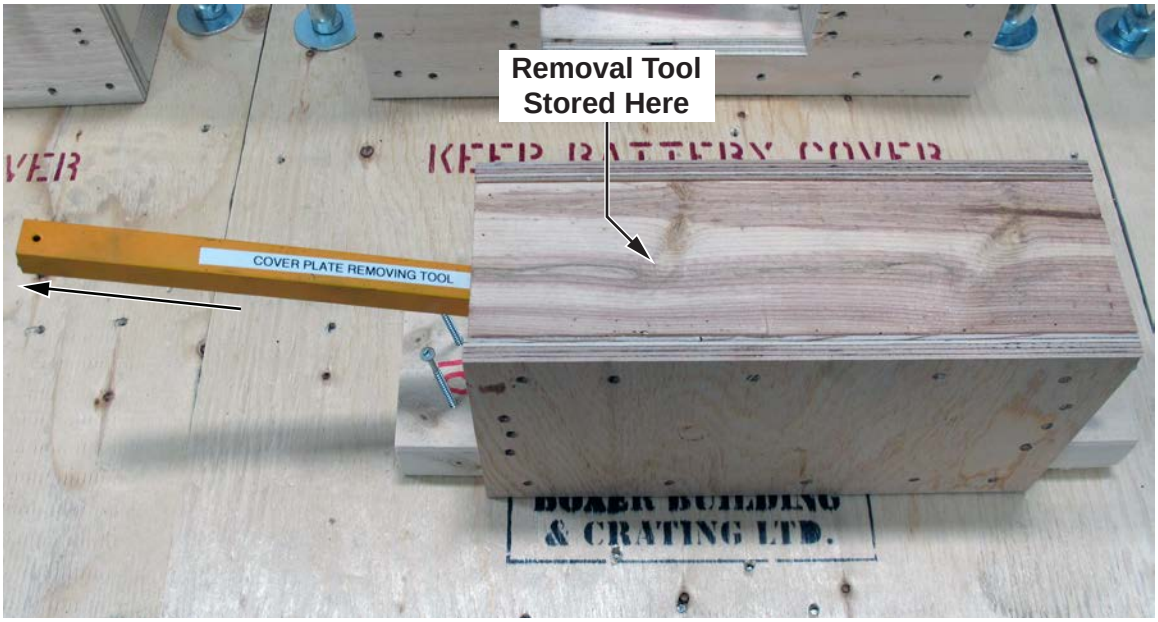

Illustration 3.2.2: Cover Plate Tool Bar Removal

⚠ DANGER

DO NOT MAKE BATTERY CONNECTION IF UNIT IS IN AN EXPLOSIVE ENVIRONMENT.

3. Plug the battery power lead in to the receptacle (see Illustration 3.2.3)

Illustration 3.2.3: Battery Power Connection

3.2.1 Battery Pack Connection (Continued):

4. Completely remove the set screw, treat set screw threads with blue Loctite®, and re-thread in to battery cover. Treat the threads of the battery cover with anti-seize compound before reinstalling. Thread cover on to body by hand as far as possible, then use tool bar to complete tightening until the cover bottoms out. Do not cross-thread. Tighten until the o-ring is snug against its seat but not crushed. Tighten the set screw against the torque sub housing until snug. Replace the tool bar in its storage location for safe-keeping or, if the storage crate is to be removed for storage, store the tool bar with the spare battery.

NOTICE

USE OF AFTERMARKET BATTERIES OR UNAUTHORIZED POWER SOURCES WILL VOID YOUR WARRANTY.

14.4 Volt Lithium Battery Pack	Part Number: 60-4000-14

⚠ WARNING

FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT CRUSH, RE-CHARGE, DISASSEMBLE, HEAT ABOVE 100 °C (212 °F) OR INCINERATE. DO NOT SHORT-CIRCUIT

3.2.2 Rig-In Practices

When ready to mount torque sub release from the shipping pallet by backing off and removing the ratchet-equipped straps.

Box-Up / Pin-Down Model

Remove the box-end thread protector and install the optional lifting nubbin (4-½" = PN 60-4501, 6-⅝" = PN 60-4503). Leave the pin-end thread protector in place until ready to mate to equipment.

Pin-Up / Box-Down Model

Remove the pin-end thread protector and install the optional lifting nubbin (4-½" = PN 60-4500, 6-⅝" = PN 60-4502). Leave the box-end thread protector in place until ready to mate to equipment.

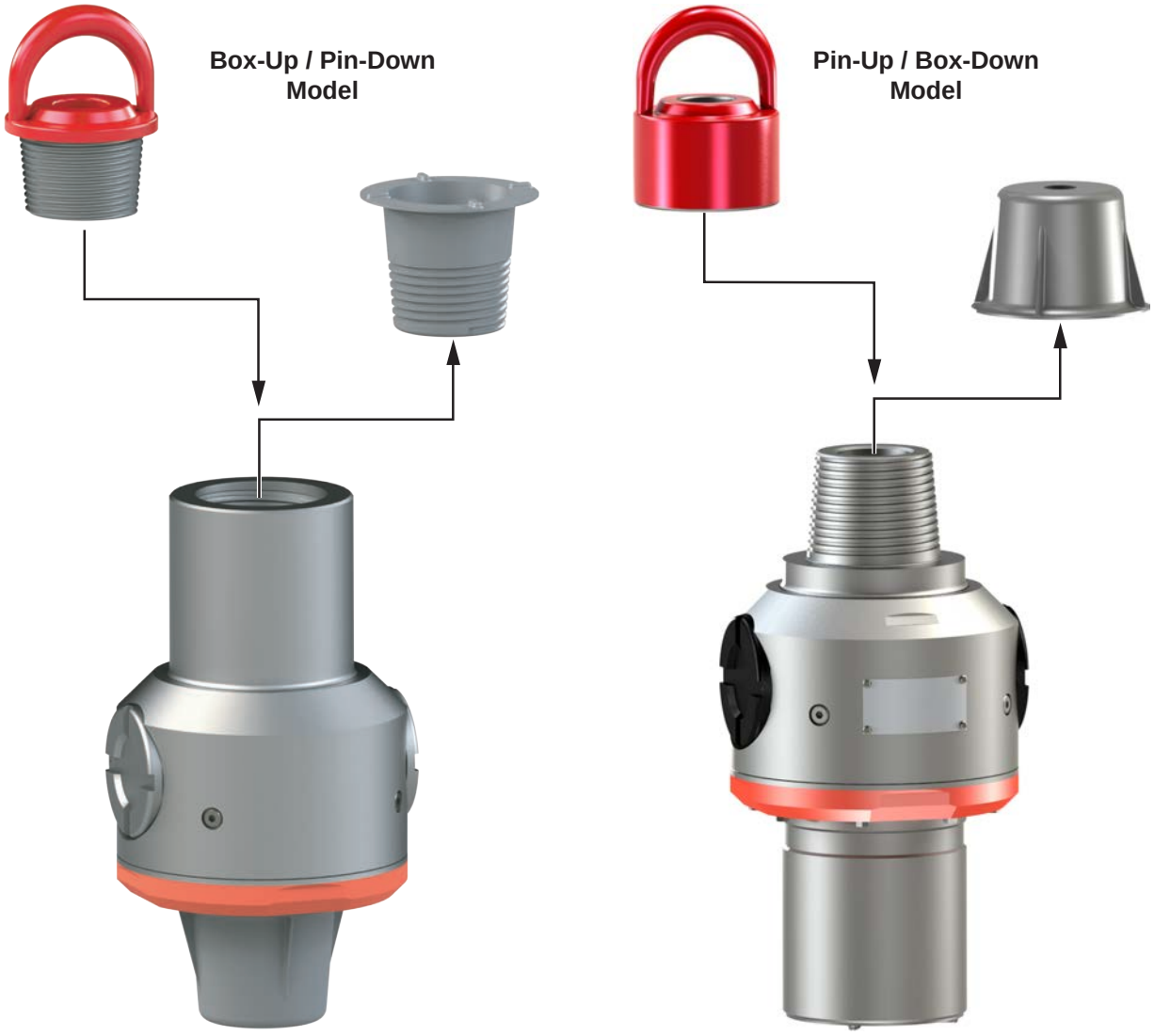

Illustration 3.2.4: Lifting Nub Installation

Hoist the torque sub from the shipping pallet using the lifting nubbin only. Protect the antenna ring (see Illustration 2.1.1) from impact at all times.

NOTICE

HOIST THE TORQUE SUB FROM THE SHIPPING PALLET USING THE LIFTING NUBBIN ONLY.

3.2.2 Rig-In Practices (Continued):

Use a utility or boom crane to hoist the torque sub to the work floor. Support the torque sub vertically - do not lay on its side to avoid potential damage to the antenna ring.

NOTICE

AVOID DAMAGE TO THE ANTENNA RIG BY SUPPORTING THE TORQUE SUB VERTICALLY. PROTECT THE ANTENNA RING FROM IMPACT AT ALL TIMES.

Do not clamp to the body of the torque sub. Tools used to support the torque sub during mating to the top drive must clamp to the designated clamping section only.

⚠ CAUTION

NEVER CLAMP TO WECATT™ ENCLOSURE

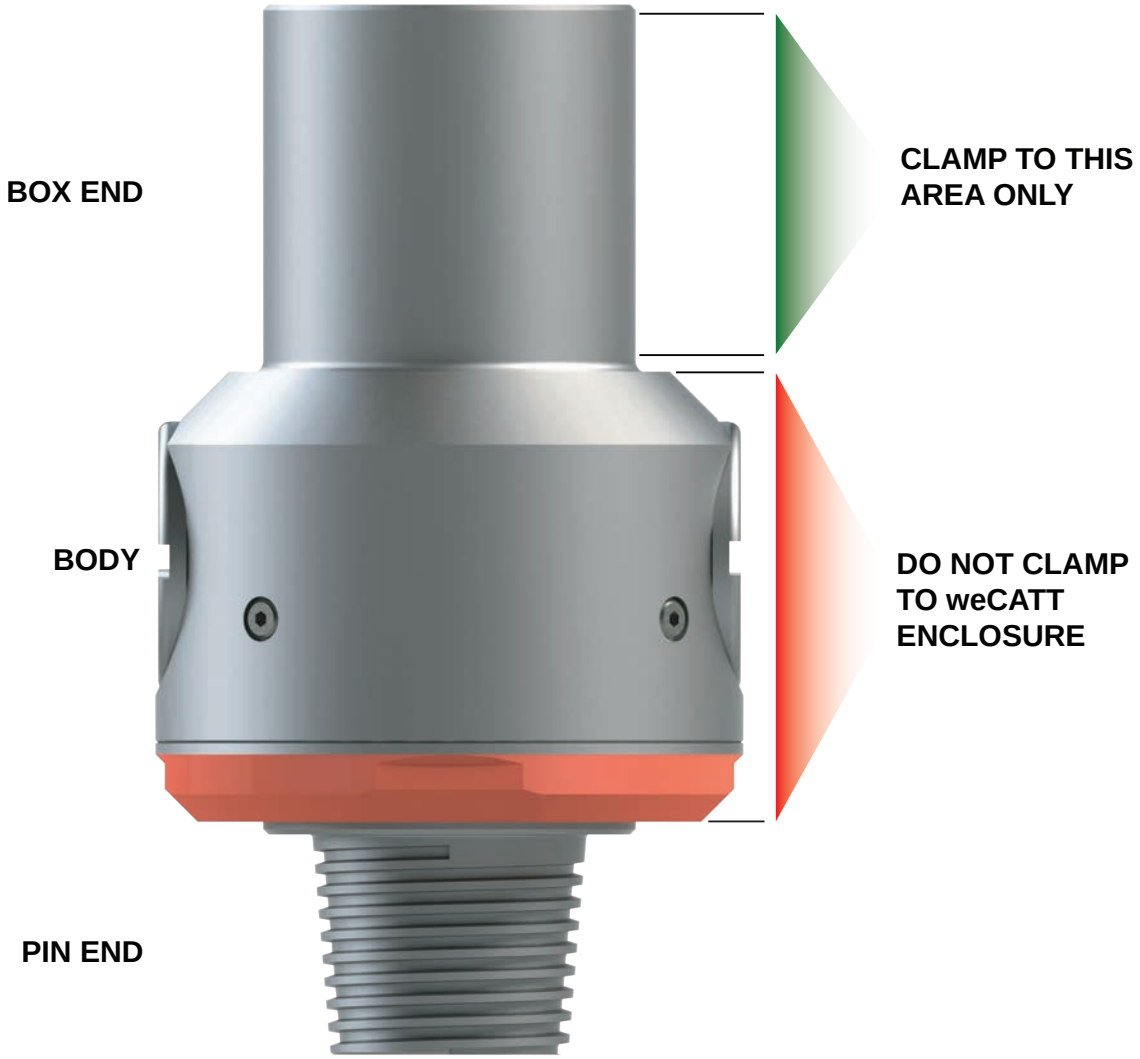

Illustration 3.2.5: Torque Sub Clamping Guide - Pin Down / Box Up Models

NOTICE

TREAT THREADS AND ALL CONTACT SURFACES WITH PIPE DOPE BEFORE THREADING INTO BOX END OR ON TO THE PIN END.

3.2.2 Rig-In Practices (Continued):

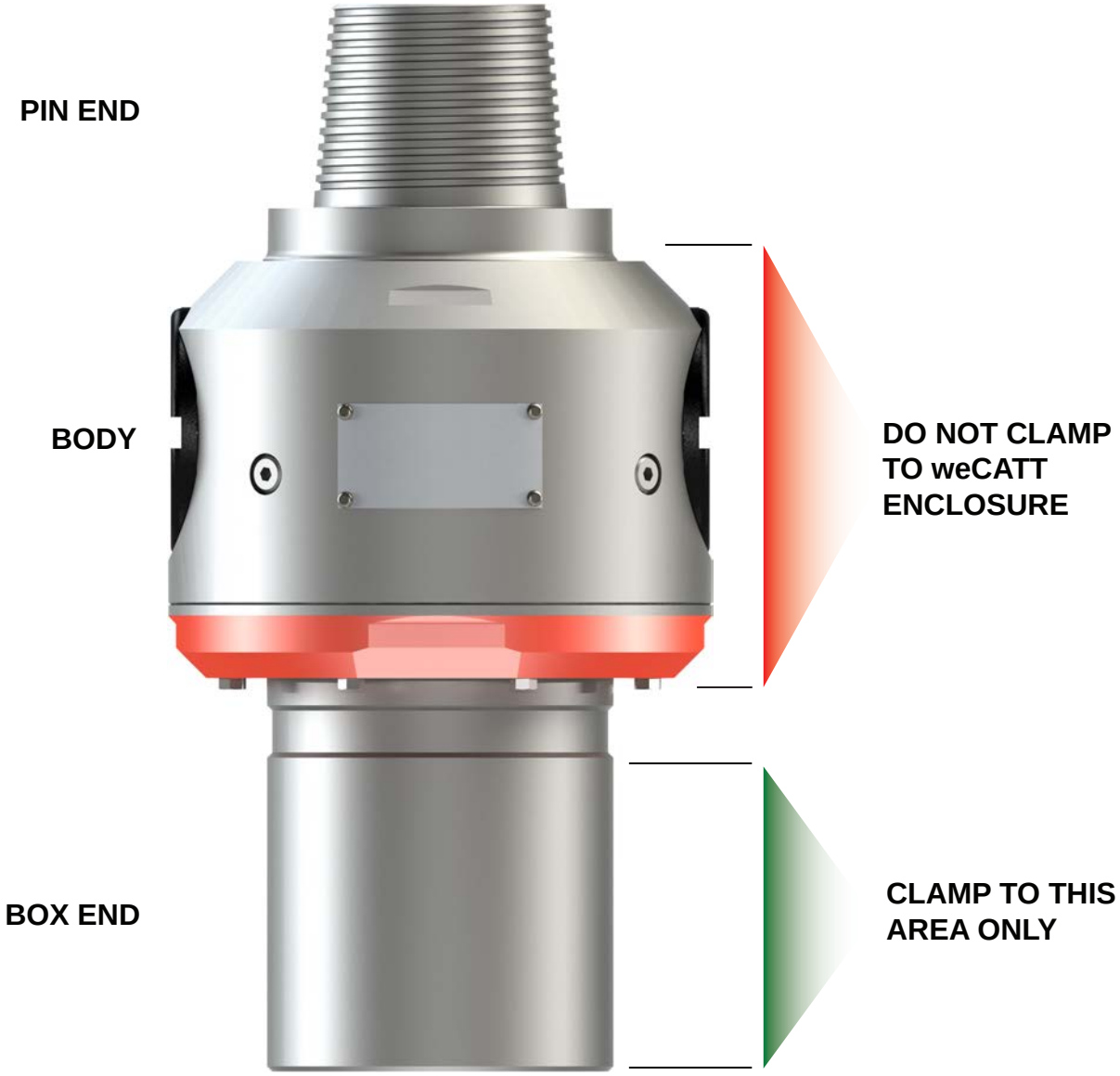

Illustration 3.2.6: Torque Sub Clamping Guide - Pin Up / Box Down Models

3.2.3 Connection of Receiving Antenna

1. Place the weCATT™ laptop in a clean, secure environment i.e. inside the doghouse or control cubicle.
2. Uncoil the USB cable so it is kink-free.
3. Connect the USB-B end of the USB cable to the antenna.

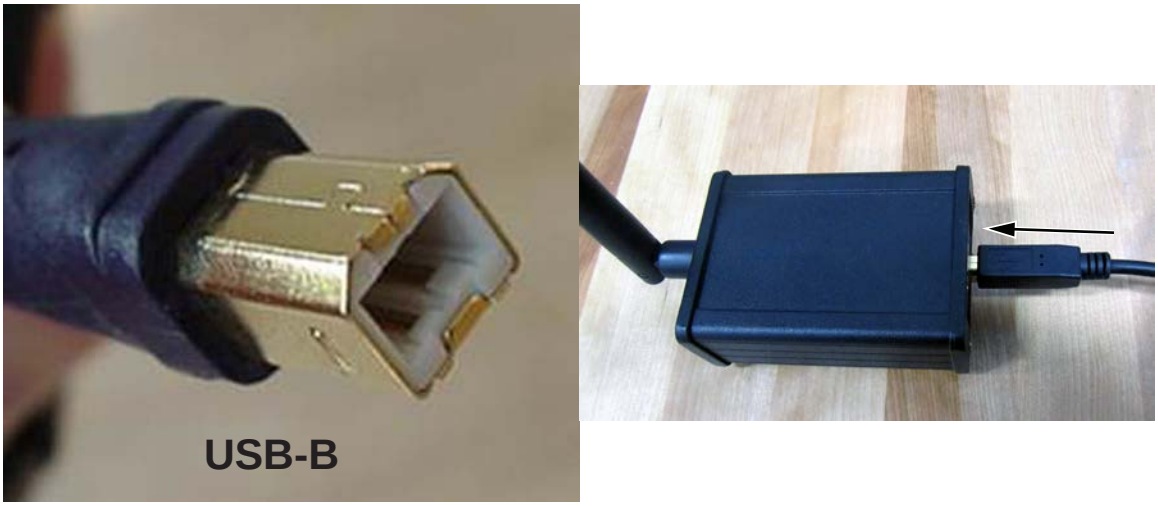

Illustration 3.2.7: USB-B Connection To Receiving Antenna

4. Connect the USB-A end of the USB cable to the laptop.

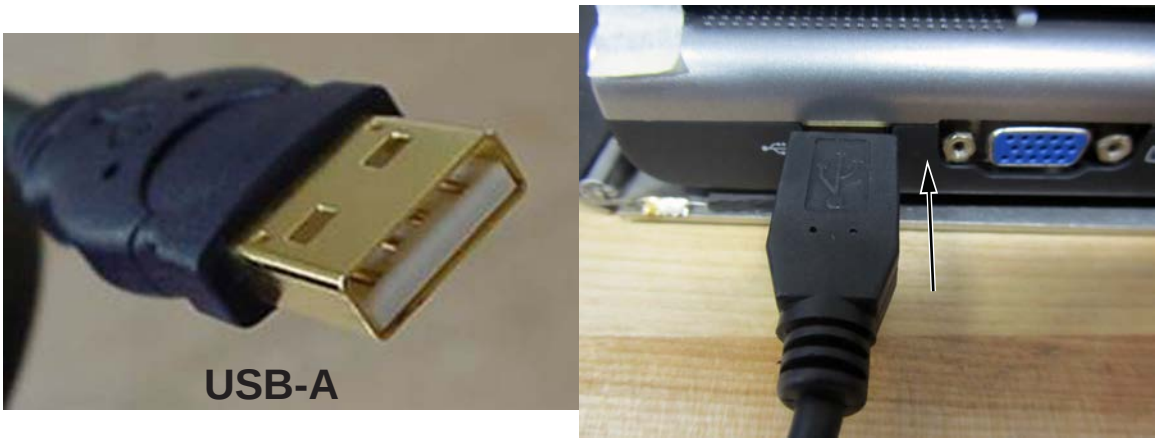

Illustration 3.2.8: USB-A Connection To Laptop

5. Place the receiving antenna on a flat surface near the computer. Do not place stress on the USB cable that may cause the cable to become unplugged at the receiver end or the computer end.

3.3 OPERATION

3.3.1 Initial Start-up

1. Switch on the computer and allow it to boot-up until the standard Windows screen appears.

Illustration 3.3.1: Standard Windows Boot-Up Screen

2. Start the WinCATT® 8 program by double-clicking the WinCATT 8 icon.

Illustration 3.3.2: WinCATT® 8 Icon

3. The WinCATT® home screen will appear following successful initialization of the WinCATT® 8 program.

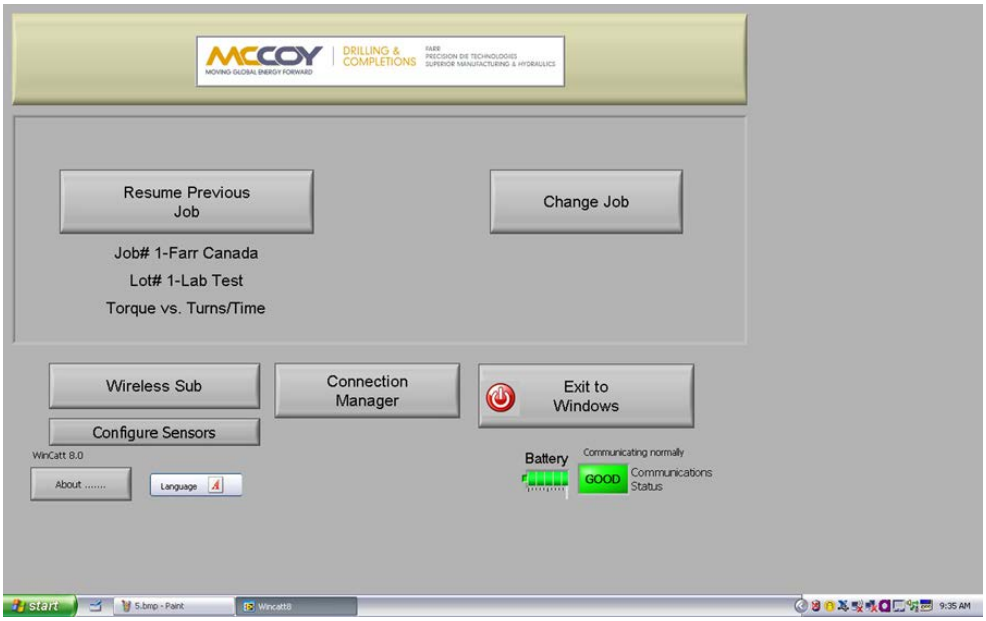

Illustration 3.3.3: WinCATT® 8 Home Screen

3.3.1 Initial Start-up (Continued):

4. Check the battery level and communications status. Upon initial start the communications status bar should be green and reading “GOOD”, and the battery life indicator should be green and 100%.

Illustration 3.3.4: Communications “GOOD” Indication

In rare occasions a communications failure will occur, and be indicated by the communications status indicator turning red and a “CHECK” signal being displayed. In these instances the battery life will also indicate 0%, because the battery life signal is part of the signal from the torque sub. Communications may occur because the communications port on the computer did not initialize, the USB cable has become dislodged, or the antenna has been replaced.

Illustration 3.3.5: Check Communications Indication

Re-establish communications by clicking the “Wireless Sub” button, followed by the “Select Com Port” button (com port selection is automatic). Call McCoy weCATT™ service if communications failure persist following this step.

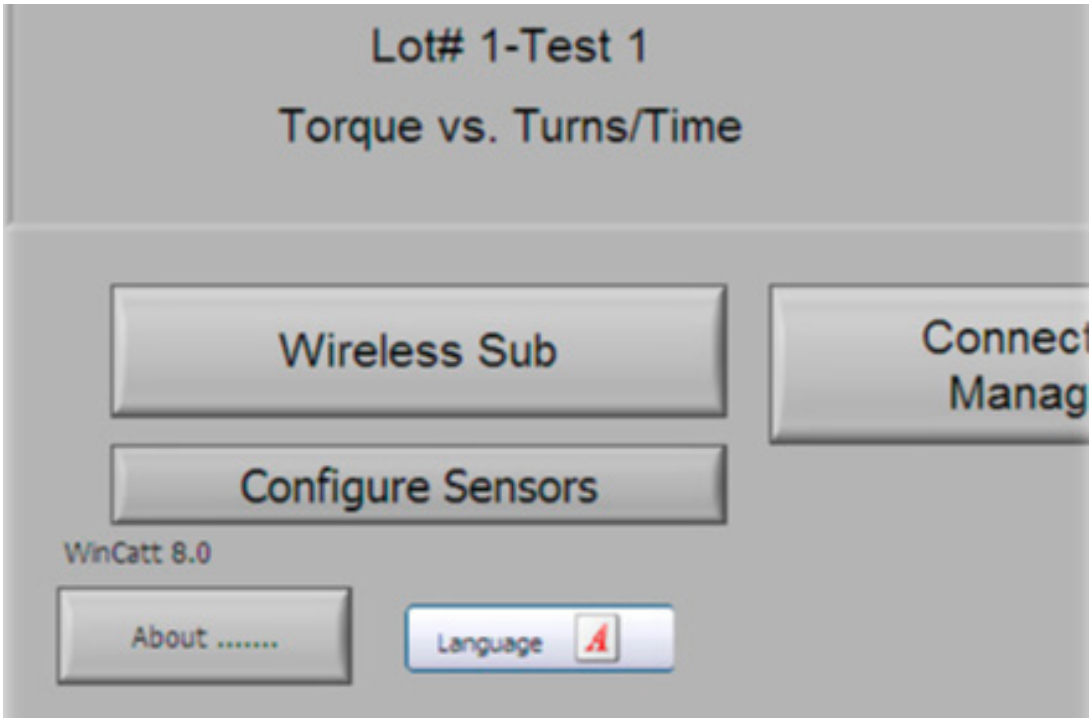

Illustration 3.3.6: Wireless Sub Selection

3.3.1 Initial Start-up (Continued):

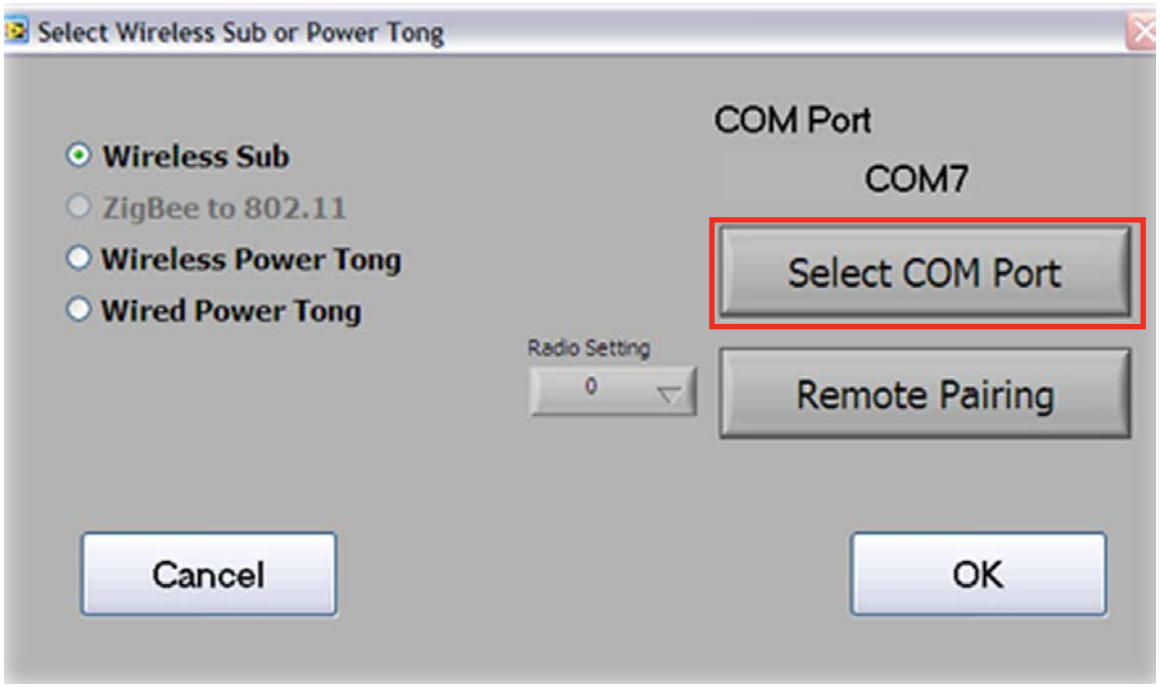

Illustration 3.3.7: Com Port Selection

3.3.2 Adding New Tubular Connections

1. Select “Connection Manager” on the home screen to advance to the “Connection Library Manager” window.

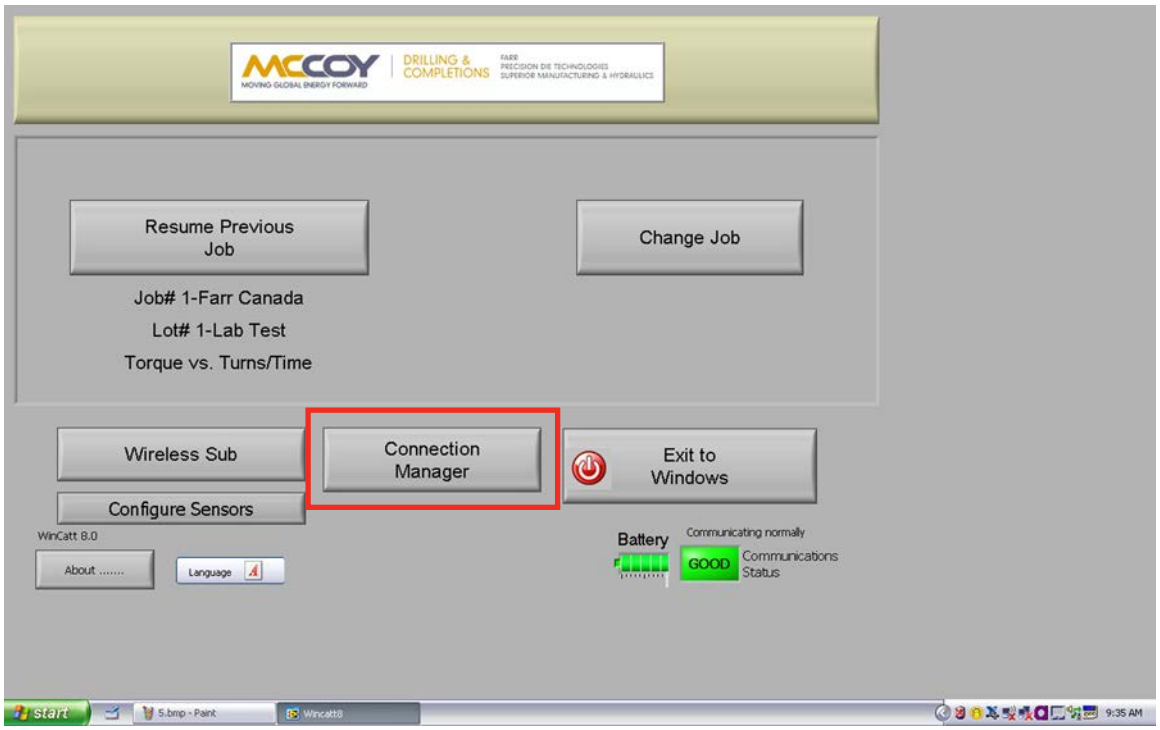

Illustration 3.3.8: Connection Manager Selection

3.3.2 Adding New Tubular Connections (Continued):

2. The “Connection Library Manager” window lists all programmed connections, and allows programming of new connections. Select “Add” to add a new connection.

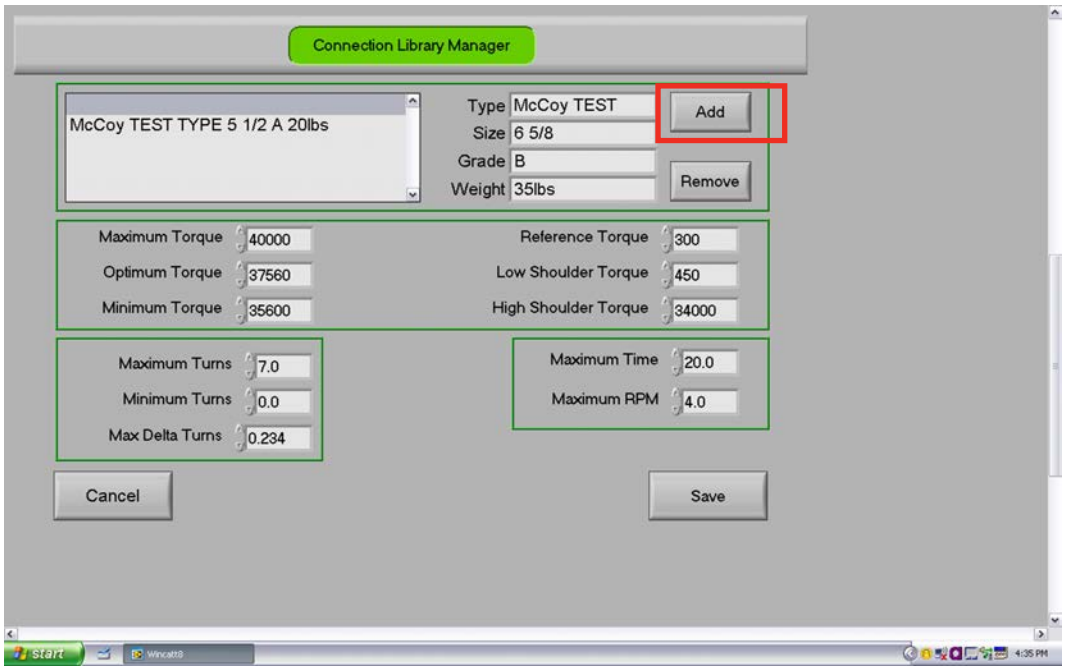

Illustration 3.3.9: Adding A New Connection Type

3. All available fields are reset when programming a new connection. Enter the desired parameters in each field. If not creating a premium connection, McCoy recommends entering a value of “-1” (negative one) in the low shoulder torque field and a value of “0” (zero) in the high shoulder torque field. After completing all necessary fields select “Save” to save the parameters as a new connection type.

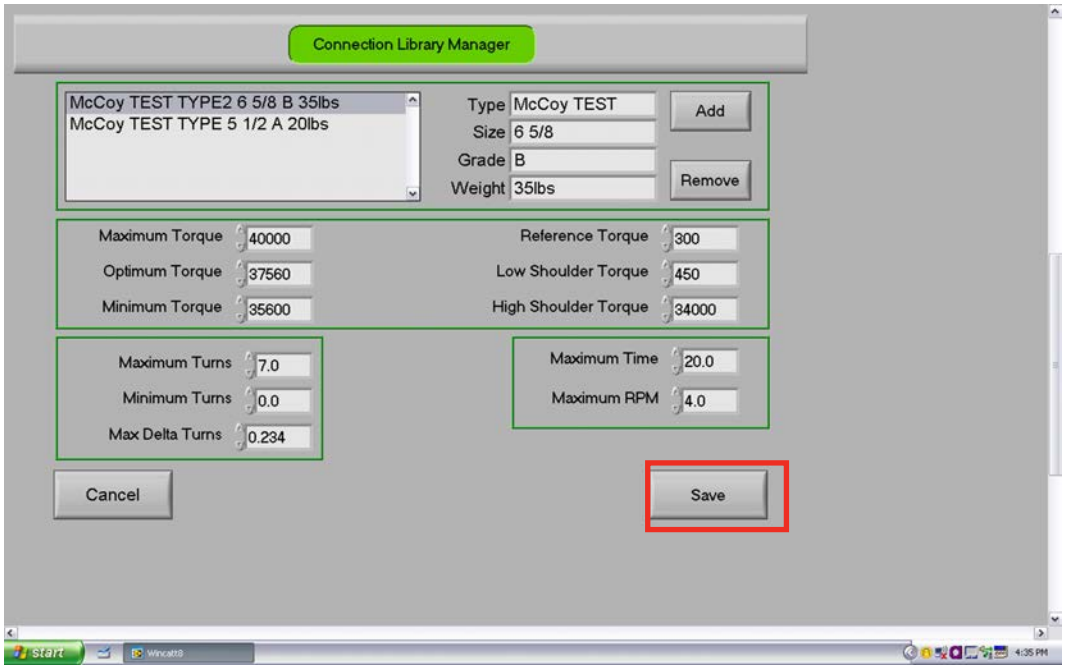

Illustration 3.3.10: New Connection Programming

3.3.3 Programming A New Job

1. Select “Change Job” on the home screen

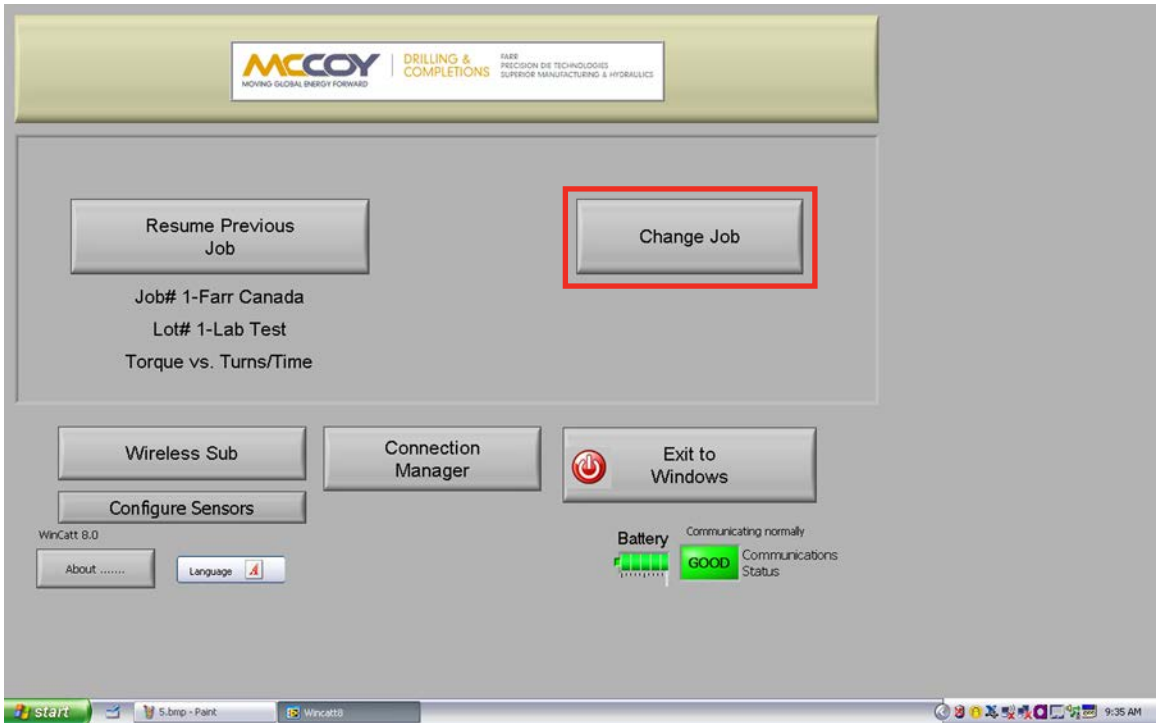

Illustration 3.3.11: Change / New Job Selection

2. Default program selection is “Torque vs. Turns/Time”. Optional programs available for selection are “Torque vs. Turns” and Torque vs. Time”. Select your desired program, then select “Load Program” to load the selected program for operation.

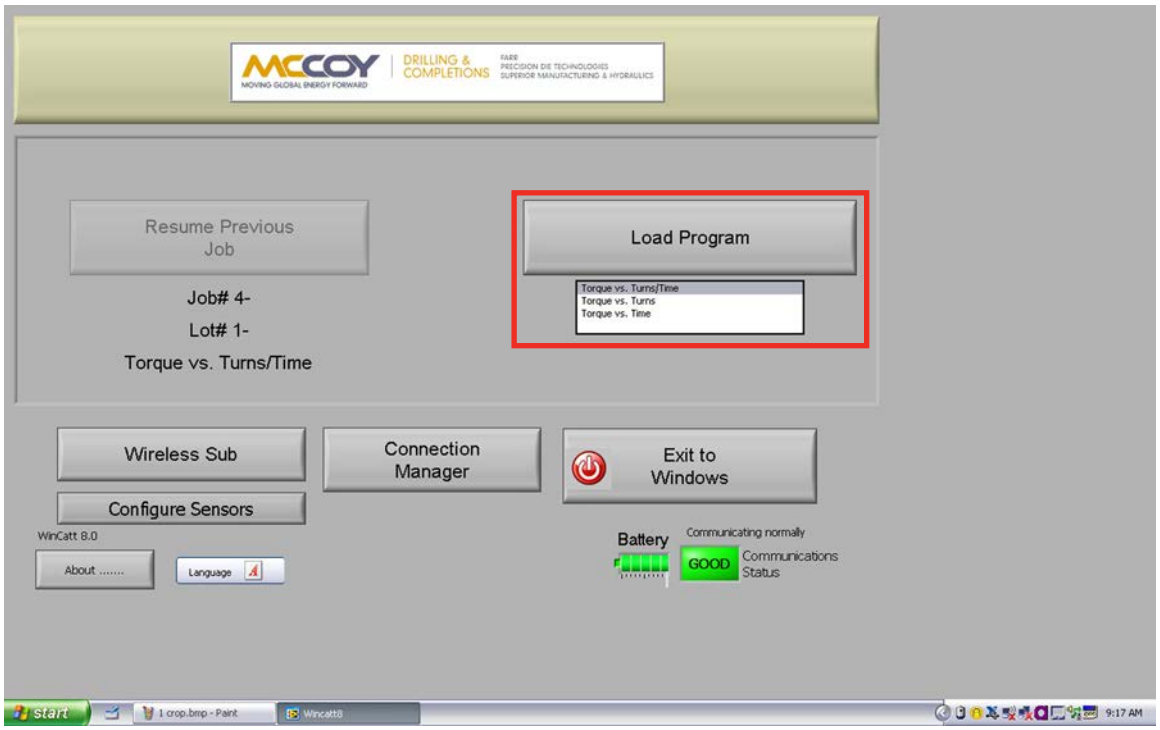

Illustration 3.3.12: Selecting Program Type

3.3.3 Programming A New Job (Continued):

3. Select “New Job” on the “Job Management” screen to advance to the “New Job & Lot” screen.

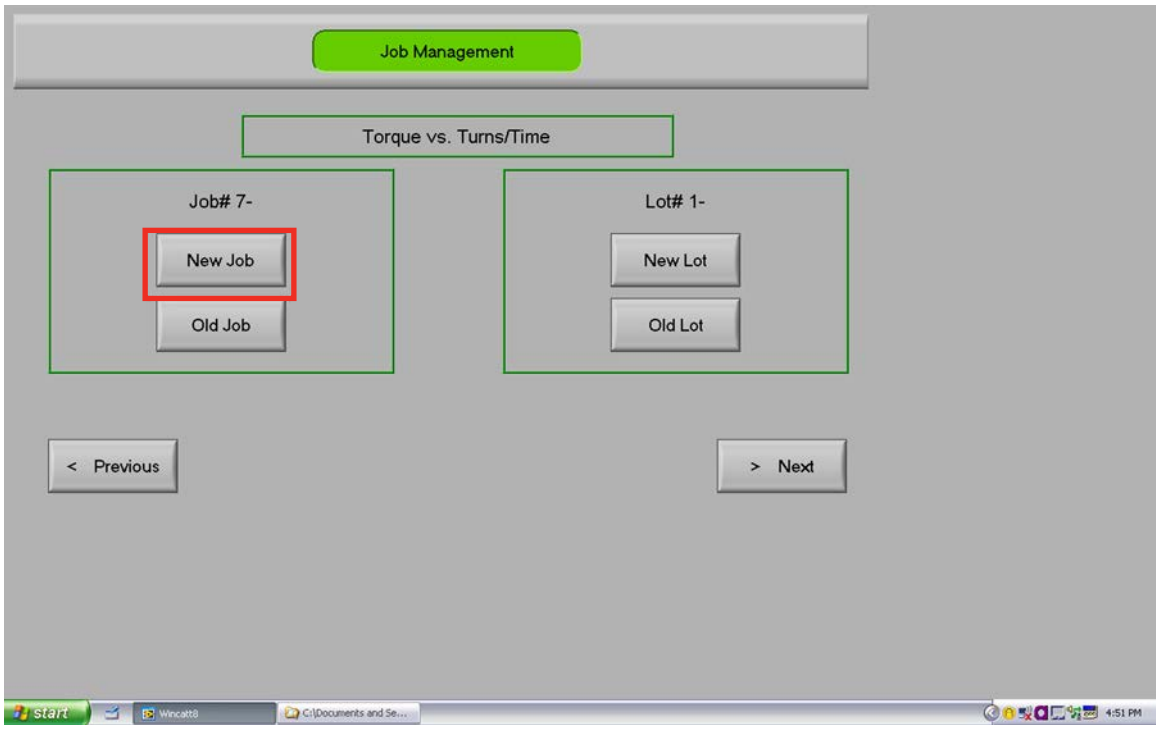

Illustration 3.3.13 Selecting New Job

4. Complete the “Job#” and “Lot#” fields on the “New Job & Lot” screen to store identification details of the new job, then select “OK”.

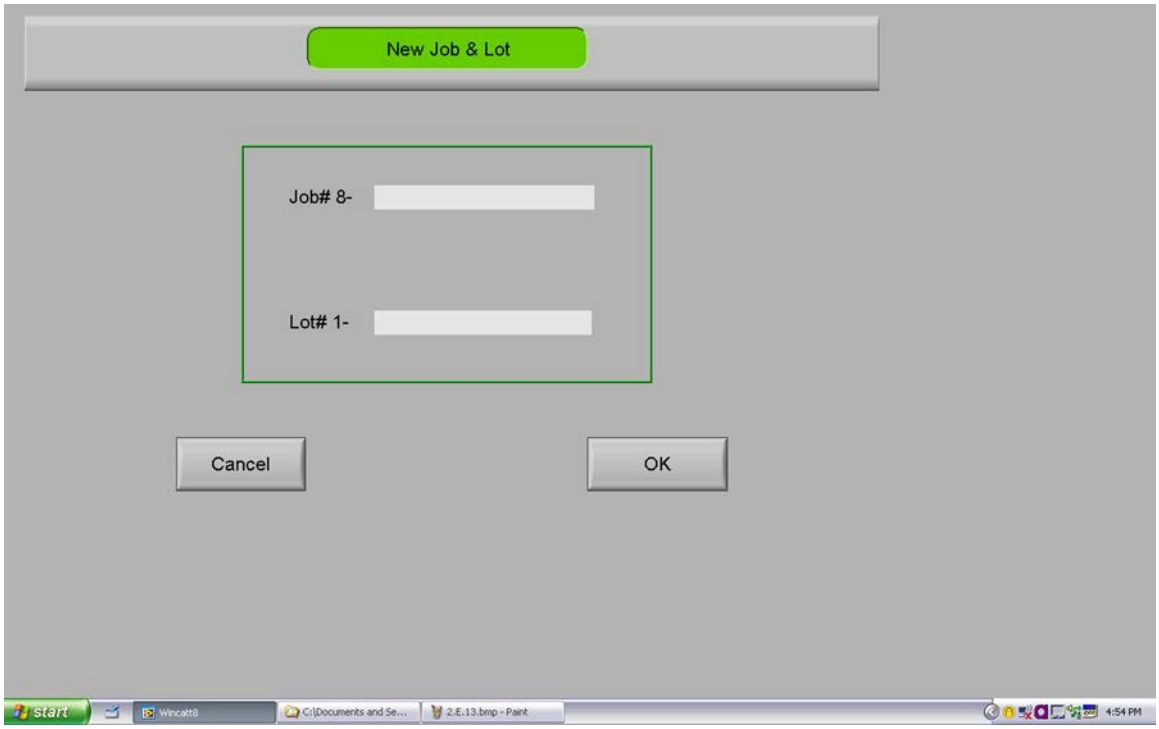

Illustration 3.3.14: Creating Job & Lot IDs

3.3.3 Programming A New Job (Continued):

5. Select “Next” on the “Job Management” screen to advance to the “Connection Type” screen.

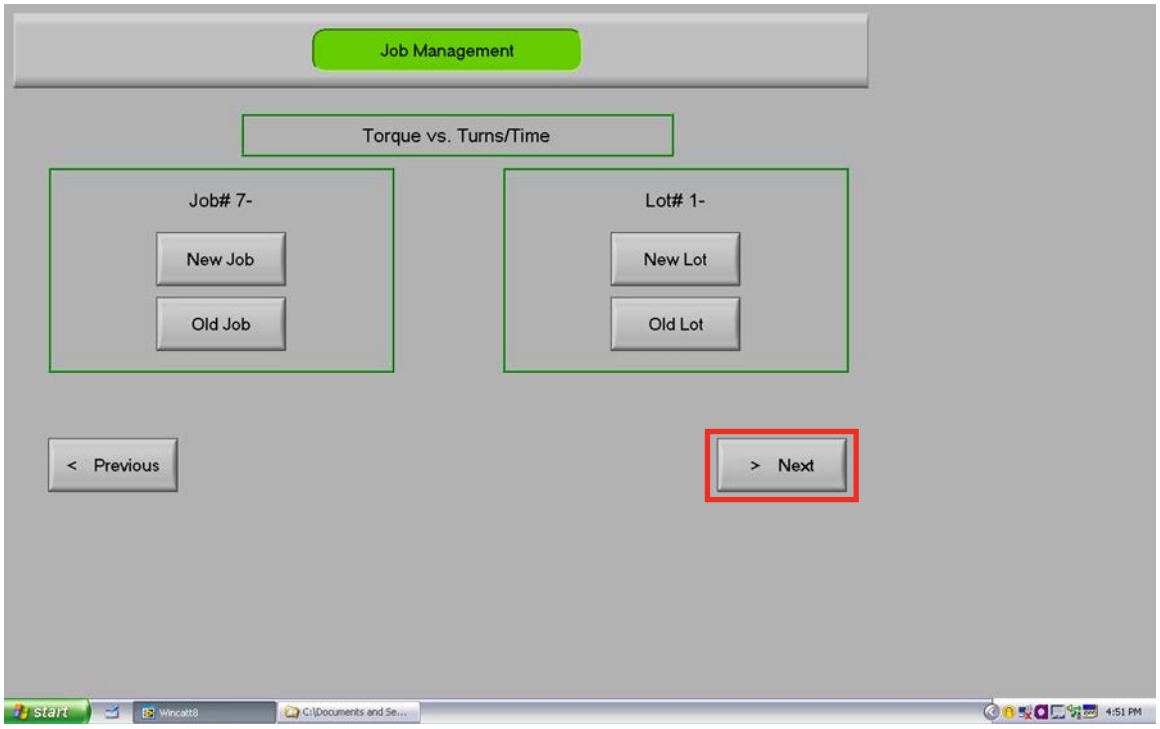

Illustration 3.3.15: Selecting Connection Type

6. Highlight the desired connection type and select “Next” to advance to the “Program Settings” page. See section 2.5.2 to enter a new connection type if desired.

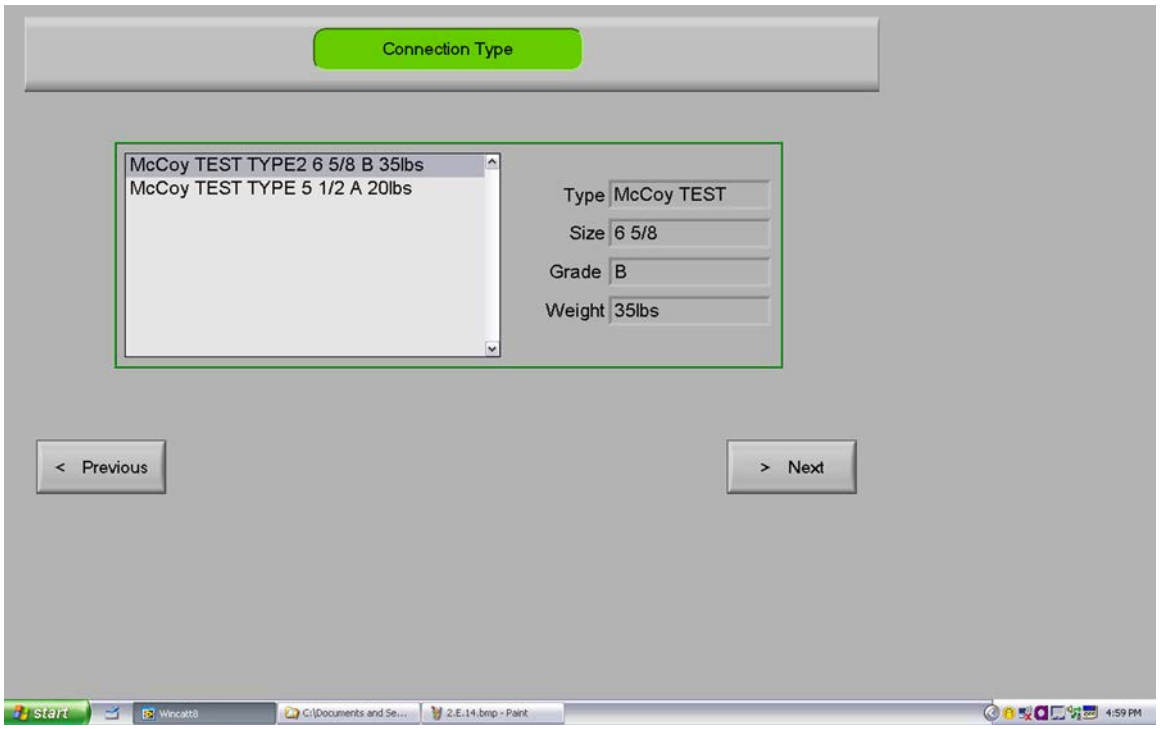

Illustration 3.3.16: Selecting Program Type

3.3.3 Programming A New Job (Continued):

7. Review the parameters loaded into the fields on the “Program Settings” page. Make changes to any field that is not suitable. When editing is complete select “Next”.

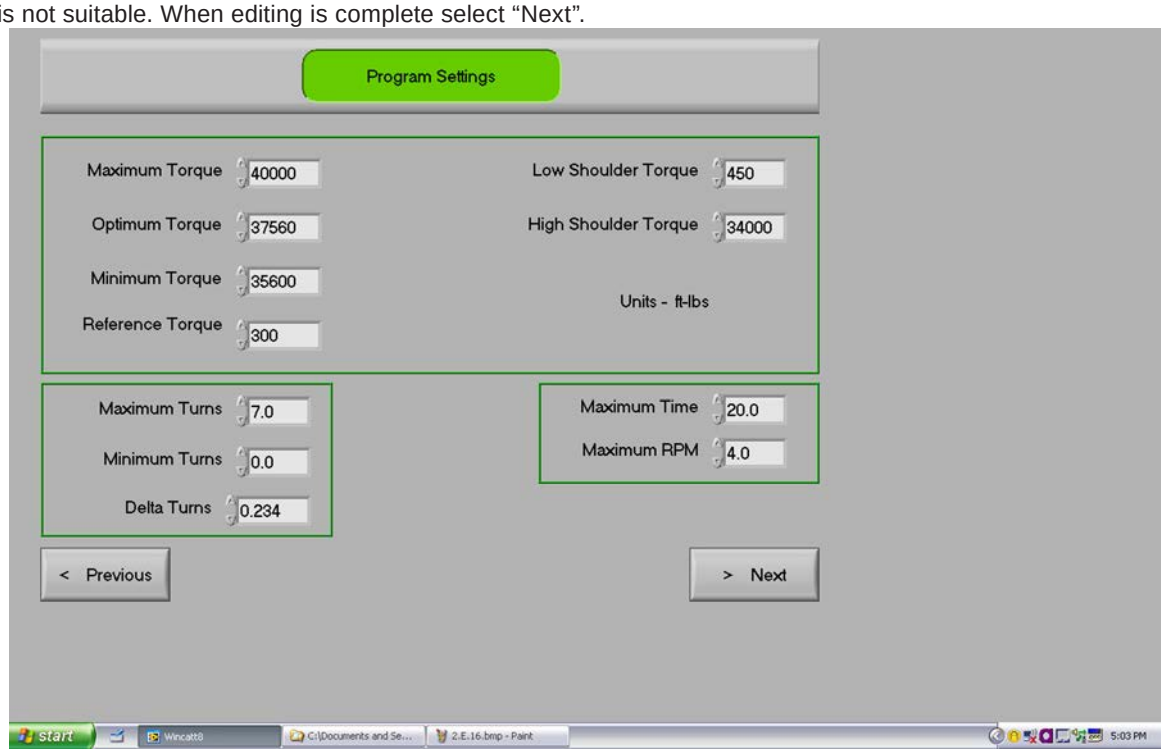

Illustration 3.3.17: Program Settings

A warning dialogue box will prompt you to save changes to the connection library. If you wish any changes to the program settings to be saved to that connection type permanently, select “OK”. If you wish to use the changes for that job without altering the data in the programmed connection type, select “Cancel”, and the data will not be overwritten.

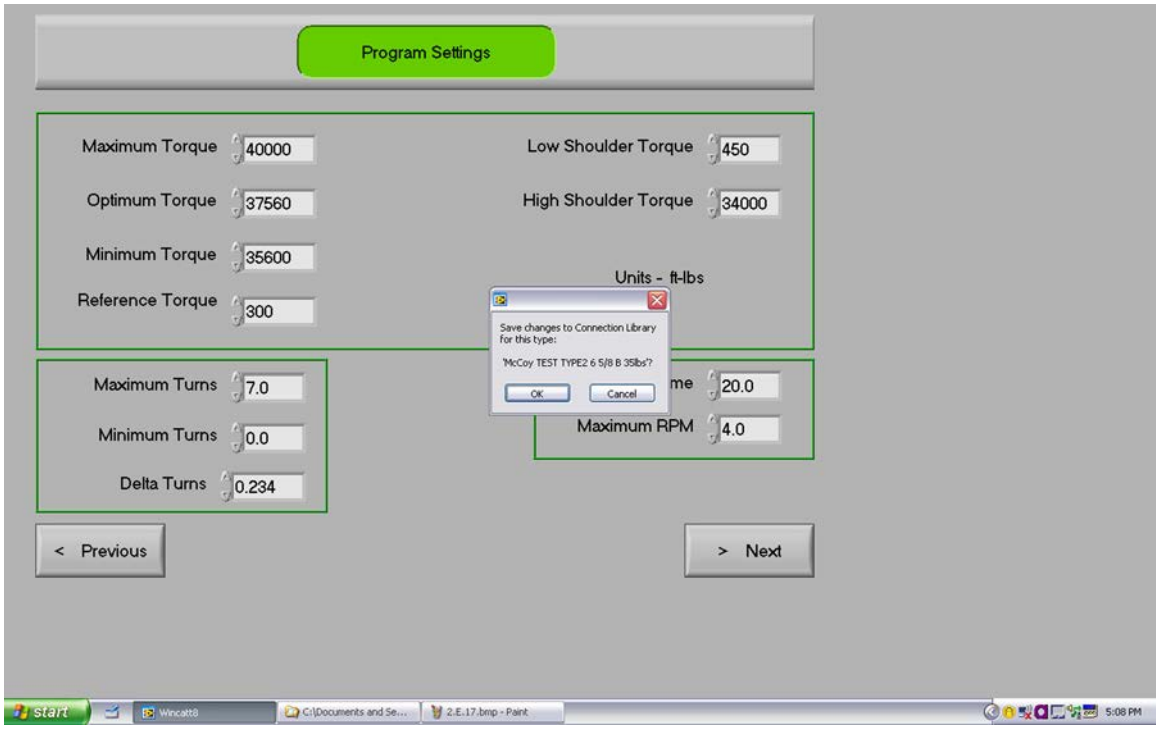

Illustration 3.3.18: Program Settings Warning Dialogue

3.3.3 Programming A New Job (Continued):

8. Verify the communications status and battery levels on the hardware screen. Low battery power indication should prompt a battery change (see section 4.2 for battery replacement instructions). Refer to section 5, Troubleshooting, to correct communications errors.

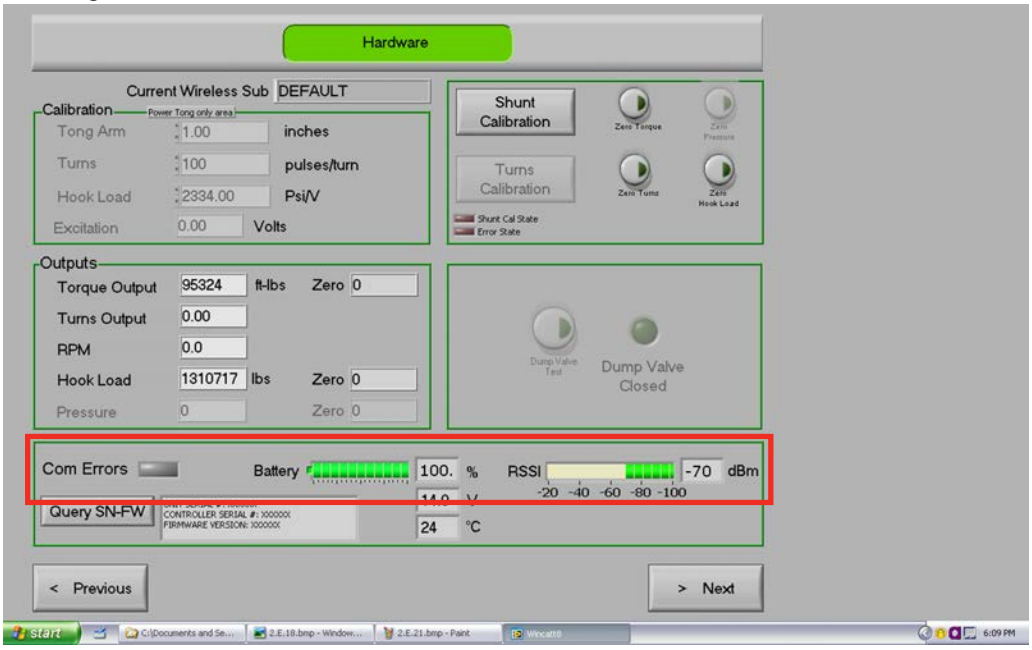

Illustration 3.3.19: Checking Battery & Communications Status

9. Select “Shunt Calibration” to perform the shunt calibration procedure. Shunt calibration may only be performed when no torque load is present. NOTE: “Torque Output” and “Hook Load” values may fluctuate even when torque sub is static. This is normal.

NOTICE

A SHUNT CALIBRATION MAY ONLY BE PERFORMED WHEN NO TORQUE IS APPLIED TO THE TORQUE SUB

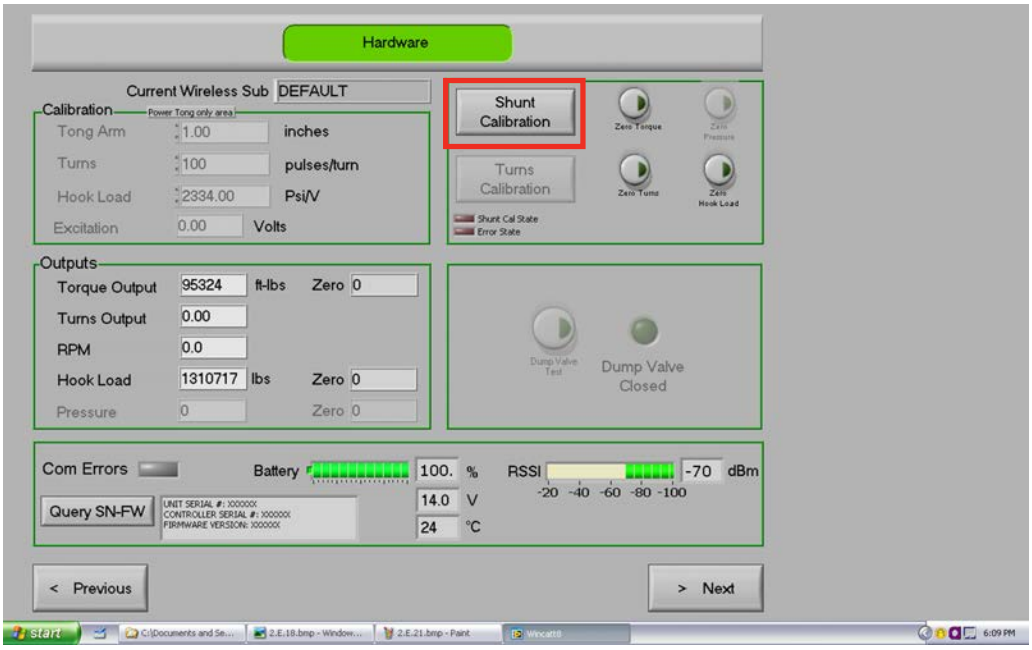

Illustration 3.3.20: Shunt Calibration Selection

3.3.3 Programming A New Job (Continued):

10. Confirm that the applied torque is zero, and select “Continue” on the shunt calibration warning dialogue box.

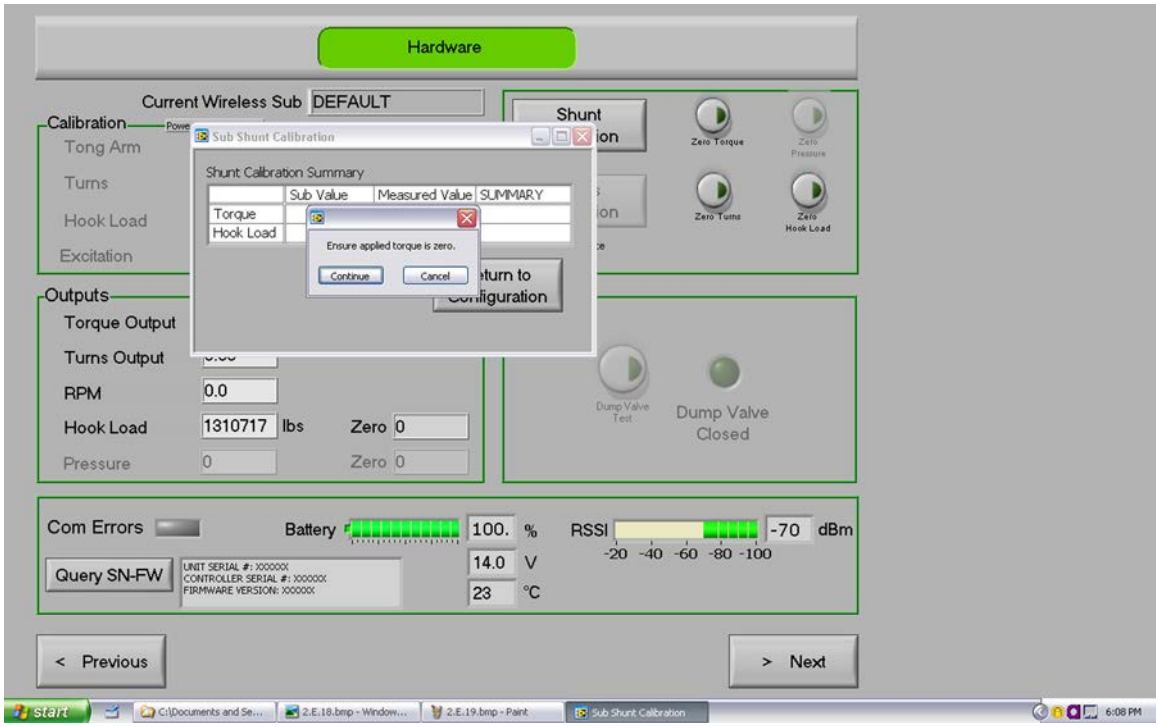

Illustration 3.3.21: Shunt Calibration Warning Dialogue

11. Select “Return to Configuration” to return to the “Hardware” page, then “Next” to advance to the “System Options” page.

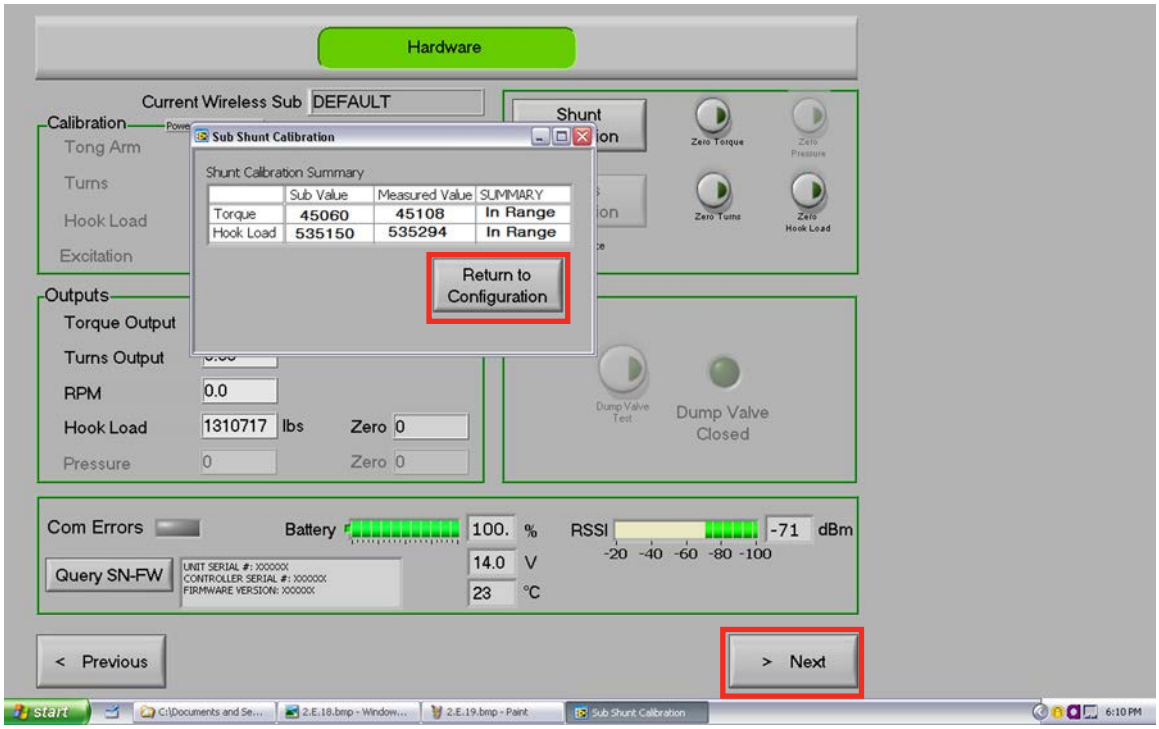

Illustration 3.3.22: Advancing to Options Page

3.3.3 Programming A New Job (Continued):

12. Select your preferences, then select “Next” to advance to the connection monitoring screen.

Illustration 3.3.23: System Options Page

13. Select “Utility Menu”, then select “Test and Configure Hardware” to advance to the “Hardware” page.

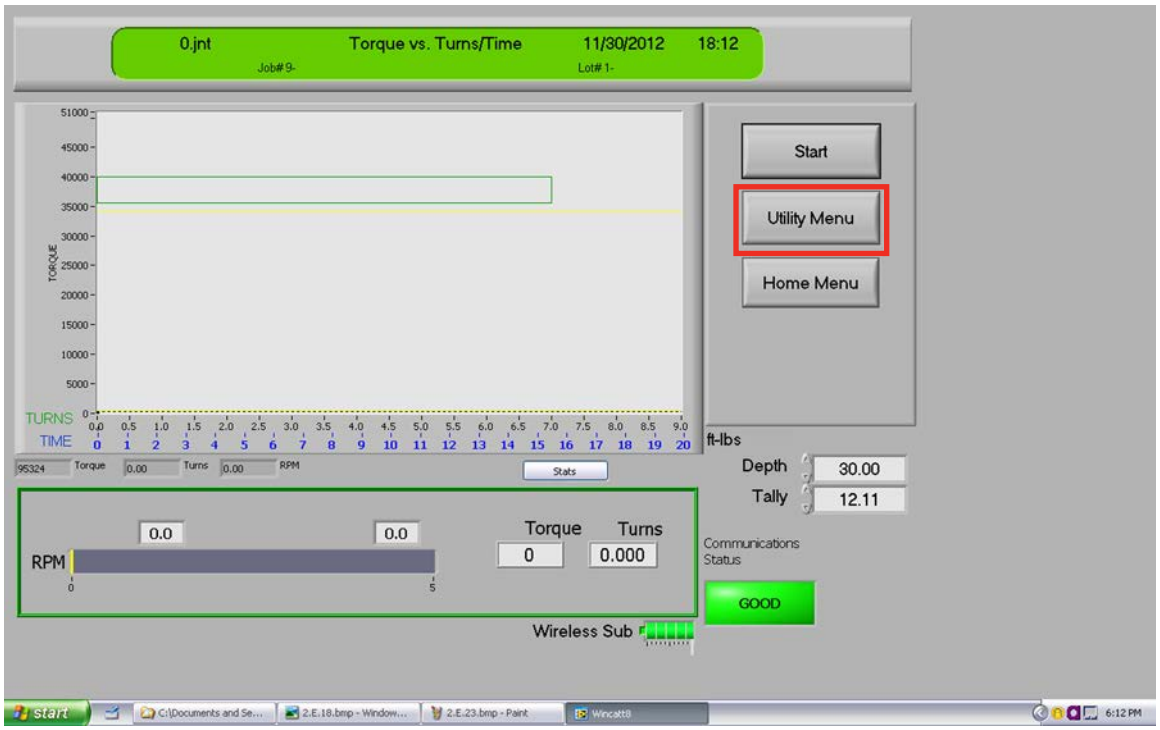

Illustration 3.3.24: Connection Monitoring Screen

3.3.3 Programming A New Job (Continued):

14. Confirm that “Turns” and “Rotation Speed” outputs are zero, and that “Torque Output” and “Hook Load” outputs show small oscillations around a low number. Select “Zero Torque” followed by “Zero Hook Load”. Select “Return to Configuration” to return to the Configuration screen, then select “Return to DAC” to return to the “Data Acquisition” screen.

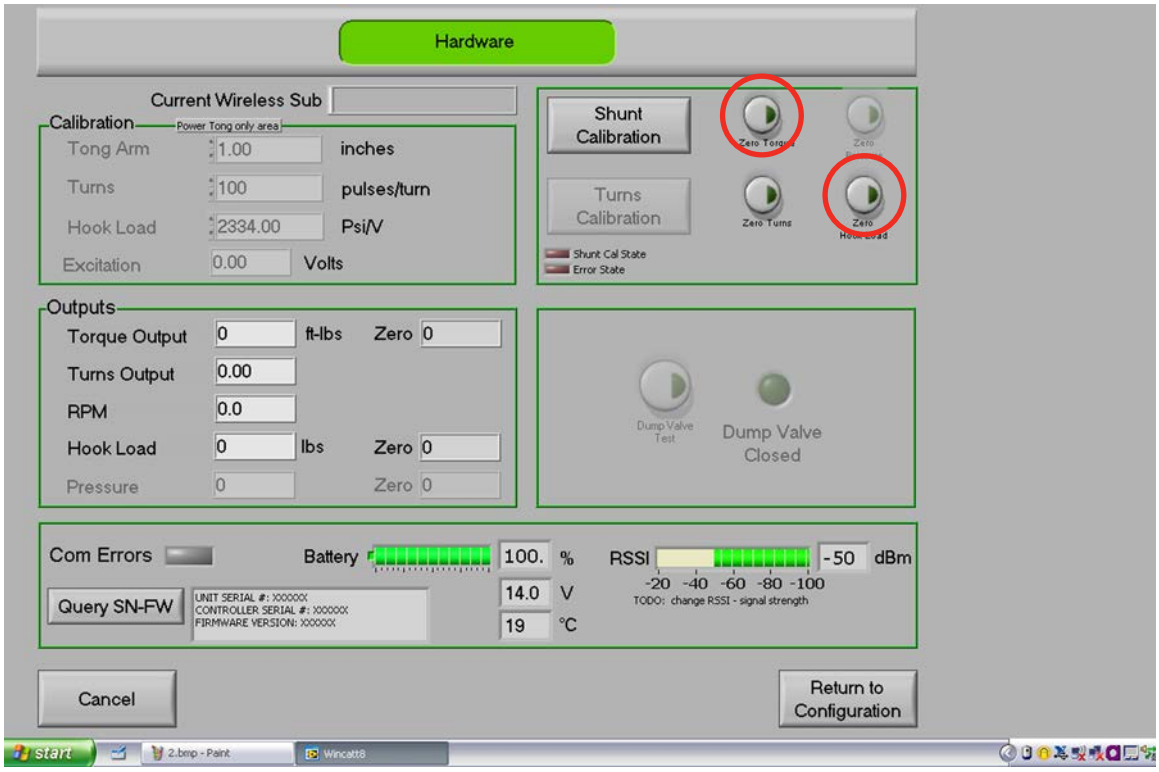

Illustration 3.3.25: Zeroing Torque & Hook Load Outputs

15. Perform a final communication and function test. Select “Start”, then press “F9” on the weCATT™ laptop keyboard. After an approximately four second delay the software generates an output graph showing a torque curve with a 14,000 lbs-ft peak. The generated output is derived from pre-programmed values within the weCATT™ software, and should be accessed for test purposes only. Pressing “F9”, whether intentionally or accidentally, while performing connections will corrupt the data received from the torque sub and could cause communication failure or program errors.

NOTICE

DO NOT PRESS “F9” WHILE PERFORMING CONNECTIONS

Select “Stop” on the “Data Acquisition” screen after completion of the graph to produce an output screen. Failure to generate a graph after pressing “F9”, or disappearance of the graph after selecting “Stop” indicates corruption of the loaded program. Re-boot computer and reload the WINCATT® 8 software. Select “Resume Previous Job” to advance directly to the “Data Acquisition” screen and repeat Step 15. Call WinCATT® service if errors persist.

The details indicated on the output screen are dependant upon the specific options chosen on the “System Options” screen (see Illustration 3.3.23). Selection of “Shoulder Detection” within “System Options” instructs the software to generate the output screen displayed in Illustration 3.3.26.

3.3.3 Programming A New Job (Continued):

15. Perform a final communication and function test (continued):

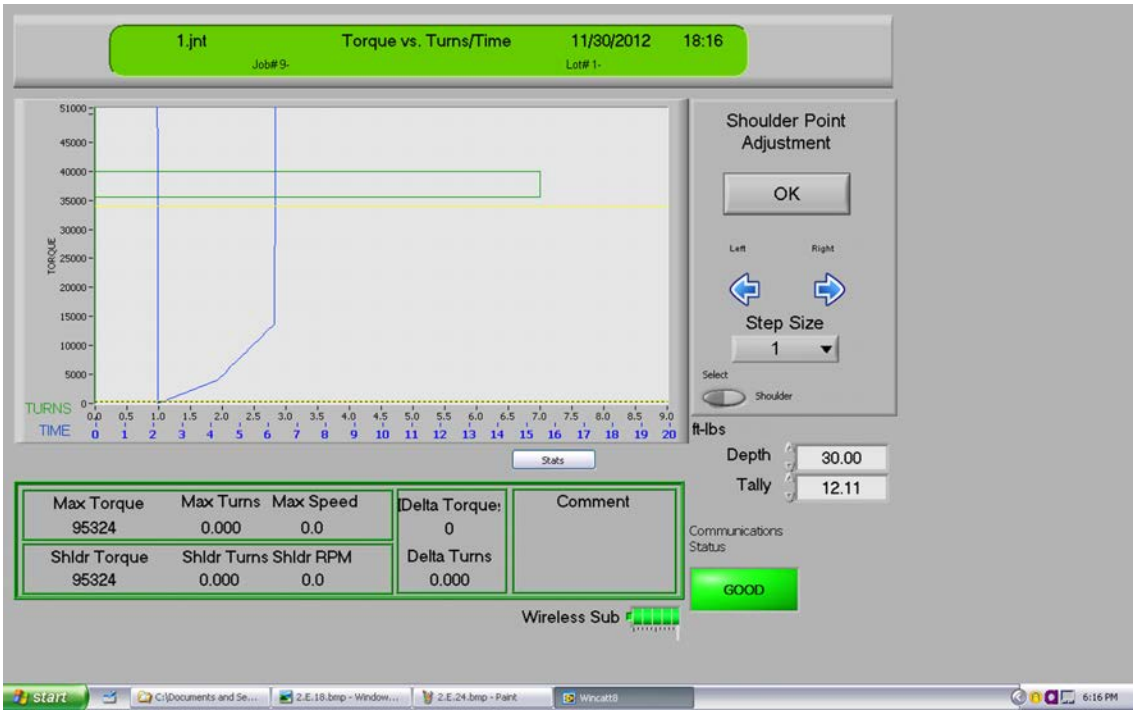

Illustration 3.3.26: Output Screen, Shoulder Detection

Select “OK” to generate the “Comments”screen (see Illustration 2.5.28).

Selection of “Multi-Joint Review” within “System Options” (see Illustration 3.3.23) instructs the software to generate the output screen displayed in Illustration 3.3.27.

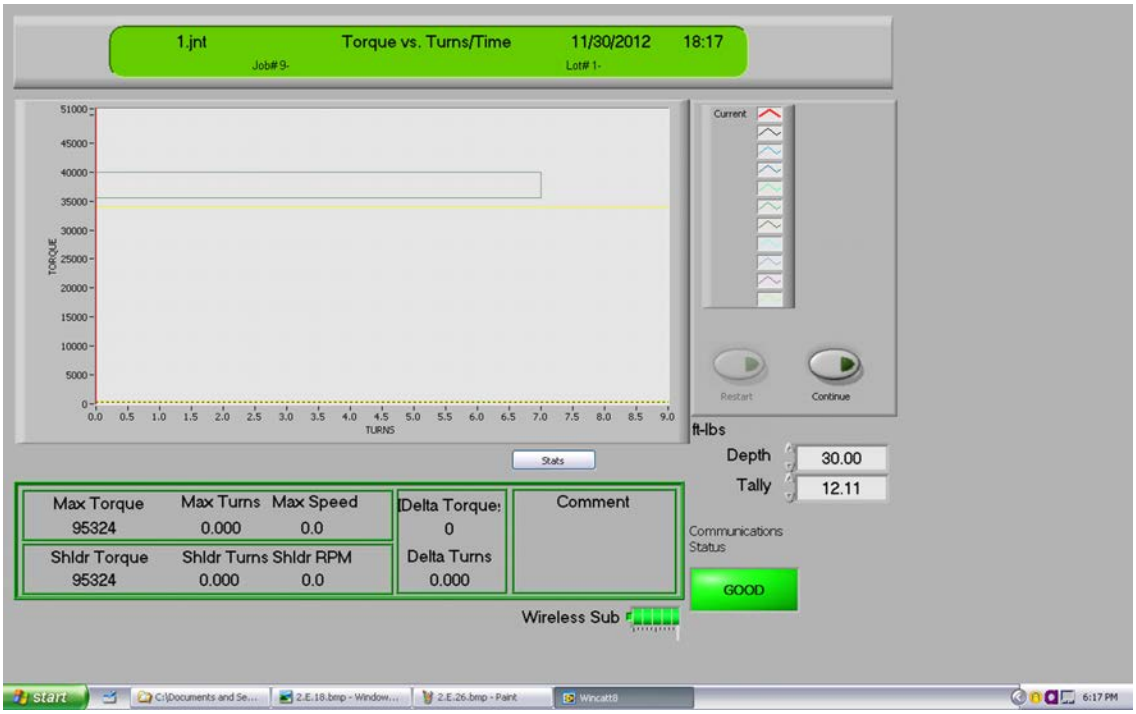

Illustration 3.3.27: Output Screen, Multi-Joint Review

Select “Continue” to generate the “Comments”screen (see Illustration 3.3.28).

3.3.3 Programming A New Job (Continued):

15. Perform a final communication and function test (continued):

    Selecting neither “Shoulder Detection” or “Multi-Joint Review” within “System Options” instructs the software to directly generate the “Comments” output screen displayed in Illustration 3.3.28.

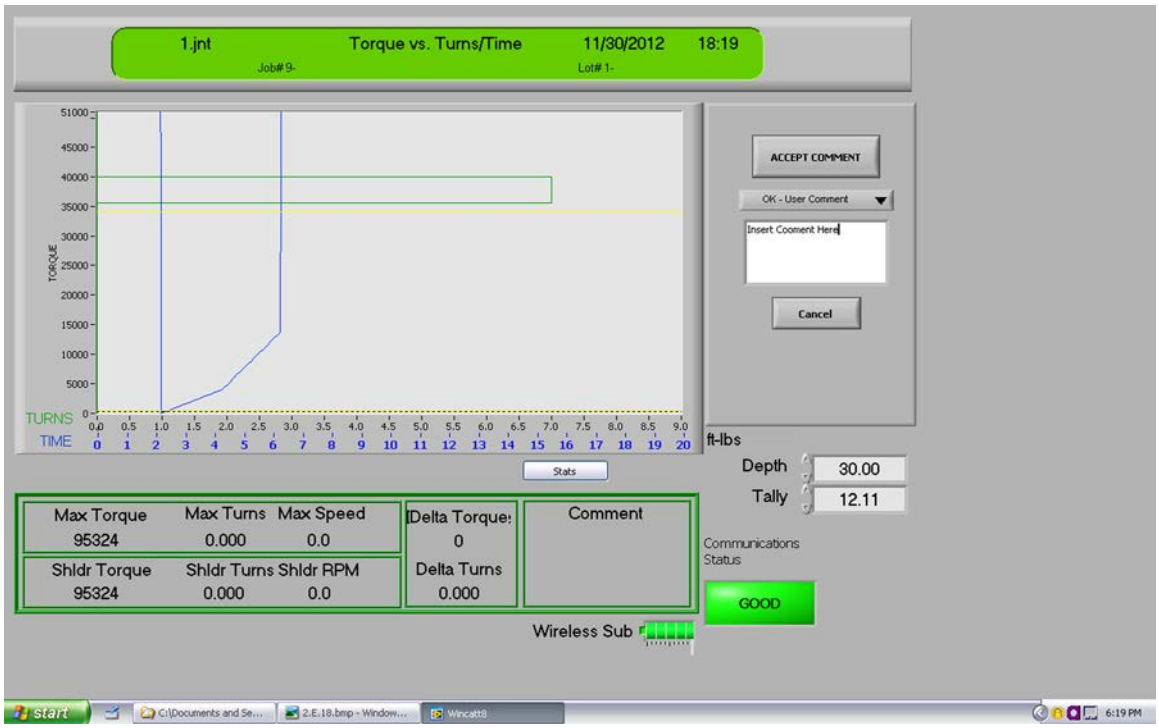

Illustration 3.3.28: Output Screen, Comments

The displayed results may or may not meet the criteria set forth during programming of the job. Irregardless of whether the parameters have been met, enter “Communications Test” in the comments section and select “Reject” to return to the DAC screen.

Your torque sub and software are now ready to begin processing the programmed tubular connection task.

3.4 PRINTING CONNECTION REPORTS & OTHER FILES USING WINCATT 8 SOFTWARE

1. Select “Resume Previous Job” on the home screen to advance to the Job Management screen.

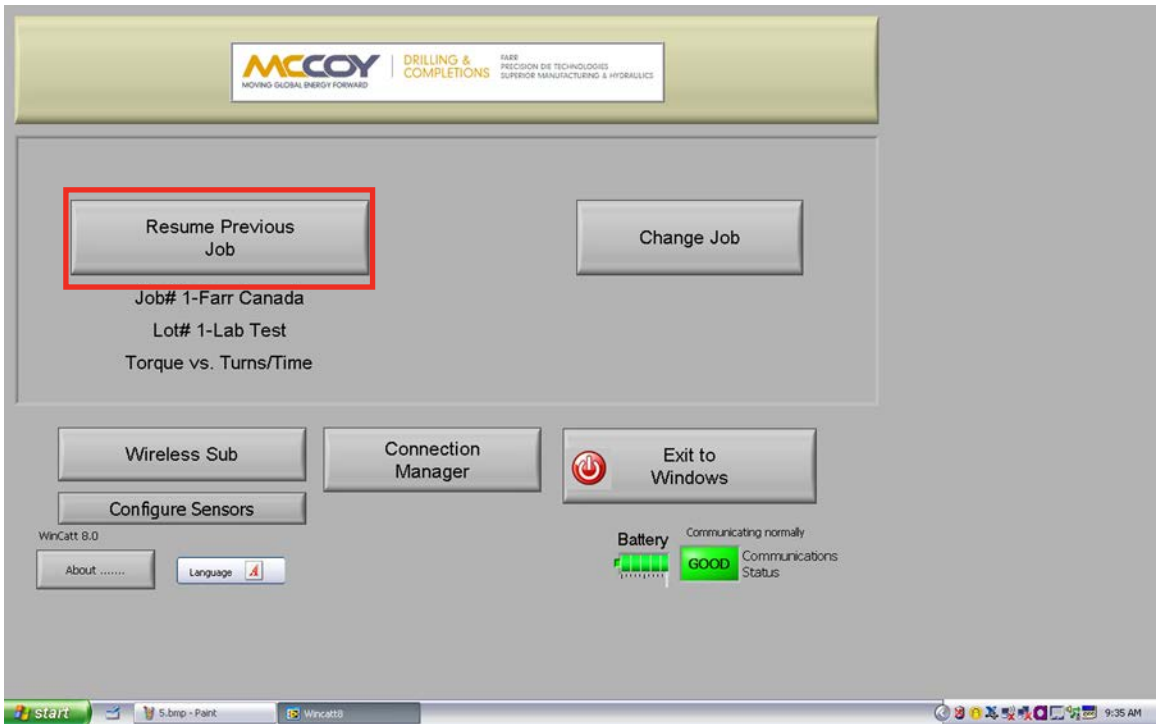

Illustration 3.4.1: Resume Previous Job Selection

2. Select “Old Job” on the Job Management screen to advance to produce a list of previous jobs. Select the desired job from the displayed menu, then select “Next” on the Job Management screen to advance to the Data Acquisition screen.

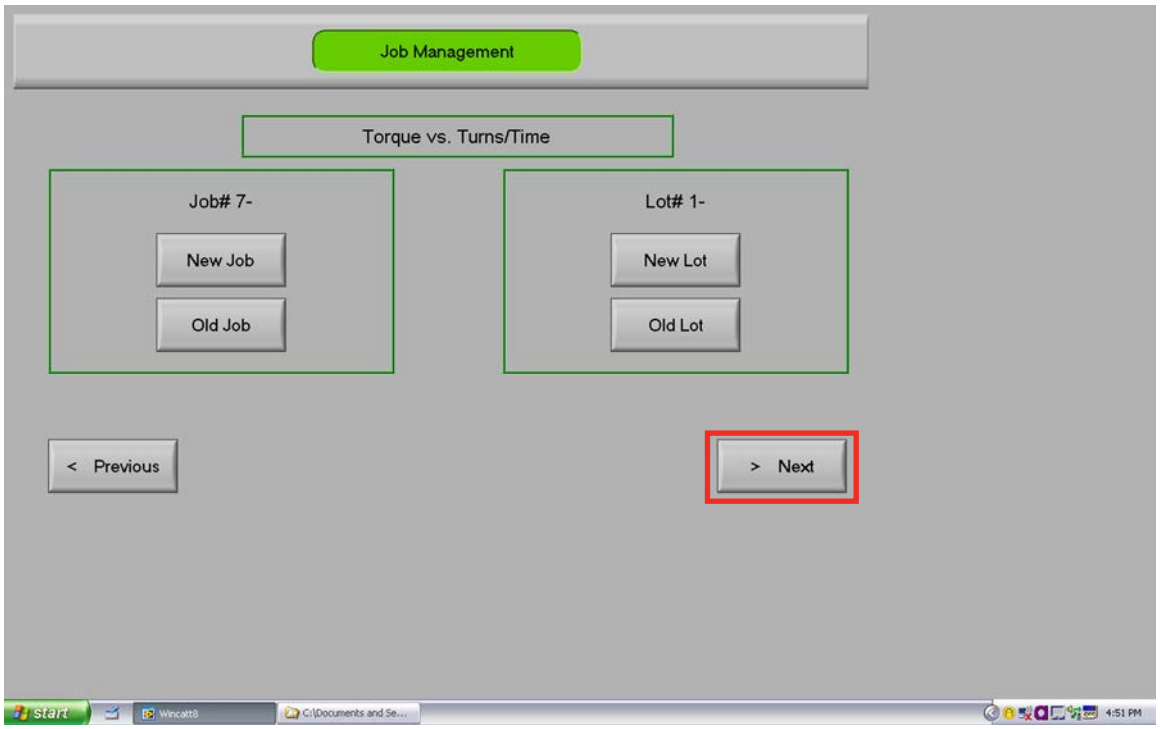

Illustration 3.4.2: Selecting The Desired Job For Printing

3.4 PRINTING CONNECTION REPORTS & OTHER FILES USING WINCATT 8 SOFTWARE (CONTINUED):

3. Select “Utility Menu” on the Data Acquisition screen to advance to the Utility Menu screen.

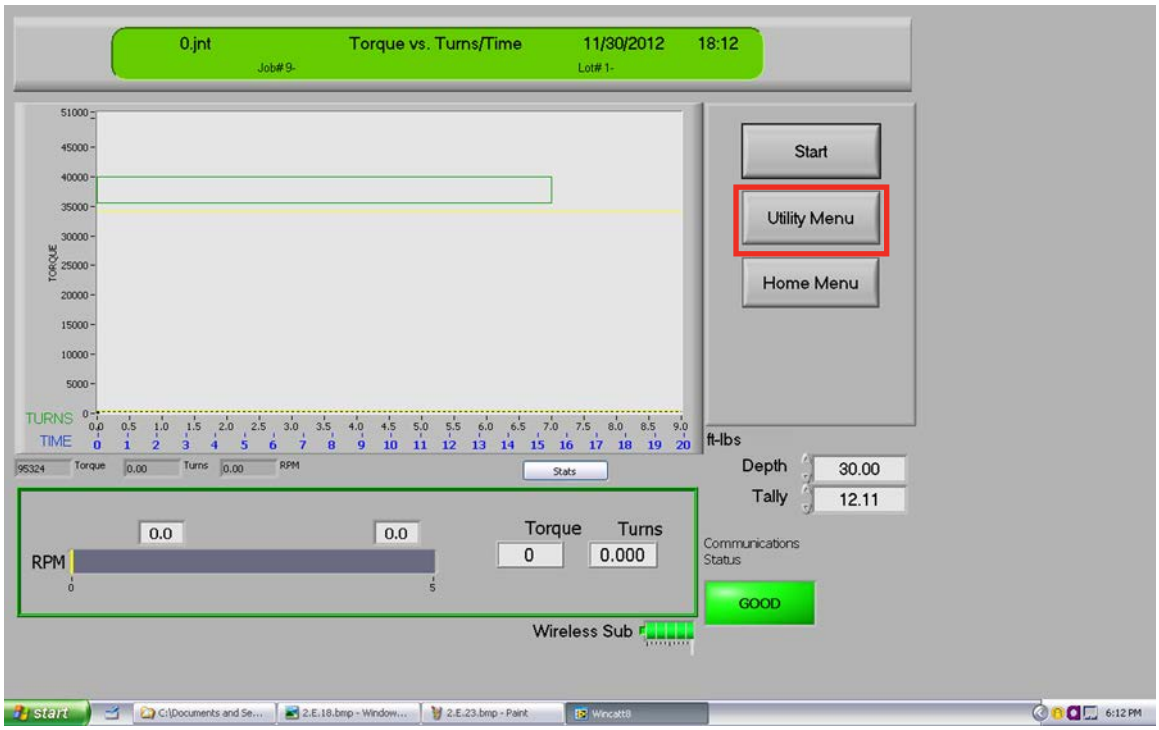

Illustration 3.4.3: Connection Monitoring Screen

4. Select “Summary Report” on the Utility screen to produce the report printing menu.

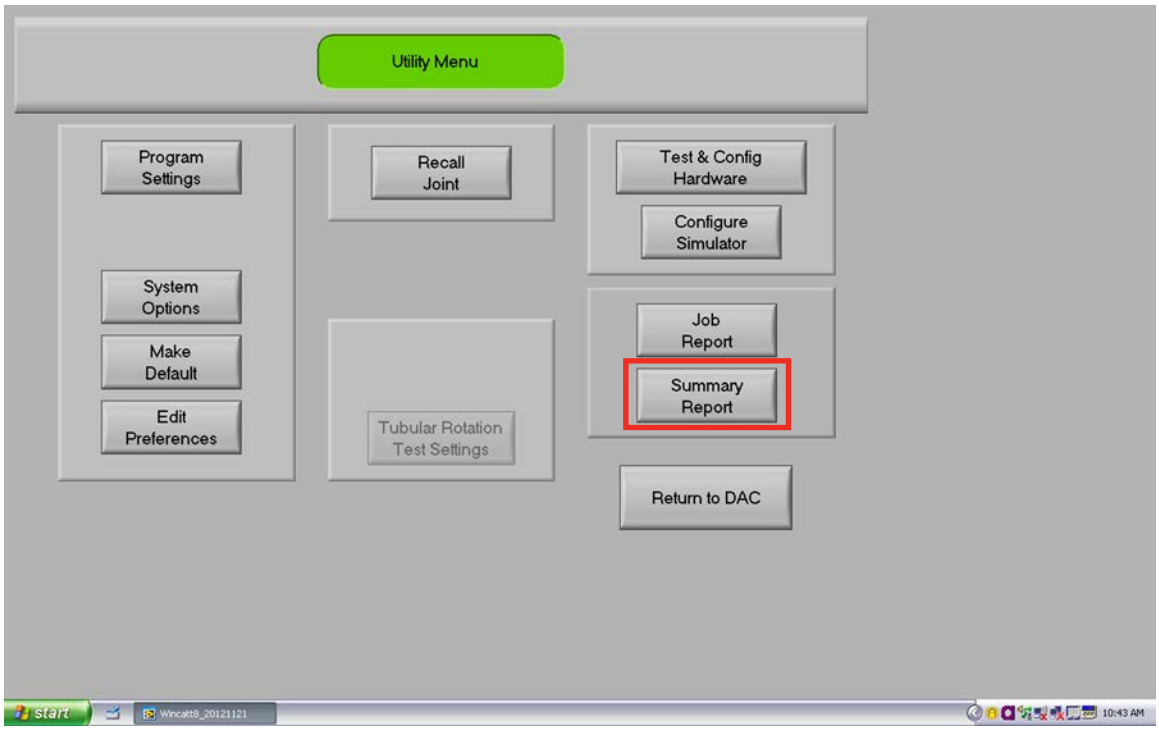

Illustration 3.4.4: Selecting Summary Report on Utility Menu Screen

3.4 PRINTING CONNECTION REPORTS & OTHER FILES USING WINCATT 8 SOFTWARE (CONTINUED):

5. Select your desired print job on the “Print Reports” screen by checking the box beside “Print Job Report”, “Print Job Summary”, or “Print Job Files”.

   Selection of “Print Job Report” writes a text file listing the details of the selected job to a specified destination folder. Selection of “Print Job Summary” writes a text file listing the final values of all connections in the selected job to a specified destination folder. Selection of “Print Job Files” produces PNG (graphics) files of the graph of all connections in the selected job to a specified destination folder.

   You may select all three options simultaneously, or select one at a time. Once your selection has been made click “Print” to launch the selected action.

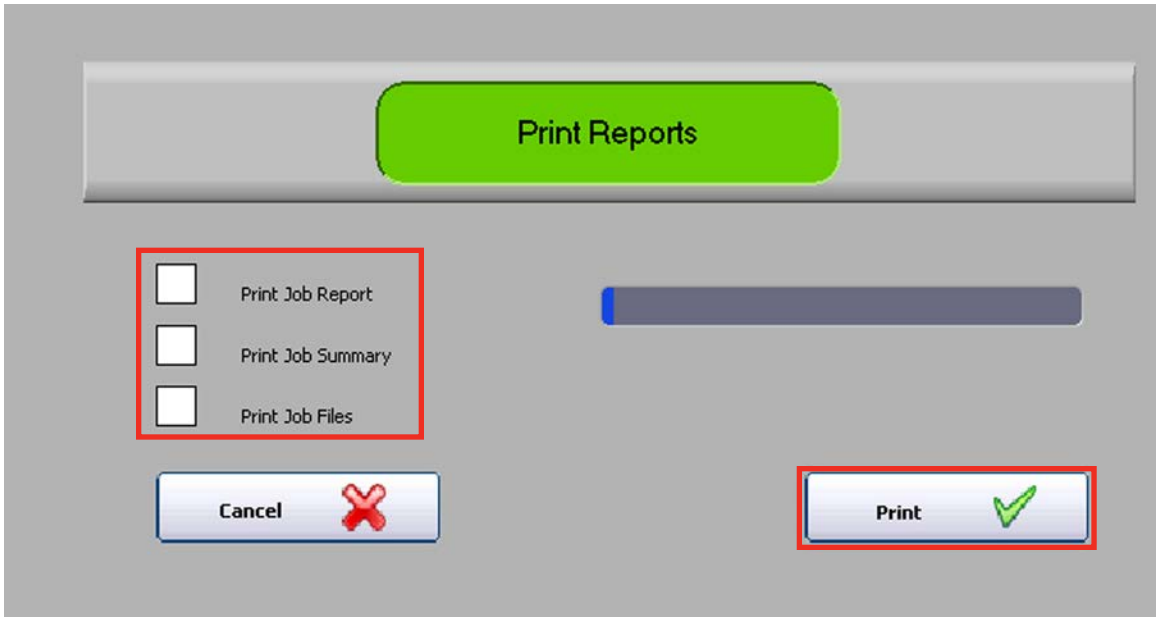

Illustration 3.4.5: Print Report Screen

Selection of the “Print Job Report” either by itself or in conjunction with another option will launch the “Job Report” page. Details on this page may be completed or edited, or the existing fields may be accepted “as-is” by clicking “Save”.

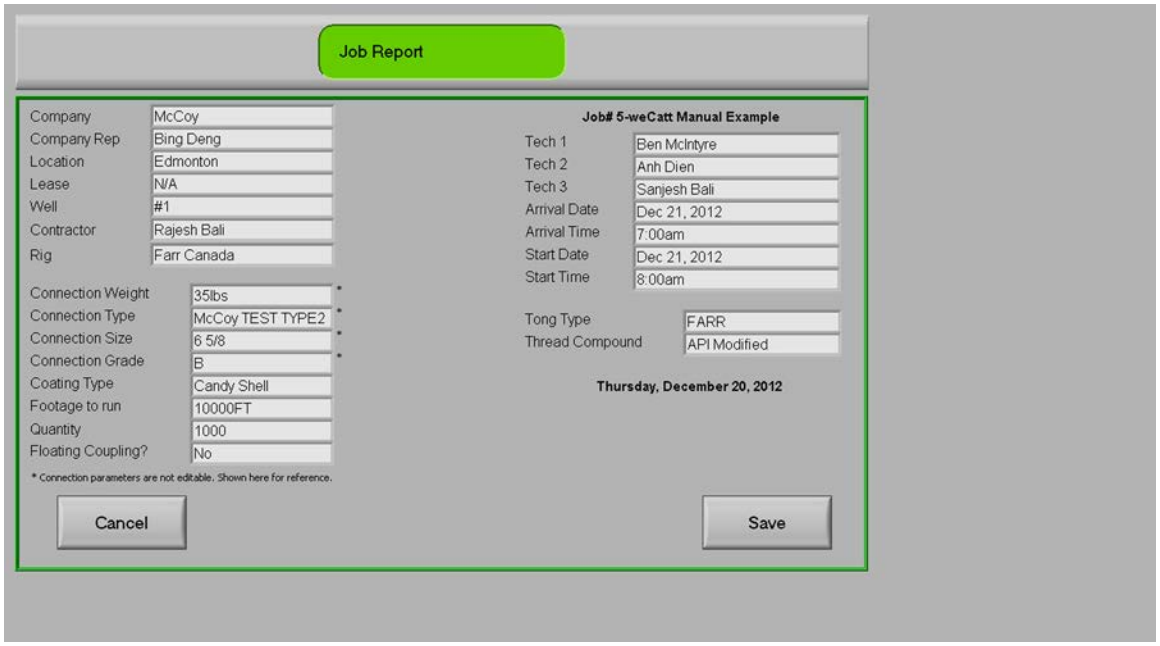

Illustration 3.4.6: Job Report Screen

3.4 PRINTING CONNECTION REPORTS & OTHER FILES USING WINCATT 8 SOFTWARE (CONTINUED):

Clicking “Save” writes the text file and produces a message stating that the summary report is complete.

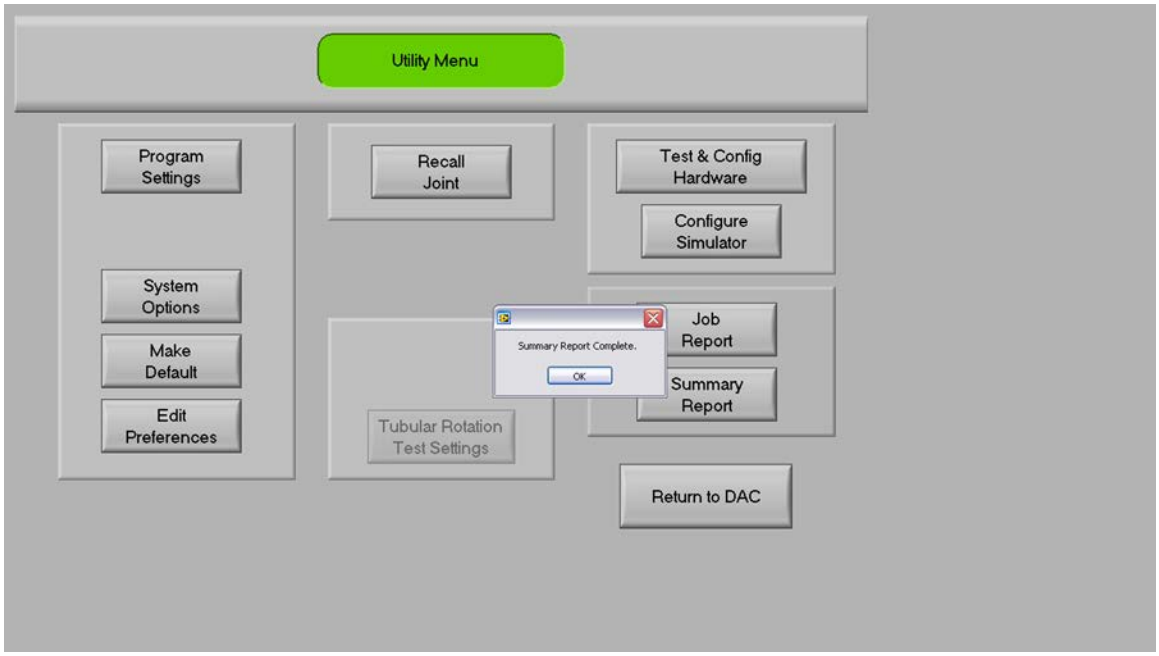

Illustration 3.4.7: Utility Screen - Summary Report Complete Message

6. Close the WinCATT 8 software.
7. Click on the START icon or the circular Windows icon (depending on your particular operation system) in the lower left corner of the Windows screen, and select “Computer” or “My Computer”.
8. Double-click on the “C Drive” icon to view the folders located on the hard drive.
9. Double-click on the folder titled “data” or “Data” to view the contents of that folder.

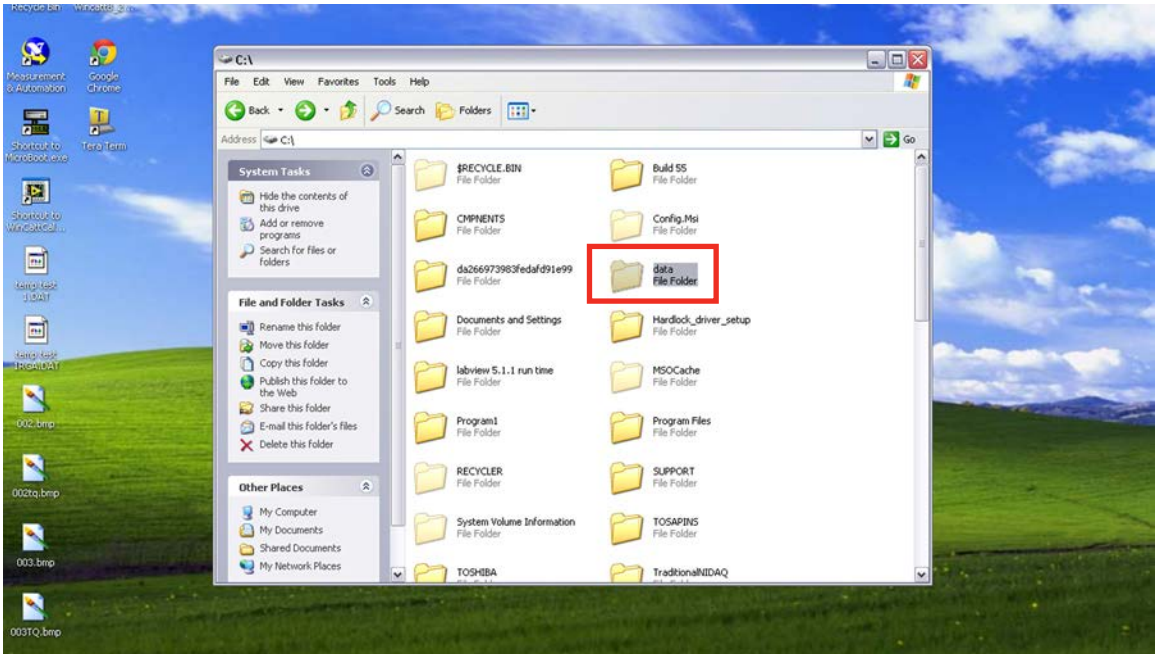

Illustration 3.4.8: Identifying Data Folder

3.4 PRINTING CONNECTION REPORTS & OTHER FILES USING WINCATT 8 SOFTWARE (CONTINUED):

10. Identify the folder that matches the job type for which you are looking for connection data:

    T_T_T = Torque vs. Turns/Time

    T_Turn = Torque vs. Turns

    T_Time = Torque vs. Time

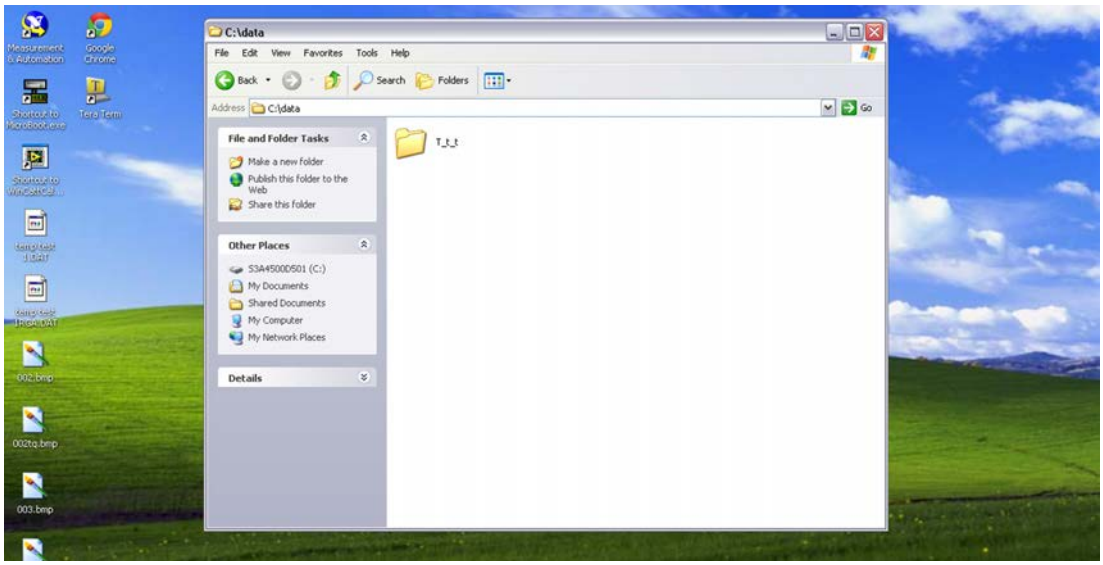

Illustration 3.4.9: Identifying Correct Job Folder

Double-click on the selected folder to open.

11. Select the folder matching the job for which you want to print a report. For example, if your selected job is Job #5, select the Job #5 folder. Double-click to open the folder.

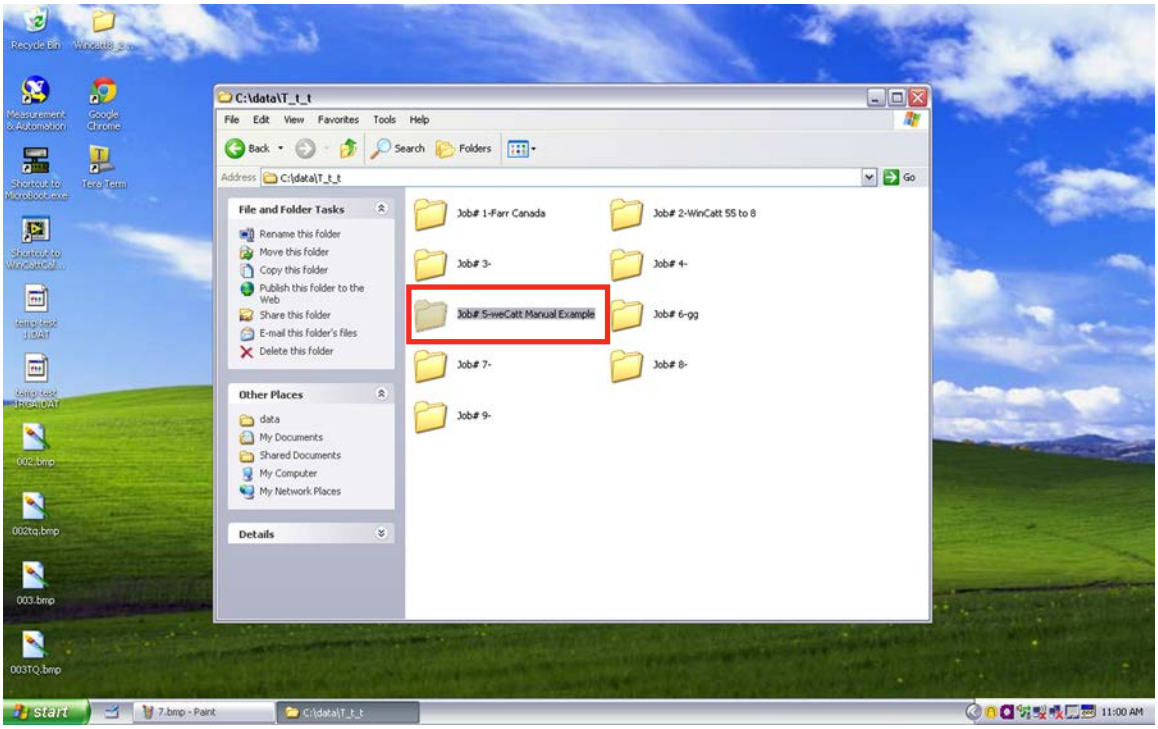

Illustration 3.4.10: Identifying Correct Job Number Folder

3.4 PRINTING CONNECTION REPORTS & OTHER FILES USING WINCATT 8 SOFTWARE (CONTINUED):

12. The job folder contains two sub-folders:

JOB_REP: Contains a text file containing the details of the selected job. Open the file JOBREP.txt using a standard text editor (for example, Notepad or Wordpad). The information in this file should match the data saved on the Job Report screen (see Illustration 2.6.6). The file can be printed using the program's "Print" function.

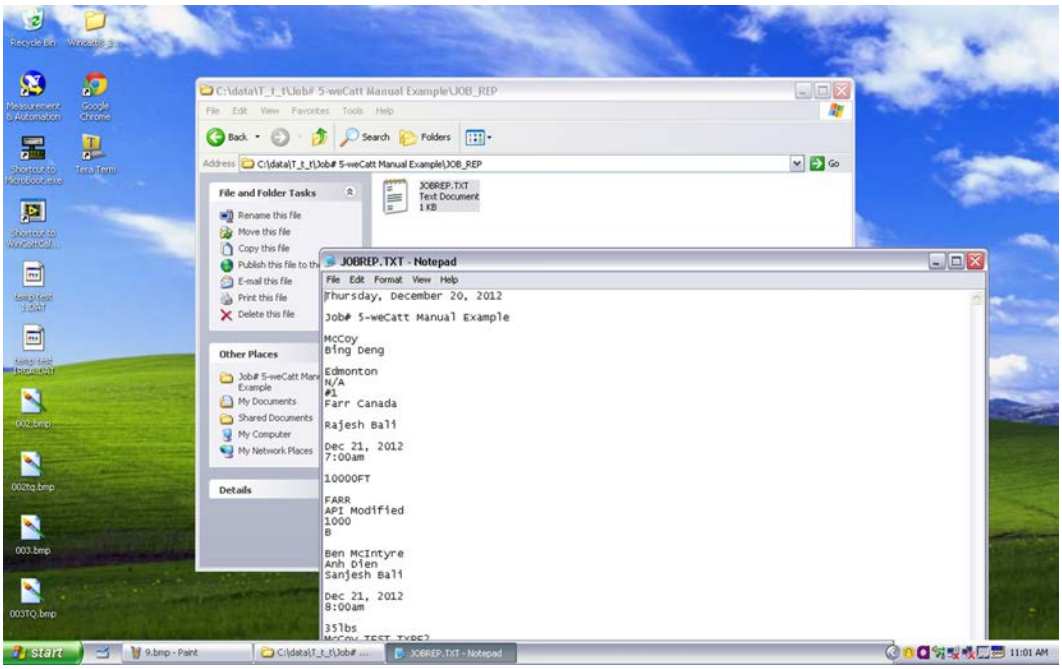

Illustration 3.4.11: Displaying JOBREP.txt File

LOT# "N" (where "N" is the lot number of the selected job): Contains a sub-folder named SUM_REP, which contains a text file containing final values of all connections in the selected job. This text file may be opened using a standard text editor, and printed using the program's "Print" function. The LOT# folder also contains a PNG (graphic) of the graph displayed by the WinCATT software for each connection in the job. The PNG files may be opened using any standard graphic program (Microsoft Paint, for example), and can be printed using the Print function in the program.

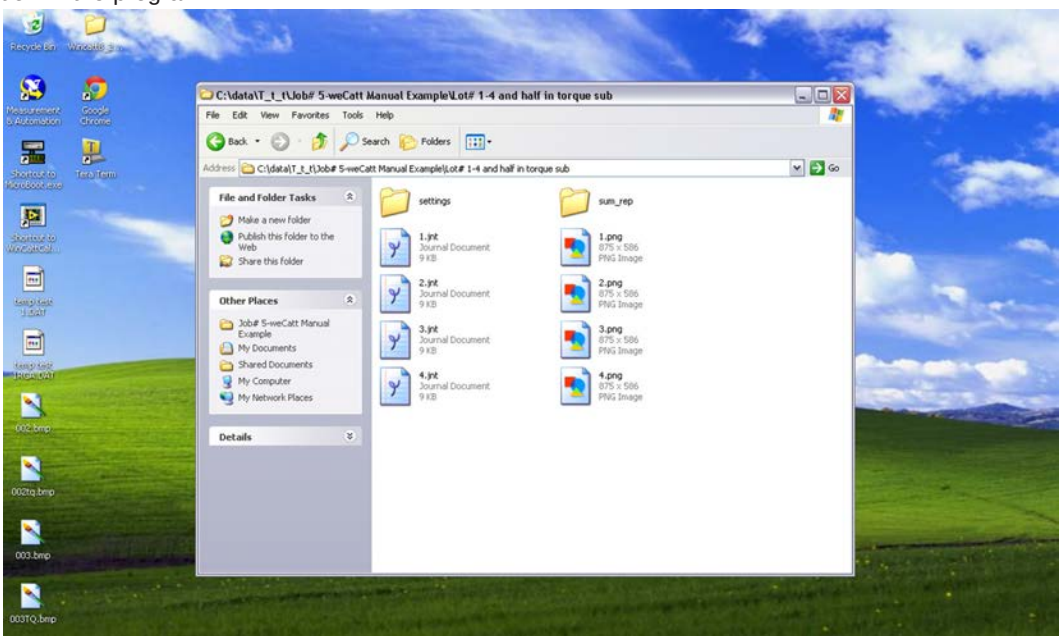

Illustration 3.4.12: Lot # Folder

3.5 SLEEP MODE

Every torque sub features a “sleep mode”, which engages following a set period of inactivity in order to extend battery life. New torque subs ship with the sleep mode active with a default programmed value of 30 minutes.

Follow these instructions to program or disable sleep mode on your system.

1. Select “Configure Sensors” on the home screen

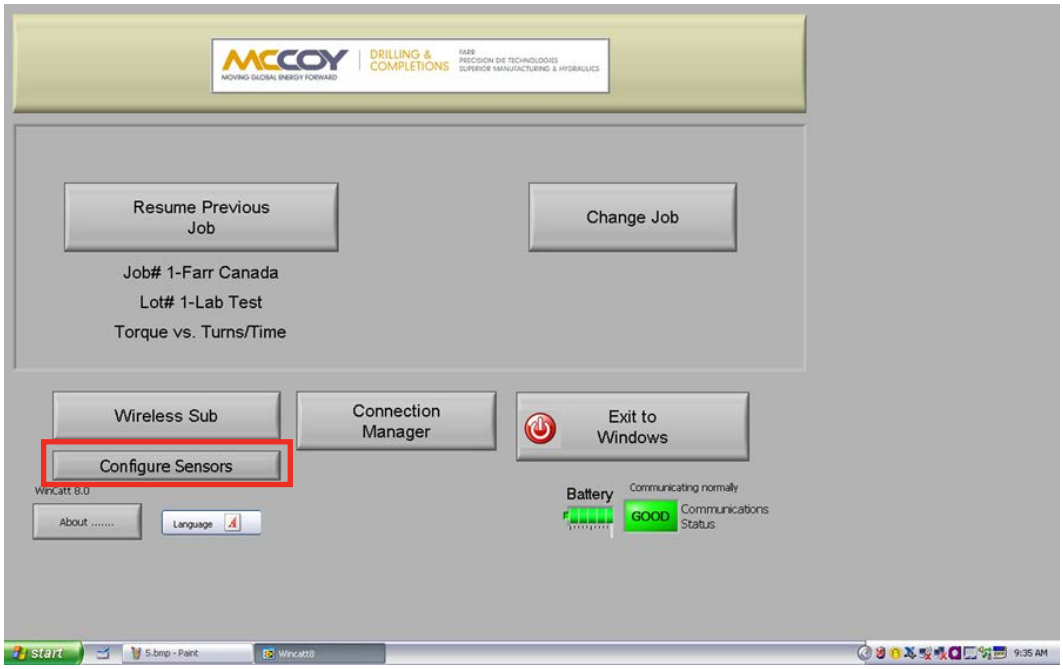

Illustration 3.5.1: Configure Sensors - Home Screen

2. Select the “Enable/Disable” switch to toggle sleep mode on or off. Enter your desired value in the “Sleep Command Timeout” field to extend the time in which your torque sub remains active.

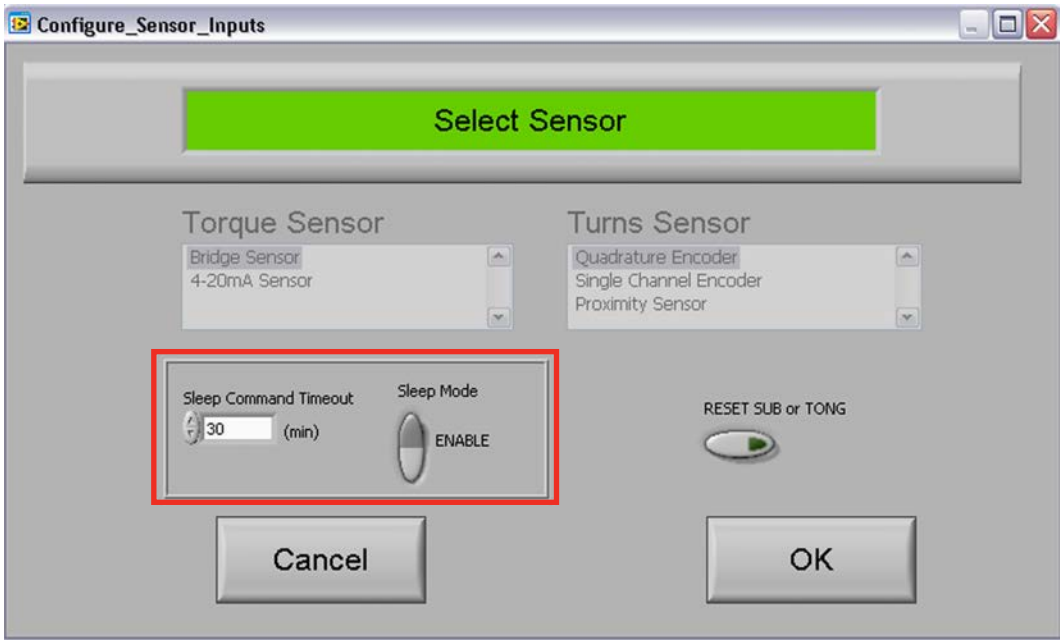

Illustration 3.5.2: Sleep Timer Programming

Do not select “Reset”. Select OK to return to the home screen.

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SECTION 4: MAINTENANCE

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McCoy Global recognizes that minor on-site repairs and modifications are required to maintain peak operating condition of your equipment, or to match your equipment with the operating environment. Examples of minor repairs are

- battery replacements.
- software updates.
- replacement of fasteners

Any replaced component must be an identical component supplied by McCoy Global. Replaced fasteners must be Grade 8 or equivalent, or whatever fastener is specified by McCoy.

4.0 GENERAL MAINTENANCE SAFETY PRACTICES

The practices identified here are intended as a guideline. All personnel are responsible for performing their tasks in a manner that ensures worker, equipment, and environmental safety, and may require taking additional steps that are not identified in this section.

Equipment maintenance shall be performed only by designated qualified maintenance personnel. Wear all personal protective equipment (PPE) specified by your company's HSE policy, and follow all of your company's safety guidelines. Do not begin a maintenance task without the proper tools or materials on hand, or the proper drawings and documentation necessary.

Schedule planned maintenance with operators to avoid conflicts, unnecessary downtime, and the danger of accidental equipment activation. Notify operations when maintenance procedures are complete and equipment functionality is restored and tested.

If on-site maintenance must be performed (in other words, if equipment cannot be transported to a controlled maintenance facility) isolate the location of the maintenance to prevent unaware personnel from inadvertently exposing themselves to a hazard. Use tape, rope, or signage to clearly indicate "off-limits" area.

Replacement of large, heavy individual parts and/or heavy structural components must be performed using an approved lifting device of sufficient lifting capacity. Use care when attaching the lifting device, and safeguard area to avoid endangering personnel or equipment.

All spare parts must meet or exceed OEM specifications in order to maintain equipment integrity, especially protective equipment.

Your equipment uses materials that may be harmful to the environment if improperly disposed of (batteries). Dispose of all materials according to your company's proscribed environmental protection regulations.

4.1 CLEANING

Clean weCATT™ using water under pressure (i.e. a strong "garden hose" arrangement or pressure washer). Ensure the wash wand is set to a "fan" spray pattern and maintain a minimum distance of three feet (one metre).

Do not wipe the surface of the weCATT™ enclosure with a dry cloth. Wipe surface of enclosure with a damp cloth only to reduce the potential for build-up of electrostatic charge.

⚠ WARNING

USE DAMP CLOTH ONLY WHEN WIPING SURFACE OF ENCLOSURE TO REDUCE THE POTENTIAL OF BUILDING UP ELECTROSTATIC CHARGE.

4.2 BATTERY REPLACEMENT

1. Boot the weCATT™ laptop computer and initialize the WinCATT® 8 software (see Section 3.3.1, Steps 1 & 2).
2. Refer to the battery level indicator on the home screen. Levels at 50% or lower require battery replacement. The weCATT™ must be communicating normally with the laptop to ensure legitimate battery level reporting (the battery always shows 0% when not communicating with laptop).

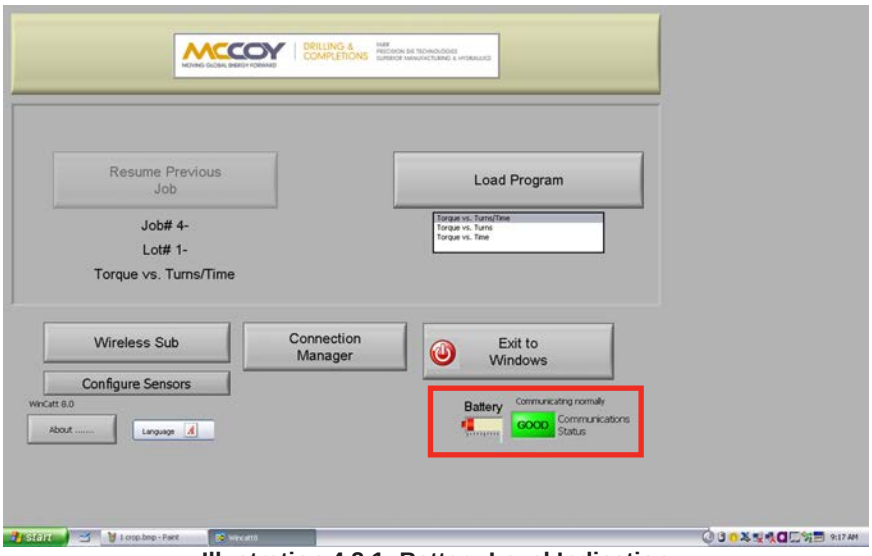

Illustration 4.2.1: Battery Level Indication

3. Identify the battery cover. The battery cover has an image of a battery scribed on to it.

Battery Cover (Outside) **Battery Cover (Inside)**

Illustration 4.2.2: Battery Cover

4.2 BATTERY REPLACEMENT (CONTINUED):

4. Locate the provided cover plate removal tool bar. If the tool bar is not stored with the spare battery check its storage location on the shipping pallet.

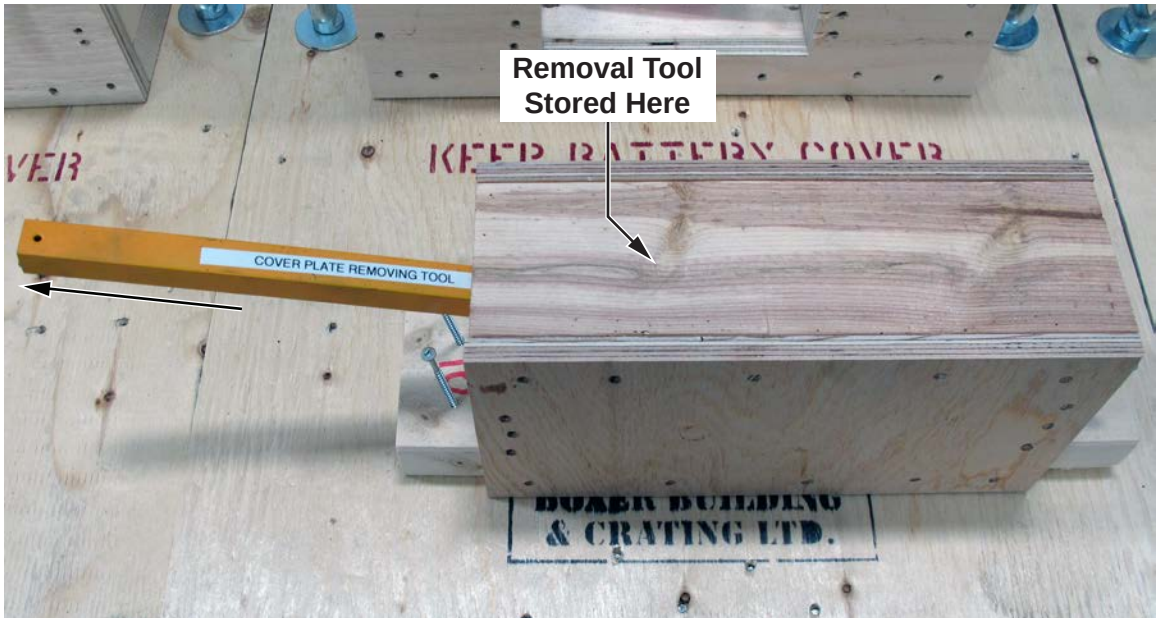

Illustration 4.2.3: Cover Plate Tool Bar

⚠ DANGER

DUE TO THE POTENTIAL FOR ELECTROSTATIC DISCHARGE DO NOT REMOVE WECATT™ ENCLOSURE COVERS IN AN EXPLOSIVE ENVIRONMENT.

5. Loosen the set screw on the battery cover. Use the tool bar to turn the battery cover counter-clockwise to loosen. Continue to loosen by hand until it comes free, and remove and place in a secure location to avoid contamination of threads.
6. Loosen the Velcro strap and disconnect the two-pin Molex connector.

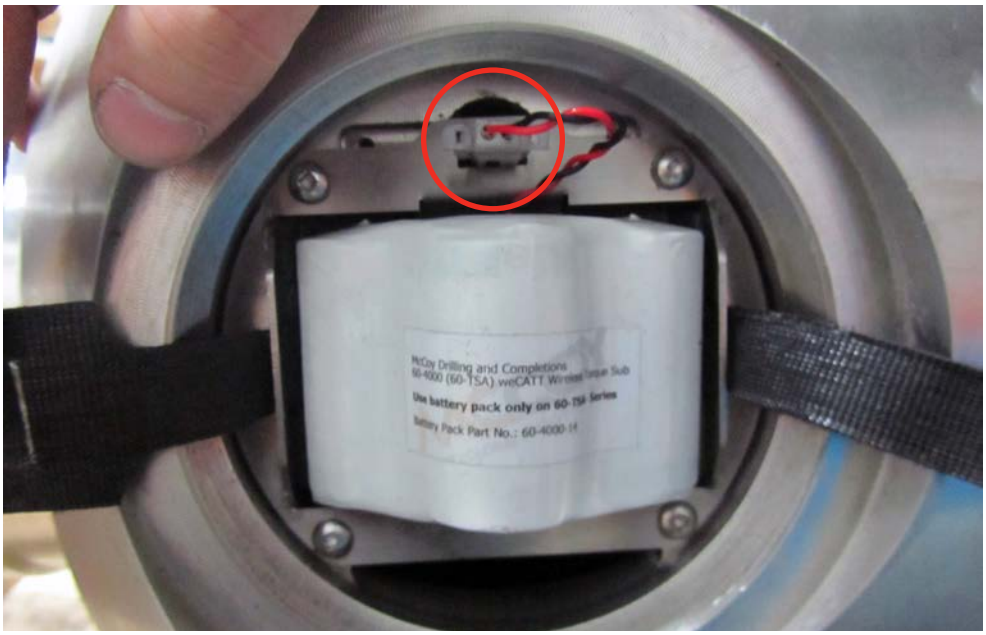

Illustration 4.2.4: Battery Replacement - Disconnect Molex Connector

4.2 BATTERY REPLACEMENT (CONTINUED):

7. Remove the battery pack.

Illustration 4.2.5: Battery Replacement - Battery Pack Removal

7. Install the new battery pack (PN 60-4000-14), and secure in place with the Velcro strap. Use only batteries supplied by McCoy. Use of aftermarket batteries or unauthorized power sources will void your warranty.

NOTICE

USE OF AFTERMARKET BATTERIES OR UNAUTHORIZED POWER SOURCES WILL VOID YOUR WARRANTY.

NOTICE

MCCOY GLOBAL DOES NOT GUARANTEE THE PERFORMANCE OF BATTERIES WHOSE STORAGE TIME EXCEEDS SHELF LIFE STATED IN THE SPECIFICATIONS, PAGE 2.6.

14.4 Volt Lithium Battery Pack	Part Number: 60-4000-14

⚠ WARNING

FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT CRUSH, RE-CHARGE, DISASSEMBLE, HEAT ABOVE 100 °C (212 °F) OR INCINERATE. DO NOT SHORT-CIRCUIT

8. Insert the battery connector into the receptacle in the torque sub. Press in until the connector lock engages. Confirm positive connector lock by tugging lightly on the connector cable.

4.2 BATTERY REPLACEMENT (CONTINUED):

9. Confirm correct battery function. Select “Resume Previous Job” on the home menu to advance to the “Data Acquisition” page, then select “Utility Menu” to advance to the “Hardware” page. Check the battery status.

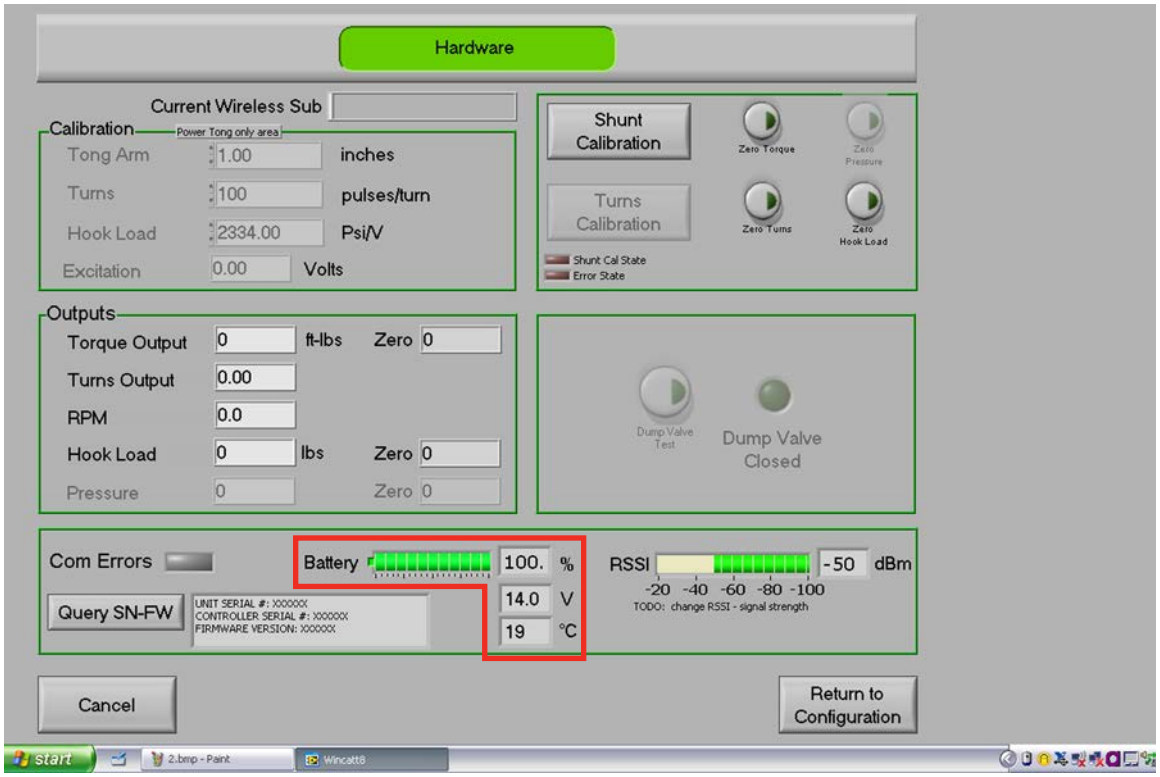

Illustration 4.2.6: Checking Battery Status - Hardware Screen

Refer to the following table for nominal readings for a new battery:

Battery Level	100%
Voltage	14 V
Temperature	Approx. 20° C **

** Dependant upon ambient air temperature

NOTICE

AMBIENT TEMPERATURES BELOW 0°C MAY REDUCE BATTERY PERFORMANCE

10. Completely remove the set screw, treat set screw threads with blue Loctite®, and partially re-thread in to battery cover. Treat the threads of the battery cover with anti-seize compound before reinstalling. Thread cover on to body by hand as far as possible, then use tool bar to complete tightening until the cover bottoms out. Do not cross-thread. Tighten until the o-ring is snug against its seat but not crushed. Tighten the set screw against the torque sub housing until snug. Replace the tool bar in its storage location for safe-keeping or, if the storage crate is to be removed for storage, store the tool bar with the spare battery.

4.3 BATTERY HANDLING AND DISPOSAL

4.3.1 Storage & Handling

Store batteries in a cool, dry, ventilated area that is not exposed to any external heat source or direct sunlight. Keep batteries dry and well ventilated. Do not remove Molex connector or expose the battery terminals.

Do not store batteries of different chemistries together.

McCoy recommends having a Class D fire extinguisher in the battery storage area.

The lithium-chemistry batteries used in the weCATT™ are non-rechargeable. Do not attempt to re-charge the batteries.

Do not short-circuit the battery.

4.3.2 Disposal

Clearly mark depleted batteries upon removal from weCATT™ system. Store depleted batteries in the same fashion as new batteries (see 3.4.1).

Do not attempt incineration. Package depleted lithium batteries together and clearly mark the package as “Lithium batteries for disposal”, or package as per your company’s established policies for waste disposal. Disposal must be performed by an approved and permitted waste treatment facility that handles lithium batteries. If you are unsure if your waste facility handles lithium batteries, contact them and verify prior to shipment.

4.4 CALIBRATION

All weCATT™ wireless torque subs undergo direct calibration and certification at the factory prior to shipping. Direct calibration requires highly specialized test equipment and involves the application of very accurate known loads to the sub. These loads are correlated to the weCATT™ wireless torque sub outputs and are used to define its accuracy. Direct calibration at regular intervals ensures continued confidence that the applied loads and subsequent electronic output signals are stable, repeatable and accurate. McCoy recommends direct calibration in no more than two year intervals. Contact your McCoy Sales Representative for further information.

Performing regular field tests using indirect calibration methods provides continuing on-site verification that the measurement of applied loads and electronic output signals remains accurate between direct calibrations. McCoy recommends performing an indirect calibration prior to each job. Verify torque and load measurement and indication using a suitable device which will give a sense that the output signals of the weCATT™ are generally sound. Please note that the accuracy of the field test verification remains dependant upon the accuracy of the device or equipment used to verify the weCATT™. McCoy recommends identifying a device or equipment suitable for performing verifications satisfactory to your operations.

Upon successful verification, further confidence can be gained by zeroing the sub and performing a shunt calibration (see section 2.5.3). The shunt calibration is an electronic test performed by your weCATT™ software and hardware which compares the current electronic output signal to the most previous lab calibration output results. The weCATT™ software compares shunt calibration and zero offset settings to parameters pre-set at the factory, and provides indication that the accuracy of the unit is within specifications. Please contact McCoy if any questions regarding the accuracy or operation of the weCATT™ arise.

SECTION 5: TROUBLESHOOTING

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All troubleshooting must be performed by a trained technician familiar with the equipment design, assembly and operation.

The following troubleshooting instructions are intended to be guidelines only. Any faults not solved through the use of this guide should be referred to our engineering department for their evaluation and recommendations.

5.0 COMMUNICATIONS ERRORS

Occasionally a communications error will be encountered during normal operations, producing an error message as displayed in illustration 5.0.1. Follow this procedure to re-establish communications by resetting the communications port. Select “OK” on the error message to access the home screen.

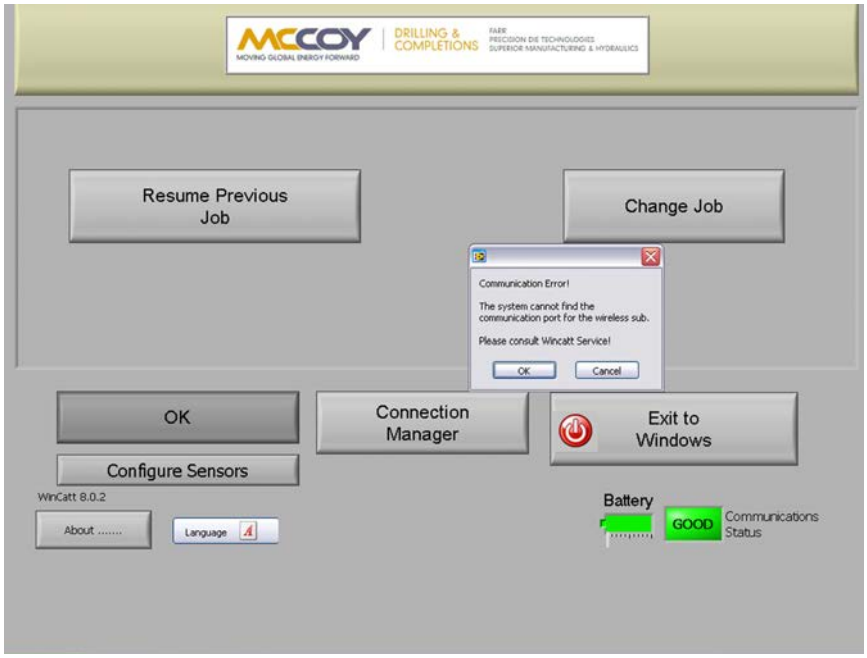

Illustration 5.0.1: Communication Error Message - Home Screen

1. Select “Wireless Sub” on the home screen to open the wireless sub communication window.

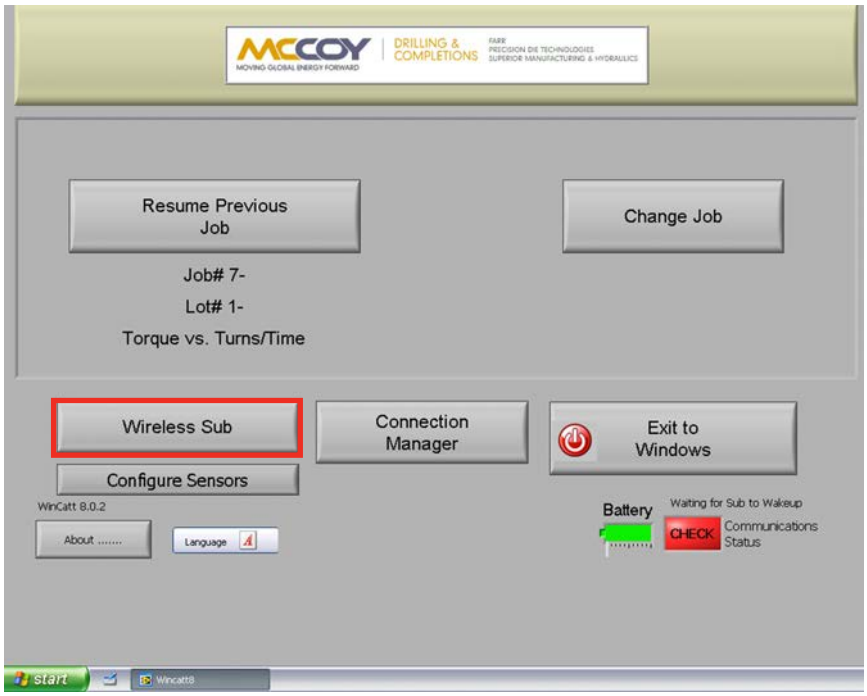

Illustration 5.0.2: “Wireless Sub” Selection - Home Screen

5.0 COMMUNICATIONS ERRORS (CONTINUED):

2. Click the “Select Com Port” button on the wireless sub communications pop-up window to automatically select a com port. A displayed communication port numbered nine or lower indicates a successful port selection, and that automatic re-connection is possible. Select “OK” to attempt to automatically re-establish communications. If the connection attempt is successful the “communications status” icon will turn green and display “OK”.

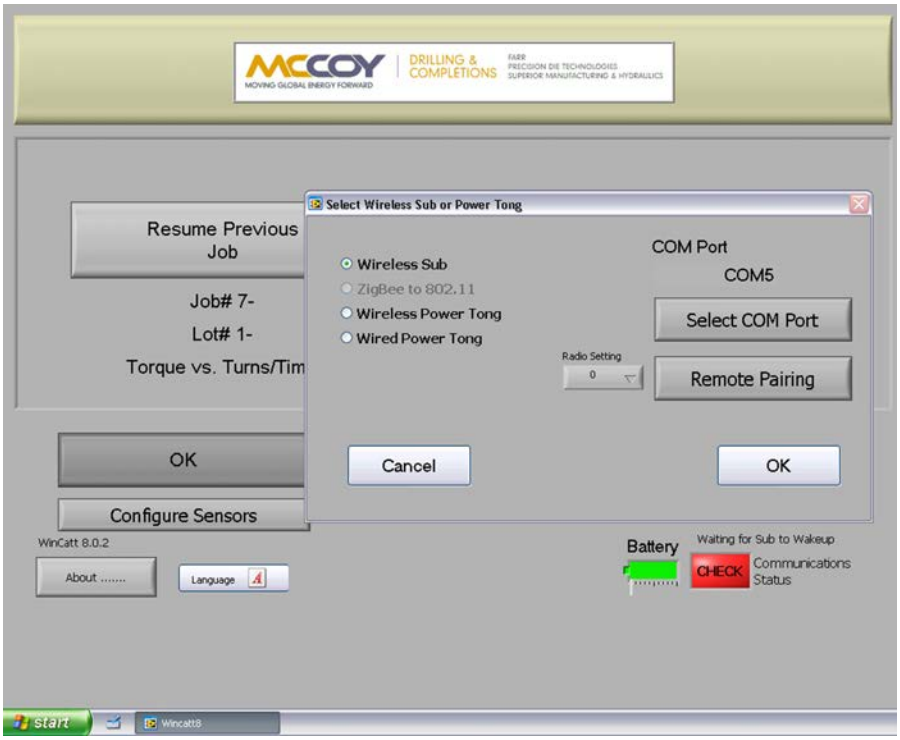

Illustration 5.0.3: Wireless Sub Communications Pop-up Window

3. If the software does not successfully re-establish communications click “Cancel” on the wireless sub communications pop-up window, followed by “Exit to Windows” to close the WinCATT 8 software.

   Shut down the WinCATT laptop. Cycle the power to the weCATT™ enclosure by unplugging the battery, waiting for ten seconds, and plugging the battery back in (see Section 3.3 for instructions on accessing the battery). Replace all covers on the weCATT™ enclosure and re-boot the WinCATT laptop. Double-click on the WinCATT 8 icon to start the WinCATT 8 software.

   Repeat steps 1 & 2. If the software fails to re-establish communications advance to Step 4 to manually select the COM port.

5.0 COMMUNICATIONS ERRORS (CONTINUED):

4. If the software is unable to assign a communications port the “Dialog (Base Package)” dialogue box will appear, indicating that manual selection of the communications port is necessary.

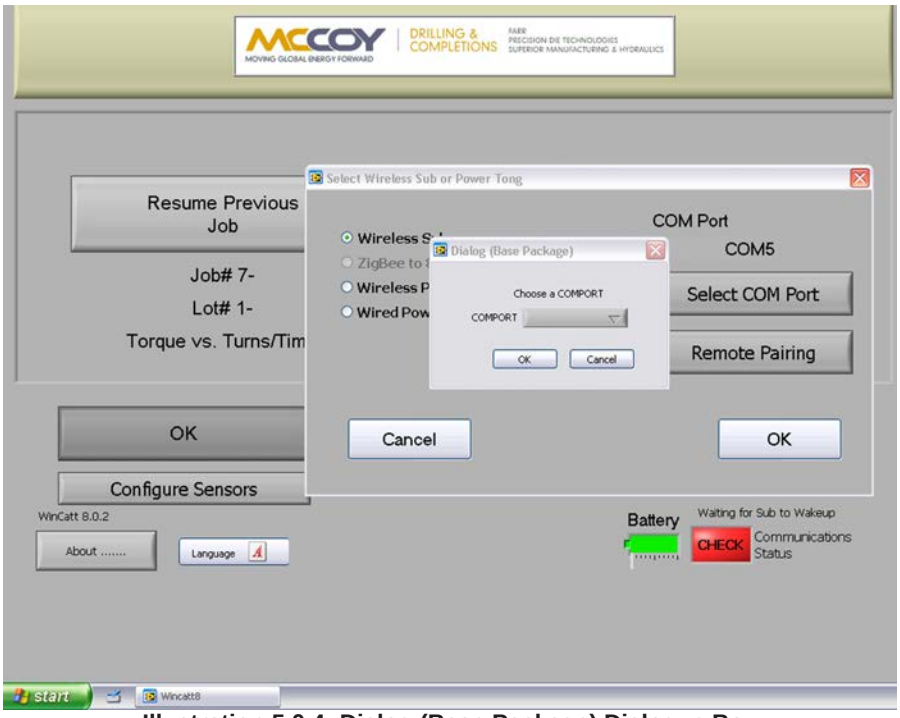

Illustration 5.0.4: Dialog (Base Package) Dialogue Box

4. Click “Cancel” on the “Dialog (Base Package)” dialogue box, “Cancel” on the wireless sub communications pop-up window, followed by “Exit to Windows” to close the WinCATT 8 software. Click on the Windows “Start” icon in the lower left-hand part of the screen and select “Control Panel”.

Illustration 5.0.5: Selecting “Control Panel” in Windows

5.0 COMMUNICATIONS ERRORS (CONTINUED):

5. Double-click on the “System” folder icon, and select the “Hardware” tab.

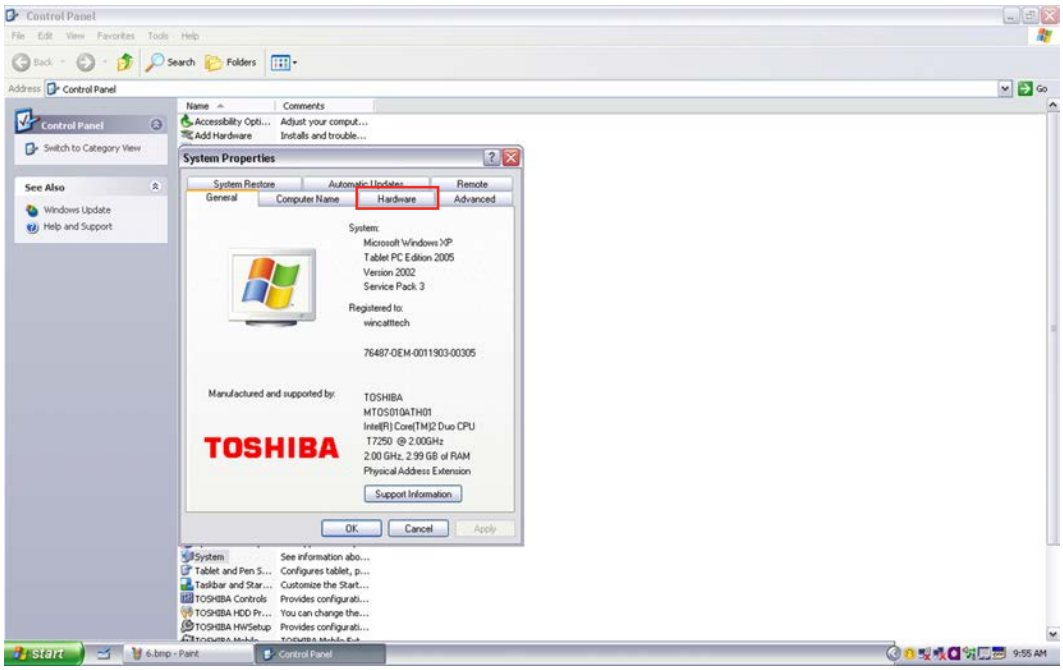

Illustration 5.0.6: Selecting “Hardware” in System Properties

6. Click the “Device Manager” button on the hardware page to display a list of devices on the system.

Illustration 5.0.7: Selecting Device Manager within System Properties

5.0 COMMUNICATIONS ERRORS (CONTINUED):

7. Expand the “Ports (Com & LPT)” section by clicking on the small plus sign. Right-click on “USB Serial Port”, and select “Properties” to open the “USB Serial Port Properties” window.

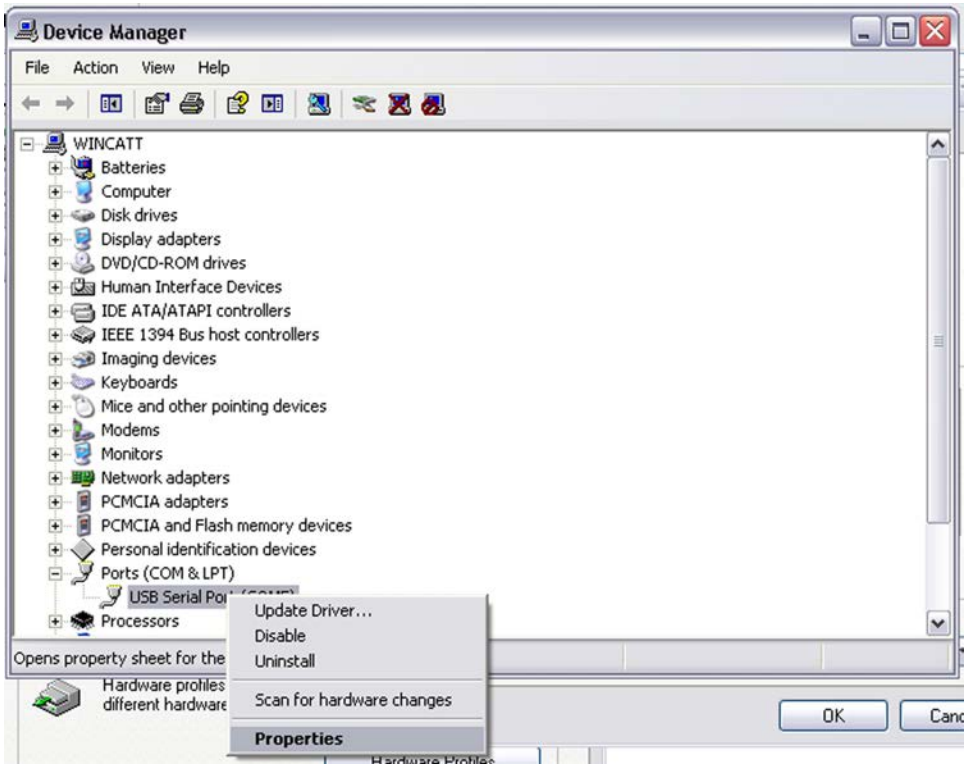

Illustration 5.0.8: Selection of USB Serial Port Properties

8. Click the “Advanced” button on the USB Serial Port Properties window to display the Advanced Com page.

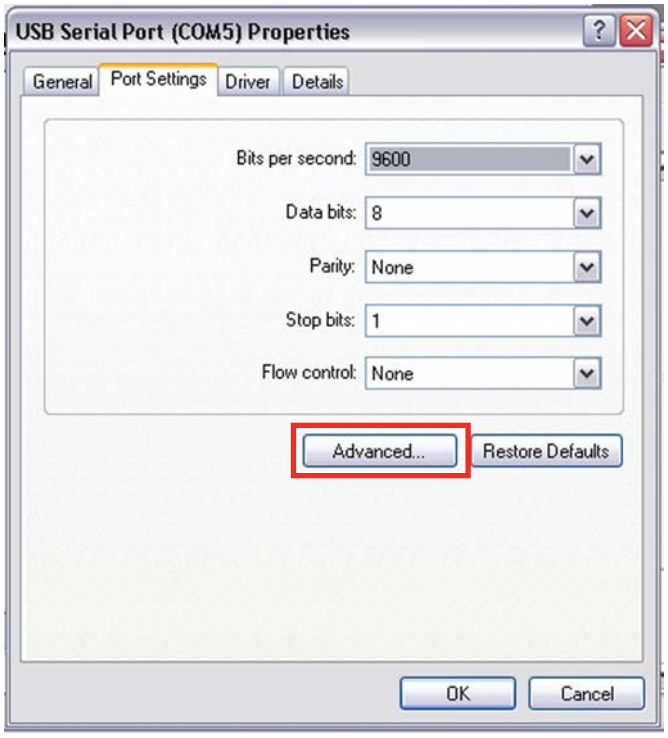

Illustration 5.0.9: Selecting Advanced Com Port Settings

5.0 COMMUNICATIONS ERRORS (CONTINUED):

9. Open the drop-down menu beside “Com Port Number”. Select any port numbered 9 or lower, regardless of whether it is listed as “in use” or not. Select “OK”.

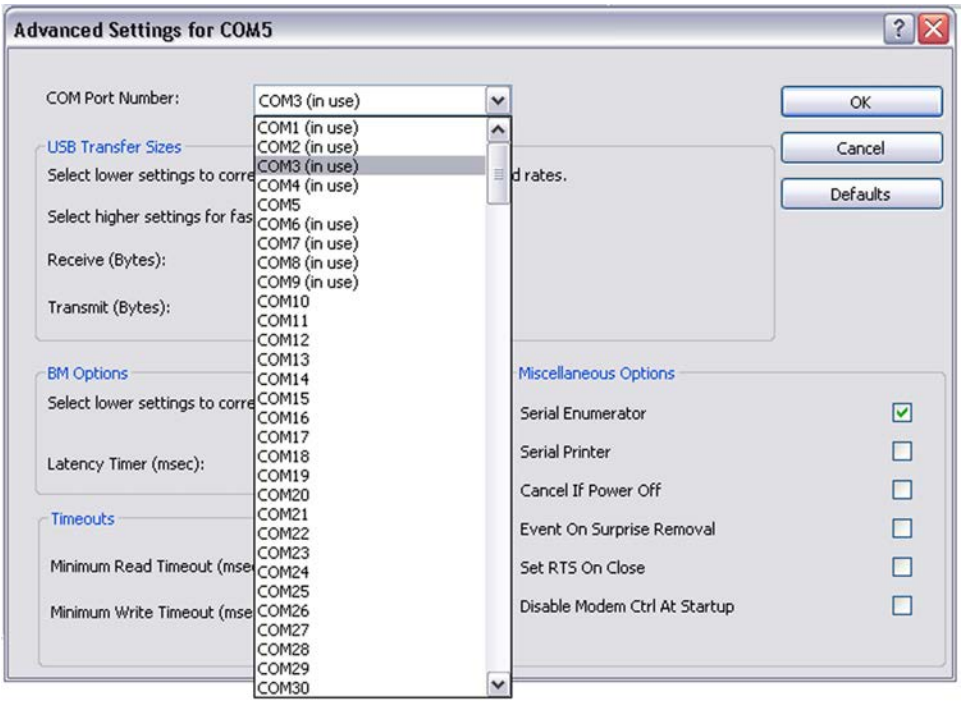

Illustration 5.0.10: Selection of USB Serial Port Properties

Occasionally, if a port listed as “In Use” is selected as the chosen COM port a Communication Port Properties error dialogue box will appear when “OK” is selected on the Advanced Settings Page (see illustration 4.1.11). Select “Yes” to continue.

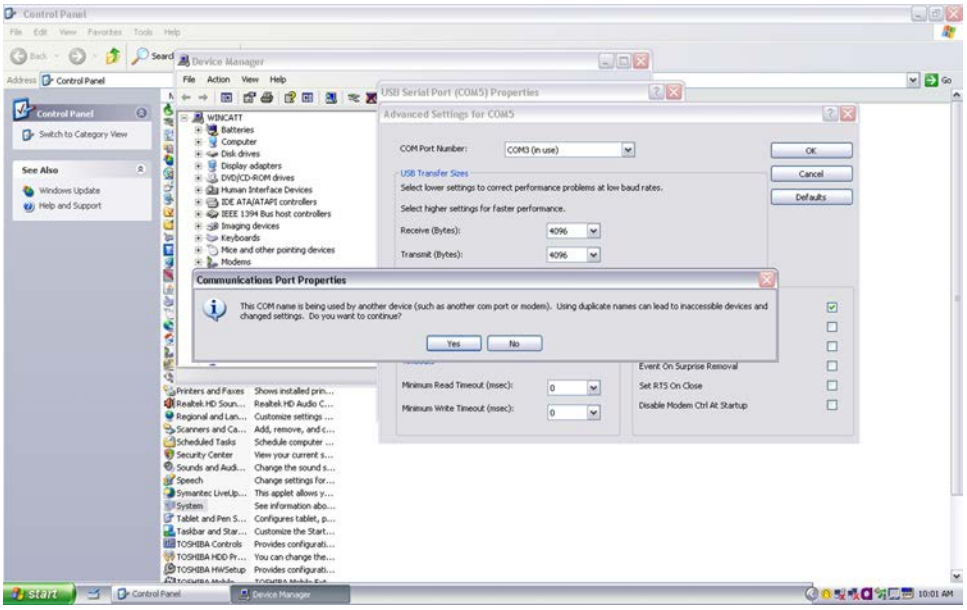

Illustration 5.0.11: Selection of USB Serial Port Properties

10. Close all dialogue boxes and “Control Panel” to return to the main Windows screen. Double-click on the the WinCATT 8 icon to re-launch the WinCATT 8 software, and repeat steps\ 1 through 3. If communications cannot be re-established after manual COM port selection please call the WinCATT service department.

5.1 ANTENNA RE-PAIRING PROCEDURE

Replacement of the transceiver at the wincatt laptop requires performing the re-pairing process with the weCATT™ unit to which it will be communicating.

⚠ WARNING

DO NOT PERFORM THIS PROCEDURE UNLESS INSTRUCTED TO DO SO BY MCCOY GLOBAL SERVICE PERSONNEL.

⚠ DANGER

DUE TO THE POTENTIAL FOR ELECTROSTATIC DISCHARGE DO NOT REMOVE WECATT™ ENCLOSURE COVERS IN AN EXPLOSIVE ENVIRONMENT.

1. Access the weCATT™ circuitry by removing the cover on the side opposite side of the battery cover. Use an Allen key to completely remove the set screw on the cover. Use the provided tool (see illustration 3.2.2) to loosen the cover, and un-thread by hand until it comes free.

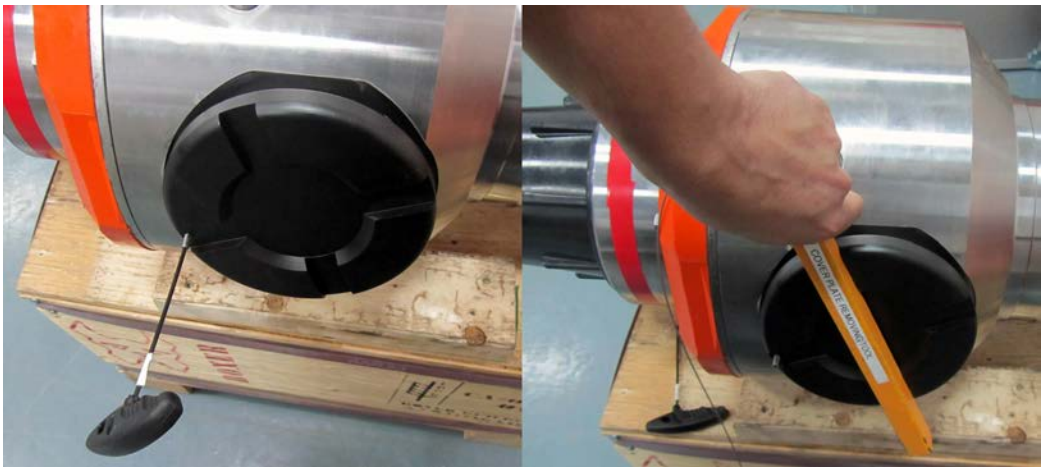

Illustration 5.1.1: Removing Electronics-Side Cover Plate

2. Confirm power is on. Blinking LEDs confirm that power is being supplied to the main weCATT™ circuit board. Identify the radio channel selected. McCoy factory-sets most weCATT™ units to “0” (zero), but some units may be set to a different channel. Make a note of the channel selected.

Illustration 5.1.2: Confirming Radio Channel Selection

5.1 ANTENNA RE-PAIRING PROCEDURE (CONTINUED):

3. Open the WinCATT 8 software by double-clicking on the WinCATT 8 icon. Select “Wireless Sub” on the home screen to open the wireless sub communication window.

Illustration 5.1.3: “Wireless Sub” Selection - Home Screen

4. Ensure the radio channel selected in the “Radio Setting” field matches the radio channel selected on the weCATT™ circuit board. Change the “Radio Setting” field by clicking on the “Radio Setting” button and selecting from the drop-down menu.

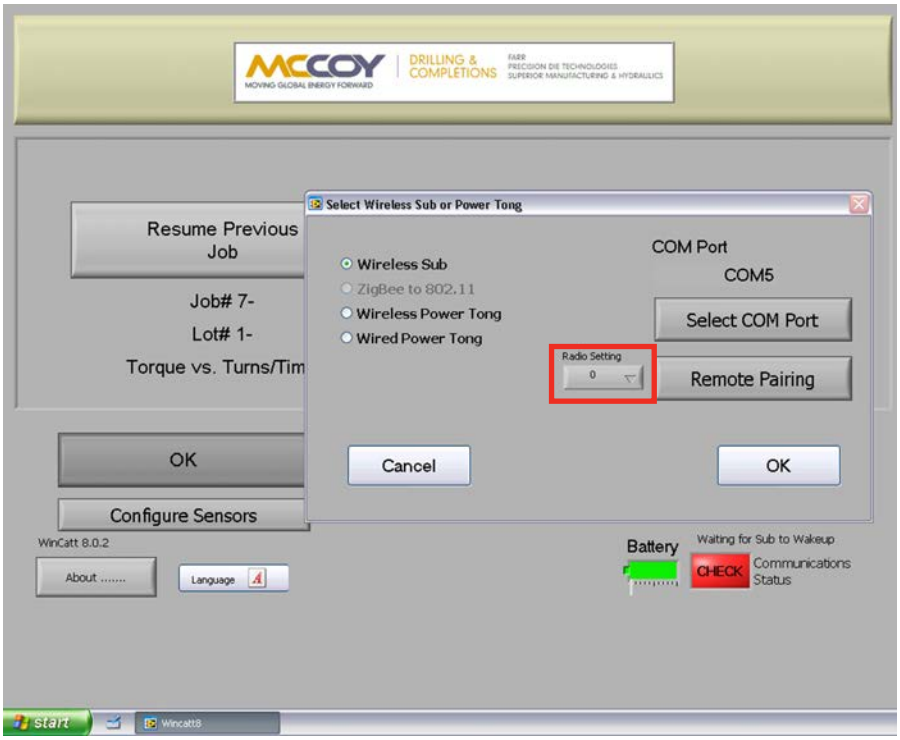

Illustration 5.1.4: Confirming Radio Channel Setting in WinCATT 8

5.1 ANTENNA RE-PAIRING PROCEDURE (CONTINUED):

5. Select “Remote Pairing” in the wireless sub communications pop-up window.

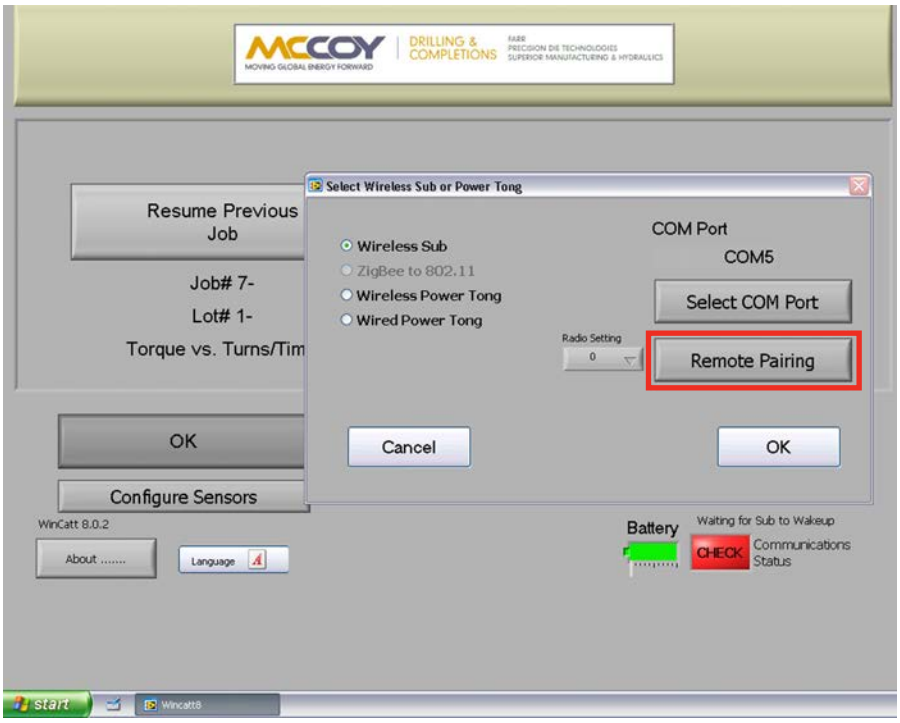

Illustration 5.1.5: Remote Pairing Selection

6. Enter the default password in the password field. The password is: ***farr001***. Do not change the default password.

⚠ CAUTION

DO NOT CHANGE THE DEFAULT PASSWORD

The “Radio Pairing” window will appear after approximately five to ten seconds. Follow instruction #1 “Press the Sub-Config button for 3 to 5 seconds until the SF1 Light turns on”. The pairing status LED (SF1) will illuminate solid red.

Illustration 5.1.6: Sub-Config Button

5.1 ANTENNA RE-PAIRING PROCEDURE (CONTINUED):

7. Release the Sub-Config button. The Pairing Status LES (SF1) will flash three to six times, followed by flashing of either SF2 (GREEN - PAIRING SUCCESS) or SF3 (YELLOW - PAIRING FAILURE).

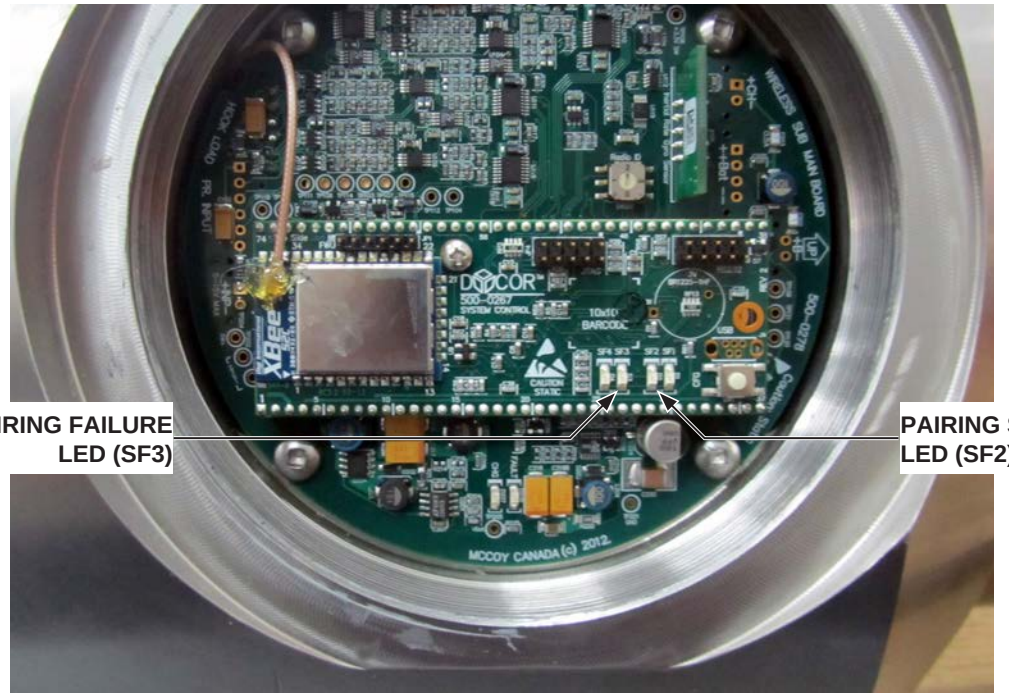

Illustration 5.1.7: Pairing Status LEDs

8. Select either “Green Light Flashes” or Yellow Light Flashes” on the “Radio Pairing” pop-up window, depending on which LED flashed.

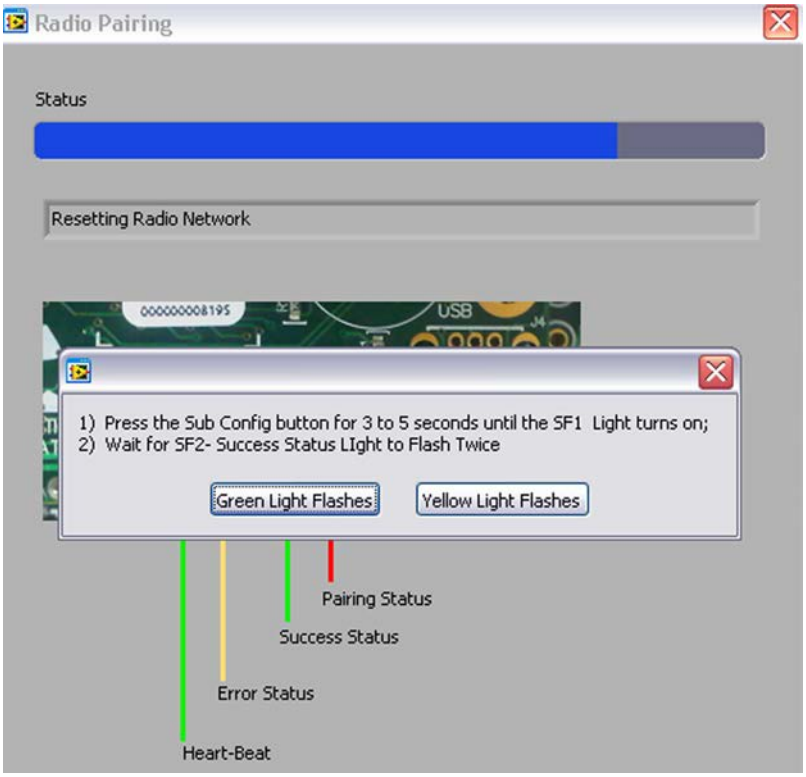

Illustration 5.1.8: Confirming Pairing Status

5.1 ANTENNA RE-PAIRING PROCEDURE (CONTINUED):

9. SUCCESSFUL PAIRING

Allow the software to finalize the connection upon selection of “Green Light Flashes”. Select “OK” on the wireless sub communication pop-up window to return to the WinCATT 8 home screen.

Treat set screw threads with blue Loctite®, and partially re-thread in to electronics cover. Treat the threads of the electronics cover with anti-seize compound before reinstalling. Thread cover on to body by hand as far as possible, then use tool bar to complete tightening until the cover bottoms out. Do not cross-thread. Tighten until the o-ring is snug against its seat but not crushed. Tighten the set screw against the torque sub housing until snug. Replace the tool bar in its storage location for safe-keeping or, if the storage crate is to be removed for storage, store the tool bar with the spare battery.

UNSUCCESSFUL PAIRING

Repeat steps 6 through 8 to a maximum of three times. After three unsuccessful re-pairing attempts click “Cancel” on the wireless sub communications pop-up window, followed by “Exit to Windows” to close the WinCATT 8 software. Shut down the WinCATT laptop.

Cycle the power to the weCATT™ enclosure by unplugging the battery, waiting for ten seconds, and plugging the battery back in (see Section 3.3 for instructions on accessing the battery). Replace the battery cover on the weCATT™ enclosure and re-boot the WinCATT laptop. Double-click on the WinCATT 8 icon to start the WinCATT 8 software.

Repeat Steps 2 through 9 of this section to attempt the re-pairing procedure. If unsuccessful after three complete power-cycling procedures contact McCoy’s WinCATT service for further instructions.

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SECTION 6: RECOMMENDED SPARE PARTS

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5.1 RECOMMENDED SPARE PARTS FOR 4-½" WIRELESS TORQUE SUB

Recommended Spare parts for 4-1/2" weCATT System

ITEM #	QTY	PART #	DESCRIPTION	IMAGE
1	1	60-4000-14	BATTERY PACK	
2	1	60-0350ZB	HOST MODULE	
3	1	70-4509	THREAD PROTECTOR BOX END 4-1/2	
4	1	70-4508	THREAD PROTECTOR PIN END 4-1/2	
5	2	60-60-4000-13	BATTERY CAP	
6	1	70-4510	ANTI-SEIZE 1 LB.	
7	1	02-E0208	BATTERY CAP O RING	

5.1 RECOMMENDED SPARE PARTS FOR 4-½" WIRELESS TORQUE SUB (CONTINUED):

Recommended Spare parts for 4-1/2" weCATT System

8	1	60-4000-27	BATTERY STRAP	
9	1	70-4511	SIMPLE GREEN CLEANER	
10	1	09-001SS	SET SCREWS FOR BATTERY CAP	
10	1	60-4501	BOX END 4 ½" NC50 API LIFT NUBBINS	
11	1	60-4500	PIN END 4 ½" NC50 API LIFT NUBBINS	

5.2 RECOMMENDED SPARE PARTS FOR 6-⅝" WIRELESS TORQUE SUB

ITEM #	QTY	PART #	DESCRIPTION	IMAGE
1	1	60-4000-14	BATTERY PACK	
2	1	60-0350ZB	HOST MODULE	
3	1	70-4507	THREAD PROTECTOR BOX END 6-5/8	
4	1	70-4506	THREAD PROTECTOR PIN END 6-5/8	
5	1	60-4000-13-ELE	ELECTRONIC BOARD CAP	
6	1	60-4000-13-BAT	BATTERY CAP	
7	1	70-4510	ANTI-SEIZE 1 LB.	

5.2 RECOMMENDED SPARE PARTS FOR 6-⅝" WIRELESS TORQUE SUB (CONTINUED):

8	1	02-E0208	BATTERY CAP O RING	
9	1	60-4000-27	BATTERY STRAP	
10	1	70-4511	SIMPLE GREEN CLEANER	
11	1	09-001SS	SET SCREWS FOR BATTERY CAP	
12	1	60-4503	BOX END 6-5/8 REG API LIFT NUBBINS	
13	1	60-4502	PIN END 6-5/8 REG API LIFT NUBBINS	

SECTION 7: APPENDICES

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APPENDIX ONE: CSA CERTIFICATE OF COMPLIANCE

Certificate of Compliance

Certificate: 2497668 **Master Contract:** 254103

Project: 2562741 **Date Issued:** November 13, 2012

Issued to: **Farr Canada Corporation**

14755-121A Avenue
Edmonton, AB T5L 2T2
Canada
Attention: Murray Gerwing

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Chris Burchett

Issued by: Chris Burchett

PRODUCTS

CLASS 2258 82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

CLASS 2258 02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

Class I Division 1, Group C and D; T4

Ex d [ib Gb] IIB Gb T4

Class I Zone 1 AEx d [ib Gb] IIB Gb T4

Type 4, IP66

60-TSA-0x-0x-0x-0x-00 Wireless Torque Sub, Rated 5 to 15 Vdc, 70mA max; 63mW max RF output; Tamb -40 to +70C

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-10: General Requirements - Canadian Electrical Code, Part II

DQD 507 Rev. 2012-05-22 Page: 1

Certificate:	2497668	**Master Contract:**	254103
Project:	2562741	**Date Issued:**	November 13, 2012

CAN/CSA-C22.2 No. 0.4:04: Bonding of Electrical Equipment

CSA C22.2 No. 30-M1986: Explosion-Proof Enclosures for Use in Class I Hazardous Locations Industrial Products

CSA C22.2 Std. 94 M91: Special Purpose Enclosures Industrial Products

CSA 142 M1987: Process Control Equipment

CAN/CSA-C22.2 No. 157-92: Intrinsically Safe and Non-incendive Equipment or Use in Hazardous Locations

CSA C22.2 No. 213 - M1987: Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

CAN/CSA-C22.2 No. 60079-0:11: Equipment — General requirements

CAN/CSA-C22.2 No. 60079-1:11: Equipment protection by flameproof enclosures “d”

CAN/CSA-C22.2 No. 60079-11:11: Equipment protection by intrinsic safety “i”

CAN/CSA-C22.2 No. 60529-05:05 Degrees of protection provided by enclosures (IP Code) - First Edition

UL 50, 12th Ed. 9/07: Enclosures for Electrical Equipment

UL 508C Ed 3: Power Conversion Equipment

UL 913, 7th Ed.: Standard for Safety Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations

UL 1203 3rd Ed: Explosion-Proof and Dust- Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations

ANSI/ISA-12.12.01-2011: Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

UL 60079-0: 4th Ed 2005: Electrical apparatus for explosive gas atmospheres - Part 0: General Requirements

UL/ISA 60079-1: 2009: Electrical apparatus for explosive gas atmospheres. Part 1: Equipment Protection by Flameproof Enclosures “d”

UL 60079-11: Equipment Protection by Intrinsic Safety "i"

NEMA/IEC 60529:2004 Degrees of Protection Provided by Enclosures (IP Code) - IEC Adoption; ANSI Approved

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Project:	2562741	**Date Issued:**	November 13, 2012

NEMA 250:2008 Enclosures for Electrical Equipment (1000 Volts Maximum)

MARKINGS

Product markings shall be in accordance with the related standards. In addition, it shall be the responsibility of the manufacturer to provide additional markings on the product to comply with the requirements of the local regulatory authorities. For example, in Canada, any caution and warning markings must be provided in French and English.

The following markings shall be installed using:

(a) embossed, die-stamped, cast, moulded, etched, or the equivalent, in the enclosure material;

(b) on a metal plate or plates at least 0.5 mm thick permanently attached to the enclosure by means of drive pins or screws; except that metal of lesser thickness may be used provided that it is secured in a manner that will prevent damage or distortion (eg, secured in each corner);

1) The cCSAus logo with c and us indicators

2) manufacturer's name, trademark, trade name, Master Contract or other recognized symbol of identification

3) catalogue, style, model, or other type designation

4) hazardous location designation

5) cautions on use in hazardous locations (eg, OPEN CIRCUIT BEFORE REMOVING COVER and OUVRIR LE CIRCUIT AVANT D'ENLEVER LE COUVERCLE, or KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE and GARDER LE COUVERCLE BIEN FERME TANT QUE LES CIRCUITS SONT SOUS TENSION or the equivalent)

6) complete electrical ratings

7) enclosure Type Rating and IP Rating

8) ambient Temperature Range

9) Temperature Code

10) WARNING – USE ONLY YYYYY BATTERIES (where Y is the cell manufacturers name and the type number of the cell or battery).

11) WARNING – DO NOT REPLACE BATTERY WHEN AN EXPLOSIVE GAS ATMOSPHERE MAY BE PRESENT

Certificate:	2497668	**Master Contract:**	254103
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12) WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS and AVERTISSEMENT - RISQUE DEXPLOSION. NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, À MOINS QUIL NE SAGISSE DUN EMPLACEMENT NON DANGEREUX

13) WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS