



**CANADA
TECH**

*Assembly Procedure
For the
PRESSURE PILOT*



Canada Tech Corp
210 600 6th Ave SW
Calgary, Alberta
Canada T2P 0S5
Phone 403.232.1400 Fax 403.232.1401
www.canadatech.com

Table of Contents

I. Introduction Overview.....	3
A. Components.....	3
B. Accessories.....	3
II. Assembly and Operation.....	4
A. Step-by Step.....	4
B. After Removal from the Well	6
III. Servicing the Tool.....	7
A. Cleaning the Transducer.....	7
B. Lubricating Gauge Threads.....	7

Copyright Notice

2003 Canada Tech Incorporated. All rights reserved.

This manual, as well as the software described in it, is furnished under license and may be used or copied only in accordance with the terms of such license. The content of this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Canada Tech Incorporated. Canada Tech Incorporated assumes no responsibility of liability for any errors inaccuracies that may appear in this book. Except as permitted by such license, no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form of by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of Canada Tech Incorporated.

I. Introduction Overview

The major purpose of this manual is to inform users on how to assemble and maintain the Canada Tech Pressure Pilot Gauge and Carrier. The user will find information on operation, maintenance, and troubleshooting.

Canada Tech offers a wide range of oilfield related memory devices. Some of these include downhole memory gauges utilizing both Peizo-Resistive and quartz transducers, surface readout pressure recorders, surface pressure loggers and various products utilized by the slimline / wireline industry. These products have been developed and manufactured to obtain the highest accuracy and resolution in the industry.

A. Components

A set of Pilot gauges and Carriers come complete with the following items:

- 2 Pilot Electronics
- 2 Pilot Electronics Housings
- 2 Battery housings
- 2 Bullnoses
- 1 Repair Maintenance Kit (contains extra O-rings and Crush rings)
- 1 Data Download Box (RS232 Serial or USB – customer specific)
- 1 Data Download Cable (RS232 Serial or USB)
- 1 USB Drivers Disk (only needed with USB Communications)
- 1 Interface Power Supply (only needed with RS232 Communications)
- Gauge Calibration files and Certificates
- 1 Tool Box Program CD

**(Crossover not needed with this Carrier)

B. Extra Accessories:

- Pelican Case
- Lithium Batteries
- Battery Tester
- Torque Wrench
- 1 1/8" Crowfoot

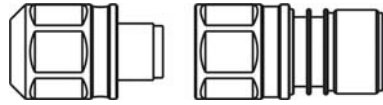
Canada Tech software requires an IBM compatible 60 MHz Pentium computer or better, along with Microsoft Windows.

II. Assembly and Service

A. Step-By-Step

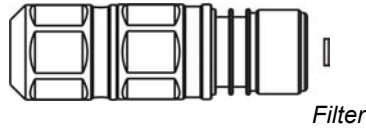
The following is a step by step procedure to assemble the *Pressure Pilot Carrier with Pressure Pilot*.

1. Hold the *Bull Nose* firmly. Thread the *Bull Nose* onto the *Pressure Pilot Housing* and tighten securely with 1 1/8" wrench.

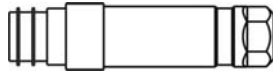


Bullnose *Pressure Pilot Housing*

2. If necessary, insert a *Filter* by pressing it into the *Pilot Housing*. The *Filter* should be just past flush with the surface of the housing.

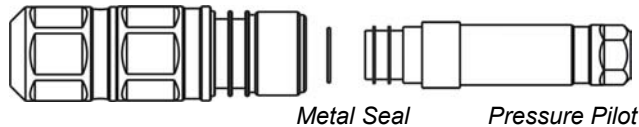
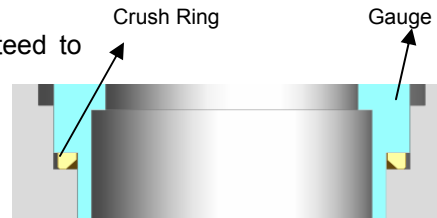


3. Install Backup V90 016 O-rings onto Pilot Housing.



4. Place new metal seal crush ring onto the *Pressure Pilot*. The crush ring should be installed with the flat side of crush ring mating against the *Pressure Pilot* and beveled side mating against the *Pilot Housing*.

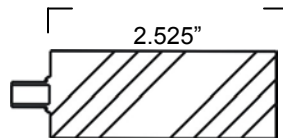
NOTE: Used crush rings cannot be guaranteed to seal effectively therefore it is encouraged to change the crush ring each time the Pilot is removed.





5. Thread the *Pressure Pilot* into the *Pilot Housing* and using the torque wrench and a 11/16" socket provided, torque the *Pressure Pilot* to 130ft*lbs.

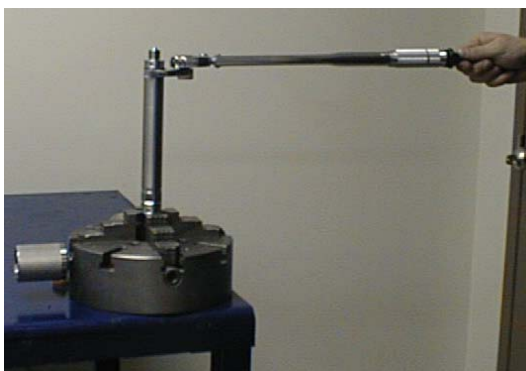
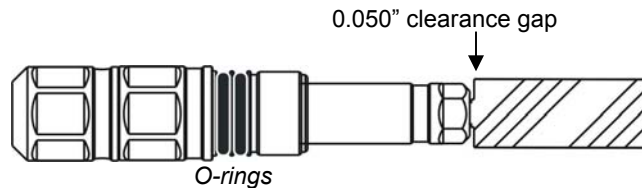
6. Install single C size lithium high temperature (rated to 150°C) cell. The cell must have a four prong LEMO connector and must not measure more than 2.525" in length from shoulder of connector to end of battery. There should be approximately 0.050" clearance for heat expansion of the battery.



This can be checked by loosely installing the battery and then installing the battery barrel. Now remove the battery barrel and inspect the gap in the plug junction between the battery and the *Pressure Pilot*.

***Caution must always be taken when handling lithium batteries

7. Install two 212 V90 (viton of 90 durometer) O-rings on the *Pilot Housing*).



8. Lightly grease the o-rings on the *Pilot Housing* with Dow Corning 55 High temperature o-ring silicone lubricant to help prevent cutting the o-rings when installing battery barrel.
9. Install battery barrel and tighten securely.

OPTION: To activate the metal to metal seal, install battery barrel and torque to 100lbs using a torque wrench with 1 1/8" open ended wrench (crowfoot).

10. Tool is now assembled and ready for use.

B. After the Gauge is Removed from the Well

1. The *Pilot Carrier* and *Pilot* should be allowed to **cool** sufficiently before working with it.
2. **Loosen the battery housing** from the electronics housing (Pilot housing) using a 1 1/8" wrench.



3. Slowly **remove the battery housing** from the Battery and Pilot Electronics Housing.
4. Remove the battery from the Pilot Electronics Housing by gripping the battery as close to the pin as possible and pull straight off of the electronics housing. ***Do not twist the battery!!** It is now time to start downloading the information recorded by the gauge.

B. Communication with the Gauge

To start communicating with the gauge, the following procedure is recommended:

1. **Attach the female end of the 9 pin serial cable**, which was provided with gauges, **to an empty parallel port in the back of the computer**. Attach the male end of the cable to the Serial Data Download Box. The Serial Data Download Box is an electric interface adapter, which allows communication between the computer and the gauge. If you are using the USB Download Box, connect the USB cable to the USB port on the computer. With the USB connection, no interface power supply is needed. With the USB connection, no interface power supply is needed. Make sure the USB Drivers are installed on the computer for the USB connection to work. A USB Driver disk is provided with the complete package or you can find the latest driver on our website www.canadatech.com >>> Support >>> Downloads >>> USB Drivers.



2. **Line up the red dot on the interface box to the red dot on the gauge and insert carefully.** They will only connect this way. Do not force or twist!! If the connection is difficult, stop and look to see what the obstruction might be. Clear all obstructions and try the connection again. When these three components are connected together, the gauge is said to be in *Communication Mode*. This mode is used to program the tool, download file, and upload calibration information and other related operations through the software. The power consumption in this mode is 8mA.
Once again, for USB connections, line up the red dot on the interface box to the red dot on the gauge and insert carefully, but no interface power supply is needed.
3. **Connect the interface power supply to the communication box** by lining up the red dots on the communication box and the red dot on the power supply. You will know if the connection is ready when the LED on the battery pack flashes red on and then off. If the flashing does not occur, try this connection again. This is not needed with USB connections.

4. Open the program Tool Box. Refer to Tool Box Manual for connection and operation instructions.

III. Servicing of the Gauge

1. After all data is downloaded from the tool, carefully disconnect all components.
2. Clean and lubricate the tool after use. Replace all o-rings and crush rings after every run to protect the gauge from potential damage caused by failure.

A. Cleaning the Transducer

1. Remove the Pilot after every run and clean the pressure ports. If the pressure ports get plugged, then the gauge may not read accurately. Carefully rinse the pressure transducer without directly touching it.

B. Lubricating the Gauge Threads

1. The threads on the top of the electronics housing and on the bullnose should be lubricated with the proper lubricant, such as Dow Corning 55-O-ring lubricant. This should be done prior to usage.

***It should be noted that the gauge does contain electronics and should be treated gently whenever possible. Store gauges in their storage cases when not in use.**

***Never submerge the tool in fluid unless it is completely assembled.**