

**Genie Probe Regulator (GPR)/
Genie Membrane Probe (GP2)/
Genie Membrane Probe for
Composite Sampler (CSA)/
And Housing (Model H)**

Installation and Operation Instructions

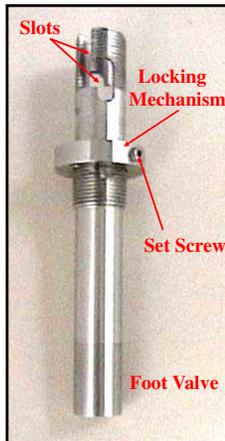


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Revision 0514

Caution:

- Not designed for external fire.
- Prior to use in a system, a properly sized relief device is to be installed which limits the use to 110% of the MAWP.



**Housing for
Genie Probe Regulator
or
Genie Membrane Probe**

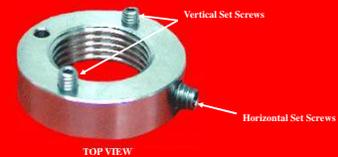
•To ensure that the Housing is never accidentally loosened or removed a **Locking Mechanism** is provided.

•A+ Corporation's **Locking Mechanism** ensures that the Housing can only be removed intentionally or knowingly.

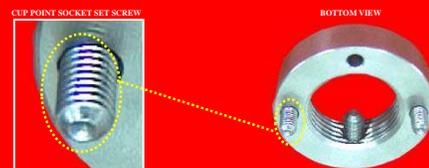
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Locking Mechanism (if supplied)

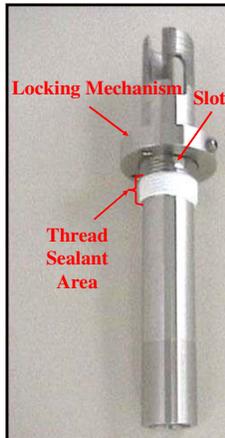
Set Screws Backed Out



Set Screws Fully Engaged



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**Housing for
Genie Probe Regulator
Or
Genie Membrane Probe**

•Turn locking mechanism on the housing (counter-clockwise) until it is at its extreme upper position.
•Apply thread sealant to thread area below vertical slot in threads.

•Recommended thread sealant: 4 wraps of Mil Spec A-A 58092 nickel Teflon Tape thread sealant

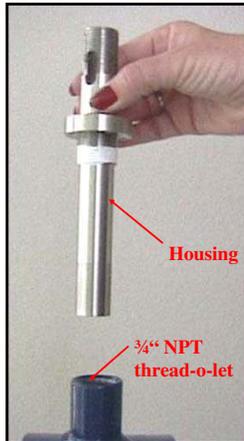
•Do not allow thread sealant to invade slot, otherwise it may interfere with locking mechanism.

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Mounting Orientation

Vertical (preferred), or 45° maximum angle relative to vertical required

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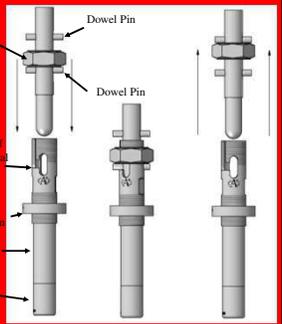
Insertion of Housing

- Confirm that the pipeline has been depressurized.
- Insert the housing into the depressurized pipeline thru a 3/4" NPT thread-o-let
- An optional 1" NPT Housing is available.

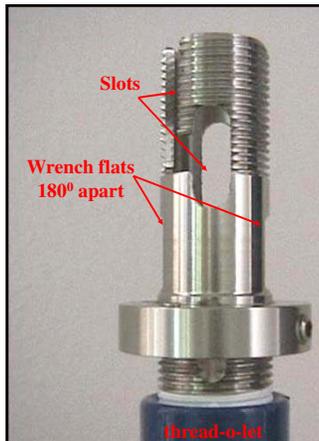
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Optional Accessory

The GP-Gage Tool can be used as a gage in Housings to help install the NPT threaded portion of the Housing properly into the pipeline thread-o-let. The GP Gage Tool is designed to move freely up and down in the housing (ie. The housing is not collapsed indicating that the housing has not been over tightened). Refer to the GP-Gage Installation and Operation Instructions.



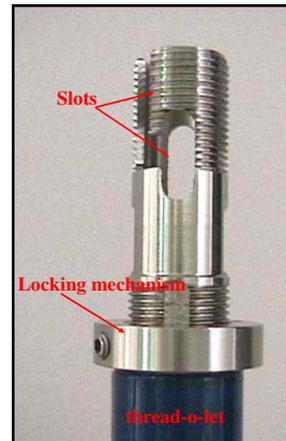
8



Insertion of Housing

- Using a wrench and the wrench flats, turn the housing until it is secure and sealed.
- DO NOT OVERTIGHTEN**
- Typically 3-5 turns is sufficient.
- The Housing may be damaged if over tightening causes the housing to swage.
- To position the housing or to seal, a maximum of one additional turn can be used.

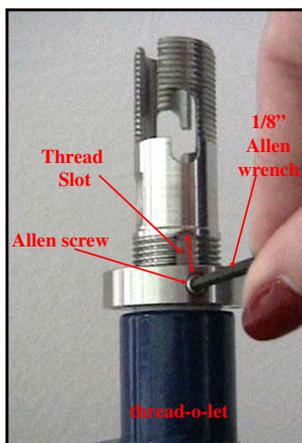
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Insertion of Housing

- Turn the locking mechanism clockwise until it first touches the top of the thread-o-let.

10



Insertion of Housing

- Turn the locking mechanism counterclockwise until the Allen screw is aligned with the thread slot.
- Using a 1/8" Allen wrench, tighten the Allen screw until its tip is tight against the slot.
- Do not over tighten Allen screw, otherwise Housing wall may become indented.

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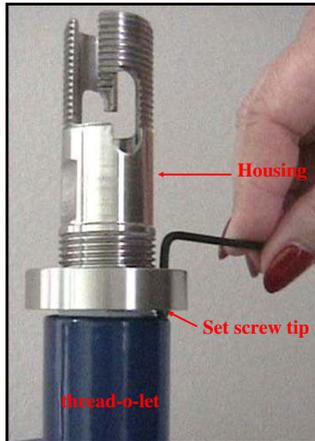


Insertion of Housing

- Using a (3/32) Allen wrench, tighten the Allen screws on the locking mechanism's surface until their tips are firmly set into the thread-o-let's upper surface.

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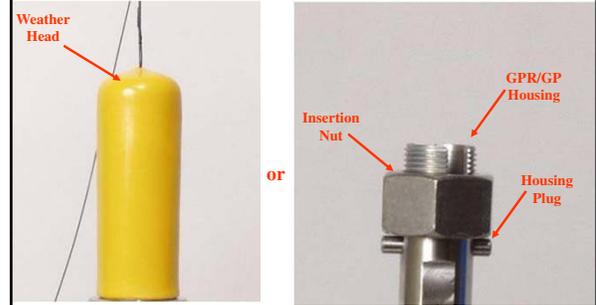
Insertion of Housing



- The housing is now installed. The locking mechanism should prevent the housing from becoming unintentionally unscrewed from the thread-o-let.
- The pipeline may now be repressurized.
- Once the Housing is installed, the GPR can now be inserted as per the instructions beginning with Slide #13.

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Install the Weather Head or stainless steel plug that prevents foreign objects from entering Housing cavity on the Housing if the Probe will not be installed at this time.



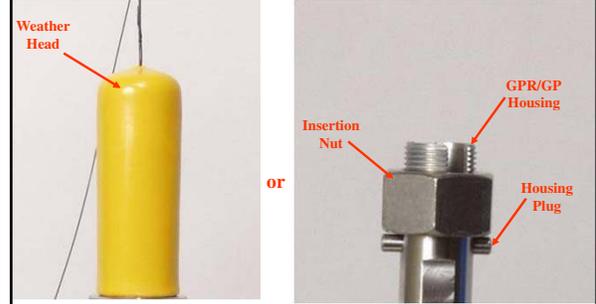
or

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GPR/GP2 Probe Insertion

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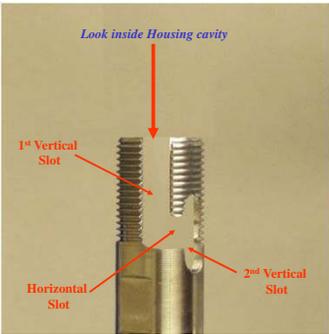
The Weather Head or stainless steel plug that prevents foreign objects from entering Housing cavity should have been installed on the Housing.



or

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If present remove the weather head or plug and confirm that no foreign objects are in the Housing cavity. Use a light source (flashlight) to view the top of the Foot Valve Housing and stem.



17

Protection begins with the Robust Foot Valve design.



A stainless steel spring provides the initial upward force to close the foot valve. The process pressure provides additional force after the foot valve is closed.

18

GP2 & GPR HOUSING

With 2 sets of "Zig-Zag" Slots



19



Allen cap screw

Confirm that the allen cap screw head's hollow hex cavity is free from foreign material (I.e. Confirm that it is clean.)

20

Confirm that the Allen cap screw that holds the Membrane Ferrule is torqued wrench-tight. The torque value should be 10 inch/lb. If the allen cap screw is only hand tight, not wrench tight to the appropriate torque value, the screw may protrude excessively. The extra Probe length may prematurely actuate the Foot Valve when the Probe is installed into the Housing.



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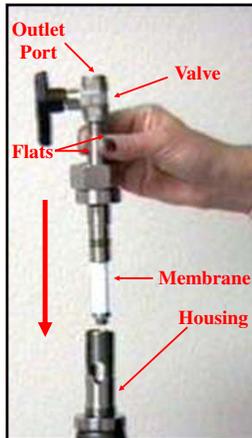
Insertion of GPR Probe



•Rotate the pressure adjustment screw fully counter-clockwise (unscrew it) until it rotates freely

•Close the ball valve on the regulator outlet if so equipped. (Handle at 90° angle)

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Insertion of GP2 Probe

•First install a valve in the GP2 outlet port (1/8" NPT female) as shown.

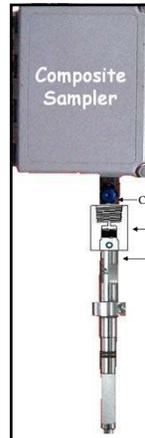
Close the valve before inserting the GP2 into its housing.

CAUTION – Failure to install and close the valve will result in full line pressure at the outlet port, and the unrestricted flow could damage the foot valve o-ring.

Use a backup wrench on the wrench flats during valve installation.

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Insertion of CSA Probe



•Install the Composite Sampler with its inlet valve closed onto the Probe. The valve must be closed before inserting the Probe into its housing.

CAUTION – Failure to install and close the valve will result in full line pressure at the outlet port, and the unrestricted flow could damage the foot valve o-ring.

Use a backup wrench on the wrench flats during valve installation.

22

Step #2

Insertion of Probe

- Position the membrane end of Probe above the installed housing
- Slowly and carefully, lower the Probe into the Housing. (Avoid membrane contact with upper section of housing.)

Do not apply any downward force. The Probe should easily slide into the Housing.

25

Step #3

Insertion of Probe

- Only lower the probe far enough to thread the insertion nut one complete thread.

Do not apply any downward force by hand to the Probe.

Do not unscrew the Insertion Nut in this procedure once it has been engaged.

(The pins are in the 1st vertical slot.)

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Step #4

Insertion of Probe

- Thread the Insertion Nut down by hand, lowering the Probe until the insertion washer pins slide to the bottom of the the *first vertical slot.*
- The threaded nut on the Housing ensures that if all other safety procedures are disregarded, it is mechanically impossible to remove the Probe.

(The pins are at the bottom of the 1st vertical slot.)

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Step #5

Insertion of Probe

- Rotate Probe counter clockwise until the pins are to the far right in the horizontal slot.
- At this point the Probe is sealed against the Housing interior wall.

(The pins are in the middle of the 2nd vertical slot.)

28

Step #6

Insertion of Probe

- Loosen the Insertion Nut until it is above the top of 2nd vertical slot. The Probe should not rise to the top of the 2nd Vertical Slot. If the Probe rises in the 2nd Vertical slot, the Foot Valve O-ring may have been damaged or attacked by the process.
- The threaded nut on the Housing ensures that it is mechanically impossible to remove the Probe.
- Perform the next step regardless of the status of the Foot Valve O-ring.

(The pins are in the middle of the 2nd vertical slot.)

29

Step #7

Insertion of Probe

- Tighten the Insertion Nut (by hand) until it is against the Insertion Washer again.
- Using a wrench, tighten the Insertion Nut against the Insertion Washer so that the Pins are at the bottom of the 2nd Vertical slot.
- At this point the Foot Valve opens and the insertion process is complete.
- (Perform this step regardless of the status of the Foot Valve O-ring)

(The pins are at the bottom of the 2nd vertical slot.)

*The Genie port that is not labeled is an atmospheric reference port for the regulator. It is threaded so that optional tubing can be connected to this port to enable a "captured vent" if so required; however, this port should NOT be plugged or the performance of the regulator will be affected.

30

Step #8

Insertion of GPR Probe

At this point the sample pressure can be adjusted to the desired value. This is accomplished by turning the pressure adjustment screw clockwise. To allow sample flow, *slowly* open external valving.

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Step #9

Insertion of GPR Probe

- At high supply pressure, a sudden change may be observed on the downstream pressure gauge as the valve stem moves away from the seat. Slight re-adjustments may be necessary until the pressure and flow have equilibrated.
- Tighten the pressure adjustment screw lock nut firmly against the washer to prevent unintended changes in pressure adjustment.

32

GPR Probe Installed into its Housing

33

Retraction of Probe

The GPR/GP2 can be easily retracted from its Housing.

34

Step #1

Retraction of Probe

- Shut flow completely off by closing external valving before beginning to retract the GPR or GP2 Probe .
- CAUTION-Failure to shut off sample flow may result in damage to housing foot valve seal.*
- Confirm that the adjustment screw is completely counter clockwise on GPR or the valve connected to the Outlet Port on GP2 Probes is closed.
- Using a wrench, loosen the nut by rotating it counterclockwise until it can be turned by hand.
- The foot valve is closed at this point.

(The pins are at the bottom of the 2nd vertical slot.)

35

Step #2

Retraction of Probe

- Loosen nut further by hand until the nut just clears the insertion washer. *Do not unscrew the nut beyond the top of the 2nd vertical slot.*
- The pins will now be at the top of the second vertical slot. They are held there by the force of supply gas trapped between the foot valve and probe housing seals.

(The pins are at the top of the 2nd vertical slot.)

36

Step #3

Retraction of Probe

- Bleed down the sample pressure by allowing sample to flow externally.
- The Probe should fall until the pins align with the horizontal slot indicating that the Foot Valve is closed and the o-ring is sealed properly

Once you have utilized the safety feature of the Foot Valve O-ring, only then can you remove the Probe.

The thread engagement of the Insertion Nut and the safety feature of the 2nd Vertical slot ensure that the Probe can not exit the Housing any other way than the correct retraction method.

(The pins are in the middle of the 2nd vertical slot.)

37

Retraction

- The sample pressure is relieved by allowing sample to flow externally. The Probe can now be easily pushed downward until the pins align with the horizontal slots, confirming the foot valve closed correctly
- Even if Foot Valve failure would possibly occur, the Foot Valve leak rate would prevent you from pushing the probe downward until the pins align with the horizontal slots.

Horizontal Slot
(Not visible in photo)

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CAUTION:

If the pressure is not reduced to zero, use the wrench to tighten the nut pushing the probe back into the housing and contact A+ Corporation or its representative.

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Step #4

Retraction of Probe

- Rotate the Probe clockwise until the pins enter first vertical slots.
- Make sure the Insertion Nut stays threaded on the Housing.

(The pins are at the bottom of the 1st vertical slot.)

40

Step #5

Retraction of Probe

- Confirm that no upward force from the supply pressure is present. (I.e. the Insertion Washer is not forced against the Insertion Nut as it is unthreaded.)
- After confirmation that no upward force from the supply pressure is present, completely unthread the Insertion Nut and lift the Probe upward from the housing.

(The pins are in the middle of the 1st vertical slot.)

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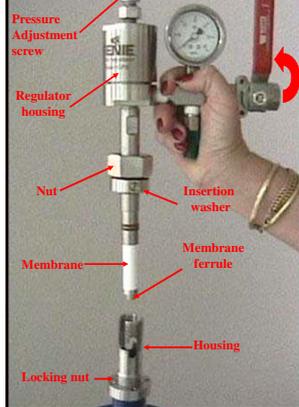
Step #6

Retraction of Probe

- During the retraction, keep the Probe centered in the housing to avoid membrane damage by contact with the upper section of the housing.

42

Step #7



Retraction of Probe

•Once the Probe clears the housing it may be placed on its side on a flat surface.