

科目：293001

知能類： K1.03 [2.5/2.7]

序號： B73 (P2673)

Refer to the drawing of a differential pressure manometer (see figure below).

A differential pressure manometer filled with water is installed across an orifice in a ventilation duct to determine the direction of airflow. With the ventilation conditions as shown, the pressure at P1 is _____ than P2, and airflow is _____.

- A. greater; left to right
- B. greater; right to left
- C. less; left to right
- D. less; right to left

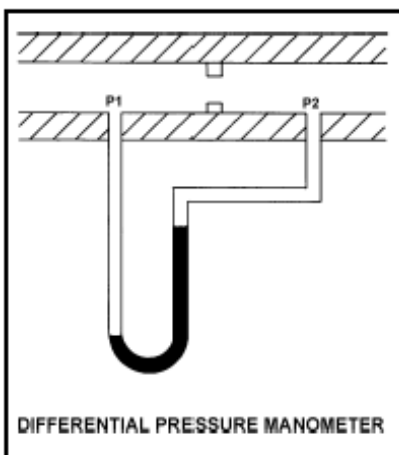
ANSWER: A.

參考壓差壓力計圖（見下圖）。

一個裝水的差壓計裝置跨接在通風管的孔口的兩端上，用來確定氣流的流向。若通風管的狀況如圖示，則P1的壓力____P2，而氣流的流向為_____。

- A. 大於；左到右
- B. 大於；右到左
- C. 小於；左到右
- D. 小於；右到左

答案： A.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B373 (P374)

Refer to the drawing of four tank differential pressure (D/P) level detectors (see figure below).

The tanks are identical and are being maintained at 17 psia and the same constant water level.

They are surrounded by atmospheric pressure.

Which one of the level detectors will sense the greatest D/P?

A. No. 4

B. No. 3

C. No. 2

D. No. 1

ANSWER: C.

參考四個水槽差壓（D/P）水位偵測器圖（見下圖）。

水槽相同且都維持在17psia和相同固定的水位。他們都處於大氣壓力之下。

哪一個水位偵測器將會感應到最大的差壓

D/P ?

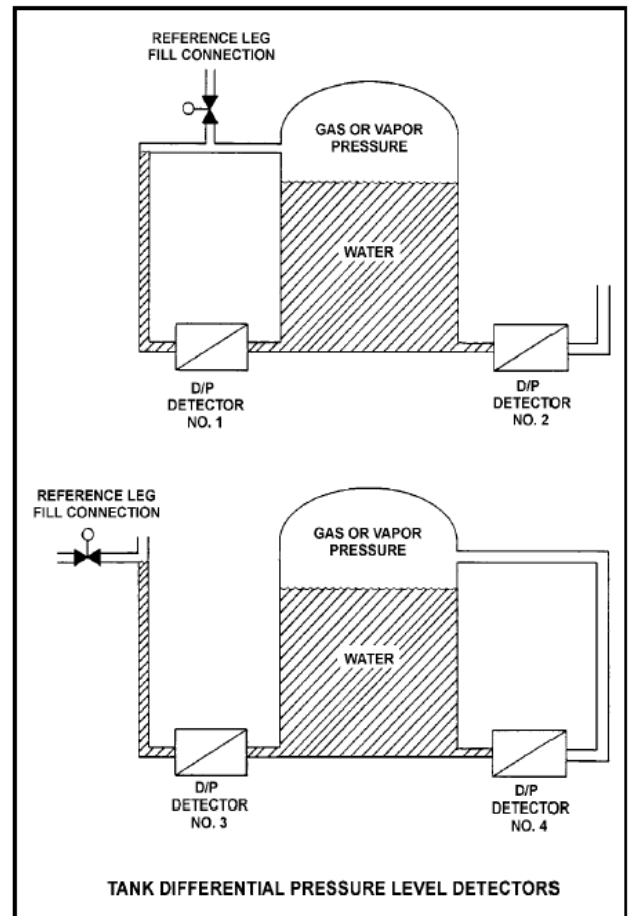
A. No. 4

B. No. 3

C. No. 2

D. No. 1

答案： C.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B673 (P2973)

Refer to the drawing of a differential pressure manometer (see figure below).

A differential pressure manometer filled with water is installed across an orifice in a ventilation duct to determine the direction of airflow. P1 and P2 are pressures sensed in the ventilation duct.

With the conditions shown, P1 is _____ than P2 and airflow is to the _____.

- A. greater; right
- B. less; right
- C. greater; left
- D. less; left

ANSWER: D.

參考差壓計圖（見下圖）。

一個裝水的差壓計裝置跨接在通風管的孔口上，用來確定氣流的流向。P1和P2表示在通風管中感應到的壓力。若狀況如圖所示，則P1_____於P2，而氣流的流向為向_____。

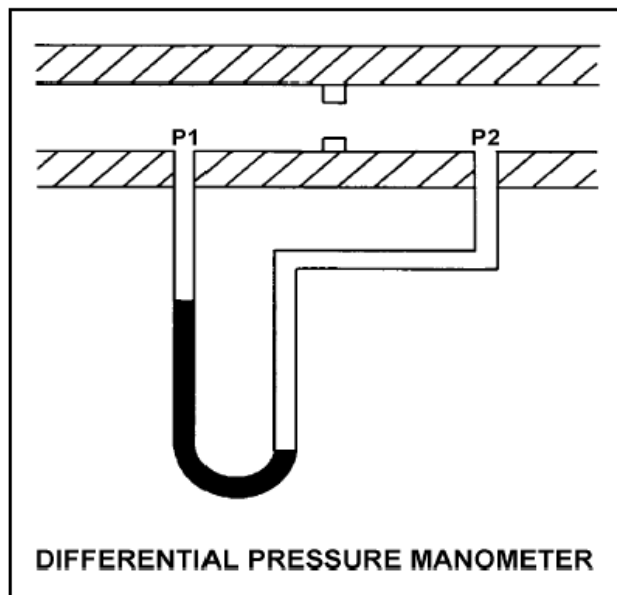
- E. 大；右
- F. 小；右
- G. 大；左
- H. 小；左

科目：293001

知能類： K1.03 [2.5/2.7]

序號： B673 (P2973)

答案： D.



科目：293001

知能類：K1.03 [2.5/2.7]

序號：B1073 (P2873)

Refer to the drawing of four differential pressure level detectors (see figure below).

The tanks are identical and are being maintained at 30 psia with a water level of 20 feet. They are surrounded by standard atmospheric pressure. The water temperatures in the tanks and reference legs are the same.

If each detector experiences a ruptured diaphragm, which detector(s) will cause indicated tank level to decrease? (Assume actual tank water level remains constant.)

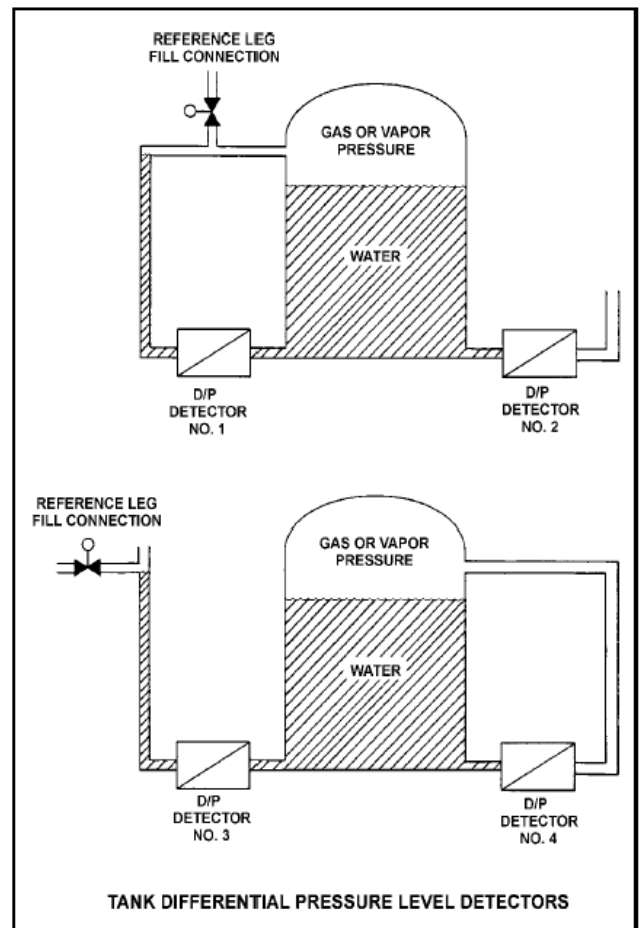
- A. No. 1 only
- B. No. 2 only
- C. No. 1, 2, and 3
- D. No. 2, 3, and 4

ANSWER: D.

參考四個差壓水位偵測器圖（見下圖）。
水槽相同且都維持在30psia和20feet的水位。他們都處於標準大氣壓力之下。水槽和參考腳柱的水溫相同。
如果每一個偵測器都遭到膜片破裂，哪一（幾）個會偵測到水位下降？（假設水槽真正的水位維持不變。）

- A. 只有No. 1
- B. 只有No. 2
- C. No. 1, 2, 和 3
- D. No. 2, 3, 和 4

答案：D.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B1174 (P1673)

Refer to the drawing of four identical tank differential pressure level detectors (see figure below). The tanks are identical and are presently at 2 psig overpressure, the same constant water level, and a temperature of 60°F. They are surrounded by atmospheric pressure. All level detectors have been calibrated and are producing the same level indication. A leak in the top of each tank causes a complete loss of overpressure in both tanks.

Which level detector(s) will produce the lowest level indication?

- A. No. 1 only
- B. No. 2 only
- C. No. 1 and 4
- D. No. 2 and 3

ANSWER: D.

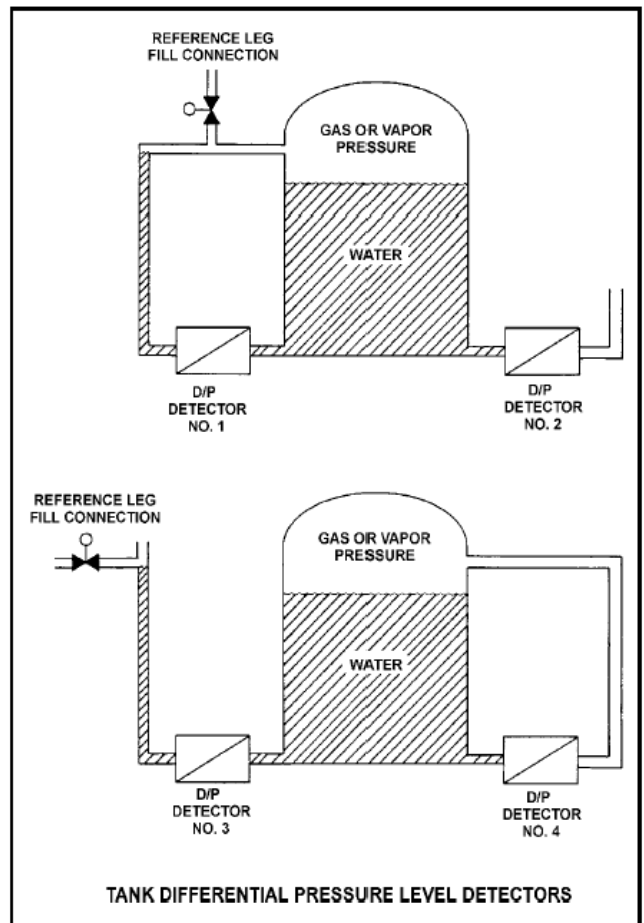
參考四個相同的差壓 (D/P)水位偵測器圖 (見下圖)。

水槽相同且目前都維持在2 psig的過壓，和相同固定的水位，溫度均為60°F。他們都處於大氣壓力之下。所有的水位偵測器都校準過，而且指示相同的水位。由於槽頂的漏縫使得兩個水槽完全失去過壓。

哪一(幾)個水位偵測器指示的水位最低？

- A. 只有No. 1
- B. 只有No. 2
- C. No. 1 和 4
- D. No. 2 和 3

答案：D.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B1873 (P573)

A water storage tank is enclosed to prevent vapors from escaping to the environment. The tank is also pressurized with nitrogen to prevent air inleakage. A differential pressure detector with a dry reference leg is used to measure the tank level.

To achieve the greatest accuracy of measurement, the low pressure side of the detector should sense which one of the following?

- A. The pressure at the bottom of the tank
- B. The pressure of the atmosphere surrounding the tank
- C. The pressure of a column of water external to the tank
- D. The pressure of the gas space at the top of the tank

ANSWER: D.

將一個儲水槽密封起來，以防水汽散逸到環境中。水槽並以氮氣加壓，以防空氣滲入。一個具有無水參考腳柱的差壓偵測器被用來測量該水槽的水位。

為了使測量值的精確度達到最大，偵測器的低壓側應該感應到下列何者？

- A. 水槽底部的壓力
- B. 水槽四周的大氣壓力
- C. 水槽外的水柱壓力
- D. 水槽頂部空氣的壓力

答案：D.

科目：293001

知能類： K1.03 [2.5/2.7]

序號： B2373 (P2373)

Refer to the drawing of four identical tank differential pressure level detectors (see figure below). The tanks are identical and they are presently at 2 psig overpressure, 60°F, and the same constant water level. They are located within a sealed containment structure that is being maintained at atmospheric pressure. All level detectors have been calibrated and are producing the same level indication. A ventilation malfunction causes containment structure pressure to decrease to 12 psia.

Which level detectors will produce the lowest level indication?

- A. 1 and 2
- B. 3 and 4
- C. 1 and 4
- D. 2 and 3

ANSWER: C.

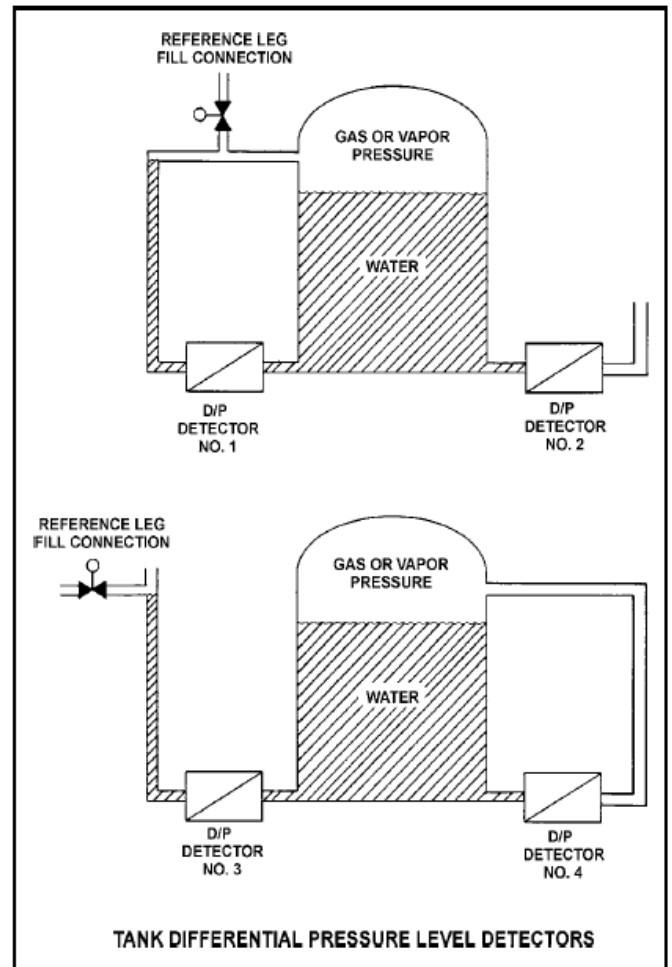
參考四個相同的水槽差壓水位偵測器圖（見下圖）。

水槽相同且目前都處於2 psig的過壓，60°F，和相同固定的水位。它們都位於保持在大氣壓力的密閉建物內。所有的水位偵測器都校準過，且都指示相同的水位。通風設備異常使得密閉建物的壓力降到12 psia。

哪幾個水位偵測器指示的水位最低？

- A. 1 和 2
- B. 3 和 4
- C. 1 和 4
- D. 2 和 3

答案： C.



科目：293001

知能類：K1.03 [2.5/2.7]

序號：B2573 (P2574)

Refer to the drawing of four identical tank differential pressure level detectors (see figure below). The tanks are identical and are presently at 2 psig overpressure, 60°F, and the same constant water level. They are located within a sealed containment structure that is being maintained at atmospheric pressure. All level detectors have been calibrated and are producing the same level indication. A ventilation malfunction causes the containment structure pressure to decrease to 13 psia.

Which level detectors will produce the highest indication?

- A. 1 and 2
- B. 3 and 4
- C. 1 and 4
- D. 2 and 3

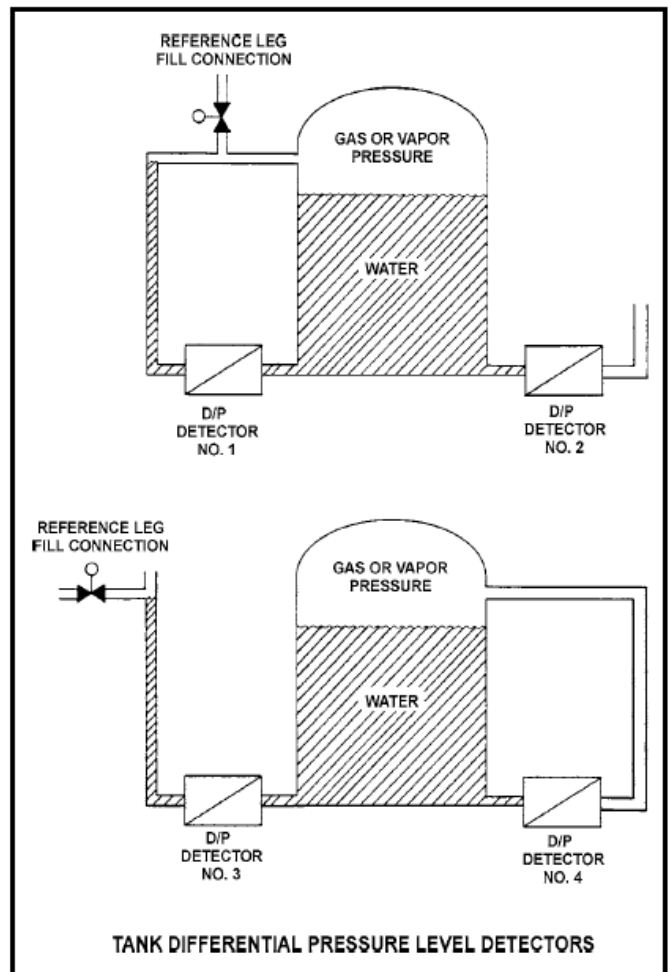
ANSWER: D.

參考四個相同的水槽差壓水位偵測器圖（見下圖）。

水槽相同且目前都處於2 psig的過壓，60°F，和相同固定的水位。它們都位於保持在大氣壓力的密閉建物內。所有的水位偵測器都校準過，且都指示相同的水位。通風設備異常使得密閉建物的壓力降到13 psia。哪幾個水位偵測器指示的水位最高？

- A. 1 和 2
- B. 3 和 4
- C. 1 和 4
- D. 2 和 3

答案：D.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B2773 (P2473)

Refer to the drawing of four tank differential pressure level detectors (see figure below).

The tanks are identical and are being maintained at 30 psia and a water level of 20 feet. They are surrounded by standard atmospheric pressure. The water in the tank and reference leg is at 70°F.

If each detector experiences a ruptured diaphragm, which detector(s) will cause indicated tank level to increase? (Assume actual tank water level remains constant.)

- A. No. 1 only
- B. No. 2 only
- C. No. 1 and 3
- D. No. 2 and 4

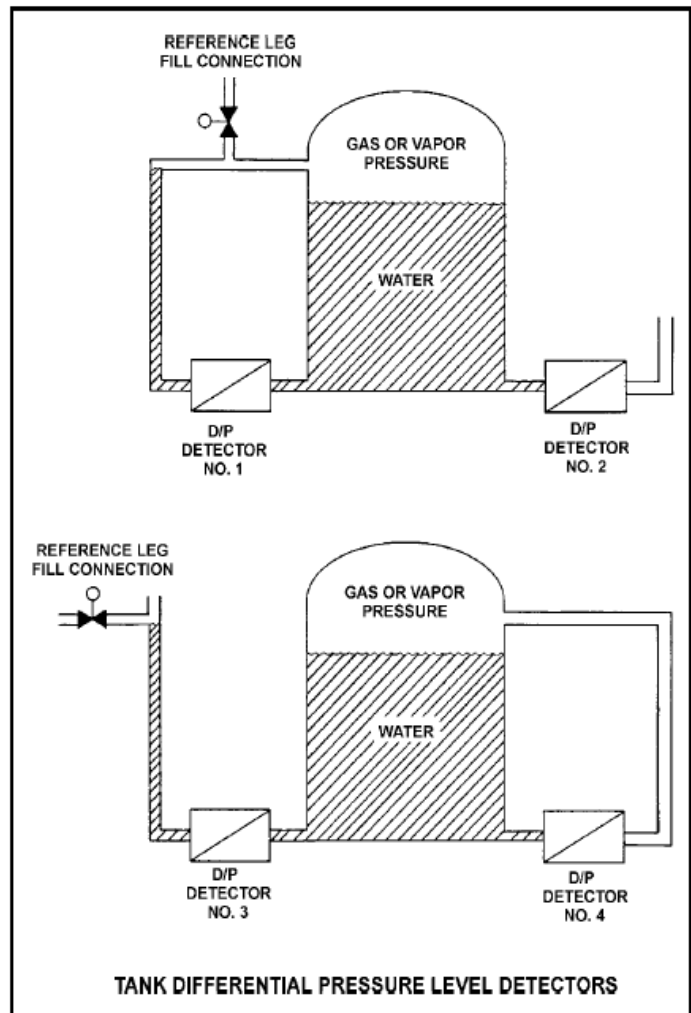
ANSWER: A.

參考四個相同的水槽差壓水位偵測器圖（見下圖）。

水槽相同且都維持在30psia，和20英尺的水位。它們都處於標準大氣壓力之下。水槽和參考腳柱裡的水溫都是70°F。如果每一個偵測器都遭到膜片破裂，哪一（幾）個偵測器會使水槽的指示水位上升？（假設水槽真正的水位不變。）

- A. 只有No. 1
- B. 只有No. 2
- C. No. 1 和 3
- D. No. 2 和 4

答案： A.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B3173 (P3173)

A water storage tank is vented to atmosphere. The tank is located at sea level and contains 100,000 gallons of 80°F water. A pressure gauge at the bottom of the tank reads 5.6 psig. What is the approximate water level in the tank?

- A. 13 feet
- B. 17 feet
- C. 21 feet
- D. 25 feet

ANSWER: A.

儲水槽通氣至大氣。而水槽位於海平面高度，含有80°F的水100,000加侖。水槽底部的壓力計讀數為5.6 psig。水槽內的水位大約為多少？

- A. 13英尺
- B. 17英尺
- C. 21英尺
- D. 25英尺

答案： A.

科目：293001

知能類：K1.03 [2.5/2.7]

序號：B3373 (P2873)

Refer to the drawing of four differential pressure level detectors (see figure below).

The tanks are identical and are being maintained at 30 psia with a water level of 20 feet. They are surrounded by standard atmospheric pressure. The water temperatures in the tanks and reference legs are the same.

If each detector experiences a ruptured diaphragm, which detector(s) will cause indicated tank level to decrease? (Assume actual tank water level remains constant.)

- A. No. 1 only
- B. No. 2 only
- C. No. 1, 2, and 3
- D. No. 2, 3, and 4

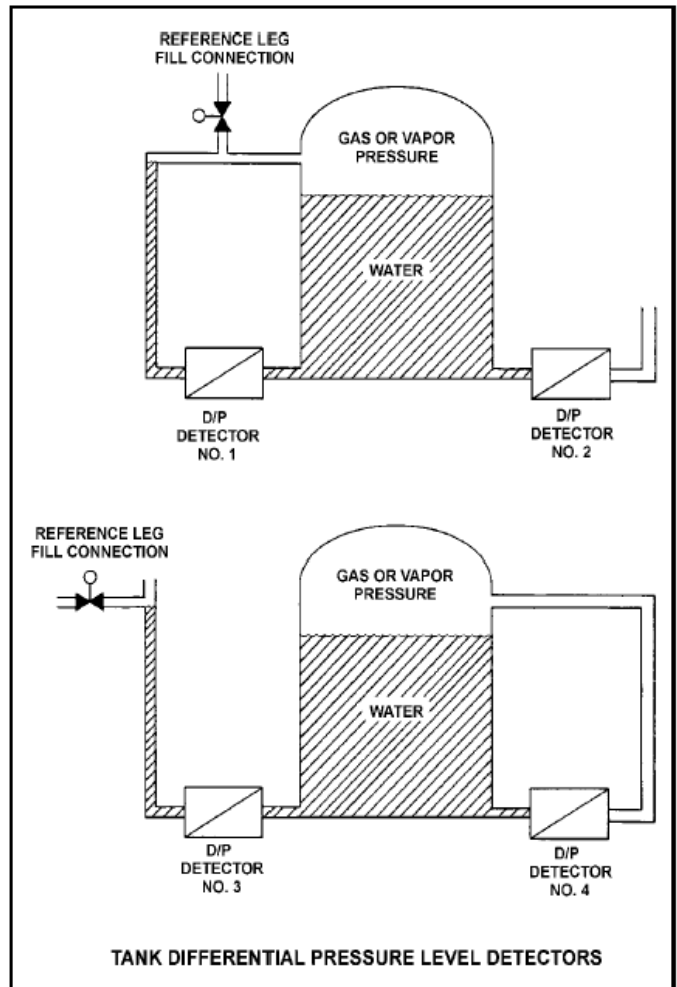
ANSWER: D.

參考四個的差壓水位偵測器圖（見下圖）。水槽相同且都維持在30 psia和20英尺的水位。它們都處於標準大氣壓力之下。水槽和參考腳柱裡的水溫相同。

如果每一個偵測器都遭到膜片破裂，哪一（幾）個偵測器會使水槽的指示水位下降？（假設水槽真正的水位不變。）

- A. 只有No. 1
- B. 只有No. 2
- C. No. 1, 2, 和 3
- D. No. 2, 3, 和 4

答案：D.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B3673 (P3673)

Refer to the drawing of a tank with a differential pressure (D/P) level detector (see figure below).
If the tank contains 30 feet of water at 60°F, what is the approximate D/P sensed by the detector?

- A. 2 psid
- B. 13 psid
- C. 20 psid
- D. 28 psid

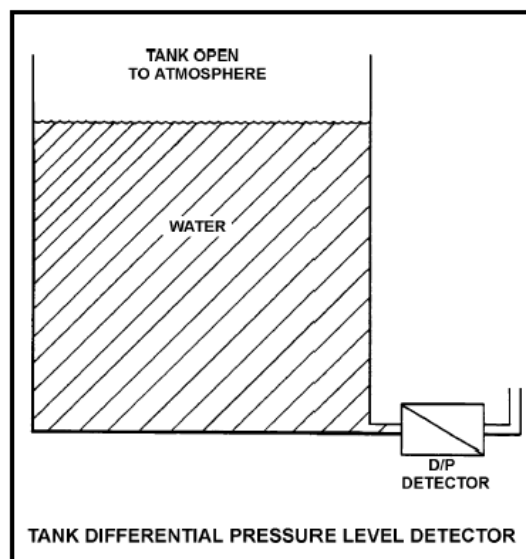
ANSWER: B.

參考裝有差壓（D/P）水位偵測器的水槽圖（見下圖）。

如果水槽內含30英尺，60°F的水，偵測器感應到的D/P大約為多少？

- A. 2 psid
- B. 13 psid
- C. 20 psid
- D. 28 psid

答案： B.



科目：293001

知能類： K1.03 [2.5/2.7]

序號： B3873 (P3873)

A water storage tank is vented to atmosphere. The tank is located at sea level and contains 100,000 gallons of water at 80EF. A pressure gauge at the bottom of the tank reads 7.3 psig. What is the approximate water level in the tank?

- A. 13 feet
- B. 17 feet
- C. 21 feet
- D. 25 feet

ANSWER: B.

儲水槽通氣到大氣中。而水槽位於海平面的高度，含有80°F的水100,000加侖。水槽底部的壓力計讀數為7.3 psig。

水槽內的水位大約為多少？

- A. 13 英尺
- B. 17 英尺
- C. 21 英尺
- D. 25 英尺

答案：B.

科目/題號：293001/1 (2016新增)

知能類：K1.03 [2.5/2.7]

序號：B4537 (P4537)

A water storage tank is vented to atmosphere. The tank is located at sea level and contains 100,000 gallons of water at 80°F. A pressure gauge at the bottom of the tank reads 9.0 psig. What is the approximate water level in the tank?

A. 13 feet

B. 17 feet

C. 21 feet

D. 25 feet

ANSWER: C.

一排气至大气的储水槽。水槽位于海平面高度，储有80°F的水100,000加侖。在槽底部的壓力表讀數為9.0 psig。水槽內水位約為多少？

A. 13 feet

B. 17 feet

C. 21 feet

D. 25 feet

答案： C

科目/題號：293001/2 (2016 新增)

知能類：K1.03 [2.5/2.7]

序號：B4837 (P4837)

Refer to the drawing of two water storage tanks with four differential pressure (D/P) level detectors (see figure below).

The tanks are identical and are being maintained at 2 psig overpressure, the same constant water level, and a temperature of 60°F. The tanks are surrounded by atmospheric pressure. All level detectors have been calibrated and are producing the same level indication.

If a leak in the top of each tank causes a complete loss of overpressure in both tanks, which detector(s) will produce the highest level indication(s)?

- A. No. 1 only
- B. No. 2 only
- C. No. 1 and 4
- D. No. 2 and 3

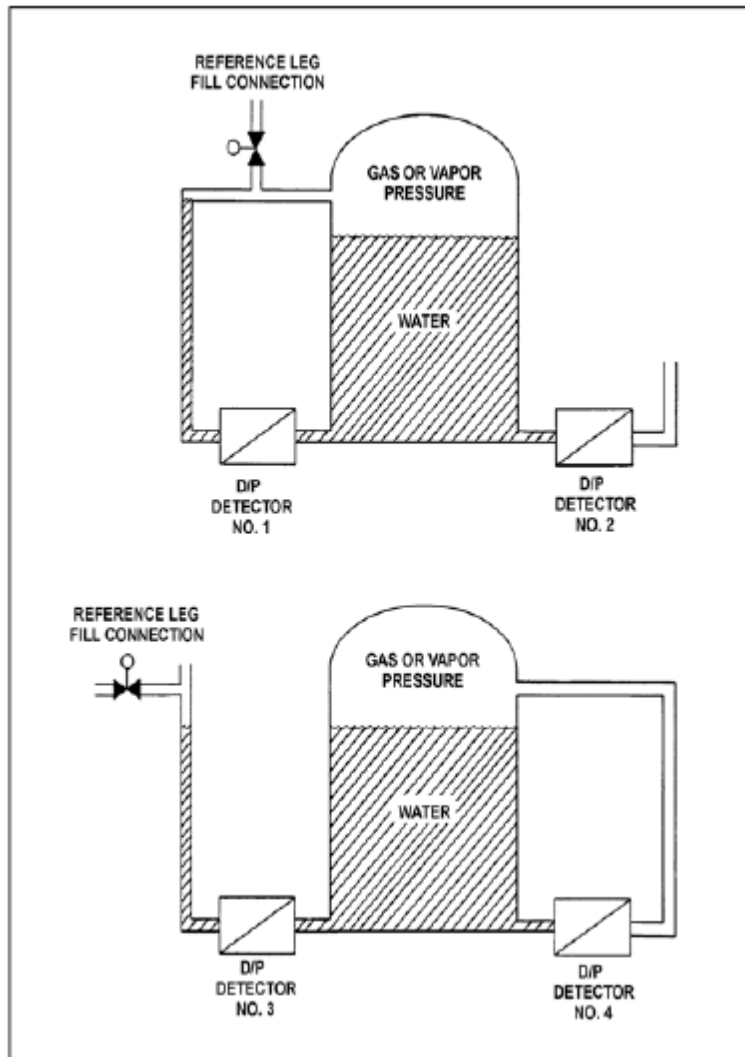
ANSWER: C.

參考兩個配置有四個壓差(D / P)液位偵檢器的儲水槽(見下圖)。兩個水槽相同並都維持壓力2 psig過壓，及相同的固定液位，與60°F的溫度。兩水槽周圍壓力為1大氣壓力。每個液位偵檢器均已校準，並調整至相同液位指示。

如果兩個水槽的頂部均洩漏導致兩個水槽完全喪失過壓，何者偵檢器將顯示最高的液位？

- A. 只有編號1
- B. 只有編號2
- C. 編號1和編號4
- D. 編號2和編號3

答案： C



科目/題號：293001/3 (2016 新增)

知能類：K1.03 [2.5/2.7]

序號：B5837 (P5837)

Refer to the drawing of an open water storage tank with a differential pressure (D/P) level indicator that is vented to atmosphere (see figure below). Both the tank and the level indicator are surrounded by standard atmospheric pressure. Tank water temperature is 70°F.

The D/P level indicator is sensing a differential pressure of 4.0 psi. What is the water level in the tank above the instrument penetration?

- A. 9.2 feet
- B. 16.7 feet
- C. 24.7 feet
- D. 43.2 feet

ANSWER: A

參考一配備壓差(D/P)液位指示器的開放式儲水槽(見下圖)，該壓差液位指示器通大氣。水槽和液位指示器周圍為標準氣壓。水槽水溫為70°F。壓差液位指示器(D/P)測得的壓差為4.0 psi。在水槽之儀器穿越器上方的水位是多少？

- A. 9.2 feet
- B. 16.7 feet
- C. 24.7 feet
- D. 43.2 feet

答案： A

