科目： 191008
知能類：K1.01 [2.6/2.8]
序號： P37

To completely deenergize an electrical component and its associated control and indication circuits, the component breaker should be...

A. open with the control switch in Pull-To-Lock.

B. open with the control switch tagged in the open position.

C. racked out and tagged in racked-out position.

D. racked out with control power fuses removed.

ANSWER: D.

欲完全切斷電氣組件及其相關之控制及指示迴路時，組件斷路器應該.....

A. 將控制開關置於ＯＦＦ且「拉出鎖定(Pull-To-Lock)」位置。

B. 將控制開關指示置於「開啟」位置。

C. 搖出(rack out)，且指示於「搖出」位置。

D. 搖出且拆下控制電源保險絲。

答案：D.

科目： 191008
知能類：K1.02 [2.8/2.9]
序號： P838 (B1940)

Which one of the following describes the normal operation of a local breaker overcurrent trip flag indicator?

A. Actuates when no lockout is present; satisfies an electrical interlock to remotely close a breaker.

B. Actuates when a breaker overcurrent trip has occurred; can be manually reset when the overcurrent condition clears.

C. Actuates when a breaker has failed to trip on an overcurrent condition; can be manually reset when the overcurrent condition clears.

D. Actuates to cause a breaker trip when the overcurrent trip setpoint is reached; can be remotely reset when the overcurrent condition clears.

ANSWER: B.

下列何者說明現場斷路器過電流跳脫指示牌的正常運作？

A. 在未出現閉鎖時動作；解除電力連鎖以遙控關閉斷路器。

B. 在斷路器過電流跳脫時動作；排除過電流狀況後，可手動復歸(reset)。

C. 在過電流但斷路器無法跳脫時動作；排除過電流狀況後，可手動復歸(reset)。

D. 抵達過電流跳脫設定點時動作而造成斷路器跳脫；排除過電流狀況後，可遙控復歸(reset)。

答案：B.

科目： 191008
知能類：K1.02 [2.8/2.9]
序號： P4120 (B4121)

Given the following indications for an open 4160 Vac breaker:

All phase overcurrent trip flags are reset.
The control power fuses indicate blown.
The line-side voltmeter indicates 4160 Vac.
The load-side voltmeter indicates 0 volts.

Assuming no operator actions were taken since the breaker opened, which one of the following could have caused the breaker to open?

A. A ground fault caused an automatic breaker trip.

B. A loss of control power caused an automatic breaker trip.

C. An operator tripped the breaker manually at the breaker cabinet.

D. An operator tripped the breaker manually from a remote location.

ANSWER: C.

一個4160 V開路交流電斷路器的資料如下：

復歸(reset)所有相位的過電流跳脫指示牌。
控制電源保險絲顯示燒斷。
電源端的電壓計指示值為4160 Vac。
負荷端的電壓計指示值為0 volts。

假設從斷路器開啟後，運轉員沒有採取任何動作，下列何者可能是造成斷路器跳脫開啟的原因？

A. 接地故障引起斷路器自動跳脫。

B. 控制電源喪失導致斷路器自動跳脫。

C. 運轉員在斷路器機櫃(breaker cabinet)手動跳脫斷路器。

D. 運轉員從遠處手動跳脫斷路器。

答案：C.

科目： 191008
知能類：K1.03 [2.9/3.1]
序號： P40 (B1943)

Loss of breaker control power will cause...

A. inability to operate the breaker locally and remotely.

B. breaker line voltage to indicate zero regardless of actual breaker position.

C. the remote breaker position to indicate open regardless of actual breaker position.

D. failure of the closing spring to charge following local closing of the breaker.

ANSWER: D.

斷路器喪失控制電源將導致……

A. 現場、控制室均無法操作斷路器。

B. 不論實際斷路器開啟或閉合，斷路器電源端電壓指示為零。

C. 不論實際斷路器開啟或閉合，控制室的斷路器位置指示為開啟。

D. 斷路器在現場關閉後，無法使閉合彈簧旋緊(charge)。

答案：D.

科目： 191008
知能類：K1.03 [2.9/3.1]
序號： P118

Which one of the following results from a loss of control power to a breaker supplying a motor?

A. Motor ammeter indication will be zero regardless of actual breaker position.

B. Breaker position will remotely indicate closed regardless of actual position.

C. Breaker will trip open due to the actuation of its protective trip device.

D. Charging motor will not recharge the closing spring after the breaker closes.

ANSWER: D.

馬達所用的斷路器若失去控制電源，將導致下列何種結果？

A. 無論斷路器的實際位置為何，馬達安培計將指向零。

B. 無論斷路器的實際位置為何，在控制室的位置都指向關閉。

C. 保護跳脫裝置啟動，導致斷路器跳脫開啟。

D. 斷路器關閉後，充能馬達(charging motor)無法再次充能閉合彈簧。

答案：D.

科目： 191008
知能類：K1.03 [2.9/3.1]
序號： P240

Which one of the following would cause a loss of ability to remotely trip a circuit breaker and a loss of remote breaker position indication?

A. Failure of the breaker control switch

B. Racking the breaker to the "test" position

C. Mechanical binding of the breaker tripping bar

D. Loss of control power for the breaker

ANSWER: D.

下列何者將導致無法遙控跳脫斷路器，而且控制室無法顯示斷路器位置？

A. 斷路器控制開關故障。

B. 將斷路器搖至「測試」位置。

C. 斷路器跳脫桿(tripping bar)機械式卡住。

D. 斷路器失去控制電源。

答案：D.

科目： 191008
知能類：K1.03 [2.9/3.1]
序號： P338 (B40)

Which one of the following will cause a loss of indication from the remote breaker position indicating lights associated with a typical 480 Vac load supply breaker?

A. Loss of breaker line voltage

B. Locally opening the breaker

C. Burnout of the local breaker position indicating lights

D. Removing the breaker control power fuses

ANSWER: D.

下列何者將導致控制室中典型交流480 V供電斷路器的開啟/閉合指示燈皆熄滅？

A. 喪失斷路器電源。

B. 現場開啟斷路器。

C. 現場斷路器位置指示燈燒毀。

D. 移除斷路器控制電源的保險絲。

答案：D.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P639

How is typical breaker operation affected when the associated breaker control power transfer switch is placed in the "Local" position?

A. Control power will be available to provide protective trips, and the breaker can be electrically operated only from the control room.

B. Control power will be removed from both the open and close circuits, and the breaker can be electrically operated only from the control room.

C. Control power will be available to provide protective trips, and the breaker can be electrically operated only from the breaker cabinet.

D. Control power will be removed from both the open and close circuits, and the breaker can be electrically operated only from the breaker cabinet.

ANSWER: C.

斷路器的控制電源轉移開關若置於「現場」位置，其典型運作將受到何種影響？

A. 控制電源將提供保護跳脫機制，斷路器僅能從控制室以電力操作。

B. 開路與閉路電路的控制電源遭到切斷，斷路器僅能從控制室以電力操作。

C. 控制電源將提供保護跳脫機制，斷路器僅能從其機櫃(breaker cabinet)以電力操作。

D. 開路與閉路電路的控制電源遭到切斷，斷路器僅能從其機櫃(breaker cabinet)以電力操作

答案：C.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P840 (B840)

A typical 120 Vac manual circuit breaker has tripped due to overload. To close this circuit breaker the breaker handle must be moved from the...

A. OFF position directly to the ON position; trip latch reset is not required.

B. OFF position to the midposition to reset the trip latch, and then to the ON position.

C. midposition directly to the ON position; trip latch reset is not required.

D. midposition to the OFF position to reset the trip latch, and then to the ON position.

ANSWER: D.

一典型120V交流手動斷路器因過載而跳脫。欲操作此電路斷路器回復到閉路(ON)狀態，需要將把手從……

A. 由「OFF」位置直接切至「ON」位置；不需復歸跳脫閂鎖(Trip latch)。

B. 由「OFF」位置切至中間位置以復歸跳脫閂鎖；然後再切到「ON」位置。

C. 由中間位置直接切至「ON」位置；不需復歸跳脫閂鎖。

D. 由中間位置切至「OFF」位置以復歸跳脫閂鎖；然後再切到「ON」位置。

答案：D.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P2041 (B3344)

Two identical 1,000 MW electrical generators are operating in parallel, supplying the same isolated electrical bus. The generator output breakers also provide identical protection for the generators. Generator A and B output indications are as follows:

Generator A	Generator B
22.5 KV	22.5 KV
60.2 Hertz	60.2 Hertz
750 MW	750 MW
25 MVAR (VARs out)	50 MVAR (VARs out)

A malfunction causes the voltage regulator for generator B to slowly and continuously increase the terminal voltage for generator B. If no operator action is taken, which one of the following describes the electrical current indications for generator A?

A. Current will decrease continuously until the output breaker for generator A trips on reverse power .

B. Current will decrease continuously until the output breaker for generator B trips on reverse power .

C. Current will initially decrease, and then increase until the output breaker for generator A trips on overcurrent.

D. Current will initially decrease, and then increase until the output breaker for generator B trips on overcurrent.

ANSWER: D.

兩部相同的1,000 MW發電機並聯運轉中，並供電給同一獨立電力匯流排。發電機的輸出斷路器，提供相同保護給發電機。發電機A與B的輸出數值如下：

發電機A	發電機B
22.5 KV	22.5 KV
60.2 Hertz	60.2 Hertz
750 MW	750 MW
25 MVAR (輸出VAR)	50 MVAR (輸出VAR)

此時發生故障，導致發電機 B 的電壓調節器持續緩慢增加其終端電壓。倘若運轉員不採取行動，下列何者說明了發電機 A 的電流情形？

A. 電流將持續降低，直到發電機 A 的輸出斷路器，由於逆功率而跳脫。

B. 電流將持續降低，直到發電機 B 的輸出斷路器，由於逆功率而跳脫。

C. 電流先降低再升高，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

D. 電流先降低再升高，直到發電機 B 的輸出斷路器，由於過電流而跳脫。

答案：D.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P2439 (B2444)

Two identical 1,000 MW ac electrical generators are operating in parallel supplying all the loads on a common electrical bus. The generator output breakers also provide identical protection for the generators. Generator A and B output indications are as follows:

Generator A	Generator B
28 KV	28 KV
60 Hertz	60 Hertz
150 MW	100 MW
25 MVAR (out)	50 MVAR (out)

A malfunction causes the voltage regulator set point for generator B to slowly and continuously decrease. If no operator action is taken, the current indication for generator B will...

A. initially decrease, and then increase until the output breaker for generator A trips on overcurrent.

B. initially decrease, and then increase until the output breaker for generator B trips on overcurrent.

C. decrease continuously until the output breaker for generator A trips on overcurrent.

D. decrease continuously until the output breaker for generator B trips on reverse power.

ANSWER: A.

兩部相同的1,000 MW發電機並聯運轉中，並供應共用電力匯流排的所有負載。發電機的輸出斷路器，亦提供相同保護給發電機。發電機A與B的輸出數值如下：

發電機A	發電機B
28 KV	28 KV
60 Hertz	60 Hertz
150 MW	150 MW
25 MVAR (輸出)	50 MVAR (輸出)

此時發生故障，導致發電機 B 的電壓調節器設定點持續緩慢降低。倘若運轉員不採取行動，發電機 B 的電流指示值將……

A. 先降低再升高，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

B. 先降低再升高，直到發電機 B 的輸出斷路器，由於過電流而跳脫。

C. 持續下降，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

D. 持續下降，直到發電機 B 的輸出斷路器，由於逆功率而跳脫。

答案：A.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P2540 (B2543)

Two identical 1,000 MW electrical generators are operating in parallel supplying the same isolated electrical bus. The generator output breakers also provide identical protection for the generators. Generator A and B output indications are as follows:

Generator A	Generator B
22 KV	22 KV
60.2 Hertz	60.2 Hertz
200 MW	200 MW
25 MVAR (out)	50 MVAR (out)

A malfunction causes the voltage regulator setpoint for generator A to slowly increase continuously toward a maximum of 25 KV. If no operator action is taken, generator B output current will...

A. initially decrease, and then increase until the output breaker for generator A trips on overcurrent.

B. initially decrease, and then increase until the output breaker for generator B trips on overcurrent.

C. increase continuously until the output breaker for generator A trips on overcurrent.

D. increase continuously until the output breaker for generator B trips on overcurrent.

ANSWER: A.

兩部相同的1,000 MW發電機並聯運轉中，並供電給同一獨立電力匯流排。發電機的輸出斷路器，亦提供相同保護給發電機。發電機A與B的輸出數值如下：

發電機A	發電機B
22 KV	22 KV
60.2 Hertz	60.2 Hertz
200 MW	200 MW
25 MVAR (輸出)	50 MVAR (輸出)

此時發生故障，導致發電機 A 的電壓調節器設定點，持續緩慢增至上限 25 KV。倘若運轉員不採取行動，發電機 B 的電流指示值將……

A. 先降低再升高，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

B. 先降低再升高，直到發電機 B 的輸出斷路器，由於過電流而跳脫。

C. 持續增加，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

D. 持續增加，直到發電機 B 的輸出斷路器，由於過電流而跳脫。

答案：A.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P2639

Two identical 1000 MW electrical generators are operating in parallel supplying the same isolated electrical bus. The generator output breakers also provide identical protection for the generators. Generator A and B output indications are as follows:

Generator A	Generator B
22 KV	22 KV
60.2 Hertz	60.2 Hertz
200 MW	200 MW
25 MVAR (out)	50 MVAR (out)

A malfunction causes the voltage regulator setpoint for generator A to slowly and continuously decrease. If no operator action is taken, generator B output current will increase until...

A. the output breaker for generator A trips on overcurrent.

B. the output breaker for generator B trips on overcurrent.

C. the output breaker for generator A trips on reverse power.

D. the output breaker for generator B trips on reverse power.

ANSWER: B.

兩部相同的1000 MW發電機並聯運轉中，並供電給同一獨立電力匯流排。發電機的輸出斷路器，亦提供相同保護給發電機。發電機A與B的輸出數值如下：

發電機A	發電機B
22 KV	22 KV
60.2 Hertz	60.2 Hertz
200 MW	200 MW
25 MVAR (輸出)	50 MVAR (輸出)

此時發生故障，導致發電機 A 的電壓調節器設定點持續緩慢降低。倘若運轉員不採取行動，發電機 B 的電流將增加，直到……

A. 發電機 A 的輸出斷路器由於過電流而跳脫。

B. 發電機 B 的輸出斷路器由於過電流而跳脫。

C. 發電機 A 的輸出斷路器由於逆功率而跳脫。

D. 發電機 B 的輸出斷路器由於逆功率而跳脫。

答案：B.

科目： 191008
知能類：K1.04 [2.9/3.0]
序號： P4620 (B4615)

Two identical 1,000 MW electrical generators are operating in parallel supplying the same isolated electrical bus. The generator output breakers provide identical protection for the generators. Generator A and B output indications are as follows:

Generator A	Generator B
22 KV	22 KV
60.2 Hertz	60.2 Hertz
200 MW	200 MW
25 MVAR (out)	50 MVAR (out)

A malfunction causes the voltage regulator setpoint for generator B to slowly increase continuously toward a maximum of 25 KV. If no operator action is taken, generator A output current will...

A. increase continuously until the output breaker for generator A trips on overcurrent.

B. decrease continuously until the output breaker for generator B trips on overcurrent.

C. initially decrease, and then increase until the output breaker for generator A trips on overcurrent.

D. initially decrease, and then increase until the output breaker for generator B trips on overcurrent.

ANSWER: D.

兩部相同的1,000 MW發電機並聯運轉中，並供電給同一獨立電力匯流排。發電機的輸出斷路器，提供相同保護給發電機。發電機A與B的輸出數值如下：

發電機A	發電機B
22 KV	22 KV
60.2 Hertz	60.2 Hertz
200 MW	200 MW
25 MVAR (輸出)	50 MVAR (輸出)

此時發生故障，導致發電機 B 的電壓調節器設定點，持續緩慢增至上限 25 KV。倘若運轉員不採取行動，發電機 A 的輸出電流將……

A. 持續增加，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

B. 持續降低，直到發電機 B 的輸出斷路器，由於過電流而跳脫。

C. 先降低再升高，直到發電機 A 的輸出斷路器，由於過電流而跳脫。

D. 先降低再升高，直到發電機 B 的輸出斷路器，由於過電流而跳脫。

答案：D.

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P540 (B541)

Refer to the drawing of a typical valve control circuit (see figure below). What is the purpose of depressing the S1 pushbutton?

A. To deenergize the K3 relay after the initiating condition has cleared.

B. To prevent energizing the K3 relay when the initiating condition occurs.

C. To manually energize the K3 relay in the absence of the initiating condition.

D. To maintain the K3 relay energized after the initiating condition has cleared.

ANSWER: A.

請參照下圖的典型閥門控制線路。

下列何者是按下S1按鈕的目的？

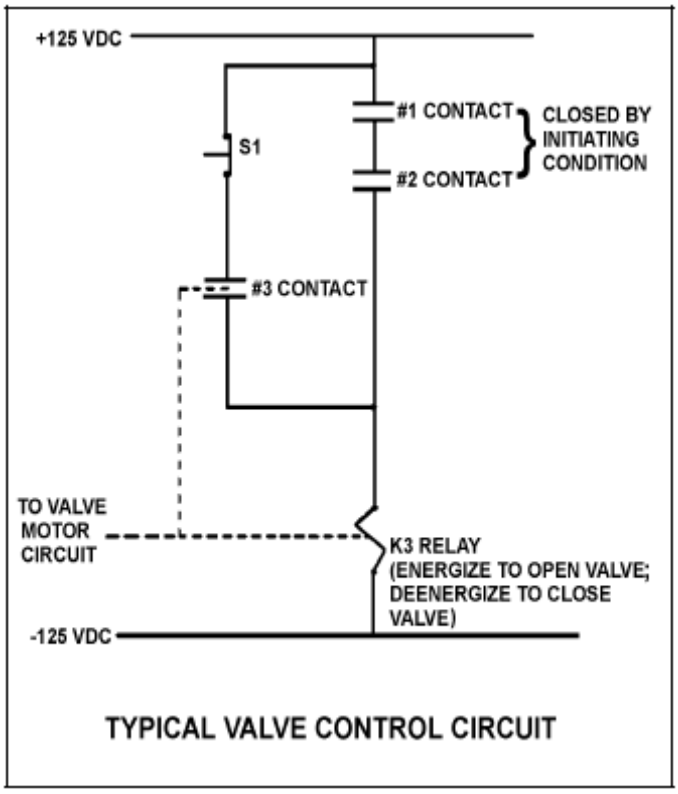
A. 為了在動作條件解除之後，切斷K3電驛的電力。

B. 為了當動作條件發生時，避免K3電驛通電。

C. 為了在缺乏動作條件時，能夠手動使K3電驛通電。

D. 為了在動作條件解除之後，能夠維持K3電驛通電。

答案：A.



TYPICAL VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P640 (B116)

Refer to the drawing of a typical valve control circuit (see figure below). One purpose of the K3 relay is to...

A. hold the valve open after one or both of the initiating conditions have cleared, even if the reset pushbutton (S1) is depressed.

B. hold the valve open even if one or both of the initiating conditions have cleared.

C. close the valve as soon as either initiating condition has cleared.

D. close the valve as soon as both initiating conditions have cleared.

ANSWER: B.

請參照下圖的典型閥門控制電路(circuit)。

K3電驛的目的之一是……

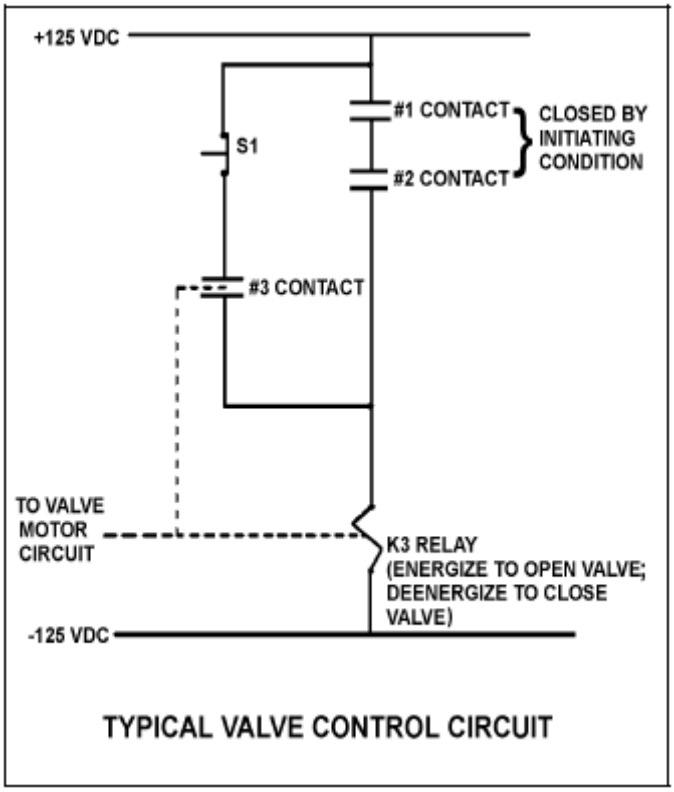
A. 在解除一或兩種動作條件後，即使按下復歸按鈕(S1)，仍可以維持閥門開啟。

B. 儘管解除一或兩種動作條件，仍然維持閥門開啟。

C. 當解除任一動作條件後，立即關閉此閥門。

D. 當解除兩種動作條件後，立即關閉此閥門。

答案：B.



TYPICAL VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P742 (B742)

Refer to the drawing of a typical valve control circuit for a 480 Vac motor-operated valve (see figure below).

The valve is currently open with the contact configuration as shown. If the S1 pushbutton is depressed, the valve will _____ and when the S1 pushbutton is subsequently released, the valve will _____.

A. remain open; remain open

B. close; remain closed

C. remain open; close

D. close; open

ANSWER: B.

請參照下圖的480 Vac電動閥之典型閥門控制線路。

此閥目前開啟，其線路接點狀態如圖所示。若按下S1按鈕，此閥將_____，而當S1按鈕後來放開時，此閥將_____。

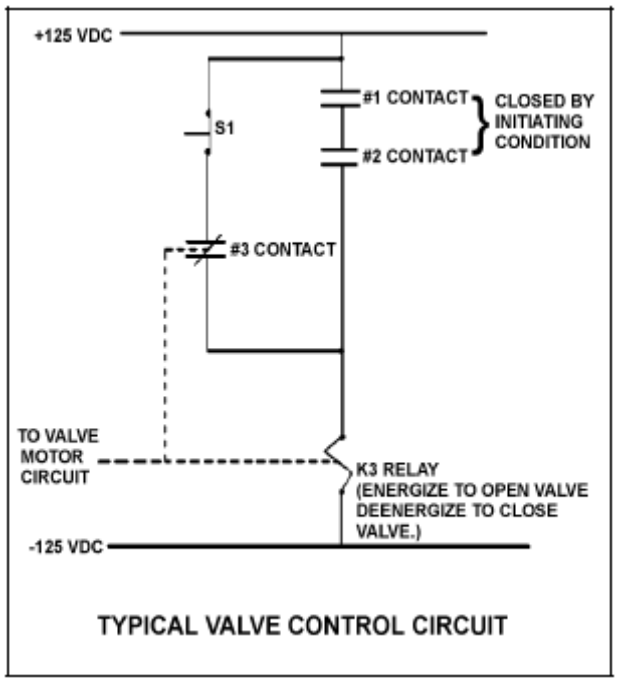
A. 維持開啟；維持開啟

B. 關閉；維持關閉

C. 維持開啟；關閉

D. 關閉；開啟

答案：B.



科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P941 (B942)

Refer to the drawing of a typical valve control circuit (see figure below).

Which one of the following describes the function of the #3 contact?

A. To keep the K-3 relay energized after the initiating condition clears

B. To provide a method for manually energizing the K-3 relay

C. To increase circuit reliability because any one of three contacts can energize the K-3 relay

D. To ensure the K-3 relay can always be deenergized even with the initiating condition present

ANSWER: A.

請參照下圖的典型閥門控制線路。

下列何者描述了#3接點的功能？

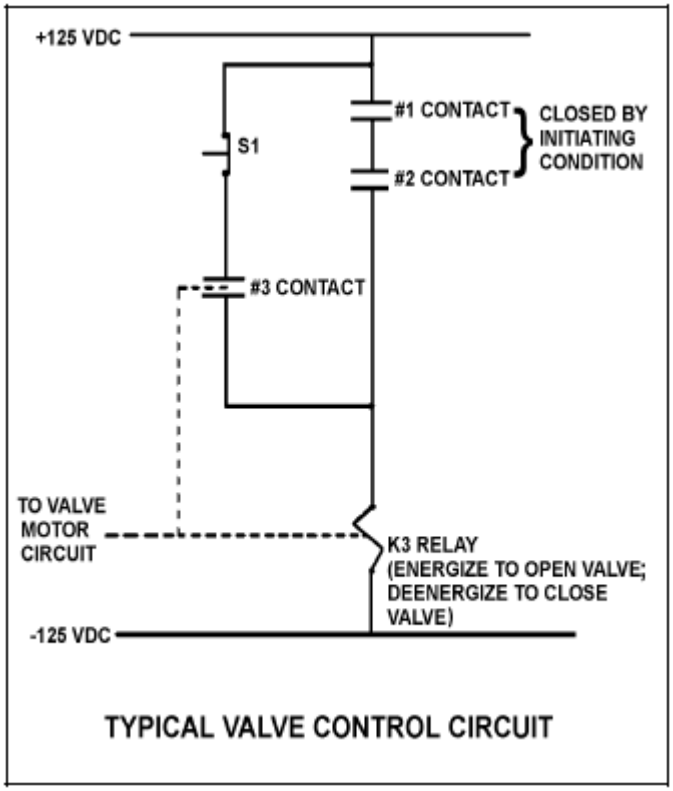
A. 為了在動作條件解除之後，能夠維持K-3電驛通電。

B. 為了提供能手動使K-3電驛通電的方法。

C. 為了增加電路(circuit)的可靠性，因為三個接點中的任何一個都能夠使K-3電驛通電。

D. 即使在動作條件存在下，也能確保K-3電驛斷電。

答案：A.



TYPICAL VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1040 (B1042)

Refer to the drawing of a typical valve control circuit (see figure below).

The initiating condition occurs and closes the #1 and #2 contacts to energize the K-3 relay and open the valve. Which one of the following will close the valve?

A. Loss of 125 Vdc

B. Both #1 and #2 contacts open

C. Either #1 or #2 contact opens

D. Depressing the S1 pushbutton with the initiating condition present

ANSWER: A.

請參照下圖的典型閥門控制線路。

動作條件發生時，會閉合#1與#2接點，使K-3電驛通電而將閥門開啟。下列何者會關閉此閥？

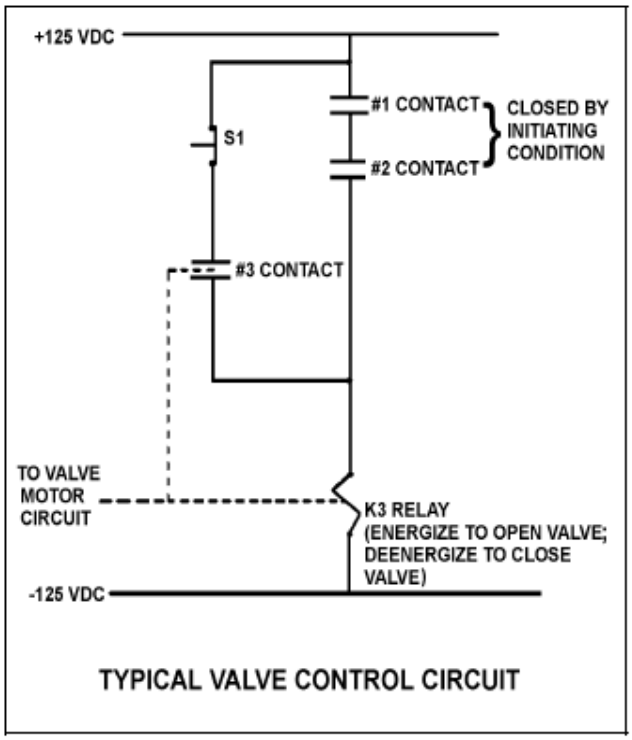
A. 125伏特直流電喪失。

B. #1與#2接點都打開。

C. #1或#2接點打開。

D. 於動作條件存在下按下S1按鈕。

答案：A.



TYPICAL VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1239

Refer to the drawing of a valve control circuit (see figure below). Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.

If the valve is presently closed, when will the alarm actuate?

A. As soon as PB2 is pushed

B. 10 seconds after PB2 is pushed if the valve is still closed

C. Immediately upon pushing PB2 and for the next 10 seconds if the valve remains closed

D. 10 seconds after PB2 is pushed if the valve is still stroking open

ANSWER: B.

請參照下圖的閥門控制線路。請注意：不論閥門位置為何，極限開關(LS)的接點，都呈現開啟狀態，電驛接點則遵照控制線路圖的標準慣例標示。

此閥目前若關閉，警報器將於何時啟動？

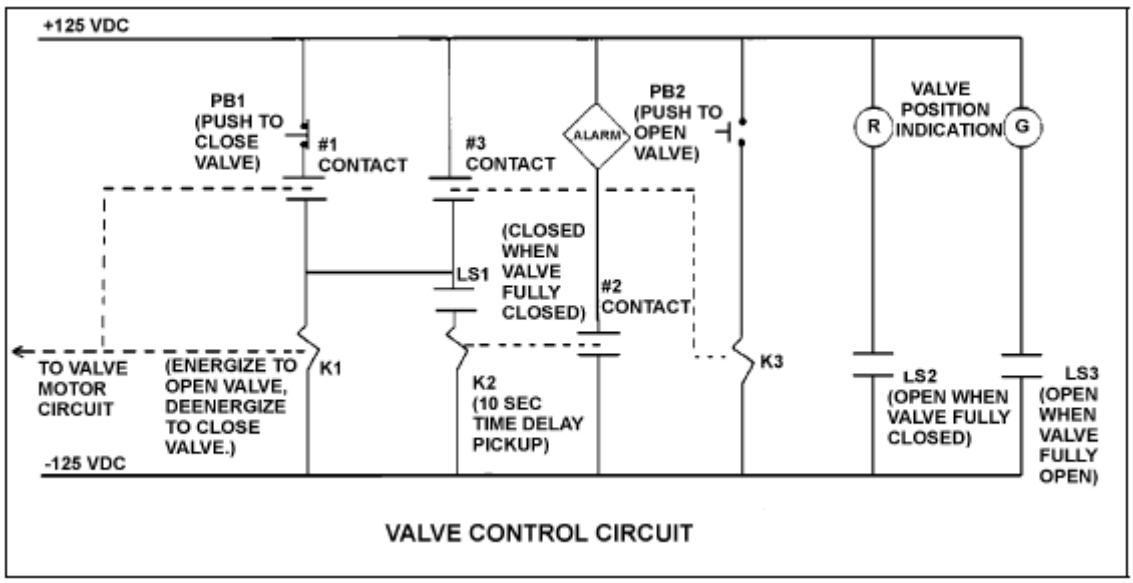
A. 按下PB2時隨即啟動。

B. 此閥若仍然關閉，將於按下PB2後10秒啟動。

C. 按下PB2後隨即啟動，此閥若維持關閉，警報將持續10秒鐘。

D. 此閥若持續開啟(stroking open)，則在按下PB2後10秒啟動。

答案：B.



VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1340 (B1341)

Refer to the drawing of a valve control circuit for a valve that is initially fully closed (see figure below). (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

Which one of the following describes when the motor-operated valve will begin to stroke open?

A. At the same time the alarm actuates

B. 10 seconds after PB2 is depressed

C. Immediately after PB2 is depressed

D. Immediately after PB1 is depressed if contact #1 is closed

ANSWER: C.

請參照下圖中，一原在全關位置的閥門控制線路。(請注意：不論閥門位置為何，極限開關(LS)接點均呈現開啟狀態，但是電驛接點遵守控制線路的標準標示習慣。)

馬達操作閥將於何時開始開啟？

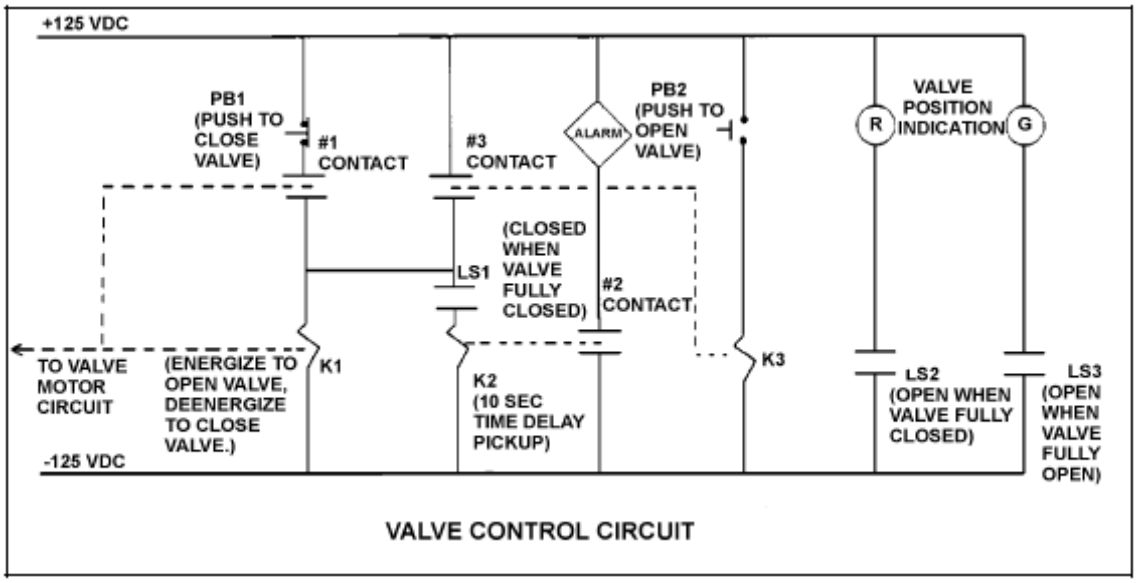
A. 於警報發生的同時。

B. 在PB2被按下之後10秒。

C. 在PB2被按下後之瞬間。

D. 若#1接點閉合，則在PB1被按下後之瞬間。

答案：C.



VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1440 (B1441)

Refer to the drawing of a valve control circuit (see figure below).

Pushbutton PB2 was depressed to open the valve, and the current contact/pushbutton status is as shown with the following exceptions:

LS1 is closed.
LS3 is closed.
#1 contact is closed.
#2 contact is closed.

Which one of the following describes the condition of the valve and its control circuit?

A. The valve is closed and the valve motor circuit has just been energized to open the valve.

B. The valve is closed and an open demand signal has existed for at least 10 seconds.

C. The valve is partially open and the valve motor circuit is deenergized as PB2 was prematurely released.

D. The valve is partially open and an open demand signal has existed for at least 10 seconds.

ANSWER: B.

請參照下圖的閥門控制線路。

按下按鈕PB2以開啟此閥，目前的接點/按鈕狀態如圖所示，但有以下例外：

LS1閉合
LS3閉合
#1接點閉合
#2接點閉合

則在此閥與其控制線路的狀態為何？

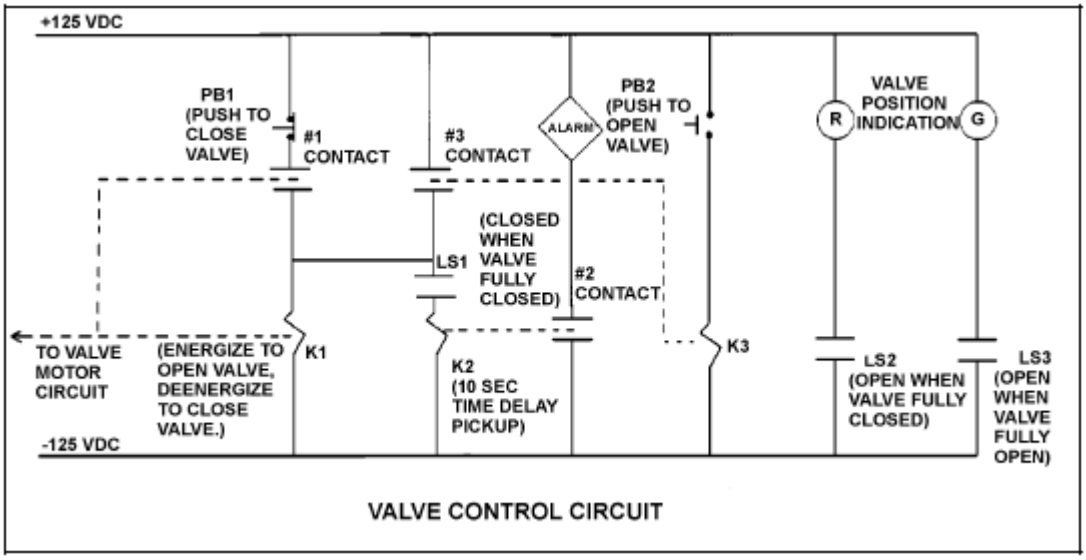
A. 閥門在關閉位置，且閥馬達線路剛被通電以開啟此閥。

B. 閥門在關閉位置，且要求開啟的信號已存在至少10秒。

C. 閥門部份開啟，且閥馬達線路在PB2被過早釋放時斷電。

D. 閥門部份開啟，且要求開啟的信號已存在至少10秒。

答案：B.



VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1540 (B1542)

Refer to the drawing of a valve control circuit (see figure below). Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.

Which one of the following describes the purpose of the alarm in the control circuit shown in the accompanying drawing?

A. Alert the operator when the valve motor circuit has been energized for 10 seconds after pushbutton PB2 is depressed

B. Alert the operator when the valve has not moved off its closed seat within 10 seconds of depressing pushbutton PB2

C. Alert the operator that the valve is opening by sounding the alarm for 10 seconds after PB2 is depressed

D. Alert the operator if the valve has not reached full open within 10 seconds of depressing pushbutton PB2

ANSWER: B.

請參照下圖的閥控制線路。請注意：在圖中，不論閥門位置為何，極限開關(LS)的接點均顯示開啟，但電驛接點則依照控制線路圖的標準習慣標示。

圖中控制線路警報的設置目的為何？

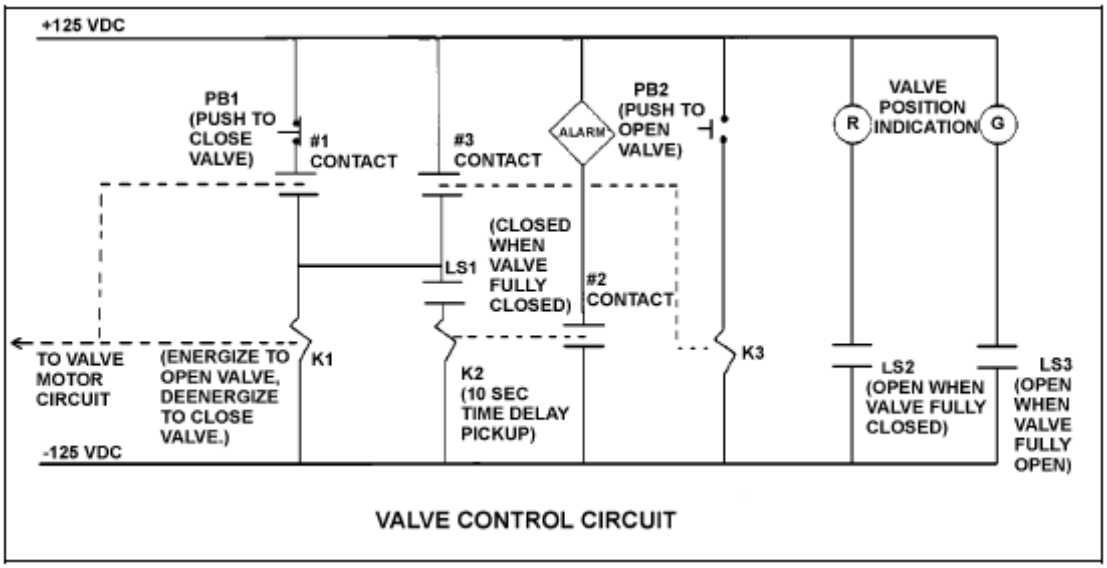
A. 按下按鈕PB2後，當閥馬達線路通電10秒時，對運轉員提出警告。

B. 在按鈕PB2按下10秒內，此閥門沒有離開全關閥座時，對運轉員提出警告。

C. 在按鈕PB2壓下後，發出警報聲10秒，警告運轉員此閥在開啟中。

D. 在按鈕PB2壓下10秒內，若此閥沒有達到全開，對運轉員提出警告。

答案：B.



VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1640 (B1644)

Refer to the drawing of a valve control circuit (see figure below). Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.

The valve is half open and moving to the open position. Which one of the following describes the current condition of the valve position indicating lights?

A. Red light on, green light off

B. Red light off, green light on

C. Red light off, green light off

D. Red light on, green light on

ANSWER: D.

請參照下圖的閥門控制線路。請注意：在圖中，不論閥門位置為何，極限開關(LS)的接點均顯示開啟，但電驛接點則依照控制線路圖的標準習慣標示。

此閥半開並朝向全開移動。下列何者描述了目前閥位指示燈的狀態？

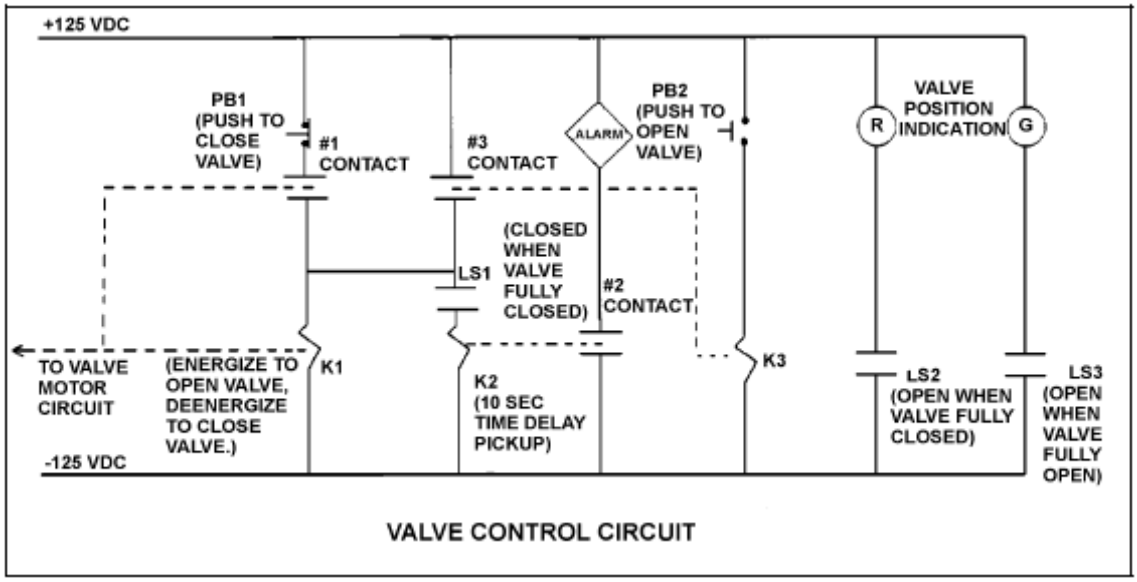
A. 紅燈亮，綠燈熄。

B. 紅燈熄，綠燈亮。

C. 紅燈熄，綠燈熄。

D. 紅燈亮，綠燈亮。

答案：D.



VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P1739 (B1742)

Refer to the drawing of a valve control circuit (see figure below). Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.

Pushbutton PB2 has been momentarily depressed and then released, and the valve is currently at mid-stroke and moving to the open position. Under these conditions, which one of the following describes the position of contacts #1, #2, and #3?

A. #1 closed; #2 open; #3 open

B. #1 open; #2 closed; #3 closed

C. #1 open; #2 open; #3 open

D. #1 closed; #2 closed; #3 closed

ANSWER: A.

請參照下圖的閥控制線路。請注意：在圖中，不論閥門位置為何，極限開關(LS)接點都顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。

按鈕PB2被暫時按下後隨即放開，而閥目前在半開位置行程，並朝向全開方向移動。在此狀況下，下列何者描述了接點#1、#2、#3的狀態？

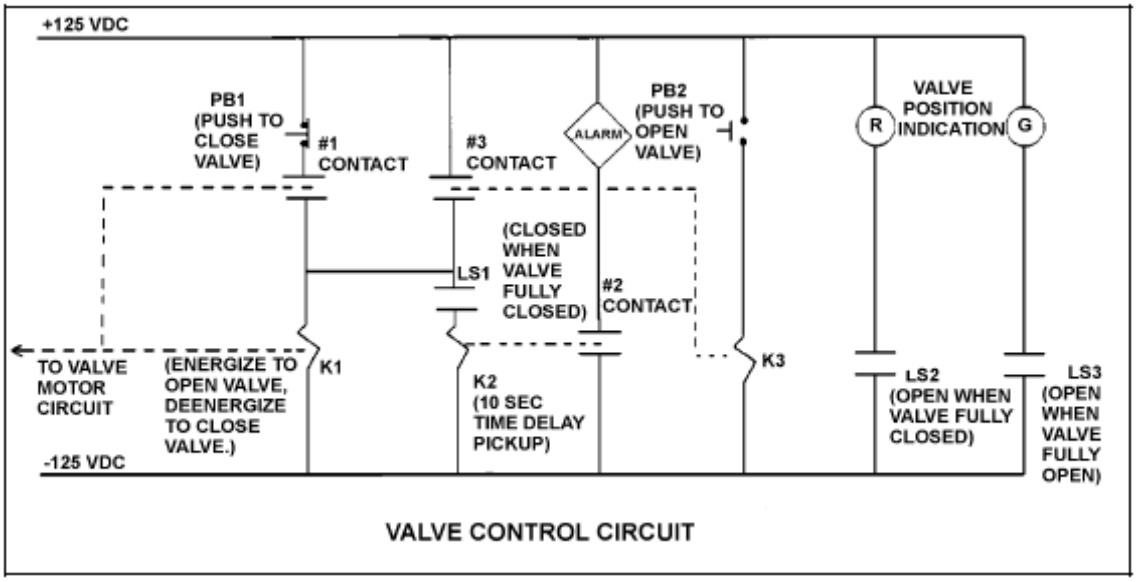
A. #1閉合；#2開啟；#3開啟。

B. #1開啟；#2閉合；#3閉合。

C. #1開啟；#2開啟；#3開啟。

D. #1閉合；#2閉合；#3閉合。

答案：A.



VALVE CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2239 (B2341)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

Which one of the following describes the valve response if the control switch is taken to the “Close” position for two seconds and then released?

A. The valve will not move.

B. The valve will close fully.

C. The valve will begin to close and then stop moving.

D. The valve will begin to close and then open fully.

ANSWER: C.

請參照下圖的閥門馬達控制線路，該閥目前全開且行程時間為10秒。(請注意：在圖中，不論閥門位置為何，極限開關(LS)接點均顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。)

若控制開關轉向「關」位置兩秒，然後再放開，下列何者描述了此閥門的反應？

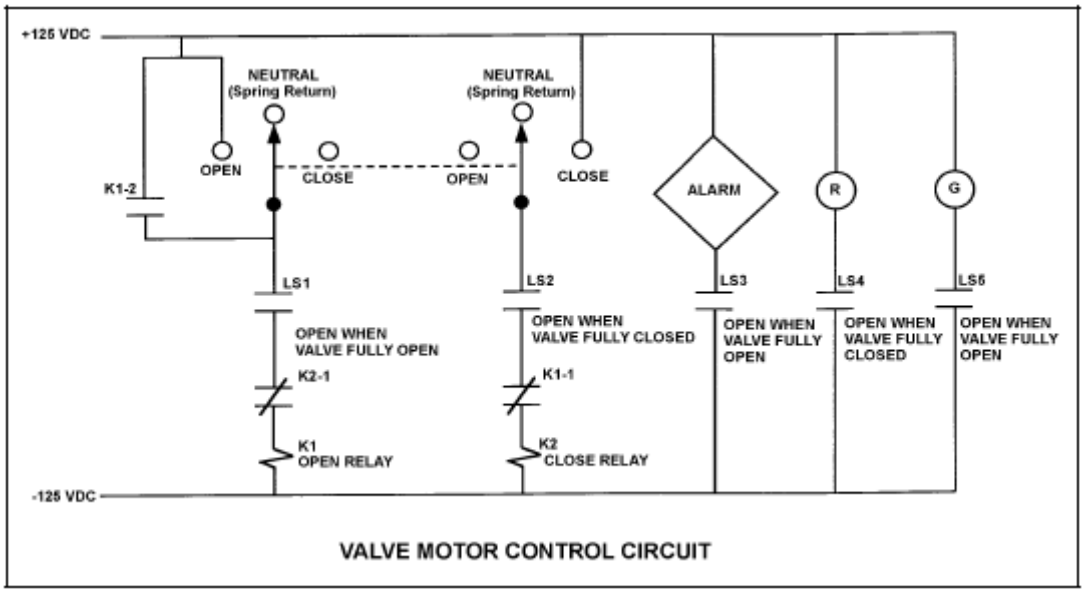
A. 閥門不會移動。

B. 閥門將全關。

C. 閥門開始關閉，當放開控制開關時，閥門即停止移動。

D. 閥門開始關閉，當放開控制開關時，閥門即會再開啟至全開位置。

答案：C.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2341 (B2442)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

Which one of the following describes the valve response if the control switch is taken to the "Open" position for two seconds and then released?

A. The valve will not move.

B. The valve will open fully.

C. The valve will begin to open and then stop moving.

D. The valve will begin to open and then close fully.

ANSWER: B.

請參照下圖的閥門馬達控制線路，該閥目前全關且行程時間為10秒。(請注意：在圖中，不論閥門位置為何，極限開關(LS)接點均顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。)

若控制開關轉向「開」位置兩秒，然後再放開，下列何者描述此閥門之反應？

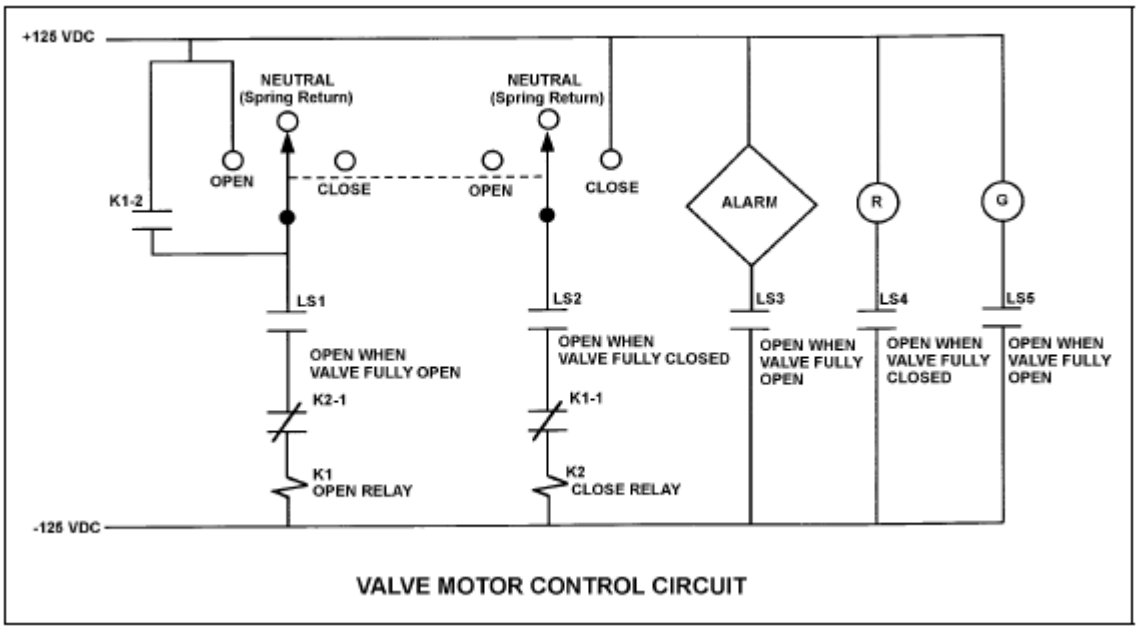
A. 閥門不會移動。

B. 閥門將全開。

C. 閥門開始開啟，然後停止移動。

D. 閥門開始開啟，然後全關。

答案：B.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2539 (B2542)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 10-second stroke time. Limit switch LS2 has failed open. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

Which one of the following describes the valve response if the control switch is taken to the "Close" position for 2 seconds and then released?

A. The valve will not move.

B. The valve will close fully.

C. The valve will begin to close and then stop moving.

D. The valve will begin to close and then open fully.

ANSWER: A.

請參照下圖的閥門馬達控制線路，該閥目前為全開，行程時間為10秒。極限開關LS2失效後成為開啟狀態。(請注意：不論閥門位置為何，極限開關(LS)的接點均顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。)

若控制開關轉向「關」位置2秒，然後再放開，下列何者描述了此閥門反應？

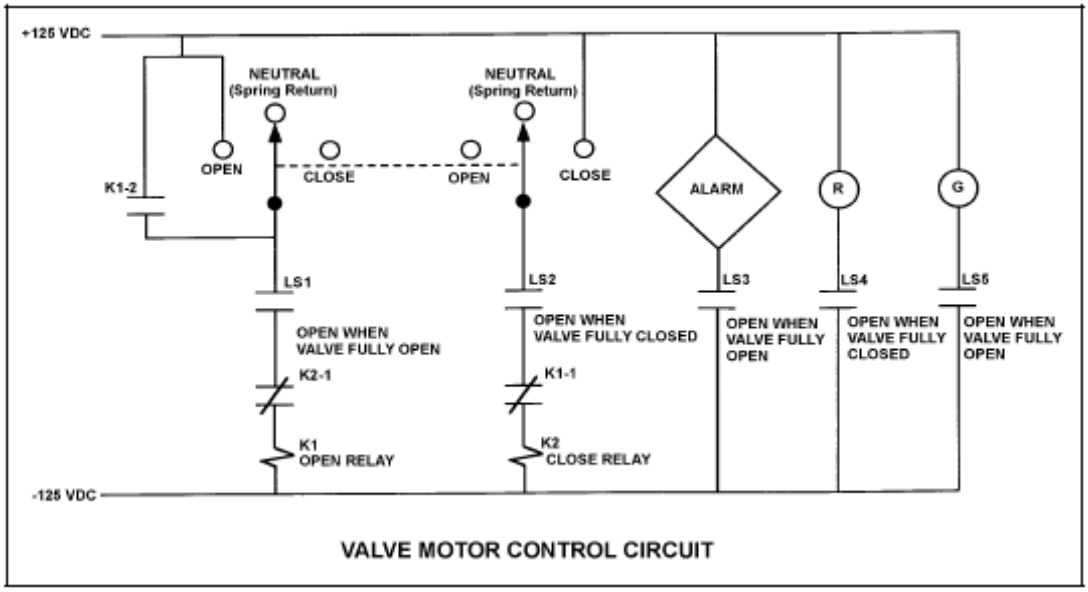
A. 閥門不會移動。

B. 閥門將全關。

C. 閥門開始關閉，然後停止移動。

D. 閥門開始關閉，然後全開。

答案：A.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2640 (B2841)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

The operator takes the control switch to “Open” momentarily and the valve begins to open. Five seconds later, the operator takes the switch to “Close” momentarily and then releases the switch. Which one of the following describes the valve response after the switch is released?

A. The valve will stop opening and remain partially open.

B. The valve will stop opening and then go fully closed.

C. The valve will open fully and remain fully open.

D. The valve will open fully and then go fully closed.

ANSWER: C.

請參照下圖的閥門馬達控制線路，該閥目前為全關，行程時間為10秒。(請注意：在圖中，不論閥門位置為何，極限開關(LS)的接點均顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。)

一運轉員將控制開關暫時轉向「開」位置然後放開，而閥開始開啟。五秒後，運轉員將開關暫時轉到「關」位置然後放開。下列何者描述了在開關被釋放後的閥門反應？

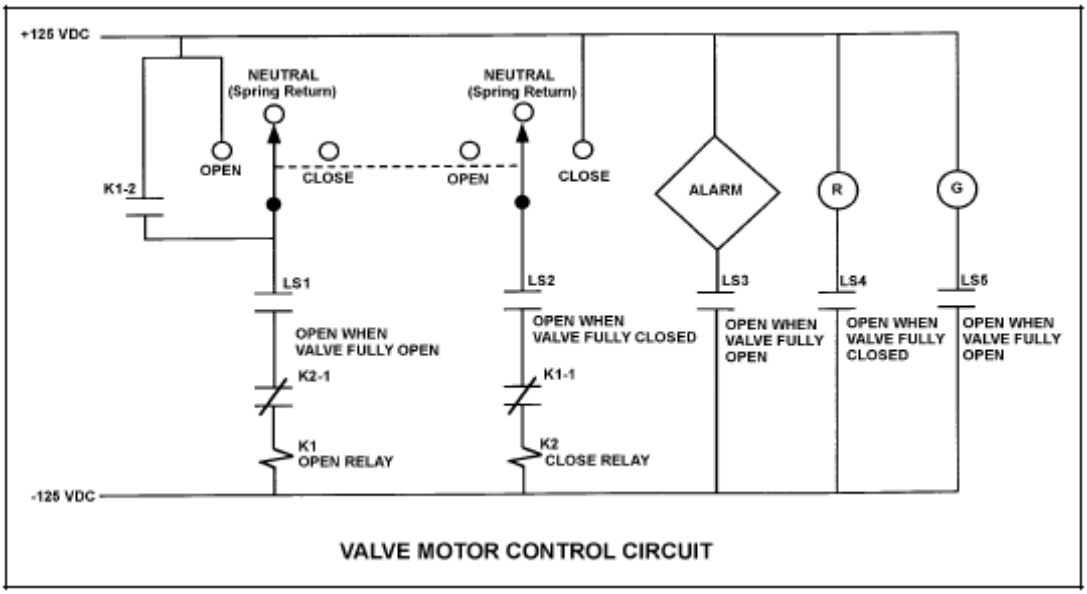
A. 閥門停止開啟，並維持部分開啟。

B. 閥門先停止開啟，然後轉變為全關。

C. 閥門將會全開，並且維持全開。

D. 閥門將會先全開，然後再轉變為全關。

答案：C.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2739 (B2741)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

An operator takes the control switch to “Open” momentarily and the valve begins to open. Five seconds later, the operator places and holds the switch in the “Close” position. Which one of the following describes the valve response with the switch held in the “Close” position?

A. The valve will stop opening and remain partially open.

B. The valve will stop opening and then go fully closed.

C. The valve will open fully and remain fully open.

D. The valve will open fully and then go fully closed.

ANSWER: D.

請參照下圖的閥門馬達控制線路，該閥目前為全關，行程時間為10秒。(注意：在圖中，不論閥門位置為何，極限開關(LS)的接點均顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。)

一運轉員將控制開關暫時轉向「開」位置然後放開，而閥開始開啟。五秒後，運轉員將開關轉到「關」位置並固定在「關」的位置。當開關停留在「關」位置時，下列何者描述了閥門反應？

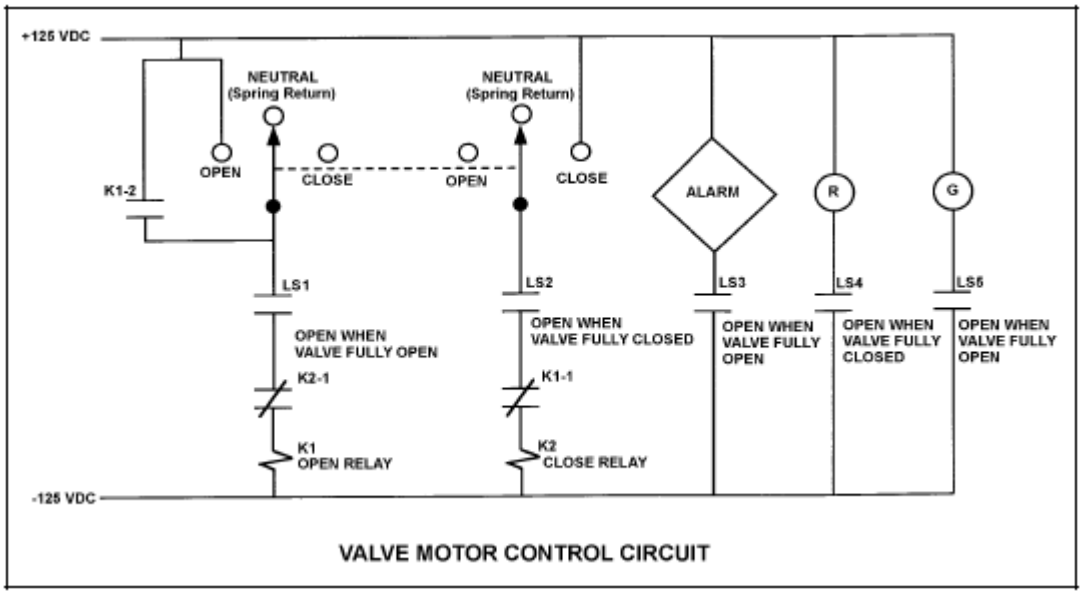
A. 閥門停止開啟，並且維持部分開啟。

B. 閥門將會先停止開啟，然後轉變為全關。

C. 閥門將會全開，並且維持全開。

D. 閥門將會先全開，然後再轉變為全關。

答案：D.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2839

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

The operator takes the control switch to “Open”. Two seconds later, after verifying the valve is opening, the operator releases the control switch. Which one of the following describes the valve motor control circuit alarm response after the switch is released?

A. The alarm will continue to actuate for approximately 8 seconds.

B. The alarm will continue to actuate until additional operator action is taken.

C. The alarm will actuate after approximately 8 seconds.

D. The alarm will not actuate until additional operator action is taken.

ANSWER: A.

請參照下圖的閥門馬達控制線路，該閥目前為全關，行程時間為10秒。(請注意：在圖中，不論閥門位置為何，極限開關(LS)接點，均顯示開啟狀態，電驛接點則依照控制線路圖的標準慣例標示。)

運轉員將控制開關轉至「開」的位置。兩秒後，運轉員於確認閥逐漸開啟後，放開控制開關。下列何者描述了放開開關後，閥門馬達控制電路警報的反應？

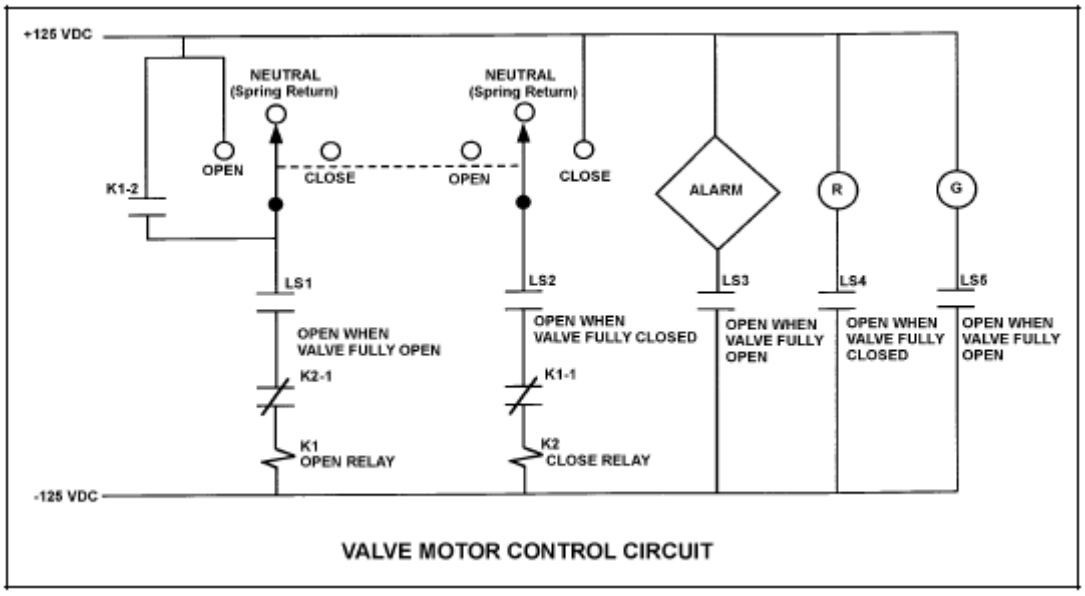
A. 警報將維持啟動狀態約8秒。

B. 警報將維持啟動狀態，直到運轉員採取進一步行動為止。

C. 警報約於8秒後啟動。

D. 警報直到運轉員採取進一步行動後才會啟動。

答案：A.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P2942 (B2940)

Refer to the drawing of a motor controller circuit (see figure below). (Note: Relay contacts follow the standard convention for control circuit drawings.)

What is the purpose of the Time Delay Coil (TD) in the motor controller circuit?

A. Ensures the motor cannot be started until the overload relays are reset.

B. Ensures the motor cannot be started until the accelerating coil is energized.

C. Allows the motor to come up to speed before bypassing the starting resistors.

D. Allows the motor to come up to speed before placing the starting resistors in the circuit.

ANSWER: C.

請參照下圖的馬達控制器線路。(請注意：電驛接點遵守控制電路圖示的標準習慣。)

馬達控制器線路中，時間延遲線圈(TD)的設置目的為何？

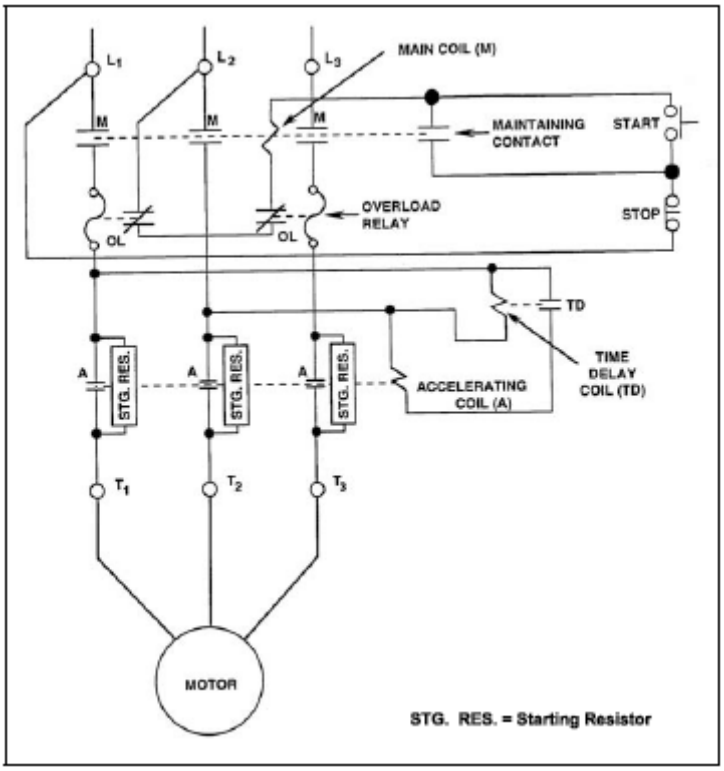
A. 確保馬達不會啟動，直到過載電驛被復歸後。

B. 確保馬達不會啟動，直到加速線圈通電後。

C. 在旁通啟動電阻之前，使馬達能夠加速。

D. 在電流流經線路內的啟動電阻之前，使馬達能夠加速。

答案：C.


L1
L2
L3
MAIN COIL (M)
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MAINTAINING CONTACT
START
STOP
OVERLOAD RELAY
OL
OL
TD
TIME DELAY COIL (TD)
A
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A
STG. RES.
STG. RES.
STG. RES.
ACCELERATING COIL (A)
T1
T2
T3
MOTOR
STG. RES. = Starting Resistor

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P3640 (B3641)

Refer to the drawing of a motor controller circuit for a three-phase ac motor (see figure below).

The motor receives overload protection from _____ overload (OL) relays, and _____ OL relay(s) must actuate to deenergize the motor.

A. two; one

B. two; two

C. three; one

D. three; two

ANSWER: A.

請參照下圖的三相交流馬達之馬達控制線路。

馬達從_____個過載(OL)電驛處得到過載保護，而需要_____個過載電驛動作才能將馬達斷電。

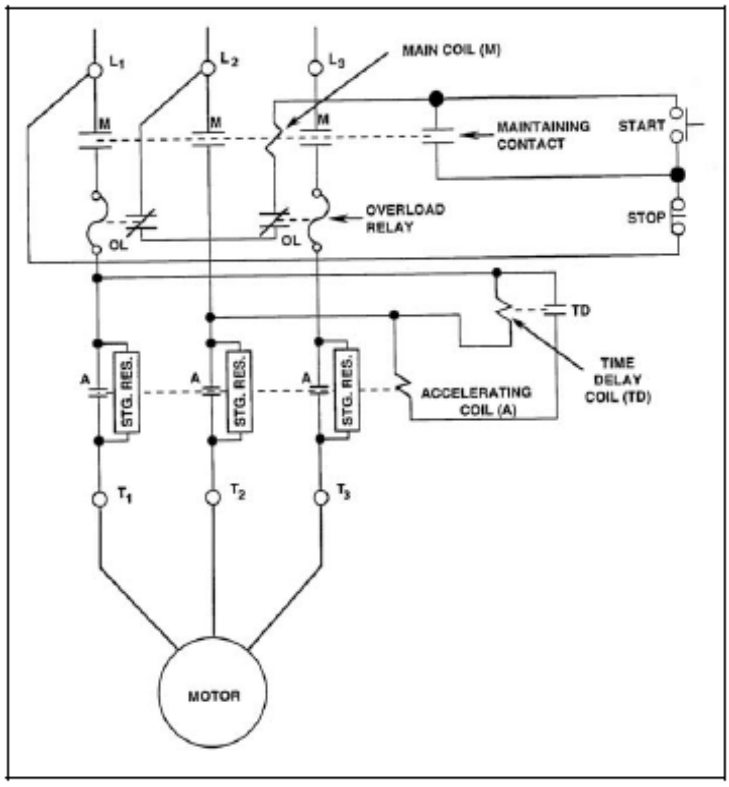
A. 兩；一

B. 兩；兩

C. 三；一

D. 三；兩

答案：A.



科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P3921 (B3921)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

The operator takes the control switch to “Open” for 5 seconds and then releases the switch. After one minute the operator takes the control switch to “Close” for 5 seconds and then releases the switch. Which one of the following describes the valve position immediately after the control switch is released the second time?

A. Approximately fully open.

B. Approximately fully closed.

C. Approximately 50% open.

D. Cannot be determined without additional information.

ANSWER: B.

請參照下圖的閥門馬達控制線路，該閥目前全關，行程時間為10秒。(請注意：在圖中，不論閥門位置為何，極限開關(LS)的接點均顯示為開啟狀態，但電驛接點依照控制線路圖的標準習慣標示。)

一運轉員將控制開關轉向「開」位置5秒，然後放開開關。一分鐘後，此運轉員將此控制開關轉向「關」5秒，然後放開開關。下列何者描述了緊接在控制開關第二次被釋放之後，閥位的狀況？

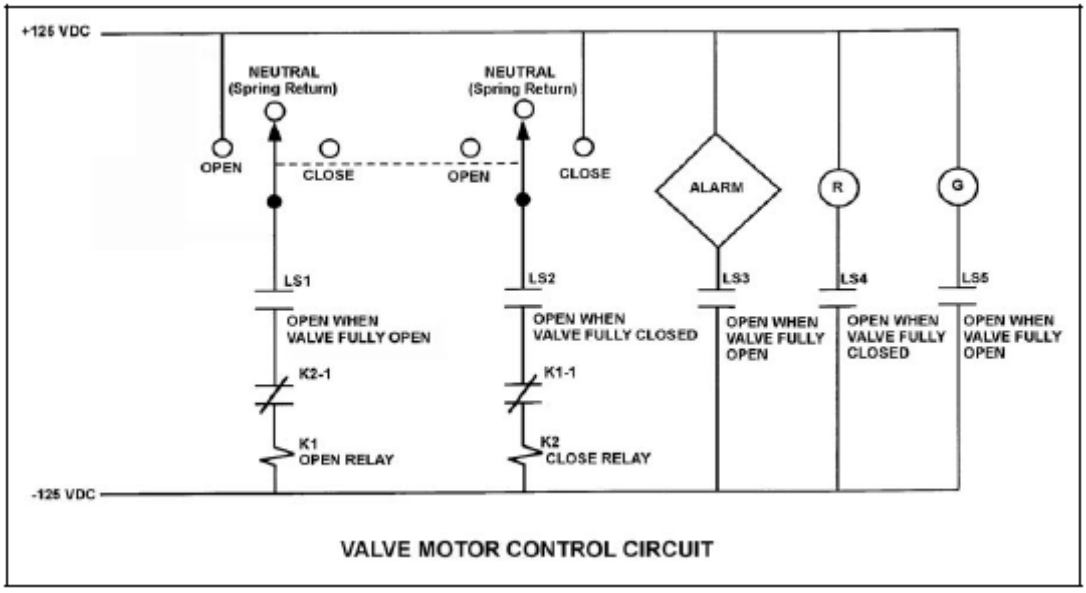
A. 大約全開。

B. 大約全關。

C. 大約50％開度。

D. 無額外資料下，無法決定。

答案：B.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P4221 (B4221)

Refer to the drawing of a motor and its control circuit (see figure below). (Note: The relay contacts shown follow the standard convention for control circuit drawings.)

How are the starting resistors employed before and after the motor is energized?

A. Inserted before the motor is energized; simultaneously bypassed after the motor gains speed.

B. Inserted before the motor is energized; sequentially bypassed as the motor gains speed.

C. Bypassed before the motor is energized; simultaneously inserted after the motor gains speed.

D. Bypassed before the motor is energized; sequentially inserted as the motor gains speed.

ANSWER: A.

請參照下圖的馬達及控制線路。(請注意：圖上所示的電驛接點，均按照控制線路圖的標準慣例標示。)

下列何者為啟動電阻在馬達通電前後的使用狀況？

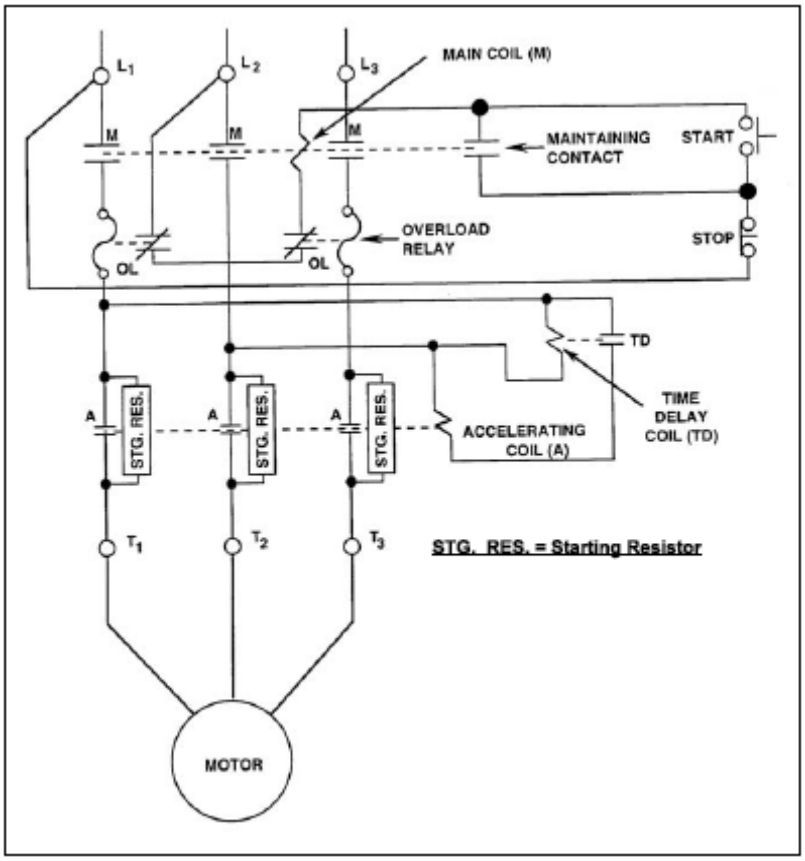
A. 在馬達通電前插入；馬達加速後同時旁通。

B. 在馬達通電前插入；隨著馬達加速而旁通。

C. 在馬達通電前旁通；馬達加速後同時插入。

D. 在馬達通電前旁通；隨著馬達加速而插入。

答案：A.


L1
L2
L3
MAIN COIL (M)
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MAINTAINING CONTACT
START
STOP
OVERLOAD RELAY
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TD
TIME DELAY COIL (TD)
A
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A
STG. RES.
STG. RES.
STG. RES.
ACCELERATING COIL (A)
T1
T2
T3
STG. RES. = Starting Resistor
MOTOR

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P4421 (B4421)

Refer to the drawing of a motor and its control circuit (see figure below). (Note: The relay contacts shown follow the standard convention for control circuit drawings.)

The motor has been operating for several hours when it is decided to stop the motor. What is the status of the starting resistors before and after the motor STOP button is depressed?

A. Initially inserted in the motor circuit; bypassed immediately after the STOP button is depressed.

B. Initially inserted in the motor circuit; bypassed following a preset time delay after the STOP button is depressed.

C. Initially bypassed; bypass is removed immediately after the STOP button is depressed.

D. Initially bypassed; bypass is removed following a preset time delay after the STOP button is depressed.

ANSWER: C.

請參照下圖的馬達及控制電路。(請注意：圖上所示的電驛接點，均按照控制線路圖的標準慣例標示。)

假設在決定停止馬達時，該馬達已連續運轉數小時。下列何者為啟動電阻在按下馬達停止鈕前後的狀況？

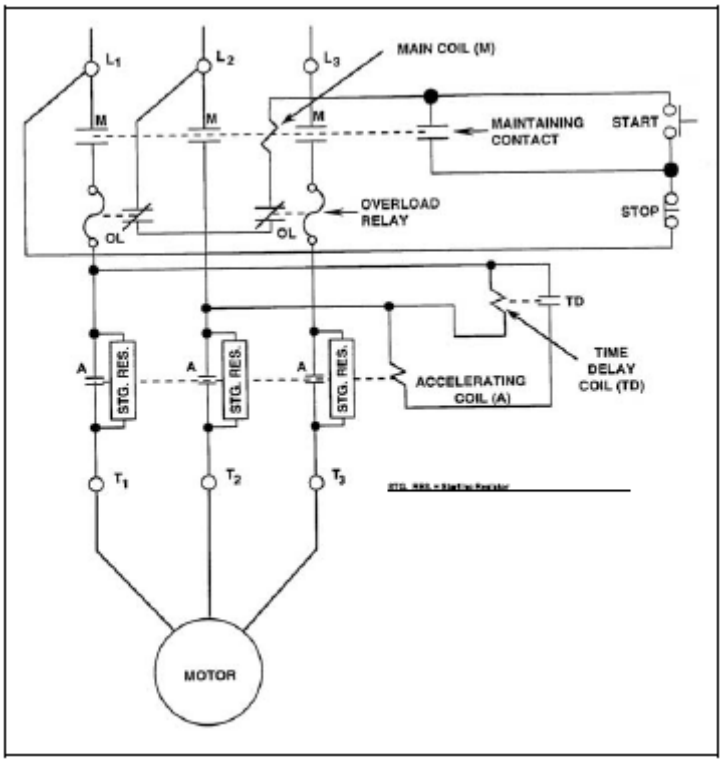
A. 先插入馬達線路；按下停止鈕後隨即旁通。

B. 先插入馬達線路；按下停止鈕後，經過一段預設時間再旁通。

C. 先旁通；按下停止鈕後隨即移除旁通。

D. 先旁通；按下停止鈕後，經過一段預設時間再排除旁通。

答案：C.


L1
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MAIN COIL (M)
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MAINTAINING CONTACT
START
STOP
OVERLOAD RELAY
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TD
TIME DELAY COIL (TD)
A
A
A
STG. RES.
STG. RES.
STG. RES.
ACCELERATING COIL (A)
T1
T2
T3
MOTOR

科目： 191008
知能類：K1.06 [2.3/2.6]
序號： P4521 (B4521)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time. (Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts follow the standard convention for control circuit drawings.)

Which one of the following describes the valve response if the control switch is taken to the "Open" position for two seconds and then released?

A. The valve will not move.

B. The valve will open fully.

C. The valve will begin to open and then close fully.

D. The valve will begin to open and then stop moving.

ANSWER: D.

請參照下圖的閥門馬達控制線路，該閥目前為全關，行程時間為10秒。(請注意：在圖中，不論閥門位置為何，極限開關(LS)的接點都顯示開啟狀態，電驛接點則依照控制線路圖的標準慣例標示。)

若將控制開關移至「開」的位置兩秒後放開，下列何者描述了閥的反應？

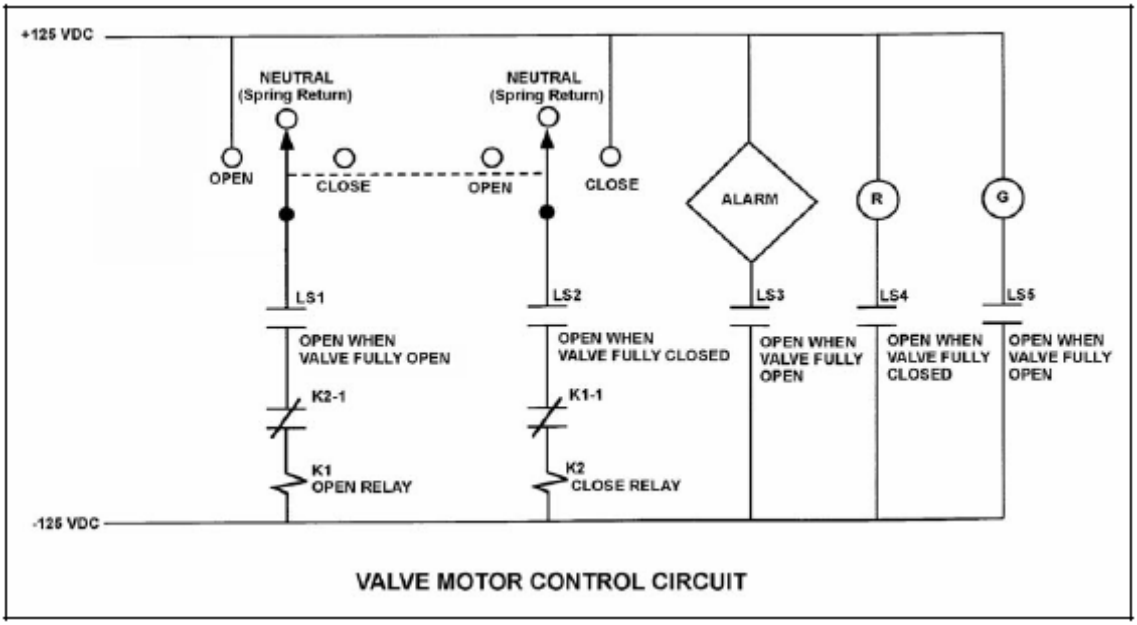
A. 閥將不會移動。

B. 閥將全開。

C. 閥先開始開啟，然後全關。

D. 閥先開始開啟，然後停止移動。

答案：D.



VALVE MOTOR CONTROL CIRCUIT

科目： 191008
知能類：K1.07 [3.0/3.3]
序號： P1141 (B1142)

Which one of the following is an unsafe practice if performed when working on or near energized electrical equipment?

A. Cover exposed energized circuits with insulating material to prevent inadvertent contact.

B. Have a person standing by to deenergize the equipment in the event of an emergency.

C. Use two hands for balance and to prevent dropping tools onto energized equipment.

D. Stand on insulating rubber material to prevent yourself from being grounded.

ANSWER: C.

若在通電設備或其附近工作，下列何者是不安全的作法？

A. 利用絕緣材料覆蓋通電線路，以預防不慎接觸。

B. 為預防緊急情況，派人站在附近準備斷電。

C. 使用兩手以保持平衡，及避免將工具掉落在通電設備上。

D. 站在絕緣橡膠材料上，以免自己成為接地通路。

答案：C.

科目： 191008
知能類：K1.07 [3.0/3.3]
序號： P1241(B842)

A motor control center 480 Vac breaker supplies a load via a manual disconnect. Which one of the following sequences for deenergizing the load will provide the greatest level of personnel safety?

A. Open the disconnect first, then the breaker.

B. Open the breaker first, then the disconnect.

C. Any sequence is acceptable provided the current is less than 50 amps.

D. Any sequence is acceptable provided the voltage is less than 600 volts.

ANSWER: B.

馬達控制中心的480V交流馬達斷路器，經由手動隔離開關(disconnect)提供負載。下列何種負載斷電順序，最能維護人員安全？

A. 先將隔離開關開啟，再將斷路器開啟。

B. 先將斷路器開啟，然後再將隔離開關開啟。

C. 只要電流低於50安培，任何順序都可接受。

D. 只要電壓低於600伏特，任何順序都可接受。

答案：B.

科目： 191008
知能類：K1.07 [3.0/3.3]
序號： P2940 (B3141)

Which one of the following is an unsafe practice if performed when working on or near energized electrical equipment?

A. Use insulated tools to prevent inadvertent contact with adjacent equipment.

B. Cover exposed energized circuits with insulating material to prevent inadvertent contact.

C. Attach a metal strap from your body to a nearby neutral ground to ensure that you are grounded.

D. Have a person standing by with the ability to remove you from the equipment in the event of an emergency.

ANSWER: C.

當在通電設備或其附近工作，下列何者是不安全的作法？

A. 利用絕緣工具以預防與鄰近設備不小心接觸。

B. 利用絕緣材料覆蓋通電線路，以預防意外接觸。

C. 將一金屬帶從身上連接到不帶電的地面，以確定處於接地狀態。

D. 派個能在緊急事件中，把您從設備移開的人站在附近。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P41 (B342)

The primary reason for isolating emergency electrical loads from their power supply bus prior to energizing the bus via the emergency diesel generator is to prevent an...

A. overcurrent condition on the generator.

B. overcurrent condition on the loads.

C. underfrequency condition on the generator.

D. underfrequency condition on the loads.

ANSWER: A.

在緊急柴油發電機供電給匯流排之前，將匯流排上的緊急負載隔離的主要原因，是為了預防……

A. 發電機過電流。

B. 負載端過電流。

C. 發電機頻率過低。

D. 負載端頻率過低。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P43 (B1941)

A main generator is being connected to an infinite power grid that is operating at 60 Hz. Generator output voltage is equal to the grid voltage but generator frequency is at 57 Hz.

Which one of the following generator conditions is most likely to occur if the generator output breaker is closed with voltages in phase (synchronized) but with the existing frequency difference? (Assume no generator breaker protective trip occurs.)

A. Reverse power

B. Underfrequency

C. Undervoltage

D. Overspeed

ANSWER: A.

一部主發電機正要連接到頻率為60Hz的無限功率輸配電網路(infinite power grid)。發電機輸出電壓等於輸配電網路電壓，但是發電機頻率為57Hz。

若在電壓相位同步，但維持目前頻率差異的情況下，將發電機輸出斷路器關閉，最可能發生下列何種狀況？(假設無發電機斷路器保護跳脫發生。)

A. 逆功率。

B. 頻率過低。

C. 電壓過低。

D. 超速。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P107 (B122)

Closing the output breaker of a three-phase generator onto a deenergized bus can result in...

A. an overvoltage condition on the bus.

B. an overcurrent condition on the generator if the bus was not first unloaded.

C. a reverse power trip of the generator circuit breaker if generator frequency is low.

D. a large reactive current in the generator.

ANSWER: B.

關閉銜接斷電匯流排的三相發電機斷路器時，將導致.....

A. 在匯流排上產生過電壓狀況。

B. 若此匯流排沒有先卸載，將使發電機產生過電流的狀況。

C. 若發電機頻率低，將導致發電機斷路器逆功率(reverse power)跳脫。

D. 導致發電機產生龐大無效電流。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P241 (B1843)

A main generator is being paralleled to an infinite power grid. Closing the output breaker of the generator with the frequency of the generator 0.1 Hz higher than grid frequency will result in the generator...

A. supplying a portion of the grid reactive load (MVAR).

B. supplying a portion of the grid real load (MWe).

C. behaving as a reactive load to the grid.

D. behaving as a real load to the grid.

ANSWER: B.

一主發電機正準備要併聯到無限功率輸配電網路。若在發電機頻率較輸配電網路頻率高0.1Hz的情況下，關閉發電機輸出斷路器，將導致發電機……

A. 供應一部份輸配電網路無效負載(MVAR)。

B. 供應一部份輸配電網路有效負載(MWe)。

C. 成為輸配電網路的無效負載。

D. 成為輸配電網路的有效負載。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P242 (B243)

Which one of the following generator conditions is most likely to cause generator damage because of high current?

A. Tripping the output breaker under full-load conditions

B. Tripping the generator prime mover under full-load conditions

C. Closing the output breaker on a bus that has an open-circuit fault

D. Closing the output circuit breaker on a bus that has a short-circuit fault

ANSWER: D.

下列何種狀況最有可能使發電機因高電流而受損？

A. 在滿載情況下，輸出斷路器跳脫。

B. 在滿載情況下，發電機的原動機(汽機)跳脫。

C. 將連接到有開路故障匯流排的輸出斷路器關閉。

D. 將連接到有短路故障匯流排的輸出斷路器關閉。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P340

A main generator is about to be connected to an infinite power grid. Closing the generator output breaker with the generator voltage slightly lower than grid voltage and with generator frequency slightly higher than grid frequency will initially result in: (Assume no generator breaker protective trip occurs.)

A. the generator picking up reactive load from the grid.

B. the generator attaining a leading power factor.

C. the generator shedding real load to the grid.

D. motoring of the generator.

ANSWER: B.

一部主發電機準備連接至無限大之電網。若在發電機電壓略低於電網電壓、發電機頻率略高於電網頻率時，關閉發電機的輸出斷路器，首先將導致下列何者發生？(假設發電機斷路器未發生保護跳脫。)

A. 發電機從電網接收(pick up)無效負載。

B. 發電機的功率因數(power factor)達到超前(leading)狀態。

C. 發電機流出有效負載至電網。

D. 發電機馬達化。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P341 (B343)

A main generator is being paralleled to the power grid. Generator voltage has been properly adjusted and the synchroscope is rotating slowly in the clockwise direction.

The generator breaker must be closed just as the synchroscope pointer reaches the 12 o'clock position to prevent...

A. motoring of the generator due to unequal frequencies.

B. excessive MWe load transfer to the generator due to unequal frequencies.

C. excessive MWe load transfer to the generator due to out-of-phase voltages.

D. excessive arcing within the generator output breaker due to out-of-phase voltages.

ANSWER: D.

一部發電機正要併聯至輸配電網路。發電機電壓已適當調整，同時同步儀以順時針方向緩慢旋轉。

當同步儀的指針到達12點鐘位置時，發電機斷路器必須正好關閉，以防.....

A. 因為頻率不相同，使發電機成為馬達。

B. 因為頻率不相同，而傳送過量MWe電力負載到發電機。

C. 因為電壓相位不同步，而傳送過量MWe電力負載到發電機。

D. 因為電壓相位不同步，而在發電機輸出斷路器內造成過量電弧。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P441 (B440)

During paralleling operations of the main generator to an infinite power grid, closing the generator output breaker with the frequency of the generator at 61 hertz and the grid frequency at 60 hertz will...

A. cause the generator to immediately increase load.

B. trip open the generator breaker on reverse power.

C. cause the generator voltage to increase.

D. cause the generator current to decrease.

ANSWER: A.

在主發電機併聯到一無限輸配電網路的操作過程中，在發電機頻率為61 hertz而輸配電網路頻率為60 hertz時，關閉發電機輸出斷路器，將會……

A. 導致發電機立即增加負載。

B. 發電機斷路器因逆功率跳脫。

C. 導致發電機電壓增加。

D. 導致發電機電流降低。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P743 (B743)

Which one of the following evolutions will draw the highest current from the main generator during operation of the output breaker?

A. Opening the output breaker under full-load conditions

B. Opening the output breaker under no-load conditions

C. Closing the output breaker with voltages out of phase

D. Closing the output breaker with voltages in phase

ANSWER: C.

在操作輸出斷路器中，下列何者將從主發電機得到最大電流？

A. 在滿載情況下，將輸出斷路器開啟。

B. 在空載情況下，將輸出斷路器開啟。

C. 在電壓相位不同時，將輸出斷路器關閉。

D. 在電壓相位相同時，將輸出斷路器關閉。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P940

Under which one of the following preexisting conditions will closing a circuit breaker between two electrical generators cause a sudden large and possibly damaging mechanical torque to be exerted on both of the generators?

A. One generator is supplying a 3% higher voltage than the other.

B. One generator is supplying a 3% higher frequency than the other.

C. The voltage of one generator is out of phase with the other by 30°.

D. The capacity of one generator is twice that of the other generator.

ANSWER: C.

在下列哪項既有狀態下，關閉兩部發電機之間的斷路器，將造成兩部發電機突然承受可能造成損害的龐大機械扭矩？

A. 一部發電機供應的電壓較另一部高出 3%。

B. 一部發電機供應的頻率較另一部高出 3%。

C. 一部發電機的電壓與另一部的相位相差 30 度。

D. 一部發電機的容量為另一部的兩倍。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1143 (B1143)

A main generator is about to be connected to an infinite power grid with the following conditions:

Generator frequency:	59.5 Hz
Grid frequency:	59.8 Hz
Generator voltage:	115.1 KV
Grid voltage:	114.8 KV

When the generator output breaker is closed the generator will...

A. acquire real load and reactive load.

B. acquire real load but become a reactive load to the grid.

C. become a real load to the grid but acquire reactive load.

D. become a real load and a reactive load to the grid.

ANSWER: C.

一部發電機在以下狀況時，將連接到無限功率輸配電網路：

發電機頻率：	59.5Hz
輸配電網路頻率：	59.8Hz
發電機電壓：	115.1KV
輸配電網路電壓：	114.8KV

當發電機輸出斷路器關閉時，發電機將……

A. 獲得有效負載與無效負載。

B. 獲得有效負載，但成為輸配電網路的無效負載。

C. 成為輸配電網路的有效負載，但獲得無效負載。

D. 成為輸配電網路的有效負載與無效負載。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1242

A main generator is about to be connected to an infinite power grid. Closing the generator output breaker with generator and grid voltages matched, but with generator frequency lower than grid frequency will initially result in the generator...

A. picking up a portion of the grid real load.

B. picking up a portion of the grid reactive load.

C. experiencing reverse power conditions.

D. experiencing overspeed conditions.

ANSWER: C.

一部主發電機準備連接至無限大之電網。若在發電機與電網的電壓相同、發電機頻率卻低於電網頻率時，關閉發電機的輸出斷路器，首先將導致發電機……

A. 接收(pick up)電網的部分有效負載。

B. 接收(pick up)電網的部分無效負載。

C. 經歷逆功率狀況。

D. 經歷超速狀況。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1342

A main generator is about to be connected to an infinite power grid. Closing the generator output breaker with the _____ of the generator higher than that of the grid will initially result in generator real load _____.

A. frequency; decreasing

B. frequency; increasing

C. voltage; decreasing

D. voltage; increasing

ANSWER: B.

一部主發電機準備連接至無限大之電網。當發電機的_____電網為高時，關閉發電機的輸出斷路器，首先將導致發電機的有效負載_____。

A. 頻率；降低

B. 頻率；增加

C. 電壓；降低

D. 電壓；增加。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1542

A main generator is about to be connected to an infinite power grid. Closing the generator output breaker with generator and grid voltages matched, but with generator frequency 0.1 Hz higher than grid frequency will initially result in the generator...

A. picking up a portion of the grid real load.

B. picking up a portion of the grid reactive load.

C. experiencing reverse power conditions.

D. experiencing overspeed conditions.

ANSWER: A.

一部主發電機準備連接至無限大之電網。當發電機與電網的電壓相同、發電機頻率較電網頻率高出 0.1 Hz 時，關閉發電機的輸出斷路器，首先將導致發電機……

A. 接收(pick up)電網的部分有效負載。

B. 接收(pick up)電網的部分無效負載。

C. 經歷逆功率狀況。

D. 經歷超速狀況。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1642

A main generator is about to be connected to an infinite power grid with the following conditions:

Generator frequency	= 59.8 Hz
Grid frequency	= 59.5 Hz
Generator voltage	= 114.8 kV
Grid voltage	= 115.1 kV

When the generator output breaker is closed, the generator will initially...

A. acquire real load and reactive load.

B. acquire real load, but become a reactive load to the grid.

C. become a real load to the grid, but acquire reactive load.

D. become a real load and a reactive load to the grid.

ANSWER: B.

一部主發電機準備連接至無限大之電網，此時的狀況如下：

發電機頻率	= 59.8 Hz
電網頻率	= 59.5 Hz
發電機電壓	= 114.8 KV
電網電壓	= 115.1 KV

若關閉發電機的輸出斷路器，發電機首先將……

A. 獲得有效負載與無效負載。

B. 獲得有效負載，但成為電網的無效負載。

C. 成為電網的有效負載，但獲得無效負載。

D. 成為電網的有效負載及無效負載。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1741 (B1744)

A main generator is being paralleled to an infinite power grid. Generator voltage has been properly adjusted and the synchroscope is rotating slowly in the counterclockwise direction.

If the generator breaker is closed just prior to the synchroscope pointer reaching the 12 o'clock position, which one of the following will occur?

A. The breaker will close and the generator will supply MWe to the grid.

B. The breaker will close and the generator will supply MWe and MVAR to the grid.

C. The breaker will close and then open due to overcurrent.

D. The breaker will close and then open due to reverse power.

ANSWER: D.

一部主發電機準備併聯到無限功率輸配電網路。發電機電壓經過適當調整，同步儀以逆時針方向緩慢旋轉。

發電機斷路器若在同步儀指針到達12點鐘位置前閉合，將發生下列何事？

A. 斷路器將閉合，發電機將提供有效負載(MWe)給輸配電網路。

B. 斷路器將閉合，發電機將提供有效負載(MWe)與無效負載(MVAR)給輸配電網路。

C. 斷路器將閉合，後因為過電流而開路。

D. 斷路器將閉合，而後因為逆功率(reverse power)而開路。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1839 (B43)

A main generator is being connected to an infinite power grid. Which one of the following will occur if the generator output breaker is closed with generator frequency 0.1 Hz lower than power grid frequency? (Assume that no generator protection relay actuates.)

A. The generator will motorize.

B. The generator will accept too much load.

C. The voltage of the generator will decrease to compensate for the lower frequency.

D. The entire connected system will operate at the frequency of the lowest frequency (the oncoming) generator.

ANSWER: A.

一部主發電機正要連接到無限功率輸配電網路。若在發電機輸出斷路器關閉時，發電機頻率比輸配電網路頻率低0.1Hz，則將會發生何事？(假設無發電機保護電驛啟動。)

A. 發電機將馬達化。

B. 發電機接受太大負載。

C. 發電機電壓將減小，以補償較低頻率。

D. 整體連通輸配電網路系統將以併入(oncoming)最低頻率發電機之頻率運轉。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1842 (B1240)

A main generator is being prepared for paralleling with an infinite power grid. Which one of the following indicates that the main generator and the grid are in phase?

A. The synchroscope pointer is at the 12 o’clock position.

B. The frequency of the generator is equal to the frequency of the grid.

C. The synchroscope pointer is turning slowly in the clockwise direction.

D. The synchroscope pointer is turning slowly in the counterclockwise direction.

ANSWER: A.

一部發電機正準備要併聯到無限功率輸配電網路。下列何者指出主發電機與輸配電網路相位相同？

A. 同步儀指針位於12點鐘位置。

B. 發電機頻率與輸配電網路頻率相等。

C. 同步儀指針緩慢朝順時針方向旋轉。

D. 同步儀指針緩慢朝逆時針方向旋轉。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P1940 (B341)

Closing a circuit breaker between two electrical generators that are out of phase will cause...

A. one generator to become a motor and the other generator to supply the motoring current.

B. a voltage reduction in both generators until normal voltage is manually restored.

C. a sudden large mechanical torque to be exerted on both of the generators.

D. a frequency reduction in both generators until normal frequency is manually restored.

ANSWER: C.

如果將兩部相位不同步的發電機之間的斷路器關閉，將導致.....

A. 一部發電機成為馬達，而另一部發電機供應馬達電流。

B. 兩部發電機的電壓都下降，直到手動恢復正常電壓為止。

C. 對兩部發電機產生突然的極大機械扭矩。

D. 兩部發電機的頻率都下降，直到手動恢復正常頻率為止。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2040 (B2042)

A main generator is being prepared for paralleling with an infinite power grid. Which one of the following conditions will cause the main generator to immediately supply reactive power (MVAR) to the grid when the generator output breaker is closed?

A. Generator voltage is 1% higher than grid voltage.

B. Generator voltage is 1% lower than grid voltage.

C. The synchroscope is turning slowly in the clockwise direction.

D. The synchroscope is turning slowly in the counterclockwise direction.

ANSWER: A.

一部主發電機正準備要併聯到無限功率輸配電網路。當發電機輸出斷路器閉合時，下列何種情況將導致主發電機立即供應無效功率(MVAR)到輸配電網路？

A. 發電機電壓較輸配電網路電壓高1%。

B. 發電機電壓較輸配電網路電壓低1%。

C. 同步儀指針緩慢朝順時針方向旋轉。

D. 同步儀指針緩慢朝逆時針方向旋轉。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2044 (B2043)

Two identical 1000 MW electrical generators are being connected to the same electrical bus. Generator A is currently supplying the bus. Generator A and B output indications are as follows:

Generator A	Generator B
4160 Volts	4140 Volts
60.2 Hertz	60.8 Hertz
25 MW	0 MW
10 MVAR	0 MVAR

When the output breaker for generator B is closed, which generator is more likely to trip on reverse power?

A. Generator A due to the higher initial voltage

B. Generator A due to the lower initial frequency

C. Generator B due to the lower initial voltage

D. Generator B due to the higher initial frequency

ANSWER: B.

兩部相同的1000 MW發電機，連接同一個電力匯流排。發電機A目前正供電給匯流排。發電機A與B的輸出數據如下所示：

發電機A	發電機B
4160 Volts	4140 Volts
60.2 Hertz	60.8 Hertz
25 MW	0 MW
10 MVAR	0 MVAR

當發電機B的輸出斷路器閉合，哪部發電機將因逆功率而跳脫？

A. 發電機A，因為較高的初始電壓。

B. 發電機A，因為較低的初始頻率。

C. 發電機B，因為較低的初始電壓。

D. 發電機B，因為較高的初始頻率。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2143 (B2044)

A main generator is about to be connected to an infinite power grid. Generator voltage equals grid voltage and the synchroscope is rotating slowly in the clockwise direction. The generator breaker is closed just prior to the synchroscope pointer reaching the 12 o'clock position.

Which one of the following will occur after the breaker is closed?

A. The breaker will remain closed and the generator will supply only MW to the grid.

B. The breaker will remain closed and the generator will supply both MW and MVAR to the grid.

C. The breaker will remain closed and the generator will become an electrical load on the grid.

D. The breaker will open due to reverse power.

ANSWER: A.

一部主發電機將連接到無限功率輸配電網路。發電機電壓等於輸配電網路電壓，同時同步儀以順時針方向緩慢旋轉。在同步儀指針快要到達12點鐘位置前，發電機斷路器閉合。

在斷路器閉合之後，將發生下列何事？

A. 斷路器將維持關閉，同時發電機將僅供應有效負載(MW)給輸配電網路。

B. 斷路器將維持關閉，同時發電機將供應有效負載(MW)與無效負載(MVAR)給輸配電網路。

C. 斷路器將維持關閉，同時發電機將成為輸配電網路的電力負載。

D. 斷路器將因為逆功率而開啟。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2240

A main generator is being prepared for paralleling with an infinite power grid. Which one of the following indicates that the generator and grid voltages are in phase?

A. The voltage of the generator is equal to the voltage of the grid.

B. The frequency of the generator is equal to the frequency of the grid.

C. The synchroscope is turning slowly in the clockwise direction.

D. The synchroscope is passing through the 12 o’clock position.

ANSWER: D.

一部主發電機準備連接至無限大之電網。下列何者指出發電機與電網的電壓相位相同？

A. 發電機電壓同於電網電壓。

B. 發電機頻率同於電網頻率。

C. 同步儀以順時鐘方向緩慢轉動。

D. 同步儀正通過 12 點鐘的位置。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2244

An isolated electrical bus is being supplied by generator A. Generator B is about to be connected to the same electrical bus. Generators A and B are both rated at 1000 MW. Generator A and B output indications are as follows:

Generator A	Generator B
4140 Volts	4160 Volts
60.8 Hertz	60.2 Hertz
25 MW	0 MW
10 MVAR	0 MVAR

When the output breaker for generator B is closed, which generator is more likely to trip on reverse power?

A. Generator A due to the lower initial voltage

B. Generator A due to the higher initial frequency

C. Generator B due to the higher initial voltage

D. Generator B due to the lower initial frequency

ANSWER: D.

發電機 A 正供電給獨立電力匯流排。發電機 B 準備連接至同一電力匯流排。發電機 A 與 B 的額定功率均為 1000 MW，其輸出數值分別如下：

發電機A	發電機B
4140 Volts	4160 Volts
60.8 Hertz	60.2 Hertz
25 MW	0 MW
10 MVAR	0 MVAR

發電機 B 的輸出斷路器關閉時，哪部發電機較可能由於逆功率而跳脫？

A. 發電機 A，因為初始電壓較低。

B. 發電機 A，因為初始頻率較高。

C. 發電機 B，因為初始電壓較高。

D. 發電機 B，因為初始頻率較低。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2343 (B2343)

A main generator is about to be connected to an infinite power grid. Generator voltage is slightly higher than grid voltage and the synchroscope is rotating slowly in the clockwise direction. The generator breaker is closed just as the synchroscope pointer reaches the 12 o'clock position.

Which one of the following will occur after the breaker is closed?

A. The breaker will remain closed and the generator will supply only MW to the grid.

B. The breaker will remain closed and the generator will supply both MW and MVAR to the grid.

C. The breaker will open due to overcurrent.

D. The breaker will open due to reverse power.

ANSWER: B.

一部主發電機將連接到無限功率輸配電網路。發電機電壓稍微高於輸配電網路電壓，同時同步儀以順時針方向緩慢旋轉。就在同步儀指針抵達12點鐘位置時，發電機斷路器關閉。

斷路器關閉之後，將發生下列何事？

A. 斷路器將維持閉合，同時發電機將僅供應有效負載(MW)給輸配電網路。

B. 斷路器將維持閉合，同時發電機將供應有效負載(MW)與無效負載(MVAR)給輸配電網路。

C. 斷路器將因為過電流而開啟。

D. 斷路器將因為逆功率而開啟。

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2440 (B2643)

A main generator is being prepared for paralleling with an infinite power grid. If the synchroscope pointer is stopped, at which one of the following positions is the main generator output voltage the farthest out of phase with the grid voltage?

A. 3 o’clock

B. 6 o’clock

C. 9 o’clock

D. 12 o’clock

ANSWER: B.

一部主發電機準備併聯至一無限功率輸配電網路。當同步儀指針停在下列哪一位置時，主發電機輸出電壓與輸配電網路電壓相位相差最大？

A. 3點鐘

B. 6點鐘

C. 9點鐘

D. 12點鐘

答案：B.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2441 (B2443)

A main generator is about to be connected to an infinite power grid. Generator voltage is equal to grid voltage and the synchroscope is rotating slowly in the counterclockwise direction. The generator breaker is closed just prior to the synchroscope pointer reaching the 12 o'clock position.

Which one of the following will most likely occur after the breaker is closed?

A. If the breaker remains closed, the generator will supply only MW to the grid.

B. If the breaker remains closed, the generator will supply both MW and MVAR to the grid.

C. The breaker will open due to overcurrent.

D. The breaker will open due to reverse power.

ANSWER: D.

一部主發電機將連接到一無限功率輸配電網路。發電機電壓等於輸配電網路電壓，同時同步儀以逆時針方向緩慢旋轉。在同步儀指針快到達12點鐘位置前，發電機斷路器關閉。

斷路器關閉之後，最有可能發生下列何事？

A. 若斷路器維持關閉，發電機將僅供應有效負載(MW)給輸配電網路。

B. 若斷路器維持關閉，發電機將供應有效負載(MW)與無效負載(MVAR)給輸配電網路。

C. 斷路器將因為過電流而開啟。

D. 斷路器將因為逆功率而開啟。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2642

A main generator is about to be connected to an infinite power grid. Generator voltage is slightly higher than grid voltage and the synchroscope is rotating slowly in the clockwise direction. The generator breaker is closed just as the synchroscope pointer reaches the 3 o'clock position.

Which one of the following will occur after the breaker is closed?

A. The breaker will remain closed and the generator will supply only MW to the grid.

B. The breaker will remain closed and the generator will supply both MW and MVAR to the grid.

C. The breaker will open due to overcurrent.

D. The breaker will open due to reverse power.

ANSWER: C.

一部主發電機準備連接至無限電網。發電機電壓略高於電網電壓，此時，同步儀以順時針方向緩慢旋轉。發電機斷路器剛好於同步儀指針抵達3點鐘位置時關閉。

斷路器關閉後，將發生下列何事？

A. 斷路器將維持關閉，發電機僅供應有效負載(MW)給電網。

B. 斷路器將維持關閉，發電機將供應有效負載(MW)與無效負載(MVAR)給電網。

C. 斷路器將因為過電流而開啟。

D. 斷路器將因為逆功率而開啟。

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2743 (B2742)

A main generator is about to be connected to an infinite power grid with the following conditions:

Generator frequency:	59.9 Hz
Grid frequency:	60.1 Hz
Generator voltage:	114.8 kV
Grid voltage:	115.1 kV

When the generator output breaker is closed, the generator will...

A. acquire real load and reactive load.

B. acquire real load, but become a reactive load to the grid.

C. become a real load to the grid, but acquire reactive load.

D. become a real load and a reactive load to the grid.

ANSWER: D.

一部主發電機即將連接到具有以下狀況的無限功率輸配電網路：

發電機頻率：	59.9 Hz
輸配電網路頻率：	60.1 Hz
發電機電壓：	114.8 KV
輸配電網路電壓：	115.1 KV

當發電機輸出斷路器關閉時，發電機將……

A. 輸出有效負載與無效負載。

B. 輸出有效負載，從輸配電網路輸入無效負載。

C. 從輸配電網路輸入有效負載，輸出無效負載。

D. 從輸配電網路輸入有效負載與無效負載。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P2943

A main generator is about to be connected to an infinite power grid with the following conditions:

Generator frequency:	60.1 Hz
Grid frequency:	59.9 Hz
Generator voltage:	115.1 kV
Grid voltage:	114.8 kV

When the generator output breaker is closed, the generator will...

A. acquire real load and reactive load.

B. acquire real load, but become a reactive load to the grid.

C. become a real load to the grid, but acquire reactive load.

D. become a real load and a reactive load to the grid.

ANSWER: A.

一部主發電機準備連接至無限大之電網，此時狀況如下：

發電機頻率：	60.1 Hz
電網頻率：	59.9 Hz
發電機電壓：	115.1 KV
電網電壓：	114.8 KV

關閉發電機的輸出斷路器時，發電機將……

A. 輸入有效負載與無效負載。

B. 輸入有效負載，對電網輸出無效負載。

C. 對電網輸出有效負載，但輸入無效負載。

D. 對電網輸出有效負載及無效負載。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P3142 (B3130)

A nuclear power plant is operating at 80% power in the middle of a fuel cycle. The main generator is connected to an infinite power grid with the following initial main generator output parameters:

Frequency: 60 Hz
Voltage: 25 KV
Reactive Load: 300 MVAR (out)
Real Load: 800 MW

A hydraulic oil system malfunction causes the main turbine steam inlet valves to begin to slowly drift closed. Over the next 10 minutes, the main generator real load decreases to 300 MW. Assuming no operator actions were taken during the above 10 minutes, how have the following main generator output parameters been affected?

	Frequency	Voltage	Reactive Load
A.	Decreased	Decreased	No change
B.	Decreased	No change	Decreased
C.	No change	No change	No change
D.	No change	Decreased	Decreased

ANSWER: C.

一處於燃料週期(fuel cycle)中期的核能電廠正以 80%功率運轉中，其發電機連接至無限功率輸配電網路，其初始輸出參數如下：

頻率： 60 Hz
電壓： 25 KV
無效負載：300 MVAR (正值)
有效負載：800 MW

由於油壓系統故障，主汽機的蒸汽進口閥開始慢慢地飄移關閉。10 分鐘後，發電機的有效負載降至 300 MW。假設運轉員未於上述 10 分鐘內採取任何動作，發電機的下列輸出參數會受到何種影響？

	頻率	電壓	無效負載
A.	降低	降低	沒有改變

B. 降低　　沒有改變　　降低

C. 沒有改變　　沒有改變　　沒有改變

D. 沒有改變　　降低　　降低

答案：C.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P3841 (B3842)

Which one of the following will cause the most damage to the contact surfaces of a main generator output breaker?

A. An operator attempts to close the main generator breaker with the generator and power grid frequencies matched but with voltages 180 degrees out of phase.

B. An operator attempts to close the main generator breaker with the generator and power grid voltages in phase but with generator frequency 0.5% higher than power grid frequency.

C. The main generator breaker automatically trips open on a loss of offsite power while the main generator is operating at its minimum rated load.

D. The main generator breaker automatically trips open on a loss of offsite power while the main generator is operating at its maximum rated load.

ANSWER: A.

對於一主發電機輸出斷路器的接點表面，下列何者將導致最嚴重傷害？

A. 運轉員嘗試在發電機與電力輸配電網路頻率相同、但是相位差180度的情況下，關閉主發電機斷路器。

B. 運轉員嘗試在發電機與電力輸配電網路電壓相位相同、但是頻率高於輸配電網路頻率0.5%的情況下，關閉主發電機斷路器。

C. 主發電機在其最低額定負載下運轉時，主發電機斷路器因喪失外電而自動跳脫開啟。

D. 主發電機在其最高額定負載下運轉時，主發電機斷路器因喪失外電而自動跳脫開啟。

答案：A.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P4321 (B4321)

A main generator is about to be connected to an infinite power grid. The main generator has the following initial conditions:

Generator frequency:	59.9 Hz	Generator voltage:	115.1 kV
Grid frequency:	60.1 Hz	Grid voltage:	114.8 kV

When the generator output breaker is closed, the generator will...

A. acquire real load and reactive load.

B. acquire real load, but become a reactive load to the grid.

C. become a real load and a reactive load to the grid.

D. become a real load to the grid, but acquire reactive load.

ANSWER: D.

一部主發電機準備連接至無限功率輸配電網路，其初始狀況如下：

發電機頻率：	59.9 Hz	發電機電壓：	115.1 kV
輸配電網路頻率：	60.1 Hz	輸配電網路電壓：	114.8 kV

關閉發電機的輸出斷路器時，發電機將……

A. 獲得有效負載與無效負載。

B. 獲得有效負載，但成為輸配電網路的無效負載。

C. 成為輸配電網路的有效及無效負載。

D. 成為輸配電網路的有效負載，但獲得無效負載。

答案：D.

科目： 191008
知能類：K1.08 [3.3/3.5]
序號： P4322 (B4322)

During a routine inspection of a main generator output breaker, a technician discovers severely damaged main contact surfaces. Which one of the following is the most likely cause of the damaged contact surfaces?

A. The main generator breaker automatically tripped open after it was closed with the generator and power grid voltages 60 degrees out of phase.

B. The main generator breaker automatically tripped open due to a faulty trip relay actuation while the main generator was operating unloaded.

C. The main generator breaker automatically tripped open on a loss of offsite power while the main generator was operating at its maximum rated load.

D. The main generator breaker automatically tripped open after it was closed with the generator and power grid voltages in phase but with generator frequency 0.2 Hz lower than power grid frequency.

ANSWER: A.

技術員於主發電機輸出斷路器的例行檢查中，發現主要接點表面嚴重受損。接點表面受損最有可能是下列何者造成？

A. 發電機和功率輸配電網路的電壓相位差 60 度時，主發電機斷路器關閉後，再自動跳脫開啟。

B. 已經故障跳脫的電驛，於主發電機卸載運轉時啟動，造成主發電機斷路器自動跳脫開啟。

C. 主發電機採最大額定負載運轉時，斷路器由於失去外界電力而自動跳脫開啟。

D. 發電機與功率輸配電網路的電壓相位相同、但是發電機頻率較輸配電網路頻率低 0.2Hz 時，斷路器關閉後再自動跳脫開啟。

答案：A.

科目： 191008
知能類：K1.09 [2.8/3.1]
序號： P642 (B44)

When a typical 4160 volt breaker is racked to the "test" position, control power is _____ the breaker and the breaker is _____ the load.

A. available to; connected to

B. available to; isolated from

C. removed from; connected to

D. removed from; isolated from

ANSWER: B.

當一典型之4160 volt 斷路器搖至「測試」位置時，控制電源_____，而斷路器與負載_____。

A. 提供給斷路器；連接

B. 提供給斷路器；隔離

C. 從斷路器移除；連接

D. 從斷路器移除；隔離

答案：B.

科目： 191008
知能類：K1.09 [2.8/3.1]
序號： P938

Which one of the following functions or capabilities would remain following a loss of control power to a typical 480 Vac bus feeder breaker?

A. Remote breaker control capability

B. Breaker closing spring automatic recharging capability

C. Remote bus voltage indication

D. Remote breaker position indication

ANSWER: C.

典型的 480V 交流匯流排饋電斷路器，一旦失去控制電源後，仍能保留下列哪項功能？

A. 仍能遙控斷路器。

B. 仍能自動充能斷路器的閉合彈簧(closing spring)。

C. 在控制室顯示匯流排電壓。

D. 在控制室顯示斷路器位置。

答案：C.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P42

Which one of the following statements describes the use of high-voltage disconnects?

A. Disconnects should be limited to normal load current interruption.

B. Disconnects may be used to isolate transformers in an unloaded network.

C. Disconnects trip open like circuit breakers, but must be manually closed.

D. Disconnects must be closed with caution when under load because of possible arcing.

ANSWER: B.

下列何者說明了高壓電力隔離開關的用途？

A. 隔離開關僅用來中斷正常負載電流。

B. 隔離開關可用來隔離卸載網路的變壓器。

C. 隔離開關能夠如斷路器一般跳脫開啟，但需手動關閉。

D. 欲在承受負載下關閉隔離開關時，必須特別小心，因為可能產生電弧。

答案：B.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P243 (B1842)

The function of high voltage electrical disconnects is to provide_____ electrical isolation of equipment during _____ conditions.

A. manual; no-load

B. manual; overload

C. automatic; no-load

D. automatic; overload

ANSWER: A.

高壓電力隔離開關的功用，乃是在_____情況下提供_____設備電力隔離。

A. 空載；手動

B. 過載；手動

C. 空載；自動

D. 過載；自動

答案：A.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P844 (B644)

High voltage electrical disconnects are used to...

A. adjust the output voltage range from a main power transformer.

B. protect bus feeder breakers by opening upon bus short-circuit faults.

C. provide equipment isolation under no-load conditions.

D. bypass and isolate an electrical bus while maintaining the downstream buses energized.

ANSWER: C.

高壓電力隔離開關是用以……

A. 調整主電力變壓器的輸出電壓範圍。

B. 在匯流排短路故障時開啟，以保護匯流排饋電斷路器。

C. 在空載狀況下提供設備的隔離。

D. 當要維持下游匯流排通電情況下，旁通並隔離電力匯流排。

答案：C.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P943 (B2244)

What is an advantage of using high voltage electrical disconnects instead of breakers to isolate main power transformers?

A. Disconnects can be operated either locally or remotely.

B. Disconnects provide direct visual indication that the circuit is broken.

C. Disconnects are cheaper and provide the same automatic protection as a breaker.

D. Disconnects are capable of interrupting a higher current flow with less heating than a breaker.

ANSWER: B.

使用高壓電力隔離開關而不使用斷路器來隔離主電力變壓器的優點是什麼？

A. 隔離開關能夠在現場也能遙控操作。

B. 隔離開關提供直接見得到電路中斷的指示。

C. 隔離開關價格較低廉，並能提供同於斷路器之自動保護。

D. 隔離開關能夠以較斷路器遮斷為高的電流而具較低的發熱量。

答案：B.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P1043

Which one of the following describes a characteristic of high voltage electrical disconnects?

A. They close automatically requiring no operator action.

B. They should not be used to interrupt a circuit under load.

C. They require a remote means of indication to determine actual position.

D. They should be connected so that they ground the supply bus prior to opening a circuit.

ANSWER: B.

下列何者描述了高壓電力隔離開關的特性？

A. 無須運轉員採取行動就能自動關閉。

B. 不得用來中斷負載電路。

C. 需要透過遠端顯示法(remote means of indication)，才能判斷實際位置。

D. 在開啟電路前需連上電路，以便將供電匯流排接地。

答案：B.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P1343

Typical high voltage electrical disconnects are designed to...

A. protect circuits during overcurrent conditions.

B. automatically trip open to protect breakers.

C. isolate equipment electrically during no-load conditions.

D. interrupt circuits under load.

ANSWER: C.

典型高壓電力隔離開關的設計目的是……

A. 在過電流時保護線路。

B. 自動跳脫開啟以保護斷路器。

C. 於空載狀態下隔離電力設備。

D. 切斷負載電路。

答案：C.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P1840 (B1544)

Typical main transformer high voltage electrical disconnects are designed to...

A. automatically protect the transformer from overcurrent conditions.

B. automatically trip open prior to transformer output breaker trip.

C. manually isolate the transformer during no-load conditions.

D. manually interrupt the transformer output circuit under load when grounds are detected.

ANSWER: C.

典型主變壓器的高壓電力隔離開關之設計是用來……

A. 自動保護變壓器不受過電流影響。

B. 在變壓器輸出斷路器跳脫前自動跳脫開啟。

C. 在空載情況下手動隔離變壓器。

D. 當接地被偵測到時，在任何負載下手動遮斷變壓器輸出線路。

答案：C.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P2742 (B2744)

Refer to the simplified drawing of an electrical distribution system (see figure below).

The high voltage side of each step-down transformer has a remote-operated disconnect to allow transformer maintenance while keeping the other transformers in service. The control circuit for each disconnect is position-interlocked with the associated MCC feeder breaker.

Which one of the following describes the purpose served by the interlock?

A. Prevent damage to the disconnect.

B. Prevent damage to the transformer.

C. Prevent damage to the feeder breaker.

D. Prevent damage to the 480V MCC.

ANSWER: A.

請參照下面的配電系統簡圖。

每個降壓變壓器的高壓端，均有一遙控隔離開關，當變壓器維修時，能維持其他變壓器正常運轉。每個隔離開關的控制線路，都與相應的MCC饋電斷路器位置連鎖操作。

下列何者描述了連鎖操作的目的？

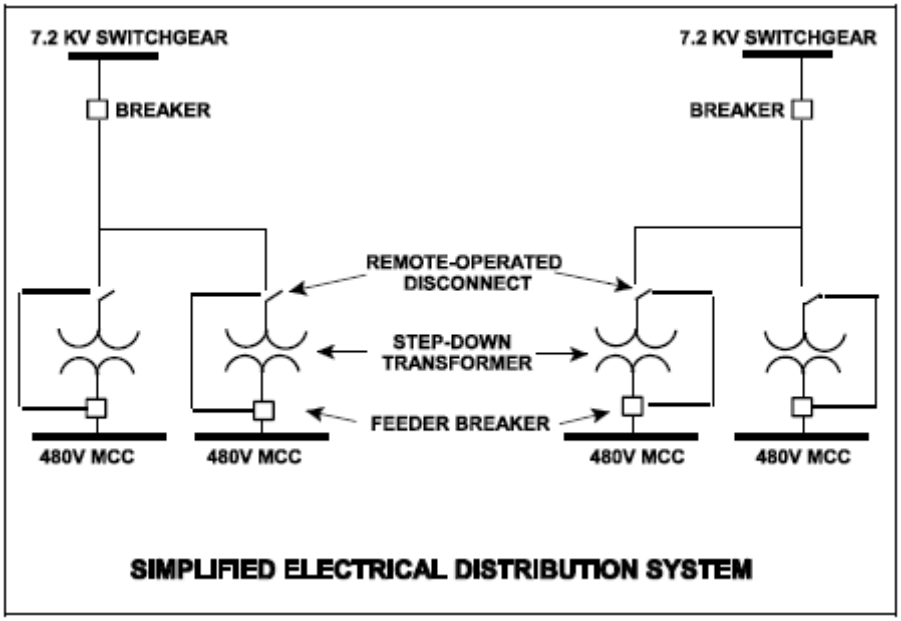
A. 預防隔離開關損壞。

B. 預防變壓器損壞。

C. 預防饋電斷路器損壞。

D. 預防480V馬達控制中心(MCC)損壞。

答案：A.



SIMPLIFIED ELECTRICAL DISTRIBUTION SYSTEM

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P2944 (B2944)

A 480 Vac motor control center supplies a load through a breaker and a manual disconnect. If both isolation devices are operated to isolate the load, which one of the following sequences will provide the greatest level of personnel safety when deenergizing the load for maintenance and when reenergizing the load after the maintenance?

	DEENERGIZING	REENERGIZING
A.	Open breaker first	Shut breaker first
B.	Open breaker first	Shut disconnect first
C.	Open disconnect first	Shut breaker first
D.	Open disconnect first	Shut disconnect first

ANSWER: B.

480V交流馬達控制中心透過斷路器與手動隔離開關供應負載。若要操作兩隔離裝置以將負載隔離，則在為了維修而將負載斷電與維修完成後負載復電時，下列何種順序將提供最高等級的人員安全保護？

	斷電時	復電時
A.	先將斷路器開啟	先將斷路器關閉
B.	先將斷路器開啟	先將隔離開關關閉
C.	先將隔離開關開啟	先將斷路器關閉
D.	先將隔離開關開啟	先將隔離開關關閉

答案：B.

科目： 191008
知能類：K1.10 [2.7/3.1]
序號： P3744 (B3744)

Refer to the simplified drawing of an electrical distribution system showing 7.2 KV switchgear, step-down transformers, and 480 V motor control centers (MCCs) (see figure below). The high voltage side of each step-down transformer has a remote-operated disconnect. The control circuit for each disconnect is position-interlocked with the associated MCC feeder breaker.

Which one of the following describes the interlock operating scheme that will provide the greatest protection for the disconnect?

A. Permits opening the feeder breaker only if the disconnect is closed.

B. Permits opening the feeder breaker only if the disconnect is open.

C. Permits opening the disconnect only if the feeder breaker is closed.

D. Permits opening the disconnect only if the feeder breaker is open.

ANSWER: D.

請參照下面的配電系統簡圖，圖上顯示7.2KV開關箱、降壓變壓器、以及480V馬達控制中心(MCC)。每個降壓變壓器的高壓端，均有遙控隔離開關(disconnect)。每個隔離開關的控制線路，都與相應的MCC饋電斷路器位置連鎖。

下列何者描述了連鎖操作的方式，將對隔離開關提供最大保護？

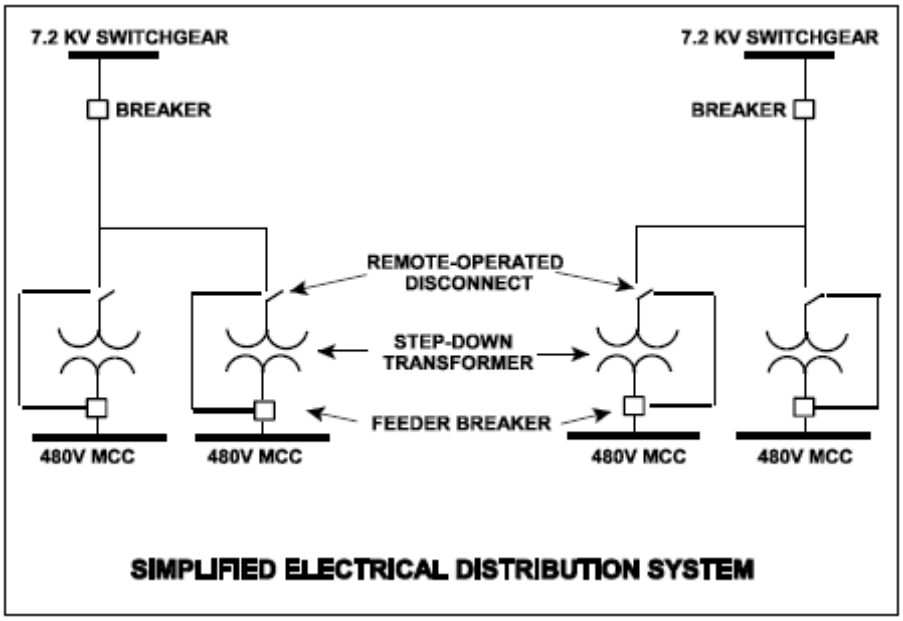
A. 允許只有在隔離開關關閉時，才能將饋電斷路器開啟。

B. 允許只有在隔離開關開啟時，才能將饋電斷路器開啟。

C. 允許只有在饋電斷路器關閉時，才能將隔離開關開啟。

D. 允許只有在饋電斷路器開啟時，才能將隔離開關開啟。

答案：D.



SIMPLIFIED ELECTRICAL DISTRIBUTION SYSTEM

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P239

The following remote indications are observed for a 480 Vac load center supply breaker. (The breaker is normally open.)

Red indicating light is on.
Green indicating light is off.
Load center voltage indicates 0 volts.
Breaker incoming voltage indicates 480 volts.

What is the condition of the breaker?

A. Open and racked in

B. Closed and racked in

C. Open and racked to "test" position

D. Closed and racked to "test" position

ANSWER: D.

下面是 480V 交流負載中心供電斷路器在控制室的指示值(斷路器為正常開啟)：

紅色指示燈亮起
綠色指示燈熄滅
負載中心電壓指示值為 0 volts
斷路器進入電壓指示值為 480 volts

斷路器的狀態為何？

A. 開啟且搖入(rack in)。

B. 關閉且搖入(rack in)。

C. 開啟且搖至「測試」位置。

D. 關閉且搖至「測試」位置。

答案：D.

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P244

The following indications are observed for a motor breaker in the control room:

Red position indicating light is off.
Green position indicating light is off.
Load amps indicate normal load current.

Assuming one of the indicating lights is burned out, what is the condition of the breaker?

A. Shut and racked in

B. Open and racked in

C. Shut and racked to "test" position

D. Open and racked to "test" position

ANSWER: A.

下面是控制室觀察到的馬達斷路器指示值：

紅色位置指示燈熄滅
綠色位置指示燈熄滅
負載安培數指出負載電流正常

假設指示燈之一燒壞，斷路器的狀態為何？

A. 關閉且搖入(rack in)。

B. 開啟且搖入(rack in)。

C. 關閉且搖至「測試」位置。

D. 開啟且搖至「測試」位置。

答案：A.

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P1044

The following indications are observed in the control room for a normally-open motor control center (MCC) breaker that directly starts/stops a 480 Vac motor:

Red position indicating light is on.
Green position indicating light is off.
Motor load current indicates 0 amps.
MCC voltage indicates 480 volts.

What is the condition of the breaker?

A. Open and racked in

B. Closed and racked in

C. Open and racked to "test" position

D. Closed and racked to "test" position

ANSWER: D.

下面是從控制室觀察正常開啟的馬達控制中心(MCC)斷路器時得出的數值(該斷路器直接啟動/停止 480V 交流馬達)：

紅色位置指示燈亮起
綠色位置指示燈熄滅
馬達負載電流指著 0 amps
MCC 電壓指著 480 volts

斷路器的狀態為何？

A. 開啟且搖入(rack in)。

B. 關閉且搖入(rack in)。

C. 開啟且搖至「測試」位置。

D. 關閉且搖至「測試」位置。

答案：D.

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P1140

The following indications are observed in the control room for a normally-open breaker that directly starts/stops a 480 Vac motor:

Red position indicating light is on.
Green position indicating light is off.
Load current indicates 50 amps.
Supply voltage indicates 480 volts.

What is the condition of the breaker?

A. Open and racked to "test" position

B. Closed and racked to "test" position

C. Open and racked in

D. Closed and racked in

ANSWER: D.

下面是從控制室觀察正常開啟的斷路器時得出的數值(該斷路器直接啟動/停止 480V 交流馬達)：

紅色位置指示燈亮起
綠色位置指示燈熄滅
馬達負載電流指示 50 amps
MCC 電壓指示 480 volts

斷路器的狀態為何？

A. 開啟且搖至「測試」位置。

B. 關閉且搖至「測試」位置。

C. 開啟且搖入(rack in)。

D. 關閉且搖入(rack in)。

答案：D.

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P1438 (B1440)

While remotely investigating the condition of a normally-open motor control center (MCC) feeder breaker, an operator observes the following indications:

Green breaker position indicating light is out.
Red breaker position indicating light is lit.
MCC voltmeter indicates normal voltage.
MCC ammeter indicates zero amperes.

Based on these indications, the operator should report that the circuit breaker is _____ and racked _____.

A. open; in

B. closed; in

C. open; out

D. closed; out

ANSWER: B.

運轉員於控制室檢查一正常開啟之馬達控制中心(MCC)饋電斷路器時，觀察到如下顯示：

綠色斷路器位置指示燈 – 熄
紅色斷路器位置指示燈 – 亮
MCC電壓計指示正常電壓
MCC電流計指示0 amps

根據這些數據，運轉員應通報此斷路器為_____，同時已經搖(racked)_____。

A. 開路；入(in)

B. 閉路；入(in)

C. 開路；出(out)

D. 閉路；出(out)

答案：B.

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P1838 (B2143)

While remotely investigating the condition of a typical normally-open motor control center (MCC) feeder breaker, an operator observes the following indications:

Green breaker position indicating light is lit.
Red breaker position indicating light is out.
MCC voltmeter indicates zero volts.
MCC ammeter indicates zero amperes.

Based on these indications, the operator can accurately report that the breaker is open and racked to _____ position.

A. the OUT

B. the IN

C. the TEST

D. an unknown

ANSWER: D.

運轉員於控制室檢查一典型馬達控制中心(MCC)正常開啟之饋電斷路器時，觀察到如下顯示：

綠色斷路器位置指示燈 – 亮
紅色斷路器位置指示燈 – 熄
MCC電壓計指示0 volts
MCC電流計指示0 amps

根據這些數據，運轉員應通報此斷路器為開路，同時已經搖(racked)至_____位置。

A. OUT

B. IN

C. TEST

D. 無法確定

答案：D.

科目： 191008
知能類：K1.11 [3.1/3.3]
序號： P1932 (B2640)

While remotely investigating the condition of a normally-open 480 Vac motor control center (MCC) feeder breaker, an operator observes the following indications:

Green breaker position indicating light is out.
Red breaker position indicating light is lit.
MCC voltmeter indicates 480 Vac voltage.
MCC ammeter indicates zero amperes.

Based on these indications, the operator should report that the feeder breaker is _____ and racked _____.

A. open; in

B. closed; in

C. open; to the test position

D. closed; to the test position

ANSWER: B.

運轉員於控制室檢查一480 Vac馬達控制中心(MCC)正常開啟之饋電斷路器時，運轉員觀察到如下顯示：

斷路器綠色指示燈 – 熄
斷路器紅色指示燈 – 亮
MCC電壓計指示480伏特
MCC電流計指示零安培

根據這些數據，運轉員應回報此饋電斷路器狀態為_____，同時已經搖(racked)_____。

A. 開路；入(in)

B. 閉路；入(in)

C. 開路；至「測試」位置

D. 閉路；至「測試」位置

答案：B.

科目： 191008
知能類：K1.12 [2.9/2.9]
序號： P344 (B340)

A thermal overload device for a large motor protects the motor from...

A. sustained overcurrent by opening the motor breaker or motor line contacts.

B. sustained overcurrent by opening contacts in the motor windings.

C. instantaneous overcurrent by opening the motor breaker or motor line contacts.

D. instantaneous overcurrent by opening contacts in the motor windings.

ANSWER: A.

大型馬達的熱過載裝置，乃是……

A. 藉著將馬達斷路器或馬達電源線路接點打開，以保護此馬達免於持續承受過電流。

B. 藉著將馬達線圈接點打開，以保護此馬達免於持續承受過電流。

C. 藉著將馬達斷路器或馬達電源線路接點打開，以保護此馬達免於遭致瞬間過電流。

D. 藉著將馬達線圈接點打開，以保護此馬達免於遭致瞬間過電流。

答案：A.

科目： 191008
知能類：K1.12 [2.9/2.9]
序號： P1444 (B2240)

Circuit breaker local overcurrent trip flag indicators, when actuated, indicate that...

A. a breaker trip will occur unless current is reduced.

B. a breaker overcurrent condition is responsible for a breaker trip.

C. an overcurrent condition has cleared and the breaker can be closed.

D. the associated circuit breaker has failed to trip open during an overcurrent condition.

ANSWER: B.

當電路斷路器現場的過電流跳脫指示牌動作(掉牌)時，代表……

A. 除非電流降低，否則斷路器將跳脫。

B. 斷路器因過電流而跳脫。

C. 過電流狀況已排除，斷路器可以關閉。

D. 在過電流狀況時，相關斷路器無法跳脫開啟。

答案：B.

科目： 191008
知能類：K1.12 [2.9/2.9]
序號： P2644 (B2242)

Thermal overload devices will provide the first electrical protection for a pump motor in the event of...

A. a locked rotor upon starting.

B. an electrical short circuit.

C. gradual motor bearing damage.

D. a sheared shaft during operation.

ANSWER: C.

熱過載裝置將在何種情況下，提供泵馬達第一道電氣保護？

A. 啟動時馬達轉子鎖死。

B. 電流短路。

C. 馬達軸承漸進式損壞。

D. 運轉時泵軸斷裂。

答案：C.

科目： 191008
知能類：K1.12 [2.9/2.9]
序號： P3444 (B3440)

Given the following indications for an open 4160 Vac breaker:

- The local OPEN/CLOSED mechanical flag indicates open
- A breaker overcurrent trip flag is actuated on one phase
- The line-side voltmeter indicates 4160 Vac
- The load-side voltmeter indicates 0 volts

Assuming no operator actions were taken since the breaker opened, which one of the following could have caused the breaker to open?

A. A ground fault caused an automatic breaker trip.

B. A loss of control power caused an automatic breaker trip.

C. An operator tripped the breaker normally at the breaker.

D. An operator tripped the breaker normally from a remote location.

ANSWER: A.

一個開路的交流4160 V斷路器資料如下：

- 現場開啟/閉合的機械式標示牌指示開啟
- 斷路器的過電流跳脫指示牌於單相動作
- 電源端的電壓計指示為4160 Vac
- 負荷端的電壓計指示為0 volts

假設從斷路器開啟後，運轉員即沒有採取任何動作，下列何者可能是讓斷路器跳脫開啟的原因？

A. 接地故障引起自動斷路器跳脫。

B. 控制電源喪失導致斷路器自動跳脫。

C. 運轉員以正常方式在現場將斷路器跳脫。

D. 運轉員以正常方式將斷路器遙控跳脫。

答案：A.

科目/題號：191008/1 (2016新增)

知能類：K1.02 [2.8/2.9]

序號：P5020 (B1141)

Which one of the following describes the local overcurrent trip flag indicators for a breaker?

A. They actuate prior to breaker tripping to warn of imminent protective action.
B. They indicate breaker overcurrent trip actuation during and after breaker trip actuation.
C. When actuated, they indicate that the associated breaker has failed to trip open.
D. When actuated, they indicate that the breaker overcurrent trip relay has been reset.

ANSWER: B.

下列何者為斷路器現場的過電流跳脫電驛動作指示牌之功能？

A.在斷路器跳脫前動作，以警示斷路器之過電流保護電驛即將動作跳脫

B.表示在斷路器跳脫期間與其後，斷路器過電流跳脫動作

C.動作後，表示相關的斷路器未正常跳脫開啟

D.動作後，表示斷路器的過電流跳脫電驛已經復歸

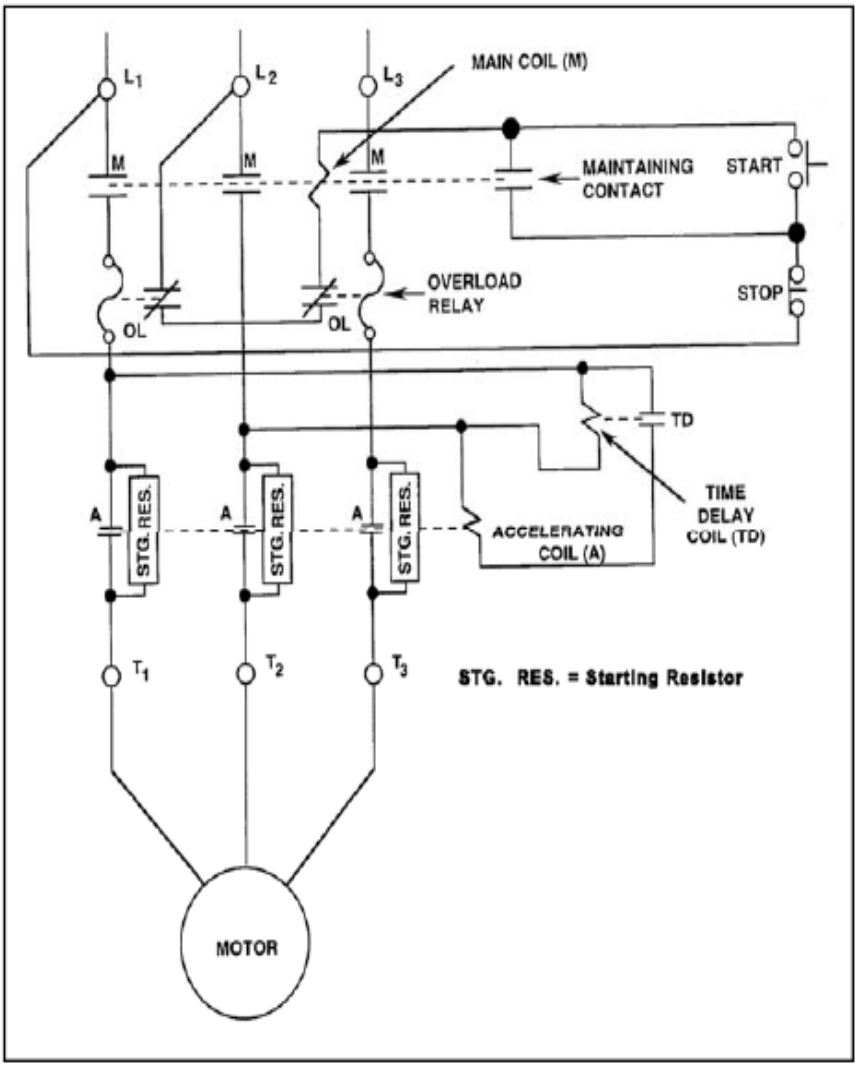
答案： B

科目/題號：191008/2 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P5120 (B5121)

Refer to the drawing of a motor and its control circuit (see figure below).
Note: Relay contacts are shown open/closed according to the standard convention for control circuit drawings.
The motor has been idle for several days when it is decided to start the motor. What is the status of the starting resistors before and after the motor START pushbutton is depressed?
A. Initially bypassed; bypass is removed immediately after the START pushbutton is depressed.
B. Initially bypassed; bypass is removed following a preset time delay after the START pushbutton is depressed.
C. Initially inserted in the motor circuit; bypassed immediately after the START pushbutton is depressed.
D. Initially inserted in the motor circuit; bypassed following a preset time delay after the START pushbutton is depressed.
ANSWER: D.

參考馬達及其控制線路圖（見下圖）。(註：電驛接點是根據一般控制線路圖標準表示開/閉。)
馬達已數日未運轉，按下馬達啟動鈕前後，啟動電阻的狀態如何？
A.初始被旁通；啟動後立即移除旁通.
B.初始被旁通；啟動後，經過預設時間再移除旁通.
C.旁插入馬達線路；啟動後隨即旁通.
D.旁插入馬達線路；啟動後，經過預設時間再旁通.

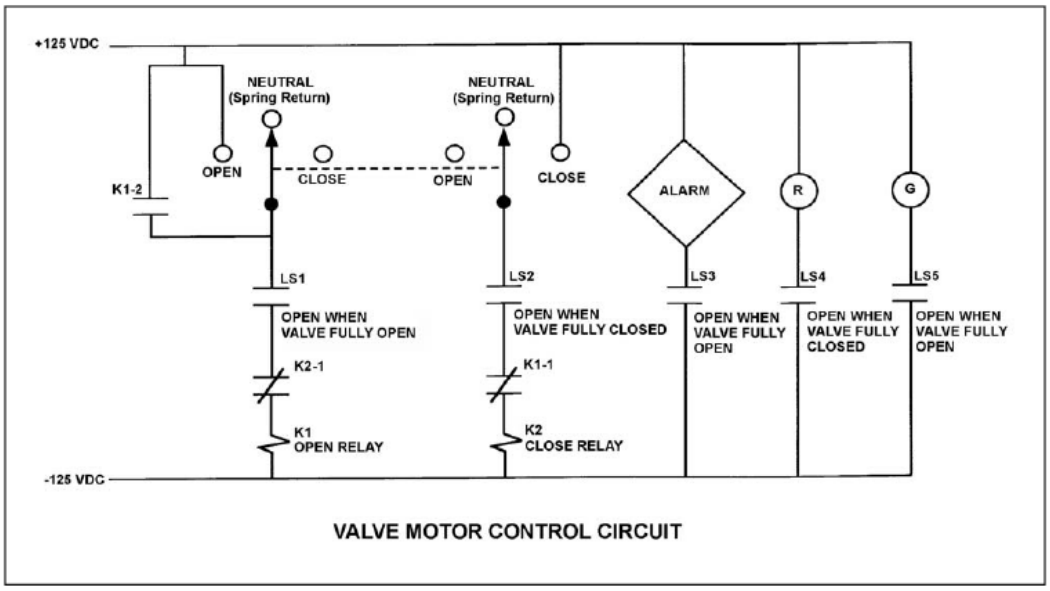
答案： D


L1
L2
L3
MAIN COIL (M)
M
M
M
MAINTAINING CONTACT
START
OVERLOAD RELAY
STOP
OL
OL
TD
TIME DELAY COIL (TD)
A
A
A
STG. RES.
STG. RES.
STG. RES.
ACCELERATING COIL (A)
T1
T2
T3
STG. RES. = Starting Resistor
MOTOR

科目/題號：191008/3 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P5221 (B5222)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 10-second stroke time.
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
The operator takes the control switch to CLOSE. Two seconds later, after verifying the valve is closing, the operator releases the control switch. Which one of the following describes the valve motor control circuit alarm response after the switch is released?
A. The alarm will continue to actuate for approximately 8 seconds.
B. The alarm will continue to actuate until additional operator action is taken.
C. The alarm will actuate after approximately 8 seconds.
D. The alarm will not actuate until additional operator action is taken.
ANSWER: B.

參考電動閥控制線路圖（見下圖），目前閥是全開，閥行程需 10 秒。
(註：極限開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
運轉員操作控制開關向關閉位置。兩秒鐘後，在驗證閥正在關閉後，運轉員釋放控制開關，下列那一個說明控制開關被釋放後，閥之馬達控制線路警報反應？
A.警報將持續動作大約 8 秒鐘.
B.警報將繼續動作，除非有運轉員採取額外行動.
C.大約 8 秒鐘後警報動作.
D.警報不會動作，除非有運轉員採取額外行動
答案： B

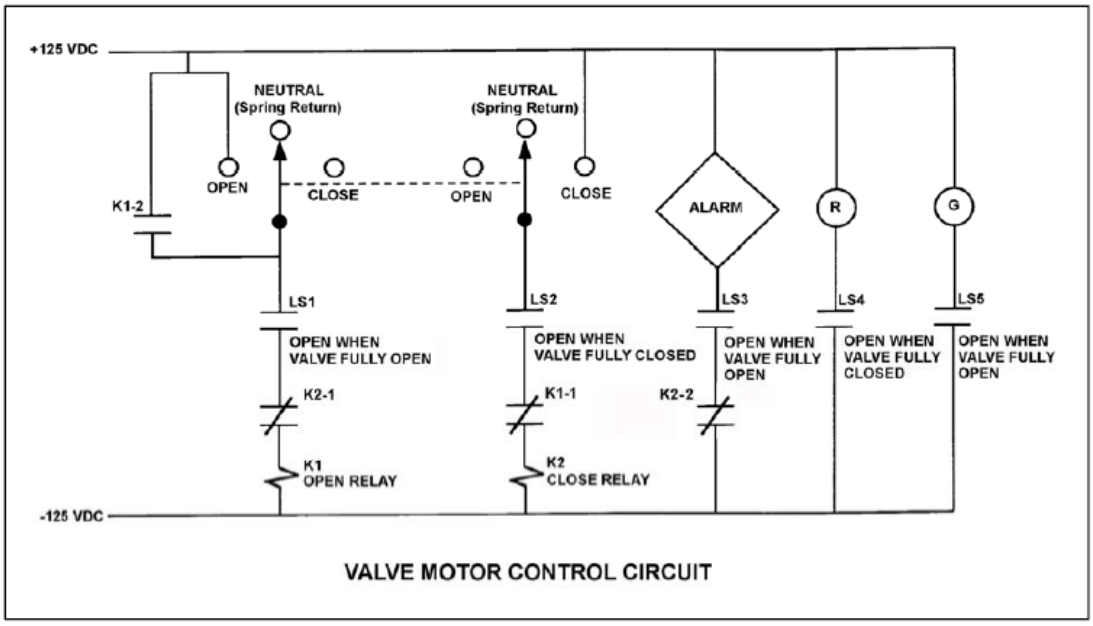


VALVE MOTOR CONTROL CIRCUIT

科目/題號：191008/4 (2016 新增)
知能類：K1.06 [2.3/2.6]
序號：P5421 (B5421)

Refer to the drawing of a valve motor control circuit (see figure below).
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
Which one of the following will actuate the alarm?
A. With the valve partially closed, the control switch is taken to the CLOSE position.
B. With the valve partially closed, the control switch is taken to the OPEN position.
C. With the valve fully open, the control switch is taken to the CLOSE position.
D. With the valve fully open, the control switch is taken to the OPEN position.
ANSWER: B.

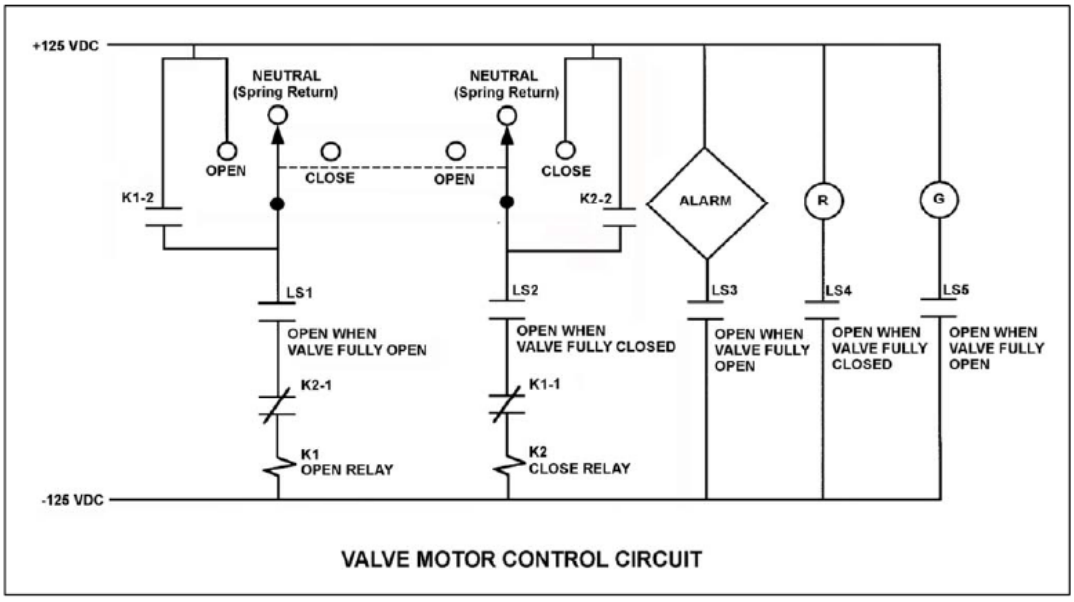
參考電動閥控制線路圖（見下圖）。
(註：極限開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
下列那一個會使警報動作？
A. 當閥部分關閉時，將控制開關轉向關閉位置
B. 當閥部分關閉時，將控制開關轉向開啟位置
C. 當閥完全開啟時，將控制開關轉向關閉位置
D. 當閥完全開啟時，將控制開關轉向開啟位置
答案： B



科目/題號：191008/5 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P5920 (B5922)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 10-second stroke time.
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
The operator takes the control switch to CLOSE momentarily and the valve begins to close. Five seconds later, the operator takes the switch to OPEN momentarily and then releases the switch. Which one of the following describes the valve response after the switch is released?
A. The valve will stop closing and remain partially open.
B. The valve will stop closing and then go fully open.
C. The valve will close fully and remain fully closed.
D. The valve will close fully and then go fully open.
ANSWER: C.

參考電動閥控制線路圖（見下圖），目前閥是全開，閥行程需 10 秒。
(註：極限開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
運轉員瞬時操作控制開關轉向關閉位置且閥開始關閉。5 秒鐘後，運轉員瞬時操作控制開關轉向開啟位置，然後釋放控制開關。下列何者說明在釋放控制開關後的閥門反應？
A.閥將停止關閉並保持部分開啟
B.閥將停止關閉，然後再完全開啟
C.閥將完全關閉，並保持完全關閉
D.閥將完全關閉，然後再完全開啟
答案： C

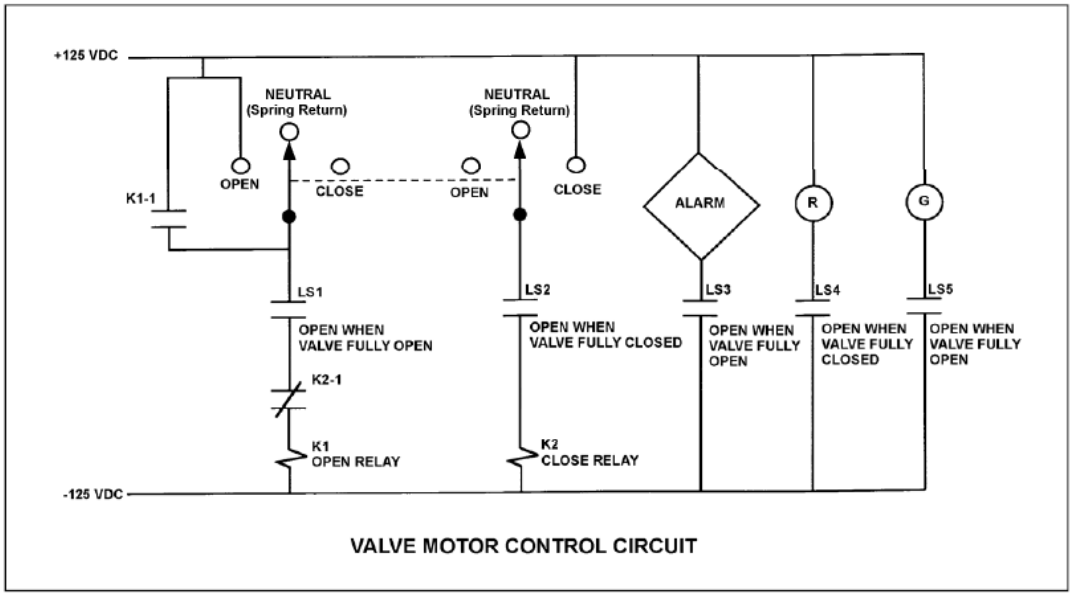


VALVE MOTOR CONTROL CIRCUIT

科目/題號：191008/6 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P6820 (B6822)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time.
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
An operator takes the control switch to OPEN momentarily and the valve begins to open. Five seconds later, the operator takes the control switch to CLOSE momentarily and releases the switch. Which one of the following describes the valve response when the control switch is taken to CLOSE momentarily and released?
A. The valve will stop opening and remain partially open.
B. The valve will stop opening and then go fully closed.
C. The valve will open fully and remain fully open.
D. The valve will open fully and then go fully closed.
ANSWER: A.

參考電動閥控制線路圖（見下圖），目前閥是全關，閥行程需 10 秒。
(註：極限制開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
運轉員瞬時操作控制開關轉向開啟位置且閥開始開啟。5 秒鐘後，運轉員瞬時操作控制開關轉向關閉位置，然後釋放控制開關。下列何者敘述了開關瞬時轉向關閉位置並釋放後的閥門反應？
A.閥將停止開啟，並保持部分開啟
B.閥將停止開啟，然後再完全關閉
C.閥將完全開啟，並保持完全開啟
D.閥將完全開啟，然後再完全關閉
答案： A

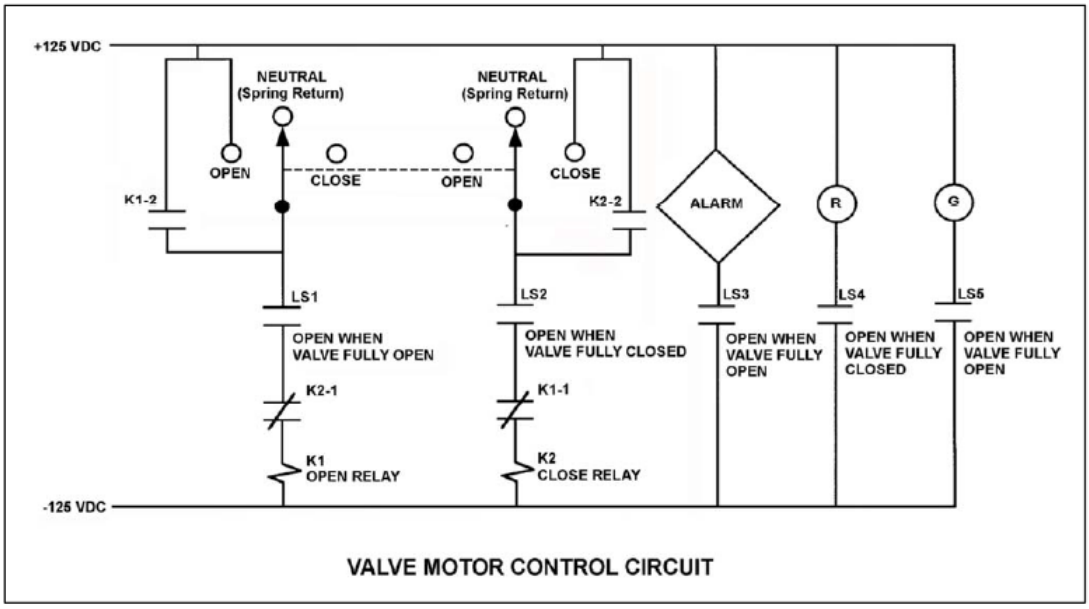


VALVE MOTOR CONTROL CIRCUIT

科目/題號：191008/7 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P7122 (B7121)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully closed and has a 10-second stroke time.
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
The operator takes the control switch to OPEN momentarily and the valve begins to open. Five seconds later, the operator takes the switch to CLOSE momentarily and then releases the switch. Which one of the following describes the valve response after the switch is released?
A. The valve will stop opening and remain partially open.
B. The valve will stop opening and then go fully closed.
C. The valve will open fully and remain fully open.
D. The valve will open fully and then go fully closed.
ANSWER: C.

參考電動閥控制線路圖（見下圖），目前閥是全關，閥行程需 10 秒。
(註：極限開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
運轉員瞬時將控制開關轉向開啟位置且閥開始開啟。5 秒鐘後，運轉員瞬時將控制開關轉向關閉位置，然後釋放控制開關。下列何者描述了開關被釋放後的閥門反應？
A.閥將停止開啟，並保持部分開啟
B.閥將停止開啟，然後再完全關閉
C.閥將完全開啟，並保持完全開啟
D.閥將完全開啟，然後再完全關閉
答案： C

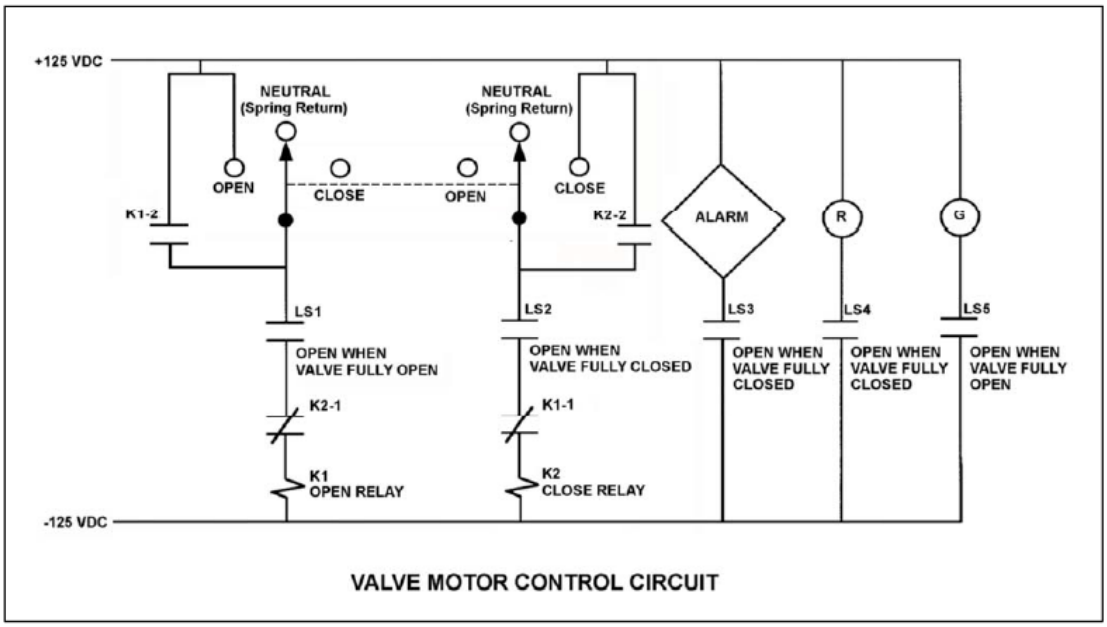


VALVE MOTOR CONTROL CIRCUIT

科目/題號：191008/8 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P7421 (B7421)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 10-second stroke time.
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
The operator takes the control switch to CLOSE. Two seconds later, after verifying the valve is closing, the operator releases the control switch. Which one of the following describes the valve motor control circuit alarm response after the switch is released?
A. The alarm will continue to actuate for approximately 8 seconds.
B. The alarm will continue to actuate until additional operator action is taken.
C. The alarm will actuate after approximately 8 seconds.
D. The alarm will not actuate until additional operator action is taken.
ANSWER: A.

參考電動閥控制線路圖（見下圖），目前閥是全開，閥行程需 10 秒。
(註：極限開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
運轉員將控制開關轉向關閉位置。兩秒鐘後，在確認閥正在關閉，運轉員釋放控制開關，下列何者說明控制開關被釋放後，閥之馬達控制線路警報反應？
A.警報將持續動作大約 8 秒鐘
B.警報將繼續動作，直到有運轉員採取額外行動
C.大約 8 秒鐘後警報動作
D.警報不會動作，直到有運轉員採取額外行動
答案： A



VALVE MOTOR CONTROL CIRCUIT

科目/題號：191008/9 (2016新增)
知能類：K1.06 [2.3/2.6]
序號：P7646 (B7646)

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 16-second stroke time.
Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.
An operator takes the control switch to CLOSE. Two seconds later, after verifying the valve is closing, the operator releases the control switch. When the valve stops moving, what will be the status of the alarm and the red (R) and green (G) indicating lights?

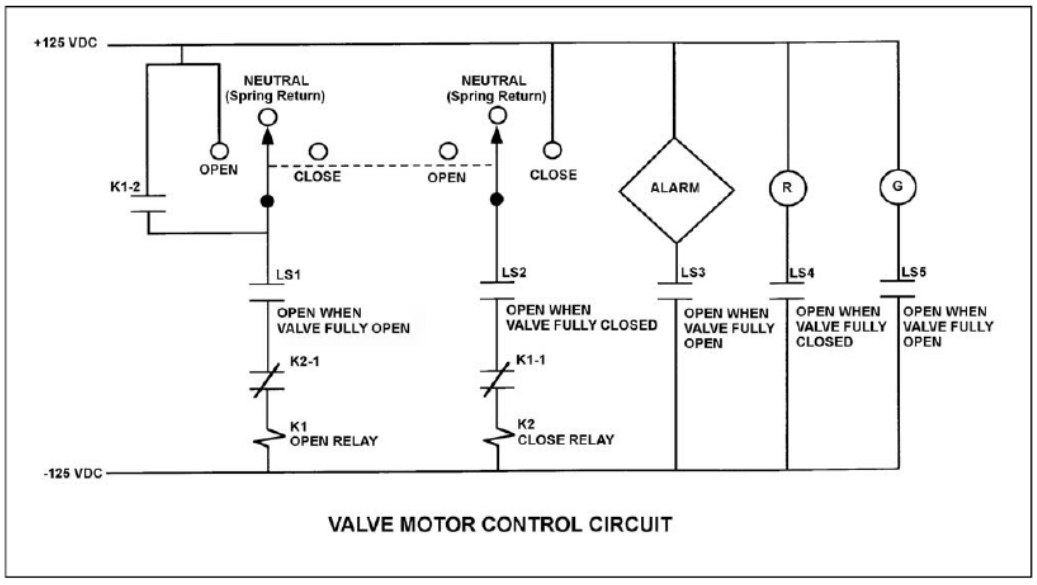
	Alarm	Red Ind. Light	Green Ind. Light
A.	On	On	On
B.	On	Off	On
C.	Off	On	Off
D.	Off	Off	Off

ANSWER: A.

參考電動閥控制線路（見下圖），目前閥是全開，閥行程需 16 秒。
(註：極限開關（LS）接點顯示開，與閥位置無關。但是電驛接點是根據一般控制線路圖標準表示開/閉。)
運轉員操作控制開關轉向關閉位置。兩秒鐘後，確認閥正在關閉運轉員釋放控制開關，當閥停止移動時，警報和紅色（R）及綠色（G）指示燈狀態如何？

	警報	紅色指示燈	綠色指示燈
A.	On	On	On
B.	On	Off	On
C.	Off	On	Off
D.	Off	Off	Off

答案： A



VALVE MOTOR CONTROL CIRCUIT

科目/題號：191008/10 (2016新增)
知能類：K1.08 [3.3/3.5]
序號：P5121 (B5122)

A main generator is about to be connected to an infinite power grid. Generator output frequency is slightly higher than grid frequency and generator output voltage is equal to grid voltage.
Which one of the following situations will exist when the main generator electrical conditions stabilize immediately after the generator output breaker is closed? (Assume no additional operator actions are taken.)
A. Generator output current will be 0.
B. Generator power factor will be 0.
C. Generator output MVAR will be 0.
D. Generator output MW will be 0.
ANSWER: C.

一台主發電機即將併聯到一個無限電網。發電機輸出頻率稍高於電網頻率且發電機輸出電壓和電網電壓相同。
當主發電機斷路器關閉後，主發電機電氣條件立即穩定，則下列何者狀況會存在？(假設沒有運轉員採取行動)。
A.發電機輸出電流為 0
B.發電機功率因素為 0
C.發電機輸出 MVAR 為 0
D.發電機輸出 MW 為 0

答案： C

科目/題號：191008/11 (2016新增)
知能類：K1.08 [3.3/3.5]
序號：P5620 (B5621)

A main generator is being connected to an infinite power grid. The following frequencies exist just prior to closing the generator output breaker:

Generator frequency = 59.9 Hz
Grid frequency = 60.1 Hz

When conditions stabilize just after the generator output breaker is closed, the generator frequency will be _____; and the grid frequency will be _____.
A. 59.9 Hz; 59.9 Hz
B. 59.9 Hz; 60.1 Hz
C. 60.0 Hz; 60.0 Hz
D. 60.1 Hz; 60.1 Hz
ANSWER: D.

一台主發電機即將併聯到無限電網。下列為發電機輸出斷路器關閉前的頻率：

發電機頻率=59.9 Hz
電網頻率=60.1 Hz

當發電機的輸出斷路器關閉後狀況穩定，發電機的頻率將是_____；而電網的頻率將是_____。
A. 59.9 Hz；59.9 Hz
B. 59.9 Hz；60.1 Hz
C. 60.0 Hz；60.0 Hz
D. 60.1 Hz；60.1 Hz

答案： D

科目/題號：191008/12 (2016新增)
知能類：K1.08 [3.3/3.5]
序號：P6321 (B6322)

A diesel generator (DG) was initially operating at 80 percent of rated load supplying an isolated electrical bus when a malfunction caused the DG output breaker to trip. The breakers for all of the bus loads--all of which are large motors--remained closed, preparing the motors to restart upon restoration of power to the bus.
The DG output breaker has been repaired. With all of the bus load breakers still closed, which one of the following will occur when the DG output breaker is closed to reenergize the bus?
A. The DG will become lightly loaded.
B. The DG will return directly to its initial load.
C. The DG will experience slight overload conditions.
D. The DG will experience severe overload conditions.
ANSWER: D.

當一個故障導致柴油發電機（DG）輸出斷路器跳脫時，DG 正以 80％額定負載下供電給一個獨立的電氣匯流排。
匯流排上所有負載皆為大型馬達，且其斷路器維持關閉，以備復電時馬達重新啟動。DG 輸出斷路器修復後，若匯流排上全部負載斷路器仍維持關閉，當 DG 輸出斷路器關閉送電至匯流排時，下列何者情況會發生？
A. DG 將會變輕載
B. DG 將會直接返回到其初始負載
C. DG 將會出現輕微的過載情況
D. DG 將會遭遇嚴重的過載情況

答案： D

科目/題號：191008/13 (2016新增)
知能類：K1.08 [3.3/3.5]
序號：P6722 (B6722)

A main generator output breaker is about to be closed to connect the main generator to the power grid via the main transformer. The main transformer voltage and frequency are as follows:

Voltage = 20,000 volts
Frequency = 60.0 Hz

Which combination of main generator voltage and frequency will ensure that the main generator will immediately supply real (MW) and reactive (MVAR) electrical power to the power grid when the main generator output breaker is closed?
A. 19,950 volts; 59.9 Hz
B. 19,950 volts; 60.1 Hz
C. 20,050 volts; 59.9 Hz
D. 20,050 volts; 60.1 Hz
ANSWER: D.

主發電機輸出斷路器即將關閉，以使其主發電機經由主變壓器併聯到一個電網。主變壓器電壓和頻率如下：

電壓=20,000 volts
頻率=60.0 Hz

當主發電機輸出斷路器關閉時，下列主發電機的電壓和頻率組合，何者可確保主發電機將立即提供有效功率（MW）和無效功率（MVAR）到電網？
A. 19,950 volts；59.9 Hz
B. 19,950 volts；60.1 Hz
C. 20,050 volts；59.9 Hz
D. 20,050 volts；60.1 Hz

答案： D

科目/題號：191008/14 (2016新增)
知能類：K1.08 [3.3/3.5]
序號：P7022 (B7022)

If a main generator output breaker is closed when the generator output voltage is 5 degrees out of phase with the power grid voltage, the main generator will experience a _____ stress; if the breaker remains closed and no additional operator action is taken, the main generator voltage will _____ with the grid voltage.
A. minor; remain out of phase
B. minor; become locked into phase
C. potentially damaging; remain out of phase
D. potentially damaging; become locked into phase
ANSWER: B.

當發電機輸出電壓與電網電壓有 5 度的相位差時，如果主發電機輸出斷路器關閉，主發電機將經歷一個_____應力；如果斷路器保持關閉，且沒有其他的運轉員介入，主發電機電壓將與電網電壓_____。
A.微小的；維持有相位差
B.微小的；變成相位相同
C.潛在損壞的；維持有相位差
D.潛在損壞的；變成相位相同

答案： B

科目/題號：191008/15 (2016新增))
知能類：K1.08 [3.3/3.5]
序號：P7626 (B7626)

If a main generator output breaker is closed when the generator output voltage is 90 degrees out of phase with the power grid voltage, the main generator will experience a _____ stress; if the breaker remains closed and no additional operator action is taken, the main generator voltage will _____ with the grid voltage.
A minor; remain out of phase
B. minor; become locked into phase
C. potentially damaging; remain out of phase
D. potentially damaging; become locked into phase
ANSWER: D.

當發電機輸出電壓與電網電壓有 90 度的相位差時，如果主發電機輸出斷路器關閉，主發電機將經歷一個_____應力；如果斷路器保持關閉，且沒有其他運轉員介入，主發電機電壓將與電網電壓_____。
A.微小的；維持有相位差
B.微小的；變成相位相同
C.潛在損壞的；維持有相位差
D.潛在損壞的；變成相位相同

答案： D

科目/題號：191008/16 (2016新增)
知能類：K1.08 [3.3/3.5]
序號：P7636 (B7636)

The main generator output breaker was just closed to connect the main generator to the main transformer. Just before the breaker was closed, the following parameter values existed:

Main Generator	Main Transformer
20,000 volts	20,050 volts
60.0 Hz	59.9 Hz

With no additional operator action, the main generator stabilized with the following parameter values:

25 MW
15 MVAR (in)

Now consider this following alternate set of parameters values:

Main Generator	Main Transformer
20,020 volts	20,050 volts
60.1 Hz	59.9 Hz

If the alternate set of parameter values had existed just before the breaker was closed, the resulting main generator MW value would have been _____; and the resulting main generator MVAR (in) value would have been _____.
A. smaller; larger
B. smaller; smaller
C. larger; larger
D. larger; smaller
ANSWER: D.

主發電機斷路器即將關閉使主發電機併聯到主變壓器。就在斷路器關閉前，存在下列參數值：

主發電機	主變壓器
20,000 volts	20,050 volts
60.0 Hz	59.9 Hz

在沒有運轉員介入，主發電機穩定運轉在下列參數值：

25 MW
15 MVAR(輸入)

現在考慮下面替代組參數值：

主發電機	主變壓器
20,020 volts	20,050 volts
60.1 Hz	59.9 Hz

如果在斷路器被關閉前存在的替代組參數值，所產生的主發電機 MW 值將_____；所得主發電機 MVAR（輸入）值將_____。
A. 比較小；比較大
B. 比較小；比較小
C. 比較大；比較大
D. 比較大；比較小
答案： D

科目/題號：191008/17 (2016新增)
知能類：K1.11 [3.1/3.3]
序號：P6022 (B6021)

While remotely investigating the condition of a normally-open feeder breaker to a 480 VAC motor control center (MCC), a control room operator observes the following indications:

Green breaker position indicating light is out.
Red breaker position indicating light is lit.
MCC voltmeter indicates 0 VAC.
MCC ammeter indicates zero amperes.

Based on these indications, the operator should report that the feeder breaker is _____ and racked _____.
A. open; in
B. closed; out
C. open; to the TEST position
D. closed; to the TEST position
ANSWER: D.

於控制室檢視一正常開啟的 480 VAC 馬達控制中心（MCC）饋線斷路器狀況，運轉員發現下列顯示：

斷路器綠色指示燈-熄
斷路器紅色指示燈-亮
馬達控制中心（MCC）電壓表指示 0 VAC
馬達控制中心（MCC）電流表指示 0 amps

依據這些跡象表示，運轉員應該報告饋線斷路器是_____並已經搖_____。
A. 開啟的；入(輸入)
B. 關閉的；出(輸出)
C. 開啟的；至測試位置
D. 關閉的；至測試位置

答案： D

科目/題號：191008/18 (2016新增)
知能類：K1.11 [3.1/3.3]
序號：P7222 (B7221)

While remotely investigating the condition of a normally-open 480 VAC motor control center (MCC) feeder breaker, an operator observes the following indications:

Green breaker position indicating light is out.
Red breaker position indicating light is lit.
MCC voltmeter indicates 480 VAC.
MCC ammeter indicates zero amperes.

Based on these indications, the operator should report that the feeder breaker is _____ and racked _____.
A. open; in
B. closed; in
C. open; to an unknown position
D. closed; to an unknown position
ANSWER: B.

於控制室檢視一正常開啟的 480 VAC 馬達控制中心（MCC）饋線斷路器狀況，運轉員發現下列顯示：

斷路器綠色指示燈-熄
斷路器紅色指示燈-亮
馬達控制中心（MCC）電壓表指示 480 VAC
馬達控制中心（MCC）電流表指示 0 amps

依據這些跡象表示，運轉員應該報告饋線斷路器是_____並已經搖_____。
A.開啟的；入(輸入)
B.關閉的；出(輸入)
C.開啟的；至未知位置
D.關閉的；至未知位置

答案： B