

第 9 章 Tacho Function Test

- (1) 首先指派一人再轉車機旁操作，然後在 MOP 上選擇 Maintenance → Function → Tacho，在 Preparation 下方，按下 **Start**，接著可看到 1. An assistant is standing by at the turning wheel 確認轉車機旁有助手後，按 **Done**，Test Value 顯示：OK。

Maintenance→Function Test						Alarm
HCU	Tacho	HPS				
Preparation						Engine
Start	Action Message			Reference	Test Value	
1	An assistant is standing by at the turning wheel.				OK	Auxiliaries
Test of Tacho signals						
Start	Action Message			Reference	Test Value	Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1			A:FF B:FF		System View I/O Test
2	Reboot CCUs & ECUs					
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1			A:FF B:FF		Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1			A:FF B:FF		
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1			A:FF B:FF		Network Status
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1			A:FF B:FF		
Setting of Fine Adjust Parameters						Function Test
Start	Action Message			Reference	Test Value	
1	Perform PM1 G-diagram					Trouble Shooting
2	Minimum speed required for valid measuring Delta Tacho B					
	Delta Tacho B max measured					Admin
3	Enter Trig offset ahead and setting of ECS parameter					Power Off
Support						Chief
Details		Delta Tacho-B		Delta Alignment Deviation		
Accept and proceed to test step						
DoneAbort Test						

(2) 接著在 Test of Tacho Signals 下方, 按下 **Start**, 然後請轉車機旁人員, 將轉車至第一缸上死點前 2 度, 此時可看到 Test Value 之位置. 會出現黃色, 當轉到指定位置後, 會再轉變成藍色, 得到數據--- **A:FF, B:FF**, 這時請在按右下方的 **Done**. (如無法變成藍色, 可能就是 Tacho 出了問題, 也無法繼續後面的項目, 這時請按左下方 Detail, 會出現說明). Test Value 顯示: OK.

Maintenance→Function Test						Alarm
HCU		Tacho	HPS			
Preparation						⊗
Start	Action Message			Reference	Test Value	
1	An assistant is standing by at the turning wheel.				OK	Engine
Test of Tacho Signals						Auxiliaries
Start	Action Message			Reference	Test Value	Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1			A:FF B:FF	OK	System View
2	Reboot CCUs & ECUs					I/O Test
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1			A:FF B:FF		Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1			A:FF B:FF		Network Status
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1			A:FF B:FF		Function Test
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1			A:FF B:FF		Trouble Shooting
Setting of Fine Adjust Parameters						Admin
Start	Action Message			Reference	Test Value	Power Off
1	Perform PM1 G-diagram					Chief
2	Minimum speed required for valid measuring Delta Tacho B					
	Delta Tacho B max measured					
3	Enter Trig offset ahead and setting of ECS parameter					
Support						
Details		Delta Tacho-B		Delta Alignment Deviation		
Turn engine to 2 DEG before TDC						
在執行任何工作時, 此處均會有說明						
Done Abort Test						

(3) 接著進行第2項, 重新啟動 CCUs (Cylinder Control Units) and ECUs (Engine Control Units), 按下 **Reboot**, 會出現約 114 項警報, 約數分鐘後, Test Value 出現 OK, 按 **Done**, 跳至下一格。

Maintenance→Function Test					Alarm
HCU	Tacho	HPS			
Preparation					⊗ Engine
Start	Action Message		Reference	Test Value	
1	An assistant is standing by at the turning wheel.			OK	Auxiliaries
Test of Tacho Signals					
Start	Action Message		Reference	Test Value	Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1		A:FF B:FF	OK	System View
2	Reboot CCUs & ECUs			OK	I/O Test
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1		A:FF B:FF		Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1		A:FF B:FF		
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1		A:FF B:FF		Network Status
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1		A:FF B:FF		
Setting of Fine Adjust Parameters					Function Test
Start	Action Message		Reference	Test Value	
1	Perform PM1 G-diagram				Trouble Shooting
2	Minimum speed required for valid measuring Delta Tacho B				
	Delta Tacho B max measured				Admin
3	Enter Trig offset ahead and setting of ECS parameter				Power Off
Support					Chief
Details		Delta Tacho-B		Delta Alignment Deviation	⊗
Reboot CCUs					
Reboot Abort Test					

- (4) 接著進行第 3 項，請現場人員，轉車至第一缸上死點後 2 度，此時可看到 Test Value 之位置。會出現黃色，當轉到指定位置後，會再轉變成藍色，得到數據--- A:TF, B:FE,此時按 **Done**。Test Value 顯示 OK。

Maintenance→Function Test						Alarm
HCU	Tacho	HPS				
Preparation						Engine
Start	Action Message		Reference	Test Value		
1	An assistant is standing by at the turning wheel.			OK		Auxiliaries
Test of Tacho Signals						
Start	Action Message		Reference	Test Value		Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1		A:FF B:FF	OK		System View
2	Reboot CCUs & ECUs			OK		I/O Test
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1		A:FF B:FF	OK		Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1		A:FF B:FF			
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1		A:FF B:FF			Network Status
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1		A:FF B:FF			
Setting of Fine Adjust Parameters						Function Test
Start	Action Message		Reference	Test Value		
1	Perform PM1 G-diagram					Trouble Shooting
2	Minimum speed required for valid measuring Delta Tacho B					
	Delta Tacho B max measured					Admin
3	Enter Trig offset ahead and setting of ECS parameter					Power Off
Support						Chief
Details		Delta Tacho-B		Delta Alignment Deviation		
Turn to 2 DEG after TDC						
Done						Abort Test

- 會出現黃色，當轉到指定位置後，會再轉變成藍色，得到數據---A:TF, B:TF,此時按 **Done**.
Test Value 顯示 OK.

Maintenance→Function Test						Alarm
HCU	Tacho	HPS				
Preparation						Engine
Start	Action Message		Reference	Test Value		
1	An assistant is standing by at the turning wheel.			OK		Auxiliaries
Test of Tacho Signals						
Start	Action Message		Reference	Test Value		Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1		A:FF B:FF	OK		System View I/O Test
2	Reboot CCUs & ECUs			OK		
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1		A:FF B:FF	OK		Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1		A:FF B:FF	OK		
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1		A:FF B:FF			Network Status
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1		A:FF B:FF			
Setting of Fine Adjust Parameters						Function Test
Start	Action Message		Reference	Test Value		
1	Perform PM1 G-diagram					Trouble Shooting
2	Minimum speed required for valid measuring Delta Tacho B					
	Delta Tacho B max measured					Admin
3	Enter Trig offset ahead and setting of ECS parameter					Power Off
Support						Chief
Details		Delta Tacho-B		Delta Alignment Deviation		
Turn to 47 DEG after TDC						
DoneAbort Test						

- 會出現黃色，當轉到指定位置後，會再轉變成藍色，得到數據--- **A:TT, B:TF**，此時按 **Done**。
Test Value 顯示 OK。

Maintenance→Function Test						Alarm
HCU	Tacho	HPS				
Preparation						Engine
Start	Action Message		Reference	Test Value		
1	An assistant is standing by at the turning wheel.			OK		Auxiliaries
Test of Tacho Signals						
Start	Action Message		Reference	Test Value		Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1		A:FF B:FF	OK		System View
2	Reboot CCUs & ECUs			OK		I/O Test
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1		A:FF B:FF	OK		Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1		A:FF B:FF	OK		
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1		A:FF B:FF	OK		Network Status
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1		A:FF B:FF			
Setting of Fine Adjust Parameters						Function Test
Start	Action Message		Reference	Test Value		
1	Perform PM1 G-diagram					Trouble Shooting
2	Minimum speed required for valid measuring Delta Tacho B					
	Delta Tacho B max measured					Admin
3	Enter Trig offset ahead and setting of ECS parameter					Power Off
Support						Chief
Details		Delta Tacho-B		Delta Alignment Deviation		
Turn to 92 DEG after TDC						
Done						Abort Test

(7) 接著進行第 6 項, 請轉車至第一缸上死點後 137 度, 可看到 Test Value 會出現黃色, 當轉到指定位置後, 會再轉變成藍色, 得到數據- **A:TT, B:TT**, 此時按 **Done**, Test Value 顯示 OK. 測試完畢. (Maker 交代, 後續的 Setting of fine adjust parameters, 是 Maker 工作, 船上不需要做)

Maintenance→Function Test						Alarm
HCU		Tacho	HPS			
Preparation						⊗ Engine
Start	Action Message			Reference	Test Value	
1	An assistant is standing by at the turning wheel.				OK	Auxiliaries
Test of Tacho Signals						
Start	Action Message			Reference	Test Value	Maintenance
1	Turn engine to 2 DEG before TDC at Cyl. 1			A:FF B:FF	OK	System View
2	Reboot CCUs & ECUs				OK	I/O Test
3	Turn engine in ahead direction to 2 DEG after TDC at Cyl. 1			A:FF B:FF	OK	Invalidate Inputs
4	Turn engine in ahead direction to 47 DEG after TDC at Cyl. 1			A:FF B:FF	OK	
5	Turn engine in ahead direction to 92 DEG after TDC at Cyl. 1			A:FF B:FF	OK	Network Status
6	Turn engine in ahead direction to 137 DEG after TDC at Cyl. 1			A:FF B:FF	OK	
Setting of Fine Adjust Parameters						Function Test
Start	Action Message			Reference	Test Value	
1	Perform PM1 G-diagram					Trouble Shooting
2	Minimum speed required for valid measuring Delta Tacho B					Admin
	Delta Tacho B max measured					
3	Enter Trig offset ahead and setting of ECS parameter					Power Off
Support						Chief
Details		Delta Tacho-B	0.09	Delta Alignment Deviation	0.01	⊗
Turn to 137 DEG after TDC						
Done Abort Test						

主機運轉期間, 請注意最下方的“Delta Tacho B” and “Tacho Alignment Deviation”, 正常的數據 Delta Tacho-B : 0.08-0.10 之間; Tacho Alignment Deviation: 0.00-0.02 之間.