



# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)





# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## ➤ Basic Information

### Picture



Factory P/N : 0010-75533, 0010-70264 .

Function : HP robot motor .

Port Size : N/A .

Port 方向 : N/A .

Driver : 5-PHASE Driver DX5114N .

Driver界面 : N/A .

Key parts : Harmonic gear 50:1 .

Bellow type : NA .

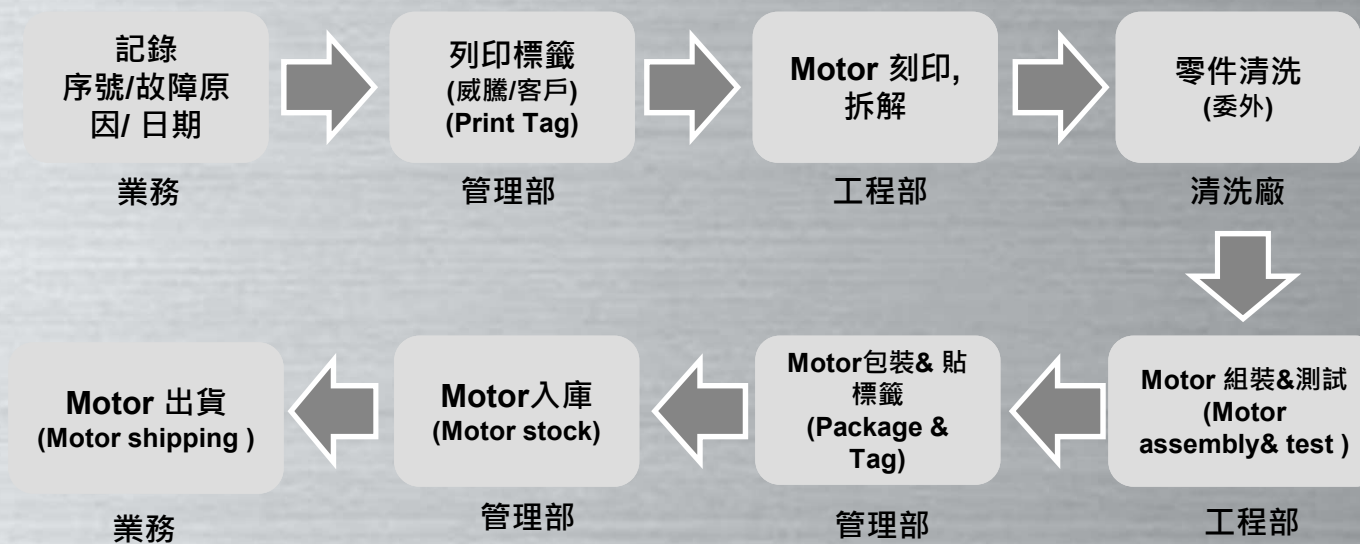
Seal type : NA .

Application: Centura & Endura machine .



# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## ➤ Overhaul process flow







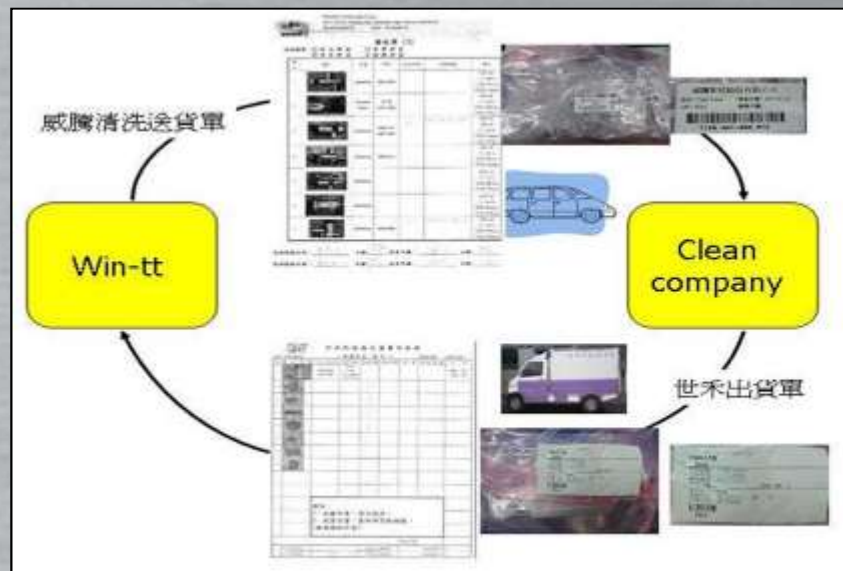


# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## 2. Parts clean by outsourcing



送洗物件



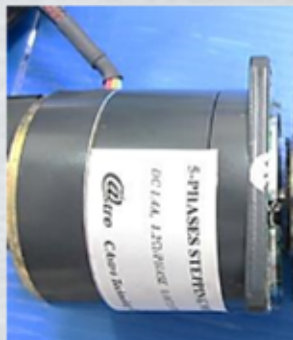
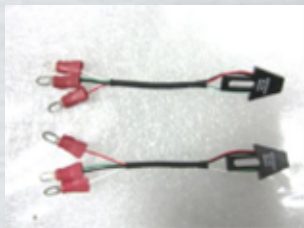
送洗流程





# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## 3. Parts Replacement



Harmonic Bearing\*1



Harmonic Gear\*1



軸承\*1



Home Sensor\*1



Encoder\*1



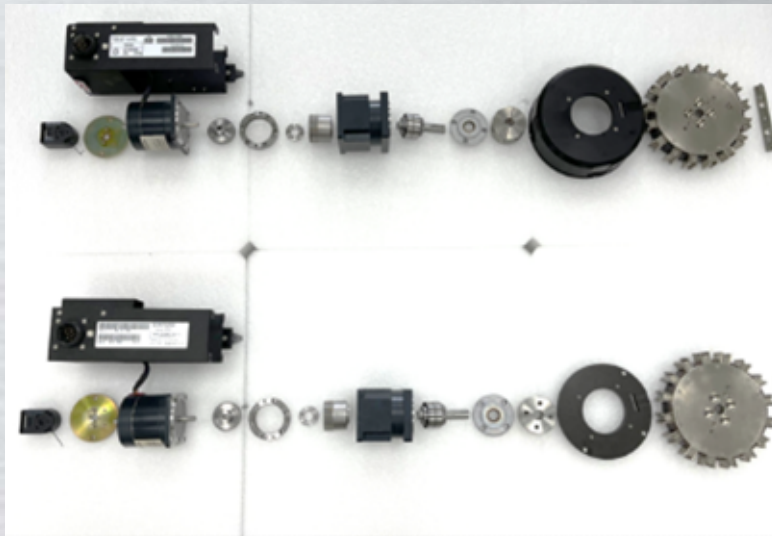
Harmonic Gear Schematic

1. Home Sensor \*2 ( Replace)
2. Encode \*2 ( Replace)
3. Motor \*2 ( 充磁)
4. 磁鐵 ( If necessary)
5. Harmonic Gear ( If necessary)
6. Harmonic Bearing ( If necessary)
7. Lock-pin \*6 ( Replace)



# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## 4. Valve Assembly



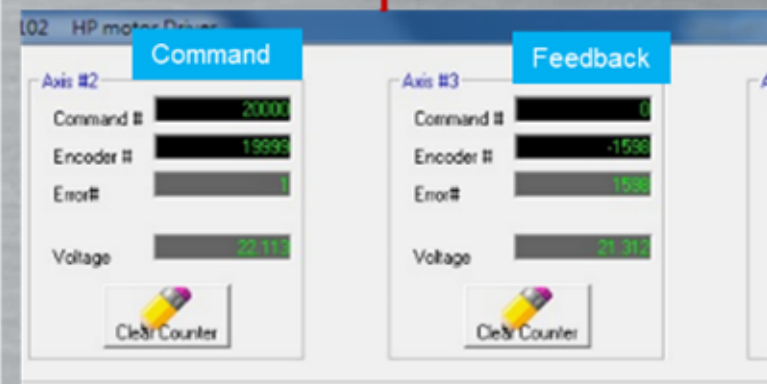
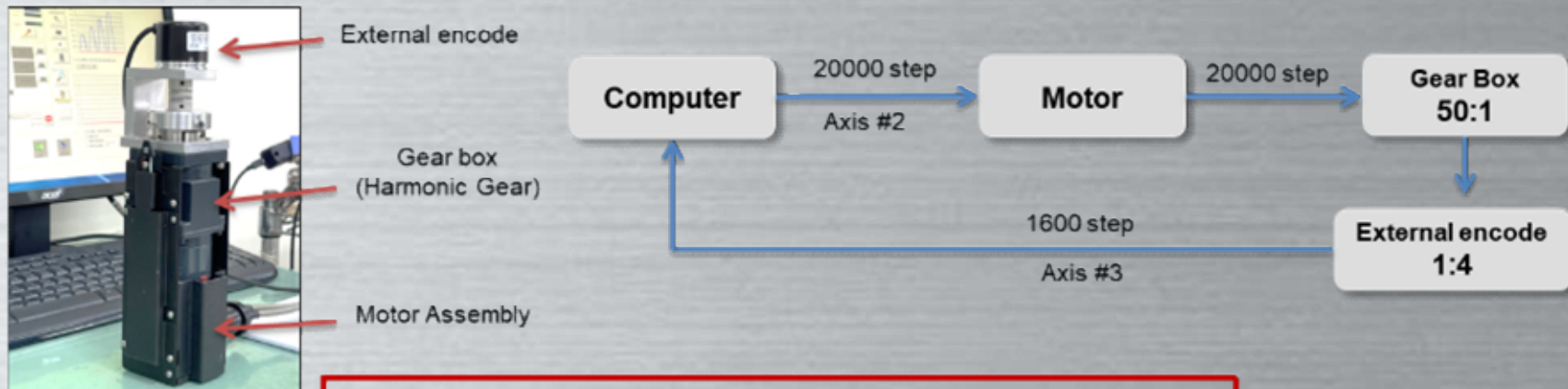




# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## 5. Valve final test:

- Top/ Low Motor Gear box Encode Performance Inspection: ( Spec.: 1600+- 2 step , feedback )







# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## ➤ HP Robot Motor Assembly Performance Inspection:

- ✓ To use simulator to check HP robot speed & encode error count:

Step 1: Setting robot zero position



Step 2: Robot cycle test

1. Robot zero position.
  2. Robot rotation 45°
  3. Robot extend
  4. Robot retract
  5. Robot rotation 135°
  6. Robot extend
  7. Robot retract
  8. Robot rotation 225°
  9. Robot extend
  10. Robot retract
  11. Robot rotation 315°
  12. Robot extend
  13. Robot retract
- 200 times

- ✓ Within wafer :  
35000 step/sec , Start speed: 1500 step/sec,  
accelerate time : 1.34sec)
- ✓ Without wafer:  
86000 step/sec, start speed: 1500 step/sec,  
accelerate time : 0.34sec)



# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

Step 3: Check Zero position after cycle test.

Step 4: Confirm motor encode error step count. (< 4 step)



Low motor  
encode feedback

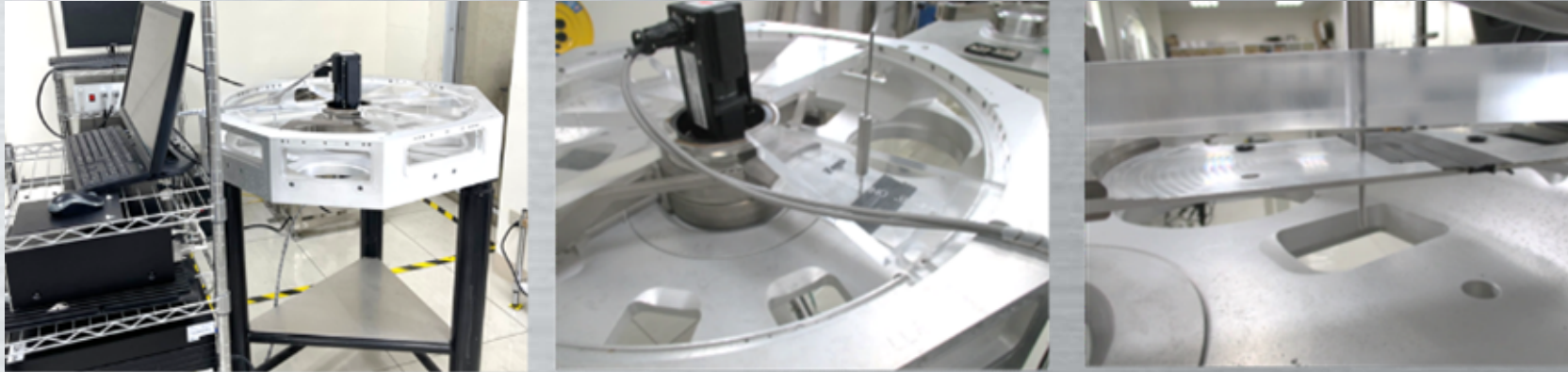
Top motor  
encode feedback

Chart



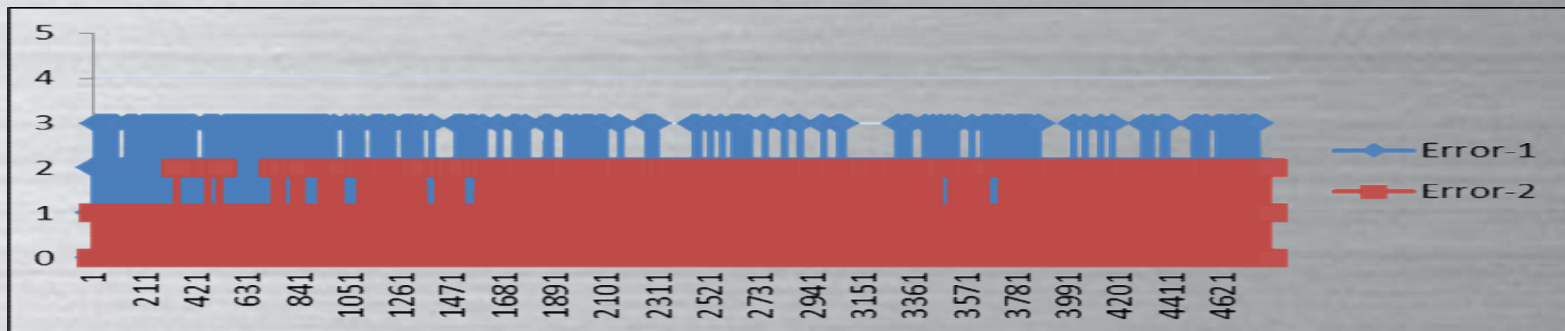
# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

➤ On-line Test:



Within wafer : 35000 step/sec , start speed: 1500 step/sec, accelerate time : 1.34sec)

Without wafer: 60000 step/sec, start speed: 1500 step/sec, accelerate time : 0.34sec)







# AMAT HP Robot Motor Assembly Overhaul Procedure (0010-75533, 0010-70264)

## 6. E-Check list

電子檢點表(直銷)  
單據內容

產品編號: HPX-000      申請者: 徐奕賢      申請日期: 2021-06-09  
 版別: 1      版本: 12

數據									
序號	分類	單位	Data Name	允許資料	上規	下規	內容	備註	Remark
0	Distance test	mm	D-UPDD	Y	2.40	2.38	Up motor guide pin		NA
1	Size	mm	D-GPDD	Y	6.38	6.32	diameter of Guide Pin for Low motor		NA
2	Size	mm	D-HSTO	Y	3.05	2.95	Hard-Stop thickness		NA
3	Motion cycle	Step	C-UHFN	Y	3.0		0UP Motor Harmonic Gear step Lost for motor test		NA
4	Motion cycle	Step	C-LHEN	Y	3.0		0Low Motor Harmonic Gear step Lost for motor test		NA
5	Motion cycle	Step	C-UMFN	Y	3.0		0UP Motor error count for Encode test		NA
6	Motion cycle	Step	C-LMBN	Y	3.0		0LOW Motor error count for encode test		NA
7	Motion cycle	Step	C-ROBO	Y	5		0Twin Motor Encode error count after Transfer Test		NA
8	Voltage test	Voltage	V-LH2N	Y	19	10	Low motor Home sensor DN voltage		NA
9	Voltage test	Voltage	V-LH2F	Y	23	20	Low motor Home Sensor OFF voltage		NA
10	Voltage test	Voltage	V-UH2N	Y	13	10	UP motor Home Sensor DN voltage		NA
11	Voltage test	Voltage	V-UH2F	Y	23	20	UP motor Home Sensor OFF voltage		NA

Check		
序號	分類	內容
12	Condition check	To make sure that did not any oil leakage for motor.
13	Condition check	To make sure that did not any rusty for step of motor.
14	Condition check	The Magnetic can't have absorbing iron filings.
15	Torque request	To use the "扭力棒" to fix 扭轉螺絲, (35 Kgf-cm)
16	Condition check	Magnet assembly cannot shake. (If the magnet fixed tight)
17	Condition check	Check Plate cannot Deformation
18	Condition check	Check Cup & Guide Pin cannot deformation.
19	Condition check	Check "Cup" need install the Screw 止 緊 螺 絲
20	Condition check	Check Hard-Stop cannot deformation. (Normal: right triangle)
21	Condition check	Use marble platform to detect deformation for "Cup & Plate".
22	Condition check	Check Magnet bottom plate cannot deformation.
23	Condition check	Check condition for all of Connector
24	Condition check	Check Home line alignment.
25	Condition check	Check Home Sensor voltage.
26	Condition check	Connector PIN depth (±4.0mm)
27	Parts replacement	Check magnet magnetic flux on HP motor assembly need >= 140 mT (Magnetic meter: MG-2002)
28	Position found	Extension home step calibration within ±= 200 step.
29	Position found	Rotation Home step calibration within ±= 2000 step.
30	Motor performance test	Up motor extension encoder step loss within 4 step (cycle 10 min)
31	Motor performance test	Low motor extension encoder step loss within 4 step (cycle 10 min)
32	Position Check	Robot extension & rotation cycle test 1000 times (Home PIN need insert Home hole)

Chart	
序號	內容
1	Robot cycle test, Run rate: 40000, First rate: 1500, Stop: 180000, encode error < 4 step
2	Robot cycle test, Run rate: 35000, First rate: 1500, Stop: 25000, encode error < 4 step.