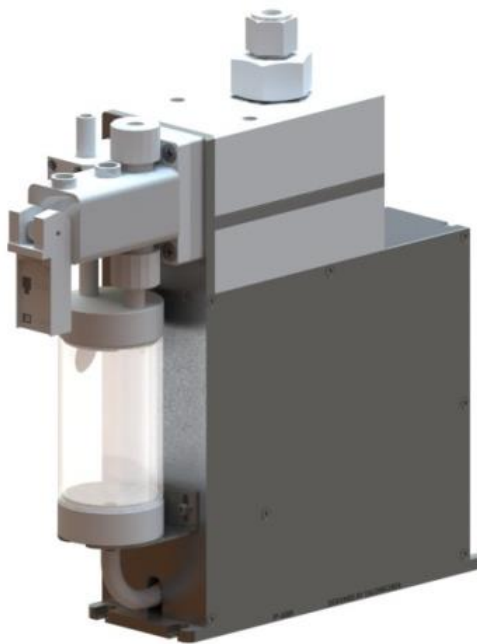


PUMP MANUAL

MODEL : TP-60BR

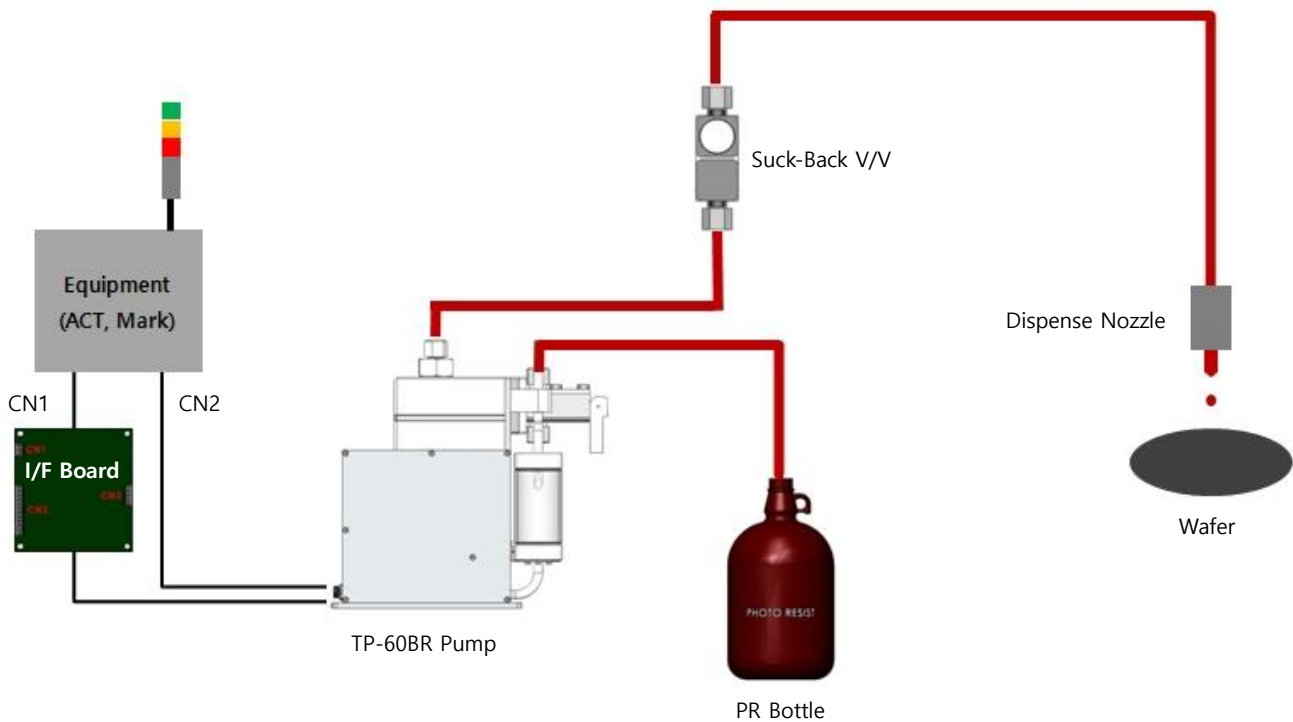


TALON TECH CO. LTD.

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1 System Configurations



TP-60BR pump can be used as the above configuration and has been developed conveniently to be compatible with Mark & ACT series systems. Especially, the adoption of servo motor is good for the high degree of PR dispense. Be careful to use the pump by following this manual or Talon Tech's acceptance. Or, other defects should be paid even under the warranty period.

※ Features & Merits

1. All the PR contacting points are made by Teflon.
2. It's the DC serve motor pump, which is suitable for a constant delivery pump.
3. Driving Method : Outer type Edgeless Bellows, No ripple & No shaking.
4. Save Maintenance Time : Purge function, optimized buffer.
5. Signal is same as RRC Pump. (ACT/MARK)

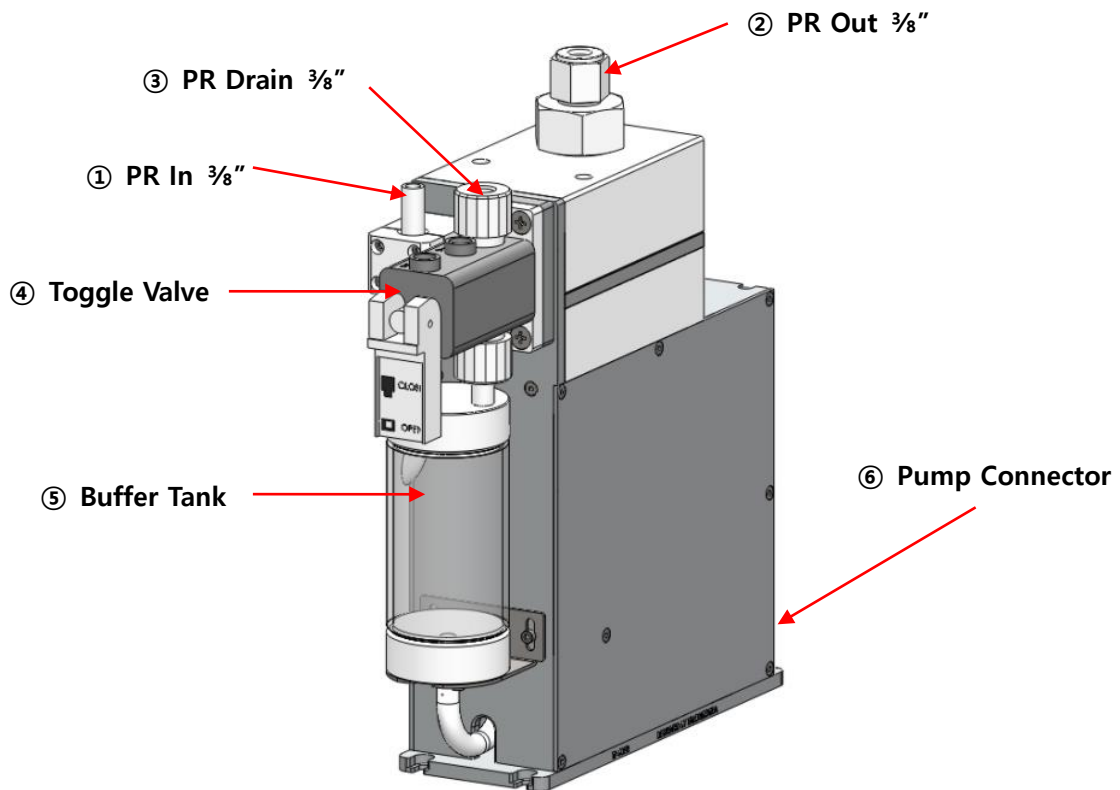
2 System Specifications

2-1 Pump [TP-60BR]

ITEM	SPEC	RE
Dispense Volume Range	1.0cc ~ 10.0cc	
Dispense / Reload Rate	0.3c/sec ~ 1.2c/sec	
Dispense Volume Resolution	0.05 cc	
Dispense Repeatability	$\leq \pm 0.05$ (2.2cp, 23°C)	
Viscosity	50cp ~ 10,000cp	
Step Angle Degree	0.3deg / step	
Input Pulse vs Dispense Volume	800 pulses(Full step) / 1cc	
Driver System	DC Servo Motor, Drive Current : 300 ~ 500mA/cycle	
Pump Type	Outer Type Edgeless Bellows	
Control System	Power : Motor Driver DC24V, Home Sensor DC5V	
Resist In/Out/Vent	$\frac{3}{8}$ Inch Teflon	
Ambient Temperature	5 ~ 40 °C	
Weight	5.0kg	
Pump Dimension	W : 72mm, D : 299mm, H : 296mm	

3 System In/Exterior Names

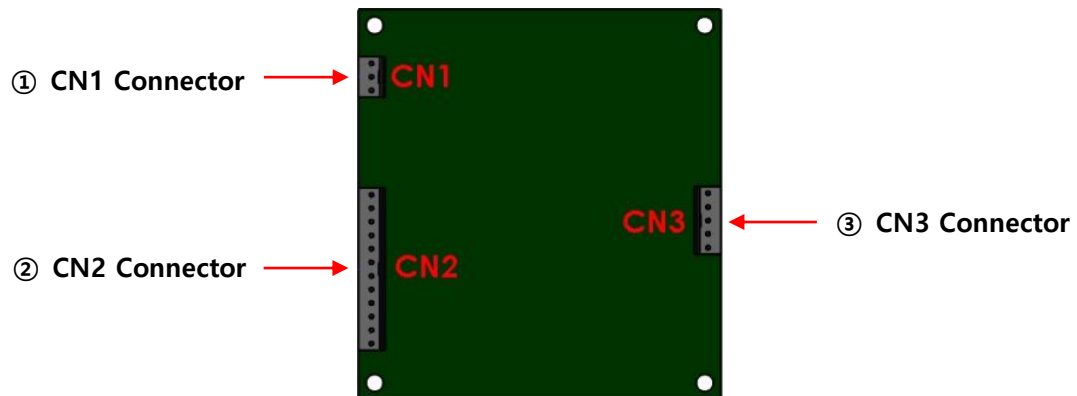
3-1 Pump In/Exterior Names



3-1-1 Pump Name Explanation

- ① **PR In**
 - Chemical Supply. ($\frac{3}{8}$ Inch Teflon)
- ② **PR Out**
 - Chemical Dispense. ($\frac{3}{8}$ Inch Teflon)
- ③ **PR Drain**
 - Chemical Drain. ($\frac{3}{8}$ Inch Teflon)
- ④ **Toggle Valve**
 - One Touch Toggle Valve for chemical drain
- ⑤ **Buffer Tank**
 - Bubble removal and buffering function of about 30cc PR
- ⑥ **Pump Connector CN1, CN2**
 - CON1(Motor) => Connector for pump operation. (Round Panel Mount 5P Female)
 - CON2(Track) => Connector for pump operation. (Round Panel Mount 8P Female)

3-2 I/F Board Exterior Names



3-2-1 I/F Board Name Explanation

① **CN1 Connector**

- 3P connector connected to Pump I/O Conn Board CN130.

② **CN2 Connector**

- 12p Connector connected to Pump I/O Conn Board CN1~9.

③ **CN3 Connector**

- 5P connector connected to current RRC Pump (TP-60BR Pump)'s CN1.

4 Wiring & Signal Interface

4-1 ACT Type CN1 Pin Assign [Motor Cable]

ACT Type Pin Assign			
Pin NO.	Signal Name	Color	Description
A	CW+/CCW+	White/Gray	DC Servo Motor
B	CW-	Black	
C	CCW-	Brown	
D	+24V/ACT	Orange	
E	G24V/ACT	Black	

4-2 ACT Type CN2 Pin Assign [Track Cable]

ACT Type Pin Assign			
Pin NO.	Signal Name	Color	Description
A	EA+	Blue	Encoder A Phase Output
B	EA-	Orange	
C	EB+	Yellow	Encoder B Phase Output
D	EB-	Gray	
E	G5/LGC	Black	GND
F	Home Sensor	Blue	Output(Open Collector), 5VDC, 1c=100mA
G	+5V/LGC	Red	5V \pm 0.25V / 0.2A
H	TH S/W	Green	GND

4-3 Mark Type CN1 Pin Assign [Motor Cable]

ACT Type Pin Assign			
Pin NO.	Signal Name	Color	Description
A	CCW+	Gray	DC Servo Motor
B	CW-	Black	
C	CCW-	Brown	
D	CW+	Orange	
E	G24V/ACT	Black	

4-4 Mark Type CN2 Pin Assign [Track Cable]

ACT Type Pin Assign			
Pin NO.	Signal Name	Color	Description
A	EA+	Blue	Encoder A Phase Output
B	EA-	Orange	
C	EB+	Yellow	Encoder B Phase Output
D	EB-	Gray	
E	G5/LGC	Black	GND
F	Home Sensor	Blue	Output(Open Collector), 5VDC, 1c=100mA
G	+5V/LGC	Red	5V \pm 0.25V / 0.2A
H	+24V/ACT	Gray	DC Servo Motor

5 Maintenance

5-1 Pump Parts Dis/Assembly

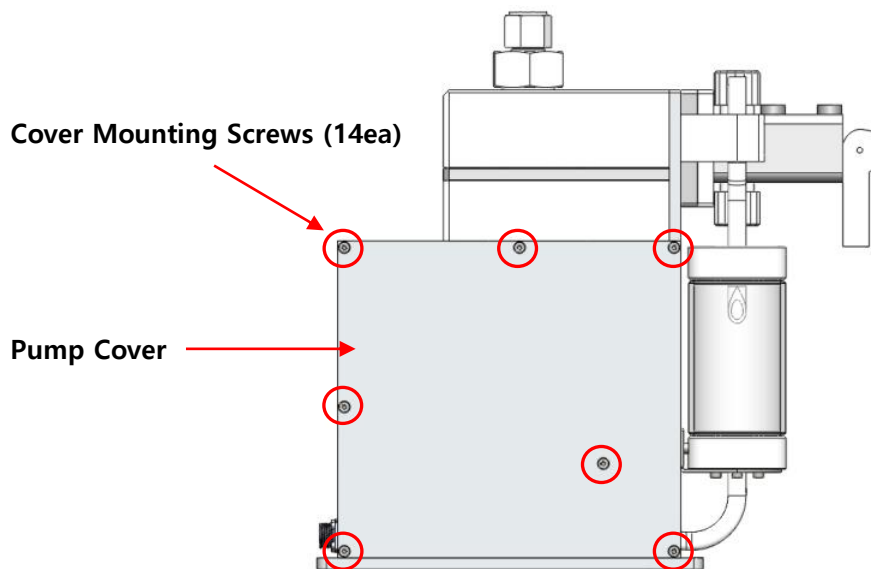
5-1-1 Pump Cover Dis/Assembly

1. As per the below [PIC 1], use 2mm wrench to release Pump Cover Mounting M3 Screw(14ea) to open the cover.
2. The assembly is the reverse order of the disassembly.

[Notice]

When the cover opens, be careful not to cut the finger.

Don't dis/assemble the interior parts inside the pump.



[PIC 1]

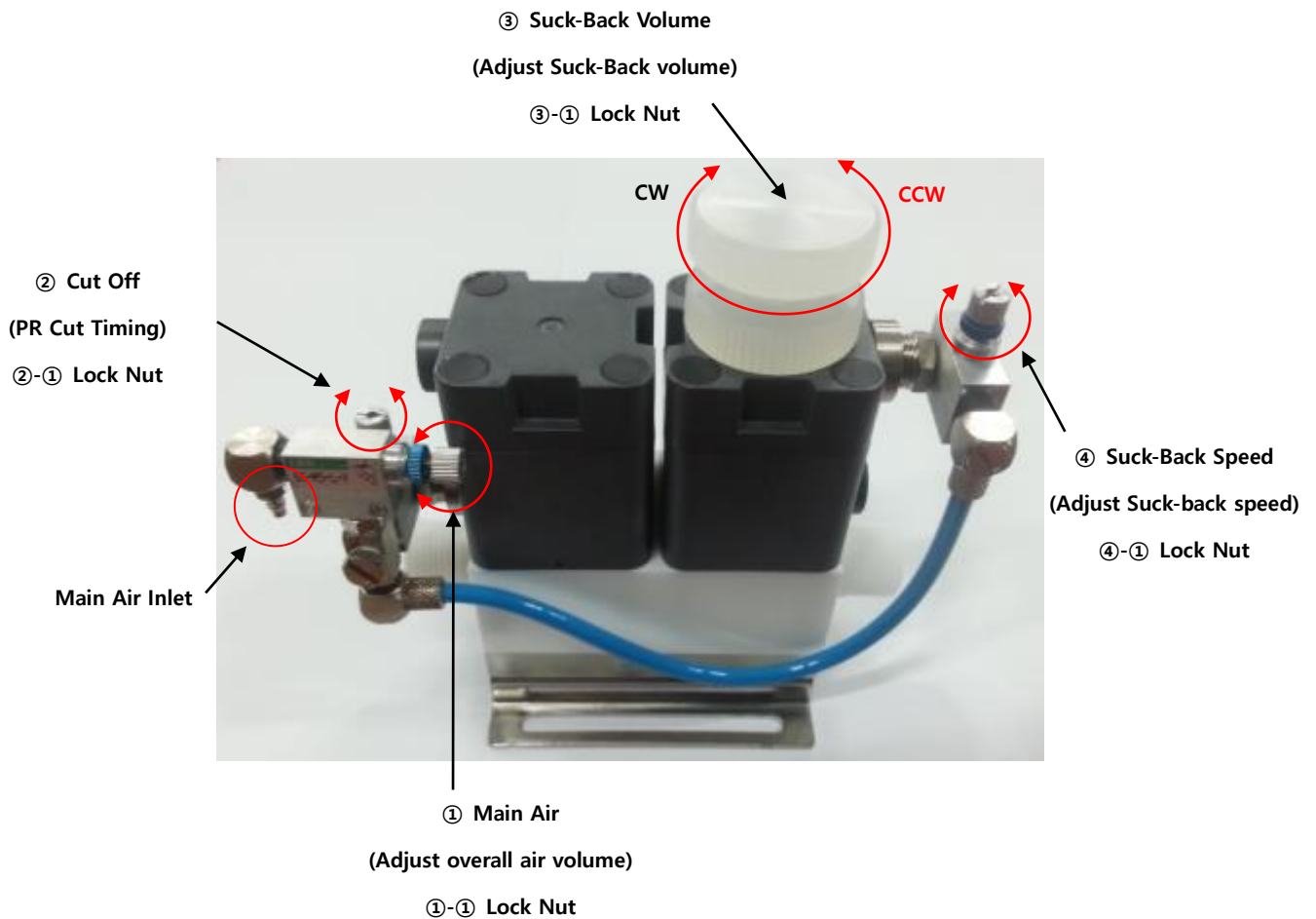
5-1-2 Driving Shaft Condition Check & Grease up on Ball Screw

1. Check the motor's vibration & noise when the pump works.
2. Check the bolts & belt tightening condition and ball screw worn-out condition.
3. Check any interruption between cables & moving parts.
4. Check the conditions of linear bushing /shaft when the pump works.
5. Grease up on ball screw & LM linear bushing.
6. Grease up every 6 months.

[Notice]

Don't disassemble the moving parts, which can be the root cause of any problems.

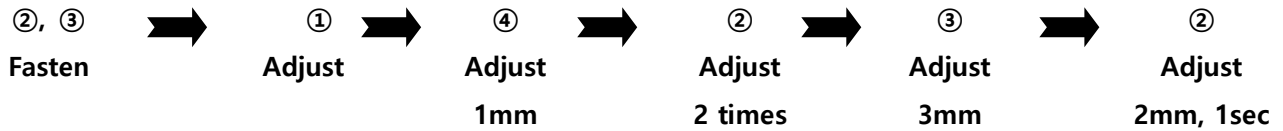
5-2 Suck-Back Setting



1. Un-fasten Lock Nut②-①, ③-① and fasten the knob ②, ③ make it close perfectly.
2. Once Dispense signal is on, un-fasten lock-nut①-① to dispense PR and adjust speed control knob①
(Want to delay dispense timing rotate the knob to CW, want to make quick dispense rotate CCW)
3. Once Dispense signal going "Off" please un-fasten Lock nut④-① for consume the liquid just 1mm ahead of nozzle, rotate speed control knob④ and adjust.
4. Un-fasten Lock Nut②-① and close speed control knob②, rotate 2 times toward CCW.
5. Un-fasten Lock Nut③-① and rotate the suck-back control knob③, resist in nozzle will move up and down. Please make resist place about 3mm from nozzle tip.
((Increase Suck-Back flow, turn CW, decrease suck-back flow, turn CCW))
6. Un-fasten Lock Nut②-① and after 1 sec open the operate suck-back, make the suck-back about 2mm in 1 sec to rotate the speed control knob②.

7. If Suck-Back Speed ④ is too fast, turn it CW, too slow, turn it CCW.
8. Fasten every knob's lock nut. (①-①, ②-①, ③-①, ④-①)
9. Dispense resist again to final check.
10. If value is not correct, go back to order NO.3.

● REFERENCES FOR WORKING SEQUENCE



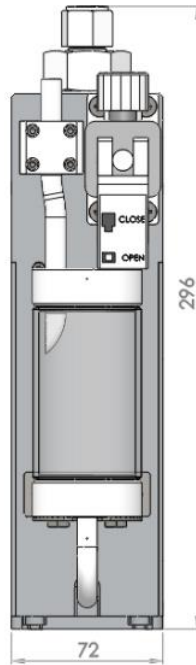
6 Recommended Spares / Mechanical Dimensions

6-1 TP-60BR Spare Parts

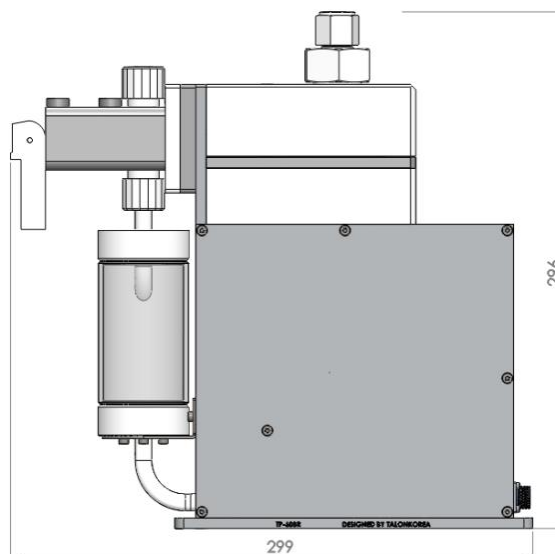
Division	Part NO.	Description	Qty
Pump	TL-60BR-TA-001	Cylinder	1
	TL-60BR-TA-002	Outer Type Edgeless Bellows	1
	TL-60BR-CA-001	Toggle Valve	1
	TL-60BR-TA-003	Nut	1
	TL-60BR-TA-004	3/8" Fitting Nut	1
	TL-60BR-TA-005	Out Cap	1
	TL-60BR-TA-006	Buffer Tank Ass'y	1
	TL-60BR-MA-001	Ball Screw	1
	TL-60BR-MA-002	Support Unit	1
	TL-60BR-EB-001	Motor	1
	TL-60BR-MA-003	LM Guide	1
	TL-60BR-ET-001	Timing Belt	1
	TL-60BR-ET-003	O-Ring (Bellows)	1
	TL-60BR-ET-004	O-Ring (Out Cap)	1
	TL-60BR-EA-001	Photo Sensor	2
	TL-60BR-CA-003	Suck-Back Valve	1
	I/F Board	TL-60BR-EB-003	I/F Board

6-2 Pump Dimensions

6-2-1 Front View



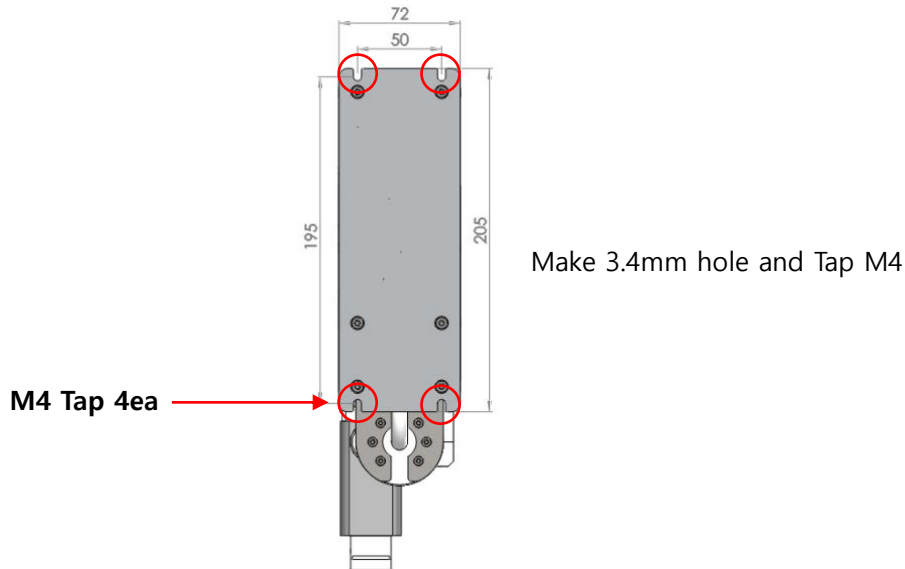
6-2-2 Side View



6-3 Installation Method

6-3-1 Pump Installation Sequence

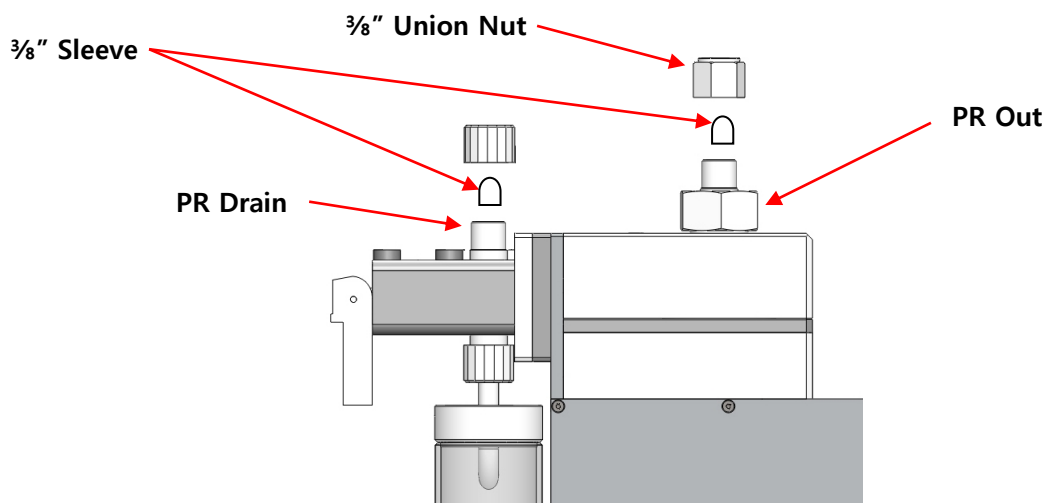
1. Prepare the space for the pump installation.
2. As per the below picture, tighten the panel base plate with 4 pieces of M4 screw.



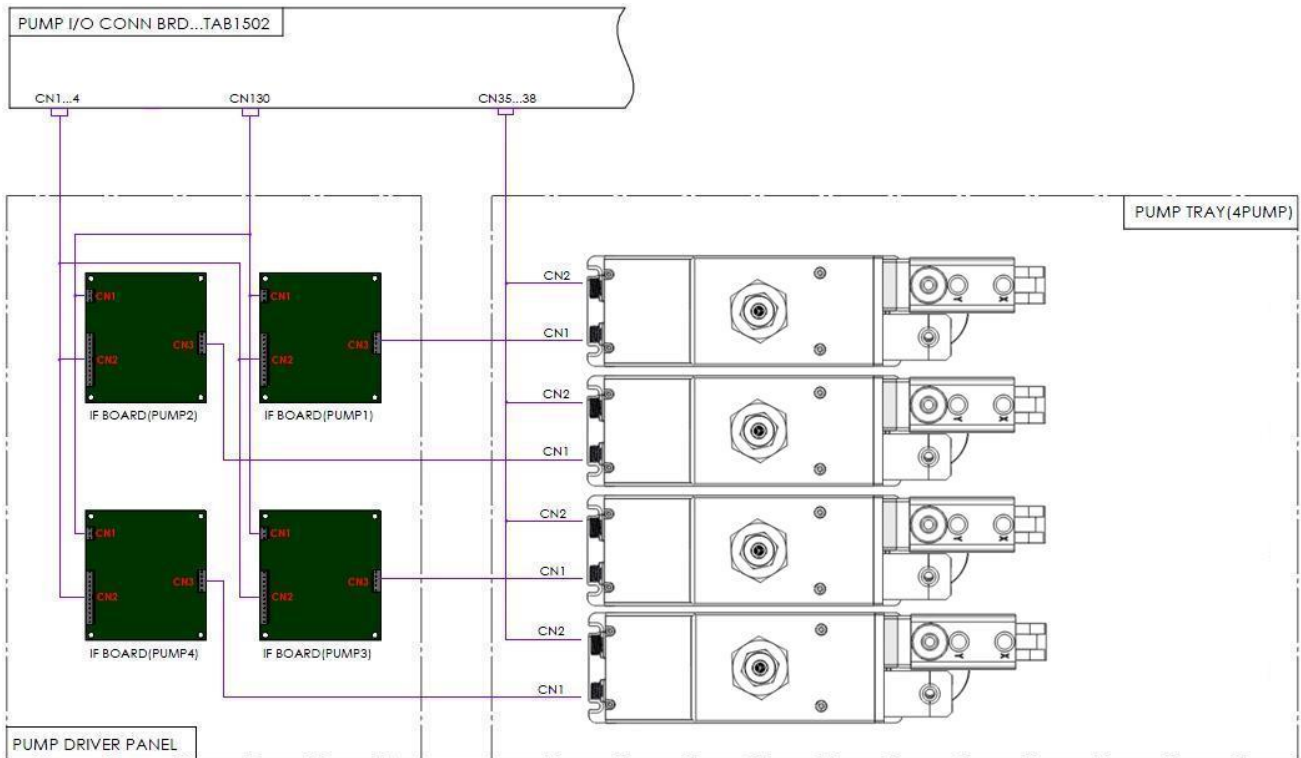
6-3-2 Piping Method

1. PR Tube Piping

- 1) Insert $\frac{3}{8}$ " union nuts on tube at PR In / Out / Vent areas.
- 2) Position between PR bottle and Pump max. closely
- 3) At the vent area, insert $\frac{3}{8}$ " sleeve into tube after enlarging tube with the tube expansion tool and then tighten nut.



6-3-3 CN1, 2 Connecting Method [ACT-8 Type]

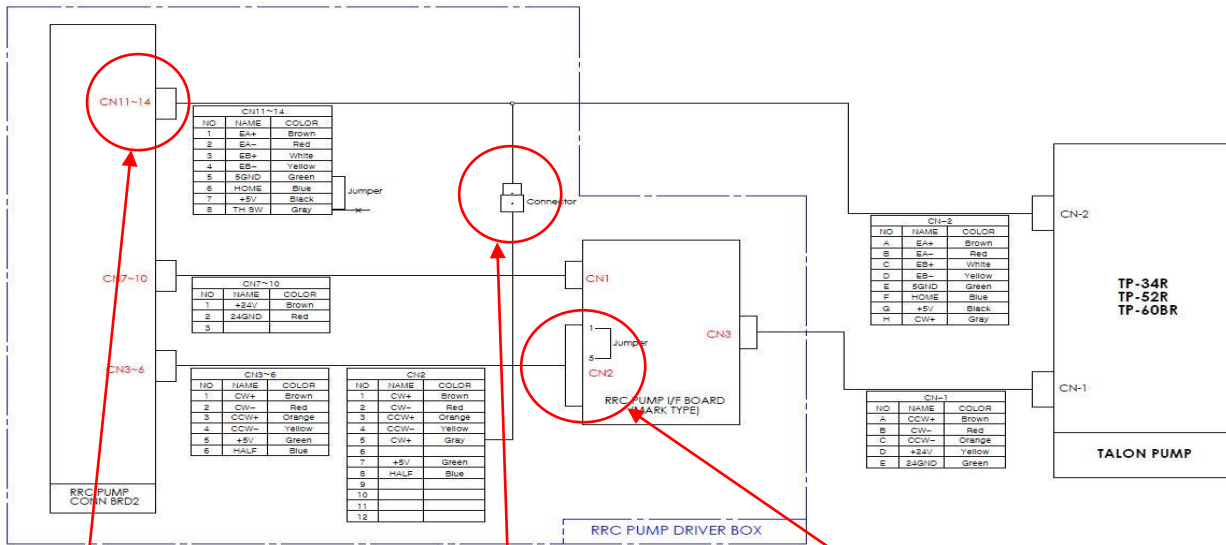


1. De-install RRC pump and install TP-60BR Pump.
(CN1 & CN2 Connectors are connected to TP-60BR pump same as RRC pump.)
2. De-install RRC Driver (CSD5807) and install Talon I/F Board(only for TP-60BR).
3. RRC Driver's Connector CN1, CN2, & CN3 are connected to the same position of Talon I/F board.

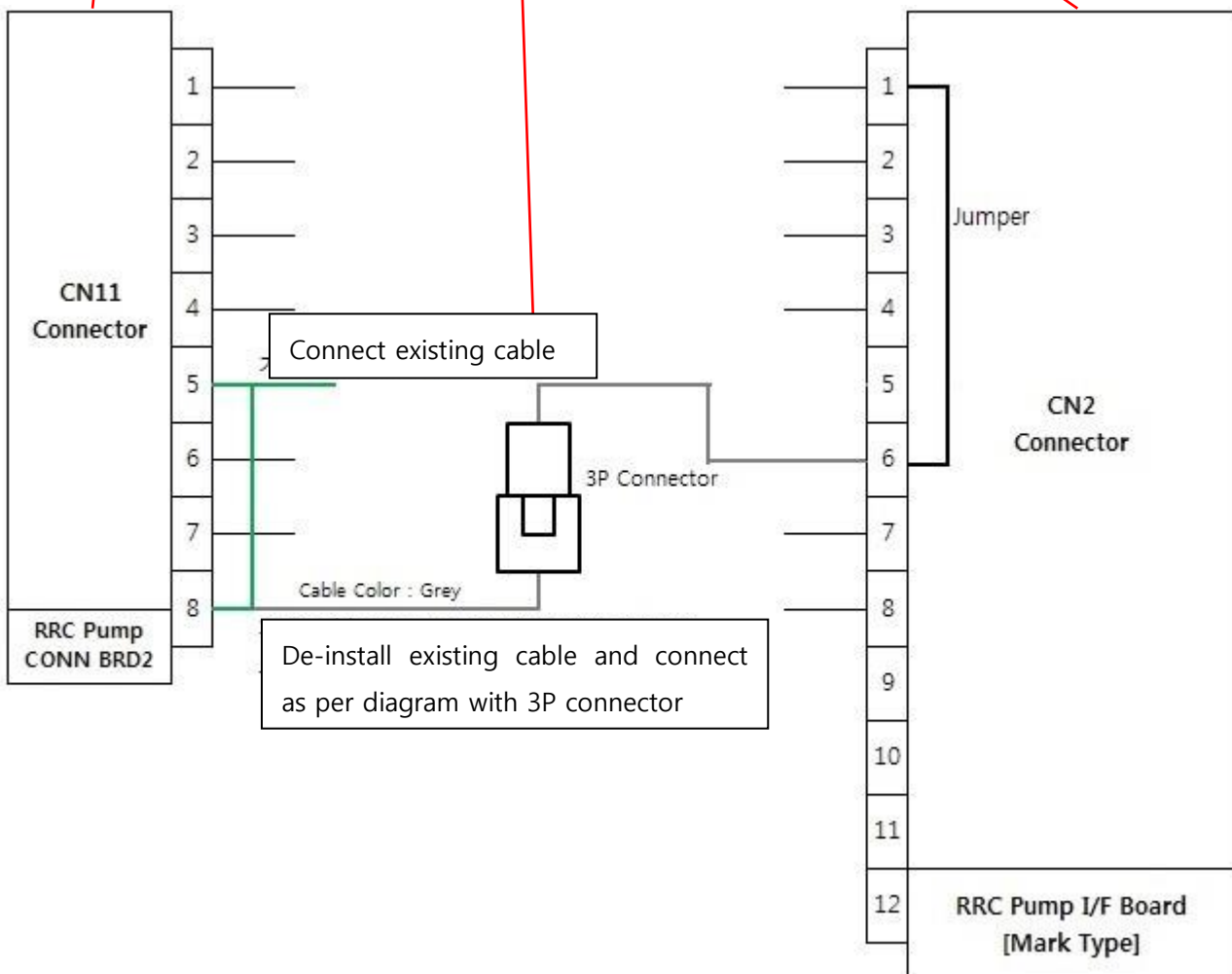
[Notice]

TP-60BR Pump uses DC Servo Motor. So, Motor Driver is built-in inside the motor.

6-3-4 CN1, 2 Connecting Method [Mark7, 8 Type]



- Detail diagram on each connector

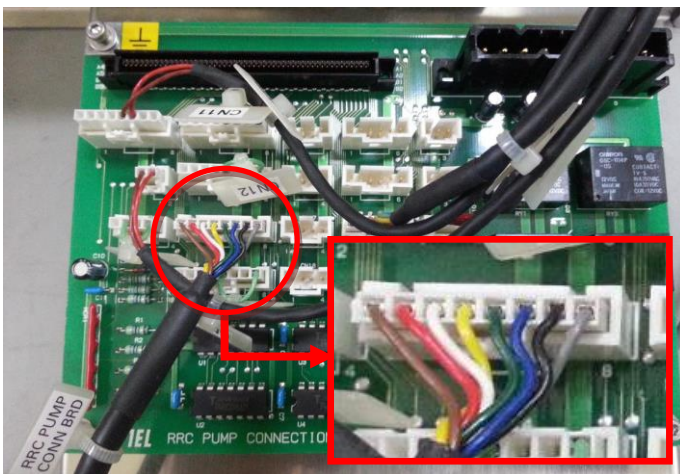


1. De-install RRC pump and install TP-60BR Pump.
(CN1 & CN2 Connectors are connected to TP-60BR pump same as RRC pump.)
2. De-install RRC Driver (CSD5807) and install Talon I/F Board (only for TP-60BR Mark type).
3. Disconnect RRC Connection Board CN11 8P Connector.
4. Disconnect CN11 #5 pin (green) Cable and put together the 5th pin cable and the other green cable with pin. Connect it to Connector #5.
5. Disconnect CN11 #8pin (gray). The other green cable, which jumped with #5 pin (green), connect to Connector #8.
6. #6 pin of Mark RRC I/F Board CN2 12P Connector #6 pin attaches RRC Connection Board CN11 8P Connector #8 pin (gray) with Molex 3P Connector.

[Notice]

TP-60BR Pump uses DC Servo Motor. So, Motor Driver is built-in inside the motor.

★ How to exchange RRC Driver with Talon I/F board ★



Original RRC Driver Condition



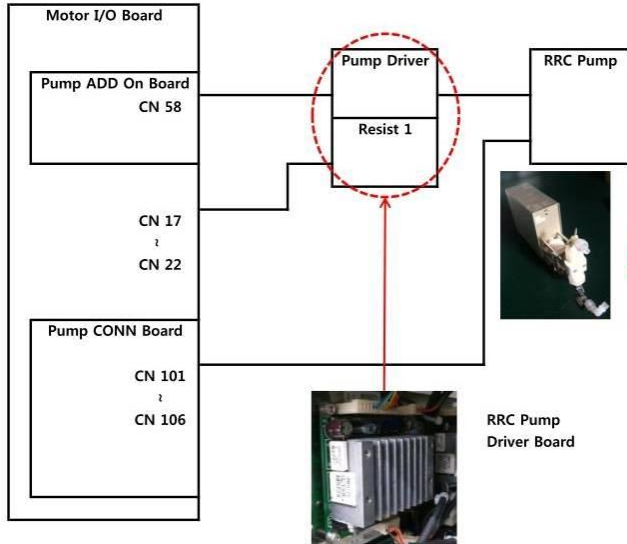
Talon I/F Board Condition



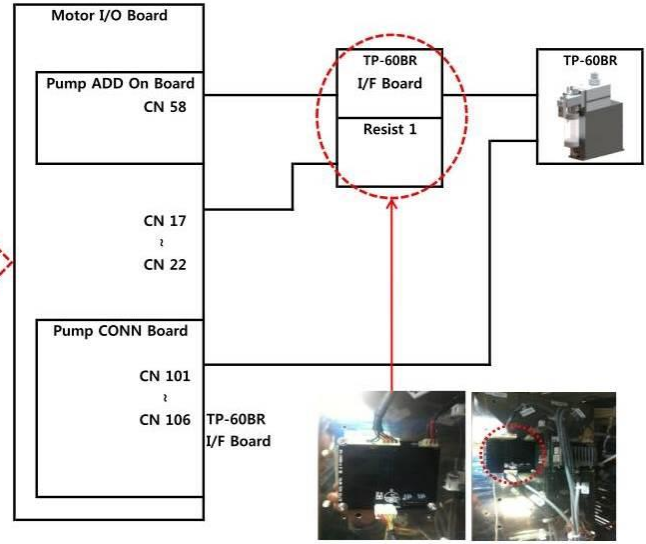
6-3-5 I/F Board Installation Method

◆ TP-60BR Pump Modify Method

* RRC Pump Cable Assignment(Original)



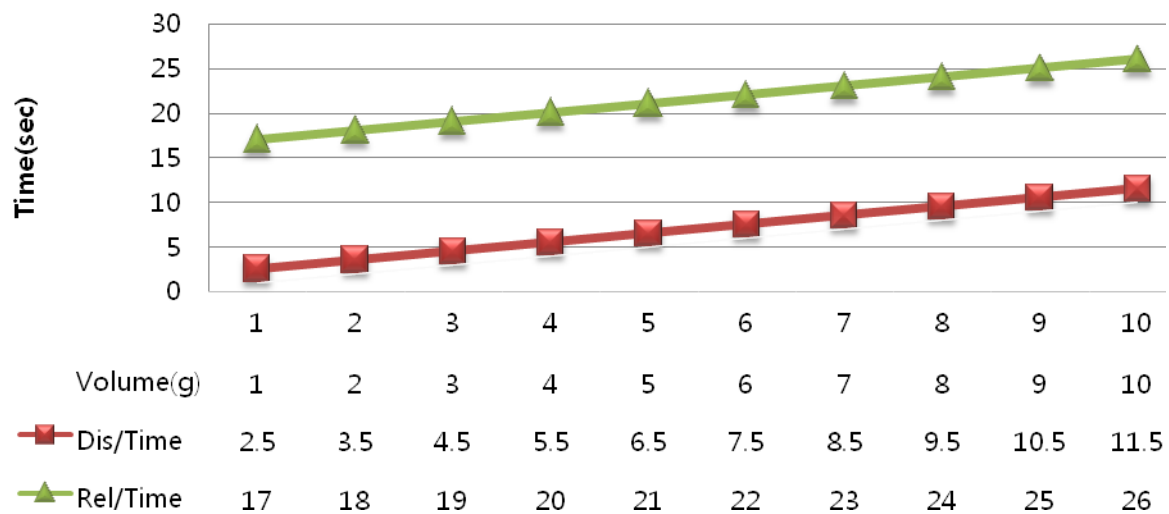
* TP-60BR Pump Cable Assignment



6-3-6 Suggested Recipe Setting Value (PR viscosity: 1,800cP standard)

Volume(g)	Data Input	Dispense/Time	Data Input	Reload/Time	Data Input
1	100	2.5	250	17	1700
2	200	3.5	350	18	1800
3	300	4.5	450	19	1900
4	400	5.5	550	20	2000
5	500	6.5	650	21	2100
6	600	7.5	750	22	2200
7	700	8.5	850	23	2300
8	800	9.5	950	24	2400
9	900	10.5	1050	25	2500
10	1000	11.5	1150	26	2600

Suggested setting value as per time



Dispense time(D/T) formula : $\text{Volume(g)} + 1.5 = \text{D/T} \Rightarrow \text{ex } 18 + 1.5 = 19.5$

Reload time formula : $\text{Volume(g)} + 16 = \text{R/T} \Rightarrow \text{ex } 18 + 16 = 34$

※ The above data is based on 1,800cP. It is supposed to be changed upon cP.

<THE END>