



Mini 4-cylinder diesel engine

## Basic product information

Product Name: Mini 4-cylinder diesel engine

Product model: DM115

Main materials: anodized aluminum + stainless steel

Charging voltage: DC 5V

Battery capacity: 680mah

Assembly difficulty: Level IV

Product standard: GB/t9254-2008  
GB/T17626.2-2006

Quality inspection: A

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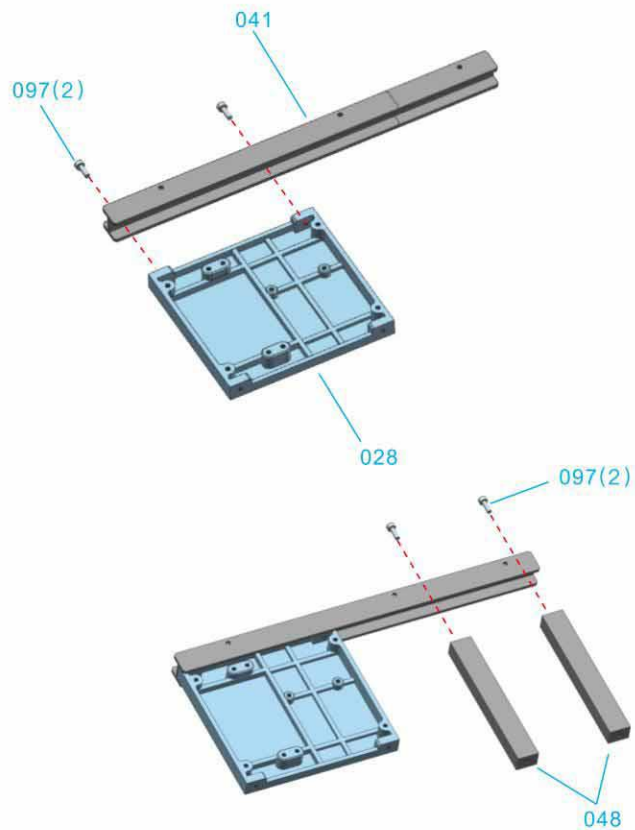
## 二、Product parts list

59-65

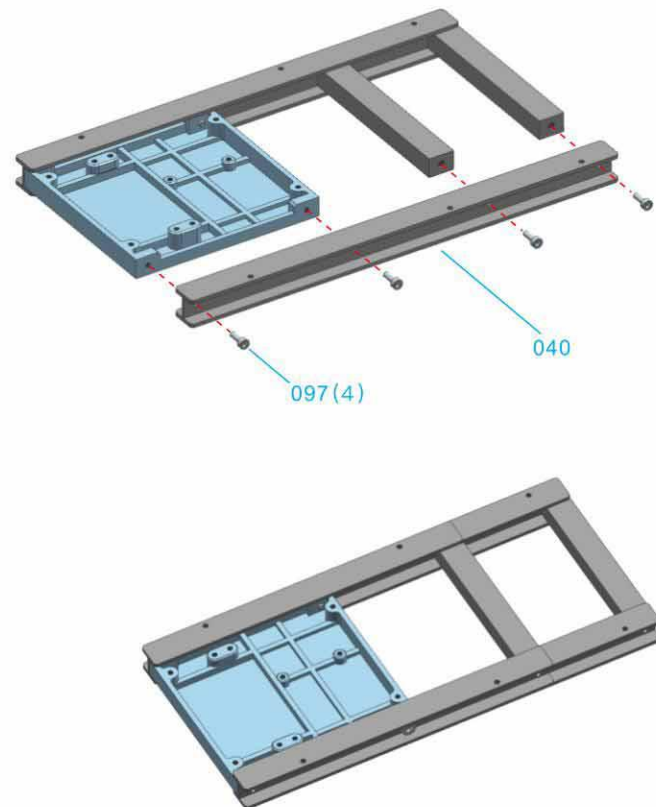
## 一、Product assembly instructions

1. -Assemble the base assembly

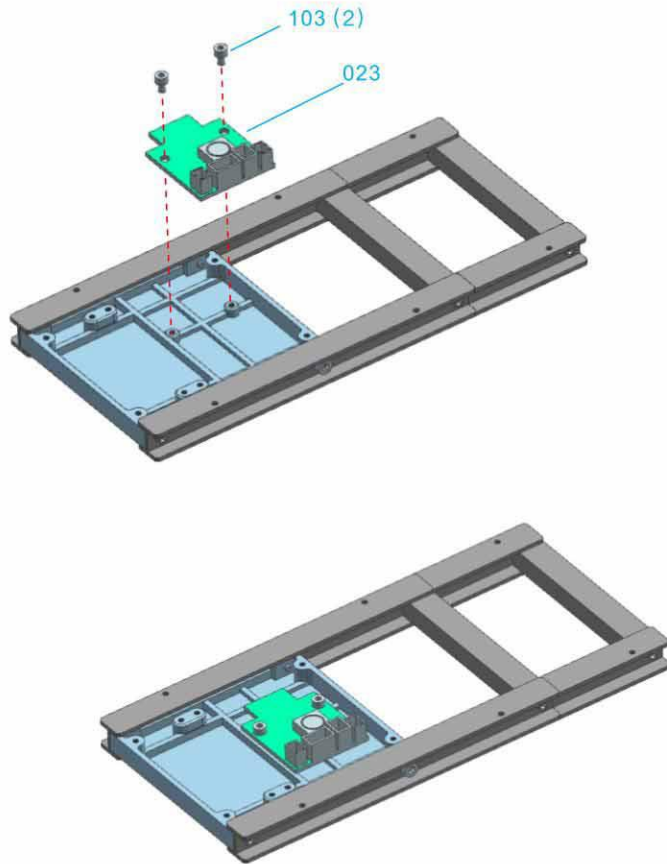
1.1 -Assemble the battery base



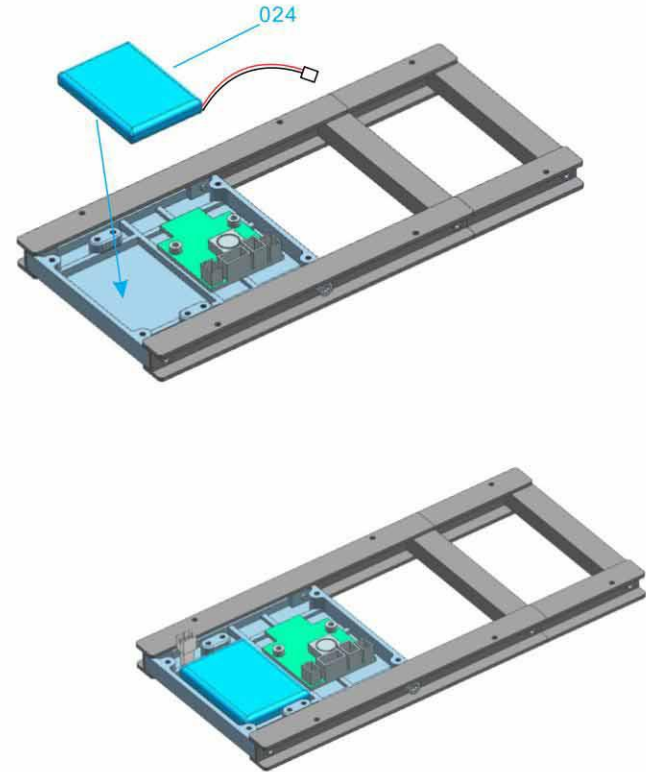
1.2 -Assemble longitudinal beam



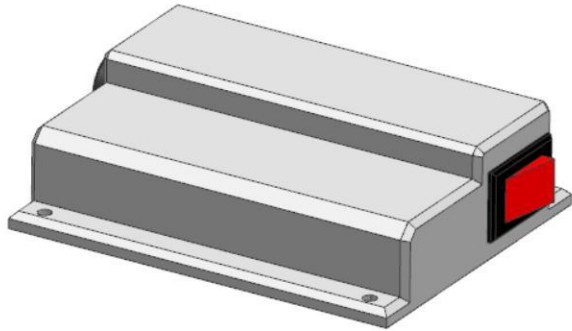
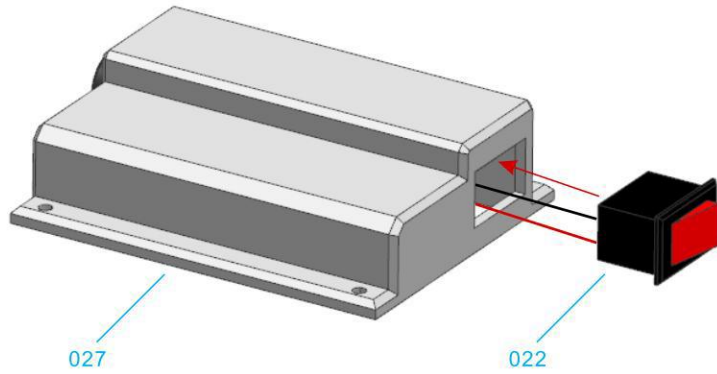
1.3  
-Assembling circuit board



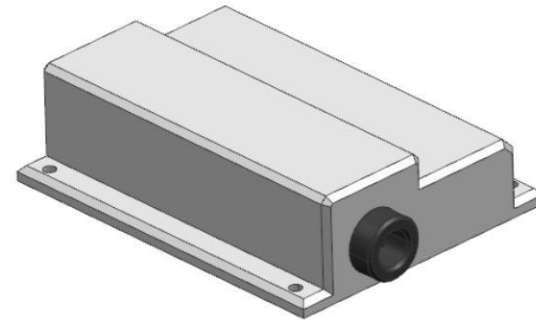
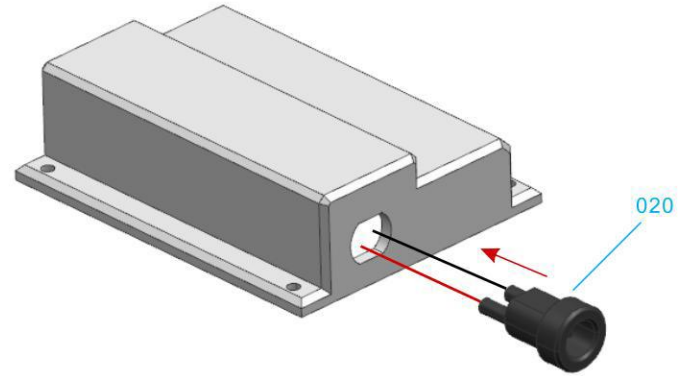
1.4  
-Assembling the battery



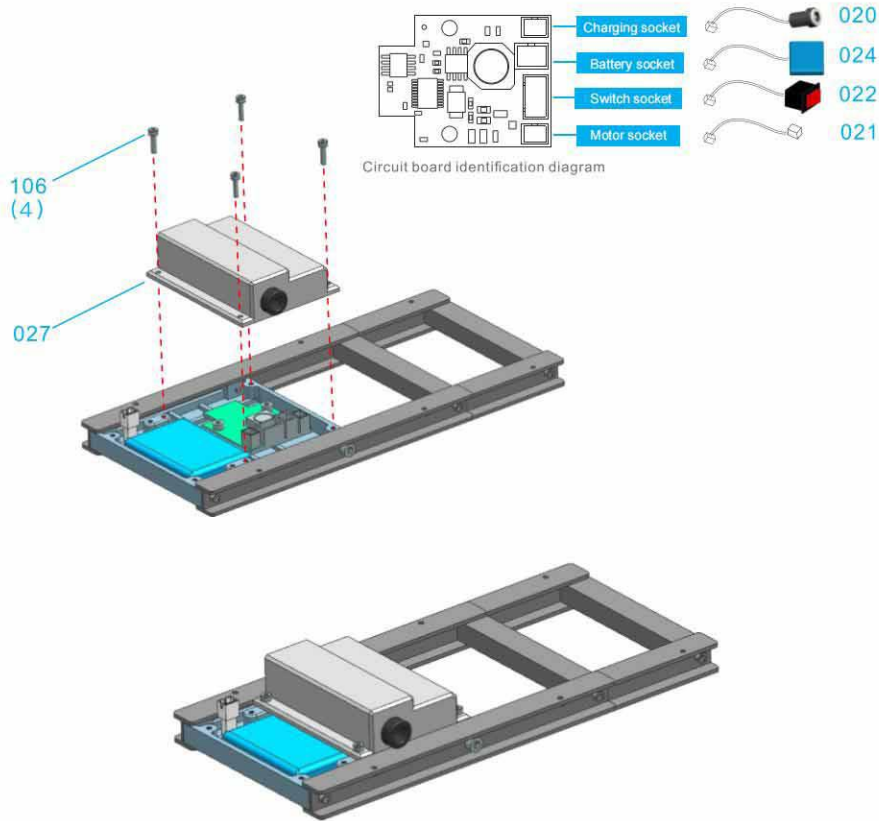
1.5  
-Assemble the switch



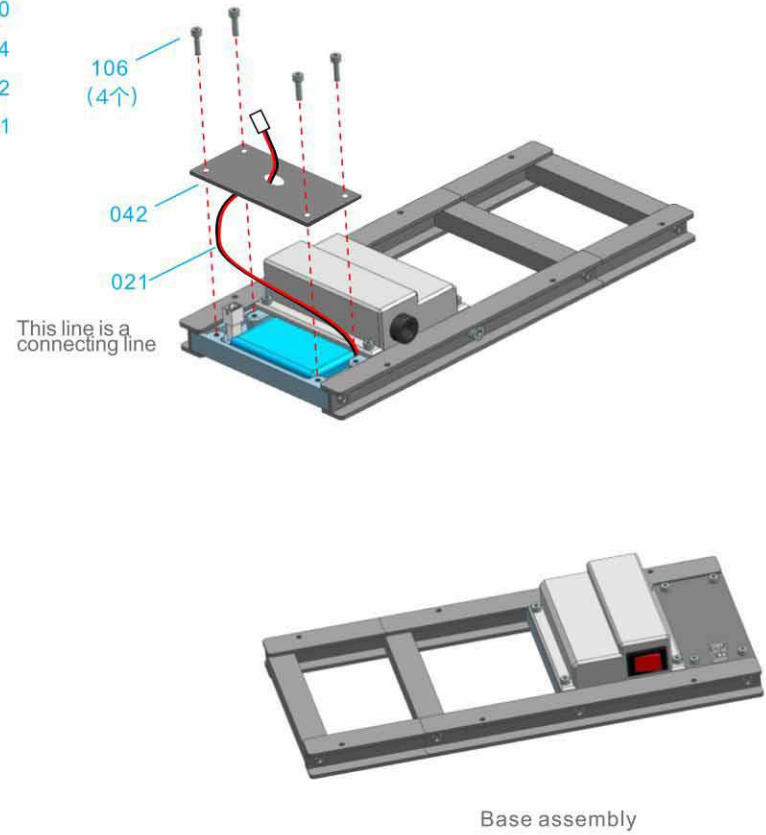
1.6  
-Assembling charging head



### 1.7 -Assemble the circuit board cover

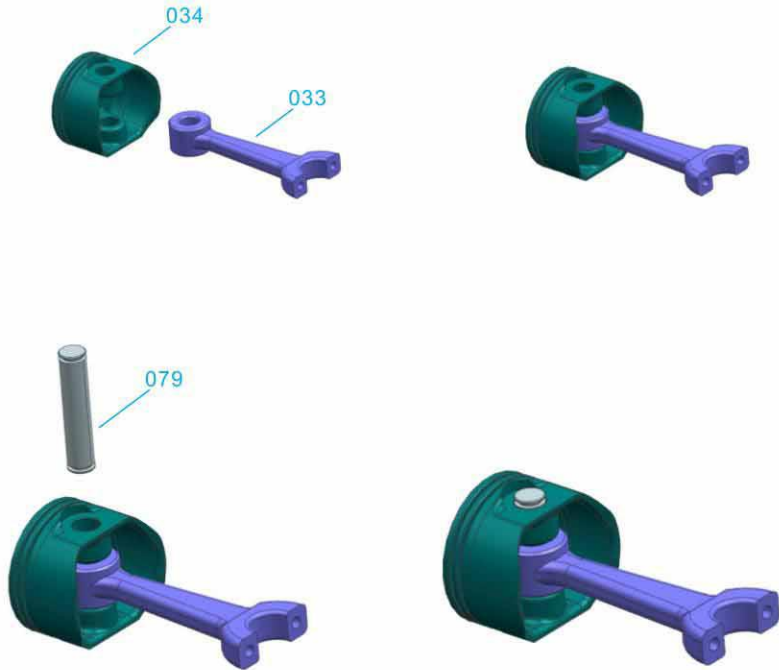


### 1.8 -Assemble the battery cover

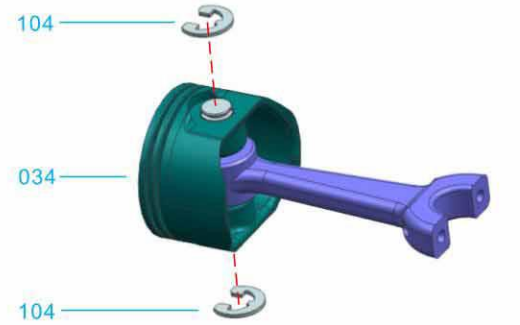


## 2.-Assemble piston connecting rod assembly

### 2.1-Assemble the piston connecting rod



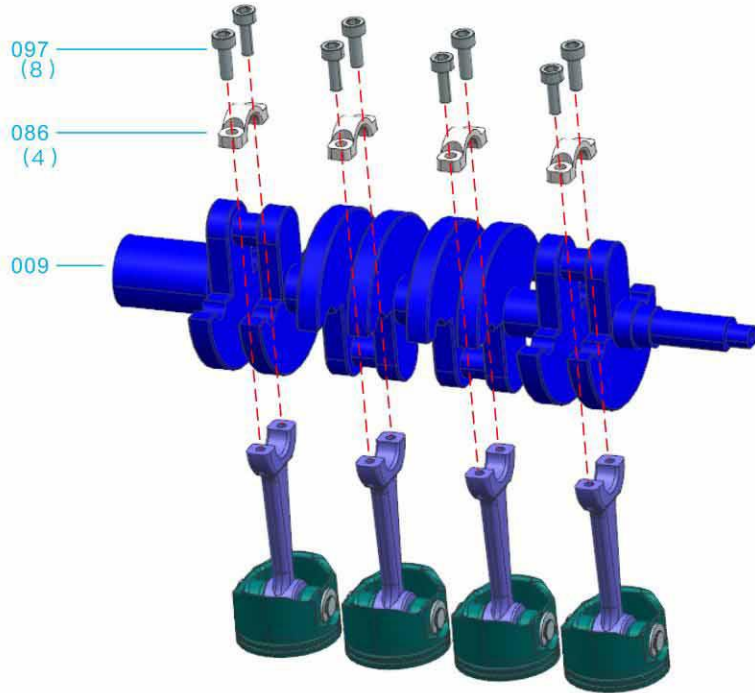
### 2.2-Assemble the circlip



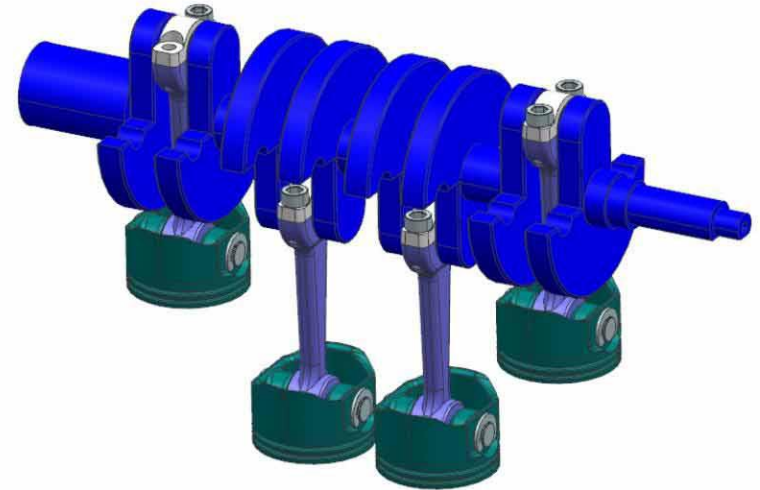
4 groups in total

### 3.-Assemble crankshaft assembly

#### 3.1 -Assemble connecting rod assembly

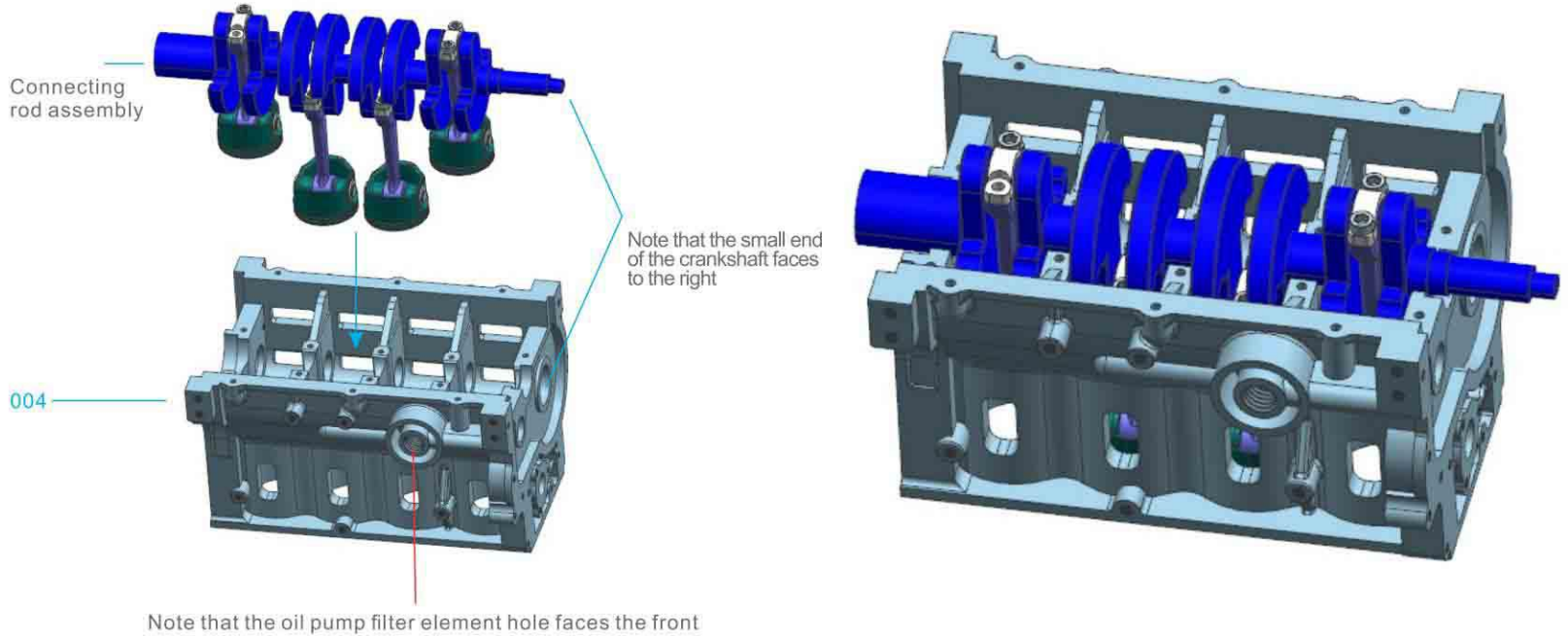


Connecting rod assembly

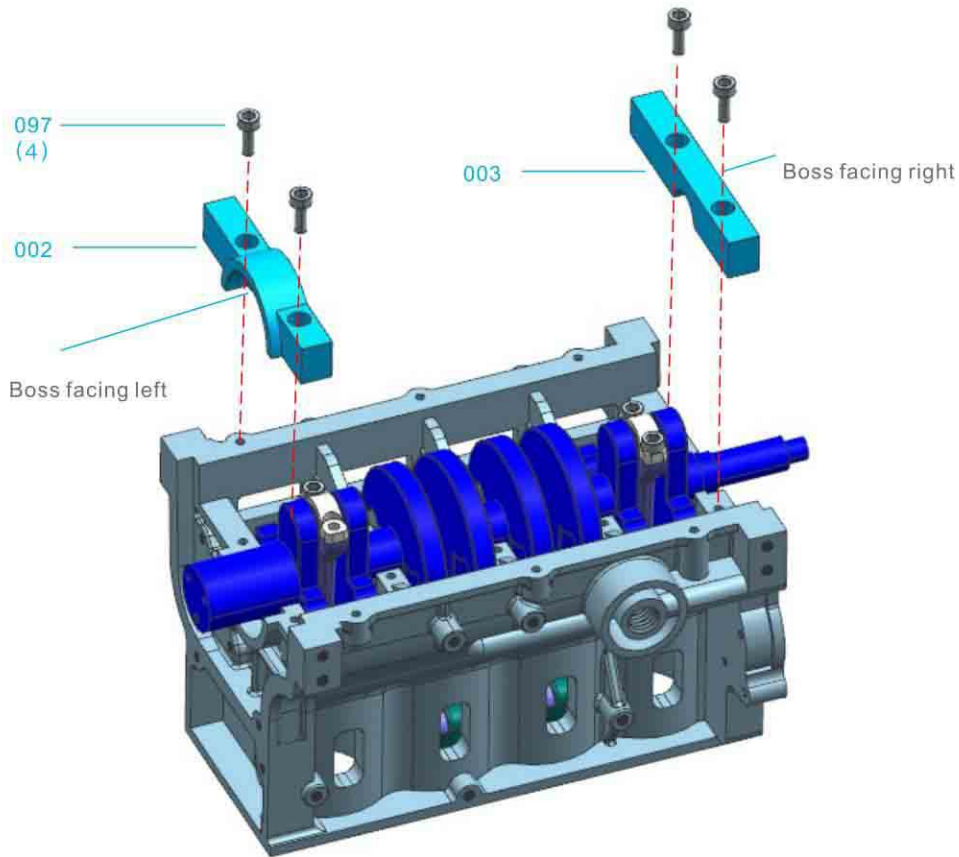




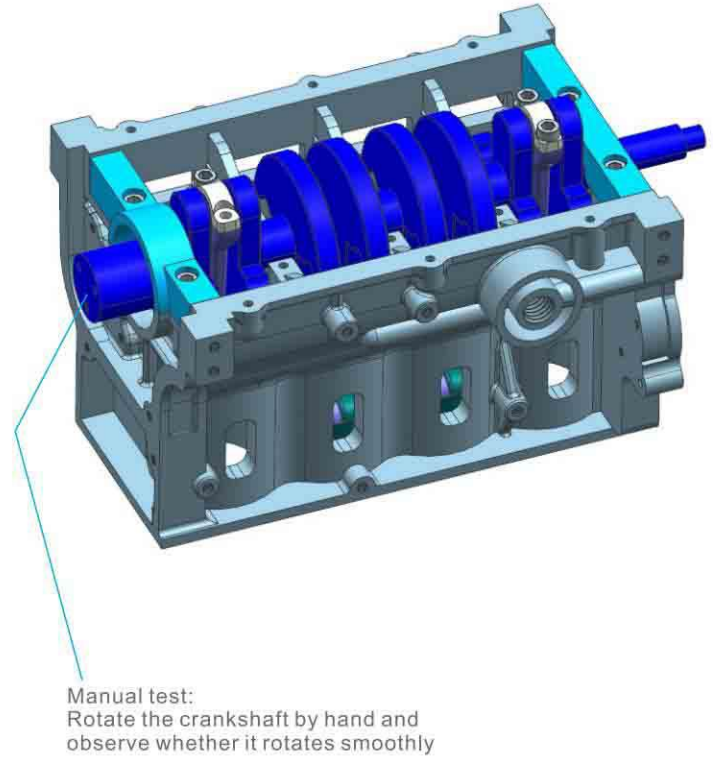
### 3.2 -Assemble crankshaft and cylinder block



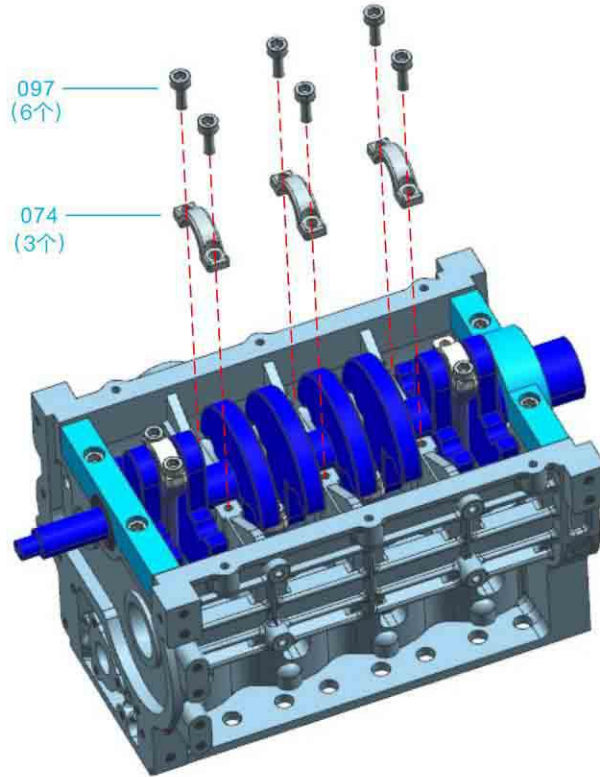
### 3.3 - Assemble crankshaft end gland



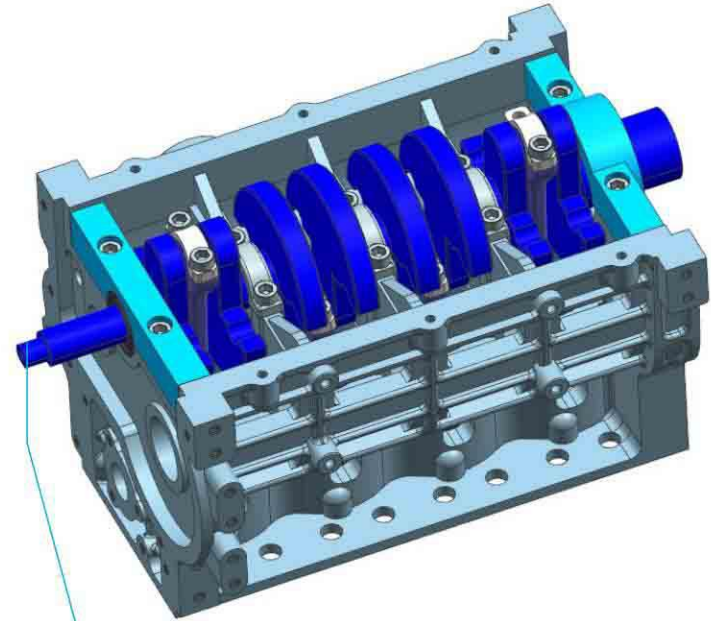
### 3.4 - Manual test



### 3.5 -Assemble crankshaft gland



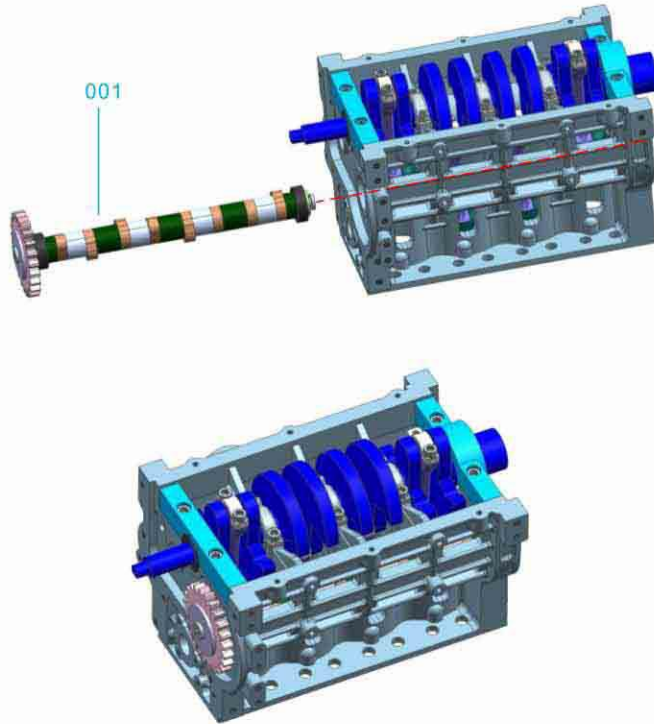
### 3.6 -Manual test



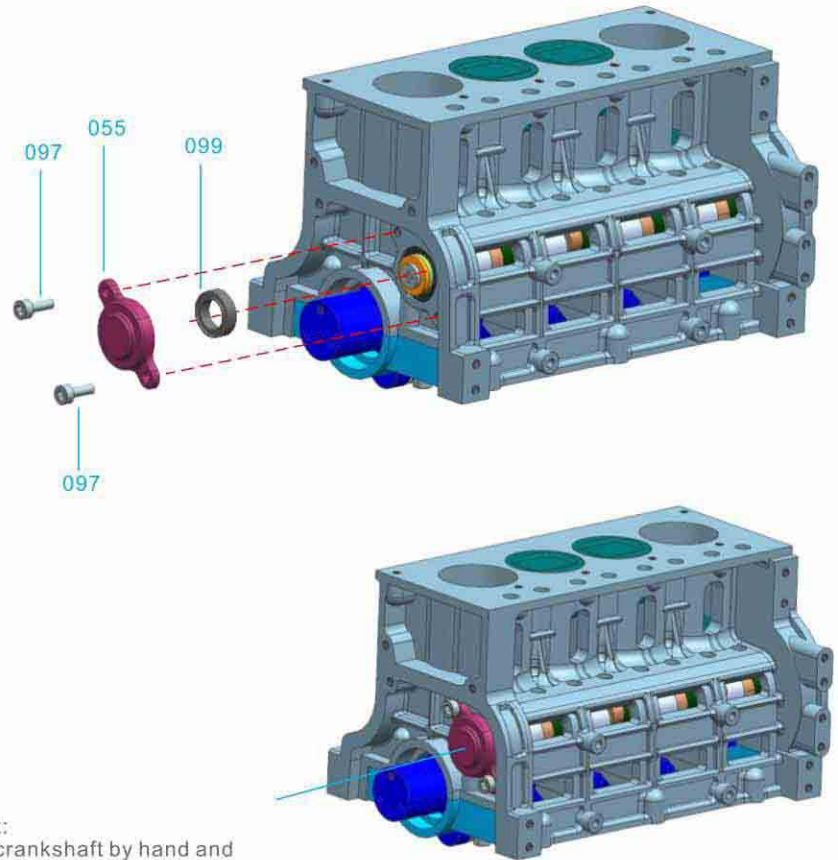
Manual test:  
Rotate the crankshaft by hand and  
observe whether it rotates smoothly

#### 4.-Assemble camshaft assembly

##### 4.1 -Assemble the camshaft



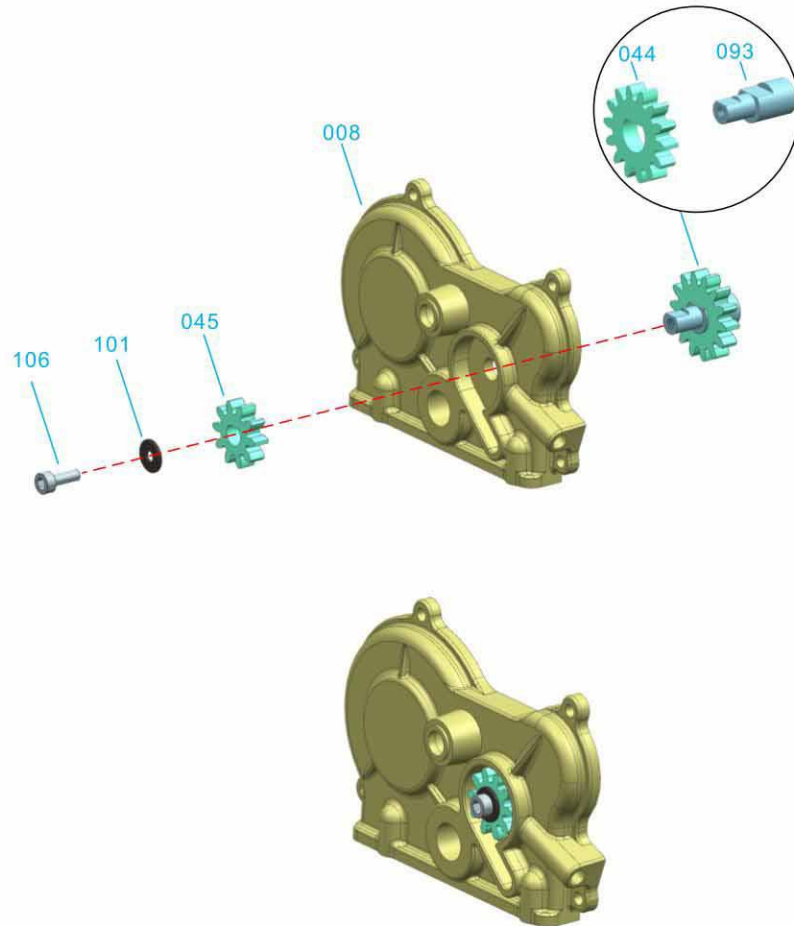
##### 4.2 -Assemble the camshaft end cover



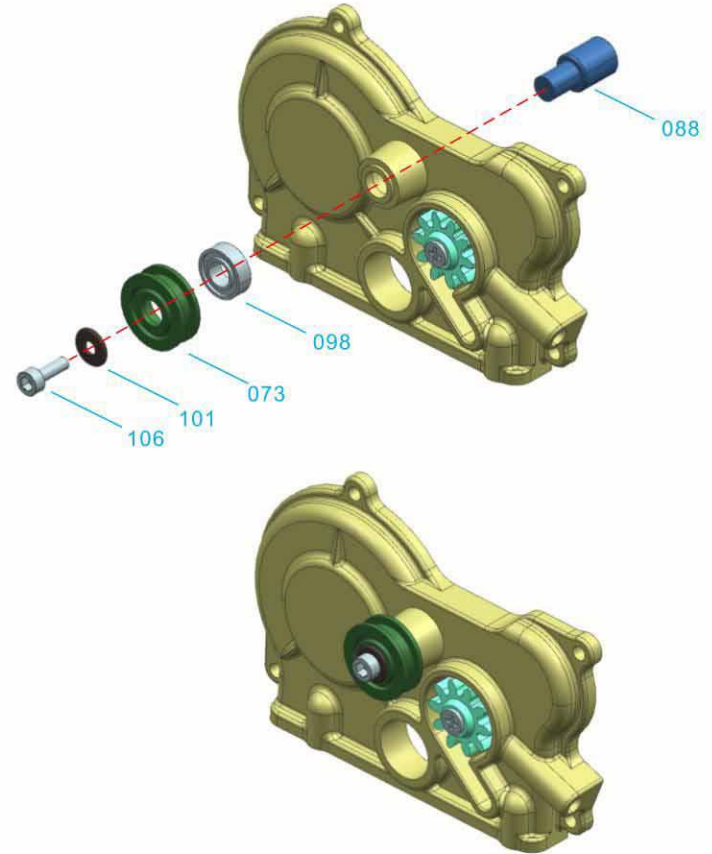
Manual test:  
Rotate the crankshaft by hand and  
observe whether it rotates smoothly

5.-Assemble the oil pump end cover assembly

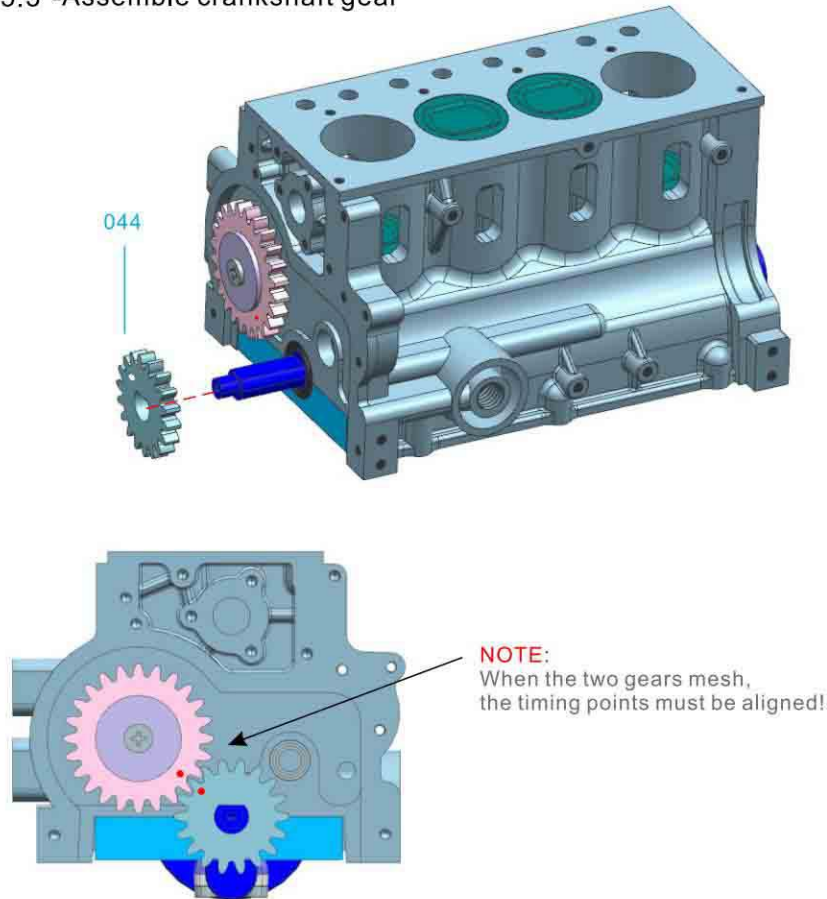
5.1-Assemble the oil pump end cover gear



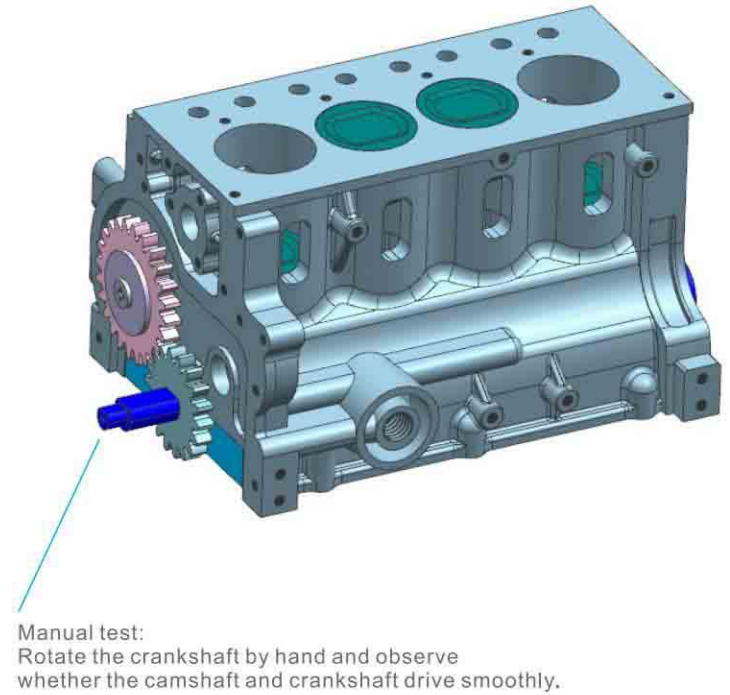
5.2-Assemble the oil pump end cover gear



### 5.3 -Assemble crankshaft gear

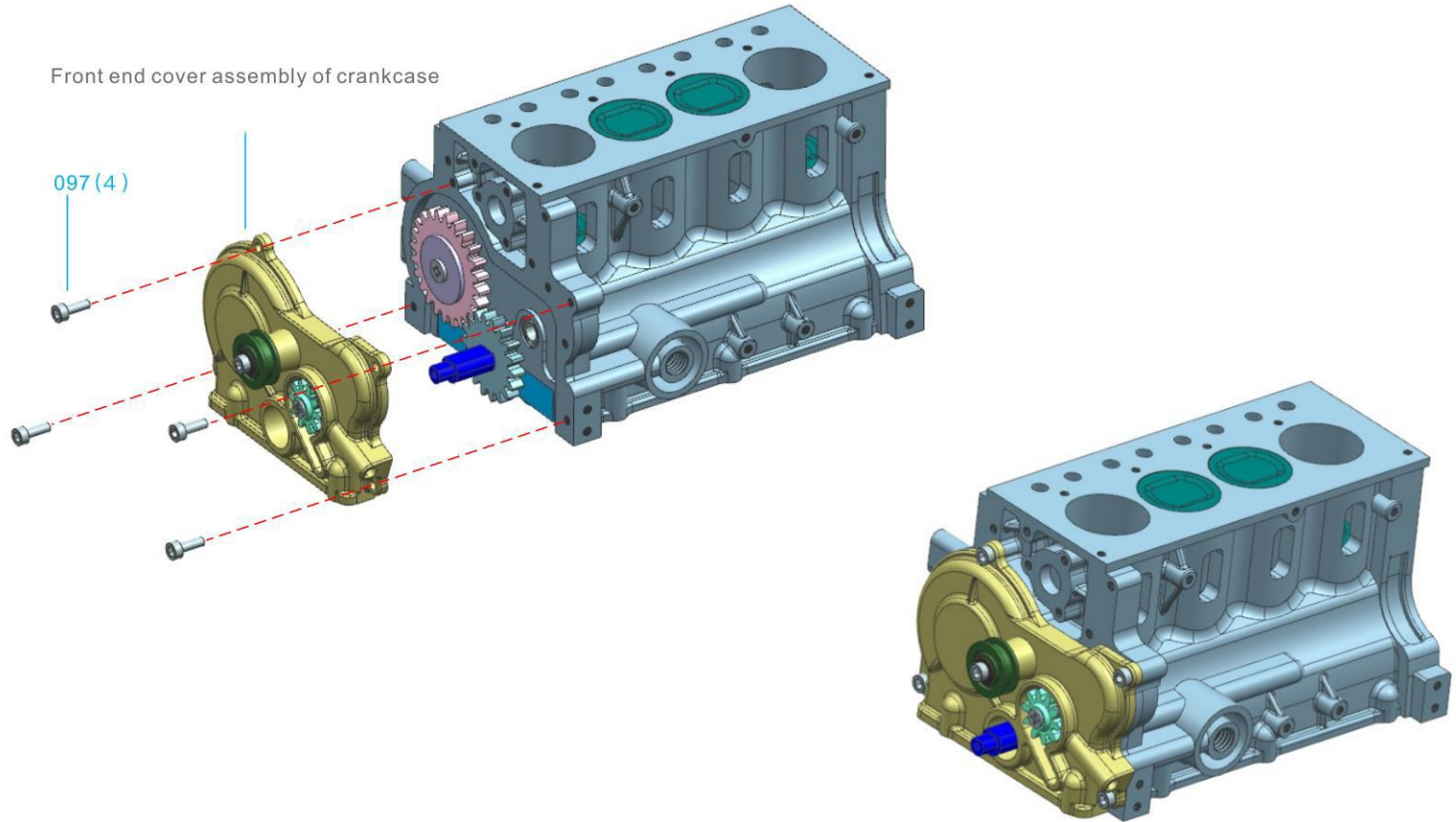


### 5.4 -Manual test

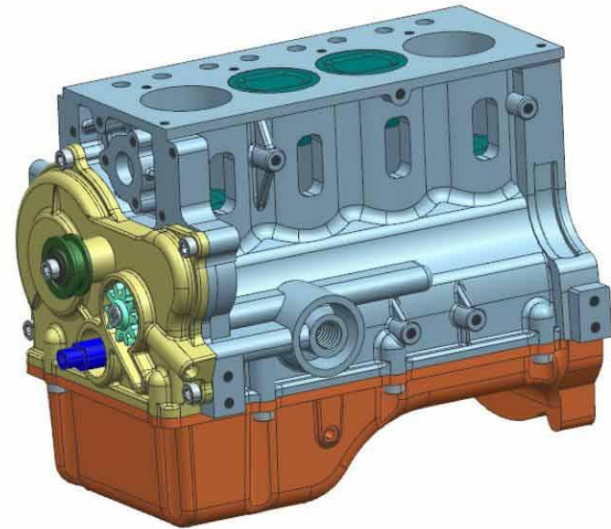
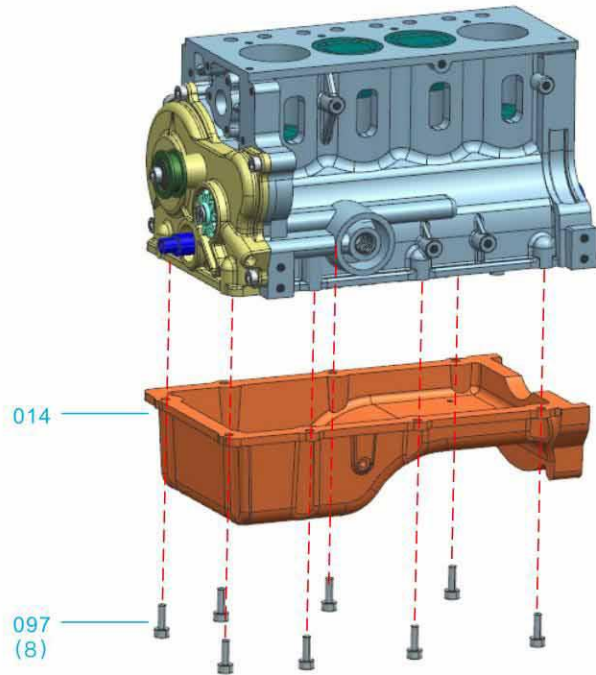


## 5.5 -Assemble the oil pump end cover assembly

Front end cover assembly of crankcase



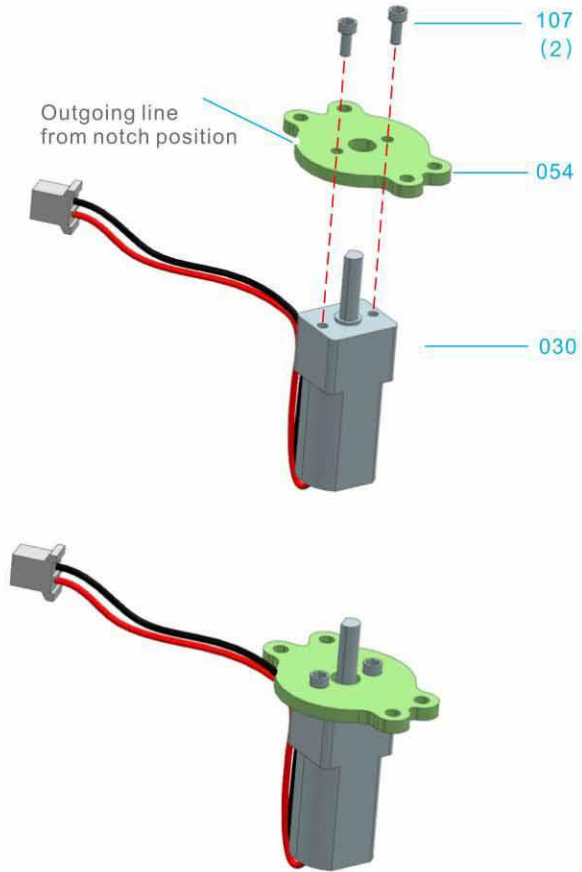
6. -Assemble the oil pan



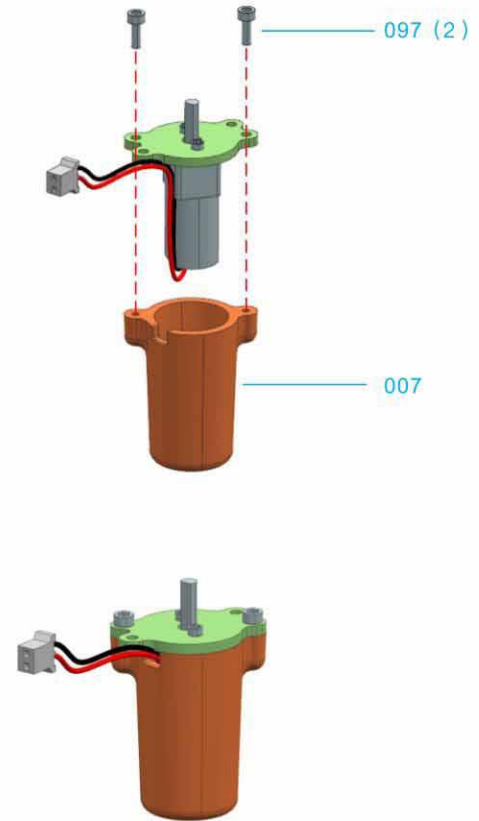


## 7. -Assemble flywheel housing assembly

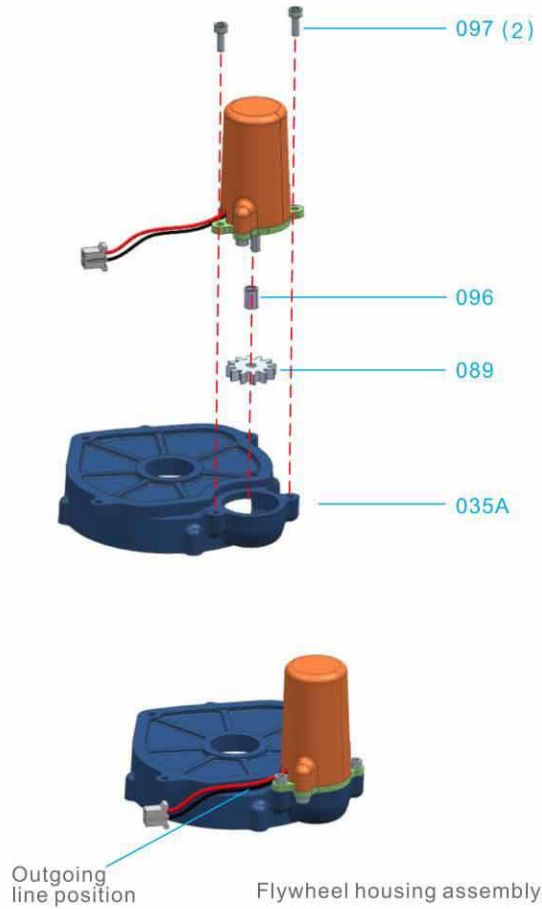
### 7.1 -Assemble motor assembly



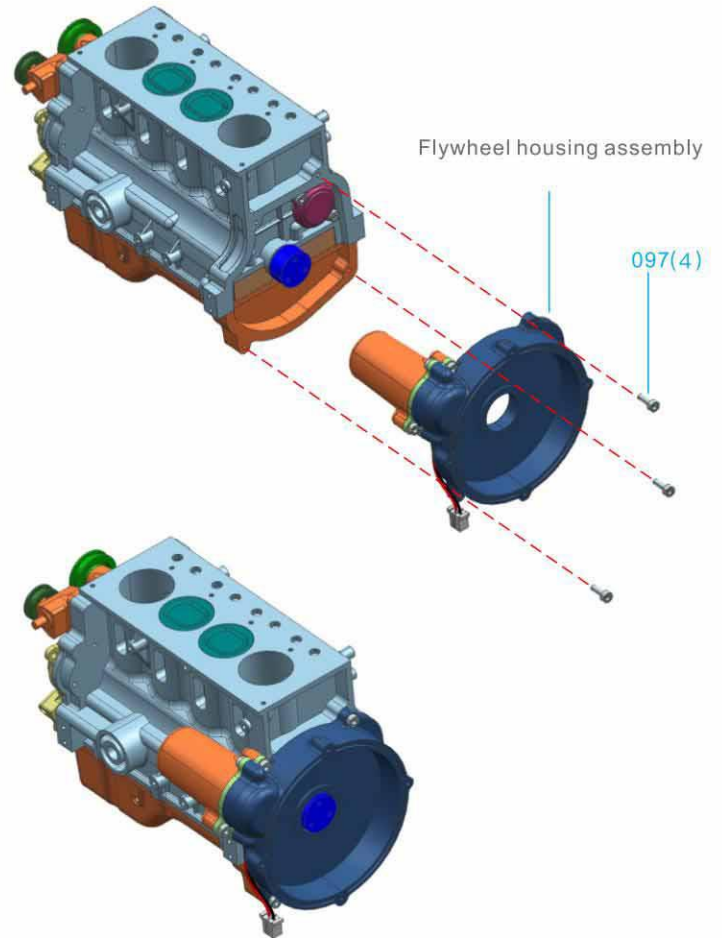
### 7.2-Assemble the motor cover



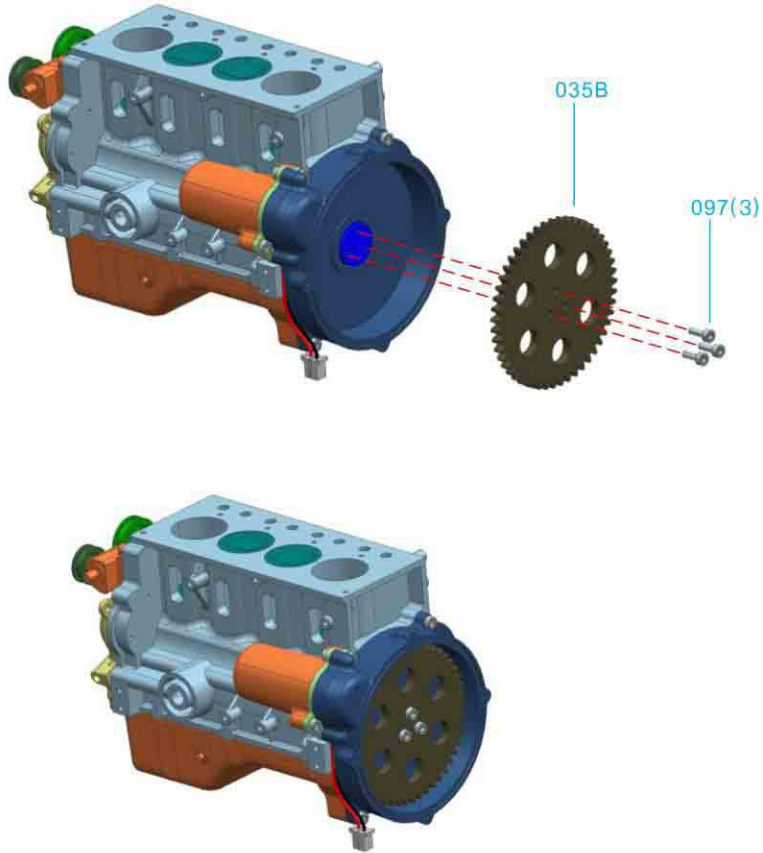
### 7.3-Assemble flywheel fixing seat



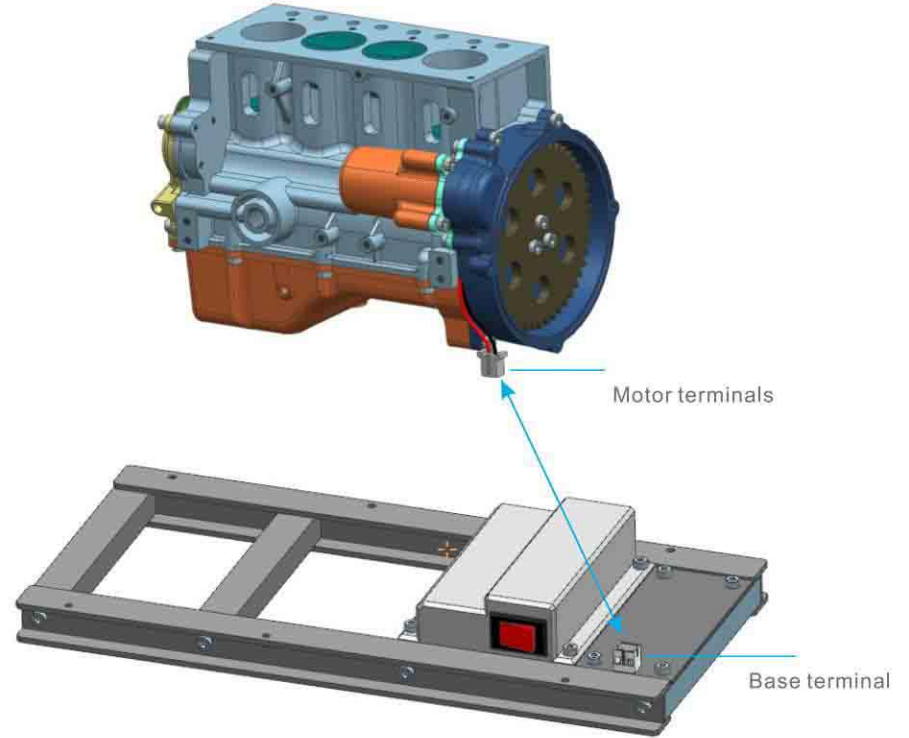
### 7.4 -Assemble flywheel fixing seat assembly



### 7.5 -Assemble flywheel fixing seat assembly



### 7.6 -Electric test

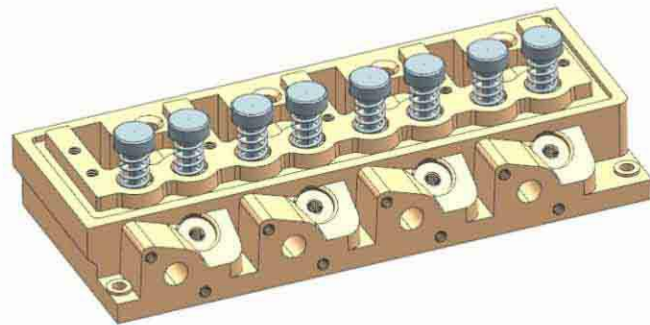
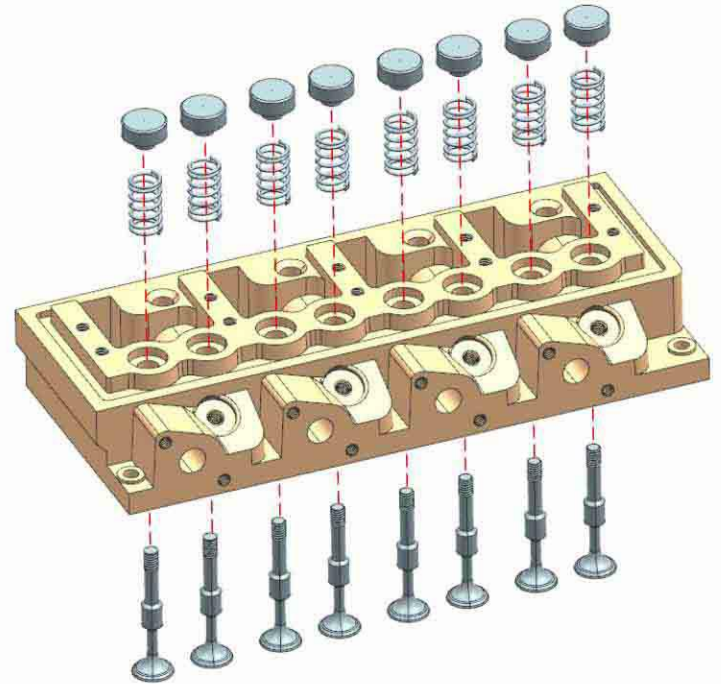
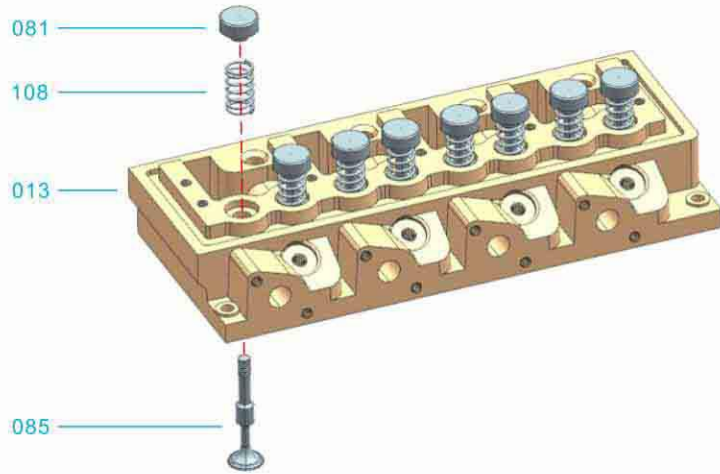


Steps:

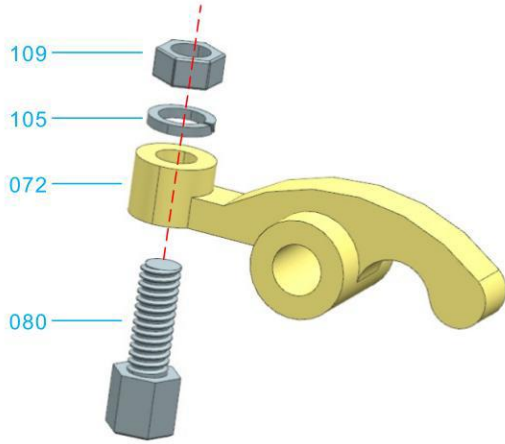
1. Connect the motor and the base terminal
2. Start the switch and observe whether the motor and each group operate normally

8. -Assemble cylinder head assembly

8.1-Assemble the cylinder head valve

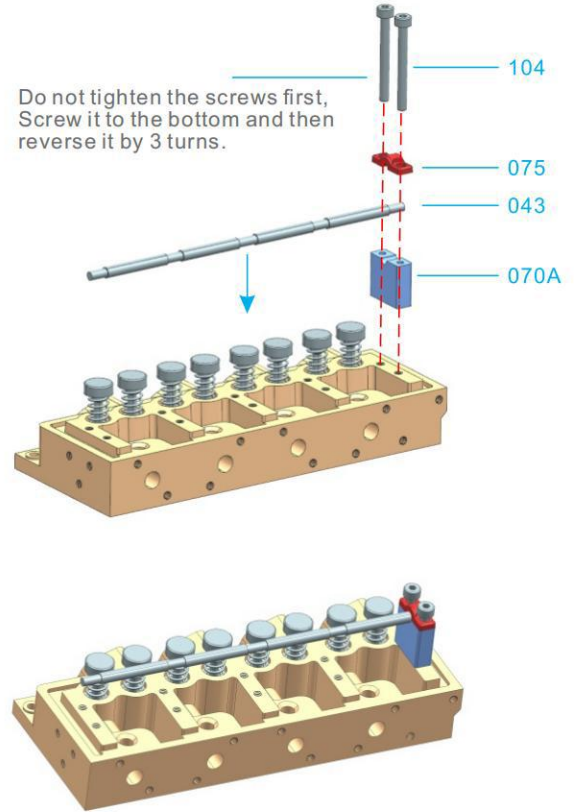


### 8.2 -Assemble the rocker arm

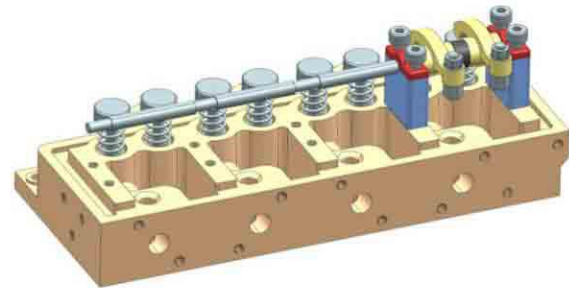
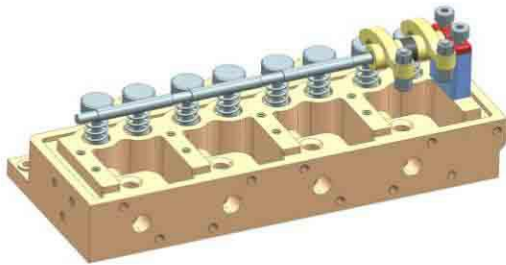
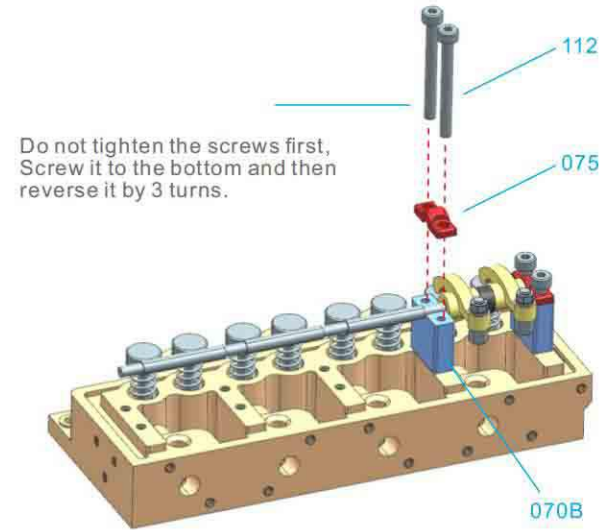
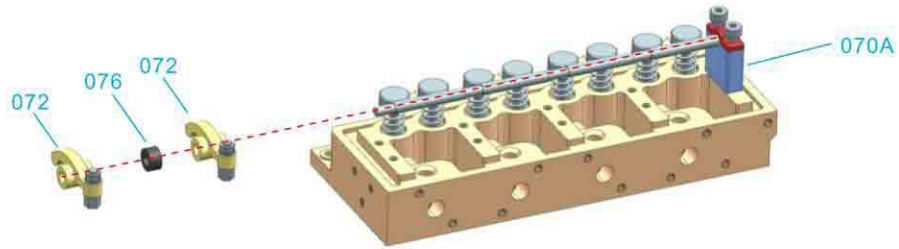


8 groups in total

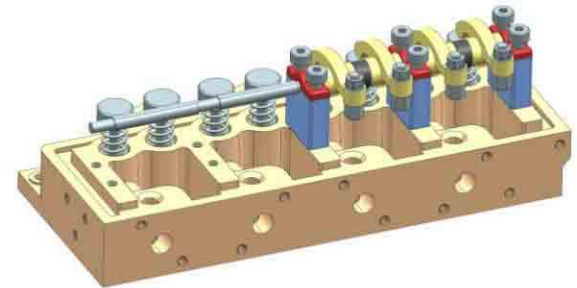
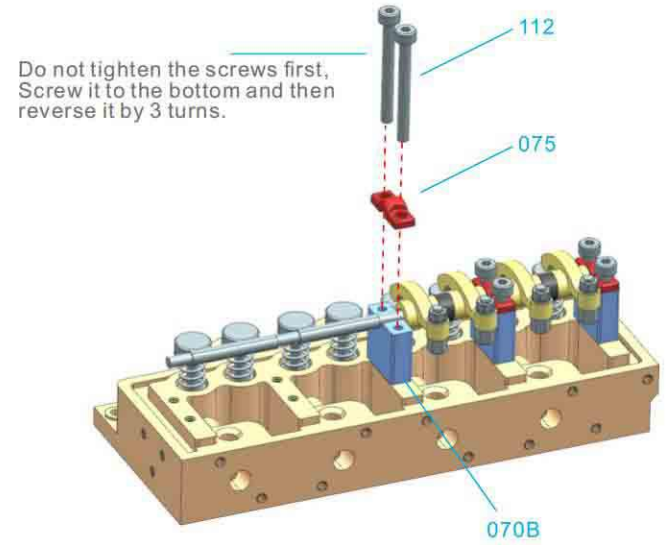
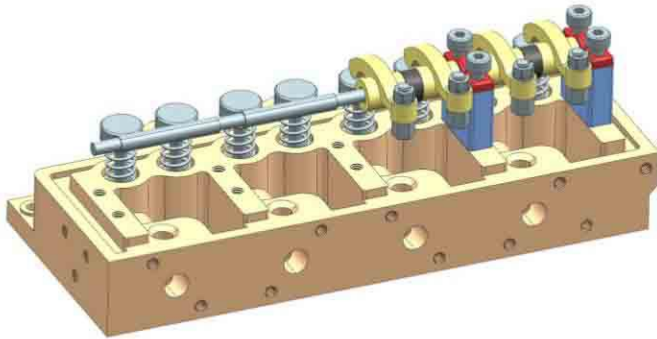
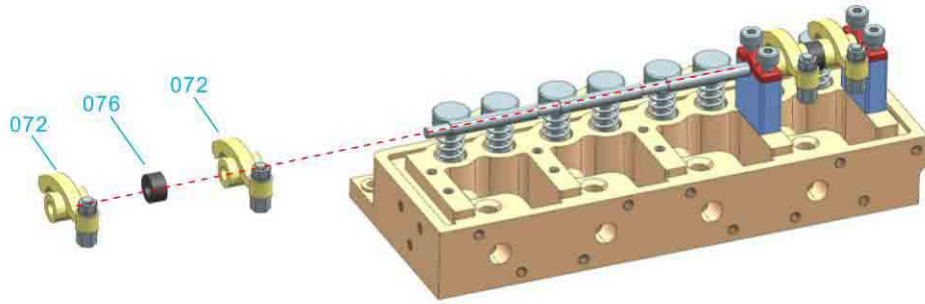
### 8.3 -Assemble the rocker shaft



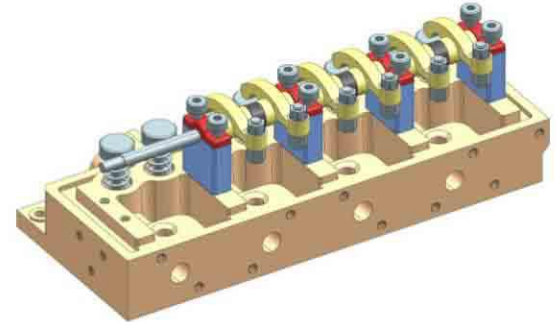
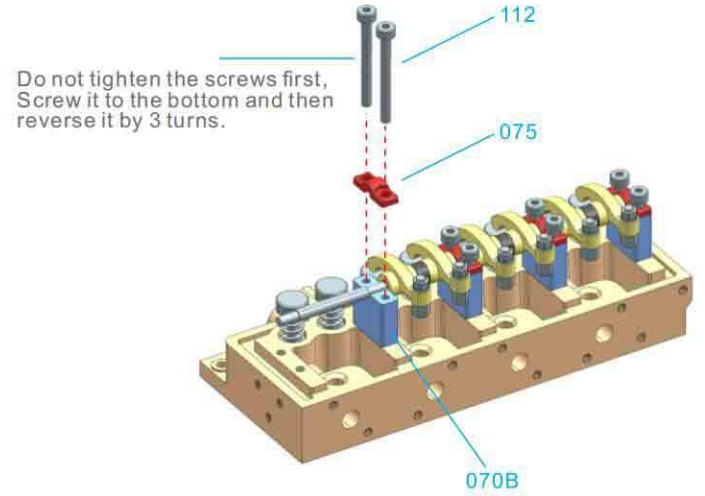
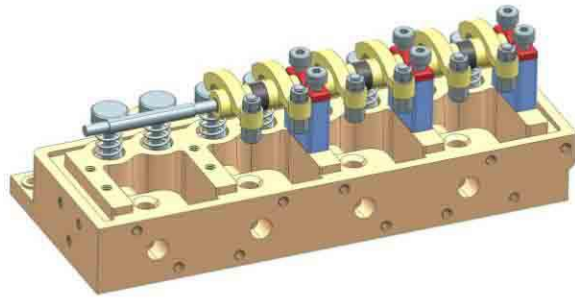
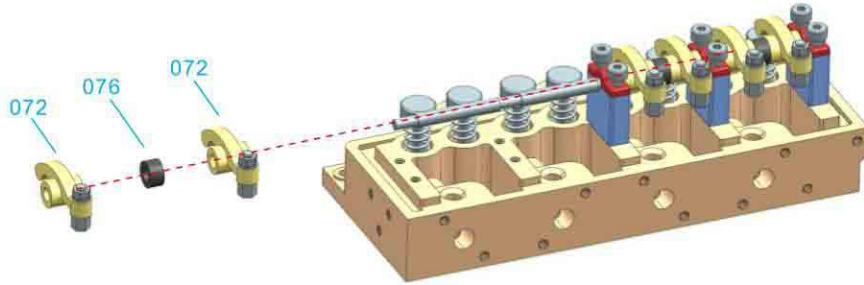
#### 8.4 -Assemble the first group of rocker shaft assemblies



### 8.5 - Assemble the second group of rocker shaft assemblies

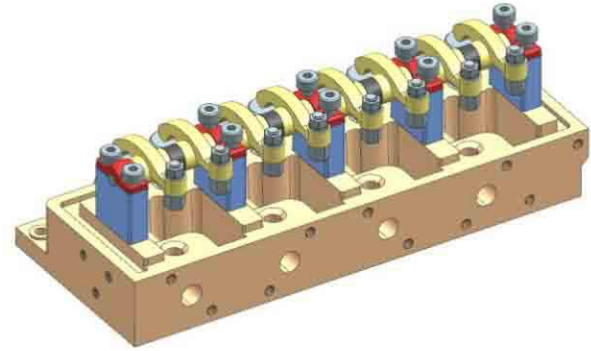
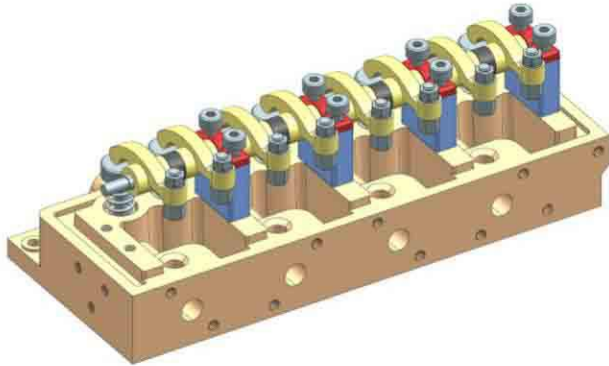
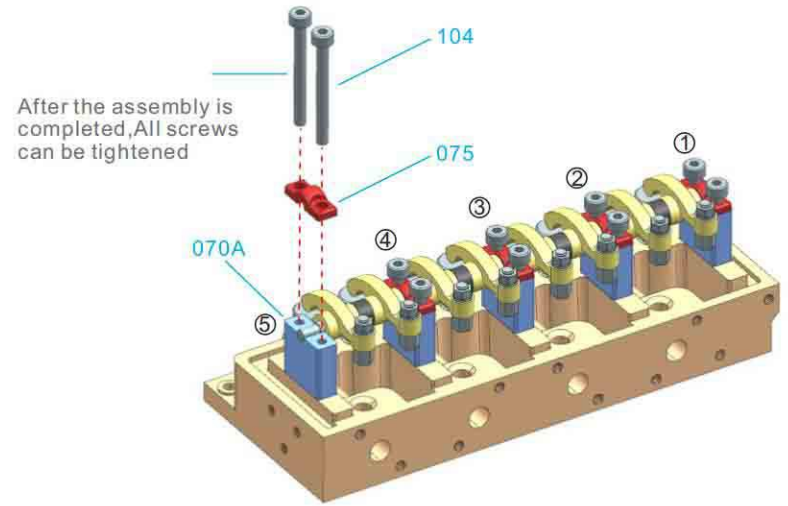
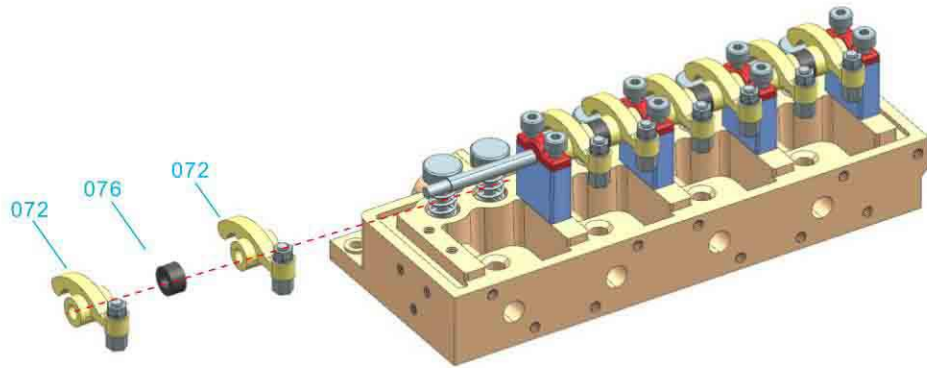


### 8.6 -Assemble the second group of rocker shaft assemblies

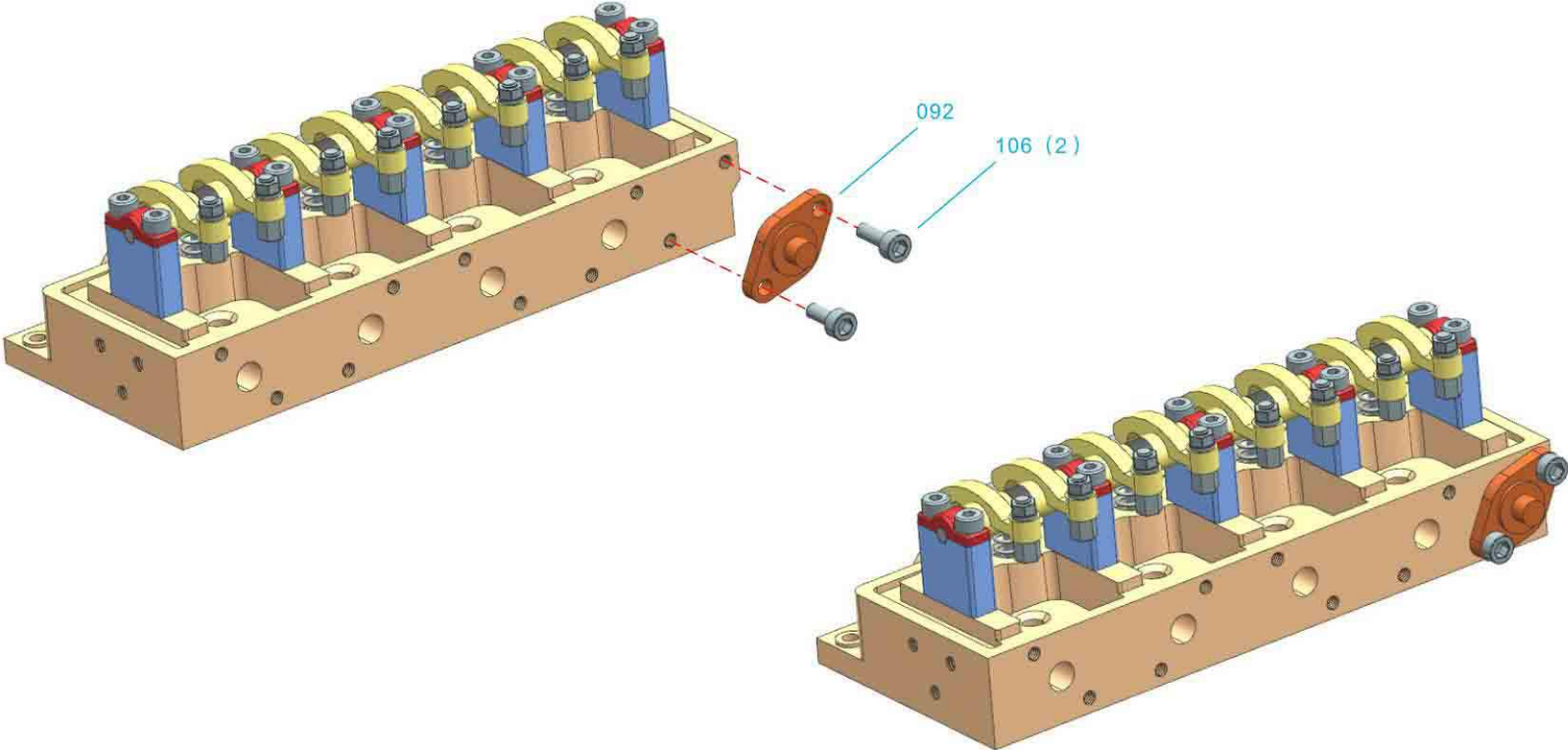




### 8.7 -Assemble the fourth group of rocker shaft assembly

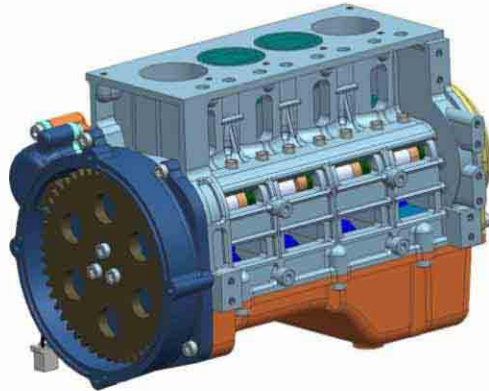
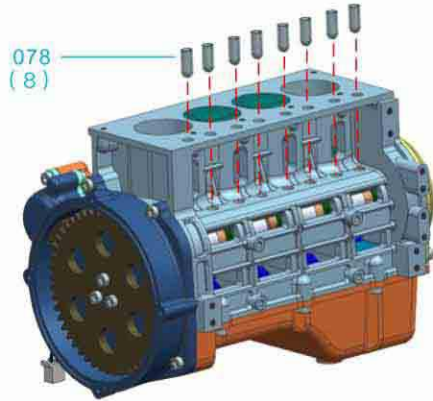


8.8 -Assemble the connection port of water tank pipe

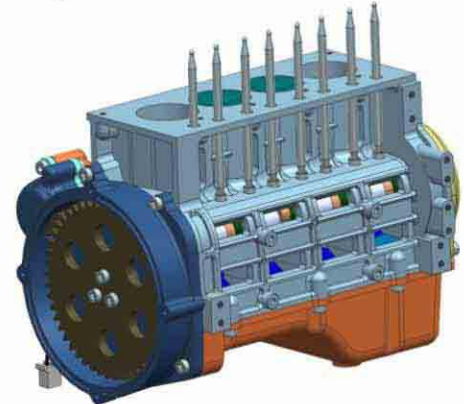
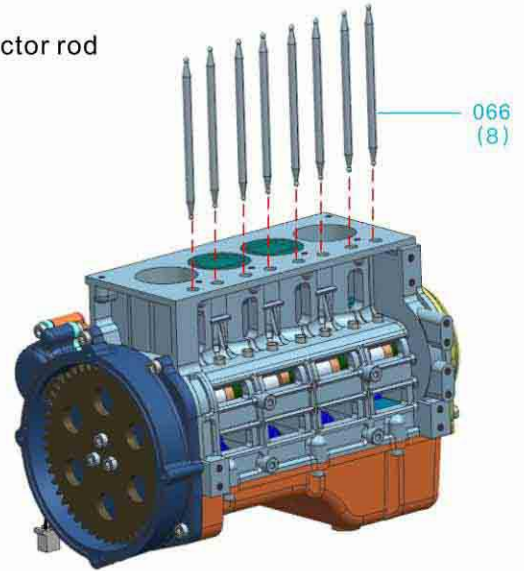


9. -Butt joint cylinder block and cylinder head assembly

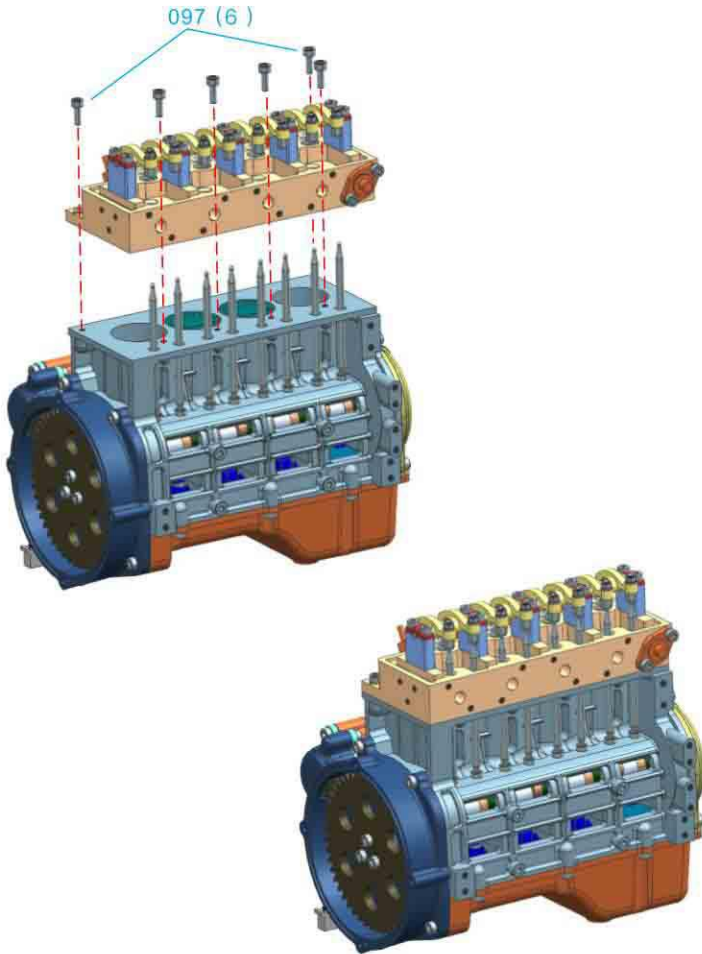
9.1 -Assembling ejector rod sleeve



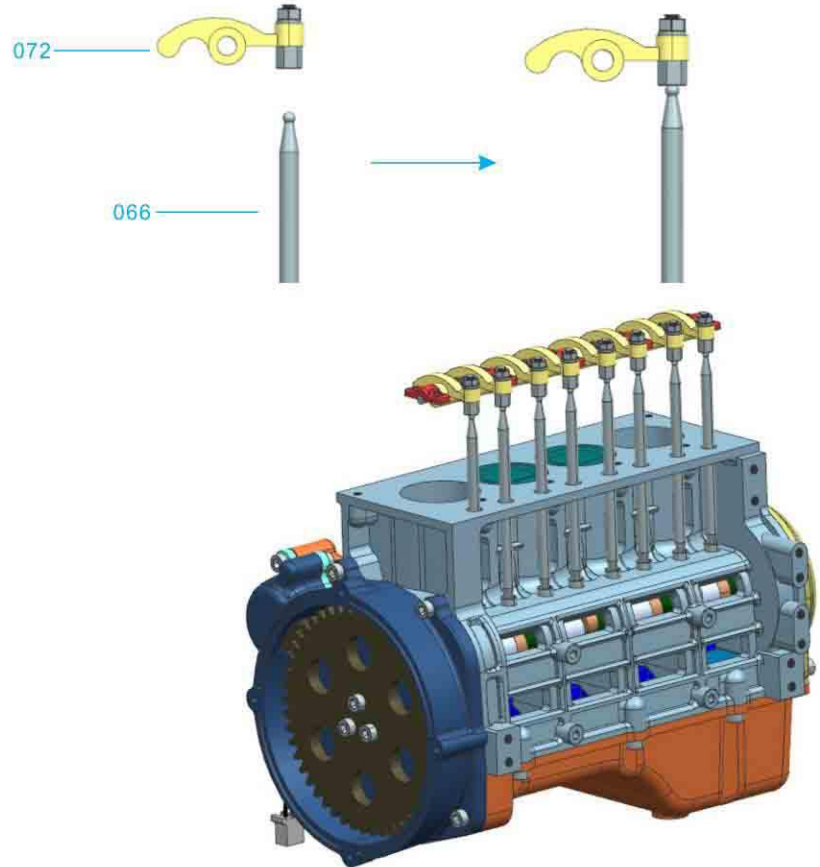
9.2 -Assembling ejector rod



### 9.3 -Assemble cylinder head assembly

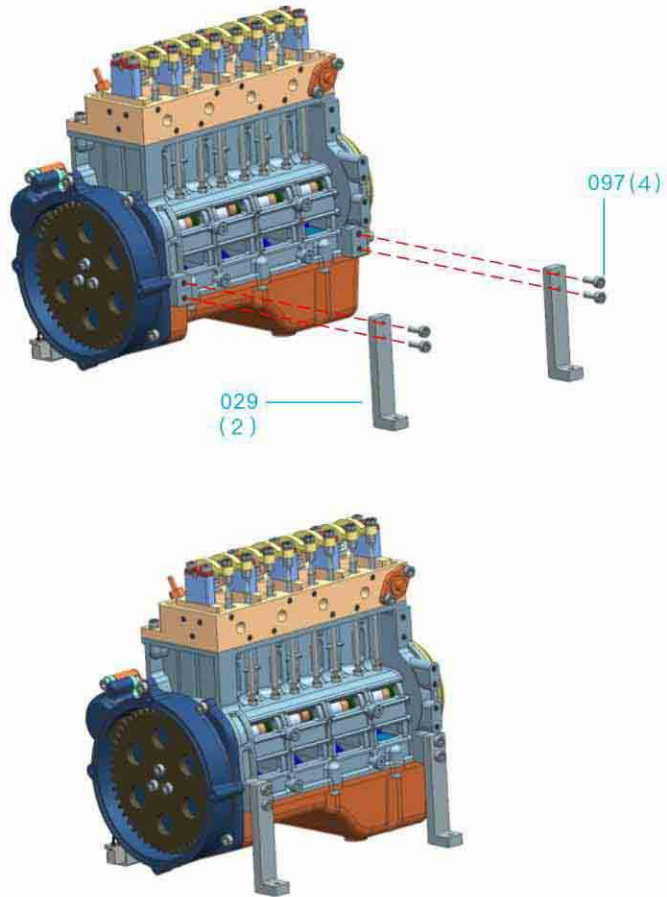


Note: the ejector rod shall be inserted into the upper sleeve of the corresponding ejector rod

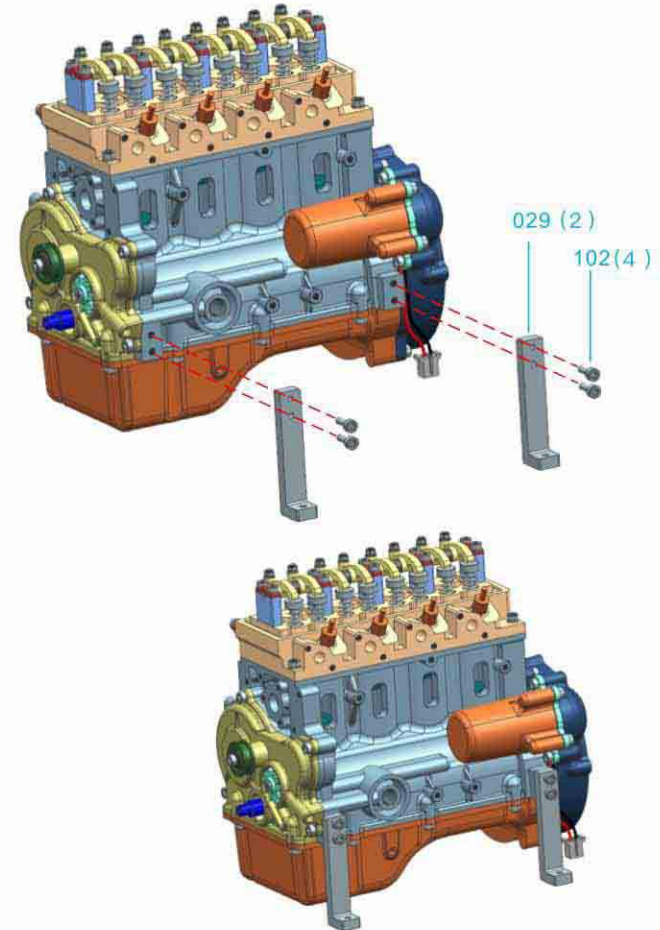


## 10.-Assemble engine support

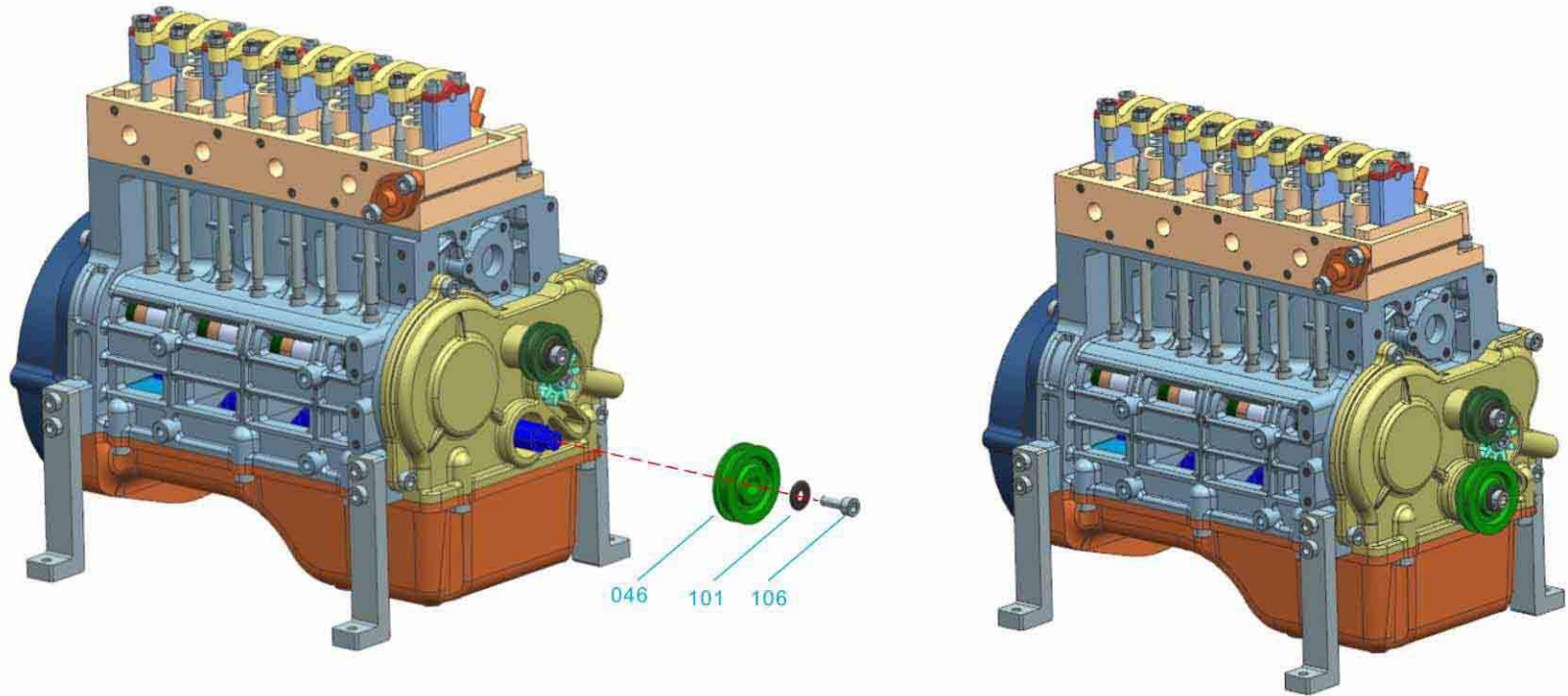
### 10.1-Assemble the right bracket



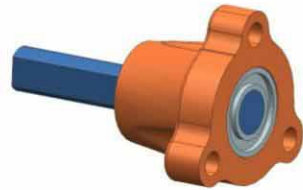
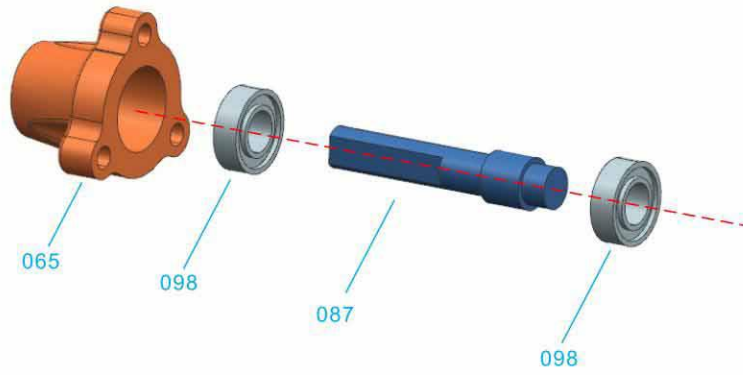
### 10.2 -Assemble the left bracket



11.-Assemble crankshaft pulley

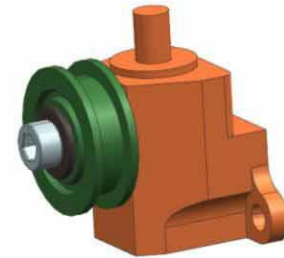
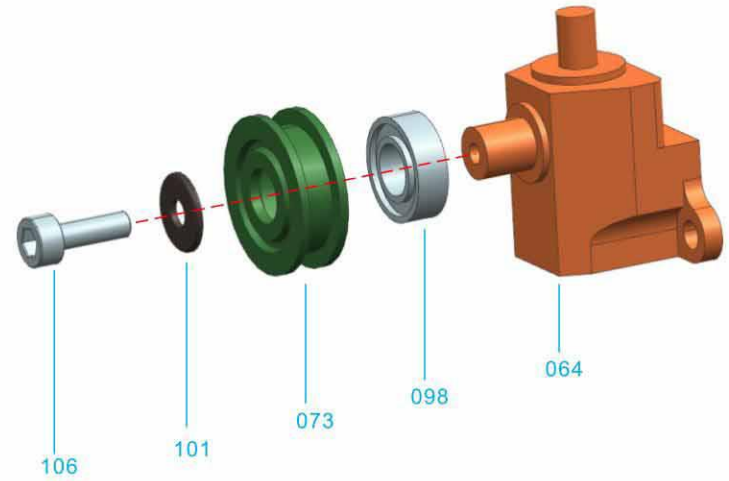


12. -Assemble fan base assembly



Fan base assembly

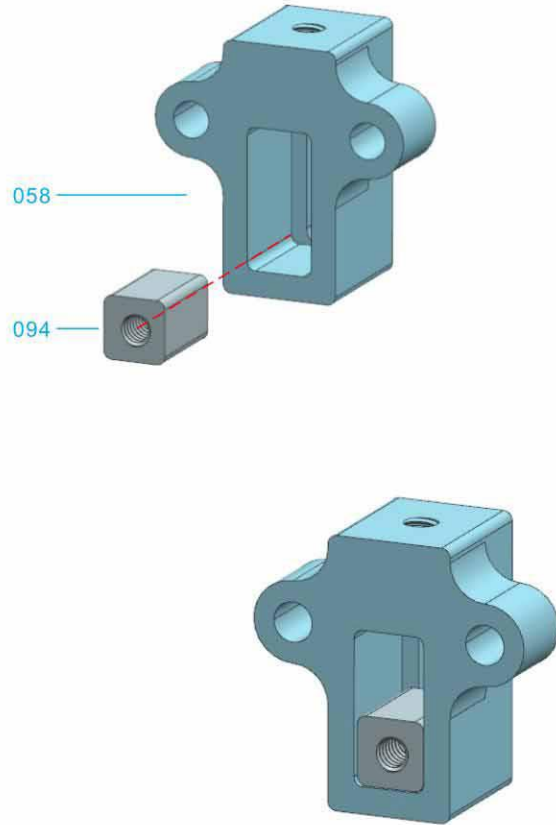
13. -Assemble the water pump assembly



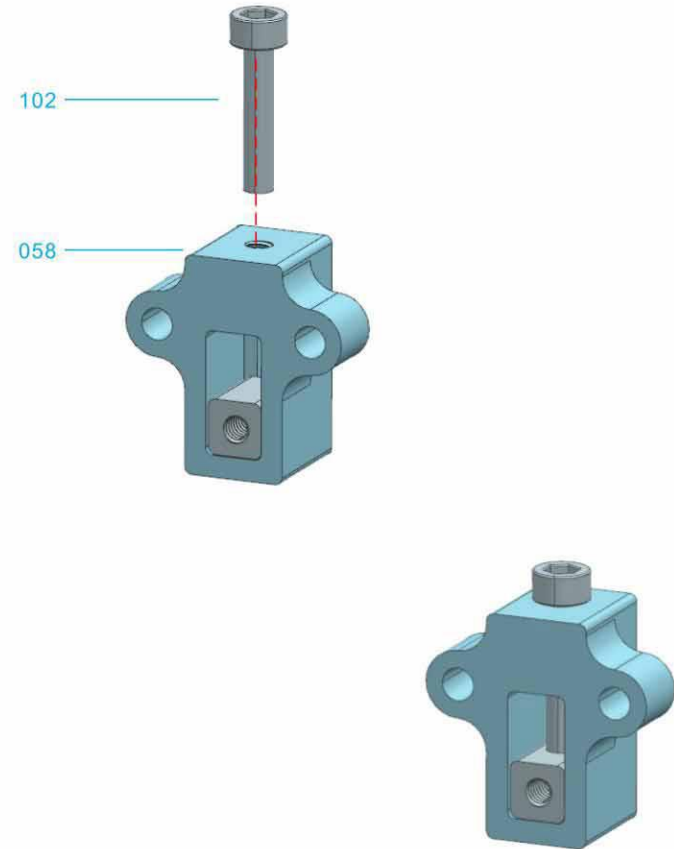
Water pump assembly

## 14.-Assemble tensioning wheel assembly

### 14.1-Assemble the tensioning slider

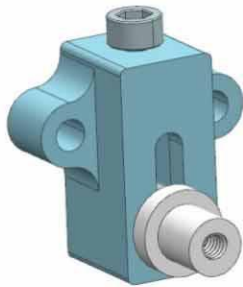
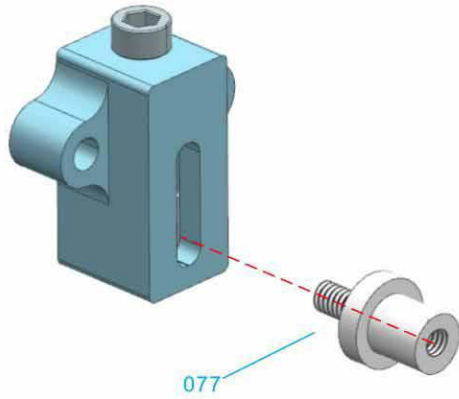


### 14.2-Assemble the tensioning screw

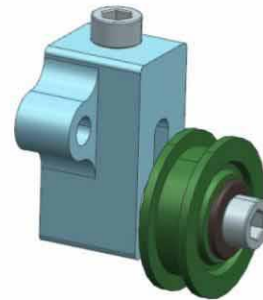
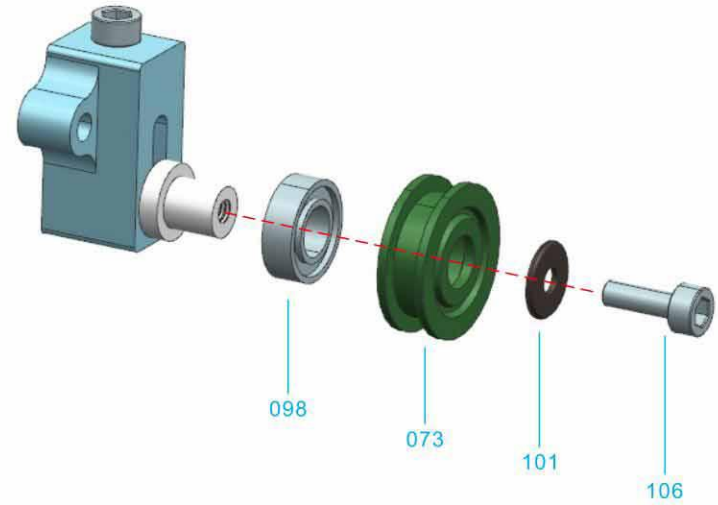




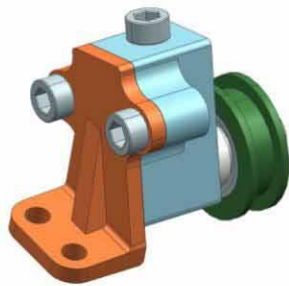
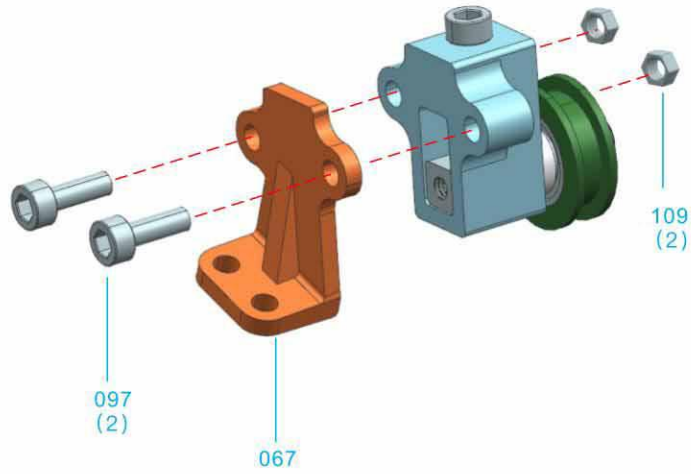
### 14.3-Assemble the tensioning axle



### 14.4-Assemble the pulley



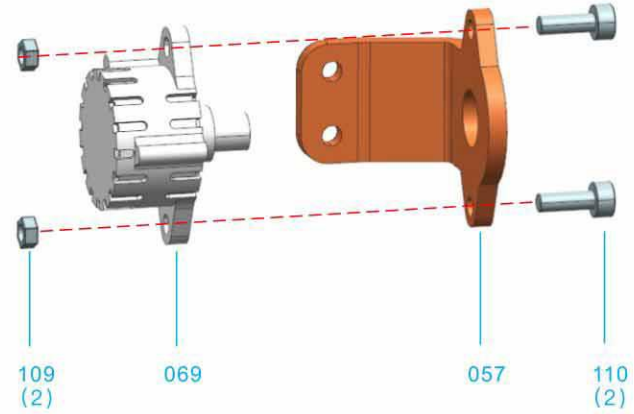
14.5 -Assemble the tensioner bracket



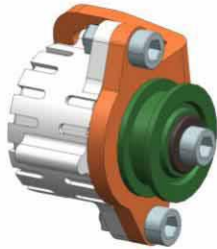
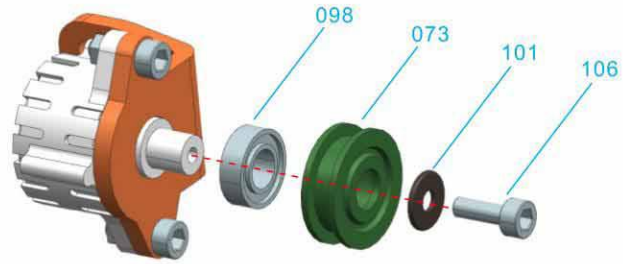
Tensioner assembly

15. -Assemble the generator assembly

15.1 -Assemble generator and bracket

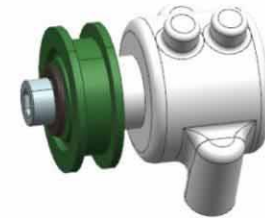
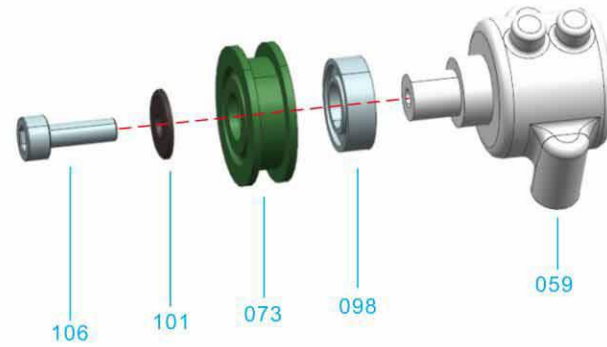


15.2 -Assemble the tensioner housing



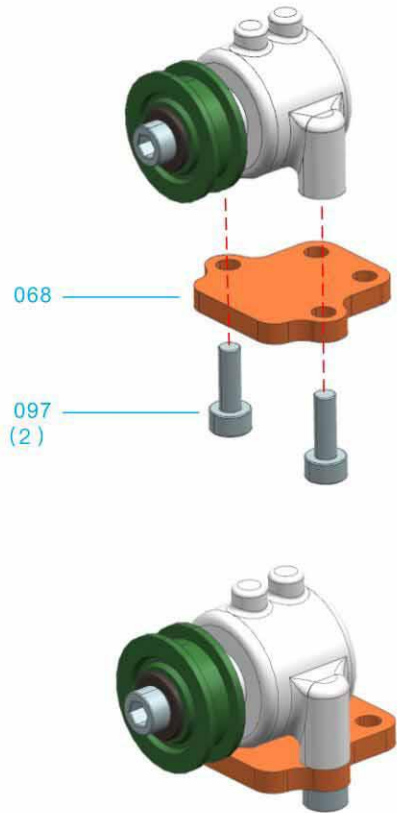
16. -Assemble the air compressor assembly

16.1 -Assemble the air compressor pulley

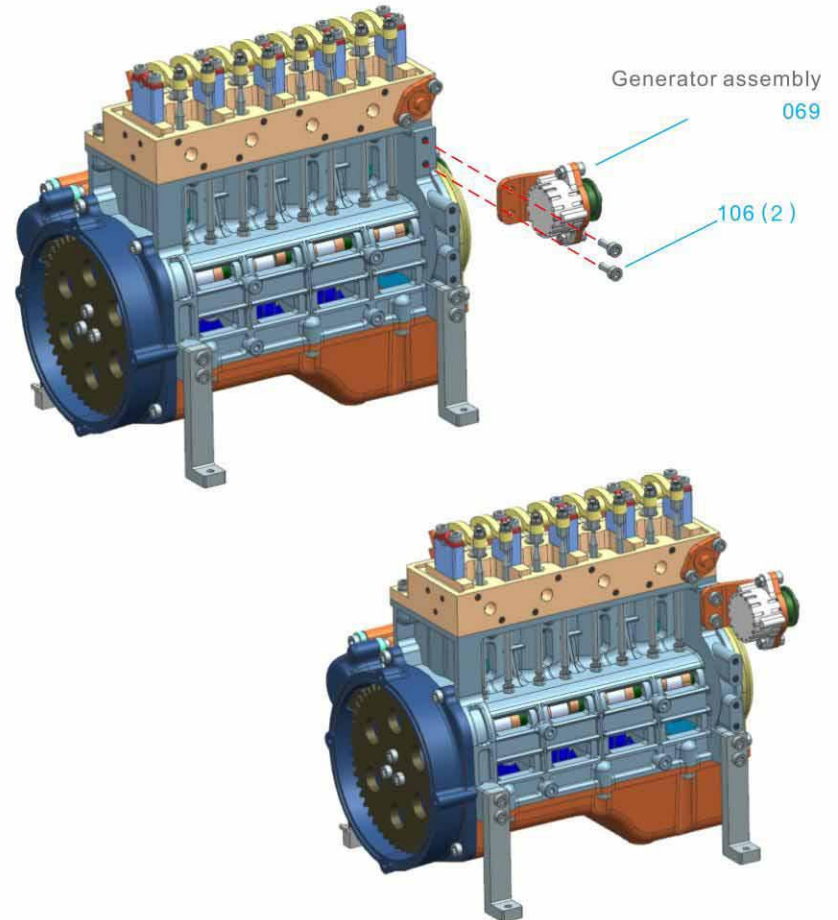


Air compressor pulley assembly

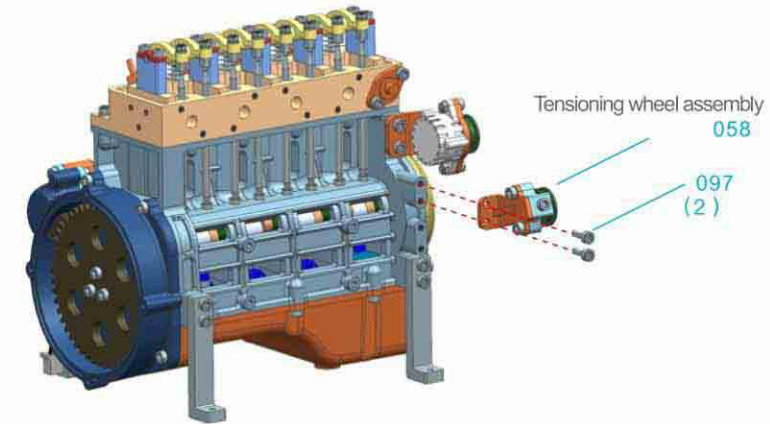
### 16.2 -Assemble the air compressor support plate



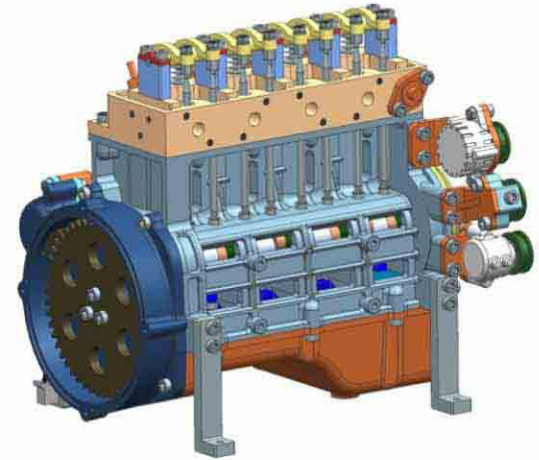
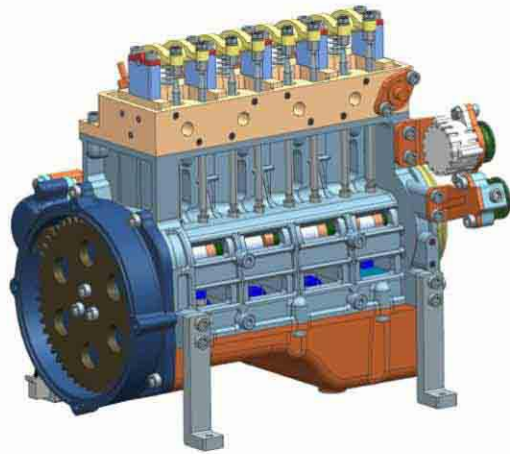
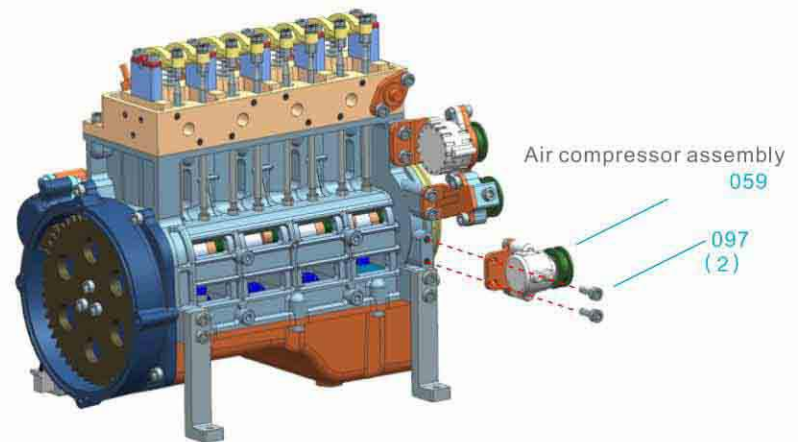
### 17.-Connect the generator assembly



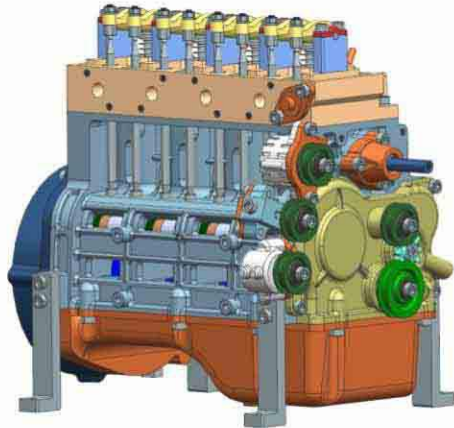
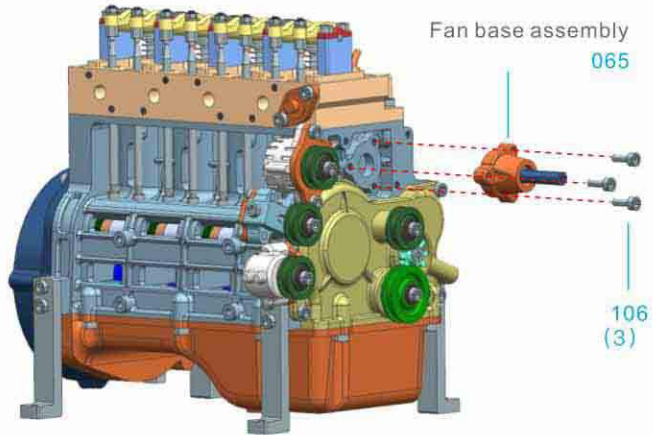
18.-Connect tensioning wheel assembly



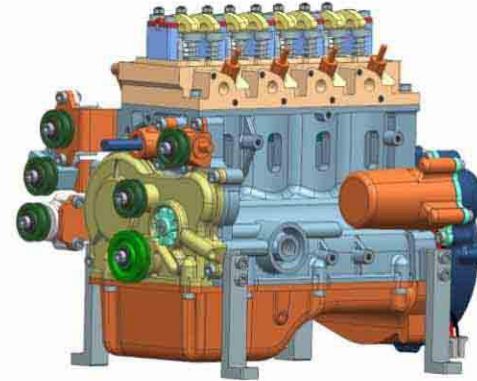
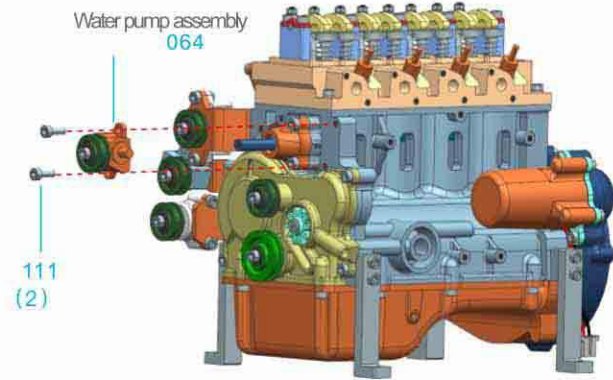
19.-Connect the air compressor assembly



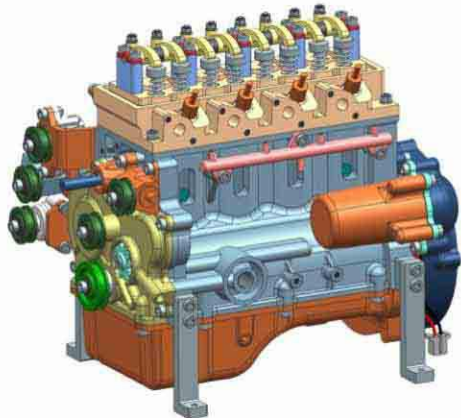
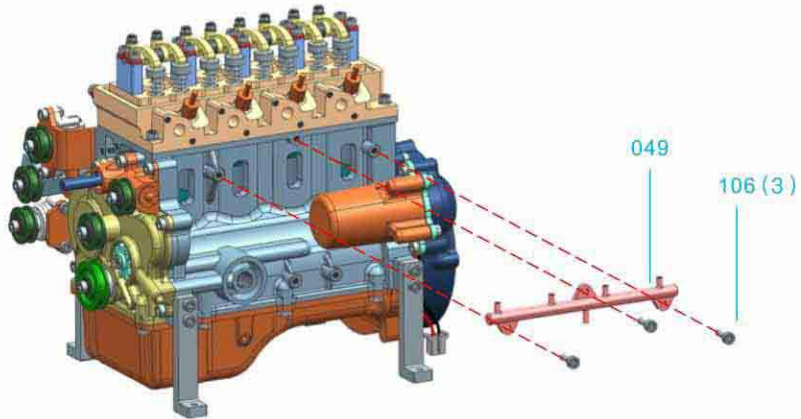
20. -Connect the fan base assembly



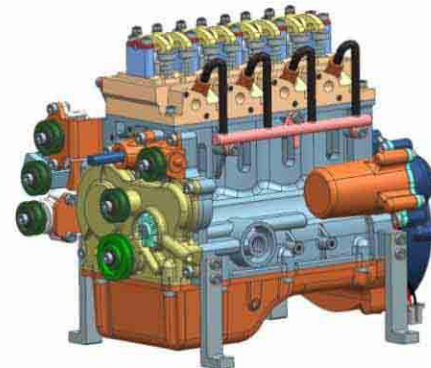
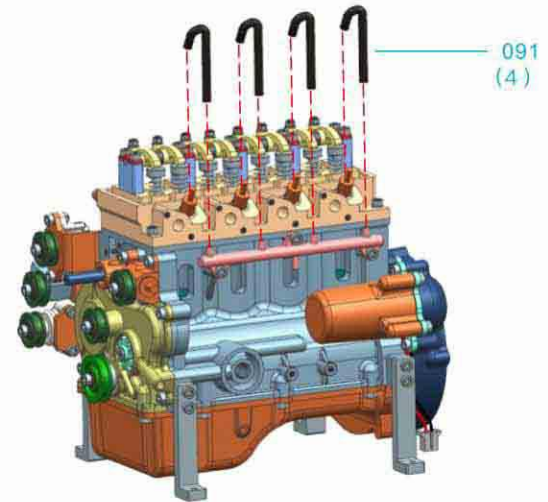
21.-Connect the water pump assembly



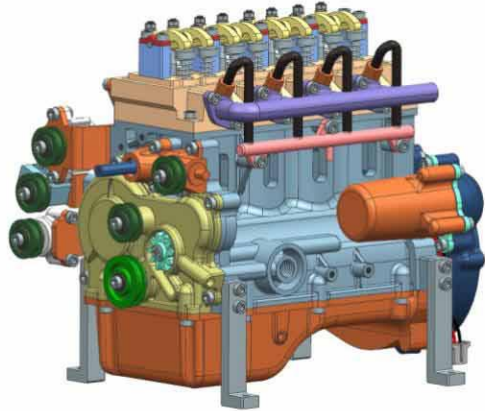
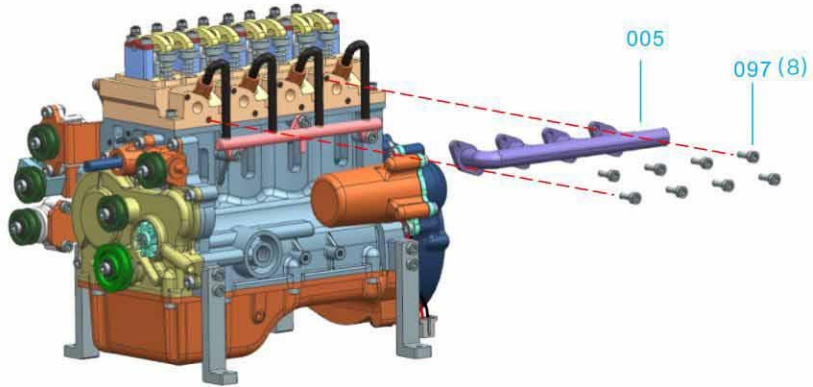
22.-Assemble common rail pipe



23.-Assemble oil distribution pipe

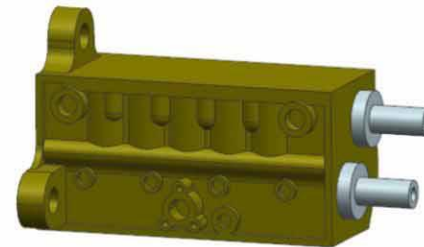
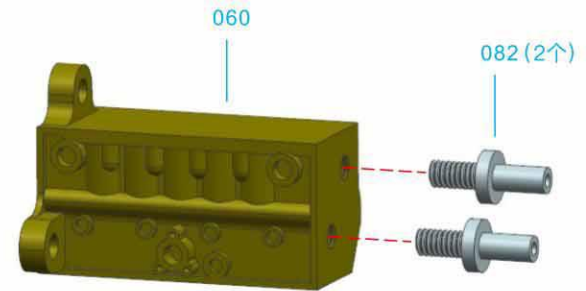


24.-Assemble the intake manifold



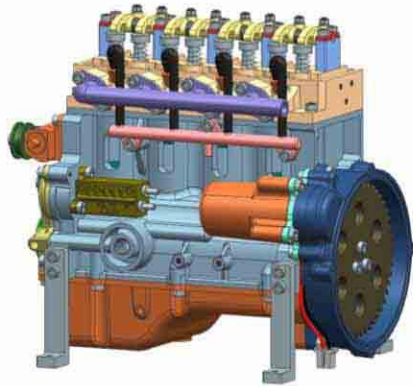
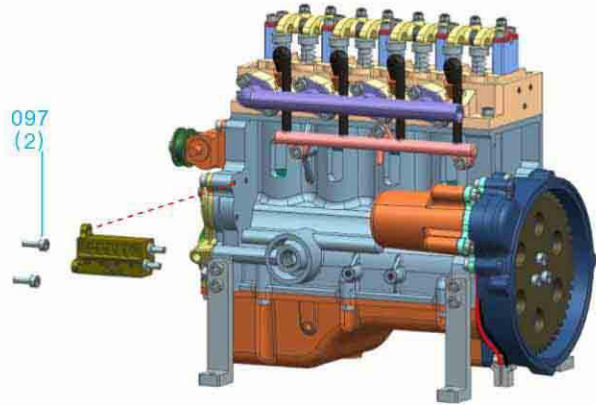
25. -Assemble the oil pump assembly

25.1 -Assemble oil pipe joint

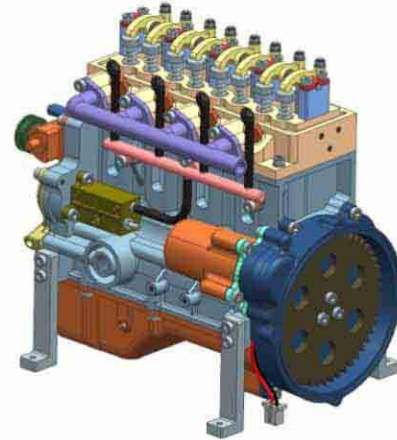
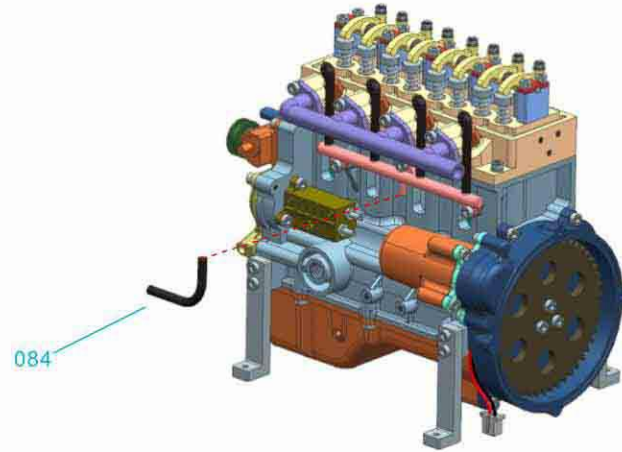




25.2 -Connect the oil pump



25.3 -Connect the oil outlet pipe

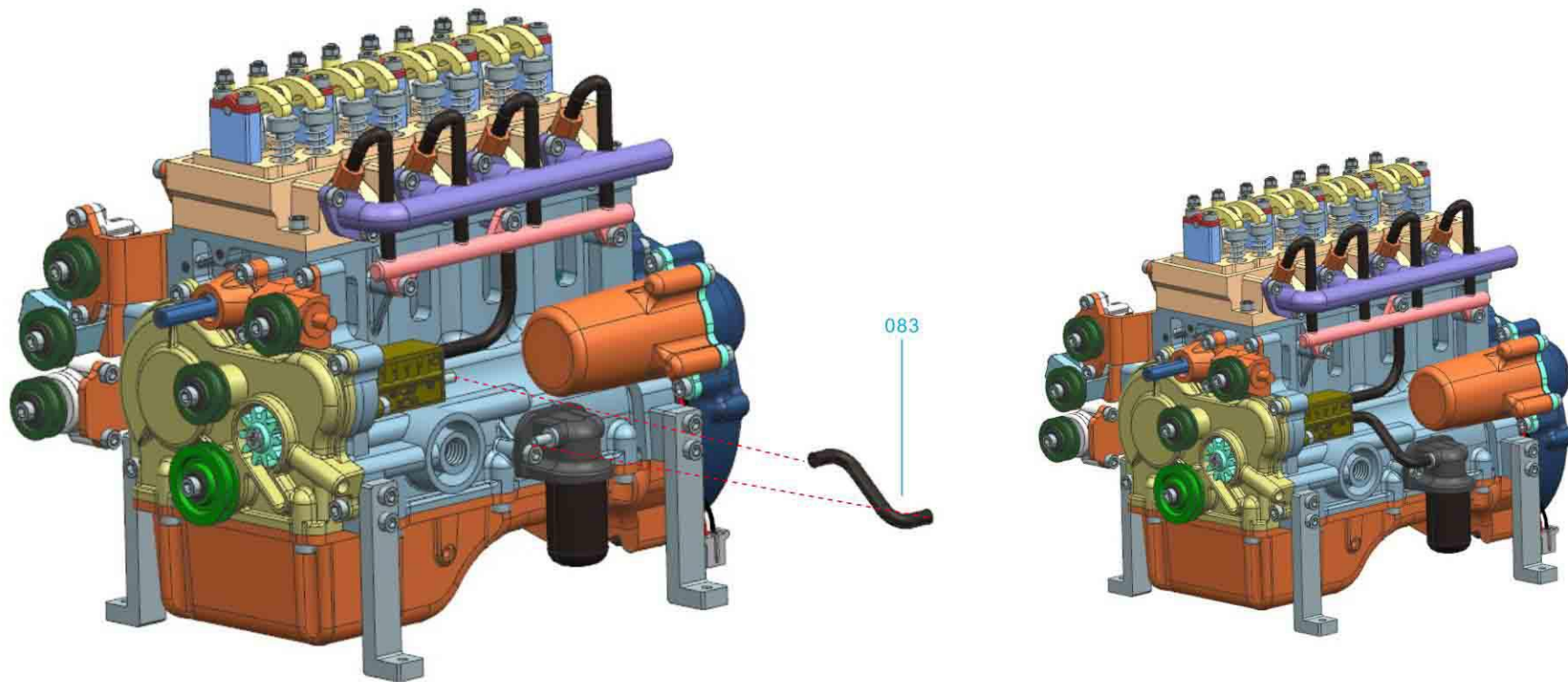


26.-Assemble diesel filter assembly

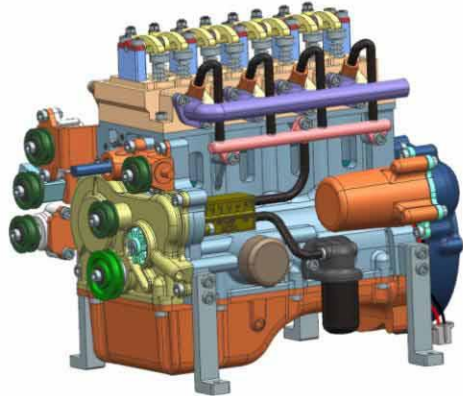
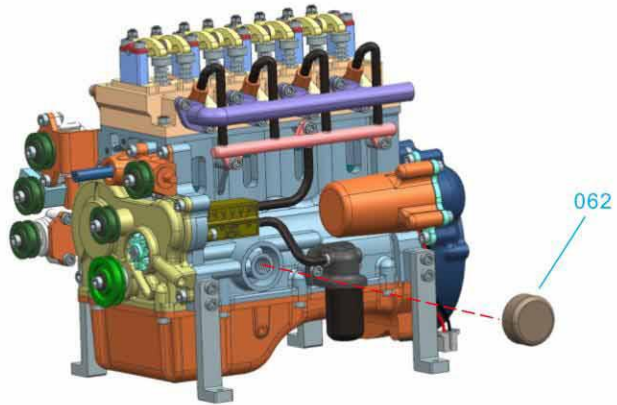
26.1-Connect the filter element



26.2 -Connect the oil outlet pipe

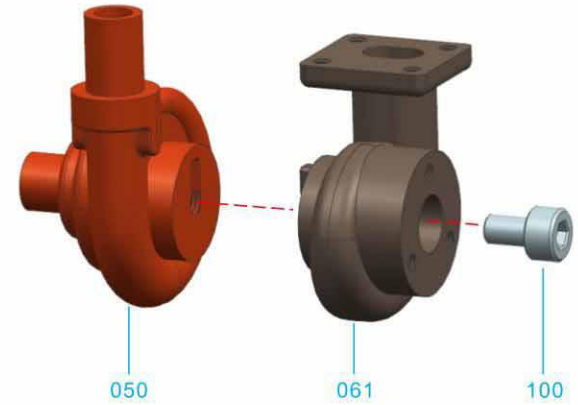


27.-Assemble the oil filter

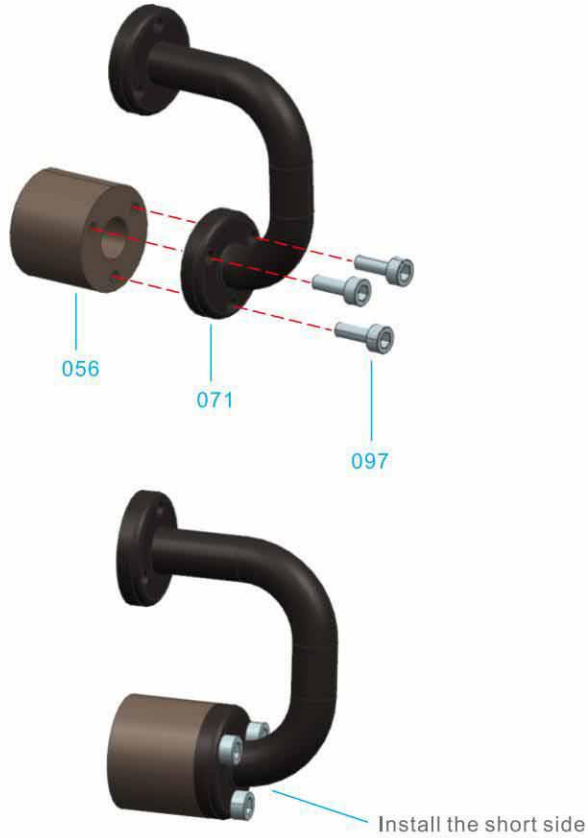


28.-Assemble exhaust assembly

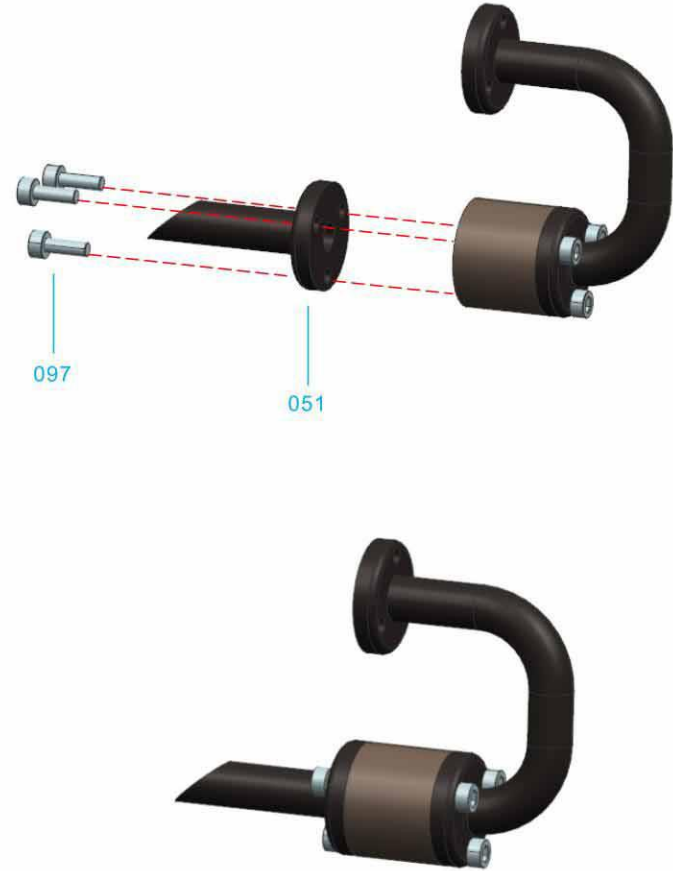
28.1-Assemble the turbocharger



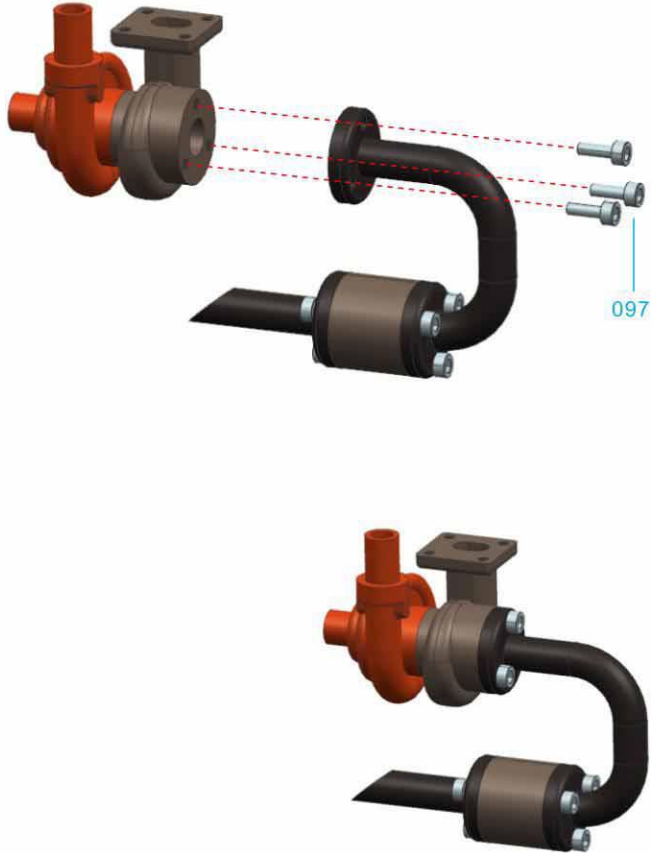
### 28.2 -Assemble exhaust pipe and silencer



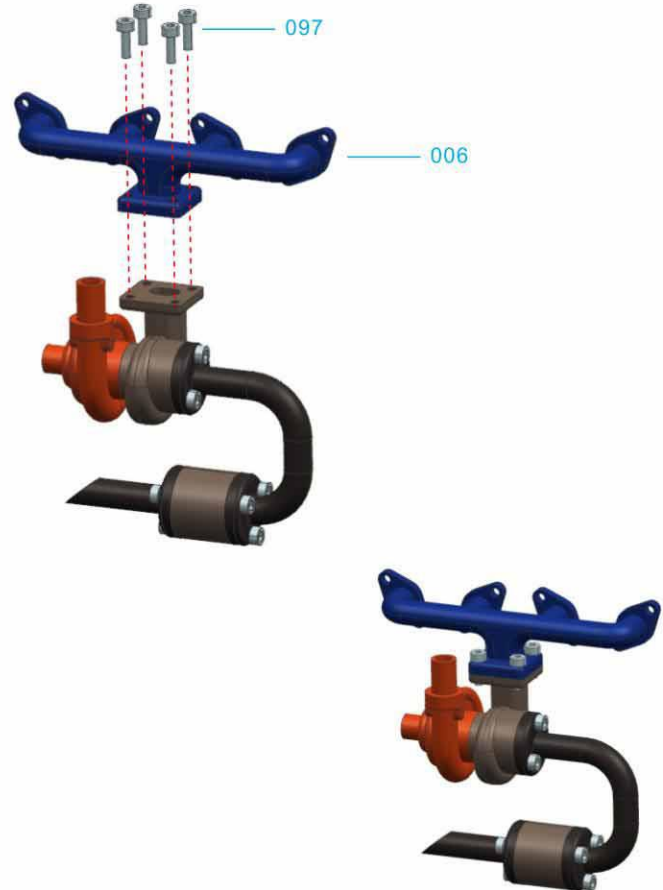
### 28.3 -Assemble tailpipe



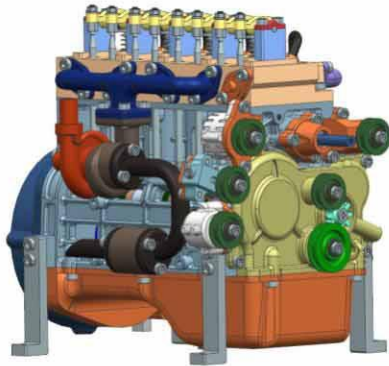
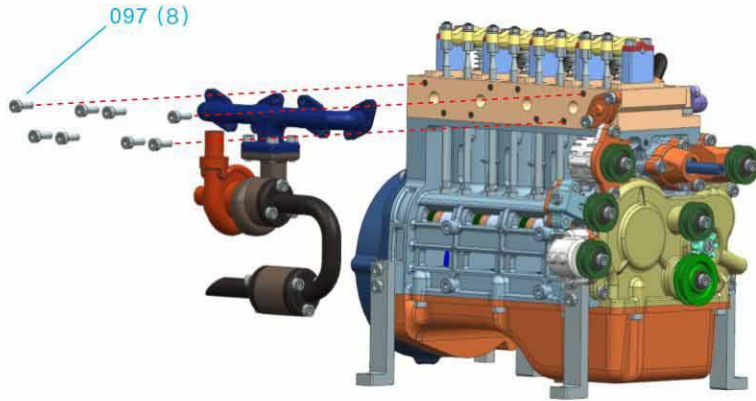
28.4-Assemble turbocharger and exhaust pipe



28.5-Assemble the exhaust manifold

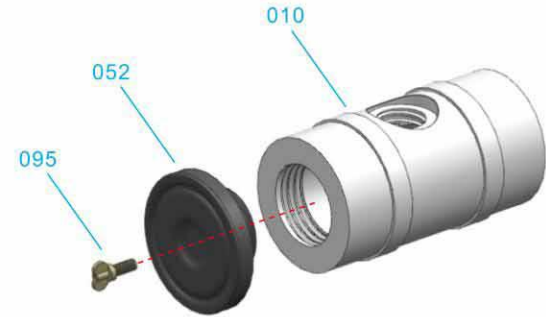


28.6 -Connect exhaust pipe assembly

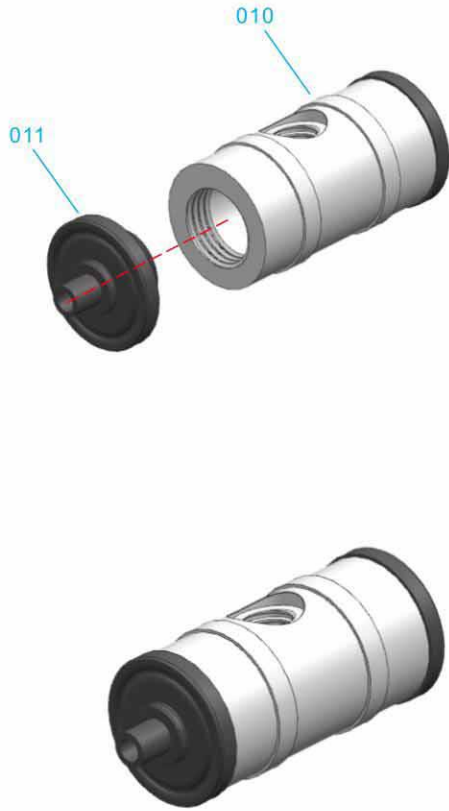


29. -Assemble the air filter element assembly

29.1-Assemble the air cleaner end cover



29.2 -Assemble the rear end cover of the air cleaner

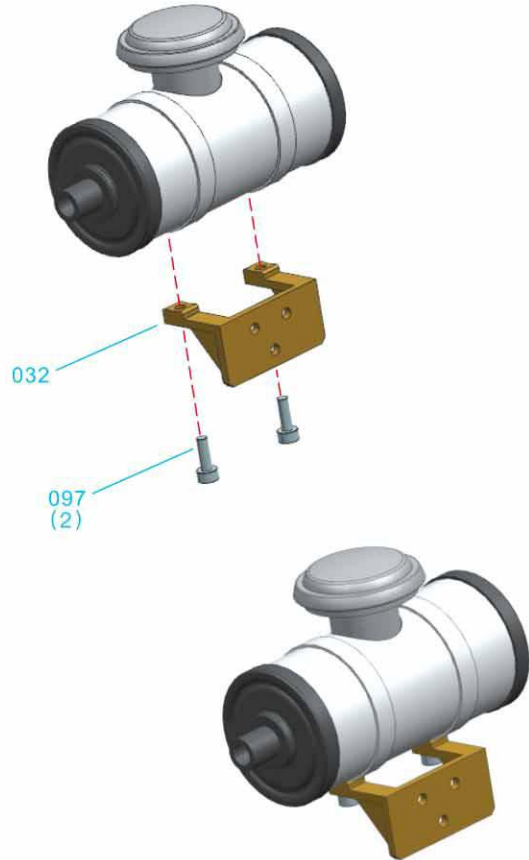


29.3 -Assemble the intake cover

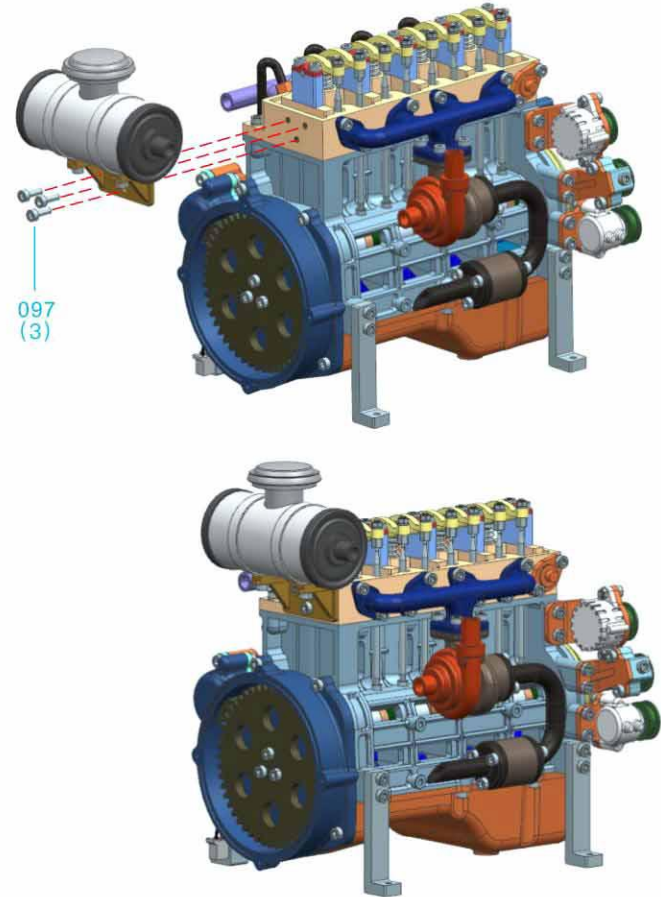




29.4-Assemble the air filter bracket

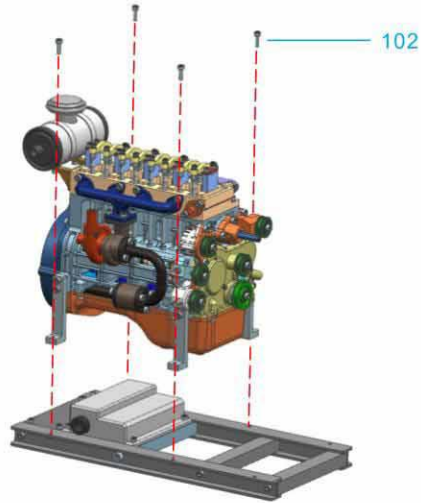


29.5 -Connect the air cleaner assembly

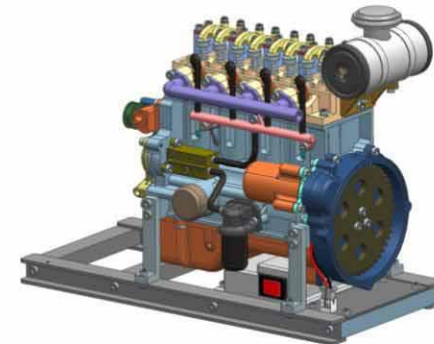
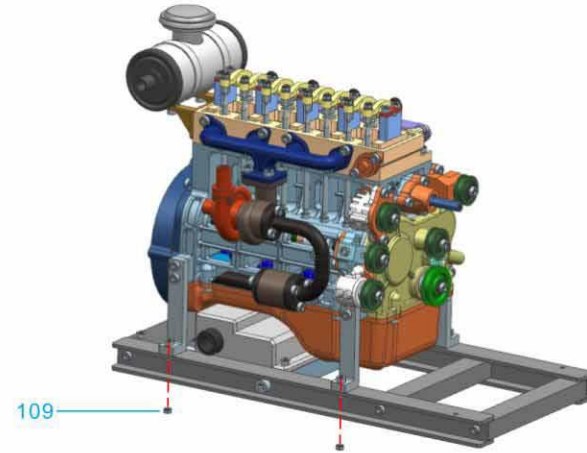


30. -Connecting base assembly

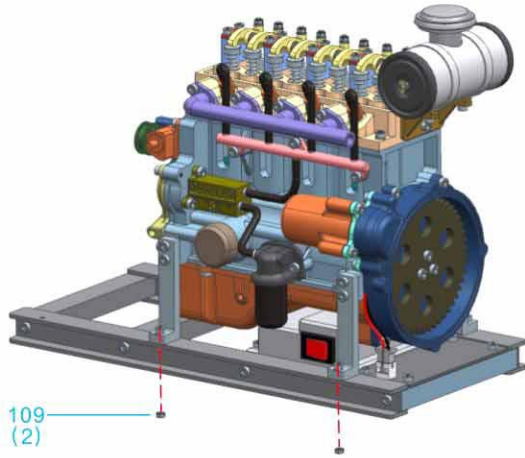
30.1 -Connecting base assembly



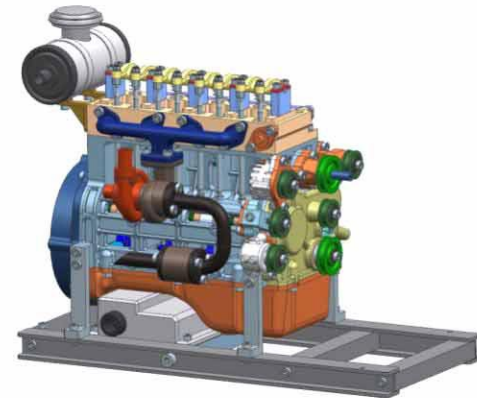
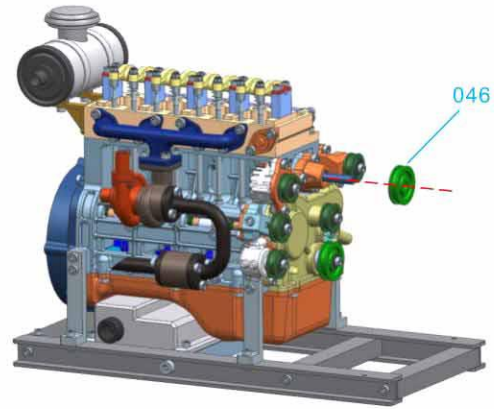
30.2 -Lock the connecting nut



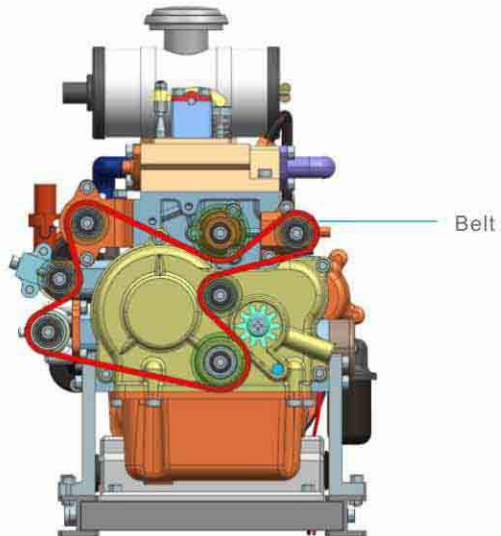
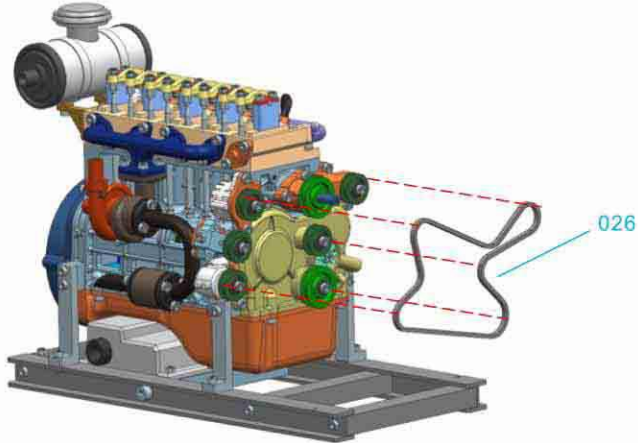
30.3 -Lock the connecting nut on the other side



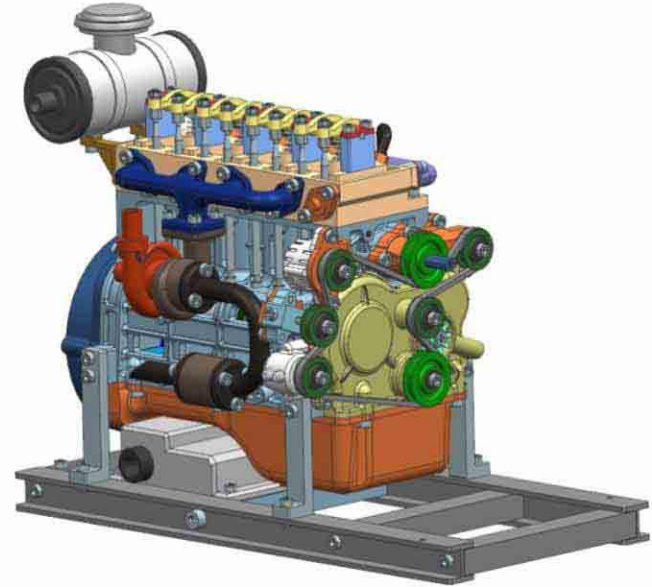
31.-Assemble the fan pulley



### 32.-Assemble the belt

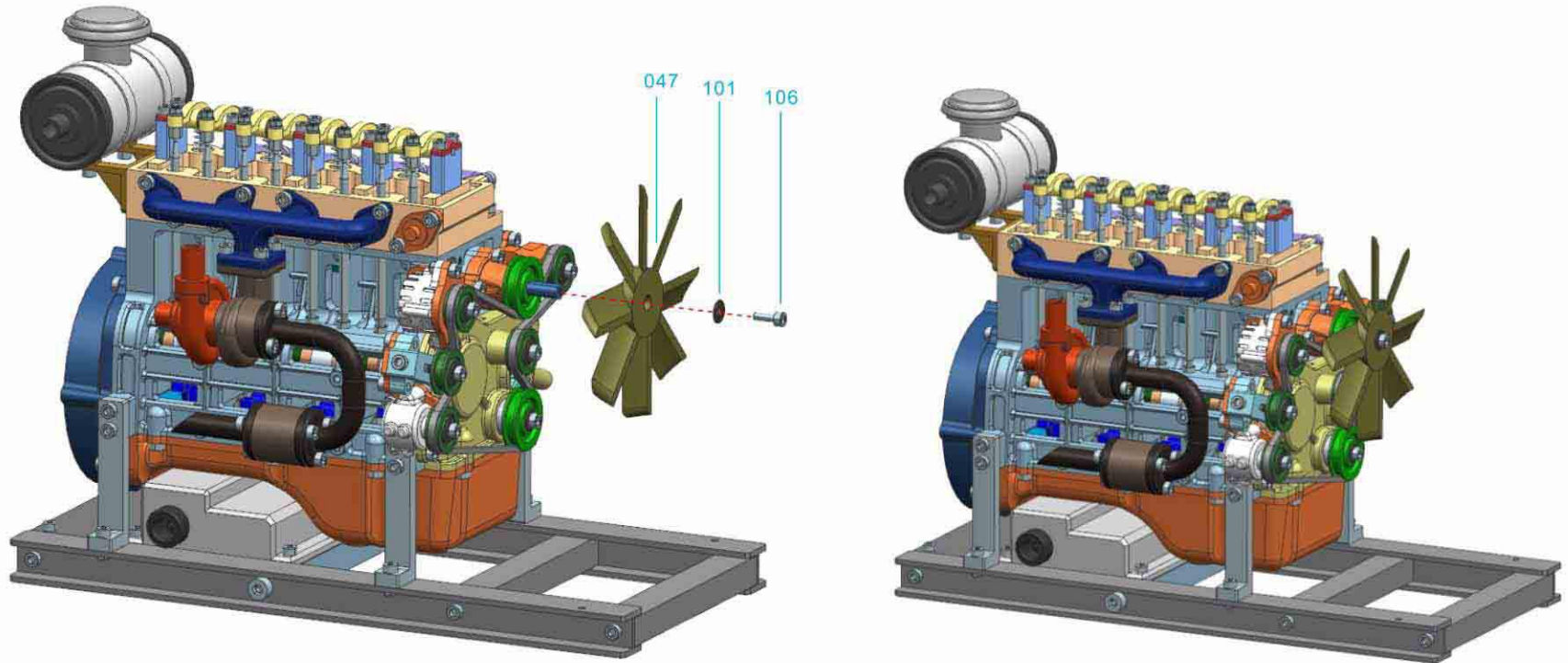


### 33.-Test pulley operation



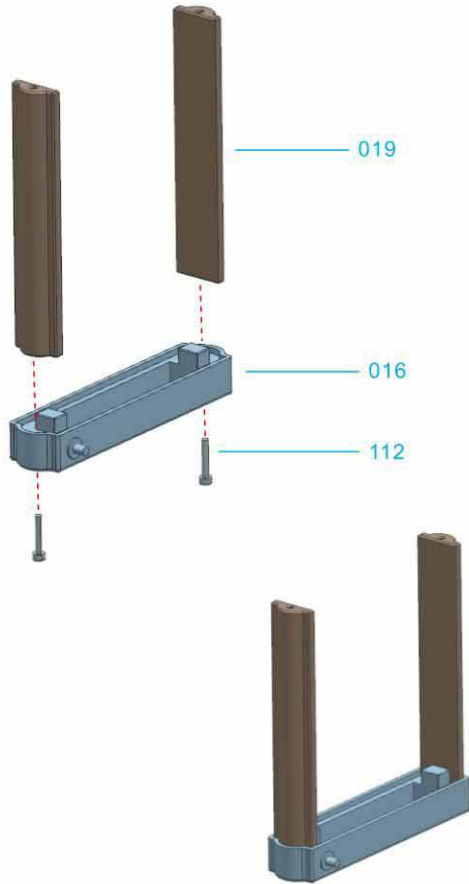
Electric test:  
Start the switch and observe whether the crankshaft, camshaft and belt pulley operate normally.

34.-Assemble the fan

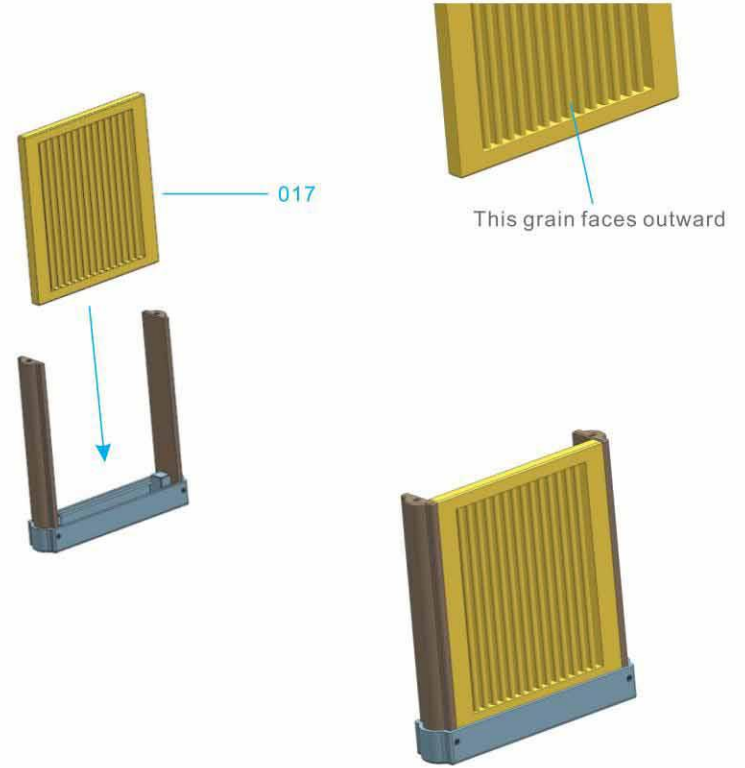


35. -Assemble the water tank assembly

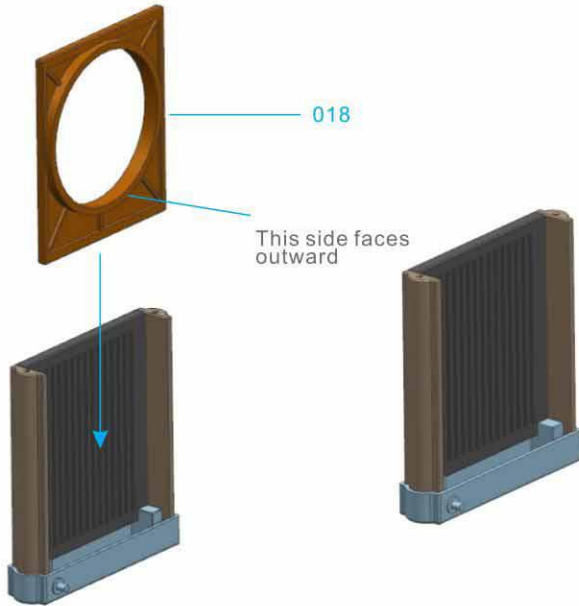
35.1 -Assemble the lower cover of the water tank



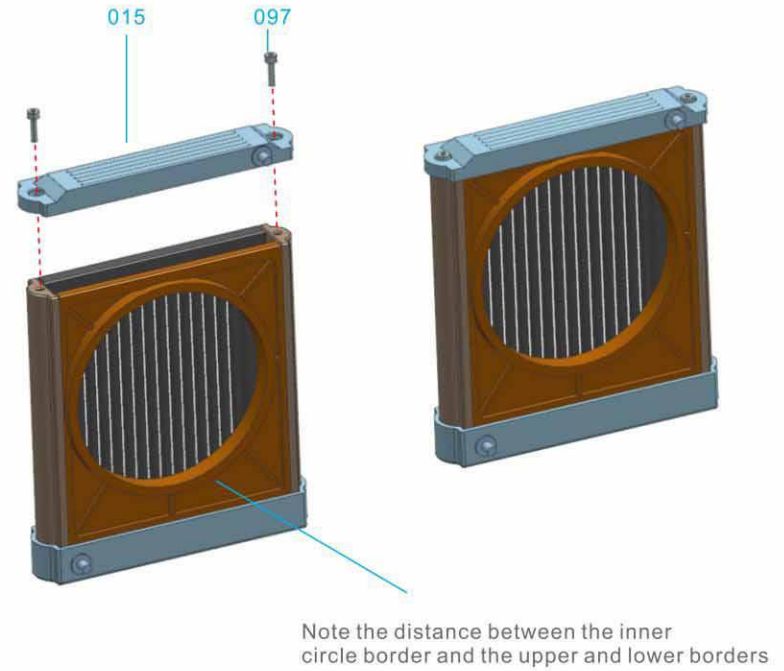
36.2-Assemble the condenser



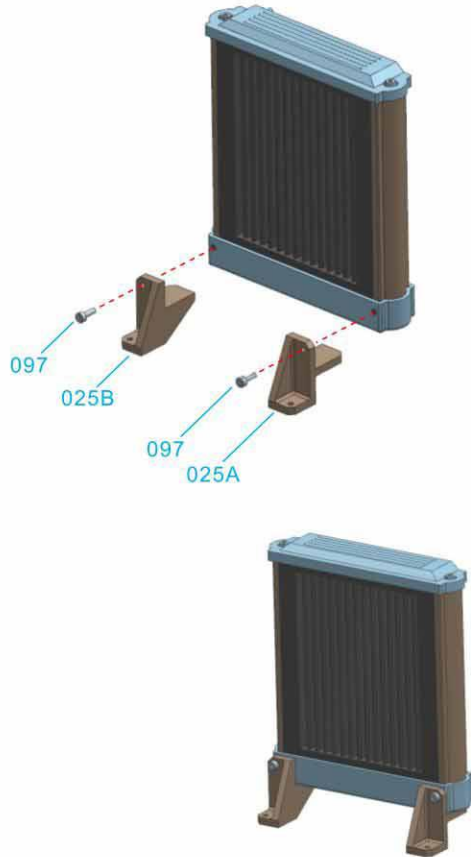
### 35.3 -Assemble the fan cover



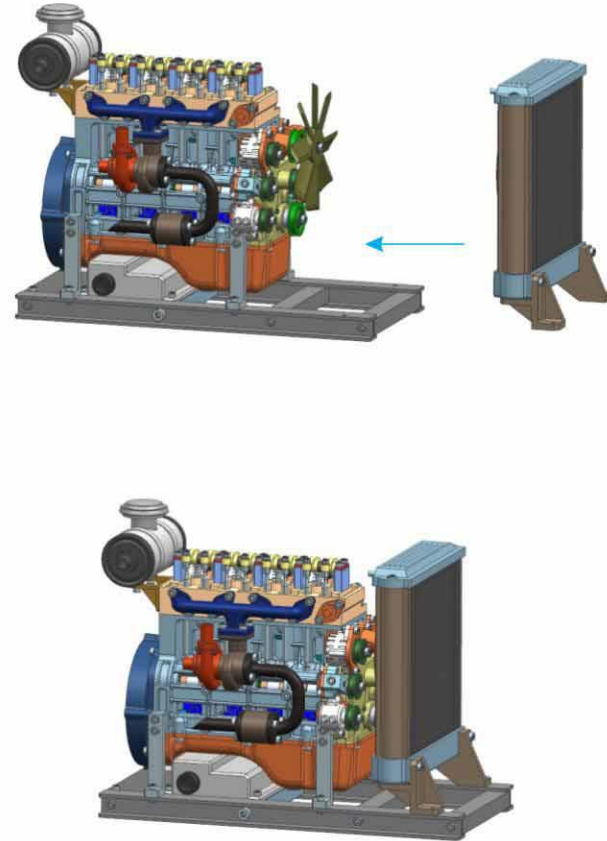
### 35.4-Assemble the top cover of the water tank



35.5 -Assemble the water tank bracket

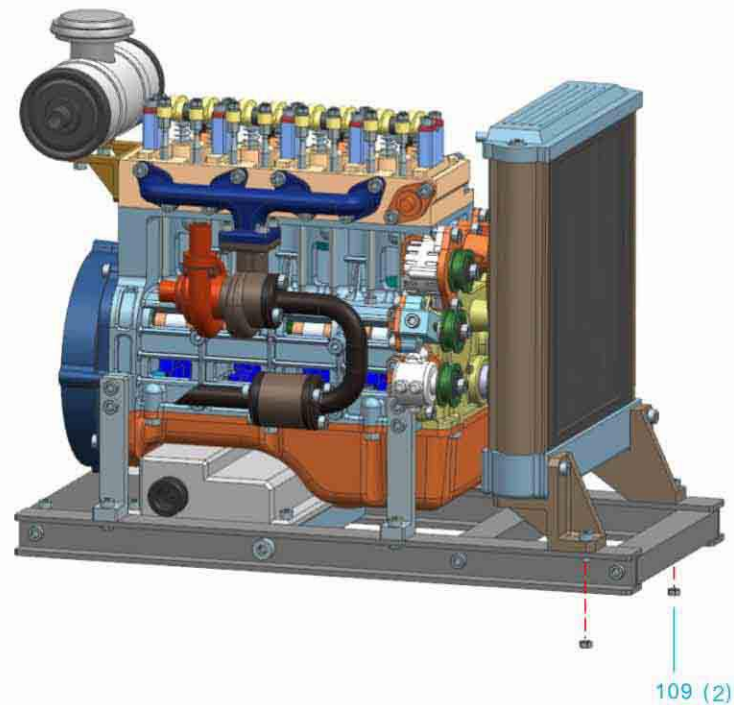
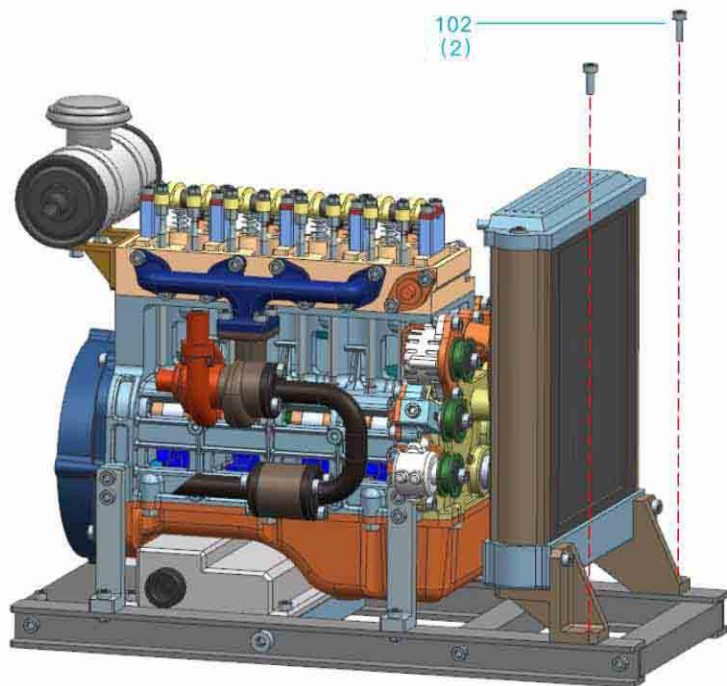


35.6 -Connect water tank assembly

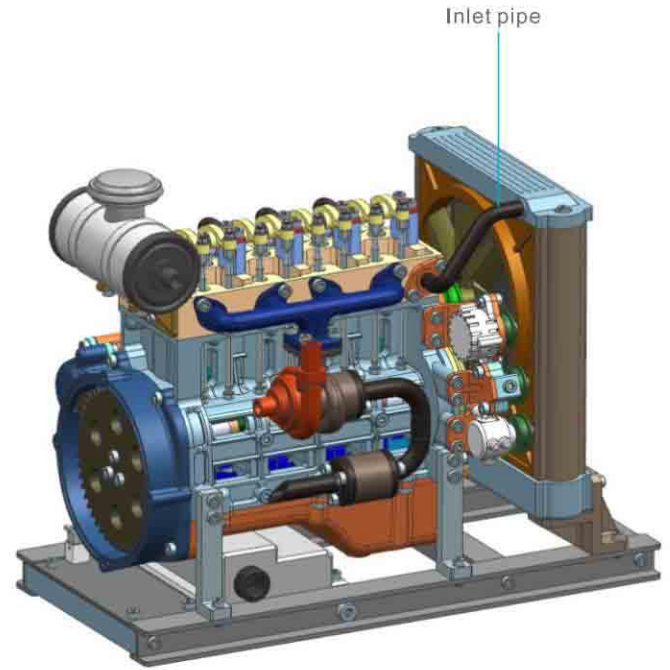
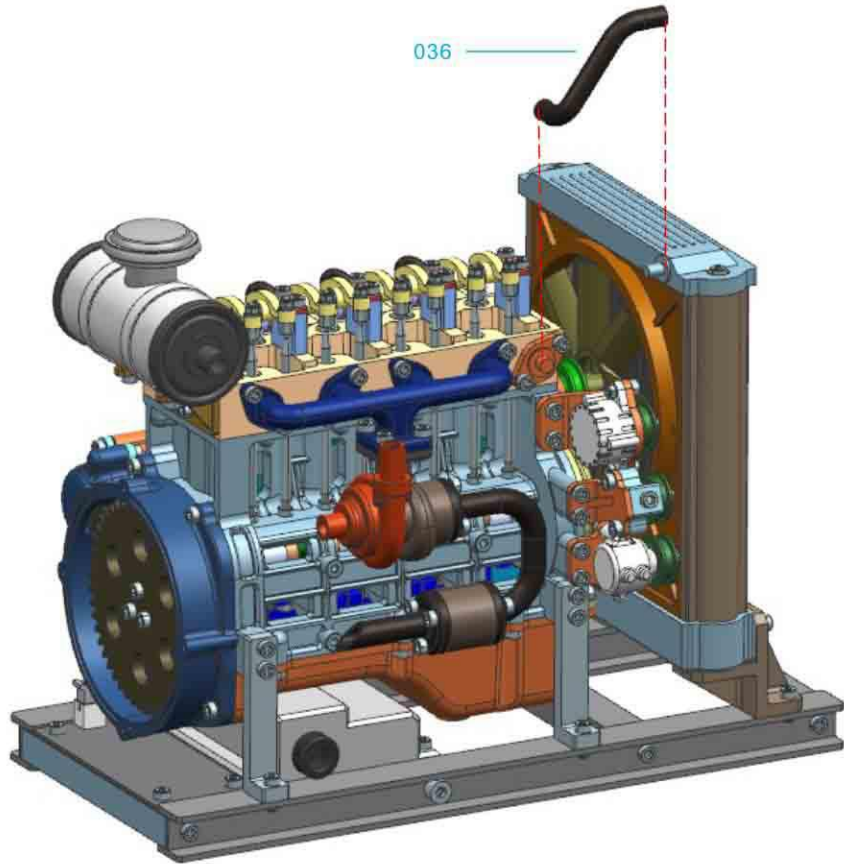




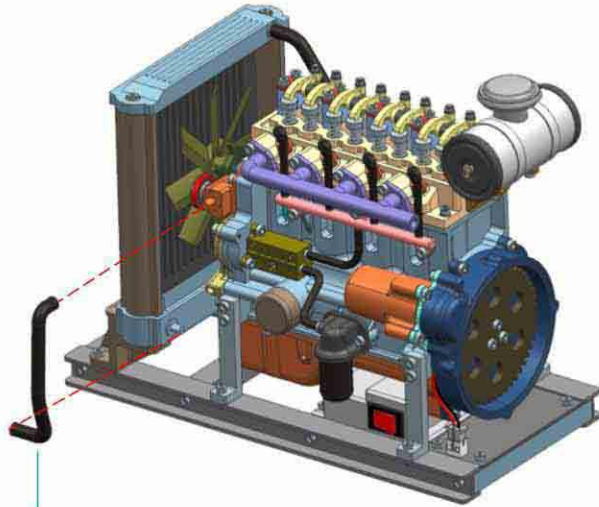
### 35.7-Lock bracket nut



35.8 -Connect the water inlet pipe

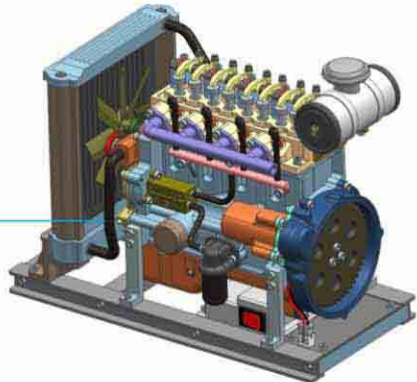


35. -Connect the water outlet pipe

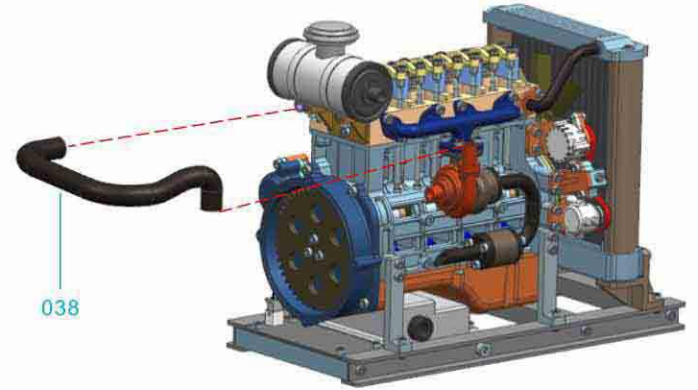


037

Outlet pipe

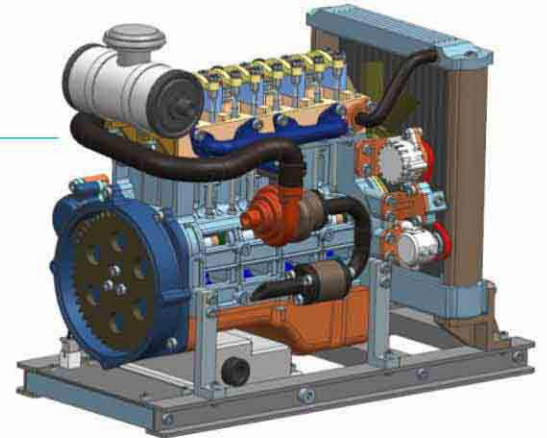


36. -Connect the turbine outlet pipe

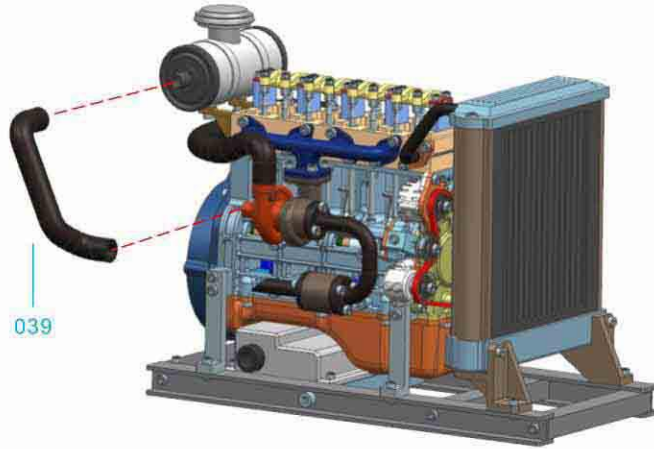


038

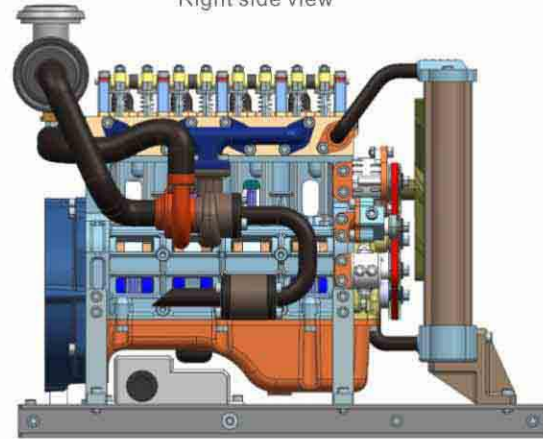
Air outlet pipe



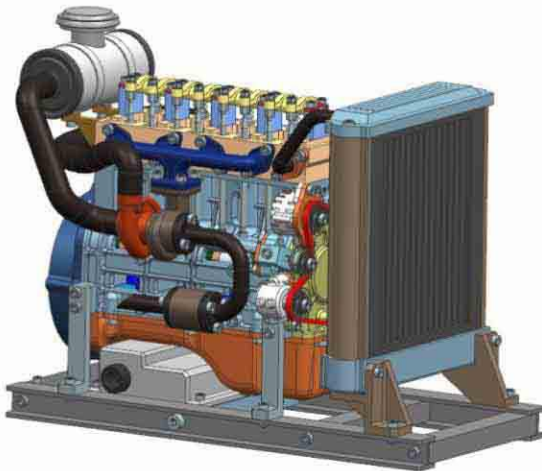
37.-Connect the turbine intake pipe



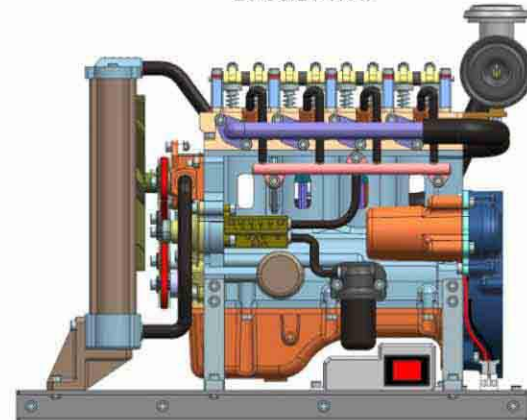
Right side view



Intake pipe









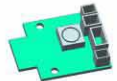
Left side view



















## 二、 Product parts list






Serial Number	Product Image	Product Name	Quantity
001		Camshaft	1
002		Crankshaft front gland	1
003		Crankshaft rear gland	1
004		Cylinder	1
005		Intake manifold	1
006		Exhaust manifold	1
007		Motor cover	1
008		Crankcase front end cover	1

Serial Number	Product Image	Product Name	Quantity
009		crankshaft	1
010		Air filter	1
011		Front cover of air filter	1
012		Air filter cap	1
013		Cylinder head	1
014		Oil pan	1
015		Water tank top cover	1
016		Water tank bottom cover	1

Serial Number	Product Image	Product Name	Quantity
017		Condenser	1
018		Fan cover	1
019		Water tank column	2
020		Round head charging interface	1
021		Motor connector	1
022		Rocker switch	1
023		Circuit board	1
024		Battery	1

Serial Number	Product Image	Product Name	Quantity
025A		Right support of water tank	1
025B		Left support of water tank	1
026		Belt	1
027		Circuit board cover	1
028		Battery holder	1
029		Cylinder block support	4
030		Diesel filter	1
031		Start motor	1

Serial Number	Product Image	Product Name	Quantity
032		Air cleaner bracket	1
033		Connecting rod	4
034		Piston	4
035A		Flywheel housing	1
035B		Flywheel (49 teeth)	1
036		Turbine intake pipe	1
037		Turbine outlet pipe	1
038		Air filter intake pipe	1









Serial Number	Product Image	Product Name	Quantity
039		Air filter exhaust pipe	1
040		Longitudinal beam (left)	1
041		Longitudinal beam (right)	2
042		Battery cover	4
043		Rocker shaft	2
044		Crankshaft gear (18 teeth)	2
045		Oil pump gear (10 teeth)	1
046		Position the pulley	2

Serial Number	Product Image	Product Name	Quantity
047		Fan	1
048		Base beam	2
049		Common rail pipe	1
050		Intake turbocharger pump	1
051		Tailpipe	1
052		Rear cover of air filter	1
053			
054		Motor fixing base	1









Serial Number	Product Image	Product Name	Quantity
055		Camshaft end cover	1
056		Silencer	1
057		Generator support	1
058		Tensioning wheel housing	1
059		Air compressor	1
060		Oil pump	1
061		Exhaust turbocharger pump	1
062		Oil pump housing	1



Serial Number	Product Image	Product Name	Quantity
063		Upper filter cover	1
064		Water pump	1
065		Fan shaft cover	1
066		Ejector rod	8
067		Tensioner housing	1
068		Air compressor support	1
069		Alternator	1
070A		Rocker shaft support	3

Serial Number	Product Image	Product Name	Quantity
070B		Rocker shaft support	2
071		Exhaust crank	1
072		Rocker arm	8
073		Pulley	5
074		Piston connecting rod gland	3
075		Rocker shaft gland	5
076		Rocker shaft sleeve	4
077		Tensioning axle	1

Serial Number	Product Image	Product Name	Quantity
078		Ejector rod lower sleeve	8
079		Piston pin	4
080		Rocker arm screw	8
081		Valve cap	8
082		Oil pump pipe joint	3
083		Oil pump pipe 01	1
084		Oil pump pipe 02	1
085		Valve	8
086		Crankshaft gland	3

Serial Number	Product Image	Product Name	Quantity
087		Fan shaft	1
088		Pulley transition shaft	1
089		Motor 10 teeth	1
090			
091		Nozzle tube	4
092		Connection port of water tank pipe	1
093		Oil pump gear shaft	1
094		Tensioning wheel sliding rod	1
095		Torx screw	1

Serial Number	Product Image	Product Name	Quantity
096		Motor shaft sleeve	1
097		M2.0*6 Cup head screw	93
098		4*8*3 Bearing	8
099		7*11*3 Bearing	1
100		M3.0*5 Cup head screw	1
101		M2.0 Flat washer	7
102		M2.0*10 Cup head screw	1
103		M2.5 Circlip	8
104		M2.0 * 16 cup head screw	6

Serial Number	Product Image	Product Name	Quantity
105		M2.0 Spring washer	8
106		M2.0*4 Cup head screw	2
107		M1.6 * 4 cup head screw	2
108		Valve spring	8
109		Nut	18
110		M2.0*8 Cup head screw	4
111		M2.5*4 Cup head screw	2
112		M2*14 Cup head screw	4



Labor creates a better life

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