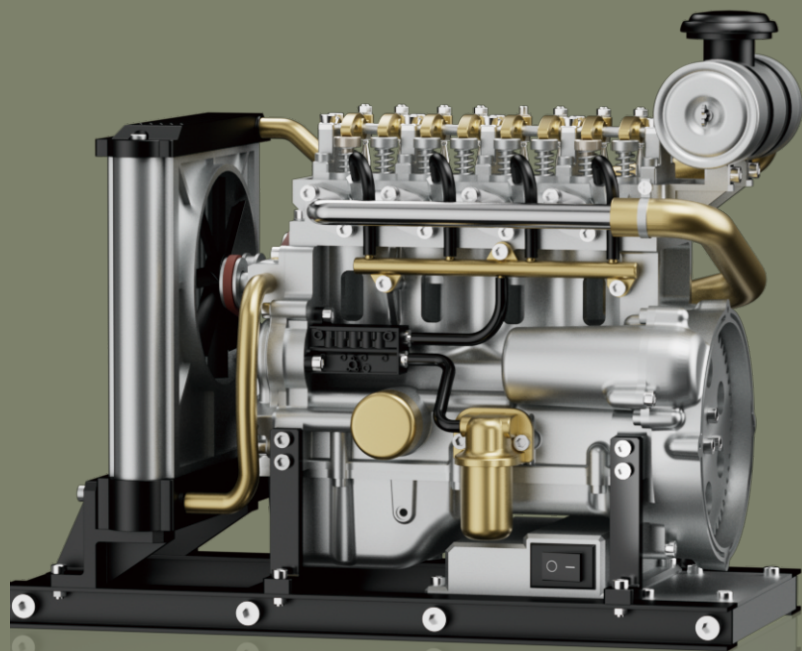




迷你四缸柴油发动机
Mini 4-cylinder diesel engine

产品基本信息

Basic product information

产品名称：迷你四缸柴油发动机
Product Name: Mini 4-cylinder diesel engine

产品型号：DM115
Product model: DM115

主要材料：阳极氧化铝+不锈钢
Main materials: anodized aluminum + stainless steel

充电电压：直流5V
Charging voltage: DC 5V

电池容量：450mAh
Battery capacity: 450mAh

组装难度：IV级
Assembly difficulty: Level IV

产品标准：GB/T9254-2008
GB/T17626.2-2006
Product standard: GB/T9254-2008
GB/T17626.2-2006

质 检：A
Quality inspection: A

一、产品组装说明 Product assembly instructions

1. 组装底座总成 -Assemble the base assembly	01
2. 组装活塞连杆总成-Assemble piston connecting rod assembly	05
3. 组装曲轴总成-Assemble crankshaft assembly	06
4. 组装油泵总成 -Assemble the oil pump assembly	12
5. 组装油底壳 -Assemble the oil pan	15

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6. 组装缸体支架 Assemble the cylinder block bracket	16	21. 连接发电机总成 Connect the generator assembly	41
7. 组装飞轮壳总成 Assemble flywheel housing assembly	17	22. 组装水泵组件 Assemble the water pump assembly	42
8. 组装缸头总成 Assemble the cylinder head assembly	21	23. 组装风扇座组件 Assemble the fan base assembly	43
9. 连接缸头总成 Connecting cylinder head assembly	22	24. 组装皮带轮 Assembling belt pulley	44
10. 组装摇臂总成 Assemble the base assembly	23	25. 组装皮带 Assemble the belt	45
11. 组装底座总成 Assemble the exhaust pipe assembly	25	26. 测试皮带轮运转 Test pulley operation	45
12. 组装排气管总成 Assemble the air filter element assembly	30	27. 组装风扇 Assemble the fan	46
13. 组装空气滤芯总成 Assemble fan base assembly	33	28. 组装水箱总成 Assemble the water tank assembly	47
14. 组装风扇座组件 Assemble the fan base assembly	35	29. 组装支架总成 Assemble the bracket assembly	50
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16. 组装张紧轮组件 Assemble the tensioner assembly	36	31. 组装油泵管 Assembly of oil pump pipe	52
17. 组装发电机总成 Assemble the generator assembly	38	32. 连接水泵出水管 Connect the water pump outlet pipe	53
18. 组装空压机组件 Assemble the air compressor assembly	39	33. 连接水泵进水管 Connect the water pump inlet pipe	54
19. 连接发电机组件 Connecting the Generator Assembly	40	34. 连接高压进气管 Connect the high-pressure intake pipe	55
20. 连接张紧轮总成 Connect the tensioner assembly	41	35. 连接低压进气管 Connect the low-pressure intake pipe	56

二、产品零件列表 Product parts list

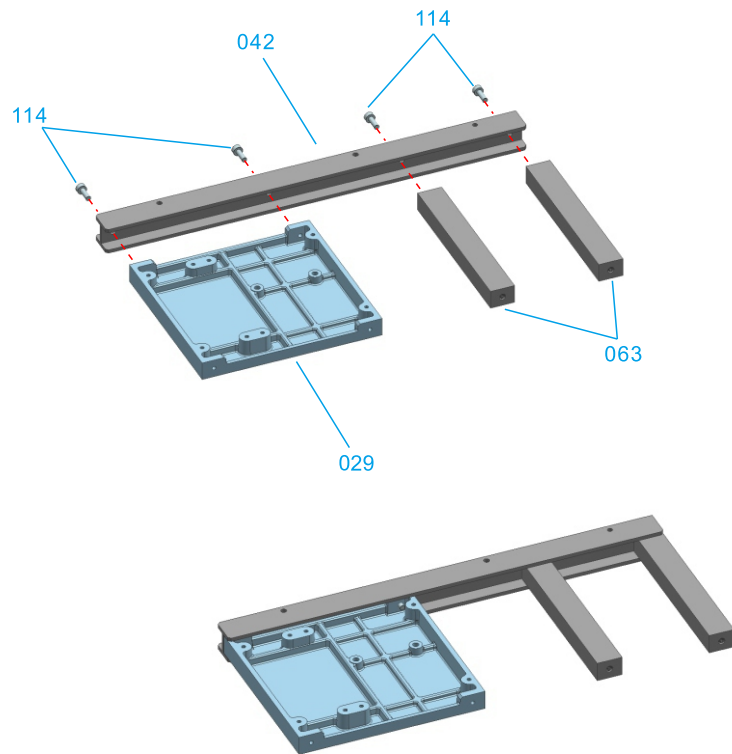
59-65

一、产品组装说明 Product assembly instructions

1. 组装底座总成 -Assemble the base assembly

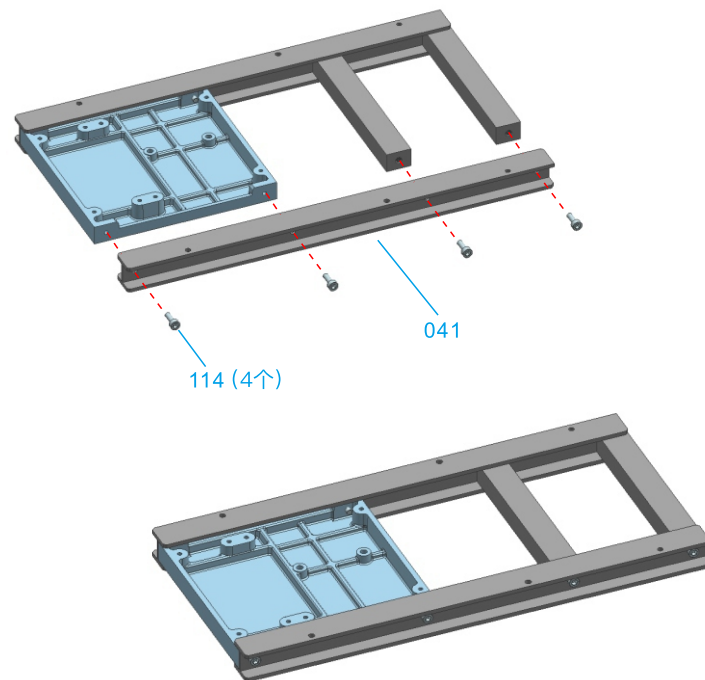
1.1 组装电池底座

-Assemble the battery base

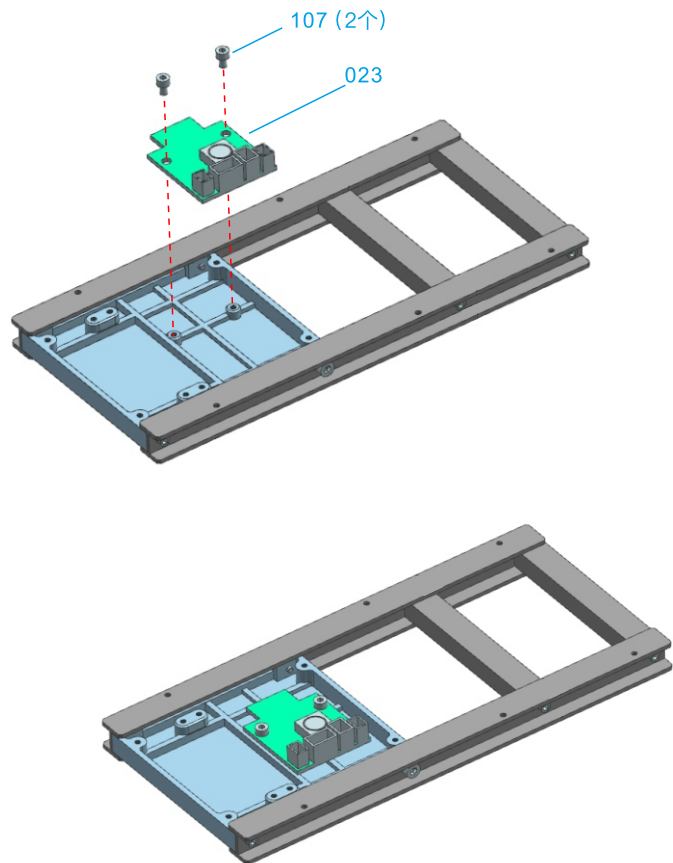


1.2 组装纵梁

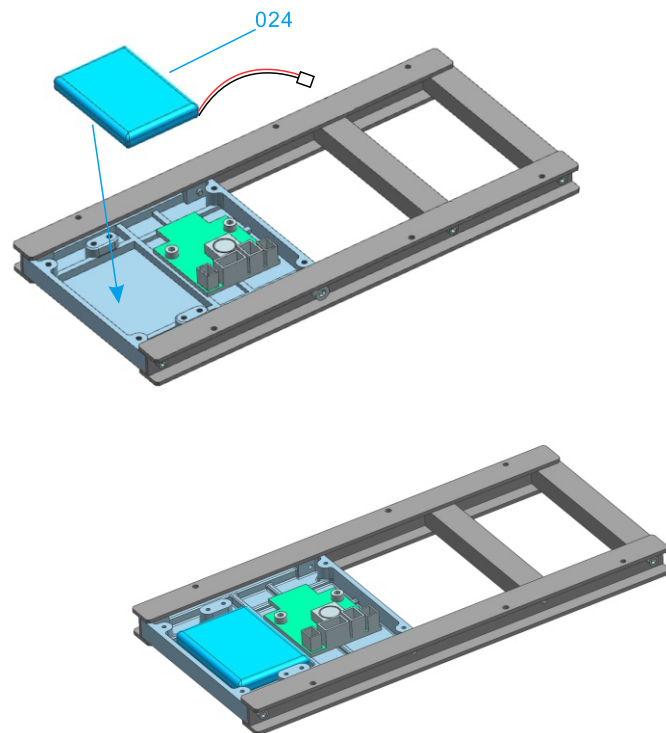
-Assemble longitudinal beam



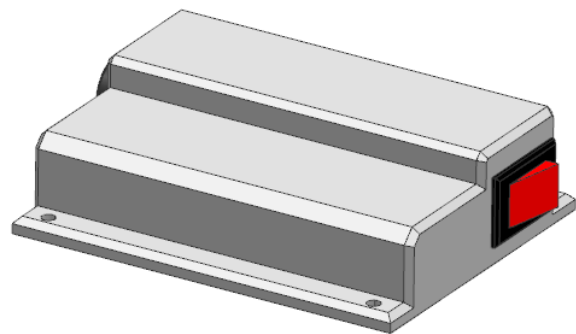
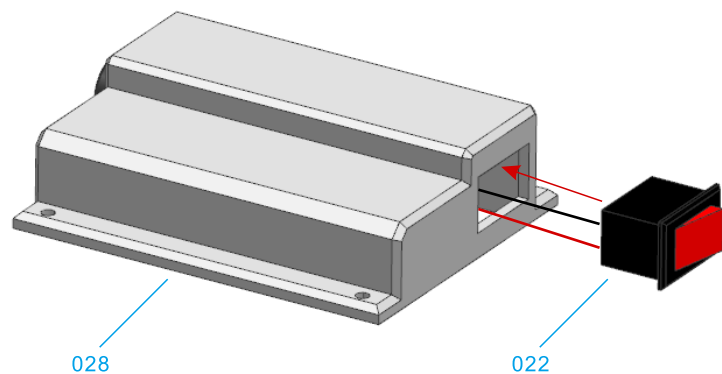
1.3 组装电路板 -Assembling circuit board



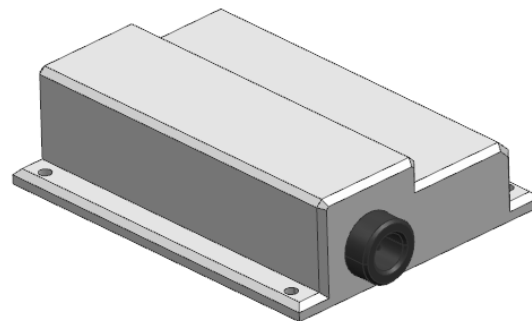
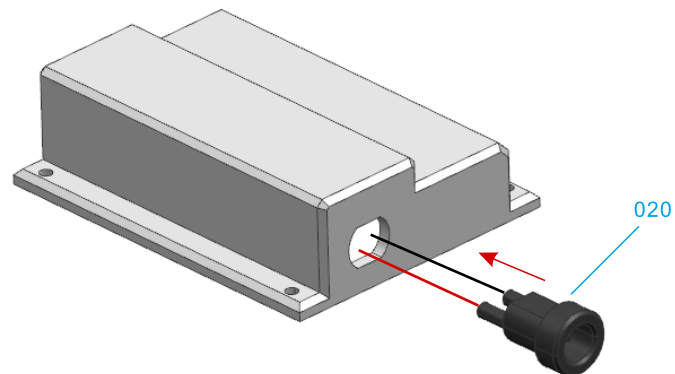
1.4 组装电池 -Assembling the battery



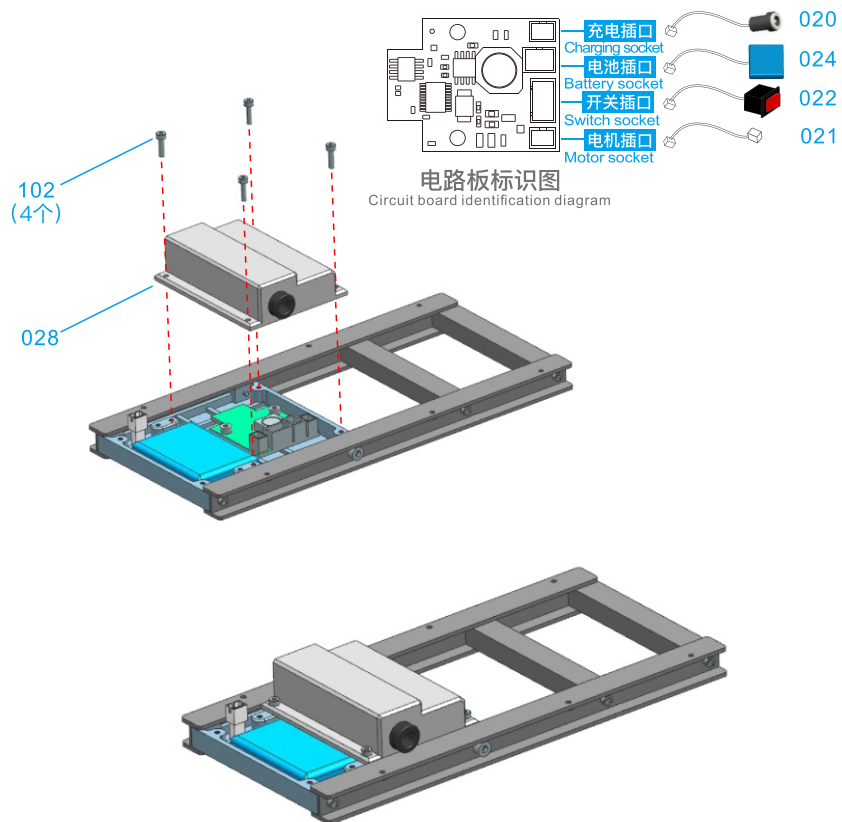
1.5 组装开关
-Assemble the switch



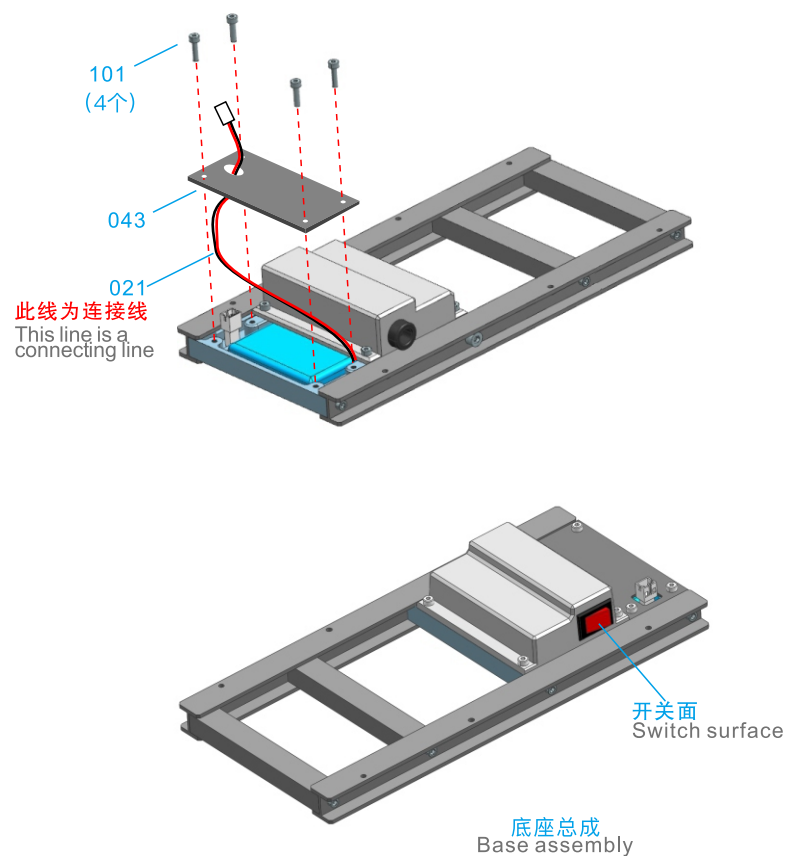
1.6 组装充电头
-Assembling charging head



1.7 组装电路板盖板 -Assemble the circuit board cover



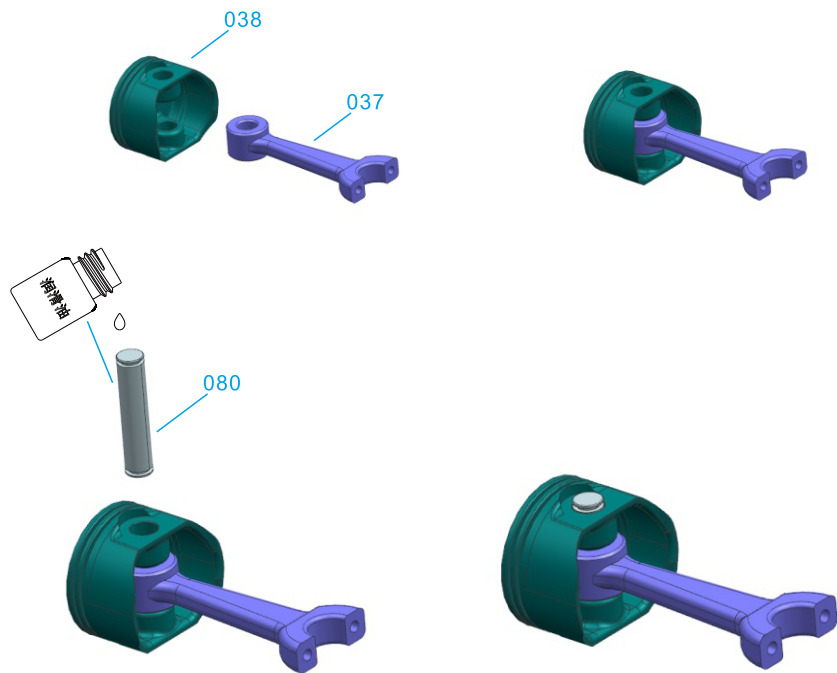
1.8 组装电池盖板 -Assemble the battery cover



2. 组装活塞连杆总成-Assemble piston connecting rod assembly

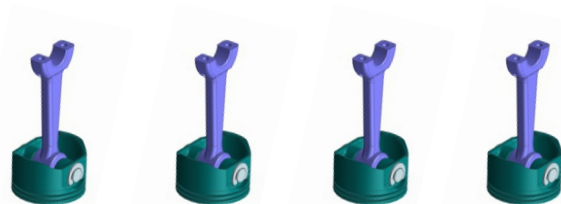
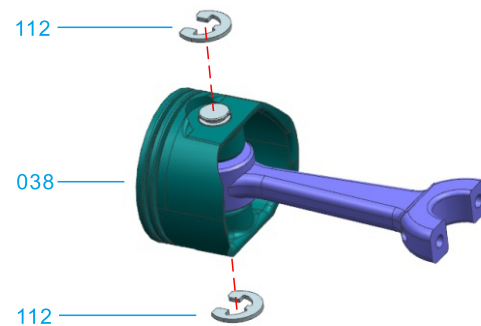
2.1 组装活塞连杆

-Assemble the piston connecting rod



2.2 组装卡簧

-Assemble the circlip



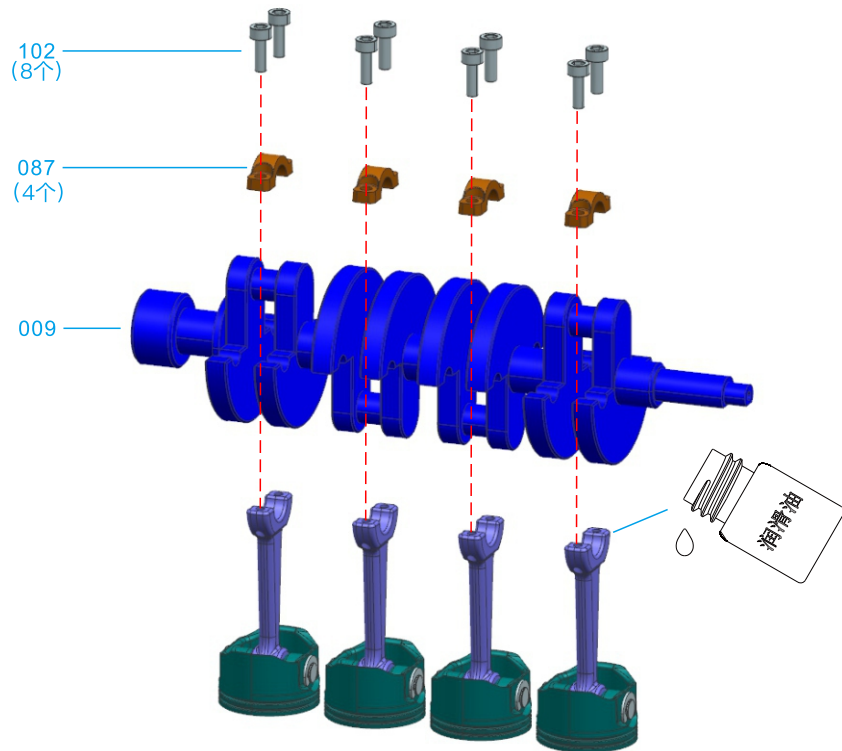
共4组

4 groups in total

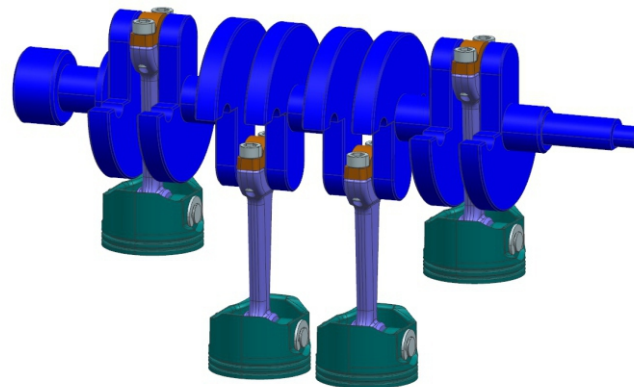
3. 组装曲轴总成-Assemble crankshaft assembly

3.1 组装连杆总成

-Assemble connecting rod assembly

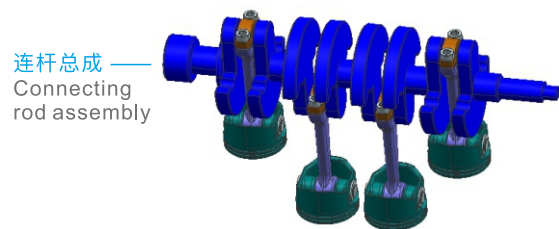


连杆总成
Connecting rod assembly

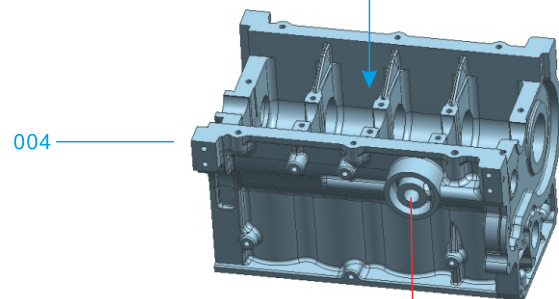


3.2 组装曲轴与缸体

-Assemble crankshaft and cylinder block



连杆总成
Connecting
rod assembly



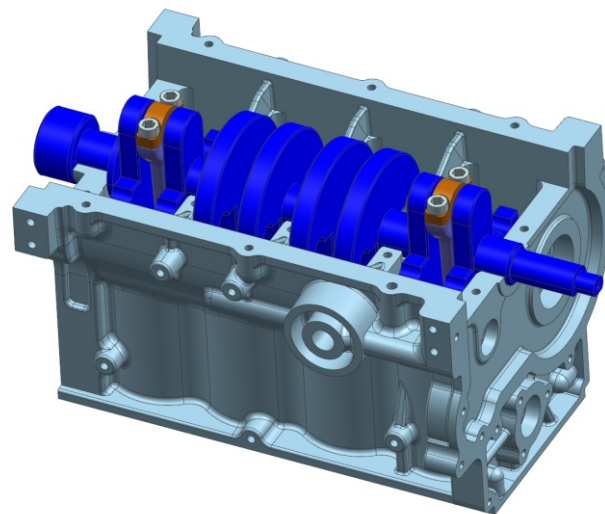
004

注意曲轴小头朝右

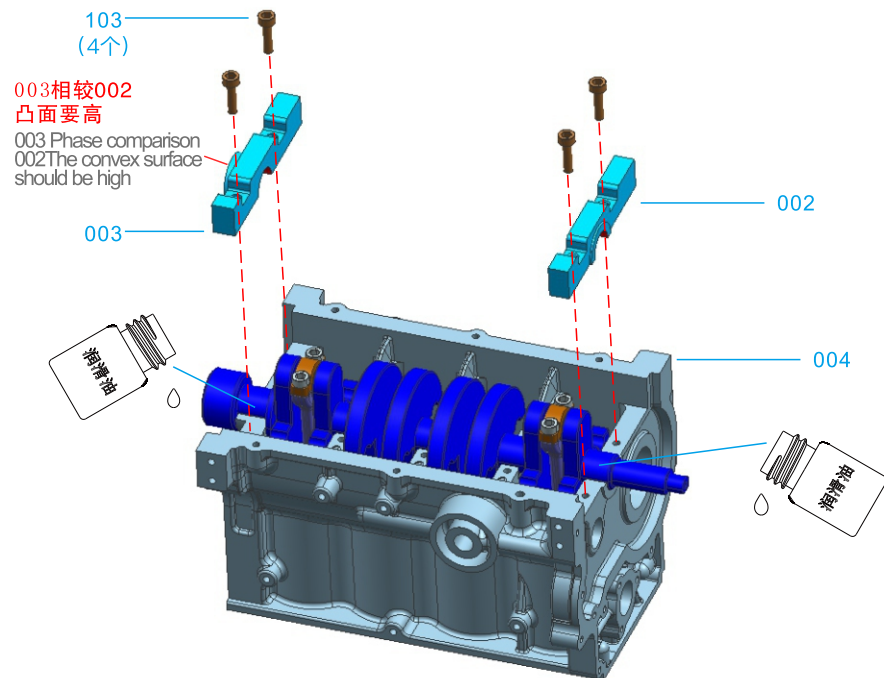
Note that the small end
of the crankshaft faces
to the right

注意油泵滤芯孔朝向正面

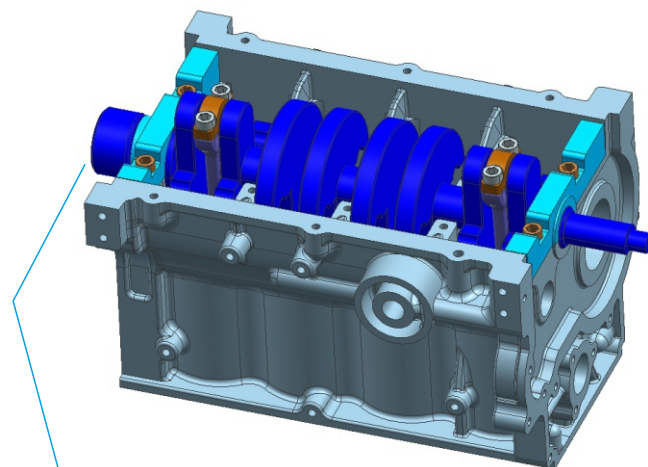
Note that the oil pump filter element hole faces the front



3.3 组装曲轴端部压盖 -Assemble crankshaft end gland



3.4 手工测试 -Manual test

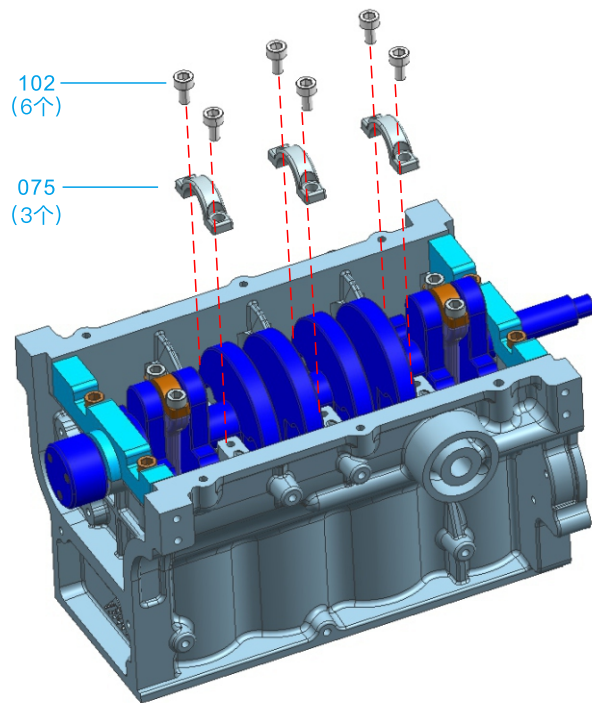


手工测试：
用手旋转曲轴，观察其是否转动顺畅

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

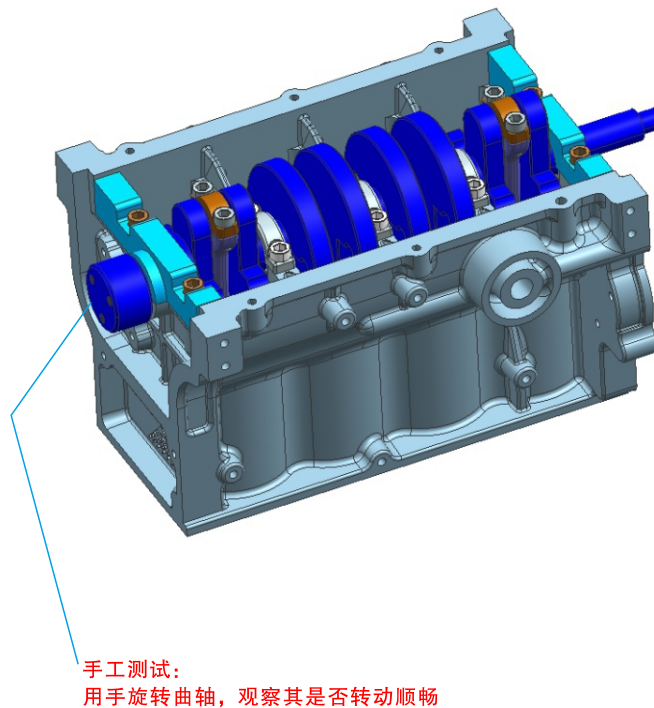
3.5 组装曲轴轴瓦

-Assembling crankshaft bearing shells



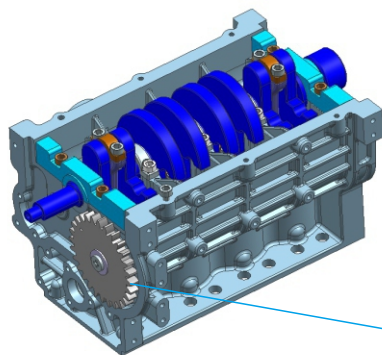
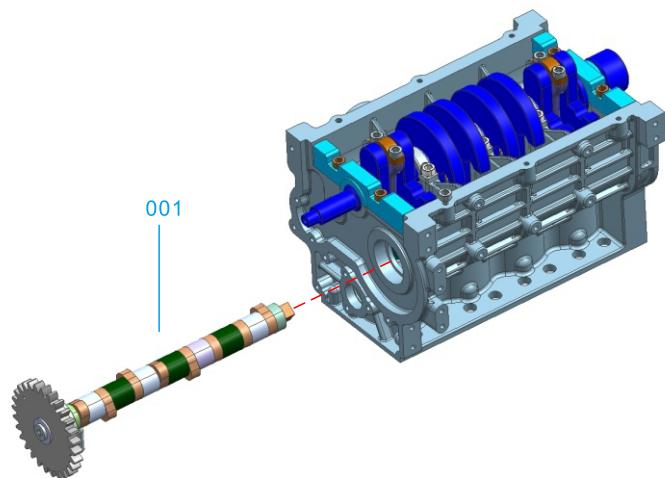
3.6 手工测试

-Manual test



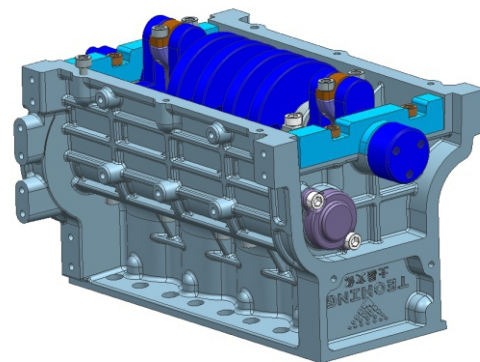
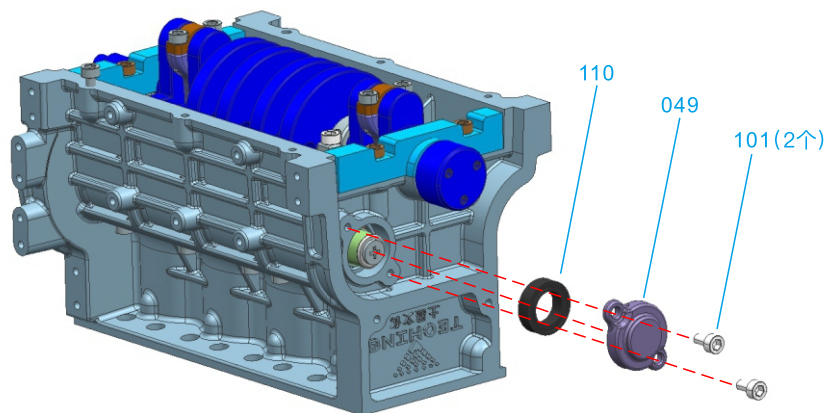
Manual test:
Rotate the crankshaft by hand and
observe whether it rotates smoothly

3.7 组装凸轮轴 -Assemble the camshaft

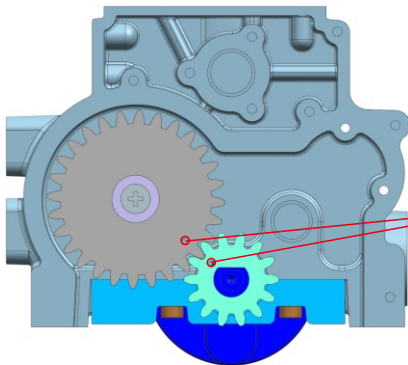
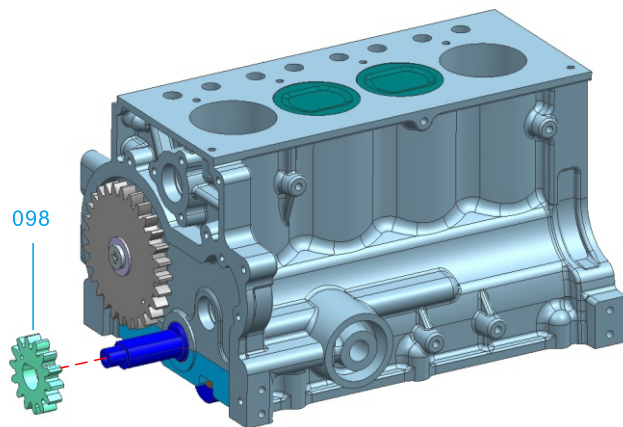


手工测试:
用手旋转凸轮轴, 观察其是否转动顺畅
Manual test:
Rotate the camshaft by hand and
observe whether it rotates smoothly

3.8 组装凸轮轴端盖 -Assemble the camshaft end cover

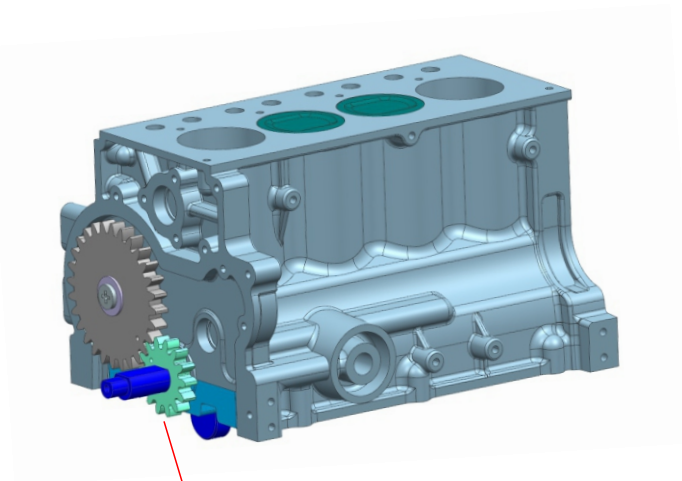


3.9 组装曲轴齿轮 -Assembling crankshaft gear



注意：
两齿轮啮合时，正时点必须对齐！

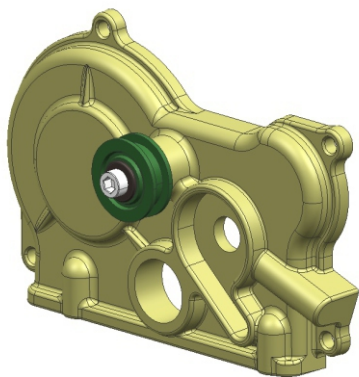
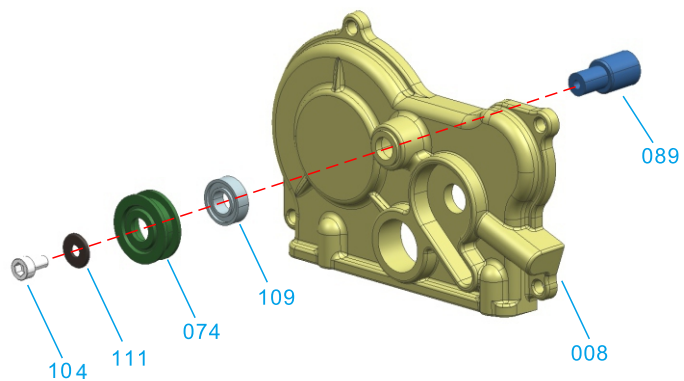
NOTE:
When the two gears mesh,
the timing points must be aligned!



手工测试：
用手旋转曲轴，观察凸轮轴与曲轴是否传动顺畅。

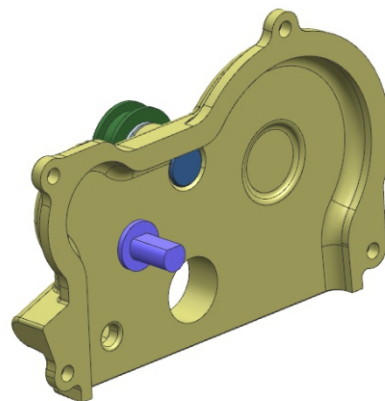
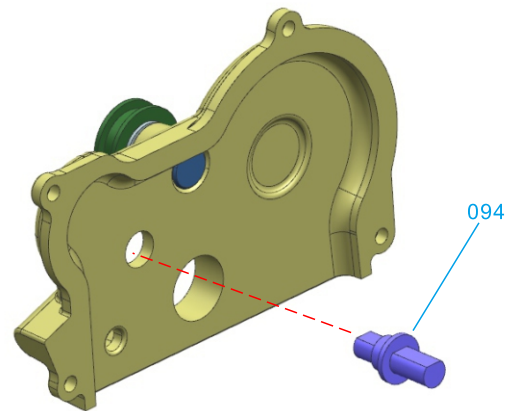
Manual test:
Rotate the crankshaft by hand and observe
whether the camshaft and crankshaft drive smoothly.

3.10 组装皮带轮 -Assembling belt pulley

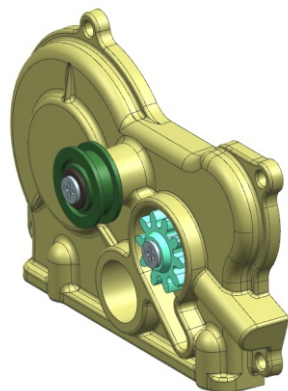
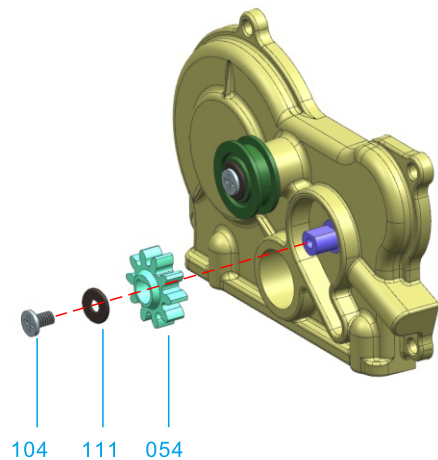


4. 组装油泵总成 -Assemble the oil pump assembly

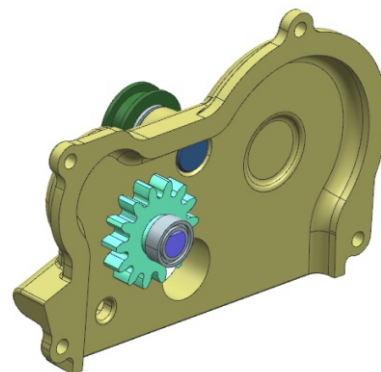
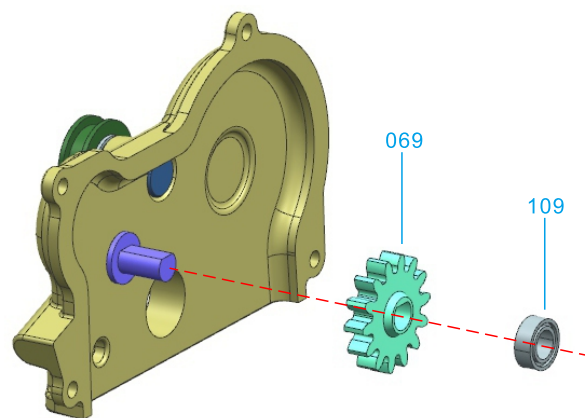
4.1 组装油泵轴 -Assemble the oil pump shaft



4.2 组装油泵齿轮 -Assemble the oil pump gear

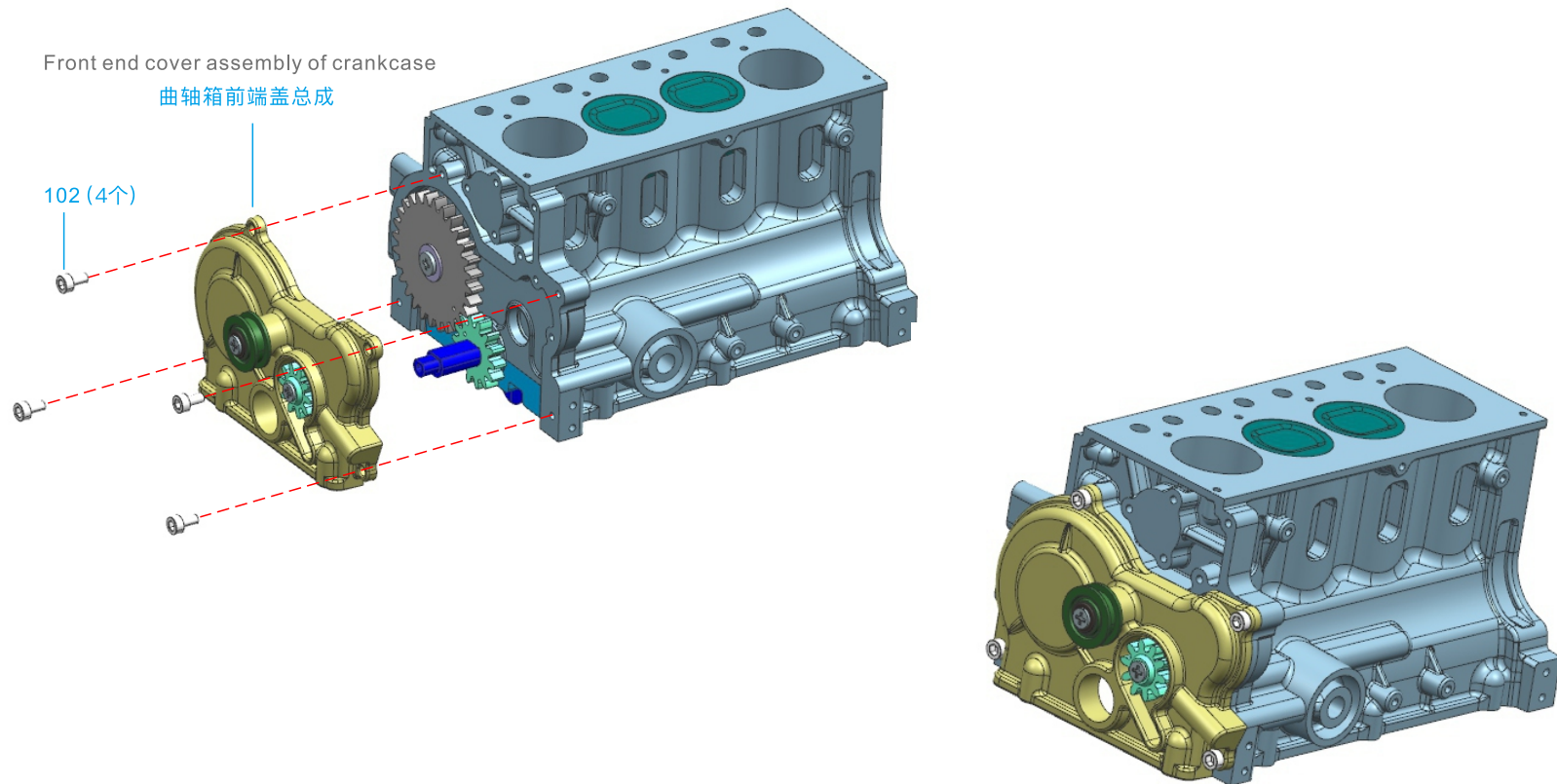


4.3 组装油泵主动齿轮 -Assemble the oil pump driving gear

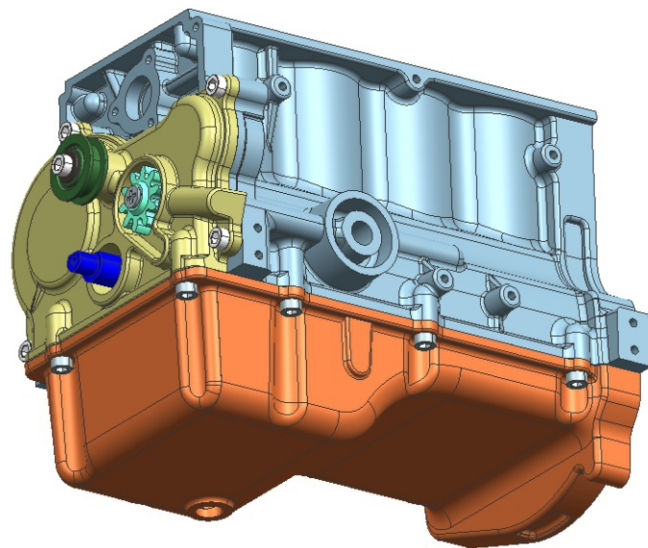
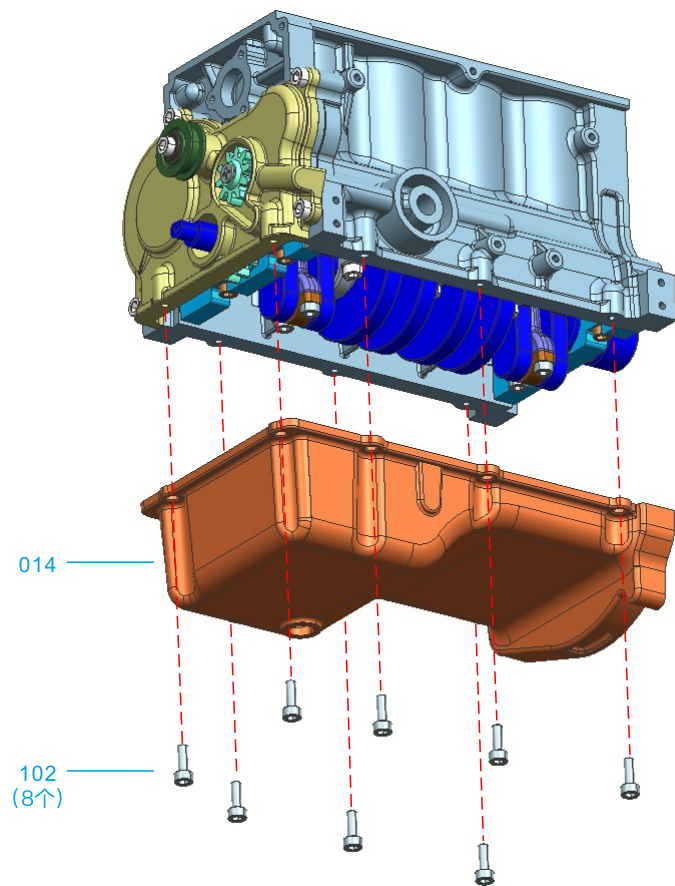


4.4 组装油泵端盖总成

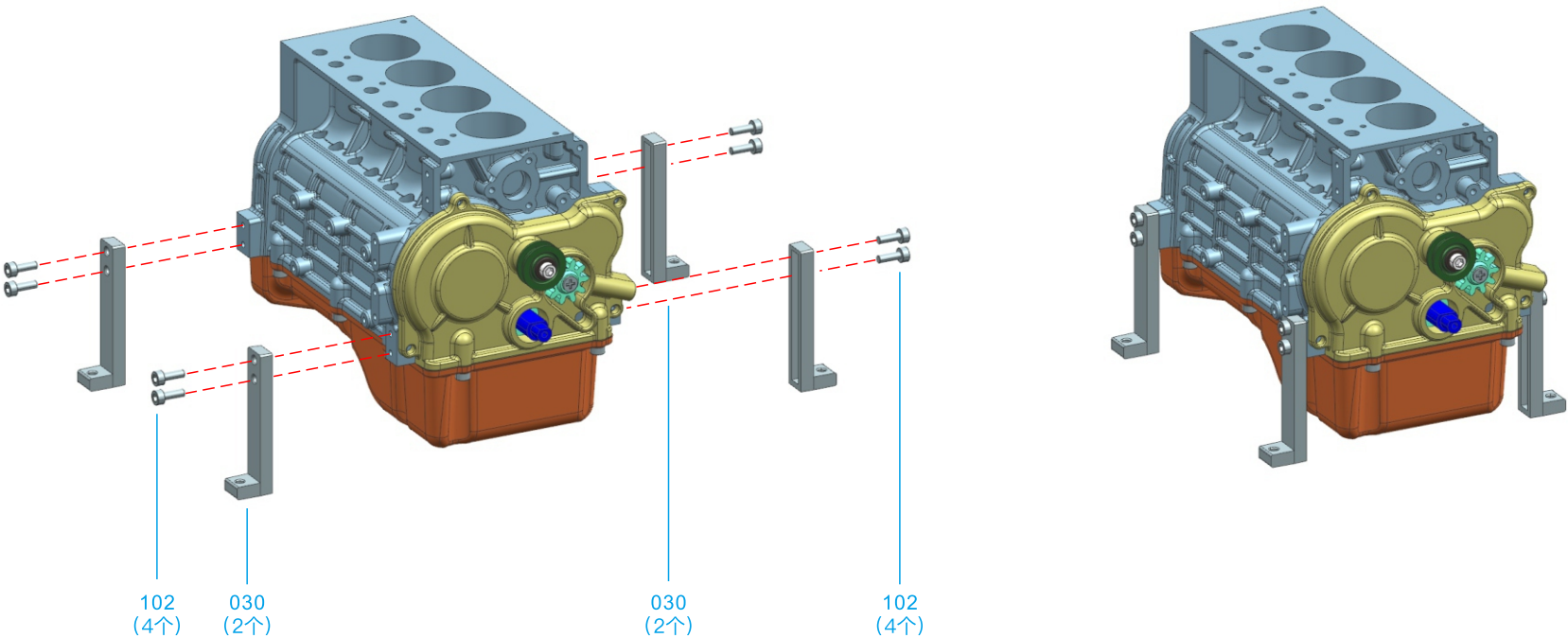
-Assemble the oil pump end cover assembly



5. 组装油底壳-Assemble the oil pan

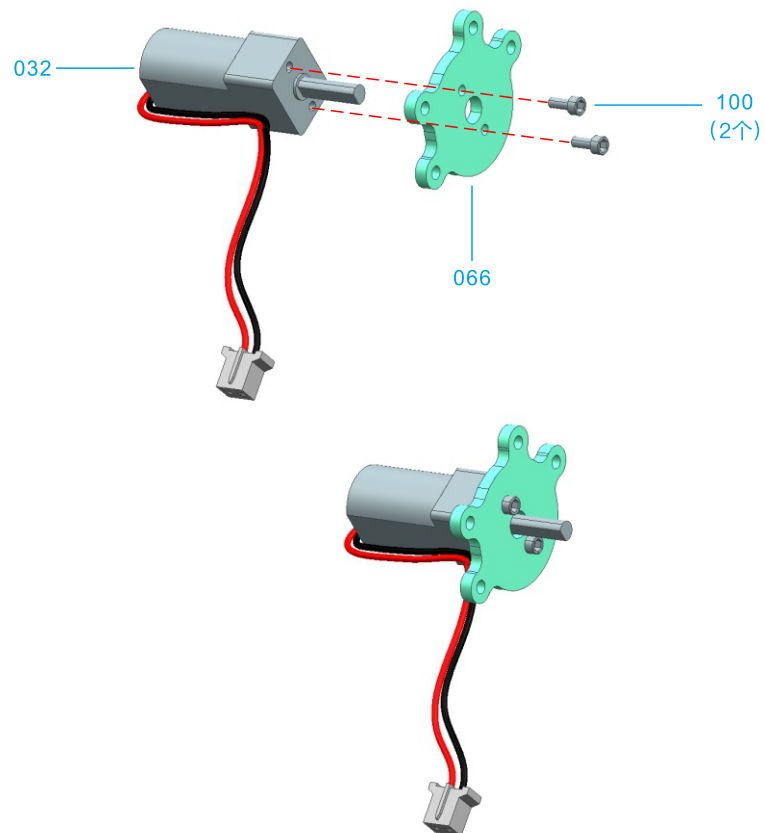


6. 组装缸体支架-Assemble the cylinder block bracket

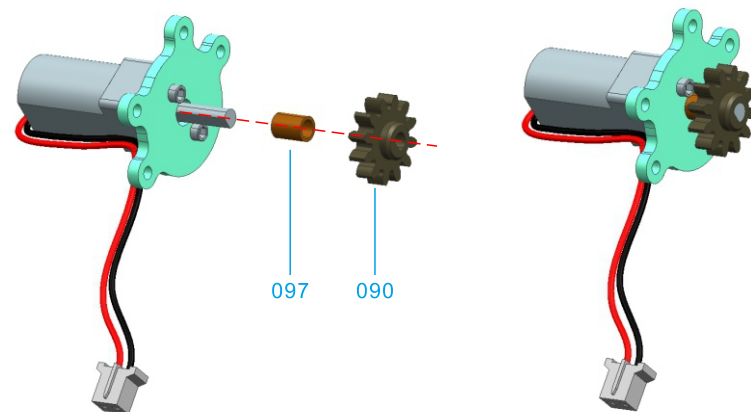


7. 组装飞轮壳总成 - Assemble flywheel housing assembly

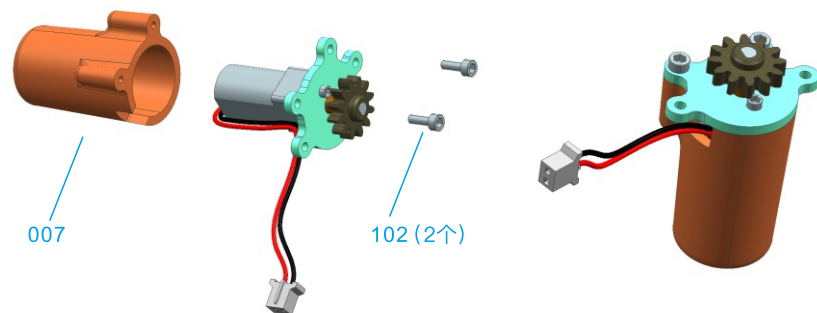
7.1 组装电机固定座 - Assembly of motor fixing base



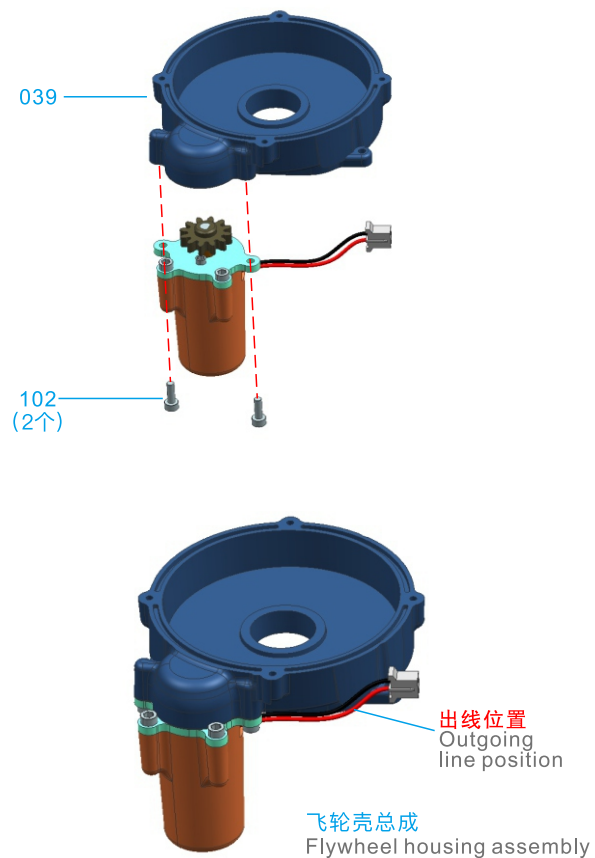
7.2 组装电机齿 - Assembly of motor teeth



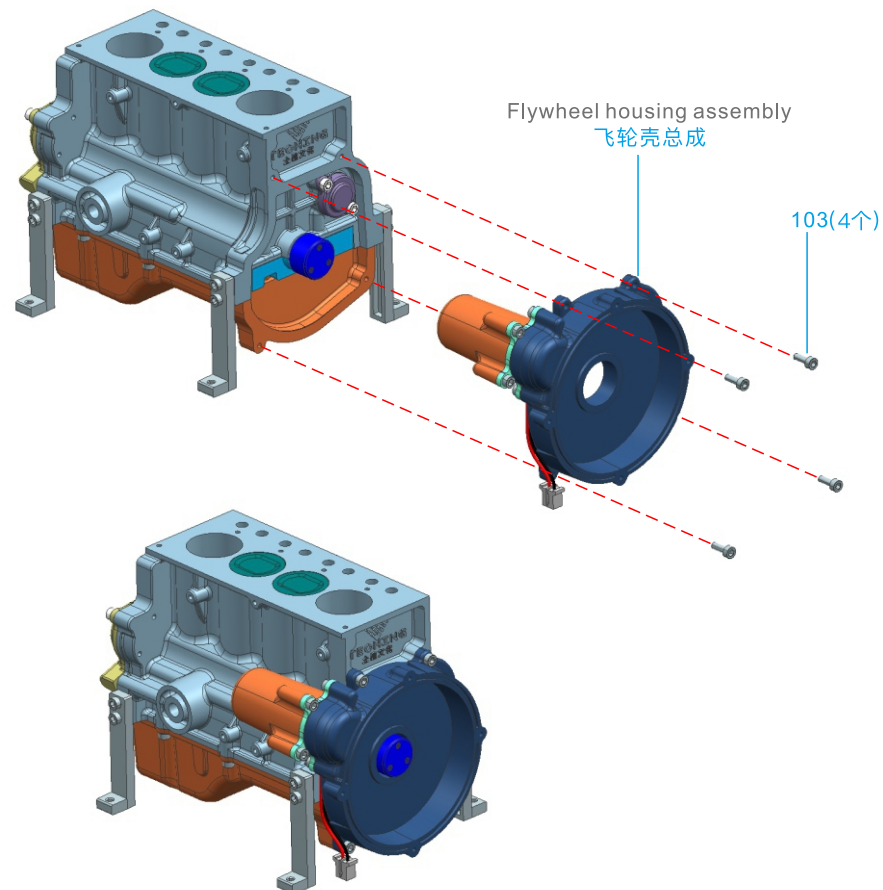
7.3 组装电机罩 - Assemble the motor cover



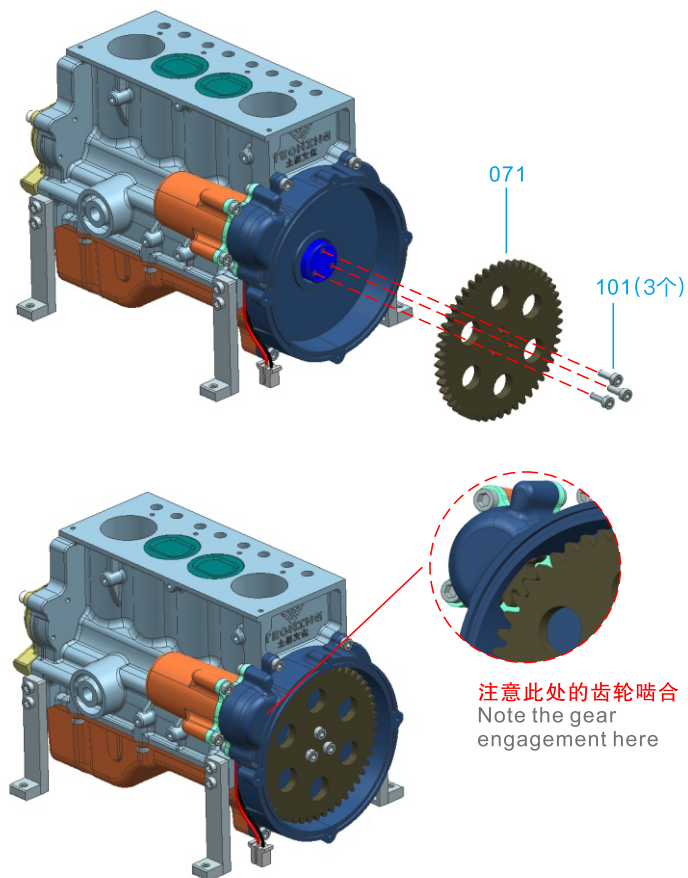
7.4 组装飞轮壳 -Assembling flywheel housing



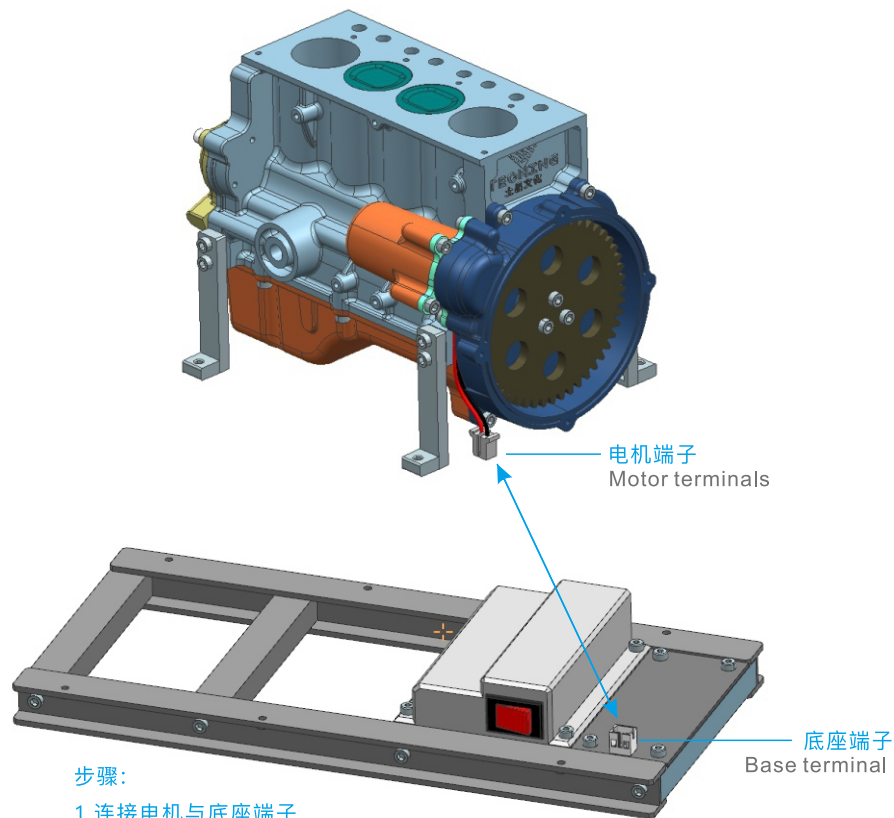
7.5 组装飞轮壳总成 -Assemble the flywheel housing assembly



7.6 组装飞轮 -Assembling flywheel



7.7 电动测试 -Electric test



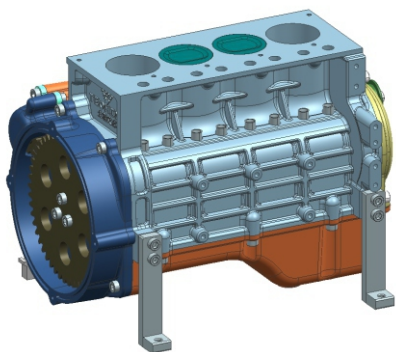
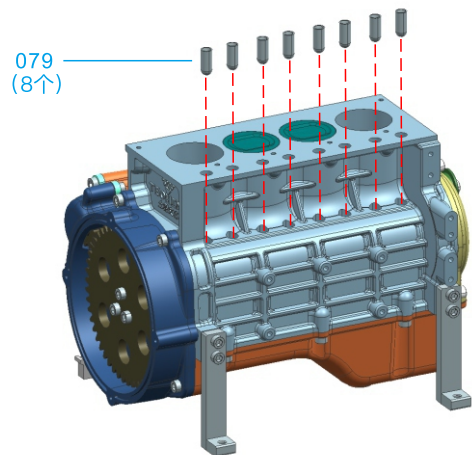
步骤:

- 1.连接电机与底座端子
- 2.启动开关, 观察电机及各组运转是否正常

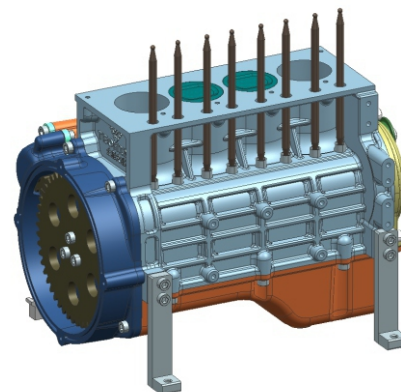
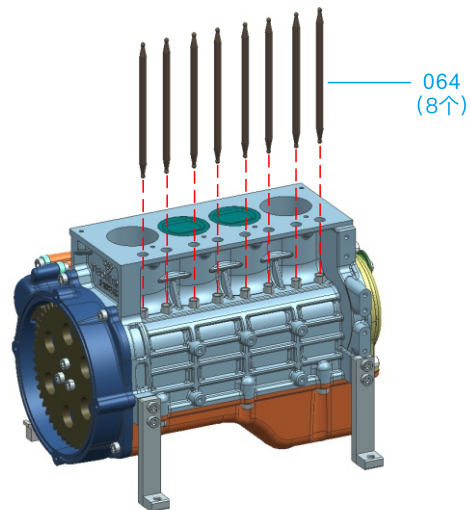
Steps:

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

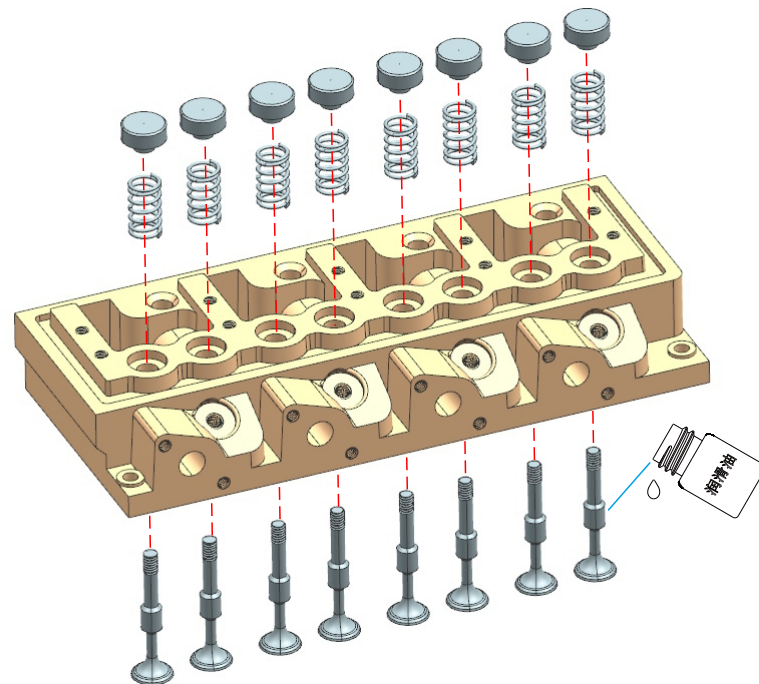
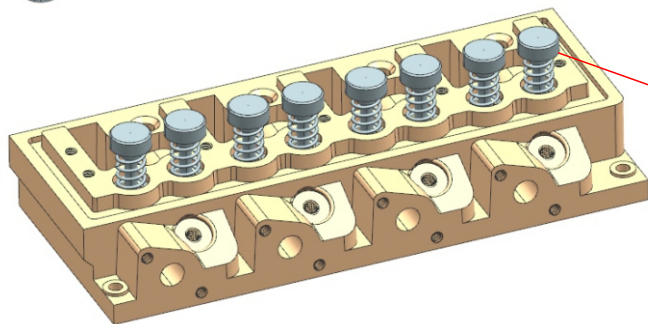
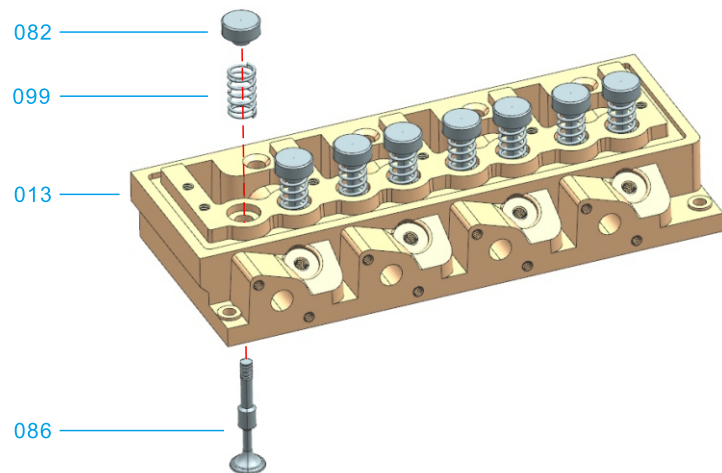
7.8 组装顶杆套 -Assembling ejector rod sleeve



7.9 组装顶杆 -Assembling ejector rod



8. 组装缸头总成-Assemble the cylinder head assembly



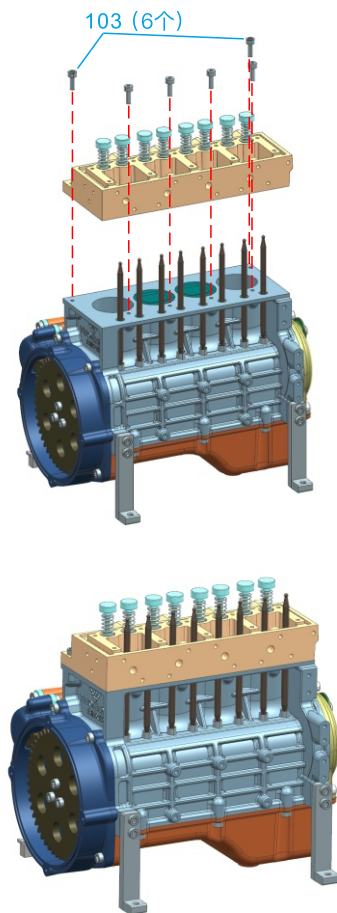
检查: 按压气门是否回弹, 如果回弹异常, 请检查缸头气门孔是否有异物。

Check: Press the valve to check whether it rebounds. If it does not, Please check whether there is foreign matter in the valve hole of cylinder head.

9. 连接缸头总成 -Connecting cylinder head assembly

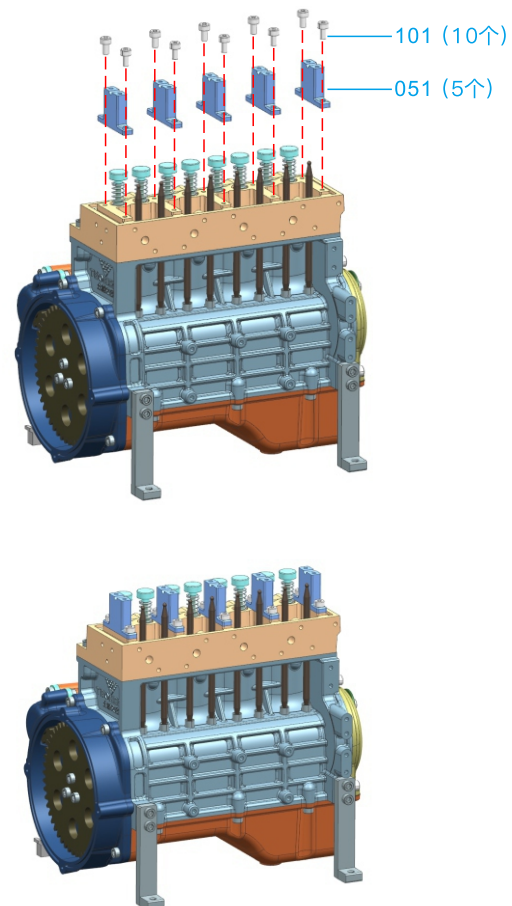
9.1 组装缸头总成

-Assemble cylinder head assembly



9.1 组装摇臂支座

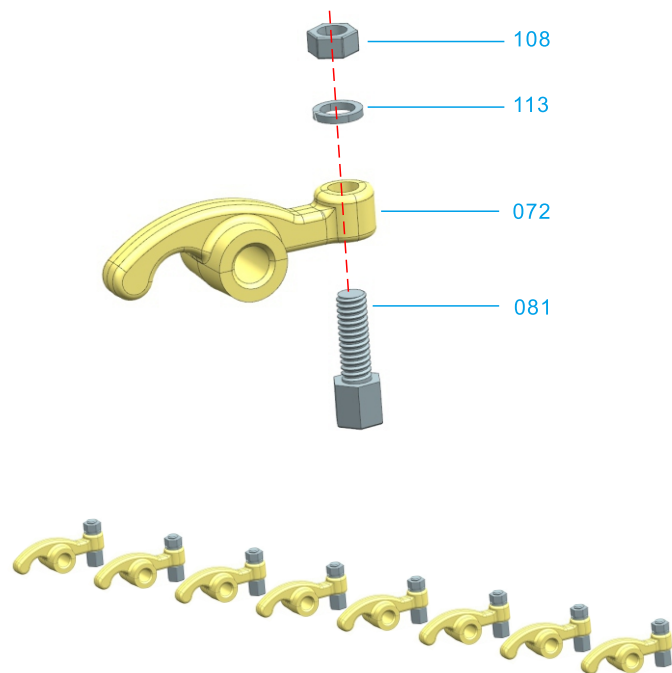
-Assembling rocker arm support



10. 组装摇臂总成 - Assemble the rocker arm assembly

10.1 组装摇臂

-Assemble the rocker arm

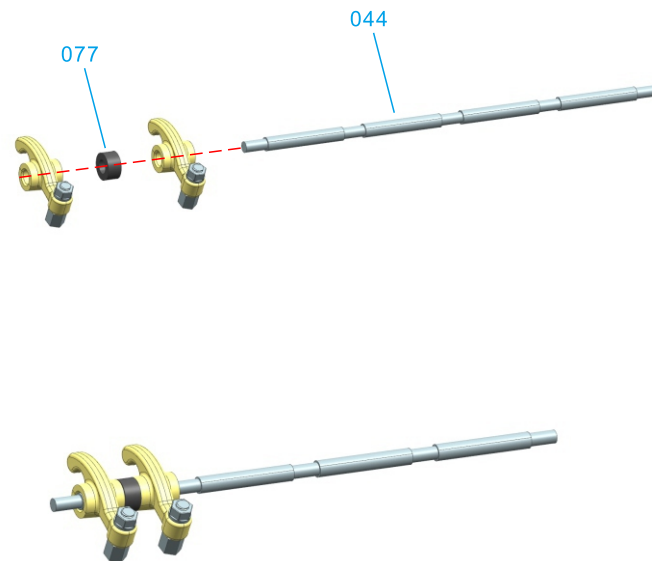


共8组

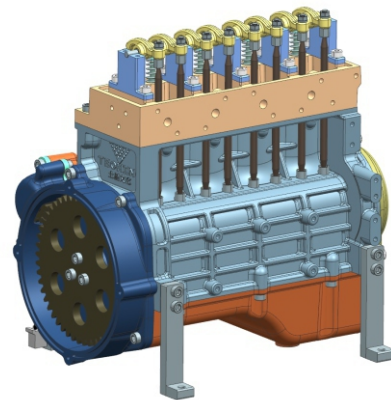
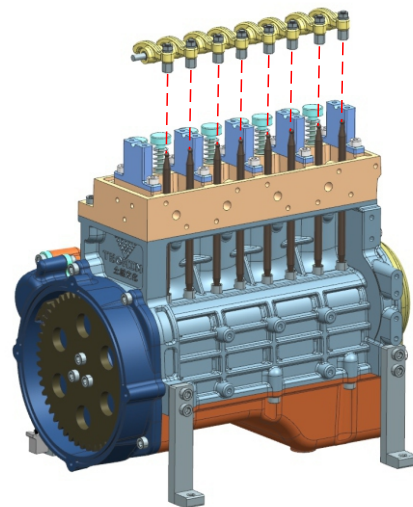
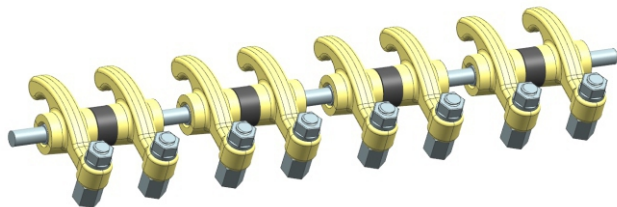
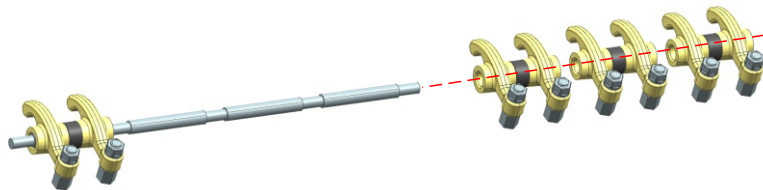
8 groups in total

10.2 组装摇臂轴

-Assemble the rocker shaft

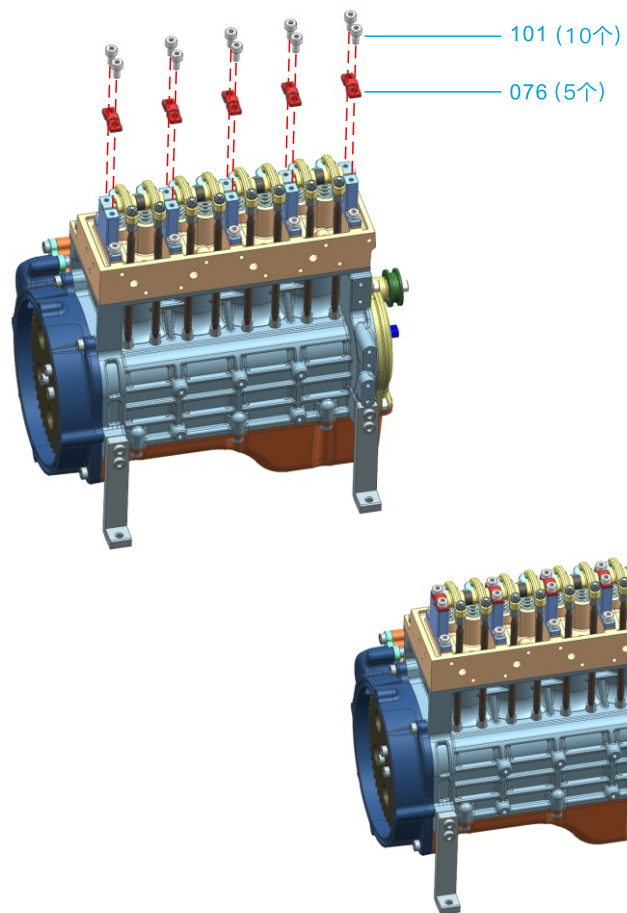


10.3 组装摇臂轴组件 -Assemble the rocker shaft assembly



10.4 组装摇臂轴瓦

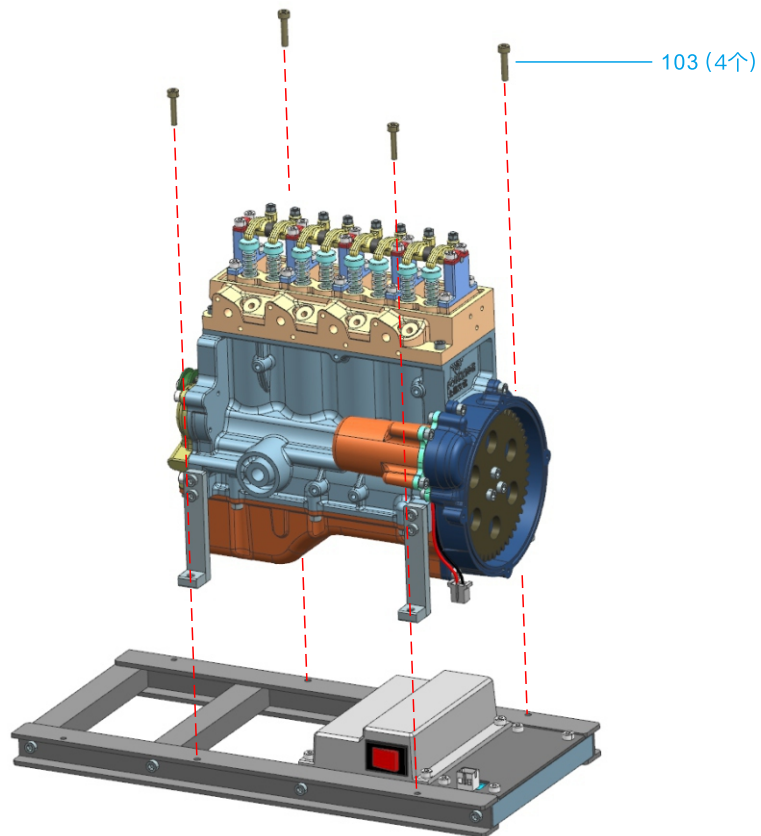
-Assembling rocker arm bearing bush



11. 组装底座总成-Assemble the base assembly

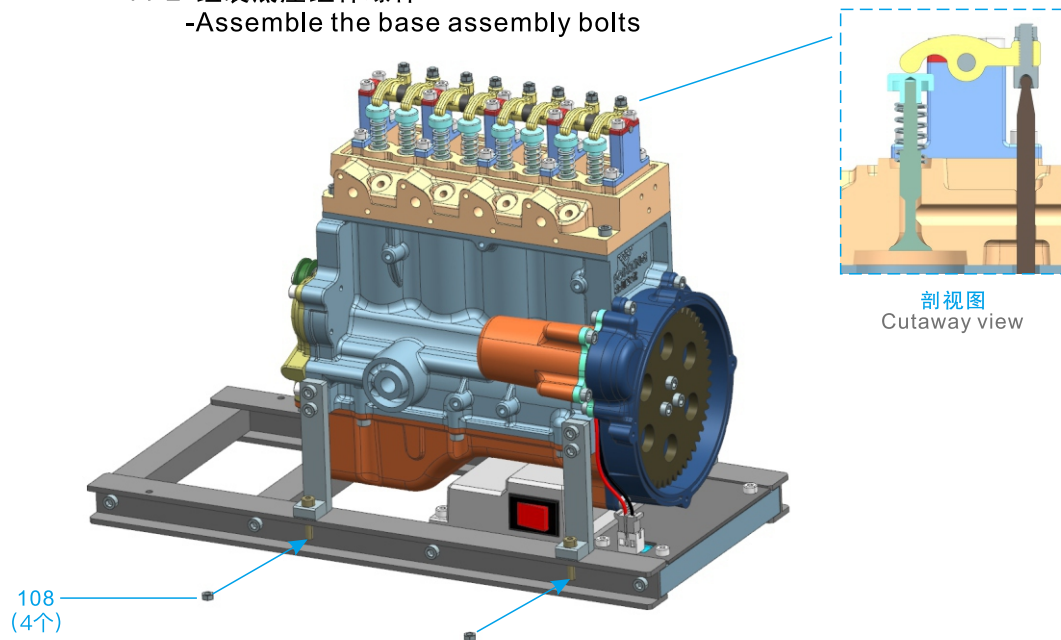
11.1 组装底座组件

-Assembling the base assembly



11.2 组装底座组件螺栓

-Assemble the base assembly bolts



通电测试:

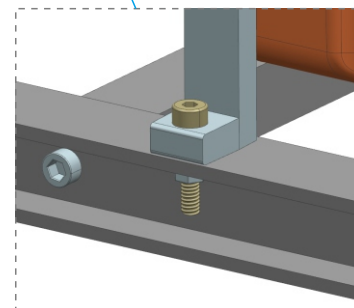
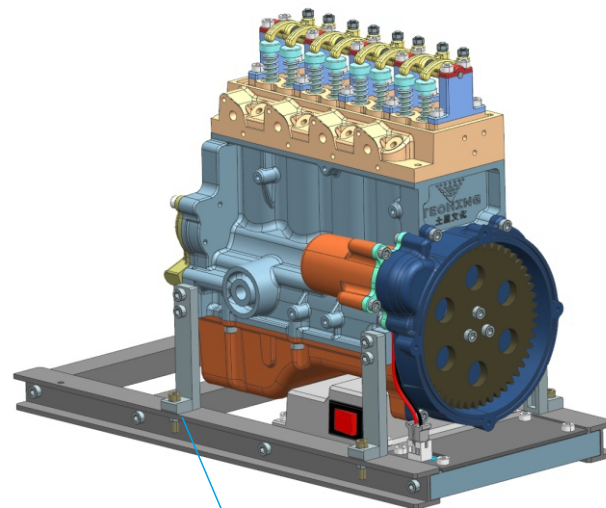
接入电源, 观察缸头摇臂摆动是否正常,
如果异常, 请排除以下故障:

- 1) 零件装配不正确;
- 2) 电池没有充好电。

Power on test:

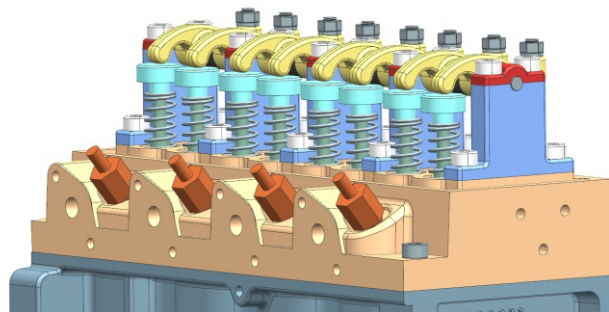
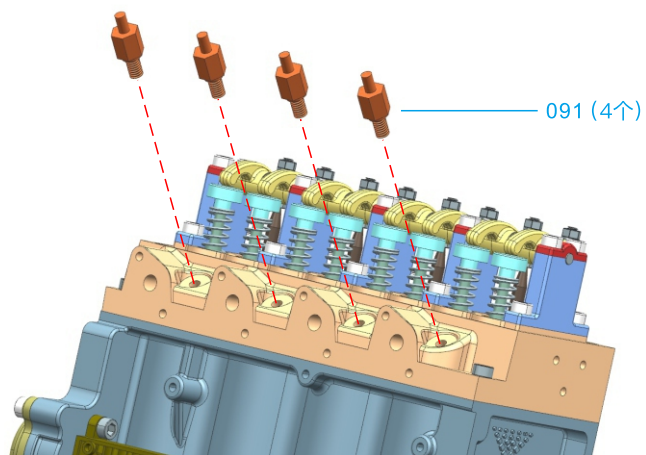
Connect the power supply and observe whether the
cylinder head rocker arm swings normally,
If it is abnormal, please eliminate the following faults:

- 1) Incorrect assembly of parts;
- 2) The battery is not fully charged.

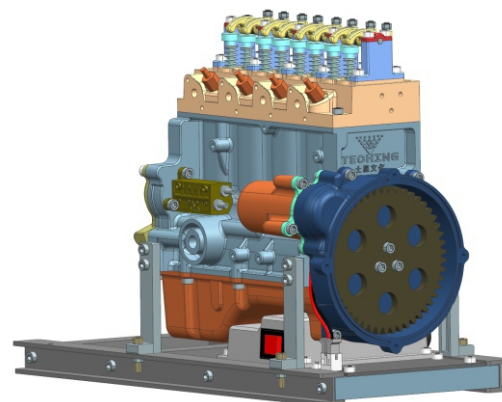
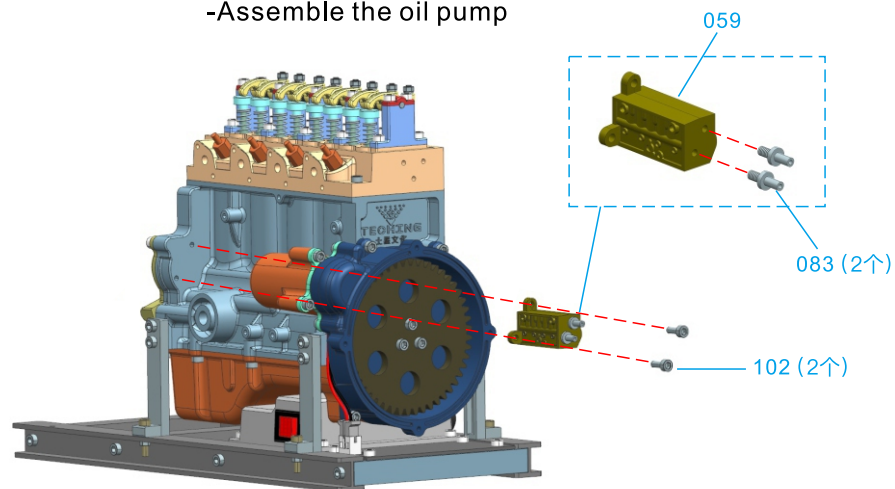


(局部放大图)
Partial enlarged view

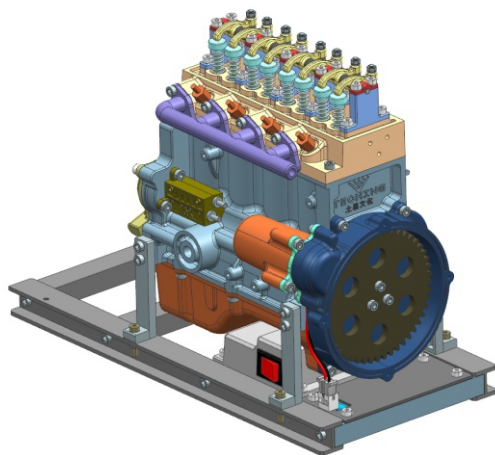
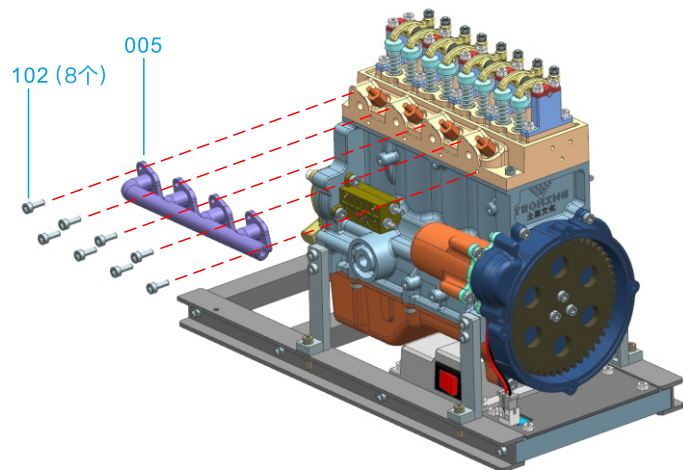
11.3 组装油嘴 -Assembling the nozzle



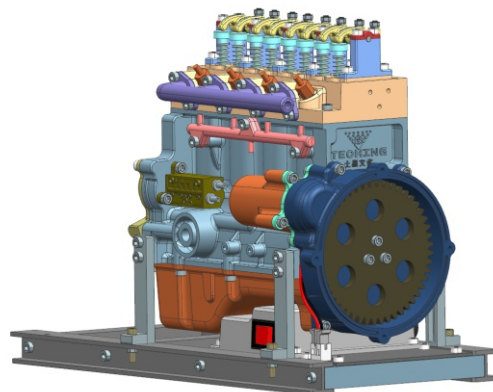
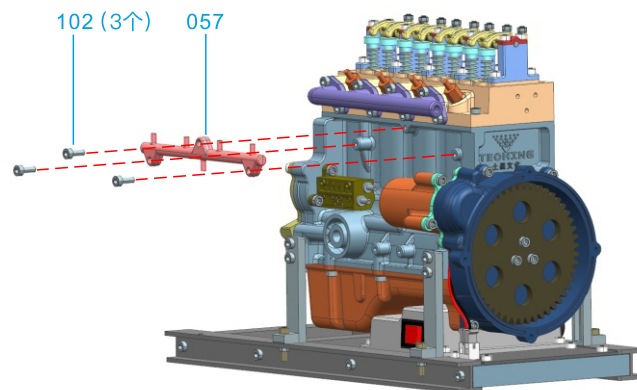
11.4 组装油泵 -Assemble the oil pump



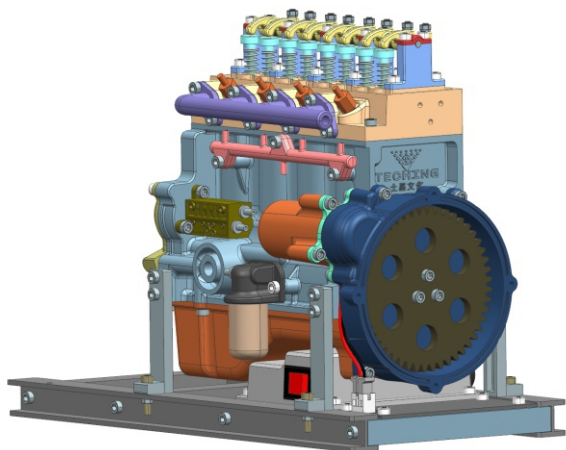
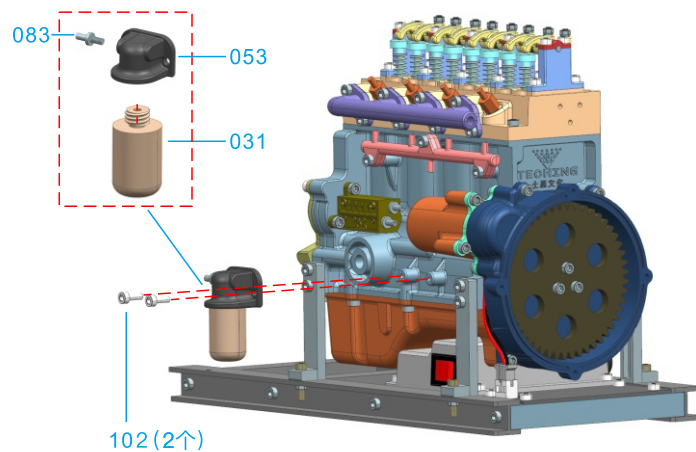
11.5 组装进气支管 -Assemble the intake branch pipe



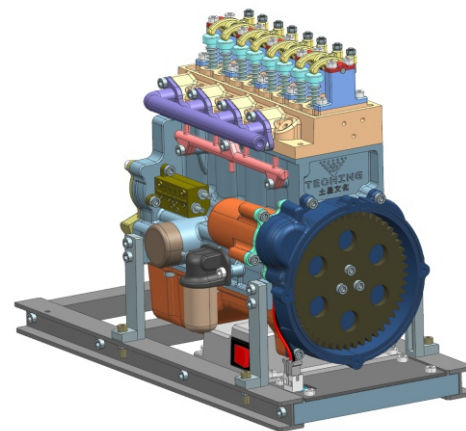
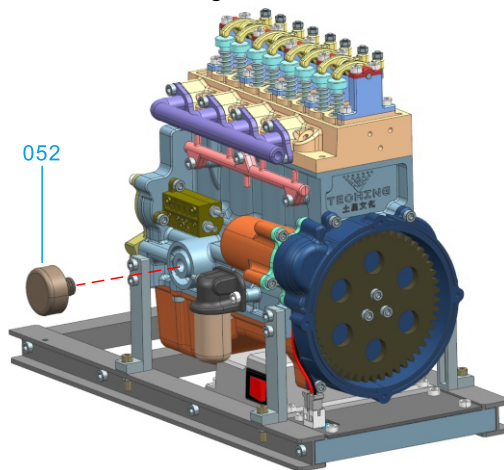
11.6 组装共轨管 -Assembly of common rail pipe



11.7 组装油泵滤芯 -Assemble oil pump filter element



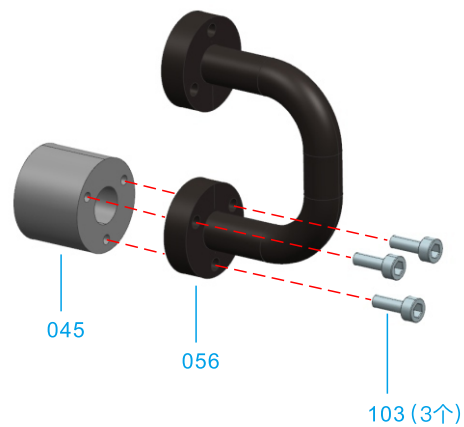
11.8 组装机油滤清器 -Assembling oil filter



12. 组装排气管总成-Assemble the exhaust pipe assembly

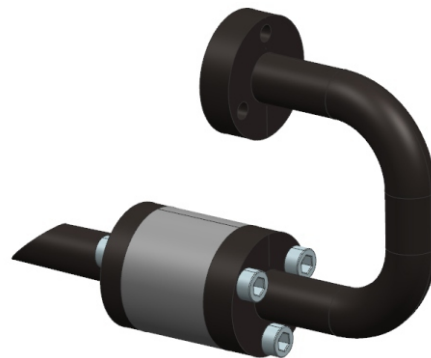
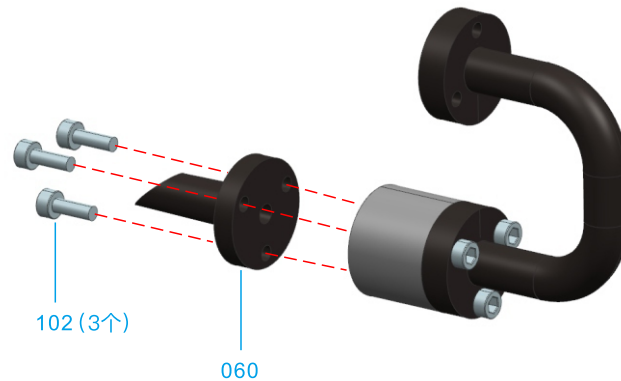
12.1 组装排气管与消音器

-Assemble exhaust pipe and silencer



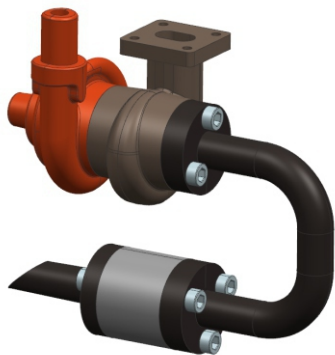
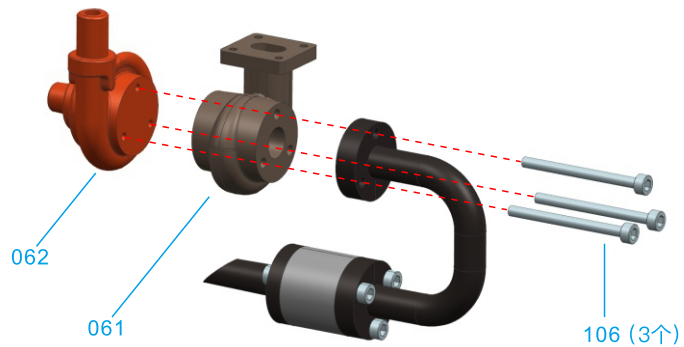
12.2 组装排气尾管

-Assemble tailpipe



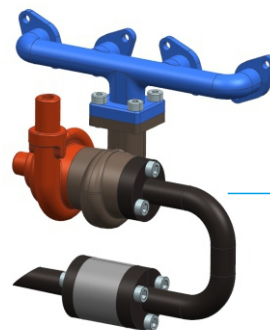
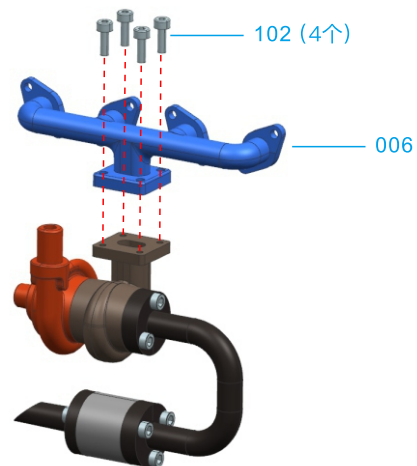
12.3 组装涡轮增压与排气管

-Assemble turbocharger and exhaust pipe



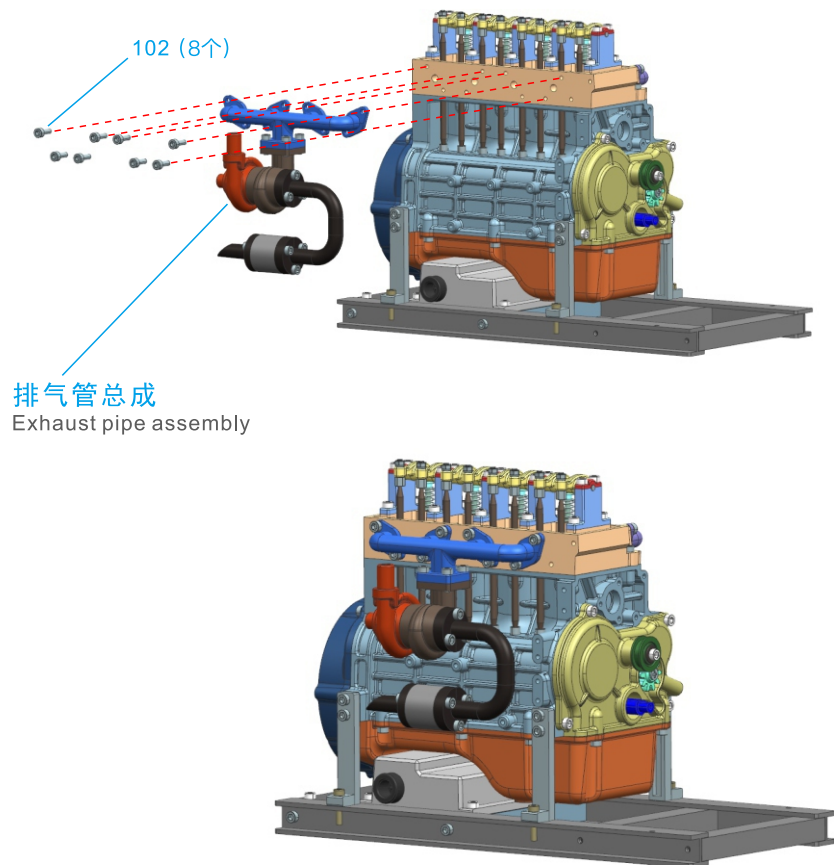
12.4 组装排气支管

-Assemble the exhaust manifold

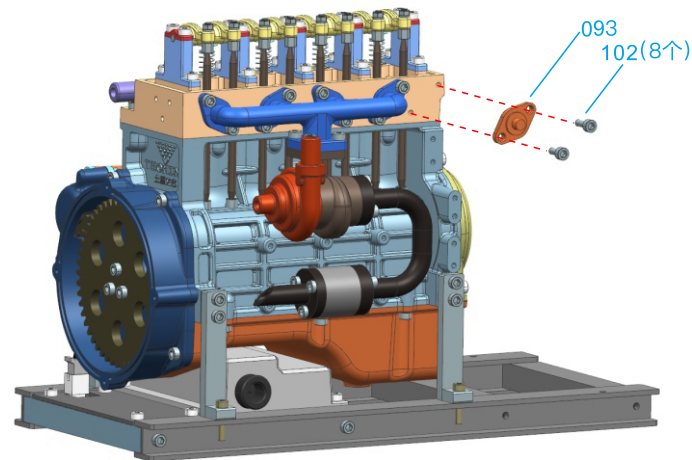


排气管总成
Exhaust pipe assembly

12.5 组装排气管总成 -Assemble the exhaust pipe assembly



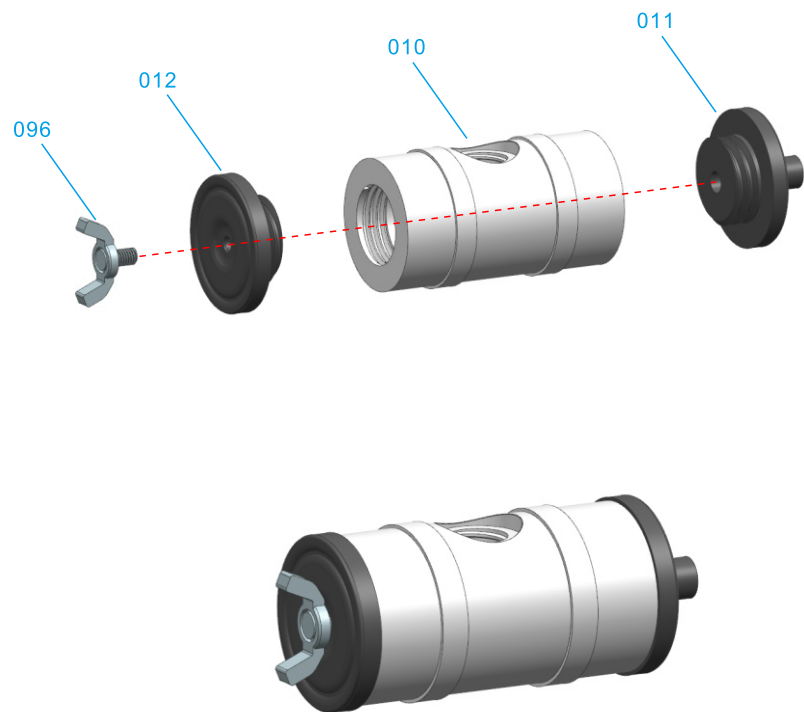
12.6 组装水箱管接口 -Assembly of water tank pipe connection port



13. 组装空气滤芯总成 -Assemble the air filter element assembly

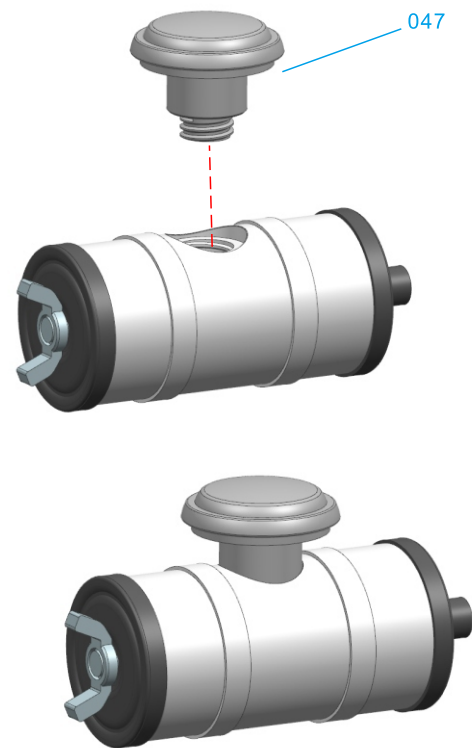
13.1 组装空气滤清器端盖

-Assemble the air cleaner end cover

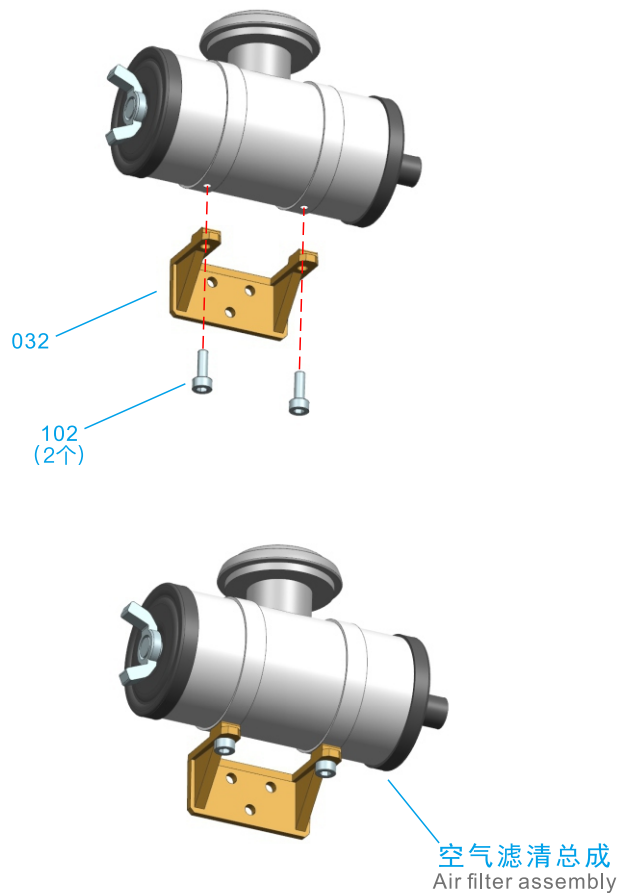


13.2 组装进气盖

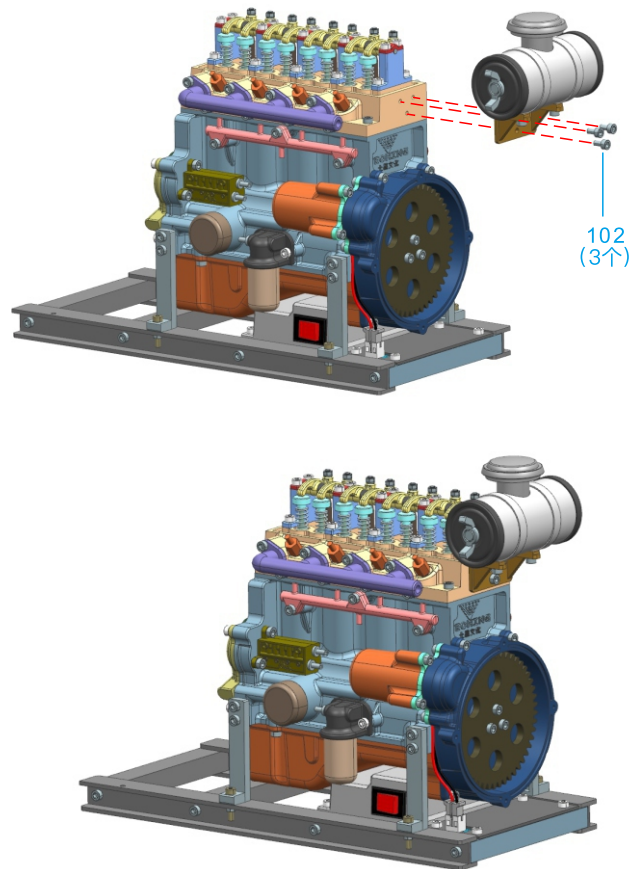
-Assemble the intake cover



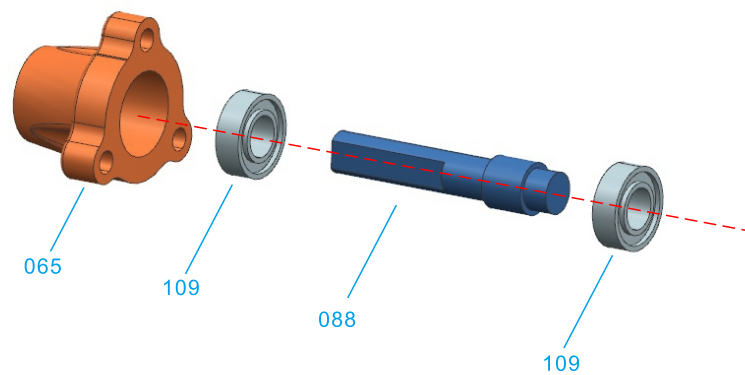
13.3 组装空气滤清支架 -Assemble the air filter bracket



13.4 连接空气滤清器总成 -Connect the air cleaner assembly

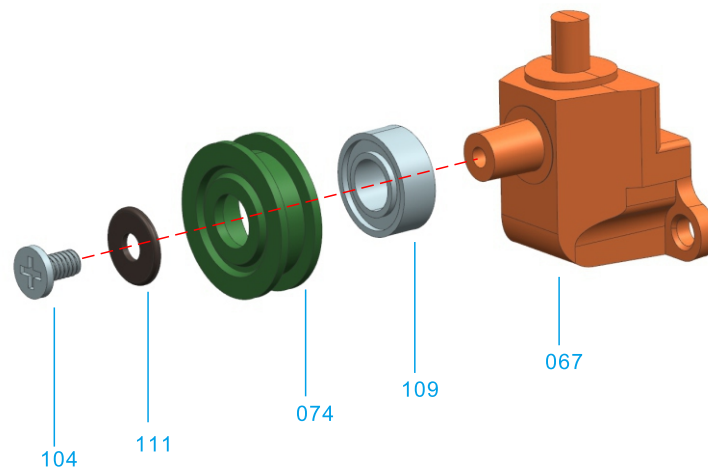


14. 组装风扇座组件-Assemble fan base assembly



风扇座组件
Fan base assembly

15. 组装水泵组件-Assemble the water pump assembly

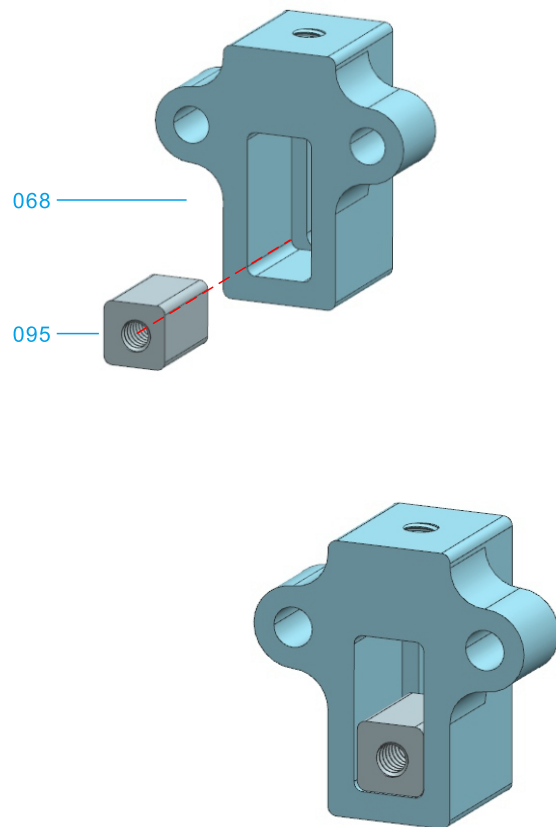


水泵组件
Water pump assembly

16. 组装张紧轮组件 -Assemble tensioning wheel assembly

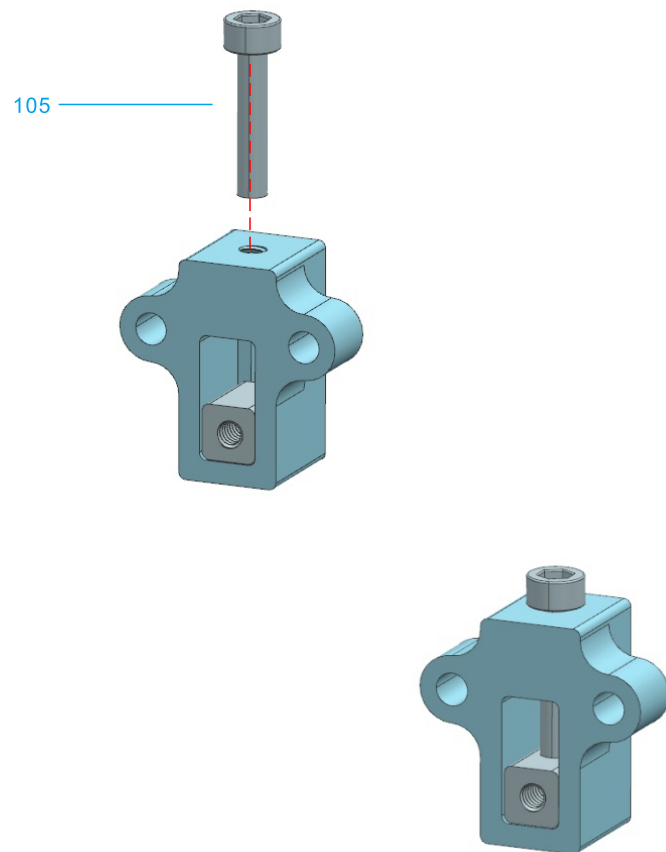
16.1 组装张紧滑块

-Assemble the tensioning slider

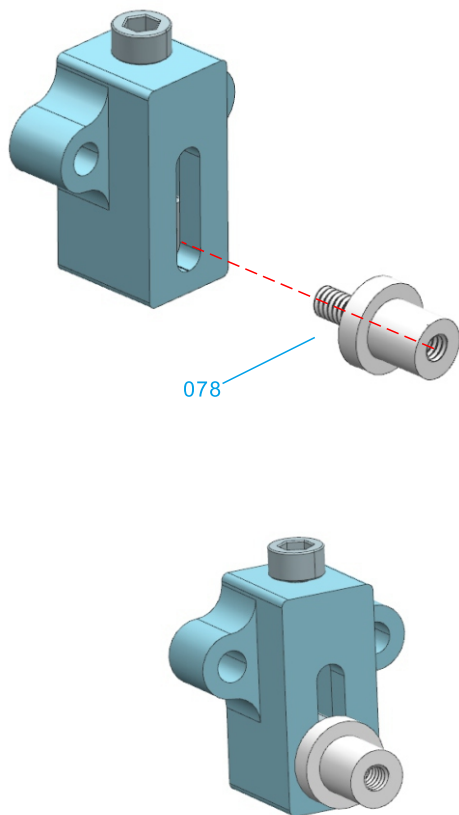


16.2 组装张紧螺丝

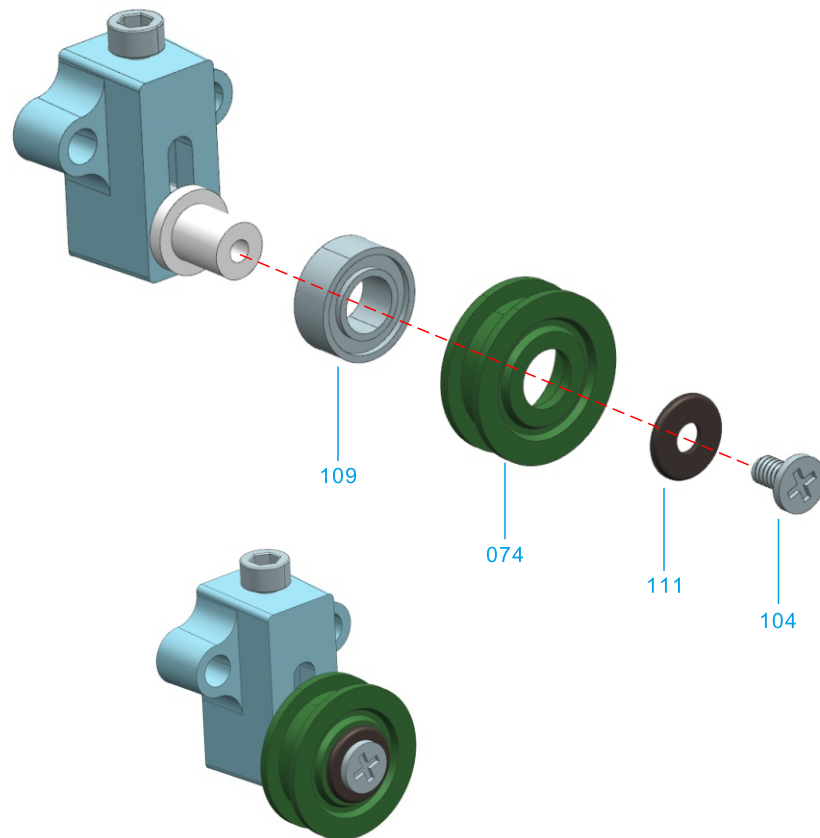
-Assemble the tensioning screw



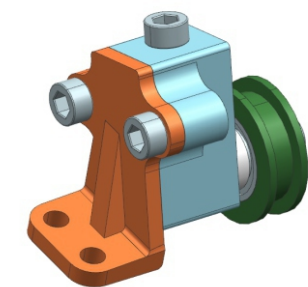
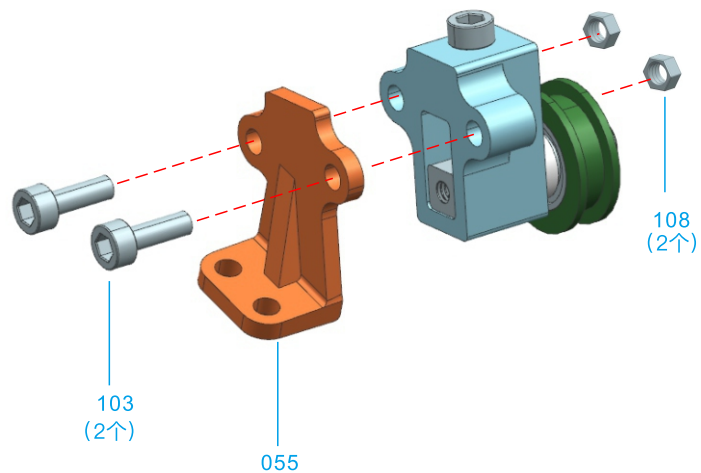
16.3 组装张紧轮轴 -Assemble the tensioning axle



16.4 组装皮带轮 -Assemble the pulley



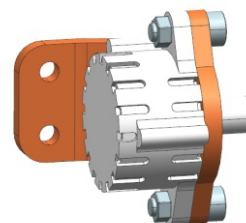
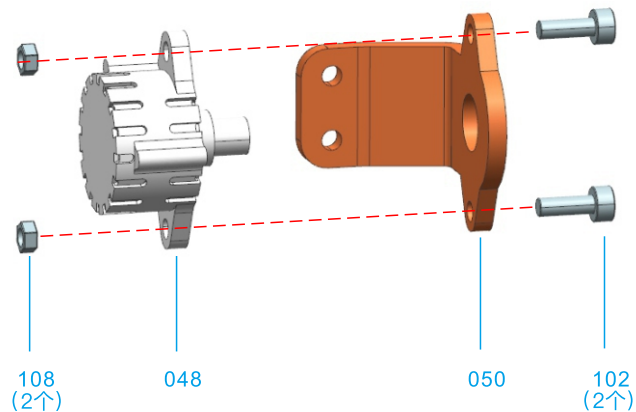
16.5 组装发电机 -Assemble the tensioner bracket



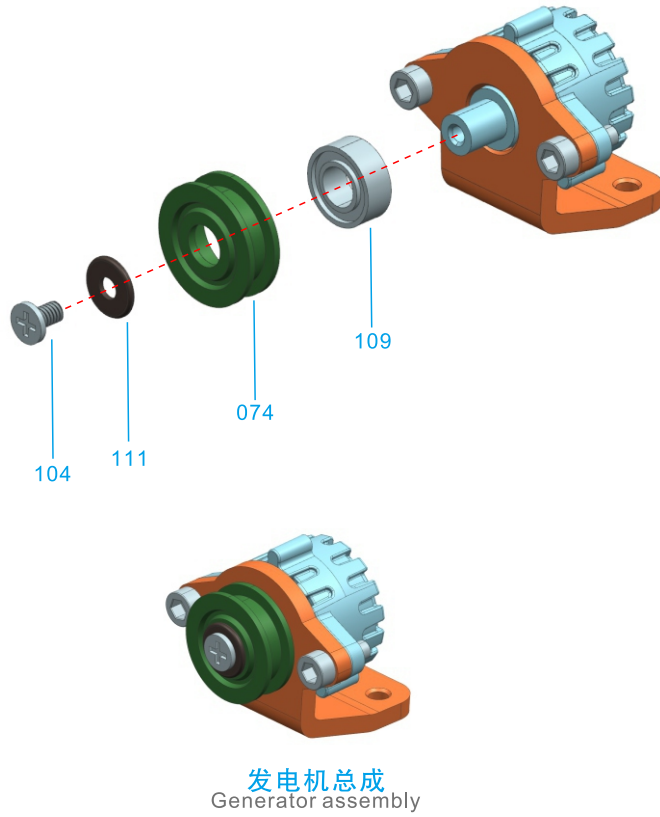
张紧轮总成
Tensioner assembly

17. 组装发电机总成-Assemble the generator assembly

17.1 组装发电机与支架 -Assemble generator and bracket

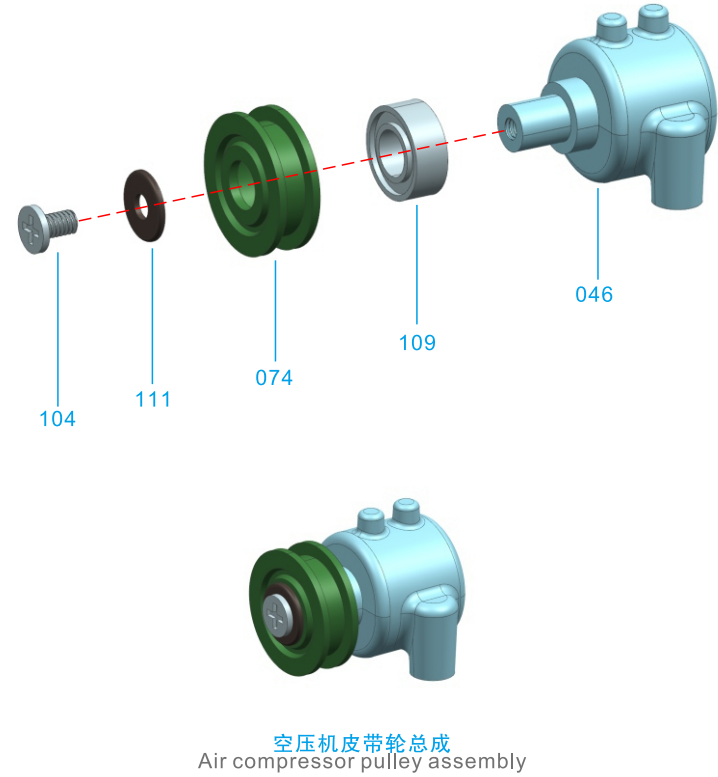


17.2 组装发电机 -Assembling the generator

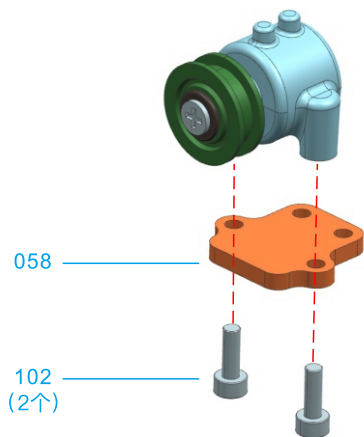


18. 组装空压机组件-Assemble the air compressor assembly

18.1 组装空压机皮带轮 -Assemble the air compressor pulley

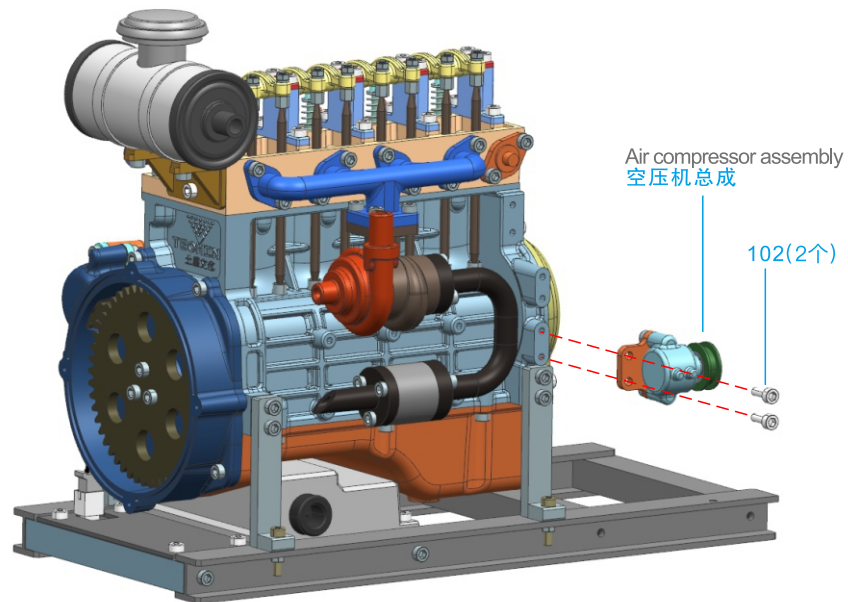


18.2 组装空压机支架板 -Assemble the air compressor support plate

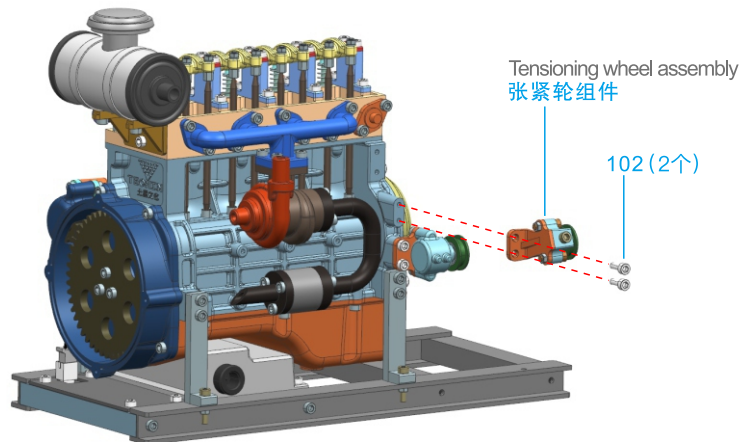


空压机总成
Air compressor assembly

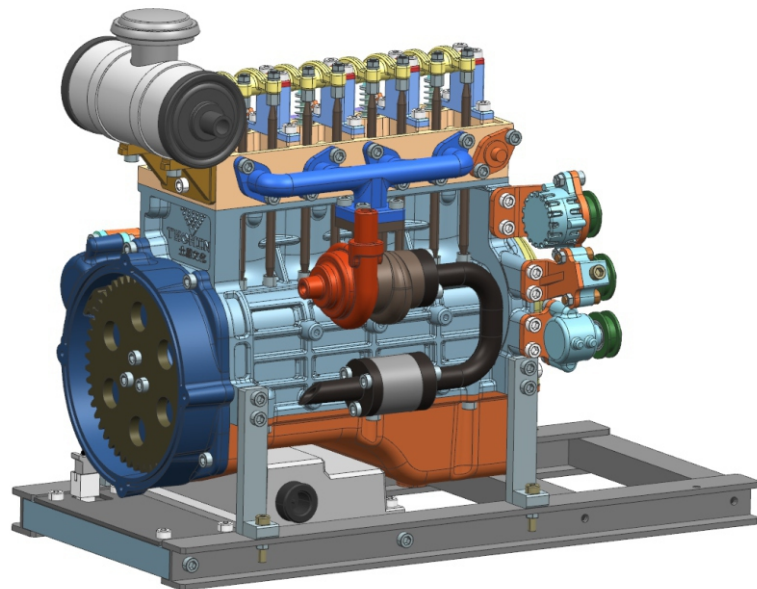
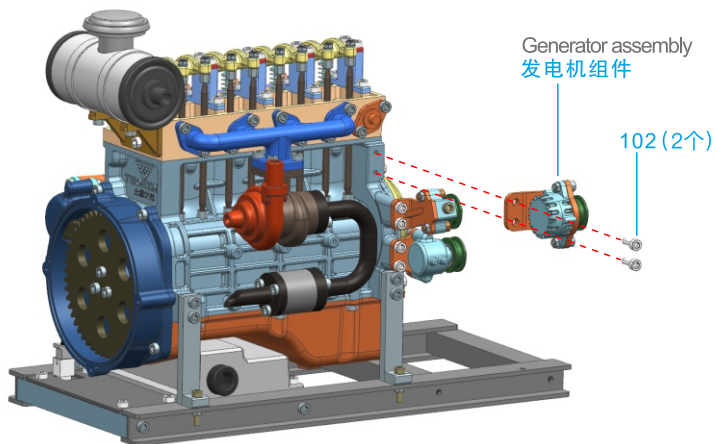
19. 连接发电机组件-Connect the generator assembly



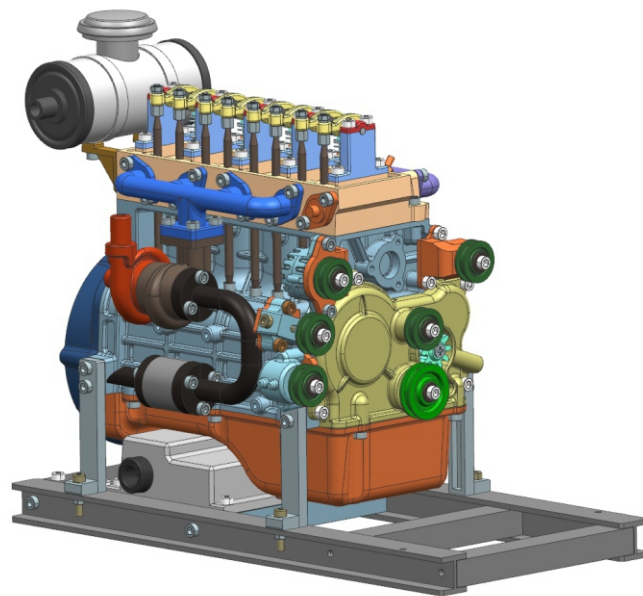
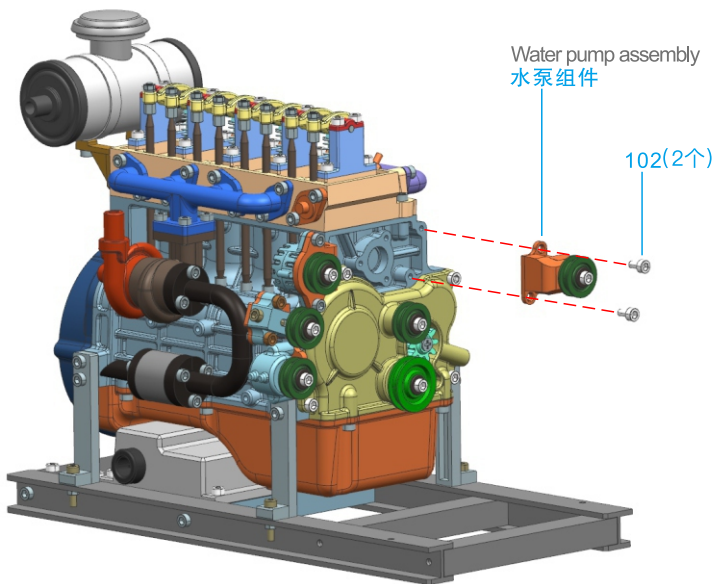
20. 连接张紧轮总成-Connect the tensioner assembly



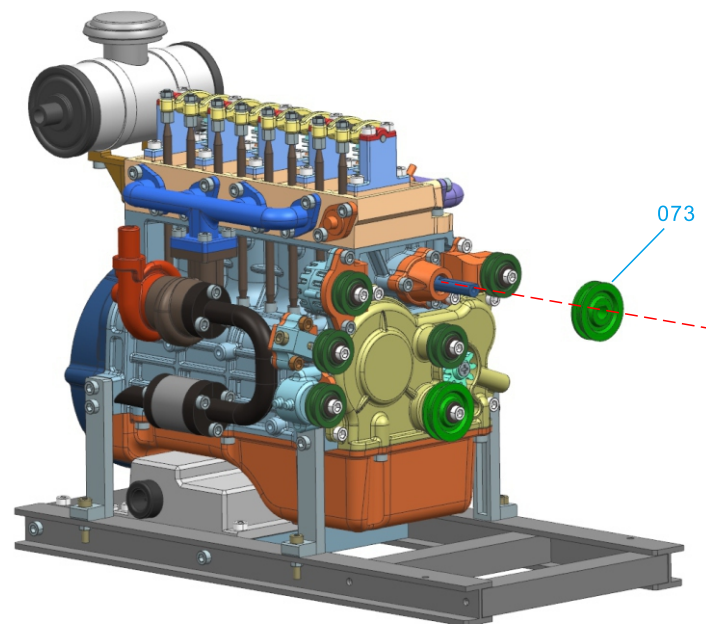
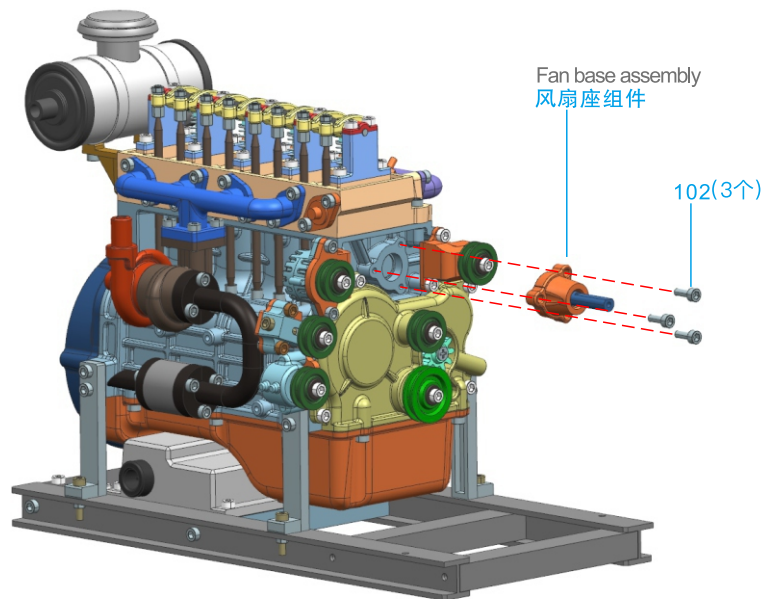
21. 连接发电机总成-Connect the generator assembly



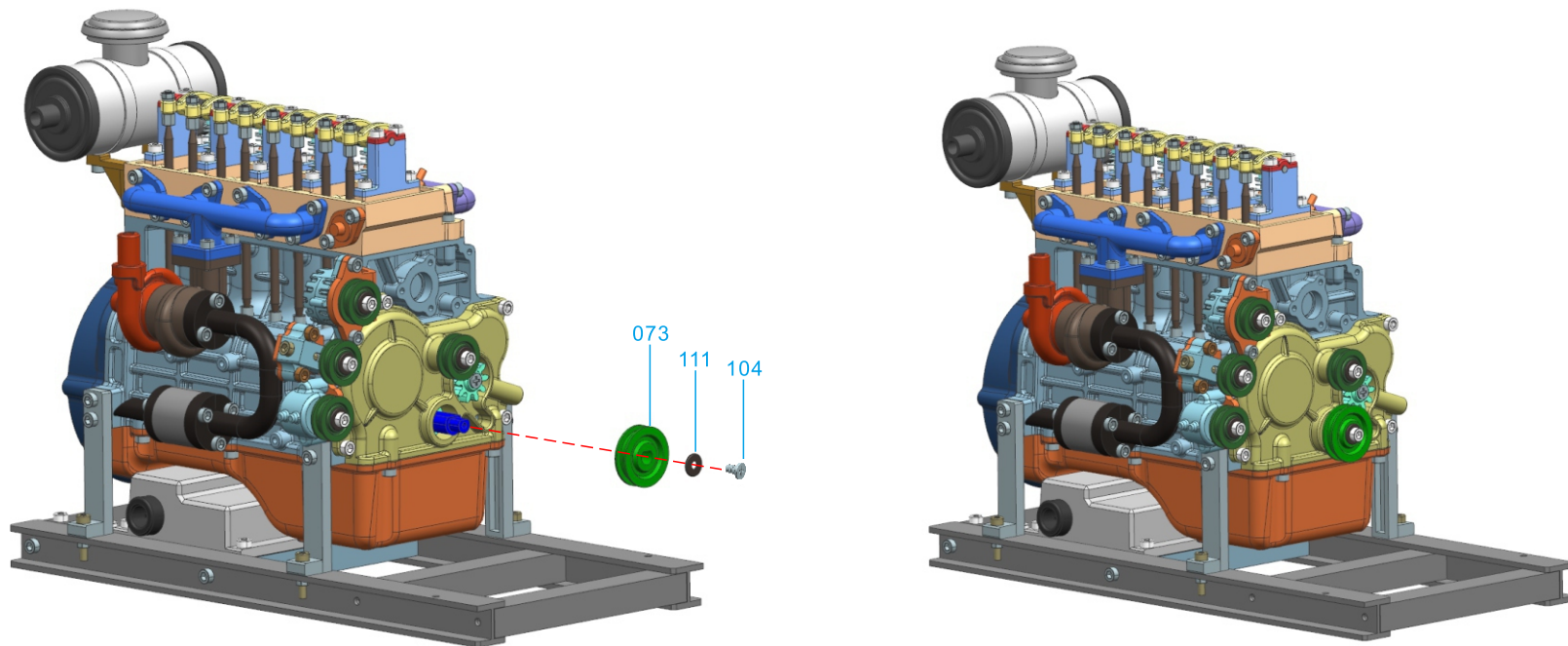
22. 组装水泵组件-Assemble the water pump assembly



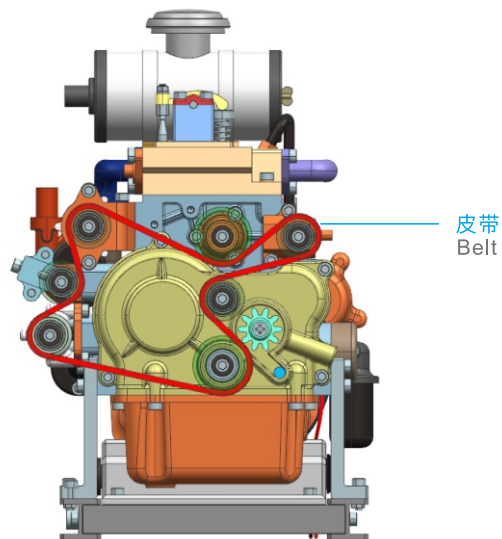
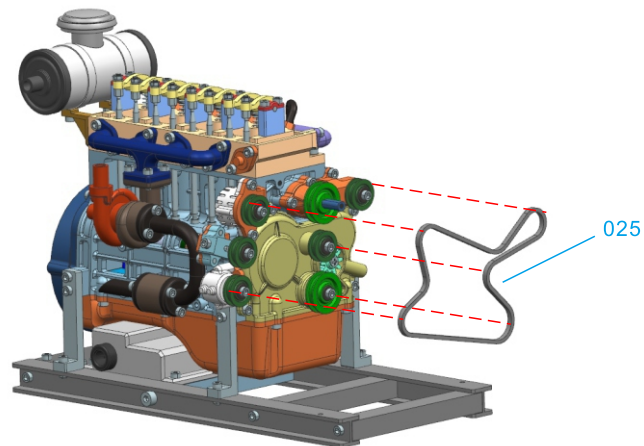
23. 组装风扇座组件-Assemble the fan base assembly



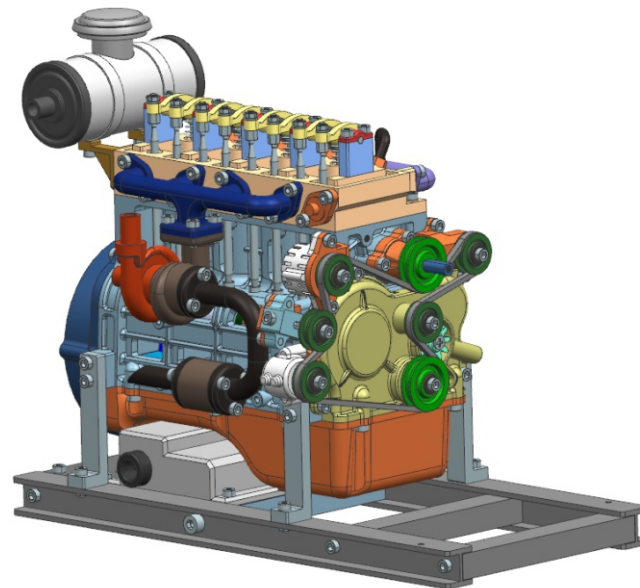
24. 组装曲轴皮带轮 -Assembling crankshaft pulley



25. 组装皮带 -Assemble the belt



26. 测试皮带轮运转 -Test pulley operation



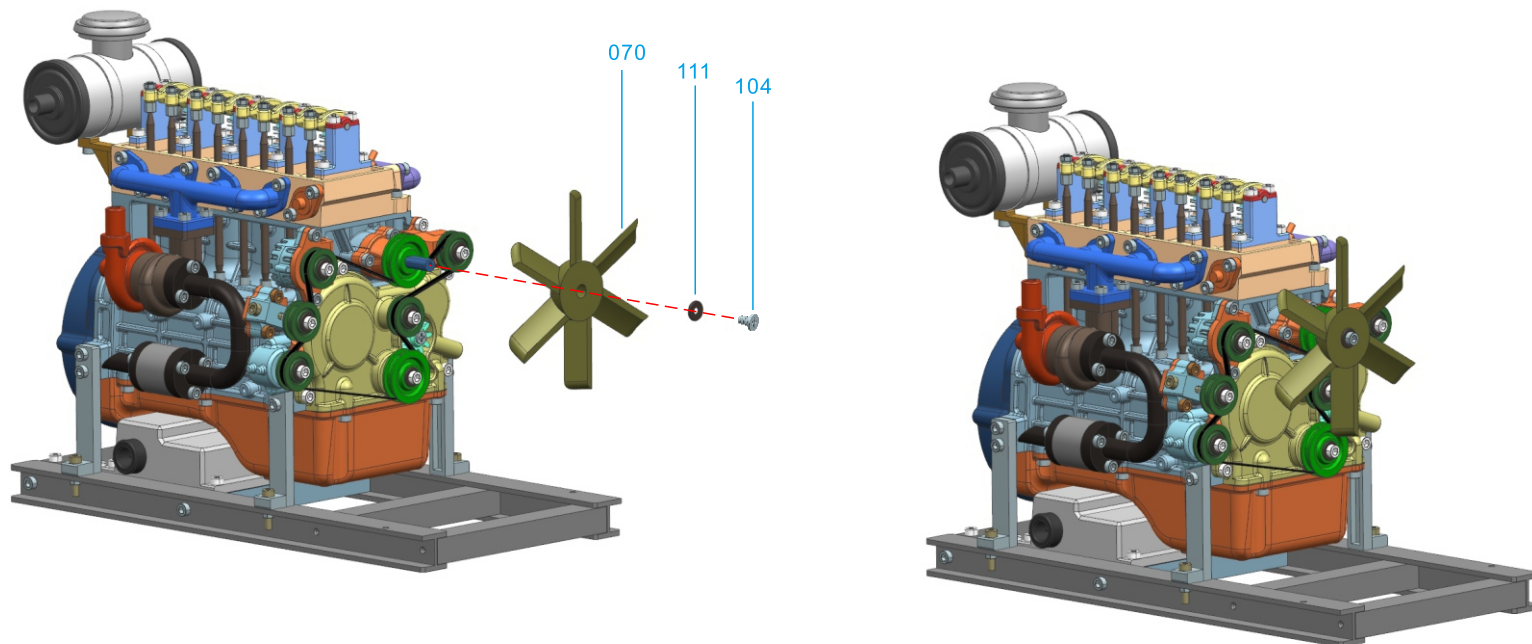
电动测试：

启动开关，观察曲轴、凸轮轴、各皮带轮是否正常运转。

Electric test:

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

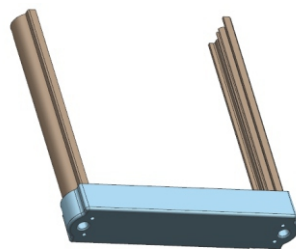
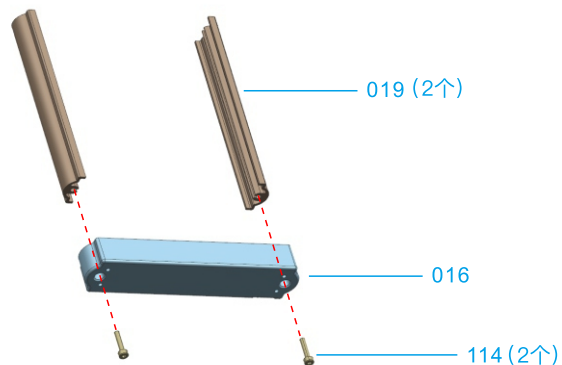
27. 组装风扇 -Assemble the fan



28. 组装水箱总成 -Assemble the water tank assembly

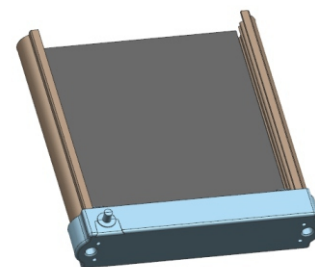
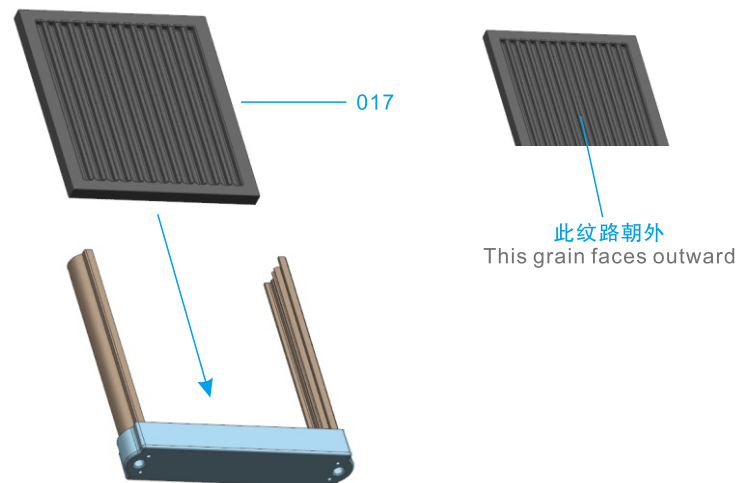
28.1 组装水箱下盖

-Assemble the lower cover of the water tank

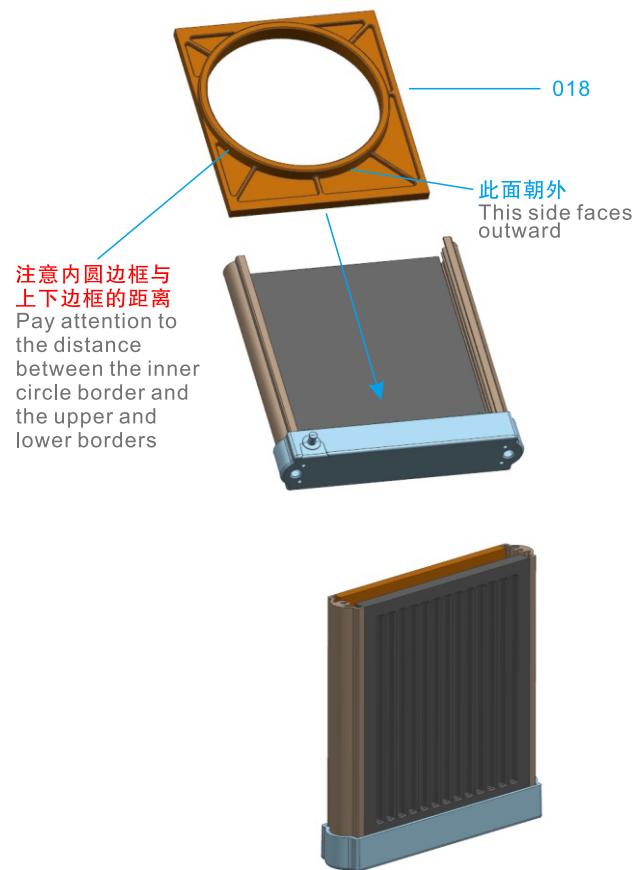


28.2 组装冷凝器

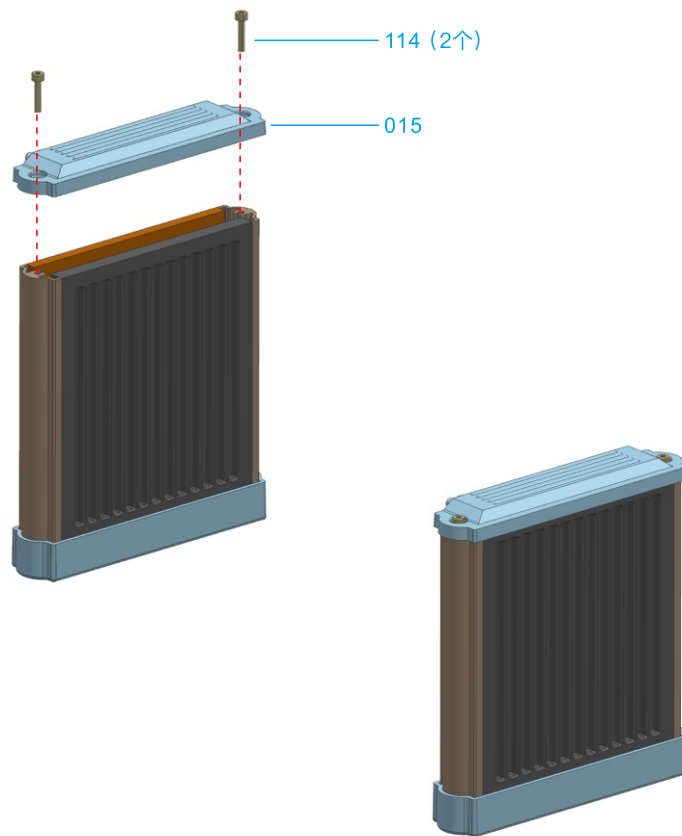
-Assemble the condenser



28.3 组装风扇罩 -Assemble the fan cover

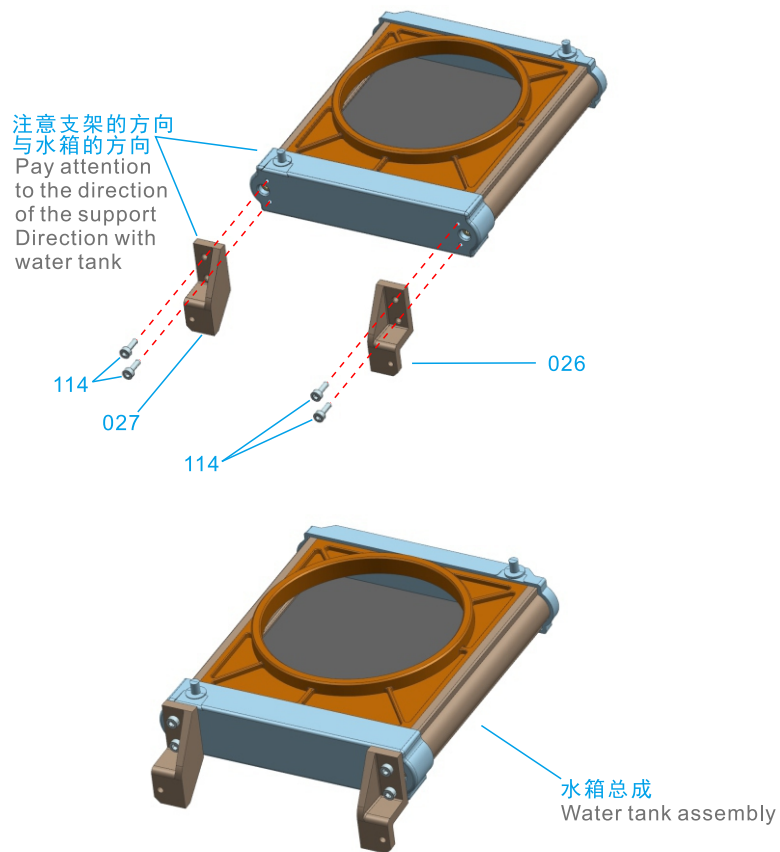


28.4 组装水箱顶盖 -Assemble the top cover of the water tank



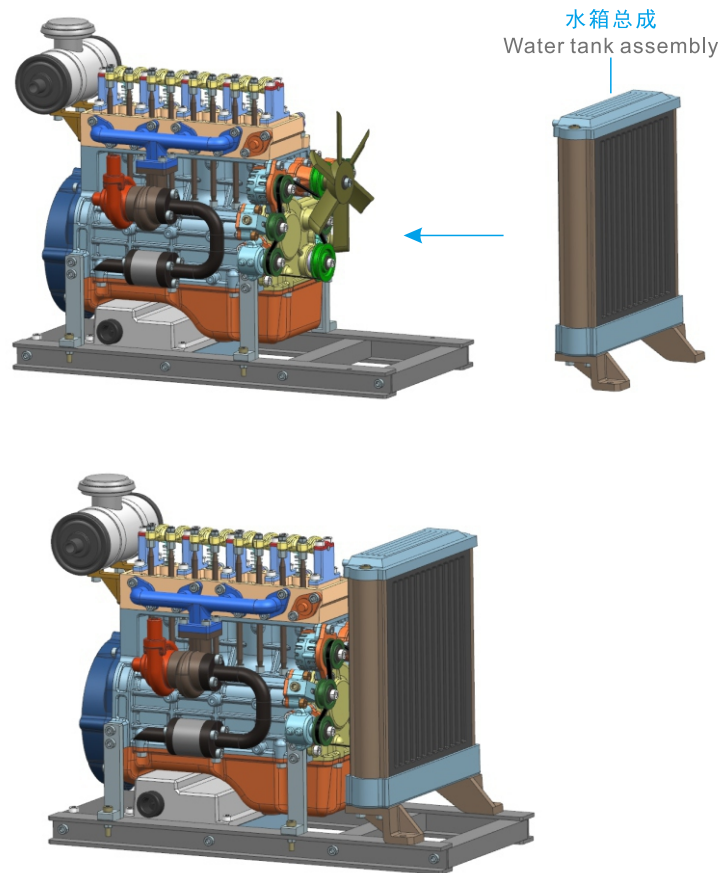
28.5 组装水箱支架

-Assemble the water tank bracket



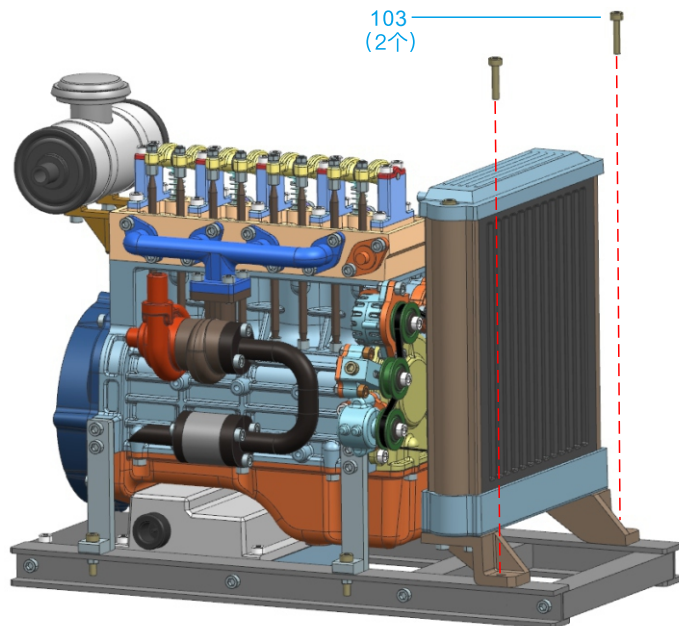
28.6 连接水箱总成

-Connect water tank assembly

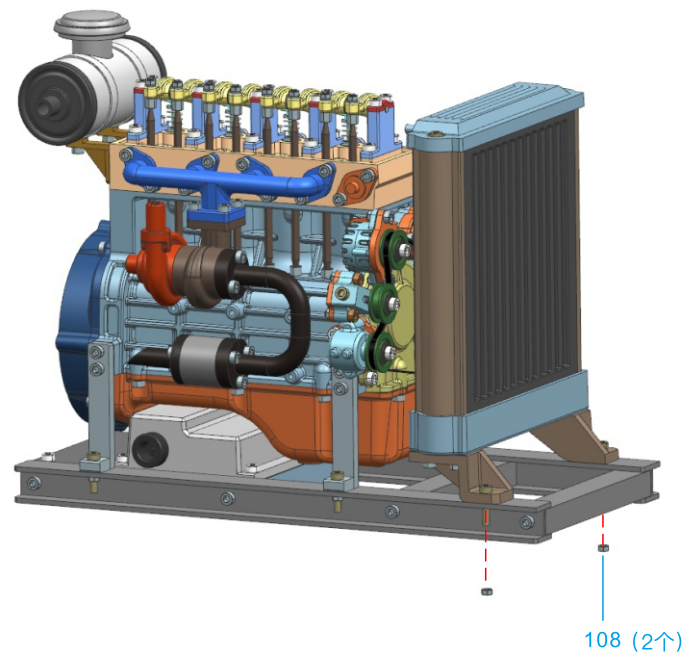


29. 组装支架总成 - Assemble the bracket assembly

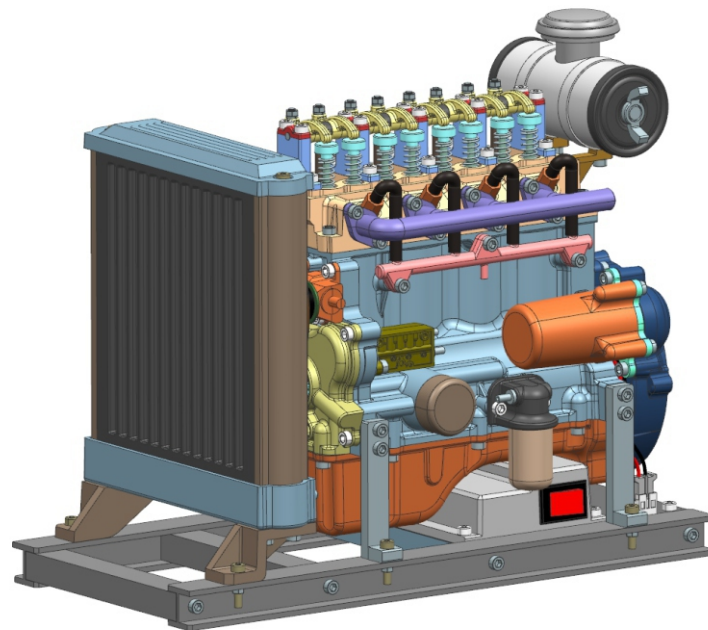
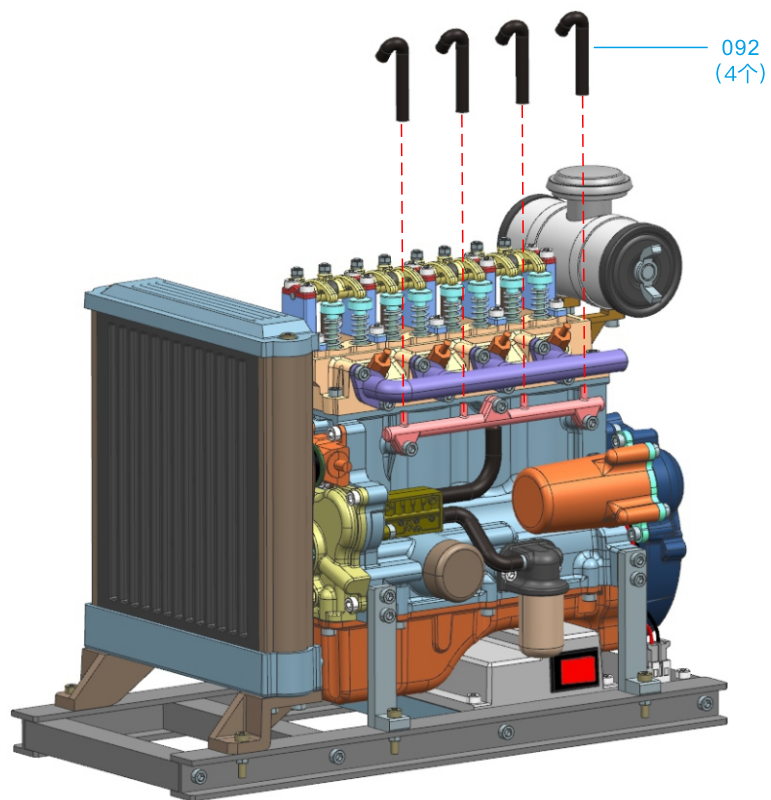
29.1 组装支架螺丝 - Lock bracket nut



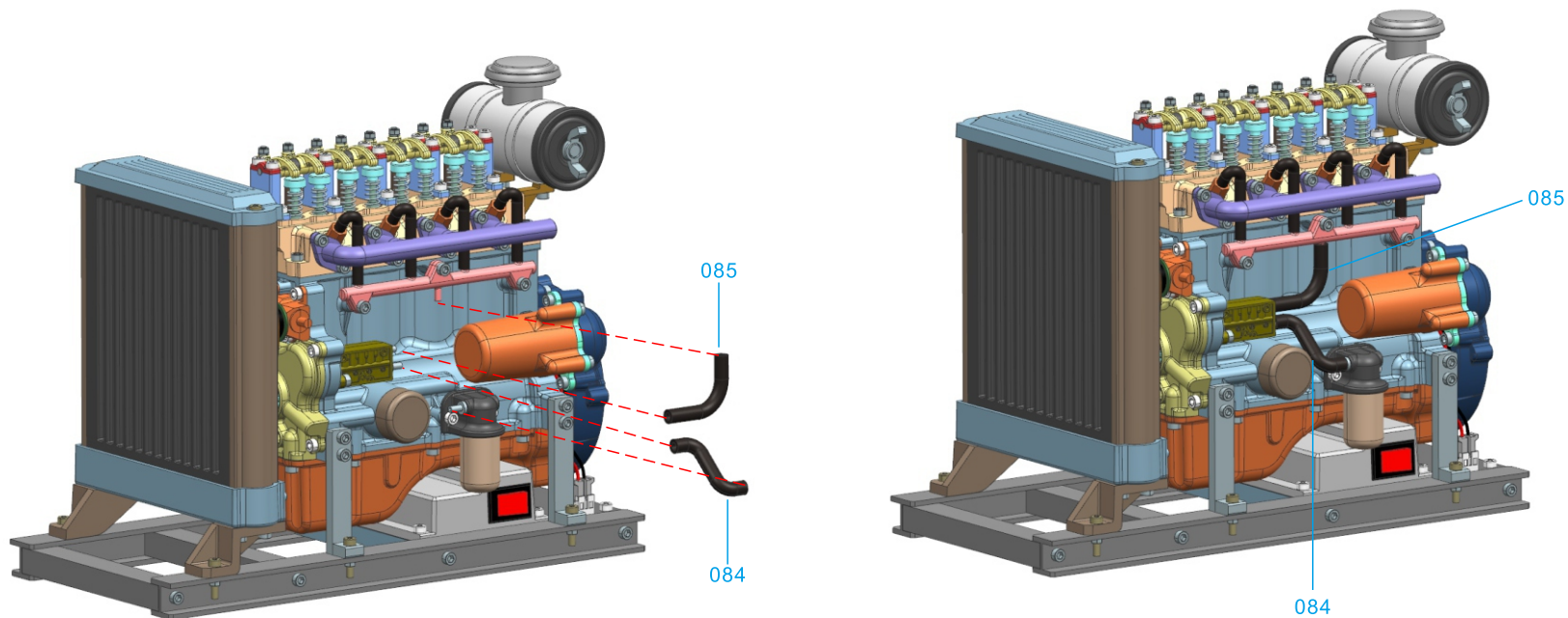
29.2 组装支架螺母 - Assembly bracket nut



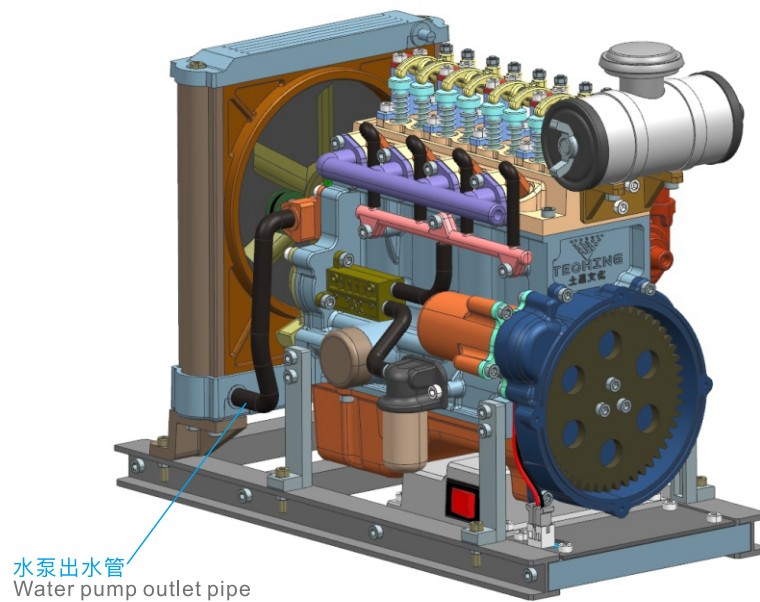
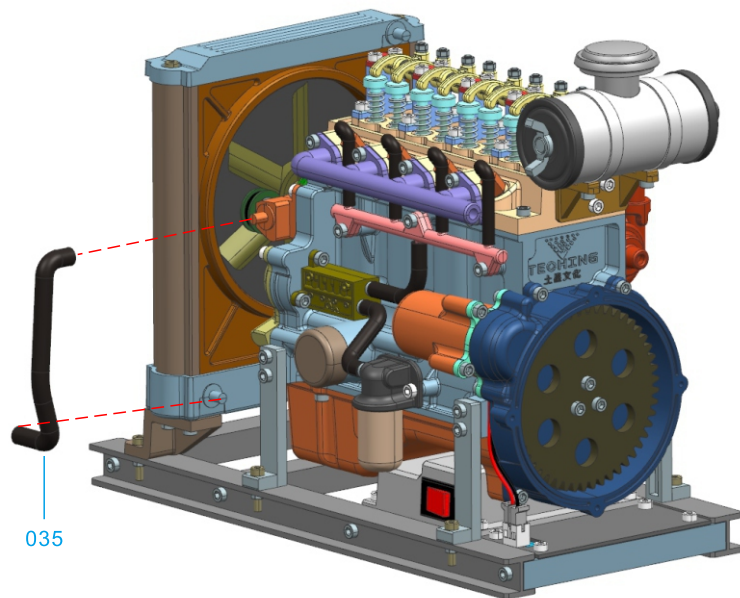
30. 组装分油管 -Assemble oil distribution pipe



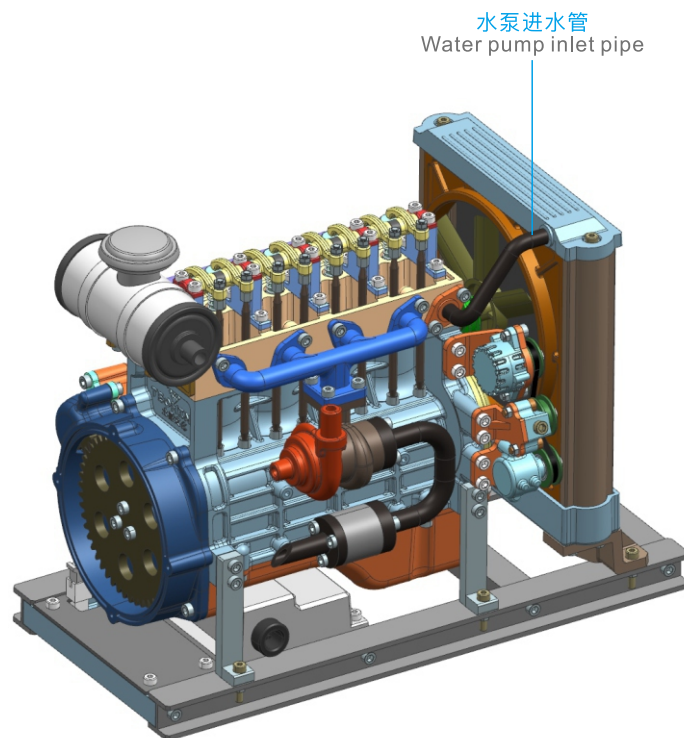
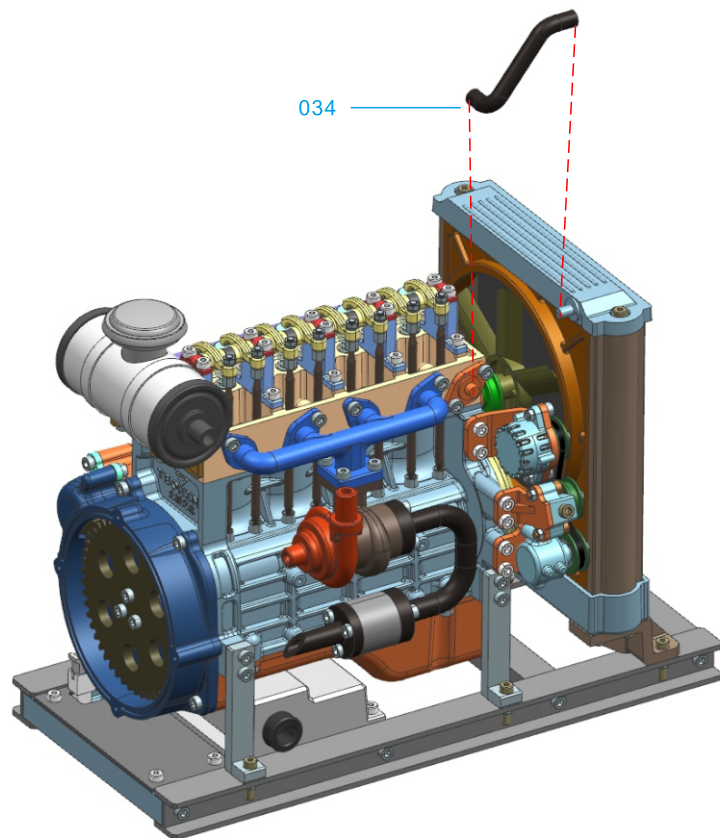
31. 组装油泵管 -Assembly of oil pump pipe



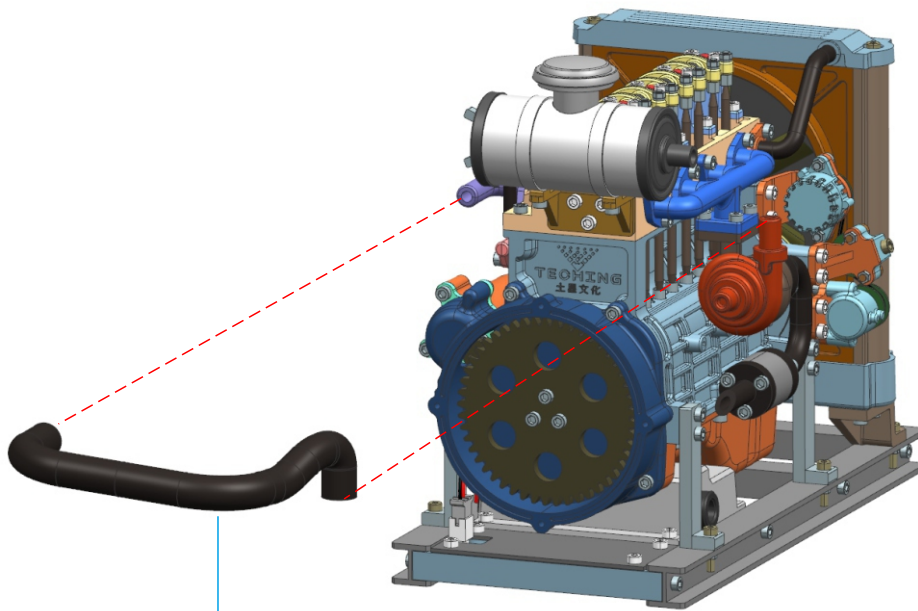
32. 连接水泵出水管 -Connect the water pump outlet pipe



33. 连接水泵进水管 -Connect the water pump inlet pipe

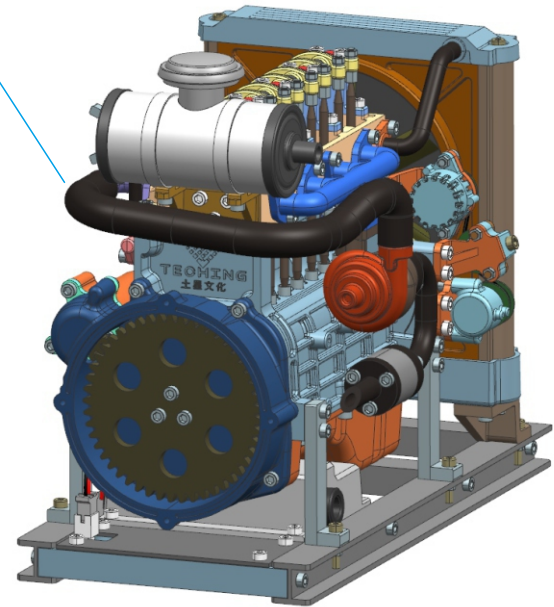


34. 连接高压进气管 -Connect the high-pressure intake pipe

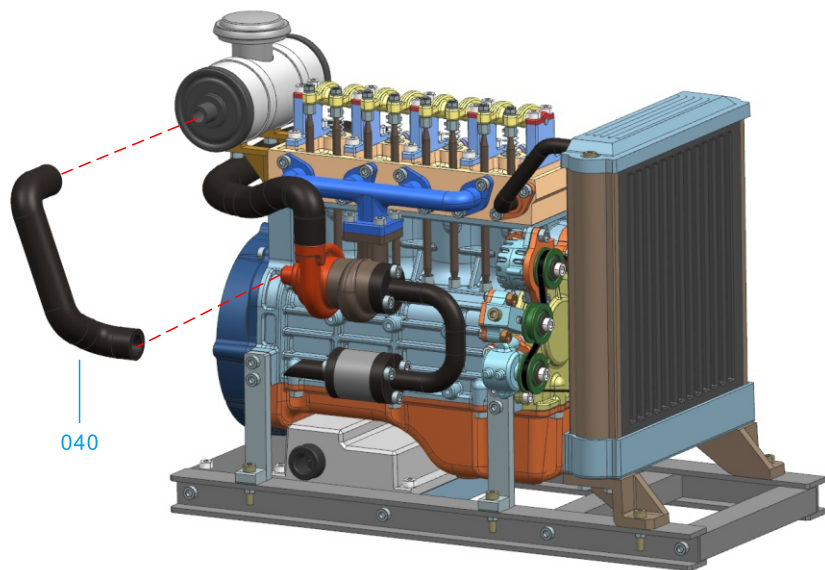


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高压进气管
High pressure intake pipe

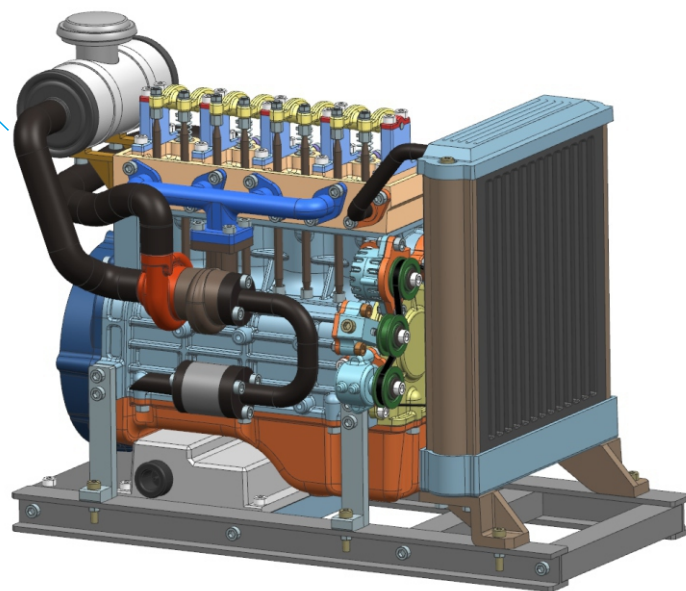


35. 连接低压进气管 -Connect the low-pressure intake pipe

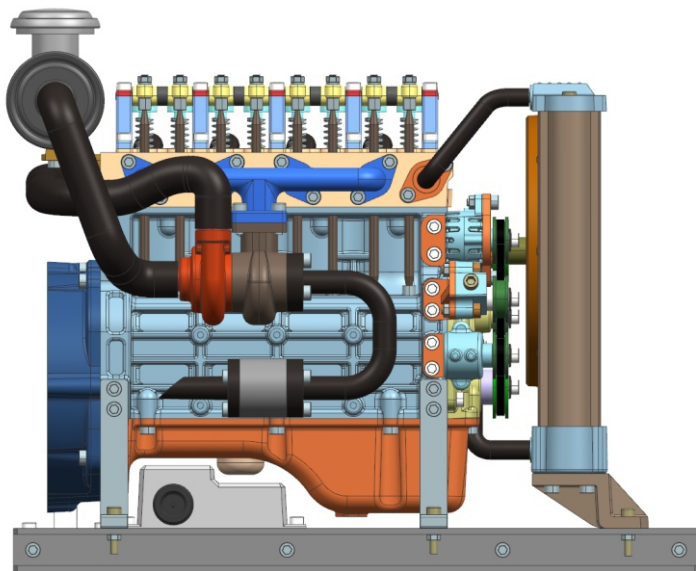


低压进气管

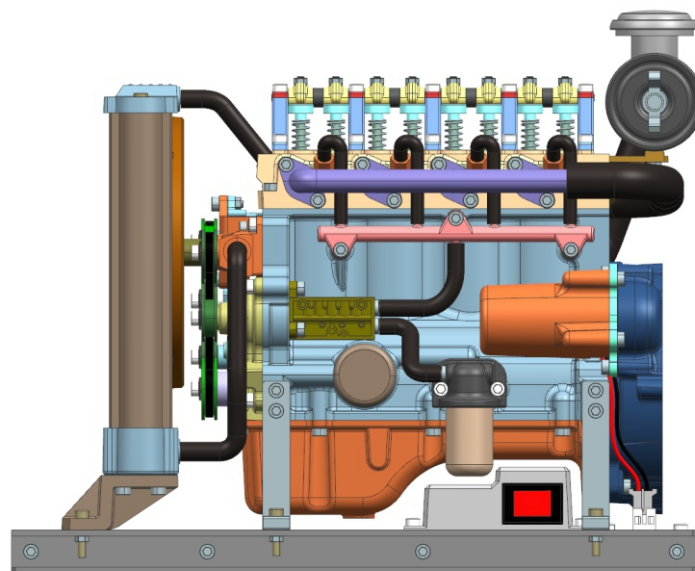
Low pressure intake pipe



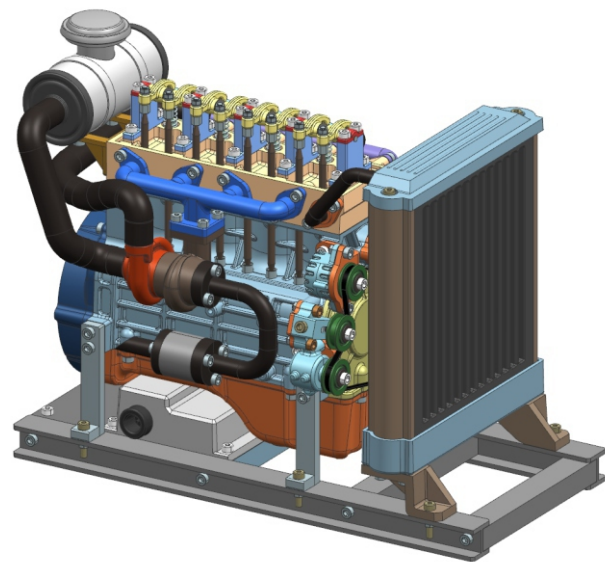
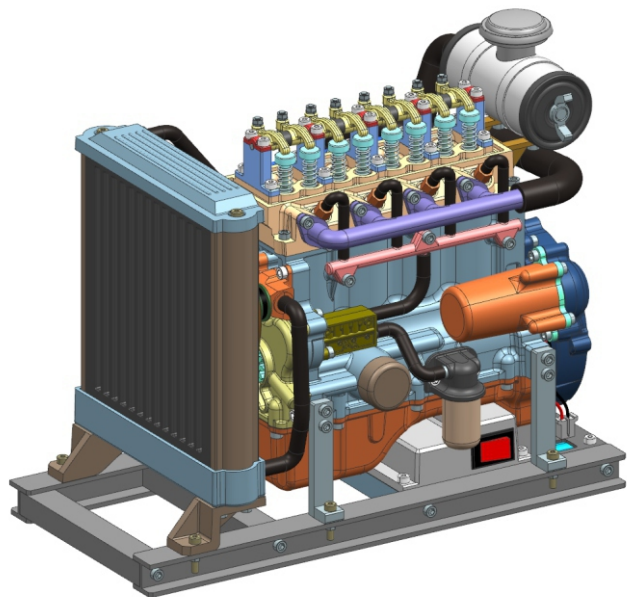
完成
Complete



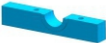
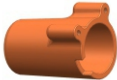
右侧视图
Right side view



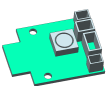
左侧视图
Left side view



二、产品零部件列表 Product parts list

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
001		凸轮轴 Camshaft	1
002		曲轴前压盖 Crankshaft front gland	1
003		曲轴后压盖 Crankshaft rear gland	1
004		缸体 Cylinder block	1
005		进气歧管 Intake manifold	1
006		排气歧管 Exhaust manifold	1
007		电机罩 Motor cover	1
008		曲轴箱前端盖 Crankcase front end cover	1

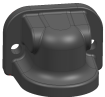
序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
009		曲轴 crankshaft	1
010		空气滤清器 Air filter	1
011		空气滤清前盖 Front cover of air filter	1
012		空气滤帽 Air filter cap	1
013		缸头 Cylinder head	1
014		油底壳 Oil pan	1
015		水箱顶盖 Water tank top cover	1
016		水箱底盖 Water tank bottom cover	1

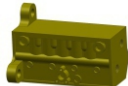
序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
017		冷凝器 Condenser	1
018		风扇罩 Fan cover	1
019		水箱立柱 Water tank column	2
020		圆头充电接口 Round head charging interface	1
021		电机接头 Motor connector	1
022		船型开关 Rocker switch	1
023		电路板 Circuit board	1
024		电池 Battery	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
025		皮带 Belt	1
026		水箱左支座 Left support of water tank	1
027		水箱右支座 Right support of water tank	1
028		电路板盖板 Circuit board cover	1
029		电池座 Battery holder	1
030		缸体支架 Cylinder block support	4
031		柴油滤清器 Diesel filter	1
032		启动电机 Start motor	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
033		空气滤清器支架 Air cleaner bracket	1
034		水泵进水管 Water pump inlet pipe	1
035		水泵出水管 Water pump outlet pipe	1
036		高压进气管 High pressure intake pipe	1
037		连杆 Connecting rod	4
038		活塞 Piston	4
039		飞轮壳 Flywheel housing	1
040		低压进气管 Low pressure intake pipe	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
041		纵梁 (左) Longitudinal beam (left)	1
042		纵梁 (右) Longitudinal beam (right)	1
043		电池盖板 Battery cover	1
044		摇臂轴 Rocker shaft	1
045		消音器 Silencer	1
046		空压机 Air compressor	1
047		空气滤帽 Air filter cap	1
048		发电机 Generator	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
049		凸轮轴端盖 Camshaft end cover	1
050		发电机支架 Generator support	1
051		摇臂轴支座 Rocker shaft support	5
052		机油滤清器 Oil filter	1
053		油泵滤嘴 Oil pump filter	1
054		油泵齿轮 Oil pump gear	1
055		张紧轮壳架 Tensioning wheel housing frame	1
056		排气拐管 Exhaust crank pipe	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
057		共轨管 Common rail pipe	1
058		空压机支架 Air compressor support	1
059		油泵 Oil pump	1
060		排气尾管 Tailpipe	1
061		排气涡轮增压泵 Exhaust turbocharger pump	1
062		进气涡轮增压泵 Intake turbocharger pump	1
063		横梁 Beam	2
064		顶杆 Ejector rod	8

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
065		风扇轴盖 Fan shaft cover	1
066		电机固定座 Motor fixing base	1
067		水泵 Water pump	1
068		张紧轮壳 Tensioning wheel housing	1
069		油泵主动齿轮 Oil pump driving gear (14 teeth)	1
070		风扇 Fan	1
071		飞轮 (49齿) Flywheel (49 teeth)	1
072		摇臂 Rocker arm	8

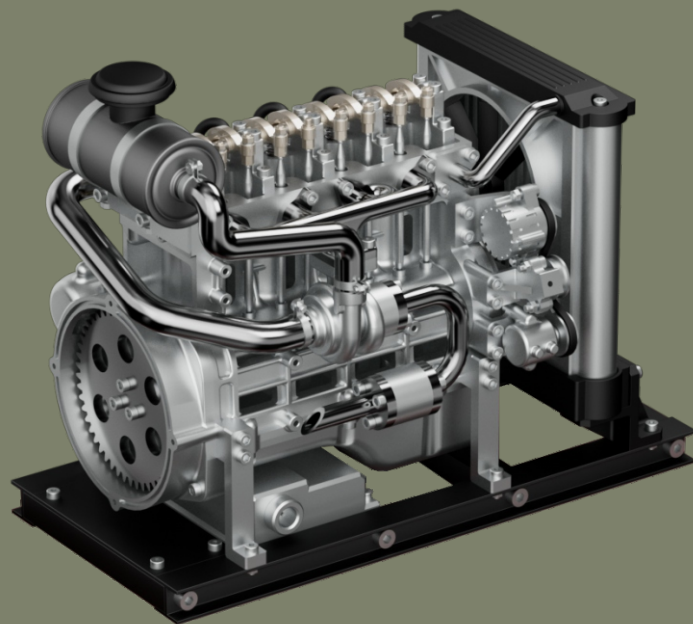
序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
073		定位皮带轮 Positioning pulley	2
074		皮带轮 Pulley	5
075		曲轴轴瓦 Crankshaft bearing shell	3
076		凸轮轴瓦 Cam bearing shells	5
077		摇臂轴套管 Rocker shaft sleeve	4
078		张紧轮轴 Tensioning axle	1
079		摇臂顶杆套 Rocker arm ejector sleeve	8
080		活塞销 Piston pin	4

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
081		摇臂螺丝 Rocker arm screw	8
082		气门帽 Valve cap	8
083		油泵管接头 Oil pump pipe joint	3
084		油泵管01 Oil pump pipe 01	1
085		油泵管02 Oil pump pipe 02	1
086		气门 Valve	8
087		连杆轴瓦 Connecting rod bearing shell	4
088		风扇轴 Fan shaft	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
089		皮带轮过渡轴 Pulley transition shaft	1
090		电机齿(12齿) Motor teeth (12 teeth)	1
091		油嘴 Oil nozzle	4
092		油嘴管 Nozzle tube	4
093		水箱管连接口 Connection port of water tank pipe	1
094		油泵齿轮轴 Oil pump gear shaft	1
095		张紧轮滑动杆 Tensioning wheel sliding rod	1
096		蝶型螺丝 Torx screw	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
097		电机轴套 Motor shaft sleeve	1
098		曲轴齿轮 (14齿) Crankshaft gear (14 teeth)	1
099		气门弹簧 Valve spring	8
100		M1.6*4杯头螺丝 M1.6 * 4 cup head screw	2
101		M2.0*5杯头螺丝 Cup head screw	30
102		M2.0*6杯头螺丝 Cup head screw	100
103		M2.0*8杯头螺丝 Cup head screw	29
104		CM2.0*4平头螺丝 Flat head screw	8
105		M2.0*10杯头螺丝 Cup head screw	1

序号 Serial Number	产品图片 Product Image	产品名称 Product Name	数量 Quantity
106		M2.0*22杯头螺丝 Cup head screw	3
107		CM3.0*4平头螺丝 Flat head screw	2
108		M2.0螺母 M2.0 nut	18
109		4*8*3轴承 Bearing	8
110		7*11*3轴承 Bearing	1
111		M2.0平垫 Flat mat	8
112		M2.5卡簧 Circlip	8
113		M2.0弹垫 Spring washer	8
114		M2.5*8杯头螺丝 Cup head screw	16



劳动创造美好生活
Labor creates a better life

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