

AGILE 5.5

HELICOPTER

INSTRUCTION MANUAL

Version No: 20131025



Product Specifications

Length: 1120mm
Height: 350mm
Width: 176mm
Main Rotor Diameter: Ø1250mm
Main Blade Length: 550mm
Tail Rotor Diameter: Ø260mm
Tail Blade Length: 92mm
Motor Pinion: 21T
Motor KV: 1100KV
Driving Gear: (21/54)(17/56)
Gear Ratio: 21T(8.89:1)
Tail Gear Ratio: 3.86:1
Weight(w/o power): 2700g
Flying Weight: 3500g
Battery: 22.2V 5000mAh
ESC: 120A

Thank you for buying Agile products. Please read this manual carefully before assembling. We recommend that you keep this manual for future reference regarding tuning and maintenance.

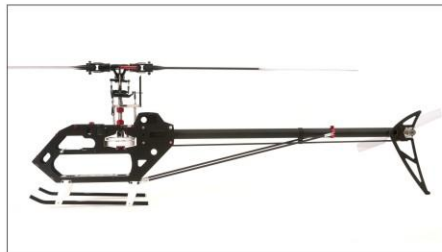
SAFETY PRECAUTIONS

This radio controlled helicopter is NOT A TOY! It has some technical requirements, you must pay attention to the flying environment and correct operation. Never fly your radio controlled helicopter over people or near crowds. Teenagers must fly under the guardian's guide. Beginners must fly under the guardian of experienced pilot.

Version No: 20131015

1.INTRODUCTION

Congratulations on your purchase of the Agile 5.5 radio controlled helicopter kit. Agile 5.5 was designed in Europe by Eng. Gaziano Roberto and is proudly manufactured by KDS Model. Our goal was to offer you something different with a minimum of parts, easy maintenance, and outstanding flying performances. It's time to fly different!...



Enjoy the built and have a great time with you Agile 5.5!

IMPORTANT NOTES

R/C helicopters, including the AGILE 5.5 are not toys. R/C helicopters utilize various high-tech products and technologies to provide superior performance. Improper use of this product can result in serious injury or even death. Please read this manual carefully before using and make sure to be conscious of your own personal safety and the safety of others and your environment when operating all AGILE products. Agile 5.5, KDS Model, their affiliates and authorized distributors are not responsible for personal injuries to the operators and others, and property damages that could occur from the assembly, maintenance or your use/misuse of this product. Always respect the rules provided by your local remote control aircraft organization.

NOTE FOR ASSEMBLY

The following manual provide important instructions to correctly assemble the model. It is structured in a logical way, based on the work done in previous step. If you change the order, it may result in additional or unnecessary steps. So we suggest you to read this user manual very carefully to understand correctly the assembly procedure. Failure to do so may not only downgrade performances but also increase the risk of danger. Apply thread lock as indicated, allow the threadlock to cure before mounting parts. It is recommended to use threadlock on each bolt or screw that are engaged with metal parts.

2.SAFETY NOTES

• LOCATE AN APPROPRIATE LOCATION

R/C helicopters fly at high speed, thus posing a certain degree of potential danger. Choose an appropriate flying site consisting of flat, smooth ground, a clear open field, or a large open room, such as gymnasium or warehouse without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others and your model. Do not play your model in inclement weather, such as rain, wind, snow or darkness.



• OBTAIN THE ASSISTANCE OF AN EXPERIENCED PILOT

Before turning on your model and transmitter, check to make sure no one else is operating on the same frequency. Frequency interference can cause your model, or other models to crash. The guidance provided by an experienced pilot will be invaluable for the assembly, tuning, trimming, and actual first flight(recommend you to practice with computer-based flight simulator).



• ALWAYS BE AWARE OF THE ROTATING BLADES

During the operation of the helicopter, the main rotor will be spinning at a high rate of speed. The blades are capable of inflicting serious bodily injury and damage the environment. Be conscious of your actions, and careful to keep your face, eyes, hands, and loose clothing away from the blades. Always fly the model a safe distance from yourself and others, as well as surrounding objects. Never take your eyes off the model or leave it unattended while it is turned on. Immediately turn off the model and transmitter when you have landed the model.



● PREVENT MOISTURE

R/C models are composed of many precision electrical components. It is critical to keep the model and associated equipment away from moisture and other contaminants. The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash. Do not operate or expose to rain or moisture.



● KEEP AWAY FROM HEAT

R/C models are made up of various forms of plastic. Plastic is very susceptible to damage or deformation due to extreme heat and cold climate. Make sure not to store the model near any source of heat such as an oven, or heater. It is best to store the model indoors, in a climate-controlled, room temperature environment.



● PROPER OPERATION

Please use the replacement of parts on the manual to ensure the safety of instructors. This product is for R/C model, so do not use for other purpose.



● SAFE OPERATION

Operate this unit within your ability. Do not fly under tired condition or improper operation, which may cause danger.



3. Safety Check Before Flying

Before flying, for safety reasons, make sure that no one else is operating a R/C model on the same frequency as yours.

Before flying, please check that the power of your transmitter and your helicopter are sufficient for the flight.

Before turning on the transmitter, please check that the throttle stick is in its lowest position, IDLE UP switch must be on OFF position.

When turning off the model, please follow the power on/off procedure. Power ON: turn on the transmitter first, then turn on helicopter power. Power OFF: turn off the helicopter power first and then turn off the transmitter. Improper operating procedure may cause the model to be out of control, so please do make this your habit.

Before operation, check that every movement is smooth and directions are correct. Inspect servos carefully for interferences and broken gears.

Check for missing or loose screws and nuts. See if there is any cracked and/or incomplete assembly of parts.

Check main rotor blades and rotor holders carefully. Broken and premature failures of parts might result in a dangerous situation or crash.

Check all ball links to avoid excess play and replace as needed. Failure to do so will result in poor flight stability.

Check that the battery and power plugs are fastened. Vibrations and violent flight might loosen the plugs and so lead to out of control.

Check for the tension of main drive belt.

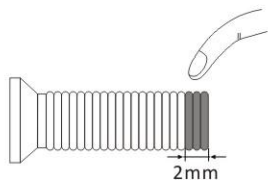
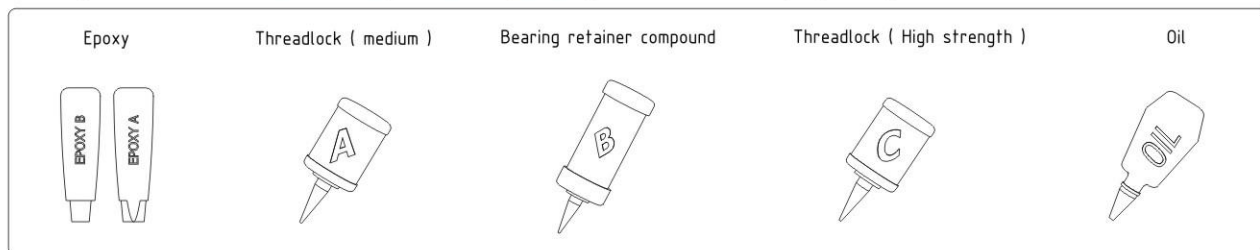
4. Tools Required

- Hex drivers : 1.5, 2, 2.5, 3, 4mm
- Nut Drivers : 2, 4, 7mm
- Ball link pliers
- Diagonal cutting pliers
- Scissors
- Metric ruler
- Soldering iron + solder (for motor and ESC wiring)
- Pitch gauge (for set up)
- Swashplate leveller
- Threadlock blue * (medium)
- Threadlock red * (high strength)
- Bearing retainer compound
- Epoxy A+B Glue
- Grease
- Oil

* Colors may vary depending on your area.



When you see the marks as below, please use glue or grease to ensure flying safety.



"A" Glue width: approx. 2mm

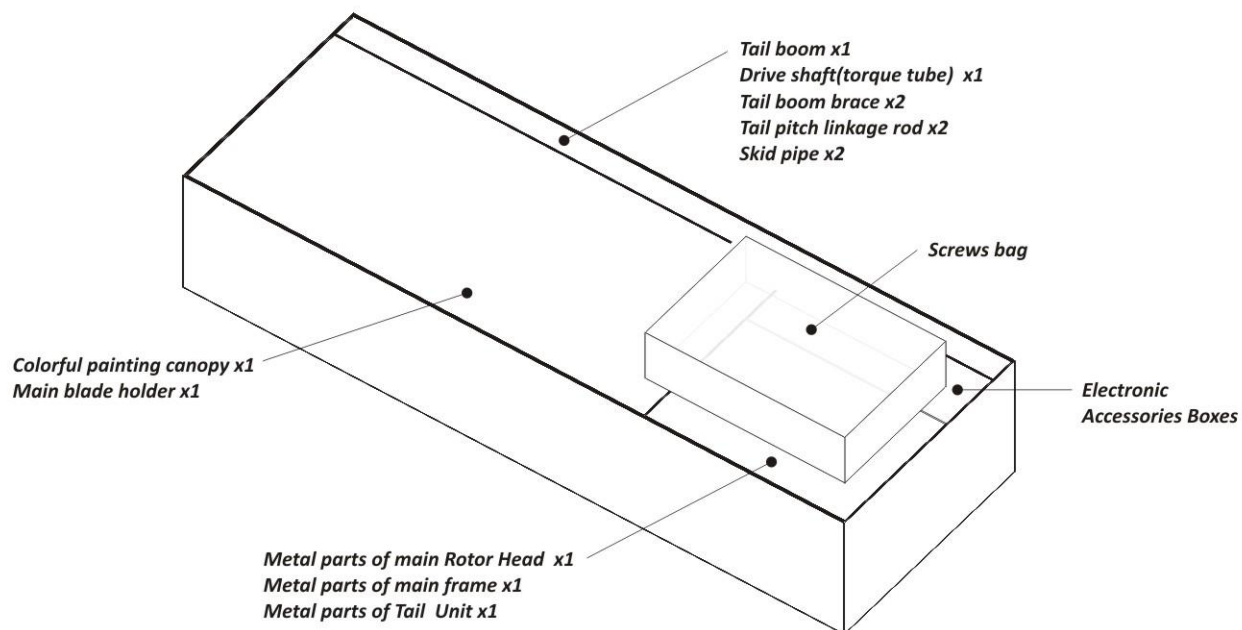
"OIL" Lubrication grease. "A" thread lock, apply a small amount on screws or metal parts and wipe surplus off. When disassembling, recommend to heat the metal joint about 15 seconds. (NOTE: Keep plastic parts away from heat.)

5. Equipment Required for Assembly

RADIO TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY

- Brushless electric motor: 6s Lipo - 1100KV / 1700W
(4mm Bolt holes, 30mm mount width, 6mm * 37mm motor shaft)
- Speed controller: minimum 120A
(ESC specs limits should be rated accordingly to the maximum amps handling by the motor)
- Lipo Batteries: 6s 4000-5500 mAh
- Electronic flybarless system
- 3 cyclic servos, standard size
- 1 tail rotor servo, standard size, high speed required
- 590 mm main rotor blades
- 95 mm tail rotor blades (included)
- 6 channel or more helicopter transmitter system, 2.4 Ghz frequency preferred
- Receiver 6 channel or more (working with your transmitter specs)

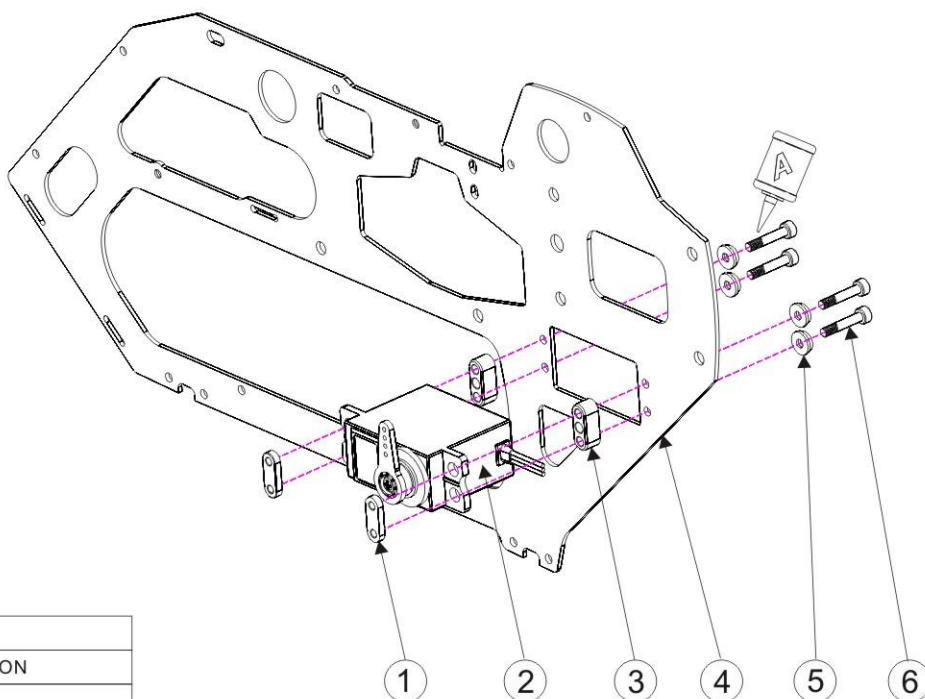
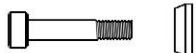
6. Package Illustration



7.Assembly Process of Main Frames and Power System

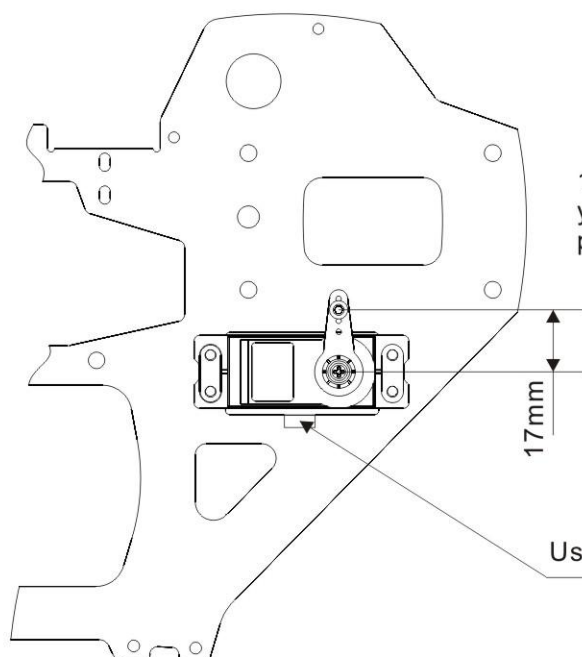
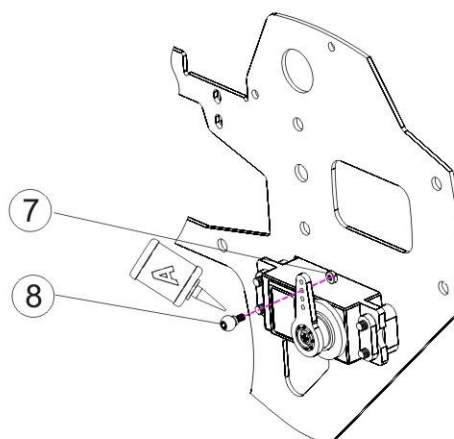
REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

4XScrew M3X16
4XFrame washer



PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIP TION
1	2	KA-72-066	Servo Clamp
2	1		Tail Servo
3	2	KA-72-066	Servo Spacer
4	1	KA-55-033	Right Main Frame
5	4	KA-72-074	Frame Aluminum washer
6	4	KA-72-066	Screw M3X16
7	1	KA-55-066	Screw ball nut M2
8	1	KA-55-077	Rudder servo ball



17mm is recommended, but may vary according to your rudder servo arm brand and the mechanical tail traver provided by the tail gyro function of your FBL system.

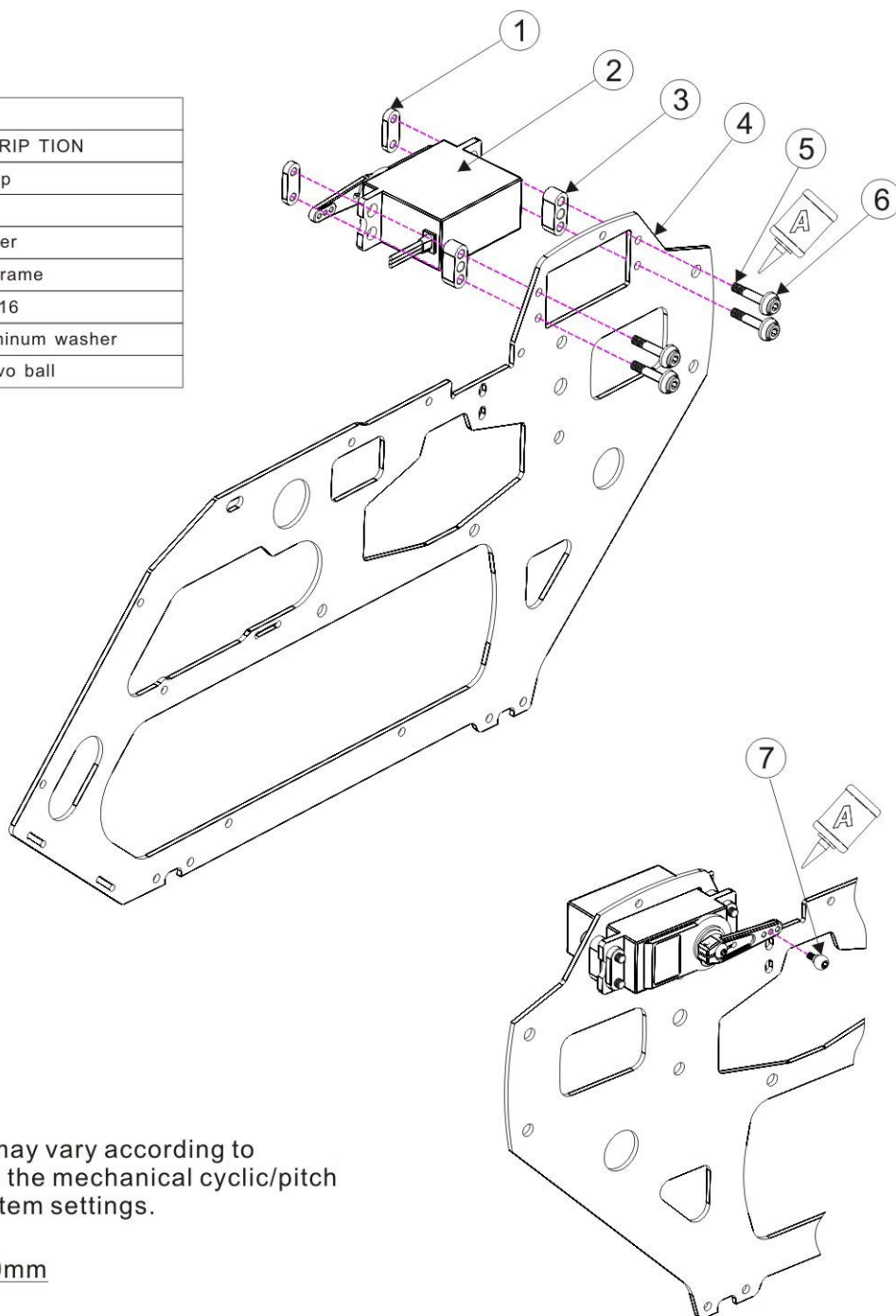
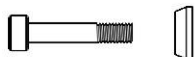
Use this opening to get your rudder servo wire inside frame

8.Assembly Process of Main Frames and Power System

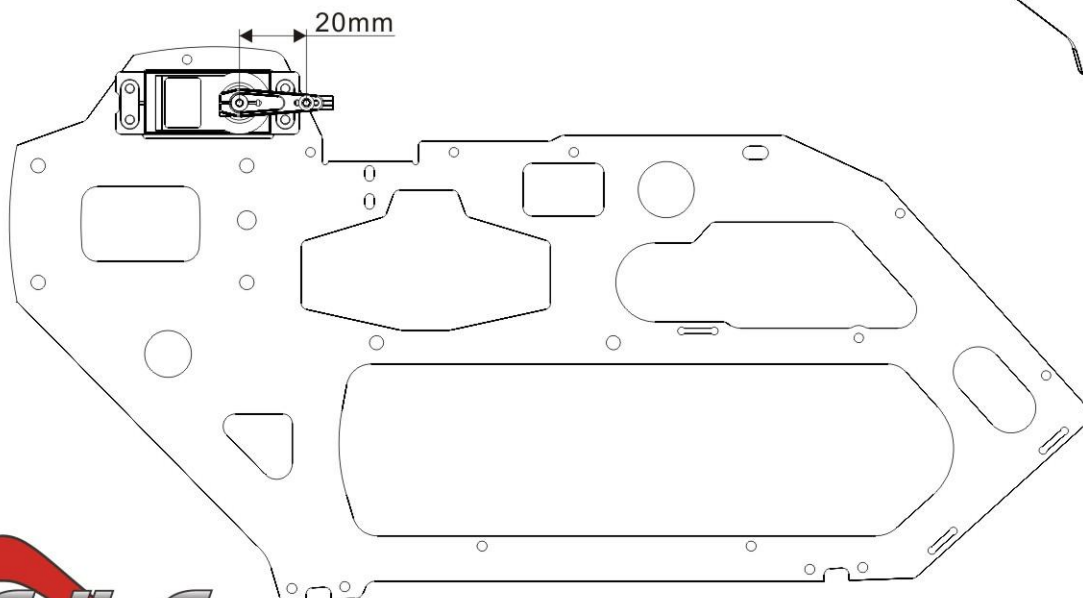
REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	2	KA-72-066	Servo Clamp
2	1		Tail Servo
3	2	KA-72-066	Servo Spacer
4	1	KA-55-033	Left Main Frame
5	4	KA-72-066	Screw M3X16
6	4	KA-72-074	Frame Aluminum washer
7	1	KA-55-077	Rudder servo ball

4XScrew M3X16
4XFrame washer



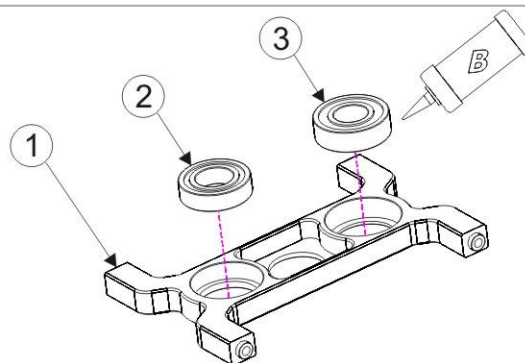
20mm is recommended,length may vary according to your cyclic servo arm brand,and the mechanical cyclic/pitch traver provided by your FBL system settings.



9.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

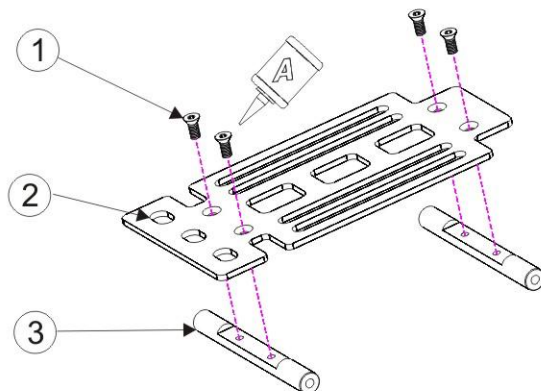
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	1	KA-55-011	Main shaft bearing
2	1	KA-55-011	Bearing $\phi 10 \times 19 \times 5$
3	1	KA-55-011	Bearing $\phi 9 \times 20 \times 6$



4XFlat head screw M2.5X6



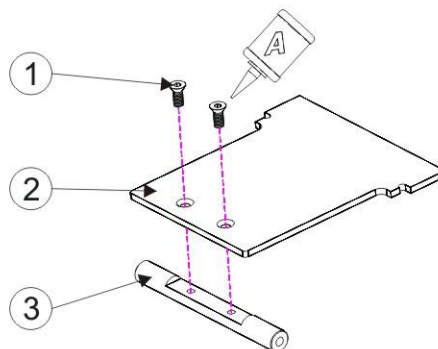
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	4	KA-55-077	Flat head screw M2.5X6
2	1	KA-55-035	ESC Frame
3	2	KA-55-060	Spacer



2XFlat head screw M2.5X6



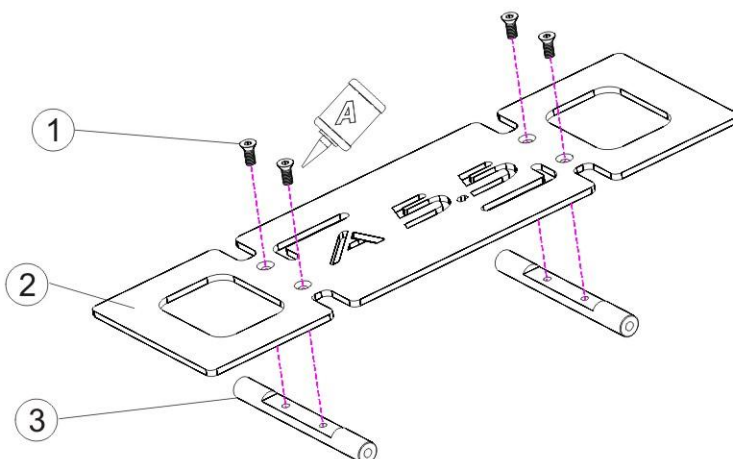
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	2	KA-55-077	Flat head screw M2.5X6
2	1	KA-55-035	Gyro mount
3	1	KA-55-060	Spacer



4XFlat head screw M2.5X6

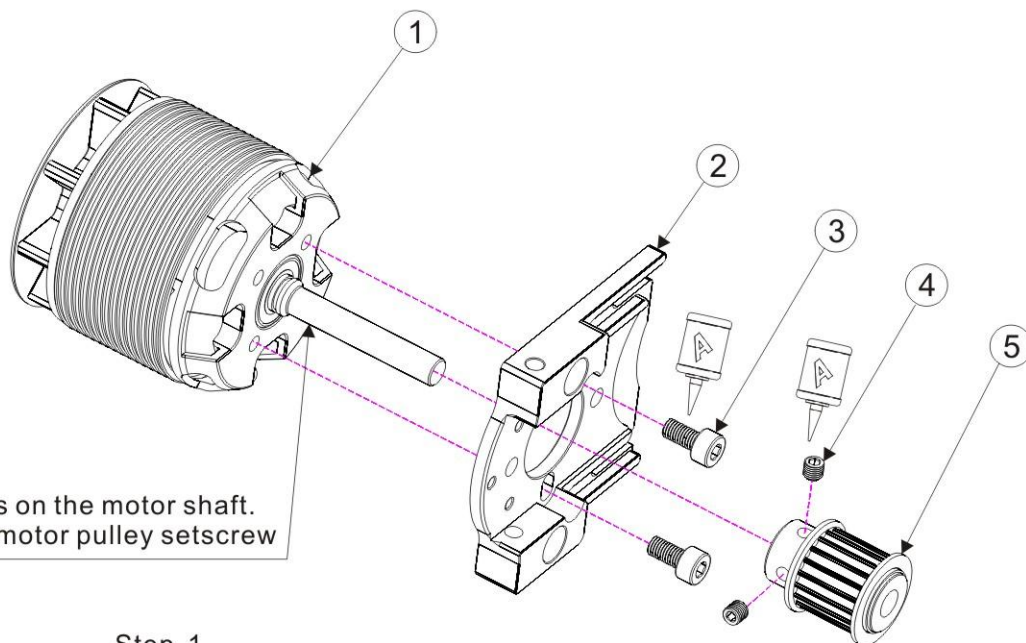
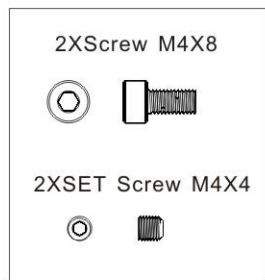


PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	4	KA-55-077	Flat head screw M2.5X6
2	1	KA-55-037	Bottom board
3	2	KA-55-060	Spacer

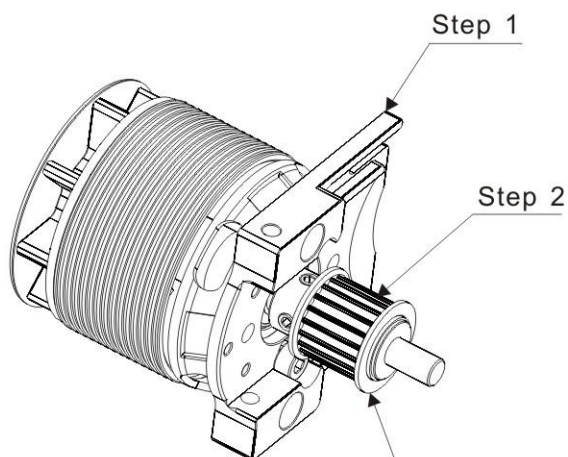


10.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts



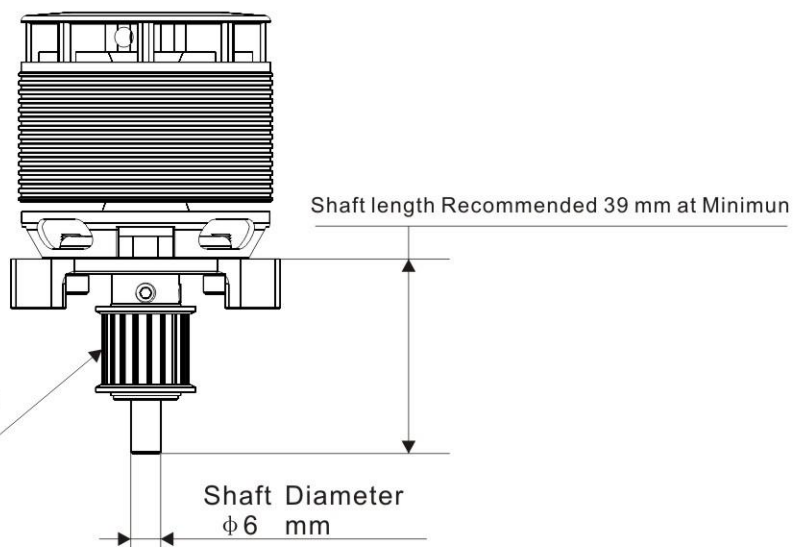
Ensure that a flat surface exists on the motor shaft.
Thus you could tighten the M4 motor pulley setscrew



Line up the set screw motor pulley
with the motor shaft flat surface.

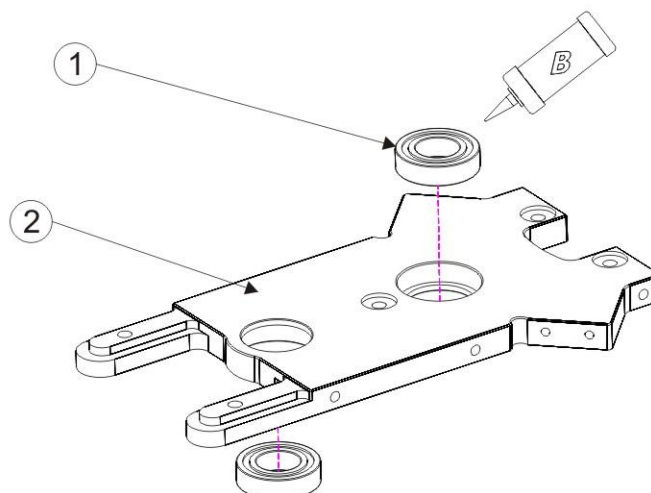
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	1	BL4020-1100KV	Motor KV: 1100-1200
2	1	KA-72-018	Motor mount
3	2	KA-55-011	Screw M4X8
4	2	KA-55-024	SET Screw M4X4
5	1	KA-55-024	Motro pulley Z=21

The motor pulley must be aligned to
the pulley by adjusting the height with
the main gear of the first stage. so that
the belt will stay perfectly horizontal, thus
works as well as can be expected

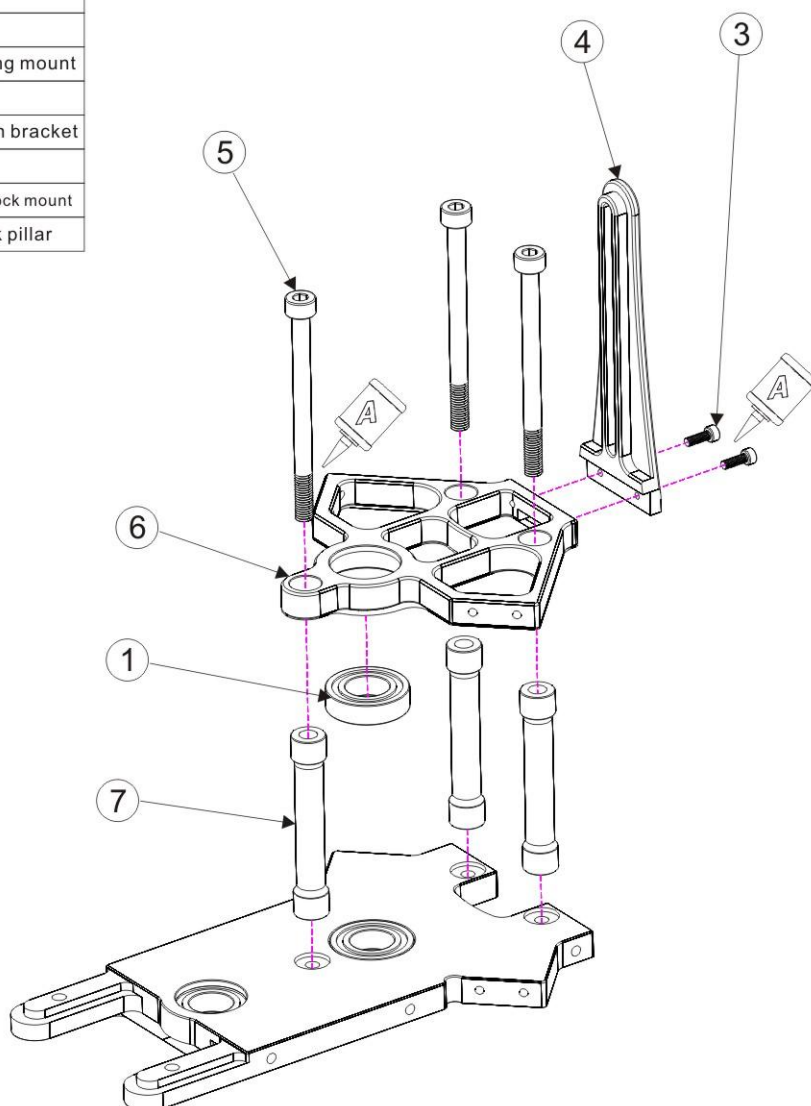
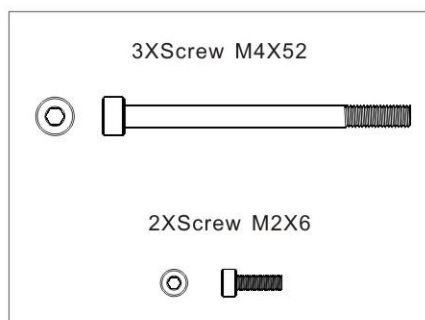


11.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

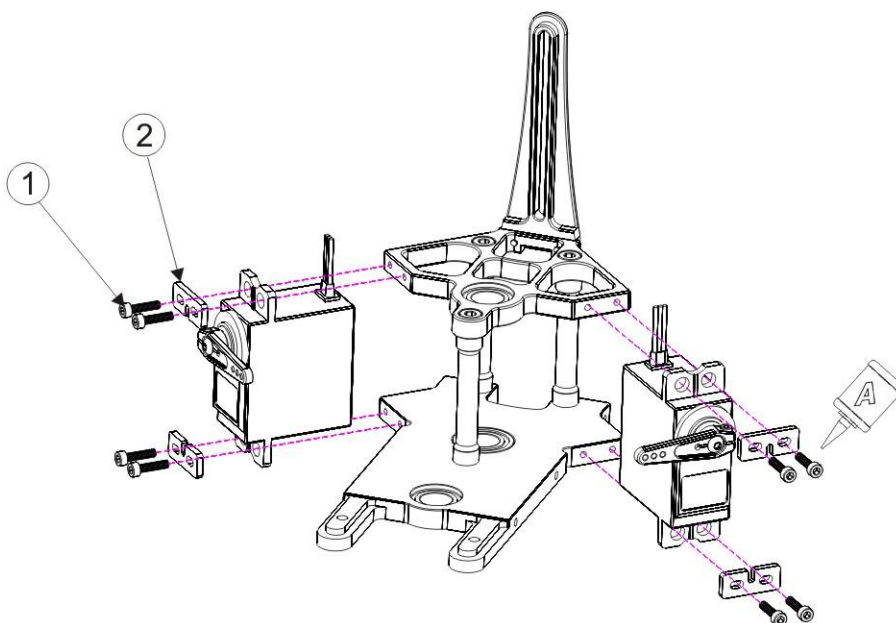


PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	3	KA-72-088	Bearing $\phi 10 \times 19 \times 5$
2	1	KA-55-010	Main shaft middle bearing mount
3	2	KA-72-061	Screw M2X6
4	1	KA-55-033	Swashplate Anti-rotation bracket
5	3	KA-55-012	Screw M4X52
6	1	KA-55-009	Main shaft upper bearing block mount
7	3	KA-55-012	Main shaft bearing block pillar

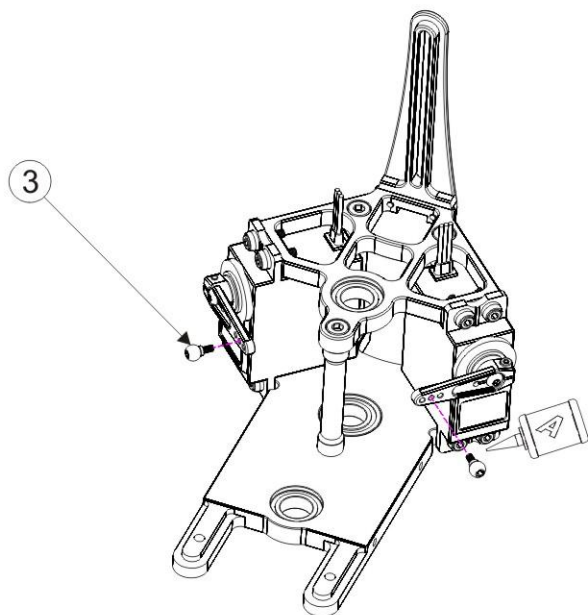


12.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

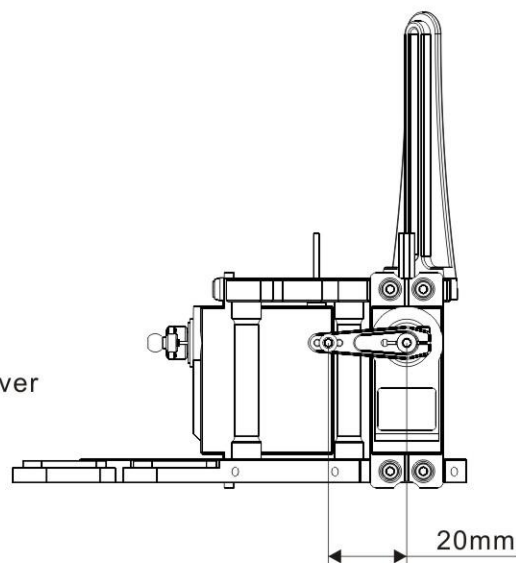


REM:Before mounting servo arms, do not forget to set their neutral position
Check the manual of your flybarless system for more informations



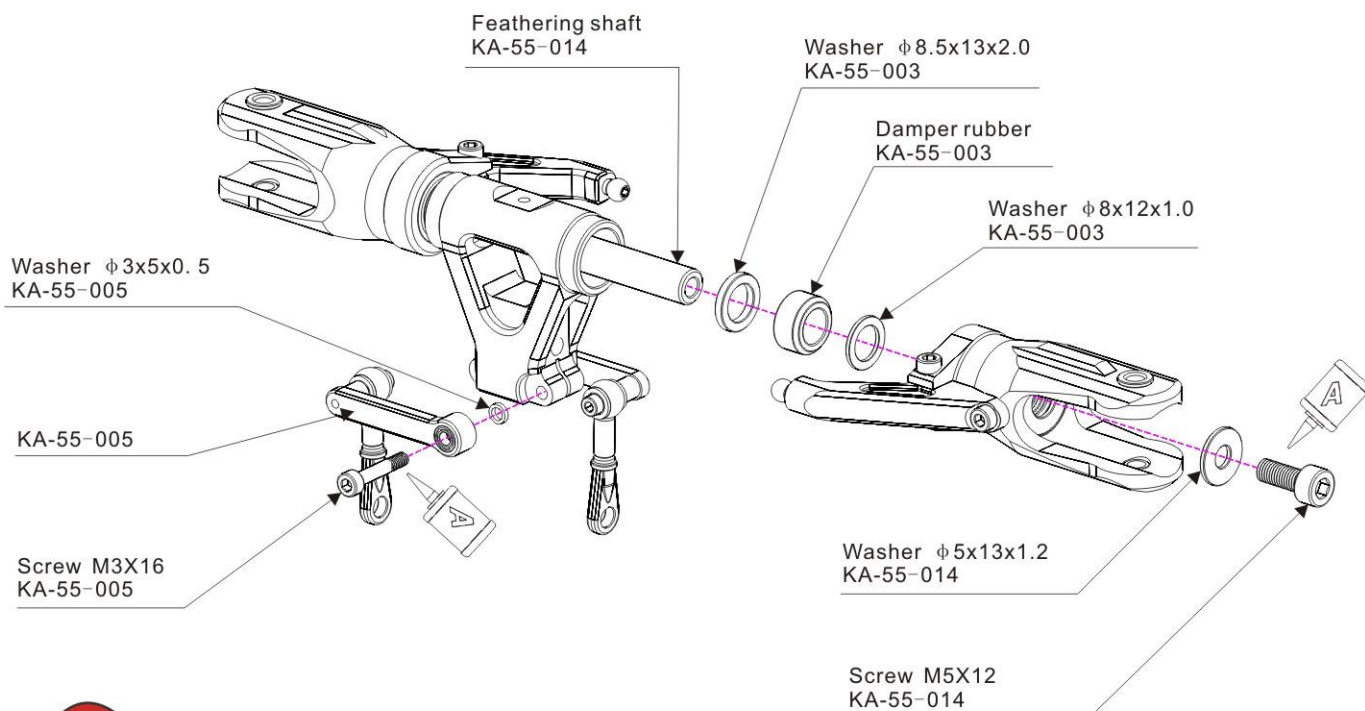
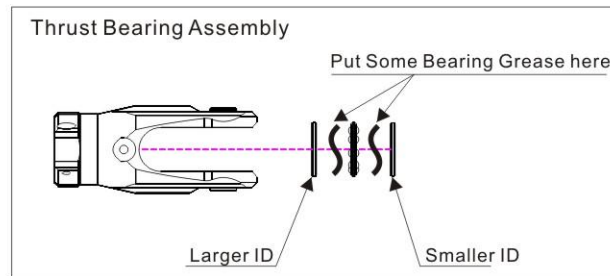
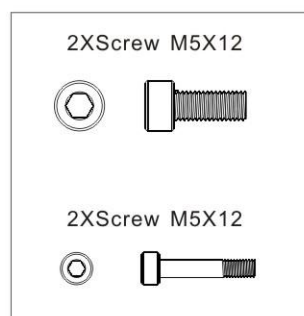
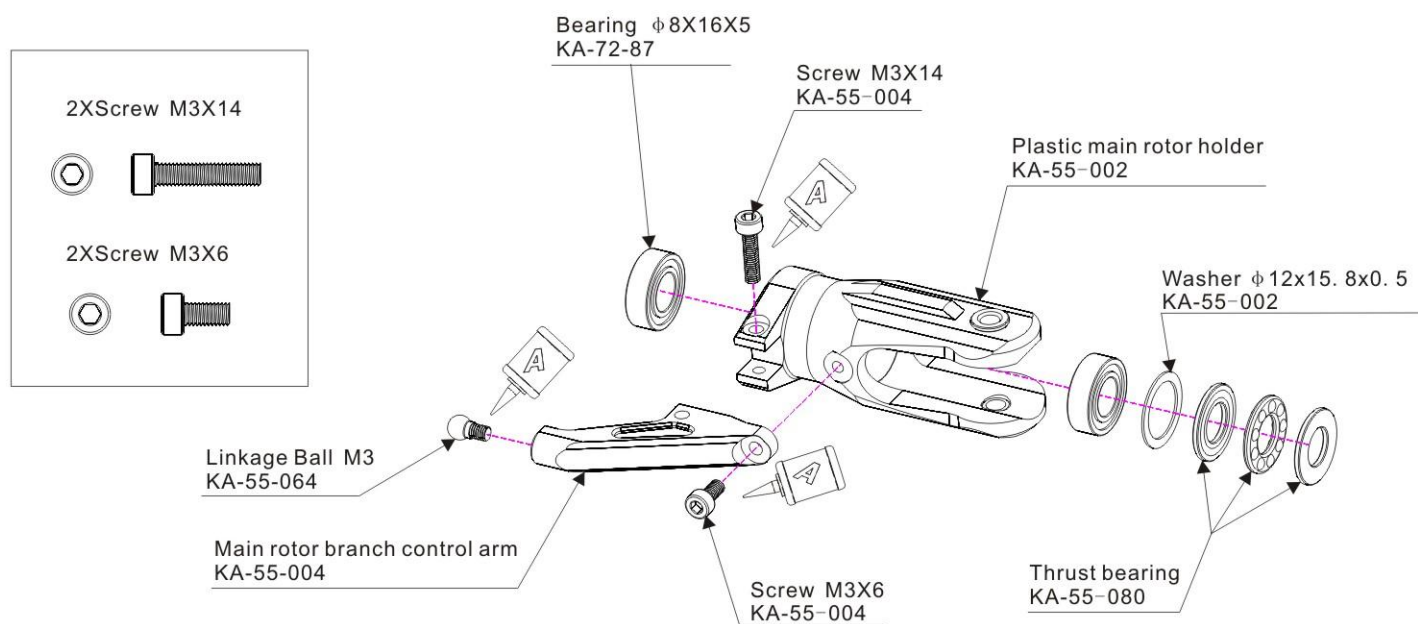
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	8	KA-55-009	Screw M2.5X10
2	4		Servo Plate
3	2	KA-55-064	Ball link M2

20mm is recommended, but may vary according to your rudder servo arm brand and the mechanical tail traver provided by the tail gyro function of your FBL system.



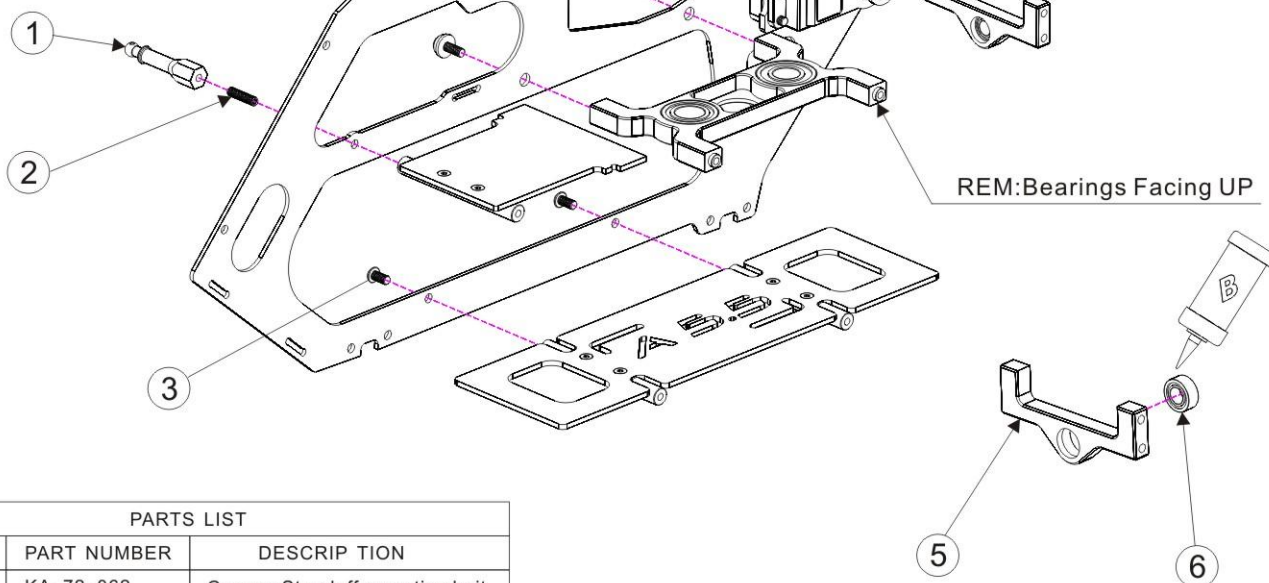
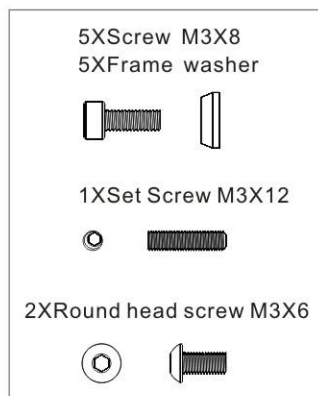
13.Assembly Process of Main Rotor Head

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

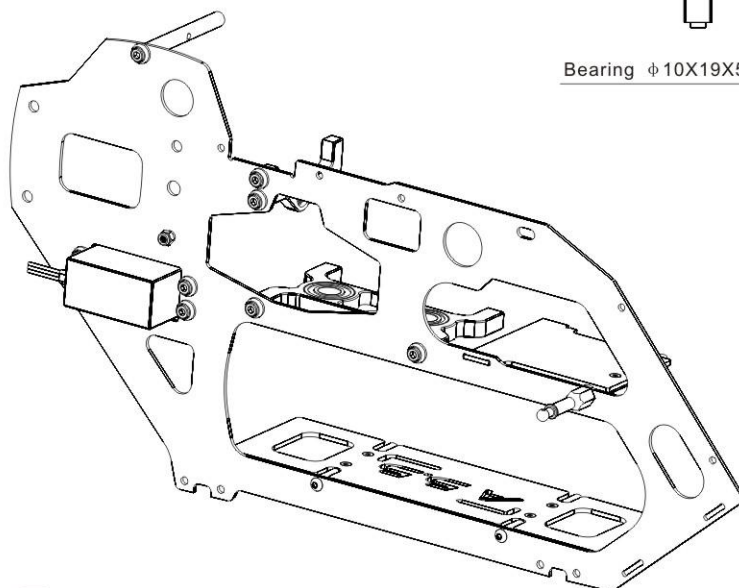
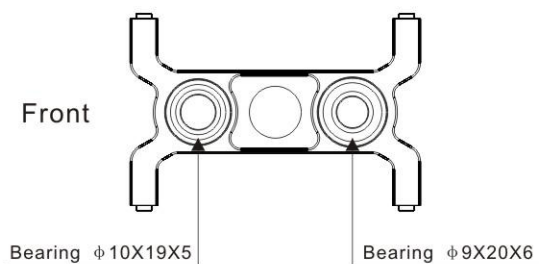


14.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws, balls,and thread which are engaged with metal-parts



PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIP TION
1	1	KA-72-062	Canopy Standoff mounting boit
2	1	KA-72-062	Set Screw M3X12
3	2	KA-55-060	Round head screw M3X6
4	1	KA-55-060	Frame Brace
5	1	KA-72-046	Front drive shaft mount
6	1	KA-72-046	Bearing $\phi 5X10X4$



15.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws, balls,and thread which are engaged with metal-parts

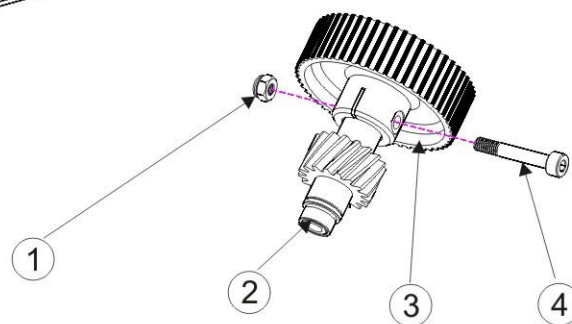
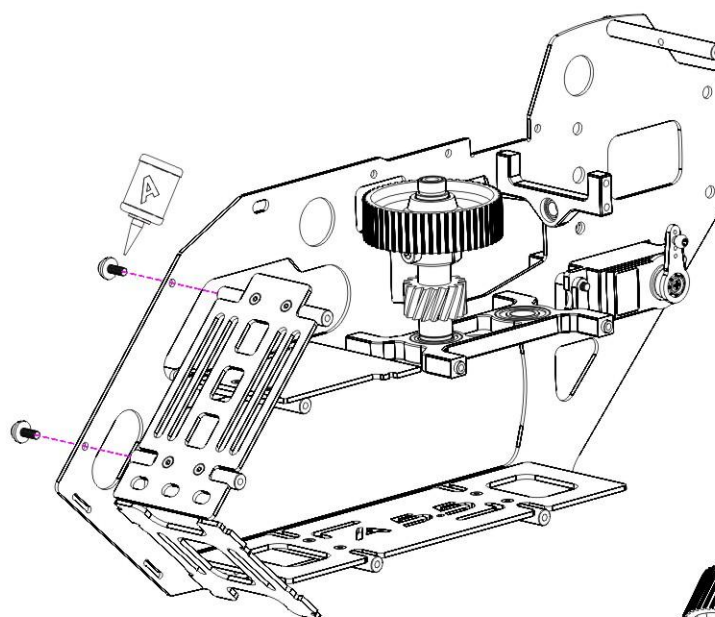
1XNylstop nut M4



1XScrew M4X25



2XScrew M3X8
2XFrame washer



PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIP TION
1	1	KA-55-027	Nylstop nut M4
2	1	KA-55-027	Second reduction gear
3	1	KA-55-026	First reduction gear 54T
4	1	KA-55-027	Screw M4X25
5	1	KA-72-046	Set Screw M3X12
6	1	KA-72-046	Canopy Standoff

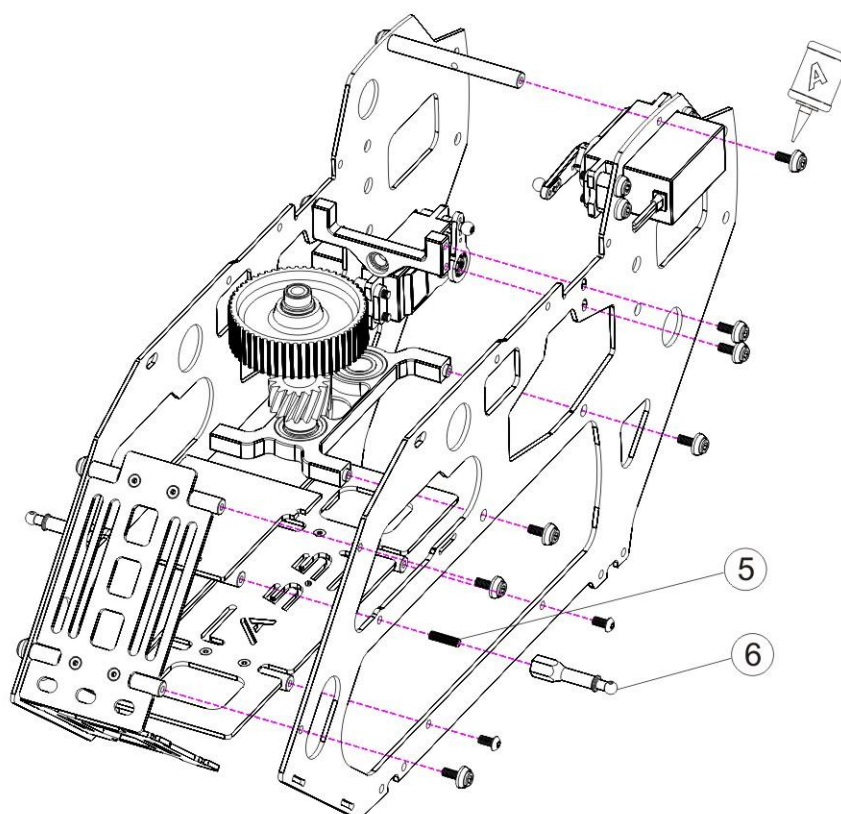
7XScrew M3X8
7XFrame washer



2XRound head screw M3X6



1XSet Screw M3X12



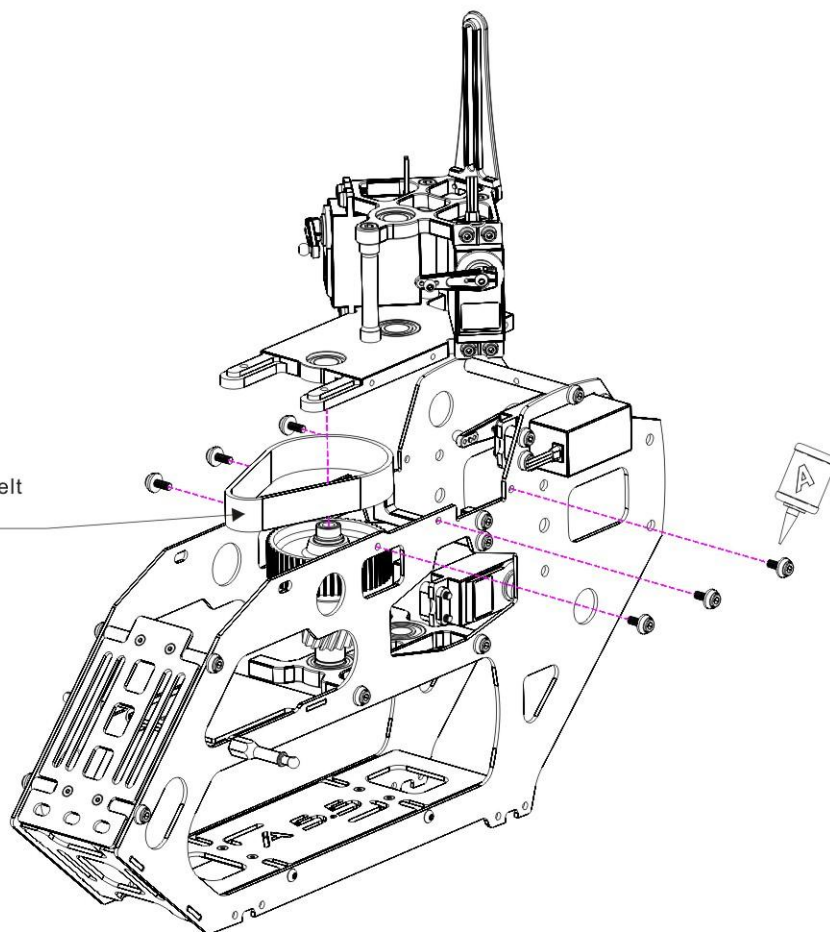
16.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and threadd which are engaged with metal-parts

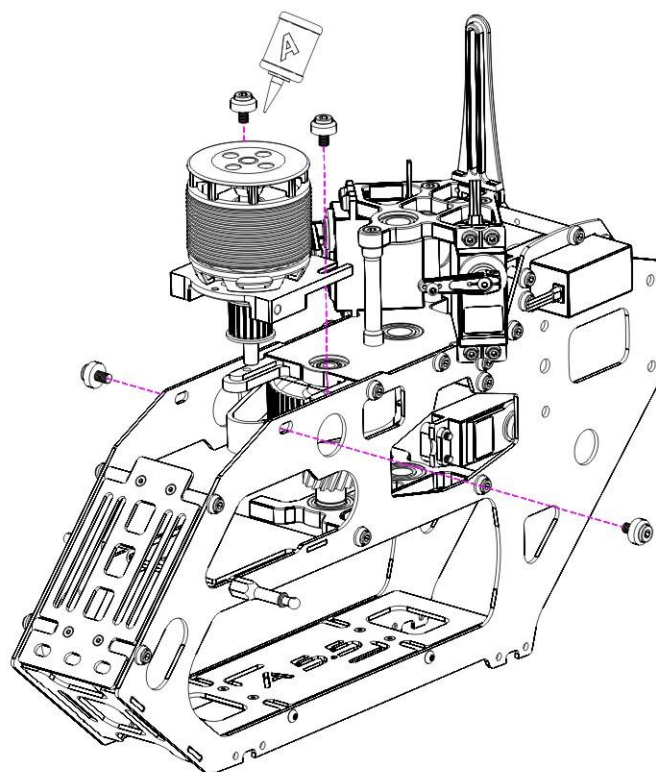
6XScrew M3X8
6XFrame washer



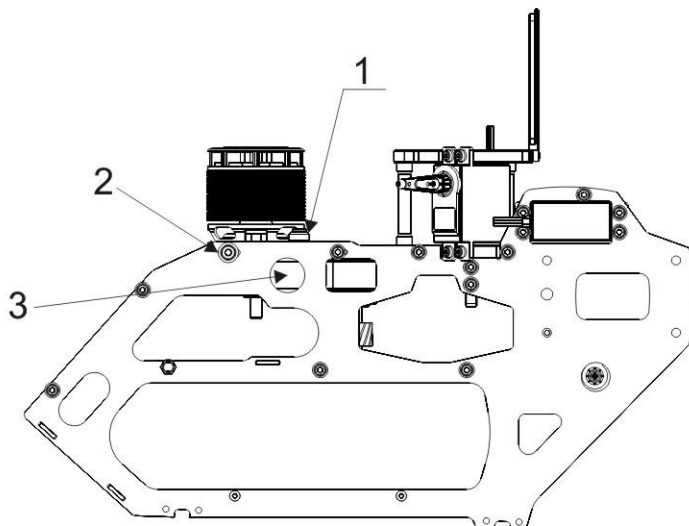
3M-213 Synchronous belt
KA-55-021



4XScrew M4X10
4XFrame washer



REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

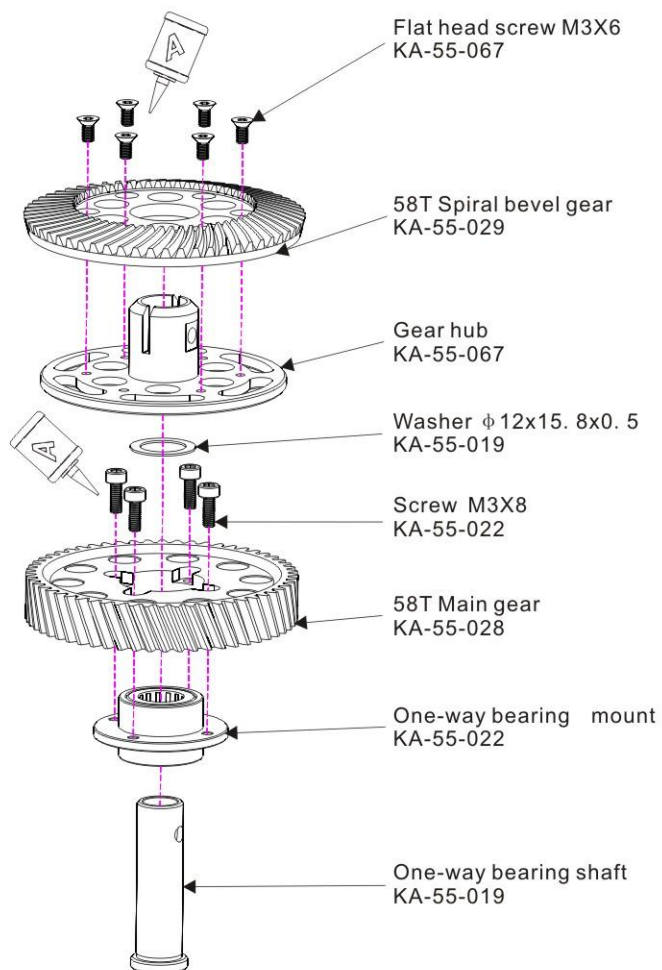


- 1.Push the motor in the opposite direction of the main shaft as far as you can(by hand)
- 2.Tighten slide screws #1
- 3.Tighten motor mount locking screws #2
- 4.Rotate the motor several times by hand. Ensure that belt is correctly aligned with the big pulley
- 5.You can check the belt tension by hand, you just have to push the belt with one of your finger through the round opening on frame #3. It should be difficult to push the motor belt.

6XFlat head screw M3X6

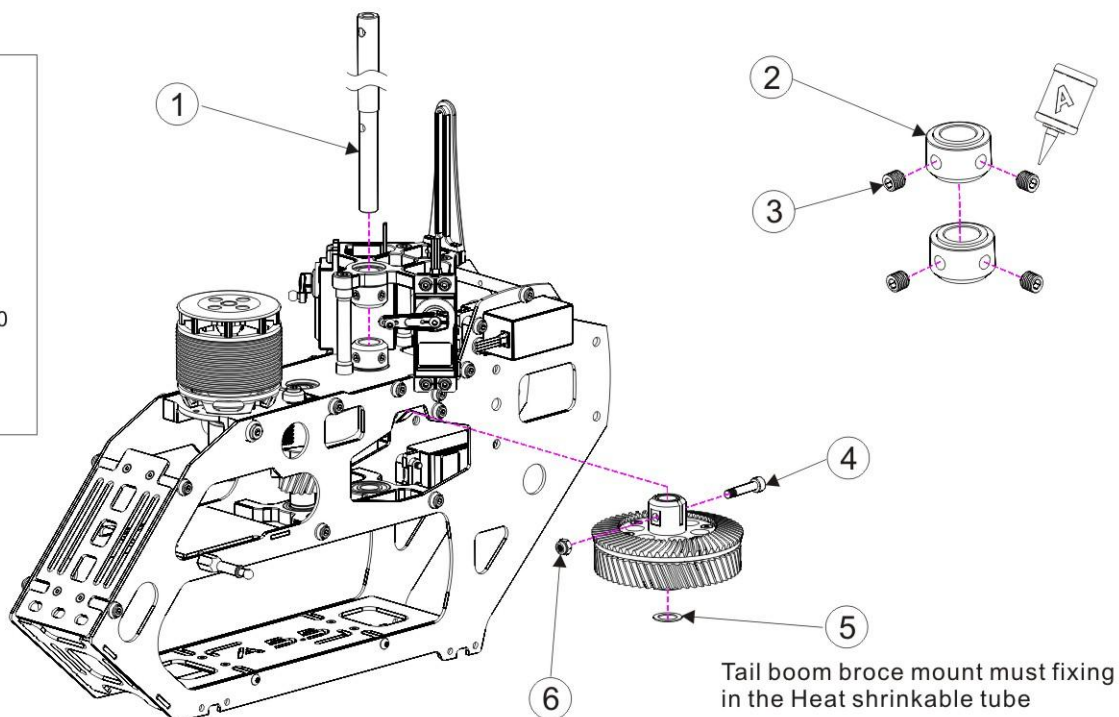
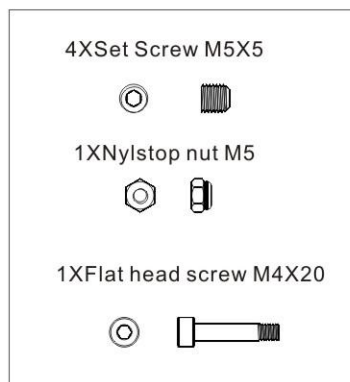


4XFlat head screw M3X8



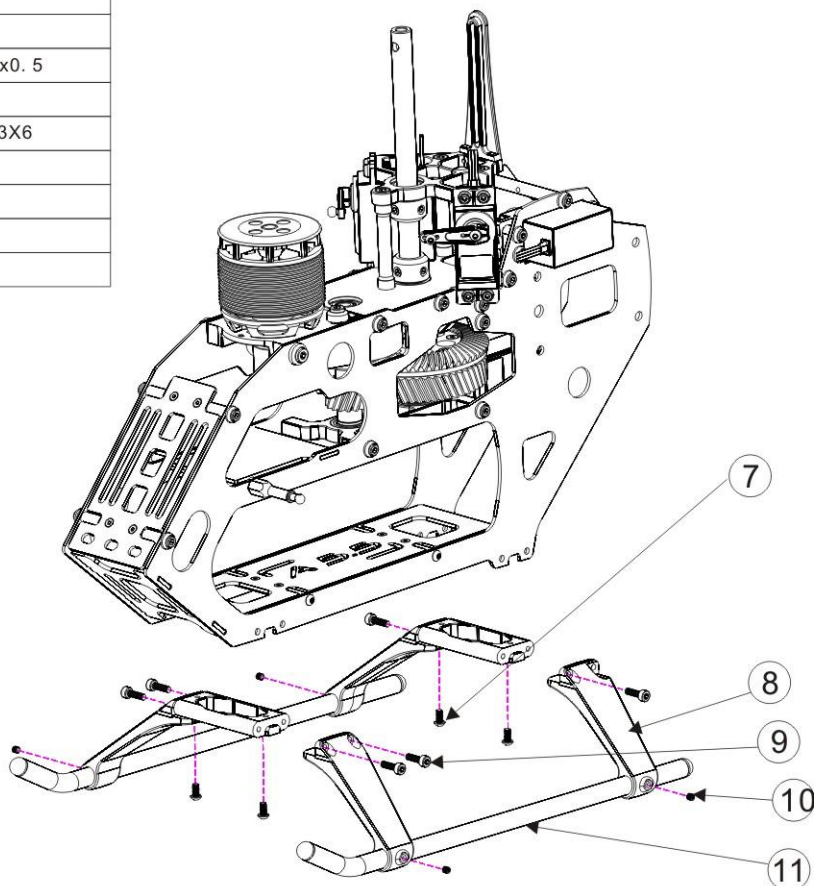
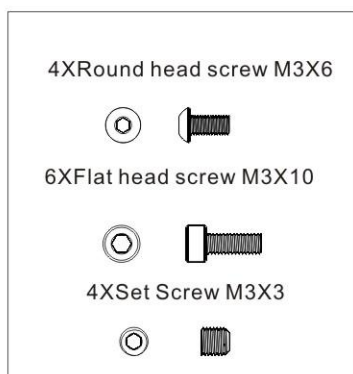
18.Assembly Process of Main Frames and Power System

REM:Apply Medium Thread lock or Equivalent to all screws, balls,and thread which are engaged with metal-parts



PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	KA-55-013	Main shaft
2	2	KA-55-016	Lock collar
3	4	KA-55-016	Set Screw M5X5
4	1	KA-55-019	Screw M4X20
5	1	KA-55-076	Washer $\phi 9.2 \times 13.8 \times 0.5$
6	1	KA-55-019	Nylstop nut M4
7	4	KA-55-044	Round head screw M3X6
8	4	KA-72-074	Landing skid
9	6	KA-72-066	Screw M3X10
10	4	KA-55-066	Set Screw M3X3
11	2	KA-55-043	Skid pipe



REM:Apply Medium Thread lock or Equivalent to all screws, balls,and thread which are engaged with metal-parts

2X Rod Linkage Cyclic(38mm)



1X Rod Linkage Cyclic(56mm)



6X Plastic Ball Linkage



1X Cyclic Servo Rod

1X Pitch servo Rod

62mm



1X Elevator Servo Rod

78mm



Right Thread

Left Thread

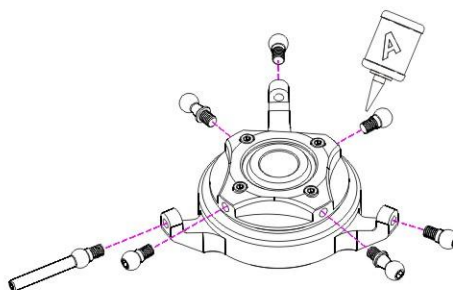
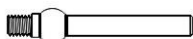
4XBall linkage



2XBall linkage



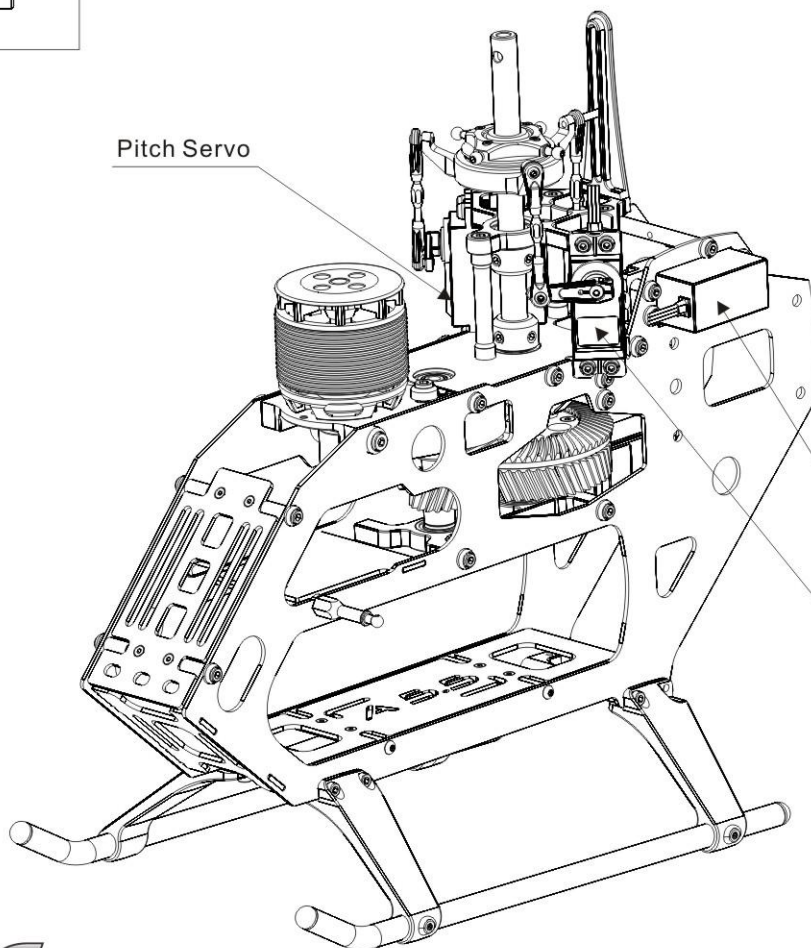
1XBall linkage Guide



Pitch Servo

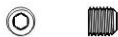
Elevator Servo

Aileron Servo



REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

2XSet Screw M4X4



1XCylindrical Pin 3X12mm



2XBearing $\phi 6X13X5$



2XSet Screw M4X4



1XCylindrical Pin 3X12mm



2XBearing $\phi 8X16X5$



2XBearing $\phi 5X14X5$



4XRound head screw M2X4



Cylindrical Pin 3X12mm
KA-55-051

Bearing $\phi 6X13X5$
KA-55-051

Set screw M4X4mm
KA-55-030

Front universal joint drive shaft
KA-55-051

Middle drive shaft mount
KA-55-047

Helical bevel gear 15T
KA-55-030

Cylindrical Pin 3X12mm
KA-55-050

Bearing $\phi 8X16X5$
KA-55-052

Tail gear box
KA-55-052

Back-end universal joint drive shaft
KA-55-050

Bearing $\phi 5X14X5$
KA-55-052

Round head screw M2X4
KA-55-052

Set screw M4X4mm
KA-55-031

Set screw M3X3mm
KA-55-073

Back-end drive spiral bevel gear
KA-55-031

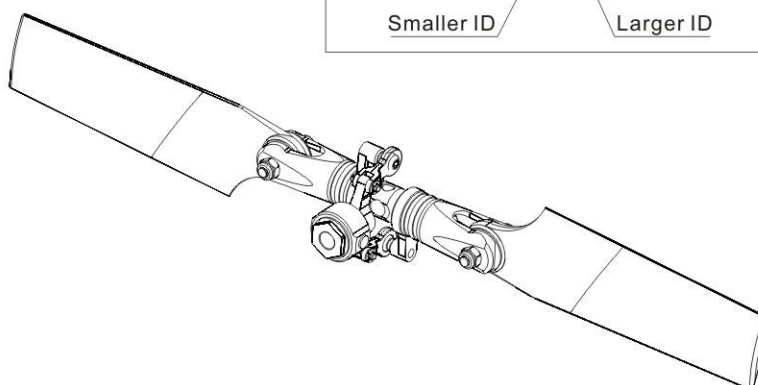
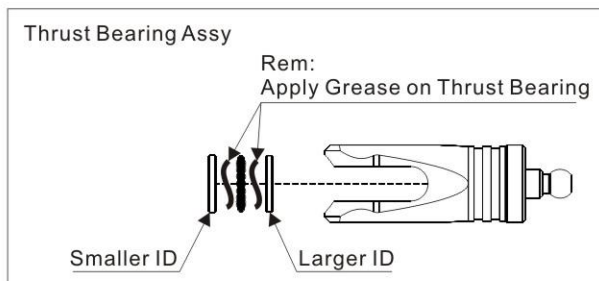
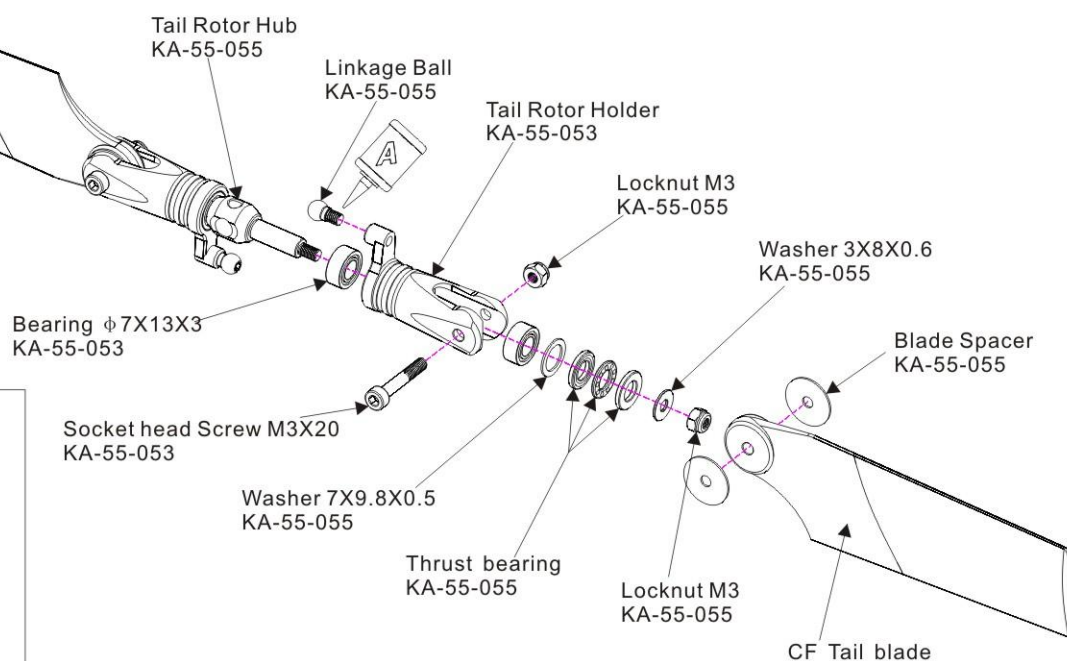
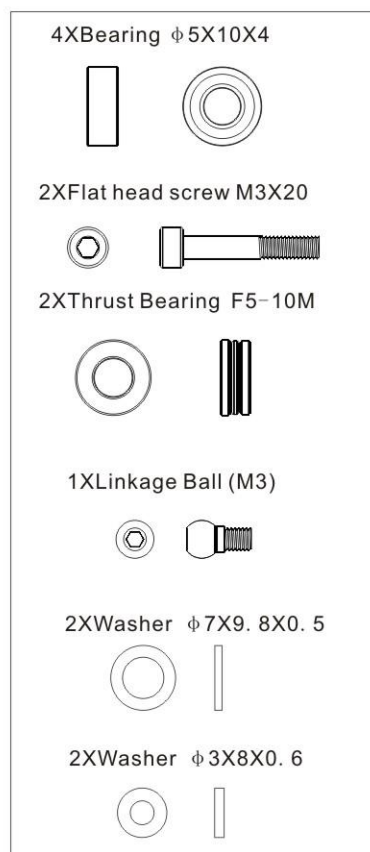
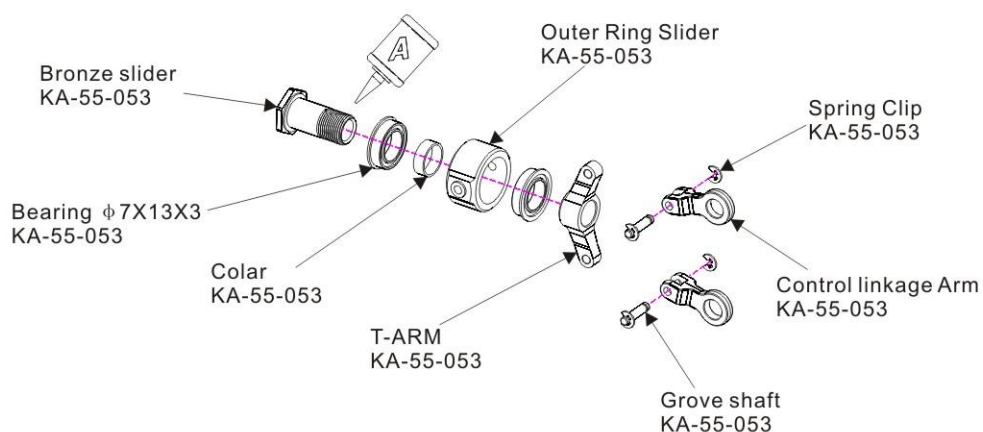
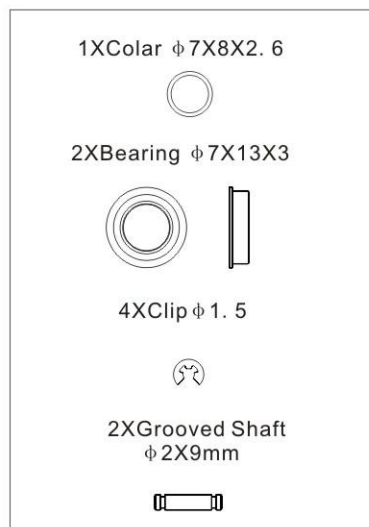
Pin $\phi 2.5X12$
KA-55-032

Tail shaft
KA-55-015

Tail shaft
KA-55-015

Tail shaft locking collars ring
KA-55-073

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts



REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

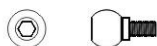
2XRound head screw M2.5X6



2XRound head screw M2X6



1XLinkage Ball (M2)



1XNut M2



Tail rocker arm mount
KA-55-054

Bearing $\phi 2.5.X6X2.6$
KA-55-054

Round Head Socket Screw M2.5X6
KA-55-054

Round Head Socket Screw M2X6
KA-72-072

Tail rocker arm
KA-55-054

Nut M2
KA-72-072

Tail control arm
KA-72-072

Linkage Ball
KA-72-072

4XRound head screw M2.5X6



2XWasher $\phi 2.6X5X0.5$



1XSet Screw M4X4



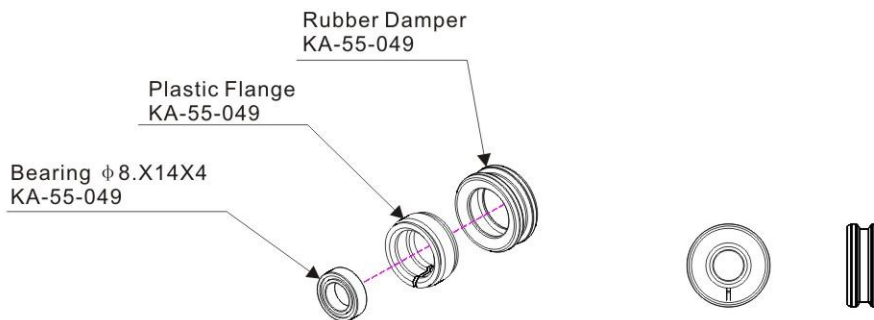
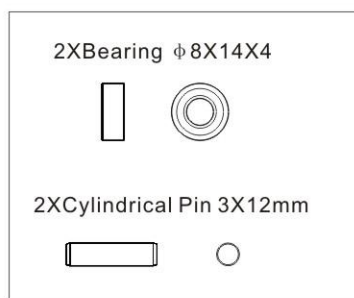
Washer 2.6X5X0.5
KA-55-055

Round Head Socket Screw M2.5X6
KA-55-054

Set Screw M4X4
KA-75-55

24.Torque Tube Bearing Guide Assy 1

REM:Apply Medium Thread lock or Equivalent to all screws, balls,and thread which are engaged with metal-parts



Torque tube Assy

No Need to glue bearings on the torque tube!

Step1-Slightly scratch with sandpaper both ends of the torque tube on about 8mm long

Step2-Slide the 3 bearing guides assy

Step3-Clean with Alcohol the tube and the internal surface of the coupling

Step4-Apply some glue inside the coupling .Use ONLY two components epoxy (A+B)

Step5-Secure the coupling with the lock pin

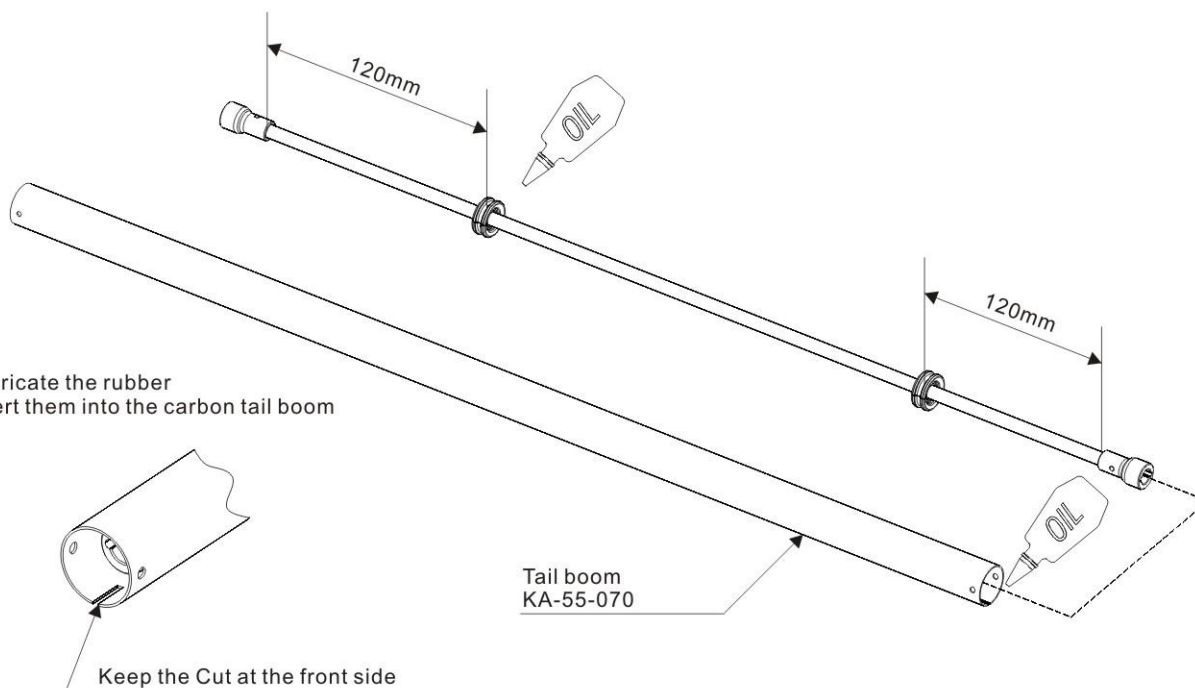
Wait 24H at least before flying to be sure that Epoxy is Completely dry

Rem:

Torque tube KA-55-048

Cylindrical Pin 3X12mm KA-55-048

Drive shaft joint KA-55-048



Rem:
Use Oil to lubricate the rubber before to insert them into the carbon tail boom

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and threadd which are engaged with metal-parts

1XFlat head screw M3X8



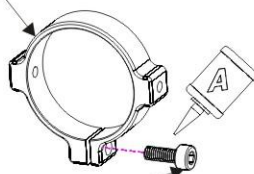
1XLock Nut M2



1XFlat head screw M2X10

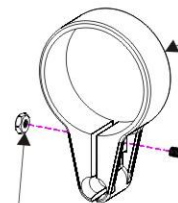


Tail boom brace mount
KA-55-069



Screw M3X8
KA-55-069

Hex socket cap screw
KA-55-071

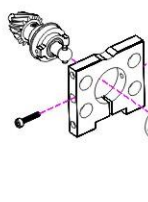


Screw M2X10
KA-55-071

Lock Nut M2
KA-55-071

Screw M3X14
KA-55-047

Tail boom mount
KA-55-040



heat-shrinkable tube
KA-55-069

Vertical stabilizer mount
KA-55-068

Screw M3X12
KA-55-068

Screw M3X8
KA-55-068

Screw M3X6
KA-55-068

CF Vertical stabilizer
KA-55-041

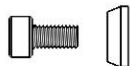
2XFlat head screw M3X14



2XFlat head screw M3X8



1XScrew M3X6
1XFrame washer



1XScrew M3X12
1XFrame washer



REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

6XLocknut M3



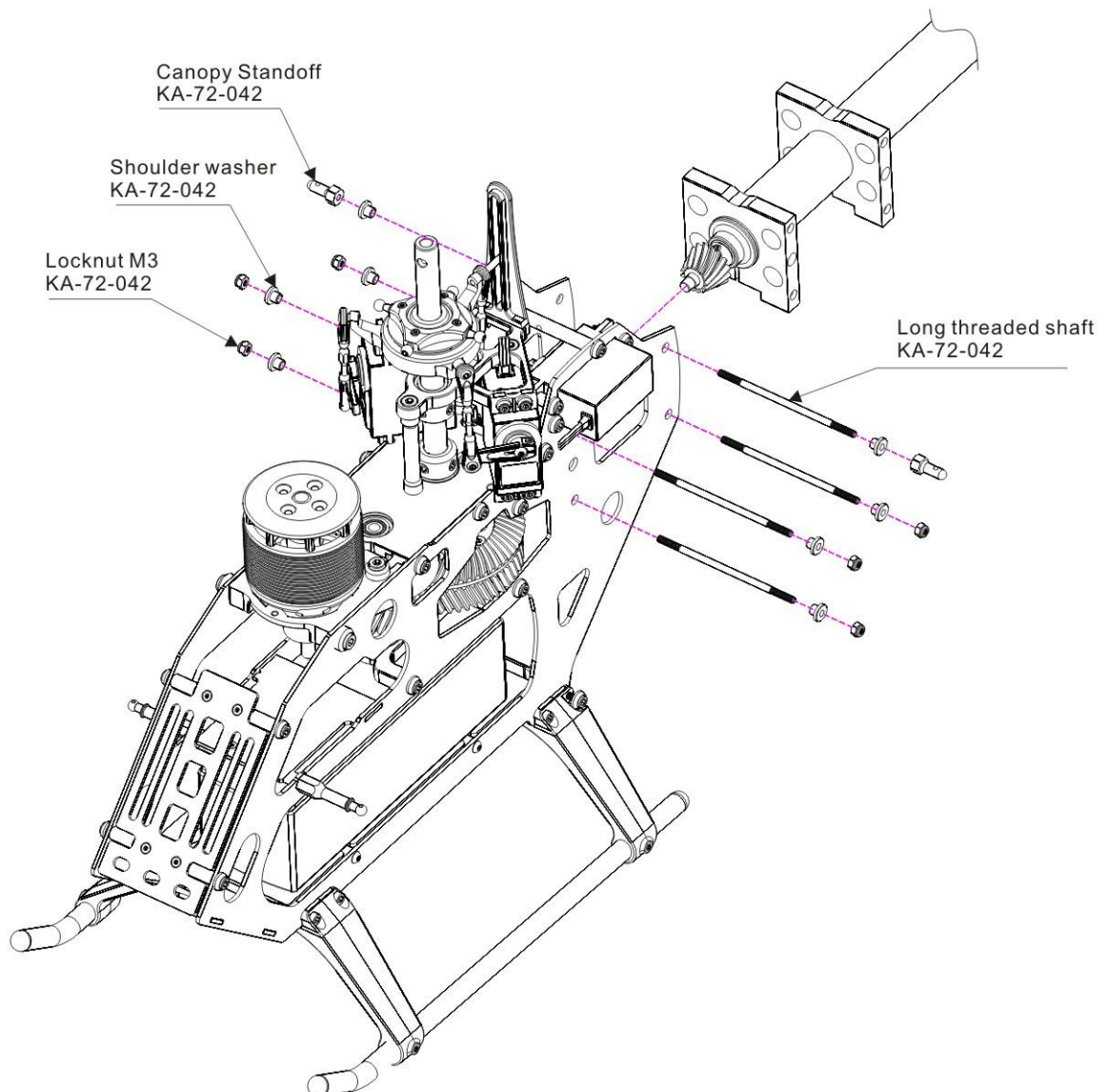
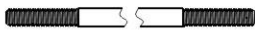
2xCanopy Standoff



8XShoulder washer



4XLong threaded shaft
M3X72



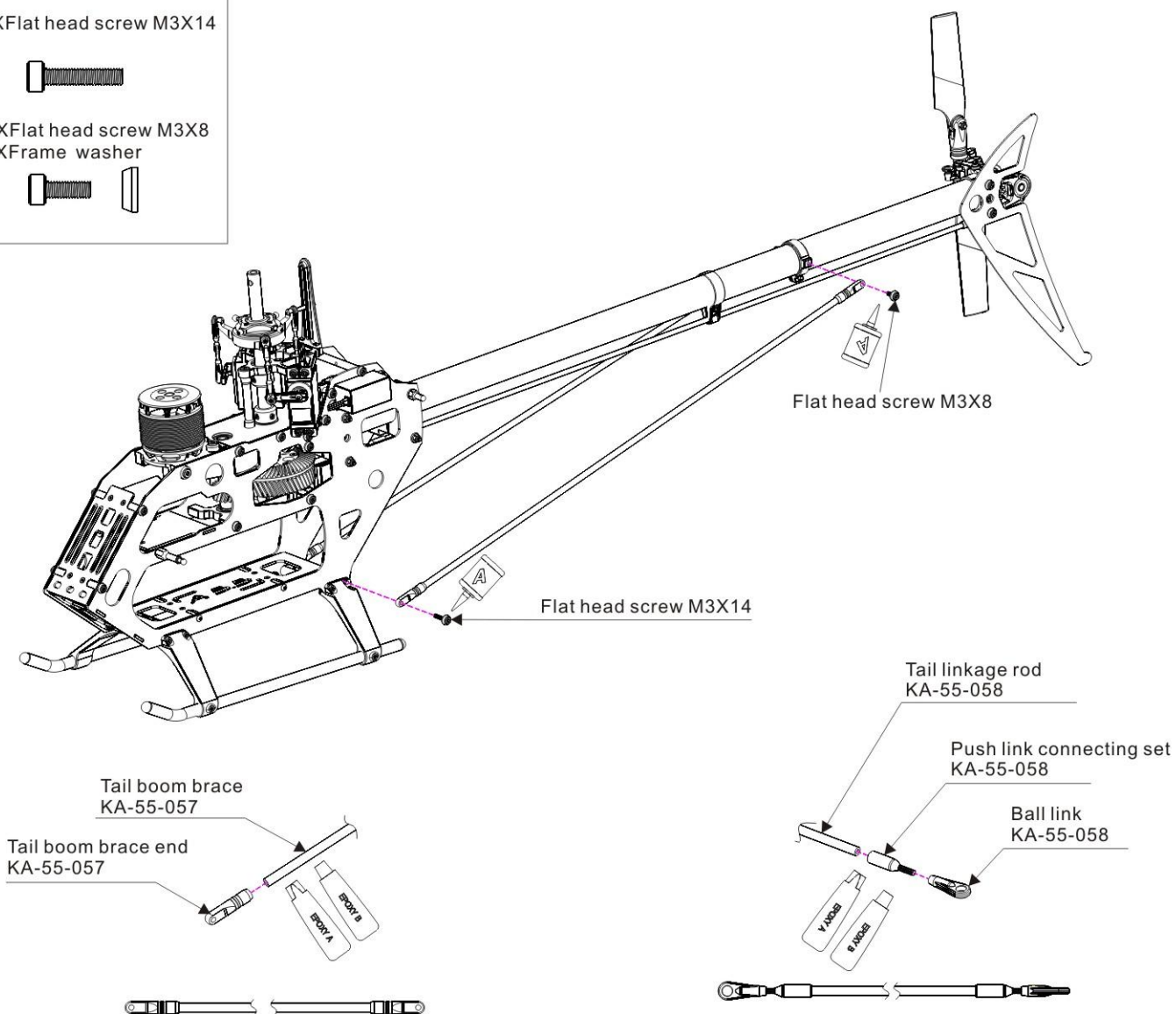
27.Tail Control Rod Assy

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts

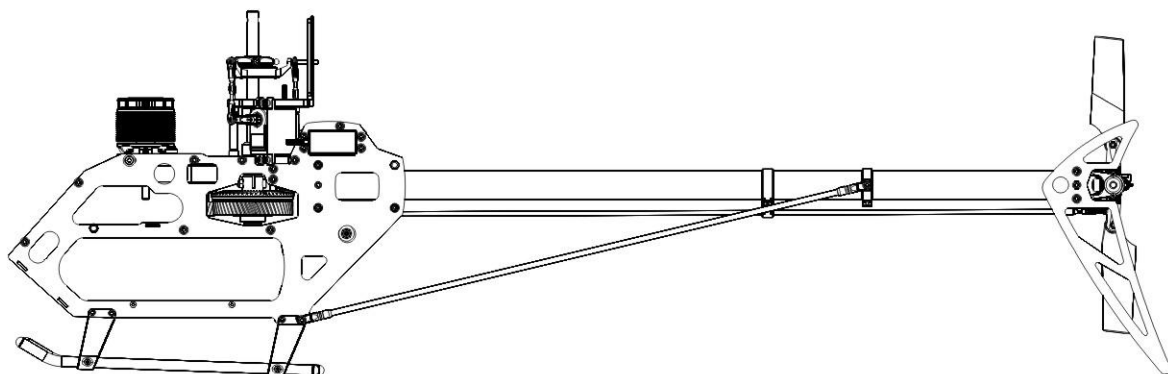
2XFlat head screw M3X14



2XFlat head screw M3X8
2XFrame washer



The best solution to mount tail boom brace correctly is to apply some epoxy as shown.
Then,screw them on position of Agile main frames and tail boom clamp.Insert set screws to secure.
And let Epoxy drying for at least 24H.



28.Assembly Process of Main Rotor Head

REM:Apply Medium Thread lock or Equivalent to all screws, balls,and thread which are engaged with metal-parts

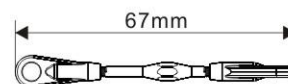
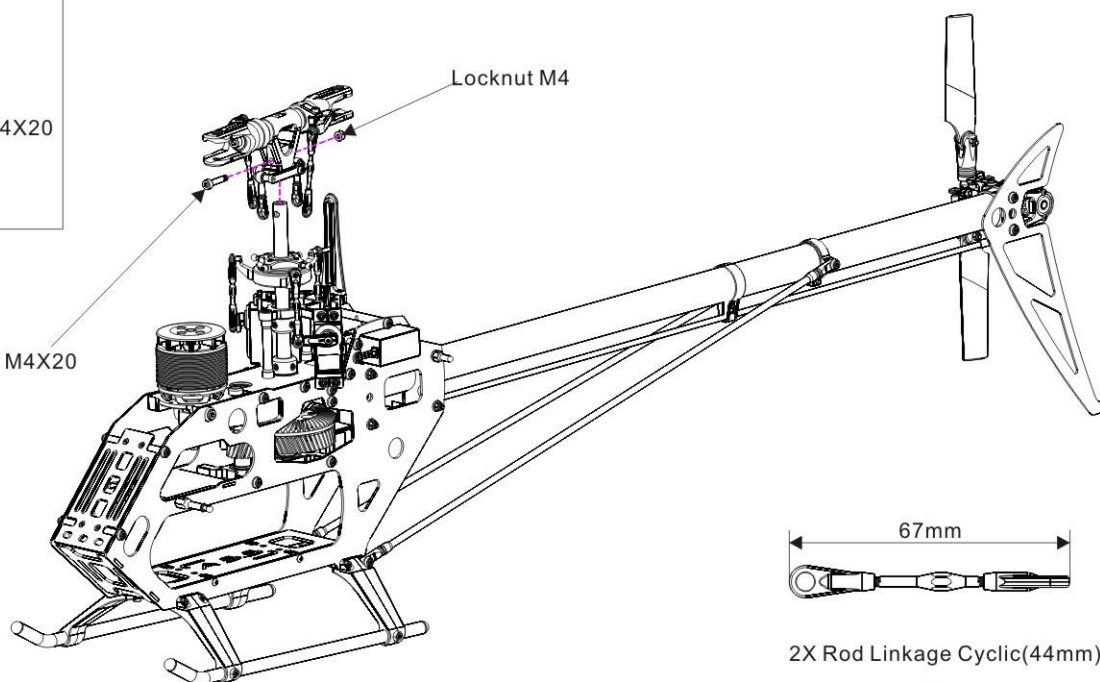
1XLocknut M4



1XSocket head screw M4X20



Socket head screw M4X20



2X Rod Linkage Cyclic(44mm)



4X Plastic Ball Linkage



Socket head screw M4X30

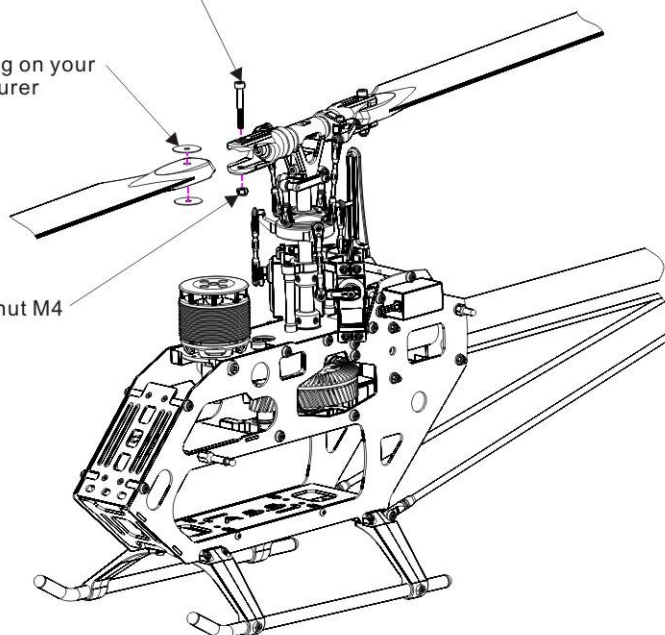
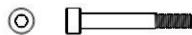
Washer the depending on your Main blade manufacturer

Locknut M4

2XLocknut M4

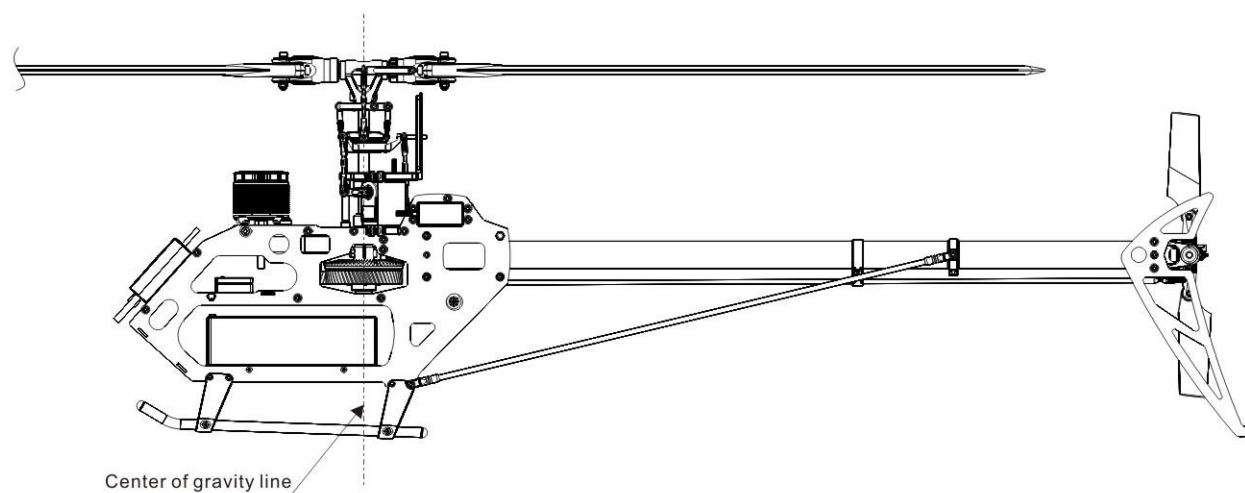
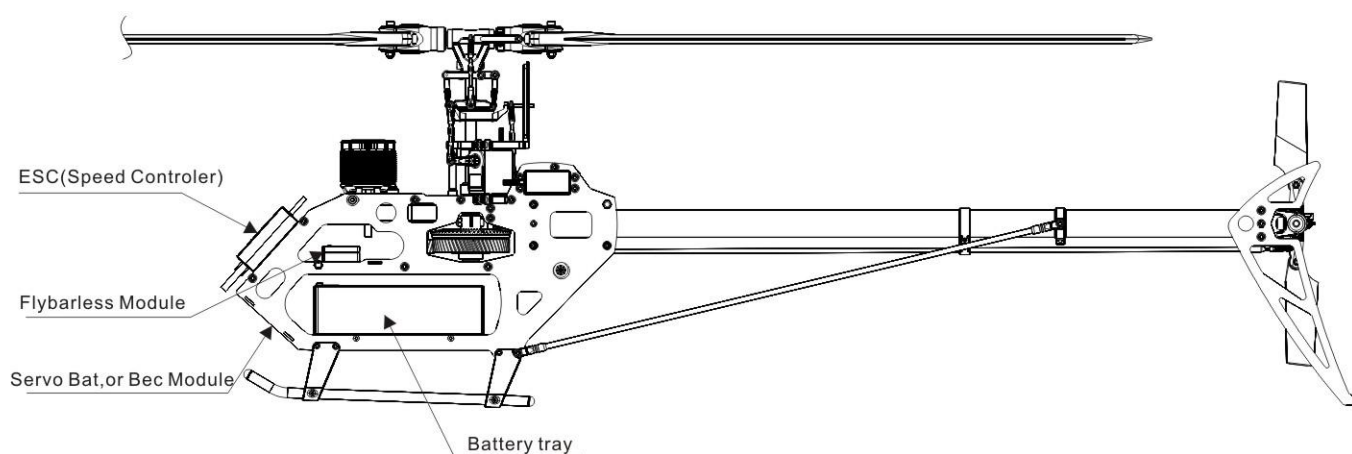


2XSocket head screw M4X30



29.Examples of positioning the Electronic Components

REM:Apply Medium Thread lock or Equivalent to all screws. balls,and thread which are engaged with metal-parts



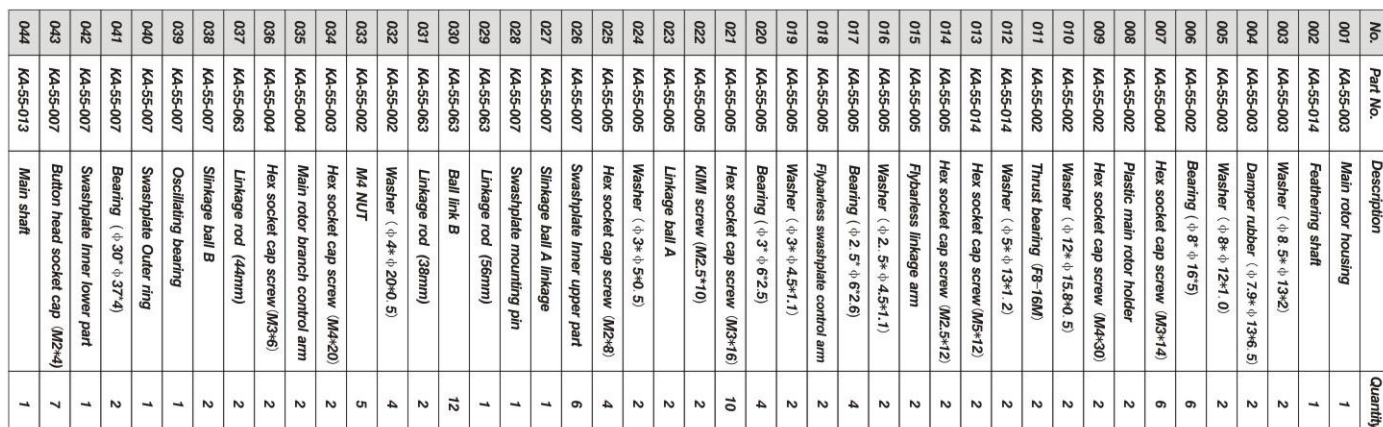
- 1)Check the servo direction, according to your flybarless module.
- 2)make sure your helicopter is well balanced in term of center of gravity passing thru the main shaft

Calculation for your total ratio:

$$\begin{aligned} \text{Pigeon Z=20} \\ (54/20) \times (56/17) &= 8.89 \end{aligned}$$

$$\begin{aligned} \text{Pigeon Z=21} \\ (54/21) \times (56/17) &= 8.46 \end{aligned}$$

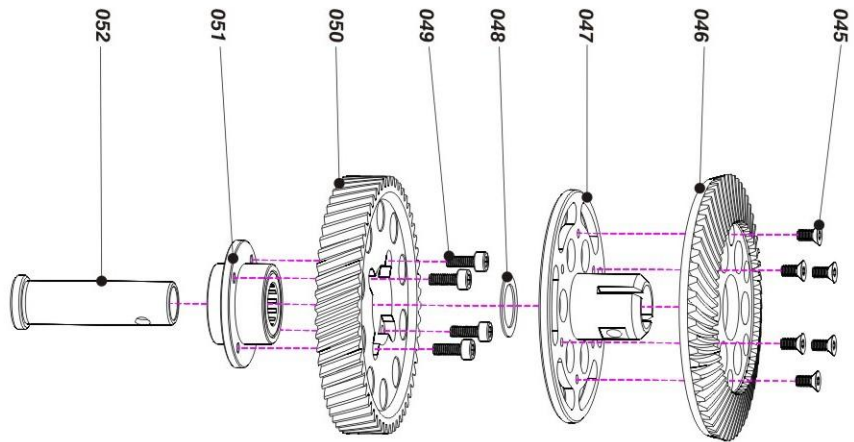
REM: Apply Medium Thread lock or Equivalent to all screws, balls, and threads which are engaged with metal-parts.



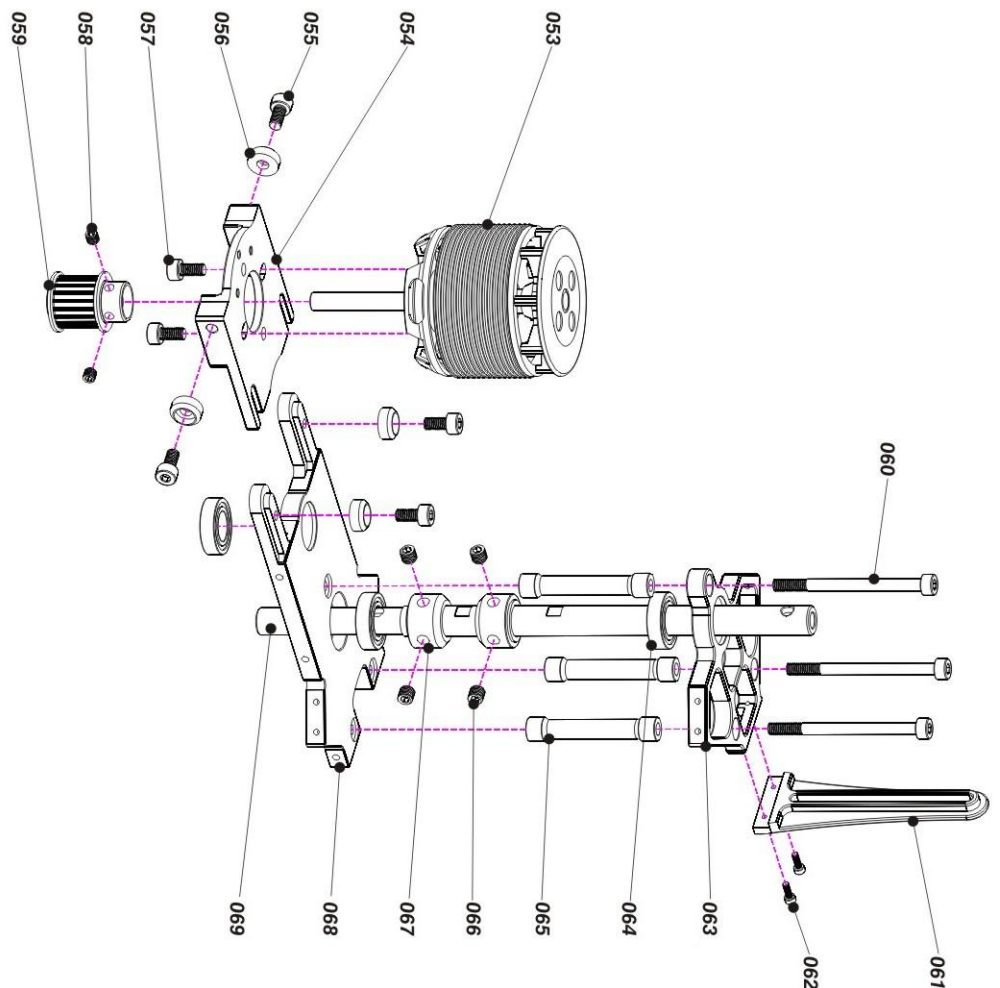
31. Motor Bearing Assembly Steps

REM: Apply Medium Thread lock or Equivalent to all screws, balls, and threads which are engaged with metal-parts.

No.	Part No.	Description	Quantity
045	KA-55-067	Flat socket head cap (M3*6)	6
046	KA-55-029	57T Spiral bevel gear	1
047	KA-55-067	Gear hub	1
048	KA-55-019	Washer (ϕ 12.1* ϕ 17.0.5)	1
049	KA-55-022	Hex socket cap screw (M3*6)	1
050	KA-55-028	58T Main gear	1
051	KA-55-022	One way clutch mount	1
052	KA-55-019	One-way simultaneous axis	1

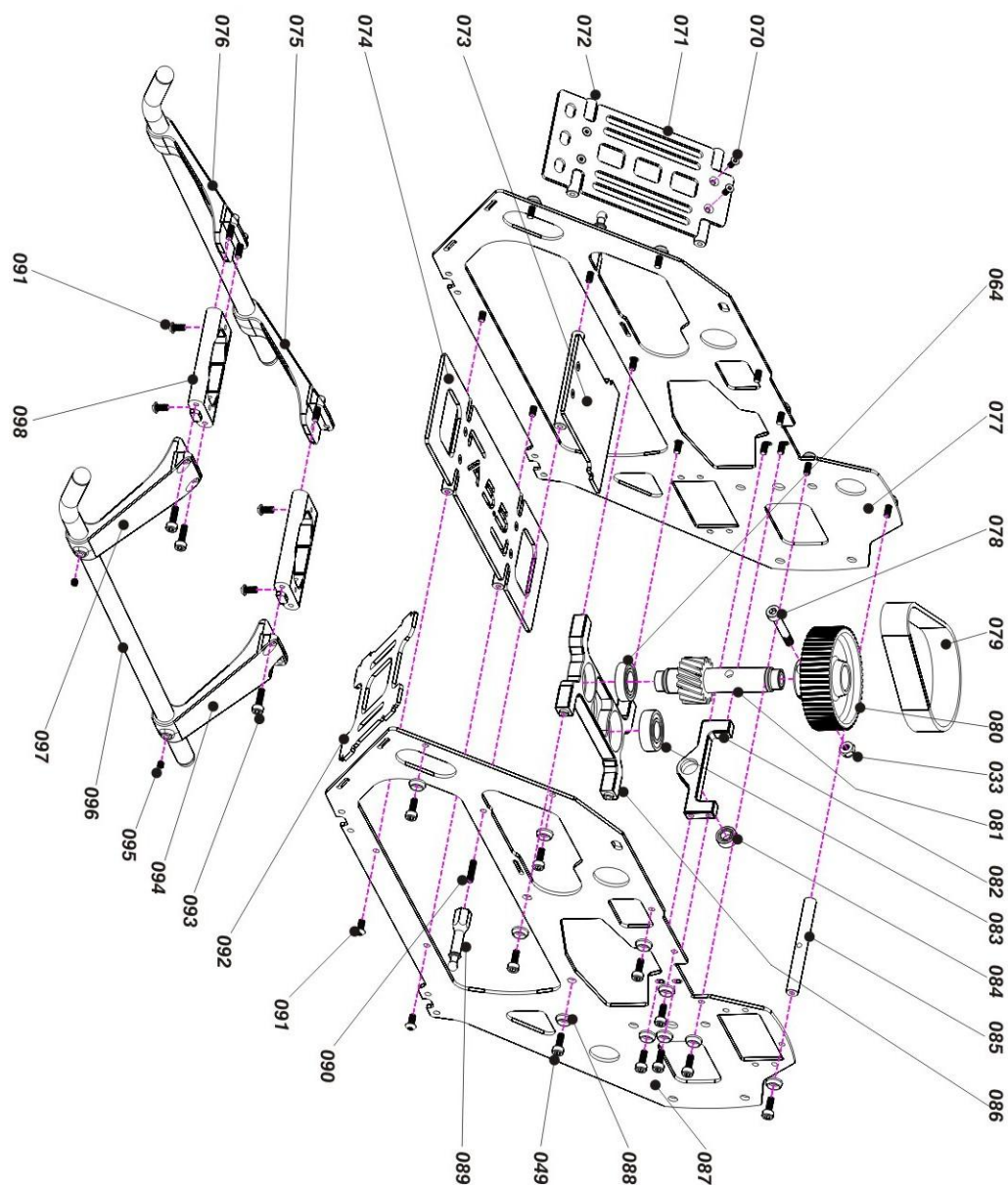


053	BL4020-1100KV	Motor 1100KV	1
054	KA-72-018	Motor mount	1
055	KA-72-018	Hex socket cap screw (M4*10)	4
056	KA-72-018	Aluminum washer	4
057	KA-72-018	Hex socket cap screw (M4*8)	2
058	KA-55-024	KIMI screw (M4*4)	7
059	KA-55-024	21T Main pinion gear	1
060	KA-55-012	Hex socket cap screw (M4*52)	3
061	KA-72-061	Swastipate Anti-rotation bracket	1



062	KA-72-061	Hex socket cap screw (M2*6)	2
063	KA-55-009	Main shaft upper bearing block mount	1
064	KA-55-009	Bearing (ϕ 10* ϕ 19.5)	4
065	KA-55-012	Main shaft bearing block pillar	3
066	KA-55-016	KIMI screw (M5*5)	4
067	KA-55-016	Lock collar	2
068	KA-55-010	Main shaft middle bearing mount	1
069	KA-55-013	Main shaft	1

REM: Apply Medium Thread lock or Equivalent to all screws, balls, and threads which are engaged with metal-parts.



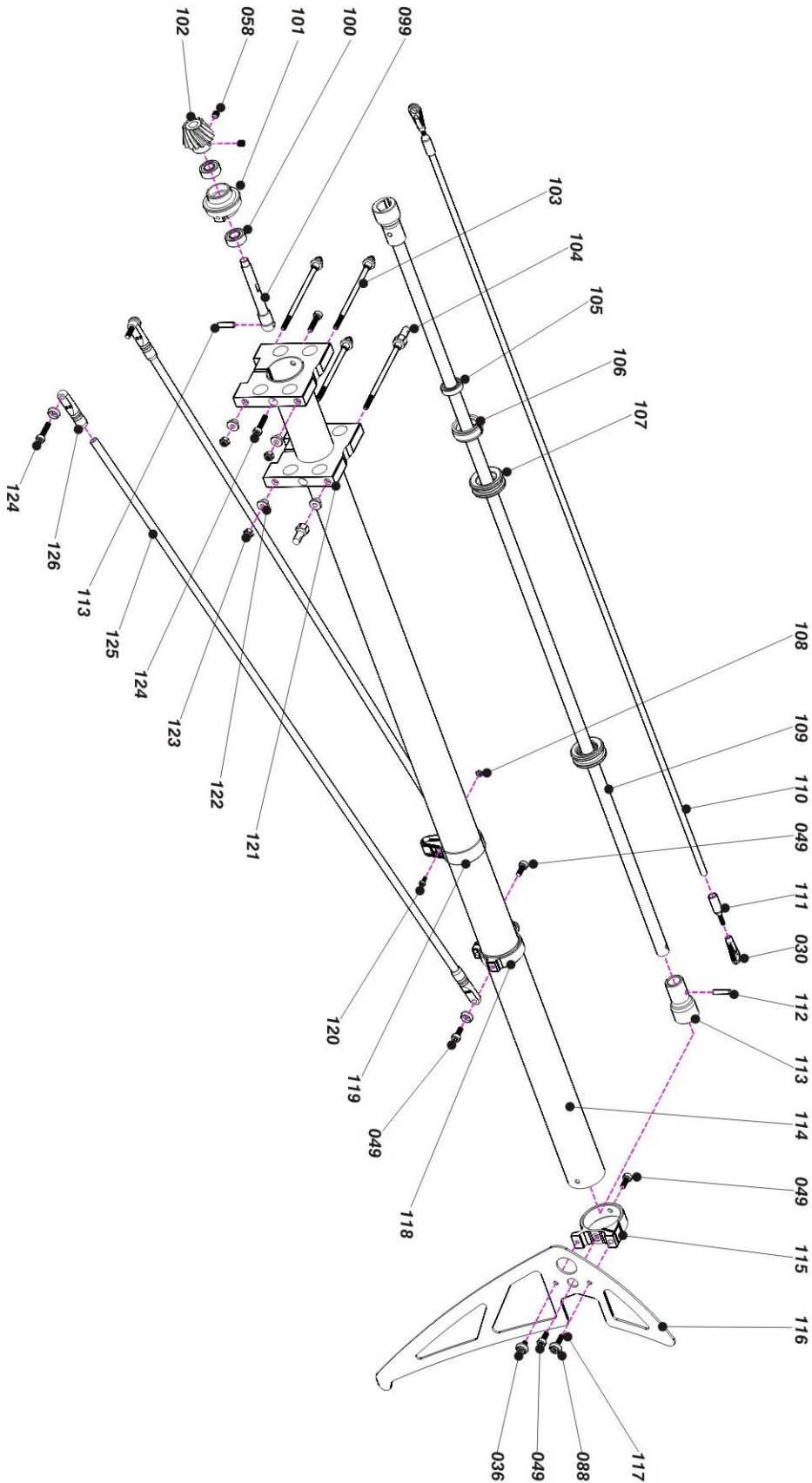
No.	Part No.	Description	Quantity
070	KA-55-077	Sink hexangular screw (M2.5*6)	10
071	KA-55-035	Swashplate	1
072	KA-55-060	Frame connecting bolt	5
073	KA-55-038	CF middle electronic board	1
074	KA-55-037	Bottom plate	1
075	KA-55-044	Right rear landing skid	1
076	KA-55-044	Right front landing skid	1
077	KA-55-033	Main frame R	1
078	KA-55-026	Hex socket cap screw (M4*25)	1
079	KA-55-021	3M-213 Synchronous belt	1
080	KA-55-026	First reduction gear 54T	1
081	KA-55-027	Second reduction gear	1
082	KA-72-046	Front drive shaft mount	1
083	KA-55-011	Bearing (1/8" 9 1/2 20°6)	1
084	KA-72-046	Bearing (1/8" 5 1/2 10°4)	5
085	KA-55-060	Frame columns(spacers)	1
086	KA-55-011	Main shaft under bearing block(locker plate)	1
087	KA-55-034	Main frame L	1
088	KA-55-077	Cortical washers	34
089	KA-72-062	Front canopy mounting bolt	2
090	KA-72-062	KIM screw (M3*12)	2
091	KA-55-060	Button head socket cap (M3*6)	8
092	KA-55-036	CF front electronics board	1
093	KA-55-044	Hex socket cap screw (M3*10)	6
094	KA-55-044	Left rear landing skid	1
095	KA-55-044	KIM screw (M3*3)	6
096	KA-55-043	Skid pipe	1
097	KA-55-044	Left front landing skid	1

REM: Apply Medium Thread lock or Equivalent to all screws, balls, and threads which are engaged with metal-parts.

No.	Part No.	Description	Quantity
099	KA-55-051	Front universal joint drive shaft	1
100	KA-55-047	Bearing (ϕ 6" ϕ 13.5)	2
101	KA-55-047	Middle drive shaft mount	1
102	KA-55-030	Helical bevel gear 15Z	1
103	KA-72-042	Doubled-headed screw rod	4
104	KA-72-062	Behind canopy mounting bolt	2
105	KA-55-049	Bearing (ϕ 8" ϕ 14.4)	2
106	KA-55-049	Tail drive bearing mount	2
107	KA-55-049	Rubber damper	2

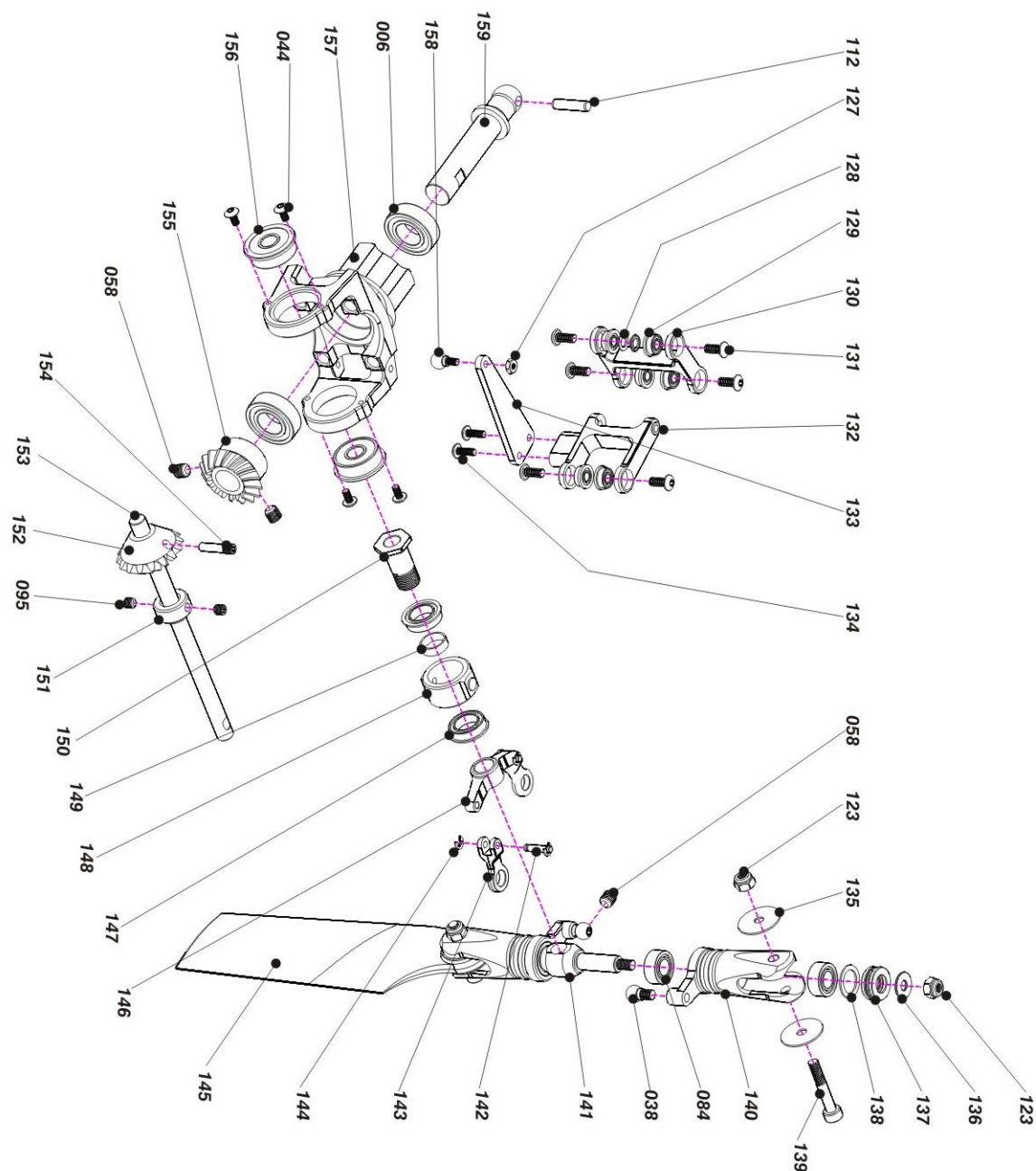
108	KA-55-071	M2 Nut	1
109	KA-55-048	Torque tube	1
110	KA-55-058	Tail linkage rod	1
111	KA-55-058	Push link connecting set	2
112	KA-55-048	Pin (ϕ 3*12)	4
113	KA-55-048	Drive shaft joint	2
114	KA-55-070	Tail boom	1
115	KA-55-068	Vertical stabilizer mount	1
116	KA-55-041	CF vertical stabilizer	1
117	KA-55-068	Hex socket cap screw (M3*12)	1

118	KA-55-069	Tail boom brace mount	1
119	KA-55-071	Hex socket cap screw	1
120	KA-55-071	Hex socket cap screw (M2*10)	1
121	KA-55-040	Tail boom mount	2
122	KA-72-042	Aluminum sleeve	8
123	KA-72-062	M3 Nut	10
124	KA-55-047	Hex socket cap screw (M3*14)	4
125	KA-55-057	Tail boom brace	2
126	KA-55-057	Tail boom brace end	4



34. Tail Rotor Assembly Steps 2

REM: Apply Medium Thread lock or Equivalent to all screws, balls, and threads which are engaged with metal-parts.



No.	Part No.	Description	Quantity
127	KA-72-072	M2 NUT	5
128	KA-72-072	Washer (Φ 2.6 Φ 5.0-5)	2
129	KA-55-054	Bearing (Φ 2.5 Φ 5.2-6)	6
130	KA-55-054	Tail rocker arm mount	1
131	KA-55-054	Round head hex socket screw (M2.5*6)	6
132	KA-55-054	Tail rocker arm	1
133	KA-72-072	Tail control arm	1
134	KA-72-072	Round head hex socket screw (M2.5*6)	2
135	KA-72-055	Washer (Φ 3 Φ 15.0-5)	4
136	KA-72-055	Washer (Φ 3 Φ 8.0-6)	2
137	KA-72-055	Thrust bearing(75-10M)	2
138	KA-72-055	Washer (Φ 7 Φ 9-8 0-5)	2
139	KA-72-055	Hex socket cap screw (M3*20)	2
140	KA-72-055	Tail roller holder	2
141	KA-72-055	Tail roller T type holder	1
142	KA-55-053	Pin (Φ 2*9)	2
143	KA-55-053	Ball link for tail holder	2
144	KA-55-053	E-tring	4
145		CF Tail blade	1
146	KA-55-053	T type arm	1
147	KA-55-053	Bearing (Φ 7 Φ 11*3)	2
148	KA-55-053	Tail push bearing mount	1
149	KA-55-053	Aluminum sleeve (Φ 7 Φ 8*2-6)	1
150	KA-55-053	Tail push bearing	1
151	KA-55-073	Tail shaft locking collers ring	1
152	KA-55-032	Back-end drive spiral bevel gear 15T	1
153	KA-55-015	Tail shaft	1
154	KA-55-032	Pin (Φ 2 5*12)	1
155	KA-55-031	Tail shaft spiral bevel gear 16T	1
156	KA-55-052	Bearing (Φ 5 Φ 14*5)	2
157	KA-55-052	Tail gear box	1
158	KA-55-050	Linkage ball C	5
159	KA-72-015	Back-end universal joint drive shaft	1

35. PARTS LIST 1

Main rotor head KA-55-001  1 x Main rotor head	Main rotor holder grips KA-55-002  2 x Rotor holder 4 x Bearing Ø8xØ16x5mm 2 x Washers Ø12xØ15.8x0.5mm 4 x PVC washers Ø4xØ20x0.5mm 2 x Socket head screw M4x30mm 2 x Lock nut M4 2 x HF8-16M Thrust bearing	Main Rotor head block Housing KA-55-003  1 x Main Rotor Housing 2 x Washers Ø8xØ12x1mm 2 x Washers Ø8.5xØ13x2mm 2 x Rubber ring (dampers) Ø7.9xØ13x6.5mm 1 x Socket head screw M4x20mm 1 x Locking nut M4	Main rotor holder arm KA-55-004  2 x Rotor holder arm 2 x Socket head screw M3x6mm 2 x Socket head screw M3x14mm
Pitch connecting arm KA-55-005  2 x Pitch connecting arm 2 x Socket head screw M3x16mm 2 x Socket head screw M2.5x12mm 4 x Bearing Ø3xØ6x2.5mm 4 x Bearing Ø2.5xØ6x2.5mm 2 x Double-headed screw 2 x Ball link	Complete Swashplate KA-55-007  1 x Swashplate (complete)	Main shaft upper bearing block mount KA-55-009  1 x Upper Bearing mount 4 x Socket head screw M2.5x10 1 x Bearing Ø10xØ19x5mm	Main shaft middle bearing mount(main top plate) KA-55-010  1 x Middle Bearing mount 4 x Socket head screw M2.5x10 6 x Socket head screw M3x8 2 x Socket head screw M3x10 2 x Aluminum spacer 1 x Bearing Ø10xØ19x5mm
Main shaft under bearing block(bottom plate) KA-55-011  1 x Under Bearing Block 4 x Cup head socket head screw M3x8 2 x Bearing Ø10xØ19x5mm	Main Shaft Bearing Block pillar (main block spacers) KA-55-012  3 x Bearing Block pillar 3 x Socket head screw M4X52mm	Main Shaft KA-55-013  2 x Main Shaft	Feathering shaft (spindle) KA-55-014  2 x Feathering shaft 4 x Washers Ø5xØ13x1.2mm 4 x Cup head socket head screw M5X12mm
Tail shaft KA-55-015  2 x Tail shaft	Main Shaft spacing ring (locking collers set) KA-55-016  2 x Spacing ring collers 4 x Set screws M5X5mm	Feathering shaft dampers KA-55-017  4 x Dampers	Upper motor block KA-72-018  1 x Upper motor block 2 x Aluminum spacer 2 x Cup head socket head screw M4x10mm 2 x Cup head socket head screw M4x8mm
Shaft sleeve KA-55-019  1 x under motor block 1 x imported plane bearing Ø12xØ15.8x0.5mm 2 x Cup head socket head screw M4x20mm	Synchronous main motor belt KA-55-021  1 x Synchronous belt GATES-213-3M 14mm	One-way clutch KA-55-022  1 x Overrunning clutch mount 4 x Socket head screw M3X8 1 x One-way clutch Ø18xØ35x16mm	Motor pinion gear 20T KA-55-023  1 x Motor gear 2 x Set screws M4X4mm
Motor pinion gear 21T KA-55-024  1 x Motor gear 2 x Set screws M4X4mm	First reduction gear 45T KA-55-026  1 x Reduction gear 1 x Socket head screw M4X25 1 x Lock nut M4	Second reduction gear KA-55-027  1 x stainless steel gear 1 x Socket head screw M4X25 1 x lock nut M4	Main gear 56T KA-55-028  1 x Main gear POM-G15

36.PARTS LIST 2

Front spiral bevel gear 58T KA-55-029  1 x Spiral bevel gear POM-G15	Front drive spiral bevel gear 15T KA-55-030  1 x Drive spiral bevel gear 1 x Set screws M4X4	Back-end drive spiral bevel (metal rear gear)16T KA-55-031  1 x Drive spiral bevel gear 2 x Set screws M4X4	Tail shaft spiral bevel gear (umbrella gear) 16T KA-55-032  1 x Tail gear 1 x pin M3X12
CF Right side plate (r/h side main frame) KA-55-033  1 x CF Right side plate (r/h side main frame)	CF Left side plate (l/h side main frame) KA-55-034  1 x CF Left side plate (l/h side main frame)	CF Front electronic board KA-55-035  1 x CF Front electronic board	CF front interval plate board KA-55-036  1 x CF front interval palte
CF Bottom plate KA-55-037  1 x CF Bottom plate	CF Back-end electronic board KA-55-038  1 x Back-end electronic board	Tail boom mount KA-55-040  2 x Tail boom mount	CF Vertical stabilizer KA-55-041  1 x CF Vertical stabilizer
Tail boom Double-headed screw KA-72-042  8 x Nylon lock nuts M3 8 x Tail boom mount aluminum gasket 4 x Doubled-headed screw rod	Aluminum landing hear pipe KA-55-043  2 x Aluminum landing hear pipe 4 x Plastic rubber ring	Landing gear KA-55-044  4 x Landing gear 6 x Socket head screw M3X10 4 x Round head socket head screw M3X6 2 x Tail drive shaft pin 03x12mm 4 x Set screws M3X3	Landing gear mount KA-72-045  2 x Landing gear mount 6 x Cup head socket head screw M3x8mm 6 x Cup head socket head screw M3x14mm
Front drive shaft mount KA-72-046  4 x Cup head socket head screw M3x8mm 1 x Plane bearing 05x010x4mm 1 x Gear bearing mount	Middle drive shaft mount KA-55-047  1 x drive shaft mount 2 x Bearing 06x013x5mm 2 x Socket head screw M3X14	Drive shaft (torque tube) KA-55-048  1 x Drive shaft(toque tube) 2 x Tail drive bearing mount 2 x Tail drive shaft pin 03x12mm	Drive shaft damping KA-55-049  2 x Surface bearings 08x14x4mm 2 x Rubber ring 2 x Tail drive bearing mount
Back-end universal joint drive shaft KA-55-050  1 x Back-end universal joint drive shaft 1 x Joint 03x12mm	Front universal joint drive shaft KA-55-051  1 x Tail drive shaft bolt 03x12mm 1 x Front universal joint for tail drive shaft	Tail gear box KA-55-052  1 x Tail gear box 2 x Flange bearing 05x014x5mm 2 x Bearing 08x016x5mm 4 x Round head socket head screw M2X4mm 2 x Socket head screw M3X8mm	Tail pitch slider KA-55-053  1 x Tail pitch Slider 2 x Round head socket head screw M2.5X6mm

37.PARTS LIST 3

Tail pitch assembly KA-55-054  2 x Flange bearing Ø6xØ15x5mm 6 x Round head socket head screw M2.5X6mm 2 x Round head socket head screw M2X6mm	Tail rotor holder KA-72-055  2 x Thrust bearing (F5-10M) 1 x Tail rotor hub (outer-teethed) 2 x Tail rotor holder 4 x Washers for Tail rotor holder(PVC) 2 x Short ball head Ø5.0x10mm-M3 4 x Surface bearings Ø5XØ10X4mm 2 x Cup head socket head half tooth screw M3x20mm 1 x Grub screw M4x4mm 4 x Nylon nuts M3 2 x Iron washers Ø3x8X0.6mm	Tail rotor hub KA-72-056  2 x Grub screw M4x4mm 4 x Nylon nuts M3 4 x Iron washers Ø3x8X0.6mm 2 x Tail rotor hub	CF Tail boom support KA-55-057  2 x Grub screw M3x14mm 2 x Grub screw M3x8mm 2 x CF rudder control rod 4 x Tail boom connector
CF Rudder control rod KA-55-058  2 x CF rudder control rod 4 x Metal head of rudder control rod 4 x Ball link Ø6.0	Frame connecting bolt KA-55-060  1 x Frame connecting bolt 5 x Battery plate connecting bolt 2 x ESC fixing bolt 2 x Grub screw M3x12mm 6 x Cup head socket head screw M3x8mm	Swashplate Anti-rotation bracket KA-72-061  1 x Swashplate Anti-rotation bracket 2 x Cup head socket head machining screws M2x6mm	canopy mounting bolt KA-72-062  2 x behind canopy mounting bolt 2 x Canopy mounting bolt 2 x Front canopy damping 2 x Aluminium sleeve for case bolts 2 x grub screw M3x12mm 4 x retainer ring 2 x cup head socket head screw M3x14mm
Linkage rod set KA-55-063  1 x Linkage rod (56mm) 2 x Linkage rod (38mm) 2 x Linkage rod (44mm)	Linkage ball set KA-55-064  1 x Cross plate guide post 2 x Intermediate linkage ball Ø5.0 8 x Short ball head Ø5.0 M3 5 x Short ball head Ø5.0 M2	Ball link set KA-55-065  2 x Linkage Ball 2 x Linkage Ball Ø5.0 12 x Linkage Ball Ø5.0	Servo mount metal spacers KA-72-066  4 x Cup head socket head half tooth screw M3x16mm 2 x Servo mount metal spacers 2 x Servo cover plate
Gear hub KA-55-067  1 x Gear coupleaxle 6 x Sink head Phillips machining screws M3x6mm 1 x Cup head socket head half tooth screw M4x20mm 1 x Nylon nuts M4	Vertical stabilizer mount KA-55-068  1 x Vertical stabilizer mount 2 x Socket head screws M3X8mm 1 x Socket head screws M3X6mm 3 x Socket head screws M3X12mm 2 x Aluminum spacer	Tail boom brace mount KA-55-069  1 x Tail boom brace mount 2 x Conical washers 3 x Cup head socket head screw M3x8mm	CF Tail boom KA-55-070  1 x CF Tail boom Ø23.5xØ25x675mm
Tail boom brace mounting ring KA-55-071  2 x Tail boom brace mounting ring 2 x Nylon nuts M2 2 x Cup head socket head screw M2x10mm	CF Tail pitch connecting piece KA-72-072  2 x Hexnuts M2 2 x CF tail pitch connecting piece 2 x Umbrella head socket head machining screws M2x6mm 2 x Short linkage ball	Tail shaft locking collers ring KA-55-073  2 x Tail shaft locking collers ring 4 x Grub screw M3x3mm	Conical washers KA-72-074  10 x Conical washers
Battery straps KA-55-075  Battery straps x2	Washers set KA-55-076  1 x Washers set	Screws set KA-55-077  1 x Screws set	Canopy KA-55-078  1 x Canopy 4 x Canopy rubber ring

38.PARTS LIST 4

Thrust bearings
KA-55-079



2 x Thrust bearings F5-10M

Thrust bearings
KA-55-080



2 x Thrust bearings F8-16M

Flange bearings
KA-72-081



2 x Flange bearings Ø2.5xØ6x2.6mm

Flange bearings
KA-55-082



2 x Flange bearings Ø7xØ11x3.0mm

Flange bearings
KA-72-083



2 x Flange bearings Ø5xØ14x5mm

Surface bearings
KA-72-085



2 x Surface bearings Ø5xØ10x4mm

Surface bearings
KA-72-086



2 x Surface bearings Ø6xØ13x6mm

Surface bearings
KA-55-087



2 x Surface bearings Ø8xØ16x5mm

Surface bearings
KA-72-088



2 x Surface bearings Ø10xØ19x5mm

Surface bearings
KA-55-089



2 x Surface bearings Ø3xØ6x2.5mm

Surface bearings
KA-55-090



2 x Surface bearings Ø8xØ14x4mm

Surface bearings
KA-72-091



2 x Surface bearings Ø30xØ37x4mm

Surface bearings
KA-55-092



2 x Surface bearings Ø9xØ20x6mm

Brushless motor
BL4020-1100KV



1 x Brushless motor

CF Tail blade
KA-55-094



2 x CF Tail blade

CF Main blade
1193-10



2 x CF Main blade

AGILE competition grade
1193-10



1 x AGILE 5000MAH 6S 50C

Regular maintenance is required to keep the KDS AGILE 5.5 helicopter in optimal and safe flying condition. The model requires precise configuration of the components and settings to be kept by the owner. Maintain regular maintenance on the model to avoid accidents or loss, and optimum performance.

MAIN ROTOR CHECKLIST

- 1.Main Rotor Housing: when the main rotor housing is worn or faulty, there will be obvious vibration and poor flight control. Check the main rotor, main shaft, and feathering shaft for wear or deformity. Replace parts as necessary to eliminate imbalance.
- 2.O-Rings:The O-Rings will lose their elasticity over time. This will cause excess play on rotor and cause instability. Replace them as needed.
- 3.Main Rotor Holder: When the helicopter dose not fly or reacts sluggishly, even after checking for proper setting of pitch and throttle, check the following items: Plastic parts, Bearings, Ball bearings, Rotor Blades.
Check for excess play or broken parts, or binding or restricted movement. It is important to check for main rotor balance before each flight. Operating the model when out of balance will cause excessive wear and premature failure of parts, possibly resulting in a dangerous situation.
- 4.Control Arm Assembly: Check regularly for cracked, worn, bent or binding control arms and pushrods. Smooth morement of control arms and linkages is required for stable, vibration free flight.
- 5.Swashplate:Check for excess slop in the main ball where the main shaft rides on, and slop or looseness between the plastic and metal surfaces. Swashplate wear will result in poor stability and lack of control during flight. Replace them as necessary.

FUSELAGE/CHASSIS

- 1.Main Shaft Bearing: Normal replacement interval for proper operation is between 60-100 flights. If flying 3D or extreme aerobatics often, inspect the bearing more frequently and shorten the interval as necessary.
- 2.One-way Bearing: One-way bearings have longer lifetimes. Failure is not common. To keep the one-way bearing in good operation, remove it to clean and lubricate after every 50 flights. If the main drive gear is loose, you should replace the one-way bearing.
- 3.Drive Belt: Agile and KDS uses only top quality, stretch-proof belts. It is however, impossible to prevent the belt from stretching or wearing out. Check belt tension regularly, and check for the wear on the teeth. Replace it as necessary.

LINKAGE RODS&CONNECTING PARTS

During assembly, take special care to keep the connecting parts in smooth operation, and avoid excess play or binding. Failure to do so will result in poor flight stability. The linkage rods and ends will break and wear due to normal usage, crashing, and poor maintenance and environment. Check for wear and proper operation regularly,replace them as needed.

TAIL ROTOR SYSTEM

- 1.Tail Rotor Control Set: Check the tail rotor bearing regularly. If there is excess play or gaps, replace it immediately. Avoid any binding or improper contact on the tail components and bearings as this will cause excess wear and heat, potentially melting or deforming the tail system.
- 2.Tail Unit Assembly: Avoid flying in tall grass or weeds. If grass or weed becomes lodged in the tail rotor unit, it will interfere with the operation, and cause the helicopter to lose control. Always check for foreign objects in the tail and clean them off immediately. Avoid using lubricants on the exposed surfaces of the model as it will attract and collect dirt and debris, and cause failure.
- 3.Tail Rotor Housing: Disassemble tail totor housing for cleaning and maintenance after every 50 flights. If the tail does not operate smoothly or shows any signs of stress or wear, please replace immediately.
- 4.Tail Rotor: Check the tail rotor blades regularly for damage, especitlly if the helicopter ever strikes the ground while flying, or after hard landings. Damaged tail rotor blades can induce vibration.



... it's time to fly different!!!

