

HIROBO



Instruction Manual

取扱説明書

Shuttle SC EADU

シャトル スカディ

■ 組立前に必ずこの説明書を最後まで、よくお読みになり、正しくお使い下さい。特に、「安全のために必ずお守り下さい」は、飛行前に必ず読んで下さい。

■ 書は、大切にお手元に保管して下さい。

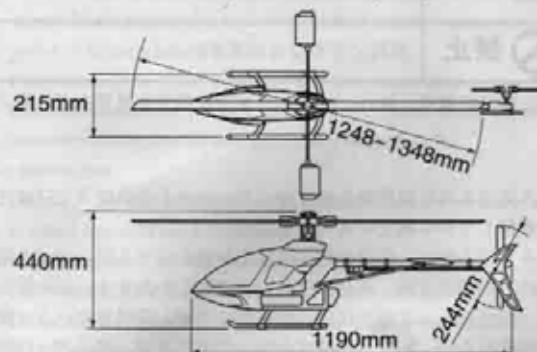
※ 製品改良のため、予告なく仕様を変更する場合があります。

■ Before assembly, make sure to completely read this instruction manual. In particular, make sure to read the "Follow these rules to ensure safety" section before operating the unit.

■ Keep this instruction manual in a handy, safe place.

※ In order to make improvements to this product, specifications may be altered without prior notice.

主要諸元	Main features	/ 30 クラスエンジン	9.66 : 1 : 4.65
ギヤ比	Gear ratio	30 class engine	
		50 クラスエンジン	8.7 : 1 : 4.65
		50 class engine	
無線機	Radio control device	ヘリ用プロボセット (別売) Programmable transmitter set for model helicopters (sold separately)	
適合エンジン	Compatible engine	/ 32~50クラス (別売) 32~50 class engine (Not included)	



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MADE IN JAPAN

No.10829

Table of Contents

1. Read before assembly	i
2. Assembly	11
3. Flight training	44
4. Maintenance	54
5. Repair parts	58




1. Read before assembly

For safety reasons, observe the following precautions before assembly.

We would like to express our sincerest thanks for purchasing a Hirobo product. For safe usage of this product, please carefully read this instruction manual prior to flight. We would also like to ask you to familiarize yourself with the flight precautions, the unit's capabilities, and the best way to fly it while observing the safety rules and manners.

The meaning of symbols and signal words.

Explains the meaning of symbols and signal words indicated at the head of cautionary notes. Even comments marked with **CAUTION** may result in serious harm depending on the circumstances.

 WARNING	Mishandling due to failure to follow these instructions may result in severe injury or death.
 CAUTION	Mishandling due to failure to follow these instructions may result in serious harm.
 FORBIDDEN	Do not attempt under any circumstances.

(NOTE): Implies important information regarding this product's assembly, operation, or maintenance.

- Before assembly, read the instruction manual thoroughly familiarizing yourself with the unit's structure and assembly procedures.
- Before assembly, check the quantity of parts and their descriptions. After the packaging has been opened, parts cannot be exchanged or returned. In the event of any missing or defective parts, have the store of purchase stamp your user's card and send it with the name and description of the part(s) to Hirobo's Sales Department.

Before starting the engine

- Clear as much debris from the airfield as possible.
 - Clear away pebbles, glass, nails, wire, rope, floating objects, or other trash from the airfield.
- Consider the circumstances of the surrounding area.
 - Do not fly in strong winds, rain, or at night.
 - Do not fly in a crowded area.
 - Do not fly near homes, schools, or hospitals.
 - Do not fly near roads, railways, or power lines.
 - Do not fly near another radio controlled unit that uses the same frequency.
- This unit must not be operated by:
 - Children.
 - Menstruating or pregnant women.
 - Tired, sick, or inebriated individuals.
 - Individuals under the influence of drugs or for some other reason incapable of operating the unit normally.
 - Beginners or individuals operating a borrowed unit should proceed only after having received safety instructions from someone familiar with the model.
- Do not use the unit improperly.
 - Do not perform any remodeling or configuration unsuitable for the unit's functions.
 - Make sure to use within the range of the limitations indicated for the unit.
 - Do not use for aerial photography or crop dusting.
- Wear appropriate clothing.
 - Wear a long-sleeve top and trousers.
 - Do not wear jewelry or object that may get easily entangled.
 - Long hair should be bound to shoulder length.
 - Shoes should be worn for solid footing.
 - Wear gloves should it become necessary to touch hot components.
- Put away screwdrivers, wrenches, or other tools.
 - Before starting the engine, check that any tools used in the assembly, installation, or maintenance of the unit have been put away.
- Inspect each part.
 - Before starting the engine, check for any damaged parts and make sure that the unit operates normally with all its functions in order.
 - Adjust the positioning of moveable parts and check that all bolts and nuts are fastened, that there are no damaged or improperly installed parts, and that there are no abnormalities that would adversely affect the flight of the unit.
 - Check that the power supply voltage (charge of the batteries) in the remote control is sufficient.
 - The exchange or repair of damaged parts should be performed according to the instruction manual. In the event that the desired operation is not indicated in the manual, have it performed at the store of purchase or at the engineering services section of Hirobo's Sales Department.
 - Before starting the engine, make sure that there are no loose screws, that all specified locations are properly lubricated with grease or oil, and that the transmitter and receiver batteries are properly charged.
- Use genuine parts.
 - Do not use parts other those shown in this instruction manual or in Hirobo catalogs to reduce the risk of accidents or injury.
- Leaving the engine off, practice how to operate each part.
 - Before starting the engine, practice how to operate each part.
 - Do not start the engine before having acquired sufficient handling skill.
 - Do not start the engine in the event that any abnormalities are noticed in the movement of the mechanisms.



WARNING

FUEL

1. Only use GLOW fuel for model engines.
 - Gasoline or kerosene may not be used.
 - GLOW fuel is highly volatile and flammable. Handle with care.
 - Use properly in accordance to the engine type of this unit. (ABC or ring fitted)
2. If the engine uses gasoline, make sure to use a 1:25 mixture of 2-cycle engine oil and gasoline.
3. Stop the engine and let it cool down sufficiently before refueling.
4. Do not refuel near a naked flame and especially not while smoking.
 - Refuel in a way as to prevent spilling and make sure to wipe up any spilled fuel.
 - Because fuel vapors and exhaust gas are hazardous, make sure to handle the fuel outdoors.
 - To reduce the risk of explosions, do not incinerate empty fuel cans.
5. It is harmful to drink the fuel or get it in the eyes.
 - In the event of an accident, induce vomiting or thoroughly wash out the eyes and see a doctor immediately.
6. After refueling, start the engine in an area 3m or more away from where the refueling took place.
7. Fasten the cap on the fuel can tightly and keep in a cool, dark place out of the reach of children.

While in flight

1. Do not operate in an awkward posture.
 - Do not operate seated or lying down.
 - Because slopes are slippery, exercise caution so as to not lose your footing.
2. Stop the engine in the following situations:
 - When adjusting the unit's body or the transmitter.
 - When replacing accessories or parts.
 - When the body of the unit is out of alignment or when abnormal noises or vibrations occur.
 - Whenever some kind of danger is anticipated.
3. Exercise the following precautions when starting the engine.
 - Check that there are no people, animals, or obstructions in the surrounding area.
 - Hold the unit securely in a stationary position.
 - Check that the position of the transmitter's throttle stick and the engine carburetor are at their lowest positions (idling).
4. To reduce the risk of injury, do not insert hands or objects in rotating parts.
5. Enjoy the flight's operation while observing safety rules and manners.
 - Fatigue brought upon by continuous operation for long periods at a time may result in impaired judgment or accidents. Be sure to take sufficient rests.
 - When operating, do not get too close to the unit.
 - Operate the unit within the limits of your ability. Operating the unit improperly increases the risk of accidents or injury.
6. The engine and muffler become very hot after starting the engine and remain hot immediately after shut down. To prevent burns, do not touch the engine or muffler.



警告 WARNING

After a flight

1. Conduct a thorough inspection.
 - Immediately inspect each part and retighten or replace any screws that may have become loose or fallen out.
 - Wipe away any oil, dirt, or water.
 - If storing for an extended period of time, completely remove the fuel from the tank and carburetor.
 - Lubricate or replace parts according to the instruction manual.
2. Store the unit properly.
 - Store in a dry place out of the reach of children.
3. Inquire about repairs at the store of purchase or at the engineering services section of Hirobo's Sales Department.
 - Individuals lacking proper knowledge or tools necessary for repairs may not only impair the performance of the unit but may also increase the risk of accidents or injury.
 - Turn off the engine before performing any repairs or adjustments.
 - Repair all damaged parts before storage. Make sure to use only designated, genuine parts.
 - Do not perform any remodeling or reconfiguration of the unit's body or peripheral equipment. Doing so may impair the unit's performance.
 - When storing or transporting the unit, secure it firmly so as to prevent fuel loss, damage, or injury.

Noise

When in flight, be sure have the muffler (silencer) attached to the unit in order to avoid disturbing people in the surrounding area.

For safe handling of the radio controlled helicopter

In addition to the standard precautions previously mentioned regarding radio controlled engines, please observe also the following precautionary items specific to helicopters.



WARNING

For real, actual-size aircraft, strict pre-flight inspections are mandatory. The radio controlled helicopter when in flight is essentially no different from a real aircraft even though it is small and can be flown easily. It may be a great nuisance to others and, should it strike a person or vehicle, may cause severe injury or damage.

The operator of a radio controlled unit may be held liable for accidents occurring during flight. For this reason, inquire about special insurance that may be taken out for radio controlled devices at the store of purchase.

Make sure to inspect the unit thoroughly before flight or in the case of any abnormality. If the rotor blades should strike the ground during flight, there may be tiny cracks or loosening in various places even though there may not be any visible damage. If flown in this condition, the cracks may enlarge and cause severe accidents such as the weight flying off from the rotor's interior or the rotor itself, which spins at a speed of 1200-2000 rpm, may fly off from the blade holder.

If in doubt about the condition of any part, replace it immediately using only genuine parts.

Pre-flight inspection

1. Beginners should receive safety and technical guidance from a capable individual. Teaching yourself is extremely dangerous.
2. Check that there are no missing or loose nuts or bolts.
3. Check that there is no rattle or loosening in the linkage rods or adjusters.
4. Check that there are no loose bolts in the engine mount.
5. Carefully check that the rotor blades are not damaged or cracked especially in the vicinity of the blade holder.
6. Check that the rotor blade weight is safely fastened.
7. Check that the batteries for the transmitter, receiver, starter, and the plug heat are sufficiently charged.
8. Check the condition of the fuel and fuel line. Bent tubes, clogged filters, and especially old fuel may not only render the engine difficult to start but may also cause it to stall mid-flight resulting in crashes.
9. Check the condition of the glow plugs. Old plugs may not only render the engine difficult to start but may also cause it to stall mid-flight resulting in crashes.
10. Check the reach of the radio waves.
11. Check that the servos operate smoothly. Their malfunction may cause a loss of control and increase the risk of danger.
12. Check that the gyro is operating properly and, especially, in the right direction while starting the engine.
13. Check the tension of the tail rotor belt drive.
14. Check that each part of the unit's body is sufficiently lubricated.



WARNING

In-flight safety check

1. Check that there are no objects in the surrounding area that may get entangled or struck by the unit.
2. Check that there are no other operators in the surrounding area using the same frequency and, after turning on first the transmitter and then the receiver consecutively, set the transmitter's throttle stick and trim to their engine start-up positions. Depending on the transmitter unit, the carburetor may not be in its engine start-up position due to the positioning of the idle-up, throttle-hold, or flight-mode switches. Make sure to return them to their start-up positions.
3. When starting the engine, make sure to hold the rotor head firmly by hand so as to not let it rotate.
4. Because the engine and muffler become hot immediately after the engine is started, exercise caution so as to prevent burns.
5. When taking off, the unit should be positioned 15 meters or more away from the operator. Be aware of the conditions of the surrounding area and check that there are no other people nor dangerous obstacles.
6. Just before take-off, adjust the tracking (each rotor's track). Even when checking the tracking, do not get nearer than 5 meters from the unit.
7. In the event that abnormal noises or vibrations should occur, land the unit immediately, stop the engine, and check the cause of the problem.
8. Because operating the unit improperly or recklessly may cause accidents or injury, observe all safety rules and manners and enjoy operating the unit safely and responsibly.

After-flight safety inspection

1. After a flight, immediately inspect each part. Be sure to replace or retighten missing or loose screws and replace any damaged parts.
2. Wipe-up any oil or dirt.
3. If the unit will not be flown for a long period of time, empty the fuel from the tank and carburetor.

Storage area

1. Do not store in an area exposed to direct sunlight nor where temperatures may rise (i.e.: in a car). Instead, store it in a shaded, well ventilated area.
2. Do not store the unit with fuel in its tank.



CAUTION

1. After starting the engine, check if the engine stalls when the transmitter's throttle trim is at its lowest position.
2. When adjusting the engine's low throttle speed while idling, be sure to hold down the rotor head firmly so as to prevent it from rotating. Be careful of exhaust fumes.

Pre-assembly precautions

1. Before assembly, read the instruction manual thoroughly and familiarize yourself with the unit's structure and assembly procedures. Failure to assemble the unit properly may not only result in impaired performance but may also increase the risk of danger.
2. Before assembly, check the quantity of parts and their descriptions. After the packaging has been opened, parts cannot be exchanged or returned. In the event of any missing or defective parts, have the store of purchase stamp your user's card and send it with the name and description of the part(s) to Hirobo's Sales Department.

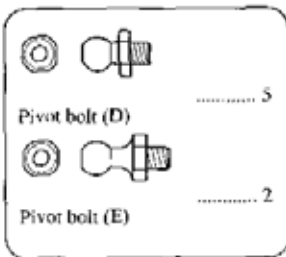
- ① Apply Hobby Tight (thread locking agent) at each location indicated with



- ② In the instruction manual, refer to the column on the left-hand side to check the type and quantity of small parts.

9

Swash plate assembly



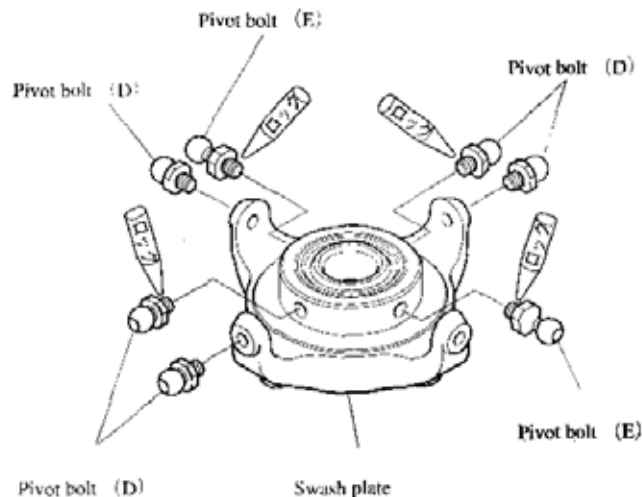
Part name, full-scale illustration, and quantity.

How to differentiate between pivot bolts.



⚠ Caution

If the pivot bolts are difficult to fasten onto the swash plate, use an M3CS screw or other type of screw beforehand to cut in threads which will make fastening easier.



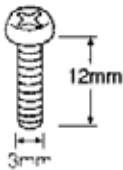
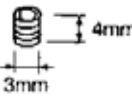

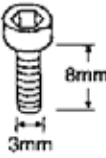
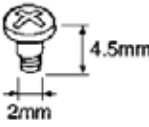
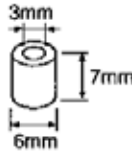



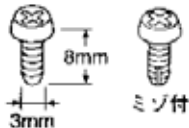

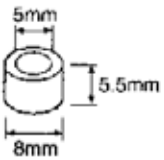
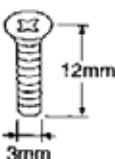
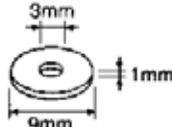

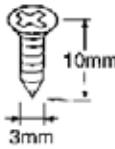
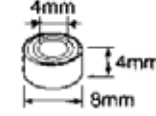
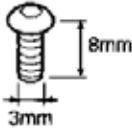
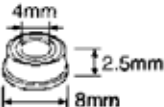
⚠ WARNING

Due to a lack of proper testing, please acknowledge that Hirobo will not take responsibility for accidents resulting from the replacement of parts with those not manufactured by Hirobo or from remodeling the unit.

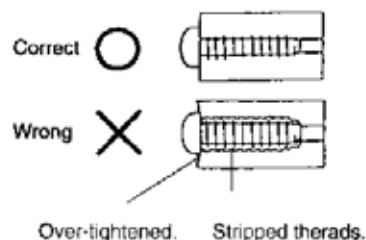
How to read part types and sizes

The symbols shown in this instruction manual as shown as below:

- The unit of measurement is the millimeter. The lengths, etc. shown in the following are indicated in millimeters.

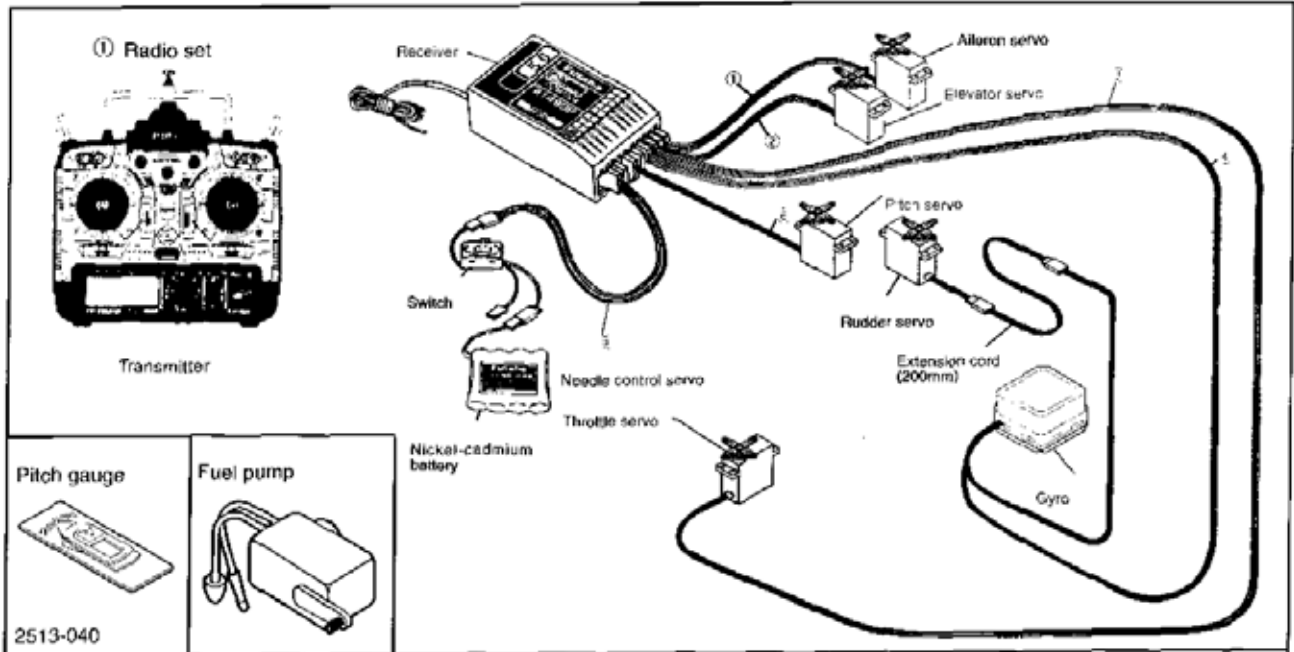
Pan head screw		Set screw		EX ø5Ball	
M3X12PH		M3X4SS		EX ø5Ball	
Cap screw		Shouldered screw		Bushing	
M3X8CS		M2X4.5 Shouldered screw		S3X6X7	
Tapping screw 1		Nut		E-ring	
M3X10TS-1		M3 Nut		ø6 E-ring	
Tapping screw 2		Nylon nut		Collar	
M3X8TS-2		M3 Nylon nut		C ø5Xø8X5.5	
Countersunk screw		Flat washer		Thrust bearing	
M3X12 Flush head screw		FW ø3X9X1T		Brg. ø6Xø12	
Flush head tapping screw		Bearing		Button bolt	
M3X10TS-1 M3X10 Flush head TS-1		Brg. ø4Xø8X2.5F		Button bolt M3X8	

Tapping screws cut threads in the holes of the parts. When screws are difficult to tighten, fasten the screw until the part is properly set. However, do not over-tighten the screw to the point of stripping the threads or warping the part.



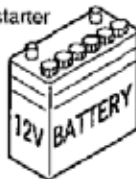
Items necessary for flying the shuttle-SCEADU model not included in this kit (sold separately)

The following items are necessary in order to enjoy the unit's operation. (sold separately)

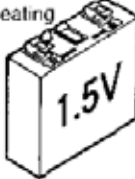


2513-040

12V engine starter battery



Engine plug heating battery



2401-004

Booster cables



HIROBO RC Fuel For Helicopter & Airplane



15% Nitromethan (approx. 20% oil)
2515-200

23% Nitromethan (approx. 20% oil)
2515-201

30% Nitromethan (approx. 20% oil)
2515-202

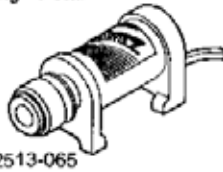
30% Nitromethan F3C Contest
(approx. 10% oil, Low oil specification)
2515-203

Starter shaft



2513-053

Engine starter



2513-065

30-50 class engine

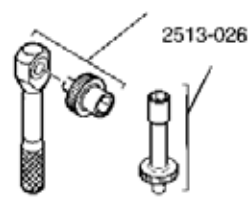


Tools necessary for assembly

<p>Large and small Phillips screw drivers</p>	<p>Long-nose pliers</p>	<p>Cutter knife</p>	<p>Scissors</p> <p>2513-045 2513-046</p>	<p>Pin driver</p> <p>2513-042</p>	<p>Molybden grease</p> <p>2515-127</p>	<p>Cross wrench</p> <p>2513-044</p>
<p>Instant adhesive (ZAP A GAP CA +)</p> <p>Low viscosity 2515-010 High viscosity 2515-011</p>	<p>Z-42 hard type thread locking agent</p> <p>2515-016</p>	<p>Nipper</p>	<p>(Z-POXY) Epoxy-resin</p> <p>5 MINUTE 2515-019 30 MINUTE 2515-020</p>	<p>Rod-end (ball link) driver</p> <p>2513-024</p>	<p>Rod-end (ball link) pliers</p> <p>2513-041 ¥3,500</p>	<p>Allen wrench</p> <p>1.5mm 2513-054 ¥900 2mm 2513-055 ¥900 2.5mm 2513-056 ¥900 3mm 2513-057 ¥900</p>

The peripheral tool which is convenient when there is it.

Plug wrench 2513-025



Fly wheel wrench



2513-035

Blade support



2513-039

R/C mechanical cushion pad



2513-052 /Pink)
2513-062 /Yellow)

Fuel filter



2513-038

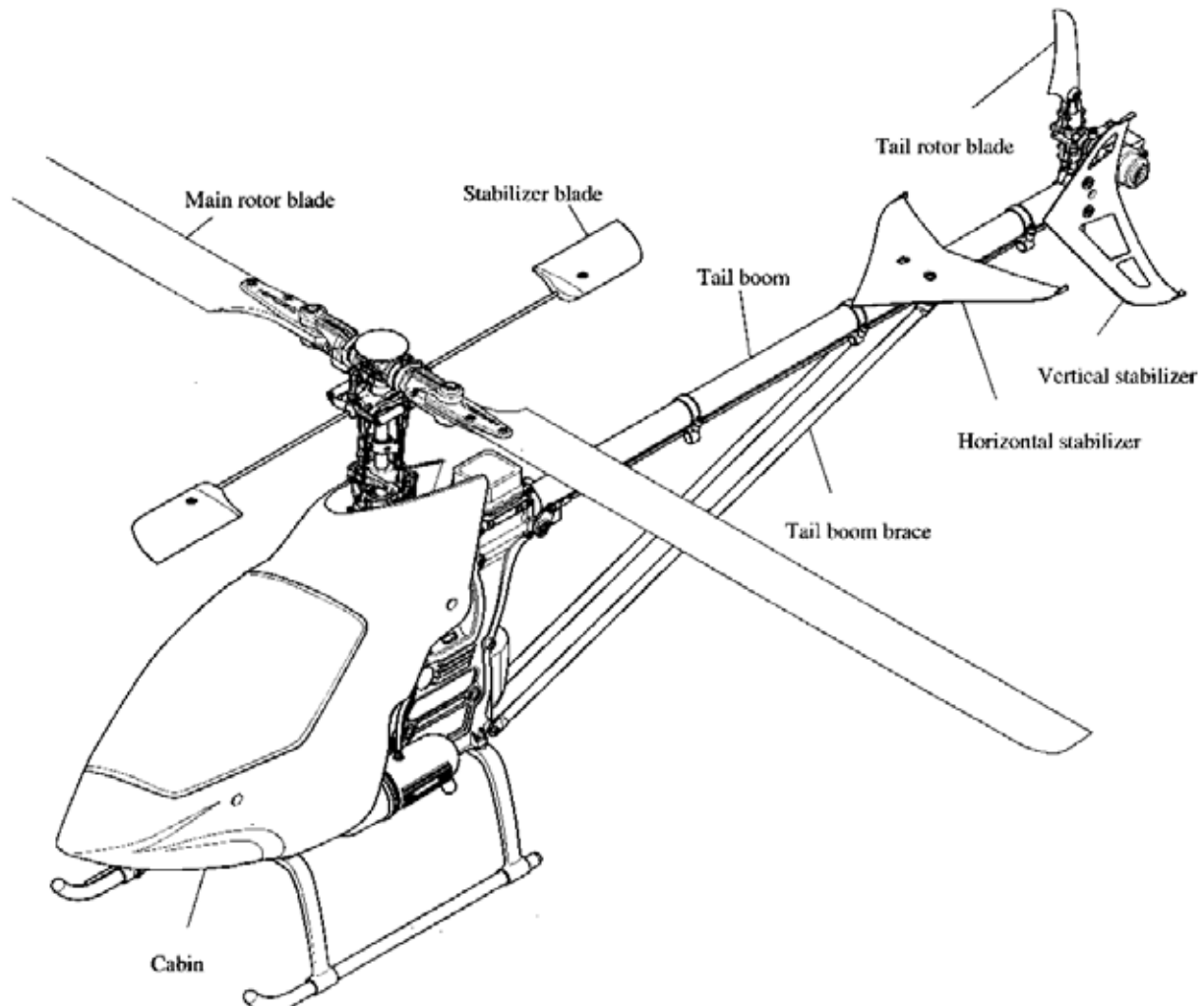
Battery checker



2510-003

Code	Name	Remarks
2515-118	R/C Glaster	A cleaner that includes wax that lets you wash off the dirt and polish all at once.
2515-119	R/C Degreasing Cleaner	Cannot be used inside the glow engine or on silicon components.
2515-120	R/C Alcohol Spray	Can be used inside the glow engine and on silicon components. (Not fit for drinking.)
2515-121	R/C Dust Blower Spray	A strong jet of air that blows away dust in a single shot.
2515-122	R/C Cooling Spray	Cools down to below zero in just a few seconds. Perfect for the quick cooling of overheated engines or nickel-cadmium batteries.
2515-123	R/C Grease Spray	Grease that doesn't drip. Great for vertical surfaces too!
2515-124	R/C Anti-rust Lubricating Spray	Anti-rust lubricant that leaves the surface smooth and not greasy.

Names of each component




2.

Assembly

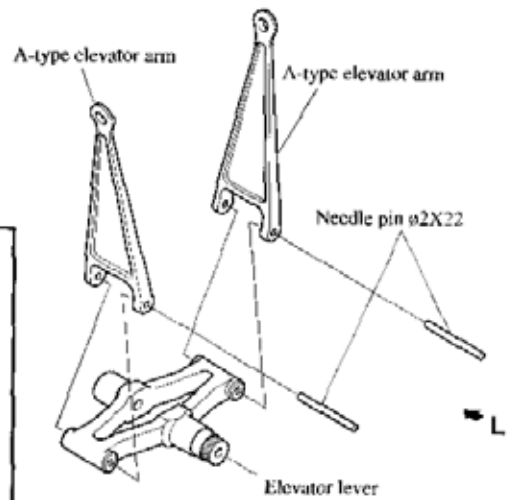
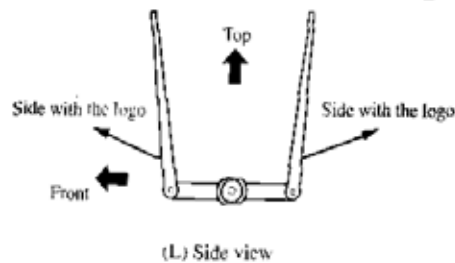
1

Elevator lever assembly

○  $\phi 2 \times 22$ needle pin 2

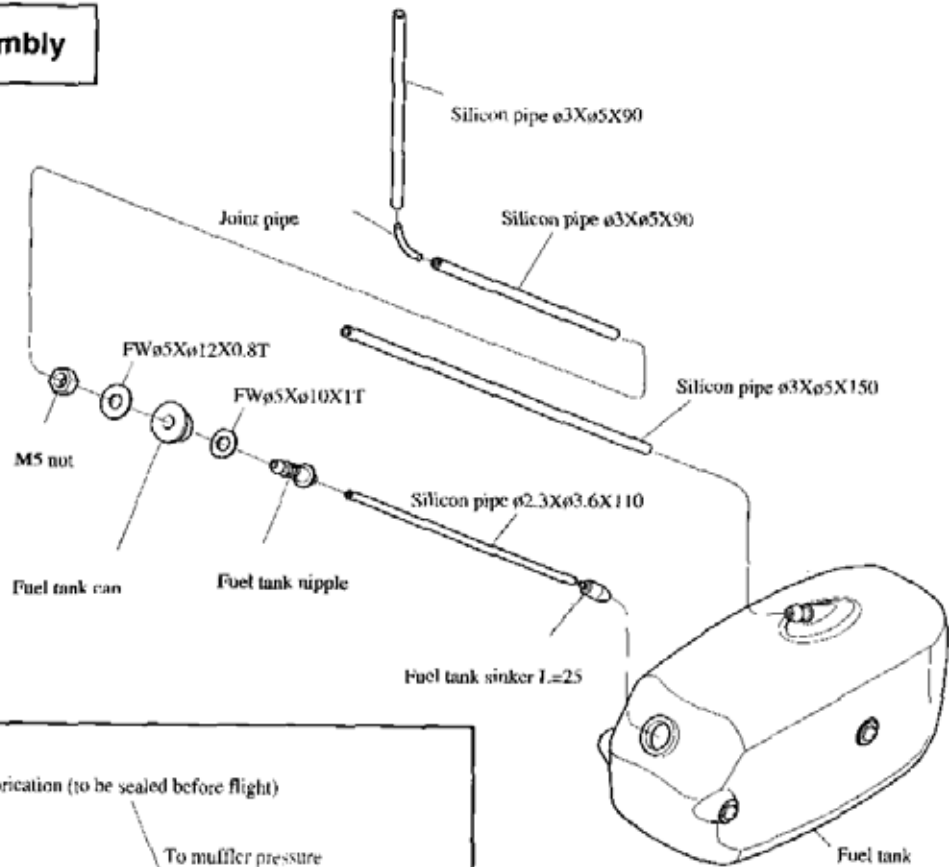
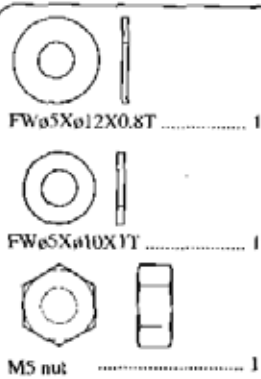
Caution

Note the orientation of the elevator arms. Have the sides with the logo face outward.

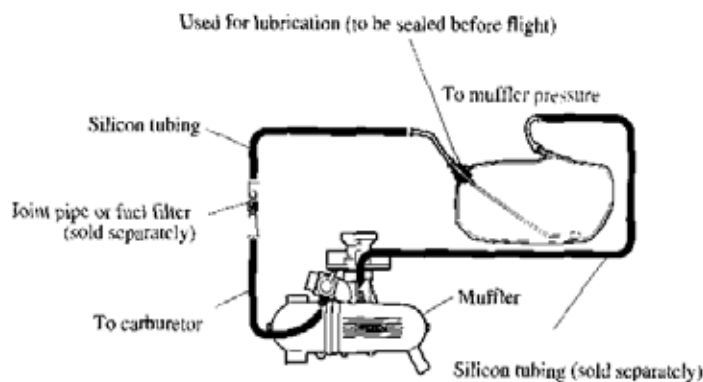


2

Fuel tank assembly



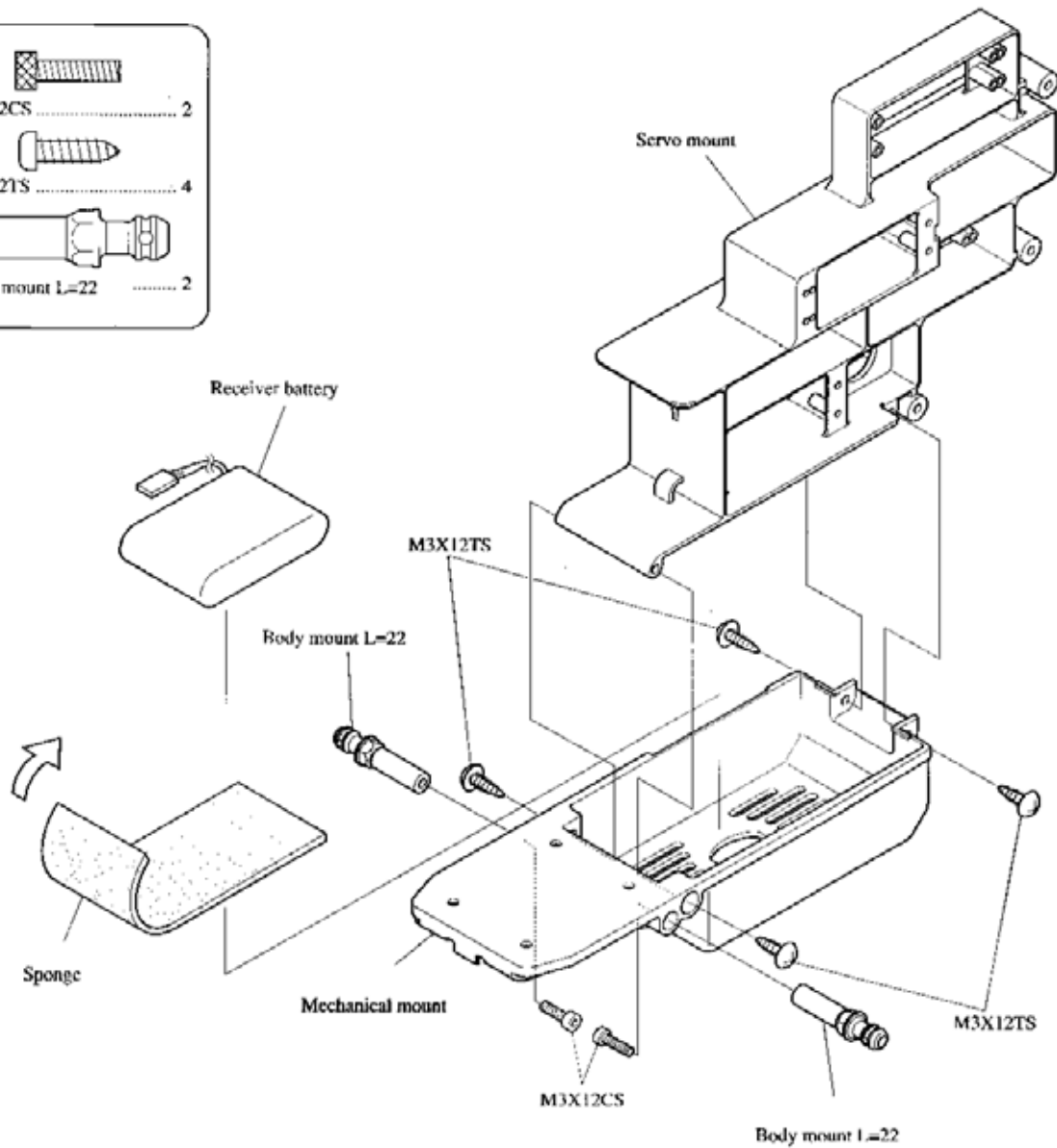
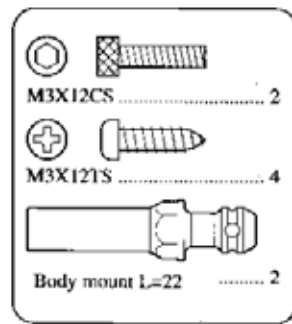
Caution



The piping for the fuel line varies depending on the engine type and whether or not the muffler pressure is used. Carefully read the instructions for each engine.

3

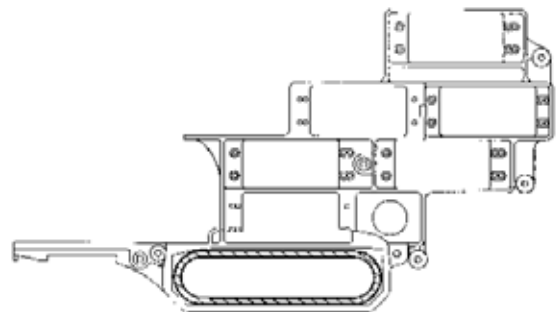
Servo mount assembly



The kit comes with a 50cm sponge. Cut a length of the sponge equal to the size of the battery. Use the rest to isolate vibrations caused by the receiver according to 31.

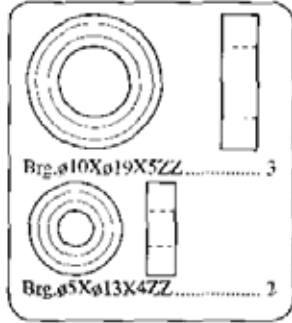
Caution

Completely wrap the sponge around the receiver battery so as to prevent it from moving.

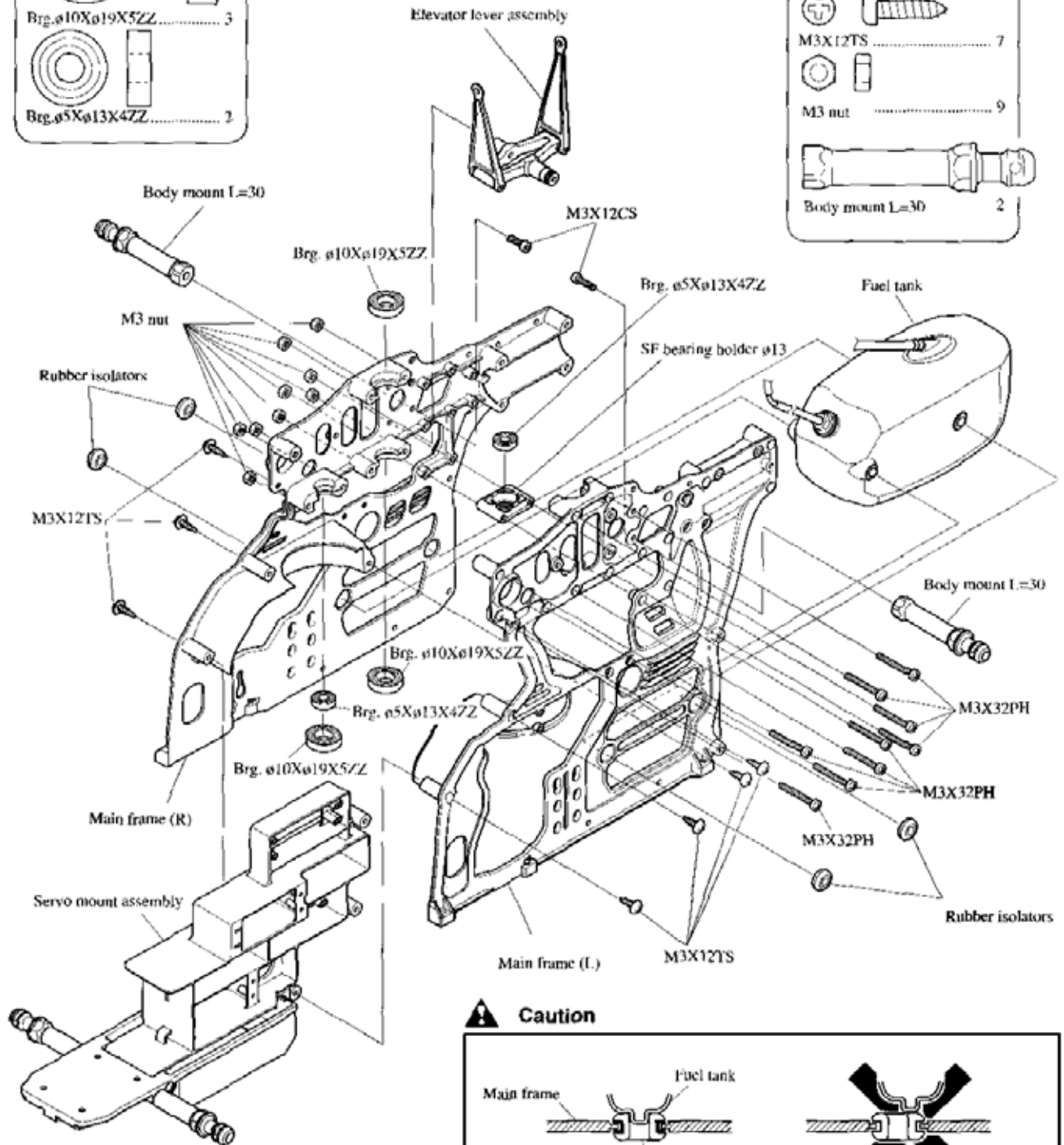


4

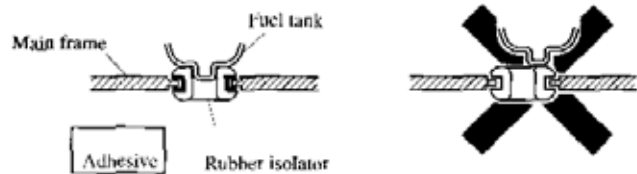
Main frame assembly



	M3X32PH	9
	M3X12CS	2
	M3X12TS	7
	M3 nut	9
	Body mount L=30	2



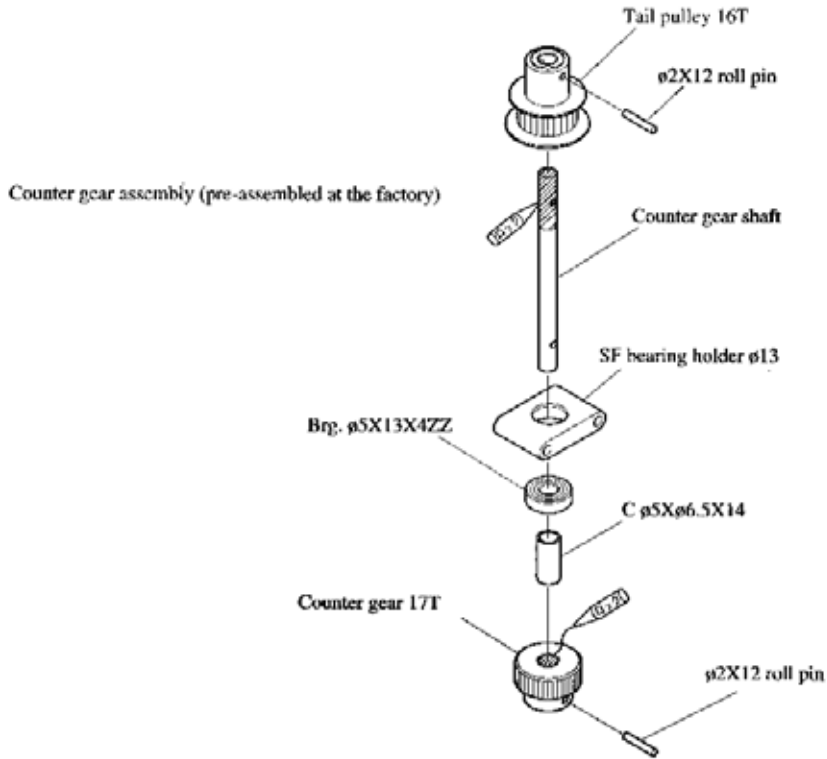
Caution



Connect the female part of the rubber isolator and the male part of the frame together and seal with quick-dry adhesive.
 Insert the male part of the fuel tank in the female part of the rubber isolator.

5

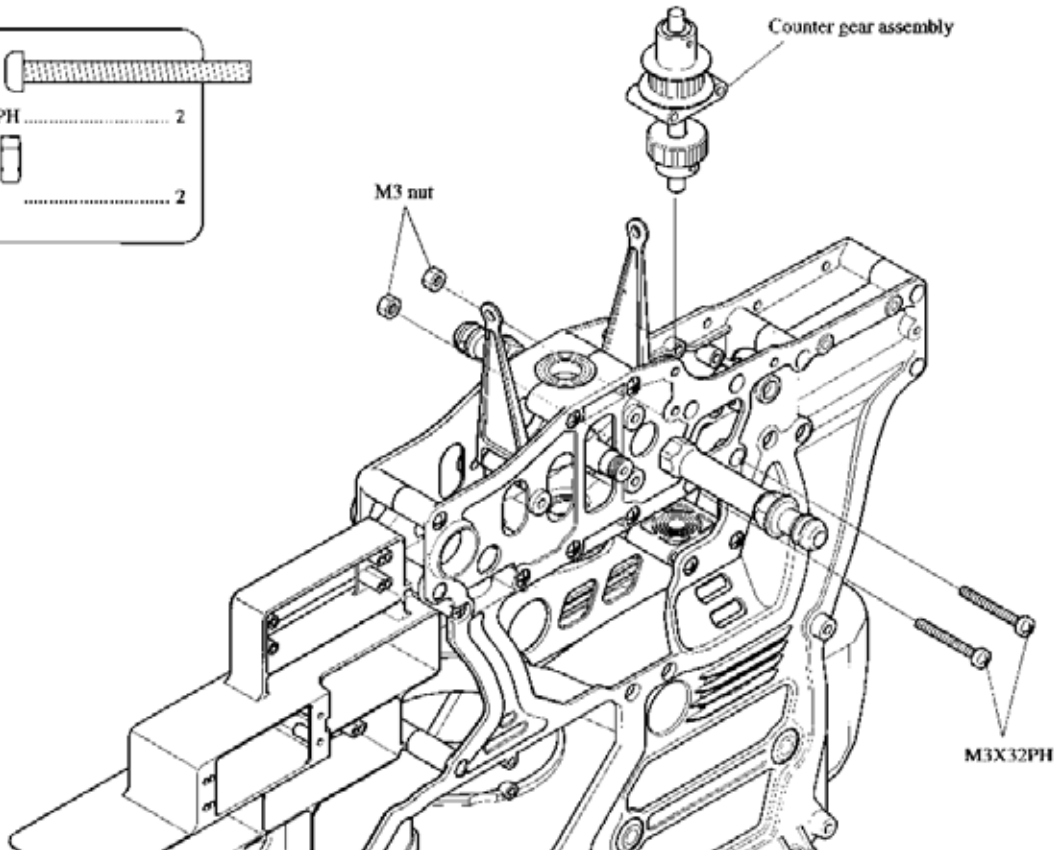
Counter gear assembly



6









Counter gear installation

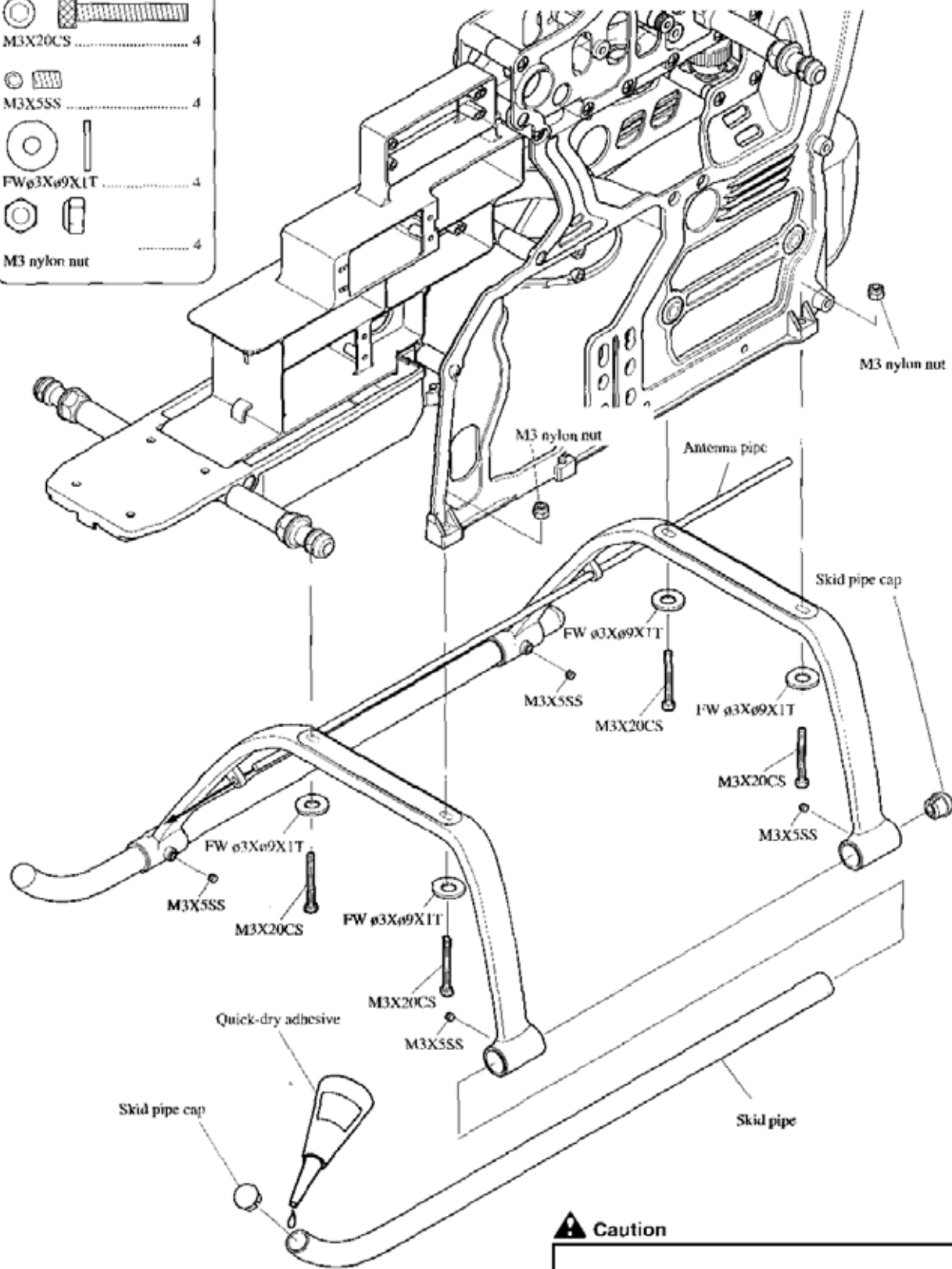
	M3X32PH.....	2
	M3 nut.....	2



7

Landing gear installation

		4
		4
		4
		4


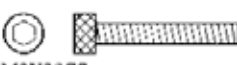


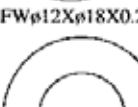



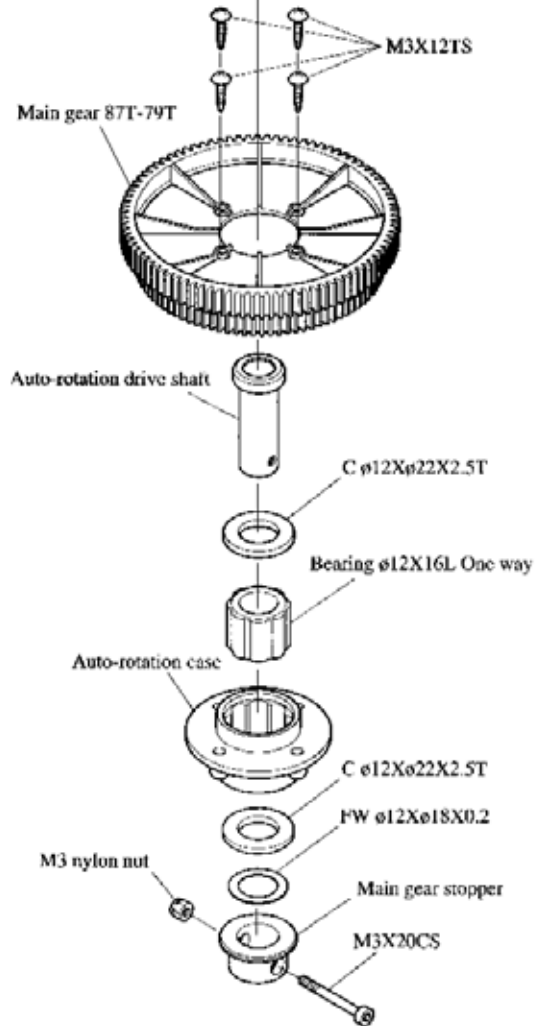
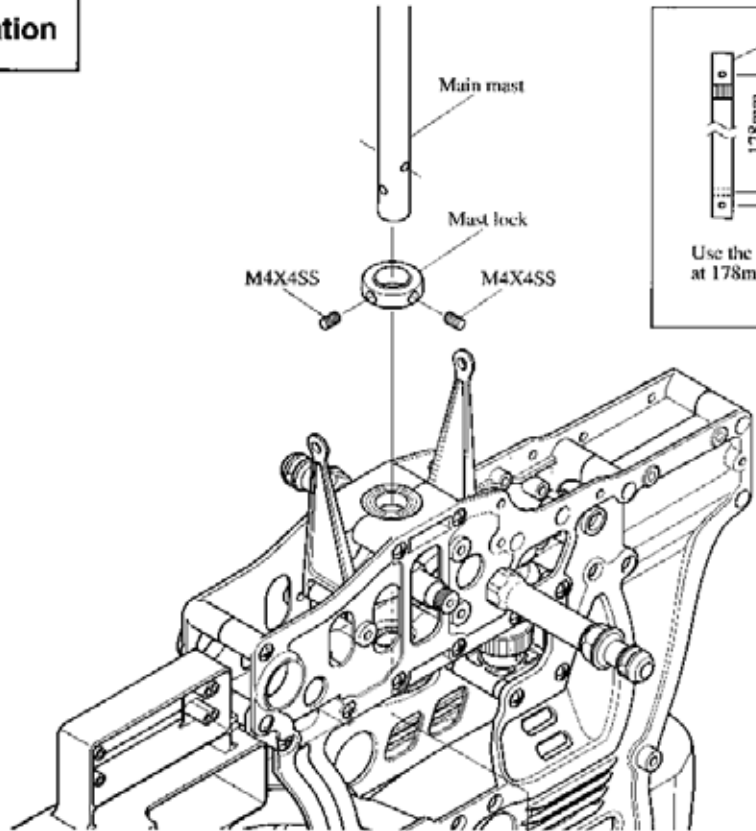
Caution


Make sure not to fasten the M3X5SS screws too tightly. Over fastening may cause stripping of the threads.

8

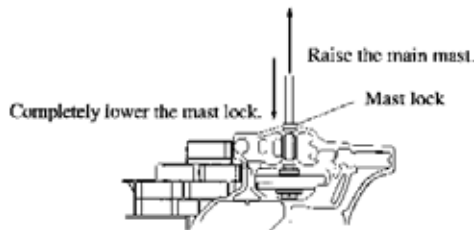
Main gear installation

-  M3X12TS 4
-  M3X20CS 1
-  M4X4SS 2
-  FWφ12Xφ18X0.2 1
-  Cφ12Xφ22X2.5T 2
-  M3 nylon nut 1



 **Caution**

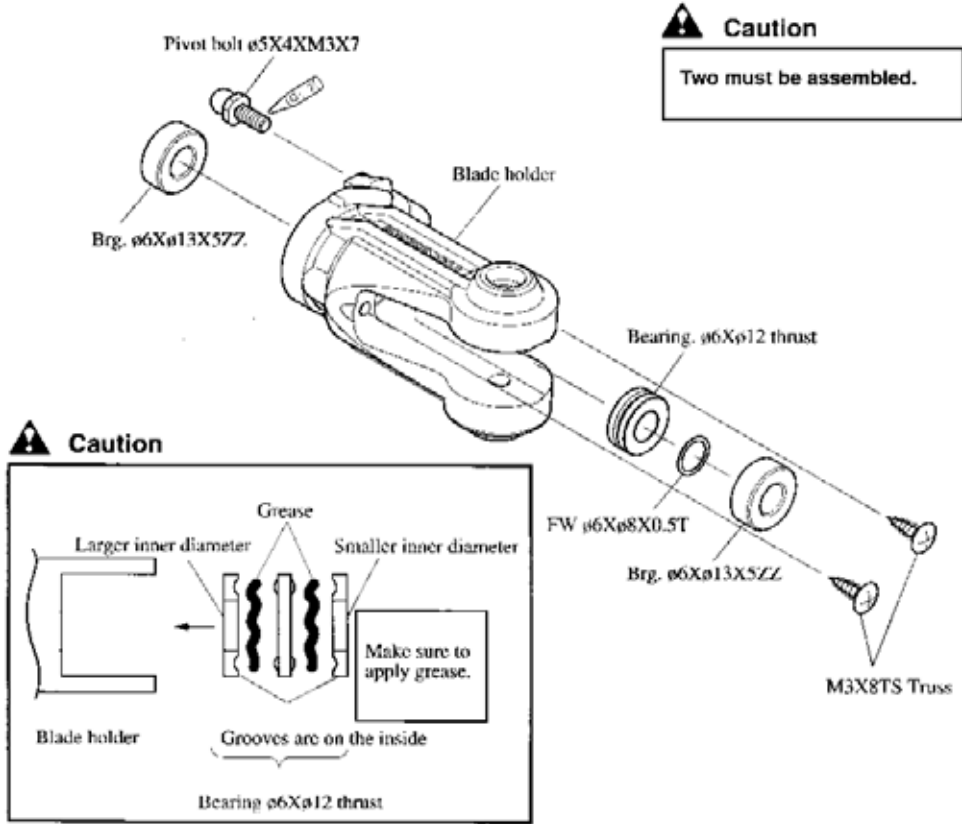
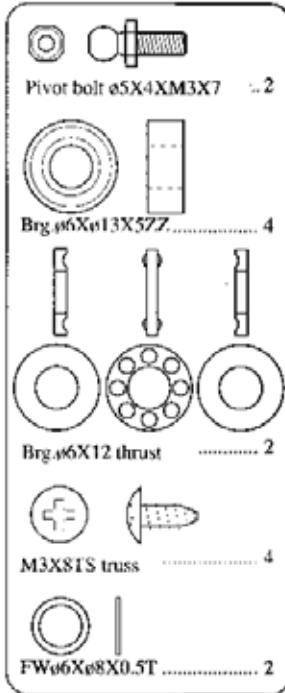
completely raise the main mast, insert the mast lock, and fasten with an M4X4SS screw.



Note: There is to be no vertical play in the mast.

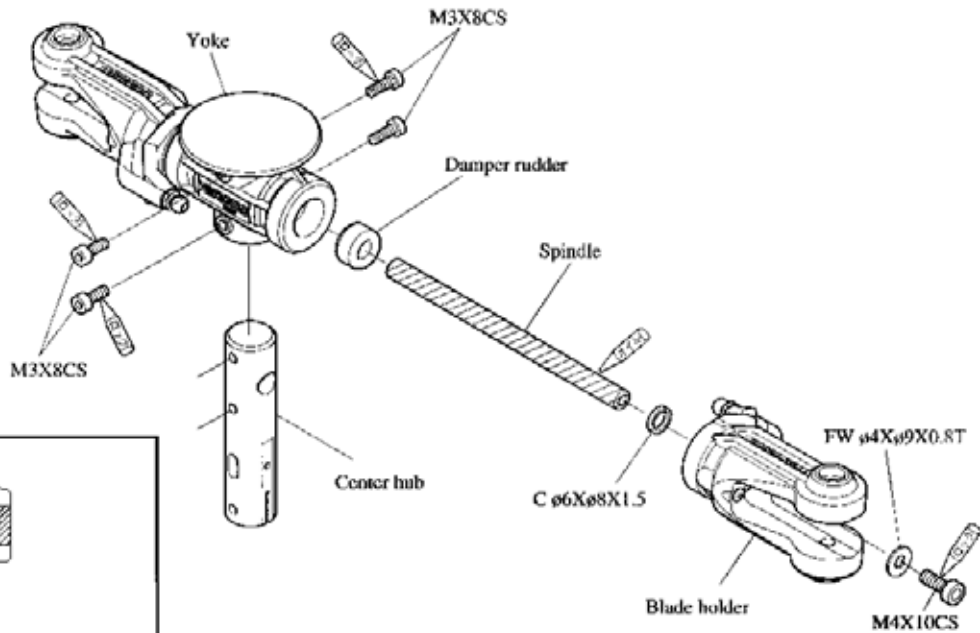
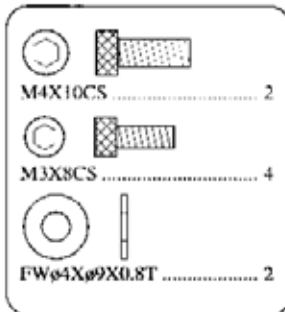
11

Blade holder assembly



12

Yoke and blade holder assembly

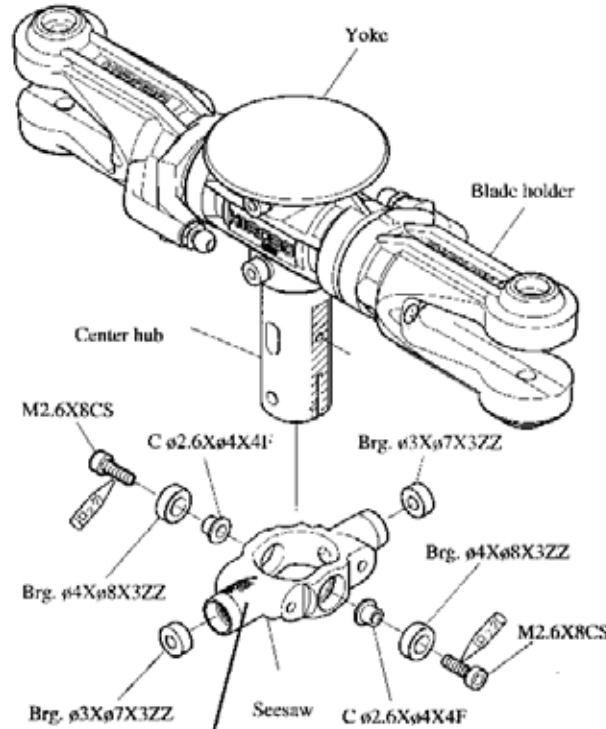


Caution
 Apply a small amount of oil to the damper rubber and completely push it in so as to prevent it from protruding from the yoke.

13

Seesaw assembly

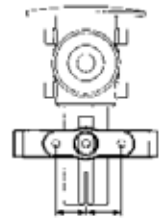
	Brg. ø4Xø8X3ZZ	6
	Brg. ø3Xø7X3ZZ	2
	M2.6X8CS	2
	M2.6X15CS	2
	M2X8PH	4
	C ø2.6Xø4X4F	2
	C ø2.6Xø4X9F	2
	ø5 ball	4



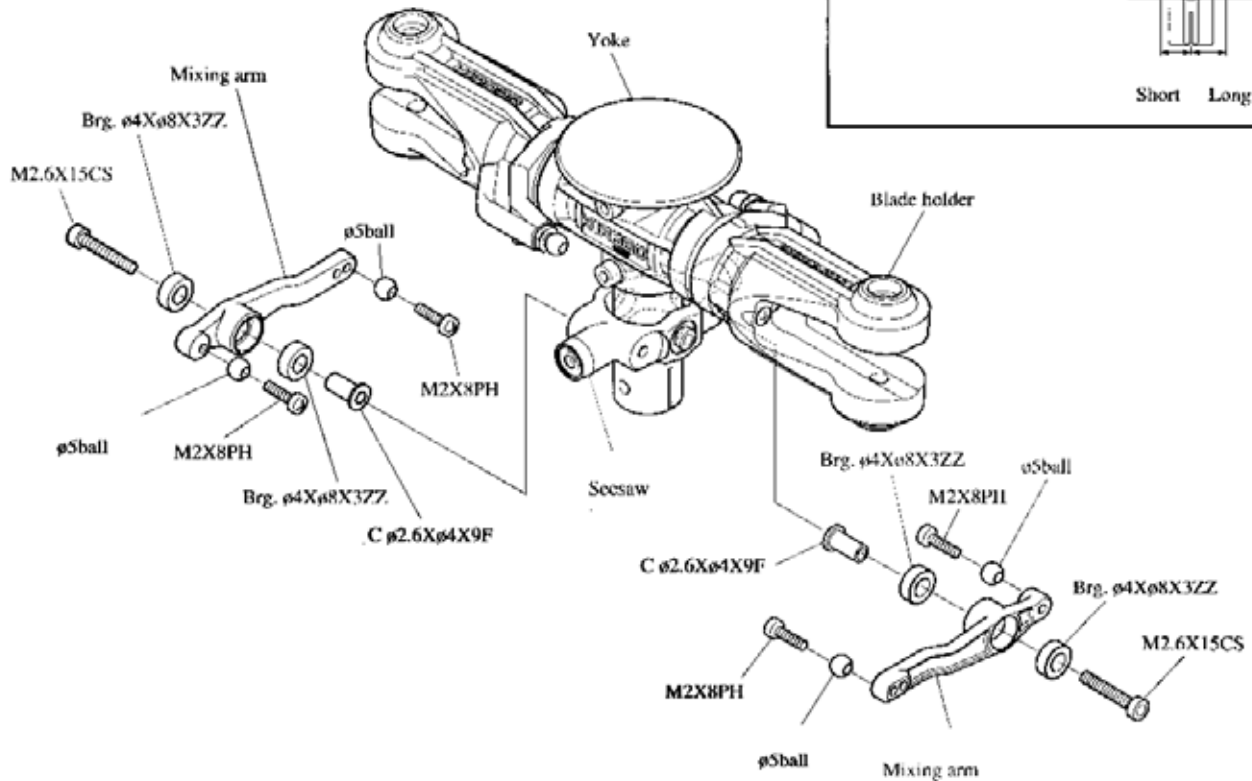
Assemble in a way as to be able to see the logo on the top.

Caution

Note the orientation of the seesaw when installed.



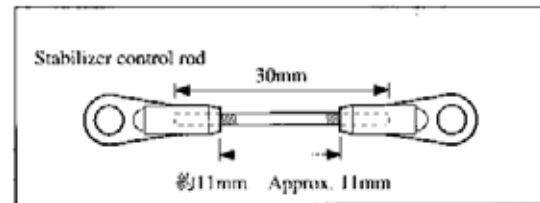
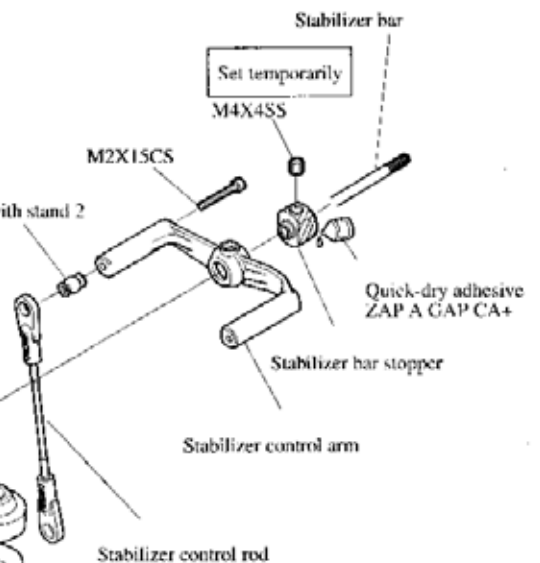
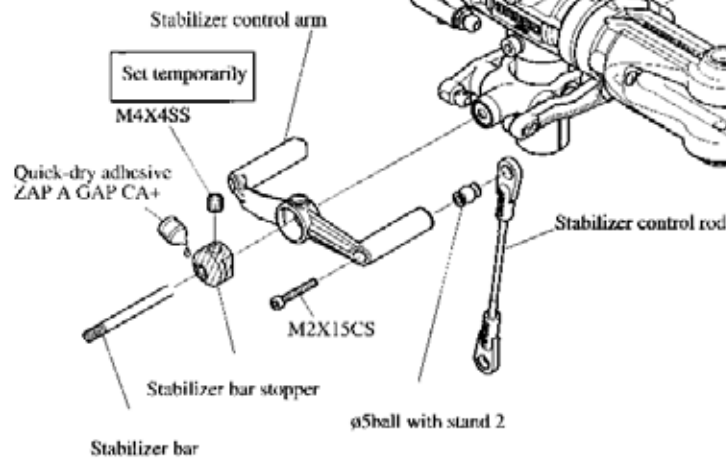
Short Long



14

Stabilizer control arm assembly

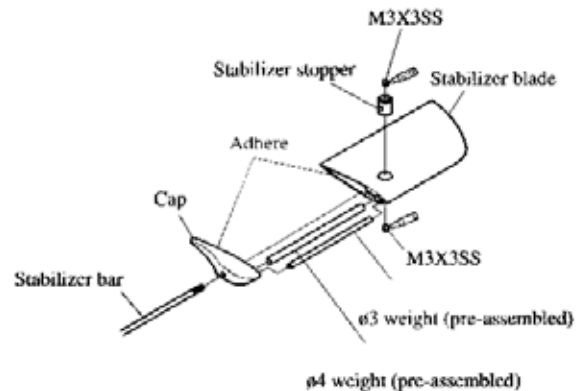
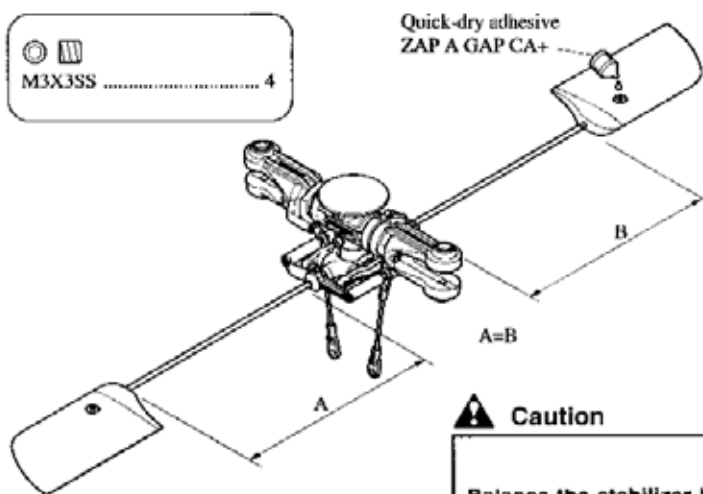
	M2X15CS	2
	M4X4SS	2
	ø5 ball (with stand)	2



15

Stabilizer blade assembly

	M3X3SS	4
--	--------	---

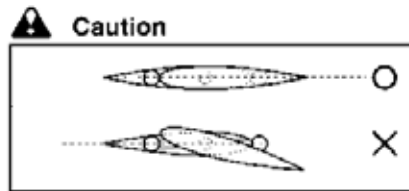


Caution

Balance the stabilizer blade and apply tape on the lighter side to adjust.

Advice

The weights are removable and may be set as you wish depending on the type of flight desired.



The stabilizer blade and the stabilizer control arm must be parallel.

	M3X20CS	1
	M2X8CS	2
	M3 nylon nut	1
	M2 nut	2

Fig. 1 When in high pitch

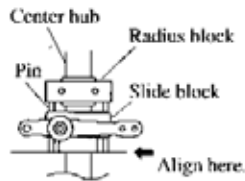
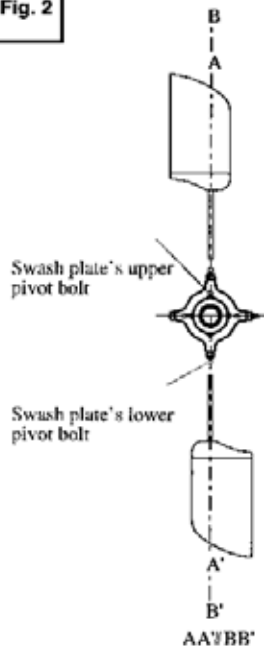
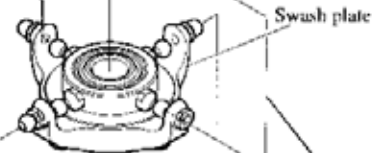
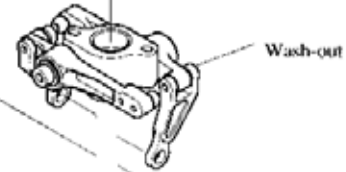
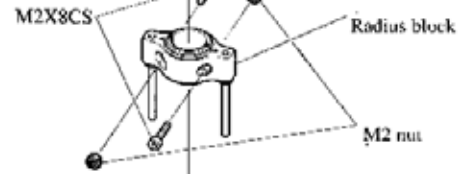
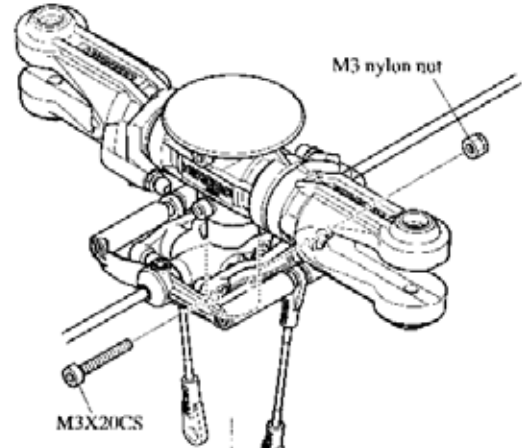


Fig. 2



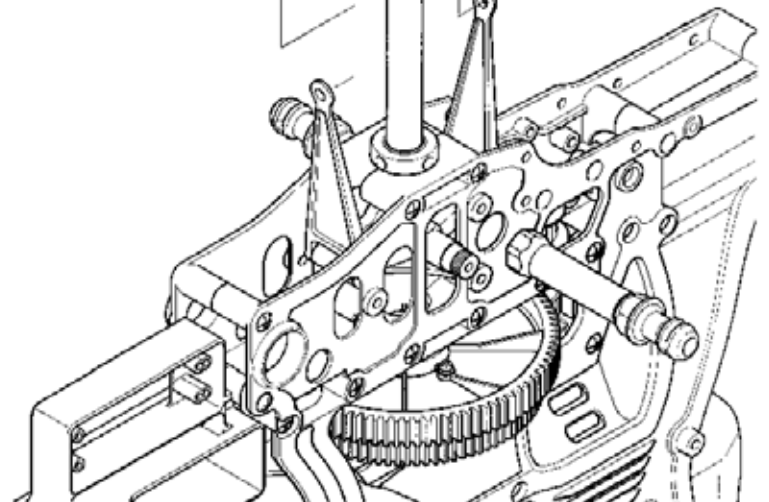
AA'
Unit's central shaft
BB':
Stabilizer bar



Attach to the longer pivot bolts.

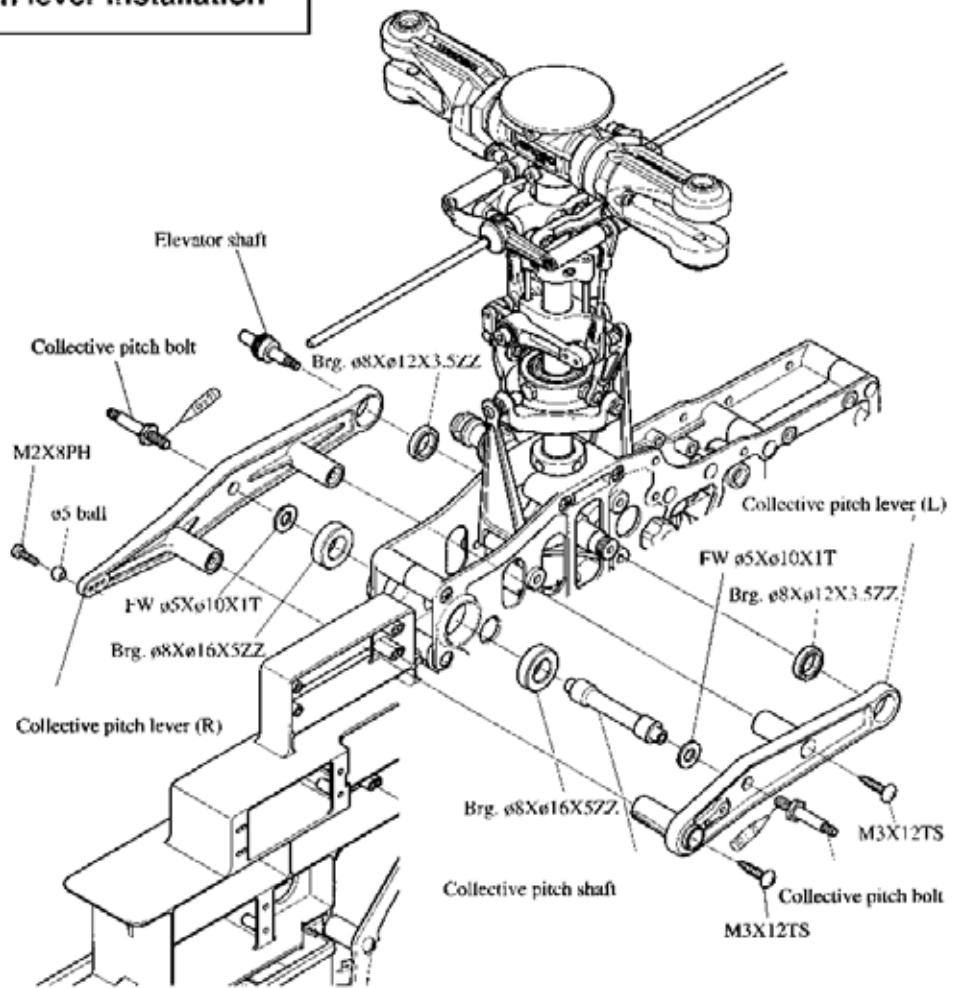
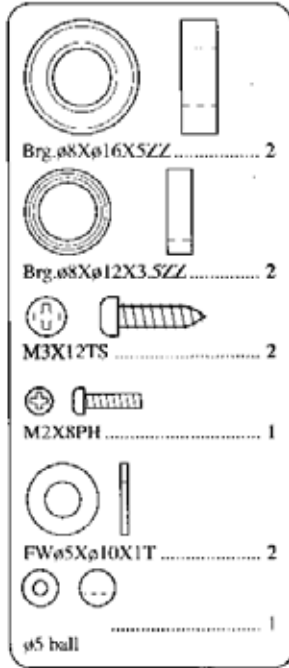
After finishing the linkage, the radius block must be installed in the same position as the bottom of the slide block and the end of the radius block pin when in full-high pitch. (Fig. 1)

m) After finishing the above alignment, view the unit's body from above and, with the swash plate's lower and upper pivot bolt aligned, set the radius block with an M2X8CS screw and an M2 nut in order to put the stabilizer bar parallel to the unit's central shaft. (Fig. 2) Precise phase adjustments depend on the actual flight.



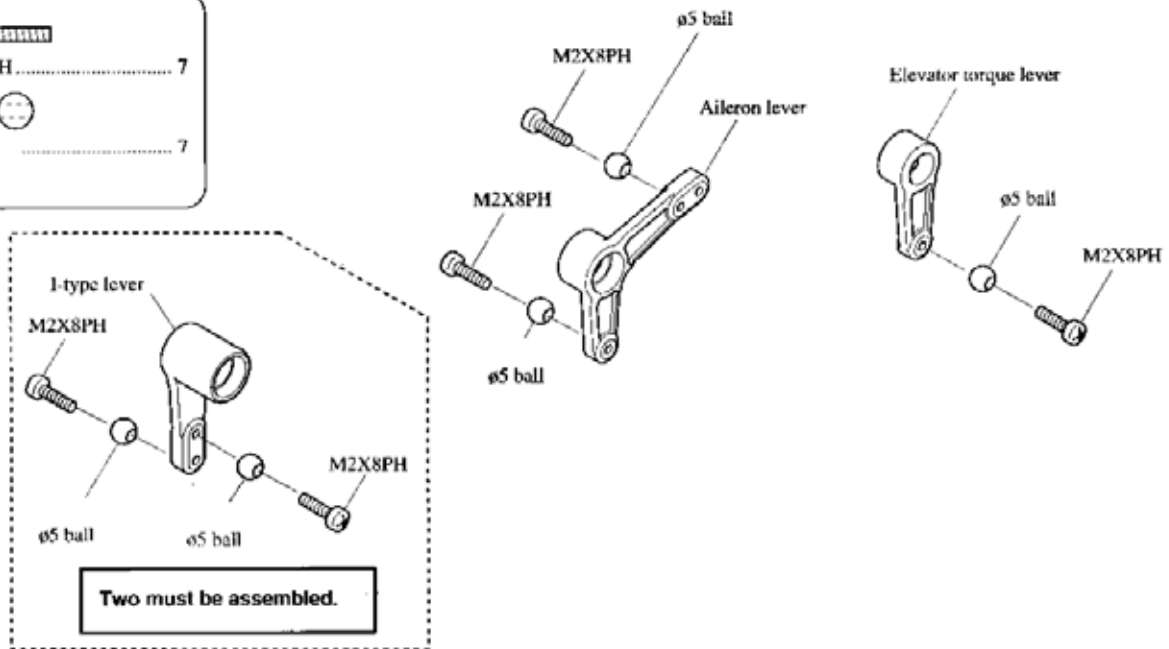
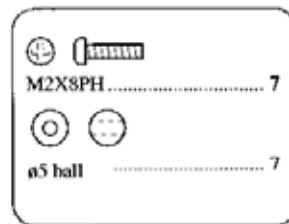
17

Collective pitch lever installation



18

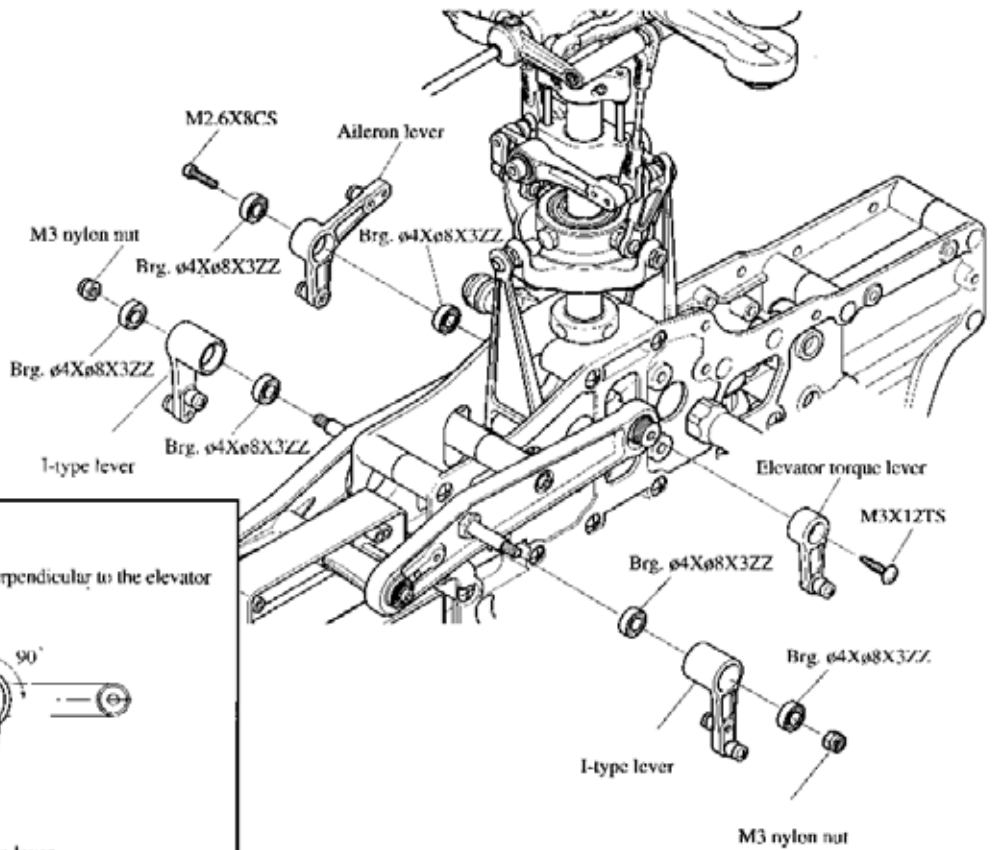
I-type, aileron, elevator torque lever assembly



19

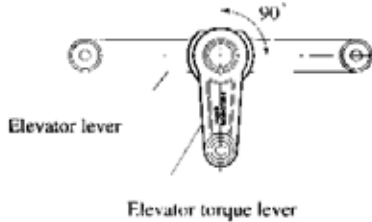
I-type, aileron, elevator torque lever installation

	Brg. ø4Xø8X3ZZ	6
	M2.6X8CS	1
	M3X12TS	1
	M3 nylon nut	2



Caution

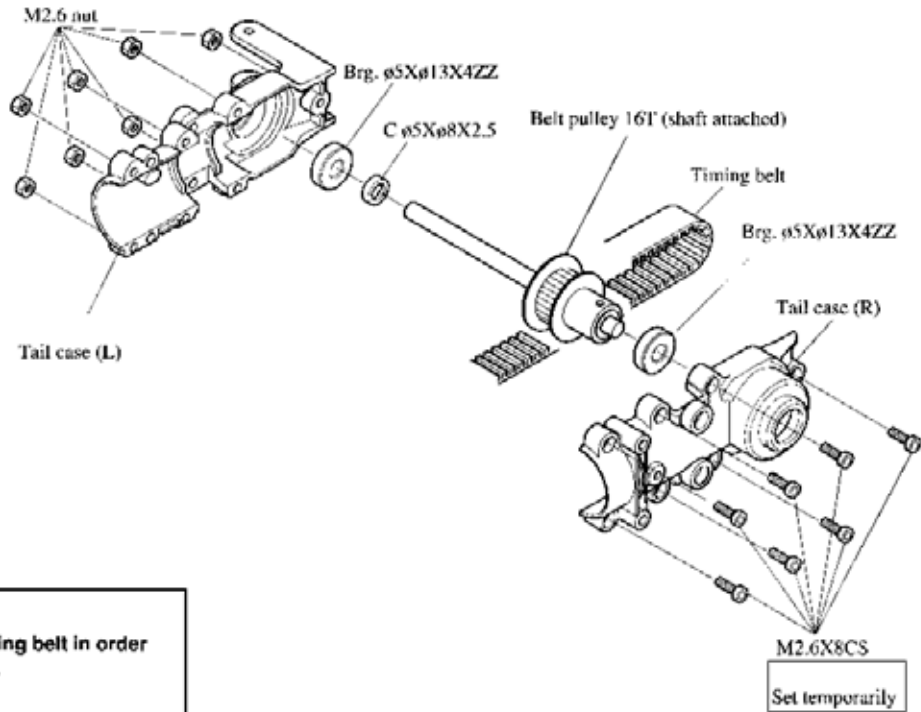
Install the elevator torque lever perpendicular to the elevator lever.



20

Tail case assembly

	Brg. ø5Xø13X4ZZ	2
	C ø5Xø8X2.5	1
	M2.6X8CS	7
	M2.6 nut	7

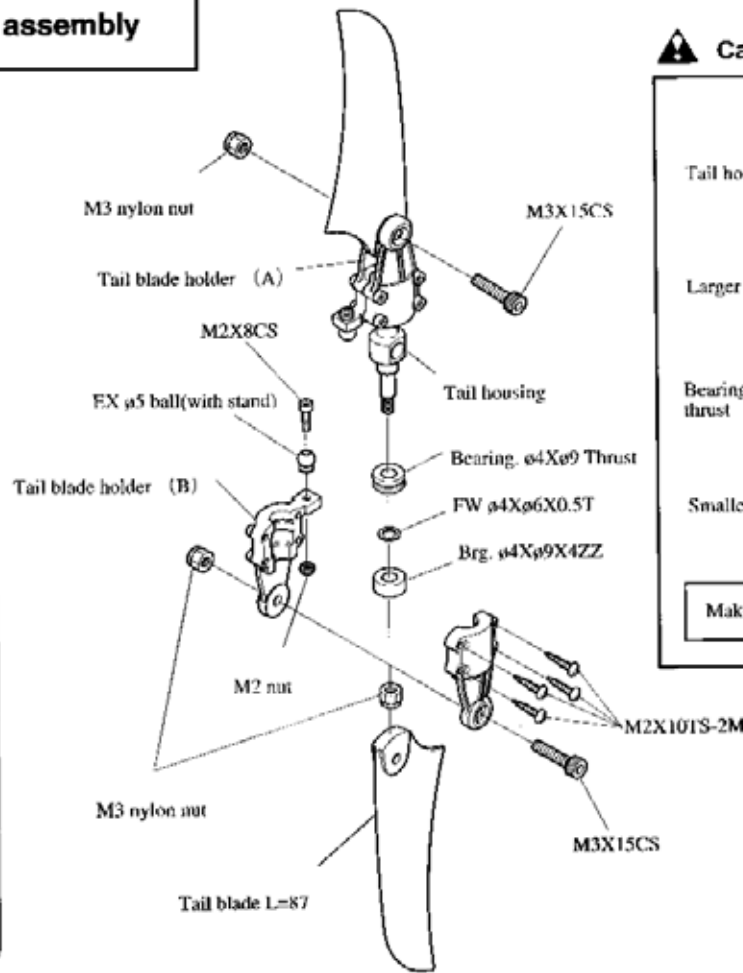
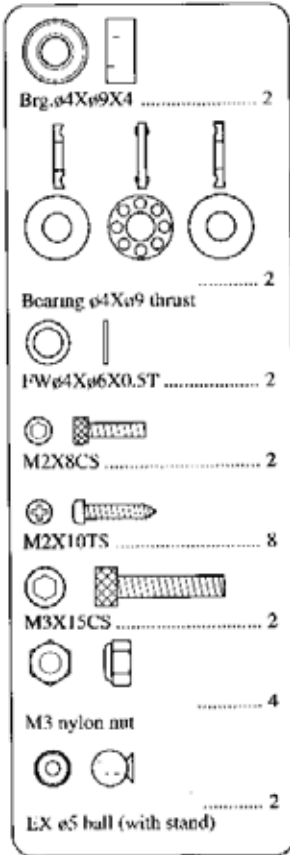


Caution

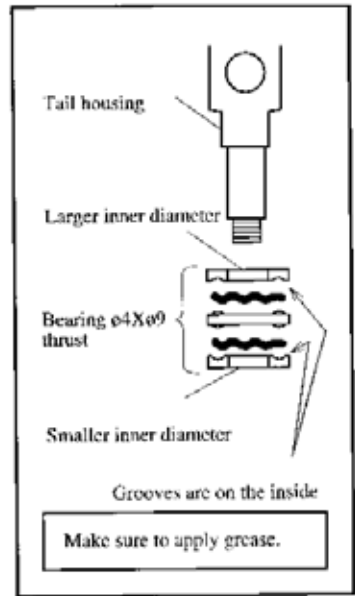
Do not bend or scratch the timing belt in order to reduce the risk of breakage.

21

Tail housing assembly



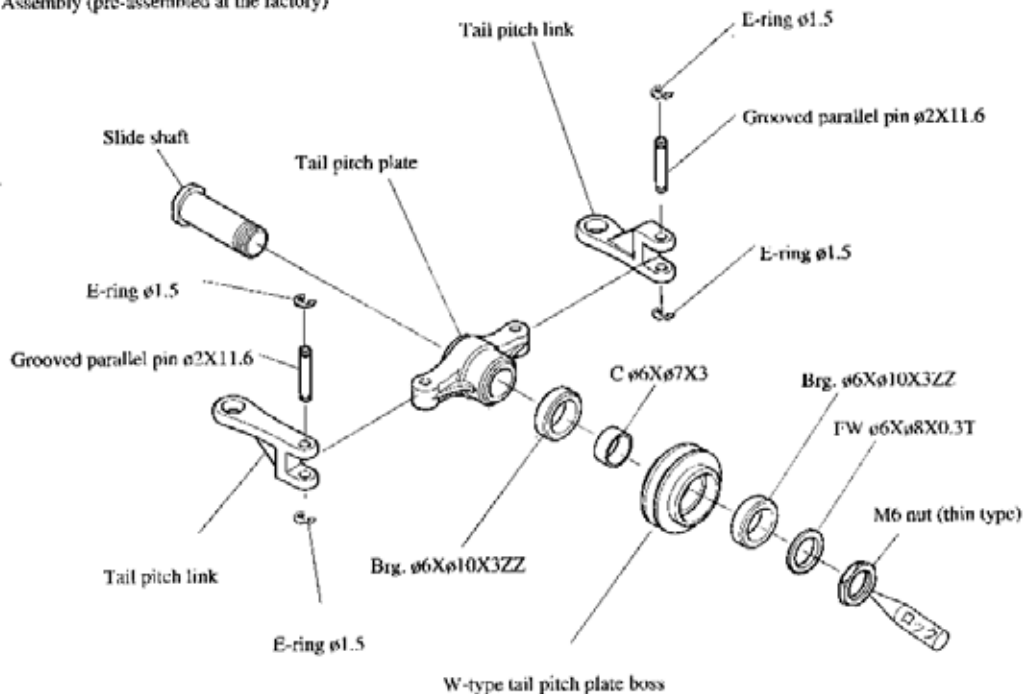
Caution



22

Tail pitch plate assembly

Tail pitch plate Assembly (pre-assembled at the factory)



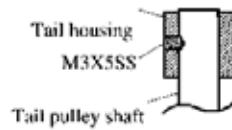
23

Tail housing installation

	Brg. ø4Xø8X3ZZ	2
	FW ø4Xø6X0.5T	2
	M2.6X8CS	2
	M2X8PH	1
	ø5 ball	1
	Guide pin M3X6.3	2
	M3X5SS	1

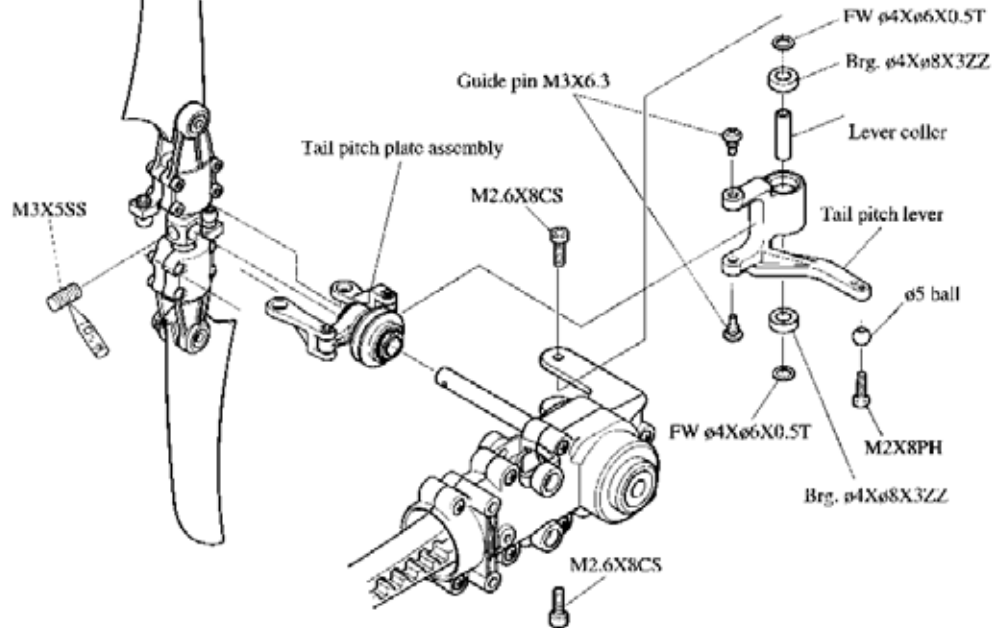
Caution

Align with the shaft's indentation and fasten. Make sure to apply screw lock adhesive.



Caution

Install the tail pitch guide pin so that it fits into the tail pitch plate's groove.

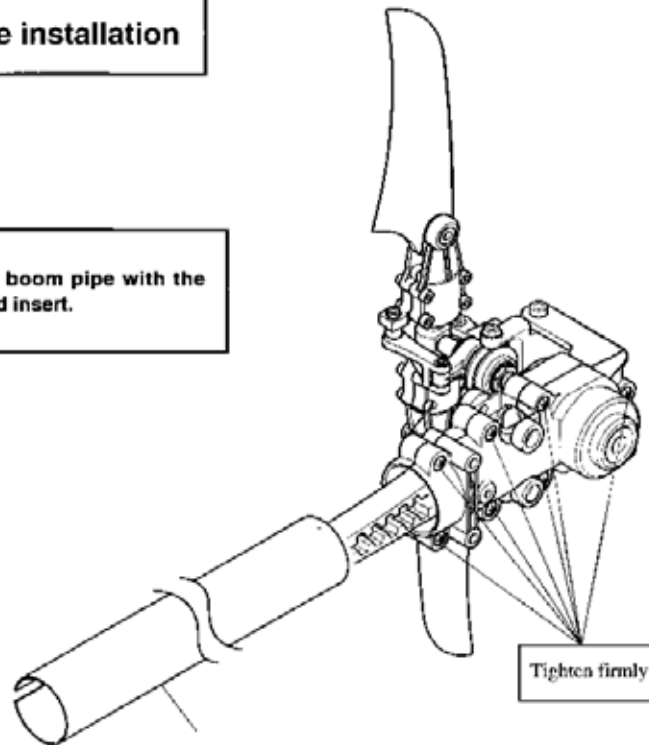


24

Tail boom pipe installation

Caution


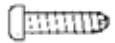

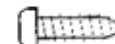




Align the groove on the tail boom pipe with the protrusion on the tail case and insert.

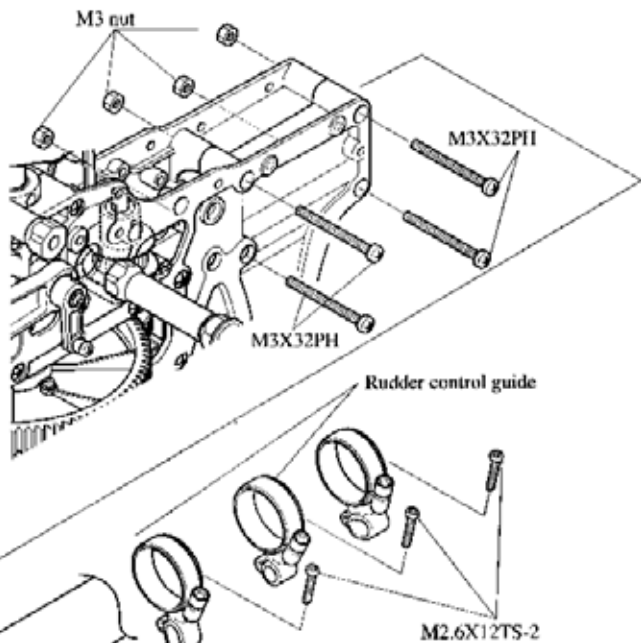
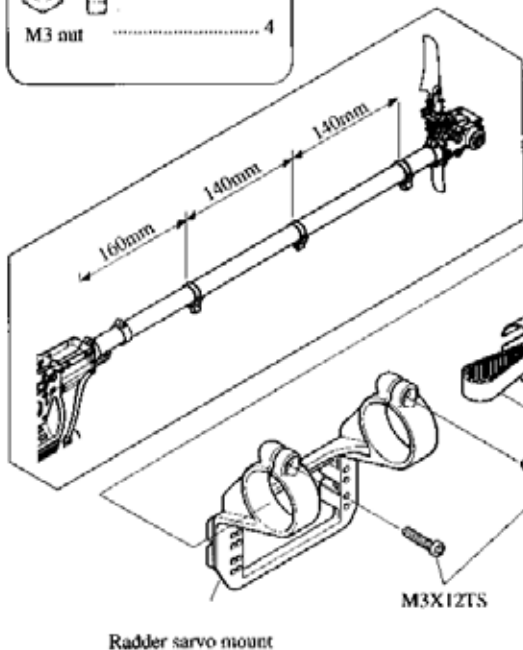


Tail boom pipe L=695

25

Tail installation

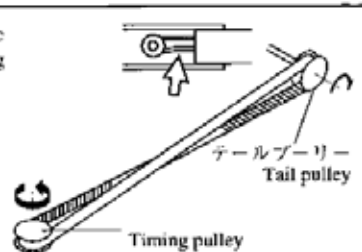
		M2.6X12TS-2	3
		M3X12TS	2
		M3X32PH	4
		M3 nut	4



Tail boom pipe L=695



Caution

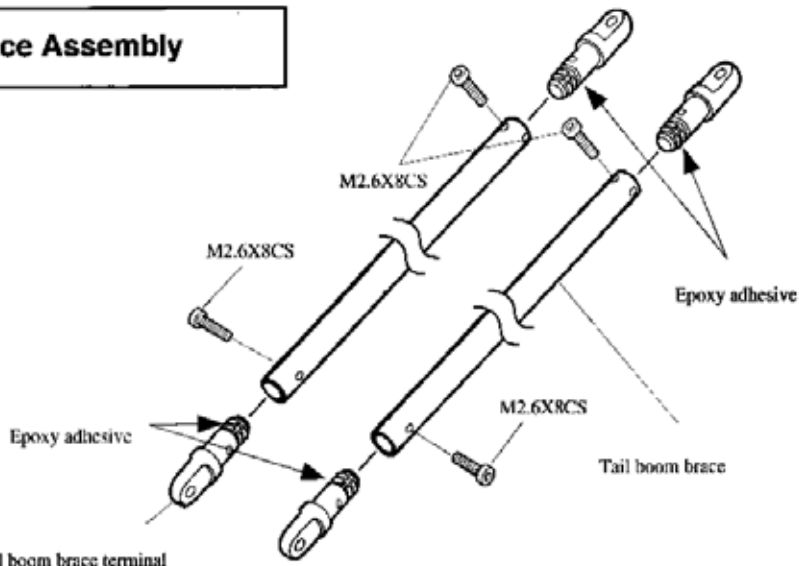
1. With the aid of a screwdriver, spread the timing belt by pushing on it lightly coming into contact with it as little as possible.
2. Check the belt's rotational direction.








26

Tail boom brace Assembly

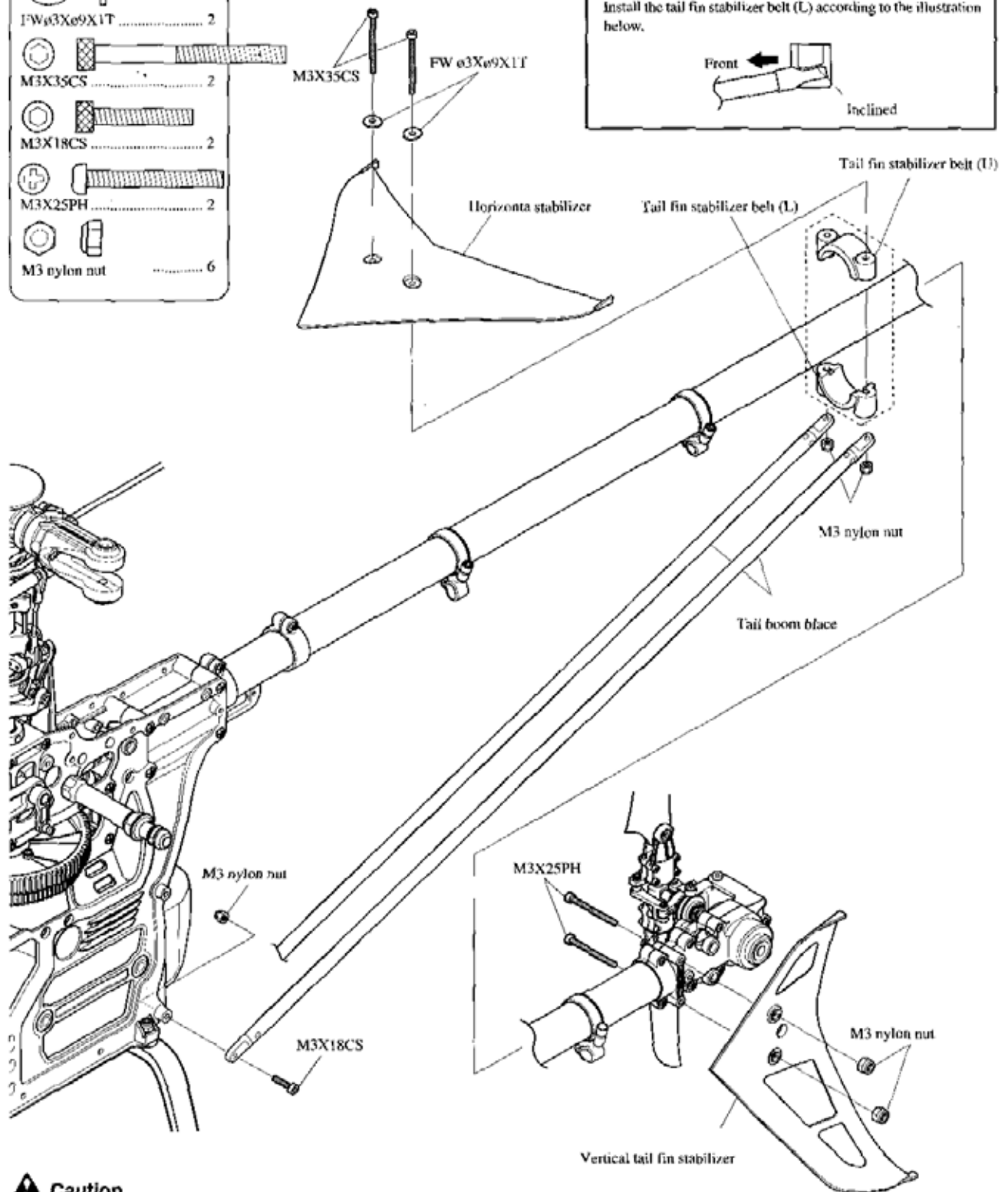
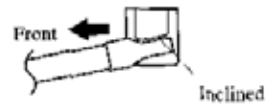
		M2.6X8CS	4
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-  FW ø3Xø9X1T 2
-  M3X35CS 2
-  M3X18CS 2
-  M3X25PH 2
-  M3 nylon nut 6

Caution







Install the tail fin stabilizer belt (L) according to the illustration below.

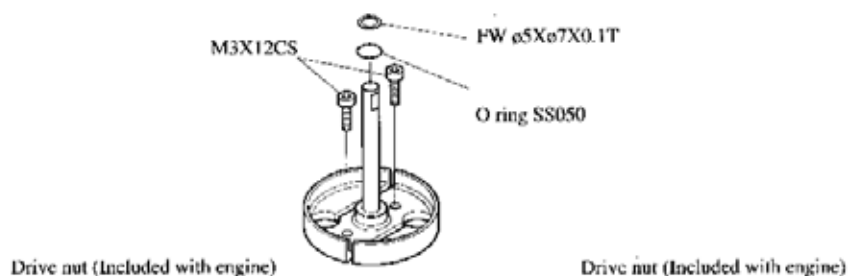
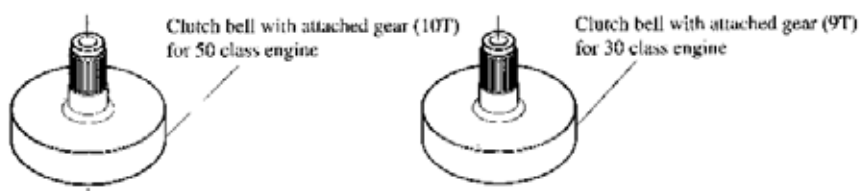


Caution

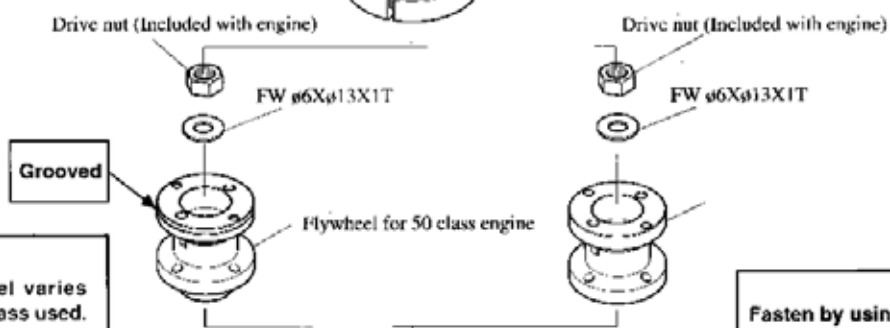
Check that all screws installed to this point are well fastened.

Caution
 The number of teeth on the gear attached to the clutch bell varies depending on the type of engine used.

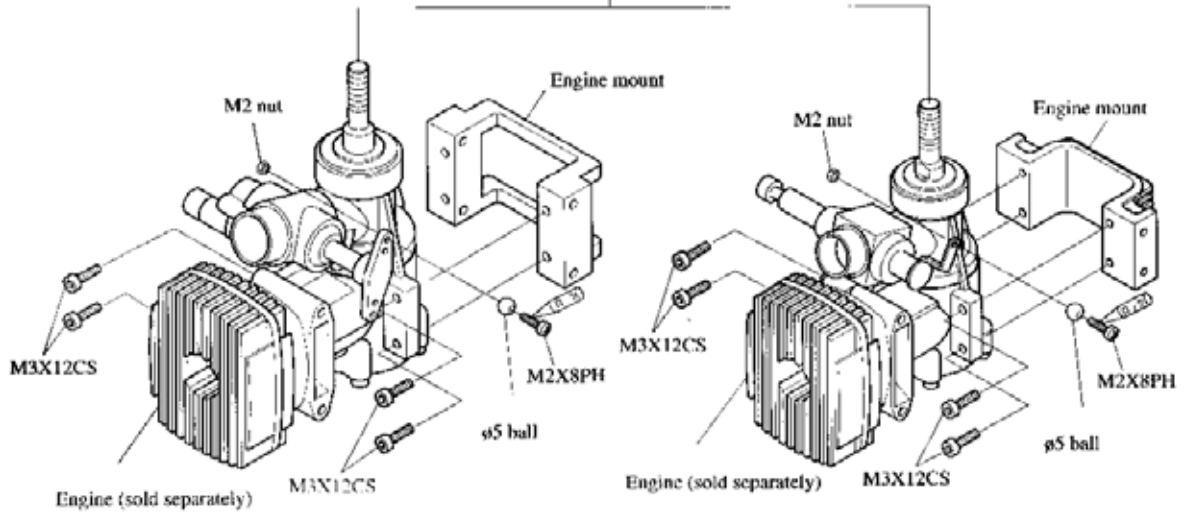
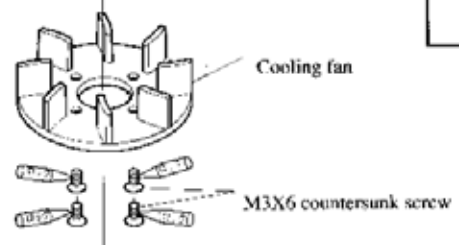
-  FWø5xø7x0.1T 1
-  M3X12CS 6
-  M3X6 countersunk screw 4
-  M2X8PH 1
-  M2 nut 1
-  ø5 ball 1



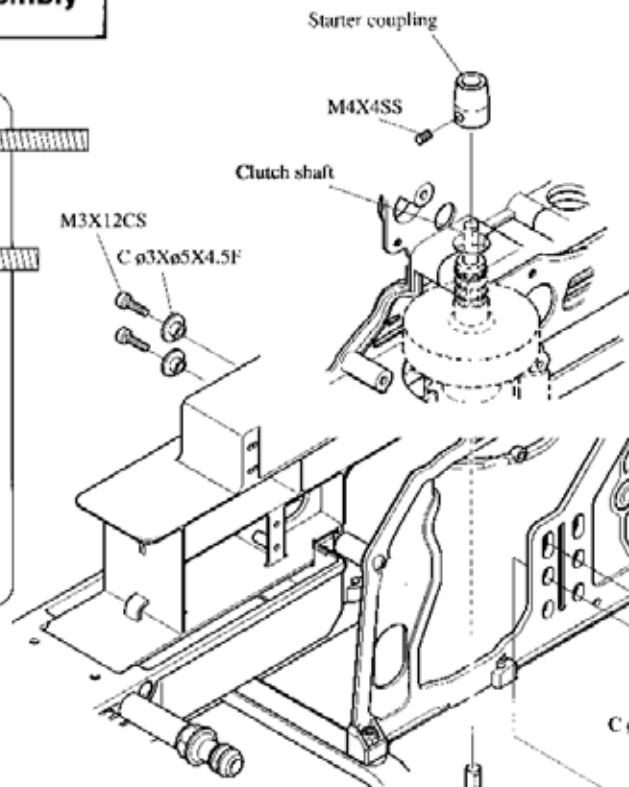
Caution
 The shape of the flywheel varies depending on the engine class used.



Fasten by using a crank lock sold separately.



	M3X35CS	2
(If using a 50 class engine)		
	M3X28CS	2
(If using a 30 class engine)		
	M3X12CS	4
	M4X4SS	1
	Co3Xø5X4.5F	4



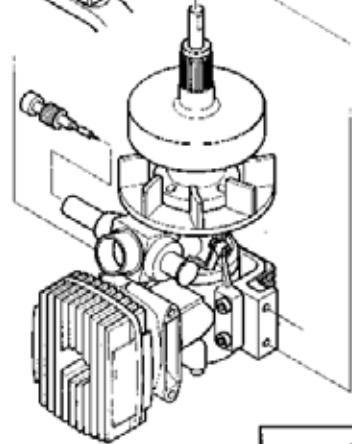
Caution

Align the M3X4SS screw with the D-cut indentation and completely fasten.

Caution

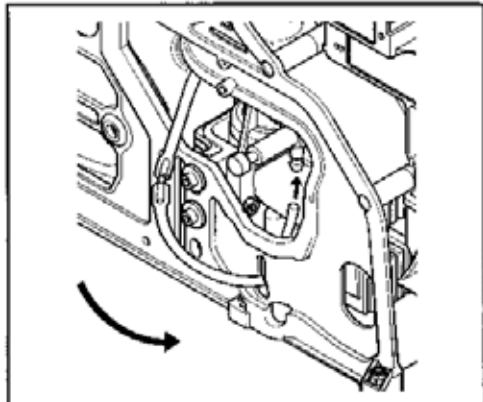
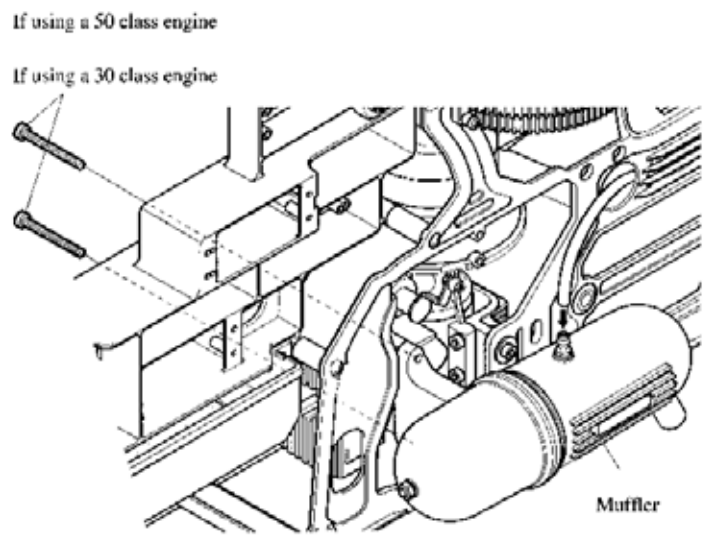
The position of the holes varies depending on the engine used.

If using a 30 class engine If using a 50 class engine



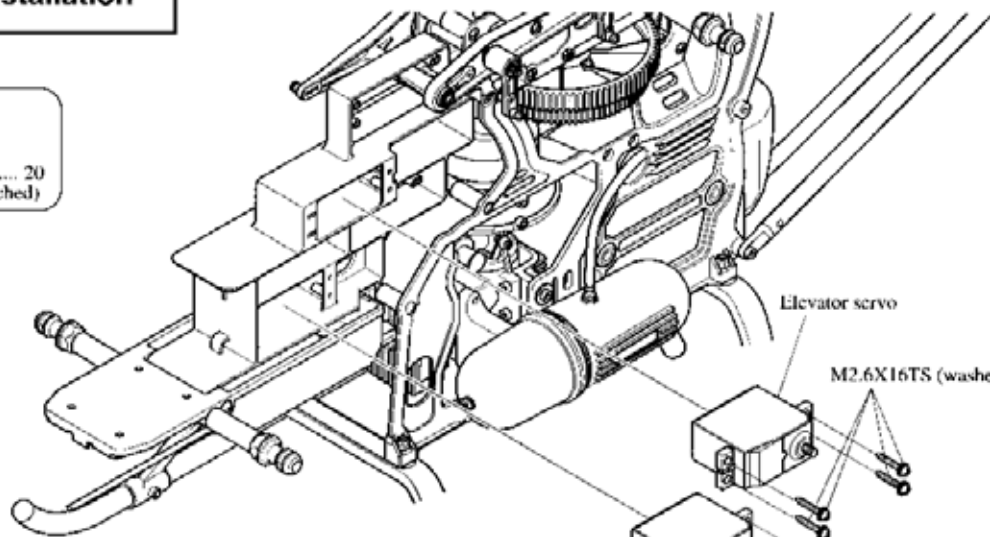
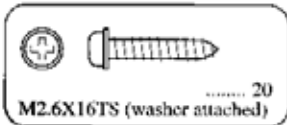
Caution

Remove the needles temporarily and reinstall them after attaching the engine to the frame.



Caution

Refer to [3] for the fuel line and muffler pressure piping.



Caution

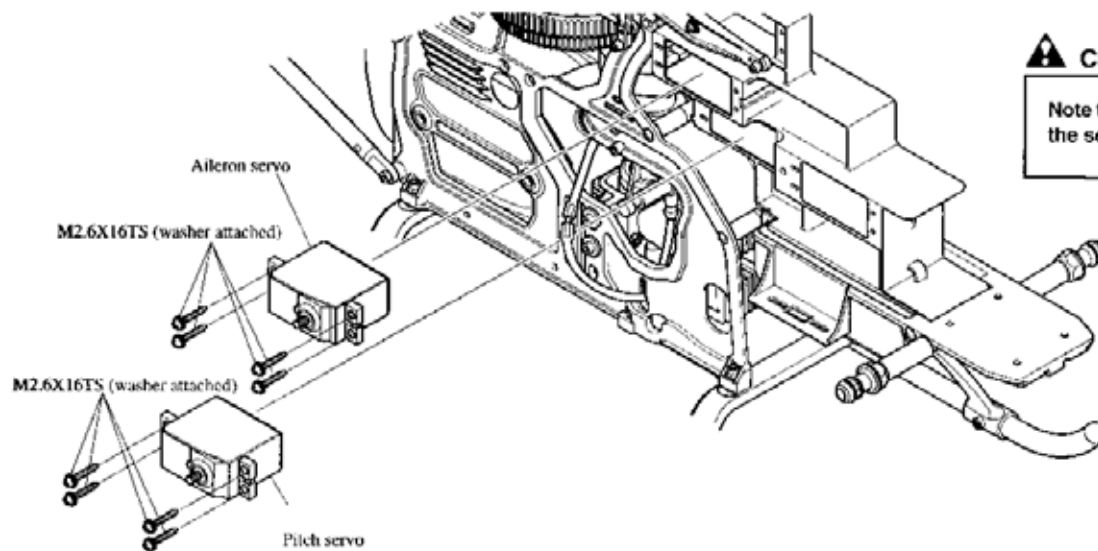
Fasten the screws making sure not to break the grommet.

Throttle servo

M2.6X16TS (washer attached)

Caution

Note the orientation of the servos.



Aileron servo

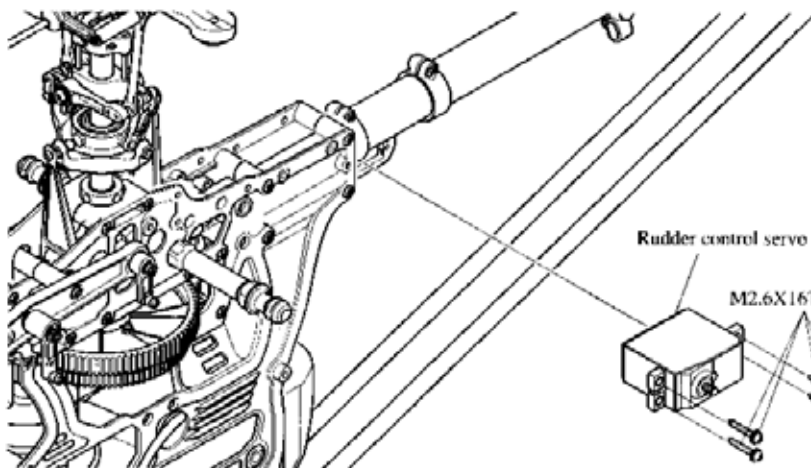
M2.6X16TS (washer attached)

M2.6X16TS (washer attached)

Pitch servo

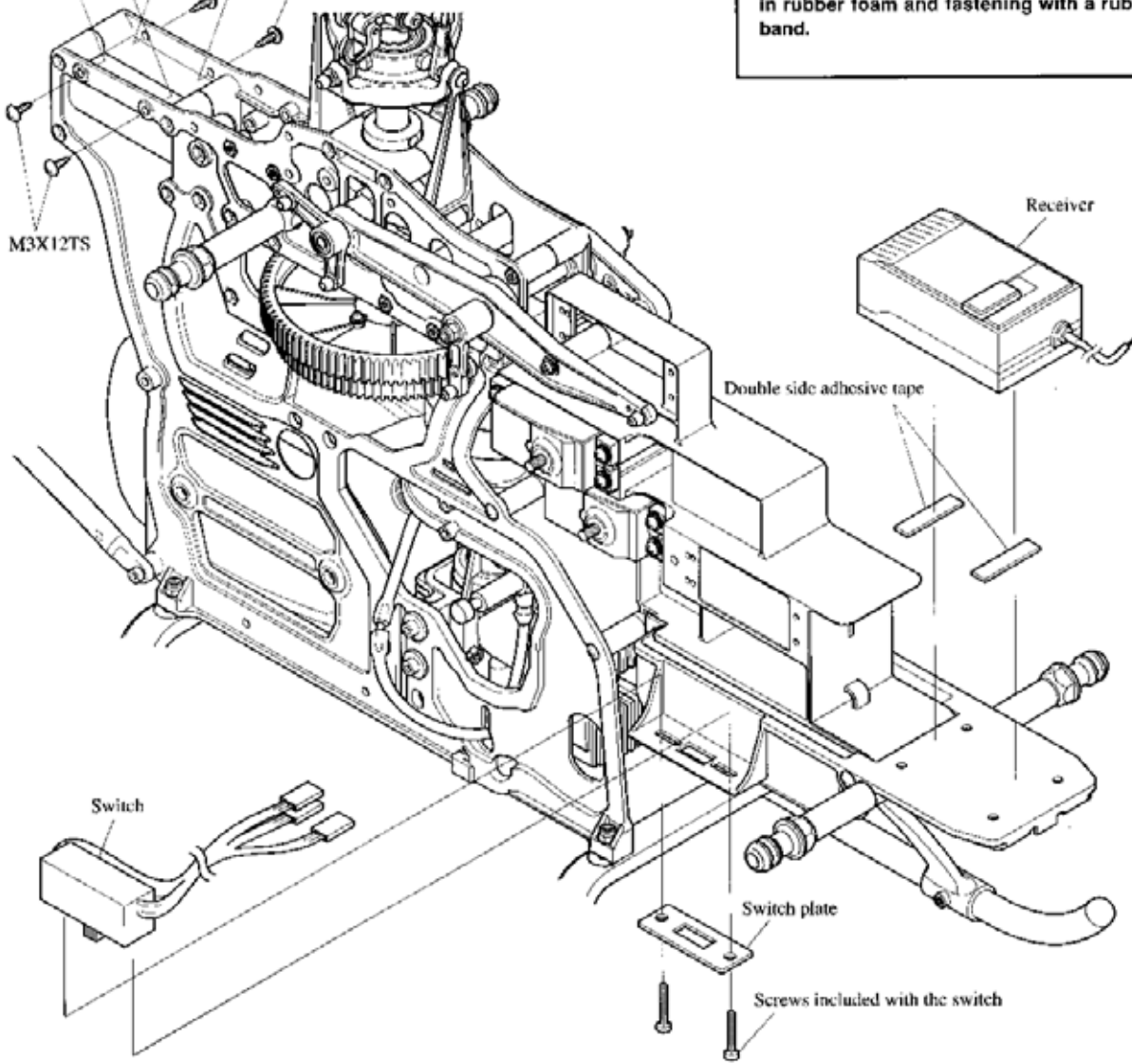
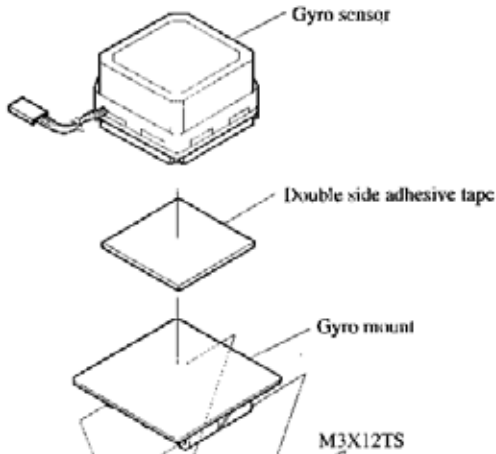
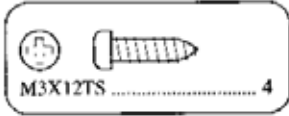
Caution

Install the noise filter between the rudder control servo and the receiver.



Rudder control servo

M2.6X16TS (washer attached)



Caution

The gyro sensor has a special orientation when installed. Install it according to the gyro's instruction manual.

Caution

Before applying tape, make sure the surface is wiped clean of dirt.

Caution

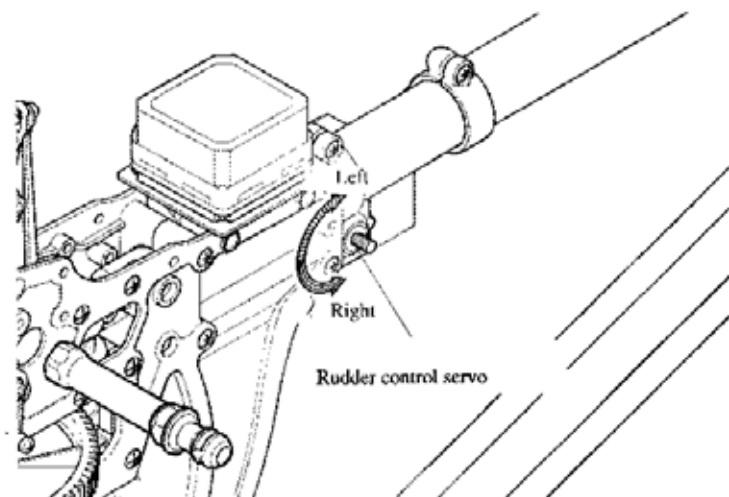
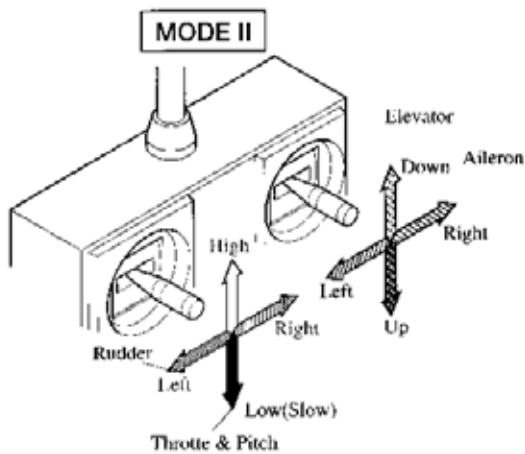
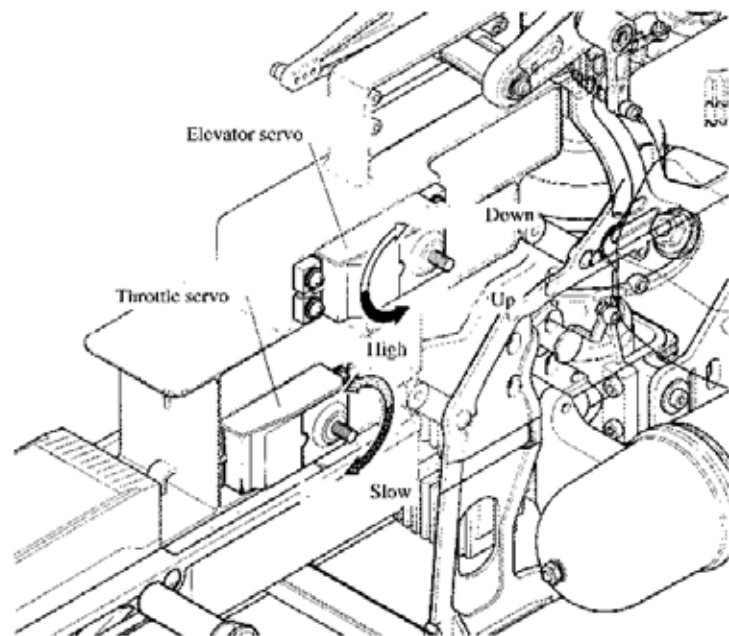
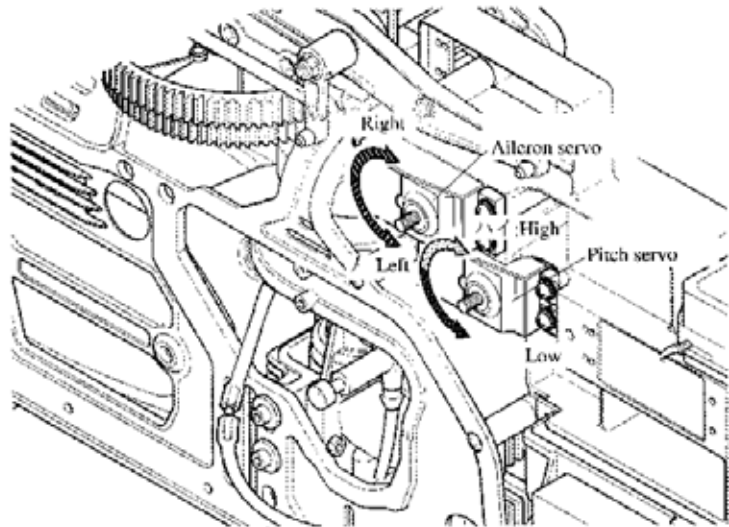
Load the receiver battery by first wrapping it in rubber foam and fastening with a rubber band.

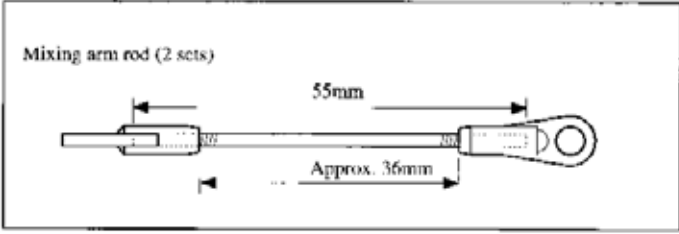
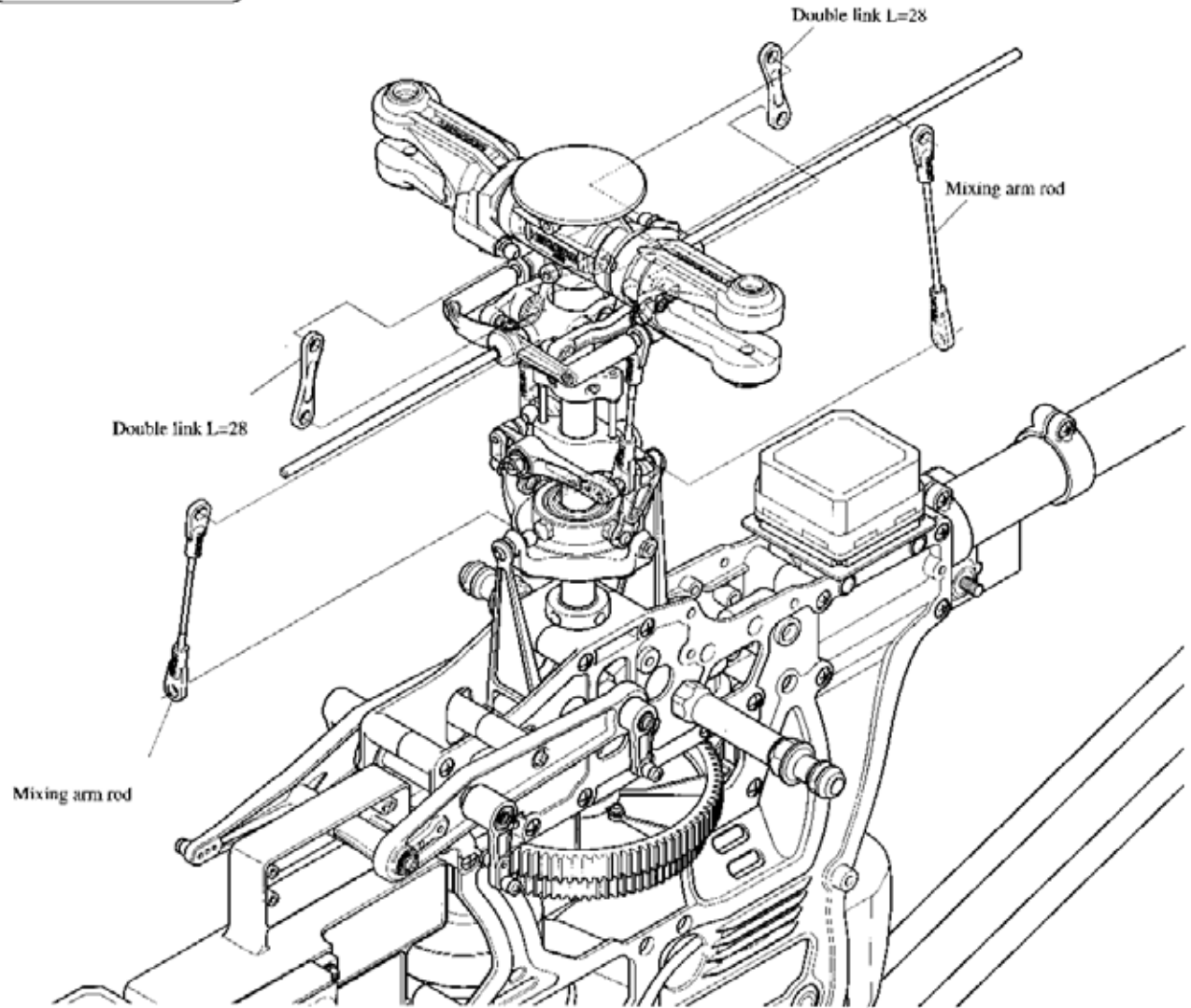
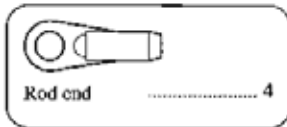
Servo movement check

Before starting, recharge the transmitter battery.

If the rotational direction is reversed, change the transmitter's reverse switch and set it to move as indicated.





The wiring of the servo, gyro, and power source to the receiver varies depending on their respective makers as well as the way they are assembled. Install the wiring according to each instruction manual.

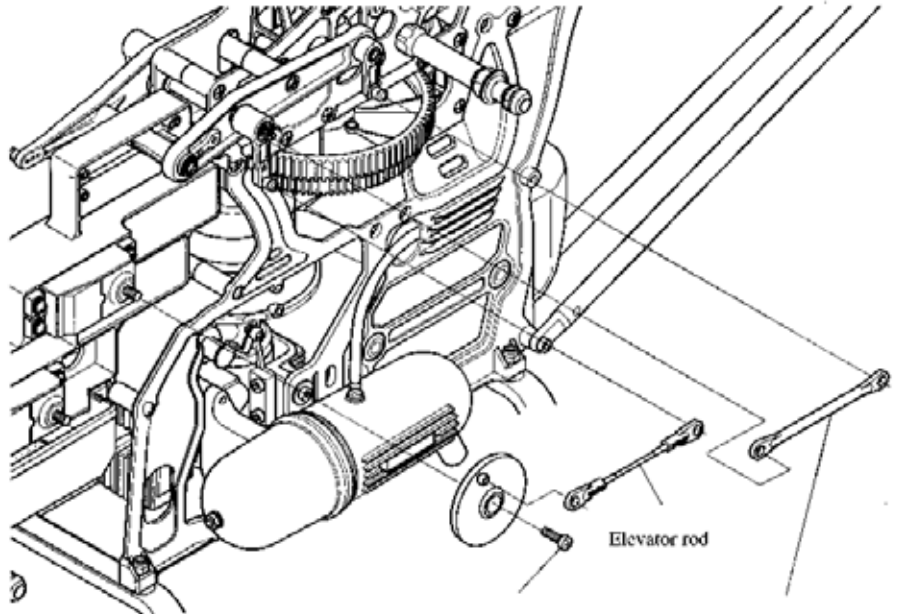
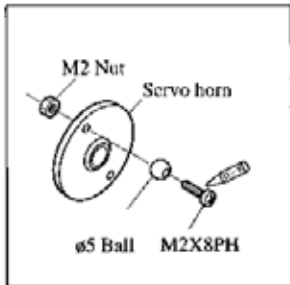
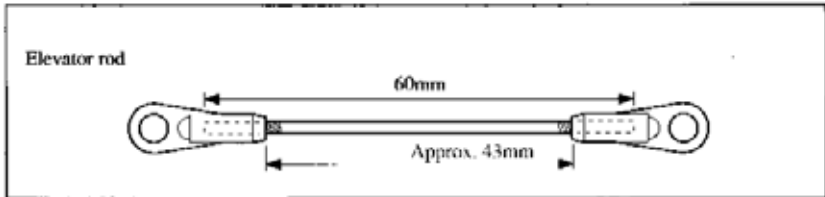




Caution

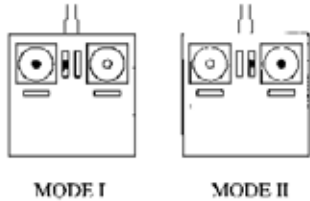
After installing the blade, measure the pitch and readjust.

-  M2X8PH 1
-  M2 nut 1
-  ø5 ball 1
-  Rod end 2



Screw included with the servo

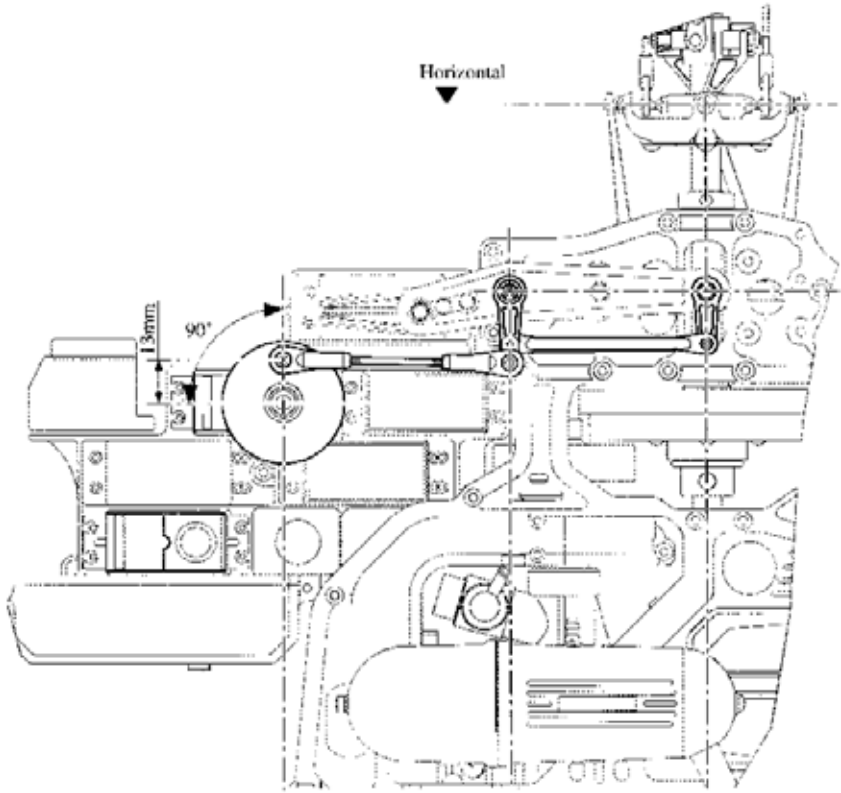
Double link L=66

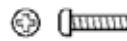

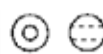
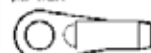


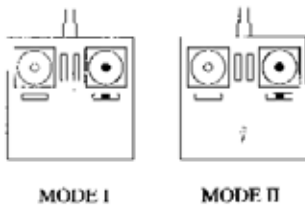
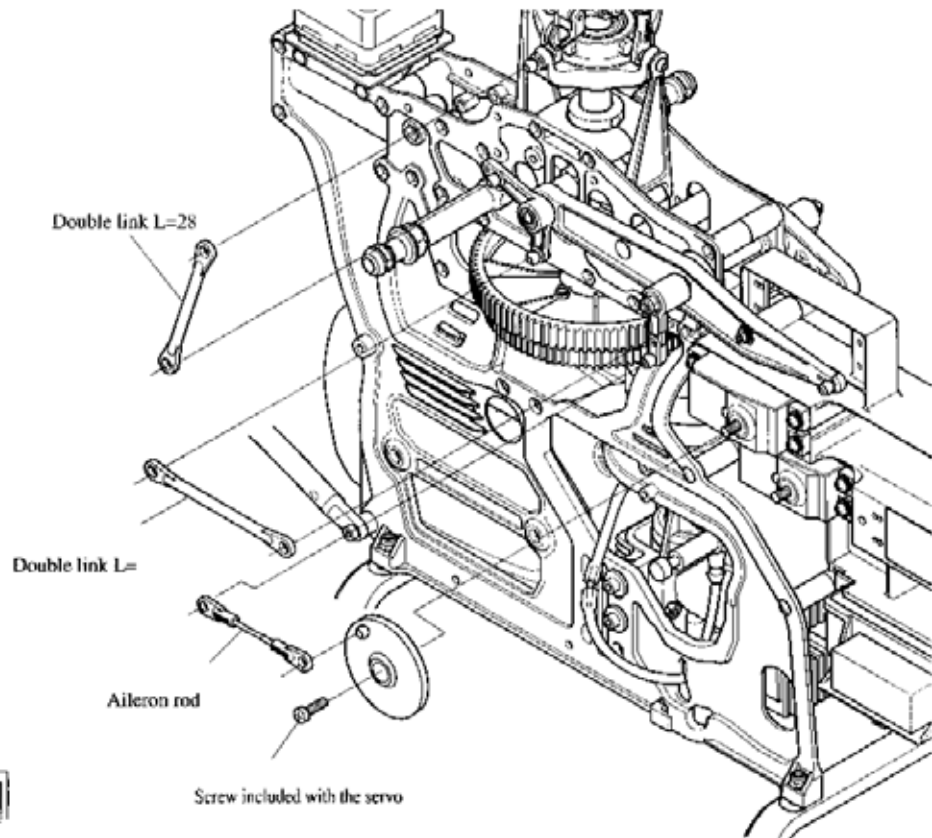
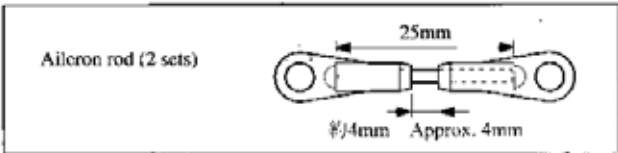
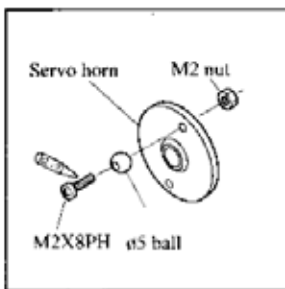
Positioning of the transmitter stick

With the transmitter stick and the trim at neutral, install the servo horn to the servo according to the positioning of the ø5 ball attached to the servo horn as illustrated on the right.

View the unit from the side and adjust the length of the elevator rod so as to make the swash plate horizontal.

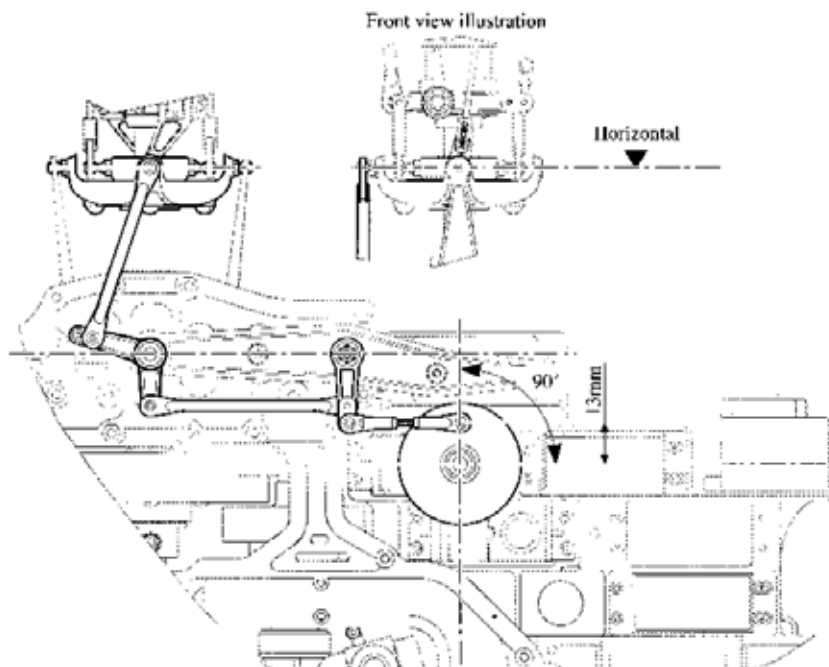


-  M2X8PH 1
-  M2 nut 1
-  ø5 ball 1
-  Rod end 2




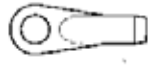


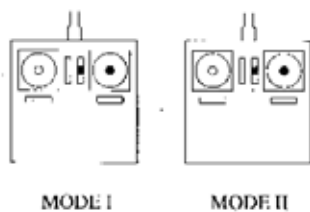
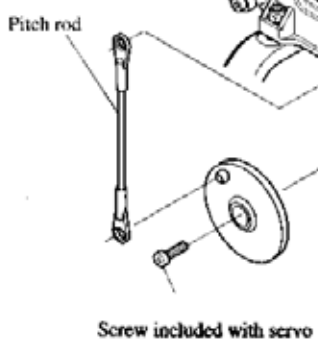
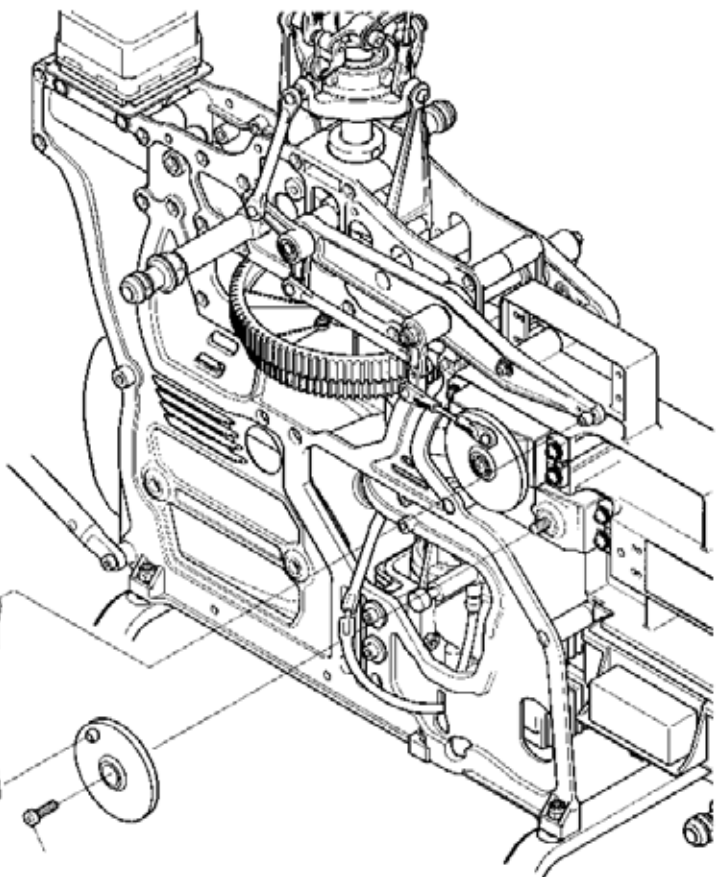
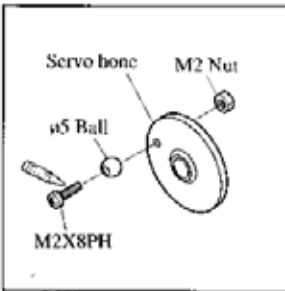
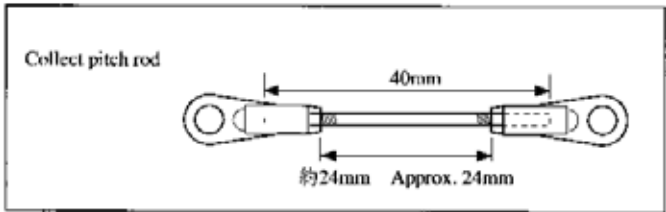
Positioning of the transmitter stick

- With the transmitter stick and the trim at neutral, install the servo horn to the servo according to the positioning of the ø5 ball attached to the servo horn as illustrated on the right.
- View the unit from the front and adjust the length of the aileron rod so as to make the swash plate horizontal.



Collective pitch linkage

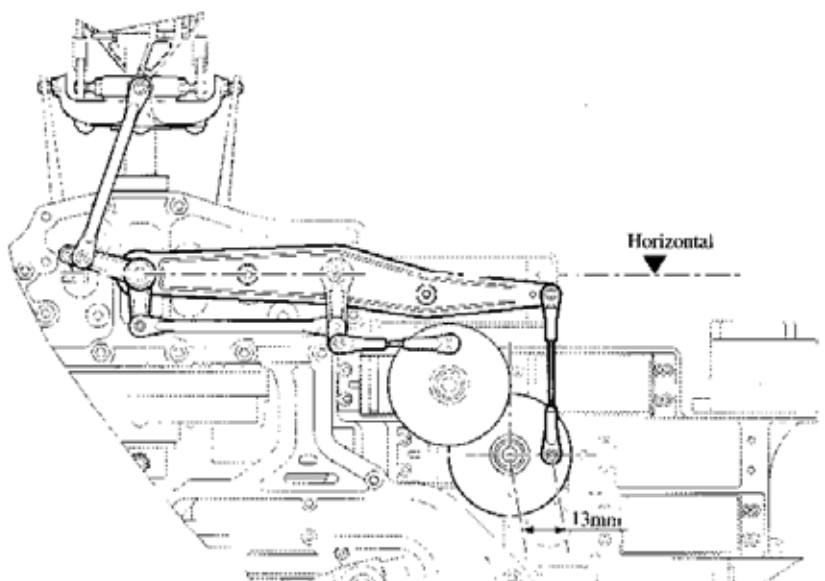
-  M2X8PH 1
-  M2 nut 1
-  e5 ball 1
-  Rod end 2







Positioning of the transmitter stick

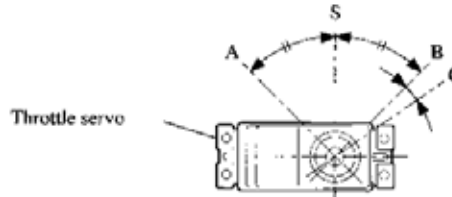
With the transmitter stick and the trim at neutral, adjust the collective pitch according to the positioning as illustrated on the right.

Note:
Set the transmitter's pitch curve at 50%. Do not input the program from the separate data sheet at this time.



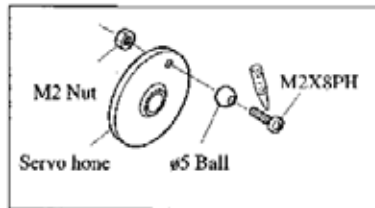
-  M2X8PH 1
-  M2 nut 1
-  ø5 ball 1
-  Rod end 2

Adjust the positioning of the throttle servo horn. Align the angles with the servo horn's spline. With S in the center, make the angles for A and B identical.



The relation between the transmitter's stick, trim, and throttle servo movements is illustrated below.

- (1) Install a ø5 ball to the servo horn.



Throttle A: full-high position



MODE I MODE II

Throttle B: idling position



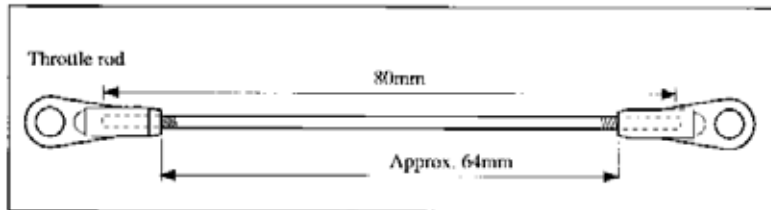
MODE I MODE II

Throttle C: engine stop position

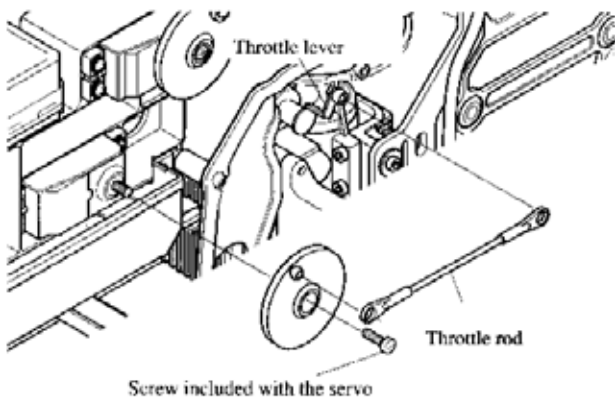
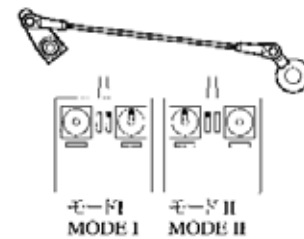


MODE I MODE II

- (2) Install the throttle rod.



- (3) With the transmitter's throttle stick at full-high position, adjust the length of the throttle rod in order to have the throttle lever at full-high position.



(4)

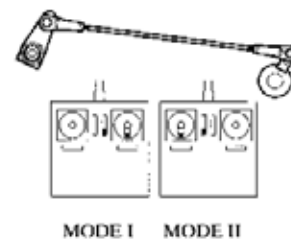
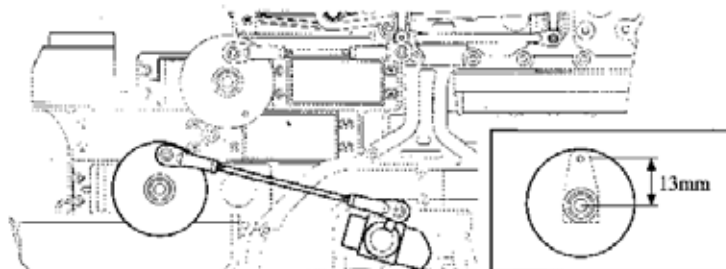
- JR ATV
- TRVL ADJ
- EPA
- 70% ~ 80%

With the transmitter's throttle stick and trim in slow position, make an alignment by the slow values on the transmitter...

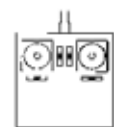
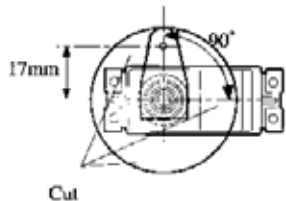
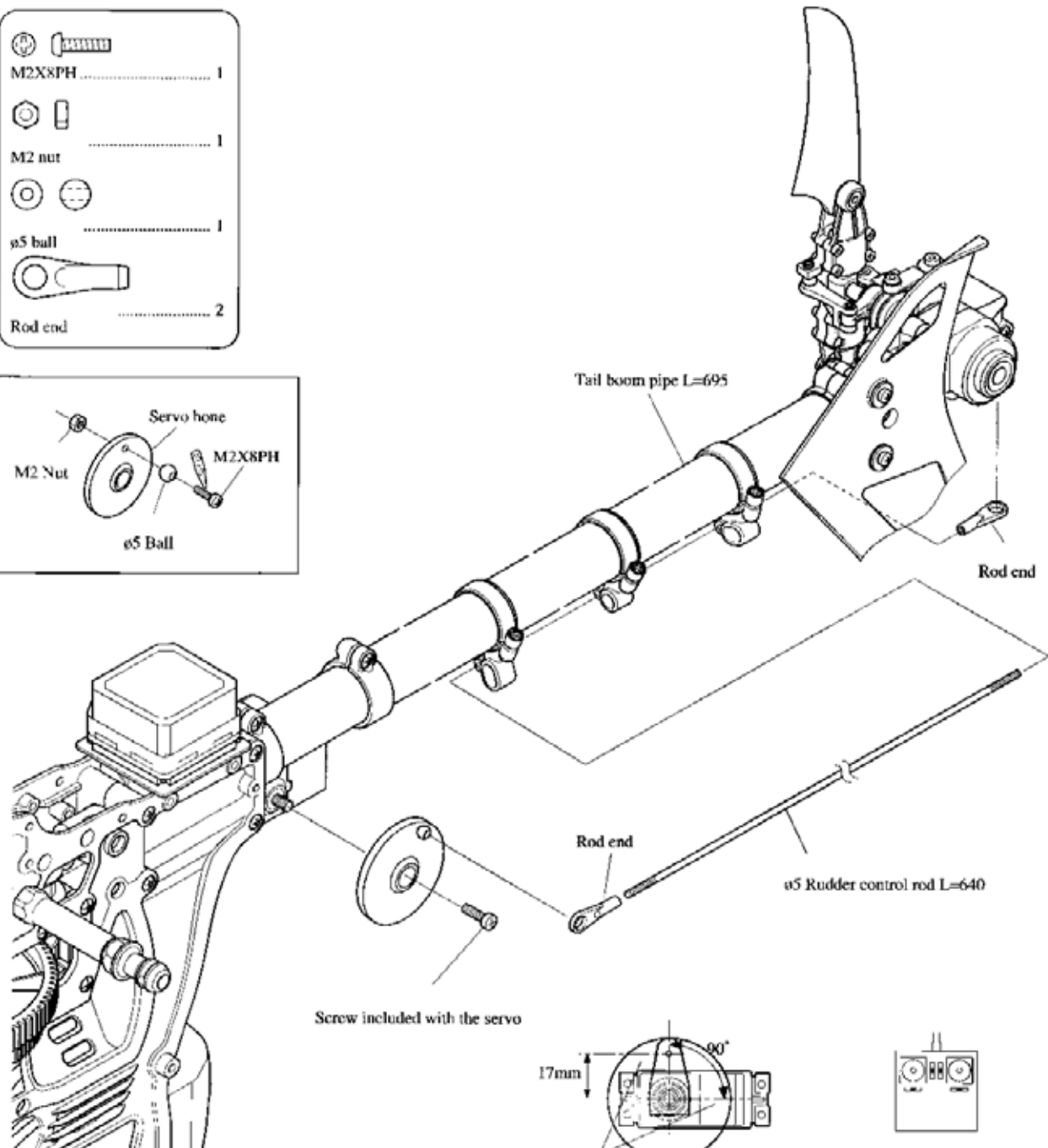
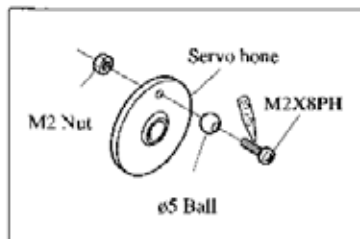
- Futaba ATV
- JR TVL ADJ
- Sunwa EPA

in order to get the throttle lever completely on the slow side. Standard values: 70-80%

Direction of the nose of the unit

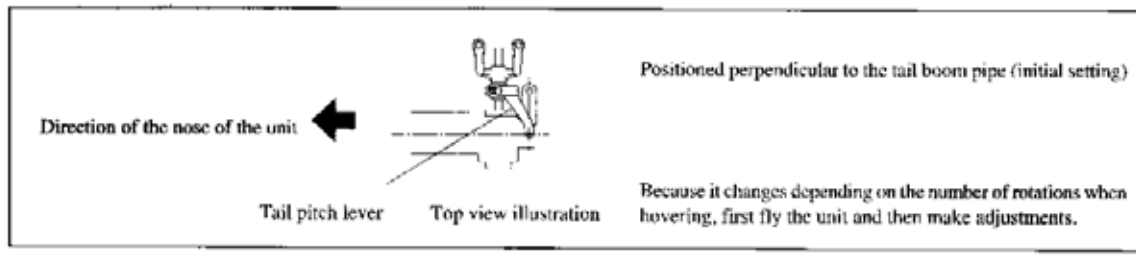


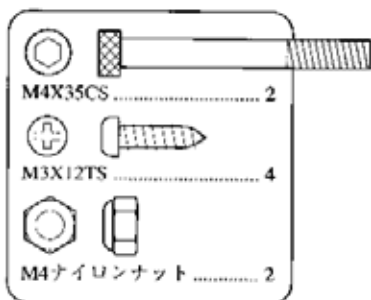
	M2X8PH	1
	M2 nut	1
	ø5 ball	1
	Rod end	2



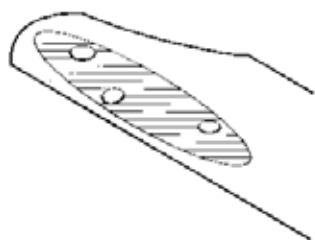
Servo horn: neutral

Transmitter stick/trim: neutral

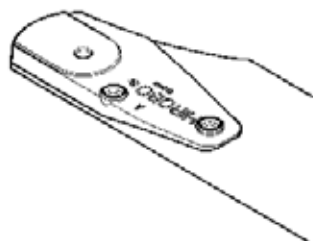




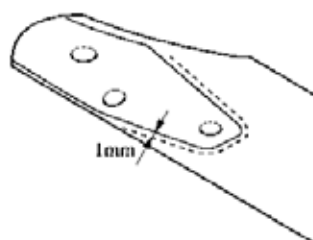
- (1) Remove the film from the holes of the wooden blades with a cutter making sure not to scratch the wood.



- (2) Set the root end and draw its contour on the blade with a ball pen or other writing instrument.



- (3) Remove the root end and, using the drawn contour as a guide, remove the film leaving a 1mm margin.



Balance the main blade.

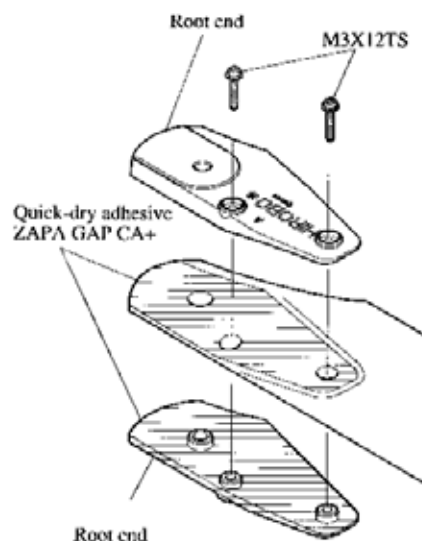


Apply tape or decals to the lighter end.

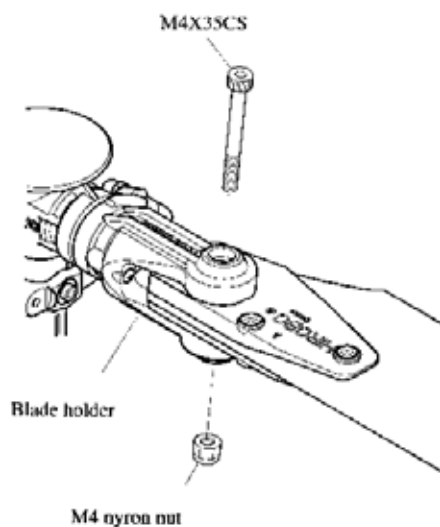
⚠ Caution

The risk of a crash may increase if the wooden part of the root end and the blade are not completely adhered to one another.

- (4) Apply high viscosity quick-dry adhesive to the wooden part where the film has been removed, set the root end, and fasten the M3X12TS screws.




- (5) Before the adhesive hardens, use the blade holder to affix the blade and the root end so as to prevent any gaps from forming.



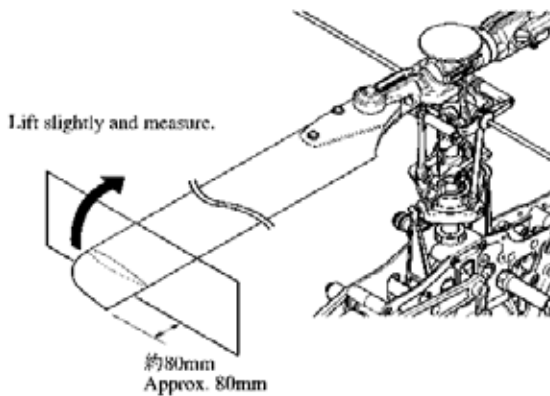
⚠ Caution

Fasten the screws so as to let the main blade move freely.

Pitch setting
 (This data originated from the use of a programmable transmitter.)
 *Varies depending on the engine, fuel, muffler, etc.
 General guidelines.

MODE II 	Condition	Hovering	Loop	Roll	3D	Auto-rotation
	High pitch		8.5 ~ 10°	8.5 ~ 9°	6.5 ~ 7°	8.5 ~ 9°
Hovering		4.5 ~ 5° (3.5 ~ 4.5°)	3°	-1°	0	
Low pitch		-4°	-5.5°	-6.5°	-8.5 ~ -9°	-6 ~ -7°

See attachment for transmitter data.



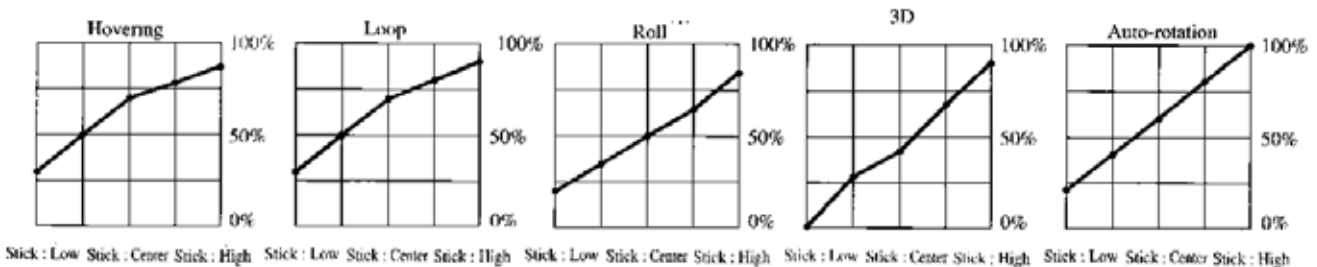
Caution

Make sure to use only Hirobo manufactured pitch gages (2513-040).

Install the pitch gage at approx. 80 mm from the end of the main blade having the stabilizer bar horizontal and measure with the pitch gage. (Lift the main blade slightly and measure.)

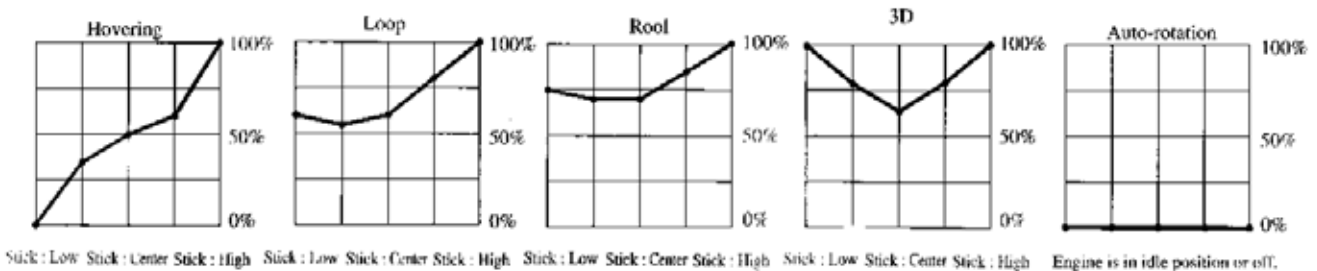
Pitch curve setting

For the setting method, refer to the instruction manual of the transmitter used.



Throttle setting

(This data originated from the use of a programmable transmitter.)
 *Varies depending on the engine, fuel, muffler, etc.

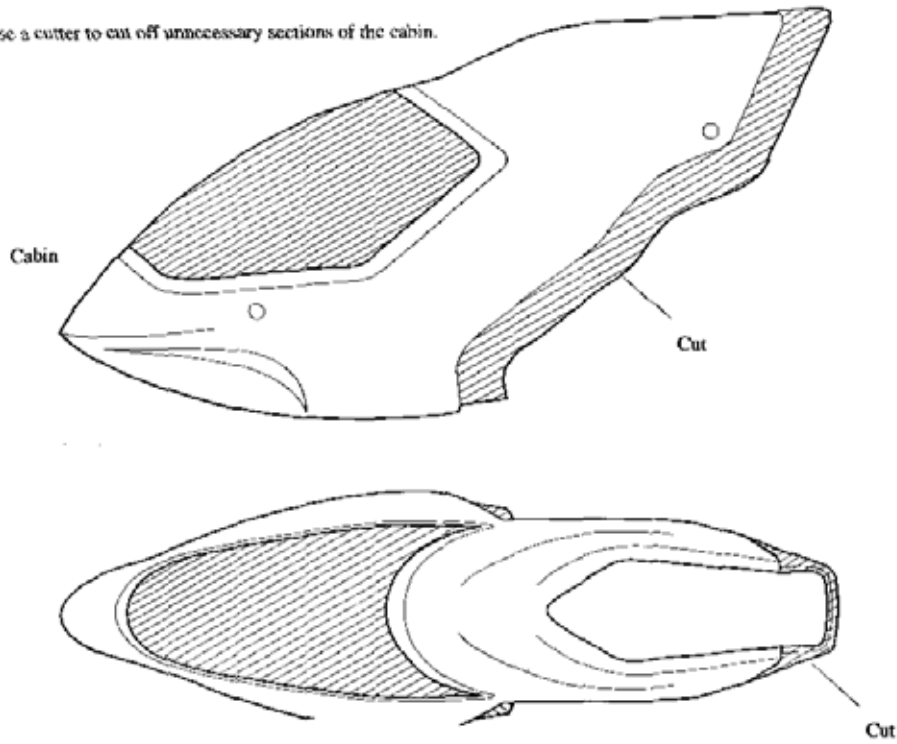


Caution

This setting is for a common pitch curve.
 (Obtained when using a programmable transmitter.)
 May vary depending on the engine, fuel, muffler, etc.
 First fly the unit and then adjust.

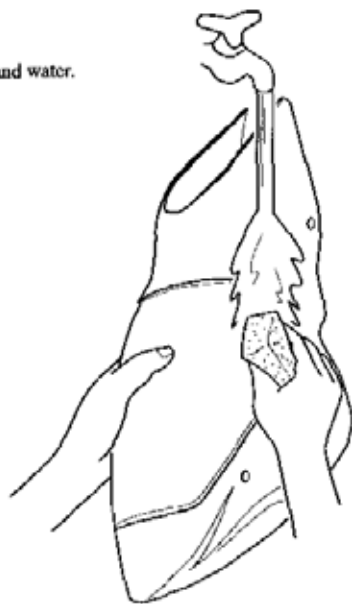
Preparing the cabin

Before assembly, use a cutter to cut off unnecessary sections of the cabin.



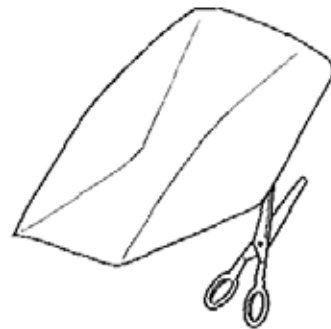
Washing

Wash the cabin with soap and water.

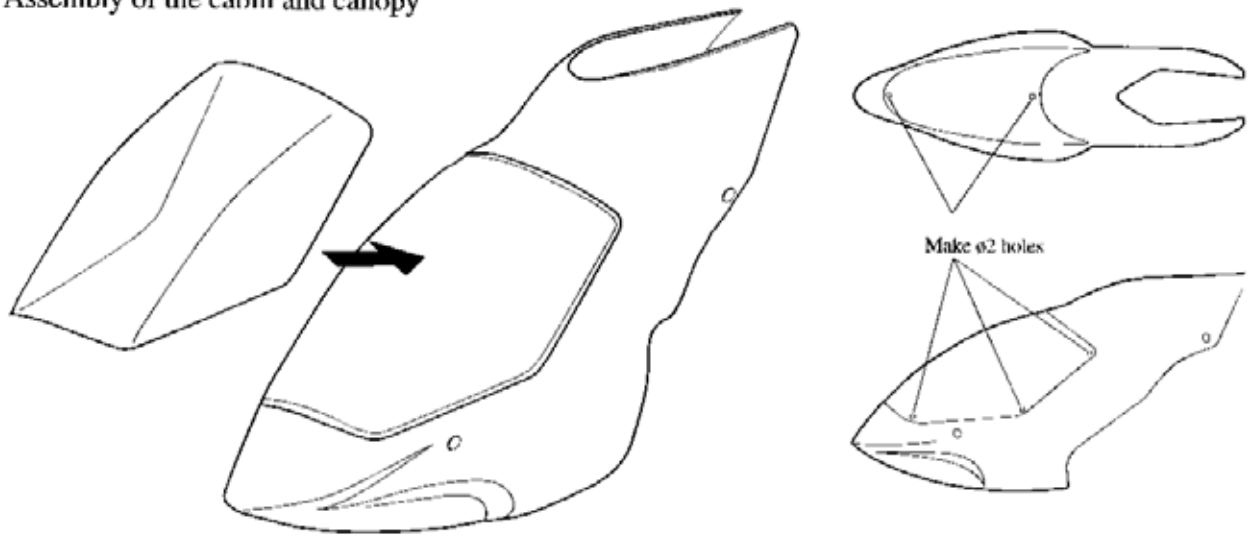





Preparing the canopy

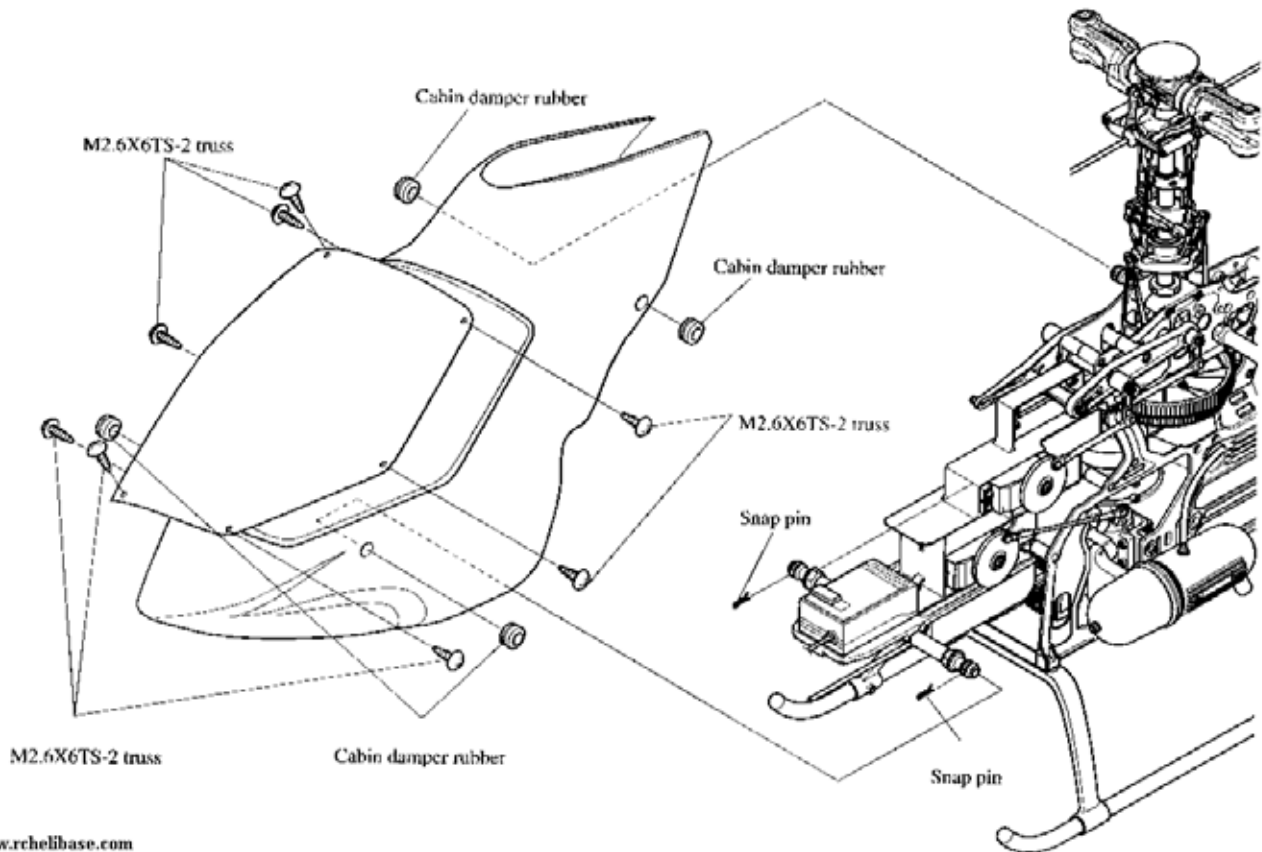
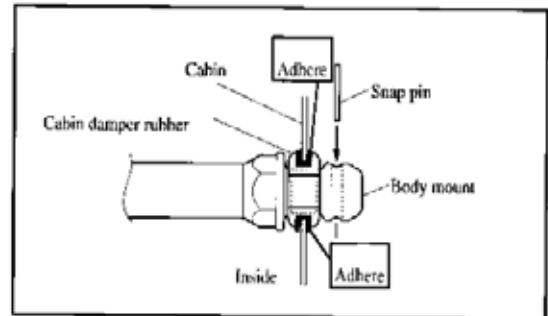
Cut the canopy along the cut-line.



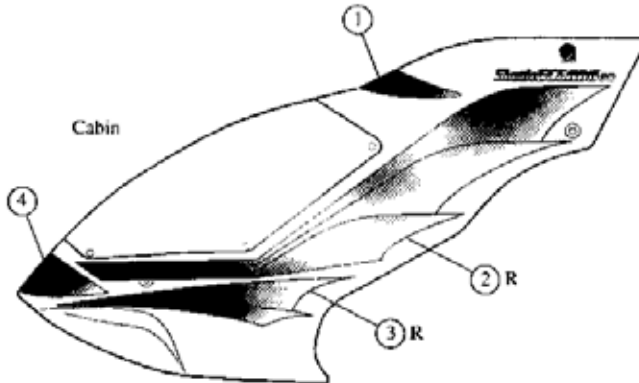
Assembly of the cabin and canopy



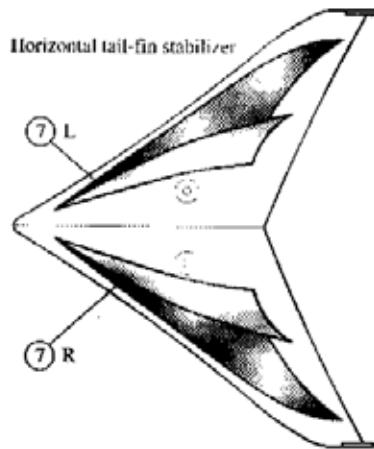
		
M2.6X6 truss	8
		
Snap pin	4



Refer to the packaging to affix decals.



Cabin

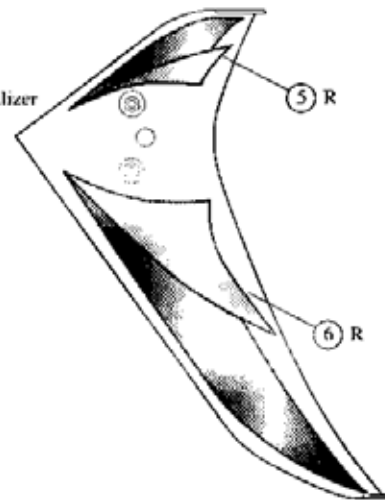


Horizontal tail-fin stabilizer

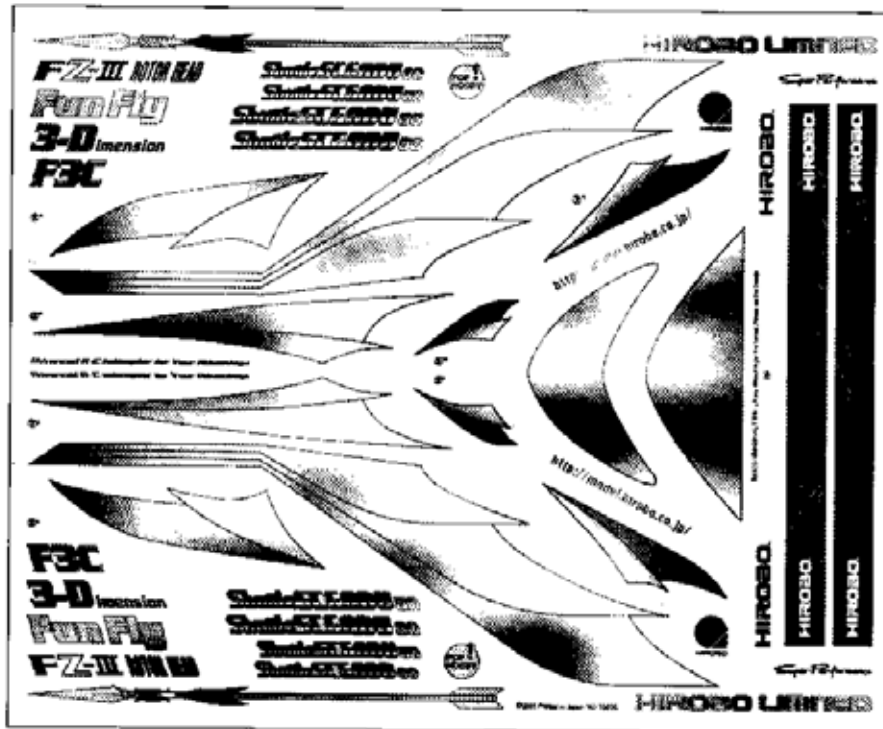
Vertical tail-fin stabilizer

Advice

When affixing the large decals, apply a thin layer of soapy water or commercially available wind-film affixing spray for cars to both the cabin and adhesive side of the decals. This will ensure that the decals are easy to position, won't form air bubbles, and can be affixed beautifully.



Decal



3. Flight training

The main rotor and tail rotor of the helicopter rotate at a high velocity. Pay full attention to the following instructions for safe operation of your model.

Transporting your model

When transporting your model to the airfield, always place it in the car in a manner so the model cannot bounce and or fall over.
If the model is not transported securely and it does bounce or fall over, it may become damaged thus compromising safety and or flight performance.



Caution

Check before flight

Confirm all screws are tightened completely.
Check all batteries for both the transmitter and receiver to ensure they have been fully charged.

Safety insurance

If your country's national modeler's organization provides insurance against accidents with your model helicopter while flying at a recognized airfield, we strongly recommend you to join the organization as soon as you can. Contact your country's distributor for the organization in your area.
For further details you can also contact the hobby shop where you purchased your model.

Before going to the flying field

• Pre flight familiarization

- Take time to learn the basic controls of your helicopter before attempting to fly the model. Try this learning technique.

1. Place the helicopter in the center of your room.
2. Call out "Roll right, roll left, nose left, nose right, pitch up, pitch down, elevator forward, elevator back, throttle high, throttle low" and operate the sticks accordingly.
3. This imaginary flight control exercise will help you become familiarized with the helicopter's actual operation.
4. For further visualization, record some commands on tape in any order and when playing them back move the appropriate sticks for the command being played back.

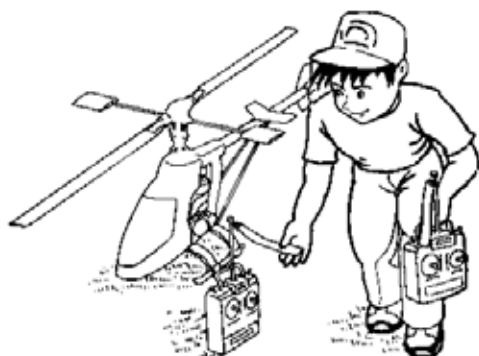


MODE I	MODE II		
			Elevator DOWN UP
			Rudder LEFT RIGHT
			Aileron LEFT RIGHT
			Throttle HIGH SLOW

Let's start flying!

⚠ Caution

- Check again if all bolts, nuts and other fasteners are tight.
- Check if the batteries of your radio are sufficiently charged.



⚠ Caution

If someone is already flying when you arrive at the flying site, check his frequency or channel and inform him/her of yours as well. If another transmitter on the same frequency as yours is turned on, interference will occur and may cause dangerous operation of your model.

When you arrive at a flying site

Check



Turn on the transmitter

Turn on the receiver and gyro.

Reverse to turn off



Before starting, verify each servo is operating in the proper direction according to input from the transmitter stick

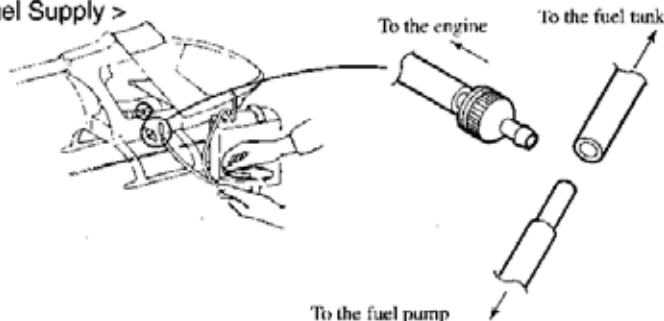


Range test your radio system according to the guidelines provided by the manufacturer of the radio system you are using. If the range test does not meet the guidelines specified, do not fly your model until the problem is fixed. Failure to do so may cause the helicopter to fly out of control causing a crash, personal damage or loss of the model.



Supply of fuel & adjustment of needle

< Fuel Supply >



Remove the joint or filter between the fuel line "to the engine" and "to the fuel tank" and fuel the helicopter accordingly. Try to keep foreign materials or dirt from entering the helicopter's tank. When the tank is filled full, stop filling and reconnect the joint or filter between the two tubes.

< Carburetor needle adjustment >



- ① Close the main needle valve.
- ② Open the control 1.25 to 1.5 turns.
(Final adjustment depends on your engine, fuel etc.)

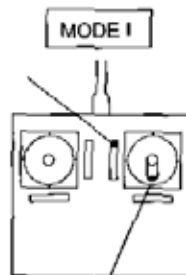
If the needle valve is open too much, the engine will run in an overly rich state and not produce sufficient power. If the needle valve is closed too much, the engine will run lean and cause the motor to overheat and not produce power. Please set accordingly.

Starting and stopping of engine

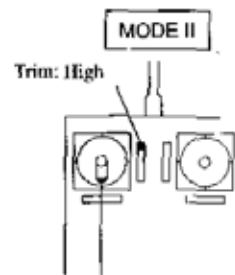
⚠ Caution

Only turn on your transmitter and receiver after confirming that no one else is using your frequency or channel when you wish to fly.

1. Set the throttle stick at low and the throttle trim in the center or high position.



⚠ Caution
Throttle stick at minimum



⚠ Caution
Throttle stick at minimum

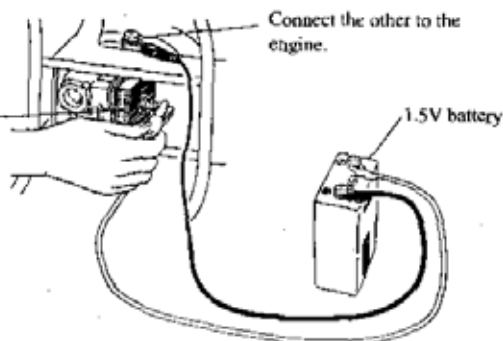
2. Connect one end of the glow plug cord to a 1.5 V battery and the other end to the tip of the glow plug. Make sure the lead going to the tip of the plug does not contact the head of the engine otherwise a short will occur causing an excessive load on your glow plug battery.

Connect one end of the cord to the tip of the plug.

Connect the other to the engine.

1.5V battery

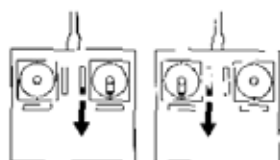
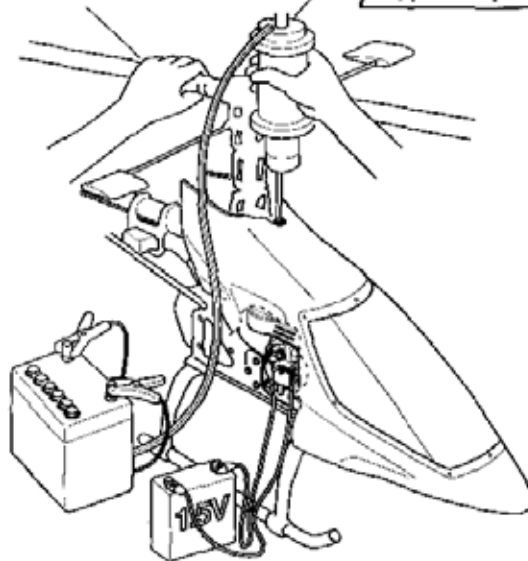
⚠ Caution
Make sure to keep the clip from making contact with the engine.



3. Connect your electric starter to a 12V battery source and confirm it is rotating correctly. Fully insert the starter shaft into the rubber of the starting cone.
4. While holding the rotor head firmly, insert the other end of the starter shaft into the coupling on the helicopter and engage the starter.
5. After the engine has started, stop the starter while still holding the rotor head and remove the starter shaft from the coupling.
6. While still holding the rotor head, disconnect the glow plug cord.
7. Verify that when the throttle stick and trim are set in their lowest setting, the engine will shut off.

⚠ Caution
Grip the rotor head firmly.

⚠ 注意 Caution
スターターをはずす時は、スターターが完全に止まってからはずして下さい。
When you remove the starter, make sure that the starter has stopped completely.



Decrease the trim setting.

If the engine does not stop, remove the joint (fuel filter) from the fuel line and let engine run out of fuel.

- Then readjust the linkage so it will shut off when throttle stick and trim are in the lowest position.

When the engine starts to run, remove the clip from the engine.

Rotor blade tracking

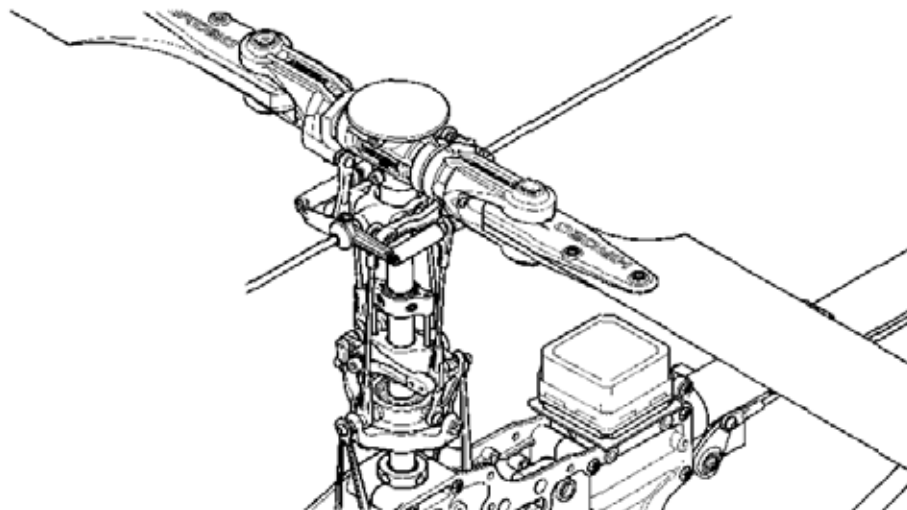
Caution

Keep at least 10m distance between you and your helicopter.

1. Gradually raise the throttle stick towards a high setting until the helicopter is just about to take off.
 2. Carefully watch the tracking of the rotor blade tips. If both rotor blades appear as one, the tracking is all right. However, if one blade is higher/lower than the other, it is necessary to adjust the tracking.
 3. To adjust the tracking, remove one end of the pitch rod from either the blade holder or mixing arm.
 - A: Lengthen the pitch rod of the blade which is tracking lower than the other blade.
OR
 - B: Shorten the pitch rod for the blade which is tracking higher than the other blade.
- In either case, turn each rod one or two full turns at a time until the blades track. If the hover point is high, raise the lower blade's pitch. If the hover point is low, then lower the higher blade. The hover point is the position where you have set the mid range pitch during set up.

Caution

Incorrect tracking causes vibration of the helicopter.
After tracking adjustments are made, reconfirm the hovering pitch of the main blades is approximately 5.5 degrees.



Hovering practice

Caution

Be sure no one is nearby.
Stand behind your model and to one side, at a distance of 5 to 10 meters.

- First extensively practice hovering until you can safely keep control of the model within a reasonable area.

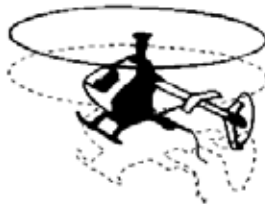


When practicing, stand about 10m behind the model in a diagonal direction.

Stretch the antenna to the full up position.

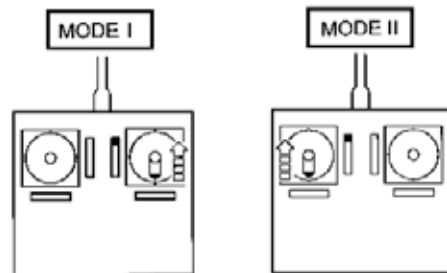


Step. 1 Practice of throttle operation

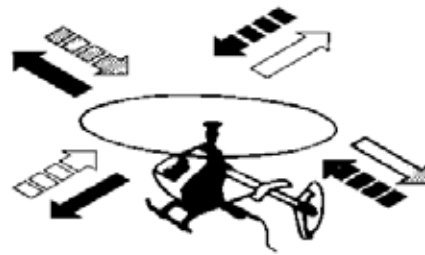
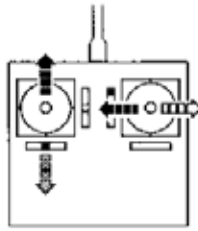


When the model begins to ascend, gradually decrease the throttle stick's position and land the model as smoothly as possible.

Raise and lower the model in intervals to get the feel of the throttle/pitch control. You do not need to go higher than 3 ft or a meter to practice this.



Step. 2 Practice of aileron and elevator operation



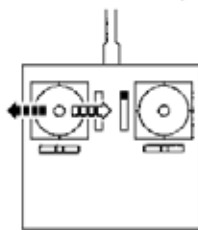
1. Gradually increase the throttle stick to make the model lift off.
2. As the model takes off and begins to move around, gently move the aileron and elevator control stick in the opposite direction of where the model is moving to return it to the original starting position.

Caution



If the model's nose move's right or left during this step, decrease the throttle stick position and land the model. Reposition yourself at least 10 meters behind and to the side of the model and start over again. If the model has moved some distance from your starting point, walk over to it and reposition yourself again as above and start over.

Step. 3 Practice of rudder operation



1. Gradually increase the throttle stick to make the model lift off.
2. If the nose begins to move left or right, gently move the rudder stick in the opposite direction to stop the movement and return the model to its starting position.



Step. 4 Practice circular movement

After becoming fully accustomed to the operations in Step 1 through Step 3, draw a circle on the ground and practice moving and/or hovering within the range of the circle to improve control accuracy. Make sure you stand at least 5-10 m. Away from the model at all times.

After becoming accustomed to this practice, gradually make the circle smaller.



Step. 5 Change helicopter direction and practice hovering

After fully practicing and competently completing Steps 1 through 4, stand to the side of the model and repeat the above practice steps in this new sideways orientation. After competently completing this practice, place the model with the nose facing you and repeat Steps 1 through 4 in this orientation and practice until you can fully control the helicopter. Make sure to keep at least 10 m between you and the helicopter while practicing these steps.



STEP 5-1



STEP 5-2

Adjustment of each trim

Slowly raise the throttle to make the helicopter lift off. As the helicopter is just about ready to break ground, it may begin to drift in any direction. Correct the drift direction by adjusting the appropriate trim in the opposite direction.

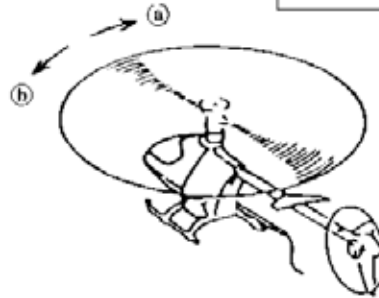
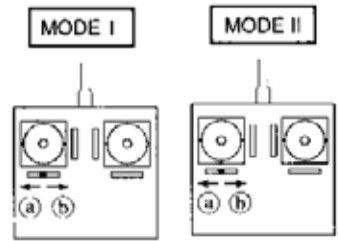
1. Rudder trim

When the helicopter is just about to take off,

Inclination of helicopter	Correction of trim
Turns to (a)	Trim to (a)
Turns to (b)	Trim to (b)



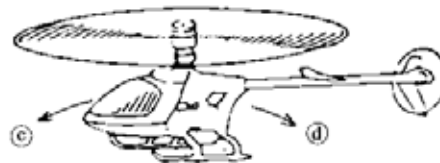
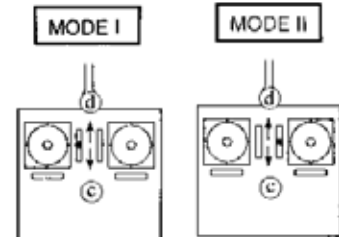
If using a gyro with a heading-lock function, make sure to turn it off when adjusting the trim.



2. Elevator trim

When the helicopter is just about to take off,

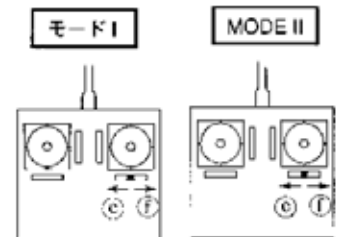
Inclination of helicopter	Correction of trim
Turns to (c)	Trim to (c)
Turns to (d)	Trim to (d)



3. Aileron trim

When the helicopter is just about to take off,

Inclination of helicopter	Correction of trim
Turns to (e)	Trim to (e)
Turns to (f)	Trim to (f)



Troubleshooting on flying

	Symptom	Cause	Countermeasure
Tracking	Not to be coincident	Adjustment by pitch rods has not been completed.	Adjust the tracking by pitch rod. Shorten the pitch rod when lowering the upper blade, or lengthen the pitch rod when elevating the lower blade. (Refer to Page: 46)
Rotation of rotor	Low	Pitch of the main blade is high.	Adjust the pitch rod. (The rotation speed of rotor is about 1,450 r.p.m.)
	High	Pitch of the main blade is low.	Adjust the pitch rod. (The rotation speed of rotor is about 1,450 r.p.m.)
Gyro	The tail swings on hovering.	The sensitivity of gyro is low.	Increase the sensitivity
	The tail swings on flying at full speed.	The sensitivity of gyro is high.	Decrease the sensitivity.

After checking the items shown above, should you still be unable to locate the source of the problem, consult your dealer, or our engineering service section.

Cleaning and storage

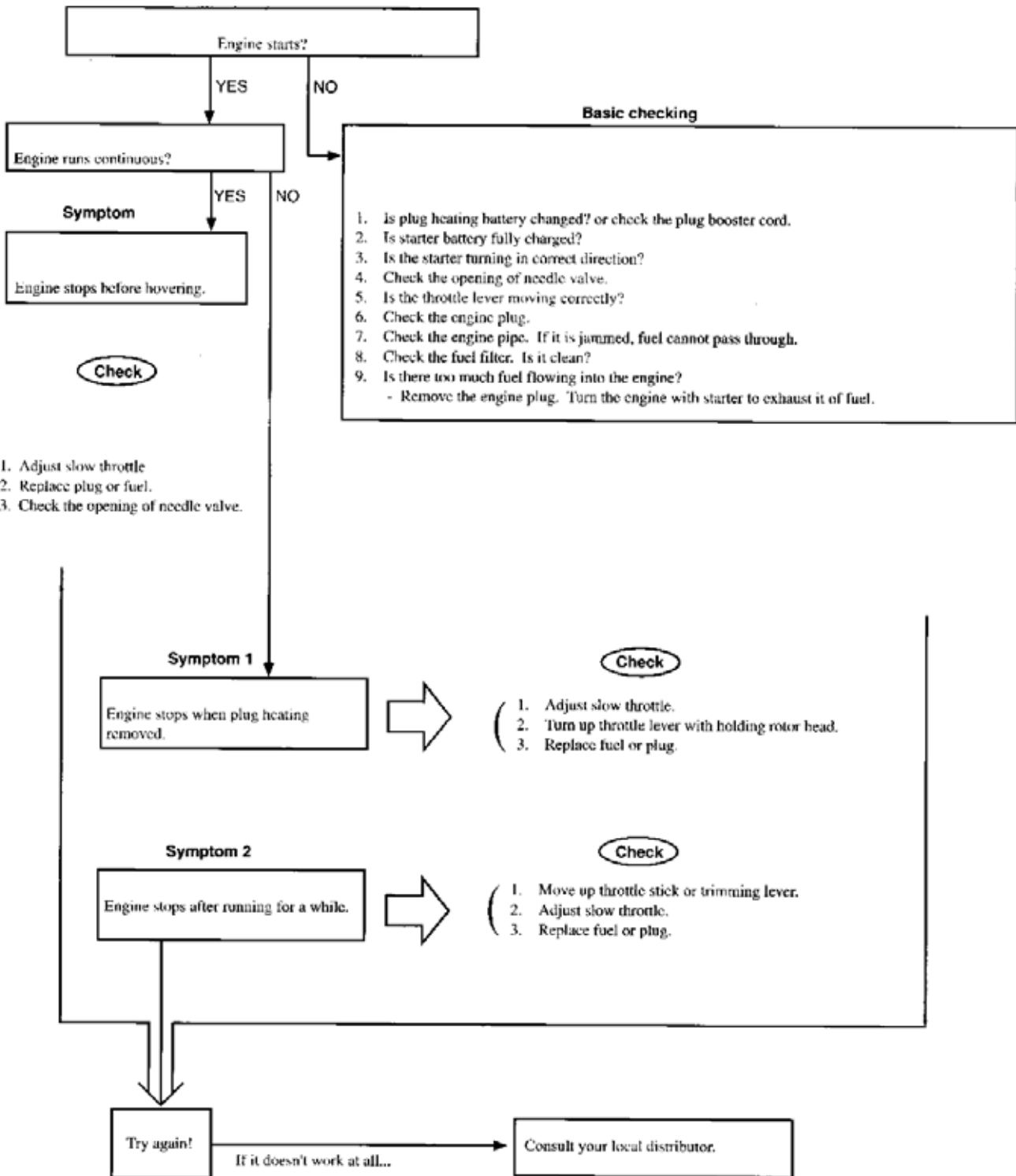
- ① After finishing your flight, be careful to follow these steps when cleaning you model.
- ② Do not wash the model body with water. Damage to the radio controls or rusting of metal parts should result. Wipe the body with a rag, or spray the body with alcohol and wipe with a rag.
- ③ Remove all left over fuel from the fuel tank. Also, close the carburetor to store.
- ④ Be sure to remove the main blades and turn the switch to off when storing your model.
- ⑤ Avoid storing your model in direct sunlight or leaving it in your car for long periods of time. This could result in discoloration or distortion of the body.
- ⑥ When storing for long periods of time, be sure to follow step 3, and then place in a well ventilated area.

Disposal and recycling

Please follow these rules when disposing of your old parts:

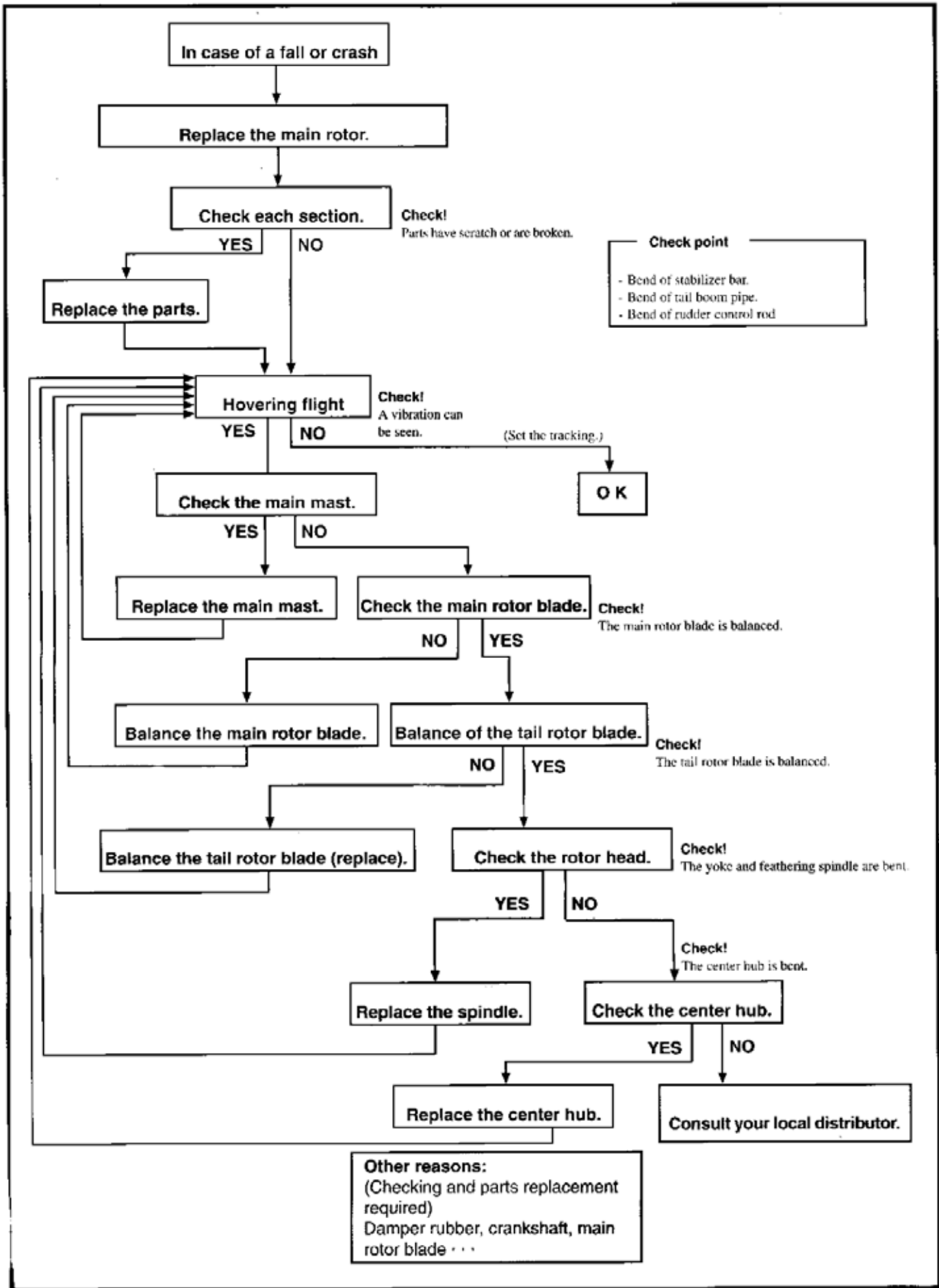
- Always remove any left over fuel from old fuel tanks.
- Separate metal from plastic, etc.
- Used nickel-cadmium batteries are a valuable resource. Always take used nickel-cadmium batteries to a shop that participates in a recycling program.

If your model doesn't fly well, check the following points.




4.

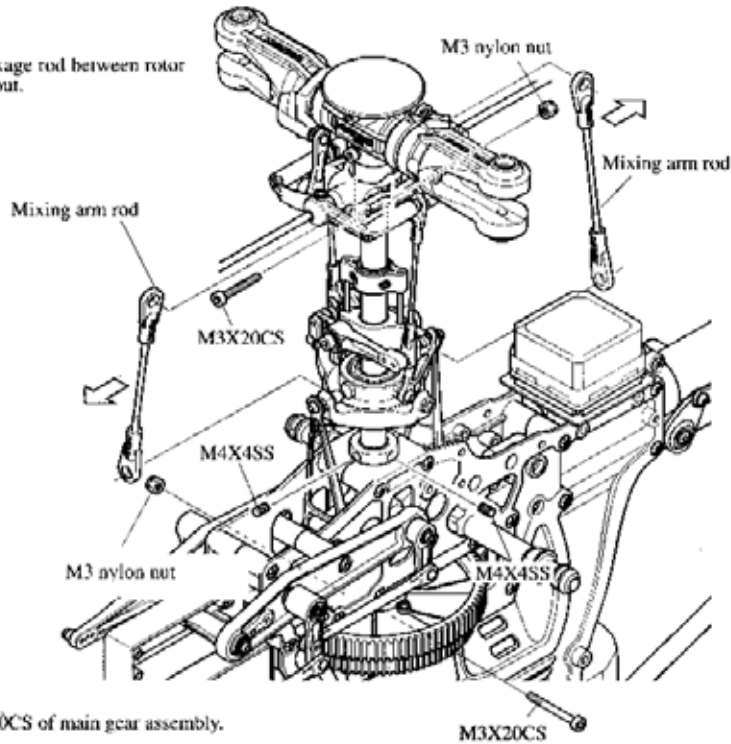
Maintenance



I. Main Mast Replacement

Use thread locking agent to the screw marked  before assembling.

1. Remove the linkage rod between rotor head and wash-out.

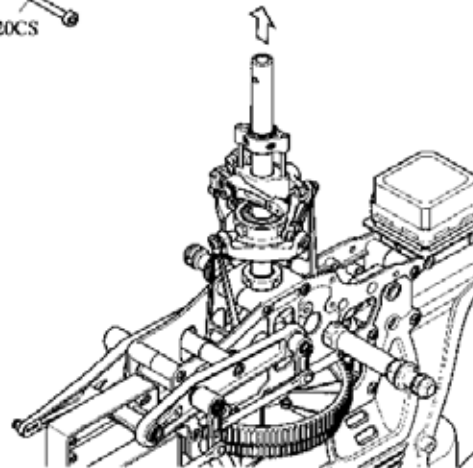
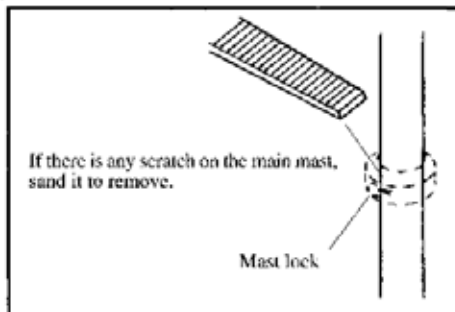


2. Unscrew M3X20CS of rotor head assembly.

3. Unscrew M4X4SS of the mast lock.

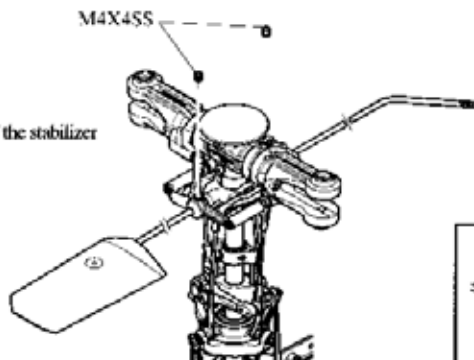
4. Unscrew M3X20CS of main gear assembly.

5. Pull the main mast out of swash plate and wash-out.



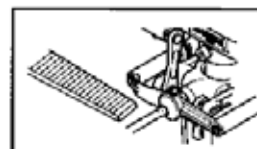
II. Stabilizer Bar Replacement

1. Unscrew M4X4SS of the stabilizer stopper.



2. Remove one of the stabilizer blades.

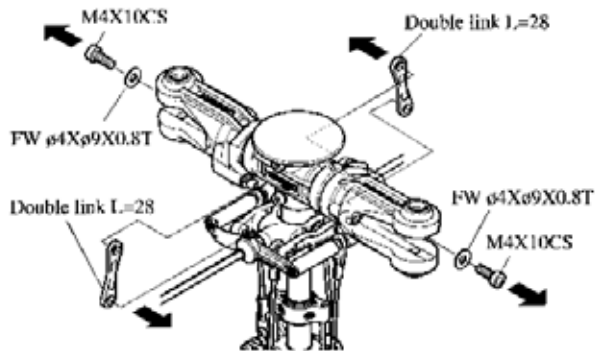
Cut the stabilizer bar if it is enormously bent. Then, sand the end of the bar if there is any scratch.



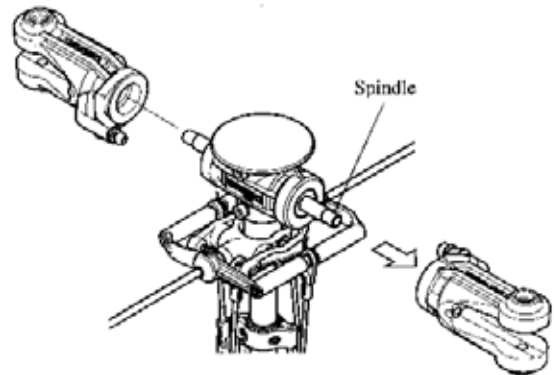
III. Spindle Replacement

2. Unscrew M4X10 of the blade holders.

3. Remove the holders and pull the spindle out of yoke.



1. Remove the linkage rod.

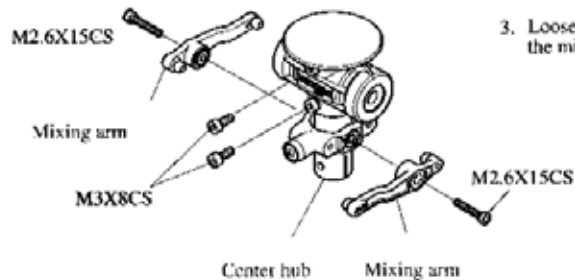


IV. Center Hub Replacement

1. Remove the stabilizer bar and the stabilizer arm with reference to II.

2. Remove the blade holder and the spindle with reference to III.

4. Loosen M3X8CS of yoke mounting and remove the yoke.



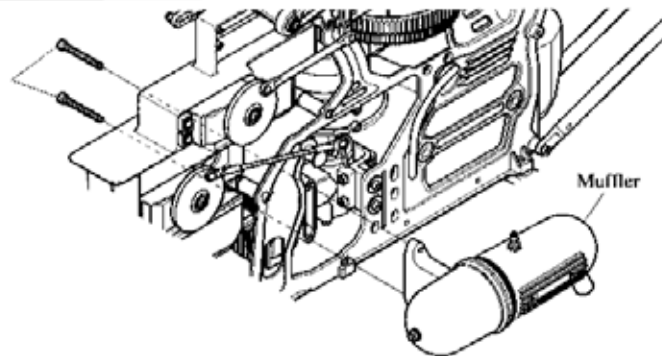
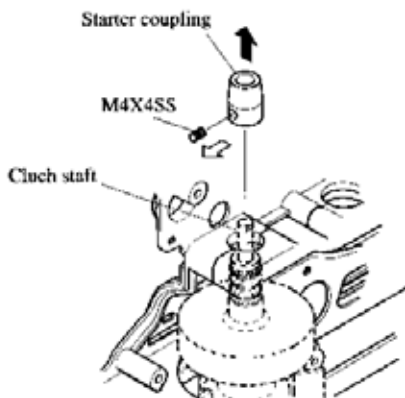
3. Loosen M2.6X15CS and remove the mixing arm.

V. Engine Replacement

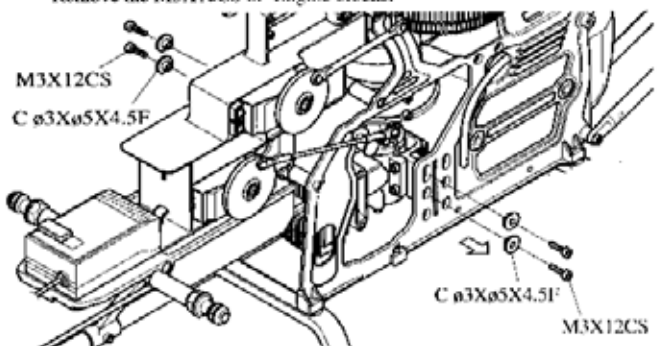
1. Remove the muffler.

M3X35CS
If using a 50 class engine
M3X28CS
If using a 30 class engine

2. Loosen M4X4SS and remove the starter coupling.



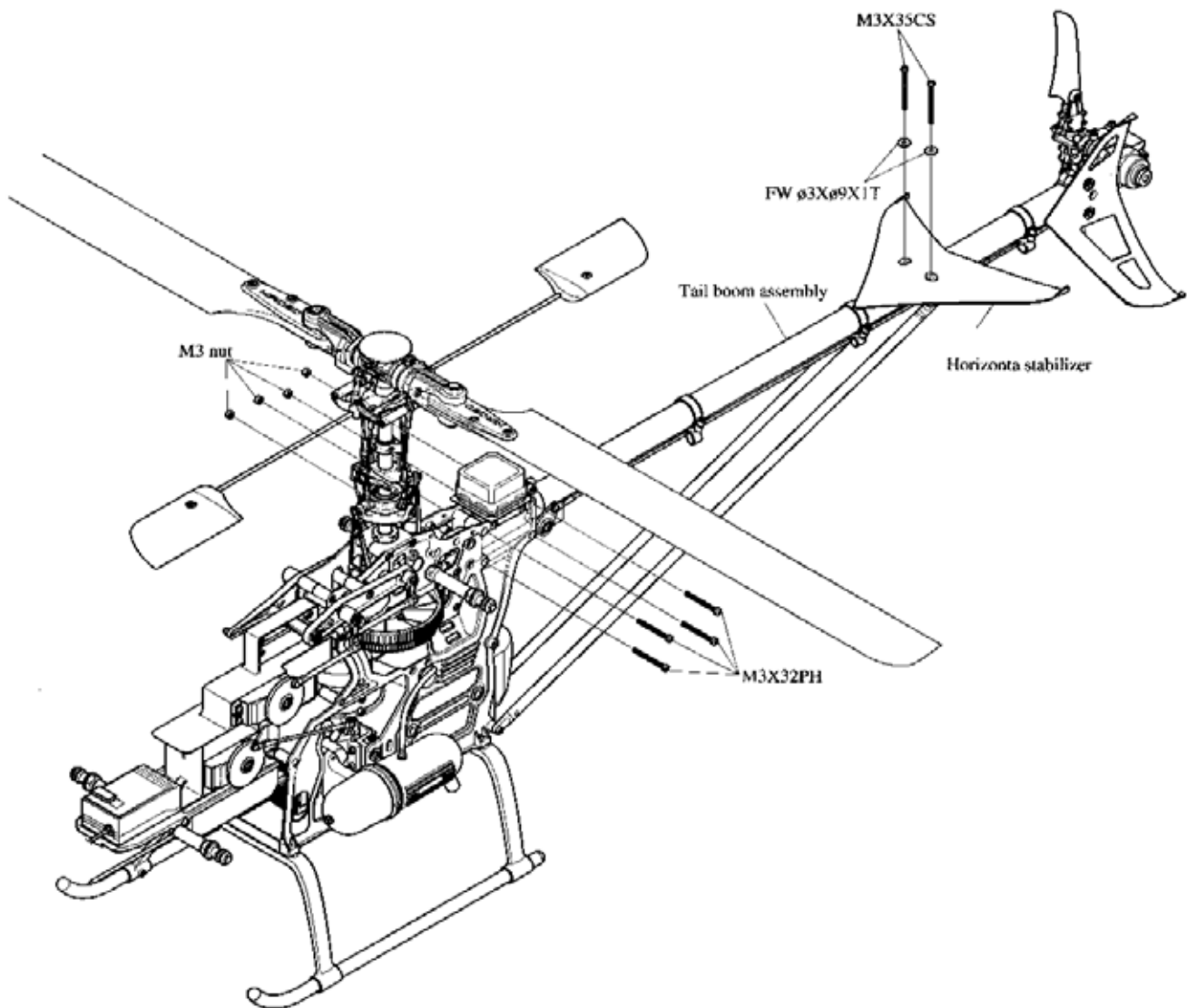
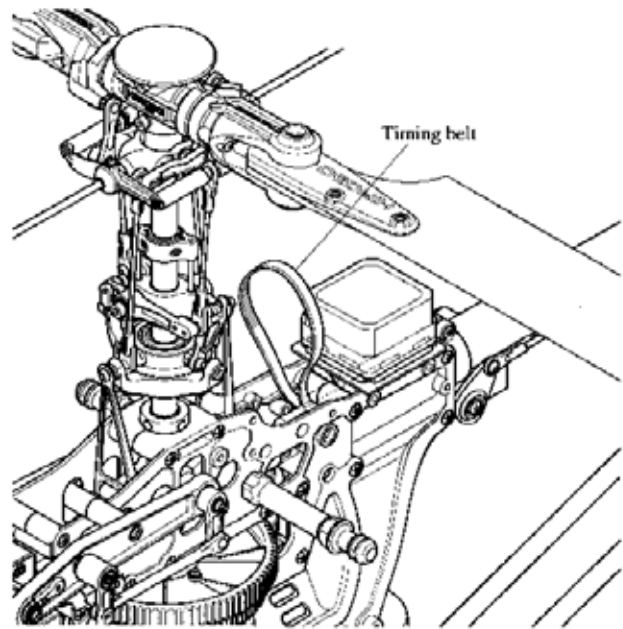
3. Remove the M3X12CS of Engine blocks.



VI. Tail Boom Replacement

1. At first, remove the timing belt from pulley loosening M3X32PH and moving the tail boom assembly a little forward.
2. Unscrew M3X35CS and M3 nut to remove horizontal stabilizer.
3. Unscrew M3X15PH and remove the rod end to take the tail unit case off the end of tail boom.
4. Unscrew M3X32PH and M3 nylon nut to remove the tail boom.

When assembling, make sure that the direction of timing belt rotation is correct. (Refer to Page: 25)



5. 補修パーツについて Repair parts

- 補修パーツのご購入につきましては、キットを購入された模型店へコード番号と名称を言ってお問い合わせください。
- 上記の方法で購入が困難な場合は、直接当社へ下記要領にてお申し込みください。

●お届け

商品は小包にて、ご注文受付日から3日～7日後にお届けいたします。
週末・年末年始・ゴールデンウィーク・お盆休み中のご注文は、休み明けから3日～7日後とさせていただきます。
月初めは梱卸しのため1日～3日ほど余分にお時間をいただくこともあります。あらかじめご了承ください。

●商品の交換

商品の不良、配送上の破損、ご注文と違う商品が届いた場合は、お手数ですが商品到着8日以内にお電話
(0847-40-0088) パーツ係までご連絡のうえ、ご返送ください。返送料は当社で負担いたします。
お客様のご都合による返品・交換は受け付けておりませんので、コードNo・品名・数量をご確認のうえ、ご注文ください。

※コードNo・品名は商品に表示してあります。商品が届いてすぐに内容をご確認ください。

1 現金書留

注文書同封の上、お申し込みください。
消費税(5%)、送料が必要です。
(お釣りのいらぬようにお願いします)
※切手でのご注文はお受けできません。

品代金	500円未満	一律	¥525
	500円以上	一律	¥1,260
		沖縄・離島	

2 代金引換

FAX、封書、お電話でお申し込みください。
消費税(5%)、代引送料(代引手数料込)が必要です。

地区	品代金		
	1万円未満	1万円以上 3万円未満	3万円以上
北海道	¥2,310	¥2,415	¥2,625
東北、関東、信越	¥1,575	¥1,680	¥1,890
北陸、東海	¥1,470	¥1,575	¥1,780
近畿、中四国	¥1,365	¥1,470	¥1,680
九州	¥1,470	¥1,575	¥1,785
沖縄	¥2,310	¥2,415	¥2,625

●注文書 (コピーしてお使いください)

お申し込み年月日	年	月	日	ご注文回数	はじめて・2回目以上
フリガナ				日祝日配達	希望する・希望しない
お名前				指定時間	無・有(時頃)
〒					
ご住所	都・道 府・県		市・郡 区		
TEL	()		FAX	()	
コードNo.	品名			単価	数量

ヒロボ株式会社 (パーツ係)

広島県府中市府川町138 〒726-0004
TEL: (0847) 40-0088 (代) FAX: 45-7670
http://model.hirobo.co.jp/

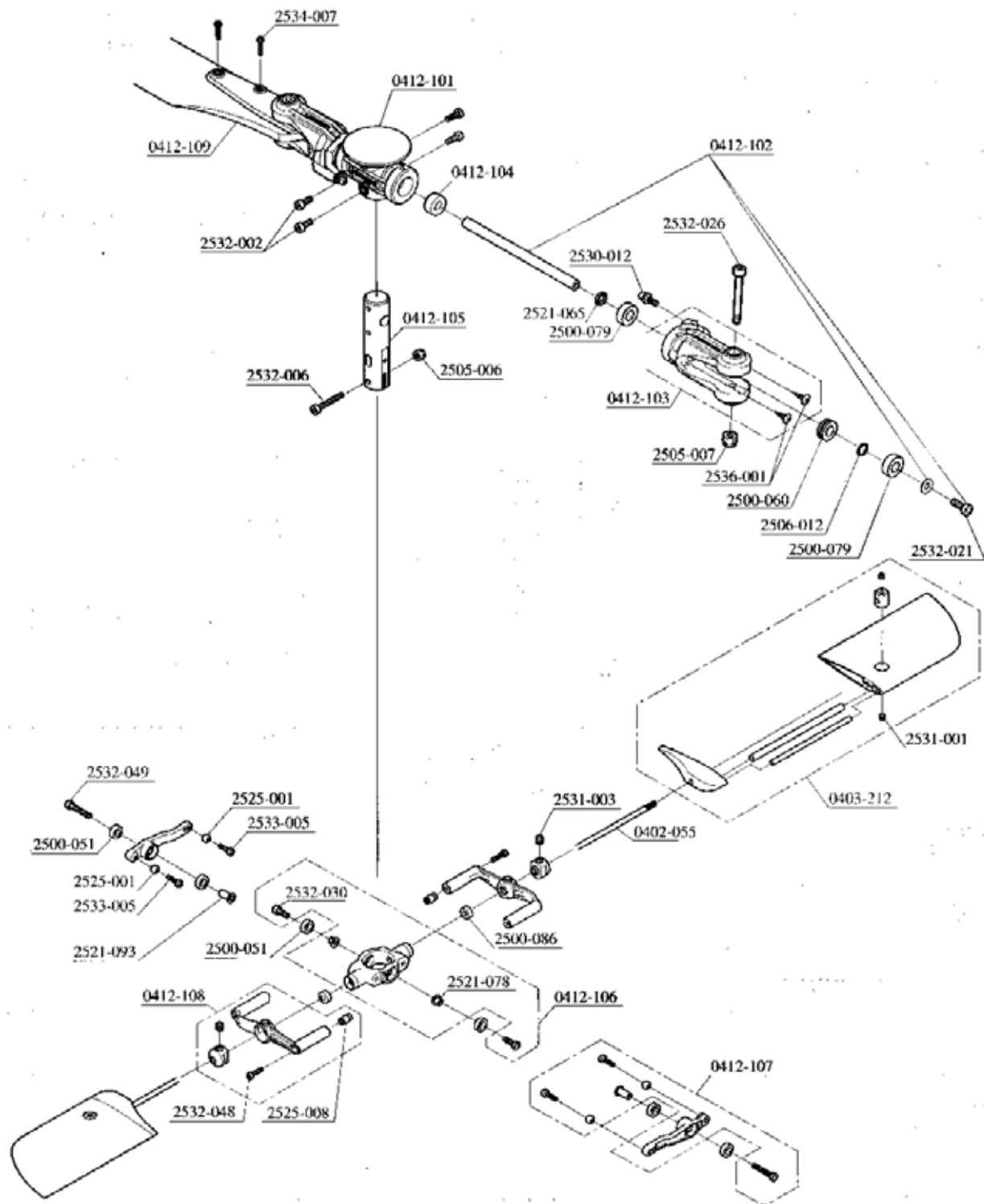
①パーツ代金の合計

②消費税(5%)

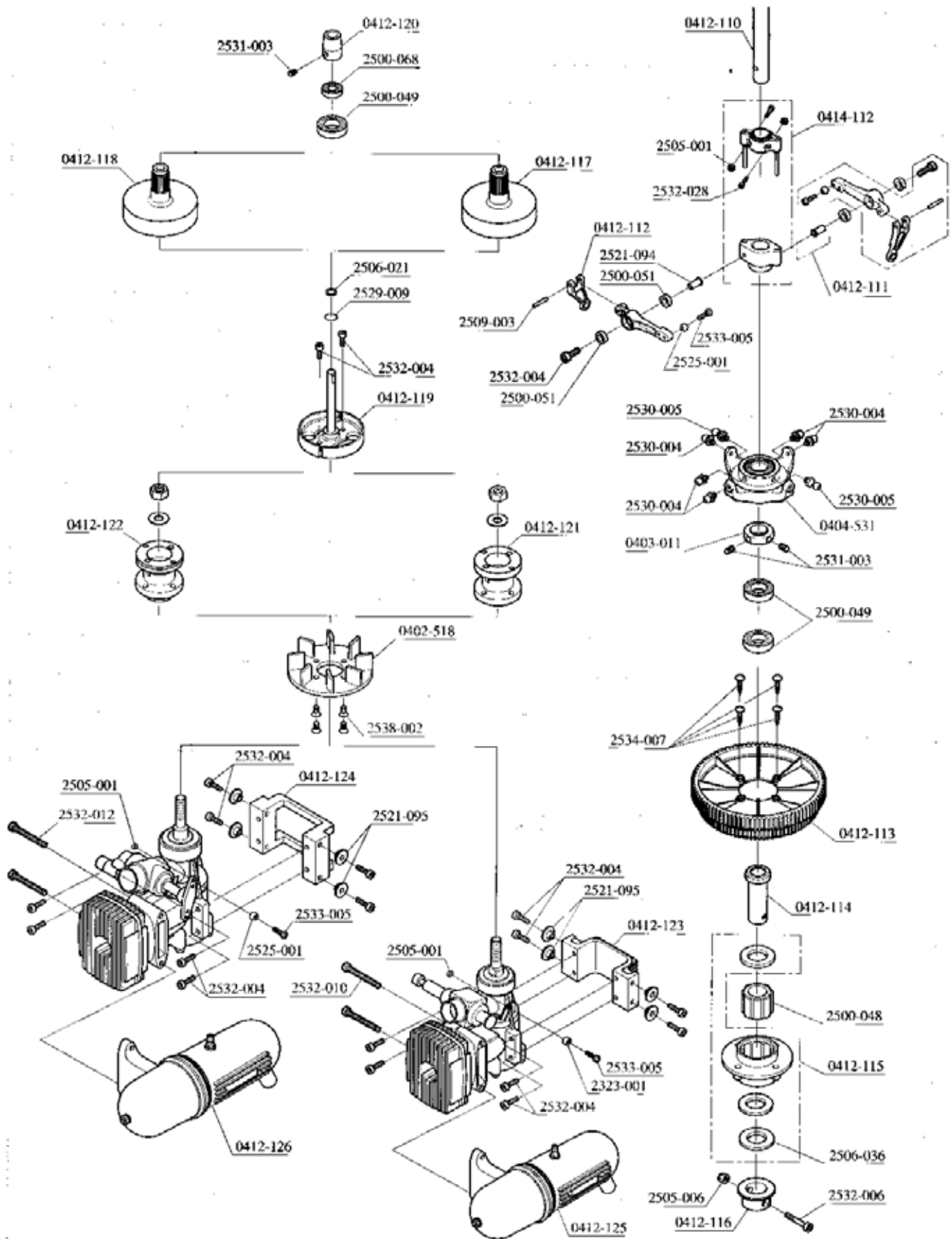
③送料/代引送料(代引手数料込)

お支払金額(①+②+③)

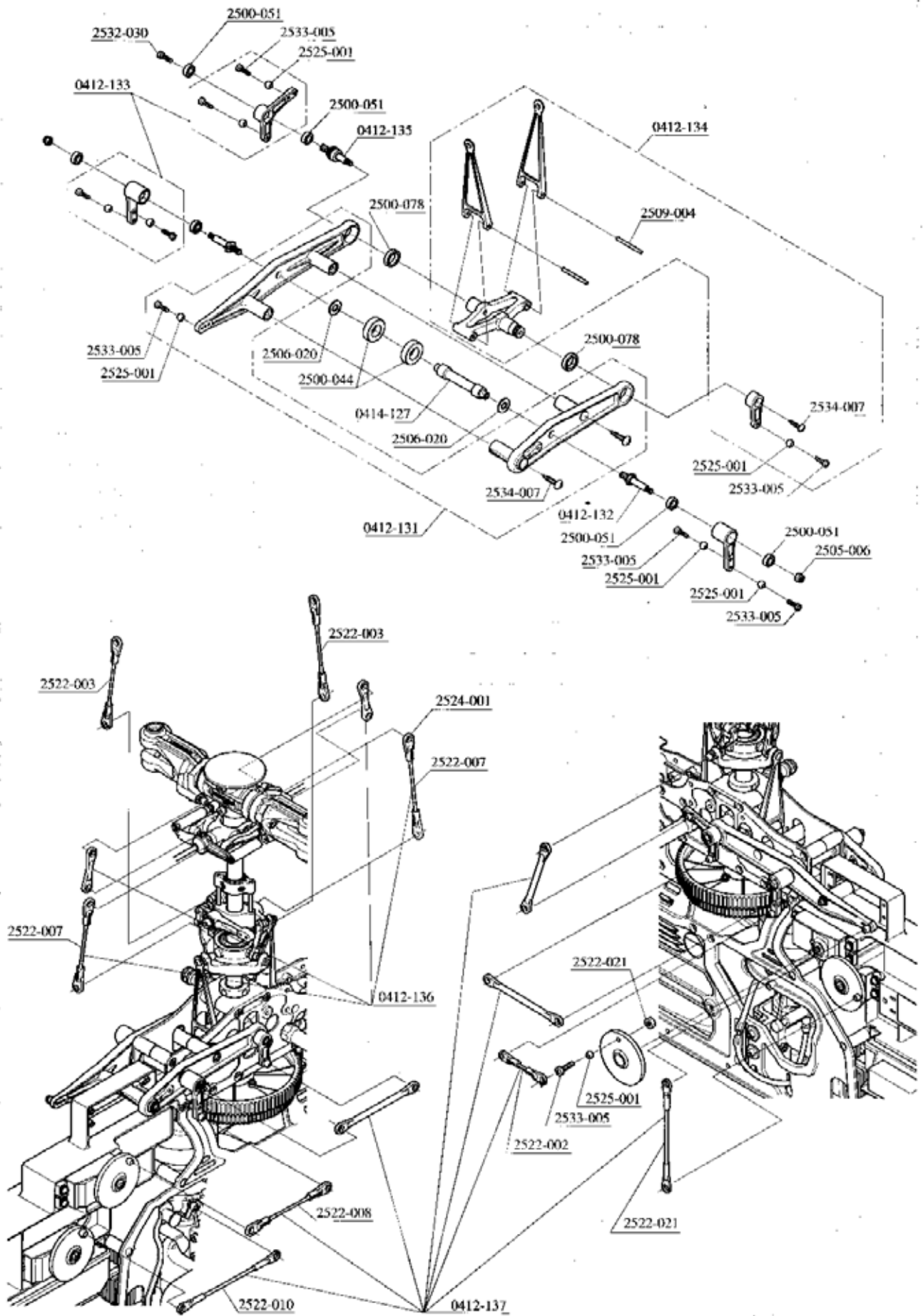
パーツリスト
Parts list



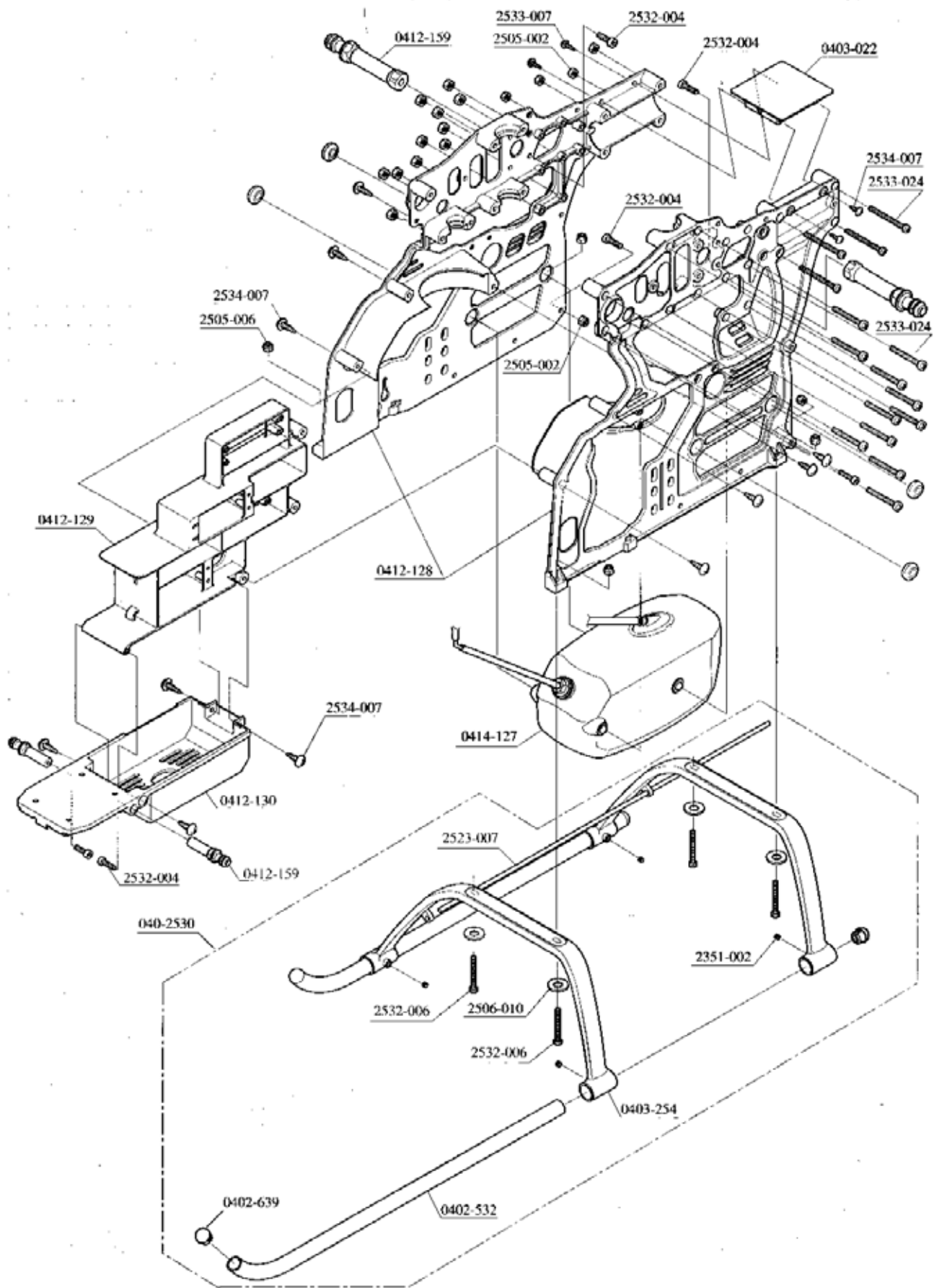
コード No. Code No.	品名 Name	入数 Qty	価格(円) Unit price in yen	備考 Remarks
0402-055	スタビライザーバー Stabilizer bar	2	800	
0403-212	スタビブレード Stabilizer blade	2	1,600	
0412-101	FZ-III ヨーク FZ-III Yoke	1	600	ネジ付 Screws attached
0412-102	FZ-III フェザリングスピンドル FZ-III Feathering spindle	1	300	ネジ、FW付 Screws and washers attached
0412-103	FZ-III ブレードホルダー FZ-III Blade holder	2	900	ネジ、ピボットボルト付 Screws and pivot bolts attached
0412-104	ダンパーゴム #60 Damper rudder #60	4	400	
0412-105	FZ-III センターハブ FZ-III Center hub	1	1,200	ネジ付 Screw attached
0412-106	FZ-III シーソー FZ-III Seesaw	1	500	ネジ、カラー付 Screws and collars attached
0412-107	FZ-III ミキシングアーム FZ-III Mixing arm	2	600	ネジ、カラー、ボール付 Screws, collars and balls attached
0412-108	FZ-III スタビコントロールアーム FZ-III Stabilizer control arm	2	700	ネジ、カラー、ボール付 Screws, collars and balls attached
0412-109	SD メインブレード L=550 SD Main blade L=550	2	3,400	ルートエンド組立済 Pre-assembled root end
2500-051	Brg.ø1Xø8X3ZZ	2	1,200	
2500-060	Brg.ø6Xø12X4.5H スラスト Bearing thrust ø12X4.5H	2	1,200	
2500-079	Brg.ø6Xø13X5ZZ	2	1,200	
2500-086	Brg.ø3Xø7X3ZZ	2	1,200	
2505-006	M3 ナイロンナット M3 Nylon nut	10	200	
2505-007	M4 ナイロンナット M4 Nylon nut	10	200	
2506-012	FW6X8X0.5T	5	500	
2521-065	カラー 6X8X1.5 Collar 6X8X1.5	2	300	
2521-078	カラー 2.6X4X4F Collar 2.6X4X4F	2	500	
2521-093	カラー 2.6X4X9F Collar 2.6X4X9F	2	500	
2525-001	ø5 ボール ø5 ball	10	500	
2525-008	ø5 ボール台付 2 ø5 ball with stand 2	10	1,000	
2530-012	ピボットボルト ø5X4 Pivot bolt ø5X4	2	400	
2531-001	セットスクリュー M3X3 Set screw M3X3	10	300	
2531-003	セットスクリュー M4X4 Set screw M4X4	10	300	
2532-002	キャップスクリュー M3X8 Cap screw M3X8	10	400	
2532-006	キャップスクリュー M3X20 Cap screw M3X20	10	400	
2532-021	キャップスクリュー M4X10 Cap screw M4X10	10	600	
2532-026	キャップスクリュー M4X35 Cap screw M4X35	10	600	
2532-030	キャップスクリュー M2.6X8 Cap screw M2.6X8	10	800	
2532-048	キャップスクリュー M2X15 Cap screw M2X15	10	800	
2532-049	キャップスクリュー M2.6X15 Cap screw M2.6X15	10	800	
2534-005	ナベ頭ビス M2X8 Pan-head screw M2X8	20	100	
2534-007	タッピングスクリュー M3X12 クロ Tapping screw M3X12 black	10	100	
2536-001	タッピングスクリュー M3X8 トラス Tapping screw M3X8 truss	10	100	



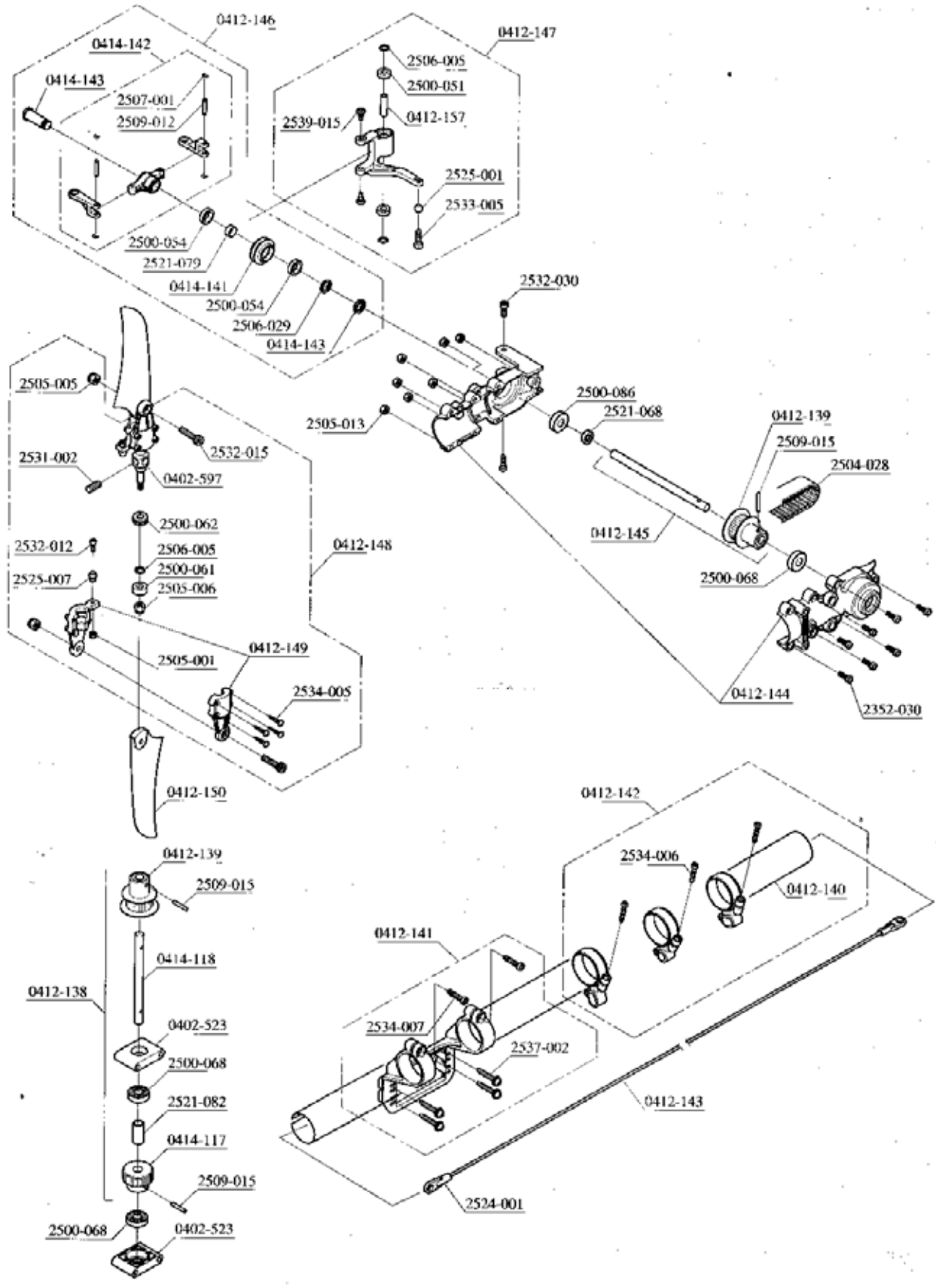
コードNo. Code No.	品名 Name	人数 Qty	価格(円) Unit price in yen	備考 Remarks
0402-518	SI-クーリングファン SI-cooling fan	1	500	
0403-011	ø10 マストロック ø10 Mast lock	1	300	
0404-531	SX スワッシュプレートセット SX swash plate set	1	4,500	
0412-110	ø10 メインマスト L=235 P=182 ø10 Main mast L=235 P=182	1	900	
0412-111	SD ウォッシュアウトコントロールアーム SD wash-out control arm	2	500	ネジ、カラー、ボール付 Screws, collars and balls attached
0412-112	ラジウスアーム, P=22 Radius arm P=22	2	200	
0412-113	SD メインギヤ 87T-79T SD main gear 87T-79T	1	600	
0412-114	SD ø10 オート回転駆動軸 SD ø10 Drive auto rotation	1	2,000	
0412-115	SD オート回転ケースセット SD auto-rotation case	1式 1 set	800	メッキ、FW付 (ワンウェイ Brg. 別売) Dialing, one carbon attached (one way bearing sold separately)
0412-116	SD メインギヤストッパー SD main gear stopper	1	200	ネジ、ナット付 Screws and nuts attached
0412-117	9T ギヤ付クラッチペダル Clutch bell with 9T gear	1式 1 set	3,500	組立済 Pre-assembled
0412-118	10T ギヤ付クラッチペダル Clutch bell with 10T gear	1式 1 set	4,000	組立済 Pre-assembled
0412-119	SD 軸付クラッチシュー Clutch shoe with shaft	1	3,000	ネジ付 Screws attached
0412-120	SD 六角スターターカップリング (ø5 シャフト用) SD starter coupling (For ø5 shaft)	1	500	ネジ付 Screws attached
0412-121	SD フライホイール 30用 SD fly wheel for 30 engine	1	2,000	FW 付 Washers attached
0412-122	SD フライホイール 50用 SD fly wheel for 50 engine	1	2,500	FW 付 Washers attached
0412-123	SD エンジンマウント 30用 SD Engine mount for 30 engine	1	1,400	ネジ、FW 付 Screws and washers attached
0412-124	SD エンジンマウント 50用 SD Engine mount for 50 engine	1	2,800	ネジ、FW 付 Screws and washers attached
0412-125	SD マフラー Assy 30用 SD muffler assembly for 30 engine	1式 1 set	2,300	組立済 Pre-assembled
0412-126	SD マフラー Assy 50用 SD muffler assembly for 50 engine	1式 1 set	2,500	組立済 Pre-assembled
0414-112	ウォッシュアウトブロックセット Wash-out block set	1式 1 set	1,000	
2500-048	Brg. ø12X16L, ワンウェイ Bearing ø12X16L one way	1	1,500	
2500-049	Brg. ø10Xø19X5ZZ	2	1,200	
2500-051	Brg. ø4Xø8X3ZZ	2	1,200	
2500-068	Brg. ø5Xø13X4ZZ	2	1,200	
2505-001	M2 ナット M2 nut	20	200	
2505-006	M3 ナイロンナット M3 nylon nut	10	200	
2506-021	FW5X7X0.1T	5	400	
2506-036	FW12X18X0.2T	5	300	
2509-003	ニードルピン ø2X11.8 Needle pin ø2X11.8	2	300	
2521-094	カラー 3X4X8.5F Collar 3X4X8.5F	2	500	
2521-095	カラー 3X5X4.5F Collar 3X5X4.5F	2	500	
2525-001	ø5 ボール ø5 ball	10	500	
2529-009	Oリング SS050 O ring SS050	5	300	
2530-004	ピボットボルト (D) ø5X7XM3 Pivot bolt (D) ø5X7XM3	2	400	
2530-005	ピボットボルト (E) ø5X7XM3 Pivot bolt (E) ø5X7XM3	2	300	
2531-003	セットスクリュー M4X4 Set screw M4X4	10	300	
2532-004	キャップスクリュー M3X12 Cap screw M3X12	10	400	
2532-006	キャップスクリュー M3X20 Cap screw M3X20	10	400	
2532-010	キャップスクリュー M3X28 Cap screw M3X28	10	400	
2532-012	キャップスクリュー M3X35 Cap screw M3X35	10	400	
2532-028	キャップスクリュー M2X8 Cap screw M2X8	10	800	
2533-005	ナベ頭ビス M2X8 Pan-head screw M2X8	20	100	
2534-007	タッピングスクリュー M3X12 黒 Tapping screw M3X12 black	10	100	
2538-002	皿ビス M3X6 Countersunk screw M3X6	10	200	



コード No. Code No.	品名 Name	入数 Qty	価格(円) Unit price in yen	備考 Remarks
0412-131	SD コレクトピッチアームセット SD collective pitch arm set	1式 1set	800	ネジ、ボール付 Screws and balls attached
0412-132	SD コレクトピッチボルト SD collective pitch bolt	1	400	
0412-133	SD コントロールレバーセット SD control lever set	1式 1set	600	ネジ、ボール付 Screws and balls attached
0412-134	SD エレベーターレバーセット SD elevator lever set	1式 1set	500	ネジ、ボール付 Screws and balls attached
0412-135	SD エレベーターシャフト SD elevator shaft	1	400	
0412-136	SD リンケージセット (R/H 用) SD linkage set (For R/H)	1	700	
0412-137	SD リンケージセット (フレーム用) SD linkage set (For frame)	1	900	
0414-127	コレクトピッチシャフト Collective pitch shaft	1	500	
2500-044	Brg. ø8Xø16X5ZZ	2	1,200	
2500-051	Brg. ø4Xø8X3ZZ	2	1,200	
2500-078	Brg. ø8Xø12X3.5ZZ	2	1,200	
2505-001	M2 ナット M2 nut	20	200	
2505-006	M3 ナイロンナット M3 nylon nut	10	200	
2506-020	FW5X10X1T	20	200	
2509-004	ニードルピン ø2X21.8 Needle pin ø2X21.8	2	300	
2522-002	アジャストロッド M2X25 Adjust rod M2X25	5	500	
2522-003	アジャストロッド M2X30 Adjust rod M2X30	5	500	
2522-007	アジャストロッド M2X55 Adjust rod M2X55	5	500	
2522-008	アジャストロッド M2X60 Adjust rod M2X60	5	500	
2522-021	アジャストロッド M2X40 Adjust rod M2X40	5	500	
2522-010	アジャストロッド M2X80 Adjust rod M2X80	5	500	
2524-001	M2 ロッドエンド M2 rod end	10	500	
2525-001	ø5 ボール ø5 ball	10	500	
2532-030	キャップスクリュー M2.6X8 Cap screw M2.6X8	10	800	
2533-005	ナベ頭ビス M2X8 Pan-head screw M2X8	20	100	
2534-007	タッピングスクリュー M3X12 クロ Tapping screw M3X12 black	10	100	



コード No. Code No.	品名 Name	入数 Qty	単価(円) Unit price in yen	備考 Remarks
0402-530	ランディングギヤセット (白) Landing gear set (White)	2	1,800	スキッドフット、パイプ、キャップ、ネジ付 Skid foot, pipe, cap and screws attached
0402-532	スキッドパイプ Skid pipe	2	800	キャップ付 Caps attached
0402-639	スキッドパイプキャップ ø8 Skid pipe cap ø8	4	300	
0403-022	ジャイロマウント Gyro mount	1	300	
0403-254	スキッドフット (白) Skid foot (White)	2	1,000	
0412-127	SD 燃料タンクセット SD fuel tank set	1 式 1 set	1,000	
0412-128	SD メインフレームセット SD main frame	各1 Each 1	2,000	ネジ、ナット付 Screws and nuts attached
0412-129	SD サーボマウント SD servo mount	1	1,000	ネジ付 Screws attached
0412-130	SD メカマウント SD mechanical mount	1	1,000	
0412-159	ボディマウント L=22, ボディマウント L=30 Body mount L=22 and Body mount L=30	各2 Each 2	500	
2505-002	M3 ナット M3 nut	20	200	
2505-006	M3 ナイロンナット M3 nylon nut	10	200	
2506-010	FW3X9X1T FW3X9X1T	20	100	
2523-007	ラダーコントロールチューブ ø3 Rudder control tube ø3	10	2,000	
2531-002	セットスクリュー M3X5 Set screw M3X5	10	300	
2532-004	キャップスクリュー M3X12 Cap screw M3X12	10	400	
2532-006	キャップスクリュー M3X20 Cap screw M3X20	10	400	
2532-038	キャップスクリュー M3X18 Cap screw M3X18	10	400	
2533-024	ナベ頭ビス M3X32 Pan-head screw M3X32	10	500	
2534-007	タッピングスクリュー M3X12 クロ Tapping screw M3X12 Black	10	100	



Code No.	Name	入数 Qty	価格(円) Unit price in yen	備考 Remarks
0402-523	SF Brg.ホルダー ø13 SF bearing holder ø13	1	400	
0402-597	SE テールハウジング SE tail housing	1	800	
0412-138	SD カウンターギヤプーリー 16T セット SD counter gear pulley 16T set	1式 1 set	1,800	組立済 Pre-assembled
0412-139	SD テールプーリー 16T SD tail pulley 16T	1	600	ロールピン付 Roll pin attached
0412-140	テールブームパイプ L=695 Tail boom pipe L=695	1	1,000	
0412-141	SD ラダーサーボマウント SD rudder servo mount	1	1,000	ネジ付 Screws attached
0412-142	SD ラダーコントロールガイド SD rudder control guide	1式 1 set	500	ネジ付 Screws attached
0412-143	SD ラダーコントロールロッド M2X1.642 SD rudder control rod M2X1.642	1	500	ロッドエンド付 Rod ends attached
0412-144	SD テールユニットケース SD tail unit case	各1 Each 1	1,000	ネジ、ナット付 Screws and nuts attached
0412-145	SD テールプーリー 16T シャフト付 SD tail pulley with 16T shaft	1	1,200	組立済 Pre-assembled
0412-146	SD テールピッチプレートセット SD tail pitch plate set	1式 1 set	1,800	ネジ付 Bearings attached
0412-147	SD テールピッチレバーセット SD tail pitch lever set	1式 1 set	1,000	ネジ、ガイドピン付 Screws and guide pins attached
0412-148	SD テールハウジングセット SD tail housing set	1式 1 set	3,500	ネジ、ナット付 Screws and bearings attached
0412-149	SD テールブレードホルダー SD tail blade holder	2	500	ネジ付 Screws attached
0412-150	SD テールブレード L=87 SD tail blade L=87	2	400	
0412-157	テールピッチレバーカラー Tail pitch lever collar	1式 1 set	500	
0414-117	カウンタギヤ 17T Counter gear 17T	1	300	
0414-118	カウンタギヤシャフト Counter gear shaft	1	700	
0414-141	テールピッチプレートボックス Tail pitch plate boss	1	500	
0414-142	テールピッチリンクセット Tail pitch link set	1式 1 set	500	
0414-143	テールシャフト Tail shaft	1	700	
2500-051	Brg. ø4Xø8X3ZZ Brg. ø4Xø8X3ZZ	2	1,200	
2500-054	Brg. ø6Xø10X3ZZ Brg. ø6Xø10X3ZZ	2	1,200	
2500-061	Brg. ø1Xø9X4ZZ Brg. ø1Xø9X4ZZ	2	1,200	
2500-062	Brg. ø1Xø9X4H スラスト Bearing ø4Xø9X4H thrust	2	1,200	
2500-068	Brg. ø5Xø13X4ZZ Brg. ø5Xø13X4ZZ	2	1,200	
2504-028	タイミングベルト 60S3M1572 Timing belt 60S3M1572	1	1,700	
2505-001	M2 ナット M2 nut	20	200	
2505-006	M3 ナイロンナット M3 nylon nut	10	200	
2505-013	M2.6 ナット M2.6 nut	20	200	
2506-005	FW6X8X0.5T FW6X8X0.5T	20	100	
2506-029	FW6X8X0.3T FW6X8X0.3T	4	500	
2507-001	E-ring ø1.5 E-ring ø1.5	10	100	
2509-012	溝付平行ピン 2X11.6 Grooved parallel pin 2X11.6	2	300	
2509-015	ロールピン ø2X12 Roll pin ø2X12	10	500	
2521-061	カラー 5X8X2.5 Collar 5X8X2.5	2	300	
2521-079	カラー 6X7X3 Collar 6X7X3	2	500	
2521-082	カラー 5X6.5X14 Collar 5X6.5X14	2	500	
2524-001	M2 ロッドエンド M2 rod end	10	500	
2525-001	ø5 ボール ø5 ball	10	500	
2525-007	EX ø5 ボール 付付 EX ø5 ball with stand	10	1,000	
2531-002	セットスクリュー M3X5 Set screw M3X5	10	300	
2532-015	キャップスクリュー M3X15 Cap screw M3X15	10	400	
2532-028	キャップスクリュー M2X8 Cap screw M2X8	10	800	
2532-030	キャップスクリュー M2.6X8 Cap screw M2.6X8	10	800	
2533-005	穴頭ビス M2X8 Pin-head screw M2X8	20	100	
2534-005	タッピングスクリュー M2X10 2 面スリバリ Tapping screw M2X10 type 2 surfuri	10	100	
2534-006	タッピングスクリュー M2.6X12 2 面 Tapping screw M2.6X12 type 2	10	100	
2534-007	タッピングスクリュー M3X12 ブラック Tapping screw M3X12 black	10	100	
2537-002	ネジ付タッピングスクリュー M2.6X16 Tapping screw with washer M2.6X16	10	500	
2539-015	ガイドピン M3X6.3 Guide pin M3X6.3	2	500	

コード No. Code No.	品 名 Name	人数 Q'ty	価格(円) Unit price in yen	備 考 Remarks
0404-796	テールブームブレースターミナル 98 Tail boom brace terminal 98	4	400	
0412-151	SD テールブームブレース L=510 SD tail boom brace L=510	2	1,000	
0412-152	スカディ キャビン Sceadu cabin	1	2,800	ダンパーボム付 With damper rudder
0412-153	スカディ ウィルドシールド Sceadu wild shield	1	1,400	ネジ付 With screw
0412-154	SD 尾翼ナット SD tail stabilizer set	1 式 1 set	900	ネジ、尾翼バンド付 With screw and fin band
0412-155	スカディ デカール Sceadu decal	1	1,200	
0412-156	スカディ 説明書 Sceadu instruction manual	1	1,000	
2505-006	M3 ナイロンナット M3 nylon nut	10	200	
2506-010	FW3X9X1T	20	100	
2532-012	キャップスクリュー M3X35 Cap screw M3X35	10	400	
2532-030	キャップスクリュー M2.6X8 Cap screw M2.6X8	10	800	
2544-012	タッピングスクリュー M2.6X6 トラス 2 種 Tapping screw M2.6X6 truss type 2	10	200	

Thank you for purchasing Shuttle SCEADU 30/50.

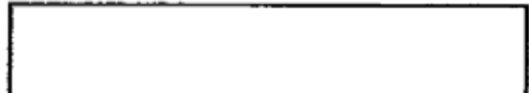
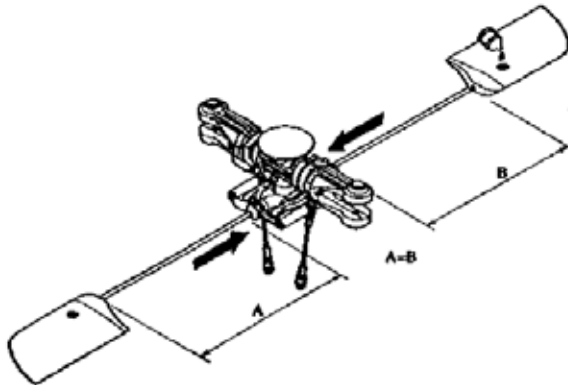
These additional instructions contain additional information and corrections to instruction manual.

Do not fail to read carefully.

P12 **3** Servo mount assembly Addition

If battery is not fit for battery case, insert the receiver by first wrapping it in rubber form to battery case and load the battery on the mechanical mount.

P20 **15** Stabilizer blade assembly Addition

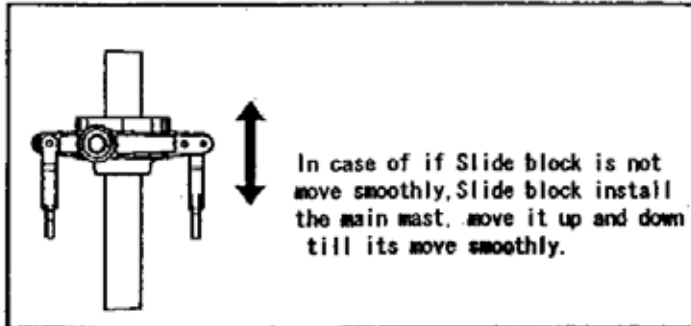


Thank you for purchasing Shuttle SCEADU 30/50.

These additional instructions contain additional information and corrections to instruction manual.

Do not fail to read carefully.

P21 Addition



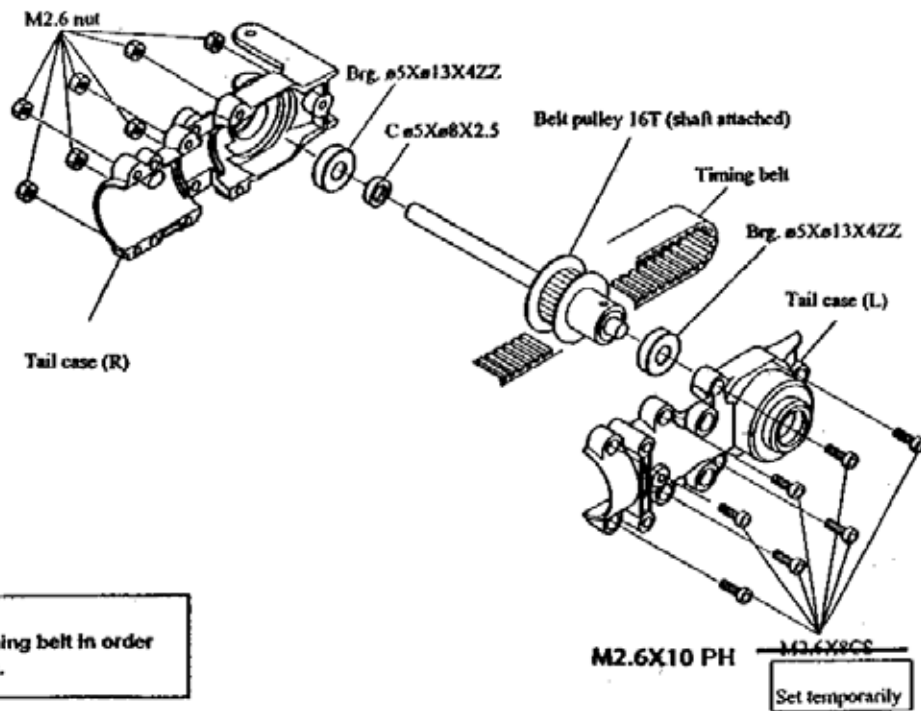
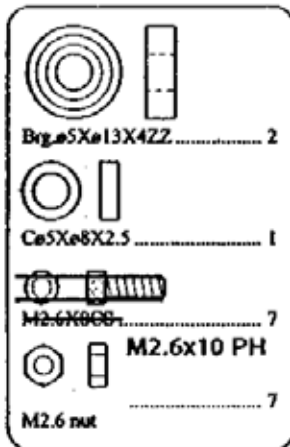
P23 Addition

In case of make sure too tighten of M3 Nylon nut, the BRG will be broken and I-Type lever will not smoothly. I-Type lever should be move smoothly without any play.

P23 Correction

20

Tail case assembly










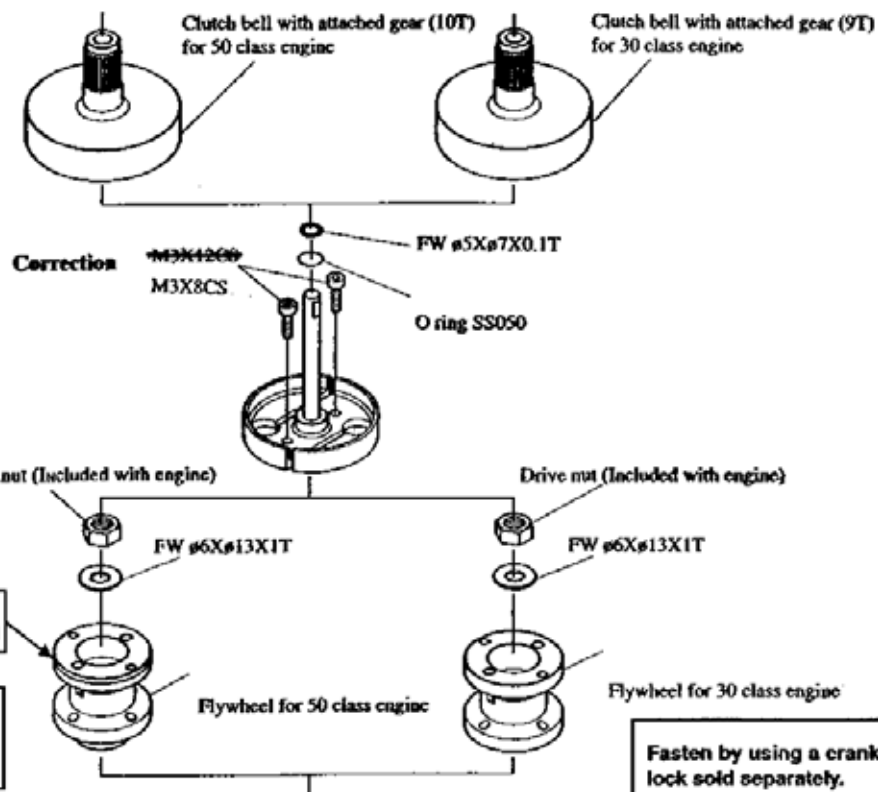
Caution

Do not bend or scratch the timing belt in order to reduce the risk of breakage.

Caution

The number of teeth on the gear attached to the clutch bell varies depending on the type of engine used.

	FW ϕ 5X ϕ 7X0.1T	1
	M3X12CS	4
	M3X6 countersunk screw	4
	M2X8PH	1
	M2 nut	1
	ϕ 5 ball	1
	M3X8CS	2



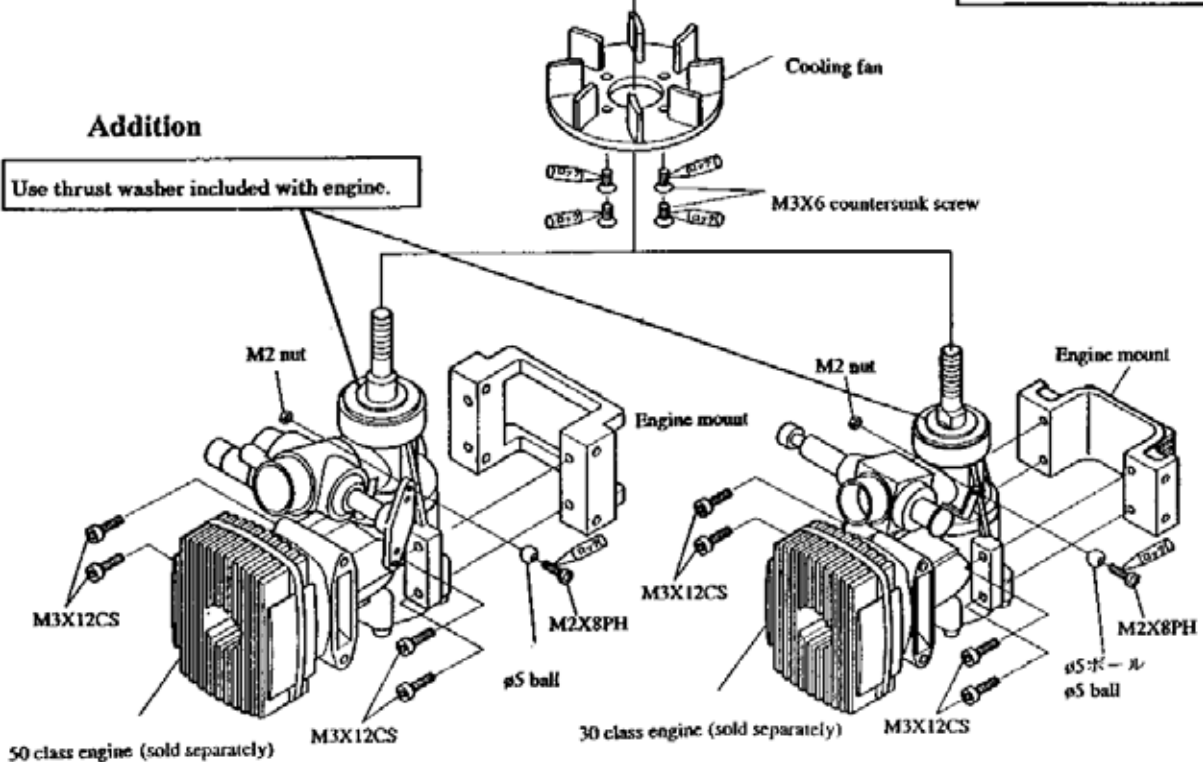
Caution

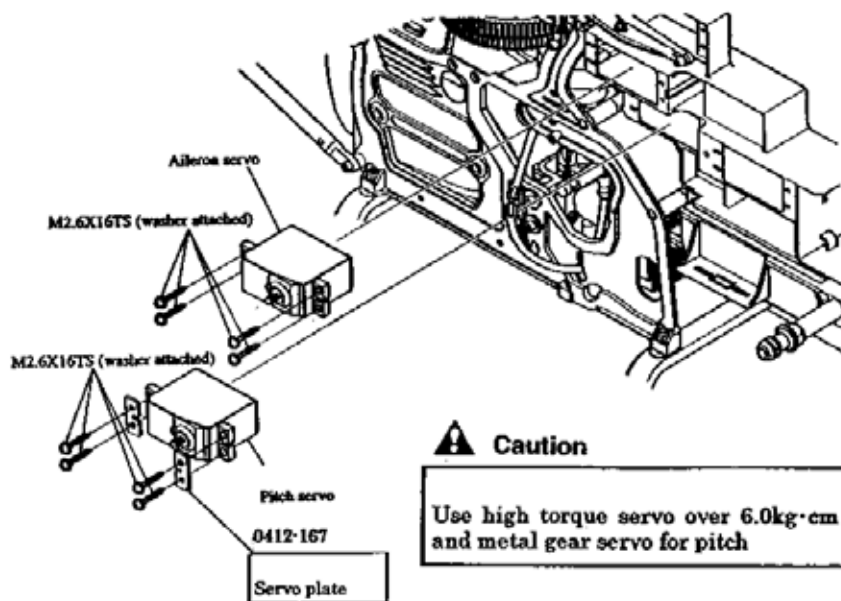
The shape of the flywheel varies depending on the engine class used.

Fasten by using a crank lock sold separately.

Addition

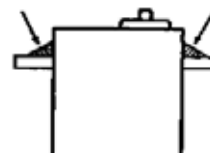
Use thrust washer included with engine.





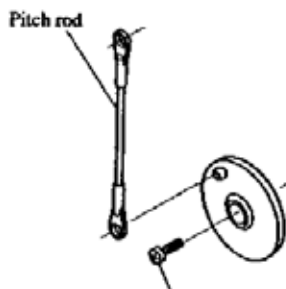
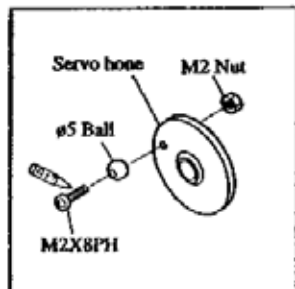
Caution

Do not use eyelet for pitch servo installation, and be sure to set the pitch servo with servo plate.

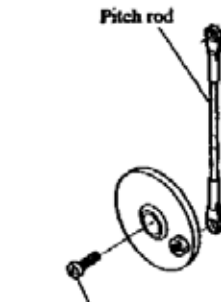
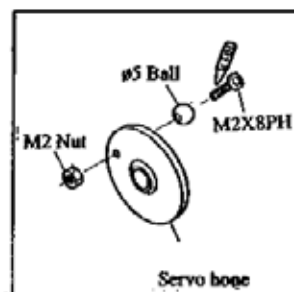


If interference may occur between the servo and the frame, scrape the shaded portions off the servos as shown below.

Cord No.	Name of parts	Qty	Unit price in yen	Remarks
0412-167	Servo plate	2	300	



Screw included with servo



Screw included with servo

3. To adjust the tracking, remove one end of the pitch rod from either the blade holder or mixing arm.

A: Lengthen the pitch rod of the blade which is tracking lower than the other blade.

OR

B: Shorten the pitch rod for the blade which is tracking higher than the other blade.



3. To adjust the tracking, remove one end of the mixing arm rod from either the swash plate or mixing arm.

A: Shorten the mixing arm rod for the blade which is tracking higher than the other blade.

OR

B: Lengthen the mixing arm rod of the blade which is tracking lower than the other blade.

Shuttle SCEADU Additional instructions

Thank you for purchasing Shuttle SCEADU 30/50.

These additional instructions contain additional information and corrections to instruction manual.
Do not fail to read carefully.

P36

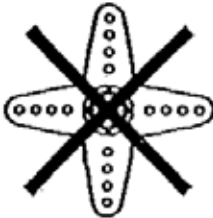
36

Collective pitch linkage

Addition

Warning

Servo horn failure will cause the model to crash. Depending on the radio manufacturer, use the thickest servo horns available from the manufacturer. Do not use the standard narrow arms. If need be, make your own arms from the large circle servo wheels as shown in the right diagram.



Caution

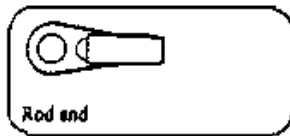
Pitch setting should be according to this instruction manual P.40.
Do not setting over pitch more than our setting guide at P.40.

Caution

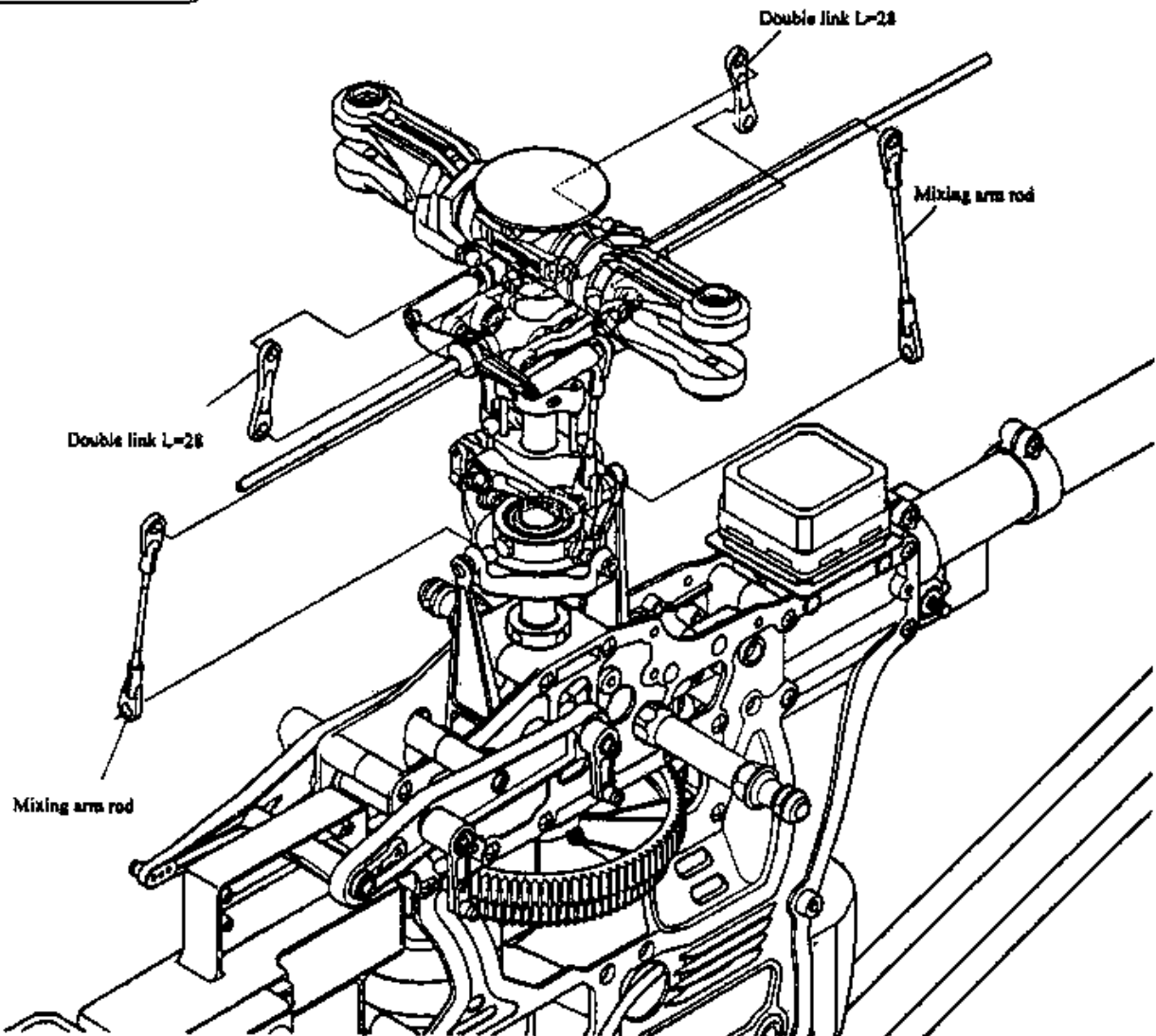
Main rotor rpm should be 2000rpm maximum

33

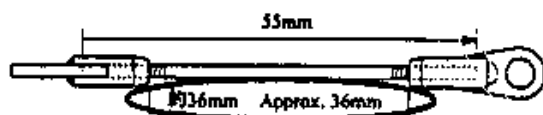
Rotor head linkage



Rod end



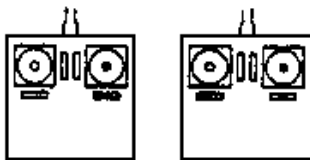
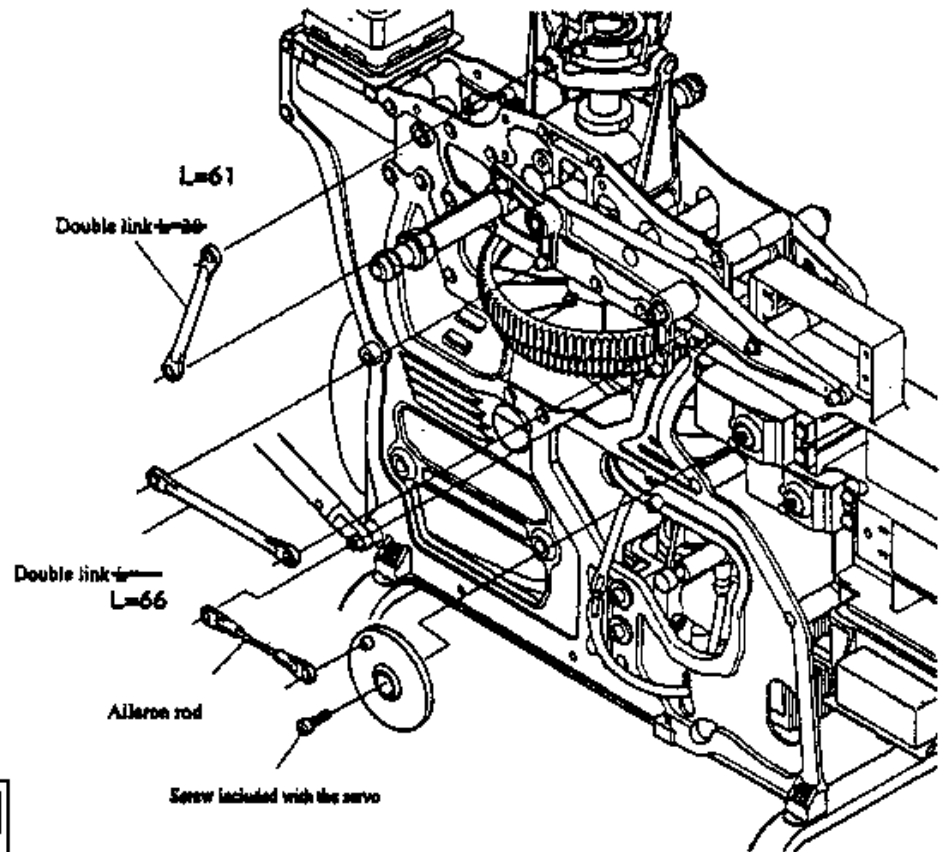
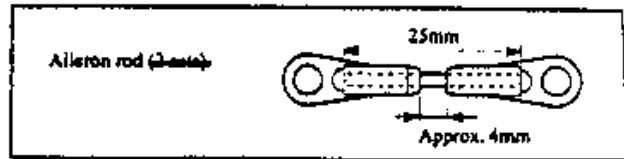
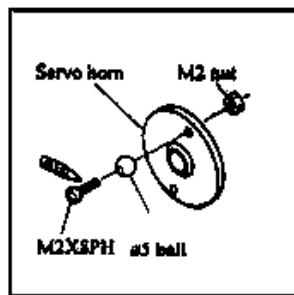
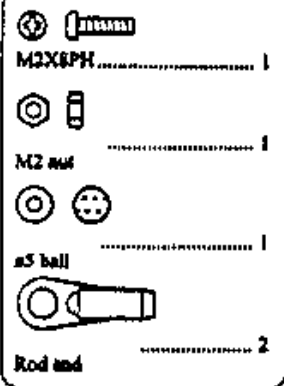
Mixing arm rod (2 sets)



⚠ Caution

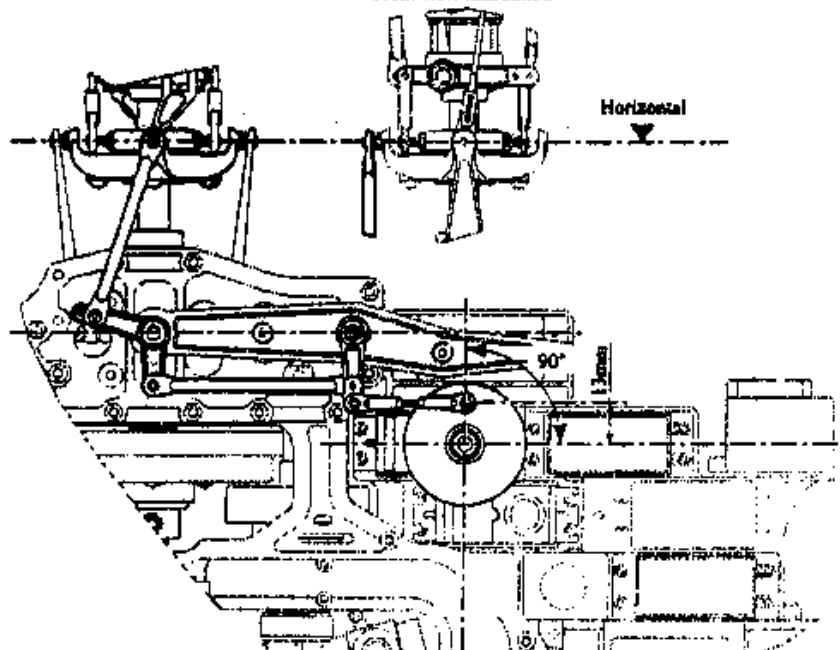
After installing the blade, measure the pitch and readjust.

• If FRP rotor with washout (for 50 class engine) is used, the distance between rod ends is as the description and if wooden rotor (for 30 class engine) is used, it is 33.5mm.



Positioning of the transmitter stick

Front view illustration



- With the transmitter stick and the trim at neutral, install the servo horn to the servo according to the positioning of the a5 ball attached to the servo horn as illustrated on the right.
- View the unit from the front and adjust the length of the aileron rod so as to make the swash plate horizontal.

FUTABA FF8-H Super

		1ch(AIL)	2ch(ELE)	3ch(THR)	4ch(RUD)	5ch(GYRO)	6ch(PIT)
ATV	(R/U)	100%	100%	95%	100%	100%	100%
	(L/D)	100%	100%	70%	100%	100%	100%
D/R	NORM	80%	70%	-----	100%	-----	-----
	IDL1	90%	90%		100%		
	IDL2	100%	100%		100%		
EXP	NORM	0%	0%	-----	0%	-----	-----
	IDL1	0%	0%		0%		
	IDL2	0%	0%		0%		
F/S	(NORM)	○	○	60%	○	○	○
	(F/S)						
REVERS		REV	NORM	REV	NORM	NORM	NORM
TH-CUT		ACT/INH		ACT			-20%

			POS1	POS2	POS3	POS4	POS5
TH-CRV		NORM	0%	35%	45%	68%	100%
		IDL1	80%	70%	70%	80%	100%
		IDL2	100%	80%	70%	80%	100%
PI-CRV		NORM	35%	50%	65%	80%	100%
		IDL1	20%	40%	55%	75%	95%
		IDL2	0%	25%	50%	75%	90%
REVOLU		HOLD	25%	45%	60%	80%	100%
	INH	NORM	0%	0%	0%	0%	0%
		IDL1	0%	0%	0%	0%	0%
		IDL2	0%	0%	0%	0%	0%

TH-HLD					ACT
	ACT		0%		-27%

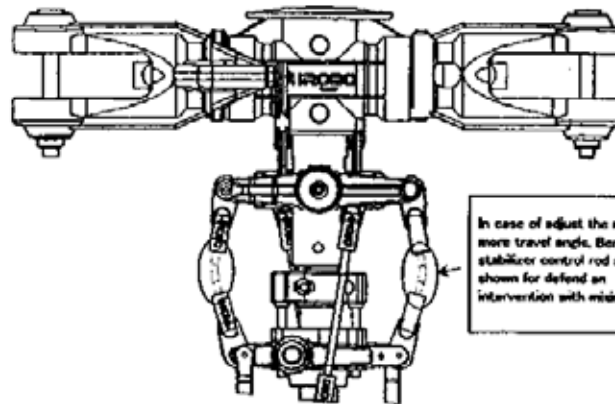
		AIL	ELE	RUD
OFST-1	ACT	0%	9%	-32%
OFST-2	ACT	0%	12%	0%
		NORM	IDL1	IDL2
GYRO	ACT	5%	20%	82%

※1. GY401is applied to Gyro.

※2. Adjust the OFF-SET by actual flight.

※3. The setting of each condition is following.

NORM	Hovering
IDL1	Loop & Roll
IDL2	3D
HOLD	Autorotation



In case of adjust the much more travel angle. Bend the stabilizer control rod as shown for defend an intervention with rising arm.

JR X-3810

			AIL	ELEV	RUDD
DUAL-RATE EXP	0	D/R	80%	80%	60%
		EXP	LIN	LIN	40%
	1	D/R	90%	80%	80%
		EXP	LIN	LIN	40%
A.D.T	NORM		0	0	0
	ST-1		L6	U8	0
	ST-2		L6	U8	0
	HOLD		0	0	0

		THRO	AIL	ELEV	RUDD	GEAR	PIT
REVERSE SW		REV	REV	NORM	REV		NORM
TRAVEL ADJUST	(H/L/D)	120%	130%	110%	150%		135%
	(L/R/U)	90%	130%	110%	150%		135%
FAIL SAFE (SPCM)		F.S.	HOLD	HOLD	HOLD	HOLD	HOLD

		EXP	L	1	2	3	H
THRO CURVE	N	OFF	0%	30%	44.5%	65%	100%
	1	OFF	80%	70%	70%	80%	100%
	2	OFF	100%	80%	70%	80%	100%
PITCH CURVE	N	OFF	35%	LIN	70%	LIN	90%
	1	OFF	25%	LIN	63%	LIN	90%
	2	OFF	0%	LIN	50%	LIN	90%
	H	OFF	25%	LIN	62.5%	LIN	100%

AUTO D/R (POS.1)	ST1	ACT	GYRO SENS	AUTO	0	90%
	ST2	ACT			1	80%
	HLD	ACT			NORM	0
THRO HOLD	ACT	POS			STNT	1
		5%			HOLD	0

※1. G460T is applied to Gyro.

※2. Adjust the OFF-SET by actual flight.

※3. The setting of each condition is following.

N	Hovering
1	Loop & Roll
2	3D
H	Autorotation

SANWA STYLUS

		1) スロット	2) イロン	3) エレ-ター	4) ゴ-ダ-	5) シ-ヤイロ	6) ヒ-ツチ
REV		REV	REV	NOR	REV	REV	NOR
EPA	(H/L/D)	100%	100%	100%	100%	/	130%
	(L/R/U)	90%	100%	100%	100%	/	130%
F-SAFE		35%	INH	INH	INH	INH	INH

		イロン	エレ-ター	ゴ-ダ-	GYRO	1	2
D/R	N	80%	80%	100%	N	-150%	90%
		80%	80%	100%	1	83%	88%
	1	100%	80%	110%	2	83%	88%
		100%	80%	110%	3	-80%	-85%
	2	100%	80%	90%	4	100%	100%
		100%	80%	90%			
	3	100%	100%	110%			
		100%	100%	110%			
	4	80%	80%	100%			
		80%	80%	100%			
	EXP	N	0%	0%	0%		
		1	20%	0%	30%		
2		20%	20%	40%			
3		20%	20%	50%			
4		15%	15%	60%			
OFF SET	N	0%	0%	0%			
	1	L8%	U8%	0%			
	2	L6%	U8%	0%			
	3	L6%	U8%	0%			
	4	0%	0%	L20%			

		PL	P1	P2	P3	PH	
PIT CURVE	N	レート	30%	INH	64%	INH	90%
	1	レート	24%	INH	55%	INH	90%
	2	レート	20%	INH	50%	INH	82%
	3	レート	-5%	INH	48%	INH	90%
	4	レート	15%	INH	60%	INH	100%
TH CURVE	N	ポイント	/	INH	50%	INH	/
		レート	0%	INH	50%	INH	100%
	1	ポイント	/	35%	50%	75%	/
		レート	80%	65%	67%	77%	100%
	2	ポイント	/	35%	50%	81%	/
		レート	85%	78%	75%	INH	100%
3	ポイント	/	25%	50%	75%	/	
	レート	100%	70%	60%	77%	100%	

1. SG-11 is applied to Gyro.
2. Adjust the OFF-SET by actual flight.
3. The setting of each condition is following.

N	Hovering
1	Loop
2	Roll
3	3D
4	Autorotation

P60 Correction

Code No.	Name	Qty	Unit price in yen	Remarks
0412-104	Dumper rubber #80 6X12X7.5 #80	4	400	

Addition

0402-722	SE Main blade L=570 (P&P)	2	9,800	
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P62 Correction

0412-123	Engine mount for 30	1	1,400	Screws and washers attached
0412-134	Engine mount for 50	1	2,300	Screws and washers attached
2529-009	O ring 25050	1	300	
2530-004	Pivot bolt (D) ϕ 5X5XM3	2	400	
2530-005	Pivot bolt (E) ϕ 5X7XM3	2	300	

P66 Correction

0402-330	Landing gear set (white)	1 set	1,800	Std feet, pins, cap and screws attached
0412-149	Body moun set	Each 2	500	

Addition

0412-166	Dumper rubber for cabin	4	400	
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P68 Correction

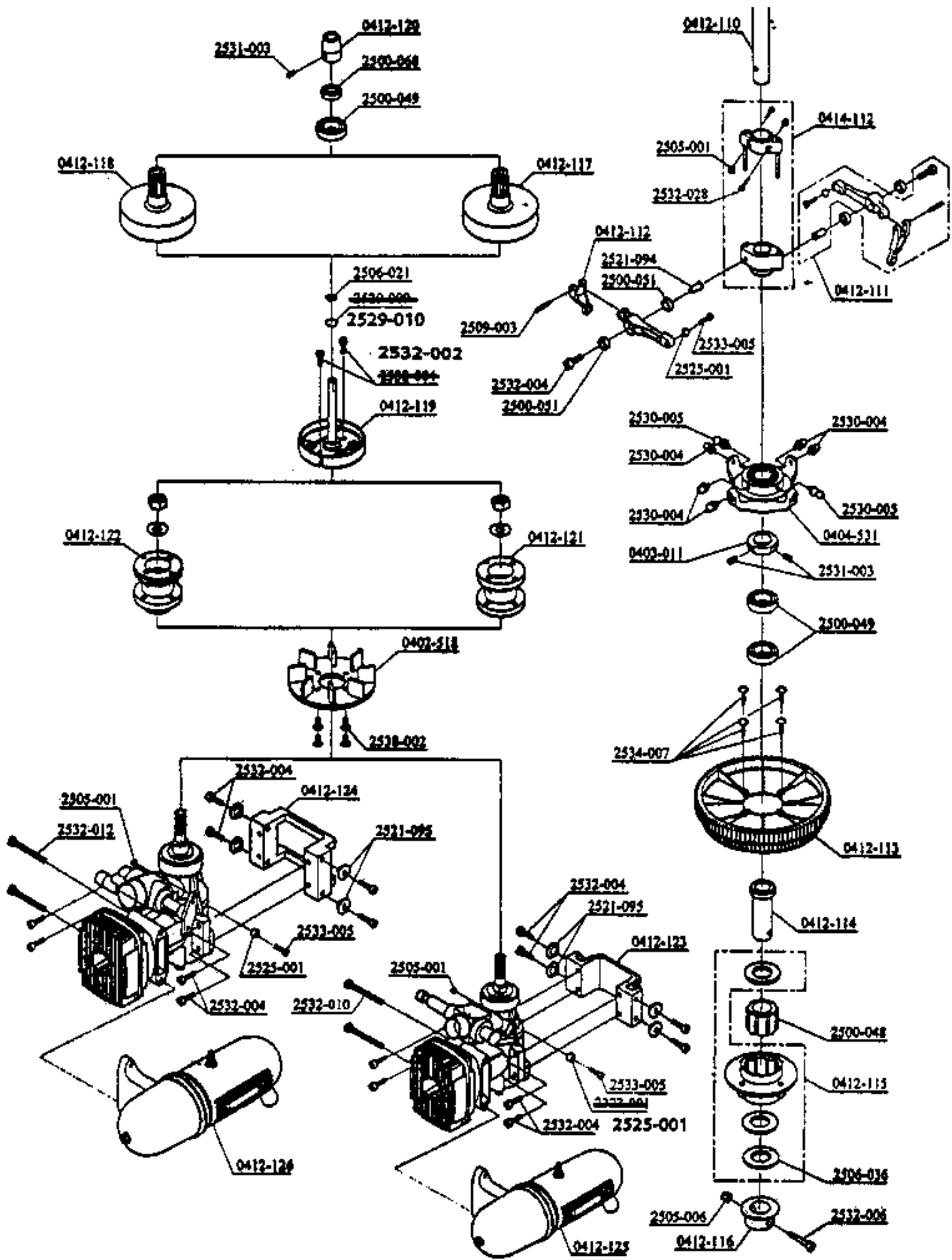
0412-147	SD tail pitch lever set	1 set	1,000	Screws and guide pins attached without flag.
2506-003	FW4X6X0.5T	10	100	
2506-022	FW6X8X0.5T	5	300	

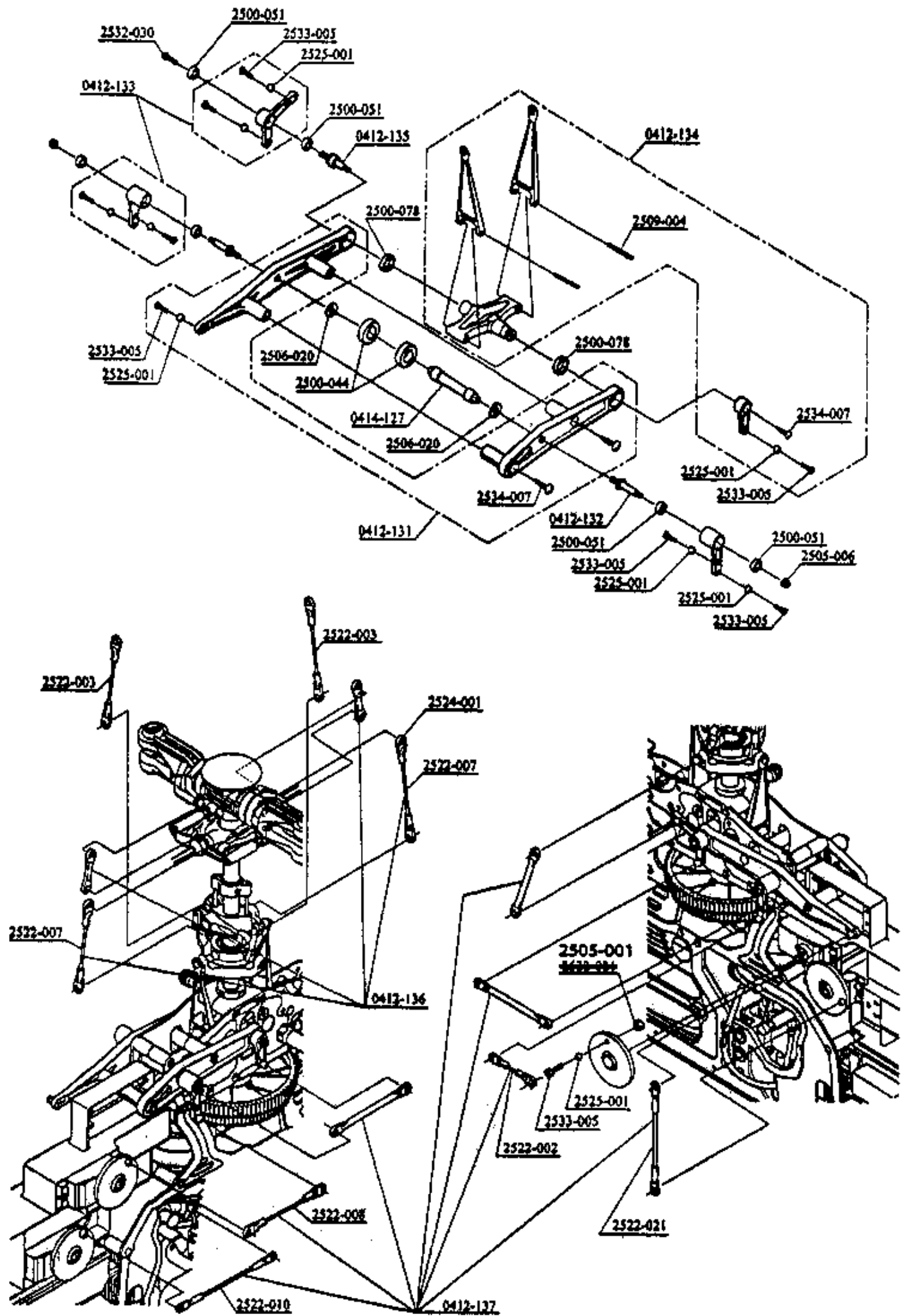
P70 Correction

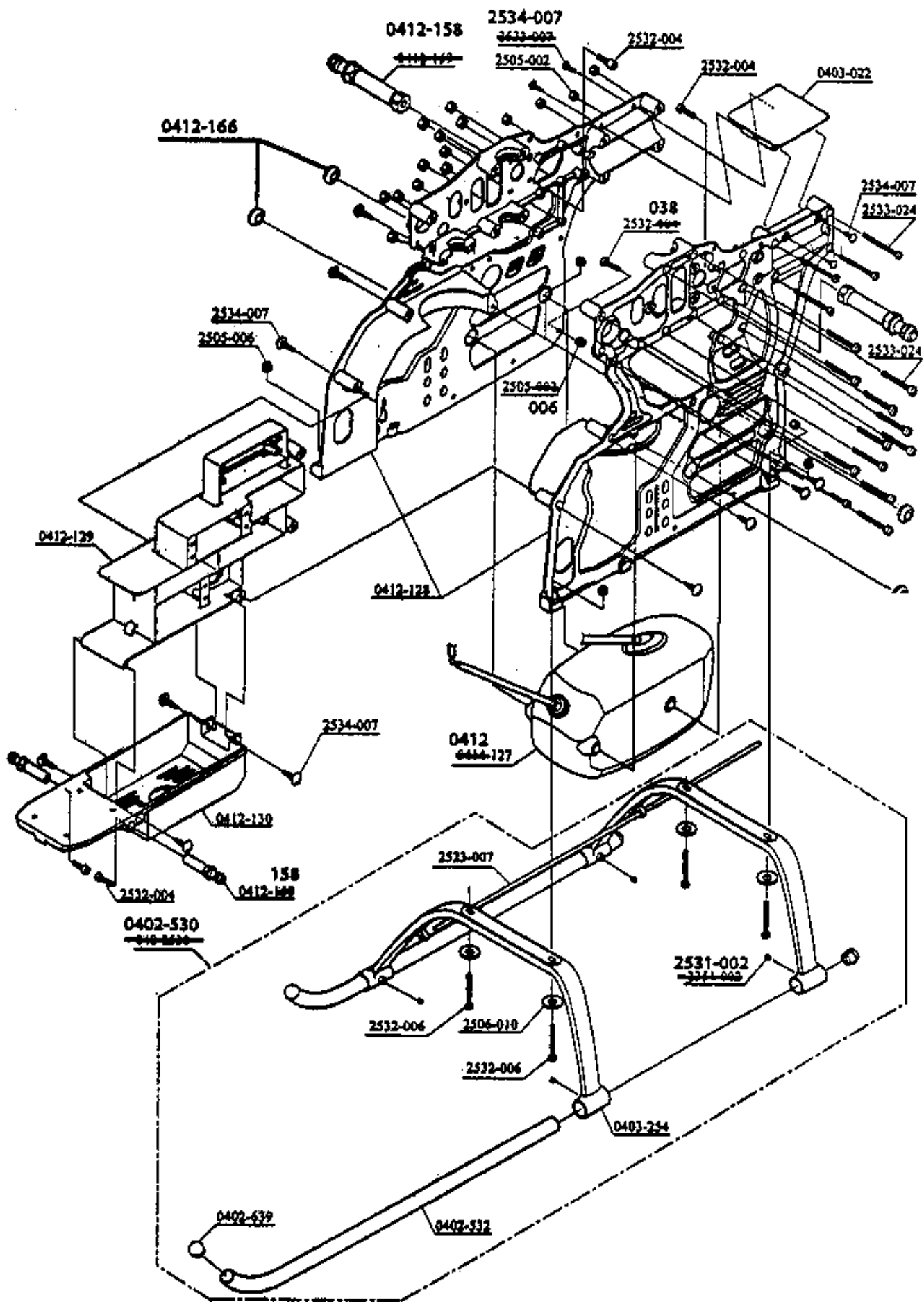
0412-151	SD tail boom brace L=630	2	1,000	with brace terminal
0412-156	Service instruction manual	1	2000	

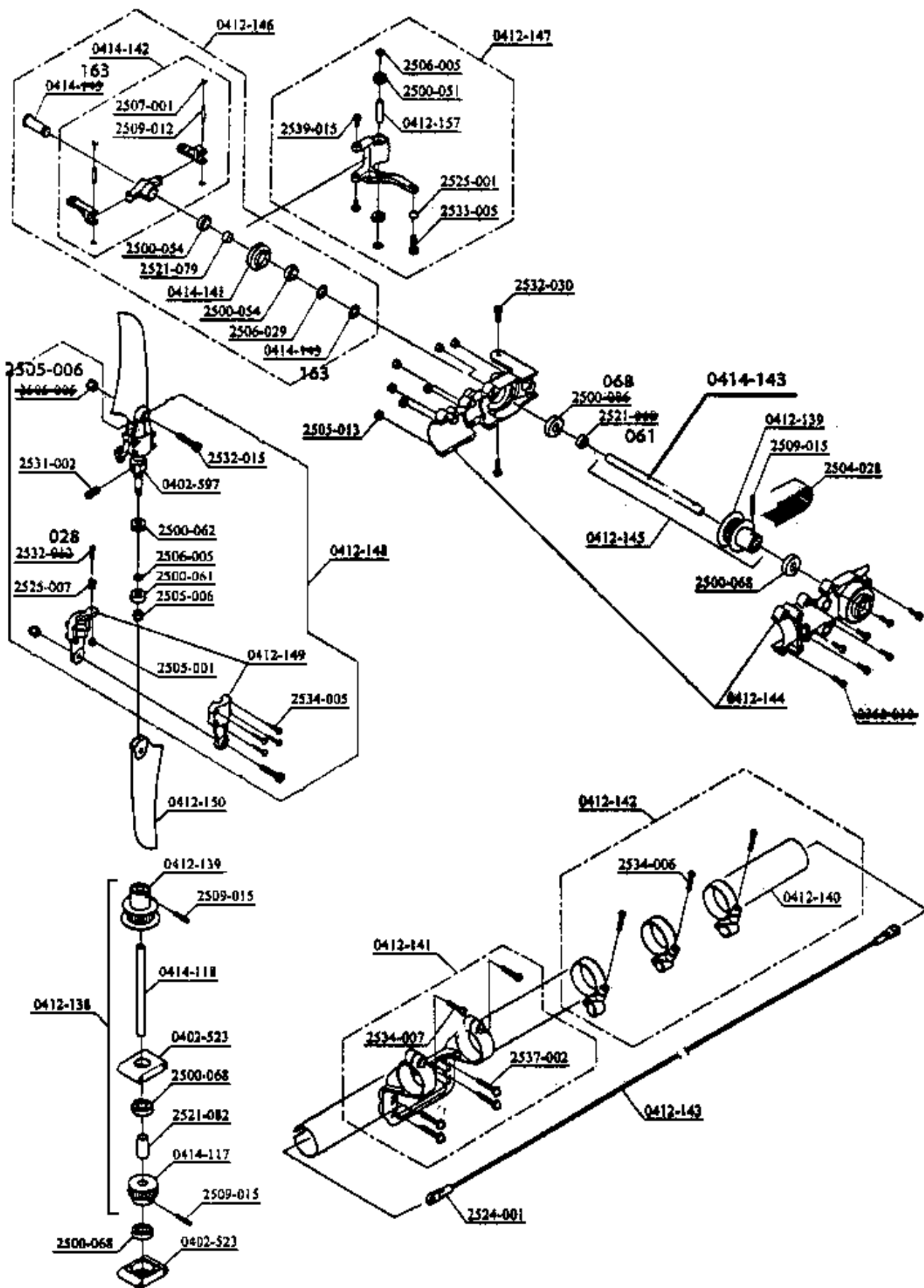
Addition

0412-165	ϕ 5 snap pin	4	300	
0412-166	Dumper rubber for cabin	4	400	

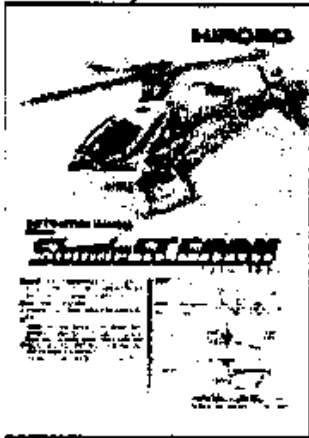




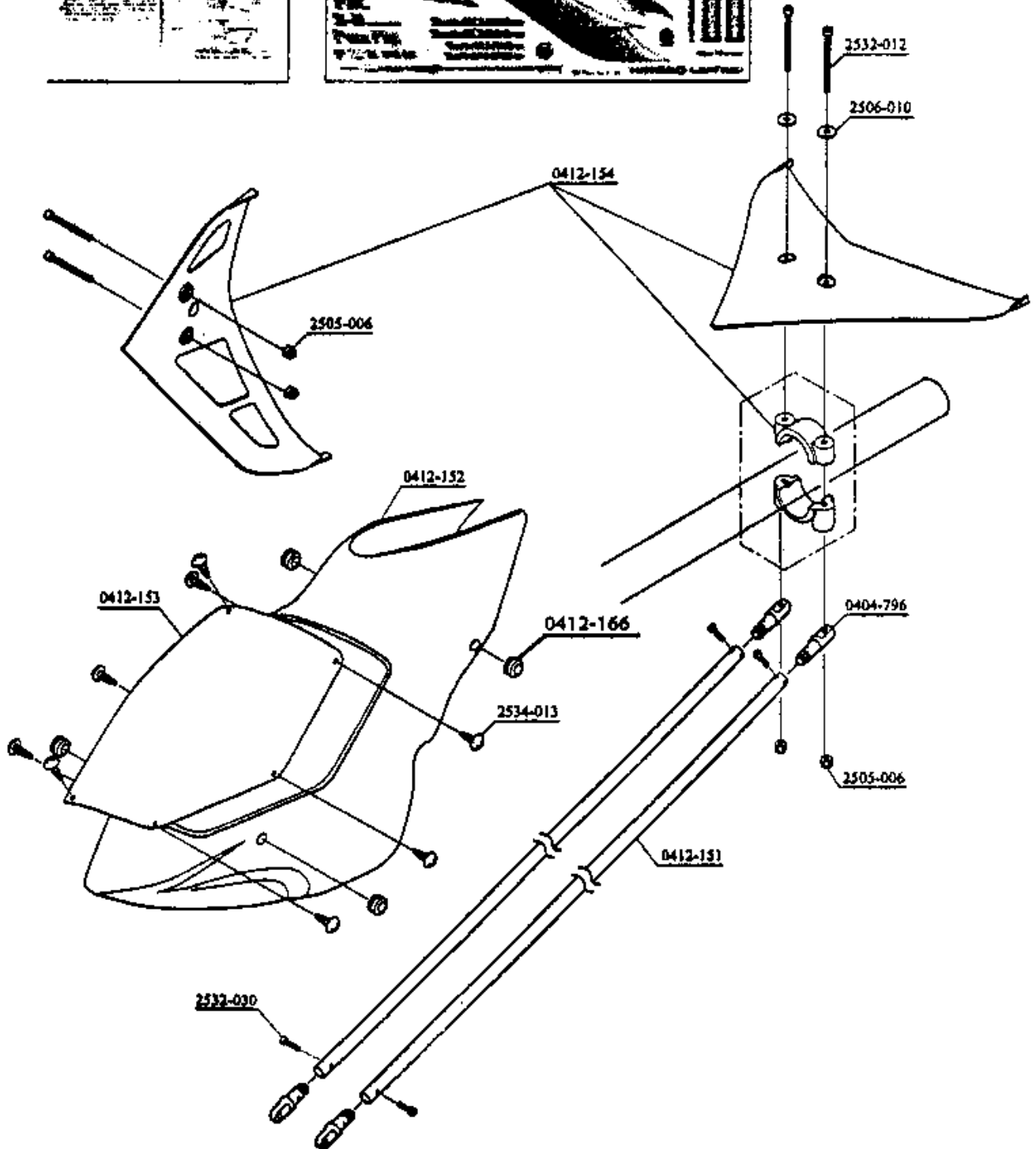
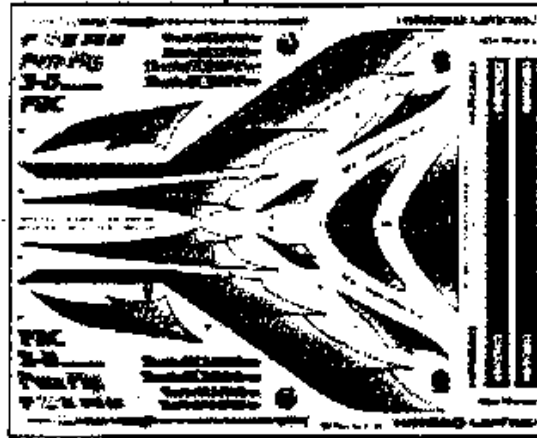




0412-156



0412-155





WARNING

FUEL

1. Only use GLOW fuel for model engines.
 - Gasoline or kerosene may not be used.
 - GLOW fuel is highly volatile and flammable. Handle with care.
 - Use properly in accordance to the engine type of this unit. (ABC or ring fitted)
2. If the engine uses gasoline, make sure to use a 1:25 mixture of 2-cycle engine oil and gasoline.
3. Stop the engine and let it cool down sufficiently before refueling.
4. Do not refuel near a naked flame and especially not while smoking.
 - Refuel in a way as to prevent spilling and make sure to wipe up any spilled fuel.
 - Because fuel vapors and exhaust gas are hazardous, make sure to handle the fuel outdoors.
 - To reduce the risk of explosions, do not incinerate empty fuel cans.
5. It is harmful to drink the fuel or get it in the eyes.
 - In the event of an accident, induce vomiting or thoroughly wash out the eyes and see a doctor immediately.
6. After refueling, start the engine in an area 3m or more away from where the refueling took place.
7. Fasten the cap on the fuel can tightly and keep in a cool, dark place out of the reach of children.

While in flight

1. Do not operate in an awkward posture.
 - Do not operate seated or lying down.
 - Because slopes are slippery, exercise caution so as to not lose your footing.
2. Stop the engine in the following situations:
 - When adjusting the unit's body or the transmitter.
 - When replacing accessories or parts.
 - When the body of the unit is out of alignment or when abnormal noises or vibrations occur.
 - Whenever some kind of danger is anticipated.
3. Exercise the following precautions when starting the engine.
 - Check that there are no people, animals, or obstructions in the surrounding area.
 - Hold the unit securely in a stationary position.
 - Check that the position of the transmitter's throttle stick and the engine carburetor are at their lowest positions (idling).
4. To reduce the risk of injury, do not insert hands or objects in rotating parts.
5. Enjoy the flight's operation while observing safety rules and manners.
 - Fatigue brought upon by continuous operation for long periods at a time may result in impaired judgment or accidents. Be sure to take sufficient rests.
 - When operating, do not get too close to the unit.
 - Operate the unit within the limits of your ability. Operating the unit improperly increases the risk of accidents or injury.
6. The engine and muffler become very hot after starting the engine and remain hot immediately after shut down. To prevent burns, do not touch the engine or muffler.



警告 WARNING

After a flight

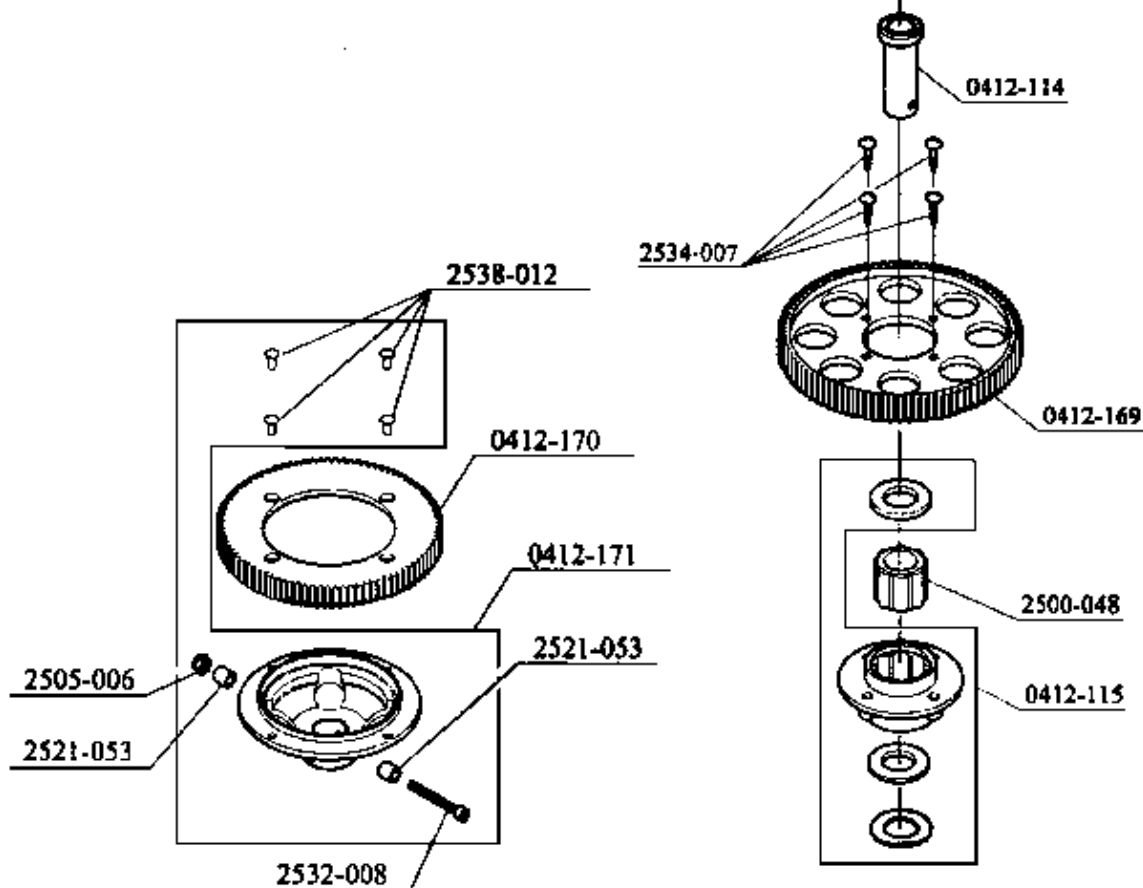
1. Conduct a thorough inspection.
 - Immediately inspect each part and retighten or replace any screws that may have become loose or fallen out.
 - Wipe away any oil, dirt, or water.
 - If storing for an extended period of time, completely remove the fuel from the tank and carburetor.
 - Lubricate or replace parts according to the instruction manual.
2. Store the unit properly.
 - Store in a dry place out of the reach of children.
3. Inquire about repairs at the store of purchase or at the engineering services section of Hirobo's Sales Department.
 - Individuals lacking proper knowledge or tools necessary for repairs may not only impair the performance of the unit but may also increase the risk of accidents or injury.
 - Turn off the engine before performing any repairs or adjustments.
 - Repair all damaged parts before storage. Make sure to use only designated, genuine parts.
 - Do not perform any remodeling or reconfiguration of the unit's body or peripheral equipment. Doing so may impair the unit's performance.
 - When storing or transporting the unit, secure it firmly so as to prevent fuel loss, damage, or injury.

Noise

When in flight, be sure have the muffler (silencer) attached to the unit in order to avoid disturbing people in the surrounding area.

SD-DTDS set

0412-168



Cord No.	Particulars	Qty	Price(Yen)	Remarks
0412-114	SD ø 10Drive auto-rotation	1	2,000	
0412-115	SD auto-rotation case	1set	800	Bushing and washers attached (one way bearing sold seperately)
0412-169	SD main gear 87T (DTDS)	1	3,500	
0412-170	SD second gear 79T (DTDS)	1	3,000	
0412-171	SD second gear housing	1	3,300	
2500-048	Brg. ø 12 X 16L one way	1	1,500	
2505-006	M3 nylon nut	10	200	
2521-053	Collar 3 X 5 X 4.1	2	300	
2532-008	Cap screw M3 X 25	10	400	
2534-007	Tapping screw M3 X 12 black	10	100	
2538-012	Countersunk screw M2.6 X 6	10	200	

Screws attached



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