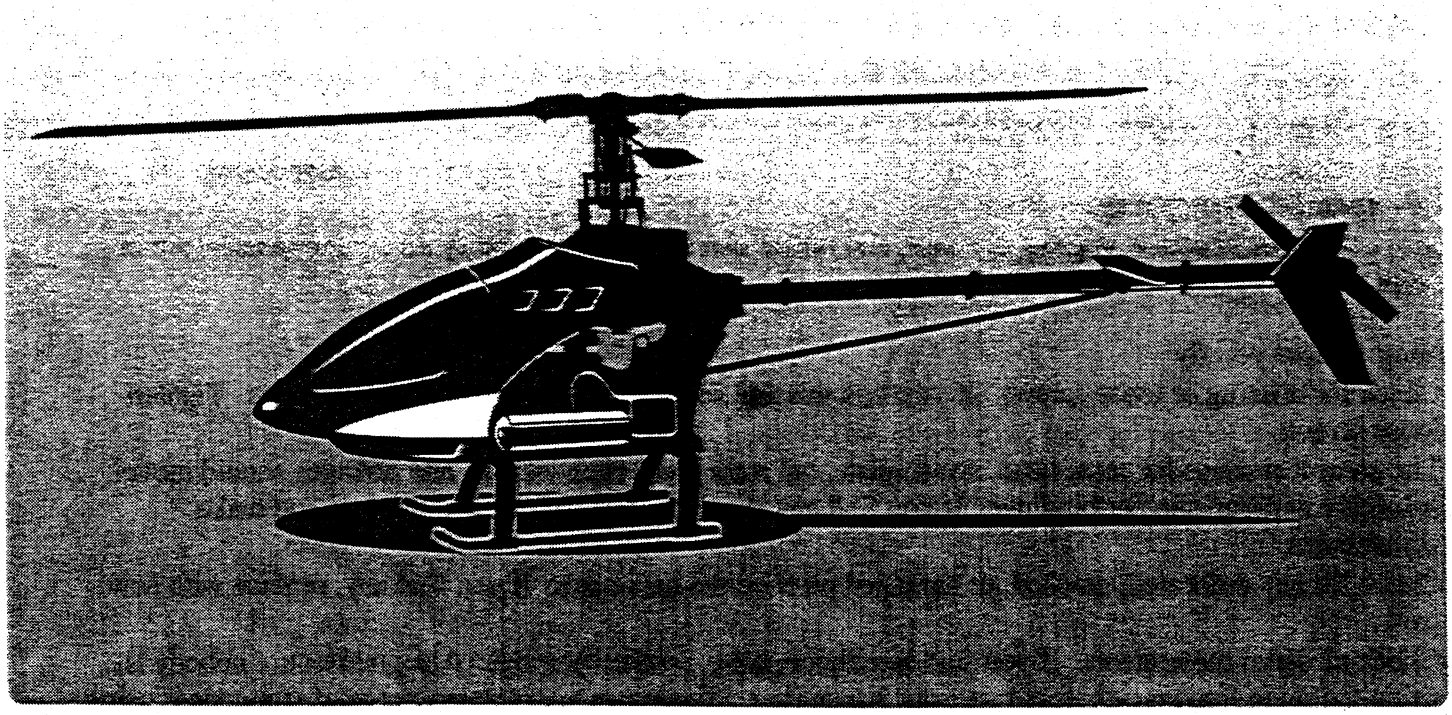
C.C.P.Mix M Mercury

Mercury M C.C.P. Mixing

ASSEMBLE * INSTRUCTION MANUAL



Thank you for purchasing this Sanwa-Kalt product
Please read this instruction set thoroughly before assembly and flight
Consider safety first (yours and others) when you fly
To improve this product, we may change some of the specifications and/or parts without notification
Please keep this instruction set for later use
Mercury M is a 46 size helicopter utilizes C. C P. Mix
Requires C.C.P. Mix capable (120 ° Swash plate type) transmitter

KALT

SANWA KALT CO., LTD.

Read me first

- Warning mark: Must follow this instruction to prevent accidents and /or injury.
- Caution mark: Must follow this instruction to prevent damages.
- Important mark: Important point for assembling.
- One-Point mark: Helpful advice for assembling.

Attention on assemble and flight

Caution : Assembling

- Read this entire instruction BEFORE you start assembling.
- Do not modify parts other than noted in this instruction.
- Before install nuts and screws where instructed to apply locking agent, clean threads with alcohol pads. Then apply locking agents (i.e. Kalt-Tight) and secure nuts and screws.
- Do not use engine displacement size other than recommended in this instruction.
- Upon the completion of assembly, double check for errors by referring to this instruction.

Caution: After assembly

- Check all nuts and screws.
- Check all moving parts move smoothly.
- Charge batteries for radio equipment.
- Turn transmitter power switch on after set throttle stick to idle position. Then turn receiver power on. Reverse order when powering down.
- Move throttle/collective, aileron, elevator, and rudder control sticks and verify all the movements are in order.

Warning: Before you fly

- Check for missing or loose screws. If you find missing screws, replace with specified screws. Tighten loose screws.
- The control systems for rotor head, swash plate, tail rotor area, pitch control, and linkages should move smoothly without slops or bindings. If you find any abnormalities, correct the problem and make adjustments.
- Check for any deformed, cracked, or damaged parts on the helicopter. If you find any, replace with new part.
- Check all servo movements. If you find any abnormality, readjust settings. Also, make sure nobody is using the same frequency before turn your transmitter. Never turn your transmitter on if someone is using your frequency.
- Seek help from an experienced helicopter pilot to adjust your helicopter.

Warning: When you fly

- Consider safety and others. Obey the following rules.
- Fly at RC flying field or away from houses and people.
- Never fly in a prohibited area.
- Do not fly under strong wind. It may be impossible to control your machine and may cause an accident.
- Do not fly under poor visibility. (Snow, rain and fog.)
- Do not fly after dark. You will lose the attitude of helicopter and lead you to a dangerous situation.
- Seek advice from an experienced helicopter pilot.
- Observe safety rules. Do not fly by yourself.
- Never fly over people, houses and buildings.

antenna collapsed. If you do not have total control, do not fly until you solve the problems.

- Make sure engine control stick is set to idle (and throttle servo) when you start engine or adjust engine. If you start engine while throttle is set to high, engine will try to turn rotor on high speed and could cause sever injury or damage to helicopter. Hold rotor head when you start or adjust engine.
- Make sure you keep enough distance (at least 5m) from helicopter to other people or objects.
- Stay away from extension of main rotor and tail rotor plane. Keep at least 5m of distance when you are hovering and adjusting tracking.
- When you notice an abnormality, unusual noise or vibration, land the helicopter immediately. Do not fly it until you solve the problem.
- If you crash or have a hard landing, do not fly until you inspect helicopter thoroughly and repair if necessary.
- Check fuel level frequently. You can check it in hover. Do not fly when fuel level becomes below 1cm.

Caution: Usage of this helicopter

- Do not use this helicopter for other than completions, sports flying and hobby.

Caution: Daily maintenance

- Clean helicopter with glass cleaner or alcohol to clean fuel, oil and dart. Clean the area before you apply grease if needed.
- Check helicopter thoroughly between flight. Replace deformed, cracked or damaged parts with new parts. Also check all nuts and bolts are in place and tight.

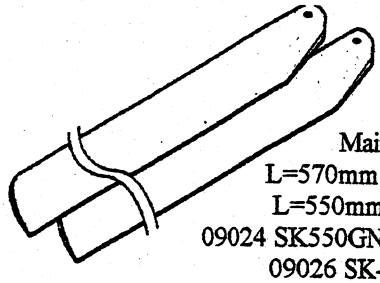
Warning!

- This product is mostly assembled and adjusted by you. Therefore, final appearance and flight performance depends on the way you assemble and adjust.

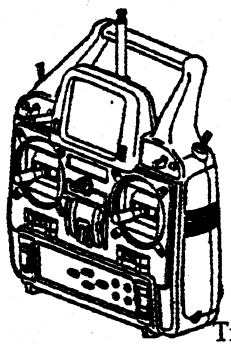
Index

correctly.
Screws and nuts are packaged in plastic bags in each step. Open the bag and empty all the hardware for the step into small box to prevent losses. Also this kit contains exact quantity necessary to complete assembly. Please pay attention for the size and length of screws.
There are several items you will need to purchase before you fly. Purchase them from your favorite hobby store.

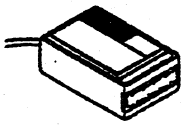
Materials you need (Sold separate)



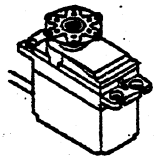
Main blades
L=570mm (Wood)
L=550mm (Glass)
09024 SK550GN (Glass)
09026 SK-570WH
09027 SK-570WS



Transmitter
For Helicopter
(With C.C.P. Mix function, 5channels or better
i.e. Sanwa RD6000)



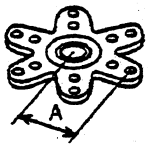
Receiver



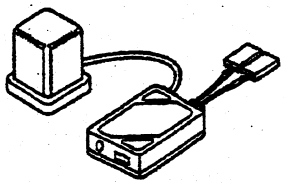
Servo (5 pcs)

NiCd Battery

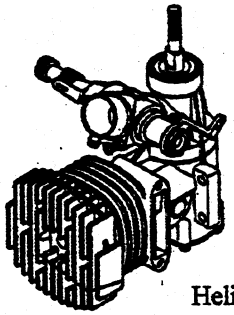
Switch harness



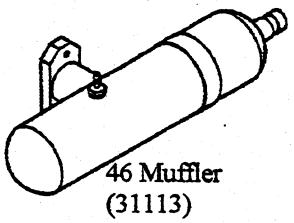
Servo horn
A needs to be 19 mm or more (4 pcs)



Helicopter Gyro

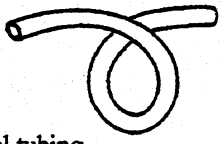


Helicopter engine
i.e. OS Max46FX-H



46 Muffler
(31113)

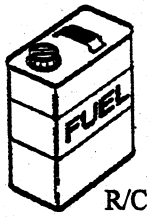
Fuel filter
(05000-001-7)



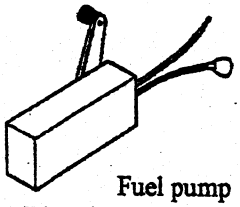
Fuel tubing
Connect fuel tank and carburetor (0501-015-6)

Fuel stopper - to prevent flooding engine when filling fuel (0500-005-8)

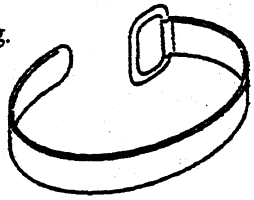
Glow plug
Specified by engine Mfg.



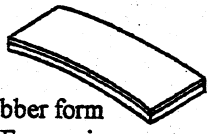
R/C Glow fuel
(Heli mix w/10~30% nitro)



Fuel pump
(Electric or manual)



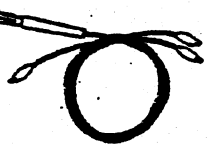
Velcro strap
(to secure airborne pack)



Rubber form
-- For receiver protection

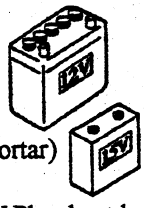
Form tape (to secure airborne pack) (00001-005-6)

Electric starter



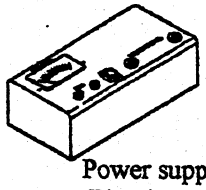
Booster cord – to heat glow plug (00002)

Hex starter shaft (to start engine) (31091)



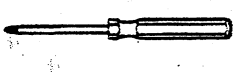
12V Battery
(for starter mortar)

1.5V Plug heat battery
(for plug heat and starter power)



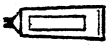
Power supply unit
(Plug heat, starter power) (00006)

Tools you need (Not included in this kit)


Philips screwdriver (Large & Small)


Needle nose pliers

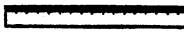

Scissors

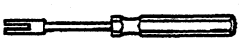

Grease


∅ 2 drill bit

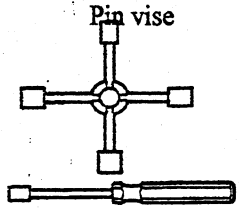

Pin vise

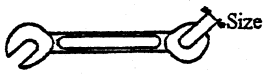

Cutter


Ruler

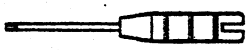

Universal link driver (To install linkages to push rod) (0002-007-6)

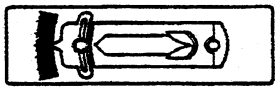

Universal link pliers (To detach linkages from ball) (0002-0008-6)


Box wrenches

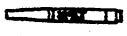


Wrench Size 5.5 & 7


Allen driver w/Universal link driver 1.5, 2, 2.5,3mm (11330)


Pitch gauge

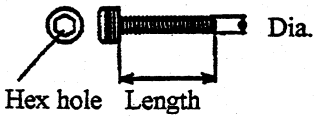

CA Glue


Kalt Tight (locking agent (0001-001-6)

Caution! How to handle nuts and bolts

It is highly possible that one loose screw will cause helicopter to crash. Therefore, please make sure to use right shape and length of nuts and bolts and secure them tight. Apply Kalt tight where noted.
Left side illustrations on each page have actual size of hardware. Check the size and shape of hardware before you install.

• Cap Bolt

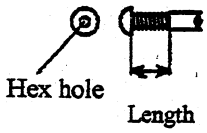


The screw, which has hexagonal hole. No bolt head. Use included Allen wrench to tighten.
M3 X 15 Cap B.
3mm dia., 15mm length Cap bolt

• Set Bolt

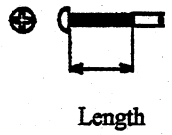
The screw, which has hexagonal hole. No bolt head. Use included Allen wrench to tighten.
M4 X 4 Set. B.
4mm diameter, 4mm length set screw

• Button Cap Bolt



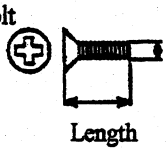
Button cap screw – Round head screw with hexagonal hole on the head. Use included Allen wrench to tighten.
M3 X 6 Button Cap B.
3mm dia., 15mm length Cap bolt

• Philips Bolt



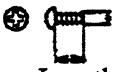
Regular Philips head screw. Use right size screwdriver to tighten.
M2 X 10 +B.
2mm dia., 10mm length Phillips screw

• Cap Bolt



Beveled Philips head screw. Use where need to flush mount.
M3 X 8 Bev.⊕B. = 3mm diameter, 8mm length beveled Philips head screw

• Tapping Bolt



To use on untapped wood or plastic. Self-threading tap screw. Therefore, it is a little bit tighter when screw in. Please be careful not to strip by over tightening.
M2.3 X 5 TP.B = 2.3mm diameter, 5mm length tapping screw

• Nut

To secure cap bolts, Philips screws, cap screws and beveled Philips screws.
M2 Nut = 2mm inner diameter nut

• Nylon Nut

Nut with nylon ring to prevent from loosening.
M3 X N.Nut = 3mm inner diameter nylon nut

• Plate Washer

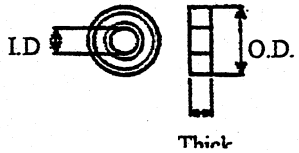
Use with cap screws and Philips screws to provide more surface to secure.
ϕ3 X ϕ9 X t0.4 P. Washer = 3mm I.D., 9mm O.D. 0.4mm thick plate washer

• Wavy Washer

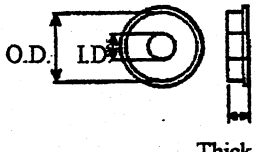
Sharp-toothed washer to prevent bolts and nuts come loose.
M3 W.Washer
3mm I.D.

About Ball Bearings

Ball bearings are silver cylinder shape, which have multiple balls inside. There are 2 types of ball bearings. One is sealed and other is open type.



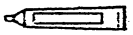
Regular bearings –B. Bearing
Φ5 – Φ13 – 4 695ZZ
5mm I.D., 13mm O.D., 4mm thick (695ZZ type)



Bearing with flange – B. Bearing F
Φ5 – Φ13 – 4 695ZZ = 5mm I.D., 13mm O.D. includes flange, 4mm thick (695ZZ type)

- Important mark: Important point for assembling.
- One-Point mark: Helpful advice for assembling.

Caution: Apply Kalt tight  where noted with Kalt-tight mark.

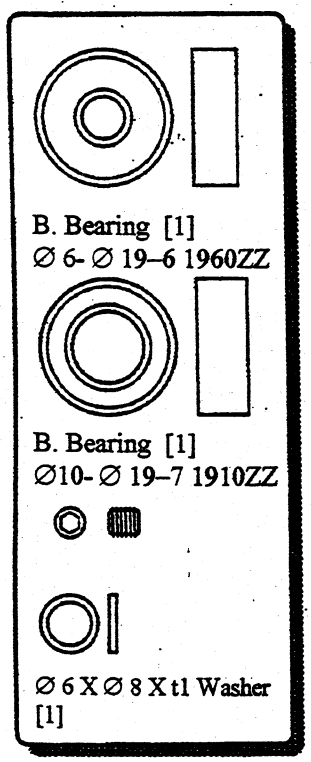
Caution: Apply Kalt grease  where noted with Kalt-Grease mark.

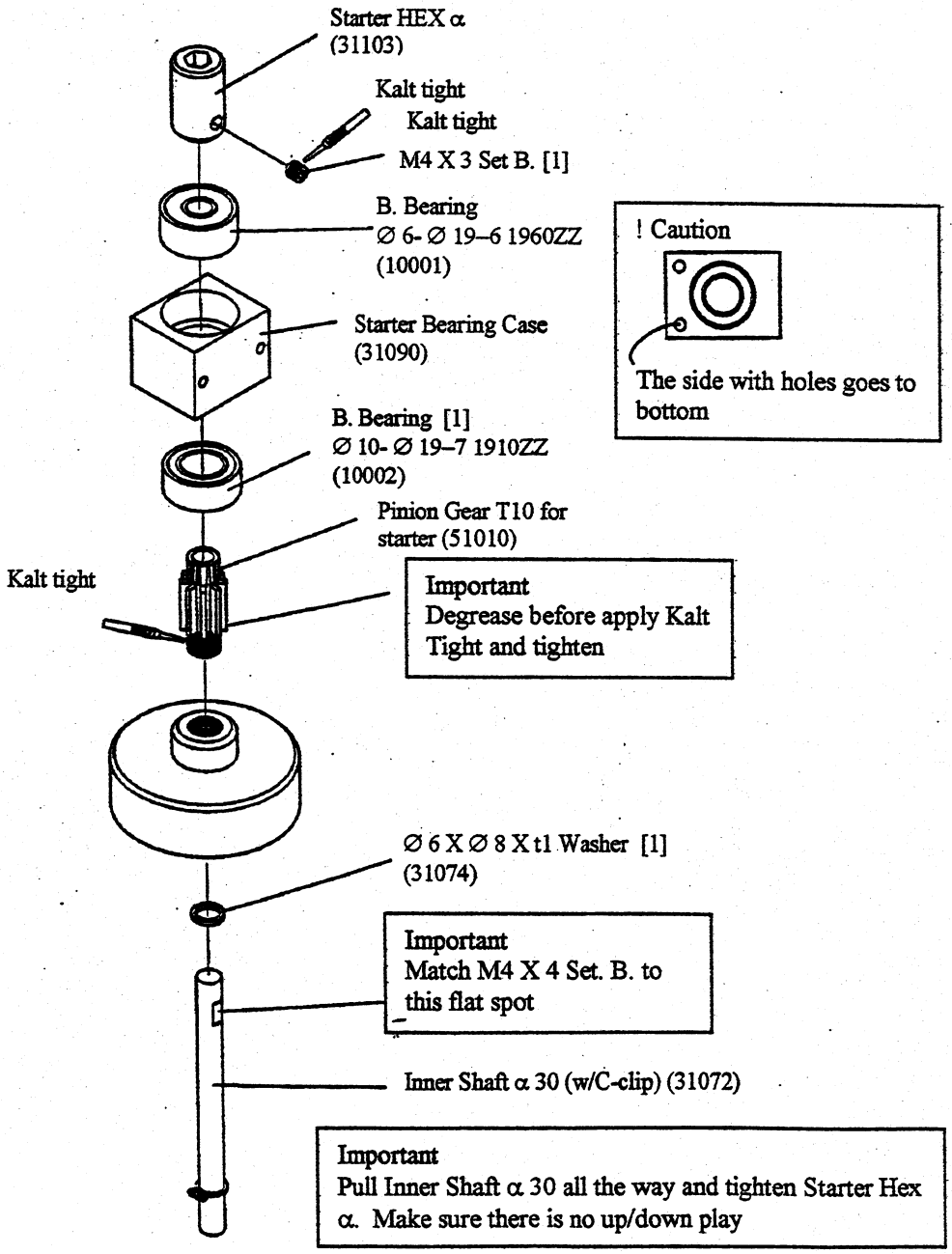
One point:

If you have a torque wrench, refer to the following chart when you tighten cap bolts. These values are based on cap bolt specifications; however, it may not be applicable against certain materials like plastics. Also, threads will wear out and lose strength when you reuse many times.

1

1 -1

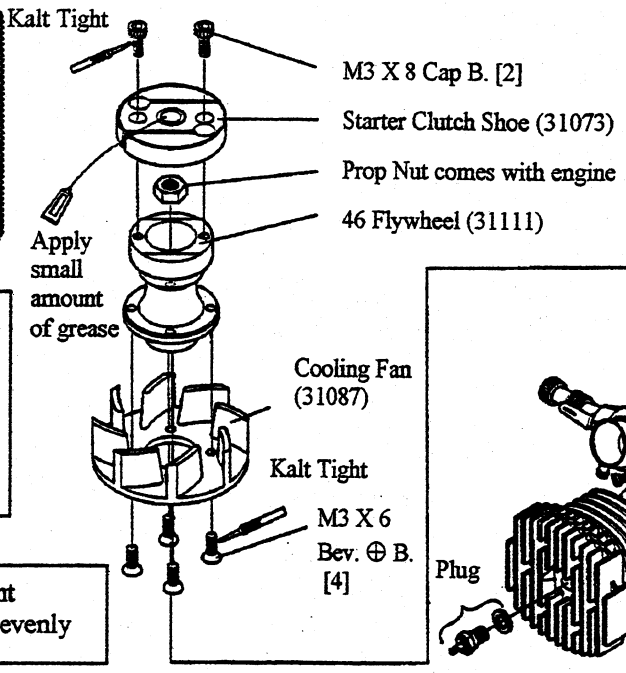




1-2

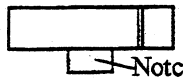
M3 X 8 Cap B. [2]

M3 X 6 Bev. ⊕ B. [2]



Important
Tighten two M3 X 8 Cap B. for Clutch Shoe (31073) evenly and firmly.
Make sure Clutch Shoe is parallel to Flywheel to prevent vibration

Important ↑ Up



Install Clutch Shoe as illustrated

Important
Tighten evenly

Important
Match flat spot of crankshaft and cut section of Flywheel, then tighten

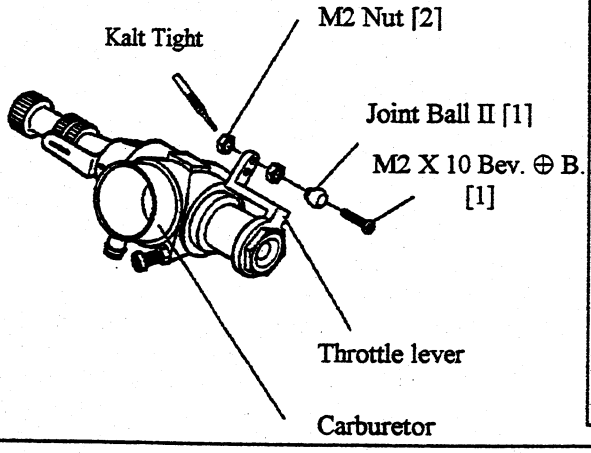
Caution!
Tighten the plop nut firmly with cross wrench. Failure to tighten securely may cause prop nut to come loose during flight

1-3

M2 X 10 Bev. ⊕ B. [1]

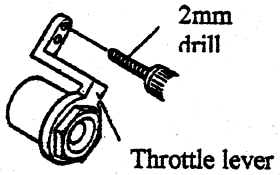
Joint Ball II [1]

M2 Nut [2]



Caution!
Change the direction of throttle lever as shown

One-Point:
It's easier to install Joint ball if drill 2mm hole on throttle lever

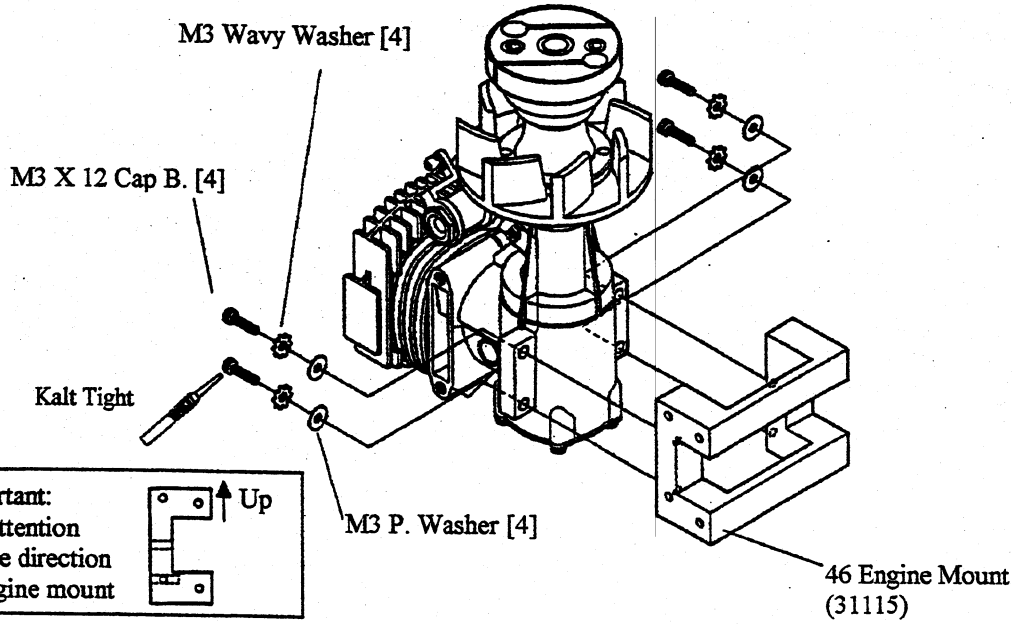


1-4

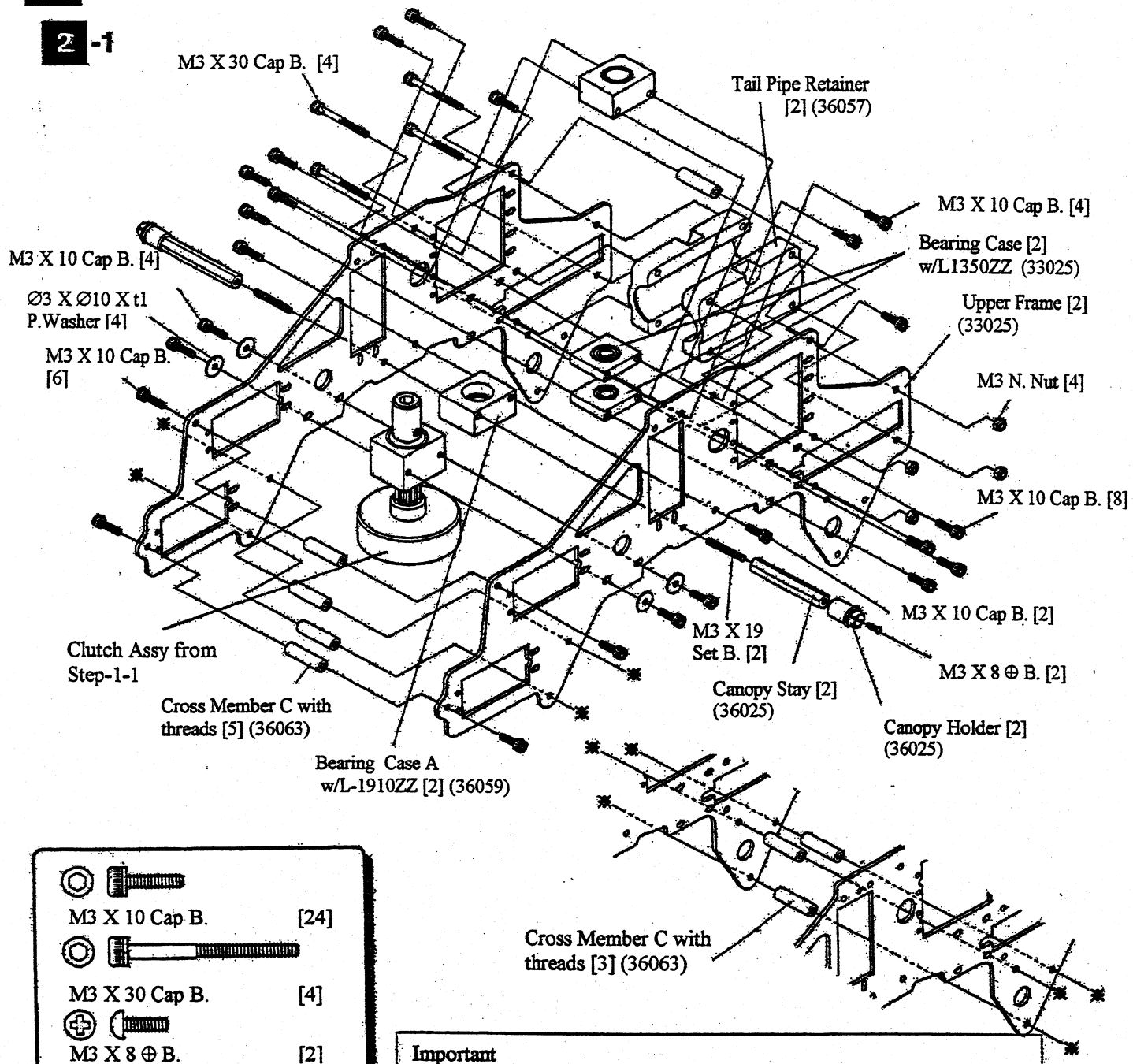
M3 X 12 Cap B. [4]

M3 Wavy Washer [4]

M3 P. Washer [4]



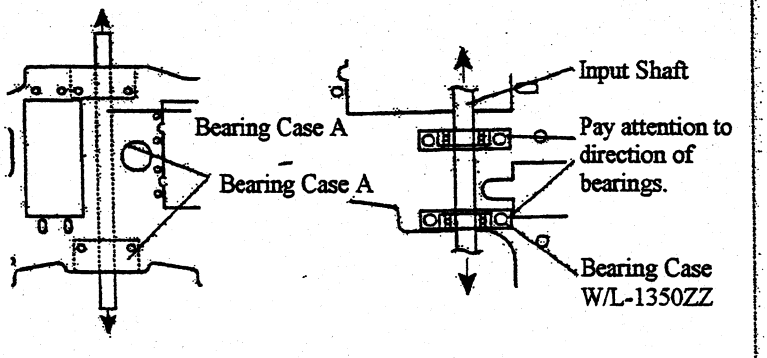
Important:
Pay attention for the direction of engine mount



M3 X 10 Cap B.	[24]
M3 X 30 Cap B.	[4]
M3 X 8 ⊕ B.	[2]
M3 X 19 Set B.	[2]
M3 N. Nut	[4]
Ø3 X Ø10 X t1 P.Washer	[4]
Cross Member C	[8]

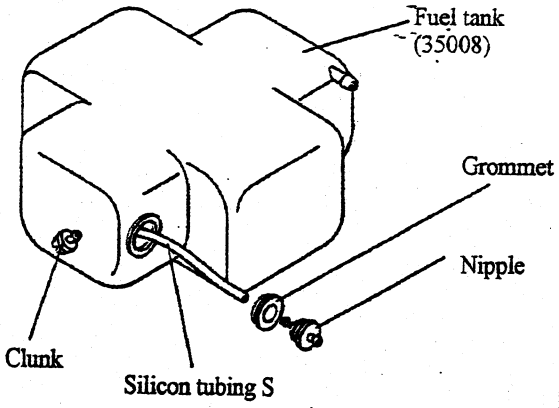
Important

Adjust bearing cases so that Main Mast and Input Shaft move freely before tightening bolts.



2-2

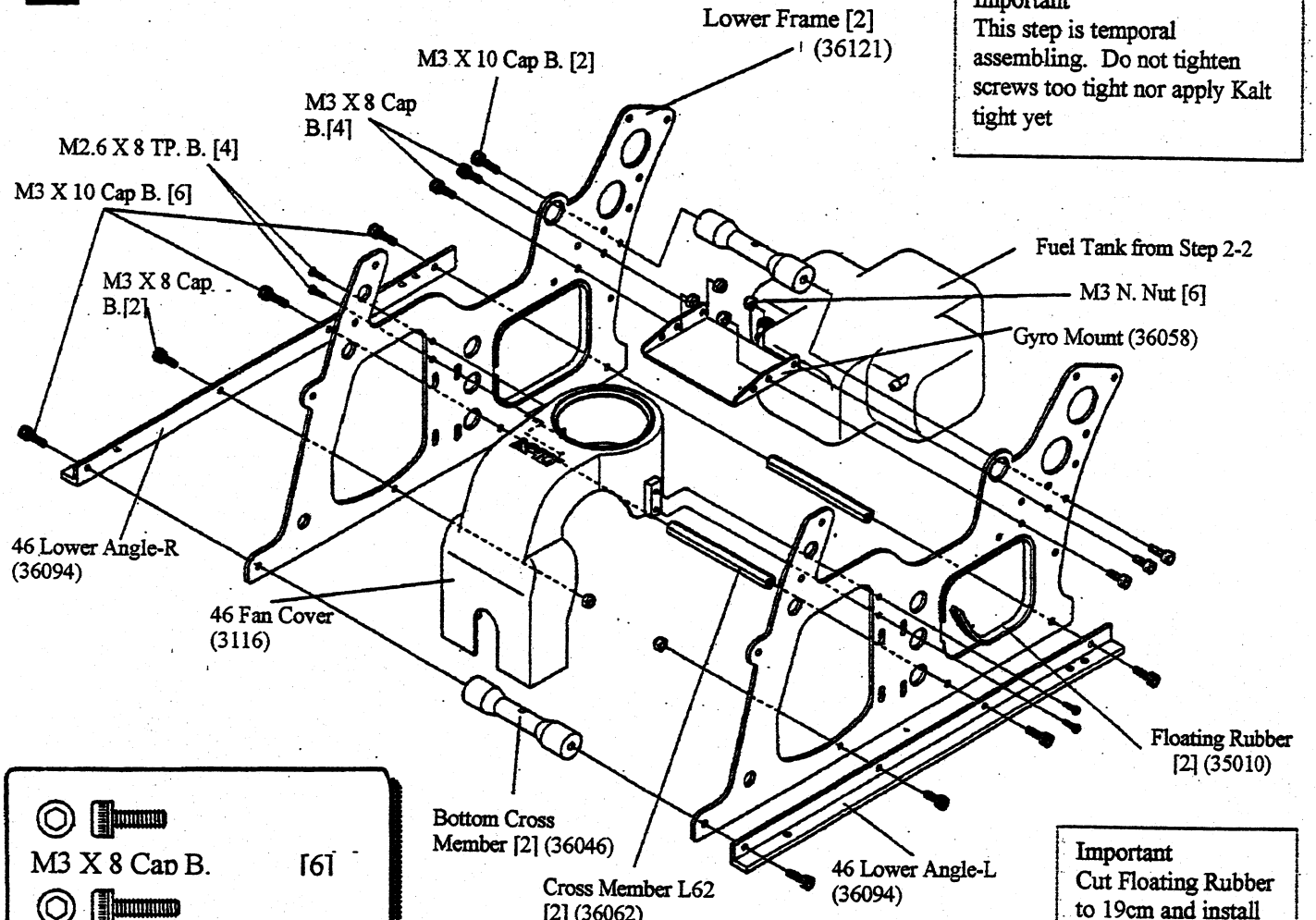
One-Point
Install grommet on the tank first then twist nipple into grommet. Do not push too hard, the grommet will fall inside the tank.



Caution!
Inspect inside of fuel tank if it is clean. Install clunk all the way into silicon tubing. If silicon tubing falls off during flight, engine will stop and may cause crash. Also, move the tank on all directions and make sure the clunk does not get stuck. Adjust the length of the tubing if necessary.

2-3

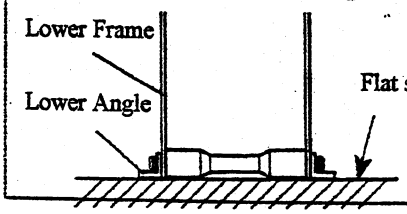
Important
This step is temporal assembling. Do not tighten screws too tight nor apply Kalt tight yet



M3 X 8 Cap B.	[6]
M3 X 10 Cap B.	[8]
M2.6 X 8 TP. B.	[4]
M3 N. Nut	[6]

Important
Cut Floating Rubber to 19cm and install on the frames

One-Point
Place the frame on flat surface (i.e. glass) and verify frames are straight when you assemble



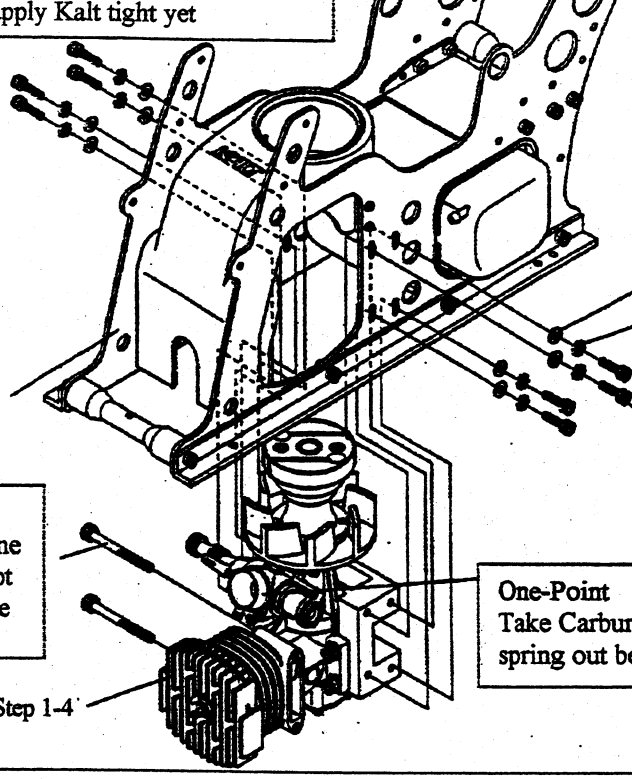
One-Point
If fan touches to fan cover on step 2-3, readjust the fan cover position

M3 X 12 Cap B. [8]

M3 Wavy Washer [8]

M3 P. Washer [8]

nor apply Kalt tight yet



M3 P. Washer [8]

M3 Wavy Washer [8]

Lower Frame from Step-2-3

M3 X 12 Cap B. [8]

On-Point
Insert M3 X 35 Cap B. to the engine now for Step 7-5. The bolts are not included in this kit since they come with muffler

One-Point
Take Carburetor or Needle and spring out before install engine

Engine Assy from Step 1-4

2-5

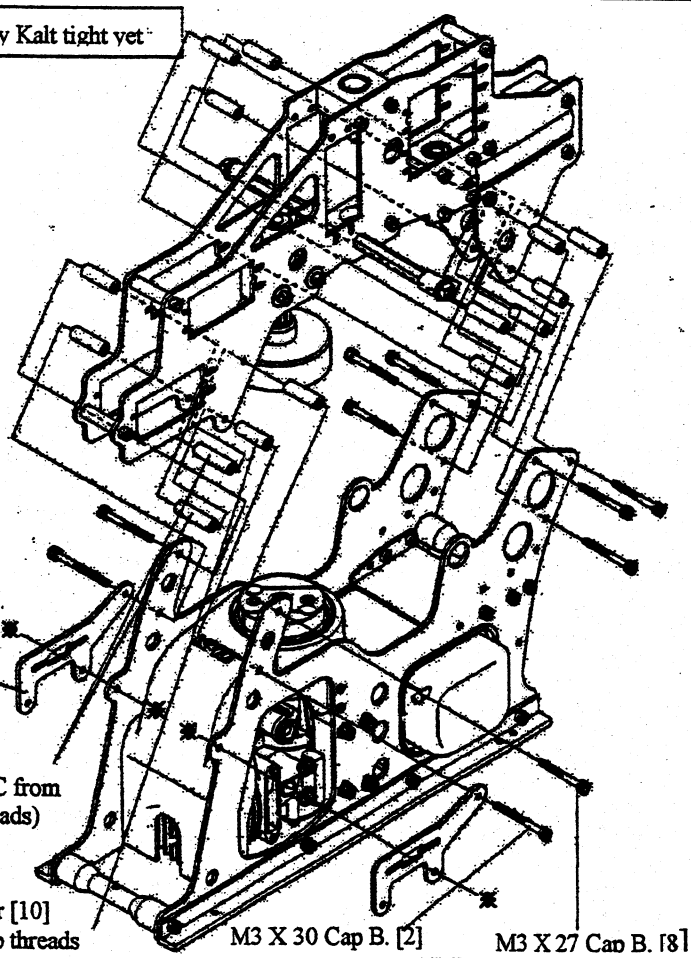
Important Do not tighten screws too tight nor apply Kalt tight yet

M3 X 30 Cap B. [2]

M3 X 27 Cap B. [8]

46 Member [10]

One-Point
Turn Hex Starter Cup to clock wise (looking from top of helicopter) and make sure the cup turns smoothly. This is probably caused by misalignment of clutch bell and flywheel. Adjust engine position.)



Sub Frame Stay [2] (36123)

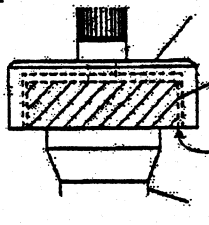
Cross Member C from Step 2-1 (w/threads)

46 Member [10] (36097) No threads

M3 X 30 Cap B. [2]

M3 X 27 Cap B. [8]

Important Clutch Bell



Align Clutch Shoe and Clutch Bell bottoms to be the same plane. Adjust engine position with M3 X 12 Cap B. [8] to align Clutch Bell and Flywheel to be inline

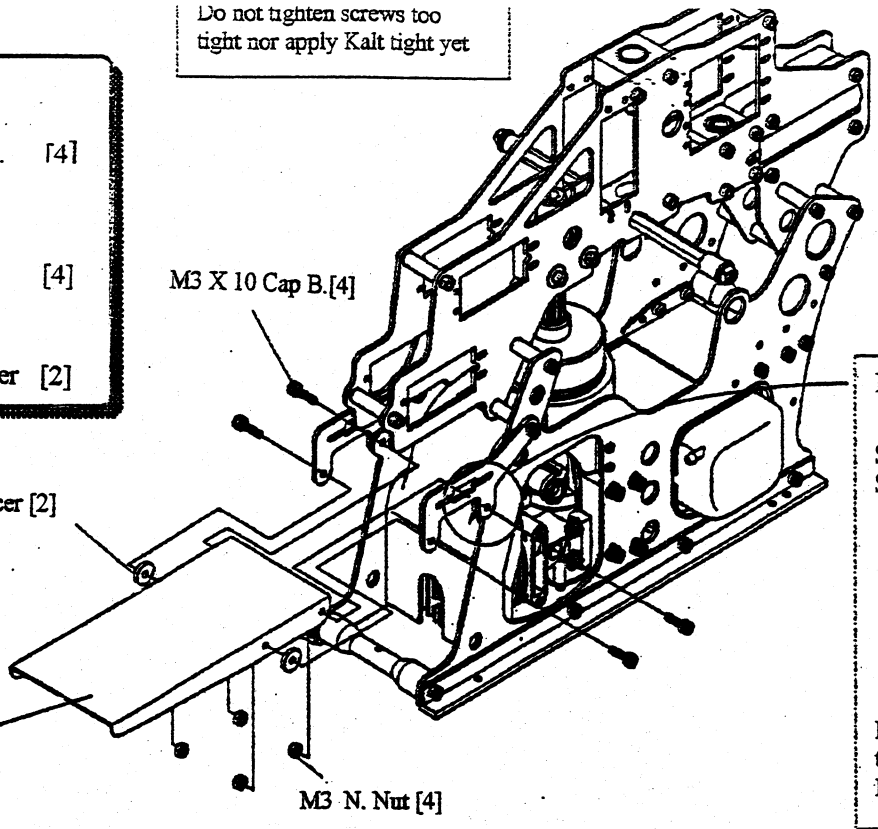
Important Match sub frames at * marks. Will be tightened at Step 2-6

Do not tighten screws too tight nor apply Kalt tight yet

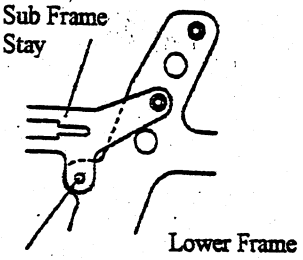
M3 X 10 Cap B. [4]

M3 N. Nut [4]

Sub Frame Spacer [2]



Important



Make sure 3 X 10 Cap B. go through both back side of Sub Frame and Lower Frame

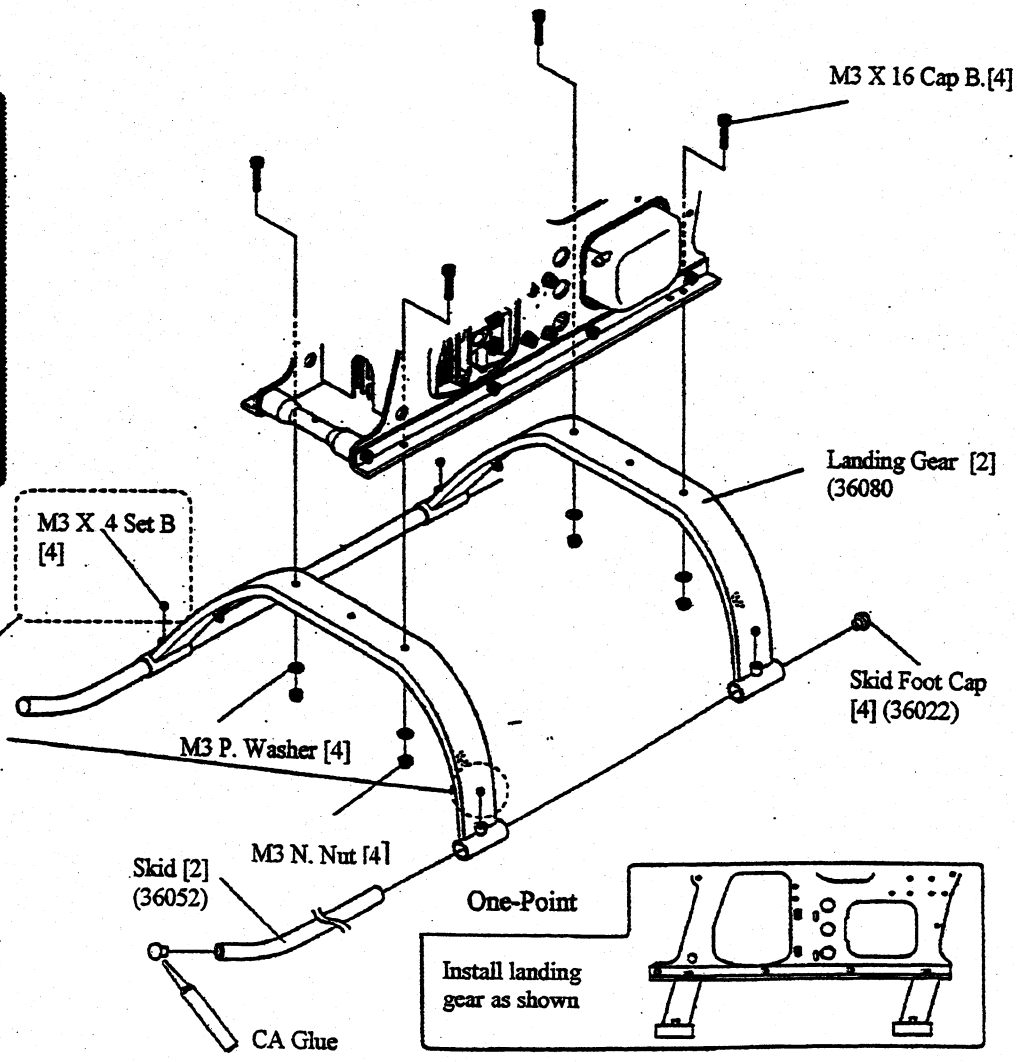
2-7

M3 X 16 Cap B. [4]

M3 X 4 Set B. [4]

M3 N. Nut

M3 P. Washer [4]



One-Point

Front side of M3 X 4 Set B. on landing gear is optional. De installation is much easier without them. It makes no deference on the flight, but for those who like to have extra rigidity, install front set bolts.

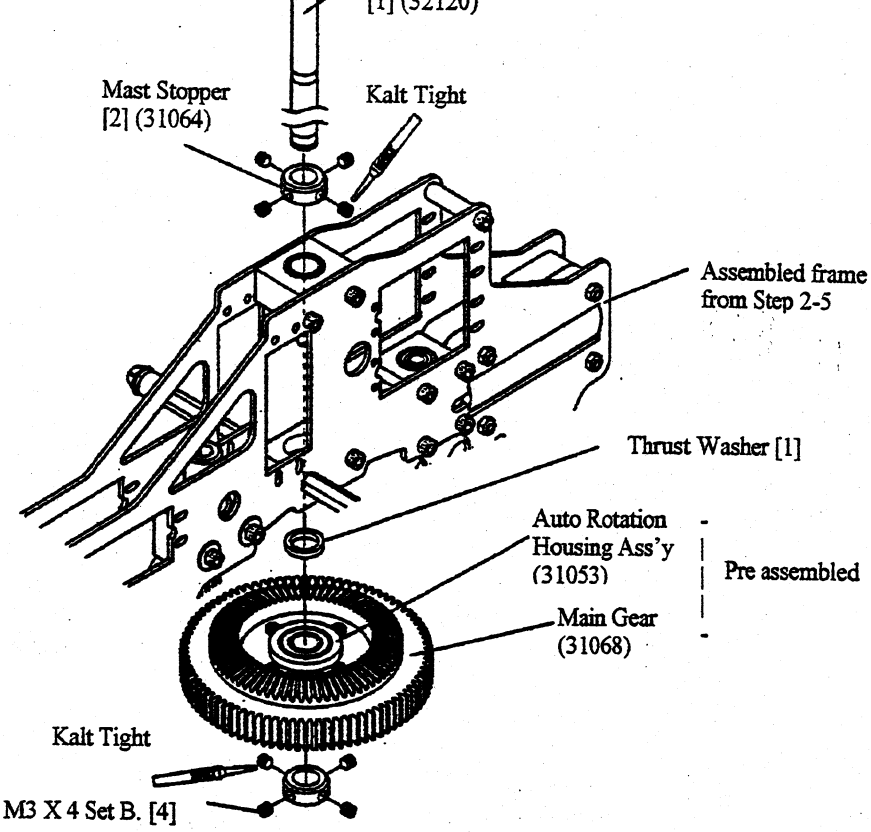
3 -1

M3 X 4 Set B. [4]

Thrust Washer [1]

Important

Insert Main Mast from top bearing case, then Auto rotation hub. Secure Mast stopper at the bottom of mast (at cut area.) Pull mast up position and secure mast stopper at top of upper bearing case. Make sure mast have no up/down play



3 -2

M2 X 16 Cap B. [4]

M3 X 10 Cap B. [2]

M2 X 10 Bev. ⊕ B. [2]

Joint Ball II [2]

Joint Ball Spacer [2]

M2 P. Washer [2]

Ø3 X Ø□4.5 X t0.5 P. Washer [4]

Ø3 X Ø□4.5 X t0.7 P. Washer [2]

Universal Link Collar F [2]

Ø3 X Ø□7-2 B. Brg. (L730 Open) [2]

Ø3 X Ø□7-2 B. Brg. F (LF-730 ZZ) [2]

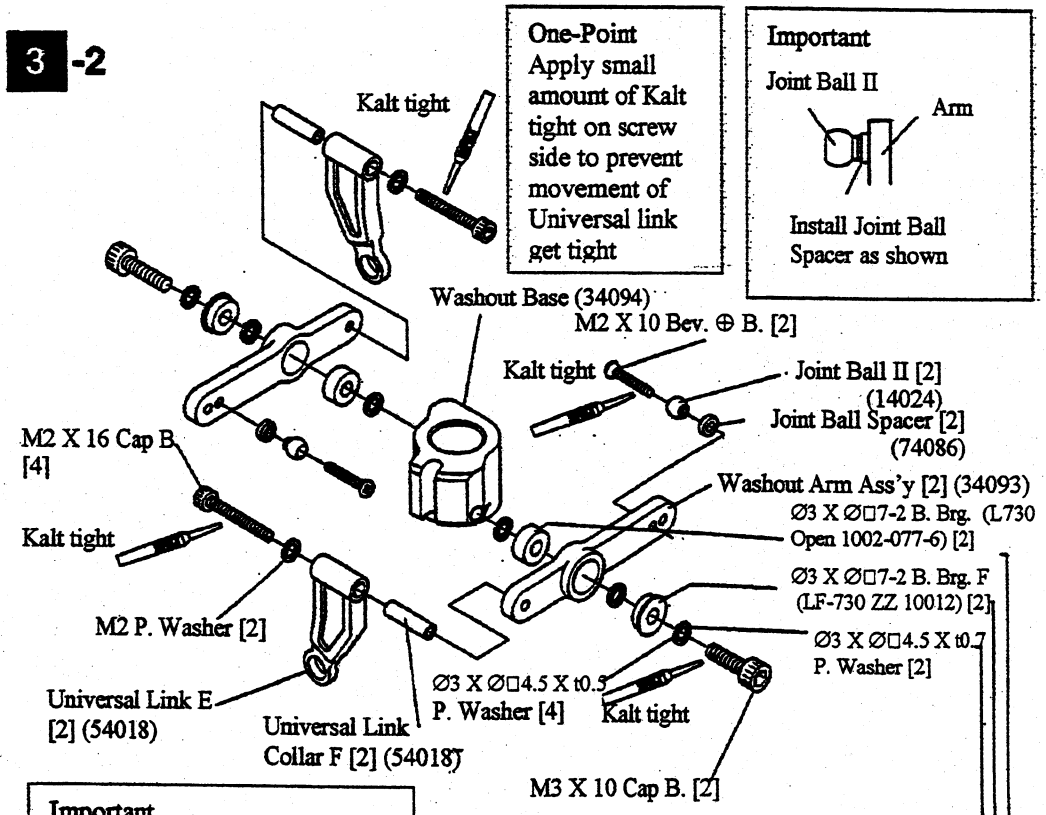
One-Point
Apply small amount of Kalt tight on screw side to prevent movement of Universal link get tight

Important

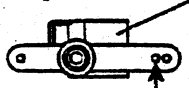
Joint Ball II

Arm

Install Joint Ball Spacer as shown



Important



Arm goes bottom side of Washout Base

Put Joint Ball II here

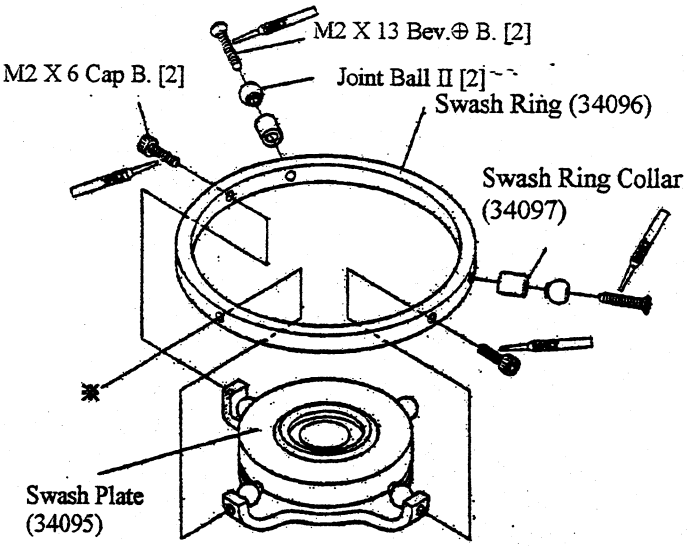
✱ This P. Washer is pressed in to Washout Arm

✱ This Bering is pressed in to Washout Arm

✱ This bearing is pressed in to Washout Arm

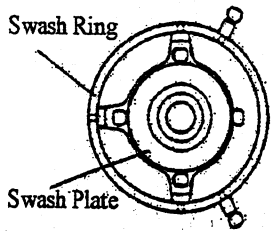
3-3

- Joint Ball II [2]
- M2 X 6 Cap B. [2]
- M2 X 13 Bev.⊕ B. [2]
- Swash Ring Collar [2]



Important
The * part to mount Swash Plate will be tightened on Step- 3-4. Just align the position for now

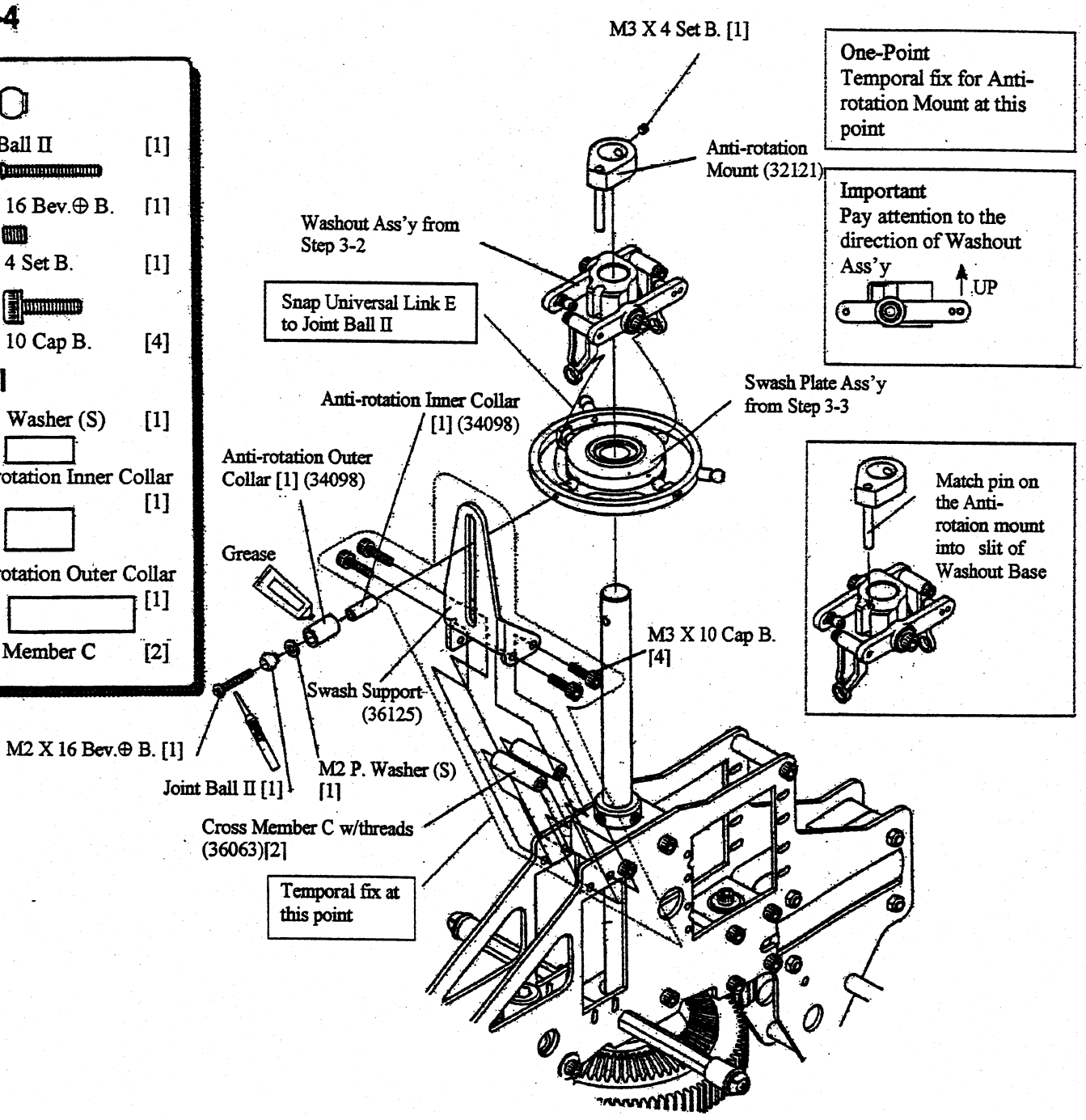
Important



The holes should align as shown

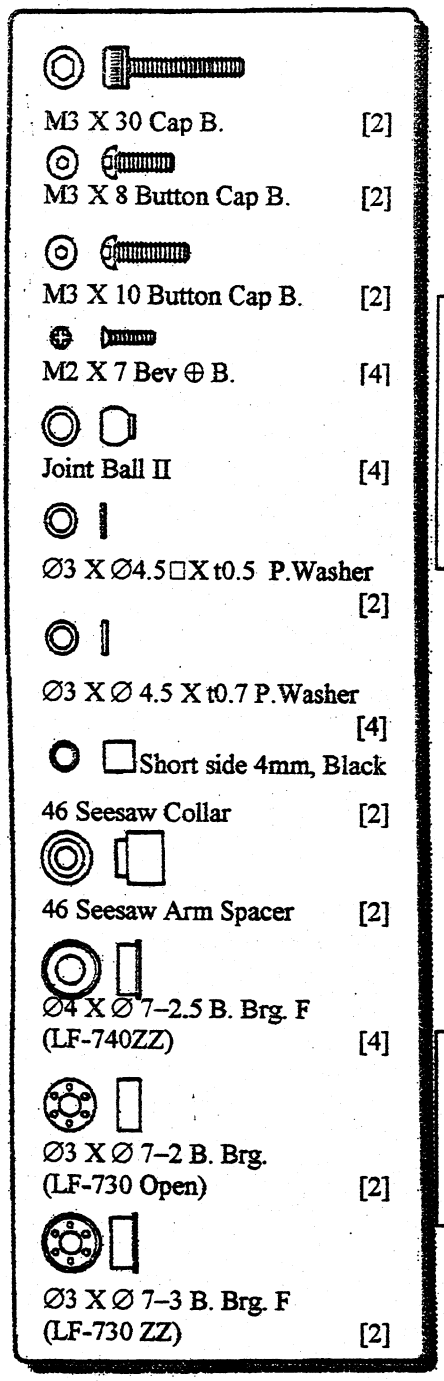
3-4

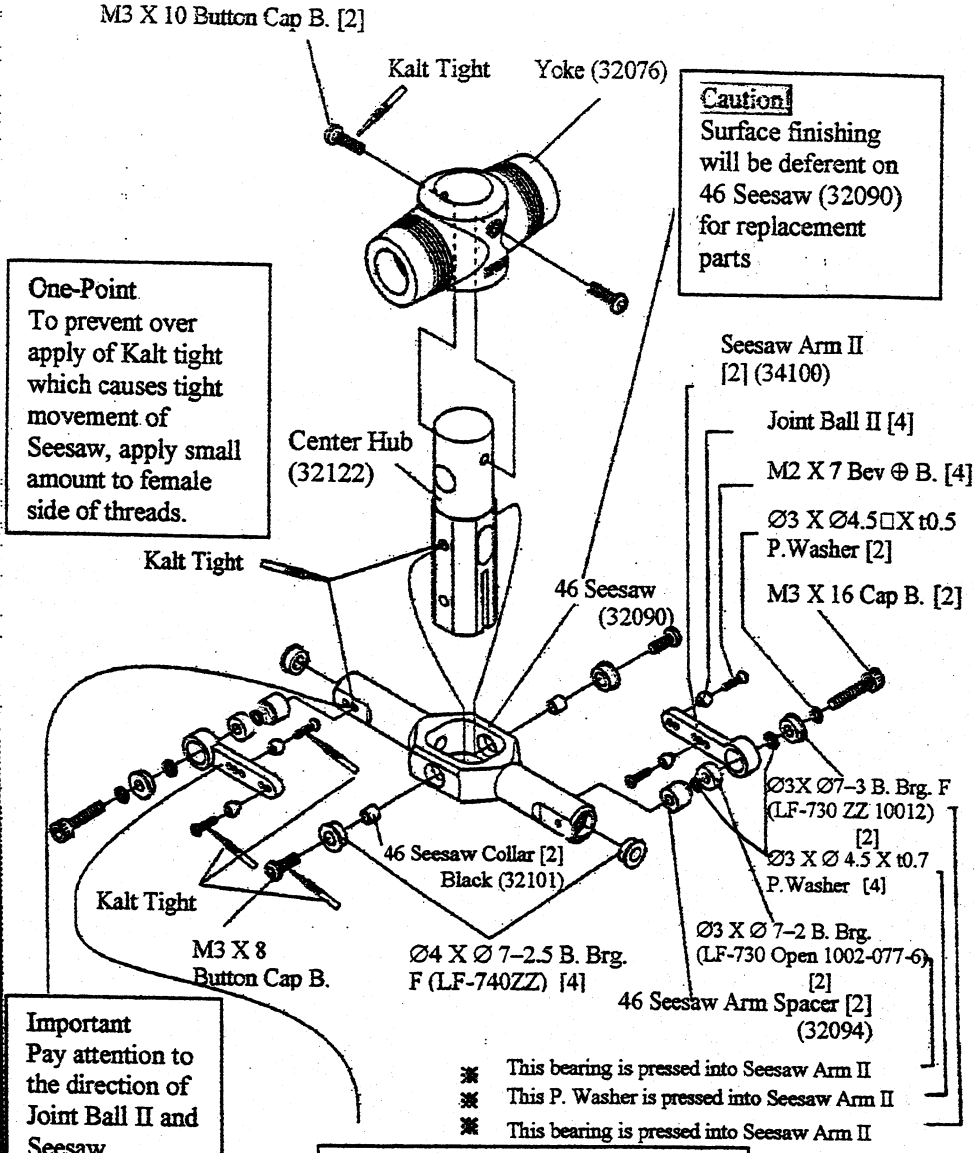
- Joint Ball II [1]
- M2 X 16 Bev.⊕ B. [1]
- M3 X 4 Set B. [1]
- M3 X 10 Cap B. [4]
- M2 P. Washer (S) [1]
- Anti-rotation Inner Collar [1]
- Anti-rotation Outer Collar [1]
- Cross Member C [2]

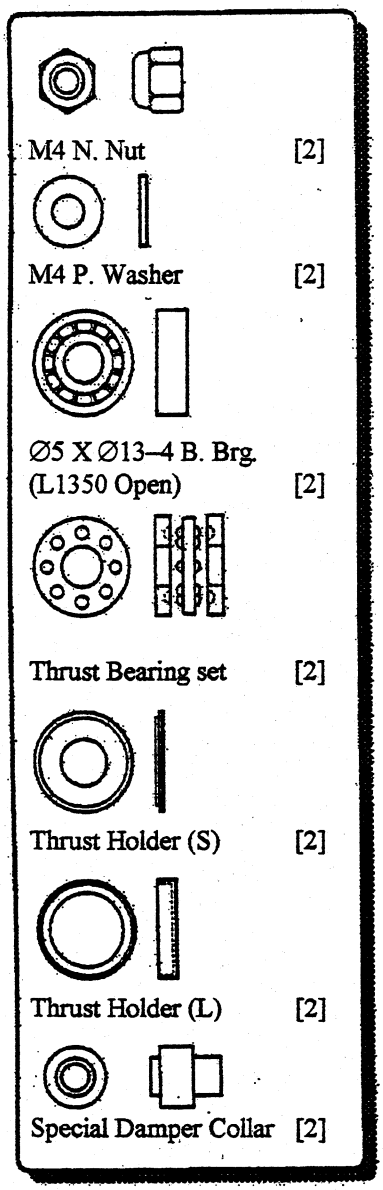


One-Point
Temporal fix for Anti-rotation Mount at this point

Important
Pay attention to the direction of Washout Ass'y


M3 X 30 Cap B. [2]
M3 X 8 Button Cap B. [2]
M3 X 10 Button Cap B. [2]
M2 X 7 Bev ⊕ B. [4]
Joint Ball II [4]
Ø3 X Ø4.5□X t0.5 P.Washer [2]
Ø3 X Ø 4.5 X t0.7 P.Washer [4]
Short side 4mm, Black
46 Seesaw Collar [2]
46 Seesaw Arm Spacer [2]
Ø4 X Ø 7–2.5 B. Brg. F (LF-740ZZ) [4]
Ø3 X Ø 7–2 B. Brg. (LF-730 Open) [2]
Ø3 X Ø 7–3 B. Brg. F (LF-730 ZZ) [2]

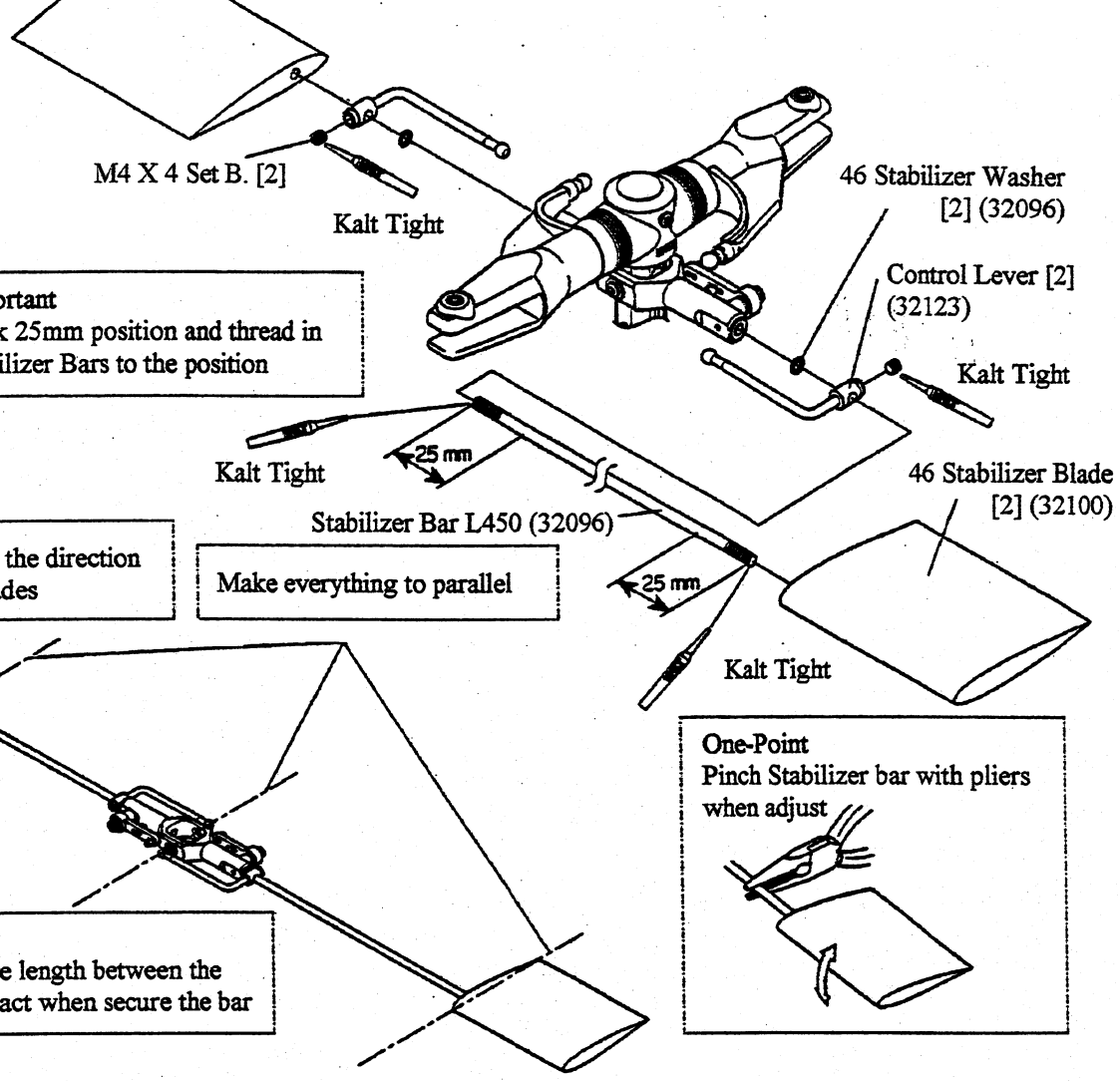

M3 X 10 Button Cap B. [2]
Kalt Tight
Yoke (32076)
Caution
Surface finishing will be deferent on 46 Seesaw (32090) for replacement parts
One-Point
To prevent over apply of Kalt tight which causes tight movement of Seesaw, apply small amount to female side of threads.
Seesaw Arm II [2] (34100)
Joint Ball II [4]
Center Hub (32122)
M2 X 7 Bev ⊕ B. [4]
Ø3 X Ø4.5□X t0.5 P.Washer [2]
Kalt Tight
46 Seesaw (32090)
M3 X 16 Cap B. [2]
Ø3X Ø7–3 B. Brg. F (LF-730 ZZ 10012) [2]
Ø3 X Ø 4.5 X t0.7 P.Washer [4]
46 Seesaw Collar [2] Black (32101)
Kalt Tight
M3 X 8 Button Cap B.
Ø4 X Ø 7–2.5 B. Brg. F (LF-740ZZ) [4]
Ø3 X Ø 7–2 B. Brg. (LF-730 Open 1002-077-6) [2]
46 Seesaw Arm Spacer [2] (32094)
※ This bearing is pressed into Seesaw Arm II
※ This P. Washer is pressed into Seesaw Arm II
※ This bearing is pressed into Seesaw Arm II
Important
Pay attention to the direction of Joint Ball II and Seesaw
Important
Pay attention to the location of Joint ball holes
Important
Place notch side of Seesaw Arm II to out side as shown
Seesaw
Seesaw Arm II


M4 N. Nut [2]
M4 P. Washer [2]
Ø5 X Ø13–4 B. Brg. (L1350 Open) [2]
Thrust Bearing set [2]
Thrust Holder (S) [2]
Thrust Holder (L) [2]
Special Damper Collar [2]

Yoke Ass'y from Step 4-1
S30 α Rubber dampener [2] (32061)
S30 α Spindle (32061)
Special Damper Collar [2] (32071)
Space S Main Rotor Grip [2] (32021)
Thrust Holder (L) [2]
Thrust Bearing [2]
Thrust Bearing set (32020) [2]
Thrust Holder (S) [2]
Ø5 X Ø13–4 B. Brg. (L1350 Open) [2]
M4 P. Washer [2]
M4 N. Nut [2]
One-Point
If dampener is hard to install, apply small amount of grease.
Important
Pay attention to the direction of thrust holder L & S
Yoke side
Thrust Holder (S)
Thrust Holder (L)
Thrust Bearing
Important
Larger I. D.
Smaller I.D. >Match the grooves to balls
Yoke side
One-Point: Easy to check which I. D. is larger by inserting to Spindle
One-Point
Make sure to use cross wrench or equivalent when tighten M4 N. Nut onto S30 α Spindle. Make sure they are secured. If the nuts come lose, main blades will swing away and very dangerous.

M4 X 4 Set B. [2]

46 Stabilizer Washer [2]



Important
Mark 25mm position and thread in Stabilizer Bars to the position

Pay attention to the direction of Stabilizer blades

Make everything to parallel

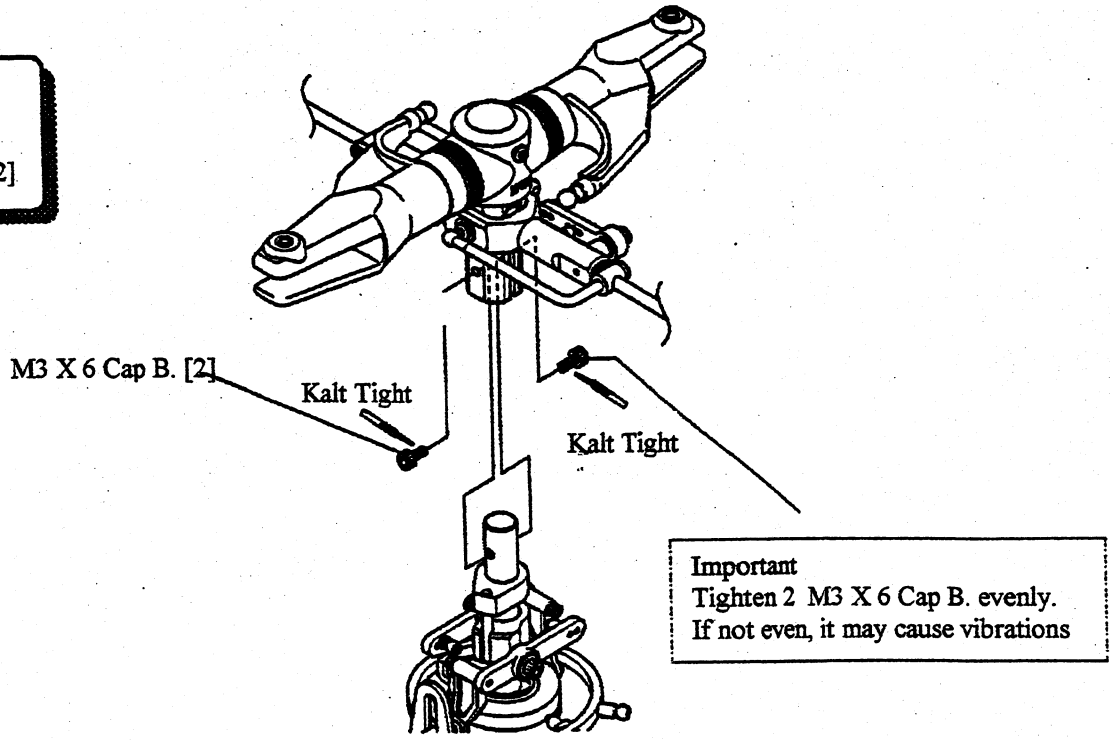
Important
Make sure the length between the blades are exact when secure the bar

One-Point
Pinch Stabilizer bar with pliers when adjust

---

4 -4

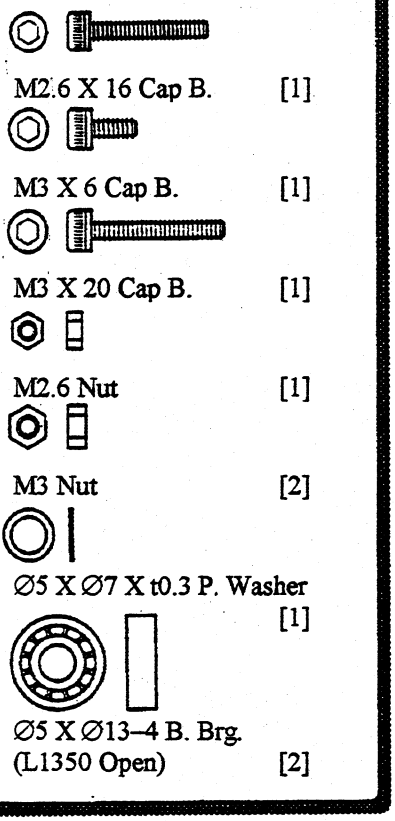
M3 X 6 Cap B. [2]

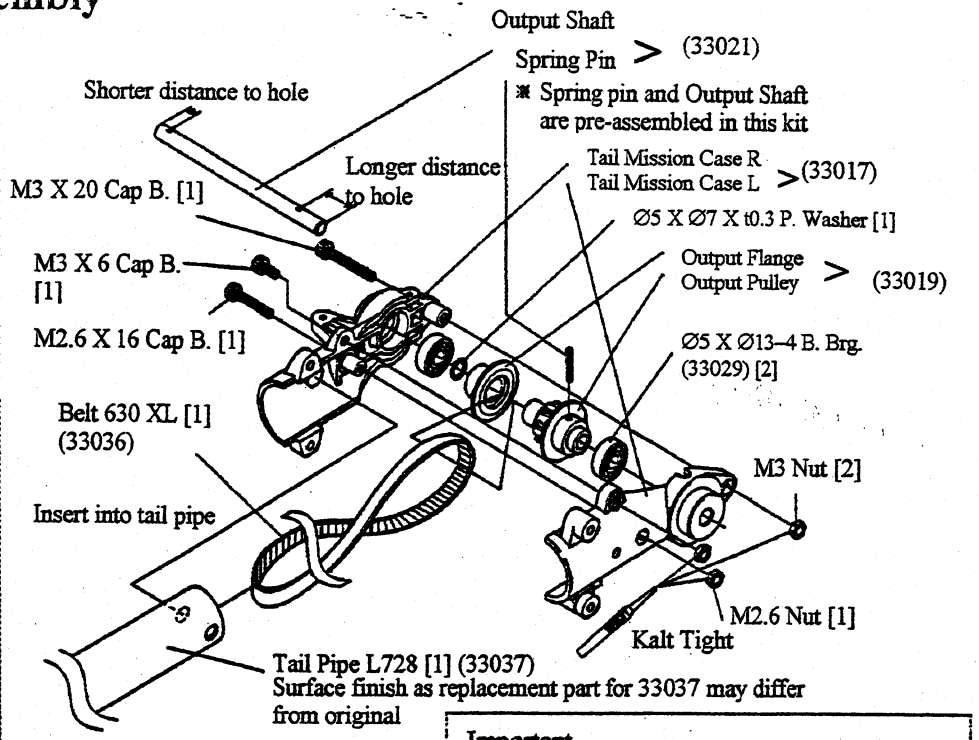


Important
Tighten 2 M3 X 6 Cap B. evenly.
If not even, it may cause vibrations

5 Tail Section Assembly

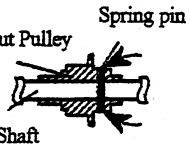
5-1



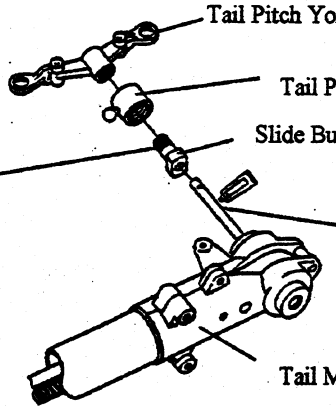


One-Point
You can polish tail pipe with compound to make chrome finish

Important
* Pre-assembled in this kit
Make sure you press Spring pin all the way into Pulley



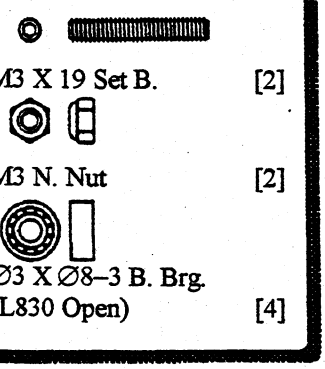
5-2

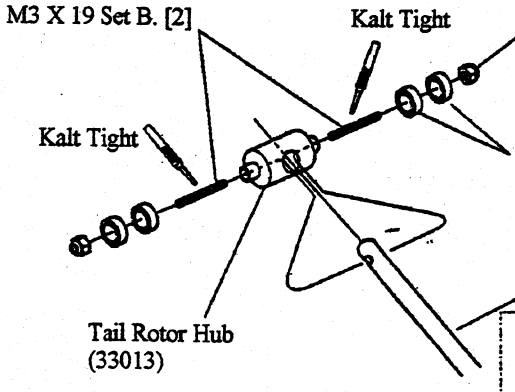


One-Point
Insert Tail Pitch Slider into Slide Bushing then tighten Tail Pitch Yoke. It has left hand threads (counter click-wise)

One-Point
Apply small amount of grease

5-3



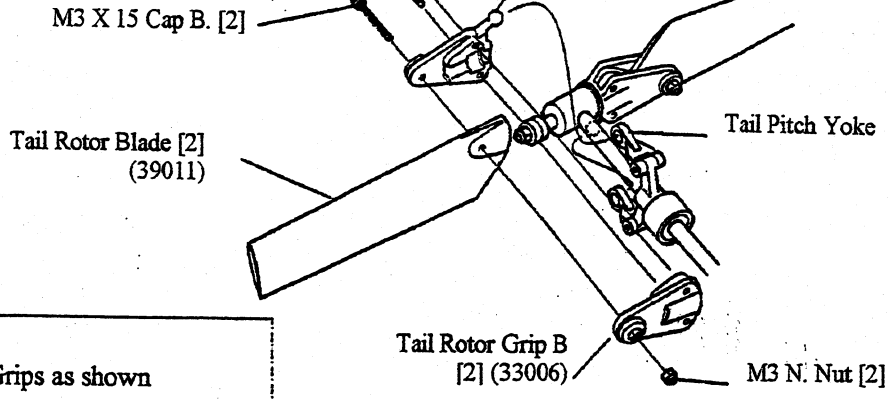


Important
Match the holes on Tail Output Shaft and Tail Rotor Hub then tighten M3 X 19 Set B.

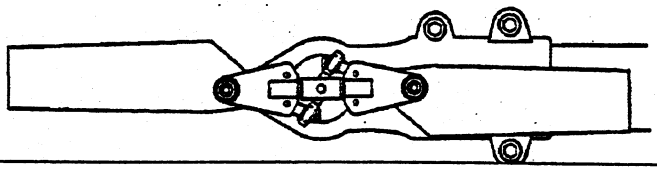
M2 X 10 TP. B. [4]

M3 X 15 Cap B. [2]

M3 N. Nut [2]



Important
Install Tail Rotor Blades to Tail Rotor Grips as shown



One-Point
Insert the ball on Tail Grip A into Tail Pitch Yoke first then assemble Tail Grip B

5-5

M3 X 14 Cap B. [1]

M3 X 20 Cap B. [2]

M3 N. Nut [2]

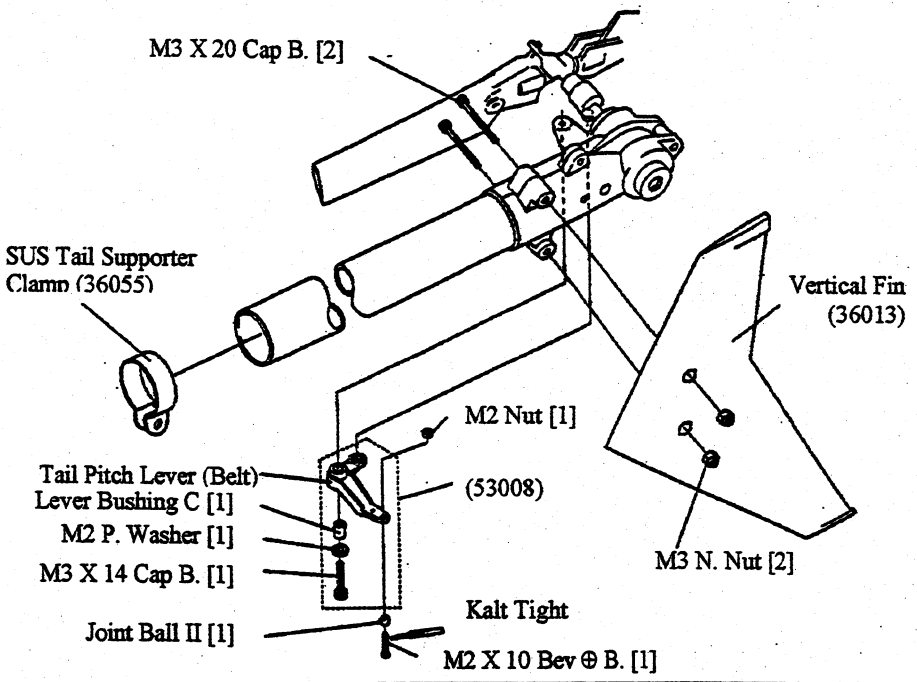
M2 P. Washer [1]

Lever Bushing C [1]

Joint Ball II [1]

M2 X 10 Bev ⊕ B. [1]

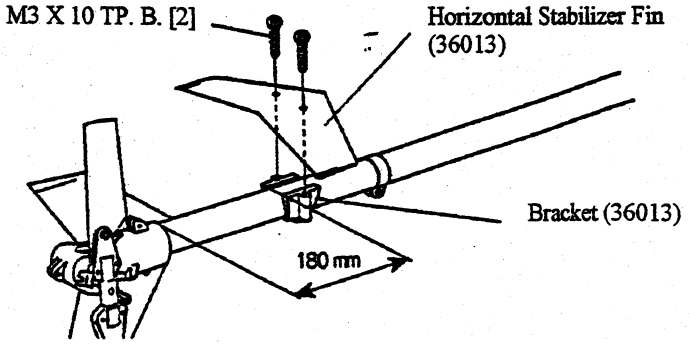
M2 Nut [1]



One-Point
Make sure Tail Pitch Lever moves smoothly after assemble

5-6

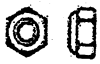
M3 X 10 TP. B. [2]



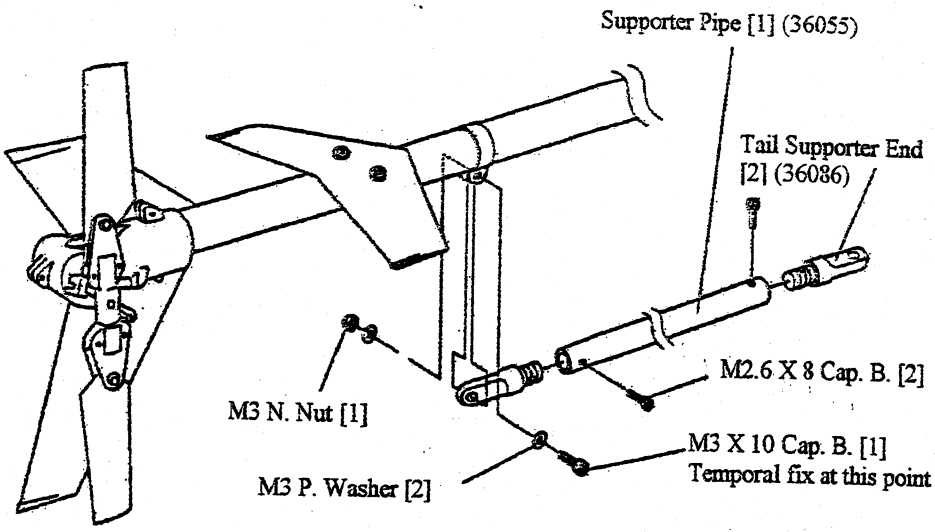
5-7


M2.6 X 8 Cap. B. [2]


M3 X 10 Cap. B. [1]


M3 N. Nut [1]


M3 P. Washer [2]



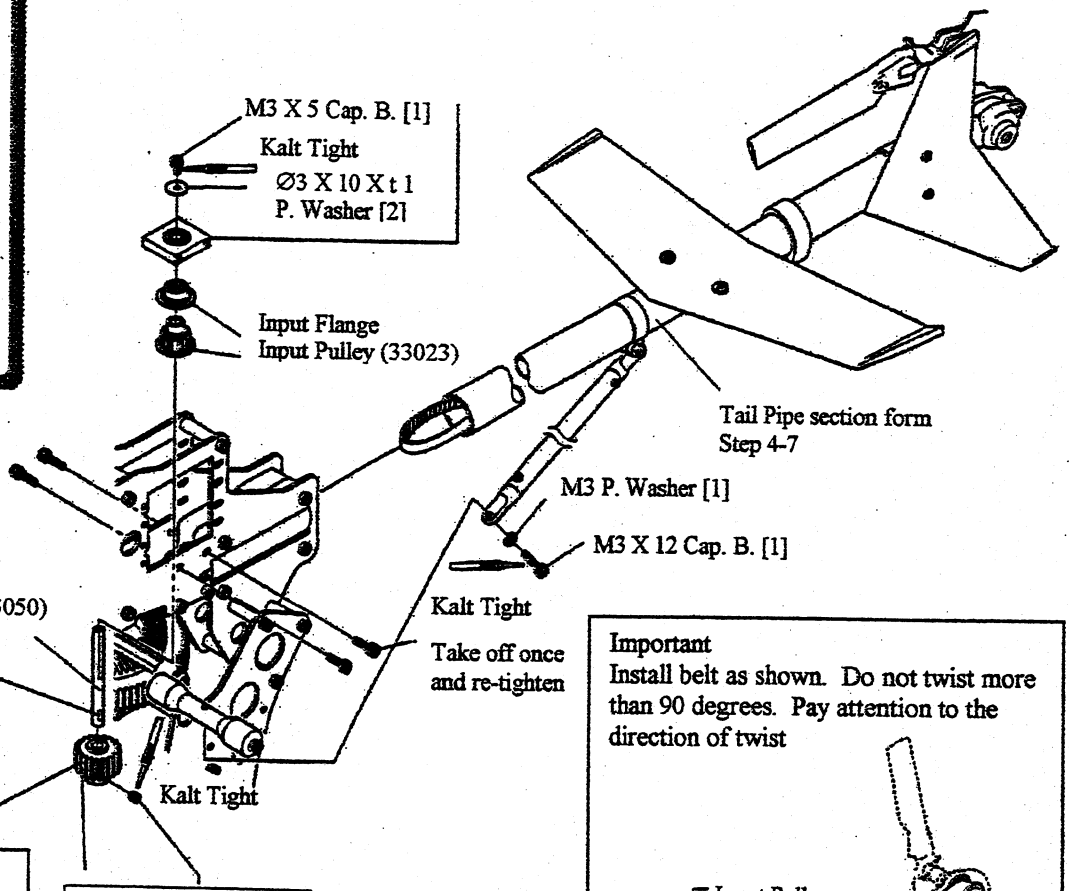
5-8


M3 X 5 Cap. B. [1]


M3 X 12 Cap. B. [1]

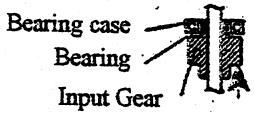

M4 X 3 Set B. [1]


M3 P. Washer [1]

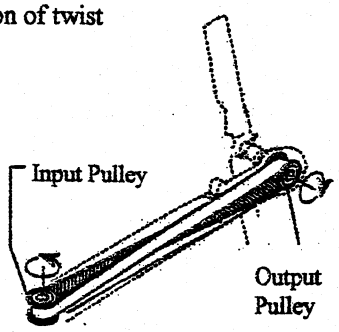


Important
Tighten Set bolt to flat part of shaft

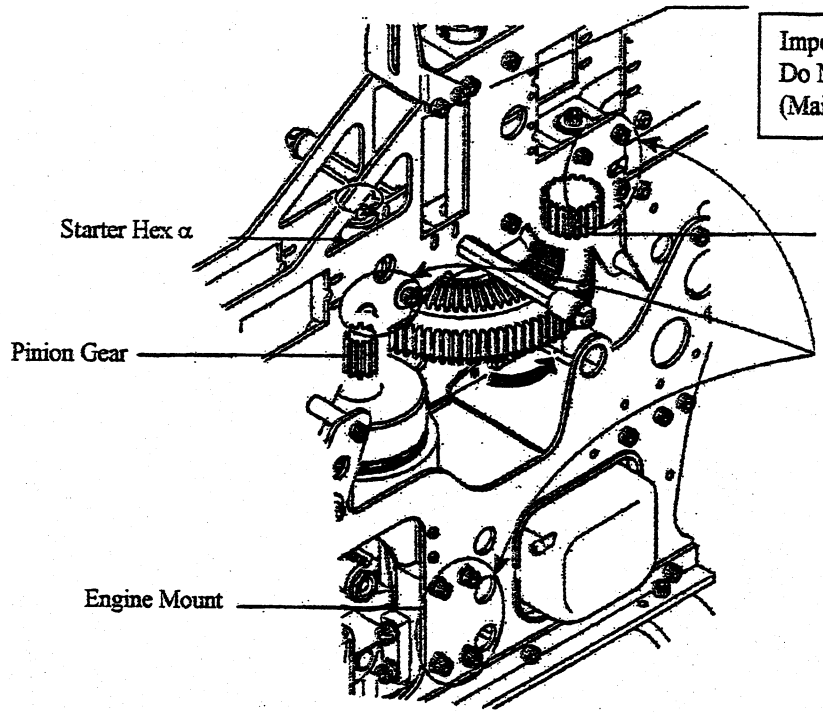
Important
Push input gear up until it touches to bottom of bearing



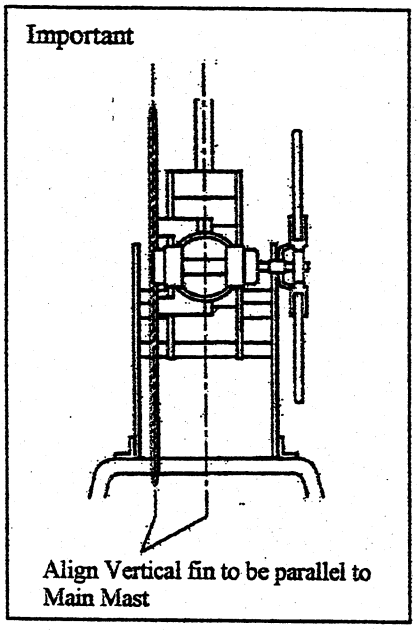
Important
Install belt as shown. Do not twist more than 90 degrees. Pay attention to the direction of twist

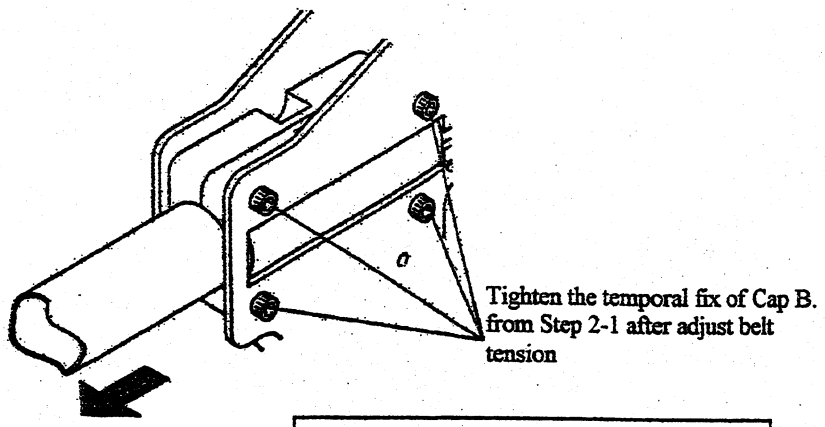


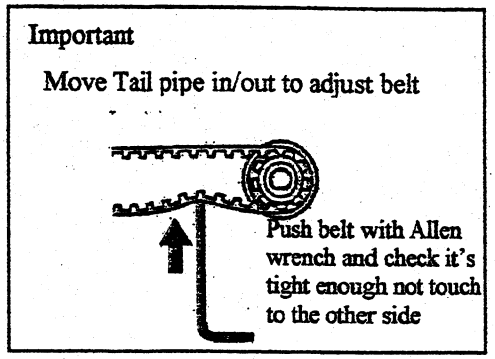
Now adjust engine side of Pinion Gear, Main Gear and input gear backlashes. Rotate Main Gear and align gears so they move smoothly.
Next align engine and Pinion gear by adjusting engine location. Verify Starter HEX α turns smoothly.



6-2







Important Maintenance

- Belt will stretch. Because of nature of the belt, it will stretch more on first a few flights. Check and adjust tension every flight for that period.
- Do not lube or grease on belt and pulley. It will shorten belt life.

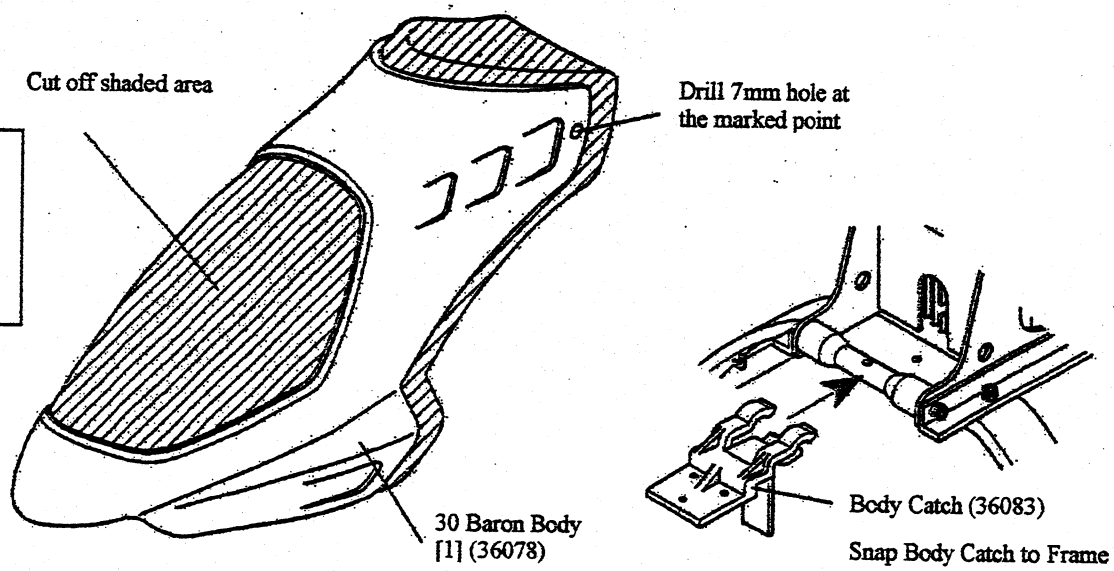
6-3

Tighten the temporal fix Cap bolts from following stages. Take Cap bolt and apply Kalt tight then tighten securely one at a time.

Step 2-1 (Upper Frame Assembly)
Step 2-3 (Lower Frame Assembly)
Step 2-4 (Engine Mount Assembly to Frame)
Step 2-5 (Assemble of Upper Frame and Lower Frame)
Step 2-6 (Servo Frame Assembly)

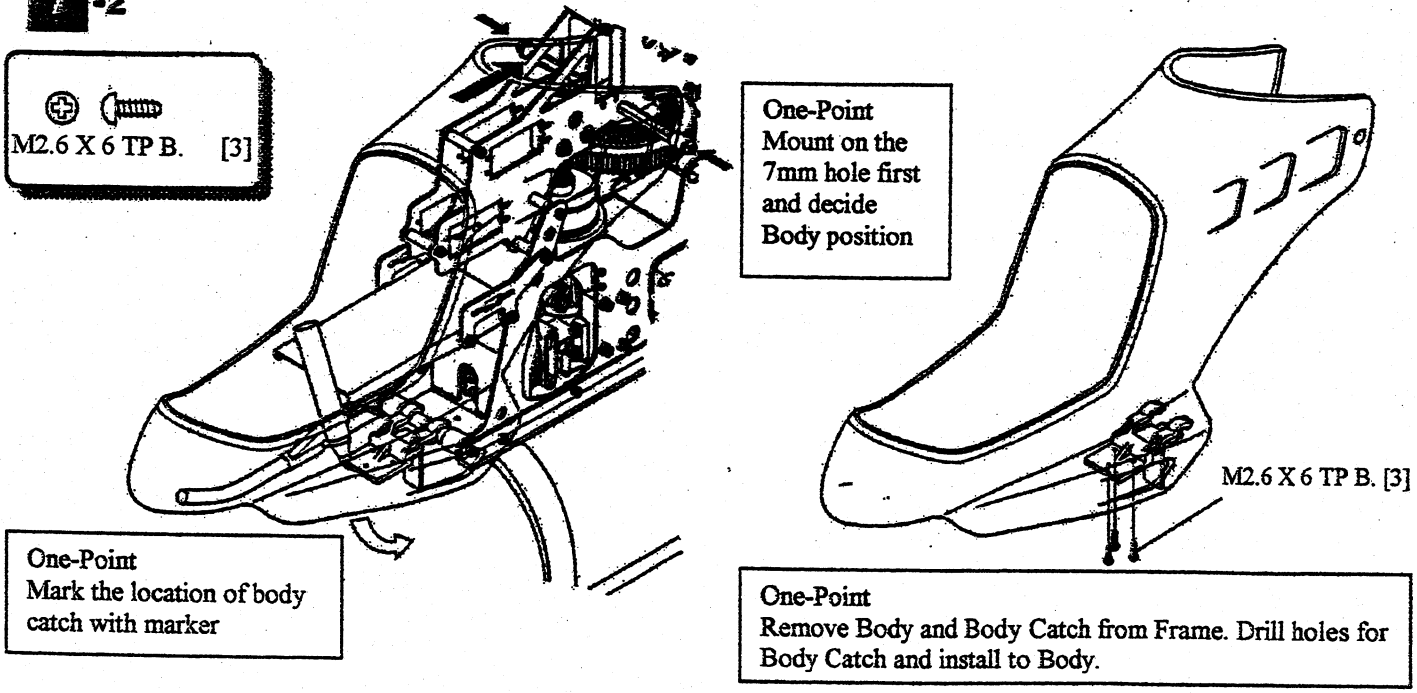
7 Body and Muffler Assembly

7-1

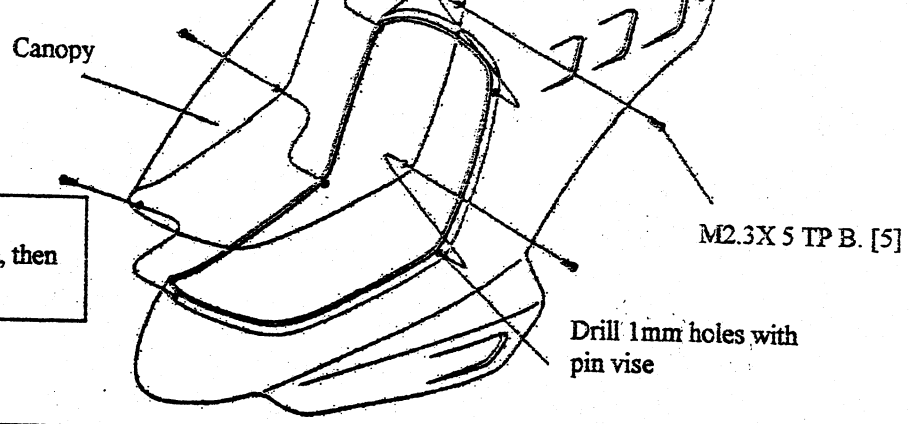


One-Point
You will get better result by cutting shaded area in small amount at a time

7-2



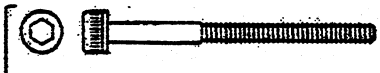
M2.3X 5 TP B. [5]



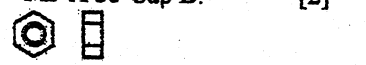
One-Point
Tape Canopy to Boyd with tape, then drill 1mm hole

7-4 Apply decals (38052) to Body, horizontal and vertical fins. Refer to separate decal instruction for the locations. Clean body and fins with soap or alcohol before apply decals.

7-5

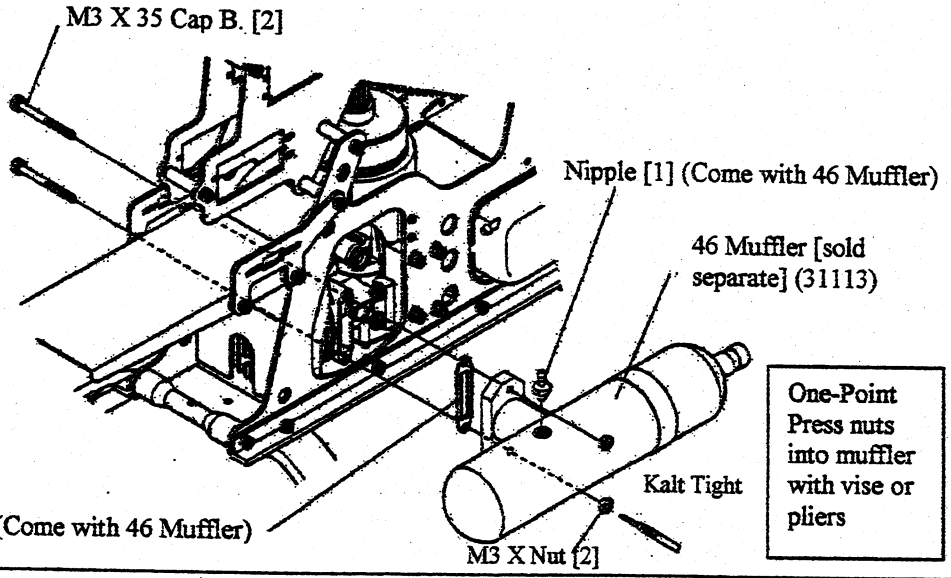


M3 X 35 Cap B. [2]



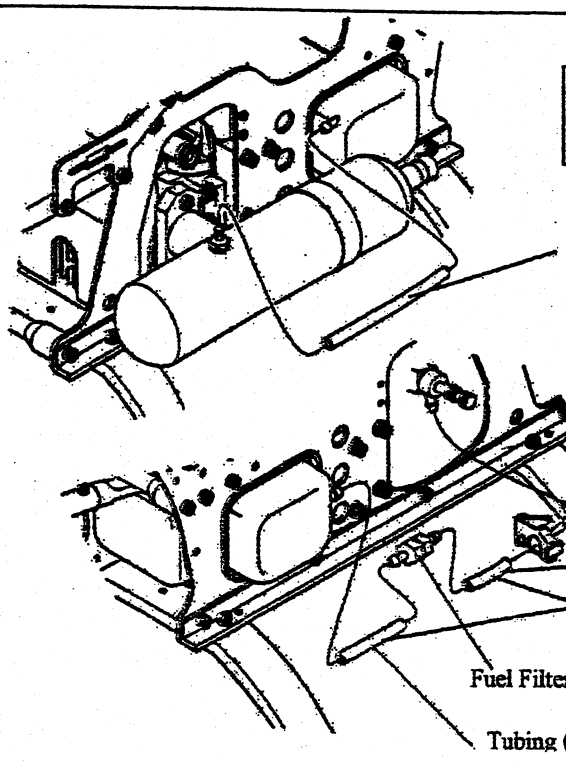
M3 X Nut [2]

Come with 46 Muffler sold separate (31113)



One-Point
Press nuts into muffler with vise or pliers

7-6



Important
Make sure tubing is not kinked

Cut silicon tubing (sold separate) to appropriate length and connect from tank to muffler nipple. (about 10.5cm)

Fuel Stopper (sold separate)

Tubing (about 3cm)

Cut silicon tubing (sold separate) to appropriate length and connect from tank to engine nipple

Fuel Filter (sold separate)

Tubing (about 5cm)

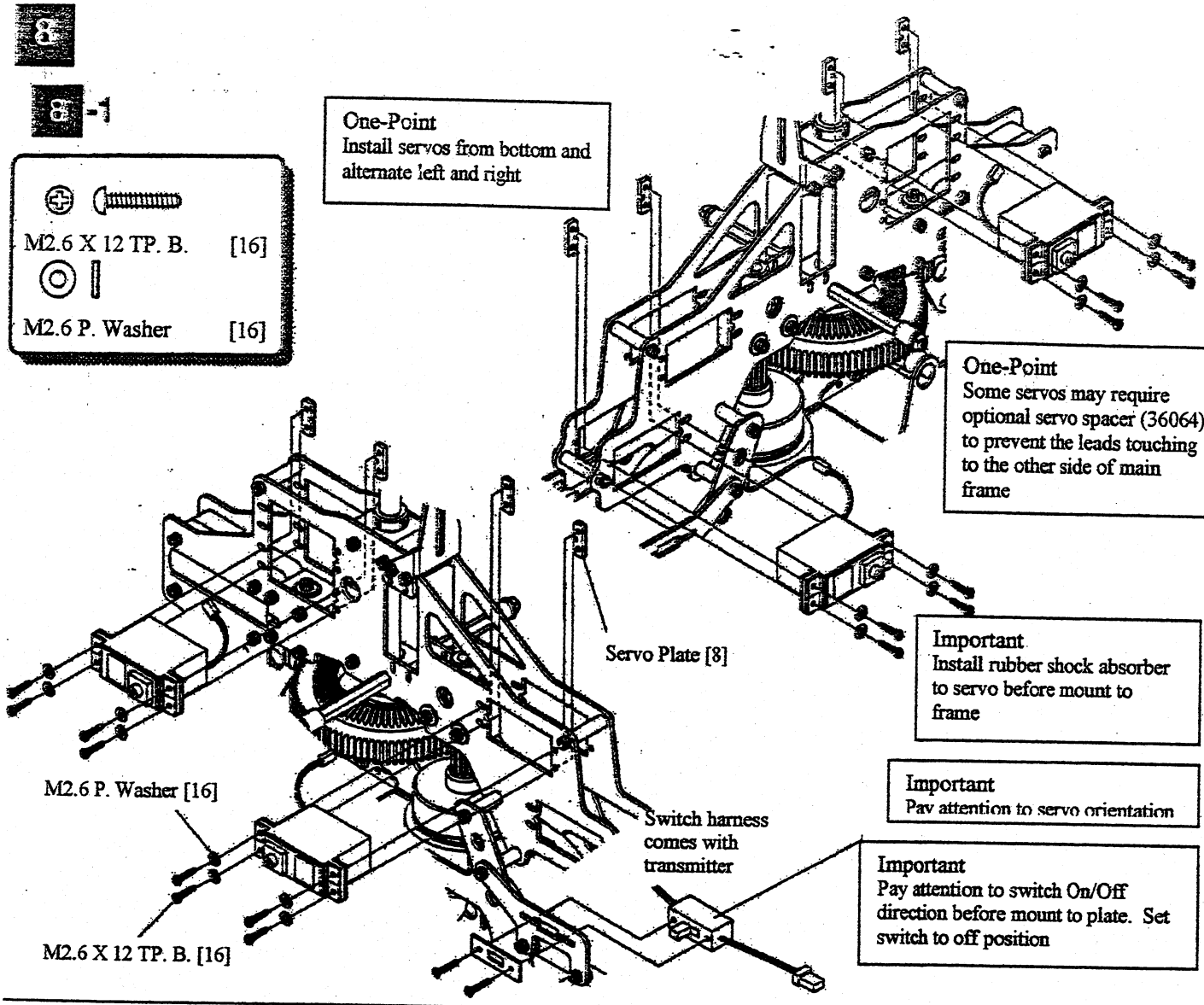
8

8-1

M2.6 X 12 TP. B. [16]

M2.6 P. Washer [16]

One-Point
Install servos from bottom and alternate left and right



One-Point
Some servos may require optional servo spacer (36064) to prevent the leads touching to the other side of main frame

Important
Install rubber shock absorber to servo before mount to frame

Important
Pay attention to servo orientation

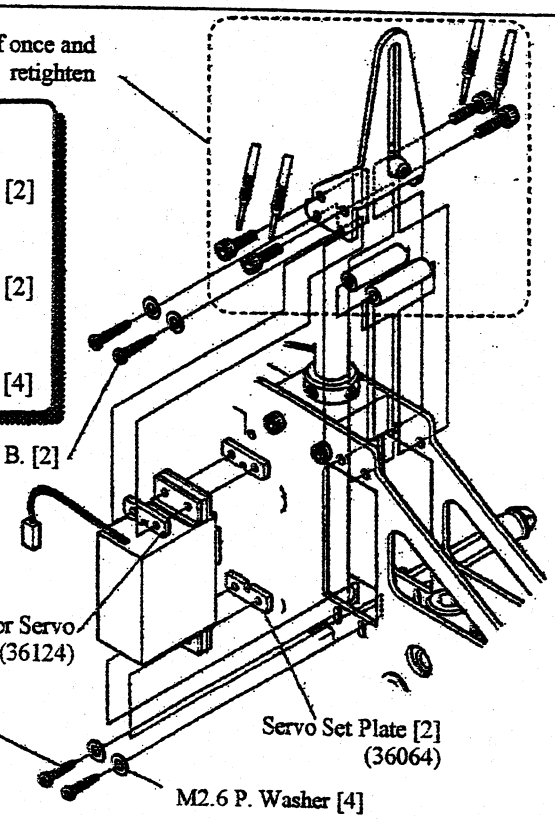
Important
Pay attention to switch On/Off direction before mount to plate. Set switch to off position

8-2

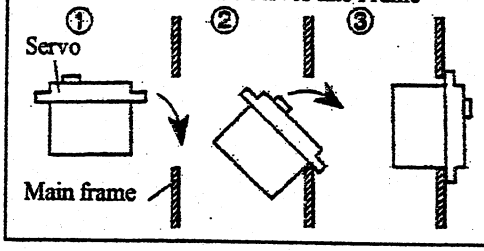
M2.6 X 12 TP. B. [2]

M2.6 X 14 TP. B. [2]

M2.6 P. Washer [4]

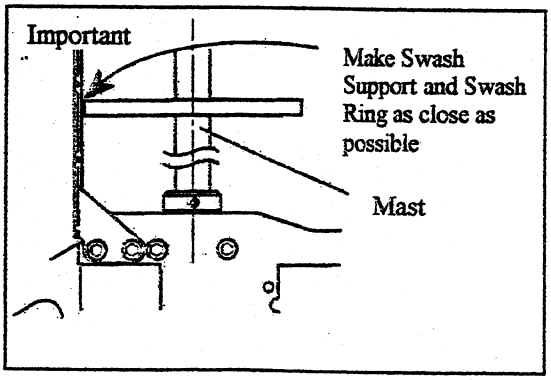


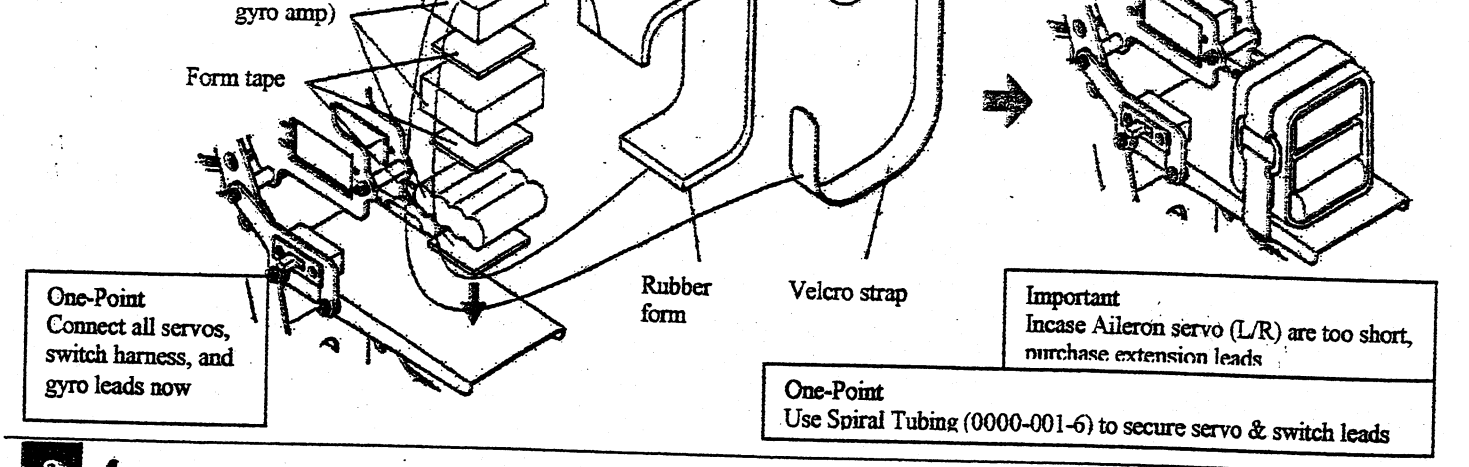
How to install Servos into Frame



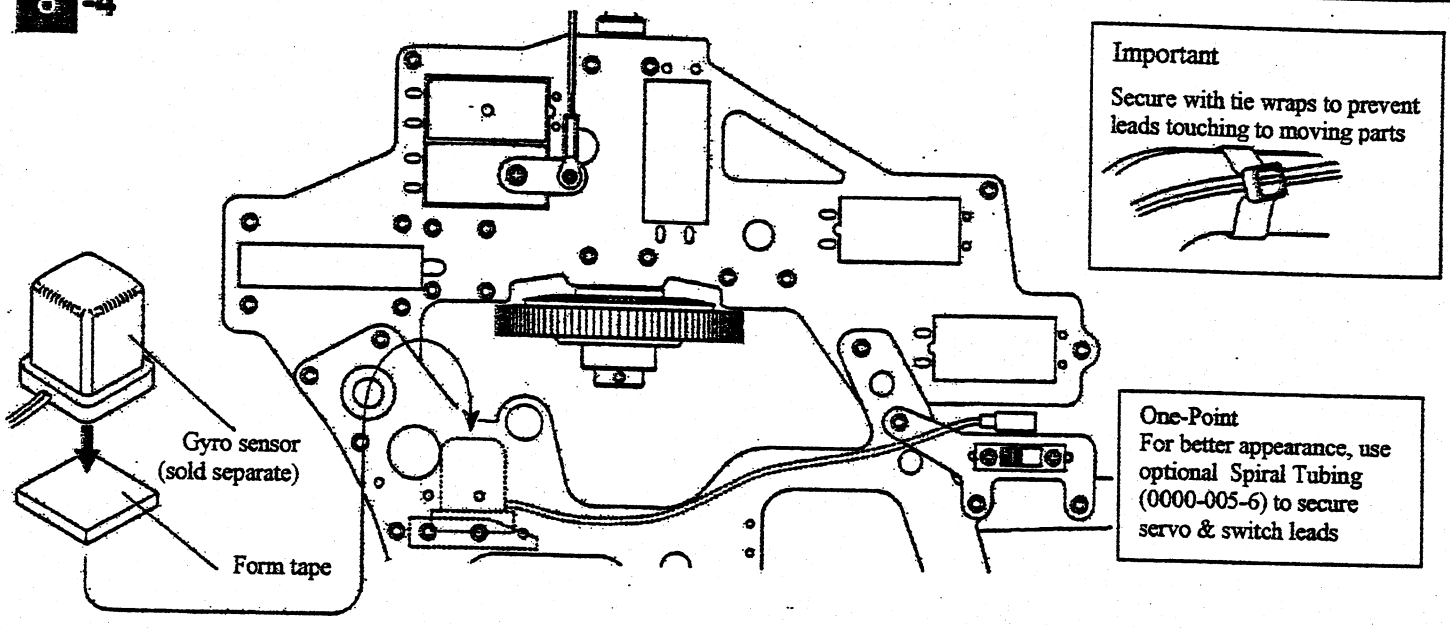
Important
Joint Ball II will make contact when you take off Swash Support. Don't take Joint Ball II off, just push Swash Support up when install servos.

Important





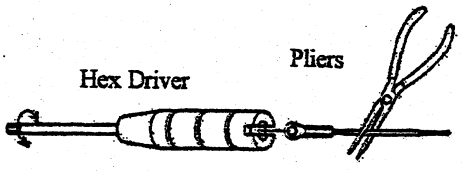
8-4



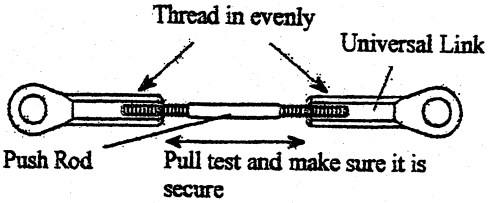
How to handle universal Links

R/C Helicopter uses a lot of universal links. Cares should be taken when you handle universal links. Failure to follow this instruction could cause reduction of performance. In the worst case, you will lose control and leads to crash.

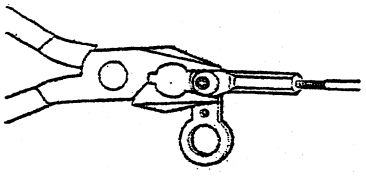
- How to thread into push rods
  When you thread in or out to/from push rod, hold push rod with pliers and turn link with Universal Link Driver.



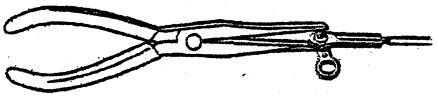
- Depth of rod into universal link
  Try to be the same thread depth on both links if both ends use universal links. Also perform pull test after assemble to make sure they are secure.



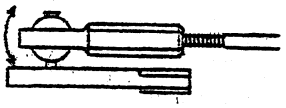
- Tightness of Universal Links
  Check the movement of universal links. If they are too tight, pinch the links with pliers slightly while attached on joint ball. (Shown on right)



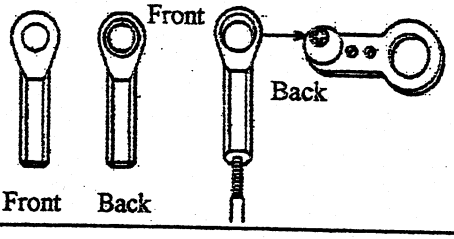
- How to remove links
  Use universal link pliers (sold separate) when remove universal links form joint balls. You may damage links if you force.



- Life of Universal Links
  These links have a life span. Treat them as wearable item. Replace them when they have too much slop or if you can remove with fingers. Continue to use wore out links may cause to pop out during flight.



One-Point
Direction of links
These universal links are unidirectional. Insert from back side of link to the joint ball. It will be harder to insert and causes tight movement if you insert wrong way.



8-5

Check the connections for all the servos, Gyro unit, and battery.
Charge transmitter battery (or use alkaline batteries.)
Charge receiver battery. Then turn system on and verify the operation. Make sure turn transmitter power on before receiver power.

You will need transmitter with C.C.P.Mixing (120° Swash Type) function.
i.e.

Sanwa	Stylus (w/C.C.P Mix Heli Card SC-200) RD6000
FUTABA	PCM1024ZH FF8H Super
JR	PCM 10 X-3810

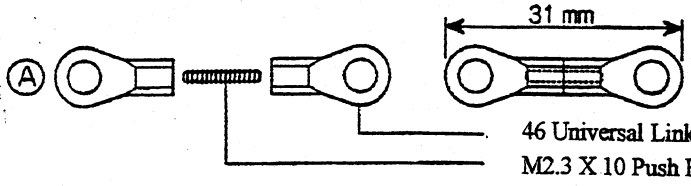
(As of July 1999)

Set Swash plate type to CCPM 120° type.
i.e.

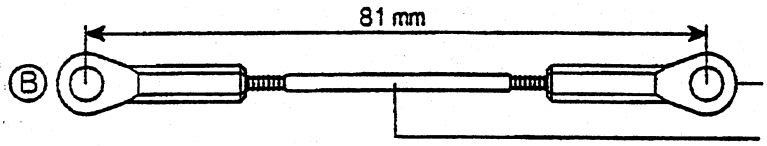
Sanwa Stylus	SWASH type setting to "CP3f"
Sanwa RD6000	HELI SWH setting to "CP3(F)"
Futaba PMC 1024ZH	SWH Type to "SR3"
Futaba FF8H Super	Type to "HELI SR-3"
JR X3810	SWASH TYPE to "3 SERVO 120°"
JR PCM 10	SWASH MIX to "3 SERVO 120°"
JR MAX66 II	SWASH MIX to "3 SERVO 120°"

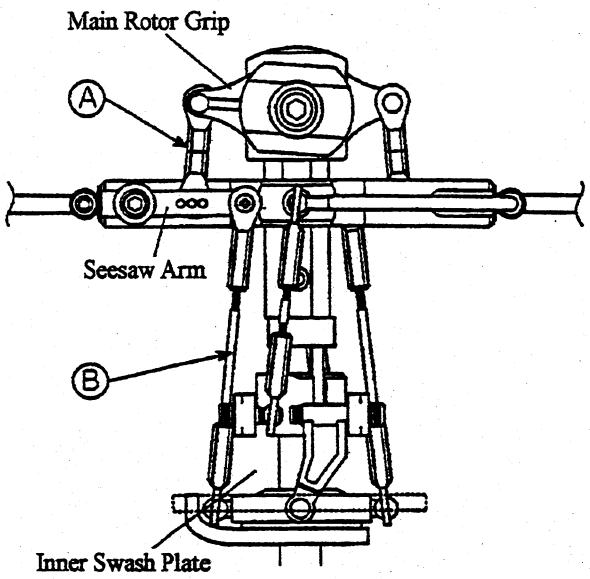
You may have to use reverse function depend on your radio.
Follow the instruction of your radio equipment for operation of transmitter.
Turn receiver power on.
Set all the sticks, trims, hovering throttle, and hovering pitch to center or neutral position then set all servos to neutral position.
Make sure servos are all neutral when installing linkages.

setups.



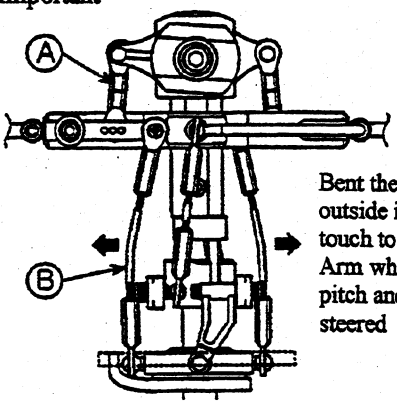
Important
Pay attention to the length of this link
This one is shorter than regular 46 Universal link





Important
Assemble the other side identically

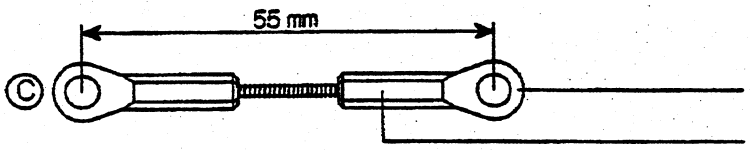
Important

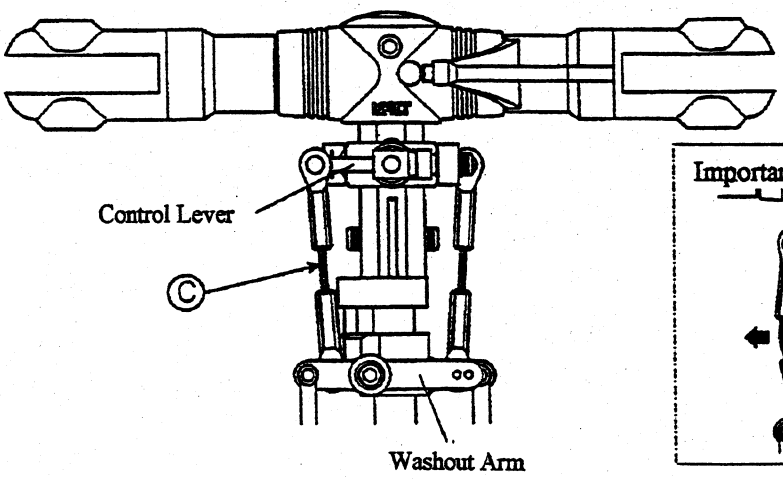


Bent the Rod B's outside incase they touch to Washout Arm when low pitch and Aileron is steered

8 -7

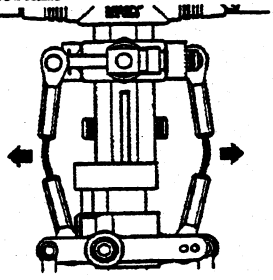
Assemble 2 pcs of Rod C. Make both are identical length.
Also, indicated lengths are just guideline. Length of these rods will vary by your setups.





Important
Assemble the other side identically

Important

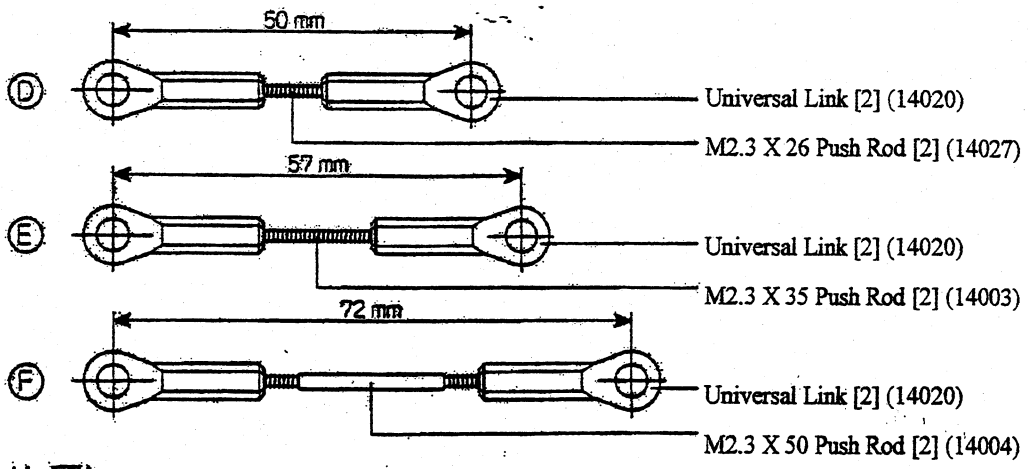


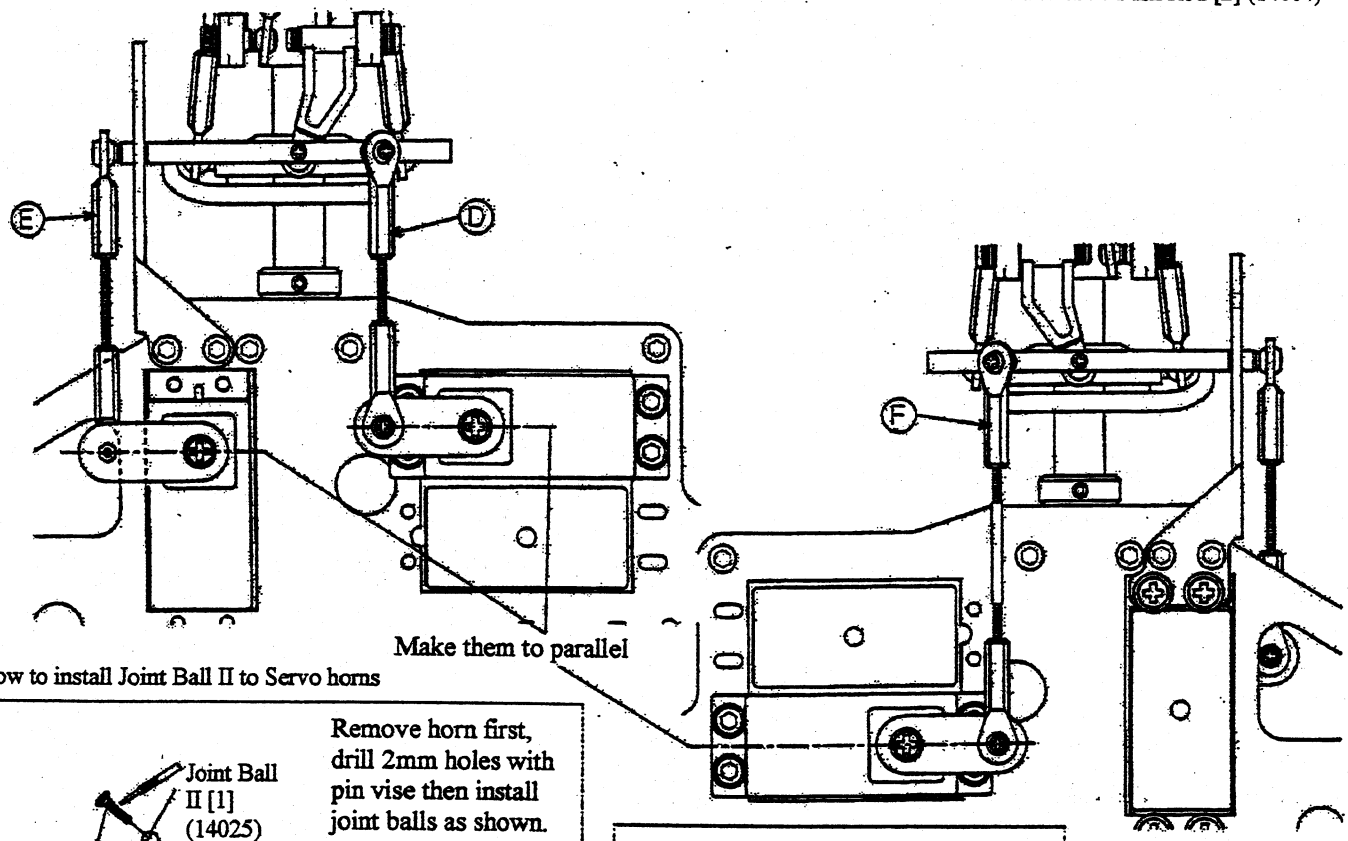
Bent the rods outside incase Universal links touch to Button Cap B. on Seesaw when control arms are at maximum position

Joint Ball II [3]

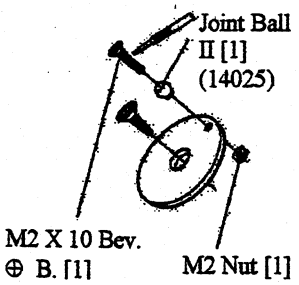
M2 X 10 Bev. ⊕ B. [3]

Joint Ball II [3]





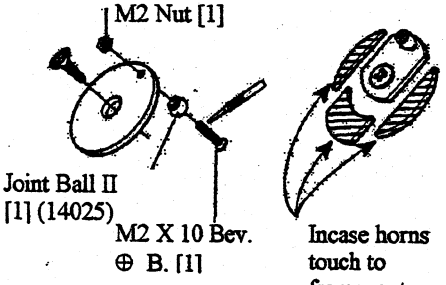
How to install Joint Ball II to Servo horns



Remove horn first, drill 2mm holes with pin vise then install joint balls as shown.

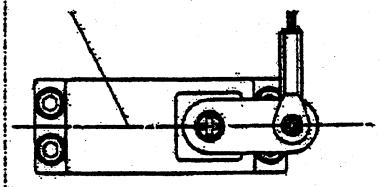
Reinstall horn and secure with servo screw. Finally install linkage rod.

Aileron Servo horn 2 pcs



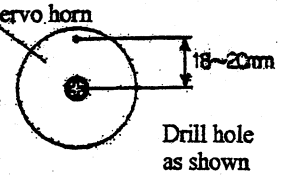
Elevator Servo horn 1 pc

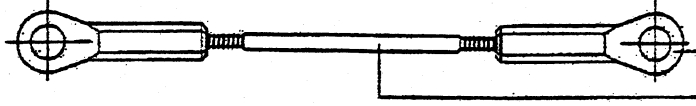
Important
All Servo horns need to be horizontal when sticks are in neutral position



Important
Swash plate needs to be horizontal when servos are in neutral position

Important
It is very important all 3 servos need to move the same travel amount on CCPM mode. Make sure that hole locations of all 3-servo horn are identical.





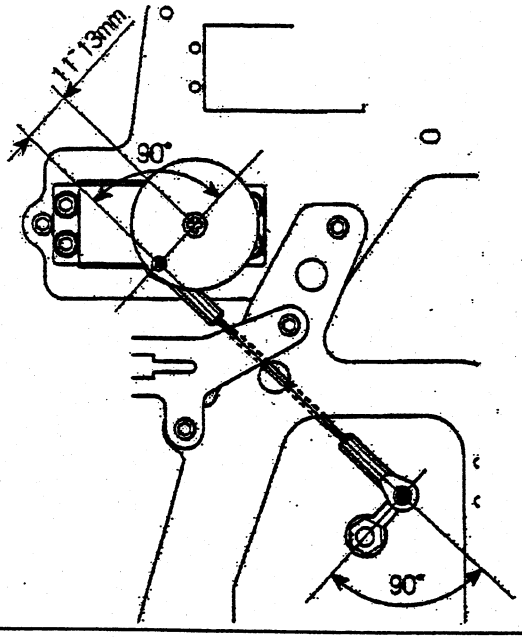
Universal Link [2] (14020)

M2.3 X 60 Push Rod [2] (14006)

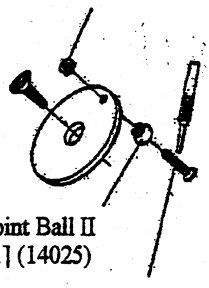
Joint Ball II [1]

M2 X 10 Bev. ⊕ B. [1]

M2 Nut [1]



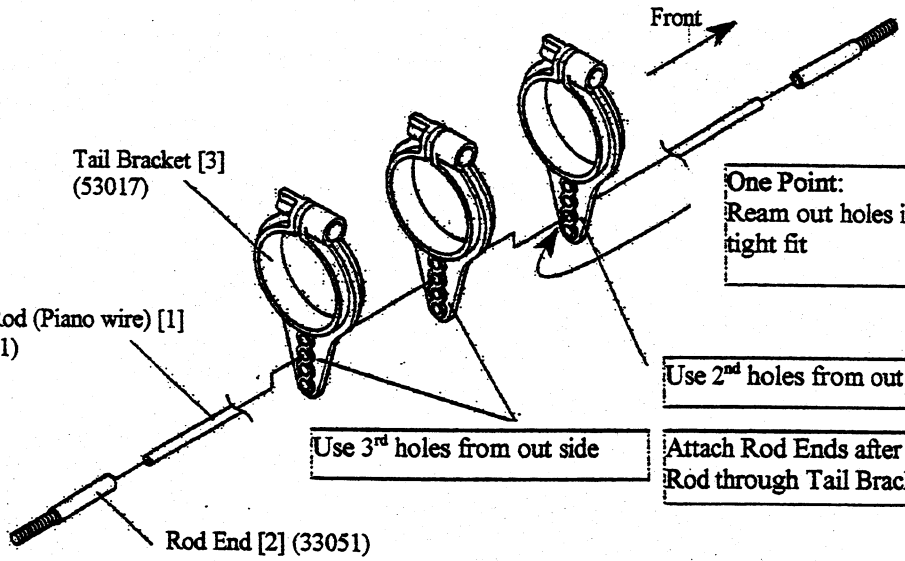
How to install Joint Ball II to Servo horns



Remove horn first, drill 2mm holes with pin vise then install joint balls as shown.

Reinstall horn and secure with servo screw. Finally install linkage rod.

8 -10



One Point:
Ream out holes if too tight fit

Caution!
It is impossible to change hole position at Tail Bracket after Rod end is attached

Use 2nd holes from out side

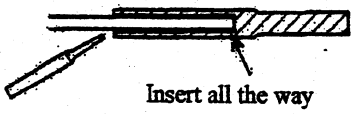
Use 3rd holes from out side

Attach Rod Ends after insert Tail Rod through Tail Brackets

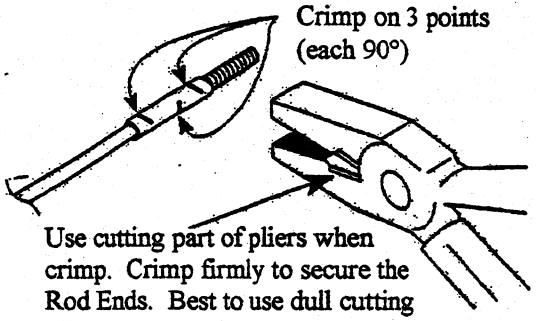
One-Point

In case Tail Rod is tight to fit into Rod End, round off the edge of rod with file.

Important



Apply instant glue or red Kalt tight on Tail Rod and insert to Rod End. Crimp Rod End right after the insertion as shown.



Use cutting part of pliers when crimp. Crimp firmly to secure the Rod Ends. Best to use dull cutting pliers.

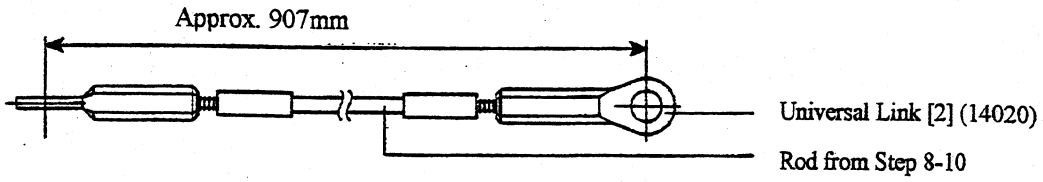
One-Point
Apply grease on Tail Rod to prevent rust. Also it provides smoother movement.

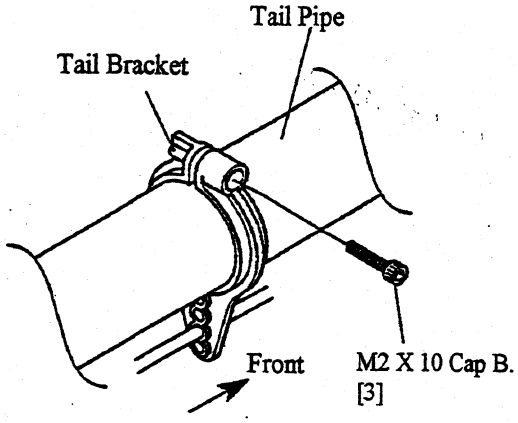
Indicated lengths are just guideline. Length of these rods will vary by your setups.

Joint Ball II [1]

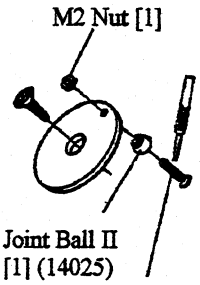
M2 X 10 Bev. ⊕ B. [1]

M2 Nut [1]



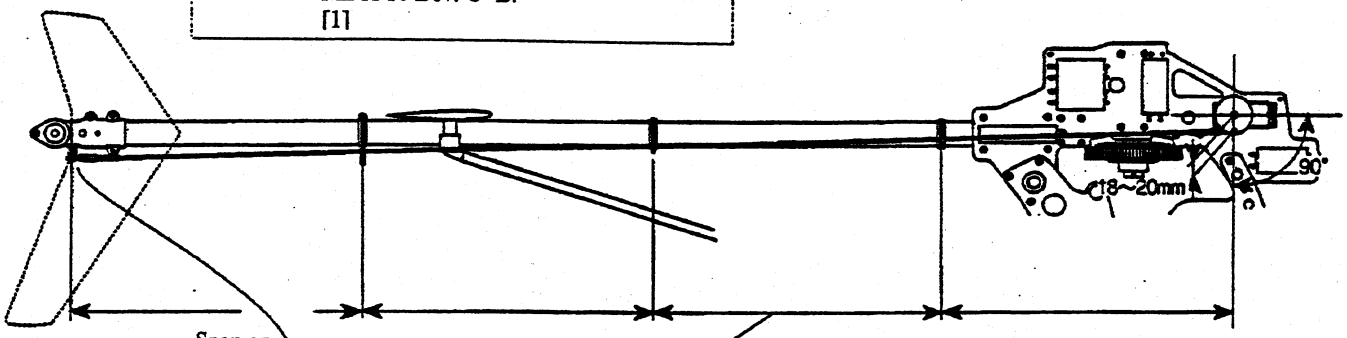


How to install Joint Ball II to Servo horns



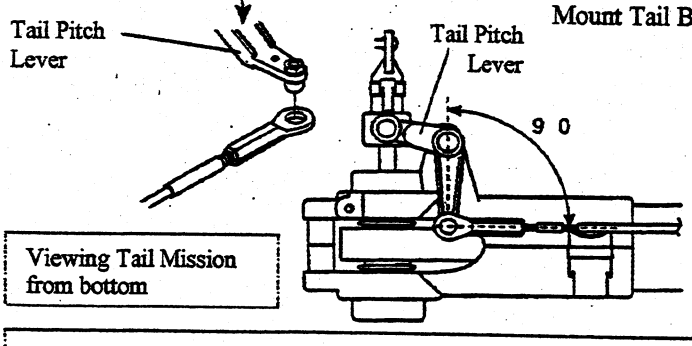
Remove horn first, drill 2mm holes with pin vise then install joint balls as shown.

Reinstall horn and secure with servo screw. Finally install linkage rod.



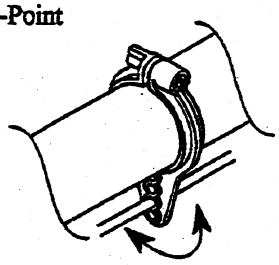
Snap on

Mount Tail Bracket in even space



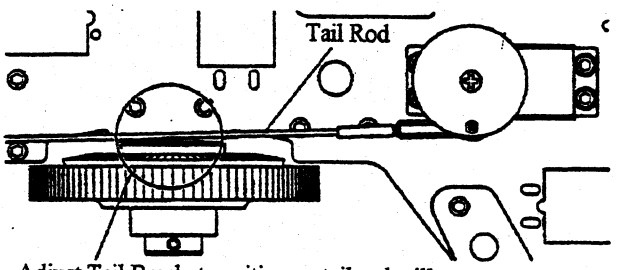
Viewing Tail Mission from bottom

One-Point

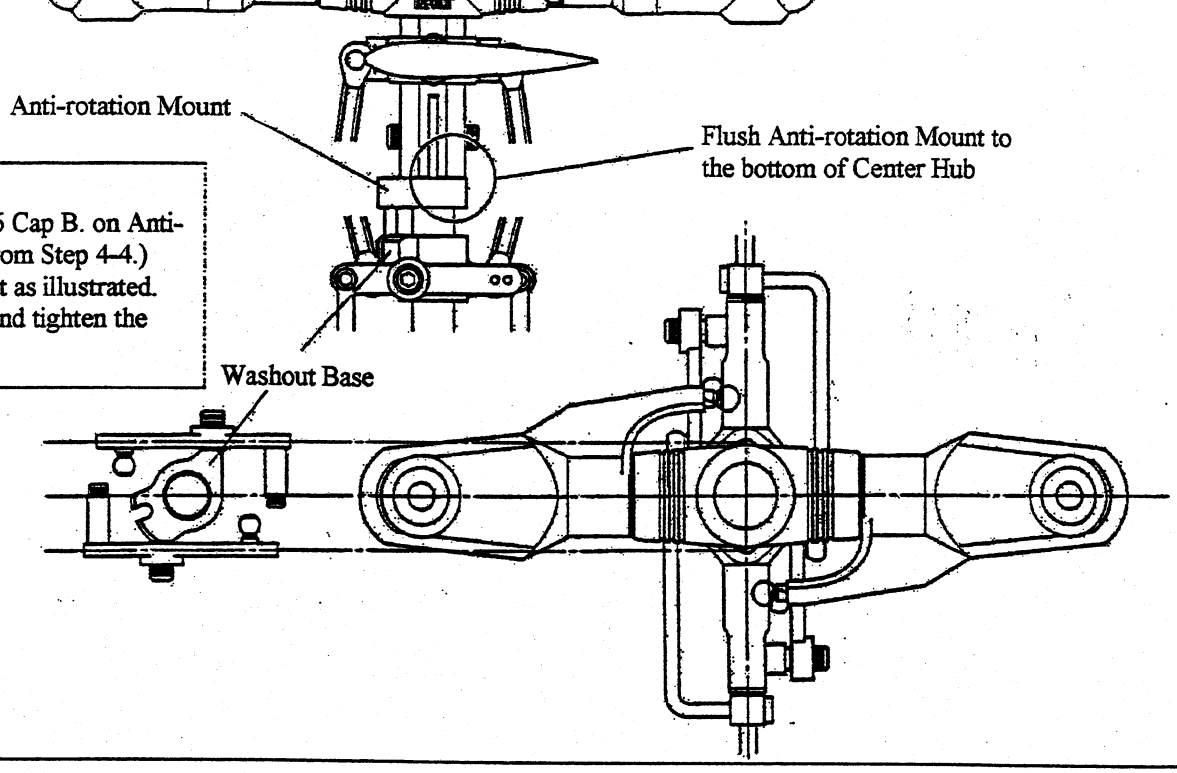


Adjust Tail Brackets so piano wire runs as straight as possible

One-Point

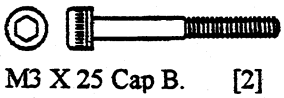


Adjust Tail Bracket position so tail rod will not touch to main gear



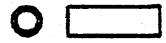
One-Point
Remove M2.6 X 6 Cap B. on Anti-rotation Mount (from Step 4-4.)
Position the mount as illustrated.
Apply Kalt tight and tighten the bolt.

8 -13



M3 X 25 Cap B. [2]

M3 N. Nut [2]

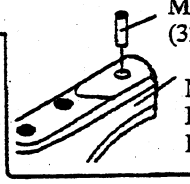


Main Rotor Collar [2]
Use for SK570WH/WS

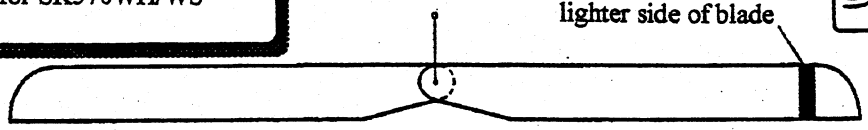
Main rotor blades are sold separate

Use 570mm length blades (for wood)
i.e. 09024 SK550GN
09026 SK570WH
09027 SK570WS

Important
When blades with 4mm drag bolt like SK579WH /WS are used, insert Main rotor collar in the drag boltholes.

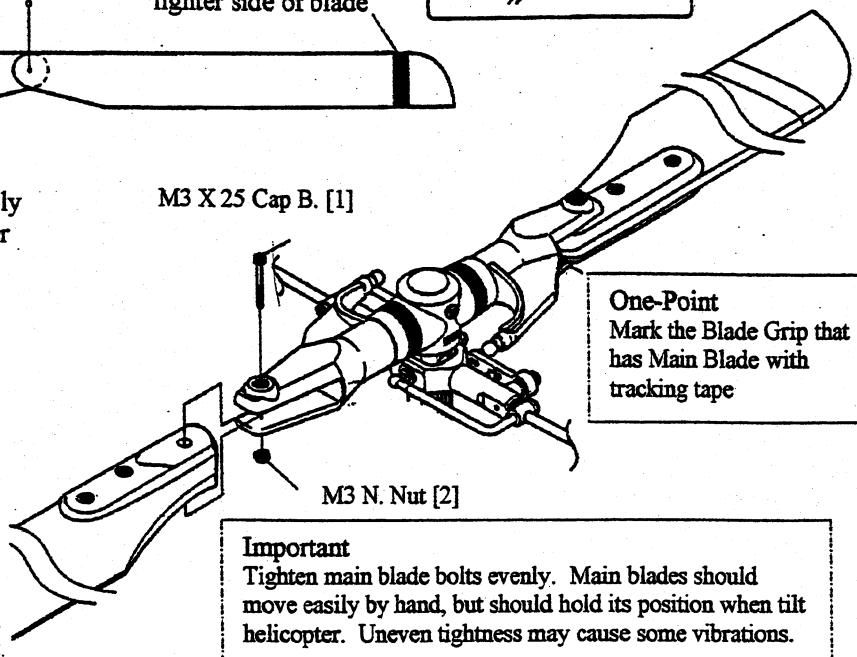


Apply tracking tape on lighter side of blade



How to balance Main rotor blades
Tighten both main blades with long bolt and nut. Then hung blades holding the bolt. Apply some tracking tape from decal sheet on lighter blade. Make both blades same weight.

M3 X 25 Cap B. [1]



One-Point
Mark the Blade Grip that has Main Blade with tracking tape

M3 N. Nut [2]

Important
Recommended upgrade parts for high rotor speed operation or 3D flights
Main rotor grip →
Metal grip (32124) X 2
46 Ball Arm (Grip) (32086)
M3 X 25 Cap B.→ M4 X 25 Cap B. (1101-021-7)
M3 N. Nut → M4 N. Nut (1101-045-7)

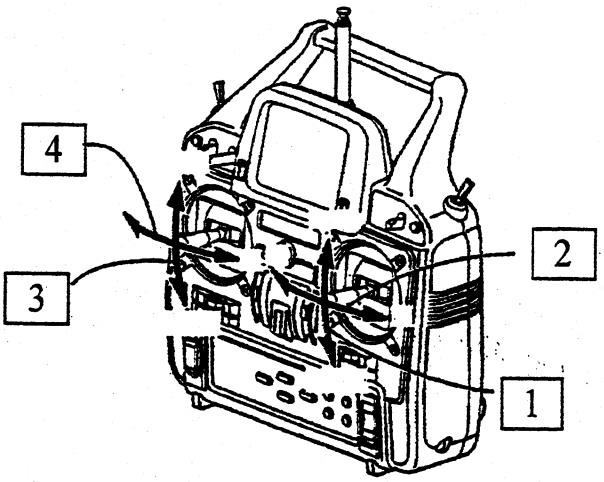
Use original bearings for rotor grip

Important
Tighten main blade bolts evenly. Main blades should move easily by hand, but should hold its position when tilt helicopter. Uneven tightness may cause some vibrations.

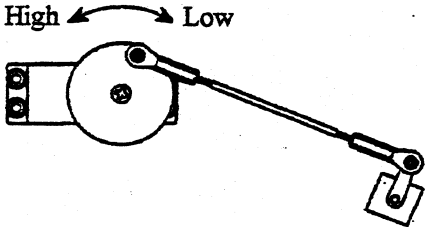
Verify transmitter and receiver powers are turned on

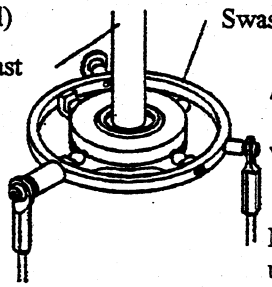
Move sticks on the transmitter and verify the linkages on helicopter move accordingly and smoothly.

Stick	Mode 1	Mode 2
1	Throttle/Pitch	Elevator
2	Aileron	Aileron
3	Elevator	Throttle/Pitch
4	Rudder	Rudder



1 Throttle

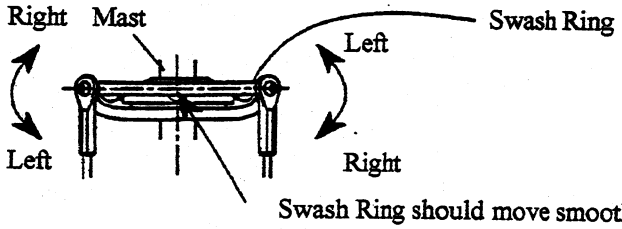




Make sure Swash Ring moves up and down horizontally

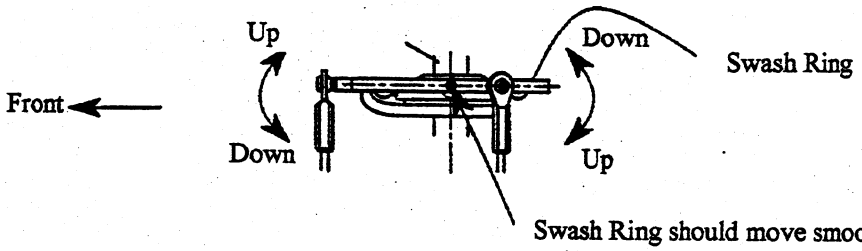
2 Aileron

View from tail end



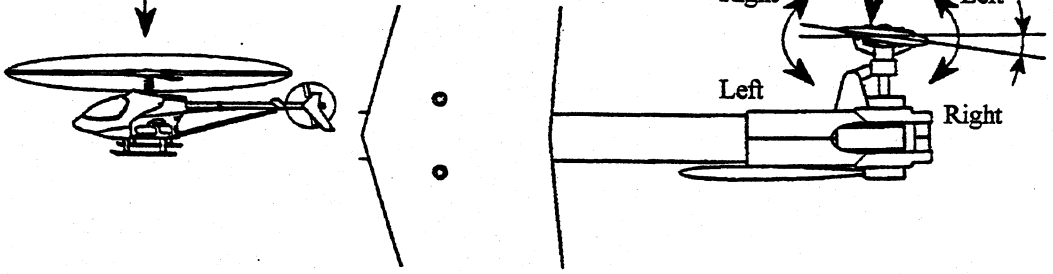
Swash Ring should move smoothly left/right direction pivoting on this point

3 Elevator



Swash Ring should move smoothly up/down direction pivoting on this point

View from top



Tail blade should have pitch as illustrated when all the sticks and trims are in neutral. Actual pitch may vary. Make final adjustment with flight tests.

(Double check it is set for 120° Swash mix.) If this does not fix the problem, reverse servo direction on one of 3 connected to Swash Ring linkages.
If #4 servo moves incorrect direction, reverse servo direction from transmitter.

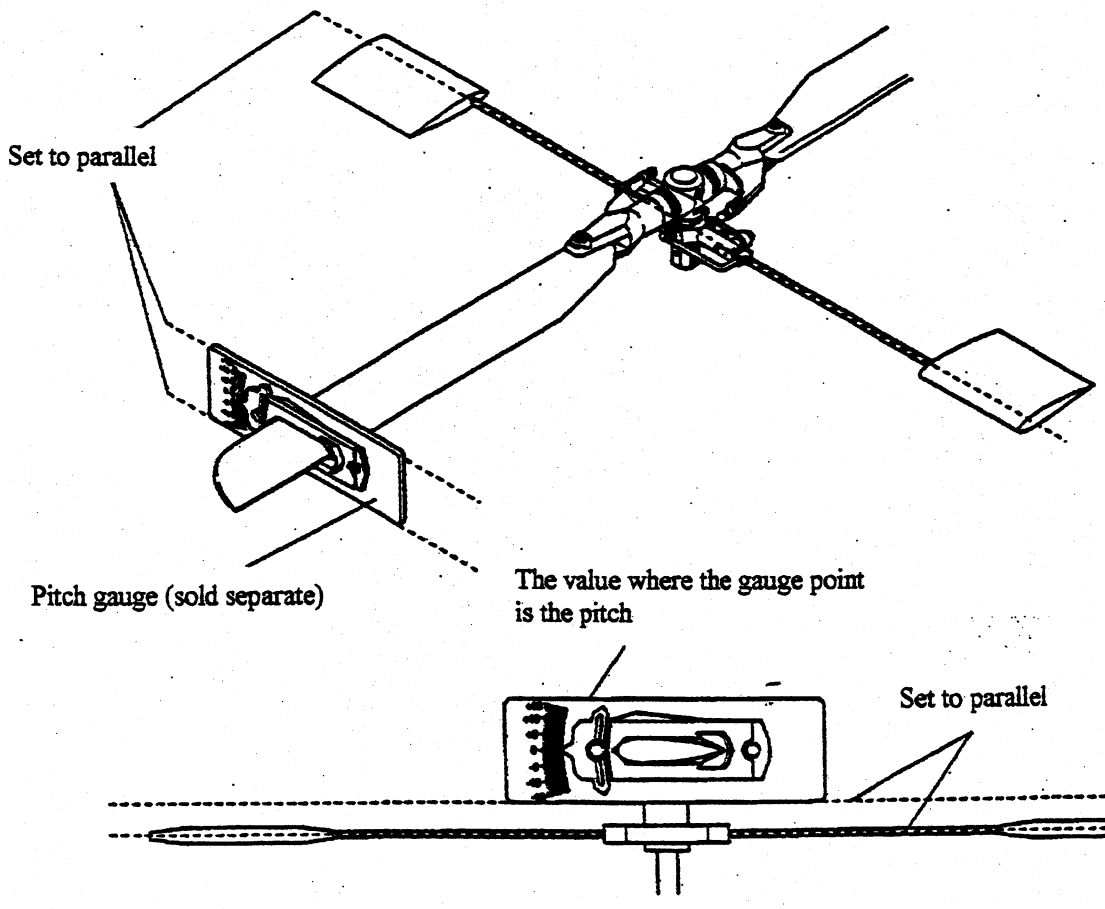
Refer to transmitter instruction for the setup.

8-15

Adjust main rotor pitch.

	Low pitch (Throttle stick at bottom)	Hovering (Throttle stick at middle)	High pitch (Throttle stick at highest)
Hovering Mode	-1°	5.5°	12°
Aerobatic mode	-5°		9°
Autorotation	-4°		13°

Caution!
Use these values just as reference. Final pitch may vary depends on engine, muffler, and fuel you use. Adjust the pitch to your preference with test flights.



9 Caution before flight and tracking adjustment

9-1 Caution before flight

Caution! Flying R/C helicopters including Mercury M requires a skill. You should seek for assistance from more experienced pilots.

Caution! Make sure to read "Read Me First" section of this instruction before flight and confirm all the caution items.

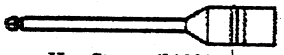
9-2 Engine adjustment

- Follow your engine instruction manual when you adjust needle valve and slow mixture. Then fine tune needles on actual flight.
- Engine condition will vary due to the deference of fuels, plugs, weight of helicopter, flying field's altitude and weather. Seek for help from experienced pilots.

9-3 Hex Shaft Starter

1. Attach hub of Hex starter shaft onto starter
2. Confirm starter shaft rotating direction, and insert the tip of starter shaft into Hex starter cup. Then start engine.
3. After engine starts, wait until Hex start shaft stops rotating, then remove the shaft.

Caution! Insert Hex Starter into Starter HEX as straight as possible then start engine

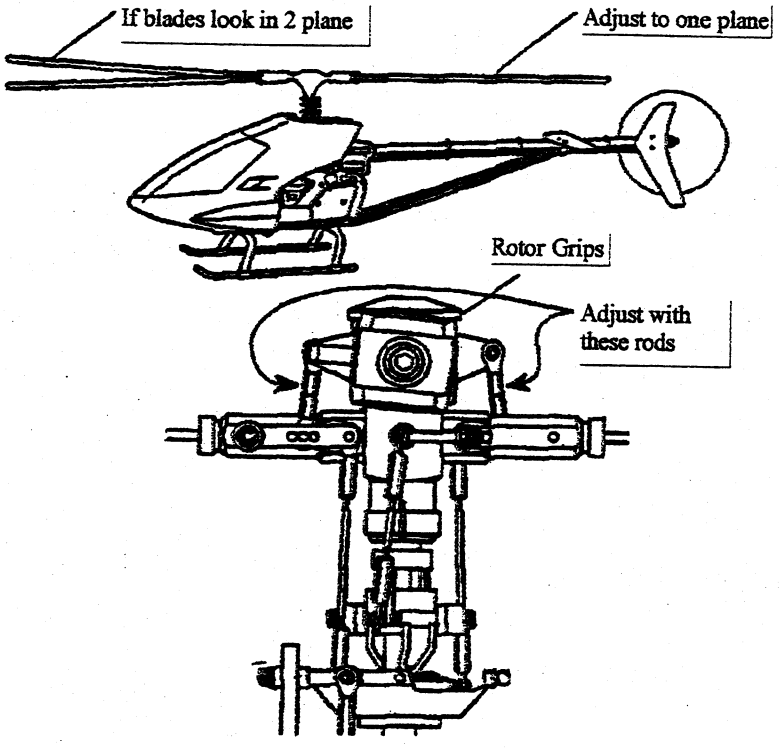


Hex Starter (31091)

9-4 Tracking Adjustments

1. Set helicopter over 5m away from you, and raise throttle stick slowly.
2. When helicopter almost lift off from ground, look at rotor dish from side and check if both blades are rotating on the same track.
3. If blades look in 2 planes, raise the pitch on lower side of blade, or lower the pitch on higher side of blade until blades look in one plane. Adjust M2.3 X 10 Push Rod lengths attached to the Pitch Arm of rotor head. (By turning universal links.)

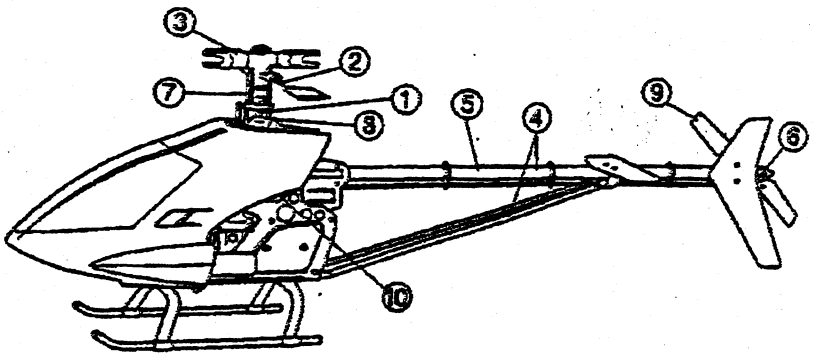
Caution! If you set pitch too low, you will over-rev rotor blades and could be vary dangerous. Adjust the pitch carefully.



Caution! Make sure stay away from helicopter during flight (at least 5m) to avoid a danger

- Never use the main rotor blades after overturn or crash. Although they may appear no damage, they might have internal crack. If you fly with those blades, they may break off during flight and increases a sever risk.
- Replace the parts if you find any scratches or damages. Inspect the parts below thoroughly

1. Bent mast
2. Bent stabilizer bar
3. Bent spindle
4. Bent tail boom and boom supporters
5. Damages of tail drive belt
6. Bent tail output shaft
7. Bent push rods
8. Damages on universal links
9. Damages on tail rotor blades (especially on tips)
10. Damages on all the gears



- Inspect receiver, servos, and gyro system and check functionality. If you find any abnormalities, request service for radio manufacturer.

Important! Since a helicopter uses a lot of wearable parts (bearings, universal links, etc.,) check entire helicopter routinely before and after flight even you do not overturn or crash. If you find any abnormalities, replace them with new parts. Never fly until you repair.

MEMO

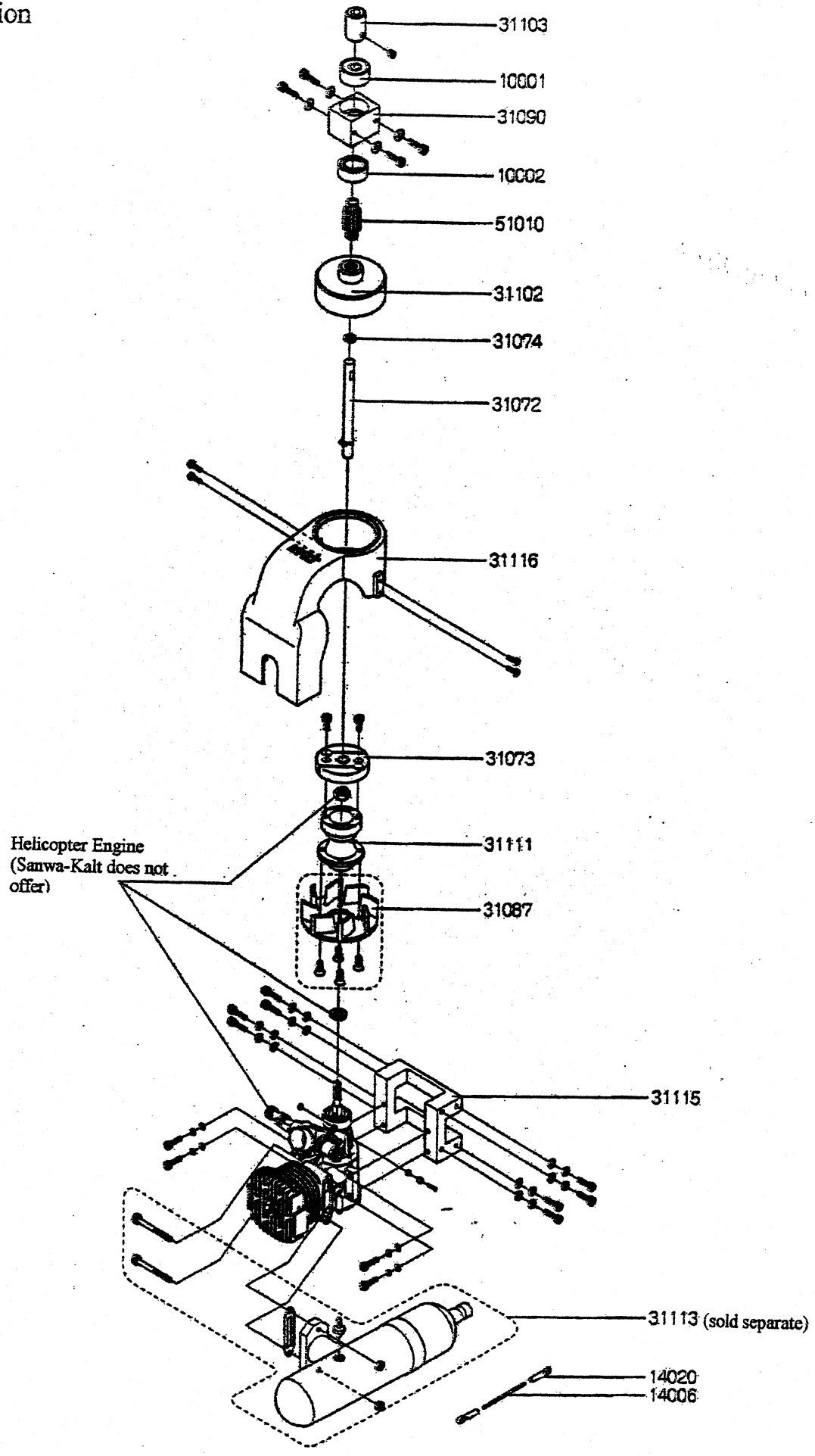
Explored View and Parts List

C.C.P.Mix Mercury

PARTS

Mercury M Kit Explored View and Parts List

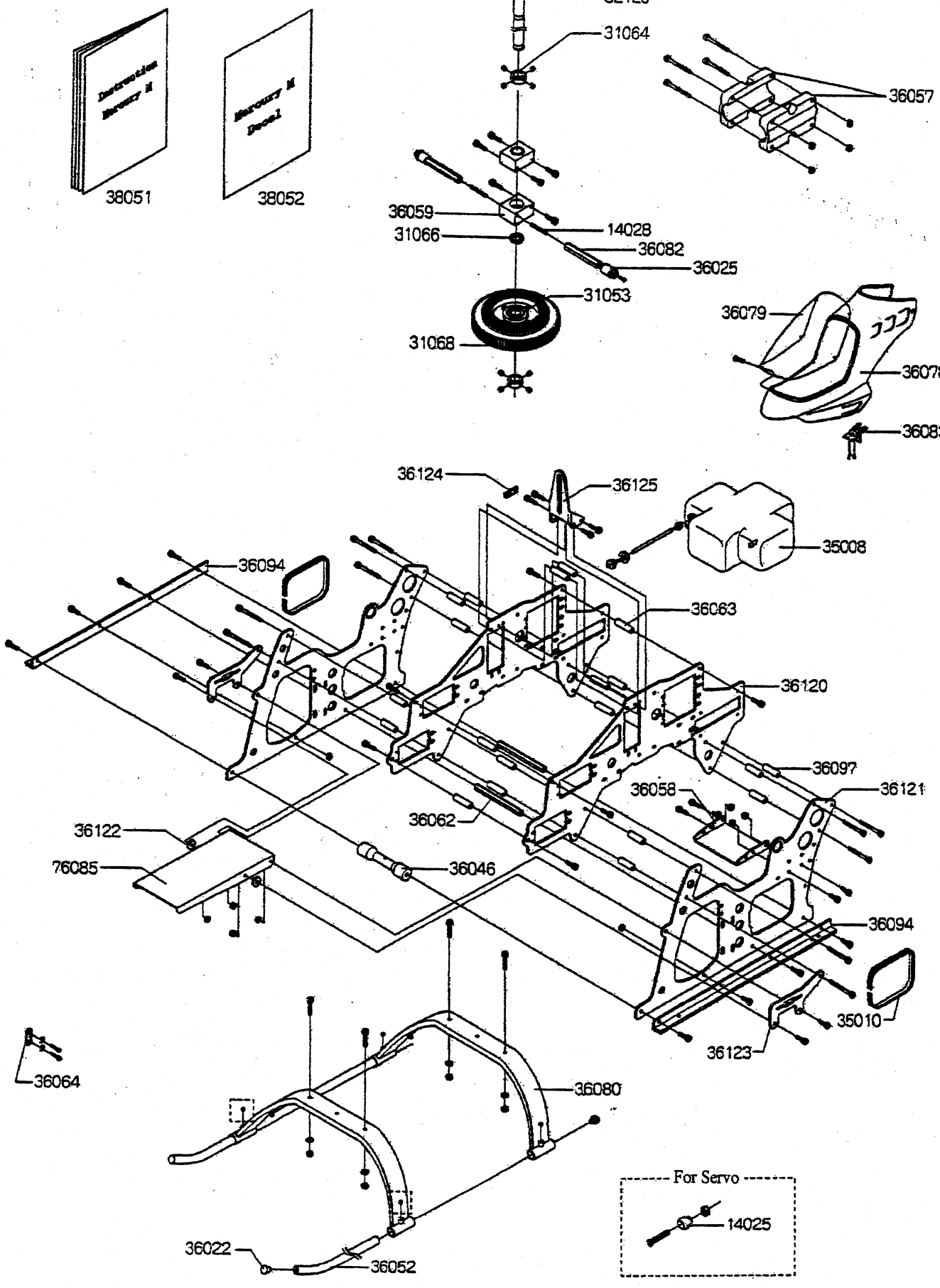
Engine Section



Engine Section

Part Number	Description	QTY	Note
10001	1960ZZ B. Bearing	1	Same as 1002-013-6
10002	1910ZZ B. Bearing	1	Same as 1002-011-6
14020	Universal Link	10	Same as 0400-070-7
14006	Pushrod M2.3 X 60	2	Same as 0400-065-7
31072	Inner Shaft α 30	1	
31073	Starter Clutch Shoe	1	
31074	Starter Washer	1	
31087	Cooling Fan	1	w/Beveled bolt
31090	Bering Case	1	
31102	Clutch Bell for Shaft Starter	1	Same as 0102-091-8
31103	Starter Hex α	1	Same as 0102-120-8 w/Set B.
31111	46 Flywheel	1	
31113	46 Muffler	1	Sold separate w/nipple & gascket
31115	46 Engine Mount	1	
31116	46 Fan Cover	1	
51010	Starter Pinion Gear 10T	1	

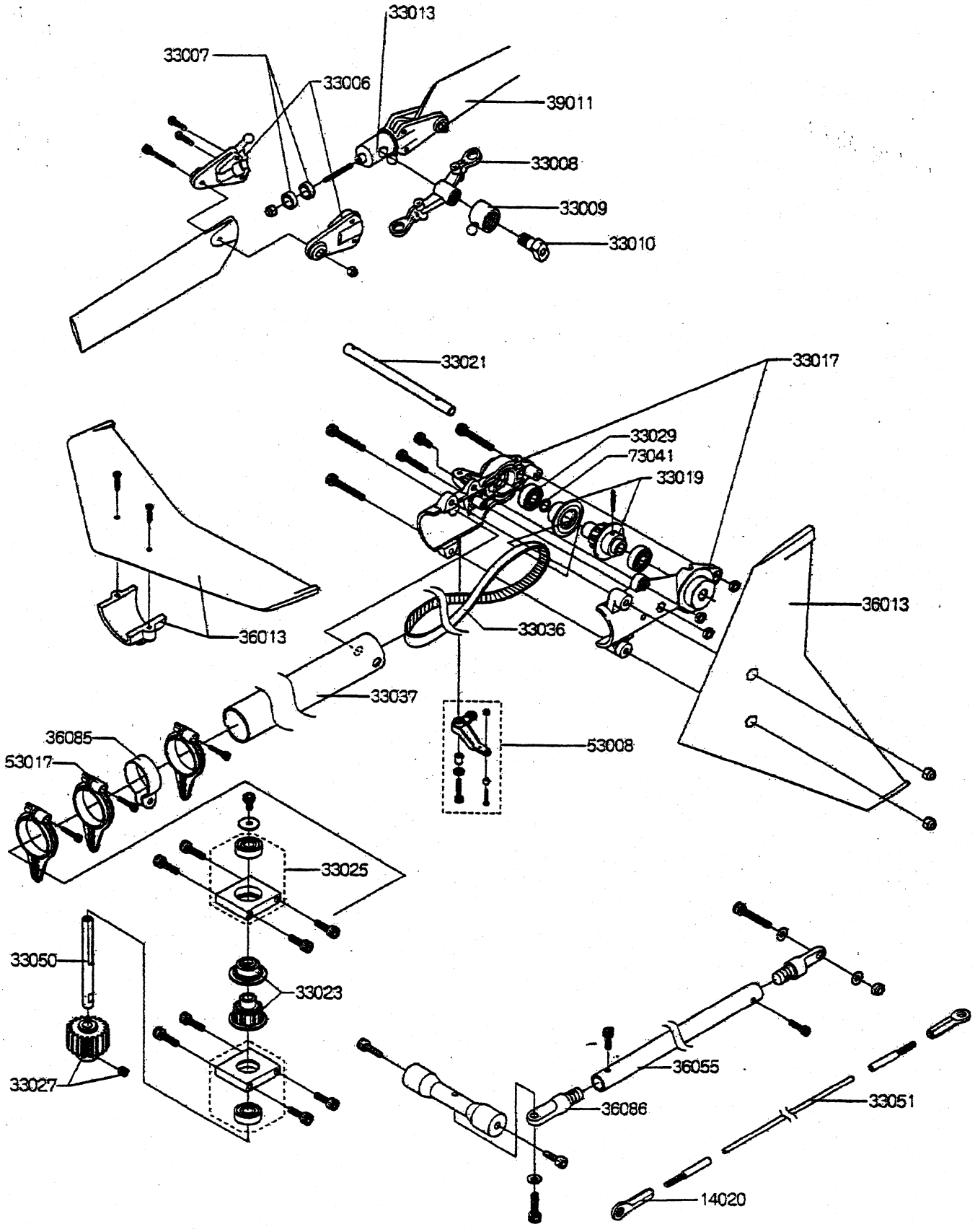
Frame Section



Frame Section

Part Number	Description	QTY	Note
14015	Pushrod M3X 40	2	Same as 0400-085-7
14020	Universal Link	10	Same as 0400-070-7
14025	Joint Ball II B	1	w/M2 X 10 Bev. ⊕ Bolt
14028	Threded Rod M3 X 9	2	
31053	Auto Rotation Hub Assy	1	
31064	Mast Stopper	1	w/Set B.
31066	Mast Washer	1	
31068	Main Gear	1	
32120	Main Mast	1	
35008	Fuel Tank (290cc)	1 set	w/silicon tubing S, clunk, grommet, & nipple
35010	Floating Rubber	2	
35022	Skid Foot Cap	1 set	
36025	Canopy Holder	1 set	
36046	Bottom Cross Member	2	
36052	Skid Foot	1 set	
36057	Tail Boom Retainner	1 set	
36058	Gyro Mount	1	
36059	Bearing Case A (w/1910ZZ)	1	
36062	Cross Member L62	3	
36063	Cross Member C	1	
36064	Servo Set Plate	10 set	w/TP Bolt, P. Washer
36078	Body Set	1 set	w/ Canopy
36079	Canopy	1	
36080	Landing Gear	1 set	w/Set B.
36082	Canopy Stay	1 set	
36083	Body Catch	1	
36094	46 Lower Angle L,R	1 set	
36097	46 Member	10	
36120	Upper Frame	1 set	
36121	Lower Frame	1 set	
36122	Sub Frame Spacer	2	
36123	Sub Frame Stay	2	
36124	Elevator Servo Spacer	1	
36125	Swash Plate Support	1	
38051	Mercury M Instruction	1	
38052	Mercury M Decal	1	
76085	Sub Frame	1	

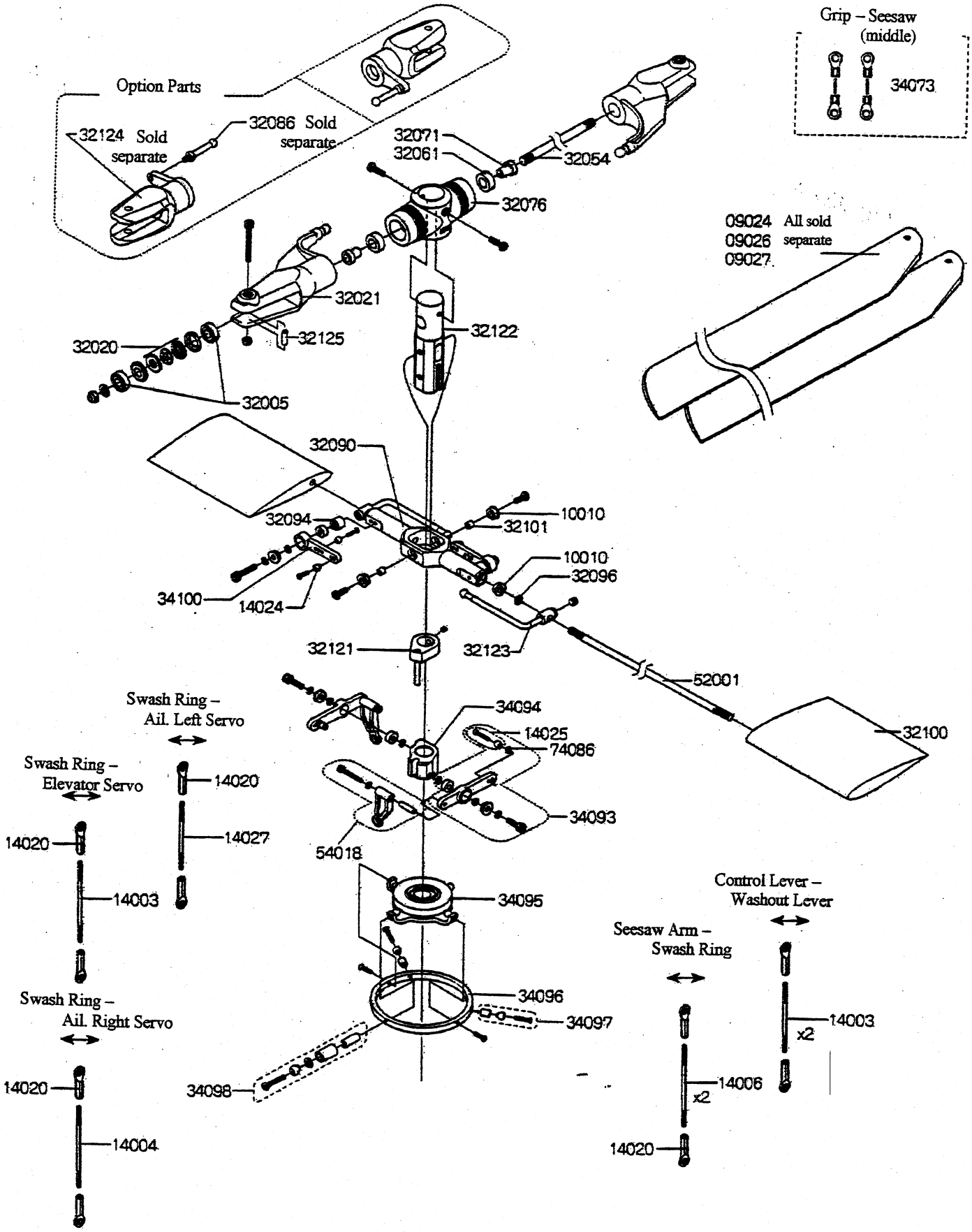
Tail Section



Tail Section

Part Number	Description	QTY	Note
33006	Tail Rotor Grip	1 set	
33007	Tail Rotor Grip Bearing	2	L830 Open
33008	Tail Pitch Yoke	1	
33009	Tail Pitch Slider	1	
33010	Slide Bushing	1	
33013	Tail Rotor Hub	1	w/M3 X 19 Set B.
33017	Tail Transmission Case (Belt)	1	
33019	Output Pulley	1	
33021	Input Pulley	1	w/Spring pin
33023	Bearing Case (w/L1350ZZ)	1	
33025	Input Shaft (Belt)	1	
33027	Input Gear	1	w/ Set B.
33029	Ball Bearing L1350 Open	2	
33036	Belt 630XL	1	
33037	Tail Boom	1	
33050	Input Shaft	1	
33051	Tail Push Rod	1 set	w/Piano wire, rod ends
36013	Tail Fin Set	1 set	w/Vertical & Horizontal Fin, bolts
36055	Tail Supporter Set	1 set	w/Ends, Cramp, bolts
36085	SUS Tail Supporter Cramp	1	Same as 0601-137-6
36086	Tail Supporter End	2	
39011	Tail Rotor Blade	2	
53008	Tail Pitch Lever Set	1	w/Bolt, bushing, ball
53017	Tail Bracket	3	w/Cap B.
73041	Ø3 X Ø7 X t0.3 Washer	10	

Rotor Head Section



Rotor Head Section

Part Number	Description	QTY	Note
09024	Main Rotor Blade SK570GW	1 Set	
09026	Main Rotor Blade SK570WH	1 Set	
09027	Main Rotor Blade SK570WS	1 Set	
10010	LF740ZZ B.Bearing	1	Same as 1002-009-6
14003	M2.3X35 Push Rod	2	Same as 1002-041-6
14004	M2.3X50 Push Rod	2	Same as 0400-006-7
14006	M2.3X60 Push Rod	2	Same as 0400-064-7
14020	Universal Link	10	Same as 0400-070-7
14024	Joint Ball II A	10	W/M2X7 Bev.+.B
14025	Joint Ball II B	10	W/M2X10 Bev.+.B
14027	M2.3X26 Push Rod	2	
32005	Main Rotor Grip Brg Set	2	L1350open X2
32020	Thrust Bearing Set	1Set	W/Thrust Holder
32021	Main Rotor Grip Brg	1	
32054	S30 α Spindle	1	
32061	S30 α Rubber Damper	2	
32071	Special Damper Collar	2	
32076	Yoke	1	
32086	46 Ball Arm(Grip)	2	
32090	46 Seesaw	1	
32094	46 Seesaw Arm Spacer	1Set	
32096	46 Stabilizer Washer	2	
32100	46 Stabilizer Blade	2	
32101	46 seesaw Collar	2	
32121	Anti-rotation Mount	1	W/M3X4 Set.B
32122	Center Hub	1	
32123	Control Lever	1	
32124	Metal Grip	1	W/Out (32086)
32125	Main Rotor Collar	2	
34073	46 Universal Link(Sort)	2Set	W/M2.3X10 Push Rod
34093	Wsahout Arm Ass`y	1	W/Bearing
34094	Wsahout Base	1	
34095	Swash Plate	1	
34096	Swash Ring	1	W/M2X6 Cap.B
34097	Swash Ring Collar	2	W/Joint Ball W/M2X13Cap.B
34098	Anti-rotation Coller Set	1Set	W/Inner Collar Outer Collar
34100	Seesaw Arm II	1	W/Bearing
52001	Stabilizea Bar L-450	2	
54018	Universal Link E	1	W/Collar
74086	Joint Ball Spacer	4	

About Repair and Spare Parts

* All the parts used in this kit are available as spare parts. Damaged parts caused by tip over or crash should be able to purchase through the hobby shop you purchased this kit.

* In case of some parts out of stock at hobby shop, the hobby shop should be able to order for you by letting them know the helicopter type (Mercury M), exact description, and part number.

* This helicopter is designed with a great consideration of overall strength and durability. Using other parts made by other manufacturer or reinforcing some parts may be dangerous. We will not be responsible for any problems or damages caused by the use of any parts other than genuine parts.

* Follow this instruction when you reassemble and readjust this helicopter.

Request

* In case you have any parts shortage on this kit, contact the hobby store you purchased kit from before you start assembling.

* In case you find any defect on parts, contact to Kalt-Sanwa (or importer of your country) directly. We will replace with new parts.

* We will not be responsible for any accidents or crashes due to the described items above or due to the imperfections of instruction and drawings.

Specifications

Main rotor diameter	1,288mm
Over all length	1,2630mm
Over all weight	3.1Kg
Recommended engine	OS MAX46FX-H (sold separate)
Radio equipment	5 channels
Gear ratio (engine : main gear: tail)	8.8 : 1 : 4.6
Body material	P.P. Blow mold

Notice for correction on instruction manual

There was a mistake on our instruction manual, therefore, please correct the instruction note as following.
We apologize for the trouble and inconvenience.

1.Procedure 4-1(Assembly of rotor head)

During the assembly of seesaw Arm Ⅱ, please insert ϕ3Xϕ4.5X t0.7 plate washer in between seesaw arm spacer and seesaw arm Ⅱ

Note: Diagram indicates such instruction but, there was no explanation.

2. screw set

There is a Black Joint Ball packed in the SCREW BAG of ⑥ however, please do not utilize this black joint ball. Instead of this part, please utilize the Joint Ball Ⅱ which is packed separately.

909-296-9669

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38061

Mercury Assemble & Handling Instruction Revising

Thank you for purchasing Mercury. There are some corrections and updates on the original instruction. Please read this revised instruction thoroughly first, before you start assembling.

Step 3-2 [Change on Assembling]

If you cannot push Input Gear in, remove upper or lower bearing case once then install gear.

Step 5-4 [Packing error on Screw Bag]

There was packing process error on one of screw bags for Step 5-4. It should contain M2.6 X 10 CAP B. [2], but ~~M2.6 X 10 TP (Tapping) B.~~ were packed instead. Please use M2.6 X 10 Cap B. [2] in the separate bag.

Step 6-5 [Packing error on Screw Bag]

There ~~was packing~~ process error on one of screw bags for Step 6-5. It should contain M2 X 12 CAP B. [2], but ~~M3 X 12~~ Cap B. were packed instead. Please use M2 X 12 Cap B. [2] in the separate bag.