

ERGO

.60 ASSEMBLY INSTRUCTIONS



ERGO SPECIFICATIONS

Overall Length	55.85"	Tail Rotor Diameter	10.34"
Overall Height	18.92"	Gear Ratio	9.78:1:5.18
Main Rotor Diameter	60.45"	Gross Weight	10.58 lbs.



INTRODUCTION

Congratulations on your purchase of the JR Ergo helicopter kit.

This kit has been both engineered and manufactured by JR with help from some of Japan's top R/C helicopter engineers (now employed by JR).

As you may well know, the name JR has for years been synonymous with state-of-the-art, high quality radio control systems known the world over for their exceptional reliability and engineering.

JR now brings this reputation and knowledge into the helicopter market with the development of the Ergo and the organization of the JR heli division. Years in the making, the Ergo's superior quality and exceptional parts fit and finish create a new standard of quality that was previously unavailable.

Before you begin the assembly of your Ergo, we suggest that you first review the entire instruction manual to become familiar with the assembly sequences and parts layout.

WARNING

The radio controlled model helicopter contained in this kit is not a toy, but a sophisticated piece of equipment. This product is not recommended for use by children. Radio controlled models such as this are capable of causing both property damage and/or bodily harm to both the operator/assembler and/or spectator if not properly assembled and operated. Horizon Hobby Distributors assumes no liability for damage that could occur from the assembly and/or use/misuse of this product.

AMA INFORMATION

We strongly encourage all prospective and current R/C aircraft pilots to join the Academy of Model Aeronautics. The AMA is a non-profit organization which provides services to model aircraft pilots. As an AMA member, you will receive a monthly magazine entitled *Model Aviation*, as well as a liability insurance plan to cover against possible accident or injury. All AMA charter aircraft clubs require individuals to hold a current AMA sporting license prior to operation of their models. For further information, you can contact the AMA at:

Academy of Model Aeronautics

5151 East Memorial Drive
Muncie, IN 47302
(317) 287-1256

PRE-ASSEMBLY INFORMATION

When first opening your Ergo kit, you will notice that all of the parts are packaged and numbered to coordinate with the assembly step numbers of this instruction manual.

All small hardware (nuts, bolts, washers, etc.) for each step are separated and packaged separately within the main parts bags. When beginning a section, you will need to open only the bag with the corresponding number to the section you are going to start. It is suggested that you place all of the hardware in an open container (e.g., coffee can) during assembly so as not to lose any of the small parts. It may also be helpful to familiarize yourself with the various sizes of screws, bolts, nuts, etc., as illustrated in the appropriate assembly section before you begin assembly. At the end of each assembly, in most cases, there should be no parts remaining.

Great care has been taken in filling the bags with the correct quantity of parts and hardware for each section. However, occasionally mistakes do happen. In the event that you find a parts shortage or are in need of technical assistance, please contact your local JR heli division parts dealer, or contact the Horizon Service Center directly.

Horizon Service Center

4105 Fieldstone Road
Champaign, IL 61821
(217) 355-9511 (9am to 5pm CST)



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ERGO .60 FEATURES

Heavy-Duty Aluminum Quad Frame System

Provides excellent rigidity and vibration absorption.

One-Way Hex Start Shaft System

Provides positive starting. Starter shaft utilizes a one-way bearing that allows the shaft to stop after the engine is started.

Wide Spread Tail Output Shaft Bearings

Reduces vibration and improves control response.

Belt-Driven Tail Rotor Design

Provides easy adjustment and low maintenance. Also eliminates the need for optional/expensive tube drive shafts.

Precision Ball Bearings at All Critical Locations

Provide low wear, high precision and reduced maintenance.

Unique Cyclic Mixing Control System

Offers easy adjustment and precise control.

Self-Aligning One-Piece Steel Clutch System

Offers easy installation and adjustment with exceptional reliability.

Straight Blade Axle Rotor Head Design

Provides high responsiveness and solid blade tracking.

Low Drag Flybar Paddles

Provide quick yet smooth cyclic response at all flight speeds.

Heavy-Duty Main Blade Grips with 4mm Blade Bolts

Provide a solid and secure mounting surface to easily handle the stresses of radical flight.

Rearward Facing Engine Design

Provides easy access to the glow plug for starting. Engine slips easily through the main frame for trouble-free engine maintenance.

Heavy-Duty Tail Boom Carrier

Provides increased structural rigidity and improved tail rotor precision.

Superior Parts Fit and Finish

Make assembly trouble free and enjoyable.

ITEMS REQUIRED TO COMPLETE THE JR ERGO (not supplied in kit)

1. RADIO SYSTEM REQUIREMENTS (NOT INCLUDED):

6-channel or greater R/C helicopter system with 5 servos, 1000 mAh receiver battery and gyro.



JRXP783



JRXP8103



JRPCM10SX



Flight Pack



Gyro



Receiver

2. ENGINE REQUIREMENTS (NOT INCLUDED):

A .60-.61 R/C Helicopter Engine is required.

A special helicopter type muffler is also required



(Webra .61 Heli Engine Shown)
WEBE675



(Thunder Tiger Pro .61 Heli Engine Shown)
TTR9695



KSJ355 O.S. Thunder Tiger/Webra Engines
KSJ385 Y.S. Thunder Tiger/Webra Engines

3. BUILDING SUPPLIES (NOT INCLUDED):

The following items are needed to complete the assembly of the JR Ergo:



Fuel Filter



Silicone Fuel Tubing



Whip Antenna



Glow Plugs



Double Sided Servo
Mounting Tape



Nylon Wire Ties (to
secure radio wires)



5 Minute Epoxy or Rotor Blade
CA Adhesive

4. TOOLS NEEDED TO ASSEMBLE THE JR ERGO .60 (NOT INCLUDED):



Phillips Screwdriver



Nut Drivers: 5mm, 7mm



Needle Nose Pliers



Scissors



Drill and Drill Bits



Small Hammer



Hobby Knife



Metric Ruler



Sandpaper (80-100 Grit)



Allen Wrenches: 1.5, 2.0, 2.5, 3.0, 4.0mm



Blade Balancer



Adjustable Pliers

5. FIELD EQUIPMENT REQUIRED (NOT INCLUDED):



12 Volt Electric Starter
HAN110



12 Volt Starting Battery
HAN109



1.5 Volt Glow Plug Battery



Remote Glow Plug Adaptor
(For Power Panel Use Only)



Helicopter Fuel 15% - 30%



Fuel Pump
HAN118



Glow Plugs
HAN3020



Hex Starting Shaft
JRP960090



Pitch Gauge



Ball Link Pliers
RVO1002

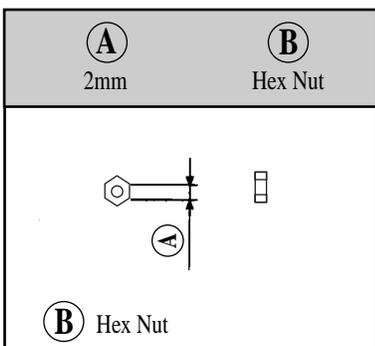
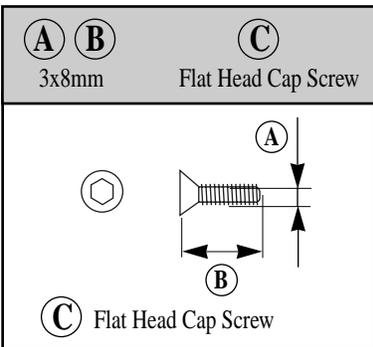
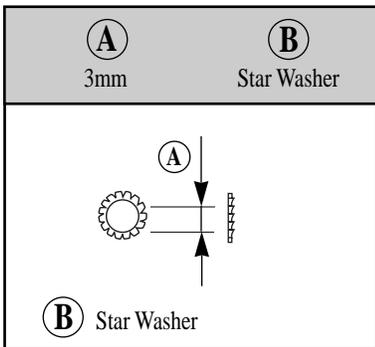
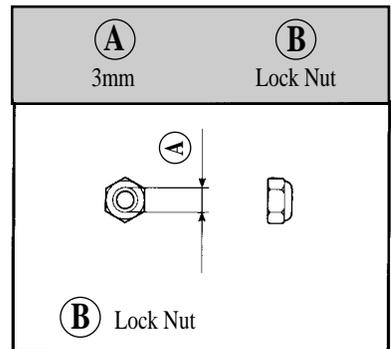
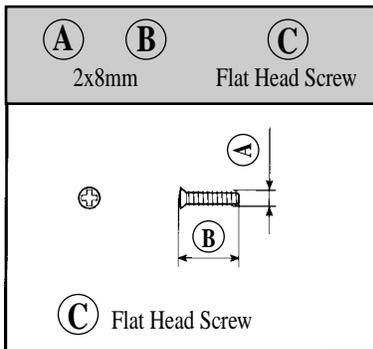
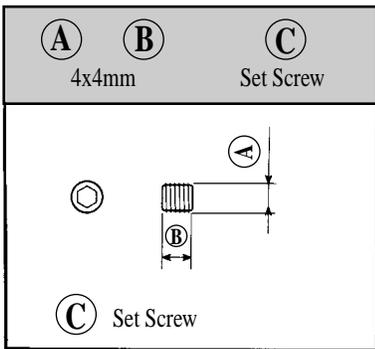
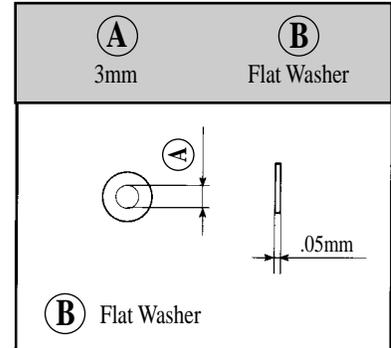
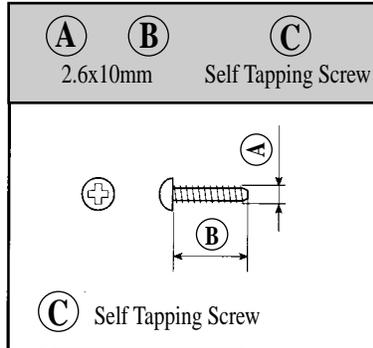
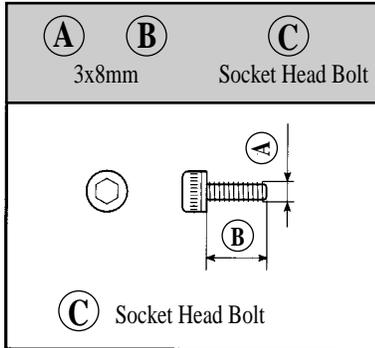


Training Gear (Beginners Only)

HARDWARE IDENTIFICATION

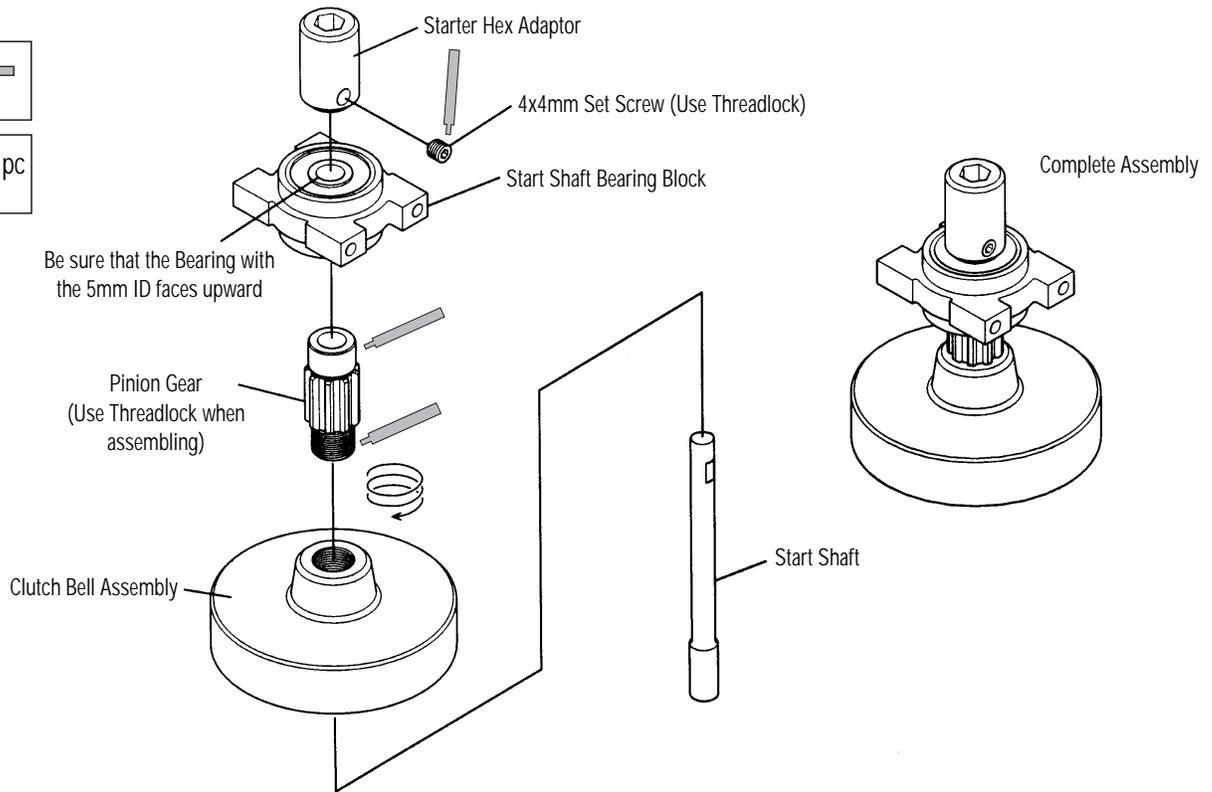
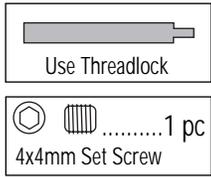
There are a variety of sizes and shapes of hardware included in this kit. Prior to assembly, please be careful to identify each screw by matching it to the full size screw outlines included in each step.

All of the hardware, screws, nuts, etc., contained in the Ergo kit are described in the following A, B, C manner:



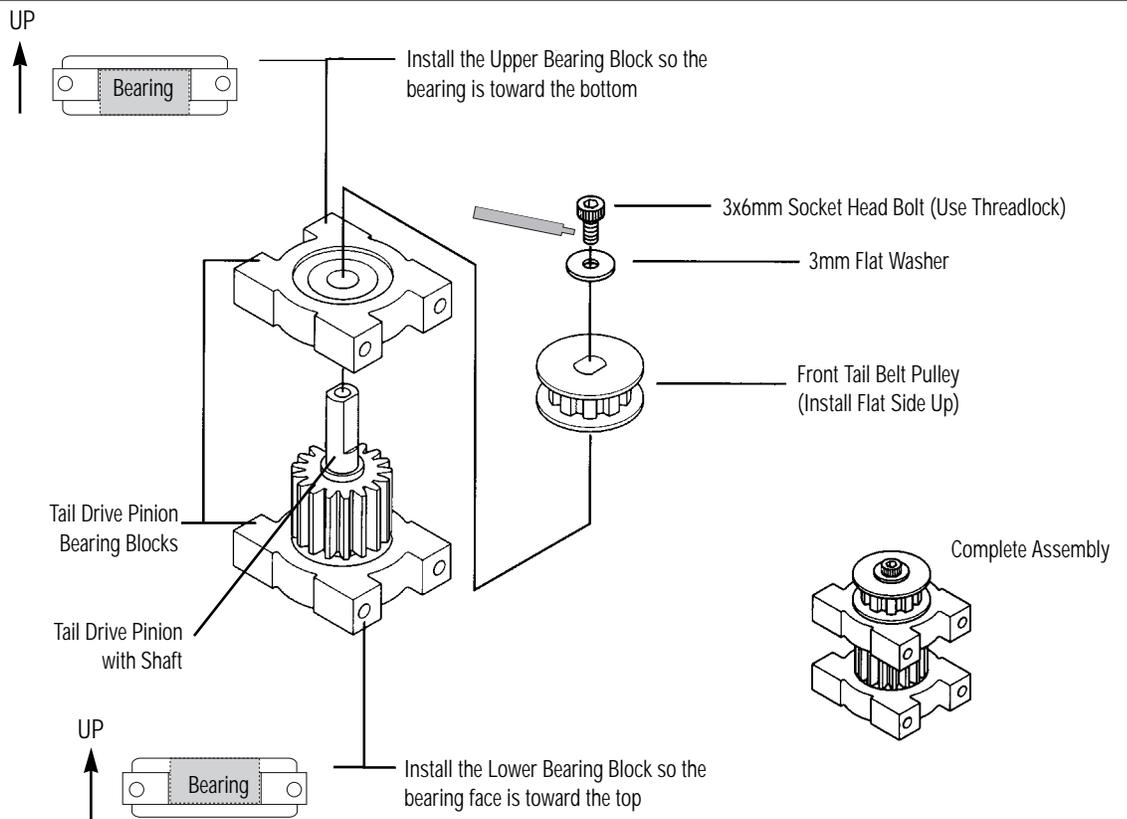
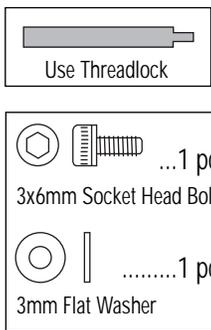
1-1

CLUTCH BELL/START SHAFT ASSEMBLY



1-2

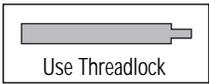
TAIL DRIVE PINION/BEARING BLOCK ASSEMBLY



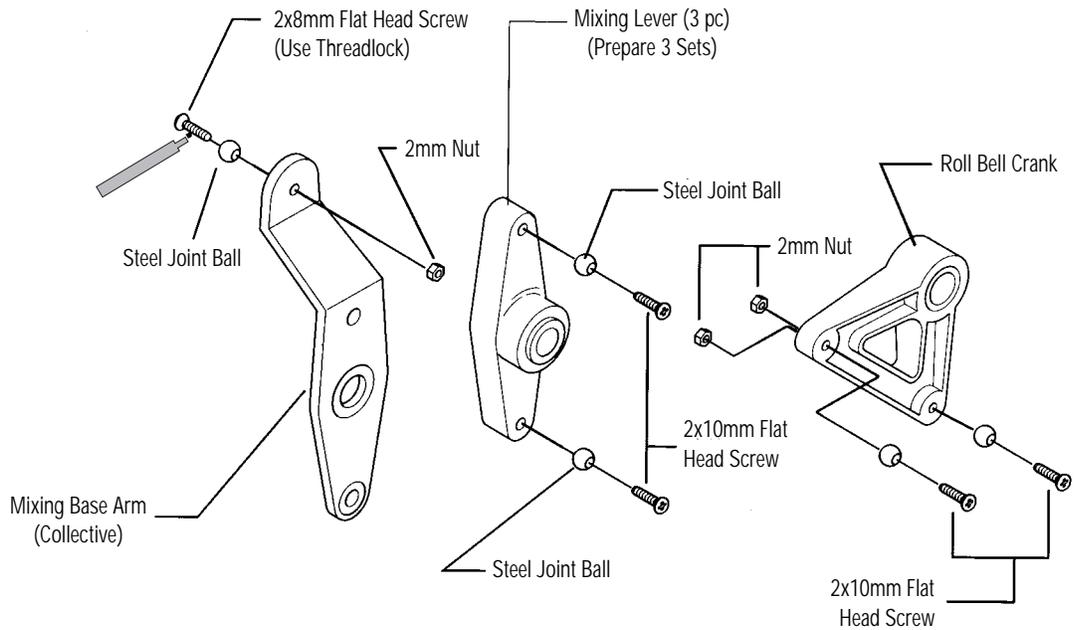
Note: It will be necessary to press the two Bearings into the Bearing Blocks. Press the Bearings in evenly by hand. Do not use a vise or pliers for this procedure as damage could result.

1-3

CONTROL BALL INSTALLATION



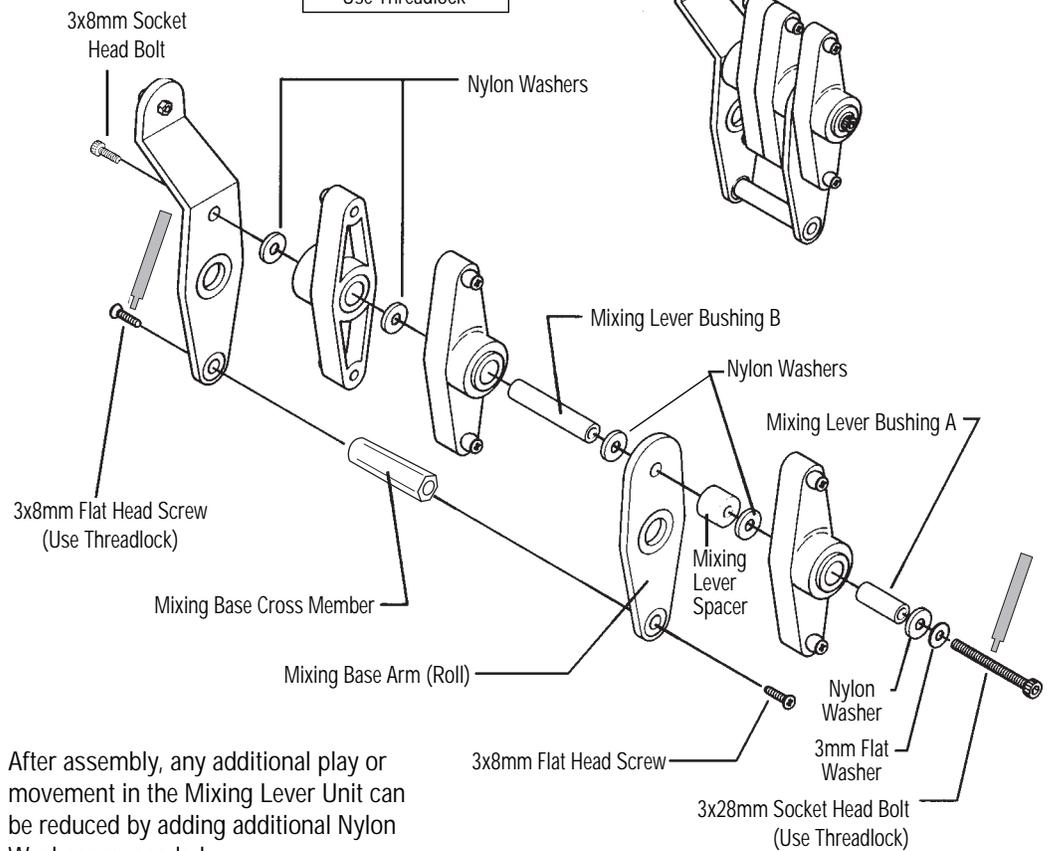
-1 pc
2x8mm Flat Head Screw
-8 pc
2x10mm Flat Head Screw
-9 pc
Steel Joint Ball
-3 pc
2mm Nut



1-4

SERVO MIXING LEVER UNIT ASSEMBLY

-2 pc
3x8mm Flat Head Screw
-1 pc
3x8mm Socket Head Bolt
-1 pc
3x28mm Socket Head Bolt
-5 pc
Nylon Washers
-1 pc
3mm Flat Washer
-1 pc
Mixing Lever Spacer
-1 pc
Mixing Lever Bushing A
-1 pc
Mixing Lever Bushing
-1 pc
Mixing Base Cross Member

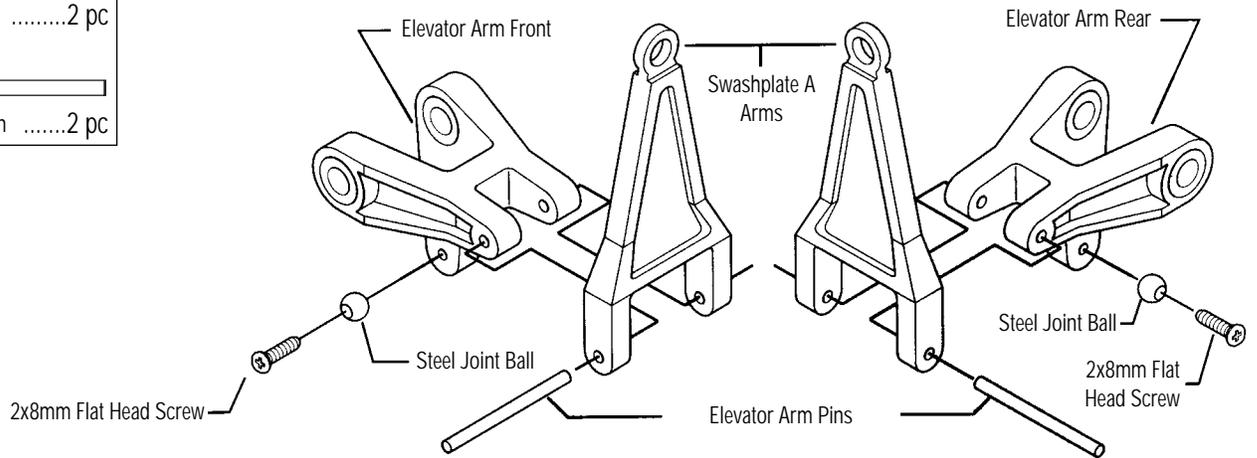


After assembly, any additional play or movement in the Mixing Lever Unit can be reduced by adding additional Nylon Washers as needed.

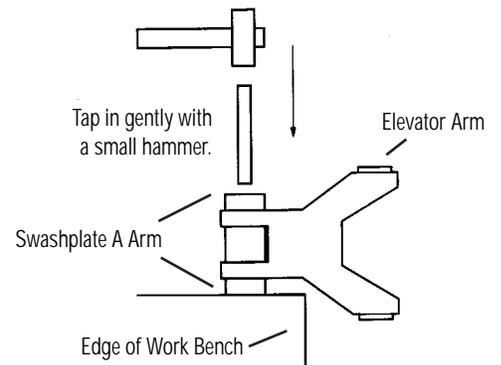
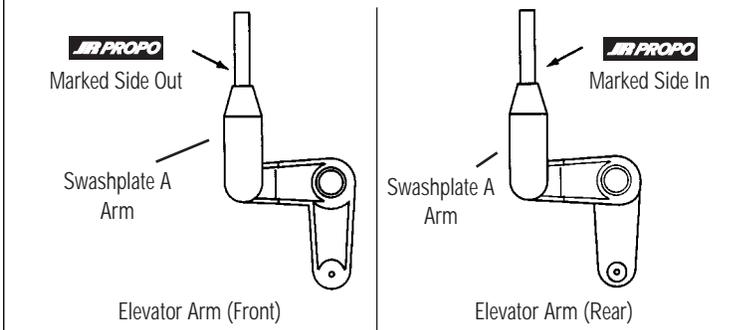
1-5

ELEVATOR ARM ASSEMBLY

- 2 pc
2x8mm Flat Head Screw
- 2 pc
Steel Joint Ball
- 2 pc
Elevator Arm Pin



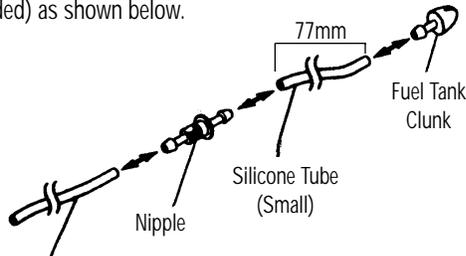
Caution: Be sure to note the correct installation direction of the Swashplate A Arm.



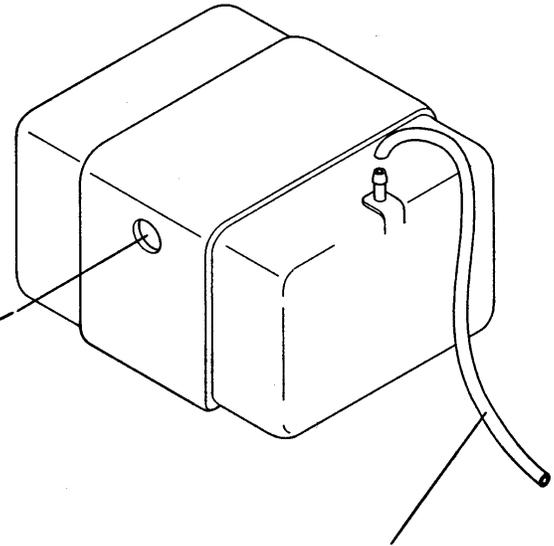
1-6

FUEL TANK ASSEMBLY

1. Cut the small Silicone Fuel Tubing (included) to a length of 77mm. Next, connect the Fuel Tank Clunk, Nipple, and medium Silicone Fuel Tubing (not included) as shown below.

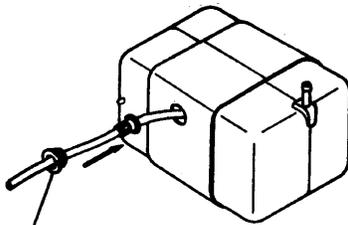


Medium Silicone Fuel Tubing (not included)
Connects to Engine Carburetor



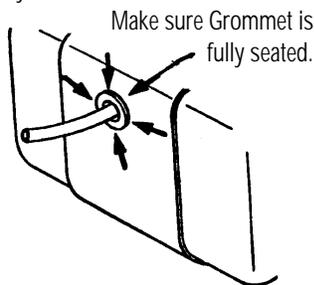
Silicone Fuel Tubing (not included)
Connects to Muffler Pressure Tap

2. Insert the assembly above (Fuel Tank Clunk first) into the Fuel Tank opening so that the Nipple is inside the tank. Next, slide the Fuel tank Grommet over the medium Fuel Tubing.

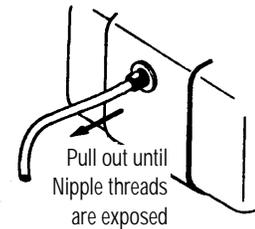


Fuel Tank Grommet

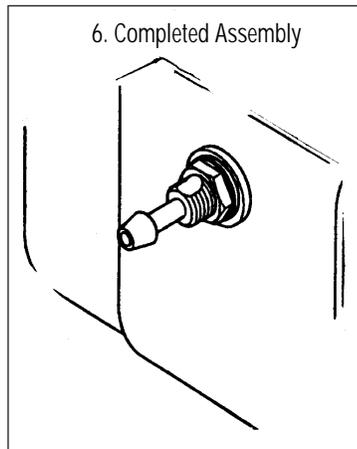
3. Insert the Fuel Tank Grommet into the Fuel Tank opening, making sure that it is fully seated.



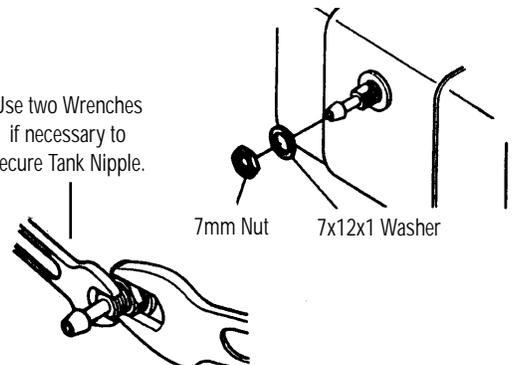
4. Pull the medium Fuel Tubing out of the Fuel Tank until the threads of the Fuel Tank Nipple are exposed.



5. Remove the medium Silicone Fuel Tubing from the Nipple and secure the Nipple to the Fuel Tank using the 7x12x1mm Washer and 7mm Nut supplied. Be sure to secure this assembly firmly to avoid leakage.



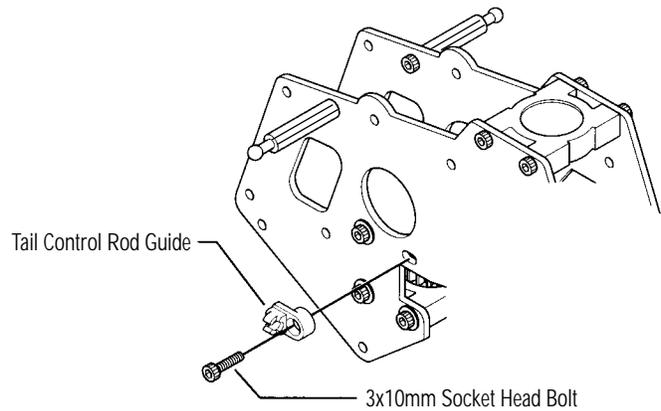
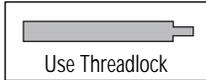
Use two Wrenches if necessary to secure Tank Nipple.



2-1

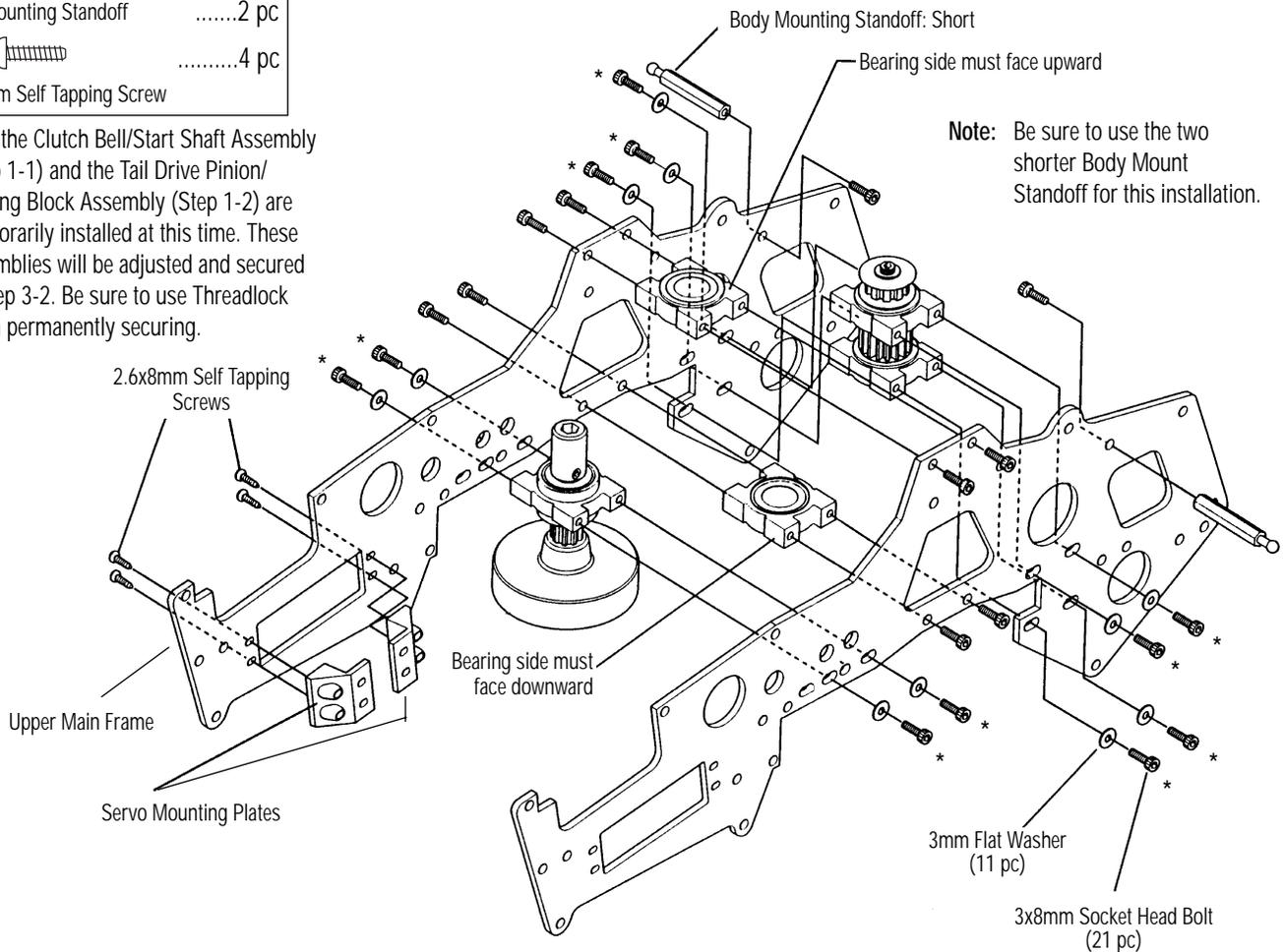
UPPER MAIN FRAME SECTION ASSEMBLY

	.....21 pc
3x8mm Socket Head Bolt	
	.....1 pc
3x10mm Socket Head Bolt	
	.....11 pc
3mm Flat Washer	
	.....2 pc
Body Mounting Standoff	
	.....4 pc
2.6x8mm Self Tapping Screw	



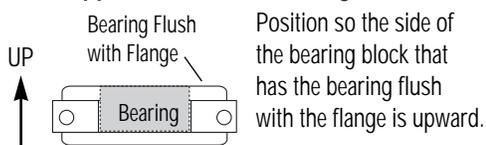
* Both the Clutch Bell/Start Shaft Assembly (Step 1-1) and the Tail Drive Pinion/Bearing Block Assembly (Step 1-2) are temporarily installed at this time. These assemblies will be adjusted and secured in Step 3-2. Be sure to use Threadlock when permanently securing.

Note: Be sure to use the two shorter Body Mount Standoff for this installation.

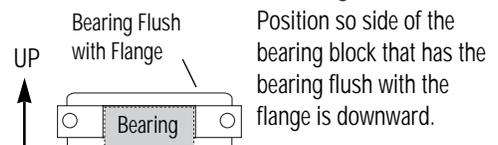


When installing the Main Rotor Shaft Bearing Blocks, it is important to note the correct direction in which they need to be installed. Please refer to the diagram below for clarification.

Upper Main Shaft Bearing Block



Lower Main Shaft Bearing Block

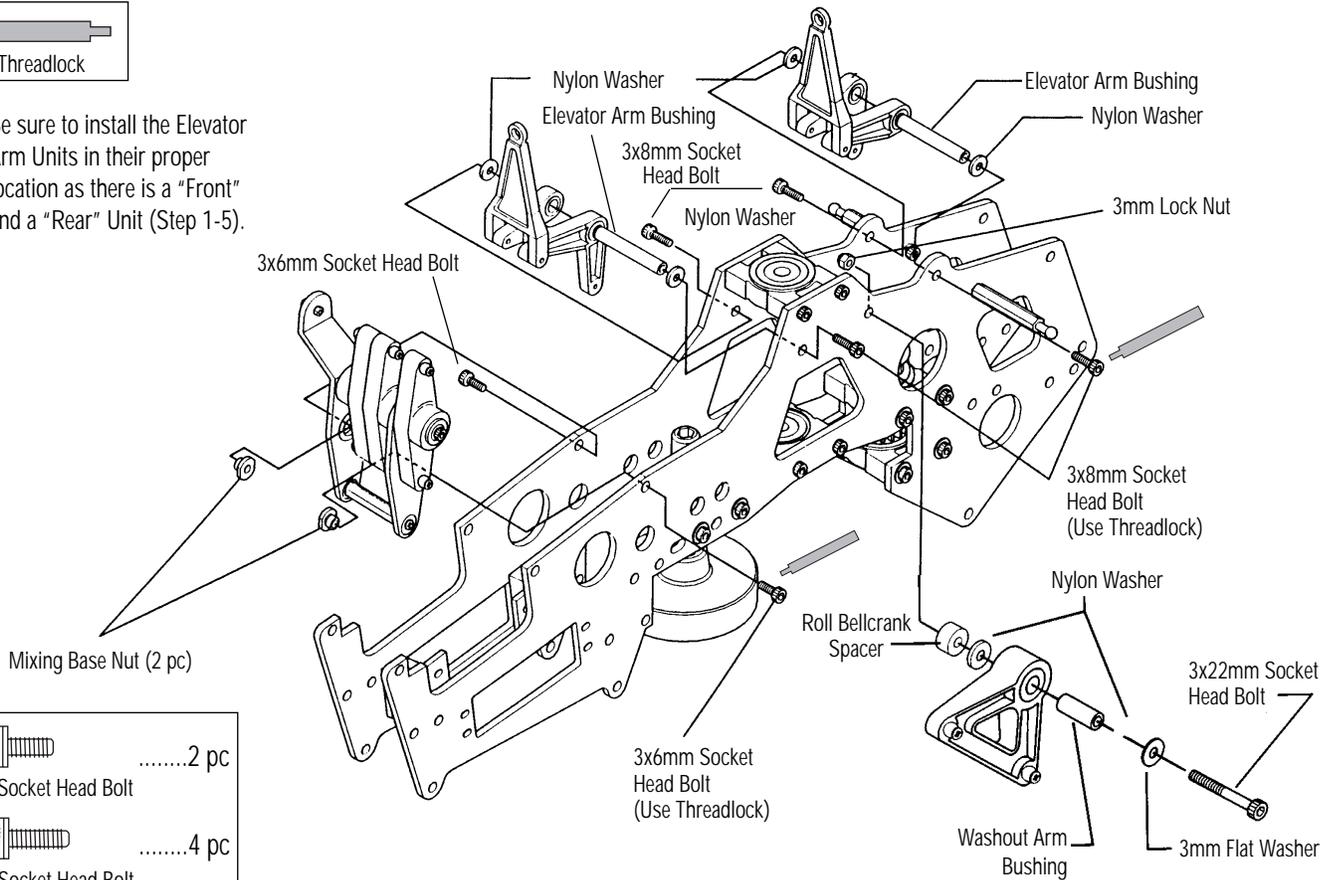


2-2

UPPER MAIN FRAME CONTROL LEVER INSTALLATION

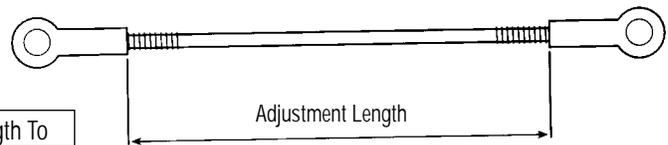
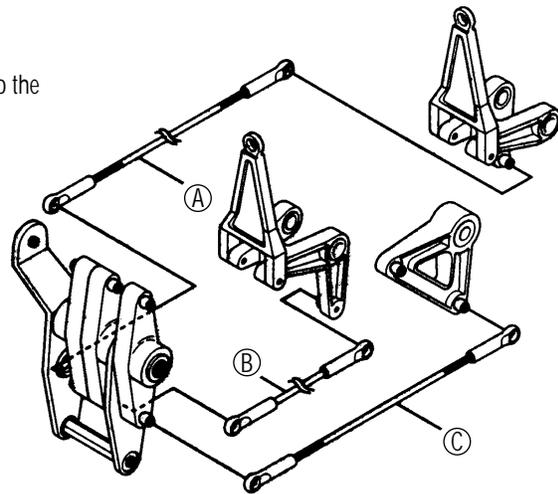


Note: Be sure to install the Elevator Arm Units in their proper location as there is a "Front" and a "Rear" Unit (Step 1-5).



-2 pc
3x6mm Socket Head Bolt
-4 pc
3x8mm Socket Head Bolt
-1 pc
3x22mm Socket Head Bolt
-1 pc
3mm Lock Nut
-6 pc
Nylon Washers
-1 pc
3mm Flat Washer
-1 pc
Roll Bell Crank Spacer
-1 pc
Washout Arm Bushing
-2 pc
Elevator Arm Bushing
-2 pc
Mixing Base Nut

Assemble and attach the Control Rods to the Mixing Levers/Control Arms as shown:



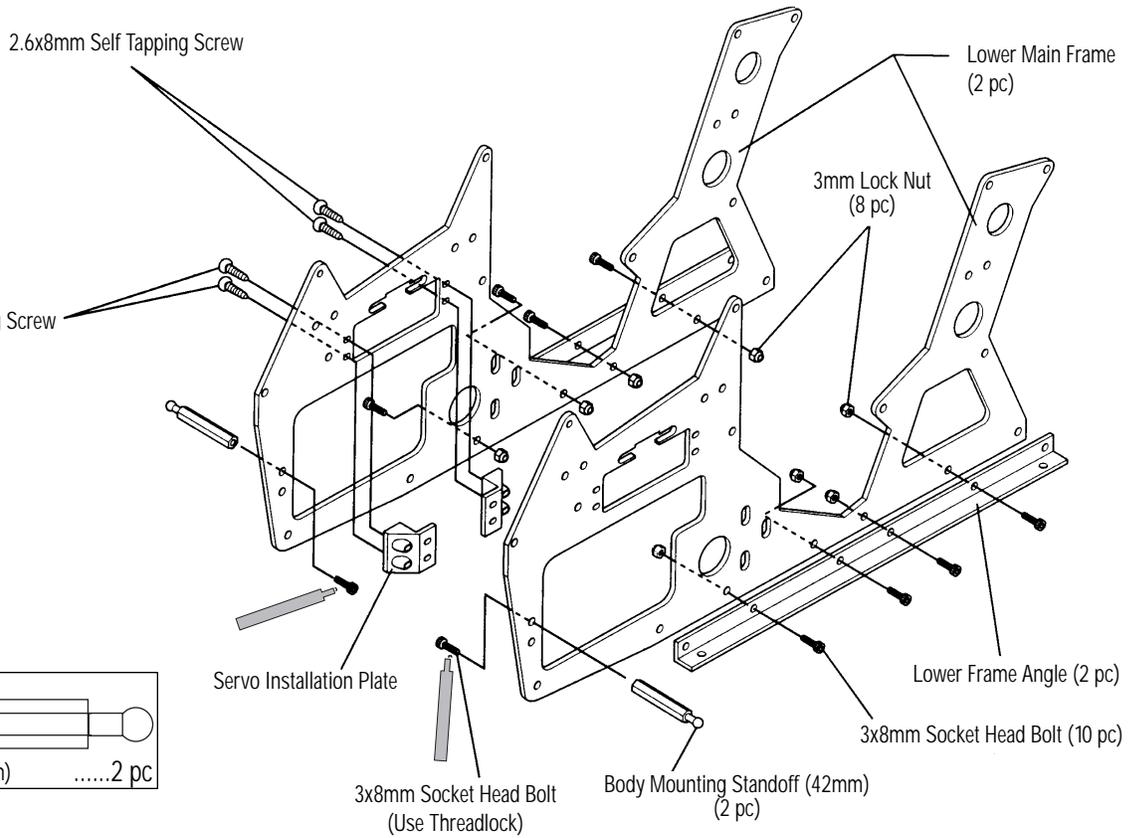
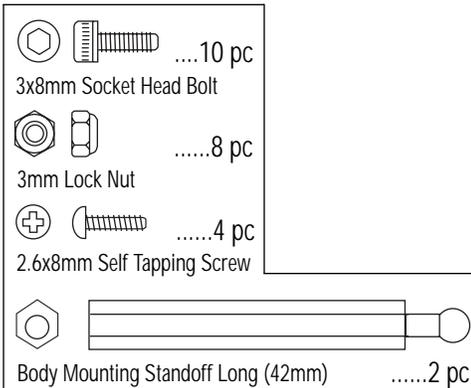
	Rod Length	Adjust Length To
(A)	120mm	104mm
(B)	55mm	36mm
(C)	90mm	72mm

2-3

LOWER MAIN FRAME ASSEMBLY



Note: In some kits, the correct 42mm body mounting standoffs may be located in a separate package.



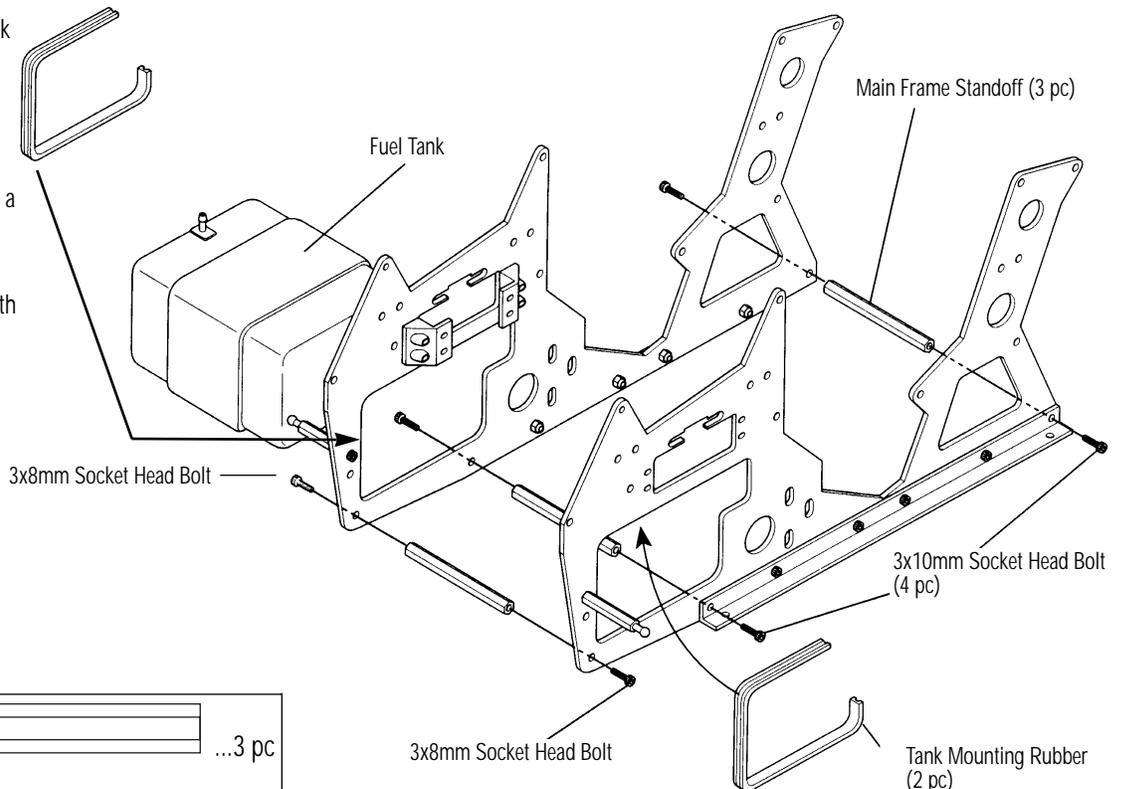
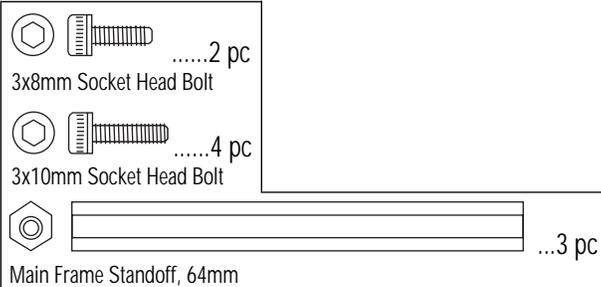
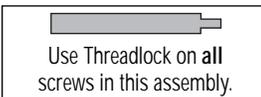
2-4

FUEL TANK INSTALLATION

Note: Install the Fuel Tank and Tank Mounting Rubber into the lower frame halves before attaching the Main Frame Standoffs.

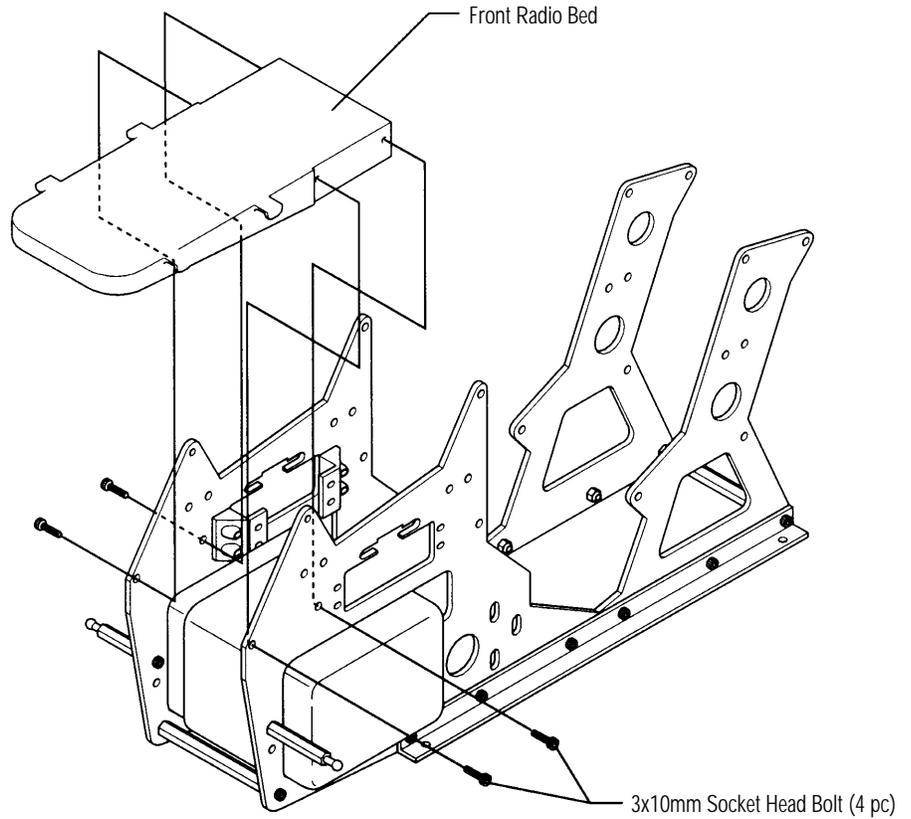
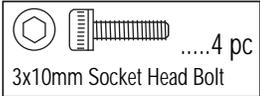
When securing Standoffs to Frame, position the bottom of the frame on a level surface to prevent twisting during tightening.

Also be sure to use the correct length bolt in the correct location when assembling.



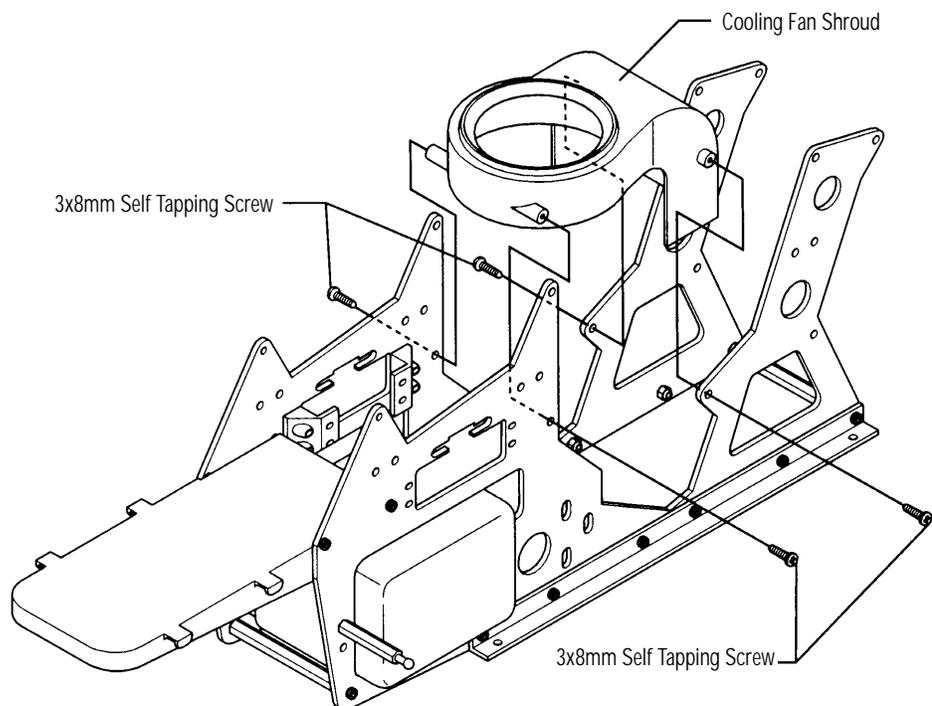
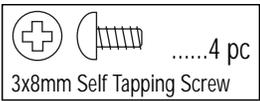
2-5

FRONT RADIO BED/GYRO MOUNTING PLATE INSTALLATION



2-6

COOLING FAN SHROUD INSTALLATION

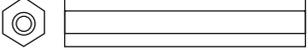


2-7

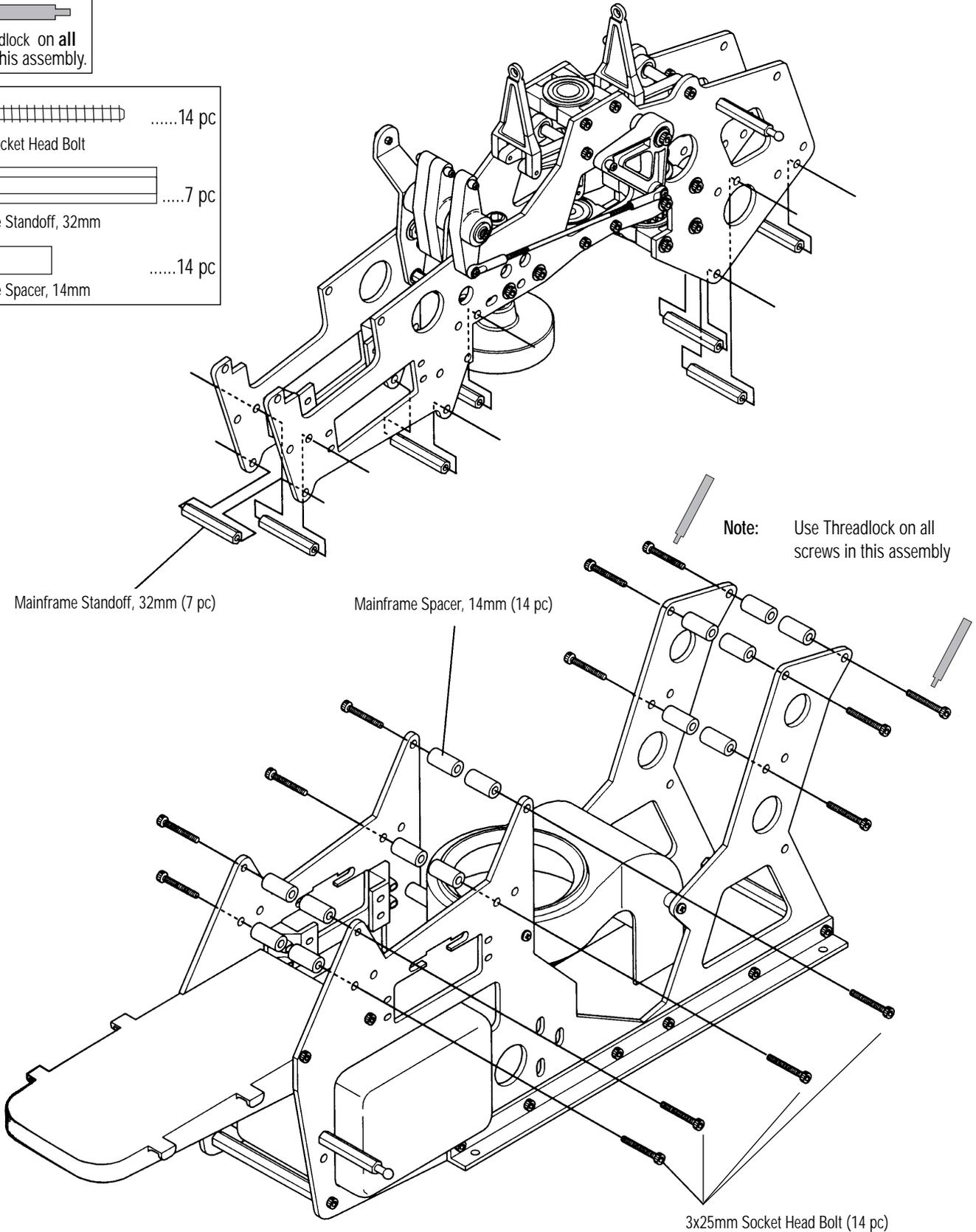
UPPER/LOWER MAIN FRAME ASSEMBLY ATTACHMENT


Use Threadlock on **all** screws in this assembly.

14 pc
3x25mm Socket Head Bolt

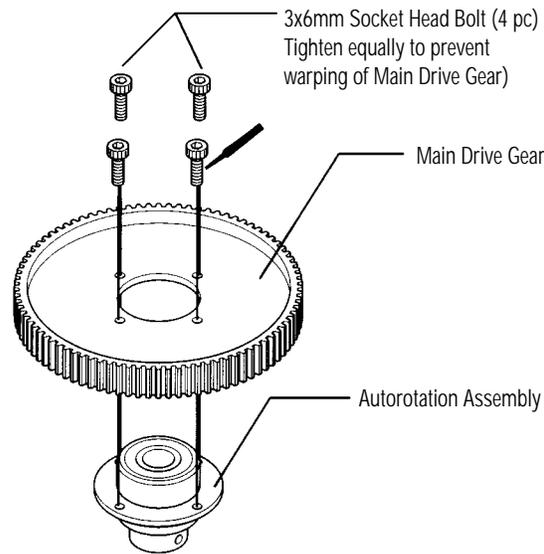
7 pc
Main Frame Standoff, 32mm

14 pc
Main Frame Spacer, 14mm



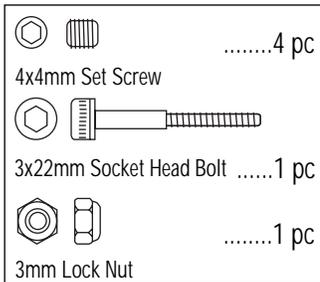
3-1

MAIN DRIVE GEAR/AUTOROTATION ASSEMBLY

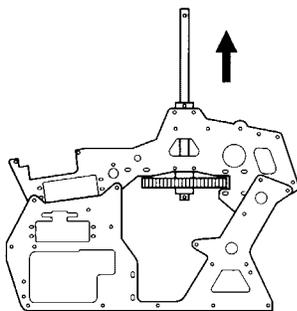
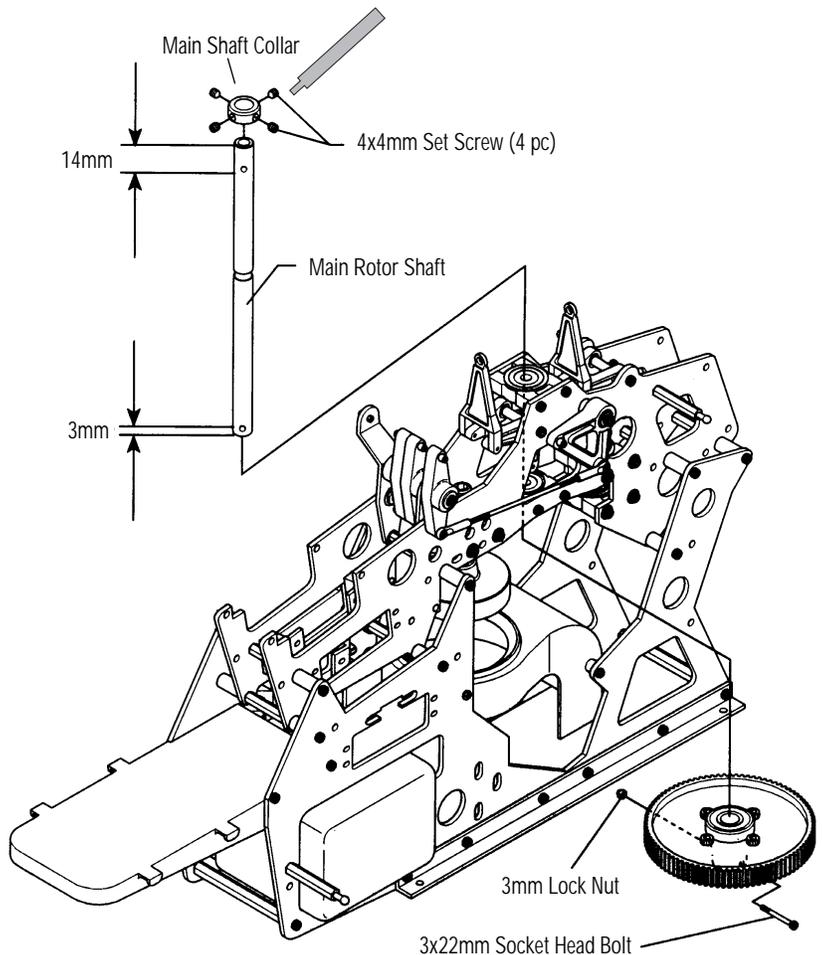


3-2

MAIN DRIVE GEAR/AUTOROTATION ASSEMBLY INSTALLATION



Note: In some kits, the 3x22mm Long Shank Socket Head Bolts are located in a separate bag.



1. Secure the Autorotation Hub to the Main Rotor Shaft using the 3x22mm Socket Head Bolt. Next, slide the Main Shaft Collar onto the Main Rotor Shaft. While pulling upward on the Main Rotor Shaft, secure the Main Shaft Collar to the Main Rotor Shaft using the four 4x4mm Set Screws.

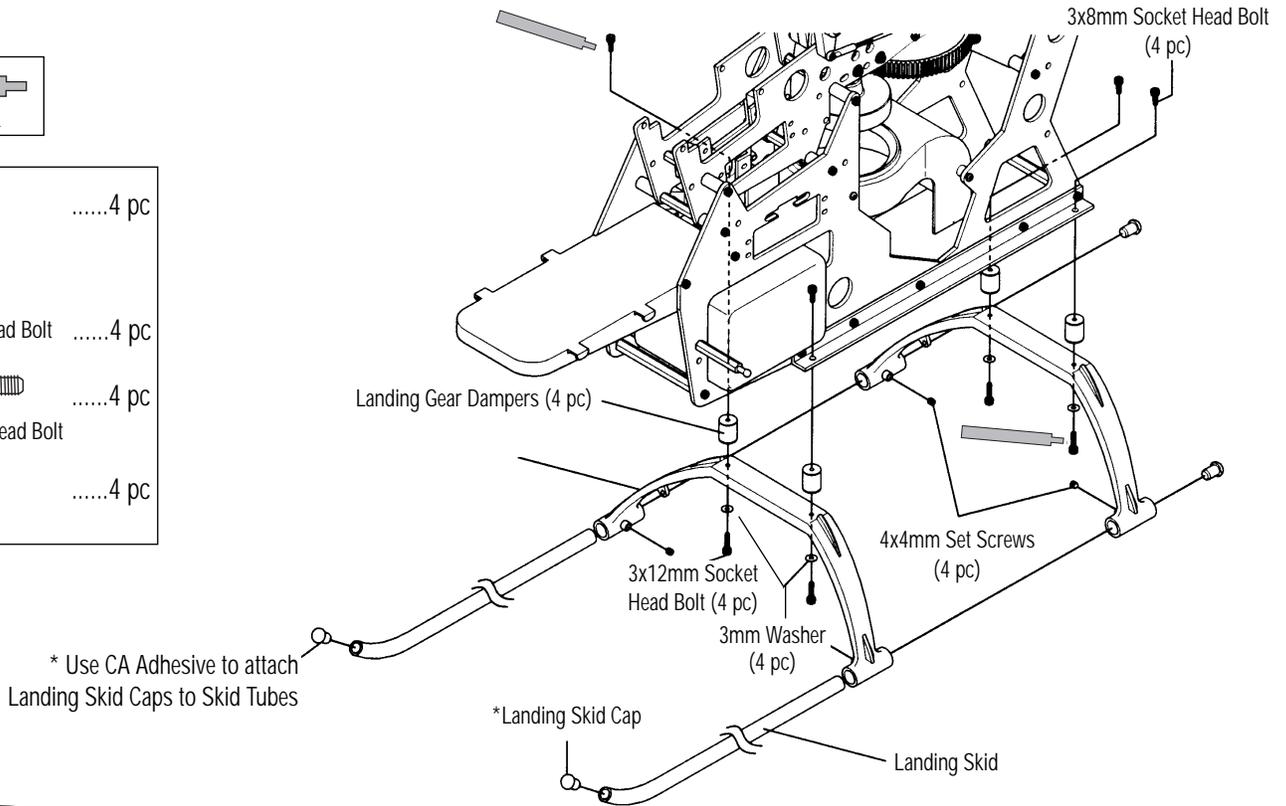
2. Once the Main Shaft Assembly is in place, adjust the gear mesh of the Clutch Bell and Tail Belt Pinion Gears, and secure the bolts left loose from Step 2-1.

3-3

LANDING GEAR ASSEMBLY INSTALLATION



	.....4 pc
4x4mm Set Screw	
	.....4 pc
3x8mm Socket Head Bolt	
	.....4 pc
3x12mm Socket Head Bolt	
	.....4 pc
3mm Washer	



3-4

INSTALLATION OF COOLING FAN



Note: Be sure to apply Threadlock to the threads of the Engine Crankshaft after the Engine Nut/Fan Assembly has been completely tightened.

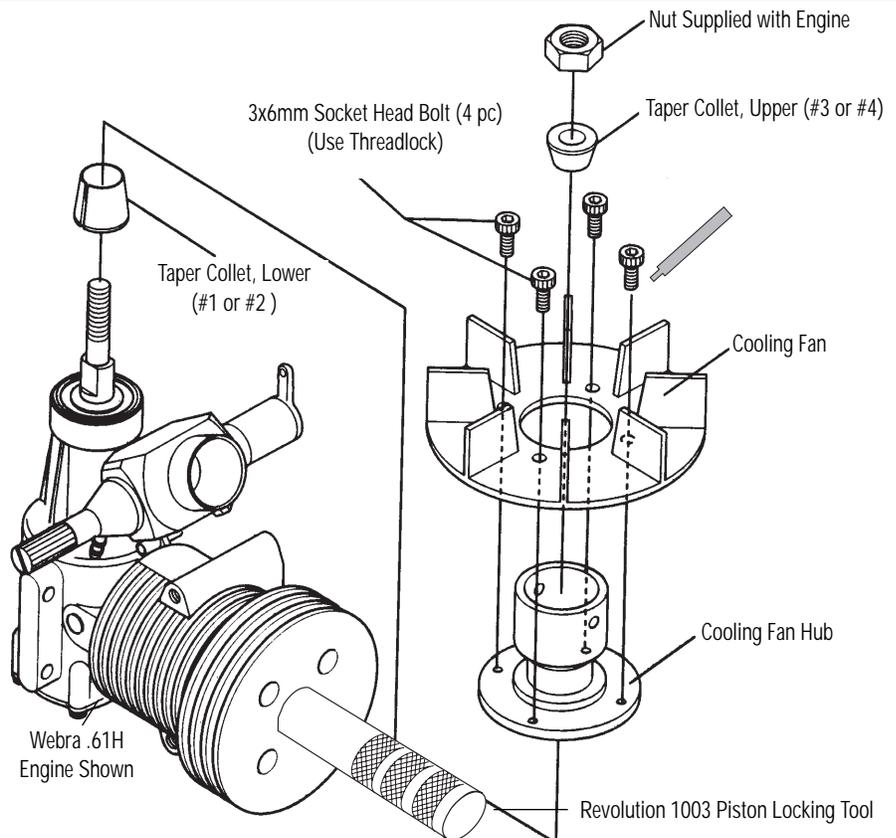
Use the chart below to select the proper Lower and Upper Taper Collets for your particular engine.

Lower Collets (Large w/Split)

Taper Collet #1	OS .61SFH - .61SXH YS .61, ENYA .60
Taper Collet #2	WEBRA .60 - .70

Upper Collets (without Split)

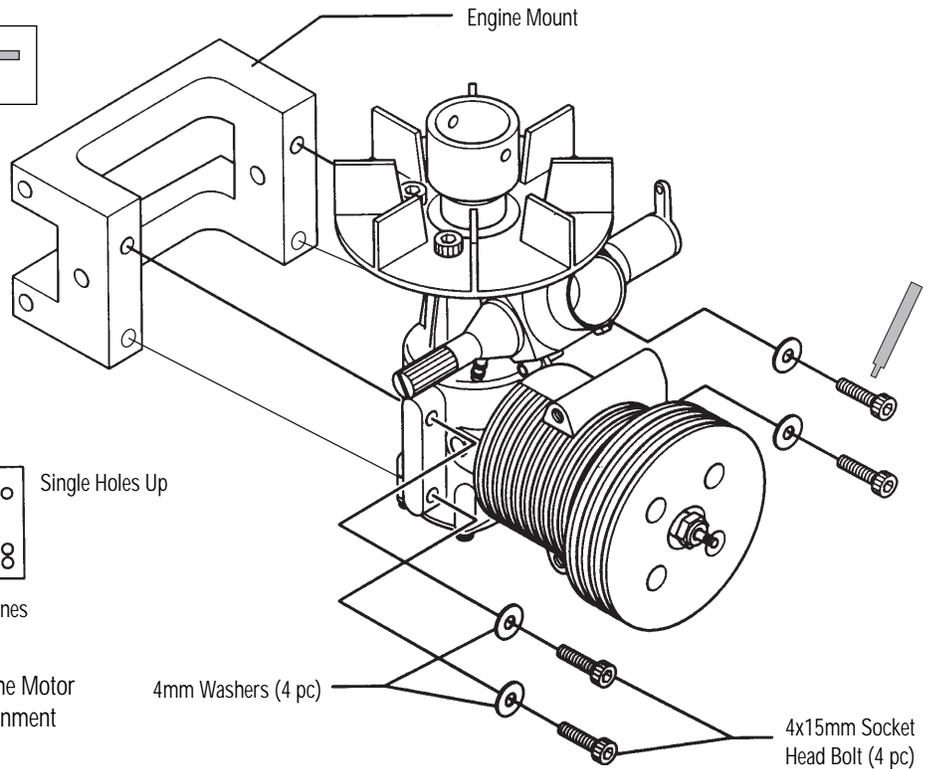
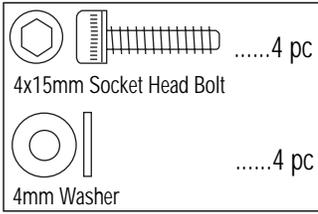
Taper Collet #3	OS .61SFH WEBRA .60 - .70
Taper Collet #4	OS .61SXH, YS. 61 ENYA .60



* It is recommended that a Piston Locking Tool be used to properly secure the Fan Assembly to the engine.

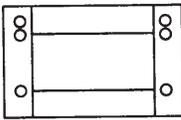
3-5

ENGINE MOUNT ATTACHMENT



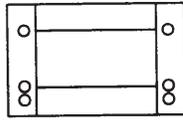
TOP

Double Holes Up



OS Enya Engines

Single Holes Up



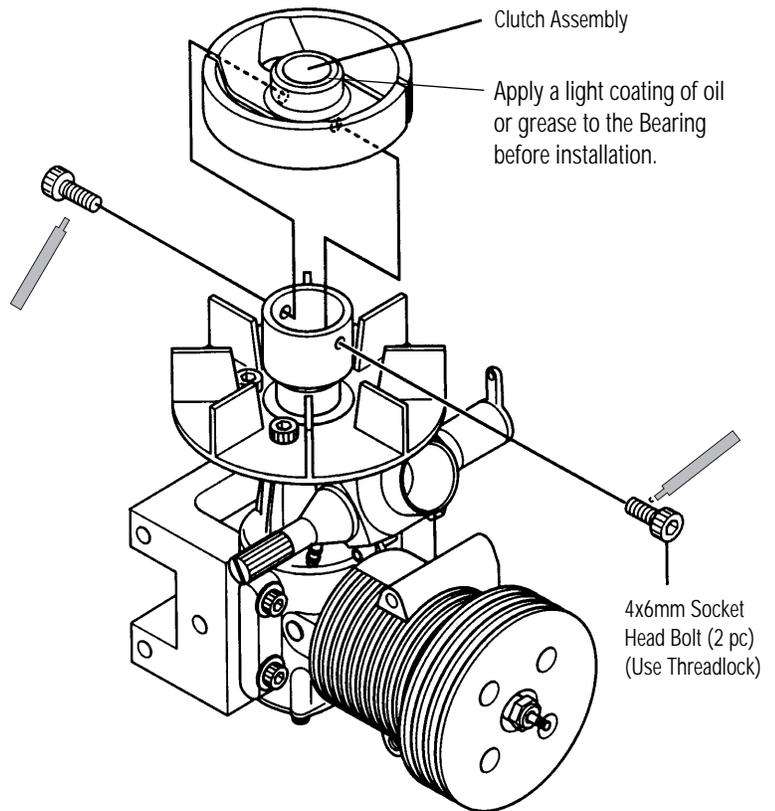
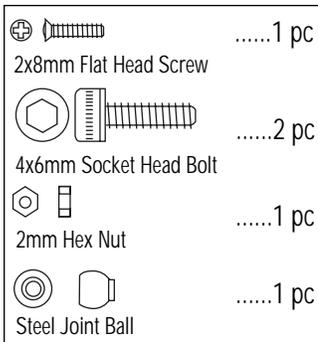
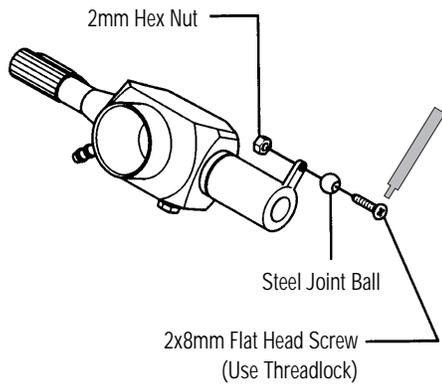
Webra/YS Engines

It is important to note the proper direction the Motor Mount is installed to achieve the correct alignment for the specific engine to be used.

3-6

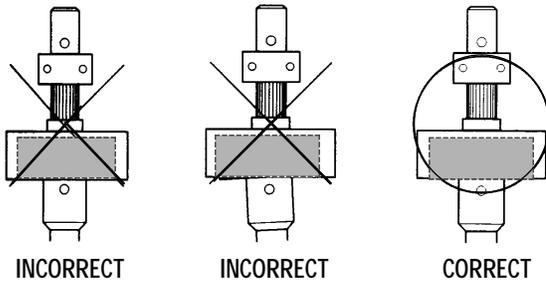
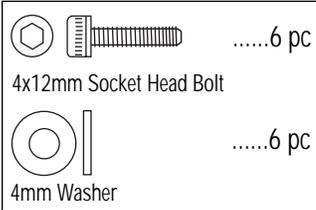
CLUTCH ASSEMBLY ATTACHMENT

Prepare the Carburetor Throttle Arm as shown.

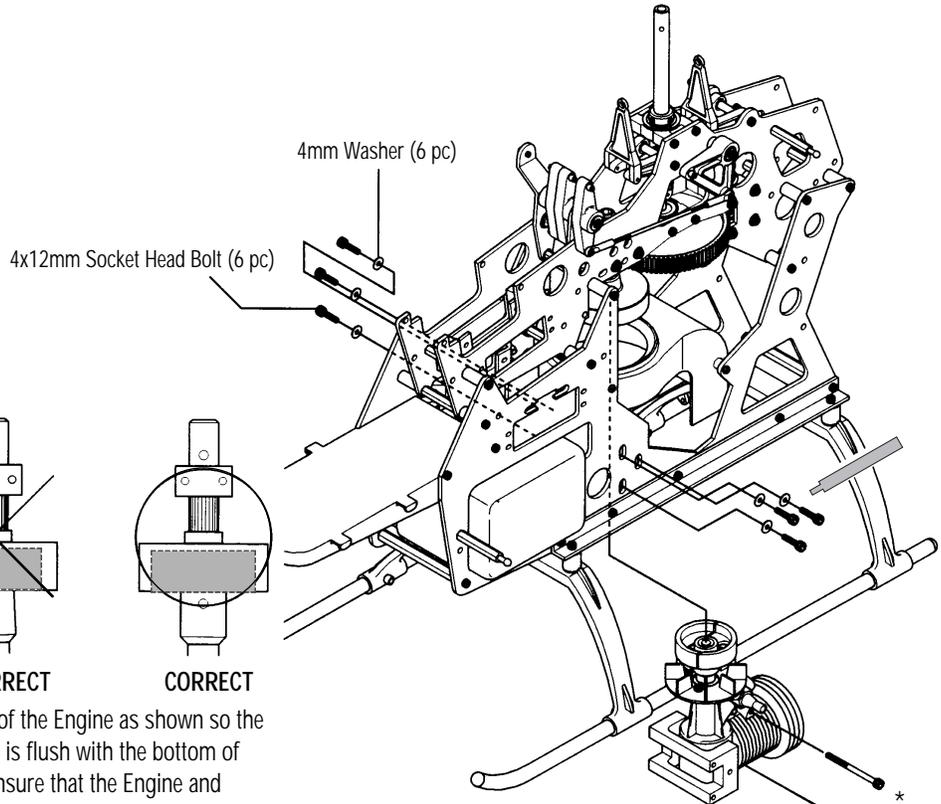


3-7

ENGINE INSTALLATION



Adjust the height and position of the Engine as shown so the bottom of the Clutch Assembly is flush with the bottom of the Clutch Bell. Also check to insure that the Engine and Clutch Bell are parallel.

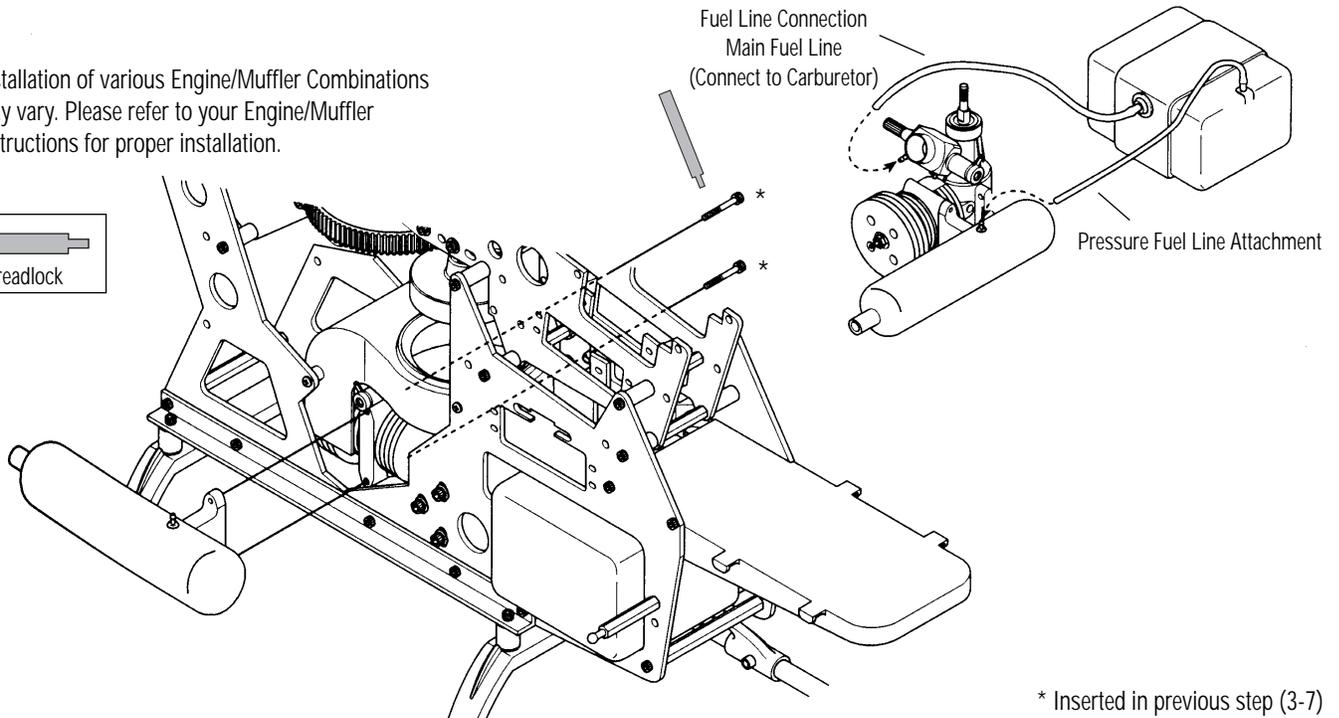
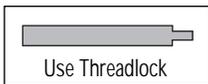


* It is highly recommended that you insert the Muffler Bolts into the Engine Case prior to installing the engine in the frame.

3-8

INSTALLATION OF THE MUFFLER

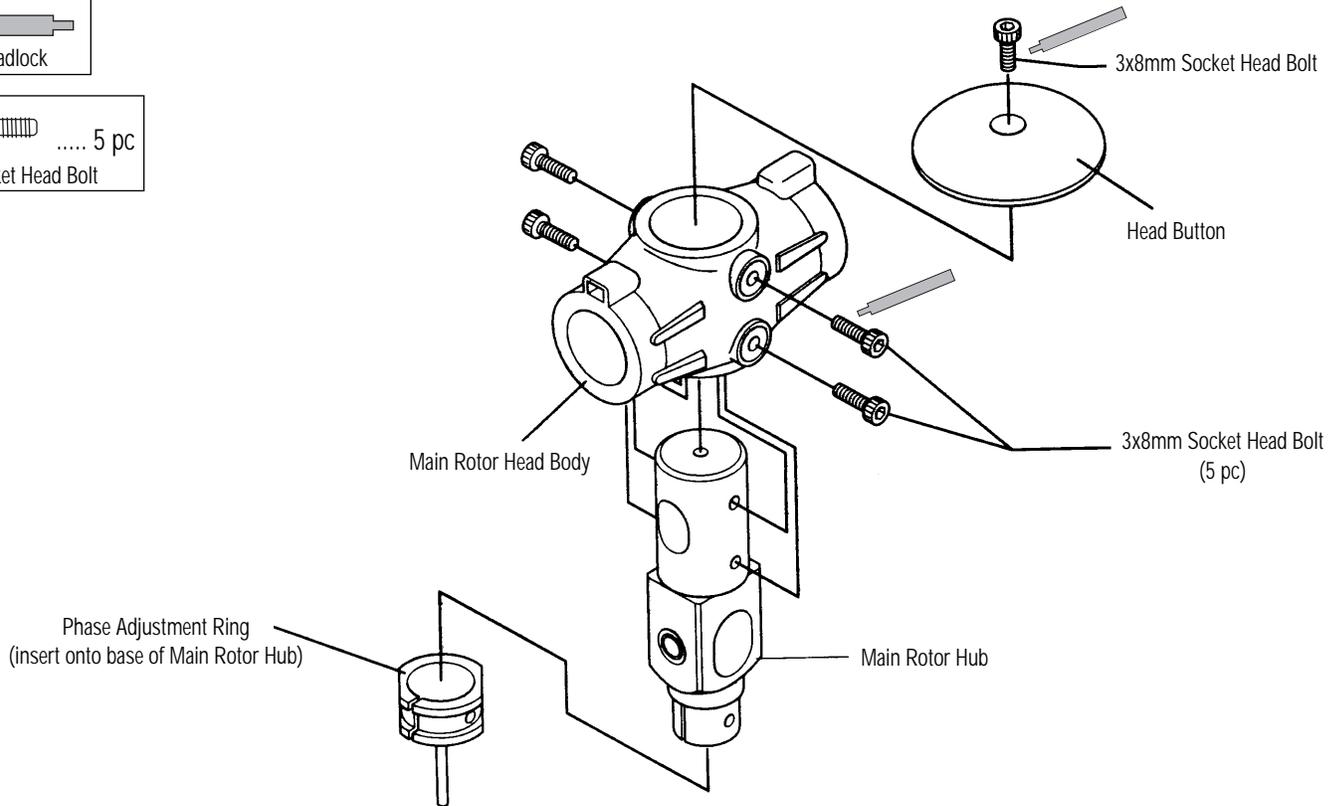
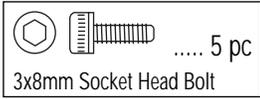
Note: Installation of various Engine/Muffler Combinations may vary. Please refer to your Engine/Muffler instructions for proper installation.



* Inserted in previous step (3-7)

4-1

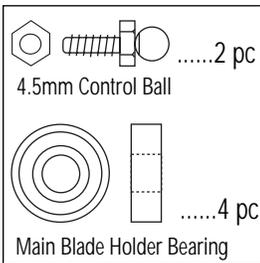
ROTOR HEAD HUB ASSEMBLY



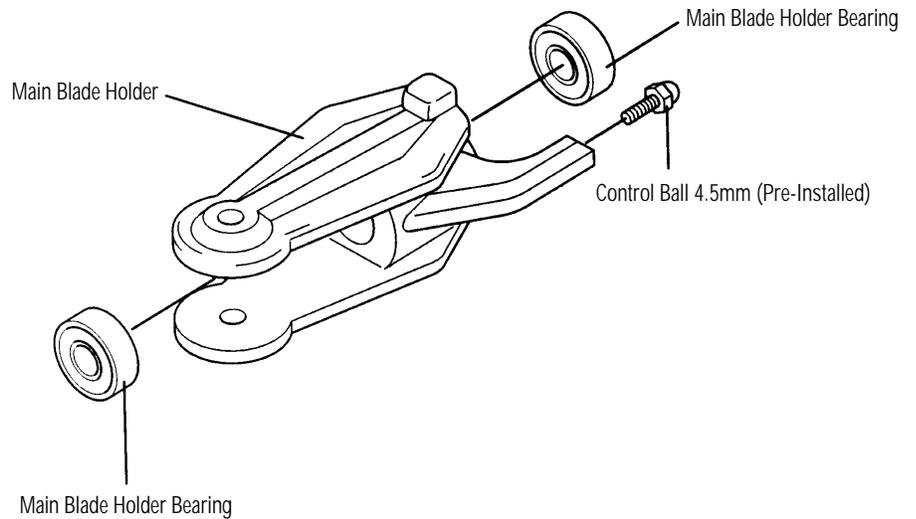
4-2

MAIN BLADE HOLDER ASSEMBLY

TWO SETS REQUIRED



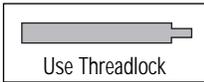
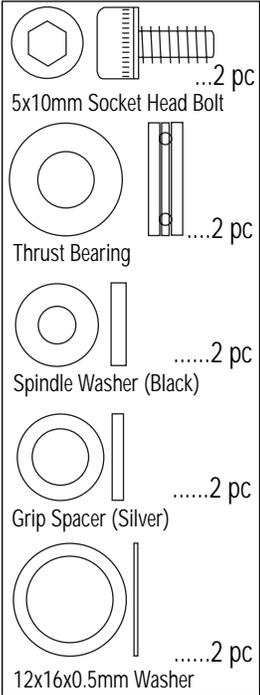
Note: Use caution when inserting the Main Blade Holder Bearings so as not to distort/damage the Main Blade Holders.



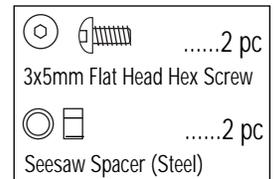
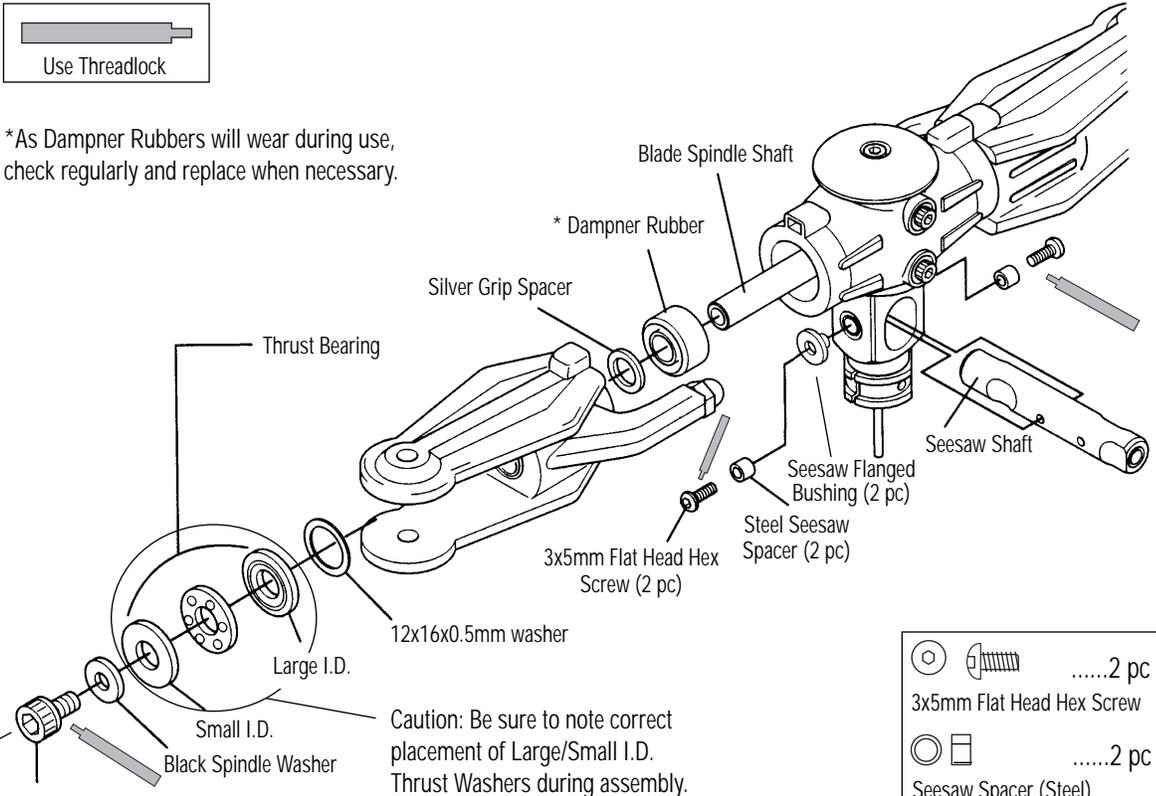
4-3

MAIN BLADE HOLDER/SEESAW ATTACHMENT

TWO SETS REQUIRED



*As Dampner Rubbers will wear during use, check regularly and replace when necessary.



Tighten securely using two 4mm "L" Allen Wrenches.

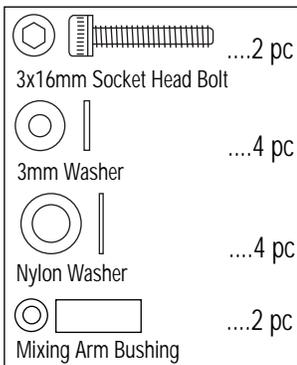
5x10mm Socket Head Bolt (Use Threadlock)

Caution: Be sure to note correct placement of Large/Small I.D. Thrust Washers during assembly.

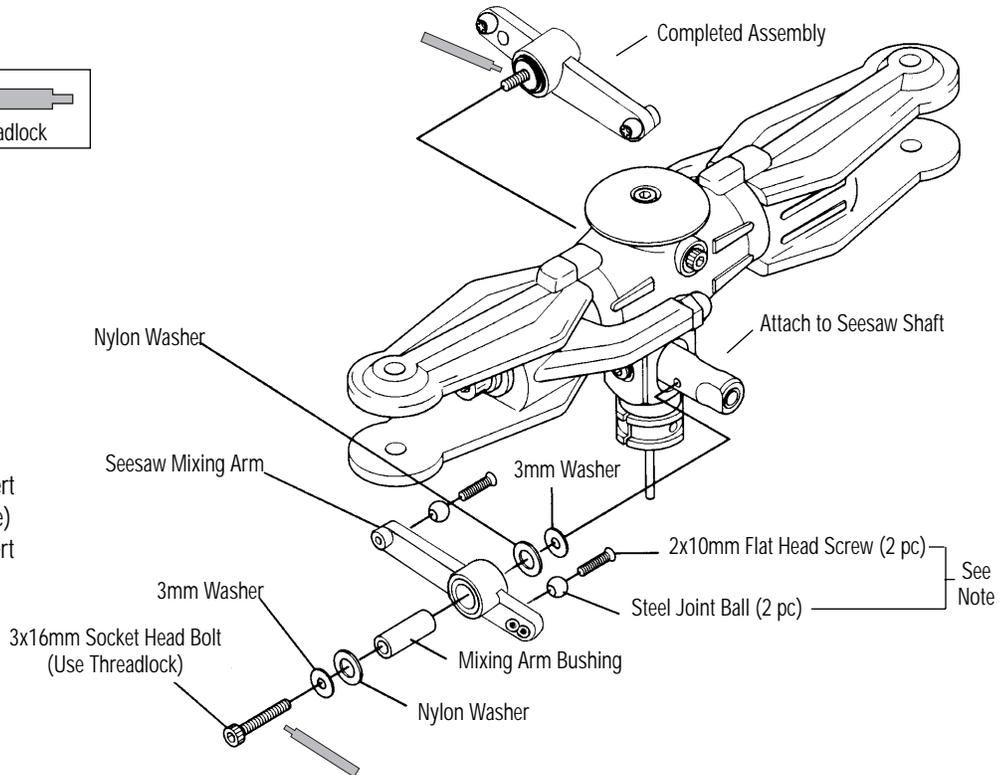
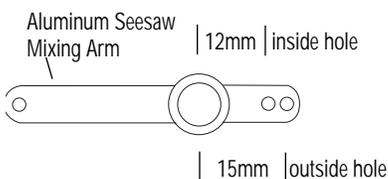
4-4

SEESAW MIXING ARM INSTALLATION

TWO SETS REQUIRED



Note: For Standard Pitch Curve (+13°/-5°) insert Flat Head Screw & Ball into 12mm (inside) hole. For 3D Pitch Curve (+13°/-10°) insert into 15mm (outside) hole.



See Note

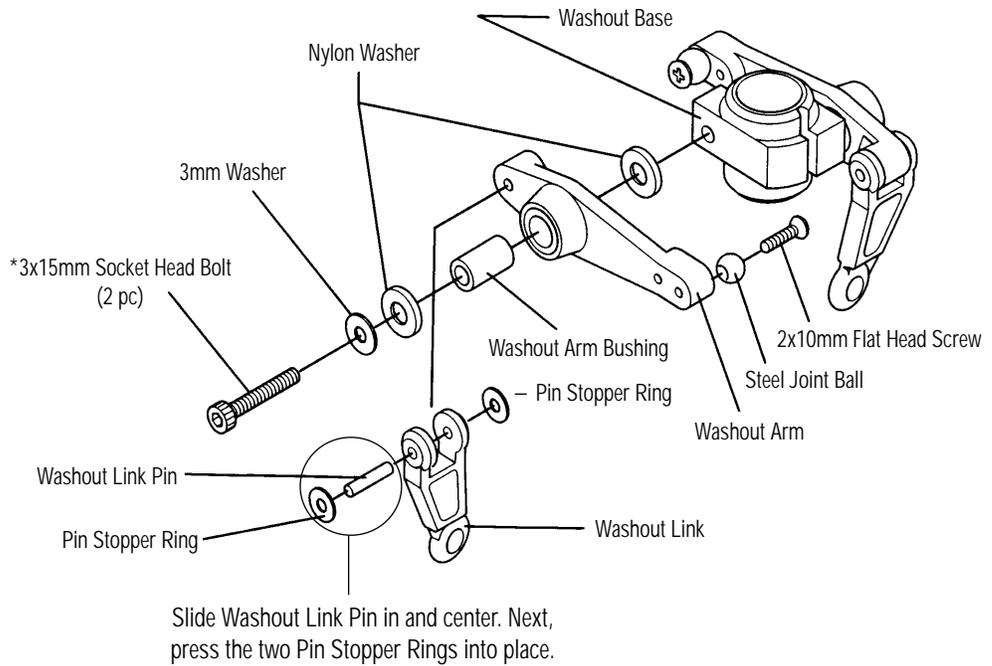
4-5

WASHOUT UNIT ASSEMBLY

TWO SETS REQUIRED

		....2 pc
3x15mm Socket Head Bolt		
		....2 pc
2x10mm Flat Head Screw		
		....2 pc
3mm Washer		
		....4 pc
Nylon Washer		
		....2 pc
Washout Link Pin		
		....4 pc
Pin Stopper Ring, 2mm		
		....2 pc
Washout Arm Bushing		
		....2 pc
Steel Joint Ball		

* When installing, be careful not to over tighten.

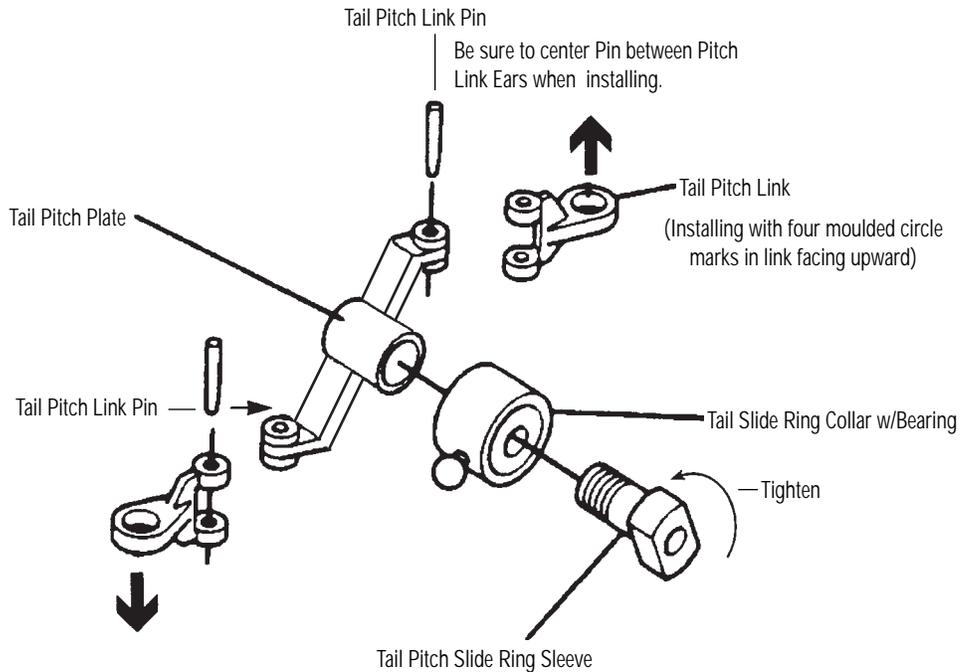


4-6

TAIL PITCH SLIDE RING ASSEMBLY

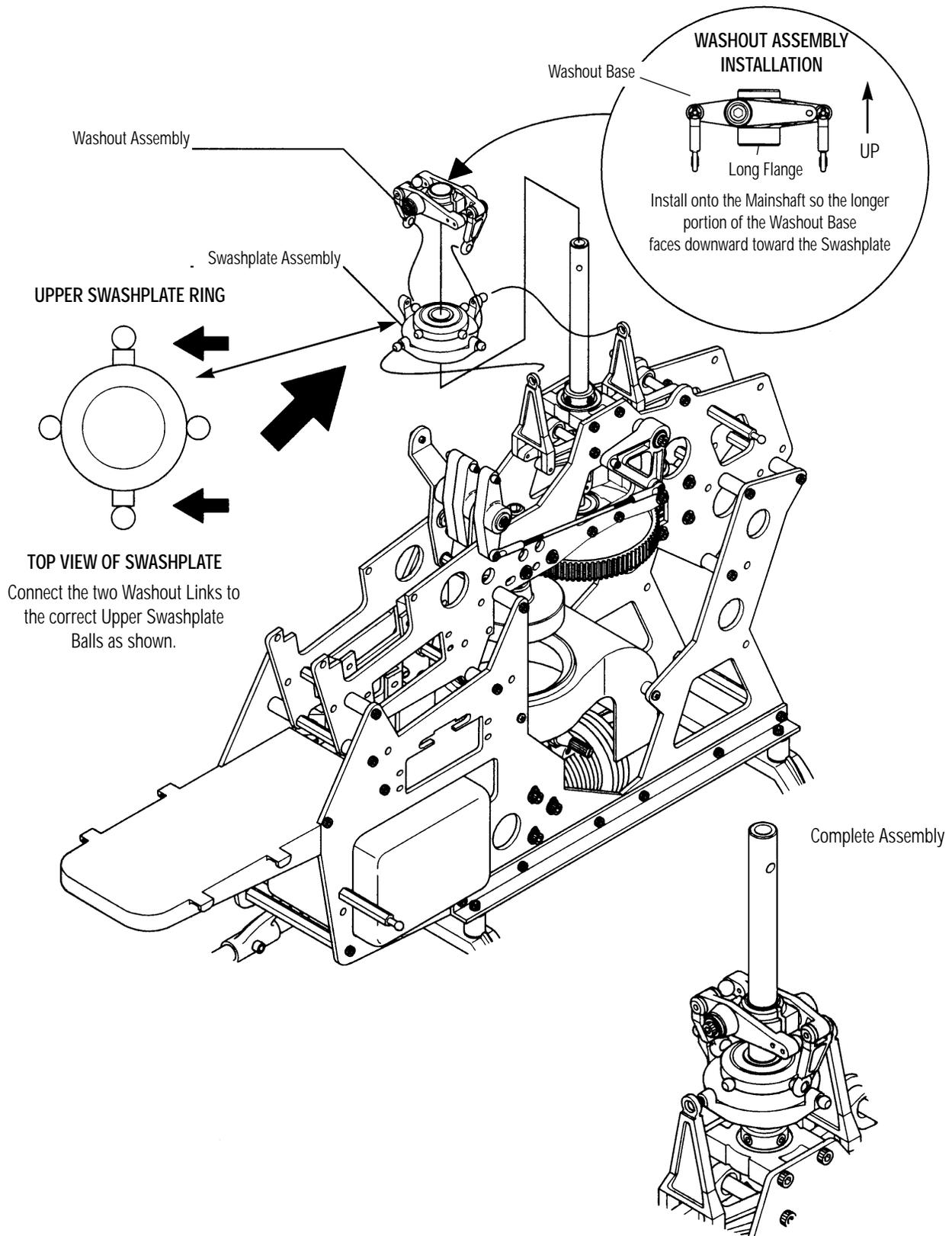
	....2 pc
Tail Pitch Link Pin	

Note: Tail Pitch Slide Ring Sleeve is reverse (left hand) thread. Use caution when installing.



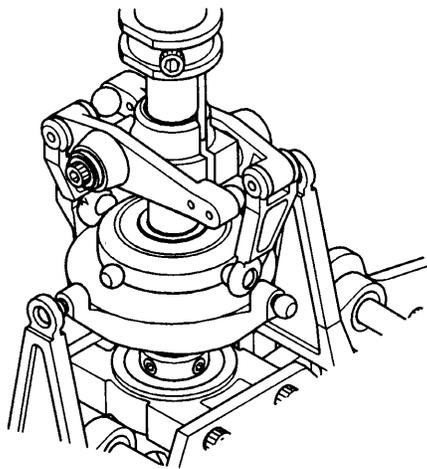
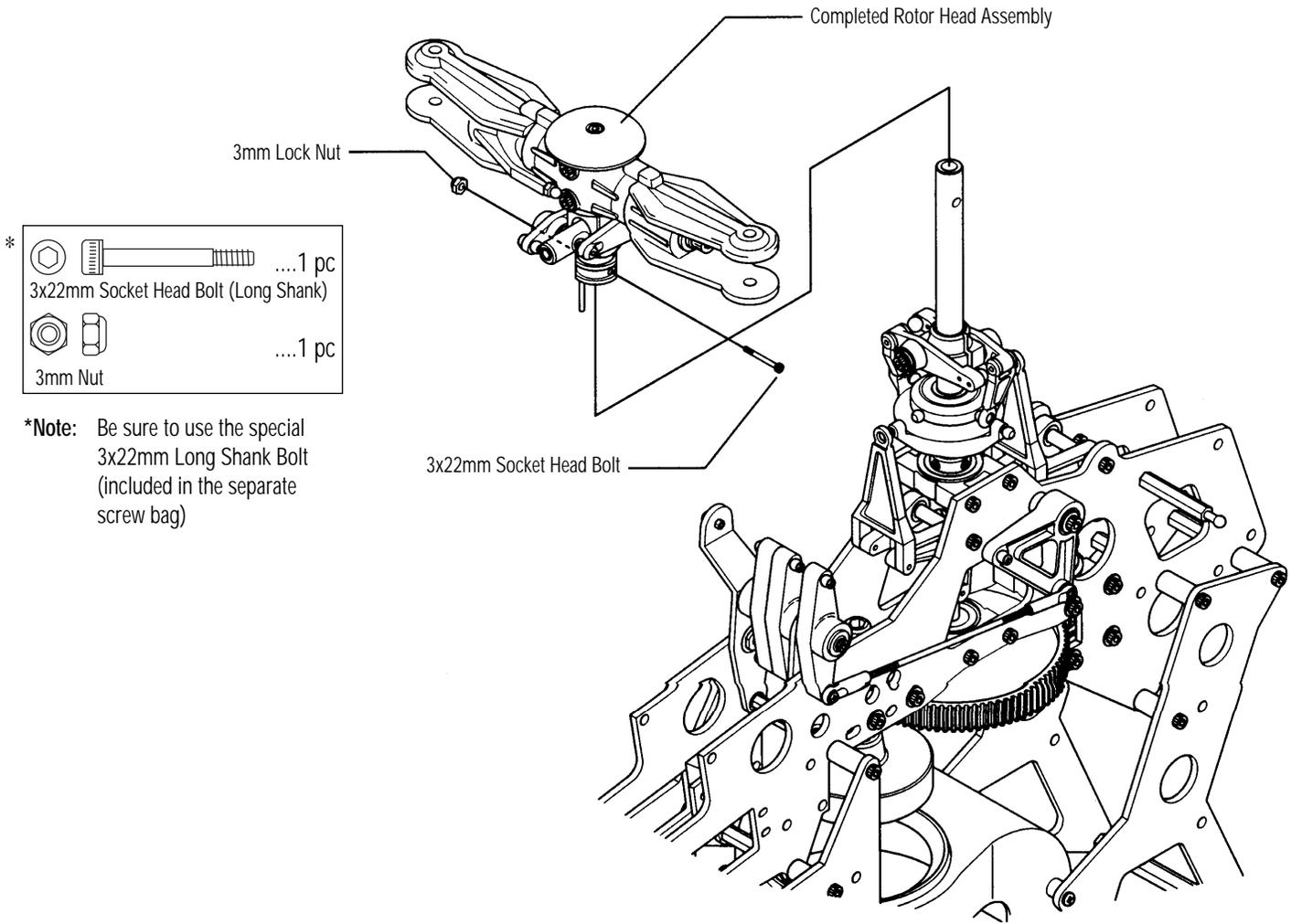
4-7

SWASHPLATE/WASHOUT ASSEMBLY INSTALLATION

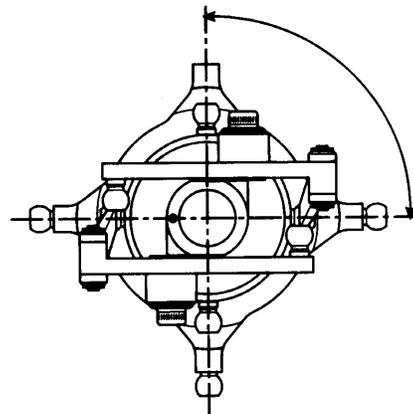


4-8

ROTOR HEAD INSTALLATION



Be sure to engage the Phase Adjusting Ring Pin into the Washout Base Groove before securing the Rotor Head Assembly in place.

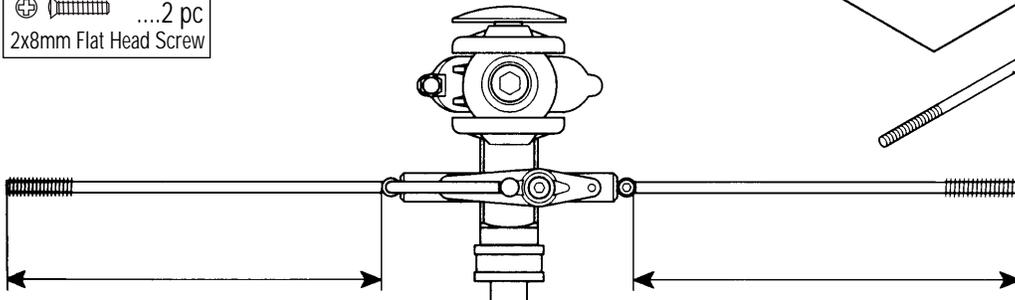
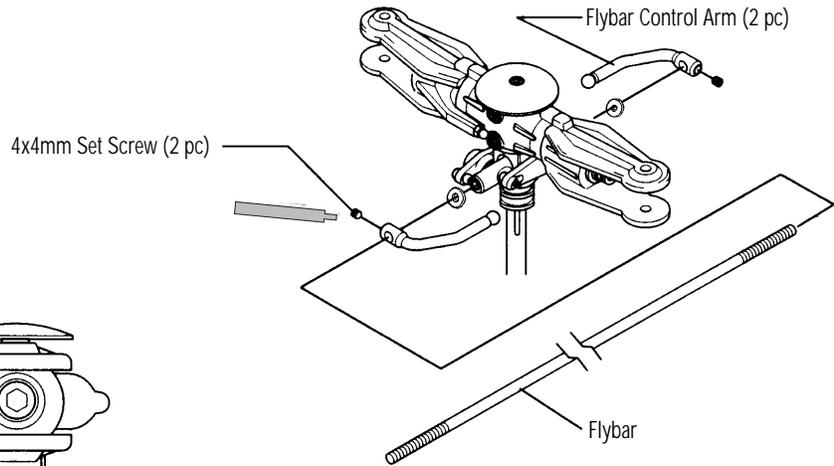


When the Main Rotor Head is secured in place, make sure the Swashplate and Washout Assembly are aligned 90° to the helicopter. This procedure is important to insure correct control inputs. Adjust the Phase Adjusting Ring if necessary.

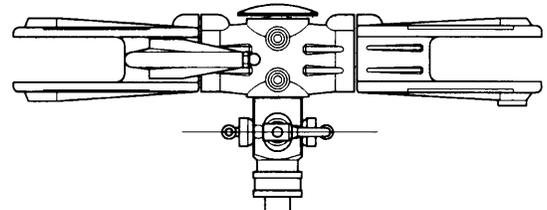
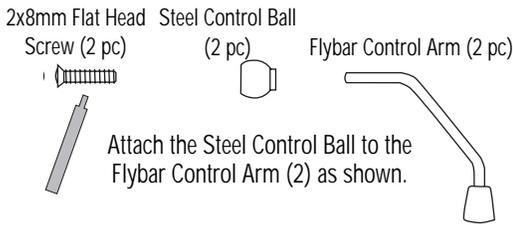
4-9

FLYBAR INSTALLATION

-  Use Threadlock
- 2 pc
- 4x4mm Set Screw
- 2 pc
- Steel Joint Ball
- 2 pc
- 2x8mm Flat Head Screw



Note: Center the Flybar in the Seesaw Shaft before securing the two Flybar Control Arms

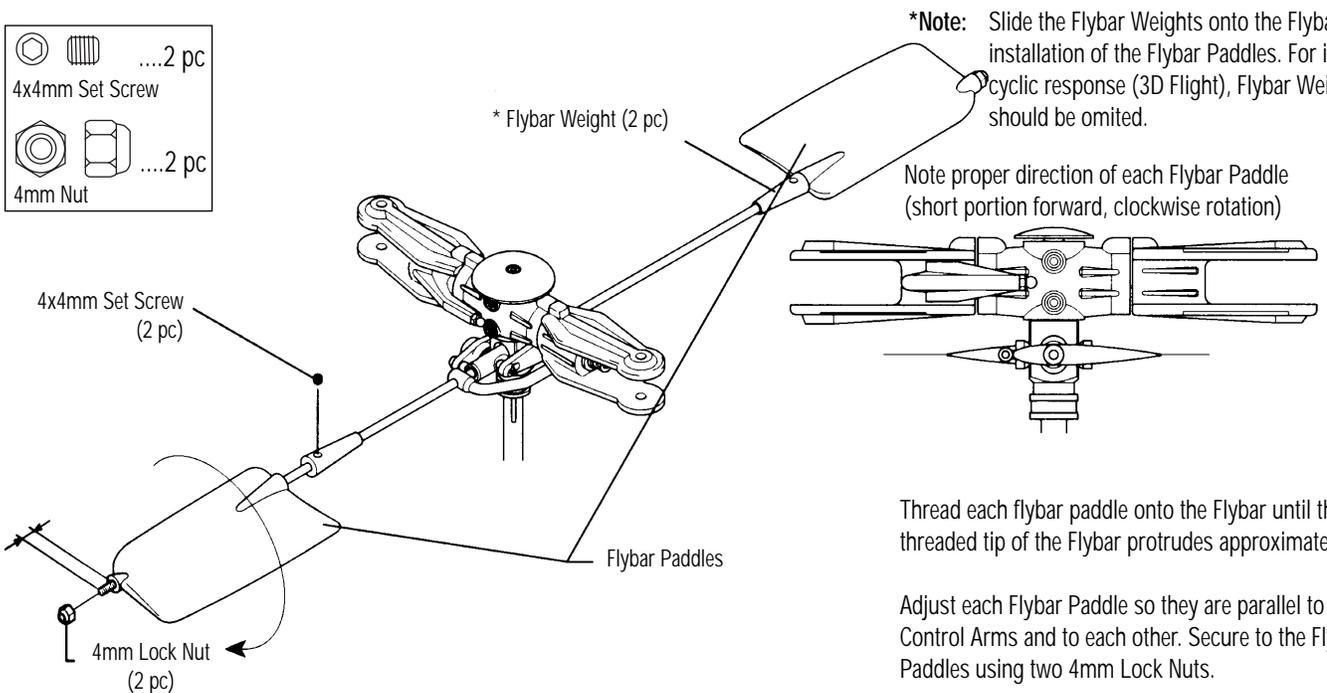


Check to insure that the two Flybar Control Arms are parallel to the center line of the Flybar

4-10

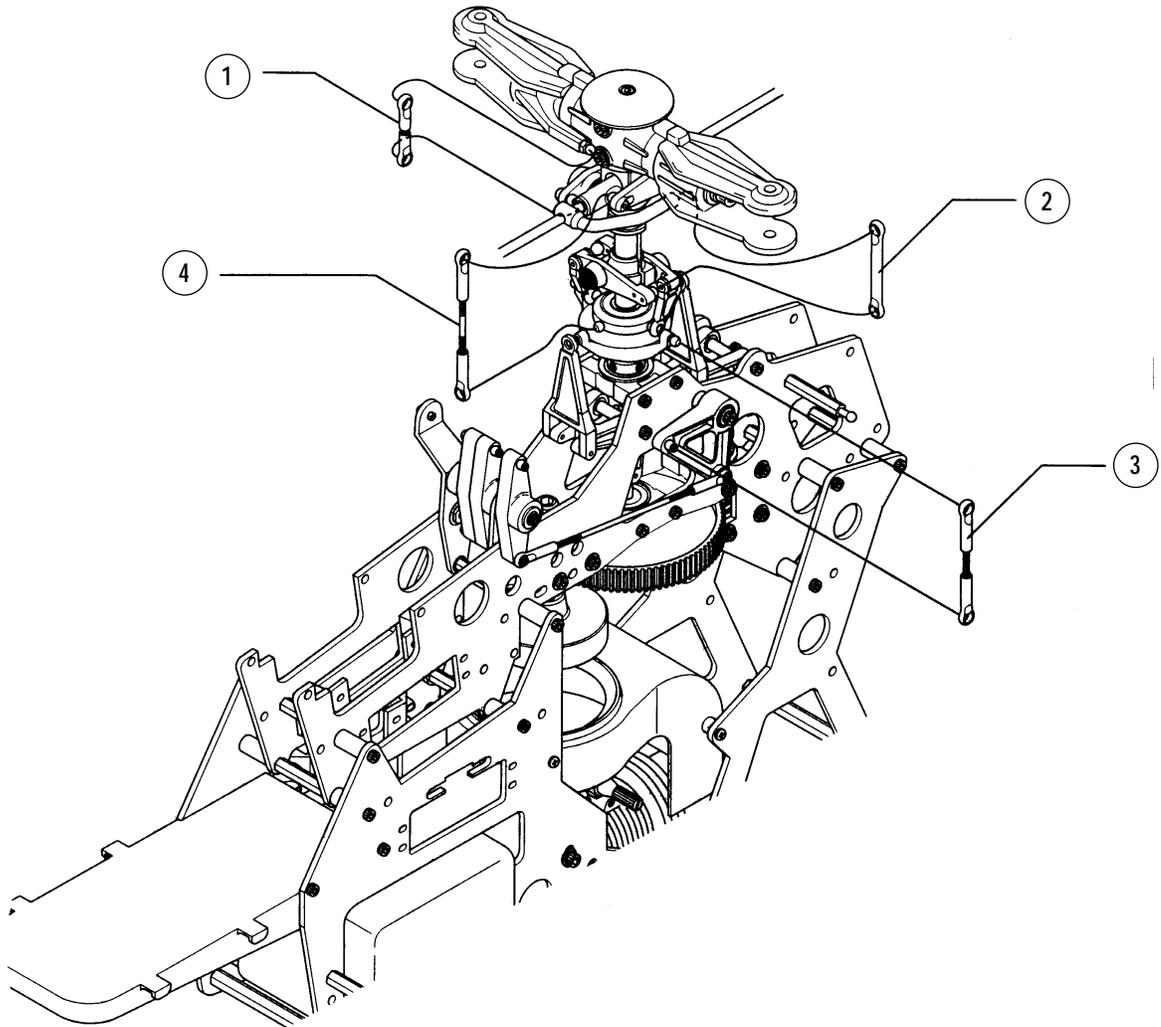
FLYBAR PADDLE ATTACHMENT

- 2 pc
- 4x4mm Set Screw
- 2 pc
- 4mm Nut



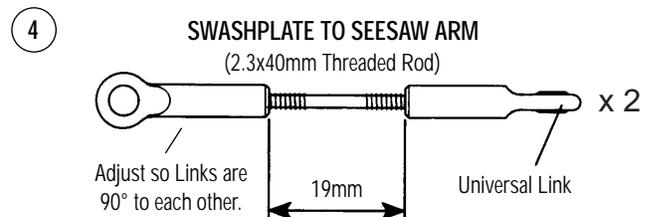
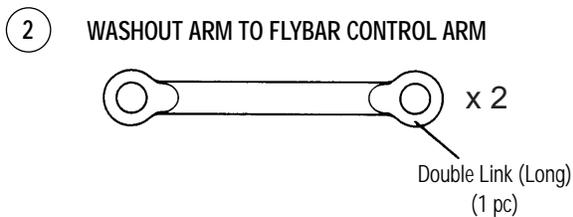
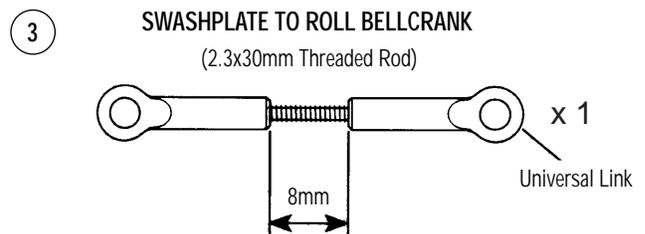
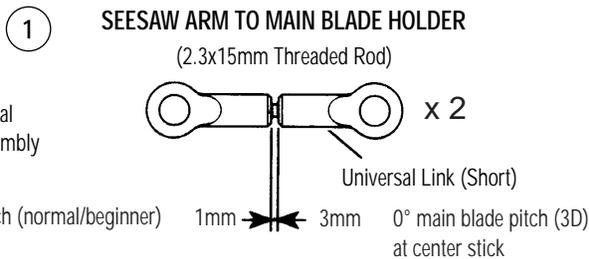
4-11

ROTOR HEAD/SWASHPLATE CONTROL ROD INSTALLATION



CONTROL ROD ASSEMBLY

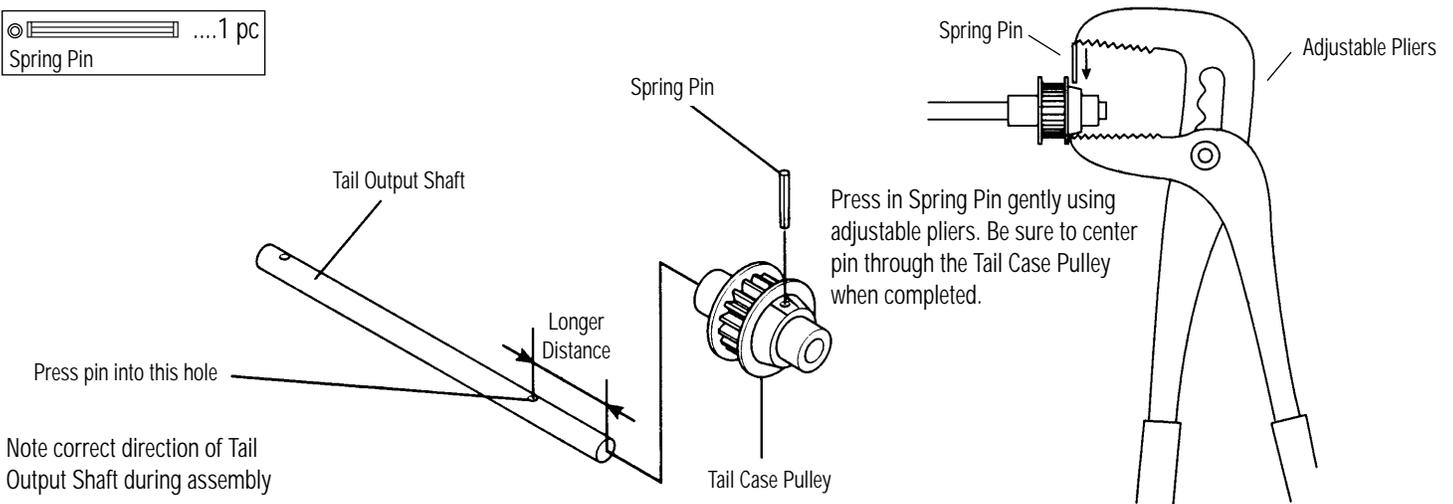
Thread the Universal Links onto the threaded Control Rods to the lengths shown below. Please note that all links should be adjusted so that when attached to the Control Ball, the words "JR Propo" are to the outside.



5-1

TAIL OUTPUT SHAFT/PULLEY ASSEMBLY

1 pc
Spring Pin



5-2

TAIL GEAR CASE ASSEMBLY

 Use Threadlock

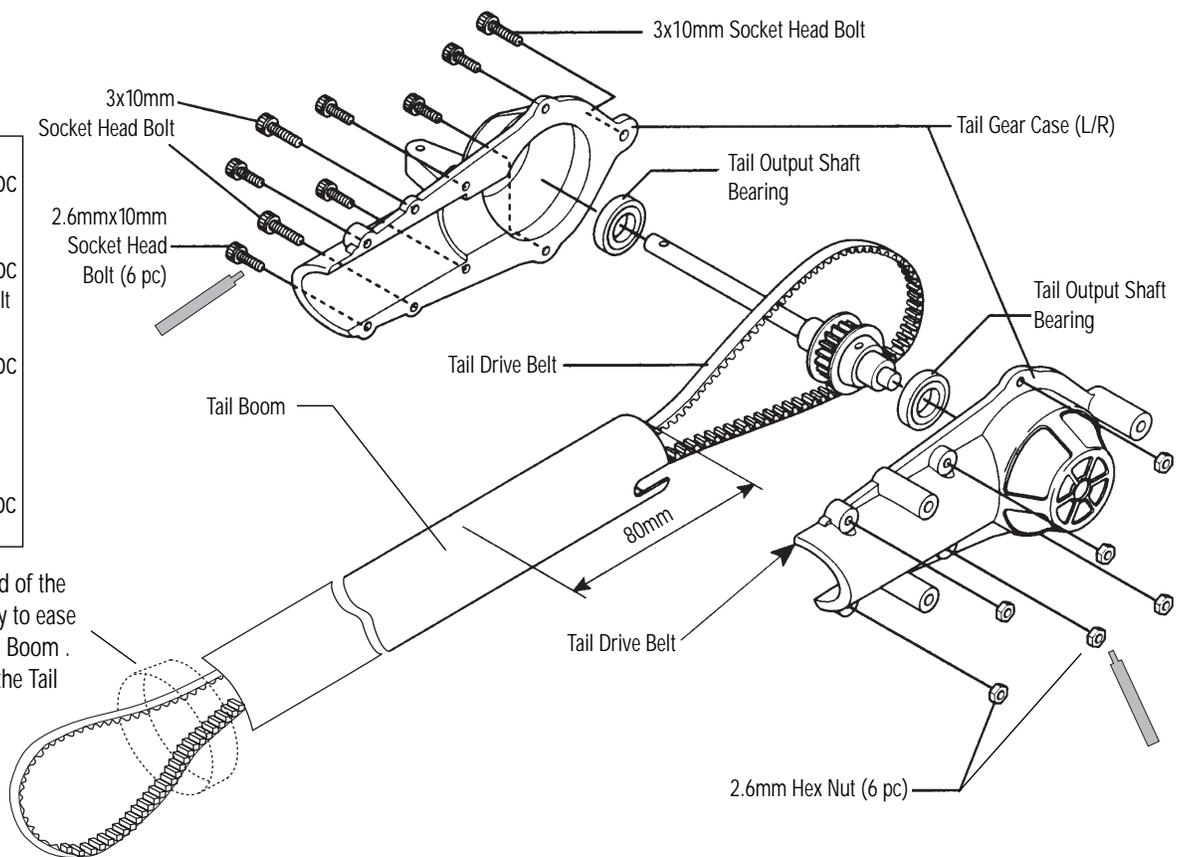
3 pc
3x10mm Socket Head Bolt

6 pc
2.6x10mm Socket Head Bolt

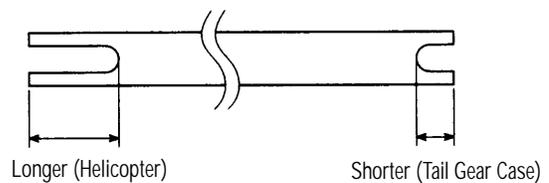
6 pc
2.6mm Hex Nut

2 pc
Tail Output Shaft Bearing

Wrap tape around the end of the Tail Drive Belt temporarily to ease insertion through the Tail Boom. Be careful not to "kink" the Tail Drive Belt.



Note: Be sure to position the Tail Gear Case onto the shorter slotted side of the Tail Boom.



5-3

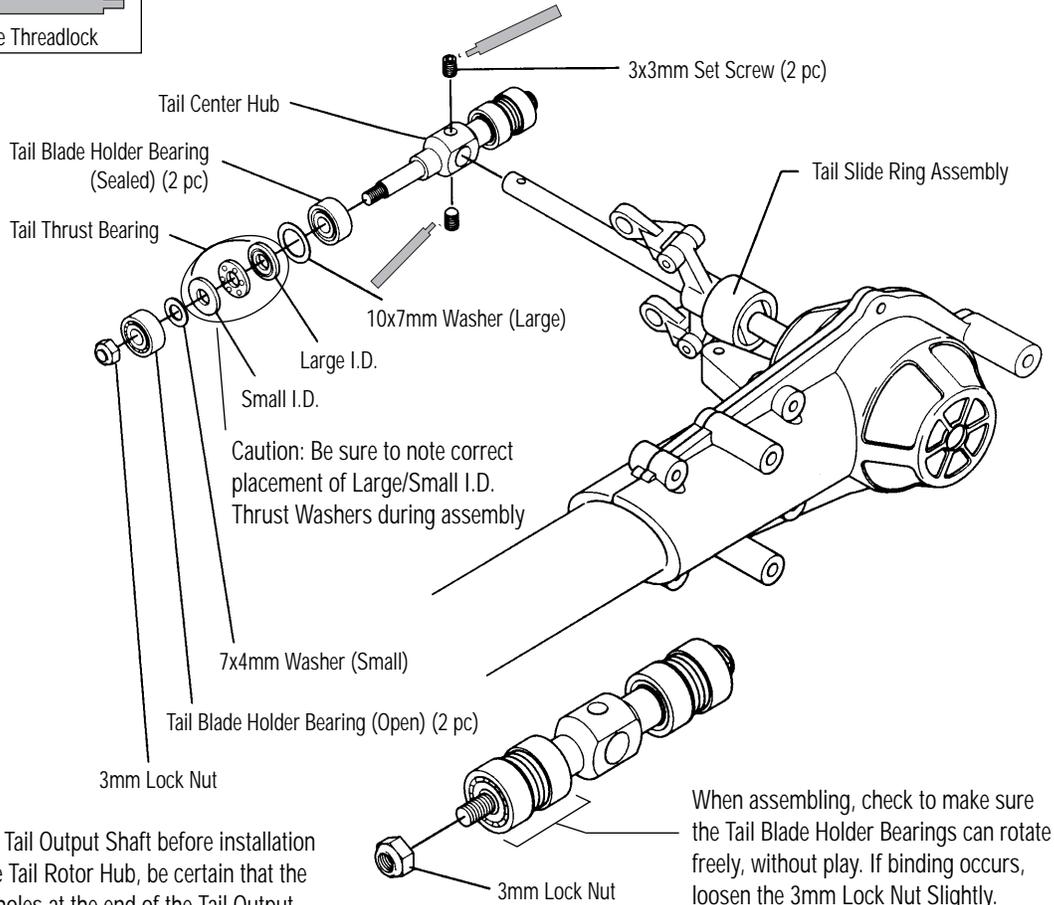
TAIL CENTER HUB ASSEMBLY

-2 pc

Use Threadlock

TWO SETS REQUIRED

-2 pc



Slide the Tail Slide Ring Assembly on the Tail Output Shaft before installation of the Tail Rotor Hub. When attaching the Tail Rotor Hub, be certain that the two 3x3mm Set Screws engage into the holes at the end of the Tail Output.

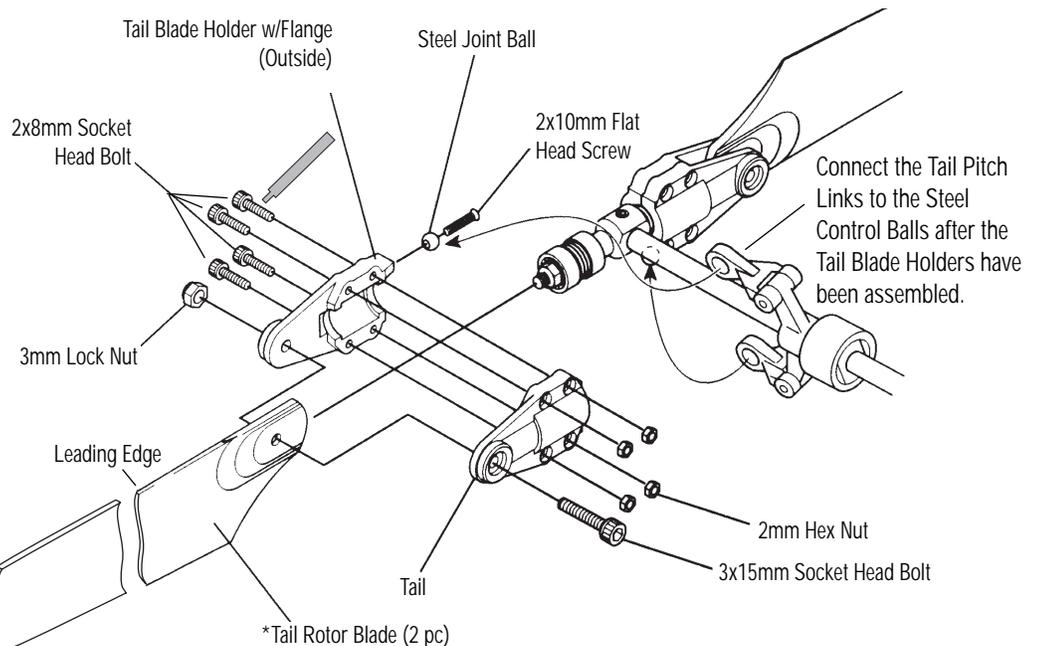
When assembling, check to make sure the Tail Blade Holder Bearings can rotate freely, without play. If binding occurs, loosen the 3mm Lock Nut slightly.

5-4

TAIL BLADE HOLDER ASSEMBLY

TWO SETS REQUIRED

-2 pc
-8 pc
-2 pc
-8 pc
-2 pc
-2 pc



*Be sure to note the correct direction of the Tail Rotor Blades during assembly.

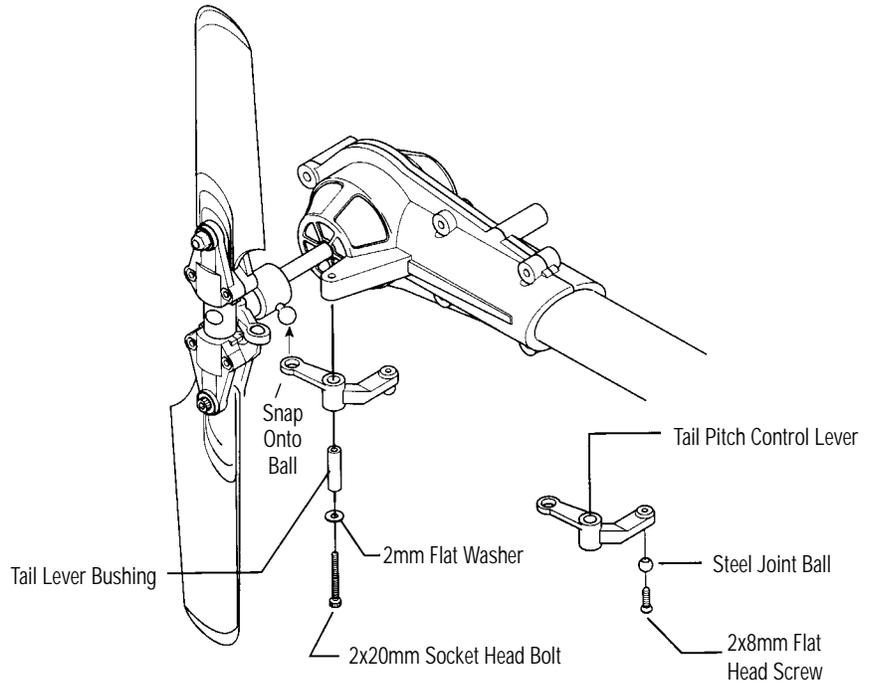
Rotation Direction

*Tail Rotor Blade (2 pc)

5-5

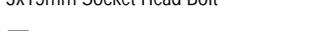
TAIL PITCH CONTROL LEVER INSTALLATION

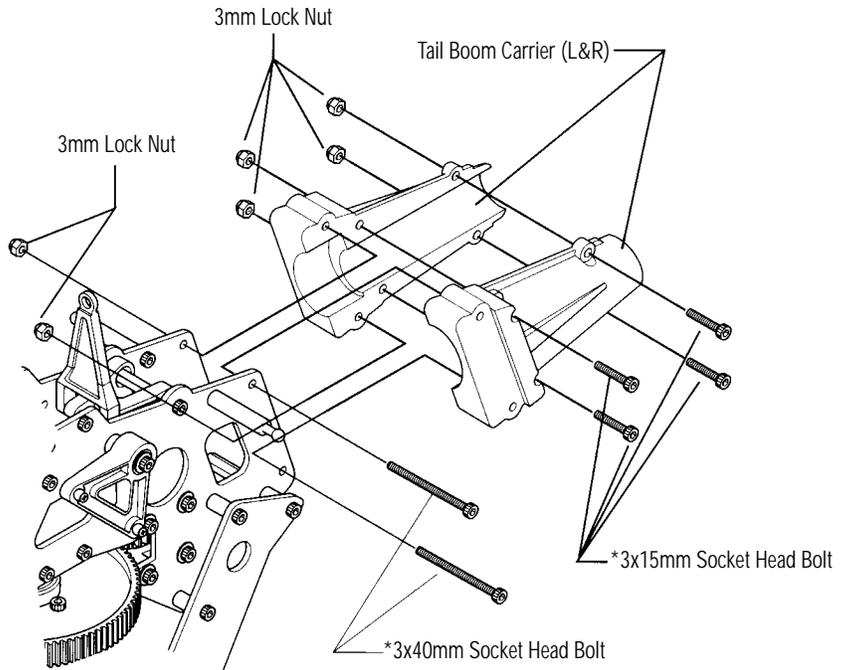
	.....1 pc
2x8 Flat Head Screw	
	.....1 pc
2x20mm Socket Head Bolt	
	.....1 pc
2mm Flat Washer	
	.....1 pc
Steel Joint Ball	
	.....1 pc
Tail Lever Bushing	



5-6

TAIL BOOM CARRIER INSTALLATION

	.....4 pc
3x15mm Socket Head Bolt	
	.....2 pc
3x40mm Socket Head Bolt	
	.....6 pc
3mm Lock Nut	



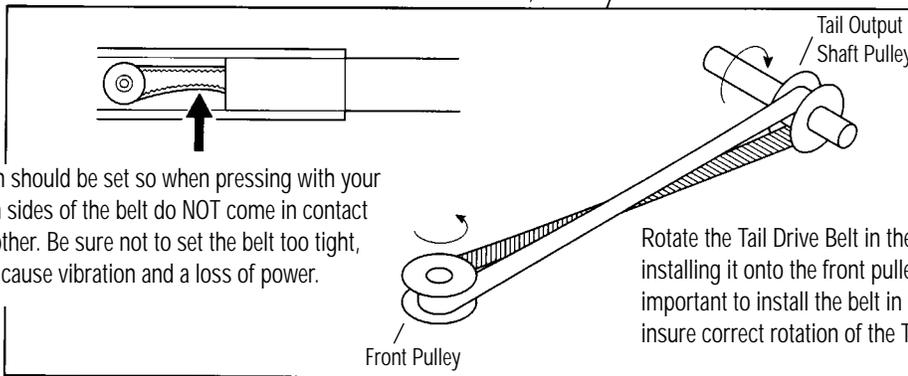
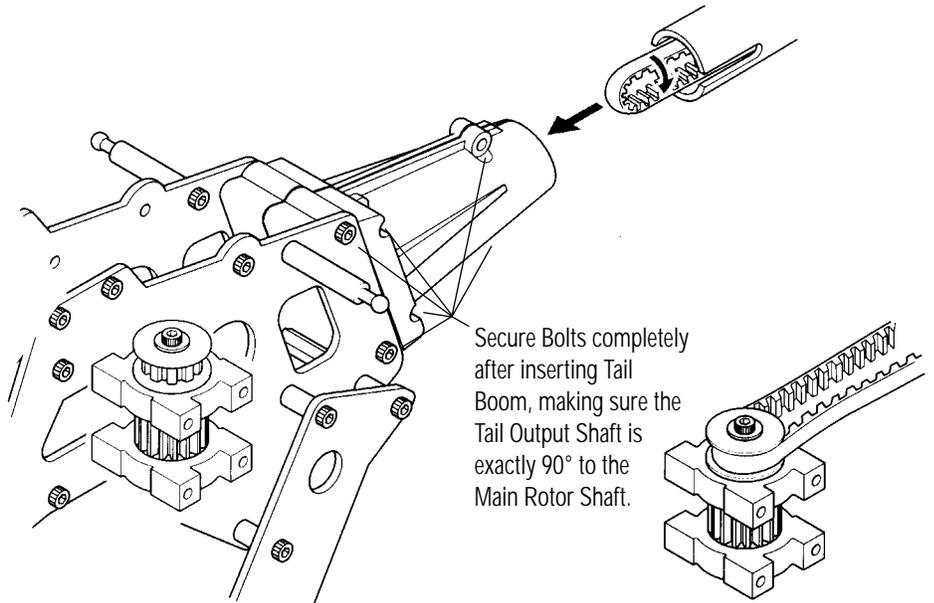
* Do not fully tighten at this time. These bolts will be secured in Step 5-7.

5-7

TAIL BOOM ASSEMBLY INSTALLATION

Slide the Tail Boom through the Tail Boom Carrier and engage the Tail Drive Belt over the Front Pulley. Be certain to note the correct rotation (direction shown below). Set the belt tension per the directions below.

Note: It may be necessary to add one thickness of electrical tape around the end of the Tail Boom to insure positive attachment to the Tail Boom Carrier.



Rotate the Tail Drive Belt in the direction shown before installing it onto the front pulley. It is extremely important to install the belt in the proper direction to insure correct rotation of the Tail Rotor Blades.

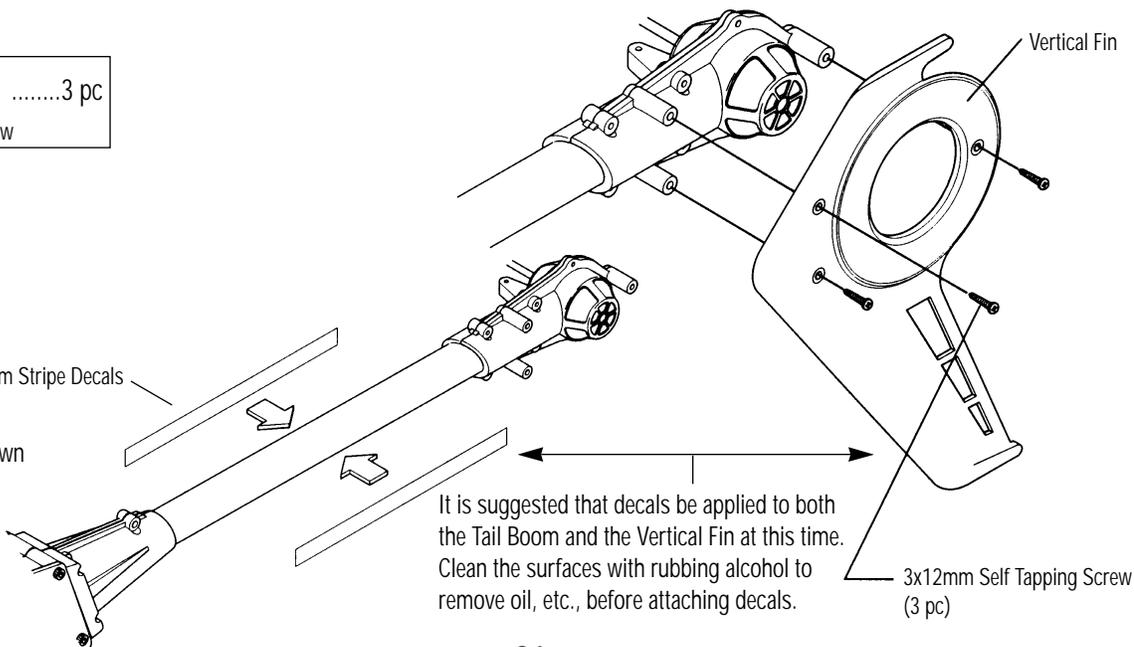
5-8

VERTICAL FIN ATTACHMENT



Tail Boom Stripe Decals

Attach decals as shown

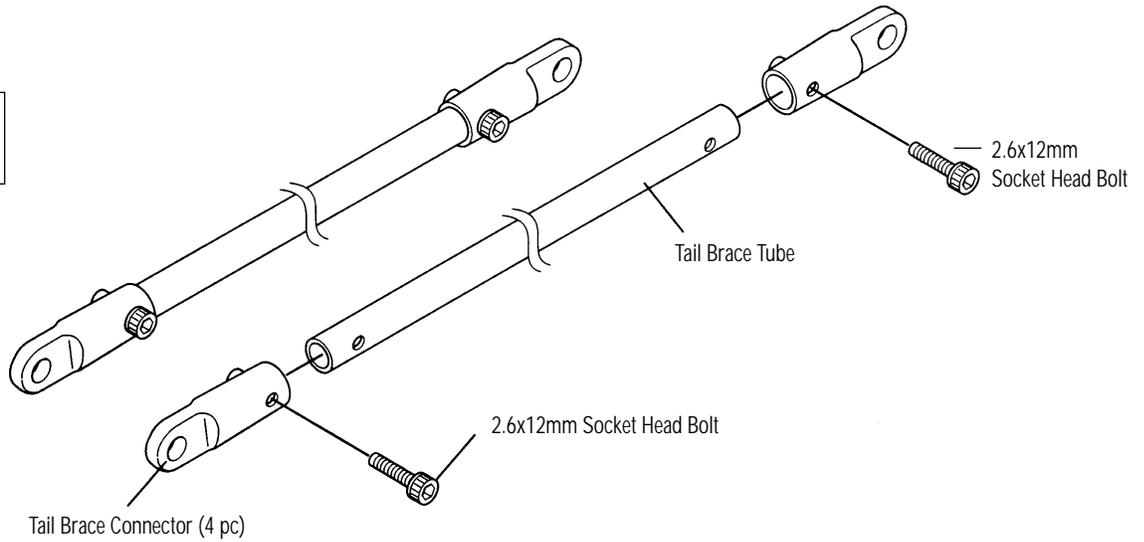
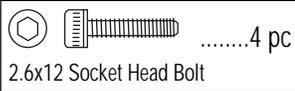


3x12mm Self Tapping Screw (3 pc)

5-9

TAIL BOOM ASSEMBLY INSTALLATION

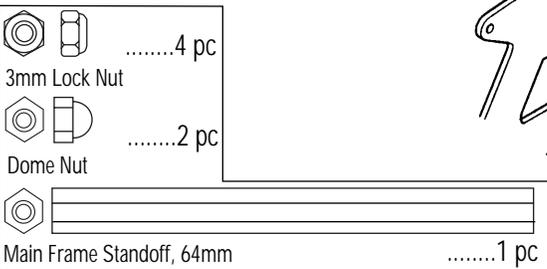
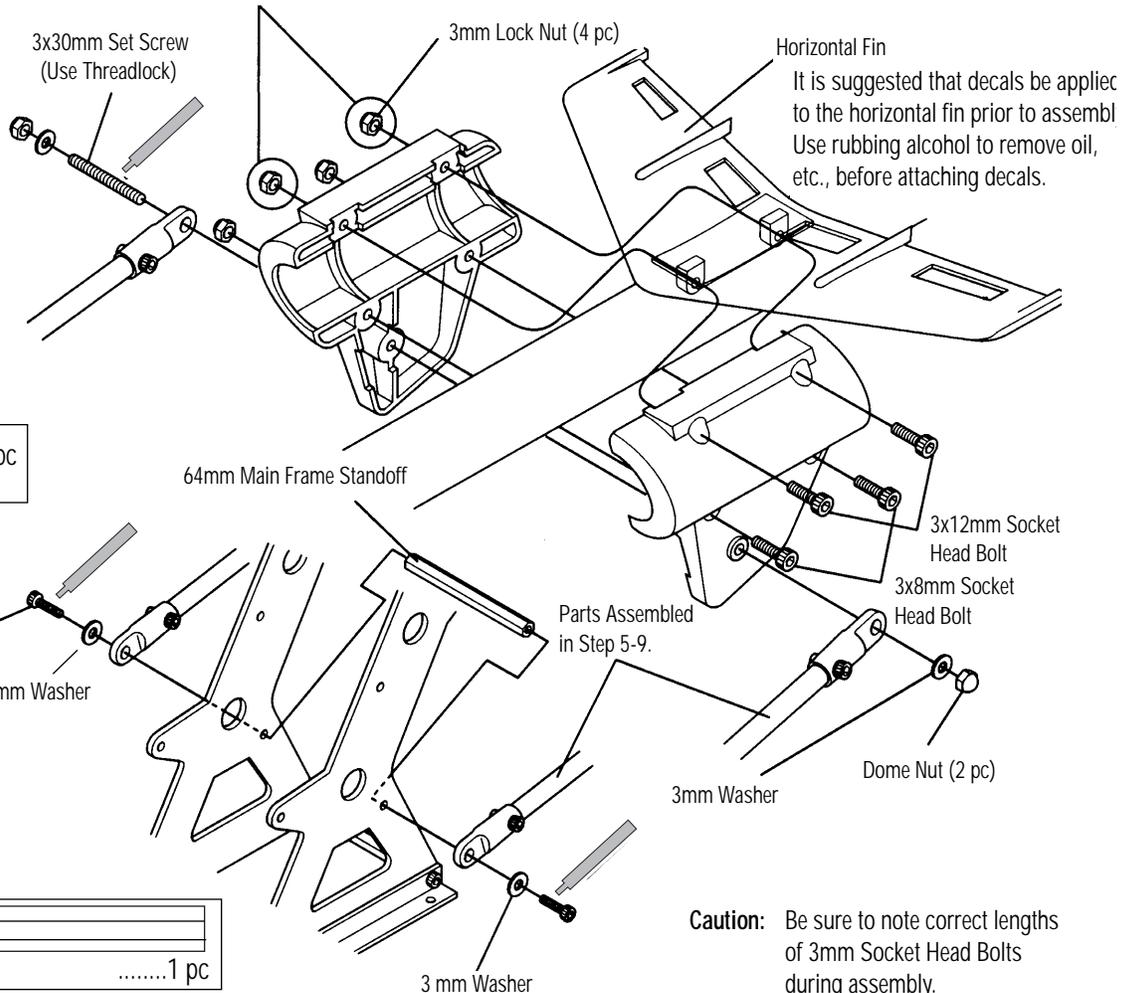
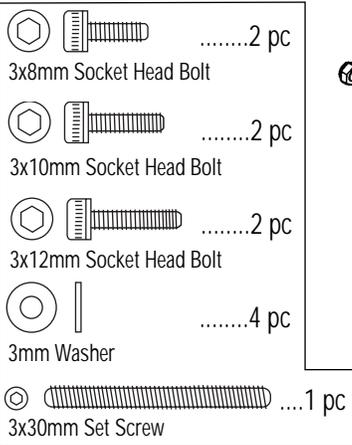
TWO SETS REQUIRED



5-10

TAIL BOOM BRACE/HORIZONTAL FIN INSTALLATION

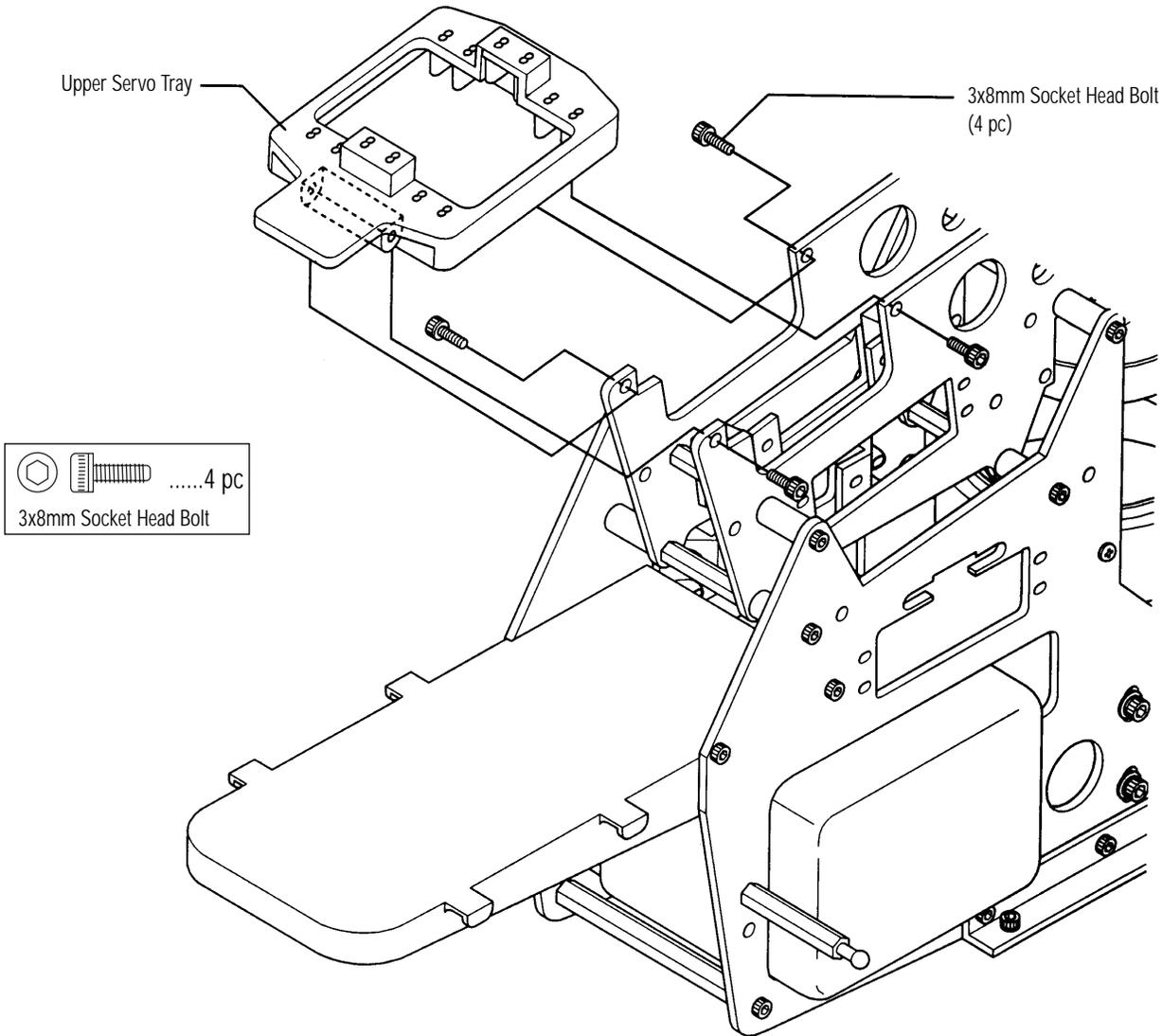
For easy installation, insert these two nuts into the Horizontal Fin/Brace Clamp first.



Caution: Be sure to note correct lengths of 3mm Socket Head Bolts during assembly.

6-1

UPPER SERVO TRAY INSTALLATION



RADIO INSTALLATION SUGGESTIONS

Be sure to install four rubber servo grommets and eyelets to each servo prior to installation. When securing the servos to the helicopter, be sure not to over-tighten the mounting screws.

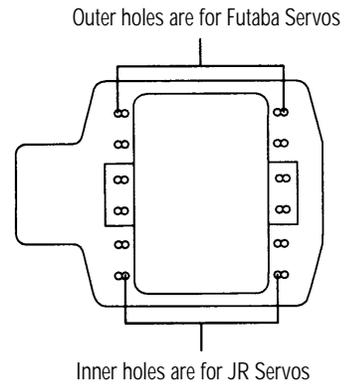
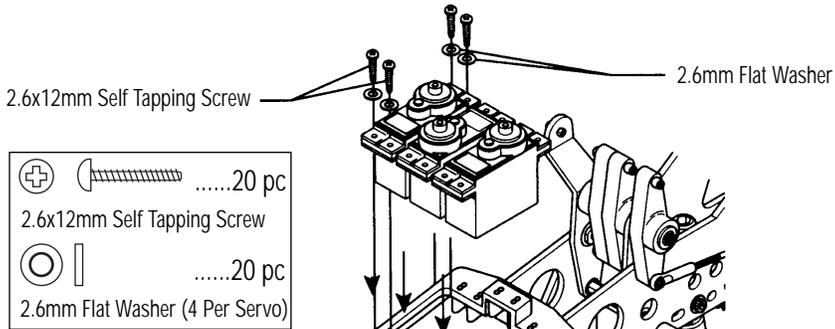
When adjusting control rods, be sure to adjust each universal link the same amount so as not to unthread one link too far.

It is suggested that both the receiver and gyro amplifier be isolated from vibration by wrapping them in foam, then securing them to the model using double-sided servo tape.

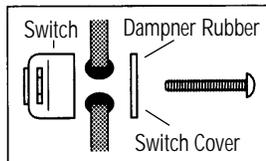
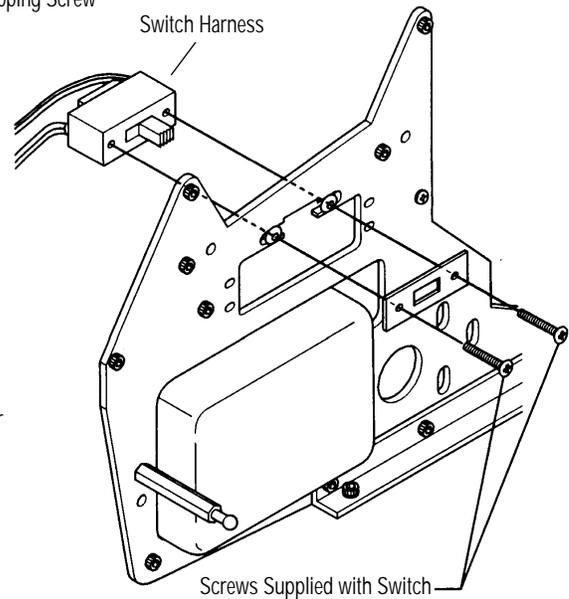
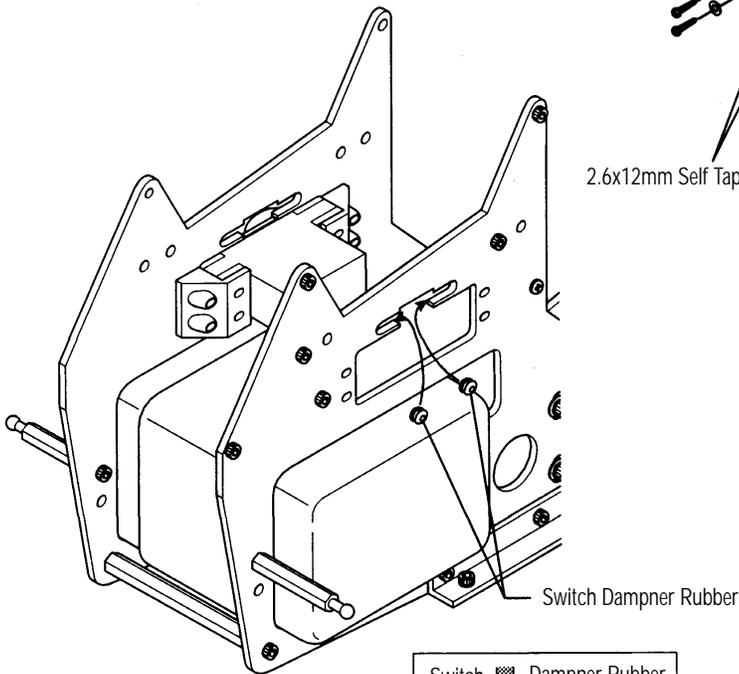
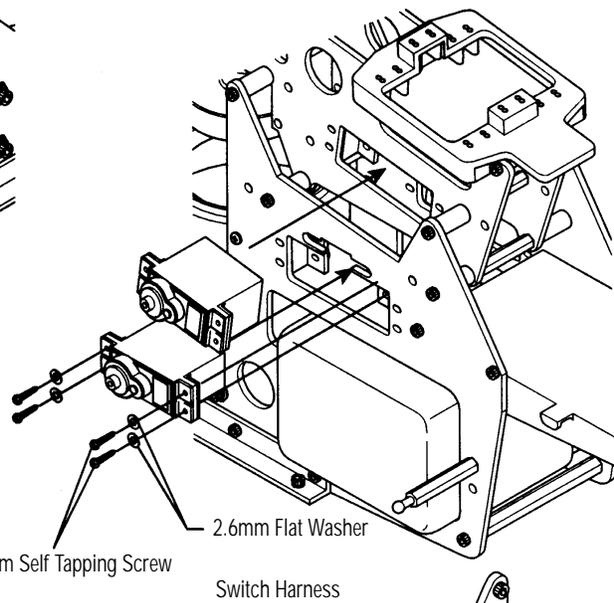
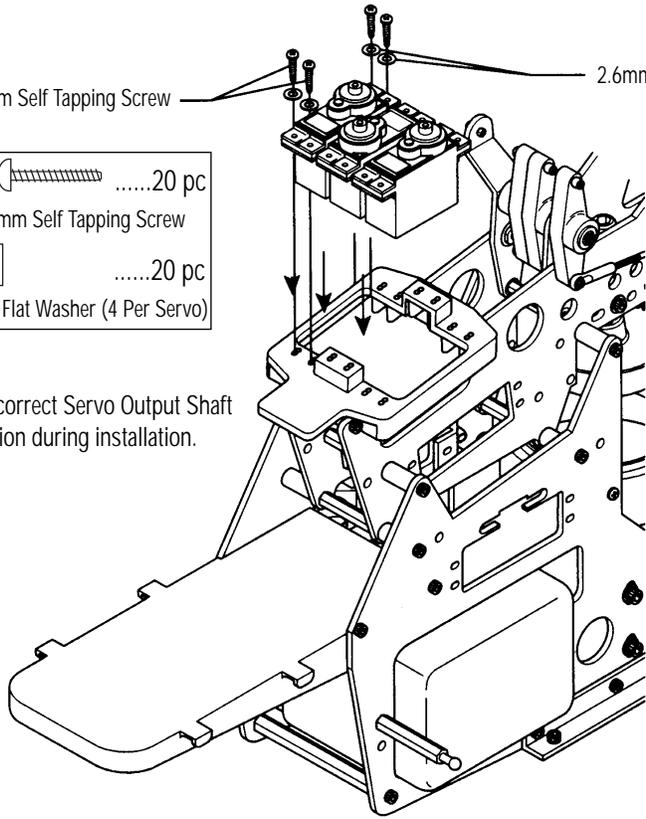
Be sure to keep all servo lead wires, etc., away from all servo arms, rods, and sharp edges of the helicopter's mechanics. Group these wires together after final installation using small nylon wire ties (not included).

6-2

SERVO/SWITCH HARNESS INSTALLATION

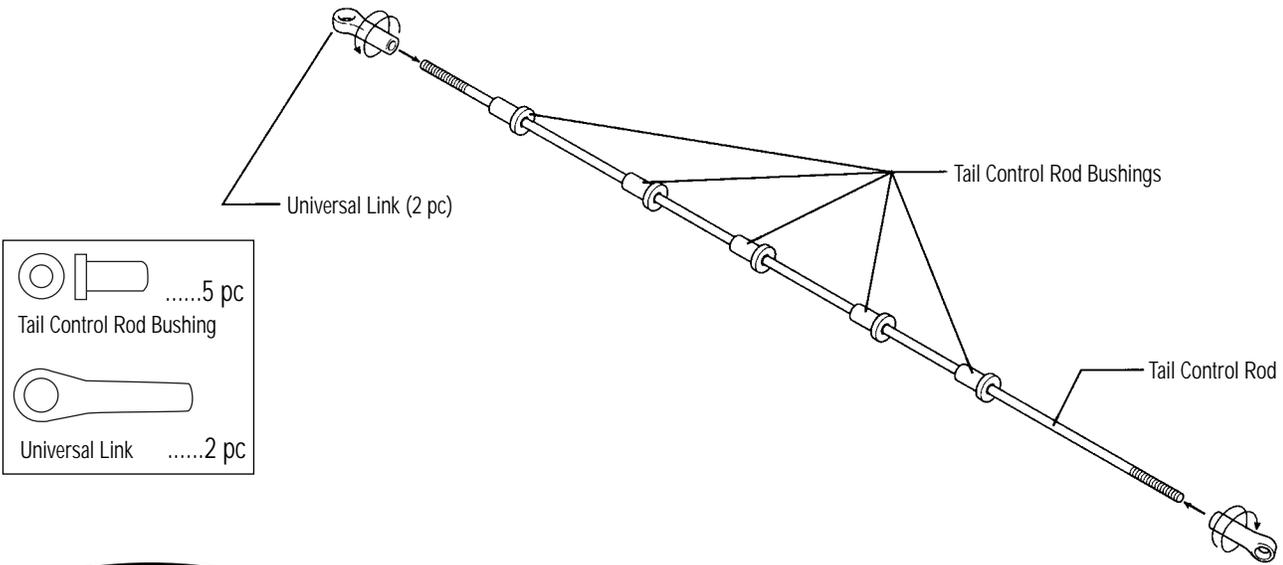


* Note correct Servo Output Shaft orientation during installation.



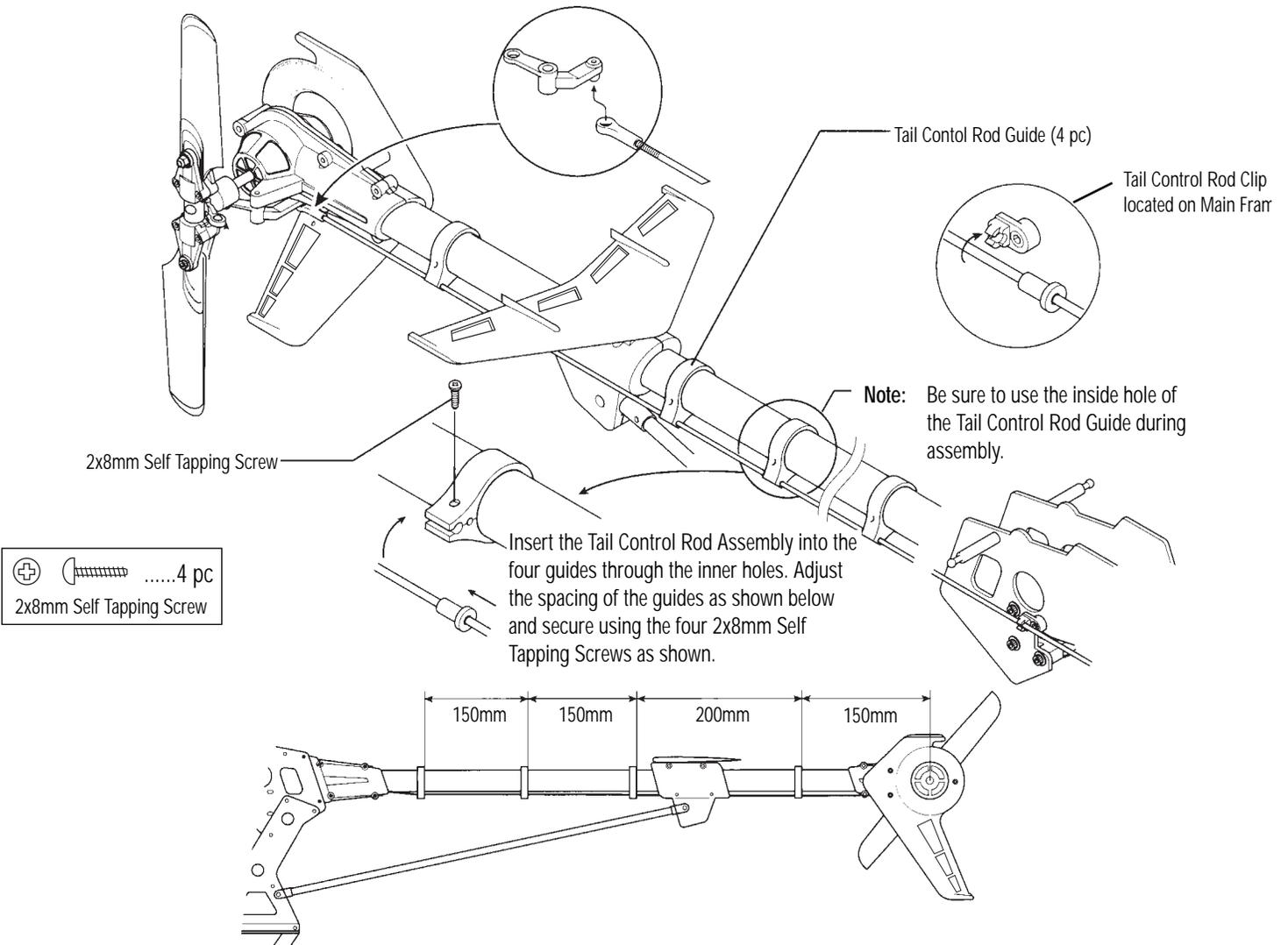
6-3

TAIL CONTROL ROD ASSEMBLY



6-4

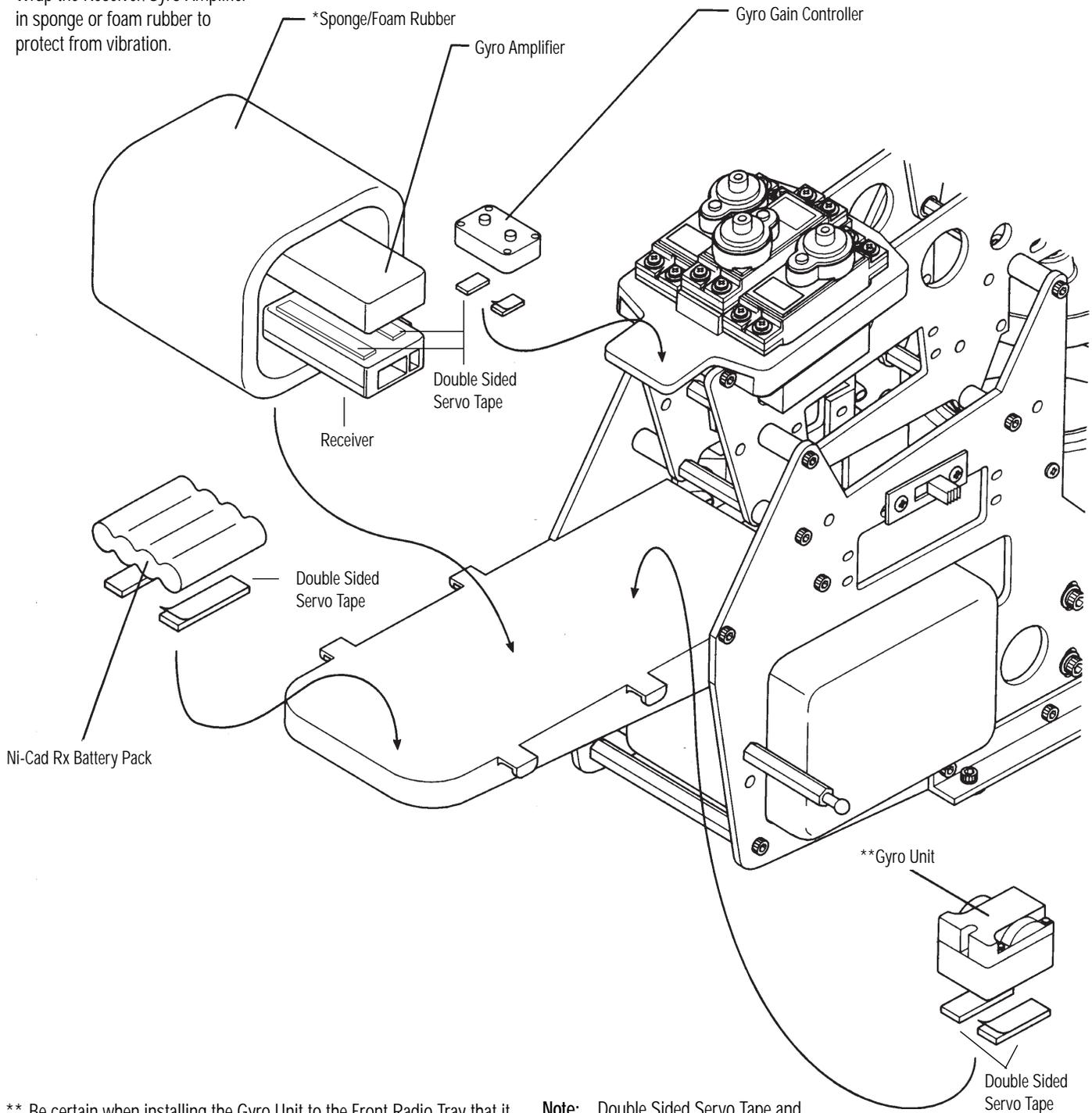
TAIL CONTROL ROD INSTALLATION



6-5

GYRO/RECEIVER/BATTERY INSTALLATION

* Wrap the Receiver/Gyro Amplifier in sponge or foam rubber to protect from vibration.



** Be certain when installing the Gyro Unit to the Front Radio Tray that it does not come in contact with the frame of the helicopter, etc.

Note: Double Sided Servo Tape and Sponge/Foam Rubber are not included in this kit.

Also make sure that the Front Radio Tray is free from oil, etc. Clean with rubbing alcohol if necessary to insure proper adhesion.

RADIO SYSTEM PREPARATION

The following preparations are suggested for use with JR radio systems. However, these procedures are applicable to most other brand radio systems. These suggested adjustments are necessary to insure correct installation and attachment of the control linkages and servo horns.

TRANSMITTER PREPARATION

1. Set all trim levers, trim knobs and switches to the neutral or zero positions.
2. Turn the transmitter power switch to the “on” position.
3. If you are using a computer radio system that had been previously adjusted to another model, reset all functions and input values to the factory preset position.
4. Move the throttle/collective control stick to the center or half stick position. Next slide the throttle trim lever to the full low position.

RECEIVER FLIGHT PACK PREPARATION

1. With the transmitter still on, slide the receiver switch to its “on” position. All servos should move to the neutral, or center, position.
2. Check to insure that all servos operate with the appropriate control stick.
3. Rest the throttle stick to the center position, making sure the throttle trim is still at low.
4. Turn off the receiver switch first, followed by the transmitter.

SERVO HORN INSTALLATION SUGGESTIONS

For proper operation, it is important that the servo horns are positioned on the servos in the “exact” neutral position. Although most computer radio systems offer a sub-trim feature, it is suggested that the servo horns be manipulated on the servos to achieve the “exact” neutral settings.

Since the servo output spline on a JR system has an odd number of teeth (21), it is possible to reposition the servo arm on the servo at 90° intervals to achieve the proper neutral attachment of the servo horn.

Once the correct arm of the servo horn has been established, it is suggested that the remaining unused arms be removed from the servo horn as shown in the installation diagrams in the following section.

It will also be necessary to enlarge the appropriate hole in the servo horn slightly to allow correct installation of the steel control balls to the servo horn.

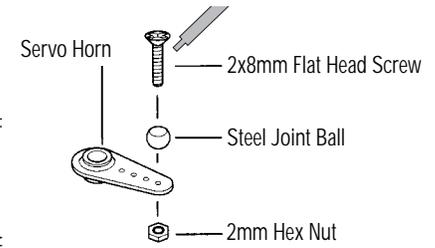
7-1

AILERON LINKAGES

- 1 pc
- 1 pc
- 1 pc

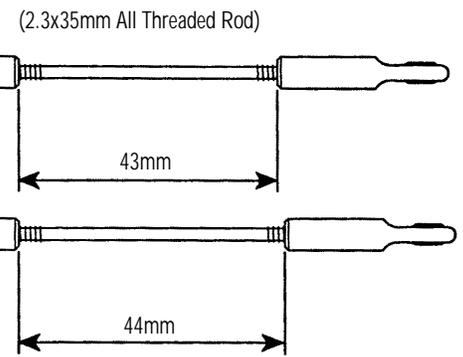
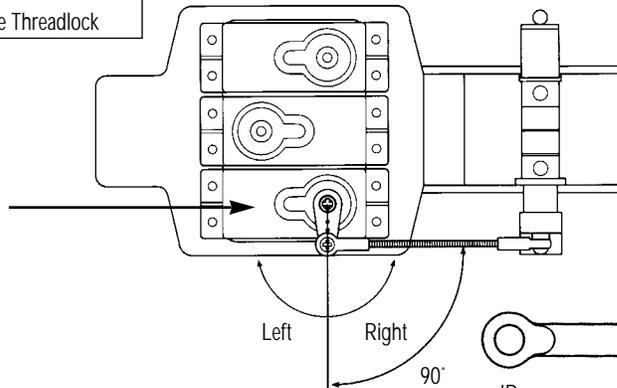
A Special Note To Beginners: It is suggested that the maximum travel limits for Aileron, Elevator, Pitch and Rudder controls be reduced to 70%.

Note: Attach the Steel Joint Ball to the correct hole as shown below:

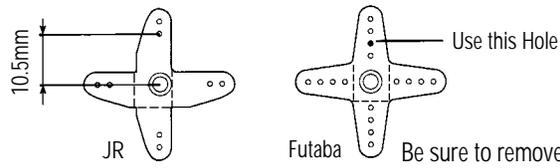


Make sure the Aileron Trim is in the center position before attaching the Servo Arm to the Servo.

Servo Reversing Directions	
JR	Normal
Futaba	Normal



Servo Horn Hole Selection



Be sure to remove the excess Servo Horn Arms as shown. Secure the Servo Horn using the Servo Horn Screw.

7-2

ELEVATOR LINKAGE INSTALLATION

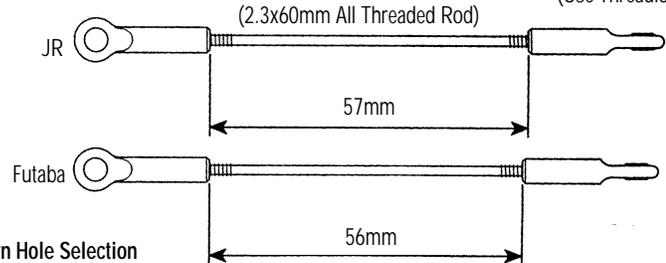
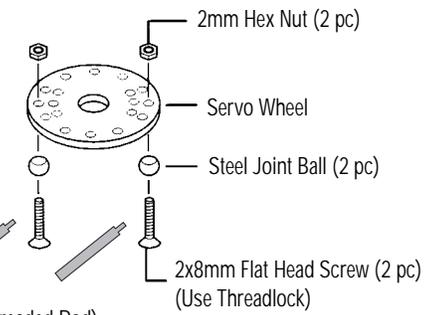
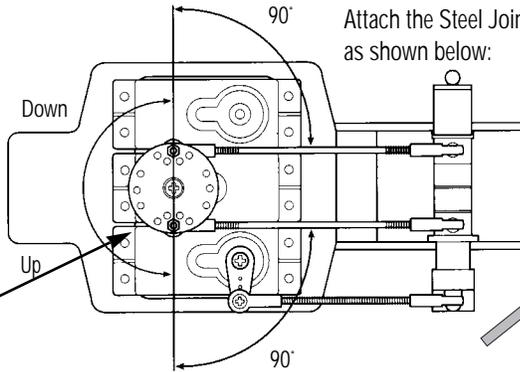
- 2 pc
- 2 pc
- 2 pc



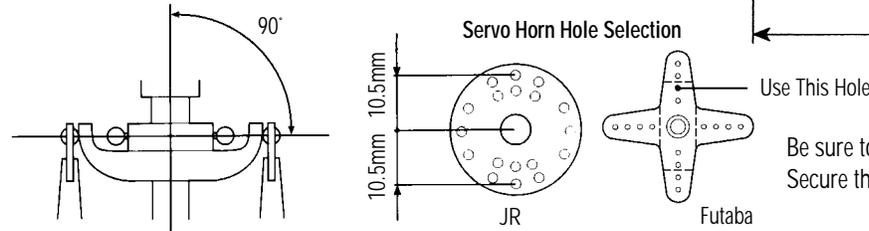
Attach the Steel Joint Ball to the bottom side of the Servo Horn, as shown below:

Make sure the Elevator Trim is in the center position before attaching the Servo Arm to the Servo.

Servo Reversing Directions	
JR	Normal
Futaba	Normal



Servo Horn Hole Selection



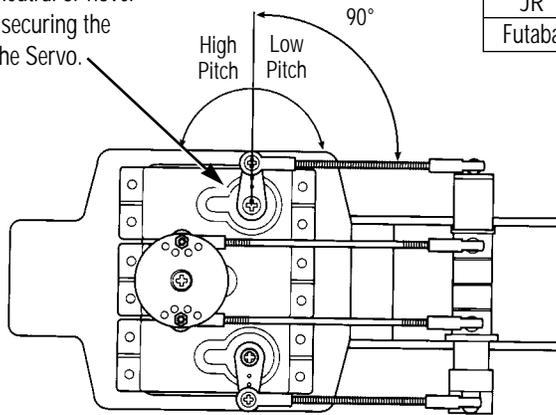
Be sure to remove the excess Servo Horn Arms as shown. Secure the Servo Horn using the Servo Horn Screw.

7-3

COLLECTIVE PITCH LINKAGES

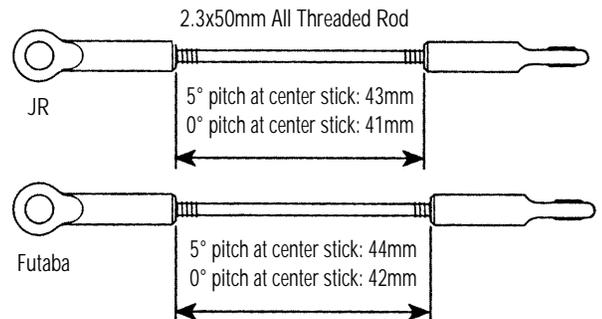
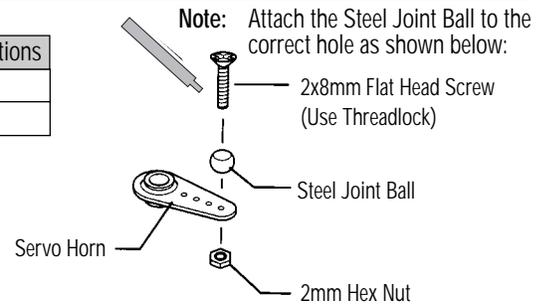
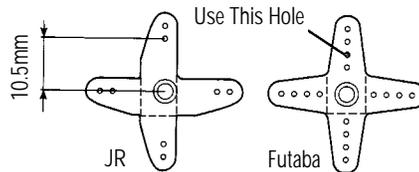
Note: Make certain the Collective Servo is in the neutral or hover position before securing the Servo Horn to the Servo.

Servo Reversing Directions	
JR	Reverse
Futaba	Reverse



- 1 pc
- 1 pc
- 1 pc

Servo Horn Hole Selection



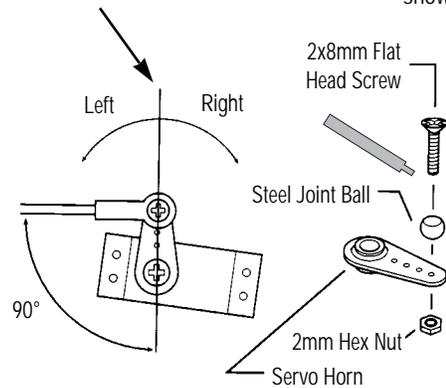
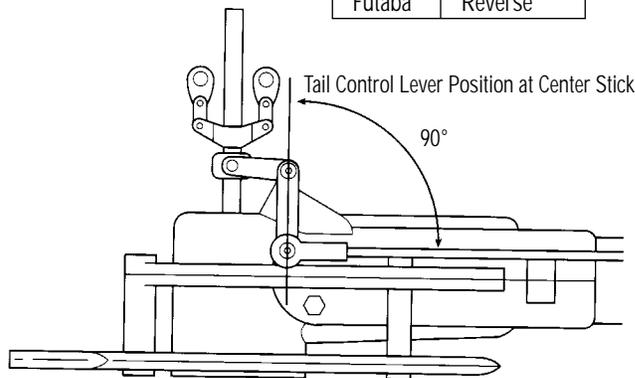
7-4

TAIL CONTROL ROD SERVO CONNECTION

Servo Reversing Directions	
JR	Reverse
Futaba	Reverse

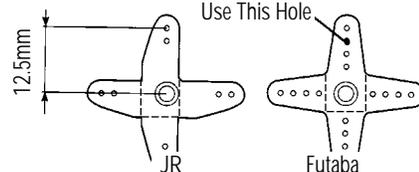
Note: Make certain the Tail Rotor Servo is in the neutral or hover position before securing the Servo Horn to the Servo.

Note: Attach the Steel Joint Ball to the correct hole as shown below:



- 1 pc
- 1 pc
- 1 pc

Servo Horn Hole Selection



Be sure to remove the excess Servo Horn Arms as shown. Secure the Servo Horn using the Servo Horn Screw.

An Important Note: Check to insure the Tail Control Rod can slide through the Tail Control Rod Guides smoothly before connecting it to the Servo. If resistance is felt, rotate the Tail Control Rod Guides slightly until the Control Rod slides smoothly.

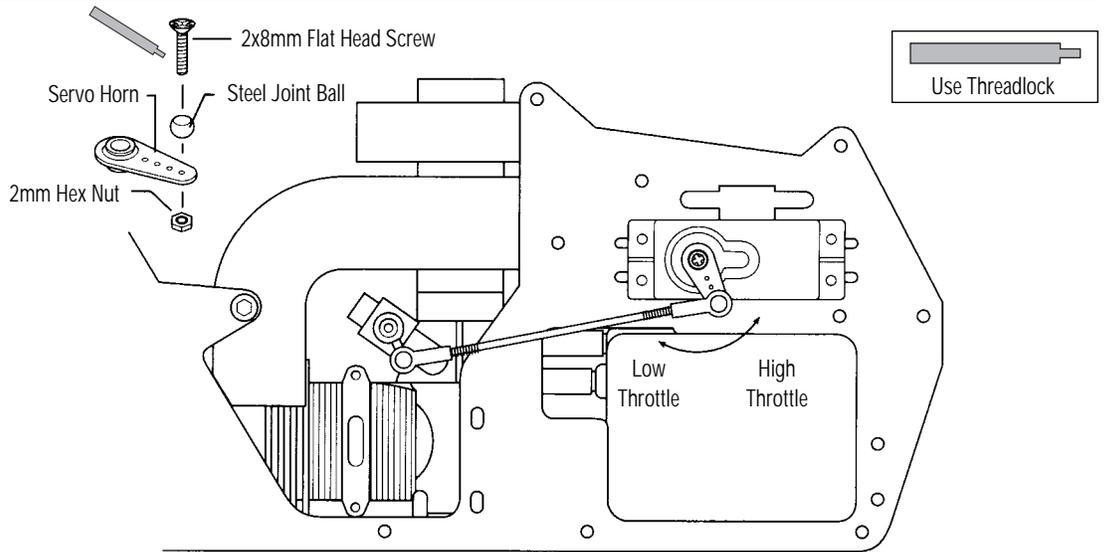
7-5

THROTTLE LINKAGE INSTALLATION (ALL)

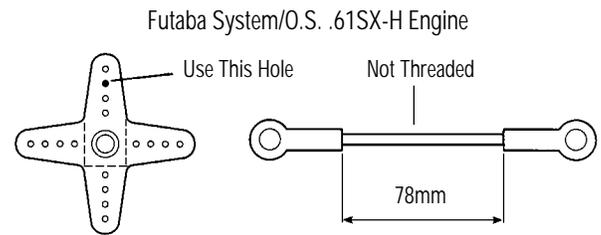
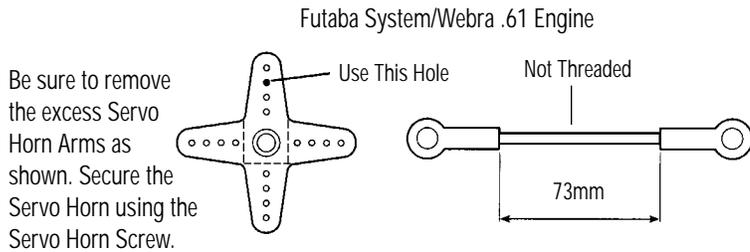
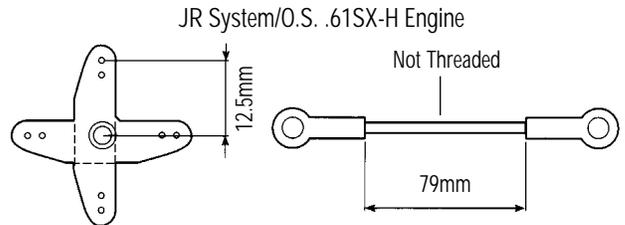
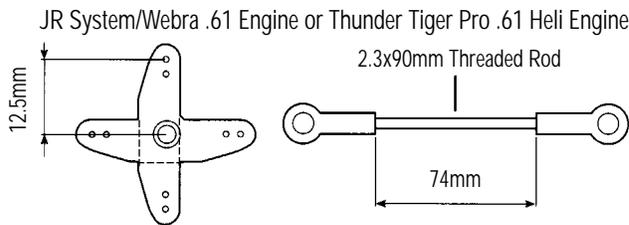
-  1 pc
2x8mm Flat Head Screw
-  1 pc
Steel Joint Ball
-  1 pc
2mm Hex Nut

Servo Reversing Directions	
JR	Reverse
Futaba	Reverse

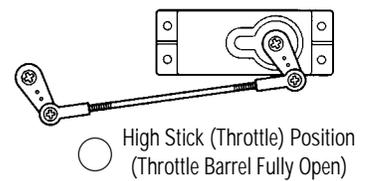
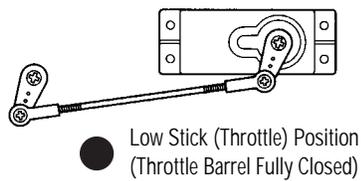
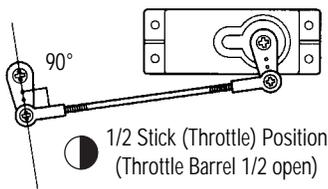
Note: Make sure the Throttle Trim is in the low position before attaching the Servo Horn.



SERVO HORN SELECTION/LINKAGE ADJUSTMENTS



THROTTLE ARM/SERVO HORN POSITIONS



*To avoid differential throttle travel, make certain both the throttle arm and the servo horn are positioned as shown in the above diagrams.

To achieve the correct position of the throttle/servo arm, it may be necessary to re-position the throttle arm on the carburetor. It may also be necessary to adjust the length of the throttle linkage slightly to achieve full open and closed positions of the carburetor. It is also possible to increase/reduce the travel of the throttle servo through

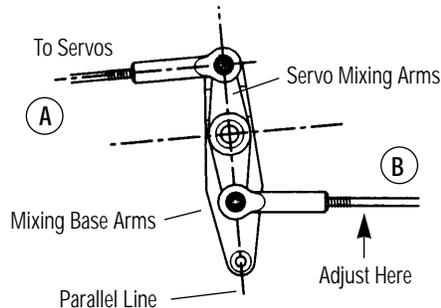
the travel adjust function found in most computer radio systems. If this function is used, make sure the values for the high and low positions remain equal (same value for high/low). If these values are not equal, this will create a differential, or uneven movement of the throttle, making rotor RPM adjustment and fine tuning more difficult.

7-6

CONTROL LEVER/LINKAGE ADJUSTMENT

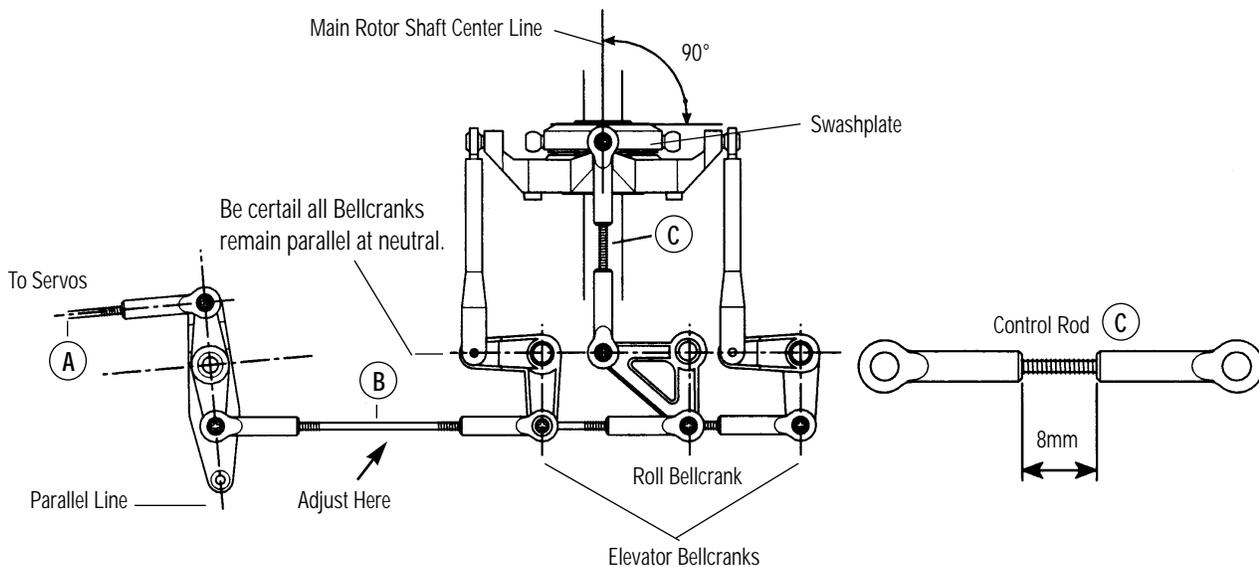
Note: The following adjustments are made with all servos in the center (1/2 stick) or neutral positions.

1. Check to insure that both the Elevator (2) and Aileron (1) Servo Mixing Arms are parallel (same angle) to the Mixing Base Arms (2) with all servos in the neutral (center) positions. If these items are not parallel, re-adjust the (B) Control Rods until proper alignment is achieved.

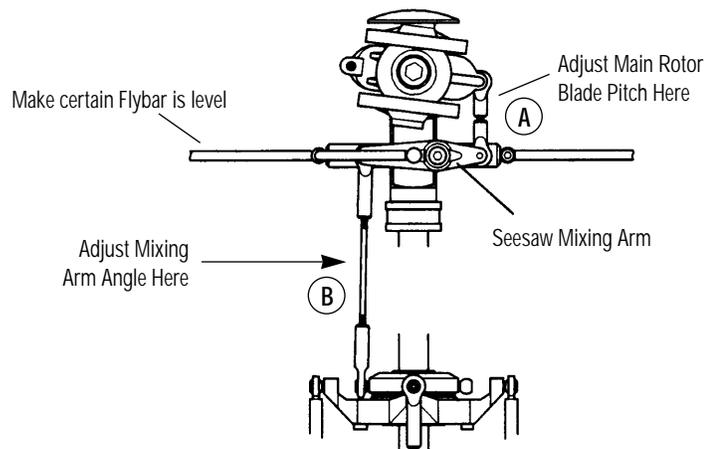


2. Next, check to be sure the Swashplate Assembly is at 90° in all directions (Fore/Aft, Left, Right) to the Main Rotor Shaft Assembly. If this is not the case, adjust Control Rod (B), making sure that both the Roll (1 pc) and Elevator

(2 pc) Bellcranks remain positioned parallel as shown. Also check to insure that control rod (C) is sized 8mm as shown below.

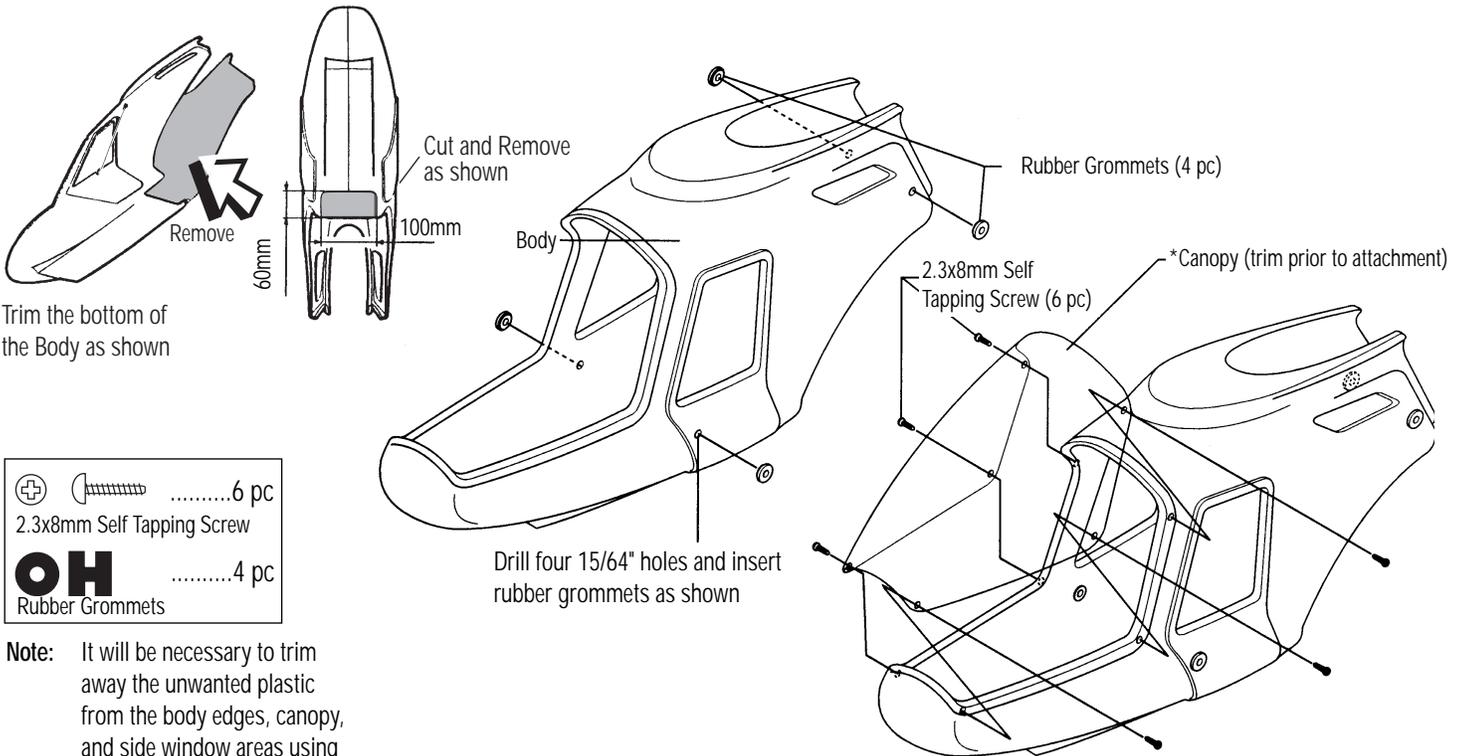


3. Check the Seesaw Mixing Arms (2) and adjust so that with the Flybar Assembly Level, and the Pitch at 1/2 stick (center), the Mixing Arms are level (parallel) as shown. If this is not the case, adjust the Control Rod (B) (2) until this positioning is achieved. Adjustment of the Main Rotor Blade Pitch to the desired settings can be achieved by using Control Rod (A) for adjustment. See page 46 Section 6A for Pitch range settings.



8-1

BODY ASSEMBLY/CANOPY ATTACHMENT



Trim the bottom of the Body as shown

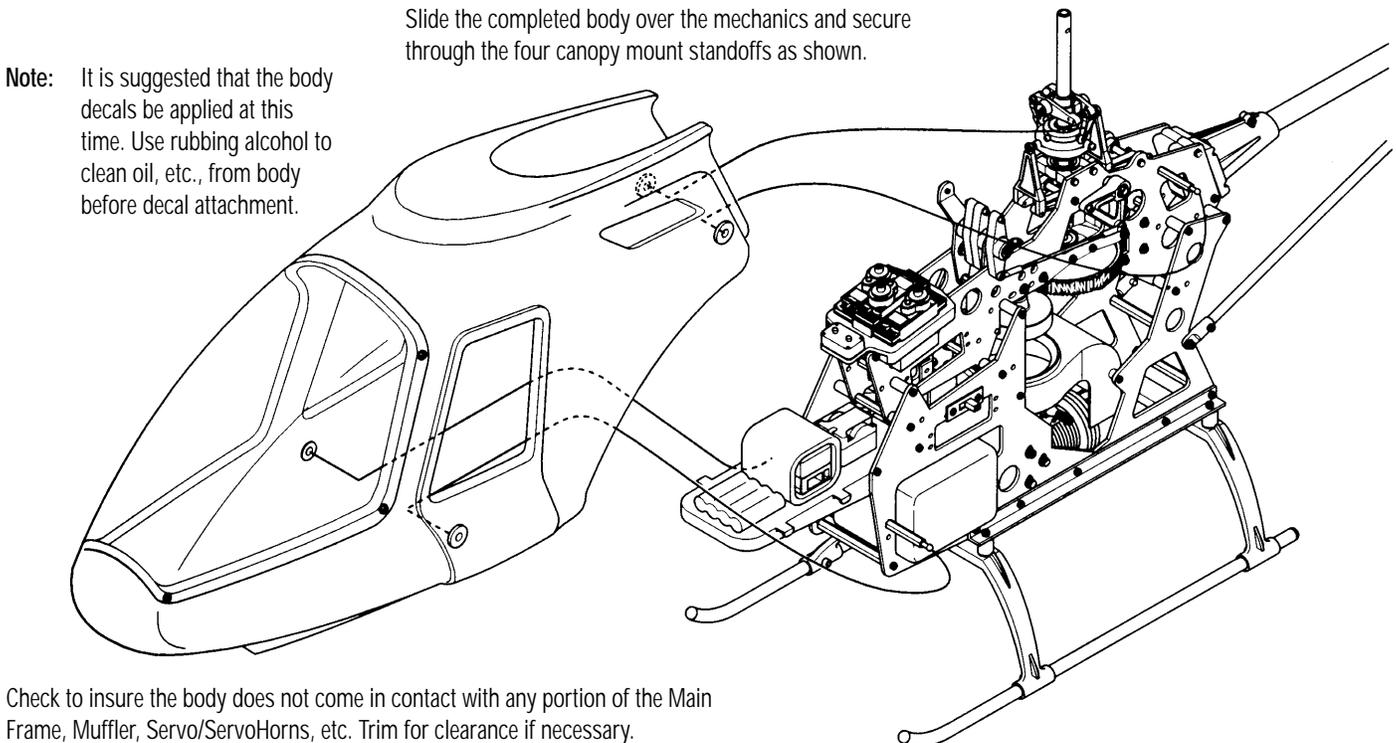
	.....6 pc
2.3x8mm Self Tapping Screw	
	.....4 pc
OH Rubber Grommets	

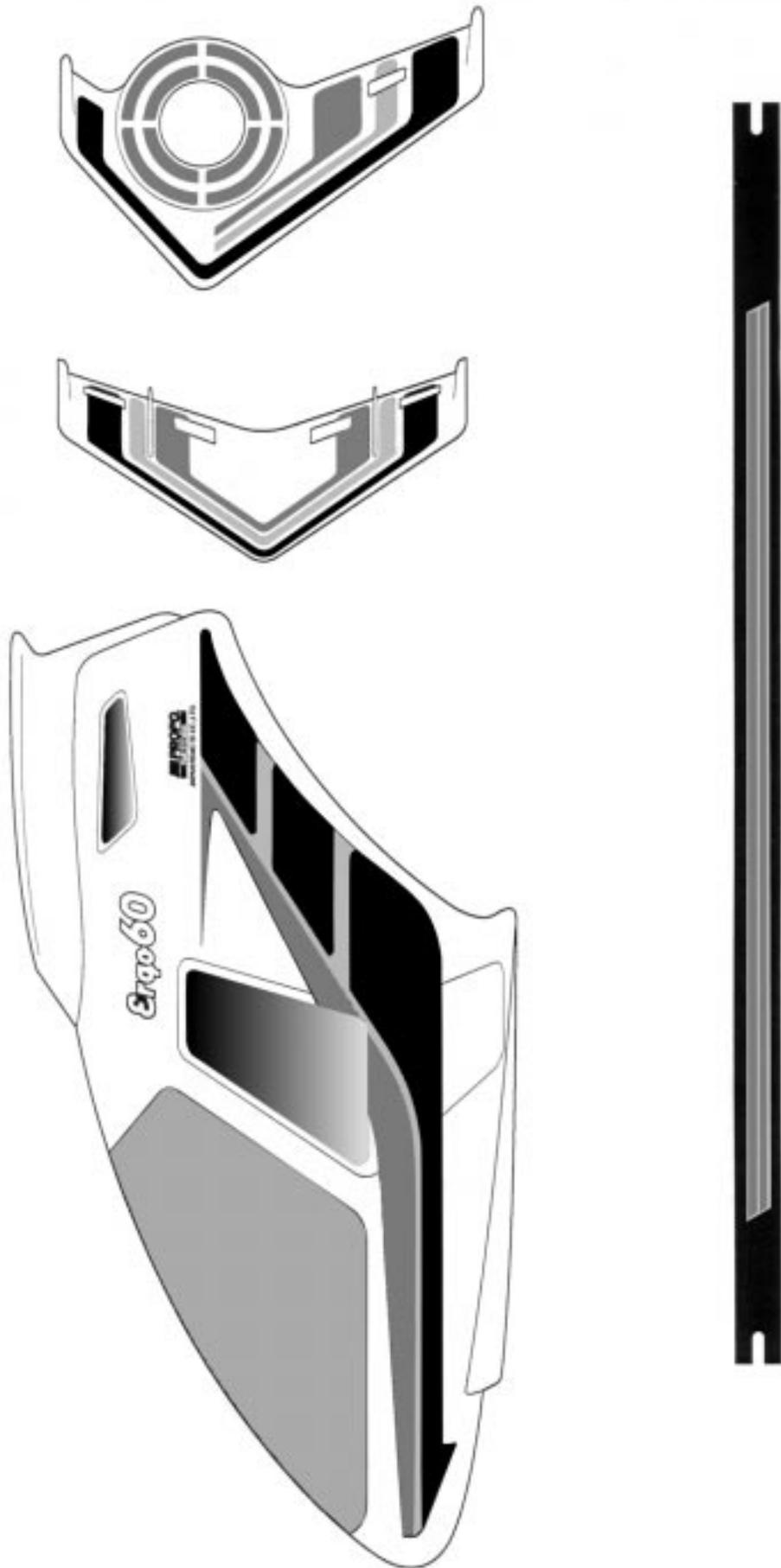
Note: It will be necessary to trim away the unwanted plastic from the body edges, canopy, and side window areas using a hobby knife.

* After trimming, attach the canopy to the body temporarily with tape. Next drill five 1/16" holes through both the canopy and the body and secure using the 2.3x8mm screws provided.

8-2

BODY ATTACHMENT





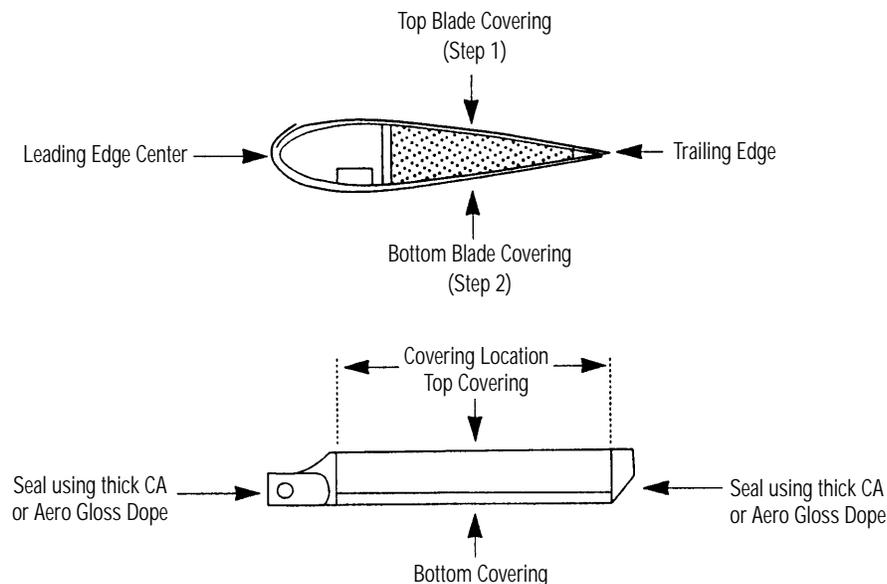
Blade Weight Installation

- Using 80-100 grit sandpaper, sand the blade weight strip (2) to produce a roughened surface. This will insure proper glue adhesion. Next, trim the blade weight strips to equal lengths.
- Adjust the spanwise C.G. (center of gravity) of the blades by setting the blade weight strip into the blade slot and positioning them toward the front of the slot (closest to the tip of the blade). Refer to Section 8-4, Step 1 for clarification. Next, trim the blade weights until proper C.G. is obtained. It is suggested that the C.G. of the blades be matched within 1/16" of an inch for proper balancing.
- Bond the blade weights to the blade slots by removing the weights and filling the blade slot completely with glue. We recommend either 6-minute epoxy of Pacer Blade Zap for this procedure. With the blade slot filled with the adhesive, submerge the blade weight to the bottom of the blade slot and completely cover with glue. It is suggested that the blades are not used for a 24 hour period after gluing to insure that the adhesive is thoroughly cured.
- Lightly sand each rotor blade using 220 grit sandpaper and remove all sanding dust.

- It is suggested that the root and tip of each blade be sealed prior to covering. We suggest either thick CA or Aero Gloss clear dope for this task. Sealing these areas will prevent the exposed wood from absorbing fuel and oil from the engine's exhaust, which can compromise the structural integrity of the rotor blades.

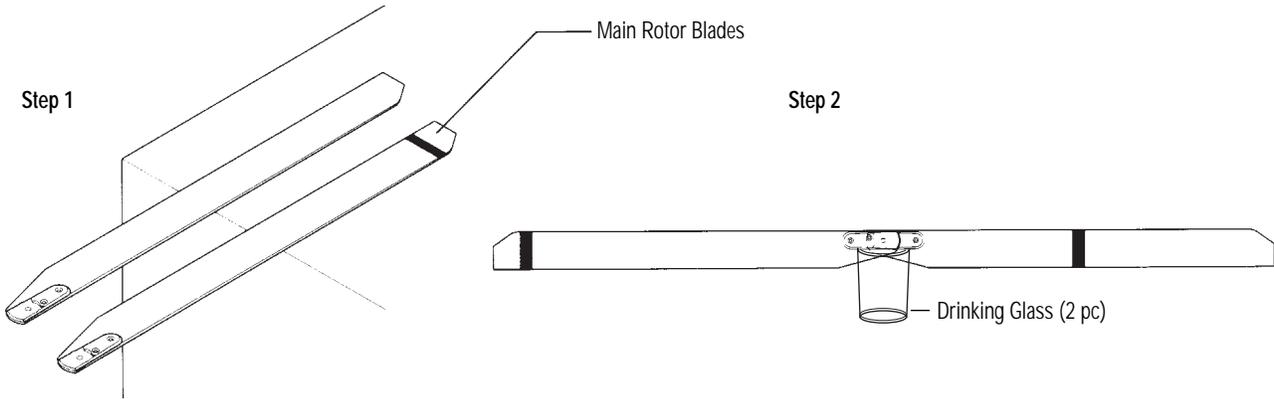
Blade Covering Installation

- Remove the adhesive backing and apply the top blade covering to the blades starting at the center point of the leading edge airfoil. Adhere the covering to the blades starting at the front and slowly moving toward the trailing edge of the blade, wrapping the additional length of the covering over the trailing edge and adhering it to the bottom of the blade as shown in the diagram.
- Remove the adhesive backing and apply the bottom blade covering to the blades starting at the bottom edge of the trailing edge. Adhere the covering to the blade starting at the rear and slowly moving forward toward the leading edge of the blade, wrapping the additional length of the covering over the leading edge and adhering it to the top of the blades as shown in the diagram.



8-4

MAIN ROTOR BLADE FINAL BALANCING



Spanwise C.G. Balancing

Place each rotor blade on a sharp edge of a table as shown and adjust so each rotor blade “teeters” on the edge of the table. If the blades are correctly balanced, they should be at an equal distance to the edge of the table. If they are not, apply tape to the center of the light or short blade until equal distance can be achieved.

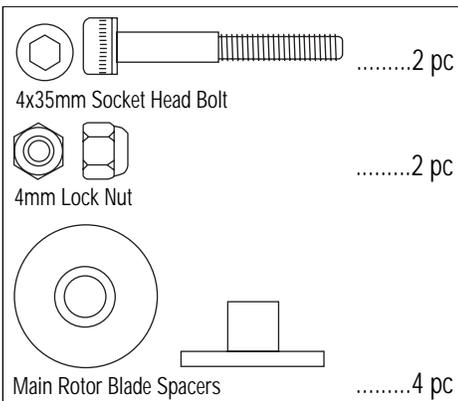
Final Static Balancing

To static balance the main rotor blades, it is suggested to either attach each blade to a “seesaw” type blade balancer (RVO1001), or bolt each of the two blades together through the blade mounting holes shown and suspend this unit between two drinking glasses. Add blade tracking tape (from decal sheet) to the tip of the light or high blade until they each become level to the table surface.

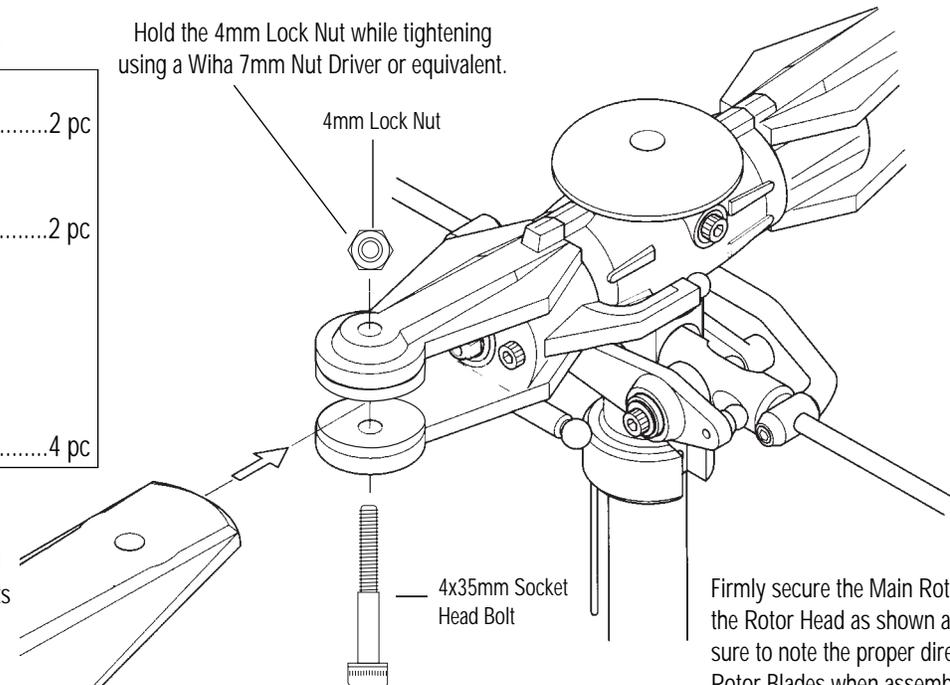
8-5

MAIN ROTOR BLADE ATTACHMENT

TWO SETS REQUIRED

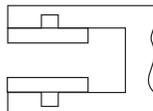


Note: The above items can be found attached to the Main Rotor Blade package. Please disregard the 5x35mm bolts and 5mm nuts included with this kit.



Insert the Main Rotor Blade Spacers as shown:

Apply a light drop of CA adhesive to hold the Main Rotor Blade Spacers in place.



Firmly secure the Main Rotor Blades to the Rotor Head as shown above. Be sure to note the proper direction of the Rotor Blades when assembling (clockwise rotation). Main Blades should be tightened so they can pivot when moderate pressure is applied. Do not allow the Main Blades to swing freely within the Main Blade Holders.

Now that the radio system is completely installed into the helicopter, it is necessary to check and adjust the following:

1. Servo Direction (Servo Reversing)

Check to insure that all servos have been set to the correct direction as shown in the Control Linkage Installation Section (Steps 7-1 to 7-5).

2. Dual Rates

It is suggested that for initial flights, the dual rate function values be set as follows:

- 0 Position (low rate) 70%
- 1 Position (high rate) 100%

3. Exponential Settings

It is suggested that the exponential rate settings remain in the 0 value position until the initial test flights. After initial flights, adjust the exponential values to achieve the desired control feel.

4. Sub-Trim Settings

It is suggested that the correct neutral settings be achieved without the use of the sub-trim feature. If sub-trim is used for final flight adjustments, it is not suggested that the sub-trim values exceed 10. If the sub-trim values are greater, readjust the control linkages and reset the sub-trims to 0.

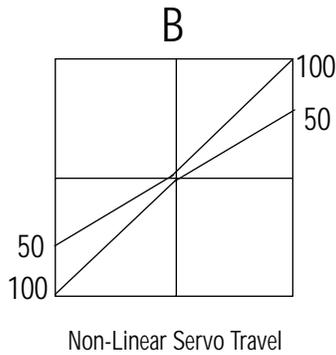
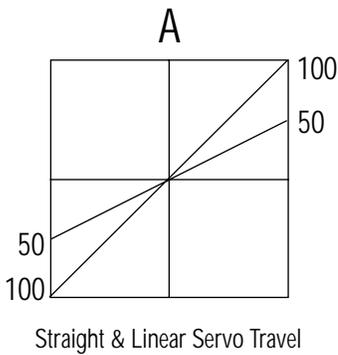
5. Travel Adjustment

The travel adjustment feature allows the control surface to be adjusted to achieve maximum travel, or surface deflection. When using this feature, it is extremely important that the high/low, up/down values for each channel be set at an equal value or a differential movement will occur (Diagram B). It is especially important the throttle and collective pitch travel limits are set to an equal value (Diagram A).

Please refer to the diagrams below for clarification.

Correct

Incorrect



6. Pitch/Throttle Curve Adjustment

It is very important the throttle and pitch curves are adjusted properly to achieve the best performance from your helicopter. When properly adjusted, the main rotor head RPM should remain consistent throughout all maneuvers and throttle stick positions. A constant RPM will also help to improve the effectiveness and accuracy of the tail rotor and gyro systems.

A. Pitch Curve Adjustment

Using a pitch gauge (optional) set the low, mid and high stick pitch settings as shown in the diagram below. Use the travel adjust feature to set the maximum high and low pitch required for all flight modes. This pitch travel can then be reduced by altering the pitch curves as shown below.

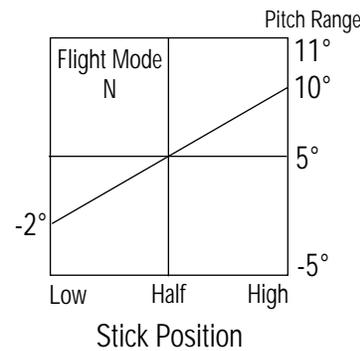
Pitch Range Settings

Flight Mode	Application	Low Pitch (Low Stick)	Hovering Pitch (Half Stick)	High Pitch (High Stick)
N	Hovering	-2°	5°	10°
I	Stunt & Aerobatic Flight	-5°	5°	8.5°
*2	3D Flight	-10°	0°	10°
H	Autoration	-5°	5°	11°

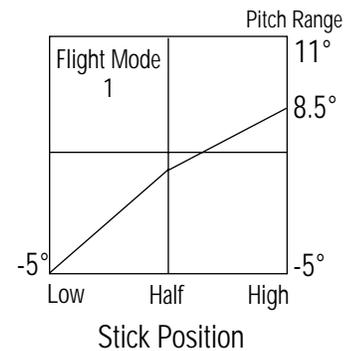
***Note:** To achieve these pitch range settings with the Ergo .60, it will be necessary to adjust the collective linkage slightly at the Seesaw Arm Main Blade Holder, Swashplate/Seesaw Arm Linkages.

Pitch Curve Settings

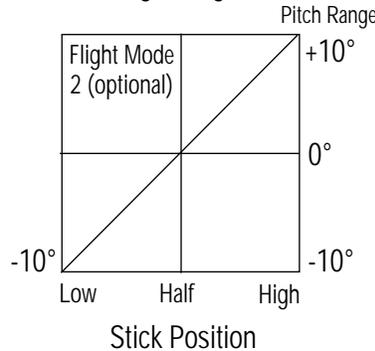
Hovering (Linear Curve)



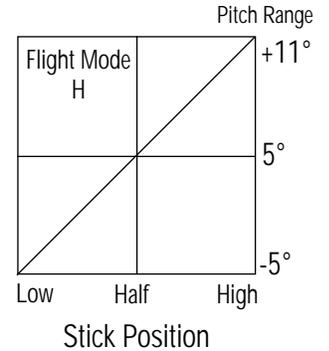
Stunt & Aerobatic Flight



3D Flight (Ergo 60)



Autoration

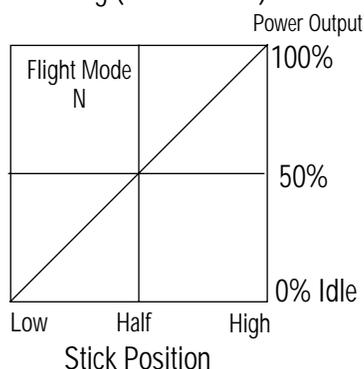


B. Throttle Curve Settings

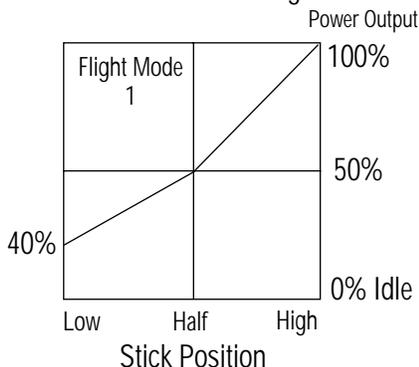
Below are several examples of possible throttle curves during various flight conditions.

Since throttle curves can vary greatly due to engine and muffler combinations, it will be necessary to fine tune and adjust these values during test flights to achieve a constant main rotor RPM.

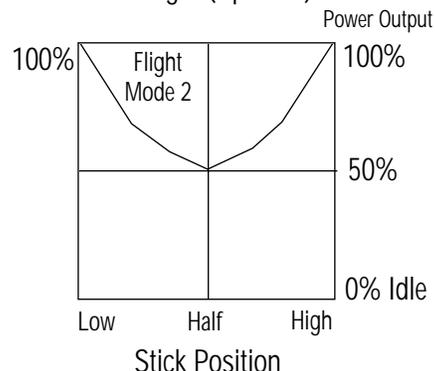
Hovering (Linear Curve)



Stunt & Aerobatic Flight



3D Flight (Optional)



Note: The throttle curve examples shown correspond to the pitch curve examples show in Step 6A on the previous page.

It will also be necessary to set the correct idle speed of the engine when the throttle hold function is activated.

This idle value is located within the throttle hold function. This will allow the engine to remain at idle when practicing autorotations.

7. Revolution Mixing

It will be necessary to adjust the revolution mixing to properly compensate for the torque of the engine during all flight conditions (except autorotation).

Since there are many variables that can alter the value of the revolution mixing (engine, blade pitch, fuel, etc.), it will be necessary to fine tune this function during test flights.

The following values are shown only as a starting point toward achieving proper compensation:

Flight Mode N	Flight Mode 1	Flight Mode 2 (3D)
Up 40	Up 15	Up 15
Down 20	Down 10	Down 15

8. Gyro Gain Adjustment

It will be necessary to adjust the “gain” or compensation of the gyro to create the correct amount of “holding power” necessary for a solid

neutral tail rotor. The intent of the gyro is to compensate for abrupt movements, or wind direction changes, working in conjunction with the revolution mixing function.

For hovering, it is recommended that you start with the gyro gain at approximately 60°, and continue to increase slightly until the tail of the helicopter “hunts”, then reduce the value slightly.

This same adjustment will also be necessary to achieve proper forward flight. Generally, the gyro gain for forward flight will be approximately 10% - 20% less than that of the established hover gain due to aerodynamic forces present in forward flight.

If you are using a dual rate gyro, adjust the gain so you are using the “higher” gain setting for hover and the “lower” gain setting for forward flight.

It will also be necessary to confirm the direction the gyro compensates when the body of the helicopter is rotated.

To do this, turn the radio system on and suspend the helicopter by the main rotor head. Next, move the rudder stick to the right and watch the direction that the tail rotor servo arm travels. Now while watching the tail rotor servo arm, rotate the body of the helicopter counterclockwise. The servo arm should move in the same direction as when the rudder stick was moved to the left.

If the arm moves in the opposite direction, reverse the gyro and re-test.

XP783 DATA SHEET
ERGO .60 (INITIAL SET-UP)

MODEL NO. _____

MODEL NAME ERGO .60

MODULATION S-PCM • Z-PCM • PPM

			AILE	ELEV	RUDD	AUTO D/R (POS.1)	ST-1	<input type="checkbox"/> INH • <input type="checkbox"/> ACT
D/R	0	D/R	90 %	90%	70 %		ST-2	INH • <input type="checkbox"/> ACT
		EXP	25%	25%	30%			
EXP	1	D/R	100%	100%	100%		AUX 2 INPUT	
		EXP	%	%	40%		D/R • R HOLD	
STUNT TRIM		INH • <input type="checkbox"/> ACT	Adjust as necessary during flight					

		THRO	AILE	ELEV	RUDD	GEAR	PITCH	AUX2
REVERSE SW	<input type="checkbox"/> NORM <input type="checkbox"/> REV	☐ NORM ☐ REV	☐ NORM ☐ REV	☐ NORM ☐ REV	☐ NORM ☐ REV	☐ NORM ☐ REV	☐ NORM ☐ REV	☐ NORM ☐ REV
SUB-TRIM		Adjust so that no trim is required						
TRAVEL ADJUST	Adjust for Full Power	L 100%	D 100%	L 150%	+ %	H 100%	+ %	
	Adjust for Engine Off	R 100%	U 100%	R 150%	- %	L 100%	- %	
FAIL-SAFE	S(TYPE)							
	Z(TYPE)	HOLD • 10S • 0.5S • 0.25S						

		L	1	2	3	H
THRO	N	0 %	%	50%	%	100%
CURVE (TH:)	1	40%	%	50%	%	
	*2	100%	%	50%	%	
PITCH CURVE (PI:)	N	-2° Pitch		5° Pitch		10° Pitch
	1	-5° Pitch		5° Pitch		9° Pitch
	*2	-10° Pitch		0° Pitch		10° Pitch
	H	-5° Pitch		5° Pitch		11° Pitch

THRO-HOLD (HOLD)	INH • <input type="checkbox"/> ACT	POS
		Adjust for Idle
INVERTED (INV.P)	<input type="checkbox"/> INH • <input type="checkbox"/> ACT	OFFSET %

REVOLUTION MIX (RV)	NORMAL	UP (U.N.)	40%
		DOWN (D.N.)	20%
	STUNT	UP (U.S.)	15 %
		DOWN (D.S.)	15%
HOLD RUDD OFFSET			
ACC-MIX			%

		CHANNEL	+ POS	- POS	SW	OFFSET
PROGRAM MIX	MIX A	→	%	%	%	%
	MIX B	→	%	%	%	%

* **Note:** Flight Mode 2 shown is for 3D type flying **only** with 0° pitch at half stick. This is not recommended for use by entry-level pilots.

**Before flying, confirm that all controls function in the proper direction.

XP8103 DATA SHEET
ERGO .60 (INITIAL SET-UP)

MODEL NO.
MODEL NAME ERGO .60
MODULATION S-PCM • Z-PCM • PPM

		AILE	ELEV	RUDD											
DUAL-RATE • EXP	0	D/R	90%	90%	70%	<table border="1"> <tr><td>AUTO D/R (POS. 1)</td><td>ST1</td><td>INH • ACT</td></tr> <tr><td></td><td>ST2</td><td>INH • ACT</td></tr> <tr><td></td><td>ST2</td><td>INH • ACT</td></tr> </table>	AUTO D/R (POS. 1)	ST1	INH • ACT		ST2	INH • ACT		ST2	INH • ACT
		AUTO D/R (POS. 1)	ST1	INH • ACT											
		ST2	INH • ACT												
		ST2	INH • ACT												
EXP	25%	25%	30%												
1	D/R	100%	100%	100%											
	EXP	%	%	40%											
STUNT TRIM	INH • ACT	Adjust as necessary during flight				<table border="1"> <tr><td>INPUT SEL</td><td>AUX2</td><td>HOLD SW • PIT.TRIM • INH</td></tr> <tr><td></td><td>GEAR</td><td>ACT • INH</td></tr> </table>	INPUT SEL	AUX2	HOLD SW • PIT.TRIM • INH		GEAR	ACT • INH			
INPUT SEL	AUX2	HOLD SW • PIT.TRIM • INH													
	GEAR	ACT • INH													

	THRO	AILE	ELEV	RUDD	GEAR	PIT	AUX2	AUX3
** REVERSE SW	NORM • REV	NORM • REV	NORM • REV	NORM • REV	NORM • REV	NORM • REV	NORM • REV	NORM • REV
SUB TRIM	Adjust so that no trim is required							
TRAVEL ADJUST	Adjust for full power	L 100% R 100%	D 100% U 100%	L 150% R 150%	+ % - %	H 100% L 100%	+ % - %	+ % - %
FAIL SAFE (SPCM)	Adjust for engine off							

		EXP	L	1	2	3	H															
THROTTLE CURVE	N	OFF-ON	0%	%	50%	%	100%	<table border="1"> <tr><td rowspan="6">GYRO SENS</td><td rowspan="6">INH • RUDD D/R • AUTO</td><td>0</td><td>85%</td></tr> <tr><td>1</td><td>60%</td></tr> <tr><td>NORM</td><td>0</td></tr> <tr><td>STNT</td><td>1</td></tr> <tr><td>HOLD</td><td>0</td></tr> <tr><td>INVT</td><td></td></tr> </table>	GYRO SENS	INH • RUDD D/R • AUTO	0	85%	1	60%	NORM	0	STNT	1	HOLD	0	INVT	
	GYRO SENS	INH • RUDD D/R • AUTO	0	85%																		
			1	60%																		
NORM			0																			
STNT			1																			
HOLD			0																			
INVT																						
1	OFF-ON	40%	%	50%	%	100%																
2	OFF-ON	100%	%	50%	%	100%																
PITCH CURVE	N	OFF-ON	-2° Pitch	%	5° Pitch	%	10° Pitch															
	1	OFF-ON	-5° Pitch	%	5° Pitch	%	9° Pitch															
	* 2	OFF-ON	-10° Pitch	%	0° Pitch	%	10° Pitch															
	H	OFF-ON	%	%	%	%	%															

THRO HOLD	INH • ACT	POS Adjust for idle
-----------	-----------	------------------------

THRO HOLD	INH • ACT	OFFSET
-----------	-----------	--------

REVO MIX	NORMAL	UP	40%
		DOWN	20%
	STUNT	UP	15%
		DOWN	15%
HOLD RUDD OFFSET			
ACC MIX			%

		CHANNEL	SW	EXP	L	1	2	3	H
PROGRAM MIX	MIX1	'		OFF-ON					
	MIX2	'		OFF-ON					
				+POS	-POS	OFFSET			
	MIX3	'		%	%				

* **Note:** Flight Mode 2 shown is for 3D type flying only with 0° pitch at half stick. This is not recommended for use by entry level pilots.
 **Before flying, confirm that all controls function in the proper direction.

PCM-10SX DATA SHEET
ERGO .60 (INITIAL SET-UP)

MODEL NO. (84) _____

MODEL NAME (81) ERGO .60

MODULATION (85) SPCM-ZPCM-PPM

THRO	AILE	ELEV	RUDD	GEAR	PITCH	AUX2	AUX3	AUX4	AUX5
REVERSE SW (11)	<input type="checkbox"/> R <input type="checkbox"/> N	☐ R ☐ N	☐ R ☐ N	☐ R ☐ N	☐ R ☐ N	☐ R ☐ N	☐ R ☐ N	☐ R ☐ N	☐ R ☐ N
TRAVEL ADJUST (12)	Adjust for Full Power	L 100%	D 100%	L 150%	+ %	+100%	+ %	+ %	+ %
	Adjust for Engine Off	R 100%	U 100%	R 150%	- %	-100%	- %	- %	- %
SUB-TRIM (15)	Adjust so that no trim is required								
TRIM RATE (83)	%	%	%	%					

D/R EXP (13)	0	D/R	90%	90%	70%
		EXP	25%	25%	30%
		TYPE	NORM	NORM	NORM
	1	D/R	100%	100%	100%
		EXP	%	%	40%
		TYPE			
2	D/R	%	%	%	
	EXP	%	%	%	
	TYPE				
AUTO D/R (23)	ST-1	INH <input type="checkbox"/> ACT	<input type="checkbox"/> 0 · 1 · 2	<input type="checkbox"/> 0 · 1 · 2	<input type="checkbox"/> 0 · 1 · 2
	ST-2	INH <input type="checkbox"/> ACT	<input type="checkbox"/> 0 · <input type="checkbox"/> 1 · 2	<input type="checkbox"/> 0 · <input type="checkbox"/> 1 · 2	<input type="checkbox"/> 0 · <input type="checkbox"/> 1 · 2
	ST-3	INH · ACT	0 · 1 · 2	0 · 1 · 2	0 · 1 · 2
	ST-4	INH · ACT	0 · 1 · 2	0 · 1 · 2	0 · 1 · 2
	HOLD	INH · ACT	0 · 1 · 2	0 · 1 · 2	0 · 1 · 2
STUNT TRIM (25)	ST-1	INH <input type="checkbox"/> ACT	Adjust as necessary during flight.		
	ST-2	INH <input type="checkbox"/> ACT			
	ST-3	INH · ACT			
	ST-4	INH · ACT			

THROTTLE HOLD (16)	HOLD SW	INH · HOLD GEAR
	POS	Adjust for Idle
	AUTO CUT	INH <input type="checkbox"/> ACT
		POS

FUNCTION SELECT (16)	FLIGHT EXTRA	<input type="checkbox"/> INH · GEAR AILE
	GEAR SW	<input type="checkbox"/> INH · GEAR HOLD
	INVERTED SW	<input type="checkbox"/> INH · INVT HOLD
	PIT. LEVER	LOW	☐ INH · ACT
HI		<input type="checkbox"/> INH · ACT

4→1 MIX (41)	R	%
	L	%
	MIX SW	INH · ACT

GYRO SENS (44)	INH AUX 3	0	85%
		1	50%
		2	
	AUTO	NR S1 S2 S3 S4 HD INV	0 1 1

	CHANNEL		TRIM	SW	OFFSET	+GAIN		-GAIN						
	MASTER	SLAVE												
PROGRAM MIX (51) - (58)	1	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV									
	2	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV									
	3	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV									
	4	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV									
						EXP	L	1	2	3	4	5	6	H
	5	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV	OFF ON	IN OUT	0						100
	6	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV	OFF ON	IN OUT	0						100
	7	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV	OFF ON	IN OUT	0						100
8	INH <input type="checkbox"/> ACT	→	OFF ON	NR-S1-S2-S3-S4 MX-HD-INV	OFF ON	IN OUT	0						100	

PCM-10SX DATA SHEET
ERGO .60 (INITIAL SET-UP) CONTINUED

		EXP		L	1	2	3	4	5	6	H	
THRO CURVE (18) TH,TRIM=SLOW HOV.T=CENTER	N	OFF	IN	0			50				100	
		<input type="checkbox"/> ON	OUT	0			50% Power				100% Power	
			HOV.SEL	---	HOV	HOV	HOV	HOV	HOV	HOV	HOV	---
	1	OFF	IN	0				50				100
		<input type="checkbox"/> ON	OUT	40% Power				50% Power				100% Power
			HOV.SEL	---	HOV	HOV	HOV	HOV	HOV	HOV	HOV	---
	*2	OFF	IN	0				50				100
		<input type="checkbox"/> ON	OUT	100% Power				50% Power				100% Power
	3	OFF	IN	0								100
		<input type="checkbox"/> ON	OUT									
	4	OFF	IN	0								100
		<input type="checkbox"/> ON	OUT									
PITCH CURVE (68) P,TRIM=CENTER HOV.P=CENTER	N	OFF	IN	0			50				100	
		<input type="checkbox"/> ON	OUT	-2° Pitch			5° Pitch				10° Pitch	
			HOV.SEL	---	HOV	HOV	HOV	HOV	HOV	HOV	HOV	---
	1	OFF	IN	0								100
		<input type="checkbox"/> ON	OUT	-5° Pitch				5° Pitch				9° Pitch
			HOV.SEL	---	HOV	HOV	HOV	HOV	HOV	HOV	HOV	---
	*2	OFF	IN	0								100
		<input type="checkbox"/> ON	OUT	-10° Pitch				0° Pitch				10° Pitch
	3	OFF	IN	0								100
		<input type="checkbox"/> ON	OUT									
	4	OFF	IN	0								100
		<input type="checkbox"/> ON	OUT									
HOLD	OFF	IN	0								100	
	<input type="checkbox"/> ON	OUT	-5° Pitch				5° Pitch				13° Pitch	
INVT	OFF	IN	0								100	
	<input type="checkbox"/> ON	OUT										

TRIM OFFSET (82)	HV.T	HV.P	LO.P	HI.P	AILE	ELEV	RUDD

ATS REVO-MIX (47)	RIGHT · LEFT	
	POS	HOV 6° Pitch ZERO 0° Pitch
NORM	UP	40
	DN	20
	-P	0
STNT1	+P	15
	-P	15
STNT2	+P	15
	-P	15
STNT3	+P	
	-P	
STNT4	+P	
	-P	
HOLD RUDD OFS.		

FAIL-SAFE (77)	Z	MODE	HOLD · 1.0s · 0.5s · 0.25s
		MEMORY	
	S	MEMORY	

SWASH TYPE (65)	TYPE		1s · 3s(90°) · 3s(120°)	
	1s	SWASH	+ · -	
		SW	NR · S1 · S2 · S3 · S4 · HD	
	3s	EXP		
GAIN		AILE	%	
		ELEV	%	
	PITCH	%		

ATS ACC-MIX (48)	VOL	%
	TIME	

*Note: Flight Mode 2 shown is for 3D type flying only with 0° pitch at half stick.
This is not recommended for use by entry-level pilots.

**Before flying, confirm that all controls function in the proper direction.

FINAL PRE-FLIGHT CHECK

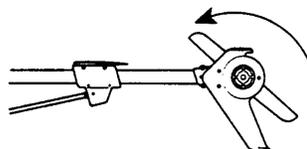
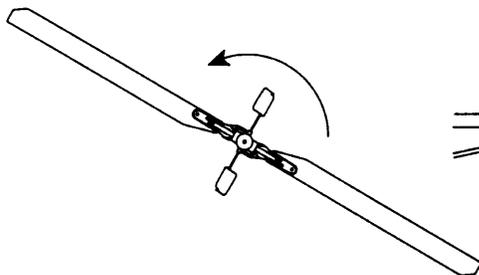
Once all assemblies have been completed, please review the following suggestions before attempting initial flights.

- Review the instruction book and confirm that all assembly steps have been completed thoroughly.
- Check to verify that the tail rotor assembly rotates in the correct direction (see the diagram below).
- Check to insure that all servos are operating smoothly and in the correct direction. Also verify that there is no binding in the control rods

and that each servo horn is secured with a servo horn mounting screw.

- Verify that the gyro is operational and compensating in the correct direction (detailed in Step 8, page 47).
- Make sure that both the transmitter and receiver have been fully charged (refer to your radio system instructions for proper charging procedures).
- Check to insure that the throttle is working properly and in the correct direction.

Correct Main/Tail Rotor Rotation Direction



Rotate the Main Rotor counter clockwise (backward) and note the rotation of the Tail Rotor.

BLADE TRACKING ADJUSTMENT

Blade “tracking” is an adjustment to the main rotor blade pitch that must be accomplished during the initial test flights.

Although the blade pitch angle in each blade may appear equal, it is still possible for a set of main rotor blades to run “out of track”, making adjustment necessary.

Main rotor blades that are out of track with one another can cause vibration, instability, and a loss of power due to additional drag.

On the initial flight, it will be necessary to increase the blade speed to just before

lift-off RPM and view the rotor disc at eye level from a safe distance (approximately 15 to 20 feet).

Note which blade is running low (by colored tracking tape) and increase the pitch of the low blade one turn of the ball link at a time until each blade runs in track (on the same plane).

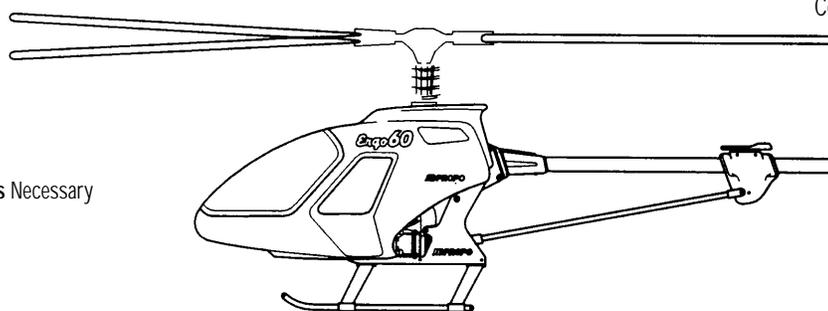
Please refer to the diagrams below to identify the different tracking situations, as well as several methods to mark each rotor blade for tracking identification.

BLADE TRACKING IDENTIFICATION

Out of Track

Incorrect

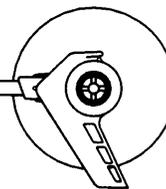
Adjustment is Necessary



In Track

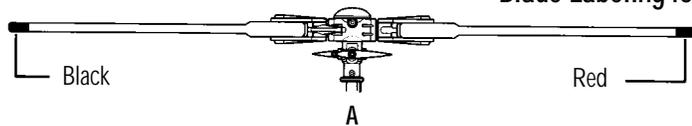
Correct

Adjustment is NOT Necessary

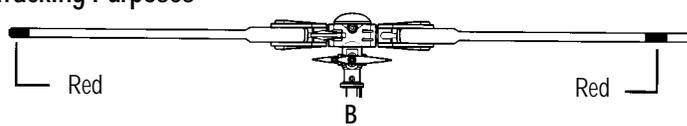


Caution: Be sure to maintain a safe distance from the helicopter (15 to 20 feet) when tracking main rotor blades.

Blade Labeling for Tracking Purposes



A



B

- A: Use two different blade tracking tape colors (e.g., black and red) at the tip of each main rotor blade.
- B: Use the same color blade tracking tape located at different positions on each rotor blade.

Note: Adding additional blade tracking tape to the rotor blades at this stage will make it necessary to re-static balance the main rotor blades.

Engine

After each day of flying, fully drain the fuel tank. Then start the engine and let it idle until the engine and the fuel line are completely burned off. It is also suggested that an after-run oil be used to prevent premature engine corrosion.

Tail Rotor Belt

Periodically check the tension on the Tail Drive Belt (as shown in Step 5-7, page 31) to insure that it has sufficient tension for proper engagement. It is especially important to check this after initial test flights.

Check All Nuts and Bolts

A helicopter is subject to high vibration during flight. It is important to check that all screws, nuts and bolts are properly secured after each day of flying. It is also suggested that you perform a “quick” inspection between each initial test flight for approximately the first 6 to 10 flights.

Check Ball Link Wear

Check to insure that all universal links fit freely but securely to the control balls. If there is excessive play noted, replace the universal link in question.

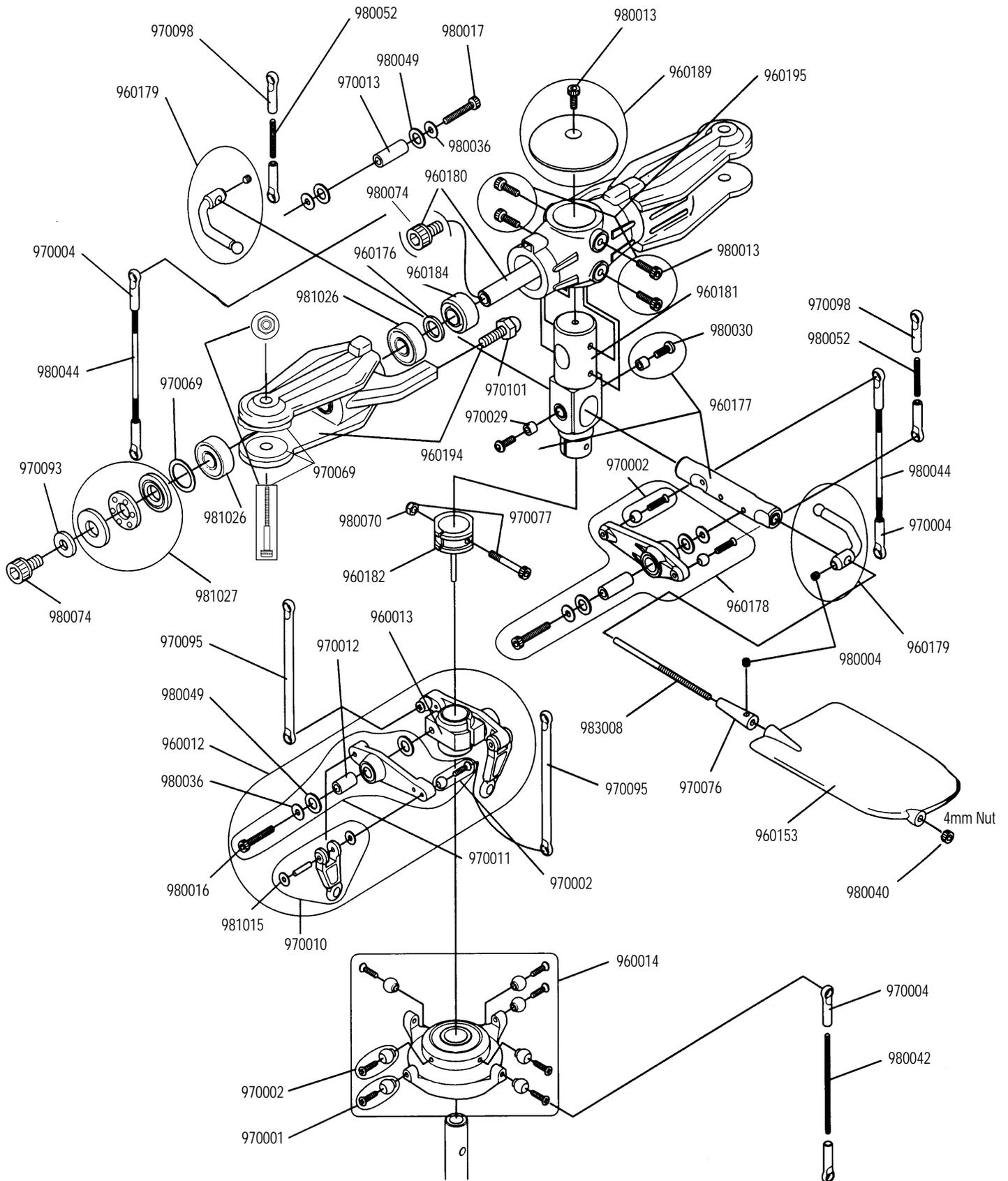
Battery Maintenance

Check to insure that your batteries are properly mounted and charged. The most frequent cause of crashes (aside from pilot error) is battery failure or disconnection. Be certain that your batteries are fully charged and limit your flight time to 3 or 4 flights between charging. If more flight time is required, purchase a reliable quick field charger.

Cleaning

At the end of each flight or flying session, wipe down your helicopter with a clean towel or rag. This is also a good time to inspect all parts for tightness or fatigue. Remember, a clean, well-maintained helicopter will provide you with many hours of trouble-free flight.

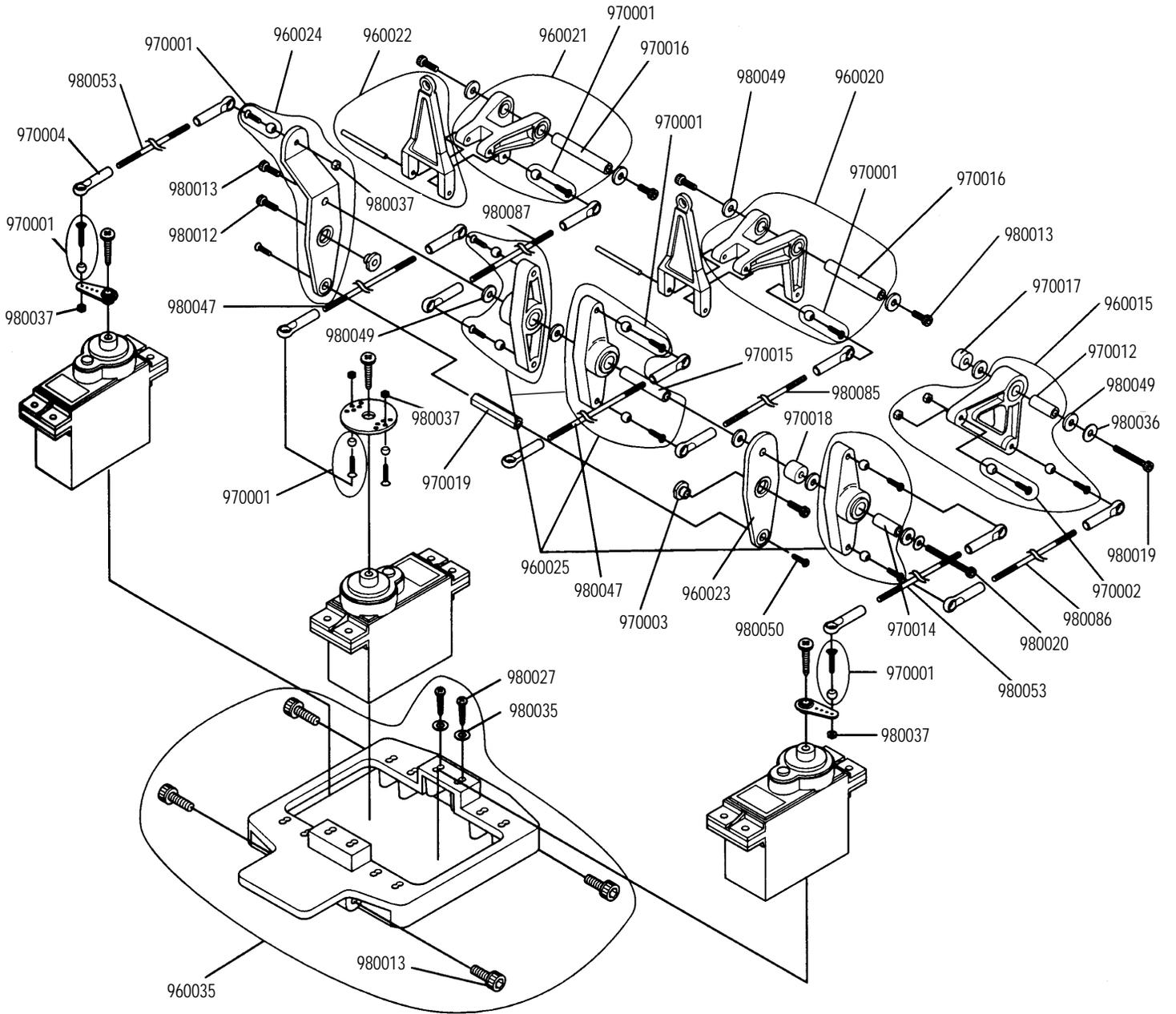
ROTOR HEAD/SWASHPLATE/WASHOUT ASSEMBLY



ROTOR HEAD/SWASHPLATE/WASHOUT ASSEMBLY PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
960012	Washout Assembly	1	Complete w/all Components
960013	Washout Base	1	
960014	Swashplate Assembly	1	3 - 2x8mm Flat Head Screws 4 - 2x10mm Flat Head Screws 7 - Steel Joint Balls
960153	Flybar Paddles	2	
983008	Flybar, 710mm	2	
984003	Rotor Head Assembly	1	Complete w/all Components
960189	Head Button	1	1 - 3x6mm Socket Head Bolt
960194	Main Blade Holder	2	
970076	Flybar Weights	2	4 - 3x8mm Socket Head Bolts
960195	Mixing Arms	2	
960181	Main Rotor Hub	1	2 - Oilless Bushing
960177	Seesaw Shaft	1	2 - Seesaw Collars 2 - 3x5mm Button Head Cap Screws 2 - Flybar Bushings
980074	Spindle Bolts, 5x10mm	10	
960180	Blade Spindle Shaft	1	2 - 5x10mm Socket Head Bolts
960179	Flybar Control Arm	2	2 - 4mm Set Screws 2 - 2x8mm Flat Head Screws 2 - Steel Joint Balls
960184	Blade Damper Rubber	4	
970093	Spindle Washer, Black	2	
960176	Blade Holder Spacer, Silver	2	
970001	Steel Joint Ball w/2x8mm Screw	10	10 - 2x8mm Flat Head Screws
970002	Steel Joint Ball w/2x10mm Screw	10	10 - 2x10mm Flat Head Screws
970004	Universal Ball Links	10	
970098	Universal Ball Links (Short)	5	
970095	Double Link (Long)	2	
970010	Washout Link	2	2 - Washout Link Pins
970011	Washout Arm	2	2 - Washout Arm Bushings 4 - Nylon Washers 2 - 3x15mm Socket Head Bolts 2 - 3mm Flat Washers
960182	Phase Adjusting Ring	1	
970029	Seesaw Spacer Collar	2	
981027	Thrust Bearing Ring, 8x16x5	2	
970069	Main Blade Bolt Set w/Spacers	2	2 - 4mm Lock Nuts 4 - Aluminum Blade Spacers
980049	Nylon Washer .5	10	
980051	Nylon Washer 1.3	10	
981026	Main Blade Holder Bearing	2	
970077	Main Rotor Shaft Bolts	2	2 - 3x22mm Socket Head Bolt 2 - 3mm Washers
970099	Washer, 12x16x.5mm	2	
970101	Control Ball, 4.5mm	2	
980052	Control Rod, 2.3x15mm	2	
980044	Control Rod, 2.3x40mm	2	
980042	Control Rod, 2.3x30mm	2	
980036	Plate Washer, 3mm	10	

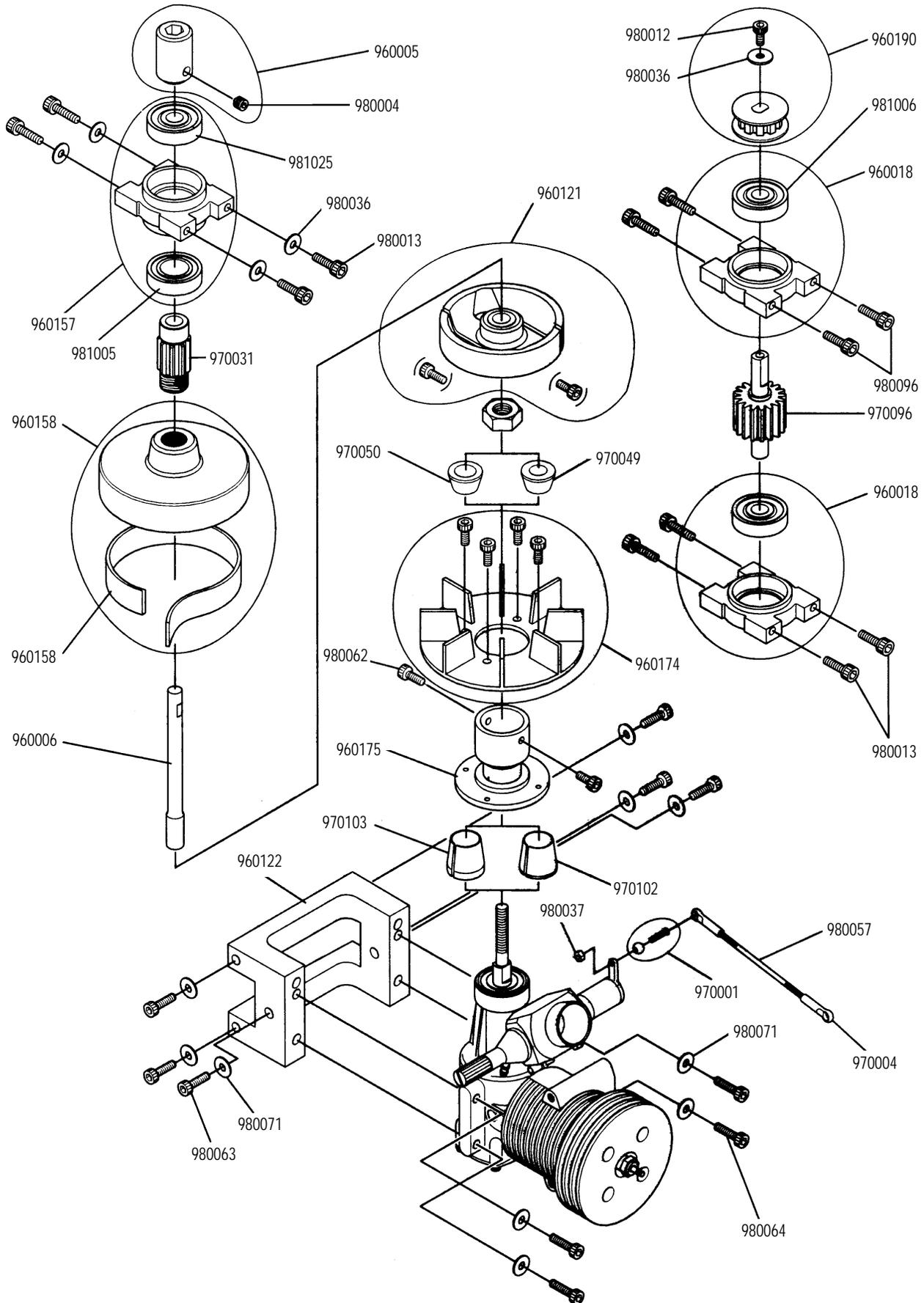
CYCLIC MIXING ARMS/ELEVATOR/AILERON CONTROL ARMS



CYCLIC MIXING ARMS/ELEVATOR/AILERON CONTROL ARMS PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
960015	Roll Bellcrank	1	Complete w/Bushing 2 - Steel Joint Balls 2 - 2x8mm Flat Head Screws 2 - 2mm Hex Nuts
960020	Elevator Arm: Front	1	Complete w/Bushing Steel Joint Ball 2x8mm Flat Head Screw
960021	Elevator Arm: Rear	1	Complete w/Bushing Steel Joint Ball 2x8mm Flat Head Screw
960022	Swashplate A Arm	2	Complete w/2 A-Arm Pins
960023	Mixing Base Arm: Roll	1	Complete w/Bushing
960024	Mixing Base Arm: Collective	1	Complete w/Bushing Steel Joint Ball 2x8mm Flat Head Screw 2mm Hex Nut
960035	Upper Servo Tray	1	4 - 3x8mm Socket Head Bolts 12 - 2.6x12mm Self Tapping Screws 12 - 2.6mm Flat Washers
960025	Mixing Lever: Cyclic	3	Complete w/Bushings 6 - Steel Joint Balls 6 - 2x8mm Flat Head Screws
970002	Steel Joint Ball w/2x10mm Screw	10	
970003	Mixing Base Nut	2	
970004	Universal Ball Link	10	
970012	Washout Arm Bushing	2	
970014	Mixing Lever Bushing A	2	
970015	Mixing Lever Bushing B	2	
970016	Elevator Arm Bushing	2	
970017	Roll Bellcrank Spacer	2	
970018	Mixing Lever Spacer	2	
970019	Mixing Base Cross Member	1	
980049	Nylon Washer .5mm	10	
980051	Nylon Washer 1.3mm	10	
980053	Control Rod, 2.3x50mm	2	
980087	Control Rod, 2.3x120mm	2	
980047	Control Rod, 2.3x75mm	2	
980085	Control Rod, 2.3x55mm	2	
980086	Control Rod, 2.3x90mm	2	

START SHAFT/CLUTCH/ENGINE ASSEMBLY



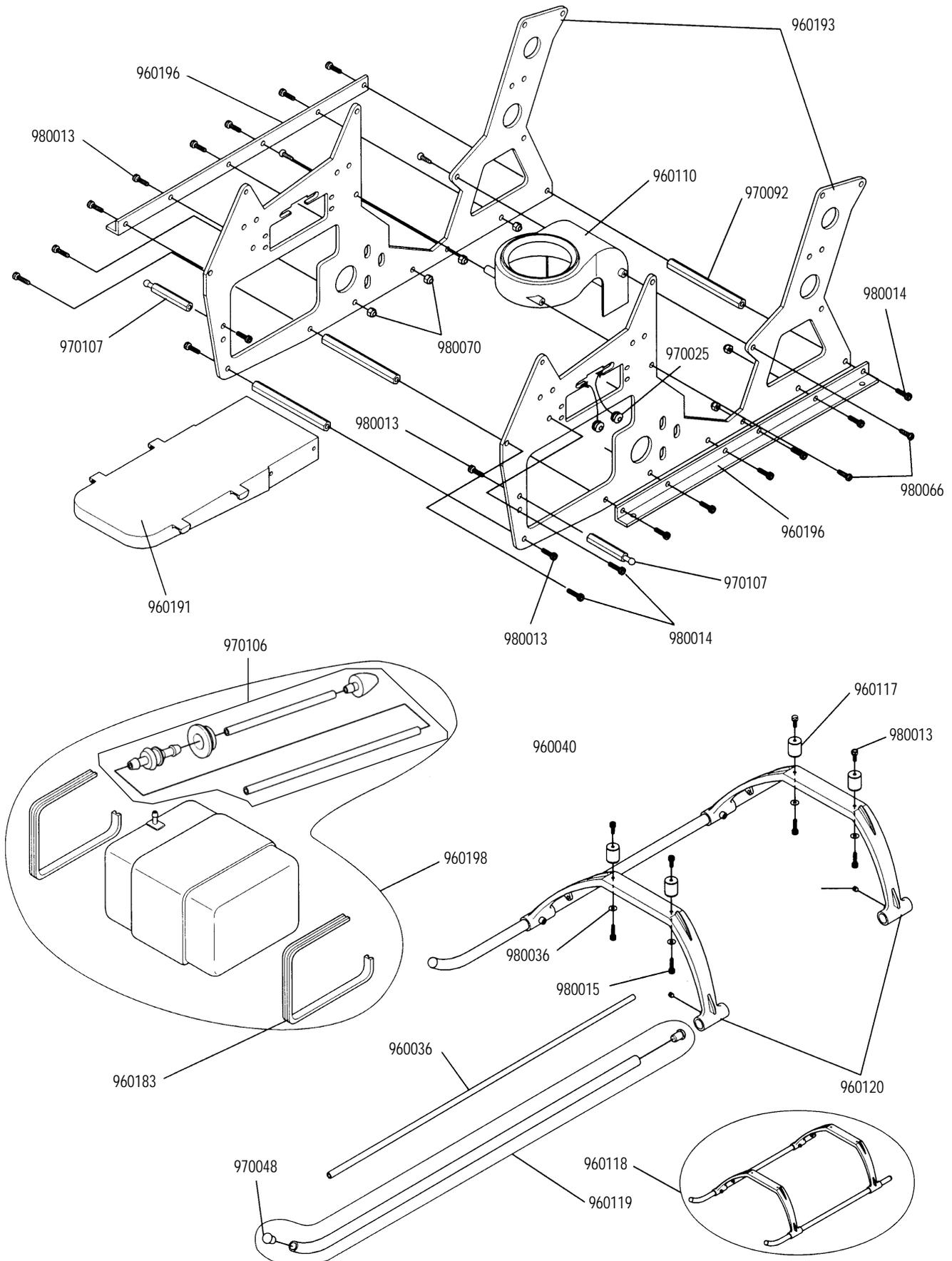
START SHAFT/CLUTCH/ENGINE ASSEMBLY PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
960121	Clutch Assembly	1	Complete w/One-Way Bearing 2 - 4x6mm Socket Head Bolts
960158	Clutch Bell Assembly	1	Complete, Clutch Lining and Bearing
970080	Clutch Lining	1	
960005	Starter Hex Adaptor	1	Complete w/One 4x4mm Set Screw
960006	Start Shaft Assembly	1	
960190	Front Tail Belt Pulley	1	Complete w/One 3x6mm Socket Head Bolt 1 - 3mm Washer
960122	Engine Mount .60	1	
960174	Cooling Fan Blades .60	1	Complete w/Four 3x6mm Socket Head Bolts
960157	Start Shaft Bearing Block	1	Complete w/Bearings
960018	Tail Drive Pinion Bearing Block	1	Complete w/Bearing
960175	Fan Hub .60	1	
970096	Tail Drive Pinion w/Shaft	1	
970031	Pinion Gear (9T)	1	
970049	Taper Collet Upper (A)	1	
970050	Taper Collet Upper (B)	1	
970102	Taper Collet Lower (C)	1	
970103	Taper Collet Lower (D)	1	
970004	Universal Ball Link	10	
980057	Control Rod, 2.3x95mm	2	
970001	Joint Ball w/2x8mm Screw	10	
981025	Bearing, Sealed 5x19x6mm	2	
981005	Bearing, 19x10x22mm	2	
980071	Platwasher, 4mm	10	
980063	Socket Head Bolt, 4x12mm	10	
980064	Socket Head Bolt, 4x15mm	10	
980013	Socket Head Bolt, 3x8mm	10	
980012	Socket Head Bolt, 3x6mm	10	
980004	Set Screw, 4x4mm	10	

UPPER MAIN FRAME/RADIO TRAY/BODY SET PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
960172	Autorotation Assembly	1	
960002	Main Drive Gear 88T	1	Complete w/Four 3x6mm Socket Head Bolts
960170	Main Rotor Shaft	1	
960017	Main Shaft Bearing Block	1	Complete w/Bearing
960192	Upper Main Frame	2	
960031	Servo Mounting Plates	4	8 - 2.6x8mm Self Tapping Screws 8 - 2.6x12mm Self Tapping Screws 8 - 2.6mm Flat Washers
960072	Rubber Grommet	4	
970173	Autorotation Shaft Hub Sleeve	1	Complete w/Clip
970008	Main Shaft Collar	1	Complete w/Four 4x4mm Set Screws
970020	Main Frame Standoff, 32mm	2	
970097	Body Mounting Standoff, 29mm	4	2-3x8mm Socket Head Bolts
970094	Main Frame Spacer, 14mm	14	
982013	Ergo .60 Body Set	1	4 - Rubber Grommets 6 - 2.3x8mm Self Tapping Screws
982012	Ergo .60 Canopy	1	6 - 2.3x8mm Self Tapping Screws
960169	Ergo .60 Decal Set	1	
980026	Self Tapping Screw, 2.6x8mm	10	
980027	Self Tapping Screw, 2.6x12mm	10	
980035	Platwasher, 2.6mm	10	
980061	Socket Head Bolt, 3x25mm	10	
970077	Main Rotor Shaft Bolts	2	2 - 3x22mm Socket Head Bolt 2 - 3mm Lock Nuts
981005	Main Rotor Shaft Bearing	2	2 - 19mm x 10mm x 7mm Bearings

LOWER MAIN FRAME/LANDING GEAR/FUEL TANK



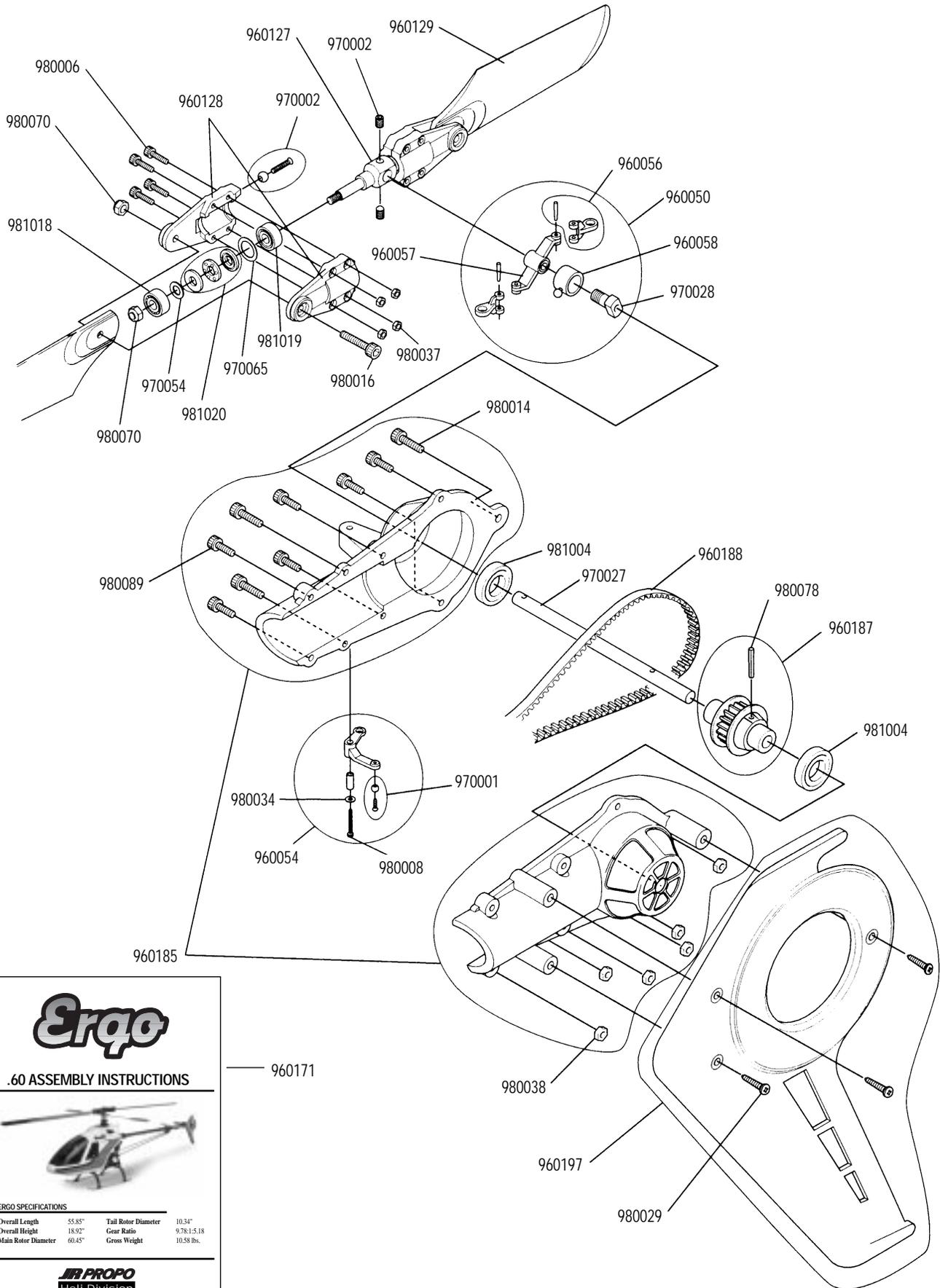
LOWER MAIN FRAME/LANDING GEAR/FUEL TANK PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
960110	Cooling Fan Shroud	1	4 - 2.6x8mm Self Tapping Screws
960196	Lower Frame Angles	2	
960191	Front Radio Bed	1	
960193	Lower Main Frame	2	
960118	Landing Gear Set	1	2 - Landing Skids 2 - Landing Struts 4 - Skid Caps 4 - 4mm Set Screws
960120	Landing Struts	2	
960119	Landing Skids	2	4 - Skid Caps
960036	Antenna Tube	3	
9600198	Fuel Tank Set	1	1 - Fuel Tank 1 - Fuel Stopper 1 - Tank Grommet 2 - Installation Rubbers 1 - Silicone Fuel Tubing 1 - Fuel Clunk 1 - 7x12x1 Washer 1 - 7mm Nut
960183	Tank Mounting Rubber	2	
970092	Main Frame Standoff, 64mm	2	
970107	Body Mounting Standoff, 42mm	4	2 - 3x8mm Socket Head Bolt
970048	Landing Skid Caps	4	
970025	Switch Damper Rubber	4	
960117	Landing Gear Damper	4	
970106	Tank Fitting Set	1	1 - Fuel Tank Stopper 1 - Tank Grommet 1 - Silicone Fuel Tubing 1 - Fuel Tank 1 - 7x12x1 Washer 1 - 7mm Nut

TAIL BOOM/TAIL BRACE/TAIL BOOM CARRIER PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
983006	Tail Brace Set	1	2 - Tail Brace Tube 4 - Tail Brace Connector 4 - 2.6x12mm Socket Head Bolt
960047	Tail Brace Tube	1	
960044	Tail Brace Connector	1	1 - 2.6x12mm Socket Head Bolt
960197	Tail Fin Set	1	1 - Vertical Fin 1 - Horizontal Fin 3 - 3x12mm Self Tapping Screw 2 - 3x12mm Socket Head Bolts 2 - 3mm Lock Nuts
960186	Horizontal Tail Fin/Brace Clamp	1	2 - 3x8mm Socket Head Bolts 2 - 3x12mm Socket Head Bolts 4 - 3mm Lock Nuts
960047	Tail Boom Carrier	1	2 - 3x40mm Socket Head Bolts 4 - 3x15mm Socket Head Bolts 6 - 3mm Lock Nuts
960048	Tail Rod Guide Set	4	4 - Tail Rod Guides 5 - Tail Rod Guide Collars 1 - Tail Control Rod Guide 4 - 2x8mm Self Tapping Screws 1 - 3x10mm Socket Head Bolt
983011	Tail Boom	1	
983010	Tail Control Rod	1	
980088	Dome Nut, 3mm	10	
980084	Set Screw, 3x30mm	5	
983005	Main Rotor Blade Set: 680mm	1 Set	Complete w/weights and covering
980016	Socket Head Bolt, 3x15mm	10	
980014	Socket Head Bolt, 3x10mm	10	
980013	Socket Head Bolt, 3x8mm	10	
980036	Platwasher, 3mm	10	
980009	Socket Head Bolt, 2.6x12mm	10	

TAIL CASE/TAIL BLADE HOLDERS/TAIL PITCH PLATE





.60 ASSEMBLY INSTRUCTIONS



ERGO SPECIFICATIONS			
Overall Length	55.85"	Tail Rotor Diameter	10.34"
Overall Height	18.92"	Gear Ratio	9.78:1.5.18
Main Rotor Diameter	60.45"	Gross Weight	10.58 lbs.



Helicopter Division

TAIL CASE/TAIL BLADE HOLDERS/TAIL PITCH PLATE PARTS LIST

PART #	DESCRIPTION	QUANTITY	COMMENTS /ADDITIONAL CONTENTS
960197	Tail Fin Set	1	1 - Horizontal Fin 1 - Vertical Fin 3 - 3x12mm Self Tapping Screws 2 - 3x12mm Socket Head Bolts 2 - 3mm Lock Nuts
960188	Tail Drive Belt	1	
960050	Tail Slide Ring Assembly	1	Complete w/All Components
960129	Tail Rotor Blades	2	
960128	Tail Blade Holder Set	1 Set	
960185	Tail Case Set (L&R)	1	6 - 2.6x10mm Socket Head Bolts 6 - 2.6mm Hex Nuts 3 - 3x10mm Socket Head Bolt
960054	Tail Pitch Control Lever	1	1 - Lever Bushing 1 - 2x20mm Socket Head Bolt 1 - 2mm Flat Washer 1 - Steel Joint Ball 1 - 2x8mm Flat Head Screw
960187	Tail Case Pulley	1	1 - Pressure Pin
960056	Tail Pitch Link	2	Complete w/2 Link Pins
960057	Tail Pitch Plate	2	
960058	Tail Slide Ring	1	Complete w/Bearing
960171	Ergo .60 Assembly Manual	1	
970001	Steel Joint Ball w/2x8mm Screw	10	10 - 2x8mm Flat Head Screws
970127	Tail Center Hub	1	
970027	Tail Output Shaft	1	
970028	Tail Slide Ring Sleeve	1	
981004	Tail Output Shaft Bearing	2	
981020	Tail Thrust Bearing	2	
981018	Tail Rotor Bearing (Open)	2	
981019	Tail Rotor Bearing (Sealed)	2	
970002	Steel Joint Ball w/2x10mm Screw	10	10 - 2x10mm Flat Head Screws
970065	Tail Washer, 7x10x1mm	2	
970054	Tail Washer, 4x7x5mm	2	
980078	Tail Pulley Spring Pin	1	
980008	Socket Head Bolt, 2x20mm	10	
980034	Platewasher, 2mm	10	
980038	Hex Nut, 2.6mm	10	
980029	Self Tapping Screw, 3x12mm	10	
980089	Socket Head Bolt, 2.6x10mm	10	
980014	Socket Head Bolt, 3x10mm	10	
980016	Socket Head Bolt, 3x15mm	10	
980006	Socket Head Bolt, 2x8mm	10	
980070	Nylon Lock Nut, 3mm	10	
980037	Hex Nut, 2mm	10	

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