

#0549

ADAPTER KIT FOR OPTIONAL GEAR RATIOS IN X-CELL .60 (#1001, #1003)

Purpose

To modify existing components to accept optional main-gear ratios.

9.3 to 1 Gear #0549-93 (93 tooth).

9.4 to 1 Gear #0549-94 (94 tooth).

9.5 to 1 Gear #0549-95 (95 tooth).

9.6 to 1 Gear #0549-96 (96 tooth).

(Each gear choice is available separately and not contained in adapter kit #0549.)

Contents

1	#0029	M2.2x13 Phillips tapping screw
2	#0063	M3x10 Socket head bolts
2	#0009	M3 Small flat washers
4	#0067	M3x14 Socket head bolts
2	#0003	M3 Large flat washers
4	#0080	M4x14 Socket head bolts
6	#0549-4	Motor shims
1	#0549-3	Motor mount (recognized by an index mark on motor surface)
2	#0549-5	Cooling shroud assembly (1 each, left & right)
1	#0549-6	Cooling shroud brace (right)
1	#0549-7	Cooling shroud brace (left)

Instructions

NOTE: The following instructions will assume that the engine/clutch assembly, upper bearing block, fan shroud and motor mount are removed from the model.

Step #1 - Frame Modification:

(Does not apply to X-Cell kits or frames manufactured after 1/1/92.) It is necessary to elongate the slots in the frame that hold the clutch bearing block #0198, bolt #0077. Each slot should be elongated forward a total of 3.0mm. This is simply accomplished by using a center punch to mark the frames 1.5mm ahead of each slot. Drill each mark with an M3 drill (.118") and use a small file to even out the slot. The following will explain the use of the above slots, the motor shims #0549-4 and motor mount 0549-3.

<u>Ratio</u>	<u>Motor Shims</u>	<u>Resultant Engine Shift (forward)</u>
9.3 to 1	3 each side	1.37mm (.054")
9.4 to 1	2 each side	1.835mm (.0722")
9.5 to 1	1 each side	2.315mm (.0911")
9.6 to 1	None	2.710mm (.1067")

Step #2 - Main Gear:

Select the main gear best suited for your application. The following are general guidelines and are not to be considered the only choices.

9.3, 9.4 to 1: Good for overall use with a wide variety of engines (particularly O.S. .61 SFN-FSR, Enya XF IV, Webra .61 and Super Tiger) with moderate rpm ranges. This ratio will allow hovering rpm down to about 1,300 with engine/carburetor difficulties. Top rotor speed usually at about 1,700 maximum. A good "hotdog" type ratio where engine loading is a little greater but top rotor speed is still desirable. Miniature Aircraft USA modified engines (O.S. or Enya short stroke responds well with this ratio and up to 680.0mm blades) - 9.3 - 9.4 to 1 may still be used for constant rotor speed type setups, if desired (1,600 - 1,700 rpms).

9.5 to 1: Similar to 9.4 to 1 in general characteristic - except that hovering rpm can be further reduced by 50 to 75 rpm without difficulty. A constant type rpm setup or 1,600 to 1,700 can still be utilized, if desired, with this ratio. Top rpm will drop by 50 rpm as compared to 9.4 to 1. Some long-stroke engines respond well to 9.5 to 1.

9.6 to 1: The preferred ratio for longstroke (O.S. series or Y.S. long stroke) and higher rpm motors (Rossi, OPS, and Pico). Allow a very low hover rpm (if desired) and good top end, while avoiding the typical "long-stroke hump" in the mid-range. 9.6 to 1 is particularly popular with European and Japanese pilots. Depending on the particular motor chosen, top rpm may be slightly lower than with other ratios.

Install the main gear as per original instructions.

Step #3 - Motor and Fan Shroud

Replace the original motor mount #0191 with mount #0549-3. The three holes on each side have been shifted 2.71mm to reposition the motor. Remember to use the correct shims that apply to your choice of main-gear ratio. Once again: For 9.3 to 1 use three per side, for 9.4 to 1 use two per side, for 9.5 to 1, use one per side, and 9.6 to 1, use none. Use four M4x14 socket head bolts #0067 to secure the motor (and shims) to motor.

Position the assembly within the frames and temporarily secure with one original socket bolt #0063 and washer #0003 in the further most rear hole of the motor mount on each side. Select both pieces of fan shroud brace #0549-6. The left-hand version mount via the uppermost and lowermost motor mount through the 4.75 and 3.0mm holes in the braces. When installed, the left-hand version sweeps forward and inward at the top. The 4.75mm hole at the bottom allows fore and aft adjustment, while the slot at the top allows up/down fan shroud adjustment. The right-hand version is the opposite. Use one M3x10 socket head bolt #0063 on each side into the fan shroud along with the M3 small flat washers #0009. Use two M3x14 socket head bolts #0067 with the M3 large flat washers #0003 at the lower end of the brace (into the motor mount). It is best to use the rearmost motor mount bolt on each side to hold the motor and the gear mesh, while adjusting the fan shroud braces for proper fan clearance. Now you may tighten each bolt.

Generally the rear fan shroud mounting boss will tolerate any re-positioning of the fan shroud to accommodate the various gear ratios. If, for some reason, you would like to move the rear or the shroud also, there is extra plastic molded behind the bolt holes on each side to allow for the drilling of new holes. However, this is usually not necessary.

NOTE: One additional M2.2x13 Phillips tapping screw #0029 is provided for the new position under the front of the shroud. Any other assembly procedures will be the same as in the original assembly manual.

