FALCON 56

R/C MODEL, KIT G15

SINGLE TO 4 CHANNEL PROPORTIONAL

FOR .15 - .19 - .35 ENGINES

SPAN: 56"
LENGTH: 43"
AREA: 558 sq. in.
WEIGHT: 3½ lbs.
(With 3 channel Equipt.)

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Parts of this plan have been updated, to incorporate all important changes, such as 1-piece sides, wider nose for longer engines, inclusion of our new nylon fittings (replacing other horns, links, retainers, etc., where shown), information on modern radio equipment and optional ailerons, etc. Some information on the plan may appear obsolete, and should be ignored.

WING ASSEMBLY

1 TRACE AIRFOIL ON BLOCK AND CARVE TO SHAPE.
2 SCOTCH TAPE ON BOTH SIDES WHILE BUILDING
3 CARVE WINGTIP TO ROUND SHAPE AFTER COMPLETING WING PANEL ASSEMBLY
4 USE EXTREME CARE IN MATCHING LEADING AND TRAILING EDGE JOINTS
5 Precement all joining surfaces. Assemble braces to one wing panel, then add the other.
6 1/16" SHEET CEMENT TOGETHER ON FLAT SURFACE

6 PLATFORM RIB | SQUARE CUT | SHAPED LEADING EDGE | #6 PLATFORM RIB | SQUARE CUT SHAPED WING TIP | #5 RIB | "TACK CEMENT" TEMPORARY SANDING GAUGES | #2 PLATFORM RIB | #8 GAUGE | NO NOTCH AT CENTER | SHAPED TRAILING EDGE | BUILD WING OVER FULL SIZE PLAN | PUSH IN AGAINST WING TIP | 1/4" x 15/16" SPAR | PINS | 3/16" GUSSET | 1/4" x 5/8" SPAR (ANGLED EDGES TOWARD CENTER OF WING) | COMPLETE WING PANEL ASSEMBLY | GUIDE SANDING BLOCK ON SPAR ANGLES | REMOVE GAUGES | #1 RIB | 1/4" BALSA JOINER | 1/8" PLY JOINER | REMOVE RIB PLATFORMS | JOINING WING HALVES WITH DIHEDRAL LET DRY OVERNIGHT | BOOKS | WORK TABLE | 5-3/4" DIHEDRAL | LEVEL WING FRAME WITH 1/4" SCRAP STOCK | 3/16" GUSSET

1/8" PLY JOINER | NYLON OVER COMPLETE CENTER JOINT, TOP AND BOTTOM | T1 | B4 | JOINER | B5 | T2 | PLATFORM RIB | 1/16" SHEET COVERING TOP AND BOTTOM | T3 | B6 | ADD SPLIT DOWEL KEYS FOR WING ALIGNMENT AFTER COVERING | 1/16" WIRE | T1 T2 T3 ACROSS TOP | B4 B5 B6 ACROSS BOTTOM | JOIN TO SECTION BELOW

TAIL ASSEMBLY

NYLON | 1/16" SHEET COVERING TOP AND BOTTOM | TIP SECTION | 1/8" DOUBLER IN NOTCH | 1/8" SPAR | NO RIB NOTCH AT CENTER | 1/8" JOINER | CUT AWAY SLOT FOR RUDDER ON TOP ONLY | CEMENT SOFT BALSA TIPS IN PLACE, CARVE TO RIB CONTOUR THEN CARVE TO SECTION SHOWN | SPLIT DOWEL KEYS | 1/4" x 7/16" SPAR | SCOTCH TAPE ON BOTH SIDES WHILE BUILDING | CEMENT | FIN | NYLON HINGES | NYLON HINGE | SPAR | SOFT BALSA TIPS | 1/4" x 1/2" FROM DIE-CUT SHEET | 1/8" x 3/8" BIRCH STRIP | NOTCH FOR RUDDER – ONLY, CEMENT ELEVATOR ON FIRMLY | FOR MULTI, CUT ELEVATOR LOOSE | CUT "V" SLOT | CUT INDENTATION | PLATFORM RIB | FOR MULTI, "TACK CEMENT" TO REAR STABILIZER SPAR | 3/16" GUSSET | MARK RIB POSITIONS | SHAPED TRAILING EDGE (ELEVATOR) | RUDDER | REAR STABILIZER SPAR | SPAR JOINER | BIRCH STRIP ATTACH HORN AFTER COVERING | ELEVATOR

SPECIAL NOTE
Using plan for location join rear stabilizer spar and spar joiner Center by finger gauging. Notch elevator for birch strip, then join. When dry, sand off protruding edges, and proceed to assemble stabilizer on flat surface

OPTIONAL AILERON INSTALLATION

PARTS NOT FURNISHED – SEE REPRESENTATIVE SKETCH AT RIGHT

ADD 1/8" X 1/4" PLY | 1/8" PLY JOINER | OPTIONAL: 1" AILERON IS BEST: MAKE FROM TRIANGULAR STOCK (NOT FURNISHED)
HOWEVER 3/4" AILERON IS ADEQUATE; CAN BE CUT FROM TRAILING EDGE AS SHOWN

RUDDER SECTION AT HORN | MAKE HOOK FROM PIN | RUBBER BAND | THIN INSULATED ANTENNA WIRE (USUALLY SUPPLIED WITH RECEIVER) | Rudder size is small to keep action mild for beginners. After experience is gained, if you want more action trim 1" off rear edge of fin, and make new rudder 1" wider. | NEW HINGE LINE | 1/2"

NOTES ON R/C EQUIPMENT

For maximum performance, the Falcon 56 can be equipped with a 4 or 5-channel proportional radio outfit to control the rudder, elevator, engine, and ailerons. If you expect to go on to more advanced models, which normally use ailerons, it would be best to obtain that kind of equipment if you can afford it. There are a number of manufacturers of high grade equipment, such as Kraft, Orbit, Logictrol, Controlaire, etc.

The design of the Falcon 56, however, is such that it can be flown without ailerons and still get very satisfactory performance. This is the way it is flown by most modelers, since it permits a simpler installation. This opens the possibility of using 3-channel proportional, which is available from Logictrol, World Engines, and a few others. However, this should only be done if one does not expect to want 4 or 5 channels in the future.

A special type of equipment which has attained much popularity is known as "Galloping Ghost." Here, single channel radio, using actuators of unique design, is made to operate rudder, elevator, and engine. In this system, the movable control surfaces continually flutter back and forth, and the average position determines the effect on the plane. Cost of Galloping Ghost runs from 40% to 60% of the 3-channel equipment. Main disadvantage besides the fluttering appearance (not noticeable in flight) is the much lower power of the actuators compared to servos. This requires great care in obtaining the least possible friction in hinges and pushrod installations. Also, operating the throttle gives momentary strong up-elevator. Good Galloping Ghost equipment is made by Hallco, Logictrol, Controlaire, Min-X, and others.

In Galloping Ghost, the equipment with dual actuators gives a smoother, more powerful response than single. It is more expensive, naturally. However, the single actuator type is satisfactory with engines of .15 to .19 displacement, and even somewhat more. Whether dual or single actuator, the hinging of the surfaces must be free enough so that they flop back and forth readily under their own weight. Also, the pushrods must be fairly stiff, light, and remain well clear of bellcranks, etc. Even the slightest binding must be worked out so as not to waste the power of the actuators.

HOW TO USE THE FITTINGS IN YOUR KIT

SNAP'R KEEPERS – Quickest, handiest way to secure pushrod wire end to servo, horns, etc. Nylon can be squeezed together with pliers to work on wire under 1/16" diameter.

NYLON AJUSTO-LINKS – Ajusto-Link is used for adjusting linkage to control surfaces, throttle, steerable nose gear, etc. Nylon = tough and no electrical noise. Takes heavy load.

LONG CONTROL HORNS – Control Horn has right size holes for 1/16" wire, and nut plate for simplest mounting to control surface. Horn is long for maximum range of throw; can be cut down.

AILERON BELLCRANKS NOT FURNISHED – Bellcrank has steel bushing so crank can be soldered firmly in place without binding. No electrical noise – all metal parts are soldered rightly together.

BLIND NUTS | 1/8" PLY AILERON BELLCRANK PLATFORM | 1/8" SQ. SERVO RAILS (CARVE TO SHAPE)

REPRESENTATIVE AILERON SERVO INSTALLATION (AS USED ON CG SR. FALCON)
Carve servo rails to shape. Drill holes and mount servo. Then cement rails in top sheeting and ribs. When dry, servo may be removed.

COVERING PROCEDURE

1. Silk is an excellent all purpose covering for R/C models of this size. However, nylon and heavy grades of model paper may also be used.

2. The best adhesive is clear nitrate dope, but clear butyrate dope will do, although it dries slower.

3. All surfaces, whether sheet balsa or framework, should be covered. Use the following procedure:
   a. Sand all surfaces to a smooth contour.
   b. Coat all surfaces, which come in contact with covering, with clear dope; this will seal or prime the surfaces. Two coats of prime are best, sanding lightly when each is dry.
   c. Cut silk slightly oversize (1" grip allowance); 4 pieces for the wing, 4 for the fuselage, 2 each for rudder and stabilizer. Wet the silk and lay in place, working out all wrinkles. Lift an edge (the shortest) and apply clear dope generously in a band about 1/2" wide; lay silk down, and smooth out by rubbing and pressing with fingers, working out all wrinkles. Let dry and repeat on opposite edge, stretching the silk moderately. Let dry. Now work with the long sides, doping down a few inches at a time on both sides and only stretching enough to remove all wrinkles. Trim excess silk with razor blade and dope down all fuzzy edges.
   d. Use thinned clear butyrate dope (50-50) for finishing. This will penetrate the silk and bond it to the balsa. Apply 4 coats, letting each dry about one hour. Now apply as many coats full strength dope as necessary to thoroughly fill the pores of the silk. Avoid tail heaviness. Silk may be sanded between coats of dope but sand lightly with the finest grade of sandpaper available (#400 Wetordry or finer).

4. Colored dope (butyrate) trim may now be applied. Mask off areas to be colored and apply thin coats until desired color is obtained.

5. Dope areas around the tank and engine with several extra coats of colored dope to prevent fuel and oil penetration of the wood framework.

PRECEMENTING

Pre-cement all highly stressed points, such as wing center joints, engine mount and landing gear joints, and joints of sheet balsa fuselage.

The proper technique is as follows: Coat both joining areas with cement, rub into the wood surface and let dry. Next coat these areas generously with cement and join using light clamping, or applying weights on laminated areas. We recommend you use only high grade model cement for most joints, an. white glue (Elmer's, Wilhold, etc.) for laminating fuselage doublers.

YOUR SUGGESTIONS WANTED!

Modelers often have ideas for improvements. We will be happy to hear from you by post card or letter on:
1. Your suggestions.
2. What you like best about our models.
3. What three new models you'd most like to see us bring out.

Be sure to include your name, age, and address so we can reply and thank you.

COLOR SCHEME
ALL SURFACES RED, BLACK TRIM
WHITE PIN STRIPING

TIP SECTION | 5 | 5 | 5 | 6 PLATFORM RIB | 5

SCOTCH TAPE ON BOTH SIDES WHILE BUILDING

ONE OF OUR NEW "SYMMET-TRU" WING CONSTRUCTION METHODS (NOW WIDELY IMITATED). DETACHABLE PLATFORMS KEEP WING TRUE ON TABLE.

SCOTCH TAPE ON BOTH SIDES | 3/16" GUSSET | LEAVE 1/8" LEDGE FOR CEMENTING | TRIM AND FIT CANOPY TO CENTER OF WING

FUSELAGE ASSEMBLY

HATCH COVER | 1/4" FUSELAGE ENDS | 1/8" PLYWOOD FIREWALL | 1/4" SHEET | 1/8" SHEET | 1/16" BRACES | "J" BOLTS | "A" ASSEMBLY | 1/8" PLYWOOD | 1/8" SHEET | NOSE GEAR

1 Cement parts shown on flat surface. Drill firewall former and fasten nose gear with "J" bolts.

APPLY WEIGHTS ON LAMINATED AREAS | 1/16" DOUBLERS | 1/8" SIDE, RIGHT HAND | 1/8" SIDE, LEFT HAND | PRE-CEMENT | 1/16" SIDE DOUBLER | MAKE ONE LEFT SIDE AND ONE RIGHT SIDE

2 Glue doublers to sides using white glue such as Elmers or Wilhold

WING REST DOUBLER | "A" ASSEMBLY | "TACK CEMENT" 1/8" PLYWOOD SHEAR PLATE IN PLACE AS TEMPORARY NOSE ALIGNMENT FIXTURE. | FUSELAGE END | 1/4" SPACER | BRACE ON REAR | FIREWALL (NOTE GEAR ON REAR)

3 Assemble sides to formers along with wing rest doublers, end pieces, and engine bearers. IMPORTANT: Proceed at once good

USE WHITE GLUE | LANDING GEAR MOUNT ASSEMBLY ALL 1/8" PLY | 1/8" STAB PLATFORM ASSEMBLY | FUSELAGE TOP | LOCATE LANDING GEAR MOUNT ASSEMBLY AGAINST B7 | MAIN LANDING GEAR | NOSE GEAR | PLYWOOD LANDING GEAR BRACES

4 Prejoin fuselage bottom parts B7, B8, and B9, and then cement to bottom. Cement main landing gear assembly in place. Finish sheeting bottom of fuselage, add "Wasson" truss braces and then rear top covering.

(Fuselage top view from older plan)

SCRAP 1/8" BALSA BACKREST | OPTIONAL PILOT FIGURE | DOPE 1/16" BLACK TAPE INSIDE RAISED BEAD | CEMENT CANOPY TO FINISHED WING | BACKREST | RUBBER BANDS | 1/4" DOWEL | WING KEYS SPLIT 1/4" DOWEL | BALANCE POINT 3¾" – 4" TO L.E. OF WING | TIE RESTRAINING KNOT INSIDE | THROTTLE SERVO | NOTCH RAIL TO CLEAR WASSON BRACING | SNAP'R KEEPER | 1/4" DOWEL | PIN THROUGH BOTTLE NECK AND STOPPER | 4 OZ. CLUNK TANK, UP TO .35 ENG. USE 2 OZ. FOR .15'S. | BATTERY PACK | 1/4" x 1/2" BALSA RAIL | RUDDER AND ELEVATOR SERVOS | 1/8" PLY STRIP | 1/4" SQ. BALSA | 1/8" PLYWOOD FIREWALL | J-BOLT, WASHER & NUT | CUT RECESS IN ENGINE BEARERS FOR SCREW HEAD CLEARANCE | TANK OVERFLOW | BLIND MOUNTING NUTS | #4-40 MACH. SCREWS 3/4" LONG

Inexperienced flyers should use .15 to .19 engines, experienced flyers up to .35. For engines above .19, use right thrust – about 3/16" to ¼" difference in distance from propeller tips (horizontal) to rear of fin. Also, add downthrust as required, with washers under rear engine lugs.

O.S. 15 R/C ENGINE SHOWN | 1/8" PLYWOOD ENGINE SHEAR PLATE (1 SPARE SUPPLIED) | 1-3/4" PLASTIC SPINNER (NOT SUPPLIED) | MACH. SCREWS 1/2" LONG | HATCH COVER – HOLLOW OUT TO CLEAR TANK IF NECESSARY | AJUSTO-LINK ENGINE SERVO LINKAGE

NEW "WASSON" TRUSS BRACING TO DISTRIBUTE AND DISSIPATE HIGH IMPACT LOADS

#2 X 5/16" SHEET METAL SCREWS | ½" NYLON TIES ACROSS BOTTOM | FORMED MAIN GEAR | 2½" AIRWHEEL (NOT FURNISHED) | 1/8" PLY RECEIVER COMPARTMENT BULKHEADS. BE SURE SERVO OUTPUT ARMS CLEAR.

METHOD OF MOUNTING TYPICAL PLASTIC CASE SERVOS
SHT. METAL SCREWS | WASHER | SERVO | 1/4" x 1/2 BALSA RAIL CEMENTED TO SIDE | 1/8" PLY STRIP
Above sketch shows vertical mounting. For flat mounting, use double face foam tape.

EYELET – SOLDER TO AXLE | EYELET | SPACE WITH MATCH BOOK COVER | WHEEL

FORMED NOSE GEAR | 2-1/4" AIRWHEEL (NOT FURNISHED) | 9-4 PROP | ADD 1/4" NOSE REINFORCEMENTS AFTER BLIND NUTS

AVOID DOPING TAIL TOO MUCH TO PREVENT TAIL-HEAVINESS. ADD WEIGHT UNDER NOSE IF NECESSARY

1/16" WIRE SKID (OPTIONAL) | NOTE: MAKE ALL JOINTS WITH HIGH GRADE MODEL AIRPLANE CEMENT OR WHITE GLUE

SAND RUDDER TO STREAMLINE SHAPE BEFORE ATTACHING HINGES | FOR RUDDER-ONLY, ADD 1/32" SHIM UNDER STAB | HOLD CLEARANCE | ¾" DOWEL | RUBBER BANDS | 1/16" WIRE | RUDDER PUSHROD | ELEVATOR PUSHROD | ¾" SQ. PUSHROD | BLACK TRIM | WHITE PIN STRIPING | ADD STABILIZER KEYS WITH TAIL ON FUSELAGE, RUDDER POINTING DEAD STRAIGHT AHEAD | NYLON

ANTENNA

3/16" DOWEL | 1/4" SPACER | OPTIONAL DUBRO RETAINER | STABILIZER PLATFORM | TO RUDDER SERVO | TO ELEVATOR SERVO | 3/16" DOWEL

RUDDER SERVO | OPTIONAL DUBRO RETAINER | ELEVATOR SERVO | ENGINE SERVO | ¼" GUSSETS | SPONGE | RECEIVER | Battery box for servos in this area | Battery box for receiver in this area | 3/4" THIN WOOD SCREW FOR HATCH COVER RETAINING RUBBER BANDS | USING 1/8" PLYWOOD SHEAR PLATE AS TEMPLATE DRILL 7/64" HOLES | SOLDERED WASHER | TANK | HATCH COVER | TANK OUTLET TO ENGINE