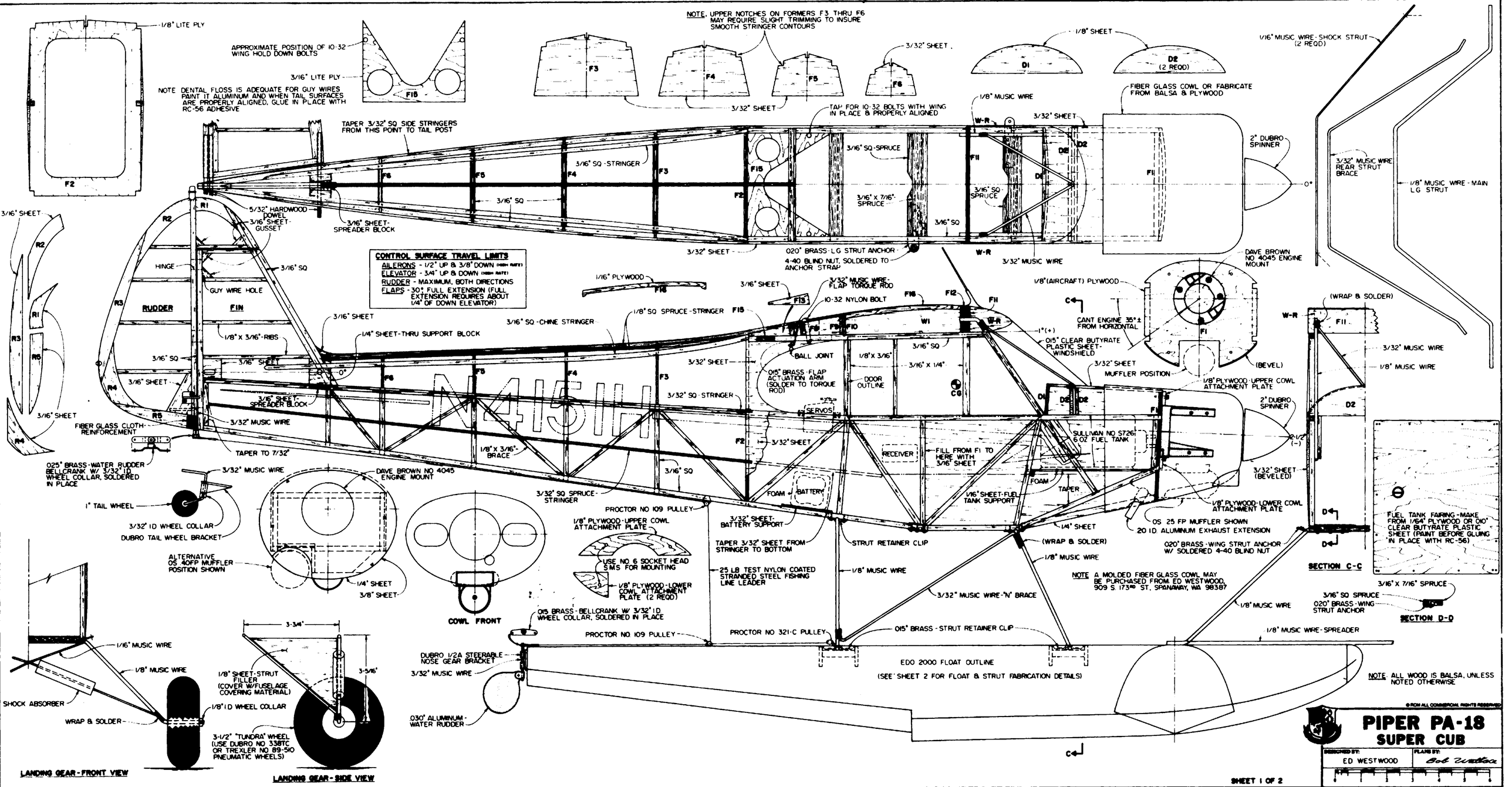
NOTE: UPPER NOTCHES ON FORMERS F3 THRU F6 MAY REQUIRE SLIGHT TRIMMING TO INSURE SMOOTH STRINGER CONTOURS
1/8" LITE PLY
F2
APPROXIMATE POSITION OF 10-32 WING HOLD DOWN BOLTS
3/16" LITE PLY
F16
NOTE DENTAL FLOSS IS ADEQUATE FOR GUY WIRES PAINT IT ALUMINUM AND WHEN TAIL SURFACES ARE PROPERLY ALIGNED, GLUE IN PLACE WITH RC-56 ADHESIVE
F3
F4
F5
F6
3/32" SHEET
3/32" SHEET
1/8" SHEET
D1
D2 (2 REQD)
1/16" MUSIC WIRE-SHOCK STRUT (2 REQD)
FIBER GLASS COWL OR FABRICATE FROM BALSA & PLYWOOD
1/8" MUSIC WIRE
TAP FOR 10-32 BOLTS WITH WING IN PLACE & PROPERLY ALIGNED
TAPER 3/32" SQ SIDE STRINGERS FROM THIS POINT TO TAIL POST
3/16" SQ-STRINGER
3/16" SQ
3/16" SQ-SPRUCE
3/16" X 7/16" SPRUCE
3/16" SQ SPRUCE
3/16" SQ
3/32" SHEET
2" DUBRO SPINNER
3/32" MUSIC WIRE REAR STRUT BRACE
1/8" MUSIC WIRE-MAIN LG STRUT
F1
F11
D2
D1
W-R
3/16" SHEET
R1
R2
R3
R4
R5
5/32" HARDWOOD DOWEL
3/16" SHEET-GUSSET
3/16" SHEET-SPREADER BLOCK
HINGE
3/16" SQ
GUY WIRE HOLE
RUDDER
FIN
CONTROL SURFACE TRAVEL LIMITS
AILERONS - 1/2" UP & 3/8" DOWN (HIGH RATE)
ELEVATOR - 3/4" UP & DOWN (HIGH RATE)
RUDDER - MAXIMUM, BOTH DIRECTIONS
FLAPS - 30° FULL EXTENSION (FULL EXTENSION REQUIRES ABOUT 1/4" OF DOWN ELEVATOR)
020" BRASS-LG STRUT ANCHOR
4-40 BLIND NUT, SOLDERED TO ANCHOR STRAP
3/32" MUSIC WIRE
DAVE BROWN NO 4045 ENGINE MOUNT
1/16" PLYWOOD
F18
3/16" SHEET
3/32" MUSIC WIRE-FLAP TORQUE ROD
10-32 NYLON BOLT
F13
F16
F12
F11
1/8" (AIRCRAFT) PLYWOOD
CANT ENGINE 35°± FROM HORIZONTAL
(WRAP & SOLDER)
3/32" MUSIC WIRE
1/8" MUSIC WIRE
3/16" SQ-CHINE STRINGER
1/8" SQ SPRUCE-STRINGER
F15
F9
F8
F10
W1
1/8" X 3/16"-RIBS
1/4" SHEET-THRU SUPPORT BLOCK
3/16" SQ
3/16" SHEET
3/16" SQ
1°(+)
015" CLEAR BUTYRATE PLASTIC SHEET-WINDSHIELD
3/32" SHEET
BALL JOINT
1/8" X 3/16"
3/16" X 1/4"
3/32" SHEET
015" BRASS-FLAP ACTUATION ARM (SOLDER TO TORQUE ROD)
DOOR OUTLINE
MUFFLER POSITION
1/8" PLYWOOD-UPPER COWL ATTACHMENT PLATE
(BEVEL)
(WRAP & SOLDER)
3/32" MUSIC WIRE
1/8" MUSIC WIRE
3/16" SHEET
3/16" SHEET-SPREADER BLOCK
3/32" SQ-STRINGER
SERVOS
2" DUBRO SPINNER
2-1/2° (-)
FIBER GLASS CLOTH-REINFORCEMENT
3/32" MUSIC WIRE
TAPER TO 7/32"
1/8" X 3/16"-BRACE
3/32" SHEET
RECEIVER
FILL FROM F1 TO HERE WITH 3/16" SHEET
SULLIVAN NO S726-6 OZ FUEL TANK
3/32" SHEET (BEVELED)
025" BRASS-WATER RUDDER BELLCRANK W/ 3/32" ID WHEEL COLLAR, SOLDERED IN PLACE
3/32" MUSIC WIRE
DAVE BROWN NO 4045 ENGINE MOUNT
3/16" SQ
3/32" SQ SPRUCE-STRINGER
FOAM
BATTERY
FOAM
TAPER
1/16" SHEET-FUEL TANK SUPPORT
1/8" PLYWOOD-LOWER COWL ATTACHMENT PLATE
1° TAIL WHEEL
3/32" ID WHEEL COLLAR
DUBRO TAIL WHEEL BRACKET
PROCTOR NO 109 PULLEY
1/8" PLYWOOD-UPPER COWL ATTACHMENT PLATE
3/32" SHEET-BATTERY SUPPORT
TAPER 3/32" SHEET FROM STRINGER TO BOTTOM
STRUT RETAINER CLIP
1/4" SHEET
(WRAP & SOLDER)
1/8" MUSIC WIRE
OS 25 FP MUFFLER SHOWN
20 ID ALUMINUM EXHAUST EXTENSION
020" BRASS-WING STRUT ANCHOR W/ SOLDERED 4-40 BLIND NUT
SECTION C-C
FUEL TANK FAIRING-MAKE FROM 1/64" PLYWOOD OR .010" CLEAR BUTYRATE PLASTIC SHEET (PAINT BEFORE GLUING IN PLACE WITH RC-56)
ALTERNATIVE OS 40FP MUFFLER POSITION SHOWN
1/4" SHEET
3/8" SHEET
COWL FRONT
USE NO 6 SOCKET HEAD SMS FOR MOUNTING
1/8" PLYWOOD-LOWER COWL ATTACHMENT PLATE (2 REQD)
25 LB TEST NYLON COATED STRANDED STEEL FISHING LINE LEADER
1/8" MUSIC WIRE
NOTE A MOLDED FIBER GLASS COWL MAY BE PURCHASED FROM ED WESTWOOD, 909 S. 173RD ST, SPANAWAY, WA 98387
3/32" MUSIC WIRE-"N" BRACE
3/16" X 7/16" SPRUCE
3/16" SQ SPRUCE
020" BRASS-WING STRUT ANCHOR
SECTION D-D
1/8" MUSIC WIRE
015" BRASS-BELLCRANK W/ 3/32" ID WHEEL COLLAR, SOLDERED IN PLACE
PROCTOR NO 109 PULLEY
PROCTOR NO 321-C PULLEY
015" BRASS-STRUT RETAINER CLIP
1/8" MUSIC WIRE-SPREADER
DUBRO 1/2A STEERABLE NOSE GEAR BRACKET
3/32" MUSIC WIRE
EDO 2000 FLOAT OUTLINE
(SEE SHEET 2 FOR FLOAT & STRUT FABRICATION DETAILS)
NOTE: ALL WOOD IS BALSA, UNLESS NOTED OTHERWISE
030" ALUMINUM-WATER RUDDER
1/16" MUSIC WIRE
1/8" MUSIC WIRE
SHOCK ABSORBER
WRAP & SOLDER
LANDING GEAR-FRONT VIEW
3-3/4"
3-5/16"
1/8" SHEET-STRUT FILLER (COVER W/FUSELAGE COVERING MATERIAL)
1/8" ID WHEEL COLLAR
3-1/2" "TUNDRA" WHEEL (USE DUBRO NO 338TC OR TREXLER NO 89-510 PNEUMATIC WHEELS)
LANDING GEAR-SIDE VIEW
N4151H
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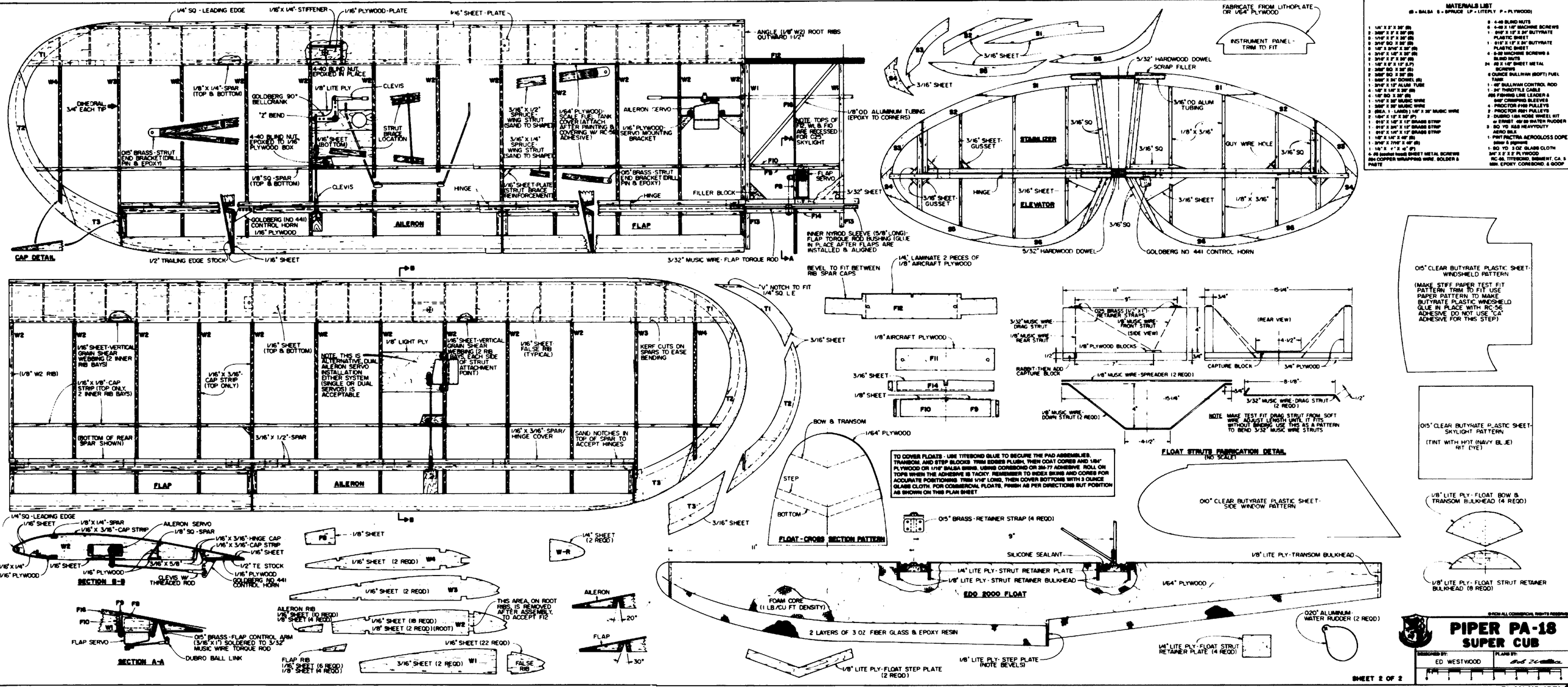
PIPER PA-18
SUPER CUB
DESIGNED BY: ED WESTWOOD
PLANS BY: Bob Wallace
SHEET 1 OF 2


1/4" SQ - LEADING EDGE
1/16" X 1/4" STIFFENER
1/16" PLYWOOD PLATE
1/16" SHEET PLATE
ANGLE (1/8" W2) ROOT RIBS OUTWARD 1/2"
DIHEDRAL 3/4" EACH TIP
1/8" X 1/4" SPAR (TOP & BOTTOM)
4-40 BLIND NUT EPOXED IN PLACE
GOLDBERG 90° BELLCRANK
"Z" BEND
4-40 BLIND NUT EPOXED TO 1/16" PLYWOOD BOX
1/8" LITE PLY
CLEVIS
1/16" SHEET (BOTTOM)
STRUT BRACE LOCATION
3/16" X 1/2" SPRUCE WING STRUT (SAND TO SHAPE)
3/16" X 1/4" SPRUCE WING STRUT (SAND TO SHAPE)
1/64" PLYWOOD SCALE FUEL TANK COVER (ATTACH AFTER PAINTING & COVERING W/ RC-56 ADHESIVE)
AILERON SERVO
1/16" PLYWOOD SERVO MOUNTING BRACKET
NOTE TOPS OF F2, W1 & F10 ARE RECESSED FOR C29 SKYLIGHT
1/8" OD ALUMINUM TUBING (EPOXY TO CORNERS)
.015" BRASS-STRUT END BRACKET (DRILL PIN & EPOXY)
1/8" SQ - SPAR (TOP & BOTTOM)
CLEVIS
HINGE
1/16" SHEET-PLATE (STRUT BRACE REINFORCEMENT)
.015" BRASS-STRUT END BRACKET (DRILL PIN & EPOXY)
HINGE
FILLER BLOCK
FLAP SERVO
3/32" SHEET
GOLDBERG (NO 441) CONTROL HORN 1/16" PLYWOOD
AILERON
FLAP
INNER NYROD SLEEVE (5/8" LONG) - FLAP TORQUE ROD BUSHING (GLUE IN PLACE AFTER FLAPS ARE INSTALLED & ALIGNED
CAP DETAIL
1/2" TRAILING EDGE STOCK
1/16" SHEET
3/32" MUSIC WIRE - FLAP TORQUE ROD
FABRICATE FROM LITHOPLATE OR 1/64" PLYWOOD
INSTRUMENT PANEL - TRIM TO FIT
3/16" SHEET
5/32" HARDWOOD DOWEL SCRAP FILLER
3/16" OD ALUM TUBING
STABILIZER
3/16" SHEET-GUSSET
3/16" SQ
1/8" X 3/16"
GUY WIRE HOLE
HINGE
ELEVATOR
5/32" HARDWOOD DOWEL
GOLDBERG NO 441 CONTROL HORN
1/16" SHEET-VERTICAL GRAIN SHEAR WEBBING (2 INNER RIB BAYS)
(1/8" W2 RIB)
1/16" X 1/8" CAP STRIP (TOP ONLY, 2 INNER RIB BAYS)
1/16" X 3/16" CAP STRIP (TOP ONLY)
1/16" SHEET (TOP & BOTTOM)
NOTE: THIS IS ALTERNATIVE DUAL AILERON SERVO INSTALLATION EITHER SYSTEM (SINGLE OR DUAL SERVOS) IS ACCEPTABLE
1/8" LIGHT PLY
1/16" SHEET-VERTICAL GRAIN SHEAR WEBBING (2 RIB BAYS, EACH SIDE OF STRUT ATTACHMENT POINT)
1/16" SHEET FALSE RIB (TYPICAL)
KERF CUTS ON SPARS TO EASE BENDING
(BOTTOM OF REAR SPAR SHOWN)
3/16" X 1/2" SPAR
1/16" X 3/16" SPAR/ HINGE COVER
SAND NOTCHES IN TOP OF SPAR TO ACCEPT HINGES
FLAP
AILERON
BEVEL TO FIT BETWEEN RIB SPAR CAPS
1/4" LAMINATE 2 PIECES OF 1/8" AIRCRAFT PLYWOOD
"V" NOTCH TO FIT 1/4" SQ L.E.
3/16" SHEET
1/8" AIRCRAFT PLYWOOD
3/16" SHEET
1/8" SHEET
BOW & TRANSOM
1/64" PLYWOOD
STEP
BOTTOM
3/16" SHEET
FLOAT - CROSS SECTION PATTERN
TO COVER FLOATS - USE TITEBOND GLUE TO SECURE THE PAD ASSEMBLIES, TRANSOM, AND STEP BLOCKS. TRIM EDGES FLUSH, THEN COAT CORES AND 1/64" PLYWOOD OR 1/16" BALSA SHEET, USING CORESBOND OR 384-77 ADHESIVE. ROLL ON TOPS WHEN THE ADHESIVE IS TACKY. REMEMBER TO INDEX SKINS AND CORES FOR ACCURATE POSITIONING. TRIM 1/16" LONG, THEN COVER BOTTOMS WITH 3 OUNCE GLASS CLOTH. FOR COMMERCIAL FLOATS, FINISH AS PER DIRECTIONS BUT POSITION AS SHOWN ON THIS PLAN SHEET.
3/32" MUSIC WIRE DRAG STRUT
1/8" MUSIC WIRE REAR STRUT
.015 BRASS (1/2 x 1) RETAINER STRAPS
1/8" MUSIC WIRE FRONT STRUT
(SIDE VIEW)
1/8" PLYWOOD BLOCKS
RABBET - THEN ADD CAPTURE BLOCK
(REAR VIEW)
CAPTURE BLOCK
3/4" PLYWOOD
1/8" MUSIC WIRE - SPREADER (2 REQD)
1/8" MUSIC WIRE DOWN STRUT (2 REQD)
3/32" MUSIC WIRE DRAG STRUT (2 REQD)
NOTE MAKE TEST FIT DRAG STRUT FROM SOFT WIRE. ADJUST LENGTH UNTIL IT FITS WITHOUT BINDING. USE THIS AS A PATTERN TO BEND 3/32" MUSIC WIRE STRUTS
FLOAT STRUTS FABRICATION DETAIL
(NO SCALE)
.015" CLEAR BUTYRATE PLASTIC SHEET - WINDSHIELD PATTERN
(MAKE STIFF PAPER TEST FIT PATTERN TRIM TO FIT. USE PAPER PATTERN TO MAKE BUTYRATE PLASTIC WINDSHIELD. GLUE IN PLACE WITH RC-56 ADHESIVE. DO NOT USE "CA" ADHESIVE FOR THIS STEP)
.015" CLEAR BUTYRATE PLASTIC SHEET - SKYLIGHT PATTERN
(TINT WITH HOT (NAVY BLUE) RIT DYE)
.010" CLEAR BUTYRATE PLASTIC SHEET - SIDE WINDOW PATTERN
.015" BRASS - RETAINER STRAP (4 REQD)
SILICONE SEALANT
1/8" LITE PLY - TRANSOM BULKHEAD
1/4" LITE PLY - STRUT RETAINER PLATE
1/8" LITE PLY - STRUT RETAINER BULKHEAD
1/64" PLYWOOD
EDO 2000 FLOAT
FOAM CORE (1 LB/CU FT DENSITY)
2 LAYERS OF 3 OZ FIBER GLASS & EPOXY RESIN
1/8" LITE PLY - STEP PLATE (NOTE BEVELS)
1/8" LITE PLY - FLOAT STEP PLATE (2 REQD)
1/8" LITE PLY - FLOAT BOW & TRANSOM BULKHEAD (4 REQD)
1/8" LITE PLY - FLOAT STRUT RETAINER BULKHEAD (8 REQD)
1/4" LITE PLY - FLOAT STRUT RETAINER PLATE (4 REQD)
.020" ALUMINUM - WATER RUDDER (2 REQD)
1/4" SQ - LEADING EDGE
1/16" SHEET
1/8" X 1/4" SPAR
1/16" X 3/16" - CAP STRIP
AILERON SERVO
1/8" SQ - SPAR
1/16" X 3/16" HINGE CAP
1/16" X 3/16" CAP STRIP
1/16" SHEET
1/16" X 1/4"
1/16" PLYWOOD
1/16" SHEET
3/16" X 5/8"
1/16" PLYWOOD
CLEVIS W/ THREADED ROD
1/2" TE STOCK
1/16" PLYWOOD
GOLDBERG NO 441 CONTROL HORN
SECTION B-B
1/8" SHEET
1/16" SHEET (2 REQD)
1/16" SHEET (2 REQD)
1/16" SHEET (2 REQD)
1/4" SHEET (2 REQD)
W-R
AILERON RIB 1/16" SHEET (10 REQD) 1/8" SHEET (4 REQD)
1/16" SHEET (18 REQD) 1/8" SHEET (2 REQD) (ROOT)
THIS AREA ON ROOT RIBS IS REMOVED AFTER ASSEMBLY TO ACCEPT F12
AILERON
20°
FLAP
30°
FLAP SERVO
.015" BRASS - FLAP CONTROL ARM (3/16" x 1") SOLDERED TO 3/32" MUSIC WIRE TORQUE ROD
DUBRO BALL LINK
SECTION A-A
FLAP RIB 1/16" SHEET (6 REQD) 1/8" SHEET (4 REQD)
3/16" SHEET (2 REQD)
1/16" SHEET (22 REQD)
FALSE RIB
MATERIALS LIST
(B = BALSA S = SPRUCE LP = LITEPLY P = PLYWOOD)
1: 1/4" X 3" X 36" (B)
2: 3/8" X 3" X 36" (B)
3: 1/16" X 3" X 36" (B)
3: 3/16" SQ X 36" (B)
1: 1/8" X 3/16" X 36" (B)
3: 3/16" X 1/4" X 36" (B)
3: 3/16" X 3" X 36" (B)
1: 1/8" X 6" X 12" (LP)
2: 3/8" SQ X 36" (B)
2: 3/8" SQ X 36" (B)
1: 5/32" X 36" DOWEL (B)
2: 3/16" X 12" ALUM TUBE
6: 1/8" X 1/4" X 36" (B)
4: 1/8" SQ X 36" (B)
1: 1/16" X 36" MUSIC WIRE
1: 3/32" X 36" MUSIC WIRE
3 (BALA. 1 - LANDI) 1/8" X 36" MUSIC WIRE
2: 1/8" X 1/2" X 36" (P)
1: 01/2" X 1/8" X 12" BRASS STRIP
1: 01/2" X 3/4" X 12" BRASS STRIP
1: 01/2" X 1/4" X 12" BRASS STRIP
1: 1/2" X 1/4" X 48" (B)
1: 3/16" X 7/16" X 48" (B)
1: 1/4" X 1" X 48" (P)
6-40 (socket head) SHEET METAL SCREW
#20 COPPER WRAPPING WIRE, SOLDER & PASTE
8: 4-40 BLIND NUTS
6: 4-40 X 1/8" MACHINE SCREWS
1: 01/2" X 1/2" X 24" BUTYRATE PLASTIC SHEET
1: 01/2" X 1/2" X 24" BUTYRATE PLASTIC SHEET
4: 6-32 MACHINE SCREWS & BLIND NUTS
24: #2 X 1/2" SHEET METAL SCREWS
6 OUNCE (SULLIVAN (SOFT) FUEL TANK
1: 48" SULLIVAN CONTROL ROD
1: 24" THROTTLE CABLE
#26 FISHING LINE LEADER & 5/64" CRIMPING SLEEVES
4: PROCTOR #168 PULLEYS
2: PROCTOR #261 PULLEYS
2: DUBRO 1-6A HORN WHEEL KIT or ERNST 40/69 WATER RUDDER
3: SQ YD #442 HEAVYDUTY AERO SILK
1: PINT PACTRA AEROGLOSS DOPE (enough for 3 pigments)
1: SQ YD 3 OZ GLASS CLOTH
3/8" X 2' X 2' PLYWOOD
RC-56, TITEBOND, SEMENT, CA & MIN. EPOXY CORESBOND & GOOP
PIPER PA-18 SUPER CUB
DESIGNED BY: ED WESTWOOD
PLANS BY:
SHEET 2 OF 2