Miniature Aircraft Supply

2594 North Orange Blossom Trail • Orlando, Florida 32804 • Bus.: 305 - 422-1531

MINI-BOY SETUP

I. Position the throttle stick on your transmitter at one-half. Position the trim lever for the throttle at full. This setting will be referred to as one-half throttle, full idle trim. All other stick and trim positions should be neutral. With the transmitter sticks in the above positions, set as follows:

A. Swashplate control servos should be positioned in the upper rear section of the woodwork so that the control rods can be made as straight as possible. Take care in positioning fore and aft-control servo as far out as possible in order that it does not interfere with the tail-rotor compensator. Rods should be adjusted so that the swashplate is absolutely level from all angles. Position the control arms on servos slightly below horizontal. If servos do not have splined out-put shafts, use a servo sheel with #050 link and ball. In doing so, this will allow equal throw in both directions. This is due to the rods being angled from the swashplate to the servos. During operation, make sure that there are no binds (see diagram #I-A).

B. Collective toggle lever (#491) under main-rotor gear (#192) should be parallel to bottom of gear.

C. Mixing yoke on top of head (#591) should be level with the threaded-steel ball ends (#434) in center holes.

D. Adjust rods (#433 & #436) until bell mixers (#566) are level. The #436 rods should always remain the same in length (approximately 1 1/8-inches long between ball links).

E. Make sure that the bell mixers are horizontal and equal distances from the head side plates (#551). The closer they are, the more throw you will achieve.

F. Adjust Hiller rod (#590) until the control arm (#562) is level.

G. Paddles should be level in line with the control arm (#562).

H. Main-rotor blades should be tightened snugly at pivot points. Do not tighten completely or leave loose.

I. Carrier (#484) should be rotated on the main shaft until rods (#436) appear parallel to each other when looking from the side of the helicopter.

J. When mounting the tail-rotor servo in woodwork, mount servo upside down as low as possible. Angle servo so that the rod to the compensator can be made as straight as possible (see diagram I-J). If 5-servo setup is used with a helicopter radio, mount servo just above fuel tank in a side position omitting step K.

K. The tail-rotor compensator should be approximately 1/8-inches from the top of the slot. The compensator should be angled towards the rear until the rod from the servo is approximately 90-degrees to the bellcrank. The rod from the servo should be in the inner most hole. The rod to the tail rotor should be in the second hole up from the center. With your finger, push bottom of slotted arm (#492) forward towards front of the helicopter (see diagram I-K).

L. If using electronic tail-rotor compensation, route tail-rotor rod directly to the tail-rotor system, by-passing mechanical compensator.

II. With the transmitter at 0-stick and full idle trim, set the tail rotor as follows:

A. Attach tail-rotor control rod to middle hole of bell crank (#342). Adjust tail-rotor control rod so that the inner hole of bellcrank (#342) is even with the rear of the transmission (see diagram II-A).

B. Tail-rotor blades should have 0-degree pitch. This can be checked by folding the tail blades together and adjusting the wheel collars (#314) until tips of tail-rotor blades meet.

C. Tail-rotor blades should pivot freely.

D. Tail-rotor control rod should move freely in guides on the tail tube with absolutely no binds.

E. If electronic tail-rotor compensation is used, set compensation dial on transmitter at approximately #5 and put throttle stick on transmitter at $\frac{1}{2}$-stick, full idel trim. Now adjust tail-rotor servo control arm on top of servo in a neutral position.

III. COLLECTIVE & THROTTLE RODS

Use an approximately 1 3/8-inch diameter wheel on the servo. When making the rods, complete one rod at a time, starting with the throttle rod. Make sure that there are no binds.

A. Carburetor arm should be slightly rear from vertical with a barrel opening of 5/8. This can be checked by placing a piece of paper behind the carburetor arm. Close the carburetor and put a vertical line directly under the arm. Now open the carburetor and repeat the process. You now have two reference points of which you can divide into eight sections, thus producing a gauge by which you can check 5/8-carburetor opening without looking into the barrel (see diagram III-A).

B. The throttle and collective rods should be approximately 3/8-inch or 30-degrees apart (see diagram III-B).

C. Throttle rod should be approximately ½-inch from the center of wheel (see diagram III-C).

D. Collective rod should be approximately 5/8-inch from the center of servo sheel (see diagram III-D).

E. Collective rod should be in third hole up on the toggle lever (#491). Toggle lever should move to within approximately 1/16-inch from bottom of main shaft and approximately 1/16-inch from top of the fan shroud. In order to achieve a straight collective rod from throttle servo, collective toggle arm must be bent outwards. This can be done by straightening out the factory bend at the top of the toggle arm and by rebending the arm back into a vertical position just above the five factory holes at the lower section of arm.

F. The throttle should slightly preceed the collective.

NOTE: See diagrams III-C, D, E, and F for wheel positions in relationship to transmitter stick positions.

G. When using 5-servo setup, mount the collective & throttle servos on left side of woodwork (#1218), collective servo in foreward position, and throttle servo in rearward position. It may be necessary to elevate collective servo higher than throttle servo so that collective rod does not interfere with throttle servo-control wheel. Roding will be the same as explained section III, except that the collective rod will be routed to a separate servo. Mixing of throttle and collective will be done electronically and adjusted on transmitter. Cut wood sheet #1218 so that you end up with two individual pieces that can be glued at any desired height on side of wood sheet #1216. By cutting wood in this fashion, servos can be mounted in upright position. Position of servos will need to be moved closer to firewall. Glue two pieces of wood at needed height so that when servos are mounted, the bottom of servos will clear the canopy and servo rods are level as possible. Still use firewall bracing as supplied in wood sheet #1218 (see diagram III-G).

When tracking the main-rotor blades, check at lift off. Adjustment can be made in two ways:

1. By changing the length of the #433 rods.
2. By bending the pitch arms up to increase the pitch up or down to decrease the pitch at the 90-degrees where they come out of the head sideplates. Bending the arms enables all of the rods to remain the same length.

Set the idle adjustment so that the engine has a rich idle (trying to four cycle). Set the high-speed needle to accelerate slightly rich. Main-rotor rpm's at lift off should be approximately 1,900 to 2,000 rpm's. The helicopter should hover at one-half throttle and high-idle trim. When applying power, the helicopter should not bog. Use a fuel with approximately 12½-percent nitro content--such as K & B 500, Red Max 12½-percent, or Power Blast. Recommended engine: OS.45-H or OS.45-FSR, OS.45-ABC, Enya .45CX.

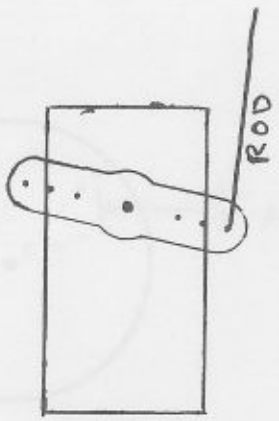
IV. TAIL-ROTOR TRIM

If the helicopter swings to the right or to the left during hovering, adjust the tail-rotor collars at rear of the helicopter. If the helicopter swings during acceleration, adjust the compensator up or down. Nose of helicopter swings to right--move compensator up in the slot for less compensation. Nose of helicopter swings to the left--move compensator down in slot for more compensation.

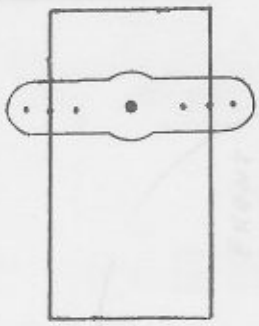
GOOD FLYING!

Tim Schoonard

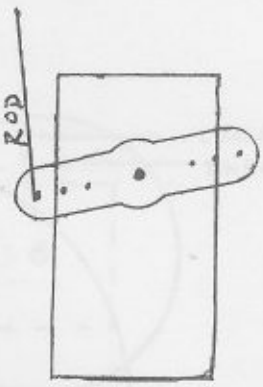
DIAGRAM I.A.



MODIFIED NEUTRAL
RIGHT AND LEFT
SERVO.

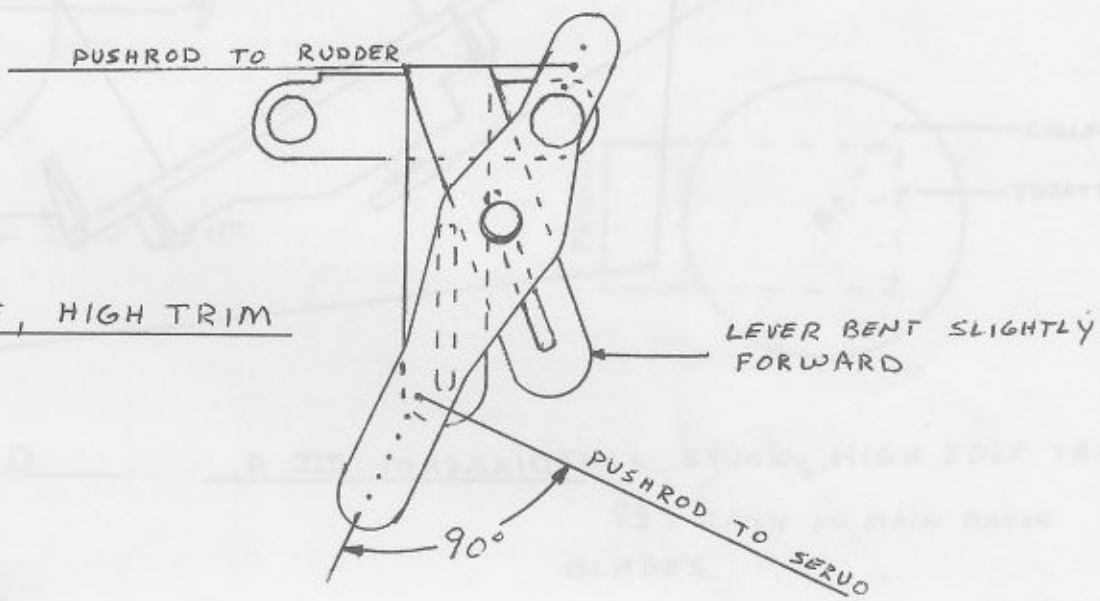


STANDARD NEUTRAL



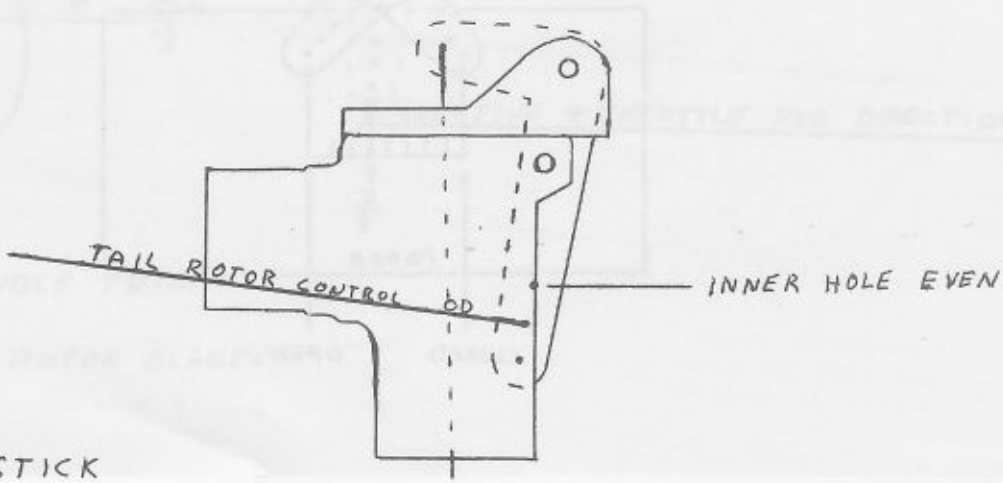
MODIFIED NEUTRAL
FORE AND AFT SERVO

DIAGRAM I.K.



½ THROTTLE, HIGH TRIM

DIAGRAM II.A.



HIGH TRIM. NO STICK

DIAGRAM I.J.

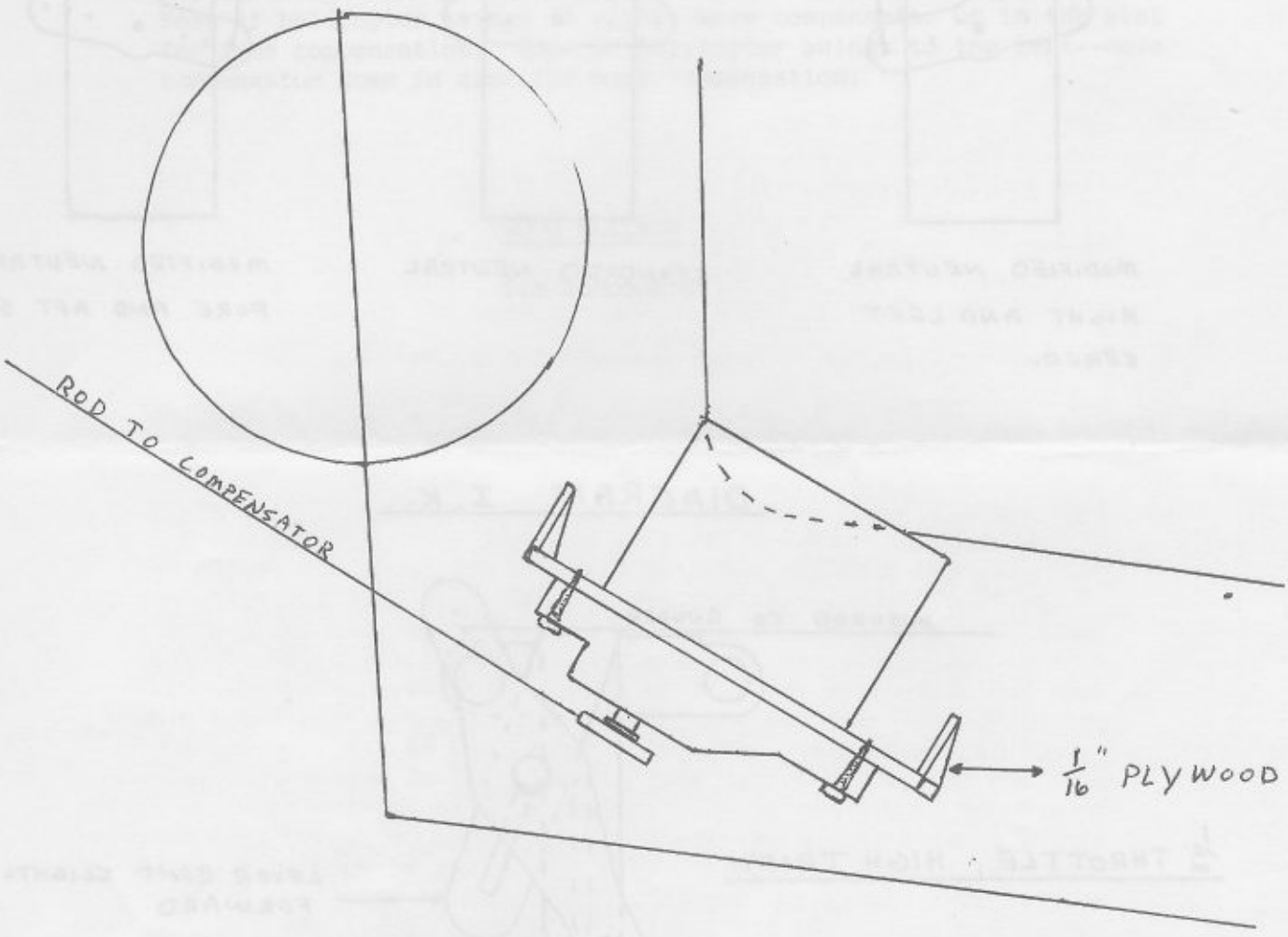
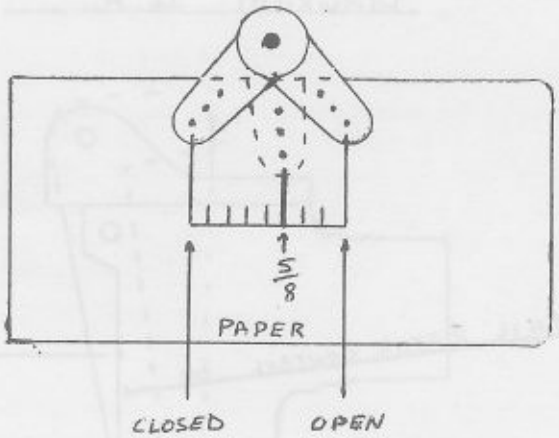


DIAGRAM III.A.



GRAM III.B.

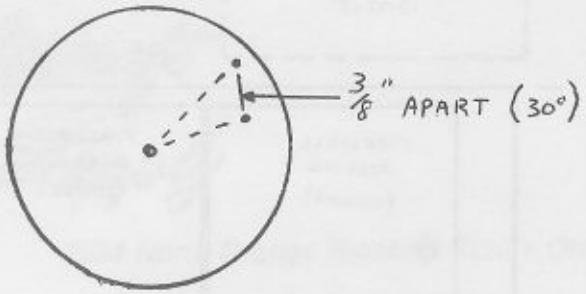
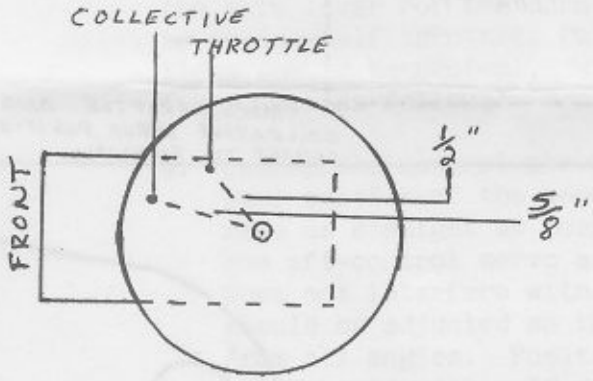
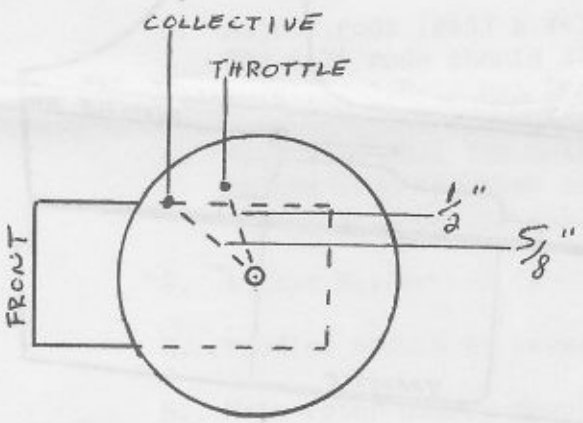


DIAGRAM III C.



O-STICK, LOW IDLE TRIM

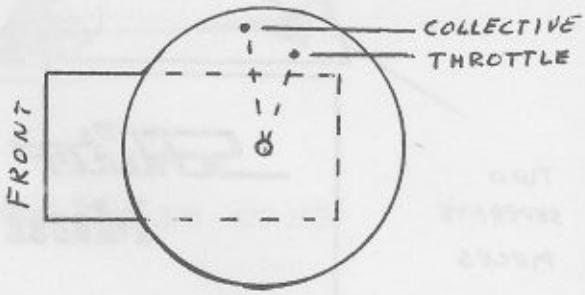
DIAGRAM III D.



O-STICK, HIGH IDLE TRIM

-2 TO 0° - PITCH IN MAIN ROTOR BLADES.

DIAGRAM III.E

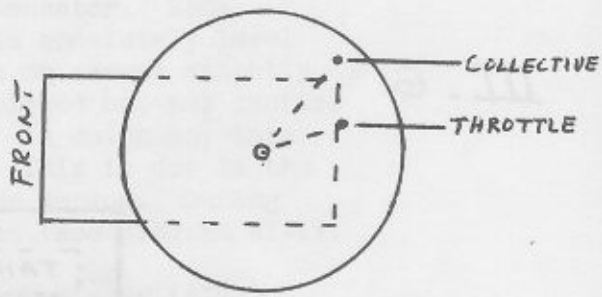


ONE HALF STICK, HIGH IDLE TRIM

5° PITCH IN MAIN ROTOR BLADES

4° PITCH WHEN USING 18" BLADES

DIAGRAM III.F.



FULL STICK, HIGH IDLE TRIM

7½° PITCH IN MAIN ROTOR BLADES.

7° PITCH WHEN USING 18" BLADES

@OLLECTIVE + THROTTLE ROD DIRECTION →

GRAM III. B.

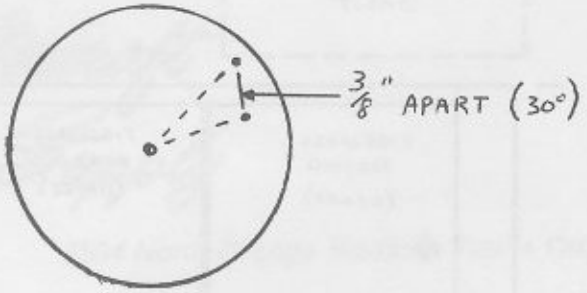
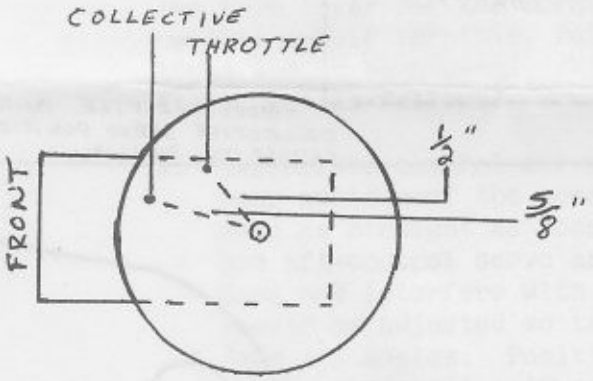
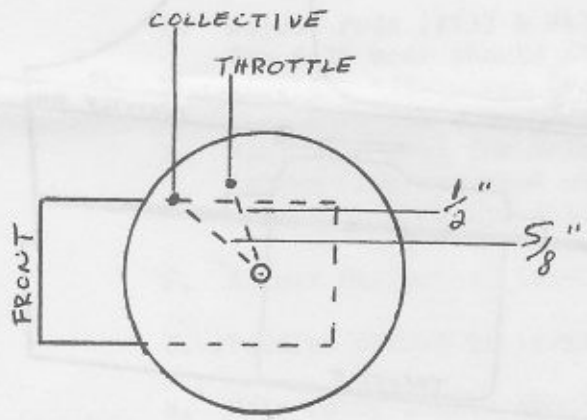


DIAGRAM III C.



O-STICK, LOW IDLE TRIM

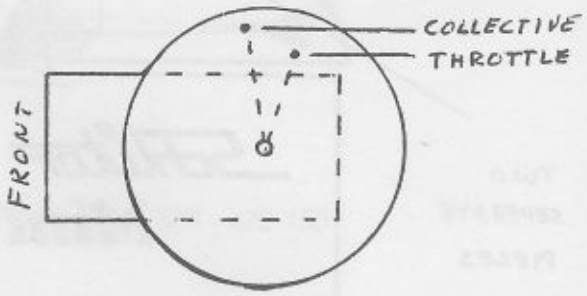
DIAGRAM III D.



O-STICK, HIGH IDLE TRIM

-2 TO 0° - PITCH IN MAIN ROTOR BLADES.

DIAGRAM III. E.

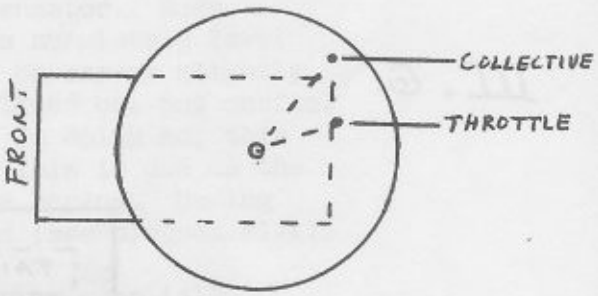


ONE HALF STICK, HIGH IDLE TRIM

5° PITCH IN MAIN ROTOR BLADES

4° PITCH WHEN USING 18" BLADES

DIAGRAM III. F.



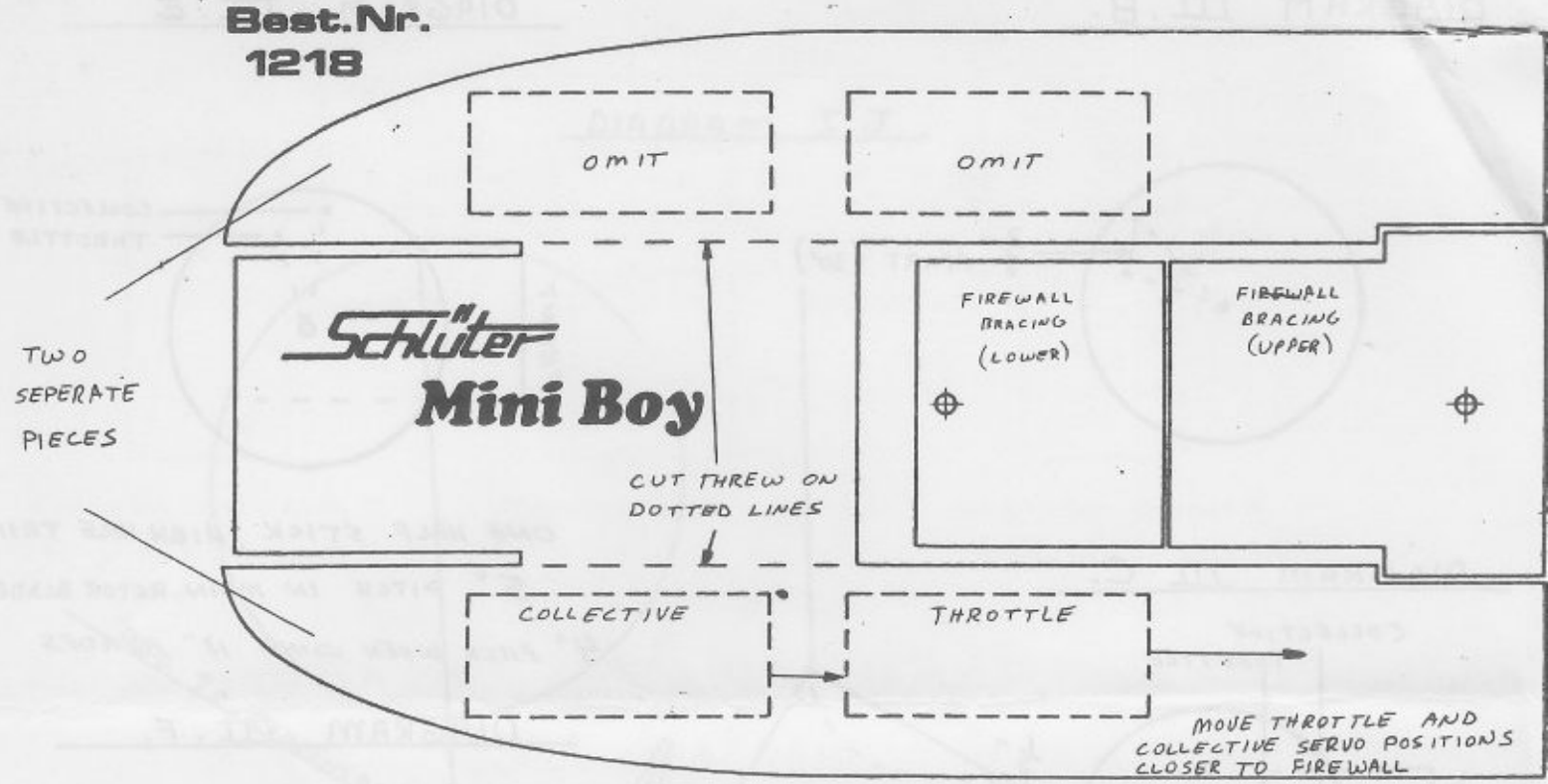
FULL STICK, HIGH IDLE TRIM

7½° PITCH IN MAIN ROTOR BLADES.

7° PITCH WHEN USING 18" BLADES

COLLECTIVE + THROTTLE ROD DIRECTION →

Best. Nr.
1218



III. G.