instructions for your Kraft proportional system

INSTRUCTIONS FOR THE KRAFT KP-4B, KP-6B, KP-4S, AND THE KP-6S PROPORTIONAL CONTROL SYSYTEMS

THIS SYSTEM REQUIRES NO ADJUSTMENT, TUNING, OR MAINTENANCE. DO NOT TAMPER WITH IT.

1. Charge batteries over night before use. Read charging instructions carefully.
2. Mount the receiver loosely in foam rubber with the greatest possible protection.
3. Keep antenna clear of the installation and do not change antenna length.
4. Do not mount servos rigidly.

CHARGING

The charger for both transmitter and receiver packs is built into the transmitter. IT IS VERY IMPORTANT that the transmitter case and particularly the antenna connector be kept away from electrically grounded surfaces or objects such as water pipes, metal tables, cement floors, damp areas, etc., during charging. If not, the electronics of the transmitter can be severely damaged by the electrical voltage present to ground. Remove the transmitter antenna before connecting the charge cords.

BE SURE THE TRANSMITTER IS SWITCHED OFF WHILE CHARGING. Before connecting the line cord, plug in the cable with 6-pins on each end to the transmitter socket and to the receiver battery. Be very careful to obtain proper alignment of the plugs with the socket. Plug the line cord into the transmitter and as the last step, plug the line cord into a standard 110V AC receptacle. Do not use 220V or other non-standard electrical sources. When removing the batteries from charge be sure to un-plug the line cord first. The light bulb in the bottom of the transmitter case will light to indicate that the batteries are being charged.

Charge batteries 24 hours before use. Longer charging times will not harm the batteries.

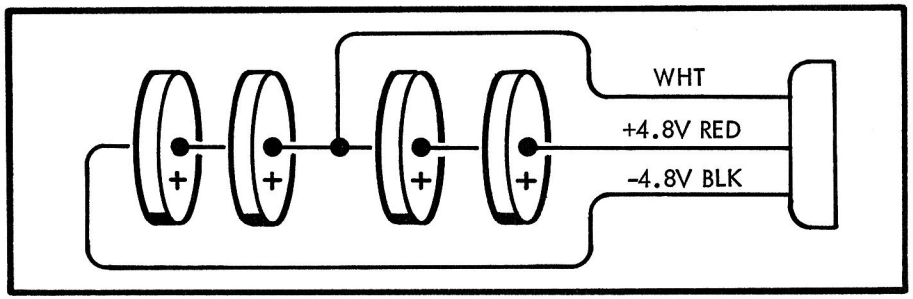

Figure 1. Battery Wiring

BATTERIES

The battery pack consists of 4-500 mah scintered plate button type cells. See illustration #1. The transmitter pack consists of 8-500 mah calls wired in series to give approximately 10.4 volts.

TRANSMITTER

The meter on the face of the transmitter provides a relative indication of proper transmitter operation and signal output. With the antenna fully extended and the transmitter held in the normal operating position, observe the meter reading and make note of it for future reference. If during later use, this reading is substantially lower than when first observed, it may indicate that transmitter batteries need to be charged or a possible failure in the system.

CONTROLS

The control options are indicated in the pictures of the transmitters. The primary controls are trimmable by the small trim knobs adjacent to the main control sticks. The trim levers are spring tensioned to prevent accidental movement. PUSH DOWN ON THE TRIM LEVERS to disengage the holding ratchet when changing the trim position. (This does not apply to the rudder and throttle trim on the KP-4S and KP-6S).

SERVOS

The servos are interchangeable as to function. However, two are supplied reversed as to control movement from the other two. These are marked with a small "X" scratched in the back of the servo case. Consequently, the servos can be selected for proper control direction to suit the installation. Servo direction cannot be electrically reversed by the purchaser.

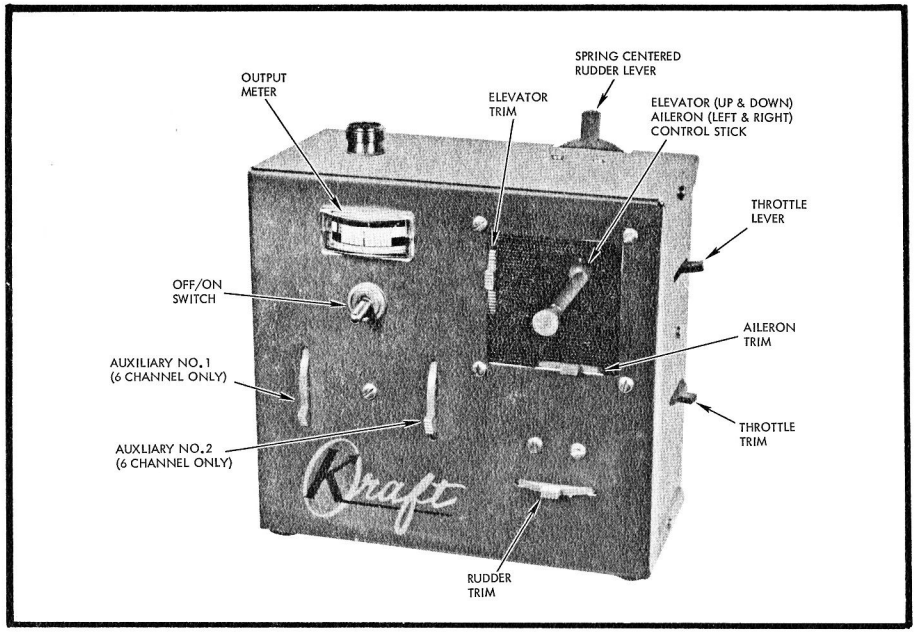

Figure 2. Single Stick Configuration

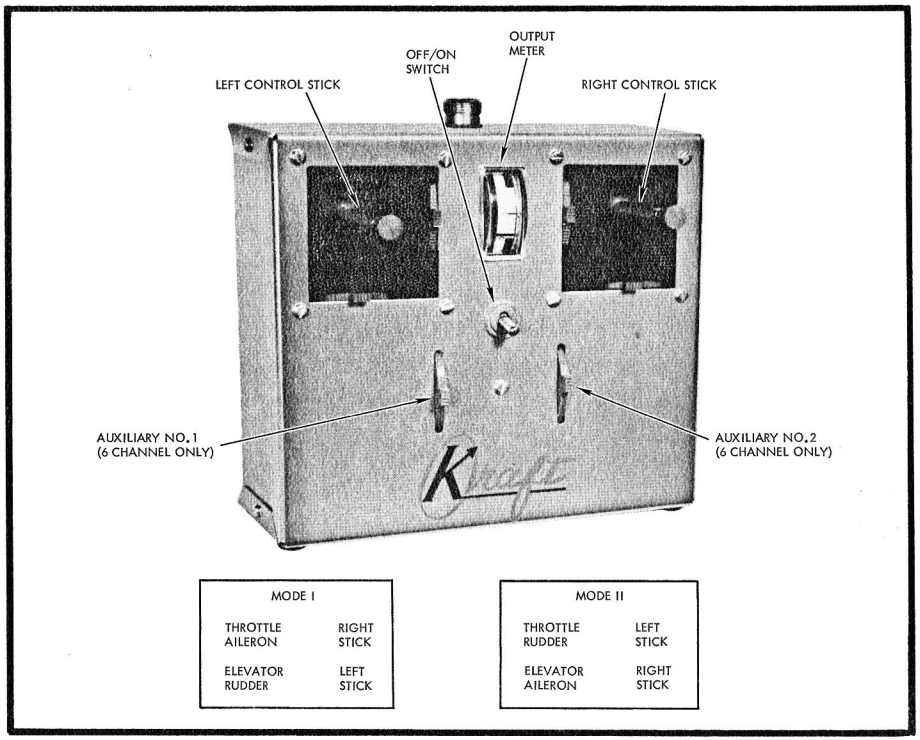

Figure 3. Dual Stick Configuration

DO NOT attempt to push servos through by hand or gears may be damaged.

A slight buzzing noise in the servos is normal under certain conditions.

RECEIVER

There are five (4-channel) or seven (6-channel) plugs leading from the receiver. The round 6-pin plug is the power connection and should be plugged into the receiver's switch harness. The other plugs are to be connected to servos and are identified as follows: E - elevator, A - aileron, R - rudder, M - motor, X-1 - first auxiliary, X-2 - second auxiliary.

Be sure that plugs match properly when plugging in servos and switch harness.

BENCH CHECK

After batteries have been charged over night, plug the system together. Turn on the receiver and transmitter and observe servo action.

Close range operation with the transmitter antenna retracted, extended, or removed, may cause peculiar system operation. This will depend on the attitude or distance that the transmitter happens to be from the receiver. This is due to signal leak through from the transmitter or reflected signals from objects in the room and is nothing to be concerned with.

When the transmitter is turned off, servos will stay in the last command position.

As a precautionary measure, it is desireable to cycle the system several times before initial flying. This will tend to show up any degective batteries or other components. Merely hook up the system and run it continuously with all controls being constantly moved for two to three hours. Do not, however, completely discharge the batteries. Then recharge the system for at least 15 hours and repeat the test.

INSTALLATION

The servos should be mounted on 1/4 x 3/8 inch hardwood rails. Position the servo and mark the location of the mounting holes. Drill 1/16 inch pilot holes in the hardwood mounts at the mounting hole locations. No. 4 x 3/8 inch round head wood screws are used to fasten the servos to the rails. DO NOT tighten the mounting screws excessively. They should be tightened just enough to hold the servos securely and should allow sufficient flexibility in the servo to prevent undue vibration transfer.

Push rods and linkages should move freely without binding or sticking. Be sure the throttle servo does not jam against the motor stops at either high or low speed. If it does, this will result in excessive battery drain due to the stalled condition of the servo at the ends of its travel. Avoid metal-to-metal connections in your linkage. Such connections may generate severe electrical noise interference which could prevent proper system operation. The receiver should be loosely mounted in foam rubber or foam plastic for protection. It should be protected with at least 1/2 inch of foam rubber on all sides and if possible, 1 inch of foam ahead of the receiver.

CAUTION

Keep the RECEIVER CASE away from servos or metal push rods. Keep the RECEIVER ANTENNA as far as possible from metal push rods, receiver case, servos, etc. Do not change antenna as this will de-tune the receiver and may cause the operating range to be less than normal.

Usually the antenna can be conveniently routed directly from the receiver compartment through the top of the fuselage and back to the top of the fin. A small rubber band can be tied on to the end of the antenna and hooked on to the top of the fin to maintain tension on the antenna. Do not have excessive tension against the receiver antenna because in time it is possible the wire could break internally beneath its plastic cover.

Improper routing of the receiver antenna or mounting of the receiver can drastically reduce the operating range of the system.

The receiver switch should be mounted on the fuselage side opposite the engine exhaust. Naturally, the servos and receiver should be carefully protected from oil or fuel leakage. The various plugs should be stowed neatly in the available space and preferably wrapped in foam rubber for protection.

Mount the battery pack ahead of the receiver. Generally the pack can be conveniently installed under the fuel tank. Protect the battery pack by mounting in foam rubber. Wedge the pack tightly in place to prevent rotating.

VIBRATION CHECK

The final check of the system should be performed with the engine running. Note the antenna off range that can be obtained with the aircraft sitting in the position that it will be when the engine is started, then start the engine and observe control action. Back away to the antenna off range point previously noted. Run the engine through the various speed ranges. The antenna off range should not be substantially less with the engine running than it was before. If it is, you can be sure that something in your installation is causing excessive noise with vibration. A recheck should be made.

In practice, the system requires no particular precautions as to noise or installation than would be normal with reed systems. The foregoing, however, is good practice with any radio control installation.

FLYING

An experienced proportional flyer should be enlisted to perform the initial flying and trimming of the aircraft. After the aircraft is properly trimmed, the control services should be mechanically adjusted so that the trim levers are returned to neutral. Once set, the trim controls are seldom used except for throttle trim. This is extremely useful in setting engine idle for various climatic conditions. Note that this is a low speed setting only. It is also used for engine shutoff at the end of the flight.

CHANGING FREQUENCY

If the purchaser wishes at a later date to change the system's operating frequency to one of the other Citizen Band radio control frequencies, they should return the transmitter-receiver to the factory. This frequency change cannot be made by the purchaser. Include your check or money order for $15 when returning the transmitter-receiver to the factory for frequency change. Pack carefully to avoid damage. The charge includes changing crystals, complete realignment and checkout.

ADDITIONAL CHANNELS

The four channel sets may be converted to six channels at a factory price of $30 per channel plus return postage. Additional servos are available at your dealer.

Guarantee

The KP-4B, KP-6B, KP-4S, and KP-6S systems are guaranteed against defects in workmanship and materials for a period of 90 days from purchase. The guarantee does not cover a system which has been damaged or tampered with. When returning for service, please provide a detailed written description of any problems. Include $7.50 to cover return postage and handling.

FCC LICENSE

IT IS ILLEGAL TO OPERATE THIS TRANSMITTER WITHOUT A CITIZENS BAND LICENSE. Form 505 for securing this license is available from your dealer or the nearest Federal Communication Commission office.

CONCLUSION

The Kraft Proportional System is the most thoroughly tested radio control unit ever offered for the enthusiast. We take great pride in its quality and superior performance. We would appreciate hearing your comments and criticism.

Phil Kraft

Phil Kraft
KRAFT SYSTEMS, INC.
2466 Seaman, South El Monte, California