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TEMPORARY OPERATING INSTRUCTIONS FOR CANNON ELECTRONICS  
MODELS D525 AND D526 PROPORTIONAL CONTROL SYSTEMS

The Cannon Proportional System includes a transmitter, receiver, four servos (5 channel system) or three servos (3 channel system), two charging cords and receiver battery pack with switch harness.

Adjust position of plastic tips on control sticks to provide desired length of stick. Cement tips in place with silicone rubber (RTV).

New equipment, or equipment that has not been in service for some time, should be charged for 24 hours before operating. An overnight charge is recommended before each flying session. Equipment may be left on charge indefinitely without harm. During charge, considerable heat is generated in the large resistor near bottom of transmitter.

To charge equipment, plug receiver battery into flat plug on two-wire charging cord, and plug other end of cord into 6-pin receptacle on bottom of transmitter. Place receiver switch in "ON" position, transmitter switch in "OFF" position. Then plug the AC cord into bottom of transmitter, other end into AC outlet. Charger lamp, visible thru red button on side of transmitter, will glow very dimly to indicate a correct charging condition. If not, be sure lamp is fully tightened into socket.

On all equipment using 6-pin plugs, and on 5-channel units using 4-pin plugs, the receiver battery mates with the single plug on the receiver. On 3-channel units with 4-pin plugs, the battery plugs into the top row of holes on the plug block. In all cases, be sure color dots or plug keyways are matched properly to obtain correct polarity. Be careful on 6-pin plug systems not to plug servos into battery cable or servo will be damaged.

A multiple plug block on receiver accepts the servo male plugs. Match color dots or keyways when plugging together. All servo plug keying should face the same direction, or servos will not operate. No damage will result from incorrect plug-in.

For equipment with standard two-stick controls (or 3-channel systems with one stick), servos when plugged into the receiver will provide the following operations: No. 1 - aileron (or rudder on 3-channel); No. 2 - elevator; No. 3 - auxiliary (or motor on 3-channel); No. 4 - motor; No. 5 - rudder.

Controls on 5-channel single stick transmitters operate the following functions (4-pin connector arrangements): No. 1 - (top plug on block) motor; No. 2 - (plug on short extension) aileron; No. 3 - (second plug on block) elevator; No. 4 - (third plug on block) rudder; No. 5 - auxiliary. Note: On some receivers No. 1 & 2 channels may be reversed. To correct this, unsolder and interchange positions of the orange and yellow wires at the decoder board. This must be done on kit receivers to make them compatible with single stick transmitters.

In any case, servos may be utilized for any function desired as long as the related transmitter control is used accordingly.

Servos can be mounted with standard mounting hardware (not supplied) or servo tape.

## TEMPORARY OPERATING INSTRUCTIONS (CONT)

Servo centering operations require that servos be plugged in and operating, transmitter on, and all controls in neutral.

To center arms on D525-E (KPS-9) servos, remove the two screws securing the servo bottom, slide off cover, and rotate one or both of the small screws in the bottom of the feedback capacitor until servo arms are positioned as desired. Use a non-metallic screwdriver. If servo will not center correctly, check timing of Tx logic, or change value of C4 slightly to permit centering.

To center D526-E (KPS-10), D528-E (Orbit PS-4D), and D525A-E (KPS-9A), servos, remove bottom cover, loosen two screws holding feedback pot, and rotate pot element until desired wheel or arm position is obtained. Do not overtighten screws.

To align gears and center D527-E servos (KEK Mini), remove top cover and gears. Rotate feedback pot gear until motor stops. Physically center both servo arms, install gears and slide top cover back into position. It may be necessary to rock arms back and forth slightly to obtain correct gear mesh. Be sure to check that no binds exist and servo runs smoothly.

Direction of operation of KPS-9 servos can not be reversed. Use rotary output arm to obtain desired direction of travel.

To reverse operating direction of other Cannon servos (KPS-9A, KPS-10, KEK and Orbit PS-4D), reverse connections of motor wires, and black and green wires to feedback pot. Do not change position of yellow wire to feedback pot. It is not necessary to change position of ground wire when reversing motor wires.

If servo gear lubrication is required, use fine powdered graphite or "Dry Lube". Never use grease or liquid lubricant of any type.

Always use an override device on your motor servo to prevent possibility of motor burn-out in case of incorrect servo-motor control adjustment.

When installing receiver, locate it in the aircraft where it is least subject to crash damage. Use foam rubber or plastic for padding. Be sure antenna wire is not close to other wires, or detuning and loss of range will result.

After equipment installation is complete, peak both the receiver antenna coil and RF coil for maximum range and sensitivity. Factory-tuned receivers should require little adjustment. To adjust receiver tuning, remove antenna from transmitter and have one person slowly move away from airplane while operating one control on transmitter. Using the spade end (like a small screwdriver) of a plastic tuning wand, carefully peak each of the two front end coils accessible thru the holes in case cover until maximum operating range is obtained. This will vary from 1 - 10 feet or more (antenna off). Once tuned, use silicone rubber compound to lock tuning slugs in position.

Antenna-off range given is only a guide and will vary widely with individual transmitters, from 1 - 10 feet or more. RF leakage from the Tx provides the antenna-off range check signal. Factors which cause range variations include tightness of case fit (antenna-off only), type of Tx (3 channel, 5 channel, single stick),

## TEMPORARY OPERATING INSTRUCTIONS (CONT)

transmitter tuning, length of antennas, antenna orientation, position in which Tx is held, height of Tx and Rx above ground, aircraft installation, surface over which test is made, etc. Do not increase receiver sensitivity just to increase antenna-off range. Once a standard is determined for antenna-off range, this can be used as a quick-check reference of equipment operation. Serious range tests should be made with Tx antenna installed. The real test is ground-to-air range.

Average range, transmitter antenna down, should be approximately 300-500 feet. Antenna up ground range should be 2000 feet or more.

Standard two-stick transmitter configuration has motor control on left hand stick. If desired, this can easily be changed to the right hand stick. To do this, remove the spring on the right hand vertical pot and tighten the clutch screw on this pot. Install spring on left hand vertical pot, and loosen clutch screw to permit free stick movement.

Before installing equipment, cycle the complete system through two complete battery charges to make sure all components continue to operate properly.

To avoid possible loss of antenna tip, hold upper antenna rod with pliers and tighten tip securely with other pliers.

A very slight occasional servo buzz is entirely normal, and does not affect overall current drain of system.

Equipment should provide 2-3 hours of flight operation per charge (500 ma battery pack), or 1 to 1-1/2 hours on the 250 ma pack.

Equipment is warranted for 60 days against defects in material and workmanship. Shipping charges for all service are to be paid by customer. Warranty is on factory-built equipment only. Kits are not guaranteed except for completeness of parts.

Cannon Electronics assumes no responsibility for loss or damage incurred or inflicted during operation of R/C equipment.

In case repairs are necessary, please return equipment direct to Cannon Electronics, not to your local dealer.