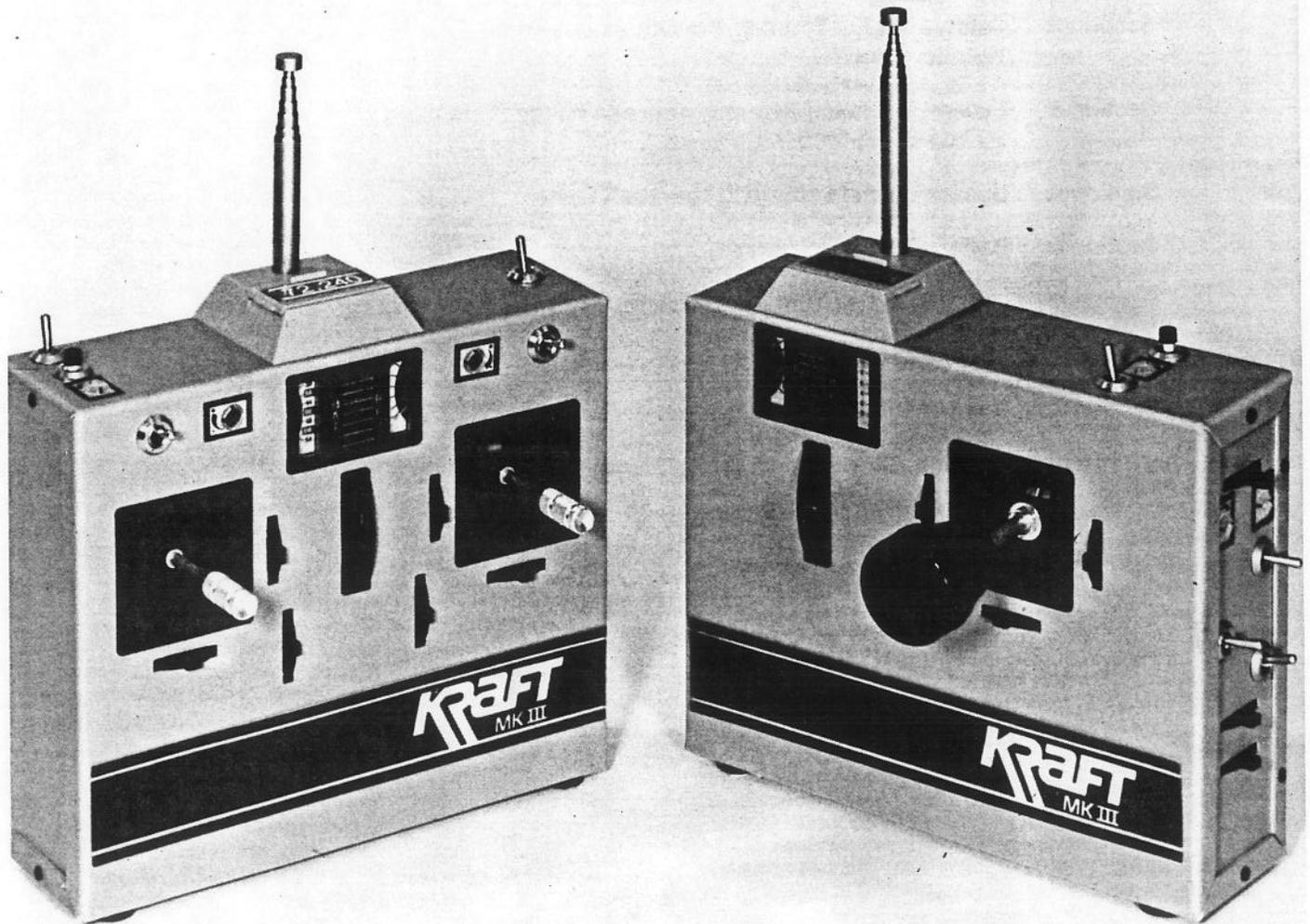


KP-7C MKIII AND KP-7CS MKIII

RADIO CONTROL INSTRUCTION MANUAL



ALSO FOR KP7C MKIV and KP7CS MKIV

THE FOLLOWING SPECIAL SECTIONS ARE DEVOTED TO THE KRAFT KP7C MKIII AND KP7CS MKIII SYSTEM COMPONENTS. BE CERTAIN TO READ ALL OF THE MATERIAL ON YOUR SYSTEM AND ALL THE SECTIONS [1 THROUGH 8], AS WELL AS THE SEPARATE FUNDAMENTALS AND GUIDELINES FOR INSTALLATION OF YOUR KRAFT SYSTEM.

KRAFT SYSTEMS, INC. KP-7C MKIII AND KP-7CS MKIII RADIO CONTROL INSTRUCTION MANUAL

	PAGE
Section 1: Understanding Your Kraft Radio Control System	1
Section 2: Safety First For Yourself, For Others and For Your Equipment	1
Section 3: Federal Licensing Requirements and Special Operating Standards for Model Airplanes	3
Section 4: Unpacking and Setting Up Your Kraft System	3
Section 5: Battery Charging	4
Section 6: Learning to Use Your Kraft System	5
Section 7: When You Need Repairs	7
Section 8: Components and Accessories	7
Transmitter	8
Receiver	9
Servos	10
Receiver Battery Packs	11
Switch Harness	11
Battery Voltage Check Meter	11
Trainer System	11

SECTION 1

Understanding your Kraft Radio Control System

Your purchase of a Kraft Radio Control System places in your hands highly sophisticated electronic equipment which is the result of many years of research and product development by a dedicated group of professionals. Kraft Systems, Inc., a pioneer in the technology of radio control equipment, has attained the status of being the world's largest manufacturer of proportional radio control equipment.

We at Kraft Systems appreciate the confidence you have placed in us which prompted your purchase of our product. Please feel free to call on us any time when service or advice is required. Your goodwill is our most important asset.

Whether you are new to this great R/C sport of ours or an "oldtimer," take the time to CAREFULLY review the ENTIRE components of this instruction manual paying special attention to the sections describing the components that comprise your system. Your Kraft System will give you successful and dependable operation if you follow the instructions, recommendations, and guidelines set forth in this manual and, of course, utilize good common sense. OBSERVE ALL WARNINGS. They are for your protection, the protection of others, and the protection of your investment in a very rewarding hobby.

Although this type of radio control equipment is usually used to operate model airplanes, boats, and cars, other applications are possible. Whatever your application, exercise care and ask us if in doubt about any aspect of your system.

Kraft Radio Control Systems utilize highly sophisticated electronic components, circuitry and design to achieve digital proportional control of moving surfaces. This means that the further you move the control stick on the transmitter, the further, proportional to the movement of the transmitter control stick, will the surface move on the model. Thus, in an airplane controlled by your Kraft System, when you move the elevator control stick slightly in either the up or down direction, the elevator surface of the model will basically move the same proportionate amount. It is this essential capability that allows realistic flying or control of other types of models.

Your Kraft System includes the following basic components:

- A. A transmitter whose purpose it is to transmit the radio signals from your "hands" to the model.
- B. A receiver which "receives" those signals through an antenna and divides those signals received, sending to each servo mechanism the command given through your hands by the transmitter.
- C. Servo mechanisms which are attached to the receiver and accept the command from the receiver translating that command into linear or rotary *motion*, each servo is mechanically connected to a moving surface and thus ultimately completes the "instruction" received from your hand movement on the transmitter controls.

Ancillary to the basics described above are the following:

1. A retractable or removable antenna which is locked into position and extended during operation from the top of the transmitter.
2. A rechargeable battery pack *within* the transmitter case to energize the transmitter circuits.
3. A rechargeable battery pack *in the model* to energize the receiver circuits and servo mechanisms.
4. An "on-off" switch on the transmitter and a similar switch for the receiver, servo, and battery components in the model. These components, the battery pack in the model, the receiver, the servos, and the "on-off" switch constitute

what is called the "airborne package."

5. A meter on the transmitter which is energized when the transmitter is switched on.
6. Receptacles (jacks) on the transmitter and on the wire leads connecting to the switch harness and battery to be contained in the model for the purpose of *charging* the battery packs.
7. Trim levers found on the side of each transmitter control stick which are utilized to give a "fine" adjustment to the settings of the moving surfaces. These are used during flight to "trim out the model", that is, to achieve slight variations in the normally neutral settings of the transmitter controls so that the model tracks correctly.

TAKE THE TIME NOW to look at and examine each of the components just described to familiarize yourself with all components and their functions.

FURTHER INSTRUCTIONS follow in Section 4, under the heading "Unpacking and Setting Up Your Kraft System."

SECTION 2

Safety first for yourself, for others, and for your equipment

"SAFETY FIRST" is more than just a slogan when operating radio controlled models. Thus, we urge, especially with respect to radio controlled aircraft that:

FOR YOUR SAFETY:

Recognize that radio controlled models are not harmless toys and can be dangerous missiles if carelessly or improperly flown. *You* are responsible because the reliability and safe operation of the radio equipment is largely dependent upon its proper installation and utilization.

THEREFORE, INSTALL YOUR RADIO CONTROL SYSTEM CORRECTLY AND BE CERTAIN YOU CAN FLY WELL ENOUGH TO CONTROL YOUR AIRCRAFT UNDER ALL CONDITIONS.

FOR THE SAFETY OF OTHERS:

Remember that you are responsible for the safety of all spectators and in fact, everyone that may foreseeably be injured by your model.

Do Not Fly where your model could injure any person or property.

Do Not Fly over the heads of spectators or persons in the area of your flying field. THIS INCLUDES taking off, actual flight and landing. KEEP EVERYONE, except experienced and knowledgeable persons who are assisting you in flying, away from your model even when it is on the ground and you are preparing to fly.

Do Not Fly unless and until you have an experienced instructor who has completely CHECKED OUT THE MODEL AND WILL FLY THE MODEL FOR YOU AND WITH YOU... UNTIL YOU HAVE LEARNED TO FLY COMPETENTLY BY YOURSELF. Flying (or running a boat or a model car) is a real skill that demands patience, practice and caution. DO NOT EXPERIMENT or run RISKS: KNOW that you can fly safely before you fly alone. The real pleasures and satisfactions come from flying or operating your model with SAFETY and competence always in mind.

Do Not Fly in adverse weather conditions. Strong winds, for example, may cause loss of control of your aircraft and cause injury or damage to you or to others.

AT THE FIELD...

Do Not Fly unless your frequency is "clear." The transmitting signal frequency is shown on the transmitter and YOU MUST NOT turn on your transmitter when someone else is flying or operating their model on that same frequency. WARNING: IF YOU DELIBERATELY OR ACCIDENTALLY TURN ON YOUR TRANSMITTER WHILE ANOTHER MODEL IS FLYING OR IN OPERATION, THAT MODEL WILL GO OUT OF CONTROL. The same will happen to yours, so observe "clearing" the frequency: Only one person using a given frequency at a time. DO PURCHASE FREQUENCY FLAGS for each frequency your system uses and attach the appropriate flags to your transmitter antenna. DO OBSERVE all of the rules of the flying or operating site.

The frequencies and flag colors associated with them are as follows:

FREQUENCIES (FLAG COLORS)

27 MHz Band

26.995 (Brown)

27.045 (Red)

27.095 (Orange)

27.145 (Yellow)

27.195 (Green)

53 MHz Band

53.100 Brown/Black

53.200 (Red/Black)

53.300 (Orange/Black)

53.400 (Yellow/Black)

53.500 (Green/Black)

72 MHz Band

*72.080 (Brown/White)

72.160 (Blue/White)

*72.240 (Red/White)

72.320 (Violet/White)

*72.400 (Orange/White)

72.960 (Yellow/White)

*75.640 (Green/White)

**Model aircraft use only; other types of radio controlled models must use the other frequencies. Model aircraft may use all frequencies.*

WARNING: THE FREQUENCIES ALLOCATED FOR RADIO CONTROL USE ARE NOT EXCLUSIVE AND ARE SHARED WITH OTHER TYPES OF USERS IN CERTAIN AREAS. CHECK WITH THE FCC REGIONAL OFFICE IN YOUR AREA BEFORE OPERATING YOUR MODEL TO DETERMINE WHETHER THERE IS A POTENTIAL DANGER OF INTERFERENCE FROM OTHER USERS. THIS KIND OF "OUTSIDE" INTERFERENCE MAY CAUSE YOU TO LOSE CONTROL OF YOUR MODEL THEREBY POSSIBLY CAUSING INJURY TO YOURSELF, OR TO THE PERSON OR PROPERTY OF OTHERS.

SO REMEMBER:

1. DO NOT OPERATE your transmitter at the field until you are certain your frequency is "clear."
2. Display your frequency flag colors or channel identification, which ever is applicable, on the antenna of your transmitter.
3. Remember that flags do not usually state the frequency on them and sometimes the colors are hard to distinguish. Ask and be certain. If you have an eyesight limitation or defect such as color blindness for example, double check to be sure of frequency flag designations.
4. Turn your transmitter on only when you are sure no one else is using your frequency.
5. **WARNING:** Your model will go out of control and may do serious injury or damage if someone else turns on a transmitter on your frequency while you are operating your model.

6. Respect all the rules of the flying field or site.
7. At any time during the operation of your model, should you sense, feel or observe any erratic operation or abnormality, end your flight as quickly and as safely as possible. Do Not operate again until you are certain the problem has been corrected. Take no chances.

ADDITIONAL WARNING:

Radio controlled models are generally attractive, exciting and inviting in looks and performance. Therefore, realize that young persons, children and inexperienced adults may come within the operating range of the model, or that they may try to operate the equipment without understanding the dangers to that person or others. It is your responsibility to guard against unskilled and unknowing hands for their protection as well as for the safety of your equipment and model.

The key to R/C pleasure is the proper use of your Kraft System and all of the other model components. If you fail to follow instructions, heed the warnings given, misuse or abuse the system through improper operation or installation, the consequences will at least be harm or destruction of your system and may also mean injury to yourself or to the person or property of others.

AS TO YOUR EQUIPMENT:

The care you give your radio control equipment, and its correct installation and operation, are the factors that spell either safe, successful flying or injury, damage, destruction and loss. Be certain to carefully study and follow the manual on *Fundamentals and Guidelines for Installation of Your Kraft System*.

IN ADDITION:

The Academy of Model Aeronautics is the leading national organization made up of aircraft modeling people with headquarters in Washington, D.C. Its address is 815 Fifteenth Street, N.W. Washington, D.C. 20005, and we urge you to examine the benefits of membership including liability protection in the event of certain injuries. The Academy has adopted simple and sane rules, a few of which are especially pertinent for radio controlled flight as the OFFICIAL AMA SAFETY CODE: abide by these rules for your protection, the protection of others and your equipment. They are as follows:

1. I will not fly model aircraft in competition or in the presence of spectators until it has been proven to be airworthy by having been previously successfully flight tested.
2. Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.
3. I will have completed a successful radio equipment ground range check before the first flight of a new or repaired model.
4. I will not fly my model aircraft in the presence of spectators until I become a qualified flyer, unless assisted by an experienced helper.
5. I will perform my initial turn after takeoff away from the pit, spectator and parking areas, and I will not thereafter perform maneuvers, flights of any sort, or landing approaches over a pit, spectator or parking areas.

NOTE: These *basic safety precautions* are for your safety, the safety of others, and of your equipment and APPLY TO ALL USES OF YOUR KRAFT SYSTEM (cars, boats, aircraft, etc.). Consider carefully all of what has been stated and obey all precautions as well as those appropriate to your particular use. Good common sense must also be used at all times in the operation of your equipment.

SECTION 3

Federal Licensing Requirements & Special Operating Standards for Model Airplanes

BEFORE YOU OPERATE the transmitter, you must obtain a license from the Federal Communications Commission. No test is required if operating on 27 MHz and 72 MHz but a test is required to operate on 53 MHz. It is illegal to operate any transmitter without the appropriate Federal Communications Commission license. Application forms for this license are available from the nearest office of the FCC as listed below; *keep in mind that under present standards and requirements, such a license DOES NOT constitute a license to fly or otherwise operate any R/C model. Nor does it indicate you have any proficiency as a pilot of an R/C aircraft or other radio controlled model.*

Below are listed the FCC addresses where you may obtain your application, Form 505, for your Citizen's Band Radio Control Service License.

Your requests should be addressed as follows:

FEDERAL COMMUNICATIONS COMMISSION
ENGINEER IN CHARGE
(applicable street and city for your area.)

District	Address
1	1600 Customhouse, Boston, Massachusetts 02109
2	748 Federal Building, 641 Washington Street, New York, N.Y. 10014
3	1005 U.S. Customhouse, Philadelphia, Pennsylvania 19106
4	819 George M. Fallon Federal Building, Baltimore, Maryland 21201
5	870 North Military Highway, Norwalk, Virginia 23502
6	1602 Gas Light Tower, 235 Peachtree Street, N.E., Atlanta, Georgia 30303
6S	238 Federal Office Bldg. and Courthouse, P.O. Box 8004, Savannah, Georgia 31402
7	919 Federal Building, 51 S.W. First Avenue, Miami, Florida 33130
7T	738 Federal Building, 500 Zack Street, Tampa, Florida 33606
8	829 Federal Building South, 600 South Street, New Orleans, Louisiana 70130
8M	439 U.S. Courthouse and Customhouse, 113 St. Joseph Street, Mobile, Alabama 36602
9	5636 Federal Building, 515 Rusk Avenue, Houston, Texas 77002
9B	323 Federal Building, 300 Willow Street, Beaumont, Texas 77701
10	Room 13E7, 1100 Commerce St., Federal Building, Dallas, Texas 75202
11	312 North Springs St., U.S. Courthouse, Room 1754, Los Angeles, California 90012
11SD	1245 Seventh Avenue, Fox Theatre Building, San Diego, California 92101
11SP	300 South Ferry Street, Terminal Island, San Pedro, California 90731
12	323A Customhouse, 555 Battery Street, San Francisco, California 94111
13	314 Multnomah Building, 319 S.W. Pine Street, Portland, Oregon 97204
14	8012 Federal Office Bldg., 909 First Avenue, Seattle, Washington 98104
15	504 New Customhouse, 19th St. between California & Stout Sts., Denver, Colorado 80202
16	691 Federal Building, 4th & Roberts Street, St. Paul, Minnesota 55101
17	1703 Federal Building, 601 East 12th St., Kansas, Missouri 64106
18	1872 U.S. Courthouse, 219 South Dearborn Street, Chicago, Illinois 60604
19	1054 Federal Building, Washington Blvd. & LaFayette Street, Detroit, Michigan 48226

- 20 905 Federal Building, 111 W. Huron St. at Delaware Ave., Buffalo, N.Y. 14202
- 21 502 Federal Building, P.O. Box 1021, Honolulu, Hawaii 96808
- 22 U.S. Post Office and Courthouse, Room 322, 323, P.O. Box 2987, San Juan, Puerto Rico 00903
- 23 U.S. Post Office Building, Room G63, 4th & G St., P.O. Box 644, Anchorage, Alaska 99510
- 24 Room 216, 1919 M. Street, N.W., Washington, D.C. 20554

Additionally, the Federal Aviation Administration has announced guidelines for operation of model aircraft. We are reprinting those guidelines here and encourage your study and cooperation.

1. **Purpose:** This advisory circular outlines safety standards for operators of model aircraft, and encourages voluntary compliance with these standards.
2. **Background:** Attention has been drawn to the increase in model aircraft operations, and the need for added caution in the case of free-flight and radio controlled types to avoid creating a noise nuisance or a potential hazard to full-scale aircraft and persons and property on the surface.
3. **Operating Standards:** Modelers, generally, are concerned about safety and do exercise good judgment when flying model aircraft. However, in the interest of avoiding undue criticism from affected communities and airspace users, **COMPLIANCE WITH THE FOLLOWING STANDARDS IS ENCOURAGED BY OPERATORS OF RADIO CONTROLLED AND FREE-FLIGHT MODELS.**
 - a. Exercise vigilance for full-scale aircraft (get other people to help if possible) so as not to create a collision hazard.
 - b. Select an operating site at a sufficient distance from populated areas to avoid creating a noise problem or a potential hazard.
 - c. Do not fly higher than 400 feet above the surface.
 - d. Do not operate closer than three miles from the boundary of an airport unless permitted to do so by the appropriate air traffic control facility in the case of an airport for which a control zone has been designated, or by the airport manager in the case of other airports.
 - e. Do not hesitate to ask for assistance in complying with these guidelines at the airport traffic control tower, or air route center nearest the site of the proposed operations.

Director, Air Traffic Service
Federal Aviation Administration
Washington, D.C.

Under Section 3, SAFETY, we encouraged your participation in the Academy of Model Aeronautics as a member. Many flying fields require that you be a member of the Academy of Model Aeronautics before they will allow you to use their field. They want to know that all pilots are knowledgeable concerning the AMA SAFETY CODE and through membership have the liability insurance.

SECTION 4

Unpacking and Setting Up Your Kraft System

The packaging of your Kraft Radio Control System was especially designed for the safe transportation and storage of the components. **DO NOT DISCARD THESE CONTAINERS** as they can be used for storage or returning equipment for repair. Retain the Kraft Inspection Sheets in the box; if your equipment needs repair, these should be returned with the unit.

We recommend the following procedure to familiarize yourself with the components of your Kraft System and as preparation for installation in your model:

1. Remove the transmitter from the packing box.
2. Insert the transmitter plug-in R.F. module as follows:
 - a. Insert plug-in R.F. module in the top of the transmitter (See FIGURE 5), pressing down firmly to make sure it is seated properly in its housing and that there is no gap between the module flange and the housing.
 - b. Affix frequency flags to the transmitter
3. Switch on the transmitter; note the movement of the meter indicating that a radio frequency (R.F.) is being transmitted. (Note: The R.F. METER IS TO THE RIGHT OF THE DUAL METER). The R.F. indicator meter provides a relative indication of the transmitter output. It does not, however, give an accurate indication and is not a basis for comparing performance between transmitters. You should note where the needle moves AFTER the transmitter battery pack has been completely charged and the antenna fully extended. This reading will be generally maintained during utilization of your transmitter. If the reading changes substantially in the future, it may indicate a drop-off in performance and should be checked by the factory or an authorized repair station.

REMEMBER THAT A TRANSMITTER WHOSE PERFORMANCE HAS DROPPED MAY FAIL TO SEND THE SIGNALS NECESSARY TO ADEQUATELY AND SAFELY CONTROL THE MODEL, RESULTING IN A POSSIBLE CRASH.

CAUTION: IF NO MOVEMENT IS NOTED ON THIS METER WHEN YOU TURN THE TRANSMITTER SWITCH ON, THE BATTERY PACK WITHIN THE TRANSMITTER IS MORE THAN LIKELY DISCHARGED. CHARGE THE BATTERIES AS OUTLINED UNDER SECTION 5, "BATTERY CHARGING."

4. Switch off the transmitter; remove all of the other components from the packing box containing your Kraft Radio Control System.
5. If you have a KPR-7C receiver, attach the plug-in R.F. module as follows:
 - a. The receiver should not be connected to the power source (battery pack) at this point.
 - b. Plug the R.F. module into the receiver (See FIGURE 10). Be sure the module is seated firmly and that no gap appears between the module and the receiver case.
6. Figure 11 shows how to connect the components of your System together. At this point, your objective is to get the system operating on your work bench or table area. Once connected, you must then refer to the corresponding diagram for your System showing *the transmitter control stick (or sticks) functions*. TAKE THE TIME TO LEARN THE NAMES OF ALL COMPONENTS YOU ARE GOING TO CONNECT AND TO IDENTIFY ALL OF THE TRANSMITTER CONTROL STICK(S) FUNCTIONS AND NAMES ATTACHED TO THOSE FUNCTIONS.

Note the following at this point:

- a. It is of no consequence at this point which servo you plug into which function since your aim is simply to learn and see how the system operates on your bench. NOTE: Figures 6, 7, 8, and 9 show the correct sequence for the insertion of servos in your system.
- b. The connectors on your Kraft System are rugged but should be handled with care. Note that there are four socket contacts with one of these spaced further from the other three except for the socket connector leading from the receiver (airborne) battery and switch harness which has a different style connector.
- c. Do not attempt to force the servo plugs into the receiver; line each plug up properly and it will move into place. The

same is true of the plug leading from the receiver battery pack and switch harness. Note that there is a plastic lip that extends over the inserted plugs and prevents the plugs from coming loose while inserted.

- d. **CAUTION: When removing the servo connectors from all receivers, use a finger to bend back this plastic lip for easy and safe removal of the connectors.**
7. Once you have followed the diagrams for connecting the airborne package of your particular Kraft System and you have studied and understood all of the components as well as having studied and understood the diagram illustrating the transmitter control stick functions, you are ready to energize the System and study its actual functioning.
8. Switch on the transmitter; then switch on the airborne package. The airborne system is "ON" when the switch is positioned in the direction of the battery pack. The System is now energized. There may be some movement in the servos even though you have not moved the transmitter sticks. This is normal.
9. Now follow the diagram indicating the transmitter's control functions by moving each stick and watching the reaction of the servo or servos. Move the small black trim levers and note the slight servo movements. Keep these all centered through the installation of your System in your model. They will be used in actual flight or operation of the model to adjust servo position slightly . . . a process called "trimming." If the airborne system fails to operate, charge the battery pack as outlined in the Battery Charging Section of this INSTRUCTION MANUAL.
10. Switch off the receiver; then switch off the transmitter. Get used to this sequence; When turning the System off, turn the receiver off first, then the transmitter. When turning the System on, the proper sequence is to turn on the transmitter, then the receiver.

SECTION 5

Battery Charging

THE FAILURE TO FOLLOW THESE INSTRUCTIONS WILL CAUSE THE RADIO CONTROL EQUIPMENT TO PERFORM POORLY OR IMPROPERLY, CAUSING MODEL OPERATION FAILURE. THIS MAY RESULT IN SERIOUS PHYSICAL HARM TO OTHERS, YOURSELF, OR PROPERTY DAMAGE.

All Kraft KP-7C and KP-7CS Systems have rechargeable nickel-cadmium ("Ni-Cad") battery packs in both the transmitters and airborne systems. NOTE CAREFULLY these procedures for charging the batteries:

1. The KBC-D dual battery charger plugs into a regular 110 volt alternating current (110 VAC-60 Hz) wall outlet. It has been set at the factory for both high and low rate charging. CAUTION: If you own a Kraft radio control system carrying a designation of Series '71 or earlier, you should only charge the battery in the "LO" position of the KBC-D charger, otherwise you will cause damage to the ni-cad packs due to the high rate of charge.
2. Your unit is equipped with 550 MAH rechargeable nickel-cadmium battery packs in both the transmitter and receiver. Normal operating voltages are 9.6 volts and 4.8 volts respectively.

WARNING: Before the initial use of your completed model, charge the batteries using the KBC-D charger in the "HI" position for 4 hours. Cells charged at high charge rates should NOT be left on charge indefinitely. Maximum continuous charging in the "HI" position should NOT exceed 4 hours.

3. After the initial charge, subsequent charge time should be one hour with the charger set in the "HI" position, then switch the charger to the "LO" position for 8 more hours. If the batteries have been taken off charge for two or three days prior to a

flying session, they should be charged for a period of *one hour in the "HI" position*, immediately prior to use. This will insure that the batteries are kept in peak condition. When in doubt, return to the initial 4 hour charge time.

NOTE: If the system was supplied with a KB-4L 225 MAH battery pack, it should only be charged in the "LO" position for a period not to exceed four hours. Otherwise the battery pack cells could be permanently damaged.

REMEMBER, the failure to fully charge batteries prior to each flying session or operation of the model may result in the model becoming unreasonably dangerous to fly or operate and thereby, the model may go out of control causing potential personal injury to others or to yourself as well as property damage.

4. The transmitter and receiver battery packs may be charged simultaneously or independently. It is not necessary to remove the battery pack from your model. Charge as follows (Fig. 1):

- a. Transmitter and receiver switches must be in the OFF position; failure to turn these switches off may result in the lack of any charging taking place and/or damage to the battery pack(s).
- b. Insert the transmitter charge plug into the transmitter charge receptacle on the bottom of the transmitter.
- c. Plug the charger into the normal home wall outlet (110 VAC-60Hz). The transmitter indicator lamp (one of two on the charger) should glow. If it does not, recheck to make certain that the transmitter switch is in the OFF position.
- d. Insert the charger plug into the switch harness charge receptacle which is wired into the switch harness. The receiver indicator lamp (one of two on the charger) should glow. If it does not, recheck to make certain that the receiver switch is in the OFF position.
- e. To take battery packs off charge, simply remove the charge plugs from the transmitter and receiver receptacles; then remove the KBC-D charger from the A.C. outlet.

NOTE: It is recommended that the batteries be charged every two to three weeks as outlined in step three of this section whether the batteries have been used or not since the last full charge. Failure to do so could damage them permanently.

An optional KBC-A 12 volt charger is available for charging your ni-cad battery packs from a 12 volt car battery. Follow the instructions included with the unit.

If one battery pack has had more use or drain than the other, it is advisable to charge both of them as recommended in step three. You are then sure of a full charge before operating your model.

The length of time the batteries will safely operate the radio equipment after a full charge can vary and available flight time can go down rapidly if, for example, a servo motor is stalled. The amount of battery drain also depends on your equipment installation, flying habits, etc. Therefore, *FROM A SAFETY STANDPOINT, CONSIDER ONE HOUR OF USE AS THE MAXIMUM TIME LIMIT ON A FULL CHARGE*. Remember also that any time your transmitter or receiver switches are "on," it is draining your batteries and should be included in calculating battery time used.

SECTION 6

Learning to use your Kraft System

FOR SAFE AND SUCCESSFUL OPERATION OF YOUR RADIO CONTROL MODEL, IT IS IMPORTANT TO CAREFULLY FOLLOW THE INSTRUCTIONS BELOW AND OBTAIN TRAINING IN THE OPERATION OF YOUR MODEL FROM A WELL EXPERIENCED INDIVIDUAL.

At this point, having followed all of the instructions, directions and guidelines contained in the earlier sections of this manual and having completed your model and installed your Kraft System observing the directions and guidelines contained in the separate manual entitled "FUNDAMENTALS AND GUIDELINES FOR INSTALLATION OF YOUR KRAFT SYSTEM," we present here general instructions concerning the process of learning to use your Kraft System. Most of what is stated is directed toward those using the System in a powered model aircraft. The basic precautions and directions are, however, applicable to any radio controlled model use, e.g. gliders, boats, or cars.

It should be re-emphasized that before you make initial use of your completed model, you should have one or more persons who are thoroughly experienced in the field of radio controlled modeling completely go over the model prior to your use to make certain you have properly installed your Kraft System and followed all of the directions given in this manual as well as the installation manual. We recommend that the individual(s) who are "checking out" your model be shown these two manuals and that you and they review all of the materials contained in them to make certain that you have followed all directions and guidelines and understand the warnings that have been given. This should be done even if you are obtaining flight training from experienced and competent flyers.

