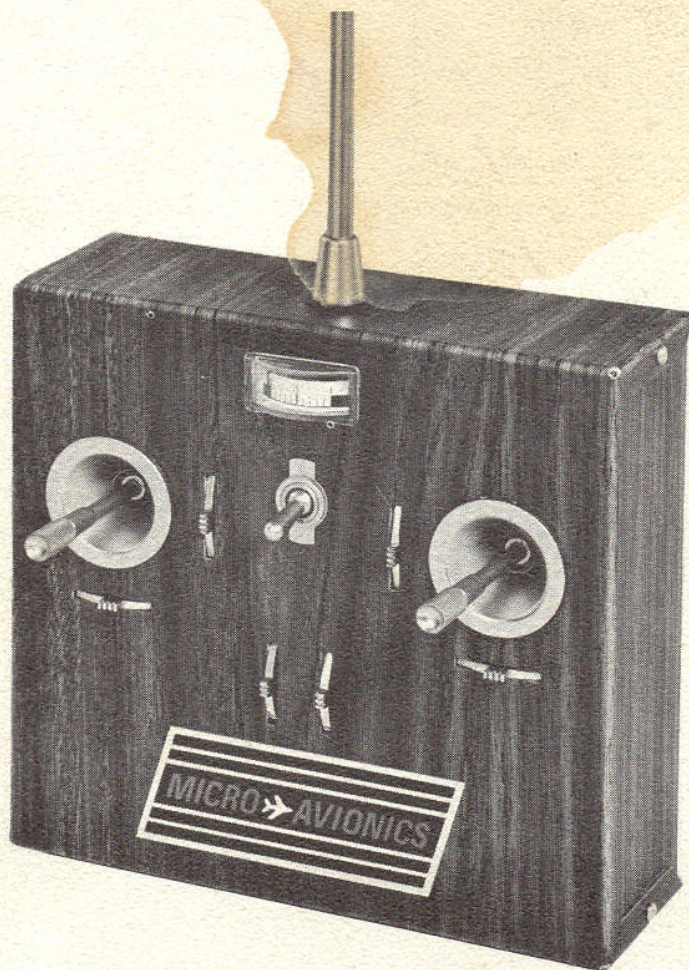


The **XL** LIGHT-WEIGHT
PROPORTIONAL CONTROL
SYSTEMS



INSTRUCTION MANUAL



INTRODUCTION

CONGRATULATIONS ON YOUR SELECTION OF MICRO-AVIONICS, INC., PROPORTIONAL EQUIPMENT. THIS SIMPLE INSTRUCTION MANUAL HAS BEEN WRITTEN TO ASSIST IN THE INSTALLATION AND OPERATION OF THE MOST ADVANCED AND TROUBLE-FREE PROPORTIONAL EQUIPMENT AVAILABLE TO MODELERS TODAY. A FEW MINUTES SPENT READING THIS BOOKLET PRIOR TO INSTALLATION OF YOUR EQUIPMENT WILL INSURE MANY TROUBLE-FREE HOURS OF OPERATION. UNLIKE RADIO CONTROLLED EQUIPMENT COMMONLY USED IN THE PAST SEVERAL YEARS, YOU WILL FIND THAT THE MICRO-AVIONICS, INC., PROPORTIONAL CONTROL SYSTEM REQUIRES A MINIMUM OF EFFORT TO INSTALL AND MAINTAIN.

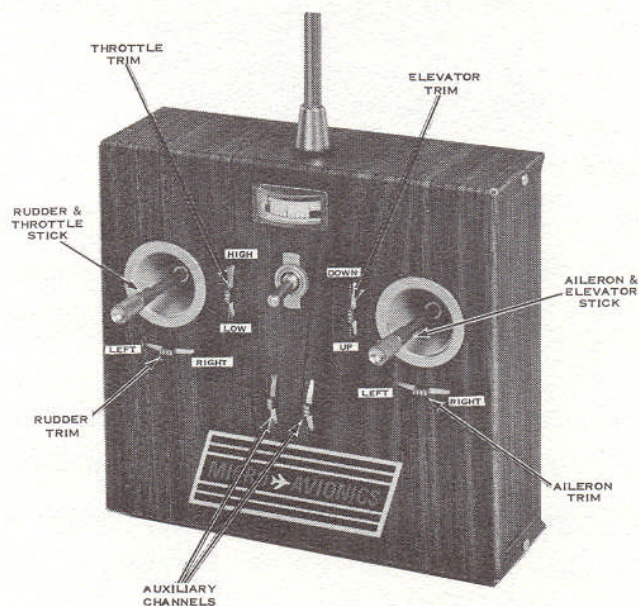


FIGURE 1.
XL DUAL-STICK TRANSMITTER

LET US BEGIN WITH A BASIC DESCRIPTION OF THE VARIOUS TRANSMITTERS AND THE CONTROL FUNCTION LAYOUT. AS SEEN IN FIGURE 1., THE XL-6D IS THE TYPICAL TWO-STICK CONFIGURATION. IT SHOULD BE NOTED HERE THAT FIGURE 1. INDICATES A STANDARD LAYOUT. IF YOU HAVE PURCHASED YOUR SYSTEM AS A TAR SYSTEM, THROTTLE AND AILERON WILL BE ON THE RIGHT-HAND STICK, AND ELEVATOR AND RUDDER WILL BE ON THE LEFT-HAND STICK. ASSOCIATED TRIMS WILL BE ADJACENT TO THEIR STICK. TRANSMITTER IS NORMALLY HELD IN BOTH HANDS WITH

THE THUMBS RESTING ON THE ENDS OF BOTH STICKS. THE TWO AUXILIARY LEVERS SHOWN IN THE LOWER CENTER OF THE TRANSMITTER CASE ARE FOR CONTROL OF SUCH ITEMS AS LANDING GEAR, BRAKES, FLAPS, ETC. IN ORDER TO MAKE THESE AUXILIARY CHANNELS FUNCTIONAL, IT WILL BE NECESSARY TO PURCHASE ADDITIONAL MICRO-AVIONICS, INC., ONE-SIX PROPORTIONAL SERVOS. THESE SERVOS MAY BE PURCHASED THROUGH YOUR DEALER OR BY ORDERING DIRECT FROM THE FACTORY - PRICE, \$40.

THE XL-4D, ALTHOUGH NOT PICTURED HERE, IS IDENTICAL IN LAYOUT TO THE XL-6D WITH THE EXCEPTION OF THE TWO AUXILIARY CHANNEL LEVERS.

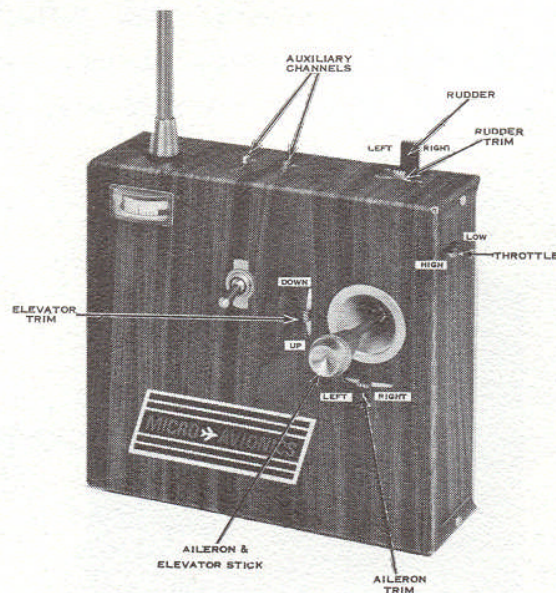


FIGURE 2.
XL SINGLE-STICK TRANSMITTER

FIGURE 2. ILLUSTRATES THE CONTROL LEVERS AND FUNCTIONS ON OUR MODEL XL-6S. AS MAY BE SEEN, THE ELEVATOR AND AILERON (THE PRIMARY FLIGHT CONTROLS) ARE OPERATED FROM THE MAIN STICK. TRIM FOR THESE FUNCTIONS ARE ADJACENT AND PARALLEL TO THE STICK MOVEMENT. RUDDER IS CONTROLLED BY THE LARGE LEVER ON THE TOP, RIGHT-HAND SIDE OF THE TRANSMITTER CASE. THIS IS A SPRING-LOADED LEVER AND WILL RETURN TO NEUTRAL WHEN RELEASED. RUDDER TRIM IS IMMEDIATELY IN FRONT OF THE RUDDER LEVER AND OPERATES IN THE SAME MANNER AS ELEVATOR AND AILERON TRIM. THROTTLE CONTROL IS LOCATED ON THE RIGHT-HAND SIDE AT THE TOP AND OPERATES FROM FRONT TO BACK. MOVEMENT TOWARDS THE FRONT OF THE

CASE PRODUCES HIGH MOTOR OR THROTTLE. AUXILIARY CHANNELS No. 1 AND 2 ARE LOCATED CONVENIENTLY ON THE TOP OF THE TRANSMITTER CASE AND MAY BE OPERATED WITH THE LEFT THUMB.

IN ORDER TO ACHIEVE PRECISE CONTROL OF YOUR AIRCRAFT WITH THE XL-6S, IT IS IMPORTANT THAT THE TRANSMITTER BE HELD IN THE PROPER MANNER. THE TRANSMITTER SHOULD BE CRADLED IN THE LEFT ARM WITH THE THUMB OPERATING RUDDER CONTROL AND THE INDEX FINGER RESTING ON THE THROTTLE LEVER. THIS LEAVES THE RIGHT HAND COMPLETELY FREE TO GRASP THE LARGE KNOB OF THE MAIN CONTROL STICK OPERATING THE PRIMARY FLIGHT CONTROLS. TRANSMITTER SHOULD BE HELD WITH THE ANTENNA POINTING UP AT APPROXIMATELY A 45 DEGREE ANGLE.

OPERATION AND INSTALLATION PROCEDURES

NOTE: ALTHOUGH ALL SYSTEMS ARE SHIPPED WITH BOTH TRANSMITTER AND RECEIVER POWER SUPPLIES CHARGED, IT IS ABSOLUTELY ESSENTIAL THAT THE COMPLETE SYSTEM BE CHARGED FOR A PERIOD OF 24 HOURS BEFORE ANY FLIGHT IS ATTEMPTED.

CHARGING PROCEDURES ARE DESCRIBED ON PAGE 9. OF THIS MANUAL. ALTHOUGH IT WOULD BE IMPOSSIBLE, IN THIS BOOKLET, TO DESCRIBE ALL OF THE VARIOUS TYPES OF INSTALLATION, FIGURE 4 ILLUSTRATES A TYPICAL SET UP, AND THE BASIC LAYOUT SHOULD BE FOLLOWED WHEREVER POSSIBLE.

THE FOLLOWING INSTRUCTIONS REFER TO FIGURE 3: RECEIVER BATTERY PACK SHOULD BE MOUNTED AS FAR FORWARD IN THE AIRCRAFT AS POSSIBLE BUT CAN, HOWEVER, BE SHIFTED FORE AND AFT IN ORDER TO ACHIEVE PROPER BALANCE IF NECESSARY. THE BATTERY PACK SHOULD NEVER BE PLACED BEHIND THE RECEIVER. THIS ELIMINATES THE POSSIBILITY OF THE BATTERY PACK DAMAGING THE RECEIVER IN THE EVENT OF AN EXTREMELY HARD LANDING OR CRASH. THE BATTERY PACK SHOULD BE COMPLETELY ENCASED IN SOFT FOAM RUBBER OR PLASTIC WHICH IS RIGID ENOUGH TO INSURE THAT THE PACK DOES NOT MOVE.

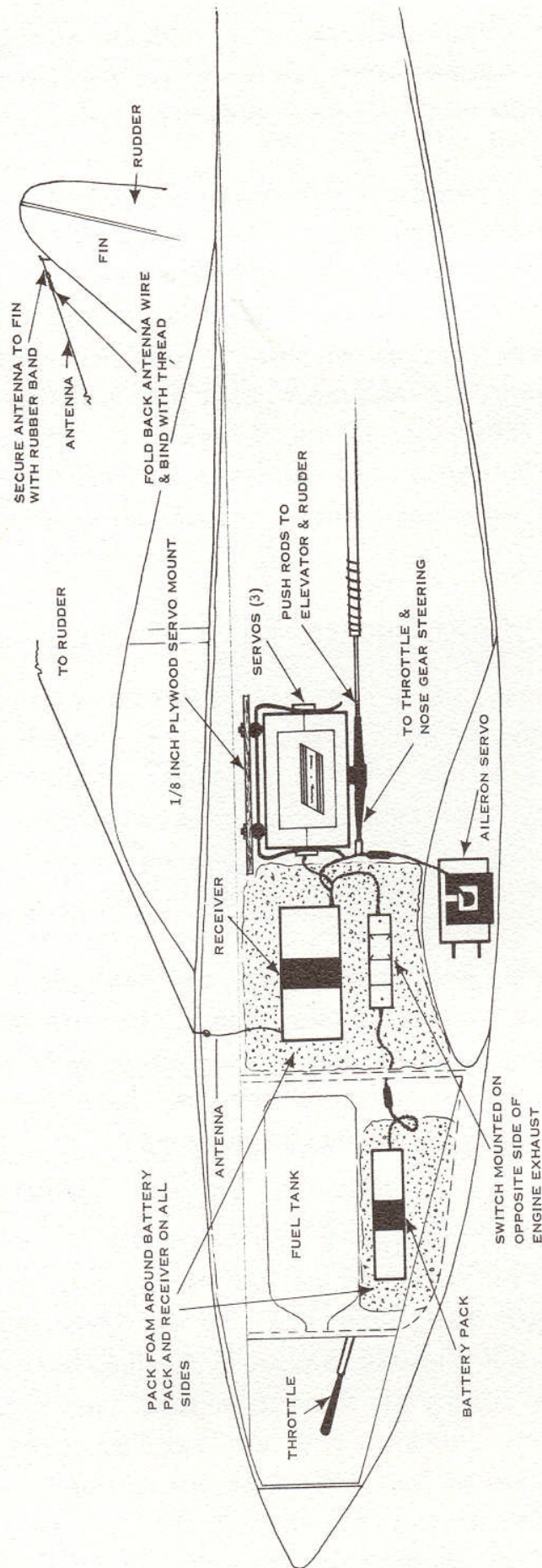


FIGURE 3.
TYPICAL FUSELAGE INSTALLATION
(BATTERY PACK, RECEIVER & SERVOS)

THE RECEIVER SWITCH SHOULD BE MOUNTED IN AN EASILY ACCESSIBLE SPOT ON THE SIDE OF THE AIRCRAFT; AND, WHENEVER POSSIBLE, THAT SIDE SHOULD BE OPPOSITE THE ENGINE EXHAUST. AN ACCUMULATION OF CASTOR OIL AND FUEL FROM THE ENGINE EXHAUST COULD IN TIME SEEP INTO THE SWITCH AND CAUSE FOULING OF THE SWITCH CONTACTS.

THE CABLE OR HARNESS BETWEEN THE SWITCH AND BATTERY PACK WHEN BOTH ARE IN POSITION MUST HAVE SUFFICIENT SLACK TO INSURE NO STRAIN ON THE WIRE LEADS OR THE CONNECTORS. THIS IS EXTREMELY IMPORTANT AND HAS BEEN FOUND TO BE ONE OF THE MAJOR CAUSES OF IN-FLIGHT FAILURE OF ALL RADIO SYSTEMS.

THE RECEIVER CAN BE INSTALLED IN ANY CONVENIENT POSITION BEHIND THE BATTERY PACK BUT MUST BE COMPLETELY SURROUNDED WITH SOFT FOAM AT LEAST $1/2$ " THICK ON ALL SIDES AND PREFERABLY 1" THICK AHEAD OF THE RECEIVER. WHEN PROPERLY INSTALLED, NO PORTION OF THE RECEIVER SHOULD BE ALLOWED TO TOUCH ANY OF THE FRAMEWORK, PLUGS, OR PUSH RODS WITHIN THE MODEL.

ALTHOUGH NOT ABSOLUTELY NECESSARY, IT IS EXTREMELY GOOD PRACTICE TO PLACE BOTH RECEIVER POWER PACK AND RECEIVER IN SMALL POLYETHYLENE BAGS BEFORE PACKING WITH FOAM. THIS PREVENTS RESIDUE FROM ENGINE EXHAUST FROM ACCUMULATING ON THE PRINTED CIRCUIT BOARD.

AGAIN, ALL WIRE LEADS LEADING TO AND FROM THE RECEIVER MUST HAVE SUFFICIENT SLACK TO INSURE NO STRAIN ON THE CONNECTORS. THE RECEIVER ANTENNA MUST BE ROUTED IN SUCH A WAY AS TO STAY AS FAR AWAY AS POSSIBLE FROM SERVOS, PUSH RODS, AND ALL OTHER WIRING. THE SIMPLEST METHOD OF ACHIEVING THIS IS TO RUN THE ANTENNA LEAD DIRECTLY FROM THE RECEIVER THROUGH THE TOP OF THE AIRPLANE AND THEN TO THE TIP OF THE VERTICAL FIN. A SMALL LOOP IS THEN PROVIDED IN THE END OF THE ANTENNA AND A RUBBERBAND IS PLACED THROUGH THIS LOOP AND OVER A PIN OR HOOK AT THE TOP OF THE FIN AS ILLUSTRATED IN FIGURE 3. THE RUBBERBAND SHOULD HAVE JUST ENOUGH TENSION TO TAKE THE SLACK FROM THE ANTENNA AND YET CAUSE NO STRAIN ON THE ANTENNA WHERE IT COMES THROUGH THE RECEIVER CASE.

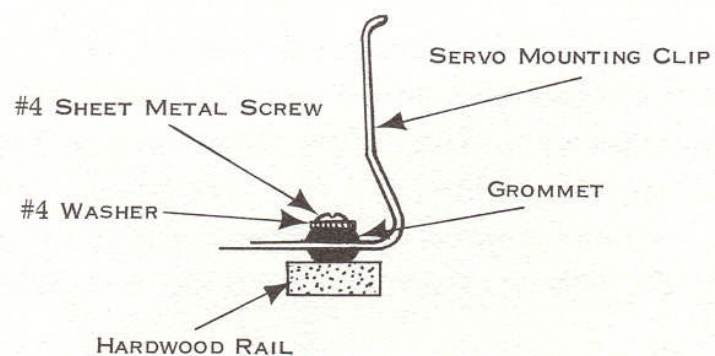
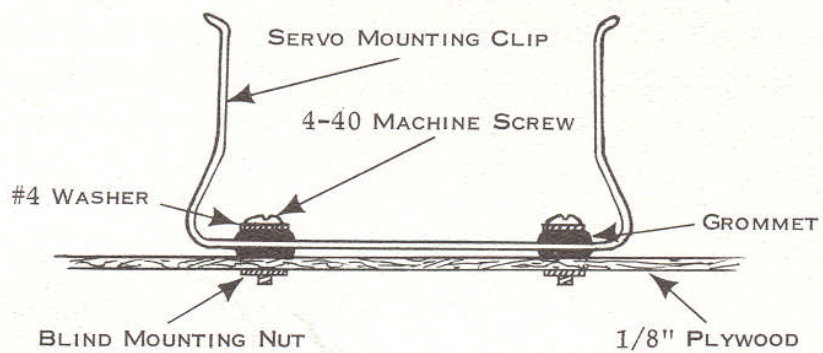


FIGURE 4.
SERVO BRACKET MOUNTING

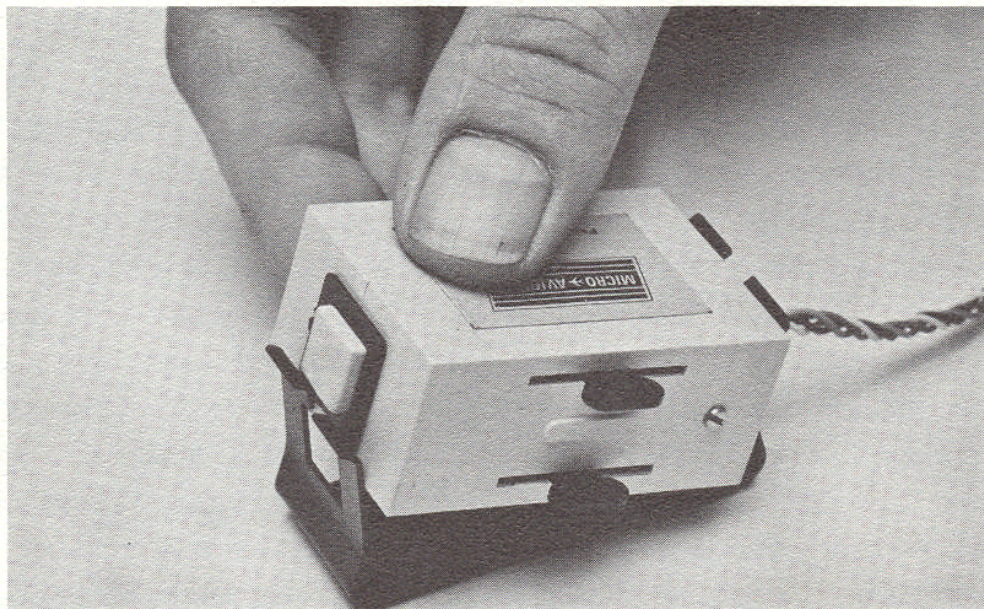


FIGURE 5.
MICRO-LOC OPERATION

UNDER NO CIRCUMSTANCES SHOULD YOU SHORTEN THE LENGTH OF THE ANTENNA WIRE AS THIS WILL SERIOUSLY AFFECT TUNING OF THE RECEIVER.

SERVO MOUNTING

THE USE OF MICRO-LOC MOUNTING BRACKETS GREATLY SIMPLIFIES SERVO INSTALLATION. BRACKETS MAY BE MOUNTED TO EITHER A PLYWOOD PLATE OR HARDWOOD MOUNTING RAILS WITH THE USE OF EITHER 4-40 BOLTS AND BLIND MOUNTING NUTS OR WITH THE USE OF #4 SHEET-METAL SCREWS AT LEAST $\frac{3}{8}$ OF AN INCH LONG. UNDER NO CIRCUMSTANCES USE WOOD SCREWS.

AS NOTED IN FIGURE 4, WASHERS AND GROMMETS MUST BE USED. IT IS EXTREMELY IMPORTANT WHEN MOUNTING THESE BRACKETS THAT YOU DO NOT COMPRESS THE GROMMETS AS THIS WILL DESTROY THEIR VIBRATION DAMPENING EFFECT. THE SIMPLEST METHOD OF INSERTING THE SERVOS (EITHER VERTICALLY OR HORIZONTALLY) INTO THE MOUNTING BRACKETS IS AS FOLLOWS:

PLACE THE END OF THE SERVO WITH CABLE AND CONNECTOR INTO THE MOUNTING BRACKET SQUARE HOLE WITH THE WIRES FACING THE RECEIVER. THE OTHER END OF THE SERVO MAY NOW BE PUSHED DOWN INTO THE MOUNTING BRACKET UNTIL THE SQUARE BOSS ENGAGES IN THE BRACKET HOLE (SEE FIGURE 5). BE CERTAIN THAT THE SERVOS ARE FULLY ENGAGED AND BE EXTREMELY CAREFUL NOT TO SPREAD THE MOUNTING BRACKETS ANY MORE THAN NECESSARY. ALTHOUGH THE MOUNTING BRACKETS WILL SECURELY HOLD THE SERVOS IN PLACE IN ANYTHING BUT A VERY SEVERE CRASH, FOR ADDITIONAL SECURITY, YOU MAY WANT TO PLACE A RUBBERBAND AROUND THE MOUNTING BRACKET CLIPS JUST ABOVE THE SQUARE HOLES. WE STRONGLY RECOMMEND THE USE OF DUBRO-TYPE CONNECTORS ON ALL PUSH RODS.

YOU WILL NOTE THAT YOUR SYSTEM HAS BEEN SHIPPED WITH ALL SERVO CONNECTORS IN PLACE WITH THE EXCEPTION OF THE AILERON SERVO. IF YOU SHOULD WISH TO REMOVE ANY OF THESE CONNECTORS, PLEASE OBSERVE THE FOLLOWING PROCEDURE:

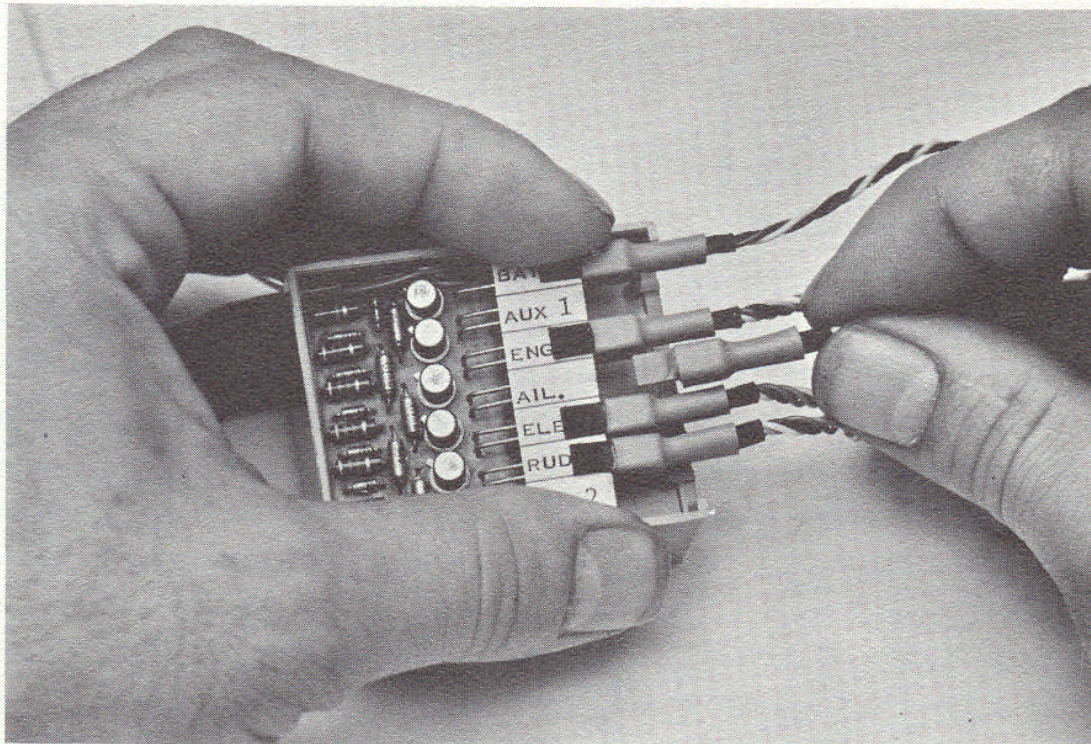


FIGURE 6.
SERVO CONNECTOR INSTALLATION

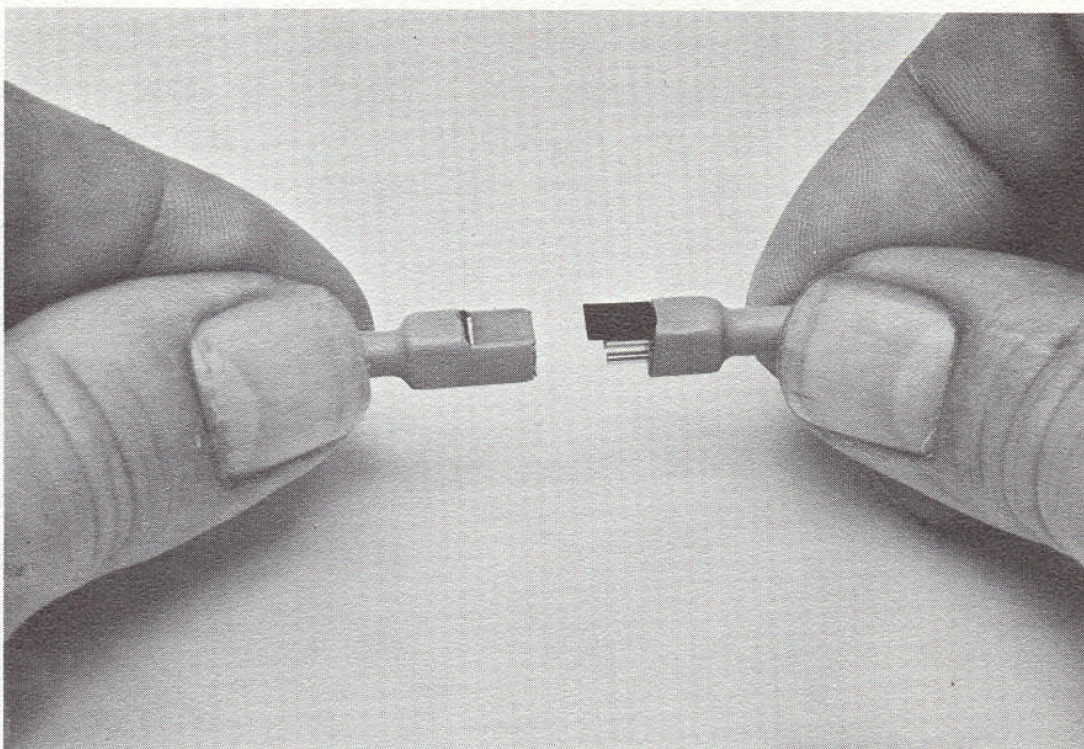


FIGURE 7.
AILERON SERVO CONNECTION PROCEDURE

REMOVE THE BLACK TAPE LABEL SECURING THE RECEIVER CASE LID IN POSITION AND REMOVE THE LID ON THE CONNECTOR SIDE OF THE RECEIVER CASE. VERY CAREFULLY LIFT THE CONNECTOR AND LOGIC CIRCUIT BOARD ENOUGH TO DISENGAGE THE CONNECTORS FROM THE SMALL ALIGNMENT PINS IN THE RECEIVER CASE.

YOU MAY THEN DISCONNECT ANY CONNECTOR SIMPLY BY PULLING IT OUT OF THE COMMON BLOCK CONNECTOR (SEE FIGURE 6). BE CAREFUL WHEN REINSERTING ANY CONNECTOR TO MAKE CERTAIN THAT THE CONNECTOR IS POSITIONED PROPERLY ACCORDING TO THE LABEL ON THE TOP OF THE MAIN CONNECTOR STRIP. MAKE CERTAIN THAT CONNECTORS ARE FULLY ENGAGED AND THEN CAREFULLY REPOSITION THE PRINTED CIRCUIT BOARD IN THE RECEIVER CASE.

REFER TO FIGURE 7 FOR THE PROPER METHOD OF PLUGGING AILERON SERVO INTO THE JUMPER CABLE.

THE AILERON SERVO CONNECTOR IS OUTSIDE THE RECEIVER CASE FOR CONVENIENCE IN DISCONNECTING THIS SERVO. YOU MAY, HOWEVER, PLUG THE AILERON SERVO DIRECTLY INTO THE RECEIVER BY REMOVING THE JUMPER CABLE AND FOLLOWING DIRECTIONS FOR INSERTION AND REMOVAL PREVIOUSLY DESCRIBED. IF YOU WISH TO USE THE JUMPER CABLES AS SUPPLIED, WE STRONGLY RECOMMEND THAT YOU TAPE THIS CONNECTOR USING EITHER MASKING TAPE OR BLACK VINYL TAPE TO INSURE THAT THIS CONNECTOR DOES NOT DISENGAGE DUE TO VIBRATION, ETC.

BATTERY CHARGING

ALL MICRO-AVIONICS, INC., SYSTEMS COME COMPLETE WITH A DUAL-OUTPUT, TRANSFORMER-TYPE CHARGER. THIS CHARGER PROVIDES THE PROPER CHARGING RATE FOR THE NICKEL-CADMIUM BATTERIES USED IN YOUR SYSTEM. NO OTHER CHARGER OF ANY KIND SHOULD BE USED. ANY BATTERY FAILURE DUE TO IMPROPER CHARGING IS NOT COVERED UNDER OUR WARRANTY. CHARGING OF RECEIVER AND TRANSMITTER POWER SUPPLY IS ACCOMPLISHED AS FOLLOWS:

TRANSMITTER SWITCH MUST BE IN THE OFF POSITION. PLACE TRANSMITTER ON SIDE OR BACK AND INSERT THE THREE-PIN MALE CONNECTOR INTO THE SOCKET PROVIDED ON THE BOTTOM OF THE TRANSMITTER CASE. DISCONNECT THE RECEIVER POWER SUPPLY BETWEEN THE SWITCH AND BATTERY AND INSERT THE CHARGER CONNECTOR. REFER TO FIGURE 7 FOR THE PROPER METHOD OF INSERTING THIS CONNECTOR. IF THIS CONNECTOR IS INSERTED IMPROPERLY, THE BATTERY COULD BE PERMANENTLY DAMAGED. PLUG THE CHARGER INTO ANY STANDARD 110 VOLT WALL OUTLET. (A 220 VOLT CHARGER IS AVAILABLE UPON REQUEST.) A LIGHT SHOULD BE VISIBLE THROUGH THE HOLE IN THE CHARGER CASE - THIS INDICATES THAT THE BATTERIES ARE CHARGING. IF FOR SOME REASON THE BULB FAILS TO LIGHT, CHECK ALL CONNECTORS, ESPECIALLY YOUR WALL OUTLET. IF THE BULB IS NOT LIT, THE BATTERIES WILL NOT BE CHARGED.

AS NOTED IN THE BEGINNING OF THIS MANUAL, INITIAL CHARGE OF BATTERIES IN YOUR SYSTEM SHOULD BE FOR 24 HOURS. THIS WILL INSURE THAT THE BATTERIES ARE CHARGED TO CAPACITY. BATTERIES MUST BE CHARGED IMMEDIATELY PRIOR TO ANY FLYING SESSION FOR A MINIMUM OF 12 HOURS, BUT PREFERABLY 24 HOURS.

YOUR BATTERY CHARGER HAS BEEN DESIGNED SO THAT OVERCHARGING IS ALMOST IMPOSSIBLE. PROLONGED CHARGING WILL NOT DAMAGE THE BATTERIES EVEN IF LEFT ON FOR PERIODS AS LONG AS A WEEK; HOWEVER, A 24-HOUR PERIOD WILL INSURE COMPLETE CHARGING OF THE BATTERIES REGARDLESS OF THEIR STATE OF DISCHARGE.

WHEN THE BATTERIES ARE IN A FULLY-CHARGED STATE, YOU CAN EXPECT A CAPACITY OF 10 TO 12 TEN-MINUTE FLIGHTS, OR A TOTAL OF AT LEAST TWO HOURS OF OPERATION. BEYOND THIS POINT, YOU ARE STRICTLY ON YOUR OWN. THERE IS NO SIMPLE, EFFICIENT MEANS OF DETERMINING THE STATE OF CHARGE OF NICKEL-CADMIUM BATTERIES. IT IS, THEREFORE, EXTREMELY IMPORTANT THAT YOU FOLLOW THE ABOVE CHARGING PROCEDURES FAITHFULLY.

PRE-FLIGHT SYSTEM CHECKOUT

AFTER YOUR SYSTEM HAS BEEN INSTALLED IN THE AIRCRAFT AND THE BATTERIES CHARGED FOR A 24-HOUR PERIOD, YOU WILL BE READY FOR A PRE-FLIGHT SYSTEM CHECKOUT. YOUR INITIAL CHECKOUT SHOULD BE QUITE THOROUGH AS SUBSEQUENT CHECKOUTS WILL BE BASED ON DISTANCES DETERMINED ON THIS CHECKOUT. WE SUGGEST THAT YOU FOLLOW THIS CHECK LIST:

1. TURN ON TRANSMITTER AND RECEIVER SWITCH. CHECK ALL SERVOS FOR SMOOTH OPERATION. SERVO SPEED SHOULD BE THE SAME IN BOTH DIRECTIONS ON ALL SERVOS. SERVOS SHOULD NOT CHATTER EITHER AT REST OR WHILE MOVING FROM ONE POSITION TO ANOTHER. CHECK ALL SERVOS TO INSURE THAT THEY ARE CENTERING PROPERLY AND THAT THEY RETURN TO THE SAME CENTER POSITION AFTER EVERY COMMAND. MAKE SURE THAT THE TRIM LEVERS ON THE TRANSMITTER ARE CENTERED FOR THIS CHECK.
2. WHEN TRANSMITTER SWITCH IS TURNED ON AND ANTENNA IS INSTALLED AND FULLY EXTENDED, HOLD THE TRANSMITTER IN THE NORMAL MANNER WITH BOTH HANDS AND NOTE THE METER READING ON THE FRONT PANEL OF THE TRANSMITTER. THE METER MAY READ ANYWHERE FROM $1/4$ TO FULL SCALE. THE AMOUNT OF THE NEEDLE DEFLECTION IS OF LITTLE CONSEQUENCE. IT IS AN INDICATION THAT THE TRANSMITTER IS OPERATING. IT DOES NOT READ BATTERY VOLTAGE BUT IS A MEASURE OF THE RF SIGNAL. MAKE A MENTAL NOTE OF THE METER READING AND USE THIS AS A COMPARISON FOR FUTURE CHECKS. IF IN A FUTURE CHECKOUT OF THE SYSTEM YOU SHOULD NOTICE A SUBSTANTIAL DIFFERENCE FROM YOUR ORIGINAL METER READING, THIS IS A GOOD INDICATION THAT TROUBLE EXISTS SOMEWHERE IN THE TRANSMITTER, USUALLY IMPROPERLY CHARGED BATTERIES. DO NOT FLY THE SYSTEM UNTIL TROUBLE HAS BEEN FOUND AND CORRECTED.
3. REMOVE TRANSMITTER ANTENNA. TURN ON BOTH TRANSMITTER AND RECEIVER SWITCH, PLACE AIRPLANE ON THE GROUND WITH NOSE POINTING TOWARD YOU. HOLD TRANSMITTER IN A VERTICAL POSITION AND FACE AIRPLANE AND

OPERATE ALL CONTROLS. SELECT A CONTROL THAT YOU CAN SEE EASILY, SUCH AS RUDDER, AND WHILE OPERATING THIS CONTROL, CONTINUE SLOWLY WALKING BACKWARDS UNTIL CONTROL OF THIS SURFACE BECOMES ERRATIC. MOVE FORWARD UNTIL NORMAL CONTROL IS AGAIN OBTAINED AND NOTE THE DISTANCE BETWEEN AIRPLANE AND TRANSMITTER. THIS DISTANCE SHOULD BE BETWEEN 15 TO 35 FEET. ANYTHING LESS THAN THIS SHOULD BE CAUSE FOR CONCERN.

THIS TEST MUST BE PERFORMED OUT DOORS, PREFERABLY ON DRY GROUND OR ASPHALT AND AS FAR AWAY FROM ANY ELECTRICAL POWER LINES AS POSSIBLE. THE TEST MUST ALSO BE ACCOMPLISHED WHILE NO OTHER TRANSMITTER, WHETHER IT BE ON YOUR FREQUENCY OR NOT, IS ON THE AIR IN THE IMMEDIATE VICINITY.

WHEN YOU HAVE ESTABLISHED WHAT IS YOUR NORMAL GROUND RANGE, FOR EXAMPLE - 18 FEET, USE THIS FOR FUTURE RANGE CHECKS TO DETERMINE IF THE SYSTEM IS OPERATING NORMALLY.

REINSTALL TRANSMITTER ANTENNA AND EXTEND FULLY PRIOR TO FLIGHT. IN SOME CASES WITH THE TRANSMITTER ANTENNA WITHIN FIVE OR SIX INCHES OF THE RECEIVER ANTENNA, SIGNAL MAY BE LOST. THIS IS A NORMAL CONDITION AND SHOULD IN NO WAY AFFECT NORMAL OPERATIONS.

ALL SYSTEMS ARE FULLY TUNED AT THE FACTORY AND SHOULD REQUIRE NO FURTHER TUNING AT ANY TIME. DO NOT, UNDER ANY CIRCUMSTANCES, ATTEMPT TO TUNE ANY COILS OR ADJUSTMENTS IN THE RECEIVER.

FLIGHT SHOULD NEVER BE ATTEMPTED UNLESS ALL FIVE SECTIONS OF THE TRANSMITTER ANTENNA ARE FULLY EXTENDED. ALWAYS BE CERTAIN TO CHECK THE TRANSMITTER FREQUENCY OF ALL OTHER SYSTEMS AT YOUR FLYING FIELD SO THAT YOU CAN BECOME FAMILIAR WITH THOSE PEOPLE FLYING ON YOUR FREQUENCY. BE VERY CAUTIOUS NOT TO TURN ON YOUR TRANSMITTER WHILE ANYONE IS OPERATING ON YOUR FREQUENCY, AND BE CERTAIN THAT THEY DO THE SAME FOR YOU.

PRIOR TO FIRST FLIGHT, IT IS ALSO A GOOD IDEA TO MAKE A VIBRATION CHECK OF YOUR SYSTEM TO INSURE THAT SYSTEM WILL OPERATE PROPERLY AT ALL ENGINE SPEEDS. THIS IS ACCOMPLISHED BEST BY HAVING A HELPER HOLD THE AIRPLANE WITH BOTH HANDS AT THE LEADING EDGE OF THE WING WHILE YOU OPERATE THE THROTTLE FROM IDLE TO FULL THROTTLE AND OBSERVE CLOSELY FOR ANY UNWANTED MOVEMENT OF THE CONTROL SURFACES. IF AIRCRAFT VIBRATES EXCESSIVELY, CHECK FOR PROPER ENGINE MOUNTING AND A PROPERLY BALANCED PROPELLER. EXCESSIVE VIBRATION WILL APPRECIABLY SHORTEN THE LIFE OF YOUR SYSTEM.

FREQUENCY FLAG CODES

26.995 MHz	BROWN
27.045 MHz	RED
27.095 MHz	ORANGE
27.145 MHz	YELLOW
27.195 MHz	GREEN
72.080 MHz	WHITE / BROWN
72.240 MHz	WHITE / RED
72.400 MHz	WHITE / ORANGE
72.960 MHz	WHITE / YELLOW
72.640 MHz	WHITE / GREEN
6-METER BAND	
53.10	BLACK / BROWN
53.20	BLACK / RED
53.30	BLACK / ORANGE
53.40	BLACK / YELLOW
53.50	BLACK / GREEN

IN-FLIGHT OPERATION

NEVER POINT TRANSMITTER ANTENNA AT THE AIRPLANE AT ANY TIME. THE RF SIGNAL FROM THE TIP OF A WHIP ANTENNA IS ALMOST NIL. KEEP THE ANTENNA AT LEAST 20 DEGREES TO THE AIRPLANE AT ALL TIMES, ESPECIALLY ON LONG, LOW LANDING APPROACHES. ALTHOUGH YOUR SYSTEM HAS BEEN DESIGNED TO GIVE INTERFERENCE-FREE OPERATION, IF YOU FLY IN A DENSELY

POPULATED AREA, YOU WILL, WITH LITTLE DOUBT, ON OCCASION NOTICE SOME RADIO INTERFERENCE. THIS IS USUALLY NOTICEABLE AS SMALL DISTURBANCES IN THE AIRCRAFT FLIGHT PATH. IF FOR SOME REASON YOU SHOULD ENCOUNTER REPEATED DISTURBANCES, IT WOULD BE WISE TO LAND IMMEDIATELY UNTIL THE RADIO INTERFERENCE HAS SUBSIDED.

IT IS ALSO GOOD PRACTICE WHEN FLYING WITH OTHER MODELERS TO HAVE ALL PILOTS OPERATE THEIR AIRCRAFT FROM THE SAME GENERAL LOCATION. FLYING OVER ANOTHER TRANSMITTER OF AN ADJACENT FREQUENCY WHEN THAT TRANSMITTER IS CLOSER TO THE AIRCRAFT THAN YOUR OWN BY SEVERAL HUNDRED FEET CAN, IN SOME CASES, CAUSE INTERFERENCE PROBLEMS. THIS IS TYPICAL OF ALL RADIO-CONTROLLED SYSTEMS.

MAINTENANCE

MICRO-AVIONICS, INC., EQUIPMENT HAS BEEN DESIGNED TO BE A TROUBLE-FREE SYSTEM REQUIRING LITTLE OR NO MAINTENANCE. ABOUT THE ONLY MAINTENANCE REQUIRED WILL BE TO KEEP THE SYSTEM FREE OF DUST AND TO KEEP THE BATTERIES PROPERLY CHARGED. UNLIKE SOME OTHER SYSTEMS, OUR SERVOS REQUIRE NO MAINTENANCE OF THE FEEDBACK POTENTIOMETER. IT IS A SELF-CLEANING AND SEALED UNIT WHICH WILL GIVE NO TROUBLE WHATSOEVER.

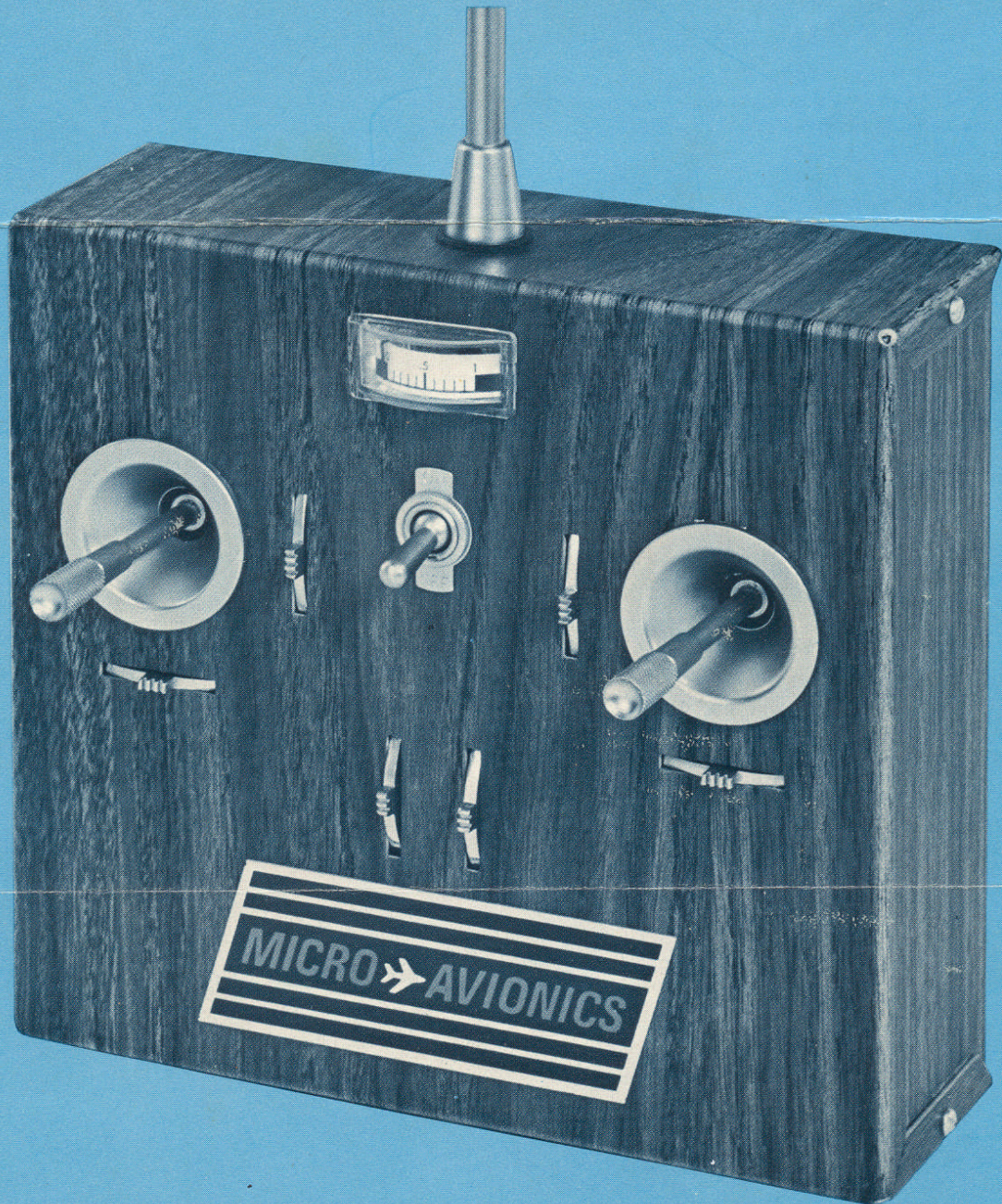
ALL SYSTEMS ARE GUARANTEED FOR A PERIOD OF 90 DAYS FROM THE DATE OF PURCHASE AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP. MICRO-AVIONICS, INC., WILL REPAIR ANY SYSTEM FOUND TO BE DEFECTIVE WITHIN THIS 90-DAY PERIOD AT NO CHARGE FOR PARTS AND LABOR. OUR MINIMUM SERVICE CHARGE FOR A COMPLETE SYSTEM CHECKOUT AND ALIGNMENT AFTER THE WARRANTY PERIOD IS \$7.50 PLUS POSTAGE. A WRITTEN ESTIMATE OF REPAIR COSTS FOR SEVERELY DAMAGED UNITS WILL BE GIVEN UPON REQUEST PRIOR TO REPAIR.

SHOULD YOUR SYSTEM NEED REPAIRS, MAY WE RECOMMEND THAT YOU FOLLOW A FEW SIMPLE SUGGESTIONS:

1. CLEAN ALL EXTERNAL SURFACES OF YOUR EQUIPMENT.

2. DO NOT SEND A RECEIVER WRAPPED IN FOAM AND TAPE. UNTIE ALL KNOTS IN RECEIVER ANTENNA. DO NOT SEND IN SERVOS MOUNTED ON TRAYS, ETC.
3. CHARGE THE TRANSMITTER BEFORE MAILING.
4. ENCLOSE A CONCISE ACCURATE LETTER EXPLAINING THE TROUBLE YOU ARE EXPERIENCING WITH YOUR EQUIPMENT. IF YOU ATTEMPTED TO REPAIR OR RETUNE IT YOURSELF (WHICH WE DO NOT RECOMMEND) AND WERE UNSUCCESSFUL, PLEASE SO INDICATE. PLEASE REMEMBER, TOO, THAT YOUR LETTER WILL HAVE TO BE READ BY SEVERAL PEOPLE.
5. IF YOU DO NOT NEED YOUR UNIT RETURNED FOR A COUPLE OF WEEKS, PLEASE INDICATE. THIS WILL ALLOW OUR SERVICE DEPARTMENT TO EXPEDITE THE ONES THAT ARE NEEDED FOR CONTEST WITHOUT UNNECESSARILY HOLDING UP OTHER LESS PRESSING ORDERS. ALMOST EVERYONE IN THIS BUSINESS IS OR WAS A MODELER AND UNDERSTANDS YOUR PROBLEM.
6. ALWAYS RETURN RECEIVER, TRANSMITTER AND SERVOS AS ALL ARE NEEDED TO GIVE YOUR SYSTEM A COMPLETE CHECK. DO NOT ASSUME THE OBVIOUS. FOR EXAMPLE, WHAT MAY APPEAR TO BE A FAULTY RECEIVER MAY BE A PROBLEM IN THE TRANSMITTER; OR WHAT APPEARS TO BE A MALFUNCTION IN THE TRANSMITTER OR RECEIVER MAY ACTUALLY ONLY BE A FAULTY SERVO.
7. DO NOT CHANGE ANY CONNECTORS. THESE WILL HAVE TO BE CHANGED BACK AT THE FACTORY TO FIT THE TEST EQUIPMENT.
8. SAVE THE ORIGINAL SHIPPING CONTAINER AND PACKING MATERIAL AND TRY TO RETURN IT TO THE FACTORY PACKAGED IN THE SAME MANNER YOU RECEIVED IT.

THE **XL** LIGHT-WEIGHT PROPORTIONAL CONTROL SYSTEMS

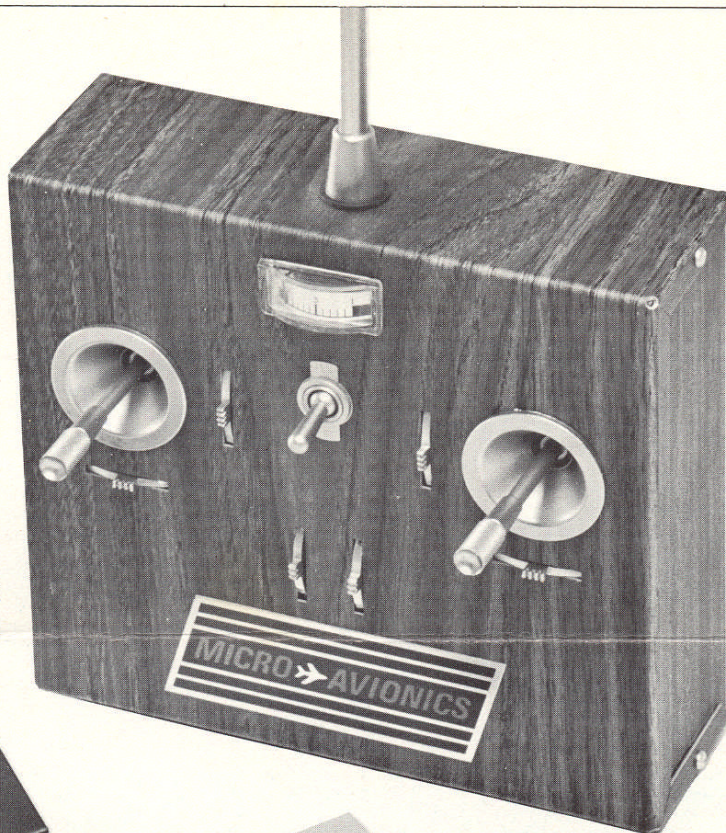


FROM MICRO-AVIONICS, INC.

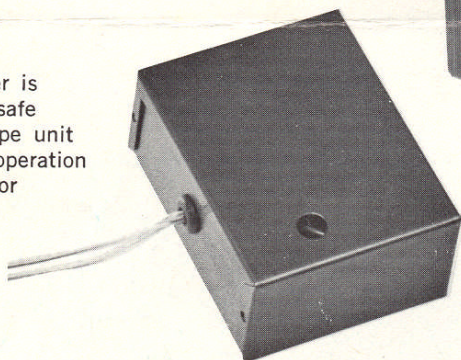
XL^{-6D}

The Micro-Avionics transmitter in woodgrain finish with chrome accessories is not only outstanding in appearance but is unequalled in performance and reliability.

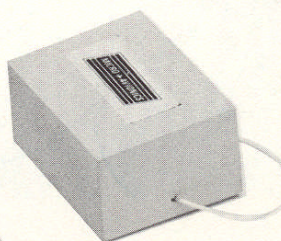
\$429.95



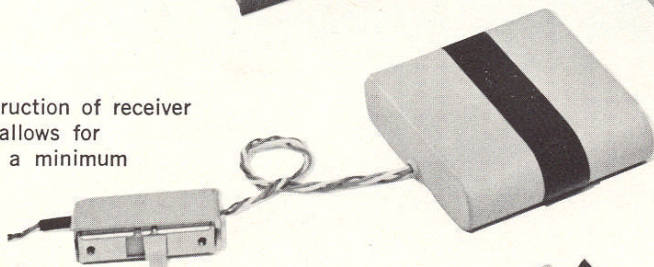
Battery charger is a completely safe transformer type unit available for operation on either 110 or 220 Volts.



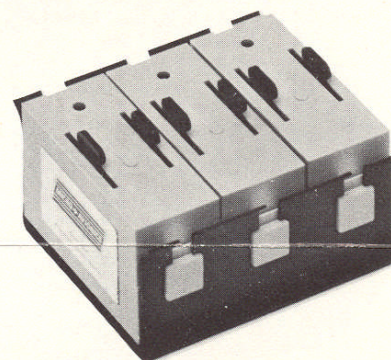
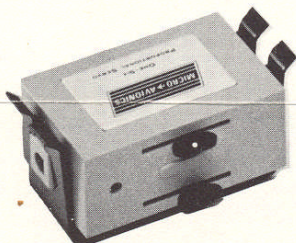
The Micro-Avionics receiver is a highly compact, two-deck unit incorporating an internal power and servo connector strip for the ultimate in reliability.



New flat construction of receiver power supply allows for installation in a minimum of space.

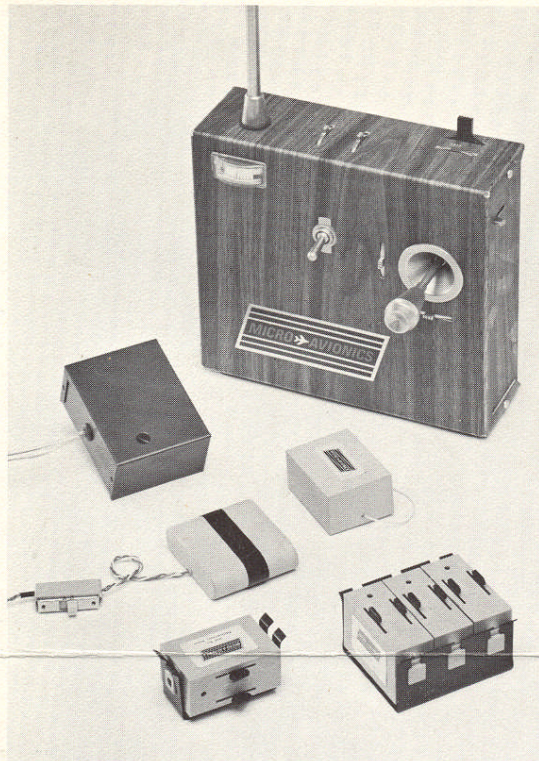


An all new compact servo featuring "Micro-Loc" mounting and four pounds of thrust.



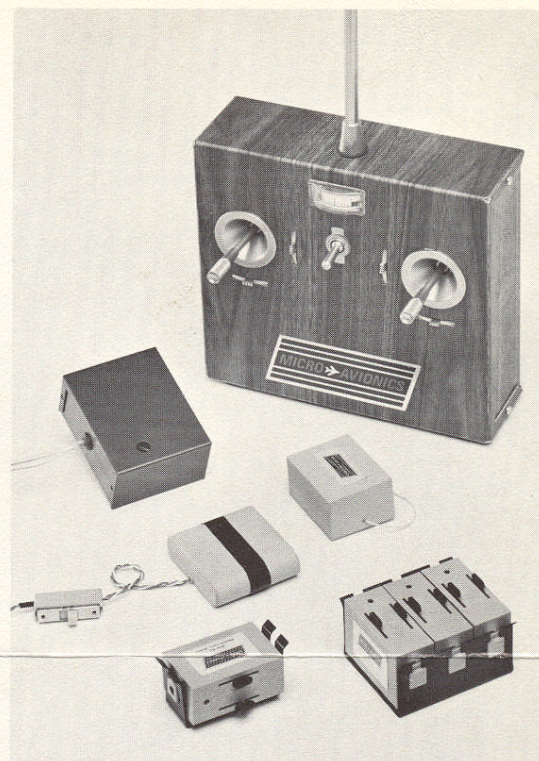
Pictured above is the XL-6D which is a dual-stick, six-channel system featuring our new compact, powerful servo with exclusive Micro-Loc servo mounting brackets. This unique mounting method for the first time allows the complete radio system to be moved from one model to another in the field in a matter of seconds—another Micro first! The servo itself features dual linear output and a full four pounds of thrust with travel of .6" nominal. The feedback element is a sealed version of our highly reliable hot carbon element. The receiver incorporates a unique power and servo connector strip within the receiver which positively locks the servo and power connectors in place and insures against vibration and contamination from fuel and dirt. Our standard dual-stick transmitter is available with elevator and aileron control on the right-hand stick or with aileron and throttle control on the right-hand stick. Finish is our very attractive woodgrain vinyl which has proven to be the most durable case finish available. Control stick assemblies are ultra-smooth, closed-faced, with mechanical trim on each axis that does not affect stick neutral position. Receiver power supply is a new "flat-pack" consisting of four G.E. pencells with 500 ma. capacity. All up system weight 15-16 oz.

The complete system includes transmitter, receiver, four servos, complete set of servo mounting brackets, complete nickel-cadmium power supply, dual output charger, instruction manual. All units are available on 27 MHz, 72 MHz or 6-Meter frequencies.



XL-6S
\$429.95

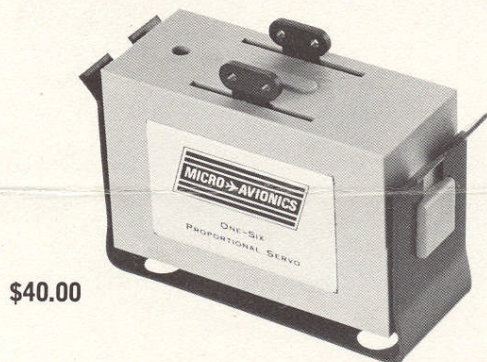
XL-4D
\$399.95



The XL-6S is a single-stick version of our new compact proportional control system with all of the same outstanding features as our dual-stick model. All control and auxiliary functions can be operated with the transmitter cradled comfortably in the left arm. Many new comers find this stick arrangement to be simpler in operation than the dual-stick configuration.

For the economy-minded modeler, the XL-4D, 4-channel system, offers all the features of our standard 6-channel model. The system comes completely equipped, ready to operate with four servos. System may also be ordered with any number of servos from one to four. Simply deduct \$35 for each servo to be excluded.

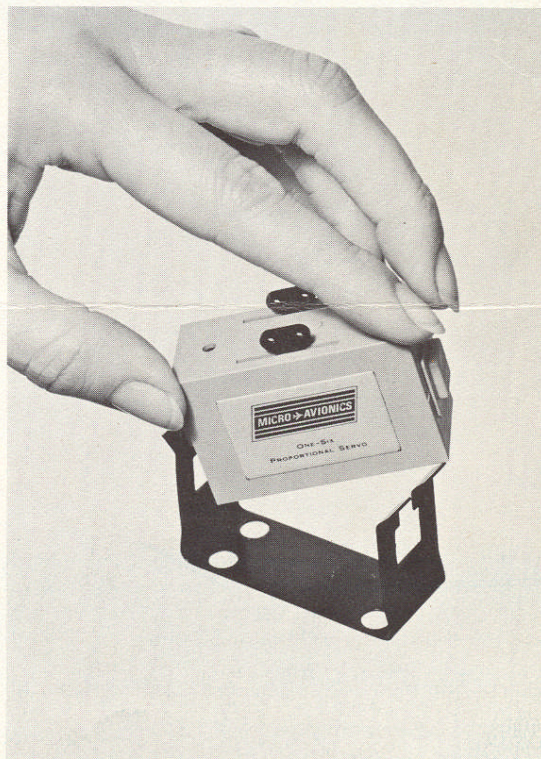
ONE-SIX PROPORTIONAL SERVO FEATURING UNIQUE MICRO-LOC MOUNTING



\$40.00

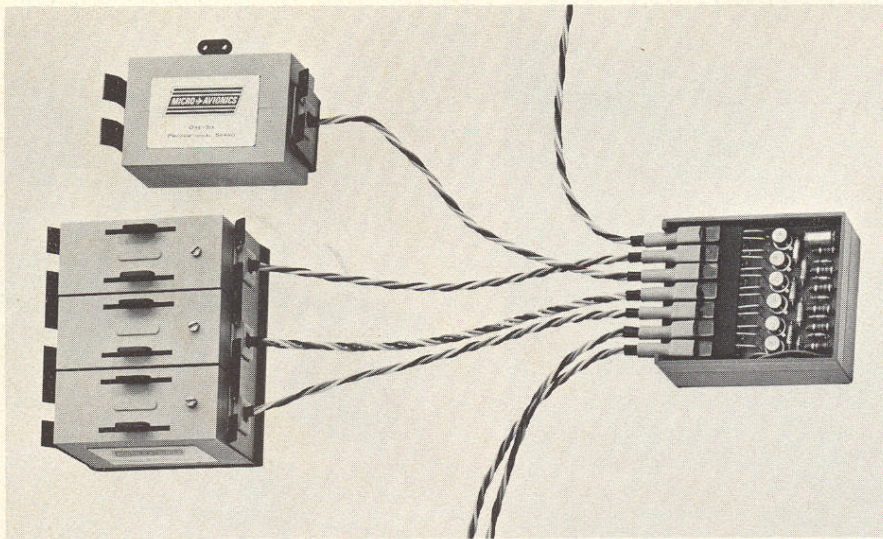
The one-six proportional servo is a highly compact unit with thrust in excess of four pounds. Servo dimensions — Width: .9", Height: 1.35", Length: 2.07". Output is of the dual linear type which has been found to be very practical and extremely easy to install. There is no need, with this method, for reversing servo travel. The entire unit is built with a durable plastic material that is not affected by heat, cold, or most chemicals. Each servo is provided with an external means of adjusting the neutral position without disassembling the servo.

A new dimension of flexibility is provided by a variety of shock-dampening brackets available for the system. One, two, or three cluster modules are available . . . plus a special aileron bracket which allows the servo to be mounted on its side, thereby keeping overall height to an absolute minimum. The unique Micro-Loc mounting method makes servo installation ultra-simple and allows servo to be moved from one model to another in a matter of minutes with no tools required. Each servo when installed is automatically locked into its mounting bracket and will not come loose under normal flight conditions including extremely hard landings. The servos will, however, release from their mounting brackets in the event of a severe crash thereby lessening the chance of damage.

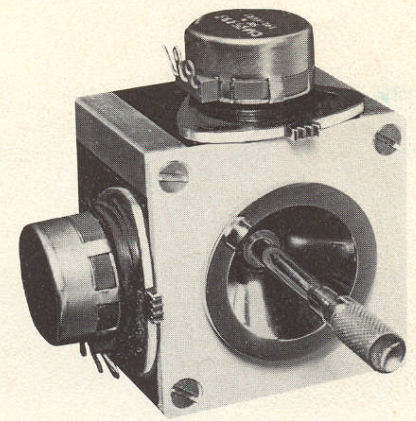


Extra mounting brackets are available so that one may equip any number of models.

SL-1: Single-Servo Mounting Bracket	\$1.25
SL-1A: Single-Servo Mounting Bracket for Aileron	\$1.25
SL-2: Dual-Servo Mounting Bracket	\$2.25
SL-3: Three-Servo Mounting Bracket	\$2.95



The above photograph clearly illustrates the internal servo power connector strip. This feature positively locks all connectors within the receiver when the receiver lid is in position thereby eliminating the problem of vibration loosening the connectors and the resultant failure. The connectors are also kept free of dirt and fuel-oil residue which has been a major connector problem. This method of wiring also provides a much neater and space-saving installation. The aileron servo does have an external connector to allow this unit to be unplugged conveniently when necessary.



Our all new control stick is the answer for the experimenter or hobbyist who wants the finest in two-axis control. All exposed parts are chrome plated in a most attractive unit.

The control stick drives two pots via two simple bails without need of drag-producing gears. Action is velvet smooth, centering is very precise.

Unit is available with 5K or 10K Pots.

Kit with 5 or 10K pots \$14.95
Kit less pots \$11.95

SPECIFICATIONS

A. Transmitter

Power Output.....	One-half watt, nominal.
Operating Voltage.....	9.6 Volts DC, rechargeable nickel-cadmium battery.
Type of Modulation.....	Carrier on-off.
Modulation Percentage.....	100%.
Operating Frequencies.....	26.995 MHz 72.08 MHz 27.045 MHz 72.24 MHz 27.095 MHz 72.40 MHz 27.145 MHz 72.96 MHz 27.195 MHz 75.64 MHz 52-53.6 MHz
Frequency Tolerance.....	.005% maximum.
Antenna.....	54" four-section collapsible whip.
Operation Time.....	Better than four hours continuous on full charge.
Operating Temperature Range.....	0 - 150° F.
Case Finish.....	Simulated woodgrain, vinyl covered, aluminum.
Stick Variations.....	Two stick, aileron and elevator on right; two stick, aileron and engine on right. Single stick, rudder on top of case, engine on side of case.
Number of Channels Available.....	4 or 6 channels for dual stick. 6 channels for single stick.

B. Receiver

Sensitivity.....	Equal to or less than 3 microvolts for full control.
Automatic Gain Control.....	Dynamic range 60. db, nominal.

B. Receiver (continued)

Bandwidth.....	3KHz at 6 db.
Intermediate Frequency.....	455 KHz.
Power Supply.....	4.8 Volts DC center tapped rechargeable nickel-cadmium battery.
Available Frequencies.....	Same as transmitter.
Operating Temperature Range.....	0 - 150° F.
Size.....	2.09" X 1.75" X 1.185".
Weight.....	Less than 3 ounces.

C. Servo Amplifier and Servo Mechanisms

Servo Centering Accuracy.....	Plus or minus 0.5%, nominal.
Response Time.....	Equal to or less than 30 milliseconds.
Thrust.....	4 lbs. plus.
Travel.....	.6" Nominal.
Drift.....	Plus or minus 1%, 0 - 150° F.
Feedback Pots.....	Completely sealed, highly reliable, extended life, hot moulded carbon elements, high-tempered brass wipers, meets mil spec.
Outputs Available.....	Dual linear.
Mounting.....	Micro-Loc mounting brackets. One, two, or three cluster modules.
Size.....	Width: .9". Height: 1.35" less outputs. Length: 2.07" Exclusive of mounting ears, 2.32" inclusive of mounting ears.
Weight.....	2 Oz.

ACCESSORIES

Power supply receiver (includes switch harness)	\$20.00	Dual charger 220V	9.50
Dual charger 110V	8.95	Switch harness	4.95

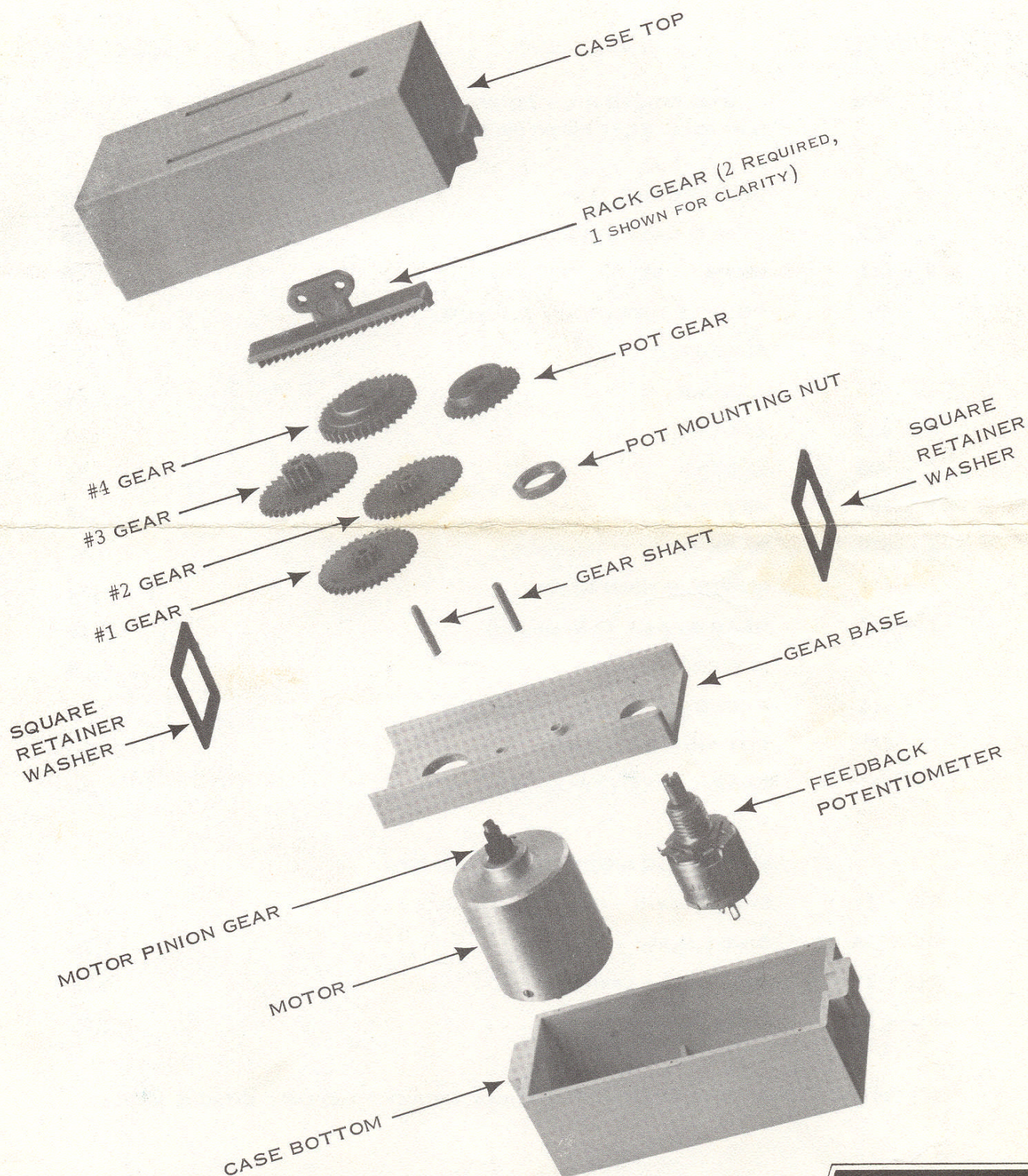
MICRO-AVIONICS ALSO BUILDS CONTROL & TELEMETRY SYSTEMS FOR COMMERCIAL APPLICATION —
WRITE FOR ADDITIONAL INFORMATION

XL ONE-SIX SERVO MECHANICS PARTS PRICE LIST

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>UNIT</u> <u>RETAIL COST</u>
1 - 600	SERVO MECHANICS COMPLETE (INCLUDES SL-1 MOUNTING BRACKET)	\$ 15.00
1 - 601	SERVO CASE TOP	1.50
1 - 602	SERVO CASE BOTTOM	1.00
1 - 603	GEAR BASE	1.00
1 - 604	SQUARE RETAINING WASHER	.15
1 - 605	#1 GEAR	.50
1 - 606	#2 GEAR	.50
1 - 607	#3 GEAR	.50
1 - 608	#4 GEAR	.50
1 - 609	POT GEAR	.50
1 - 610	RACK GEAR (2 REQUIRED)	.50
1 - 611	MOTOR PINION GEAR	.50
1 - 612	GEAR SHAFT (2 REQUIRED)	.15
1 - 613	MOTOR	5.50
1 - 614	FEEDBACK POTENTIOMETER	3.50
1 - 615	POT MOUNTING NUT	.10
1 - 616	CASE LABEL (2 REQUIRED)	.10
MICRO-LOC MOUNTING BRACKETS:		
SL - 1	SINGLE SERVO - UPRIGHT	1.25
SL - 1A	SINGLE SERVO - AILERON	1.25
SL - 2	TWO SERVO - UPRIGHT	2.25
SL - 3	THREE SERVO - UPRIGHT	2.95

(EFFECTIVE MARCH 15TH, 1968. ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.)

XL ONE-SIX SERVO MECHANICS EXPLODED PARTS VIEW



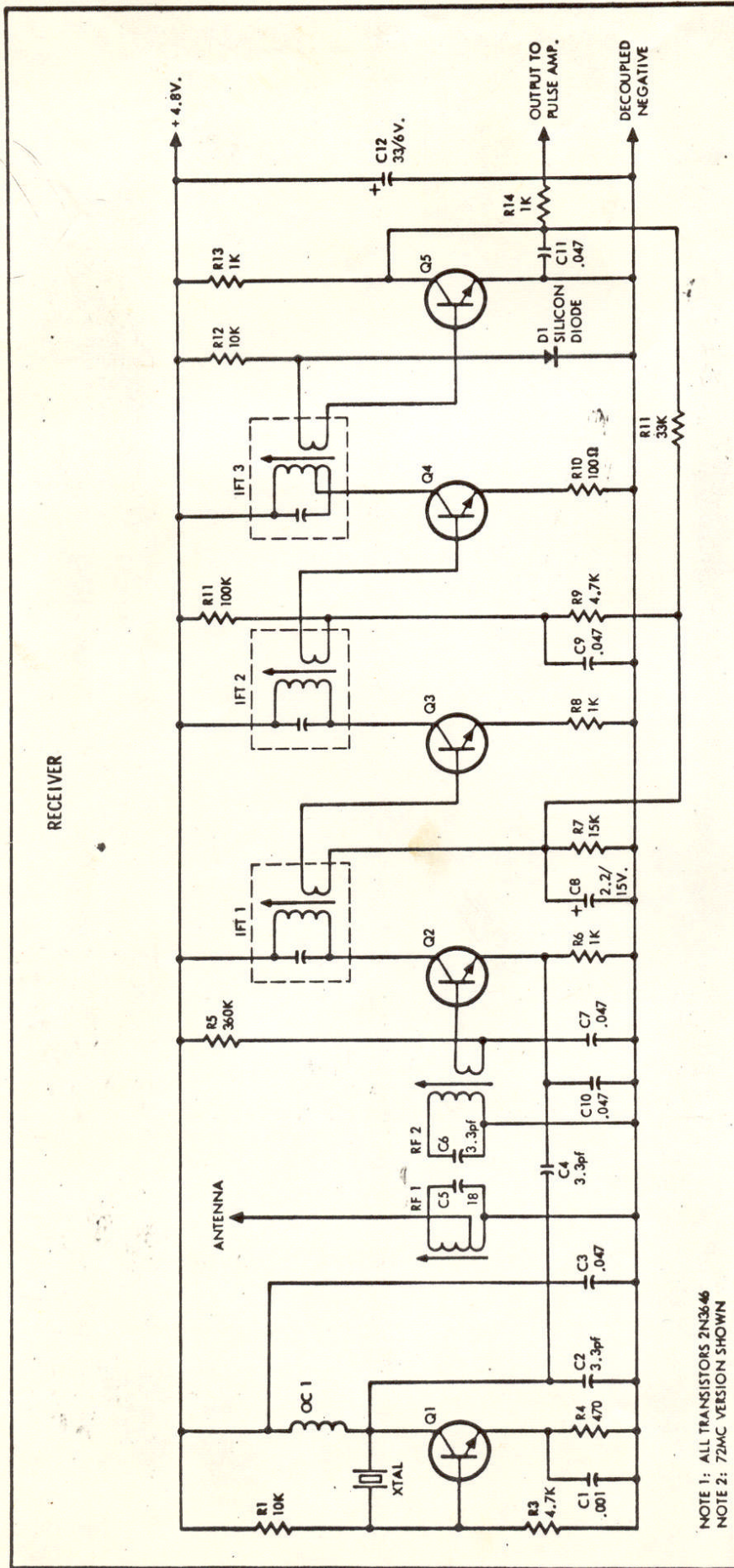
MICRO→AVIONICS

PULSE AMPLIFIER & DECODER
4 CHANNEL VERSION SHOWN

NOTE 1: ALL DIODES SILICON.

PULSE AMPLIFIER & DECODER
4 CHANNEL VERSION SHOWN

NOTE 1: ALL DIODES SILICON.

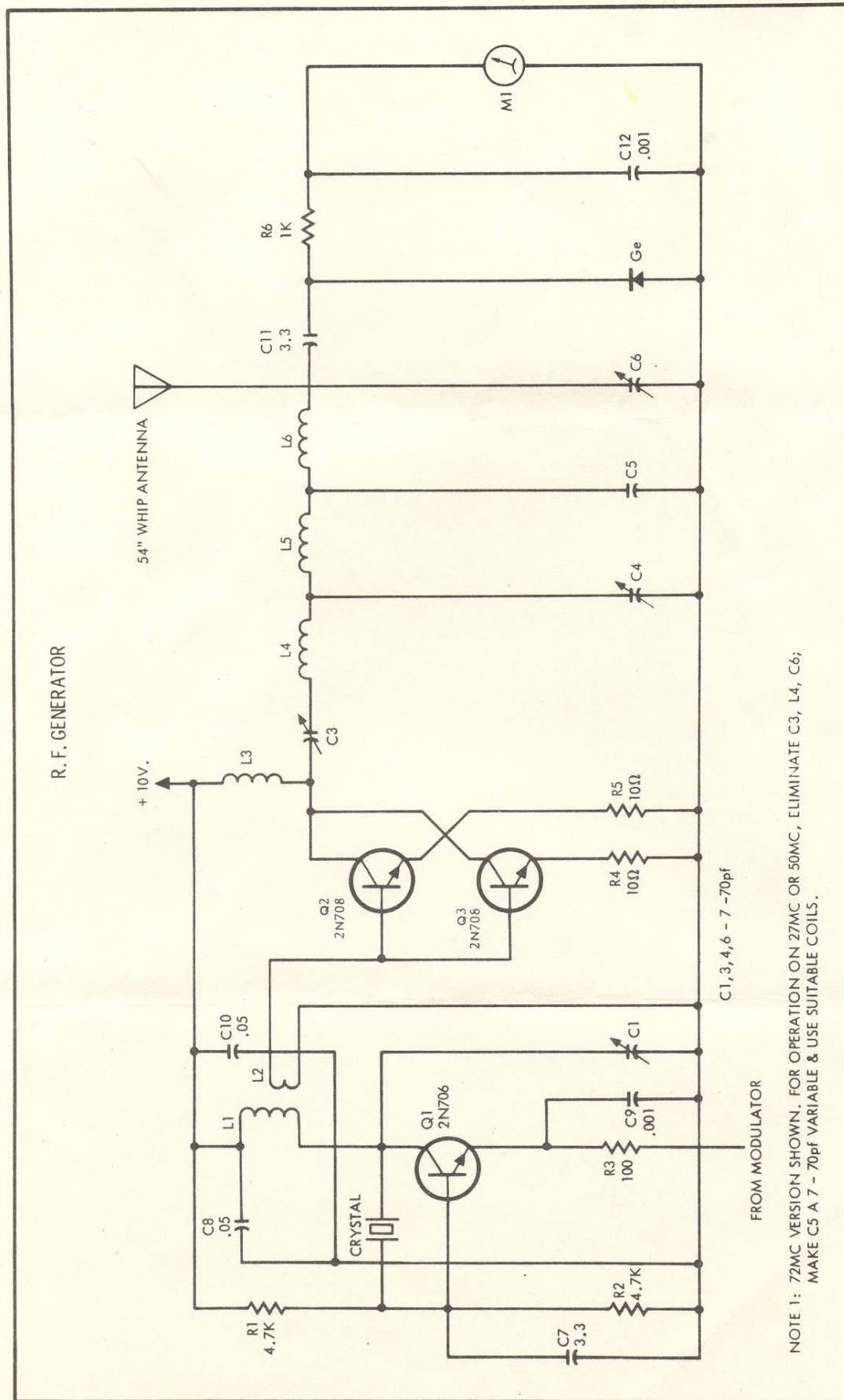


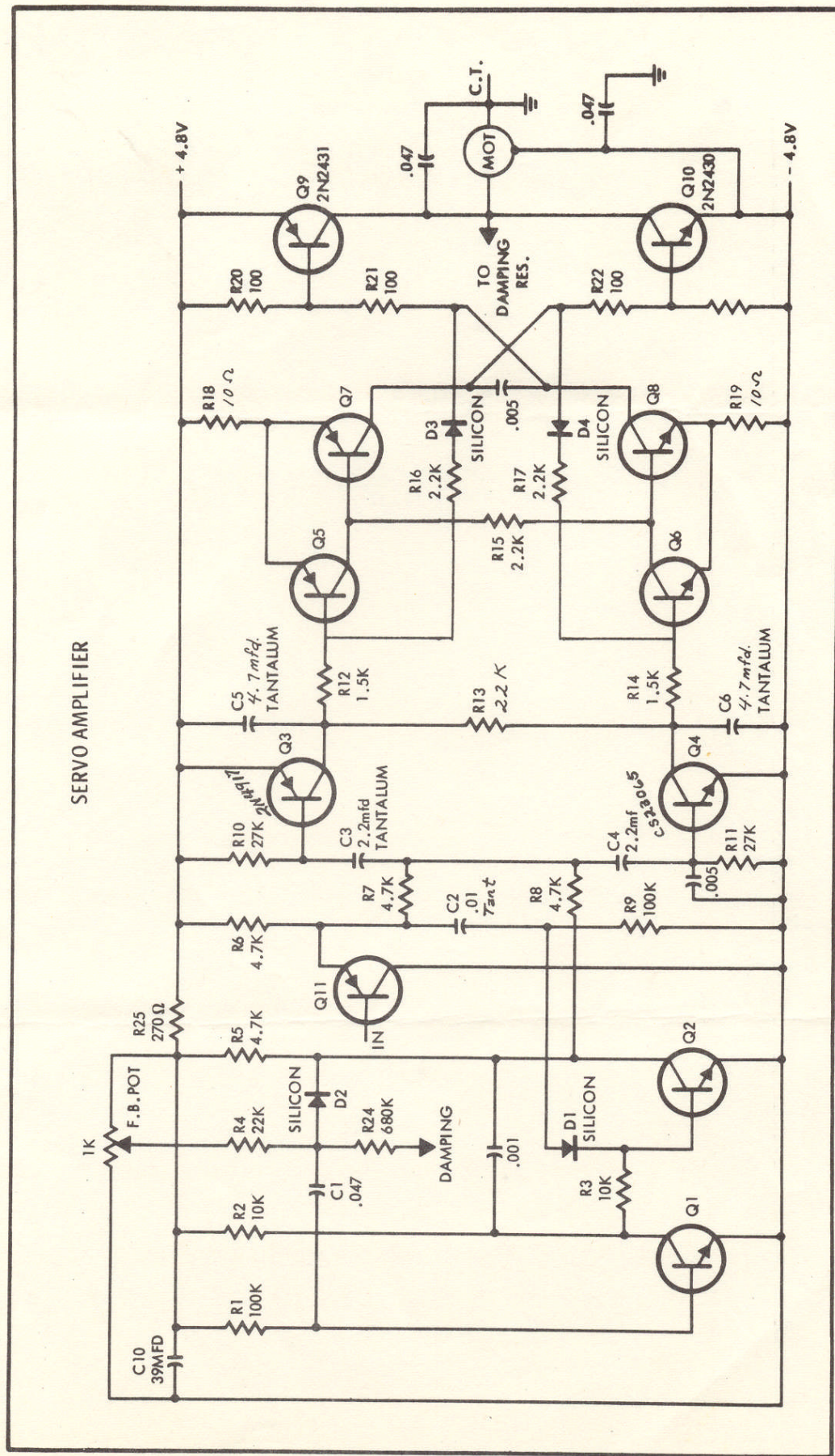
NOTE 1: ALL TRANSISTORS 2N3646
NOTE 2: 72MC VERSION SHOWN

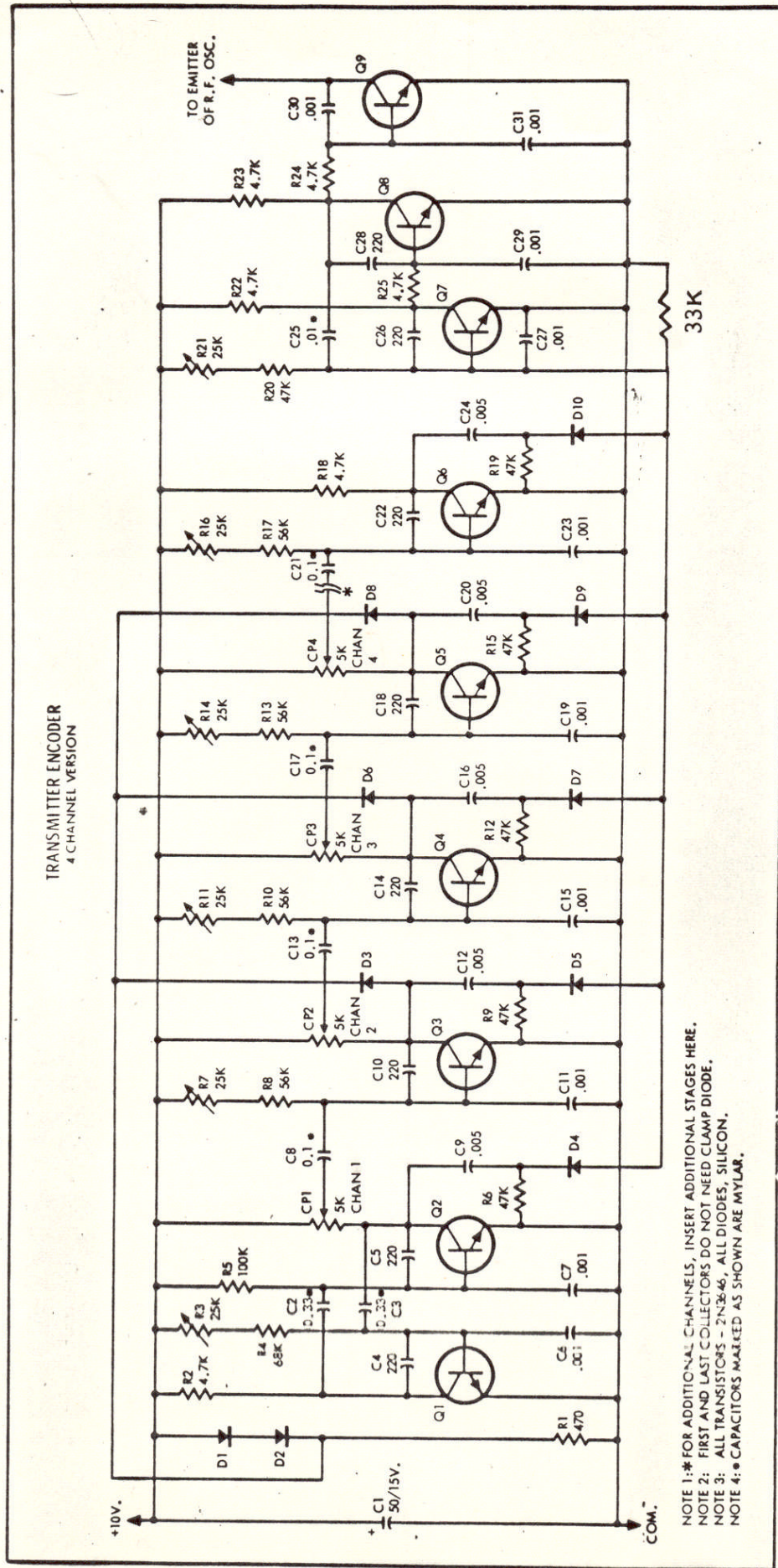
IFT 1 - MILLER 8810
IFT 2 - MILLER 8811
IFT 3 - MILLER 8812

MICRO-AVIONICS, INC.
4 & 6 CHANNEL SYSTEMS

REVISED JANUARY 1968







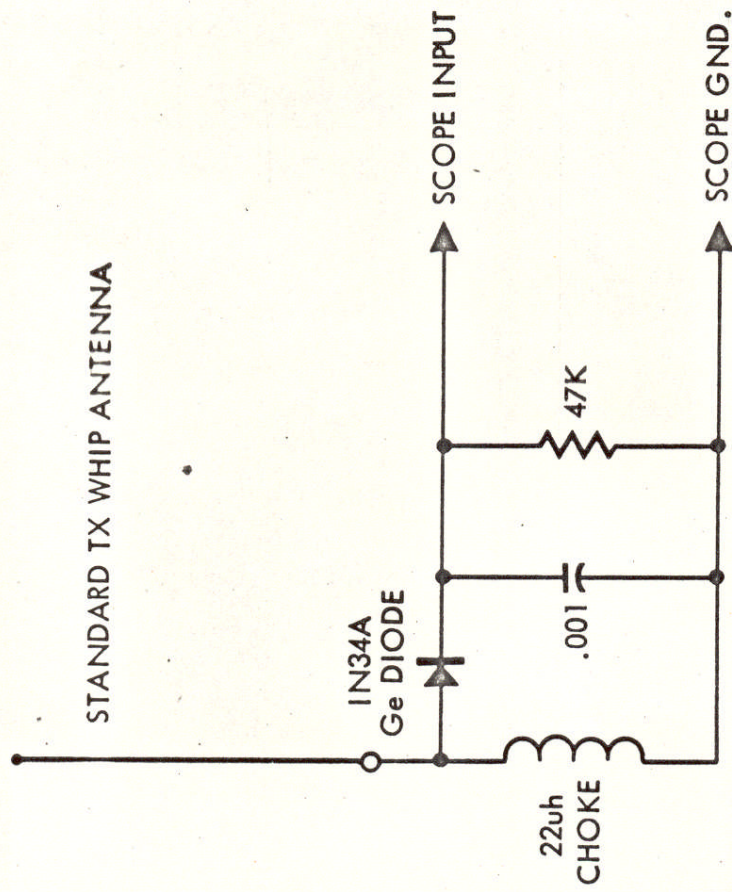
MICRO-AVIONICS PRICE LIST FOR ALL NEW "XL" SERIES PROPORTIONAL RADIOS

	RETAIL
<u>MICRO-AVIONICS XL-6D</u>	
6-CHANNEL DUAL-STICK TRANSMITTER, RECEIVER, FOUR SERVOS, RECHARGEABLE NICKEL-CADMIUM POWER SUPPLY, DUAL OUTPUT CHARGER, THREE-SERVO MOUNTING BRACKET AND AILERON SERVO MOUNTING BRACKET, INSTRUCTION MANUAL. AVAILABLE ON 27 AND 72 MHZ FREQUENCIES AND 6 MTR BAND.	\$429.95
<u>MICRO-AVIONICS XL-6S</u>	
6-CHANNEL SINGLE-STICK TRANSMITTER, RECEIVER, FOUR SERVOS, RECHARGEABLE NICKEL-CADMIUM POWER SUPPLY, DUAL OUTPUT CHARGER, THREE-SERVO MOUNTING BRACKET AND AILERON SERVO MOUNTING BRACKET, INSTRUCTION MANUAL. AVAILABLE ON 27 AND 72 MHZ FREQUENCIES AND 6 MTR BAND.	\$429.95
<u>MICRO-AVIONICS XL-4D</u>	
4-CHANNEL DUAL-STICK TRANSMITTER, RECEIVER, FOUR SERVOS, RECHARGEABLE NICKEL-CADMIUM POWER SUPPLY, DUAL OUTPUT CHARGER, THREE-SERVO MOUNTING BRACKET AND AILERON SERVO MOUNTING BRACKET, INSTRUCTION MANUAL. AVAILABLE ON 27 AND 72 MHZ FREQUENCIES AND 6 MTR BAND.	\$399.95
NOTE: ALL OF THE ABOVE SYSTEMS MAY BE PURCHASED WITH ANY NUMBER OF SERVOS. SELECT A COMPLETE SYSTEM AS DESCRIBED ABOVE. EXTRA SERVOS MAY BE PURCHASED AT \$40 EACH. DEDUCT \$35 FOR EACH SERVO TO BE EXCLUDED FROM ABOVE COMPLETE SYSTEMS.	
<u>FOUR-SIX RECEIVER</u>	\$100.00
FOR USE WITH ALL ABOVE SYSTEMS.	
<u>ONE-SIX PROPORTIONAL SERVO</u>	\$40.00
<u>MICRO-LOC SERVO MOUNTING BRACKET</u>	
SL-1: SINGLE-SERVO MOUNTING BRACKET	\$1.25
SL-1A: SINGLE-SERVO MOUNTING BRACKET FOR AILERON	\$1.25
SL-2: DUAL-SERVO MOUNTING BRACKET	\$2.25
SL-3: THREE-SERVO MOUNTING BRACKET	\$2.95
<u>RECEIVER POWER SUPPLY</u>	\$20.00
<u>DUAL OUTPUT CHARGER</u>	
110 VOLT	\$8.95
220 VOLT	\$9.50
<u>6" JUMPER CABLE (TO EXTEND LENGTH OF SERVO CABLE)</u>	\$2.75

(EFFECTIVE FEBRUARY 15TH, 1968. ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.)
(SUPERSEDES PRICE LIST DATED FEBRUARY 1968)

Switch Servos \$4.95

R.F. DEMODULATOR



ASSEMBLE IN A SMALL BOX IN SUCH A MANNER AS IT MAY BE PLUGGED INTO SCOPE INPUT AND ANTENNA WILL BE ERECT.



530 SO. MOUNTAIN AVE. - ONTARIO, CALIF. 91762

PHONE: (714)984-2818

JUNE 1968

XL ONE-SIX SERVO CENTERING INSTRUCTIONS

SHOULD IT BECOME NECESSARY TO RECENTER ANY OF YOUR MICRO-AVIONICS ONE-SIX PROPORTIONAL SERVOS, THE FOLLOWING PROCEDURE MUST BE FOLLOWED:

WITH SERVO PLUGGED INTO THE PROPER POSITION ON THE RECEIVER, TURN BOTH TRANSMITTER AND RECEIVER "ON." FOR ALL SERVOS WITH THE EXCEPTION OF THE THROTTLE CONTROL, MAKE CERTAIN THAT THE CORRESPONDING TRIM LEVER ON THE TRANSMITTER FACE IS EXACTLY CENTERED.

INSERT A SMALL SCREW DRIVER INTO THE SLOT OF THE ROUND SHAFT ON THE TOP SURFACE OF THE SERVO CASE AND VERY CAREFULLY MOVE THIS SCREW EITHER CLOCKWISE OR COUNTER-CLOCKWISE THE SMALLEST AMOUNT POSSIBLE AND OBSERVE OUTPUT ARM POSITIONS. DO NOT HOLD SCREW DRIVER TIGHTLY AS THIS WILL CAUSE THE FEEDBACK ELEMENT TO BE STOPPED AND THE SERVO WILL CONTINUE TO RUN UNTIL IT REACHES THE MECHANICAL END. RATHER, TRY TO NUDGE THIS ADJUSTMENT IN SMALL INCREMENTS UNTIL SERVO CENTERING IS ACHIEVED.

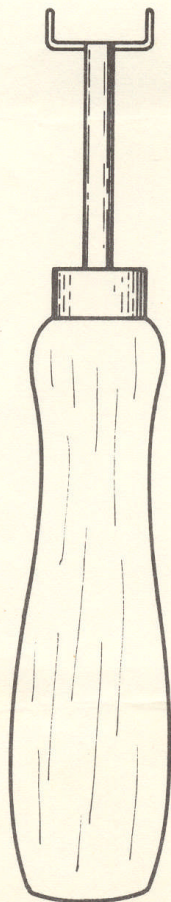
AFTER THIS ADJUSTMENT, CHECK TOTAL SERVO TRAVEL BY MOVING BOTH TRIM AND STICK POSITIONS TO THEIR EXTREME UP AND DOWN OR LEFT AND RIGHT TO MAKE CERTAIN THAT THE OUTPUT ARMS DO NOT CONTACT THE END OF THE SERVO CASE SLOT. ANY CONTACT OF THE SLOT WILL CAUSE MECHANICAL STOPPAGE OF THE SERVO AND MAY VERY POSSIBLY DAMAGE THE ELECTRONICS.

CENTERING OF THE MOTOR CONTROL SERVO SHOULD BE ACCOMPLISHED BY PUTTING MOTOR CONTROL LEVER IN EXTREME LOW POSITION WITH CORRESPONDING TRIM ALSO IN EXTREME LOW POSITION AND THEN ADJUSTING CENTERING SCREW SO THAT OUTPUT ARMS CLEAR THE CASE SLOT END BY NO MORE THAN 1/32 INCH.

WHEN THIS IS ACCOMPLISHED, MOVE BOTH CONTROL LEVER AND TRIM TO THE FULL HIGH POSITION AND AGAIN CHECK OUTPUT ARM CLEARANCE. IT SHOULD BE APPROXIMATELY THE SAME AS IN THE EXTREME LOW POSITION. IF NOT, READJUST SERVO CENTERING SCREW SLIGHTLY TO ACHIEVE AN EQUAL CLEARANCE IN BOTH THE HIGH AND LOW POSITION. IT SHOULD BE NOTED THAT UNDER NO CIRCUMSTANCES SHOULD ANY SERVO BE ADJUSTED TO CENTER A CONTROL SURFACE. THIS MUST BE DONE AT THE CONTROL SURFACE ITSELF BY SOME MEANS OF ADJUSTABLE LINKAGE. THE EXTERNAL CENTERING SCREW IS PROVIDED TO CENTER THE SERVO ONLY. IF IMPROPERLY SET, IT WILL CAUSE DAMAGE TO THE ELECTRONIC AMPLIFIER AS PREVIOUSLY MENTIONED.

MICRO-AVIONICS, INC.

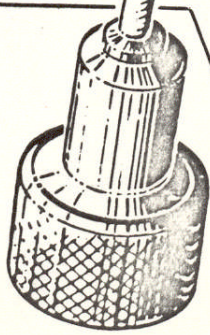
CW:MVS



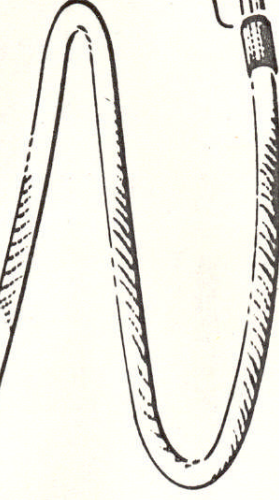
SERVO CENTERING TOOL

SIGNAL GENERATOR OUTPUT COUPLING COIL

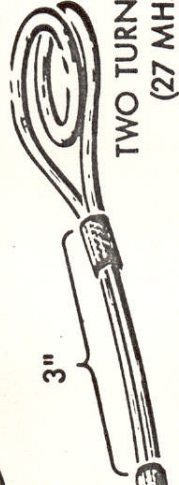
CONNECTOR TO MATE
TO SIGNAL GENERATOR



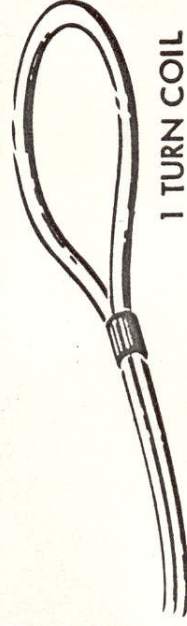
RG 59 CABLE
18" LONG



3"

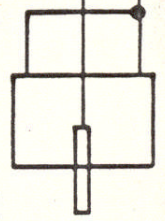


TWO TURN COIL
(27 MHZ)

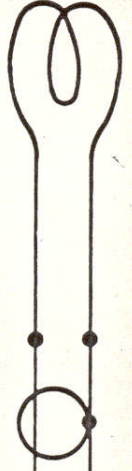


1 TURN COIL
(6 M & 72 MHZ)

TO GENERATOR



TO RX



ELECTRICAL SCHEMATIC



530 SO. MOUNTAIN AVE. - ONTARIO, CALIF. 91762

PHONE: (714)984-2818