

SOME SUGGESTED R/O PULSE INSTALLATIONS



One of the things that plagues the beginner is the installation of the R/C gear into his aircraft. To the old pro it has become second nature, but to a person just starting it can be frustrating. It also can be the beginning of a series of errors that can lead to a crash which can wipe out hours of work and probably damage fairly costly equipment.

For the Rudder-Only fan we show three installations on these two pages. They are concerned primarily with the Ace Commander Rudder Pulse package, but the principles shown can also be extended to Galloping Ghost installations.

At the outset let us make clear that with any of the magnetic actuators, you MUST keep all hinges, bearings, yokes and rudder horn connections absolutely free. With magnetic actuators you are not working with great reserves of power, and any of the motion lost through the linkage system is lost power at the rudder.

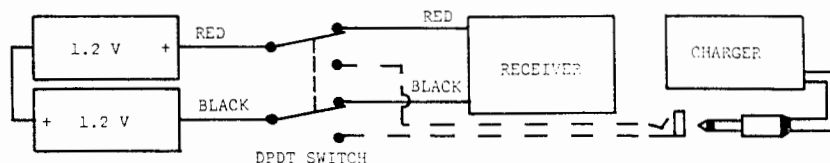
With the Adams Baby or Bentert or Picco you must use a torque rod type of connection; with the other two Adams types (Regular or Twin) you may use either a torque or a push rod. The Torque rod is used to convert the side to side motion of the actuator into the same side to side motion at the rudder. It should be as light as possible, consistent with rigidity, as excess weight will only increase inertia which has then to be overcome by the actuator when it changes direction. For the small type of installations 1/8" dowel that is straight and true may be used, although piece of square balsa of slightly larger size will also work well.

The push rods between the actuator and rudder must be kept as direct as possible, making sure you have ample clearances where it passes through the fuselage.

IMPORTANT: It is better to have a bit of slop in the linkage rather than to have one that binds. Avoid binds--but also don't get slop happy!

Do not use metal to metal contacts in the

Shown below in the solid lines is the hookup of the Commander DE receiver, DPDT switch and battery pack. The unused portion of the DPDT switch is connected to the charger jack as shown by the dotted lines. By using this type of hookup, it will be impossible to charge with the receiver turned on, since throwing the switch one way puts the batteries into the receiver circuit only (solid lines), while the opposite way connects the batteries to the charger jack only (dotted lines).



linkages. These can be a source of interference since they will generate "noise" which a superhet may read as a signal!

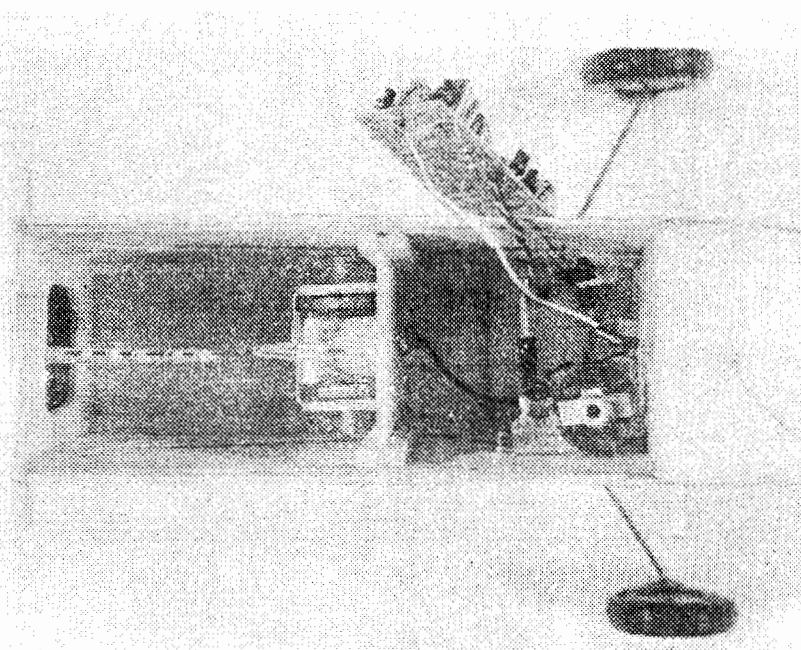
On this page we show a typical installation as used in a Midwest Bonzo. A Twin Actuator is used and is mounted on a tray of 1/16 plywood. This tray slides up and down in a set of bearers on each side of the fuselage. The actuator is mounted on the tray by removing the actuator bolt, and running it through a hole in the plywood. This mount is sturdy and provides a push rod type of action with the Twin.

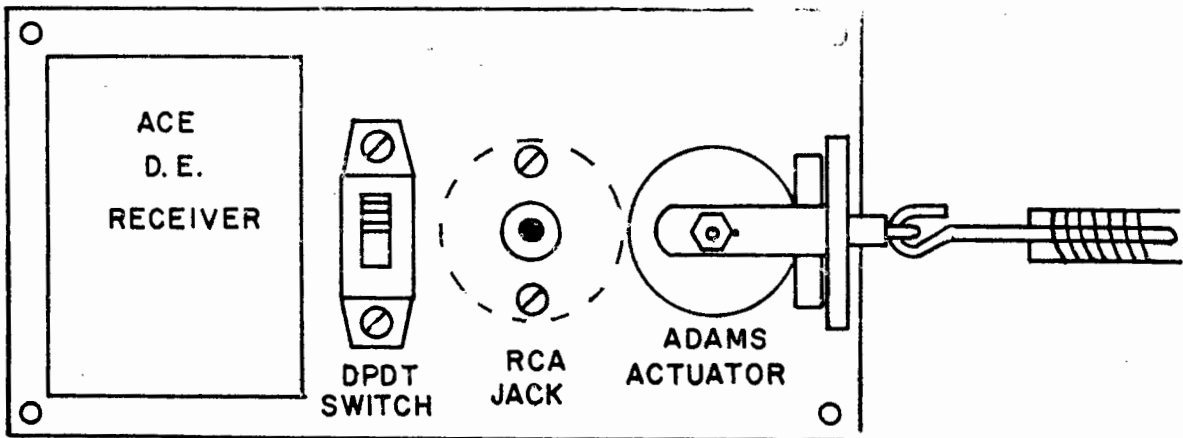
In this installation the switch is epoxied to the side of the fuselage. An oblong hole just the size of the slide portion of the switch is cut in the side. To this switch is also epoxied the RCA jack which is used for the charger plug. Another type of submini jack could be used and soldered to one of the switch lugs if size were the important factor. The RCA jack was used, since it provides a good grip on the charging plug and is easily mounted. For charging the wing must be removed as it does in most cases, unless special provision is made to bring the jack to the side or/bottom of the aircraft. The battery pack is mounted in the section forward of the bulkhead shown and is wrapped in sponge rubber before the top portion of that part of the fuselage is fastened. Use heat shrink tubing at all solder connections to switches, etc., this helps give strain relief.

The Commander DE receiver is simply wrapped in foam which is held in place by a rubber band and then stuffed into the large access space shown. Enough foam should be used to provide a complete cushion, but not so much as to reduce resiliency. NOTE: The use of latex foam rubber in this type of installation is most highly recommended.

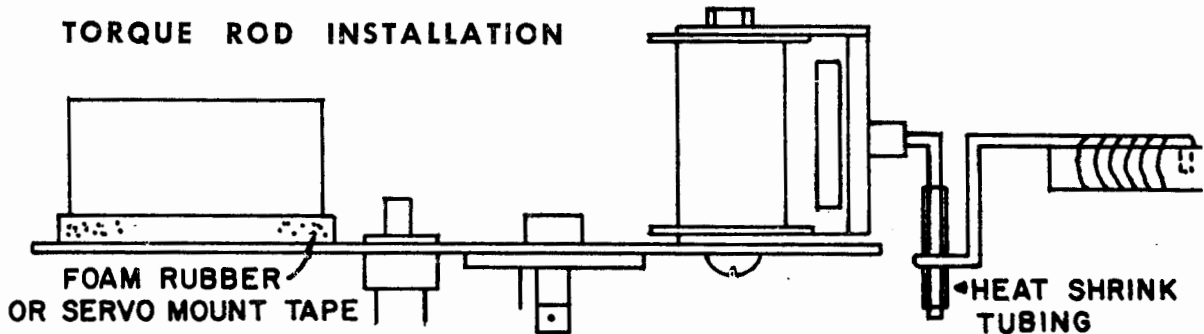
The two drawings presented on next page are from an article by David Boddington which was published in Radio Control Models and Electronics. Here you make a larger tray of either 1/16" plywood or of 3/64" Synthene (which makes it impervious to all but the hardest of prangs) and mount on it the whole installation except for the batteries. The batteries generally need to go forward somewhat for the proper Center of Gravity location. Drawings shown are full size and show the DE receiver, Morecraft DPDT switch, RCA Jack and a Single Standard size Adams mounted. Both the torque rod and push rod versions are shown. Depending on your plane, you can take your choice. The width of the tray shown will fit in the Midwest Whiz Kid. It may be varied to fit your fuselage, since it can be either narrowed or widened as required.

The DE Receiver is mounted on the Synthene by using some of the double sided tape which is generally used for mounting servos. While holes are shown in the tray for grommet mounting in the hard balsa or





TORQUE ROD INSTALLATION



maple bearers mounted on each side of the fuselage, the tray may also be mounted by using double sided servo tape.

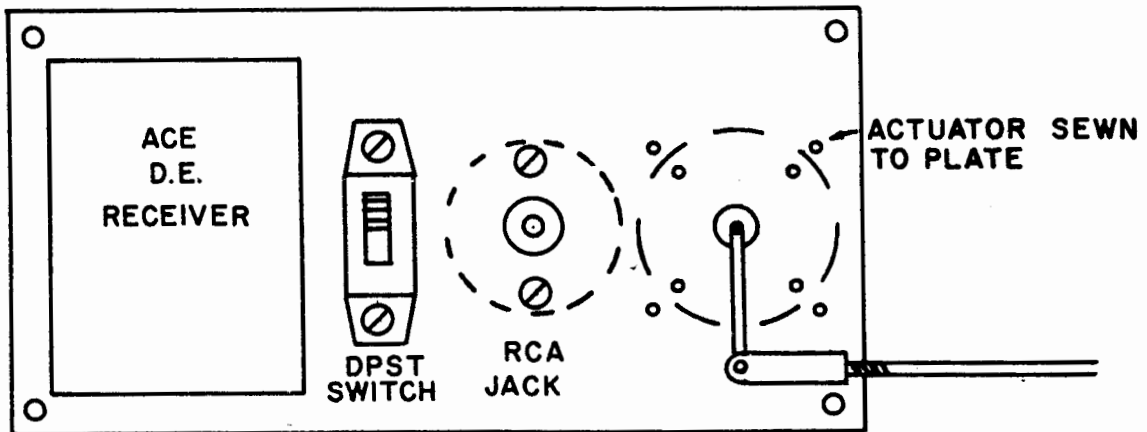
Wiring on the tray is from point to point. Use heat shrink tubing to relieve fatigue from stress at all connections. Also if you have long wire leads, you can further safe-guard them if you contact cement them at various points on the board. It is a good idea to "anchor" the two leads going to the batteries by sewing them on to the board, and using epoxi or contact

cement to provide strain relief on hard landings. Strain relief techniques will be found to be good practice in any installation. Strain and vibration can be enemies of soldered connections made at critical joints where wire leads meet switches etc.

Drill a small hole in the plastic switch handle. This will hold a music wire lead out to allow you to turn unit on and off without removing wing. You have your option of push or pull for on. We prefer pull for on and push for off.

Make double sure that your battery pack is fully protected by foam and that there is no opportunity for it to bounce around. Damage can result if this is sloppy.

Make sure linkage is free for your plane whether it is push rod or torque rod. You cannot tolerate any binds anywhere. With the Baby a torque rod is a must and for a small plane will provide easy installation while the push rod may be used with your larger actuators and ships. Again make it a point to check that installation is free,



PUSH ROD INSTALLATION

