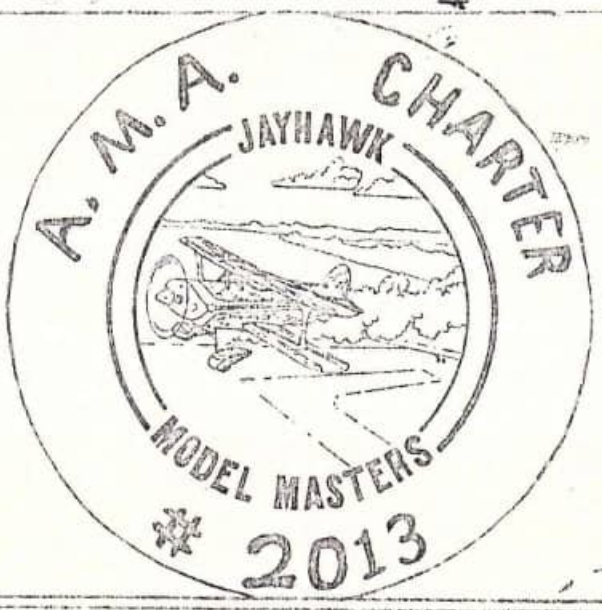
NEWSLETTER OF THE

JAYHAWK MODEL MASTERS
132 FLORIDA
LAWRENCE KS
66044



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ISSUE DATE: June 9th, 1989

NEXT MEETING WILL BE:

DATE: June 17, 1989

TIME: 8:30 am

PLACE: All Seasons Motel, (The Greenery)

As usual, we'll be eating breakfast and enjoying good conversation before the business meeting. We do need to be ordering at 8:30, so you'll need to be on time.

The reason we are pushing the time is we've made arrangements to tour the Combat Air Museum at Forbes Field in Topeka at 10:30. If you have'nt been there, your in for a real treat. If you have been, youll want to go back.

Amoung some of the planes on display are; F-101 VooDoo, F-86 Sabre, F-9F Panther, Meyers OTW, J-1 Jenny, and many more.

There will be a 2.00 charge for the tour, which is cheap to keep some of these planes operational. So please plan to attend the meeting June 17th. (We'll carpool over after breakfast.)

Did You Know That-

A model flying at 80 M.P.H. covers 117 feet in one second. Don't blink ! And there wouldn't be much time to duck!!!!

A Word Of Caution !

It seems **folks** keep walking off with frequency pins and not returning them to the frequency board. Several were replaced about a week ago by new ones, only to have another one missing on 6-6-89. I just want to mention that you risk, not only your own airplane by not returning your pin. But mine also!

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What could, and probably will end up happening is this. Someone, hopefully not me, will go to the frequency board and pull the pin needed for their particular freqency, as they should. (Not knowing that this frequecy pin had been replaced.) You show up with pin in hand, and assume knowone else is on that frequecy because it never left your sticky little fingers. Switch on your radio, and boom, an airplane hits the ground. By the way, the reason you risk your airplane, as well as mine is. When I finish picking up the piece's to mine, Im probably going to stomp your's into powder.

Please Return the pins to the freq. board !!!

Dave

YOU OLD TIMERS!

I heard a question being ask by a young man at our last meeting that started with "You old timers seem to know everything!" It got me to thinking. Just who was he calling an Old Timer anyway? Then I realized that to a new guy we are all Old Timers. Even if we just soloed or built our first kit! To someone with no experance at all, any experiance must seem like a lot. And it is! If you have built a kit or made your solo flight people may look to you for help and advise. Do you give it? Do you remember who helped you get started? Remember when you were just a beginner? Remember?

We see new people come and go in this hobby all the time. Some of us like to stand back and laugh! Others criticise! Then there are many who take the time to help others. How about you? Have you helped a beginner lately?

What about the new guy thats trying to build his first kit? He does not need the expertise of an Ivan Hird to help him build his plane. He only needs a club member willing to spend an hour or two to help him get over his jitters! He may need someone to tell him that "Yes, its straight." or "Yes, you are doing it the right way." In other words, just a word of incouragement from an Old Timer like yourself!

So what if his PT-40 comes out at 5½ lbs. insted of 5? So what if the covering has a wrinkle or two in it? The new guy is building a trainer,not entering the Scale Nationals! Its going to fly well even if he used too much glue or covered it with his wifes flat iron.

If you were a beginner last year or 40 years ago someone helped you and I bet you still remember that person. Be one of the people who help others. Be one of the Old Timers!

RLB

ENDANGERED SPECIES?

A forest ranger,while making his rounds in a very remote area,thought he smelled smoke. He followed his nose and soon came upon an old hermit cooking over a camp fire.

"What are you cooking?" ask the ranger.

"Peregrine Falcon",answered the hermit.

"PEREGRINE FALCON!"the ranger said, shocked. "You can't cook that!"

"It's been on the endangered species list for years!"

"How was I to know?" the hermit questioned. "I havn't been out of this wilderness for years."

The ranger let the hermit go with a stearn warning, but ask "How does it taste?"

"Well" replied the hermit, "I'd say its somewhere between DODO BIRD and WHOOPING CRANE!"

READERS DIGEST

WARNING ****** WARNING ****** WARNING

INFORMATION GIVEN IN THE JAN. NEWSLETTER CONCERNING THE USE OF A LAMP TIMER TO KEEP YOUR NI-CADS ON CHARGE ALL THE TIME HAS PROVEN TO BE IN ERROR. IF YOU HAVE BEEN USING THIS SET-UP WE RECOMMEND THAT YOU DISCONTINUE THE PRACTICE AND ALSO CYCLE TEST YOUR BATTERYS BEFORE FURTHER USE.

In the Jan. 1989 newsletter we wrote about using a cheap lamp timer to turn on your system chargers for two out of every 24 hour period which would allow you to leave your systems on charge all the time.

We used this system for about three months without cycleing with the following (poor) results. (Others have reported success with more frequent cycleing.)

THE FOLLOWING DATA WAS OBTAINED WITH ACE DIGIPACE TESTS.

NOTE: Both RX and TX packs should test 100 min. = 500 ma capacity.

SYSTEM A. Futaba 5 channel TX=84.9 min.= 425 ma RX=19.3 min.= 96.5 ma

SYSTEM B. Futaba 6 channel TX=83.1 min.= 415 ma RX=101.6 min.= 508 ma

AFTER THREE DIGIPACE CYCLES THE FOLLOWING RESULTS WERE OBTAINED

SYSTEM A. Futaba 5 channel TX=108 min.= 540 MA RX=80.4 min.= 402 MA

SYSTEM B. Futaba 6 channel TX=94.2 min.= 471 MA RX=103.5 min.= 517.5 MA

It was evident that System A had developed serious "memory" problems in the flight pack. Also both transmitters were reduced to about 85% capacity. Only one flight pack (System B) tested at its rated capacity.

If I had flown System A I shurly would have crashed on the second or third flight due to a dead battery! It was also evident that the lamp timer 2 hour a day set-up without cycling frequently was not getting the job done.

What to do? I bought an ACE R/C DIGIPACE with AUTO-TRICKLE! Right about now you are saying "What a fool with his money will do!" Right? I said the same thing about others. But think about this. A new flight pack costs about $15.00 dollars. Transmitter packs go for $35.00 or more. After you fool around and ruin a battery pack or two you may even crash a plane ($150-300 or more!) and worse, could hurt someone. How much is that worth?

For those who own several radio systems I highly recommend the ACE R/C DIGIPACE with Auto-Trickle. Although expensive it makes battery care so easy and convenient you are sure to do it! You come home from flying, hit the "Charge Enable" switch and forget it. Its all automatic. The Digipace will charge your system at the 50 ma rate for 18-20 hours then switch into a safe trickle (10 ma) rate untill the next time you go flying. You leave it on untill you want to go flying again and always have 100 percent charge on your equipment.

Every 1-2 months hit the "Discharge enable" switch and you get a digital readout in 1/10 min. on the cycle times your packs are capable of delivering. From there the Digipace switchs to normal charge for 16-20 hours then switchs to trickle rate automatically . You can spot any battery problems (and avoid most of them) before it costs you a pack or an airplane.

If you are on a limited budget or only have one or two radio systems I recommend the RAM SIMPLE-CYCLER which was reviewed in the Jan. newsletter. It gets the job done but is much more demanding of your time and attention. I would also recommend the ACE R/C ADD-A-TRICKLE for each of your system chargers to allow full time trickle charging each of your systems.

No matter how you do it, take the time to cycle test your batterys every couple of months. If you come up with less then 85 percent capacity on a pack you are headed for battery problems which could cost you a plane or worse!

FLY SAFE! RLB

ACE R/C CVC CHARGER REVIEW

Another fine product that makes you wonder how you ever got along without it! What is a CVC? The name stands for Constant Voltage Charger and it is designed to maintain your flight box battery in a 100 % state of charge at all times.

How does it work? Well there is a red L.E.D. to indicate power on and an amber L.E.D. to indicate rate of charge. And thats it! When the amber L.E.D. is out the CVC is charging at the 400 ma "High" rate. As your battery reaches 90 % charge the amber L.E.D. will start to glow and the charge rate startes to taper off to a safe trickle rate which will maintain your battery at 100% without danger of overcharging or boiling your battery dry.

Like most ACE products the CVC is user friendly to the point you don't have to do anything. The only requirement is that you hook it to your flight box battery when you are not flying. The CVC does the rest.Oh! There is one other thing you have to remember to do. Unhook it from your flight box before you go flying!

Charge!!! RLB

ACE R/C Dual Output Add-A-Trickle review

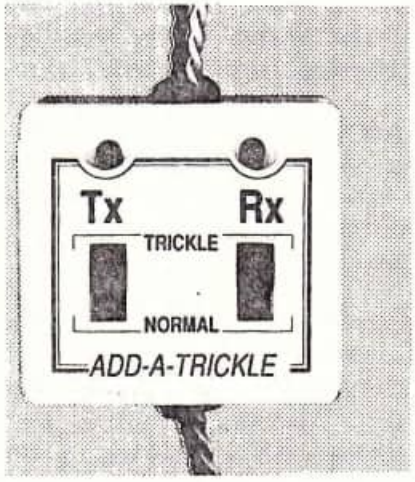
What is it? What will it do? Quite simply its a little box with two switchs and L.E.D.s that you solder into the leads on your radio system charger. Its an easy add-on that will give you the option of charging your radio batterys at the normal overnight rate of 50 ma or allow you to switch to a 10 ma trickle rate that can be left on indefinitely without harming your Ni-Cads.

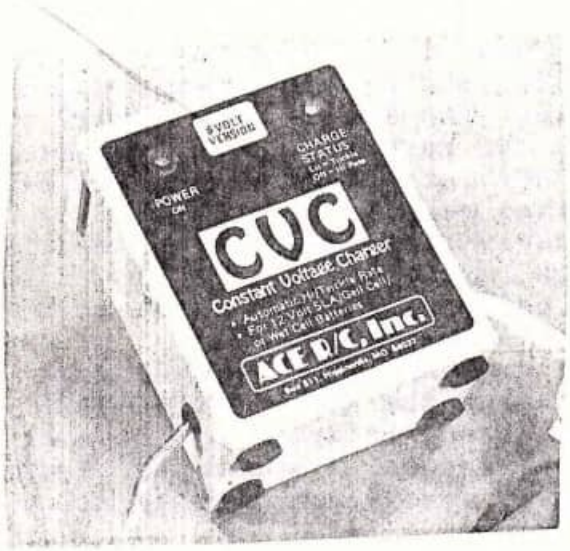
What will that do? Well first of all its healthy to keep your Ni-Cads on trickle charge,and second (and most important) you are always ready to go flying because your battery packs are always 100% and ready to go when you are.

The only drawback is that you have to remember to switch from "Trickle" to "Charge" when you come home and hook up. You also need to remember to switch back to "Trickle" 16-20 hours later. (In other words you still need to think!)

In all I think its an excellent $10.00 add-on to your radio system.

RLB





FLIGHT TRIMMING

. . .A model is not a static object. Unlike a car, which can only hunt left or right on the road (technically, a car does yaw in corners, and pitches when the brakes are applied), a plane moves through that fluid we call air in all directions simultaneously. The plane may look like it's going forward, but it could also be yawing slightly, slipping a little and simultaneously climbing or diving a bit! The controls interact. Yaw can be a rudder problem, a lateral balance problem or an aileron rigging problem. We must make many flights, with minor changes between each, to isolate and finally correct the problem.

The chart accompanying this article is intended to serve as a handy field reference when trimming your model. Laminate it in plastic and keep it in your flight box. You just might have need to consult it at the next contest! The chart is somewhat self-explanatory, but we will briefly run through the salient points.

First, we are assuming that the model has been C.G. balanced according to the manufacturer's directions. There's nothing sacred about that spot — frankly, it only reflects the balance point where a prototype model handled the way the guy who designed it thought it should. If your model's wing has a degree more or less of incidence, then the whole balance formula is incorrect for you. But, it's a good ballpark place to start.

The second assumption is that the model has been balanced laterally. Wrap a strong string or monofilament around the prop shaft behind the spinner, then tie the other end to the tail wheel or to a screw driven into the bottom of the aft fuse. Make the string into a bridle harness and suspend the entire model inverted (yes, with the wing on!). If the right wing always drops, sink some screws or lead into the left wing tip, etc. You may be surprised to find out how much lead is needed.

At this point the model is statically trimmed. It's only a starting point, so don't be surprised if you wind up changing it all. One other critical feature is that the ailerons must have their hinge gap sealed. If shoving some Scotch tape or Monokote into the hinge gap to prevent the air from slipping from the top of the wing to the bottom, and vice-versa, bothers you, then don't do it.

To achieve the maximum lateral trim on the model, the hinge gap on the ailerons should be sealed. The easiest way to do this is to disconnect the aileron linkages, and fold the ailerons as far over the top of the wing as possible (assuming they are top or center hinged). Apply a strip of clear tape along the joint line. When the aileron is returned to neutral, the tape will be invisible, and the gap will be effectively sealed. Depending on how big the ailerons are, and how large a gapping gap you normally leave when you install hinges, you could experience a 20 percent increase in aileron control response just by this simple measure.

. . .Your first flights should be to ascertain control centering and control feel. Does the elevator always come back to neutral after a 180-degree turn or Split S? Do the ailerons tend to hunt a little after a rolling maneuver? Put the plane through its paces. Control centering is either a mechanical thing (binding servos, stiff linkages, etc.), an electronic thing (bad servo resolution or dead-band in the radio system), or C.G. (aft Center of Gravity will make the plane wander a bit). The last possibility will be obvious, but don't continue the testing until you have isolated the problem and corrected it.

. . .let's get down to the task of trimming the model. Use the tachometer every time you start the engine, to insure consistent results. These trim flights must be done in calm weather. Any wind will only make the model weathervane. Each "maneuver" on the list assumes that you will enter it dead straight-and-level. The wings must be perfectly flat, or else the maneuver will not be correct and you'll get a wrong interpretation. That's where your observer comes in. Instruct him to be especially watchful of the wings as you enter the maneuvers.

Do all maneuvers at full throttle. The only deviation from this is if the plane will be routinely flown through maneuvers at a different power setting. . .

Let's commence with the "engine thrust angle" on the chart. Note that the observations you make can also be caused by the C.G., so be prepared to change both to see which gives the desired result. Set up a straight-and-level pass. The model should be almost hands-off. Without touching any other control on the transmitter, suddenly chop the throttle. Did the nose drop? When you added power again, did the nose pitch up a bit? If so, you need some downthrust, or nose weight. When the thrust is correct, the model should continue along the same flight path for at least a dozen plane lengths before gravity starts to naturally bring it down.

Do each maneuver several times, to make sure that you are getting a proper diagnosis. Often, a gust, an accidental nudge on the controls, or just a poor maneuver entry can misled you. The thrust adjustments are a real pain to make. On most models, it means taking the engine out, adding shims, then reassembling the whole thing. Don't take shortcuts. Don't try to proceed with the other trim adjustments until you have the thrustline and/or C.G. correct. They are the basis upon which all other trim settings are made.

Also, while you have landed, take the time to crank the clevises until the transmitter trims are at neutral. Don't leave the airplane so that the transmitter has some odd-ball combination of trim settings. One bump of the transmitter and you have lost everything. The trim must be repeatable, and the only sure way to do this is to always start with the transmitter control trims at the middle.

The next maneuver is somewhat more tricky than it looks. To verify the C.G., we roll the model up to a 45-degree bank, then take our hands off the controls. The model should go a reasonable distance with the fuse at an even keel. If the nose pitches down, remove some nose weight, and the opposite if the nose pitches up. The trick is to use only the ailerons to get the model up at a 45-degree bank. We almost automatically start feeding in elevator, but that's a no-no. Do the bank in both directions, just to make sure that you are getting an accurate reading of the longitudinal balance.

We now want to test the correct alignment of both sides of the elevator (even if they aren't split, like a Pattern ship's, they can still be warped or twisted). Yaw and lateral balance will also come into play here, so be patient and eliminate the variables one-by-one. The maneuver is a simple loop, but it must be entered with the wings perfectly level. Position the maneuver so that your assistant can observe it end-on. Always loop into the wind. Do several loops, and see if the same symptom persists. Note if the model loses heading on the front or back side of the loop. If you lose it on the way up, it's probably an aileron problem, while a loss of heading on the way back down is most likely a rudder situation.

After you get the inside loops going correctly, do the same maneuver to the outside, entering from an inverted position. . . Before you make too many dramatic changes, glance at the remainder of the chart and note the myriad combination of things we can do just with the ailerons. Each change you make will affect all other variables!

Note that the Yaw test is the same looping sequences. Here, however, we are altering rudder and ailerons, instead of the elevator halves. We must repeat that many airplanes just will not achieve adequate lateral trim with sealing the aileron gaps shut. The larger you make the loops (to a point), the more discernable the errors will be.

The Lateral Balance test has us pulling those loops very tightly. Actually, we prefer the Hammerhead as a better test for a heavy wing. Pull straight up into a vertical and watch which wing drops. A true vertical is hard to do, so make sure that your assistant is observing from another vantage point. Note that the engine torque will affect the vertical fall off, as will rudder errors. Even though we balance the wing statically before leaving for the field, we are now trimming it dynamically.

The Aileron Coupling (or rigging) is also tested by doing Hammerheads. This time, however, we want to observe the side view of the model. Does the plane want to tuck under a bit? If so, then try trimming the ailerons down a small bit, so that they will act as flaps. If the model tends to want to go over into a loop, then rig both ailerons up a few turns on the clevises. Note that drooping the ailerons will tend to cancel any washout you have in the wing. On some models, the lack of washout can lead to some nasty characteristics at low speeds.

The effects noted with the Aileron Coupling tests can also be caused by an improperly set wing incidence. The better test for this is knife-edge flight. . . If the model tends to pull upward, i.e., it swings toward a nose up direction, then reduce the wing incidence. If the model tries to go off heading toward the bottom side of the plane, then increase incidence.

Again, we reiterate that all of these controls are interactive. When you change the wing incidence, it will influence the way the elevator trim is at a given C.G. Shimming the wing will also change the rigging on the ailerons, in effect, and they may have to be readjusted accordingly.

The whole process isn't hard. As a matter of fact it's rather fun — but very time consuming. It's amazing what you will learn about why a plane flies the way it does, and you'll be a better pilot for it. One thing we almost guarantee, is that your planes will be more reliable and predictable when they are properly trimmed out. They will fly more efficiently, and be less prone to doing radical and surprising things. Your contest scores should improve, too.

We wish to acknowledge the Orlando, Florida, club newsletter, from which the basics of the chart presented here were gleaned.

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TRIM FEATURE	MANEUVERS	OBSERVATIONS	CORRECTIONS
CONTROL CENTERING	Fly general circles and random maneuvers.	Try for hands off straight and level flight.	Readjust linkages so that Tx trims are centered.
CONTROL THROWS	Random maneuvers.	A. Too sensitive, jerky controls. B. Not sufficient control.	If A, change linkages to reduce throws. If B, increase throws.
ENGINE THRUST ANGLE[1]	From straight flight, chop throttle quickly.	A. Aircraft continues level path for short distance. B. Plane pitches nose up. C. Plane pitches nose down.	If A, trim is okay. If B, decrease downthrust. If C, increase downthrust.
CENTER OF GRAVITY LONGITUDINAL BALANCE	From level flight roll to 45-degree bank and neutralize controls.	A. Continues in bank for moderate distance. B. Nose pitches up. C. Nose drops.	If A, trim is good. If B, add nose weight. If C, remove nose weight.
SPLIT ELEVATORS (Also Yaw and C.G.)	Into wind, pull open loops, using only elevator. Repeat tests doing outside loops to inverted entry.	A. Wings are level throughout. B. Plane tends toward outside when right side up, and to inside when inverted. C. Plane goes in on regular loops, and out on inverted. D. Plane goes out on both types of loops. E. Plane goes in on both types of loops.	If A, trim is fine. If B, add weight to right wing, or add right rudder. If C, add weight to left wing, or add left rudder. If D, raise right half of elevator (or lower left). If E, raise left half of elevator (or lower right).
YAW[2]	Into wind, do open loops, using only elevator. Repeat tests doing outside loops from inverted entry.	A. Wings are level throughout. B. Yaws to right in both inside and outside loops. C. Yaws to left in both inside and outside loops. D. Yaws right on insides, and left on outside loops. E. Yaws left on insides, and right on outside loops.	If A, trim is correct. If B, add left rudder trim. If C, add right rudder trim. If D, add left aileron trim. If E, add right aileron trim.
LATERAL BALANCE	Into wind, do tight inside loops, or make straight up climbs into Hammerheads. Do same from inverted entry.	A. Wings are level and plane falls to either side randomly in Hammerhead. B. Falls off to left in both inside and outside loops. Worsens as loops lighten. C. Falls off to right in both loops. Worsens as loops tighten. D. Falls off in opposite directions on inside and outside loops.	If A, trim is correct. If B, add weight to right wing tip. If C, add weight to left wing tip. If D, change aileron trim.[3]
AILERON RIGGING	With wings level, pull to vertical climb and neutralize controls.	A. Climb continues along same path. B. Nose tends to go to inside loop. C. Nose tends to go to outside loop.	If A, trim is correct. If B, raise both ailerons very slightly. If C, lower both ailerons very slightly.
WING INCIDENCE	Knife edge flight.	A. Models tends to veer in nose up direction. B. Model veers in nose down direction.	If A, reduce wing incidence. If B, increase wing incidence.

1. Engine thrust angle and C.G. interact. Check both.
2. Yaw and lateral balance produce similar symptoms. Note that fin may be crooked. Right and left references are from the plane's vantage point.
3. Ailerons cannot always be trimmed without sealing the hinge gap.

Fun Fly

JAYHAWK

MODEL MASTERS

Fun Fly

Climb & Dive

Quick Trip

Other events to be announced day of.

9:00 AM Sign In.

First event starts at 10:00

June 25th

All airplanes will be safety checked.

You must be an AMA Member to enter.

Fun Fly

Bomb Drop

Fun Fly

[redacted]

DAMAGED IN HANDLING
IN THE POSTAL SERVICE

KANSAS CITY, MO 641
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Walk in the Water 1818
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F-4 PHANTOM - VIET NAM.- 1969