

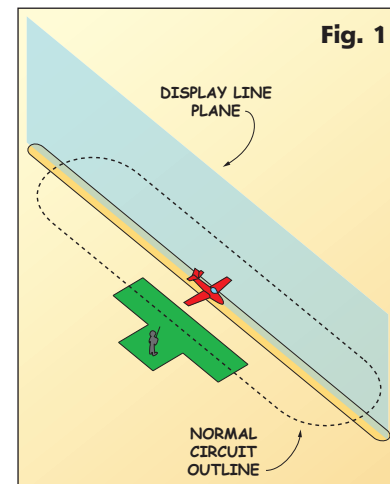
'B' Prepared



ANDY ELLISON PREPARES THE PROSPECTIVE 'B' CERTIFICATE CANDIDATE FOR FLIGHT READINESS

Get yourself a helper for the test, it makes starting, carrying and lean-checking a model much safer.

Ah, the perfect 'B' machine, the evergreen Acro Wot!



In the last issue we explored the background to the BMFA 'B' certificate for fixed-wing power models and set about choosing a suitable model for the test. This time we're going to look at the flying style needed to satisfy the requirements of the test, the correct positioning of the model for the manoeuvres and how to buy some time in the air to settle your nerves, adjust the model's speed and concentrate on the next flight pattern.

Last time I mentioned the common misconception that the 'B' cert' is a public display licence. It isn't, although it does allude to the type of

flying required in the execution of the test flight.

IN THE ZONE

Pilots often talk about a display line as if it were an imaginary vertical line running parallel to the runway between the two legs of a standard circuit, indeed much of the 'B' certificate flight must be carried out along this line (see Fig. 1).

You'd be very disappointed as a spectator at a model show if the models were flown so high that you couldn't see them properly. Similarly, if you fly the 'B' test at high altitude

it's a mark of poor confidence in your ability, and an examiner will take note of this as he observes your flight. The height for the majority of the test should be around 100 - 150' (30 - 45m, or three to five houses high if you prefer). Intelligent use of the throttle should be made to keep this height consistent throughout the test. A pilot who flies with the throttle fully open throughout the test is clearly not thinking about what he's doing and will fail immediately.

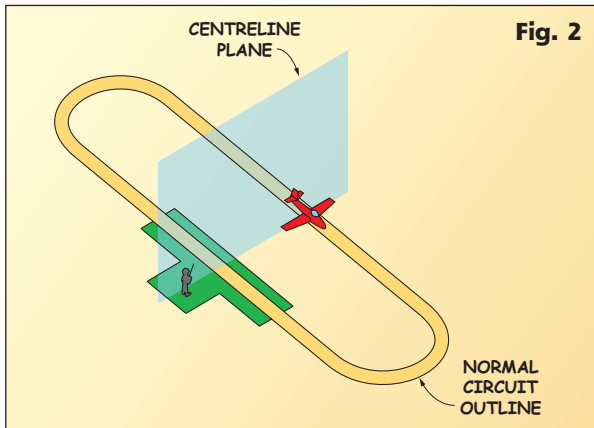


Fig. 2

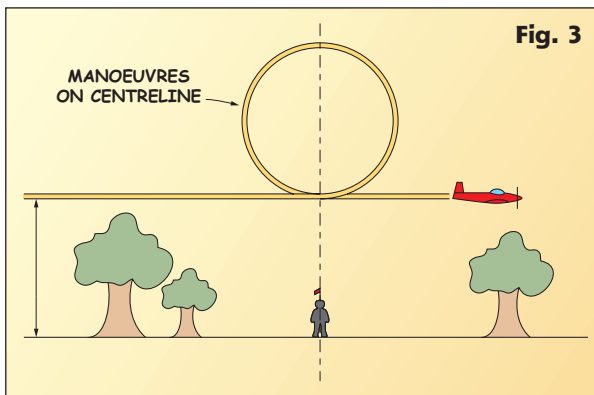


Fig. 3

Your examiner will be looking for a high degree of accuracy in your flight patterns, especially with regard to positioning.

A combination of the right line, good height management and sensible throttle use will see the model being flown consistently and smoothly throughout the flight. Any detraction from this when there's no need to deviate will stick out like a sore thumb, and the examiner will certainly notice.

Unnecessary and wildly fluctuating height and line are valid reasons for failure of the test, and at this level a pilot should be able to fly and present his model in a manner that demonstrates a certain mastery of it. Failure to do so will be a clear indication that either not enough

Don't let silly things like flat glow batteries interrupt your start-up procedure and concentration.

Make sure your flight-box is well-stocked with tools and essential replacement spares such as glow plugs, fuel tubing etc.



practise has been undertaken or the pilot is just not good enough to be taking the test in the first place.

To add to the variables in the test, the rules stipulate that 'all manoeuvres should be carried out in front of the pilot', and this line above all others is the easiest to judge. The loop, bunt and spin elements of the test should be performed right in front of you and the rolls should be centred, one either side of this imaginary line (see Fig. 2 and 3). The intersection of the figure of eight circuit should also be flown directly in front of you, and it's this positioning that can be the most trying aspect of the flight.

When practising for the test you'll probably find that it's necessary to make some adjustment to the positioning of the manoeuvres compared to where you normally fly them when Sunday flying. Not many R/C pilots relentlessly perform loops and rolls right in front of them along an imaginary display line that's set back from the runway.

Whilst the manoeuvres required by the 'B' are set out in such a way that they can be performed consecutively in a flowing schedule, it's not essential that you do so. You're not going to be penalised if you fly the test in a loosely scheduled fashion, but be aware that even though turnarounds are not part of the test the examiner will be watching these and any extra circuits just as carefully as the rest of the flight. If you fly the test as a turnaround but haven't practised enough, you can get out of shape very quickly.

KEEP COOL

The examiner will be looking for 'quiet competence' throughout the flight. He'll make some allowances for nerves but remember that successful completion of the test could put you in the air in front of the public, and any

nerves you have in front of an examiner will be greatly magnified when there's a commentator 'bigging you up'. Needless to say, a pilot unduly affected by nerves could find his test rapidly abandoned by the examiner. It's quite common for the examiner to offer a coaching flight or two before the test is flown, and if you're unsure about certain aspects of the routine you might like to ask for this before testing begins so you don't unwittingly use up one of your two permitted attempts on the day.

Nerves aside you should be competent enough to fly the test reasonably error-free, although it may be the case that you make a minor mistake on a manoeuvre and the examiner asks you to repeat it. A major mistake is grounds for a failure but if the examiner (and this is especially true if he's from your own club) believes that you can do better and the mistake is only slight, don't be surprised if you find yourself repositioning for another go. Of course, allowing the test to degenerate into a whole series of repeated flight patterns is just not going to secure your pass which, again, is a clear sign that you're not ready for the examination.

The ace up your sleeve is the rule that the two attempts are allowed in any one day, so if you do fail the first one take some time out to practise before the retake, concentrating on the area where you went wrong.

A genuine engine failure will be considered to be an aborted test flight and not a failed attempt, so it won't count as one of the two attempts, however examiners are a savvy lot so don't go thinking you can fake a deadstick if you're messing up the test!

NUMBER TWO

Let's look for a moment at the role of a helper (pitman) throughout the test.



*Got the peg then?
Don't forget the test
starts well before
your model gets into
the air.*

*You must be seen to
be checking the full
and free movement
of your model's
control surfaces.*



and ensured that all the necessary spare parts, fuel etc. are in your flight box. All the batteries are fully charged, including those for your glow stick and starter. The day of the test has dawned and you've met your examiner, who's discussed any issues you may have for the forthcoming test. Having completed at least one trimming flight to settle your nerves, the time has come. You're under examination from the moment your examiner says, "Go!"

a.) Carry out pre-flight checks as required by the BMFA Safety Codes. Pre-flight checks come first, and it's essential that the examiner sees you go through the motions. Take nothing for granted and make the pre-flights applicable to the type of model you're flying.

I always liken this to taking a driving test. It's not sufficient to glance up into the rear view mirror like you might when driving normally, the examiner will need to see you move your head and physically look to know that you've done it.

Regrettably (and it shouldn't be the case on a national scheme), there appear to be two trains of thought regarding exhibition of pre-flight checks for BMFA examinations. The first would see the pilot performing model checks as if they were 'pre-flying session checks', i.e.:

- Check the airframe for any transportation damage.
- Check that the servos and linkages are secure.
- Check the undercarriage for secure fixing and alignment.
- Check propeller for damage and secure fixing.

These would assume, to a large degree, that your model is unrigged having just unloaded it from the car,

and if this is the case then you should certainly perform these checks. In my capacity as an Area Chief Examiner I would expect that when you present yourself to me for the 'B' examination you will have already checked these issues and had a flight. I would only therefore expect you to go through the BMFA 'checks before each flight' pre-flights as listed below:

- Obtain frequency clearance.

The pilot should clear his frequency for use using the adopted frequency control system. This can vary from a transmitter control compound to a simple ask around other site users. You'll not be penalised if there's no pegboard or other organised structure for frequency control as long as you know how frequency use is determined on that site and that you observe the system. A brief note on the use of 2.4GHz here: Whilst it might be sufficient as far as you're concerned to switch on knowing that you're not going to cause or receive any interference from other users of the site, they won't know that. Make sure any other users are aware that you're using 2.4GHz equipment and that you're not a threat to them.

*Don't make silly
mistakes - switch
your transmitter on
first, and off last!*

*Engine on song?
It'll need to be to
pass the test and
convince your
examiner that you
can competently
operate your model.*



Common sense should tell you that starting, carrying and lean-checking a model aeroplane is much easier and safer if you have a helper, and if you're trying to demonstrate to an examiner that you're a safe pilot you should enlist the services of an assistant. However, you must clearly instruct him at all times; if he takes over the decision making process you'll incur a legitimate fail.

There are exceptions to the rules regarding the use of helpers for children or disabled candidates. The examiner will use his judgement on this, but the candidate must be seen to be doing as much of the work as possible and not being led by the assistant. For children whose parents are not happy with them starting the model, they must do all of the preparatory work and pre-flights themselves, up to actually applying the starter to the motor.

READY TO GO?

Right. You've selected an appropriate model and have practised with it extensively. You've honed the set-up

Keep a tidy pit area by making sure that leads, loose rags and clutter are stowed neatly out of harm's way.

- Switch your transmitter on before your receiver.

How embarrassing it would be for you to switch the receiver on first and have servos spinning wildly through spurious interference, popping plastic clevises off the servo arms inside the model. You'd have to strip it down to remedy the situation while the examiner stood and watched. Not good for your nerves or his first opinions of your preparation!

- Check that all controls operate freely and do not bind or stick.

This test is fairly self explanatory, but you must be seen to waggle the sticks and watch the movement of the control surfaces. It's unusual to find an issue with a well flown and sorted model, but it does happen. A bad connection, trapped wire, damaged clevis etc. is all it takes.

- Check that all controls move in the correct sense.

Checking this from a position behind the model presents a much clearer picture to the examiner. Be methodical and make absolutely sure that everything is moving in the right direction. Visibly check the throttle operation (unless your carburettor is cowled and can't be seen). Show the examiner that you're looking, and make your checks obvious to the point of embarrassment.

- Check that all control surfaces are in their correct positions with the transmitter trims at neutral.

With most modern transmitters now employing digital trims it's not easy to check the position of a trim. Linkages used to be mechanically adjusted to get the transmitter's mechanical trim

Aerial extended and secure? It pays to check every so often.



into the middle, but this practice occurs less and less now. That said, it's more difficult to accidentally alter a trim position with a digital set-up as the transmitter has to be switched on to effect any change, deliberate or accidental. And when it is switched on, the unwanted disturbance of a trim is usually accompanied with a clearly audible beep.

- Look for any minor radio malfunctions such as slow or jittery servos, glitches etc.

Any slow servos or unexpected jitters when checking the operation of the control surfaces could be a sign of something more onerous. This is especially applicable to a slow-moving servo, which could indicate the beginnings of battery failure. You should immediately examine any such problem, and if you're in any doubt at all, don't fly. You'll not be penalised for stopping due to an electromechanical hiccup. However if you end up having to charge your batteries, it could be the end of that day's activities.

- After starting the motor (i.c. engine) and allowing it to warm up, check that it throttles well from tick-over to full power, and carry out a lean check.

You're probably well used to doing this, but watch out for canny examiners who may stand in line with the prop, waiting for you to ask them to move before you start the motor. Make sure that your pit area is tidy, with no stray wires that can come into contact with the rotating prop and no loose rags or the like that can get sucked into the prop as it spins. Make any adjustments to the needle setting from behind the motor and be sure to give your helper clear instructions of



when to raise and lower the model for the lean check.

The motor of an electric powered model should be treated like an idling i.c. engine once power has been connected. As a final precaution before carrying the model to the strip, double-check your transmitter using one of the BMFA-favoured acronyms, SMART:

- **S**witch on.
- **M**odel selected is correct / meter in the green.
- **A**erial extended and secure.
- **R**ate switches positioned correctly.
- **T**ransmitter voltage good and all trims in the right place.

READERS' DIGEST

We'll leave it there for now - lots to digest, especially if the concept of the display line is new to you. Next month get the model into the air. Meanwhile, spend your time wisely and read those safety codes!