

**REPORT TO THE FIE 2003 CONGRESS OF THE SPECIAL
COMMISSION
RESPONSIBLE FOR TESTING PROPOSALS PERTAINING TO
THE PRACTICE
OF FOIL AND SABRE**

The Special Commission met in plenary session on 3 October 2003 in Havana:

Present were:

1. René Roch (MH)
2. Arthur Cramer – Chairman
3. Eduardo Magiarotti (MH)
4. Peter Jacobs (MH)
5. Emmanuel Katsiadakis – Chairman of the Refereeing Commission
6. Steve Higginson – Chairman of the Rules Commission
7. Gilbert Lefin – Fencing Master
8. Andrea Magro – Fencing Master
9. Edward Gzegorek – Fencing Master
10. Ioan Pop – FIE Technical Director
11. Ralf Bissdorf, President of the Athletes Commission
12. Helen Smith – observer
13. Jean-Marie Safra – journalist
14. Jeffrey Bukantz – observer

M. René Roch welcomed the Commission members and, in a brief opening speech, stressed the importance of each of these Rules change proposals that are aimed at improving the practice of foil and sabre. He pointed out that such improvements will, on the one hand, preserve both foil and sabre's specific character and, on the other, will also significantly increase both the level of objectivity in refereeing of conventional weapons, and the public's understanding of foil and sabre fencing.

Following this, the President of the Commission, M. Arthur Cramer, indicated that this was, actually, the first time that all the members of the Commission were meeting in plenary session. All members participated in the tests on a rotating basis, a process that allowed the FIE to limit expenses, while allowing each member to be present at least once at all tests.

M. Cramer has gathered the conclusions of all tests carried out in a draft report that has been distributed to each member of the Commission, along with the request that they approve it.

The Draft Report included:

See Appendices

- a. Commission Work Plan #1
- b. Video cassette

1. INTRODUCTION

We wish to submit to the Commission members the following report that contains the description of all tests carried out, as well as some conclusions.

The decision to present these proposals to the Congress was motivated by the following purposes:

- to preserve the specific character of both foil and sabre as conventional fencing weapons, while respecting also fencing's character as a combat sport "par excellence" that is defined by its own natural and universal logic;
- improve working conditions for referees, making it easier for them to correctly apply the Rules for Competition, and also to explain fencing actions according to objective criteria;
- improve audience and television viewers' comprehension of fencing, allowing them, as much as possible, to better follow and understand the action during foil and sabre matches.

The Commission started its work by being very specific about the definitive nature of each proposal and indicated that it had no preconceived position on the proposals. The main purpose of the exercise was to demonstrate and test the proposed changes, and to forecast the consequences that such modifications would bring.

2. IMPLEMENTATION OF THE WORK PLAN

2.1 The established Work Plan was implemented with small changes due to some unexpected circumstances that arose.

2.2 The implementation of the Work Plan was fully followed as outlined in the documents distributed to the Commission members.

For the practical tests, two apparatus were used simultaneously, side by side, and the fencers were hooked up to both:

- a standard scoring apparatus functioning according to current specifications: break in contact time set at over 1 millisecond and blocking time set between 700 and 800 milliseconds;
- a new apparatus that would allow one to instantly set and modify on site both the blocking time (for foil and sabre) and the duration of the break in contact likely to set off the signal (at foil), otherwise known as "impact time".

Each hit was registered (at times differently) on the two apparatus. The referee only considered signals registering on the test apparatus, the one on which timing had been modified, and provided a more thorough and extensive analysis of fencing actions

that would normally be given, and concluded by comparing the signals registered on each apparatus. All tests were video recorded.

2.3 Each time a test was held, the FIE invited certain members of the Commission, ensuring that all members would be present at least once at each test. In most cases, the invitations were sent to the national federation of the member in question. M. Baiocco and M. Pop were present at all tests. M. Baiocco was responsible for the technical support required for the sports equipment (scoring apparatus, masks, and conductive jackets), while M. Pop coordinated the technical and administrative aspects of the events.

2.4 The FIE Commission wishes to thank:

- the national federations of Italy, France, Germany, and China for their cooperation and support in making available venues, material, equipment, as well as technical and administrative support personnel to aid in the holding of these tests;
- the fencers and referees who took part in the sabre and foil matches;
- the National Directors, Fencing Masters, fencing equipment manufacturers and other collaborators for their advice and guidance.

3. WITH RESPECT TO THE BLOCKING TIME

3.1 The blocking time in foil and sabre were first measured using the video recordings made at competitions. The calculations (duration of specific image sequences converted to real time) established and confirmed that the minimum limit would be set at 165 ms for foil and 100 ms for sabre. These values, being too restrictive, did not allow for a safety margin that would provide enough flexibility to properly apply the conventions of combat .

3.2 The first tests were therefore conducted by setting the upper threshold limit at 350 ms for foil and 200 ms for sabre. These values were then progressively decreased to the point where it was no longer possible to respect the “validity or priority of the hit”, as defined in the Rules. The referees and the Commission members were unable, at that point, of describing the action.

The blocking time was then increased up to a value that allowed the application of all the articles of the Rules for foil and sabre, while also allowing for a “safety” margin. All riposte and counter-riposte actions – simple, compound, direct, and indirect – counter-attacks, etc. are registered on the apparatus, even if the remises signal comes on first.

3.3 We also noted the net decrease in times where the lights signal that hits have been registered on target for both fencers as compared with the times this occurs under current conditions of signaling and blocking time, and this without impairing the referees’ ability to clearly follow the fencing action. Quite the contrary.

Hence, refereeing is made easier due to the fact that a “single light” occurs more frequently.

Ambiguous situations show a significant decrease and no longer cause the referee to make subjective decisions on those occasions where the fencing actions are too

confusing (particularly on those occasions where both fencers have poorly executed their actions). When such situations occur, the referee is normally subjected to enormous pressure on the part of the fencers and their technical support people, as the latter seize this opportunity to try and influence the referee in an attempt to profit from the ambiguity of the action.

3.4 Conclusion of the Commission on the matter of the blocking time:

3.4.1 For sabre: 120 milliseconds, plus or minus 5 milliseconds. The counter-attack will prevail when a single light comes on and the attack will prevail when both lights come on (the referee will no longer have to determine it from the action)

3.4.2 For foil: the same scenario as above, however, with the limit set at 200 milliseconds, plus or minus 5 milliseconds. If both lights come on, the referee will have to determine priority of the attack.

<p>4. WITH RESPECT TO THE MATTER OF THE DURATION OF THE BREAK IN CONTACT CAUSING THE SIGNALING OF A HIT IN FOIL</p>
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4.1 The duration of the break in contact and subsequent signaling of a hit in foil (more commonly known as “impact time”) were previously examined with the use of video recordings of competition matches.

It was determined that with the limit set slightly above 1 millisecond, situations occurred where the scoring apparatus registered hits, even though these are not the result of a thrusting action.

In those cases, the signal comes on **when the cylinder of the pointe d’arrêt comes into contact laterally** with the target; the high roughness coefficient factor of the conductive jacket’s metallic fabric actually slows down the travel of the pointe d’arrêt, causing it to “drag along” the jacket. This, however, is sufficient to cause a break in the contact of the pointe d’arrêt with the mass of the foil, because the current tolerance level of the break in contact time is so short.

Moreover, the use of scoring apparatus that are not controlled before competitions and that do not bear a metallic plate identifying their specific characteristics compound the problem. Hits are registered even if they are not the result of a thrusting action because the scoring apparatus registers even those hits given with the cutting edge of the lateral part of the point.

Hence, foil fencers sometimes look as though they are fencing sabre, or wielding an axe, that is when they are not simply “casting” their hits as though they were fly fishing (flicks).

4.2 The principle according to which various timing limits were tested, such as was previously used to determine blocking time, was used here also to determine the duration of the break in contact for which only hits that are the result of a thrusting action are registered in foil. A time span of approximately 15 milliseconds eliminated roughly 60-70% of hits that are not properly executed.

4.3 There is need to introduce yet more modifications to improve the effectiveness of the proposed changes.

During the tests, we noticed a marked decrease in the number of signals registered following the execution of non regulation actions and where hits were not the result of a thrusting action.

4.4 Conclusion of the Commission on the duration of the break in contact time for the foil apparatus designed to register hits that are the result of a thrusting action rather than hits that are the product of a flicking of the blade:

4.4.1 Duration of break in contact time: between 14 and 16 milliseconds

4.4.2 Additional measures to increase the success of this result and to ensure that the apparatus only registers those hits that are the result of a thrusting action:

- **the curve of the blade at its maximal bend may not exceed 1 cm and must be located near the centre of the blade (art. m.8 of the Rules)**
- **the pressure required on the pointe d'arrêt, in order to break the contact and cause the apparatus to register a hit, must be greater than 750 gr.**
- **the grip must have a maximum angle of 20° downward tilt and, on the inside of the guard, be lined up with the axis of the blade.**

The use of a gauge to verify this is a simple matter.

5. WITH RESPECT TO THE FENCING ACTION IN FOIL

5.1 Throughout the tests, it was manifest that refereeing became far easier when the preceding proposals above were rigorously applied (4.4.2)

5.2 Conclusion of the Commission:

The Commission agrees with the following proposed text:

“The crossover, flèche and all forward movement made crossing the legs or the feet are forbidden. All such offence will cause the sanctions prescribed in articles t.114, t.116, and t.120 to be applied. The hit registered by the fencer at fault will be annulled, however, any hit correctly executed by the opponent will be considered as valid.”

6. WITH RESPECT TO THE PROPOSED DECREASE IN THE DISTANCE SEPARATING THE TWO OPPONENTS WHEN PUT ON GUARD

6.1 The Commission observed that when this proposal was applied, working conditions for the foil and sabre referees showed a significant improvement. Moreover, by adopting this proposal the distance at which fencers are put on guard will become standard for the duration of the bout. It has been observed that, when fencers are put back on guard after a halt in the bout called by the referee, the distance between them is always lesser than the distance that separates them when they are put on guard after a valid hit is registered.

6.2 The Commission did not test this proposal for épée.

7. WITH RESPECT TO THE REMOVAL OF CERTAIN OFFENCES AND THEIR PENALTIES

7.1 We have observed that, even by forbidding all forward movements involving crossing of the legs or feet, foilists nevertheless continued to reverse the line of their shoulders. Similarly, we have observed that during a fencer's retreat, this movement occurs less frequently.

However, foilists continued to cover the valid target with their non-sword arm.

7.2 As long as foilists fenced holding their non-sword arm behind the line of their shoulders, refereeing became easier and the fencing phrase was less confusing. In these cases, the fencers never put their non-sword arm between themselves and their opponents, thus covering the valid target.

7.3 Conclusion of the Commission on the matter of removing the penalty applied to reversing the line of the shoulders:

- **the Commission agrees that this offence and its penalty should be removed as it is redundant since it is already covered under the general heading of “covering of valid target”;**
- **the referee must consistently apply the penalty if “one of the fencers protects, either by covering or by an abnormal movement the target area”. Therefore, the foilist's non-sword arm may not be situated anywhere between the opponent's point and the valid target and may not cover any portion of the valid target.**

8. WITH RESPECT TO THE USE OF THE ELECTRIC SABRE MASK IN FOIL

8.1 Before starting any of the tests, we established that, based on practical experience, it was observed that:

- foilists often use their head to cover or substitute valid target by placing their mask over their chest;
- given the duration of the break in contact time currently in use on foil scoring apparatus – i.e. a minimum of 1 millisecond – hits that are the result of a thrusting action do not register on very rigid surfaces (metal, wood, etc.)

8.2 During the tests, we observed that:

- a longer duration of break in contact time (15 ms – conclusion of the Commission) makes it even more difficult to register, at foil, a hit that is not the result of a thrusting action that arrives on the rigid surface of a sabre mask;
- on the other hand, these same hits register perfectly on the sabre mask's bib.

8.3 We checked previous editions of the FIE Rules and it appears that, historically, the bib was not required and hits arriving on the neck were valid. Later on, the bib became a required piece of equipment, but was still considered part of the

valid target. The introduction of electric foil led to its removal for technical reasons.

- 8.4 Three major equipment manufacturers contacted by the Commission have confirmed that it would not be difficult to cover the foil mask bib with conductive fabric, thereby ensuring continuous contact with the conductive jacket. The bib would thus become part of the valid target.
- 8.5 The first tests were conducted in Paris using the sabre mask. Following this, in Shanghai, we used masks with insulated mesh and conductive fabric-covered bibs. In both cases, the matches unfolded normally, with no obvious difficulty or inconvenience reported by the fencers, and with the single notable consequence that far fewer non-valid hits were registered.
- 8.6 Conclusion of the Commission on the use of the electric sabre mask for foil:
 - 8.6.1 **The use of the sabre mask for foil does not allow hits that are the result of a thrusting action to register on the metallic mesh;**
 - 8.6.2 **The re-introduction of the bib as part of the valid target at foil, now technically feasible, reinstates for foil its original valid target area. Moreover, it contributes to a reduction in the number of non-valid hits registered. Furthermore, it makes refereeing easier because the fencers fence more clearly now that they have greater opportunity of landing hits on the chest.**
 - 8.6.3 **The Commission is, therefore, in favour of increasing the valid target area at foil to include the bib of the mask covered with conductive fabric.**

9. WITH RESPECT TO THE SIGNALING OF NON-VALID HITS

9.1 At the beginning of the tests, the attitude of the Commission members was rather unfavourable to the following proposal:

“A hit that arrives outside of the valid target area is not registered by the scoring apparatus; it is therefore not counted as a hit; it does not stop the fencing phrase nor does it annul any subsequent hit”.

9.2 Following the studies and tests that were carried out, we observed that:

- the number of **non-valid hits greatly decreased** following the introduction of the proposed changes (increase of the valid target area by adding the bib, removal of the flèche, decrease in the blocking time of the lights, increase in the duration of the break in contact time) in the course of the tests.
- **Nearly all the non-valid hits were registered on the sword-arm.**

The Commission members take under consideration that:

- o the sword-arm was valid target, up to the elbow, when it was bent, in conformity with the FIE Rules;
- o Fencing Master Tomasini proposed we manufacture a sleeve covered with conductive fabric and consider the sword-arm as valid target, but only when it is folded over to cover valid target or following the execution of a parry;

- M. Baiocco managed to produce just such a conductive sleeve, designed not to be in direct contact with the conductive jacket and providing no coverage of the inside part of the arm, all the way down to the grip;
- Under the conditions outlined above, the sleeve becomes valid target only if the forearm comes into contact with the chest, in an attempt to cover valid target area.

The Commission agreed to the following additional conditions designed to preserve fencing's internal logic and to remain true to the spirit of fencing convention. We wanted to satisfy the following conditions:

- avoid having the fencers attack and counter-attack to their opponents' sword-arm (in order to remain distinct from épée);
- favour the hit registered by an attack that (either through good timing, executed from the proper distance, or arriving after a successful feint) manages to avoid the opponent's parry and lands on the sword-arm that happens to be covering the valid target area following the execution of the parry.

The Commission carried out these tests with the scoring apparatus that does not register hits arriving on non-valid target areas, in accordance with the proposal being examined.

9.3 The matches fenced while applying the equipment changes outlined above and using an apparatus that only registers valid hits proved to be entirely satisfactory:

- far easier to referee;
- presented no technical difficulties;
- registered far fewer interruptions during the matches.

9.4 Conclusion of the Commission on the matter of using a scoring apparatus that does not register hits arriving on non-valid target areas:

The Commission is favourable to the adoption of this scoring apparatus, so long as all the steps and conclusions outlined above are observed.

By jointly applying all the changes that have been proposed, we achieve the following results:

- **We preserve foil's distinctive character with respect to the other weapons.**
- **We maintain the application of convention to fencing while respecting also fencing's character as a combat sport "par excellence" that is defined by its own natural and universal logic;**
- **We improve working conditions for the referees in regards to the application and respect of the Rules for Competition. Errors that are the result of subjective interpretation of actions will considerably decrease.**
- **The athletes will have confidence that the results they achieve in competition are accurate and truly representative of each fencer's demonstrated ability.**
- **For non-fencing spectators – whether at the venue or on television – we make it possible for them to better follow and understand foil matches.**

End of Report

CONCLUSIONS OF THE SPECIAL COMMISSION RESPONSIBLE FOR TESTING PROPOSALS PERTAINING TO THE PRACTICE OF FOIL AND SABRE

The Special Commission responsible for testing Rules change proposals meant to improve the practice of foil and sabre met in plenary session in Havana on 3 October 2003.

The purpose of these proposals was, on the one hand, to **preserve the distinctive character of foil and sabre** and, on the other, to **significantly improve the level of objectivity in refereeing** of the conventional weapons, as well as the public's understanding of their practice.

The Commission states the following opinions and makes the following recommendations:

1. **The blocking times for the lights** have been set at 200 milliseconds for foil and 120 milliseconds for sabre.

2. **Duration of contact time at foil** is set at 14-16 milliseconds, with additional changes (maximum bend in the curve of the blade reduced to 1 cm, increase of the pressure on the pointe d'arrêt to 750 grams) introduced to increase the effectiveness of the result of this change, i.e. in effect eliminating "flicks" at foil.

3. Opinions differ on the matter of the **removal of the flèche at foil**, therefore the Commission reserves its judgment on this matter.

4. **Inversion of the line of the shoulders** should no longer be considered a distinct offence as it is already covered under the heading of covering valid target.

5. Opinions also considerably differ on the matter of the **use of the electric sabre mask at foil**, though there is nearly unanimous consent on making the bib of the mask part of the valid target.

6. With respect to the **scoring apparatus no longer registering non-valid hits**, the Commission recommends that further tests be carried out during official junior competitions.

The Special Commission's final opinion and recommendation are to apply the proposed changes universally at all foil and sabre Junior World Cup competitions of the 2004-05 season.