

**REPORT OF THE SUPERVISION
OF STATIC TESTS
16 June 2004
&
17 June 2004
Dynamic range
EVOLUTION/FEELING/VOYAGEUR II**

COMPAGNY : **DELTA TRIKES AVIATION DTA.**

AERODROME DE MONTELIMAR-ANCÔNE

26200 MONTELIMAR- FRANCE.



SUMMARY

I / TESTED ARTICLES

II / TYPE OF TESTS

III / ACCESSORIES USED IN THE TESTS

IV / PERSONS PRESENT

V / THE TESTS

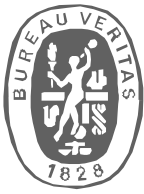
V1 EVOLUTION TRIKE AIRFRAME

V2 FEELING TRIKE AIRFRAME

V3 VOYAGEUR II TRIKE AIRFRAME

VI / CONCLUSIONS

VII / APPENDIX



II-3 Evolution – Feeling - Voyageur II

- Frontal shock test (seatbelts and cantilever mast) 9G (Ultimate load limit).
- Frontal shock test (Engine mount 2 & 4-stroke) 15G (Ultimate load limit).

II-4 Evolution – Feeling - Voyageur II

- Lateral shock test 1,5G (Flight load limit)

III / ACCESSORIES USED IN THE TESTS

- Block and tackle.
- Individually weight sandbags.
- Roman balance.

IV / PERSONS PRESENT

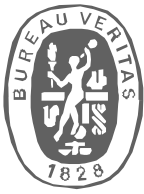
- Mr JM. DIZIER.
- 4 DTA technicians

V / THE TESTS

The tests were carried out on the location of the DTA compagny at thje aerodrome of Montlimar-Ancône 16 & 17 June 2004

The same trike of each model underwent all the tests in the following chronological order :

- Load limits :
 - Vertical shock 3 G
 - Positive 4 G
- Ultimate limits :
 - Vertical 4,5G
 - Positif shock 6 G
 - Lateral shock 1,5G
 - Frontal 9 G
15 G



V1 EVOLUTION / FEELING TRIKE AIRFRAME:

-Vertical shock test 3G :

The test was carried out following the testing procedure of the DTA company, for a **load limit**: see the testing procedure in appendix 1 of the present report:

- Load distribution : conforms to the procedure
- Load 1360Kg for an exact 1359,80Kg.
- Length of test : 2mn

Certified report : - see Appendix 1 Conclusions : **no significant deformation.**

-Vertical shock test 4,5G

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit**: see the testing procedure in appendix 2 of the present report:

- Load distribution : conforms to the procedure
- Load 2070Kg for an exact 2068,5Kg.
- Length of test : 3 seconds

Certified report - see Appendix 2 : **no breakage.**

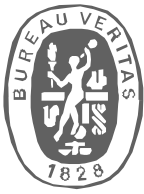
V2 VOYAGEUR II TRIKE AIRFRAME :

-Vertical shock test 3G :

The test was carried out following the testing procedure of the DTA company, for a **load limit**: see the testing procedure in appendix 3 of the present report:

- Load distribution : conforms to the procedure
- Load 1351Kg for an exact 1350.4Kg.
- Length of test : 2mn

Certified report : - see Appendix 3 Conclusions : **no significant deformation.**



-Vertical shock test 4,5G

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit**: see the testing procedure in appendix 4 of the present report:

- Load distribution : conforms to the procedure
- Load 2060Kg for an exact 2059.1Kg.
- Length of test : 3 seconds

Certified report - see Appendix 4 : **no breakage.**

V3 EVOLUTION/FEELING & VOYAGEUR TRIKES AIRFRAME:

Evolution/Feeling positive 4G test

The test was carried out following the testing procedure of the DTA company, for a **load limit**: see the testing procedure in appendix 5 of the present report:

- Load distribution : conforms to the procedure
- Load 1645Kg for an exact 1592.3Kg.
- Length of test : 2mn

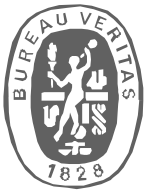
Certified report : - see Appendix 5 Conclusions : **no significant deformation.**

Evolution/Feeling positive 6G test

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit**: see the testing procedure in appendix 6 of the present report:

- Load distribution : conforms to the procedure
- Load 2500Kg for an exact 2417.3Kg.
- Length of test : 3 seconds

Certified report - see Appendix 6 : **no breakage.**



Voyageur II positive 4G test

The test was carried out following the testing procedure of the DTA company, for a **load limit**: see the testing procedure in appendix 7 of the present report:

- Load distribution : conforms to the procedure
- Load 1600Kg for an exact 1582.9Kg.
- Length of test : 2mn

Certified report : - see Appendix 7 Conclusions : **no significant deformation.**

Voyageur II positive 6G test

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit**: see the testing procedure in appendix 8 of the present report:

- Load distribution : conforms to the procedure
- Load 2420Kg for an exact 2407.9Kg.
- Length of test : 3 seconds

Certified report - see Appendix 8: **no breakage.**

Frontal shock test 9G seatbelts Evolution/Feeling & Voyageur II

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit** see the testing procedure in appendix 9 & 10 of the present report:

- Load distribution : conforms to the procedure
- Load 833Kg for an exact 810Kg.
- Length of test : 3 seconds

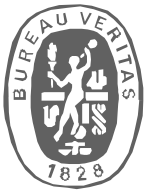
Certified report - see Appendix 9 & 10: **no breakage.**

Frontal shock 15G engine mount Evolution/Feeling & Voyageur II

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit**: see the testing procedure in appendix 9 & 10 of the present report:

- Load distribution : conforms to the procedure
- Load 2420Kg for an exact 2407.9Kg.
- Length of test : 3 seconds

Certified report - see Appendix 9 & 10: **no breakage.**



Lateral shock test 1,5G Evolution/Feeling & Voyageur II

The test was carried out following the testing procedure of the DTA company, for a **load limit**: see the testing procedure in appendix 11 & 12 of the present report:

- Load distribution : conforms to the procedure
- Load
 - 2-Stroke engine mount 144Kg for an exact 75Kg
 - 4-stroke engine mount 144 Kg for an exact 105 kg
 - Seatbelts & seats (front & rear) 288 Kg for an exact 270 kg
- Length of test : 2 mn

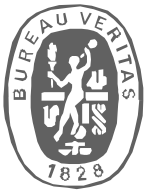
Certified report - see Appendix 11 & 12: **no significant deformation**

Positif 6G front fairing Evolution/Feeling & Voyageur II

The test was carried out following the testing procedure of the DTA company, for a **ultimate load**: see the testing procedure in appendix 13 of the present report:

- Load distribution : conforms to the procedure
- Load 48Kg for an exact 48Kg.
- Length of test : 3 seconds

Certified report - see Appendix 13: **no breakage**



[Frontal shock 9G test Cantilever mast for Evolution/Feeling & Voyageur II or Combo trikes](#)

The test was carried out following the testing procedure of the DTA company, for a **ultimate limit**: see the testing procedure in appendix 14 of the present report:

- Load distribution : conforms to the procedure
- Load 543Kg for an exact 540Kg.
- Length of test : 3 seconds

Certified report - see Appendix 13: **no breakage**

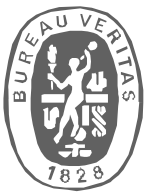
VI / CONCLUSIONS :

The static tests V1 – V2 – V3 carried out in our presence on the 16th and 17th of June 2004 in the manufacturing works of the Delta Trikes Aviation (DTA) company at Montélimar were carried out in a satisfaction manner and conformed to the testing procedure defined by the constructor.

No permanent, significant deformation, no apparente breakages were observed, no tolerances or fixed limits exceeded by the constructor during the tests.

Vitrolles (places) , le 29th November 2004

C. BONNAL
Aeronautical Expert



VII / APPENDICES

Appendix 1	Testing procedure EVOLUTION/FEELING vertical shock (2 pages)	3G
Appendix 2	Testing procedure EVOLUTION/FEELING vertical shock (4 pages)	4, 5G
Appendix 3	Testing procedure VOYAGEUR II vertical shock (2 pages)	3G
Appendix 4	Testing procedure VOYAGEUR II vertical shock (4 pages)	4, 5G
Appendix 5	Testing procedure EVOLUTION/FEELING positive (3 pages)	4G
Appendix 6	Testing procedure EVOLUTION/FEELING positive (4 pages)	6G
Appendix 7	Testing procedure VOYAGEUR II positive (2 pages)	4G
Appendix 8	Testing procedure VOYAGEUR II positive (4 pages)	6G
Appendix 9	Testing procedure EVOLUTION/FEELING frontal shock (3 pages)	9G & 15G
Appendix 10	Testing procedure VOYAGEUR frontal shock (6 pages)	9G & 15G
Appendix 11	Testing procedure EVOLUTION/FEELING lateral shock (4 pages)	1.5G
Appendix 12	Testing procedure VOYAGEUR lateral shock (1 page)	1.5G



Appendix 13 Testing procedure EVOLUTION/FEELING front fairing 6G
(1 page)

Appendix 14 Testing procedure VOYAGEUR II or COMBO cantilever mast 9G
(1page)

Appendix 15 Standard and optional fittings
(1 page)

Appendix 16 Roman balance weight verification sheet
(1 page)



APPENDIX 1

**EVOLUTION/FEELING trike test
Vertical shock test at 3 G at MTOW 472.5 kg
Limiting load factor**

Test :

The trike is on the ground, on its wheels. After loading, the test must be carried out for at least two minutes without it being able to be noted, after disassembling, of significant deformation.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load :

It is equal to three times the mass of maximum landing mass, therefore $3 \times 472.5 = 1417.5$ Kg (1390 daN). The trike frame used for the test had a frame-mass of 57.70 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass remained at the level of the seats.

Load (in kg) :		3 G
Motor-propeller	70,0	210,0
Parachute	15,0	45,0
Front fuel tank brackets	20,0	60,0
Rear fuel tank brackets	30,0	90,0
Front seat	90,0	270,0
Rear seat	90,0	270,0
Wing	60,0	180,0
Frame mass	57,7	57,7
Mass to distribute	39,8	234,8
Maximum mass	472,5	1417,5
Loading to be carried out :		1359,8
Loading carried out :		1360

Reports of the tests carried out June 16th and 17th 2004 :

No significant (meaningful) elastic strain
The ground clearance of the propeller decreased by 21 cm.

APPENDIX 1

tricycle	EVOLUTION/FEELING	
	Tests réalisés sous le contrôle de Bureau Veritas les 16 et 17 Juin 2004	3 g vertical à 472.5 kg
 A photograph showing a three-wheeled vehicle (tricycle) heavily loaded with numerous white sacks. The vehicle is positioned on a blue surface within a large, arched industrial facility, likely an aircraft hangar. In the background, the wing of a large aircraft is visible, along with various structural elements and equipment of the hangar.		



APPENDIX 2

**EVOLUTION/FEELING trike test
Vertical shock test at 4.5 G at MTOW 472.5 kg
Ultimate load factor**

Test :

The trike is on the ground, on its wheels. After loading, the test must be carried out for at least three seconds without breakage.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load :

It is equal to 4.5 times the mass of maximum landing mass, therefore $4.5 \times 472.5 = 2126.25$ Kg (2086 daN). The trike frame used for the test had a frame-mass of 57.70 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass remained at the level of the seats.

Load (in kg) :		4,5 G
Motor-propeller	70,0	315,0
Parachute	15,0	67,5
Front fuel tank brackets	20,0	90,0
Rear fuel tank brackets	30,0	135,0
Front seat	90,0	405,0
Rear seat	90,0	405,0
Wing	60,0	270,0
Frame mass	57,7	57,7
Mass to distribute	39,8	381,0
Maximum mass	472,5	2126,2
Loading to be carried out :		2068,5
Loading carried out :		2070

Reports of the tests carried out June 16th and 17th 2004 :

No breakage. See Nomenclature EVOLUTION & FEELING trikes – 4.5g vertical.



APPENDIX 2

Nomenclature Tricycle EVOLUTION et FEELING - extrait

Tests des 16 et 17 Juin 2004
4,5 g vertical

Code	Désignation	Conforme	A changer	Observation
Cellule				
B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582	x		CF Observations
CD008	CELLULE DYNAMIC 912			o
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
CD038	CALE PIED DIAM 30 L640	x		
CD044	CARENAGE AVANT			o
CD048	SAUTE VENT LEXAN AVEC VIS 1/4 TOURS			o
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0090	SAC AVANT			o
Q0104	JUPE AVEC SACOCHES INTEGREES			o
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		

Atténisseur (train arrière et fourche)

AD001	BRAS DE SUSPENSION EVOLUTION L840	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 8'	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD006	CHC 10X52/17 BRAS SUSP/FUSEE	x		
AD007	CHC 10X35/15 JAMBE DE TRAIN/CELLULE 503	x		
AD010	FUSEE EVOLUTION DROITE	x		
AD011	FUSEE EVOLUTION GAUCHE	x		
AD012	TIRANT DE TRAIN EVOLUTION DROIT L1080	x		
AD013	TIRANT DE TRAIN EVOLUTION GAUCHE L1080	x		
AD014	CHC 10X52/27 JAMBE DE TRAIN/CELLULE 582	x		
AD015	JAMBE DE TRAIN EVOLUTION L750	x		
AD019	FOURCHE NUE 8'	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETTES FOURCHE	x		
AD039	AXE DE ROUE 8'	x		
AD040	BIELLETTES DE FOURCHE	x		
AD041	ENTRETOISE GAUCHE ROUE AVANT 8'	x		
AD042	ENTRETOISE DROITE ROUE AVANT 8'	x		
AD043	ENTRETOISE BLOCAGE TAMBOUR FREIN AVANT 8'	x		
AD049	CARENAGE DE ROUE LIBRE FEELING D			o
AD050	CARENAGE DE ROUE FEELING G			o
AD051	CARENAGE DE ROUE LIBRE EVOLUTION D			o
AD053	CARENAGE DE ROUE LIBRE EVOLUTION G			o



APPENDIX 2

Nomenclature Tricycle EVOLUTION et FEELING - extrait / suite - 4,5 g vert.

Code	Désignation	Conforme	A changer	Observation
AD078	ROUE A FREIN AVANT 8"	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AD081	ROUE LIBRE 400X8	x		
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140			o
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140			o
AV014	JAMBE DE TRAIN FEEL/VII L 830			o
AV017	BRAS DE SUSPENSION FEEL/VII L920			o
AV018	FUSEE FEEL/VII DROITE			o
AV019	FUSEE FEEL/VII GAUCHE			o
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		

Poutre verticale, accroche aile

DD003	CHC 10X55/15 INF CABLE SECURITE POUTRE	x		
DD004	CHC 10X85/35P CABLES SECURITE	x		
DD005	POUTRE VERTICALE EVOL/FELL	x		
DD007	CABLE INTERNE DE POUTRE VERT	x		
DD009	CABLE DE SECURITE AILE	x		
DD013	BAGUE EPAULEE ERTALON INF/MEDIAN	x		
DD014	BAGUE EPAULEE ERTALON SUP	x		
DD015	TUBE AVANT COMPLET SANS BOULONNERIE	x		
DD018	CHC8X53/13PTP TUBE AVANT		x	Léger flambage
DD020	CHC10X95/17 ROTATION POUTRE	x		
DD022	CHC10X110/15 ROTATION PLAQUES AILE		x	Léger flambage
DD023	CHC10X105/15PTP ACCROCHE AILE	x		
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE	x		
DD030	EMBASE LIAISON PLAQUES AILE	x		
E9066	CUBE ACCROCHAGE AILE			o

GMP

AD063	CHC12X85/23 BATI 4 TPS/FOURNALES			o
B0242	CHC12X100			o
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
M3001	BATI MOTEUR 2 TPS	x		
MD013	CHC6X10A PLOT AR BATI 2 TPS	x		
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS	x		
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS	x		
MD039	TUBE DIAM 25 SUPPORT JERRICAN 25 L	x		
MD040	SANGLE TEXTILE FIXATION JERRICANS 2X25 L	x		
MD220	BATI MOTEUR 4 TPS 912/912S			o
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS	x		
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S			o

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.
 Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

Observations:

Longueur en mm après test sous:	472,5 kg	4,5g vert
Distance axe verrouillage poutre verticale / avant cellule	1925	1925
Distance axe rotation poutre verticale / axe rotation plaques aile	1635	1635

Le même tricycle a subi l'ensemble des tests:chargements positifs puis les chocs verticaux, avant et latéraux

APPENDIX 2





APPENDIX 3

VOYAGEUR II trike test
Vertical shock test at 3 G at MTOW 472.5 kg
Limiting load factor

Test :

The trike is on the ground, on its wheels. After loading, the test must be carried out for at least two minutes without it being able to be noted, after disassembling, of significant deformation.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load :

It is equal to three times the mass of maximum landing mass, therefore $3 \times 472.5 = 1417.5$ Kg (1390 daN). The trike frame used for the test had a frame-mass of 67.10 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass remained at the level of the seats.

Load (in kg) :		3 G
Motor-propeller	70,0	210,0
Parachute	15,0	45,0
Front fuel tank brackets	20,0	60,0
Rear fuel tank brackets	30,0	90,0
Front seat	90,0	270,0
Rear seat	90,0	270,0
Wing	60,0	180,0
Frame mass	67,1	67,1
Mass to distribute	30,4	225,4
Maximum mass	472,5	1417,5
Loading to be carried out :		1350,4
Loading carried out :		1351

Reports of the tests carried out June 16th and 17th 2004 :

No significant (meaningful) elastic strain
The ground clearance of the propeller decrease by 16 cm.

APPENDIX 3

tricycle	VOYAGEUR II	
	Tests réalisés sous le contrôle de Bureau Veritas les 16 et 17 Juin 2004	3 g vertical à 472.5 kg
	 A photograph showing a purple tricycle heavily loaded with numerous white sacks. The sacks are stacked high, reaching above the handlebars. A small white tag with the number "36" is visible on one of the sacks. The tricycle is parked on a dark surface.	



APPENDIX 4

**VOYAGEUR II trike test
Vertical shock test at 4.5 G at MTOW 472.5 kg
Ultimate load factor**

Test :

The trike is on the ground, on its wheels. After loading, the test must be carried out for at least three seconds without breakage.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load :

It is equal to 4.5 times the mass of maximum landing mass, therefore $4.5 \times 472.5 = 2126.25$ Kg (2086 daN). The trike frame used for the test had a frame-mass of 67.10 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass remained at the level of the seats.

load (in kg) :		4,5 G
Motor-propeller	70,0	315,0
Parachute	15,0	67,5
Front fuel tank brackets	20,0	90,0
Rear fuel tank brackets	30,0	135,0
Front seat	90,0	405,0
Rear seat	90,0	405,0
Wing	60,0	270,0
Frame mass	67,1	67,1
Mass to distribute	30,4	371,6
Maximum mass	472,5	2126,2
Loading to be carried out :		2059,1
Loading carried out :		2060

Reports of the tests carried out June 16th and 17th 2004 :

No breakage. See Nomenclature VOYAGEUR II trike – 4.5g vertical.
The ground clearance of the propeller decrease by 31 cm.



APPENDIX 4

Nomenclature Tricycle VOYAGEUR II - extrait

Tests des 16 et 17 Juin 2004
4,5 g vertical

Code	Désignation	Conforme	A changer	Observation
Cellule				
B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582			o
CD008	CELLULE DYNAMIC 912	x		CF Observations
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
CD038	CALE PIED DIAM 30 L640	x		
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0080	PAIRE DE SACOCHES			o
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		
Atterrisseur (train arrière et fourche)				
A3045	DOIGT ARRET FREIN AVANT 6'	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 8'	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD014	CHC 10X52/27 JAMBE DE TRAIN/CELLULE 582	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETES FOURCHE	x		
AD040	BIELLETTE DE FOURCHE DROITE	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AV001	FOURCHE NUE 6'	x		
AV004	ENTRETOISE DROITE ROUE AV 6'	x		
AV005	ENTRETOISE GAUCHE ROUE AVANT 6'	x		
AV006	AXE DE ROUE 6'		x	Léger flambage
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140	x		
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140	x		
AV014	JAMBE DE TRAIN FEEL/VII L 830	x		
AV017	BRAS DE SUSPENSION FEEL/VII L920	x		
AV018	FUSEE FEEL/VII DROITE	x		
AV019	FUSEE FEEL/VII GAUCHE	x		
AV020	CHC 10X46/16 BRAS SUSP/FUSEE SANS CARENAGE	x		
AV025	ROUE ALU FREINEE 600X6	x		
AV030	BIELLETTE DE FOURCHE GAUCHE EXT	x		
AV0301	BIELLETTE DE FOURCHE GAUCHE INT	x		
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		



APPENDIX 4

Nomenclature Tricycle VOYAGEUR II - extrait / suite - 4,5g vertical

Code	Désignation	Conforme	A changer	Observation
Poutre verticale, accroche aile				
DD009	CABLE DE SECURITE AILE	x		
DD020	CHC10X95/17 ROTATION POUTRE	x		
DD022	CHC10X110/15 ROTATION PLAQUES AILE	x		
DD023	CHC10X105/15PTP ACCROCHE AILE	x		
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE	x		
DD030	EMBASE LIAISON PLAQUES AILE	x		
DV001	POUTRE VERTICALE NUE PEINTE	x		
DV004	CHC10X122/32P CALE INCIDENCE/CABLES SECURITE	x		
DV013	BAGUE EPAULEE MEDIAN/INF POUTRE VII	x		
DV014	BAGUE EPAULEE SUP POUTRE VII	x		
E9066	CUBE ACCROCHAGE AILE	x		

GMP				
AD063	CHC12X85/23 BATI 4 TPS/FOURNALES	x		
B0242	CHC12X100	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582			o
M3001	BATI MOTEUR 2 TPS			o
MD013	CHC6X10A PLOT AR BATI 2 TPS			o
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS			o
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS			o
MD236	TUBE DIAM 25 POUR TIRANTS 70L	x		
MD231	SANGLE LATERALE FIXATION 70 L	x		
MD232/3	SANGLES LONGITUDINALES FIXATION 70L	x		
MD220	BATI MOTEUR 4 TPS 912/912S	x		
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS			o
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS			o
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS			o
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S	x		

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.
 Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

Observations:

Longueur en mm après test sous:	472,5 kg	4,5g vert	
Garde au sol d'une hélice d'un diamètre de 1720 mm	416	100	
Distance axe verrouillage poutre verticale / avant cellule	1930	1925	Voile à peine perceptible poutre inf.
Distance axe rotation poutre verticale / axe rotation plaques aile	1630	1630	

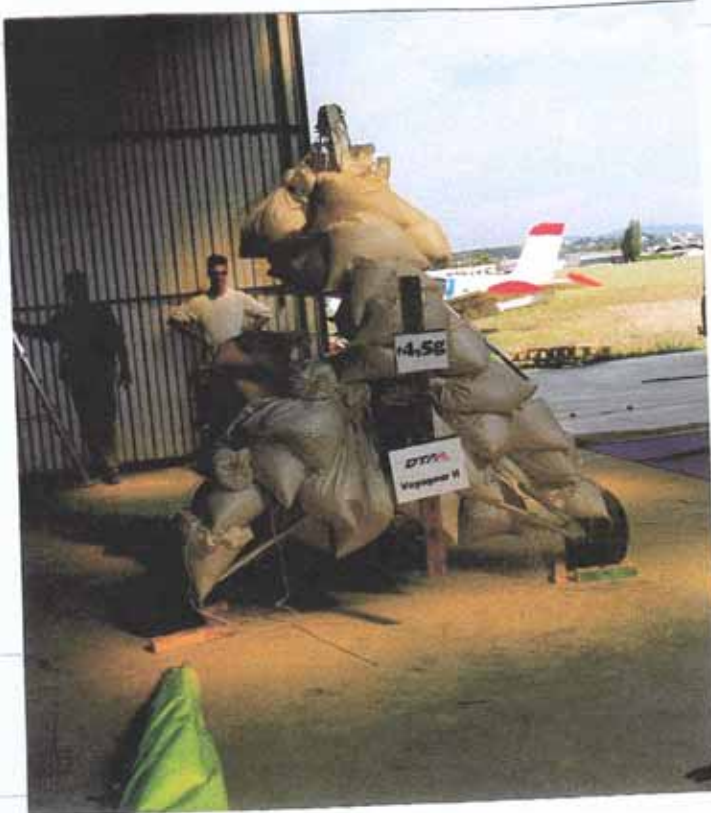
Le même tricycle a subi l'ensemble des tests: chargements positifs puis les chocs verticaux, avant et latéraux

APPENDIX 4

tricycle

VOYAGEUR II

**4.5 g vertical
à 472.5 kg**





APPENDIX 5

**EVOLUTION/FEELING trike tests
Positive at 4G with at MTOW of 472.5 kg
Load limit test**

Test :

The trike is suspended from the wing « hang-point ». After loading, the test must be carried out for at least two minutes without it being able to be noted, after disassembling, of significant deformation.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load:

It is equal to 4 times the MTOW, minus the weight of the sails therefore :
 $4 \times (472.5 - 60) = 1650 \text{ Kg (1619 daN)}$.

The trike frame used for the test had a frame-mass of 57.70 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass was loaded in such a way as to keep the trike in flight position. The mass remained, as best as possible, at the level of the seats.

Load (in kg) :		4 G
Motor-propeller	70,0	280,0
Parachute	15,0	60,0
Front fuel tank brackets	20,0	80,0
Rear fuel tank brackets	30,0	120,0
Front seat	90,0	360,0
Rear seat	90,0	360,0
Wing	0,0	0,0
Frame mass	57,7	57,7
Mass to distribute	39,8	332,3
Maximum mass	412,5	1650,0
Loading to be carried out :		1592,3
Loading carried out :		1645

Reports of the tests carried out June 16th and 17th 2004 :

No meaningful elastic strain



APPENDIX 5

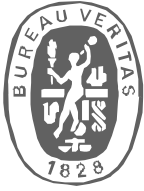
Nomenclature Tricycle EVOLUTION et FEELING - extrait

Tests des 16 et 17 Juin 2004
+ 4 g

Code	Désignation	Conforme	A changer	Observation
Cellule				
B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582	x		CF Observations
CD008	CELLULE DYNAMIC 912			o
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
CD038	CALE PIED DIAM 30 L640	x		
CD044	CARENAGE AVANT			o
CD048	SAUTE VENT LEXAN AVEC VIS 1/4 TOURS			o
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0090	SAC AVANT			o
Q0104	JUPE AVEC SACOCHES INTEGREES			o
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		

Afferrisseur (train arrière et fourche)

AD001	BRAS DE SUSPENSION EVOLUTION L840	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 8'	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD006	CHC 10X52/17 BRAS SUSP/FUSEE	x		
AD007	CHC 10X35/15 JAMBE DE TRAIN/CELLULE 503	x		
AD010	FUSEE EVOLUTION DROITE	x		
AD011	FUSEE EVOLUTION GAUCHE	x		
AD012	TIRANT DE TRAIN EVOLUTION DROIT L1080	x		
AD013	TIRANT DE TRAIN EVOLUTION GAUCHE L1080	x		
AD014	CHC 10X52/27 JAMBE DE TRAIN/CELLULE 582	x		
AD015	JAMBE DE TRAIN EVOLUTION L750	x		
AD019	FOURCHE NUE 8'	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETES FOURCHE	x		
AD039	AXE DE ROUE 8'	x		
AD040	BIELLETTE DE FOURCHE	x		
AD041	ENTRETOISE GAUCHE ROUE AVANT 8'	x		
AD042	ENTRETOISE DROITE ROUE AVANT 8'	x		
AD043	ENTRETOISE BLOCAGE TAMBOUR FREIN AVANT 8'	x		
AD049	CARENAGE DE ROUE LIBRE FEELING D			o
AD050	CARENAGE DE ROUE FEELING G			o
AD051	CARENAGE DE ROUE LIBRE EVOLUTION D			o
AD053	CARENAGE DE ROUE LIBRE EVOLUTION G			o



APPENDIX 5

Nomenclature Tricycle EVOLUTION et FEELING - extrait / suite - +4g

Code	Désignation	Conforme	A changer	Observation
AD078	ROUE A FREIN AVANT 8'	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AD081	ROUE LIBRE 400X8	x		
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140			o
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140			o
AV014	JAMBE DE TRAIN FEEL/VII L 830			o
AV017	BRAS DE SUSPENSION FEEL/VII L920			o
AV018	FUSEE FEEL/VII DROITE			o
AV019	FUSEE FEEL/VII GAUCHE			o
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		

Poutre verticale, accroche aile

DD003	CHC 10X55/15 INF CABLE SECURITE POUTRE	x		
DD004	CHC 10X85/35P CABLES SECURITE	x		
DD005	POUTRE VERTICALE EVOL/FELL	x		CF Observations
DD007	CABLE INTERNE DE POUTRE VERT	x		
DD009	CABLE DE SECURITE AILE	x		
DD013	BAGUE EPAULEE ERTALON INF/MEDIAN	x		
DD014	BAGUE EPAULEE ERTALON SUP	x		
DD015	TUBE AVANT COMPLET SANS BOULONNERIE	x		
DD018	CHC8X53/13PTP TUBE AVANT	x		
DD020	CHC10X95/17 ROTATION POUTRE	x		
DD022	CHC10X110/15 ROTATION PLAQUES AILE	x		
DD023	CHC10X105/15PTP ACCROCHE AILE	x		
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE	x		
DD030	EMBASE LIAISON PLAQUES AILE	x		
E9086	CUBE ACCROCHAGE AILE			o

GMP

AD063	CHC12X85/23 BATI 4 TPS/FOURNALES			o
B0242	CHC12X100			o
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
M3001	BATI MOTEUR 2 TPS	x		
MD013	CHC6X10A PLOT AR BATI 2 TPS	x		
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS	x		
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS	x		
MD039	TUBE DIAM 25 SUPPORT JERRICAN 25 L	x		
MD040	SANGLE TEXTILE FIXATION JERRICANS 2X25 L	x		
MD220	BATI MOTEUR 4 TPS 912/912S			o
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS	x		
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S			o

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.

Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

Observations:

Longueur en mm après test sous:	472,5 kg	+ 4g	
Distance axe verrouillage poutre verticale / avant cellule	1930	1925	Voile imperceptible poutre inf.
Distance axe rotation poutre verticale / axe rotation plaques aile	1632	1635	Voile imperceptible poutre

Le même tricycle a subi l'ensemble des tests: chargements positifs puis les chocs verticaux, avant et latéraux



APPENDIX 6

**EVOLUTION/FEELING trike tests
Positive at 6G with at MTOW of 472.5 kg
Ultimate load factor**

Test :

The trike is suspended from the wing « hang-point ». After loading, the test must be carried out for at least three seconds without breakage.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load:

It is equal to 6 times the MTOW, minus the weight of the sails therefore :

$$6 \times (472.5 - 60) = 2475 \text{ Kg (2428 daN).}$$

The trike frame used for the test had a frame-mass of 57.70 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass was loaded in such a way as to keep the trike in flight position. The mass remained, as best as possible, at the level of the seats.

Load (in kg) :		6 G
Motor-propeller	70,0	420,0
Parachute	15,0	90,0
Front fuel tank brackets	20,0	120,0
Rear fuel tank brackets	30,0	180,0
Front seat	90,0	540,0
Rear seat	90,0	540,0
Wing	0,0	0,0
Frame mass	57,7	57,7
Mass to distribute	39,8	527,3
Maximum mass	412,5	2475,0
Loading to be carried out :		2417,3
Loading carried out :		2500

Reports of the tests carried out June 16th and 17th 2004 :

No breakage. See Nomenclature EVOLUTION/FEELING - + 6G.



APPENDIX 6

Nomenclature Tricycle EVOLUTION et FEELING - extrait

Tests des 16 et 17 Juin 2004
+ 6 g

Code	Désignation	Conforme	A changer	Observation
Cellule				
B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582		x	Flambage léger, régulier poutre inf.
CD008	CELLULE DYNAMIC 912			o
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
CD038	CALE PIED DIAM 30 L640	x		
CD044	CARENAGE AVANT			o
CD048	SAUTE VENT LEXAN AVEC VIS 1/4 TOURS			o
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0090	SAC AVANT			o
Q0104	JUPE AVEC SACOCHES INTEGREES			o
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		

Atterrisseur (train arrière et fourche)

AD001	BRAS DE SUSPENSION EVOLUTION L840	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 8'	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD006	CHC 10X52/17 BRAS SUSP/FUSEE	x		
AD007	CHC 10X35/15 JAMBE DE TRAIN/CELLULE 503	x		
AD010	FUSEE EVOLUTION DROITE	x		
AD011	FUSEE EVOLUTION GAUCHE	x		
AD012	TIRANT DE TRAIN EVOLUTION DROIT L1080	x		
AD013	TIRANT DE TRAIN EVOLUTION GAUCHE L1080	x		
AD014	CHC 10X52/27 JAMBE DE TRAIN/CELLULE 582	x		
AD015	JAMBE DE TRAIN EVOLUTION L750	x		
AD019	FOURCHE NUE 8'	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETES FOURCHE	x		
AD039	AXE DE ROUE 8'	x		
AD040	BIELLETTE DE FOURCHE	x		
AD041	ENTRETOISE GAUCHE ROUE AVANT 8'	x		
AD042	ENTRETOISE DROITE ROUE AVANT 8'	x		
AD043	ENTRETOISE BLOCAGE TAMBOUR FREIN AVANT 8'	x		
AD049	CARENAGE DE ROUE LIBRE FEELING D			o
AD050	CARENAGE DE ROUE FEELING G			o
AD051	CARENAGE DE ROUE LIBRE EVOLUTION D			o
AD053	CARENAGE DE ROUE LIBRE EVOLUTION G			o



APPENDIX 6

Nomenclature Tricycle EVOLUTION et FEELING - extrait / suite - +6g

Code	Désignation	Conforme	A changer	Observation
AD078	ROUE A FREIN AVANT 8"	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AD081	ROUE LIBRE 400X8	x		
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140			o
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140			o
AV014	JAMBE DE TRAIN FEEL/VII L 830			o
AV017	BRAS DE SUSPENSION FEEL/VII L920			o
AV018	FUSEE FEEL/VII DROITE			o
AV019	FUSEE FEEL/VII GAUCHE			o
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		

Poutre verticale, accroche aile

DD003	CHC 10X55/15 INF CABLE SECURITE POUTRE	x		
DD004	CHC 10X85/35P CABLES SECURITE	x		
DD005	POUTRE VERTICALE EVOL/FELL		x	Flambage partie sup. creux= 3 mm
DD007	CABLE INTERNE DE POUTRE VERT	x		
DD009	CABLE DE SECURITE AILE	x		
DD013	BAGUE EPAULEE ERTALON INF/MEDIAN	x		
DD014	BAGUE EPAULEE ERTALON SUP	x		
DD015	TUBE AVANT COMPLET SANS BOULONNERIE	x		
DD018	CHC8X53/13PTP TUBE AVANT		x	Léger flambage
DD020	CHC10X95/17 ROTATION POUTRE	x		
DD022	CHC10X110/15 ROTATION PLAQUES AILE		x	Flambage
DD023	CHC10X105/15PTP ACCROCHE AILE		x	Flambage
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE		x	Légère déformation
DD030	EMBASE LIAISON PLAQUES AILE	x		
E9066	CUBE ACCROCHAGE AILE			o

GMP

AD063	CHC12X85/23 BATI 4 TPS/FOURNALES			o
B0242	CHC12X100			o
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
M3001	BATI MOTEUR 2 TPS	x		
MD013	CHC6X10A PLOT AR BATI 2 TPS	x		
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS	x		
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS	x		
MD039	TUBE DIAM 25 SUPPORT JERRICAN 25 L	x		
MD040	SANGLE TEXTILE FIXATION JERRICANS 2X25 L	x		
MD220	BATI MOTEUR 4 TPS 912/912S			o
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS	x		
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S			o

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.
 Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

Observations:

Longueur en mm après test sous:	472,5 kg	+6g
Distance axe verrouillage poutre verticale / avant cellule	1925	1910
Distance axe rotation poutre verticale / axe rotation plaques aile	1635	1643

Le même tricycle a subi l'ensemble des tests: chargements positifs puis les chocs verticaux, avant et latéraux

APPENDIX 6

tricycle

EVOLUTION/FEELING

Tests réalisés sous le contrôle de Bureau Veritas
les 16 et 17 Juin 2004

+ 4 g
à 472.5 kg



+ 6 g
à 472.5 kg



APPENDIX 7

**VOYAGEUR II trike tests
Positive at 4G with at MTOW of 472.5 kg
Load limit test**

Test :

The trike is suspended from the wing « hang-point ». After loading, the test must be carried out for at least two minutes without it being able to be noted, after disassembling, of significant deformation.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load:

It is equal to 4 times the MTOW, minus the weight of the sails therefore :
 $4 \times (472.5 - 60) = 1650 \text{ Kg (1619 daN)}$.

The trike frame used for the test had a frame-mass of 67.10 kg.

Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass was loaded in such a way as to keep the trike in flight position. The mass remained, as best as possible, at the level of the seats.

Load (in kg) :		4 G
Motor-propeller	70,0	280,0
Parachute	15,0	60,0
Front fuel tank brackets	20,0	80,0
Rear fuel tank brackets	30,0	120,0
Front seat	90,0	360,0
Rear seat	90,0	360,0
Wing	0,0	0,0
Frame mass	67,1	67,1
Mass to distribute	30,4	322,9
Maximum mass	412,5	1650,0
Loading to be carried out :		1582,9
Loading carried out :		1600

Reports of the tests carried out June 16th and 17th 2004 :

No meaningful elastic strain

APPENDIX 7

tricycle

VOYAGEUR II

Tests réalisés sous le contrôle de Bureau Veritas
les 16 et 17 Juin 2004

+ 4 g
à 472.5 kg





APPENDIX 8

**VOYAGEUR II trike tests
Positive at 6G with at MTOW of 472.5 kg
Ultimate load factor**

Test :

The trike is suspended from the wing « hang-point ». After loading, the test must be carried out for at least three seconds without breakage.

Method :

The loading was carried out by the use of pre-weighed sandbags, following the table of load distribution.

Load:

It is equal to 6 times the MTOW, minus the weight of the sails therefore :
 $6 \times (472.5 - 60) = 2475 \text{ Kg}$ (2428 daN).

The trike frame used for the test had a frame-mass of 67.10 kg.

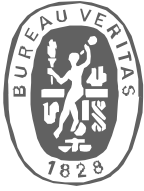
Load distribution :

The distribution was carried out with regards to the mass of the different elements. The mass was loaded in such a way as to keep the trike in flight position. The mass remained, as best as possible, at the level of the seats.

Load (in kg) :		6 G
Motor-propeller	70,0	420,0
Parachute	15,0	90,0
Front fuel tank brackets	20,0	120,0
Rear fuel tank brackets	30,0	180,0
Front seat	90,0	540,0
Rear seat	90,0	540,0
Wing	0,0	0,0
Frame mass	67,1	67,1
Mass to distribute	30,4	517,9
Maximum mass	412,5	2475,0
Loading to be carried out :		2407,9
Loading carried out :		2420

Reports of the tests carried out June 16th and 17th 2004 :

No breakage. See Nomenclature VOYAGEUR II - + 6G.



APPENDIX 8

Nomenclature Tricycle VOYAGEUR II - extrait

Tests des 16 et 17 Juin 2004
+ 6 g

Code	Désignation	Conforme	A changer	Observation
Cellule				
B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582			o
CD008	CELLULE DYNAMIC 912	x		CF Observation
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
CD038	CALE PIED DIAM 30 L640	x		
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0080	PAIRE DE SACOCHES	x		
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		
Atterrisseur (train arrière et fourche)				
A3045	DOIGT ARRET FREIN AVANT 6"	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 6"	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD014	CHC 10X52/27 JAMBE DE TRAIN/CELLULE 582	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETES FOURCHE	x		
AD040	BIELLETTE DE FOURCHE DROITE	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AV001	FOURCHE NUE 6"	x		
AV004	ENTRETOISE DROITE ROUE AV 6"	x		
AV005	ENTRETOISE GAUCHE ROUE AVANT 6"	x		
AV006	AXE DE ROUE 6"	x		
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140	x		
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140	x		
AV014	JAMBE DE TRAIN FEEL/VII L 830	x		
AV017	BRAS DE SUSPENSION FEEL/VII L920	x		
AV018	FUSEE FEEL/VII DROITE	x		
AV019	FUSEE FEEL/VII GAUCHE	x		
AV020	CHC 10X46/16 BRAS SUSP/FUSEE SANS CARENAGE	x		
AV025	ROUE ALU FREINEE 600X6	x		
AV030	BIELLETTE DE FOURCHE GAUCHE EXT	x		
AV0301	BIELLETTE DE FOURCHE GAUCHE INT	x		
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		



APPENDIX 8

Nomenclature Tricycle VOYAGEUR II - extrait / suite - +6g

Code	Désignation	Conforme	A changer	Observation
Poutre verticale, accroche aile				
DD009	CABLE DE SECURITE AILE	x		
DD020	CHC10X95/17 ROTATION POUTRE		x	Léger flambage
DD022	CHC10X110/15 ROTATION PLAQUES AILE		x	Flambage
DD023	CHC10X105/15PTP ACCROCHE AILE	x		
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE	x		
DD030	EMBASE LIAISON PLAQUES AILE	x		
DV001	POUTRE VERTICALE NUE PEINTE		x	CF Observations
DV004	CHC10X122/32P CALE INCIDENCE/CABLES SECURITE	x		
DV013	BAGUE EPAULEE MEDIAN/INF POUTRE VII	x		
DV014	BAGUE EPAULEE SUP POUTRE VII	x		
E9066	CUBE ACCROCHAGE AILE	x		

GMP				
AD063	CHC12X85/23 BATI 4 TPS/FOURNALES	x		
B0242	CHC12X100	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582			o
M3001	BATI MOTEUR 2 TPS			o
MD013	CHC6X10A PLOT AR BATI 2 TPS			o
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS			o
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS			o
MD236	TUBE DIAM 25 POUR TIRANTS 70L	x		
MD231	SANGLE LATERALE FIXATION 70 L	x		
MD232/3	SANGLES LONGITUDINALES FIXATION 70L	x		
MD220	BATI MOTEUR 4 TPS 912/912S	x		
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS			o
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS			o
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS			o
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S	x		

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.
 Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

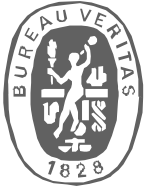
Observations:

Longueur en mm après test sous:	472,5 kg	+6g
Distance axe verrouillage poutre verticale / avant cellule	1925	1930
Distance axe rotation poutre verticale / axe rotation plaques aile	1630	1632

Voile à peine perceptible poutre inf.

DV001 2 très fines fissures (2 et 6 mm) à peine visible sur les angles de la face avant
Note: cette poutre a subi 2 chargements à +6g à 472,54 kg de suite

Le même tricycle a subi l'ensemble des tests: chargements positifs puis les chocs verticaux, avant et latéraux.

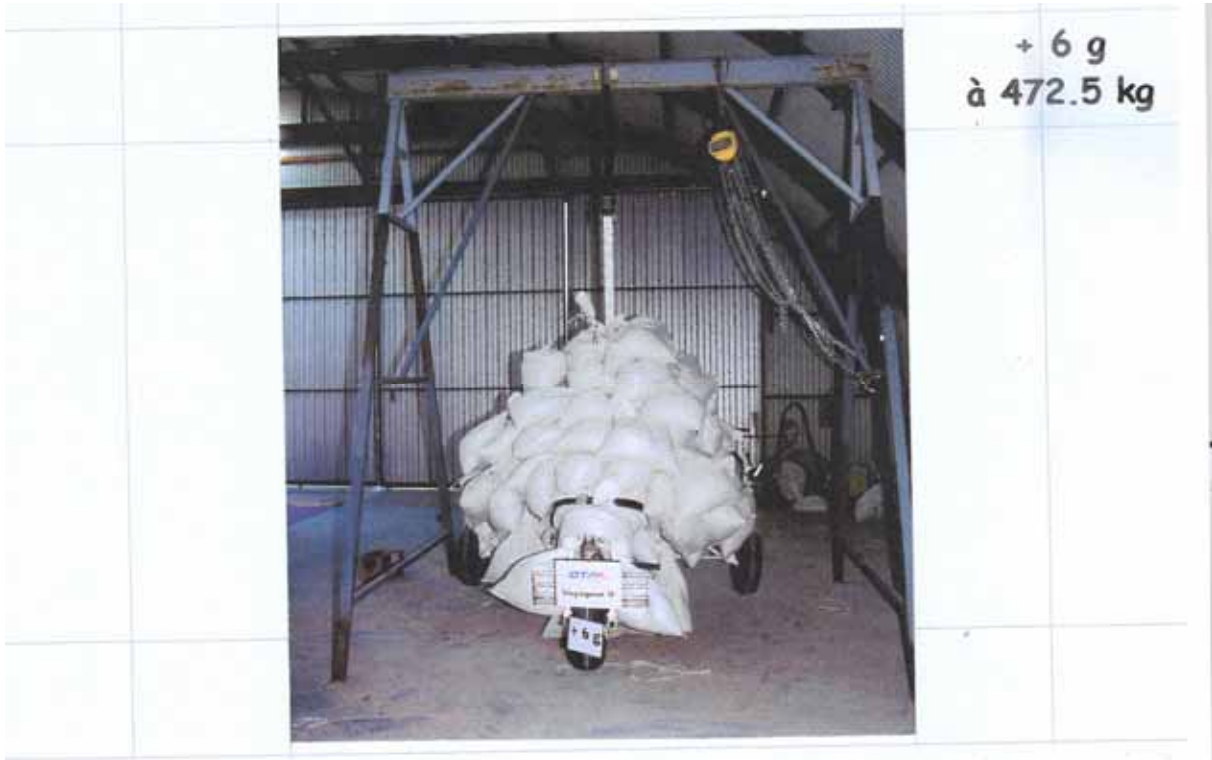


**BUREAU
VERITAS**

APPENDIX 8

tricycle

VOYAGEUR II





APPENDIX 9

**EVOLUTION/FEELING trike tests
Frontal shock test
9 G seatbelts & 15 G mount engine
Ultimate load factor**

Test :

The trike is held by a cable fixed on the airframe at the level of the connection of the rear suspension with the base beam. After loading, it must be tested for at least 3 seconds without any breakage.

Method :

The loading was carried out by the uses of pre-weighed sandbags, initially for each belt (front seatbelt then the rear) finally for the engine mount.

Load :

Seatbelts => SEE VOYAGEUR II

2-stroke engine mount, it must be equal to 15 times 50 kg: $15 \times 50 \text{ kg} = 750 \text{ kg}$ (736 daN).

4-stroke engine mount => SEE VOYAGEUR II

Load distribution :

A cable is fastened to the item to be tested (front or rear seatbelt, engine mount). The cable is passed through a pulley, which is fixed at the top of a tetrahedron, and then is attached to a hook, on which the sandbags are hung.

Load (in kg) sous:		9 G	15 G	Effective load
2-stroke engine mount	50,0		750,0	792
4-stroke engine mount	70,0		1050,0	-
Rear seatbelt	90,0	810,0		-
Front seatbelt	90,0	810,0		-

Reports of the tests carried out June 16th and 17th 2004 :

15 g =>No breakage. See Nomenclature EVOLUTION/FEELING - 15G front load test.

Note :

- the seatbelt mounts are the same for both the 2 & 4 stroke machines, they are identical on all models EVOLUTION, FEELING and VOYAGEUR II.
- the rear & front seatbelts were tested on the VOYAGEUR II trike
- the 2-stroke engine mount was tested on the EVOLUTION/FEELING trike
- the 4-stroke engine mount was tested on the VOYAGEUR II trike



APPENDIX 9

Nomenclature Tricycle EVOLUTION et FEELING - extrait

Tests des 16 et 17 Juin 2004
15 g frontal bâti moteur

Code	Désignation	Conforme	A changer	Observation
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Cellule

B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582	x		
CD008	CELLULE DYNAMIC 912			o
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
CD038	CALE PIED DIAM 30 L640	x		
CD044	CARENAGE AVANT			o
CD048	SAUTE VENT LEXAN AVEC VIS 1/4 TOURS			o
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0090	SAC AVANT			o
Q0104	JUPE AVEC SACOCHES INTEGREES			o
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		

Atterrisseur (train arrière et fourche)

AD001	BRAS DE SUSPENSION EVOLUTION L840	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 8'	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD006	CHC 10X52/17 BRAS SUSP/FUSEE	x		
AD007	CHC 10X35/15 JAMBE DE TRAIN/CELLULE 503	x		
AD010	FUSEE EVOLUTION DROITE	x		
AD011	FUSEE EVOLUTION GAUCHE	x		
AD012	TIRANT DE TRAIN EVOLUTION DROIT L1080	x		
AD013	TIRANT DE TRAIN EVOLUTION GAUCHE L1080	x		
AD014	CHC 10X52/27JAMBE DE TRAIN/CELLULE 582	x		
AD015	JAMBE DE TRAIN EVOLUTION L750	x		
AD019	FOURCHE NUE 8'	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETES FOURCHE	x		
AD039	AXE DE ROUE 8'	x		
AD040	BIELLETTTE DE FOURCHE	x		
AD041	ENTRETOISE GAUCHE ROUE AVANT 8'	x		
AD042	ENTRETOISE DROITE ROUE AVANT 8'	x		
AD043	ENTRETOISE BLOCAGE TAMBOUR FREIN AVANT 8'	x		
AD049	CARENAGE DE ROUE LIBRE FEELING D			o
AD050	CARENAGE DE ROUE FEELING G			o
AD051	CARENAGE DE ROUE LIBRE EVOLUTION D			o
AD053	CARENAGE DE ROUE LIBRE EVOLUTION G			o



APPENDIX 9

Nomenclature Tricycle EVOLUTION et FEELING - extrait / suite - 15 g front.

Code	Désignation	Conforme	A changer	Observation
AD078	ROUE A FREIN AVANT 8"	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AD081	ROUE LIBRE 400X8	x		
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140			o
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140			o
AV014	JAMBE DE TRAIN FEEL/VII L 830			o
AV017	BRAS DE SUSPENSION FEEL/VII L920			o
AV018	FUSEE FEEL/VII DROITE			o
AV019	FUSEE FEEL/VII GAUCHE			o
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		

Poutre verticale, accroche aile

DD003	CHC 10X55/15 INF CABLE SECURITE POUTRE	x		
DD004	CHC 10X85/35P CABLES SECURITE	x		
DD005	POUTRE VERTICALE EVOL/FELL	x		
DD007	CABLE INTERNE DE POUTRE VERT	x		
DD009	CABLE DE SECURITE AILE	x		
DD013	BAGUE EPAULEE ERTALON INF/MEDIAN	x		
DD014	BAGUE EPAULEE ERTALON SUP	x		
DD015	TUBE AVANT COMPLET SANS BOULONNERIE	x		
DD018	CHC8X53/13PTP TUBE AVANT	x		
DD020	CHC10X95/17 ROTATION POUTRE	x		
DD022	CHC10X110/15 ROTATION PLAQUES AILE	x		
DD023	CHC10X105/15PTP ACCROCHE AILE	x		
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE	x		
DD030	EMBASE LIAISON PLAQUES AILE	x		
E9066	CUBE ACCROCHAGE AILE			o

GMP

AD063	CHC12X85/23 BATI 4 TPS/FOURNALES			o
B0242	CHC12X100			o
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		
M3001	BATI MOTEUR 2 TPS	x		
MD013	CHC6X10A PLOT AR BATI 2 TPS	x		
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS		x	CF Observations
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS	x		
MD039	TUBE DIAM 25 SUPPORT JERRICAN 25 L	x		
MD040	SANGLE TEXTILE FIXATION JERRICANS 2X25 L	x		
MD220	BATI MOTEUR 4 TPS 912/912S			o
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS	x		
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS	x		
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S			o

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.
 Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

Observations:

MD015 : traces sur le traitement de surface du boulon, sans déformation.

Le même tricycle a subi l'ensemble des tests: chargements positifs puis les chocs verticaux, avant et latéraux



APPENDIX 10

**VOYAGEUR II trike tests
Frontal shock test
9 G seatbelts & 15 G mount engine
Ultimate load factor**

Test :

The trike is held by a cable fixed on the airframe at the level of the connection of the rear suspension with the base beam. After loading, it must be tested for at least 3 seconds without any breakage.

Method :

The loading was carried out by the uses of pre-weighed sandbags, initially for each belt (front seatbelt then the rear) finally for the engine mount.

Load :

For each seatbelt, it must be equal to 9 time the standard mass: $9 \times 90 \text{ kg} = 810 \text{ Kg}$ (794daN).

2-stroke engine mount => EVOLUTION/FEELING

4-stroke engine mount: $15 \times 70 \text{ kg} = 1050 \text{ kg}$ (1030 daN).

Load distribution :

A cable is fastened to the item to be tested (front or rear seatbelt, engine mount). The cable is passed through a pulley, which is fixed at the top of a tetrahedron, and then is attached to a hook, on which the sandbags are hung.

Load (in kg):		9 G	15 G	Effective load
2-stroke engine mount	50,0		750,0	-
4-stroke engine mount	70,0		1050,0	1056
Rear seatbelt	90,0	810,0		833
Front seatbelt	90,0	810,0		833

Reports of the tests carried out June 16th and 17th 2004 :

9 g => No meaningful elastic strain

15 g => no breakage. SEE Nomenclature VOYAGEUR II trike- 15g frontal load test.

Note :

- the seatbelt mounts are the same for both the 2 & 4 stroke machines, they are identical on all models EVOLUTION, FEELING and VOYAGEUR II.
- the rear & front seatbelts were tested on the VOYAGEUR II trike
- the 2-stroke engine mount was tested on the EVOLUTION/FEELING trike
- the 4-stroke engine mount was tested on the VOYAGEUR II trike



APPENDIX 10

Nomenclature Tricycle VOYAGEUR II - extrait

Tests des 16 et 17 Juin 2004
9 et 15 g frontal

Code	Désignation	Conforme	A changer	Observation
Cellule				
B0030	BHC 6X13 FIXATION SIEGE AV / SUPPORT CD026	x		
B0039	BHC 6X50 FIXATION SIEGE ARRIERE	x		
B0064	BHC 8X30 FIXATION SIEGE AVANT	x		
CD002	CELLULE DYNAMIC 503/582			o
CD008	CELLULE DYNAMIC 912	x		
CD024	ARTICULATION A FOURCHE M8 SIEGE AV	x		
CD026	SUPPORT SIEGE AVANT	x		
CD035	CEINTURE AR COMPLETE	x		
CD036	CEINTURE AV COMPLETE	x		
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582	x		CF Observations
CD038	CALE PIED DIAM 30 L640	x		
CD063	SIEGE AR EXT CARBONE	x		
CD064	SIEGE AV EXT CARBONE	x		
F0200	PALIER NYLON LISSE DIAM 20 SIEGE AR	x		
Q0080	PAIRE DE SACOCHES			o
SD046	PLOT BUTEE SIEGE ARRIERE	x		
SD048	PLOT ARTICULE BUTEE SIEGE AVANT	x		

Atterrisseur (train arrière et fourche)

A3045	DOIGT ARRET FREIN AVANT 6"	x		
AD003	ENTRETOISE INT FOURNALES 10X8/50	x		
AD004	CHC 8X63/15 FOURNALES/ROTATION FREIN 8"	x		
AD005	CHC 8X34/15 TIRANT / CELLULE	x		
AD014	CHC 10X52/27 JAMBE DE TRAIN/CELLULE 582	x		
AD022	ENTRETOISE EPAULEE SUP FOURNALES 12X8/26	x		
AD026	PEDALE DE GAZ NUE	x		
AD027	PEDALE DE FREIN NUE	x		
AD028	BAGUE EPAULEE DIAM 20 DE PEDALE	x		
AD029	AMORTISSEUR FOURNALES	x		
AD031	CHC 8X45/12 BIELLETTE/AMORTISSEUR FOURCHE	x		
AD032	CHC 8X40/15A AMORTISSEUR GAUCHE/FOURCHE	x		
AD034	CHC 8X40/15 AMORTISSEUR DROIT/FOURCHE	x		
AD038	ENTRETOISE BIELLETES FOURCHE	x		
AD040	BIELLETTTE DE FOURCHE DROITE	x		
AD079	AMORTISSEUR DE FOURCHE	x		
AV001	FOURCHE NUE 6"	x		
AV004	ENTRETOISE DROITE ROUE AV 6"	x		
AV005	ENTRETOISE GAUCHE ROUE AVANT 6"	x		
AV006	AXE DE ROUE 6"	x		
AV011	TIRANT DE TRAIN FEEL/VII DROIT L1140	x		
AV012	TIRANT DE TRAIN FEEL/VII GAUCHE L1140	x		
AV014	JAMBE DE TRAIN FEEL/VII L 830	x		
AV017	BRAS DE SUSPENSION FEEL/VII L920	x		
AV018	FUSEE FEEL/VII DROITE	x		
AV019	FUSEE FEEL/VII GAUCHE	x		
AV020	CHC 10X46/16 BRAS SUSP/FUSEE SANS CARENAGE	x		
AV025	ROUE ALU FREINEE 600X6	x		
AV030	BIELLETTTE DE FOURCHE GAUCHE EXT	x		
AV0301	BIELLETTTE DE FOURCHE GAUCHE INT	x		
B0130	CHC 6X40 TIRANT ET JAMBE / FUSEE	x		
F0501	TETE DE BIELLE A ROTULE M8 (TIRANT)	x		
F0502	TETE DE BIELLE A ROTULE M10 (JAMBE)	x		



APPENDIX 10

Nomenclature Tricycle VOYAGEUR II - extrait / suite - 9 et 15 g frontal

Code	Désignation	Conforme	A changer	Observation
Poutre verticale, accroche aile				
DD009	CABLE DE SECURITE AILE	x		
DD020	CHC10X95/17 ROTATION POUTRE	x		
DD022	CHC10X110/15 ROTATION PLAQUES AILE	x		
DD023	CHC10X105/15PTP ACCROCHE AILE	x		
DD024	H10X85/15AP VERROUILLAGE POUTRE	x		
DD025	PLAQUE AILE	x		
DD030	EMBASE LIAISON PLAQUES AILE	x		
DV001	POUTRE VERTICALE NUE PEINTE	x		
DV004	CHC10X122/32P CALE INCIDENCE/CABLES SECURITE	x		
DV013	BAGUE EPAULEE MEDIAN/INF POUTRE VII	x		
DV014	BAGUE EPAULEE SUP POUTRE VII	x		
E9066	CUBE ACCROCHAGE AILE	x		

GMP				
AD063	CHC12X85/23 BATI 4 TPS/FOURNALES	x		CF Observations
B0242	CHC12X100	x		CF Observations
CD037	CHC 8X73/15 CEINTURE AV OU BATI 503/582			o
M3001	BATI MOTEUR 2 TPS			o
MD013	CHC6X10A PLOT AR BATI 2 TPS			o
MD015	CHC6X78/10 TENUE SANGLE SECU BATI 2 TPS			o
MD016	SANGLE TEXTILE SECU BATI MOTEUR 2 TPS			o
MD236	TUBE DIAM 25 POUR TIRANTS 70L	x		
MD231	SANGLE LATERALE FIXATION 70 L	x		
MD232/3	SANGLES LONGITUDINALES FIXATION 70L	x		
MD220	BATI MOTEUR 4 TPS 912/912S	x		
SD017	PLOT ARRIERE BATI MOTEUR 2 TEMPS			o
SD018	PLOT INTERNE PLOT ARRIERE BATI MOTEUR 2 TEMPS			o
SD019	PLOT AVANT 45 SHORE BATI MOTEUR 2 TEMPS			o
SD060	PLOT SHORE 60 BATI MOTEUR 4 TPS 912/S	x		

Détails:

Dans le tableau, "o" signifie élément ne figurant pas dans la machine préparée pour le test.
 Détail de la boulonnerie et du montage: CF manuel pièces détachées CAPIDE-TR

Observations:

AD063, B0242 et CD037 : légères traces sur le traitement de surfaces des boulons, sans déformation.

Le même tricycle a subi l'ensemble des tests: chargements positifs puis les chocs verticaux, avant et latéraux

APPENDIX 10

tricycle


EVOLUTION/FEELING
VOYAGEUR II

15 g
bâti moteur
2 tps 50 kg


Tests réalisés sous le contrôle de Bureau Veritas
les 16 et 17 Juin 2004



APPENDIX 10

tricycle	EVOLUTION/FEELING VOYAGEUR II	15 g bâti moteur 4 tps 70 kg
Tests réalisés sous le contrôle de Bureau Veritas les 16 et 17 Juin 2004		
 A photograph showing a motorized tricycle (EVOLUTION/FEELING VOYAGEUR II) parked in a warehouse. The tricycle is white and has a large stack of white sacks on its back. The warehouse has a corrugated metal wall and a concrete floor.		

APPENDIX 10

tricycle	EVOLUTION/FEELING VOYAGEUR II	9 g ceintures
Tests réalisés sous le contrôle de Bureau Veritas les 16 et 17 Juin 2004		
 A photograph showing a white tricycle in a large, dark hangar. The tricycle is positioned on a platform. In the foreground, a large stack of white sandbags is visible, supported by a metal frame. Several people are standing around the tricycle, and a large aircraft is visible in the background. The hangar has a curved roof and is illuminated by overhead lights.		



APPENDIX 11

**EVOLUTION/FEELING trike tests
Lateral shock test at 1.5 g
Load limit test**

Test :

The trike is held by a cable fixed on the airframe at the level of the connection of the rear suspension with the base beam. After loading, the test must be carried out for at least two minutes without it being able to be noted, after disassembling, of significant deformation.

Method :

The loading was carried out by the uses of pre-weighed sandbags, initially for each belt (front seatbelt then the rear) finally for the engine mount.

Load:

Seatbelts => VOYAGEUR II
2-stroke engine mount : 1,5x50 kg = 75 kg (73.6 daN)
4-stroke engine mount => VOYAGEUR II

Load distribution :

A cable is fastened to the item to be tested (front or rear seatbelt, engine mount). The cable is passed through a pulley, which is fixed at the top of a tetrahedron, and then is attached to a hook, on which the sandbags are hung.

Load (in kg) :		1,5 G	Effective load
2-stroke engine mount	50,0	75,0	144,0
4-stroke engine mount	70,0	105,0	-
Front&rear seatbelt	90,0 x 2	270,0	-

Reports of the tests carried out June 16th and 17th 2004 :

No meaningful elastic strain

Note :

- the seatbelt mounts are the same for both the 2 & 4 stroke machines, they are identical on all models EVOLUTION, FEELING and VOYAGEUR II.
- the rear & front seatbelts were tested on the VOYAGEUR II trike
- the 2-stroke engine mount was tested on the EVOLUTION/FEELING trike
- the 4-stroke engine mount was tested on the VOYAGEUR II trike

APPENDIX 11

tricycle

EVOLUTION/FEELING
VOYAGEUR II

1,5 g
latéral



APPENDIX 11

tricycle

EVOLUTION/FEELING
VOYAGEUR II

1,5 g
latéral



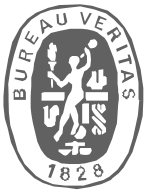
APPENDIX 11

tricycle

EVOLUTION/FEELING
VOYAGEUR II

1,5 g
latéral





APPENDIX 12

**VOYAGEUR II trike tests
Lateral shock test at 1.5 g
Load limit test**

Test :

The trike is held by a cable fixed on the airframe at the level of the connection of the rear suspension with the base beam. After loading, the test must be carried out for at least two minutes without it being able to be noted, after disassembling, of significant deformation.

Method :

The loading was carried out by the uses of pre-weighed sandbags, initially for each belt (front seatbelt then the rear) finally for the engine mount.

Load:

For each seatbelt : $(1.5 \times 90 \text{ kg}) \times 2 = 270 \text{ kg}$ (265 daN)

2-stroke engine mount => EVOLUTION/FEELING

4-stroke engine mount : $1,5 \times 70 \text{ kg} = 105 \text{ kg}$ (103 daN)

Load distribution :

A cable is fastened to the item to be tested (front or rear seatbelt, engine mount). The cable is passed through a pulley, which is fixed at the top of a tetrahedron, and then is attached to a hook, on which the sandbags are hung.

Load (in kg) :		1,5 G	Effective load
2-stroke engine mount	50,0	75,0	-
4-stroke engine mount	70,0	105,0	144
Front&rear seatbelts	90,0 x 2	270,0	288

Reports of the tests carried out June 16th and 17th 2004 :

No meaningful elastic strain

Note :

- the seatbelt mounts are the same for both the 2 & 4 stroke machines, they are identical on all models EVOLUTION, FEELING and VOYAGEUR II.
- the rear & front seatbelts were tested on the VOYAGEUR II trike
- the 2-stroke engine mount was tested on the EVOLUTION/FEELING trike
- the 4-stroke engine mount was tested on the VOYAGEUR II trike

APPENDIX 13

**EVOLUTION/FEELING & VOYAGEUR II trikes test
Front Fairing positive test at 6G
Ultimate load factor**

Test :

Le carénage est chargé de façon à contrôler ses fixations. Après chargement, il doit s'écouler au moins 3 secondes sans qu'il puisse être constaté de rupture.

Mode opératoire :

Le chargement est effectué à l'aide de sacs de sable préalablement étalonnés.

Chargement :

Il est égal à 6 fois la masse propre du carénage, soit 5 kg plus 3 kg représentant l'emport maxi autorisé dans le sac avant posé dans le carénage. (CF Manuel Utilisation des tricycles EVOLUTION-FEELING-VOYAGEUR II – MAUT-TR).
 $6 \times (5+3) = 48 \text{ Kg (47 daN)}$.

Répartition de la charge :

Chargement effectué 48 kg. CF cliché ci-dessous :



Constats des tests effectués les 16 et 17 Juin 2004:

Pas de rupture et aucune déformation élastique.

APPENDIX 14

**Test details for the VOYAGEUR II or COMBO Cantilever mast
Frontal shock test at 9 G
Ultimate load factor**

Test :

The Cantilever mast is fixed at its points of rotation (base) and lock (middle). It must be able to withstand the load for greater than 3 seconds without breakage.

Method :

The loading was carried out by the use of pre-weighed sandbags.

Loading :

The load is equal to 9 times the full weight of the wing : $9 \times 60 \text{ kg} = 540 \text{ Kg}$ (530 daN).

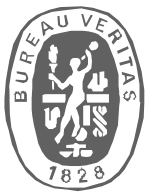
Load distribution :

A cable is fastened to the hang point of the mast (top). A cable is passed through a pulley, which is fixed at the top of a tetrahedron, and then is attached to a hook, on which the sandbags are hung. Effective load : 543 kg.



Reports of the tests carried out June 16th and 17th 2004 :

No breakage and any elastic deformation.




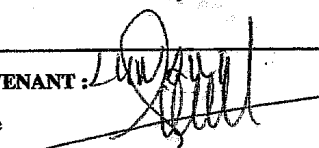
APPENDIX 15

Désignation	Codes	Montage standard	Montage optionnel possible	Tests effectués sur tricycle
Cellule 2 temps (avec potence arrière)	CD002	Evolution-Feeling-Voyageur II		Evolution/Feeling
Cellule 4 temps (arrière tronqué)	CD008	Evolution-Feeling-Voyageur II		Voyageur II
Bati moteur 2 temps	CD037-MD013-MD015-MD016-M3001-SD017-SD018-SD019	Evolution-Feeling-Voyageur II		Evolution/Feeling
Bati moteur 4 temps	AD063-B0242-MD220-SD060	Evolution-Feeling-Voyageur II		Voyageur II
Fixation réservoirs 2x25 litres	MD039-MD040	Evolution		Evolution/Feeling
Fixation réservoir 70 litres	MD231-MD232-MD233-MD236	Feeling-Voyageur II	Evolution	Voyageur II
Train arrière "court"	AD001-AD010-AD011-AD012-AD013-AD015	Evolution		Evolution/Feeling
Train arrière "long"	AV011-AV012-AV014-AV017-AV018-AV019	Feeling-Voyageur II	Evolution	Voyageur II
Roue libre 400x8	AD081	Evolution-Feeling		Evolution/Feeling
Roue freinée 600x6	AV025	Voyageur II	Evolution-Feeling	Voyageur II
Fourche 8"	AD019-AD039-AD041-AD042-AD043-AD078	Evolution-Feeling		Evolution/Feeling
Fourche 6"	AV001-AV004-AV005-AV006-AV025-AV030-AV031-A3045	Voyageur II	Evolution-Feeling	Voyageur II
Poutre verticale avec barre avant	DD003-DD004-DD005-DD007-DD013-DD014-DD015-DD018	Evolution-Feeling		Evolution/Feeling
Poutre verticale cantilever sans barre avant	DV001-DV004-DV005-DV006-DV007-DV008-DV009-DV013-DV014	Voyageur II	Evolution-Feeling	Voyageur II



APPENDIX 16

Suivant la norme NF - EN - 45.501 - 1992 / AC 1993 N° 00900

Société : ARA.		Adresse : Montduna 26200		Code Postal :		Date : 2/12/03																									
Service :		Certificat d'étalonnage N°		Périodicité :																											
N° Interne : 3		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>W1</th> <th>W2</th> <th>W3</th> </tr> </thead> <tbody> <tr> <td>Max. :</td> <td>500 kg</td> <td></td> <td></td> </tr> <tr> <td>Min. :</td> <td></td> <td></td> <td></td> </tr> <tr> <td>e :</td> <td>100g</td> <td></td> <td></td> </tr> <tr> <td>d :</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Classe :</td> <td>III</td> <td></td> <td></td> </tr> </tbody> </table>			W1	W2	W3	Max. :	500 kg			Min. :				e :	100g			d :				Classe :	III			1 mois <input type="checkbox"/> 3 mois <input type="checkbox"/>		6 mois <input type="checkbox"/> 1 an <input type="checkbox"/>	
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Essais de Tare : (10°)		<input checked="" type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/>		Calculateur <input type="checkbox"/> <input type="checkbox"/>																									
Essais de Mobilité : (Max/2)		<input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/>		Répétiteur <input type="checkbox"/> <input type="checkbox"/>																									
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				Avant Ajustage Après Ajustage				Avant Ajustage Après Ajustage																							
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2		40		40		0		40		0		± 20																			
3		60		60		0		60		0		± 30																			
4		80		80		0		80		0		± 30																			
5		100		100		0		80		0		± 30																			
												Conforme :																			
												oui <input checked="" type="checkbox"/> non <input type="checkbox"/>																			
												(qu'il chaque montée et chaque descente le poids pointé est mis en dernier et enlevé en dernier)																			
SANCTION :								Conforme <input checked="" type="checkbox"/>		Non Conforme <input type="checkbox"/>																					
OBSERVATIONS :																															
		INTERVENANT : 		CLIENT : COLDAB		ATELIERS REPARATIONS		METRIQUES		Aérodrome - 26200 MONTÉLIMAR																					
N° 87431		Signature		Signature																											