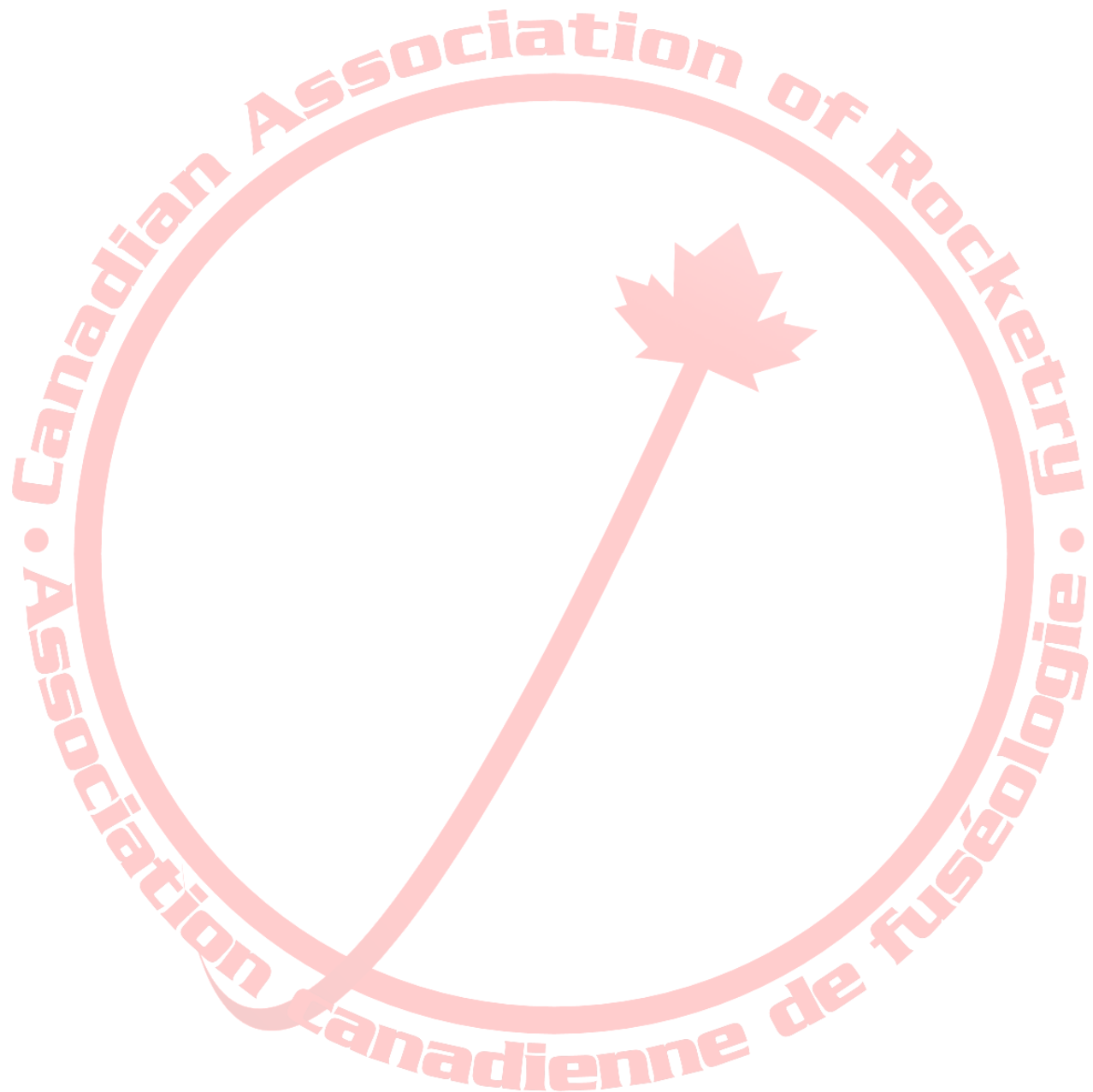


Canadian Association of Rocketry

Rocket Motor Certification



January 7th, 2010 Session

Submitted to the CAR Executive January 19th, 2010

Introduction

A motor testing session was held at the Cesaroni Technology Incorporated facility in Gormley, Ontario on January 7th, 2010. Winter testing of rocket motors in Canada is a challenge – special thanks to Angelo Castellano for attending the session and the folks at CTI for their demonstrated enthusiasm!

A total of fourteen (14) motors were fired to test and certify five (5) new reloads and a new propellant: **Green³**. Also new in this session is the introduction of model-impulse **Longburn** motors to the CTI line-up.

The 159-G54-RL-12A is a **Red Lightning Longburn** for the Pro29-3G case with a tested impulse of 159.1 N-s, 99% G and 3 second burn time. A Pro29-1G spacer was tested and is now a certified component in the Pro29 Motor System.

The 298-H159-GR-15A and 1990-K490-GR-16A are the first **Green³** reloads, for the Pro29-3G and Pro54-5G cases respectively.

The 6800-M3700-WT-P (**White Thunder**) reload is actually a Pro75-5.3G. The reload was tested and certified with a 0.7G spacer to fit the standard Pro75-6G case, as well as in the Pro75-5.3G hardware. The published mass of loaded and fired motors applies to the Pro75-6G hardware plus spacer (most likely to be used in the field). The weight difference is 420 grams.

The final motor certified this session was the Pro75-6G 6287-M2075-SS-P (**Smoky Sam**). With a burn time of 3.03 seconds, this motor makes a lot of smoke!

While these motors were certified in Canada, a reciprocal agreement between the Canadian Association of Rocketry, the Tripoli Rocketry Association and the National Association of Rocketry means they may be flown in many jurisdictions.

I am very pleased to announce the certification of these five (5) new reloads from Cesaroni Technology, Inc. Individual certification letters follow for each motor. These letters and the accompanying thrust curves will be available on the official CAR website soon.

Respectfully submitted,

Thomas Raithby
Chair of CAR Motor Certification

www.CanadianRocketry.org

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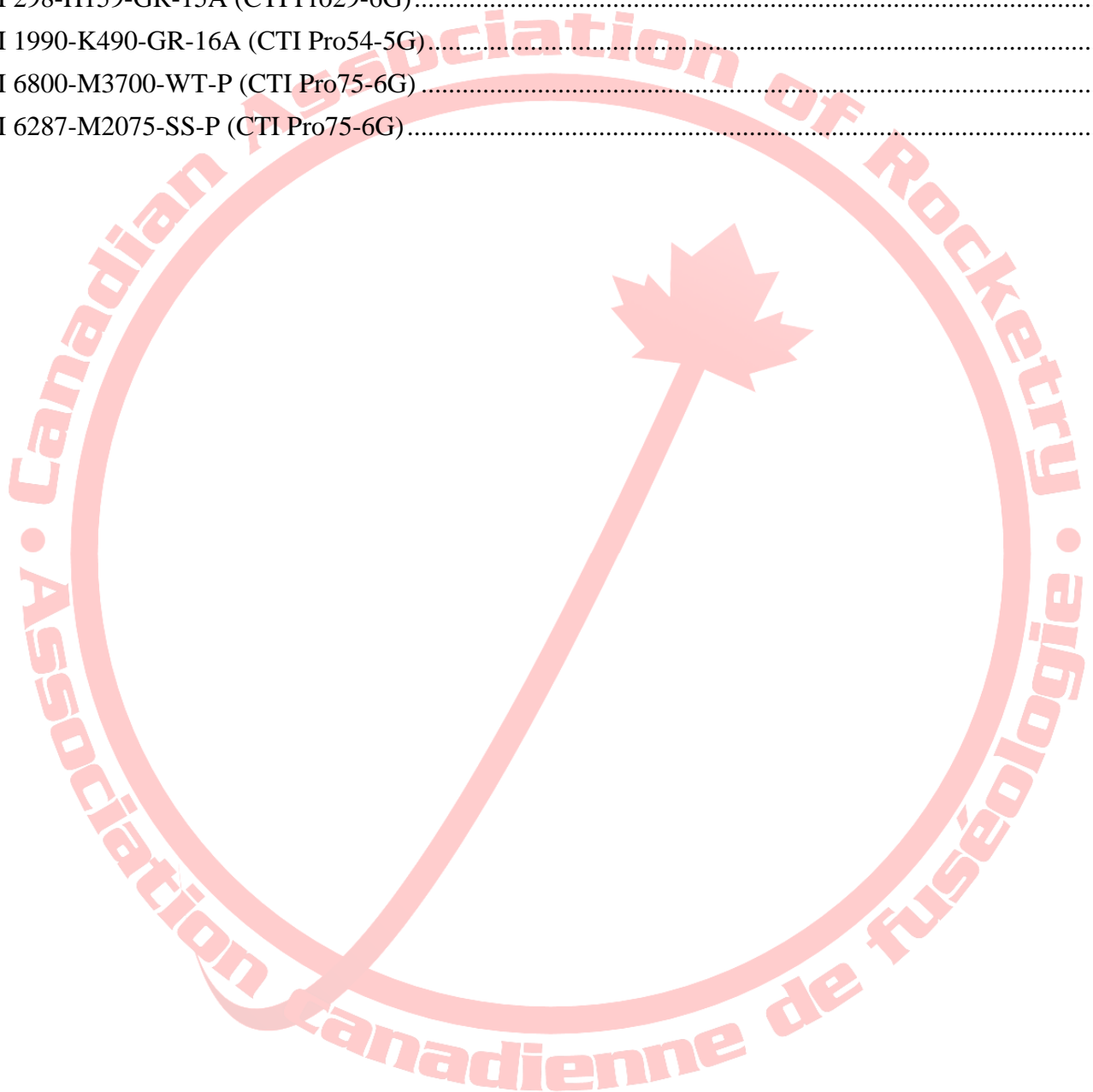
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Certified Motors

CTI 159-G54-RL-12A (CTI Pro29-3G)

Canadian Association of Rocketry
 CAR Motor Certification
 c/o 1518-3rd Ave. S.
 Lethbridge, AB
 T1J 0K8

January 19th, 2010

Cesaroni Technology Incorporated
 2561 Stouffville Road
 Gormley, Ontario
 L0H 1G0

Dear Dr. Jeroen Louwers,

The **CTI 159-G54-RL-12A** rocket motor was tested January 7th, 2010 and is in compliance with the certification requirements and standards of the Canadian Association of Rocketry (CAR-ACF). The motor is hereby certified for hobby rocketry use by the members of CAR-ACF and any other rocketry associations with current reciprocal motor certification agreements in place with CAR-ACF.

CAR Designation	CTI 159-G54-RL-12A	Test Date	January 7 th , 2010
Manufacturer Designation	CTI 159-G54-12A	Manufacturer	Cesaroni Technology Inc.
Propellant	Red Lightning (Moonburner)	Hardware	Pro29-3G
Single-Use/Reload/Hybrid	Reloadable	Motor Dimensions	29mm x 187mm
Loaded Weight	198.2 g	Total Impulse	159.1 Ns (35.8 lb-s)
Burnout Weight	101.4 g	Maximum Thrust	119.2 N (26.8 lb)
Propellant Weight	86.5 g	Average Thrust	53.6 N (12.1 lb)
Delays Tested	12-3 seconds, adjustable	Specific Impulse (Isp)	187.53 s
Samples per second	1000	Burn time	2.97 s
Notes	98.8% G – Considered HP under NFPA due to propellant weight > 62.5g		

Respectfully submitted,

Thomas Raithby
 Chairman, CAR Motor Certification

01071004.gra

CTI 298-H159-GR-15A (CTI Pro29-6G)

Canadian Association of Rocketry
 CAR Motor Certification
 c/o 1518-3rd Ave. S.
 Lethbridge, AB
 T1J 0K8

January 19th, 2010

Cesaroni Technology Incorporated
 2561 Stouffville Road
 Gormley, Ontario
 L0H 1G0

Dear Dr. Jeroen Louwers,

The **CTI 298-H159-GR-15A** rocket motor was tested January 7th, 2010 and is in compliance with the certification requirements and standards of the Canadian Association of Rocketry (CAR-ACF). The motor is hereby certified for hobby rocketry use by the members of CAR-ACF and any other rocketry associations with current reciprocal motor certification agreements in place with CAR-ACF.

CAR Designation	CTI 298-H159-GR-15A	Test Date	January 7 th , 2010
Manufacturer Designation	CTI 298-H159-GR-15A	Manufacturer	Cesaroni Technology Inc.
Propellant	<i>Green</i>	Hardware	Pro29-6G
Single-Use/Reload/Hybrid	Reloadable	Motor Dimensions	29mm x 320mm
Loaded Weight	342.8 g	Total Impulse	298.2 Ns (67.0 lb-s)
Burnout Weight	155.4 g	Maximum Thrust	199.7 N (44.9 lb)
Propellant Weight	176.6 g	Average Thrust	158.9 N (35.73 lb)
Delays Tested	15–6 seconds, adjustable	Specific Impulse (Isp)	172.18 s
Samples per second	1000	Burn time	1.88 S
Notes	86.4% H		

Respectfully submitted,

Thomas Raithby
 Chairman, CAR Motor Certification

01071002.gra

CTI 1990-K490-GR-16A (CTI Pro54-5G)

Canadian Association of Rocketry
 CAR Motor Certification
 c/o 1518-3rd Ave. S.
 Lethbridge, AB
 T1J 0K8

January 19th, 2010

Cesaroni Technology Incorporated
 2561 Stouffville Road
 Gormley, Ontario
 L0H 1G0

Dear Dr. Jeroen Louwers,

The **CTI 1990-K490-GR-16A** rocket motor was tested January 7th, 2010 and is in compliance with the certification requirements and standards of the Canadian Association of Rocketry (CAR-ACF). The motor is hereby certified for hobby rocketry use by the members of CAR and any other rocketry associations with current reciprocal motor certification agreements in place with CAR.

CAR Designation	CTI 1990-K490-GR-16A	Test Date	January 7 th , 2010
Manufacturer Designation	CTI 1990-K490-16A	Manufacturer	Cesaroni Technology Inc.
Propellant	<i>Green</i>	Hardware	Pro54-5G
Single-Use/Reload/Hybrid	Reloadable	Motor Dimensions	54mm x 488mm
Loaded Weight	1854.1 g	Total Impulse	1978.4 Ns (444.8 lb-s)
Burnout Weight	652.9 g	Maximum Thrust	590.9 N (132.8 lb)
Propellant Weight	1155.4 g	Average Thrust	485.5 N (109.2 lb)
Delays Tested	16-6 seconds, adjustable	Specific Impulse (Isp)	174.16 s
Samples per second	1000	Burn time	4.08 s
Notes	55.3% K		

Respectfully submitted,

Thomas Raithby
 Chairman, CAR Motor Certification

01071009.gra

CTI 6800-M3700-WT-P (CTI Pro75-6G)

Canadian Association of Rocketry
 CAR Motor Certification
 c/o 1518-3rd Ave. S.
 Lethbridge, AB
 T1J 0K8

January 19th, 2010

Cesaroni Technology Incorporated
 2561 Stouffville Road
 Gormley, Ontario
 L0H 1G0

Dear Dr. Jeroen Louwers,

The **CTI 6800-M3700-WT-P** rocket motor was tested January 7th, 2010 and is in compliance with the certification requirements and standards of the Canadian Association of Rocketry (CAR-ACF). The motor is hereby certified for hobby rocketry use by the members of CAR and any other rocketry associations with current reciprocal motor certification agreements in place with CAR.

This reload requires a 0.7G spacer to fit the Pro75-6G case. A special 5.3G case was also certified to fit this reload without a spacer.

CAR Designation	CTI 6800-M3700-WT-P	Test Date	January 7 th , 2010
Manufacturer Designation	CTI 6800-M3700-P	Manufacturer	Cesaroni Technology Inc.
Propellant	<i>White Thunder</i>	Hardware	Pro75-6G
Single-Use/Reload/Hybrid	Reloadable	Motor Dimensions	75x803mm
Loaded Weight	5778.5 g	Total Impulse	6800.3 Ns (1528.8 lb-s)
Burnout Weight	2672.0 g	Maximum Thrust	4158.1 N (934.8 lb)
Propellant Weight	3019 g	Average Thrust	3710.0 N (834.0 lb)
Delays Tested	plugged	Specific Impulse (Isp)	233.73 s
Samples per second	1000	Burn time	1.83 s
Notes	32.8% M: Listed weights include 0.7G spacer, to fit 6G case		

Respectfully submitted,

Thomas Raithby
 Chairman, CAR Motor Certification

01071011.gra

CTI 6287-M2075-SS-P (CTI Pro75-6G)

Canadian Association of Rocketry
 CAR Motor Certification
 c/o 1518-3rd Ave. S.
 Lethbridge, AB
 T1J 0K8

January 19h, 2010

Cesaroni Technology Incorporated
 2561 Stouffville Road
 Gormley, Ontario
 L0H 1G0

Dear Dr. Jeroen Louwers,

The **CTI 6287-M2075-SS-P** rocket motor was tested January 7th, 2010 and is in compliance with the certification requirements and standards of the Canadian Association of Rocketry (CAR-ACF). The motor is hereby certified for hobby rocketry use by the members of CAR and any other rocketry associations with current reciprocal motor certification agreements in place with CAR.

CAR Designation	CTI 6287-M2075-SS-P	Test Date	January 7 th , 2010
Manufacturer Designation	CTI 6287-M2075 -P	Manufacturer	Cesaroni Technology Inc.
Propellant	<i>Smoky Sam</i>	Hardware	CTI Pro75-6G
Single-Use/Reload/Hybrid	Reloadable	Motor Dimensions	75mm x 893mm
Loaded Weight	7191.3 g	Total Impulse	6286.6 Ns (1413.3 lb-s)
Burnout Weight	2598.2 g	Maximum Thrust	3452.5 N (776.2 lb)
Propellant Weight	3982 g	Average Thrust	2074.8 N (466.4 lb)
Delays Tested	plugged	Specific Impulse (Isp)	160.99 s
Samples per second	1000	Burn time	3.03 s
Notes	22.8% M		

Respectfully submitted,

Thomas Raithby
 Chairman, CAR Motor Certification

01071013.gra

