APV SAFETY PRODUCTS PTY LTD
1521 HUME HIGHWAY, CAMPBELLFIELD, VICTORIA 3061

TELEPHONE: (03) 9355 5585
FACSIMILE: (03) 9359 5565

26th April 2016

TO WHOM IT MAY CONCERN

Dear Sirs,

APV Safety Products have been working with the Owners and Directors of Eggshell Restraint Systems (ERS) since 2011.

During this time APV have assisted ERS to refine the development of a Security Buckle for a Seatbelt with the intention of improving safety of the occupant and for other people travelling in the same vehicle.

Over time the collaboration between the companies has resulted in the current version of the Security Restraint Buckle which has been Approved and Installed in vehicles in NZ. Please find attached documents outlining the Install Process and Approvals required.

The NZ approval came from the NZTA (New Zealand Transport Authority) and will be monitored via the LVVTA (Low Volume Vehicle Technical Association) which is an operational arm of NZTA. LVVTA is responsible for approvals and registration of all modified vehicles.

NZ has special regulations for the 'one off' type modifications required for certain passengers and occupants due to injury, disability and / or special needs. As these modifications are unrealistic to be placed into Law they are administered by LVVTA. They will ensure that only an APV Seatbelt and Buckle kit are used with each installation as a matched 'set'

OVERVIEW:

- The Eggshell Restraints Security Buckle (Stay Put) is used as part of an APV Safety Products approved General Purpose Seatbelt Kit.
- The Stay Put Buckles are identified by way of a Yellow Buckle Cover.
- The APV Seatbelt Kit has AS2596 Certification status and the inclusion of the Stay Put unit into the buckle does not change that status.
- To verify the Stay Put System, APV undertook a series of Dynamic Sled Tests to confirm the security buckle would release in the case of an accident. This was to verify the Inertia Switch would release the buckles as intended.
- A copy of that Test report is attached.

SUMMARY:

As Australia's largest seatbelt manufacturer, in association with our NATA Approved Testing facility, we receive a number of approaches from people who believe they have a "Unique safety Invention for motor vehicles".

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The Eggshell Restraints 'Stay Put' System has proven to be the most reliable and best performing system of its type we have seen.

The System can be used to secure occupants in a seat thus protecting other passengers and the driver of the vehicle. In some cases there have been reports of drivers being attacked from behind by intellectually handicapped people who do not understand what they are doing. The Stay Put System protects all occupants in a non-intrusive way.

Outside of NZ, APV has interested parties in USA and Europe for this product with many administrators recognising the need to protect a small but sensitive group of people. Inside a vehicle occupants using the Stay Put unit look like every other occupant and they are not singled out as being different. This is very important as it creates and atmosphere for the users of 'being normal', rather than someone having to wear a special Harness and being 'different', or be carried in a special vehicle.

APV is supportive of the Stay Put product and believe it will make a positive contribution to road safety and the protection of vehicle occupants.

If you require any further details please contact me directly.

Yours,

Chris Sweetman
General Manager
APV Safety Products P/L

Ph: 03 9355 5585
Mob: 0448 438 087

Attached:
Test report for the operation of the Inertia Switch in a Crash Simulation Test
LVVTA Report concerning the use of Stay Put in NZ

APV Engineering & Testing Services
1521 Hume Highway
Campbellfield, Victoria, 3061
A.B.N. 26 148 189 468

Telephone: 613 9355 5533
Facsimile: 613 9357 4362

DoTRS TFI#: 2741

WORLD RECOGNISED ACCREDITATION

NATA Accreditation No. 593
Accredited for compliance with ISO/IEC 17025

TEST REPORT

Test Facility: Component Laboratory

Test Title / Description: Dynamic Sled Testing to AS/NZS 2596:2003 test methods for Eggshell Security Buckle

Test Report: 0324

Test Date: 18/02/2014

Customer: Chris Sweetman

APV Safety Products
1509-1511 Hume Highway
Campbellfield, 3061
Victoria, Australia

Submitted by:

19/02/2014

Taha Shaikh
Test Engineer
e-mail: taha.shaikh@apvcorporation.com

Authorised by:

19/02/2014

José de Freitas
APV-T Authorised Signatory
e-mail: jose.defreitas@apvcorporation.com

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TEST REPORT

Test Centre Work Order No: 00695	**Report/Test No: 0324**	**Issue No: 1**
Sample Part No: See Below	**Number of Samples: 1**	**Issue Date: 19/02/2014**
Type of Test: Dynamic Impact Test		

1.0 Aim:

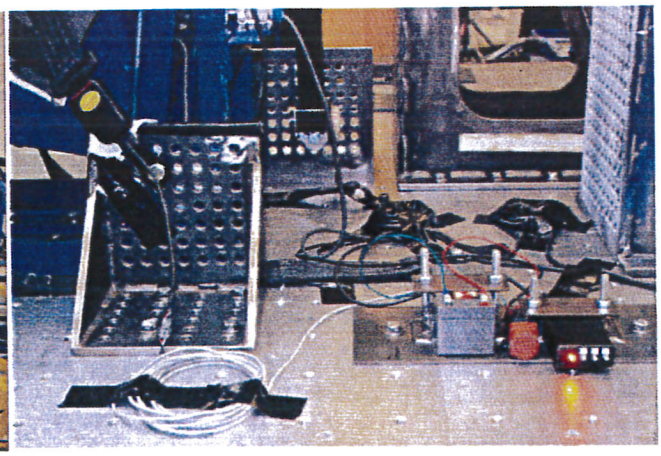
To perform a dynamic impact test according to AS/NZS 2596:2003 to verify the electronic system of the Eggshell Security Buckle

2.0 Samples:

- 1 x 90/90 ELR (p/n: 511708301C)
- 1 x Eggshell Security Buckle

3.0 Test Method:

- Frontal Impact Test (without pre-conditioning) as per AS/NZS 2596:2003 seatbelt assemblies
- Pre dynamic test the security buckle was activated, meaning the seatbelt tongue was not able to be released from the buckle



4.0 Sled Calibration:

NC1-0720 (49.8 km/h, 31.1g)
Refer to Sheet No. 5 calibration graph

5.0 Test Equipment:

- Dynamic Sled: SBL0016
- TNO 10 Dummy: 6/024

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TEST REPORT

6.0 Test Results:

Shot No.	Chest Displacement	Pelvic Displacement	Observations
D1-0734	272 mm	115 mm	- Dummy was retained during impact - No separation or fragmentation of any component - Post dynamic test the inertia switch deactivated and the seatbelt tongue was able to be released from the buckle

For further results refer to the high speed videos and Sheet No. 4 for test graph

The test results detailed in this test report apply to the test samples identified. The performance of similar products is not implied.

7.0 Sample Disposal:

Samples will be stored in the laboratory for 6 months or returned to originator upon request

8.0 Data Supplied To The Customer:

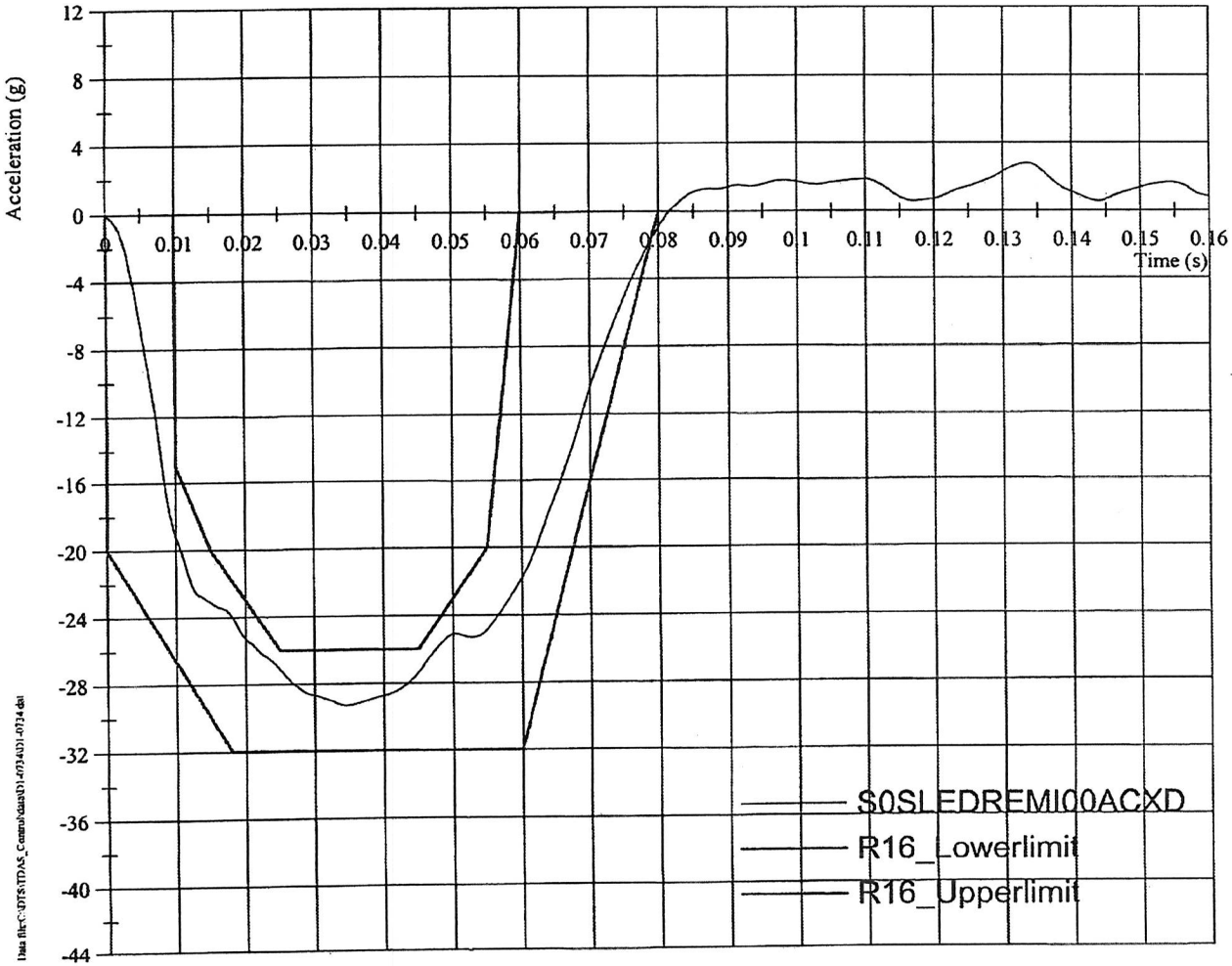
- One soft copy of the test report
- One copy of the high speed videos

Tested By:	Title:	Date Tested:
Taha Shaikh	Test Engineer	18/02/2014

Reported By:	Title:	Report Date:
Taha Shaikh	Test Engineer	19/02/2014

APV-T TECH CENTRE	SEAT BELT TEST	OPERATOR: TS
	TEST NO: D1-0734	DATE: 18/02/2014

SLED PULSE FILTERED AT CFC60



ADR4 24g RISE1:	0.0182s
ADR4 24g DROP1:	0.0566s
ADR4 24g DUR1:	0.0384s
ADR4 24g RISE2:	0.0000s
ADR4 24g DROP2:	0.0000s
ADR4 24g DUR2:	0.0000s
ADR4 PULSE CONF:	Yes

TEST REF NO:	TCWO 00695
CERT/P.V:	Other
PART NO OB:	511708301C
PART NO IB:	N/A
CAL REF RIG:	NC1-0720
CAL REF DUMMY:	6/024
TUBE NO:	A21 - A27
OLIVE SIZE:	47.5 x 3, 47.0 x 4
OLIVE PENE	430 mm
SEPARATION:	No
BUCKLE REL:	N/A
CHEST POT DISPL:	0.272
HIP POT DISPL:	0.115
PEAK ACC:	-29.3g at 0.035s
IMPACT VEL:	49.4km/h
CONFORMANCE:	Yes / No / (N/A)*

*Note: N/A denotes development only

CUSTOMER: APV-S

COMMENT: Security Buckle (3 Point Lap Sash as per AS/NZS 2596)

APPROVED: _____

DATE: 18/2/2014

Report No. 0324 Sheet No. 4 of 5

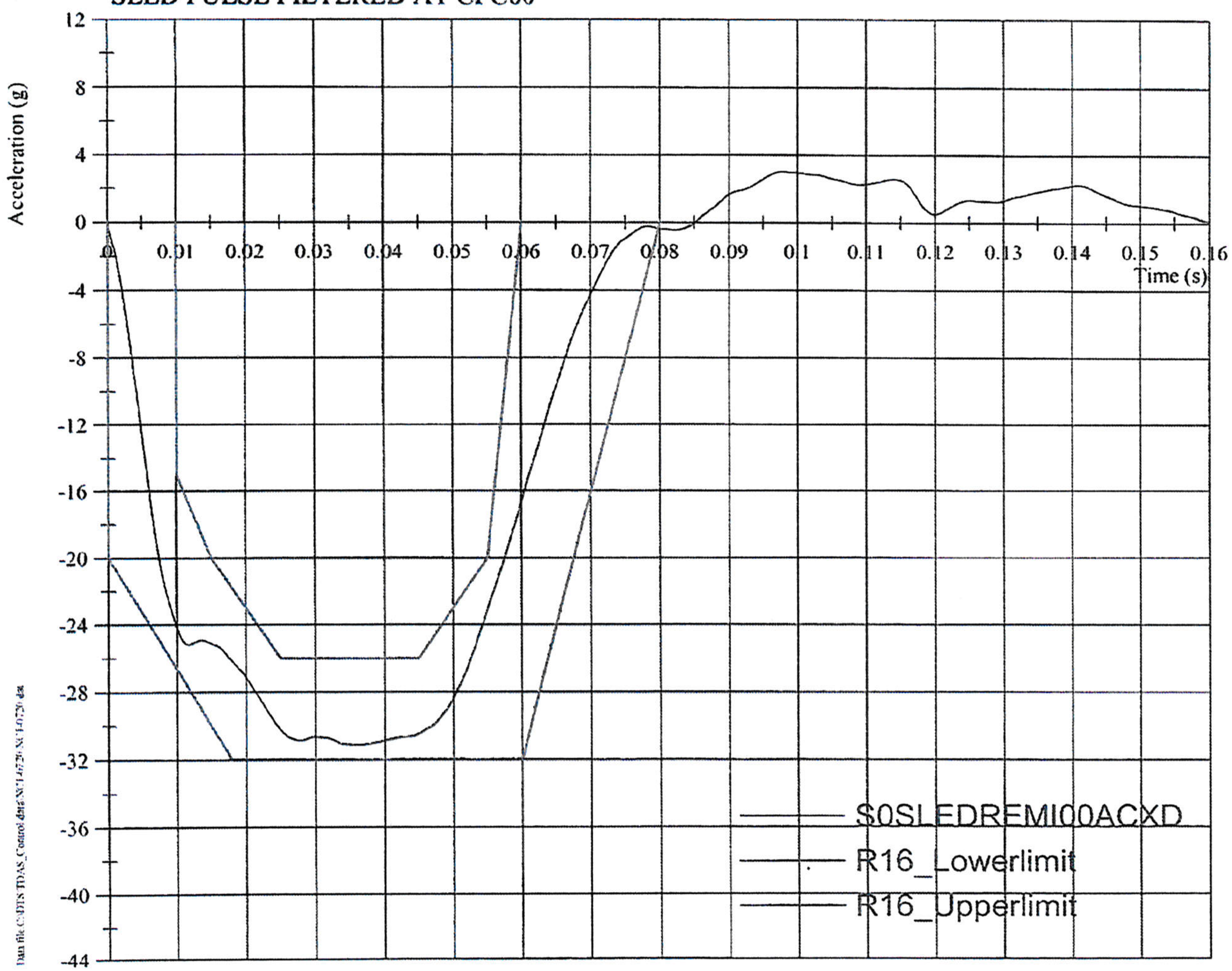
RIG CALIBRATION

TEST NO: NC1-0720

OPERATOR: TS

DATE: 10/02/2014

SLED PULSE FILTERED AT CFC60



ADR4 24g RISE1:	0.0099s
ADR4 24g DROP1:	0.0543s
ADR4 24g DUR1:	0.0444s
ADR4 24g RISE2:	0.0000s
ADR4 24g DROP2:	0.0000s
ADR4 24g DUR2:	0.0000s
ADR4 PULSE CONF:	Yes

ACCELEROMETER NO:	C16930
TUBE NO:	A29 - A35
OLIVE SIZE:	47.5 x 3, 47.0 x 4
OLIVE PENE	410 mm
PEAK ACC:	-31.1g at 0.036s
IMPACT VEL:	49.8km/h

COMMENT: Rig Cal to ECE R16, ADR 4/05, AS/NZS 2596

APPROVED: [signature]

DATE: 12/02/2014

Design Report

May 2015

LOW VOLUME VEHICLE TECHNICAL ASSOCIATION Inc

APV Stay Put Security Buckle

APV have developed a retro-fit seatbelt buckle that has an electronically controlled release mechanism. The intended use is in or near seating positions used for intellectually handicapped occupants, to prevent them from undoing the seatbelt at an inappropriate time.

APV met with LVVTA and NZTA on the 2nd July 2014 to discuss the implementation of this new design, along with some other seatbelt related topics. The following are notes from the meeting:

Meeting Attendees:

Warren Girven - APV

Dan Myers – LVVTA

Davey Uprichard - NZTA

Bill Hyslop - NZTA

Steve Bullot - NZTA

Tanja Luckow - NZTA

Stuart Worden – NZTA

Tom Logan – NZTA

Warren demonstrated the electronic buckle lock system and the following points were discussed and agreed:

- The Seatbelt Rule has provision for specialist seatbelts and these must be LVV certified. It was agreed that the system was able to be legally fitted to vehicles in New Zealand, within limits.
- It was acknowledged that there needs to be some control of the use of the system – the main aim is for the intellectually handicapped sector. An LVV certification must only be issued to users who have a policy on occupant restraint. IHC have an agreed policy which may need to be adapted to cater for this product.
- Other users, such as children with ADHD, could have a similar system that does not lock but has indicator lights on the vehicle dashboard to show when a seatbelt is disengaged.
- The crash 'g'sensor is commonly used to cut power supply to the fuel pump in the event of an impact and it triggers at 8g to 12g. The buckle lock system gets a signal from the crash sensor that allows the seatbelt buckles to be released. The seatbelt release function operates in the event of a loss of power supply and would also need to operate in a rollover situation.
- Usually just the buckle is replaced, but sometimes it is necessary to replace the whole seatbelt, depending on the tongue pattern – each one will be checked to ensure compatibility.

PO Box 50 600, Porirua, Wellington New Zealand

Phone (04) 238 4343 Fax (04) 238 4383 E-mail info@lvvta.org.nz Website www.lvvta.org.nz

- There should be a requirement that when the vehicle is sold or no longer used for the specialist restraint of a person that the seatbelt will be returned to original standard configuration and the LVV certification cancelled.

NZTA and LVVTA agreed that during LVV certification the above points will be considered.

Dan Myers B.Eng M.Sc.
Technical Team (Engineering)

14th May 2015

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