

May 21, 2010

▪ **TEST REPORT** ▪

PN 90515 B

RESEARCH & DEVELOPMENT

Wiper Blade Testing

Prepared For:

Mr. Billy Westbrook
Scrublade L.L.C.
40362 Logan Court
Temecula CA 92591

Prepared By: *Jason Hunsicker*
Jason Hunsicker
Project Technician

Approved By: *Tim Samples*
Tim Samples
Project Manager

ISO 9001:2000
Registered

ISO 9001:2000 Registered
Member of ACIL: The American Council of Independent Laboratories

MEMBER
ACIL

Letters and reports are for the exclusive use of the clients to whom they are addressed and shall not be reproduced, except in full, without the written permission of Akron Rubber Development Laboratory, Inc. (ARDL). The information contained herein applies to the specific material, products or processes tested or evaluated. No warranty of any kind is herein construed or implied. The liability of ARDL, Inc. shall be limited to the amount of consideration paid for services.

www.ardl.com

2887 Gilchrist Rd. | Akron, Ohio 44305 | answers@ardl.com
Toll Free (800) 830-ARDL | Worldwide (330) 794-6600 | Fax (330) 794-6610

Testing. Development. Problem Solving.

May 21, 2010

Mr. Billy Westbrook
Scrublade L.L.C.

Page 2 of 3
PN 90515

SUBJECT: Physical testing on material submitted by the above company.

RECEIVED: Scrublade 20" Wiper Blade.

INITIAL WIPE QUALITY

TEST CONDITIONS: All of the wiper blades were tested on a specially constructed wiper test buck built from a 1988 Grand Prix. The new glass windshield has been painted black on the inside to help enhance the viewing of any surface defects caused by a poor performing wiper blade.

REQUIREMENTS:

- 10 = No visible water remaining on the wipe patten. No streaking. No chatter lines visible.
- 9 = One or two minor streaks (each less than 3 mm wide), non remaining visible 3 sec. after the blade passes. No chatter lines visible.
- 8 = Three or more minor streaks (each less than 3 mm wide), throughout pattern, non remaining visible 3 sec. after the blade passes and/ or smear that evaporates in less than 1 sec. No chatter line visible.
- 7 = Smearing of the wipe pattern that remains more than 1 sec., but less than 3 sec. and/ or one minor (less than 3 mm) streak remaining for more than 3 sec. No visible chatter.
- 6 = Minor radial lines (each less than 6 mm wide) as evidence of chatter or a single streak (from 3 mm to 6 mm wide) remaining more than 3 sec.
- 5 = A single band (less than or equal to 25 mm wide) or streaks (each from 3 mm to 6 mm wide) remaining more than 3 sec.
- 4 = A wide band of streaks or smearing (greater than 25 mm) that remains more than 3 sec. after blade passes and/ or major radial chatter lines (each more than 6 mm wide).
- 3 = Major streaks (each more than 6 mm wide) that remain 3 sec. after blade passes and major radial chatter lines (each more than 6 mm wide).
- 2 = Unwiped areas or full pattern streaks or full pattern chatter lines.
- 1 = Mostly unwiped pattern and major streaks.

INITIAL WIPE QUALITY

<u>Sample ID</u>	<u>Up Stroke</u>	<u>Down Stroke</u>
ScruBlade-20"-2	10	10

DURABILITY TEST PROCEDURE

The windshield wiper system shall be operated for 1,500,000 cycles, 300,000 cycles at the high-frequency setting and 1,200,000 cycles at low-frequency setting. In both the high-frequency and low-frequency test cycles, the operational sequence shall be as follows:

- Wet operation – water on 5.5 min.
- Dry operation – water off 0.5 min.
- Park position – 0.1 min minimum to 1 min maximum

For wet operation, water is to be supplied to the windshield in accordance with the provisions of 5.2.2c. The windshield is to be cleaned when necessary. Any component failure during this test denotes system failure.

ARDL is accredited by A2LA for the test methods listed on the attached scope

www.ardl.com

2887 Gilchrist Rd. | Akron, Ohio 44305 | answers@ardl.com
Toll Free (800) 830-ARDL | Worldwide (330) 794-6600 | Fax (330) 794-6610

May 21, 2010

Mr. Billy Westbrook
Scrublade L.L.C.

Page 3 of 3
PN 90515

DURABILITY TEST PROCEDURE CONTINUED

Cycles	Scrublade-20"-2	
	<u>UP</u>	<u>DOWN</u>
0	10	10
50,000	10	9
100,000	10	9
200,000	9	9
300,000	9	9
400,000	9	9
500,000	9	8

Prepared By: Jason Hunsicker
PN 90515 B Jason Hunsicker
JH/TS/cw Project Technician

Approved By: Tim Samples
Tim Samples
Project Manager

ARDL is accredited by A2LA for the test methods listed on the attached scope