

International Automotive Body Congress (IABC 2015 DEARBORN)

Presentations

Proceedings Volume 42

Dearborn, Michigan, USA
4 – 5 November 2015

Editors:

M. Nasim Uddin

Rafiq Uddin

ISBN: 978-1-5108-1882-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by Global Automotive Management Council (GAMC)
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact Global Automotive Management Council (GAMC)
at the address below.

Global Automotive Management Council (GAMC)
5340 Plymouth Road, Suite 205
Ann Arbor, Michigan, USA 48105

Phone: (734) 997-9249

Fax: (734) 786-2242

support@gamcinc.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Building Next Generation Vehicles	1
<i>T. Boney</i>	
Fuel Economy Enhanced by Laser Applications	9
<i>P. Cheng</i>	
Maxima the Nissan Flagship	25
<i>D. Coakley, J. Zischke</i>	
New Global Model Introduction : The All-New 2016 Honda Civic	44
<i>S. Crichley</i>	
The Real Story about Steel in the Future US Light Vehicle Fleet	66
<i>B. Davey</i>	
Manufacturing Excellence	82
<i>M. Erlacher</i>	
Advanced Laser Blanking	87
<i>J. Finn</i>	
Blanklight™: Aluminum Laser Welded Blanks; Design, Simulation and Business Case	95
<i>J. Fisk</i>	
Decision Criteria for Laser Processing in BIW	112
<i>F. Geyer</i>	
How Substrate Mix Drives Pretreatment Technology The Ford F-150 Story	123
<i>T. Giles</i>	
Joining as an Enabling Technology for Mainstream Vehicle Lightweighting	134
<i>J. Gould</i>	
Development of an Indirect Resistance Brazing Technology for Sandwich Metal Panels	138
<i>J. Gould, D. Cox</i>	
Mechanical Fastening as a Dissimilar Metals Joining Technique	147
<i>J. Gould</i>	
CAE Fatigue Life Predictions of a Subsystem Under Inertial Forces and Moments	151
<i>M. Guo, W. Zhang, R. Bhandarkar, D. Zhang</i>	
Adapt Laser Systems	160
<i>G. Heidelmann</i>	
Hydroforming Aluminum on the F150 - A Case Study	170
<i>K. Hertell</i>	
Crashworthiness Development of the All-New 2016 Honda Civic	189
<i>B. Klein</i>	
Adhesive Bonding of High Strength Steel	202
<i>A. Lutz</i>	
Light Weighting the Body Structure Challenges & Opportunities	212
<i>D. Malik</i>	
The All New Lincoln Continental	218
<i>S. Morgans</i>	
From Part Design to Part Production - Virtual Hot Forming Engineering Illustrated	237
<i>E. Billur, H. Porzner, D. Lorenz, M. Holecek, V. Vrolijk, M. Hoss, B. Dahmena, J. Friberg, C. Koroschetz, M. Skrikerud</i>	
Die Starter: A New Approach to Manage Early Feasibility in Sheet Metal Forming	252
<i>H. Porzner, R. Narainen</i>	
Optical 3D Measuring Solutions in Optimization of Sheet Metal Development and Manufacturing	262
<i>N/A</i>	
C'PgzvI gpgt c'vqp'Vj gto cni('Cgt qf { pco le'Rcenci g(00000).....(0).....	277
<i>T. Ramsay</i>	
2016 Cadillac CT6 Dare Greatly	283
<i>J. Rich, P. Parlow</i>	
Multi-Variate Analysis: Turning Data into Information	345
<i>J. Roan, J. Boomer</i>	
Fatigue Behaviour of Adhesively Bonded Joints and its Prediction Using Stress Analysis	357
<i>G. Romanos</i>	
Adhesives Designed for High Strength Steel	365
<i>N/A</i>	

Laser Seam Stepper - Flexible Tool for Fiber Laser Welding	378
<i>E. Stiles</i>	
Dimensional Study of Thermoplastic Composites for Automotive Class "A" Application	402
<i>J. Tao, S. Abouzahr</i>	
Delivering the F-150: The First High-Volume Aluminum Pickup Truck	417
<i>D. Wagner</i>	
Composite and Multi-material Joints in Body Applications	457
<i>T. Welters</i>	
Lightweight Design for Body in White: With Hot Formed Rolled Products and CFRP Body Components	468
<i>T. Wilks, P. Beiter, L. Topol</i>	
Crash Avoidance Testing and Ratings	489
<i>M. Wilson</i>	
Modeling Undermatched Weld Fracture for Automotive Applications	510
<i>P. Woelke, B. Hiriyur, B. Benowitz</i>	
Practical Spot Weld Fracture Criterion Using Hybrid Method	524
<i>C. Oh</i>	
Edge Tearing Test on Aluminum Sheets with DIC Measurement	532
<i>D. Zhou, C. Du, Y. Zhou, G. Yang, L. Yang</i>	
Author Index	