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Mobile Homes and Recreational Vehicles: Design and Construction

(Jan 72 - Dec 89)

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Mobile Homes and Recreational Vehicles: Design and Construction

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Feb 90

National Technical Information Service, Springfield, VA

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Supersedes PB87-868311

This bibliography contains citations concerning the design and construction of components, accessories, and complete vehicles used for recreation or mobile homes. Included are references to materials, dynamic behavior, and construction techniques. Some references are included which pertain to the use of mobile homes for low cost housing, together with findings on social impact of trailer parks. (This updated bibliography contains 178 citations, 10 of which are new entries to the previous edition.)

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SAMPLE CITATION

Title--------Manganese Bismuth Magnetic Mirror for the Raytheon Laser Gyroscope

Accession----78-12 00065
Number

Author-------Dorschner, T.A. Smith, I.W. Statz, H.

Citation-----IEEE Proc Natl Aerosp Electron Conf Naecon-78, Dayton,Ohio May 16-18 1978. Publ by IEEE (cat n 78CH1336-7), New York, NY, 1978 V 2 P 569-573, Coden-NASEA9, Location of work-Raytheon Co, Res Div, Waltham, Mass, Monthly Publication No.-090440, Item Number-077755 NDN- 007-0001-0001-1

Abstract-----Biasing a multi-oscillator laser gyro by means of a magnetic mirror is discussed. The background and principles of operation for the Raytheon gyro are reviewed. Requirements, advantages, and fabrication techniques are discussed for a magnetic substrate mirror based on thin-film manganese bismith (MnBi). Progress towards realizing such a mirror is summarized. 10 Refs.

SAMPLE SUBJECT INDEX ENTRY

Keyword----------Manganese

Citation Page Number- ---------24 78-12 00065---Accession Number

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Prefabricated Homes (Jun 70 - Mar 88)

USG/NTIS 204 citations
ORDER NUMBER PB88-859830/RPS

This bibliography contains citations concerning the design, construction, economic advantages and social implications of mobile and prefabricated housing. Housing shortages, temporary shelters for public offices and educational buildings, energy performance standards for prefabs and mobile homes, and federal construction and safety standards are considered.(This updated bibliography contains 204 citations, 19 of which are new entries to the previous edition.)

Prefabricated Buildings (Jun 70 - Oct 89)

Engineering Index 350 citations
ORDER NUMBER PB90-851239/RPS

This bibliography contains citations concerning mobile home and prefabricated building technology. Heating requirements and performance; heating system technology including solar energy, structural testing, cost evaluations, foundations and anchoring systems; and fire testing of mobile and prefabricated buildings are among the topics discussed. Design, research and development, performance, applications and markets for pre-engineered building sysyems utilized in residential dwellings, office buildings, religious buildings and other shelters are examined. Wood, steel, and concrete are among the materials considered. Innovations in building materials and the ramifications of prefabricated and mobile buildings on industry and the quality of life at home and abroad are included. (This updated bibliography contains 350 citations, 24 of which are new entries to the previous edition.)

Recreational Boating (Oct 88 - Nov 89)

USG/NTIS 70 citations
ORDER NUMBER PB90-854860/RPS

This bibliography contains citations concerning recreational boating and marinas. Topics include safety standards and accident reports, marina development and design, regional planning for boating facilities, boat insurance, economic aspects of recreational boating, and water pollution associated with marinas and boating. Some citations reference boat design, on hull configurations, flotation, and carrying capacity. (This updated bibliography contains 70 citations, all of which are new entries to the previous edition.)

Tourism and Vacation Travel: State and Local Government Planning (May 73 - Feb 90)

USG/NTIS 232 citations
ORDER NUMBER PB90-861634/RPS

This bibliography contains citations concerning economic and socioeconomic aspects of vacation travel and tourism in various localities in the United States. Topics include the effects of tourism on the economic development of local communities, regions, and individual states. Wilderness areas, coastal zones, Indian reservations, and lake and waterway areas are considered. (This updated bibliography contains 232 citations, 57 of which are new entries to the previous edition.)

Skateboards: Patented Designs Including Braking, Steering, and Suspension Assemblies (Ja

U.S. Patent Bibliographic Database 146 citations
ORDER NUMBER PB88-870209/RPS

This bibliography contains citations of selected patents concerning skateboard designs, fabrication methods and materials, and specific mechanical subassemblies. Patented designs for skateboard braking, steering, and suspension systems are featured. Accessories such as skateboard shoes and boots, ramp bowls, trailable ramps, curb slider

devices, and skateboard trucks, handles, and seats are included. (This new bibliography contains 146 citations fully indexed with a title list.)

TITLE LIST

EXHIBITION).

9. MATHEMATICAL MODEL OF COUPLED SYSTEMS WITH FREE PLAY.

9. PLASTICS IN PASSENGER CARS (SAE INTERNATIONAL CONGRESS & EXPOSITION), 1984.

9. PRIMER ON FRONT-WHEEL-DRIVE ENGINE MOUNTS.

10. NATEC '83: DISCOVERING NEW FRONTIERS THROUGH IMAGINATION (NATIONAL TECHNICAL CONFERENCE - SOCIETY OF PLASTICS ENGINEERS), 1983.

10. WIND TUNNEL MEASUREMENTS OF TOTAL LOADS ON A MOBILE HOME.

10. POWDER METAL PARTS: DESIGN AND IMPLEMENTATION FOR ECONOMICS AND RELIABILITY (SAE INTERNATIONAL CONGRESS & EXPOSITION), 1983.

10. ADIABATIC DIESEL ENGINE (SAE INTERNATIONAL CONGRESS & EXPOSITION), 1983.

11. ANALYSIS OF QUASI-SYNCHRONOUS AM MOBILE RADIO OPERATION AND RECOMMENDED DESIGN PARAMETER VALUES.

11. OFF-ROAD VEHICLE RECREATION MANAGEMENT POLICY FOR PUBLIC LANDS IN THE UNITED STATES: A CASE HISTORY.

11. WINDBREAK EFFECTS ON AIR INFILTRATION AND SPACE HEATING IN A MOBILE HOME.

12. DEVELOPMENTS OF RADIAL AND DIAGONAL PLY TYRES WITH SPECIFIC REFERENCE TO THE SOUTH AFRICAN MARKET.

12. PRIMER ON LOAD SENSE STEERING DESIGN.

12. COMPARISON OF WIND PRESSURES ON A MOBILE HOME IN MODEL AND FULL SCALE.

12. RASCHET OSNOVNYKH PARAMETROV PODVESKI PEREMENNOI STRUKTURY MNOGOOSNOGO AVTOMOBILYA. (CALCULATION OF PRINCIPAL PARAMETERS OF VARIABLE-STRUCTURE SUSPENSION FOR MULTIPLE-AXLE AUTOMOBILES) .

13. DYNAMICS OF RECREATIONAL VEHICLES (INTERNATIONAL CONGRESS & EXPOSITION), 1982.

13. PLANNING FOR OFF-ROAD RECREATIONAL VEHICLE USE ON ARMY INSTALLATIONS.

13. ANALYSIS OF MOBILE HOME THERMAL PERFORMANCE.

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14. EVOLUTION OF MATERIAL SPECIFICATIONS FOR RUBBER (NON-TIRE).

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14. MATERIALS AVAILABILITY FOR AUTOMOTIVE APPLICATIONS (CONGRESS AND EXPOSITION), 1980.

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16. THE AVAILABILITY OF COBALT FOR AUTOMOTIVE APPLICATIONS.

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17. NONLINEAR STABILITY AND RESPONSE OF CAR-TRAILER COMBINATIONS.

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38. EXTERIOR SOUND LEVEL FOR SNOWMOBILES FROM SAE J192 TO SAE J192A $EM DASH$ BACKGROUND AND INSIGHT.

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FORMALDEHYDE EXPOSURES INSIDE MOBILE HOMES. - 89-10 05862

Sexton, Ken Petreas, Myrto X. Liu, Kai-Shen

Environ Sci Technol v 23 n 8 Aug 1989 p 985-988, CODEN- ESTHAG, CORPORATE AUTHOR(S)- EPA, Washington, DC, USA, LANGUAGE(S)- English, DOCUMENT TYPE: JA (Journal Article)ISSN 0013-936X, ITEM NUMBER: 362609, MONTHLY PUBLICATION NO.: 096996 NDN-007-0193-9641-0

An age-stratified random sample of 470 mobile homes was selected from among the more than 500,000 in California. One-week, average indoor formaldehyde concentrations were measured during both the summer (July-August 1984) and the winter (February-March 1985) seasons. Results indicate that (1) formaldehyde concentrations were well-mixed inside the trailers over a 1-week period, (2) relatively little variation was observed in formaldehyde concentrations between summer and winter, (3) average 1-week formaldehyde values were in the range of 0.07-0.09 ppm, and (4) formaldehyde levels appear to be decreasing inside mobile homes manufactured since about 1980, probably as a result of the increased use of low-formaldehyde-emitting building materials. Study conclusions are discussed. (Edited author abstract) 26 Refs.

MOBILE HOME FIRES. - 89-07 04982

Gustin, Bill

Fire Eng v 142 n 3 Mar 1989 4p, CODEN- FIENA2, CORPORATE AUTHOR(S)- Metro-Dade County Fire Dep, Miami, FL, USA, LANGUAGE(S)- English, DOCUMENT TYPE: JA (Journal Article)ISSN 0015-2587, ITEM NUMBER: 313855, MONTHLY PUBLICATION NO.: 067351 NDN-007-0190-8821-1

The hazards and obstacles in mobile home fires can be placed in two categories, those of the fire itself and those associated with the configuration of most trailer parks. The article reviews the structural and material disadvantages of such homes with regards to fires and firefighter safety. Some lessons that have been learned over the years which may improve the safety and efficiency of firefighters are presented.

AXLE DESIGN FOR SPECIALIST APPLICATIONS. - 89-06 03116

Anon

Automot Eng (London) v 13 n 6 Dec 1988 p 51-54, CODEN- EUENDA, LANGUAGE(S)- English, DOCUMENT TYPE: JA (Journal Article)ISSN 0307-6490, ITEM NUMBER: 296166, MONTHLY PUBLICATION NO.: 048628 NDN- 007-0190-2683-7

Prior to the energy crisis of the early 1970's vehicle manufacturers had not had to place a great emphasis on fuel economy, and therefore on light weight; therefore standard axles could cater reliably for all conditions likely to be met in a wide variety of applications. Now vehicle manufacturers require axles designed and developed for their specific applications. As axle design is becoming increasingly specialized, customers are increasingly raising their aspirations in terms of performance and reliability. For this reason, they are turning to specialists such as GKN Axles Ltd who have the ability to provide axles for a wide variety of vehicles. The paper discusses axle beam loadings, torsional loadings, requirements for different types of vehicle, off-road vehicles, axle beam designs, wheel hubs, gears and gear carriers. (Edited author abstract)

COOLING SYSTEM DESIGN FOR HEAVY OFF-ROAD VEHICLES. - 89-06 03117

Anon

Automot Eng (London) v 13 n 6 Dec 1988 p 70-71, CODEN- EUENDA, LANGUAGE(S)- English, DOCUMENT TYPE: JA (Journal Article)ISSN 0307-6490, ITEM NUMBER: 296167, MONTHLY PUBLICATION NO.: 048629 NDN- 007-0190-2682-5

Meeting the design objectives at the lowest possible cost can only realistically be

achieved by designing the complete cooling system together, with all cooling loads being considered. Simply adding additional cooling piecemeal to an existing system in the belief that the radiator is 'big enough to handle that' is a sure recipe for disaster. Design of complete cooling systems for heavy off-road vehicles, such as the Saxon armored personnel carrier, forklift trucks, industrial trucks, excavators, etc. is described. The article discusses radiator air flow, charge cooling with turbocharged engines, engine oil cooling, transmission and hydraulic system cooling, operating temperatures.

USING A MODEL AND EMPIRICAL DATA TO ANALYZE MANUFACTURED HOME CONSERVATION RETROFITS. - 89-06 05211

Lee, Allen Englin, Jeffrey

Energy Build v 13 n 1 Feb 10 1989 p 73-83, CODEN- ENEBDR, CORPORATE AUTHOR(S)- Pacific Northwest Lab, Richland, WA, USA, LANGUAGE(S)- English, DOCUMENT TYPE: JA (Journal Article)ISSN 0378-7788, ITEM NUMBER: 300776, MONTHLY PUBLICATION NO.: 051592 NDN- 007-0190-0588-3

Approximately 600 of the 3200 homes participating in the Hood River Conservation Project (HRCP) were manufactured (mobile) homes. The variation in their thermal characteristics before and after retrofit allowed us to estimate the energy savings associated with specific energy conservation measures (ECMs). We used the PRISM model and an adjustment procedure to provide estimates of heating energy consumption. Levelized costs less than 4 cents/kWh were considered to be cost-effective. The results indicated that ceiling retrofits were the most cost-effective way to save energy. On an incremental basis and assuming 30-year remaining lifetimes, ceiling insulation up to R-5.4 (m/SUP/2 $degree$ C)/W was cost-effective. On an average basis, levels up to R-6.8 (where physically possible) were cost-effective. Floor insulation retrofits to R-2.5 were nearly cost-effective. The levelized costs of window retrofits, however, were substantially beyond cost-effective levels. (Edited author abstract) 17 Refs.

SPECIALIST VEHICLE DESIGN AND DEVELOPMENT. - 89-02 00999

Anon

Automot Eng (London) v 13 n 4 Aug 9 1988 p 30-34, CODEN- EUENDA, LANGUAGE(S) English, DOCUMENT TYPE: JA (Journal Article)ISSN 0307-6490, ITEM NUMBER: 229[illegible], MONTHLY PUBLICATION NO.: 013223 NDN- 007-0187-4783-1

ATVs, military vehicles and motor cycles are among the special-category vehicles considered in this engineering update. An analysis of two-wheeler stability and frame stiffness is followed by a look at off-highway and specialist vehicle developments seen in recent releases. (Author abstract)

SURVEY OF NITROGEN DIOXIDE LEVELS MEASURED INSIDE MOBILE HOMES. - 88-09 02905

Petreas, Myrto Liu, Kai-Shen Chang, Bei-Hung Hayward, Steven B. Sexton, Ken

JAPCA v 38 n 5 May 1988 p 647-651, CODEN- JIJME4, CORPORATE AUTHOR(S)- California Dep of Health Services, Berkeley, CA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ITEM NUMBER: 072192, MONTHLY PUBLICATION NO.: 080409 NDN- 007-0182-8202-0

As part of the California Mobile Home Study, over 250 mobile homes from throughout the state were monitored for nitrogen dioxide (NO//2) concentrations. Week-long average measurements were taken with Palmes tubes in the kitchen and bedroom of each mobile home during the summer of 1984 and the winter of 1985. The study was conducted entirely by mail with the participants providing all the necessary information. Mobile homes using gas for cooking had significantly higher indoor NO//2 levels than those using electricity. Mobile homes located in the Los Angeles basin had significantly higher indoor NO//2 concentrations than did mobile homes in the rest of the state. Gas cooking, the inverse of the house volume and geographic location (as a surrogate of outdoor NO//2) were the most important variables identified by multiple linear regression. (Author abstract) 18 refs.

ADVANCES IN THE PREVENTION OF INJURIES AND THEIR EFFECT ON EMERGENCY MEDICAL SERVICES. - 88-09 05064

Metcalf, Linda D.

Med Instrum v 22 n 3 Jun 1988 p 146-150, CODEN- MLISBY, CORPORATE AUTHOR(S)- Colorado Trauma Inst, Denver, CO, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0090-6689, ITEM NUMBER: 074352, MONTHLY PUBLICATION NO.: 081054 NDN- 007-0182-6043-7

Much attention has been focused on the response to victims of injuries in the last two decades. During those twenty years, tremendous strides have been made in the medical community's ability to meet the needs of patients in the acute phase of treatment for traumatic injuries. Recent research has reflected these advances in treatment as well as equipment design and development that enable rapid response and access to the injured. Even with these modern miracles of treatment, injuries kill more citizens of the United States 1-34 yr of age than all diseases combined. Traumatic injury is the leading cause of death in people up to 44 yr of age. The emergency medical services community identifies the best 'treatment' for traumatic injury as its prevention by means of pre-incident interventions that ultimately reduce the severity of the injury and the potential disablement of the victim. (Author abstract) 14 refs.

LAND ROVER WORKHORSE WINNERS. - 88-02 01738

Lees, Howard

Surveyor (Sutton Engl) v 168 n 4956 Aug 6 1987 p 18, CODEN- SLGTAO, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0039-6303, ITEM NUMBER: 011483, MONTHLY PUBLICATION NO.: 010419 NDN- 007-0175-7241-5

At the end of last year a package of improvement was announced across the Land Rover range to coincide with the launch of the new Turbo Diesel, including the uprating of the popular V8 petrol engine from 114 bhp to a full 134 bhp, now delivered at 5000 rpm instead of 4000 rpm. The principal changes were to camshaft and carburetors, the peak torque remaining almost the same at 187 lb ft at 2500 rpm. To keep the engine in tune longer and ease servicing, electronic ignition was adopted for the first time on a Land Rover, helping the V8 to produce its increased power still on two-star fuel. Off-road the performance of the One Ten V8 is remarkable. With heay-duty 7.50 $multiplied by$ 16 Michelin XZY tires fitted as standard it never seems to be short of traction, and the low-down pulling power of the V8 allows you to leave it in one gear for most of the time.

AUTOMOTIVE INSTRUMENT PANELS: DESIGN, MATERIALS, AND MANUFACTURING (PAPERS FROM THE SAE INTERNATIONAL CONGRESS AND EXPOSITION). - 87-09 09834

Anon

SAE Spec Publ SP-710, Automot Instrum Panels: Des, Mater, and Manuf, Detroit, MI, USA, Feb 23-27 1987. Publ by SAE, Warrendale, PA, USA, 1987 109p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-981-5, ITEM NUMBER: 708941, MONTHLY PUBLICATION NO.: 086963 NDN- 007-0169-5782-2

This conference proceedings contains 13 papers discussing design, materials, and manufacturing aspects related to automotive instrument panels. An overview of the instrument panel material, design, and performance revolution from painted steel to full application of polymeric materials is presented. Models of the structure of instrument panels using actual parts produced with varying mold flow configurations are provided with good correlation between modulus and glass fiber orientation. Part warpage on demold, property variability across the part, and properties well below expected values are highlighted in several papers. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 09818 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

ADVANCES IN EXTERIOR BODY PANELS (PAPERS PRESENTED AT THE SAE INTERNATIONAL CONGRESS AND EXPOSITION). - 87-09 09902

Anon

SAE Spec Publ SP-698, Adv in Exterior Body Panels, Detroit, MI, USA, Feb 23-27 1987. Publ by SAE, Warrendale, PA, USA, 1987 53p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-969-6, ITEM NUMBER: 709009, MONTHLY PUBLICATION NO.: 086958 NDN- 007-0169-5714-7

This conference proceedings contains 7 papers discussing the state-of-the-art in automotive exterior body panel materials. Improvements in Reaction Injection Molding (RIM) polyurethane for large exterior automotive parts are discussed. A technology is also described to produce large-area auto components using a unique thermoset injection molding system. Experimental results are given of in-plane shear fatigue of automotive sheet molding compound (SMC) materials using a torsion tube testing technique. An evaluation is given of thermoplastic elastomer technologies, and a review is provided of body panel paint alternatives. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 09926 in E1 Engineering Meetings (TM) database produced by Engineering Information, Inc.

COMPARISONS BETWEEN WIND TUNNEL AND FULL SCALE ESTIMATES OF WIND LOADS ON A MOBILE HOME. - 87-02 09071

Surry, D. Johnson, G. L.

J Wind Eng Ind Aerodyn v 23 n 1-3 Jul 1986, Pap Presented at the 6th Colloq on Ind Aerodyn - Build Aerodyn, Aachen, West Ger, Jun 19-21 1985 p 165-180, CODEN- JWEAD6, CORPORATE AUTHOR(S)- Univ of Western Ontario, London, Ont, Can, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0167-6105, ITEM NUMBER: 700993, MONTHLY PUBLICATION NO.: 014931 NDN- 007-0161-9774-8

None of the model experiments have satisfactorily reproduced the full scale results in those locations experiencing the highest local suctions, although the agreement is reasonable for other areas. The experiments all had failings in their flow simulations. Further work is required to clarify what is needed to improve the comparisons. (Edited author abstract) 10 refs.

MOLECULAR WEIGHT DISTRIBUTION OF A BULK ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE PRODUCT - IMPAX 5M $PLUS$ UHMW-NAT. - 87-01 02225

Kusy, R. P. Whitley, J. Q.

J Biomed Mater Res v 20 n 9 Nov-Dec 1986 p 1373-1389, CODEN- JBMRBG, CORPORATE AUTHOR(S)- Univ of North Carolina, Chapel Hill, NC, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0021-9304, ITEM NUMBER: 002225, MONTHLY PUBLICATION NO.: 008000 NDN- 007-0161-7276-4

Ultra-high molecular weight polyethylene (UHMWPE) is today the material of choice for use in the acetabulum cup. A bulk UHMWP product, IMPAX 5M $plus$ UHMW-NAT was fractionated using an increasing-temperature sequential-extraction technique. In the presence of an inert atmosphere and an antioxidant, 5 g of material were methodically dissolved in decahydronaphthalene over the temperature range, 80-191 $degree$ C. Mass balances both before and after extraction indicated that less than 0. 3% of the material had a molecular weight less than 10/SUP/6 and that less than 0. 1% of the material was gel. Knowledge of the molecular weight distribution of bulk products and the presence of either volatiles or crosslinked networks is critical for the continued design and development of superior wearing and fatigue-resistant implants. (Edited author abstract) 35 refs.

SELF-LOADING TRAILERS - MORE THAN A SIDESHOW. - 87-01 09051

Campion, Vincent

Cargo Syst Int v 13 n 10 Oct 1986 p 37, 39, 41, CODEN- CSYIBN, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0306-0985, ITEM NUMBER: 009051, MONTHLY PUBLICATION NO.: 010314 NDN- 007-0161-0450-3

The concept of self-loading trailers for handling containers, flats and other heavy piece loads is not new, but new models still seem to arouse considerable interest,

even though their success may vary considerably in different types of market. To analyze the functions of the self-loading trailer, it may help to distinguish between those that are built primarily for off-the-road applications and those intended mainly for transport and delivery/pick-up work. Manufacturers sometimes claim that their machines are equally suited for work in the terminal and for deliveries, and this can be tested with reference to the design parameters and compromises involved in their construction.

MORGAN HILL EARTHQUAKE OF APRIL 24, 1984 - EFFECTS OF MOBILE HOMES. - 86-11 05609

Kensler, Charles D.

Earthquake Spectra v 1 n 3 May 1985 p 607-613, CODEN- EASPEF, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ITEM NUMBER: 092744, MONTHLY PUBLICATION NO.: 107932 NDN- 007-0158-9684-9

The greater Morgan Hill area has seven mobile home parks. Of the seven, there are three large parks and four small ones. For the most part, damage occurred at three parks: Windmill Mobile Estates, Woodland Mobile Home Park, and Madrone Manor Mobile Estates. (Author abstract)

THEORETICAL AND PRACTICAL ASPECTS OF THE RIDE DYNAMICS OF OFF-ROAD VEHICLES - PART 2. - 86-09 06725

Crolla, D. A. MacLaurin, E. B.

J Terramech v 23 n 1 1986 p 1-12, CODEN- JTRMAF, CORPORATE AUTHOR(S)- Univ of Leeds, Leeds, Engl, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0022-4898, ITEM NUMBER: 073342, MONTHLY PUBLICATION NO.: 091130 NDN- 007-0156-3352-8

This part of the paper emphasizes the practical aspects of measuring vehicle motion and terrain profiles. Methods of inducing vibrations in vehicles under test in laboratory and field conditions are evaluated. Recent survey and evaluation of methods for measuring and analyzing terrain profiles are discussed. as are ride and suspension performance measurements, and human response to vibration. Methods for quantifying vehicle ride are compared, and the Draft Revision of ISO 2631 is recommended as the best currently available approach. (Author abstract) 13 refs.

COMPOSITE MATERIALS TECHNOLOGY. - 86-08 12013

Anon

SAE Spec Publ SP-648, Compos Mater Technol, Detroit, MI, USA, Feb 24-28 1986. Publ by SAE, Warrendale, PA, USA, 1986 71p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-919-X, ITEM NUMBER: 705779, MONTHLY PUBLICATION NO.: 067911 NDN- 007-0154-5703-9

This conference proceedings contains 10 papers presenting advances in Composite Materials Technology. The new situation in the areas of energy and raw materials is exercising a tangible influence on the use of plastics in automotive engineering. The papers discuss automotive applications of thermoplastic composites, and advancements in Composite Materials - LC polymers of fiber-reinforced thermoplastics. Possibilities of composite materials in body design, and computer-aided mold cooling design to improve part quality and overall productivity are discussed. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 08150 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

EXTERIOR BODY PANEL DEVELOPMENT. - 86-08 12016

Anon

SAE Spec Publ SP-620, Exterior Body Panel Dev, Detroit, MI, USA, Feb 25-Mar 1 1985. Publ by SAE, Warrendale, PA, USA, 1985 91p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-841-X, ITEM NUMBER: 705782, MONTHLY PUBLICATION NO.: 067921 NDN- 007-0154-5700-3

This conference proceedings contains 10 papers discussing new trends in exterior

panel materials for automobiles. Successful applications of reinforced reaction injection molding (RIM) polyurethane composites to the Pontiac Fiero are discussed. A review is presented of thermoplastic olefin elastomers and potential applications. Surface treatments for polypropylenes are also discussed. The properties of vapor permeation cure (VPC) and vapor injection cure (VIC) coatings are evaluated. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 08174 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

OPERATIONAL CHARACTERISTICS OF RECREATIONAL VEHICLE DYNAMICS. - 86-07 12172

Anon

SAE Spec Publ 660, Oper Charact of Recreat Veh Dyn, Detroit, MI, USA, Feb 24-28 1986. Publ by SAE, Warrendale, PA, USA, 1986 117p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-931-9, ITEM NUMBER: 704825, MONTHLY PUBLICATION NO.: 066267 NDN- 007-0153-3020-9

This conference proceedings contains 10 papers presenting new design improvements concerning the dynamics of recreational vehicles. Four papers deal with the topic of vehicle towing. Various motorcycle braking methods are compared. A mathematical model is developed which predicts the dynamic response of car/trailer combinations using a micro or minicomputer. A new trailer safety chain design is presented. Operational characteristics of All-Terrain Vehicles are also discussed. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 07989 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

FIELD TEST AND EVALUATION OF RESIDENTIAL SPRINKLER SYSTEMS: PART III. - 86-04 02519

Cote, Arthur E.

Fire Technol v 20 n 2 May 1984 p 41-46, CODEN- FITCAA, CORPORATE AUTHOR(S)- Natl Fire Protection Assoc, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0015-2684, ITEM NUMBER: 025965, MONTHLY PUBLICATION NO.: 029472 NDN- 007-0151-1753-8

A series of full-scale fire tests utilizing prototype 'quick-response' sprinklers was conducted in a two-story residence in Los Angeles, CA, and a mobile home in Charlotte, NC. A prime objective of the program was to test the performance of alternative sprinkler designs to 'control' the development of fire in single-family dwellings and mobile homes. Part of the mobile home test series focused on a study of the comparative activation times of sprinklers and smoke detectors installed in the same areas under a variety of test conditions. The results of that phase of the test program are given here. (Author abstract)

FORMALDEHYDE CONCENTRATIONS IN WISCONSIN MOBILE HOMES. - 85-12 02850

Hanrahan, Lawrence P. Anderson, Henry A. Dally, Kay A. Eckmann, Ann D. Kanarek, Marty S.

J Air Pollut Control Assoc v 35 n 11 Nov 1985 p 1164-1167, CODEN- JPCAAC, CORPORATE AUTHOR(S)- Wisconsin Dep of Health & Social Services, Section of Environmental & Chronic Disease Epidemiology, Madison, WI, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0002-2470, ITEM NUMBER: 101466, MONTHLY PUBLICATION NO.: 118074 NDN- 007-0147-5552-3

A series of 137 mobile home households was investigated to determine indoor formaldehyde exposure concentrations. Formaldehyde concentrations were found to range from less than 0. 10 ppm to 2. 84 ppm. The median exposure concentration was 0. 39 ppm. Analysis of variance was performed on each home to discern visit and room measurement effects. Eighty-nine percent of the homes exhibited no measurement placement effects, while only 10 percent failed to demonstrate between-visit variance effects. Regression models were constructed to predict household formaldehyde concentrations. Concentrations exhibited an inverse relationship with the age of the construction materials. A weighted least squares regression model of log of home age predicting temperature-corrected log formaldehyde explained 82 percent of the formaldehyde variation. (Edited author abstract) 12 refs.

ASSESSMENT OF THE BERGE EQUATION APPLIED TO FORMALDEHYDE MEASUREMENTS UNDER CONTROLLED CONDITIONS OF TEMPERATURE AND HUMIDITY IN A MOBILE HOME. - 85-12 02853

Godish, Thad Rouch, Jerome

J Air Pollut Control Assoc v 35 n 11 Nov 1985 p 1186-1187, CODEN- JPCAAC, CORPORATE AUTHOR(S)- Ball State Univ, Indoor Air Quality Lab, Muncie, IN, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0002-2470, ITEM NUMBER: 101469, MONTHLY PUBLICATION NO.: 118075 NDN- 007-0147-5549-3

In practice, the most widely used expression of formaldehyde levels as a function of temperature and relative humidity is that of A. Berge et al. The paper discusses the results of recent studies to determine the feasibility and effectiveness of climate control as a residential formaldehyde control measure. Average formaldehyde levels were taken (measured over a period of seven hours per day over a period of seven days) for each of eight environmental regimes and standardized to an environmental regime of 25 $degree$ C and 50% relative humidity using the Berge equation. The analysis suggests that within the temperature and humidity range considered, the Berge equation is a reliable predictor of formaldehyde levels. 13 refs.

CORROSION PROTECTION, RESISTANCE AND TESTING, PAPERS PRESENTED AT THE 1985 SAE INTERNATIONAL CONGRESS & EXPOSITION. - 85-11 12315

Anon

SAE Spec Publ SP-612, Corros Prot, Resist and Test, Detroit, MI, USA, Feb 25-Mar 1 1985. Publ by SAE, Warrendale, PA, USA, 1985 87p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-833-9, ITEM NUMBER: 711471, MONTHLY PUBLICATION NO.: 098194 NDN- 007-0145-0691-2

This conference proceedings contains 10 papers presenting an evaluation of materials used for the corrosion protection of automobiles. Corrosion prevention measures, automotive test procedures, and the corrosion performance of powder coatings are evaluated. A presentation is also given of result studies conducted in order to characterize and explain the galvanic properties of Zincrometal. A discussion is provided of the performance of pre-protected steels. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 08605 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

TREATABILITY OF RECREATIONAL VEHICLE WASTEWATER IN SEPTIC SYSTEMS AT HIGHWAY REST AREAS. - 85-08 07836

Brown, Charles A. Kiernan, Kevin E. Ferguson, John F. Benjamin, Mark M.

Transp Res Rec 995 1984 p 1-10, CODEN- TRREDM, CORPORATE AUTHOR(S)- Kaiser Mead Works, Spokane, WA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: RC (Report Chapter)ISSN 0361-1981, ITEM NUMBER: 063327, MONTHLY PUBLICATION NO.: 070987 NDN- 007-0141-7195-1

Recreational vehicle (RV) owners commonly use chemical toilet additives containing formaldehyde to minimize odors from their wastewater holding tanks. The purpose of this study is to determine the character and treatability of this wastewater using conventional septic tank-drainfield systems at highway rest areas. RV wastewater is a high-strength waste. A model for sludge and scum accumulation is developed based on the concept that some organic material in sludge and scum is readily degradable and compactible, some is degradable and compactible with extended residence time, and some material is inert and not compactible. 23 refs.

IMPROVED PERCOLATION TEST FOR SEPTIC TANK LEACH FIELD SYSTEMS. - 85-08 07837

Grottkau, William A. Pearson, Frank

Transp Res Rec 995 1984 p 11-19, CODEN- TRREDM, CORPORATE AUTHOR(S)- California DOT, Transportation Lab, Sacramento, CA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0361-1981, ITEM NUMBER: 063328, MONTHLY PUBLICATION NO.: 071568 NDN- 007-0141-7194-0

Septic tank systems are used at 50 percent of roadside rest areas in the United States for onsite disposal of wastewater generated from restrooms and from recreational vehicle waste holding-tank dump stations. The percolation test aids the

sizing of septic tank leach fields by determining the percolation value for the soil, an index of the rate of seepage of water into the soil. The widely used Public Health Service percolation test procedure defines many aspects of the test, though some details are either discretionary or broadly defined. Comparative percolation tests were conducted to determine whether factors permitted to vary in the Public Health Service procedure could affect test results. 10 refs.

ONSITE DISPOSAL OF RESTROOM AND RECREATIONAL VEHICLE WASTES. - 85-08 07638

Pearson, Frank Grottkau, William A. Jenkins, David

Transp Res Rec 995 1984 p 19-29, CODEN- TRREDM, CORPORATE AUTHOR(S)- Univ of California, Berkeley, Sanitary Engineering & Environmental Health Research Lab, Richmond, CA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0361-1981, ITEM NUMBER: 063329, MONTHLY PUBLICATION NO.: 070925 NDN- 007-0141-7193-8

Septic tank systems are used at 50 percent of roadside rest areas in the United States for onsite disposal of wastewater generated from restrooms and from recreational vehicle waste holding tank dump stations. Survey results are presented from 28 California roadside rest areas of the use of rest areas, and of the volume and strength of wastewater generated at restrooms and dump stations. Septic tank-leach field system design procedures consider the risk of overload for a particular design, or permit design to a selected acceptably low risk of overload. 26 refs.

AERODYNAMISCHE UNTERSUCHUNGEN AN PERSONENWAGEN-CARAVAN-ZUEGEN - TEIL 1. (AERODYNAMIC INVESTIGATIONS OF PASSENGER-CAR/CAMPING-TRAILER COMBINATIONS - PART 1) . - 85-07 05886

Kuenstner, Rudi

Automobiltech Z v 87 n 3 Mar 1985 p 95-100, CODEN- AUTZA6, CORPORATE AUTHOR(S)- Univ Stuttgart, Inst fuer Verbiennungsmotoren und Kraftfahrwesen, Stuttgart, West Ger, LANGUAGE(S)- GERMAN, DOCUMENT TYPE: JA (Journal Article)ISSN 0001-2785, ITEM NUMBER: 052897, MONTHLY PUBLICATION NO.: 052517 NDN- 007-0140-7945-1

The present paper from the Institute of Combustion Engines and Motor Vehicle Engineering of the University of Stuttgart deals with the aerodynamic behavior of car/camping trailer combinations on the basis of wind tunnel measurements on 1/5-scale models. This study is intended to encourage further aerodynamic development work on the shapes of camping trailers. The results show that a reduction in aerodynamic drag of present car/camping trailer combinations leads to considerable savings in tractive resistance performance and in fuel consumption. 9 refs. In German with English abstract.

FACTORS THAT INFLUENCE FORMALDEHYDE AIR LEVELS IN MOBILE HOMES. - 85-07 08045

Groah, William J. Gramp, Gary D. Garrison, Scott B. Walcott, Richard J.

For Prod J v 35 n 2 Feb 1985 p 11-18, CODEN- FPJOAB, CORPORATE AUTHOR(S)- Hardwood Plywood Manufacturers Assoc, Reston, VA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0015-7473, ITEM NUMBER: 053056, MONTHLY PUBLICATION NO.: 055598 NDN- 007-0140-7786-7

Two projects were conducted to study formaldehyde concentrations in air and various factors affecting those concentrations in mobile homes. Testing results demonstrated a relationship between the formaldehyde emissions from the paneling and particle board decking used in mobile homes and the formaldehyde concentration measured in the homes. Other factors affecting the formaldehyde concentration were indoor temperature, the infiltration rate, and the difference between indoor and outdoor temperature. A decay factor was postulated but not demonstrated. Formaldehyde emittors and absorbers in a mobile home exist in a complex environment subject to manipulation from many external influences. 15 refs.

ADVANCES IN ELASTOMERIC APPLICATIONS (HELD AT THE SAE INTERNATIONAL CONGRESS & EXHIBITION). - 85-04 08244

Anon

SAE Spec Publ SP-575, Adv in Elastomeric Appl, Detroit, MI, USA, Feb 27-Mar 2 1984. Publ by SAE, Warrendale, PA, USA, 1984 86p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, PA, USA, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: CP (Conference Proceedings)ISSN 0099-5908, ISBN 0-89883-346-9, ITEM NUMBER: 702521, MONTHLY PUBLICATION NO.: 031307 NDN- 007-0137-6223-4

This conference proceedings contains 8 papers reporting recent advances in rubber applications. The papers feature details of new automotive parts designs, plus the reasons for elastomer material selection and compound optimization. Data are given to display the extent of rubber component improvements. The properties of elastomers relative to one another are also discussed. Technical and professional papers from this conference are indexed and abstracted with the conference code no. 04313 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

MATHEMATICAL MODEL OF COUPLED SYSTEMS WITH FREE PLAY. - 85-01 05484

Gobas, L. G.

Sov Appl Mech v 20 n 6 Jun 1984 p 566-572, CODEN- SOAMBT, LANGUAGE(S)- ENGLISH, DOCUMENT TYPE: JA (Journal Article)ISSN 0038-5298, ITEM NUMBER: 005505, MONTHLY PUBLICATION NO.: 004837 NDN- 007-0135-4313-5

A general formulation of the problem of the motion of a vehicle with an arbitrary number of driven elements is given, for two interaction mechanisms of the wheels with the roadway: One corresponds to the axiomatics of and I. Rokar and the other to the case in which classical nonholonomic coupling is realized. The connection between the elements is realized by articulations permitting free relative rotation of the elements in the plane of their motion. The steady-state motion of a two-element vehicle with controllable wheels of the driven element is considered. The increase in the number of works on multielement units in the Soviet and non-Soviet literature arises in particular from the pressing need in mechanical engineering to develop high-load multielement transport units (MTU 500-1000 tons and more in weight, the base dimensions of which must be especially large.

PLASTICS IN PASSENGER CARS (SAE INTERNATIONAL CONGRESS & EXPOSITION), 1984. - 84-12 13416

Anon

SAE Spec Publ SP-566, Plast in Passenger Cars, Detroit, Mich, USA, Feb 27-Mar 2 1984. Publ by SAE, Warrendale, Pa, USA, 1984 133p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, Pa, USA, LANGUAGE(S)- ENGLISH, ISSN 0099-5908, ITEM NUMBER: 717826, MONTHLY PUBLICATION NO.: 127347 NDN- 007-0133-7854-9

This conference proceedings contains 12 papers on applications and properties of plastics in automobiles. Limitations of steel, shaping, corrosion resistance, dimensional accuracy, and weight are the advantages of using plastics. Injection molding and reaction injection molding (RIM) allow the designer aerodynamic drag reduction and styling freedom. Plastic hang-ons on a steel frame give significant weight reduction while keeping the structural strength. The development of new manufacturing techniques, such as large part vibration welding, makes working with plastics easy and therefore economical. Raw materials, mechanical properties, painting, and safety aspects of all plastic bumpers are discussed in detail. Technical and professional papers from this conference are indexed with the conference code no. 04232 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

PRIMER ON FRONT-WHEEL-DRIVE ENGINE MOUNTS. - 84-10 01436

Anon

Automot Eng (Warrendale Pa) v 92 n 5 May 1984 p 64-67, CODEN- AUEGBB, LANGUAGE(S)- ENGLISH, ISSN 0097-711X, ITEM NUMBER: 192503, MONTHLY PUBLICATION NO.: 099808 NDN- 007-0132-2296-3

Mount positions are very important for vehicle noise, vibration, and harshness (NVH). The general objectives for optimization are: to decouple the roll mode from the other

modes of vibration; to place the roll mode low; and to produce a bounce mode reasonably high. The engine mount NVH functions, in descending order of importance are low RPM isolation, shake sensitivity, high RPM isolation, harshness sensitivity, and powertrain torsion.

NATEC '83: DISCOVERING NEW FRONTIERS THROUGH IMAGINATION (NATIONAL TECHNICAL CONFERENCE - SOCIETY OF PLASTICS ENGINEERS), 1983. - 84-10 12625

Anon

Natl Tech Conf Soc Plast Eng NATEC '83, Discovering New Front Through Imagination, Detroit, Mich, USA, Sep 20-22 1983. Publ by Soc of Plastics Engineers, Brookfield Center, Conn, USA, 1983 182p, CODEN- NTCEEW, CORPORATE AUTHOR(S)- Soc of Plastics Engineers, Brookfield Center, Conn, USA, LANGUAGE(S)- ENGLISH, ITEM NUMBER: 715361, MONTHLY PUBLICATION NO.: 108278 NDN- 007-0131-1107-7

Proceedings consists of 60 papers on innovative uses of plastics. Nine papers are in abstract form only. Specific topics include: reaction injection molding of urethane materials; material modifiers and their advantages; robotics; computer-aided design and manufacturing; filled and reinforced materials; decorating development; statistical process control; reaction injection molding of non-urethanes; improving injection molding productivity; marketing; bumper developments and materials; material characterization and testing; new materials; energy savings; and new developments in welding, machining, and sandwich molding. Technical and professional papers from this conference are indexed with the conference code no. 04536 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

WIND TUNNEL MEASUREMENTS OF TOTAL LOADS ON A MOBILE HOME. - 84-09 12504

Roy, R. J.

J Wind Eng Ind Aerodyn v 13 n 1-3 Dec 1983, Proc of the Int Conf on Wind Eng, 6th, 1983, Gold Coast, Queensl, Aust and Auckland, NZ, Mar 21-25 and Apr 6-7 1983 p 327-338, CODEN- JWEAD6, CORPORATE AUTHOR(S)- James Cook Univ of North Queensland, Townsville, Queensl, Aust, LANGUAGE(S)- ENGLISH, ITEM NUMBER: 714649, MONTHLY PUBLICATION NO.: 091501 NDN- 007-0129-7709-7

This paper describes simulation of full-scale flow properties together with a set of total load measurement on a mobile home obtained in the flow conditions in the wind tunnel. A comparison between these results and a set of full-scale results from a mobile home are also described. 15 refs.

POWDER METAL PARTS: DESIGN AND IMPLEMENTATION FOR ECONOMICS AND RELIABILITY (SAE INTERNATIONAL CONGRESS & EXPOSITION), 1983. - 84-08 11768

Anon

SAE Spec Publ SP-535, Powder Met Parts: Des and Implementation for Econ and Reliab, Detroit, Mich, USA, Feb 28-Mar 4 1983. Publ by SAE, Warrendale, Pa, USA, 1983 83p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, Pa, USA, LANGUAGE(S)- ENGLISH, ISSN 0099-5908, ITEM NUMBER: 713593, MONTHLY PUBLICATION NO.: 082073 NDN- 007-0128-5414-5

This volume contains 11 papers covering design and implementation of powder metal parts for economics and reliability. Papers included cover such subjects as powder metal gears and other parts for the automotive industry, forgeability, quality assurance procedures, and effects of hydrogen on sulfur in ferrous compacts. Technical and professional papers from this conference are indexed with the conference code no. 03143 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

ADIABATIC DIESEL ENGINE (SAE INTERNATIONAL CONGRESS & EXPOSITION), 1983. - 84-08 11780

Anon

SAE Spec Publ SP-543, Adiabatic Diesel Engine, Detroit, Mich, USA, Feb 28-Mar 4 1983. Publ by SAE, Warrendale, Pa, USA, 1983 80p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, Pa, USA, LANGUAGE(S)- ENGLISH, ISSN 0099-5908, ITEM NUMBER: 713605, MONTHLY PUBLICATION NO.: 076229 NDN- 007-0128-5402-9

Research and development activities in the area of adiabatic diesel engine technology is presented in the seven papers of this conference. These proceedings include reports of advances in high temperature materials, high temperature tribology and advanced ceramic engine design. The benefits of applying thermal insulation to the exhaust ports and combustion chamber components of a diesel engine, in order to reduce heat losses are discussed, and the results of ceramic piston tests are presented. Technical and professional papers from this conference are indexed with the conference code no. 03149 in the Ei Engineering Meeting (TM) database produced by Engineering Information, Inc.

ANALYSIS OF QUASI-SYNCHRONOUS AM MOBILE RADIO OPERATION AND RECOMMENDED DESIGN PARAMETER VALUES. - 84-07 06484

Fudge, R. E.

IEE Proc Part F v 131 n 2 Apr 1984 p 156-166, CODEN- IPFPDU, CORPORATE AUTHOR(S)- Home Office, Directorate of Telecommunications, London, Engl, LANGUAGE(S)- ENGLISH, ISSN 0143-7070, ITEM NUMBER: 162410, MONTHLY PUBLICATION NO.: 070374 NDN- 007-0127-8190-7

Quasi-synchronous operation of a number of base transmitters is often used to provide extensive area coverage in land mobile radio systems. An analysis is made of the responses of an am receiver operating in such a system. The effects of automatic level control and the muting action are shown to nullify any predictions made of system performance based on harmonic distortion of sinusoidal modulating tones. A limited analysis of the types of distortion likely to arise from the mismatch of modulation between transmitters is made in order to give a guide to the parameters to be explored in subjective trials. The results of, first laboratory-based and subsequently field-based, trials are presented and from them recommendations are made for the allowable limits which should be used for the design and maintenance of a quasi-synchronous am system. 7 refs.

OFF-ROAD VEHICLE RECREATION MANAGEMENT POLICY FOR PUBLIC LANDS IN THE UNITED STATES: A CASE HISTORY. - 84-05 00232

Wilshire, Howard G.

Environ Manage v 7 n 6 Nov 1983 p 489-499, CODEN- EMNGDC, LANGUAGE(S)- ENGLISH, ISSN 0364-152X, ITEM NUMBER: 135425, MONTHLY PUBLICATION NO.: 047214 NDN- 007-0126-0935-7

Three annual motorcycle races on the Johnson Valley-Parker course in California's Mojave Desert have resulted in conspicuous modifications of soil and vegetation in a Wilderness Study Area (WSA) and in other lands of high resource values. The extent of damage caused by the races, which have involved fewer than 400 participants, exceeded the expectations of the managing agency by 360%-640% and the allowable limits imposed by the agency by 40%-76%. Designation of the remaining parts of the course on lands of high resource value was based on criteria subsequently determined by a federal court to be in violation of regulations derived from two Executive Orders. Refs.

WINDBREAK EFFECTS ON AIR INFILTRATION AND SPACE HEATING IN A MOBILE HOME. - 84-03 04382

DeWalle, David R. Heisler, Gordon, M.

Energy Build v 5 n 4 Sep 1983 p 279-288, CODEN- ENEBDR, CORPORATE AUTHOR(S)- Sch of Forest Resources, & the Inst for Research on Land & Water Resources, University Park, Pa, USA, LANGUAGE(S)- ENGLISH, ISSN 0378-7788, ITEM NUMBER: 120405, MONTHLY PUBLICATION NO.: 022600 NON- 007-0123-5290-5

During winter experiments in central Pennsylvania a windbreak, 61 meters long and composed of a single row of white pine trees, significantly reduced air infiltration rates and space heating energy needs in a small mobile home by up to 54% and 18%, respectively. Greatest reductions in air infiltration rates occurred with the home at one windbreak height (1H) downwind, even though maximum reductions in wind velocity occurred at 2H or 4H downwind. Space heating energy savings were less sensitive to downwind position, with maximum energy savings measured at both 1H and 2H. Maximum energy savings due to the windbreak for an entire winter heating season were estimated to be 12%. 26 refs.

DEVELOPMENTS OF RADIAL AND DIAGONAL PLY TYRES WITH SPECIFIC REFERENCE TO THE SOUTH AFRICAN MARKET. - 84-02 01887

Bester, J.

Certif Eng v 56 n 7 Jul 1983 p 96-104, CODEN- CEENA9, CORPORATE AUTHOR(S)- General Tire & Rubber Co (South Africa), Port Elizabeth, S Afr, LANGUAGE(S)- ENGLISH, ISSN 0009-0409, ITEM NUMBER: 109041, MONTHLY PUBLICATION NO.: 017917 NDN- 007-0122-7785-3

A review is given of the present status of locally manufactured tires with special reference to radial passenger and truck tires. It is concluded that steel belted passenger tires will, as elsewhere in the world, become dominant and that all steel radial truck tires will in the near future constitute a significant proportion of heavy truck tire sales. Although South African manufacturers produce most tire types, this discussion is restricted to passenger, heavy truck and off-the-road tires. Contributions by others to the subject of the paper are appended.

PRIMER ON LOAD SENSE STEERING DESIGN. - 83-12 04897

Steinkuhl, Allan R.

Automot Eng (Warrendale Pa) v 91 n 9 Sep 1983 p 39-42, CODEN- AUEGBB, CORPORATE AUTHOR(S)- TRW, Ross Gear Div, USA, LANGUAGE(S)- ENGLISH, ISSN 0097-711X, ITEM NUMBER: 096312, MONTHLY PUBLICATION NO.: 099280 NDN- 007-0120-6338-5

Comparisons and considerations in selecting hydraulic steering systems, particularly for off-road equipment are presented. Open center systems, closed center systems and load sensed systems are described. The major components of those systems are described with discussions of performance and economic considerations.

COMPARISON OF WIND PRESSURES ON A MOBILE HOME IN MODEL AND FULL SCALE. - 83-12 05472

Macha, J. M. Sevier, J. A. Bertin, J. J.

J Wind Eng Ind Aerodyn v 12 n 2 Jul 1983 p 109-124, CODEN- JWEAD6, CORPORATE AUTHOR(S)- Univ of Texas, Aerospace Engineering & Engineering Mechanics Dept, Austin, Tex, USA, LANGUAGE(S)- ENGLISH, ITEM NUMBER: 096887, MONTHLY PUBLICATION NO.: 102448 NDN- 007-0120-5763-4

Wind pressure measured on a 1:25 scale model of a mobile home are compared with results from a full-scale investigation. The modeling technique used exaggerates the surface roughness in order to match the full-scale turbulence intensity at the model height. It is shown that there is reasonable agreement of the mean and RMS pressure coefficients between model and full scale, when the pressure coefficients are normalized by the local dynamic head at the building height. The spectra of the pressure fluctuations in regions of separated flow are not simulated correctly, owing to the absence of large-scale turbulence in the wind-tunnel boundary layer. 17 refs.

RASCHET OSNOVNYKH PARAMETROV PODVESKI PEREMENNOI STRUKTURY MNOGOOSNOGO AVTOMOBILYA. (CALCULATION OF PRINCIPAL PARAMETERS OF VARIABLE-STRUCTURE SUSPENSION FOR MULTIPLE-AXLE AUTOMOBILES) . - 83-10 00459

Gustomyasov, A. N. Vereshchaka, V. A. Galashin, V. A. Lisin, V. I.

Izv Vyssh Uchebn Zaved Mashinostr n 2 1983 p 36-41, CODEN- IVUSAH, LANGUAGE(S)- ENGLISH, ISSN 0536-1044, ITEM NUMBER: 077860, MONTHLY PUBLICATION NO.: 081561 NDN- 007-0118-4734-6

The method is considered and analytical relations are presented for determining the natural frequencies of vibration of the sprung mass of a multiple-axis automobile on a variable-structure suspension, given the presence of constraints on output coordinates. A comparative analysis of random oscillations of a six-wheel automobile with different suspension systems is given. In Russian.

DYNAMICS OF RECREATIONAL VEHICLES (INTERNATIONAL CONGRESS & EXPOSITION), 1982. - 83-02 02209

Anon

SAE Spec Publ 509, Dyn of Recreat Veh, Detroit, Mich, USA, Feb 22-26 1982. Publ by SAE, Warrendale, Pa, USA, 1982 81p, CODEN- SAESA2, CORPORATE AUTHOR(S)- SAE, Warrendale, Pa, USA,, ISSN 0099-5908, ITEM NUMBER: 010014, MONTHLY PUBLICATION NO.: 015253 NDN- 007-0110-9661-9

This publication contains 6 papers that present recent results on the kinematics, dynamics, stability, and control of wheeled recreational vehicles, particularly combination vehicles and three-wheeled vehicles. In addition, the use of interactive computer graphics in the design of recreational vehicles is examined. Technical and professional papers from this conference are indexed with the conference code no. 01370 in the Ei Engineering Meetings (TM) database produced by Engineering Information, Inc.

PLANNING FOR OFF-ROAD RECREATIONAL VEHICLE USE ON ARMY INSTALLATIONS. - 83-02 02950

Lacey, R. M. Goettel, R. G. Balbach, H. E. Severinghaus, W. D.

Tech Rep Constr Eng Res Lab N-132 Jul 1982 93p, CODEN- TRCLD2, CORPORATE AUTHOR(S)- US Army Constr Eng Res Lab, Champaign, Ill, USA,, ITEM NUMBER: 010755, MONTHLY PUBLICATION NO.: 015256 NDN- 007-0110-8920-2

Since 1978, the U. S. Army Construction Engineering Research Laboratory has been conducting research to help installation personnel comply with the policies, procedures, and criteria of Army Regulation 210-9, Use of Off-Road Vehicles on Army Lands. This report represents a synthesis of the results of this research. It describes a general process and some specific considerations for planning for off-road recreational vehicle use on Army lands. 22 refs.

ANALYSIS OF MOBILE HOME THERMAL PERFORMANCE. - 82-08 07564

Hutchins, Paul F. Jr. Hirst, Eric

Energy Build v 3 n 4 Aug 1981 p 279-286, CODEN- ENEBDR, CORPORATE AUTHOR(S)- Oak Ridge Natl Lab, Tenn, USA,, ITEM NUMBER: 059124, MONTHLY PUBLICATION NO.: 068933 NDN- 007-0104-8506-9

Various levels of investment in energy-efficient designs for new mobile homes are examined. The purpose is to define relationships between annual energy use for space heating and air conditioning and additional investment in the structure shell. These relationships are developed for nine different cities in the U. S. A. The optimal design configuration is determined for mobile homes in each city as a function of the energy use/cost relationship, heating fuel choice, climate, fuel prices, and other economic factors. Results of this analysis indicate that the 1976 thermal standard promulgated by Department of Housing and Urban Development requires considerably less investment in energy-efficient design than the optimal for all but the warmest climates. The present HUD standard does not account for differences in fuel choices and prices, which strongly influence the economics of energy use. 17 refs.

EVALUATION OF LANDS FOR OFF-ROAD RECREATIONAL FOUR-WHEEL DRIVE VEHICLE USE. - 82-06 00452

Lacey, R. M. Severinghaus, W. D.

Tech Rep Constr Eng Res Lab n-110 Oct 1981 79 p , CODEN- TRCLD2, LOCATION OF WORK- US Army Constr Eng Res Lab, Champaign, Ill, USA, MONTHLY PUBLICATION NO.-055437, ITEM NUMBER-037928 NDN- 007-0103-6885-5

This report describes a method to evaluate land areas on Army installations for use by off-road recreational four-wheel drive (4WD) vehicles. The method describes how to identify incompatible land uses and noise conflict, choose candidate areas, evaluate soil and biological suitability, and develop trails. Also discussed are 4WD user participation, trail design, vehicle operating conditions, and environmental assessment and monitoring. 29 refs.

PAST, PRESENT AND FUTURE AUTOMOTIVE ELASTOMER APPLICATIONS (CONGRESS AND EXPOSITION), 1980. - 82-06 07381

Anon

SAE Spec Publ SP-464, Past, Present and Future of Automot Elastomer Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 41 p , CODEN- SAESA2, LOCATION OF WORK- SAE, Warrendale, Pa, USA, MONTHLY PUBLICATION NO.-047192, ITEM NUMBER-510204 NDN- 007-0102-9963-8

This volume contains 7 papers, all of which are abstracted separately. These papers cover the development of elastomer usage for various parts of the motor vehicle. In particular, the development of elastomers for automotive belts, gaskets, diaphragms, hoses, radial lip seals, and engine mounting devices is covered. (SP-464)

EVOLUTION OF MATERIAL SPECIFICATIONS FOR RUBBER (NON-TIRE). - 82-06 07382

Lowman, Maurice M.

SAE Spec Publ SP-464, Past, Present and Future of Automot Elastomer Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 1-4 , CODEN- SAESA2, LOCATION OF WORK- Goodyear Tire & Rubber Co, USA, MONTHLY PUBLICATION NO.-053628, ITEM NUMBER-510205 NDN- 007-0102-9962-6

The development of rubber material specifications for molded, extruded and lathe cut products is discussed. This includes the philosophies of the writing committees as well as the thought processes to arrive at SAEJ200 - ASTMD2000 classification of specifications. A continuing need for further continuous involvement by SAE is mentioned. (800266). 5 refs.

PASSIVE SOLAR MOBILE HOME PROJECT. - 82-05 02128

Nall, Daniel H.

Proc of US Dep of Energy Passive & Hybrid Sol Energy Program Update Meet, Washington, DC, USA, Sep 21-24 1980 Publ by DOE (Conf-800972), Washington, DC, USA, 1980. Available from NTIS, Springfield, Va, USA p 2. 29-2. 30 , LOCATION OF WORK- Berkeley Sol Group, Calif, USA, MONTHLY PUBLICATION NO.-040228, ITEM NUMBER-030793 NDN- 007-0102-5461-8

A passive solar heating and cooling system for a multi wide mobile home is briefly outlined. In addition to meeting current requirements for manufacture and transport, the system is economically favorable for the homeowner. The system is flexible enough in application to be adaptable to the varying climatic conditions within the target marketing area of California, Arizona, Nevada and Utah. Finally, the system is adaptable to units of various size and allows the flexibility of floor plan currently available in the product line.

MATERIALS AVAILABILITY FOR AUTOMOTIVE APPLICATIONS (CONGRESS AND EXPOSITION), 1980. - 82-04 05221

Anon

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 41 p , CODEN- SAESA2, LOCATION OF WORK- SAE, Warrendale, Pa, MONTHLY PUBLICATION NO.-026704, ITEM NUMBER-025953 NDN- 007-0101-2881-9

This publication contains 8 papers, all of which are abstracted separately. These papers deal with the assessment of materials availability as it applies to the automotive industry. In addition to papers on the general problem, the availability of specific materials, such as steel, aluminum, plastics, copper, cobalt, and platinum is discussed.

MATERIALS AVAILABILITIES IN THE 80'S. - 82-04 05222

Morgan, John D. Jr.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 1-8 , CODEN- SAESA2, LOCATION OF WORK- US Dep of the Inter, Washington, DC, USA, MONTHLY PUBLICATION NO.-026705, ITEM NUMBER-025954 NDN- 007-0101-2880-7

Many materials used in motor vehicles are classified as strategic and are imported from foreign sources of varying degrees of reliability. The U. S. maintains a stockpile of strategic materials, but this stockpile is intended for defense purposes. Consequently, motor vehicle manufacturers must pay increasing attention to assuring that production schedules are not disrupted by foreseeable and preventable materials shortages.

SUPPLY PROSPECTS FOR AUTOMOTIVE STEELS. - 82-04 05223

Hogan, William T.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p , CODEN- SAESA2, LOCATION OF WORK- Fordham Univ, Bronx, NY, USA, MONTHLY PUBLICATION NO.-026714, ITEM NUMBER-025955 NDN- 007-0101-2879-0

At present, steel availability for the automotive industry is no problem. And assuming that automotive demand will increase in the future, steel availability should remain adequate despite the rise in foreign steel imports and a cut back in the United States capacity.

ALUMINUM INDUSTRY FIVE-YEAR FORECAST - 1980-1984. - 82-04 05224

Spector, Stewart R.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 11-15 , CODEN- SAESA2, LOCATION OF WORK- Oppenheimer & Co, MONTHLY PUBLICATION NO.-026710, ITEM NUMBER-025956 NDN- 007-0101-2878-9

This five-year forecast is based on what will be the most likely series of economic developments over the next several years, none of which anticipates an extreme or severe worldwide business recession similar to 1974-1975. Under the assumptions in the forecast, the long-term outlook for the aluminum industry is: (1) aluminum supply/demand will grow progressively tighter through 1983-1984, and (2) aluminum prices will trend higher at a rate faster than both inflation and production costs for the next several years. Through 1984 the demand for aluminum will be limited by the availability of new supplies of both primary and secondary sources of metal. This limitation will keep the international aluminum prices and the return on capital above the level necessary to justify new investments in basic smelting capacity.

OUTLOOK FOR THE AVAILABILITY OF AUTOMOTIVE PLASTICS. - 82-04 05225

Young, John D.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 17-22 , CODEN- SAESA2, LOCATION OF WORK- DuPont, MONTHLY PUBLICATION NO.-026712, ITEM NUMBER-025957 NDN- 007-0101-2877-7

Plastics have an advantage of being less energy intensive in their manufacture than metals. During the transition period from oil and natural gas to coal for production of feedstocks, plastics should maintain a preferred position in allocation of fossil fuels on the basis of their economic benefit and end-use energy savings. Overall energy conservation, reduced gasoline consumption, and the switch to coal and other energy sources should aid plastics in meeting future automotive demand projections of 300 to 400 pounds per car by the late 1980's. 4 refs.

MATERIALS AVAILABILITY FOR AUTOMOTIVE APPLICATIONS - COPPER, LEAD, AND ZINC. - 82-04 05226

Adams, Robin G.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 23-25 , CODEN- SAESA2, LOCATION OF WORK- Chase Econom, MONTHLY PUBLICATION NO.-026706, ITEM NUMBER-025958 NDN-007-0101-2876-5

The auto industry is facing significantly tighter supply conditions and greater market instability for copper, lead and zinc in the Eighties. Lack of past investment in new mines, increased political intervention in the mining industry, the growing import dependence of the United States and greater reliance on terminal commodity markets will further compound the difficult purchasing environment.

THE AVAILABILITY OF COBALT FOR AUTOMOTIVE APPLICATIONS. - 82-04 05227

Pearce, Rex F.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 27-31 , CODEN- SAESA2, LOCATION OF WORK- Sherritt Gordon Mines Ltd, Can, MONTHLY PUBLICATION NO.-026707, ITEM NUMBER-025959 NDN- 007-0101-2875-3

The historical production pattern for cobalt, the pattern of consumption, and the specific applications of cobalt for automobiles, are factors considered in assessing the future availability of cobalt for automotive applications.

PLATINUM AVAILABILITY. - 82-04 05228

Lundy, David E.

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 33-34 , CODEN- SAESA2, LOCATION OF WORK- Matthey Bishop Inc, MONTHLY PUBLICATION NO.-026708, ITEM NUMBER-025960 NDN- 007-0101-2874-1

The sources, reserves and resources, and output of the platinum group metals are reviewed.

MATERIALS AVAILABILITY. - 82-04 05229

Anon

SAE Spec Publ SP-462, Mater Availability for Automot Appl, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 p 35-41 , CODEN- SAESA2, MONTHLY PUBLICATION NO.-026709, ITEM NUMBER-025961 NDN- 007-0101-2873-0

This report outlines significant concerns with respect to material availability and lists major sources for additional information. It concentrates on elemental types of materials such as zinc, magnesium, antimony, and includes petroleum and natural rubber. This initial document concentrates on materials employed in ground vehicles, encompassing passenger cars, trucks, off-road equipment, and recreational vehicles. Later documents will cover materials used in aircraft and other vehicles not normally traveling on the ground.

NEW WEATHERABLE ENGINEERING THERMOPLASTIC. - 82-04 08227

Wefer, John M.

Org Coat Plast Chem v 44, Prepr of Pap Presented at the ACS Natl Meet, 181st, Atlanta, Ga, USA, Mar 29-Apr 3 1981. Publ by ACS, Washington, DC, USA, 1981 p 376-381 , CODEN- OCPCDG, LOCATION OF WORK- Uniroyal Inc, Middlebury, Conn, USA, MONTHLY PUBLICATION NO.-035495, ITEM NUMBER-026963 NDN- 007-0101-1877-2

This paper is concerned with properties, performance and applications of Rovel brand polymers which are a new generation of engineering thermoplastics featuring an excellent balance of impact and other mechanical properties, and outstanding resistance to changes in mechanical properties and appearance when exposed outdoors. Rovel is an impact modified styrene acrylonitrile (SAN) copolymer in which the impact

modifier is a saturated olefinic elastomer developed for resistance to ultraviolet radiation, oxygen, and other weathering effects. Rovel is easily processed on conventional equipment, and grades optimized for injection molding, sheet extrusion and profile extrusion are available. It can be used as an integral material or as the protective cap layer in coextruded Rovel/ABS sheet. Typical where Rovel is currently used include outboard motor shrouds (injection molded), motorcycle trunks (molded), solar cell housings (molded), magnetic signs (sheet), camper tops (coextruded Rovel/ABS) and solar heating panels (extruded profile). 4 refs.

RECREATIONAL VEHICLE DYNAMICS (CONGRESS), 1980. - 82-03 06909

Anon

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 97 p , CODEN- SAESA2, LOCATION OF WORK- SAE, Warrendale, Pa, USA, MONTHLY PUBLICATION NO.-025887, ITEM NUMBER-503924 NDN- 007-0100-1228-3

This volume contains 10 papers presenting recent research results on the kinematics, dynamics, stability, and control of wheeled recreational vehicles, with special attention to car-trailer systems. All these papers are indexed separately. The emphasis is on modeling the underlying physical phenomena governing the dynamic behavior of recreational vehicles.

STATIC AND DYNAMIC OFFTRACKING OF ARTICULATED VEHICLES. - 82-03 06910

Bernard, James E. Vanderploeg, Marty

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800151, p 1-8 , CODEN- SAESA2, LOCATION OF WORK- Mich State Univ, East Lansing, USA, MONTHLY PUBLICATION NO.-025888, ITEM NUMBER-503925 NDN- 007-0100-1227-1

Offtracking has been considered a low speed phenomenon, amenable to analysis via small mechanical models or straightforward calculations. This paper views offtracking from a high speed as well as a low speed vantage point. A mathematical model with one degree of freedom is used to show that there is a speed, well within the routine driving range and independent of radius, at which there will be no offtracking in a steady turn. At higher speeds the trailer will track outside the steady turn circle, and at lower speeds the trailer will track inside the steady turn circle. 5 refs.

NONLINEAR STABILITY AND RESPONSE OF CAR-TRAILER COMBINATIONS. - 82-03 06911

Taylor, D. L.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800152, p 9-22 , CODEN- SAESA2, LOCATION OF WORK- Cornell Univ, Ithaca, NY, USA, MONTHLY PUBLICATION NO.-025744, ITEM NUMBER-503926 NDN- 007-0100-1226-0

The technique of quasilinearization (describing function analysis) is used to study the effects of saturation of lateral tire force based on the traditional slip law concept. Due to trailer swing velocity, the dynamic slip angle is shown to be greater than the trailer angle. Thus nonlinear results are important even for small displacements. Significant changes in frequency and damping ratio from linear values are shown for the transient response of a one degree of freedom model. The forced response is shown to be of the classical left-leaning softening type, with jump/drop phenomenon. A two degree of freedom model is shown to have a very small amplitude limit cycle for operation above the critical velocity. Conversely, a three degree of freedom model is shown to have no stable limit cycle above the critical velocity. 25 refs.

NEW COUPLING HITCH FOR CAR-TRAILER COMBINATIONS WHICH ELIMINATES SWAYING. - 82-03 06912

Tesar, D. Matthew, G. K.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800153, p 23-30 , CODEN- SAESA2, LOCATION OF WORK- Univ of Fla, Gainesville, USA, MONTHLY PUBLICATION NO.-025741, ITEM NUMBER-503927 NDN- 007-0100-1225-8

During the summer of 1970, a new trailer hitch was designed which effectively removes the dangerous yaw oscillation between car and trailer. The device is a simple $left double quote$ virtual $right double quote$ hitch linkage which places the hitch point at the center of mass of the towing vehicle. This hitch point placement decouples the fundamental mode of energy interchange between the two vehicles greatly increasing the overall safe speed of operation. Experimental evidence shows that this new coupling passively desensitizes the system from driver error or from poor loading procedures. 4 refs.

NONLINEAR STUDY OF THE STEADY-STATE TURNING BEHAVIOR OF CAR-TRAILER SYSTEMS. - 82-03 06915

Eke, Fidelis O. Kane, Thomas R.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800156, p 47-51 , CODEN- SAESA2, LOCATION OF WORK- Tuskegee Inst, Ala, USA, MONTHLY PUBLICATION NO.-025745, ITEM NUMBER-503930 NDN- 007-0100-1222-2

The equations governing the steady-state turning behavior of car-trailer systems are derived without linearization in any of the motion variables and with full consideration of lateral and longitudinal load transfer. Furthermore, the wheel-roadway interaction forces are expressed as nonlinear functions of tire slip angles. The resulting system of variously nonlinear and transcendental equations is solved numerically for a specific vehicle system, and the principal results are condensed into a carpet plot, which can be used as a handling diagram. 10 refs.

DEVELOPMENT OF MAXIMUM ALLOWABLE HITCH LOAD BOUNDARIES FOR TRAILER TOWING. - 82-03 06916

Klein, Richard H. Szostak, Henry T.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800157, p 53-62 , CODEN- SAESA2, LOCATION OF WORK- Syst Technol Inc, Hawthorne, Calif, USA, MONTHLY PUBLICATION NO.-025742, ITEM NUMBER-503931 NDN- 007-0100-1221-0

This paper presents an analytically based approach to specifying a maximum allowable hitch load for passenger cars pulling trailers. The change in tow car steady-state directional stability, i. e. , understeer, is the basis for the specification. This handling parameter is a function of hitch load, lateral acceleration, tow car to trailer weight ratio, and the amount of load leveling applied by a Class III hitch. Over 50 combination-vehicle configurations (using three tow car sizes and eight trailers) were then tested in order to validate and revise the analytical boundaries. Based on these results a tow car stability criterion derived from maximum hitch load considerations appears a valid format for the trailer user and/or manufacturer. 15 refs.

COMPARISON OF THE BEHAVIOR OF ARTICULATED RECREATIONAL VEHICLES WITH EITHER FIXED OR POSITION CONTROL OF STEERING. - 82-03 06917

Johnson, D. B. Huston, J. C.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800158, p 63-72 , CODEN- SAESA2, LOCATION OF WORK- Iowa State Univ, Ames, USA, MONTHLY PUBLICATION NO.-025743, ITEM NUMBER-503932 NDN- 007-0100-1220-9

The use of a subset of the complete equations of motion to determine the lateral stability of an articulated vehicle is considered. Four different articulated vehicles are treated. The powered vehicle in each case represents a mid-size American car, and the towed vehicles represent utility, boat, travel, and horse trailers. It is shown that trailer swing oscillations can be excited when the path

of the car is controlled. 14 refs.

EFFECT OF THE NORMAL FORCE DEPENDENCE OF CORNERING STIFFNESS ON THE LATERAL STABILITY OF RECREATIONAL VEHICLES. - 82-03 06918

Huston, J. C. Johnson, D. B.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800161, p 73-79 , CODEN- SAESA2, LOCATION OF WORK- Iowa State Univ, Ames, USA, MONTHLY PUBLICATION NO.-025746, ITEM NUMBER-503933 NDN- 007-0100-1219-2

One of the most important parameters in a vehicle dynamics model is tire cornering stiffness. Recently, Bergman has developed a quadratic expression relating cornering stiffness and normal load by correlating tire test data from four different sources. This quadratic expression, as well as linear and constant approximations of it, are used in lateral stability analyses of a car and of a car/trailer system. It is shown that the change in cornering stiffness with normal load does significantly affect critical speed. 6 refs.

HANDLING-CHARACTERISTICS SIMULATIONS OF CAR-TRAILER SYSTEMS. - 82-03 06919

Anderson, R. J. Kurtz, E. F. Jr.

SAE Spec Publ SP-463, Recreat Veh Dyn, Congr and Expo, Detroit, Mich, USA, Feb 25-29 1980. Publ by SAE, Warrendale, Pa, USA, 1980 Pap 800545, p 81-97 , CODEN- SAESA2, LOCATION OF WORK- Def Res Establ Atl, Dartmouth, NS, Can, MONTHLY PUBLICATION NO.-025747, ITEM NUMBER-503934 NDN- 007-0100-1218-0

Two theoretical models are described for simulating the handling characteristics of automobiles towing trailers. These models are similar except that one excludes roll dynamically and has only four degrees of freedom, whereas the other includes roll dynamically and has six degrees of freedom. Both models yielded excellent simulations of measures of handling characteristics, the model with six degrees of freedom being slightly superior. Nonetheless, the most important conclusion of this study is that excellent simulations of handling characteristics of car-trailer systems can be obtained with a model having only four degrees of freedom. The study includes a sensitivity analysis to indicate the importance of certain effects included in the models. 27 refs.

DESIGNING WITH HIGH PERFORMANCE PLASTICS IN OFF-THE-ROAD AND AUTOMOTIVE EQUIPMENT APPLICATIONS. - 82-02 07965

Anderson, J. Neil

SAE Prepr n 810968 for Meet Sep 14-17 1981 7 p , CODEN- SEPPA8, LOCATION OF WORK- Rogers Corp, MONTHLY PUBLICATION NO.-014651, ITEM NUMBER-502664 NDN- 007-0099-1548-9

High performance polyimide polymers have increasingly replaced metal parts in off-road and automotive equipment. Known for excellent properties at high temperature, load and speed, polyimides have proved their effectiveness in sealing and bearing applications. By taking advantage of polyimide's strength, low deformation under load, low wear rate, self-lubricity and chemical and temperature resistance, the design engineer is able to optimize part and assembly design. Improved performance, weight reduction, and cost savings may be realized. 2 refs.

SHRINKAGE IN RIM URETHANES. - 81-12 03009

McBrayer, R. L. Carver, T. G.

Elastomerics v 113 n 6 Jun 1981 p 5 , CODEN- ELASDA, LOCATION OF WORK- BASF Wyandotte Corp, Mich, MONTHLY PUBLICATION NO.-102905, ITEM NUMBER-084880 NDN- 007-0097-8935-6

Significant factors influencing shrinkage of RIM urethanes are discussed by the authors. Details are given on the following topics $EM DASH$ chemical system; processing equipment; experimental and evaluation; RRIM (reinforced reaction injection molding). It is concluded that mold material, mold temperature, part thickness, and blowing agent addition all are significant factors influencing

shrinkage of RIM urethanes. The cost benefits of low cost prototype tooling can be taken advantage of if careful attention to these factors is paid in sizing production tooling. On the other hand, all of these factors can be used to change the shrinkage obtained with a specific chemical system to accommodate existing tooling. 14 refs.

DUAL VOLTAGE REGULATOR FOR DIESEL ENGINES AND RECREATIONAL/MILITARY VEHICLES. - 81-10 04855

Orzkaynak, I.

Electron Eng (London) v 53 n 649 Mar 1981 p 25 , CODEN- ELEGAP, LOCATION OF WORK- Singer Co, Elizabeth, NJ, MONTHLY PUBLICATION NO.-079720, ITEM NUMBER-073169 NDN-007-0095-9324-3

A circuit is presented which drives a single automobile alternator to generate dc power at two different but, independently and simultaneously regulated voltage levels, each isolated from the other. An arrangement of this nature is especially applicable to those motor vehicles employing big diesel engines, where higher starting voltages (namely, 24 to 32 v) are required in order for the starter to produce enough power to adequately crank the engine against the opposing high compression or employing multi-battery systems for recreational equipment (i. e. , RV TVs, refrigerators, fresh water pumps, etc.) or employing 28 vdc as a standard power source for mobile communication/field weaponry systems.

EFFECTS OF CROSSWINDS ON VEHICLE RESPONSE $EM DASH$ FULL-SCALE TESTS AND ANALYTICAL PREDICTIONS. - 81-02 05900

Klein, Richard H. Hogue, Jeffrey R.

SAE Prepr n 800848 for Meet Jun 9-13 1980 15 p , CODEN- SEPPA8, LOCATION OF WORK- Syst Technol Inc, MONTHLY PUBLICATION NO.-010850, ITEM NUMBER-015965 NDN-007-0089-0607-9

Full-scale vehicle response tests were conducted on five vehicles using a crosswind disturbance test facility capable of providing a 35 mph wind over a nominal 120 ft test length. Results showed that passenger cars, station wagons, and most vans have virtually no crosswind sensitivity problems, whereas the VW Microbus, the pickup/camper (in winds higher than 35 mph), and cars pulling trailers do have potential problems. 12 refs.

FIELD MEASUREMENT OF A GAS FURNACE IN A MOBILE HOME AND DETERMINATIO OF STEADY STATE, CYCLIC AND SEASONAL EFFICIENCIES. - 80-12 03972

Goldschmidt, Victor W. White, R. Reid Leonard, Robert G.

ASHRAE Trans v 86 Pt 1, 1980, Tech and Symp Pap Presented at the Semiannu Meet, Los Angeles, Calif, Feb 3-7 1980. Publ by ASHRAE, New York, NY, 1980 p 379-393 , CODEN-ASHTAG, LOCATION OF WORK- Purdue Univ, West Lafayette, Indiana, MONTHLY PUBLICATION NO.-090505, ITEM NUMBER-090552 NDN- 007-0087-2535-8

Field measurements of a commercial, gas fired down-flow forced air furnace are presented. The performance of a 80,000 Btu/hz gas fired furnace was measured and modeled. A seasonal utilization efficiency of 52% was noted with the furnace as delivered in the mobile home. The corresponding (installed) steady state efficiency was 68% (below the rating value of 75%) which was partly due to the duct work in the home. Measurements throughout the winter season showed that the furnace was oversized for its particular application. 15 refs.

FIELD VALIDATION OF ENERGY CONSERVATION SPECIFICATIONS ON TEN TEST HOMES THROUGH A METERING PROGRAM. - 80-12 07963

McBride, Merle F.

ASHRAE Trans v 85 Pt 2, Tech and Symp Pap Presented at the Annu Meet, Detroit, Mich, Jun 24-28 1979. Publ by ASHRAE, New York, NY, 1979 p 563-585 , CODEN- ASHTAG, LOCATION OF WORK- Owens-Corning Fiberglas, Granville, Ohio, MONTHLY PUBLICATION NO.-088051, ITEM NUMBER-094623 NDN- 007-0086-8547-6

A series of energy conservation specifications were developed for mobile homes and then experimentally validated on ten test homes located in Little Rock, Arkansas.

The ten homes were divided into three groups representing different construction specifications. All the homes were double wide and initially constructed for this specific research program. The specifications were treated as a complete package or systems approach and the validation consisted of comparing one strategy against another. 4 refs.

TESTING FOR WIND FORCES ON MOBILE HOMES. - 80-11 07140

Harris, R. B.

ASTM Spec Tech Publ 702, Full-Scale Load Test of Struct, Symp, Philadelphia, Pa, Apr 2 1979. Publ by ASTM, Philadelphia, Pa, 1980 p 125-134 , CODEN- ASTTA8, LOCATION OF WORK- Univ of Mich, Ann Arbor, MONTHLY PUBLICATION NO.-083182, ITEM NUMBER-086315 NDN- 007-0086-1323-4

This paper reports on a series of wind tunnel tests conducted in 1961 at The University of Michigan using models of mobile homes. The objective of the research was to develop an understanding of the magnitude of wind forces on mobile homes and to make recommendations for securing these units against high winds. The paper reviews these tests and recommendations and suggests further full-scale evaluations which could lead to increased economy in anchoring mobile home units, increased reliability of the anchoring system, and greater safety assurance. Subsequent analysis of the data in 1975 showed that the 1961 results may be applied to current mobile home units without serious error. The paper concludes with a discussion of major considerations for a full-scale testing program to verify the results and recommendations from the wind tunnel tests.

STRUCTURAL TESTING OF MOBILE-HOME ROOF/CEILING ASSEMBLIES. - 80-11 07141

Fritz, T. W.

ASTM Spec Tech Publ 702, Full-Scale Load Test of Struct, Symp, Philadelphia, Pa, Apr 2 1979. Publ by ASTM, Philadelphia, Pa, 1980 p 135-147 , CODEN- ASTTA8, LOCATION OF WORK- Res & Dev Cent, Lancaster, Pa, MONTHLY PUBLICATION NO.-083183, ITEM NUMBER-086316 NDN- 007-0086-1322-2

To evaluate the structural properties of mobile-home roof/ceiling assemblies, full-scale tests were conducted. Actual sections of mobile-home roof structures up to 3. 66 by 8. 53 m (12 by 28 ft) were tested, using a self-contained hydraulic test apparatus. The results of the full-scale tests are translated into permissible shear wall spacings within the mobile home. The required diaphragm shear values depend on the anticipated wind loading on the mobile home and the desired shear wall spacing. This paper discusses the origin of the test requirements in the codes and the development and design of the test frame and the loading system. Typical data from the tests and the application of the test results for mobile-home construction are also discussed.

STIRLING ENGINE POWERED TOTAL ENERGY SYSTEM: RECREATIONAL VEHICLE APPLICATION. - 80-10 02814

Johansson, Lennart Lampert, William B.

Proc Intersoc Energy Convers Eng Conf 14th, v 1, Boston, Mass, Aug 5-10 1979. Publ by Am Chem Soc, Washington, DC, 1979. Also available from IEEE (Cat n 79CH1477-9 ENERGY), Piscataway, NJ p 1162-1168 , CODEN- PIECDE, LOCATION OF WORK- Stirling Power Syst, Ann Arbor, Mich, MONTHLY PUBLICATION NO.-072384, ITEM NUMBER-074039 NDN- 007-0085-8392-8

A Total Energy System (TES) has been developed for recreational vehicle applications where the unique features of a new Stirling cycle engine enhance user comfort, convenience, and safety. The TES, described provides electric power for all appliances and air conditioning, a hydronic heating system, and automatic operating features. The TES is quieter, more efficient, safer, and less polluting because of its unique design and use of a Stirling cycle power plant. 1 ref.

SHRINKAGE IN RIM URETHANES. - 80-08 05478

McBrayer, Robert L. Carver, T. Granville

More Plast Growth, the Answer to Transp in the 80's, Natl Tech Conf, Soc Plast Eng, Detroit, Mich, Nov 6-8 1979 Publ by SPE, Brookfield, Conn, 1979 p 127 . LOCATION OF WORK- BASF, Wyandotte, Mich, MONTHLY PUBLICATION NO.-062138, ITEM NUMBER-061764 NDN- 007-0084-0286-7

This paper briefly discusses how shrinkage of polyurethane flexible parts, made by reactive injection molding of a mixture of polyol and isocyanate, affect their performance on automobile applications. It is shown that careful attention to the factors which affect shrinkage can aid in the proper sizing of production tooling. On the other hand, use of these factors can be used to change the shrinkage of a specific chemical system to accommodate existing tooling.

MATHEMATICAL MODELING AND PREDICTION OF SEASONAL EFFICIENCIES OF A GAS FIRED FURNACE IN A MOBILE HOME. - 80-04 00882

Goldschimdt, V. W. Leonard, R. G. White, R. R.

ASME Pap n 79-WA/HT-29 for Meet Dec 2-7 1979 16 p , CODEN- ASMSA4, LOCATION OF WORK- Purdue Univ, West Lafayette, Indiana, MONTHLY PUBLICATION NO.-029675, ITEM NUMBER-026845 NDN- 007-0081-4370-9

A mathematical model of a test furnace is presented which simulates measured furnace performance at one heat load and demonstrates reasonable prediction of measured furnace performance at two other heat loads. The furnace model contains a number of $left double quote$ unique parameters $right double quote$ that were derived empirically, but does describe an effective procedure to be followed for other configurations. On a daily basis, the furnace model predicts operating efficiency to plus or minus 20 percent accuracy. On a seasonal basis, the furnace model reproduces predicted furnace operating trends quite well. It was used to calculate a seasonal utilization efficiency for a typical winter season in Lafayette and found in close agreement with that determined from a field test. 15 refs.

SOIL AND ROCK ANCHORS FOR MOBILE HOMES $EM DASH$ A STATE-OF-THE-ART REPORT. - 80-04 03613

Kovacs, William D. Yokel, Felix Y.

Natl Bur Stand Build Sci Ser n 107 Oct 1979 163 p , CODEN- BSSNBV, LOCATION OF WORK- Purdue Univ, West Lafayette, Indiana, MONTHLY PUBLICATION NO.-029637, ITEM NUMBER-029581 NDN- 007-0081-1641-0

Available anchor hardware is surveyed and evaluated and pull-out capacity data are compared with hypotheses for predicting anchor pull-out capacity based on soil mechanics principles. The evidence suggests that ability to predict anchor pull-out capacity by soil mechanics principles is inadequate, and that there is a need for the standardization of test procedures and soil classification and for further test data. Suggestions for future research are presented. 106 refs.

MOBILE HOME FLAMMABILITY. - 80-02 02253

Gause, W. Peyton

J Prod Liability v 3 n 1-2 1979 p 85-106 , CODEN- JPLIDG, MONTHLY PUBLICATION NO.-012787, ITEM NUMBER-011004 NDN- 007-0079-6555-6

The paper discusses the extent of the fire hazards present in most mobile homes, the most common ways in which such fires are started and spread, recent insurance data supporting the $left double quote$ fire hazard $right double quote$ characterization, the lackluster response of the mobile home industry to such claims, the standards established and followed by the industry, the engineering aspects involved and recent products liability cases resulting from the high flammability defect inherent in most mobile home construction materials or techniques. Refs.

ANALYTICAL EVALUATION OF THE DYNAMIC RESPONSE OF TRANSPORTED MOBILE HOMES. - 80-02 07440

Labra, John J.

Proc: Jt Autom Control Conf, Denver, Colo, Jun 17-21 1979 Publ by AIChE, New York, NY, 1979 p 312-317 , LOCATION OF WORK- Southwest Res Inst, San Antonio, Tex, MONTHLY PUBLICATION NO.-017104, ITEM NUMBER-016211 NDN- 007-0079-1372-6

As part of an ongoing analytical and experimental research program at Southwest Research Institute under contract to the Department of Housing and Urban Development (HUD), a three-dimensional dynamic analysis of a transported mobile home was conducted to investigate the dynamic response of typical mobile homes to transportational effects. The analysis was made using a general purpose finite element computer program and a statistical analysis computer program. Results from this study demonstrate that the racking phenomenon associated with in-transit mobile homes has a significant effect on mobile home degradation. Predictive equations were also formulated that can be used as design tools to estimate probable induced dynamic loadings to transported mobile homes. These equations could be used to define structural inadequacies in existing mobile home designs and aid in future mobile home development. 9 refs.

ABNORMAL COMBUSTION OF TWO STROKE CYCLE GASOLINE SNOWMOBILE ENGINE A HIGH SPEED AND FULL LOAD. - 80-02 08325

Fujikawa, Tetsuzo Abe, Shinji

SAE Prepr n 790841 for Meet Sep 10-13 1979 12 p , CODEN- SEPPA8, LOCATION OF WORK- Kawasaki Heavy Ind, Ltd, Jpn, MONTHLY PUBLICATION NO.-013108, ITEM NUMBER-017097 NDN- 007-0079-0488-9

Abnormal combustion, which is a cause for engine failure, is explicated to be high speed knocking by multicycle analysis of the cylinder pressure data of snowmobile two stroke cycle engines operated at high speed and wide open throttle condition. A minicomputer was used for the analysis of the cylinder pressure data. Calculation of the entire cycle was conducted until an engine actually failed and the relationship between the engine failure and the conditions surrounding the knocking was made clear. Using the rate of pressure change as a quantitative evaluation method for high speed knocking, a combustion chamber shape with less knocking occurrence possibility was selected. 20 refs.

ELASTOMERIC RIM URETHANES. - 79-10 04810

McBrayer, Robert L.

Tech Pap SPE Pac Tech Conf 4th Annu, PACTEC '79, Plast Technol - Recent Dev and Trends, Costa Mesa, Calif, Jan 31-Feb 2 1979. Sponsored by SPE, West Sect, Greenwich, Conn, 1979 p 209-216 , CODEN- TPPCDQ, LOCATION OF WORK- BASF Wyandotte Corp, Mich, MONTHLY PUBLICATION NO.-081493, ITEM NUMBER-075076 NDN- 007-0076-0452-3

This review paper is concerned with the reaction injection molding (RIM) of elastomeric polyurethanes. It is demonstrated that the production of elastomeric RIM urethane is a proven commercial process. Chemical systems have been developed to cover a wide range of applications, and further expansion of applications with reinforced materials appears well underway. Current machine designs have shown refinements developed in over eight years use with hundreds of machines in the field. While the major growth area has been in automotive applications, there is a vast potential for a variety of uses in recreational vehicles, agricultural equipment and other domestic and industrial applications. Reinforced RIM products show promise for even more applications than can be met with the products in use today. 18 refs.

CHARACTERIZATION OF WHEEL-ROADWAY INTERACTION FOR RECREATIONAL VEHICLES. - 79-09 01249

Kane, Thomas R. Man, Guy K

SAE Spec Publ SP-443 Feb 26-Mar 2 1979 p 1-13 , CODEN- SAESA2, LOCATION OF WORK- Stanford Univ, Calif, MONTHLY PUBLICATION NO.-074887, ITEM NUMBER-064362 NDN- 007-0075-5326-6

Seven mathematical models for the interaction of a pneumatic tire with a roadway are analyzed. This study involves a single-wheel trailer, and it is assumed that the tire and roadway touch each other at only one point. Results of numerical solutions of equations of motion are given in graphical form for the first four models.

Significant disparities are found among the predictions of the various theories. This work is intended to form the basis for experiments to be performed to determine which model, if any, is, in fact, valid. Paper No. 790181. 21 refs.

EFFECT OF HITCHPOINT LATERAL STIFFNESS ON TRAILER STABILITY. - 79-09 01250

Robe, T. R.

SAE Spec Publ SP-443 Feb 26-Mar 2 1979 p 15-20 , CODEN- SAESA2, LOCATION OF WORK-Univ of Ky, Lexington, MONTHLY PUBLICATION NO.-074880, ITEM NUMBER-064363 NDN-007-0075-5325-4

The effect on trailer stability of hitchpoint lateral stiffness and damping is examined by means of a simplified model. The model used in the stability analysis is a one degree of freedom nonholonomic dynamical system and yields a third order linear differential equation. Trialer stability criteria are developed, and stability charts are presented which depict the stability criteria in terms of nondimensional parameters. The analysis shows that increasing hitchpoint lateral stiffness does not improve trailer stability whereas increasing hitchpoint lateral damping is much more important to trailer stability. In addition, the importance of hitchpoint loading to trailer stability is shown. Paper No. 790182. 7 refs.

INFLUENCE OF DRAWBAR FLEXIBILITY AND ROLL STEER ON THE STABILITY OF ARTICULATED VEHICLES. - 79-09 01251

Johnson, D. B. Huston, J. C. Gray, T. A.

SAE Spec Publ SP-443 Feb 26-Mar 2 1979 p 21-29 , CODEN- SAESA2, LOCATION OF WORK-Iowa State Univ, Ames, MONTHLY PUBLICATION NO.-074881, ITEM NUMBER-064364 NDN-007-0075-5324-2

Recently, Taylor and Kane have drawn attention to the potentially destabilizing influence of drawbar flexibility on the stability of articulated vehicles. They assumed that roll freedom does not affect stability. Moncarz, however, used a model that did not include drawbar flexibility and concluded that roll has a significant influence. Two questions are addressed in this paper. How do roll steer and drawbar flexibility affect stability? Are these effects independent? Comparisons of the stability predictions from four different articulated vehicle models lead to the conclusions that both roll steer and drawbar flexibility can have significant effects on stability and that these effects are not independent. Paper No. 790183. 4 refs.

RELATIVE SIGNIFICANCE OF PARAMETERS AFFECTING LATERAL STABILITY OF ARTICULATED RECREATIONAL VEHICLES. - 79-09 01252

Huston, J. C. Johnson, D. B.

SAE Spec Publ SP-443 Feb 26-Mar 2 1979 p 31-39 , CODEN- SAESA2, LOCATION OF WORK-Iowa State Univ, Ames, MONTHLY PUBLICATION NO.-074884, ITEM NUMBER-064365 NDN-007-0075-5323-0

A seven-degrees-of-freedom model of an articulated recreational vehicle is described and used to determine the relative significance of parameters and of degrees of freedom that affect lateral stability. Thirty-five parameters are used to describe tire-road interactions, roll freedom, suspension systems, geometry, mass distribution, the hitch, the drawbar, and the forward speed. Critical speeds associated with different systems are calculated. Comparisons of these critical speeds lead to conclusions important to the design and safe operation of articulated recreational vehicles. Paper No. 790184. 13 refs.

SIMPLIFIED ANALYSIS OF THE STEADY-STATE TURNING OF ARTICULATED VEHICLES. - 79-09 01253

Passerello, Chris E.

SAE Spec Publ SP-443 Feb 26-Mar 2 1979 p 41-45 , CODEN- SAESA2, LOCATION OF WORK-Mich Technol Univ, Houghton, MONTHLY PUBLICATION NO.-074885, ITEM NUMBER-064366 NDN- 007-0075-5322-9

The steady-state turning behavior of vehicles pulling trailers is formulated in a simplified manner using the concept of a handling diagram. The formulation assumes small slip angles but admits a nonlinear relationship between the slip angle and side

force of the tires. Paper No. 790185. 3 refs.

DETERMINATION OF TRAILER STABILITY THROUGH SIMPLE ANALYTICAL METHODS AND TEST PROCEDURES. - 79-09 01254

Klein, Richard H. Szostak, Henry T.

SAE Spec Publ SP-443 Feb 26-Mar 2 1979 p 47-53 , CODEN- SAESA2, LOCATION OF WORK- Syst Technol, Inc, Hawthorne, Calif, MONTHLY PUBLICATION NO.-074886, ITEM NUMBER-064367 NDN- 007-0075-5321-7

This paper provides approximate factors, measurement techniques, and test procedures that can be used to determine trailer stability. The recommended performance metric is damping ratio, or an equivalent cycle to half amplitude which is evaluated, via a pulse-steer procedure, at some reference speed. A minimum damping ratio criteria of 0. 15 at 55 mph is suggested and compared to the results of recent full scale tests. The approach is useful in selecting a minimum value of hitch load (for various weight tow cars) that will insure a minimum acceptable level of trailer stability at highway speeds. Paper No. 790186. 11 refs.

INTERIOR NOISE REDUCTION IN A RECREATIONAL VAN. - 79-08 02016

O'Keefe, E. J.

SAE Prepr n 790310 for Meet Feb 26-Mar 2 1979 6 p , CODEN- SEPPA8, LOCATION OF WORK- Spec Compos Corp, MONTHLY PUBLICATION NO.-058698, ITEM NUMBER-057820 NDN- 007-0074-6055-0

A study was made to determine the effect of combinations of acoustic treatments on the interior noise levels in a 3/4 ton van. The effect of barriers, absorbers, and vibration dampers in various combinations on the dBA levels are given for both idle and highway operating conditions. A noise reduction of up to 10 dBA was obtained for certain barrier and absorber combinations. 2 refs.

RESIN TRANSFER MOLDING: HOW IT'S DONE ON A LARGE SCALE. - 79-06 05371

Hartung Michael

Plast Technol v 25 n 3 Mar 1979 p 73-77 , CODEN- PLTEAB, MONTHLY PUBLICATION NO.-043[illegible]2, ITEM NUMBER-043003 NDN- 007-0072-4581-0

This paper describes how a GRP processor has applied resin transfer molding, also known as resin injection, to the production of six body components of a recreational vehicle, produced on as many as ten duplicate molds in a partially mechanized, multistation manufacturing line. Total throughput is 50 or more completed assemblies per day. Here's an inside look at one of the largest and most sophisticated operations among the small but growing group of U. S. processors employing this reinforced-plastics molding technique.

INDUSTRIALIZATION OF THE BUILDING INDUSTRY IN THE UNITED STATES. - 79-05 05957

Sanoff, Henry Burgwyn, Henry K.

Int J Hous Sci Appl v 2 n 1 Apr 1978 p 11-26 , CODEN- IJHADL, LOCATION OF WORK- NC State Univ, Raleigh, MONTHLY PUBLICATION NO.-030942, ITEM NUMBER-035157 NDN- 007-0071-4618-1

The National Commission on Urban Problems has projected that 29 million housing units are needed by the end of the decade to provide each American family with a $left double quote$ decent home and suitable living environment. $right double quote$ The major portion of this tremendous production need will be accommodated by construction of new dwelling units $EM DASH$ HUD sets the figure of 2. 6 million units annually. Unfortunately, the housing industry has not been capable of meeting this goal via conventional means. In 1970, only 1. 9 million units were produced. Thus, to reach the goal established by HUD, mobile home production has been accepted as legitimate $left double quote$ housing starts. $right double quote$ In 1970, 400,000 mobile homes were solid, pushing the annual rate of housing production near the desired goal. After decades of refusing to accept mobile home technology, why has the government suddenly changed its position? It is apparent that the building industry, which is operating at near full capacity, cannot, within its present framework,

produce the desired number of housing units. 35 refs.

DESIGN CONCEPTS FROM DETROIT. - 79-04 01229

Janicki, Ed

Automot Eng (London) v 3 n 5 Oct-Nov 1978 p 65-66 , CODEN- EUENDA, MONTHLY PUBLICATION NO.-022260, ITEM NUMBER-022336 NDN- 007-0071-0347-9

A description is given of several cars of major manufacturers. The Megastar II is a wedge-shaped aluminum car whose side windows come down to almost floor level. In fact, 80% of the car's front doors are glass. The copper-tinted windshield is sloped back sharply to reduce aerodynamic drag. The Tuareg recreational vehicle is a three-door estate car fitted with sand tires and raised suspension. A front spoiler is extended round the body sides to provide wheel-arch extensions and running boards under the doors. Other features of the all-steel body are a split rear tailgate, rollover protection at the center pillars, a heavy-duty roof rack and tubular steel bumpers that can be used for towing. The Trans Am Type K, a gull-winged vehicle which looks like a bird. It's a station wagon with 'tailgates' hinged on either side of the body, instead of at the rear. This makes for easier loading and unloading of all but the most bulky or awkward objects. The rear bucket seats fold down to give more load-space, thus increasing the utilitarian cargo carrying capacity. Prima is a versatile design concept car which is really four vehicles in one. In its basic form it is a two-seat pickup truck. Three interchangeable tops for the rear section of the vehicle permit conversion to a two-seat pickup truck. Three interchangeable tops for the rear section of the vehicle permit conversion to a two-seat sports coupe, a 2 $plus$ 2 three-door fastback or a four-seat station wagon. The power train and wheelbase are similar to those of the Ford Fiesta, with 2286 mm (90 in) wheelbase, a four-cylinder transverse engine and front-wheel drive.

SKILL-BUILDING BASIC TRANSPORT. - 79-03 05788

Hartley, John

Automot Eng (London) v 3 n 4 Aug-Sep 1978 p 12-14 , CODEN- EUENDA, MONTHLY PUBLICATION NO.-014303, ITEM NUMBER-019480 NDN- 007-0069-7266-8

A design description and specifications are given for basic transport vehicles (BTV) designed for heavy duty operation where roads are poor or non-existent and where servicing facilities are rudimentary. Another feature is that this vehicle is designed for countries where vehicles are not made yet gives opportunities for the workforce to develop skills. The BTV is based on a robust frame and has an orthodox mechanical layout and simple body. It was conceived as a two-door vehicle, in the form of a pick-up truck, an open truck with canvas hood or a saloon with an upwards lifting rear door. Mechanically, the BTV would be similar to an Avenger, with a 1.3 liter low-compression ratio engine and four-speed gearbox, but driving through to a Hillman Hunter heavy-duty rear axle suspended on a pair of leaf springs. At the front, the Avenger strut suspension and rack-and-pinion steering gear would be used, while Avenger pedals, electrical equipment and heavy-duty radiator would also be specified. If the vehicle were built to this specification, all the mechanical components could come from one source.

STIRLING TECHNOLOGY PROVIDES QUIET NON-POLLUTING, EFFICIENT ENERGY FOR RV USE. - 79-02 05564

Johansson, Lennart

SAE Prepr n 780693 for Meet Aug 7-10 1978 12 p , CODEN- SEPPA8, LOCATION OF WORK-Stirling Power Syst, Ann Arbor, Mich, MONTHLY PUBLICATION NO.-006962, ITEM NUMBER-012204 NDN- 007-0068-9599-6

This paper outlines how a small Stirling Engine is utilized as a power source in a Total Energy System for recreational vehicles. The system provides electricity, heat and air-conditioning at a higher comfort level. The system also provides simplicity of operation. The design selected for this small Stirling Engine was a ninety degree, two cylinder V-engine with a swept volume of 160 cubic centimeters, stroke: 44 mm, bore 68 mm. This engine, with one compression piston and one expansion piston, is called a single acting engine. Between the expansion piston and compression piston is a heating unit, regenerator and gas (helium) cooler. The engine has been designed for 15 KW mechanical power output at 3600 rpm. In this first application, at 8 KW mechanical output, the engine operatres at a constant speed of 1800 rpm. The purpose of operating at 50 percent of the potential design conditions is to achieve a high

reliability level.

WINNEBAGO COMBINES STIRLING TECHNOLOGY WITH UNIQUE MOTOR HOME DESIGN - 79-02 05565

Bragg, J. Harold

SAE Prepr n 780694 for Meet Aug 7-10 1978 10 p , CODEN- SEPPA8, LOCATION OF WORK- Winnebago Ind, Inc., MONTHLY PUBLICATION NO.-006961, ITEM NUMBER-012205 NDN-007-0068-9598-4

The operational characteristics of low noise, low vibration, and inherent reliability of the Stirling engine make it highly desirable as the power source for a total energy system in a motor home. In this application, the Stirling engine has made possible the development of new electrical, heating, and air conditioning systems offering much higher levels of comfort, convenience, and reliability to the motor home user. As an auxiliary power source in the motor home, the Stirling engine generates electricity to operate all-electric appliacnes and recharge batteries, provides efficient hot water baseboard heat to the interior of the motor home, and eliminates the need for LP gas usage in the motor home. And integrated into the cooling system for the Stirling engine is a new, low noise air conditioning system.

SOME CONSIDERATIONS IN LIQUID-COOLED SNOWMOBILE DESIGN. - 79-02 05587

Fields, Samuel

SAE Prepr n 780735 for Meet Sep 11-14 1978 6 p , CODEN- SEPPA8, LOCATION OF WORK- Kawasaki Mot Corp, MONTHLY PUBLICATION NO.-013507, ITEM NUMBER-012227 NDN-007-0068-9576-5

Today's typical liquid-cooled snowmobile engine is a two-cylinder, two-stroke cycle, spark-ignited, normally aspirated engine of 300 to 500 cc displacement. The engine is operated at 7000 to 9000 RPM with a tuned exhaust system, either single or dual, and typically with dual carburetors. Most snowmobile engines of this type develop well in excess of 150 horsepower per liter. Some liquid cooled snowmobile design parameters are discussed along with some methods of estimating cooling loads at worst conditions. An approach to design is described using the three conditions of maximum cooling requirement, minimum available cooling and maximum cooling deficiency. Measurements of engine cooling requirements at snowmobile road loads is discussed. A method of measuring heat rejection based upon cooling deficiency is introduced and discussed.

ENVIRONMENTAL EFFECTS OF SOIL PROPERTY CHANGES WITH OFF-ROAD VEHICLE USE. - 78-10 00938

Webb, Robert H. Ragland, H. Craig Godwin, William H. Jenkins, Dennis

Environ Manage v 2 n 3 May 1978 p 219-233 , CODEN- EMNGDC, LOCATION OF WORK- Univ of Redlands, Calif, MONTHLY PUBLICATION NO.-077986, ITEM NUMBER-063228 NDN-007-0066-4301-6

The effects of off-road vehicles (ORVs) on the physical and chemical properties of 6 soil series were measured at Hollister Hills State Vehicular Recreation Area in Central California. Accelerated soil erosion and the alteration of surface strength, bulk density, soil moisture, temperature, and soil nutrients were quantified to gain an insight into the difficulty of revegetating altered, or modified, areas. Erosion is severe at Hollister Hills, particularly in coarse grained soils on steep slopes. the surface strength and bulk density increased while the soil moisture decreased in gravelly sandy loam, coarse sandy loam, sandy loam, and clay. Clay loam had an increased surface strength with variably increased bulk density increased while the soil moisture decreased in gravelly sandy laom, coarse loam, sandy loam, and clay. Clay loam had an increase surface strength with variably increased bulk density and no decrease in soil moisture. Diurnal temperature fluctuations increased and organic material and soil nutrients decreased in soil modified by vehicles. These property changes increase the erosion potential of the soil, impede germination of seedlings, and slow natural vegetation. Refs.

DESIGNING WITH CAB SHEET. - 78-10 05444

Anon

Plast Des Process v 18 n 2 Feb 1978 p 17-24 , CODEN- PDPRA8, MONTHLY PUBLICATION NO.-071964, ITEM NUMBER-067794 NDN- 007-0065-9799-7

Offering designers an uncommon performance package that combines exceptional impact resistance, weatherability, transparency and $left double quote$ workability, $right double quote$ cellulose acetate butyrate (CAB) sheet is one of the most versatile and durable plastic sheet stocks available to designers. CAB sheet meets the tough specifications of a host of modern applications, such as solar energy collectors, industrial machine guards, commercial signs, windows and wind-screens for recreational vehicles, and domed skylights for home and commercial buildings. Properties and characteristics of CAB sheet are tabulated and evaluated. The discussion covers the following subjects--thickness and rigidity; cutting the blank; heating the sheet; mold design for part formation; secondary fabrication techniques.

STANDARDS FOR THERMAL INSULATION: MOBILE HOMES. - 78-08 06951

Hilado, Carlos J. Cumming, Heather J.

J Therm Insul v 1 Jan 1978 p 182-191 , CODEN- JTINDA, LOCATION OF WORK- Univ of San Francisco, Calif, MONTHLY PUBLICATION NO.-057989, ITEM NUMBER-053875 NDN- 007-0064-1698-0

Thermal insulation has an important role in the conservation of energy, in the economical maintenance of comfortable environments, and in the profitable operation of industries. To encourage the effective use of thermal insulation, different government agencies and organizations have prepared standards which are strictly applicable within their jurisdictions.

ON THE STUDY OF APPLICATIONS OF SOLAR THERMAL ENERGY FOR MOBILE HOME PARK AND COMMUNITY. - 78-06 01588

Chiou, J. P.

Heat Transfer in Sol Energy Syst, Presented at the Winter Annu Meet of ASME, Atlanta, Ga, Nov 27-Dec 2 1977 Publ by ASME, New York, NY, 1977 p 127-135 , LOCATION OF WORK- Univ of Detroit, Mich, MONTHLY PUBLICATION NO.-042130, ITEM NUMBER-034717 NDN- 007-0063-1140-8

The concept and design criteria of solar thermal systems for a single mobile home or for the entire mobile home park are somewhat different from those required for a conventional home or subdivision. This paper presents these unique characteristics of the mobile home and the mobile home park and community. The impacts of these unique characteristics on the design/selection of the solar space heating/cooling, domestic hot water heating systems are discussed. A typical mobile home park is selected for investigation of the solar system for four representative climatic regions (cool, temperate, hot-humid and hot-arid) of this country. Several design concepts are presented. An economic feasibility study of using solar thermal systems in a mobile home park and community is discussed. 34 refs.

SURVEY OF ROUTES TAKEN BY MOTOR VEHICLES IN THE LAKE DISTRICT. - 78-06 04761

Miles, J. C. Hammond, J. N.

TRRL Suppl Rep n 264 1977 31 p , CODEN- TSRLDG, MONTHLY PUBLICATION NO.-046526, ITEM NUMBER-037922 NDN- 007-0062-7967-7

A roadside interview survey of road traffic in the Lake District National Park was carried out to provide data for developing computer models of recreational traffic in rural areas. In particular, information on the routing characteristics of recreational journeys was required. A technique for recording the routes of journeys was required. A technique for recording the routes of journeys, in addition to the more usually obtained information on origin, destination and journey purpose, was developed using a mimeographed map. Methods were evolved for coding these routes using a digitising table and for pairing them with the information which could be coded directly from the questionnaire. 9 refs.

THERMAL PERFORMANCE OF A TWO-BEDROOM MOBILE HOME. - 78-06 07036

Tietsma, G. J. Peavy, B. A.

Natl Bur Stand Build Sci Ser n 102 Feb 1978 54 p , CODEN- BSSNBV, LOCATION OF WORK- NBS, Dep of Commer, Washington, DC, MONTHLY PUBLICATION NO.-042165, ITEM NUMBER-310207 NDN- 007-0062-5692-6

Tests were conducted on a mobile home located in an Environmental Climatic Laboratory for the purpose of evaluating its thermal performance. The heating demand greatly affected the part-load efficiency of a gas-fired, forced-air, sealed-combustion furnace system. The practice of installing oversized heating plants was shown to result in low seasonal operating efficiencies. Air leakage measurements were performed using a pressurization technique to quantify the amount of air leakage through the various parts of the mobile home. 21 refs.

ON THE STUDY OF APPLICATIONS OF SOLAR THERMAL ENERGY FOR MOBILE HOMES. - 78-01 03391

Chiou, J. P.

Sol Energy v 19 n 5 1977 p 449-466 , CODEN- SRENA4, LOCATION OF WORK- Univ of Detroit, Mich, MONTHLY PUBLICATION NO.-006409, ITEM NUMBER-003392 NDN- 007-0058-9920-9

This paper presents the unique characteristics of mobile homes and their impacts on the design/selection of its solar space heating/cooling system and system for supplying domestic hot water. A typical model mobile home is selected for investigation of the solar system design for four representative climatic regions (cool, temperate, hot-humid and hot-arid) of this country. Economical feasibility study is also discussed. A low-cost solar collector is suggested and its estimated performance is presented. 26 refs.

PASSENGER CAR EQUIVALENCIES OF TRUCKS, BUSES, AND RECREATIONAL VEHICLES FOR TWO-LANE RURAL HIGHWAYS. - 78-01 04440

Werner, Al Morrall, John F.

Transp Res Board Transp Res Rec n 615 1977 p 10-17 , CODEN- TRREDM, LOCATION OF WORK- Alberta Transp, Edmonton, MONTHLY PUBLICATION NO.-007124, ITEM NUMBER-004441 NDN- 007-0058-8871-6

This paper presents the results of a research project into the effect that recreational vehicles have on highway capacity. Sensitivity testing of a recreational vehicle simulator model is discussed. Results of the sensitivity testing, which was extended to include highway capacity computations, strongly indicate that the present passenger car equivalent speed curves and adjustment factors in the 1965 Highway Capacity Manual require further refinement and updating, particularly at slower speeds. This paper estimates their correct placement by applying basic traffic engineering relationships. 6 refs.

SELF-REGULATION OF THE SNOWMOBILE INDUSTRY. - 78-01 06589

Muth, Roy W.

SAE Prepr n 770728 for Meet, Sep 12-15 1977 8 p , CODEN- SEPPA8, LOCATION OF WORK- Snowmobile Saf and Certif Comm, Inc, MONTHLY PUBLICATION NO.-007357, ITEM NUMBER-300125 NDN- 007-0058-6722-1

The Snowmobile Safety and Certification Committee, Inc. (SSCC) is a self-regulated mechanism used as a safety arm by the snowmobile industry. Membership to this organization is open to individuals and groups, private and public. By analyzing accident and injury statistics, the committee has discovered great potential for their operator safety programs. Major goals of the SSCC include increasing the number of marked and maintained public trails and continued co-operation between snowmobilers, the snowmobile industry, and the government. All is in the interest of snowmobiler training and safety.

DIVERSIFICATION OF GLASS FIBER REINFORCED PLASTICS IN THE CONSUMER AND RECREATION MARKET. - 77-12 01177

Miller, D. L. Lemire, T. F.

SPI Reinf Plast Compos Inst Annu Conf Proc 32nd, Washington, DC, Feb 8-11 1977. Publ by SPI, New York, NY, 1977 Sect 2-D, 4 p , CODEN- SPCIBY, LOCATION OF WORK- Owens-Corning Fiberglas Corp, Toledo, Ohio, MONTHLY PUBLICATION NO.-092316, ITEM NUMBER-078493 NDN- 007-0058-4477-4

The growth potential for glass fiber reinforced plastics (FRP) in consumer-recreation market is almost limitless. Applications ranging from self-propelled vehicles (motor homes) to fishing rods; and from skate boards to stadium seating, show how diverse end products can be in this market. Stimulated by an improving economy, more manufacturers and fabricators are beginning to explore the great potential that the consumer-recreation market offers. This paper examines some reasons why consumer-recreation applications will become an increasingly attractive business proposition for molders and manufacturers seeking diversification into new markets.

NEW SOLID STATE MAGNETO IGNITION AND LIGHTING CONTROLS FOR RECREATIONAL VEHICLES. - 77-12 06382

Carmichael, T. Frazer

SAE Prepr n 760148 for Meet Feb 23-27 1976 8 p , CODEN- SEPPA8, LOCATION OF WORK- Syncro Corp, MONTHLY PUBLICATION NO.-090950, ITEM NUMBER-083708 NDN- 007-0057-9272-5

The universal adaption of the solid state magneto for use on recreational vehicle power plants is discussed, including design information. The various means of control for lighting systems, for recreational vehicles are described as to performance and application.

MEASUREMENTS OF WIND LOADS AND TIE-DOWN FORCES ON MOBILE HOMES. - 77-10 03917

Marshall, Richard D. Crist, Robert A.

Natl Bur Stand Spec Publ n 477: Wind and Seism Eff, Proc of the Jt Panel Conf of the US-Jpn Coop Program in Nat Resour, 8th, NBS, Gaithersburg, Md, May 18-21 1976. Available from Supt of Doc, GPO, Washington, DC, 1977 Sect I p 21-33 , CODEN- NBSAV, LOCATION OF WORK- NBS, Gaithersburg, Md, MONTHLY PUBLICATION NO.-074194, ITEM NUMBER-067858 NDN- 007-0056-5602-7

This paper describes instrumentation, experimental techniques and progress to date on a program of research into the effects of wind on mobile homes. Direct measurements of lift and drag forces on a nominal 12 $multiplied by$ 60 ft. mobile home provide more reliable information on load fluctuations than is possible with the usual approach of measuring surface pressure alone. Results of spectral analysis conducted on time histories of overturning forces suggest that a simple quasi-static approach, when used with appropriate gust factors, can be employed to calculate loads for the design of mobile home anchoring systems.

USE OF HONEYCOMB SANDWICH CONSTRUCTION IN RECREATIONAL VEHICLES. - 77-10 07032

Brentjes, Jay

SAE Prepr n 770425 for Meet, Feb 28-Mar 4 1977 9 p , CODEN- SEPPA8, LOCATION OF WORK- Hexcel Corp, MONTHLY PUBLICATION NO.-078058, ITEM NUMBER-312247 NDN- 007-0056-2487-7

The energy shortage has made the need for high strength, light weight materials an increasingly important concern in the Recreational Vehicle Industry. One solution is the honeycomb sandwich construction technique, which combines the advantages of strength, stiffness and drastically reduced weight and is versatile enough to meet a variety of design requirements. This technique is discussed and compared to other methods of vehicle construction.

SAFETY COMPARISON OF LAMINATED GLASS AND ACRYLIC GLAZING IN FRONT CAMPER WINDOWS. - 77-09 04914

Patrick, L. M. Wickersham, W. D.
Proc Stapp Car Crash Conf For Meet, 20th, Dearborn, Mich, Oct 18-20 1976. Publ by SAE, Warrendale, Pa, 1976 p 247-269 , CODEN- SCCCBR, LOCATION OF WORK- Wayne State Univ, Detroit, Mich, MONTHLY PUBLICATION NO.-070352, ITEM NUMBER-061746 NDN-007-0055-6473-0

Children riding on the bed over the cab in campers can be injured in forward force collisions from striking the glazing material and/or being ejected through the opening. The two types of glazing commonly used are acrylic and laminated. A comparison of the performance of the two types of glazing in simulated forward force collisions at velocities up to 30 mph showed the acrylic material to pose threats of neck and back injury and the laminated material to result in lacerations. Ejections occurred with the acrylic that were not present with the laminated windshields when correct glazing techniques were used. With poor installation procedures, ejections occurred in both types of glazing materials. Among the five injury criteria considered, laminated glass was substantially better in two of the criteria (neck extension and ejection), slightly better in two of the criteria (lumbar extension and concussion potential) and the acrylic was superior in terms of facial laceration potential.

DESIGNING THE BRAKE SYSTEM $EM DASH$ STEP BY STEP. - 77-09 07715

Cords, Fred W. Dale, John B.

SAE Prepr n 760637 for Meet, Sep 13-16 1976 9 p , CODEN- SEPPA8, LOCATION OF WORK-Minn Autom, Inc, MONTHLY PUBLICATION NO.-062824, ITEM NUMBER-310542 NDN-007-0055-3672-1

This paper discusses the fundamentals of brake system design as they relate to industrial, agricultural and off-highway vehicles; providing a guide for the designer who finds himself with this engineering responsibility. However, it is also well to be aware that brake systems and system performance have come under surveillance and regulation in the last few years by International, Federal, State, Provincial and local Governments and their agencies, and that the designer consider this along with the data discussed in this paper.

RIGIDIZING SZG THERMOFORMS WITH FOAMED-IN-PLACE EPS BEADS. - 77-08 00005

Anon

Mod Plast v 54 n 2 Feb 1977 p 49 , CODEN- MOPLAY, MONTHLY PUBLICATION NO.-053893, ITEM NUMBER-049728 NDN- 007-0055-2967-4

Foam's material and weight saving characteristics now are finding application in rigidizing large thermoformed parts $EM DASH$ using expanded polystyrene (EPS) foamed in place in a huge, 6- by 14-ft. -platen, 50,000-ton press. This process is applied in the production of two sailboats, the Hobie 10 (10 ft. long, with a traditional hull) and the Hobie 12 (an 11 3/4-ft. catamaran). In addition to rigidity and buoyancy, the technique is credited with a 50% reduction in labor costs, compared with the layup methods previously used. It is pointed out that the technique could offer similar benefits for recreational vehicle roofs, structural panels, tanks and containers, and coolers. Details of the process are given along with equipment used.

TENDENTSIYA RAZVITIYA VYSOKOELASTICHNYKH DVIZHITELEI VEZDEKHODOV. (TRENDS IN THE DEVELOPMENT OF HIGHLY ELASTIC PROPULSIO FOR CROSS-COUNTRY VEHICLES) . - 77-08 01958

Bocharov, N. F. Gusev, V. I. Kuznetsov, A. P. Semenov, V. M. Solov'ev, V. I.

Izv Vyssh Uchebn Zaved Mashinostr n 6 1976 p 98-104 , CODEN- IVUSAH, LOCATION OF WORK- Moscow Higher Tech Sch im. N. E. Bauman, USSR, MONTHLY PUBLICATION NO.-061956, ITEM NUMBER-051681 NDN- 007-0055-1014-8

The general trends in the improvement of cross-country capability of vehicles by the introduction of new designs of propulsive devices, with rubber-cord casings and low internal air pressure, are considered. In Russian.

ANALIZ VZAIMODEISTVIYA DVIZHENIYA S GRUNTOM S POMOSHCH'YU MEKHANICHESKOI MODELI. (ANALYSIS OF INTERACTION BETWEEN A PROPULSOR AND THE SOIL, USING A MECHANICAL MODEL) . - 77-08 01960

Vodyanik, I. I.

Izv Vyssh Uchebn Zaved Mashinostr n 6 1976 p 109-113 , CODEN- IVUSAH, MONTHLY PUBLICATION NO.-061744, ITEM NUMBER-051683 NDN- 007-0055-1012-4

A model of deformation of a propulsor and the soil is considered. Analytical equations are obtained for the line of contact between an elastic wheel and the soil, for the interrelation between the load on the propulsor and the properties and deformations of the interacting systems. A correspondence between the calculation results and measurements is demonstrated. In Russian.

EXTERIOR SOUND LEVEL FOR SNOWMOBILES $EM DASH$ SAE J192A. - 77-08 07730

Anon

SAE Prepr S6. 2 1976 2 p , CODEN- SEPPA8, MONTHLY PUBLICATION NO.-061957, ITEM NUMBER-308554 NDN- 007-0054-5242-2

This SAE Recommended Practice establishes the instrumentation, test site, and test procedure for determining the maximum exterior sound level for snowmobiles.

MEASUREMENT OF INFILTRATION IN A MOBILE HOME. - 77-07 07263

Prado, Fernando Leonard, Robert G. Goldschmidt, Victor W.

ASHRAE Trans v 82 pt 2 1976, Proc of Annu Meet, Seattle, Wash, Jun 27-Jul 1 1976 p 151-166 , CODEN- ASHTAG, MONTHLY PUBLICATION NO.-045657, ITEM NUMBER-306111 NDN- 007-0053-7288-8

Measurements of infiltration in a mobile home are now presented. The rate of decay method, with carbon monoxide as a tracer, was found to be dependable and economical. In the measurements, relatively high values of infiltration rates were noted. The different zones (i. E. , main living area and sub-flooring) and different modes of conditioning (i. e. , heating or air conditioning) were isolated attempting to identify the causes for high rates of infiltration. The essentially linear dependence of infiltration on temperature difference was confirmed while no dependable trends on the effects of wind were noted. Methods of measurement are described. 14 refs.

VIBRATION ISOLATION OF EQUIPMENT INSTALLED IN OFF-ROAD VEHICLES. - 77-06 03181

Byrne, K. P. Olver, N. D.

Natl Conf Publ Inst Eng Aust n 76/9 1976: Vib and Noise Control Eng, Prepr, Sydney, Aust, Oct 11-12 1976 p 41-45 , CODEN- NPIEDX, LOCATION OF WORK- Univ of NSW, Aust, MONTHLY PUBLICATION NO.-041718, ITEM NUMBER-038697 NDN- 007-0053-2974-0

This paper presents the results of a survey of the shock and vibration environment produced in a number of types of military trucks when operating on surfaces typical of those encountered in operational roles. The shock and vibration environment is described in terms of statistical measures and the influence of parameters such as vehicle load, surface, position and orientation of the point of interest within the vehicle are examined. The application of the results of other off-road vehicles is discussed and the implication of the results with regard to the design of shock and vibration isolating systems is examined.

DARE YOU RIDE YOUR SNOWMOBILE? - 77-06 07740

Smith, C. O.

ASME Pap n 77-RC-13 for Meet, May 16-18 1977 5 p , CODEN- ASMSA4, LOCATION OF WORK- Univ of Nebr, Omaha, MONTHLY PUBLICATION NO.-045101, ITEM NUMBER-304572 NDN- 007-0052-8415-0

Failures in two new snowmobiles are discussed in this paper detailing circumstances, examination, and analysis of failure. In both cases, failure resulted in serious injury to the rider. Both failures could have been prevented. Comments are made on

both cases.

CUTTING SNOWMOBILE SKID FRAME COSTS THROUGH VALUE ANALYSIS. - 77-05 06476

Brown, Dennis J.

Assem Eng v 19 n 12 Dec 1976 p 14-16 , CODEN- AYEGA4, LOCATION OF WORK- Arctic Enterp, Inc, Thief River Falls, Minn, MONTHLY PUBLICATION NO.-036646, ITEM NUMBER-034890 NDN- 007-0052-1273-3

Arctic Enterprises, a leading snowmobile manufacturer, was determined to counter an escalating price trend with increased productivity and redesigned products that would better accommodate customer needs and preferences thereby increasing value. The management tool used to accomplish these goals of simultaneously increasing value and reducing assembly costs was Value Research (VR), a value engineering analysis technique devised by the Chicago-based Value Standards, Inc. consulting firm. The objective of VR analysis is to acquire total product information in terms of basic and supporting functions which are then used to help determine the lowest possible production and assembly costs while assuring continued consumer acceptance. Five in-house interdisciplinary teams of five members each were formed, each team captain being an engineer. Each team concentrated on a specific area of the snowmobile, such as body frame, or suspension and steering. Each of the five teams went through the three basic VR stages to obtain the desired product information. The stages are: (1) Program preparation in which VR is used to determine the required resources such as time, money or manpower that are necessary to achieve the desired goals. (2) Conducting a study to specifically identify ways in which the product meets customers' needs. (3) Implementing and continuing the study with their own people to utilize both the know-how gathered in the first two steps and the expertise derived from experience on the job. Examples of the results are given.

IMPAX UHMW: A POLYOLEFIN UNTO ITSELF. - 77-04 04803

Margolies, A. F.

SPE Natl Tech Conf: High Performance Plast, Cleveland, Ohio, Oct 5-7 1976 Publ by SPE, Inc, Cleveland, Ohio, 1976 p 134-137 , LOCATION OF WORK- Impact Plast, Inc, Gastonia, NC, MONTHLY PUBLICATION NO.-026904, ITEM NUMBER-025917 NDN- 007-0051-5095-8

This paper is concerned with some properties performance and applications of ultra-high mol. wt polyolefins, particularly of ultra-high mol. wt PE known under trade name IMPAX UHMW PE. In this brief review emphasis is placed on the exceptional high impact strength and abrasion resistance as well as on the processability problems. Applications shown include $EM DASH$ textile, paper, food handing, wood products, recreation vehicles, mining and solids, handling. 7 refs.

STANDARDIZED PANEL FOUNDATION SYSTEM FOR MODULAR, STICK BUILT, AND/O MOBILE HOMES. - 77-01 02032

Godbey, Luther C. Newman, Jerry O.

Pap ASAE for Annu Meet, Chicago, Ill, Dec 15-18 1975 Pap 75-4505, 22 , CODEN- AAEPCZ, LOCATION OF WORK- USDA, Agric Res Serv, Clemson, SC, MONTHLY PUBLICATION NO.-000901, ITEM NUMBER-002032 NDN- 007-0049-5815-2

A system of treated wood foundation panels has been developed which allows a contractor or designer to select standard panels to erect almost any size or shape home. Interlocking panels are assembled on a gravel footing, allowing final leveling and squaring up before backfilling. 3 refs.

APPLICATION OF COLD-FORMED STEEL IN FOUNDATIONS. - 76-12 06240

Zakrzewski, Andrew S.

Int Spec Conf on Cold-Formed Steel Struct, 3rd, Proc: Res and Dev in Cold-Formed Steel Des and Constr, St. Louis, Mo, Nov 24-25 1975 v 2 p 701-759. Publ by Univ of Mo, Dep of Civ Eng, Rolla, 1975 , LOCATION OF WORK- Dom Found & Steel Ltd, Hamilton, Ont, MONTHLY PUBLICATION NO.-081313, ITEM NUMBER-084370 NDN- 007-0048-4428-6

The paper describes the application of cold-formed steel in house basements. It also

points out that a large market potential exists for steel foundations to be applied to preengineered buildings and mobile homes. Experience gained during the last four years in building test structures and two experimental basements is discussed and suggestions made about the future design possibilities.

SNOWMOBILE AND OFF THE ROAD VEHICLE RESEARCH SYMPOSIUM, PROCEEDINGS, 1973. - 76-11 05533

Holecek, Donald F. (Ed.)

Snowmobile and Off the Road Veh Res Symp, Proc, Pap, East Lansing, Mich, Sep 1973 Sponsored by Mich State Univ, Dep of Park and Recreat Resour (Tech Rep n 9), East Lansing, Jun 1974, 202 p , LOCATION OF WORK- Mich State Univ, Dep of Park and Recreat Resour, East Lansing, MONTHLY PUBLICATION NO.-078438, ITEM NUMBER-076562 NDN-007-0047-7963-4

This publication contains 14 papers, a panel discussion, and 3 workshop reports. The off-the-road vehicles (ORVs) considered include snowmobiles, off-road motorcycles (trail bikes and minibikes), half-tracks, and airboats. The aspects of ORVs discussed are: who uses them, and how and where they are used; the impact of ORV use on the environment; the economic and social impact of ORV use, including the safety record and noise pollution; plans for ORV management and public policy development, including the development of special trails or use areas, and the leasing of private land. The papers represent the views of manufacturers, ORV users, environmentalists, landowners, and persons interested in other recreational uses of the same land areas. Refs.

LIGHTWEIGHT BRAKE SYSTEM. - 76-07 00129

Culp, Jere S.

SAE Prepr n 760255 for Meet Feb 23-27 1976, 6 p , CODEN- SEPPA8, LOCATION OF WORK- Kelsey Hayes Co, MONTHLY PUBLICATION NO.-046727, ITEM NUMBER-042744 NDN-007-0045-4716-4

A lightweight hydraulic disc brake system, featuring several innovations, has been developed for on highway, recreational vehicle use. The system uses aluminum components for the major structural members of the brake and master cylinder. A plastic master cylinder piston is used. The brake system uses a stamped steel rotor and metallic friction materials. The components of the system have passed life cycle, environmental and vibration tests, which were based on Kelsey-Hayes test requirements for the automotive industry.

INTEGRATED SOLAR HEATED AND COOLED MOBILE HOME. - 76-02 03249

Macklis, S. L. Haas, S. A.

Intersoc Energy Convers Eng Conf, 10th, Rec, Univ of Del, Newark, Aug 18-22 1975 Pap 759007 p 38-42. Publ by IEEE (Cat n 75CH0 983-7 TAB), New York, NY, 1975 , LOCATION OF WORK- GE, Valley Forge, Pa, MONTHLY PUBLICATION NO.-010020, ITEM NUMBER-010355 NDN- 007-0044-6125-7

It has been estimated that approximately 24% of all fossil fuel usage in the US is attributable to the heating and cooling of buildings and the heating of domestic hot water and in 1973 mobile home construction represented more than 50% of new single family housing starts. For 1974, the percentage was even higher. With these considerations in mind work was begun on a program to develop an integrated solar heated and cooled mobile home. The primary goal of the program was to use solar energy data and technology base available from existing solar installations to demonstrate the feasibility of mobile home heating and cooling using solar energy.

DESIGN CONSIDERATIONS FOR FULL-SIZE, FRONT-WHEEL-DRIVE VEHICLES. - 75-12 01574

Nordeen, Donald L. Manwaring, Richard C. Condon, Dennis E.

SAE Prepr n 750014 for Meet Feb 24-28 1975, 26 p , CODEN- SEPPA8, LOCATION OF WORK- GM, MONTHLY PUBLICATION NO.-078745, ITEM NUMBER-079095 NDN- 007-0043-3483-1

This paper is a progress report on the marketing, evolution, and design considerations for full-size, front-wheel drive cars. Usage of front-wheel drive has

been expanded since the initial Oldsmobile Toronado in 1966 with the introduction of the Cadillac Eldorado in 1967 and other commercial applications for motor homes and limousines. Design refinements and improvements are described along with changes made to meet marketing requirements. A comprehensive discussion of design considerations unique to full-size, front-wheel drive cars is included. Design differences between front-wheel drive and rear-wheel drive cars are emphasized. Design freedoms, design constraints, advantages, and disadvantages of full-size front-wheel drive vehicles are summarized.

DRIVER SAFETY IN MODIFIED VANS. - 75-11 04729

Scott, Charles M.

US Veterans Adm Dep Med Surg Bull Prosthet Res BPR 10-22 Fall 1974, for Meet, Chicago, Ill, Jul 20-23 1974 p 377-387 , CODEN- BPRRBH, LOCATION OF WORK- Mobility Eng & Dev Inc, Paseo Del Rey, Calif, MONTHLY PUBLICATION NO.-071561, ITEM NUMBER-075047 NDN- 007-0042-3060-0

The concept of a handicapped driver remaining in his wheelchair while at the controls is now a reality. The modification of $left double quote$ van-type $right double quote$ vehicles to permit easy access by an unaided handicapped person has achieved considerable popularity and is very useful to persons whose ability to transfer is marginal or who are unable to transfer unaided. The prospect of independent mobility for the handicapped has opened many opportunities for employment and recreation that did not exist before. The paraplegic has less of a problem than does the moderately severe quadriplegic. Simple hand controls are satisfactory driving aids for the paraplegic. Something more sophisticated is required for the quadriplegic with limited power and range of motions. Control systems have been developed which permit the moderately severe quadriplegic to safely operate a van-type vehicle. The continuing problem is an adequate and safe wheelchair and driver's seat combination. Descriptions of a driving-control system for quadriplegics, of the development of suitable powered, adjustable-height wheelchairs for use also as the driver's seat, and methods of assuring the driver's safety are given.

EFFECT OF RECREATIONAL VEHICLES ON HIGHWAY CAPACITY. - 75-07 03294

Werner, Al Morrall, John F. Halls, Gordon

Traffic Eng v 45 n 5 May 1975 p 20-25 , CODEN- TRNGA5, LOCATION OF WORK- Alta Dep of Highw & Transp, Plann Branch, MONTHLY PUBLICATION NO.-049047, ITEM NUMBER-045377 NDN- 007-0039-5842-9

Motor homes, truck campers, pickup truck campers, camper trailers and collapsible trailers are changing the highway environment. In Canada, the Department of Civil Engineering at the University of Calgary has undertaken a two-year research project to determine their effect on highway capacity. 3 refs.

DESIGN AND TEST OF PICKUP TRUCK BOX COVER. - 75-06 02433

Leichtle, Irvin J.

SAE Prepr n 740978 for Meet Oct 21-25 1974, 3 p , CODEN- SEPPA8, LOCATION OF WORK- Rockwell Int, MONTHLY PUBLICATION NO.-039442, ITEM NUMBER-037406 NDN- 007-0038-9643-6

The problems of adding new assembly operations to already established assembly lines requires much planning and probably an expansion of facilities. New equipment must be installed and floor space increased to facilitate the new operation. This paper describes the improvements made on an assembly line to facilitate the production of a new line of fiberglass truck campers.

THERMOFORMING ABS FOR LARGE STRUCTURAL APPLICATIONS. - 75-04 03820

Gembinski, John

Basic Princ of Thermoform, Proc of Semin, Polytech Inst of Brooklyn, NY, Jun 18-19 1970 p 183-210. Publ by Gordon and Breach Sci Publ, Inc, New York, NY, 1973 , LOCATION OF WORK- Centaur Eng, Borg-Warner Corp, Mount Clemens, Mich, MONTHLY PUBLICATION NO.-021170, ITEM NUMBER-024841 NDN- 007-0037-3935-5

A brief history of the development of thermoforming structural parts at Centaur Engineering is followed by a review of their structural applications. They include $EM DASH$ thermoformed in reinforcements (ribs, V-channels, etc); foam sandwich construction, inner and outer panels; attached reinforcements. The following applications are detailed along with relevant illustrations $EM DASH$ load-bearing structural part in buildings; automotive, recreational vehicles, marine; campers; and housing. It is concluded that large structural thermoformed parts are a reality giving the designer the ability to produce large molded shape, the manufacturer, an economic manufacturing process for the 1000 to 100,000 part range, and the consumer, the advantage of improved products at lower costs.

NEW EXTERIORS GIVE PUSH TO RV MARKET. - 75-02 03825

Martino, Robert

Mod Plast v 15 n 11 Nov 1974 p 62-64 , CODEN- MOPLAY, MONTHLY PUBLICATION NO.-013799, ITEM NUMBER-010832 NDN- 007-0035-9851-6

Recreational vehicles are on a road to sales recovery that leads to more than recovery for the plastics share of the market. Coming up are design changes that favor plastics over metals and wood: Easier, less costly fabrication; less weight and more streamlining for fuel savings; and multiple-use versatility for cost-conscious consumers. The means to these ends will be more plastics in exteriors than ever before $EM DASH$ including some newcomers to exteriors. A new approach to design of campers and trailers is presented with emphasis on plastics materials used in exterior and interior applications.

DETROIT NATEC SURVEYS AUTO INDUSTRY. - 75-02 05777

Anon

Plast Eng v 30 n 12 Dec 1974 p 41 , CODEN- PLEGBB, MONTHLY PUBLICATION NO.-007511, ITEM NUMBER-012784 NDN- 007-0035-7899-2

This is a report on the SPE National Technical Conference (NATEC) which was devoted to a rigorous examination of $left double quote$ Plastics in Surface Transportation $right double quote$. The three-day conference, whose theme was $left double quote$ Plastics $EM DASH$ Serving Man in Motion $right double quote$, attracted participants from around the world. The technical sessions comprised 77 papers covering many aspects and applications of plastics in surface transportation, with heavy emphasis on the automotive industry. While automotive interior, exterior, and under-the-hood applications were spotlighted, mass transit and recreational vehicles received due coverage. New developments in processing techniques were also examined. In addition to the technical sessions, visitors viewed over 40 technical displays highlighted by three prototype cars-of-the-future exhibits.

MOBILE HOMES AND NEW COMMUNITIES - 74-12 07348

Behrend, Herbert

ASCE J Urban Plann Dev Div v 100 n 2 Nov 1974 p 181-189 , CODEN- JUPDAJ, LOCATION OF WORK- H. W. Behrend Assoc, Lake Forest, Ill, MONTHLY PUBLICATION NO.-075485, ITEM NUMBER-100285 NDN- 007-0034-2219-0

Room modules manufactured as large as practicable will inevitably succeed in providing the bulk of housing in the future. Traditional stick-built housing has advantages of low depreciation, user acceptance, and inherent esthetic values, but its cost per square foot is rising so fast that within 15 yr it will retain only 15% of the new housing market. At that time 85% of all single and multiple dwellings under construction will fall into the category of industrialized housing - mobile, modular, or other box type prefabs. The skilled labor pool of the conventional building trade has been diminishing in number while the mobile home industry has filled the need for lower cost housing and entered an economy of scale with plenty of manpower available, prefabrication under roof, mass purchasing, and a sophisticated marketing system. 8 refs.

SHOCK ABSORBERS: AN INTEGRAL PART OF RECREATIONAL VEHICLE DEVELOPMENTS. - 74-11 06207

Cline, Richard C.
SAE Prepr n 740678 for Meet Sep 9-12 1974, 8 p , CODEN- SEPPA8, LOCATION OF WORK- Maremont Corp, Pasadena, Calif, MONTHLY PUBLICATION NO.-067846, ITEM NUMBER-073472 NDN- 007-0033-5978-9

Various applications of the familiar tubular hydraulic shock absorber to recreational vehicles are reviewed. There is a brief discussion of operating characteristics of hydraulic shock absorbers as a preliminary to discussing damping requirements for suspensions, steering dampers, sway controllers and stabilizers found on recreational vehicles. The review covers present use of shock absorbers on motorcycles, snowmobiles, golf carts, boat trailers, trailer brakes, outboard motors, travel trailers, sway control motor homes, and camper stabilizers.

STANDARD FOR MOBILE HOME PARKS. - 74-04 05107

Anon

ANSI Stand A177. 1 1973, 31 p , CODEN- ANSIC5, MONTHLY PUBLICATION NO.-023523, ITEM NUMBER-022130 NDN- 007-0031-3041-5

This standard covers mobile home parks (contiguous parcels of land used for the accommodation of occupied mobile homes used for dwelling purposes) setting forth provisions related to mobile home lots, construction details for permanent structures, park plumbing (including water supply and sewage disposal), park electrical systems and park gas systems. In addition, the standard includes, in Appendixes, some recommendations covering mobile home park design, mobile home accessory buildings and structures (including cabanas, awnings, carports, ramadas, porches, storage structures, and fences and windbreaks), and fire safety considerations.

MODIFYING SNOWMOBILES TO PRODUCE LOWER NOISE LEVELS. - 74-04 06098

Lancaster, Arthur

SAE Prepr n 730813 for Meet Sep 10-13 1973, 5 p , CODEN- SEPPA8, LOCATION OF WORK- James B. Carter Ltd, MONTHLY PUBLICATION NO.-023680, ITEM NUMBER-023125 NDN- 007-0031-2080-1

The majority of snowmobiles being produced are of similar configuration and driven by a similar type of fan-cooled, two-stroke engine. These common types of snowmobiles will respond to noise control measures in a sufficiently predictable manner to permit the noise level of a modified sled to be estimated from prior experience. Conversely, for a given noise level, the required modifications may be listed which, from prior experience, will produce noise levels in the order of the selected level. The lists of modifications developed here are for target levels of 75 and 70 dB(A).

REPORT RELATING THE IMPACT OF MOBILE HOMES ON URBAN PLANS AND HOUSIN SYSTEMS. - 74-05 00951

Comm Rep

ASCE J Urban Plann Dev Div v 100 n UP1 Mar 1974 Pap 10385 p 7-16 , CODEN- JUPDAJ, MONTHLY PUBLICATION NO.-030742, ITEM NUMBER-024969 NDN- 007-0031-0206-7

The report deals with five aspects of mobile homes: history of the industry; standards for mobile homes; their relation to community; standards for mobile home parks; and the role of the civil engineer in planning mobile home communities.

SMC VERSATILITY IN THE DESIGN'S CONSTRUCTION OF GENERAL MOTORS '73 MOTOR HOME. - 74-04 01477

Keown, John A.

SPI Reinf Plast Div, Proc, Annu Tech Conf 28th, Washington, DC, Feb 6-9 1973, Pap, Sect 14-D, 10 p , CODEN- PCRPB6, LOCATION OF WORK- Eng Molding Syst, Lancaster, Ohio, MONTHLY PUBLICATION NO.-017589, ITEM NUMBER-018491 NDN- 007-0030-6958-1

This is a report on a R&D program which was carried out to design a basic motor

vehicle for multi-purpose applications such as emergency vehicles, special patient usage vehicles, mini-buses, etc. In this paper, the author discusses the application of sheet molding compounds (SMC) processed by compression moldings. The end result is a product designed to take full advantage of SMC for a major portion of the exterior skins. This direct approach also resulted in a reduction in the number of components, sub-assemblies, tooling, over-all costs and ultimate vehicle weight. Through redesign and close co-ordination and cooperation between key personnel at General Motors and Engineered Molding Systems an on-going program was accomplished with the smoothness of a well oiled machine.

DESIGN AND TEST OF PICKUP TRUCK BOX COVER. - 74-04 01479

Gulette, Ronald S.

SPI Reinf Plast Div, Proc, Annu Tech Conf 28th, Washington, DC, Feb 6-9 1973, Pap, Sect 14-F, 2 p , CODEN- PCRPB6, LOCATION OF WORK- North Am Rockwell Corp, Ashtabula, Ohio, MONTHLY PUBLICATION NO.-021064, ITEM NUMBER-018493 NDN- 007-0030-6956-8

This paper reports on design work performed during R&D program aimed at the production of units that are known to most people as a Topper, or Camper Top. After the design and tooling was completed, the Ford Engineers put the Pickup Box Cover through the torture test at the Dearborn Proving Grounds. It was mounted to a new 1973 truck with the four (4) specified steel $left double quote$ J $right double quote$ bolts and run 250 cycles over cobblestones, twist track, chuckholes, water, dirt road, etc. It succeeded in holding up as good, or better than, the truck and so was then labelled a successful program.

DU PONT POLYESTER PNEUMACEL FOR FIRM CUSHIONS IN MOBILE HOMES, MODULAR HOMES AND TRANSPORTATION SEATING. - 74-06 05652

Wallenberger, Frederick T.

J Cell Plast v 10 n 2 Mar-Apr 1974 p 90-93, 95-96 , CODEN- JCUPAM, LOCATION OF WORK- DuPont, Wilmington, Del, MONTHLY PUBLICATION NO.-036095, ITEM NUMBER-036673 NDN- 007-0029-9043-3

Du Pont polyester pneumacel is described as a new cushioning product. The commercial product and materials described in this paper are composites of pneumatic ultramicrocellular polyester fibers and a thermoplastic binder matrix. The small uniform, closed cells of these fibers are pressurized with air and Freon. The polymer that bonds these ultramicrocellular polyester fibers is flame retarded. Pneumacel gives such diverse commercial products as resilient carpet underlayment, mattress spring cushioning pads, and auto and furniture cushions which offer excellent potential in automobiles, mobile homes, and modular homes. 7 refs.

EXTERIOR SOUND LEVEL FOR SNOWMOBILES FROM SAE J192 TO SAE J192A $EM DASH$ BACKGROUND AND INSIGHT. - 74-01 02389

Nowak, K. F.

SAE Prepr n 730773 for Meet Sep 10-13 1973 6 p , CODEN- SEPPA8, LOCATION OF WORK- ACS Ltd, MONTHLY PUBLICATION NO.-004810, ITEM NUMBER-002390 NDN- 007-0029-0672-0

The environmental impact of snowmobile noise has received widespread publicity over the past few years. In order to define and solve any noise problem, a satisfactory and repeatable measurement practice must be evolved. In the case of SAE J192, the particular operating environment of snowmobiles proves a challenge to this task. Environmental conditions affect not only the propagation of sound at the test site, but also the performance of the vehicle itself. This results in a potential for significant variation in the sound pressure level of the sound source. Hence, the test procedure must be designed so as to minimize if not eliminate such sources of variations.

STUDY OF SNOWMOBILE DRIVE SYSTEMS. - 74-01 02392

Prasad, Keni Koteeswara

SAE Prepr n 730782 for Meet Sep 10-13 1973 8 p , CODEN- SEPPA8, LOCATION OF WORK- Arct Enterp, Inc, MONTHLY PUBLICATION NO.-002681, ITEM NUMBER-002393 NDN- 007-0029-0669-0

Snowmobile powerplants are generally highly tuned 2-cycle engines and usually have a narrow band of operation. Depending upon the type of track used and the design of undercarriage, different snow conditions produce different load resistance on the machine. In order to give the operator maximum enjoyment and utility, the snowmobile drive system should perform satisfactorily by delivering optimum power to the track under all environmental conditions and load demands. In this paper, a study of torque and speed controlled variable ratio V-belt transmission has been performed by analytical and experimental methods. Usefulness and limitations of results obtained by analytical methods are discussed.

BRAKING CHARACTERISTICS OF THE RECREATIONAL SNOWMOBILE. - 74-01 02393

Kho, James K. H. Newman, James A.

SAE Prepr n 730783 for Meet Sep 10-13 1973 6 p , CODEN- SEPPA8, LOCATION OF WORK- Univ of Ottawa, Ont, MONTHLY PUBLICATION NO.-004811, ITEM NUMBER-002394 NDN-007-0029-0668-9

The braking characteristics of three typical recreational snowmobiles have been studied. Of particular interest was the sensitivity of the machines to different applied braking loads. The data were collected using a variable-load braking apparatus and stop-action high-speed photography. The results have been described with an empirical equation. It was determined further that the most effective braking was achieved when the track was locked and this particular behavior has also been characterized by an empirical expression.

SMALL RANKINE CYCLE TOTAL ENERGY SYSTEM FOR RECREATION VEHICLES: A COMPARISON OF THREE POSSIBLE APPROACHES. - 74-02 00025

Barber, Robert E.

Intersoc Energy Convers Eng Conf, 8th, Proc, Pap, Univ of Pa, Philadelphia, Aug 13-17 1973 p 138-145. Publ by AIAA, New York, 1973 , LOCATION OF WORK- Barber-Nichols Eng Co, Denver, Colo, MONTHLY PUBLICATION NO.-006630, ITEM NUMBER-005032 NDN-007-0028-8031-7

Analysis of a Rankine Cycle (R/C)-powered total energy system for motor homes and recreational vehicles shows that such a unit is superior to comparably priced conventional systems in the areas of weight, size, and fuel consumption. A utilized system which provides one ton of air conditioning, 20,000 Btu/hr of heating, and 500 watts of 110 v 60 cycle power is estimated to weigh approximately 170 pounds and can be packaged in a 10 in. $multiplied by$ 48 in. $multiplied by$ 60 in. shell. When providing full air conditioning and 500 watts of power, the fuel consumption is calculated to be approximately 3 lb/hr. Three R/C systems are evaluated: a) Two-Fluid High Frequency Electrical; b) Low Speed R/C, Conventional Electric A/C; and c) Low Speed R/C, Shaft Driven A/C. The study shows that system $left double quote$ c $right double quote$ is the optimum system. 2 refs.

WORKING FLUID SELECTION FOR A SMALL RANKINE CYCLE TOTAL ENERGY SYSTE FOR RECREATION VEHICLES. - 74-02 00026

Werner, D. K. Barber, R. E.

Intersoc Energy Convers Eng Conf, 8th, Proc, Pap, Univ of Pa, Philadelphia, Aug 13-17 1973 p 146-151. Publ by AIAA, New York, 1973 , LOCATION OF WORK- Barber-Nichols Eng Co, Denver, Colo, MONTHLY PUBLICATION NO.-006631, ITEM NUMBER-005033 NDN-007-0028-8030-5

Fifteen potential Rankine Cycle working fluids were analyzed for use in a total energy system providing air conditioning, electrical power, and heating for travel trailers and recreational vehicles. Based on cycle efficiency, heat exchanger size and cost, fuel consumption, and parasitic power requirements, five superior fluids were selected. From these five, two were then chosen on the basis of flammability, toxicity, and thermal stability. The chosen fluids were monochlorobenzene and monobromobenzene. Both were then tested to evaluate thermal limits and material compatibility. For each fluid a number of additives were tested in efforts to minimize thermal decomposition. 4 refs.

MOBILE HOMES MOVE FAST TO FILL LOW-COST HOUSING GAP. - 74-03 03483

Anon

Eng News Rec v 192 n 2 Jan 10 1974 p 16-17 , CODEN- ENREAU, MONTHLY PUBLICATION NO.-013293, ITEM NUMBER-014192 NDN- 007-0027-8874-7

Development and the evolution of larger mobile homes to a more modular design are discussed.

SAFER DESIGNS URGED FOR MOTORCYCLES AND RECREATIONAL VEHICLES. - 73-11 00765

Covington, John P.

Automot Eng v 81 n 9 Sep 1972 p 49-55 , CODEN- AUEGBB, MONTHLY PUBLICATION NO.-055720, ITEM NUMBER-053518 NDN- 007-0027-6169-9

Growth rate in use of motorcycles, campers, pickup trucks, etc, has focused the attention of regulatory agencies on improved safety standards. Improved frame design, results of crash tests, better braking systems and airbag systems are discussed.

DIFFERENT SORT OF AIR CONDITIONER. - 73-11 02189

Anon

Compressed Air v 78 n 8 Aug 1973 p 6-7 , CODEN- COAIBB, MONTHLY PUBLICATION NO.-051776, ITEM NUMBER-054942 NDN- 007-0027-4745-9

An air-conditioning system described is called Rovac and uses air instead of Freon gas as a coolant. Applications foreseen are in passenger cars, private and commercial aircraft, refrigerated trucks and recreational vehicles. Long-range plans are to adapt the system to housing and commercial buildings.

DYNAMIC BEHAVIOR OF RECREATIONAL VEHICLES DURING BRAKING AND STEERING. - 73-09 02[illegible]

Hickner, G. B. Elliott, J. G.

SAE Prepr n 730524 for Meet May 14-18 1973 8 p , CODEN- SEPPA8, LOCATION OF WORK- Bendix REs Lab, MONTHLY PUBLICATION NO.-047274, ITEM NUMBER-046977 NDN- 007-0026-4010-0

Several techniques have been used to assist in developing an understanding of handling problems associated with braking and steering maneuvers for combination vehicles. The techniques involve analyses of varying complexity including use of large scale computer models. They also include actual vehicle testing where tests are correlated with analytic results. Simplified analyses show that lack of brakes on trailers can cause greatly extended stopping distances when compared with basic tow vehicle or good trailer braking stopping distances. More detailed analyses also show areas of instability which exist for combination vehicles undergoing stopping and turning maneuvers.

PANEL PREFABRICATION AT WAYFARER MOTOR HOME. - 73-07 01510

Anon

Wood Wood Prod v 78 n 5 May 1973 p 39 , CODEN- WDWPAC, MONTHLY PUBLICATION NO.-037880, ITEM NUMBER-035015 NDN- 007-0025-5529-7

Using plywood, aluminum, and styrofoam, the structural panels are laminated in a rotary laminator. The three sheets of dissimilar material and thickness are first sprayed with adhesive and then fed into the laminator.

STATE OF THE ART IN LP-GAS FUELING SYSTEMS AND PROBLEMS FOR MOTOR FUEL, FORKLIFE, AND RECREATIONAL VEHICLE BOTTLE FILLING. - 73-07 02315

Carnahan, J. R. E.

ASTM Spec Tech Publ 525, Symp Presented at 75th ASTM Annu Meet, Los Angeles, Calif, Jun 25-30 1972, p 18-36 , CODEN- ASTTA8, LOCATION OF WORK- Vangas, Inc, Fresno, Calif, MONTHLY PUBLICATION NO.-036008, ITEM NUMBER-035820 NDN- 007-0025-4724-0

Summarizes the responses to a survey of the state of the art in LP-gas fueling for motor fuel, industrial forklift, and recreational vehicle (RV) bottle filing undertaken by the author in March-April 1972 in which LP-gas marketers, dealers, and equipment manufacturers throughout the country had opportunities to report their field experiences, to outline any problems they may have encountered with LP-Gas dispensing systems, and to offer ideas and constructive criticism leading to the overall improvement of LP-Gas dispenser systems. Experiences that have a bearing on the safety, efficiency, and rreliability of LP-Gas pumping equipment and piping systems for dispensing motor fuel, cylinder refueling at service stations primarily for RV and forklift refueling are described. The requirements for satisfactory LP-Gas dispensing systems as summarized by operators of LP-Gas dispensing systems and equipment manufacturers are also presented.

PVC FOAM TAPE: NEW SEALANT FOR RECREATIONAL VEHICLES. - 73-05 04391

Sullivan, Charles

Adhes Age v 16 n 4 Apr 1973 p 28-30 , CODEN- ADHAAO, LOCATION OF WORK- Norton Co, Granville, NY, MONTHLY PUBLICATION NO.-024091, ITEM NUMBER-027086 NDN- 007-0024-4098-6

This is a report on development of a new sealant which found applications in the mobile home industry. The sealant is made of expanded PVC with a flexible closed-cell construction. Advantages of the sealing tape developed and its performances are outlined. Production and application details are given and some applications are illustrated. Forecast for the future is included.

GET SET FOR BIG ACTION IN BIG THERMOFORMS. - 73-04 01739

Hall, Alan (Ed.)

Mod Plast v 50 n 2 Feb 1973 p 50-54 , CODEN- MOPLAY, MONTHLY PUBLICATION NO.-019820, ITEM NUMBER-018043 NDN- 007-0023-1405-1

This article discusses various aspects of thermoforming techniques used in the production of large parts. Recent developments considered include a 14-ft. pleasure boat, signs with 150-sq. -ft. faces, bathtubs, pallets, tanks, and recreational vehicle components. Sheet extruders report they are shipping greater quantities of 250-mil and thicker sheet in 10-ft. widths, and reportedly there are parts on the drawing boards as large as 10 by 40 ft. Among thermoplastics materials, ABS is still on the top, particularly in boats and recreational vehicles, but HDPE (pallet) and acrylic (signs) are also widely used. Machinery developments are also reported along with economic reformations.

CASE MOBILI A SEZIONE. $LEFT BRACKET$ SECTIONAL MOBILE HOMES $RIGH BRACKET$. - 73-04 03381

Anon

Alluminio v 41 n 9 Sep 1972 p 448-455 , CODEN- ALLUAO, MONTHLY PUBLICATION NO.-018571, ITEM NUMBER-019685 NDN- 007-0022-9763-6

The article describes sectional mobile homes which Italcart of Volpiane, Italy, has recently begun to build. As distinct from the USA where mobile homes are comparatively small, the Italian version uses mobility for the assembling of sizeable houses consisting of several sections. Profile steel is used for structural supports, the utside walls are from aluminum. A school constructed in this way is shown. In Italian.

INVESTIGATION OF ELECTRIC SPACE CONDITIONING FOR MOBILE HOMES. - 73-01 03216
Ambrose, Eugene R. Reynolds, J. L.

ASHRAE J v 14 n 11 Nov 1972 p 46-56 , CODEN- ASHRAA, LOCATION OF WORK- Consulting Engineer, Mount Dora, Fla, MONTHLY PUBLICATION NO.-002205, ITEM NUMBER-003380 NDN- 007-0022-5291-4

Based on a field project sponsored by American Electric Power System, the article reports on investigations undertaken to improve comfort and system operation in total-electric mobile homes. Studies include determining effects of various construction and insulation changes on heating, cooling and air distribution, with emphasis on efficiency and economics of equipment and controls.

USE OF FRP IN MOTOR HOMES. - 72-13 05518

Korn, Wayne F.

SPI Reinf Plast, Compos Inst, Proc, Annu Tech Conf, 27th, Feb 8-11 1972, Sect 6-B, 6 p , LOCATION OF WORK- PRF Industries, Inc, Mt. Clemens, Mich, MONTHLY PUBLICATION NO.-021496, ITEM NUMBER-036839 NDN- 007-0021-4781-0

A survey is given of recreation vehicles, as defined by the Recreational Vehicle Institute, which include $EM DASH$ motor homes, travel trailers, truck campers, camping trailers, and pick-up covers. Examples of recreational motor homes made of GFRP using various techniques are presented and economic aspect of their production and uses is discussed.

PLASTICS ARE ROLLING INTO LOW-COST HOUSING VIA THE MOBILE HOME ROUTE - 72-13 00805

Anon

Mod Plast v 49 n 6 Jun 1972 p 58-61 , CODEN- MOPLAY, MONTHLY PUBLICATION NO.-016780, ITEM NUMBER-019777 NDN- 007-0020-6033-8

This is a comprehensive review of the mobile home developments in regard to applications of plastics materials. In 1971 approximately 240 lb. of plastics went into each of an estimated 485,000 complete homes, putting the mobile home industry in the first place for plastics consumption in the single-family housing market. Total consumption was posted at 55,000 tons.

EDP FINISHING FOR MOBILE HOME AND MARINA POWER OUTLETS. - 72-11 02780

Salden, Leroy

Ind Finish (Wheaton, Ill) v 48 n 6 Jun 1972, 8 p between p 16 and 24 , CODEN- IFIIAJ, LOCATION OF WORK- Midwest Electric Products Inc, Mankato, Minn, MONTHLY PUBLICATION NO.-006159, ITEM NUMBER-020828 NDN- 007-0019-5505-0

Midwest Electric electropaints all components for their marina and mobile home power outlets with a weather-proof modified polyester. Details are given on degreasing EDP tank and auxiliary equipment, rinsing and finishing techniques.

F.R.P. IN RECREATIONAL VEHICLE AI CONDITIONING - 72-X0 87907

BARKLEY HJ LEE AW

SPI, 26th Annu Tech Conf Reinf Plast/Compos Div, Proc, Washington, DC, FEB //9'//1//2 //1//9//7//1 Sect 9-A, 2 p , LOCATION OF WORK- Motor Wheel Corp, LaGrange, Ind, MONTHLY PUBLICATION NO.-08816 NDN- 007-0018-0128-8

SEVERAL USES OF GFRP are presented and discussed in some detail. Application of GFRP to a roof top air conditioner for use in the recreational veicle industry. A rugged outdoor application where appearance is important. In the past the oute shell, consisting of base pan and shroud has always been steel and/or aluminum. The objective was to reduce the number of parts and weight while increasing the reliability of the product. These objectives wee met. Convertible prototype tooling was used on the base pan. Complete outer case is now compression molded of SMC.

HYBRID COMPUTER SIMULATION OF THE RECREATIONAL SNOWMOBILE - 72-XO 72435

NEWMAN JA CHENG S SURI VK

SAE Pap 720261 for meeting Jan 10-14 1972, 16 p , MONTHLY PUBLICATION NO.-38836
NDN- 007-0017-7102-8

The vehicle is mathematically represented by a displacement-driven, damped nonlinear spring-mass system with two degrees of freedom. The analog circuit and the logic level control system of the analog/hybrid computer are discussed, along with the use of a hybrid system using Hytran Operational Interpreter to perform OFF-LINE and ON-LINE checks. Finally, a method to display a visual representation of the vehicle on an oscilloscope screen is presented.

UNDERGROUND METERING PRACTICES GROW WITH THE SERVICE - 72-XO 58678

TOWNS TG

Transm Distrib v 23 n 9 Sept 1971 p 97-100 , CODEN- TRDIA , MONTHLY PUBLICATION NO.-31006 NDN- 007-0016-5471-1

The use of direct buried metering devices is discussed including a 1-in. conduit, a circuit- closing socket, and a transformer- type watt-hour meter. The applications to the underground residential distribution and to power supplies of mobile homes and apartment houses are reviewed.

RECREATIONAL VEHICLE ENGINES AND THEIR INSTALLATION - 72-XO 58137

HAZZARD HI

SAE Pap 710664 for meeting Aug 16-19 1971, 10 p , MONTHLY PUBLICATION NO.-04061
NDN- 007-0016-4117-0

The subject of the engine for recreational vehicles is approached first as the selection and installation of the engine in units such as the snowmobile and ATV's. This is to aid the vehicle's engineer in selecting and adapting an engine to his project. Two engine design is considered, particularly McCulloch's balanced power engine with its mechanical balance system.

MOBILE HOME PARKS AND AMERICAN MUNICIPALITIES - 72-XO 60044

SUSSNA S

ASCE J Urban Plann Develop Div v 97 n UP2 Dec 1971 paper 8562 p 139-48 , CODEN- JUPDA , LOCATION OF WORK- Stephen Sussna Assoc, Trenton, NJ, MONTHLY PUBLICATION NO.-31551
NDN- 007-0016-3692-7

The problem of mobile home park sites is examined. The lack of park sites is shown to be due to the fear of municipal officials that mobile home parks will mean an increase in transients, undesirable newcomers and structures, and additional public school and other governmental costs. A substantial evidence exists that current mobile home parks contain nonmibratory, respectable residents, often without public school children.

FOUR MOBILE HOME DISTRIBUTION SERVICE METHODS ARE EVALUATED - 72-XO 33049

BARGER JV

Transm Distrib v 23 n 3 Mar 1971 p 44-9 , CODEN- TRDIA , MONTHLY PUBLICATION NO.-14345 NDN- 007-0015-6738-3

Various methods are discussed for the power supply of the mobile homes, especially sited in the commercial parks, with or without electrical heating.

POLYPROPYLENE REGISTERS HIT IN MOBILE HOMES - 72-XO 46138

ANON
Plast Des Process v 11 n 2 Feb 1971 p 15-16 , CODEN- PDPRA , MONTHLY PUBLICATION NO.-24392 NDN- 007-0014-9110-0

Report on the replacement of metal registers by those molded of PP. In each medium-to- large mobile home there are six to eight adjustable floor registers for the heating and air conditioning systems. The molded polypropylene registers have none of the disadvantages of metal, and offer a substantial cost savings. The entire floor register is molded at one time. The operation technique is described.

MOBILE HOME PARK DISTRIBUTION - 72-XO 10864

ANON

Transm Distrib v 23 n 2 Feb 1971 21 p between p 24 and 53 , CODEN- TRDIA , MONTHLY PUBLICATION NO.-00041 NDN- 007-0014-6347-4

The special issue contains five articles by different authors on the mobile house market growth, especially in the Pacific Northwest, on the permanent services to permit larger power loads in the mobile houses, on the underground distribution serving a 200 mobile home park, and on the service disconnects to accommodate electrically heated mobile homes.

FRP DOMINATES TRAVEL TRAILER, MOTOR HOME SCENE IN TRILLIUM-GLASTRON MANUFACTURING DEBUT - 72-XO 20358

ANON

Progr Plast v 12 n 12 Dec 1970 p 33 , CODEN- PRPAB , MONTHLY PUBLICATION NO.-11012 NDN- 007-0014-0716-1

Description of a recreational vehicle developed and built in Canada from GFRP material. The motor houses made also of GFRP move into a noting-but- success market. Production technique is presented in which a one-piece vehicle is obtained with a dust- tight, leak- proof, noise-resistant and corrosion- proof, body. Sandwich construction is used for the floor-a 1- in. high- density urethane foam core between wood panels. Foam-in- place sound and thermal insulation is generously used in the motor and generator compartments. Prototypes of Trillium trailer and the Trillium-Glastron motor home have been presented in Toronto and have received a good response from perspective dealers.

EXPANDED VINYL EXTRUSIONS REPLACE WOOD MOLDING IN MOBILE HOMES - 71-X1 21260

ANON

SPE J v 27 n 6 June 1971 p 34 , CODEN- SPEJA , MONTHLY PUBLICATION NO.-77406 NDN- 007-0012-7344-2

New vinyl molding extrusions are made to be as dense, resilient, and porous as wood, but will not break, split or crack in normal handling. Introduced as a replacement for wood-molding in the mobile home and vehicle industries, vinyl molding extrusions may comprise close to 50% of the total prefinished molding market in the next 5 yr. Physical and mechanical characteristics of the new vinyl materials are included.

BILLION-DOLLAR RECREATIONAL VEHICLE INDUSTRY GEARED FOR MORE GROWTH - 71-XO 85634

RAKOWSKI LR

Mod Metals v 26 n 7 Aug 1970 p 74-5, 80-1, 84, 86, 88, 90-1 , CODEN- MOMLA , MONTHLY PUBLICATION NO.-37100 NDN- 007-0009-7757-7

Survey covering uses and growth in manufacture travel trailers, campers and motor homes is summarized. Aluminum, in the form of sheet, extrusions, fasteners, tubing, and castings are compared with other materials such as steel, plywood, fiber glass, and plastics.

MOBILE HOME-HOUSEBOAT SETS A PRECEDENT IN FORMING LARGE ABS PARTS - 71-XO 72236

ANON

Mod Plast v 47 n 7 July 1970 p 56 , CODEN- MOPLA , MONTHLY PUBLICATION NO.-40338
NDN- 007-0009-3874-2

Development of a houseboat designed for mobility on land and water which has been made of expanded ABS sheet laminated to solid skin. Involved are what are said to be the largest deepdrawn ABS parts produced to date, the craft's hull and cabin sections. These measure 23 by 9 by 3 and 4 1/2 ft. Some details of mold design and manufacturing procedure are given.

NEW LINE VINYL-CLADS DOORS FOR MOBILE HOMES - 71-XO 52181

ANON

Wood & Wood Prod v 75 n 5 May 1970 p 38-9 , CODEN- WDWPA , MONTHLY PUBLICATION NO.-27267 NDN- 007-0008-5053-0

ADAM Industries, Inc, of Elkhart, Ind, setup designed to finish 240- 360 doors/hr with five workers attending 165 ft U-shaped line. The double-laminating U- shaped line applies either a maple- or a walnut-patterned vinyl film to one side of the door and an exterior-grade white or cream- colored vinyl film to the other side. Steps in the door laminating process are described.

PLASTICS IN THE MOBILE HOME INDUSTRY - 71-XO 30380

STUART HA

SPI, 27th Annu Conf, Western Sec, Coronado, Calif, Manage & Market Pap May 27-29 1970 Sec 7, 5 p , LOCATION OF WORK- Sur Stop Mfg, Inc, Paramount, Calif, MONTHLY PUBLICATION NO.-12254 NDN- 007-0007-6732-7

Transportation. General considerations of the mobile home parket at present and forecast for the future. Technical procedures involved in manufacturing plastics components are presented and some economical data are given. ABS materials have played a fairly predominant role in the past in the plumbing components. However, PVC and a relatively new compound CP. VC is gaining a great deal of interest for hot water applications. Practically all types of processes are used in the development and manufacture of components used in a mobilhome and a recreational vehicle. Approximately 70% of the cost of amobilhome or rec-vehicle is components that are assembled on an assembly line and all types of processes are involved.

HISTORY OF THE MOTOR HOME AS A RECREATIONAL VEHICLE - 71-XO 45516

SCOTT KT

SAE Pap 710118 for meeting Jan 11-15 1971, 5 p , MONTHLY PUBLICATION NO.-24269
NDN- 007-0006-6182-3

This paper surveys the developmental history of motor coach homes from 1910 to the present.

PLASTICS IN MOBILE HOMES - 70-XO 92538

WRIGHT V

SPE, Reg Tech Conf, Tech Pap for meeting (Chicago Sec) Oct 2-3 1969 p 24-31 , MONTHLY PUBLICATION NO.-38541 NDN- 007-0002-4118-4

Quick look at plastics usage in mobile homes and recreational vehicles. It has been shown that these materials are winning a secure place in this specialized area of the building field. State- of-the- art of mobile home industry with explanation of its growth and presentation of future prospects. Typical uses of plastics in mobile homes and travel trailers are tabulated with presentation of type of application and plastics most widely specified for each application. Economic evaluations of the uses of plastics in mobile homes as an opening up new prospects for stepped up usage in conventional building construction.

FUEL SYSTEMS FOR RECREATIONAL VEHICLES - 70-XO 50808

DONOVAN DL

SAE-Paper 700164 for meeting Jan 12-16 1970, 9 p , MONTHLY PUBLICATION NO.-20302
NDN- 007-0001-9272-0

This paper discusses the numerous current applications found for the diaphragm carburetor with integral fuel pump and filter. The necessity to accommodate severe vehicle tilt angles and vibration levels in snow mobiles, all-terrain vehicles, and powered surfboards makes the diaphragm carburetor a logical choice. Venturi size should be determined to satisfy partial throttle and partial load conditions as well as high-speed maximum power output. Carburetor calibration to determine optimum fuel metering must be accomplished with the requirements of the complete engine in mine, if serious fuel flow variations are to be avoided.