

Title (en)  
PREPARATION OF VEHICLE FRAME COMPONENTS FOR MOLECULAR BONDING USING MAGNETIC IMPULSE WELDING TECHNIQUES

Title (de)  
VORBEREITEN VON FAHRZEUGGRAHMENBAUTEILEN AUF EINE MOLEKULARVERBINDUNG DURCH IMPULSMAGNETSCHWEISSTECHNIK

Title (fr)  
PREPARATION DE COMPOSANTS DE CHASSIS DE VEHICULE A UNE LIAISON MOLECULAIRE SELON DES TECHNIQUES DE SOUDAGE PAR IMPULSIONS MAGNETIQUES

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Application  
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Abstract (en)  
[origin: WO9700595A1] A method and apparatus for joining metallic vehicle frame components using magnetic impulse welding techniques is disclosed. In a first embodiment, an overlap joint is formed by the joinder of two individual open channel side rail sections (12, 13) to form a portion of a vehicle frame side rail. The first section (12) formed slightly smaller than the second section (13) is disposed telescopically therein with clearance. The adjacent surfaces of the sections (12, 13) are plasma or flame sprayed with a neutral interface metal. An electromagnetic coil (50) generates a magnetic field which causes the sections (12, 13) to move toward one another at a high velocity. The high velocity impact and the large pressures cause the two sections (12, 13) to weld. In a second embodiment, a pair of closed channel structural members are formed using hydroforming techniques. The end portions of the hydroformed members are then disposed concentrically within an electromagnetic coil which causes the end portions to move toward one another so as to weld.

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