A number of works is devoted to research of hydrides of metals at high, including dynamic pressure. The first works on shock compression of metal hydrides have been connected with the geophysical and military applications. Thus shock pressure compression of titaniumhydride have made at 250 GPa, and for lithium hydride the shock wave conditions are measured at 1200 GPa. Properties of these compounds at high pressures have attracted special attention again with the emergence of new scientific and technical problems. One of such problems is conductivity of hydrogen and its possible metallization in hydrides of metals, in particular lithium hydride at moderate high pressures. Recently the interest has increased to properties of metals hydrides at high pressures in connection with problems of hydrogen power. In this respect the works are executed on research of titanium and lithium hydrides at high (up to 100-250 GPa) pressure in isothermal conditions of diamond anvils and ab-initio calculations of their properties and transformations at strong compression. Now the range of high dynamic and static pressure are crossed for hydrides of the titan and lithium. In this report the results of static and dynamic experiments for these hydrides are compared, own shock wave experiments are performed in the megabar pressure range and the following results are received. 1. The TiH$_2$ Hugoniot experience a break. It testifies to a physical-chemical transformation (presumably fcc ↔ bct polymorphic transition) at shock compression in the pressure range 60-90 GPa. The area [120 (30) GPa; 2000 (300)K] of high electroconductivity initiation of LiH-B1 is identified in the multiple shock experiments. 3. The semiempirical equations of a state are constructed for calculations of shock compression for TiH$_2$ fcc up to 100 GPa, TiH$_2$ bct up to 250 GPa, LiH-B1 up to 100 GPa and LiH-B2 up to 1200 GPa. 4. The equilibrium line LiH-B1 ↔ LiH-B2 is calculated in the of pressure range 30-300 GPa and temperatures 2000-300K.

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