The axisymmetric compression of the studied materials and magnetic fields has always been of interest to researchers. One of the methods of such compression is based on the use of a converging detonation wave during its multipoint initiation. Previously, when solving many practical problems (such as the compression of pulsed magnetic fields, the operation of the Mach ultra-high pressure generators, the operation of some cumulative charges, or in special devices for generating shock waves), the structure of the detonation wave was not considered in detail. But at present, a more detailed description of the processes of axisymmetric compression and the exit of a shock wave to the surface of a compressible volume has been required. The experimental development of full-sized charges of this type is quite complex and time-consuming. For this purpose, an explosive model laboratory unit with a small TNT charge equivalent (about 1 kg) was created and tested. Using this setup, the complex structure of a cylindrical detonation wave, which was formed by the method of multipoint initiation, was shown. Experimental studies of the dynamics of the initial compression section of a copper liner are carried out. The results are obtained on measuring the temperature of the inner surface of a cylindrical liner when a shock wave enters it. It is shown that the complex structure of a converging detonation wave during multipoint initiation can cause the appearance of hydrodynamic instabilities as the liner contracts. Using a Langmuir probe, flows of plasma and fine particles from the surface of a copper liner during its compression were recorded. Experiments were carried out on axisymmetric compression of argon with the registration of temperature at several wavelengths. Other methods for initiating a cylindrical detonation wave are proposed and their characteristic features are shown. The obtained experimental data on the detonation velocity during the motion of the wave toward the center are compared with the calculation models of Zel’dovich Ya. B. and Guery.