SPECIFICATION

HYDRAULIC COMPRESSION SPRING COMPRESSOR

TECHNICAL FIELD

The utility model relates generally to automotive repair equipment, and more particularly to a hydraulic-powered tool designed for the safe and efficient compression of coil springs found in vehicle suspension systems. Specifically, the invention pertains to a hydraulic compression spring compressor used during the disassembly and reassembly of strut assemblies and other suspension components, providing improved safety, precision, and ease of use compared to traditional mechanical spring compressors.

BACKGROUND OF THE UTILITY MODEL

Compression spring suspension systems are widely used in modern vehicles due to their compact design and simple construction. A compression spring typically consists of a coil spring, a hydraulic shock absorber, and other related components all integrated into a single unit. When servicing or replacing a compression spring assembly, the spring must be safely compressed to allow the strut to be removed from the vehicle. Traditional spring compressors for compression spring often use mechanical means, such as threaded rods or lever arms, to apply compressive force to the spring. These mechanical

compressors can be difficult to set up, require significant physical effort to operate, and may pose safety risks if the spring suddenly decompresses. Improper use of mechanical spring compressors can also potentially damage the strut components.

To address the limitations of mechanical spring compressors, Hydraulic compression spring compressors have been developed. Hydraulic compression spring compressors use the mechanical advantage of a hydraulic cylinder to apply controlled, gradual compression to the spring, making the removal and installation of compression spring safer and more efficient.

SUMMARY OF THE UTILITY MODEL

The utility model hydraulic compression spring compressor is a vital tool designed for the safe and efficient compression of coil springs, especially in automotive settings. This innovative device employs a hydraulic mechanism that allows users to compress springs with minimal manual effort, harnessing significant force through hydraulic pressure. One of the standout features of this compressor is its emphasis on safety. It incorporates various safety mechanisms to prevent the accidental release of tension, ensuring that users remain protected during operation. This is particularly important given the inherent risks associated with handling compressed springs. Versatility is another key aspect of the hydraulic spring compressor. It can accommodate a wide range of spring sizes and types, making it suitable for various automotive and mechanical applications. Its user-friendly design simplifies the compression process, often featuring adjustable components that cater to different spring configurations.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Reference will now be made to the accompanying figures which show the embodiment of the model in witch;

Figure. 1 Perspective view of the present utility model for a Hydraulic Compression Spring Compressor

Figure. 2 Exploded assembly view of the present utility model for a Hydraulic Compression Spring Compressor

DETAILED DESCRIPTION OF THE MODEL

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the following views from Figure 1 illustrate perspective view of Hydraulic compression spring compressor 20 a work holding devise use to provide an effective and safe means of securing work pieces with minimum effort from the user. Figure 2 The Hydraulic compression spring compressor 20 shows exploded view, a device specifically designed for safely and efficiently compressing coil springs, typically found in automotive suspension systems and similar mechanical applications. The device is engineered to improve user safety, ease of operation, and adaptability to various spring sizes and configurations. The device features a robust, stable prime base 1 designed to support the entire structure during operation. It is constructed from high-strength metal to ensure stability and to withstand the

reactive forces generated during spring compression. Attached to the stable prime base is a transposable base 2, which is characterized by its ability to be detached or repositioned, allows for versatile adjustment to accommodate different spring sizes and enhance transportability and storage efficiency. Centrally mounted on the base is a hydraulic bottle jack 3, serving as the primary source of compression force. The hydraulic mechanism provides smooth, controlled, and powerful upward motion, making the compression process more efficient. A set of guide bars 4 are vertically mounted to direct the upward movement of the lower bracket and maintain alignment with the upper bracket during operation. These guide bars are hollow and threaded, allowing for the installation of fastening. A shiftable pressing lower bracket 5 is mechanically linked to the hydraulic jack and guided along the vertical bars. It serves as the contact surface for the lower end of the spring and moves vertically to apply compressive force. A plurality of slider guides 6 are affixed to the shiftable lower bracket to ensure smooth, precise, and stable vertical motion along the guide bars. These guides reduce friction and lateral movement, thus maintaining safety and structural alignment. The inalternable upper bracket 7 is fixed in position at the top portion of the guide bars. It acts as a stationary contact point for the upper end of the spring during compression, providing a secure counterforce to the moving lower bracket. A detachable locking plate 8 is included to secure the spring in place during compression. This component is detachable, allowing for quick removal and reinstallation when handling different spring types and ensuring operator safety by preventing accidental spring ejection.