

P-11-19



# AEROSPACE RECOMMENDED PRACTICE

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ARP 1135

Issued 5-15-69  
Revised

## STANDARDIZATION OF DRIVE END OF HYDRAULIC OR GEARED TORQUE WRENCHES FOR USE TO AN UPPER LIMIT OF 500,000 INCH POUNDS

1. **PURPOSE** - The purpose of this recommended practice is to provide recommendations for the design of a series of components which, when used as prescribed, will provide a wrench capable of producing up to 500,000 in.-lb of torque.
2. **SCOPE** - This recommended practice covers the dimensions of an inside splined driver-wrench adapter, envelope of the housing-wrench reaction, the mechanical method of adapting the driver-wrench adapter to the wrench adapter driven end, and the housing-wrench reaction to the holder-counter torque.
3. **GENERAL REQUIREMENTS**
  - 3.1 **Reference Standards** - The following specifications may be applicable and provide useful information.
    - 3.1.1 **Military Standards**

MIL-S-8512 Support Equipment, Aeronautical  
MIL-D-1000 Drawings and Data List
    - 3.1.2 **SAE Standards**

SAE J498B Involute Splines, Serrations and Inspection (Conforms with ASA B5.15-1960)  
Supersedes ARP 911 (Inactive)
  - 3.2 **Material and Workmanship**
    - 3.2.1 **Material** - Material specified for use in fabrications should be of the highest quality suitable for the purpose.
    - 3.2.2 **Workmanship** - All details shall be in accordance with the best manufacturing practices.
4. **DETAIL REQUIREMENTS**
  - 4.1 The design configuration should consist of three sub-assemblies (see Fig. 1):
    - a. Driver-wrench adapter (Fig. 2 and Fig. 3)
    - b. Wrench adapter to torqued part (Fig. 3 for spline details)
    - c. Holder-counter torque wrench

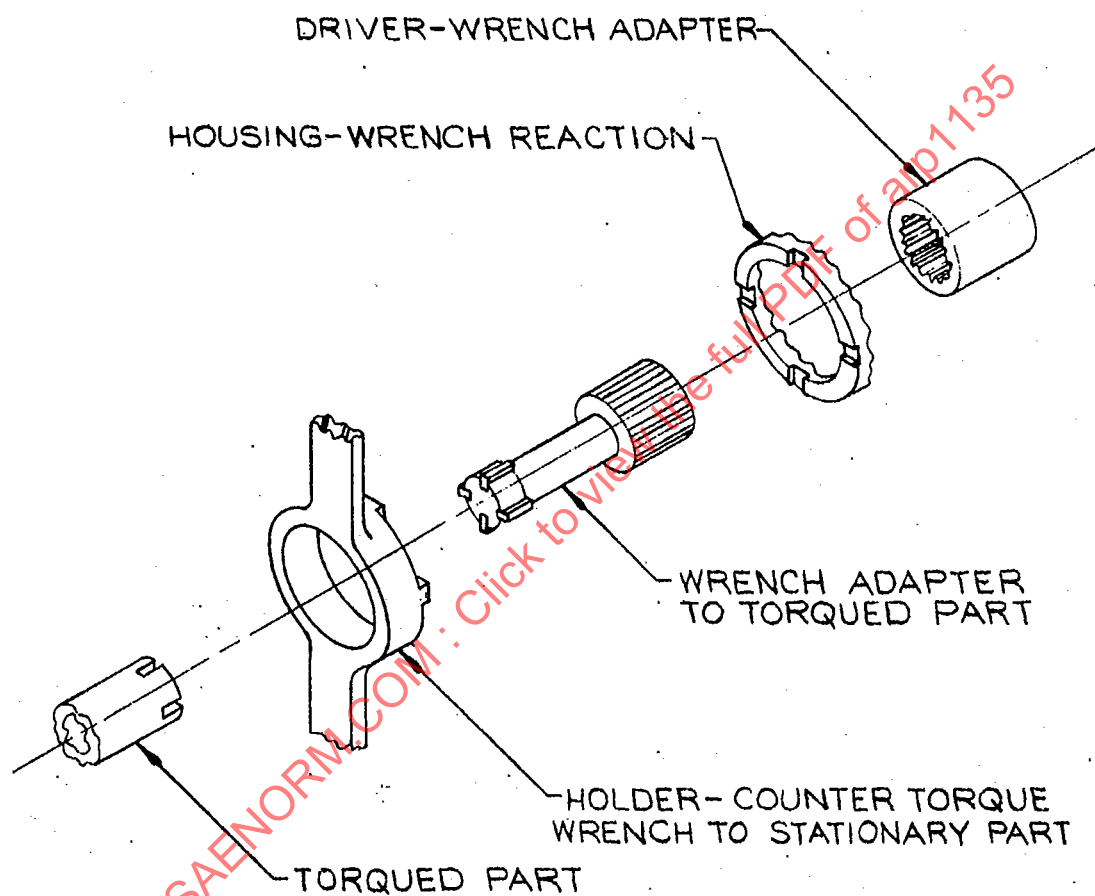
All components should be designed with a safety factor of 3-to-1, based on yield strength at rated wrench power.
  - 4.2 All splines shall be calculated to the SAE J498B Basic Dimension criteria for flat root side fit.
  - 4.3 All adapters shall be designed separately to adapt to various units as required.
  - 4.4 Dimensional requirements not specified herein are to be such that all details subject to normal replacement, be interchangeable with any and all components.

PREPARED BY SAE COMMITTEE EG-1,  
AEROSPACE PROPULSION SYSTEMS SUPPORT EQUIPMENT

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FIGURE 1

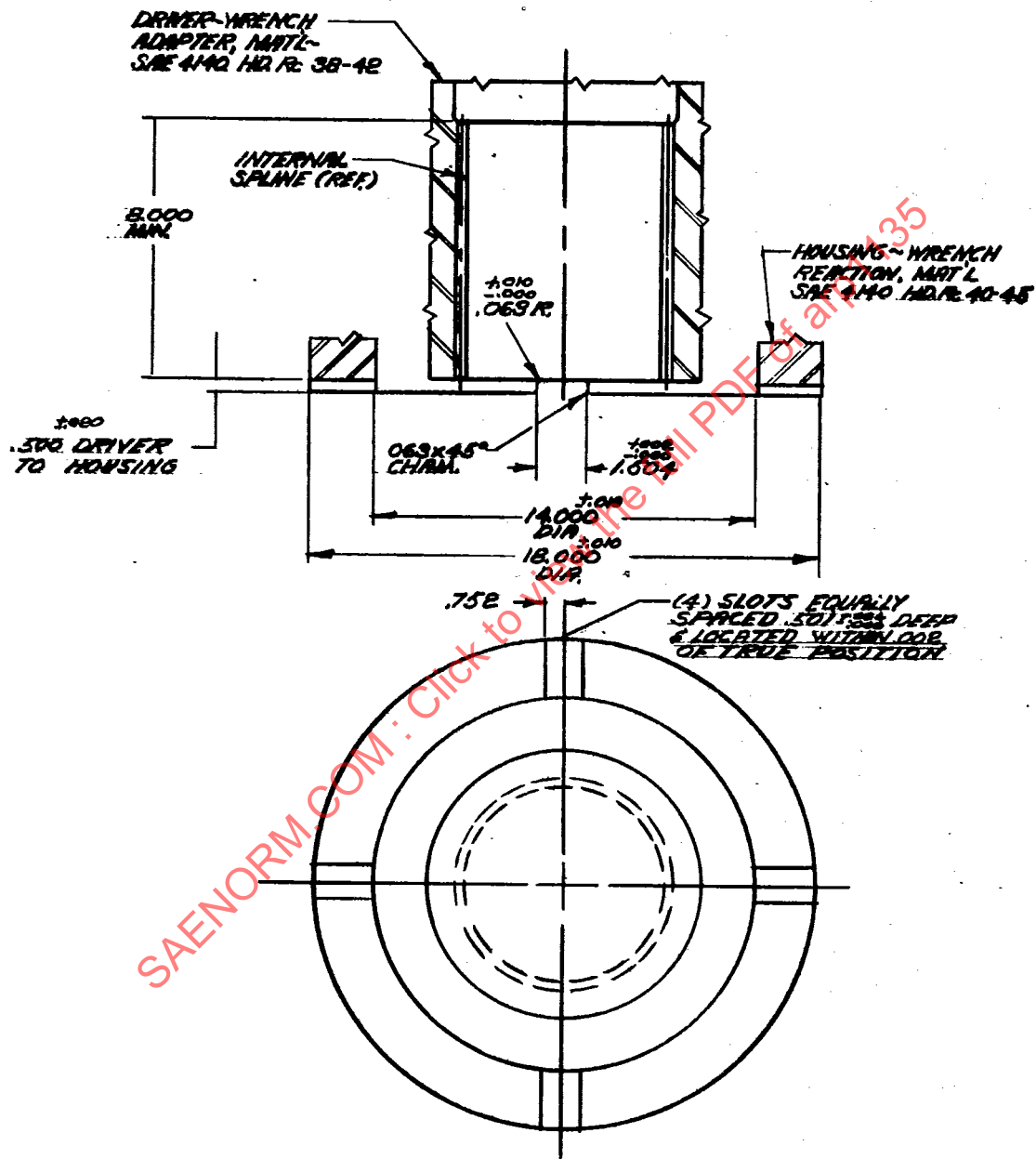


FIGURE 2