



TIMKEN

SOLUTIONS FOR THE AUTOMOTIVE INDUSTRY

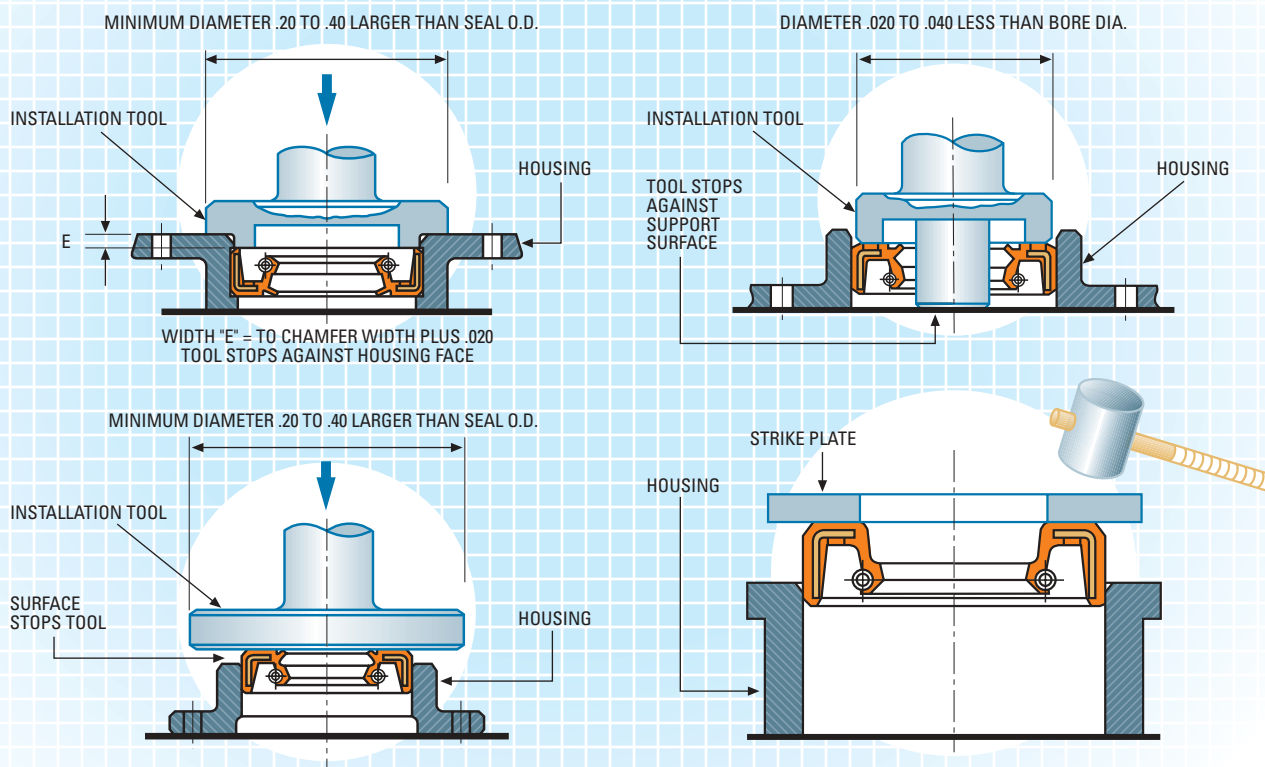
VOLUME 1 • ISSUE 2

WELCOME TO TECHTIPS. Maximizing bearing performance and life remains an objective throughout The Timken Company, from design teams to manufacturing associates to our field sales team and distributors. TechTips helps you install and maintain Timken® bearings, seals and components to maximize the life and performance of your bearings and the systems in which they operate. For more information regarding Timken automotive products and services, visit timken.com or contact your local Timken distributor.

SEAL AND SHAFT INSTALLATION PROCEDURES

The subject of installation is commonly overlooked when selecting an oil seal for an application. Possibly, this is one of the major causes of premature seal failure. To assist the installation, the seal should be prelubricated with grease or oil to reduce sliding friction of contact surfaces. This also helps protect the seal lips during initial run-in. An installation tool should always be used when installing an oil seal. Using a tool improves ease of installation and reduces the possibility of seal cocking (non-perpendicular to shaft). A hydraulic or pneumatic press is advised to supply necessary force to install the seal. Following are examples of both recommended and improper installation methods.

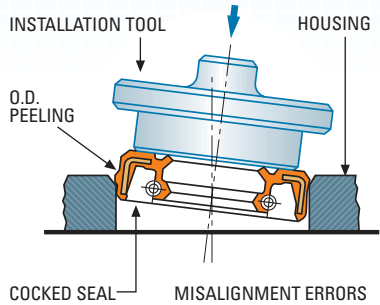
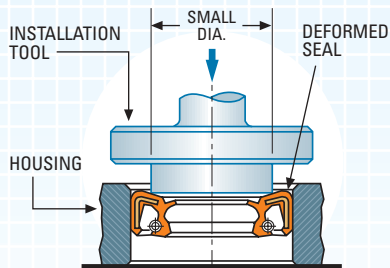
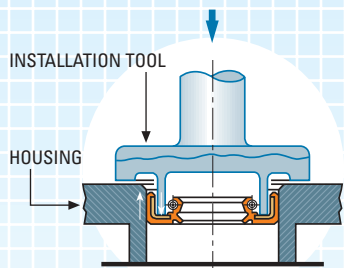
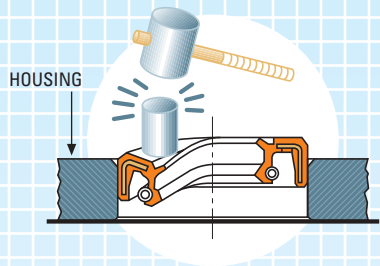
ACCEPTABLE METHOD OF SEAL INSTALLATION



In each preferred method, installation load is absorbed by either housing or bottom plate to prevent seal damage and to assist in locating the seal properly within the bore.



IMPROPER METHOD OF SEAL INSTALLATION

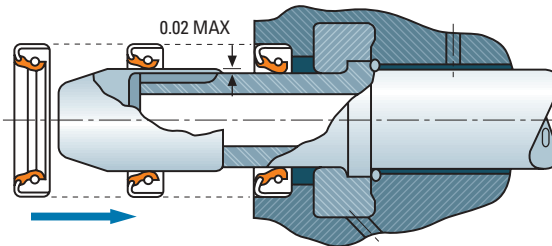


SHAFT INSTALLATION

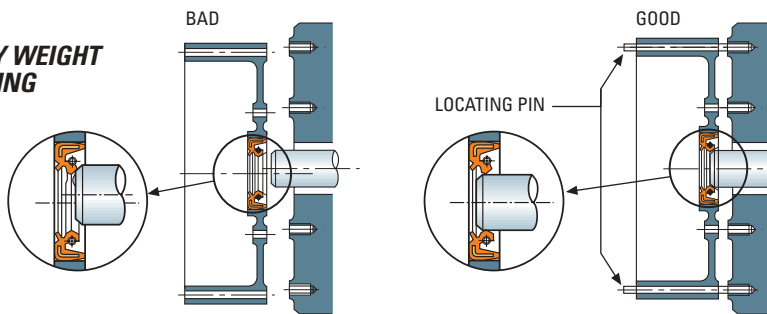
The advisable sequence of installation is to install the seal over the shaft and then into the housing bore. Exercise care to not damage or deform the seal lip. The proper chamfer angle minimizes this problem. When installing over a keyway or spine, employ a sleeve or bullet to protect the seal lip from cuts.

Where the shaft must be installed through the seal, centering guides for the shaft prevent lip deformation and dislodging of the spring. When possible, the shaft should be rotated as it passes through the seal to reduce sliding friction.

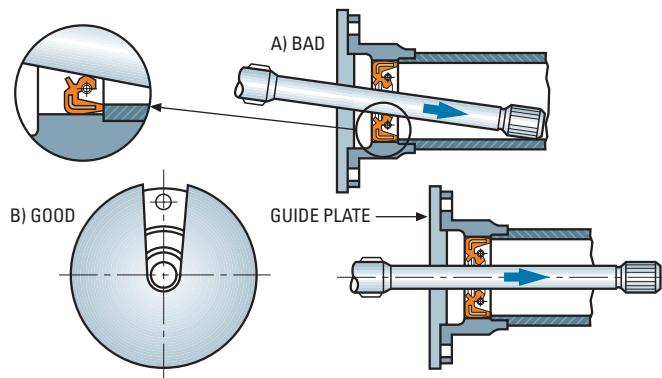
SEAL INSTALLATION OVER SHAFT SPLINES



HEAVY WEIGHT HOUSING



LONG SHAFT



WARNING: Proper maintenance and handling practices are critical. Follow the equipment manufacturer's installation instructions. Failure to follow installation instructions and to maintain proper lubrication can result in equipment failure and could lead to a risk of serious bodily harm.

TechTips is not intended to substitute for the specific recommendation of your equipment suppliers.

*All technical information and illustrations in this Seal and Shaft Installation TechTips were provided by and printed with the permission of Freudenberg-NOK.
© Freudenberg-NOK 2000*

Timken® is the registered trademark of The Timken Company.
www.timken.com



© 2003 The Timken Company
Printed In the U.S.A.
70M-08-03-7 Order No. 7549

WORLDWIDE LEADER IN BEARINGS AND STEEL