



Model: Tesco	Oct. 10, 2018
Serial #: See "Affected Products"	
Product Bulletin # TDS-188	

## Tesco Grabber Configurator Options

Tesco top drives utilize a hydraulic clamping cylinder housed in a high-strength steel box referred to as the clamping box, which acts as a back-up wrench for making and breaking drill pipe connections. This assembly is housed inside an outer high-strength steel box referred to as the Torque Box. The grabber cylinder assembly and clamping box are manufactured such that different die holders can be installed allowing the user to adjust for different drill pipe connection diameters. A configuration chart was developed to allow the user to select different fasteners, shims, dies and die holders to configure the grabber to the desired size.

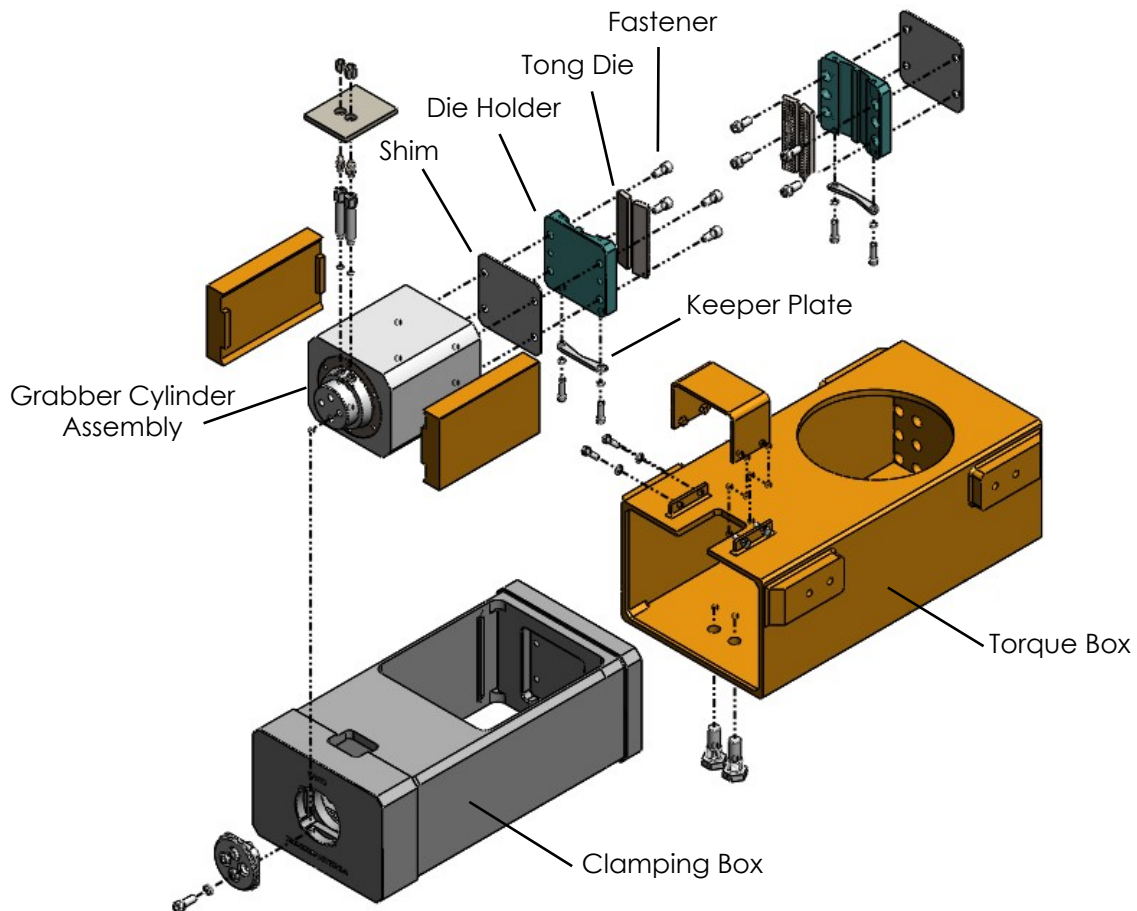


Figure 1: Currently Manufactured Grabber Box Assembly Uses Shims



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Historical issues linked to incorrect grabber configuration, especially with the 10.5" grabber utilized on the Tesco ESI/ECIX model top drives led to Technical Bulletin (TB106, released March 2016) that clarified how to select various dies, fasteners and shims to achieve the desired operating range for the grabber.

Continued field feedback has shown that the configuration of the grabber is still very complex and involves too many parts. To address this issue and make the configuration of the grabber as simple as possible for both the 10.5" and 9" grabber assemblies, Tesco has made changes to the grabber cylinder and clamping box, and designed a new series of die holders of varying thicknesses. This has allowed for a simplification of the grabber configuration chart and greatly reduced the number of parts required to configure for different pipe diameters, without affecting the grabber strength and integrity. With minimal parts an operator can now easily configure both the 10.5" and 9" grabber to the desired operating range. This document outlines these changes, and supersedes CB066 and TB106.

In addition to easier configuration, the new die holders eliminate a potential problem with the previous design which incorporated the use of 1/2" shims. When a 1/2" shim was placed behind the die holders on the previous design, the die holders were moved out of the mounting pockets of the grabber cylinder assembly. The new design keeps the die holder firmly fastened in the pockets so that the fasteners are never placed into a shear condition, eliminating potential failure points.

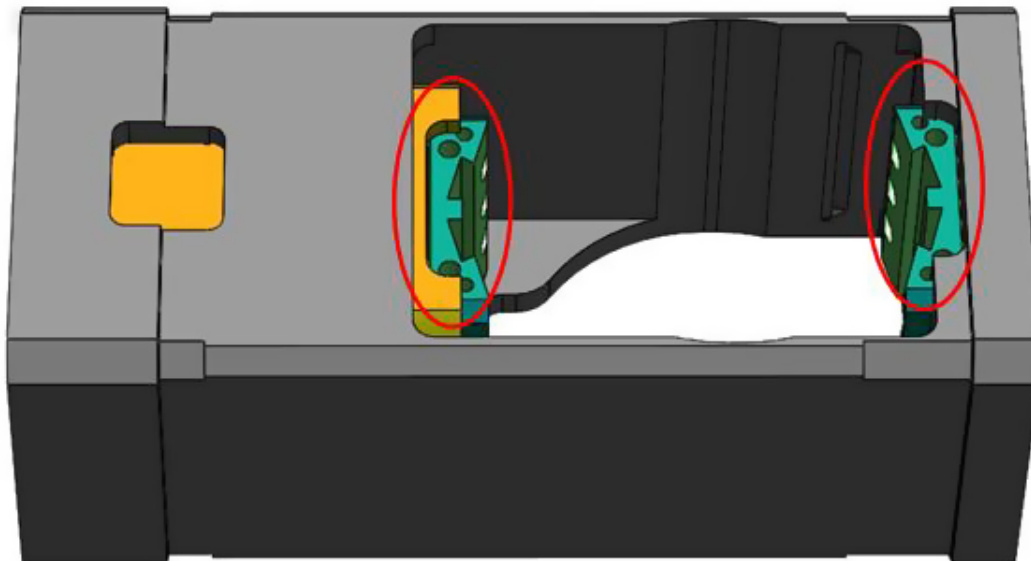


Figure 2: Clamping Box Assembly Showing Interference



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## Affected Products:

All models of Tesco top drives equipped with the 10.5" grabber assembly (ESI, ECIX) and the 9" grabber assembly (ECI, EXI, EMI, HCI, HXI, HS, HC). For both the 10.5" and 9" grabber assemblies, there is now only one size of fastener (1/2" UNC x 1-1/4" socket head drilled head capscrew, part # 3727) and only one size of tong die (1/2" high x 1-1/4" wide x 5-7/8" long, part # 1676). The shims have been eliminated. The grabber cylinder and clamping box now have an upper notch in addition to the previously existing lower notch that allows for easy tong die replacement. The new upper notches are of the same dimensions as the lower notches and allow for the installation of the one-size keeper plates (die retainers) on all die holders. Previously manufactured grabber cylinders and clamping boxes can be readily upgraded with the upper notch modification.

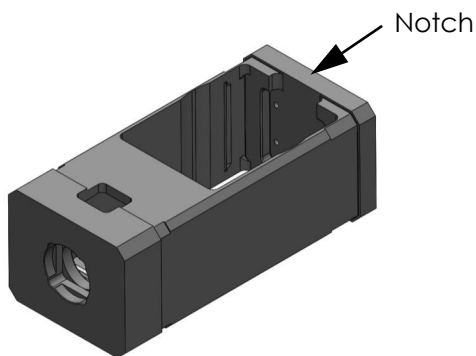


Figure 3: Clamping Box

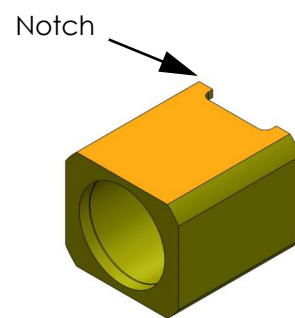


Figure 4: Grabber Box Cylinder

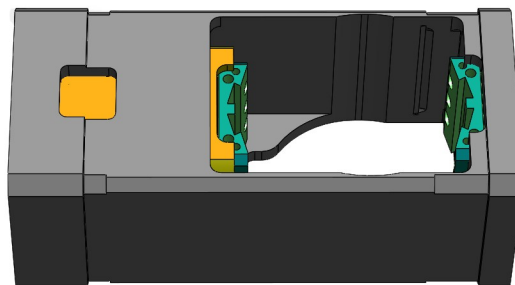


Figure 5: Clamping Cylinder and Grabber Box with Upper and Lower Notches Indicated



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Benefits of the modification are:

- Fewer parts required
- Easier to configure
- Lower possibility of dropped objects
- Faster changes between pipe sizes

**Note:** Once the upper notch has been machined into the cylinder and clamping box, all die holders must be installed with both lower and upper keeper plates. All keeper plate fasteners must have secondary retention installed (Safety wire).

**Note:** Older versions that do not have the notches cannot be configured using the 1" thick die holder (5061442). All other die holders can be used, and must have keeper plates installed on both the top and bottom except for the 1/2" die holder (3051), which only requires the bottom keeper plate.

**Note:** Even if the 1" thick die holder cannot be used to configure older version clamping boxes without notches, there are other die holder options covering all available tubular ranges/pipe sizes.

**Note:** Do not mix die holders or equipment damage may result.



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## Grabber Configuration Charts

**Table 1: 10.5" with "New Die Holders and Upper Notches" in the Grabber Box Cylinder and Clamping Box**

Die Holder (P/N and Size)	Tong Die	Open (in.)	Closed (in.)	Configuration Notes
3051 (1/2")	1676 (1/2")	10-1/2"	7"	Standard Configuration
5061442 (1")	1676	9-1/2"	6"	Upper keeper plates must be installed for ALL configurations
5061443 (1-1/2")	1676	8-1/2"	5"	
5061444 (2")	1676	7-1/2"	4"	
5061445 (2-1/2")	1676	6-1/2"	3"	

**Note:** All part numbers are TESCO part numbers, unless otherwise noted.

**Table 2: 9" with "New Die Holders and Upper Notches" in the Grabber Box Cylinder and Clamping Box**

Die Holder (P/N and Size)	Tong Die	Open (in.)	Closed (in.)	Configuration Notes
3051 (1/2")	1676 (1/2")	9"	5-1/2"	Standard Configuration
5061442 (1")	1676	8"	4-1/2"	Upper keeper plates must be installed for ALL configurations
5061443 (1-1/2")	1676	7"	3-1/2"	
5061444 (2")	1676	6"	2-1/2"	

**Note:** All part numbers are TESCO part numbers, unless otherwise noted.

**Table 3: Required Hardware and Keeper Plate for Both 10.5" and 9"**

Part Number	Quantity	Description
3727	16	1/2" UNC x 1-1/4" Skt Hd Dr Hd fastener
3054	4	Keeper Plate

**Note:** All part numbers are TESCO part numbers, unless otherwise noted.



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## Action Required:

Customers are encouraged to upgrade their grabber assembly to ensure proper top drive operation. Existing clamping boxes and grabber cylinder assemblies can be upgraded at most machine shops. For operators of multiple Tesco top drives, an easy solution is to replace the clamping box assembly with an upgraded version. The removed items can be machined and reassembled, then installed in the next candidate machine. Typical time required to remove and replace a clamping box assembly is less than one hour on the rig floor.

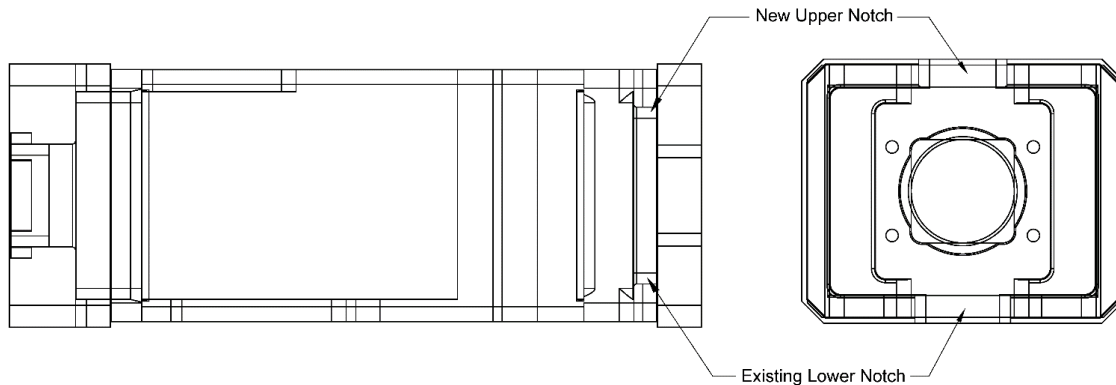
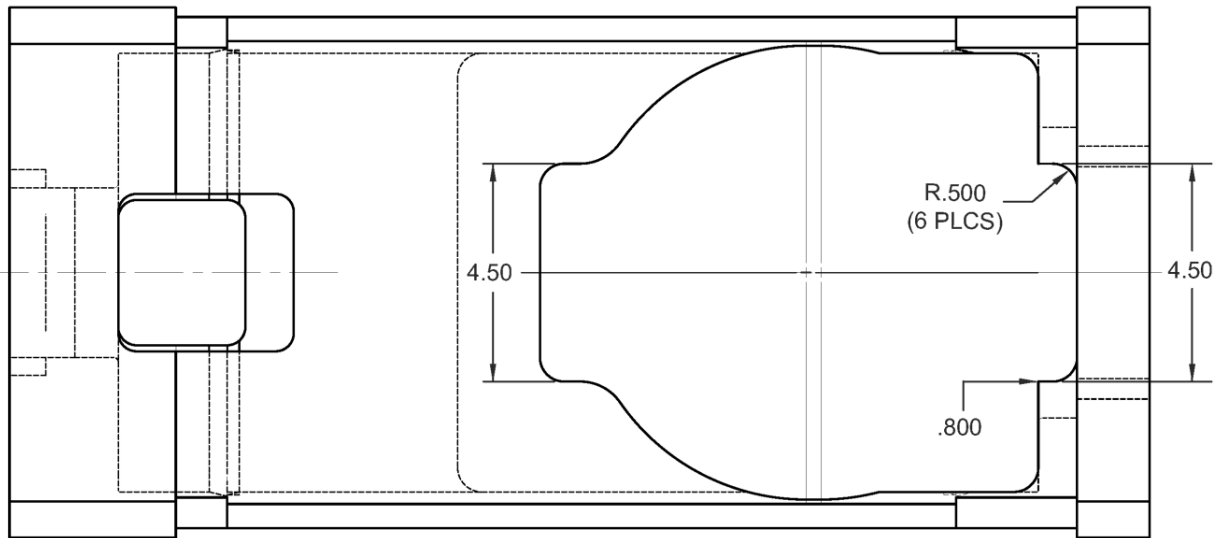


Figure 6: Clamping Box Upper Keeper Plate Modification



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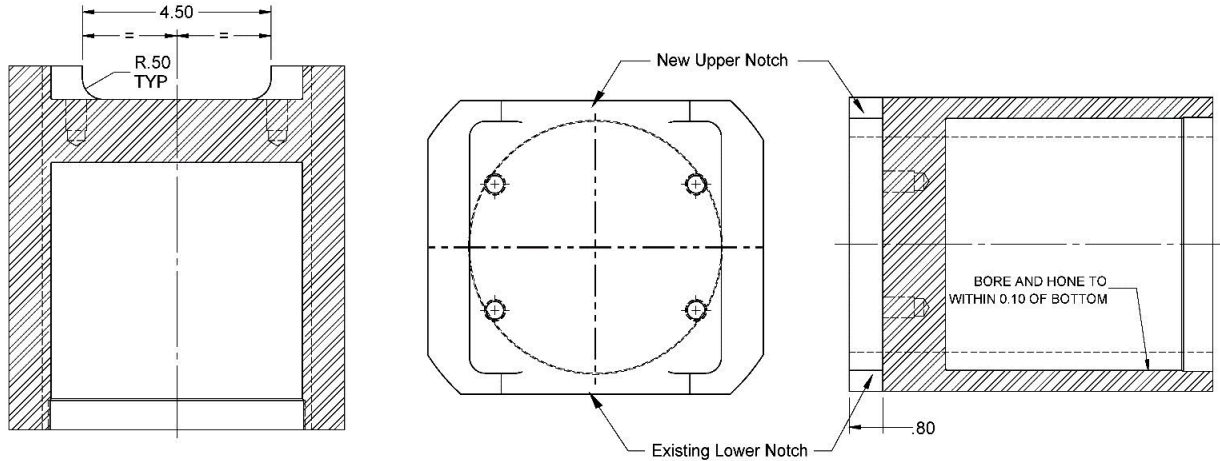


Figure 7: Grabber Box Cylinder Upper Keeper Plate Modification

Contact RigLine 24/7™ Support for more information about performing this upgrade and the new grabber configuration options available for your top drive.

Version	Date (M/D/Y)	ECN	Description of Changes
2.0	9/25/2018	N/A	Applied Canrig formatting
Rev 0	03/22/2018	097-0326	Initial release of document