


Technical Bulletin				Tesco Corporation 5616 – 80th Avenue SE Calgary, Alberta, Canada T2C 4N5 Tel: 1-877-TESCO-77 (North America) Tel: 1 (713) 359-7195 (AMSS 24-hour support) Tel: 1 (713) 359-7295 (International) Email: bulletins@Tescocorp.com www.Tescocorp.com
No: TB106	Rev: 0	Date: March 10, 2016		
ESI and ECIX 10.5" Grabber Configuration Options				
<input type="checkbox"/> Internal Use Only		<input checked="" type="checkbox"/> External Use	<input checked="" type="checkbox"/> Mandatory	<input type="checkbox"/> Recommended

NOTE: All numbers in parentheses are Tesco part numbers unless otherwise noted.

NOTE: Refer to drawing # 820235 Rev 2.

BACKGROUND:

Customer feedback has shown that the configuration instructions for the 10.5" grabber utilized on the Tesco ESI Top Drives require further clarification. This clarification will ensure the grabber is correctly configured for the appropriate tool joint sizes. To address this issue and ensure the safety of all personnel working with this equipment, Tesco has revised the instructions for configuring the grabber in the ESI Operations Guide so that it is easier to read and understand. The revised instruction shows an illustration and description of the standard 10.5" grabber configuration. A configuration chart has been added with all part numbers and the size ranges that can be achieved using the various combinations. Instructions for adjusting the grabber clamping force have also been added.

CONFIGURATION OPTIONS:

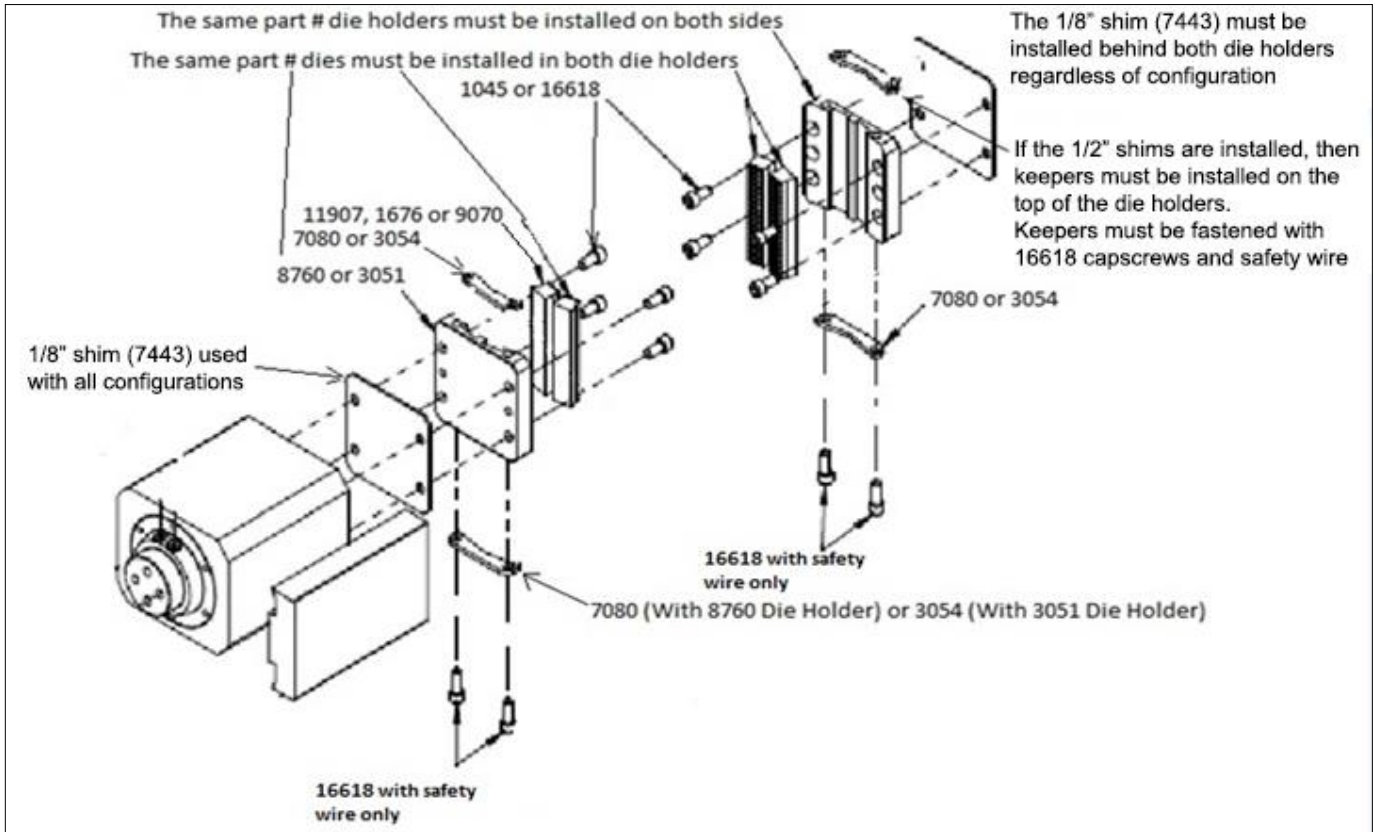
The 10.5" grabber utilized on the ESI Top Drive can be configured to accommodate tool joints from 3" to 11" O.D. Due to its construction and the wide operating range available, it is necessary to configure the grabber to match the anticipated tool joint size. If the grabber is configured for a 10" tubular and the operator attempts to clamp a 5" tubular, this is likely to result in failure of the cylinder.

To properly configure the grabber, the operator must:

1. Measure the O.D. of the drill pipe to be used.
1. Select the desired operating range from Table 1: Grabber Configuration Chart.
2. Install the components to achieve the desired operating range.

Version	Date (D/M/Y)	ECN	Description of changes
Rev 0	10/03/2016	267-0017	Initial release of document

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The standard configuration from the factory includes four of part # 9070 dies installed with two of part # 8760 die holders. The standard configuration does not include part # 6654 shims.

In the standard configuration the grabber has an operating range of 10" to 6" and does not require upper die keepers. If the 1/2" shims part # 6654 are installed then upper die keepers must be installed.

Die Holder	Die Thickness	1/2" Shim Installed?	Range in Inches		Fasteners Required	Upper Die Keeper Required?
			Open	Closed		
* 3051 (0.5")	0.5"	No	10.5	7	#1045 (8), #16618 (4)	No
** 8760 (0.25")	0.5"	No	11	7.5	#1045 (8), #16618 (4)	No
3051	0.5"	Yes	9.5	6	#1045 (8), #16618 (8)	Yes (3054)
8760	0.5"	Yes	10	6.5	#1045 (8), #16618 (8)	Yes (7080)
3051	1"	No	9.5	6	#1044 (8), #16618 (4)	No
8760	1"	No	10	6.5	#1044 (8), #16618 (4)	No
3051	1"	Yes	8.5	5	#1044 (8), #16618 (8)	Yes (3054)

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Die Holder	Die Thickness	1/2" Shim Installed?	Range in Inches		Fasteners Required	Upper Die Keeper Required?
			Open	Closed		
8760	1"	Yes	9	5.5	#1044 (8), #16618 (8)	Yes (7080)
3051	1.5"	No	7.5	4	#1045 (8), #16618 (4)	No
8760	1.5"	No	8	4.5	#1045 (8), #16618 (4)	No
3051	1.5"	Yes	6.5	3	#1044 (8), #16618 (8)	Yes (3054)
8760	1.5"	Yes	7	3.5	#1044 (8), #16618 (8)	Yes (7080)

Table 1: Grabber Configurator Chart

* If die holder 8760 is used, then keeper 7080 must be used for the top.

** If die holder 3051 is used, then keeper 3054 or 7586 can be used for the top.

If the 1/2" shim (# 6654) is installed, then upper die keepers must be installed.

NOTE: As the pipe size decreases, the grabber clamping pressure must be reduced.

NOTE: The 10.5" grabber is equipped with a 1/8" shim behind each die holder. This shim must always be used for all configurations including those where the 1/2" shims are utilized.

Tesco #	Description	Quantity
6654	Grabber shim 1/2" thick	2
11907	1-1/2" thick tong die	4
1676	1/2" thick tong die	4
9070	1" thick tong die	4
3051	Thick die holder	2
8760	Thin die holder	2
1045	1/2" UNC x 1" Skt Hd	8
16618	1/2" UNC x 1" Skt Hd Dr Hd	8
1044	1/2" UNC x 1-1/2" Skt Hd	8
3054	Die keeper (for 3051 die holder)	No shim 2, with shim 4
7080	Die keeper (For 8760 die holder)	No shim 2, with shim 4
7586	Upper die keeper (for 3051 only)	With shim 2

Table 2: Parts Required for Complete Adjustability

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SETTING THE GRABBER CLAMPING PRESSURE

Occasionally it is necessary to adjust the clamping force that the grabber cylinder applies due to changes in tool joint size or design. On top drive models equipped with independent booster-type intensifiers, this is accomplished by limiting the inlet pressure to the booster with a pressure reducing valve or a relief valve (see Table 3).

To adjust the clamping force for all booster-type systems (Tesco ESI, EXI, EMI, ECI, HXI and HCI Top Drives manufactured after July 2010):

1. Select GRABBER-OPEN then GRABBER LIFT-UP to raise the grabber so that it can be clamped on the saver sub.
2. Back out the pressure reducing or relief valve for the close side of the circuit.

NOTE: Depending on the model, this valve may be located in the multi-station manifold or as part of the boosting device.

3. Ensure that a 7,500 psi pressure gauge is installed in the close side of the circuit so that it directly indicated the pressure in the grabber cylinder.
4. Select GRABBER-CLOSE and observe the pressure on the close side of the cylinder.
5. Refer to Engineering Memo EM000090 for pressure settings of various tool joint and drill pipe sizes.
6. Slowly screw in the pressure reducing/relief valve until the desired clamping pressure is observed on the pressure gauge.
7. Select GRABBER-OPEN, allow the cylinder to fully retract then select GRABBER-CLOSE to confirm the setting.
8. Lock the pressure reducing/relief valve adjusting nut.
9. Select GRABBER-OPEN.
10. Select GRABBER LIFT-DOWN to move the grabber to the working position.

Drill Pipe Size	Type of Connection	Grabber Closing Pressure (psi)
3-1/2"	NC38 (3-1/2 IF)	2,500 to 3,000
3-1/2"	NC40 (4 FH)	3,000 to 3,500
4"	NC40 (4 FH)	3,000 to 3,500
4"	NC46 (4 IF)	3,500 to 4,000
4-1/2"	NC46 (4 IF), NC50 (4-1/2 IF)	4,000 to 4,500
5" and larger	NC38 (3-1/2 IF)	4,500 to 5,000 Max.

Table 3: Recommended Grabber Cylinder Closing Pressures for New Tool Joints

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