



Safety 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; www.tescoparts.com
No: SB093	Rev: 1	Date: December 06, 2016	
Upgrading the Sprockets and Chain for the Catwalk TAC-45 Skate Drive System			
<input type="checkbox"/> Internal Use Only <input checked="" type="checkbox"/> External Use			
<input checked="" type="checkbox"/> Mandatory <input type="checkbox"/> Recommended			

**ATTENTION ALL CUSTOMERS/RENTERS/USERS OF CATWALK TAC-45
THIS BULLETIN CONTAINS IMPORTANT SAFETY INFORMATION CONCERNING
POTENTIAL SKATE CHAIN FAILURES**



NOTE: PLEASE REFER TO SAFETY BULLETINS SB087 AND SB089 FOR MORE INFORMATION. All numbers in parentheses are Tesco part numbers unless otherwise noted.

BACKGROUND INFORMATION:

Tesco's investigation of 2 separate incidents involving automated Catwalk model TAC-45 has determined that it is possible the skate chain drive system on the TAC-45 can fail under the following operating conditions:

1. When the skate is improperly engaged to the pipe and/or pipe snags while traveling along the trough, causing all the load to go through one chain;
2. When the operator dead-heads the skate against the hard stops, and the hydraulic motor applies the maximum possible torque to the skate through the chains; or,
3. When the loading conditions are in excess of what is recommended in the user's manual.



WARNING: In these cases, the chain has shown to be unreliable and the consequences of such failure could pose significant risk, up to and including the possibility of injury or death to people or damage to property situated within the proximity of the skate chain system when it fails. Please refer to and observe SB089.

The purpose of this bulletin is to notify all users of the need to immediately implement the herein-prescribed safety factor improvements for the chain and a new relief system to assist with the overloading of the chain for the TAC-45.

AFFECTED PRODUCTS:

Tesco Automated Catwalk model TAC-45.

Tesco Part No.	Description
5038778	Power Catwalk, 58-ft Pipe Handler, 480V, TAC-45

Version	Date (D/M/Y)	ECN	Description of changes
Rev 0	23/02/2015	254-0009	Initial release of document
Rev 1	06/12/2016	157-0091	Amendments made indentifying when operators and personnel can enter the red zones

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ACTION REQUIRED:

1. Automated Operations

After setting the programmable logic controller (PLC) to enable remote operation of the catwalk, the catwalk's operation must only be controlled via the wireless remote or the wired remote with standard issue cable to allow operation from outside the red zone. Shown in Figure 1, the operator will use the wireless remote to operate the catwalk from a safe location.



Danger! Failure to follow the instructions in this safety bulletin could result in severe injury or death.

From ground level, the operator and all personnel can ONLY be permitted in the red zone (shown in Figure 1) if **all** of the following conditions are met:

- The catwalk is in the home position (or maintenance position)
- The catwalk is shut off and inoperable

The operator and all personnel must NEVER enter an area where there is a risk of personal injury resulting from unexpected movement of tubulars on the gullwings and/or casing runs.

The red zone on the ground is 3 meters from fully extended gullwings and/or casing runs on both the Driller's Side (DS) and Off-Driller's Side (ODS) of the catwalk and 10 meters from the back of the catwalk.

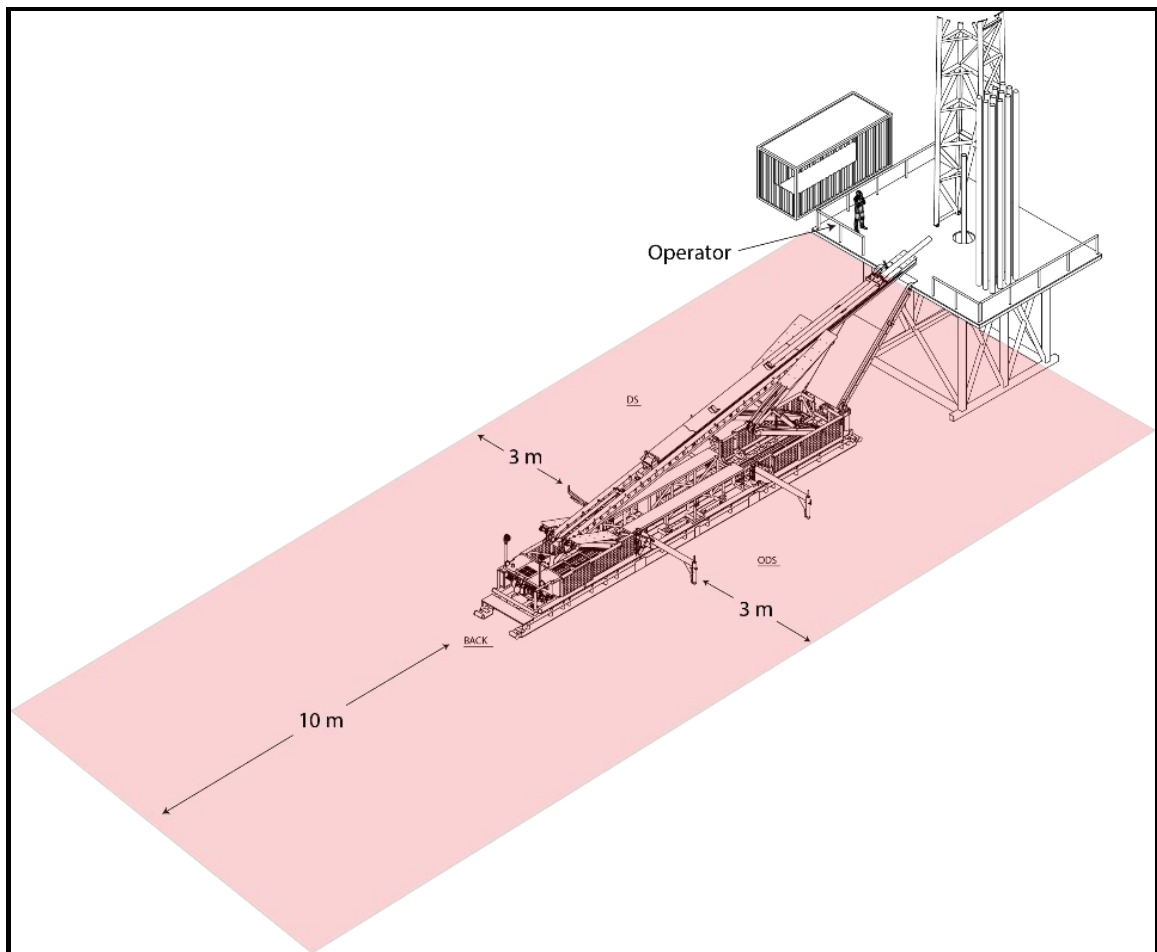


Figure 1: Red zone on the ground

2. Chain Replacement

Tesco recommends that the mechanical advantage of the chain drive system, shown in Figure 2, be reduced and the average tensile strength of the skate chain be increased. With the proposed reduction in the mechanical advantage, the skate of TAC-45 can still effectively handle 5 tons tubular (TAC-45 required rating), with an acceptable safety factor.

By reducing the mechanical advantage (and therefore reducing the chain force), the skate speed will increase. However, this increase in the speed will be acceptable and controllable as the skate maneuver is controlled through a proportional valve.

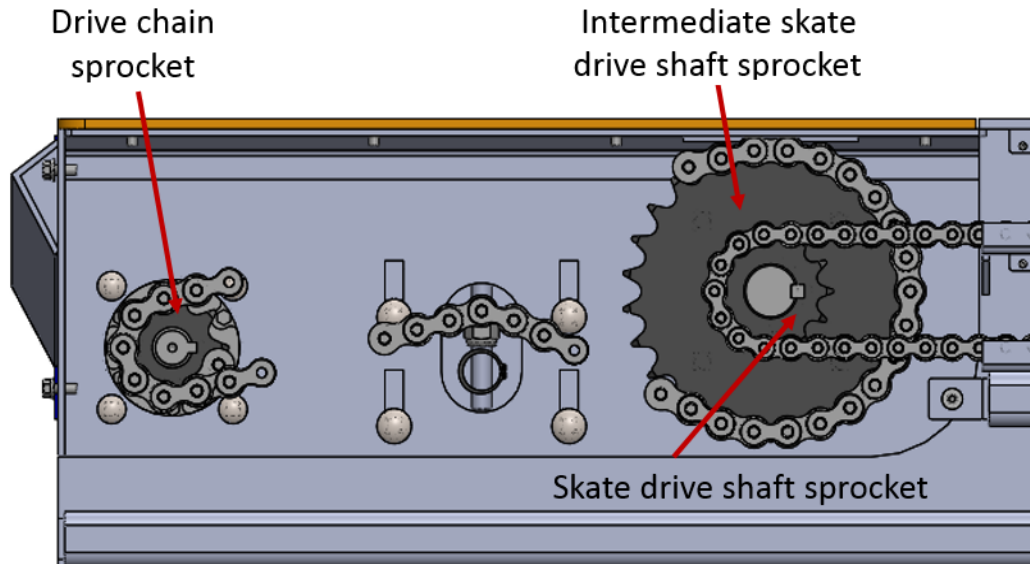


Figure 2: Skate chains on the Catwalk TAC-45

Tesco requires replacing the current ANSI 80 standard skate chain with ANSI 100 skate chain, which has a higher average tensile strength, as soon as reasonably possible. Changing the sprockets in the chain drive system, as detailed in Table 1, reduces the mechanical advantage and decreases the maximum possible skate chain force being applied. The resulting changes meet minimum safe working load requirements that Tesco deems suitable for safe catwalk operation.

With this update, as a result of the increased chain size; the chain guide (Figure 3) that controls chain movement must be replaced.

Tesco strongly recommends that catwalk owners or end users only use chains and sprockets that are provided and approved for use by Tesco. Safe and reliable operation cannot be assured by Tesco unless Tesco approved chains and sprockets are used.

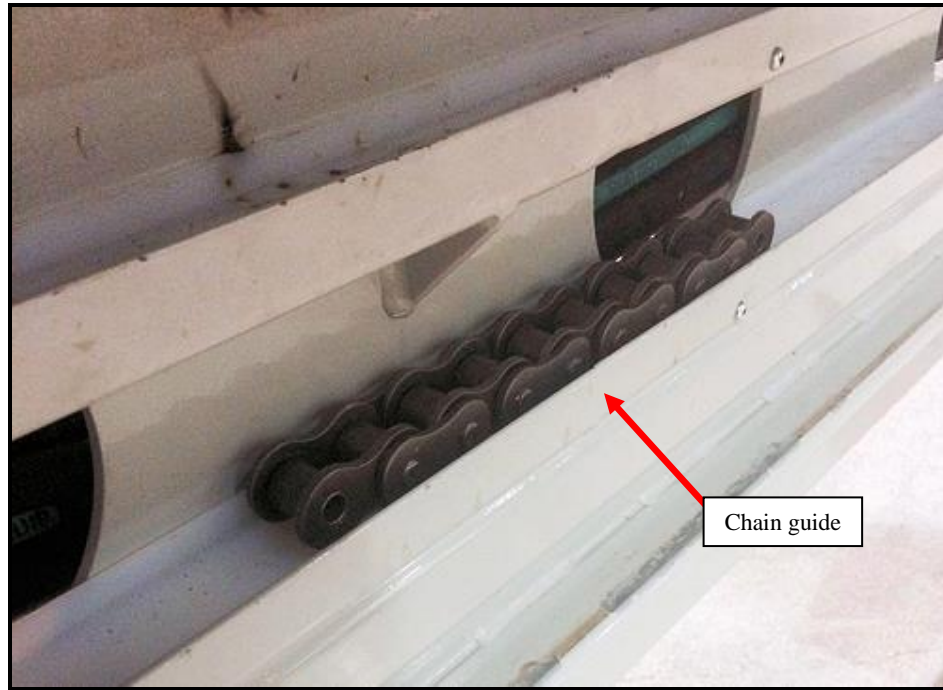


Figure 3: Chain guide

Description	Current	Tesco Recommendation
Skate chain	ANSI 80	ANSI 100
Drive chain sprocket	100-9 teeth	100-11 teeth
Intermediate skate drive shaft sprocket	100-26 teeth	100-17 teeth
Skate drive chain shaft sprocket	80-13 teeth	100-11 teeth

Table 1: Comparison between ANSI 80 and ANSI 100 skate chain

3. Hydraulic Cross Port Relief System Installation

In conjunction with the required changes to the chain drive system, there is also a hydraulic cross port relief assembly that will need to be installed in the skate and trough chain motor circuits. The purpose of this additional component is to help manage excessive pressure that is created when the skate or trough reaches the end of travel position. This fast acting hydraulic relief will reduce the hydraulic motor torque output enough to limit the potential for damage to occur (*see Background Information*). This relief will also limit excessive loading of the skate chains when pipe is released into the trough in an uncontrolled manner and collides with the skate abnormally.



CAUTION! Please follow the above three Required Actions to achieve safe operations. Any continued operation of the affected TAC-45 catwalk inconsistent with the Required Actions specified in this Safety Bulletin will be at the sole risk and cost of the user.

Contact your local Tesco Aftermarket Sales and Service center for further information regarding the replacement of the sprocket, chain and hydraulic for the catwalk skate drive system.