


Safety Bulletin			 <p>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</p>
No: SB076	Rev: 4	Date: Sept 13, 2013	
Blower Motor Mounting Failure 750-ESI-1350, 500-ESI-1350			

BACKGROUND INFORMATION:

This bulletin supersedes safety bulletin SB071.

A TESCO 500-ESI-1350 Top Drive, which had the blower motor mounting upgraded to 1/2" bolts and weld nuts as specified in SB071, had failures in the welds securing three of the nuts for mounting the blower motor. In addition, one of the mounting feet of the blower motor had fractured. This failure occurred after a period of rough drilling with excessive vibrations.

This incident did not result in significant damage as the mounting failure was identified when the motor was still partially secured. Had the damage progressed further, this situation could have resulted in a dropped object incident causing severe injury or damage.



Figure 1: Welding of mounting nuts failed on ESI 500 Ton Top Drive



Figure 2: Mounting foot of blower motor failed

It was identified that the brake cover of the ESI's 1350 HP motor, to which the blower motor is mounted, may be susceptible to some frequencies of vibrations from the drilling operations. To prevent possible vibration induced damage to the brake cover and the blower motor, the cover will have ribs added to increase its stiffness; raising its natural frequency. This change will also serve to increase the overall strength of the cover, reducing susceptibility to damage from jarring incidents.

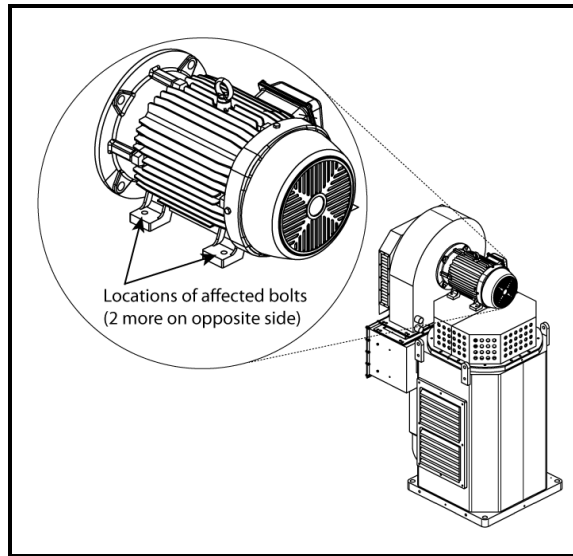


Figure 3: Location of affected bolts

AFFECTED PRODUCTS:

All TESCO 500TON ESI 1350HP and 750TON ESI 1350HP Top Drive Systems.

Top Drive Model	Unit Numbers
ESI 500	945, 947, 961, 962, 963, 964, 980, 982, 983, 984, 986, 1000, 1002, 1003, 1004, 1005, 1007, 1102, 1103, 1104, 1222, 1223, 1224
ESI 750	991, 988

ACTION REQUIRED:

The half of the brake cover to which the blower motor is mounted shall be replaced as soon as possible with the reinforced version (Figure 4).

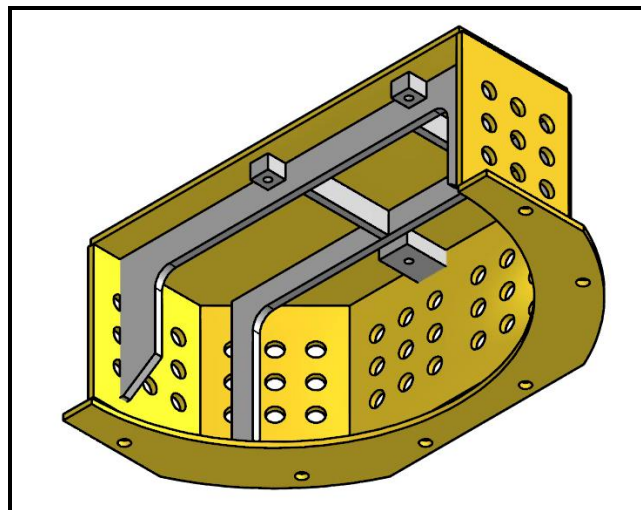


Figure 4: New brake cover with reinforced ribs for added stiffness

To allow for continued drilling operations in the interim, the blower motor mounting shall be closely monitored for damage, and a secondary retention cable added to prevent the motor from falling should there be a mounting failure. Refer to Appendix A for additional details on the interim measures recommended.

A kit for replacing the brake cover is available from TESCO; the part number is 5031360 (Kit, Upgrade, Brake Cover, ESI 1350 HP Motor). This kit includes the replacement brake cover, motor mounting hardware, shims and a secondary retention sling. Instructions for replacing the cover and shimming the motor follow in Appendix B.

APPENDIX A: INTERIM ACTION

Given that the consequences of failure may be severe and include the possibility the motor coming loose from the assembly and falling, the following actions shall be immediately implemented and continued until the reinforced brake cover is installed:

1. Inspect the blower motor and the mounting bolts every 6 hours of operation; more often during rough drilling.
2. Secure the blower motor assembly with a 1/4" x 84" safety cable (TESCO part number 5036166) and 3/4", 4-3/4 ton Crosby shackle (see Figure 5).

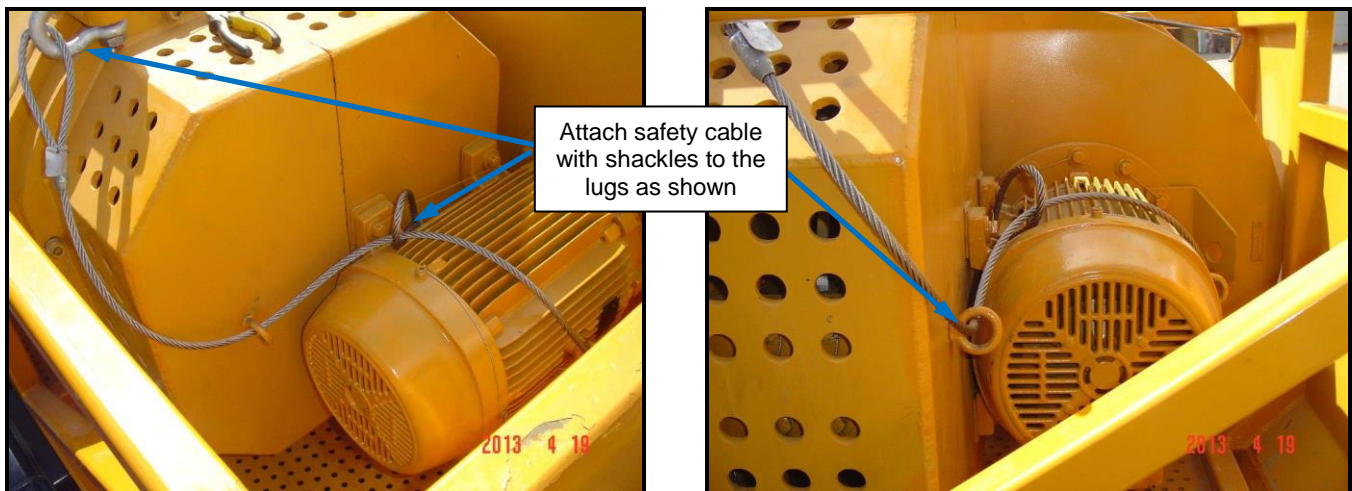
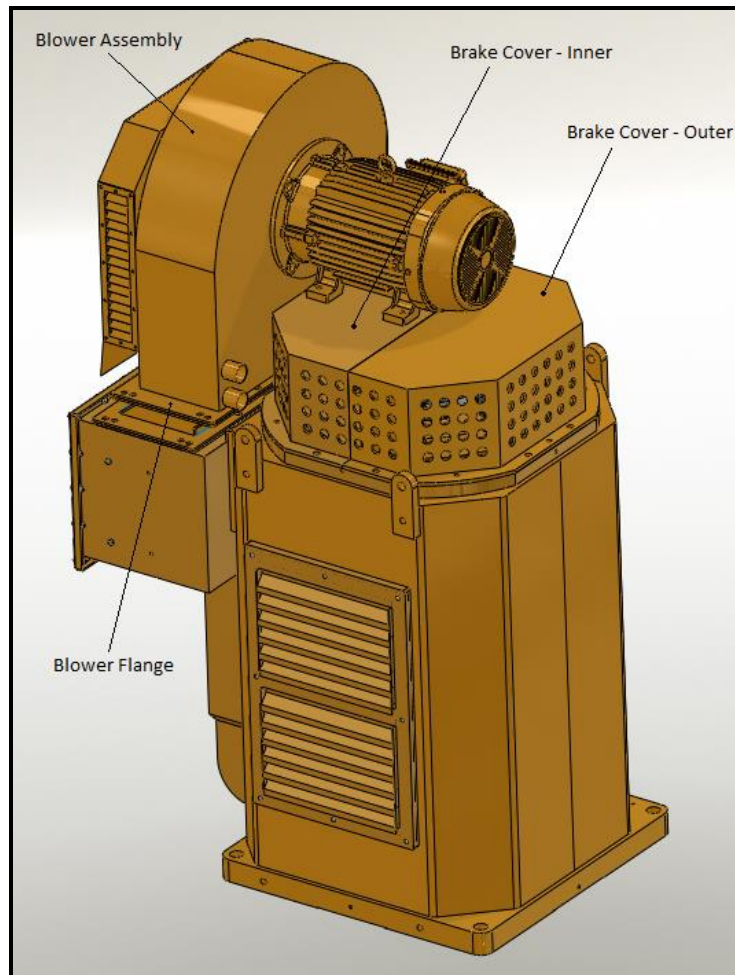


Figure 5: Safety cable attached to blower motor

APPENDIX B: BRAKE PROCEDURE TO REPLACE THE BRAKE COVER

This procedure applies to both the 500-ESI-1350 and 750-ESI-1350 top drive models.

1. Position the top drive as close to the floor as possible.
2. Lock out and disable all top drive functions.
3. Remove the top drive guard.
4. Disconnect the power cable from the blower motor.
5. Disconnect the hoses from the lubrication cooler and plug the hoses and open ports to prevent leakage.
6. Using a tugger line and slings as appropriate, secure the blower motor and blower assembly in preparation for lifting them off the top drive as one piece.
7. Remove and reserve the 6 capscrews from the flange between the blower assembly and the junction box duct.



8. Remove the 4 capscrews that fasten the blower motor to the inner brake cover.
9. Lift the blower assembly and blower motor vertically to provide suitable access for remaining operations.
10. Remove the outer brake cover.
11. Remove the capscrews that fasten the brake check valve to the inner brake cover.
12. Remove the capscrews that fasten the inner brake cover to the main motor.
13. Remove the inner brake cover. Return the original inner brake cover to TESCO.

14. Install the replacement inner brake cover. Inspect the inner brake cover capscrews and replace any that are damaged. Fasten the inner brake cover to the main motor with the capscrews and lock washers. Apply Loctite 243 to the capscrew threads and tighten to 75 lb-ft.
15. Fasten the brake check valve to the inner brake cover.
16. Place the outer brake cover in position and fasten to the main motor with capscrews and lock washers. Apply Loctite 243 to the capscrew threads and tighten to 75 lb-ft.
17. Return the blower assembly and blower motor into position.
18. Fasten the 6 flange capscrews finger tight.
19. Check the seating of the blower motor and for gaps between the blower motor feet and the inner brake cover. Install shims under the blower motor feet as required to correct any gaps.
20. Fasten the blower motor feet to the inner brake cover with capscrews and lock washers. Apply Loctite 243 to the capscrew threads, tighten to 75 lb-ft, and install lockwire.
21. Tighten the flange capscrews to 75 lb-ft and install lockwire.
22. Reconnect the lubrication cooler hoses.
23. Reconnect the blower motor power cable.
24. Unlock and enable all functions, test the blower motor operation.
25. Install the top drive guard.
26. Install secondary retention cable as shown in Appendix A.

Note: All capscrews should be lock wired per TESCO Engineering Standard STD0045.

Version	Date (D/M/Y)	ECN	Description of changes
Rev 0	31/12/2012	TBD	Initial release of document.
Rev 1	03/01/2013	TBD	Revised Figure 4 showing safety cable attached to lugs.
Rev 2	07/02/2013	220-0011	Updated bulletin with permanent upgrade measures.
Rev 3	12/06/2013	239-0015	Replaced 1846 with 5034075 (safety cable)
Rev 4	13/09/2013	220-0025	Updated the safety cable information in Appendix A