

J. H. FLETCHER & CO. Box 2187 – Huntington, WV 25722-2187 – 304/525-7811 – FAX 304/525-4025

IMPORTANT SAFETY NOTICE

INFORMATION BULLETIN NO. 127

TO: TO OWNERS OF FLETCHER MACHINES WITH SPECIFIC CATERPILLAR ENGINES

FROM: J.H. FLETCHER & CO. RISK MANAGEMENT DEPARTMENT

DATE: AUGUST 2015

SUBJECT: STARTER MAINTENANCE

J.H. Fletcher & Co. has identified a potential risk of machine engine damage involving starters on Caterpillar engines. There is the potential of a direct electrical short if the solenoid positive terminal makes contact with the solenoid mounting stud, or if the battery cable has too many ring terminals added to the solenoid B+ terminal.

As a result of our investigation & recommendations from Caterpillar, we advise the following be done immediately if you have an involved machine:

1. Inspect the starter terminals now. Make sure the terminal connection is tight at the mounting studs. The terminal nut should be tight enough so that the connections do not move (this is Caterpillar recommended manufacturer specifications). Add the inspection of the starter terminal to your daily machine inspection list.
2. Inspect the cables leading to the starter now. Make sure the cables are secure, not damaged (cut, stretched, burned, etc.) and are not able, through vibration or other factors involving the machine daily operation, to come loose. Add the inspection of the starter cables to your daily machine inspection list.
3. Inspect the mounting rings now. Make sure the mounting rings are separated and that the original manufacturer installed shield is present between the positive and negative poles of the starter. Add the inspection of the mounting rings and shield to your daily machine inspection list.
4. Instruct maintenance personnel that the mounting studs should not be added to accommodate power to additional parts of the machine. Any additional mounting studs added to the starter terminals could put stress on the internal mechanism of the starter, resulting in a short on the inside of the starter. Talk with Fletcher engineering before making any modification to the machine.
5. Notify the operators that extended cranking of the battery to start the machine when the battery is weak can put stress on the battery. The operators should stop, not engage in extended cranking of the battery and notify maintenance of any problem.

6. Inspect the existing fire system on your machine. Make sure it has been inspected, is easily accessible to the user and that the user understands how and when to use it.

Any of these conditions could cause the solenoid cap to crack or the stud to melt, allowing the B+ terminal to make contact with the mounting stud, causing a short or a fire.

Caterpillar has also addressed this potential risk by changing the starter in the 4th Quarter of 2013. This change was announced on its web page: . This change has resulted in an internal modification to the solenoid mounting studs. Currently, there is no indication that Caterpillar recommends that the starter be replaced at this time. However, if you order a new starter at any time through Caterpillar the new starter will have this internal change.

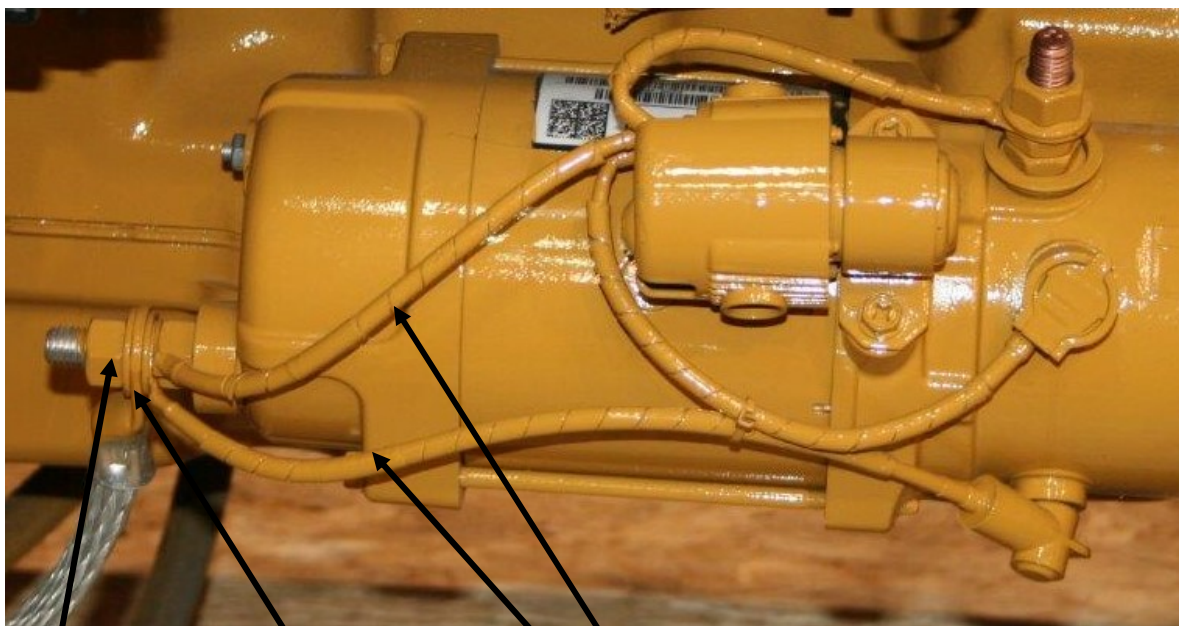
Fletcher has an ongoing investigation of this issue now, and may send out supplemental comments and suggestion at a later date.

AT THIS TIME THIS NOTICE ONLY AFFECTS MACHINES THAT HAVE SPECIFIC CATEPILLAR ENGINES.

Fletcher strongly recommends that you evaluate your starter now and confirm that no additional rings have been added to the terminal block other than the original electrical print indicates. Daily inspections of your wiring and starter terminals will help maintain the integrity of the originally designed system. Post and train your personnel about this Bulletin.

If you have any questions please do not hesitate to contact David Cooper, VP of Risk Management, 304/525-7811, ext. 240, or dcooper@jhfletcher.com.

Example of a Starter



TERMINAL NUT

MOUNTING RING

CABLES

BOLT TIGHTENING TORQUE RECOMMENDATIONS

Bolts and cap screws on new and rebuilt machines, after working under load, tend to "set" or to conform to the assembly, causing them to lose some of their initial tension. This is especially true of gasket joints, since the gaskets season and shrink under load and temperature. Consequently, to assure trouble-free operation, cap screws and bolts should be checked for tightness after the first few shifts of operation and repeated frequently until no further loosening occurs. After this, checks done once every one to six months should be enough. Specific tightening torques should be maintained where instructed. A joint that is allowed to remain loose for a period of time may not be tightened again with the same success as before. Standard tightening torque recommendations are shown in the following tables:

Note: Torques are in lb _y -ft		Grade 6 Hex Cap Screw	Grade 8 Hex Cap Screw	Socket Head Cap Screw
Cap Screw Size				
Coarse Threaded Fasteners	1/4 - 20	10	14	14
	3/8 - 16	36	50	50
	1/2 - 13	90	125	125
	5/8 - 11	175	240	240
	3/4 - 10	310	430	430
	7/8 - 9	500	700	700
	1 - 8	740	1050	1050
	1 1/8 - 7	930	1320	1320
	1 1/4 - 7	1300	1845	1845
	1 1/2 - 6	2270	3222	3222
Fine Threaded Fasteners	1/4 - 28	11	15	15
	3/8 - 24	40	60	60
	1/2 - 20	100	140	140
	5/8 - 18	200	280	280
	3/4 - 16	340	490	480
	7/8 - 14	550	770	770
	1 - 14	810	1150	1150
	1 1/8 - 12	1040	1477	1477
	1 1/4 - 12	1440	2045	2045
	1 1/2 - 12	2550	3621	3621

NOTE: Torque values are in N-m.				
Diameter	Grade 8.8	Grade 9.8	Grade 10.9	Grade 12.9
M4	2.4	2.6	4.5	4.6
M5	5	5.4	8.5	9.5
M6	8.5	9.1	14.5	16
M8	20.7	22.2	35	39
M12	72	77	120	135
M14	114	123	195	215
M16	175	188	300	330
M20	345	370	575	650
M24	583	627	990	1100
M30	1192	1282	2030	2250

Corrosion resistant plating applied to the fastener acts as a lubricant. When plated fasteners are used, tightening torques should be reduced by approximately 25%.

Torque values are for dry threads. If threads are lubricated tightening torques should be reduced by approximately 25%.



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Original Instructions

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HEX HEAD CAP SCREW GRADE MARKINGS

Hexagon Head Cap Screws are recognized by markings found on the head as shown.



Grade No. 2 or ordinary Cap Screws - No marking on the head.
* Not used on JHF machines



Grade No. 5 Cap Screws - 3 Radial dashes on the head.



Grade No. 8 Cap Screws - 6 Radial dashes on the head.



Socket Head Cap Screws



Grade 8.8 (Equivalent to Grade No. 5) - 8.8 stamped on head



Grade 10.9 (Equivalent to Grade No. 8) - 10.9 stamped on head



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Original Instructions

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