

Technical Bulletin No: 43-2019

Title:	Impact Driver / Impact Wrench Utilisation	
Priority	Amber – Minor Non-Conformance	
Legislation:	PUWER	
Brief Description:	Impact driver / wrench utilisation is significant in workshops. Incorrect use of these items is leading to damage to fasteners, equipment and unknown torques on critical fasteners	
Equipment Affected:	Workshop Practices – all hire fleet equipment Tooling – Impact Drivers / Impact Wrenches – Pneumatic / Battery	
<p>Battery powered impact drivers and wrenches are now standard equipment in most workshop toolkits, these tools are a great labour saving item and offer significant performance. However, this performance can cause issues when reassembling / fitting items</p> <p>During SafeHire audits damage has been identified where fasteners have been overtightened, tightened out of sequence or through repeat access e.g. transformer top covers, the screw heads / bolts are rounded-off / damaged</p> <p>Workshop best practice is to limit use tools of this type for disassembly only, using correct sockets / drivers for the task. Reassembly should be manual or significantly torque limited to allow final torques to be measured. For novice engineers all standard fasteners have a known 'standard' torque, use of torque wrenches / torque screwdrivers allows novice engineers to gauge what is 'tight'. Common impact tooling easily achieves 150 to 450 Nm torque, this is significant</p> <p>For critical fasteners e.g. braking, wheels and sensitive components from cylinder heads to hydraulic components, the torques and tightening sequence are equally critical</p>		
1 – Impact Wrench / Drivers Common Workshop Tooling	2 – Sockets / Drivers for Task 'Impact Rated' Sockets	3 – Loose Fastener Nyloc nut not tightened
4 – Overtightened Bolt stripped – excessive torque	5 – Studs Damaged Excessive torque – impact gun	6 – Cross Torque Patterns Common Cross-Torque Patterns
Recommended Actions:	<ul style="list-style-type: none"> Review current workshop practices Identify standard and / or specific torques for fasteners used to aid novice engineer training Review risk assessment for workshop tasks including consideration of: noise exposure / vibration (HAV) exposure / tooling / correct sockets and accessories / PPE e.g. gloves, ear defenders / safety glasses or goggles 	
Circulation:	Management / Workshop Teams	

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Standard Torques Chart - Metric Fasteners

Thread Size	Nominal Spanner / Socket Size	Class 8.8 or 9.8				Class 10.9				Class 12.9			
		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
		Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft
M6	10mm	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	13mm	22	16	28	20	32	24	40	30	37	28	47	35
M10	17mm	43	32	55	40	63	47	80	60	75	55	95	70
M12	19mm	75	55	95	70	110	80	140	105	130	95	165	120
M14	22mm	120	88	150	110	175	130	225	165	205	150	260	190
M16	24mm	190	140	240	175	275	200	350	225	320	240	400	300
M18	27mm	260	195	330	250	375	275	475	350	440	325	560	410
M20	30mm	375	275	475	350	530	400	675	500	625	460	800	580
M22	32mm	510	375	650	475	725	540	925	675	850	625	1075	800
M24	36mm	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	41mm	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	46mm	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	50mm	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	55mm	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

Do not use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically. Fasteners must be replaced with the same or higher property class as specified by the manufacturers. Lubricated bolts include use of proprietary thread lubricant or oils.

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