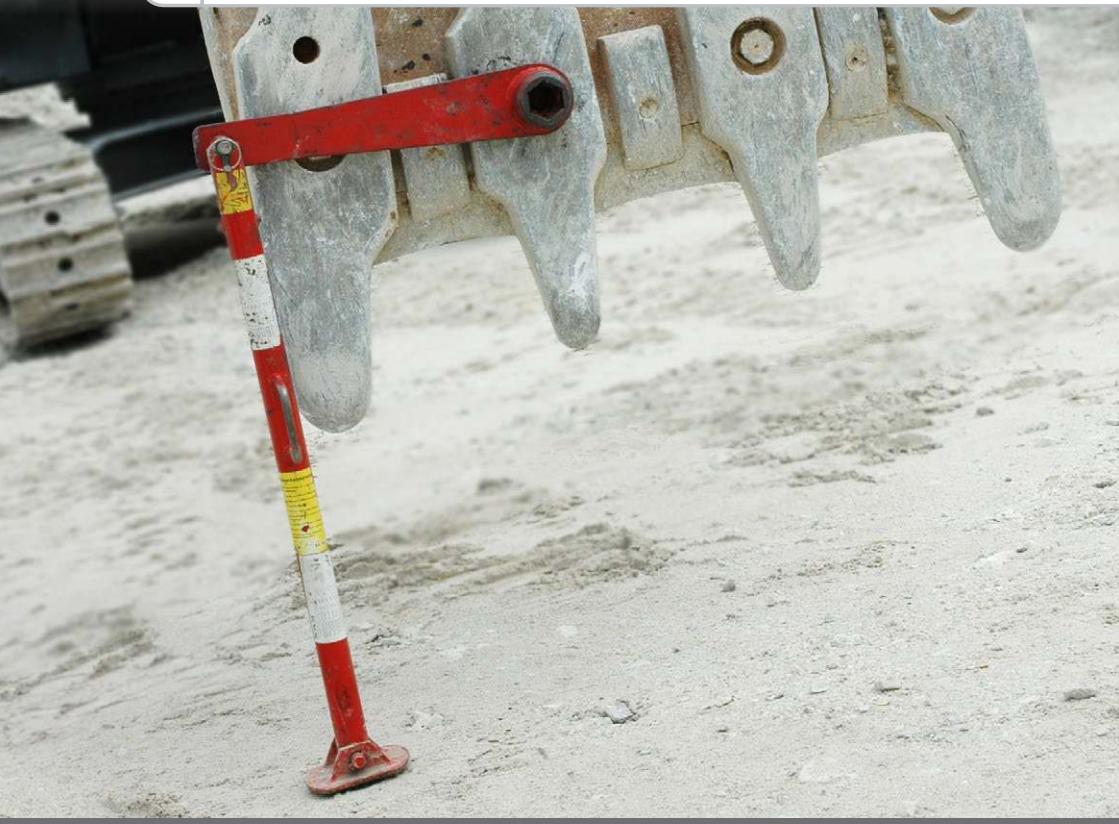
MORE BITE FOR YOUR MONEY

Installation of teeth –

SPANNER STAND PROCEDURES

KVX



2015 edition

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HSE!

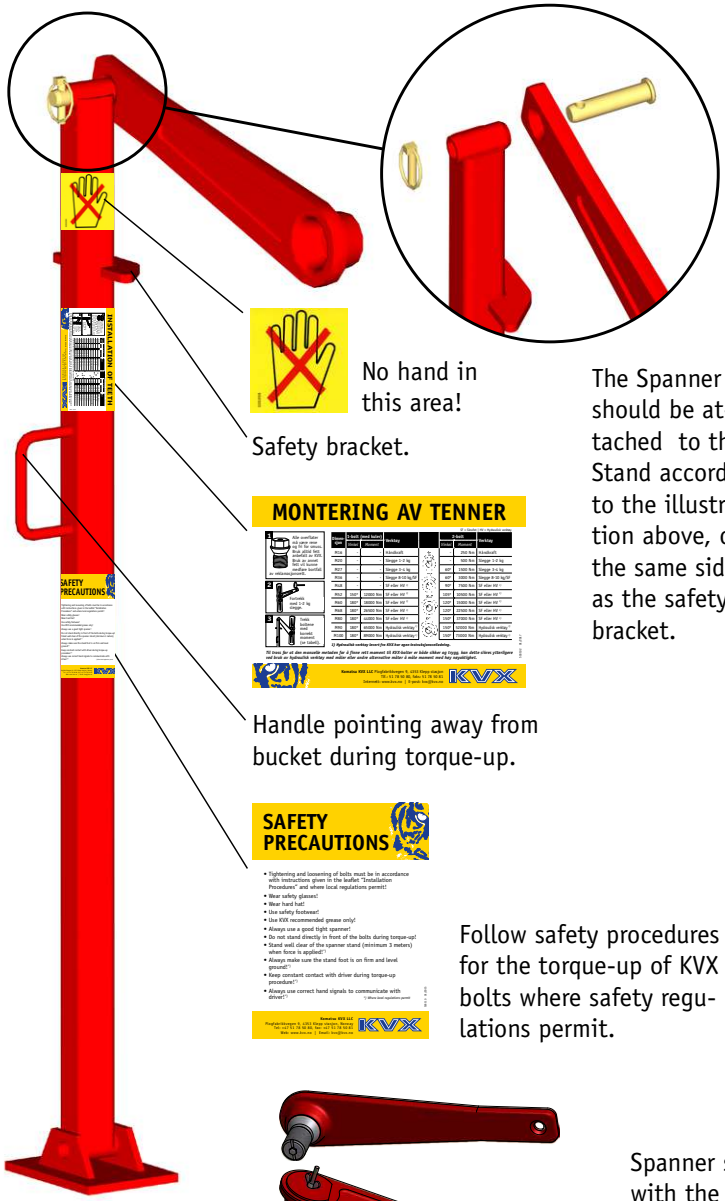
Before starting removal or installation of any GET product, read all instructions completely. Be sure to follow all standard safety procedures and wear appropriate protective equipment including a hard hat, safety glasses and safety footwear.

Identification of items:

The KVX Spanner stand will have the Spanner attached to the stand on the same side as the Safety Bracket.

Before you start:

- Ensure that the stand is placed on 'firm' level ground. Do not work on muddy or steel surfaces. Make sure the bucket teeth are perpendicular to the ground.
- Make sure you have communication with the machine operator during the procedure and also use the correct hand signals
- Ensure the spanner is a good, tight fit
- Use KVX recommended grease for this procedure
- Importantly, do not stand directly in front of the bolts during 'torque up' ensuring that you are standing a minimum of 3 meters when torque is being applied.



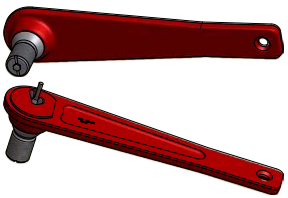
No hand in this area!

Safety bracket.

The Spanner should be attached to the Stand according to the illustration above, on the same side as the safety bracket.

Handle pointing away from bucket during torque-up.

Follow safety procedures for the torque-up of KVX bolts where safety regulations permit.



Spanner shown with the spanner retainer plate.

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Removal – loosening the bolt:

1 Place the stand to the right of the bolt. The spanner wrench and stand should be positioned such that when downward pressure is exerted, the bolt rotates in a counter-clockwise direction.

2 Ideally, position the spanner horizontally when starting the first cycle. This gives maximum torque to the bolt. Tap the spanner to make sure that it is located securely on the bolt hex. Have the operator lower the bucket until the stand touches the ground.

Important! With the stand on the ground step back, 3 meters away from the bucket, staying visible to the operator. Maintain periodic eye contact with him, while you watch the bolt.

3 Direct his actions to continue lowering the bucket until the Spanner wrench is in a one o'clock position to the bolt. Further lowering of the bucket may damage the stand.

4 If the bolt is not sufficiently loose, repeat the above steps. With repeat cycles, however, attach the spanner in the 5 o'clock position for maximum turn angle per cycle.

Once the bolt is loose, remove it by hand or wrench. Loosen each bolt in this manner.

Begin removing the bolts and teeth, taking care not to let teeth slip off and cause damage or injury. Heavier teeth may require the use of two people or a lifting device.

Use of tooth-turn shaft *(for reversible 1-bolt dowelled parts only)*

If you are loosening 1-bolt (dowelled) teeth and intend to turn them for their second life, use of the appropriate KVX tooth rotation shaft is recommended. This will require that the bucket is tilted slightly forward of vertical after bolts have been loosened with spanner stand, so that the teeth sit on the ball dowels when the bolt is removed, and the rotation shaft is inserted in their place.

Once the rotation shaft is screwed into the bolt hole:

a. Return the bucket to vertical,
b. Pull the tooth away from the lip and ball dowels on to the shaft
c. Rotate the tooth 180 degrees so that the other end of the tooth is now in the digging position. Beware that the unworn end of the tooth is heavier than the worn end, so the unworn end will tend to fall to the final position unless held and carefully lowered by the person carrying out the rotation.
d. Push the tooth back on to the ball dowels, ensuring that none of the dowels have fallen out of their sockets during the procedure (if they have, clean off any dirt/grit and apply a small amount of KVX recommended grease to the dowel when inserting it back in the lip socket… this will act like a glue to hold it in place)
e. Tilt the bucket slightly forward of vertical again so that the tooth is sitting on the dowels rather than the rotation shaft
f. Remove the shaft, then proceed with installation and tightening of bolt as per following instructions.

Installation – tightening the bolt:

Ensure the bolt is clean of any dirt or grit. Use KVX prescribed grease to thoroughly lubricate the bolt threads and the bolt cone, as well as the lip threads and the tooth cone.

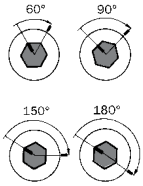
Insert the bolt by hand.

It is important to pre-torque the bolt and this can be done in a variety of ways:

1

a. The most common method is to simply use the spanner wrench, tapping it to ensure it locates securely on the bolt. Hit the wrench with a small 1-2 kg hammer until the rotation stops.
b. Alternatively, the bolt can be pre-torqued using a conventional torque wrench. Simply set a torque equivalent to 5% of the final prescribed torque for the bolt you are tightening , as listed in the torque table found in the KVX Installation Procedures or Spanner Stand Booklet.

After pre-torquing is completed mark the bolt and tooth in preparation for the final torque. Refer to the Torque Table in the KVX Installation Procedures and Spanner Stand booklets, to determine how much rotation is required for the bolt size you are using.



2

3

2 Draw a straight line with a marker through the centre of the bolt to one corner of the hex head. Draw a second line on the tooth/wearpart or lip to the specified number of degrees away from the line you've marked on the bolt.

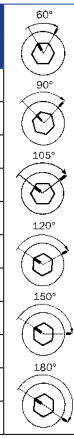
Re-pin the spanner wrench to the stand if it was removed for the pre-torquing rocedure.

Position the stand on the left hand side of the bolt to tighten.

3 Position the wrench in a seven o'clock position to the bolt tapping to ensure it locates securely on the bolt.

Have the operator lower the bucket until stand contacts ground and make sure bucket teeth are perpendicular to the flat firm surface. **Then stand at least 3 meters away maintaining eye contact with the operator.** Direct the machine operator to lower the bucket until the line on the bolt reaches the line on the tooth. In most cases this will take two cycles with the spanner wrench ranging from a seven o'clock to an eleven o'clock position relative to the bolt.

Bolts from M27 size and up are progressively being updated to include either a small threaded hole or a hole right through the middle of the bolt. These holes enable the attaching of a lifting hook/eye to the bolt, enabling it to be used as a lifting system when inserted into a threaded lip or wearpart. The primary purpose of these holes, however, is to enable tooling sockets and spanners to be physically attached to the bolt during torquing operations. In the case of a standard red KVX spanner (as used with spanner stand), simply attach the spanner to the bolt head in the normal way and then attach the spanner retainer plate. This optional extra measure can be of assistance, especially when bolt heads have been partially worn in service and good spanner-to-bolt contact is difficult to achieve.

Dimension	Tool		DOWELLED PARTS		NON-DOWELLED PARTS	
			Angle	*Torque*	*Angle*	*Torque*
M16	Hand power		-	-	-	250 Nm
M20	Sledgehammer 1-2 kg		-	-	-	500 Nm
M27	Sledgehammer 3-4 kg		-	-	60°	1500 Nm
M36	Sledgehammer 8-10 kg/Spanner stand		-	-	60°	3000 Nm
M48	Spanner stand or Hydraulic tool [1)]		-	-	90°	7500 Nm
M52	Spanner stand or Hydraulic tool [1)]		150°	12000 Nm	105°	10500 Nm
M60	Spanner stand or Hydraulic tool [1)]		180°	18000 Nm	120°	15000 Nm
M68	Spanner stand or Hydraulic tool [1)]		180°	26500 Nm	120°	22500 Nm
M80	Spanner stand or Hydraulic tool [1)]		180°	44000 Nm	150°	37000 Nm
M90	Hydraulic tool [1)]		180°	65000 Nm	150°	52000 Nm
M100	Hydraulic tool [1)]		180°	89000 Nm	150°	73000 Nm

1) Instructions for KVX's own hydraulic tools available separately.

1
All surfaces must be clean and free of debris.

2
Pre-torque with 1-2 kg hammer.

3
Tighten all bolts to the specified torque.

KVX is a Norwegian based company that has gained worldwide recognition for its highly wear resistant bolt-on ground engaging tool system for Excavators, Front Shovels and Wheel Loaders. Feel free to contact us for further information!

Hydraulic power pack and torque tool.

Spanner stand

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