



Operating Manual
KP20AL KE - Pull

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Important Safety Information

To ensure the safe use of this equipment it is the responsibility of the owner and operator that any individual operating this equipment or working in the vicinity of this equipment is deemed to be competent, defined by the region's Safety Codes and Regulations, an example is as follows:

Competent: in relation to a person, means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision.

In order for the equipment to perform as designed and safely, proper maintenance must be performed periodically.

Improper operation, maintenance, lubrication and repair of this equipment may result in serious injury or death.

Hydra Tech tools are specially designed pieces of equipment and as such should NOT be modified in any way.

Hydra-Tech International is not capable of foreseeing every possible circumstance that may involve a potential hazard. As such, the warnings within this document and labeled on the equipment are not all-inclusive. It is the owner and operator's responsibility to first ensure that any use of this equipment not specifically recommended by Hydra-Tech International, be it operation, maintenance, lubrication or repairs, be deemed safe for the equipment operator, all persons present and prevent damages to the equipment.

Information, images, and specifications contained within this document are based on information available at the time it was written or last revised. The contents of this document may change over time and the latest version of this document should be obtained by the owner and/or operator prior to use of the equipment.

For further information or suggestions regarding the safe operation, maintenance and repair of the KP20AL KE- Pull please contact Hydra-Tech International using the following contact information:

#110, 5842 – 86th Avenue SE
Calgary, Alberta, Canada T2C 4L7
Telephone (403) – 720 – 7740 Website:
www.hydra-tech.net

Safety is everybody's business!

- Wear proper personal protective equipment when operating hydraulic equipment.
- When the pump is running, oil is under high pressure.
- Do not use gasoline powered pumps in an explosive atmosphere.
- Operate and refuel in a well-ventilated area only.
- Avoid inhaling exhaust gasses.
- Always check fluid levels prior to use.
- Always check pump for damage prior to use.
- Never attempt to connect / disconnect hoses while pump is running.

KP20AL – KE-Pull

The KP20AL KE-Pull is a lightweight cross key and pin puller capable of using a 360° Articulated Pin Puller adapter, a Low Profile Pulling Fork adapter, a 360° Quick Pull adapter, or a 360° Reverse Pull adapter to provide safe, flexible use.



Maintenance

1. Before use, visually inspect the ram for damage such as cracks, oil leaks, damaged tubes, or damaged couplers. The ram should be fully extended and checked for damage / wear.
2. Visually inspect the handles, body, lifting caps, and saddles for any damage.
3. Inspect saddles to ensure they are adequately tightened.
4. Visually inspect KP20AL adapters for any damage.
5. Any hydraulic hoses being used with the KP20AL should be inspected for leaks and flaws prior to use of the product.



Do not use a damaged unit!

Operation

A visual inspection of the tool should be done prior to each use checking for any, material cracks, weld cracks (where applicable), loose fasteners, hydraulic hose damage or faulty connectors.



Caution: Stand well back and to the side of this tool while in operation. The key may stick and if it released suddenly, the tool may be propelled back. The KE-Pull and pins being pulled should be supported to stop the assembly from falling to the ground when a pin becomes free (use the lifting handle and lifting caps). Keep back and do not touch pressurized hoses or fittings.

General Procedure (with standard low profile pulling forks):

1. Remove the key retainer.
2. Slide the forks over the key head from both sides (the key may have to be tapped out slightly to give clearance for the forks to be installed).
3. Lower the body of the KE-Pull over the dovetail formed by the forks.
4. Connect the hydraulic pump to the KE-Pull. Be sure both the male and female quick couplers are clean.
5. Jog the hydraulic pump to extend the saddles close to the reaction area on the car. Check to see that the saddle will be pushing on a flat surface. Also check that the saddles have at least 1/4" of engagement when bridging the key slot. Use shim material or a bridging flat plate as required, to eliminate these conditions.
6. Start the pump to extend the hydraulic rams.
7. As the key starts to move out it may move off to one side as a result of key wear. A small amount of movement parallel to the slot is acceptable (ie: 1" to 3" measured at the back end of the KE-Pull). A large amount of lateral movement is not acceptable especially at high operating pressures. If the lateral movement is a problem one of the other pulling heads should be considered.
8. If the key will not come out with the full 20 tons force applied, a blow from a sledgehammer may provide enough shock to break the key loose.

NOTE: A 50-ton KE-Pull is available for severely jammed or damaged keys.



Caution: Lateral movement of the KE-Pull relative to the slot or substandard saddle reaction surfaces may cause equipment damage. I.e.: bent pulling forks, bent hydraulic cylinder rods, or damaged saddles.

Procedure for use with 360° rotation Quick Pull Adapter:

1. Slide the adapter over the key head from one end.
2. The possibility of lateral key-pull movement is reduced by rotating the tool to a position as close to 90°, relative to the key slot, as possible. At a position 90° from the key slot the chance of the cross key pulling out crooked is nearly eliminated, however, any position other than parallel with the slot is desirable.
3. Jog the hydraulic pump to extend the saddles close to the reaction area on the car. Check to see that the saddle will be pushing on a flat surface. Also check that the saddle has at least 1/4" of engagement when bridging the key slot. Use shimming material or a bridging flat plate as required, to eliminate these conditions.
4. Pull the key as per general instructions.



Caution: Lateral movement of the KE-Pull relative to the slot or substandard saddle reaction surfaces may cause equipment damage. ie: broken swivel pin in quick pull adapter, bend hydraulic cylinder rods, or damaged saddles.

Procedure for use with Reverse Pull Adapter:

1. This adapter is generally used when the key head is not accessible due to the car structure.
2. Torch the head off of the cross key.
3. Grind the cut end to remove any slag or high spots.
4. Remove the cross key retainer.
5. Slide the reverse pull head over the retaining hole of the key.
6. Insert the reaction pin through the reverse pull adapter and the retaining hole.
7. Jog the hydraulic pump to extend the saddles close to the reaction area on the car. Check to see that the saddles will be pushing on a flat surface. Also check that the saddles have at least 1/4" of engagement when bridging the key slot. Use shimming material or a bridging flat plate as required to eliminate these conditions.
8. As with the quick pull adapter it is advantageous to rotate the key-pull to a position as close as 90° to the key slot as possible. This will reduce the risk of lateral movement as the key is being removed. Pull the key as per the general instructions.



Caution: Lateral movement of the KE-Pull relative to the slot or substandard saddle reaction surfaces may cause equipment damage. ie: broken swivel pin in reverse pull adapter, bend hydraulic cylinder rods, or damaged saddles.

Procedure for use with Articulated Car Vertical Pin Puller with 360° rotation Adapter:

NOTE this is not intended for use with tapered pins.

1. Remove any retaining pins or wedges.
2. Slide the articulated pin puller head over the articulated pin.
3. Insert the reaction pin through the articulated pin puller adapter and the articulated pin.
4. Be sure the puller has a solid, level-jacking surface to react against - shim or space as required.
5. Pull the key as per the general instructions.



Caution: Substandard saddle reaction surfaces may cause equipment damage. ie: broken swivel pin in articulated adapter, bend hydraulic cylinder rods, or damaged saddles.

KE-Pull Saddle Installation and Replacement:

1. Make sure the female threads on the ram and the male threads on the saddle are clean and free of any lubricant.
2. Coat the male treads of the saddle with Blue Lock-Tite and screw the saddle onto the ram, hand tightening.
3. Extend the rams on the KE-Pull to full pressure (this will keep the ram from turning for the next part of the installation).
4. While the ram is extended at full pressure, torque the saddle on the ram, using a proper fitting wrench on the KE-Pull saddle to approximately 100 foot pounds (136 nm) of torque.
5. We recommend you check the saddles to be sure they are screwed on tightly each time you want to use the KE-Pull.

Service Centres

Please contact Hydra-Tech International for current information on the closest service center to you. Contact information for Hydra-Tech International follows:

#110, 5842 – 86th Avenue SE, Calgary, Alberta, Canada T2C 4L7

Telephone (403) 720 – 7740

Website: www.hydra-tech.net

STANDARD WARRANTY

1. **WARRANTY POLICY.** Subject to those terms and conditions contained herein, Seller warrants that all Seller products conform in all material respects to the description identified in the quotation, proposal or offer made by Seller to Buyer for the sale of its products (collectively, "Quotation") and will be free from defects in material and workmanship for two (2) years from the date of shipment to Buyer (except for spare parts which Seller warrants for one (1) year from the date of shipment to Buyer). Products manufactured by manufacturers other than Seller and/or its affiliates ("Other Manufacturer's Products") supplied by Seller to Buyer are not warranted by Seller. Other Manufacturer's Products may be warranted separately by their respective manufacturers and Seller shall, to the extent possible, assign to Buyer whatever rights Seller may obtain under any such warranties.

THE FOREGOING REPRESENTS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY SELLER TO BUYER AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW (INCLUDING BY STATUTE) OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

2. **WARRANTY REMEDIES.** Buyer's sole and exclusive remedy for Seller's breach of the foregoing warranties during the warranty period shall be, at Seller's sole discretion, the repair and/or replacement of any defective products (or component parts thereof) pursuant to the terms of and conditioned upon Buyer's compliance with the procedure identified in Section 5 hereof.
3. **LIMITATION OF DAMAGES.** SELLER SHALL HAVE NO LIABILITY TO BUYER OR ANY END USER OF PRODUCTS OR SERVICES WITH RESPECT TO THE SALE OF PRODUCTS OR PROVISION OF SERVICES UNDER THE QUOTATION FOR LOST PROFITS OR FOR SPECIAL, CONSEQUENTIAL, EXEMPLARY, OR INCIDENTAL DAMAGES OF ANY KIND WHETHER ARISING IN CONTRACT, TORT, PRODUCT LIABILITY, STRICT LIABILITY OR OTHERWISE, EVEN IF SELLER WAS ADVISED OF THE POSSIBILITY OF SUCH LOST PROFITS OR DAMAGES. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY DAMAGES WHATSOEVER IN EXCESS OF THE TOTAL PRICE PAID BY BUYER FOR PRODUCTS AND/OR SERVICES REFERENCED IN THE QUOTATION.
4. **INAPPLICABILITY OF, AND VOIDING OF THE WARRANTY.** This Standard Warranty does not cover defects in Seller products which are not defects in material and workmanship and may be attributed to other causes including but not limited to failure to operate and/or maintain Seller products in accordance with the applicable Seller installation and/or operator's manuals, owner's manuals, maintenance manuals, manufacturer's recommendations, and any other manuals, guidelines or recommendations of Seller concerning the maintenance and operation of Seller products that may be communicated to Buyer from time to time, side-pulling of load, shock loading, excessive jogging, eccentric loading, overloading, accidental occurrence, improper repair, improper handling or storage of products, chemical exposure and/or abnormal operating conditions not identified to and expressly and specifically accepted by Seller in writing prior to Seller's issuance of a Quotation, or any other cause that in Seller's sole discretion is not attributable to defects in material and workmanship. Failure of products to meet published performance specifications due to abnormal operating conditions beyond Seller's knowledge or control shall not be considered defects in either workmanship and/or material.

Modification of Seller products and/or incorporation of Other Manufacturer's Products into Seller products by individuals and/or organizations other than Seller shall void this Standard Warranty.

Buyer's failure to pay in full when due for the products and services provided for in a Quotation shall void this Standard Warranty.

5. WARRANTY PROCEDURE. To obtain warranty remedies pursuant to this Standard Warranty, Buyer must strictly adhere to the following procedure. Buyer's failure to comply with the terms of this procedure shall void this Standard Warranty.
- (a) Buyer shall, within seventy-two (72) hours of any claimed non-conformance or defect in Seller products, notify Seller's Warranty Administrator in writing of the alleged non-conformance or defect.
 - (b) Seller shall, within a reasonable time, advise Buyer of its intention to initially accept or deny the warranty claim pursuant to the terms of this Standard Warranty. If Seller elects to initially accept the warranty claim, it shall advise Buyer of its intention to replace, repair, or otherwise further inspect the allegedly nonconforming or defective products (or component parts thereof) ("Initial Acceptance").
 - (i) Replacement of allegedly nonconforming or defective products. Should Seller provide Initial Acceptance of Buyer's warranty claim and elect to replace the allegedly nonconforming or defective products (or component parts thereof), or should Seller elect to provide Initial Acceptance of Buyer's warranty claim through notification to Buyer that Seller elects to inspect the allegedly nonconforming or defective products (or component parts thereof) and then subsequently elect to replace the allegedly nonconforming or defective products (or component parts thereof), Seller shall within a reasonable time, ship new, comparable, replacement products to Buyer F.C.A. Seller's plant, warehouse or dock, as defined by Incoterms 2010, via the lowest cost method available.
 - (ii) Repair of allegedly nonconforming or defective products. Should Seller provide Initial Acceptance of Buyer's warranty claim and elect to repair and/or permit the repair of the allegedly nonconforming or defective products (or component parts thereof) by approved third parties, or should Seller elect to provide Initial Acceptance of Buyer's warranty claim through notification to Buyer that Seller elects to inspect the allegedly nonconforming or defective products (or component parts thereof) and then subsequently elects to repair the allegedly nonconforming or defective products, Seller shall, unless otherwise agreed in writing by the Warranty Administrator, pay only those direct labor costs incurred to effectuate the repair and the cost of Seller replacement products consumed during said repair provided that the costs for all products and/or services are approved in advance in writing by Seller's Warranty Administrator.
 - (iii) Inspection of allegedly nonconforming or defective products. Should Seller provide Initial Acceptance of Buyer's warranty claim through notification to Buyer that Seller elects to inspect the allegedly nonconforming or defective products (or component parts thereof) and then subsequently determine that the alleged nonconformity or defect is not covered under this Standard Warranty, Seller shall bill Buyer, and Buyer shall pay Seller any and all costs associated

- (iv) with the performance of inspection of allegedly nonconforming or defective products.

WAIVER. BUYER HEREBY WAIVES ANY CLAIM THAT THE EXCLUSIONS OR LIMITATIONS IDENTIFIED HEREIN DEPRIVE IT OF AN ADEQUATE REMEDY. BUYER SHALL BE ENTITLED TO NO OTHER REMEDY OTHER THAN THOSE IDENTIFIED IN SECTION 2 HEREOF WITH RESPECT TO THE PROVISION OF PRODUCTS AND/OR SERVICES BY SELLER REGARDLESS OF THE FORM OF CLAIM OR CAUSE OF ACTION, WHETHER BASED IN CONTRACT, TORT INCLUDING NEGLIGENCE, STRICT LIABILITY OR OTHERWISE.