

HYTORC®

THE TORQUE MACHINE™

Operational and Spare Parts Manual



HYTORC®

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IMPORTANT SAFETY INSTRUCTIONS

WARNING: Your **HYTORC** Torque Machine is a power tool, and as with any power tool, certain safety precautions should be observed to avoid accidents or personal injury. The following tips will assist you:

- **READ ALL INSTRUCTIONS.**
- **KEEP WORK AREA CLEAN AND WELL LIT.**
- **CONSIDER WORK AREA ENVIRONMENT.** Electrical Pumps should never be used in any atmosphere which can be considered potentially volatile. If there is any doubt, use an air pump. Also Note: metal to metal contact can cause sparks; precautions should be taken.
- **AVOID PREMATURE TOOL STARTING.** The Pump Remote Control is for the **TOOL OPERATOR** only.
- **STAY CLEAR DURING OPERATION.** In most cases, the tool will allow “hands free” operation. If the tool must be held or steadied during operation, use alternative means of securing the tool to the application.
- **GUARD AGAINST ELECTRIC SHOCK.** Ensure the pump is properly grounded and the proper voltage is being used.
- **STORE IDLE TOOLS.** When not in use, tools and accessories should be properly stored to avoid deterioration.
- **USE RIGHT TOOL.** Don't force small tools or attachments to the job of a larger tool. Don't use a tool for purposes not intended.
- **PROPER SAFETY ATTIRE.** When handling/operating hydraulic equipment, use work gloves, hard hats, safety shoes and other applicable clothing.
- **USE SAFETY GLASSES.**
- **MOVING EQUIPMENT.** Do not use hydraulic hoses, uniswivels, pump power or remote cords as means of moving the equipment.
- **MAINTAIN TOOLS WITH CARE.** For top performance, inspect tool, powerpack and accessories for visual damage frequently and always prior to use. Always follow instructions for proper tool and pump maintenance. Refer to the Operations Maintenance Section for further clarification.

IMPORTANT SAFETY INSTRUCTIONS *(continued)*

- **STAY ALERT.** Watch what you are doing. Use common sense. Do not use power equipment under the influence of any mood altering substances.
- **PRIOR TO OPERATION.**

Ensure that all hydraulic connections are securely connected and there is no leakage.
Verify that the hydraulic hoses are not kinked or otherwise damaged.
Insure the square drive and its retainer are fully and securely engaged.
Ascertain that all connectors, elbows, fittings and swivels are not bent, loose or damaged.
- **PRIOR TO USE.**

Check sockets for size, quality and flaws. *(Do not use if questionable.)*
Cycle tool to ensure proper function. Locate a solid, secure reaction point.
Be sure the reaction arm retaining clamp is fully engaged.
Be sure the hydraulic hoses are free of the reaction point.
Pressurize the system momentarily; if the tool tends to “ride-up” or to “creep,” stop and re-adjust the reaction arm to a more solid and secure position.
- **NOTE:** Remain clear of the reaction arm during operation and never put body parts between reaction arm and reaction surface.
- **ALWAYS USE QUALITY ACCESSORIES.** Always use top quality impact sockets in good condition which are the correct size and fully engage the nut. Hidden flaws, however, remain a possibility which could cause breakage, so stay clear of sockets during operation.
- **DO NOT USE** other equipment to enhance performance *(Hammer on socket or tool.)*
- **NOTE:** HYTORC pumps are designed to operate HYTORC Tools only. Damage may occur to the pump or product that is being operated due to misuse.

**RELUBRICATE
WITH MOLYKOTE PASTE
AFTER
CLEANING**

HYTORC OPERATIONS/MAINTENANCE MANUAL

Series SL, XL, XLT & ULC

GENERAL

All **HYTORC** Torque Machines are supplied completely assembled, ready for use. A hydraulic Power Pack, for use with your **HYTORC** machine, is employed to provide the speed and pressure that makes your **HYTORC** System efficient and accurate. The same Power Pack can also be used in conjunction with hydraulic jacks or pulleys you might want to employ.

IMPORTANT: When employing equipment other than your **HYTORC** Torque Machine with your **HYTORC** Power Pack, set the pressure of your **HYTORC** Power Pack so that it does not exceed the recommended maximum operating pressure of such equipment.

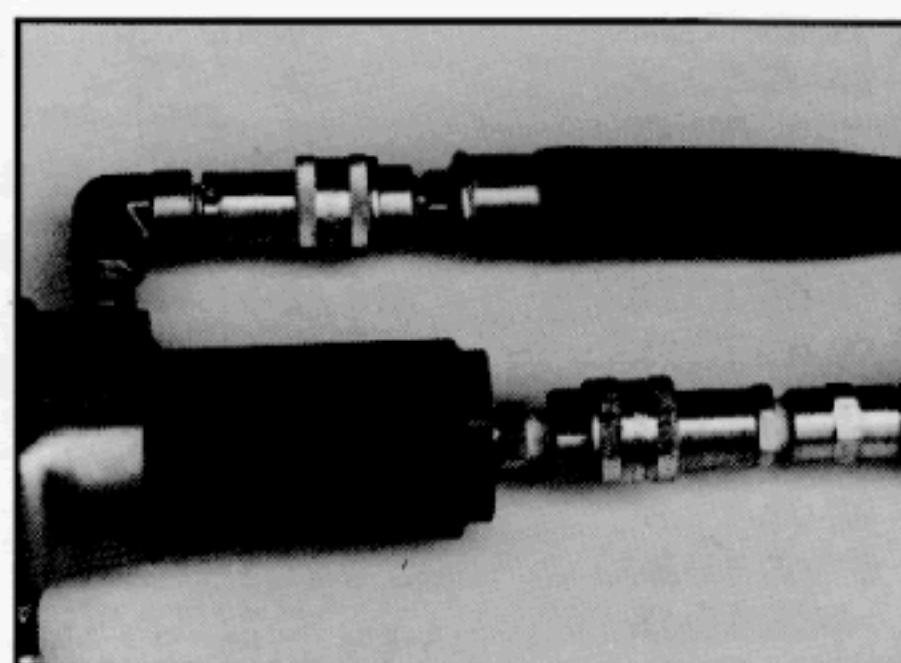
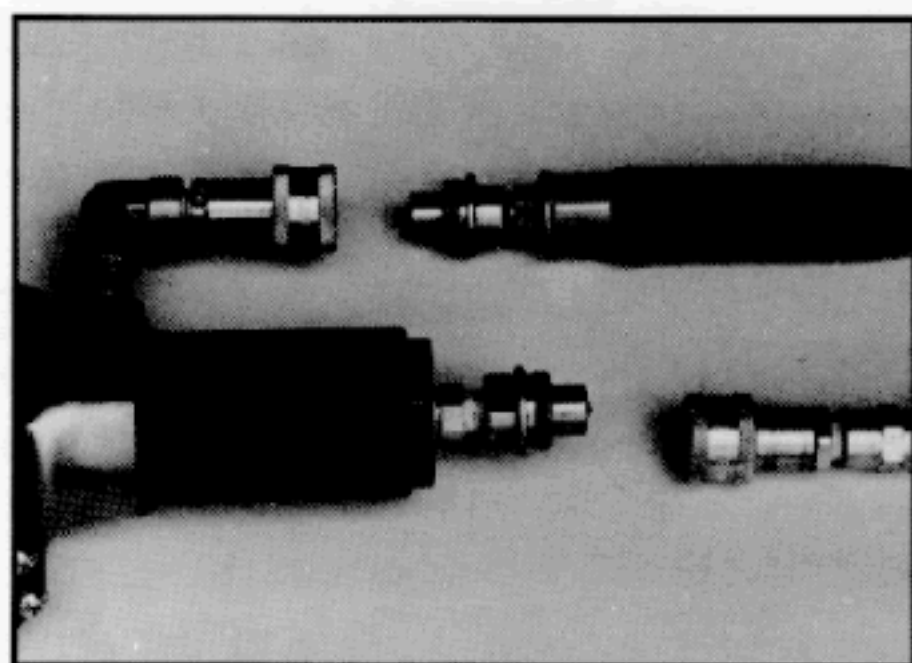
CONNECTING THE SYSTEM

The wrench head and power pack are connected by a 10,000 PSI operating twinline hose assembly. Each end of the hose will have one male and one female connector. Each hose of the twinline hose assembly will have like connectors, (either male or female) on both ends of the same hose.

IMPORTANT: **DO NOT** switch the connectors from **one** side of hose so that you have the same hose with a male connector on one end and a female connector at the other.

Set screw in universal fitting (XL & ULC Series) must not be tampered with. It is factory set for safety purposes, and adjustments should not be attempted.

Connect the twinline hose to the wrench head and pump.

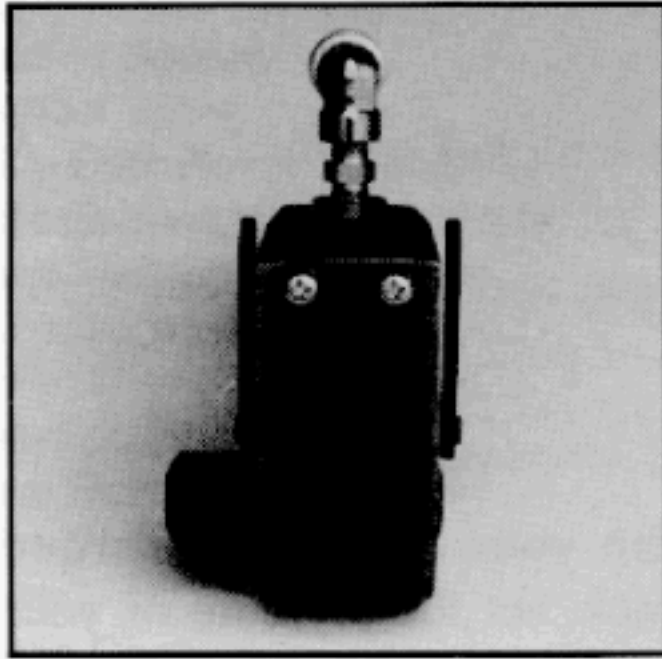


INSURE THE CONNECTORS ARE FULLY ENGAGED AND SCREWED SNUGLY AND COMPLETELY TOGETHER.

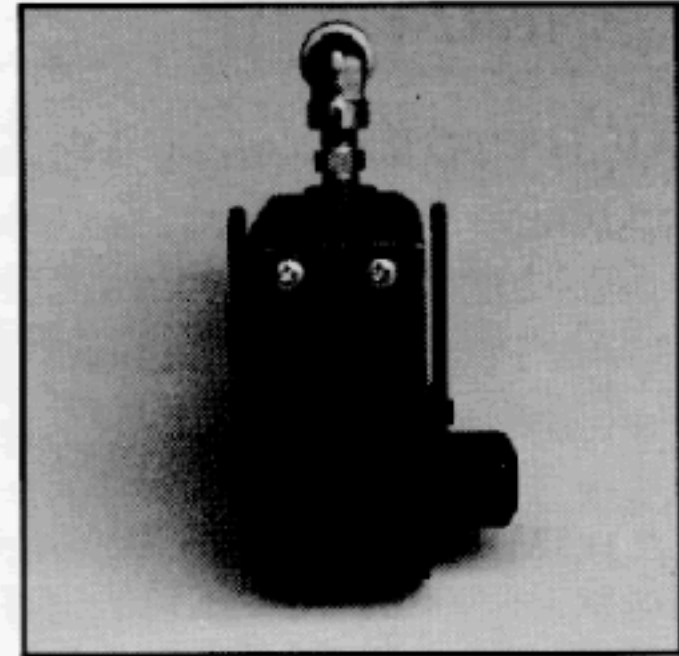
DRIVE DIRECTION CHANGE

(To change from loosening to tightening) (SL, XL & XLT Series)

LOOSENING



TIGHTENING



Model
HY-1SL

Loosening the allen set screw in the ratchet teeth will release the drive and allow it to move from side to side. Insure the set screw is retightened completely so that it is recessed in the ratchet teeth.

Model
HY-3SL

Simply push or tap the drive through to the other side of the tool.

Models
HY-5SL,
HY-10SL,
HY-25SL,
HY-50SL

Remove the threaded drive cap from the opposite side of the drive extension and pull the drive out of the tool housing. Place the drive in the desired direction and secure the drive cap.

NOTE: The square drives of the HY-5SL, HY-10SL, HY-25SL and the HY-50SL are splined where they enter the tool housing. As you push the spline part of the drive into the tool, align the ratchet (center portion of the tool) with your other hand and push and slowly rotate the square part of the drive. Once the drive is through the ratchet continue to push in and spin the ratchet until the drive is completely through the tool.

Model
HY-80SL

The drive direction on the HY-80SL is changed exactly as the HY-25SL except two screws and a retaining plate substitute for the threaded end cap.

ALL
XL SERIES

Unscrew the threaded drive cap from the opposite side of the drive extension and pull the drive out of the tool housing. Replace the drive in the desired direction, push through the tool and secure the threaded drive cap.

REACTION ARM — Use for all applications (SL, XL & XLT Series)

All **HYTORC** Torque Machines are equipped with a universal reaction arm, either integral or separate. These reaction arms are employed to absorb and counteract reaction forces created as the units operate. The reaction arm should always extend in the same direction of the square drive; however, slight adjustments may be made to suit your particular application.

Model
HY-1SL

The reaction arm is an integral part of the Model HY-1SL, secured by a bolt at the base of the tool. To adjust, loosen this bolt until the arm is free to pivot. Determine the most favorable reaction point and angle the arm accordingly while aligning the two locating pins to the base of the unit. Secure the member by tightening the reaction arm bolt.

Models
HY-3SL,
HY-5SL,
HY-10SL,
HY-25SL

The reaction arm on these units is spline cut and slides over the rear (cylinder) portion of the tool. Insure that the reaction arm is fully over the rear of the tool and tighten the bolt(s) on the reaction arm.

MODEL
HY-50SL

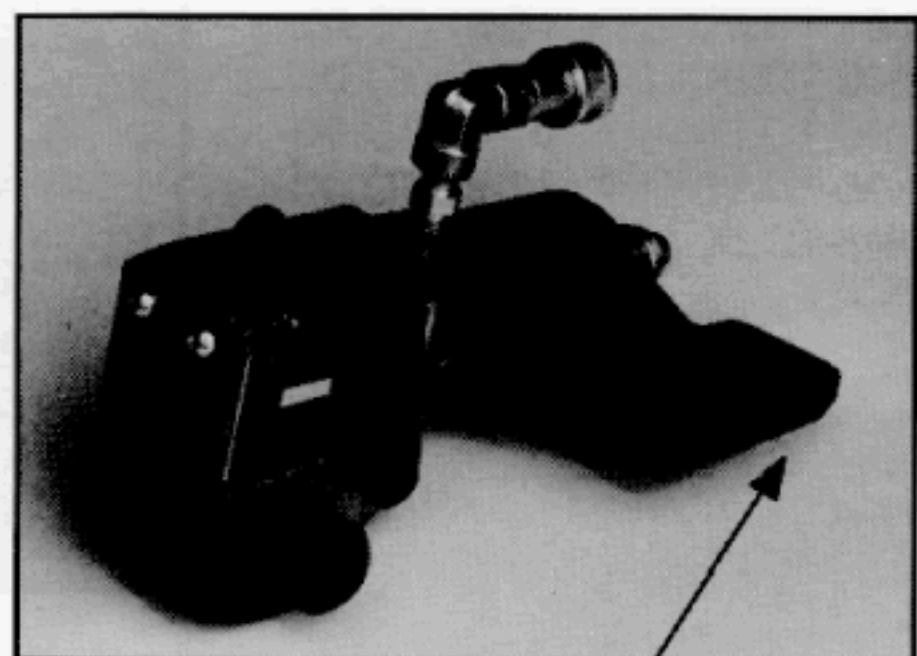
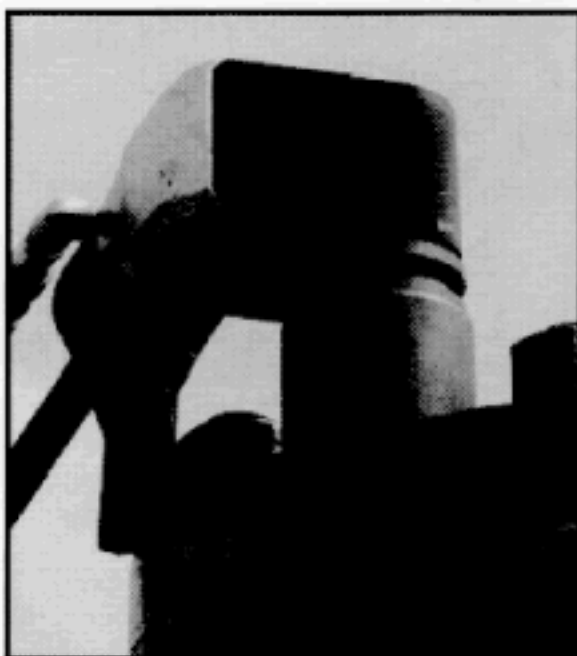
The model HY-50SL reaction arm is the same as Models HY-3SL thru HY-25SL except it is secured differently. At the top of the HY-50SL is a clamp bolted to the tool housing. Slide the reaction arm onto the rear (cylinder) portion of the tool and insert the clamp into the groove of the reaction arm - tighten the bolt.

Model
HY-80SL

The reaction arm is a flat plat secured with three allen head bolts affixed to the base of the tool and braced by a flanged lip.

ALL
XL SERIES

The reaction arm for all XL Series tools are spline cut and slide over the rear (cylinder) portion of the tool. Insure that the reaction arm is completely over the cylinder and secure by inserting the spring loaded clamp that is at the base of the Uni-Swivel connection into the groove of the reaction arm.



Reaction Arm

SETTING TORQUE

With the system fully connected and the proper power supply available, find the desired torque on the Torque Conversion Chart supplied for your particular tool model.

(Partial Chart - Example only)

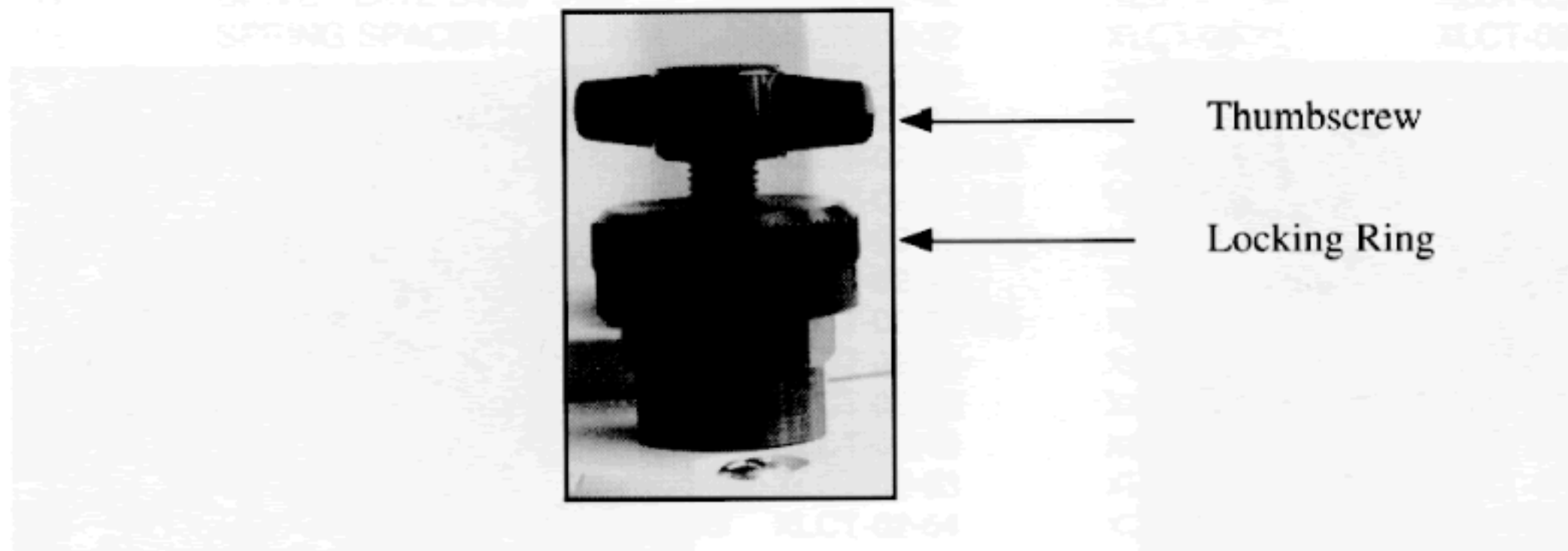
PUMP PRESSURE (PSI)	HY-1XL TORQUE (ft.lbs)	HY-3XL TORQUE (ft.lbs)	HY-5XL TORQUE (ft.lbs)	HY-10XL TORQUE (ft.lbs)	HY-25XL TORQUE (ft.lbs)
1,000	140	285	540	1,020	2,800
1,200	165	345	650	1,240	3,280
1,400	195	405	755	1,460	3,760
1,600	220	460	865	1,680	4,240
1,800	250	520	970	1,900	4,720
2,000	275	580	1,085	2,130	5,200
2,200	305	640	1,190	2,365	5,720
2,400	330	700	1,295	2,600	6,240

Read across (to the left) to the corresponding pressure. This pressure is to be set on the pump. To do so, turn on the pump, press down on the remote control button and hold. Pressure will build up on the gauge. To adjust pressure, loosen the locking ring on the pressure regulator valve and turn the thumbscrew clockwise to increase pressure, counterclockwise to decrease pressure.

NOTE: When decreasing pressure, it is necessary to turn the thumb-screw to a pressure setting **BELOW** what is desired and gradually increasing pressure to the desired level.

Once the desired pressure is stabilized, retighten the locking ring.

PRIOR TO BEGINNING TO TORQUE — AGAIN PRESS DOWN ON REMOTE CONTROL BUTTON AND CONFIRM THE CORRECT PRESSURE HAS BEEN SET.



APPLYING THE TORQUE MACHINE — SL, XL & XLT Series

Place the proper size impact socket on the square drive and secure properly with a locking ring and pin.

NOTE: The **HYTORC** Model HY-10SL does not have a hole in its drive for a locking pin.

Place the tool and the socket on the nut making sure that the socket has fully engaged the nut and that the square drive is fully into the socket.

Make sure the reaction arm is firmly abutted against a stationary object (i.e. an adjacent nut, flange, equipment housing, etc.)

IMPORTANT: When positioning the wrench, make sure that the hose connections from the tool do not hit a stationary object prior to the reaction arm abutting against its reaction point as this may result in snapping a hose connection.

Apply momentary pressure to the system to ensure proper tool placement.

OPERATING THE TORQUE MACHINE — SL, XL & XLT Series

By pushing down on the remote control button, the rear of the tool will be pushed back until its reaction arm will contact its reaction point. Continue to hold down the button as the socket turns until you hear an audible “click” which will signify that the hydraulic cylinder inside the tool is fully extended and will not turn the socket further. There will be a rapid buildup of pressure to the point of where the pressure was preset prior to applying the wrench.

IMPORTANT: This rapid buildup of pressure **after** the cylinder is extended **DOES NOT INDICATE** that this pressure (torque) is being applied to the bolt. It only indicates that the cylinder is fully extended and cannot turn the socket further until the tool automatically resets itself.

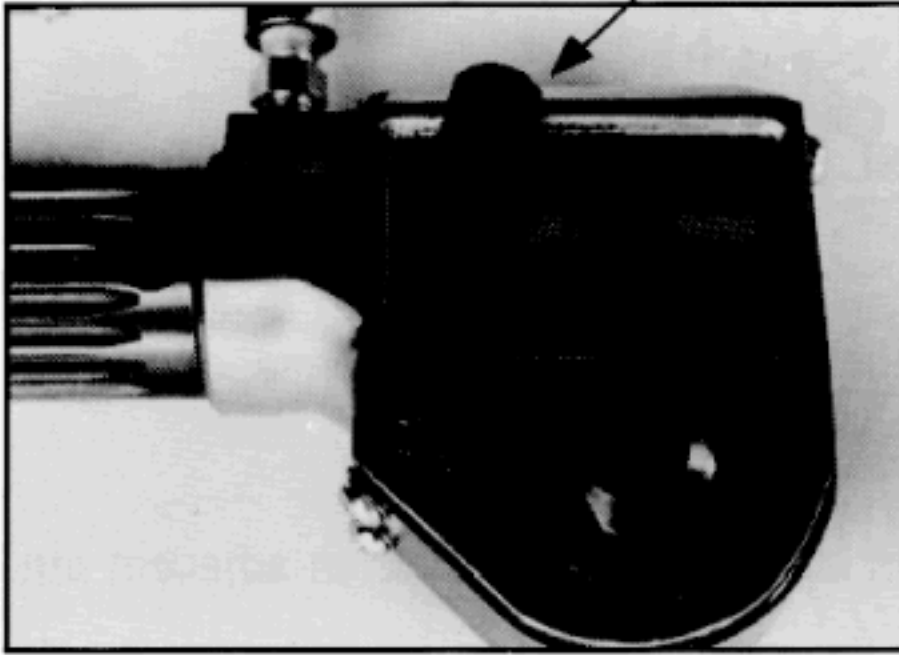
Releasing the remote control button will retract the cylinder, and the tool will automatically reset itself and the operator will hear an audible “click” indicating he can again push the remote control button and the socket will turn. Each time the cylinder is extended and retracted, it is called a cycle. Successive cycles are made until the tool “stalls” at the pre-set PSI/Torque with an accuracy of $\pm 3\%$.

IMPORTANT: **ALWAYS ATTEMPT ONE FINAL CYCLE TO INSURE THE “STALL” POINT HAS BEEN REACHED.**

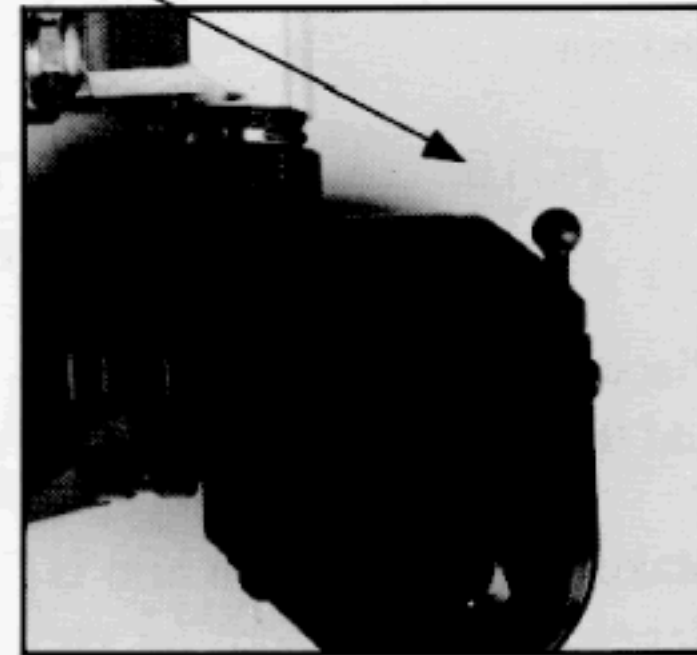
Should the tool “lock on” after the final cycle, push down on the remote control button once more (to build pressure) and while maintaining this pressure pull back on the release mechanism. Releasing the remote control button while continuing to hold back on the release mechanism will allow the tool to be removed easily.

RELEASE MECHANISM

SL SERIES



XL SERIES



LOOSENING PROCEDURES — SL, XL & XLT Series

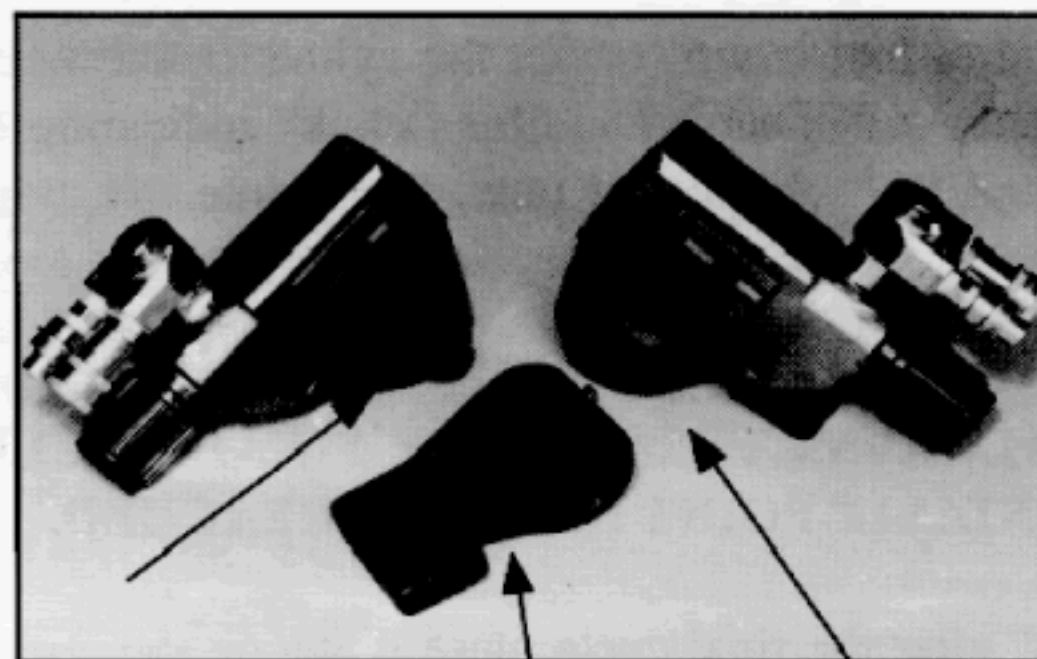
First, set the pump to 10,000 PSI. Change the drive and the reaction arm to the loosening mode, assuring the reaction arm abuts squarely off a solid reaction point. Press and hold the remote control button down. Pressure will build up as a socket begins to turn. As the cylinder extends fully, you will hear an audible “click”. Release the remote control button, and the cylinder will automatically retract, at which time you will again hear the audible “click”. Repeat this process until the fastener can be removed by hand.

NOTE: If the bolt does not loosen using the above procedure, it is an indication that you will require the next larger size tool to loosen the bolt.

OPERATING THE HYTORC ULC Series

The ULC Series is a single tool that operates with either:

- A) A Square Drive Cartridge Link or
- B) A Low Clearance Ratcheting Link.



Square Link

Low Clearance

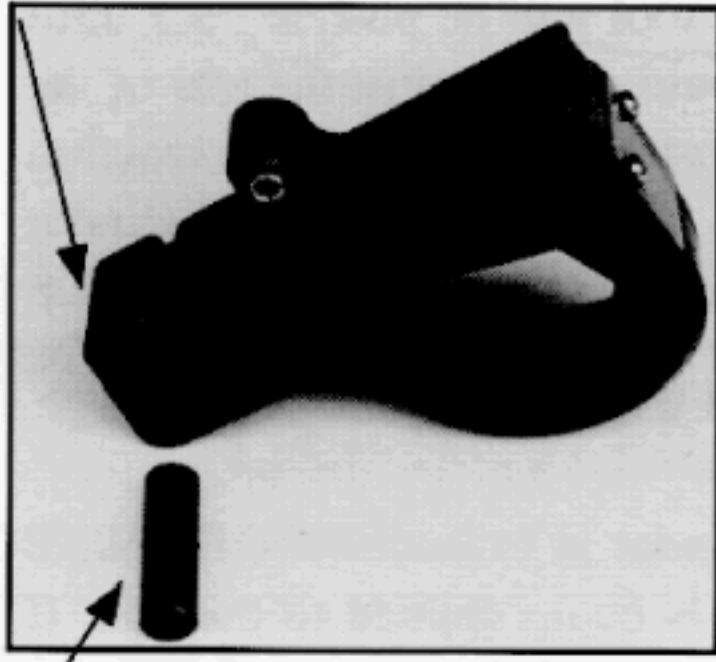
Reaction Arm

INSERTING THE LINKS

Both the Square Drive Cartridge Link and the Low Clearance Ratcheting Link are inserted and removed from the tool housing the same way.

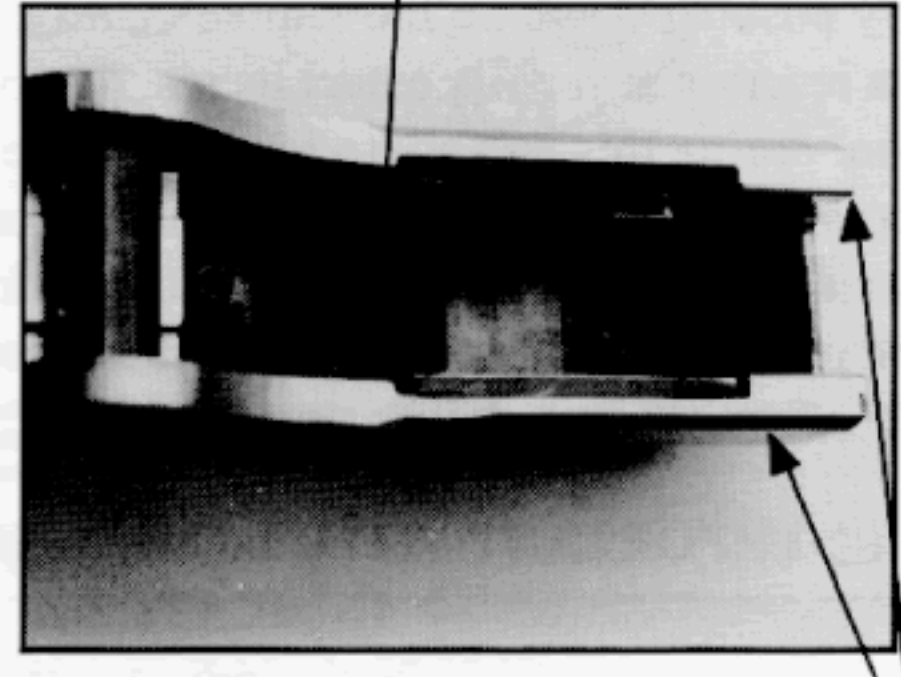
Turn the tool over and insert the links from the rear (cylinder) portion of the tool. Push the drive plates to the front of the link (opposite side from the link pin hole in the link). Place the drive plates in the cup of the cylinder rod end and push the link toward the front of the tool. Insure that the grooves on each side of the link engage the guide rails of the housing. Once the link is pushed all the way forward, insert the link pin through the housing and rear of the link.

Reaction Pad



Link Pin

Rod End



Guide Rail

OPERATING THE TORQUE MACHINE — ULC Series with the Square Drive.

The square drive cartridge Link for any of the ULC Series of tools is supplied with a double ended square drive. To change from tightening to loosening, simply turn the tool over.

When using the square drive cartridge link with the ULC Series, it is necessary to employ the universal reaction arm. This reaction arm is used to absorb and counteract reaction forces created as the units operate. The reaction arm should always extend in the direction of the square drive (side you are using); however, slight adjustments may be made to suit your particular application.

The reaction arm is spline cut and slides over the rear (cylinder) portion of the tool. Insure that the reaction arm is fully over the rear of the tool and tighten the bolt on the reaction arm.

Place the proper size impact socket on the square drive and secure properly with a locking ring and pin.

Place the tool and the socket on the nut making sure that the socket has fully engaged the nut and that the square drive is fully into the socket.

Insure that the reaction arm is firmly abutted against a stationary object (i.e. an adjacent nut, flange, equipment housing, etc.)

IMPORTANT: When positioning the wrench, make sure that the hose connections from the tool do not hit a stationary object prior to the reaction arm abutting against its reaction point as this may result in snapping a hose connection.

Apply momentary pressure to the system to ensure proper tool placement.

TORQUING (tightening) with the ULC Series and a Square Drive

By pushing down on the remote control button, the rear of the tool will be pushed back until its reaction arm will contact its reaction point. The operator should push against the rear of the tool during this process to insure that the reaction arm is in constant contact with the reaction point. Continue to hold down the button as the socket turns. When the hydraulic cylinder inside the tool is fully extended, the socket will no longer turn, and you will notice a buildup of pressure to the point where the pressure was preset prior to applying the wrench (*See SETTING TORQUE*).

IMPORTANT: This buildup of pressure **after** the cylinder is extended **DOES NOT INDICATE** that this pressure (torque) is being applied to the bolt. It only indicates that the cylinder is fully extended and cannot turn the socket further until the tool automatically resets itself.

Releasing the remote control button will retract the cylinder, and the tool will automatically reset itself. Each time the cylinder is extended and retracted, it is called a cycle. Successive cycles are made until the tool “stalls” at the preset PSI/Torque with an accuracy of $\pm 3\%$.

IMPORTANT: ALWAYS ATTEMPT ONE FINAL CYCLE TO INSURE THE “STALL” POINT HAS BEEN REACHED.

LOOSENING PROCEDURES with the ULC Series and Square Drive Link

First, set the pump to 10,000 PSI. Turn the tool over to the loosening side and attach the socket. Adjust the reaction arm so that it faces the direction of the side of the square drive you are using. Make sure the reaction arm abuts squarely off a solid reaction point.

Press and hold the remote control button down. Pressure will build up as the socket begins to turn. When the cylinder is fully extended, the socket will no longer turn. Release the remote control button, and the cylinder will automatically retract. Repeat this process until the fastener can be removed by hand. Insure that you keep a slight pressure against the rear of the tool by pushing the back of the tool towards its reaction point.

NOTE: If the bolt does not loosen using the above procedure it is an indication that you will require the next larger size tool to loosen the bolt.

OPERATING THE TORQUE MACHINE – ULC Series

with the low clearance Ratcheting Link.

Select the appropriate size low clearance ratcheting link and insert it into the tool (See *INSERTING THE LINKS*).

Tool operation, both tightening and loosening, is EXACTLY the same as with the square drive cartridge links except the use of the reaction arm. The ULC Low Clearance Ratchet Links are supplied complete with a reaction foot. This reaction foot is designed to react against an adjacent nut on most normal flange type applications. Prior to operating the tool, place the tool with the low clearance link on the nut to be tightened/loosened. If the reaction foot abuts against an adjacent nut or to some other secure stationary object **prior** to the spline part (rear) of the tool hitting against anything, then use of the reaction foot is appropriate.

If, however, the rear of the tool hits prior to the reaction foot abutting against an object, then use of the reaction arm is required. Slip the reaction arm over the rear (cylinder) portion of the tool. The reaction arm should be in alignment with the low clearance ratcheting link; however, slight adjustments may be made to suit your application. Secure the reaction arm to the tool by tightening the bolt located on the reaction arm.

OPERATING THE HYTORC® XLCT Series

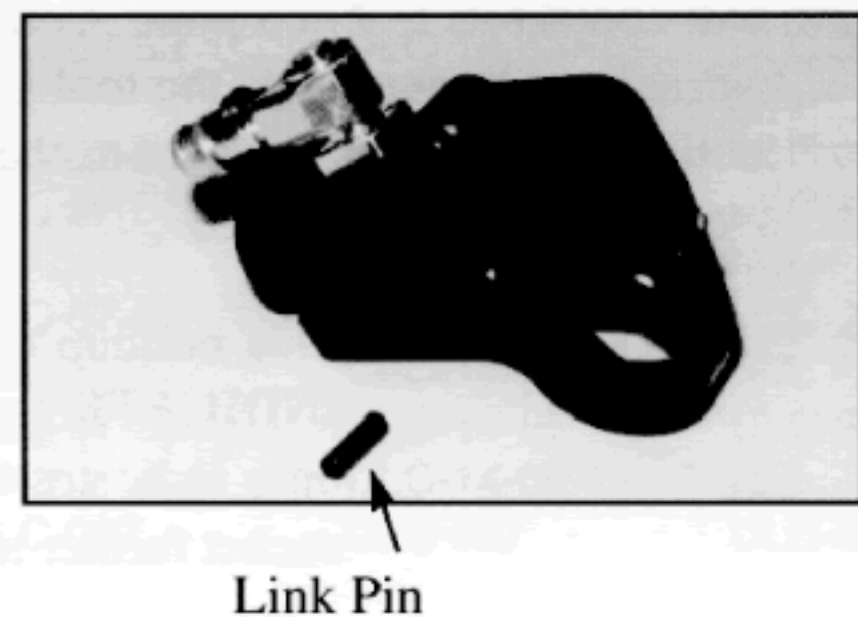
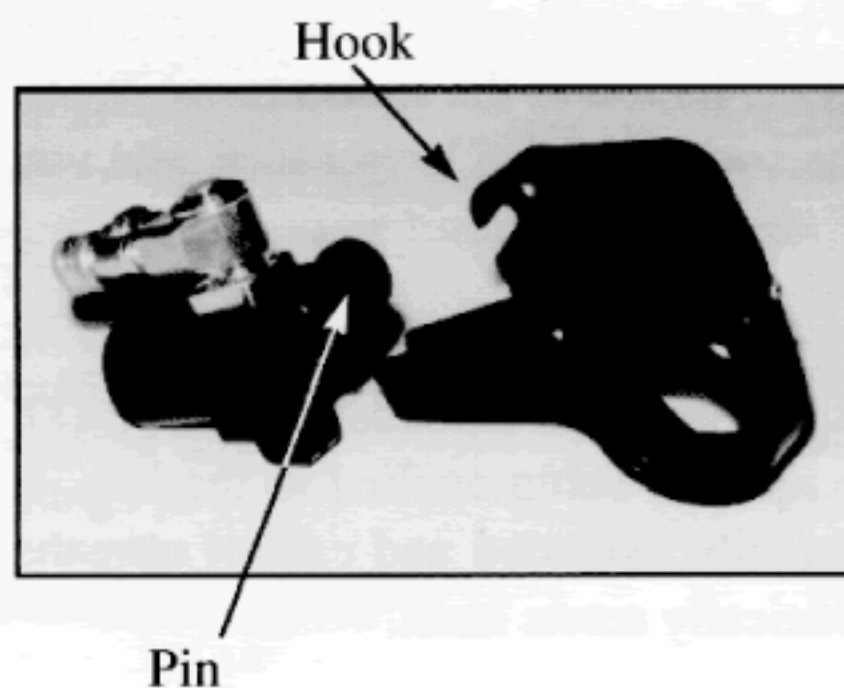
The XLCT Series is a single tool that operates with either:

- A) A Square Drive Cartridge link.
- B) A Low Clearance Ratcheting link.
- C) An “AB” type Spanner or Ratcheting link.

INSERTING THE RATCHETING LINKS

Both the Square Drive Cartridge Link and the Low Clearance Ratcheting Link are inserted and removed from the power head in the same way.

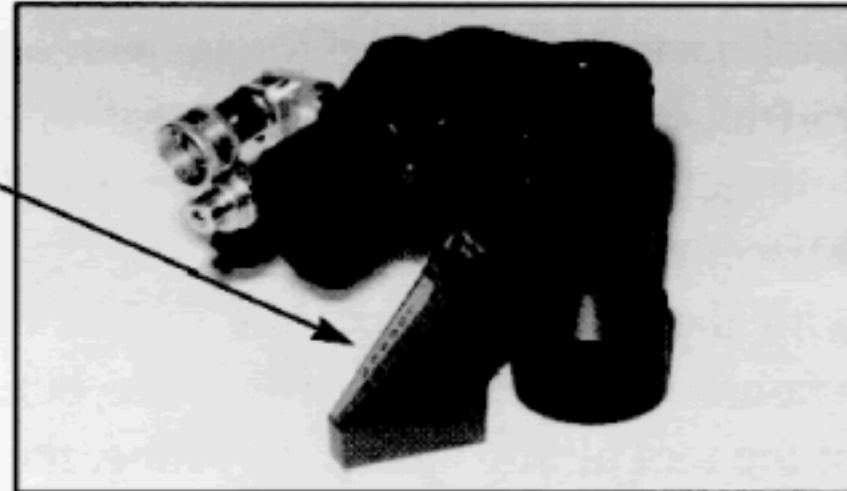
The “hook” described by the link’s drive plates is inserted around the fixed pin of the power head, and the link is swung down to rest along the base of the power head cylinder. At this point, the link pin holes of the power head and link will align. Insert the link pin to secure.



OPERATION WITH SQUARE DRIVE

As with other **HYTORC** models, if the square drive extends towards the right, the tool is set to tighten; if towards the left, its set to loosen. To change drive direction, press in on the drive retainer button, remove drive, place in opposite direction and replace retainer, insuring it is secure.

Note that the reaction arm is marked “tighten” and “loosen”. These respective surfaces will contact the reaction point when the tool is set for the appropriate mode.



To apply the tool with square drive, place the proper size impact socket on the drive and secure with a locking ring and pin.

TORQUING (tightening) with the XLCT Series and a Square Drive

Place the tool and the socket on the nut making sure that the socket has fully engaged the nut and that the square drive is fully into the socket.

Make sure the reaction arm is firmly abutted against a stationary object (i.e., an adjacent nut, flange, equipment housing, etc.).

Reaction Arm



IMPORTANT: When positioning the wrench, make sure that the hose connections from the tool do not hit a stationary object prior to the reaction arm abutting against its reaction point, as this may result in snapping a hose connection.

Apply momentary pressure to the system to ensure proper tool placement.

By pushing down on the remote control button, the tool's cylinder will extend and the reaction arm will contact its reaction point. Continue to hold down the button as the socket turns. When the hydraulic cylinder inside the tool is fully extended, the socket will no longer turn, and you will notice a buildup of pressure to the point where the pressure was preset prior to applying the wrench (*See SETTING TORQUE*).

IMPORTANT: This buildup of pressure **after** the cylinder is extended **DOES NOT INDICATE** that this pressure (torque) is being applied to the bolt. It

Releasing the remote control button will retract the cylinder, and the tool will automatically reset itself. Each time the cylinder is extended and retracted, it is called a cycle. Successive cycles are made until the tool “stalls” at the preset PSI/Torque with an accuracy of $\pm 3\%$.

IMPORTANT: ALWAYS ATTEMPT ONE FINAL CYCLE TO INSURE THE “STALL” POINT HAS BEEN REACHED.

Should the tool “lock on” after the final cycle, push down on the remote control button once more (to build pressure) and while maintaining this pressure pull back on the reaction pawl release mechanism. Releasing the remote control button while continuing to hold back on the release mechanism will allow the tool to be removed easily.

LOOSENING PROCEDURES with the XLCT Series and Square Drive Link

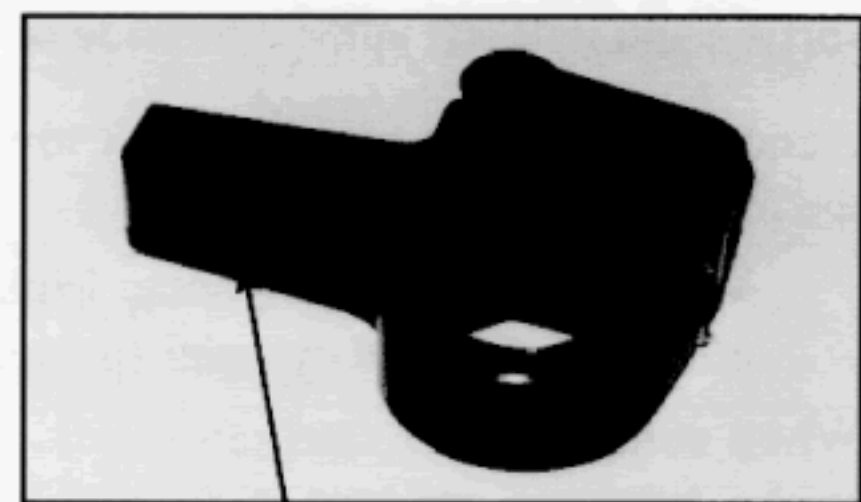
First, set the pump to 10,000 PSI. Set the tool for loosening and attach the socket. Make sure the reaction arm abuts squarely off a solid reaction point. Press and hold the remote control button down. Pressure will build up as the socket begins to turn. When the cylinder is fully extended, the socket will no longer turn. Release the remote control button, the cylinder will automatically retract. Repeat this process until the fastener can be removed by hand.

NOTE: If the bolt does not loosen using the above procedure it is an indication that you will require the next larger size tool to loosen the bolt.

OPERATING THE XLCT Series with the Low Clearance Ratcheting Link

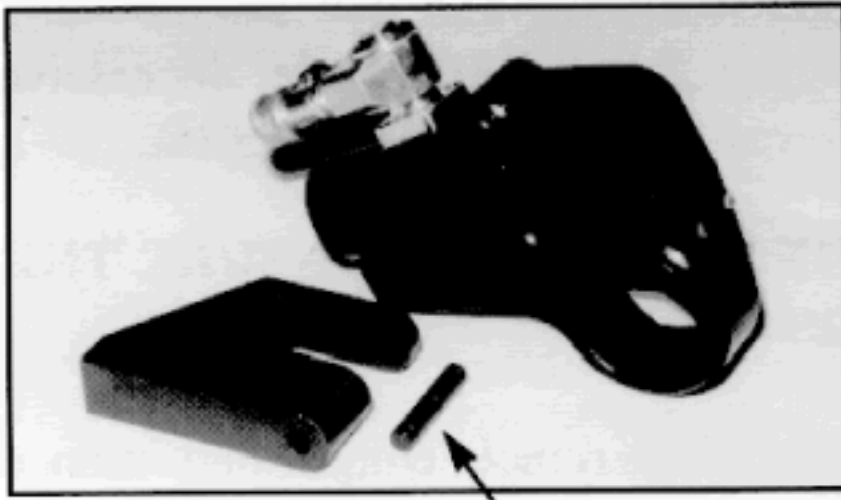
Select the appropriate size low clearance ratcheting link and insert it into the tool (*See INSERTING THE LINKS*).

Tool operation, bolt tightening and loosening, is exactly the same as with the square drive cartridge links except for the use of the reaction arm. The ULC Low Clearance Ratchet Links are supplied complete with a reaction block. This reaction block is designed to react against an adjacent nut on most normal flange type applications. Prior to operating the tool, place the tool with the low clearance link on the nut to be tightened/loosened. If the reaction block abuts against an adjacent nut or to some other secure stationary object, then use of the reaction block is appropriate.

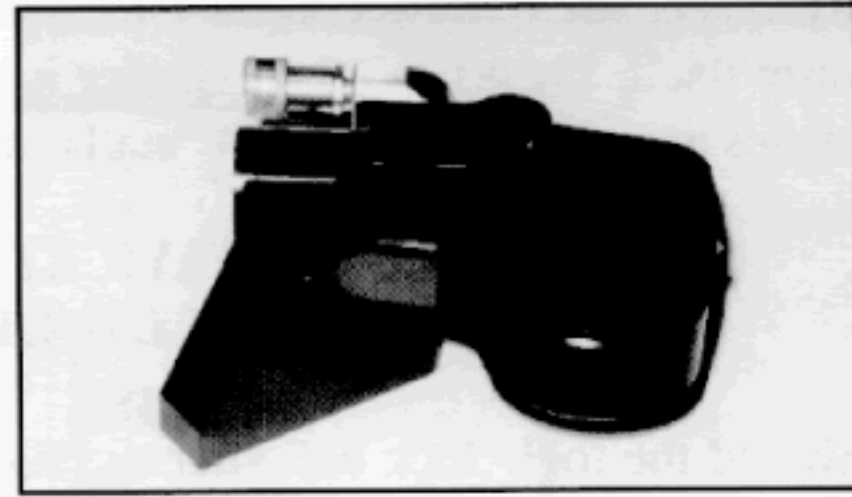


Reaction Block

If, however, bolt spacing is such that the reaction block does not reach an adjacent bolt, use of the short reaction arm is indicated. This will allow reaction to be taken against the side of the flange. To attach the short reaction arm, remove the standard link retaining pin, align the holes of the short reaction arm with that of the reaction block and insert the long retaining pin to secure. Insure that the arm extends in the appropriate direction: right for tightening; left for loosening. (see photos on following page).



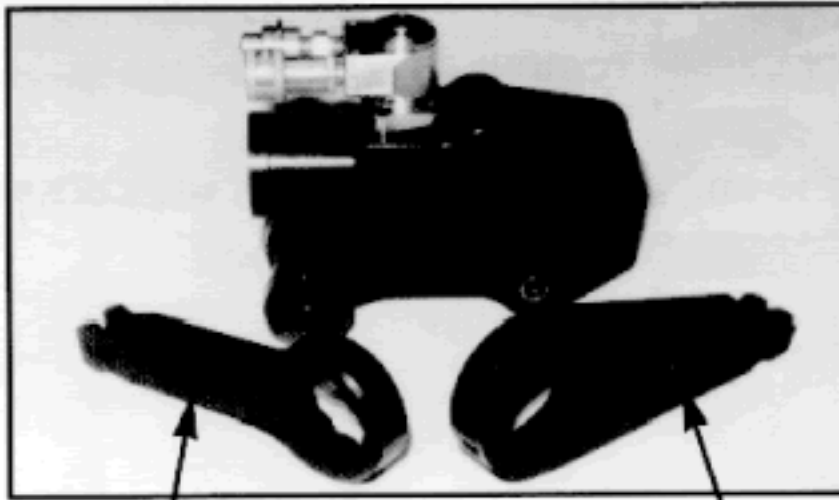
Long Retaining Pin



Ready For Use

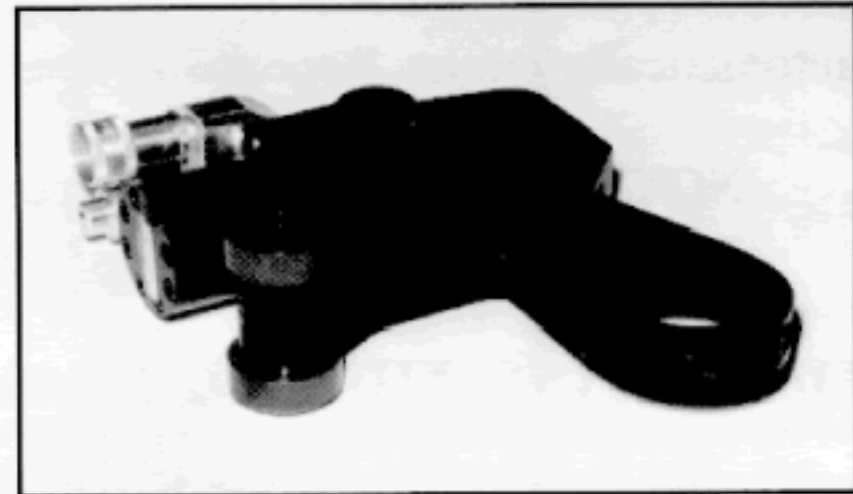
OPERATING THE XLCT Series with the “AB” type Spanner or AB Ratcheting Links.

Attach the AB cartridge to the XLCT power head in the same manner as other XLCT links and secure with the link retaining pin. Whether using a spanner or ratchet link, insert it into the AB cartridge until the holes in the AB cartridge and that of the link are aligned. Insert the AB retaining pin to secure.



AB Spanner Link

AB Ratchet Link



Ready For Use

Note that the AB cartridge is equipped with rollers at the rear. These rollers act as a reaction surface and will roll against the side of the flange during operation.

Basic cycling of the tool is similar to that of the XLCT Low Clearance Ratcheting Link, with the following exception:

When using the AB Spanner Link, the tool will have to be removed and reset on the nut after each forward cylinder (power) stroke.

When using the AB ratcheting link, the tool does not have to be reset after each forward stroke, however, the rear of the tool and rollers should be guided against the flange to assure successive ratcheting of the link’s mechanism.

HYTORC POWER PACKS

All **HYTORC** Power Packs operate at a pressure range from 500 to 10,000 PSI and are fully adjustable. They have been engineered and designed for portability and high flow for increased cycling speed. *BEFORE USING YOUR HYTORC POWER PACK*, check the following points:

- 1) Is the reservoir filled with oil?
- 2) Where is the closest electrical outlet to the job site?
- 3) Is there enough air pressure (100 PSI) and flow at the job site? (RSST units only.)

Locate the Instruction Manual and set the Pump according to the procedures given. The electric line should be able to carry a sustained load of 25 amperes. If an extension cord is needed up to 50 feet, a heavy-duty #12 AWG extension cord should be used. Longer lengths should be avoided, but if necessary, a #10 AWG extension cord is recommended. For 230-Volt **HYTORC** units—all of which are single-phase—check Instruction Manual. Failure to follow these hints will result in overheating and shortened motor life and solenoid valve malfunction. **HYTORC's** air-operated units should always be used with a filter/lubricator assembly and the correct air pressure (100 PSI) should be available. Lubrication of the air should be done with an oil/antifreeze mixture to avoid exhaust-line icing.

As a general rule, the oil in the Power Pack should be changed at least twice a year—more often if subject to frequent use or use in dusty areas. Following these few preventive-maintenance procedures will increase the life of your **HYTORC** Power Pack and System:

	TWIN SST	TWIN RSST	ECONO SST	ECONO RSST
Power:	230V Single	100 PSI 90 CFM	115V Single	100 PSI 50 CFM
Reservoir:	4 Gallons	4 Gallons	2 Gallons	2 Gallons
Maximum Hose:	200 Feet	200 Feet	100 Feet	100 Feet
Air Hose Size:		1" ID		1" ID
Heat Exchanger:	Available		Available	
Filter/Lubricator:		Available		Available
Oil:	ISO/ASTM VISCOSITY GRADE 46 (Example: SHELL Tellus 46)			
Gauge:	10,000 PSI (700 bar) Glycerin-filled			

NOTE: Electric pumps should never be used in any atmosphere which could be considered potentially volatile. If there is any doubt, use an air pump.

MAINTENANCE AND CLEANING

- SL-Series:**
- 1) Disconnect hoses.
 - 2) Remove protective shroud.
 - 3) Remove retaining screw from drive.
 - 4) Pull out drive.
 - 5) Remove ratchet.
 - 6) Unscrew both release handles and remove holding pins.
 - 7) Remove holding pawl and spring.
 - 8) Remove sleeves.
 - 9) (HY-1SL) Remove drive plates from cylinder rod end.
(HY-3SL) Align rod end hole with side hole in housing and push through holding pin.
(All other SL Units) Loosen allenhead screw (located on rod end) while rod is extended from underneath and remove drive plates with pawl assembly.
 - 10) Remove cylinder end cap to free piston rod assembly.

All parts should be cleaned in kerosene or parts cleaner. All moving surfaces should be coated with a good quality NLGI #2 molybdenum disulfide grease. The wrench is now ready for assembly. Reverse the prior steps.

- Pumps:** 1) Remove screws which hold Pump to reservoir.
Filter 2) Lift motor and pump assembly to expose filter at its base.
Replacement 3) Remove bottom bolt and replace filter cartridge.

- Pumps:** 1) Remove the 4 screws which hold the motor to the base plate.
Coupling 2) Lift off Pump motor.
Replacement 3) Take out coupler located in center hold of the base.
4) Replace coupler, ensuring the female slot is engaged by the motor shaft; the male engaging the pump drive gear.

PREVENTIVE MAINTENANCE — Torque Machines

Tool failure (although rare) does occur. Such failure is most often in the hydraulic quick-connects or hoses. These items are repairable/replaceable immediately, since they are available universally. Failure of structural members of the tool are quite rare, but replacement parts are available from stock. All repairs to **HYTORC** tools may be made by reasonably experienced individuals according to the aforementioned instructions.

- 1) **Lubrication:** All moving parts should periodically be coated with a good quality NLGI #2 molybdenum disulfide grease. Under harsh environmental conditions, cleaning and lubricating should be performed more frequently.
- 2) **Hydraulic Hoses:** Hoses should be checked for cracks and leaks after each job. Hydraulic fittings can become plugged with dirt and should be flushed periodically.
- 3) **Quick-Connects:** Fittings should be kept clean and not allowed to be dragged along the ground or floor, as even small particles of dirt can cause the internal valves to malfunction. External leakage can be eliminated by applying a fresh coat of good quality sealant to the threads and tightening securely.
- 4) **Springs:** Springs are used for the drive pawl assembly and for the ratchet-assurance device. These springs should be checked twice a year and replaced, if necessary.
- 5) **Cylinder Seal and Packing:** If the cylinder packing should require replacement because of leaks, it is recommended that the cylinder seals be replaced at the same time. Seal Kits are readily available.
- 6) **Structural Members:** All structural parts on the tool should be inspected once a year to determine if there are any cracks, chips, or deformities. If so, immediate replacement is required.

NOTE: Couplers and nipples used on your **HYTORC** Torque Machine are made by PIONEER (10,000 PSI, ¼" N.P.T.E.)

PREVENTIVE MAINTENANCE —Hydraulic Power Packs

HYTORC's Hydraulic Power Packs are precision-built hydraulic units and, as such, do require a certain amount of care and maintenance.

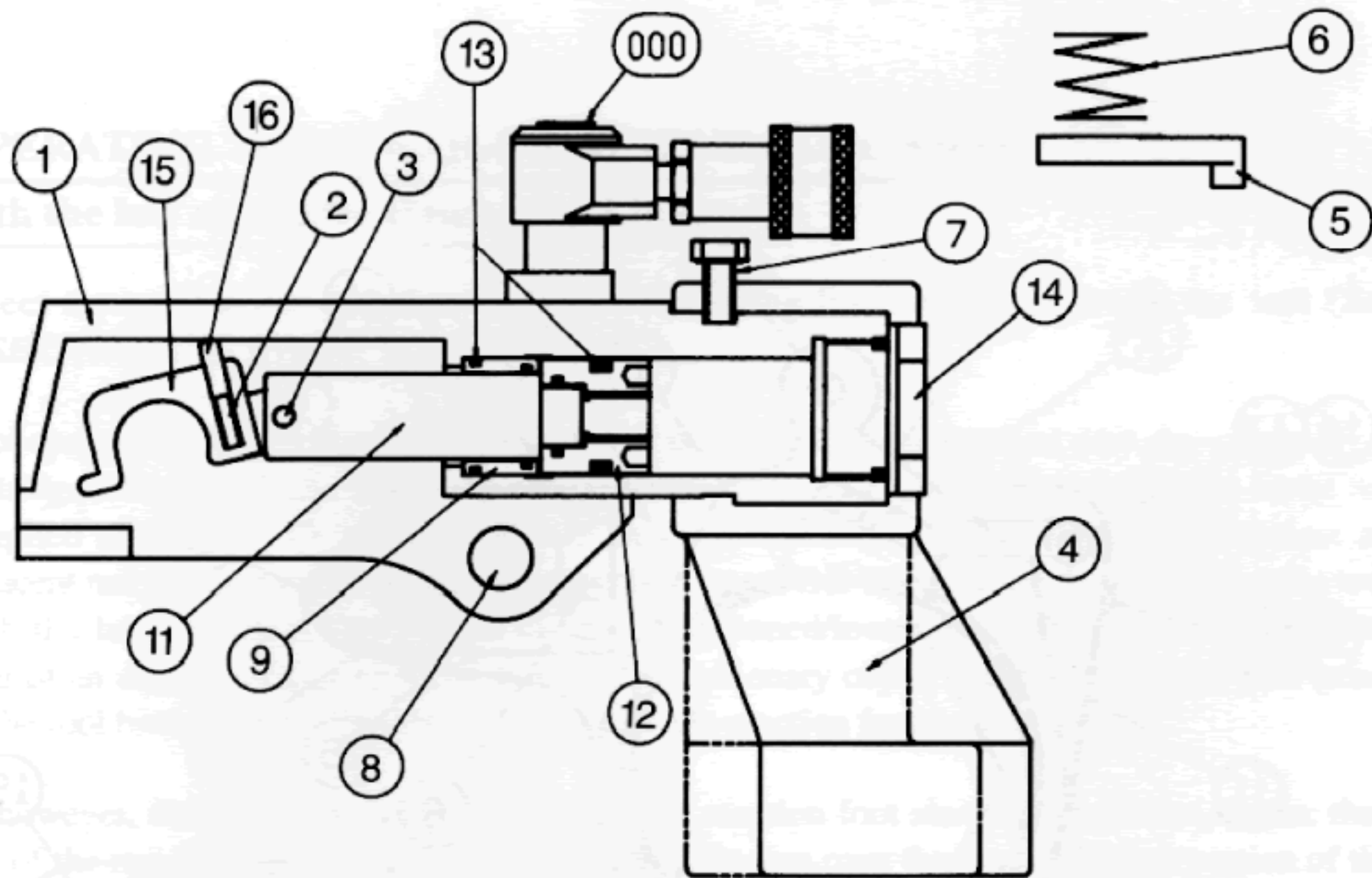
- 1) **Hydraulic Oil:** Oil should be completely changed after every 40 hours of operation, or at least twice a year. Always make sure the reservoir is filled with fluid. If additional oil is required, use only high-grade hydraulic oil, such as SHELL Tellus 46.
- 2) **Quick-Disconnects:** Fittings should be checked periodically for leaks. Dirt and foreign materials should be kept away from fittings. Clean before use.
- 3) **Hydraulic Gauge:** **HYTORC** Gauges are liquid filled. Should this liquid level drop, it indicates external leakage, and replacement is necessary. Should the Gauge fill with hydraulic oil, it indicates internal failure and should be discarded.
- 4) **Filter on Pump:** The filter should be replaced twice a year for normal use, and more often if Pump is in daily use.
- 5) **Directional Control Valve:** Should malfunctioning occur, disassemble, inspect, and clean.
- 6) **Motor:** (Air and Electric) The motor shaft and bearings should be flushed and lubricated once a year.
- 7) **Remote Control:** (Air Unit) The air line to the remote control unit should be checked for obstructions or kinks in the line periodically. If there is a bend or break in the line, it must be replaced. The spring-loaded buttons on the remote handle should be checked in the event of operating difficulties.
- 8) **Air Valve:** This valve should be checked twice a year.
- 9) **Brushes and Brush Holders:** (Electric Unit) Check and replace, if worn.
- 10) **Armature:** (Electric Unit) Check yearly.
- 11) **Pumping Unit:** The Pumping Unit should be overhauled every 2 years. This can be done by **HYTORC** or by a qualified hydraulic service center.

TRUBLE-SHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
Cylinder will not advance	<ol style="list-style-type: none"> 1. Quick-disconnect valve damage 2. Dirt in direction-control valve on Pumping Unit 3. Quick-connect coupling not mated securely 	<ol style="list-style-type: none"> 1. Replace 2. Disassemble and clean 3. Screw together securely
Cylinder will not retract	See Above	See Above
Cylinder will not build up pressure	<ol style="list-style-type: none"> 1. Piston seal leaks 2. Pump coupling is broken 	<ol style="list-style-type: none"> 1. Replace seals 2. Replace coupling
Cylinder leaks	<ol style="list-style-type: none"> 1. Blow-out plug on cylinder 	<ol style="list-style-type: none"> 1. Replace cylinder seals and packing
Cylinder operates backwards	<ol style="list-style-type: none"> 1. Disconnects are reversed on hoses, pump, or tool 	<ol style="list-style-type: none"> 1. Reverse disconnects on tool
Ratchet returns on retract stroke	<ol style="list-style-type: none"> 1. Broken reaction pawl 2. Defective reaction pawl spring 	<ol style="list-style-type: none"> 1. Replace 2. Inspect, bend to original position or replace
Ratchet will not take successive strokes	<ol style="list-style-type: none"> 1. Defective drive pawl spring 2. Defective drive pawl 3. Cylinder is not retracting completely 	<ol style="list-style-type: none"> 1. Inspect, bend to original position or replace 2. Replace 3. Remove tool from job, cycle freely once or twice, and replace on job
Tool cannot be removed from nut	<ol style="list-style-type: none"> 1. Reaction pawl is disengaged 	<ol style="list-style-type: none"> 1. Begin forward cylinder stroke. While applying pressure, pull back reaction pawl release. While holding release mechanism in rear position, allow the cylinder to retract. Remove tool.
Air Motor does not turn	<ol style="list-style-type: none"> 1. Rotor bearings frozen 2. Obstruction in air valve 3. Defective remote-control hose 4. Defective remote button 	<ol style="list-style-type: none"> 1. Inspect and replace 2. Inspect and clean 3. Replace 4. Replace spring
No pressure reading on gauge	<ol style="list-style-type: none"> 1. Pump coupling broken 2. Gauge defective 3. Defective cylinder seals 	<ol style="list-style-type: none"> 1. Replace 2. Replace 3. Inspect and replace all cylinder seals and packings
Pump will not build up pressure	<ol style="list-style-type: none"> 1. Defective relief valve 2. Air supply too low or air hose size too small 3. Electric power source is too low 4. Gauge 5. Filter is clogged 	<ol style="list-style-type: none"> 1. Inspect and replace 2. Check for 100 PSI air pressure, 1" ID air hose 3. Insure 25 amp supply, 12 AWG extension cord 4. Replace 5. Inspect and clean, or replace
Air motor sluggish or inefficient	<ol style="list-style-type: none"> 1. Dirt in air motor 2. Clogged pump filter 	<ol style="list-style-type: none"> 1. Flush motor with solvent 2. Inspect and clean or replace
Pressure reading erratic	<ol style="list-style-type: none"> 1. Defective gauge 	<ol style="list-style-type: none"> 1. Replace

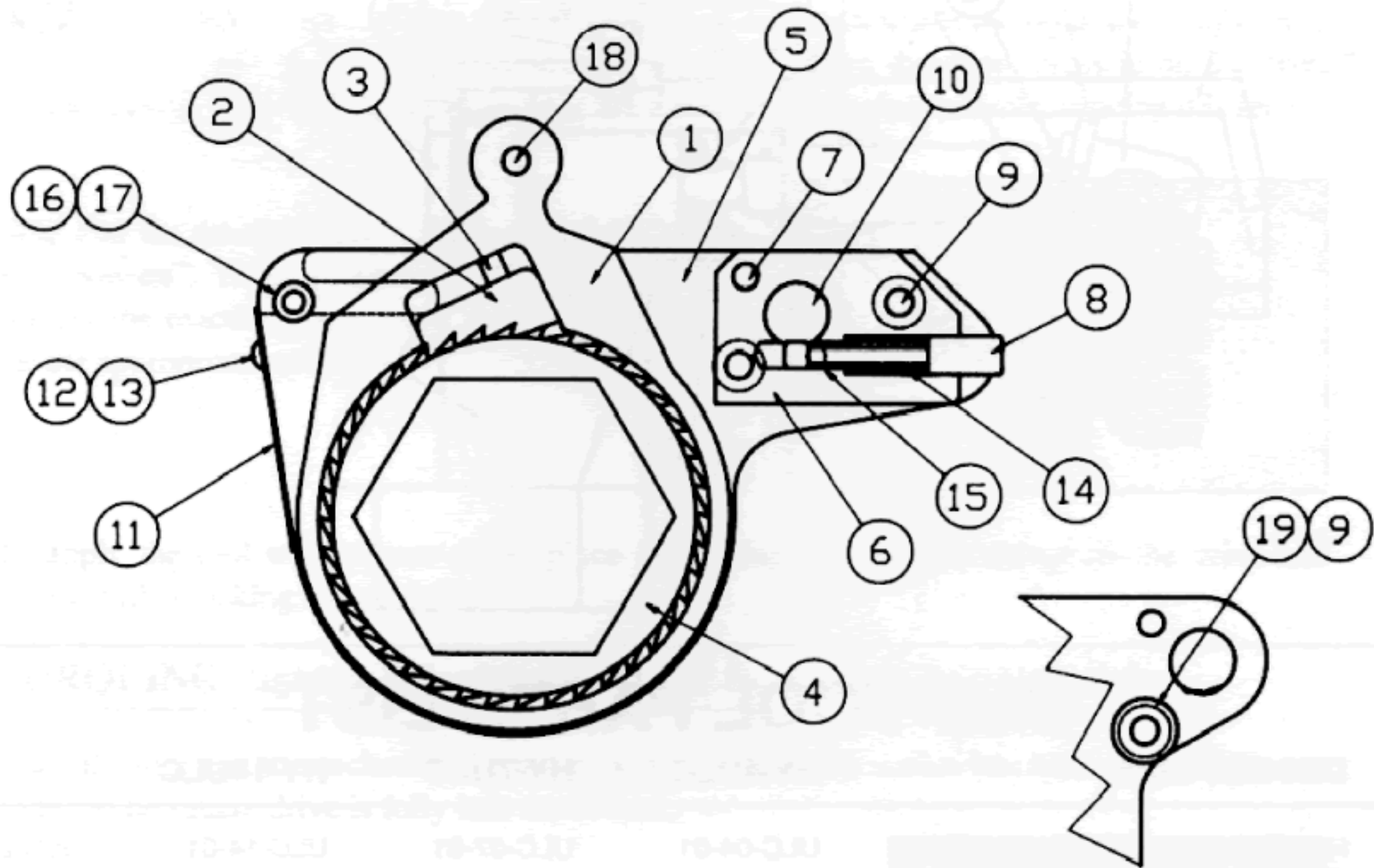
A = ADVANCE

R = RETRACT



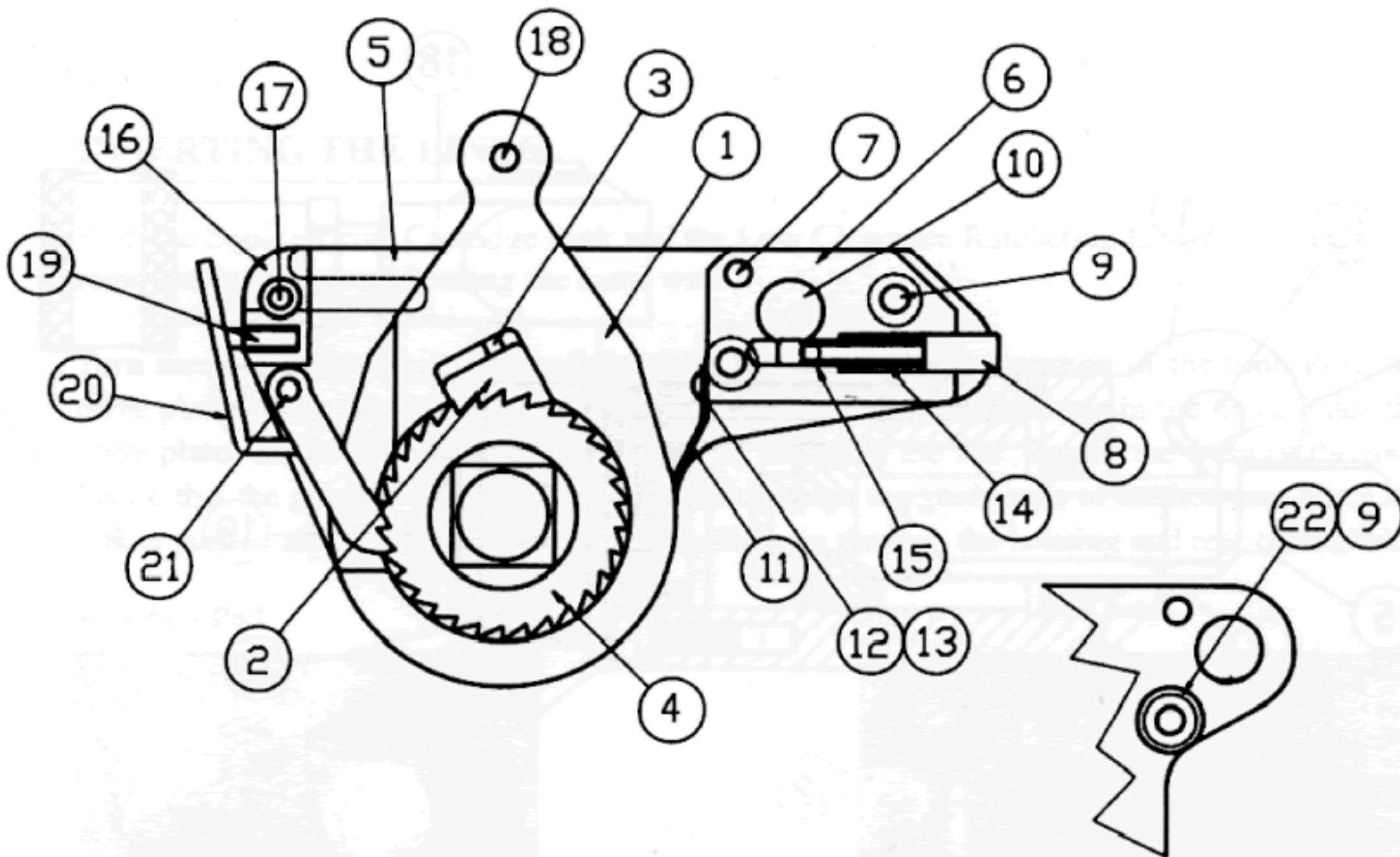
ULC TOOL PARTS LIST

#	DESCRIPTION	HY-4ULC	HY-7ULC	HY-14ULC	
1	Housing (Complete)	ULC-04-01	ULC-07-01	ULC-14-01	ULC-28-01
2	Rod End Spring	ULC-04-06	ULC-07-06	ULC-14-06	ULC-28-06
3	Rod End Spring N/S	N/A	N/A	ULC-14-06-1	N/A
	Link Pin Holder	N/A	N/A	ULC-14-13	ULC-28-13
3	Rod End Retain Pin	ULC-04-26	ULC-07-26	ULC-14-26	ULC-28-26
3	Rod End Bolt	N/A	N/A	ULC-14-26-1	N/A
4	Reaction Arm Assy (Bolt Style)	ULC-04-30-0	ULC-07-30-0	ULC-14-30-0	ULC-28-30-0
4	Reaction Arm Assy (Clamp Style)	N/A	ULC-07-30-1	ULC-14-30-1	ULC-28-30-1
5	Reaction Arm Clamp (Threaded)	N/A	ULC-07-31-0	ULC-14-31-0	ULC-28-31-0
5	Reaction Arm Clamp (Flange Type)	N/A	ULC-07-31-1	ULC-14-31-1	ULC-28-31-1
6	Reaction Arm Clamp Spring	N/A	ULC-07-32	ULC-14-32	ULC-28-32
7	Reaction Arm Bolt	ULC-04-34	ULC-07-34	ULC-14-34	ULC-28-34
8	Link Retaining Pin	ULC-04-38	ULC-07-38	ULC-14-38	ULC-28-38
8	Link Retaining Pin (Long/Thin)	N/A	N/A	ULC-14-38-1	N/A
9	Guide Bushing O/S	ULC-04-46-0	ULC-07-46-0	ULC-14-46	ULC-28-46
9	Guide Bushing N/S	ULC-04-46-1	ULC-07-46-1	N/A	N/A
10	Piston Rod Assembly	ULC-04-50	ULC-07-50	ULC-14-50	ULC-28-50
10	Piston Rod Assembly N/S	N/A	N/A	ULC-14-50-1	N/A
	Piston Sleeve	N/A	N/A	ULC-14-51-1	N/A
11	Piston Rod	ULC-04-52	ULC-07-52	ULC-14-52	ULC-28-52
	Piston Rod N/S	N/A	N/A	ULC-14-52-1	N/A
12	Piston	ULC-04-53	ULC-07-53	ULC-14-53	ULC-28-53
12	Piston N/S	N/A	N/A	ULC-14-53	N/A
13	Seal Kit	ULC-04-55	ULC-07-55	ULC-14-55	ULC-28-55
14	Cylinder End Cap	ULC-04-61	ULC-07-61	ULC-14-61	ULC-28-61
	Cylinder End Cap N/S	N/A	N/A	ULC-14-61-1	N/A
15	Rod End	ULC-04-64	ULC-07-64	ULC-14-64	ULC-28-64
	Rod End N/S	N/A	N/A	ULC-14-64-1	N/A
16	Spring Pin	ULC-04-65	ULC-07-65	ULC-14-65	ULC-28-65
	Spring Pin N/S	N/A	N/A	ULC-14-65-1	N/A
000	Uniswivel Assembly	XLT-003	ULC-007	ULC-007	ULC-007



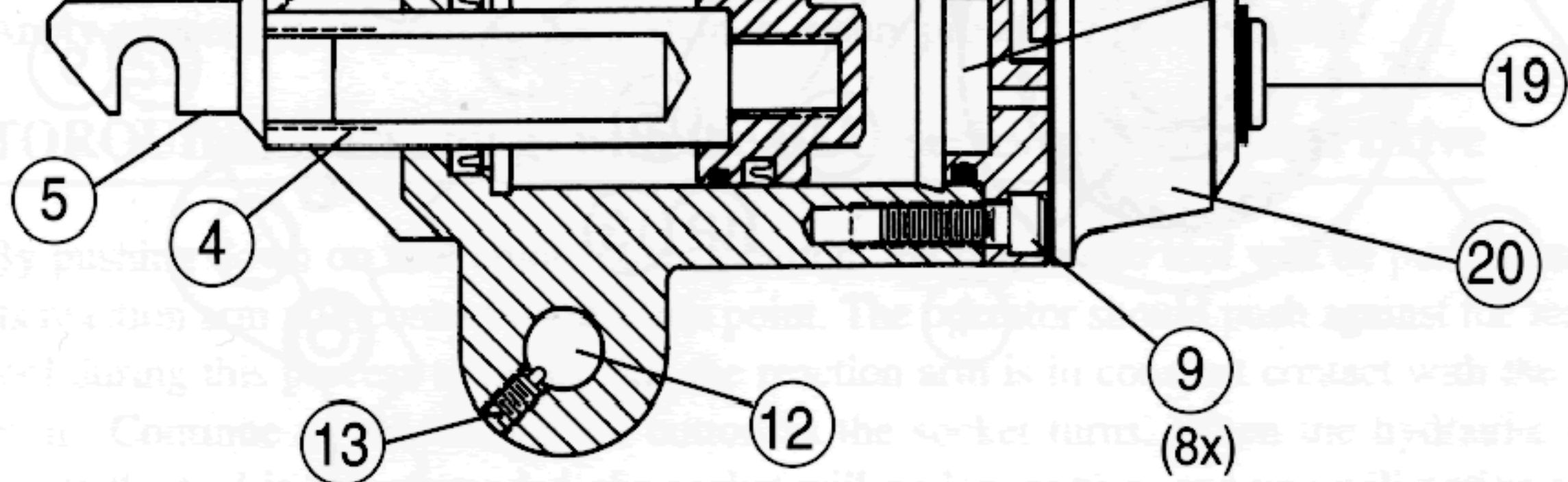
ULC HEX LINK PARTS LIST

DRAWING NO.	DESCRIPTION	HY-4ULC	HY-7ULC	HY-14ULC	HY-28ULC
1	DRIVE PLATE	UL04-03	UL07-03	UL14-03	UL28-03
2	DRIVE PAWL	UL04-21	UL07-21	UL14-21	UL28-21
3	DRIVE PAWL SPRING	UL04-28	UL07-28	UL14-28	UL28-28
4	RATCHET (HEX LINK)	UL04-10	UL07-10	UL14-10	UL28-10
5	SIDE PLATES	UL04-02	UL07-02	UL14-02	UL28-02
6	LINK SPACER REAR (PUSH BUTTON)	UL04-39	UL07-39	N/A	N/A
7	SIDE PLATE LOCATING PIN	UL04-05	UL07-05	N/A	N/A
8	LINK PIN RETAINER	UL04-13	UL07-13	N/A	N/A
9	SIDE PLATE SCREW (LARGE)	UL04-15	UL07-15	UL14-14	UL28-14
10	LINK RETAINING PIN	UL04-38	UL07-38	UL14-38	UL28-38
11	LINK SHROUD	UL04-35	UL07-35	N/A	N/A
12	SHROUD SCREWS	UL04-37	UL07-37	N/A	N/A
13	WASHERS	UL04-40	UL07-40	N/A	N/A
14	SPRING	UL04-30	UL07-30	N/A	N/A
15	SET SCREW	UL04-31	UL07-31	N/A	N/A
16	LINK SPACER FRONT	UL04-04	UL07-04	N/A	N/A
17	SIDE PLATE SCREW (SMALL)	UL04-14	UL07-14	N/A	N/A
18	ROLL PIN	UL04-41	UL07-41	N/A	N/A
19	LINK SPACER REAR	N/A	N/A	UL14-04	UL28-04



ULC SQUARE DRIVE PARTS LIST

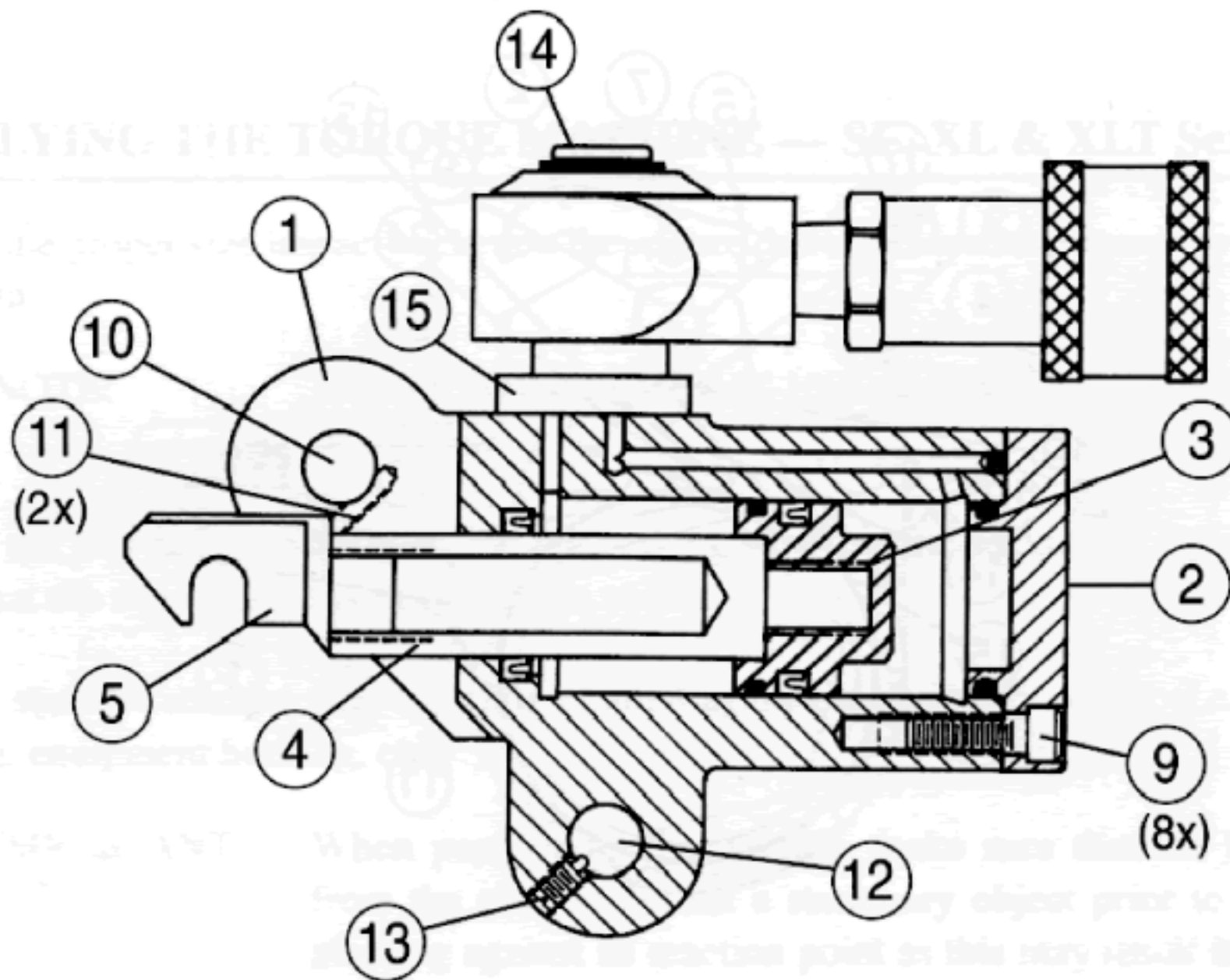
#	DESCRIPTION	HY-4ULC	HY-7ULC	HY-14ULC	HY-28ULC
1	Drive Plate SQ	UL04-03 SQ	UL07-03 SQ	UL14-03 SQ	UL28-03 SQ
1	Drive Plate F-SQ	UL04-03-2 SQ	UL07-03-2 SQ	N/A	N/A
2	Drive Pawl SQ	UL04-21 SQ	UL07-21 SQ	UL14-21 SQ	UL28-21 SQ
3	Drive Pawl F-SQ	UL04-21-2 SQ	UL07-21-2 SQ	N/A	N/A
3	Drive Pawl Sprint	UL04-28	UL07-28	UL14-28	UL28-28
4	Ratchet-Square Drive	UL04-11	UL07-11	UL14-11	UL28-11
4	N/S SQ Ratchet	UL04-11-2	UL07-11-2	N/A	N/A
5	L Side Plate Square	UL04-02L SQ	UL07-02L SQ	UL14-02L SQ	UL28-02L SQ
5	L Side Plate F-Square	UL04-02L-2 SQ	UL07-02L-2 SQ	N/A	N/A
5	R Side Plate Square	UL04-02R SQ	UL07-02R SQ	UL14-02R SQ	UL28-02R SQ
5	R Side Plate F-Square	UL04-02R-2 SQ	UL07-02R-2 SQ	N/A	N/A
6	Reaction Block	UL04-39	UL07-39	UL14-39	UL28-39
6	Reaction Block N/S	UL04-39-2	UL07-39-2	N/A	N/A
7	Side Plate Locating Pin	UL04-05	UL07-05	UL14-05	UL28-05
8	Link Pin Retainer	UL04-13	UL07-13	UL14-13	UL28-13
9	Side Plate Screw	UL04-15 SQ	UL07-15 SQ	UL14-14	UL28-14
10	Link Retaining Pin	UL04-38	UL07-38	UL14-38	UL28-38
11	Link Shroud	UL04-35 SQ	UL07-35 SQ	UL14-30-N	UL28-35
12	Shroud Screws	UL04-37	UL07-37	UL14-37	UL28-37
13	Screw Washer	UL04-40	UL07-40	UL14-40	UL28-40
14	Locking Pin Spring	UL04-30	UL07-30	N/A	N/A
15	Locking Pin Set Screw	UL04-31	UL07-31	N/A	N/A
16	Reaction Pawl Spacer	UL04-18	UL07-18	UL14-18	UL28-06
17	Side Plate Screw	UL04-14	UL07-14	UL14-14	UL28-14
18	Drive Plate Rod Pin	UL04-41	UL07-41	UL14-41	UL28-41
19	Reaction Pawl Spring	UL04-16	UL07-16	UL14-16	UL28-16
20	Reaction Pawl	UL04-17	UL07-17	UL14-17	N/A
21	Reaction Pawl Pin	UL04-15 SQ	UL07-15 SQ	UL14-15	N/A
22	Link Spacer Rear	N/A	N/A	UL14-04-R UL14-04-F	UL28-06



XLCT TOOL PARTS LIST

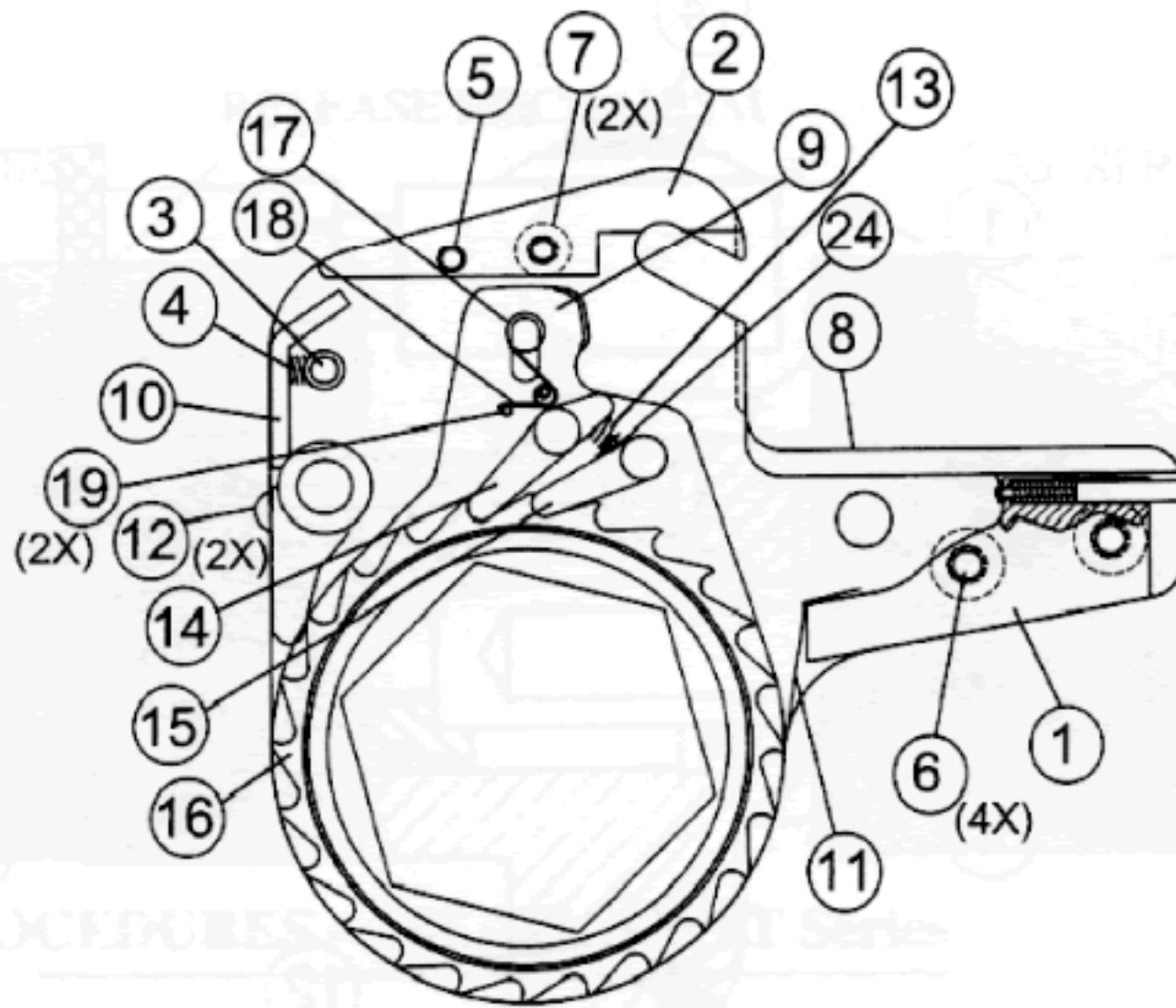
DRAWING

NO.	DESCRIPTION	2XLCT	4XLCT	8XLCT
1	HOUSING	XLCT-02-01	XLCT-04-01	X
1	HOUSING "C" SERIES	XLCT-02-01-C	XLCT-04-01-C	X
2	CYLINDER END CAP	XLCT-02-02	XLCT-04-02	X
3	PISTON	XLCT-02-03	XLCT-04-03	X
4	PISTON ROD	XLCT-02-04	XLCT-04-04	X
5	ROD END	N/A	N/A	X
3,4,5	PISTON ROD ASSEMBLY	XLCT-02-06	XLCT-04-06	X
6,7,8	SEAL KIT	XLCT-02-13	XLCT-04-13	X
9	CYLINDER END CAP SCREWS (8)	XLCT-02-07	XLCT-04-07	X
10	FIXED PIN UPPER	XLCT-02-08	XLCT-04-08	X
11	FIXED PIN SET SCREW (2)	XLCT-02-09	XLCT-04-09	X
12	LINK PIN SHORT	XLCT-02-10	XLCT-04-10	X
12	LINK PIN LONG	XLCT-02-11	XLCT-04-11	X
13	LINK PIN RETAINER SCREW	XLCT-02-12	XLCT-04-12	X
14	UNISWIVEL ASSEMBLY	XLT-001	XLT-003	X
15	UNISWIVEL MOUNT SCREWS	XLT-01-004	XLT-00-004	X
16	UNISWIVEL SEAL KIT (NOT SHOWN)	XLT-01-00	XLT-001-00	X
17	HEX LINK REACTION PAD (NOT SHOWN)	XLCT-02-14	XLCT-04-14	X
18,19,20	UNISWIVEL 360 x 360 ASSEMBLY	XLCT-02-62	XLCT-04-62	X



XLCT TOOL PARTS LIST

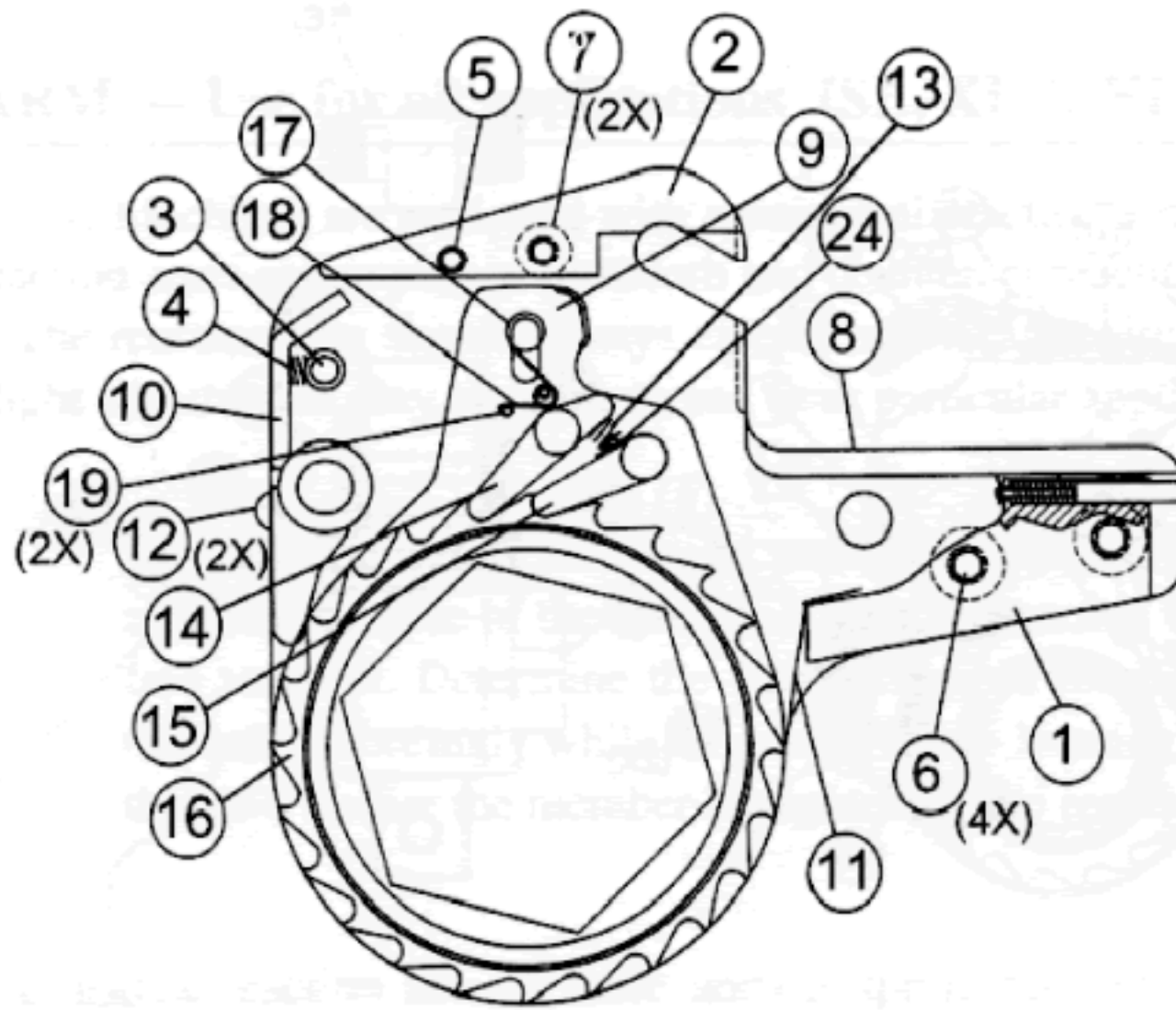
DRAWING NO.	DESCRIPTION	14XLCT	18XLCT	30XLCT
1	HOUSING	XLCT-14-01	XLCT-18-01	XLCT-30-01
1	HOUSING "C" SERIES	XLCT-14-01-C	N/A	N/A
2	CYLINDER END CAP	XLCT-14-02	XLCT-18-02	XLCT-30-02
3	PISTON	XLCT-14-03	XLCT-18-03	XLCT-30-03
4	PISTON ROD	XLCT-14-04	XLCT-18-04	XLCT-30-04
5	ROD END	XLCT-14-05	XLCT-18-05	XLCT-30-05
3,4,5	PISTON ROD ASSEMBLY	XLCT-14-06	XLCT-18-06	XLCT-30-06
6,7,8	SEAL KIT	XLCT-14-13	XLCT-18-13	XLCT-30-13
9	CYLINDER END CAP SCREWS (8)	XLCT-14-07	XLCT-18-07	XLCT-30-07
10	FIXED PIN UPPER	XLCT-14-08	XLCT-18-08	XLCT-30-08
11	FIXED PIN SET SCREW (2)	XLCT-14-09	XLCT-18-09	XLCT-30-09
12	LINK PIN SHORT	XLCT-14-10	XLCT-18-10	XLCT-30-10
12	LINK PIN LONG	XLCT-14-11	XLCT-18-11	XLCT-30-11
13	LINK PIN RETAINER SCREW	XLCT-14-12	XLCT-18-12	XLCT-30-12
14	UNISWIVEL ASSEMBLY	XLT-003	XLT-003	XLT-003
15	UNISWIVEL MOUNT SCREWS	XLT-00-004	XLT-00-004	XLT-00-004
16	UNISWIVEL SEAL KIT (NOT SHOWN)	XLT-001-00	XLT-001-00	XLT-001-00
17	HEX LINK REACTION PAD (NOT SHOWN)	XLCT-14-14	XLCT-18-14	XLCT-30-14
18,19,20	UNISWIVEL 360 x 360 ASSEMBLY	XLCT-14-62	N/A	N/A



XLCT HEX LINK PARTS LIST

NO.	DESCRIPTION	2XLCT	4XLCT	8XLCT
1	REACTION BLOCK SPACER	XLCT-02-45	XLCT-04-45	XLCT-08-45
1	REACTION BLOCK SPACER EXTENDED	XLCT-02-45-C	XLCT-04-45-C	XLCT-08-45-C
2	TOP SPACER	XLCT-02-46	XLCT-04-46	XLCT-08-46
3	REACTION PAWL SPRING SPACER	XLCT-02-47	XLCT-04-47	XLCT-08-47
4	REACTION PAWL SPRING	XLCT-02-37	XLCT-04-37	XLCT-08-37
5	SIDE PLATE ROLL PIN	XLCT-02-48	XLCT-04-48	XLCT-08-48
6	SIDE PLATE SCREW BOTTOM	XLCT-02-50	XLCT-04-50	XLCT-08-50
7	SIDE PLATE SCREW TOP	XLCT-02-51	XLCT-04-51	XLCT-08-51
8	SIDE PLATE (LEFT OR RIGHT)	XLCT-02-52 #	XLCT-04-52 #	XLCT-08-52 #
9	DRIVE PLATE (LEFT OR RIGHT)	XLCT-02-35 #	XLCT-04-35 #	XLCT-08-35 #
10	REACTION PAWL	XLCT-02-36 #	XLCT-04-36 #	XLCT-08-36 #
11	SHROUD	XLCT-02-43 #	XLCT-04-43 #	XLCT-08-43 #
12	SHROUD SCREW	XLCT-02-44	XLCT-04-44	XLCT-08-44
13	DRIVE PAWL SPRING	XLCT-02-27	XLCT-04-27	XLCT-08-27
14	DRIVE PAWL PRIMARY	XLCT-02-22	XLCT-04-22	XLCT-08-22
15	DRIVE PAWL SECONDARY	XLCT-02-23	XLCT-04-23	HLCT-08-23
16	HEX RACHET	XLCT-02-28 HX	XLCT-04-28 HX	XLCT-08-28 HX
17	DRIVE PIN	XLCT-02-33	XLCT-04-33	XLCT-08-33
18	DRIVE PIN SPRING	XLCT-02-34	XLCT-04-34	XLCT-08-34
19	DRIVE SPRING ROLL PIN	XLCT-02-32	XLCT-04-32	XLCT-08-32
20	LINK PIN SHORT (NO PAD)	XLCT-02-10	XLCT-04-10	XLCT-08-10
20	LINK PIN LONG (WITH PAD)	XLCT-02-11	XLCT-04-11	XLCT-08-11
24	SPRING SEAT	XLCT-02-49	XLCT-04-49	XLCT-08-49

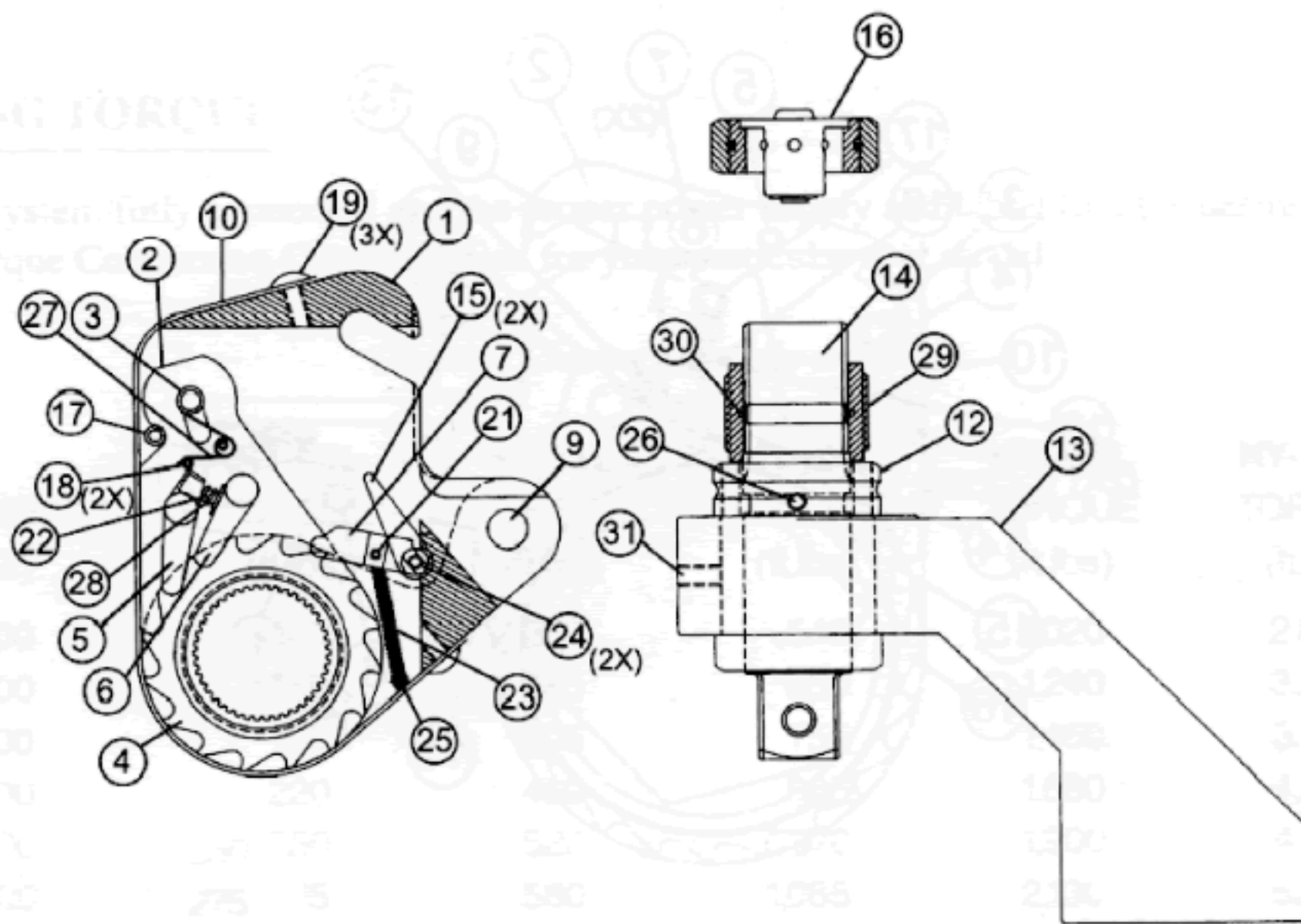
DESIGNATE BLANK SIZE OR RATCHET SIZE



XLCT HEX LINK PARTS LIST

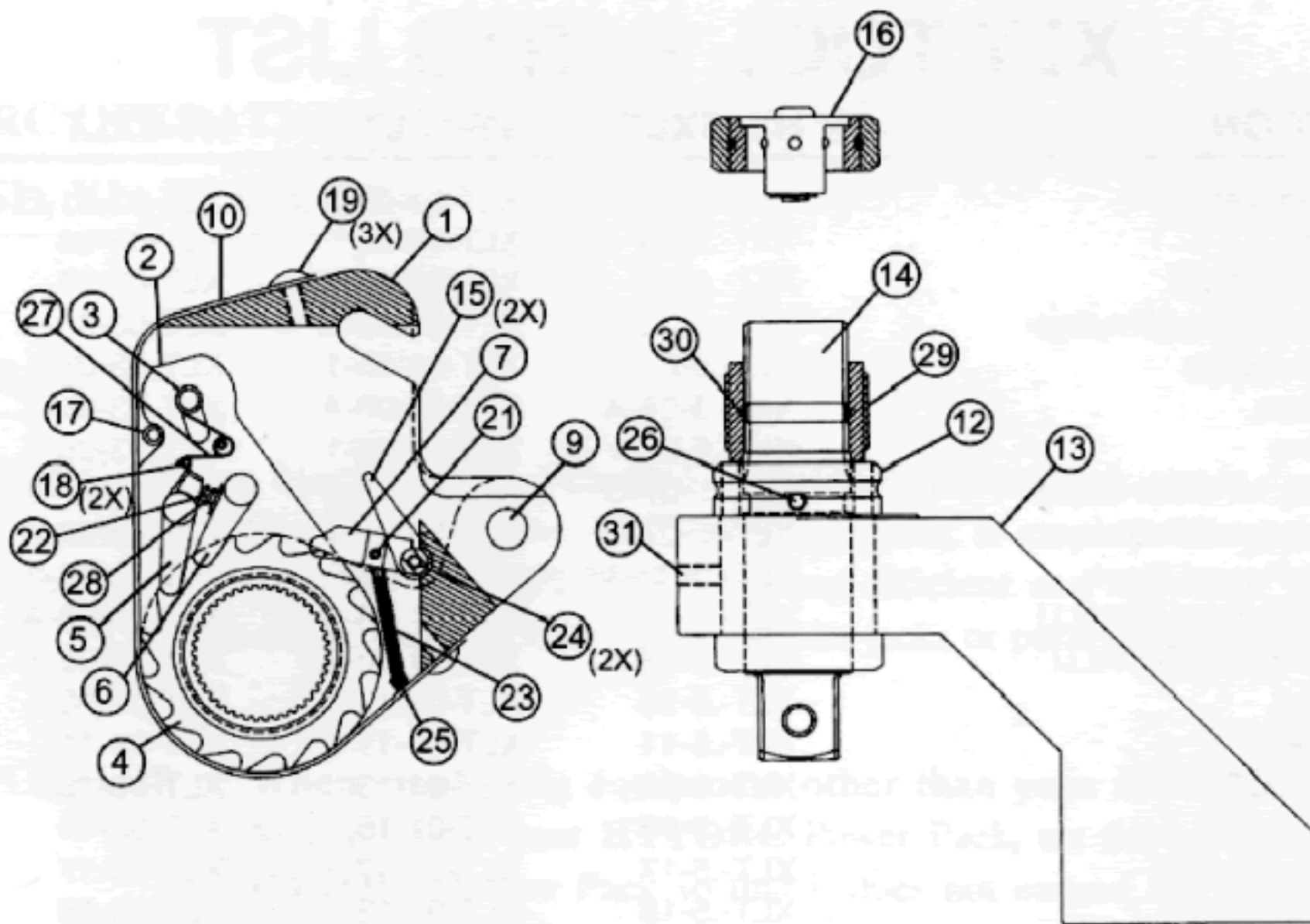
NO.	DESCRIPTION	14XLCT	18XLCT	30XLCT
1	REACTION BLOCK SPACER	XLCT-14-45	XLCT-18-45	XLCT-30-45
1	REACTION BLOCK SPACER EXTENDED	XLCT-14-45-C	N/A	N/A
2	TOP SPACER	XLCT-14-46	XLCT-18-46	XLCT-30-46
3	REACTION PAWL SPRING SPACER	XLCT-14-47	XLCT-18-47	XLCT-30-47
4	REACTION PAWL SPRING	XLCT-14-37	XLCT-18-37	XLCT-30-37
5	SIDE PLATE ROLL PIN	XLCT-14-48	XLCT-18-48	XLCT-30-48
6	SIDE PLATE SCREW BOTTOM	XLCT-14-50	XLCT-18-50	XLCT-30-50
7	SIDE PLATE SCREW TOP	XLCT-14-51	XLCT-18-51	XLCT-30-51
8	SIDE PLATE (LEFT OR RIGHT)	XLCT-14-52 #	XLCT-18-52 #	XLCT-30-52 #
9	DRIVE PLATE (LEFT OR RIGHT)	XLCT-14-35 #	XLCT-18-35 #	XLCT-30-35 #
10	REACTION PAWL	XLCT-14-36 #	XLCT-18-36 #	XLCT-30-36 #
11	SHROUD	XLCT-14-43 #	XLCT-18-43 #	XLCT-30-43 #
12	SHROUD SCREW	XLCT-14-44	XLCT-18-44	XLCT-30-44
13	DRIVE PAWL SPRING	XLCT-14-27	XLCT-18-27	XLCT-30-27
14	DRIVE PAWL PRIMARY	XLCT-14-22	XLCT-18-22	XLCT-30-22
15	DRIVE PAWL SECONDARY	XLCT-14-23	XLCT-18-23	HLCT-30-23
16	HEX RACHET	XLCT-14-28 HX	XLCT-18-28 HX	XLCT-30-28 HX
17	DRIVE PIN	XLCT-14-33	XLCT-18-33	XLCT-30-33
18	DRIVE PIN SPRING	XLCT-14-34	XLCT-18-34	XLCT-30-34
19	DRIVE SPRING ROLL PIN	XLCT-14-32	XLCT-18-32	XLCT-30-32
20	LINK PIN SHORT (NO PAD)	XLCT-14-10	XLCT-18-10	XLCT-30-10
20	LINK PIN LONG (WITH PAD)	XLCT-14-11	XLCT-18-11	XLCT-30-11
24	SPRING SEAT	XLCT-14-49	XLCT-18-49	XLCT-30-49

DESIGNATE BLANK SIZE OR RATCHET SIZE



XLCT SQUARE DRIVE PARTS LIST

DRAWING NO.	DESCRIPTION	2XLCT	4XLCT	8XLCT
1	SQUARE DRIVE HOUSING	XLCT-02-15	XLCT-04-15	XLCT-08-15
2	DRIVE PLATE (02)	XLCT-02-35 SQ	XLCT-04-35 SQ	XLCT-08-35 SQ
3	DRIVE PIN	XLCT-02-33	XLCT-04-33	XLCT-08-33
4	RATCHET SQUARE	XLCT-02-28 SQ	XLCT-04-28 SQ	XLCT-08-S8 SQ
5	DRIVE PAWL PRIMARY	XLCT-02-22	XLCT-04-22	XLCT-08-22
6	DRIVE PAWL SECONDARY	XLCT-02-23	XLCT-04-23	HLCT-08-23
7	REACTION PAWL	XLCT-02-36 SQ	XLCT-04-36 SQ	XLCT-08-36 SQ
8	SPRING SPACER	XLCT-02-31	XLCT-04-31	XLCT-08-31
9	LINK PIN LONG	XLCT-02-11	XLCT-04-11	XLCT-08-11
10	SHROUD	XLCT-02-43 SQ	XLCT-04-43 SQ	XLCT-08-43 SQ
11	RATCHET RETAINING PIN	XLCT-02-29	XLCT-04-29	XLCT-08-29
12	SPLINE BUSHING	XLCT-02-17	XLCT-04-17	XLCT-08-17
13	REACTION ARM SQUARE	XLCT-02-16	XLCT-04-16	XLCT-08-16
14	SQUARE DRIVE	XLCT-02-18	XLCT-04-18	XLCT-08-18
15	DISENGAGEMENT LEVER	XLCT-02-40	XLCT-04-40	XLCT-08-40
16	DRIVE RETAINER ASSEMBLY	XLCT-02-20	XLCT-04-20	XLCT-08-20
17	DRIVE PLATE STOP PIN	XLCT-02-42	XLCT-04-42	XLCT-08-42
18	SPRING SPACER ROLL PIN	XLCT-02-32	XLCT-04-32	XLCT-08-32
19	SHROUD SCREWS	XLCT-02-50	XLCT-04-44 SQ	XLCT-08-44 SQ
20	RATCHET RING ROLL PIN	XLCT-02-30	XLCT-04-30	XLCT-08-30
21	REACTION PAWL ROLL PIN	XLCT-02-38 SQ	XLCT-04-38 SQ	XLCT-08-38 SQ
22	DRIVE PAWL COIL SPRING	XLCT-02-27 SQ	XLCT-04-27 SQ	XLCT-08-27 SQ
23	REACTION PAWL SPRING	XLCT-02-37 SQ	XLCT-04-37 SQ	XLCT-08-37 SQ
24	LEVER SCREW	XLCT-02-41	XLCT-04-41	XLCT-08-41
25	REACTION PAWL DOWEL PIN	XLCT-02-39 SQ	XLCT-04-39 SQ	XLCT-08-39 SQ
26	SQUARE DRIVE SET SCREW	XLCT-02-19	XLCT-04-19	XLCT-08-19
27	DRIVE PIN SPRING	XLCT-02-34	XLCT-04-34	XLCT-08-34
28	SPRING SEAT	XLCT-02-49	XLCT-04-49	XLCT-08-49
29	RACHET/SPLINE BUSHING	XLCT-02-53	XLCT-04-53	XLCT-08-53
30	RETAINER RAT./SPL. BUSHING	XLCT-02-54	XLCT-04-54	XLCT-08-54
31	SPLINE BUSHING SET SCREW	XLCT-02-60	XLCT-04-60	XLCT-08-60



XLCT SQUARE DRIVE PARTS LIST

DRAWING NO.	DESCRIPTION	14XLCT	30XLCT
1	SQUARE DRIVE HOUSING	XLCT-14-15	XLCT-30-15
2	DRIVE PLATE (2)	XLCT-14-35 SQ	XLCT-30-35 SQ
3	DRIVE PIN	XLCT-14-33	XLCT-30-33
4	RATCHET SQUARE	XLCT-14-28 SQ	XLCT-30-28 SQ
5	DRIVE PAWL PRIMARY	XLCT-14-22	XLCT-30-22
6	DRIVE PAWL SECONDARY	XLCT-14-23	XLCT-30-23
7	REACTION PAWL	XLCT-14-36 SQ	XLCT-30-36 SQ
8	SPRING SPACER	XLCT-14-31	XLCT-30-31
9	LINK PIN LONG	XLCT-14-11	XLCT-30-11
10	SHROUD	XLCT-14-43 SQ	XLCT-30-43 SQ
11	RATCHET RETAINING PIN	XLCT-14-29	XLCT-30-29
12	SPLINE BUSHING	XLCT-14-17	XLCT-30-17
13	REACTION ARM SQUARE	XLCT-14-16	XLCT-30-16
14	SQUARE DRIVE	XLCT-14-18	XLCT-30-18
15	DISENGAGEMENT LEVER	XLCT-14-40	XLCT-30-40
16	DRIVE RETAINER ASSEMBLY	XLCT-14-20	XLCT-30-20
17	DRIVE PLATE STOP PIN	XLCT-14-42	XLCT-30-42
18	SPRING SPACER ROLL PIN	XLCT-14-32	XLCT-30-32
19	SHROUD SCREWS	XLCT-14-44 SQ	XLCT-30-44 SQ
20	RATCHET RING ROLL PIN	XLCT-14-30	XLCT-30-30
21	REACTION PAWL ROLL PIN	XLCT-14-38 SQ	XLCT-30-38 SQ
22	DRIVE PAWL COIL SPRING	XLCT-14-27 SQ	XLCT-30-27 SQ
23	REACTION PAWL SPRING	XLCT-14-37 SQ	XLCT-30-37 SQ
24	LEVER SCREW	XLCT-14-41	XLCT-30-41
25	REACTION PAWL DOWEL PIN	XLCT-14-39 SQ	XLCT-30-39 SQ
26	SQUARE DRIVE SET SCREW	XLCT-14-19	XLCT-30-19
27	DRIVE PIN SPRING	XLCT-14-34	XLCT-30-34
28	SPRING SEAT	XLCT-14-49	XLCT-30-49
29	RATCHET/SPLINE BUSHING	XLCT-14-53	XLCT-30-53
30	RETAINER RAT./SPL. BUSHING	XLCT-14-54	XLCT-30-54
31	SPLINE BUSHING SET SCREW	XLCT-14-60	XLCT-30-60

XLT TOOL PARTS LIST

#	DESCRIPTION	HY-.5XLT	HY-1XLT	HY-3XLT	HY5XLT
1	*Housing Complete	XLT-.5-01-E	XLT-01-01-E	XLT-03-01-E	XLT-05-01-E
3	Reaction Arm	XLT-.5-03	XLT-01-03	XLT-03-03	XLT-05-03
4	Drive Plate Universal	XLT-.5-04	XLT-01-04	XLT-03-04	XLT-05-04
5	Square Drive Square Through	XLT-.5-05-A	XLT-01-05-A	XLT-03-05-A	XLT-05-05-A
5	Square Drive Spline	XLT-.5-05-1	XLT-01-05-1	XLT-03-05-1	XLT-05-05-1
6	Ratchet Square	XLT-.5-06-A	XLT-01-06-A	XLT-03-06-A	XLT-05-06-A
6	Ratchet Spline	XLT-.5-06-1	XLT-01-06-1	XLT-03-06-1	XLT-05-06-1
7	Drive Bushing for Steel Sleeve	XLT-.5-07-0	XLT-01-07-0	XLT-03-07-0	XLT-05-07-0
7	Drive Bushing for B/A Sleeve	XLT-.5-07-1	XLT-01-07-1	XLT-03-07-1	XLT-05-07-1
8	Drive Sleeve Round Steel	XLT-.5-08-0	XLT-01-08-0	XLT-03-08-0	XLT-05-08-0
8	Drive Sleeve Square BR/ALU	XLT-.5-08-A	XLT-01-08-A	XLT-03-08-A	N/A
8	Drive Sleeve Spline BR/ALU	XLT-.5-08-1	XLT-01-08-1	XLT-03-08-1	XLT-05-08-1
10	Reaction Pawl	XLT-.5-10	XLT-01-10	XLT-03-10	XLT-05-10
11	Drive Retainer	XLT-.5-11	XLT-01-11	XLT-03-11	XLT-05-11
13	Drive Plate Roll Pin	XLT-.5-13	XLT-01-13	XLT-03-13	XLT-05-13
15	Lever	XLT-.5-15	XLT-01-15	XLT-03-15	XLT-05-15
17	Piston Connector Rod	XLT-.5-17	XLT-01-17	XLT-03-17	XLT-05-17
18	Reaction Pawl Spring	XLT-.5-18	XLT-01-18	XLT-03-18	XLT-05-18
19	Rod Pin	XLT-.5-19	XLT-01-19	XLT-03-19	XLT-05-19
20	Drive Sleeve O-Ring	XLT-.5-20	XLT-01-20	XLT-03-20	XLT-05-20
24	Piston Sleeve	XLT-.5-24	XLT-01-24	XLT-03-24	XLT-05-24
25	Piston with Seals	XLT-.5-25	XLT-01-25	XLT-03-25	XLT-05-25
26	End Cap with Screws	XLT-.5-26-1	XLT-01-26-1	XLT-03-26-1	XLT-05-26-1
26	End Cap used with E Style Housing Only	XLT-.5-26-E	XLT-01-26-E	XLT-03-26-E	XLT-05-26-E
27	Spring, Drive Pawl (2)	XLT-.5-27	XLT-01-27	XLT-03-27	XLT-05-27
28	Reaction Arm Clamp	XLT-.5-28	XLT-01-28	XLT-03-28	XLT-05-28
29	Piston Rod	XLT-.5-29	XLT-01-29	XLT-03-29	XLT-05-29
30	Retaining Ring	XLT-.5-30	XLT-01-30	XLT-03-30	XLT-05-30
31-0	Shroud, 4-Screw Type	XLT-.5-31-0	XLT-01-31-0	XLT-03-31-0	XLT-05-31-0
31-1	Shroud, Spring Type	XLT-.5-31-1	XLT-01-31-1	XLT-03-31-1	XLT-05-31-1
32	Screw, Shroud	XLT-.5-32	XLT-01-32	XLT-03-32	XLT-05-32
33	Spring, Secondary Drive Pawl	XLT-.5-33	XLT-01-33	XLT-03-33	XLT-05-33
34	Screws, End Cap	XLT-.5-34	XLT-01-34	XLT-03-34	XLT-05-34
37	Screw, RA Clamp	XLT-.5-37	XLT-01-37	XLT-03-37	XLT-05-37
38	Spring, RA Clamp	XLT-.5-38	XLT-01-38	XLT-03-38	XLT-05-38
39	Lever Screw	XLT-.5-39	XLT-01-39	XLT-03-39	XLT-05-39
40	Roll Pin, Primary DP/Reaction Pawl	XLT-.5-40	XLT-01-40	XLT-03-40	XLT-05-40
41	Roll Pin, Secondary DP	XLT-.5-41	XLT-01-41	XLT-03-41	XLT-05-41
42	Roll Pin, Reaction Pawl	XLT-.5-42	XLT-01-42	XLT-03-42	XLT-05-42
43	Reaction Arm Boost with Screws	XLT-.5-43	XLT-01-43	XLT-03-43	XLT-05-43
44	Boot Screws	XLT-.5-44	XLT-01-44	XLT-03-44	XLT-05-44
45	Screw, End Cap Jacking	XLT-.5-45	XLT-01-45	XLT-03-45	XLT-05-45
58	Screw, Shroud Spring	XLT-.5-58	XLT-01-58	XLT-03-58	XLT-05-58
59	Shroud Spring	XLT-.5-59	XLT-01-59	XLT-03-59	XLT-05-59
**	Piston Rod Assembly	XLT-.5-61	XLT-01-61	XLT-03-61	XLT-05-61
**	Seal Kit Universal	XLT-.5-62	XLT-01-62	XLT-03-62	XLT-05-62
#, ++63	Drive Pawl Assembly Kit	XLT-.5-63	XLT-01-63	XLT-03-63	XLT-05-63
#, 64	Roll Pin Kit (all roll pins)	XLT-.5-64	XLT-01-64	XLT-03-64	XLT-05-64
#00	Uniswivel Assembly	XLT-001	XLT-001	XLT-003	XLT-003
#00	Uniswivel Seal Kit	XLT-01-00	XLT-01-00	XLT-001-00	XLT-001-00

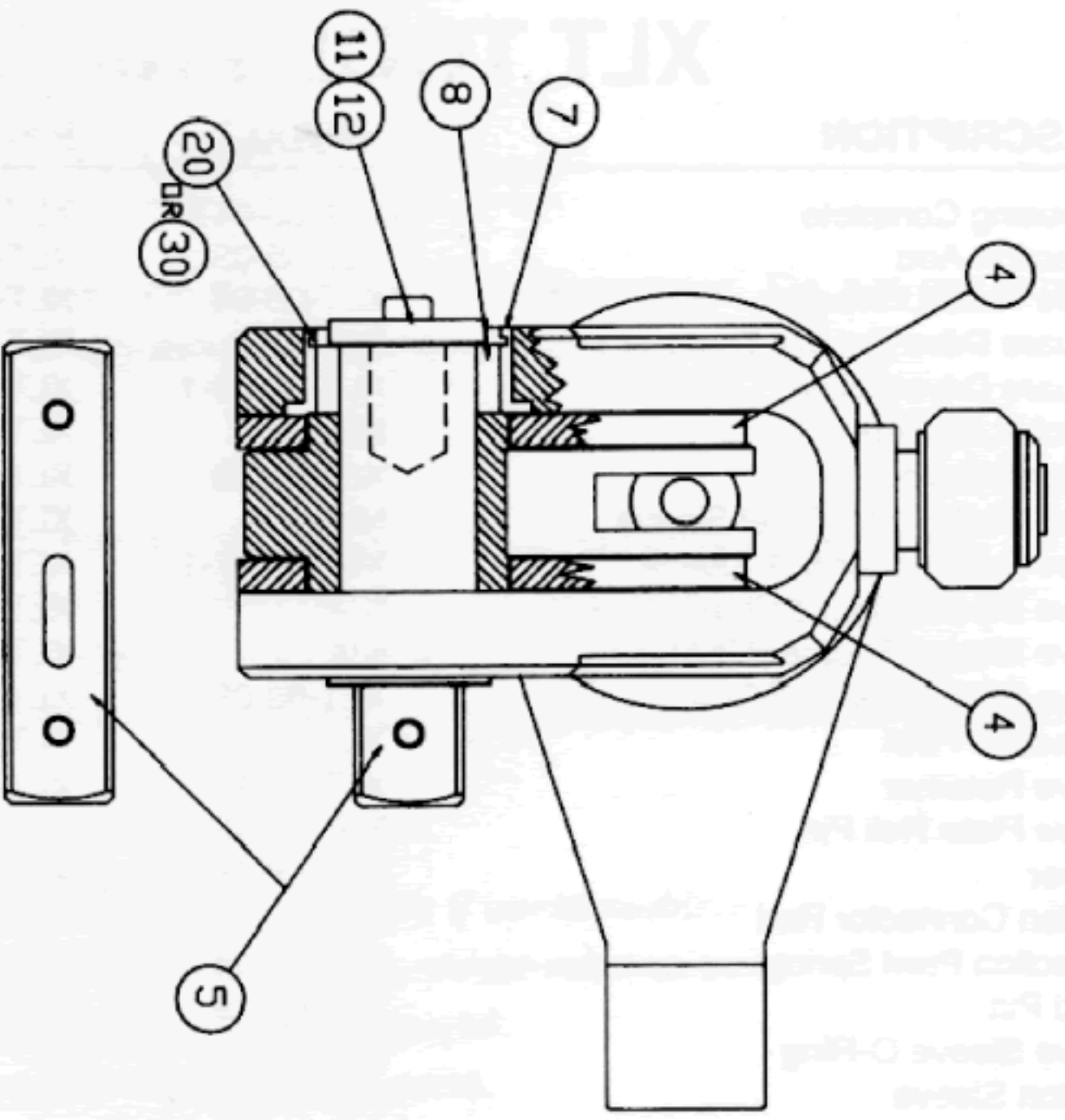
* E Series Housing includes 01-E, 07-1, 26-E and 31-1.

** Piston Rod Assembly includes 24, 25 and 29.

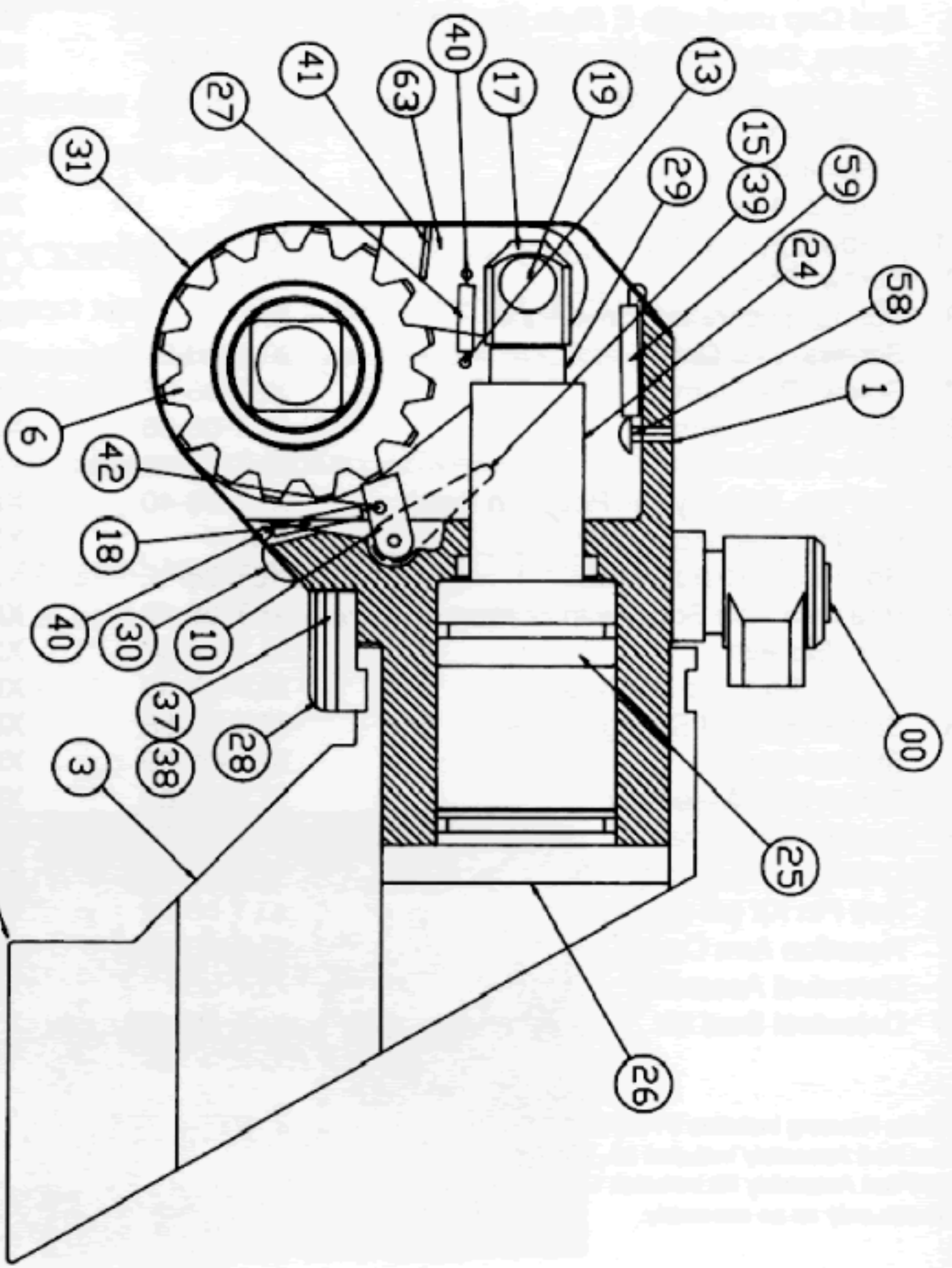
++ Drive Pawl Assembly Kit includes 10, 17, and 19.

Available only as an assembly.

Revised July 21, 1994



- ITEM 8 DRIVE SLEEVE
- STEEL -08-0 USE RETAINER -20
 - BRONZE SQ. THRU -08-A USE RETAINER -30
 - BRONZE SPLINE -08-1



- ITEM 26 END CAP
- THREADS -26-E
 - END CAP SCREW -34
 - JACK SCREW -45
 - 26-0

DECLARATION OF CONFORMITY

Manufacturer's Name: HYTORC DIVISION UNEX CORPORATION
Manufacturer's Address: HYTORC DIVISION UNEX CORPORATION
333 Rte. 17 North
Mahwah, NJ 07430
USA


declares, that the product

Product Name: XLT, XLCT and ULC
Hydraulic Torque Wrenches
Model Number: HY-.5XLT, HY-1XLT, HY-3XLT, HY-5XLT, HY-8XLT
HY-10XLT, HY-20XLT, HY-25XLT, HY-50XL, HY-2XLCT
HY-4XLCT, HY-8XLCT, HY-14XLCT, HY-18XCLT
HY-30XLCT, HY-4ULC, HY-7ULC, HY-14ULC, HY-28ULC
Product Options: All

**as described in the attached documentation is in conformity with the
Machinery Directive 89/392 as amended by the EC Directives 91/368 and 93/44**

Name: Joel Poganski
Position: Quality Assurance Manager

USA, 27 October 1994


Joel Poganski QA Manager