

RAPID-TORC INC.



RT & RTX SERIES OPERATIONAL AND SPARE PARTS MANUAL

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RT & RTX SERIES

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THANK YOU FOR BUYING RAPID-TORC !

You are now holding one of the best quality hydraulic torque wrench of the worldwide market.

The RAPID-TORC tool is born from a long experience in the bolting technology to make it the best of the worldwide market.

This manual is designed to provide you with the basic knowledge required to operate and maintain your RAPID-TORC tool. Please read this manual carefully and follow the instructions provided. If you have any questions regarding your RAPID-TORC tool, please call us directly at +32.2.358.19.33 or fax +32.2.358.50.66.

Finally, your purchase of this RAPID-TORC tool entitles you to the following FREE services:

- **Free on-site training in the application and operation of your RAPID-TORC equipment.**
- **Free engineering assistance.**
- **Free loaner tools in case of failure during the warranty.**

Your local RAPID-TORC distributor is informed of the delivery of your equipment. Should you require immediate training, please feel free to call us directly to arrange an appointment with you at your convenience.

Our partnership with APAVE gives you the opportunity to have special prices on training purposes with official certification after examen.

Again, thank you and welcome to RAPID-TORC!

World-wide Warranty

RAPID-TORC equipment is engineered to the latest technological standards and is accompanied by a 12-month warranty.

Sign for our special 3 years warranty contract! Contact us at +32.2.358.19.33 for more information.

If RAPID-TORC equipment cannot be repaired on site, FREE loaner equipment will be made available to you upon request*.

RAPID-TORC CORPORATION OR ITS DEALERS SHALL NOT BE LIABLE FOR LOSS OF PRODUCTS OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS INCURRED BY THE BUYER OR THE USER.



Section I

IMPORTANT SAFETY INSTRUCTIONS

WARNING: Your Rapid-Torc 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 before to use the equipment.**
- **KEEP WORK AREA CLEAN**
- **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 contact can cause sparks, precautions should be taken.
- **AVOID PREMATURE TOOL STARTING**
The Pump Remote Control is for the TOOL OPERATOR only. Avoid separate pump and tool operators.
- **STAY CLEAR DURING OPERATION**
In most cases, the tool will allow “hand-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 THE RIGHT TOOL**
Don't force small tools or attachments to do 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, hearing protection and other applicable clothing.
- **USE SAFETY GLASSES**
- **MOVING EQUIPMENT**
Do not use Hydraulic Hoses, Swivels, Pump power or remote cords as means of moving the equipment.



- **HOSES**

Do not kink hoses. Inspect and replace if damaged.

- **SHROUDS AND COVER PLATES**

All tools are equipped with shrouds and/or cover plates to cover up moving internal parts. Do not use tools without shrouds but contact your local Rapid-Torc office to fix.

- **MAINTAIN TOOLS WITH CARE**

For top performance, inspect tool, power pack, hoses, connectors, electric lines and accessories for visual damage, frequently. Always follow instructions for proper tool and pump maintenance. Refer to the Operations Maintenance Section for further clarification.

- **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. Verify that the hydraulic hoses are not kinked. Insure the square drive retainer is fully and securely engaged on the square drive. Secure the Impact Socket to the square drive. Use only High Quality Impact Sockets.

- **PRIOR TO USE**

Cycle tool to ensure proper function. Locate a solid, secure reaction point. Be sure the reaction arm lever is fully engaged. Be sure the hydraulic hoses are free of the reaction points. Pressurize the system for a test; 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 FORCE**

Do not hammer on socket or tool to enhance performance. If the nut will not turn with the wrench you are using, use a larger size Rapid-Torc tool.

- **REACTION ARM**

Proper reaction is required. Adjust reaction arm in the same direction than the square drive if possible. Avoid excessive play. In case of questions, consult with your local Rapid-Torc office



SECTION II

INSTRUCTIONS BEFORE USE

READ CAREFULLY: Most malfunctions in new equipment are the result of improper operation and/or set-up assembly.

PREPARATION: Remove Your Rapid-Torc Machine from shipping container.

INSPECTION: Visually inspect all components for shipping damage. If any damage is found, notify carrier immediately.

2-1

Working Pressure

The tool's maximum Working Pressure is 10,000 PSI (700 bar).

Make sure that all hydraulic equipments (pumps, hoses, couplers) used with this tool are rated for 10,000 PSI (700 bar) Working Pressure. Check if power pack you will use is not able to reach more than 10.000 PSI.

2-2

Hydraulic Connections

Rapid-Torc Hydraulic pumps are equipped with a zero-pressure relief valve.

However, it could be possible that the retract side remain pressurized after the pump has been switched "off". This trapped pressure makes impossible to loose the retract-side fittings by hand.

To release the pressure, simply push the black button on top of the solenoid. All fittings are free to be tight by hand again.

Never disconnect or connect any hydraulic hoses or fittings without first unloading the wrench and the pump. If the system includes a gauge, double check the gauge to assure pressure has been released.

When making connections with quick disconnect couplings, make sure the couplings are fully engaged.

Threaded connections such as fittings, gauges etc. must be clean and securely tightened and leak free.

CAUTION: Loose or improper threaded fittings can be potentially dangerous if pressurized. Severe over tightening can cause premature thread failure. Fittings need to be only tightened secure & leak free. Never grab, touch or in any way, come in contact with a hydraulic pressure leak. Escaping oil can penetrate the skin and cause injury.



2-3

Electrical connections

Ensure proper power availability to prevent motor failure or dangerous electrical overloading. Compare the motor nameplate for required amperage.

Do not use electric pump if ground is not connected on plug.

Minimize the length of extension cords and be sure they are of adequate wire size, with ground connections.

Extension cord should be #10 AWG gauge.

WARNING: Electric motors may spark. Do not operate in an explosive atmosphere or in the presence of conductive liquids. Use an air motor pump instead.

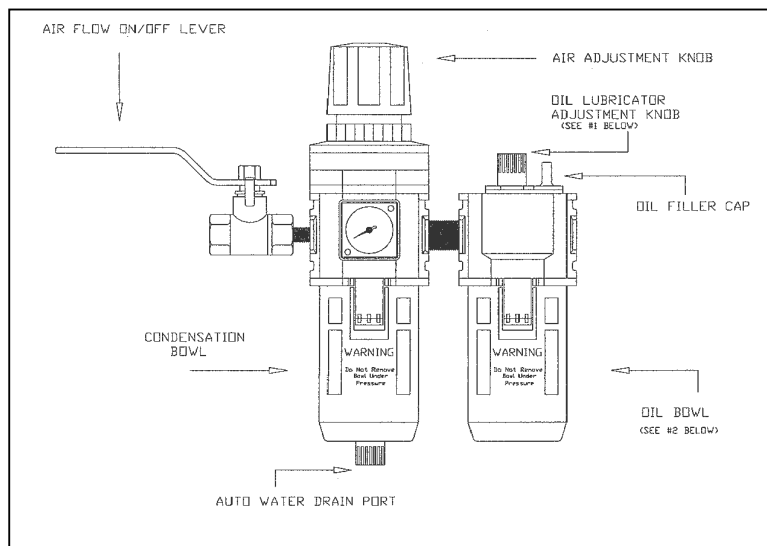
2-4

Air connections

Ensure that you have sufficient air flow (58 up to 100 PSI / 4 up to 7 bar) to operate your pneumatic pump. If in doubt, compare the pump manufacturer's recommended air flow rating prior to pressurizing pump.

Improper air flow may damage the pump motor. For best results use air hoses equal or larger than 3/4" internal diameter.

Use of a F.R.L. (Filter Regulator Lubricator) is highly recommended (Pictured below). Fill with oil and adjust the air admission with the adjustment knob.





SECTION III OPERATION

3-1

General

All Rapid-Torc Machines are supplied completely assembled, ready for use. A Rapid-Torc Hydraulic Power Pack, for use with your Rapid-Torc Machine, is recommended to provide the speed, pressure and portability that make your Rapid-Torc System efficient and accurate.

The Accuracy of your Rapid-Torc Machine is +/-3% based upon our manufacturer's specifications. This Accuracy is certified through calibration made by Rapid-Torc or made by any other qualified calibration facility whose program is traceable to the National Institute of Standards and Technology (N.I.S.T).

Using calibrated gauges enhances the accuracy of your Rapid-Torc System.

3-2

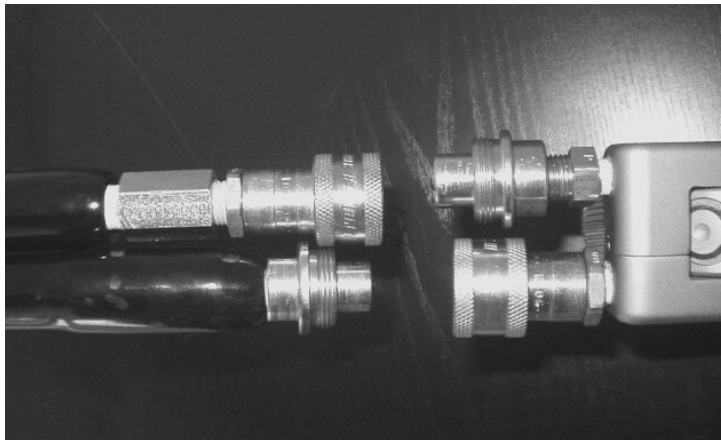
Connecting the System

The Rapid-Torc Machine and the Power Pack are connected by a 10,000 PSI (700 bar) operating pressure twinline hose assembly. The safety ratio of the Rapid-Torc Hydraulic Hose is 4/1. On each twin Hydraulic Hose, One line must be **MALE-MALE** and the other line must be **FEMALE-FEMALE** in order to assure a correct interconnection between Pump and Machine. The 10.000PSI (700 bar) High Pressure couplers on the Pump and on the Machine (see "A" on the swivel for Advance) are Male couplers. Others are Female couplers.

IMPORTANT

- **Never use two twin hydraulic hoses between Pump and Machine. If so, you have the high pressure on the retract side and your machine is no able to work properly**
- **To avoid tool malfunction, do not reverse connectors.**
- **Do not try to untight the swivel assembly at any moment**

Connect the twinline hose to the swivel as shown below:



Insure connectors are fully engaged and screwed snugly and completely together.

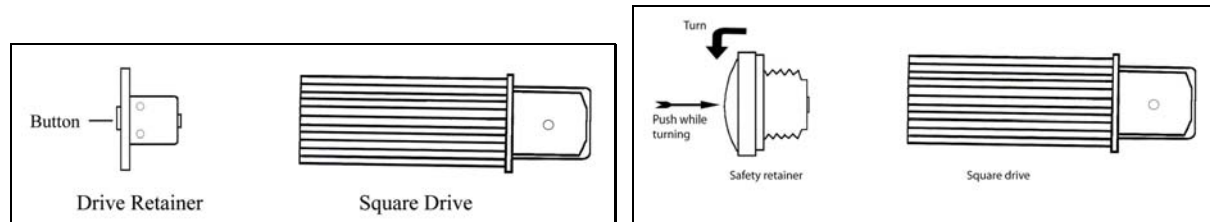


3-3

Operating the Rapid-Torc Square Drive Tool

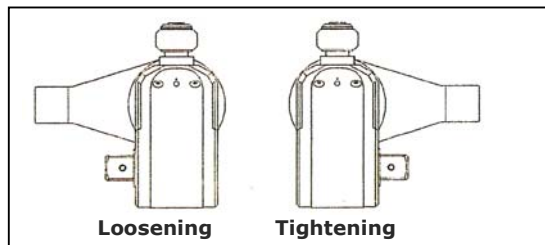
Drive Direction change

To remove the square drive, disengage the drive retainer assembly by depressing the centre round button and gently pulling on the square end of the square drive OR push on the drive retainer while turning it counter clockwise like a classic safety lid.



To insert the drive in the tool, place the drive in the desired direction, engage drive and bushing splines, then twist drive and bushing until ratchet Spline can be engaged. Push drive through ratchet.

Depress drive retainer button, engage retainer with drive and release button to lock or tight the Drive retainer into the drive until it is completely tightened.



The above diagram illustrates the direction the square drive should face
RIGHT = TIGHT LEFT = LOOSE

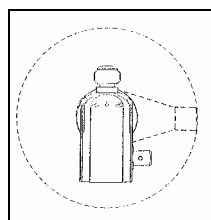
Reaction Arm

All Rapid-Torc Machines are equipped with a universal reaction arm. These reactions arms are employed to absorb and counteract forces created as the unit operates. The reaction arm should extend in the same direction of the square drive; however, slight adjustments may be made to suit your particular application.

The Rapid-Torc Reaction Arm is made of Special Aircraft Alloy and is 360 degree adjustable.

NOTE: The standard Rapid-Torc reaction arm cannot be welded on and should not be modified.

The reaction arm for all Rapid-Torc Monobloc Housing is splined to slide over the rear (cylinder) portion of the tool. In operation, the reaction arm must be fully engaged and secured by inserting the spring loaded reaction arm lever at the base of the housing (End Cap). Double check the full engagement.

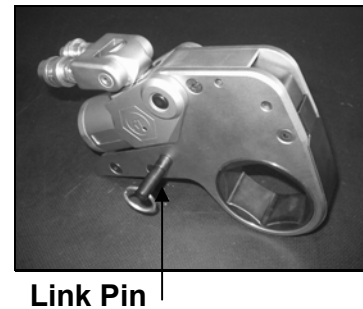
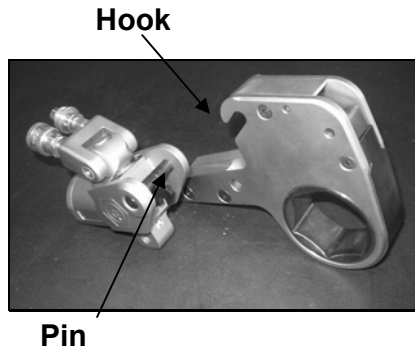


3-4

Operating the RTX Low Clearance Tool

Inserting the ratchet Link

The “hook” described by the link’s Side 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 hole of the power head and link will align. Insert the link pin to secure.



Torquing Procedures

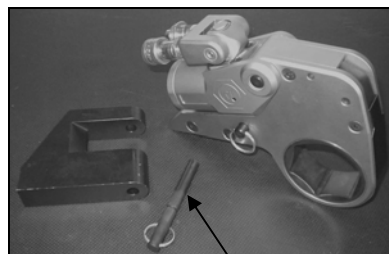
Select the appropriate size low clearance ratchet link and insert it into the tool.

Tool operation, bolt tightening and loosening, is the same than the square drive tool except for the use of the reaction arm. The RTX low clearance ratchet links are supplied complete with a long 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 the 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 with the holes of the short reaction arm with those 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.



Long Retaining pin



Ready for Use



3-5

Setting Torque

Once the system is fully connected and proper power supply available, it is time to adjust the pump pressure to the level needed on your job.

When tightening, use the manufacturer's specifications to determine the torque value which you will ultimately require.

Torque sequence may vary from plant to plant and even within individual plants, depending upon the gasket material, etc. Always abide by local procedures.

Next, find the pressure-torque conversion table applicable to the tool which you intend to use. A complete copy of the chart appears in appendix II.

An example of finding the desired torque required is as follows:

Assume you are going to use a Rapid-Torc tool to torque a 1-1/4" bolt to 1,265 ft lbs.

Start by going to the chart above and read left-to-right across the top line (Starts out **PSI and go to the right tool model** etc) Ex: RT-3

Read straight down to the number closest to 1,265 ft lbs, which in this case is 1,280-about 1.5% over the targeted torque value.

Now using 1,280 ft lbs, read back to the left on that same line and read the pump pressure, under the PSI column, 4,000PSI.

To be technically correct, you should diminish that 4,000PSI by 1.5% (to 3,940), but 1,280 is well within the tool's +/-3% accuracy range, so proceed to set 4,000PSI on your pump's regulator valve.

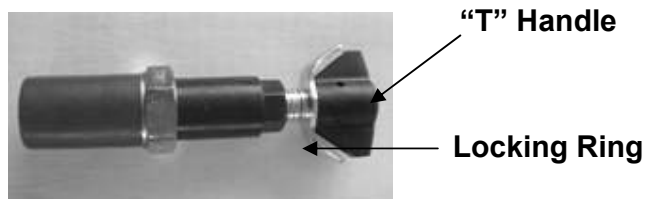
3-6 ***Setting the Pressure on the Pump***

To set the pressure on the pump, follow this procedure:

1. Loosen the knurled locking ring below the "T" handle on the pump's external pressure regulator. Then turn the "T" handle (shown in figure 6) counter clockwise (CCW) until it turns freely and easily.
2. Turn the pump "on". Using the pump's remote control pendant, push down the advance switch (or button on air pumps) and hold it.
3. While holding the pump in the advance mode, slowly turn the "T" handle clockwise and observe the pump pressure gauge rise.

**NOTE: Always adjust the regulator in order to increase the pressure up - Never down.
Never adjust the regulation with the tool on the application.**

4. When your gauge reaches 4,000 PSI stop turning the "T" handle and let the gauge settle out.
5. If the pressure continues to rise (above 4,000), release the advance button and back off your pressure slightly-by turning CCW on the "T" handle. Then re-depress the advance switch on you remote and slowly bring pressure up to 4,000 again.
6. When the pressure is correct, turn the pump "off" and tighten the knurled lock nut provided under the "T" handle. This sets pump pressure, which determines torque tool output.
7. Once your target pressure is set and locked, cycle the pump once more to ensure that your pressure setting did not change as you turned down the knurled knob.



3-7 ***Applying the Torque Machine- the Tightening Process***

1. Having set your target pressure, cycle the tool three or four times to full pressure. Cycling the tool ensures that the system is operating properly and removes trapped air, if any.
2. Place the proper size impact socket on the square drive and secure properly with a locking ring and pin.
3. Place the tool and the socket on the nut, making sure that the socket has fully engaged the nut. Further ensure that the drive retainer is engaged.
4. Make sure the reaction arm is firmly abutted against a stationary object (i.e. an adjacent nut, flange, equipment housing etc.)
5. When positioning the wrench, make sure that the hose connections are well clear of any obstructions and that all body parts are safely out of harm's way.
6. THEN, AND ONLY THEN, apply momentary pressure to the system to ensure proper tool placement. If it doesn't look or act right, stop and re-adjust the reaction arm.



3-8

Operating the Torque Machine

1. By pushing down on the remote control button in the advance position, the rear of the tool will be pushed back until its reaction arm will contact its reaction point.
2. Continue to hold down the button as the socket or ratchet link turns until you hear an audible "click" which will signify the hydraulic cylinder inside the tool is fully extended and will not turn the socket further.
3. Continuing to hold down the remote control button will result in a rapid buildup of pressure to the point of where the gauge reads what was preset prior to applying the wrench.

IMPORTANT: The reading of full preset pressure after the cylinder is extended DOES NOT INDICATE that this pressure (torque) is applied to the bolt. It only indicates that the cylinder is fully extended and cannot turn the socket or the ratche link further until the tool automatically resets itself.

Releasing the remote control button will retract the cylinder. 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 Torque/PSI with an accuracy of +/-3%. Repeatability is +/-1%.

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 accuracy assurance pawl lever(RT) or reaction Pawl(RTX). Releasing the remote control while continuing to hold back on the pawl lever/reaction pawl will allow the tool to be removed easily.

Use of the automatic system is only recommended after Point 3.6, 3.7 and 3.8 have been respected. With an Automatic Pump, cycle the tool one more time without automatic to check the final torque.

3-9

Loosening Procedures

First, set the pump to 9,000 PSI (Do not try directly at 10.000 PSI). Change the drive and the reaction arm to the loosening mode (Left = Loose), assuring the reaction arm abuts squarely off a solid reaction point. Press and hold the remote control button down. Pressure will decrease as the socket begins to turn. As the cylinder extends fully, you will hear an audible "click". Release the remote control button, and the cylinder automatically retracts, at this 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 WITH THE ABOVE PROCEDURE, IT IS AN INDICATION THAT YOU REQUIRE THE NEXT LARGER SIZE TOOL TO LOOSEN THE BOLT.



SECTION IV

RAPID-TORC POWER PACKS

4-1

General Information

All Rapid-Torc 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 speed. Before using your Rapid-Torc power pack, check the following points.

- Is the reservoir filled with oil?
- Where is the closest electrical outlet at the job site?
- Is there enough air pressure (60 to 100 PSI) and Air flow at the job site? (Air units only)?
- Is the gauge mounted and rated for 10,000 PSI/700 bar ?

4-2

Working Pressure

The pump's maximum working pressure is 10,000 PSI / 700bar. Make sure all hydraulic equipment and accessories are rated for 10,000 PSI / 700bar operating pressure.

4-3

Hydraulic Connections

Never disconnect or connect hydraulic hoses or fittings without first unloading the wrench. Unplug the electrical cord of the pump, and open all hydraulic controls several times to assure that the system has been depressurized. If the system includes a gauge, double check the gauge to assure pressure has been released.

When making a connection with quick disconnect couplings, make sure the couplings are fully engaged threaded connections such a fittings, gauges etc. must be clean and securely tightened and leak free.

CAUTION: Loose or improperly threaded couplers can be potentially dangerous if pressurized, however, severe over tightening can cause premature thread failure. Fittings need to be only tightened secure and leak free. Never grab, touch or in any way come in contact with a hydraulic pressure leak. Escaping oil can penetrate the skin and cause injury. Do not subject the hose and potential hazard such as sharp surfaces, extreme heat or heavy impact. Do not allow the hose to kink and twist. Inspect the hose for wear before it is used.



4-4

Electrical Power

1. CHECK FOR PROPER ELECTRICAL SUPPLY BEFORE CONNECTING.
2. THIS MOTOR MAY SPARK. DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE OR IN PRESENCE OF CONDUCTIVE LIQUIDS.
 - a. Do not use a power or extension cord that is damaged or has exposed wiring.
 - b. All single phase motors come equipped with a three prong grounding type plug to fit the proper grounded type electrical outlet. Do not use a two prong ungrounded extension cord as the pump's motor must be grounded.
3. Compare motor nameplate against power availability to prevent motor burnout or dangerous electrical overloading.

4-5

Prior to Use

Check hydraulic oil (Use Grade 46) level to prevent possible pump burnout. Open the filler plug located on the reservoir plate. Look at oil fill level on the oil sight gauge. The oil level should be approximately 2" from the top of the reservoir plate- with motor off. Add Rapid-Torc oil as necessary. Do not mix different grades of oil.

Make sure all desired gauge, valve, hose and quick coupler connections are tight and secure before operating.

The use of a pressure gauge is required for normal pump operation. Mounted on the manifold, the gauge permits the operator to monitor the load on the wrench. 1.0% calibrated gauges are available for most applications.

4-6

Operation

Before starting your Electric Panther Pump, connect your hydraulic hoses to both the pump and torque wrench. To start the pump, press briefly the white button on the remote control. This will start your pump and place it in the retract position

Push the white switch to advance and release.

NOTE: Read the section labelled RAPID-TORC OPERATION and SETTING TORQUE prior to installing the torque wrench onto the application

Your Rapid-Torc Panther hydraulic pump has been designed with an auto shut off system. The pump will shut off after approximately 1 minute of non-cycling. This will prevent overheating and unnecessary wear which will prolong the life of your pump.

PANTHER Pump with an **Automatic system**: To run the automatic, simply keep pushing the blue button until you reach the final pressure.

NOTE: Do not use the automatic button to set the pressure.



SECTION V

PREVENTIVE MAINTENANCE

5-1

Preventive Maintenance -Torque machines

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

- **Lubrication**

All moving parts should periodically be coated with a good quality lubricant as Molykote with Graphite P37 or Dow Corning 1000. Under harsh environmental conditions, cleaning and lubricating should be performed more frequently. Warning: Sea Water is very corrosive.

- **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. *Hydraulic hoses have to wear a valid control certification.*

- **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.

- **Springs**

Springs are used for the drive pawl assembly and for the accuracy assurance pawl. These springs can be replaced if necessary.

- **Cylinder Seals**

If the cylinder requires disassembly, it is recommended that the cylinder seals be replaced at the same time. Seal kits are readily available.

- **Structural Member**

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.



5-2

Preventive Maintenance- Hydraulic Power Pack

Rapid-Torc Hydraulic Power Packs are precision-built units and, as such, do require a certain amount of care and maintenance

- **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 as grade 46.

- **Quick-Disconnects**

Fittings should be checked periodically for leaks. Dirt or foreign materials should be kept away from fittings. Clean before use.

- **Hydraulic Gauge**

Some 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 it should be discarded.

- **Filter on Pump**

The filter should be replaced twice a year in normal use and more often if the pump is used daily or in a dirty, harsh environment.

- **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. (Electric Unit) The switch buttons should be checked periodically if any indications of problems exist.

- **Air Valve**

This valve should be checked twice a year.

- **Armature**

(Electric Unit) Check yearly.

- **Pumping unit**

The pump should be overhauled every 2 years. This can be done by Rapid-Torc or by a qualified hydraulic service center.



SECTION VI

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REQUIRED ACTION
Gauge shows pressure build-up but the tool will not cycle.	<ol style="list-style-type: none">1. Couplings loose or inoperative.2. Solenoid inoperative.	<ol style="list-style-type: none">1. Tighten and/or replace couplings. Use Test #1 listed below to isolate problem.2. Check using test #2 below. If solenoid is bad, replace.
Cylinder will not retract.	<ol style="list-style-type: none">1. See above.2. Voltage to electric pump is too low to line drop or inadequate amperage is available.3. Linkage between piston rod and drive pawl are broken.	<ol style="list-style-type: none">1. See above.2. Get shorter extension cord or upgrade to 12AWG, 25 amp rating or better. If shop power is adequate, draw power from welding machine or cal rod transformer.3. Replace parts as necessary.
Cylinder pressure will not build.	<ol style="list-style-type: none">1. Oil blow by in tool (Piston seal leak, blown O-ring, cracked piston)2. Pump Problem.	<ol style="list-style-type: none">1. Replace defective parts. SHOP JOB2. Remove screws from pump motor to reservoir, slide pump motor to the back while keeping pistons into oil. Turn pump on. If you have no oil coming out from the solenoid tube, change the solenoid.2A. Tight the regulating valve to maximum, Push on the advance button and while holding down, look if any oil is coming out from the regulating tube. If oil is coming out, change the regulating valve.2B. If pump sounds like a lot of pebbles in a tin can, the problem may be a worn motor coupling-remove motor from base plate-using a pair of needle nose pliers removes the motor coupling-if worn replace. SHOP JOB.2C. AIR PUMP-Fault FLR due to excessive moisture and/or dirt in air supply. Disassemble and change. SHOP JOB.2D. Air pumps- Faulty remote control valve cartridge. Replace.



SYMPTOM	PROBABLE CAUSE	REQUIRED ACTION
Cylinder/tool leaks.	<ol style="list-style-type: none"> 1. Safety relief valve on swivel has lifted. 2. Blown O-ring in cylinder. 3. Defective gland seal. 	<ol style="list-style-type: none"> 1A Tighten all hose and couplers. If leak continues, adjust safety setting-Test#4. 1B Check to see if the system is properly plumbed by running test #5 (high pressure on retract side will lift the safety relief valve). 2. Replace O-Ring with proper high pressure O-Ring. SHOP JOB. 3. Replace gland seal. SHOP JOB.
Tool operates backwards.	<ol style="list-style-type: none"> 1. Couplings reversed. 2. Multiple hoses in even numbers. 	<ol style="list-style-type: none"> 1. Run test #5. Replumb system as necessary. 2. As plumbed, Rapid-Torc hoses may only be joined together in odd numbers ONLY. If it is necessary to use 2, 4, 6 hoses-make an adapter from spare high pressure couplings and nipples.
Ratchet returns with retract stroke.	<ol style="list-style-type: none"> 1. Broken or otherwise inoperable reaction pawl. 	<ol style="list-style-type: none"> 1. Replace reaction pawl and/or spring SHOP JOB.
Ratchet will not take successive strokes.	<ol style="list-style-type: none"> 1. Broken or otherwise inoperative drive pawl or spring. 2. Cylinder not retracting completely. 3. Linkage between piston rod and drive plates is broken. 	<ol style="list-style-type: none"> 1. Replace drive pawl and/or spring. SHOP JOB. 2. Remove tool from nut and cycle freely for several strokes. If problem persists, check pawls. 2A Operator not allowing adequate time for cylinder to retract fully 3. Replace parts as necessary –SHOP JOB.
Tool locks onto nut.	<ol style="list-style-type: none"> 1. Reaction pawl is loaded when the tool is max'd out in torque. 2. Tool is operating backwards. 3. Tool is wedged under a fixed object. 	<ol style="list-style-type: none"> 1. Press advance button on remote and build pressure- continue to press down on remote while pulling back on one of the accuracy assurance levers- release remote while continuing to hold back on levers. 2. Push advance button down-tool should immediately fall free- Run test #5. 3. Remove shroud from around ratchet. Using any tool available, try the drive pawl out of the ratchet and at the same time pull back on the accuracy assurance levers. Tool should swing free or burn away the socket or obstruction.



SYMPTOM	PROBABLE CAUSE	REQUIRED ACTION
Gauge records no pressure.	1. Gauge connection is loose. 2. Bad gauge. 3. Pump will not build pressure. 4. Tools seals are blown.	1. Tighten coupling. 2. Replace gauge. 3. See cylinder will not build pressure-above. 4. Replace defective seals. SHOP JOB.
Pump will not build pressure.	1. Air Electric supply is low. 2. Defective relief or regulator valve. 3. Low oil or clogged filter. 4. Internal leak in oil line from external relief valve to pump body. 5. Defect Solenoid or regulating valve.	1. Check air pressure or voltage. 2. Replace valve. SHOP JOB. 3. Fill reservoir and clean filter. 4. Open reservoir, inspect oil line while trying to build pressure- if leaking tighten fittings or replace. 5. See "Cylinder will not build pressure-#2 above"
Motor sluggish and inefficient "sounds sick" slow to build pressure.	1. Air or electric supply is low. 2. Clogged filter.	1. See #1 in preceding block 2. Clean or replace filter
Pump heats up.	1. Improper use. 2. Remote control is left in "on" position when pump is not actively in use.	1. Operator is continuing to hold down on the advance stroke after the cylinder has reached end of stroke- this causes a lot of oil to go through a very small hole in relief-valve- causing heat build-up. Have operator release advance stroke after accuracy assurance levers spring forward. 2. Turn pump off whenever not actually being used. DO NOT leave pump running when tool is not in use.
Hose or tool fitting is damaged or leaks.	1. Broken or melted plastic outer covering. 2. Frayed Kevlar or steel strands. 3. Oil leaks through fibres. 4. Broken fittings.	1. If underlying Kevlar or steel is still intact continue operation. Inspect frequently. 2. Cut hose in half and discard. Replace hose. 3. Cut hose in half and discard. Replace hose. 4. Remove old fitting and replace with STEEL high pressure fittings only. After changing fittings, always run test #5 to insure proper plumbing.
Electric pump will not run.	1. Loose electric connections in control box. 2. Motor burned up. 3. Fuse	1. Open control box and visually inspect for loose threaded or push-on connectors. 2. Replace motor components whichever is necessary. SHOP JOB. 3. Change defect fuse



TEST #1

Attach hoses to pump and tool in the normal manner. Press the advance button and hold it down. If the pump pressure builds and the hoses "flex" but the tool still refuses to cycle, the problem is most likely a loose or defective coupling connection. To find out where the bad coupling is, remove the tool from the hoses and marry the loose ends together and cycle the pump. If the gauge pressure reads no more than 500 PSI, then the bad fitting is on the tool. A significantly greater pressure indicates that the problem is in either the pump or a hose fitting.

TEST #2

Remove screws from pump motor to reservoir, slide pump motor to the back while keeping pistons into oil. Turn pump on. If you have no oil coming out from the solenoid tube, change the solenoid.

Tight the regulating valve to maximum, Push on the advance button and while holding down, look if any oil is coming out from the regulating tube. If oil is coming out, change the regulating valve.

TEST #3

Remove tool from hoses. Cycle pump. If pump fails to build pressure, the problem is with the pump. If it does build pressure, the problem is with hydraulic blow-by in the tool.

TEST #4

Connect tool, pump and hoses together normally and turn pump "on". As oil leaks from the small port under the swivel, use a proper size Allen wrench and slowly tighten (clockwise) the set screw positioned between the couplings on the swivel. Continue to tighten until the flow stops plus a quarter turn.

TEST #5

THIS TEST SHOULD BE RUN PRIOR TO EVERY USE OF A RAPID-TORC TOOL.

Connect the tool, pump and hoses together as normal. Cycle the pump several times. Cycle the system once more and observe the sequence of operation. As you depress the advance button, the tool drive shroud turn about 24 degrees and you should hear an audible "click". On square drive tools, you will also notice that the accuracy assurance levers will move to the rear of the tool and spring forward. At this point, release the advance button. You should see no further movement and after a moment you will hear another audible "click". This is how the tools are designed to operate. If you observe any other sequence of operation, the system is out of order and cannot deliver more than 10% of its designed capacity. Take immediate corrective action. For reference, tools and pumps are designed from the factory plumbed as follows. This ensures that the tool, pump and ONE hose cannot possibly be connected up incorrectly.

Tool Advance Side- Male

Retract Side- Female

Hose Advance Side- Female to Female

Retract Side-Male to Male

Pump Advance Side- Male

Retract Side- Female

Note that connecting two (or any even numbers) of hoses together creates "one" hose which is plumbed backwards! Male to Female and Female to Male. This will cause the system to operate backwards per Test #5 above. If your hose isn't long enough, connect 3 hoses together, move your pump or call RAPID-TORC for a longer hose assembly.



SECTION VII

DISASSEMBLY

RT SQUARE DRIVE TOOL

1. Make sure the tool is fully retracted.
2. Remove the reaction arm.
3. Remove shroud by removing the two button head cap screws at the base of the housing. Unhook the spring.
4. Remove square drive (#5) by pressing the drive retainer while unscrew it or pressing center button of drive retainer (#11) while pulling square drive out of tool.
5. Remove the 2 square drive sleeves (#8). Remove retaining rings on outside of edge of drive sleeve and slide drive sleeves out.
6. Carefully remove Access Plugs (#48) to uncover housing access holes.
7. Line up rod pin (#19) with access holes in housing and punch rod pin through housing.
8. Remove ratchet(#6), 2 drive plates(#4), and drive pawl assembly (#63)
9. Remove screw from each lever (#15), and pull levers out of housing.
10. Remove the reaction pawl (#10) along with the reaction pawl spring (#18).
11. Using our special spanner tool, unscrew the cylinder end cap.(#26)
12. Remove the piston rod assembly which consists of parts (17, 24, 25, 29) by tapping connector rod (#17) with a punch and a hammer through the cylinder.

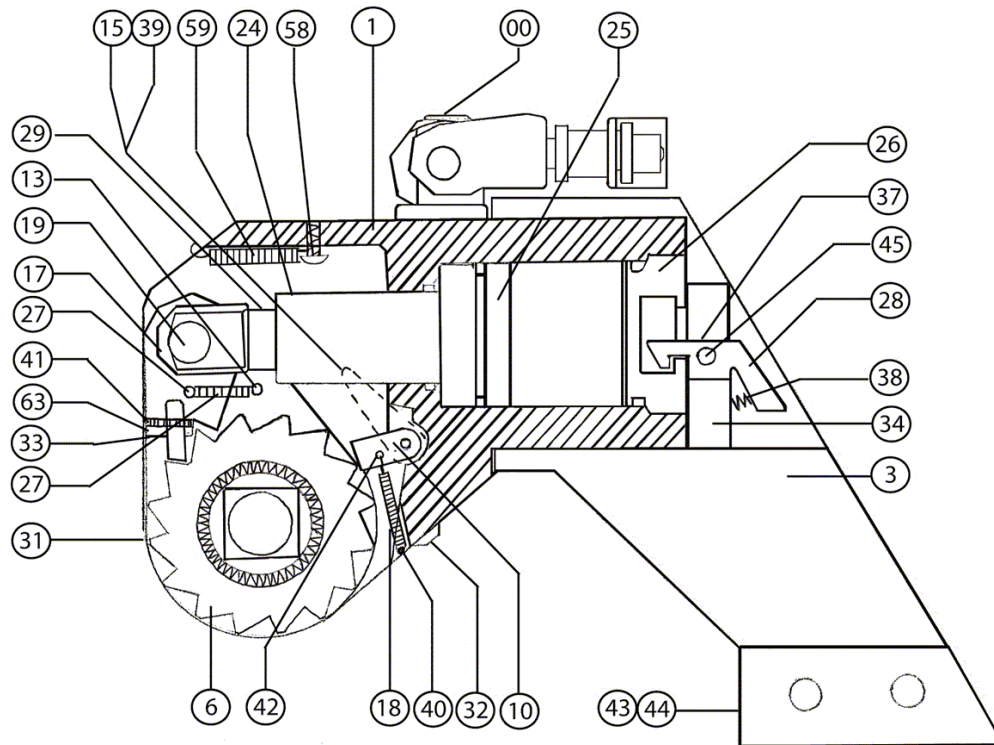
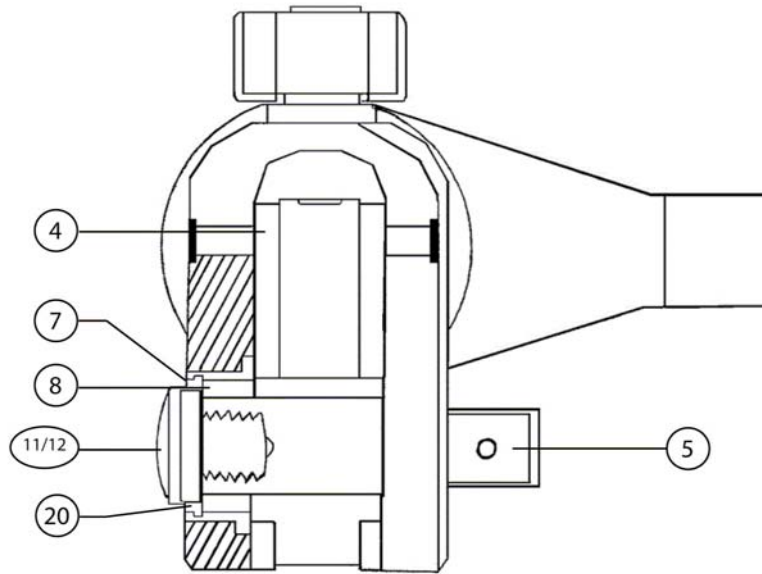
RTX LOW CLEARANCE TOOL

1. Make sure the tool is fully retracted.
2. Remove the ratchet link.
3. Remove shroud by removing the two button head cap screws at the base of the housing. Unhook the superior part of the shroud.
4. Remove the 4 screws on each side of the ratchet link. Remove the two side plates.
5. Remove the reaction paw (#10, 3 & 4)
6. Remove ratchet (#16), 2 drive plates (#9) and drive pawl assy. (#13, 14, 15, 17, 18, 19 & 24)
7. Remove the 8 end cap bolts (#26) and remove the End cap (#2).
8. Unscrew the rod end (#5).
9. Remove the piston rod assembly which consists of parts (3 &4) by tapping the piston rod (#4) with a punch and a hammer through the cylinder.

Note: For assembly, follow the instructions in reverse. Be sure to properly lubricate all components prior to use.



RT TOOL SCHEMATIC





RT TOOL PARTS LIST

# N°	DESCRIPTION	RT1	RT3	RT5	RT8
1	Housing	RT1-1	RT3-1	RT5-1	RT8-1
3	Reaction Arm Assembly	RT1-3	RT3-3	RT5-3	RT8-3
4	Drive Plate	RT1-4	RT3-4	RT5-4	RT8-4
5	Square Drive	RT1-5	RT3-6	RT5-5	RT8-5
6	Ratchet Spline	RT1-6	RT3-6	RT5-6	RT8-6
7	Drive bushing (2)	RT1-7	RT3-7	RT5-7	RT8-8
8	Drive Sleeve Spline (2)	RT1-8	RT3-8	RT5-8	RT8-8
10	Reaction Pawl	RT1-10	RT3-10	RT5-10	RT8-10
11	Drive Retainer	RT1-11	RT3-11	RT5-11	RT8-11
13	Drive Plate Roll Pin	RT1-13	RT3-13	RT5-13	RT8-13
15	Disengagement Lever w/ screws	RT1-15	RT3-15	RT5-15	RT8-15
17	Piston Rod End	RT1-17	RT3-17	RT5-17	RT8-17
18	Reaction Pawl Spring + roll pin	RT1-18	RT3-18	RT5-18	RT8-18
19	Rod End Pin	RT1-19	RT3-19	RT5-19	RT8-19
20	Drive sleeve Retaining Ring	RT3-20	RT3-20	RT5-20	RT8-20
24	Piston Sleeve with seal	RT1-24	RT3-24	RT5-24	RT8-24
25	Piston with Seal	RT1-25	RT3-25	RT5-25	RT8-25
26	Cylinder End Cap	RT1-26	RT3-26	RT5-26	RT8-26
27	Drive Pawl Spring (2)	RT1-27	RT3-27	RT5-27	RT8-27
28	Reaction Arm Lever	RT1-28	RT3-28	RT5-28	RT8-28
29	Piston Rod	RT1-29	RT3-29	RT5-29	RT8-29
31	Shroud	RT1-31	RT3-31	RT5-31	RT8-31
32	Shroud screws (2)	RT1-32	RT3-32	RT5-32	RT8-32
33	Secondary Drive Pawl spring	RT1-33	RT3-33	RT5-33	RT8-33
34	Reaction arm Plate	RT1-34	RT3-34	RT5-34	RT8-34
37	Reaction Arm Plate Screws (2)	RT1-37	RT3-37	RT5-37	RT8-37
38	Reaction Arm Lever Spring	RT1-38	RT3-38	RT5-38	RT8-38
39	Disengagement Lever Screw	RT1-39	RT3-39	RT5-39	RT8-39
40	Primary Drive Pawl Roll Pin	RT1-40	RT3-40	RT5-40	RT8-40
41	Secondary Drive Pawl Pin	RT1-41	RT3-41	RT5-41	RT8-41
42	Reaction Pawl Roll Pin	RT1-42	RT3-42	RT5-42	RT8-42
43	Reaction Arm Boot with Pins	RT1-43	RT3-43	RT5-43	RT8-43
44	Reaction Arm Boot Pin (2)	RT1-44	RT3-44	RT5-44	RT8-44
45	Reaction Arm Lever Pin	RT1-45	RT3-45	RT5-45	RT8-45
48	Access Plug (2)	RT1-48	RT3-48	RT5-48	RT8-48
58	Shroud Spring Screw	RT1-58	RT3-58	RT5-58	RT8-58
59	Shroud Spring	RT1-59	RT3-59	RT5-59	RT8-59
61	Piston Rod Assembly	RT1-61	RT3-61	RT5-61	RT8-61
62	Housing Seal Kit	RT1-62	RT3-62	RT5-62	RT8-62
63	Drive Pawl Assembly	RT1-63	RT3-63	RT5-63	RT8-63
00	Swivel Assembly	RT1-00	RT3-00	RT5-00	RT8-00
SK	Swivel Seal Kit	RT1-SK	RT3-SK	RT5-SK	RT8-SK

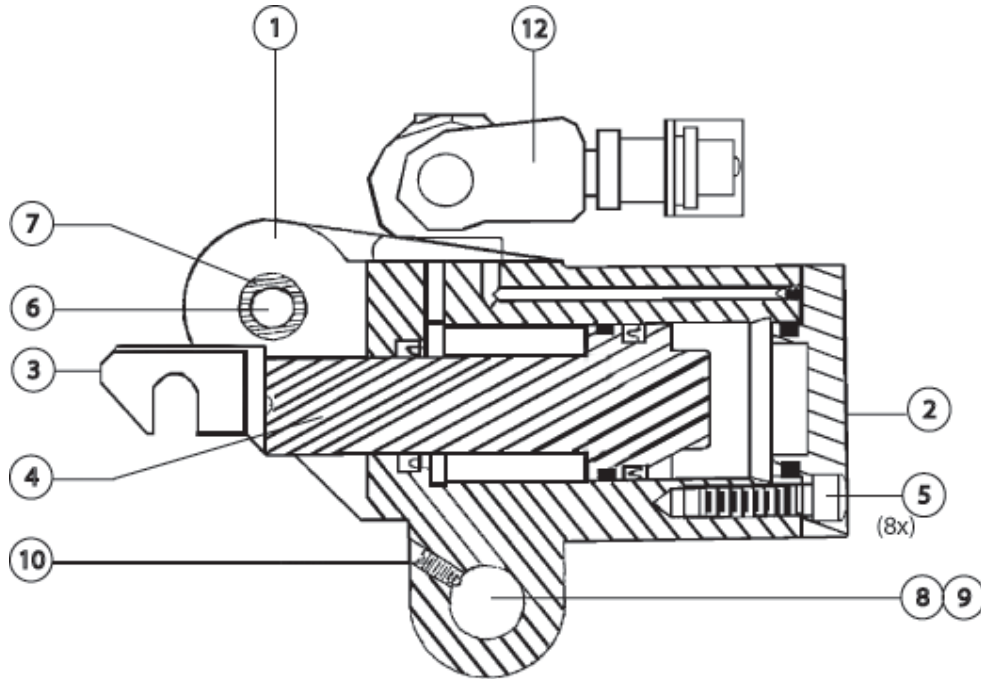


RT TOOL PARTS LIST

# N°	DESCRIPTION	RT10	RT20	RT25
1	Housing	RT10-1	RT20-1	RT25-1
3	Reaction Arm Assembly	RT10-3	RT20-3	RT25-3
4	Drive Plate	RT10-4	RT20-4	RT25-4
5	Square Drive	RT10-5	RT20-5	RT25-5
6	Ratchet Spline	RT10-6	RT20-6	RT25-6
7	Drive bushing (2)	RT10-7	RT20-7	RT25-7
8	Drive Sleeve Spline (2)	RT10-8	RT20-8	RT25-8
10	Reaction Pawl	RT10-10	RT20-10	RT25-10
11	Drive Retainer	RT10-11	RT20-11	RT25-11
13	Drive Plate Roll Pin	RT10-13	RT20-13	RT25-13
15	Disengagement Lever w/ screws	RT10-15	RT20-15	RT25-15
17	Piston Rod Connector	RT10-17	RT20-17	RT25-17
18	Reaction Pawl Spring	RT10-18	RT20-18	RT25-18
19	Rod End Pin	RT10-19	RT20-19	RT25-19
20	Drive sleeve Retaining Ring	RT10-20	RT20-20	RT25-20
24	Piston Sleeve with seal	RT10-24	RT20-24	RT25-24
25	Piston with Seal	RT10-25	RT20-25	RT25-25
26	Cylinder End Cap	RT10-26	RT20-26	RT25-26
27	Drive Pawl Spring (2)	RT10-27	RT20-27	RT25-27
28	Reaction Arm Lever	RT10-28	RT20-28	RT25-28
29	Piston Rod	RT10-29	RT20-29	RT25-29
31	Shroud	RT10-31	RT20-31	RT25-31
32	Shroud screws (2)	RT10-32	RT20-32	RT25-32
33	Secondary Drive Pawl spring	RT10-33	RT20-33	RT25-33
34	Reaction arm Plate	RT10-34	RT20-34	RT25-34
37	Reaction Arm Plate Screws (2)	RT10-37	RT20-37	RT25-37
38	Reaction Arm Lever Spring	RT10-38	RT20-38	RT25-38
39	Disengagement Lever Screw	RT10-39	RT20-39	RT25-39
40	Primary Drive Pawl Roll Pin	RT10-40	RT20-40	RT25-40
41	Secondary Drive Pawl Pin	RT10-41	RT20-41	RT25-41
42	Reaction Pawl Roll Pin	RT10-42	RT20-42	RT25-42
43	Reaction Arm Boot with Pins	RT10-43	RT20-43	RT25-43
44	Reaction Arm Boot Pin (2)	RT10-44	RT20-44	RT25-44
45	Reaction Arm Lever Pin	RT10-45	RT20-45	RT25-45
48	Access Plug (2)	RT10-48	RT20-48	RT25-48
58	Shroud Spring Screw	RT10-58	RT20-58	RT25-58
59	Shroud Spring	RT10-59	RT20-59	RT25-59
61	Piston Rod Assembly	RT10-61	RT20-61	RT25-61
62	Housing Seal Kit	RT10-62	RT20-62	RT25-62
63	Drive Pawl Assembly	RT10-63	RT20-63	RT25-63
00	Swivel Assembly	RT10-00	RT20-00	RT25-00
SK	Swivel Seal Kit	RT10-SK	RT20-SK	RT25-SK



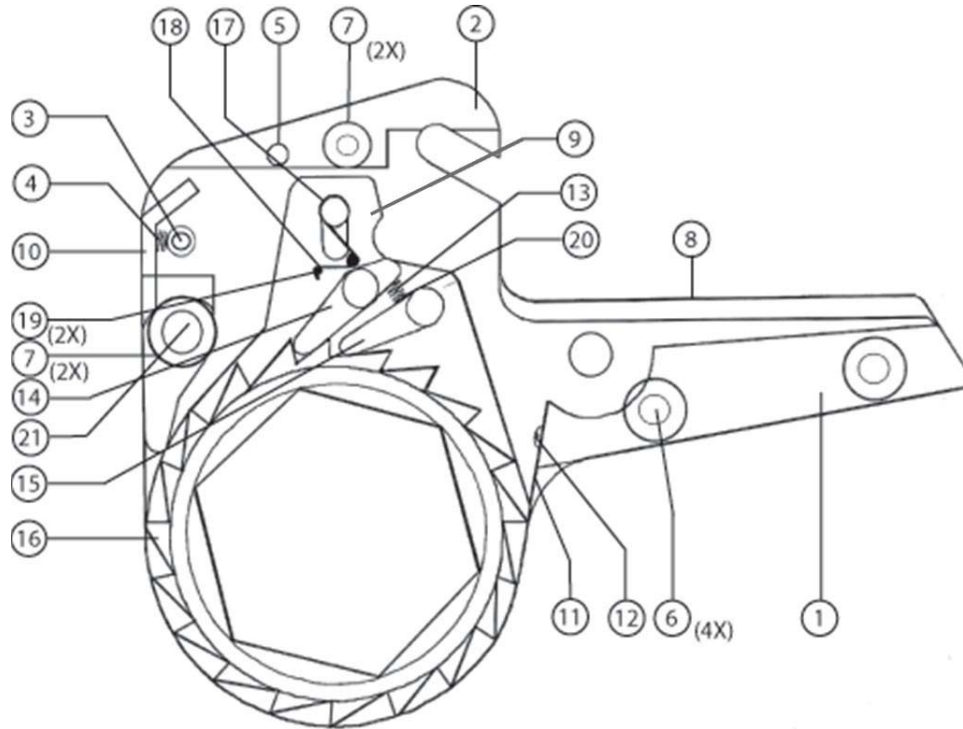
RTX TOOL PARTS LIST



# N°	DESCRIPTION	RTX-2	RTX-4	RTX-8	RTX-14	RTX-18	RTX-30
1	Housing	RTX-2-01	RTX-4-01	RTX-8-01	RTX-14-01	RTX-18-01	RTX-30-01
2	End cap	RTX-2-02	RTX-4-02	RTX-8-02	RTX-14-02	RTX-18-02	RTX-30-02
3	Rod End	RTX-2-05	RTX-4-05	RTX-8-05	RTX-14-05	RTX-18-05	RTX-30-05
4	Piston Rod Assy	RTX-2-06	RTX-4-06	RTX-8-06	RTX-14-06	RTX-18-06	RTX-30-06
5	Cylinder end cap screws	RTX-2-07	RTX-4-07	RTX-8-07	RTX-14-07	RTX-18-07	RTX-30-07
6	Fixed Upper Pin	RTX-2-08	RTX-4-08	RTX-8-08	RTX-14-08	RTX-18-08	RTX-30-08
7	Fixed Upper pin ring (2)	RTX-2-09	RTX-4-09	RTX-8-09	RTX-14-09	RTX-18-09	RTX-30-09
8	Link Pin Short	RTX-2-10	RTX-4-10	RTX-8-10	RTX-14-10	RTX-18-10	RTX-30-10
9	Link Pin Long	RTX-2-11	RTX-4-11	RTX-8-11	RTX-14-11	RTX-18-11	RTX-30-11
10	Link Pin Retainer	RTX-2-12	RTX-4-12	RTX-8-12	RTX-14-12	RTX-18-12	RTX-30-12
11	Housing Seal kit	RTX-2-13	RTX-4-13	RTX-8-13	RTX-14-13	RTX-18-13	RTX-30-13
12	Swivel Assy 180 X 360	RTX-2-62	RTX-4-62	RTX-8-62	RTX-14-62	RTX-18-62	RTX-30-62
13	Swivel seal kit	RTX-2-63	RTX-4-63	RTX-8-63	RTX-14-63	RTX-18-63	RTX-30-63



RTX LINK PARTS LIST



# N°	DESCRIPTION	RTX-2	RTX-4	RTX-8	RTX-14	RTX-18	RTX-30
1	Reaction Block Spacer	RTX-2-45	RTX-4-45	RTX-8-45	RTX-14-45	RTX-18-45	RTX-30-45
2	Top Spacer	RTX-2-46	RTX-4-46	RTX-8-46	RTX-14-46	RTX-18-46	RTX-30-46
3	Reaction Pawl Spring spacer	RTX-2-47	RTX-4-47	RTX-8-47	RTX-14-47	RTX-18-47	RTX-30-47
4	Reaction Pawl Spring	RTX-2-37	RTX-4-37	RTX-8-37	RTX-14-37	RTX-18-37	RTX-30-37
5	Side Plate roll Pin	RTX-2-48	RTX-4-48	RTX-8-48	RTX-14-48	RTX-18-48	RTX-30-48
6	Side plate Screw Bottom (4)	RTX-2-50	RTX-4-50	RTX-8-50	RTX-14-50	RTX-18-50	RTX-30-50
7	Side Plate Screw Top (4)	RTX-2-51	RTX-4-51	RTX-8-51	RTX-14-51	RTX-18-51	RTX-30-51
8	Side Plate (Left or Right)	RTX-2-52 #	RTX-4-54 #	RTX-8-52 #	RTX-14-52 #	RTX-18-52 #	RTX-30-52 #
9	Drive Plate (Left or Right)	RTX-2-35 #	RTX-4-35 #	RTX-8-35 #	RTX-14-35 #	RTX-18-35 #	RTX-30-35 #
10	Reaction pawl	RTX-2-36 #	RTX-4-36 #	RTX-8-36 #	RTX-14-36 #	RTX-18-36 #	RTX-30-36 #
11	Shroud	RTX-2-43 #	RTX-4-43 #	RTX-8-43 #	RTX-14-43 #	RTX-18-43 #	RTX-30-43 #
12	Shroud Screw	RTX-2-44	RTX-4-44	RTX-8-44	RTX-14-44	RTX-18-44	RTX-30-44
13	Drive Pawl Spring	RTX-2-27	RTX-4-27	RTX-8-27	RTX-14-27	RTX-18-27	RTX-30-27
14	Drive Pawl Primary	RTX-2-22	RTX-4-22	RTX-8-22	RTX-14-22	RTX-18-22	RTX-30-22
15	Drive Pawl Secondary	RTX-2-23	RTX-4-23	RTX-8-23	RTX-14-23	RTX-18-23	RTX-30-23
16	Ratchet	RTX-2-28	RTX-4-28	RTX-8-28	RTX-14-28	RTX-18-28	RTX-30-28
17	Drive Pin	RTX-2-33	RTX-4-33	RTX-8-33	RTX-14-33	RTX-18-33	RTX-30-33
18	Drive Pin Spring	RTX-2-34	RTX-4-34	RTX-8-34	RTX-14-34	RTX-18-34	RTX-30-34
19	Drive Spring Roll Pin	RTX-2-32	RTX-4-32	RTX-8-32	RTX-14-32	RTX-18-32	RTX-30-32
20	Spring Seat	RTX-2-49	RTX-4-49	RTX-8-49	RTX-14-49	RTX-18-49	RTX-30-49
21	Reaction Pawl Pin	RTX-2-99	RTX-4-99	RTX-8-99	RTX-14-99	RTX-18-99	RTX-30-99



SQUARE / ALLEN DRIVE WORKING TORQUE

DRIVE SIZE: The square or hex drive of each RAPID-TORC is limited in its maximum output by its material and its engagement area. Since your RAPID-TORC uses a specially suited alloy-steel for its drive members, the following maximum torque output can be achieved without drive failure, provided the reaction member abuts close to the same plane as the nut to be turned.

<u>DRIVE SIZE</u>			<u>MAX. WORKING TORQUE</u>		<u>PROBABLE FAILURE</u>	
12mm	5/8"	Allen	350 ft./lbs.	470 Nm	380 ft./lbs.	510 Nm
	1/2"	Square	385 ft./lbs.	520 Nm	425 ft./lbs.	570 Nm
17mm	5/8"	Allen	685 ft./lbs.	920 Nm	750 ft./lbs.	1.000 Nm
19mm	3/4"	Allen	1.185 ft./lbs.	1.600 Nm	1.300 ft./lbs.	1.750 Nm
	3/4"	Square	1.390 ft./lbs.	1.870 Nm	1.485 ft./lbs.	2.000 Nm
22mm	7/8"	Allen	1.880 ft./lbs.	2.500 Nm	2.065 ft./lbs.	2.780 Nm
24mm	1"	Allen	2.810 ft./lbs.	3.790 Nm	3.100 ft./lbs.	4.180 Nm
	1"	Square	3.230 ft./lbs.	4.350 Nm	3.400 ft./lbs.	4.590 Nm
27mm	1-1/8"	Allen	4.000 ft./lbs.	5.400 Nm	4.400 ft./lbs.	5.940 Nm
	1-1/4"	Allen	5.500 ft./lbs.	7.400 Nm	6.100 ft./lbs.	8.230 Nm
32mm	1-3/8"	Allen	7.300 ft./lbs.	9.800 Nm	8.000 ft./lbs.	10.800 Nm
36mm	1-1/2"	Allen	9.500 ft./lbs.	12.800 Nm	10.400 ft./lbs.	14.000 Nm
	1-1/2"	Square	11.520 ft./lbs.	15.500 Nm	12.475 ft./lbs.	16.800 Nm
41mm	1-5/8"	Allen	12.000 ft./lbs.	16.200 Nm	13.200 ft./lbs.	17.800 Nm
	1-3/4"	Allen	15.000 ft./lbs.	20.200 Nm	16.500 ft./lbs.	22.200 Nm
46mm	1-7/8"	Allen	18.500 ft./lbs.	24.900 Nm	20.300 ft./lbs.	27.400 Nm
50mm	2"	Allen	22.500 ft./lbs.	30.300 Nm	24.700 ft./lbs.	33.300 Nm
	2-1/4"	Allen	32.000 ft./lbs.	43.200 Nm	35.100 ft./lbs.	47.300 Nm
	2-1/2"	Allen	44.000 ft./lbs.	59.400 Nm	48.200 ft./lbs.	65.000 Nm
	2-1/2"	Square	52.500 ft./lbs.	70.800 Nm	63.625 ft./lbs.	85.800 Nm

If the reaction arm cannot abut on the same plane as the nut to be turned, less torque should be applied, as the additional side load has to be taken into consideration.

When torque requirements are close in excess of the values listed above, use RT's/-9/ Sockets Hex-Drive with replaceable Hex Insert Bits.



PRESSURE / TORQUE CONVERSION CHART

RT Series – FT./lbs.

PSI	RT1	RT3	RT5	RT8	RT10	RT20	RT25	RT50	BAR
1500	200	480	835	1200	1755	2960	3960	7875	104
1600	214	512	890	1280	1864	3160	4216	8400	110
1800	242	576	1000	1440	2082	3555	4728	9450	124
2000	270	640	1110	1600	2300	3950	5240	10500	138
2200	298	704	1222	1760	2526	4345	5752	11550	152
2400	326	768	1334	1920	2752	4740	6264	12600	165
2600	354	832	1446	2080	2978	5135	6776	13650	179
2800	382	896	1558	2240	3204	5530	7288	14700	193
3000	410	960	1670	2400	3430	5930	7800	15750	207
3200	438	1024	1782	2560	3656	6325	8318	16800	220
3400	466	1088	1894	2720	3882	6720	8836	17850	234
3600	494	1152	2006	2880	4108	7115	9354	18900	248
3800	522	1216	2118	3040	4334	7510	9872	19950	262
4000	550	1280	2230	3200	4560	7905	10390	21000	276
4200	578	1344	2342	3360	4792	8300	10898	22050	290
4400	606	1412	2454	3520	5024	8695	11406	23100	303
4600	634	1478	2565	3680	5256	9090	11914	24150	317
4800	662	1544	2678	3840	5488	9485	12422	25200	331
5000	690	1610	2790	4000	5720	9880	12930	26250	345
5200	718	1674	2902	4160	5948	10275	13450	27300	358
5400	746	1738	3014	4320	6176	10670	13970	28350	372
5600	774	1802	3126	4480	6404	11065	14490	29400	386
5800	802	1866	3238	4640	6632	11460	15010	30450	400
6000	830	1930	3350	4800	6860	11860	15530	31500	414
6200	858	1994	3462	4960	7094	12250	16040	32550	427
6400	886	2058	3574	5120	7328	12645	16550	33600	441
6600	914	2122	3686	5280	7562	13040	17060	34650	455
6800	942	2186	3798	5440	7796	13435	17570	35700	468
7000	970	2250	3910	5600	8030	13830	18080	36750	482
7200	998	2316	4022	5760	8264	14225	18602	37800	496
7400	1026	2382	4134	5920	8498	14620	19124	38850	510
7600	1054	2448	4246	6080	8732	15020	19646	39900	524
7800	1082	2514	4358	6240	8966	15415	20168	40950	538
8000	1110	2580	4470	6400	9200	15810	20680	42000	552
8200	1138	2646	4582	6560	9432	16200	21214	43050	565
8400	1166	2712	4694	6720	9664	16600	21738	44100	579
8600	1194	2778	4806	6880	9896	16995	22262	45150	593
8800	1222	2844	4918	7040	10128	17390	22786	46200	607
9000	1250	2910	5030	7200	10360	17785	23310	47250	620
9200	1278	2974	5142	7360	10592	18180	23826	48300	634
9400	1306	3038	5254	7520	10824	18575	24342	49350	648
9600	1334	3102	5366	7680	11056	18970	24858	50400	662
9800	1362	3166	5478	7840	11288	19365	25374	51450	676
10000	1390	3230	5590	8000	11520	19760	25890	52500	690



PRESSURE / TORQUE CONVERSION CHART

RT Series – Nm.

PSI	RT1	RT3	RT5	RT8	RT10	RT20	RT25	RT50	BAR
1500	271	651	1132	1627	2379	4013	5368	10675	104
1600	290	694	1206	1735	2527	4281	5715	11387	110
1800	328	781	1356	1952	2822	4818	6409	12810	124
2000	366	868	1505	2169	3118	5355	7103	14234	138
2200	403	954	1657	2386	3424	5891	7797	15657	152
2400	439	1041	1808	2603	3731	6428	8491	17081	165
2600	476	1128	1960	2820	4037	6965	9186	18504	179
2800	512	1215	2112	3037	4343	7502	9880	19927	193
3000	549	1301	2264	3253	4650	8039	10574	21351	207
3200	584	1388	2416	3470	4956	8574	11276	22774	220
3400	620	1475	2568	3687	5262	9110	11978	24197	234
3600	655	1562	2719	3904	5569	9645	12680	25621	248
3800	690	1648	2871	4121	5875	10181	13382	27044	262
4000	725	1735	3023	4338	6182	10716	14085	28468	276
4200	762	1825	3175	4555	6496	11251	14773	29891	290
4400	798	1914	3327	4772	6811	11787	15462	31314	303
4600	835	2004	3478	4989	7125	12322	16151	32738	317
4800	872	2093	3630	5206	7440	12858	16839	34161	331
5000	908	2183	3782	5422	7754	13393	17528	35585	345
5200	945	2269	3934	5639	8063	13930	18233	37008	358
5400	981	2356	4086	5856	8372	14467	18938	38431	372
5600	1018	2443	4238	6073	8681	15004	19643	39855	386
5800	1055	2530	4389	6290	8990	15541	20348	41278	400
6000	1091	2616	4541	6507	9299	16077	21052	42701	414
6200	1128	2703	4693	6724	9617	16612	21744	44125	427
6400	1164	2790	4845	6941	9934	17146	22435	45548	441
6600	1201	2877	4997	7158	10251	17680	23127	46972	455
6800	1238	2963	5149	7374	10568	18214	23818	48395	468
7000	1274	3050	5300	7591	10885	18748	24509	49818	482
7200	1311	3140	5452	7808	11203	19285	25217	51242	496
7400	1347	3229	5604	8025	11520	19822	25924	52665	510
7600	1384	3319	5756	8242	11837	20358	26632	54088	524
7800	1421	3408	5908	8459	12154	20895	27340	55512	538
8000	1457	3497	6060	8676	12472	21432	28047	56935	552
8200	1493	3587	6211	8893	12786	21967	28758	58359	565
8400	1528	3676	6363	9110	13101	22503	29468	59782	579
8600	1563	3766	6515	9327	13415	23038	30178	61205	593
8800	1598	3855	6667	9543	13730	23574	30889	62629	607
9000	1633	3945	6819	9760	14044	24109	31599	64052	620
9200	1670	4032	6970	9977	14359	24645	32299	65475	634
9400	1707	4118	7122	10194	14673	25180	32998	66899	648
9600	1743	4205	7274	10411	14988	25716	33698	68322	662
9800	1780	4292	7426	10628	15302	26251	34397	69746	676
10000	1817	4379	7578	10845	15617	26787	35096	71169	690



PRESSURE / TORQUE CONVERSION CHART

RTX Series – FT./lbs.

PSI	RTX-2	RTX-4	RTX-8	RTX-14	RTX-18	RTX-30	BAR
1500	255	580	1143	2010	2676	4770	104
1600	272	618	1234	2144	2854	5088	110
1800	306	694	1417	2412	3209	5724	124
2000	340	770	1600	2680	3565	6360	138
2200	376	847	1754	2948	3922	6996	152
2400	412	924	1907	3216	4279	7632	165
2600	448	1001	2061	3484	4636	8268	179
2800	484	1078	2214	3752	4993	8904	193
3000	520	1155	2368	4020	5350	9540	207
3200	552	1232	2533	4288	5708	10176	220
3400	584	1309	2698	4556	6066	10812	234
3600	616	1386	2864	4824	6424	11448	248
3800	648	1463	3029	5092	6782	12084	262
4000	680	1540	3194	5360	7140	12720	276
4200	714	1618	3358	5628	7496	13356	290
4400	748	1696	3522	5896	7852	13992	303
4600	782	1774	3685	6164	8208	14628	317
4800	816	1852	3849	6432	8564	15264	331
5000	850	1930	4013	6700	8920	15900	345
5200	884	2007	4176	6968	9277	16536	358
5400	918	2084	4340	7236	9634	17172	372
5600	952	2161	4503	7504	9991	17808	386
5800	986	2238	4667	7772	10348	18444	400
6000	1020	2315	4830	8040	10705	19080	414
6200	1054	2392	4996	8308	11062	19716	427
6400	1088	2469	5161	8576	11419	20352	441
6600	1122	2546	5327	8844	11776	20988	455
6800	1156	2623	5492	9112	12133	21624	468
7000	1190	2700	5658	9380	12490	22260	482
7200	1224	2777	5825	9648	12848	22896	496
7400	1258	2854	5992	9916	13206	23532	510
7600	1292	2931	6158	10184	13564	24168	524
7800	1326	3008	6325	10452	13922	24804	538
8000	1360	3085	6492	10720	14280	25440	552
8200	1394	3163	6658	10988	14637	26076	565
8400	1428	3241	6823	11256	14994	26712	579
8600	1462	3319	6989	11524	15351	27348	593
8800	1496	3397	7154	11792	15708	27984	607
9000	1530	3475	7320	12060	16065	28620	620
9200	1566	3551	7486	12328	16421	29256	634
9400	1602	3627	7652	12596	16777	29892	648
9600	1638	3703	7819	12864	17133	30528	662
9800	1674	3779	7985	13132	17489	31164	676
10000	1710	3855	8151	13400	17845	31800	690



PRESSURE / TORQUE CONVERSION CHART

RTX Series – Nm.

PSI	RTX-2	RTX-4	RTX-8	RTX-14	RTX-18	RTX-30	BAR
1500	346	786	1549	2725	3628	6466	104
1600	369	838	1673	2906	3869	6897	110
1800	415	941	1921	3270	4351	7759	124
2000	461	1044	2169	3633	4833	8622	138
2200	510	1148	2377	3996	5317	9484	152
2400	559	1253	2585	4360	5801	10346	165
2600	607	1357	2794	4723	6285	11208	179
2800	656	1461	3002	5086	6769	12070	193
3000	705	1566	3210	5450	7252	12932	207
3200	748	1670	3434	5813	7738	13795	220
3400	792	1774	3658	6176	8223	14657	234
3600	835	1879	3882	6539	8708	15519	248
3800	878	1983	4106	6903	9194	16381	262
4000	922	2088	4330	7266	9679	17243	276
4200	968	2193	4552	7629	10162	18105	290
4400	1014	2299	4774	7993	10644	18968	303
4600	1060	2405	4996	8356	11127	19830	317
4800	1106	2511	5218	8719	11609	20692	331
5000	1152	2616	5440	9083	12092	21554	345
5200	1198	2721	5662	9446	12576	22416	358
5400	1244	2825	5883	9809	13060	23278	372
5600	1291	2929	6105	10172	13544	24141	386
5800	1337	3034	6326	10536	14028	25003	400
6000	1383	3138	6548	10899	14512	25865	414
6200	1429	3243	6772	11262	14996	26727	427
6400	1475	3347	6997	11626	15480	27589	441
6600	1521	3451	7221	11989	15964	28451	455
6800	1567	3556	7445	12352	16447	29313	468
7000	1613	3660	7670	12716	16931	30176	482
7200	1659	3765	7896	13079	17417	31038	496
7400	1705	3869	8122	13442	17902	31900	510
7600	1751	3973	8348	13805	18387	32762	524
7800	1798	4078	8574	14169	18873	33624	538
8000	1844	4182	8801	14532	19358	34486	552
8200	1890	4288	9025	14895	19842	35349	565
8400	1936	4393	9250	15259	20326	36211	579
8600	1982	4499	9474	15622	20810	37073	593
8800	2028	4605	9699	15985	21294	37935	607
9000	2074	4711	9923	16349	21778	38797	620
9200	2123	4814	10148	16712	22260	39659	634
9400	2172	4917	10374	17075	22743	40522	648
9600	2220	5020	10599	17438	23225	41384	662
9800	2269	5123	10824	17802	23708	42246	676
10000	2318	5226	11049	18165	24191	43108	690



EC DECLARATION OF CONFORMITY

Manufacturer's Name: RAPID-TORC SA.

Manufacturer's Address: Avenue Louise 304, Bte 5
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Type of Equipment: Rapid-Torc RT & RT-X Series Hydraulic Torque Wrenches

Product references: RT.5, RT1, RT3, RT5, RT8, RT10, RT20, RT25, RT30, RT50
RT-X2, RT-X4, RT-X8, RT-X14, RT-X18, RT-X30

Application of EC Council directives: 89/392/EEC, annex II (B) as amended by 91/368/EEC, 93/44/EEC, 93/68/EEC and Machinery 98/37/EEC dated 22.06.98.

1. The undersigned, hereby declare that the equipment specified above conforms to the above European Communities Directives and Standards.

PLACE: Bruxelles-Brussel, Belgium

Name: Dischert Roger
Quality Control Manager
Belgium, Date September 1, 2003

