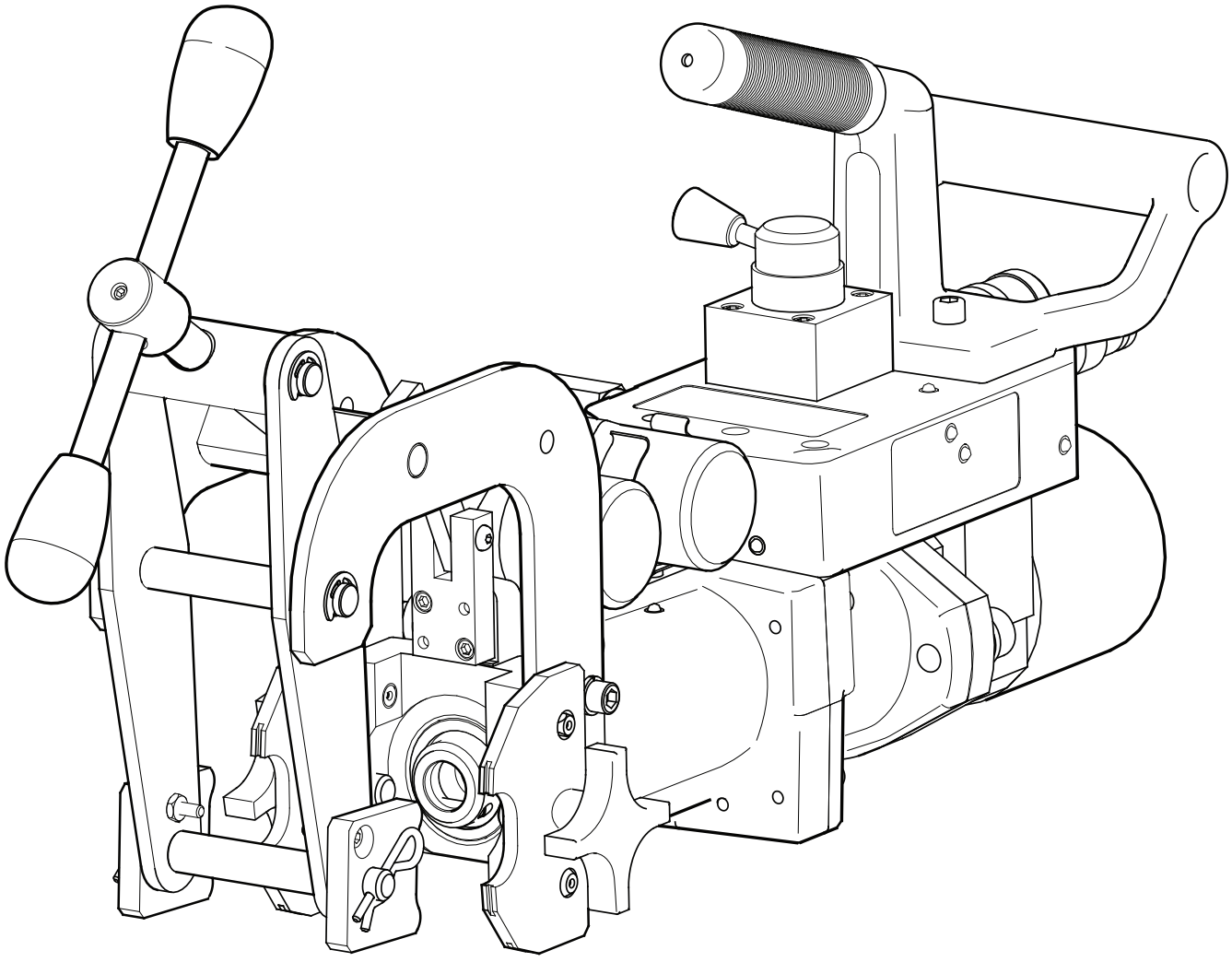
Trak-Star®

RailMaster

RM42 OPERATOR'S MANUAL

COVERS PART NUMBER 0042602



POWER FEED HYDRAULIC RAIL DRILL

Serial #: _____ Date: _____

OMRM421017 Printed in U.S.A.

TRAK-STAR® Power Feed Hydraulic Rail Drill Model RM42

Welcome to Trak-Star

Congratulations on your purchase of the Trak-Star Power Feed Hydraulic Rail Drill. Your model is designed to produce superior holes quickly and efficiently. Through constant innovation and development, Trak-Star is committed to provide you with hole-producing tools and products that lead the industrial world.

Before attempting to operate your new Rail Drill, please read all instructions first. These include the Operators Manual and warning Label on unit itself. With proper use, care, and maintenance, your model will provide you with years of effective hole drilling performance. Once again, thank you for selecting our product and welcome to Trak-Star.

UNPACKING YOUR NEW RAIL DRILL

1. Open shipping carton and remove the literature and hardware packages.
2. Read and Follow all Instructions before attempting to operate your new rail drill.
3. Complete and mail the Product Registration Card NOW. It is important that Hougen Manufacturing, Inc., have a record of product ownership.
4. Open all hardware packages and check contents.
   - 10565 Hex wrench 1/8"
   - 13013 Hex wrench 5/32"
   - 03522 Shaft
   - 03635 Pilot
   - 01592 Coolant Bottle
5. Lift rail drill out of shipping carton using center carrying handle and rear support handle.
6. Attach clamp handle using the enclosed 1/8" hex wrench.
7. Your new rail drill was factory adjusted prior to shipping. Check to make sure that all screws, motor hold-down screws, drill housing and shoe mounting screws are snug and have not vibrated loose in transit.
8. Hookup Coolant Bottle / Hose Assembly (01592). Connect the quick-disconnect hose fitting to the rail drill.
9. Reread Safety Warnings listed in this Operator's Manual and on the drill unit to avoid injury. Follow operating procedures.

Your new Rail Drill is equipped with a twist arbor bore to accept TRAK-STAR Twister Bits. Order cutters separately. Install pilot thru cutter before attaching cutter to arbor.

INDEX

⚠ Important Safety Instructions ⚠

1. **Read All Instructions**

2. **Keep Work area clean**
   Cluttered area and benches invite injuries. Keep dirt and chips from under Twister Bit area and drill shoe.

3. **Consider Work Area Environment**.
   Keep work area well lit.

4. **Keep Children Away**
   Do not let visitors contact tool.

5. **Store Idle Tools**
   When not in use, tools should be stored in a dry, and a high or locked-up place -- out of reach of children.

6. **Do Not Force Tool**
   It will do the job better and faster at the rate for which it was intended.

7. **Use Right Tool**
   Do not force small tool or attachment to do the job of a heavy duty tool.
   Do not use tool for purpose not intended -- for example do not use a circular saw for cutting tree limbs or logs.

8. **Dress Properly**
   Do not wear loose clothing or jewelry. They might entangle with spinning chips or get caught in moving parts. Rubber gloves and nonskid footwear are recommended when working outdoors. Wear sturdy leather gloves when working indoors.

9. **Always Wear Safety Glasses or Goggles.**

10. **Do Not Overreach**
    Keep proper footing and balance at all time.

11. **Secure Work**
    Clamp work securely using appropriate shoe size and shape. Tighten Clamp by using two hands with handle placed in central position and tighten securely.

12. **Maintain Tools With Care**
    Keep tools sharp and clean for better and safer performance.
    Do not use dull or broken Twister cutters. Follow instructions for lubricating and changing accessories.
    Inspect hydraulic line periodically and, if damaged, have repaired by authorized service facility.
    Keep handles dry, clean, and free from oil and grease.

13. **Disconnect Tools**
    Disconnect hydraulic hoses when not in use, before servicing, and when changing Twister Bits or accessories.

14. **Remove Adjusting Keys and Wrenches**
    Form a habit of checking to see that keys and wrenches are removed from tool before starting drill unit.

15 **Stay Alert**
   Watch what you are doing. Use common sense. DO NOT operate tool when you are tired.

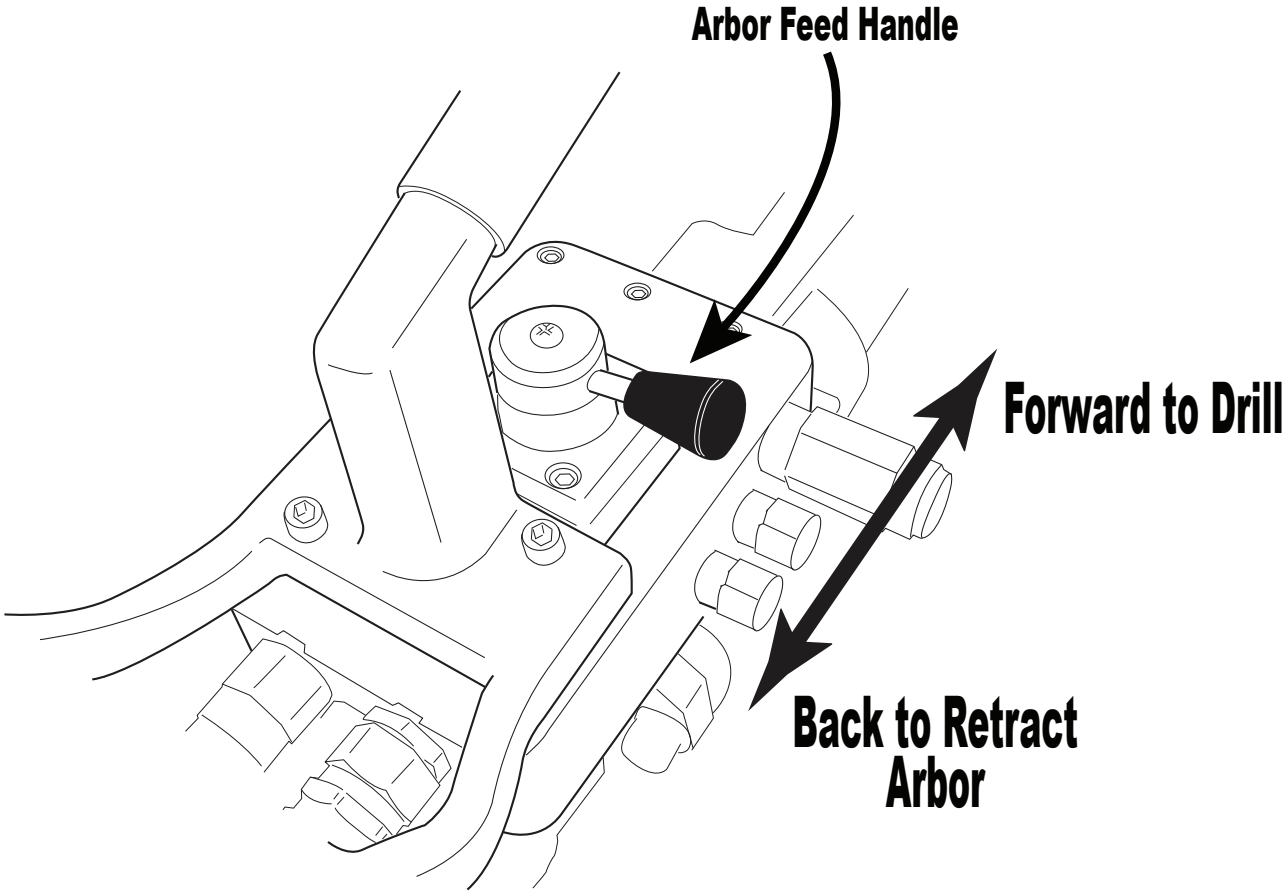
16. **Check Damaged Parts**
    Before further use of drill, a part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function.
    Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation.
    A part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.
    (See last page for authorized Service Centers)

17. **Additional Safety Precautions**
    - Quill and cutter should never be used as a handhold.
    - Keep hands and clothing away from all moving parts.
    - Do not use Twister Bits where ejected slug might cause injury (slug ejected at end of cut).
    - Be sure that all safety devices are properly adjusted and in use. Also, adhere to all operating instructions.
    - Do not attach Rail Drill to live 3rd rail track.

18. **Non-Conforming Cutting Tools**
    The TRAK-STAR Model RM42 is designed to use TRAK-STAR Twister Bits only. The use of drilling tools having different shank styles is not recommended as they may not tighten securely in the TRAK-STAR arbor with risk of accident or injury.

19. **Save These Instructions**

OPERATING INSTRUCTIONS



1. Make sure workpiece, cutter and shoe surfaces are free of chips.

2. Place locator template on rail head.

3. Align drill on locator with hole locator template .

4. Clamp drill to rail and insure that you have correct contact. (see page #6)

5. Use two hands to fully tighten clamp. Unit must be snug to prevent movement during cut. Failure to do so will result in fractured cutters when contacting workpiece. Do not over tighten. Also, verify that the 4 point knobs for the handles are tight.

6. To connect hydraulic hose to male and female couplings:
   - Make sure you remove any debris from couplings prior to connecting.
   - Make sure pressure hose is connected to the coupling marked **"IN"**
   - Couplings may have to be changed on hoses or drill to match flow

7. Turn on coolant. (Pump to repressurize system as needed)

8. Start the machine by moving the feed handle to the forward postion. The machine will start feeding toward your work surface. As the pilot engages the material, check for proper coolant flow.

OPERATING INSTRUCTIONS

9. The machine should complete the cut through the web of the rail in approximately 30 seconds.

10. At the end of the cut, manually move the feed handle to the reverse position and the the arbor and cutter will return to the start position. The feed handle should remain in the neutral position unless you are cutting a hole or retracting the cutter.

11. Remove or loosen clamp and shut off coolant. Drill cycle is complete and you are ready for the next hole.

    IF SLUG HAS NOT FALLEN FREE - Disconnect hydraulic hoses and coolant hose. Use a screwdriver to carefully flip out slug by inserting it between slug flange and cutter gullet. Removal of the cutter and tapping out the slug with the pilot can also be used. Avoid using prying force. Poor slug ejection is a sign of a dull cutter.

IMPORTANT NOTES

1. For proper operation of the Hydraulic motor and controls, a 25 Micron filter is suggested. Failure to maintain a good fltration system could result in diminished performance.

2. **Should you experience diminished power or performance**, maintenance may be required on the valve assembly-orifice (Part # 27535). Carefully remove part # 27535 and clean the orifice with a pressurized solvent. Spray the solvent through the orifice from both sides, making sure the orifice is free of debris. With pressurized air, remove all solvent and left over debris. Re-install the valve assembly-orifice making sure you do not expose the orfice to more debris. Should this continue to happen, check your hydraulic system.

3. Recommended hydraulic units should provide 5 gallons per minute @ 2000 psi for optimum performance of your unit

4. The use of a Trak-Star Twister disposable cutter is also suggested. A dull or damaged cutter will not produce good results and drilling time may take longer to complete.

CLAMPING PROCEDURE

WARNING: IMPROPER CLAMPING WILL CAUSE PREMATURE CUTTER FAILURE

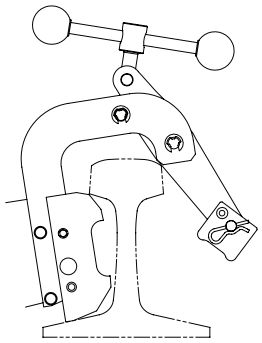


FIGURE A.

STEP #1:
WITH CLAMP IN OPEN POSITION, REST UNIT ON RAIL BASE. BOTTOM OF SHOES SHOULD CONTACT TAPER ON RAIL BASE. **(SEE FIG. A)**

**** PERFORMANCE TIP:**
CLOSE CLAMP UNTIL CLAMP PAD CONTACTS WEB OF RAIL PRIOR TO STEP #2.

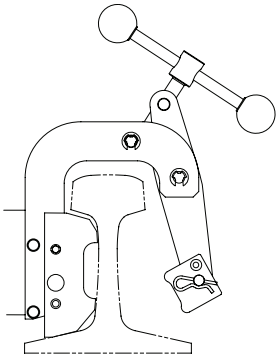


FIGURE B.

STEP #2:
RAISE REAR OF RAIL DRILL TO LOCATE SHOES IN PROPER POSITION. **(SEE FIGURE B)**

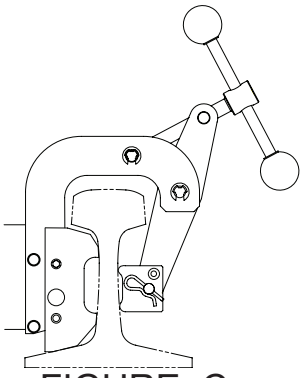


FIGURE C.

STEP #3:
WHILE MAINTAINING CONTACT BETWEEN SHOES AND RAIL, TIGHTEN CLAMP. **(SEE FIG. C)**
CLAMPING NOTE: WHEN YOU HAVE THE CLAMP TIGHT ON THE RAIL, CHECK FOR PAD CONTACT. IF PAD CONTACT IS GOOD, TIGHTEN CLAMP HANDLE ONE MORE HALF TURN.
DO NOT OVER-TIGHTEN

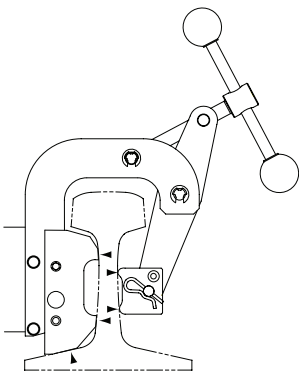


FIGURE D.

STEP #4:
WHEN UNIT IS FIRMLY CLAMPED, CHECK FOR PROPER SHOE AND PAD CONTACT ON BOTH SIDES AGAIN. **(SEE FIG. D)**

**** When properly clamped to the rail there will be a small gap between the top of the shoe and the rail.***

POSITIONING OF HOLE LOCATION TEMPLATE

Template is positioned on head of rail with tapered tip flush with end of rail and side locking screws fastened to rail head. Notches in template give precise location of hole centerlines to be drilled.

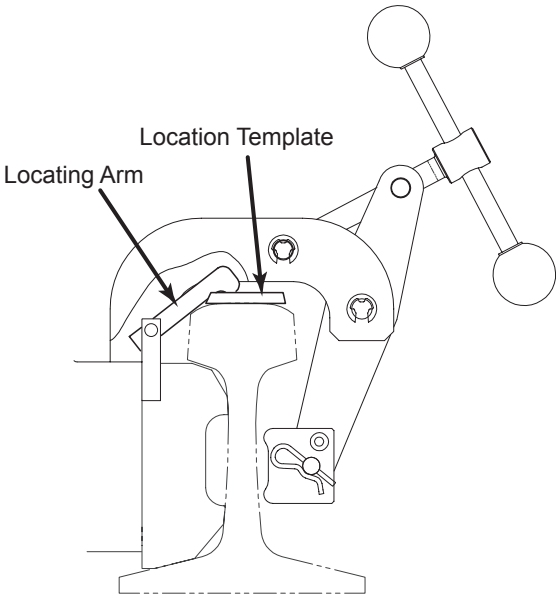
The rail clamp assembly has a locating arm which rests in the template notches. The locating arm is adjustable to accommodate the full range of rail sizes.

To use the locating arm, raise the drill unit over the rail with the template attached and gently rest drill down until shoes make contact with the rail. Flip the arm to make contact with the template. Slowly slide drill across the template until the arm falls into notch.

The arm must contact the sides of the matching notch. Following the Clamping Instructions, clamp unit onto rail. When the hole is completed, raise the arm by flipping the arm back toward the body of the drill. Before drilling next hole remove chips around cutter. Then move the drill sideways, ensuring the arm is clear of the notch, and flip arm down. Slide the drill sideways until arm falls in the next notch, and repeat the procedure as necessary.

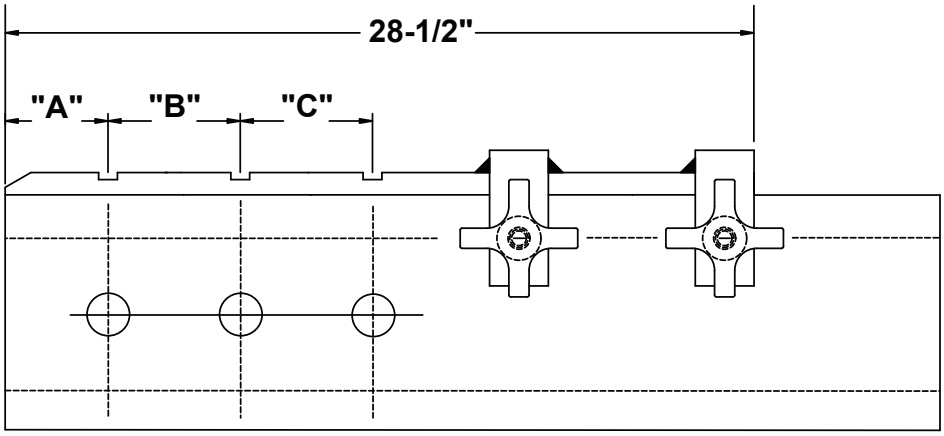
Note: The locating arm must be flipped back, resting on the body of the drill before putting the drill unit on the rail. Failure to do so can result in damage to the hole locating arm system.

Hole location templates are offered as optional equipment. Four of these templates are provided with established hole spacings. The 40570 template is produced to customer specified hole spacing. See chart for the template to match your application.



Template Part No.	Hole Spacing
40570	Customer Specified
40701	3-1/2" X 6" X 6"
40702	2-11/16" X 5-1/2" X 5-1/2"
40703	2-1/2" X 5" x 5"
40704	2-1/2" X 6-1/2" X 6-1/2"
40706	2- 23/32" x 5-1/2" x 5-1/2"

Custom Template Spacing



Specify "A", "B", "C" when ordering custom template

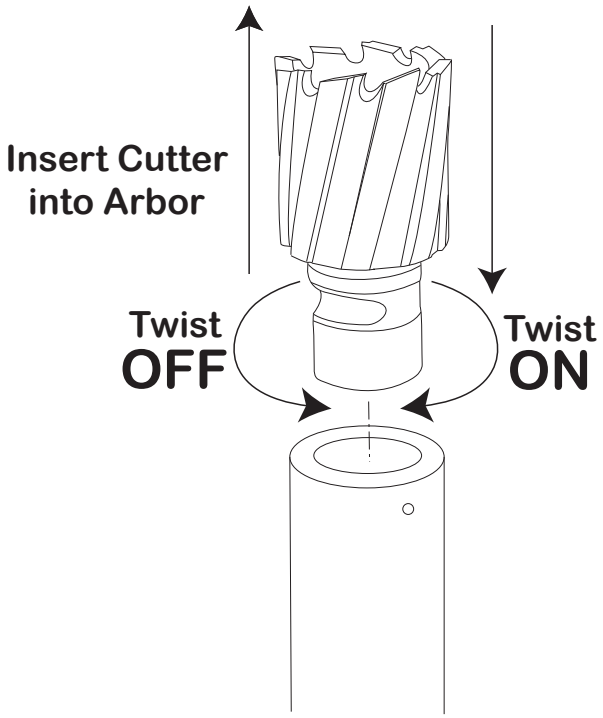
INSTALLING / REPLACING TWISTER™ BIT

1. Be sure unit is stopped and turned off. Turn off coolant at shut-off. The spring seat system located within arbor was not designed to be 100% leak proof.

2. Position arbor so the cutter area is easily accessible. Do not depress pilot pin during procedure to release seal. Doing so will result in releasing pressurized contents of arbor cavity and coolant loss. Some loss, however, is normal due to cavity between cutter shank and spring seat.

3. Insert pilot in shank end of Twister Bit.

4. Insert the Twister Bit until long flat on cutter shank is aligned with roll pin inside arbor. Twist cutter clockwise (do not depress pilot in case of cutter replacement for reason noted in #2). The cutter is automatically held into place.



TRAK-STAR TWISTER DISPOSABLE RAIL CUTTERS

- **Made from Premium H.S.S.**
- **Gold Coating for All Around Drilling**
- **Black Coating for Improved Performance in New Harder Rail.**

TRAK-STAR Rail Drills are designed to use Twister Bits, and to achieve maximum efficiency from your unit, we recommend that no substitutes be used.

** Twister Bits are economical and disposable --- there is no need to resharpen --- however it is possible. Tools can be sharpened 2 to 3 times. Send cutters to Trak-Star to the attention of the Resharpening Department.

** Twister Rail Bits have been shown to drill holes in rails up to 4X faster than twist drills or spade drills, and they produce clean, round, burr-free holes without the need to chamfer.

** Multiple cutting edge design, along with proper coolant flow, produces a cool cut raising the rail temperature in the hole no more than 35°F above ambient temperature. This prevents work hardening, stress cracking, service failures, and repeated repairs.

Cutter Size In Inches	Decimal Equivalent	Black TiAIN Coated Cutter Part Number	Carbide Tip Cutter Part Number
Pilot for Twister Bits 03635			
3/4	.7500	**15324**	**18-15224**
7/8	.8750	**15328**	**18-15228**
15/16	.9375	**15330**	**18-15230**
1	1.0000	**15332**	**18-15232**
1-1/16	1.0625	**15334**	**18-15234**
1-1/8	1.1250	**15336**	**18-15236**
1-3/16	1.3125	**15338**	**18-15238**
1-1/4	1.2500	**15340**	**18-15240**
1-5/16	1.3125	**15342**	**18-15242**
1-3/8	1.3750	**15344**	**18-15244**
1-7/16	1.4375	**15346**	**18-15246**
1-1/2	1.5000	**15348**	**18-15248**
1-5/8	1.6250	**15352**	**18-15252**
1-11/16	1.6875	**15354**	**18-15254**

DRILL & PRESSURIZED COOLANT SYSTEM

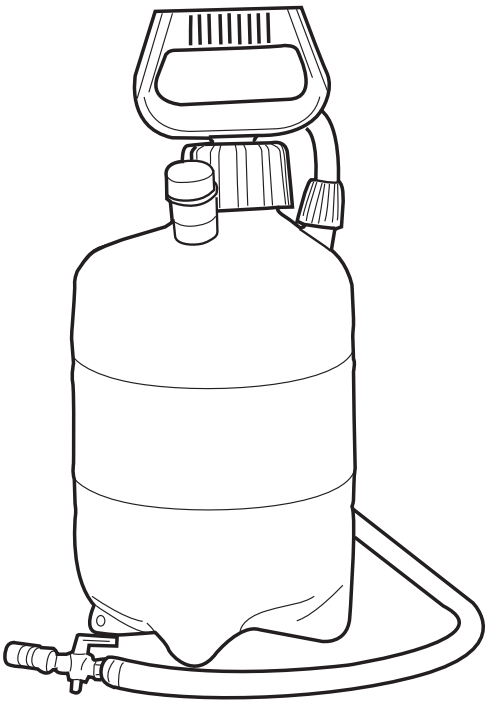
1. Install correct shoes for rail type being drilled.
2. Install correct size Twister Bit with pilot and secure to drill arbor. See Cutter Installation procedure.
3. Fill coolant bottle with TRAK-STAR cutting fluid (a water soluble and biodegradable product) Conventional fill access is achieved by removing pump handle.
   Caution: Contents under pressure. Partially open to slowly release pressure before removing.
4. Attach coolant bottle quick connect hose fitting to drill, located near power button inbetween the clamp arms.
5. Pressurize coolant bottle (approximately 20 pumps)
6. Open coolant shut off valve.
7. Depress pilot pin approximately 1/4" and watch for coolant flow from the end of the cutter. NOTE - Coolant is under pressure -- stay out of path of spray. If coolant does not flow, rotate valve further to open or unclog coolant system.

Do Not Use Straight Water or Window Washer Fluid. Damage to Drill Will Occur! Only Use Trak-Star RotaMagic Coolant.

Coolant System Replacement Parts

01569 On/Off Valve
05621 Quick Connect Fitting
01592 Coolant Bottle and Hose Assy

Coolant Quick Connect Hose and Nipple



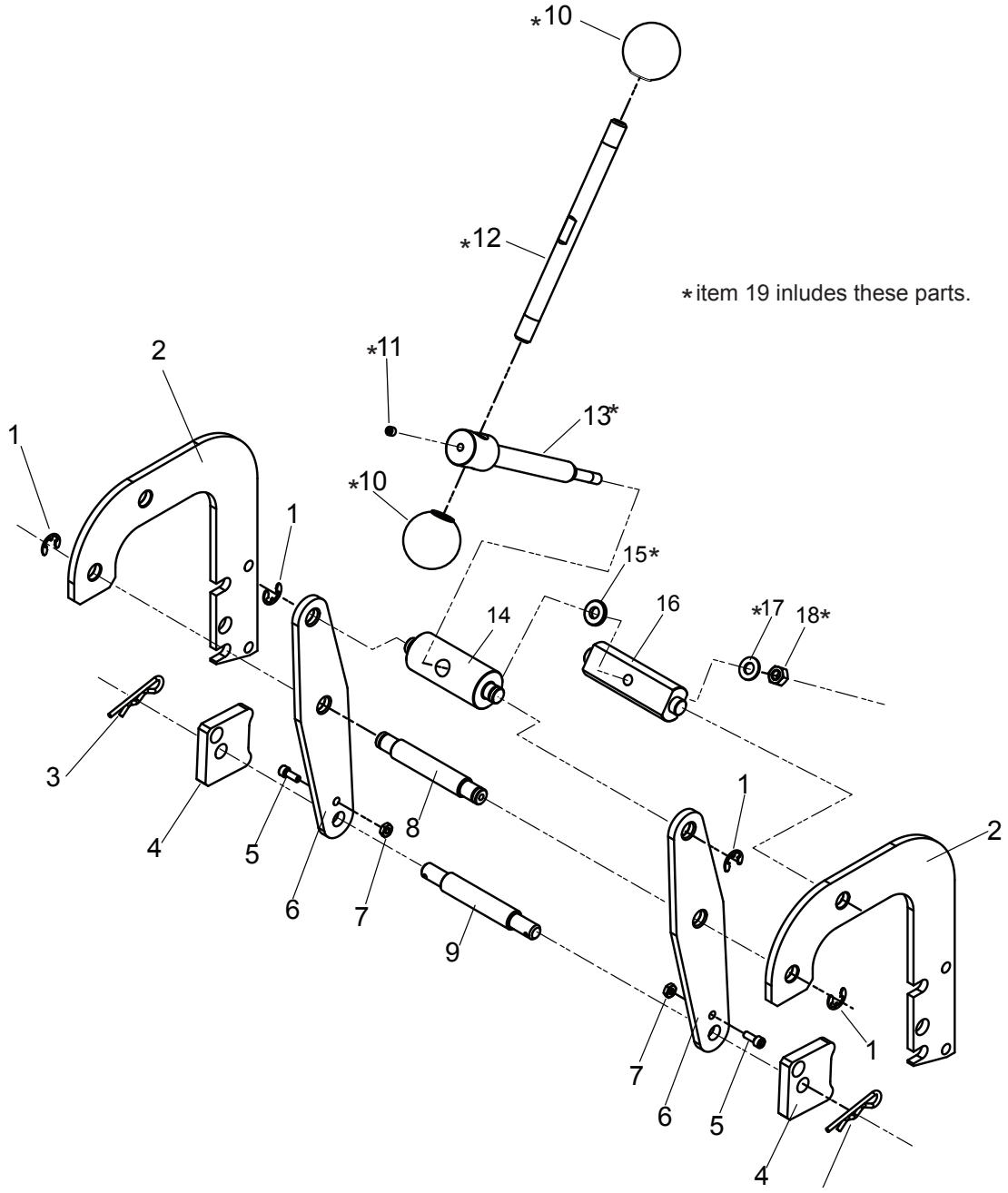
ROTAMAGIC™ CONCENTRATE CUTTING FLUID

A good flow of cutting fluid to the tool is important. It cools and lubricates the cutting edge, helps evacuate the chips, keeps the slug from expanding, and helps eject the slug. Various mineral and sulphur base oils are quite popular, however, water base solutions have better cooling qualities.

Listed is our own recommended Concentrated Cutting Fluid for Twister Bits and similar cutting tools. It is a water soluble, biodegradable product. This cutting fluid contains no ingredients that are on the U.S. Government Hazardous Materials List. It is a super concentrated form that will require a 10:1 mixture of water.

Part Number	Size Description
11742-4	4 Gallons**
11743	5 Gallons+
** Measured amount of concentrate. Comes in (4) 1 gallon containers and makes 44 gallons of usable cuttingfluid.	
** Comes in 5 gallon container, full. Will make 55 gallons of usable cutting fluid.	

27115 CLAMP ASSEMBLY

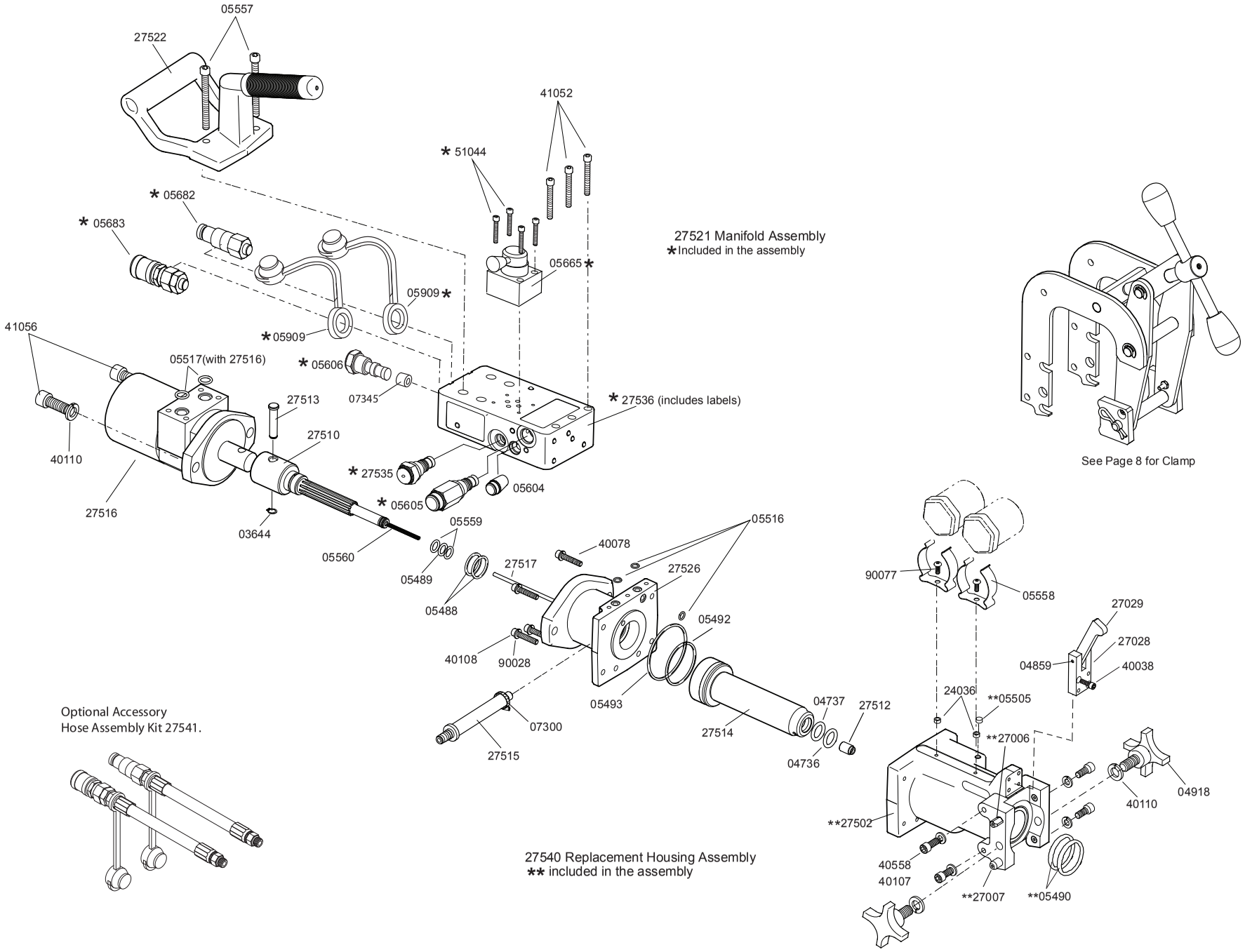


*item 19 inludes these parts.

Item	Part #	Description	Qty
1	**27066**	Retaining Ring Set	1
2	**27110**	Primary Clamp Arm	2
3	**03501**	Hitch Pin	2
4	**27062**	Clamp Pad	2
5	**90098**	Screw - #10-24 X 3/4	2
6	**27022**	Secondary Clamp Arm	2
7	**10662**	Lock Nut #10-24	2
8	**27024**	Pin	1
9	**27023**	Pin	1
10	**04532**	Knob	2

Item	Part #	Description	Qty
11	**02470**	Set Screw 1/4-28 X 3/8	1
12	**03522**	Clamp Turn Handle	1
13	**27027**	Clamp Feed Screw	1
14	**27026**	Bushing	1
15	**04782**	Flat Washer	1
16	**27025**	Bushing	1
17	**40074**	5/16 Flat Washer	1
18	**03563**	5/16-18 Hex Nut	1
19	**27080**	Clamp Handle Assembly	1

RM42 EXPLODED VIEW



RM42 PARTS LIST

Part #	Description	Qty
01153	Pin-Dowel 3/16	2
03644	Ring Retaining	1
04736	Lip Seal	1
04737	Ring Retaining	1
04859	SCR-SH/SLDR 1/4 x 5/8	1
04918	Handle 4 Point 1/2-13	2
05488	"O" Ring 1 x 1-3/16	2
05489	"O" Ring 3/8 x 1/2	1
05490	"O" Ring 1.50 x 1.68	2
05492	"O" Ring 2.06 x 2.25	1
05493	"O" Ring 2.75 x 2.93	1
05505	Plug - CV	2
05516	"O" Ring 5/16 x 7/16	3
05517	"O" Ring 1/2 X 11/16	2
05543	SCR-SHC 5/16 - 18	4
05557	SCR-SHC 5/16 -18 x 3-1/4	2
05558	Spring Clip	2
05559	Ring Backup	2
05560	Spring Comp	1
05604	Valve - Check	1
05605	Valve - Pressure Reducer	1
05606	Valve - Shuttle	1
05665	Valve Assembly	1
05682	Coupling, Male to Male	1
05683	Coupling, Female to Female	1
05909	Valve Dust Cover	2
07300	Hose Clamp	1
24036	Spacer	2

Part #	Description	Qty
27006	Diamond Locating Pin	2
27007	Pin Round - Locating	2
27028	Bracket - Locating	1
27029	Locating Arm	1
27115	Rail Clamp Assembly	1
27510	Spline Drive	1
27512	Pin-Pilot, Coolant	1
27513	Pin - Clevis	1
27514	Piston / Arbor Assembly	1
27515	Coolant Hose Assembly	1
27516	Motor - Hydraulic, Torque	1
27517	Pin - Spring Ejector	1
27522	Handle Assembly	1
27526	Bushing / Cover Assembly	1
27535	Valve Assembly, Orifice	1
27536	Manifold - Top Mount Valve	1
40038	SCR - SHC 10-32 x 5/8	2
40107	Washer 5/16 Heli	4
40108	SCR -SHC 1/4 -20	5
40110	Washer - Lock 1/2 Heli	4
40558	SCR - SHC 5/16 -18	4
41052	SCR -SHC 1/4 -20	3
41056	SCR -SHC 1/2 -13	2
51044	SCR-SHC 10-32 X 1-1/4	4
90028	Lock Washers	6
90077	SCR-BHC 10-32 X 1/2	2
90704	Twist Pack	2

RAIL & SHOE DATA

Railway Association or System	Tee Rail Section (lb.)	Section Designation				Shoe Part No.
ASCE - American Society of Civil Engineers	70	7040	70	AS	701	01906
	75	7540	75	AS	753	01907
	80	8040	80	AS	800	01908
	85	8540	85	AS	851	01909
	90	9040	90	AS	---	01910
	100	10040	100	AS	---	01911
ARA - American Railway Association	Type "A" - High Rail for High Speeds					
	90	9020	90	RA	902	01927
	100	10020	100	RA	1003	01928
	Type "B" - Lower Rail for Heavy Loads @ Slower Speeds					
	90	9030	90	RB	905	01908
	100	10030	100	RB	1002	01910
AREA - American Railway Engineering Association	100	10025	100	RE	10025	01894
	110	11025	110	RE	1100	01895
	112	11228	112	RE	1121	01896
	115/119	11525	115	RE	1150	01897
		11937	119	RE	1190	
	130	13025	130	RE	1300	01898
	131	13128	131	RE	1311	01899
	132/136/141	13228	132	RE	1321	01902
		13622	136	RE	13637	
		---	141	---	---	
	133	13331	133	RE	1330	01901
	140	---	140	RE	---	01903
CSX	122	---	122	CB	---	01918
UP (former C & NW)	100	10035	100	DM	10035	01926
PS - Pennsylvania System	85	8531	85	PS	---	01912
	100	10031	100	PS	---	01913
	130	13031	130	PS	---	01914
	155	15531	155	PS	---	01919
NYC (Dudley) - New York Central & Hudson River Railroad	105	10524	105	DY	---	01915
	127	12723	127	DY	---	01916
PRR - Pennsylvania Railroad	85	8533	85	PR	---	01917

Trak-Star®

Modern, high speed railways and welded rails call for modern, high precision rail equipment. Through our continual commitment, we now offer additional products that will be beneficial to your specific applications.

Model RB28
Portable Gas Rail Drill

Model RB30
Portable Gas Bonding Drill

Model HS16
Hydraulic Rail Saw

Model BD17
Electric Bonding Drill

Model GW12
Gas Impact Wrench

Model K1270
Portable Gas Rail Saw

NOTES

Commercial / Industrial Limited Warranty

Hougen Manufacturing, Incorporated warrants its Trak-Star Rail Drills, Portable Magnetic Drills, Electro-hydraulic Hole Punchers for one (1) year and other products for ninety (90) days from date of purchase against defects due to faulty material or workmanship and will repair or replace (at its option) without charge on any items returned. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Hougen Manufacturing, Inc., disclaims any implied warranty of MERCHANTABILITY or FITNESS for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages. Some states do not allow exclusions of incidental or consequential damages or limitation on how long an implied warranty lasts and, if the law of such a state governs your purchase, the above exclusion and limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

To obtain warranty service, return the item(s), transportation prepaid, to your nearest Factory Authorized Repair Center or to Hougen Manufacturing, Inc. 3001 Hougen Drive, Swartz Creek, Michigan 48473.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

FACTORY AUTHORIZED WARRANTY REPAIR CENTERS

Hougen Manufacturing, Inc.
3001 Hougen Drive
Swartz Creek, MI 48473
(866) 245-3745

Kenbil Service Co.
2900 Adams Street B-14
Riverside, CA 92504
(951) 689-6633

Hougen Canada
309 Nash Rd. North
Hamilton, Ontario CAN
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