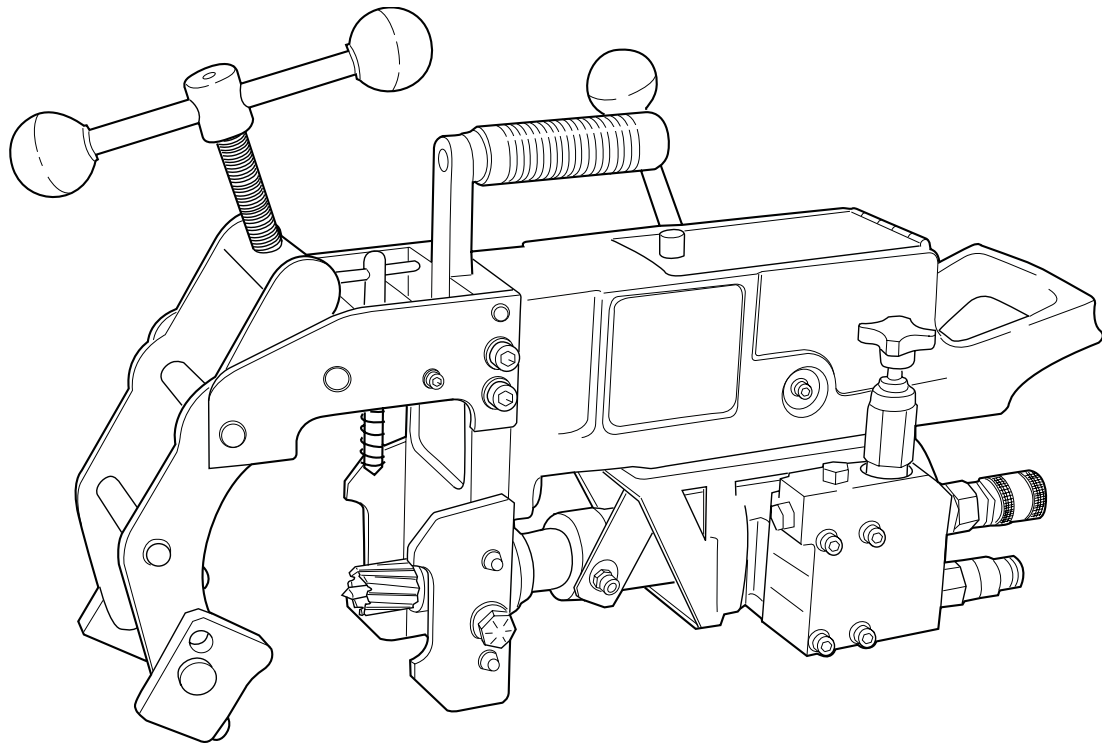




OPERATOR'S MANUAL
MODEL 10942TS
for use with Twister™ Bits



PORTABLE HYDRAULIC RAIL DRILL --- MANUAL FEED
70 LB. A.S.C.E. TO 155 LB. P.S.

Serial #: _____

Date: _____

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Welcome to Trak-Star

Congratulations on your purchase of the Trak-Star Portable Hydraulic 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 Operator's 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 TRAK-STAR have a record of product ownership.
 4. Open hardware package and check contents.
 - 10569 Feed handles (3)
 - 10570 Feed handle knobs (3)
 - 10565 Hex-Key 1/8"
 - 10727 Wrench-Allen 3/16"
 - 01293 Wrench-Allen 3/32
 - 03635 Pilot
 5. Lift Rail Drill out of shipping carton using drill housing handle and clamp handle
 6. Screw the three knobs (10570) into the three feed handles (10569) and then screw the handle into the Hub Assembly (40254)
 7. Your new Rail Drill was factory adjusted prior to shipping. Check to make sure that all gib adjustment screws, motor hold-down screws, front support bracket screws, drill housing and shoe mounting screws are snug and have not vibrated loose in transit.
 8. Remove 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 to accept TRAK-STAR Twister Bits. Order cutters separately. Install pilot inside cutter before attaching cutter to arbor (see page 5)

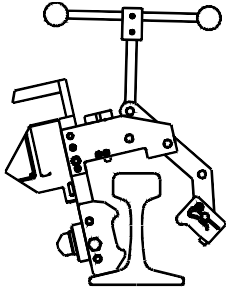
Important Safety Instructions

1. **Read all Instructions**
2. **Keep Work area clean**
Cluttered area and benches invite injuries. Keep dirt and chips from under cutter 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 Bits. Follow instructions for lubricating and changing accessories.
Inspect gas 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 turning drill unit on.
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.

Do not use Rail Drill if the motor does not turn arbor.
17. **Additional Safety Precautions**
 - Arbor 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 10942TS 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**

CLAMPING PROCEDURES

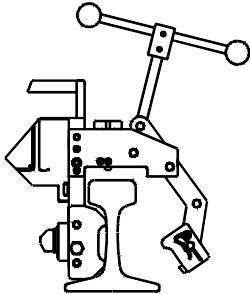
WARNING: IMPROPER CLAMPING WILL CAUSE PREMATURE CUTTER FAILURE



STEP #1:

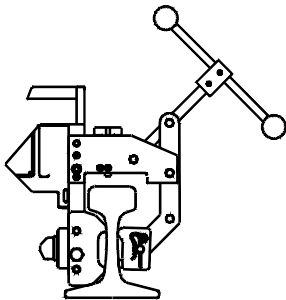
WITH CLAMP IN OPEN POSITION, REST UNIT ON RAIL BASE. BOTTOM OF SHOES SHOULD CONTACT TAPER ON RAIL BASE. **(SEE FIG. A)**

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



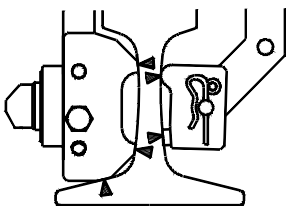
STEP #2:

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



STEP #3:

WHILE MAINTAINING CONTACT BETWEEN SHOES AND RAIL, TIGHTEN CLAMP. **(SEE FIG. C)**



▲ INDICATES CONTACT POINTS

STEP #4:

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

Adjustment of Gibs

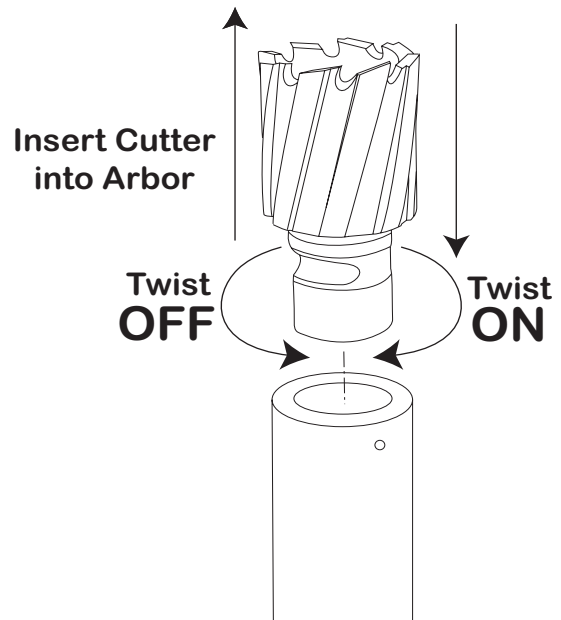
Loosen all front support locking screws and bolts prior to adjusting gibs.

1. Loosen Set screws (40237).
2. Feed the drill in and out a few times and then, with top of motor slide flush with top of housing, tighten the Gib Screws until you feel them touch the Steel Gib (40225).
3. Feed the drill in and out again.
4. Adjust Gib Screws so that there is uniform pressure from top to bottom.
5. Turn each Gib Screw in equally about 1/8 to 1/4 turn, depending upon your preference.
6. Gib Screws should be tight enough so that slide moves in and out smoothly with no wobble or shaking. (Looseness will cause cutter breakage)

Note: Gibs should be lubricated regularly with general purpose grease.

Installing / Replacing Twister™ Bit

1. Disconnect hydraulic hoses from manifold. Turn off coolant at shut-off. The spring seat system located within arbor was not designed to be 100% leak proof.
2. Lay drill on its side with feed handles up.
3. Position slide so the arbor is 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.
4. Insert pilot in shank end of Twister Bit.
5. Insert the Twister Bit until long flat on cutter shank is aligned with roll pin inside arbor. Twist cutter to the right (do not depress pilot in case of cutter replacement for reason noted in #3). The cutter is automatically held in place.



Hints for Smoother Operation

1. Keep inside of TRAK-STAR Twister Bit clear of any chips. Chips will interfere with cutting to maximum depth as well as impede free coolant flow from arbor to work and can cause cutter breakage.
2. Keep slide dovetails, brass gibs, and feed rack lubricated and free of chips and dirt.
3. Tighten all bolts regularly.
4. Keep workpiece, machine, arbor and Twister Bit free of chips and dirt.
5. For best operation and longest tool life, use TRAK-STAR cutting fluid mixed at proper ratios.
6. With engine off and spark plug wire disconnected, depress pilot occasionally to check metering of coolant flow. Lack of coolant may cause cutter to freeze in cut, slug to stick, and poor cutter life.

Super 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 TRAK-STAR 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.

Order Number	Size Description
11741-12	12 Pints*
11742-4	4 Gallons**
11743	5 Gallons+
* MEASURED AMOUNT OF CONCENTRATE. COMES IN 12-1 PINT CONTAINERS	
** MEASURED AMOUNT OF CONCENTRATE. COMES IN 4-1 GALLON CONTAINERS AND MAKES 44 GALLONS OF USABLE CUTTING FLUID	
+ COMES IN 5-GALLON CONTAINER, FULL, WILL MAKE 55 GALLONS OF USABLE CUTTING FLUID	

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 sharpen --- however it is possible. Tools can be sharpened 2 to 3 times. Send cutters to HMI to the attention of the Resharpener 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 25°F above ambient temperature. This prevents work hardening, stress cracking, service failures, and repeated repairs.

Cutter Size, inches	Decimal Equivalent	Gold - TiN Coated Part Number	Black - TiAlN Coated Part Number
7/8	.08750	15228	15328
15/16	.09375	15230	15330
1	1.0000	15232	15332
1-1/16	1.0625	15234	15334
1-1/8	1.1250	15236	15336
1-3/16	1.1875	15238	15338
1-1/4	1.2500	15240	15340
1-5/16	1.3125	15242	15342
1-3/8	1.3750	15244	15344
1-7/16	1.4375	15246	15346
1-1/2	1.5000	15248	15348
Pilot for Twister Bits			03635

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	AB	---	
	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	PH	---	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

Parts List

Part No.	Description	Qty. Required	Part No.	Description	Qty. Required
01320	Tag, Warning	2	04390	Pin, DWL 3/16 x 3/4"	1
01326	Screw-SHC 1/4-28	3	04391	"O" Ring	1
01836	Pin-Round Locating	2	04457	Nut-Hex 1/4-28	1
01837	Pin-Diamond Location	2	04730	Arbor Quk-Chg	1
02217	Screw-SHSS #8-32 x 3/16	1	04731	Collar Quk-Chg	1
02368	Screw-SHC 3/8-16	4	04734	Pin Positive Ejection, Front	1
10623	Screw-SS 3/8-16	1	04735	Pin Positive Ejection, Back	1
02639	Dowel Pin 3/8 x 1"	1	04736	Seal	1
02690	Manifold	1	04737	Retaining Ring	1
02691	Valve-Cartridge	1	04738	Pin, Roll Altered	1
02697	Screw-SHC 5/16-18	4	04740	Spring, Comp	1
02698	Coupling-Male	1	04748	Screw, SHSS #12-24 x 3/16"	1
02699	Coupling-Female	1	10569	Feed Handle	3
02700	Hex Plug	2	10570	Feed Handle Knob	3
02712	Spring Latch	1	10624	Screw SHC 1/4-20	6
02713	Hinge	1	10649	Screw-SHC #10-32	2
02714	Panel Plate	1	10660	Screw-SHC 1/4-20	1
02820	Calbe-Tie	1	10662	Lock Nut #10-24	2
02906	Knob	1	10956	Brass Gibs (Pair)	1
03288	Gripper	2	40070	Screw 1/2-13 x 1"	1
03500	Flat Washer 7/8"	3	40107	Washer 5/16" Heli	6
03501	Hitch Pin	2	40110	Washer Lock 1/2"	2
03502	Ret. Ring 1/2"	6	40225	Steel Gib	1
03513	Clamp Arm	2	40229	Feed Gear	1
03514	Clamp Bracket	2	40231	Bronze Bushing	2
03517	Clamp Round	1	40232	Roller Bearing	1
03518	Clamp Flat Bushing	1	40234	Thrust Washer	2
03519	Clamp Middle Pin	1	40237	Screw-SS 1/4-28	5
03522	Clamp Turn Handle	1	40254	Hub-Reversible	1
03524	Clamp Short Pad Pin	2	40297	Screw #6-32	2
03525	Clamp Lower Pin	1	40300	"O" Ring	2
03526	Clamp Carrying Handle	1	40301	Washer 1-3/8"	2
03528	Clamp Pad	2	40302	Ring Retaining	2
03563	Nut Hex 5/16-18	2	40374	Hex-Nut #6-32	2
03564	Bolt Hex Head	2	40390	Bolt Hex Head	3
03627	Motor Slide	1	40391	Lock washer 3/8 Heli	5
03626	Motor Bracket	1	40398	Ring Retaining	2
03628	Rack	1	40537	Coolant Inducer	1
03630	Clamping Tag	1	40538	Quick Connect Nipple	1
03635	Twister Pilot	1	41083	Screw SHC 3/8-16	4
03637	Clamp-Carry	1	50035	Lock Washer	6
03641	Base Plate	1	50037	Nut-Hex #10-32	6
03642	Hydraulic Motor	1	90027	Flat washer	1
03643	Pin Clevis	1	90028	Washer-Heli 1/4"	5
03644	Ring Retaining	1	90052	Lock Washer #6	2
03656	Coolant Inducer Bracket	1	90098	Screw-SHC #10-24 x 3/4	2
03662	Locator Template Assy.	1	90352	Screw-SHC 1/4-28	6
03712	Housing Assembly	1	90376	Washer Lock	8
03857	Screw-Hex head #4-40	8	04743	Faceplate w / art	-
04173	Sealant .001	1	04747	Arbor Assembly	-

Positioning of Optional 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 pin which rests in the template notches. The locating pin is adjustable to accommodate the full range of rail sizes.

To use the locating pin, first make sure the pin is in its highest position and locked. The pin handle should be perpendicular to the rail. Raise the drill unit over the rail with the template attached and gently rest drill down until shoes make contact with the rail. Release the pin by turning handle a quarter turn, making the handle parallel with the rail. Slowly slide rail drill across the template until the pin falls into notch.

The pin must contact the sides of the matching notch and can touch the bottom of the notch. Following the Clamping Instructions, clamp unit onto rail. When the hole is completed, raise the pin by the handle and turn a quarter turn to lock pin into position. To drill the next hole, move the drill sideways, ensuring the pin is clear of the notch, and release pin. Slide the drill sideways until pin falls in the next notch, and repeat the procedure as necessary.

Note: The locating pin must be in its uppermost and locked position before putting the drill unit on the rail. Failure to do so can result in damage to the hole locating pin 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.

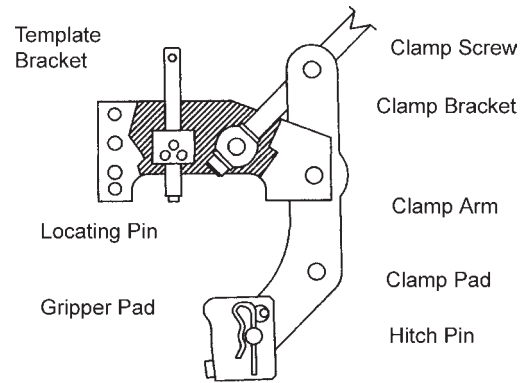
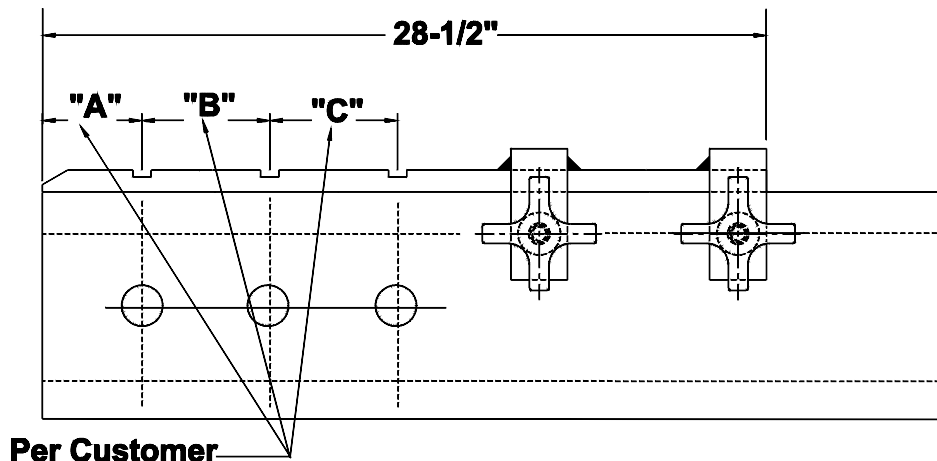


Figure 10

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"

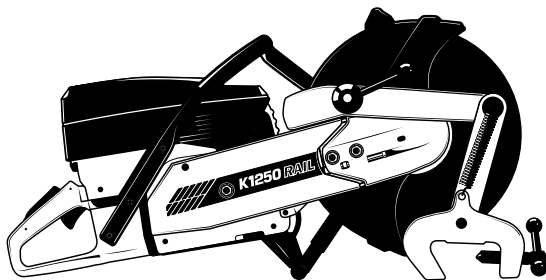
Fig 9 Template 40570



Other Products offered by Trak-Star®

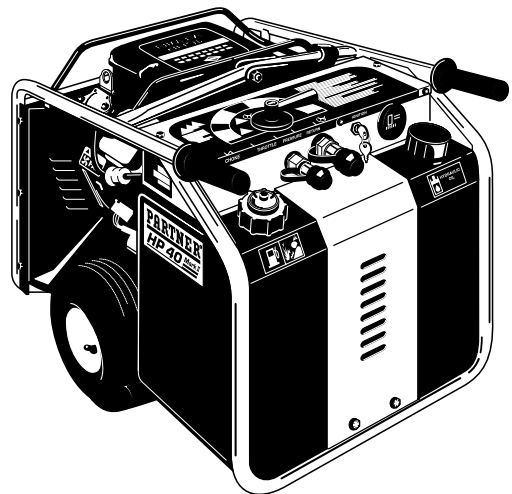
Modern, high speed railways and welded rails call for modern, high precision rail equipment. Today track maintenance involves cutting out sections of worn rail, welding in replacements and grinding the welds smooth afterwards. Because welded rails are subject to considerable tension as the temperature fluctuates, every cut has to be at a perfect right-angle if the rail is to withstand the stress involved and avoid displacement or failure. The same applies to the isolating joints which separate whole sections of rail for automatic signaling purposes, letting the system know exactly where the train is. Rail cutting and welding operations need to be fast, efficient, and frequently with personnel having to swing into action between trains to avoid unnecessary delays. Through our continual commitment, we now offer additional products that will be beneficial to your specific applications.

PARTNER® MODEL K-1250 RAIL GAS-POWERED RAIL SAW



- 7.8 H.P., 2 Cycle Gas Powered
- Smart Carb™ Technology which, insures maximum performance at all times.
- Triple Air Filtration reducing wear and tear, helping minimize maintenance costs
- Precision Clamp, insuring every cut is at a right angle, every time.
- Well balanced - ergonomic handles and improved anti-vibration system enables operator to produce quick and easy cuts with less fatigue.
- Trak-Star part number: **K1250RAIL**

PARTNER® MODEL HP 40 HYDRAULIC POWER PACK



- 16 H.P Gas Powered
- Maximum 2000 PSI with three different flow rates of 10, 8, and 5 GPM
- Compact Design
- Well balanced
- Easily transported by one person
- Automatic Power-up on demand
- Trak-Star part number: **HP40**

Commercial / Industrial Limited Warranty

Hougen Manufacturing, Incorporated warrants its Trak-Star Rail Drills and Portable Magnetic Drills for one (1) year and its Electro-hydraulic Hole Punchers 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.

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FACTORY AUTHORIZED WARRANTY REPAIR CENTERS

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D365,581

5,944,460

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Hougen Manufacturing has received the
Association of American Railroads
Quality Assurance Program Certification

