Updated per TEI

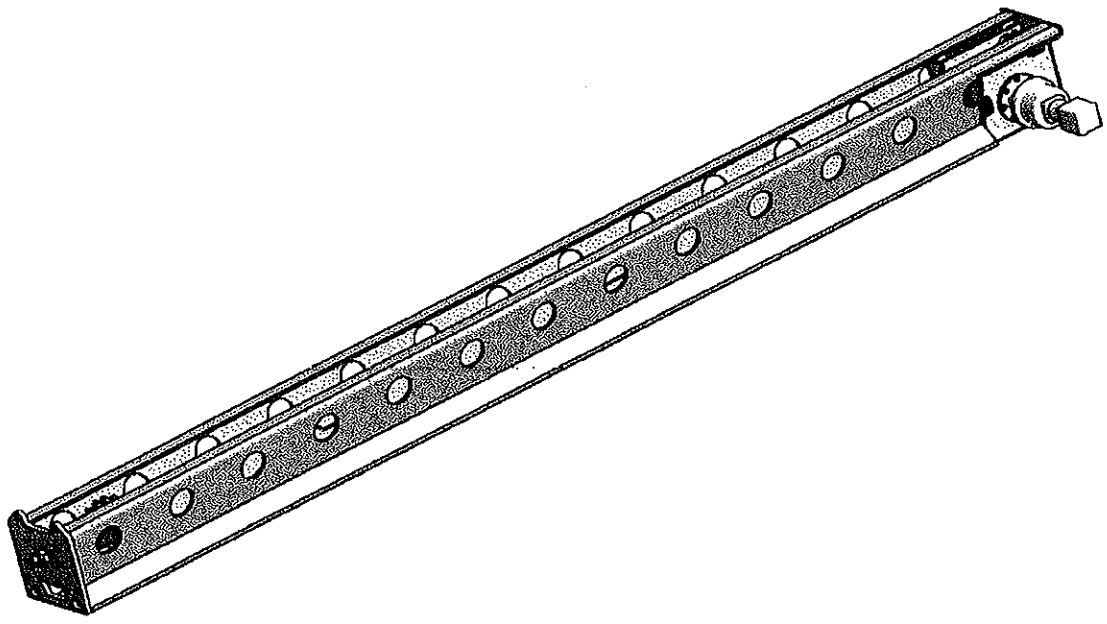
TEI ROCK DRILLS

Weight: 3780 lb - Dim: 18'6" long, 6'6" wide, 5'3" tall

Model PCFH30ED SN#PCFH30B031206

SERVICE AND MAINTENANCE MANUAL

PCFH
HYDRAULIC CHAIN FEED



Feb 2015

SERVICE AND MAINTENANCE MANUAL FOR PCFH HYDRAULIC CHAIN DRIVE FEED

This manual contains instructions for the maintenance, troubleshooting, and field repair of the TEI ROCK DRILLS PCFH Feed. It is intended to help you maintain the feed and perform on-site repairs. **Read and understand this manual before operating or servicing this machine.** Keep this manual handy for future reference.

⚠ Warning

Both operator and service personnel must read this service manual, particularly the warnings and cautions in Section 2, before operating this equipment. Your failure to do so may result in dangerous practices which can cause serious personal injury.

PCFH FEED SERVICE AND MAINTENANCE MANUAL

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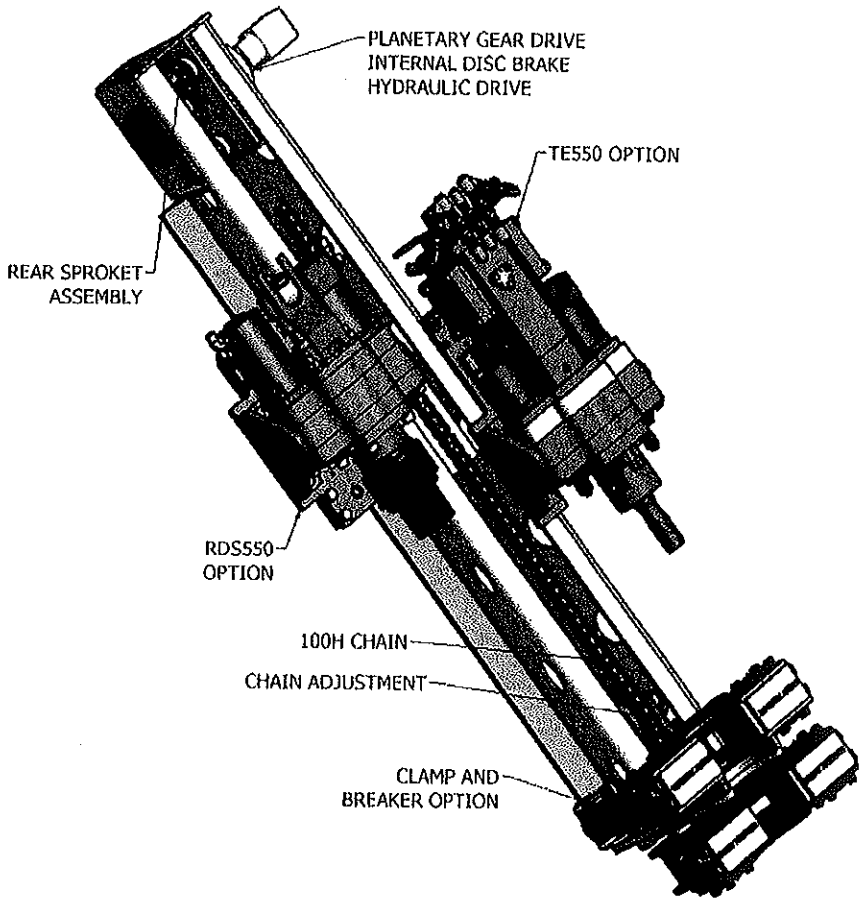
SERVICE AND MAINTENANCE MANUAL
PCFH CHAIN FEEDS

The PCFH series chain feed uses a planetary gear drive with incorporated breaking system to transmit rotary power from a hydraulic motor to a mounting slide. The mounting slide supports either a rotary top drive or a percussion drill, making this feed design adaptable for many different drilling applications.

Operation of the feed is simple. A reduction planetary drive is used to mount the hydraulic motor for power. The output shaft has a sprocket drive for the chain. The chain is looped with a mounting slide attached at each end. The mounting slide can be adapted for many different drilling configurations.

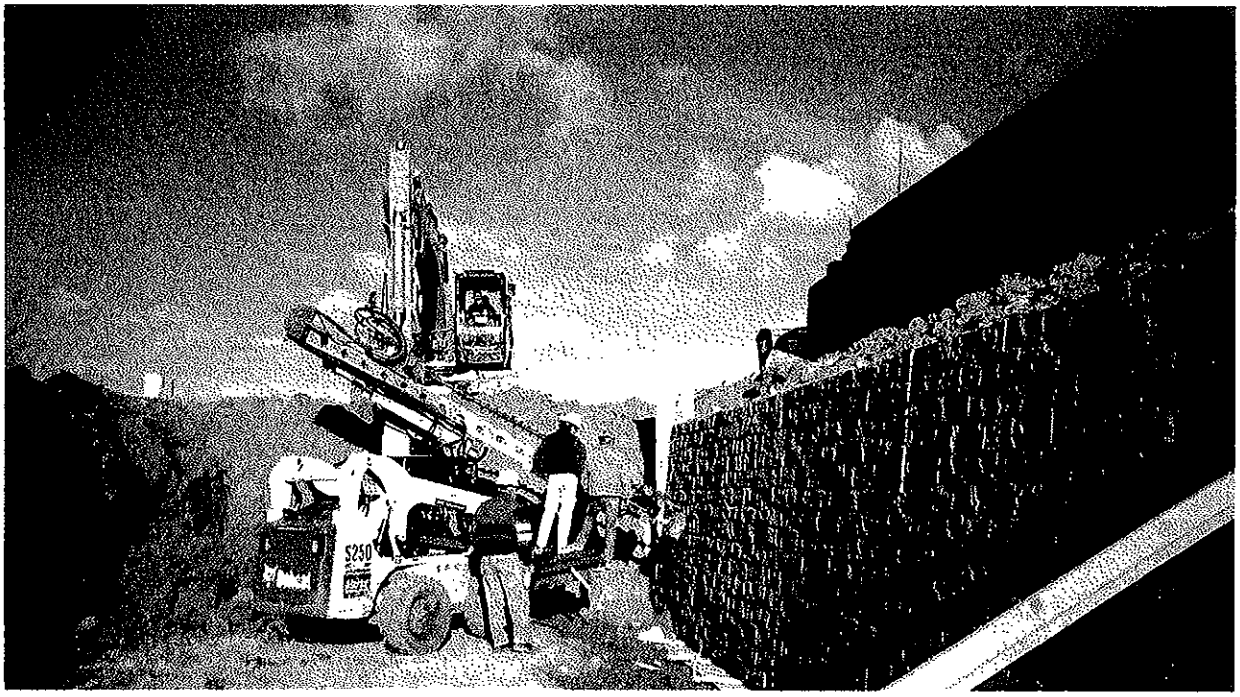


PCFH Style feed Showing general layout and different options available for drilling. Most TEI drill heads and clamp/Breaker systems will mate to the PCFH feed system.

The drill feed force is proportional to pressure allowing up to a maximum of 12,000 ft-lbf. (16,270 Nm). Retraction force out of the hole is the same as above. Feed force is controlled by limiting the hydraulic pressure. The disc brake system holds the drill head in place until hydraulic pressure is applied to the feed motor.

Any drill weighing up to 1000 lbs.(454 kg) can be mounted and with no more than 10,000 ft-lbf of torque (13,558Nm). Contact TEI for specific drill mounting requirements.

PCFH feeds are designated by length and application. A PCFH12 designates a feed having 13 ft.(4 m) of total drill travel. This allows the use of up to 12 ft. (3.7m) drill steel during steel change. The total length of the feed is 4' (1.2m) longer than 12' or a total length of 16' (4.9m) The PCFH feeds are available in drilling steel change lengths from 4' (1.2m) to 20' (6.1m) in 2' (.6 m) increments. The length designations are PCFH4 thru PCFH20. Longer masts can be designed on special request up to 40' (12m) of drill travel.



The PCFH feed is a very versatile and light drilling system making it adaptable for attachment drilling with almost any type of carrier.

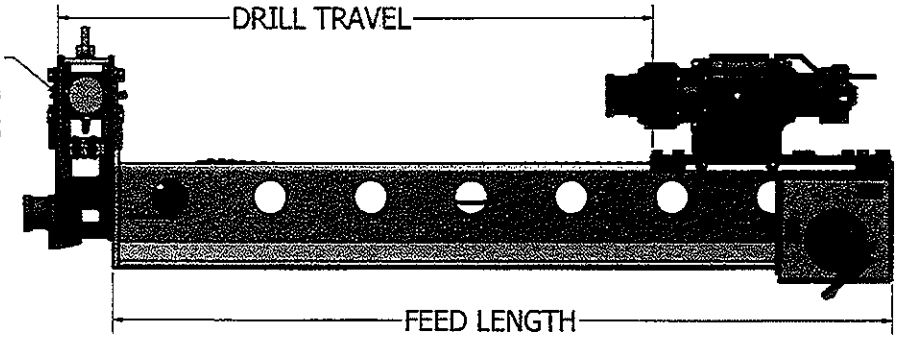
TEI ROCK DRILLS

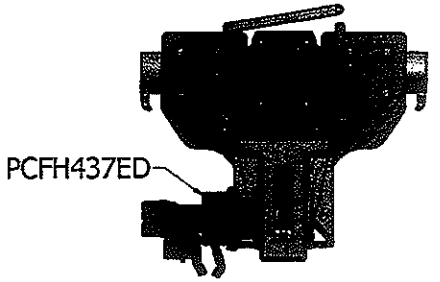
PCFH GEARED CHAIN FEED SPECIFICATIONS

MODEL NUMBER	DRILL TRAVEL	FEED LENGTH	FEED WEIGHT
PCFH3	4' (1.2m)	74.13" (1883mm)	651# (296kg)
PCFH4	5' (1.5m)	93.13" (2365mm)	681# (310kg)
PCFH5	6' (1.8m)	105.13" (2670mm)	711# (325kg)
PCFH6	7' (2.1m)	117.13" (2975mm)	747# (340kg)
PCFH8	9' (2.7m)	141.13" (3585mm)	813# (370kg)
PCFH10	11' (3.3m)	165.13" (4194mm)	879# (400kg)
PCFH12	13' (4.0m)	189.13" (4804mm)	945# (430kg)
PCFH20ED	21' (6.4m)	285.13" (7242mm)	1589# (722kg)
PCFH25ED	26' (7.9m)	345.13" (8766mm)	1968# (895kg)
PCFH40ED	42' (12.8m)	541.13" (13745mm)	3150# (1432kg)

FEED PUSH / PULL:
12,500 lbf (55600N) capability

Subtract 6" Feed travel with Clamp and Breaker Setup





TEI08.035.A

PRECAUTIONARY NOTICES
Section 2

BEFORE ATTEMPTING MAINTENANCE OR REPAIR OF ANY COMPONENTS OF THIS MACHINE, READ THE WARNINGS AND CAUTIONS LISTED IN SECTION 2

OPERATOR WARNINGS

Your first consideration, when servicing your PCFH Feed, must be your personal protection and that of others. Correct servicing is a matter of being completely familiar with your machine and the job it is intended to do. Carefully read and understand the warnings listed below, and most of all remember to apply good common sense at all times.

1. DO NOT OPERATE DRILLING CONTROLS UNLESS YOU ARE THOROUGHLY FAMILIAR WITH FUNCTIONS.

2. WEAR A PROTECTIVE HELMET AND EYE PROTECTION WHEN OPERATING OR NEAR THE DRILL MAST

3. WEAR NOISE-REDUCING EAR PROTECTORS WHEN NEAR THE MACHINE FOR EXTENDED PERIODS WHILE THE MACHINE IS RUNNING

4. DO NOT ATTEMPT LUBRICATION OR SERVICE WHILE MACHINE IS RUNNING

5. BE SURE THE HYDRAULIC AND PNEUMATIC SYSTEMS ARE NOT PRESSURIZED BEFORE LOOSENING ANY CONNECTIONS OR PARTS

6. BEFORE STARTING THE ENGINE, BE SURE ALL HYDRAULIC CONTROLS ON THE DRILL AND CARRIER ARE IN THE OFF OR NEUTRAL POSITION

7. BE SURE ALL HYDRAULIC HOSE CONNECTIONS ARE TIGHT, AND HOSE RETAINERS IN PLACE.

8. KEEP ALL PERSONNEL AWAY FROM THE HOLE WHILE DRILLING IS IN PROGRESS.

9. DO NOT REDRILL ANY BLASTHOLE.

10. DO NOT STRIKE THE DRILL PIPE TO DISLODGE IT WHILE THE DRILL IS OPERATIONAL.
FRAGMENTATION OF THE DRILL PIPE MAY RESULT.

11.IF BIT BECOMES PLUGGED, DETATCH BIT FROM STEEL TO REMOVE OBSRUCTION. NEVER HAMMER ON BIT OR STEEL. FRAGMENTATION CAN PRODUCE SRIOUS INJURY.

12. BEFORE ATTEMPTING TO REMOVE DRILL FROM FEED, RELIEVE STANDING PRESSURE.

13. USE CAUTION WHEN CHECKING FOR LEAKS. FLUID UNDER PRESSURE MAY PENETRATE THE SKIN.

14. DRILL AND FEED MUST BE IN THE HORIZONTAL POSITION FOR DISASSEMBLY.

15. IF RIG IS TO BE OPERATED WITH DRILL DISMOUNTED, SECURE AND CAP ALL LOOSE HOSES

16. THROUGHLY TEST ALL REPAIRS BEFORE PUTTING EQUIPMENT INTO SERVICE

EQUIPMENT CAUTIONS

The following are good practices to observe for protecting the equipment and drills from damage, and to provide maximum life for the machine:

1. MAINTENANCE OF PCFH FEED SYSTEM MUST BE PERFORMED IN A CLEAN ENVIROMENT. THE ONE OVERRIDING RULE IN MAINTAINING HYDRAULIC EQUIPMENT IN CLEANLINESS. PREVENTION OF CONTAMINATION IN HYDRAULIC FLUIDS IS THE MOST IMPORTANT FACTOR IN MAINTAINING HIGH PERFORMANCE IN TODAYS HYDRAULIC EQUIPMENT. AT ONE TIME WHEN MACHINES OPERATED AT LOW SPEEDS AND LOW TEMPERATURES CLEANLINESS WAS A VIRTUE, TODAY IT IS A NECESSITY.

2. KEEP THE MAST LUBRICATED. APPLY GREASE DAILY, OR WHEN INDICATED (MORE OFTEN IN HOT CLIMATES) TO THE GREASE FITTINGS AT THE FRONT SPROCKET OF THE MAST.

3. PERIODICALLY INSPECT HOSE RETAINERS AND HOSES FOR INDICATION OF WEAR, LOOSENESS, CRACKING, OR FRAYING.

4. FREQUENTLY CHECK ALL NUTS, BOLTS, AND ADJUSTMENTS FOR PROPER TENSION.

5. BE SURE THE HYDRAULIC RESERVOIR IS ALWAYS FILLED TO THE RECOMMENDED LEVEL WITH THE PROPER TYPE HYDRAULIC FLUID. DO NOT MIX TYPES OF FLUID.

6. KEEP ALL BITS SHARP AND PERIODICALLY CHECK FOR BROKEN OR LOOSE CARBIDES.

7. EXCESSIVELY WORN THREADS ON THE DRILL STRING CAN CAUSE PREMATURE WEAR AND BREAKAGE OF NEW PARTS MATED WITH THE STRING.

8. DO NOT OPERATE THE DRILL ROTATION AND FEED AT FULL THROTTLE UNTIL SURE OF ROCK CONDITIONS. OVER FEEDING AND OVER ROTATION CAN CAUSE BREAKAGE OF DRILL ROTATION PARTS AND THE DRILL STRING

9. BEFORE REMOVING ANY LINES OR HOSES, TAG EACH TO FACILITATE REASEMBLY.

10. CAP OR PLUG ALL HYDRAULIC AND PNEUMATIC CONNECTIONS AFTER DISASSEMBLY TO PREVENT CONTAMINATION OF THE SYSTEM.

11. CLEAN THE EXTERIOR OF ALL PARTS AND HOSE CONNECTIONS BEFORE REMOVING.

12. BEFORE REASSEMBLING HYDRAULIC COMPONENTS, CLEAN ALL METAL PARTS IN A NON-FLAMMABLE CLEANING FLUID.

13. THROUGH CHECKS MUST BE MADE OF ALL REASSEMBLIES TO BE SURE THEY ARE ASSEMBLED PROPERLY ACCORDING TO INSTRUCTIONS. DO NOT DRILL UNTIL ALL CHECKS HAVE BEEN MADE.

14. ASSURE WEAR GUIDES FOR MOUNTING SLIDE ARE NOT OVERLY WORN. THIS SHOULD BE INSPECTED EACH DAY OF OPERATION.

MAINTENANCE
Section 3

BEFORE ATTEMPTING MAINTENANCE OR REPAIR OF ANY COMPONENTS OF THIS MACHINE, READ THE WARNINGS AND CAUTIONS LISTED IN SECTION 2

GENERAL TIPS ON PCFH FEED MAINTENANCE

These general instructions will be helpful when using the maintenance and adjustment procedures outlined on the following pages.

1. Cover all hydraulic or air openings with an appropriate dust cover when any hydraulic or air openings are exposed. A clean part in a dirty opening does little good.

2. Carefully examine all Slide parts for evidence of wear or damage. Replace as needed.

3. Before servicing the feed or any part of the hydraulic system, neutralize the pressure in the complete hydraulic system.

4. Before reassembling hydraulic components, clean all metal parts in a non-flammable cleaning fluid. Carefully lubricate all components to aid in reassembly.

5. Thorough checks must be made of all reassembles to be sure they are assembled properly according to the instructions. Do not drill until all checks have been made.

6. Frequent inspection of the PCFH feed is very good practice. A minor adjustment can many times prevent costly repairs later on.

IMPORTANT

All TEI Rock Drill parts are manufactured with care and precision. Each part is carefully inspected before and after assembly. Every step has been taken to provide you with the quality product you expect. Eventually some parts of your drill will become worn. The description of damaged parts in this section is general, and is intended to help the servicemen in the field to service and repair the PCFH feed. It is not meant to imply that all such parts will fail in the described manner, or that damage is due to faulty manufacture.

DAILY MAINTENANCE

Clean and inspect feed removing debris. Check chain drive for tension by moving the drill to the center of the feed. The chain should pull to 0.5" (13mm) above the top rail. Tighten as needed using the chain tightening bolt shown in Figure 3.2. Check the dust shields at centralizer. Keeping the internal feed beam clean extends slide and chain life. Use a rubber shield to deflect drilling chips and debris from the feed mast and cylinders. Grease all sprockets daily, Grease the bottom sprocket twice (2) daily. (Shown below in figure 3.1)

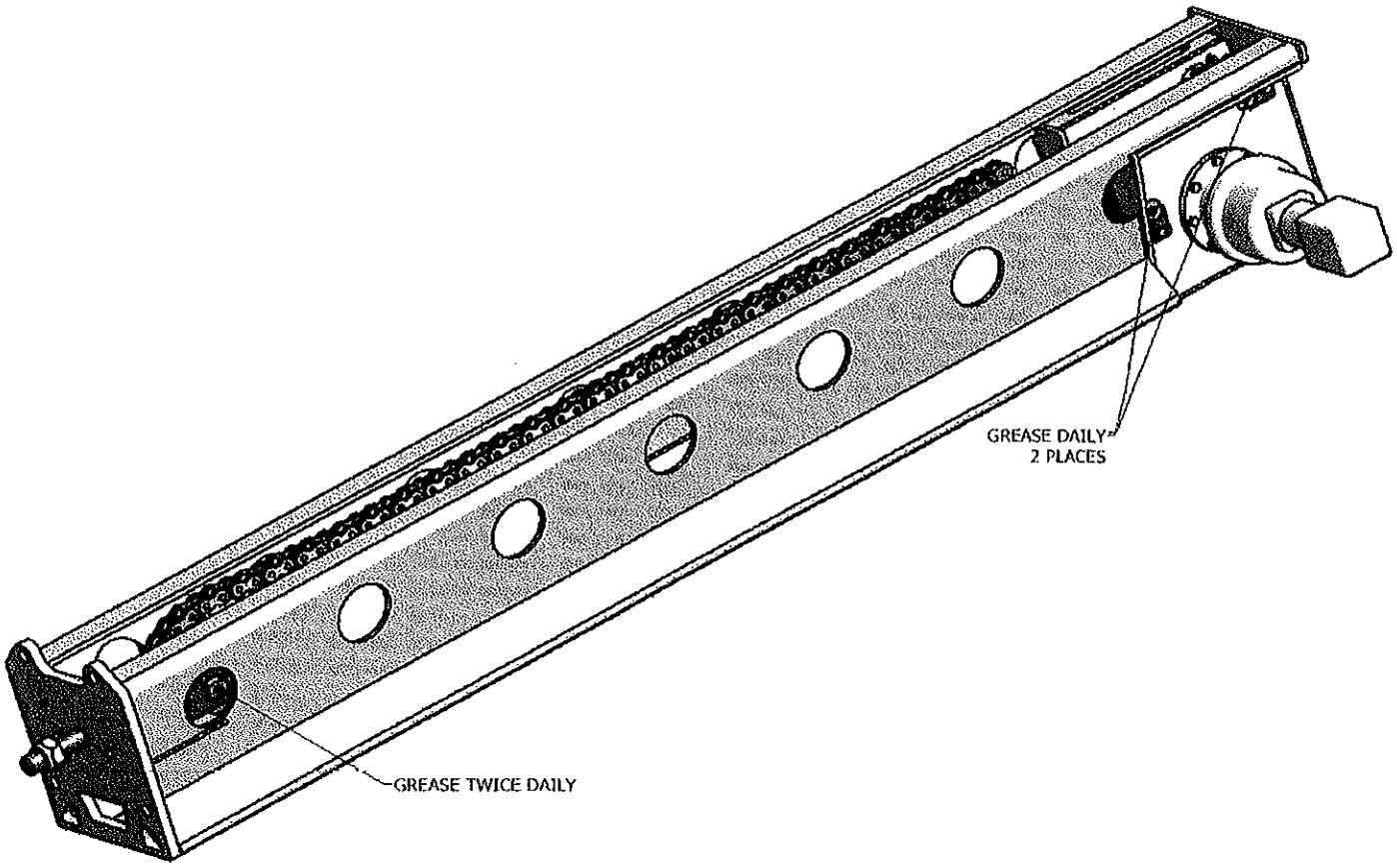


Figure 3.1

WEEKLY MAINTENANCE

In addition to the daily routine, inspect front centralizer arms or clamp (when used). Check hydraulic fittings for leaks, tighten and replace as necessary.

REPLACING/REPAIRNG WEAR PADS

Remove drill head from mounting slide. Loosen and remove wear guides underneath the mounting slide. Slightly lift one side of the mounting slide, replace the wear pads then repeat with the other side of the mounting slide. Replace the wear pads in the guides and reinstall wear guides. Tighten slightly and return power to the drill feed with the drill hoses plugged. Move the mounting slide forward and back then finish tightening the mounting slide bolts (50 ft-lbs). Replace drill head and check for worn hoses or any leaks from untightened fittings.

Move drill head forward and back, adjust and hoses from kinking and once again check for leaks anyplace on the drill mast.

Clean all surfaces and return for field work.

REPLACING/REPAIRNG DRIVE CHAIN

Turn off all hydraulic power to the drilling system. To service the drive chain, remove the drill steel or pipe and clean the feed frame. Move the drill to the center of the feed . Neutralize all system pressure by wobbling the control levers. Loosen the chain with the adjusting nut. Remove the chain bolt (PCFH198), then remove the chain master links and separate the drive chain. Remove the chain from the drive and idler sprocket.

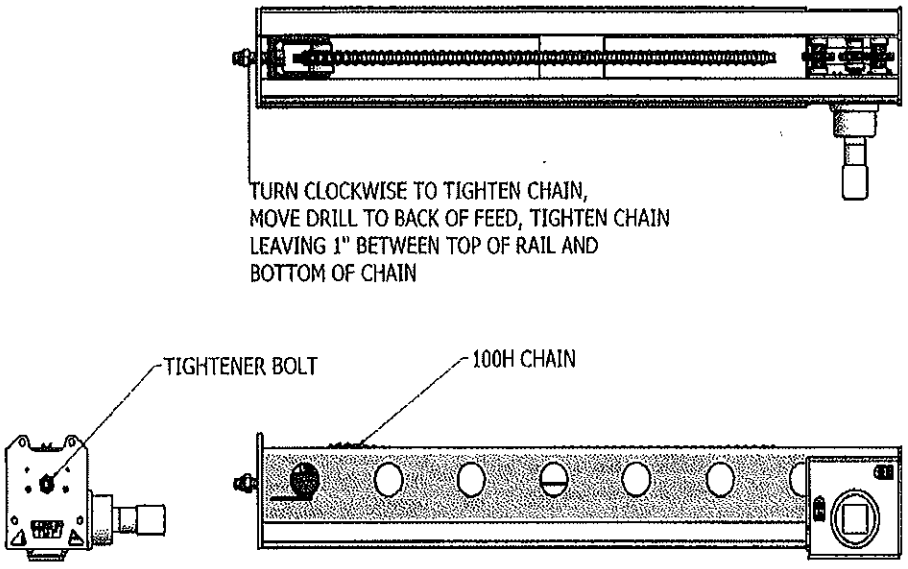
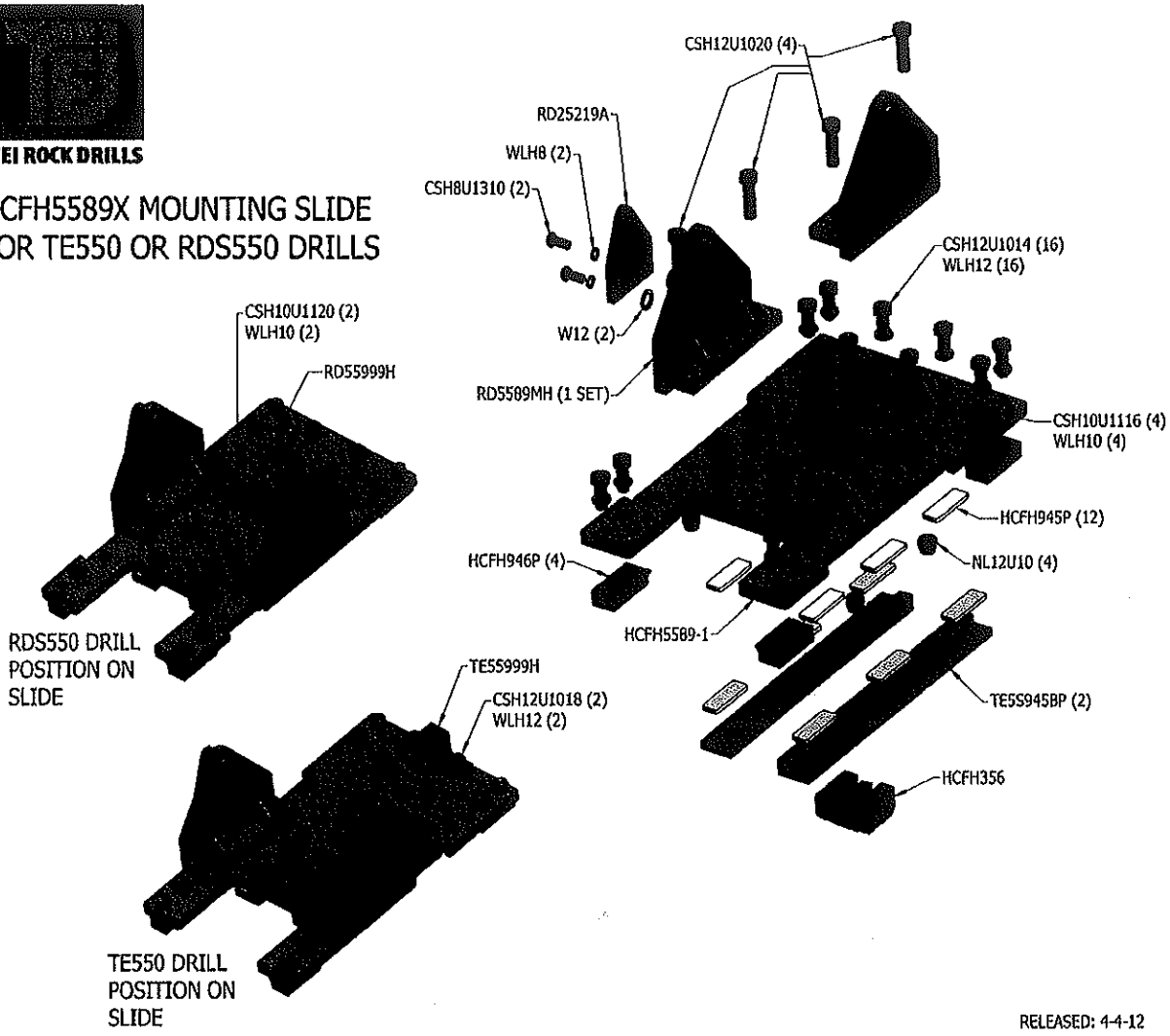


Figure 3.2

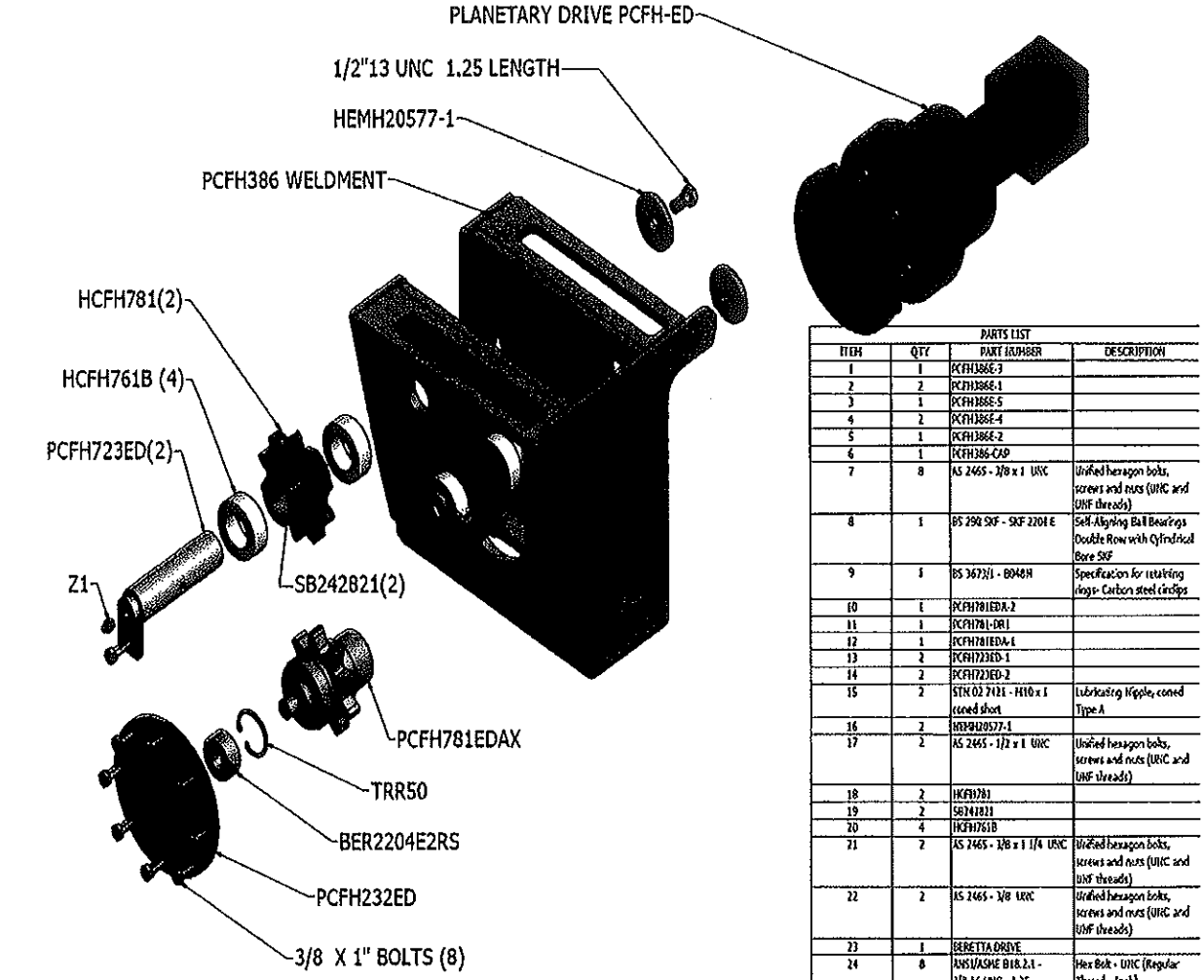
The front sprocket can now be removed for service or replacement. The bushing in the idler sprockets can then be pressed out and replaced with a new bushing. Reassemble in the reverse order.

TEI ROCK DRILLS

HCFH5589X MOUNTING SLIDE FOR TE550 OR RDS550 DRILLS



Mounting slide and wear strips have (12) wear pads that must be checked monthly. The pads have an access hole to remove them from the mounting slide and wear strips.



PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	PCFH386E-3	
2	2	PCFH386E-1	
3	1	PCFH386E-5	
4	2	PCFH386E-4	
5	1	PCFH386E-2	
6	1	PCFH386-CAP	
7	8	AS 2465 - 3/8 x 1 UNC	Unified hexagon bolts, screws and nuts (UNC and UNF threads)
8	1	BS 292 SKF - SKF 2204 E	Self-Aligning Ball Bearings Double Row with Cylindrical Bore SKF
9	1	BS 3673/1 - 1048M	Specification for retaining rings- Carbon steel circlips
10	1	PCFH781EDA-2	
11	1	PCFH781-DR1	
12	1	PCFH781EDA-1	
13	2	PCFH723ED-1	
14	2	PCFH723ED-2	
15	2	STH 02 7421 - M10 x 1 coned short	Lubricating Nipple, coned Type A
16	2	HEMH20577-1	
17	2	AS 2465 - 1/2 x 1 UNC	Unified hexagon bolts, screws and nuts (UNC and UNF threads)
18	2	HCFH781	
19	2	SB242821	
20	4	HCFH761B	
21	2	AS 2465 - 3/8 x 1 1/4 UNC	Unified hexagon bolts, screws and nuts (UNC and UNF threads)
22	2	AS 2465 - 3/8 UNC	Unified hexagon bolts, screws and nuts (UNC and UNF threads)
23	1	BERETTA DRIVE	
24	8	ANSI/ASME B18.2.1 - 3/8-16 UNC - 1.25	Hex Bolt - UNC (Regular Thread - Inch)

REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVED	VENDOR
A				

UNLESS OTHERWISE SPECIFIED, ALL MACHINE DIM'S ± .005
ALL ANGULAR DIM'S ± .5° MAX 250 "F" I/O.S. BREAK SHARP EDGES

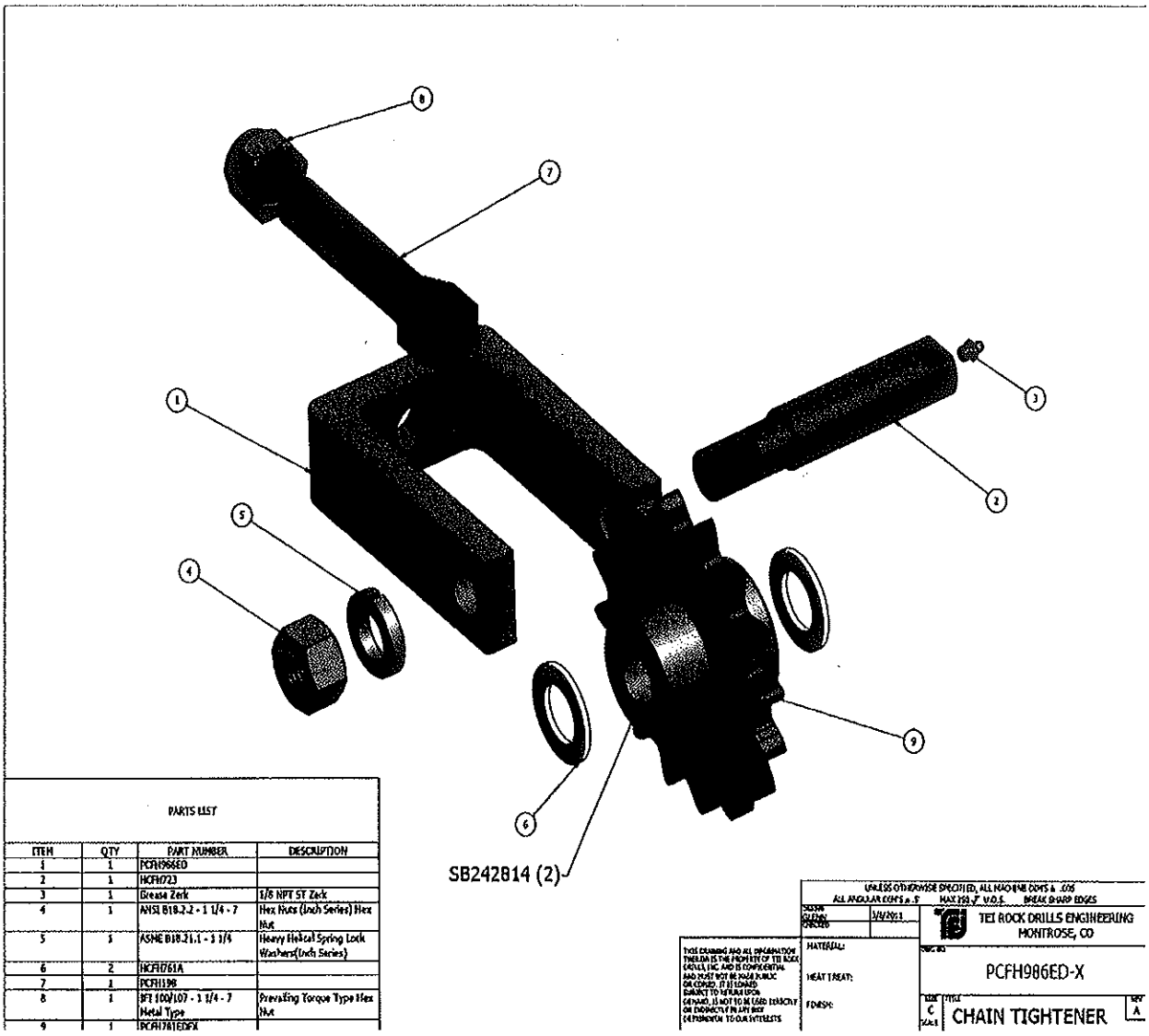
TEI ROCK DRILLS ENGINEERING
MONTROSE, CO

PCFH386E-MAN

SIZE C | REV A

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TEI ROCK DRILLS, INC. AND IS CONFIDENTIAL AND NOT TO BE MADE PUBLIC OR COPIED. IT IS LOANED SUBJECT TO RETURN UPON DEMAND. IS NOT TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTEREST

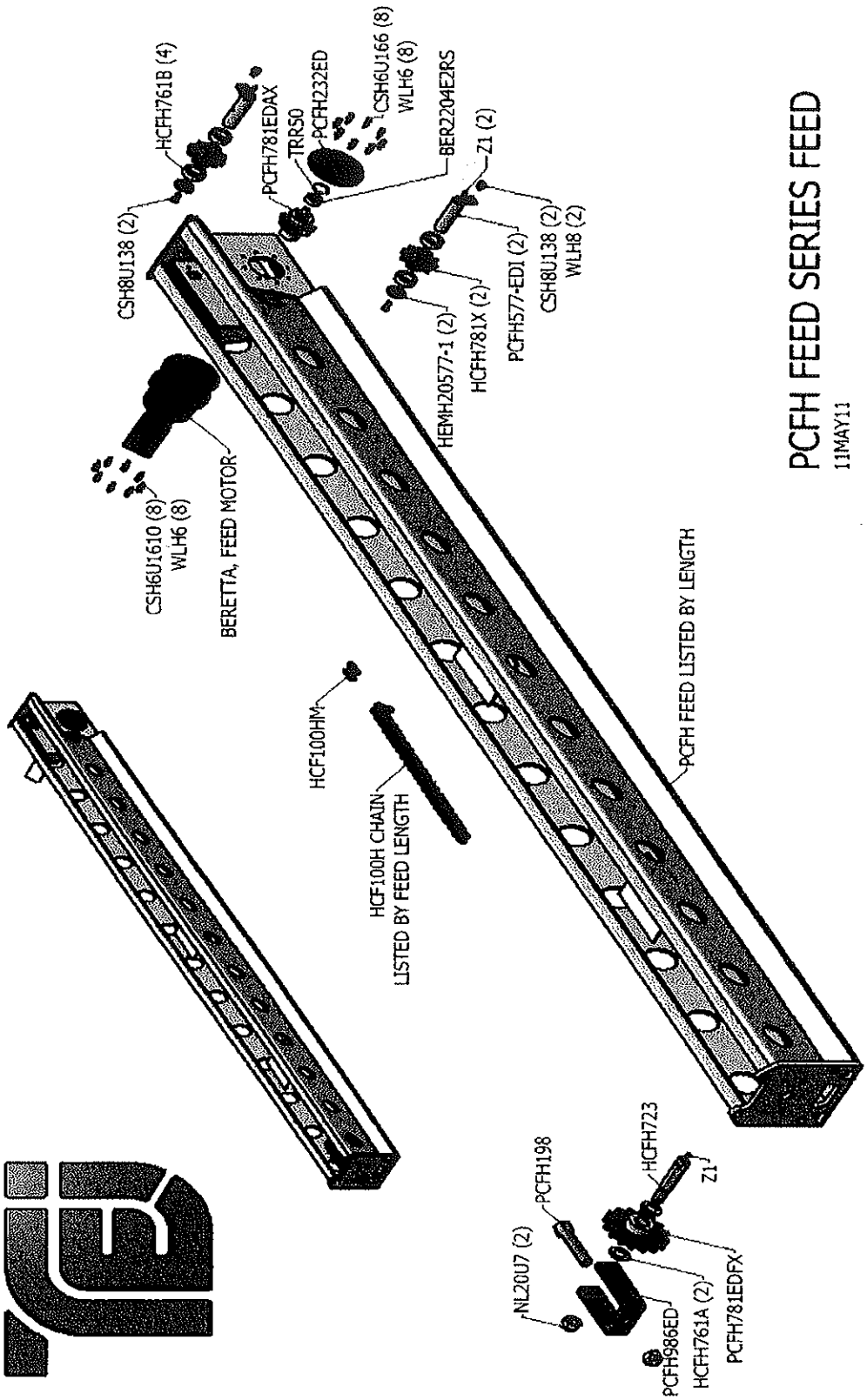
The PCFH386E gear drive assembly. Inspect bearings and gears weekly.

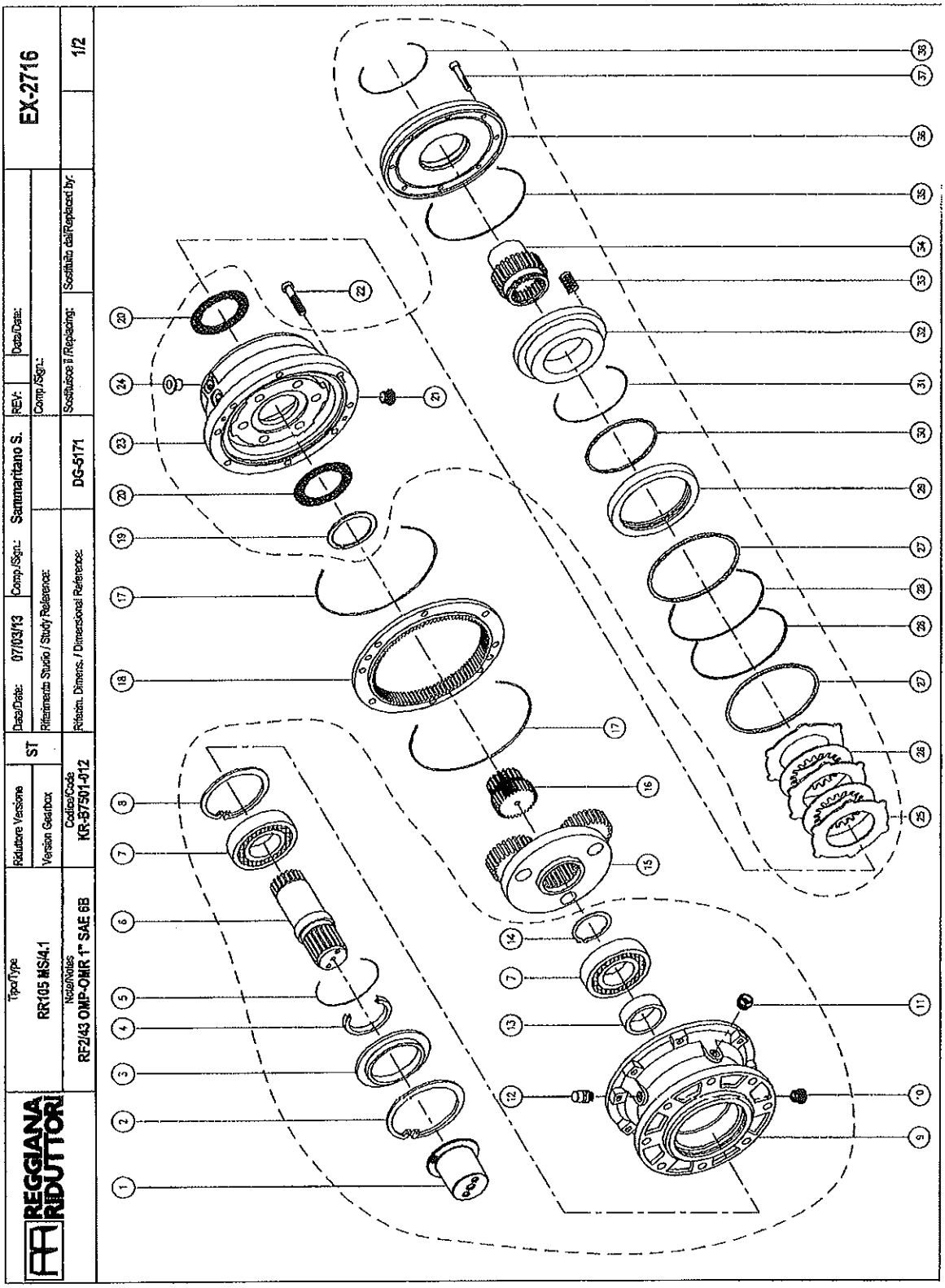


Front idler sprocket and chain tightener assembly.

GREASE TWICE DAILY! This part receives the heaviest wear of all sprockets.

When tightening the chain for the feed drive DO NOT OVER TIGHTEN! This can cause wear and failure to your feed drive.


HCFH761B (4)
CSH8U138 (2)
PCFH781EDAX
TRR50
PCFH232ED
CSH6U166 (8)
WLH6 (8)
BER2204E2RS
Z1 (2)
CSH8U138 (2)
WLH8 (2)
PCFH577-ED1 (2)
HCFH781X (2)
HEMH20577-1 (2)
CSH6U1610 (8)
WLH6 (8)
BERETTA, FEED MOTOR
HCF100HM
HCF100H CHAIN
LISTED BY FEED LENGTH
PCFH FEED LISTED BY LENGTH
PCFH FEED SERIES FEED
11MAY11
HCFH723
Z1
PCFH198
NL20U7 (2)
PCFH986ED
HCFH761A (2)
PCFH781EDFX



Planetary gear system, and brake section.
Not to be repaired in the field!!!

REGGIANA RIDUTTORI	Tipo/Type: RR105 MS/4.1	Riduttore Versione / Version Gearbox: ST	Data/Date: 07/03/13	Comp./Sign.: Sammaritano S.	REV:	Data/Date:	EX-2716
			Riferimento Studio / Study Reference:			Comp./Sign.:	
	Note/Notes: RF2/43 OMP-OMR 1" SAE 6B	Codice/Code: KR-B7501-012	Riferim. Dimens. / Dimensional Reference:	DG-5171	Sostituisce il /Replacing:	Sostituito dal/Replaced by:	Cod.ric. singolo:	3/3

Ref.	Codice/Code	Qt.	Denominazione	Denomination	Note	Cod.ric. singolo	Kit	
1	F101409000	1	PROTEZIONE ALBERO	SHAFT PROTECTION				
2	C080090	1	SEEGER	SEEGER	UNI 7437-90			
3	F260914200	1	SUPPORTO PARAOLIO	OIL SEAL SUPPORT		154-1782		
4	C125014	1	PARAOLIO	OIL SEAL	BASL45X62X8		GR01	
5	C140023	1	O-RING	O-RING	2-043 D.88,62X1,78		GR01	
6	F030403000	1	ALBERO USCITA	OUTPUT SHAFT		154-3378		
7	C010016	2	CUSCINETTO	BEARING	6208	154-2341		
8	C080080	1	SEEGER	SEEGER	UNI 7437-80			
9	F260900300	1	SUPPORTO USCITA	OUTPUT SUPPORT		154-1781		
10	C174009	1	TAPPO MAGNETICO CON OR	MAGNETIC PLUG WITH OR	1/4"G			
11	C172001	2	TAPPO LIVELLO OLIO	LEVEL OIL PLUG	1/4"G			
12	C173001	1	TAPPO DI SFIATO	BREATHER PLUG	1/4"G			
13	F090542000	1	DISTANZIALE	SPACER		154-1475		
14	C085040	1	SEEGER	SEEGER	UNI 7435-40			
15	P0041	1	GRUPPO RIDUZIONE R=4,1	COMPLETE REDUCTION R=4,1		154-1881		
16	F170503500	1	PIGNONE R=4,1	PINION R=4,1		154-1594		
17	C140050	2	O-RING	O-RING	2-162 D.145,7X2,62		GR01	
18	F060103000	1	CORONA	PLANETARY RING		154-1416		
19	C087008	1	ANELLO	RING	WR 50			
20	C100011	2	RALLA	WASHER				
21	C170013	3	TAPPO CON OR	PLUG WITH OR	1/4"G			
22	C030031	8	VITE	SCREW	M8X35-8.8 ISO4762			
23	F070431400	1	CORPO FRENO	BRAKE HOUSING		154B3163		
24	C169001	1	TAPPO IN PLASTICA	PLASTIC PLUG				
25	C200414	7	DISCO ACCIAIO	IRON DISC				
26	C200857	6	DISCO SINTERIZZATO	SINTERED DISC				
27	C165020	2	PARBAK	PARBAK	8-156		GR02	
28	C142156	2	O-RING	O-RING	2-156 D.107,62X2,62		GR02	
29	F094411400	1	DISTANZIALE FRENO	BRAKE SPACER		154B3357		
30	C165024	1	PARBAK	PARBAK	8-238		GR02	
31	C142238	1	O-RING	O-RING	2-238 D.88,49X3,53		GR02	
32	F180383000	1	PISTONE FRENO	BRAKE PISTON		154B3838		
33	F140226600	12	MOLLA FRENO	BRAKE SPRING		154-1457		
34	F022883500	1	ALBERO ENTRATA	INPUT SHAFT		154B1120		
35	C140022	1	O-RING	O-RING	2-47 D.114,02X1,78		GR02	
36	F265500200	1	COPERCHIO OMP-OMR	COVER OMP-OMR		154-5936		
37	C030203	8	VITE	SCREW	M6X25-12.9 ISO4762			
38	C140020	1	O-RING	O-RING	2-42 D.82,27X1,78		GR02	

Codice kit ricambi GR01: 154-1300	Codice kit ricambi GR02: 154B5981	Codice kit ricambi GR03:	Codice kit ricambi GR04:
Spare part kit GR01 code: 154-1300	Spare part kit GR02 code: 154B5981	Spare part kit GR03 code:	Spare part kit GR04 code:

LIMITED WARRANTY FOR TEI ROCK DRILLS

TEI ROCK DRILLS' limited warranty is only for products that are manufactured by TEI and only for operational failure caused by defective materials or workmanship. Said limited warranty is for normal and customary use within (12) twelve months from the date of invoice.

TEI's limited warranty obligation is limited only to a replacement of any and all parts for any product that upon inspection by TEI shows that it was defective. This limited warranty excludes all transportation costs from any TEI customer, and any and all other ancillary costs including but not limited to removal or instillation of the parts or materials and any other costs directly or indirectly related to the operational failure caused by defective materials or workmanship.

TEI ROCK DRILLS' limited warranty does not include liability for any loss of time, manufacturing cost, labor, material, loss of profits, personal injury, consequential damages because of defective materials or workmanship. TEI ROCK DRILLS' limited warranty does not cover other manufacturers equipment.

If you have to make a claim within the terms of TEI ROCK DRILLS' Limited warranty, you must **write to your TEI ROCK DRILLS supplier within 15 (fifteen) days from the date of defect or fault.** You are to give TEI ROCK DRILLS' staff every facility for inspecting and remedying the claimed defect or fault.

This limited warranty shall not extend to any other damages the customer may experience, including but not limited to any torts or product liability claims.

Prior to the return of any defective materials, written permission must be secured from authorized TEI personnel and, upon return, must include a complete written explanation of the claimed defects and the circumstances relating to the operational failure.

ONLY PRODUCTS MANUFACTURED BY TEI ARE WARRANTIED FOR THE LIMITED PURPOSES AS SET FORWARD HEREIN AND ARE LIMITED TO A FITNESS FOR A PARTICULAR PURPOSE FOR THE NORMAL AND CUSTOMARY USE OF SAID PRODUCT.

DISCLAIMER

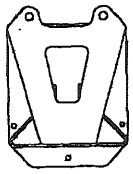
TEI ROCK DRILLS does not accept responsibility for any misprints in this booklet. Prices or numbers May change without written notice to anyone. This manual is not intended to create a contract.

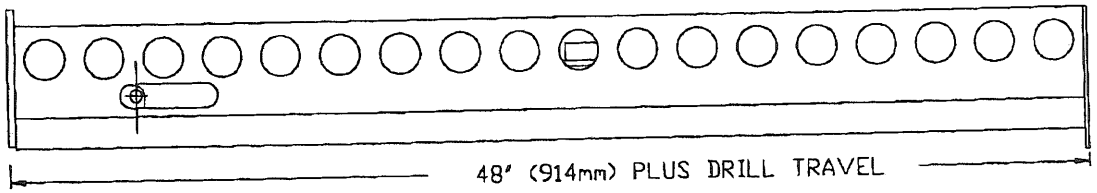
Effective March 1, 2005
Previous warranties no longer apply

HCFH Hydraulic Cylinder Feed with
12,000 lbf (53376 N) of Pull and
8,000 lbf (35584 N) of Push

TEI Rock Drills
Montrose, Colorado

HCFH HYDRAULIC CYLINDER FEED



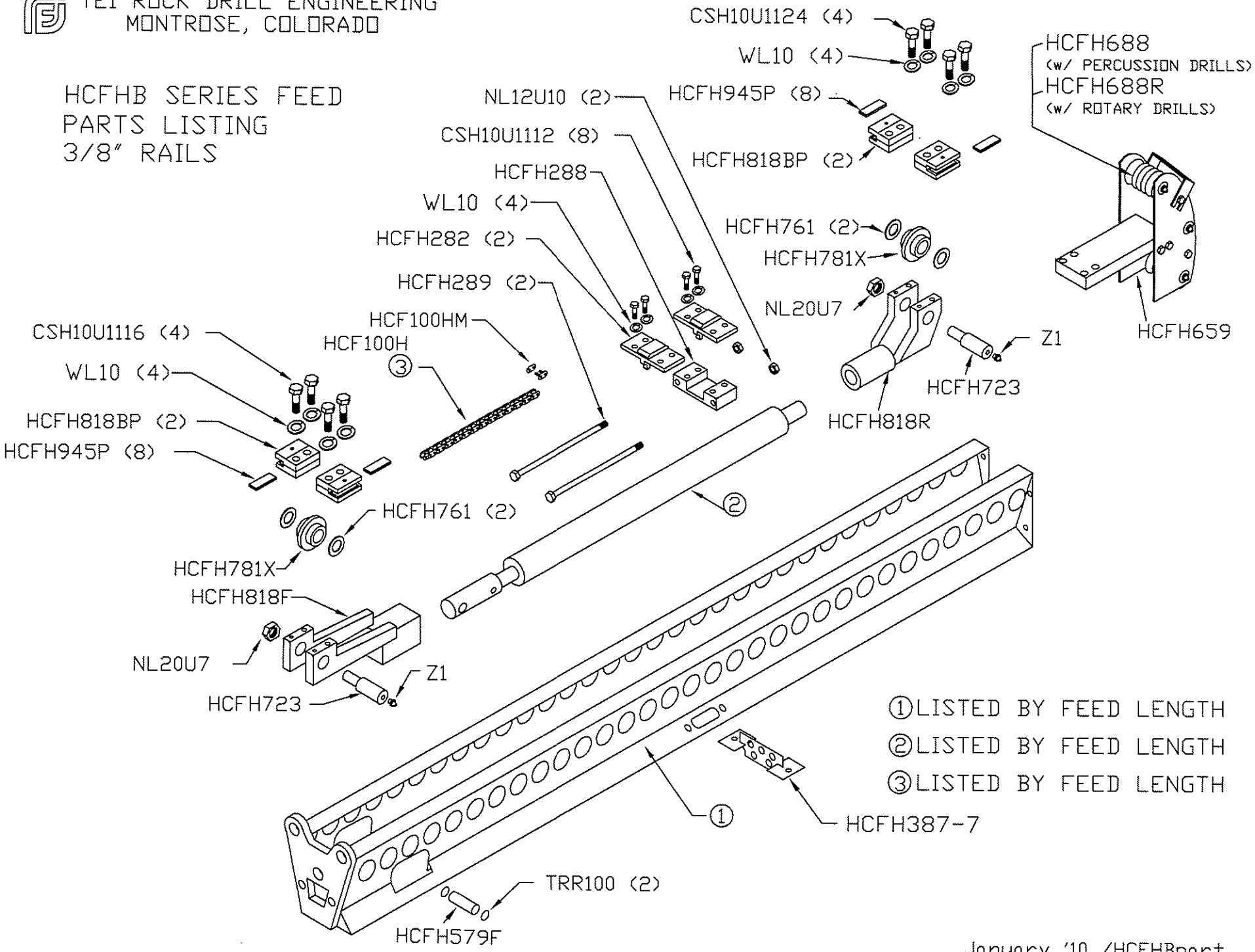


SPECIFICATIONS

MODEL NUMBER	DRILL TRAVEL	TOTAL LENGTH	FEED WEIGHT
HCFH10	11' (3.3m)	15' (4.6m)	1090# (495kg)
HCFH12	13' (4.0m)	17' (5.2m)	1186# (538kg)
HCFH14	15' (4.6m)	19' (5.8m)	1282# (581kg)
HCFH16	17' (5.2m)	21' (6.4m)	1378# (625kg)
HCFH18	19' (5.8m)	23' (7.0m)	1474# (668kg)
HCFH20	21' (6.4m)	25' (7.6m)	1570# (712kg)

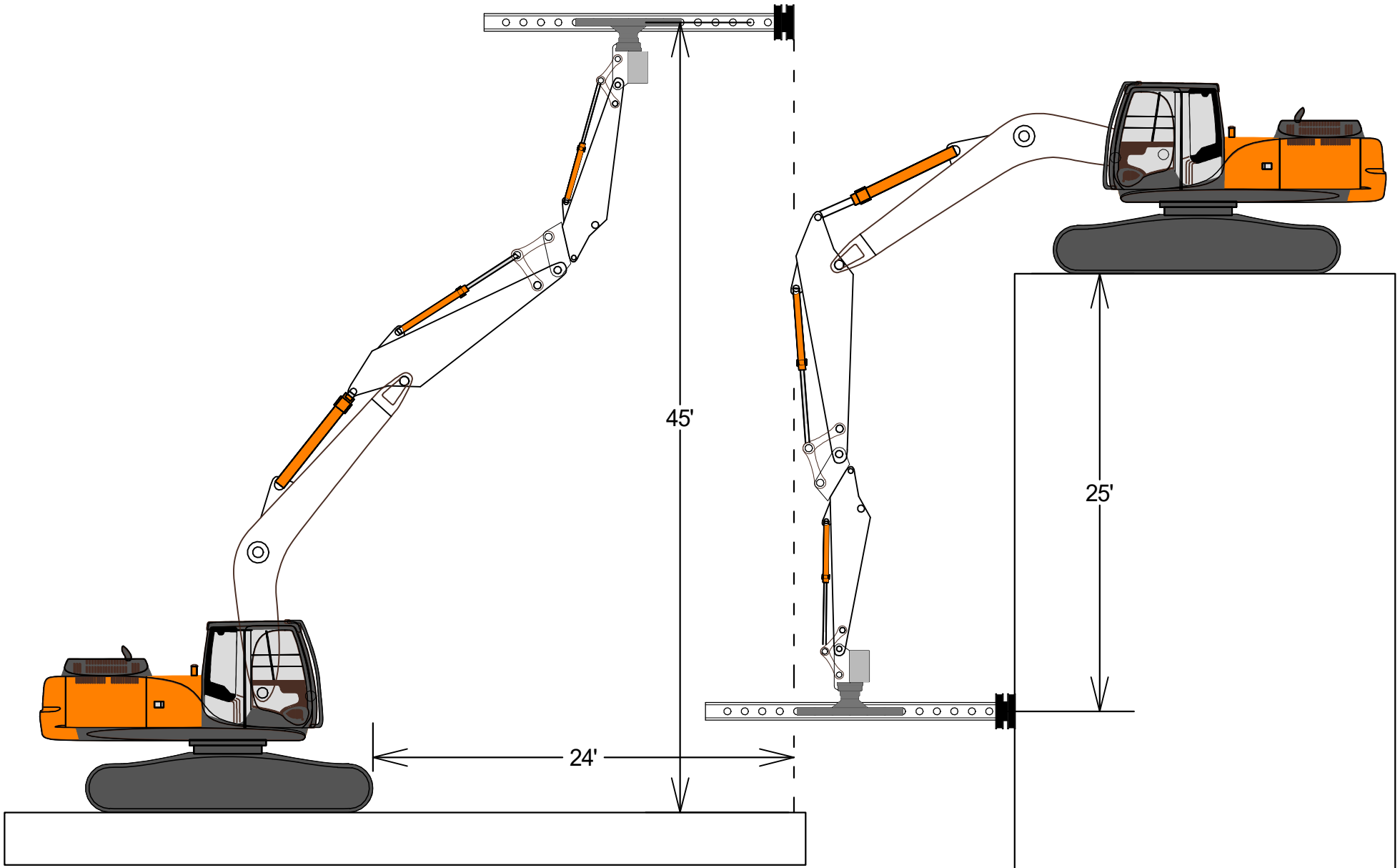
TEI ROCK DRILL ENGINEERING
MONTROSE, COLORADO

HCFHB SERIES FEED PARTS LISTING 3/8" RAILS



①LISTED BY FEED LENGTH
②LISTED BY FEED LENGTH
③LISTED BY FEED LENGTH

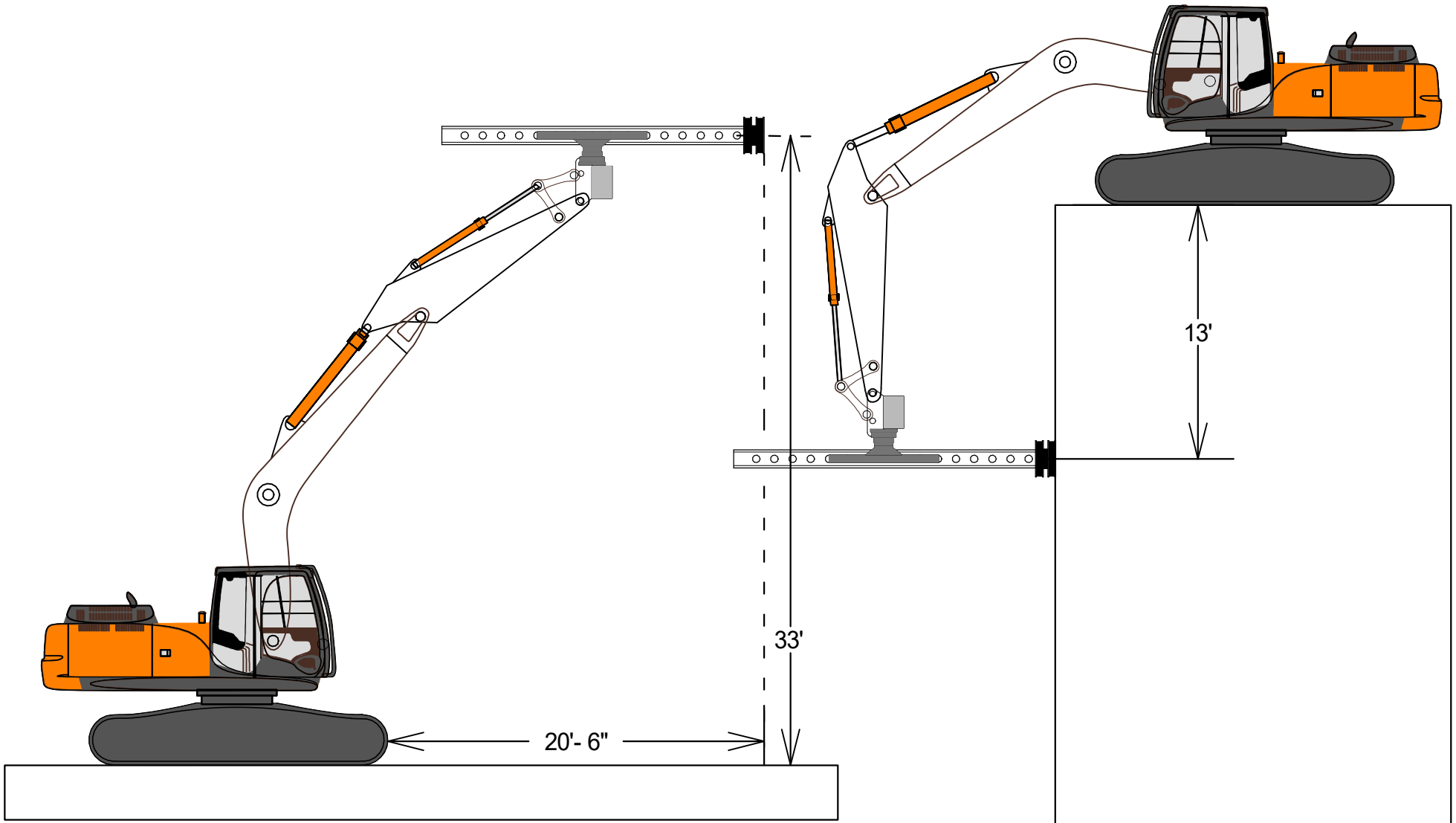
January '10 /HCFHBpart



Title: Hitachi 330 w/ TBH Extention & TEI Mast	Project: ????/????	Date: 00/00/200?	Revision: (Date & Rev#) ??/??/200? || #000
description: ***	Customer: ?#?#?#?		Revision Description: *****
	Scale: 1' 0" = 94' 3.428571428571	Drawn by: Paul Rave	This document contains information of a proprietary nature which is the sole property of TBH & Associates. Any use of this document other that the specific application originally intended is prohibited. Information contained in this document is subject to change without notice.
File Name: TBH Template; Letter; Landscape; 1in~1in.SKF	Sheet: 1 of 1	Printing Date/Time Stamp: 4/25/2009, 9:46 AM	

3rd angle projection

TBH & Associates



Title: Hatachi 330 w/ TEI Mast
description: ***

Project: ????/????
Date: 00/00/200?
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Drawn by: Paul Rave
Sheet: 1 of 1
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Revision: (Date & Rev#) ??/??/200? || #000
3rd angle projection
Revision Description: *****

TBH & Associates

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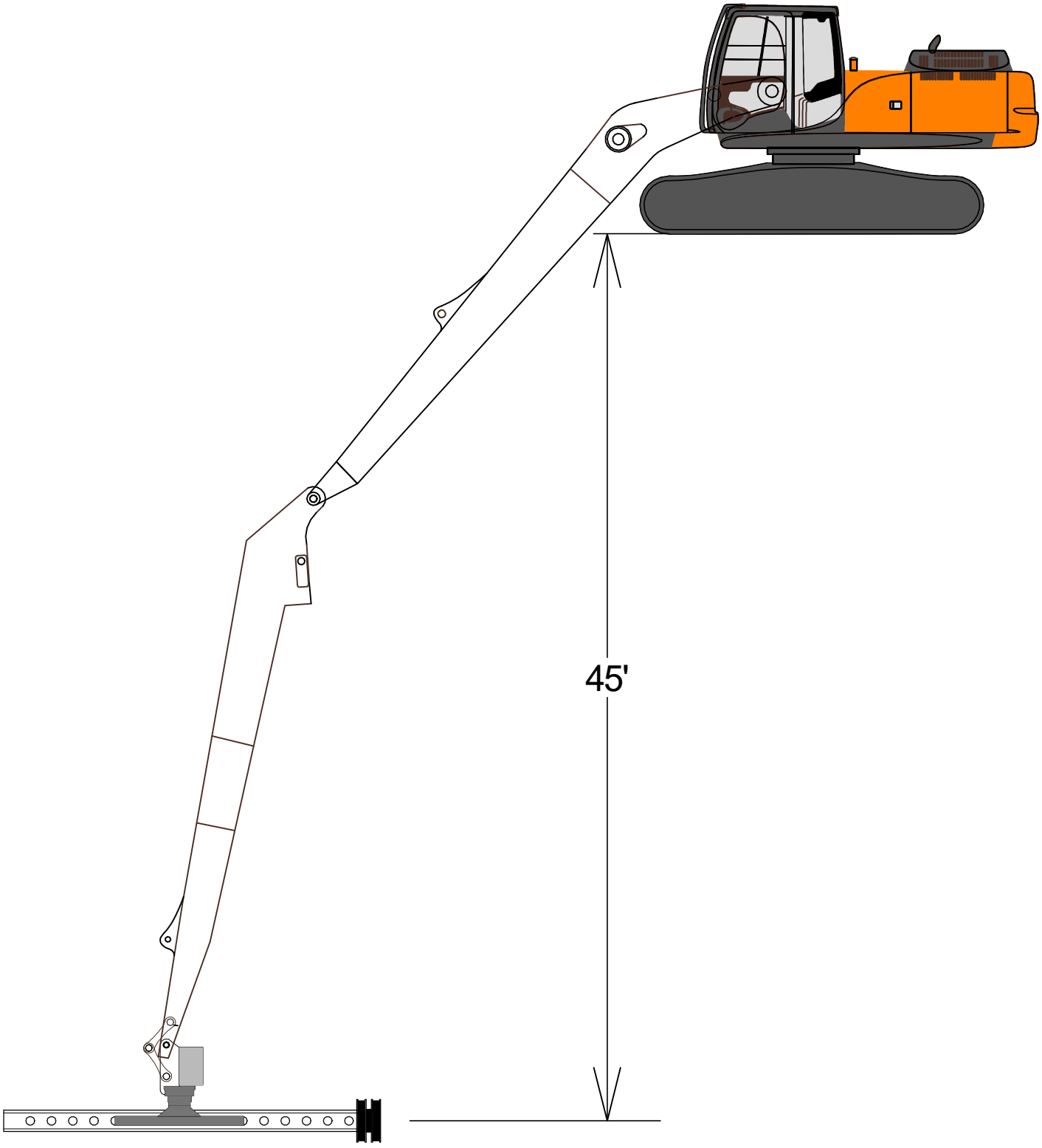

Title: Hitachi 330 Long Reach w/ TEI Mast			TBH & Associates
DESCRIPTION ***			
File Name:TBH Template; Letter; Portrait; 1in~1in.SKF			
Project: ????/????	Date: 00/00/200?	Revision: (Date & Rev#) ??/??/200? || #000	3rd ANGLE PROJECTION
Customer: ?#?#?#?		Revision Description: *****	
Scale: 1' 0" = 80' 0"	Draftsman: Paul Rave	This document contains information of a proprietary nature which is the sole property of TBH & Associates. Any use of this document other that the specific application originally intended is prohibited. Information contained in this document is subject to change without notice.	
Sheet: 1 of 1	Printing Date/Time Stamp: 4/25/2009, 9:42 AM		

REMOTE FOR TEI SHORT MAST

KAR-TECH, INC. VERSA REMOTE

FCC ID: P4U-VRTS

IC: 4534A-VRTS

MADE IN U.S.A.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION

P/N: 3B0702A

S/N: ??101

KAR-TECH MANUFACTURED FOR TEI