

PARTS AND SERVICE MANUAL

ACF HYDRAULIC CHAIN FEED



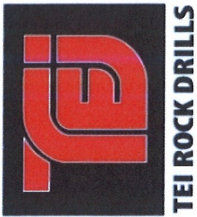
**TEI ROCK DRILLS
MONTROSE, COLORADO**

APRIL 2014

ACF FEED SERVICE AND MAINTENANCE MANUAL

TABLE OF CONTENTS

INTRODUCTION	SECTION 1
Specifications	1-1
PRECAUTIONARY NOTICES	SECTION 2
Operator Warnings	2-1
Equipment Cautions	2-2
MAINTENANCE	SECTION 3
General Maintenance tips	3-1
Chain Adjustment	3-2
Maintenance Schedule	3-3
Troubleshooting	3-4
PARTS BOOK	SECTION 4
ACF Gear Housing	4-1
ACF Front housing	4-2
ACF Mounting Slide	4-3
ACF437 Gear Box	4-4
Hydraulic Clamp	4-5
Manual Centralizer	4-6



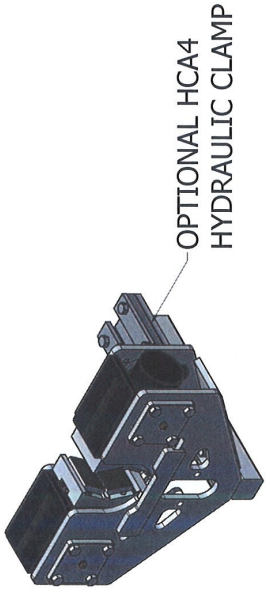
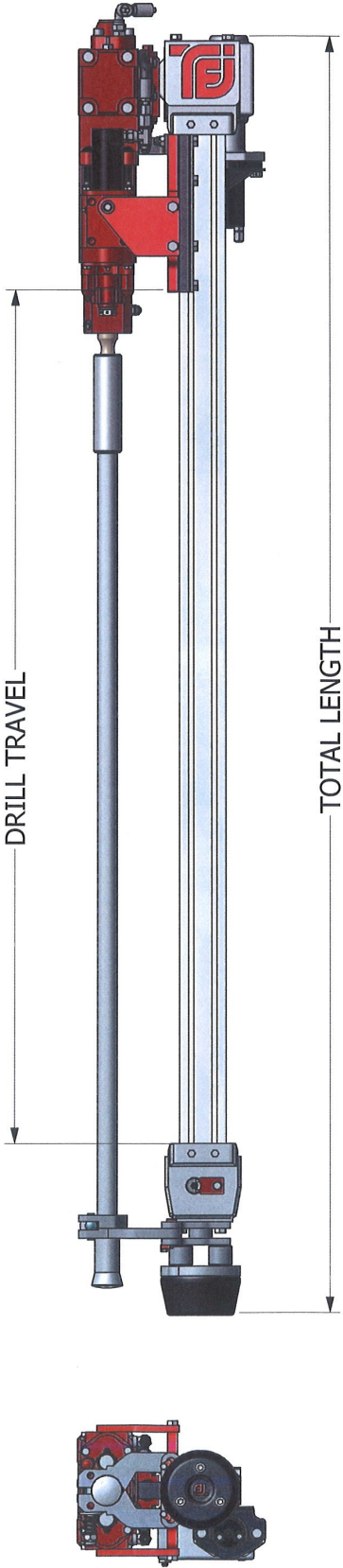
ACF GEARED CHAIN FEED WITH HYDRAULIC MOTOR

FEED SPECIFICATION		
MODEL NUMBER	DRILL TRAVEL	TOTAL LENGTH
ACF4	4.5' (1372mm)	89.5" (2273mm)
ACF5	5.5' (1676mm)	101.5" (2578mm)
ACF6	6.5' (1981mm)	113.5" (2883mm)
ACF8	8.5' (2591mm)	137.5" (3493mm)
ACF10	10.5' (3200mm)	161.5" (4102mm)

PCF538 5.4 HP
FEED DRIVE WITH 1500 lbf. (6672Nm)
THRUST/PULL

ALL TECHNICAL DATA AT
6.5 gpm (25 Lpm), 2500 psi (180 bar)

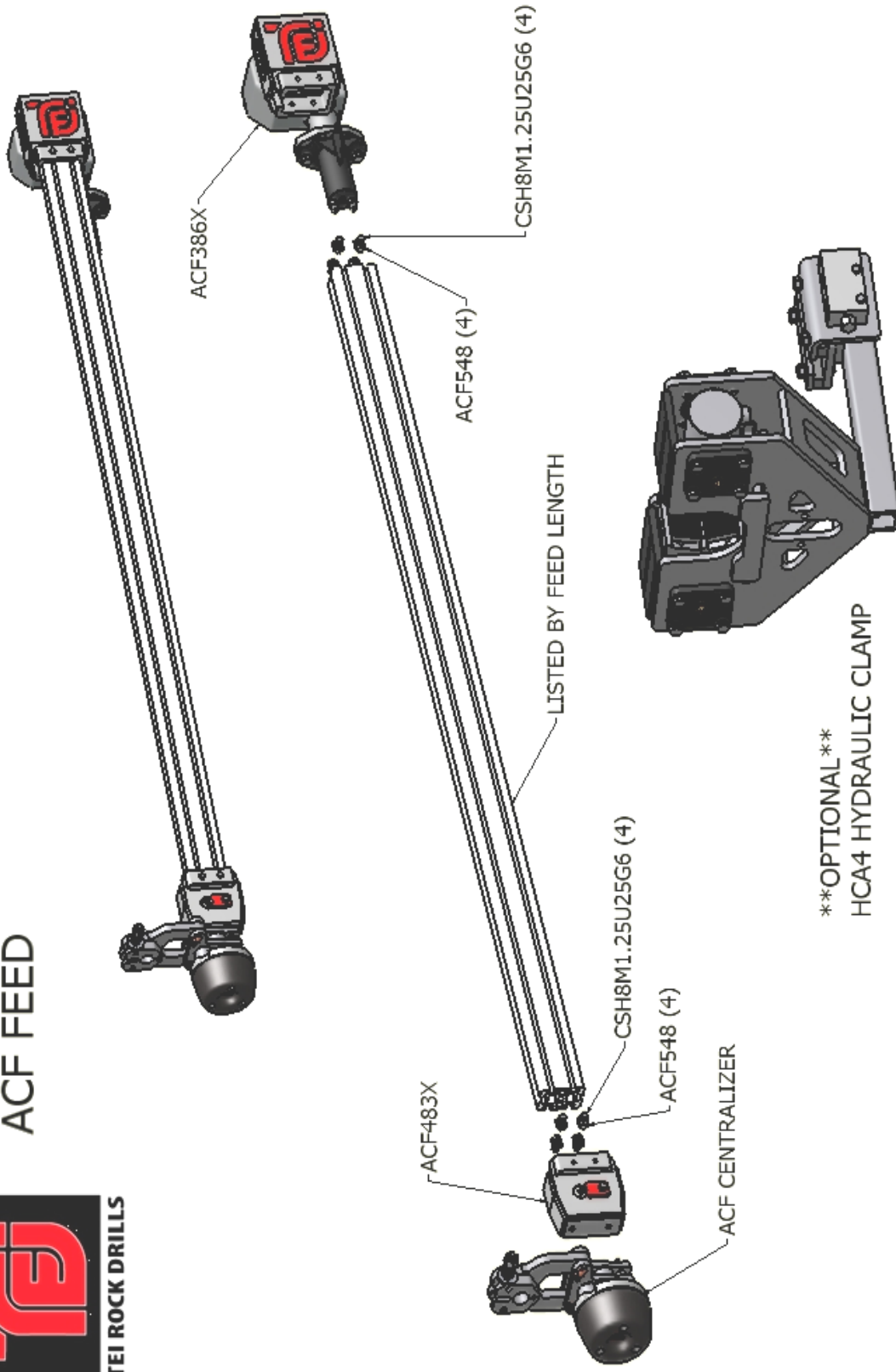
Section 1-1



TEI08.036.A



ACF FEED



SERVICE AND MAINTENANCE MANUAL ACF CHAIN FEEDS

The ACF series chain feeds use a worm gear drive 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. Thus this one feed design can be used for many different applications.

Operation of the feed is simple. A single reduction worm 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 configurations.

The drill feed force is proportional to pressure up to a maximum of 1,500 lbs. (6672 N). Retraction force out of the hole is the same as above.. Feed force is controlled using variable hydraulic pressure. The worm drive cannot be back driven and the feed will hold any load without the use of brakes.

Any drill up to 200 lbs. (90 kg) can be mounted. Contact TEI for specific drill mounting requirements. Rotary drilling up to 4" (101 mm) diameter holes are possible using the RDS250 hydraulic rotation motor. Percussion drilling of up to 2" (52 mm) diameter hole are possible with both pneumatic and hydraulic drifters.

ACF feeds are designated by length and application. ACF4 designates a feed having 4.5 ft. (1.4 m) of total drill travel. This allows the use of up to 4 ft. (1.2 m) drill steel during steel change. The total length of the feed is 32.75" (.8 m) longer than 4.5' or a total length of 86.75" (2.2 m)

The hydraulic feeds are capable of full feed power loading with fast retraction using up to 8gpm (30lpm) flow.

The above feeds are available in drilling steel change lengths from 2' (.61 m) to 10' (3 m) in 1' (.3 m) increments. The length designations are ACF2 thru ACF10

PRECAUTIONARY NOTICES
Section 2

Operator Warnings 2-1

Equipment Cautions 2-2

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 ACF 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. BEFORE REDRILLING ANY BLASTHOLE, MAKE SURE NO EXPLOSIVES HAVE BEEN LEFT IN THE OLD HOLE

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 OBSTRUCTION. NEVER HAMMER ON BIT OR STEEL. FRAGMENTATION CAN PRODUCE SRIIOUS 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. THOROUGHLY 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 ACF FEED SYSTEM MUST BE PERFORMED IN A CLEAN ENVIRONMENT. THE ONE OVERRIDING RULE IN MAINTAINING HYDRAULIC EQUIPMENT IS CLEANLINESS. PREVENTION OF CONTAMINATION IN HYDRAULIC FLUIDS IS THE MOST IMPORTANT FACTOR IN MAINTAINING HIGH PERFORMANCE IN TODAY'S 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 REASSEMBLY.
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. THOROUGH 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

General Maintenance Tips	3-1
Maintenance Schedule	3-2 thru 3-2
Chain Adjustment	3-3 thru 3-4
Troubleshooting	3-5

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

GENERAL TIPS ON ACF 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 and sprockets 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 reassemblies 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 ACF feed is very good practice. A minor adjustment can many time 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 ACF 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.

MAINTENANCE SCHEDULE

DAILY MAINTENANCE

Clean and inspect feed. Check drive chain for tension, move drill forward and back on the feed to either end. With the drill pressure off (drill to back of feed, release pressure on chain) you should be able to lift chain 3" (80mm) off of rail) depending on feed length. (DO NOT OVER TIGHTEN). If adjustment is required tighten chain from under mounting slide, front or back. Remove rocks from inside the feed structure. Check the dust shields at centralizer. Grease front idler sprockets. Pump grease until excess flows out around sprocket. 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 chain.

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.

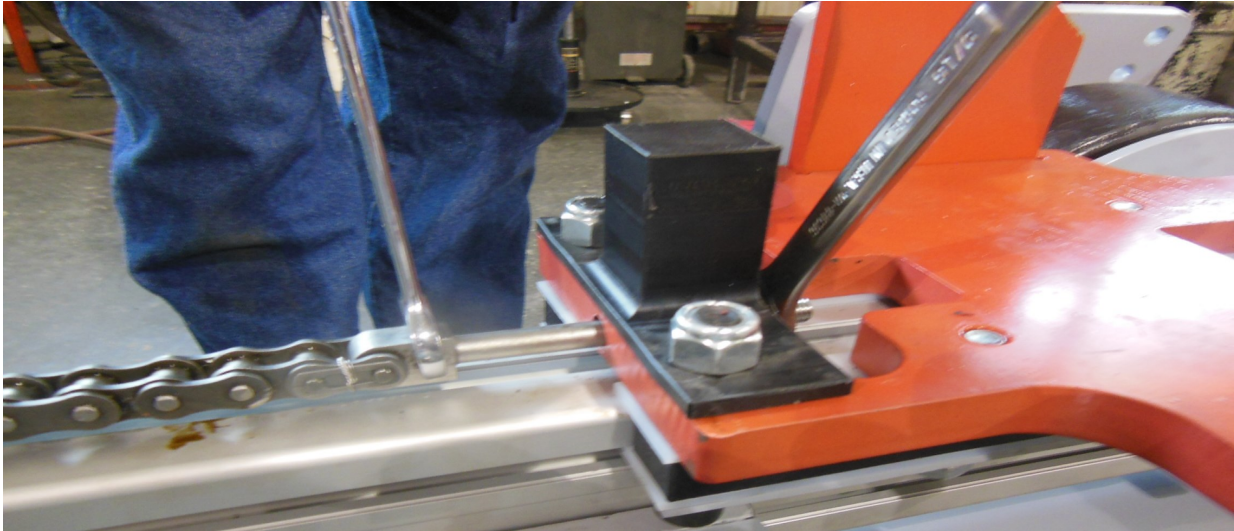
REPLACING/REPAIRING DRIVE CHAIN

To service the drive chain, clean out the feed frame and remove the drill steel. Move the drill to center of feed and shut down the hydraulic system. Neutralize all system pressure by wobbling the control levers. Loosen the chain with the adjusting nuts on mounting slide. Remove the chain bolts (ACF184) by removing the chain master links. Remove the master link and separate the drive chain. Feed the chain out of the drive and idler sprocket.

The front sprocket and rear drive 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.

ACF Feed, Chain tightening procedure.

The chain is tightened with the two bolts on the front and rear of the mounting slide located underneath the drill head. These are in place with 6 to 8 Belleville washers placed alternating each other to absorb the shock from drilling.



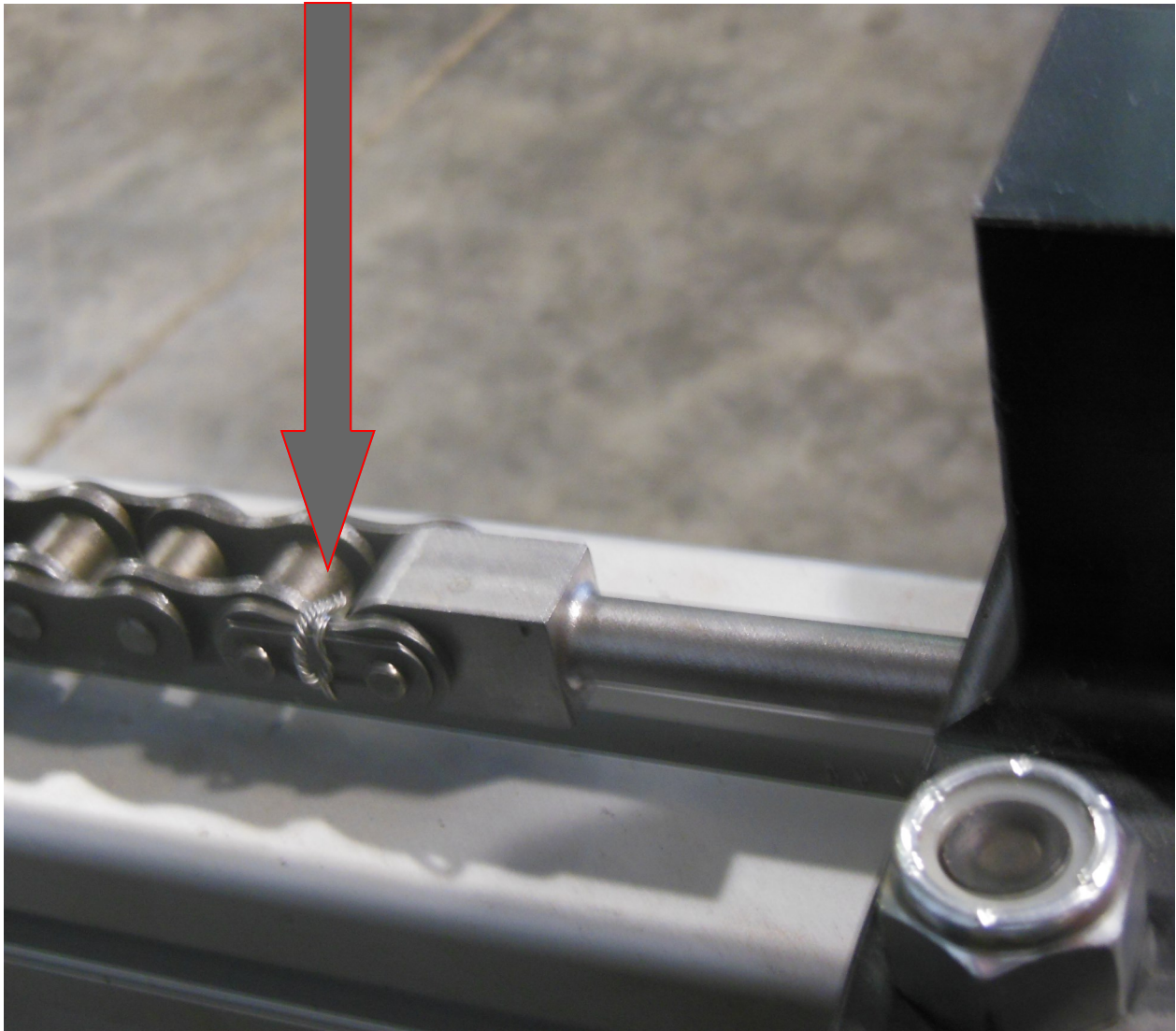
In the picture you can see the bolt (ACF184) with the Belleville washers and nyatron nut on it. Tightening this nut will tighten the chain of the ACF feed. This should be tightened to 30 ft/lbs. DO NOT OVER TIGHTEN!!



This is a view of the rear tightening bolt, you will need to remove the drill head have access to tighten this bolt. The chain will need to be tightened after the first couple of days on the job as a wear in time. After that it should be checked daily and tightened as needed.

Be sure to wire tie the master link at each end of the mounting slide. This is a safety measure to keep the chain from separating while operating the drill.

Be sure that the wire wrap is on the side of the master link with the clip retainer on it.





View of chain tightening bolt,
Use 9/16" (14mm) wrench and hold outside of
chain steady to tighten/ Loosen chain.

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSES	REMEDY
Feed speed rapidly drops or fails to work	Hydraulic lines blocked	Check hoses and fittings for leaks or kinks, crushing, replace
	Failure of drive motor or worm drive assembly	Check drive motor for operation, remove from drive box and apply power. Manually move worm drive both directions to check for damage.
	Chain Damage	Inspect chain a check for proper adjustment
Drill moves erratically	Worn wear guides at mounting slide	Inspect and Replace worn parts
	Chain adjustment	Adjust chain for proper tension
	Mast rail bent	Replace
	Improper feed pressure	Adjust feed pressure with pressure valve
Rapid feed wear	Extreme drilling conditions	Protect mast and wear parts from abrasive materials
	Rail bent	Replace
	Misapplication	Attempting too large a hole for ground conditions and equipment

PARTS BOOK

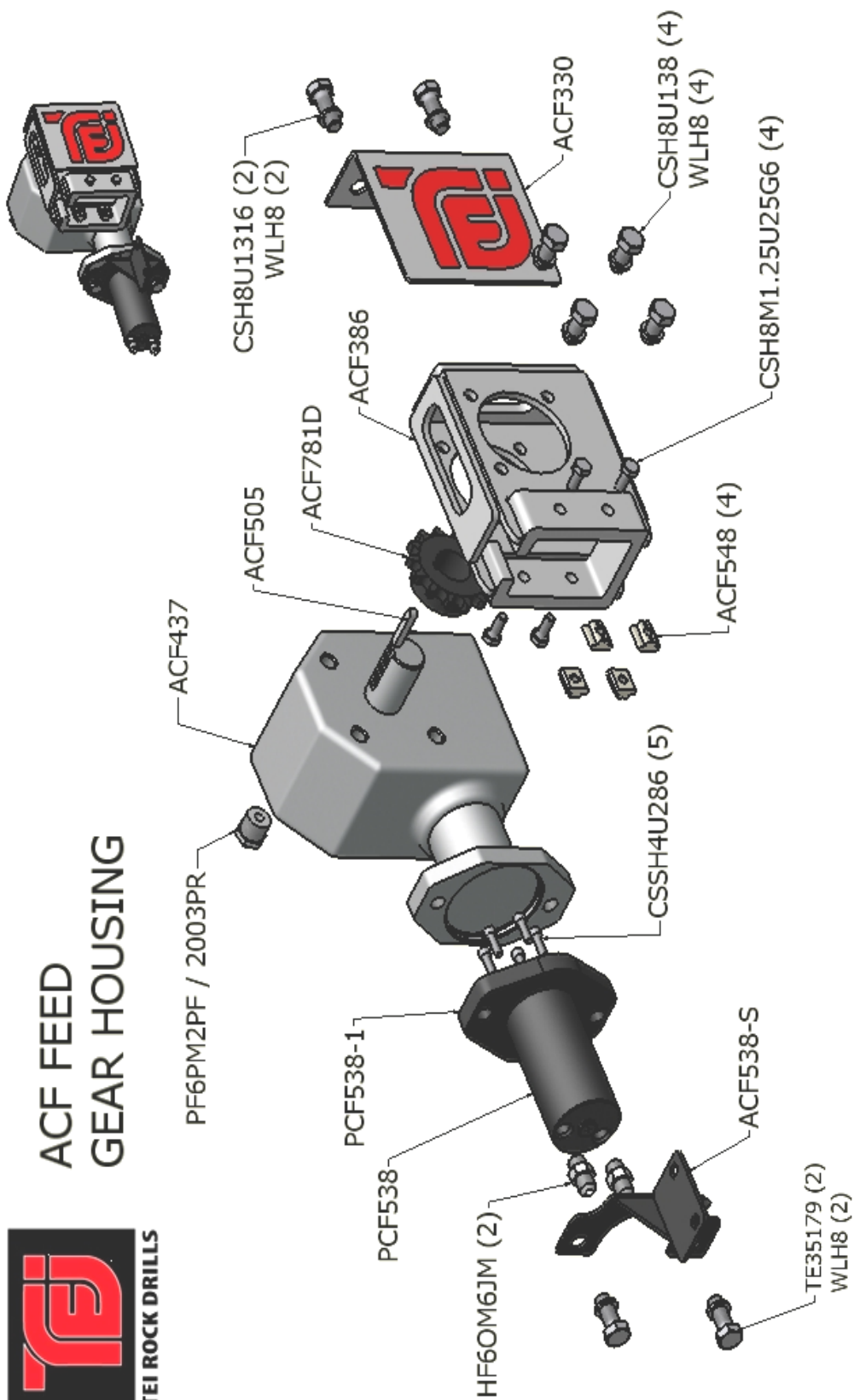
Section 4

ACF Feed Gear Housing	4-1
ACF Front Housing	4-2
ACF Mounting Slide	4-3
ACF437 Worm Drive	4-4 thru 4-5
HCA4 Hyd Clamp	4-6
ACF Manual Cent	4-7
ACF Feed Assembly	4-8

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MACHINE, READ THE WARNINGS AND CAUTIONS LISTED IN SECTION 2**

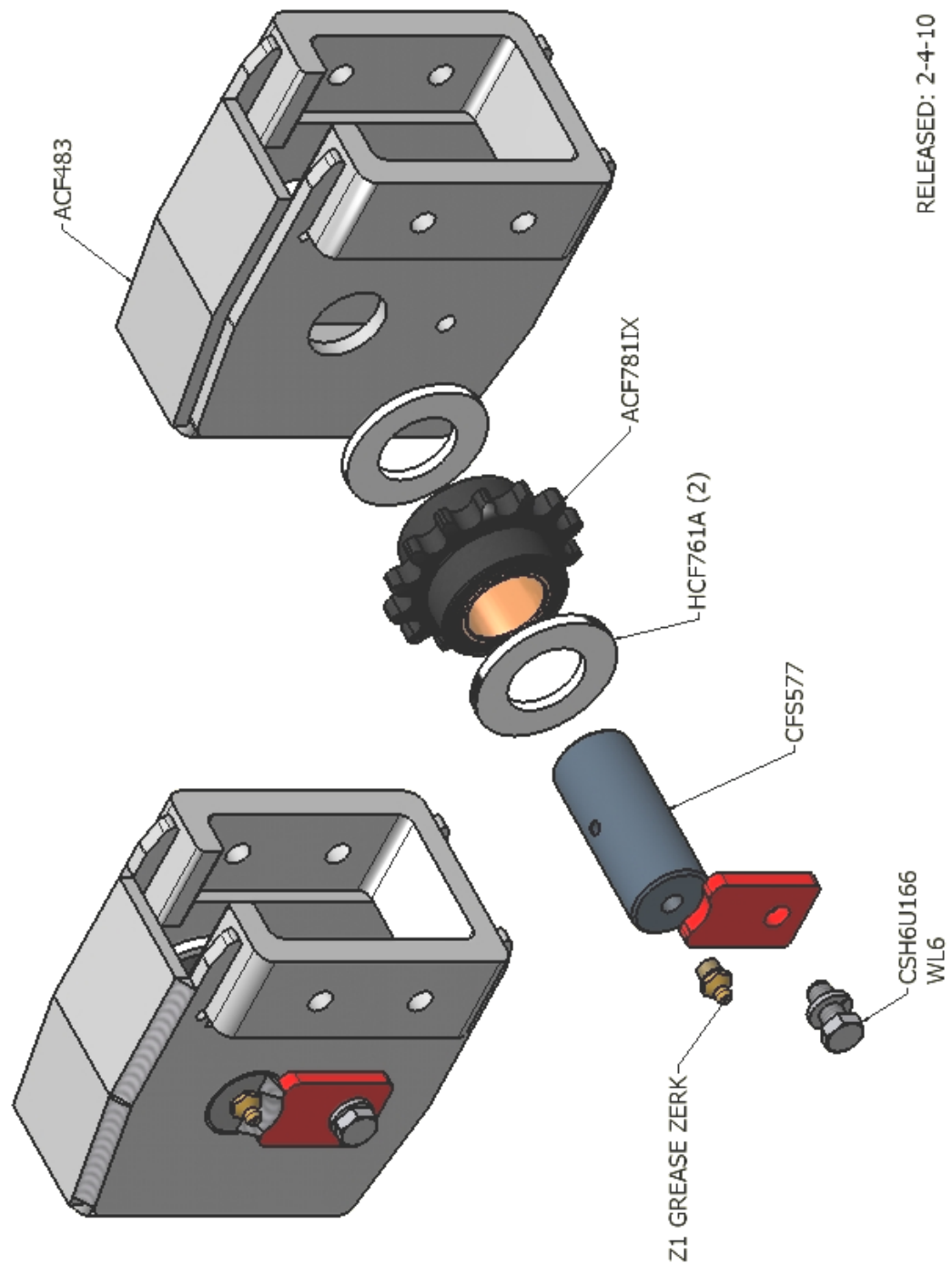


ACF FEED GEAR HOUSING





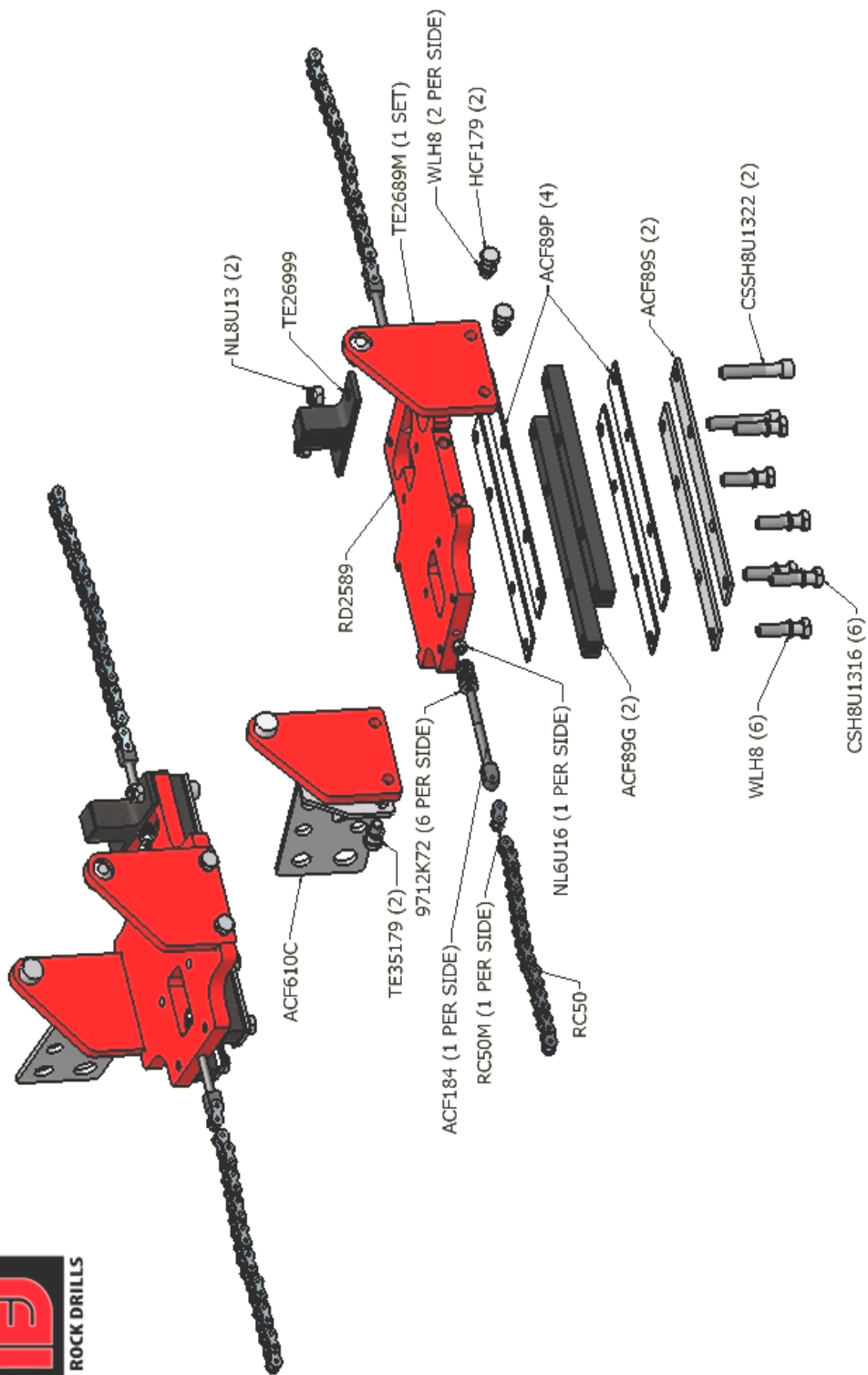
ACF483X ASSEMBLY



RELEASED: 2-4-10



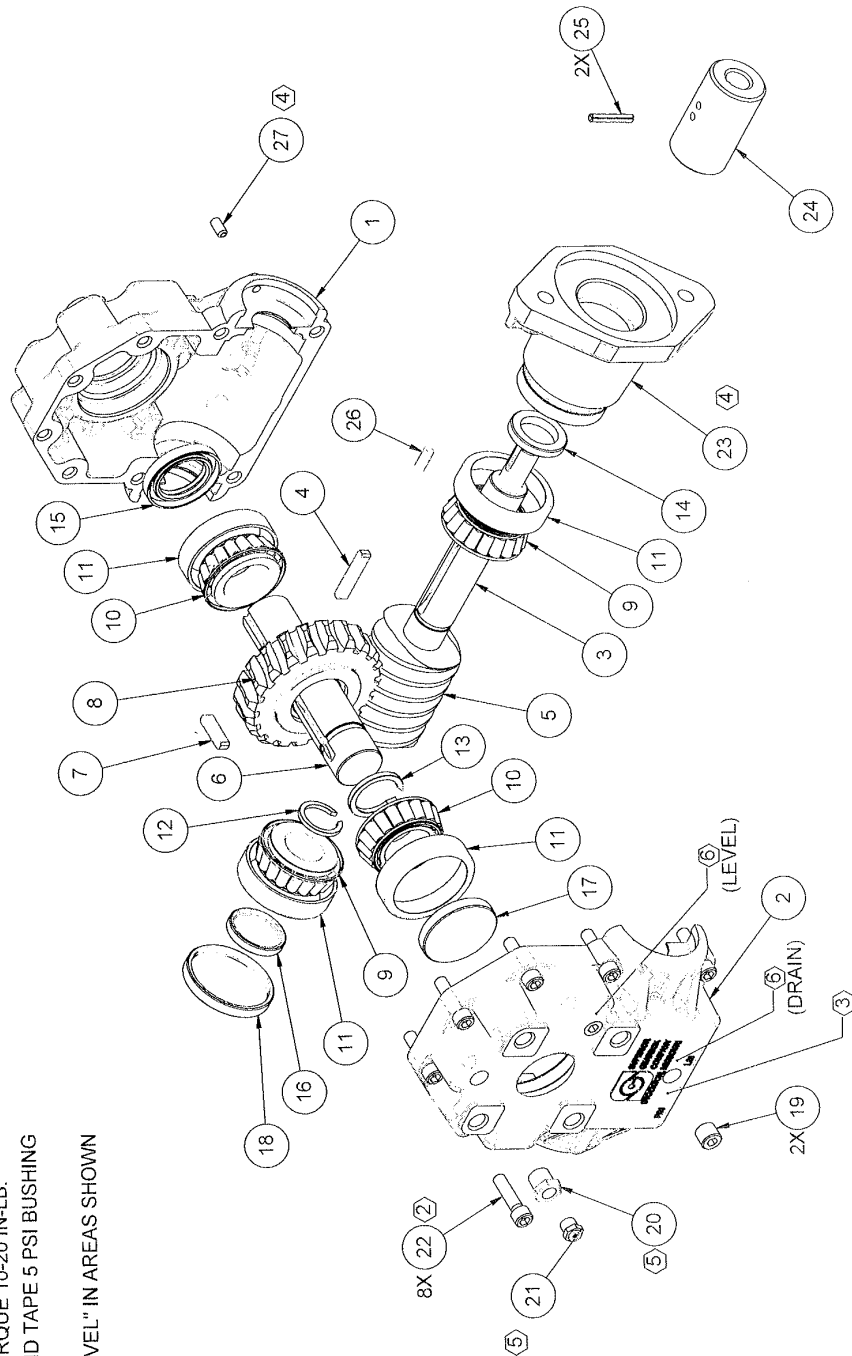
TE2689X ASSEMBLY



RELEASED: 12-17-09
 UPDATED: 7-26-11 (HCF179 WAS CSH8U138,
 ADDED TE35179 & ACF610C)
 UPDATED: 3-20-12 (RD2589 WAS RH2589)

NOTES:

1. GEAR RATIO IS 10:1
2. TORQUE 5/16-18 CAPSCREWS (ITEM 22) TO 17-21 FT. LB.
3. STAMP PART NO. AND LOT NO. IN AREA SHOWN
4. ALIGN Ø.250 HOLE IN HYD. ADAPTER (ITEM 23) WITH SET SCREW (ITEM 27). APPLY LOCTITE 262 TO SET SCREW, AND TORQUE 10-20 IN.-LB.
5. INSTALL SOLID PLUG AND TAPE 5 PSI BUSHING TO OUTPUT SHAFT
6. STAMP "DRAIN" AND "LEVEL" IN AREAS SHOWN



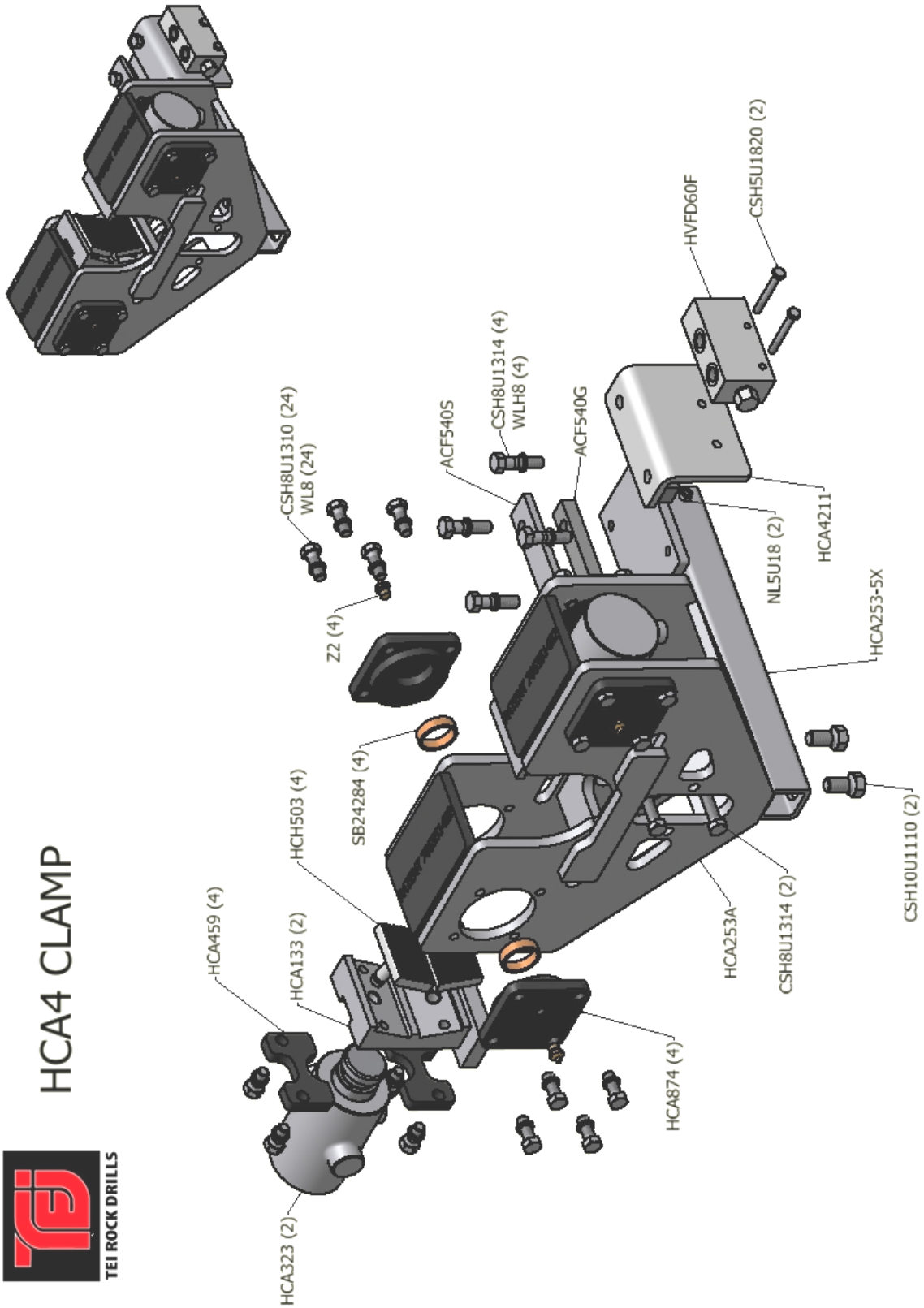
TEI Rock Drill

Bill of Material

Seq	Component-Item	Description	Qty-Per
1	V210-003M-M0184	HSG, MACH V210 TAP STND HYD(R)	1
2	V210-004M-C0243	CASTING,MACH V210 THRU STD(DC)	1
3	V210-1000-C0490	SHAFT, INPUT V210 Ø.625 .188KW	1
4	V00201	KEY, 1/4 X 1/4, 1.58	1
5	V10R02-01	GEAR, WORM ROLLED 2-L RH 10:1	1
6	V210-1110-C0491	SHAFT, OUTPUT V210 Ø1.25 .25KW	1
7	V00200	KEY, 1/4 X 1/4, 1.08 ±.002	1
8	V10R20-0	GEAR, WORM V21 10:1 RH 1/4 KW	1
9	X000-4300-H0140	BRG, CONE NTN# 4T-15101 1.000	2
10	X000-4300-H0160	BRG, CONE NTN# 4T-15126 1.250	2
11	X000-4300-H0123	BRG, CUP NTN#4T-15245 2.4409	4
12	203293	RETAINING RING, EXT 1.000 SHFT	1
13	403373	RETAINING RING, EXT 1.250 SHFT	1
14	209843	SEAL, 1.00-1.499-.25 (R) TC	1
15	412458	SEAL, 1.25-2.00-.312 (R) TC	1
16	200301	SEAL, END CAP, 1.50-.25	1
17	400301	SEAL, END CAP, 2.00-.312	1
18	W26231	SEAL, END CAP, 2.322-.313	1
19	200300	PLUG, 1/4-18 NPT SCHD W/3M	3
20	2003VB	BUSHING, 1/4 NPT X 1/8 NPT	1
21	2003PR	PLUG, 1/8-27 NPT VENT 5PSI	1
22	103125	BOLT, 5/16-18X1.25 SHCS BO GR8	8
23	WH4192-02	ADAPTER, HYD 2-BOLT 1/2-TAP	1
24	W260-1410-B0165	COUPLER, W260 .625 ID	1



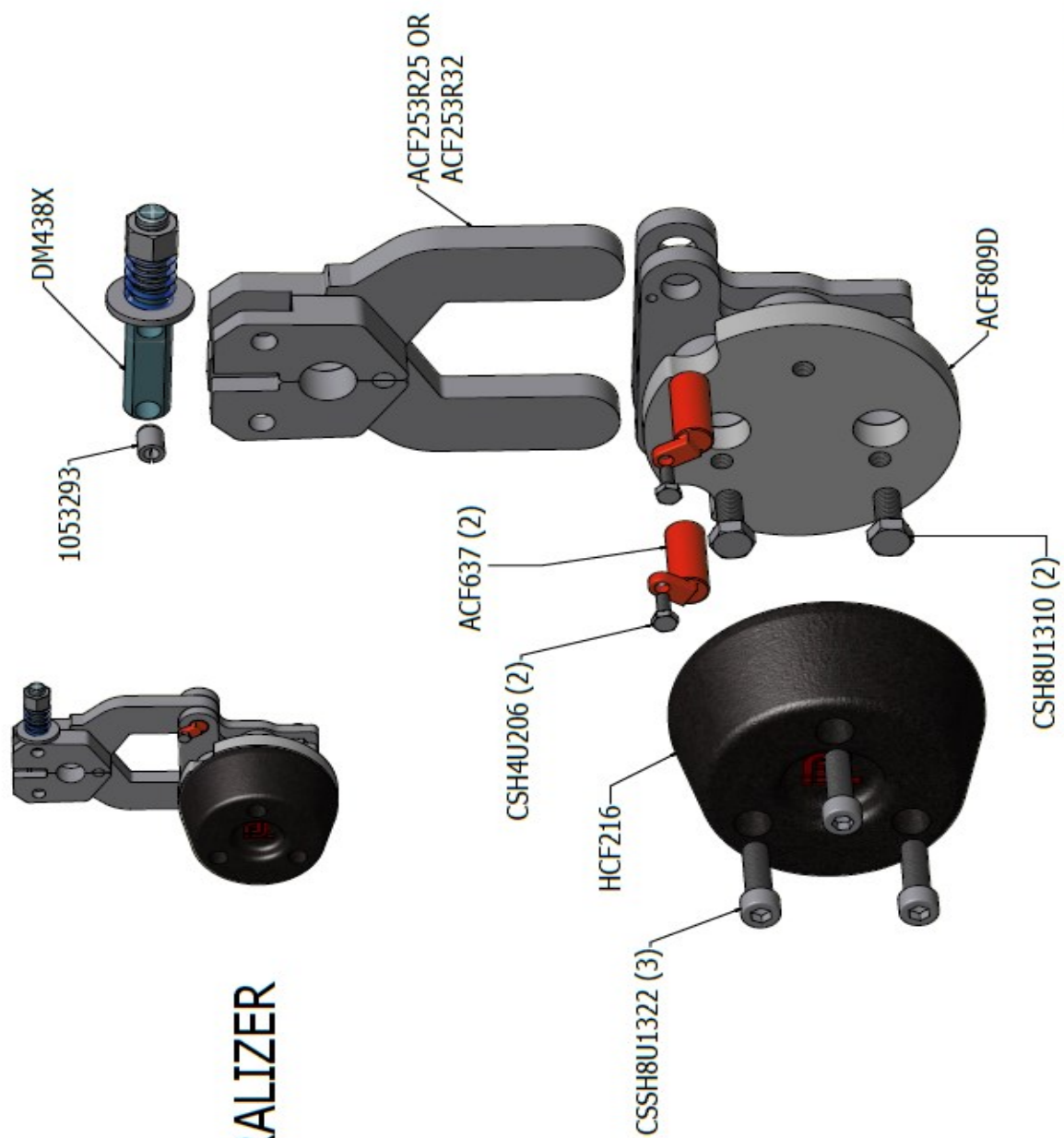
HCA4 CLAMP



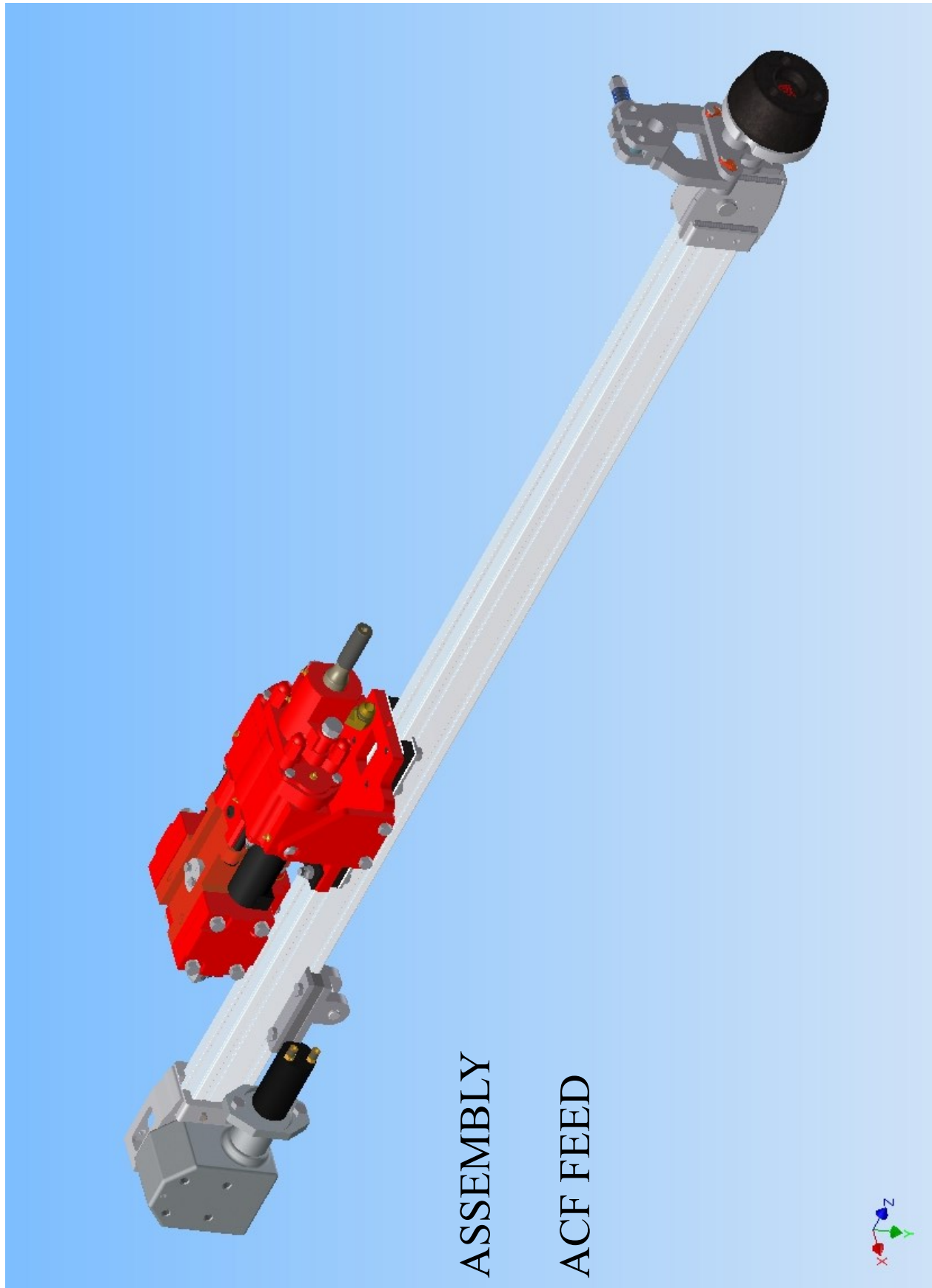
RELEASED: 4-7-12



ACF CENTRALIZER



RELEASED: 4-7-12



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