TM

Technical Manual

John Deere 450E Crawler Bulldozer 455E Crawler Loader Repair

TM1330 (01OCT87)

Litho in U.S.A.

450E CRAWLER BULLDOZER AND 455E CRAWLER LOADER TECHNICAL MANUAL TM-1330 (Oct-87)

SECTION AND GROUP CONTENTS

Continued on next page

All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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SECTION AND GROUP CONTENTS—Continued

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INTRODUCTION

This technical manual is part of a twin concept of service.

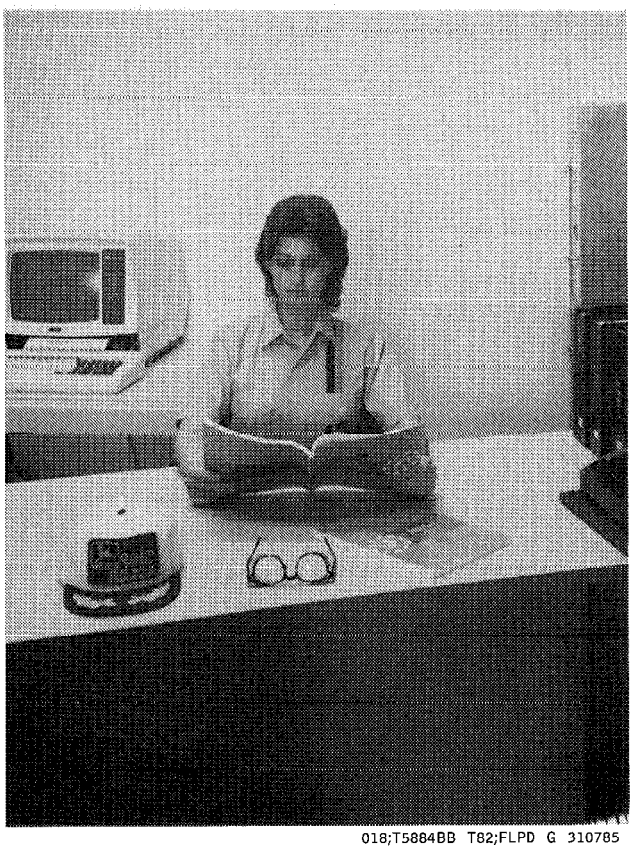
FOS Manuals - for reference

Technical Manuals - for machine service

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

Technical Manuals are concise service guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.



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FEATURES OF THIS TECHNICAL MANUAL

John Deere ILLUSTRUCTION format emphasizing illustrations and concise instructions in easy-to-use modules.

Emphasis on diagnosis, analysis, and testing so you can understand the problem and correct it.

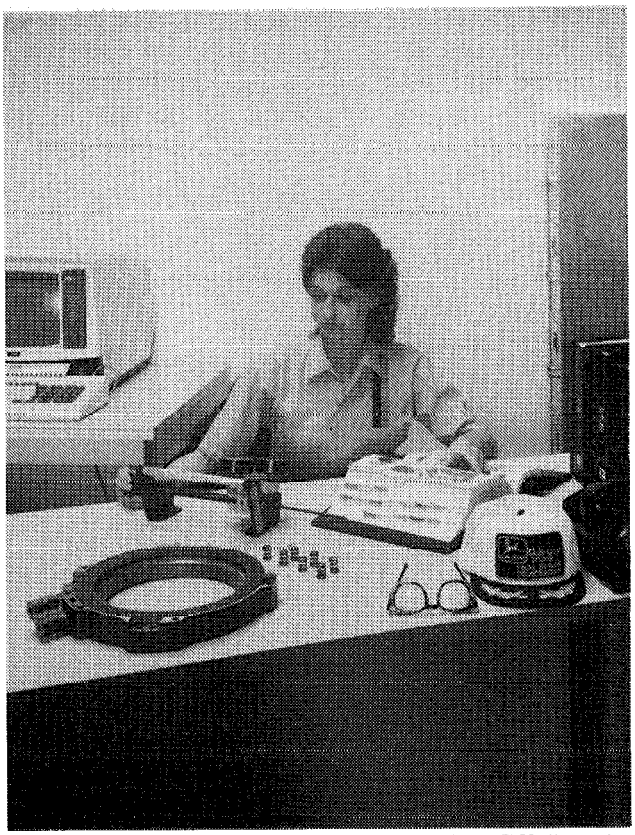
Diagnostic information presented with the most logical and easiest to isolate problems first to help you identify the majority of routine failures quickly.

Step-by-step instructions for teardown and assembly.

Summary listing at the beginning of each group of all applicable specifications, wear tolerances, torque values, essential tools, and materials needed to do the job.

An emphasis throughout on safety—so you do the job right without getting hurt.

This technical manual was planned and written for you - an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.



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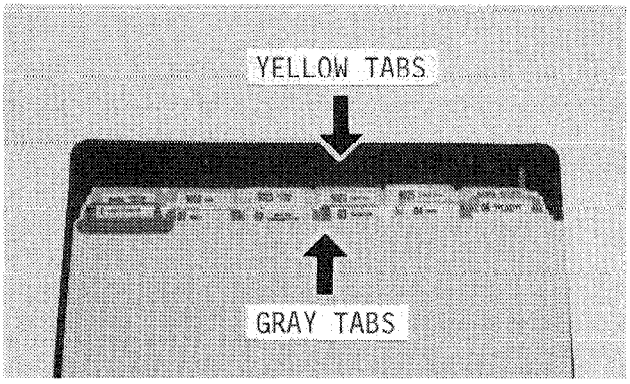
USING TABS

To fully utilize this technical manual, you must understand how it is organized.

Only two tab colors are used—gray and yellow. Each color represents a different type of information.

Spend a minute reading this now and save many minutes of searching later.



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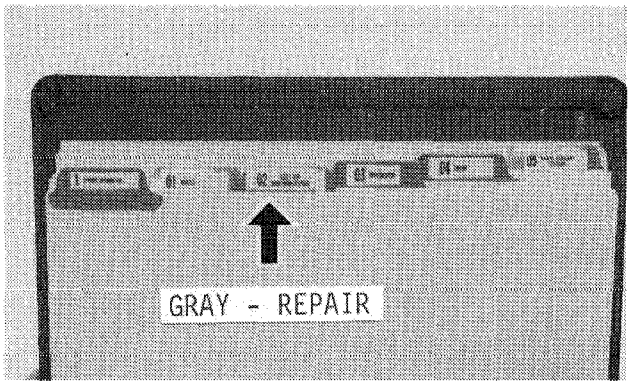
GRAY TAB SECTIONS

The gray tab sections are repair sections that tell how to repair the components of the various systems.

Repair of a component includes:

- Removal from machine (when necessary)
- Disassembly
- Inspection
- Replacement of parts
- Assembly
- Adjustment
- Installation on machine (when necessary)

The numbers used for the repair (gray tab) sections are part of an overall service publication numbering system. The numbers identify the same sections in the parts catalog, flat rate manual, service information bulletins, and service training courses.



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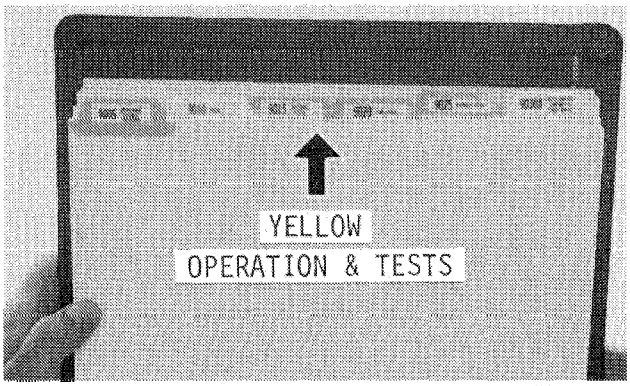
YELLOW TAB SECTIONS

Each yellow tab section contains information on:

Groups	
05	Theory of Operation
10	System Operational Checks
15	Diagnostic Information
20	Adjustments
25	Tests



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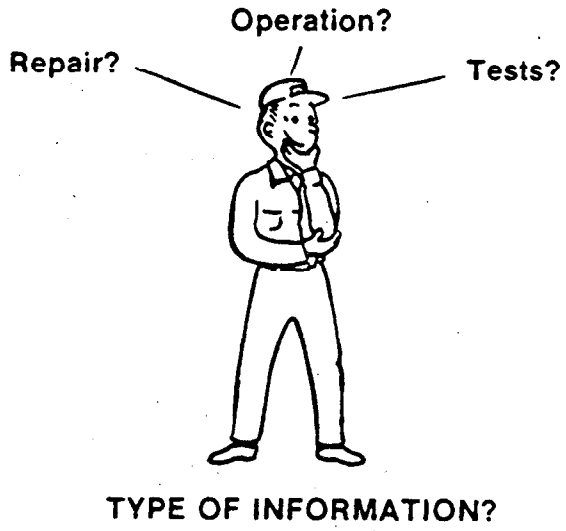
THREE-STEP PROCEDURE

Use the following three-step procedure to locate the desired information.

1. Determine the type of information you need. Is it repair, operation, or tests?

2. Go to the appropriate section tab:
   Gray for Repair
   Yellow for Operation or Tests



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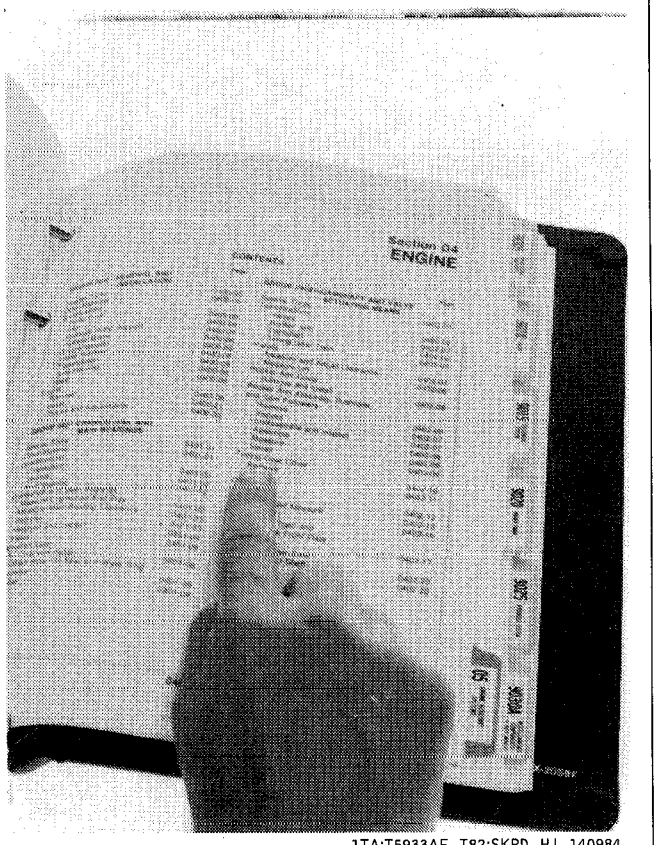
3. Use the table of contents on the first page of the section to locate the information.



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SAFETY AND YOU

This safety-alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

When you see this symbol on your machine or in your manual, be alert to the possibility of personal injury. Follow the instructions in the safety message.

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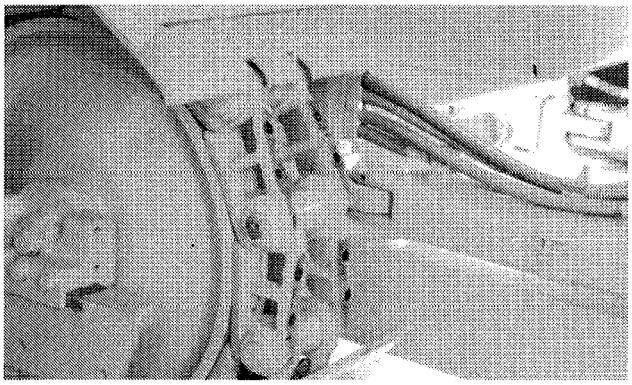
REMOVE TRACK CHAIN

1. Rotate track to position the master pin on the front idler as shown.

NOTE: Master pin is identified by drill point in end of pin.

CAUTION: Make sure track clears floor before rotating.

2. Remove two track shoes; one on each side of master pin.



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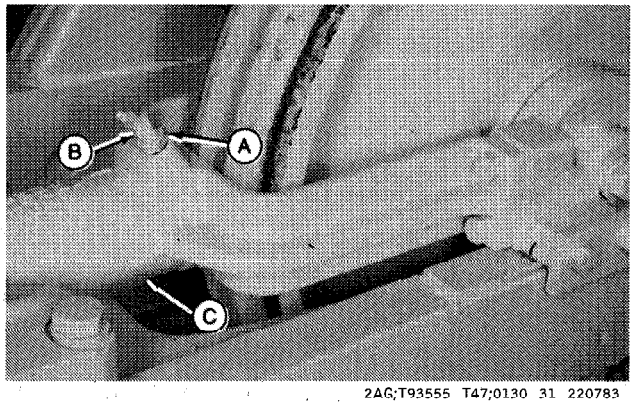
3. Release track tension by loosening nut (A) and turn set screw (B) out of the track adjusting cylinder (C) approximately three turns.



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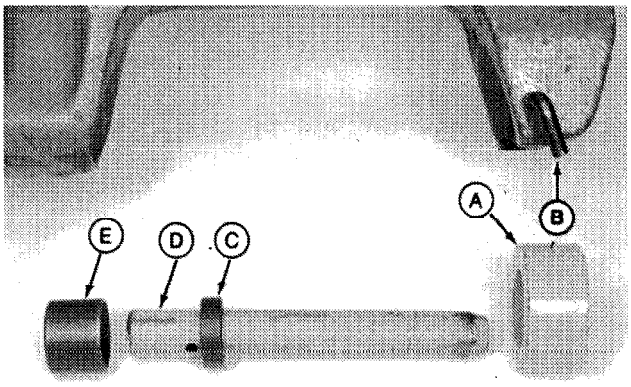
IMPORTANT: Do not remove the track master pin with a hammer. This will enlarge the link pin bore requiring installation of a new track link.

4. Remove master pin from track link using master pin pusher. Install aligning adapter (A) into master pin pusher C-frame securing with holding screw (B). Put aligning bushings (C) over forcing pin (D) and install adapter (E) in C-frame.

A—Aligning Adapter
B—Holding Screw
C—Aligning Bushing
D—Forcing Pin
E—Pin Adapter



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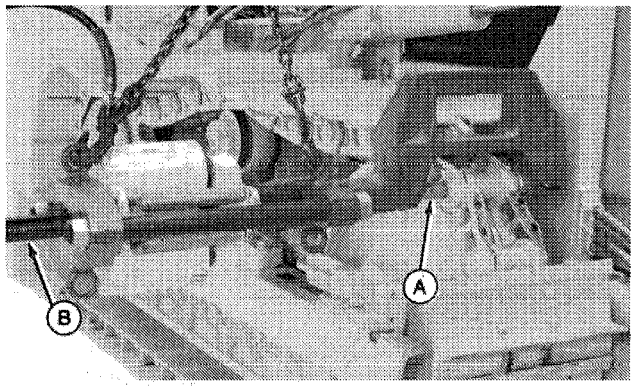
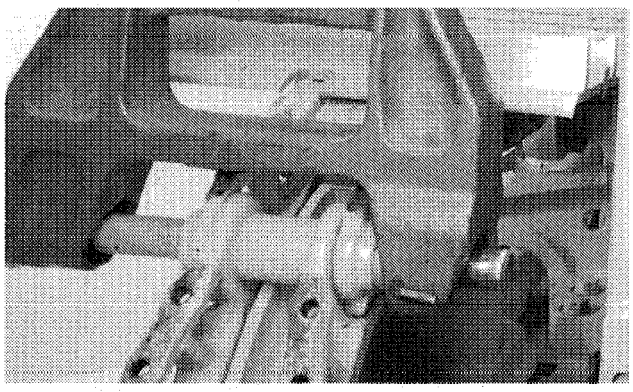
5. Position master pin pusher and forcing pin in alignment with master pin using load positioning sling and hoist.

6. Turn ram adjusting screw (B) clockwise with crank until forcing pin (A) contacts master pin.

7. Connect hand pump to pin pusher. Activate pump to remove master pin.

8. Remove forcing pin to separate track.





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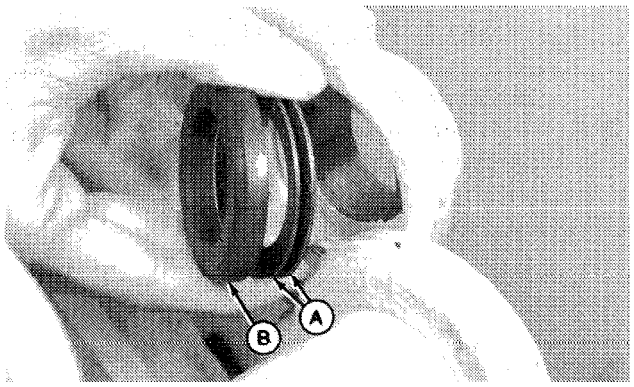
9. Pull track chain apart. Remove spacers (B) and seals (A) from between left and right track links.

10. Lift side of machine or operate crawler and rotate track in the reverse direction. Slowly, unwrap track off drive sprocket.

11. Place a jack under both crossbars and raise crawler to provide clearance. Block crawler up securely.



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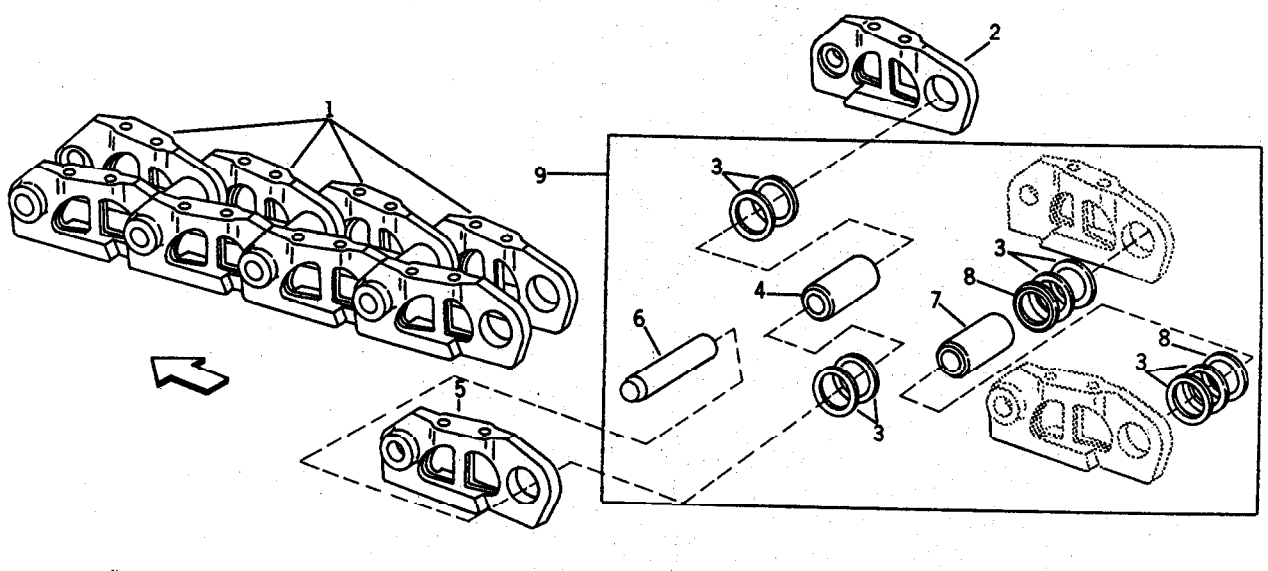

1—Track Chain
2—Right Track Link
3—Belleville Seals
4—Bushing
5—Left Track Link
6—Pin, Standard
Pin, Master
(Drill Point On End)
7—Master Bushing
8—Spacer (Master Bushing)
9—Pin and Bushing Repair Kit

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DISASSEMBLE TRACK CHAIN

CAUTION: Always wear safety glasses when operating press. Parts may break or chip, causing eye injuries.

1. Remove track shoes from chain.

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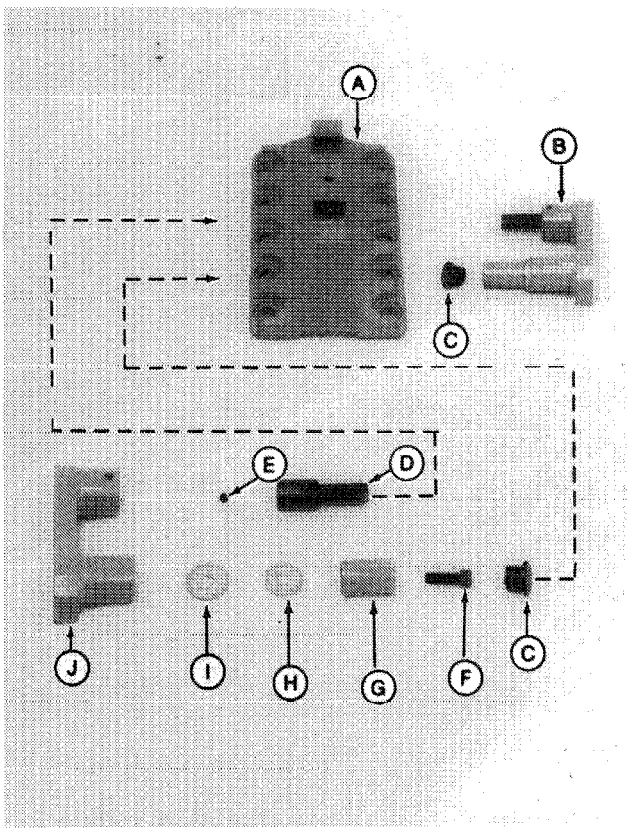
NOTE: Part numbers shown are from 26815 Tooling Set.

2. Install saddle (A) from 26815 Track Disassembly and Assembly Tooling Kit in track press frame.

3. Adjust conveyor extension to desired conveyor working height.

4. Install left and right disassembly plates, sleeves and components from tooling set on work head of press and secure with attaching nuts.

A—(40989) Saddle
B—(26819) R.H. Disassembly Adapter Plate
C—(26327) Master Bushing Spacer (2 used)
D—(33266) Forcing Pin (2 used)
E—(10153) Set Screw (2 used)
F—(10103) Cap Screw (2 used)
G—(26429) Forcing Pin Sleeve (2 used)
H—(21887) Spacer (2 used)
I—(20636) Spacer (2 used)
J—(26820) L. H. Assembly Adapter Plate
Track Disassembly Tooling



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NOTE: If pins and bushings are to be turned and not replaced, be sure one end of each pin and bushing is marked prior to chain disassembly. The mark can then be referenced during assembly to insure an exact 180° turn.

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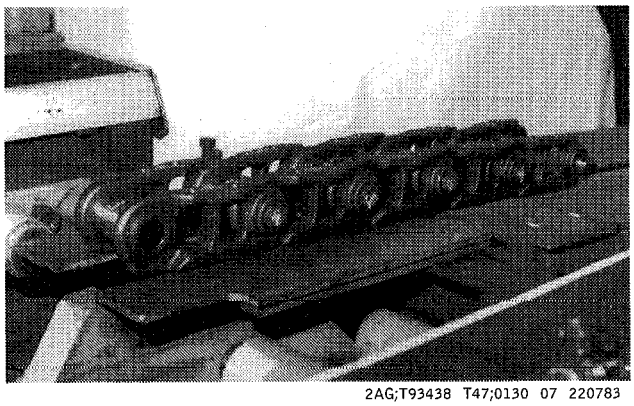
5. Position track chain on track press conveyor wlth cap screw hole side up.

6. Raise the elevating conveyor and advance the track chain assembly until the link assembly bushing end is directly over the saddle front seat.

7. Lower conveyor so the chain link assembly is in position over the saddle.



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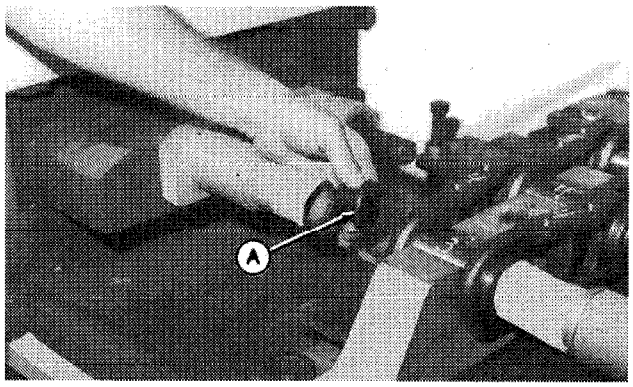
NOTE: When removing master bushing, insert Master Bushing Spacers (A) in bushing forcing sleeve. Remove spacer after removing bushing.



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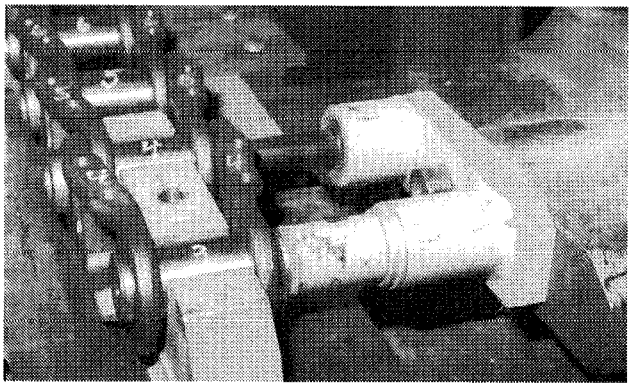
8. Advance right hand work head until it contacts pin and bushing. Check alignment of tooling with pin and bushing. Press pin and bushing from link.



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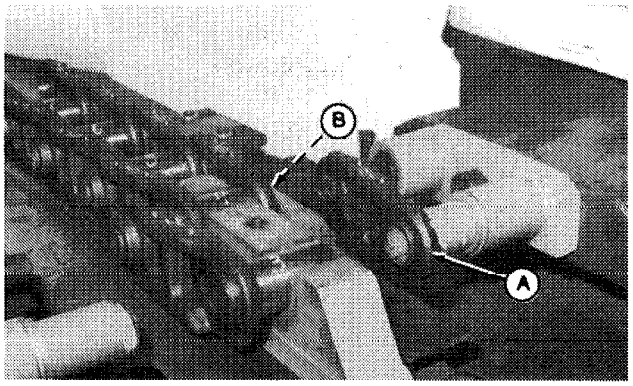
9. Retract the right ram. This action will carry the right side link with the ram. Remove the link (A) and two belleville seals (B). Seals should be discarded and replaced with new ones when reassembling.



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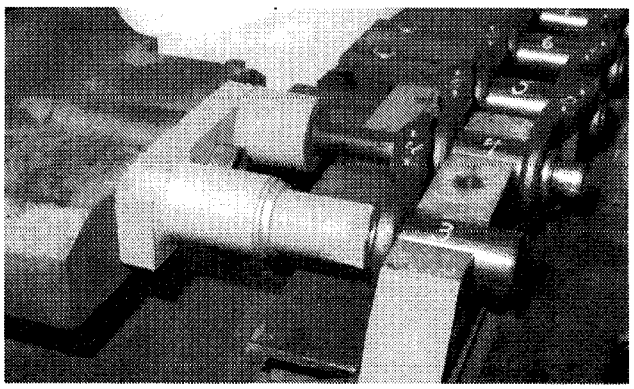
10. Advance the left work head of track press until the ram and disassembly adapter come in contact with bushing an pin. Check for proper alignment of tooling with bushing and pin. Press bushing, belleville seals, and pin from left-hand track link.



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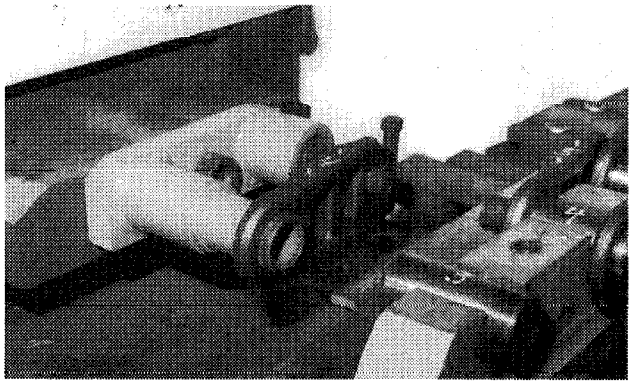
11. Retract the left ram carrying the left side link. Remove the link and two belleville seals.



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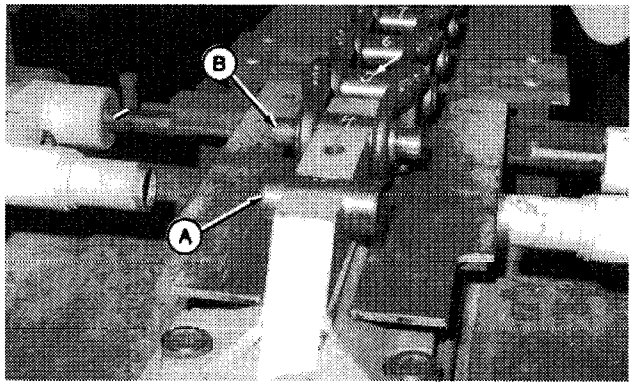
12. Raise elevating table and remove bushing (A) and pin (B).

13. Advance the track chain in position over the saddle.

14. Lower conveyor to rest chain link assembly into saddle.

15. Disassemble remainder of track chain using this method.



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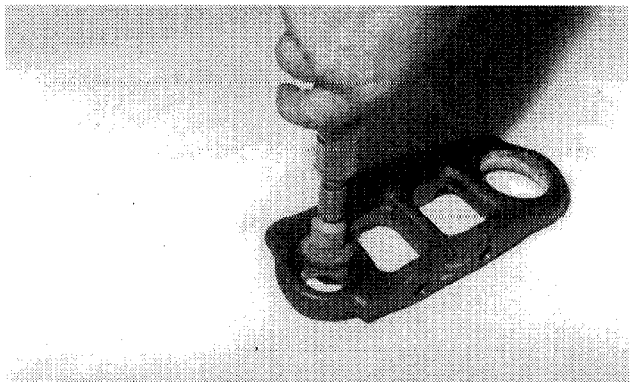
16. Inspect track chain parts for cracks or wear; replace if necessary. Use a wire brush to remove any rust or dirt on machined surfaces.



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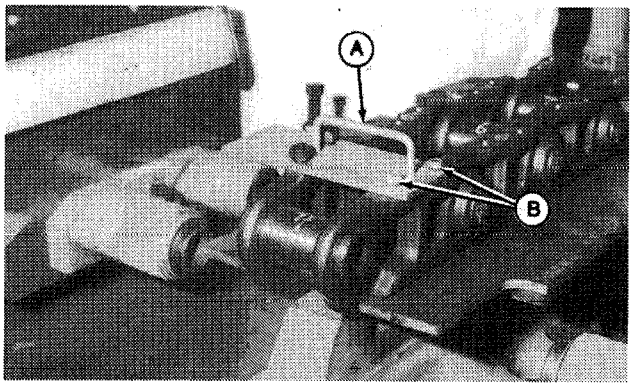
ASSEMBLE TRACK CHAIN

1. Assemble one link assembly to check for proper track press head shimming. It may be necessary, depending on link wear, to vary the number of adjusting shims behind the assembly adapter plates to insure correct bushing stickout dimension of 7.44 mm (0.298 in).

Use a gauge plate from track press tooling kit during this shim adjustment procedure and periodically during chain assembly.

2. When the track shoes are completely removed, place track gauge plate (A) along with pilot plugs, washers, and tapped pilot plugs (B), assembled to the right holes of track gauge plate and to right side track link.

Operate ram assembly until a hand plug can be inserted through holes in the gauge plate and left side track link.



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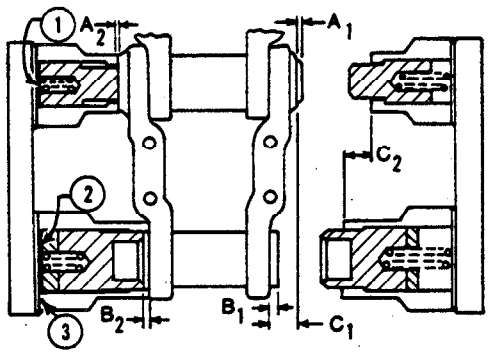
3. On a new track, dimension "C_1" equals "C_2". Considerable wear is often encountered on the bushing face of the side link, in which case dimension "C_1" will be greater than "C_2". To correct for this wear, sleeve shims (3) are inserted between the plate and the bushing sleeve as shown to make "C_2" equal to "C_1". This assures that the link will be assembled squarely on the pin and the bolt holes will line up properly.

The bushing plunger is designed to retract into the bottom in the bushing sleeve to permit the bushing to protrude the correct distance "B_1" and "B_2" from the bushing face of the side link. Used bushings that are being turned may be worn on the ends and when the track is assembled, "B_1" may be greater than "B_2" or vice versa, depending on which link requires the greatest force to install. To correct this condition, plunger shims (2) (1/2 the thickness of the difference between "B_1" and "B_2") should be inserted behind both plungers.

In a like manner, used pins may be badly worn on the ends. If desired, the pins may be centered in the assembled track in the same manner by inserting pin plunger shims (1) (1/2 the thickness of the difference between "A_1" and "A_2".)

NOTE: Part numbers shown are from 26815 Tooling Set.



1—(26116) Pin Plunger Shim (as required)

2—(26332) Bushing Plunger Shim (as required)

3—(33016) Sleeve Shim (as required)

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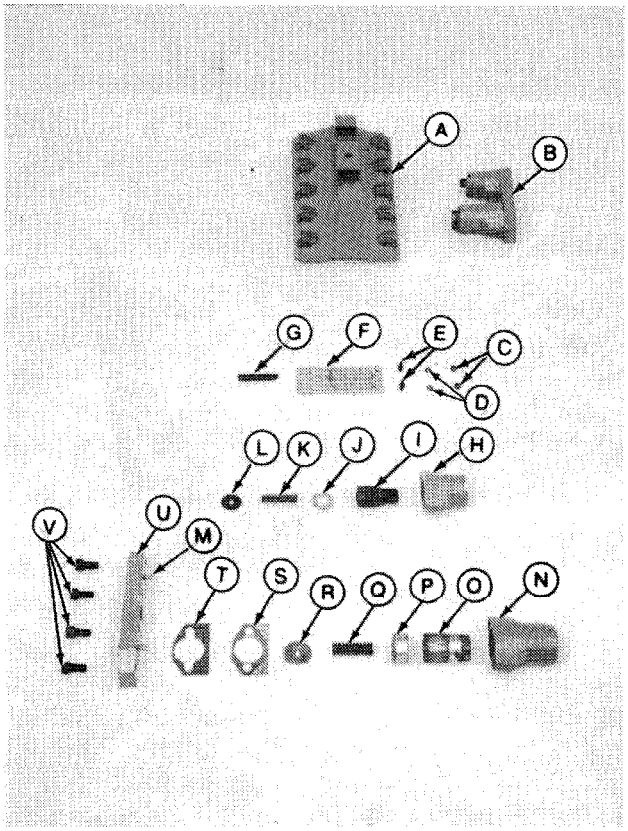
NOTE: Part numbers shown are from 26815 Tooling Set.

A—(40989) Saddle
B—(24288) R.H. Assembly Adapter Plate
C—(10201) Nut (2 used)
D—(10246) Washer (2 used)
E—(20529) Pilot Plug (2 used)
F—(28577) Track Gauge Plate
G—(20533) Hand Plug
H—(30140) Forcing Sleeve Pin (2 used)
I—(30512) Plunger, Pin Side (2 used)
J—(20457) Shim (2 used)
K—(10370) Spring (2 used)
L—(26116) Shim (as required)
M—(10611) Pin (8 used)
N—(30350) Forcing Sleeve Bushing Side (2 used)
O—(26545) Plunger, Bushing Side (2 used)
P—(26330) Spacer (2 used)
Q—(10372) Spring (2 used)
R—(26322) Shim (as required)
S—(26788) Spacer (2 used)
T—33016 Shim (as required)
U—(33305) L.H. Assembly Adapter Plate
V—(12916) Cap Screw (8 used)

Track Assembly Tooling



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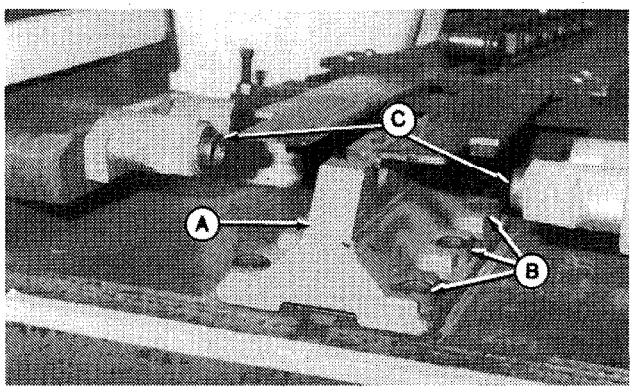
4. Install saddle (A) in track press frame and secure with cap screws (B). (Same saddle used for disassembly).

5. Install assembly heads (C) from track press tooling set and secure with attaching nuts.



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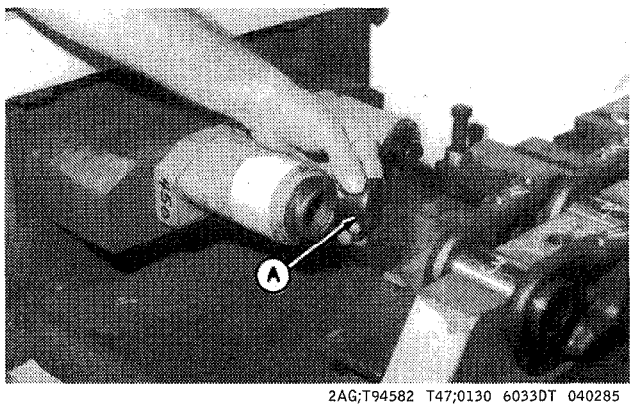
NOTE: When assembling right and left hand track link to the master bushing, insert the master bushing spacer (A) into the right and left bushing plungers. (Spacer shown with Track Disassembly Tooling).



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6. Lubricate pin with SAE 80W-90 gear oil.

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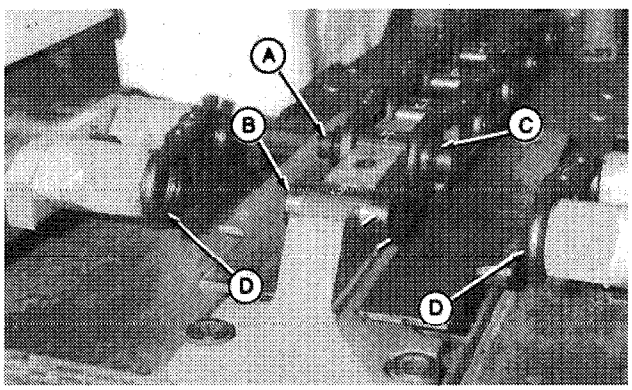
7. Install pin (A) in bushing and bushing (B) in saddle slot. Install two belleville seals (C) on each side of track pin. (See cross sectional drawing on Track Chain Link Connection). Install belleville seals with dished side opposite or outward. Place right and left track links (D) in position on assembly heads.



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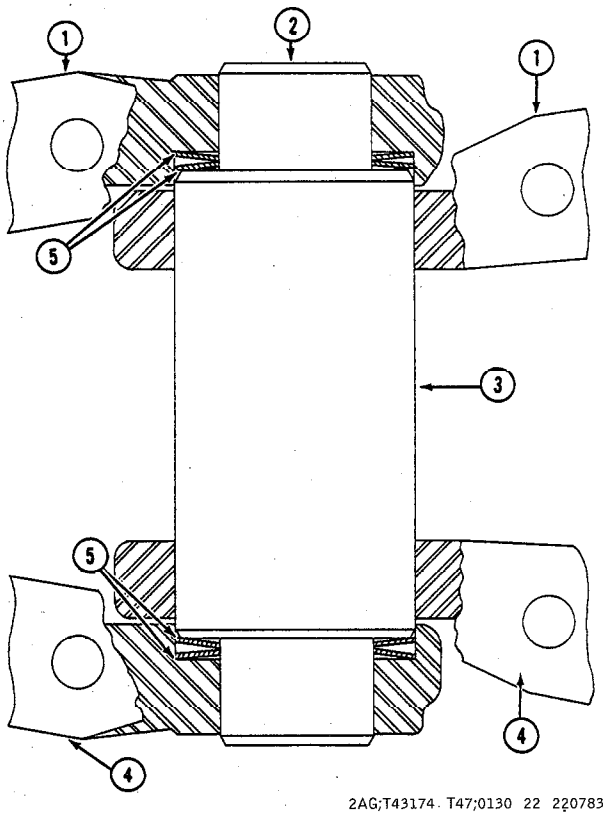
A—Track Pin
B—Track Bushing
C—Belleville Seals
D—Track Links



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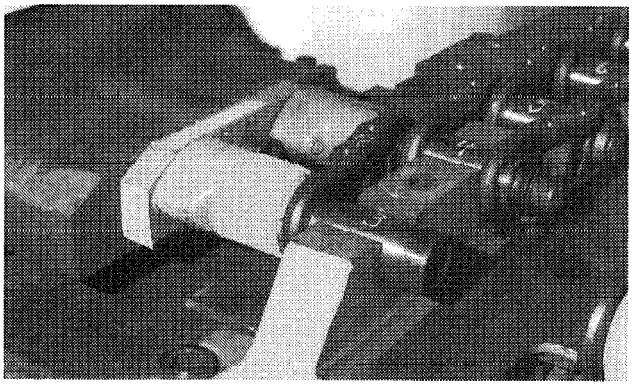
1—Left Track Link
2—Track Pin
3—Track Bushing
4—Right Track Link
5—Belleville Seals (4 used)

8. Extend the left assembly head until the link almost contacts the track press saddle.



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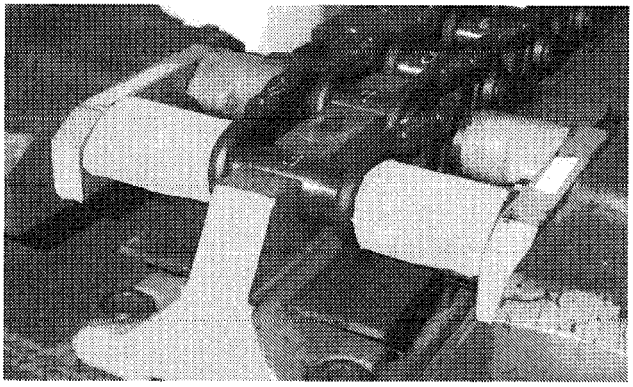
9. Extend the right assembly head until the bushing contacts the link seats. Bushing and pin should be centered in saddle during assembly. Continue pressing until the track shoe bolt holes are in alignment with gauge from track press tooling set.



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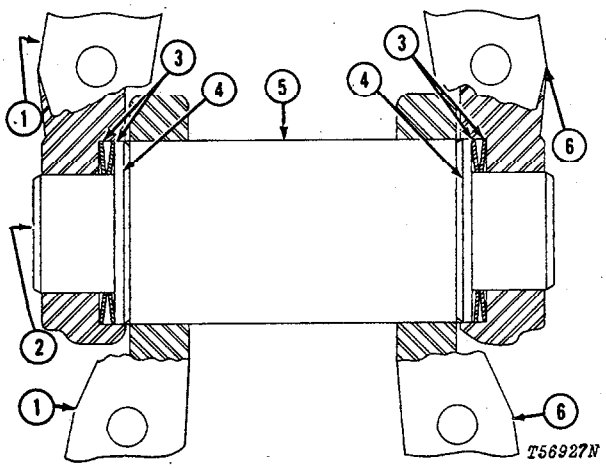
10. Raise conveyor and slide chain away from operator. Position newly installed bushing in rear saddle slot.

T47;0130 25 040285

11. Assemble remainder of chain using the previous steps.

NOTE: Master pin (2) is installed when assembling track to crawler unit. Two special spacers (4) make up the dimensional differences in the master bushing (5) when installing master pin (2). (See beginning of this group for breaking track chain procedure.)



1—Right Track Link
2—Master Pin
3—Belleville Seals (4 used)
4—Master Bushing Spacer (2 used)
5—Master Bushing
6—Left Track Link

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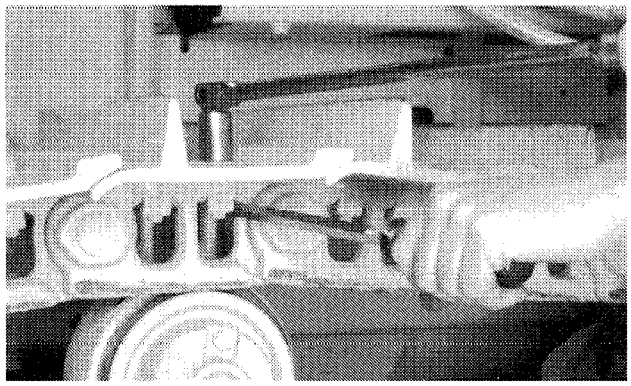
REMOVE AND INSPECT TRACK SHOES

1. Remove bolts and nuts securing track shoe to link. Hold nut in position with a large screwdriver while loosening bolt.

2. Remove shoe.

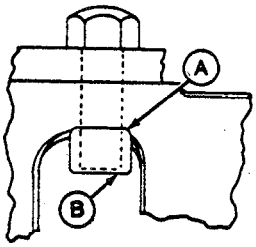
3. Inspect shoes for excessive grouser wear, cracks or broken shoes.

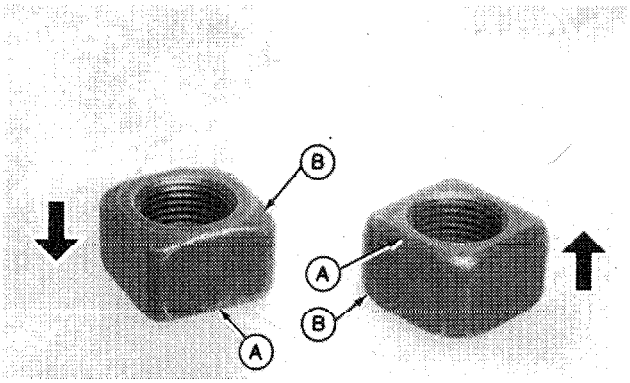


2AG;T6023AL T47;0130 6033DV 040285

INSTALL TRACK SHOES

1. Install track shoes. Track shoe mounting surfaces must be clean and free of paint. Apply oil to bolt threads and bearing surface of head. Install nuts with rounded edges (A) against the link and chamfered edges (B) away from the link. Tighten bolts to 163 N·m (120 lb-ft).

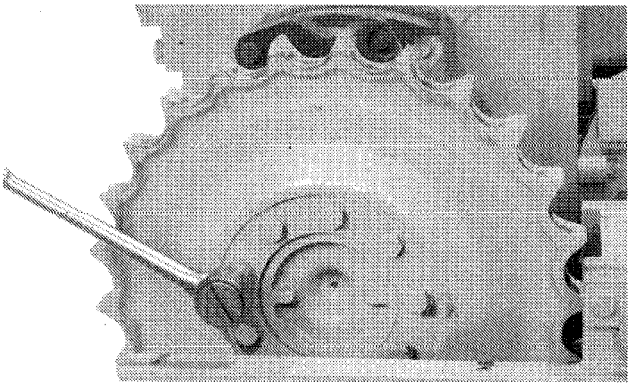




2AG;T96291, T96292 T47;0130 6033DW 040285

REMOVE DRIVE SPROCKET

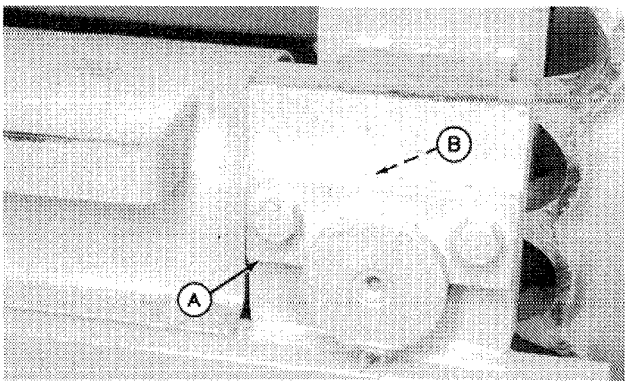
1. Remove nine cap screws and washers and lift sprocket from axle shaft.



2AG;T93560 T47;0130 6033DX 040285

REMOVE TRACK FRAME

1. Remove two cap screws and washers to remove retainer (A) and shims (B).

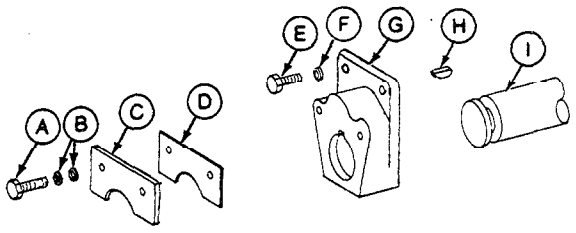


2AG;T6025AI T47;0130 6033DY 040285

2. On wide track units, remove two cap screws (A) and washers to remove retainer (C) and shim (D).

3. Remove two cap screws (E), washers (F), and shaft key (H) to remove locking collar (G) from frame and rear crossbar (I).

A—Cap Screw (2 used)
B—Washer (2 used)
C—Retainer
D—Shim
E—Cap Screw (2 used)
F—Washer (2 used)
G—Locking Collar
H—Shaft Key
I —Rear Crossbar



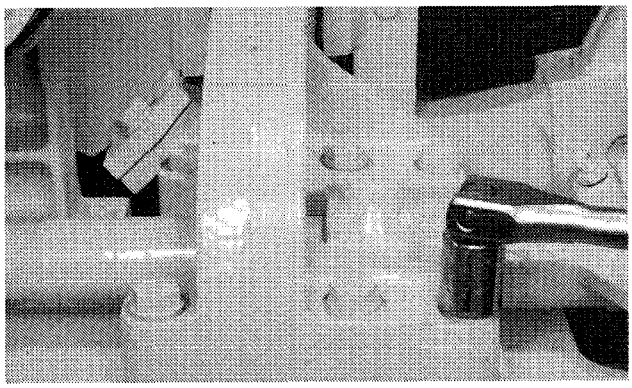
2AG;T6037A1 T47;0130 6033DZ 040285

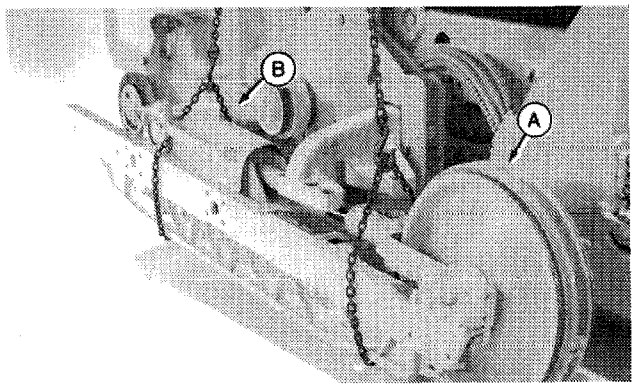
4. Attach hoist.

5. Remove six cap screws and flat washers from front crossbar.

6. Move front idler (A) forward.

7. Pull track frame assembly free from rear crossbar (B) and slide clear of crossbar.

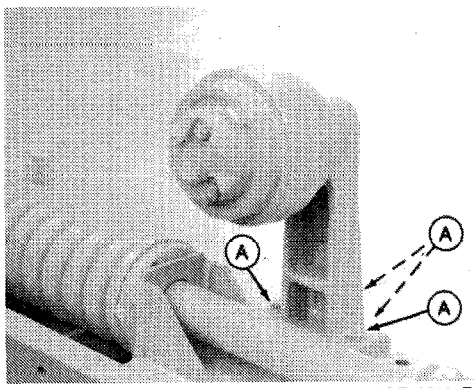




2AG;T93562,T93563 T47;0130 6034DA 040285

REMOVE UPPER CARRIER ROLLER ASSEMBLY

1. Remove four cap screws and lock washers (A) to remove track carrier roller support assembly.



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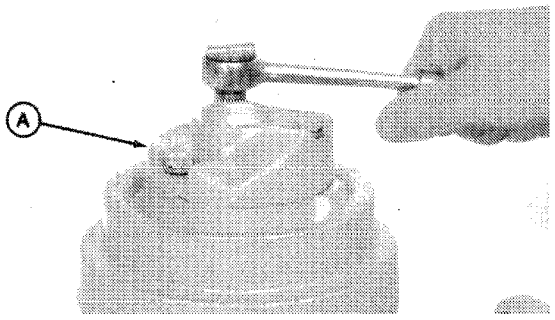
DISASSEMBLE AND INSPECT UPPER CARRIER ROLLER ASSEMBLY

1. Remove three cap screws and lock washers to remove cover (A) and gasket.



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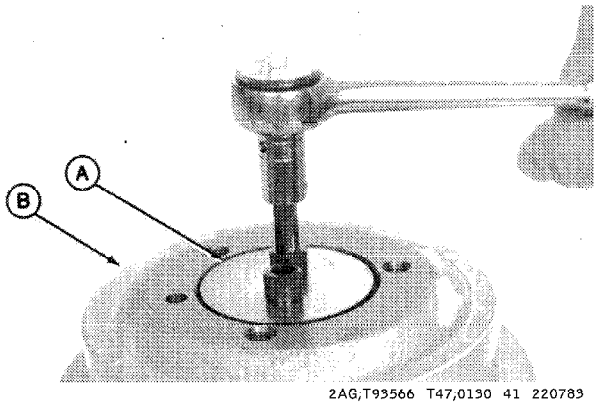
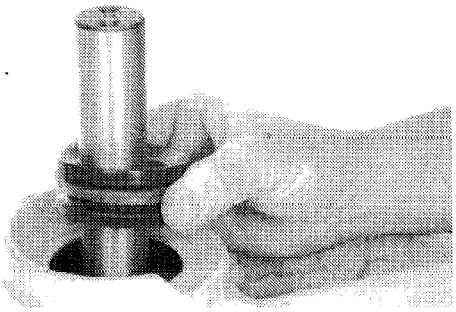
2. Remove two socket head cap screws to remove plate (A) and roller assembly (B).



2AG;T93566 T47;0130 41 220783

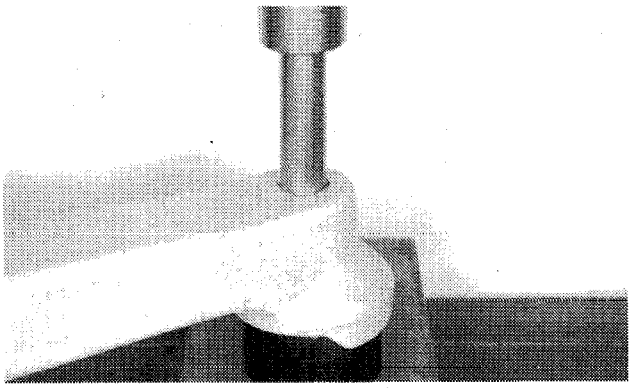
3. Remove oil seal in carrier support.

NOTE: Keep metal face of seals lubricated and together at all times while disassembled.



2AG;T93567 T47;0130 42 220783

4. Inspect shaft for wear or damage, replace only if necessary. Remove shaft using a press and a piece of pipe with 101.6 mm (4 in.) O.D. and a minimum length of 50.8 mm (2 in.).



2AG;T93568 T47;0130 43 220783