FMC

MODEL LS-128
BOOK NO. 630
SERIAL NO. _____

MACHINE SERIAL NUMBER

The machine serial number is stamped on the serial number plate which is located inside the machine cab, to the right of the operator. The serial number is the only means the distributor or factory has of ensuring that the correct parts will be furnished.

In the event that the serial number plate is lost, there is another number stamped on the right hand boom foot mounting lug on the upper revolving frame. On hydraulic cranes and excavators, the number is stamped between and below the boom hoist cylinder mounting lugs. This number, A, B, C, etc., _____ should then be furnished, as this will enable us to determine the machine serial number.

WARRANTY;

Cable Cranes, Hydraulic Cranes, FB Feller Bunchers, DL Delimbers, SS Scrap Shears, and any other special applications approved by FMC

FMC CORPORATION, CONSTRUCTION EQUIPMENT GROUP is hereinafter called the COMPANY.

The products manufactured by the COMPANY, exclusive of used or re-built machinery or equipment, are subject to the following warranty:

Warranty

All of COMPANY's products are of high quality and are manufactured in conformity with the best commercial practices in the various lines. The COMPANY warrants all products manufactured by it to be free from defects in material and manufacture at the time of shipment for six (6) months from date of shipment or 1000 hours of operation, whichever shall occur first. The COMPANY will furnish without charge, f.o.b. its factory, replacements for such parts as the COMPANY finds to have been defective at the time of shipment, or at the COMPANY's option, will make or authorize repairs to such parts, provided that, upon request, such parts are returned, transportation prepaid, to the factory from which they were shipped.

This warranty shall not apply to any product which has been subjected to misuse; misapplication; neglect (including but not limited to improper maintenance); accident; improper installation, modification (including but not limited to use of unauthorized parts or attachments), adjustment, or repair. Engines, motors, and any accessories furnished with the COMPANY's products, but which are not manufactured by the COMPANY, are not warranted by the COMPANY but are sold only with the express warranty, if any, of the manufacturers thereof. THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED (INCLUDING THOSE OF MERCHANTABILITY AND FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE), AND OF ANY OTHER OBLIGATION OR LIABILITY ON THE PART OF THE COMPANY.

Limitation of Liability

It is expressly understood that the COMPANY's liability for its products, whether due to breach of warranty, negligence, strict liability, or otherwise, is limited to the furnishing of such replacement parts, and the COMPANY will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to loss of use, income, profit, or production, or increased cost of operation, or spoilage of or damage to material, arising in connection with the sale, installation, use of, inability to use, or the repair or replacement of, the COMPANY's products.

The COMPANY reserves the right to make alterations or modifications in their equipment at any time, which, in their opinion, may improve the performance and efficiency of the machine. They shall not be obliged to make such alterations or modifications to machines already in service.

Any operation beyond rated capacity expressly prohibited in the operating instructions or safety manual furnished with the machine, or any adjustment, or assembly procedures not recommended or authorized in the operating or service instructions shall void such warranty.

Parts or Repairs

If parts or repairs are furnished by the COMPANY to satisfy a claim under the warranty provision, the distributor shall not be entitled to any discount on such transactions.

Modifications

Machine modifications furnished at the request of or by the distributor or on applications which exceed the recommendations established by the COMPANY, will result in amendment to the standard warranty. The COMPANY does not assume the responsibility of policing machine modifications or excessive applications or for notifying the distributor of changes to the standard warranty under these conditions.

Service Manual

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NOTES

Service Manual

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Area 18 - Special Attachments, General Information

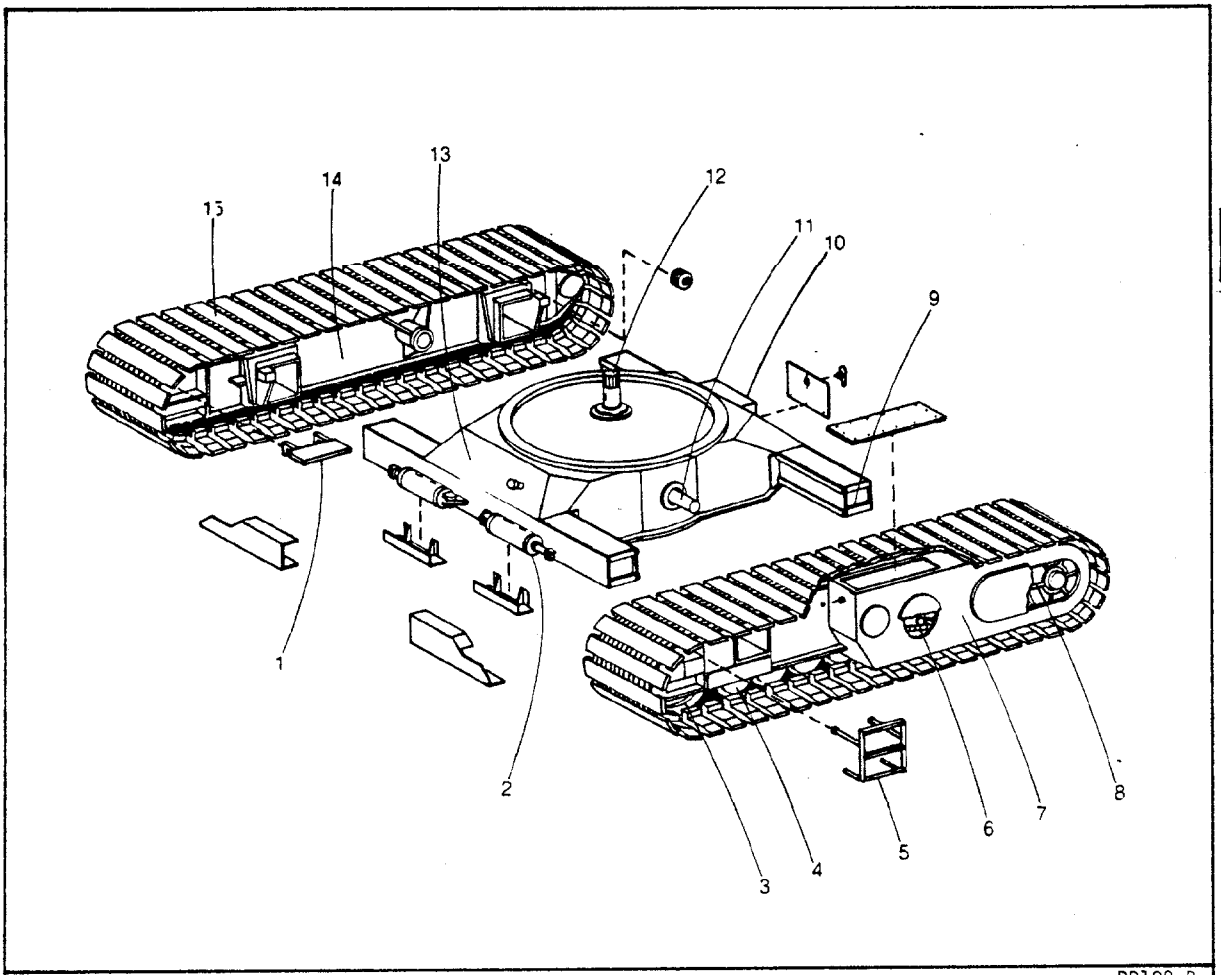


Fig. 1 DD108-B
Lower Frame (128DLC Shown)

(1) Step
(2) Side Frame Cylinder
(3) Idler Roller
(4) Track Roller
(5) Steps
(6) Track Drive Chain
(7) Track Drive Chain Case
(8) Track Drive Sprocket
(9) Cross Axle
(10) Side Frame Cyl. Controls
(11) Traction Shaft
(12) Vertical Travel Shaft
(13) Carbody
(14) Side Frame
(15) Track Belt

Lower Frame (General)

The lower frame is a weldment, and contains the travel and steer mechanism completely enclosed. Track side frames containing the drive sprockets, track rollers, and idler rollers are attached to frame.

On some lowers the side frames are integrally welded to the lower. On others, the side frames are removable to reduce transportation weight, or retractable to reduce overall width.

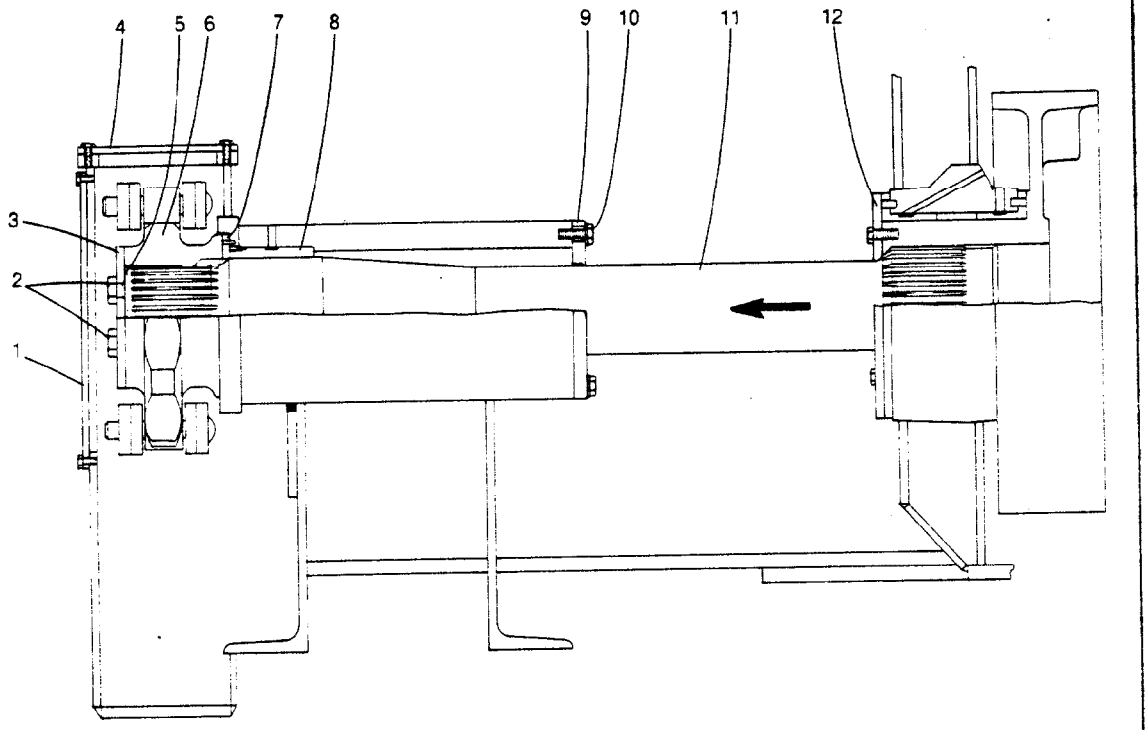
Power to travel the machine is transmitted to the lower by the vertical travel shaft. (See Area 4). The vertical travel shaft powers the horizontal traction shaft. The power is transferred from the traction shaft to the track drive sprocket assemblies by the track drive chains. Drive chains are completely enclosed and run in oil.

The steering mechanism consists of a pair of jaw clutches, and steer brakes, which work in conjunction with one another. When the jaw clutch is engaged, power is transferred out to the track. When the steer brake is engaged, the track will be locked. The brake is spring applied and hydraulically released, and is designed so the jaw clutch has to engage to disengage the steer brake. The machine is steered by locking one track belt, and pivoting the machine on the

blocked track.

The weight of the machine against the track belt is supported by track rollers. Skid plates carry the track belt down over top of the side frame.

The idler roller (at front of lower) guide the track over the end of the side frame. These rollers are also used to adjust track tension.



DD5-C

Fig. 1
Outer Traction Shaft
(1) Cover
(2) Capscrews
(3) End Cap
(4) Cover
(5) Shims (AR)
(6) Sprocket
(7) Thrust Washer
(8) Bushing
(9) Split Retainer
(10) Capscrew
(11) Outer Traction Shaft
(12) Split Retainer

Outer Traction Shaft Assembly

Chain Sprocket Removal:

(a) Remove chain case cover plates (1) & (4).
(b) Loosen track drive chain. Refer to Drive Chain Adjustment in SM2-2-18.0.
(c) Break drive chain to allow more slack. Refer to Drive Chain Removal in SM2-2-18.0. With more slack in chain, pull chain from sprocket (6) to side of chain case. Pull chain off top of sprocket. Then pull chain through top of chain case and use a pry bar to keep chain off of sprocket.
(d) Remove capscrews (2) and end cap (3) from sprocket. Remove shim(s) (5) and keep track of them for replacement later.
(e) Remove sprocket (6) from shaft.

Outer Shaft Removal:

(a) Remove chain drive sprocket as explained above.
(b) Remove capscrews and split retainer (12). Remove capscrews (10) and split retainer (9).
(c) Remove shaft (11) from machine.

Bushing And Thrust Washer Replacement:

(a) All bushings are retained in the treadmember by 1X487 set screws. When bushings are replaced, drill two holes 1" deep, 180° apart in the crack between the outside of the bushing and its bore. Tap the holes 3/8" - 16NC X 7/8 deep and install the set screws.
(b) The thrust washer is retained against rotation by two HC1235 dowels. With thrust washer (7) in place drill two holes 3/16" diameter by 9/16" deep

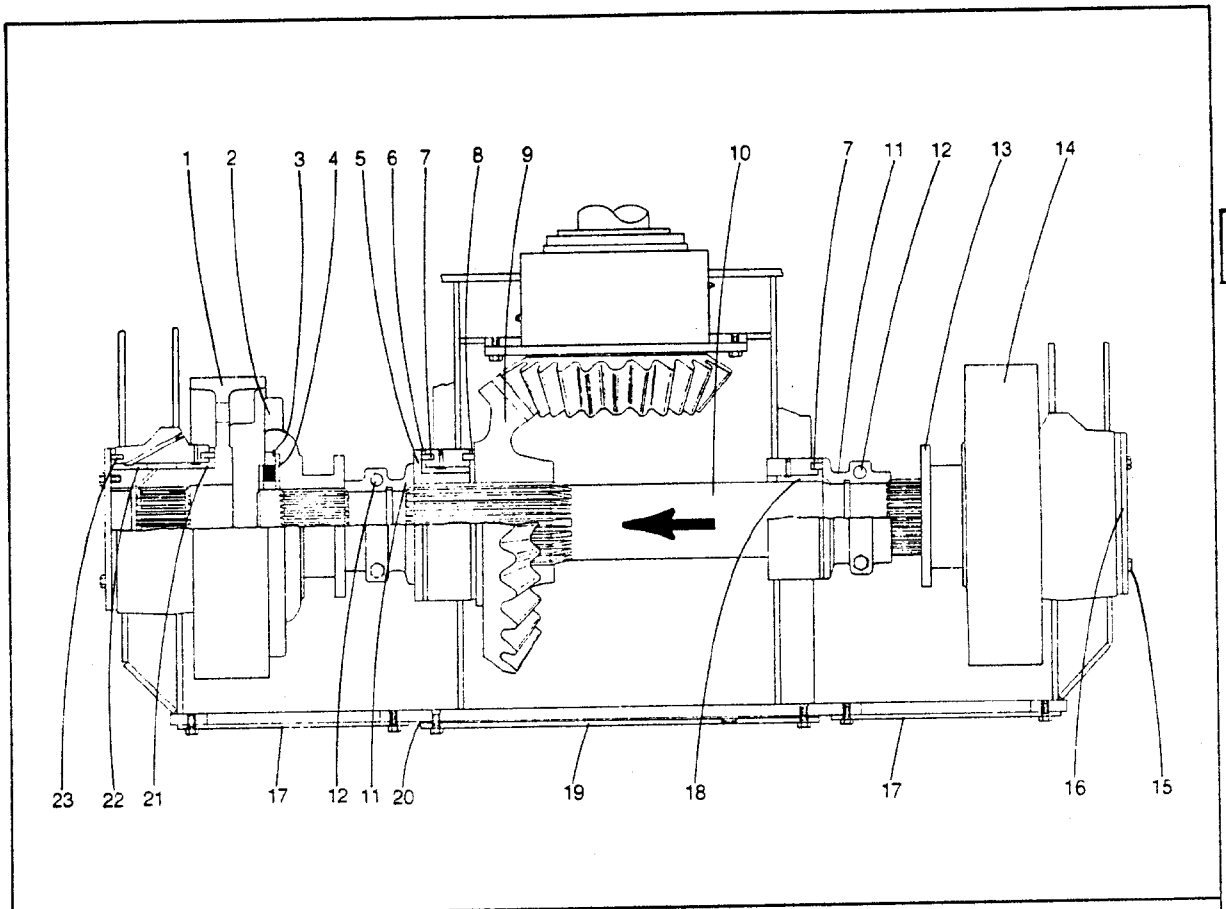
180° apart and 90° away from set screws retaining bushing. Install a dowel in each hole.

Reassembly:

(a) Install thrust washer (7) in side frame.
(b) Slide shaft through chain case into place in brake drum.
(c) Install split retainer and capscrews (12). Then install split retainer (9) and capscrews (10).
(d) Install sprocket (6) on shaft. Install shims (5), end cap (3) and capscrews (2). Shim between end cap and shaft until end play is removed with capscrews tightened.

The following shims are used at this point:
(1) 51A111.....16 Ga.
(2) 51A112.....22 Ga.

(e) Place drive chain back on chain drive sprocket. Reconnect drive chain. Refer to Drive Chain Installation in SM2-2-18.0.
(f) Adjust track drive chain. Refer to SM2-2-18.0. Install chain case cover plates (1) & (4).
(g) Lubricate all bushings on traction shafts before operating machine.



DD8-D

Fig. 1
Traction Shaft Assembly
(1) Steer Brake Drum
(2) Jaw Clutch
(3) Retainer Ring
(4) Shock Absorber
(5) Bearing Sleeve
(6) Bushing
(7) Brass Dowel
(8) Thrust Washer
(9) Bevel Gear
(10) Shaft
(11) Sleeve Spacer
(12) Capscrew
(13) Jaw Clutch
(14) Steer Brake Drum
(15) Capscrew
(16) Retainer Plate
(17) Brake Cover Plate
(18) Bushing
(19) Bevel Gear Cover Plate
(20) Gasket
(21) Bushing
(22) Bushing
(23) Brass Dowel

Traction Shaft Removal:

(a) Remove outer traction shaft assemblies. Refer to SM2-2-14.0.
(b) Drain lubricant from bevel gear case.
(c) Remove lower bevel gear case cover (19) and both brake cover plates (17).
(d) Remove capscrews (15) and retainer plates (16).
(e) Remove capscrews (12) from sleeve spacers (11). Remove sleeve spacers from machine.

Note: Both jaw clutches must be engaged for removal or installation of sleeve spacers.

(f) Disengage L.H. jaw clutch (2) leaving R.H. engaged. Slide traction shaft to the right until there is enough clearance to remove L.H. jaw clutch (2). Remove L.H. jaw clutch. Block up L.H. steer brake drum (1) to keep it from falling when shaft is removed.
(g) Remove shaft out L.H. side of the lower. Support bevel gear (9) as shaft is removed, to keep it from falling. There is a threaded hole in the end of the shaft for installation of a puller.
(h) Remove bevel gear (9), thrust washer (8), and bearing sleeve (5).

Brake Drum Removal:

(a) Remove outer and inner traction shafts.
(b) Remove jaw clutch (13) for removal of drum (14). If

removing drum (1), jaw clutch (2) will have been removed during inner traction shaft removal procedure.

(c) Remove steer brake bands. Remove brake drum from machine.

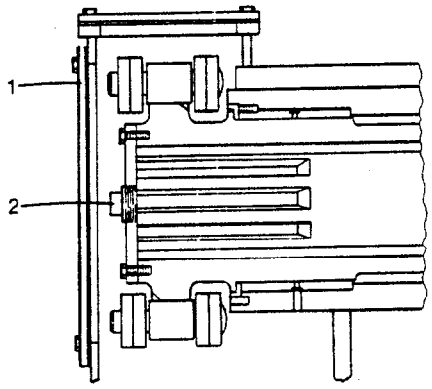
Bushing Replacement: All flanged bushings, and the thrust washer behind the bevel gear are held against rotation by two BR106 dowels. When installing new bushings or bevel gear thrust washer, drill two holes, 7/8" deep, 180° apart, and install new dowels.

Brake Drum Replacement:

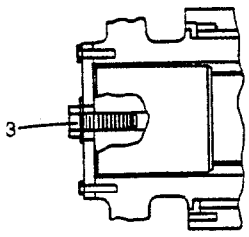
(a) Slide brake drum into place in bushings.
(b) Install and adjust the steer brake bands.
(c) Install R.H. jaw clutch (13).
(d) Install inner traction shaft.
(e) Install outer traction shafts.

Traction Shaft Installation:

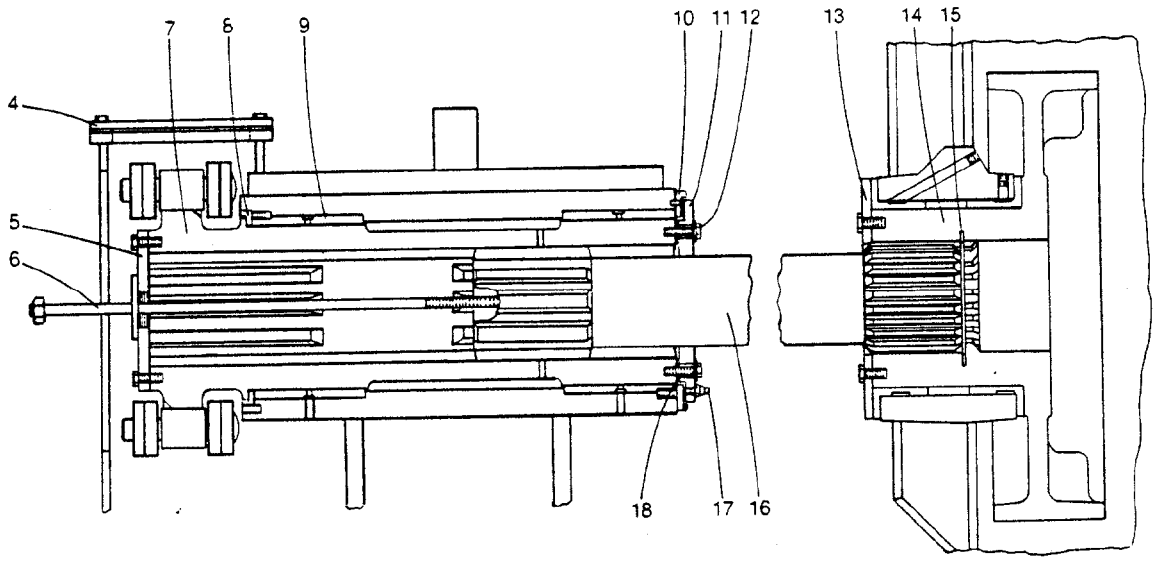
(a) Install bearing sleeve (5).
(b) Slide shaft through L.H. brake drum (1), through jaw clutch (2), through bearing sleeve (5), thrust washer (8), and bevel gear (9).
(c) Start shaft splines in bearing sleeve (5). Push shaft until splines start through bevel gear.
(d) Push the shaft the rest of the way through the carbody, starting splines in R.H. jaw clutch and on into R.H. brake drum.
(e) Install L.H. jaw clutch.
(f) Slide shaft back to the left until splines enter L.H. jaw clutch.
(g) Install retainer plates (16) with capscrews (15).
(h) Install both sets of sleeve spacers (11) and bolt together with capscrews (12).
(i) If brake bands or drums were removed, steer brakes must be adjusted. Refer to Operators Manual.
(j) Install cover plates. Fill bevel gear case with lubricant. Refer to Section 2 of Operators Manual for the proper type and amount of lubricant to use.
(k) Install outer traction shafts.
(l) Lubricate all bushings before traveling the machine.



View 1: Outer Traction Shaft - Normal Position



View 2: Traction Shaft Disconnected And Secured For Side Frame Removal



View 3: Outer Traction Shaft And Shaft Puller

DD88-B,DD131-A

Fig. 1
Outer Traction Shaft
(1) Cover
(2) Pipe Plug
(3) Capscrew & Lockwasher
(4) Cover
(5) End Cap
(6) Shaft Puller (51P23)
(7) Drive Sprocket
(8) Thrust Washer
(9) Bushing
(10) Thrust Washer
(11) Split Retainer
(12) Capscrew
(13) Split Retainer
(14) Brake Drum
(15) Snap Ring
(16) Outer Traction Shaft
(17) Grease Fitting
(18) Shim (51A286)

Outer Traction Shaft Assembly

Outer Shaft Removal:
(With side frame removed)

(a) Remove cover plate (2). Remove capscrew and lockwasher (3).
(b) Remove capscrews (12) and split retainer (11).
(c) Remove the shaft (16) out the right of the side frame. Keep track of the number of shims (18) behind the split retainer for replacement later.

Drive Sprocket Removal:
(With side frame removed)

(a) Remove outer traction shaft.
(b) Loosen track drive chain. Refer to Operator's Manual Section 3, Track Drive Chain Adjustment.
(c) Break drive chain to allow more slack. Refer to Drive Chain Removal in SM2-2-18.0. With slack in chain, pull chain from sprocket to side of chain case. Pull chain off of top of sprocket. Pull through top of chain case and use pry bar to keep chain off of sprocket.
(d) Remove sprocket from side frame.

Outer Traction Shaft Installation:
(With side frame removed)

(a) Install drive sprocket.
(b) Install shims (18) on shaft which were removed during disassembly.
(c) Install split seal (11) and capscrews (12) with shims (18) between drive sprocket and split retainer. Check sprocket end play through thrust washer (10) cutout with feeler gauge. Shim between retainer and sprocket until end play is 1/16" with capscrews tightened. The following shims are used at this point:
51A286.....22 Ga.
(d) Install capscrew and lockwasher (3).
(e) Lubricate all bushings on traction shaft and drive sprocket before operating machine.

Drive Sprocket Installation:
(With side frame removed)

(a) Install drive sprocket in side frame.
(b) Place drive chain back on drive sprocket. Reconnect drive chain. Refer to SM2-2-18.0.
(c) Adjust drive chain. Refer to Operator's Manual Section 3.
(d) Install outer traction shaft.

Outer Shaft And Drive Sprocket Removal:
(Without side frame removed)

Note: Side frames must be extended to remove shaft and sprocket as explained below.

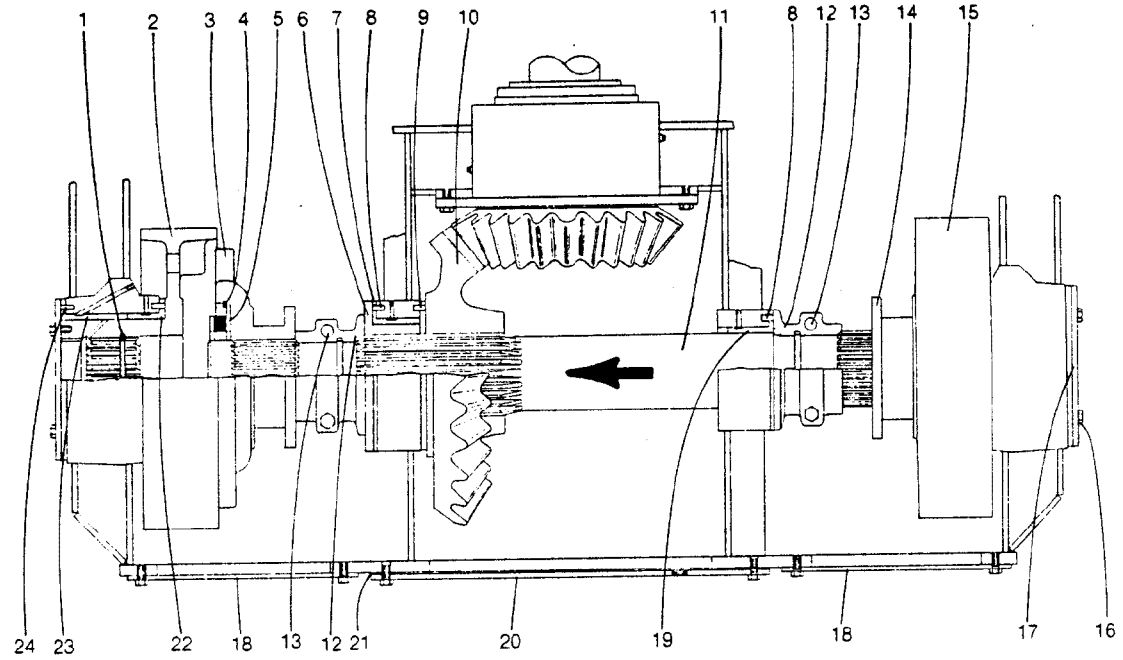
(a) Remove capscrews and split retainer (13). Remove capscrews (12) and split retainer (11).
(b) Remove chain case cover plates (1) & (4). Remove pipe plug (2).
(c) Remove drive chain from sprocket (7). Refer to steps b & c of Drive Sprocket Removal above.
(d) Install shaft puller (6) through end cap (5) and in end of shaft. Remove the shaft and drive sprocket assembly out the left side of side frame.
(e) Remove shaft puller from shaft. Slide shaft out right side of drive sprocket. Keep track of the number of shims (18) on the shaft for replacement later.

Bushing And Thrust Washer Replacement:

(a) All bushings are retained in the treadmember by 1X487 set screws. When bushings are replaced, drill two holes 1" deep, 180° apart in the crack between the outside of the bushing and its bore. Tap the holes 3/8 - 16NC X 7/8 deep and install the set screws.
(b) Both thrust washers are retained against rotation by two HC1235 dowels. With thrust washer (8) in place drill two holes 3/16" diameter by 9/16" deep holes 180° apart and 90° away from set screws retaining bushing. Install a dowel in each hole. Install thrust washer (10) locating cutout down. Drill two holes 3/16" diameter by 9/16" deep 180° apart. Install a dowel in each hole.

Reassembly:
(Without side frame removed)

(a) Install the shim washers (18) that were removed during disassembly. Install shaft into drive sprocket.
(b) Install end cap (5) and install capscrew and lockwasher (3) into shaft.
(c) Install shaft and drive sprocket assembly into left side of side frame. After sprocket is in place remove shaft retaining capscrew (3). Slide shaft to the right, line shaft with splines in brake drum (14). Slide shaft to the right until it contacts snap ring (15).
(d) Install split retainer and capscrews (13). Install split retainer (11) and capscrews (12) with shims (18) between drive sprocket and split retainer. Check sprocket end play through thrust washer (10) cutout with feeler gauge. Shim between retainer and sprocket until end play is 1/16" with capscrews tightened. The following shims are used at this point:
51A286.....22 Ga.
(e) Place drive chain back on drive sprocket. Reconnect drive chain. Refer to Drive Chain Removal in SM2-2-18.0.
(f) Adjust track drive chain. Refer to Operator's Manual Section 3. Install pipe plug (3) and chain case cover plates (1) & (4).
(g) Lubricate all bushings on traction shaft and drive sprocket before operating machine.



DD8-D

Fig. 1
Traction Shaft Assembly
(1) Snap Ring
(2) Steer Brake Drum
(3) Jaw Clutch
(4) Retainer Ring
(5) Shock Absorber
(6) Bearing Sleeve
(7) Bushing
(8) Brass Dowel
(9) Thrust Washer
(10) Bevel Gear
(11) Shaft
(12) Sleeve Spacer
(13) Capscrew
(14) Jaw Clutch
(15) Steer Brake Drum
(16) Capscrew
(17) Retainer Plate
(18) Brake Cover Plate
(19) Bushing
(20) Bevel Gear Cover Plate
(21) Gasket
(22) Bushing
(23) Bushing
(24) Brass Dowel

Traction Shaft Removal:

(a) Remove outer traction shaft assemblies. Refer to SM2-2-16.0.
(b) Drain lubricant from bevel gear case.
(c) Remove lower bevel gear case cover (20) and both brake cover plates (18).
(d) Remove capscrews (16) and retainer plates (17).
(e) Remove snap rings (1) from both brake drums.
(f) Remove capscrews (13) from sleeve spacers (12). Remove sleeve spacers from machine.

Note: Both jaw clutches must be engaged for removal or installation of sleeve spacers.

(g) Disengage L.H. jaw clutch (3) leaving R.H. engaged. Slide traction shaft to the right until there is enough clearance to remove L.H. jaw clutch (3). Remove L.H. jaw clutch. Block up L.H. steer brake drum (2) to keep it from falling when shaft is removed.
(h) Remove shaft out L.H. side of the lower. Support bevel gear (10) as shaft is removed, to keep it from falling. There is a threaded hole in the end of the shaft for installation of a puller.
(i) Remove bevel gear (10), thrust washer (9), and bearing sleeve (6).

Brake Drum Removal:

(a) Remove outer and inner traction shafts.
(b) Remove jaw clutch (14) for removal of drum (15). If removing drum (2), jaw clutch (3) will have been removed