SERVICE SECTION

FOR CARCO SERVICE AND PARTS MANUAL

Carco Model E Winch Series 24

THE PURPOSE OF YOUR SERVICE SECTION

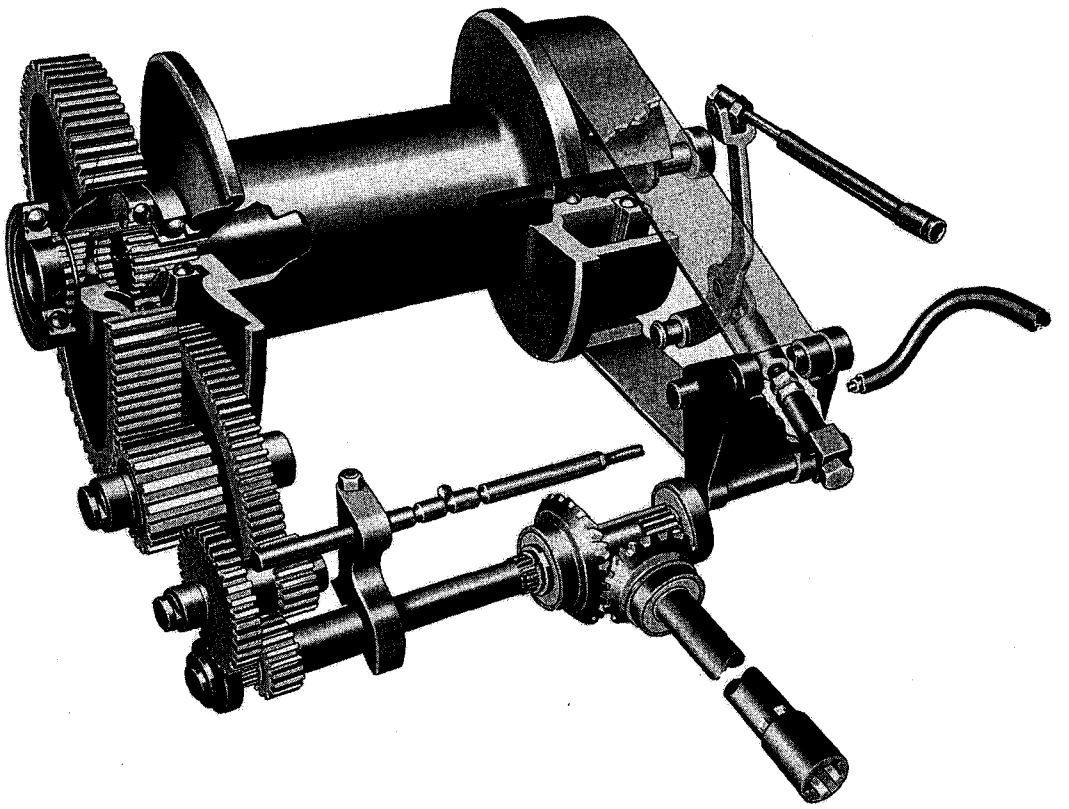
This Service Section is designed to provide a general knowledge of the working mechanism, operation and proper maintenance procedure of this unit. The operator is urged to thoroughly read this manual and thereby acquaint himself with the correct operational and maintenance procedure. The Service Section includes General Information, Lubrication and Adjustment Instructions, as well as the Disassembly and Assembly Information.

PACIFIC CAR AND FOUNDRY COMPANY

RENTON, WASHINGTON, U. S. A.

1018-F-3-15-55

CONTENTS



SERVICE INSTRUCTIONS

I. GENERAL INFORMATION

GENERAL DESCRIPTION

All parts of the E-24 winch, with the exception of the Power Take Off shaft and its bearing carrier, can, on most installations, be serviced without removing the unit from the tractor.

OPERATION

The E-24 winch is designed to be operated from the tractor seat thru control levers located on the left hand fender. These controls consist of a forward and reverse shift lever *(B, Figure 1)* and a brake lever *(A, Figure 1)* which are connected to the winch thru flexible push-pull control cables. Figure 1 illustrates the various operating positions of the control levers.

When the brake hand lever is in the full forward position the brake is released. Pulling the brake lever to the rear, or toward the operator, sets the brake and holds the cable drum. A ratchet and pawl on the brake hand lever hold it in the applied position until released by the operator.

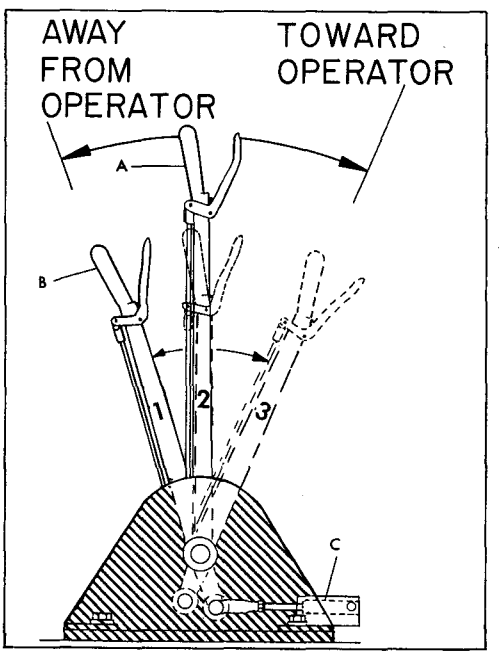


FIGURE 1

The gear shift lever is operated in conjunction with the tractor master clutch. When this lever is in the vertical position the winch sliding gear is in neutral. When the tractor master clutch is disengaged, the gear shift lever is moved to the front *(1, Figure 1)*, or to the rear *(3, Figure 1)* to engage the gears for the desired rotation of the cable drum.

In addition to the controls operated from the tractor seat, another control for operating the free spooling feature of the winch is provided. This control is operated from the ground.

Pulling out on the shaft *(B, Figure 6)*, at the left hand side of the winch disengages an internal-external gear type clutch and allows the cable drum to free-spool (the winch brake must be released and the shift gear in neutral). Pushing in on this shaft engages the clutch for winching in loads or paying out line with power.

CABLE DRUM ROTATION

Standard factory assembly of the model E-24 winch provides a heavy pull on an overwound incoming line and a fast line speed in reverse.

If it is desired to change the rotation of the cable drum to use the greater pull on an underwound drum, the position of the bevel gear must be reversed on its shaft and the brake band and its actuating mechanism must be inverted.

Procedures are given in the following paragraphs.

Proceed as outlined in section titled BEVEL GEAR AND SHAFT until bevel gear is free. Remove the gear.

Assemble bevel gear and spacer *(A and B, Figure 2)* in opposite positions in the winch from the previous assembly.

When the bevel gear has been reassembled in its new position on the shaft, adjust gear mesh and backlash as described in section titled ADJUSTMENT OF BEVEL GEAR AND PINION.

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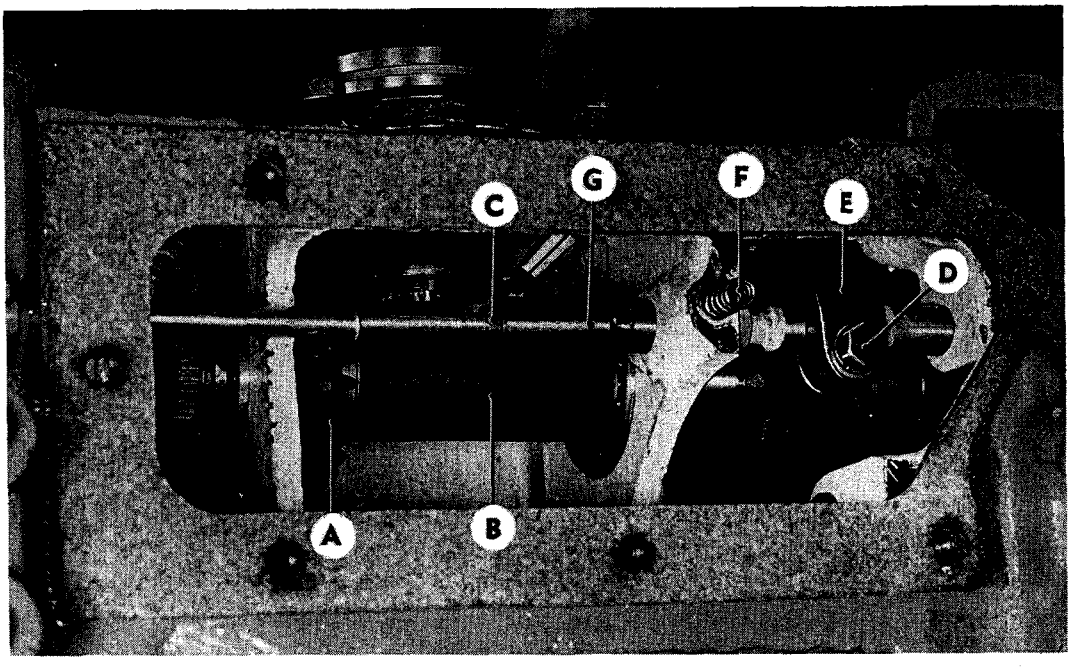

FIGURE 2

To reverse the brake band to operate with underwound cable, first release the brake. Remove the brake band as outlined under section titled REPLACING THE BRAKE BAND; next remove from winch brake adjusting linkage *(A, Figure 3)*, brake pivot pin *(B, Figure 3)*, brake pin *(C, Figure 3)* and brake differential lever *(D, Figure 3)*.

Reassemble brake band and actuating parts in reverse order and reversed position as shown in Figure 4.

The brake pivot pin *(B, Figure 4)* will now be in the lower hole of the winch case and the brake adjusting link *(A, Figure 4)* in the upper hole of the brake lever *(C, Figure 4)*.

Before applying brake cover *(A, Figure 6)* adjust the brake as outlined under section titled THE BRAKE AND ITS ADJUSTMENTS.

II. ADJUSTMENTS AND SERVICING

SHIFT LEVER ADJUSTMENT

This adjustment is made as follows. Disconnect the gear shift control cable yoke from the hand lever *(B, Figure 1)* and move the lever into the vertical position so that the lever pawl drops into the notch at the center of the shift lever sector.

With the control cable attached to the shifter fork shaft in the winch, move the shifter fork shaft with the control cable until the shift fork is located in the neutral position by the shift detent. Then adjust the control cable yoke to line up with the pin hole in the hand lever. Install yoke pin and cotter and lock yoke with the jam nut on the cable.

No notches are provided in the shift lever sector for the forward and reverse

FOR WINCH SERIAL NUMBER 2735 AND ABOVE REFER TO PAGES 15 AND 16 - (FORM 1038) FOR BRAKE ADJUSTMENTS AND SERVICING.

SERVICE INSTRUCTIONS

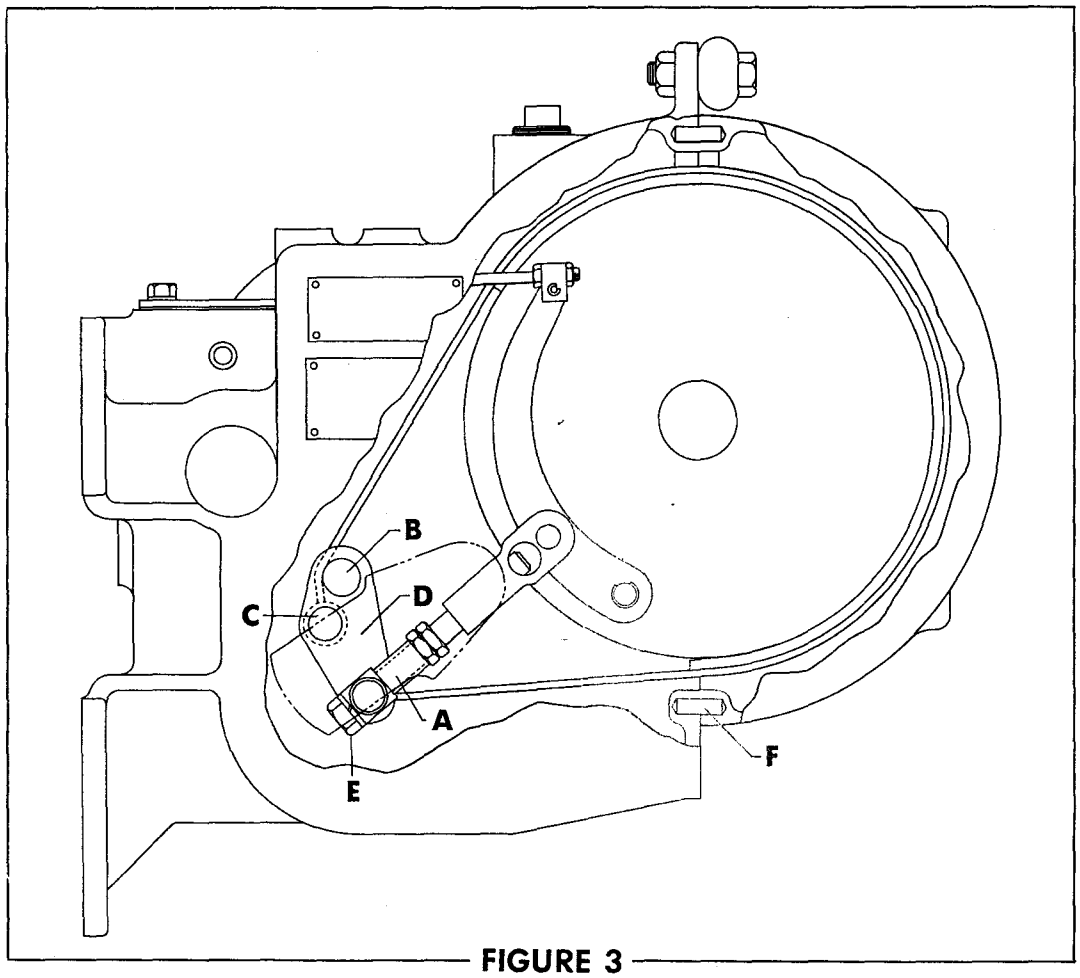

FIGURE 3

positions of the hand lever. These are not required as detents in the shift fork shaft hold the shifter fork in place at these positions.

THE BRAKE AND ITS ADJUSTMENTS

Figure 3 shows the components of the brake as set up for overwinding cable drum and Figure 4 for underwinding cable drum.

To adjust the brake, remove brake cover *(A, Figure 6)*. This will expose the brake adjusting and operating mechanism. Move the brake hand control lever forward to the released position. Shift winch cable drum into free-spooling.

Loosen brake band by turning brake adjusting bolt *(E, Figure 3)* to the right until the cable drum can be turned freely by hand.

Take up on the brake band by turning the brake adjusting screw to the left until a slight drag on the cable drum can be felt. The brake should now be in adjustment and will be fully applied when the hand lever is pulled to approximately the vertical position.

By means of the brake adjustment, the drag on the cable drum can be varied to meet working conditions, namely, when using the drum as a free spooling unit, or to suit operator preference.

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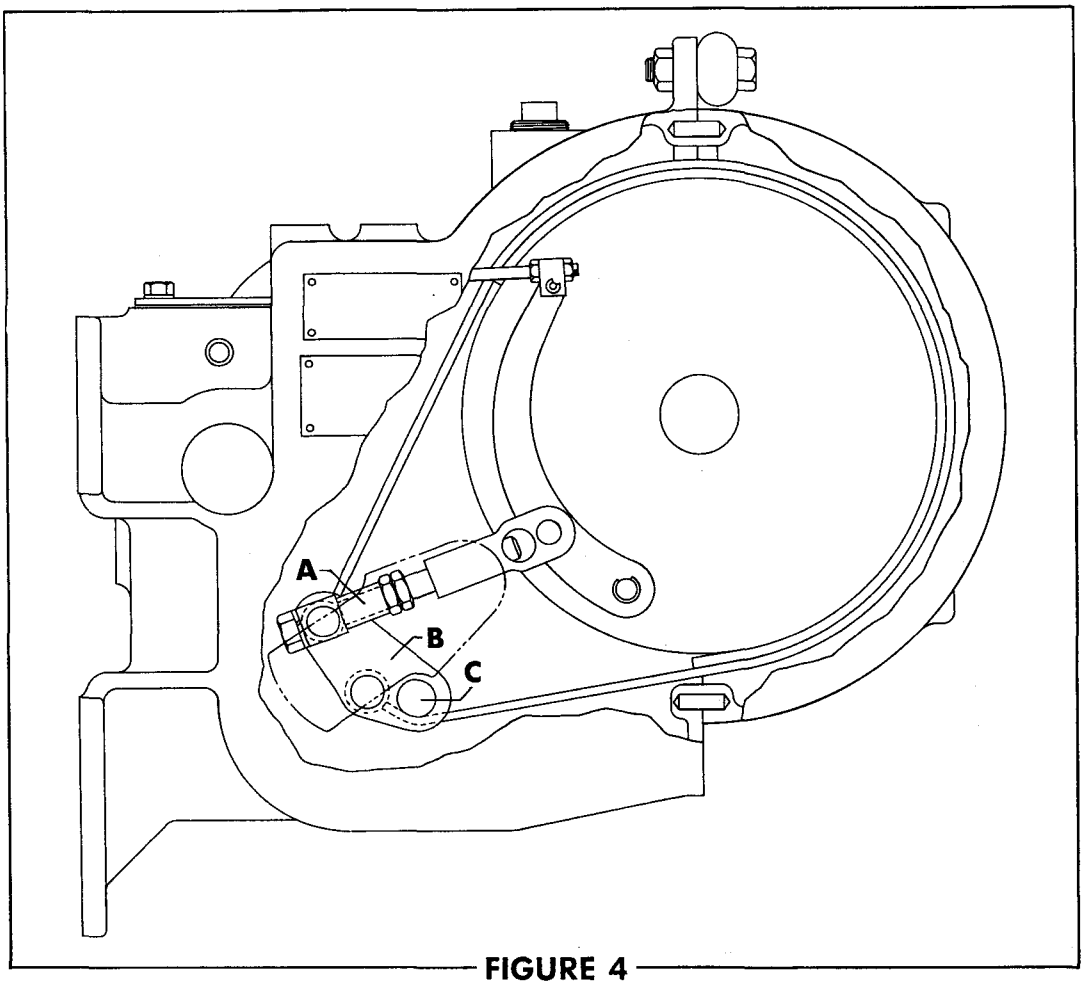

FIGURE 4

REPLACING THE BRAKE BAND

Remove brake compartment cover *(A, Figure 6)*. Remove three capscrews *(D, Figure 6)* in brake cover half of the drum shaft cover *(F, Figure 6)*, loosen the other three capscrews in winch case half of cover. Remove brake cover *(C, Figure 6)*. *Note*: This cover is held in place by two dowels *(F, Figure 3)* as well as the two socket head capscrews *(G, Figure 6)*. Care should be used in removing the cover to avoid damage to the dowels or dowel holes.

Loosen the brake band by turning the brake adjusting bolt *(E, Figure 3)* to the right. Remove brake adjusting link and pin assembly *(A, Figure 3)*, brake pivot pin *(B, Figure 3)* and brake pin *(C, Figure 3)*. Then remove brake band by pulling straight to the rear over the brake drum. (See Figure 5.)

Slip replacement band over the drum. Replace brake cover *(C, Figure 6)*, reassemble brake components and adjust brake.

REPLACING THE CONTROL CABLES

To remove the brake control cable, unhook yoke from brake lever on the control stand. Unscrew yoke from cable, loosen cable anchor setscrew at rear of stand and pull cable from control stand.

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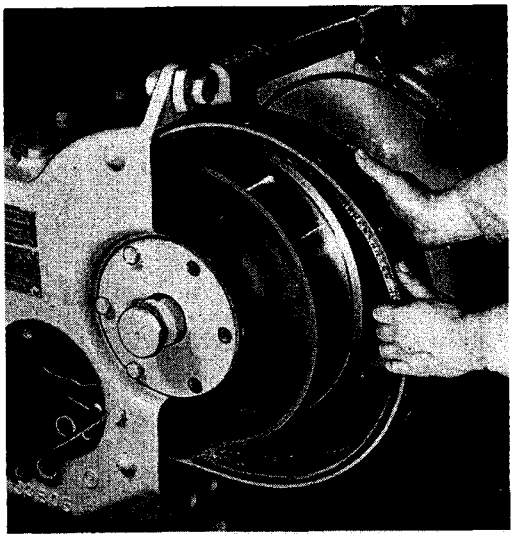

FIGURE 5

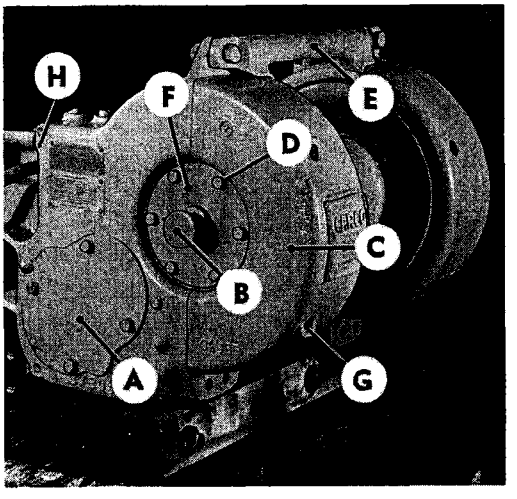

FIGURE 6

Remove brake band cover *(C, Figure 6)*, reach in alongside brake drum and remove cable locking nut *(L, Figure 13)*. Remove two cable anchor setscrews *(H, Figure 6)* and pull cable from winch.

When replacing the cable be sure the jam nut at the front side of universal block *(M, Figure 13)* is in place on the cable before putting it back in the winch.

To remove the shift control cable unhook yoke from shift lever on the control stand. Unscrew yoke from cable, loosen cable anchor setscrew at rear of stand and pull cable from control stand.

Remove bevel gear compartment cover *(C, Figure 7)* and gasket *(E, Figure 7)*, loosen control cable lock nut *(C, Figure 2)* at shifter shaft. Unscrew cable from shifter shaft. Remove two cable anchor setscrews *(22, Figure 14)* which hold cable to winch. Pull cable from winch.

III. WINCH DISASSEMBLY and ASSEMBLY

GENERAL INFORMATION

To service bull gear, winch gear cover must be removed.

To service reduction gear and shaft, bull gear must be removed.

To service back gear and shaft, bull gear must be removed. Reduction gear need not be removed unless desired.

To service bevel gear and shaft, bevel gear compartment cover only must be removed.

Bevel pinion may be removed for servicing or for changing drum rotation without removing winch from tractor. (See section titled BEVEL PINION AND SHAFT.)

WINCH COVERS, BULL GEAR AND CABLE DRUM

Remove cable guard *(E, Figure 6)* and clutch shaft cover *(F, Figure 6)*, taking care not to damage the shims under the cover. Remove brake cover and brake band as cutlined under section titled BRAKE BAND REPLACEMENT.

Shift free-spooling clutch shaft into engagement. Remove drum shaft cap *(A, Figure 7)* and shims *(B, Figure 7)*. Re-

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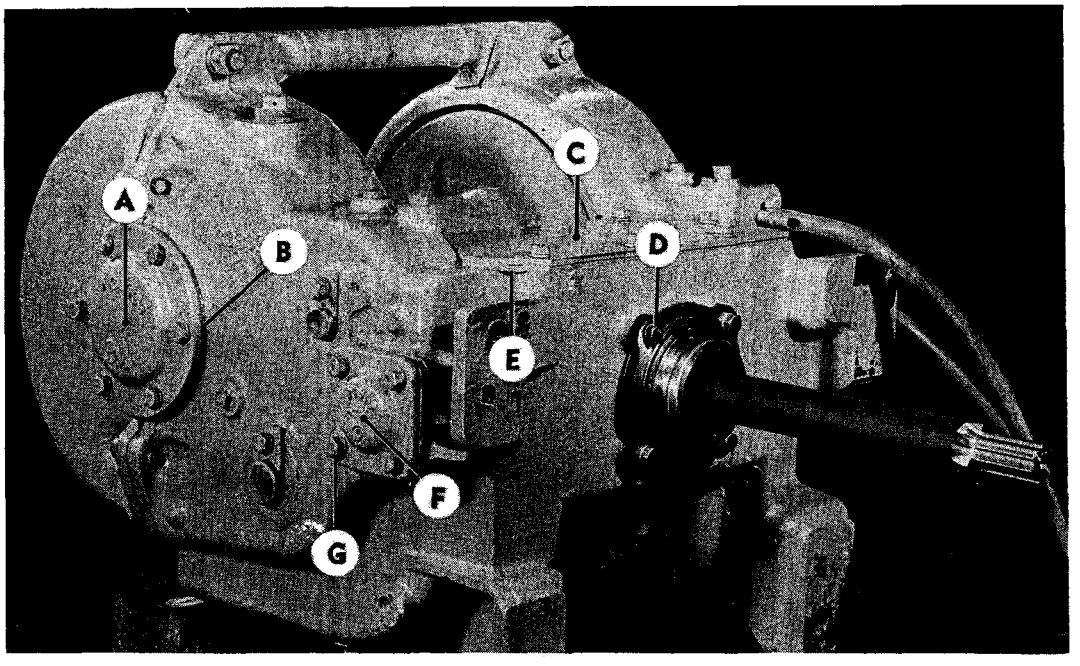

FIGURE 7

move gear cover *(A, Figure 8)* taking care to prevent damage to gasket *(B, Figure 8)*. *Note:* Before gear cover is completely loosened and during its removal hold the cable drum in place to prevent it from coming out of the case when the cover is removed.

Shift the clutch shaft into free-spooling and remove the bull gear and hub assembly *(A, Figure 9)*. Remove spacer *(B, Figure 9)* from bearing bore. Remove cable drum and clutch shaft assembly *(A, Figure 11)*.

The clutch shaft is removed from the cable drum by pulling it out of the drum from the brake drum end taking care to

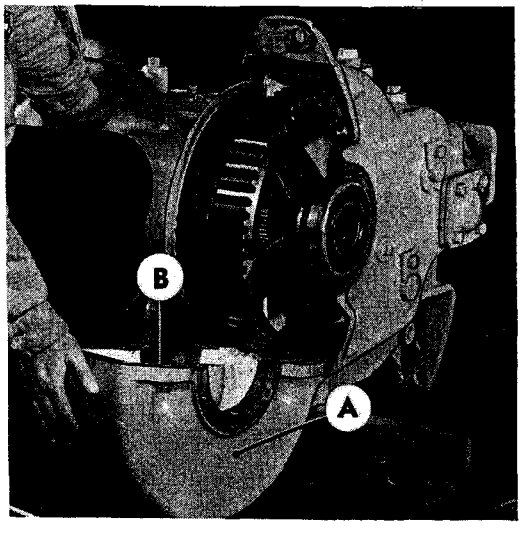

FIGURE 8

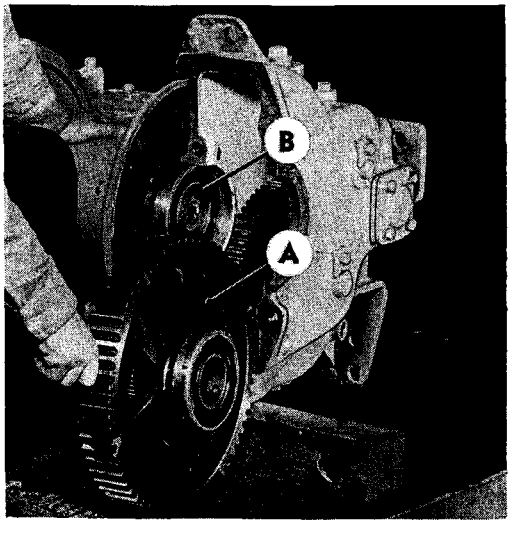

FIGURE 9

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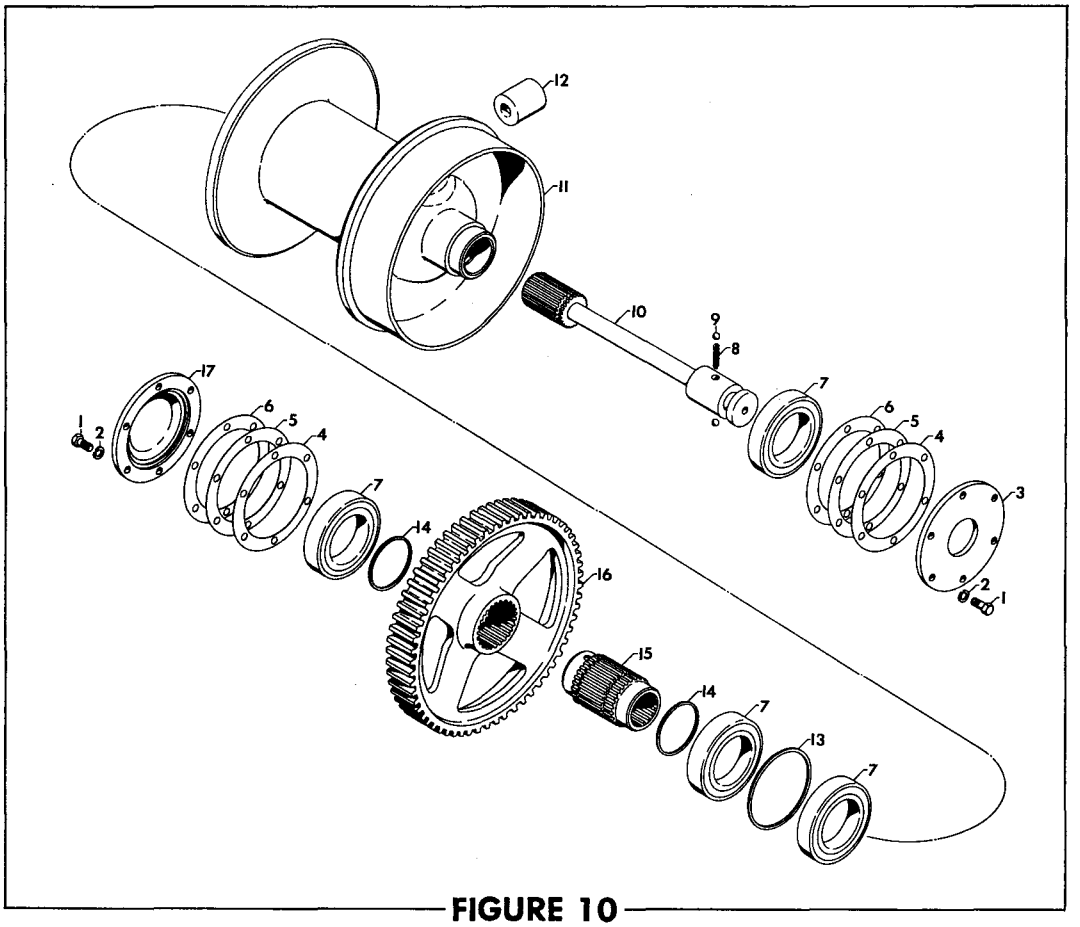

FIGURE 10

recover the two detent balls and spring *(9 and 8, Figure 10)*.

Disassemble bull gear and hub by removing bearings *(7, Figure 10)* and snap rings *(14, Figure 10)*. Then drive hub *(15, Figure 10)* from the bull gear.

When reassembling cable drum into winch it will be easier to enter the drum at an angle, with the brake drum end leading the gear end. Be sure spacer *(B, Figure 9)* is in place when installing bull gear and hub assembly, and that gear cover gasket *(B, Figure 8)* is in place.

Shims under covers *(A, Figure 7)* and *(F, Figure 6)* are provided to locate the cable drum and bull gear endwise to bring the bull gear into correct alignment with

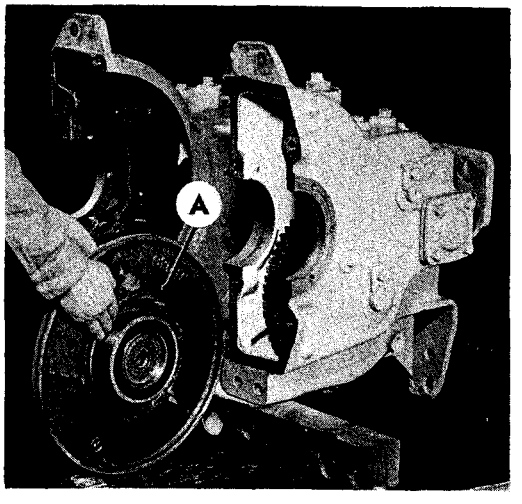

FIGURE 11

SERVICE INSTRUCTIONS

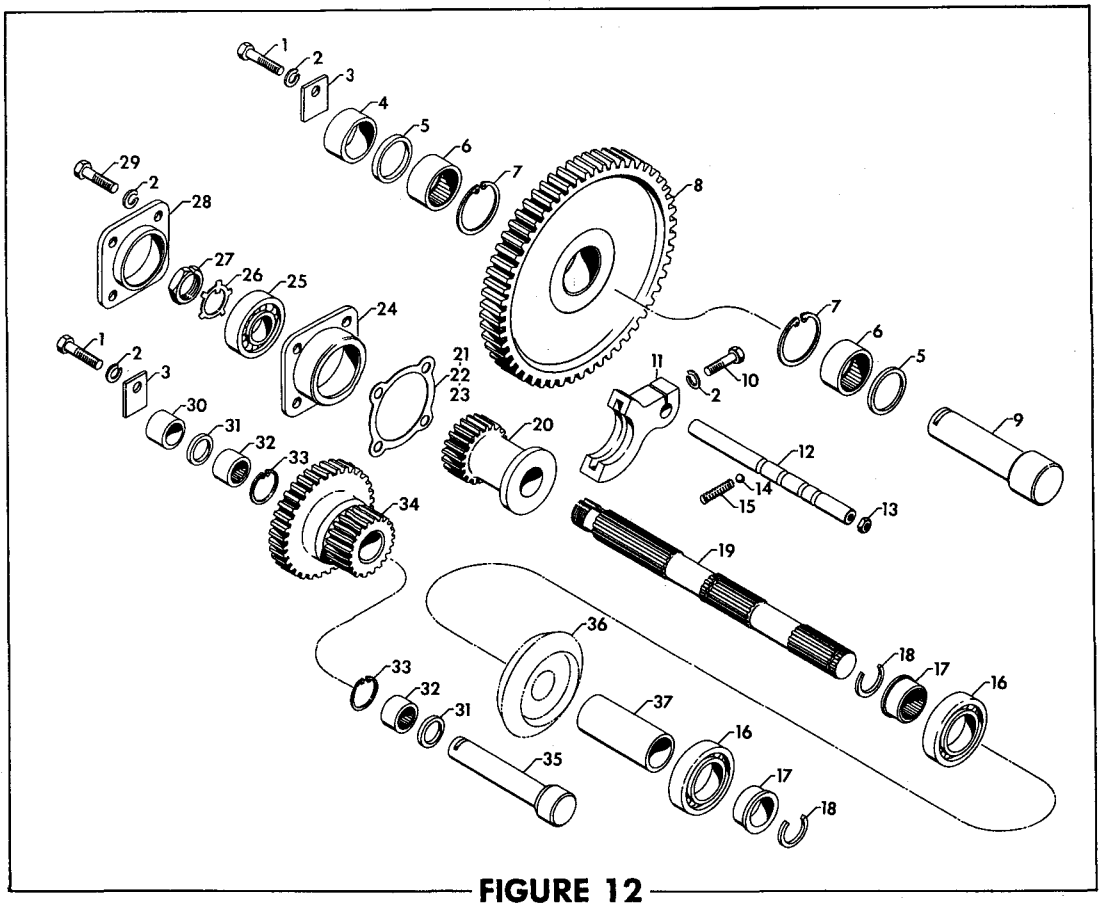

FIGURE 12

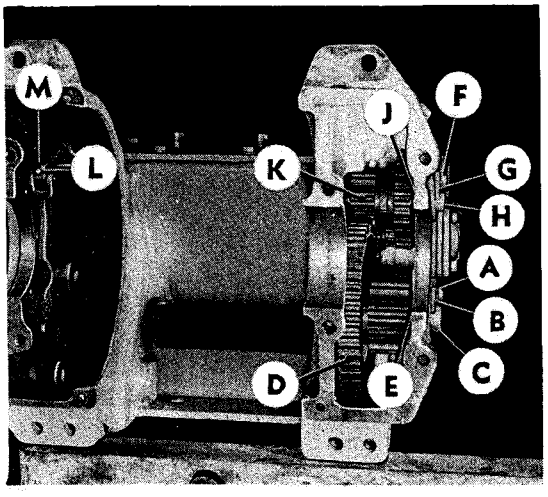

FIGURE 13

the face of the bull pinion. Sufficient shims must be used to take up the space between the winch housing and cover, plus an extra 0.010 of shims to avoid any preload on the drum line bearings.

REDUCTION GEAR AND SHAFT

Remove capscrew and lock plate *(A and B, Figure 13)*. Drive the shaft *(C, Figure 13)* from outside toward center of winch until spacer *(E, Figure 13)* and gear *(D, Figure 13)* are free. Remove shaft, spacer and gear from winch case.

To complete disassembly of reduction gear remove from gear two bearings *(6, Figure 12)*.

To reassemble reduction gear into winch, place two bearings into gear bore, slide one spacer over the shaft so that it

SERVICE INSTRUCTIONS

contacts the shaft shoulder. Put reduction gear into winch and line up bearings with housing bore. Slide shaft thru housing and gear bore, taking care to replace spacer *(E, Figure 13)*. Drive shaft into place and lock with lock plate *(B, Figure 13)*.

BACK GEAR AND SHAFT

Remove bevel gear compartment cover *(C, Figure 7)*.

Remove capscrew and lock plate *(F and G, Figure 13)*. Drive shaft *(H, Figure 13)* from outside toward center of winch until spacer *(J, Figure 13)* and gear *(K, Figure 13)* are free. Remove shaft, spacers and gear from winch case.

To complete disassembly of back gear remove from gear two bearings *(32, Figure 12)*.

To reassemble back gear into winch, place two bearings into gear bore. Slide one spacer over the shaft so that it contacts the shaft shoulder. Put back gear into winch and line up bearings with housing bore. Slide shaft thru housing and gear bore, taking care to replace spacer *(J, Figure 13)*. Drive shaft into place and lock with lock plate *(G, Figure 13)*.

BEVEL GEAR AND SHAFT

Remove bevel gear compartment cover *(C, Figure 7)* and gasket *(E, Figure 7)*. If shift mechanism is to be removed unhook shift control cable yoke from shift lever at the control stand. Loosen control cable lock nut *(C, Figure 2)* at shifter shaft. Unscrew cable from shifter shaft. Remove two socket head setscrews *(22,*

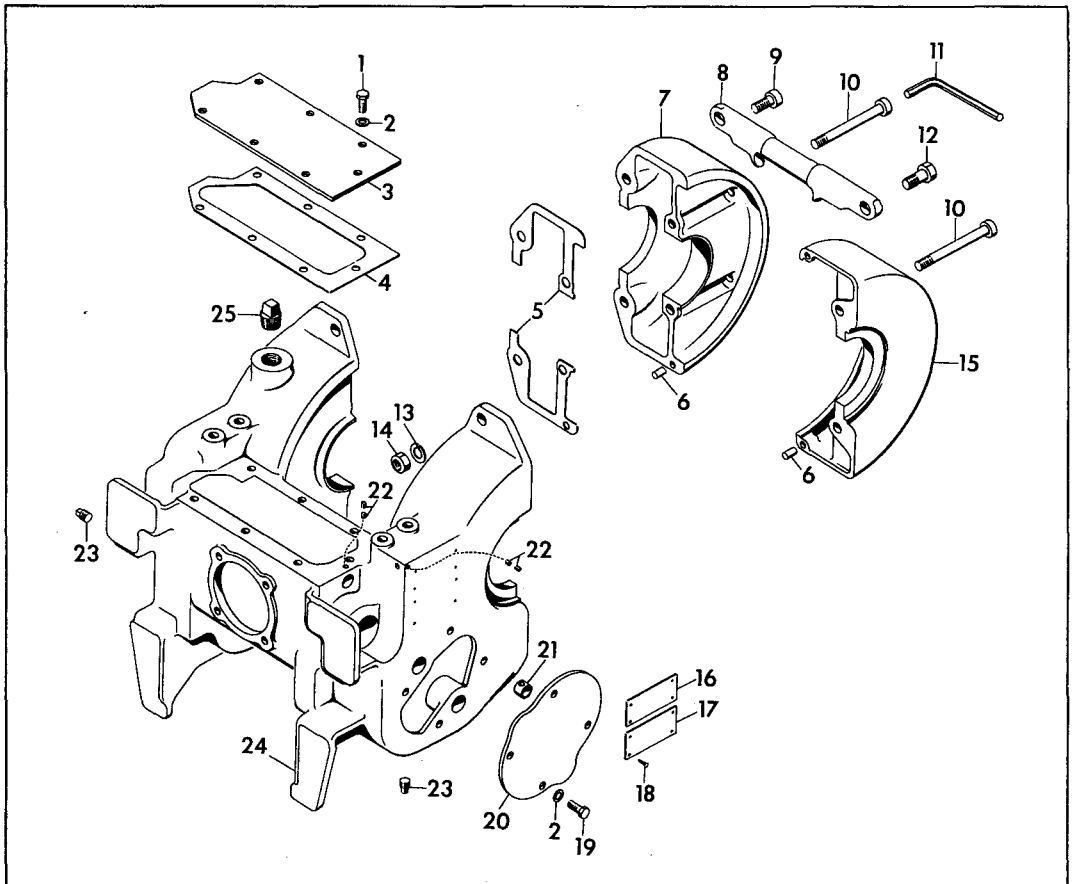

FIGURE 14

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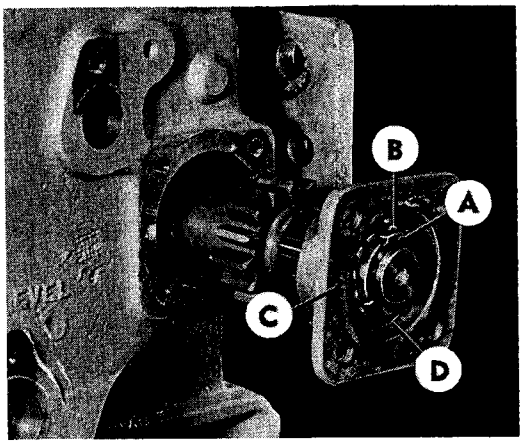


FIGURE 15

Figure 14), which hold cable to winch and pull cable from winch. Drive cable anchor bushing *(21, Figure 14)* from case. Remove capscrew *(D, Figure 2)* from shifter fork *(E, Figure 2)*. Pull shifter fork shaft *(G, Figure 2)* toward brake side of winch until shifter fork is free. Continue to pull shaft until free, taking care to remove detent ball and spring *(F, Figure 2)*.

Remove two snap rings *(18, Figure 12)* from bevel gear shaft. Remove four capscrews *(G, Figure 7)* from bearing cap *(F, Figure 7)*. Remove cap. Pry bearing housing and shaft assembly from winch *(see Figure 15)*, taking care not to damage shims *(21, 22, 23, Figure 12)*. Bevel gear shaft can now be removed from winch allowing removal of bevel gear *(36, Figure 12)* spacer *(37, Figure 12)* and sliding pinion *(20, Figure 12)*. Complete disassembly of shaft by removing lock nut *(A, Figure 15)*, lockwasher *(B, Figure 15)* and bearing housing and bearing *(C and D, Figure 15)*.

Drive two bearings *(16, Figure 12)* from winch housing. Remove bushings *(17, Figure 12)* from bearings.

When re-assembling bevel gear and shaft, be sure bearings and bushings *(16 and 17, Figure 12)* are assembled into housing with bushing shoulders to outside of winch.

After bevel gear has been adjusted, see section titled ADJUSTMENT OF BEVEL GEAR AND PINION, be sure detent ball and spring *(F, Figure 2)* are in place, also that shift control cable is screwed into the shifter shaft and locked.

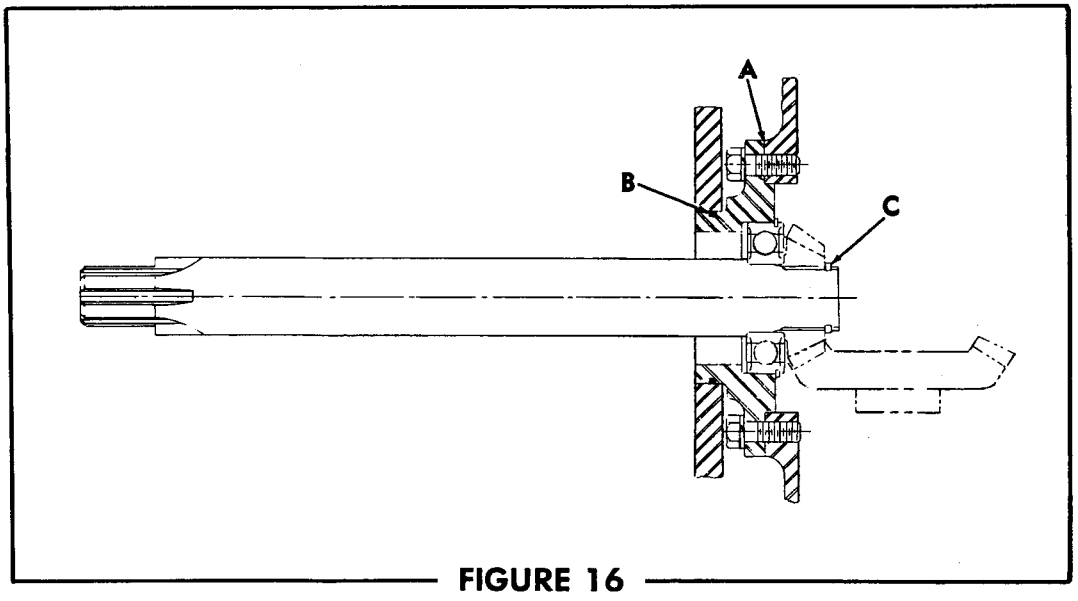


FIGURE 16

BEVEL PINION AND SHAFT

With winch mounted on tractor, bevel pinion may be removed after bevel gear shaft assembly is removed by taking off the snap ring and sliding the pinion rearward off of P.T.O. shaft.

With winch off of tractor, to remove bevel pinion and shaft assembly, remove four capscrews *(D, Figure 7)*. Pull assembly from winch, taking care not to damage gasket *(A, Figure 16)* and O-ring *(B, Figure 16)*. Remove snap ring *(C, Figure 16)* and bevel pinion from shaft. Drive the shaft and bearing from carrier. Remove bearing from shaft.

Reassemble in opposite order. Be sure gasket is in place between pinion carrier and the winch case when mounting the assembly to the winch.

ADJUSTMENT OF BEVEL GEAR AND PINION

The amount of space allowed between the non-driving faces of the teeth of the bevel gear and pinion is called backlash. When the winch is assembled at the factory, the gear and pinion are set for the proper backlash. In the model E-24 winch this backlash is from 0.008 - 0.012-inch. Variation from this backlash tolerance will cause gears to run noisily, gear teeth to wear excessively, and can result in breakage of gear teeth.

Secure bevel pinion and shaft assembly to winch, taking care that O-ring and gasket are in good condition and in place. Drive the bevel pinion forward to make sure it is seated solidly against the bearing and that the snap ring of the bearing is seated against the bevel pinion carrier. When this has been done no further adjustment of the bevel pinion is necessary. Proper adjustment for backlash of the gears will be accomplished by changing the position of the bevel gear.

All adjustments are made by adding or removing shims between bearing carrier *(C, Figure 15)* and the winch housing. You will note that the shims are split into halves to enable them to be assembled into the winch without removing the bevel shaft assembly. Be sure to assemble an equal thickness of shim halves on each half of the bearing carrier.

To check the backlash of the gears, be sure the gear and bearing *(D, Figure 15)* are tight against their supporting shoulders. With the pinion held, the amount of free movement of the gear measured at the large diameter is the backlash.

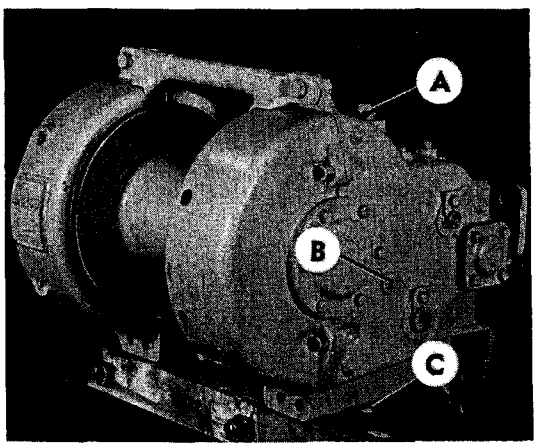
Recheck the backlash after bearing housing, shims and bearing cap have been secured by capscrews *(G, Figure 7)*.

IV. LUBRICATION

GENERAL INFORMATION

All internal parts are lubricated by immersion or splash. Under normal conditions, the oil should be changed every 300 hours of tractor operation or every three months. For temperatures above 90° F., use S.A.E. 140 gear oil. For temperatures from 90° F. down to 0° F., use S.A.E. 90 gear oil, or S.A.E. 50 motor oil. For temperatures below 0° F., use S.A.E. 10 motor oil. Extreme pressure gear oils are not necessary. Use only the highest quality oil, and the S.A.E. 10 motor oil should be of a paraffin base, if available.

In addition each control cable is equipped with two alemite fittings. These should be greased sparingly once each month.



LUBRICATION

A — Filler plug. Use 4 gal. gear oil.
B — Level plug.
C — Drain plug.

SERVICE INSTRUCTIONS

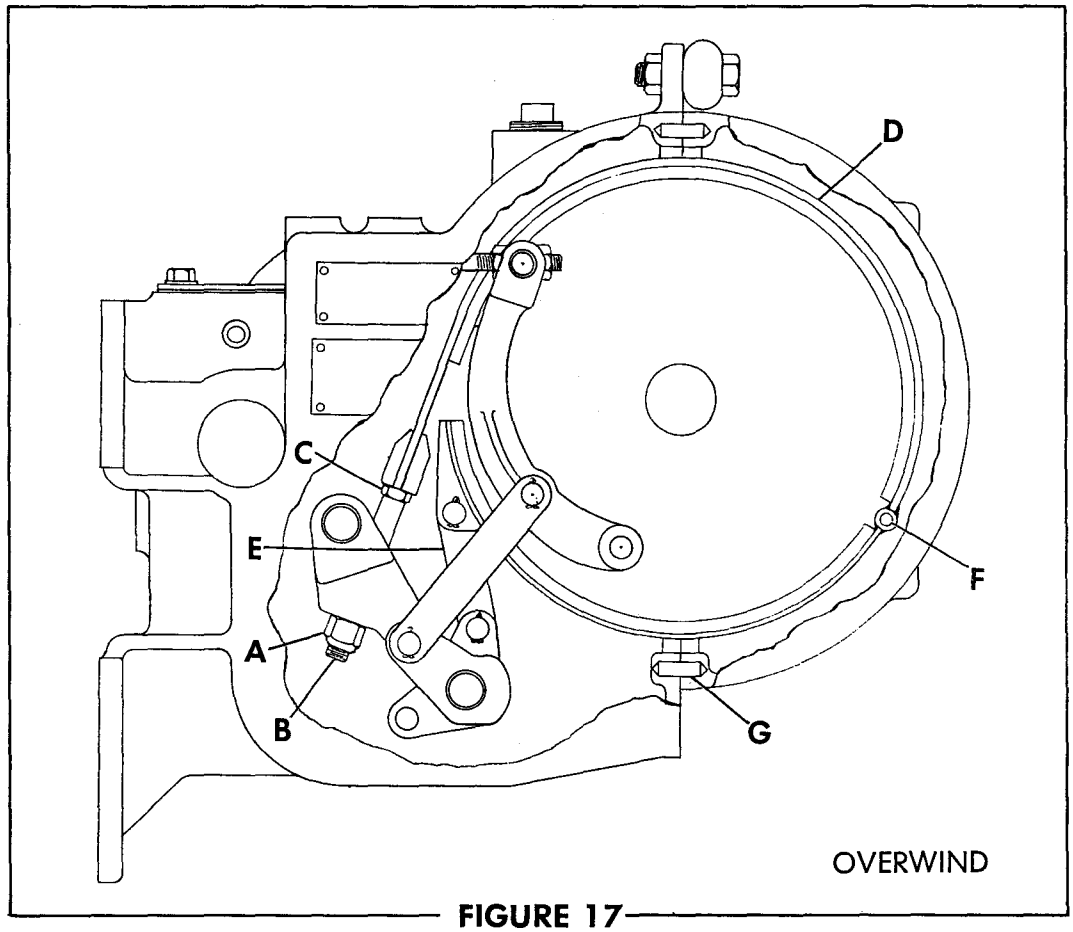


FIGURE 17

NOTE: The following, supplements Brake Adjustment and Servicing information which appears on Pages 4, 5 and 6.

Figure 17 shows the components of the brake as set up for overwinding cable drum and Figure 18 for underwinding cable drum.

REPLACING THE BRAKE BAND

Remove brake compartment cover *(A, Figure 6)*. Remove three capscrews *(D, Figure 6)* in brake cover half of the drum shaft cover *(F, Figure 6)*, loosen the other three capscrews in winch case half of cover. Remove brake cover *(C, Figure 6)*. Note: This cover is held in place by two dowels *(G, Figure 17)* as well as the two socket head capscrews *(G, Figure 6)*. Care should be used in removing the cover to avoid damage to the dowels or dowel holes.

Back off safety nut *(A, Figure 17)* on end of anchor stud *(B, Figure 17)*. Loosen lock nut *(C, Figure 17)*, unscrew anchor stud *(B, Figure 17)* from anchor in brake band. Rotate brake band *(D, Figure 17)* on drum and drop link *(E, Figure 17)* from live end of band.

Drive out hinge pin *(F, Figure 17)*. Remove the two halves of brake band by withdrawing from above and below the drum.

To replace the brake band assembly, reverse the above procedure, adjust the brake and replace the brake cover half of drum shaft cover and the brake compartment cover.

NOTE: When replacing hinge pin *(F, Figure 17)* head must be installed toward flange of drum.

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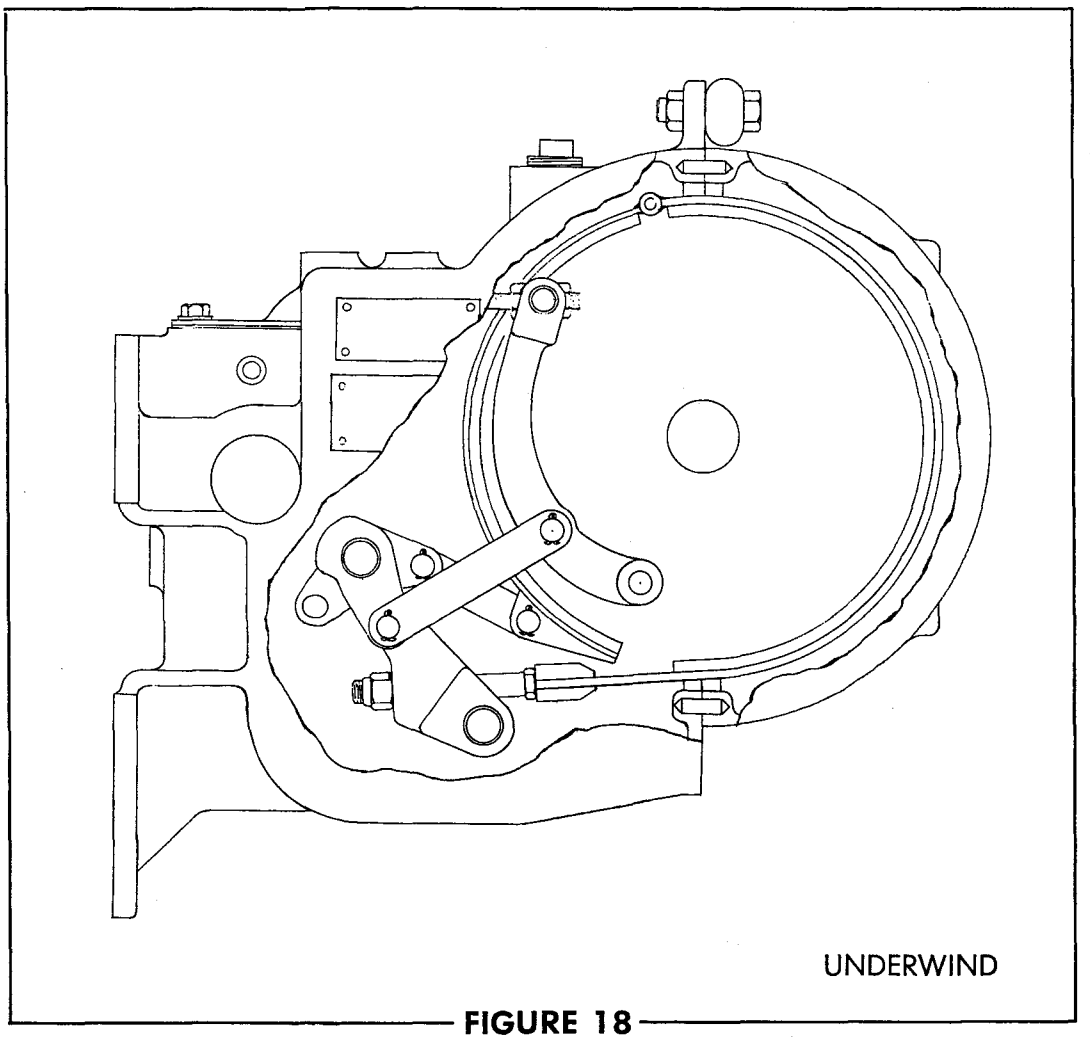


FIGURE 18

THE BRAKE AND IT'S ADJUSTMENT

To adjust the brake, remove brake cover *(A, Figure 6)*. This will expose the brake adjusting and operating mechanism. Move the brake hand control lever forward to the released position. Shift winch cable drum into free spooling.

Loosen brake band by unscrewing the safety nut *(A, Figure 17)* until the cable drum can be turned freely by hand.

By means of the brake adjustment, the drag on the cable drum can be varied to meet working conditions, namely, when using the drum as a free spooling unit, or to suit operator preference.

Take up on the brake band by turning the safety nut to the right until a slight drag on the cable drum can be felt. The brake should now be in adjustment and will be fully applied when the hand lever is pulled to approximately the vertical position.

PARTS LIST SECTION

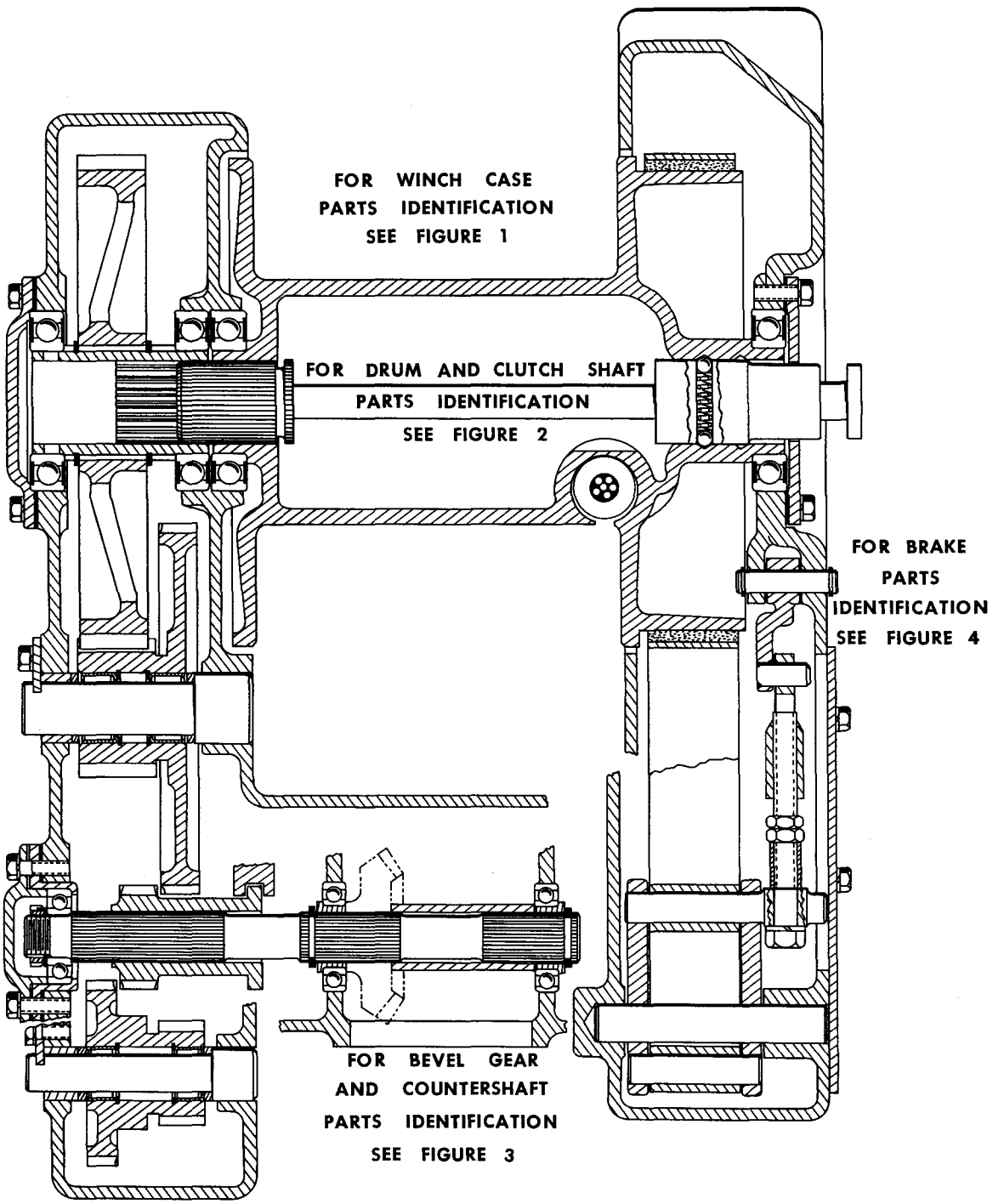
FOR CARCO SERVICE AND PARTS MANUAL

Carco Model E Winch Series 24

ATTENTION: Be sure to give the correct part number and part name, and the complete serial number of the unit, when ordering any parts.

PACIFIC CAR AND FOUNDRY COMPANY
RENTON, WASHINGTON, U. S. A.

PARTS IDENTIFICATION INDEX DRAWING
CARCO MODEL E-24 WINCH



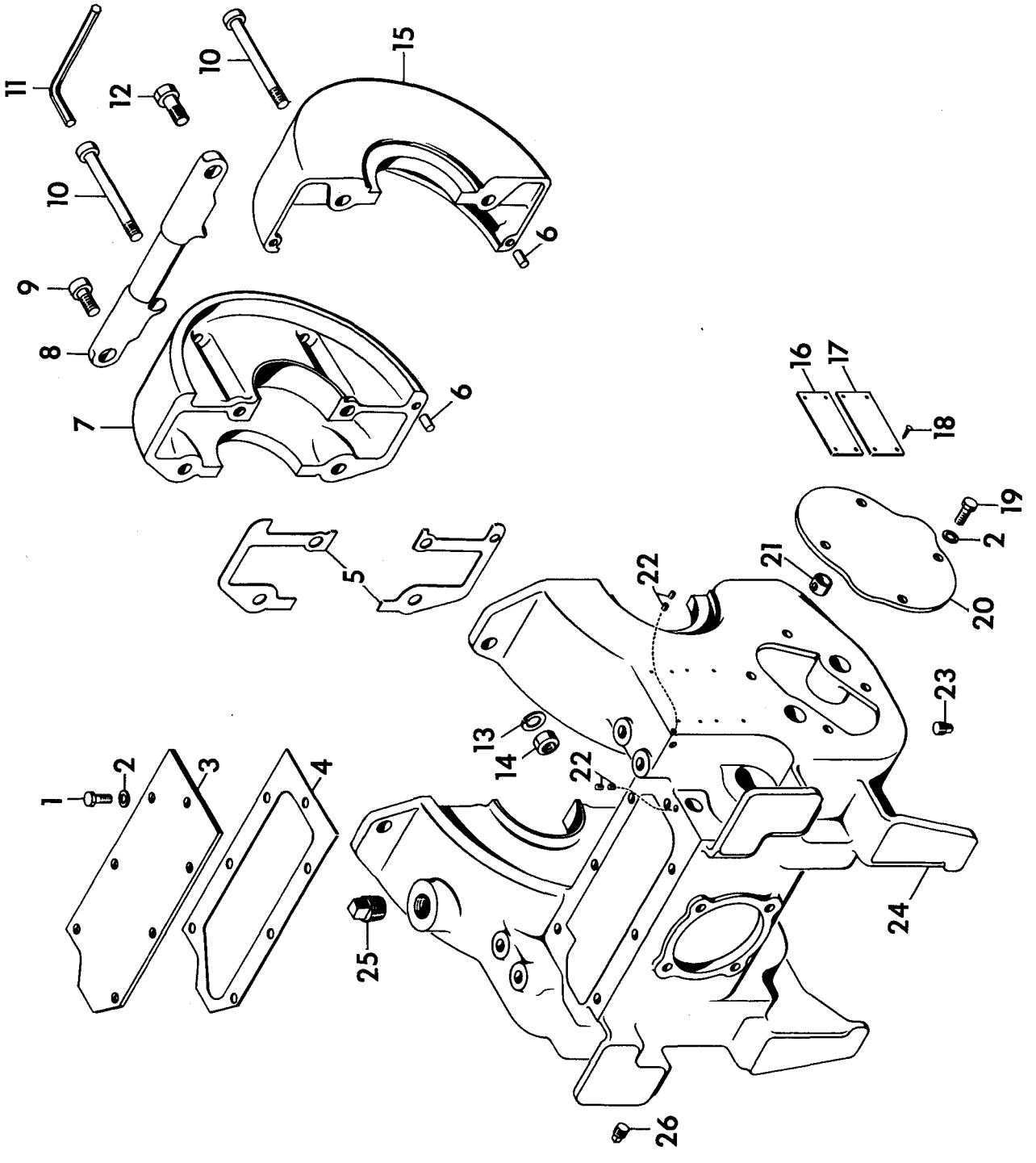


FIGURE 1

REF.	PART NO.	NAME	Quan. per Unit
1	½NFx1	Hex Head Capscrew	7
2	½"	Lockwasher	11
3	32658	Cover	1
4	32662	Gasket	1
5	32663	Gasket	1
6	R-83	Producto Dowel Pin	3
7	32686	Gear Cover	1
8	32790	Cable Guard	1
9	¾NCx1¾	Socket Head Capscrew	2
10	¾NCx8	Socket Head Capscrew	4
11	9/16"	Allen Wrench	1
12	⅞NFx2¾	Hex Head Bolt	2
13	⅞"	Lockwasher	2
14	⅞NF	Hex Nut	2
15	32685	Brake Cover	1
16	27642	Name Plate	1
17	26230	Instruction Plate	1
18	K-1003	P. K. Drive Screw	8
19	½NFx¾	Hex Head Capscrew	4
20	32654	Brake Cover	1
21	31072	Bushing	1
22	⅜NCx½	Socket Head Setscrew	4
23	¾NPT	Magnetic Pipe Plug	1
24	32689	Case	1
25	Y-2199	Breather Plug	1
26	¾" N.P.T.	Pipe Plug	1

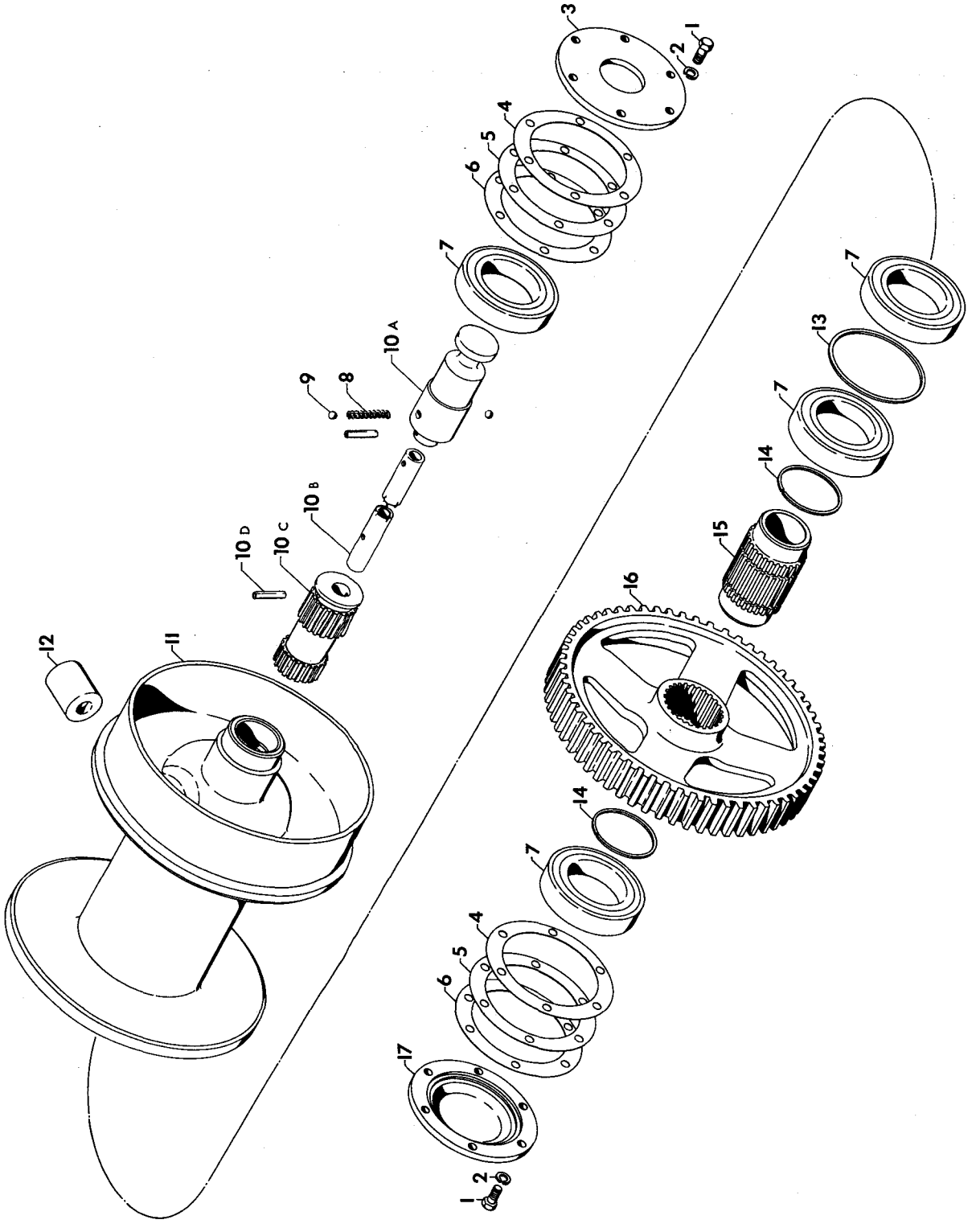


FIGURE 2

REF.	PART NO.	NAME	Quan. per Unit
1	½NFx1¼	Hex Head Capscrew	12
2	½"	Lockwasher	12
3	32655	Drum Shaft Cover	1
4	K-22420 (.020")	Timken Shim	2
5	K-22405 (.005")	Timken Shim	6
6	K-22407 (.007")	Timken Shim	6
7	217SZZ	MRC Bearing	4
8	#11	Cragin Spring	1
9	½" Dia.	Steel Ball	2
10	38202	Clutch Shaft Assembly (Incl. Item Nos. 10A, 10B, 10C and 10D)	1
10A	35640	Hand Knob	1
10B	35642	Clutch Shaft	1
10C	38200	Splined End	1
10D	#375x2"	Esna Roll Pin	2
11	32687	Cable Drum	1
12	25457-2	Cable Ferrule	1
13	32648	Spacer	1
14	5100-375	Truarc Snap Ring	2
15	38201	Bull Gear Hub	1
16	32680	Bull Gear	1
17	32659	Drum Shaft Cap	1

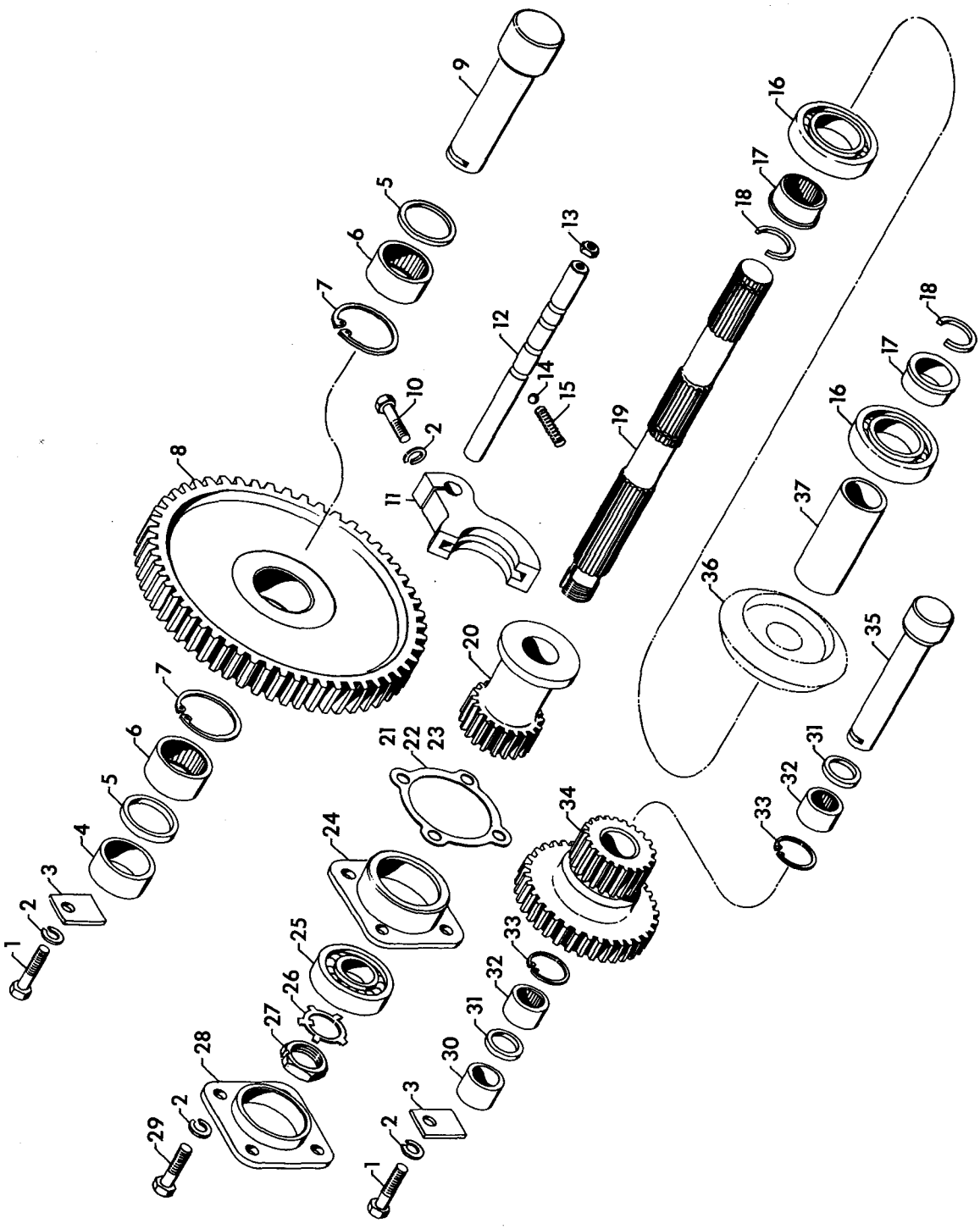

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FIGURE 3

REF.	PART NO.	NAME	Quan. per Unit
1	½NFx1¼	Hex Head Capscrew	2
2	½"	Lockwasher	7
3	32649	Lock Plate	2
4	32640	Spacer	1
5	32644	Spacer	2
6	283720	Torr. Needle Bearing	2
7	5000-231	Truarc Snap Ring	2
8	32679	Reduction Gear	1
9	32672	Bull Pinion Shaft	1
10	½NFx1¾	Hex Head Capscrew	1
11	32660	Shifter Fork	1
12	32661	Shifter Shaft	1
13	⅜NF	Hex Jam Nut	1
14	½" Dia.	Steel Ball	1
15	28698-15	Spring	1
16	210K	Fafnir Bearing	2
17	32650	Bearing Carrier	2
18	XSO-257	National Snap Ring	2
19	32676	Bevel Gear Shaft	1
20	32677	Sliding Pinion	1
21	32636-7	Shim (.007")	3
22	32636-20	Shim (.020")	3
23	32636-5	Shim (.005")	3
24	32656	Retainer	1
25	307K	Fafnir Bearing	1
26	W-07	Fafnir Lockwasher	1
27	N-07	Fafnir Locknut	1
28	32657	Bearing Cap	1
29	½NFx1½	Hex Head Capscrew	4
30	32639	Spacer	1
31	32642	Spacer	2
32	202816	Torr. Needle Bearing	2
33	5000-175	Truarc Snap Ring	2
34	32678	Back Gear	1
35	32673	Back Gear Shaft	1
36	*	Bevel Gear	
37	32802	Bevel Gear Spacer	1

* Refer to page 13 and 14.

1012-F-1-15-58
SUPERSEDES
1012-F-11-1-54

CARCO MODEL E-24 WINCH

PARTS LIST SECTION—PAGE 10

BRAKE ASSEMBLY

WINCH SERIAL NO. 2734 AND BELOW

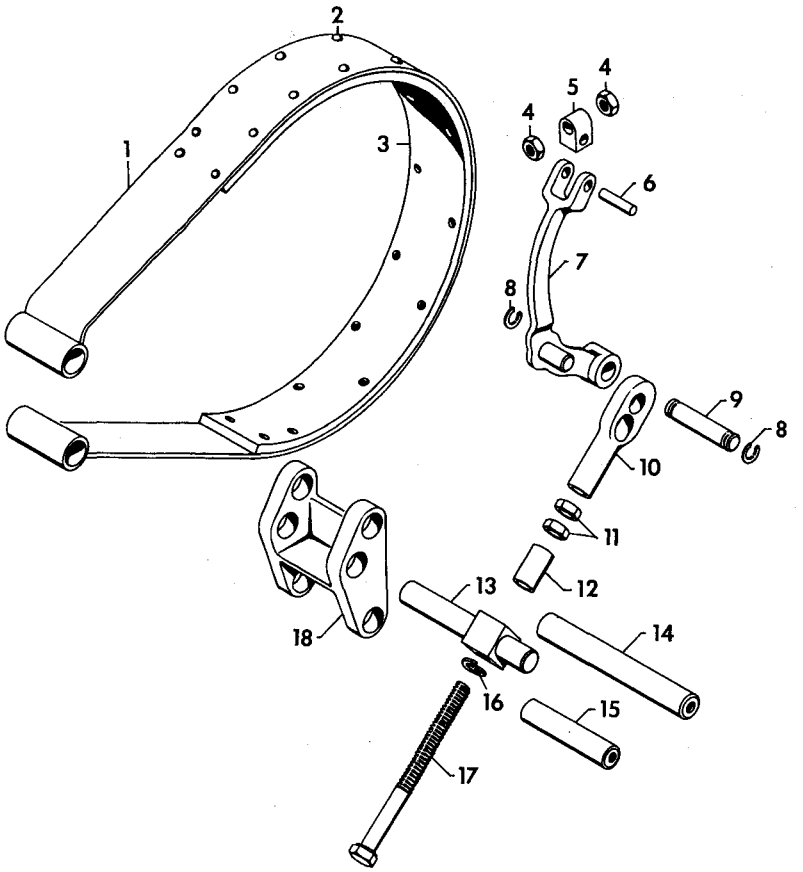
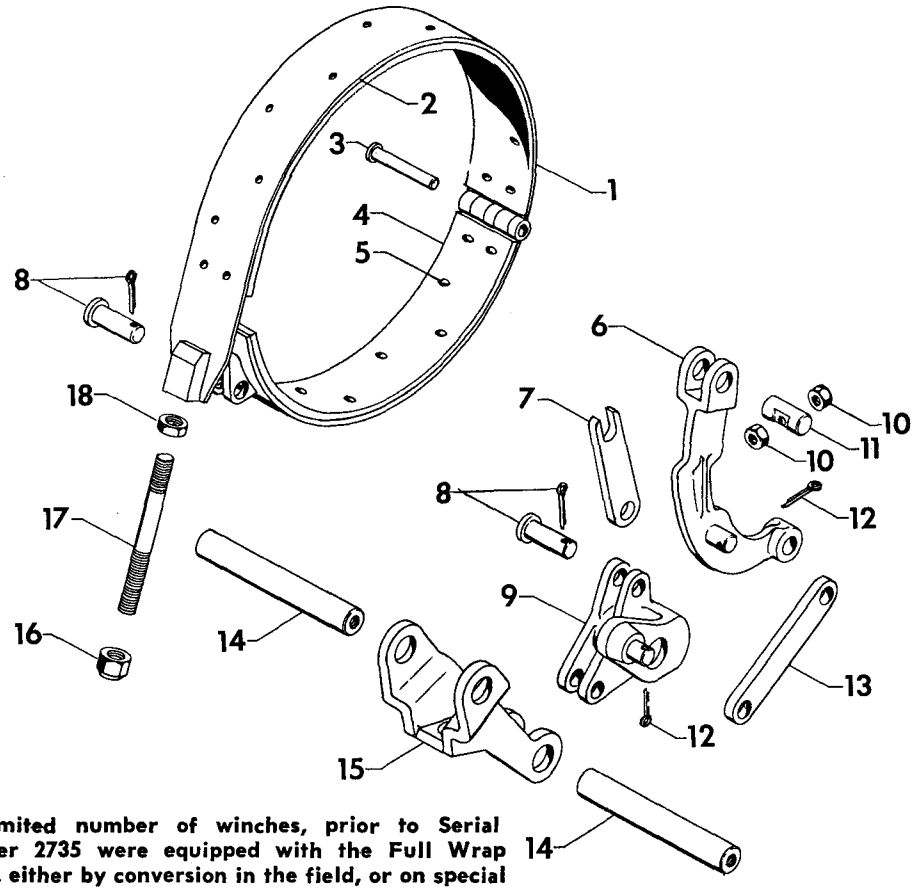


FIGURE 4

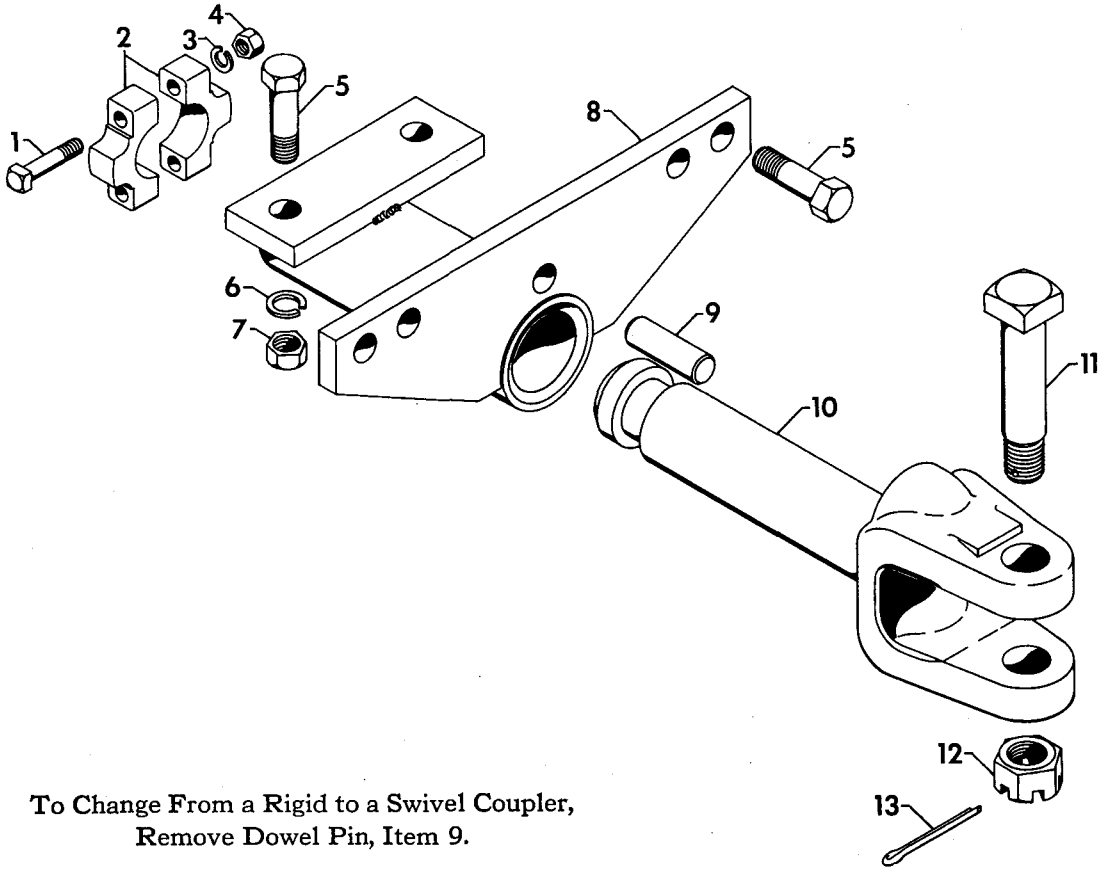
REF.	PART NO.	NAME	Quan. per Unit
1	32675	Brake Band Assem.(Incl. Items 2 and 3)	1
2	3/16"x3/16"-3/8" Head	Brass Tubular Rivets	22
3	3/8"x3"x3' 2½"	Brake Lining	1
4	3/8NF	Hex Jam Nut	2
5	32645	Universal Block	1
6	375x1½	Esna Roll Pin	1
7	32842	Brake Lever	1
8	XSO-231	National Snap Ring	2
9	32641	Brake Pin	1
10	32643	Adjusting Link	1
11	¾NF	Hex Jam Nut	2
12	33940	Spacer	1
13	32638	Brake Adjusting Pin	1
14	32671	Brake Pivot Pin	1
15	32637	Brake Pin	1
16	¾" Regular	Lockwasher	1
17	32646	Adjusting Bolt	1
18	32683	Lever	1



*A limited number of winches, prior to Serial Number 2735 were equipped with the Full Wrap Brake, either by conversion in the field, or on special order.

FIGURE 6

REF.	PART NO.	NAME	Quan. per Unit
1	38104	Brake Band Assem. (Incl. Items 2, 3, 4, 5)	1
2	38074	Band Weldment	1
3	38088	Hinge Pin	1
4	⅜"x3"x3'-10½"	Brake Lining	1
5	¼"x½" HD.x½" Long	Tubular Brass Rivets	27
6	38071	Lever Assembly	1
7	38072	Brake Link	1
8	2708½-8A	Cleve. Yoke Pin and Cotter	2
9	38068	Lever Assembly	1
10	⅜"NF	Hex Jam Nuts	2
11	38084	Pin	1
12	3/16" Dia.x1½"	Cotter Pin	2
13	38073	Brake Link	1
14	32671	Brake Pivot Pin	2
15	38069	Brake Anchor	1
16	¾"-16NF	Safety Nut	1
17	38070	Anchor Stud	1
18	¾"-16NF	Hex Jam Nut	1

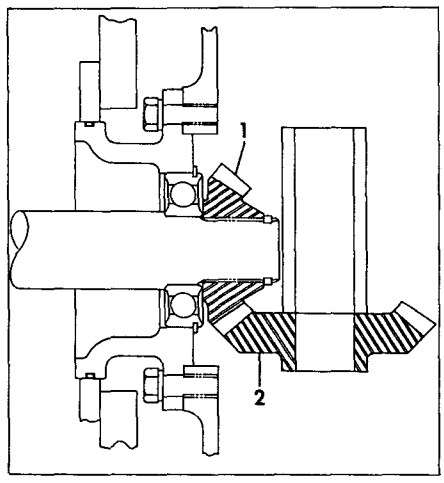


To Change From a Rigid to a Swivel Coupler, Remove Dowel Pin, Item 9.

FIGURE 5

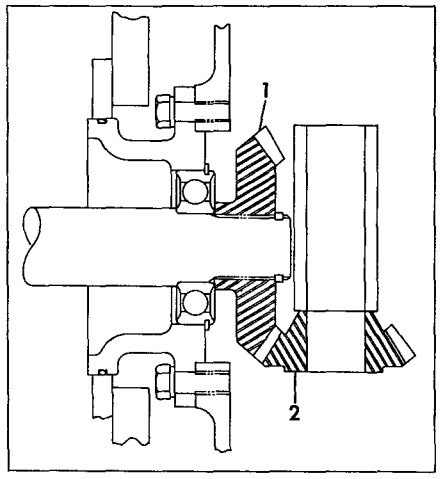
COUPLER ASSEMBLY . . . COMPLETE PART NO. 32870

REF.	PART NO.	NAME	Quan. per Unit
1	½NCx2¾	Square Head Bolt	2
2	32858	Retainer Clamp	1
3	½"	Lockwasher	2
4	½NC	Hex Nut	2
5	⅞NFx2½	Hex Head Capscrew (Heat Treated)	6
6	⅞"	Lockwasher	6
7	⅞NF	Hex Nut (Heat Treated)	2
8	32861	Coupler Adapter	1
9	32865	Dowel Pin	1
10	32857	Coupler	1
11	32871-1	Coupler Bolt	1
12	Y-1216-1	Slotted Nut	1
13	¼x2¼	Cotter Pin	1



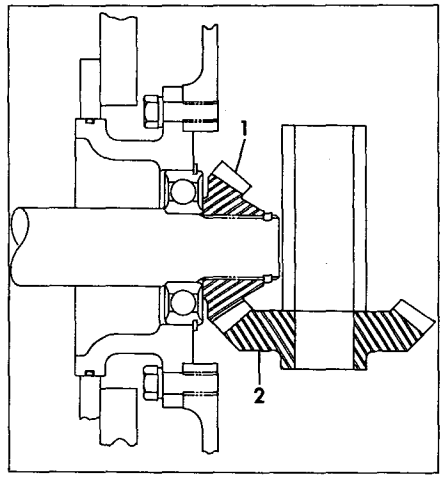
34536

REF.	PART NO.	NAME	Quan. per Unit
1	32670	Bevel Pinion (24 teeth)	1
2	32667	Bevel Gear (27 teeth)	1



34537

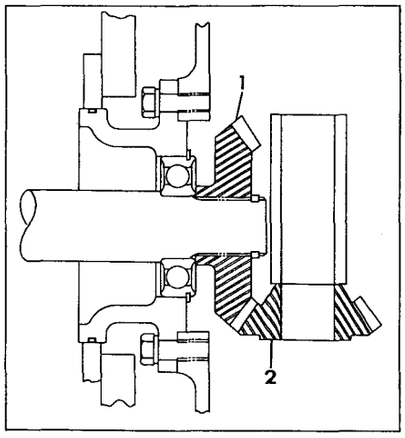
REF.	PART NO.	NAME	Quan. per Unit
1	32667	Bevel Pinion (27 teeth)	1
2	32670	Bevel Gear (24 teeth)	1



34538

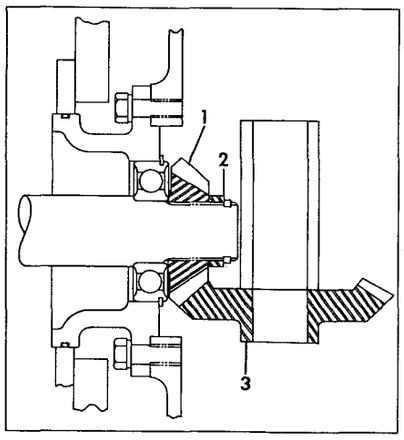
REF.	PART NO.	NAME	Quan. per Unit
1	32668	Bevel Pinion (20 teeth)	1
2	32669	Bevel Gear (28 teeth)	1

BEVEL GEAR SETS



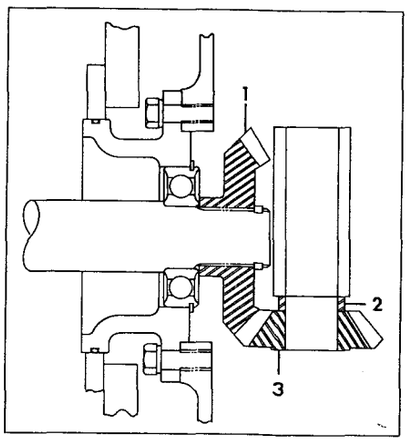
34539

REF.	PART NO.	NAME	Quan. per Unit
1	32669	Bevel Pinion (28 teeth)	1
2	32668	Bevel Gear (20 teeth)	1



34540

REF.	PART NO.	NAME	Quan. per Unit
1	32664	Bevel Pinion (17 teeth)	1
2	32811	Spacer	1
3	32665	Bevel Gear (30 teeth)	1



34541

REF.	PART NO.	NAME	Quan. per Unit
1	32665	Bevel Pinion (30 teeth)	1
2	32811	Spacer	1
3	32664	Bevel Gear (17 teeth)	1

F-40991

BILL OF MATERIAL

NO. REQ.	SIZE	SPECIFICATION
1	GASKET	Y-32691
1	STAND, CONTROL	D-33979
2	CABLE, CONTROL	D-31000-78
1	CARRIER, PINION	X-40989
1	SHAFT, PTO	X-40990
2	PIN ASSEMBLY	CLEVE. 2708-½-4A
2	BEARING, BALL	MRC 309 SZ
4	WASHER, LOCK	½ MEDIUM
1	FITTING, GREASE	ALEMITE 1930
2	NUT, JAM	⅜-24 UNF
2	NUT, JAM	⅜-16 UNC
1	RING, RETAINING	NATIONAL X50257
2	SCREW, SQ. HD. SET	⅜-16 UNC × 1¼
4	SCREW, H.HD. CAP	½-20 UNF × 1½
2	YOKE	CLEVELAND 2708-4A

REVISIONS

MADE	DATE	NO.	CHG.	E. N. NO.
	OCT. 5, 1960		RELEASED	

DWG. PERTAINS TO P/L 40991

PACIFIC CAR AND FOUNDRY COMPANY
RENTON, WASHINGTON

NAME ADAPTER ASSEMBLY, E-24 WINCH TO P-M MASTER 12 SPEED SKIDDER

MATERIAL SEE B/M

DRAWN E. C. G.

APPROVED

SUBMITTED

DRAWING NO. F 40991