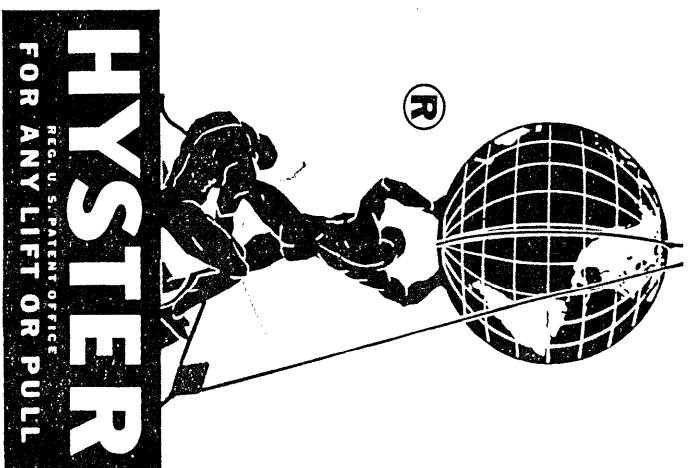
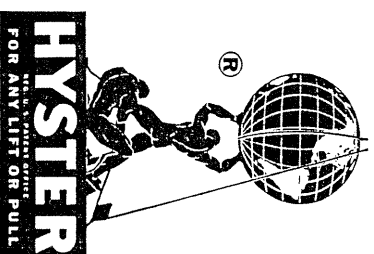


**PARTS BOOK
AND
INSTRUCTION MANUAL**

for

HYSTER®

D8L STANDARD TOWING WINCH



EFFECTIVE WITH
HYSTER No. HRL-30506

HYSTER COMPANY

PORTLAND 8, OREGON

DANVILLE, ILLINOIS

PEORIA 1, ILLINOIS

U. S. A.

709E
599204

2M-1256

INSTRUCTIONS FOR ORDERING

HYSTER

REPAIR PARTS

1. Always give the serial number of machine, which is found on name plate.
2. Always specify name, number and letter of part required.
3. Always specify shipping destination and definite shipping instructions such as Parcel Post, Express, Air Express, Auto Freight or Rail Freight.

Note: The oil for the transmission shall be a straight mineral type, stable, properly refined, free from fatty acids, resins, abrasives or other non-petroleum material and shall meet the following requirements.

1. Viscosity at 210° F. 80 - 90 Seconds Saybolt Universal
2. Viscosity Index, Minimum 85
3. Pour Point, Maximum Minus 10° F.
4. B. S. & W., Maximum05%
5. Color, Maximum 8

Black oils or residuum materials will NOT be considered as satisfactory for this specification.

SPECIFICATIONS

HYSTER MODEL D8L Towing Winch
Single Speed Forward and Reverse

Drum Size:
Barrel Diameter 13"
Flange Diameter 24"
Barrel Length 12 3/4"

Cable Capacity, Maximum Line 320 ft.—1"
252 ft.—1 1/8"

Allowance should be made for loose and unevenly spooled line in towing service

Available Line Pulls:

Bare Drum, 1" Line 58,500 lbs.
Full Drum, 1" Line 35,600 lbs.

Line Speeds:

Bare Drum, 1" Line 104 f.p.m.
Full Drum, 1" Line 171 f.p.m.
(Line Speeds and Pulls are the same when Overwinding or Underwinding)

Above figures are based on 185 H.P. at 1200 R.P.M. using 1" line

NOTE: Important!

Available line pulls may be greater than the breaking point of cable used. Line pulls should be limited by winch owner to comply with all safety laws applicable where the equipment is being used.

WITH STANDARD DRUM AND BUILT-IN DRAWBAR

Net Weight (without cable) 3,030 lbs.

ALL SEALS w/o AUTO BRAKE

2-35030
1-46392-9
1-46445
1-46482

NUMERICAL INDEX — Continued

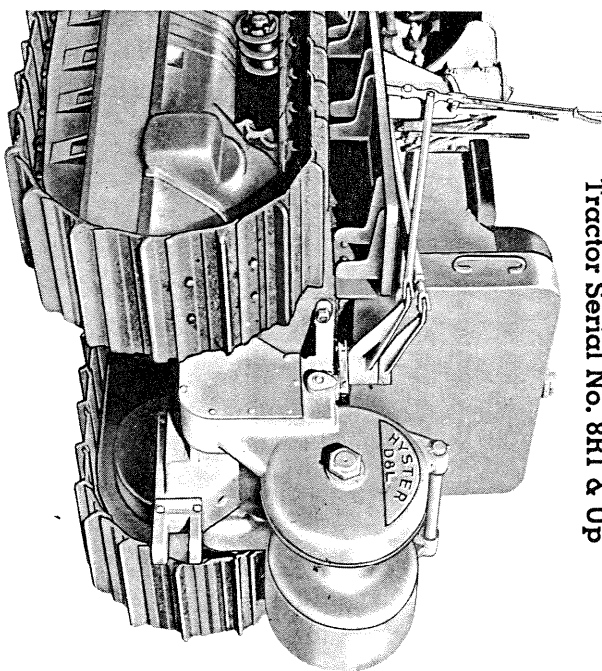
Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
46439B	21	58700	38	91832A	45	92566	33-35
46440C	33	58905	21	91832AB	43	92682	35
46441	21	59370	38-39	91832AC	41	92683	35
46443	29	59397	38	91853	41-43-45	92720	41
46444	29	59419	41-43-45	91856A	45	92987	41
46446AB	33	59425A	38	91867	41-43-45	92989	41
46445	29	59426A	38	91868	45	92990	41
46447	27	59432	38	91869	45	92991	41
46448AC	31	59589	25-37	91870	45	93057A	37
46450B	21	59802AB	31	91871	43-45	93066A	37
46451	21	59824	19	91872	41-43-45	93069A	35
46452B	23	59927	38	91873	43-45	93073	35
46453B	21	67355	43	91947A	31	93074A	35
46454B	25	80879	37	91994	27	93075	35
46455C	21	90202	19	91995	27	93076	35
46456	21	90218	46	92007A	18	93077	35
46457	27	90219	46	92007A	31	93078A	35
46460	27-29	91072A	39	92023A	31	93079A	35
46462	18	91191A	18	92169A	25	93080A	35
46463	19	91512	31	92196	27	93083A	35
46468	25	91623	31-37	92212A	41-43	93084A	35-37
46476B	33	91626A	31-37	92213	41-43	93166	4
46478	21	91629	31-35	92228	43	93183A	41
46482	25	91630	31	92229	43	93205A	35
46483B	31	91632A	31	92248A	43	93909	35
46507	21-23-27	91637A	25-31	92261	43	94380	35
46547B	31	91728A	25	92389	41-43	94381	35
46575	21	91776A	45	92557A	33-35	230312	27
46578	21	91778	45	92561	33-35		
46692	21	91779	45	92564	33-35		

PARTS BOOK AND INSTRUCTION MANUAL

FOR
HYSTER
(STANDARD)

D8L Towing Winch

For "Caterpillar" Diesel D8 Tractor
Tractor Serial No. 1H1 to 1H9999
Tractor Serial No. 8R1 & Up



Including
Installation, Lubrication and
Servicing Instructions

HYSTER COMPANY

PORTLAND 8, OREGON • PEORIA 1, ILLINOIS • DANVILLE, ILLINOIS

NUMERICAL INDEX

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6327	19	15514	25-27-41	34523AB	23	46373C	21-25
6347B	21	15515	38-39	34687	45	46374AD	33
6348	21	15518	35	34796	19	46376B	27
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6697	29	15526	23	35041	27	46381AD	33
9450	19	15541	45	35087	29	46383	25
15008	33-35	15557	19-25	35103B	18	46384	23
15010	25-37	15561	25	35115	39	46388	25
15012	41-43-45	15566	25-37	35159	38-39	46389	19-21-25
15018	18	15934	35	35366	21-23	46392B	21
15026	35	16001	35-41-43-45	35503	23-25	46393	31
15030	31-35	16002	18	35841	33	46394B	25-37
15034	35	16017	19	36000	38-39	46395	25
15036	31-33	16040	35	36001A	39	46396B	25
15052	33-35	16804	41	36004B	38-39	46397	29
15061	18	18000	19	36006	38-39	46398	29
15156	33-35-43-45	18001	19	36007	38-39	46399	29
15157B	39	21420	25	36008	38-39	46400B	25
5158	25-27-33	24092	27	36009B	39	46406B	23-27
15187	35-41-45	28149	21	36010A	39	46407	25
15188B	21	29557	25	36206A	41-43-45	46408	23
15160	23-25-37-41	31414	43	37065	31-37	46409	23
15162	18-25-41	32076	29	37476	33-35	46410	31
15166	43-45	32230	31	38848	38-39	46412B	31
15168	18	32282	25	40577	31	46415B	21
15180	25	32414	31	41210	21	46416B	25
15185	33	32471	27	41213	25	46417AC	25-31
		32472	27	43212	21	46418AB	25
15186	45	32656	33	43219	23	46422AB	19
15187	43	32687	25	44312	21	46423	31
15201	38-39	32692	33	44314	21	46425	25
15223	31-33-35	32693	33-35	45210	23	46426B	23
15225	31	32694	33-35	45315	25	46427	21
15227	31	32695	33-35	46224	25	46428B	21
15246	25	32894	31	46356B	25	46429C	23-25
15248	18	32895A	31	46357B	27	46430	25
15250	41-43-45	33394	41-43-45	46358B	27	46431	23-27
15272	19-25-27	33618	19	46359	31	46432	25
15295	19	33698	25	46360AC	29	46433	25
15304	25	33713	29	46361AB	19-25	46434B	21
15500	25-37	33714	29	46364AB	19-25	46435B	21
1504	23	33715	29	46367	27	46436	21
15505	29	33753	31	46369	25	46437	21
15508	32-45	33754	31	46370	23	46438C	21

TRACTOR OPERATOR PRECAUTIONS

1. While the tractor is in motion, extreme care should be taken to prevent accidents and personal injuries.
2. Before stopping the engine and dismounting from the tractor
 - A. Stop the motion of the tractor.
 - B. Disengage the tractor master clutch.
 - C. Place the tractor transmission gearshift lever in neutral.
 - D. Set and lock the tractor brakes. (When parking on a hill, the tractor should be chocked.)
3. At the start of the shift, check to be sure that all steps under Instruction 2 have been carried out. If these instructions are not followed, there is danger of the tractor moving when the operator is starting the engine, and he may be dragged under the tractor or otherwise seriously injured.

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ADDITIONAL OPTIONAL EQUIPMENT

90218 Bracket for mounting canopy (not illustrated)
90219 Bracket Installation Instructions

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Section A OPERATION

This section, in addition to instructions for operating, contains illustrations and instructions pertaining to certain simple adjustments and re-placements which can readily be made.

Lubrication instructions are provided on page 8, and should be carefully studied. The lubricant recommended should be used. Keep all bolts and nuts tight and check all other connections.

DO NOT OPERATE WINCH AND TRACTOR AT THE SAME TIME

BE SURE WINCH GEAR SHIFT LEVER IS IN NEUTRAL
POSITION BEFORE MOVING THE TRACTOR

**WHEN WINCH IS NOT IN DAILY USE ENGAGE
HOIST TRANSMISSION CLUTCH LEVER ONCE
EVERY 8 HOURS FOR A PERIOD OF FIVE
MINUTES TO INSURE THAT LUBRICATION
REACHES THE POWER TAKE-OFF SHAFT
BEARINGS.**

THE TRACTOR MASTER CLUTCH SHOULD BE DISENGAGED
BEFORE SHIFTING GEARS IN THE WINCH

TRACTOR LUBRICATION FOR STATIONARY WORK

CAUTION

INSTRUCTIONS FOR D8 TRACTORS PRIOR TO SERIAL 2U-5307
For D8 tractors not provided with forward-reverse lever, it will be necessary, at intervals of about four hours, to release steering clutches and engage master clutch while tractor is in gear, and let the oil splash around in the transmission for a few minutes. Obviously, if tractor is moved for any distance, the same result will be accomplished and this precaution may be disregarded.

INSTRUCTIONS FOR D8 TRACTORS SERIAL 2U-5307 AND UP
D8 tractors with Serial No. 2U-5307 and up are equipped with oil pumps and should be left with both gear shift levers in neutral.

RIGHT AND LEFT HAND SIDE OF TOWING WINCH

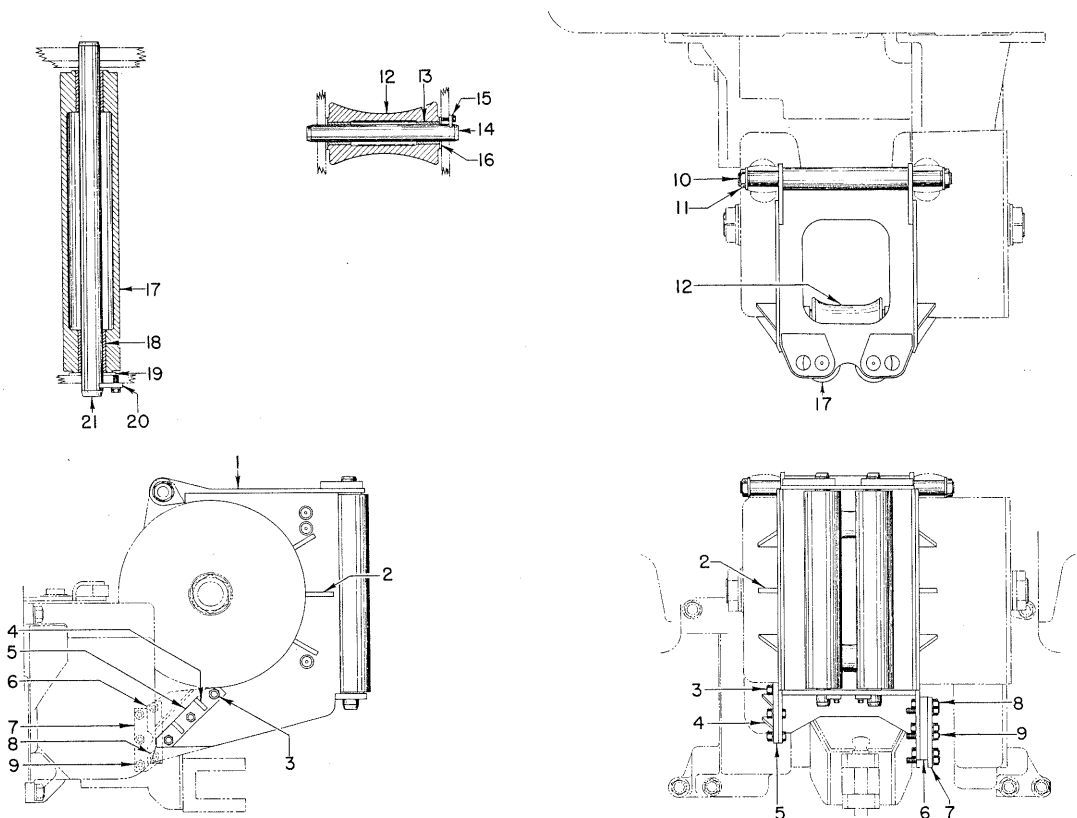
The part of the towing winch on the right-hand side of the tractor where the driver is sitting in the tractor seat is known as the right-hand side.

FAIRLEAD ASSEMBLY — 91832A (OPTIONAL EQUIPMENT)

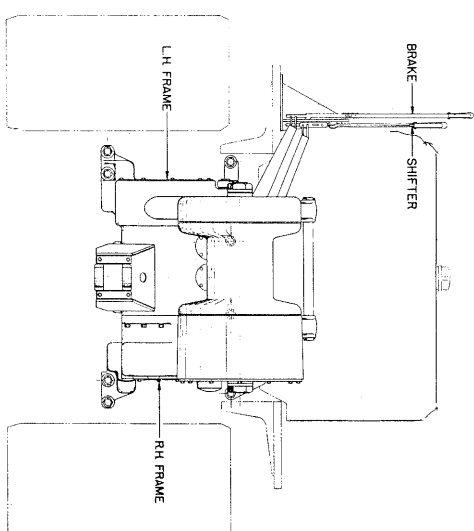
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	91856A	Frame—Fairlead	1
2	91873	Plate—Gusset (Upper)	6
3	15522	Capscrew— $\frac{3}{4}$ NF x 2	3
	15012	Nut—Hex, $\frac{3}{4}$ NF	3
	15162	Lockwasher— $\frac{3}{4}$	3
4	91872	Plate—Gusset (Lower)	2
5	91871	Plate—Tie (L. H. Side)	1
6	91870	Plate	1
7	91868	Plate	1
8	15541	Capscrew— $\frac{3}{4}$ NF x 3	2
	15012	Nut—Hex, $\frac{3}{4}$ NF	2
	15162	Lockwasher— $\frac{3}{4}$	2
9	91869	Stud	3
	15012	Nut—Hex, $\frac{3}{4}$ NF	3
	15162	Lockwasher— $\frac{3}{4}$	3
10	91867	Link	1
11	{ 6466 15250 }	Nut—Flange, $1\frac{1}{2}$ (12 thd.) Cotter— $\frac{3}{16}$ x 3	{ 2 2 }
12	91776A	Roller Assembly	2
13	*59419	Bushing	2
14	{ 91778 16001 }	Shaft—Horizontal Grease Fitting	{ 2 4 }
15	91779	Keeper	2
	15508	Capscrew— $\frac{3}{8}$ NF x 1	2
	15156	Lockwasher— $\frac{3}{8}$	2
16	15186	Washer— $1\frac{3}{8}$	4
17	36206A	Roller Assembly	2
18	* 2570	Bushing	4
19	33394	Washer	2
20	34687	Keeper	2
	15511	Capscrew— $\frac{1}{2}$ NF x 1	2
	15158	Lockwasher— $\frac{1}{2}$	2
21	91853	Shaft—Vertical	2
	16001	Grease Fitting	4

*Included in Assembly under which listed.

FAIRLEAD ASSEMBLY — 91832A (OPTIONAL EQUIPMENT)



LOCATION AND OPERATION OF LEVERS



The brake and shifter levers are located on the left-hand side of operator. A pawl and ratchet are provided to hold the brake hand lever in applied position and the clutch shifter hand lever in the over or underwinding positions. (See illustrations on page 6.)

CAUTION: *The brake should always be released before attempting to operate the winch, otherwise serious damage will result.*

When the clutch shifter lever (the shorter hand lever (D) on the inside towards the operator) is in the forward position the drum will rotate in an overwinding direction. When the clutch shifter hand lever is pulled back by the operator the drum will rotate in an underwinding direction.

The brake handlever (E) is the longer lever. When lever is in the forward position the brake is released. When lever is pulled back toward the operator the brake is applied.

The brake is an external contracting band type which is cam-operated. Care should be exercised in applying the brake **ONLY** when the tractor master clutch is disengaged. Otherwise the tractor motor will be stalled and damage could result to the winch mechanism.

FAIRLEAD ASSEMBLY — 91832AB (OPTIONAL EQUIPMENT)

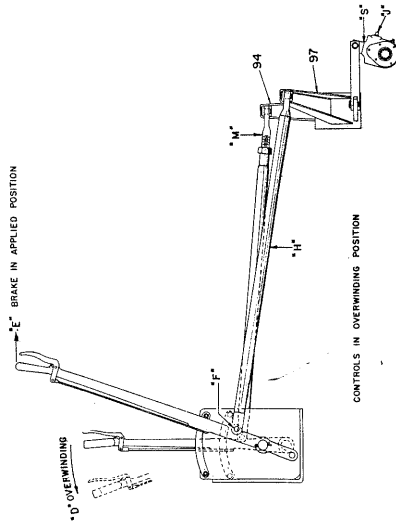
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	92248A	Frame—Fairlead	1
2	92261	Plate—Gusset	2
3	{	Capscrew— $\frac{3}{4}$ NF x 2	5
		Nut—Hex, $\frac{3}{4}$ NF	5
		Lockwasher— $\frac{3}{4}$	5
4	91872	Plate—Gusset (Lower)	2
5	91871	Plate—Tie (L. H. Side)	1
6	92389	Plate	1
7	91873	Plate	4
10	91867	Link	1
11	{	Nut—Flange, $1\frac{1}{2}$ (12 thd.)	2
	{	Cotter— $\frac{3}{16}$ x 3	2
12	92212A	Roller Assembly	2
13	*59419	Bushing	2
14	{	Shaft—Horizontal	2
	{	Grease Fitting	4
15	{	Keeper	2
		Capscrew— $\frac{3}{8}$ NF x 1, Drilled Head	2
		Lockwasher— $\frac{3}{8}$	2
		Wire, 18 ga. x 10" long	2
		Washer— $\frac{13}{8}$	4
16	15187	Roller Assembly	2
17	36206A	Bushing	4
18	* 2570	Washer	4
19	33394	Keeper	2
20	{	Capscrew— $\frac{3}{8}$ NF x 1, Drilled Head	4
		Lockwasher— $\frac{3}{8}$	4
		Wire—18 ga. x 10" long	2
21	{	Shaft—Vertical	2
		Grease Fitting	4

*Included in Assembly under which listed.

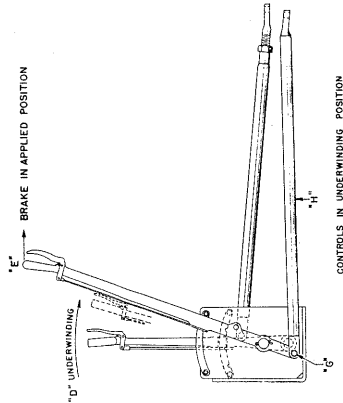
OPERATING INSTRUCTIONS—Continued

Brake Linkage

When the winch is used with the cable leading from the top of the drum, the drum is OVERWINDING. For "Overwinding" cable, connect the horizontal link (H) to the upper position (F) as shown in the illustration.

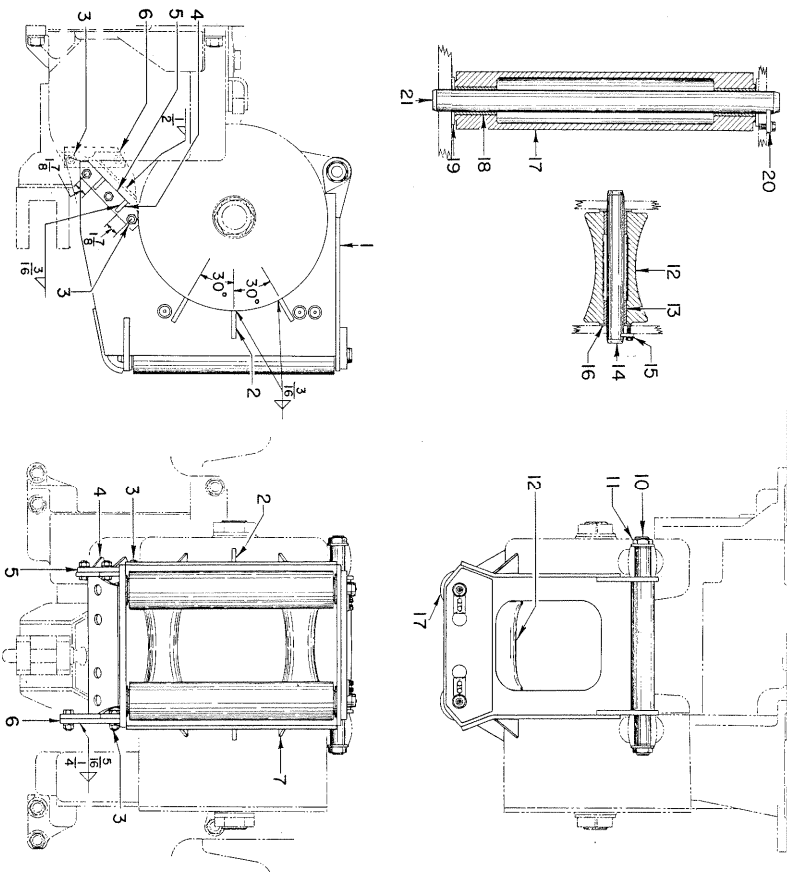


When the winch is used with the cable leading from the bottom of the drum, it is said to be UNDERWINDING. For "underwinding" cable, connect the horizontal link (H) to the lower position (G) as shown in the illustration below.



The brake link (H) is turned over 180° when moving it from the overwinding position to the underwinding position on the hand lever. Pin connections on each end of link will have to be reconnected.

FAIRLEAD ASSEMBLY — 91832AB (OPTIONAL EQUIPMENT)



INSTALLATION INSTRUCTIONS

Fairlead frame should be considered as part of the winch unit to which it was attached. It can easily be removed and reassembled on the same winch, but without additional alteration, cannot be mounted on a different winch.

1. Place gussets (2) and (7) in approximate position shown and weld to sides of fairlead frame with 3/16" fillet weld, both sides. Weld to fairlead frame only. Gusset (2) is on drum center line and gussets (7) 30° above and 30° below.
2. At assembly, weld gusset (5) to winch with 1/2" fillet weld and weld two gussets (4) to winch with 3/16" fillet weld all around. Gussets (4) are 1/8" from center line of two outer capscrews (3).
3. At assembly, weld gusset (6) to winch with 1/4" fillet weld to the outside and 5/16" fillet weld to the inside.

NOTE: Location of vertical rollers (17) is optional. Located in outer holes as shown gives 9 1/2" space between rolls and located in inner hole, gives 2" space.

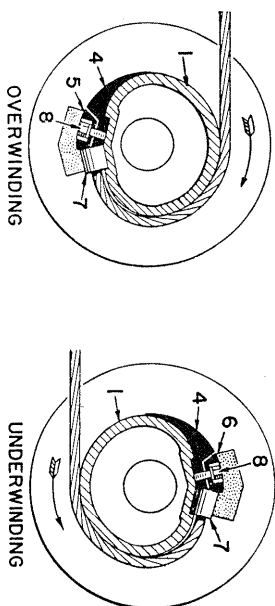
Peoria, Illinois

HYSTER COMPANY
PORTLAND, OREGON

Danville, Illinois

OPERATING INSTRUCTIONS—Continued

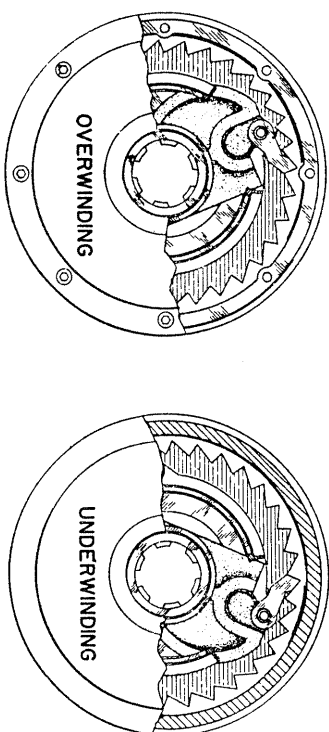
Method of Attaching Cable for Overwinding or Underwinding Drum



OVERWINDING—Place ferrule (7) in pocket and lock into place with filler (4) and ferrule lock (5), using capscrew (8) and lockwasher.

UNDERWINDING—Place ferrule (7) in pocket and lock into place with filler (4) and ferrule lock (6), using capscrew (8) and lockwasher.

Automatic Brake (Optional Equipment)



If the winch is equipped with an automatic brake, it will be noted that one side is marked "overwinding" and the other side marked "underwinding."

When cable is to be used "overwinding" the side of brake which is marked overwinding should face outwardly. When cable is to be used "underwinding" the automatic brake should be removed and re-installed in the reverse position with the side marked "underwinding" facing outward.

Instructions on page 12, covering brake linkage and adjustments on regular brake apply also to the special automatic brake.

Peoria, Illinois

HYSTER COMPANY
PORTLAND 8, OREGON

Danville, Illinois

Section B
SERVICING INSTRUCTIONS
LUBRICATION INSTRUCTIONS

Refer to chart shown on opposite page.
The lubrication chart shows the location of the various lubrication fittings and filler plug on the transmission case, and drawbar swivel.

**WHEN WINCH IS NOT IN DAILY USE ENGAGE
HOIST TRANSMISSION CLUTCH LEVER ONCE
EVERY 8 HOURS FOR A PERIOD OF FIVE
MINUTES TO INSURE THAT LUBRICATION
REACHES THE POWER TAKE-OFF SHAFT
BEARINGS.**

On a new winch the oil should be drained from both compartments of gear housings at the end of 30 days and each compartment flushed out and refilled with fresh oil.

Transmission Case Lubrication

The bearings in the transmission, intermediate and drum gear train are lubricated from the oil in the transmission case. The oil level in the case should be checked twice weekly, keeping the case filled up to the oil level plug "K" which is located on the outside of the right-hand side frame.

The filler plug "P" is located in the transmission case top cover plate. Oil reaches both compartments through this one filler.

The two drain plugs "R" are located in the bottom section of transmission case and the bottom section of the right-hand frame. These drain plugs are of the magnetic type which attract and hold any metal particles settling out of the oil.

In normal operation of winch, drain, flush and refill with fresh oil every 60 days depending on operating conditions. For refilling, use SAE 90 under ordinary use and weather conditions. In general use the same gravity oil as is required in the "Caterpillar" transmission. Approximately eight gallons of oil are required for both compartments.

Built-in Drawbar

If the Hyster built-in drawbar is used in the swiveling set-up, it should be lubricated through the grease fitting "L" provided on bracket.

Handling Gear Lubrication

Shifter rods, lever fulcrums, pin connections and other moving parts should be kept working freely by oiling once every day with a few drops of oil from an ordinary oil can.

Slack adjuster "S" is equipped with a grease fitting which will need to be serviced only a few times a year.

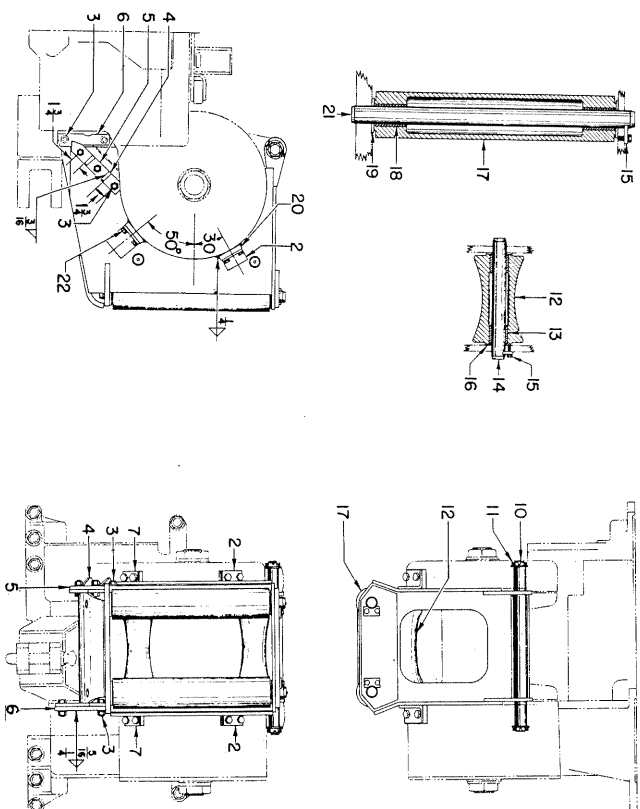
Oilite bushings are used in the operating cranks, and need only a drop or two of oil occasionally, or when dismantled for servicing.

FAIRLEAD ASSEMBLY — 91832AC (OPTIONAL EQUIPMENT)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	93183A	Frame—Fairlead	1
2	92991	Angle	2
3	15522	Capscrew— $\frac{3}{4}$ NF x 2	5
	15012	Nut—Hex, $\frac{3}{4}$ NF	5
	15162	Lockwasher— $\frac{3}{4}$	5
4	91872	Plate—Gusset (Lower)	2
5	92987	Plate—Tie (L. H. side)	1
6	92389	Plate	1
7	92990	Angle	2
10	91867	Link	1
11	6466	Nut—Flange, $1\frac{1}{2}$ (12 thd.)	2
	15250	Cotter— $\frac{3}{16}$ x 3	
		Roller Assembly	
12	92212A	Roller Assembly	2
13	* 59419	Bushing	2
14	92213	Shaft—Horizontal	2
15	16001	Grease Fitting	4
	93166	Keeper	
	15514	Capscrew— $\frac{1}{2}$ NF x $1\frac{1}{4}$	
16	15158	Lockwasher— $\frac{1}{2}$	8
	92720	Washer	
17	36206A	Roller Assembly	2
18	* 2570	Bushing	4
19	33394	Washer	4
20	92989	Plate—Tie	4
21	91853	Shaft—Vertical	2
	16001	Grease Fitting	
	16804	Capscrew— $\frac{5}{8}$ NF x $1\frac{1}{4}$, Hardened	
22	15160	Lockwasher— $\frac{5}{8}$	8

*Included in assembly under which listed.

FAIRLEAD ASSEMBLY

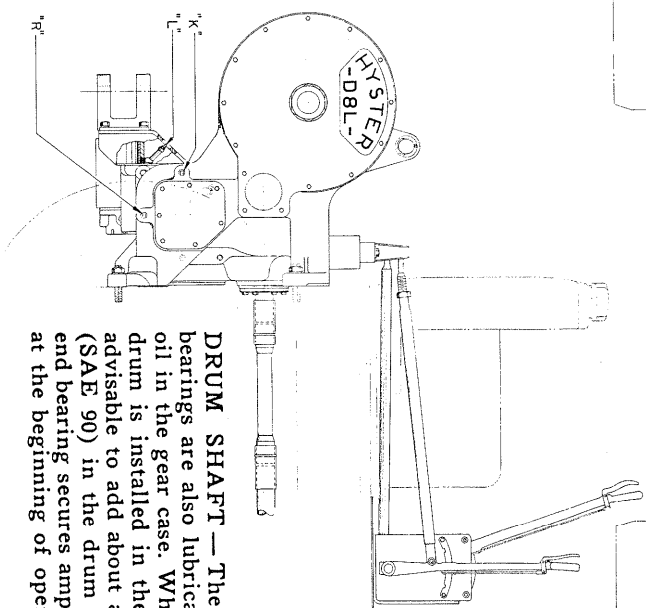
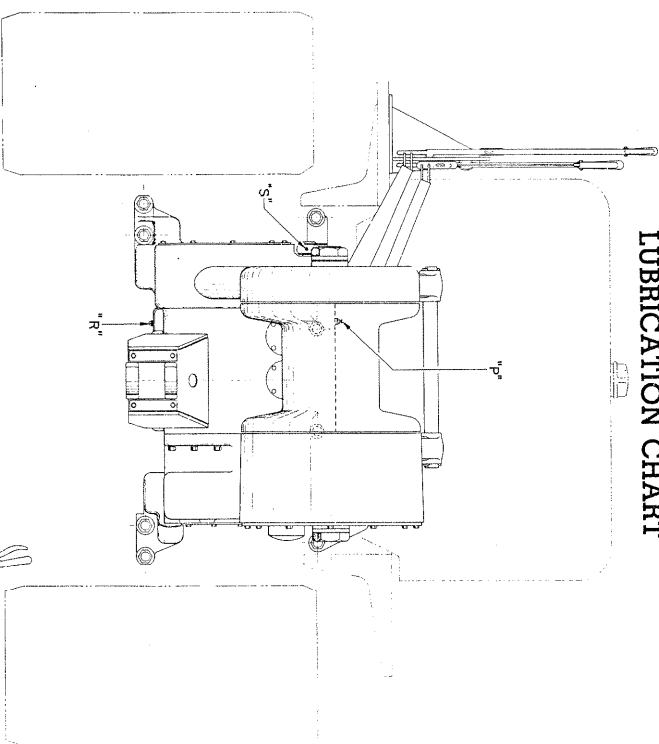


INSTALLATION INSTRUCTIONS

Fairlead frame should be considered as part of the winch unit to which it was attached. It can easily be removed and reassembled on the same winch, but without additional alteration, cannot be mounted on a different winch.

1. Place angles (2) and (7) in approximate position shown and weld to sides of fairlead frame with $\frac{1}{4}$ " fillet weld, both sides. Weld to fairlead frame only. Angles (2) are 30° above drum center line and angles (7) 50° below.
2. At assembly, weld plate (5) to winch with $\frac{1}{2}$ " fillet weld and weld two gussets (4) to winch with $\frac{3}{16}$ " fillet weld all around. Gussets (4) are $\frac{1}{4}$ " from center line of two outer capscrews (3).
3. At assembly, weld plate (6) to winch with $\frac{1}{4}$ " fillet weld to the outside and $\frac{5}{16}$ " fillet weld to the inside.
4. At assembly fasten plates (20) to angles (2 and 7) with capscrews (22) and weld plates (20) to winch only with $\frac{5}{16}$ " weld all around.

LUBRICATION CHART



DRUM SHAFT—The drum shaft bearings are also lubricated from the oil in the gear case. Whenever a new drum is installed in the winch, it is advisable to add about a quart of oil (SAE 90) in the drum barrel so the end bearing secures ample lubrication at the beginning of operation.

Automatic Brake (Optional Equipment)

Every 1000 hours of service the brake (pages 34-35) should be cleaned and repacked with a high melting point (HMP) grease. To prepare the wheel for inspection and servicing, follow the steps given below.

1. The cover plate (20, page 24) on the left-hand side frame brake compartment must be removed to gain access to the brake.
2. Pull pins (5, page 30) in ends of brake band (6) and remove brake band assembly from winch to provide ample clearance in removing brake wheel. This also makes the installation of wheel assembly after servicing much easier.
3. Remove cotter and flange nut (23, page 24) from end of shaft.
4. Assembled wheel, page 34, can then be pulled from shaft. If wheel is tight, an appropriate puller may have to be used. Two $\frac{1}{2}$ " NF tapped holes, plugged with vent plug (11) and $\frac{1}{2}$ " capscrews (10) with copper washers, are provided for using an appropriate puller. Remove these, taking care not to lose the copper washers as they prevent leakage of the lubricant when reassembled.
5. Remove eight capscrews and lockwashers (5).

6a. (Instruction for servicing older brake units prior to Serial No. 40437.) See page 35. With two screwdrivers, pry off cover (9) carefully. Do not attempt to drive off cover. Take care not to damage oil seal, while removing cover.

6b. (Instruction for removing cover on units Serial No. 40437 up.) See page 34. Remove cover with appropriate puller, using the holes in cover from which the capscrews (10) and vent plug (11) with copper gasket washers were removed. Take care not to damage oil seal.

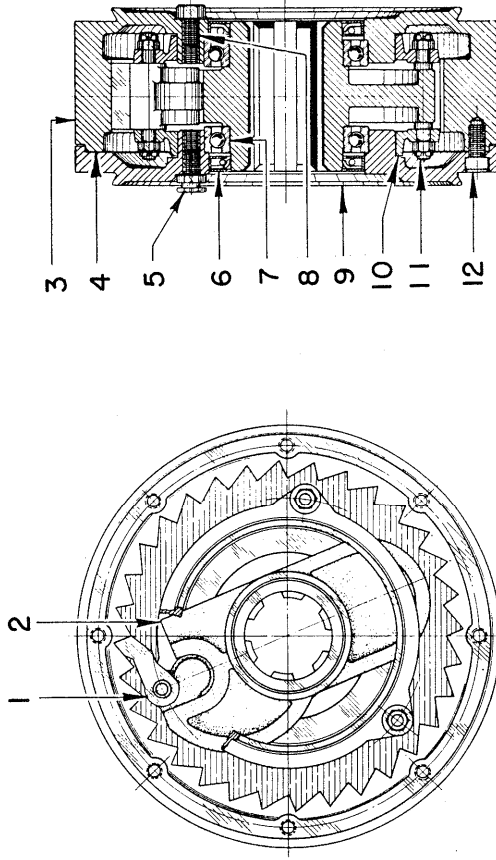
7. After brake is open, pull out center (2), assembled with pawl (1) and drag rings (7).

8. Clean all parts thoroughly and repack brake with about $\frac{3}{4}$ pound of heavy duty wheel bearing grease of a high melting point. Apply carefully to bearings and all rubbing surfaces.

CAUTION: Do not fill brake completely with grease.

AUTOMATIC BRAKE — No. 36010A (OPTIONAL EQUIPMENT)

(Last Brake of This Type — Brake Serial No. 38815)

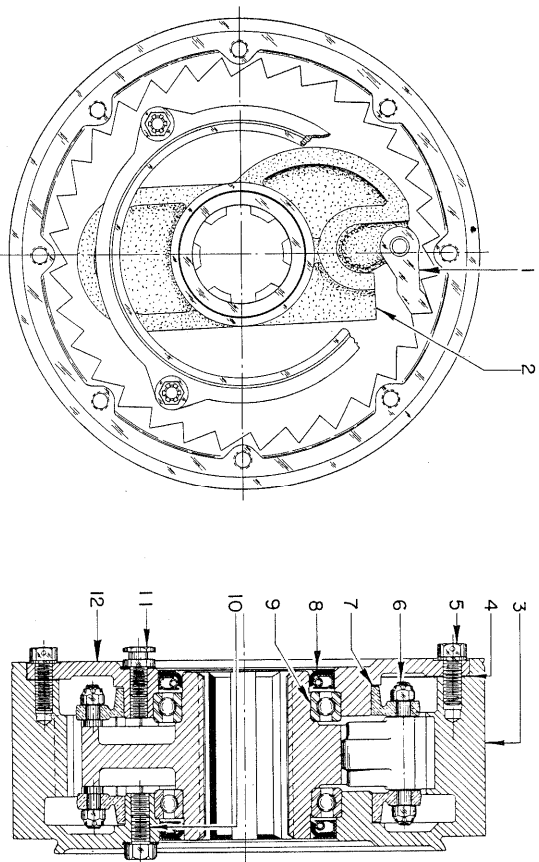


Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req'd.
1	36007	Pawl	1
2	36004B	Hub	1
3	† 36001A	Wheel Assembly—Brake	1
4	36009B	Gasket	1
5	{ 59370	Vent Plug	1
	{ 35159	Gasket	1
6	33783	Oil Seal	2
7	36000	Bearing	2
8	{ 15515	Capscrew— $\frac{1}{2}$ NF x $\frac{3}{4}$	3
	{ 35159	Gasket	3
9	†	Cover (not serviced separately)	1
10	36006	Ring—Drag	2
	{ 36008	Link—Shoulder	3
11	{ 38848	Nut—Castellated	6
	{ 15201	Cotter— $\frac{1}{16}$ x $\frac{3}{4}$	6
12	{ 35115	Capscrew	8
	{ 15157B	Lockwasher	8

†Replace with cover replacement kit No. 91072A.

12" AUTOMATIC BRAKE — No. 59426A (Optional Equipment)

(First Brake of This Type — Brake Serial No. 40437)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req'd.
1	36007	Pawl	1
2	36004B	Hub	1
3	59425A	Wheel Assembly—Brake	1
4	59432	Gasket—Cover	1
5	59927	Capscrew—Drilled Head	8
6	36008	Link—Shoulder	3
	38848	Nut—Castellated ($\frac{3}{8}$ NF)	6
	15201	Cotter— $1/16 \times \frac{3}{4}$	6
7	36006	Ring—Drag	2
8	33783	Oil Seal	2
9	36000	Bearing	2
10	15515	Capscrew— $\frac{1}{2}$ NF $\times \frac{3}{4}$	3
	35159	Gasket	3
11	59370	Vent Plug	1
	35159	Gasket	1
12	59397	Cover—Slide	1
	58700	Grease (3 lb. can) High Melting Point	

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LUBRICATION INSTRUCTIONS—Continued

9. After servicing brake, replace center (2) assembled with pawl (1) and drag rings (7). Check to see that seal (8) is in good condition.
10. NOTE: Install oil seals so that lips of both are pointing in as shown on page 34 (Ref. No. 8.)
11. Clean gasket surfaces making certain that no grease remains. Use new gasket (4, page 34). Coat both sides of the gasket with Permatex Gasket cement. Carefully assemble cover (12) onto case. With side cover in place, squeeze a liberal amount of Permatex No. 1 gasket cement into each capscrew hole. (Use enough so that when the capscrew is tightened the cement will squeeze out all around the head). Fasten securely with eight capscrews and lockwashers provided.
12. Be sure to replace the vent plug (11) and capscrew (10) with copper washers, removed in Instruction 4.
13. When servicing older brake units (prior to Serial No. 40437) do not use the light star washers under the head. Use part No. 15157B Kant Link lockwashers instead (see Ref. 12). Make sure all capscrews are tight.
14. On older units prior to Serial No. 40437 (see page 35) remove capscrew, $\frac{1}{2}$ NF $\times \frac{3}{4}$ in the side of the brake unit or cover, and replace with special vent screw No. 59370 (Ref. No. 5) using old copper gasket which was under the capscrew removed.
15. Install assembled brake wheel on shaft in winch and lock in place with flange nut and cotter removed in instruction 3.
16. Release brake hand lever and install brake band over brake wheel, anchoring with pins removed in instruction 2.
17. Replace cover (20, page 24) removed in Instruction 1.

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SERVICING INSTRUCTIONS—Continued

Brake and Clutch Link Adjustment

NOTE: If not otherwise specified, all winches are shipped with the brake set up for the drum to be pulling cable in **OVERWINDING** (over the top of the drum barrel). If brake is used with incorrect setting, it will be much harder to apply, and the load will be difficult to hold.

When winch is equipped with automatic brake, additional changes are required as noted on page 7.

Brake Adjustment

(See upper illustration on page 6.)

Care should be taken to have the brake band lining about $1/32$ " free from the brake drum when the handlever is pushed all the way forward. As the brake band wears, it will be necessary to reset the slack adjuster (S). This can be done by turning the adjustment (J) on crank, with a wrench, until the desired position of the hand lever is attained.

Brake band wear can be taken up exactly the same way with the brake link in either the overwinding or underwinding position as explained above. No pins or connections need be disturbed, just reset the slack adjuster.

CAUTION: Release the brake hand lever after each adjustment and check to see if brake band is sufficiently free to keep the brake from "dragging" and burning up the lining.

Clutch Link Adjustment

One end of the clutch link is connected to shifter hand lever (D, page 6) and the other end to the upper operating crank (94), swinging in a horizontal plane. The clutch link is adjusted by means of the rod end (M) so that when sliding clutch (11, page 20) in transmission is in the neutral position (midway between the idler pinions 1 and 2) the hand lever will also be in the neutral position or notch in the quadrant bar.

Brake Compartment Drain

Pipe plug (Ref. 25, page 24) should in no case be discarded, and should be removed at least twice each month to drain the brake compartment of water.

HANDLING GEAR CONVERSION GROUP — 93084A

(For use with Tractors Series D and E)

REAR ELEVATION

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req'd.
28	† 91623	Shaft—Brake Cam	1
29	† 37065	Snap Ring	1
30	† 91626A	Crank—Brake	1
31	80879	Roll Pin	1
	93066A	Lever Assembly	1
32	* 15566	Capscrew— $\frac{5}{8}$ NF x $2\frac{1}{4}$	1
	* 15160	Lockwasher— $\frac{5}{8}$	1
	* 15010	Nut— $\frac{5}{8}$ NF	1
33	{ 93057A	Bracket Assembly	1
	* 46394B	Bushing	2
	† 15500	Capscrew— $\frac{5}{8}$ NF x $1\frac{1}{2}$	5
34	† 59589	Capscrew—Special	1
	† 15160	Lockwasher— $\frac{5}{8}$	6

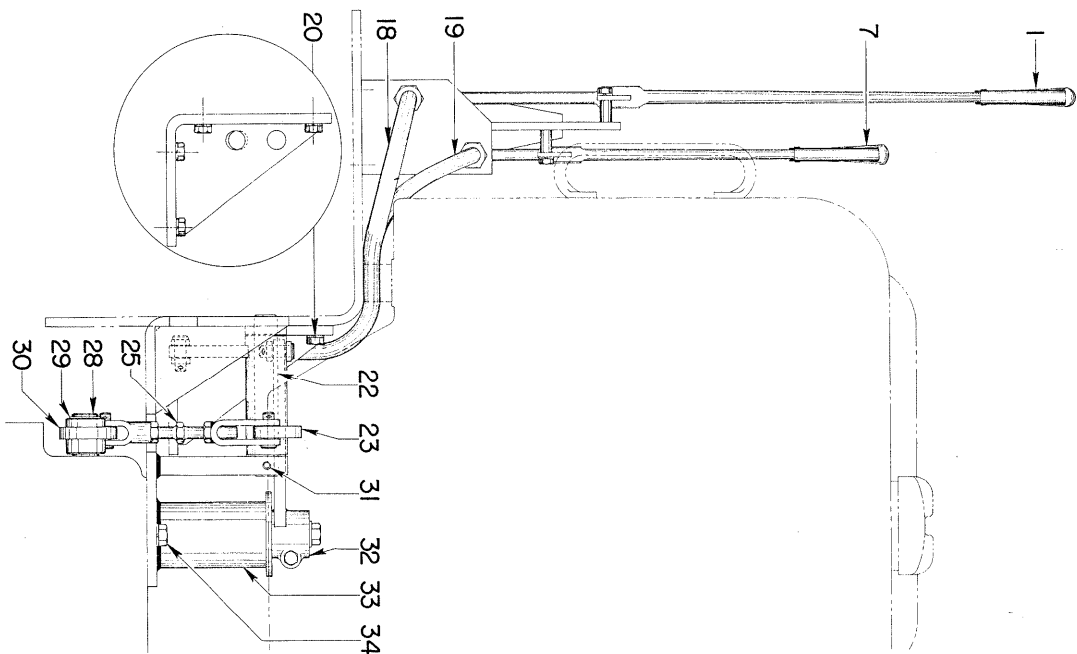
*Included in assembly under which listed.

†These parts not included in conversion group No. 93084A.
(Included with standard winch.)

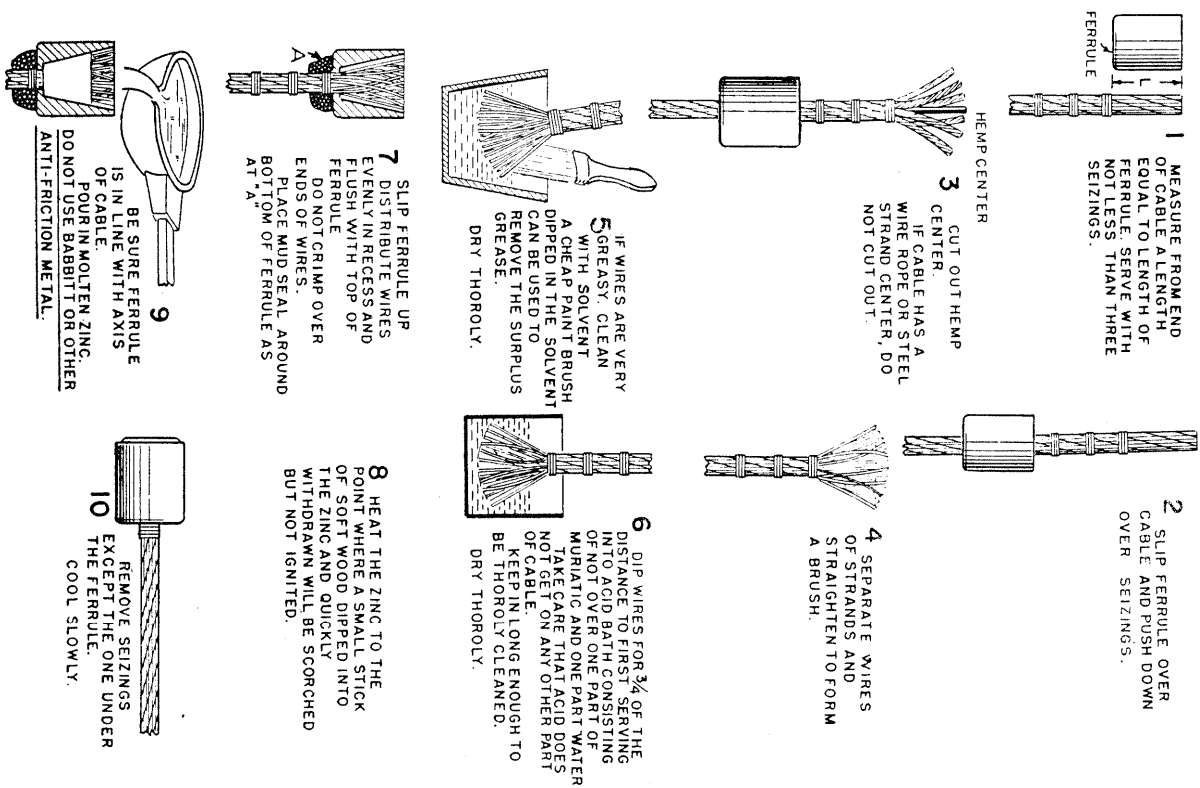
HANDLING GEAR CONVERSION GROUP

(For use with Tractors Series D and E)

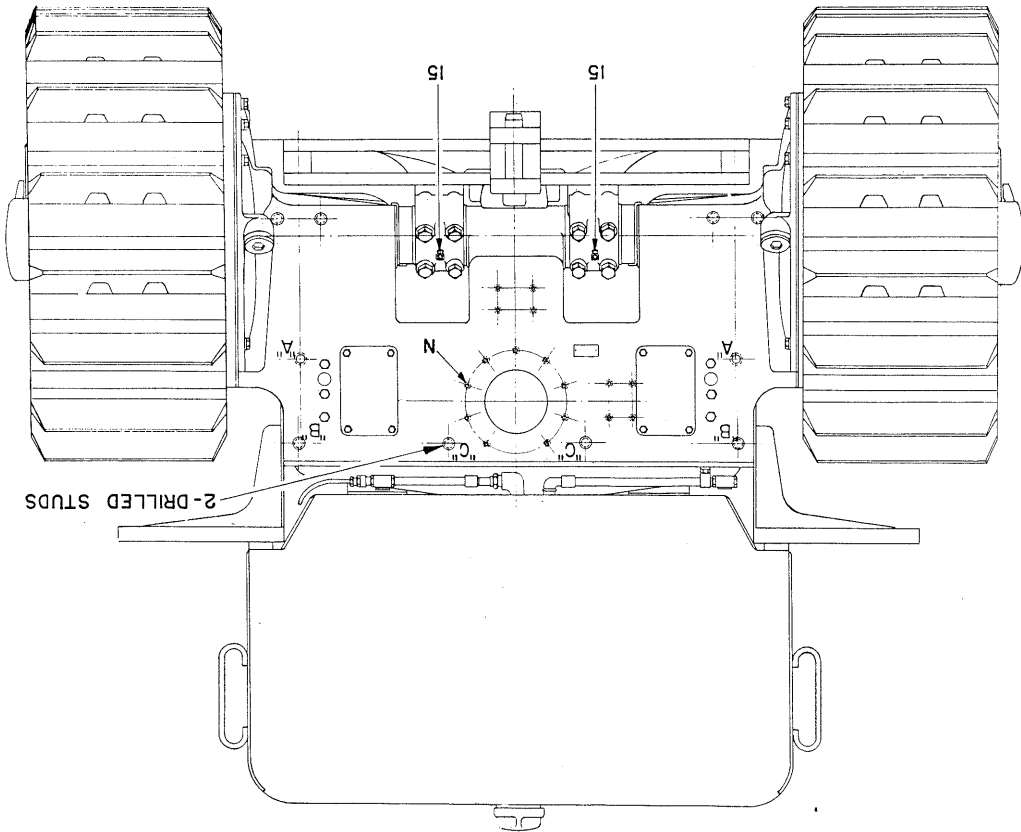
REAR ELEVATION



METHOD OF ATTACHING FERRULES



Section C
INSTALLATION INSTRUCTIONS



HANDLING GEAR CONVERSION GROUP — 93084A
(For use with Tractors Series D and E)
SIDE ELEVATION

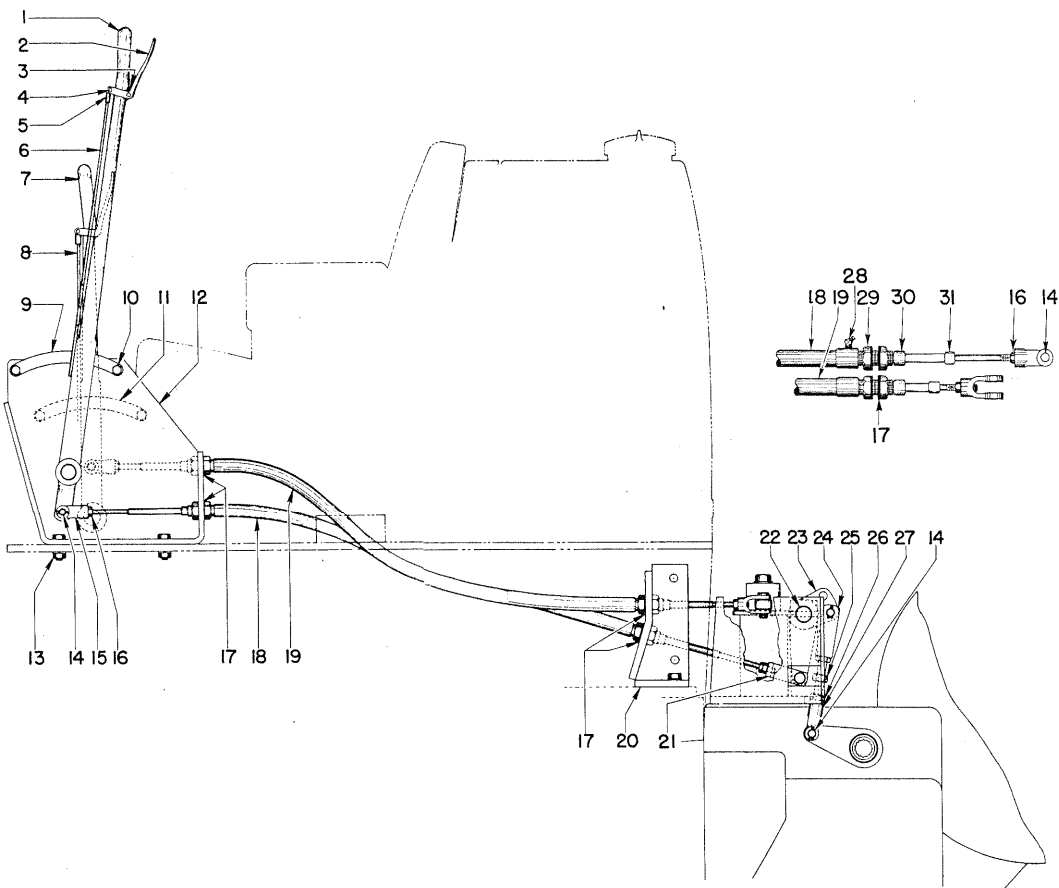
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	92557A	Handlever—Brake	1
2	* 32694	Handle	2
3	* 32695	Spring	2
4	(* 37476	Machine Screw—10-24 x 1/2	4
	* 15052	Nut—Hex, 10-24	4
5	* 32693	Rod End	2
6	* 92561	Rod—Pawl	1
7	93083A	Handlever—Clutch (Includes items 2, 3, 4, and 5)	1
8	* 92566	Rod—Pawl	1
9	92564	Quadrant—Ratchet, Brake	1
10	{ 15518	Capscrew—3/8 NF x 7/8	4
	{ 15156	Lockwasher—3/8	4
11	{ 92682	Quadrant—Clutch	1
	{ 93909	Clip—Stop	1
12	93080A	Bracket—Handlever	1
13	{ 15509	Capscrew—1/2 NF x 1 1/2	4
	{ 15008	Nut—Hex, 1/2 NF	4
	{ 15158	Lockwasher—1/2	4
14	{ 159	Pin—Rod End	6
	{ 15223	Cotter—7/8 x 1	6
15	92683	Rod End	3
16	15026	Nut—Jam, 3/8 NF	4
17	15934	Washer—7/8	8
18	93078A	Cable—Brake (62" long) (Includes items 28, 29, 30, 31,	1
19	93079A	Cable—Clutch (59" long) (and four of item 17)	1
20	{ 93205A	Bracket	1
	{ 16001	Grease Fitting	1
21	93077	Rod End	1
22	93073	Shaft	1
23	93069A	Crank—Brake	1
24	{ 93074A	Link—Brake Adjusting (also includes item 14)	1
	* 93076	Rod End—L. H. Thread	1
25	* 93075	Link—Adjusting	1
26	* 15030	Nut—Jam, 5/8 NF	1
27	* 91629	Rod End—R. H. thread	1
28	16040	Grease Fitting	4
29	15034	Nut—Jam, 7/8 NF	8
30	94381	Grommet	4
31	94380	Grommet	4

*Included in assembly under which listed.

HANDLING GEAR CONVERSION GROUP

(For use with Tractors Series D and E)

SIDE ELEVATION



INSTALLATION INSTRUCTIONS

FOR INSTALLING HYSTER D8L TOWING WINCH, SERIAL NO. HRL-30506 AND UP, ON D8 TRACTOR

Refer to arrangement drawing on page 14 showing a rear view of tractor prepared for installing of winch, and one showing side elevation or general appearance of the unit on the tractor, on page 19.

Proceed as follows:

1. Remove "Caterpillar" power take-off cover, drawbar brackets, drawbar plates and fastenings and discard.
2. Remove two allenite fittings from caps on cross-shaft in rear of tractor transmission about 8" from center line just under the edge of transmission case. Install two elbow bodies 90° (15) in these locations. Thread the above grease fittings removed from tractor, into these elbow bodies.
3. Move two "Caterpillar" drawbar bracket studs from position "A" to position "B." The lower studs, which previously held the drawbar bracket to the tractor, are left in position to hold lower lugs of winch.
4. Remove tool box from left-hand fender and place on right-hand fender.
5. Install couplings (11), page 19, on extension shaft (13), and lock couplings in place on extension shaft with pins and lock rings (12) provided. The assembled couplings and extension shaft then are placed on the power take-off shaft in the "Caterpillar" transmission.
6. The two drilled mounting studs (1, page 18), which are furnished with the winch are to be used in the two middle holes "C" (page 14) at the top of the "CATERPILLAR" transmission case.
7. After the removal of the P.T.O. cover plate from the tractor, plug the lower five 5/8" bolt holes (N, page 14) with corks to prevent the oil from leaking out of the tractor.
8. Swing Hyster winch by means of a sling so that the unit will hang with the mounting pads square with the rear face of the tractor transmission housing. At least a two-ton block should be used. Wipe all mounting pads and transmission face so that they are clean and free of any foreign matter.

INSTALLATION INSTRUCTIONS—Continued

9. Remove the cork from the face of the winch transmission case. Location of cork is where the left-hand drilled stud "C" enters the winch transmission case.
10. **NO GASKET USED.** Winch is equipped with a sealing ring (16), page 20.
11. Swing hoist unit toward tractor and tilt or twist winch, causing the left-hand or brake side to swing up and the right-hand or drum gear side to swing down. Twist the unit until the lower right-hand bolt pad will just slide under tractor transmission filler plug. When bolt pads are past the filler plug, straighten unit up again.
During this process turn the tractor power take-off shaft to line up splines on coupling with winch power take-off shaft splines. When splines have entered, and lower bolt pads have passed by the tractor filler plug, line up holes in winch side frames to match studs.
12. After winch is in position, hold in place with nuts on two upper feet at "B", page 14. With transmission top cover plate removed from top of winch, proceed to bolt winch to tractor using slotted nuts and cot-
ters on the drilled studs "C". A straight box wrench should handle both of these nuts.
Place hex nuts, 1 1/4 NF and lockwashers on studs (2), page 18, holding side frames, and fasten securely.
13. Mount hand lever control set (page 32) on left-hand tractor fender. Mount bracket 367/8" from rear face of tractor to first hole in bracket. (See drawing on page 18.)
14. When mounting handling gear on fender, use the adjustable rod (M), page 6, for the clutch shift and the non-adjustable rod (H) for the brake. For overwinding drum install brake link connecting one end to the upper position (F) on brake hand lever (E) and the other end to the lower lever crank (97).
15. Connect one end of clutch shifter link to shorter handlelever (D), page 6, and the other end to upper lever crank (94).
16. Install, check and adjust the clutch shifter link as given on page 12.
17. Check and adjust the brake link as given under brake adjustment on page 12.

LEVER GROUP — 46446AB

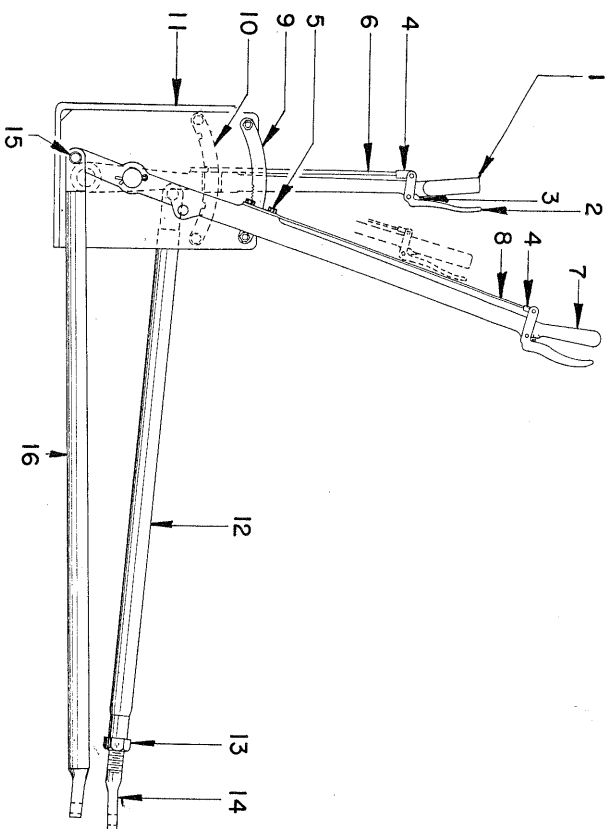
(See pages 34 to 37 for Tractors Series D and E)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req'd.
1	46381AD	Hand Lever—Clutch	1
2	{ * 32694 * 37476 * 15052	Handle Capscrew—Special Nut—Hex, No. 10-24	1 2 2
3	* 32695	Spring	1
4	* 32693	Rod End	1
5	* 32692	Bolt—Shoulder (Drilled Head) (Non-Current)	2
6	{ * 35841 or * 92566	Rod-Pawl (Used with Bolt-type Lever & Bolt, item 5) Rod-Pawl (Used with Weld-type Lever which does not use Bolts, item 5)	1
7	† 92557A	Hand Lever—Brake (includes items 2, 3, 4, 5)	1
8	{ * 32691 or * 92561	Rod—Pawl (Used with Bolt-type Lever & Bolt, item 5) Rod—Pawl (Used with Weld-type Lever which does not use Bolts, item 5)	1
9	{ 92564 32656 15508 15156	Quadrant—Ratchet, Brake (3/8" thick) Quadrant—Ratchet, Brake (1/4" thick) Capscrew—3/8 NF x 1 Lockwasher—3/8	1 1 2 2
10	{ 46440C 15508 15156	Quadrant—Clutch Capscrew—3/8 NF x 1 Lockwasher—3/8	1 2 2
11	{ 46374AD 15509 15008 15158 15185 15245	Bracket—Quadrant Capscrew—1/2 NF x 1 1/2 Nut—Hex (1/2 NF) Lockwasher—1/2 Washer—1 1/4 Cotter—3/16 x 1 3/4	1 4 4 4 2 2
12	46378AC	Link Assembly—Clutch	1
13	* 15036	Nut—Hex Jam (1" NF)	1
14	* 46476B	Rod End—Special	1
15	{ 159 15223	Pin—Rod End Cotter—1/8 x 1	2 2
16	46380AB	Link—Brake	1

*Included in Assembly under which listed.

†When furnishing new Handlelever No. 92557A also furnish new Quadrant No. 92564 which is 3/8" thick.

LEVER GROUP



INSTALLATION INSTRUCTIONS—Continued

18. Check all bolts, nuts, and other connections.

NOTE: If not otherwise specified, all winches are set up for drum to be pulling cable **OVERWINDING** (over top of the drum barrel). To operate the winch **UNDERWINDING**, the following changes must be made:

19. Disconnect one end of brake link from upper position on hand lever and reconnect to lower position (G) on hand lever. (See page 6.) If winch is equipped with automatic brake follow instructions 20, 21 and 22.
20. Remove brake cover (20, page 24) on left-hand side frame.
21. (See pages 34-35). Remove the brake from the shaft and turn around
22. Replace cover plate on left-hand side frame (removed in instruction 20) making sure gasket is in place and in good condition and bolt up tightly.
23. Change cable groove filler in drum barrel as shown on page 7.

NOTE: All towing winches to be used for logging arch service are to be used with special Hyster built-in drawbar. (See page 19.) This drawbar has two lock plates (3) held in place with two capscrews (4) each, to keep it from swiveling, and **MUST BE USED AS FOLLOWS:**

Rule 1. If coupler in logging arch is swiveling, the drawbar in towing winch has to be locked.

Rule 2. If coupler in logging arch is locked, the drawbar in towing winch has to be swiveling. This is accomplished by removing lock plates (3).

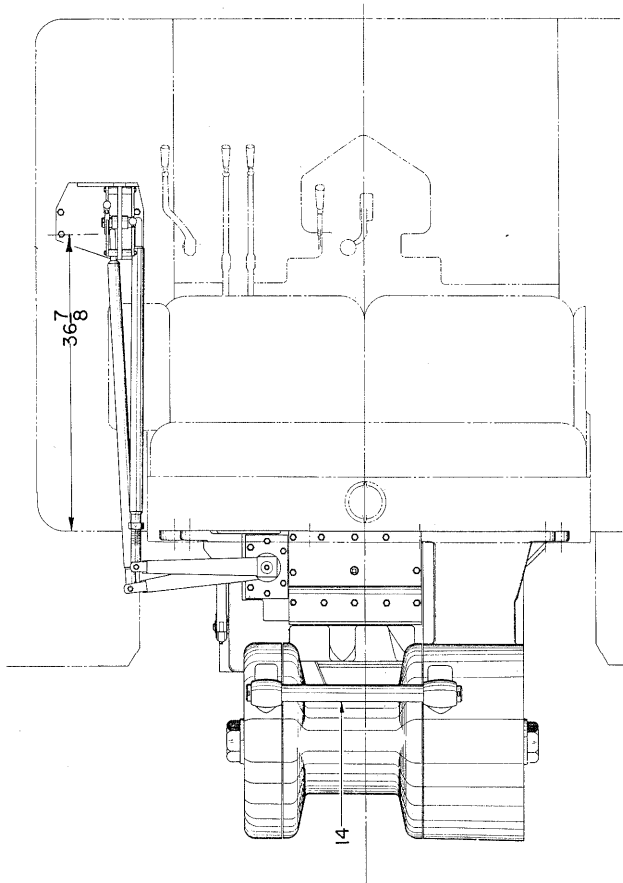
Failure to observe these rules will result in broken drawbar and coupler parts. When connecting the arch to the towing winch, a special Hyster drawbar bolt with castellated nut is sent with each coupler. This nut must be drawn up tightly and locked at all times. Failure to do this will cause undue expense in broken couplers and drawbar yokes.

Section D

LIST OF PARTS AND ILLUSTRATIONS

NOTE: Unnumbered parts in the illustrations are the same as corresponding parts shown with number. Particular attention should be given to the location of bolts, capscrews, washers, etc., so that they are replaced in the holes from which they were removed.

PLAN



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	{ 35103B 15061 15248	Stud Nut—Slotted (1 1/4 NF) Cotter—3/16 x 2 1/2	2 2 2
2	{ 15018 15168	Studs, furnished with tractor; previously used to hold Drawbar Brackets Nut—Hex (1 1/4 NF)	6 6
3	46462	Lockwasher—1/4	2
4	{ 15521 15162	Plate—Link Capscrew—3/4 NF x 1 1/2	2 4
5	33787	Lockwasher—3/4	4
6	16002	Drawbar—Special	1
7	91191A	Grease Fitting—1/4 Bushing	1 1

Note: A Gasket Set, No. 92007A is available for Service.
This set includes all gaskets required for D8L Towing Winch

Brake Operating Mechanism

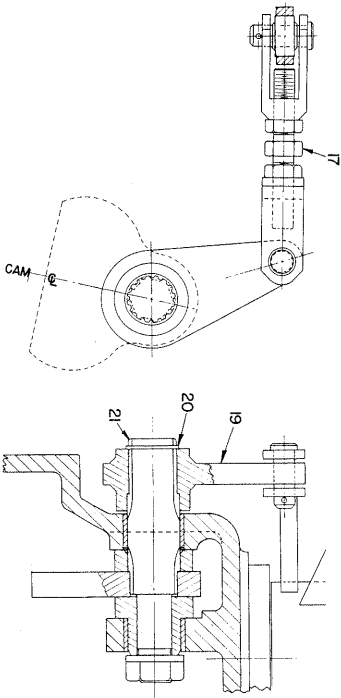
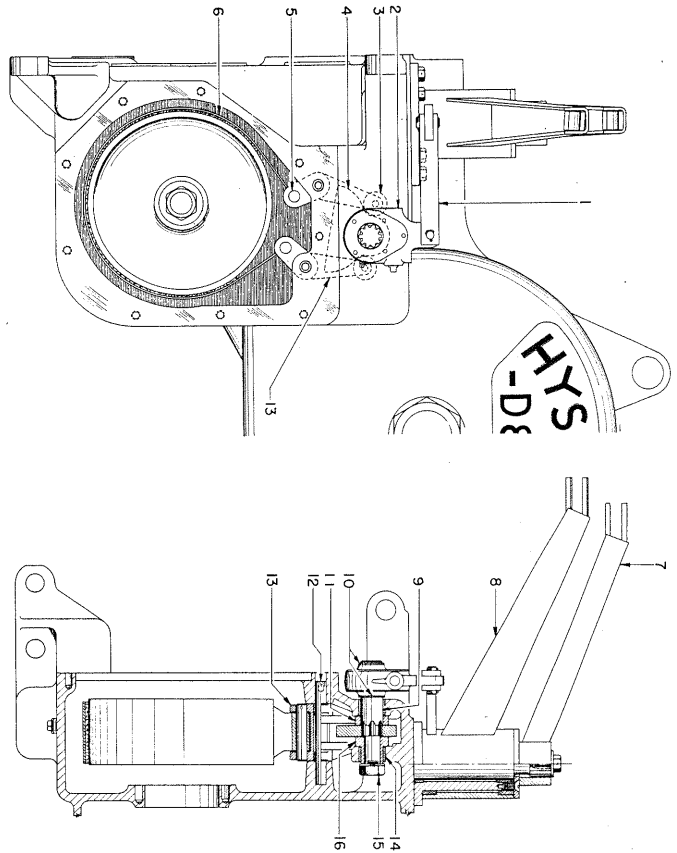
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	{ ‡ 46423 159 15223	Link—Brake (Replace with Link, Ref. 17) Pin—Rod End Cotter—1/8 x 1	1 2 2
2	{ ‡ 46483B 33753 32230 15225	Slack Adjuster (Last used on Serial No. 75961) Spacer Pin Cotter—1/8 x 1 1/2	1 2 2 2
4	91512	Cam—Brake	1
5	{ 32894 15227	Pin Cotter—1/8 x 2	2 2
6	{ ‡ 46448AC * 59802AB	Brake Band Assembly Lining Set—Brake (on non-current units, brake band to be redrilled by winch owner)	1 1
7	46417AC	Lever Assembly—Shifter	1
8	91637A	Crank Assembly—Brake	1
9	{ 46412B ‡ 46547B	Shaft (Last used on Serial No. 75961) Snap Ring	1 2
11	46410	Spacer	1
12	33754	Pin	2
13	{ 32895A * 40577	Crank Assembly—Brake Bushing	2 4
14	46393	Bushing	2
15	{ 15036 15166	Nut—Hex Jam (1" NF) Lockwasher—1"	1 1
16	46359	Spacer	1
	{ 91632A * 15030 * 32414	Link Assembly Nut—Jam, 5/8 NF (R. H. thread) Nut—Jam (L. H. thread)	1 1 1
17	{ * 91629 * 91630 * 159 * 15223	Rod End (R. H. thread) Rod End (L. H. thread) Pin—Rod End Cotter—1/8 x 1	1 1 2 2
19	91626A	Crank—Brake (first used on Serial No. 76821)	1
20	37065	Snap Ring (first used on Serial No. 76821)	1
21	91623	Shaft—Brake Cam (first used on Serial No. 76821)	1

*Included in Assembly under which listed.

†For longer lining life, optional band assembly No. 92023A is available. This band includes lining set No. 91947A. If desired owner may redrill old band for new lining set 91947A.

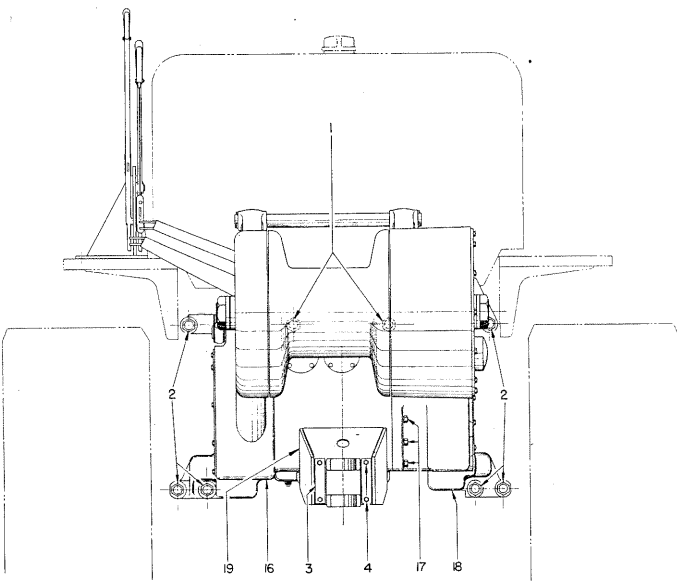
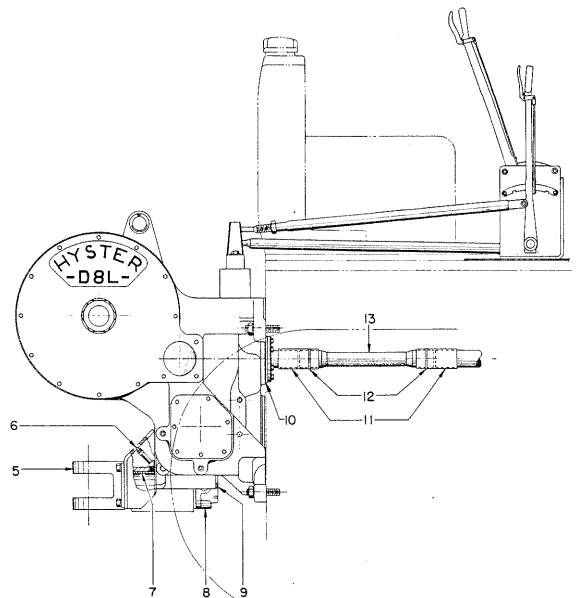
‡Link replacement service kit No. 92169A includes Ref. 17, 19, 20 and 21.

BRAKE OPERATING MECHANISM



NOTE: Install shaft (21) in cam with spine tooth of both square-sided and involute spines falling on cam center-line as shown.

ELEVATION



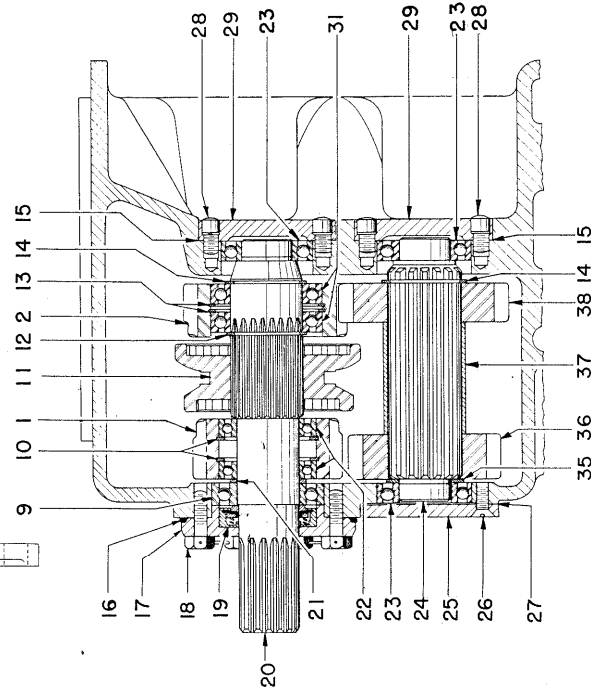
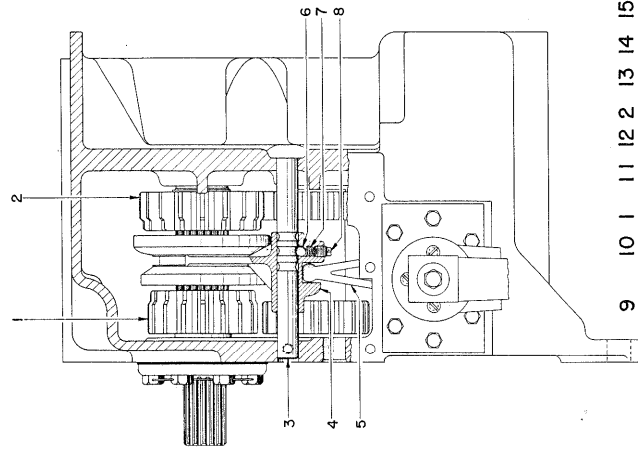
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
8	33618	Nut	1
9	15295	Cotter— $\frac{1}{2} \times 5$	1
10	46389	"O" Ring	1
11	6327	Coupling ("Caterpillar" No. 1B-7852)	2
12	9450	Pin ("Caterpillar" No. 1A-4599)	2
	90202	Ring—Lock ("Caterpillar" 8F-737)	2
13	59824	Shaft—Extension	1
14	46463	Pin	1

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
15	16017	Grease Fitting (see page 14)	2
16	46361AB	Transmission Case	1
17	15557	Capscrews— $\frac{3}{4}$ NF x $2\frac{3}{4}$	7
18	46364AB	R. H. Side Frame	1
19	46422AB	Bracket—Drawbar (Winch owner to weld if ordered separately)	1

Parts not illustrated:

34796	Key—Socket Head	1
18001	Cork—No. 17 } To plug holes	5

TRANSMISSION
TOP VIEW AND SECTION

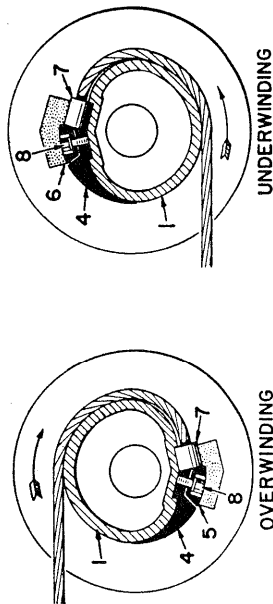


DRUM

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	46360AC	Drum Assembly	1
2	* 35087	Pin—Shear	12
3	46445	Oil Seal	1
4	46399	Sleeve	1
5	46397	Shim Set	1
6	46398	Nut	2
7	46444	Washer	1
8	35040	Roller Bearing	2
9	35030	Oil Seal	1
10	46460	Capscrews	4
11	46443	Shaft—Drum	1

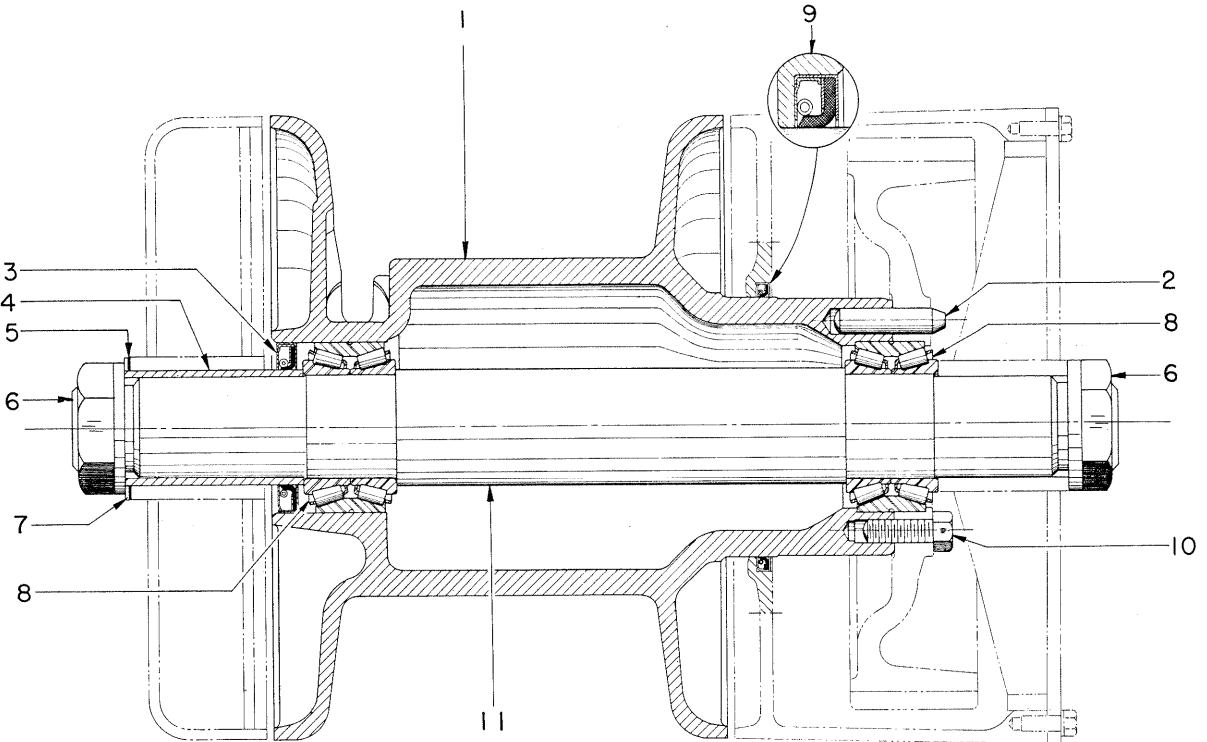
*Included in assembly under which listed.

CABLE-LOCK GROUP



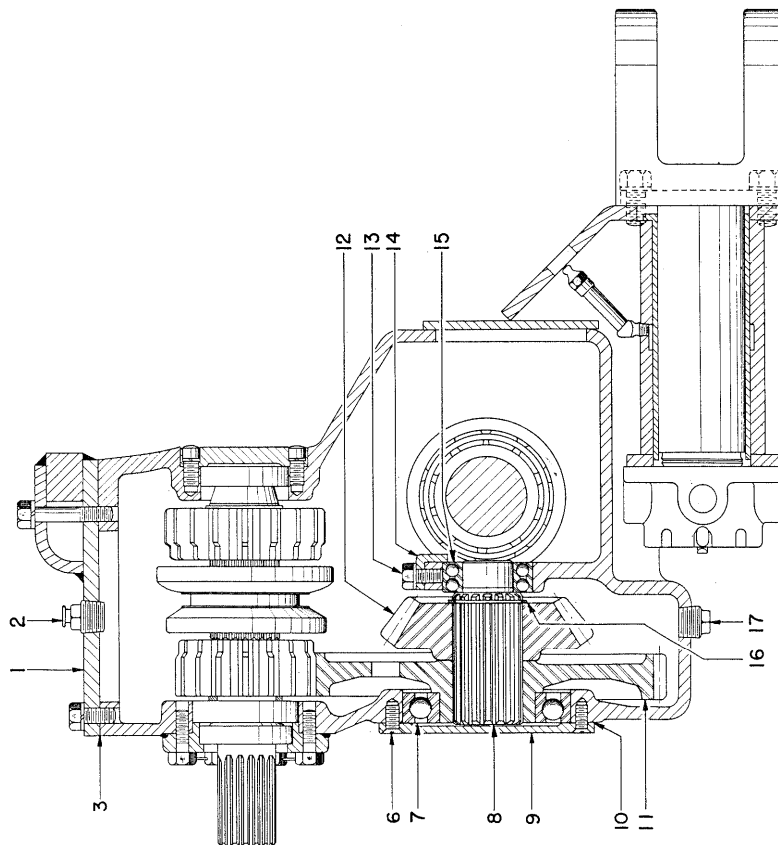
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
4	33713	Filler—Cable Groove	1
5	33715	Lock—Ferrule (Overwind)	1
6	33714	Lock—Ferrule (Underwind)	1
7	6697	Ferrule—Cable	1
8	15505	Capscrew— $\frac{5}{8}$ NC x $1\frac{1}{2}$	1
	32076	Wrench—Socket ("T" Handle) (Not illustrated)	1

DRUM

TRANSMISSION
TOP VIEW AND SECTION

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	46371	Gear (16 teeth)	1
2	46438C	Gear (18 teeth)	1
3	46415B	Shaft—Shifter	1
	46478	Capcrew—Hex Socket Hd. (1/2 NF x 13/4)	1
	15158B	Lockwasher—1/2	1
4	46372	Fork—Shifter	1
5	46373C	Lever—Shifter	1
6	6348	Ball—1/2 dia.	1
7	6347B	Spring	1
8	46578	Plug—Pipe	1
		Lock Wire, No. 18 Ga. x 12"	1
9	43212	Bearing	1
10	46441	Snap Ring	2
11	46575	Clutch—Dental	1
12	58905	Snap Ring	1
13	46692	Snap Ring	2
14	35366	Snap Ring	3
15	46436	Gasket	2
16	46389	"O" Ring	2
17	46428B	Carrier—Oil Seal	1
18	6503	Capcrew—Drilled Head	6
		Lockwire No. 18 Ga. x 18"	1
19	46392B	Oil Seal	1
20	46455C	Shaft—P.T.O.	1
21	46456	Washer	1
22	44312	Bearing	2
23	41210	Bearing	3
24	46453B	Shaft	1
25	46434B	Plate—Cover	1
26	46507	Capcrew—Flathead (1/2 NF x 1) (stake in place) ..	4
27	46435B	Gasket	1
28	28149	Capcrew—Socket Head (1/2 NF x 1)	8
	15158B	Lockwasher—1/2	8
29	46427	Plate—Cover	2
31	44314	Bearing	2
35	46450B	Washer	1
36	46437	Gear (16 teeth)	1
37	46451	Spacer	1
38	46439B	Gear (18 teeth)	1

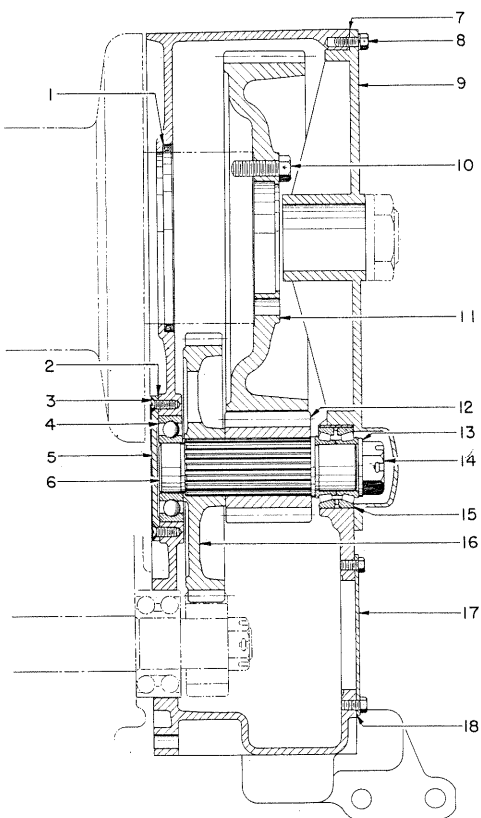
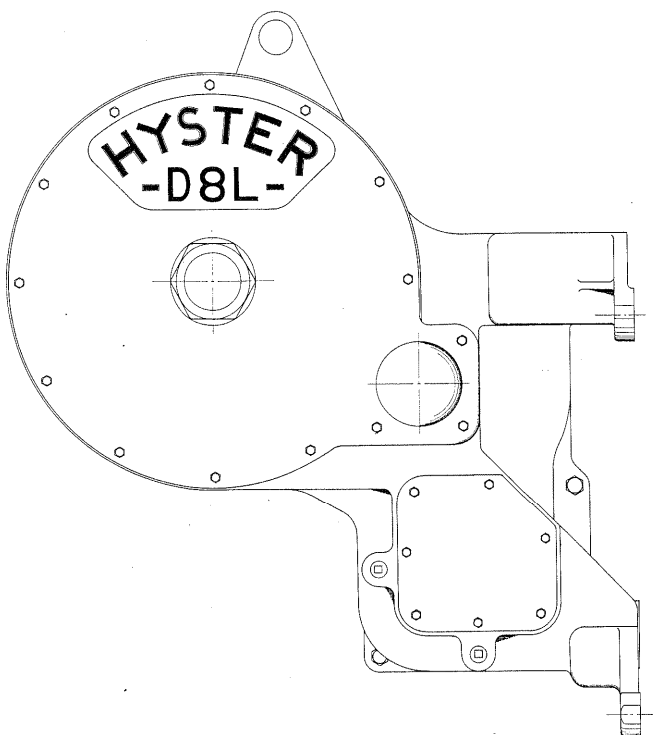
TRANSMISSION — ELEVATION



DRUM GEAR TRAIN

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	35030	Oil Seal	1
2	46406B	Gasket	1
3	46507	Capscrew—Flathead ($\frac{1}{2}$ NF x 1) (stake in place)	6
4	230312	Roller Bearing (Replaces Ball Bearing)	1
5	46431	Retainer—Bearing	1
6	46457	Shaft—Intermediate	1
7	46447	Gasket	1
8	{ 15514 15158 }	Capscrew— $\frac{1}{2}$ NF x $1\frac{1}{4}$ Lockwasher— $\frac{1}{2}$	14 14
9	46376B	Cover—Drum Gear	1
10	{ 46460 }	Capscrew—Drilled Head ($\frac{7}{8}$ NF x $2\frac{3}{4}$) Lockwire—No. 16 x 28"	4 1
11	91995	Gear—Drum (53 teeth)	1
12	46367	Gear (14 teeth)	1
13	32472	Washer	1
14	{ 32471 15272 }	Nut Cotter— $\frac{3}{8}$ x 3	1 1
15	35041	Roller Bearing	1
16	{ 91994 92197 }	Gear (38 teeth) (Last used on Serial No. 88035) Gear (39 teeth) (First used on Serial No. 88036)	1 1
17	{ 46357B 24092 15511 }	Plate—Cover Washer Capscrew— $\frac{1}{2}$ NF x 1	1 7 7
18	46358B	Gasket	1

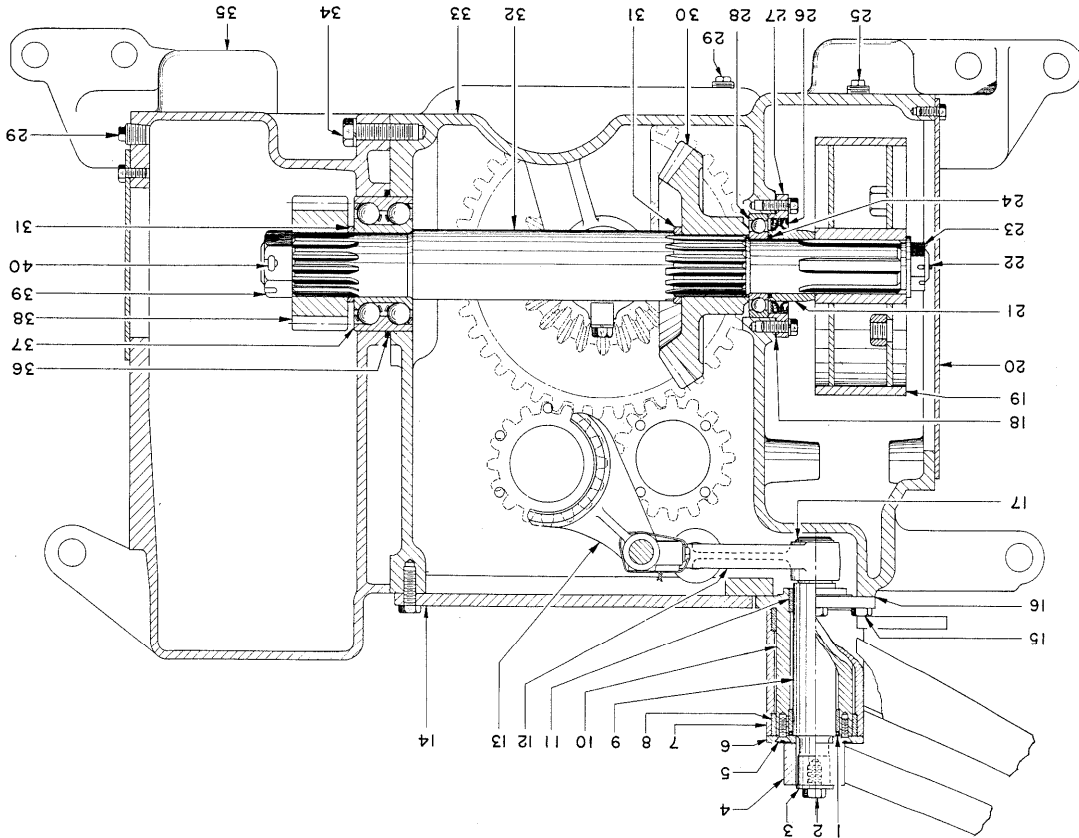
DRUM GEAR TRAIN



TRANSMISSION — ELEVATION

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	46429C	Cover—Top	1
	15504	Capscrew— $\frac{3}{8}$ NF x $1\frac{1}{4}$	6
	15526	Capscrew— $\frac{5}{8}$ NF x $3\frac{1}{2}$	5
	15160	Lockwasher— $\frac{5}{8}$	11
2	34523AB	Plug—Vent	1
3	46426B	Gasket	1
6	46507	Capscrew—Flathead, $\frac{1}{2}$ NF x 1 (stake in place)	6
7	43219	Bearing	1
8	46452B	Shaft	1
9	46431	Retainer—Bearing	1
10	46406B	Gasket	1
11	46370	Gear (42 teeth)	1
12	46384	Gear/Bevel (24 teeth)	1
13	15511	Capscrew— $\frac{1}{2}$ NF x 1	1
	46409	Keeper	1
14	46408	Plate—Bearing Stop	1
15	45210	Bearing	1
16	35366	Snap Ring	1
17	35503	Plug—Magnetic Drain ($\frac{3}{4}$)	2

BEVEL GEAR AND BRAKE SHAFT



BEVEL GEAR AND BRAKE SHAFT

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Reqd.
1	46468	"O" Ring	1
2	15561	Capscrew— $\frac{5}{8}$ NF x 1	1
3	15180	Washer— $\frac{5}{8}$	1
4	46417AC	Lever	1
	* 15566	Capscrew— $\frac{5}{8}$ NF x $2\frac{1}{4}$	1
	* 15160	Lockwasher— $\frac{5}{8}$	1
	* 15010	Nut—Hex, $\frac{5}{8}$ NF	1
5	32687	Machine Screw—Flathead ($\frac{3}{8}$ NF x $\frac{3}{4}$)	4
6	46400B	Plate—Retainer	1
7	91637A	Crank—Brake	1
8	* 46395	Bushing	1
	* 91728A	Bearing—Self Aligning	2
9	46416B	Shaft—Handling Gear	1
10	46418AB	Sleeve Assembly	1
11	* 46394B	Bushing	2
12	46373C	Lever—Shifter	1
13	46372	Fork—Shifter	1
14	46429C	Cover—Top	1
15	15500	Capscrew— $\frac{5}{8}$ NF x $1\frac{1}{2}$	5
	59589	Capscrew—Special	1
	21420	Plug—Breather	1
	15160	Lockwasher— $\frac{5}{8}$	6
16	46425	Gasket	1
17	29557	Snap Ring	1
18	46396B	Shim Set	1
19	33698	Wheel—Brake	1
20	46432	Plate—Cover	1
	46433	Gasket	1
	15511	Capscrew— $\frac{1}{2}$ NF x 1	9
	15158	Lockwasher— $\frac{1}{2}$	9
21	46407	Spacer	1
22	15246	Cotter— $\frac{3}{16}$ x 2	1
23	6466	Nut—Slotted	1
24	46388	"O" Ring	1
25	15304	Plug—Pipe, $\frac{3}{4}$	1
26	46482	Oil Seal	1
	46430	Retainer—Oil Seal	1
27	15514	Capscrew— $\frac{1}{2}$ NF x $1\frac{1}{4}$	1
	15158	Lockwasher— $\frac{1}{2}$	6
28	41213	Bearing	1
29	35503	Plug—Magnetic, $\frac{3}{4}$	1
30	46383	Gear/Bevel (34 teeth)	2
31	46356B	Spacer	1
32	46454B	Shaft—Brake	1
33	46361AB	Housing—Transmission	1
	46224	Pin—Dowel	1
34	15557	Capscrew— $\frac{3}{4}$ NF x $2\frac{3}{4}$	7
	15162	Lockwasher— $\frac{3}{4}$	7
35	46364AB	Frame—Side (R. H.)	1
36	46389	"O" Ring	1
37	45315	Bearing	1
38	46369	Gear (14 teeth) (Last used on Serial No. 88035)	1
	92196	Gear (13 teeth) (First used on Serial No. 88036)	1
39	32282	Nut—Slotted	1
40	15272	Cotter— $\frac{3}{8}$ x 3	1

Included in assembly under which listed.