



# MARK V

## LANDING GEAR OPERATING, MAINTENANCE AND REPAIR PROCEDURES

Do not deviate from these instructions. Any changes or deviations will void all warranties, expressed or implied, unless written consent is first obtained from the factory.

### OPERATION OF HOLLAND MARK V LANDING GEARS:

#### CAUTION:

- Always grip crank handle securely.
- Always grip crank handle securely with both hands before shifting.
- Never shift landing gear under load.
- Never leave the gears in neutral or the crank unsecured.

**NOTE:** HOLLAND MARK V, 2-speed gearbox has high, neutral and low range gears. High range is to be used only for rapid traverse up and down and is not intended to lift any load. All lifting must be done using low gear. See Holland publication "Fifth Wheel Operating Instructions" (form no. FW-TE-14B) for additional information.

#### TO EXTEND:

On outside mounted landing gears, engage the crank with the crankshaft and turn the crank clockwise. Inside mounted landing gears are extended by turning the crank counterclockwise. Using high gear, lower the landing gear until the pads make contact with the ground. To reduce the load on the fifth wheel, shift to low gear and crank an additional 4 to 8 turns. Leave the landing gear engaged in low gear and store the crank handle in the holder provided.

#### TO RETRACT:

On outside mounted landing gears, engage crank with crankshaft and turn the crank counterclockwise. Inside mounted landing gears are retracted by turning the crank clockwise. Retract the landing gear using low gear until unloaded. Then shift to high gear and continue cranking until fully retracted. Leave the landing gear in high gear and store the crank handle in the holder provided. **NOTE:** If the crank handle can not be stored in the holder when fully retracted, turn the crank handle in the opposite direction (lowering the leg) until it can be properly stored.

### MAINTENANCE:

#### LUBRICATION:

Although Mark V's were adequately greased and packed with high quality lubricants when manufactured, it may be necessary to periodically supplement this lubrication to maintain satisfactory performance for your particular application.

1. Lube both legs through grease fittings provided in the legs two times a year or as required.
2. Lube 2-speed gears through the grease fitting in the gearbox two times a year or as required.

#### TROUBLE SHOOTING—HARD TURNING LANDING GEARS—CHECK THE FOLLOWING:

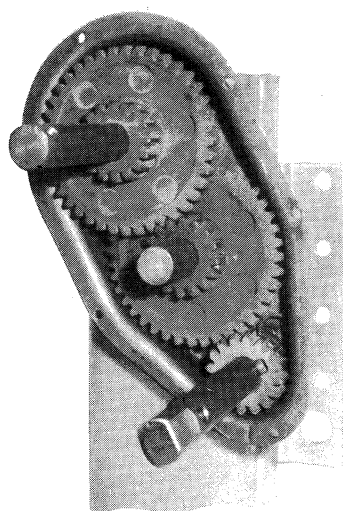
1. Binding cross shaft. Bolts in the cross shaft must not be overtightened to prevent lateral movement of the cross shaft.
2. To determine which leg turns hard, remove the cross shaft and operate each leg individually.
3. Alignment - legs must be parallel and extend and retract evenly.
4. Legs and gearbox may need additional lubrication. Insert oil into top of casing; remove lower grease fitting and apply grease directly on to the elevating screw. For more information see Holland Service Bulletin No. 22.
5. If crankshaft holder or extension is used, check for alignment with crankshaft.
6. If a through-axle is used, check for binding where the axle goes through the legs.
7. Examine nut and screw assembly for damage caused by dropping of the trailer.

#### TROUBLE SHOOTING—GENERAL:

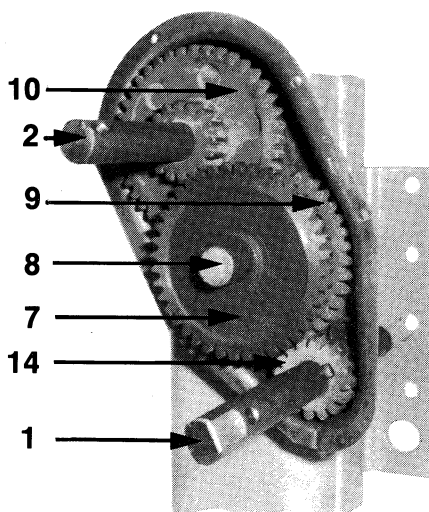
Follow the dismantling and assembly instructions in this manual.

1. Crankshaft is jammed - examine nut and screw assembly for damage caused by dropping the trailer.
2. Crankshaft jams or skips while turning - examine parts (19 & 21) and all gearbox gears for worn, broken or missing teeth.
3. Will not stay in gear while cranking - check condition of shifter spring (13) and grooves in crankshaft (1).

# LANDING GEAR REPAIR PROCEDURES FOR MODELS MANUFACTURED AFTER FEBRUARY 1, 1990. (EXPLODED VIEW SHOWN ON PAGE 3).



**Low Range With XA-V-1927 (7)  
Removed for Clarity**



**High Range Gear  
Arrangement**

## GEARBOX DISMANTLING:

1. Remove all rust from shafts (1) and (2) and lubricate for easier removal of gearbox cover (3).
2. Remove gearbox cover (3) by removing bolts and nuts (5).
3. Remove gear (7) from shaft (8).
4. To remove shaft (1), shaft must be free of rust. Lubricate and tap out from mounting bracket side. Remove shifter gear (14) by removing spiral pin (12) and pin (15). Also remove shifter spring (13) after shaft (1) has been removed.
5. Remove shaft (8) and step gear (9).
6. Remove step gear (10) by removing spiral pin (11).
7. Replace all worn, bent or broken parts.

## LEG DISMANTLING:

1. Disconnect cross shaft (36) by removing nuts and bolts (37) and remove the landing gear from the trailer.
2. Remove all rust from projecting end of shaft (1, 2 or 35) and lubricate for easy removal.
3. Remove screws (16) and leg cover (17) and gasket (18).
4. Tap out groove pin (6) from bevel pinion gear (19).
5. Remove shaft (2 or 35) from landing gear making sure not to lose shims (51) or location of shims (51).
6. Next, remove nut (20) from top of elevating screw and inner leg assembly (23, 24 or 53).
7. Remove bevel gear (21) from screw in inner leg assembly (23, 24 or 53).
8. Tap end of screw with wood block or brass hammer until screw and inner leg assembly (23, 24 or 53) drop out. (Be careful not to damage screw threads).
9. Lift out polyethylene bushing (22).
10. Remove thrust bearing (31), thrust washer (32) and woodruff key (50) from screw in assembly (23, 24 or 53).
11. Replace all worn, bent or broken parts.

## LEG ASSEMBLY:

1. Place thrust washer (32) on top of elevating screw. Thrust bearing (31) follows and must be assembled with cup of bearing up. Assemble thrust washer with rounded side of washer toward screw shoulder.

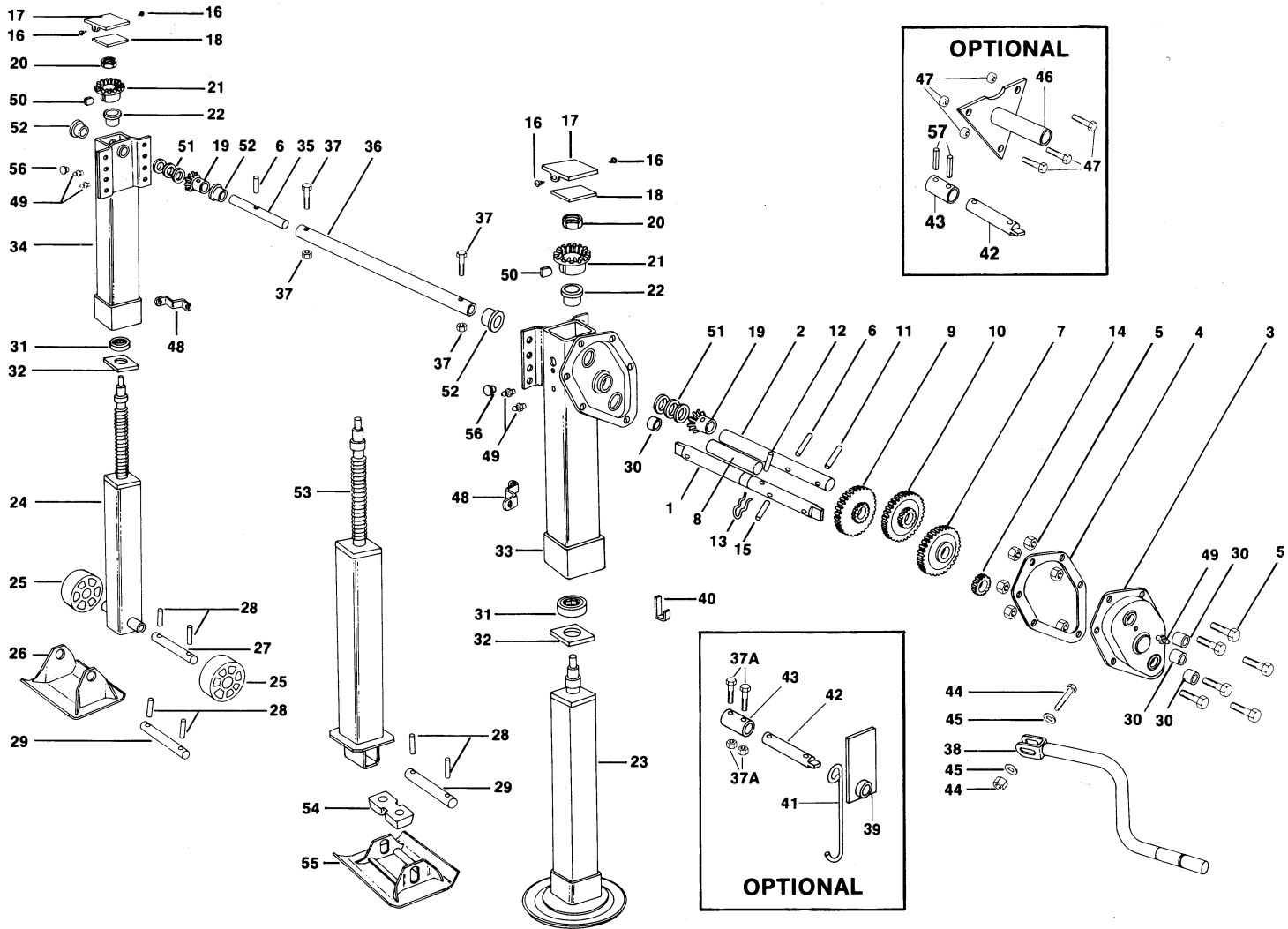
2. Place outer leg (33 or 34) over screw and nut portion of inner leg assembly (23, 24 or 53). Press down until threaded part of elevating screw is clearly visible through hole in top of the outer leg (33 or 34).
3. Fit polyethylene bushing (22) into place around screw in leg assembly (23, 24 or 53) and push all the way down into bearing block.
4. Install woodruff key (50) in slot of elevating screw (23, 24 or 53) and install bevel gear (21) in place.
5. Secure bevel gear (21). Use Loc-tite on threads of screw and install jam lock nut (20). Make sure bevel gear (21) turns freely.
6. Place bevel pinion gear (19) on top of bevel gear (21) on the opposite side from mounting plate of single speed outer leg (34), or mounting plate side of 2-speed outer leg (33).
7. Install shaft (2 or 35) through outer leg (33 or 34). Install shims (51) removed previously and slide shaft (2 or 35) through shims (51) and bevel pinion gear (19).
8. Align holes in bevel pinion gear (19) with hole in shaft (2 or 35), insert groove pin (6) so that shafts turn freely and the two gears are engaged properly.
9. Check for proper shimming. Proper shimming is achieved when the shafts turn freely and there is no more than 1/16" gap between the shims and the outer leg when shaft (2 or 35) is pushed toward the bevel gear.
10. Make sure this assembly is well lubricated with a permanent type lubricant (1/2 pound, minimum).
11. Replace gasket (18), metal cover (17) and self tapping screws (16).
12. Install landing gear back on trailer. Adjust both legs to the same extended length and install cross shaft (36) and bolts and nuts (37). When installing cross shaft make sure there is enough end play and gears crank freely.

## GEARBOX ASSEMBLY:

1. To replace shifter gear (14), install pin (15) in shaft (1). Then slide shifter gear (14) on shaft (1) so that recess in shifter gear (14) fits over pin (15). Install spiral pin (12).
2. Install step gear (10) on shaft (2) and secure with spiral pin (11).
3. Slide gear (9) on shaft (8) and insert shaft in middle hole of gear box.
4. Install shifter spring (13) in place and insert shaft (1) with gear (14) in lower hole of gearbox.
5. Place idler gear (7) on shaft (8) with shoulder of gear to inside.
6. Gears must be coated with permanent type grease in order to obtain successful operation.
7. Replace gasket (4) and gearbox cover (3) and assemble with bolts and nuts (5).

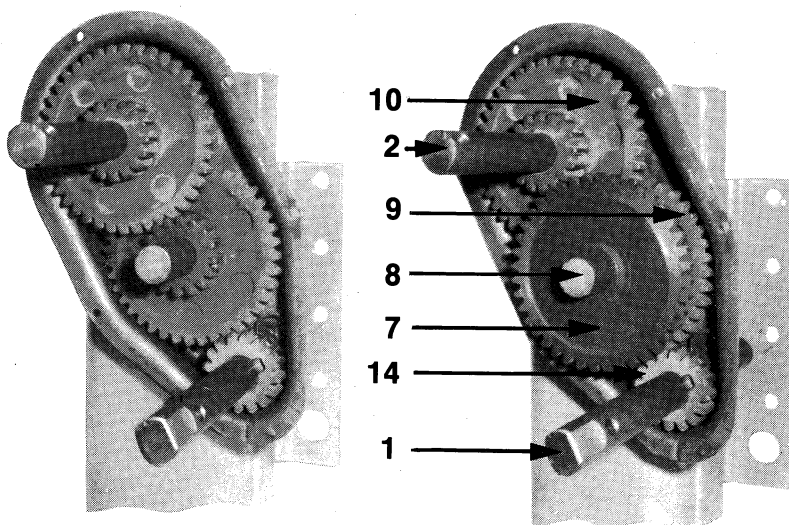
# PARTS FOR LANDING GEAR MANUFACTURED AFTER FEBRUARY 1, 1990

NOTE: FOR ASSISTANCE IN IDENTIFYING MANUFACTURING DATES SEE PAGE 7



ITEM	PART NO.	2-SPEED SIDE	SINGLE- SPEED SIDE	PART NAME	ITEM	PART NO.	2-SPEED SIDE	SINGLE- SPEED SIDE	PART NAME
1	XA-V-05159-A	1		Drive & gear shaft	34	XA-V-03875-0 thru -5	1		Outer leg assy. (single speed)
2	XA-V-05122-A	1		Drive gear shaft	35	XA-V-05123-A	1		Drive gear shaft (single speed)
3	XA-V-1920	1		Gearbox cover	36	XA-V-1910	1		Cross shaft (specify frame width, mounting style, l.g. model number)
4	XB-V-1926	1		Gasket	37	XB-V-444-1	1	1	Hex head cap screw 3/8"-16 x 1 3/4"
5	XB-3103	6		Locknut 1/4"-28	XB-338		1	1	Locknut 3/8"-16
6	XB-CX-14-28-F-58	6		Hex hd. cap screw 1/4"-28 x 5/8"	37A	XB-V-444-1	2		Hex hd. cap screw 3/8"-16 x 1 3/4" (opt.)
7	XB-02065	1	1	Groove pin	XB-338		2		Locknut 3/8"-16 (optional)
8	XA-V-1927	1		Idler gear	38	XA-V-90-0	1		Crank assembly
9	XA-V-1957	1		Idler gear shaft	XA-V-90-2		1		Extra long crank assembly (optional)
10	XA-V-1928-1	1		Step gear (undrilled)	39	XA-V-971	1		Crankshaft bracket (optional)
11	XA-V-1928	1		Step gear (drilled)	40	XA-V-1914	1		Crank hanger
12	XB-21-S-375-1500	1		Spiral pin 3/8" x 1 1/2"	41	XB-V-1915	1		Crank hanger (optional)
13	XB-21-S-218-1250	1		Spiral pin 7/32" x 1 1/4"	42	XA-V-1916	1		Extension shaft - long (optional)
14	XB-V-1949	1		Shifter spring	XA-V-1916-1		1		Extension shaft - short (optional)
15	XA-V-1929	1		Shifter gear	43	XA-V-630-2	1		Crankshaft coupling (optional)
16	XA-CRP-V-1917	1		Pin 3/8" x 1-7/16"	44	XB-C-38-C-214	1		Hex head cap screw 3/8"-16 x 2 1/4"
17	XB-04112	2	2	Self tapping screw	XB-338		1		Locknut 3/8"-16
18	XA-V-03824	1	1	Upper leg cover	45	XB-1108	2		SAE 3/8" washer
19	XB-V-1966	1	1	Gasket	46	XA-V-1912-1	1		Extension bracket - long (optional)
20	XA-V-04204-1	1	1	Bevel pinion	XA-V-1912-2		1		Extension bracket - short (optional)
21	XB-FW-25	1	1	Jam nut 1"-14	47	XB-0140	3		Hex hd. cap screw 1/4"-28 x 2 1/2" (opt.)
22	XA-V-04205-1	1	1	Bevel gear	XB-3103		3		Locknut 1/4"-28 (optional)
23	XB-V-643-A2	1	1	Bushing	48	XA-V-1938	1	1	Brace
24	XA-V-05120-0 thru -5	1	1	Inner leg & screw assy. (-001 series)	49	XB-767	3	2	Lube fitting
25	XA-V-05356-0 thru 5	1	1	Inner leg & screw assy. (-103 & -105)	50	XB-H-32-2	1	1	Woodruff key
26	XB-V-747	2	2	Wheel (3 1/2" x 9")	51	XB-03816	3	3	Shim (as required)
27	XA-V-796-B-1	1	1	Skid foot 12" x 11 1/2" (-105 models)	52	XB-0307	1	2	Bearing
28	XA-V-1901-2	1	1	Axle (wheel models)	53	XA-V-05446-0 thru -5	1	1	Inner leg (cushion foot)
29	XB-21-S-375-3000	2	2	Roll pin 3/8" x 3" (-103 & -105)	54	XB-04676	1	1	Cushion pad
30	XA-V-1901-1	1	1	Axle (skid foot models)	55	XA-04681	1	1	Cushion skid foot
31	XB-V-851	4		Bushing	56	XB-01789	1	1	Lube plug
32	XB-V-647	1	1	Thrust bearing	57	XB-GP-38-138-5	2		Groove pin 3/8" x 1 3/8" (optional)
33	XA-V-1913	1	1	Thrust washer					
	XA-V-03876-0 thru -5	1		Outer leg assy. (2-speed)					

# LANDING GEAR REPAIR PROCEDURES FOR MODELS MANUFACTURED BEFORE FEBRUARY 1, 1990. (EXPLODED VIEW SHOWN ON PAGE 5).



**Low Range With XA-V-1927 (7)  
Removed for Clarity**

**High Range Gear  
Arrangement**

## GEARBOX DISMANTLING:

1. Remove all rust from shafts (1) and (2) and lubricate for easier removal of gearbox cover (3).
2. Remove gearbox cover (3) by removing bolts and nuts (5).
3. Remove gear (7) from shaft (8).
4. To remove shaft (1), shaft must be free of rust. Lubricate and tap out from mounting bracket side. Remove shifter gear (14) by removing spiral pin (12) and pin (15). Remove shifter spring (13) after shaft (1) has been removed.
5. Remove shaft (8) and step gear (9).
6. Remove step gear (10) by removing spiral pin (11).
7. Replace all worn, bent or broken parts.

## LEG DISMANTLING:

1. Disconnect cross shaft (36) by removing nuts and bolts (37) and remove the landing gear from the trailer.
2. Remove all rust from projecting end of shaft (1, 2 or 35) and lubricate for easy removal.
3. Remove screws (16) and leg cover (17) and gasket (18).
4. Tap out spiral pin (11) from bevel pinion gear (19).
5. Remove shaft (2 or 35) from landing gear making sure not to lose shims (6) or location of shims (6).
6. Next, remove nut (20) from top of elevating screw and inner leg assembly (23 or 24). (Models prior to 2/77 have a cotter pin and slotted nut).
7. Remove bevel gear (21) from screw in inner leg assembly (23 or 24).
8. Tap end of screw with wood block or brass hammer until screw and inner leg assembly (23 or 24) drop out. (Be careful not to damage screw threads).
9. Lift out bushing (22).
10. Remove thrust bearing (31), thrust washer (32) and woodruff key (50) from screw in assembly (23 or 24).
11. Replace all worn, bent or broken parts.

## LEG ASSEMBLY:

1. Place thrust washer (32) on top of elevating screw. Thrust bearing (31) follows and must be assembled with cup of bearing up. Assemble thrust washer with rounded side of washer toward screw shoulder.

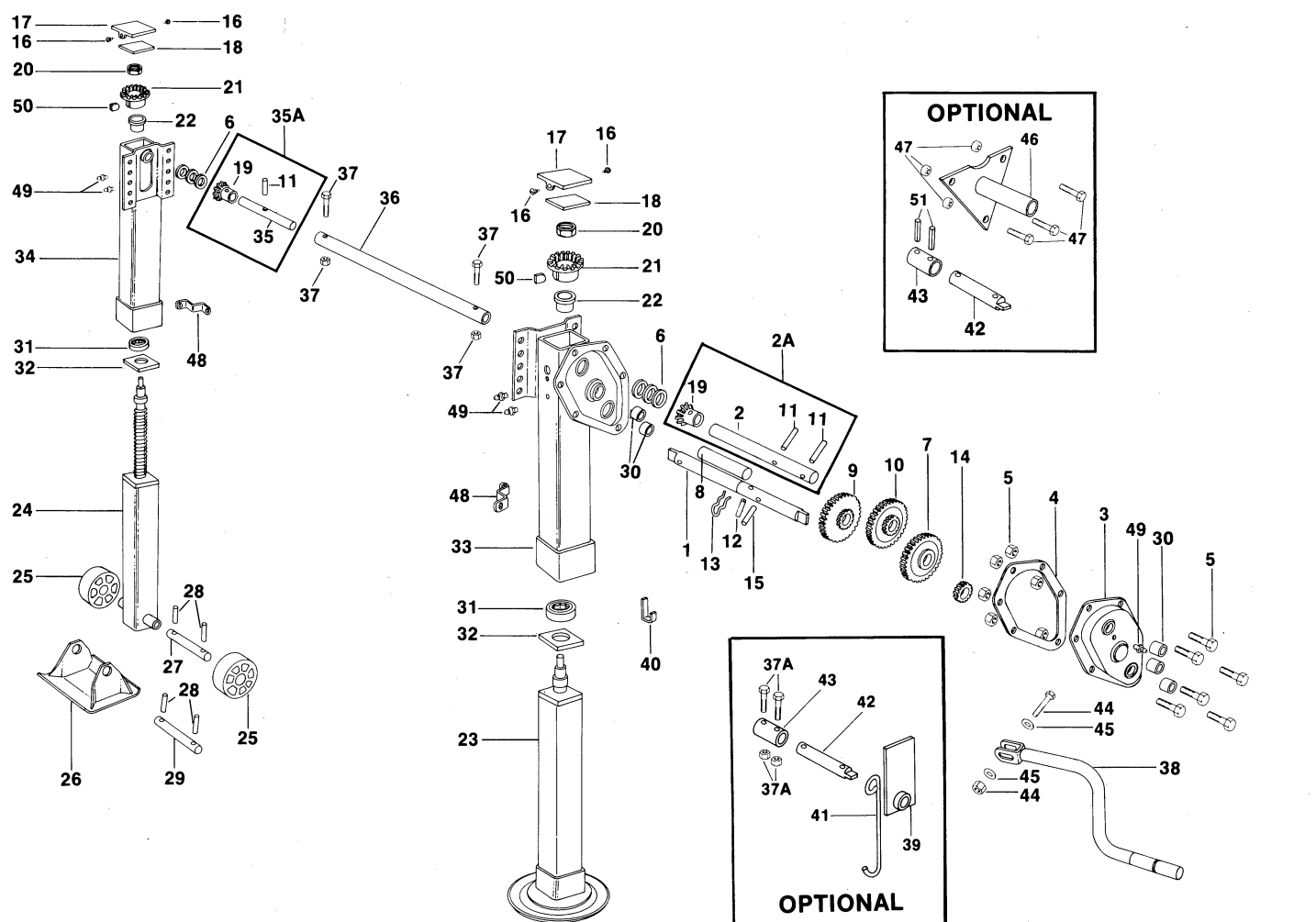
2. Place outer leg (33 or 34) over screw and nut portion of inner leg assembly (23 or 24). Press down until threaded part of elevating screw is clearly visible through hole in top of the outer leg (33 or 34).
3. Fit bushing (22) into place around screw in leg assembly (23 or 24) and push all the way down into bearing block.
4. Install woodruff key (50) in slot of elevating screw (23 or 24) and install bevel gear (21) in place.
5. Secure bevel gear (21). Use Loc-tite on threads of screw and install jam lock nut (20). Make sure bevel gear (21) turns freely. (If model was manufactured prior to 2/77 secure bevel gear with cotter pin and slotted nut.)
6. Place bevel pinion gear (19) on top of bevel gear (21) on the opposite side from mounting plate of single speed outer leg (34), or mounting plate side of 2-speed outer leg (33).
7. Install shaft (2 or 35) through outer leg (33 or 34). Install shims (6) removed previously and slide shaft (2 or 35) through shims (6) and bevel pinion gear (19).
8. Align holes in bevel gear (19) with hole in shaft (2 or 35), insert spiral pin (11) so that shafts turn freely and the two gears are engaged properly.
9. Check for proper shimming. Proper shimming is achieved when the shafts turn freely and there is no more than 1/16" gap between the shims and the outer leg when shaft (2 or 35) is pushed toward the bevel gear.
10. Make sure this assembly is well lubricated with a permanent type lubricant (1/2 pound, minimum).
11. Replace gasket (18), metal cover (17) and self tapping screws (16).
12. Install landing gear back on trailer. Adjust both legs to the same extended length and install cross shaft (36) and bolts and nuts (37). When installing cross shaft make sure there is enough end play and gears crank freely.

## GEARBOX ASSEMBLY:

1. To replace shifter gear (14), install pin (15) in shaft (1). Then slide shifter gear (14) on shaft (1) so that recess in shifter gear (14) fits over pin (15). Install spiral pin (12).
2. Install step gear (10) on shaft (2) and secure with spiral pin (11).
3. Slide gear (9) on shaft (8) and insert shaft in middle hole of gear box.
4. Install shifter spring (13) and insert shaft (1) with gear (14) in lower hole of gearbox.
5. Place idler gear (7) on shaft (8) with shoulder of gear to inside.
6. Gears must be coated with permanent type grease in order to obtain successful operation.
7. Replace gasket (4) and gearbox cover (3) and assemble with bolts and nuts (5).

# PARTS FOR LANDING GEAR MANUFACTURED BEFORE FEBRUARY 1, 1990

NOTE: FOR ASSISTANCE IN IDENTIFYING MANUFACTURING DATES SEE PAGE 7



ITEM	PART NO.	2-SPEED SIDE	SINGLE- SPEED SIDE	PART NAME	ITEM	PART NO.	2-SPEED SIDE	SINGLE- SPEED SIDE	PART NAME
1	XA-V-1919	1		Crankshaft	31	XB-V-647	1	1	Thrust bearing
2	Part of (2A)	1		Drive gear shaft (2-speed)	32	XA-V-1913	1	1	Thrust washer
2A	RK-V-05801-2	1		Drive gear shaft kit (2-speed)	33	XA-V25-0 thru -5	1		Outer leg assy. (2-speed)
3	XA-V-1920	1		Gearbox cover	34	XA-V50-0 thru -5	1	1	Outer leg assy. (single speed)
4	XB-V-1926	1		Gasket	35	Part of (35A)	1	1	Drive gear shaft (single speed)
5	XB-3103	6		Locknut 1/4"-28	35A	RK-V-05801-1	1	1	Drive gear shaft kit (single speed)
	XB-CX-14-28-F-58	6		Hex hd. cap screw 1/4"-28 x 5/8"	36	XA-V-1910	1	1	Cross shaft (specify frame width, mounting style, i.g. model number)
6	XB-H-36	3	3	Shims (as required)	37	XB-V-444-1	1	1	Hex head cap screw 3/8"-16 x 1 1/4"
7	XA-V-1927	1		Idler gear		XB-338	1	1	Locknut 3/8"-16
8	XA-V-1957	1		Idler gear shaft	37A	XB-V-444-1	1	1	Hex hd. cap screw 3/8"-16 x 1 1/4" (opt.)
9	XA-V-1928-1	1		Step gear (undrilled)		XB-338	1	1	Locknut 3/8"-16 (opt.)
10	XA-V-1928	1		Step gear (drilled)	38	XA-V-90-0	1		Crank assembly
11	Part of (2A) & (35A)	2	1	Spiral pin 3/8" x 1 1/2"		XA-V-90-2	1		Extra long crank assembly (optional)
12	XB-21-S-187-1250	1		Spiral pin 3/16" x 1 1/4"	39	XA-V-971	1		Crankshaft bracket (optional)
13	XB-V-1949	1		Shifter spring	40	XA-V-1914	1	1	Crank hanger
14	XA-V-1929	1		Shifter gear	41	XB-V-1915	1		Crank hanger (optional)
15	XA-CRP-V-1917	1		Pin 3/8" x 1-7/16"	42	XA-V-1916	1		Extension shaft - long (optional)
16	XB-MSR-316-C-500	2	2	Self tapping screw		XA-V-1916-1	1		Extension shaft - short (optional)
17	XA-V-1966-2	1	1	Metal leg cover	43	XA-V-630-2	1	1	Crankshaft coupling (optional)
18	XB-V-1966	1	1	Gasket	44	XB-H-332	1		Hex head bolt 3/8"-16 x 3"
19	Part of (2A) & (35A)	1	1	Bevel pinion		XB-338	1		Locknut 3/8"-16
20	XB-FW-25	1	1	Jam nut 1"-14	45	XB-1108	2		SAE 3/8" washer
21	XA-V-1962	1	1	Bevel gear	46	XA-V-1912-1	1	1	Extension bracket - long (optional)
22	XB-V-643-A2	1	1	Bushing		XA-V-1912-2	1		Extension bracket - short (optional)
23	*XA-V60-A-0 thru -5	1	1	Inner leg & screw assy. (-001 series)	47	XB-0140	3		Hex hd. cap screw 1/4"-28 x 2 1/2" (opt.)
24	*XA-V63-A-0 thru -5	1	1	Inner leg & screw assy. (-103 & -105)		XB-3103	3		Locknut 1/4"-28 (optional)
25	XB-V-747	2	2	Wheel (3 1/2" x 9")	48	XA-V-1938	1	1	Brace
26	XA-V-796-B-1	1	1	Skid foot 12" x 11 1/2" (-105 models)	49	XB-767	3	2	Lube fitting
27	XA-V-1901-2	1	1	Axle (wheel models)	50	XB-H-32-2	1	1	Woodruff key
28	XB-21-S-375-3000	2	2	Roll pin 3/8" x 3" (-103 & -105)	51	XB-GP-38-138-5	2		Groove Pin 3/8" x 1 3/8" (optional)
29	XA-V-1901-1	1	1	Axle (skid foot models)					
30	XB-V-851	5		Bushing					

\* These assemblies have been discontinued and there is only a limited quantity available. Contact the factory for availability.

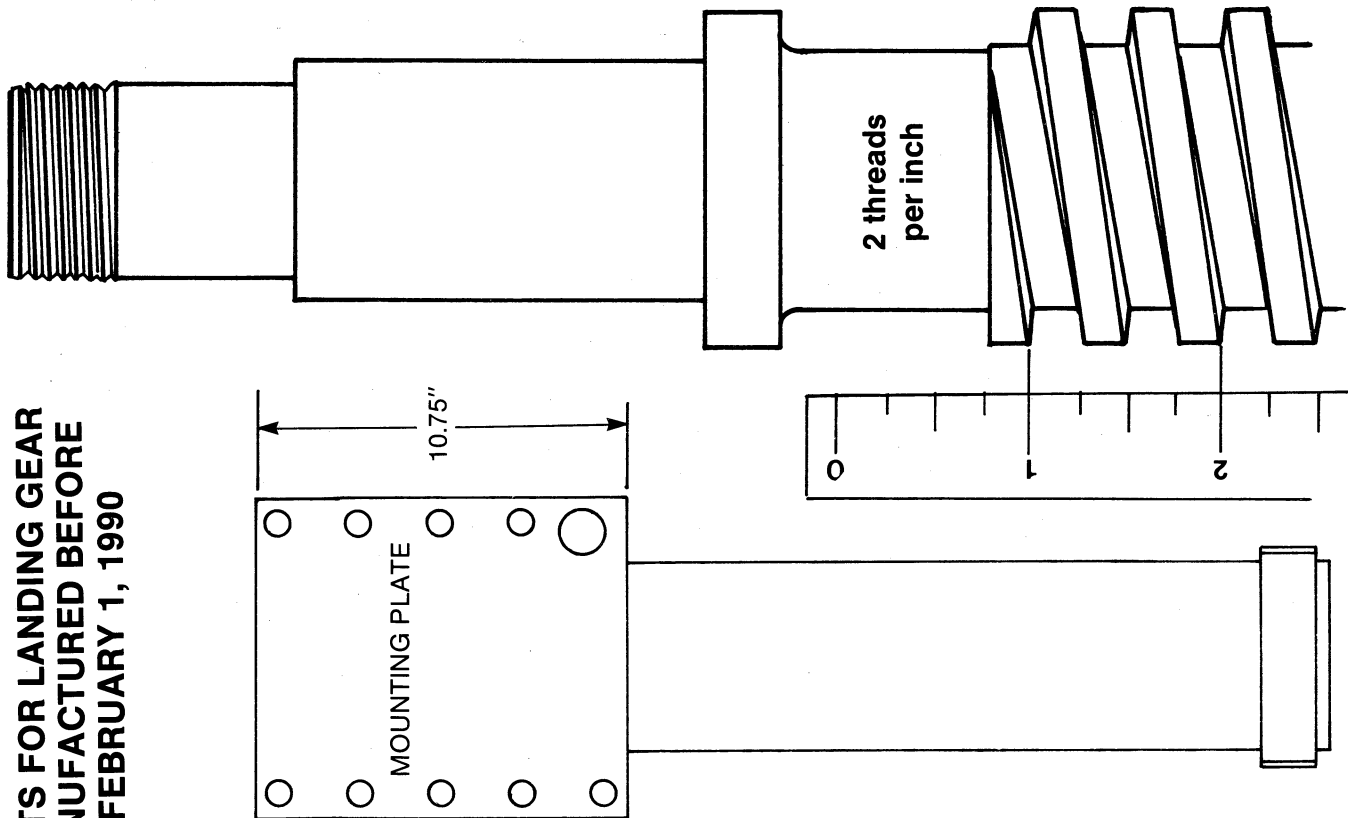
MTG. CODE	DESCRIPTION
A	Universal Mount
B	Inside Mount
C	Outside Mount
D	Outside Mount 4.5" Shaft

**GENERAL INFORMATION:**

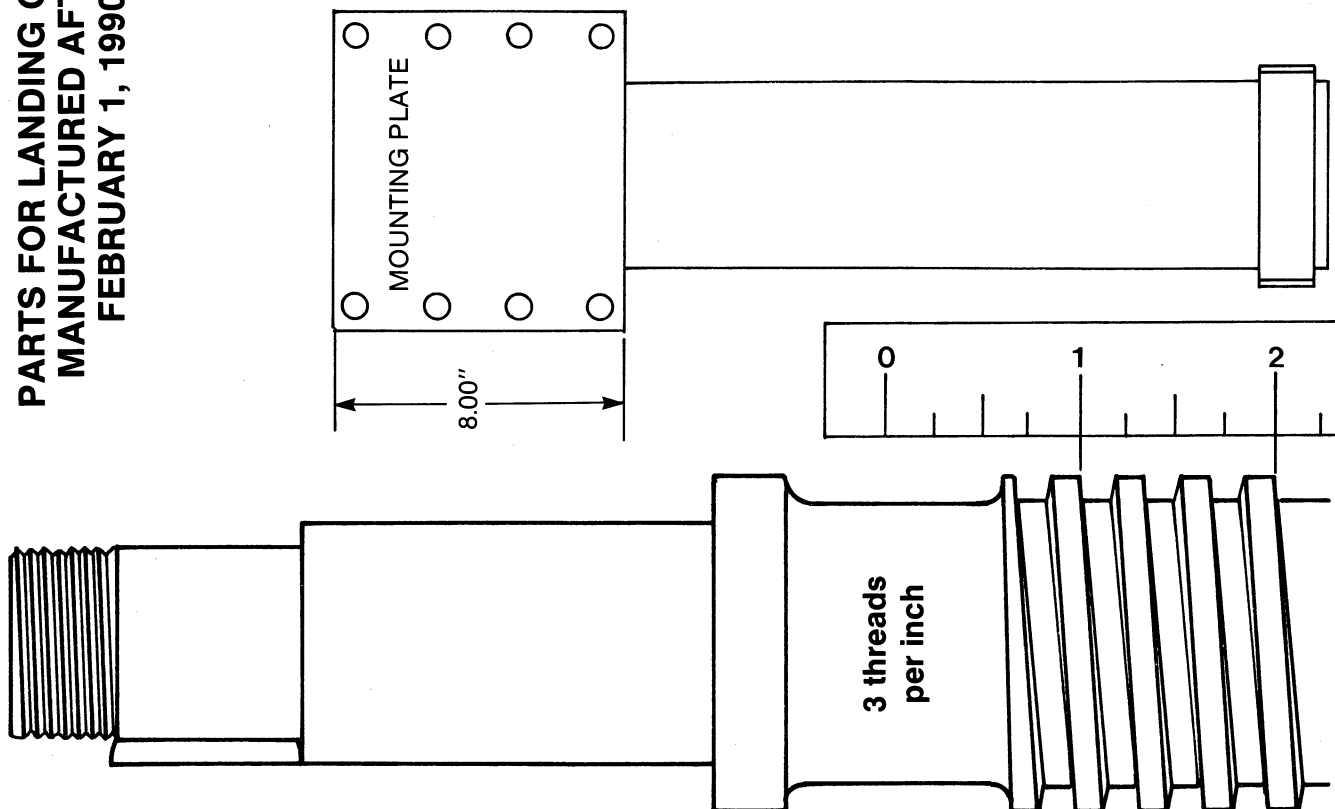
1. Do not modify, change or add to the product.
2. Wear safety goggles during installation, removal and rebuilding.
3. Never strike any part of the item with a steel hammer.
4. Observe standard precautions when lifting.
5. Tighten all installation bolts and nuts before using.
6. Use only genuine Holland parts.
7. All installations must be made in accordance with D.O.T. regulations and in accordance with SAE recommended practices or standards. Use SAE grade 8 bolts and nuts. Never reuse any bolts or nuts.

This product is covered by Holland's Mark V 5-year parts and 2-year labor warranty. Holland reserves the right, without giving prior notice, to change specifications and dimensions as designs are altered or improved.

**PARTS FOR LANDING GEAR  
MANUFACTURED BEFORE  
FEBRUARY 1, 1990**



**PARTS FOR LANDING GEAR  
MANUFACTURED AFTER  
FEBRUARY 1, 1990**



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Holland Hitch Co.  
Holland, MI 49423  
(616) 396-6501  
FAX NO. (616) 396-1511

Holland Pacific Hitch Co.  
Milpitas, CA 95035  
(408) 262-2550  
FAX NO. (408) 262-8017

Holland Hitch of New Jersey  
Whitehouse Station, NJ 08889  
(908) 534-4162  
FAX NO. (908) 534-5271

Holland Atlantic Hitch Co.  
Denmark, SC 29042  
(803) 793-3313  
FAX NO. (803) 793-5583

Holland Hitch of Texas, Inc.  
Wylie, TX 75098  
(214) 442-3556  
FAX NO. (214) 442-2092

Holland Hitch of Canada, Ltd.  
Woodstock, Ontario N4S 7Z5  
(519) 537-3494  
FAX NO. (519) 537-5447

Nippon Holland, Ltd.  
Tokyo, Japan  
(81) (3) 463-0941  
FAX NO. (81) (3) 463-1407

Holland Transtrade  
Far East, Sdn. Bhd.  
Kuala Lumpur, Malaysia  
(60) (3) 2982177  
FAX NO. (60) (3) 2982167

Holland Hitch Western, Ltd.  
Surrey, BC V3S 5K1  
(604) 574-7491  
FAX NO. (604) 574-0244

Eurohitch, GmbH.  
4815 Schloss Holte  
Germany  
(49) (5207) 89560  
FAX NO. (49) (5207) 895656

Eurohitch (U.K.), Ltd.  
Lymington, Hampshire  
SO42 7ZU, United Kingdom  
FAX NO. (44) (590) 671980

Holland Hitch (Aust.), Ltd.  
Melton, Victoria, Australia  
(61) (3) 743-6799  
FAX NO. (61) (3) 743-6763