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MAIN DRIVE TRAIN

Pictured on page 3 is the main drive train lifting system for all non-hydraulic trailers.

In this segment of the service manual will be a description of each component and its basic function relating to the lift system operation. (Refer to page 3 for corresponding numbers.)

NOTE: Destiny series folding trailers do not utilize the lower crank shaft extension, front radial bearing, or the coupler. This drive train begins at the coupler attachment points.

IMPORTANT

1. **Lower crank extension shaft.** This extension is used to extend the length of the whiffle tree past the front body panel. Attached to the extension is a 12-tooth chain gear sprocket. The upper crank assembly, by means of a bicycle chain, connects to the lower crank extension shaft gear. By turning the upper or lower crank assembly, this will initially engage the drive train process.
2. **Front radial bearing.** The front radial bearing is used as a guide and to provide smooth rotation of the lower crank extension shaft.
3. **Coupler.** The coupler is used to connect the lower crank extension to the whiffle tree.
4. **Thrust bearing cover box.** The thrust bearing cover box is designed to protect the thrust nut and thrust bearing from debris. It is also used as an aid in aligning the thrust bearing and thrust nut through the frame cross channel.
- 5/6. **Thrust nut and thrust nut bearing.** The thrust nut and thrust bearing are the main load-bearing points of the entire lift system. The thrust nut has a collar which must ride on the race side (or movable side) of the thrust bearing. Improper installation of the thrust bearing to thrust nut will cause lift system problems.
7. **Bearing retainer plate.** The bearing retainer plate acts as a strengthening support on the frame cross channel where the thrust bearing will seat against it. It also helps to align the thrust nut through the frame cross channel.
8. **Solid shear pin.** The solid shear pin is the most critical attaching point of the lift system. It is used to connect the thrust nut to the whiffle tree. **The solid shear pin supports the entire weight of the top assembly.**
9. **Guide channel.** The guide channel serves two important functions in the lift system. It serves as a means of protection for the whiffle tree, guarding it from road debris and weather-related elements. But the most crucial function of the guide channel is to maintain the proper spacing and support between the two frame cross channels. The overall length of the guide channel measuring from flange to flange lengthwise is $24\frac{1}{2}$ ". Any variation in length will cause lift system problems. If at any time the guide channel is found to be bent or distorted in any way, have it replaced with a new one.

MAIN DRIVE TRAIN

Page 2

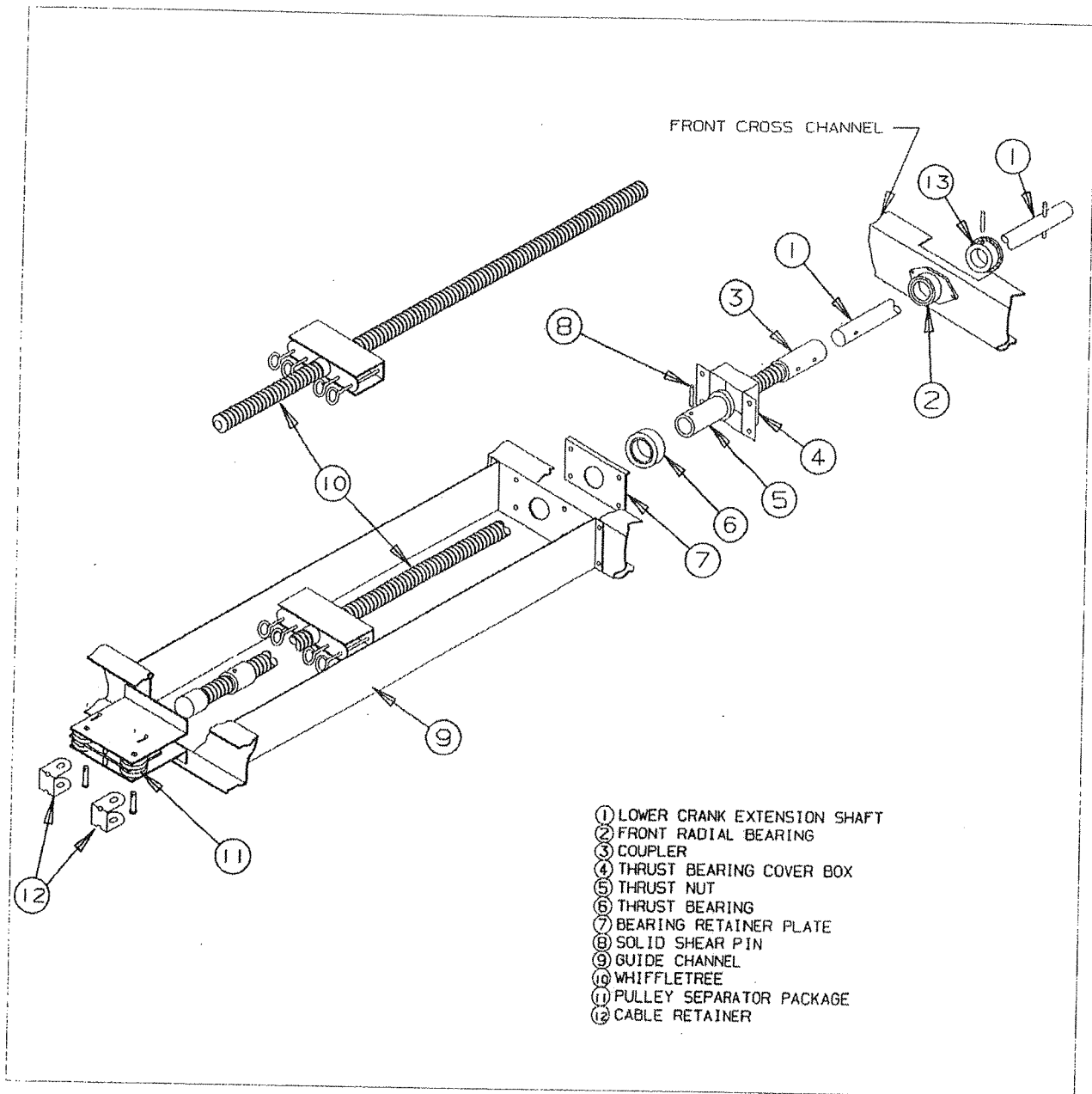
NOTE: As of the 1996 model introduction, all 10' and 12' models will have permanent guide channels welded in place between the frame cross members. The guide channel should **never, under any circumstances**, be removed with the top in the up position without having the two adjacent cross channels properly blocked at 24 ½". They will also incorporate a removable cover plate.

10. **Whiffle tree.** The whiffle tree is a combination worm gear and draw bar mechanism used in raising each individual lift arm. There are two types of whiffle trees used on Fleetwood folding trailers. (See specifications in whiffle tree section of lift system.)
11. **Pulley separator package.** The pulley separator package is the first routing point of all four individual lift arm main cables. In essence, this pivot point is the most crucial, having the most pressure or strain put forth by raising the top assembly.

NOTE: There are four steel needle bearing pulleys in the pulley separator package. Identical pulleys are used throughout the lift system, four at each corner bracket on the frame assembly and four in each lift arm assembly. Total number of steel bearing pulleys in system: 24. **Exception:** Plantation models had 26 pulleys in the entire lift system.

12. **Cable retainers.** The cable retainers are used to keep the main lift cables from inadvertently slipping off the pulleys. When the top is in the down position and there is slack in the cable.

MAIN DRIVE TRAIN
Page 3

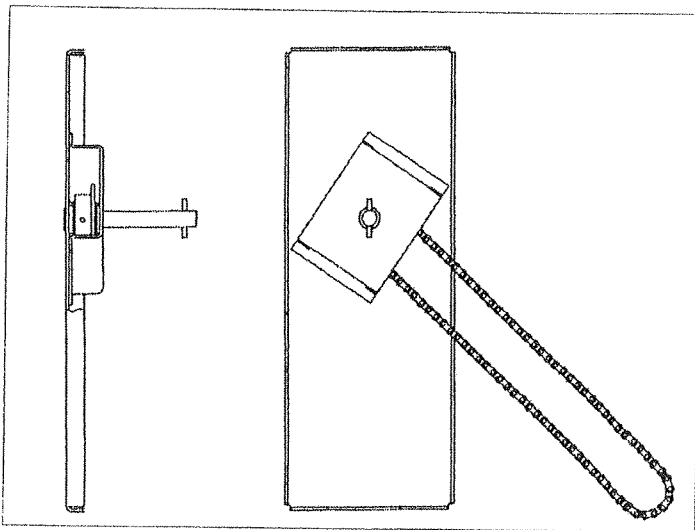


CRANK AND SPROCKET ASSEMBLIES

All 1968 - 1992 Pioneer Series Trailers

Sprockets	12-tooth upper crank assembly; 12-tooth lower crank extension
Cranking Ratio	1 to 1
Ratchet	None
Torque on upper crank	75 - 100 foot pounds acceptable

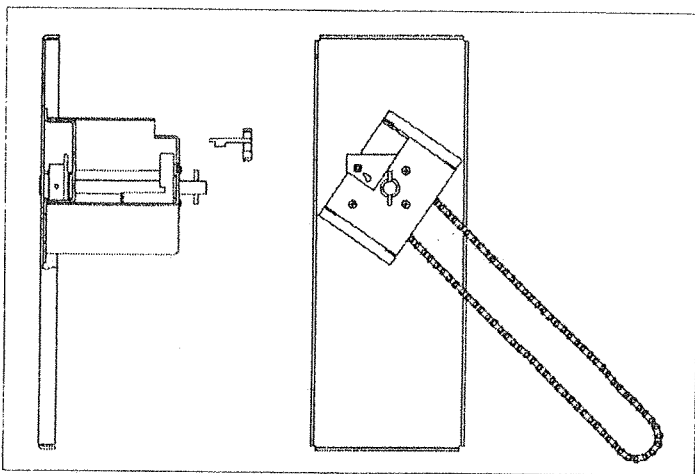
Used in conjunction with Acme whiffle tree.



All 1989 to 1993 Americana Series Trailers

Sprockets	24-tooth upper crank assembly; 12-tooth lower crank extension
Cranking Ratio	2 to 1
Ratchet	Yes, encased in upper crank and sprocket assembly
Torque on upper crank	60 - 100 foot pounds acceptable

Used in conjunction with ball bearing whiffle tree.



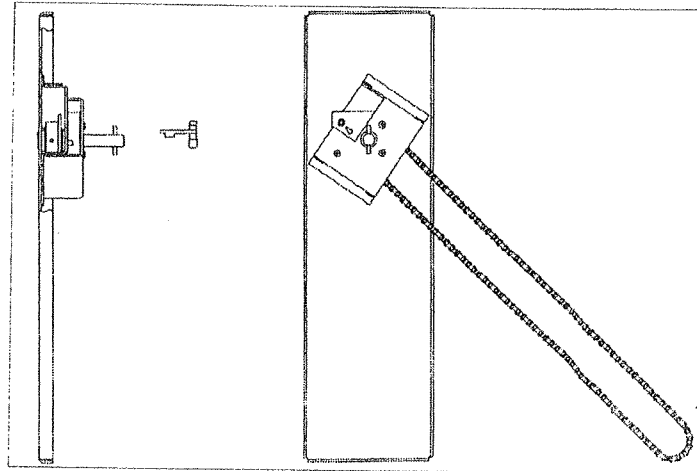
CRANK AND SPROCKET ASSEMBLIES

Page 2

All 1993 Four Season Series Trailers

Sprockets	18-tooth upper crank assembly; 12-tooth lower crank extension
Cranking Ratio	1.75 to 1
Ratchet	Yes, encased in upper crank and sprocket assembly
Torque on upper crank	60 - 100 foot pounds acceptable

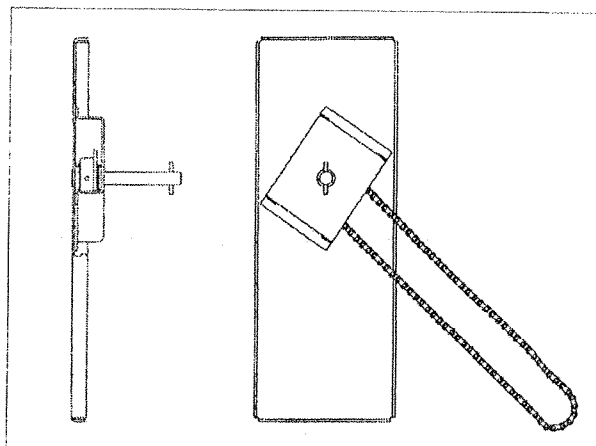
Used in conjunction with ball bearing whiffle tree.



All 1988 and Prior Americana Series Trailers All 1993 Pioneer Series Trailers

Sprockets	24-tooth upper crank assembly; 12-tooth lower crank extension
Cranking Ratio	2 to 1
Ratchet	Yes, located on <u>lower</u> crank extension
Torque on upper crank	60 - 100 foot pounds acceptable

Used in conjunction with ball bearing whiffle tree.



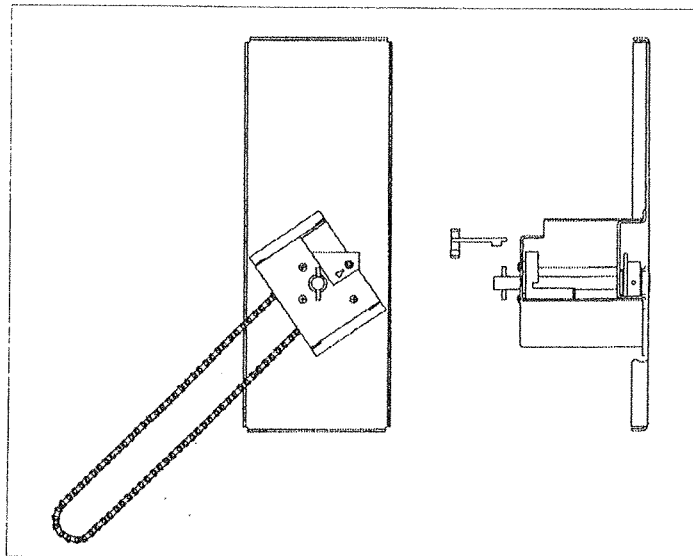
CRANK AND SPROCKET ASSEMBLIES

Page 3

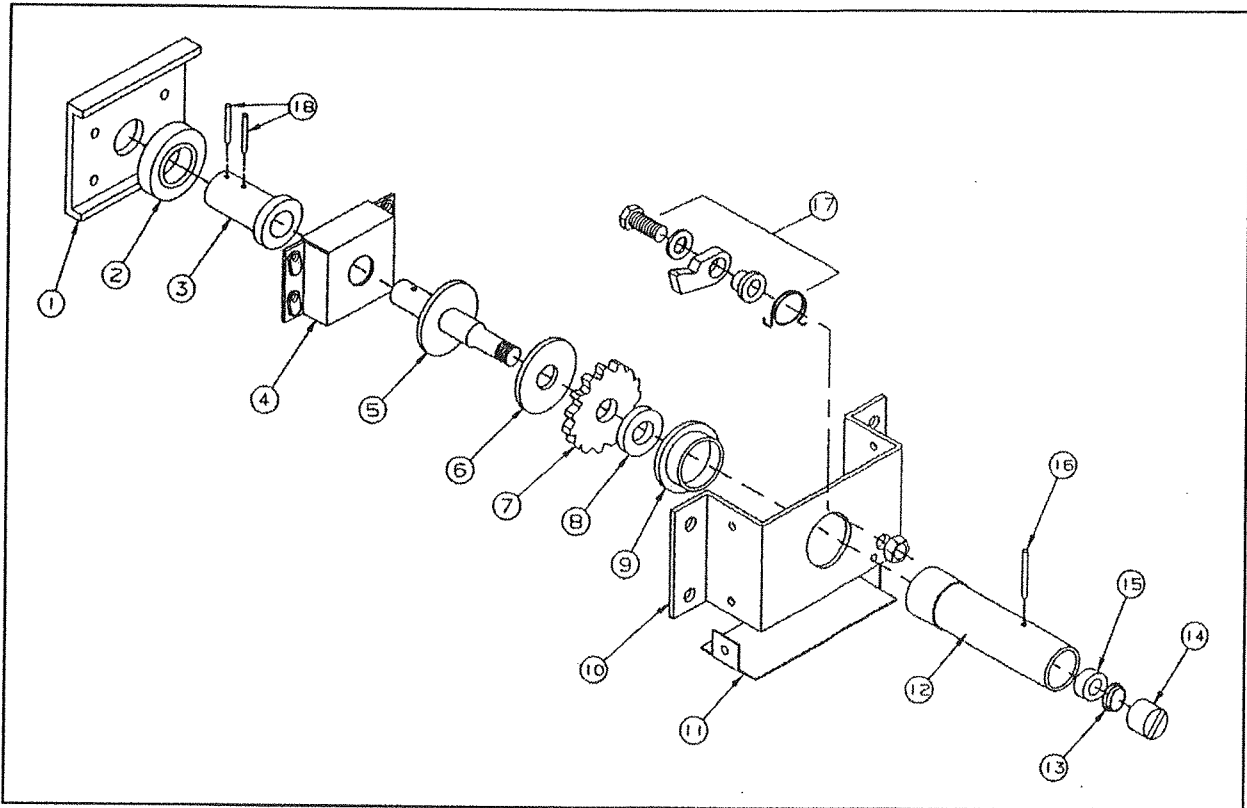
All 1986 - 1991 Plantation Series Trailers

Sprockets	24-tooth upper crank assembly; 12-tooth lower crank extension
Cranking Ratio	2 to 1
Ratchet	Yes, encased in upper crank and sprocket assembly
Torque on upper crank	60 - 100 foot pounds acceptable

Used in conjunction with ball bearing whiffle tree.



1994 - 1998 DESTINY CRANK-UP/CRANK-DOWN LIFT ASSEMBLY

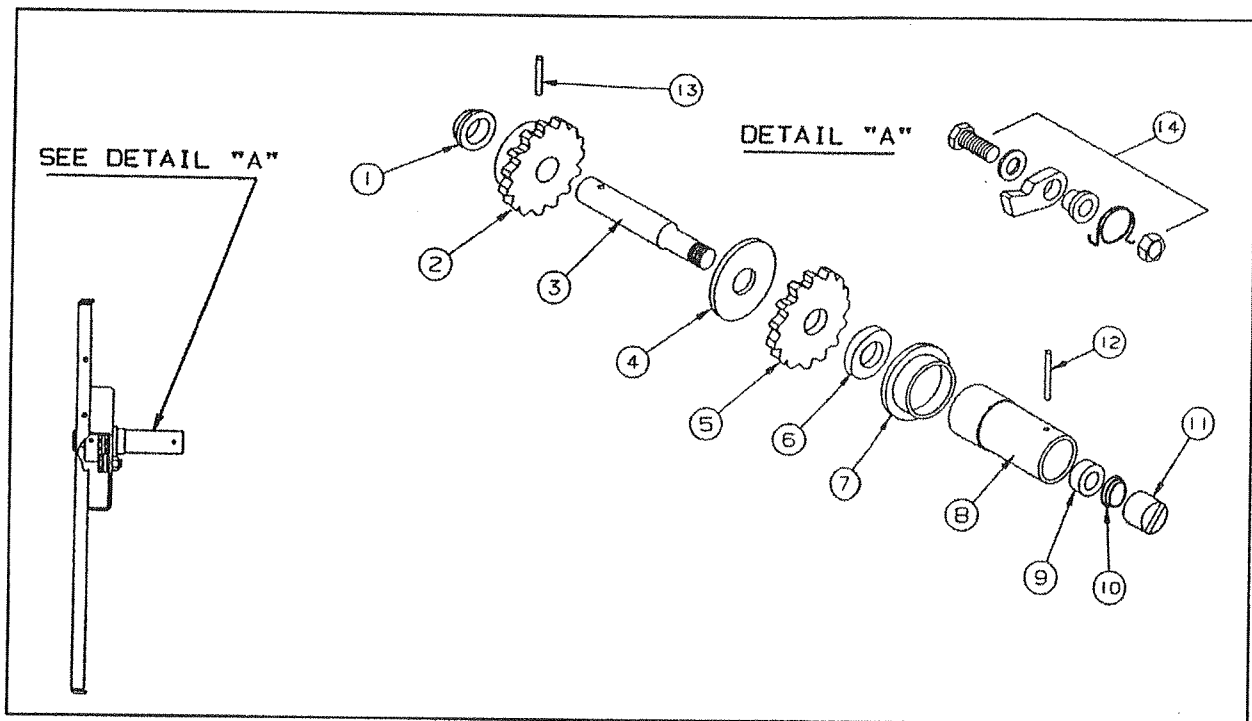


Sprockets	none; direct drive
Cranking Ratio	1 to 1
Ratchet	No; clutch release mechanism
Torque on crank assembly	60 - 100 foot pounds

NOTE: 1990 - 1993 Destiny series trailers utilize a direct cranking mechanism straight off of the whiffle tree shaft. No clutch release mechanism was utilized.

Used in conjunction with Acme whiffle tree.

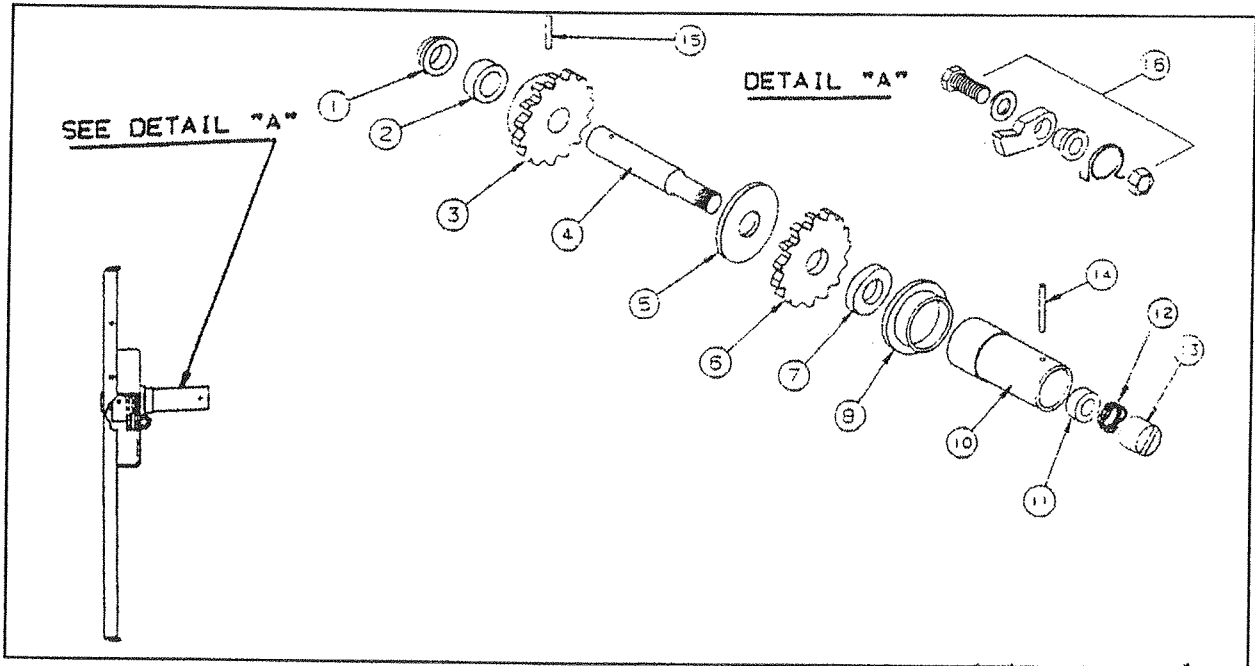
1994 - 1995 PIONEER SERIES CRANK AND SPROCKET ASSEMBLY



Sprockets	24-tooth upper crank assembly; 12 tooth lower crank assembly
Cranking Ratio	2 to 1
Ratchet	No; clutch release mechanism
Torque on Upper Crank	75 - 100 foot pounds

Used in conjunction with ball bearing whiffle tree.

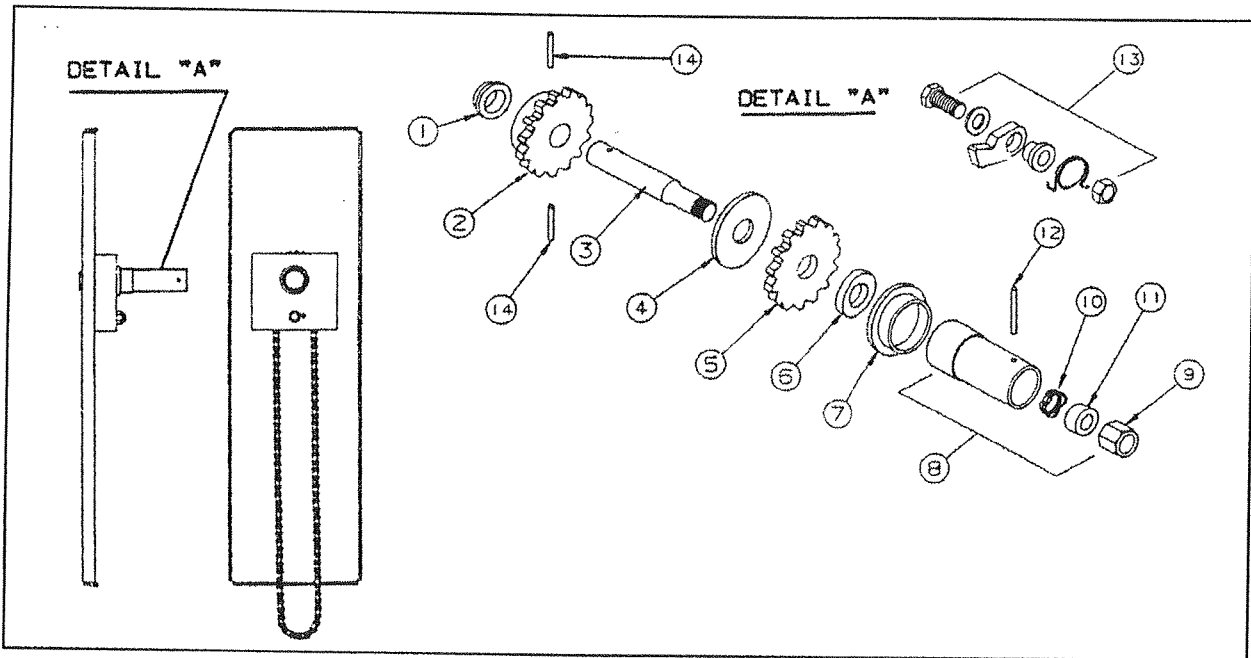
1994 - 1995 FOUR SEASON SERIES (CAPE COD/UTAH MODELS) CRANK AND SPROCKET ASSEMBLY



- | | |
|------------------------|---|
| Sprockets | 18 tooth upper crank assembly; 12 tooth lower crank assembly (Note: Utah model used 24 tooth upper sprocket.) |
| Cranking Ratio | 1.75 to 1 (Note: Utah model used 2:1.) |
| Ratchet | No; clutch release mechanism |
| Torque on Upper Crank. | 75 - 100 foot pounds |

Used in conjunction with ball bearing whiffle tree.

**1996 - 1998 GRAND TOUR SERIES AND 1999 GRAND TOUR ELITE SERIES
CRANK AND SPROCKET ASSEMBLY**

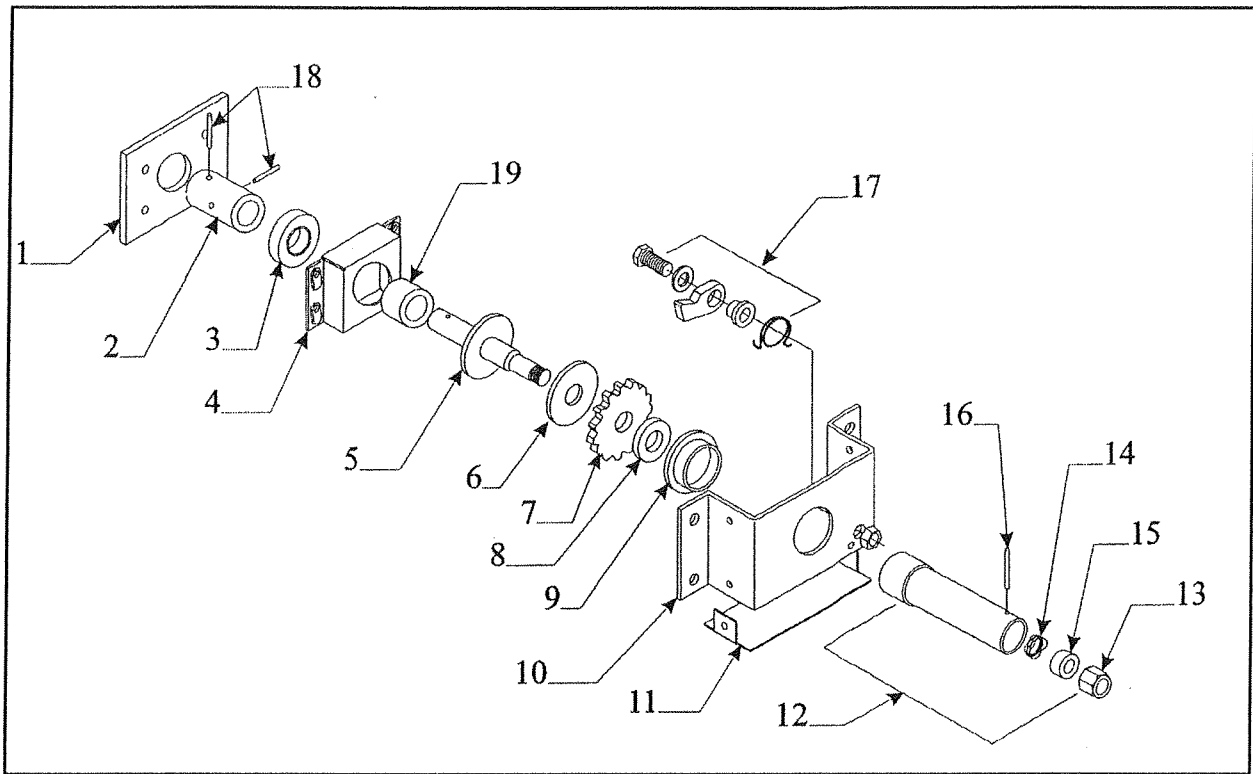


NOTE: On 1996 models, the chain ran diagonally versus straight up and down as shown.

Sprockets	24 tooth upper crank assembly; 12 tooth lower crank assembly
Cranking Ratio	2 to 1
Ratchet	No; clutch release mechanism
Torque on Upper Crank.	75 - 100 foot pounds

Used in conjunction with ball bearing whiffle tree.

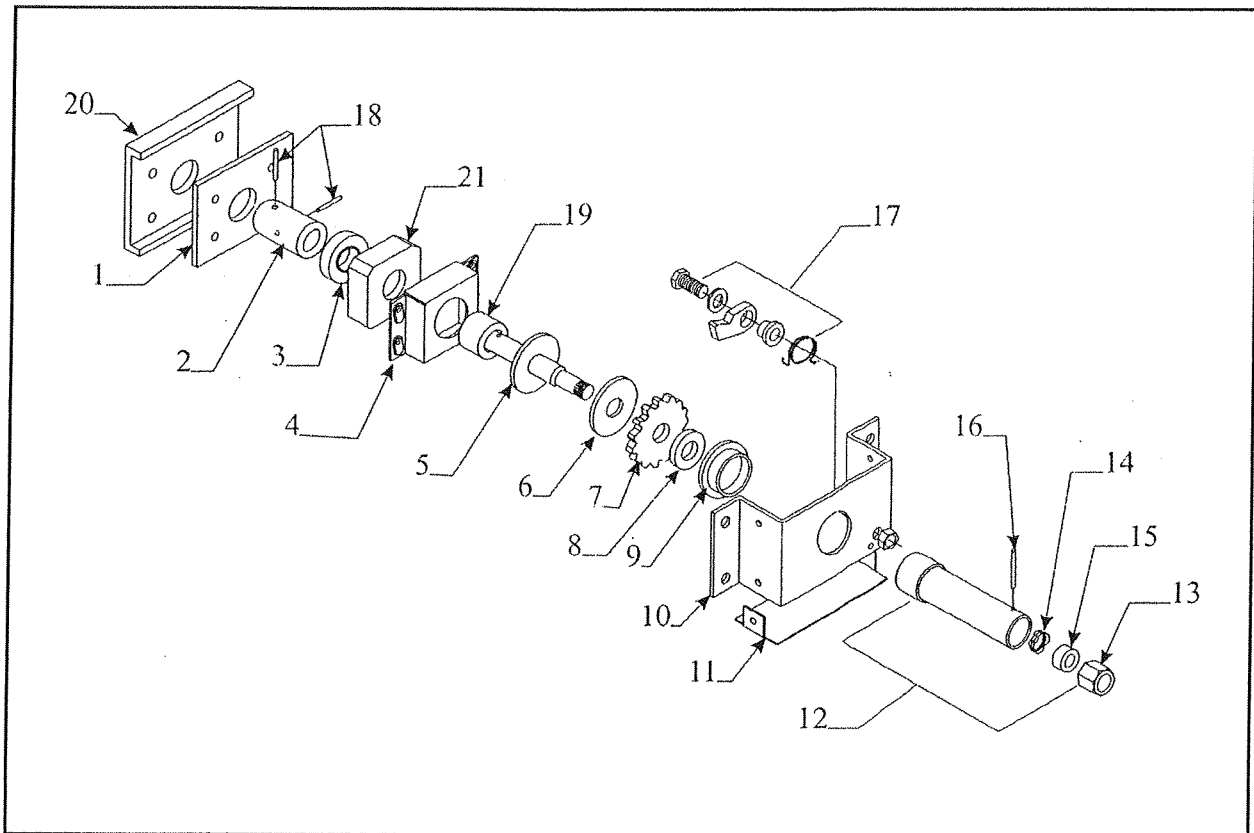
1999 GRAND TOUR AND DESTINY SERIES CRANK-UP/CRANK-DOWN



Sprockets	None; direct drive
Cranking Ratio	1 to 1
Ratchet	No; clutch release
Torque on Crank Assy.	60 - 100 foot pounds

Used in conjunction with Acme whiffle tree.

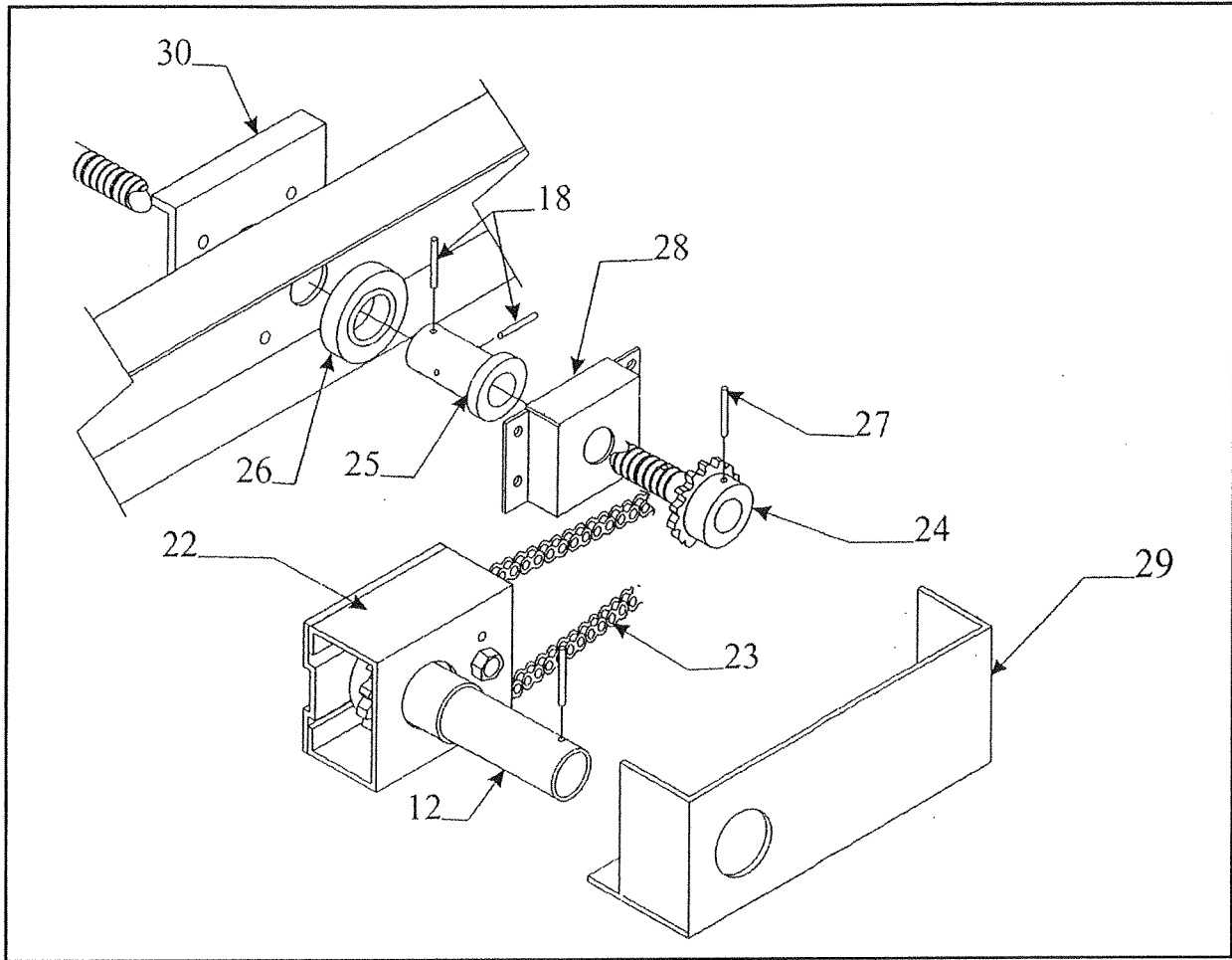
2000 - 2001 GRAND TOUR (10' MODELS ONLY) AND ALL DESTINY MODELS



Sprockets	None; direct drive
Cranking Ratio	1 to 1
Ratchet	No; clutch release
Torque on Crank Assy.	60 - 100 foot pounds

Used in conjunction with Acme whiffle tree.

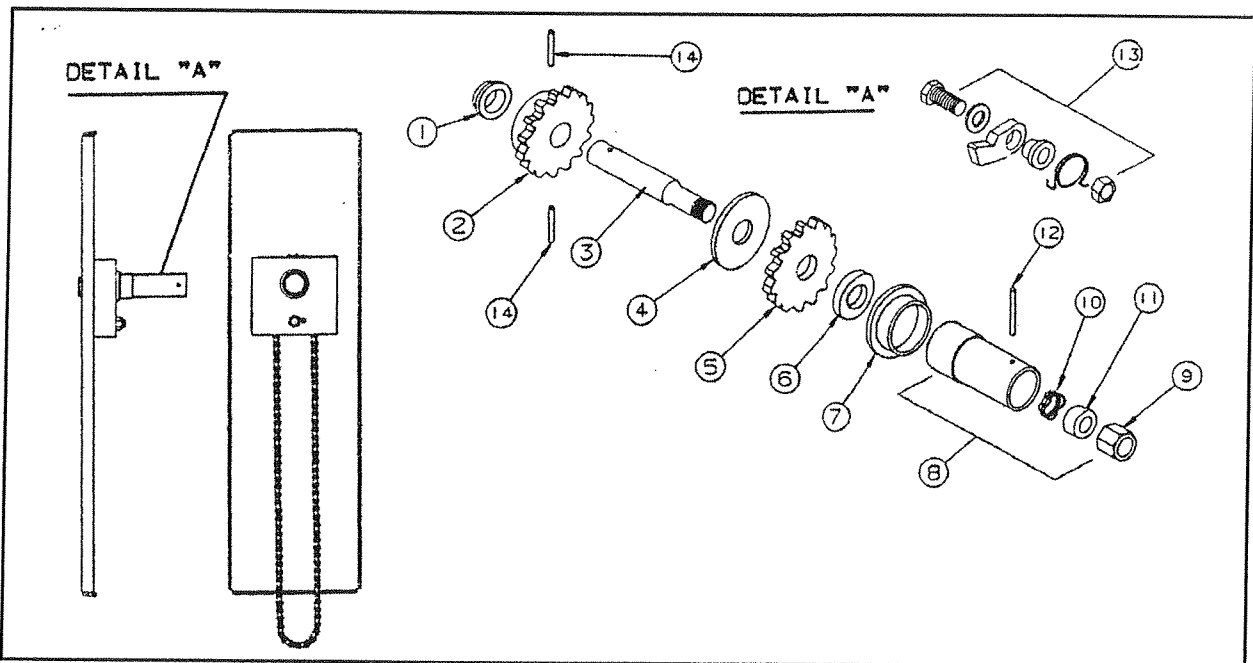
2000 - 2001 GRAND TOUR/GRAND TOUR ELITE 12' MODELS ONLY



Sprockets	24 tooth and 12 tooth
Cranking Ratio	2 to 1
Ratchet	No; clutch release
Torque on Crank Assy.	75 - 100 foot pounds

Used in conjunction with ball bearing whiffle tree.

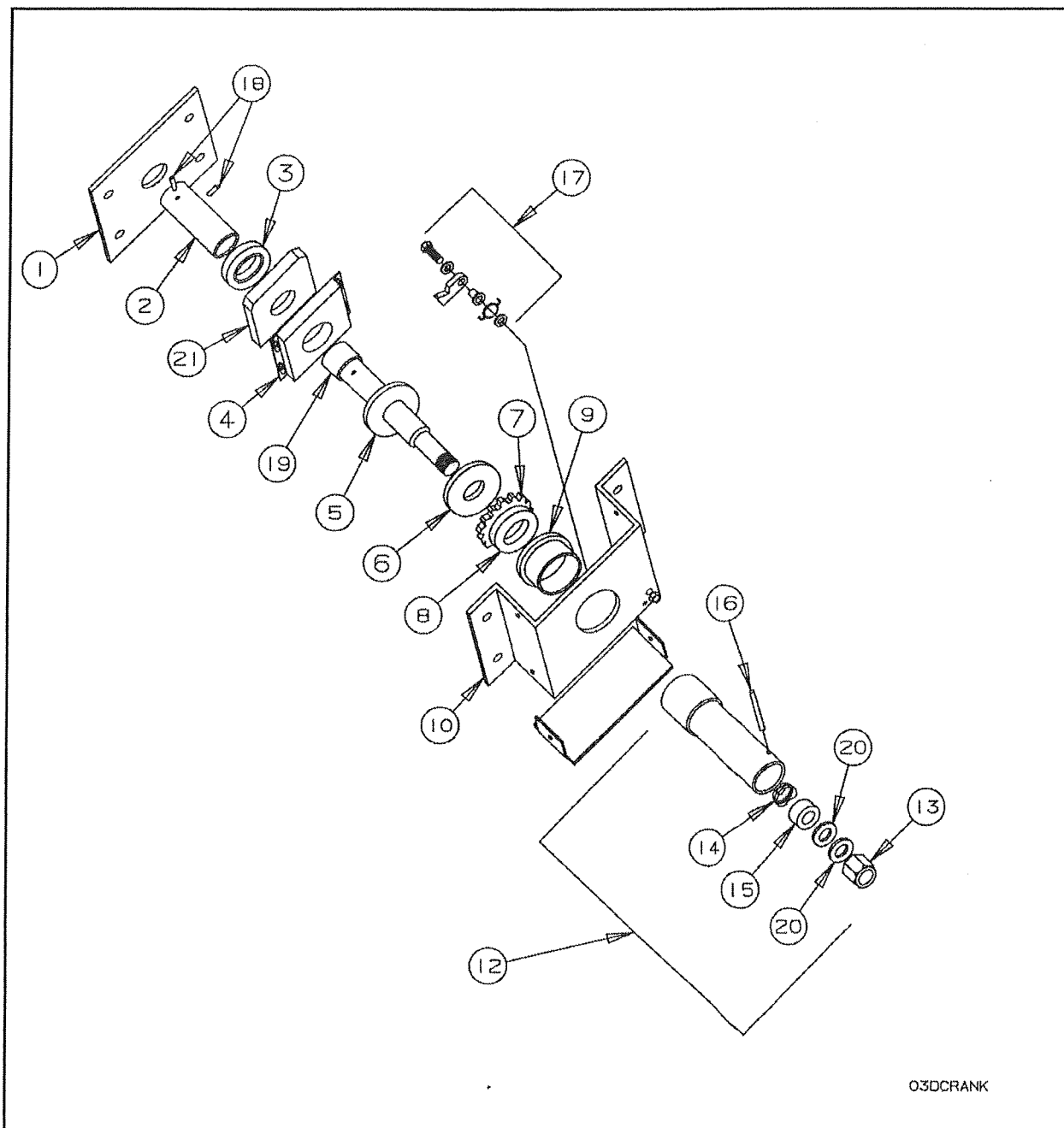
2002 - PRESENT GRAND TOUR/GRAND TOUR ELITE SERIES, 2005 AMERICANA SERIES, AND 2004 DESTINY DLX SERIES CRANK AND SPROCKET ASSEMBLY



NOTE: On 2004 models, the sprocket is a 22 tooth sprocket.

Sprockets	24 tooth upper crank assembly; 12 tooth lower crank assembly
Cranking Ratio	Approximately 2 to 1
Ratchet	No; clutch release mechanism
Torque on Upper Crank.	75 - 100 foot pounds

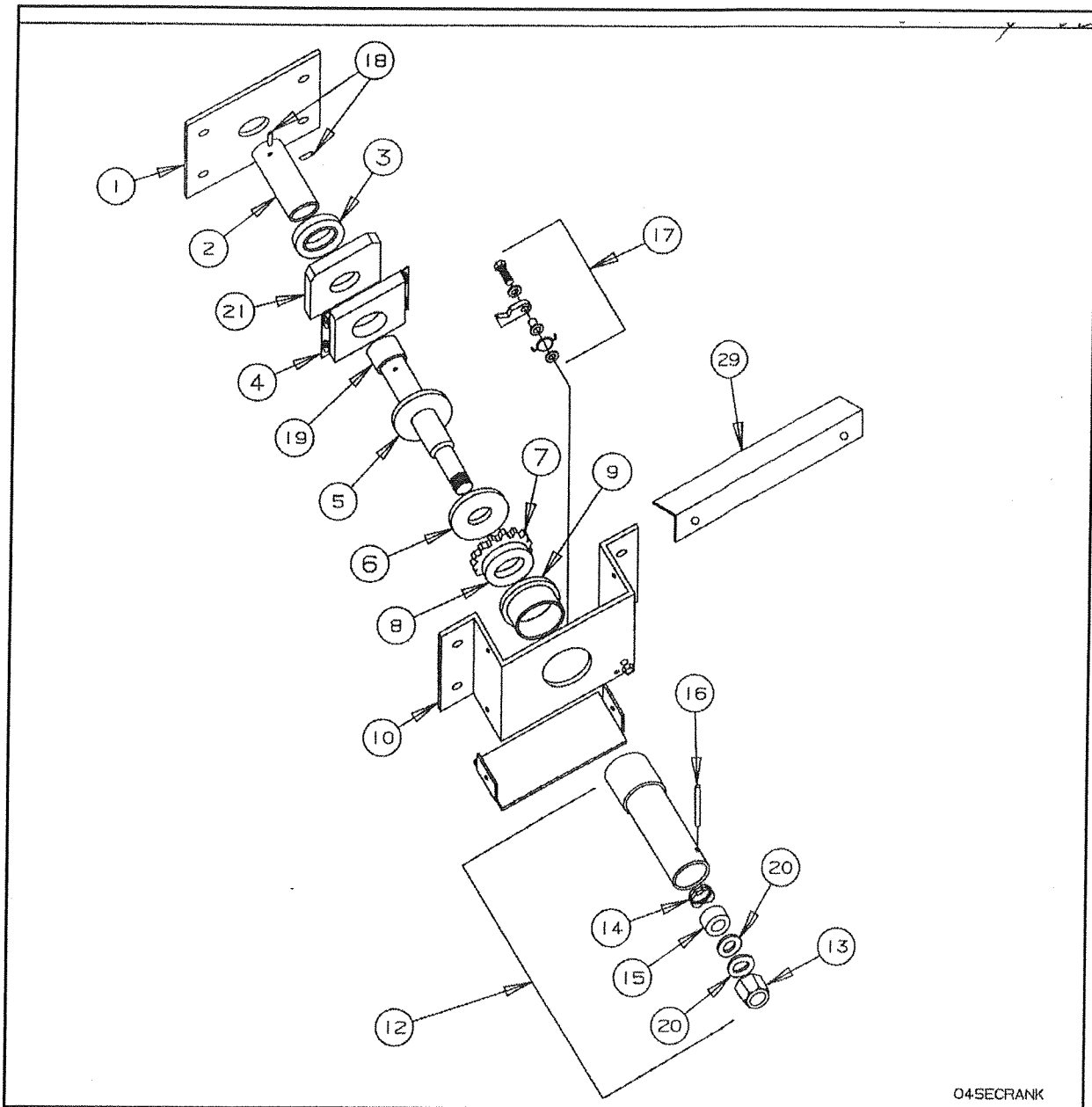
Used in conjunction with ball bearing whiffle tree.



Sprockets	None; direct drive
Cranking Ratio	1 to 1
Ratchet	No; clutch release
Torque on Crank Assy.	60 - 100 foot pounds

Used in conjunction with Acme whiffle tree.

2004 DESTINY SE AND 2005 DESTINY MODELS

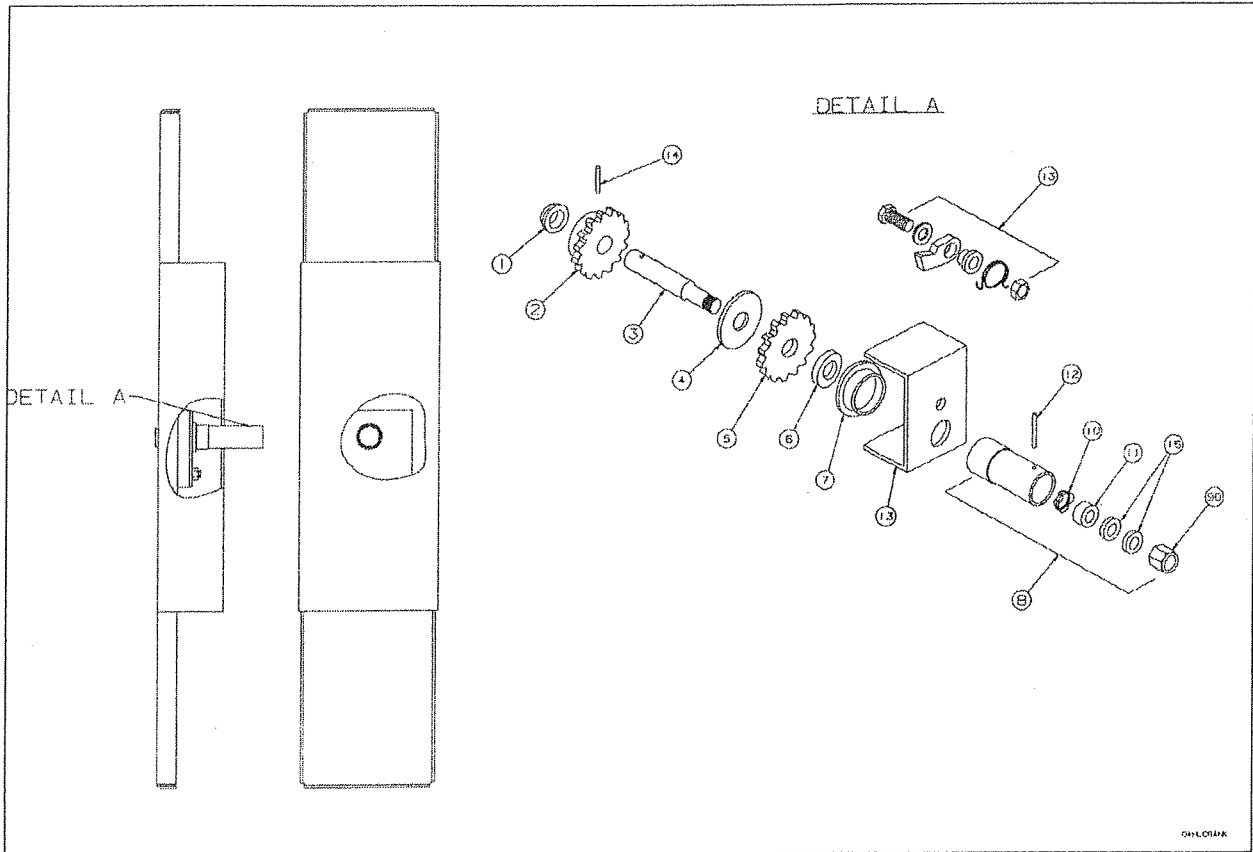


O4SECRANK

Sprockets	None; direct drive
Cranking Ratio	1 to 1
Ratchet	No; clutch release
Torque on Crank Assy.	60 - 100 foot pounds

Used in conjunction with Acme whiffle tree.

2004 - PRESENT HIGHLANDER CRANK AND SPROCKET ASSEMBLY



Sprockets	22 tooth upper crank assembly; 12 tooth lower crank assembly
Cranking Ratio	Approximately 2 to 1
Ratchet	No; clutch release mechanism
Torque on Upper Crank.	75 - 100 foot pounds

Used in conjunction with ball bearing whiffle tree.

CHAIN ADJUSTMENT FOR CONVENTIONAL LIFT SYSTEM

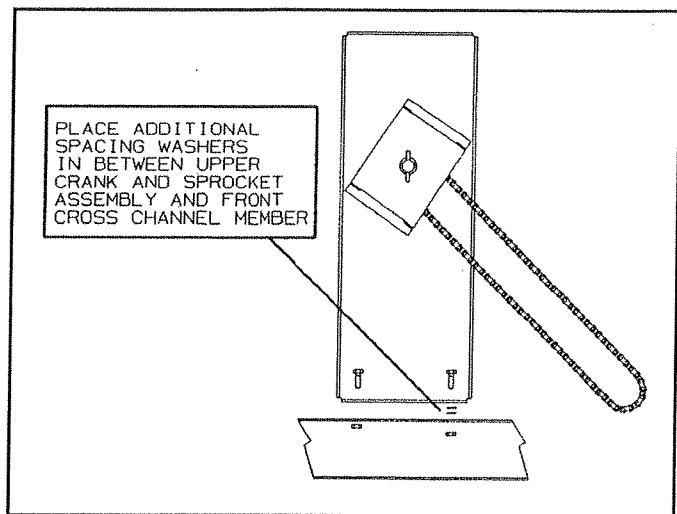
There are basically two methods in which the connecting chain between the upper crank and sprocket assembly and the lower crank can be tightened when excessive slack creates a cranking problem.

Method I

1. Crank top assembly up approximately two feet and prop into position by using boards or other suitable supports. Release tension on trailer lift system by lowering top assembly completely down on supports until crank stops.
2. Remove the upper portion of the front or rear body panel from along the body rail by removing the retaining rivets, screws, clips, or top latches securing the body panel to the rail. Refer to corresponding panel section of service manual, if necessary.

NOTE: It is not necessary to completely remove front or rear body panel, only the top half of the panel should be loosened.

3. Locate the two hex-head fastening bolts along the lower portion of the crank and sprocket assembly that connect the crank and sprocket assembly to the front or rear frame cross channel. See figure.
4. Using two 7/16" open-end wrenches, completely remove the bolt, washer, and nut closest to the lower crank extension.



- NOTE:** Only loosen the adjacent attaching bolt and nut.
5. Insert a flat screwdriver tip between the frame cross channel and lower portion of the crank and sprocket assembly and separate.
 6. Insert extra washers (maximum of three) between the crank and sprocket assembly and the frame cross channel to get the desired tension on the chain. See figure.
 7. Replace the bolt, washer, and nut removed in steps 3 and 4 in the crank and sprocket assembly, ensuring that the bolt goes through the washers applied in step 6.
 8. Re-tighten both bolts in crank and sprocket assembly.

CHAIN ADJUSTMENT FOR ALL MODEL TRAILERS

Page 2

Method I (continued)

9. Check chain for proper tension. Do not over-tighten (1" - 1 ½" gap between chain halves).
10. Replace front or rear body panel and fasten securely with rivets, screws, clips, or latches removed in step 2.
11. Crank top assembly up and remove supports.
12. Check torque on crank and sprocket assembly to ensure proper function. For proper torque specifications, refer to crank and sprocket assembly section of service manual.

Method II

Removal of Half Link

When the connecting chain from the upper crank and sprocket assembly to lower crank has excessive play, it may be necessary to adjust tension by removing the half link within the chain.

1. Crank the top assembly up approximately two feet and prop into position using boards or other suitable supports. Release tension on the trailer lift system by lowering the top assembly completely down on the supports until the crank stops.
2. Remove the upper portion of the front or rear body panel from along the body rail by removing the retaining rivets, screws, clips, or top latches securing the body panel to the rail. Refer to corresponding panel section of service manual, if necessary.

NOTE: It is not necessary to completely remove the front or rear body panel, only the top half of the panel should be loosened.

3. Using a #8 drill bit, drill the two large, flat-head steel rivets out securing the upper crank and sprocket assembly to the top of the body rail.

CAUTION: When drilling out top two rivets on crank and sprocket assembly, care must be taken or damage can occur to the bed seal and/or bed frame.

4. Locate two hex-headed fastening bolts along the lower portion of the upper crank and sprocket assembly that connect the upper crank and sprocket assembly to the frame cross channel.
5. Using two 7/16" open-end wrenches, completely remove the bolt, washer, and nut closest to the lower crank extension.

NOTE: Only loosen the adjacent attaching bolt and nut.

CHAIN ADJUSTMENT FOR ALL MODEL TRAILERS

Page 3

Method II (continued)

6. Locate the connecting half link on the chain assembly.
7. Using a pair of needle-nosed pliers, remove cotter pin from connecting link and remove half link.
8. Chain can be reconnected by pushing the upper crank and sprocket assembly towards the center of trailer, allowing for enough slack in chain to reconnect.
9. Realign the top of the crank and sprocket assembly to top of body rail and re-rivet.
10. Re-tighten lower attaching bolts with 7/16" wrenches.

NOTE: If removal of the half link is not enough, additional spacing washers between the upper crank and sprocket assembly and the frame cross channel may be necessary to obtain proper tension.

11. Check tension on chain. Do not over-tighten (1" - 1 1/2" gap between chain halves).
12. Replace front or rear body panel and fasten securely with rivets, screws, clips, or latches removed in step 2.
13. Crank up top assembly and remove supports.
14. Check torque on crank and sprocket assembly to ensure proper function. For proper torque specifications, refer to crank and sprocket assembly section of service manual.

NOTE: When chain tension is too tight, it will be necessary to add a half link by simply using the procedure described in Method II of chain adjustment segment.

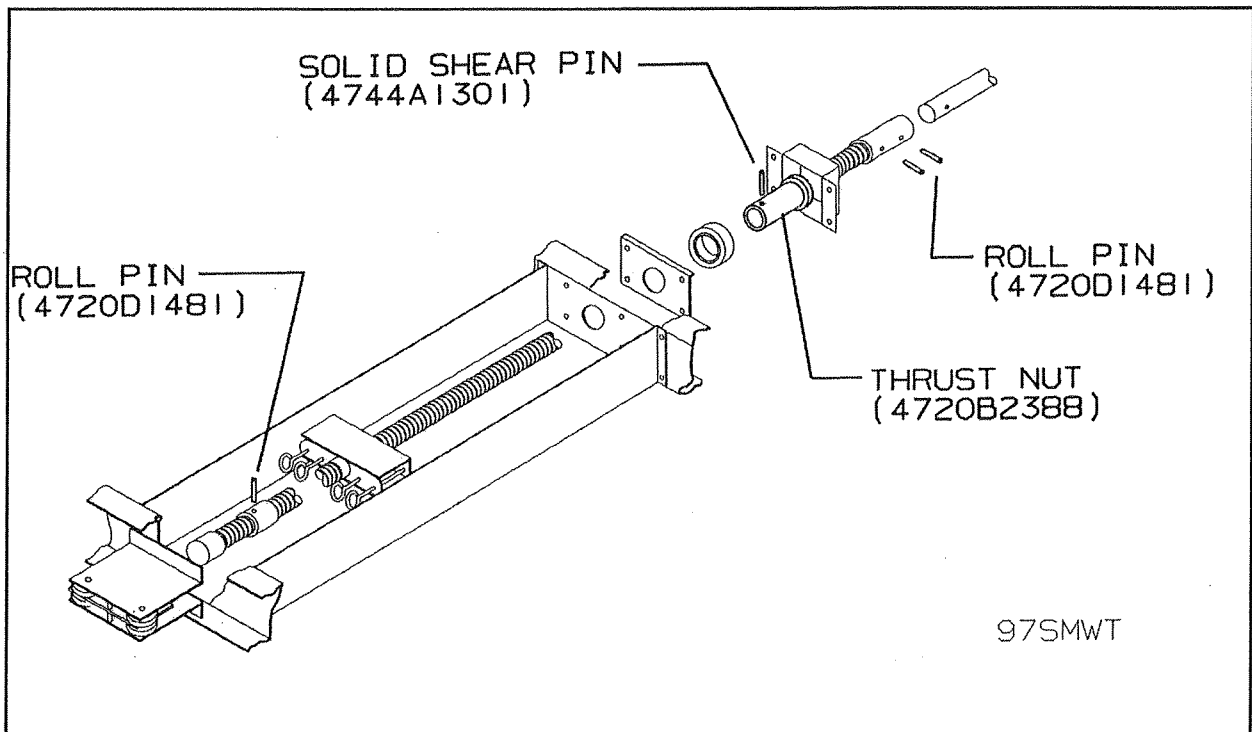
THRUST NUT ROLL PIN REPLACEMENT

In September of 1985, a change was incorporated into the lift system. The 4744-1301 roll pin formerly used in conjunction with the thrust nut and whiffle tree was changed to a stronger, solid pin. The new part number is 4744A1301. The roll pin, part number 4720B1481, is used in the coupling and whiffle tree stop.

This change affected all 9' and 11' models manufactured after September 6, 1985 and all 7' models manufactured after October 5, 1985.

NOTE: Should any lift system service be required due to a sheared pin in the thrust nut, be certain the solid pin is installed in any model year trailer.

NOTE: The solid shear pin is the main load-bearing point of the lift system. Installation of an air conditioner on any folding trailers manufactured prior to the above dates will require changing the thrust nut roll pin to the solid shear pin. Failure to do so may cause irreversible lift system damage.



WHIFFLE TREE SPECIFICATIONS

A

DRAWBAR CONFIGURATION:	ENCASED BALL BEARING
DRAWBAR SHAFT:	COARSE THREAD
DRAWBAR TRAVEL DISTANCE:	27" NOTE: 1" OF DRAWBAR TRAVEL = 1.71" OF LIFT HEIGHT
WHERE USED:	1996 - 1998 GRAND TOUR SERIES 1999 GRAND TOUR ELITE SERIES WITH CLUTCH RELEASE CRANK AND SPROCKET ASSEMBLY 2000 - PRESENT GRAND TOUR AND GRAND TOUR ELITE, 2004 - PRESENT HIGHLANDER, 2005 AMERICANA, AND 2004 DESTINY DLX SERIES 12' MODELS ONLY WITH CLUTCH RELEASE CRANK AND SPROCKET ASSEMBLY
PART NUMBER:	4720F520, 4720G5201, 4768-5361, 47742-5711

B

DRAWBAR CONFIGURATION:	PLASTIC DELRIN NUT
DRAWBAR SHAFT:	FINE THREAD
DRAWBAR TRAVEL DISTANCE:	27" NOTE: 1" OF DRAWBAR TRAVEL = 1.71" OF LIFT HEIGHT
WHERE USED:	1996 - 1998 8 1/2', 10', AND 12' DESTINY SERIES 1999 8 1/2', 10', AND 12' DESTINY AND GRAND TOUR SERIES TRAILERS WITH CLUTCH RELEASE CRANK 2000 - 2003 10' AND 12' DESTINY SERIES ONLY, GRAND TOUR SERIES 10' MODELS ONLY, AND 2005 DESTINY MODELS WITH CLUTCH RELEASE CRANK AND SPROCKET ASSEMBLY
PART NUMBER:	4754-5001, 4754A5001, 4754B5001

WHIFFLE TREE SPECIFICATIONS

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C

DRAWBAR CONFIGURATION:	ENCLOSED BALL BEARING
DRAWBAR SHAFT:	COARSE THREAD
DRAWBAR TRAVEL DISTANCE:	17" NOTE: 1" OF TRAVEL DISTANCE = 3" OF LIFT HEIGHT
WHERE USED:	1968 - 1995 AMERICANA SERIES TRAILERS WITH OR WITHOUT RATCHET 1986 - 1991 PLANTATION SERIES TRAILERS WITH RATCHET 1993 - 1995 PIONEER/FOUR SEASON SERIES TRAILERS WITH RATCHET OR CLUTCH CRANK AND SPROCKET
PART NUMBER:	4720E5201

D

DRAWBAR CONFIGURATION:	PLASTIC DELRIN NUT
DRAWBAR SHAFT:	FINE THREAD
DRAWBAR TRAVEL DISTANCE:	17" NOTE: 1" OF TRAVEL DISTANCE = 3" OF LIFT HEIGHT
WHERE USED:	1968 - 1993 PIONEER SERIES TRAILERS WITHOUT RATCHET 1990 - 1993 DESTINY SERIES TRAILERS WITHOUT RATCHET OR CLUTCH CRANK ASSEMBLY
PART NUMBER:	4737C5661

WHIFFLE TREE SPECIFICATIONS

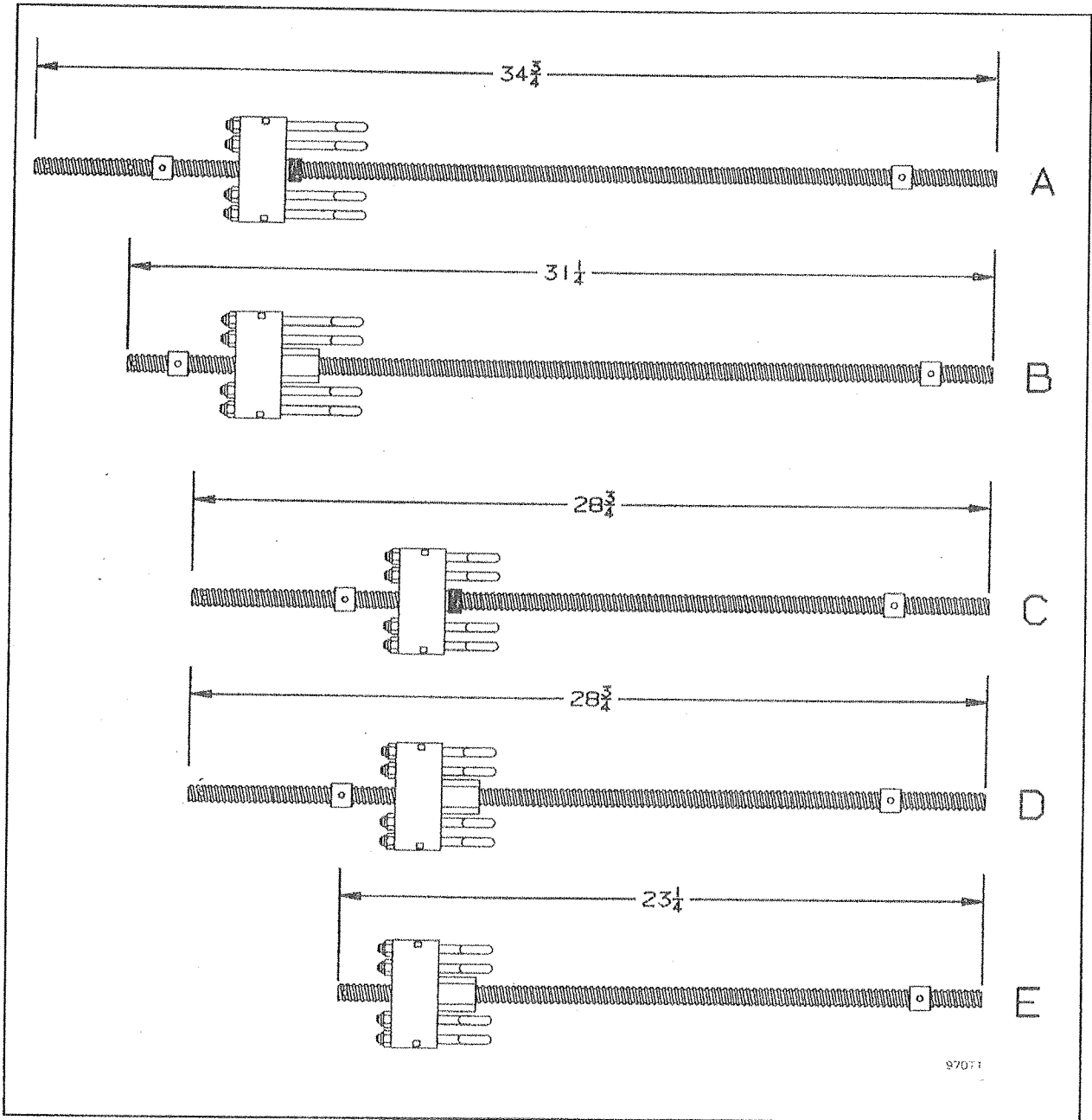
Page 3

E

DRAWBAR CONFIGURATION:	PLASTIC DELRIN NUT
DRAWBAR SHAFT:	FINE THREAD
DRAWBAR TRAVEL DISTANCE:	17" NOTE: 1" OF TRAVEL DISTANCE = 3" OF LIFT HEIGHT.
WHERE USED:	1994 - 1995 DESTINY SERIES TRAILERS (ALL MODELS) 1996 - 1999 (8') MODEL TRAILERS ONLY 2000 - PRESENT DESTINY SERIES 8' MODELS ONLY WITH CLUTCH RELEASE CRANK AND SPROCKET ASSEMBLY
PART NUMBER:	4749A6731, 4749B6731, 4749C6731, 4749D6731

WHIFFLE TREE SPECIFICATIONS

Page 4



WHIFFLE TREE REMOVAL AND REPLACEMENT FOR CONVENTIONAL LIFT SYSTEM

TOOLS REQUIRED

Socket wrench set with 7/16" and
3/8" sockets
Hammer

Pin punch (5/32")
Open-end wrenches, 7/16" and 3/8"
Slot screwdriver

INSTRUCTIONS FOR REMOVAL

1. Raise the trailer top as high as needed to pull both beds out approximately one foot.
2. Lower the trailer top and allow the top to rest on the extended bed assemblies. Turn the crank handle until all cables are slack.
3. Under the trailer, remove the 7/16" bolts and/or nuts from the whiffle tree guide channel or cover plate.
4. Using a screwdriver or a small pry bar, pry the whiffle tree guide channel down from between the frame member cross channels. Cover plates will lower once the last bolt is removed (on models so equipped).
5. Using the 5/32" pin punch and a hammer, drive the solid tapered pin out of the thrust nut. This pin is located toward the rear of the frame cross channel. The thrust nut extends through the frame channel itself.

IMPORTANT: Destiny series trailers will have two solid shear pins in the thrust nut. Only remove the one closest to the whiffle tree shaft.

NOTE: Check pin connection at thrust nut in order to determine which type of pin has been used. In connections made with a roll pin, drive the pin out by placing the pin punch on either end of the roll pin and drive the pin out of the thrust nut and whiffle tree screw shaft. In connections made with a solid shear pin, removal of the pin can only be done in one direction. This pin is tapered. Drive the pin out by placing the pin punch against the smallest end of the pin and drive the pin out of the thrust nut and whiffle tree screw shaft.

6. Where applicable, move toward the front of the trailer and locate the coupler tube that connects the threaded whiffle tree shaft to the smooth crank extension shaft. Drive out the pin that fastens the threaded whiffle tree shaft to the coupler tube.

NOTE: Destiny series trailers do not use coupler tubes. Remove the crank handle roll pin from the end of the whiffle tree shaft. Continue to step 8.

WHIFFLE TREE REMOVAL AND REPLACEMENT FOR CONVENTIONAL LIFT SYSTEM

Page 2

INSTRUCTIONS FOR REMOVAL (continued)

7. Drive the second pin out of the coupler tube and slide the tube forward on the extension shaft.
 8. Remove the lock nuts from the four whiffle tree eye bolts and pull the eye bolts out of the whiffle tree drawbar.

NOTE: Remove and replace the eye bolts in sequential order. (Two rear cables attach to the inner holes on the drawbar. The two front cables attach to the outer holes on the drawbar.) Opposite for Destiny model trailers.
 9. Loosen the bolts and nuts that fasten the thrust bearing cover to the cross channel.
 10. Tip the front end (rear on Destiny models) of the whiffle tree shaft up and pull slightly. This will dislodge the shaft from the retainer cup at the rear of the whiffle tree shaft.
 11. Tip the opposite end of the whiffle tree shaft down and pull the complete whiffle tree out of the trailer.
-

INSTALLATION

1. Remove the replacement whiffle tree from its shipping carton. Make certain the correct whiffle tree has been received. Example: Americana series camping trailers must use the ball-screw-type whiffle tree. Destiny series use the plastic delrin nut.

NOTE: See part numbers in the parts book for appropriate trailer model and year.
2. Under the trailer, tip the rear of the whiffle tree (front on Destiny models) shaft down and insert the front part of the shaft through the thrust nut and frame cross frame channel.
3. Raise the opposite end of the whiffle tree shaft and push the rear of the threaded shaft up and into the retainer cup located on the frame cross channel.
4. Tighten the bolts and nuts that fasten the thrust bearing cover to the frame cross frame channel.
5. Match the end of the whiffle tree with the end of the crank extension shaft and slide the coupler tube over the end of the threaded whiffle tree shaft. Align the holes in the coupler tube with the holes in the whiffle tree shaft and extension shaft. Drive a rolled pin into each hole to hold the whiffle tree and extension shafts in place.

NOTE: On Destiny series trailers, the whiffle tree end attaches to the thrust nut or extends through to the rear bumper.

WHIFFLE TREE REMOVAL AND REPLACEMENT FOR CONVENTIONAL LIFT SYSTEM

Page 3

INSTALLATION (continued)

6. Align the hole in the thrust nut with the hole in the whiffle tree threaded shaft and drive a solid tapered pin into the thrust nut and whiffle tree shaft.

NOTE: A solid shear pin, part number 4744A1301, must be used for this connection on all models regardless of which type pin has been removed previously. Make certain the smallest end of the tapered pin is placed into the thrust nut before attempting to drive the pin into place.

7. Replace the four whiffle tree eye bolts into the whiffle tree in the same locations as removed. Fasten the eye bolts with the nuts removed and adjust where necessary.

NOTE: On 1995 and earlier models, DO NOT operate the lift system without the whiffle tree guide channel in place or blocking between the frame channels of 24 1/2". Serious frame damage will result. 1996 and later models will have spacers permanently mounted between the frame cross channels, therefore blocking will not be necessary.

8. Push the whiffle tree guide channel into place between the frame channels and fasten with the 7/16" bolts and nuts removed, or replace cover plate on those units so equipped.
9. Raise the trailer top and check top height. If top height adjustment is necessary, follow instructions on top height adjustment in service manual.
10. Push both beds into the trailer and close the trailer top.

LIFT MODIFICATIONS REQUIRED FOR ROOF-MOUNTED AIR CONDITIONER INSTALLATION

A roof-mounted air conditioner may be installed on all Fleetwood folding trailers from 1981 through current with the following modifications to the lift system:

Model Year	Modifications Required
1981-1983	Change to heavier whiffle tree in Pioneer series Change lift pocket to welded, gusseted style Upgrade whiffle tree to part number 4737C5661. Replace thrust nut roll pin with solid shear pin
1984 - 1986	Change to solid roll pin except on 9' and 11' trailers manufactured after 9/6/85 and all 7' trailers manufactured after 10/5/85. Change to larger eye bolts or weld eyelets shut on 1996 models produced prior to 3/27/86. If changing to larger eye bolts, drill out eye bolt holes on whiffle tree to 11/32". Upgrade whiffle tree on 1985 and prior Pioneer models to part number 4737C5661 as follows: 7' models produced prior to 2/20/85 9' and 11' models produced prior to 10/1/84
1987	Change to larger eye bolts except on trailers manufactured after March 27, 1986
1988 - 1998	All top assemblies with the exception of 1989 - 1995 Americana and Plantation series trailers will need air conditioner support braces installed by dealer.

NOTE: For additional details, refer to preceding sections on whiffle tree, thrust nut, and eye bolt.

1968 TO PRESENT YEAR LIFT ASSEMBLIES

A

1968 - 1970 MODELS - 4 STAGE LIFT

CABLE ROUTING	ONE LONG CONTINUOUS CABLE (199") CUT LENGTH ONE INTERMEDIATE CABLE (51") CUT LENGTH
LIFT ATTACHMENT	BOLTED TO TOP SIDE OF TRAILER FRAME

NOTE: LIFT ASSEMBLY MUST BE REMOVED THROUGH INSIDE OF TRAILER . IT WILL BE NECESSARY TO REMOVE INTERIOR FURNITURE , WALL PANELING, AND LOOSEN EXTERIOR BODY PANELS TO ACCESS THE FOUR BOLTS SECURING EACH LIFT ARM TO FRAME .

B

1971 - 1981 MODELS - 4 STAGE LIFT

CABLE ROUTING	ONE LONG CONTINUOUS CABLE (199") CUT LENGTH ONE INTERMEDIATE CABLE (51") CUT LENGTH
LIFT ATTACHMENT	SLIDES DOWN INTO TRAILER FRAME KNOCK -OUT AND BOLTS THROUGH SIDE OF FRAME CHANNEL .

C

1982 - 1989 MODELS - 4 STAGE LIFT

CABLE ROUTING	ONE LONG CONTINUOUS CABLE (144") CUT LENGTH TWO INTERMEDIATE CABLES (SAME LENGTH - 51") CUT LENGTH
LIFT ATTACHMENT	SLIDES DOWN INTO TRAILER FRAME KNOCK -OUT AND BOLTS THROUGH SIDE OF FRAME CHANNEL .

1968 TO PRESENT YEAR LIFT ASSEMBLIES

Page 2

D

1990 - 1995 ALL MODELS - 4 STAGE LIFT	
1996 - 1998 8' MODELS ONLY	
CABLE ROUTING	ONE LONG CABLE (144" - 223") CUT LENGTH TWO INTERMEDIATE CABLES (29") CUT LENGTH
LIFT ATTACHMENT	SLIDES DOWN INTO TRAILER FRAME KNOCK-OUT AND BOLTS THROUGH SIDE OF FRAME CHANNEL.

E

1996 - 1998 10' AND 12' MODELS - 3 STAGE LIFT	
CABLE ROUTING:	ONE LONG CABLE (250") CUT LENGTH ONE INTERMEDIATE CABLES (35 7/16") CUT LENGTH
LIFT ATTACHMENT:	SLIDES DOWN INTO TRAILER FRAME KNOCK-OUT AND BOLTS THROUGH SIDE OF FRAME CHANNEL.

F

1999 - 2004 8' MODELS - 4 STAGE LIFT	
CABLE ROUTING:	ONE LONG CABLE (FRONT - 127") (REAR - 102.75") CUT LENGTH
	TWO INTERMEDIATE CABLES (29") CUT LENGTH
LIFT ATTACHMENT:	SLIDES DOWN INTO TRAILER FRAME KNOCK-OUT AND BOLTS THROUGH SIDE OF FRAME CHANNEL.
<hr/>	
1999 - PRESENT 8', 8 ½', 9 ½', 10', 11', 12', AND 14' MODELS - 3 STAGE LIFT	
CABLE ROUTING:	ONE LONG CABLE - REFER TO CABLE CUT CHART CUT LENGTH
	ONE INTERMEDIATE CABLE (35 7/16") CUT LENGTH
LIFT ATTACHMENT:	SLIDES DOWN INTO TRAILER FRAME KNOCK-OUT AND BOLTS THROUGH SIDE OF FRAME CHANNEL.

1968 TO PRESENT YEAR LIFT ASSEMBLIES

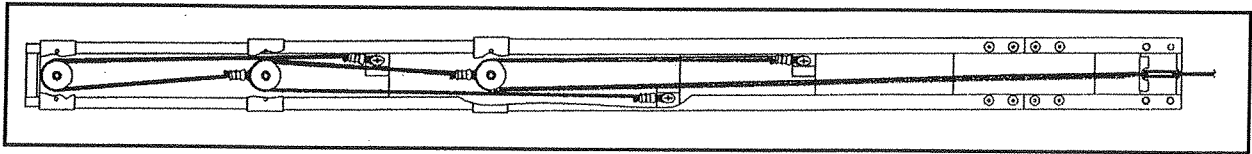
Page 3

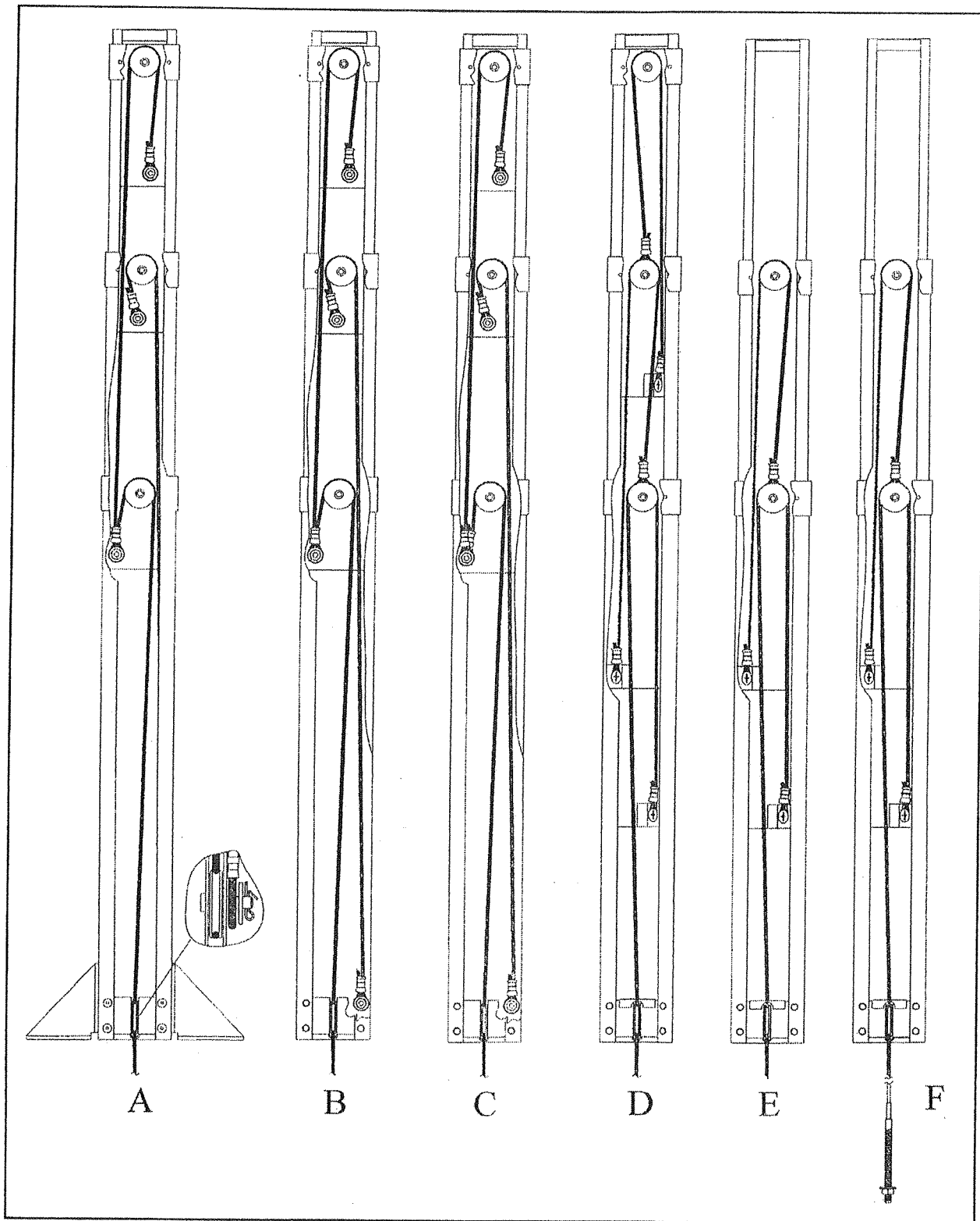
On all trailers prior to 1971, only one lift assembly was used on all four corners. This lift assembly was part number 4730C5141 and is no longer available through our Parts Department. Lift assemblies, part numbers 4716A0011 and 4716A0021 are interchangeable with trailers produced from 1971 through 1995. 1996 through 1998 8' models also use the 4716A0011 and 4716A0021. 1996 10' and 12' models use the 3-stage lift assemblies. When ordering, make certain of correct corresponding model year lift assemblies.

NOTE: On Plantation and Four Season series trailers, a small lift extension was placed on the bottom of the lift for additional height. These extensions must be reinstalled onto the replacement lift assemblies.

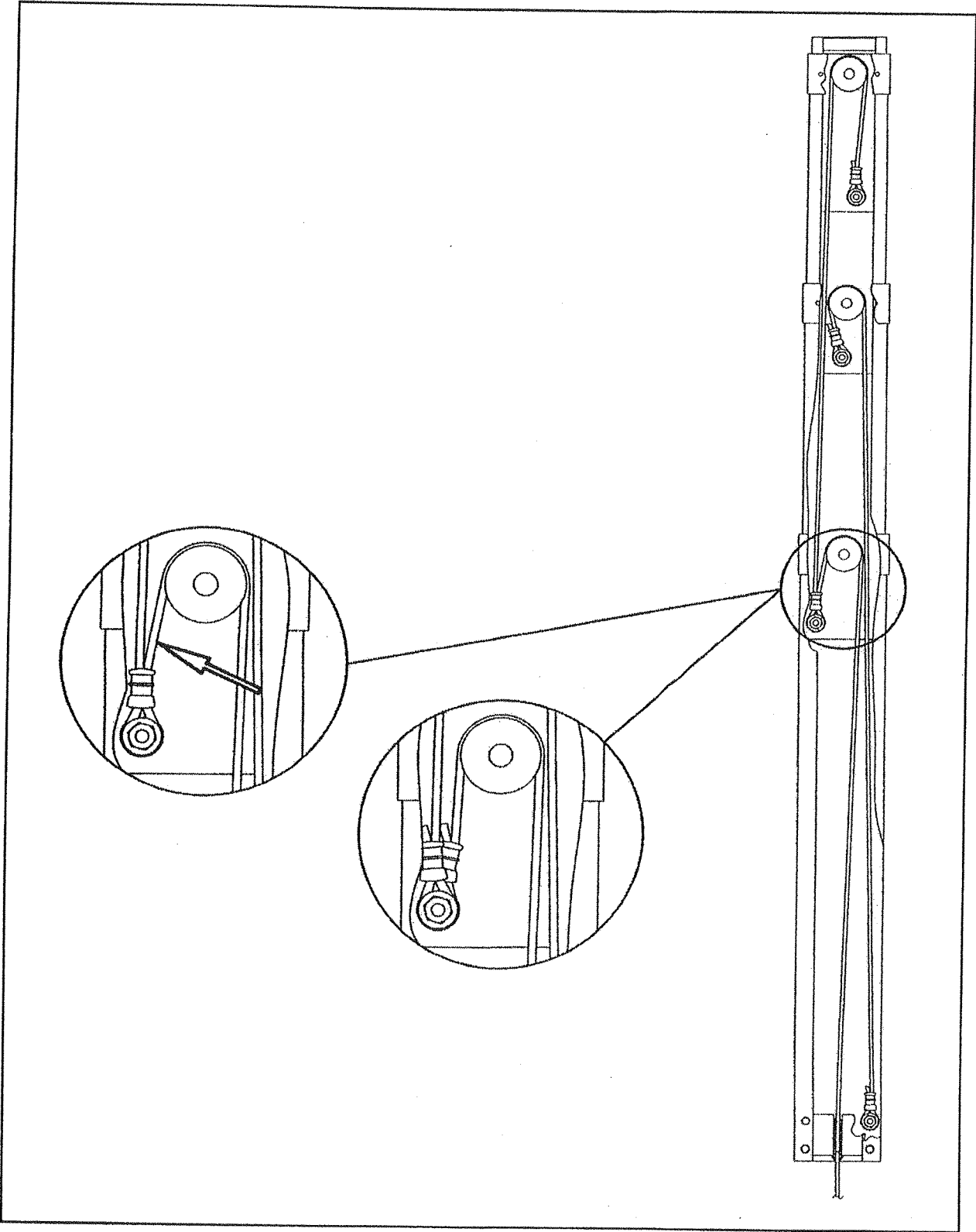
NOTE: 1967 models were manufactured in Wichita, Kansas

PLANTATION LIFT





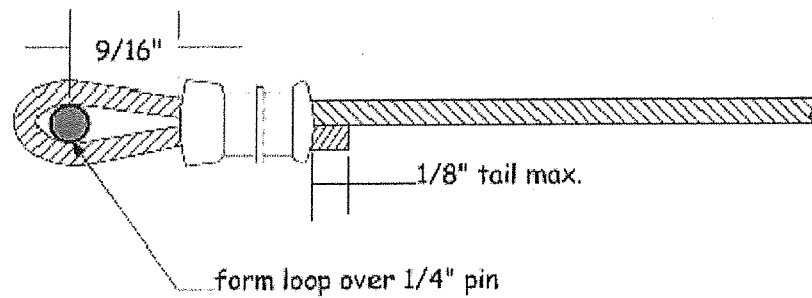
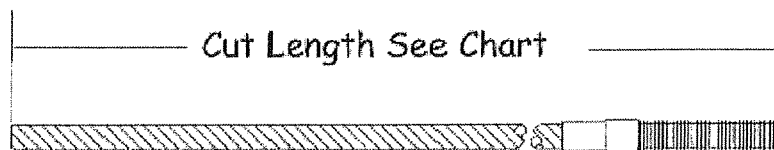
MAIN CABLE ATTACHMENT POINTS (1968 - 1981)



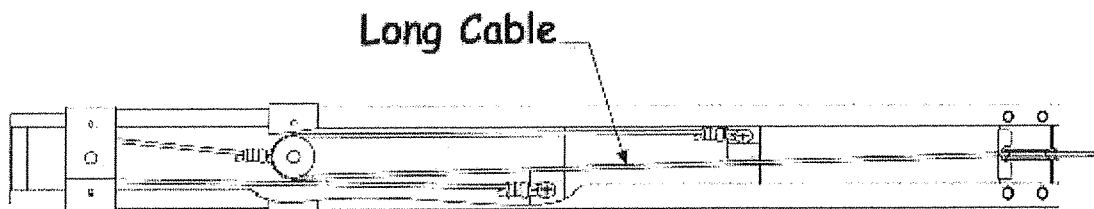
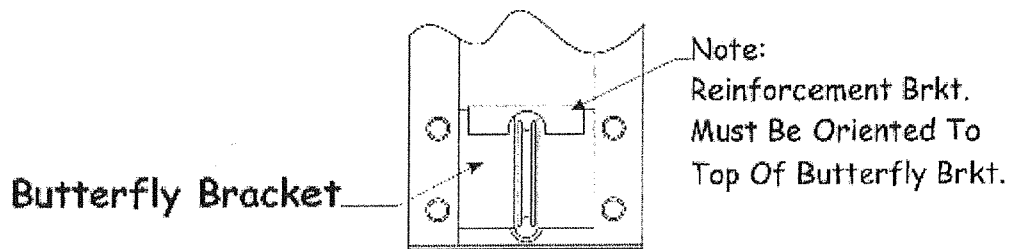
1999 - PRESENT GRAND TOUR ELITE, GRAND TOUR, DESTINY, AMERICANA, AND HIGHLANDER SERIES LONG CABLE CUT CHART

Long Cable Cut Chart

CABLE CUT LENGTH	APPLICATION
119 1/4"	ALL 10 AND 12 FOOT MODEL REAR CABLES
161 1/4"	ALL 10 FOOT MODEL FRONT CABLES
184 1/4"	ALL 12 FOOT MODEL FRONT CABLES
127"	TAOS/Front CABLES
102 3/4"	TAOS REAR CABLES
163 1/2"	SANTEE FRONT CABLES
121 1/2"	SANTEE/REDWOOD/DESTINY SE SERIES REAR CABLES
147 1/2"	REDWOOD/2003 YUMA FRONT CABLES
131 3/4"	TUCSON FRONT CABLES
142"	2004 - CURRENT YUMA FRONT CABLES
158 1/2"	CORTEZ/PECOS FRONT CABLES
194 1/2"	HIGHLANDER SERIES FRONT CABLES
129 3/4"	HIGHLANDER SERIES REAR CABLES



Long Cable Routing & Butterfly Bracket Installation



1968A500

**LIFT ASSEMBLY REPLACEMENTS FOR:
4739B6801 (4-STAGE, LEFT FRONT/RIGHT REAR)
4733E5801 (4-STAGE, LEFT REAR/RIGHT FRONT)**

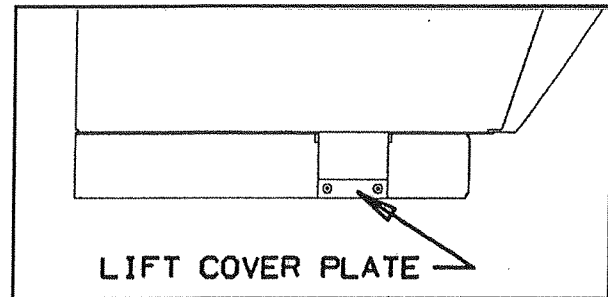
Fleetwood Folding Trailers has introduced two replacement lift arm assemblies, part numbers 4716A0011 (roadside rear/curbside front) and 4716A0021 (roadside front/curbside rear) which will start appearing on your billing invoices. These lift arm assemblies are the current substitutions for the original lift arms manufactured on all series folding trailers produced after model year 1971 inclusive.

1990 - 1995 Destiny series trailers only:

1996 - 1999 Destiny series Taos, Laredo, and Sedona models only:

2000 - 2004 Destiny series Taos model only:

Replacement of a Destiny series lift arm assembly requires removal of the painted lift cover plate, riveted to the stationary section of the original lift arm prior to removal of the lift arm assembly (refer to figure below). See removal and installation instructions below.



INSTRUCTIONS

Removal - Prior to removing original lift arm assembly from the trailer body, drill out the rivets securing the lift cover plate to the stationary lift section using a No. 8 drill bit.

NOTE: Removal of the identical rivets on the replacement lift arm assembly will be necessary as well to re-attach painted lift cover plate.

Installation - Once installation of the replacement lift assembly is completed, use a rivet gun & re-attach lift cover plate to the stationary section of the replacement lift arm assembly using 1203-8641 rivets or equivalent (not supplied).

Individual top, center, bottom and stationary lift sections are "only" interchangeable on 1990 models and newer due to design changes of the internal cable attachment points. Sales stock inventory will not carry individual lift sections, only the complete lift assemblies. Individual lift sections for replacement can be acquired by removing old sections from discarded or replaced lift assemblies.

LIFT ASSEMBLY REMOVAL AND REPLACEMENT

Tools Required:

Screwdriver	Vice grips
Cable cutters	4 - Lift support poles
Cable crimping tool	Electric drill
Vice grips	Drill Bit
Long extension for socket wrench	Rivet gun
Open-end wrenches, 3/8" and 7/16"	Socket wrench (3/8" & 7/16" sockets)

1971 THROUGH PRESENT MODEL YEAR

1. Raise the trailer roof to full height and place one support pole under each corner of the trailer. Place the poles with one end sitting on the body rail and the other end of the pole supporting the top assembly. The top edge of the pole should rest against a small lip on the inside edge of the top where the rubber seal is fastened to the top assembly.

NOTE: For proper support pole length, refer to the chart at the end of these instructions.

2. **For 1968 - 1998 models:** Preset the whiffle tree drawbar by rotating the upper or lower crank and sprocket assembly counterclockwise. The lower whiffle tree threaded shaft must be rotated four or five complete turns. This is critical as some crank and sprocket assemblies utilize various gear ratios. (Refer to crank and sprocket assemblies for correct ratio.) Regardless of gear ratios or model, the lower whiffle tree threaded shaft must rotate four or five complete turns counterclockwise.

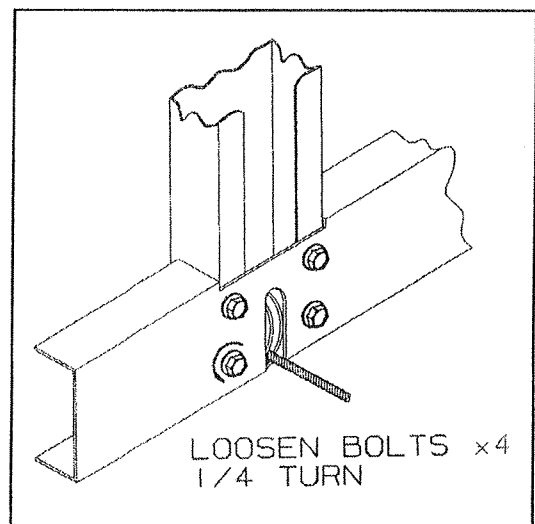
IMPORTANT: Presetting the whiffle tree drawbar on 1999 and newer model trailers is not necessary providing the cable cut length chart is followed.

3. On the underside of the trailer at the bottom of each lift assembly, four bolts hold the lift to the frame of the trailer. Remove the four bolts with a 3/8" socket wrench. See figure.

NOTE: Earlier models did not have lift trim around the lift, but merely used a bead of caulking to seal the lift. This caulking will have to be removed prior to removing the lift.

4. Using a drill and a #8 (3/16") drill bit, drill out the rivets that fasten the lift trim cover to the body rail. The rivets are located on each side of the lift assembly where the lift assembly extends up through the body of the trailer. Once the rivets are removed, the lift trim will slide away from the lift.

NOTE: On Destiny and newer Grand Tour and Grand Tour Elite series trailers: Drill out the two rivets securing the painted lift cover plate to the bottom, exposed stationary section of the lift assembly.



LIFT ASSEMBLY REMOVAL AND REPLACEMENT

Page 2

5. Locate the two studs that extend from the top assembly down through the top of the lift assembly. Use a socket wrench with an extension and a deep well 7/16" socket to remove the lock nuts from the studs.

NOTE: The studs will be easily found by looking upward behind the lift into the open channel of the lift assembly.

6. Slide under the trailer and locate the whiffle tree guide channel cover located in the center of the trailer between two cross channel frame members. Remove the eight bolts and nuts that fasten the cover to the frame members. Using a screwdriver or a small pry bar, remove the guide channel cover from the trailer.

NOTE: 1996 and newer model trailers will incorporate a removable cover plate over the whiffle tree.

7. Once the cover is removed, the whiffle tree and cable attaching eye bolts will be exposed. Locate the cable that extends to the lift to be removed. Using cable cutters, snip the cable from the appropriate eye bolt. It will be necessary to remove the cable crimp from the cable as well.
8. Collapse the lift assembly by hand and pull the lift up and out of the trailer.
9. Look down inside the opening in the body of the trailer where the lift was removed. Locate any obstruction that would hinder the installation of the new lift assembly i.e., electrical wiring. If wires are found, tape the wires to the backside of the body panel of the trailer.
10. Check all pulleys under the trailer for razor-sharp edges and make certain they move freely. Replace where necessary.
11. With a new lift in hand, guide the stainless steel cable down through the hole in the body rail of the trailer and out through the hole in the trailer frame channel.
12. Reach under the trailer and grasp the cable and pull, guiding the lift down into the trailer body and frame.
13. Once the lift is seated against the bottom of the frame channel, fasten the lift to the frame using the four bolts removed in step 3. Tighten the bolts, then back off 1/4 turn.
14. Pull on cable to expand the lift and guide the lift up into the two studs that fasten the lift to the top assembly. Hold the lift in the up position by clamping the cable at the trailer frame with vice grips. Turn the locking nut up onto the studs approximately 1/2 the distance of the threads.

NOTE: Do not tighten the locking nuts. This allows the top assembly to move and fit over the trailer body when closing.

LIFT ASSEMBLY REMOVAL AND REPLACEMENT

Page 3

15. Make certain the pulley on the adjustable pulley bracket (1975 and newer models) is placed in the hole closest the frame of the trailer. Also loosen the nuts on the whiffle tree eye bolt to allow for future adjustment of the cable.
16. Route the long cable through the pulleys and into the whiffle tree area.
17. Slide a cable crimp onto the main cable. Route the cable through the eye bolts and back through the cable crimp. Pull cable tight and hold in place with a pair of vice grips. Push cable crimp up as close to the eye bolt as possible and compress the crimp with the cable crimping tool.

NOTE: 1999 and newer models will have eye bolts already crimped to replacement cable. Push eye bolt through whiffle tree drawbar and adjust lock nut.

18. Cut off any excess cable.
19. Replace the whiffle tree guide channel (or cover plate) and hold in place with two bolts and nuts.

NOTE: Place the guide channel on an angle to allow access to the eye bolts for adjusting.

20. Remove the four support poles and raise the trailer top to full height.
21. Measure between the body rail of the trailer and the top assembly where the rubber seal of the top would contact the trailer when closed. Refer to the section on top height adjustment to obtain this measurement.

NOTE: If this measurement is not between those listed on the chart, replace each of the four support poles removed in Step 20. This will re-support the top assembly and allow the whiffle tree eye bolt nuts to be adjusted. For every 1" of adjustment at the eye bolt, the top will raise approximately 3". Tighten each eye bolt nut until the support in that corner no longer holds the weight of the top assembly. This will insure that the optimum top height has been attained.

NOTE: On 1996 and newer models, every 1" of adjustment equals 2" of lift height.

22. Once the top height is adjusted, close the trailer top and fit the whiffle tree guide channel or cover plate to its proper location and fasten with the bolts and nuts removed.
23. Raise the trailer top slightly and replace the lift trim cover and fasten with rivets. In cases where caulking was removed from around the lift, it will be necessary to reseal around the lift opening at the body rail with a bead of caulking.

NOTE: On Destiny series trailers only: Reattach painted lift cover plate to bottom of stationary lift section using two (1203-8641) rivets.

LIFT ASSEMBLY REMOVAL AND REPLACEMENT

Page 4

ALL 1970 AND PRIOR MODEL YEAR TRAILERS

1. In all 1970 and prior model year trailers, the lift assemblies are not bolted to the frame in the same manner as the current lift assemblies are.
2. These lifts have a triangle or square shaped gusset welded to the assembly and are bolted on top of the frame channel.

With the gusset welded on to the lift assembly, it is impossible to remove the lift by pulling it up through the body rail.

3. When replacing a cable and/or replacing the entire lift assembly of one of these units, it will be necessary to remove any furniture and interior wall paneling that is located directly in front of the particular lift involved.
4. Unbolt the lift by first removing the adjacent furniture and wall paneling to expose the attaching bolts. It will also be necessary to unfasten the adjacent body panel in front of the lift involved along the bottom flange where it is secured to the frame.
5. The remaining bolts can be removed by pulling the bottom of the body panel away from the frame and working from the outside of the trailer.

NOTE: It will be necessary to remove the caulking seal around the lift at the body rail prior to removing the lift assembly.

Once all attaching bolts are removed, collapse the lift assembly and remove the lift through the inside of the trailer by tilting the bottom of the lift inward and pulling downward and out of the body rail.

Reverse procedure to replace lift then follow the instructions used on 1971 - 1991 lifts for restringing the main cable.

REPLACEMENT CABLES

Main Cable	1968 - present	Americana/Pioneer	144"
	1986 - 1991	Plantation	186"
	1990 - 1992	Destiny	156"
	1994 - 1995	Americana	223"
	1996 - 1998	Grand Tour	250"
	1999 - present	See Lift Cable Cut Chart	
Inner Cable	1968 - 1989	Americana/Pioneer/Plantation	51"
	1990 - 1995	Americana/Pioneer	29"
	1990 - 1991	Plantation	29"
	1990 - present	Destiny (1999 8' models only)	29"
	1996 - present	Grand Tour/Americana/Highlander/	35 7/16"
		Destiny (except Taos)	

Finished length of intermediate cables:

51" cut length = 45 1/2" (finished length, eye bolt to eye bolt)

35 7/16" cut length = 31 1/16" (finished length, eye bolt to eye bolt)

29" cut length = 24 5/8" (finished length, eye bolt to eye bolt)

Cable part number 4753-3391 will replace the following:

144" cable - Americana Pioneer/Series

199" cable - older trailers (1968 - 1981 models).

On older trailers (1968 - 1981 models) which utilize the 199" cable, it will be necessary to use one 250" main cable and one 51" inner cable. For details on changing just the main cable on older trailers utilizing the 199" continuous cable, please refer to the "Replacing the Main Cable" section in this manual.

CABLE CUTTER AND CRIMPING TOOL SUPPLIER

Please find below a source for your purchase of the 1/8" cable cutter and crimping tool. American Lifting Products, Inc. will process your order directly on a C.O.D. basis. Should you have to order these tools for your service needs, please do not attempt to order them through Fleetwood. American Lifting Products will handle your order directly.

**American Lifting Products, Inc.
1227 West Lincoln Highway
Coatesville, Pennsylvania 19320
Phone: 610/384-1800
FAX: 610/384-8600**

**C-7 Felco Cable Wire Rope Cutters
51M850 Nicopress Hand Tool**

REPLACING THE MAIN CABLE

Tools Required:

Socket wrench set with 7/16" and 3/8" sockets
Open-end wrenches 7/16" and 3/8"
Slot screwdriver
Electric drill and bit

1971 THROUGH PRESENT MODEL YEAR

1. Raise the trailer roof to full height and place one support pole under each corner of the trailer. Place the poles with one end sitting on the body rail and the other end of the pole supporting the top assembly. The top edge of the pole should rest against a small lip on the inside edge of the top where the rubber seal is fastened to the top assembly.

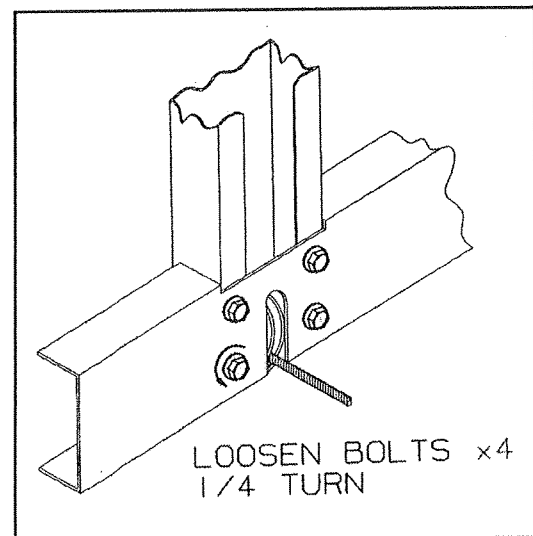
NOTE: Correct support poles length can be found on the chart at the end of the lift assembly removal and replacement section. 1996 and newer model trailers will require the top edge of the support pole to be inserted under the rubber seal of the top assembly.

2. **For 1968 - 1998 models:** Preset the whiffle tree drawbar by rotating the upper or lower crank and sprocket assembly counterclockwise. The lower whiffle tree threaded shaft must be rotated four or five complete turns. This is critical as some crank and sprocket assemblies utilize various gear ratios. (Refer to crank and sprocket assemblies for correct ratio.) Regardless of gear ratios or model, the lower whiffle tree threaded shaft must rotate four or five complete turns counterclockwise.

IMPORTANT: Presetting the whiffle tree drawbar on 1999 and newer model trailers is not necessary providing the cable cut length chart is followed.

3. On the underside of the trailer at the bottom of each lift assembly, four bolts hold the lift to the frame of the trailer. Remove the four bolts with a 3/8" socket wrench. See figure.
4. Using an electric drill and a #8 drill bit (3/16"), drill out the rivets that fasten the lift trim cover to the body rail. The rivets are located on each side of the lift assembly where the lift assembly extends out of the body of the trailer. Once the rivets are removed, the lift trim will slide away from the lift.

NOTE: On earlier models, lift trim was not placed around lift. Instead, a bead of caulking was used to seal the opening. This will have to be removed in order to remove the lift.



REPLACING THE MAIN CABLE

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5. Locate the two studs that extend from the top assembly down through the top of the lift assembly. Use a socket wrench with an extension and a deep well 7/16" socket to remove the lock nuts from the studs.

NOTE: The studs will be easily found by looking upward behind the lift into the open channel of the lift assembly.

6. Slide under the trailer and locate the whiffle tree guide channel cover located in the center of the trailer between two cross channel frame members. Remove the eight bolts and nuts that fasten the cover to the frame members. Using a screwdriver or a small pry bar, remove the guide channel cover from the trailer.

NOTE: 1996 and newer model trailers will incorporate a removable cover plate over the whiffle tree. (1996 - 1998 8' models still have removable guide channel covers.)

7. Once the cover is removed, the whiffle tree and cable attaching eye bolts will be exposed. Locate the cable that extends to the lift to be removed. Using cable cutters, snip the cable from the appropriate eye bolt. It will be necessary to remove the cable crimp from the cable as well.

NOTE: 1999 and newer models have the eye bolt crimped to the end of the long cable assembly. Remove the complete eye bolt and cable.

8. Collapse the lift assembly by hand and pull the lift up and out of the trailer.

NOTE: On Destiny series trailers only, it will be necessary to remove the painted lift cover plate at the bottom exposed section of the lift.

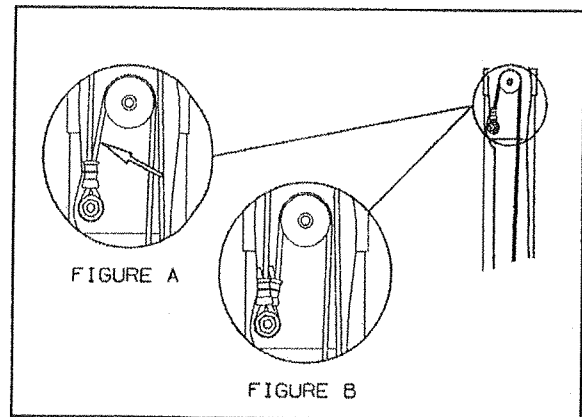
9. Look down inside the opening in the body of the trailer where the lift was removed. Locate any obstruction that would hinder the installation of the new lift assembly i.e., electrical wiring. If wires are found, tape the wires to the backside of the body panel of the trailer.
10. Check all pulleys under the trailer for razor-sharp edges and make certain they move freely. Replace where necessary.

11. Place lift assembly on work bench or other suitable work area.

12. Remove the anchor bolt on the bottom lift slide where the long cable attaches. See figure A.

13. Remove the old cable by pulling uncrimped end through bottom butterfly pulley bracket and up through stationary lift pulley bracket.

NOTE: On all lifts prior to 1982, it will be necessary to cut the long cable behind the crimp made at the anchor bolt. Refer to figure.



REPLACING THE MAIN CABLE

Page 3

14. Insert the new cable by reversing procedure mentioned in step 13.

NOTE: 1999 and newer models have the eye bolt crimped to one end of the long cable. Open end of long cable must be routed through lift arm pulleys, etc., prior to making the loop end.

15. Attach the pre-looped end of cable to anchor bolt and tighten.
16. With the repaired lift in hand, guide the stainless steel cable down through the hole in the body rail of the trailer and out through the hole in the trailer frame channel.
17. Reach under the trailer and grasp the cable and pull, guiding the lift down into the trailer.
18. Once the lift is seated against the bottom of the frame channel, fasten the lift to the frame using the four bolts removed in step 3.

NOTE: Tighten the bolts, then back off 1/4 turn.

19. Pull on the cable to expand the lift and guide the lift up into the two studs that fasten the lift to the top assembly. Hold the lift in the up position by clamping the cable at the trailer frame with vice grips. Turn the locking nut up onto the studs approximately $\frac{1}{2}$ the distance of the threads.

NOTE: Do not tighten the locking nuts. This allows the top assembly to move and fit over the trailer body when closing.

20. Make certain the pulley on the adjustable pulley bracket is placed in the hole closest the frame of the trailer. Also loosen the nuts on the whiffle tree eye bolt to allow for future adjustment of the cable.
21. Route the long cable through the pulleys and into the whiffle tree area.
22. Slide a cable crimp onto the cable. Route the cable through the eye bolts and back through the cable crimp. Pull the cable tight and hold in place with a pair of vice grips. Push the cable crimp up as close to the eye bolt as possible and compress the crimp with the cable crimping tool, making two crimps.

NOTE: 1999 and newer models have the eye bolt already crimped onto the cable assembly.

23. Cut off any excess cable.
24. Replace the whiffle tree guide channel and hold in place with two bolts and nuts.

NOTE: Place the guide channel on an angle to allow access to the eye bolts for adjusting.

25. Remove the four support poles and raise the trailer top to full height.

REPLACING THE MAIN CABLE

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1971 THROUGH PRESENT MODEL YEARS

26. Measure between the body rail of the trailer and the top assembly where the rubber seal of the top would contact the trailer when closed. Refer to the section on top height adjustment to obtain this measurement.

NOTE: If the desired measurement is not attained, replace each of the four support poles removed in step 20. This will re-support the top assembly and allow the whiffle tree eye bolt nuts to be adjusted. For every 1" of adjustment at the eye bolt, the top will raise approximately 3". Tighten each eye bolt nut until the support in that corner no longer holds the weight of the top assembly. This will insure that the optimum top height has been attained.

NOTE: On 1996 and newer models, every 1" of adjustment equals 2" of lift height.

27. Once the top height is adjusted, close the trailer top and fit the whiffle tree guide channel to its proper location and fasten with the bolts and nuts removed. Replace cover plate only on units so equipped.
28. Raise the trailer top slightly and replace the lift trim cover and fasten with rivets where applicable.

TOP HEIGHT ADJUSTMENT -1968 TO PRESENT MODEL YEAR TRAILERS

Tools Required:

- Socket wrench set
 - Open-end wrench set
 - Screwdriver
 - 4 - Lift support poles
 - 2 - 2x4" Wood blocks, 24 ½" long
-

1. Raise the top to full height and measure each corner between the body rail of the trailer and the top assembly where the rubber seal is fastened to the top assembly. To determine this measurement, refer to the chart at the end of these instructions.

NOTE: On 1996 and newer models, measure from the top seal (where seal is glued to the black channel that slips onto the edge of ABS top assembly) down to edge of body rail.

2. Place the proper length support post between the body rail of the trailer and the small lip found just behind the lower outside edge of the top assembly.

NOTE: Check height chart for proper length support pole.

3. Slide under the trailer and remove the 7/16" nuts and bolts from the whiffle tree guide channel or cover plate located in the center of the trailer between the frame members. Pry the guide channel down with a screwdriver or small pry bar. Cover plate will dislodge once the last screw is removed.
4. Place one 24 ½" long 2x4" block on each side of the whiffle tree to maintain the spacing between the frame channels of the trailer. (Not needed on 1996 to present models with guide channels permanently welded in place.)
5. Turn the nuts at the end of the eye bolts up until each of the four support posts begin to fall out of place or they no longer support much of the weight of the top assembly. Repeat this procedure for each corner of the trailer.
6. Once the proper top height is attained, remove the four support posts and lower the top assembly. Be certain cables are slack.
7. Remove the two 24 ½" x 2x4" long wood blocks from beside the whiffle tree (where applicable).
8. Replace the whiffle tree guide channel or cover plate and fasten with the bolts and nuts removed in step 3.

NOTE: Every 1" of adjustment at the whiffle tree will give approximately 3" of adjustment at the top assembly. (2" on 1996 to present models).

NOTE: When adjusting top height on a trailer with an air conditioner installed, it is necessary to adjust the lift to the maximum height. This will compensate for inadvertent stretching of the cables due to the extra weight added to the top.

TOP HEIGHT ADJUSTMENT

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Adjusting the Top Height at the Corner Adjustable Pulley Brackets 1975 to Present Model Year Trailers

1. Raise the trailer top slightly and pull both beds out approximately one foot. Lower the trailer top so it rests on each bed end.
2. Locate a metal adjustable pulley bracket under each corner of the trailer. Each bracket will house a metal pulley. The bracket will have two or three holes for adjusting the pulley away from the frame of the trailer. Moving the pulley from one hole to the next will change the top height approximately 1 ½".
3. To raise the top height, remove the cotter pin from the center pulley pin and remove the center pin from the adjustable pulley bracket. Move the pulley to the next hole away from the frame of the trailer. Insert the center pin through the pulley and secure with the cotter pin. This will raise the trailer top approximately 1 ½".

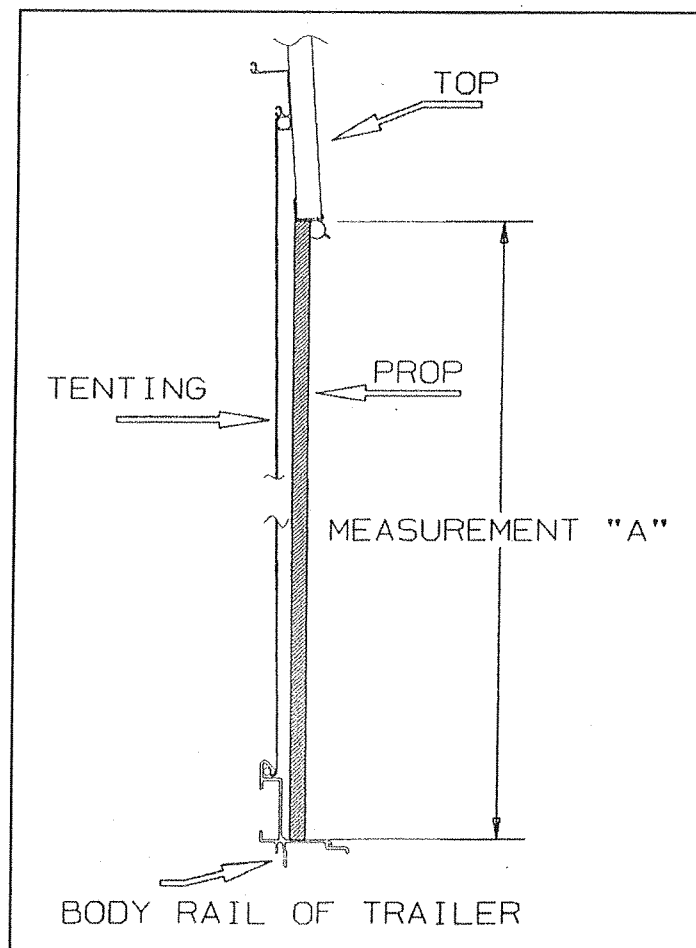
IMPORTANT: This adjustment should be left for the customer's convenience. All adjusting by the dealer should be accomplished at the whiffle tree.

4. Once the appropriate pulleys have been moved, raise the top and check the top height. The proper height should be within the measurements found on the lift height measurement chart below.

NOTE: When adjusting top height on a trailer with an air conditioner installed, it is necessary to adjust the lift to the maximum recommended height. This will compensate for inadvertent stretching of the cables due to the extra weight added to the top.

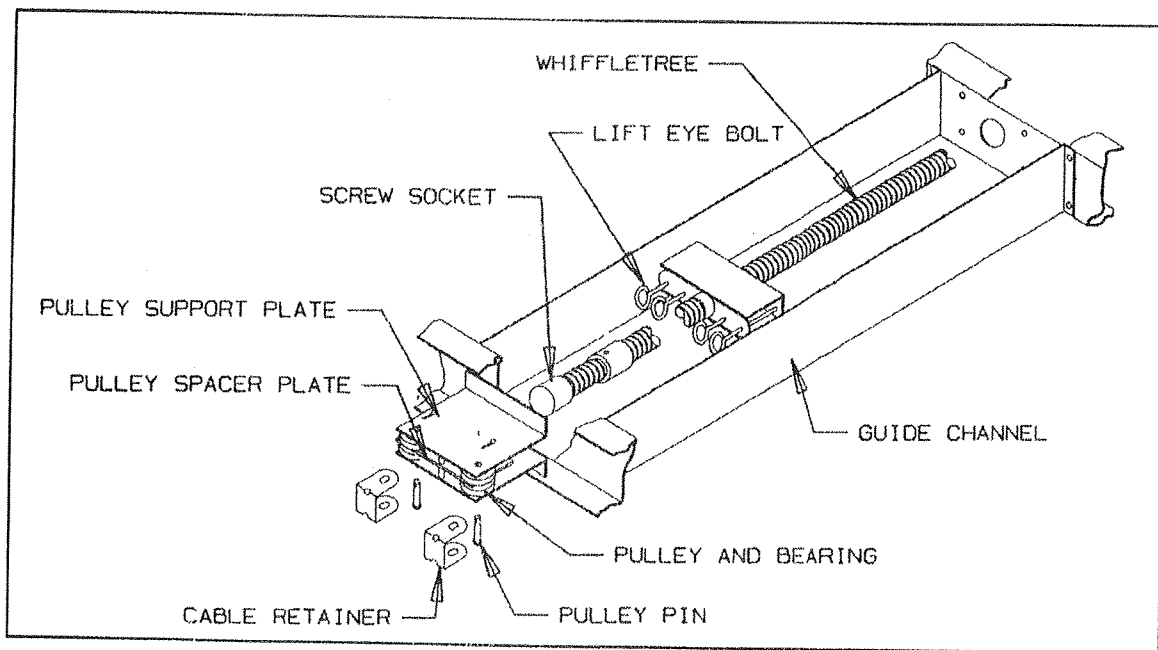
LIFT HEIGHT MEASUREMENT CHART

YEAR	MODEL	MEASUREMENT A	POLE SIZE
1968 - 1989	ALL	50 ½" - 51 ½"	51"
1991 - 1995	AMERICANA PIONEER	51" - 52"	52"
1990 - 1995 1996 - PRESENT	DESTINY (ALL) DESTINY 8' MODELS ONLY	51" - 52"	52"
1986 - 1991	PLANTATION	44 ½" - 45 ½"	45"
1993 - 1995	FOUR SEASON	46 ½" - 47"	47"
1996 - PRESENT	GRAND TOUR ELITE, GRAND TOUR, AMERICANA, AND DESTINY 8 ½', 10', AND 12" MODELS ONLY (HIGH SIDES)	46" - 47"	47"
2004 - PRESENT	HIGHLANDER	41" - 42"	42"



PROCEDURE TO REMOVE AND CHANGE FOUR PULLEYS AND BUTTERFLY BRACKET WITHOUT CUTTING CABLE ON 1968 TO PRESENT YEAR MODELS EXCEPT THOSE MODELS EQUIPPED WITH REAR, UNDER FLOOR MOUNT WATER TANKS

1. Raise the top assembly to maximum height.
2. Place four solid support poles next to each lift assembly between the top assembly and the body rail. See the pole length chart at the end of these instructions for correct length.
3. Turn crank back counterclockwise approximately ten turns.
4. Remove whiffle tree guide channel pan or cover plate by removing the eight hex head bolts and nuts using a 7/16" wrench and socket.
5. Place one 24 1/2" long 2x4 on each side of the whiffle tree to maintain spacing between the frame channels of the trailer. Not needed on 1996 models.
6. Disassemble the pulley separator (four pulleys located directly behind the whiffle tree) by removing the two pulley separator retainers, pins, and cotter pins from the pulley separator support plates. See figure.



7. Remove one lift eye bolt from the whiffle tree assembly by backing off the two lock nuts from the threaded end of the lift eye bolt. Feed cable back through frame channel. See Figure 1.

CAUTION: Remove only one lift eye bolt at a time. Removing all four lift eye bolts at one time will leave no lift system support should the solid support poles accidentally become disengaged. Ensure cables are put back in original order.

PROCEDURE TO REMOVE AND CHANGE FOUR PULLEYS AND BUTTERFLY BRACKET WITHOUT CUTTING CABLE

PAGE 2

8. Remove the lift cover trim from around the exterior portion of the lift assembly by either pulling the lift up from the corner trim double-stick foam tape; or, on later models, by drilling out the two large flat-head rivets retaining the lift cover trim to the body rail using a #8 drill bit.
9. Remove the two hex-shaped locking nuts from the lift pocket assembly securing the top section of the lift assembly to the top assembly. Pulling down on the top lift section, collapse the lift.

10. Remove the four bolts attaching the bottom stationary lift section to the underside of the frame channel. See figure 2.

11. Pull the lift assembly out of the trailer body and lay on a suitable work surface.

12. Remove the butterfly assembly from the bottom stationary section of the lift assembly by removing the four clinch nuts or rivets and replace with the new butterfly assembly. Replace the pulley and pin, if necessary. See figure 3.

NOTE: On Destiny models only, it will be necessary to remove the bottom painted cover plate on the exposed portion of the lift arm.

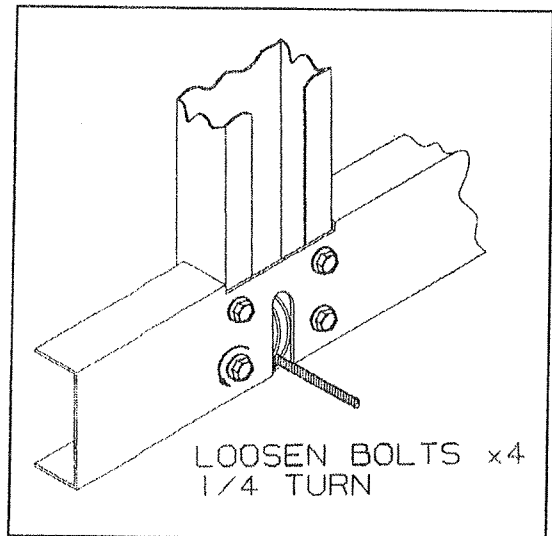


Figure 2

13. With the lift out, replace the remaining defective pulleys in the lift assembly sections by removing the short cables, pins, "E" clips, and cable retaining clips from the underside of the welded pulley support bracket. Remove the pulley. Install new replacement pulleys and pins as needed.

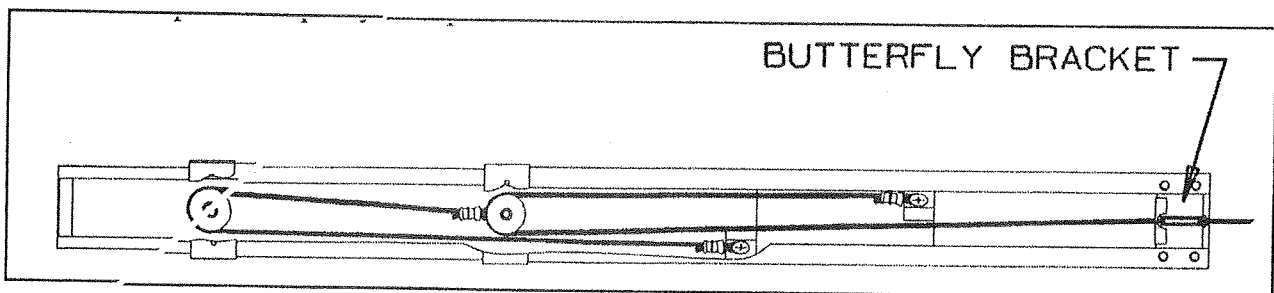


Figure 3

14. Reinstall the lift assembly according to the lift installation procedures set forth in the service manual.

**PROCEDURE TO REMOVE AND CHANGE FOUR PULLEYS AND BUTTERFLY BRACKET
WITHOUT CUTTING CABLE**

Page 3

15. Repeat the above procedure for the remaining lifts as needed.
16. Remove the two 24 ½" x 2x4" wood blocks from beside the whiffle tree.
17. Replace the whiffle tree guide channel or cover plate and fasten with bolts and nuts removed in step 4.

NOTE: In order to remove the butterfly pulley bracket on models prior to 1971, it will be necessary to remove interior paneling directly in front of each lift involved. This will allow access to the lift attachment bolts on the frame channel.

LIFT SYSTEM TROUBLE SHOOTING GUIDE

SYMPTOM: HARD CRANKING	REPAIR ACTION
BENT PULLEY BRACKET IN LIFT ARMS	REPLACE COMPLETE LIFT
GAULDING OR SCARRING OF LIFT ARM SECTION/S	REPLACE COMPLETE LIFT
CABLE OFF PULLEY/S	REPLACE CABLE ON PULLEY/S; CHECK PULLEYS FOR ABNORMAL WEAR
WORN PULLEY BEARINGS	REPLACE DAMAGED PULLEY/S
BROKEN SHEAR PIN AT THRUST NUT	REPLACE WITH SOLID SHEAR PIN; CHECK REAR FRAME CROSS CHANNEL AT WHIFFLE TREE ATTACHMENT POINT
CHAIN OVER-TIGHTENED	ADJUST CHAIN TO PROPER TENSION
CHAIN RUBBING ON FLOOR CUT-OUT	TRIM FLOOR BACK TO CLEAR CHAIN
IMPROPERLY ROUTED CABLES THROUGH FRAME ASSEMBLY	RE-ROUTE CABLE IN PROPER LOCATION
GUIDE CHANNEL REMOVED; FRAME CHANNELS BENT	RE-ALIGN FRAME CHANNELS; REPLACE GUIDE CHANNEL
IMPROPERLY INSTALLED THRUST BEARING	REPLACE THRUST BEARING
WORN BUSHING IN UPPER CRANK ASSEMBLY	REPLACE BUSHING
CRISSCROSSED CABLES AT PULLEY SEPARATOR	RE-ROUTE CABLES THROUGH PROPER PULLEY LOCATION AT PULLEY SEPARATOR
DEFECTIVE WHIFFLE TREE	REPLACE WHIFFLE TREE
BROKEN CHAIN SPROCKET	REPLACE SPROCKET
THRUST BEARING NOT ALIGNED PROPERLY	RE-ALIGN BEARING AT BEARING COVER BOX
IMPROPER WHIFFLE TREE INSTALLED	REPLACE WITH CORRECT WHIFFLE TREE
WHIFFLE TREE NOT PROPERLY LUBRICATED	LUBRICATE WHIFFLE TREE
SYMPTOM: CRANK TURNS WITHOUT RAISING TOP	REPAIR ACTION
CHAIN BROKEN	REPAIR/REPLACE CHAIN
BROKEN ROLL PIN AT WHIFFLE TREE COUPLER	REPLACE ROLL PIN
CHAIN OFF SPROCKET/S	REPLACE CHAIN ON SPROCKET/S
BROKEN ROLL PIN IN UPPER/LOWER SPROCKET	REPLACE ROLL PIN
BROKEN UPPER/LOWER SPROCKET	REPLACE SPROCKET

SYMPTOM: TOP CRANKS UP PART WAY AND STOPS	REPAIR ACTION
BROKEN SHEAR PIN AT THRUST NUT	REPLACE WITH SOLID SHEAR PIN
CABLE OFF PULLEY/S	REPLACE CABLE ON PULLEY/S; CHECK PULLEY/S FOR WEAR
WORN PULLEY/S	REPLACE PULLEY/S
DEFECTIVE WHIFFLE TREE	REPLACE WHIFFLE TREE
DEBRIS IN LIFT ARM	CLEAN/LUBRICATE LIFTS
SCREW TURNED INTO LIFT THROUGH INTERIOR PANELING	REMOVE SCREW; CHECK LIFT; REPLACE IF NECESSARY
SYMPTOM: LIFT ASSEMBLIES BENT, SCARRED, GAULDED	REPAIR ACTION
EXCESSIVE WEIGHT ON TRAILER TOP	REPLACE LIFT ASSEMBLY
TOP OPENED WITHOUT ALL FOUR TOP LATCHES UNLATCHED	REPLACE LIFT ASSEMBLY
BROKEN EYE BOLT	REPLACE EYE BOLT; REPLACE LIFT ASSEMBLY
SYMPTOM: LIFT SYSTEM BANGS/HAMMERS WHEN CRANKING	REPAIR ACTION
CHAIN LOOSE	TIGHTEN CHAIN
THRUST BEARING NOT PROPERLY ALIGNED	RE-ALIGN BEARING AT BEARING COVER BOX
BROKEN TOOTH ON CHAIN SPROCKET	REPLACE SPROCKET
SHEAR PIN NOT COMPLETELY IN AT THRUST NUT	INSERT SHEAR PIN COMPLETELY
SYMPTOM: INTERMITTENT DRAGGING OR JUMPING WHEN CRANKING UP OR DOWN	REPAIR ACTION
THRUST BEARING NOT PROPERLY ALIGNED	RE-ALIGN BEARING AT BEARING COVER BOX
DEBRIS IN LIFT ARMS	CLEAN/LUBRICATE LIFTS
WORN BUSHING AT UPPER CRANK ASSEMBLY	REPLACE BUSHING
CABLE OFF IN LIFT ARM	REPLACE CABLE ON PULLEY/S; CHECK PULLEY'S FOR WEAR
WHIFFLE TREE NOT PROPERLY LUBRICATED	LUBRICATE WHIFFLE TREE
BROKEN TOOTH ON CHAIN SPROCKET	REPLACE SPROCKET

SYMPTOM: TOP LEANS WHEN CRANKED TO FULL UP POSITION	REPAIR ACTION
LIFT CABLE NOT SET A PROPER HEIGHT	ADJUST CABLE TO PROPER HEIGHT
CABLE OFF PULLEY/S	REPLACE CABLES ON PULLEY/S; CHECK PULLEY/S FOR WEAR
BROKEN WELD IN LIFT POCKETS	REPLACE LIFT POCKET/S
CABLE BROKEN IN LIFT ARM	REPLACE BROKEN CABLE; CHECK FOR PROPER HEIGHT
WRONG LIFT INSTALLED; EXAMPLE: LEFT REAR IN POSITION WHERE LEFT FRONT SHOULD BE	REPLACE LIFT WITH PROPER LIFT FOR PARTICULAR LOCATION
SYMPTOM: LIFT ARM WILL NOT RAISE	REPAIR ACTION
BROKEN CABLE	REPLACE CABLE; CHECK LIFT FOR DAMAGE
CABLE PULLED THROUGH CRIMP	REPLACE CABLE; CHECK LIFT FOR DAMAGE
BROKEN EYE BOLT	REPLACE EYEBOLT; CHECK LIFT FOR DAMAGE
SCREW TURNED INTO LIFT THROUGH INTERIOR PANELING	REMOVE SCREW; CHECK LIFT; REPLACE LIFT IF NECESSARY
BROKEN SPOT WELD ON LIFT ARM	REPLACE LIFT ARM
SYMPTOM: CRANK-UP/CRANK-DOWN SYSTEM NOT WORKING	REPAIR ACTION
CRANK IN LOCK-OUT STAGE	CRANK TRAILER UP TO FULL HEIGHT AND OVER-CRANK TO RE-ENGAGE CLUTCH SYSTEM
TOP SLIPS DOWNWARD WHEN RELEASED	REPLACE CLUTCH BRAKE PAD
TOP WILL NOT CRANK DOWN	BROKEN THRUST NUT - REPLACE DRIVE HUB STRIPPED - REPLACE