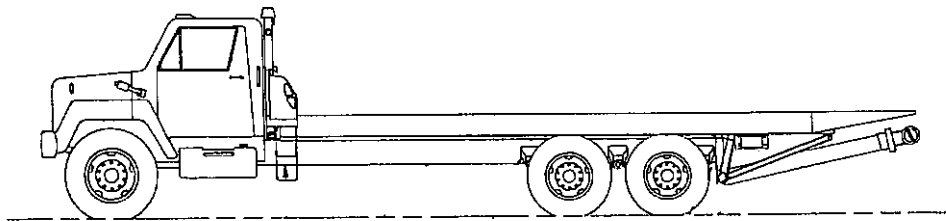




**Heavy Duty Loadoll  
DEALERS AND OWNERS MANUALS  
ALL MODELS OF TRUCKS**



**LANDOLL CORPORATION**

1900 North Street  
Marysville, Kansas 66508

(785) 562-5381

800-428-5655 ~ **WWW.LANDOLL.COM**

## **MANUFACTURER'S GUARANTEE POLICY**

### **LANDOLL CORPORATION WARRANTY**

**LANDOLL warrants each new and unused LANDOLL machine, when properly assembled, adjusted, and operated, to be free of defects in material and workmanship, in normal use and when properly serviced, for a period of twelve (12) months after date of delivery by the Dealer to the original retail purchaser. LANDOLL shall repair or replace, at its option, freight on board (f.o.b.) at its factory or designated DEALER location, any part or parts of such new and unused machine which shall have been reported in writing to LANDOLL within thirty (30) days from date of failure thereof and which LANDOLL inspection shall disclose to have been defective. Defective parts must be returned to the LANDOLL factory, freight prepaid. LANDOLL will not be liable for labor, transportation, or any other charges resulting from replacement of a defective part. This warranty is void if any part not supplied by LANDOLL is used in assembly or repair, or if the machine has been altered, abused, or neglected. LANDOLL repair parts are warranted for ninety (90) days from date of replacement or for the unexpired warranty period of the applicable LANDOLL machine, whichever period is longer. LANDOLL makes no warranty, whatsoever, as to purchased component parts and other trade accessories, except to the extent that such items are warranted by the manufacturer thereof. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED, IMPLIED, OR STATUTORY (INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE), AND LANDOLL SHALL NOT BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ON ACCOUNT OF ANY LANDOLL PRODUCT.**

**NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY, VERBALLY OR IN WRITING, OR GRANT ANY OTHER WARRANTY.**

**LANDOLL CORPORATION, WHOSE POLICY IS ONE OF CONTINUOUS IMPROVEMENT, RESERVES THE RIGHT TO MAKE CHANGES WITHOUT OBLIGATION TO MODIFY PREVIOUSLY PRODUCED EQUIPMENT.**



**HEAVY DUTY LOADOLL**  
**DEALERS AND OWNERS MANUAL**  
**ALL MODELS OF TRUCKS**

**INSTALLATION RECORDS**

<b>CHASSIS MAKE/YEAR</b>	<b>S/N</b>	<b>DATE INSTALLED</b>	<b>LOADOLL S/N</b>	<b>CUSTOMER</b>
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THE WARRANTY CARD IS LOCATED AT THE BACK OF THIS MANUAL. THE WARRANTY CARD MUST BE FILLED OUT AND RETURNED WITHIN 15 DAYS OF THE PURCHASE DATE OF THE EQUIPMENT.

## **REPORTING SAFETY DEFECTS**

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If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Landoll Manufacturing.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Landoll Manufacturing.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, D.C. 20590. You can also obtain other information about motor vehicle safety from the Hotline.

In the event of a defect or problem with your LANDOLL equipment, please notify LANDOLL CORPORATION:

**LANDOLL CORPORATION  
SALES AND SERVICE  
1900 NORTH STREET  
MARYSVILLE, KANSAS 66508**

**OR PHONE:  
(785)562-5381  
1-800-HAULOLL  
(1-800-428- 5655)  
FAX NO.: (785) 562-4893**



THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, READ AND STUDY THE MESSAGE THAT FOLLOWS FOR YOUR PERSONAL SAFETY BEFORE BEGINNING TO INSTALL THE LOADOLL KIT, SAFETY INSPECT, FUNCTION TEST, OR OPERATE YOUR HEAVY DUTY LOADOLL. BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

DIESEL AND GASOLINE FUELS ARE TOXIC AND FLAMMABLE. SKIN AND EYE PROTECTION IS REQUIRED. GOOD GENERAL VENTILATION IS NORMALLY ADEQUATE. CAP ALL OPEN FUEL CONTAINERS AND FUEL SYSTEMS. CATCH AND CONTAIN ALL SPILLAGE IN AN APPROVED FUEL CONTAINER. KEEP ALL FUELS AWAY FROM OPEN FLAME, SPARKS, FRICTION, AND OTHER IGNITION SOURCES. FAILURE TO PROPERLY HANDLE AND STORE FUEL MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

WELDING AND CUTTING OPERATIONS PRODUCE HEAT, TOXIC FUMES, RADIATION, METAL SLAG, AND CARBON PARTICLES. WELDING AND CUTTING GOGGLES (WITH THE PROPER TINTED LENSES), GLOVES, APRON OR JACKET, AND WELDERS BOOTS ARE REQUIRED. FAILURE TO USE PROPER SAFETY EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY.

ENGINE EXHAUST PRODUCES HEAT AND TOXIC FUMES. USE AN EXHAUST EVACUATION SYSTEM WHEN OPERATING INSIDE ENCLOSED AREAS. FAILURE TO PROVIDE ADEQUATE VENTILATION WILL CAUSE SERIOUS ILLNESS OR DEATH. DIRECT CONTACT WITH ANY EXHAUST SYSTEM MAY CAUSE SERIOUS PERSONAL INJURY.

DO NOT HANDLE THE WINCH CABLE WHEN THE WINCH IS IN THE ENGAGE POSITION. HANDS OR CLOTHING COULD GET CAUGHT IN CABLE AND BE PULLED INTO THE SPOOL CAUSING SERIOUS PERSONAL INJURY.

NEVER ATTEMPT TO DISENGAGE THE WINCH CABLE SPOOL WHEN THE CABLE IS UNDER TENSION. THE LOAD WILL BE ALLOWED TO ROLL AWAY CAUSING SERIOUS INJURY OR DEATH TO ANYONE OR ANYTHING IN THE PATH OF THE ROLLING VEHICLE.

BOTH THE OPERATOR OF THE LOADOLL AND PASSERS-BY MUST STAY CLEAR OF LOAD BEING WINCHED ONTO THE TRUCK. IF THE LOAD WERE TO BECOME DISCONNECTED FROM THE WINCH, THE LOAD COULD BE ALLOWED TO ROLL AWAY, RESULTING IN SERIOUS INJURY OR DEATH TO ANYONE IN THE PATH OF THE LOAD OR FLYING OBJECTS.

ALL PERSONNEL MUST STAY CLEAR OF ALL MOVING PARTS WHILE OPERATING THE LOADOLL. NEVER GET BETWEEN THE TRUCK FRAME AND SUB-FRAME OR BED. INTERFERING WITH MOVING TRUCK COMPONENTS OR GETTING BETWEEN THE TRUCK FRAME AND SUB-FRAME OR BED COULD RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

SERIOUS INJURY OR DEATH MAY RESULT IF YOU ARE UNDER, IN FRONT OF, OR BEHIND

THE BED, SUB-FRAME, REAR BUMPER, OR CHASSIS AT ANY TIME DURING OPERATION OF THE LOADOLL. THE SUB-FRAME CAN MOVE BACK 6 INCHES AND THE BED CAN TRAVEL BACK AN ADDITIONAL 126 INCHES. ANY PERSON OR OBJECT IN THE SAME AREAS MAY BE DAMAGED, OR CAUSE DAMAGE TO THE LOADOLL.

READ AND STUDY THE CONTROLS AND OPERATION SECTION OF THIS MANUAL BEFORE ATTEMPTING TO OPERATE THE LOADOLL. IMPROPER OPERATION OF THE LOADOLL COULD RESULT IN PERSONAL INJURY OR DEATH.

THE LOADOLL COULD ROLL DURING OPERATIONS. SECURE THE LOADOLL FROM ROLLING BY BLOCKING FRONT AND BACK OF EACH WHEEL.

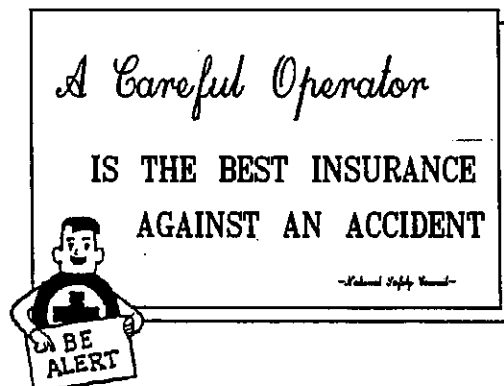
THE SUB-FRAME CAN ROLL BACK UNTIL THE BUMPER CONTACTS THE GROUND. ANYTHING UNDER THE BUMPER WILL BE PINNED. SECURE THE SUB-FRAME BY INSTALLING JACK STANDS UNDER THE REAR BUMPER UNTIL THE HYDRAULICS ARE FUNCTIONAL.

HIGH PRESSURE HYDRAULIC FLUID CAN PENETRATE CLOTHING, SKIN, MUSCLE, AND ENTER THE BLOOD STREAM, WHICH IS FATAL! HYDRAULIC PRESSURES OF 2,500 PSI OR MORE ARE DEVELOPED IN THIS SYSTEM.

FUEL VAPORS ARE COMBUSTIBLE AND CAN BE IGNITED BY SPARKS DUE TO FRICTION. WHEN SLIDING THE BED ON, WATCH ALL COMPONENTS UNDER THE BED FOR CLEARANCE PROBLEMS.

THE INSTRUCTIONS IN THIS MANUAL ARE FOR THE DRIVERS SIDE CONTROLS ONLY. CONTROLS FOR THE OPTIONAL CURB SIDE CONTROL WILL OPERATE THE LOADOLL FUNCTIONS IN THE SAME DIRECTION AS THE DRIVERS SIDE CONTROLS. READ THE CONTROL PLACARD CAREFULLY FOR FUNCTION AND DIRECTION BEFORE OPERATING.

THE TRUCK TRANSMISSION MUST BE IN NEUTRAL AND THE PARKING BRAKE APPLIED WHEN OPERATING THE PTO.





## STANDARD SPECIFICATIONS








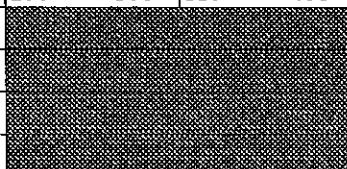
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3

CAB TO AXLE.....	SEE LES-311-002 (Depends on bed)
BED LENGTH.....	22FT, 24FT, 26FT, & 28FT
HEIGHT (overall without emergency light bar).....	TO TOP OF TRUCK CAB
LOAD BED HEIGHT* .....	13-1/2" ABOVE TRUCK FRAME
LOAD BED ANGLE* .....	12-1/2 TO 20-1/2 DEGREES
BED WIDTH .....	8'0" OR 8'-6"
BED CAPACITY.....	20,000# OR 30,000#
TOW-BAR OR WHEELIFT OPTION CAPACITY .....	5,000#
WINCH, WORM GEAR CAPACITY.....	8,000#, 12,000#, OR 20,000#
HYDRAULIC RESERVOIR CAPACITY .....	11 GAL
HYDRAULIC SYSTEM (reservoir, components, & plumbing) .....	18 GAL
*WEIGHT (of kit only, add your chassis weight for total).....	6,800# TO 7,600#
*DEPENDS ON THE TIRE SIZE AND MODEL OF THE TRUCK.	

**GENERAL TORQUE SPECIFICATIONS (REVISED 9-87)**  
**USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES**  
**ARE NOT GIVEN.**

**NOTE:** These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited, or moly-disulphide greases, or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SAE Grade No.		2				5				8*			
<i>Bolt head identification marks as per grade.</i> <b>NOTE:</b> Manuf acturing Marks will vary.						  				  			
		Torque				Torque				Torque			
Bolt Size		Foot Pounds		Newton-Meters		Foot Pounds		Newton-Meters		Foot Pounds		Newton-Meters	
Inches	Millimeters	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.35	5	6	7	9	9	11	12	15	12	15	16	20
5/16	7.94	10	12	14	16	17	20	23	28	24	29	32	39
3/8	9.53	20	23	27	31	35	42	48	57	45	54	61	73
7/16	11.11	30	35	41	47	54	64	73	87	70	84	95	114
1/2	12.70	45	52	61	70	80	96	108	130	110	132	149	179
9/16	14.29	65	75	88	102	110	132	149	179	160	192	217	260
5/8	15.88	95	105	129	142	150	180	203	204	220	264	298	358
3/4	19.05	150	185	203	250	270	324	366	439	380	456	516	618
7/8	22.23	160	200	217	271	400	480	542	651	600	720	814	976
1	25.40	250	300	339	406	580	696	786	944	900	1080	1220	1464
1-1/8	25.58					800	880	1085	1193	1280	1440	1736	1953
1-1/4	31.75					1120	1240	1519	1681	1820	2000	2468	2712
1-3/8	34.93					1460	1680	1980	2278	2380	2720	3227	3688
1-1/2	38.10					1940	2200	2631	2983	3160	3560	4285	4827

**NOTES:** 1. When hardware is plated, reduce torque values 25%.  
2. When locknuts are used, increase torque value 25%.  
3. When plated hardware is used w/locknuts, use torque value chart.  
4. **BOLT TORQUES SPECIFIED ARE FOR ZINC PLATED NUTS & BOLTS ONLY.** If other types of nut/bolt combinations are required, contact the OEM office for assistance.  
\* Thick nuts must be used with Grade 8 bolts.

Table 3-1 Standard Bolt Torques

## PREFACE:

This manual has been written for the installation of a **HEAVY DUTY LOADOLL** kit onto trucks capable of handling rated bed capacity. Any modification of the **LOADOLL** kit as designed by **LANDOLL CORPORATION** may affect performance, operation, **AND SAFETY!** The truck must meet the requirements of **LANDOLL ENGINEERING** specifications **LES-311-002**. The kit shall be installed according to this manual and installation drawing **3-410-011225**. Make sure the latest revision level of **3-410-011225** is obtained from the **LANDOLL ENGINEERING DEPARTMENT** before installation. The **LANDOLL HEAVY DUTY LOADOLL** is a quality product designed to give years of trouble-free performance. By following each step in this manual, your unit will look and perform as designed for you and your business.

## TOOLS AND SUPPLIES REQUIRED FOR INSTALLATION:

1. TIRE PRESSURE GAUGE
2. BASIC SET OF HAND TOOLS
3. TAPE MEASURE
4. PLASTIC TARP
5. FIRE EXTINGUISHER (suitable to be used on fuels)
6. APPROVED, PROPERLY LABELED FUEL CONTAINER
7. FRAMING SQUARE
8. (6) ADJUSTABLE JACK STANDS
9. CUTTING TORCH
10. PORTABLE HAND GRINDER
11. WELDER AND SAFETY SUPPLIES FOR WELDING
12. E-7018 WELDING ROD OR EQUIVALENT WIRE
13. MISC. C-CLAMPS
14. BLACK ENAMEL AUTOMOTIVE PAINT
15. ELECTRICAL WIRING PLIERS/TERMINAL CRIMPER
16. TWIST DRILL AND BITS (1/8" through 3/4")
17. POP RIVET GUN
18. MEANS TO LIFT 3000 LB. SUB-FRAME AND POSITION ON TRUCK FRAME
19. MEANS TO LIFT AND SLIDE THE BEDS THAT WEIGH BETWEEN 2800 LB. (19FT.X96 wide) AND 3500 LB. (28FT.X102 wide) ONTO THE SUB-FRAME.
20. 18 GALLON HYDRAULIC OIL (AMOCO RYCON MV or equivalent)

**NOTE: ALL WELDING MUST BE DONE IN ACCORDANCE WITH THE AMERICAN WELDING STANDARD (AWS) D1.1 USING E-7018 WELDING ROD OR EQUIVALENT WIRE.**

## 4-1 CHASSIS INSPECTION

**4-1.1** Position chassis on a solid, level work area.

**4-1.2** INSPECT THE CHASSIS TIRES FOR THE FOLLOWING CONDITIONS:

- a. All tires on the same axle must be of the same size.
- b. All tires are properly inflated to the recommended pressures. All tires of the same axle must have equal pressures.

**4-1.3** INSPECT THE CHASSIS FRAME AS DETAILED BELOW:

- a. Check both frame rails and all frame cross members for visible damages. Any frame damage must be corrected before modification begins.
- b. Check the frame for being square. Measure diagonally from the front of one side to the back of the other side. Locate measurements off of cross member rivets. (See Figure 4-1) Record both diagonal measurements below. Both measurements must be within 1/4" of each other.

Diagonal A \_\_\_\_\_ inches.

Diagonal B \_\_\_\_\_ inches.

c. Check the frame height (ride height). Measure the distance between the frame and the ground on each side of the chassis at 3 check points; (A) just in front of the front axle, (B) 12 inches behind the cab, and (C) just behind the back mounting bracket of the rear axle springs. The measurement of both frames at the same check point must be within 1/4" of each other. (See FIG. 4-1)

d. If any of the above frame checks fail, have the chassis checked and corrected by a qualified chassis technician before proceeding.

4-1.4 Check to make sure chassis meets landoll specifications LES-311-002. If the chassis does not meet these specifications, make necessary changes to meet specifications before proceeding.

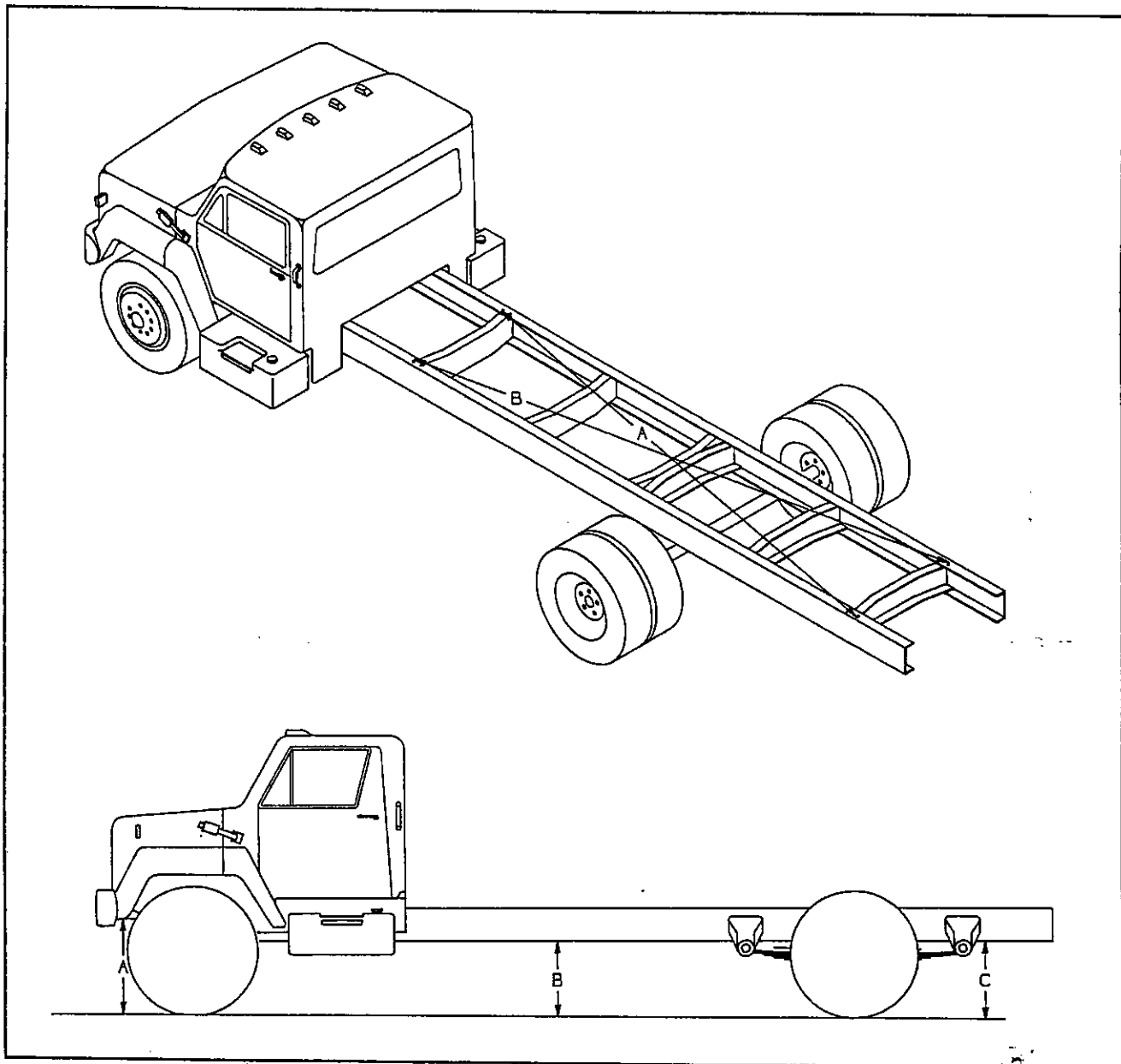


Figure 4-1 Checking Frame Squareness and Ride Height

## 4-2 CHASSIS MODIFICATION

**4-2.1** When welding next to fuel tanks, drain and remove fuel tanks and store in a safe place to prevent a chance of a fire or explosion.

**4-2.2** Disconnect the chassis wiring harness from the tail light harness at the rear of the truck frame.

**4-2.3** Disconnect wiring harness from truck frame from the rear of the frame up to the rear axle and roll it up to protect it for later use.

**4-2.4** Cut the frame off behind the rear axle according to installation drawing 3-410-011225.

**4-2.5** Grind the frame smooth and square where each cut was made.

## 4-3 INSTALLING SUB-FRAME, BED AND BULKHEAD

**4-3.1** Center the sub-frame on top of the truck frame. At the rear end, there shall be a 1" gap between the top of the truck frame and the bottom of the 2-1/2" SQ. tubes on the sub-frame.

**4-3.2** There are two crossmembers at the front of the sub-frame that are to have anchor plates welded to them. The anchor plates will then bolt to the truck frame. After the 2-1/2" SQ. tubes on the sub-frame, are positioned parallel to the truck frame, there may be a gap between the top of the truck frame and crossmembers (DEPENDING ON WHAT REINFORCING IS ON THE TRUCK FRAME). If there is a gap, weld a plate to the bottom of the crossmember to fill the gap. The front crossmember will have the anchor plate with four holes in it and a flat bar welded to the crossmember. The second crossmember from the front will have the anchor plate with two holes in it welded to the crossmember. See installation drawing 3-410-011225 for detailed location. Make sure subframe is centered on truck frame.

**4-3.3** Make the welds to the subframe at least as thick as the thinnest material being welded, using E7018 or equivalent welding wire.

**4-3.4** Slide the bed onto the rear of the subframe starting with the front of the bed at the back of the subframe. The bottom flange of the bed will slide in between nyatron pads. Slide the bed onto within 10" of the back of the cab. Pin the bed cylinder anchor to the bed cylinder then slide the bed until

the holes in the cylinder anchor line up to the nearest holes in the anchor plate on the bed. Bolt the cylinder anchor on with 6 each, 5/8" bolts.

**4-3.5** Mount bulkhead on the truck frame so the ears on the bulkhead fit tight into the slots in front of the beds main beams with the bed within 1/16" of all the way forward. A spacer plate will probably be required between the top of the truck frame and the bottom of the bulkhead to make sure the ears fit properly in the slots. The bulkhead will have an anchor plate with four holes in it and a flat bar welded to the bulkhead. The anchor plate will then bolt to the truck frame. See installation drawing 3-410-011225 for detailed location.

**4-3.6** Mount the flex track, attached to the subframe, to the bottom of the bed on the mounting plate provided. With the bed all the way forward, mount the track as far forward on the bed as possible.

## 4-4 HYDRAULIC INSTALLATION

**4-4.1** When installing hydraulic plumbing, install trim-lock on all sharp edges that hydraulic hoses contact.

**4-4.2** Ty-wrap hoses to non-moving parts to avoid contact with sharp, abrasive or moving objects.

**4-4.3** Thread sealant paste (such as LOCTITE 59231 HIGH PERFORMANCE PIPE SEALANT with teflon thread lubricant and sealer) may be used to seal plumbing threads. **DO NOT USE TEFLON TAPE!**

**4-4.4** The Landoll-supplied PTO is selected based on the transmission data supplied on the sales order.

**4-4.5** Kits ordered for vehicles with standard transmissions will have a PTO to be mounted directly on the transmission. The hydraulic pump is intended to be mounted directly on the PTO. The pump can be jack shaft mounted if necessary. If this is chosen, the jack shaft end which mates with the pump will have to be equipped with a spline compatible with pump.

**4-4.6** Every Landoll supplied PTO is shipped with a PTO mounting booklet, which serves as guide for installation. Follow the PTO instructions exactly and you will be assured of proper installation.

**4-4.7** Mount the PTO without the hydraulic pump attached. This will allow you to check the PTO for noise without operation of the pump.

**4-4.8** Refill the transmission with clean, approved lubricant after the PTO installation is complete.

**NOTE:** Many transmissions require special service oils, and some require special break-in oil. Refer to the truck owner's manual or contact your local dealer for the oil specified for your truck.

**NOTE:** The standard landoll supplied PTO has a wire shift control. Some guidelines follow concerning the wire shift controlled PTO. For optional shift controlled P.T.O's such as air shift or electric shift, follow PTO instruction booklet.

**4-4.9** For PTO'S with wire shift control, install the PTO control cable in a 1/2" diameter hole in the cab within easy reach of the operator. It is important to position the cable control in a location that will enable the operator to easily access the control and allow the cable to be routed to the PTO staying clear of hot, abrasive, or moving parts, and with a minimum of bending. Sharp bends will cause stiff or impossible cable operation. A convenient mounting location is on the transmission access floor panel to the right of the driver.

**4-4.10** After mounting the cable in the floor or dash, pull the cable out 6 inches. Cut the inner and outer cable to a length that is even with the casing anchor bracket mounted on the PTO housing.

**4-4.11** Slip the steel cable into the anchor pin on the PTO control lever. Attach the cable housing to the PTO clamp and tighten sufficiently to prevent slippage without crushing the housing.

**4-4.12** Check to ensure that the PTO lever is completely disengaged and the control cable is all the way in. Tighten the PTO cable anchor to the steel cable.

**4-4.13** Start the vehicle engine and operate the PTO briefly to check for unusual noise.

**4-4.14** Check the in and out of gear shifting functions. The PTO shaft should rotate when in gear, and stop rotating when the PTO is shifted to the neutral position. If everything checks out properly, continue. If noise or shifting problems exist, correct before installing pump.

**4-4.15** The hydraulic pump mounts directly to the PTO. The pump is BI-ROTATIONAL. Some PTO's rotate clockwise and some rotate counter-clockwise. To determine which port on the pump is the pressure port and which port is the suction port, after the pump is mounted to the PTO, engage PTO and operate for a second while your hand is covering a port. If your hand is sucked toward the port, the port is the suction port. If your hand is pushed away from the port, the port is the pressure port. **DO NOT PUT FINGER INTO PORT.**

**NOTE:** Do not operate the PTO for more than a second if the pump is attached and dry. Operating the pump for more than a second dry will cause permanent damage to the pump, affect hydraulic system performance, and cause possible damage to other hydraulic components.

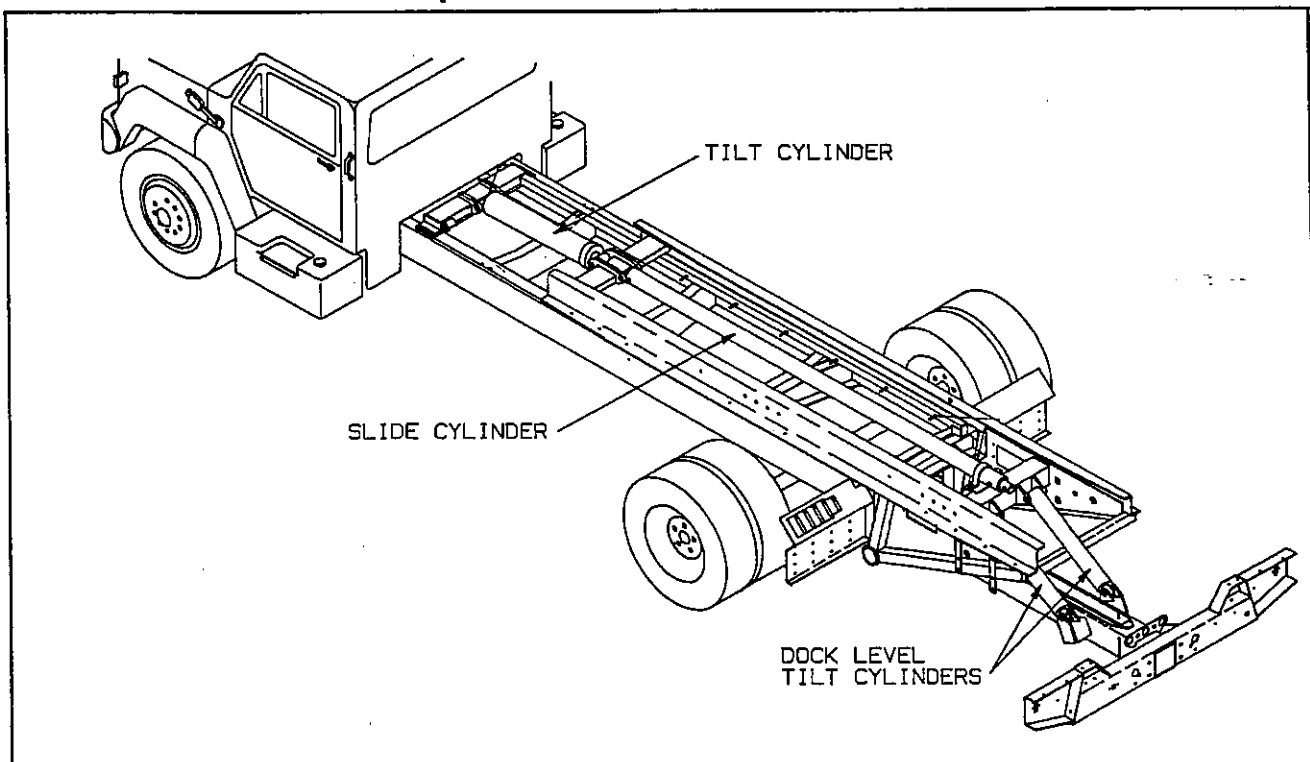


Figure 4-2 Cylinder Locations

## 4-5 HYDRAULIC PLUMBING

**4-5.1** The hydraulic tank is incorporated into the bulkhead which was mounted directly behind the cab.

**4-5.2** Landoll hydraulic tanks are cleaned and preserved before shipping. Contaminants can enter the tank during shipping and handling. Clean hydraulic tank out thoroughly by sweeping the inside with a magnet and flushing with clean hydraulic oil.

**4-5.3** If breather cap/strainer assembly is not already installed, install the breather cap/strainer assembly by inserting strainer into the tank with a gasket between. Place the second gasket on the strainer flange and then the cap, securing flange

on top. Align all 6 holes and secure to the tank with 6 screws provided with the kit.

**4-5.4** Install hydraulic suction, pressure, and return lines accordingly.

**4-5.5** Connect the hydraulic winch hose quick couplers to the subframe hose quick disconnects located at the end of the flex track. Ty-wrap hoses up so they do not catch on anything.

**4-5.6** Fill the hydraulic reservoir. Cycle all cylinders and motors to remove air from the system. Add hydraulic fluid as required. Normal oil level is 1" below the top of the hydraulic tank when all cylinders are retracted.

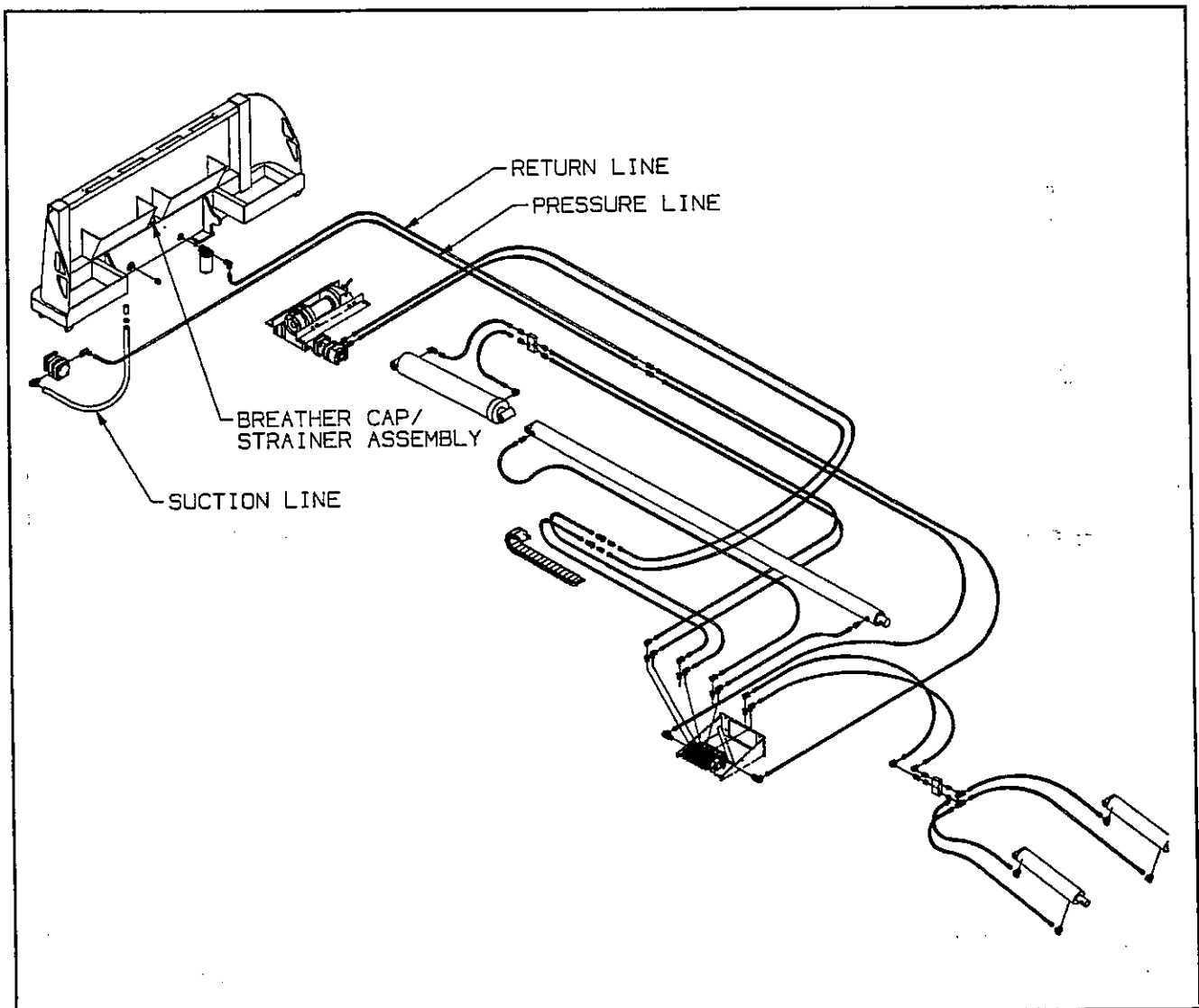


Figure 4-3 Bed Operation Hydraulic System

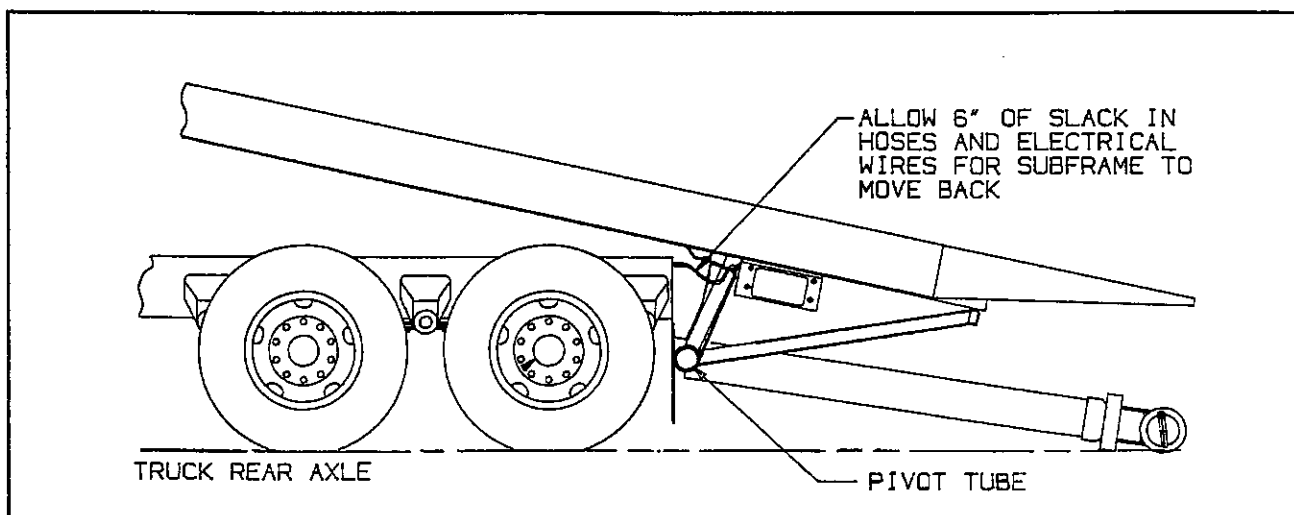


Figure 4-4 Example of Hose and Cable Slack

## 4-6 ELECTRICAL INSTALLATION

**4-6.1** Install trim-lok over all sharp edges in which hydraulic hoses or electrical wiring come into contact.

**4-6.2** Encase all electrical wiring without protective covering in flexible conduit before attaching a free end of wiring. Tape conduit ends to wiring with electrical tape. **DO NOT** leave any electrical wiring exposed.

**4-6.3** Ty-wrap all wiring to non-moving parts to avoid contact with sharp, abrasive, or moving objects.

**4-6.4** **DISCONNECT ALL BATTERIES** whenever you are working with the chassis electrical wiring system.

**4-6.5** Attach ground to bare metal. Paint and other coatings insulate, thus they must be removed at the grounding location.

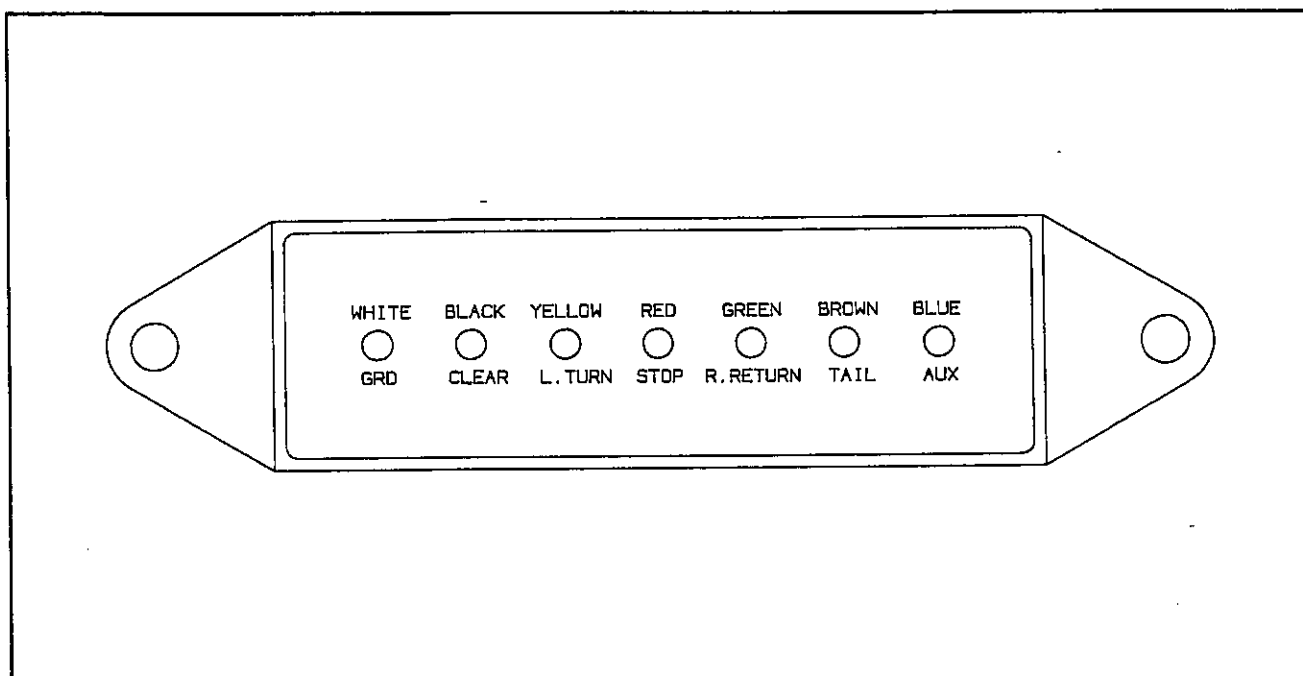
## 4-7 ELECTRICAL HARNESS INSTALLATION

**4-7.1** Locate the tail light harness which was rolled up to the rear of the axle. Unroll the harness until it reaches the junction box located above the subframe pivot tube. Cut the harness so all the wires in the harness will reach the terminals in the junction box. Attach the ring terminal to the ends of the wires and then attach them to the junction box according to **FIG. 4-5**.

**NOTE:** ONLY FORD, CHEVY, AND I.H. COLOR CODES ARE GIVEN. EVEN THESE COLOR CODES MAY BE DIFFERENT WITH DIFFERENT MODEL YEARS OF TRUCKS.

MAIN HARNESS WIRE COLOR		
WIRE COLOR	LIGHTS/SIGNAL	LANDOLL SUPPLIED EXTENSION WIRE COLOR
green-Chevy & I.H.	right turn	green
orange-Ford		
yellow-Chevy & I.H.	left turn	yellow
green-Ford		
brown-All	clearance	brown
blue-I.H.		
black w/purple tracer-Ford	reverse	blue
light green-Chevy		
through frame	ground	white





**Figure 4-5 Junction Box Connection**

**4-7.2** Locate the 6" X 7" tail lights which were removed from the chassis and stored before frame modification.

**4-7.3** Mount the tail light onto the rear bumper side extensions. If the harness on the tail light is not long enough to reach the junction box then lengthen it according to the main harness wire color table. Crimp on the ring terminals and attach wires according to (Figure 4-5).

**4-7.4 FOR FOUR POLE PLUG IN BUMPER OPTION PROCEED AS FOLLOWS:**

a. Remove securing screw in side of the 4 pole female plug and remove inner core. Save screw to re-install later.

b. Wire 4 pole plug female inner core with 120" wires, (insulation stripped 3/8" on one end) as follows: (See Figure 4-6 on following page)

WIRE COLOR	SOCKET LETTER
green	G
yellow	R
brown	B
white	W

c. Secure each wire by tightening set screws securely against bare wires. Test connection by pulling each wire firmly. Wires must not pull loose.

d. Insert the 4 pole connector back into housing, properly aligning threaded hole of insert with hole in side of housing. Re-install original securing screw.

e. Mount and ground the 4 pole connector from the rear of the bumper in the hole provided. Position so that the hinged cover spring is at the top. Install the left hand mounting bolt and tighten securely. Install the right hand mounting bolt. Install nut and tighten securely.

f. Install the other ends of the wires to the terminals in the junction box. Connect each color of wire to corresponding terminal marked in junction box.

**4-7.5 OPTIONAL WIRING FOR EMERGENCY LIGHTING**

a. Assemble three toggle switches in the aluminum panel from the back side with the toggle switch key slots down, away from the mounting flange. Tighten jam nuts securely. (See Figure 4-8)

b. Mount the PTO caution placard on the panel using two 3/16" stove bolts with the top of the placard toward the mounting flange of the panel. Install a lock washer and nut on each stove bolt. Align the large hole of the placard with the largest hole of the panel. Tighten mounting bolts securely. (See Figure 4-8)

c. Mount the PTO warning light in the largest hole of the panel from the unpolished side. Install jam nut on front side and tighten securely against the placard. (See Figure 4-8)

**NOTE: All Landoll supplied PTO units have a warning light. Units acquired from other sources may not have a warning switch and light.**

**4-7.6** Switch panel assembly is wired as shown in Figure 4-8.

**4-7.7** Mount the switch panel assembly under the dash in an accessible location. The removable panel directly under the steering column works well for mounting and accessibility on some models of trucks.

**4-7.8** Drill a 9/16" diameter hole in the fire wall.

**4-7.9** Locate and snap a 9/16" grommet in the fire wall hole just drilled to protect wiring.

**4-7.10** Route the switch panel wires containing in-line fuses (red, blue, and black) and the long brown wire through the grommet in the fire wall.

**4-7.11** Connect the wires in the multi-conductor wiring harness to the truck wiring system according to Figure 4-10 (seven conductor wiring connections).

**4-7.12** Route the 7-conductor cable through the truck to the bulkhead

**4-7.13** Position the 30-amp circuit breaker on the right hand fender as near as possible, but no closer than 3" back and

3" down, to the starter solenoid. This is the recommended location; however, check for possible interference of hood spring and linkage. Different trucks may require a different circuit breaker location. The circuit breaker must be connected to the side of the starter solenoid that is attached to the positive side of the battery.

**4-7.14** Make two 1/8" holes at the above prescribed locations. Mount the circuit breaker using sheet metal screws.

**4-7.15** Using an 8", red, 10 gauge wire with a 3/16" ring terminal on one end and a 3/8" ring terminal on the other end, wire the "BAT" post of the circuit breaker to the starter solenoid post containing the positive battery cable from the battery.

**4-7.16** Attach the 3/16" ring terminal of the 9-foot long, 10-gauge, red wire to the accessory post of the circuit breaker.

**4-7.17** Route this same wire, staying clear of the hood spring and linkage area, across the top of the fire wall with the other wire harnesses.

**4-7.18** Route the wire through the fire wall, to the switch panel, along with the emergency light switch wiring. Attach the wire to the bottom of SWITCH 1 along with the loose end of the short brown wire of SWITCH 2. (See Figure 4-8)

**4-7.19** Remove the existing emergency light flasher from the fuse box and replace with a heavy duty flasher.

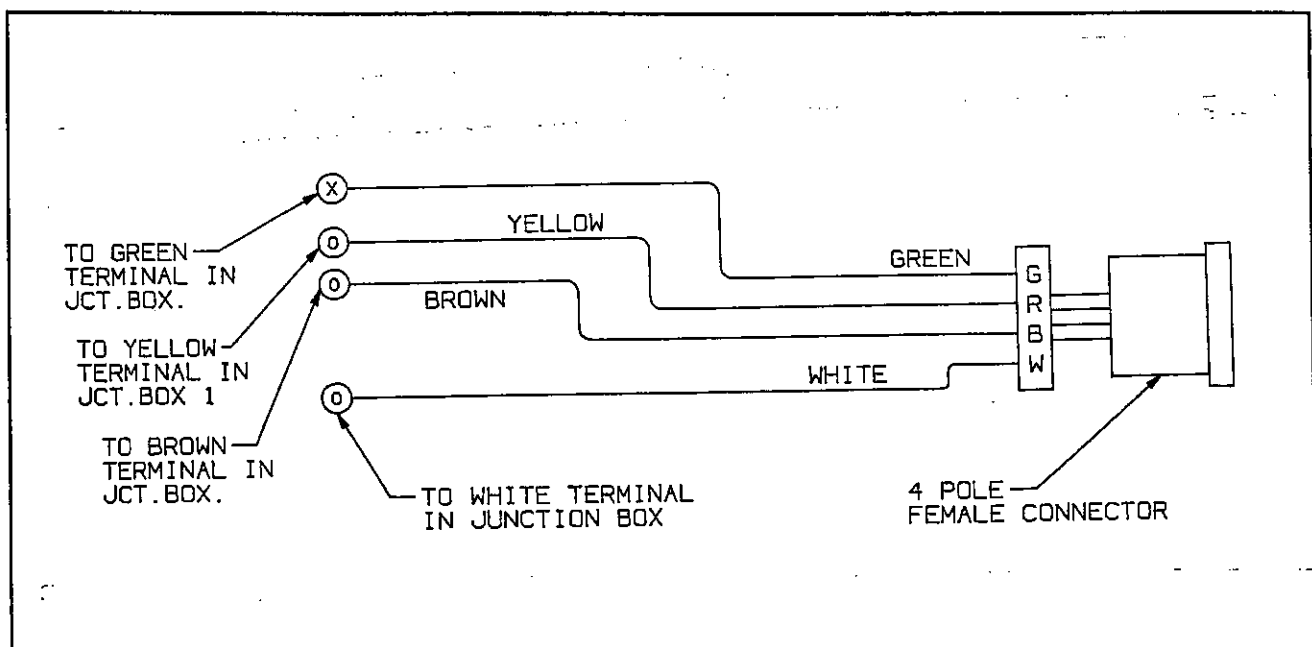


Figure 4-6 Four Pole Connector Wiring Schematic

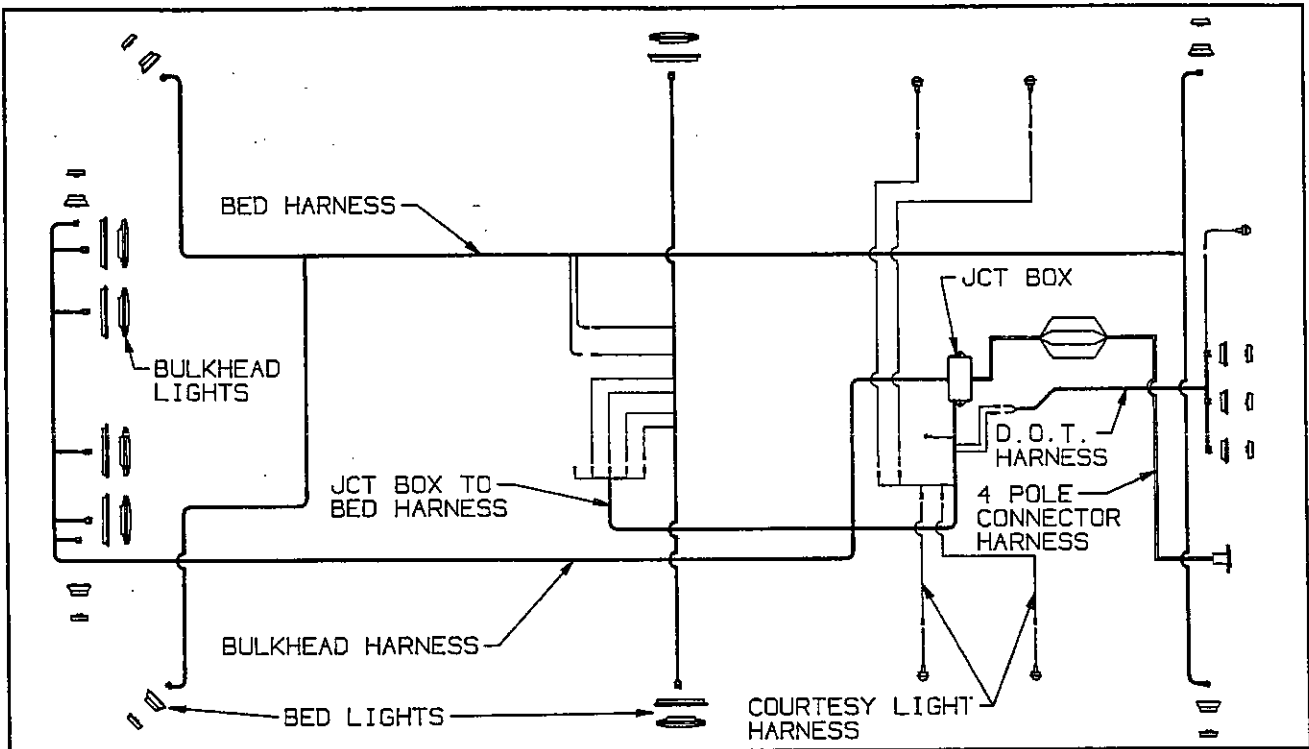


Figure 4-7 Chassis Wiring

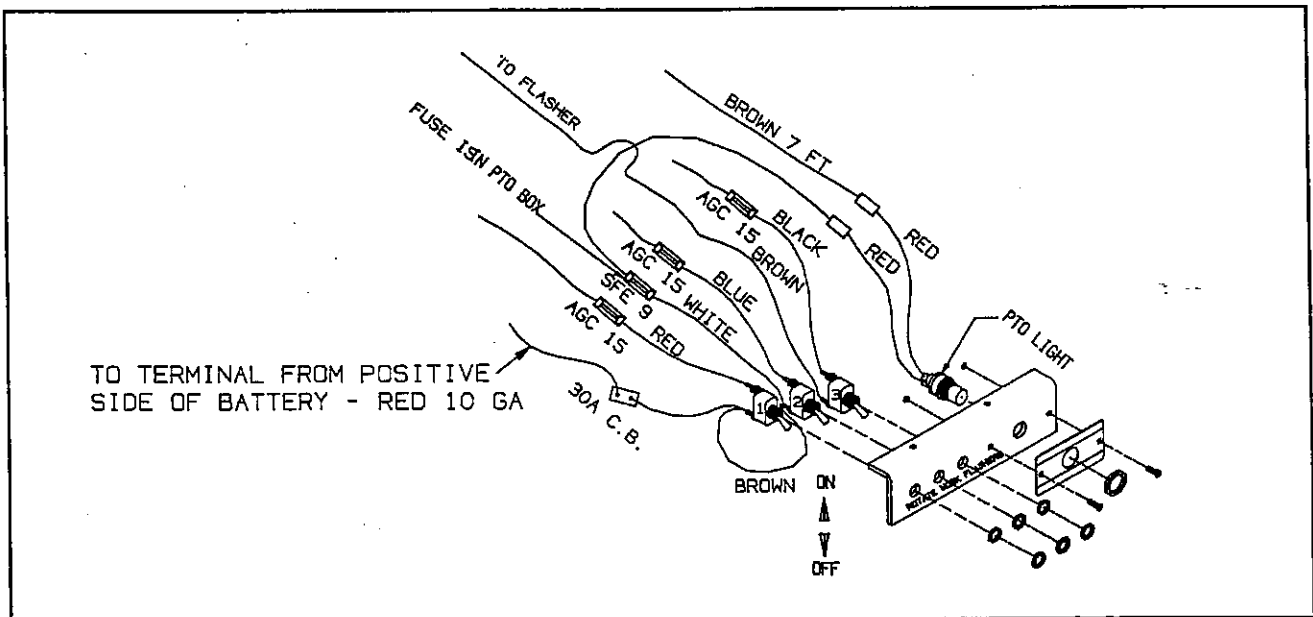


Figure 4-8 Dash Switch Panel Installation

**4-7.20** The brown wire of SWITCH 3 connects to the flasher. The flasher output wire is white with a red stripe for Ford, brown for Chevy, and black for International Harvester. On International Harvester trucks there are several black wires together. Use a test probe with the flashers on to determine which wire is correct.

**4-7.21** Reconnect the vehicle battery(ies) connecting the positive cable first, then the ground cable. Check for any signs of a short in the wiring such as blown fuse(s) or hot wires.

## 4-8 LIGHT BAR OPTION

**4-8.1** Drill the 13/16" diameter hole in the head rack top tube, on the top side only. The centerline of the hole should be 9/16" from edge of the tube, directly beneath the wire on the light bar. (See Figure 4-9)

**4-8.2** Mount the emergency light bar according to the instructions that are supplied with the light kit. (See Figure 4-9)

**4-8.3** Run electrical wires into the 13/16" diameter hole located in the top tube. Route to the driver's side of the head rack, then down the side to exit through the bulkhead tube.

**4-8.4** Wire the light bar to the 7-conductor cable accord-

ing to the instructions supplied with the light bar. The 7-conductor cable wires are as shown in table below.

### 4-8.5 WORK LIGHTS ON BULKHEAD OPTION

- Remove cover plates over slots in bulkhead.
- Mount lights in slots and plug into existing harness
- Using work light harness, connect white worklight harness to brown tail terminal in junction box, mount toggle switch in hole provided in control panel, connect black wire to black wire in bulkhead harness.

WIRING TABLE FOR LIGHT BAR		
7-CONDUCTOR WIRE COLOR	CIRCUIT	LIGHT BAR WIRE COLOR
yellow	left hand turn	orange
green	right hand turn	white
brown	clearance lights	blue
white	ground	black
red	emergency SWITCH 1 (rotating)	red
blue	emergency SWITCH 2 (work)	blue/black
black	emergency SWITCH 3 (forward fishr)	yellow and yellow/black (wire together)

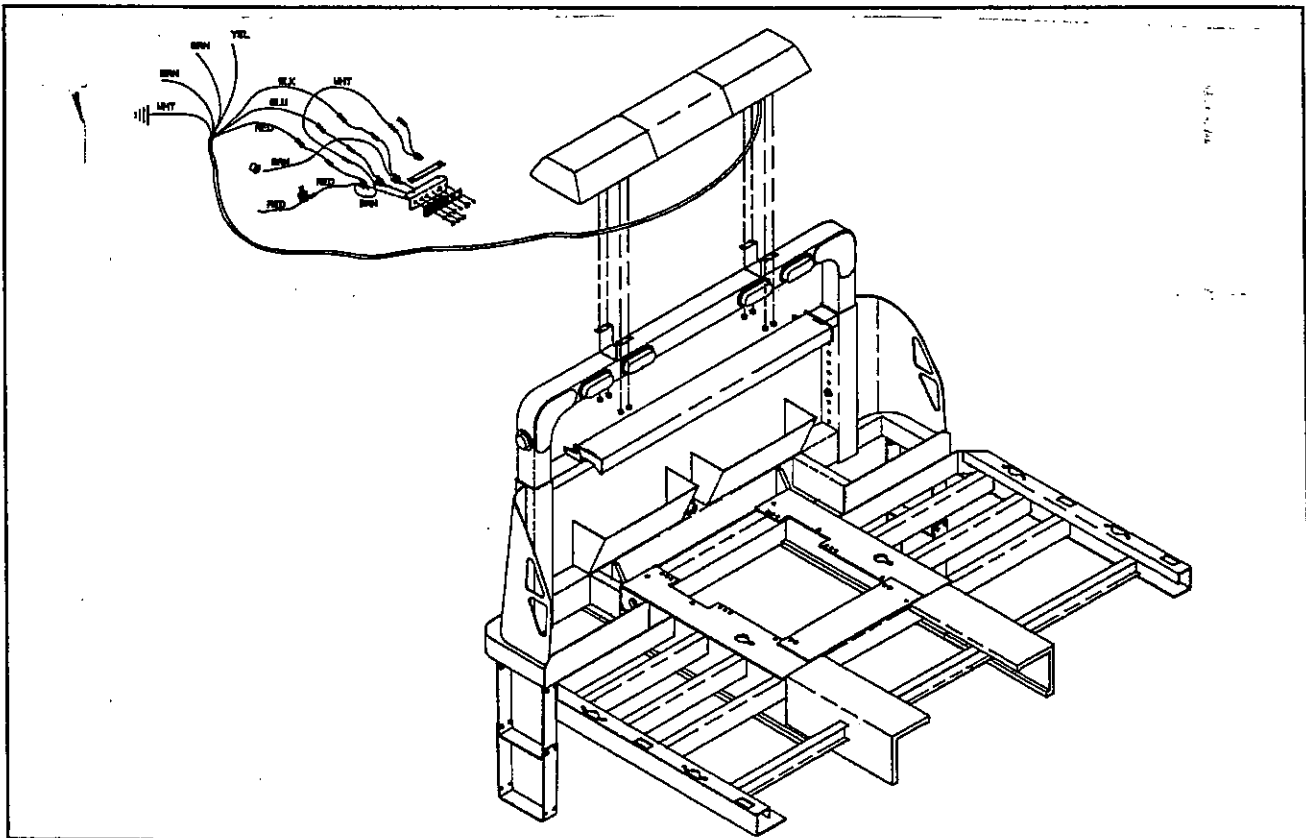


Figure 4-9 Light Bar Installation

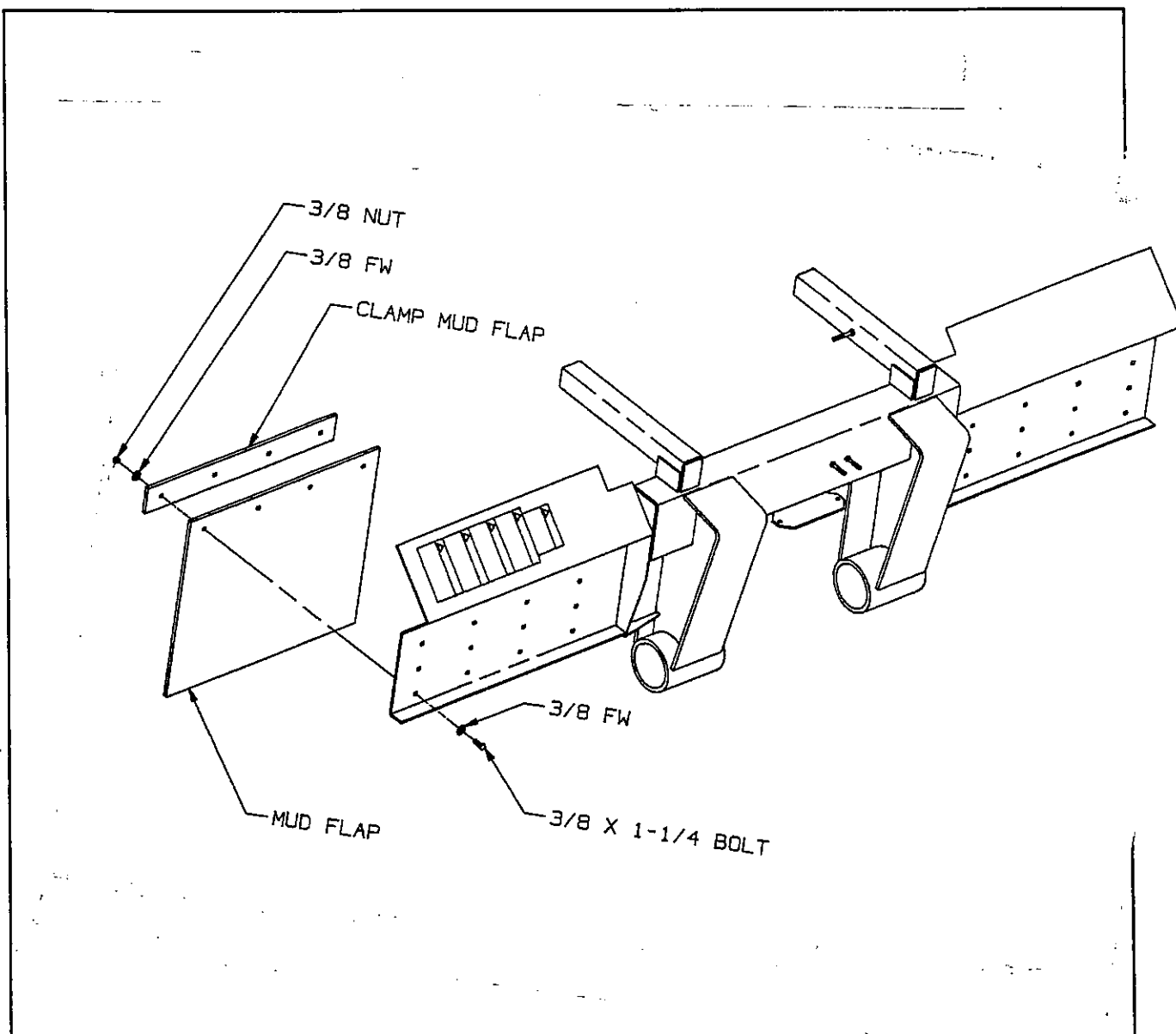


Figure 4-10 Mud Flap Installation

## 4-9 MUDFLAP AND TOOL BOX INSTALLATIONS

**4-9.1** Install a mud flap behind both rear dual wheels on the mud flap support provided. Use four 3/8" x 1-1/4" bolts to hold the mud flaps secure between the mud flap mount and the flat metal clamp. (See Figure 4-10)

**NOTE:** Select the set of mounting holes that will position the bottom of the mud flap about 8" above the ground.

**4-9.2** If ordered, place the tool box(es) on the mounting plates of the subframe or against the side of the chassis frame just behind the cab and drill matching holes in the frame. Mount the tool box(es) with 1/2" x 1-1/2" cap screws and locking nuts. Run Trim-lok around the edge of the tool box opening. Close the door. If the door is loose, loosen the screws on the striker plate and adjust the plate to eliminate rattle. Install the courtesy light in the back of the tool box and plug it into the brown wire in the wiring harness.

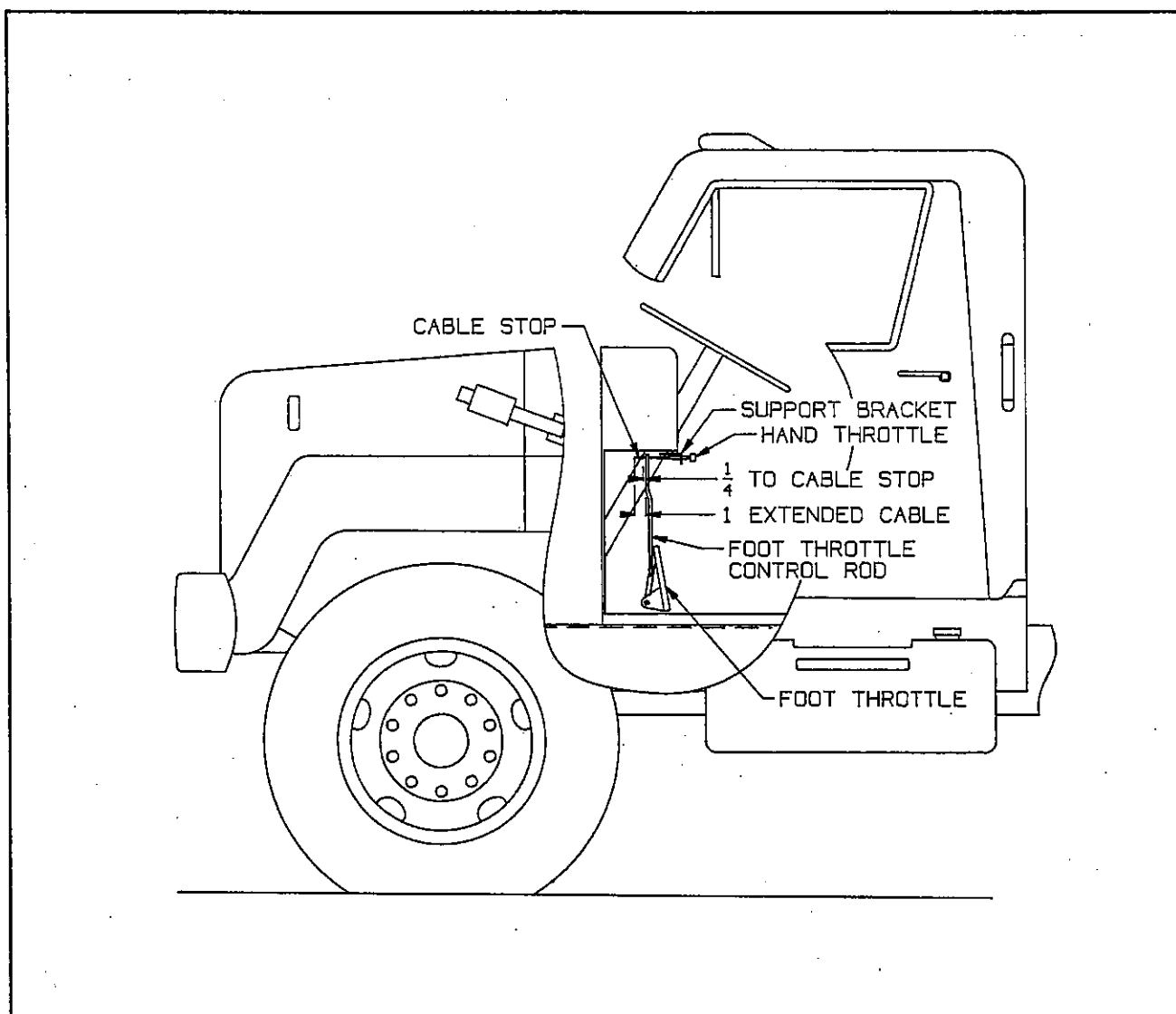


Figure 4-11 IH Throttle Diesel Installation

#### 4-10 HAND THROTTLE CABLE INSTALLATION INTERNATIONAL HARVESTER

**4-10.1** Mount the throttle cable support bracket under the dash in line with the foot throttle control rod.

**4-10.2** Cut the hand throttle cable to a length that will allow it to be installed through the support bracket and into the existing hole in the end of the foot throttle control rod with 1" extending past the foot throttle control rod.

**4-10.3** Pull the inner core of the hand throttle cable back into the outer housing about 8 inches.

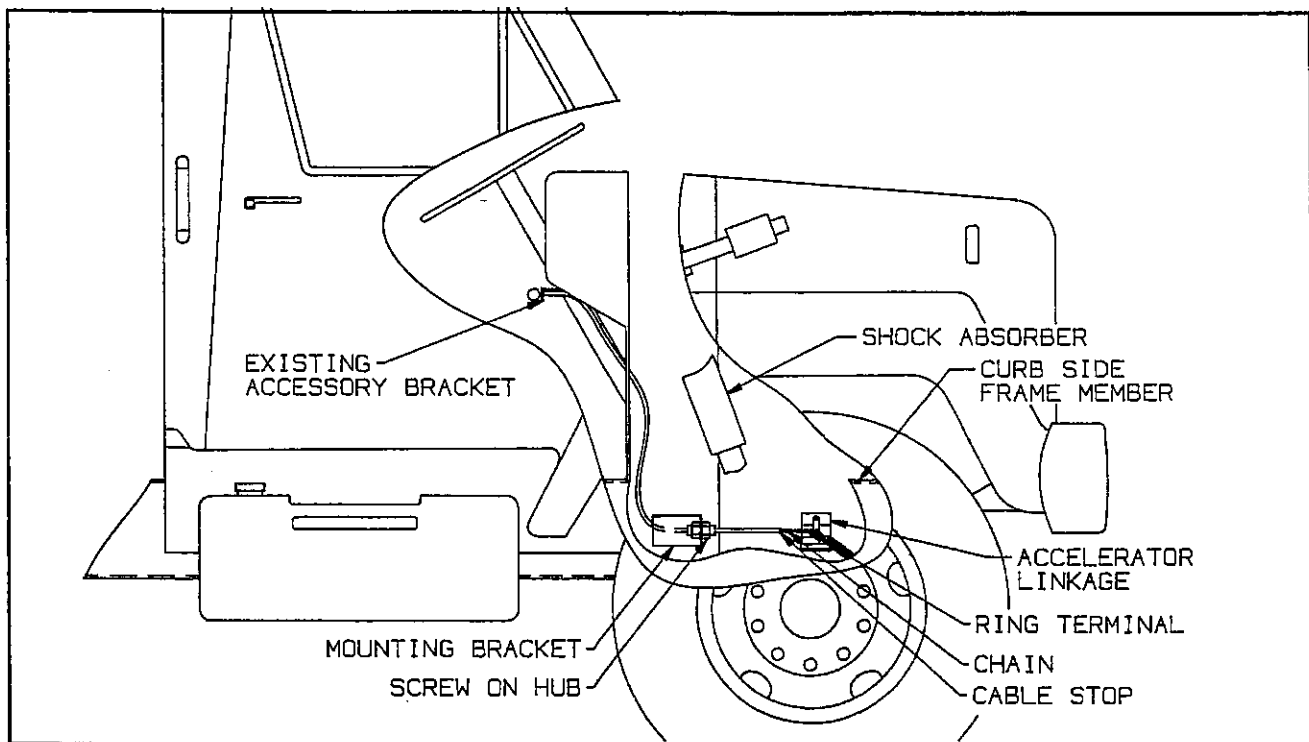
**4-10.4** Cut off 6 inches of the outer housing of the hand throttle cable from which you just removed the inner core.

**4-10.5** Push the inner core of the hand throttle cable back through the outer core and through the hole in the end of the foot throttle control rod.

**4-10.6** Install a cable stop on the extended end of the hand throttle cable 1/4" from the foot throttle control rod. (See Figure 4-11)

**4-10.7** Operate the hand throttle to determine that the cable stop will strike the foot throttle control rod and operate it without binding.

**4-10.8** Operate the foot throttle to determine that the foot throttle control rod does not catch or bind on the hand throttle cable.



**Figure 4-12 Ford Throttle Installation (Diesel)**

## **4-11 HAND THROTTLE CABLE INSTALLATION - FORD**

**4-11.1** Locate the accessory installation plate that is mounted on the underside of the truck dash, directly below the steering column. Remove one of the pop-out covers that are in the plate.

**4-11.2** Mount the throttle cable to the accessory installation plate in the hole you just created and thread it through one of the access holes in the firewall. There should be a grommeted hole just below and to the left of the steering column. You will need to cut a hole in the rubber just large enough to permit the throttle cable to pass through. If a hole is not readily available, one must be drilled in an area free of brackets, wires or other obstructions. Be sure to grommet the hole before installing the throttle cable. See **FIGURE 4-12** for orientation during the balance of the installation.

**4-11.3** Route the throttle cable along the firewall and down to the curbside frame member.

**4-11.4** Install the auxiliary throttle cable mounting bracket to the truck frame on the inside of the curbside frame member, using the existing holes behind the shock absorbers.

**4-11.5** Retract the throttle cable into the cable housing six inches. There is a ball bearing inside the throttle housing that must not fall out during this process.

**4-11.6** Cut the outer housing off to a length that is even with the mounting bracket and extend the inner cable fully out of the outer housing.

**4-11.7** Install a field screw-on hub to the end of the outer housing and insert it through the mounting bracket. Secure the hub with double nuts.

**4-11.8** Strip the insulation from a 1/4" electrical ring terminal. Open the crimping barrel lengthwise. Insert one side of the opened barrel into the end loop of the chain. Fold this side of the terminal down and then fold the other side over this to secure the chain.

**4-11.9** Install a cotter pin through the existing throttle linkage AND the ring terminal at the location where the spring hooks into the existing throttle linkage. Spread the cotter pin halves.

**4-11.10** Insert the inner core of the auxiliary throttle cable through the end of the chain you just installed and secure it with a cable stop installed to the end of the inner core cable.

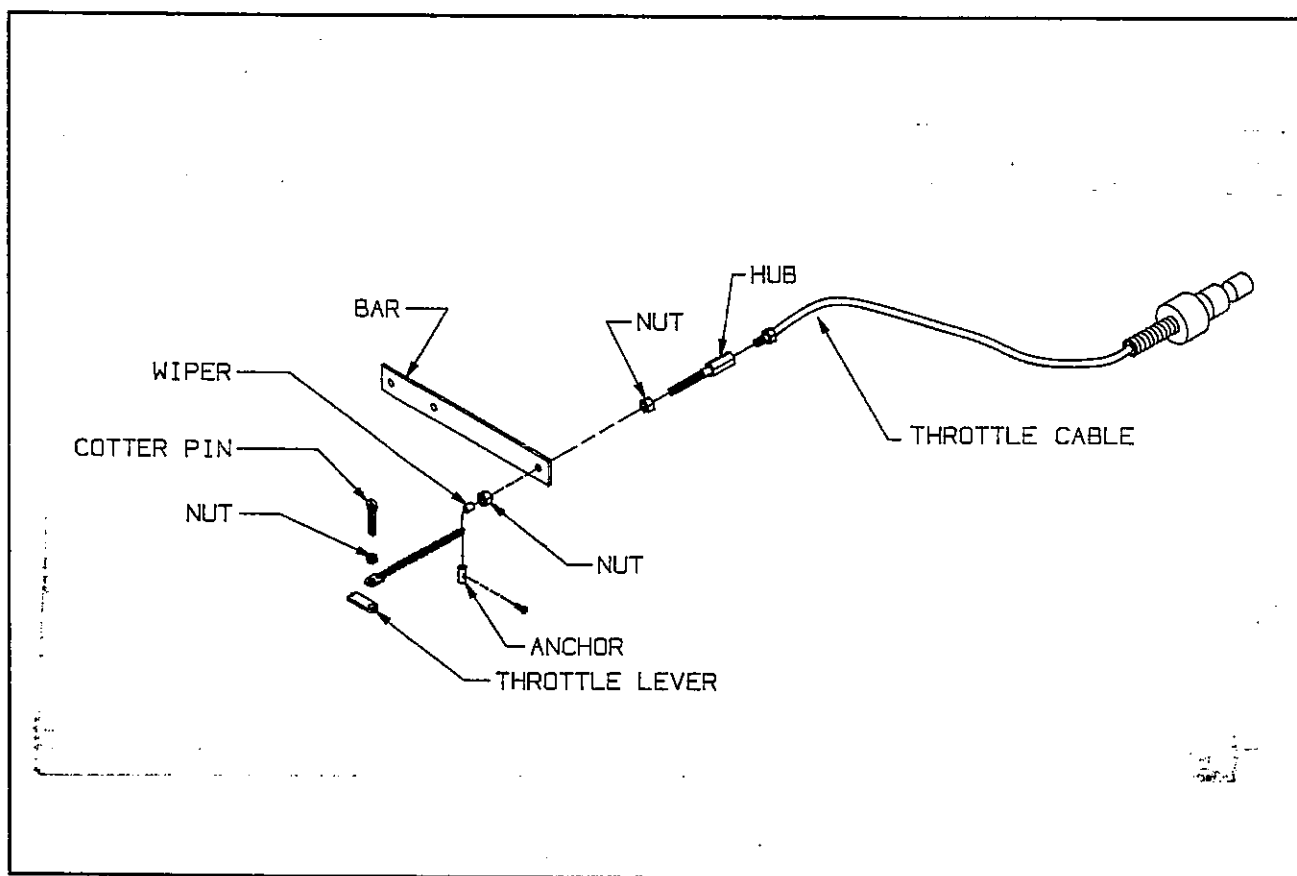


Figure 4-13 Chevrolet Throttle Installation (Diesel)

## 4-12 HAND THROTTLE INSTALLATION - CHEVROLET

**4-12.1** Install the throttle cable mounting bracket to the underside of the dash in a location directly in line with the accelerator pedal. Secure the bracket with two 3/16" round headed stove bolts and nuts.

**4-12.2** Drill a 1/2" hole through the firewall 1-5/8" to the right of the centerline of the foot pedal and inline with the foot-pedal pivot, horizontally. Install a grommet in the hole in the firewall.

**4-12.3** Install the throttle cable to the mounting bracket and thread the other end through the hole you just drilled through the firewall.

**4-12.4** Install the exterior mounting bracket to the front of the manifold on the top of the engine using the existing bolts in the manifold.

**4-12.5** Route the throttle cable to the bracket. Retract the

inner core of the throttle cable about six inches into the cable housing. Cut the throttle cable off even with the bracket you installed on the manifold.

**4-12.6** Assemble a field screw-on hub to the end of the outer housing and secure it to the manifold bracket with locking double nuts.

**4-12.7** Fabricate a chain and terminal assembly as described in Section 4-11 on previous page.

**4-12.8** Insert the inner core of the throttle cable through the end link of the chain assembly and secure with a cable stop.

**4-12.9** Place the ring terminal on the chain assembly over the spring attach hole in the end of the existing throttle linkage.

**4-12.10** Place a 3/16" hex nut over the ring terminal and insert a cotter pin through the nut, ring terminal, and existing throttle linkage. Spread the ends of the cotter pin.



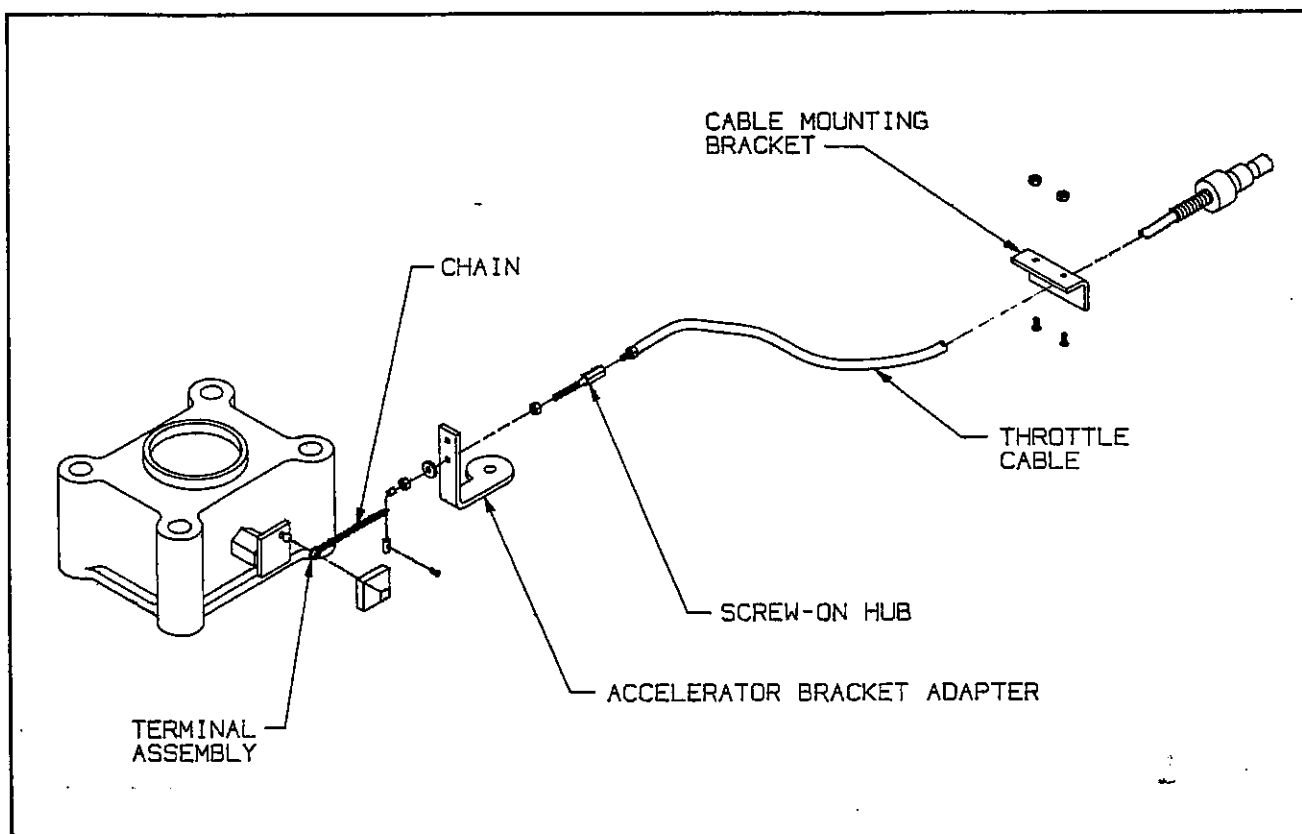


Figure 4-14 Chevy Cable Inst. to Carburetor & Bracket

## 4-13 GAS ENGINE HAND THROTTLE CABLE INSTALLATION

**4-13.1** Remove the air cleaner housing from the carburetor or intake manifold, and set aside. Cover the carburetor or intake manifold opening to prevent falling dust or parts from entering the engine.

**4-13.2** Drill a 13/32" diameter hole in the accelerator anchor bracket (mounted to the intake manifold) just below the existing accelerator pedal cable. (See Figure 4-14)

**4-13.3** Mount the hand throttle cable mounting bracket under the dash in a convenient, solid location.

**4-13.4** Route the hand throttle cable through the firewall and to the mounting bracket with minimal bending. The sharper any bends are, the stiffer the action of the hand throttle will be. If there are no convenient holes in the firewall, one must be drilled in a location free of brackets, wiring, hoses, or other obstacles. Be sure to grommet the hole before installing the hand throttle cable.

**4-13.5** Install the hand throttle cable to the mounting bracket you installed under the truck dash.

**4-13.6** Retract the inner cable six inches into the outer cable housing and route the outer housing to the mounting bracket on the manifold.

**4-13.7** Cut the entire cable even with the mounting bracket. Trim any sharp edges from the outer housing and push the inner cable back out. It should extend past the bracket and the end of the outer housing about six inches.

**4-13.8** Install a screw-on hub to the end of the outer housing and secure it to the mounting bracket with double nuts.

**4-13.9** Attach a chain and terminal assembly to the end of the inner cable as detailed in Section 4-11.

**4-13.10** Attach the ring terminal to the accelerator linkage by snapping the accelerator cable off of the carburetor linkage ball, placing the ring terminal over the linkage ball, and snapping the accelerator cable back onto the linkage ball.

## 4-14 DECALS & TRIM-LOK

**4-14.1** Install ALL decals (without bubbles or creases) and placards as listed. Some decals are factory installed.

**4-14.2** Check to verify that all the following Trim-lok has been installed:

- Trim-lok all frame cross member flanges and other sharp edges, hoses and electrical lines.
- Control panel(s) located behind the rear axle on the sub-frame. Install Trim-lok on all 4 leading edges.

**4-14.3** IT IS REQUIRED BY FEDERAL MOTOR VEHICLE LAW, that you fill in the "INCOMPLETE VEHICLE MANUFACTURED BY:" decal, shown at left, as follows:

- COMPANY/INDIVIDUAL installing kit
- MONTH installation completed
- YEAR installation completed
- TRUCK MANUFACTURE
- MONTH truck was manufactured
- YEAR truck was manufactured
- through 12. (copy from the INCOMPLETE VEHICLE CERTIFICATION LABEL on the door truck jam).
- through 22. leave blank
- through 27. (copy from the INCOMPLETE VEHICLE CERTIFICATION LABEL on the truck door jam)
- MONTH of installation
- YEAR of installation
- (copy of the vehicle certification label)
- SERIAL NUMBER on LOADOLL KIT

## 4-15 REMOTE CONTROL WINCH WITH WHEEL LIFT

**4-15.1** Bolt relief valve to plate on front right side of subframe (See Figure 4-17).

**4-15.2** Bolt solenoid valve to rear left side plate on inside, directly below opening with hydraulic hoses.

**4-15.3** Connect straight pipe swivel and the existing pressure hose from the pump to the "IN" port of the relief valve.

**4-15.4** Attach tees and adapters to solenoid valve. Remove winch hoses from spool valve and connect to tees on solenoid valve as shown in Figure 4-17).

**4-15.5** Attach 3/8" hoses to tees on solenoid and to spool valve winch ports.

**4-15.6** Connect 2-conductor cable to starter relay or

other positive electrical connection on one end. Route cable along the truck frame and connect to solenoid valve as shown.

**4-15.7** Install seven conductor plug in the 2" diameter hole in the spool valve cover and connect to solenoid valve as shown.

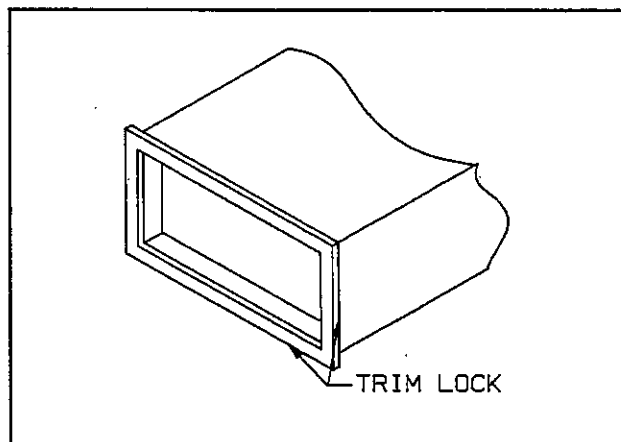
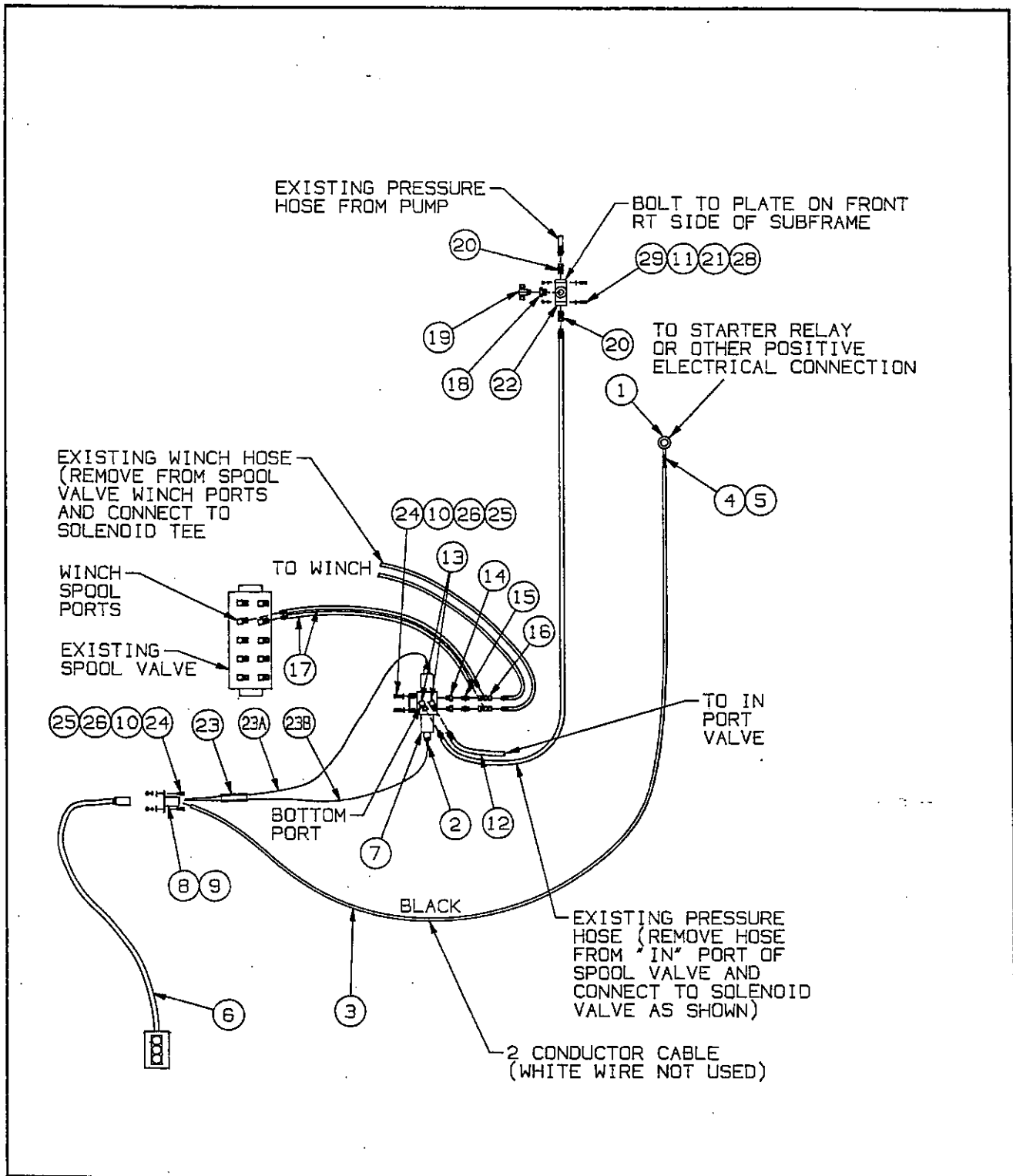


Figure 4-15 Control Panel Trim-Lok

MANUFACTURED BY:	
①	② MO. ③ YR
DATE OF MANUFACTURE BY:	
INCOMPLETE VEHICLE MANUFACTURED BY:	
④	⑤ MO. ⑥ YR
DATE INC. MFD.	
GVWR ⑦	
GAWR FRONT ⑧	WITH
GVWR ⑨	TIRES.
⑩ RIMS ⑪ PSI COLD ⑫	
GAWR INTERMEDIATE (1) ⑬	WITH
⑭ RIMS ⑮ PSI COLD ⑯	TIRES
GAWR INTERMEDIATE (2) ⑰	WITH
⑱ RIMS ⑲ PSI COLD ⑳	TIRES
GAWR REAR ㉑	WITH
㉒ RIMS ㉓ PSI COLD ㉔	TIRES
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN:	
②⑤ MO. ②⑥ YR	
VEHICLE IDENTIFICATION NUMBER:	
②⑦	
VEHICLE TYPE: ②⑧	

**NOTE:** Do not ty-wrap to the control panel extension rods because they are moving parts.



**Figure 4-16 Remote Control Winch Installation**

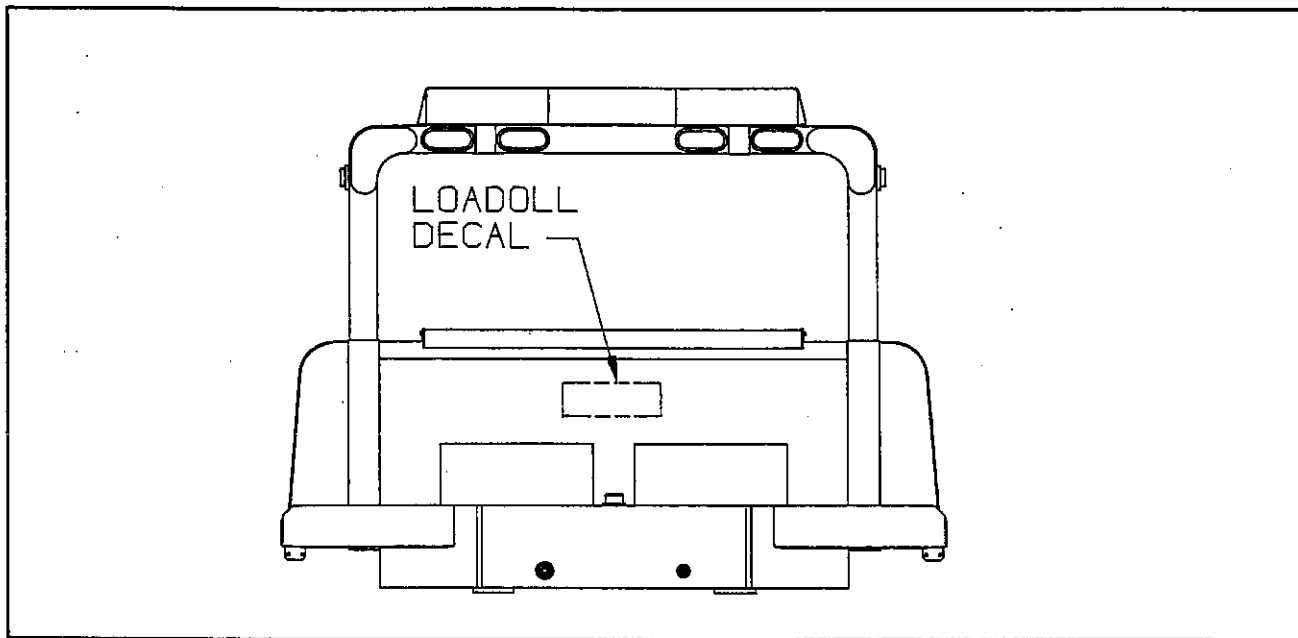


Figure 4-17 Decal Identification

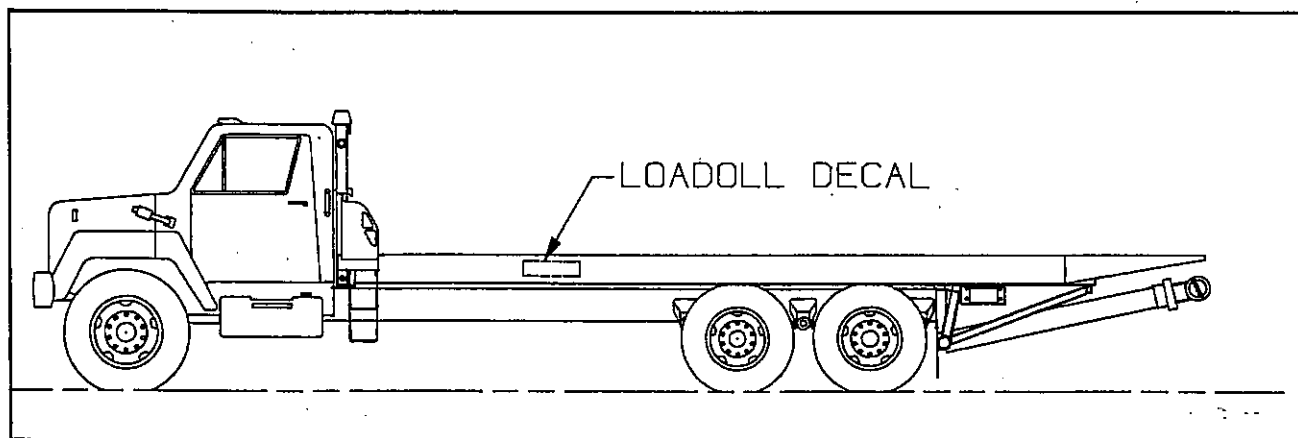


Figure 4-18 Curb Side Decal Location

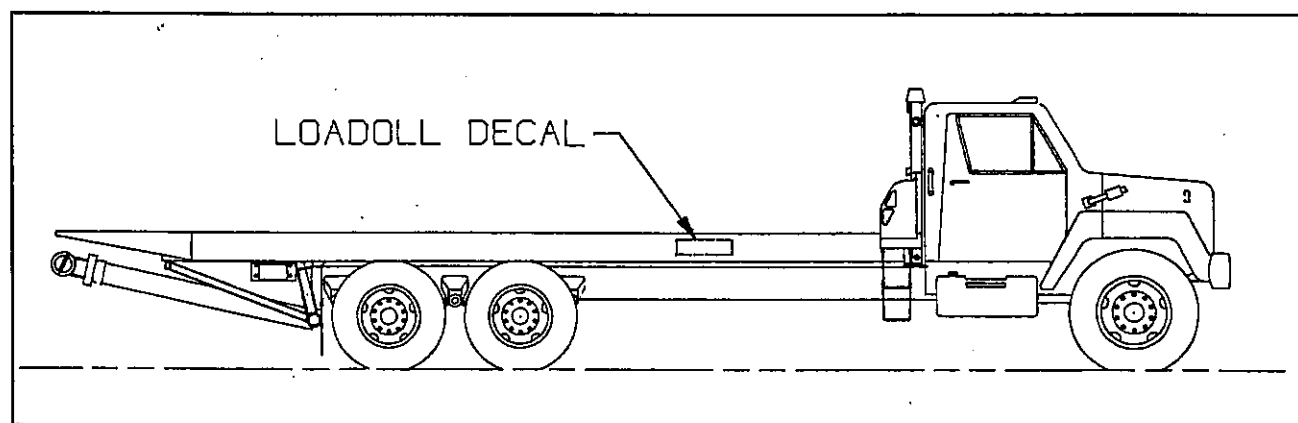


Figure 4-19 Driver's Side Decal Locations



## DANGER

READ AND STUDY THE CONTROLS, AND OPERATION SECTION OF THIS MANUAL BEFORE ATTEMPTING TO OPERATE. IMPROPER OPERATION OF THE LOADOLL COULD RESULT IN PERSONAL INJURY OR DEATH.



## DANGER

SERIOUS INJURY OR DEATH MAY RESULT IF UNDER OR IN THE PATH OF ITEM(S) BEING LOADED, UNLOADED, OR SECURED. ANY OBJECT IN THE SAME AREAS MAY BE DAMAGED, OR CAUSE DAMAGE TO THE LOADOLL.



## DANGER

SERIOUS INJURY MAY RESULT IF YOU ARE UNDER, IN FRONT OF, OR BEHIND: THE BED, SUB-FRAME, REAR BUMPER, OR CHASSIS AT ANY TIME WHEN THEY ARE MOVING. THE SUB-FRAME CAN MOVE BACK 6 INCHES AND THE BED CAN TRAVEL BACK AN ADDITIONAL 126 INCHES. ANY OBJECT IN THE SAME AREAS MAY BE DAMAGED, OR CAUSE DAMAGE TO THE LOADOLL.



## DANGER

ENGINE EXHAUST PRODUCES HEAT, AND TOXIC FUMES. USE AN EXHAUST EVACUATION SYSTEM WHEN OPERATING INSIDE ENCLOSED AREAS. FAILURE TO PROVIDE ADEQUATE VENTILATION MAY CAUSE SERIOUS ILLNESS OR DEATH. DIRECT CONTACT WITH ANY EXHAUST SYSTEM MAY CAUSE SERIOUS PERSONAL INJURY.



## DANGER

NEVER ATTEMPT TO DISENGAGE THE WINCH CABLE SPOOL WHEN THE CABLE IS UNDER TENSION. THE LOAD WILL BE ALLOWED TO ROLL AWAY CAUSING SERIOUS INJURY OR DEATH TO ANYONE IN THE PATH OF THE ROLLING VEHICLE.



## CAUTION

DO NOT HANDLE THE WINCH CABLE WHEN THE WINCH IS IN THE ENGAGE POSITION. HANDS OR CLOTHING COULD GET CAUGHT IN CABLE AND BE PULLED INTO THE SPOOL CAUSING SERIOUS PERSONAL INJURY.



## DANGER

THE INSTRUCTIONS IN THIS MANUAL ARE FOR THE DRIVERS SIDE CONTROLS ONLY. CONTROLS FOR THE OPTIONAL CURB SIDE CONTROL WILL OPERATE THE LOADOLL FUNCTIONS IN THE SAME DIRECTION AS THE DRIVERS SIDE CONTROLS. READ THE CONTROL PLACARD CAREFULLY FOR FUNCTION AND DIRECTION BEFORE OPERATING.

## PREFACE:

**DO NOT OPERATE YOUR LOADOLL UNTIL A COMPLETE INSPECTION OF THE TRUCK AND BED ASSEMBLY HAS BEEN PERFORMED. DO NOT OPERATE A DEFECTIVE LOADOLL. A DEFECT MAY CAUSE PERSONAL INJURY, DAMAGE TO YOUR LOADOLL, OR TIME CONSUMING DOWN-TIME.** Operation of your new HEAVY DUTY LOADOLL is easy, efficient and dependable if installation was done properly. The engine must be running and the PTO engaged before any controls will become functional.

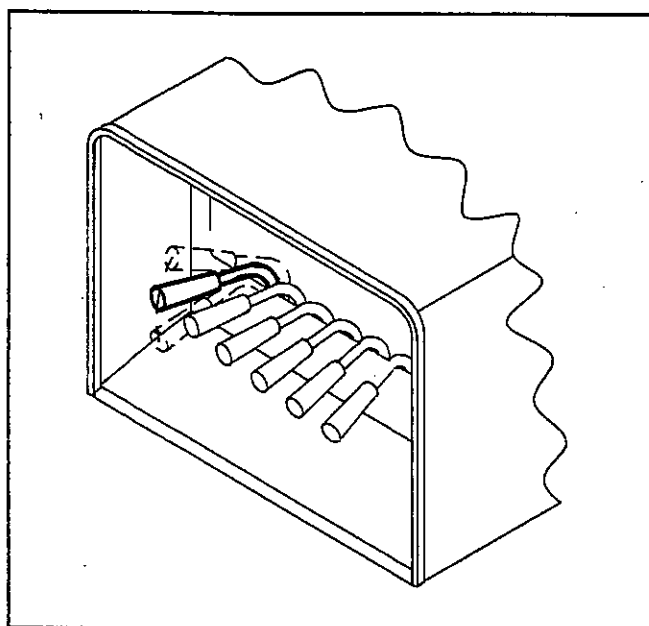


Figure 5-1 Bed and Subframe Tilt Control



## DANGER

NEVER ATTEMPT TO DISENGAGE THE WINCH CABLE SPOOL WHEN THE CABLE IS UNDER TENSION. THE LOAD WILL BE ALLOWED TO ROLL AWAY CAUSING SERIOUS INJURY OR DEATH TO ANYONE IN THE PATH OF THE ROLLING VEHICLE.



## CAUTION

DO NOT HANDLE WINCH CABLE WHEN THE WINCH IS IN THE ENGAGE POSITION. HANDS OR CLOTHING COULD GET CAUGHT IN CABLE AND BE PULLED INTO SPOOL CAUSING SERIOUS PERSONAL INJURY.

## 5-1 BED AND SUBFRAME TILT CONTROL

**5-1.1** This control operates the tilting function of the loadoll.

### IMPORTANT!

The bed hold-downs in front of the bed must be slide back 6" behind the bulkhead hold-downs before using tilt control. The center of gravity of the load on the bed should be as close to center over the trucks rear axle as possible before using tilt control.

**NOTE:** The bumper has to be up to allow the sub-frame and bed to tilt up. See Fig. 5-1 for handle positions.

### UP POSITION:

Tilts the front of the bed and subframe for loading purposes.

### NEUTRAL:

No bed or subframe tilting will occur. The neutral position will hold the angle the bed is tilted to. The bed must be in the level position and the front of the bed in the bulkhead lock-downs before transporting.

### DOWN POSITION:

Tilts the front of the bed and subframe down until the front of the bed and sub-frame assembly contacts the the non-tilting subframe for transport position.

## 5-2 WINCH CONTROLS

### 5-2.1 CABLE SPOOL ENGAGEMENT:

This control lever is on the side of the winch.

#### DISENGAGE POSITION:

The cable spool "free wheels". This allows the cable to play-out by hand.

#### ENGAGE POSITION:

Allows the hydraulic system to control winch.

*A Careful Operator*

**IS THE BEST INSURANCE  
AGAINST AN ACCIDENT**

*-National Safety Council-*





## DANGER

FAILURE TO LEAVE AT LEAST 5 CABLE WRAPS ON THE CABLE SPOOL COULD ALLOW THE CABLE TO COME OFF OF THE SPOOL. THIS COULD RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

### 5-2.2 HYDRAULIC WINCH CONTROL:

This control operates the winch when the winch engagement lever is in the "ENGAGE" position. (See FIG. 5-2)

#### UP POSITION:

Reels the cable OUT.

#### NEUTRAL:

No winch action occurs. The winch holds its existing position even under load. Never rely on the winch to hold the load. Chain the load down before transporting.

#### DOWN POSITION:

Reels the cable IN.

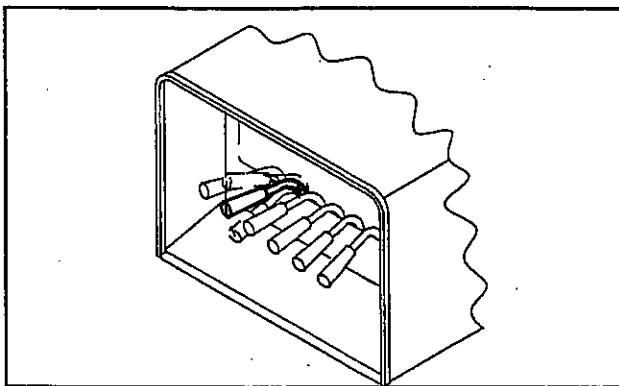


FIG. 5-2 WINCH IN/OUT CONTROL

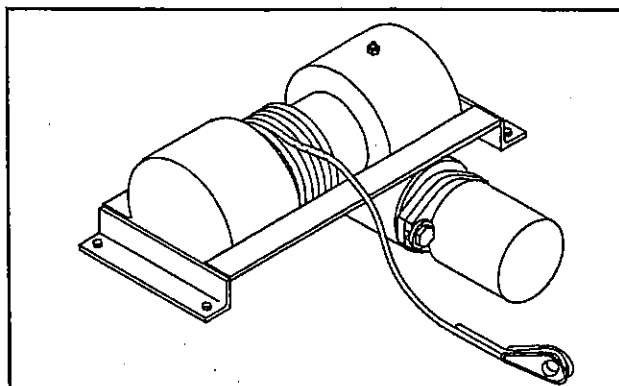


FIG. 5-3 LEAVE MINIMUM OF FIVE CABLE WRAPS ON SPOOL



## DANGER

SERIOUS INJURY MAY RESULT IF YOU ARE UNDER, IN FRONT OF, OR BEHIND: THE BED, SUB-FRAME, REAR BUMPER, OR CHASSIS AT ANY TIME WHEN THEY ARE MOVING. THE SUB-FRAME CAN MOVE BACK 6 INCHES AND THE BED CAN TRAVEL BACK AN ADDITIONAL 126 INCHES. ANY OBJECT IN THE SAME AREAS MAY BE DAMAGED, OR CAUSE DAMAGE TO THE LOADOLL.

### 5-3 BED SLIDE CONTROL

5-3.1 This control (See FIG. 5-4) operates the bed slide function of the Loadoll.

#### IMPORTANT:

Do not slide bed back so the center of gravity of the load on the bed is behind the trucks rear axle until the bumper is firmly on the ground.

#### UP POSITION:

Slides the bed back on the subframe. Do not slide the bed back if the center of gravity of the load is centered over trucks rear axle unless the bumper is on the ground to stabilize the Loadoll.

#### NEUTRAL:

No bed sliding will occur. The rest position will hold the bed in the current position.

#### DOWN POSITION:

Slides the bed forward on the subframe. The subframe must be tilted all the way down into transport position before the bed will slide the last 6" forward to assure the bed hold-downs lock into the bulkhead hold-downs. The bed must be in the forward position and locked into bulkhead hold-downs before transporting.

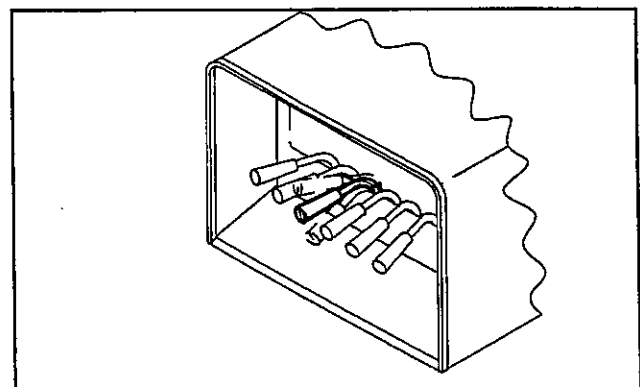
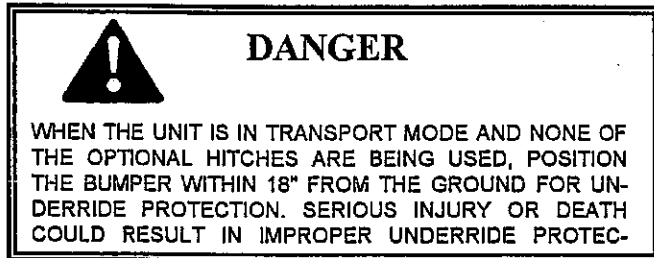


FIG. 5-4 BED SLIDE CONTROL

## 5-4 BUMPER CONTROLS

**5-4.1** This function controls the bumper position. Since all the optional hitches are attached to the bumper, this function also controls the height of all the optional hitches.



**5-4.2** In order to keep the unit stabilized during loading and unloading, the bumper must be in firm contact with the ground when the center of gravity of the load on the bed is behind the truck's rear axle. See Fig. 5-5 for handle positions.

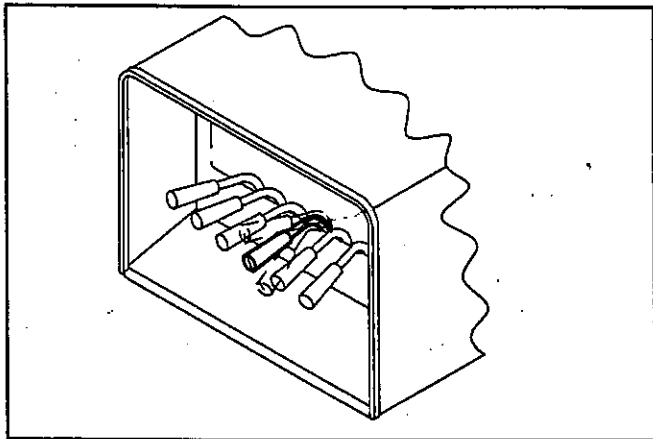


Figure 5-5 HD CL Bumper Controls

### UP POSITION:

Moves the bumper up. Make sure when moving the bumper up that the bumper or any of the optional hitches attached to the bumper do not leave the bumper so high that it hits when the bed is slid back.

### NEUTRAL:

No bumper movement will occur.

### DOWN POSITION:

Moves the bumper down.

## 5-5 OPTIONAL SECOND WINCH CONTROL

**5-5.1** The second winch operates in the same fashion as the standard winch. The location of the handle is different depending on which option the truck has. Look on the control panel instructions for the handle control for your unit.

## 5-6 HITCH SLIDE OPTION

**5-6.1** Some optional hitches such as the towbar and wheelift have a hydraulic control to move the hitch in or out. The hitch is to be out only far enough to allow swing clearance for the towed vehicle. The hitch is to be fully retracted when not in use. See Fig. 5-6 for handle positions.

### UP POSITION:

Moves the hitch out.

### NEUTRAL POSITION:

The hitch holds in the same position.

### DOWN POSITION:

Moves the hitch in.

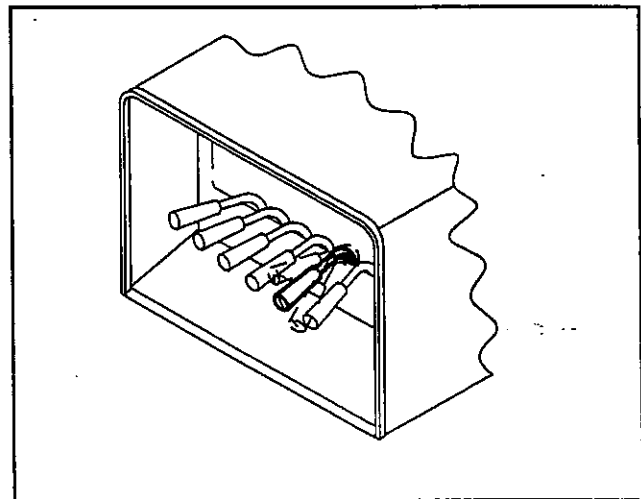


Figure 5-6 Hitch Slide Control





## DANGER

READ AND STUDY THE CONTROLS, AND OPERATION SECTION OF THIS MANUAL BEFORE ATTEMPTING TO OPERATE. IMPROPER OPERATION OF THE LOADOLL COULD RESULT IN PERSONAL INJURY OR DEATH.



## DANGER

ENGINE EXHAUST PRODUCES HEAT AND TOXIC FUMES. USE AN EXHAUST EVACUATION SYSTEM WHEN OPERATING INSIDE ENCLOSED AREAS. FAILURE TO PROVIDE ADEQUATE VENTILATION MAY CAUSE SERIOUS ILLNESS OR DEATH. DIRECT CONTACT WITH ANY EXHAUST SYSTEM MAY CAUSE SERIOUS PERSONAL INJURY.

### PREFACE:

DO NOT OPERATE YOUR LOADOLL UNTIL A COMPLETE INSPECTION OF THE TRUCK AND LOADOLL ASSEMBLY HAS BEEN PERFORMED. DO NOT OPERATE DEFECTIVE EQUIPMENT. A DEFECT MAY CAUSE PERSONAL INJURY, DAMAGE TO YOUR LOADOLL, OR TIME CONSUMING DOWN-TIME. Operation of your LOADOLL is easy, efficient, and dependable if installation was done properly.

## 6-1 POWER TAKE-OFF (PTO)

**6-1.1** The PTO control is located in the chassis cab. If the LOADOLL was installed on the chassis at LANDOLL Corp., the PTO control will be located on the floor or on the dash. When the PTO is engaged (control pulled up), the engine powers a high pressure hydraulic pump, providing power to the hydraulic controls.

**6-1.2** **APPLY THE PARK BRAKE WHEN OPERATING THE PTO.**

**6-1.3** Follow PTO operating procedures that are probably attached to the truck sun visor or in the PTO owners manual.

### NOTE:

NEVER TRANSPORT WITH THE PTO CONTROL ENGAGED OR EXTENSIVE DAMAGE MAY RESULT TO THE CHASSIS TRANSMISSION, PTO UNIT, HYDRAULIC PUMP, AND OTHER HYDRAULIC COMPONENTS.

## 6-2 BED LOADING:

**6-2.1** Back your LOADOLL up to the item to be retrieved. Align your LOADOLL so that the bed is in-line with the item to be loaded. Do not back your unit any closer than 11 feet (132 inches) to the item being retrieved.

**6-2.2** Set parking brake securely.

**6-2.3** Shift the PTO into gear.

**6-2.4** Adjust the throttle control to achieve the engine R.P.M. desired.

### NOTE:

DO NOT EXCEED 1500 ENGINE R.P.M. WITH THE PTO ENGAGED. PUMP AND HYDRAULIC SYSTEM COMPONENTS WILL BE ADVERSELY AFFECTED.

**6-2.5** Slide the bed back at least 6".

**6-2.6** Raise the bumper up as far as possible without causing damage to anything. Make sure all optional hitches are retracted.

**6-2.7** Tilt the subframe up to the desired loading angle making sure it is tilted enough for the bed to touch the ground when the bed is slid back.

**6-2.8** Tilt the bumper down until it is in firm contact with the ground.

**6-2.9** Slide the bed back until the bed touches the ground.

**6-2.10** Load the bed making sure the center of gravity of the load is centered on the width of the bed. Use the winch to pull the load onto the bed.

**6-2.11** Anchor the front, back, and sides of the load to the bed key hole slots or D-rings. Use a minimum of 5/16" "HI-TEST" chain.



## DANGER

SERIOUS INJURY OR DEATH MAY RESULT IF A PERSON IS UNDER OR IN THE PATH OF ITEM(S) BEING LOADED, UNLOADED, OR SECURED. ANY OBJECT IN THE SAME AREAS MAY BE DAMAGED, OR CAUSE DAMAGE TO THE LOADOLL.

### NOTE:

NEVER RELY ON THE WINCH CABLE TO TIE DOWN A LOAD!

**6-2.12** Slide the bed forward only until the load is centered over the rear axle.

**6-2.13** Making sure the bed is at least 6" back, tilt the bed down to the level, transport position. Slide the bed all the way forward, making sure the bed locks into the bulkhead hold-downs.

**6-2.14** If the load is a vehicle, set the parking brake of the vehicle being hauled to help prevent its movement.

**6-2.15** Return the throttle control to idle, and disengage PTO.

**6-2.16** Check all tie-downs securing the load, and attach safety chains before transporting.

**6-2.17** Lower the bumper to within 18" of the ground for under-ride protection.

*A Careful Operator*

IS THE BEST INSURANCE  
AGAINST AN ACCIDENT

*—National Safety Council—*



## 6-3 BED UNLOADING

**6-3.1** Locate your LOADOLL on a level, solid surface in an open area.

**6-3.2** Shift the PTO into gear according to section 6-1.

**6-3.3** Adjust the throttle control to achieve the engine R.P.M. desired.

### NOTE:

DO NOT EXCEED 1500 ENGINE R.P.M. WITH THE PTO ENGAGED. PUMP AND HYDRAULIC SYSTEM COMPONENTS WILL BE ADVERSELY AFFECTED.

**6-3.4** Make sure nothing is attached to any of the optional hitches and that hitches are fully retracted. Raise the bumper up as far as possible without causing damage to anything.

**6-3.5** Slide the bed back until the center of gravity of the load is centered over the truck's rear axle. Make sure the bed is slid back at least 6" so the front of the bed is no longer in the bulkhead hold-downs.

**6-3.6** Secure the winch cable to the load, and remove any cable slack.

**6-3.7** If the load is a vehicle, block the vehicle tires so the vehicle can not roll forward. Shift the loaded vehicles' transmission to neutral, and release parking brake.

**6-3.8** Remove all securing chains.

**6-3.9** Tilt the sub-frame up until the desired unloading angle is obtained. Make sure sub-frame is tilted enough for the bed to touch the ground when the bed is slid back.

**6-3.10** Tilt the bumper down until it is in firm contact with the ground.

**6-3.11** Slide the bed back until the bed touches the ground.

**6-3.12** Operate the winch, reeling out cable, to allow the load to be removed from the bed of the LOADOLL.

**6-3.13** After load is off and clear of the bed, secure the unloaded item from moving by blocking it, setting parking brake, etc.

**6-3.14** Remove winch line and secure to any bed load anchor location and remove any slack in the cable.

### NOTE:

DO NOT ANCHOR THE WINCH CABLE TO THE REAR BUMPER OR THE OPTIONAL HITCHES!

**6-3.15** Slide the bed half way to the full forward position.

**6-3.16** Tilt the bed fully down to the transport (level) position.

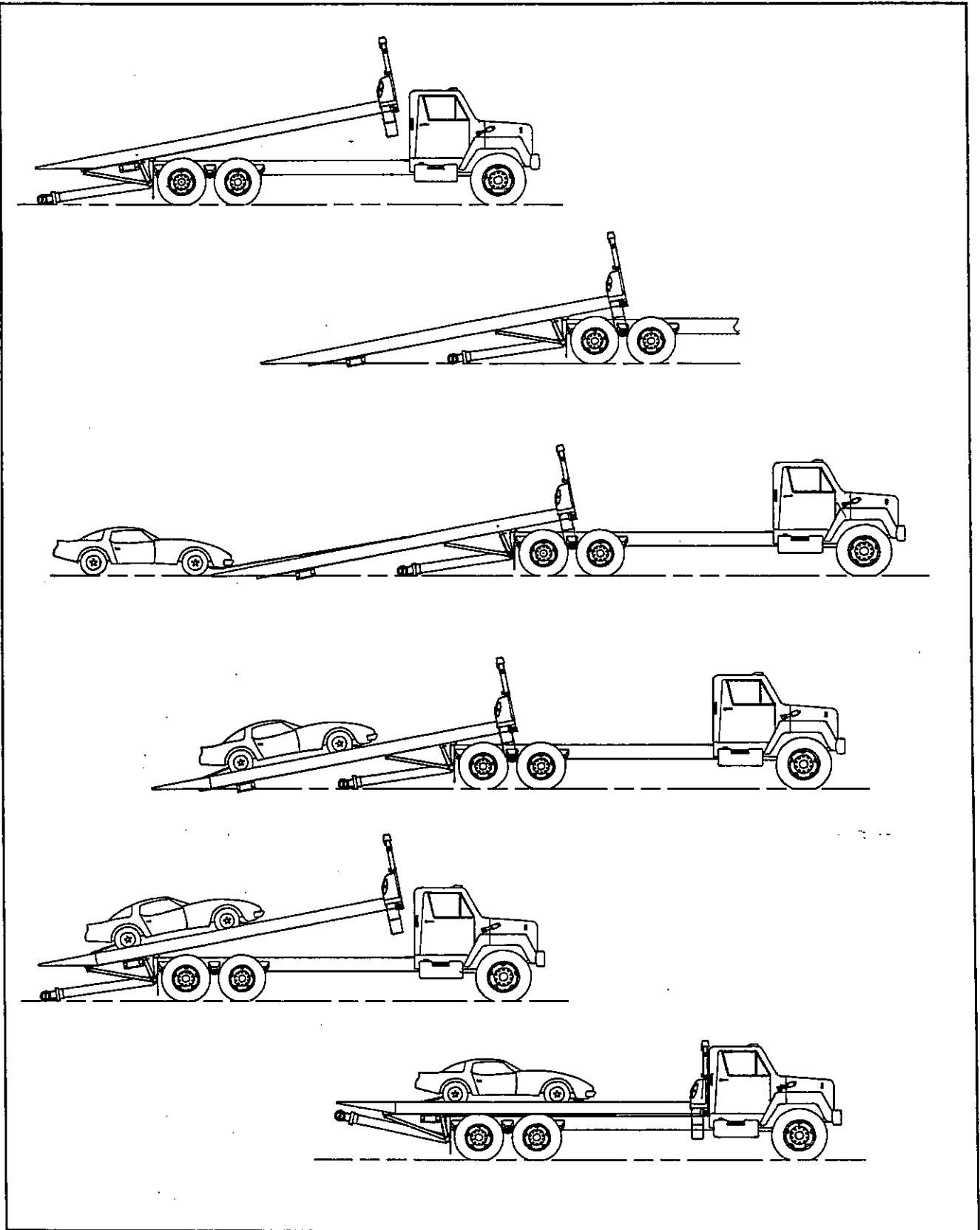


Figure 6-1 Loadoll Operational Steps

**6-3.17** Slide the bed all the way forward so the front of the bed locks into bulkhead hold-downs.

**6-3.18** Lower the bumper to within 18" of the ground for under-ride protection.

**6-3.19** Return the throttle control to idle and disengage PTO.

## 6-4 LOAD PLACEMENT

**6-4.1** Position the load so 10% of the load transfers to the front axle, and 90% of the load on the rear axle. Also position the load so the center of gravity of the load is centered on the width of the bed.



### DANGER

NEVER ATTEMPT TO CARRY MORE THAN 5000 POUNDS OF LOAD ON THE TOWBAR. ALWAYS MAINTAIN AT LEAST 50 PERCENT (OR ONE HALF) OF THE TRUCKS ORIGINAL FRONT AXLE WEIGHT WHEN THE TOWBAR IS LOADED. FAILURE TO MAINTAIN THE PROPER WEIGHT RATIO OR ATTEMPTING TO CARRY MORE THAN 5000 POUNDS ON THE TOWBAR MAY RESULT IN LOSS OF CONTROL OF THE VEHICLE RESULTING IN DAMAGE TO THE LOADOLL, THE TOWBAR, AND/OR THE TOWED VEHICLE, SERIOUS PERSONAL INJURY OR DEATH MAY ALSO RESULT IF LOSS OF CONTROL OVER THE LOADOLL IS EXPERIENCED.



### CAUTION

NEVER CRAWL UNDER THE TRUCK OR TOWED VEHICLE DURING TOWBAR OPERATIONS. NEVER CRAWL UNDER THE TOWBAR AT ANY TIME. FAILURE TO COMPLY WITH THIS WARNING MAY RESULT IN SERIOUS PERSONAL INJURY.



### CAUTION

NEVER STAND BETWEEN THE TRUCK AND THE TOWED VEHICLE. STANDING BETWEEN THE TRUCK AND THE TOWED VEHICLE MAY RESULT IN SERIOUS PERSONAL INJURY.

## 6-5 TOWBAR ATTACHMENT

**6-5.1** Block wheels or otherwise secure the vehicle to be towed from rolling.

**6-5.2** Back your LOADOLL up in-line with the vehicle to be towed. Leave a 2 to 3 foot (24" - 36") gap between the towbar and the vehicle to be towed. Make certain the towbar is centered from side to side with the vehicle to be towed. (See FIG. 6-2)

**6-5.3** Set Loadoll parking brake securely.

**6-5.4** Engage the PTO and adjust throttle control to obtain desired engine RPM.

### NOTE:

DO NOT EXCEED 1500 ENGINE R.P.M. WITH THE PTO ENGAGED. PUMP AND HYDRAULIC SYSTEM COMPONENTS WILL BE ADVERSELY AFFECTED.

**6-5.5** Position the towbar until the towbar is lower than the vehicles' bumper height.

**6-5.6** Extend the tow-bar until it is slightly under the bumper of the vehicle being towed.

**6-5.7** Attach the "J" hook chains or other appropriate securing chains to the underside of the vehicle being towed. Attach the other end of the securing chains to the chain hooks on each side of the tow-bar cross tube.

### NOTE:

DO NOT ATTACH CHAINS TO DRIVE LINES, OR STEERING COMPONENTS OF THE VEHICLE TO BE TOWED. ONLY ATTACH CHAINS TO LOCATIONS SPECIFIED BY THE VEHICLES MANUFACTURER.

**6-5.8** Remove the blocks preventing towed vehicle from rolling. Prepare the vehicle according to the towed vehicle manufactures recommended towing procedures.

**6-5.9** Extend the towbar only far enough for the towed vehicle to have enough swing clearance.

**6-5.10** Tilt the towbar up to provide proper ground clearance for the towed vehicle. If chain hookup is proper, the chains will carry the weight, and pull the rubber rings on the towbar solidly against the front edge of the vehicles bumper without letting the rubber rings above or below the bumper. (See FIG. 6-3)

**6-5.11** Return the throttle control to the idle position.

**6-5.12** Disengage the PTO.

**6-5.13** Recheck vehicle for proper and secure attachment to the towbar before transporting.

**6-5.14** Attach applicable safety towing chains from the towed vehicle to the key hole slots in the Loadoll's rear bumper.

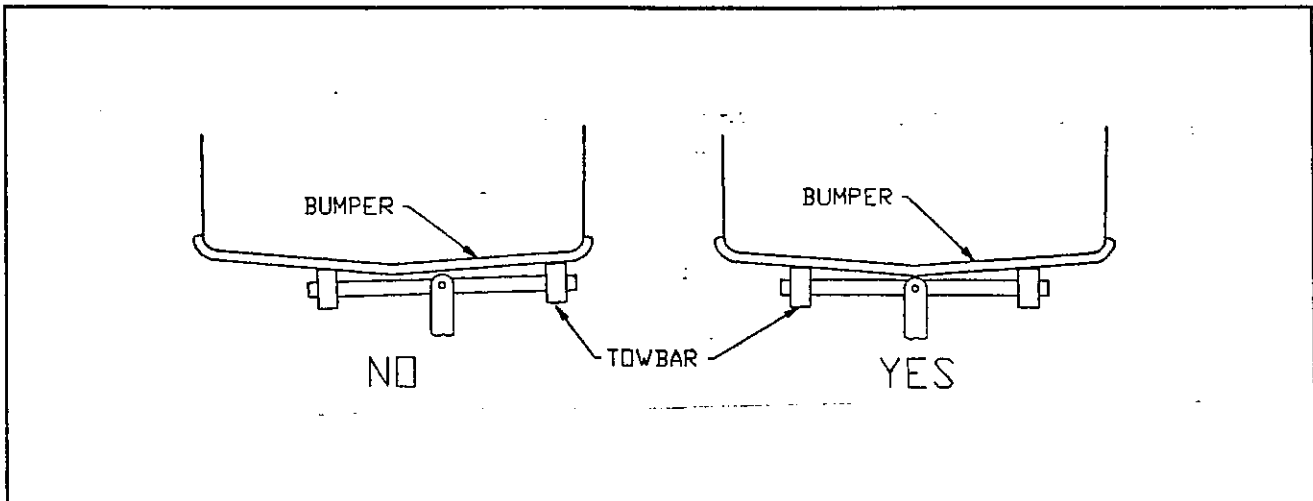


Figure 6-2 Towbar Center Examples

**6-5.15** Light the rear of the towed vehicle in accordance with federal, state and local statutes.

**6-5.16** Follow the recommended safe towing procedures, speeds, and distances established by the manufacturer of the vehicle being towed.

## 6-6 VEHICLE DISCONNECTION FROM TOWBAR

**6-6.1** Locate the towed vehicle in an open, level area. Apply the loadoll's parking brakes and engage PTO

**6-6.2** Lower the towed vehicle to within an inch of the ground.

**6-6.3** Set the brakes of the towed vehicle and chock the wheels of the vehicle.

**6-6.4** Lower the towbar until the chains towing the vehicle are slack enough to remove.

**6-6.5** Remove towing chains and safety chains.

**6-6.6** Retract towbar all the way in.

**6-6.7** Position towbar 18" above the ground for under-ride protection.

**6-6.8** Disengage PTO

## 6-7 WHEELIFT ATTACHMENT

**6-7.1** Back the loadoll to directly in front of the vehicle to be towed. Leaving a minimum of 2 feet between the two vehicles. Set the parking brake on the truck and engage PTO.

**NOTE:** The loadoll wheel lift is designed to be used at various angles to the truck; however the wheel lift must be aligned with the wheels of the towed vehicle so that when the wheel lift is extended, the wheel lift crossbar will be centered between the tires of the towed vehicle.

**NOTE:** The truck bed should remain in the forward position for the entire wheel lift operation.

**6-7.2** Tilt the wheel lift crossbar down to within 2" of the ground.

**6-7.3** Extend the crossbar until the crossbar is up tight against the towed vehicle's tires. The crossbar may have to be raised or lowered a little to assure the crossbar is as low and tight against the tire as possible.

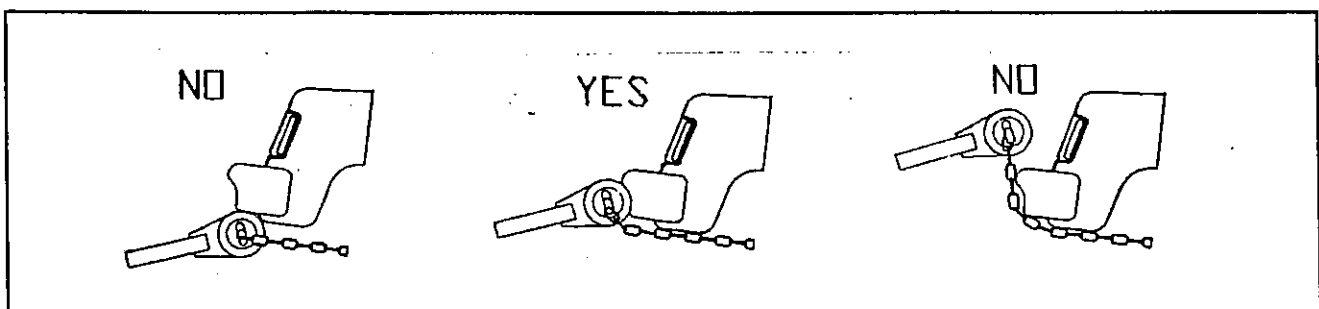


Figure 6-3 Examples of Proper and Improper Hookup



## CAUTION

ALWAYS STRAIGHTEN THE CROSSBAR OF THE WHEEL LIFT SO IT IS PARALLEL WITH THE REAR OF THE TRUCK BEFORE RETRACTING IT FULLY. IF THE CROSSBAR OF THE WHEEL LIFT IS ANGLED EVEN SLIGHTLY, IT WILL SNAP TO A STRAIGHT POSITION WHEN IT CONTACTS THE REAR OF THE BED. THIS COULD DAMAGE THE CROSSMEMBER AND CAUSE SERIOUS PERSONAL INJURY TO ANYONE STANDING NEAR THE CROSSMEMBER. .



## CAUTION

ALWAYS STRAP THE TIRES OF THE TOWED VEHICLE TO THE WHEEL LIFT BEFORE TRANSPORTING. FAILURE TO STRAP THE TIRES TO THE WHEEL LIFT MAY RESULT IN LOSS OF THE TOWED VEHICLE DURING TRANSPORT.



## CAUTION

UNEVEN ROADS, DIPS, BUMPS, AND RAMPS SHOULD BE AVOIDED WHENEVER POSSIBLE. NEVER EXCEED TEN MILES PER HOUR WHEN ONE OF THESE, OR SIMILAR OBSTACLES MUST BE ENCOUNTERED. PROCEED SLOWLY, STOPPING OCCASIONALLY TO CHECK THE POSITION OF THE TOWED VEHICLE. IT MAY BE NECESSARY TO RAISE OR LOWER THE WHEEL LIFT SLIGHTLY TO CLEAR ONE OF THESE OBSTACLES. FAILURE TO EXERCISE THESE CAUTIONS WHEN ENCOUNTERING THESE TYPES OF OBSTACLES MAY RESULT IN LOSS OF THE TOWED VEHICLE FROM THE WHEEL LIFT RESULTING IN DAMAGE TO THE WHEEL LIFT AND/OR THE TOWED VEHICLE.

**6-7.4** Remove the L-arms from their storage position. Install L-arm behind towed vehicle's tires and into wheel lift receiver.

**6-7.5** Install wheel lift pin through wheel lift receiver and L-arm in an L-arm hole that will allow the towed vehicle's tire to seat down in the L-arm as far as possible without the tire falling through or the vehicle hitting the crossbar. The L-arm receiver is adjustable on the width of the crossbar. Position L-arm at closest adjustment hole to tire without causing damage to towed vehicle.

**6-7.6** Raise the wheel lift up to proper towing height.

**6-7.7** Position the wheel lift to leave enough clearance between the truck and towed vehicle that the towed vehicle will not interfere with the trucks cornering capability.



## CAUTION

NEVER CRAWL UNDER THE TRUCK OR TOWED VEHICLE DURING WHEEL LIFT OPERATIONS. NEVER CRAWL UNDER THE WHEEL LIFT AT ANY TIME. FAILURE TO COMPLY WITH THIS WARNING MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.



## CAUTION

NEVER STAND BETWEEN THE TRUCK AND THE TOWED VEHICLE. STANDING BETWEEN THE TRUCK AND THE TOWED VEHICLE MAY RESULT IN SERIOUS PERSONAL INJURY.



## DANGER

NEVER ATTEMPT TO CARRY MORE THAN 5000 POUNDS OF LOAD ON THE WHEEL LIFT. ALWAYS MAINTAIN AT LEAST 50 PERCENT (OR ONE HALF) OF THE TRUCKS ORIGINAL FRONT AXLE WEIGHT WHEN THE WHEEL LIFT IS LOADED. FAILURE TO MAINTAIN THE PROPER WEIGHT RATIO OR ATTEMPTING TO CARRY MORE THAN 5000 POUNDS ON THE WHEEL LIFT MAY RESULT IN LOSS OF CONTROL OF THE VEHICLE, RESULTING IN DAMAGE TO THE LOADOLL, THE WHEEL LIFT, AND/OR THE TOWED VEHICLE. SERIOUS PERSONAL INJURY OR DEATH MAY ALSO RESULT IF LOSS OF CONTROL OVER THE LOADOLL IS EXPERIENCED..

**6-7.8** Place the latches of the retaining straps on the hooks on the wheel lift arms and loop the retaining straps over each tire. Pull the straps down tight and release the brakes of the towed vehicle. Remove the wheel chocks and prepare the vehicle for towing according to the towed vehicle's manufactures recommendations and secure loose parts of the towed vehicle.

**6-7.9** Disengage PTO

## 6-8 VEHICLE DISCONNECTION FROM WHEEL LIFT

**6-8.1** Locate the towed vehicle in an open, level area. Apply the loadolls parking brakes and engage PTO.

**6-8.2** Tilt the wheel lift down to the ground.

**NOTE:** The bed of the loadoll should remain in the fully forward position for the entire wheel lift operation.

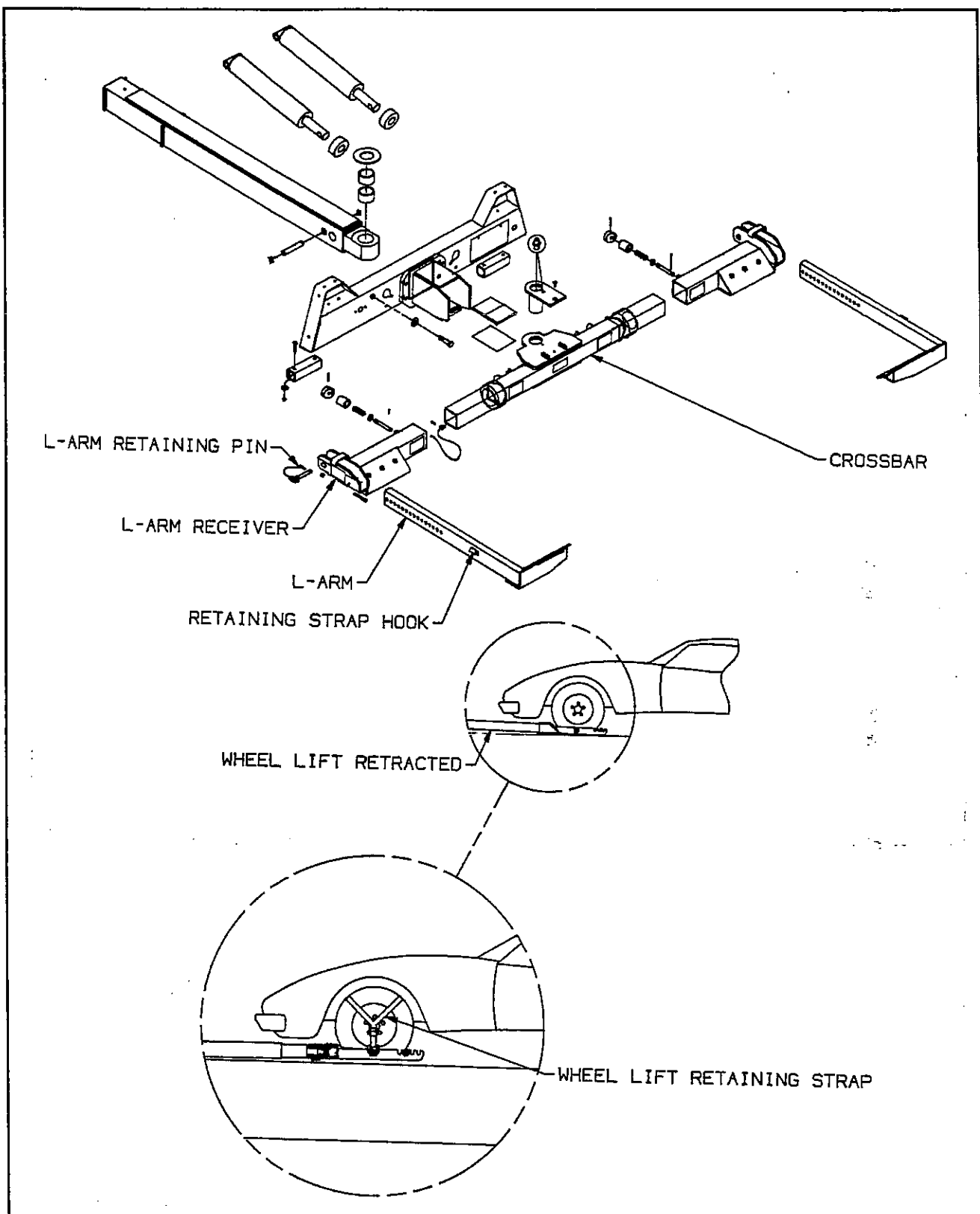
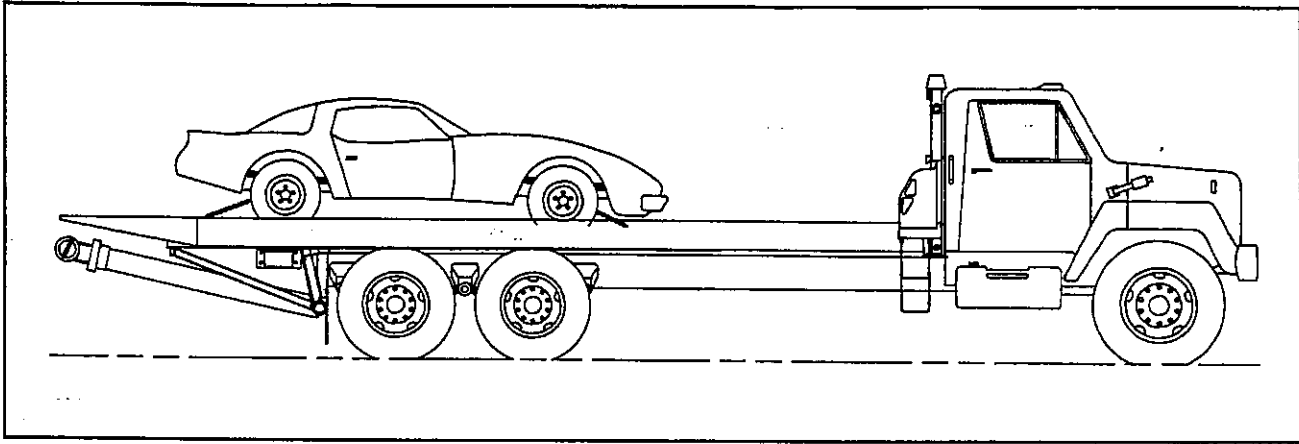


Figure 6-4 Wheel Lift Terminology



**Figure 6-5 Load Secured and Ready for Transport**

**6-8.3** Set the brakes of the towed vehicle and chock the wheels of the vehicle.

**6-8.4** Remove the retaining straps from towed vehicle's tires and remove safety chains.

**6-8.5** Remove L-arm retaining pins. Remove L-arms from behind towed vehicle's tires and pin into storage arms.

**6-8.6** Drive the loadoll far enough forward so the wheel lift can be raised to 18" above the ground for under-ride protection.

**6-8.7** Extend the wheel lift enough to provide slack on L-arms.

**6-8.8** Completely retract wheel.

**6-8.9** Disengage PTO.

## **6-9 OPTIONAL HITCHES**

**6-9.1** Optional hitches such as AG hitch and pintle hitch shall not tow any equipment with tongue weight of more than 4500 pounds or GVWR of more than 35,000 pounds.

**6-9.2** Always maintain at least 50% (or one half) of

the trucks original front axle weight when the hitch is loaded. Do not exceed the truck manufactures rated pulling capacity.

## **6-10 SECURING LOADS TO BED**

**6-10.1** All vehicles, machinery, crated goods, or loose parts must be securely tied down to the bed of your LOADOLL. (See FIG. 6-5) Key holes are provided in front, side, and rear of the bed to anchor a 5/16" chain. Optional D-rings along side the side rails of the bed can also be used to secure loads.

**6-10.2** The front, side, and rear of the load must be secured to the front, side, and rear of the bed. Do not rely on the winch to secure the load to the bed! (See FIG. 6-5)

**6-10.3** Do not allow any slack in the hold down chains. Slack will allow the load to shift. A shifting load will create sufficient momentum to break the chains. Remove chain slack by using chain boomers or other slack adjusters designed to be used for securing loads. Always attach additional safety chains.





## DANGER

SERIOUS INJURY MAY RESULT IF YOU ARE UNDER, IN FRONT OF, OR BEHIND: THE BED, SUB-FRAME, REAR BUMPER, OR CHASSIS DURING THE OPERATION OF ANY OF THESE COMPONENTS. TILTING OF THE BED UP OR DOWN WILL CAUSE CRUSHING IF ANYONE OR ANYTHING IS UNDER THE REAR BUMPER, BETWEEN THE SUB-FRAME AND THE CHASSIS, OR BETWEEN THE BED AND THE BULKHEAD. THE SUB FRAME CAN MOVE BACK 6 INCHES AND THE BED CAN TRAVEL BACK AN ADDITIONAL 126 INCHES. ANY OBJECT IN THE SAME AREAS MAY BE DAMAGED, OR CAUSE DAMAGE TO THE LOADOLL. IF MAINTENANCE IS REQUIRED IN THESE AREAS, BLOCK BOTH ENDS OF THE SUB-FRAME TO PREVENT LOWERING OF THE REAR BUMPER AND THE FRONT OF THE SUB-FRAME. SECURELY LOCK THE BED IN PLACE TO PREVENT SLIDING BY POSITIONING THE TAIL PLATE ON THE GROUND OR ANCHORING THE BED TO THE SUB-FRAME WITH SAFETY CHAINS.

### PREFACE:

The Landoll HEAVY DUTY LOADOLL is designed for years of service with minimal maintenance. The following maintenance, however, is very important for durability and for safe operation. Maintenance is an owner/user responsibility.

## 7-1 INSPECTION

**7-1.1** Inspect the vehicle and loadoll system periodically for damage or evidence of pending failure. Damaged or broken parts should be replaced immediately. Never operate a machine which is known to be defective or is operating improperly. The cause of any binding or hydraulic leakage should be determined immediately and the problem promptly corrected.

## 7-2 SLIDING SURFACES

**7-2.1** Sliding surfaces are to be cleaned periodically. Cleaning every 6 months is recommended for clean operating conditions. Severe working conditions will require maintenance more often. Sliding on dirty wear surfaces will cause shortened life of the slide wear strips or blocks.

## 7-3 HYDRAULIC SYSTEM

**7-3.1** Check the hydraulic oil level weekly, or after any leakage. Use AMOCO RYCON MV or an equivalent hydraulic oil SEE TABLE 7-1.

**7-3.2** The hydraulic oil shall have at least the following additives: Anti-corrosion, anti-foam, anti-oxidant, and anti-rust. The pour point should be at least 20 degrees fahrenheit. (IN EXTREMELY COLD CLIMATES MAKE SURE THE POUR POINT OF THE OIL IS AT LEAST AS LOW AS THE COLDEST OUTSIDE TEMPERATURE).

**7-3.3** Viscosity ratings at 100 degrees fahrenheit should be between 150 and 230. Warm climates need hydraulic oil with viscosities rated closer to 230. Cold climates need hydraulic oil with viscosities rated closer to 150.

**7-3.4** Check the oil level at the reservoir cap on the bulkhead. Shut off the engine. Proper oil level is 1" below the top of the hydraulic tank. Filling to the top will result in overflow when the bed is on a side hill.

**7-3.5** If a cylinder seal leaks, disassemble the cylinder and ascertain the cause of the leak. Small scores caused by chips or contaminated fluid can usually be worked out with fine emery cloth to avoid re-occurring of the trouble. Any time a component is opened up, or whenever any seal replacement is necessary, it is advisable to thoroughly clean all components and replace all seals in that component. Seal kits are available from your Landoll dealer.



## DANGER

DO NOT SET HYDRAULIC SYSTEM PRESSURE MORE THAN 1600 PSI AT HYDRAULIC RELIEF VALVE. PRESSURES HIGHER THAN 2600 PSI CAN CAUSE DAMAGE TO COMPONENTS OF THE LOADOLL.

## **7-4 ELECTRICAL SYSTEM**

---

**7-4.1** Maintenance of the electrical system consists of inspection and minor servicing. Any wire, connection, or electrical component showing signs of corrosion, wear, breakage or unraveling must be serviced.

**7-4.2** Frayed, or unraveling wire must have the defective section removed and replaced with wire of the same color and gauge. Seal all splice connections and insulate.

**7-4.3** Corroded terminals must have the corrosion removed, the source of corrosion neutralized, and the

terminal resealed, protected, and insulated.

**7-4.4** Fuse or circuit breaker burn-out or "blow-out" usually indicates an electrical short-circuit, although a fuse may occasionally fail from vibration. Insert a second fuse or reset the breaker. If this fuse immediately burns out or the breaker trips, locate the cause of the electrical short and repair.

**7-4.5** Lights with a repeated lamp burn-out usually indicates a loose connection at the lamp socket, a bad system ground, or a malfunctioning voltage regulator. Locate the source of the problem and repair. System grounds must be grounded to bare metal surfaces. Paint, grease, wax, and other coatings act as insulators. Replacement lamps must be equivalent to the factory installed lamp.





## **NOTES:**

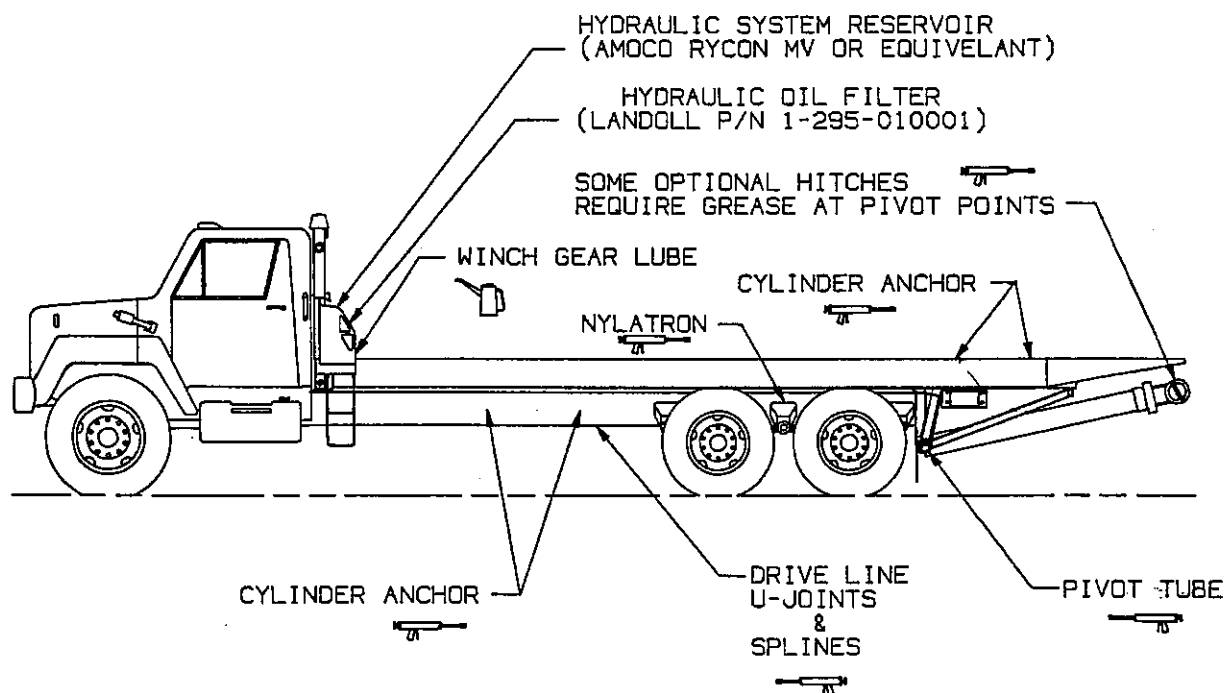
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**TABLE 7-1 SOME APPROVED HYDRAULIC OILS**

<b>COMPANY NAME &amp; BRAND</b>	<b>GRADE/ CALLOUT</b>	<b>POUR POINT DEGREES F</b>	<b>VISCOSITY 100° F</b>
AMOCO RYCON	MV	-65	178
CONOCO SUPER HYD OIL	5W-20	-30	165
EXXON NUTO H	32	-25	155
EXXON NUTO H	46	-20	220
GULF OIL	32-AW	-25	55
GULF OIL	46-AW	-25	220
KENDALL HYKEN GOLDEN	5W-20	-40	174
MOBIL DTE 10 SERIES	13	-50	150
MOBIL DTE 10 SERIES	15	-50	205
PENZOIL AW HYD OIL	32	-25	160
PENZOIL AW HYD OIL	46	-25	230
PHILLIPS MAGNUS OILS	150	-30	155
PHILLIPS MAGNUS OILS	215	-25	210
SHELL OIL TELLUS	32	-20	150
TEXACO RANDO	HDAZ	-40	154
TEXACO RANDO	HD46	-30	215

**Figure 7-1 Table Approved Hydraulic Oils Chart**

LUBRICATION	
GREASE 	 DO NOT GREASE
OIL 	 DO NOT OIL



- (1) THE NYLATRON AND PLASTIC STRIPS ARE IMPREGNATED WITH A SPECIAL LUBRICANT - THUS THEY ARE SELF LUBRICATING. HOWEVER IF CHATTER OR SQUEAL OCCURS, APPLY ENOUGH GREASE TO STOP THE NOISE.

Figure 7-2 Lubrication Guide Chart

# MAINTENANCE SCHEDULE

I=INSPECT

R=REPLACE

T=TIGHTEN/TORQUE

L=LUBRICATE

NORMAL OPERATING SERVICE INTERVALS - PERFORM AT THE TIME SHOWN							
SERVICE ITEM	INTERVAL-	FIRST 5 HOURS	WEEKLY	MONTHLY	6 MONTHS	YEARLY	NOTES
HYDRAULICS							
OIL		I	I			R	(1)
FILTER		R			R		
WINCH GEAR CASE LUBE		I		I		R	(2)
HOSES		I		I			
ELECTRICAL							
LIGHTS		I	I				
WIRING		I		I			
CONNECTIONS		I		I			
MISCELLANEOUS							
FASTENERS		I,T		I			(3)
BED SLIDE PLASTIC STRIPS		I		I	L		
MAIN PIVOT TUBE		LL		LL			
GREASABLE PIVOTS		LL		LL			
WINCH CABLE ASSY.		I	I	LL			(4)
DRIVE SHAFT U-JOINTS		L	SEE TRUCK OWNERS MANUAL FOR TORQUE AND SEQUENCE				
DRIVE SHAFT SLIP JOINTS		L					
TIRES / WHEELS							
INFLATION		I	I				(5)
LUG-NUTS		I,T		SEE TRUCK OWNERS MANUAL FOR TORQUE AND SEQUENCE			

(1) USE AMOCO RYCON MV OR EQUIVALENT

(2) USE 140 wt. GEAR LUBE

(3) SEE BOLT TORQUE CHART IN THE SPECIFICATIONS SECTION OF THIS MANUAL FOR CORRECT TIGHTENING TORQUE

(4) LUBRICATE WITH CABLE LUBE OR CABLE GREASE

(5) SEE INCOMPLETE CERTIFICATION STICKER ON DRIVERS SIDE DOOR JAMB FOR PROPER INFLATION

Figure 7-3 Maintenance Schedule

## NOTES:

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## 8-1 HYDRAULIC SYSTEM

Most hydraulic system failures follow the same pattern: a gradual or sudden loss of pressure or flow with a resulting loss of cylinder or motor power. Any one of the system's components may be at fault. By following step-by-step procedures, the trouble can be located in a short time.

SYMPTOM	PROBLEM: REMEDY
SYSTEM INOPERATIVE	<p><b>Not enough oil in system:</b> fill, check for leaks.</p> <p><b>Wrong oil in system:</b> change oil, see specifications.</p> <p><b>Filter dirty or clogged:</b> drain oil and replace filter.</p> <p><b>Oil lines dirty or collapsed:</b> clean or replace as necessary.</p> <p><b>Air leaks in pump suction line:</b> repair or replace as necessary.</p> <p><b>Worn or dirty pump:</b> clean, repair or replace. Check for contaminated oil. Drain and flush.</p> <p><b>Badly worn components:</b> examine for internal leakage. Replace faulty components. Check for cause of wear.</p> <p><b>Leakage:</b> check all components, and relief valve for proper settings.</p> <p><b>Excessive load:</b> check unit specifications for load limits.</p> <p><b>Slipping or broken pump drive:</b> repair or replace couplings. Check for alignment.</p>
SYSTEM OPERATES ERRATICALLY	<p><b>Air in the system:</b> check suction side of system for leaks. Repair leaks.</p> <p><b>Cold oil:</b> allow ample warm-up time. Use proper weight oil for operating temperature.</p> <p><b>Dirty or damaged components:</b> clean or repair as needed.</p> <p><b>Restriction in filters or lines:</b> clean and/or replace filter or lines.</p>
SYSTEM OPERATES SLOWLY	<p><b>Oil viscosity too high, or "cold oil":</b> Allow oil to warm up before operating.</p> <p><b>Low pump drive speed:</b> Increase engine speed (check pump owners manual for specifications).</p> <p><b>Low oil level:</b> Check reservoir and add oil as necessary.</p> <p><b>Air in system:</b> Check suction side for leaks. Repair leaks.</p> <p><b>Badly worn pump, valves, cylinders, etc.:</b> Repair or replace faulty component(s) as necessary.</p> <p><b>Restrictions in lines or filter:</b> Clean or replace filter or lines.</p> <p><b>Improper adjustments:</b> Check orifices, relief valves, etc. Adjust as necessary.</p> <p><b>Oil leaks:</b> Tighten fittings. Replace seals, gaskets and damaged lines.</p>

**SYMPTOM**

**PROBLEM: REMEDY**

---

**SYSTEM OPERATES TOO FAST**

**Wrong size or incorrectly adjusted restrictor:** Replace or adjust as necessary.

**Engine running too fast:** Reduce engine speed.

**OVER HEATING OF OIL  
IN SYSTEM**

**Oil passing thru relief valve for excessive time:** Return control valve to neutral when not in use.

**Incorrect, low, or dirty oil:** Use recommended oil. Fill reservoir with clean oil. Replace filter.

**Engine running too fast:** Reduce engine speed.

**Excessive component internal leakage:** Repair or replace component as necessary.

**Restriction in filters or lines:** Clean and/or replace filter or lines.

**Insufficient heat radiation:** Clean dirt and mud from reservoir and components.

**Malfunctioning component:** Repair or replace.

**FOAMING OF OIL**

**Incorrect, low, or dirty oil:** Replace, clean or add oil as needed.

**Air leaks:** Check suction line and component seals for suction leaks. Replace defective parts.

**NOISY PUMP**

**Low, incorrect, or foamy oil:** Replace, clean, or add oil as needed.

**Suction line plugged:** Clean out obstruction or replace line. Flush system, replace filter.

**LEAKY PUMP**

**Damaged or worn shaft seal:** Replace seal and check for misalignment.

**Loose or broken parts:** Tighten or replace.

**CYLINDERS MOVE WITH  
CONTROL VALVE IN  
NEUTRAL POSITION**

**Leaking cylinder seals or fittings:** Replace worn seals or fittings.

**Valve damaged:** Repair or replace.

**Control valve not centering when released:** Check linkage for binding and repair.

**CONTROL VALVE LEAKS**

**Seals damaged or worn:** Replace.

**CYLINDER LEAKS**

**Seals worn or damaged:** Replace.

**Rod damaged:** Replace.

**Barrel damaged:** Replace.

**CYLINDERS DO NOT  
FUNCTION, OR CREEP  
WITH PTO DISENGAGED**

**Leaking fittings or cylinder seals:** Tighten loose fittings. Replace worn seals or fittings.

**Piloted check valve or O-ring leak:** Replace defective component.



## 8-2 HYDRAULIC PRESSURE TESTING

---

**SET-UP:** With the Loadoll unloaded, install a 0 to 3000 PSI pressure gauge between the pump pressure hose and the three-spool valve "IN" port, using a "T" fitting and close pipe nipple.

### TEST 1:

Start the vehicle engine and operate the PTO. Check pressure without operating any function.

From 50 to 300 PSI:

NORMAL

Greater than 300 PSI:

Restriction in valve, filter, or plumbing.

Less than 50 PSI:

Weak pump or restriction in pressure line.

### NOTE

If STEP 1 indicates normal pressures, proceed to STEP 2. STEP 1 pressures must be normal for the following tests!

### TEST 2:

Run the bed forward to the transport position. Hold the valve in the "BED ON" position to cause hydraulic oil to go through the pressure relief valve. Read pressure, then return the control valve to neutral. Do the same test on the tilt cylinder, checking it while the bed is in the transport position.

From 2300 to 2700 PSI:

NORMAL

Greater than 2700 PSI:

Pressure relief valve is set too high.  
Pressure relief valve is malfunctioning.

Less than 2300 PSI:

Internal cylinder leak.  
Pressure relief valve set too low.  
Weak pump.

### TEST 3:

Run the tilt cylinder till the bumper almost touches the ground. Return the cylinder to the transport position. Check pressures while the bed is tilting.

From 400 to 900 PSI:

NORMAL

Greater than 900 PSI:

Restriction in return hoses or cylinder.  
Binding cylinder.  
Binding tilt mechanism.

Less than 400 PSI:

Weak pump.  
Pressure hose restriction.  
Internal cylinder leak.

### TEST 4:

Slide the bed cylinder back and then forward. Check pressures while the bed is moving out. The following pressures are with the bed installed.

From 400 to 1200 PSI:

NORMAL

Greater than 1200 PSI:

Restriction in return hoses or cylinder.  
Binding cylinder.  
Binding slide mechanism.

Less than 400 PSI  
while bed is stationary:

Weak pump.  
Pressure hose restriction.  
Internal cylinder leak.

#### TEST 5:

Unhook the winch cable and lay it loosely on the bed. Operate the winch both directions. Check pressures while the winch is operating.

From 600 to 1200 PSI:

NORMAL

Greater than 1200 PSI:

Restriction in return hoses or winch motor.  
Binding winch motor.  
Binding winch gears or drum.

Less than 600 PSI:

Weak pump.  
Pressure hose restriction.  
Internal motor leak.

### 8-3 ELECTRICAL

---

Most electrical system problems show up as a burned out light or fuse, or an inoperative electrical component. Wiring, grounds, or components may be at fault. Locate the symptom in this section that best identifies your electrical problem. Check out each possible problem under that symptom. If the problem can not be located, see an automotive electrical specialist.

#### SYMPTOM

#### PROBLEM: REMEDY

---

NO LIGHTS

Fuse blown: replace fuse.  
Connection at plug-in: tighten connection.  
Broken or corroded wires: replace wire.  
Ground wire loose: clean and tighten ground.

LIGHTS FLICKERING

Wires shorted or loose: locate, insulate, replace, or tighten.

LIGHTS DIM

Voltage difference between truck and bed: match bulbs with truck voltage.

LIGHTS BRIGHT & BURN OUT

Voltage difference between truck and bed: match bulbs with truck voltage.

FUSE BLOW-OUT OR CIRCUIT

Vibration: locate source of vibration and repair.

BREAKER TRIPPING

Short circuit: replace fuse and try all accessories. If fuse blows right away, locate short and repair.

LAMP BULB BURN OUT

Vibration: locate source of vibration and repair.  
Short circuit: replace fuse and try all accessories. If fuse blows right away, locate short and repair.  
Loose connection: check lamp sockets and ground connections.  
Intermittent short: locate short and repair.  
Improper voltage: check voltage regulator output.

REMOTE CONTROL WINCH:  
DOES NOT OPERATE

Check for blown fuse, broken wire, bad switch, and bad ground. Repair or replace.

OPERATES ONE WAY ONLY

Confirm proper wiring (See Diagram). Check for bad wires or defective switch. Repair or replace.

OPERATES WRONG DIRECTION

Wires are reversed on solenoid. Reverse the wires on the solenoid.

## 8-4 TIRES - WHEELS - SUSPENSION

---

Most tire, wheel, and suspension related problems are due to excessive loads, extreme conditions, and improper maintenance. Tire, wheel, and suspension problems can be easily detected and solved by checking the following guide.

SYMPTOM	PROBLEM: REMEDY
VIBRATIONS WHILE DRIVING	Improper tire inflation: inflate to proper pressure. Tires cupped or have flat spots: replace tires. Wheels bent or loose: replace or tighten. Tires incorrectly mounted: remount. Mud in wheels: clean wheels. Tire(s) out of balance: balance tires. Brakes dragging: locate cause and repair.
<b>RAPID TIRE WEAR/DETERIORATION:</b>	
CENTER TREAD WEAR	Over inflation: deflate to correct inflation.
SHOULDER TREAD WEAR - BOTH SHOULDERS	Under inflation: increase inflation to correct PSI.
SHOULDER TREAD WEAR - ONE SHOULDER	Axle damage: straighten or replace axle.
OVERALL TREAD WEAR	Overloading: check tire load rating. High speeds: adjust speed according to road and load conditions. Incorrect dual matching: properly match dual tires.
TIRE FLAT SPOTS	Quick stops: adjust braking practices. Grabbing brakes: adjust brakes properly. Worn or loose wheel bearings: adjust or replace as needed. Out of balance wheels and tire: balance wheels and tires.
UNEVEN WEAR	Undercarriage bushings worn: replace bushings. Worn or loose wheel bearings: adjust or replace as needed. Out of balance wheels and tires: balance wheels and tires.
<b>* RIM FAILURE:</b>	
CRACKING	Overinflated tires: deflate tire to proper PSI. High speeds: adjust speed according to road and load conditions. High speed cornering: adjust cornering practices. Over loading: check rim load rating.
BENDING OR WARPING	Curb-hopping or potholes: adjust turning practices and adjust speed accordingly with road conditions. Improper tightening sequence: follow proper tightening sequence.
BROKEN STUDS	Over tightening: use correct torque when mounting.
<b>*IN ANY CASE OF RIM OR STUD FAILURE, REPLACE RIM OR STUDS IMMEDIATELY!</b>	

## 8-5 MISCELLANEOUS PROBLEMS

---

Your Loadoll is designed for minimal mechanical maintenance. Most mechanically related problems are due to excessive loads, extreme conditions, and improper maintenance.

### SYMPTOMS

### PROBLEM: REMEDY

---

BED CHATTERS OR SQUEALS  
WHEN SLIDING

Rough slide channels: file or sand smooth and lubricate with grease.

VIBRATIONS WHILE DRIVING

See Tires, Wheels, Suspension.  
Driveshaft out of balance, mis-aligned, or out of phase:  
correct problem and confirm U-joints are aligned correctly.

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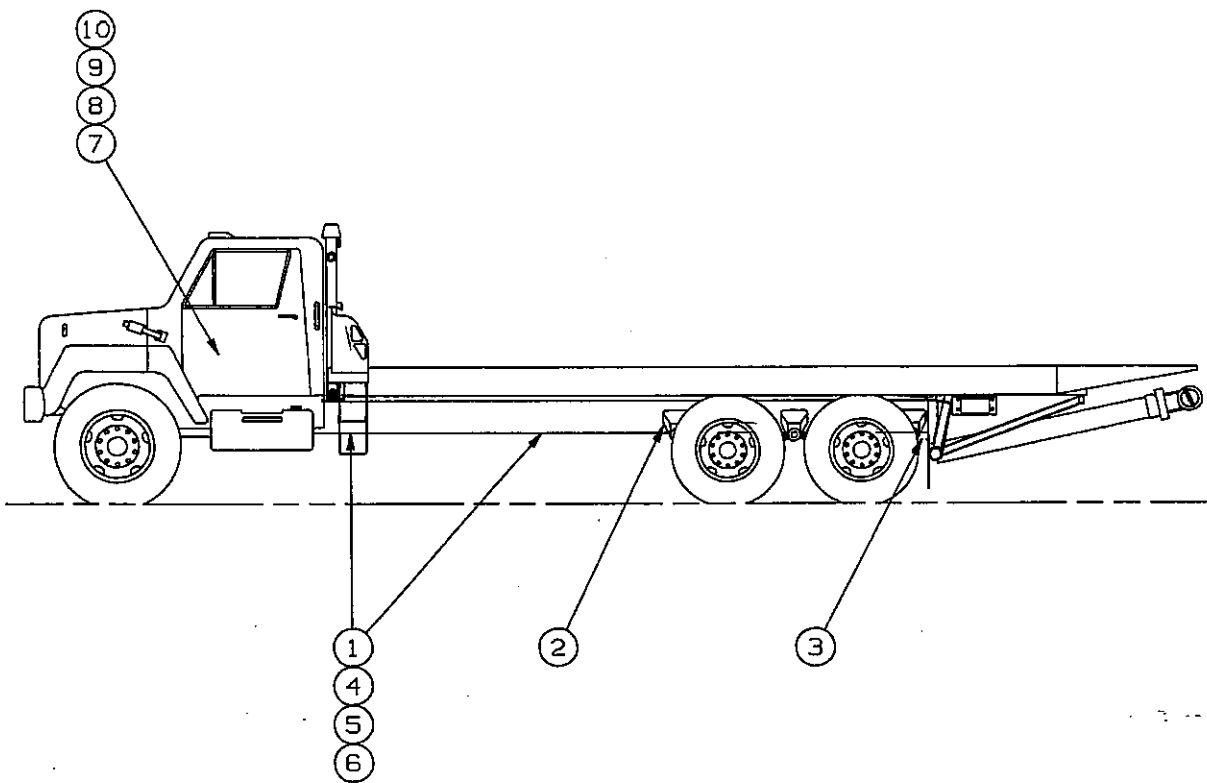


Figure 9-1 Chassis Detail Items

## CHASSIS AND DETAIL ITEMS

ITEM	PART NO.	DESCRIPTION	QTY
1	3-014-010156	ANCHOR SUB-FRAME FRT	4
2	3-014-010155	ANCHOR SUB-FRAME REAR	2
3	3-311-010769	GUSSET	2
4	1-655-010002-5	SCREW FLG HD 5/8-11X2 GR8 2P	20
5	5/8FW	WASHER, FLAT	20
6	5/8-11HFLN	NUT, HEX	20
7	3-482-010107	PTO MOUNT	1
8	1/4-20X3/4HHCS	SCREW	4
9	1/4FW	WASHER, FLAT	4
10	1/4-20HFLN	NUT	4

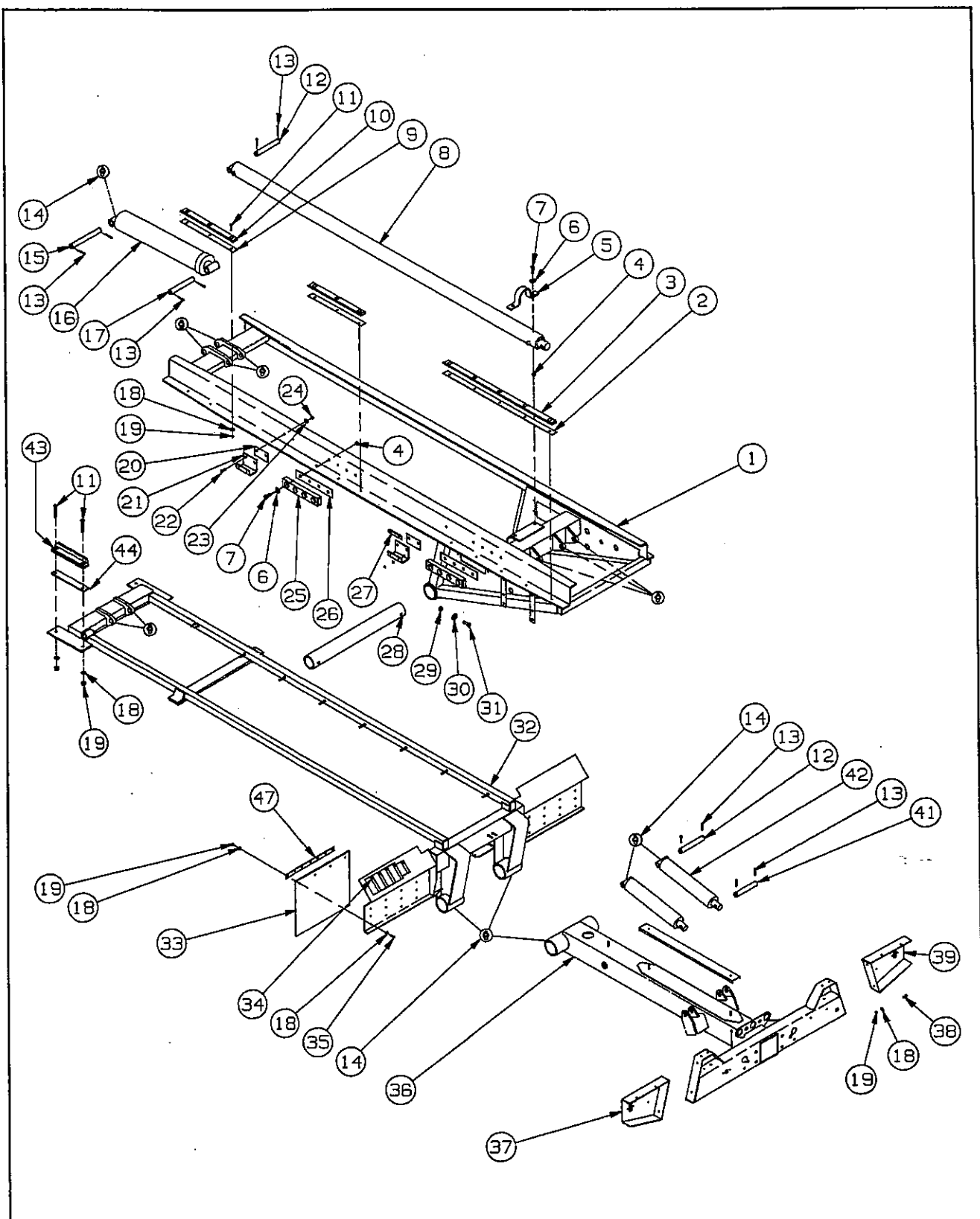


Figure 9-2 Subframe



## SUBFRAME ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY
1	3-311-015869	FRAME, SUB-TILT WELDMNT	1
2	3-684-010036	SHIM 2X48	2
3	3-536-010001	NYLATRON BOTTOM 48	2
4	5/8-11HFLN	NUT HEX LOCK GRB CAD W/WAX	18
5	3-755-010003	SUPPORT CYL MIDDLE	1
6	5/8FW	WASHER FLAT ZP	18
7	5/8-11X2CS-5	SCREW HEX CAP GR5	18
8	3-242-010185	CYLINDER 4X126 WELDMNT	REF.
9	3-684-010037	SHIM 2X24	4
10	3-536-010002	NYLATRON BOTTOM 24	4
11	3/8-16X1-3/4	SCREW HEX SOC FL CAP	26
12	3-557-010447	PIN CYL 4 FRT	3
13	1/4X2-1/2	COTTER PIN ZP	12
14	5010	ZERK FITTING 1/4 SAE	21
15	3-557-010445	PIN CYL 6 FRT	1
16	3-242-010183	CYL HYD 6X30 WLDMT	REF.
17	3-557-010446	PIN CYL 6 REAR	1
18	3/8FW	WASHER FLAT ZP	52
19	3/8-16HFLN	NUT HEX LOCK GR5 CAD W/WAX	52
20	3-684-010039	SHIM BED GUIDE	4
21	3-352-010031	GUIDE BED J	4
22	1/2-13X1-1/2CS	SCREW HEX HEAD CAP ZP GR5	8
23	1/2FW	WASHER FLAT ZP	8
24	1/2-13HFLN	NUT HEX LOCK GRB CAD W/WAX	8
25	3-536-010003	NYLATRON HOLD-DOWN	4
26	3-684-010038	SHIM NYLATRON BLOCK	4
27	3-536-010004	NYLATRON, BED GUIDE	4
A	1/4-20HFLN	NUT HEX LOCK GRB CAD W/WAX	8
B	1/4-20UNCX3/4	SCREW SLOTTED FLAT HEAD 80 DEG	8
C	1/4FW	WASHER FLAT ZP	14
28	3-831-010105	TUBE PIVOT MAIN 4-1/2 O.D.	1
29	3/4-10HFLN	NUT HEX LOCK GRB CAD W/WAX	2
30	3/4FW	WASHER FLAT ZP	2
31	3/4-10X2HHCS	GR5 ZP	2
32	3-311-015875	FRAME-SUB-NON-TILTING	1
33	3-485-010001	FLAP, MUD 21	2
34	3-573-010345	DECAL BUMPER UNDERRIDE	1
A	3-573-010346	DECAL STABILIZE FRAME	1
B	3-573-010347	DECAL LOCK-DOWN	1
C	3-573-010351	DECAL PAYLOAD CENTERED	1
D	3-573-010299	DECAL WARNING WINCH CABLE	1
35	3/8-16X1-1/4CS	HHCS ZP GR5	8
36	3-375-010539	HITCH WLDMT MAIN	1
37	3-755-010153	SUPPORT TAIL LIGHT LT	1
38	3/8-16X1HHCS	SCREW HEX CAP GR5	7
39	3-755-010154	SUPPORT TAIL LIGHT RT	1
40	3-181-010040	CLAMP HOSE LONG	1
41	3-557-010448	PIN CYL 4 DK LVL	2
42	3-242-010182	CYLINDER HYD 4X16 WELDED	REF.
43	3-536-010006	NYLATRON FRT TAPERED CA	2
44	3-684-010040	SHIM NYLATRON FRT CA	2
45	3-573-010101	DECAL LANDOLL SERIAL NO.	1
46	107-0808	RIVET CHERRY 1/8 DIA STL	2
47	3-762-010017	CLAMP, MUD FLAP	2

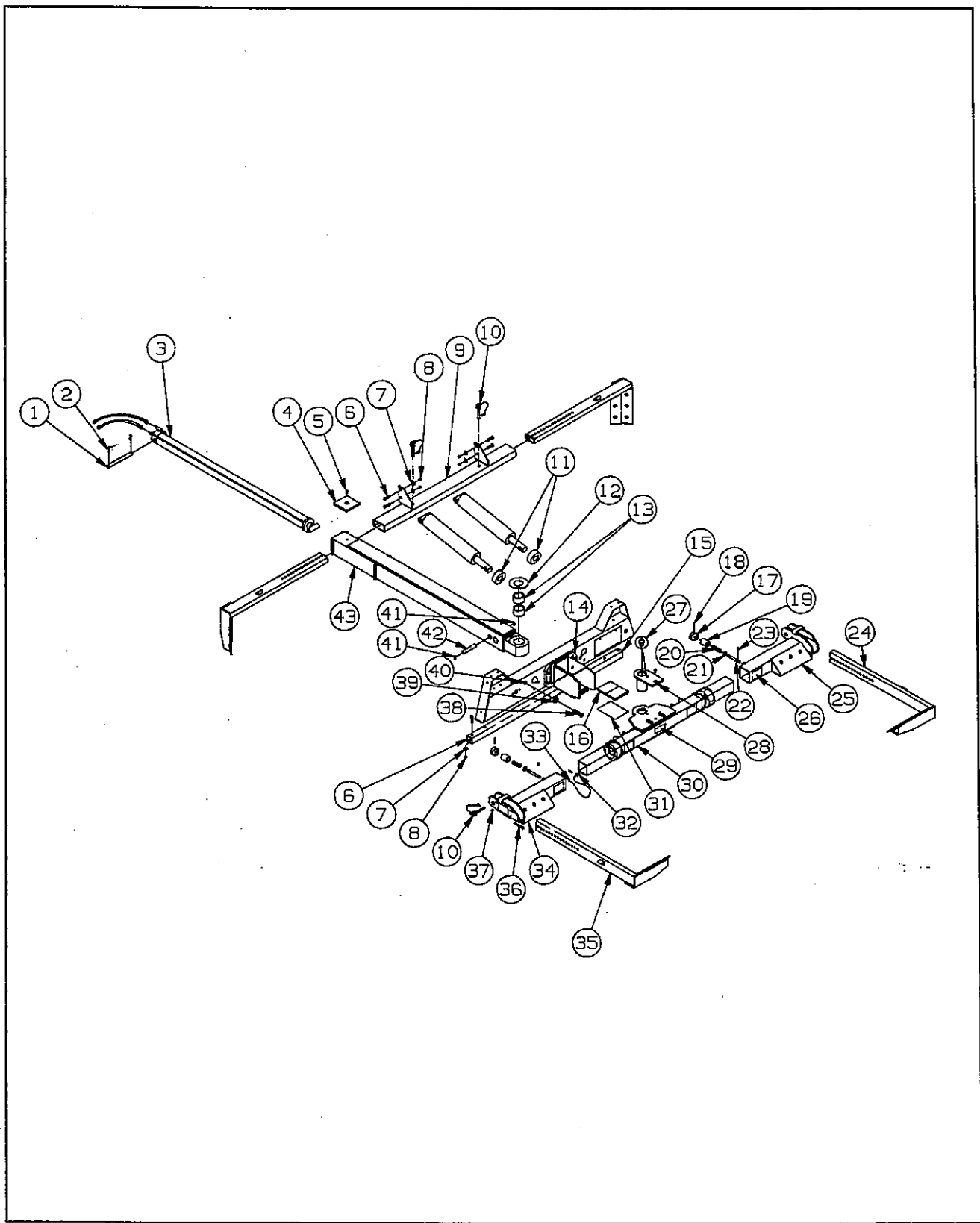


Figure 9-3 Wheel-lift

## WHEEL LIFT ITEMS

ITEM	PART NO.	DESCRIPTION	QTY
1	3-557-010452	PIN W/L CYL CA	1
2	1/4X2	PIN COTTER ZP	2
3	3-242-010111	CYLINDER 2-1/2X63	1
4	3-334-010024	GLIDE W/L TOP CA	1
5	3/8-16X1	SCREW HEX SOCKET FL CAP ZP GR8	2
6	1/2-13X1-1/2CS	SCREW HEX HEAD CAP ZP GR5	8
7	1/2FW	WASHER FLAT ZP	8
8	1/2-13HFLN	NUT HEX LOCK GRB CAD W/WAX	8
9	3-755-010177	SUPPORT STORE L-ARM	1
10	3-557-010415	PIN 5/8 W/L	2
11	3-741-010070	STOP W/L CYL TILT	2
12	3-150-010143	BUSHING BEARING W/L CA	1
13	3-150-010142	BUSHING 3-1/2X3X2	2
14	3-755-010173	SUPPORT W/L END WLDMT	1
15	3-711-010088	SPACER, BUMPER TUBE, LONG	1
16	RPRB59003X6	BAR FL 1/2X4X6 NYLATRON	2
17	3-360-010084	HANDLE L-ARM	2
18	3/16X2	PIN SLOTTED TYPE SPRING ZP	2
19	3-360-010083	HANDLE STOP	2
20	3-720-010067	SPRING W/L STOP	2
21	RRT159X.25ZP	TUBE ROUND, 1X11/16X1/4 ZINC PLATE	4
22	3-557-010424	PIN L-ARM STOP	2
23	3/16X1	PIN SLOTTED TYPE SPRING ZP	2
24	3-027-010090	ARM-L WLDMT HD RT	1
25	3-755-010176	SUPPORT L-ARM WLDMT HD RT	1
26	1-573-010033	TAPE RED REFLECTIVE	4
27	5010	ZERK FITTING 1/4 SAE	2
28	3-557-010456	PIN W/L PIVOT HT ZP	1
29	3-573-010369	DECAL 5000 LB WHEELIFT	1
30	3-826-010027	TUBE END WLDMT W/L L-ARM HD	1
31	RSS924X6X8	SHEET 16GAX6X8	2
32	3-669-010002	SHACKLE 1/4	2
33	3-153-010012	CABLE 3/16 SAFETY	2
34	3-755-010175	SUPPORT L-ARM WLDMT HD LT	1
35	3-027-010089	ARM-L WLDMT HD LT	1
36	3/8-16X3-1/2 GR5	HHCS ZP GR5	2
37	3/8-16HFLN	NUT HEX LOCK GRB CAD W/WAX	2
38	3/4-10X3CS GR8	HHCS ZP GR8	4
39	3/4FW	WASHER FLAT ZP	8
40	3/4-10HFLN	NUT HEX LOCK GRB CAD W/WAX	4
41	3-630-010002	RING RETAINING EXTERNAL 1"	2
42	3-557-010453	PIN 1 RETAINING RING HD	1
43	3-826-010025	TUBE INNER W/L CA WLDMT	1
44	3-744-010035	STRAP RATCHET BINDER LONG	2

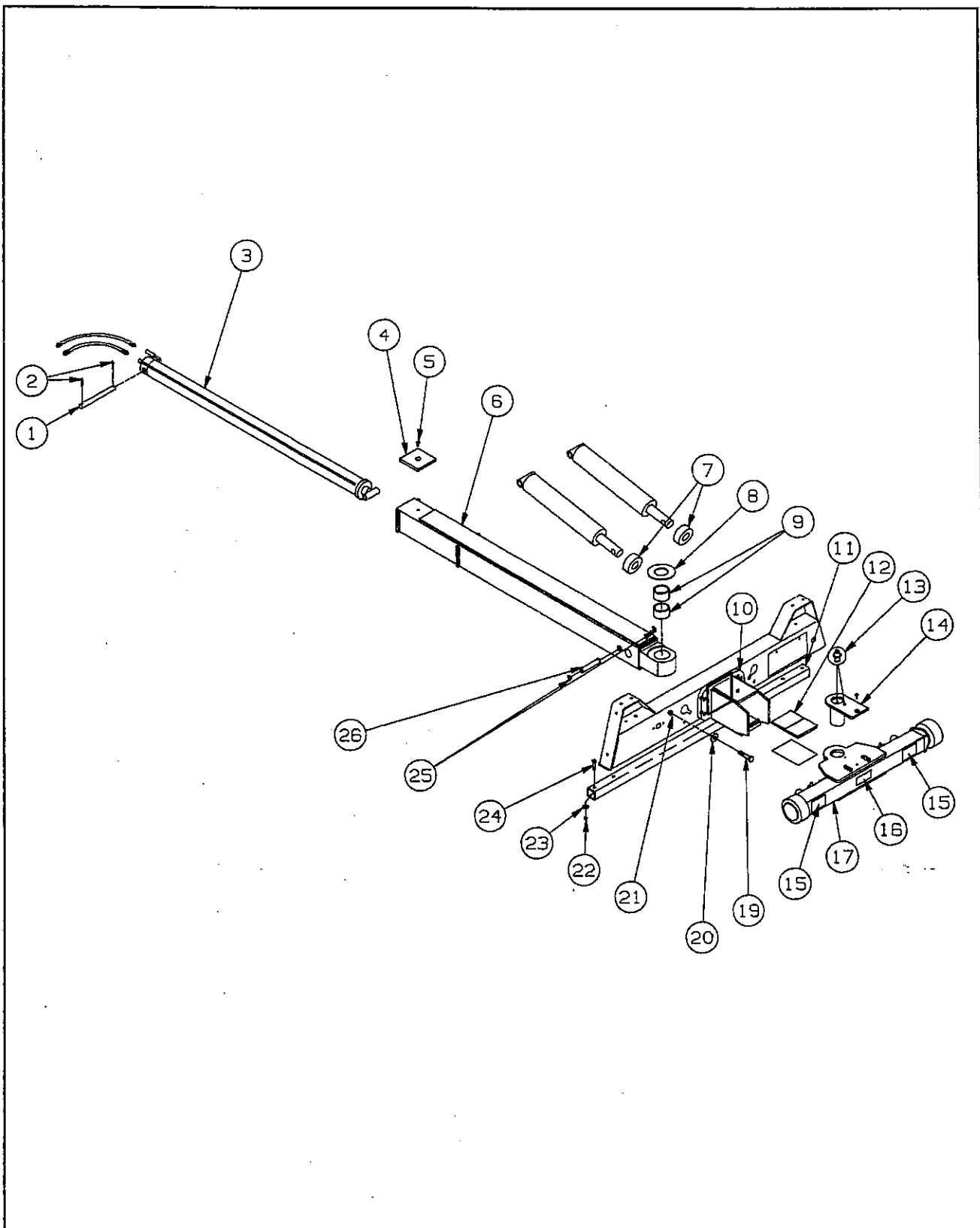


Figure 9-4 Towbar Items

## TOWBAR ITEMS

ITEM	PART NO.	DESCRIPTION	QTY
1	3-557-010452	PIN W/L CYL CA	1
2	1/4X2	PIN COTTER ZP	4
3	3-242-010111	CYLINDER 2-1/2X63	1
4	3-334-010024	GLIDE W/L TOP CA	1
5	3/8-16X1	SCREW HEX SOC FL CAP ZP GR8	2
6	3-826-010025	TUBE INNER W/L CA WLDMT	1
7	3-741-010070	STOP W/L CYL TILT	2
8	3-150-010143	BUSHING BEARING W/L CA	1
9	3-150-010142	BUSHING 3-1/2X3X2	2
10	3-755-010173	SUPPORT W/L END WLDMT	1
11	3-711-010088	SPACER BUMPER TUBE, LONG	1
12	RPRB59003X6	BAR FL 1/2X4X6 NYLATRON	2
13	5010	ZERK FITTING 1/4 SAE	2
14	3-557-010456	PIN W/L PIVOT HT ZP	1
15	1-573-010033	TAPE RED REFLECTIVE	4
16	3-573-010369	DECAL 5000 LB WHEELIFT	1
17	3-375-010543	HITCH TOWBAR WLDMT CA	1
18	RSS924X6X8	SHEET 16GAX6X8	2
19	3/4-10X3CS GR8	HHCS ZP GR8	4
20	3/4FW	WASHER FLAT ZP	8
21	3/4-10HFLN	NUT HEX LOCK GRB CAD W/WAX	4
22	1/2-13HFLN	NUT HEX LOCK GRB CAD W/WAX	4
23	1/2FW	WASHER FLAT ZP	4
24	1/2-13X1-1/2CS	SCREW HEX HEAD CAP ZP GR5	4
25	3-630-010002	RING RETAINING EXTERNAL 1"	2
26	3-557-010453	PIN, RETAINING RING HD	1
27	6470-431-00	HOOKS CLEVIS GRAB 3/8	2
28	3-174-010018120	CHAIN 3/8 HI TEST ZINC 10'	2

## AG-HITCH ITEMS

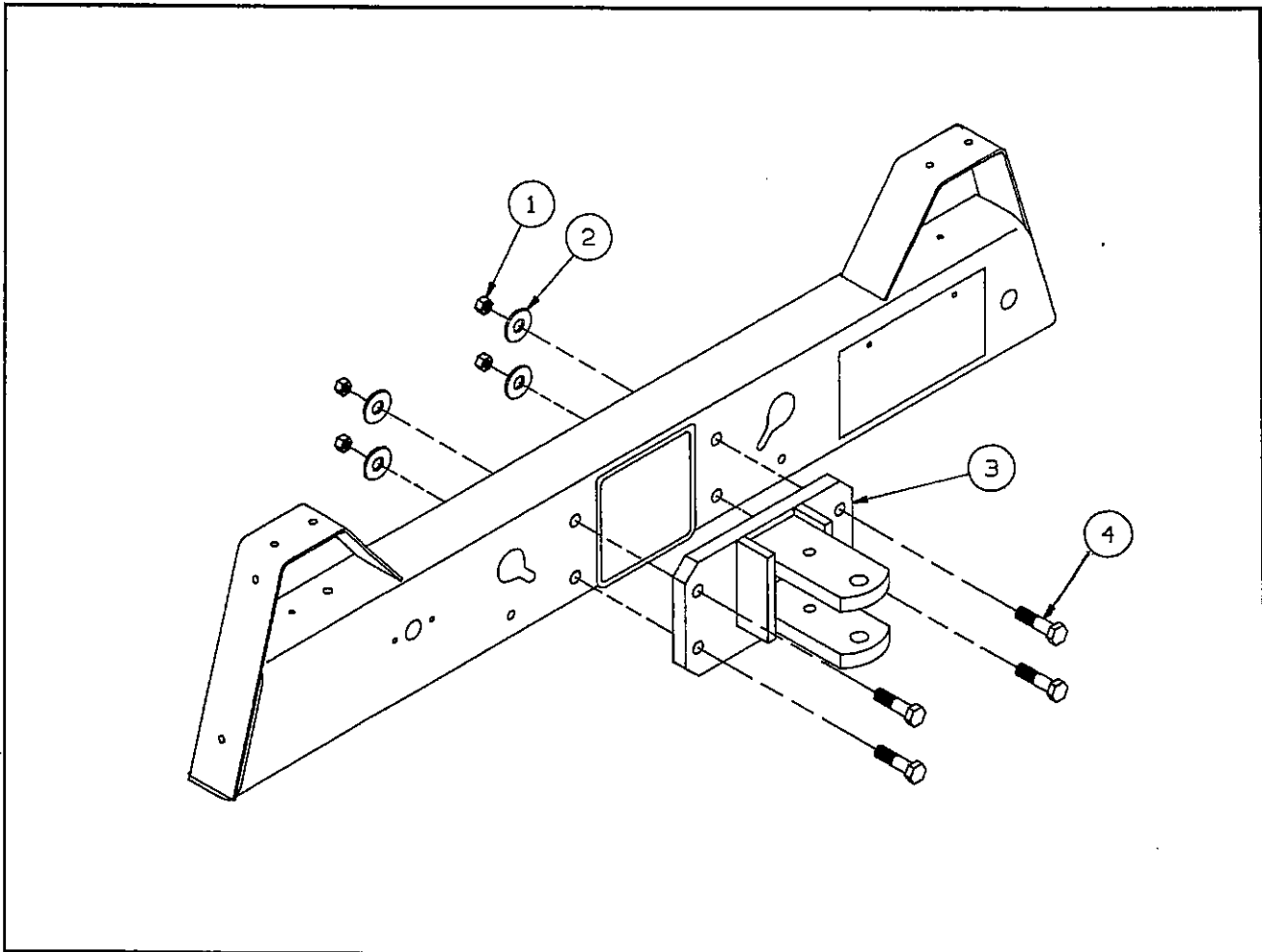


Figure 9-5 Ag-Hitch

ITEM	PART NO.	DESCRIPTION	QTY
1	3/4-10HFLN	NUT HEX LOCK GRB CAD WWAX	4
2	3/4FW	WASHER FLAT ZP	4
3	3-375-010540	HITCH DOUBLE AG WLDMT	1
4	3/4-10X2-1/2CS	SCREW HEX CAP GR5 ZP	4

## PINTLE HITCH ITEMS

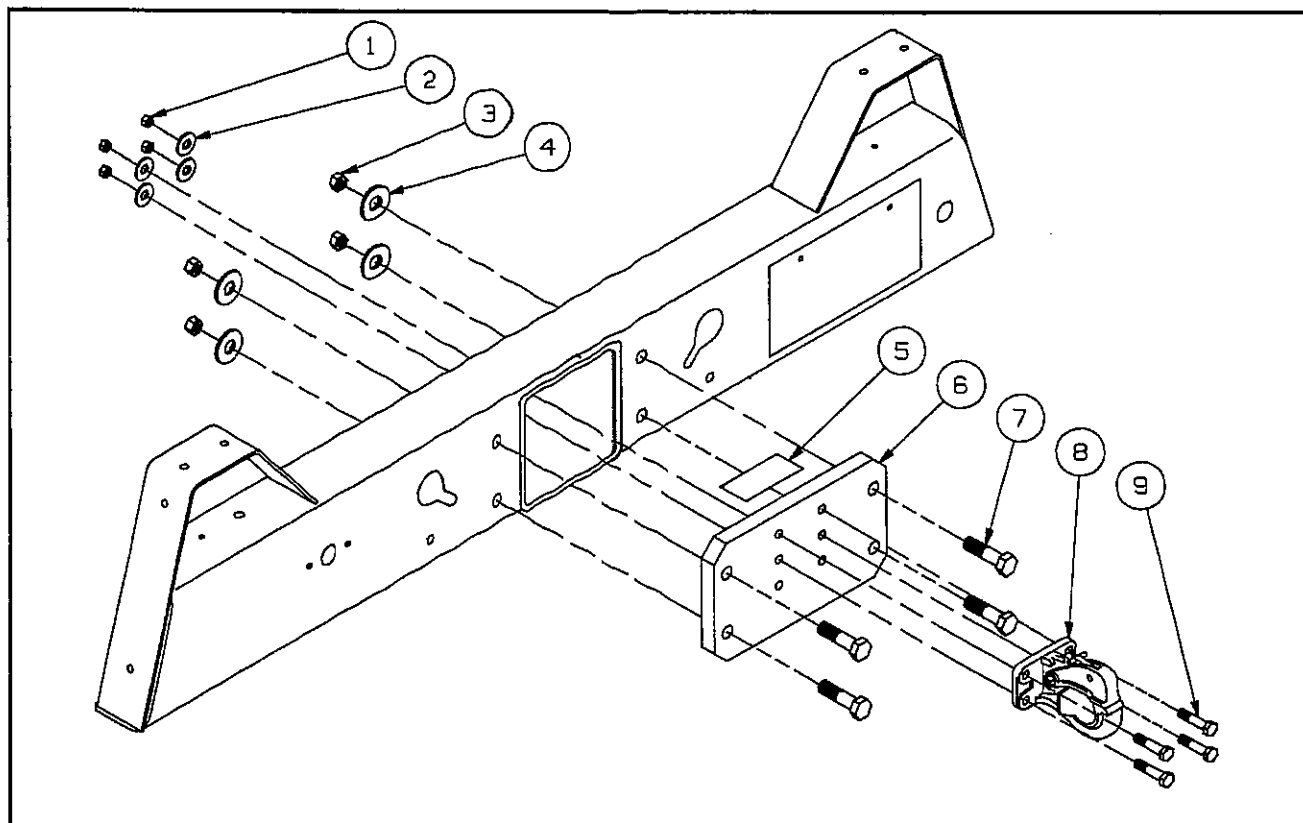


Figure 9-6 Pintle Hitch

ITEM	PART NO.	DESCRIPTION	QTY
1	1/2-13HFLN	NUT HEX LOCK GRB CAD WWAX	4
2	1/2FW	WASHER FLAT ZP	4
3	3/4-10HFLN	NUT HEX LICK GRB CAD WWAX	4
4	3/4FW	WASHER FLAT ZP	8
5	3-573-010288	DECAL-4500 LB PINTLE	1
6	3-375-010545	HITCH PLATE PINTLE	1
7	3/4-10X3CS GR8	HHCS ZP GR8	4
8	231-5694	HOOK PINTLE W/CHAIN T60 ALOL	1
9	1/2-13X2-1/2 GR8	CAP SCREW	4

# HAND THROTTLE, INTERNATIONAL HARVESTER

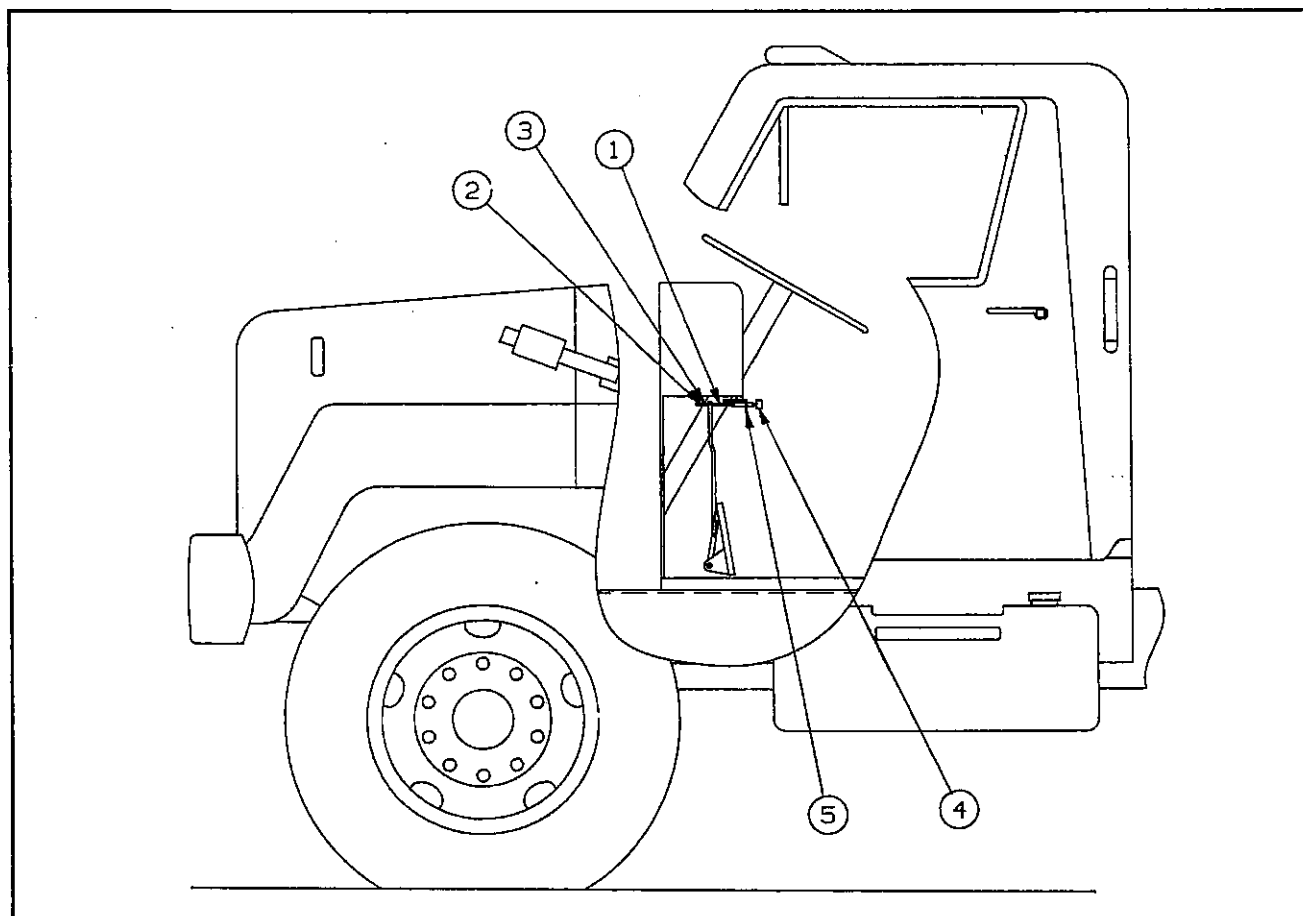


Figure 9-7 International Harvester Throttle Inst

ITEM	PART NO.	DESCRIPTION	QTY
1	3-155-010012	CABLE, THROTTLE (AFTER JAN. 1989)	1
2	13-0404-01	CLAMP, CABLE STOP	1
3	3/16-24HFN	NUT, HEX	2
4	3/16X3/4RHDSTV	BOLT, ROUND HEAD STOVE	2
5	3-272-010007	BRACKET, THROTTLE CABLE	1

\* ITEMS NOT LISTED ARE TRUCK ENGINE COMPONENTS AND SHOULD BE ORDERED, IF NECESSARY, FROM THE TRUCK MANUFACTURER.



## HAND THROTTLE, FORD DIESEL

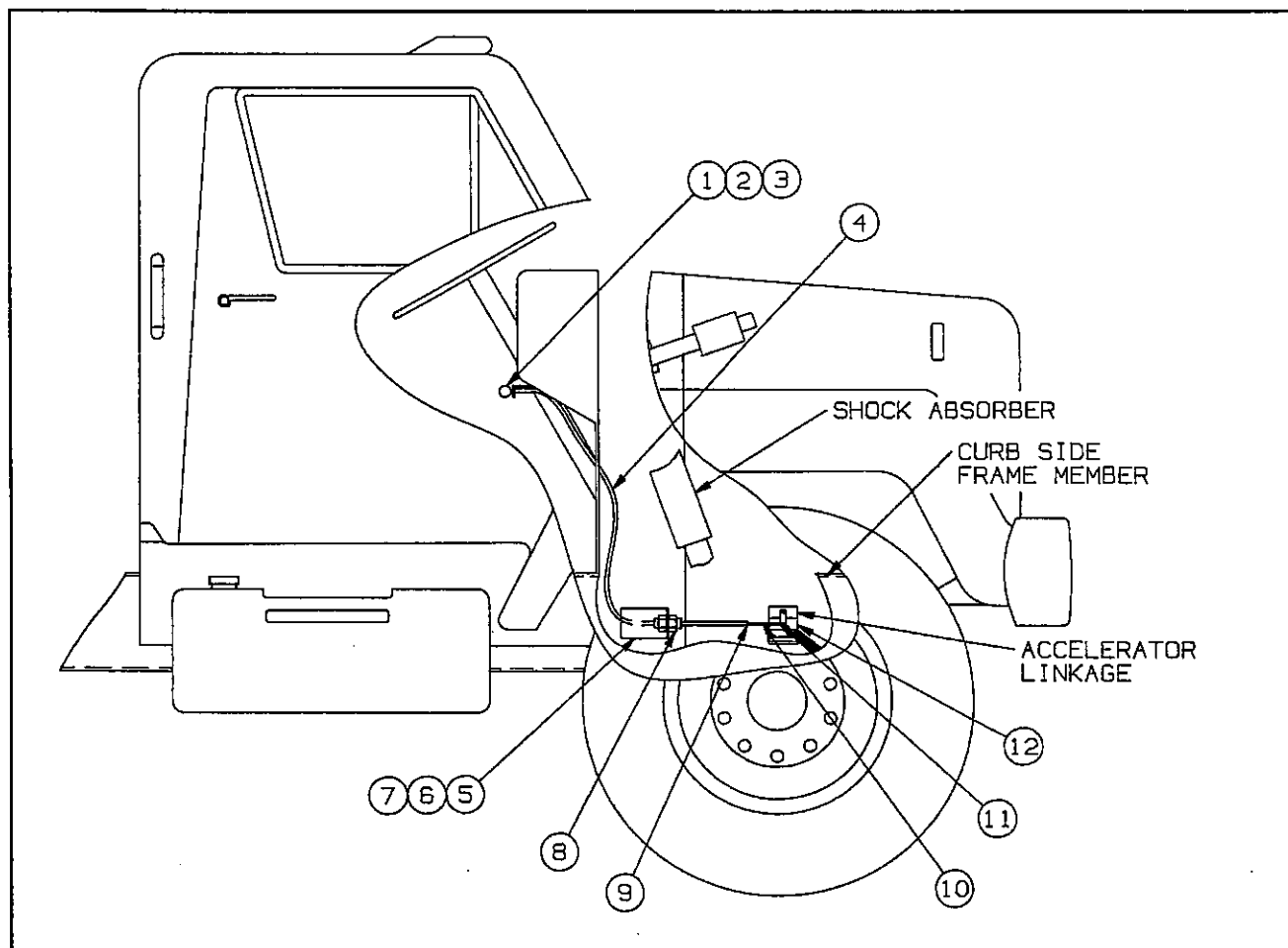


Figure 9-8 Ford Throttle Installation

ITEM	PART NO.	DESCRIPTION	QTY
1	3-272-010007	BRACKET, THROTTLE CABLE	1
2	3/16X3/4RHDSTV	BOLT, ROUND HEAD STOVE	2
3	3/16-24HFN	NUT, HEX	2
4	3-155-010012	CABLE, THROTTLE	1
5	3-120-010213	BRACKET, THROTTLE CABLE MOUNTING	1
6	3/8-16X1HHCS	CAP SCREW, HEX HEAD	2
7	3/8-16HFLN	NUT, LOCKING HEX	2
8	01-5000-05	HUB, FIELD SCREW ON(AFTER JAN.1989)	1
9	13-0404-01	CLAMP, CABLE STOP	1
10	3-174-010013004	CHAIN	1
11	32005	TERMINAL, ELECTRICAL RING	1
12	1/8X1	PIN, COTTER	1

\* ITEMS NOT LISTED ARE TRUCK ENGINE COMPONENTS AND SHOULD BE ORDERED, IF NECESSARY, FROM THE TRUCK MANUFACTURER.

# HAND THROTTLE, CHEVROLET DIESEL

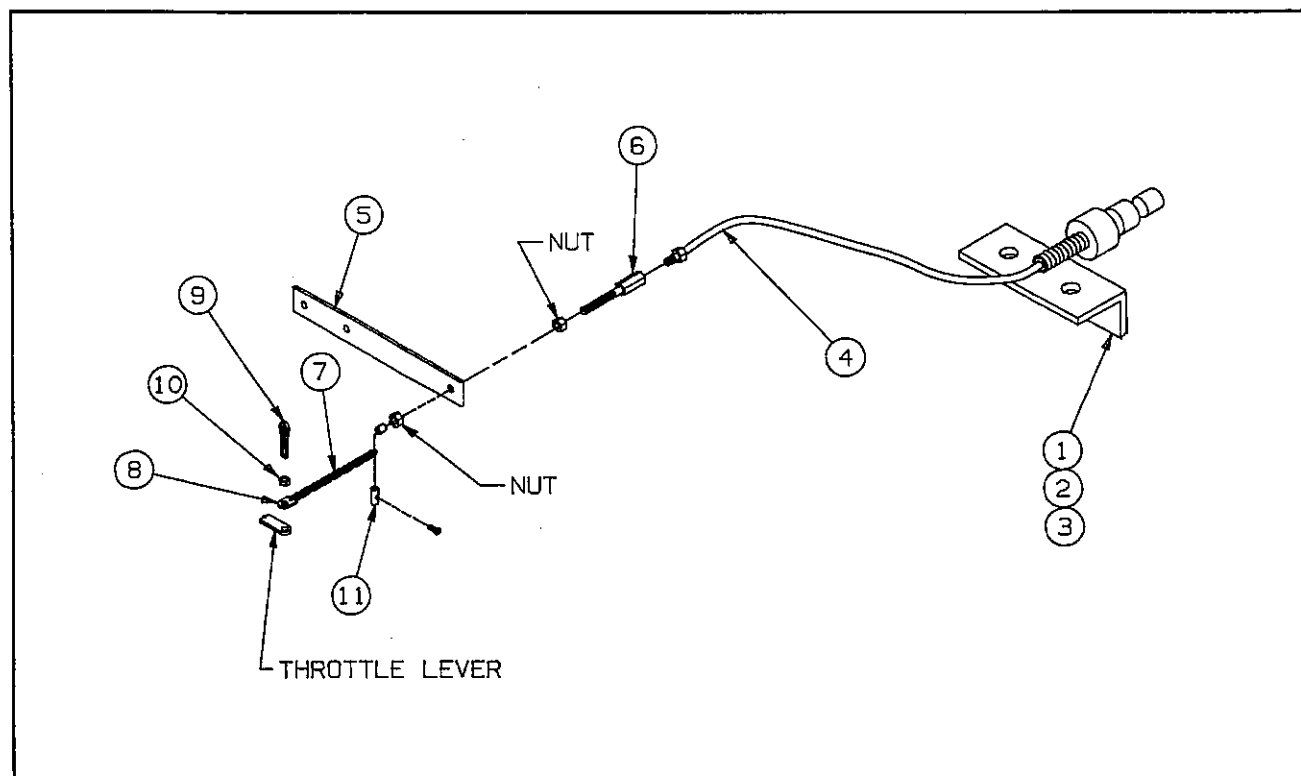


Figure 9-9 Chevrolet Throttle Installation

ITEM	PART NO.	DESCRIPTION	QTY
1	3-272-010007	BRACKET, THROTTLE CABLE	1
2	3/16X3/4RHDSTV	BOLT, ROUND HEAD STOVE	2
3	3/16-24HFN	NUT, HEX	2
4	3-155-010012	CABLE, THROTTLE	1
5	3-120-010226	BRACKET, THROTTLE CABLE MOUNTING	1
6	01-5000-05	HUB, FIELD SCREW ON	1
7	3-174-010013004	CHAIN	1
8	32005	TERMINAL, ELECTRICAL RING	1
9	1/8X1	PIN, COTTER	1
10	3/16-20HFN	NUT, HEX	1
11	13-0404-01	CLAMP, CABLE STOP	1

\* ITEMS NOT LISTED ARE TRUCK ENGINE COMPONENTS AND SHOULD BE ORDERED, IF NECESSARY, FROM THE TRUCK MANUFACTURER.

# HAND THROTTLE, GAS ENGINE

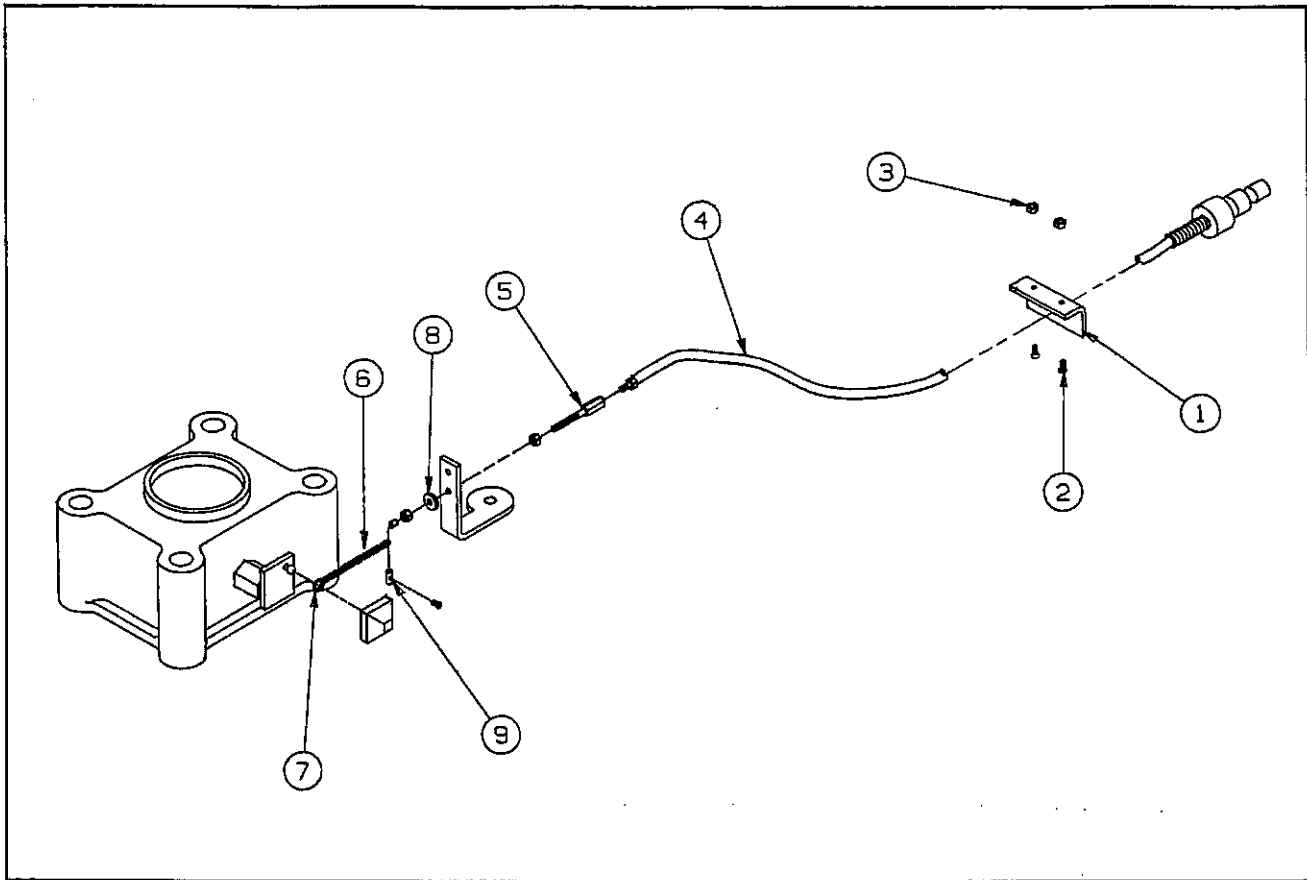


Figure 9-10 Cable Inst. to Carburetor and Bracket

ITEM	PART NO.	DESCRIPTION	QTY
1	3-272-010007	BRACKET, THROTTLE CABLE	1
2	3/16X3/4RHDSTV	BOLT, ROUND HEAD STOVE	2
3	3/16-24HFLN	NUT, HEX	2
4	3-155-010012	CABLE, THROTTLE	1
5	01-5000-05	HUB, FIELD SCREW ON	1
6	3-174-010013004	CHAIN	1
7	32005	TERMINAL, ELECTRICAL RING	1
8	3/8FW	WASHER, FLAT	1
9	13-0404-01	CLAMP, CABLE STOP	1

\* ITEMS NOT LISTED ARE TRUCK ENGINE COMPONENTS AND SHOULD BE ORDERED, IF NECESSARY, FROM THE TRUCK MANUFACTURER.

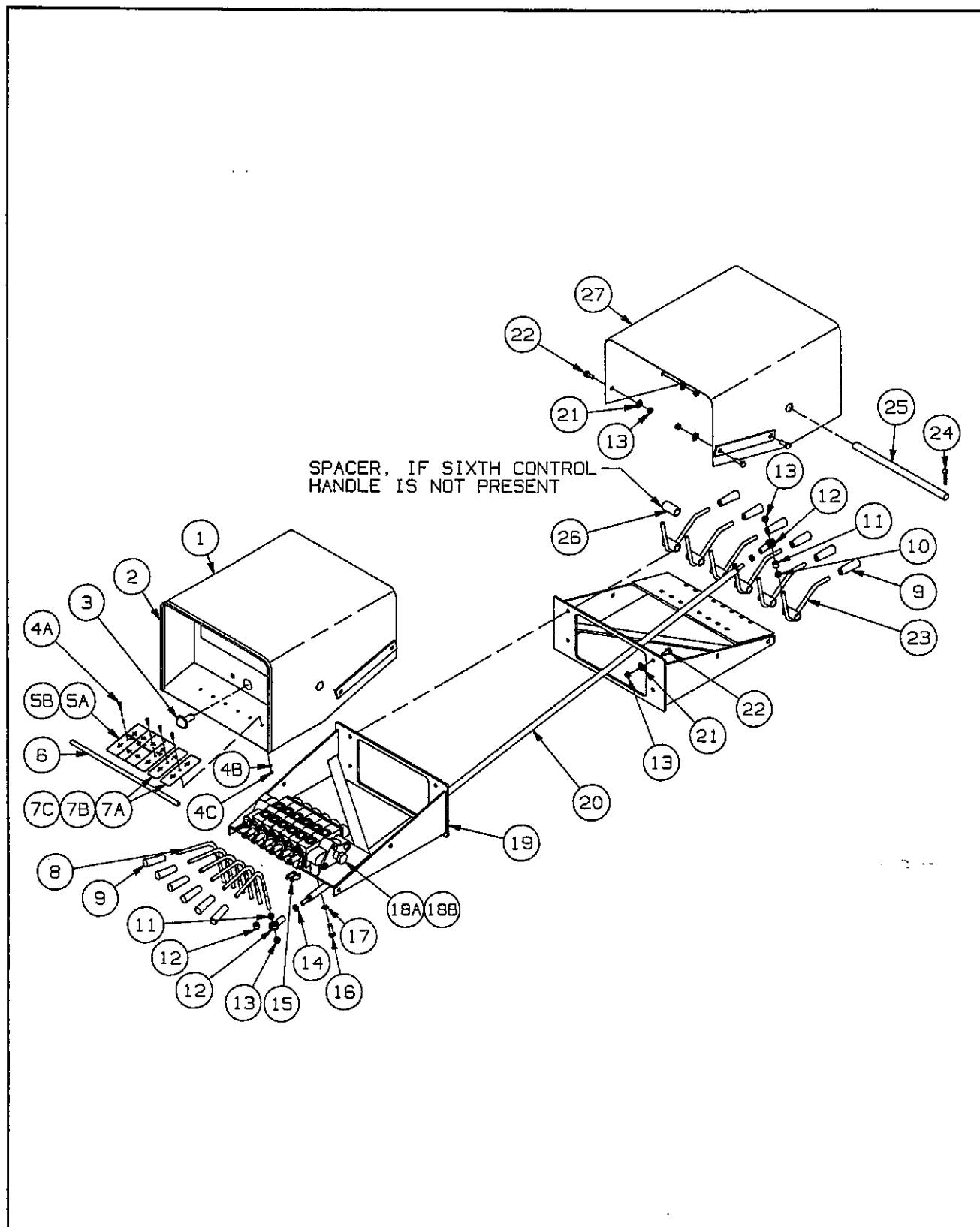


Figure 9-11 Linkage 4, 5 or 6 Spool Valve Items

## LINKAGE, 4, 5 or 6-SPOOL VALVE

ITEM	PART NO.	DESCRIPTION	*QTY
1	3-681-010081	SHIELD WLDMT VALVE (street side)	1
2	514-1000-040.5	TRIM QUICKEDGE CUT40-1/2 LG	1
3	26331	LIGHT COURTESY TRUCKLITE	1
4A	3/16X3/4RHD STV	BOLT STOVE ROUND HEAD	3
B	3/16SLW	WASHER SPLIT LOCK 3/16	3
C	3/16-24HFN	NUT ZP GR2	3
5A	3-573-010353	DECAL OPERATION LT CA (street side)	1
B	3-573-010352	DECAL OPERATION RT CA (curb side)	1
6	514-1000-016.5	TRIM QUICKEDGE CUT 16-1/2 LG	1
7A	3-573-010354	DECAL OPERATION HYD CA (aux hyd couplers)	2
B	3-573-010367	DECAL OPERATION STINGER CA (street side)	1
C	3-573-010368	DECAL OPERATION STINGER CA (curb side)	1
8A	3-360-010093	HANDLE VALVE PRINCE CA TILT	1
B	3-360-010094	HANDLE VALVE PRINCE CA WINCH	1
C	3-360-010095	HANDLE VALVE PRINCE CA BED	1
D	3-360-010096	HANDLE VALVE PRINCE CA DK LVLR	1
E	3-360-010097	HANDLE VALVE PRINCE CA UX	1
9	3-360-010072	HANDLE PLASTIC	5
10	3/8-16HFN	NUT ZP GR2	10
11	3-241-010001	CUSHION ROD PIVOT	10
12	3-642-010111	ROD ENDS BALL JOINT	10
13	3/8-16HFLN	NUT HEX LOCK GRB CAD W/WAX	18
14	3/8-24HFN	NUT ZP GR2	10
15	(REF)	SEE SPOOL VALVE BREAKDOWN	
16	3/8-16X1HHCS	NUT ZP	3
17	3/8SLW	WASHER SPLIT LOCK 3/8	3
18	3-846-010032	VALVE HYD 5 SPOOL 2500 PSI	1
19	3-755-010161	SUPPORT VALVE WLDMT	1
20	3-642-010124	ROD WLDMT RT CA	5
21	3/8FW	WASHER FLAT ZP	8
22	3/8-16X1-1/4CS	HHCS VP VR5	8
23	3-360-010091	HANDLE RT SIDE WLDMT	5
24	1/4X1-1/2	COTTER PIN	2
25	RPRB59004X14	ROD NYLATRON 3/4X14	1
26	RRT276X1.875	TUBE RD 1X.782X1-7/8	1
27	3-681-010083	SHIELD RODS WLDMT (CURB SIDE)	1

\*QUANTITY CAN VARY DEPENDING ON OPTIONS UNIT HAS.

# PUMP, HYDRAULICS

## PUMP, WET KIT HYDRAULICS

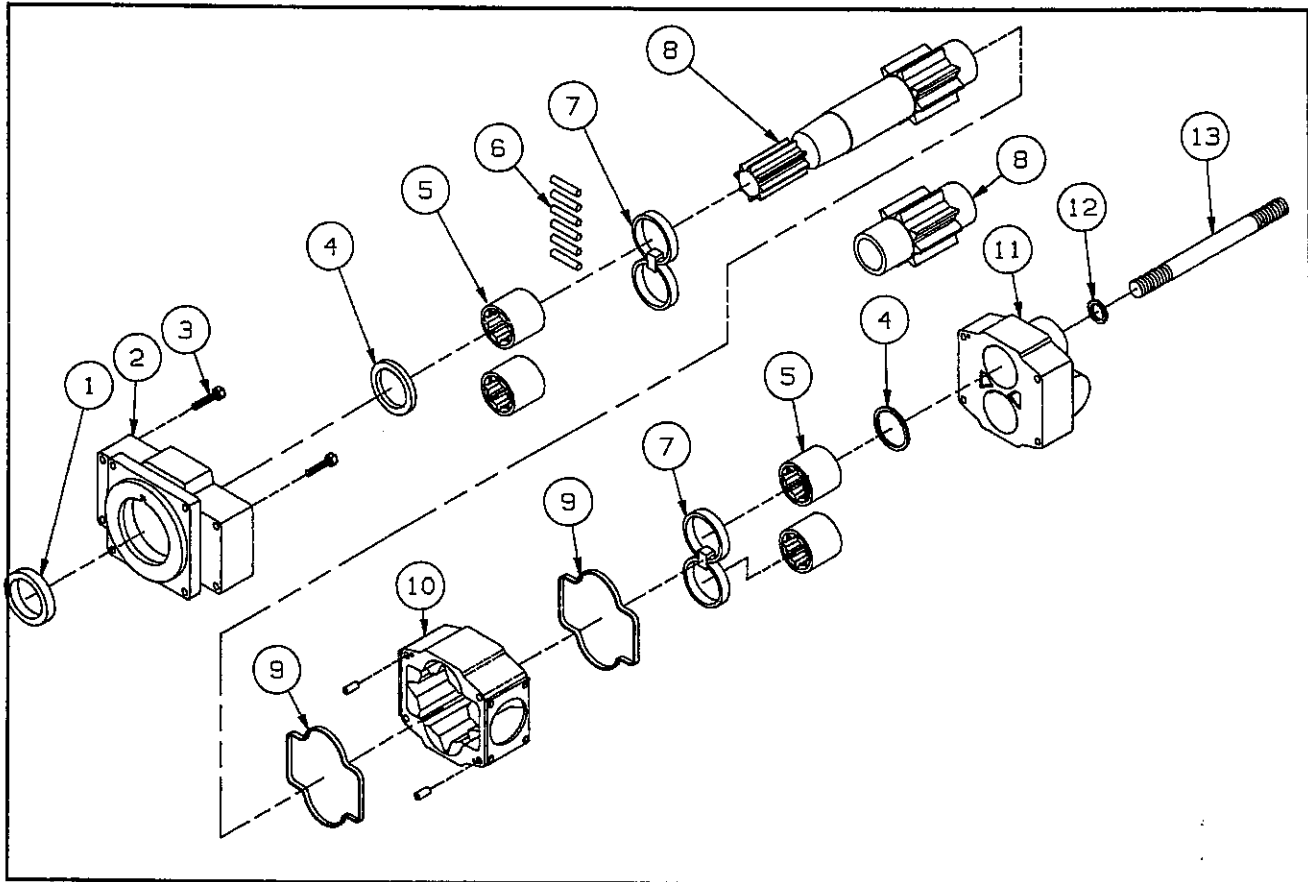


Figure 9-12 Wet Kit Pump Items

ITEM	PART NO.	DESCRIPTION	QTY
	3-591-010001	ASSEMBLY COMPLETE, P31A342BEAF1725	1
1	X73-37-16	SEAL SHAFT	1
2	EB1685-3	COVER, SHAFT END	1
3	M1391-K	CHECK	2
4	LB1669-1	SEAL, RING	2
5	Y1032	BEARING, ROLLER	4
6	BA3026-2	STRIP, POCKET SEAL	1
7	AA1058	PLATE, THRUST	2
8	BD1135M-3-17	GEAR SET, SHAFT	1
9	UB3006-242	GASKET, HOUSING	2
10	RA1688-17-64	HOUSING	1
11	XA1603	PORT END	1
12	X144-3	WASHER	1
13	X2-25	STUD	1
	391-1802-119	SEAL KIT	1

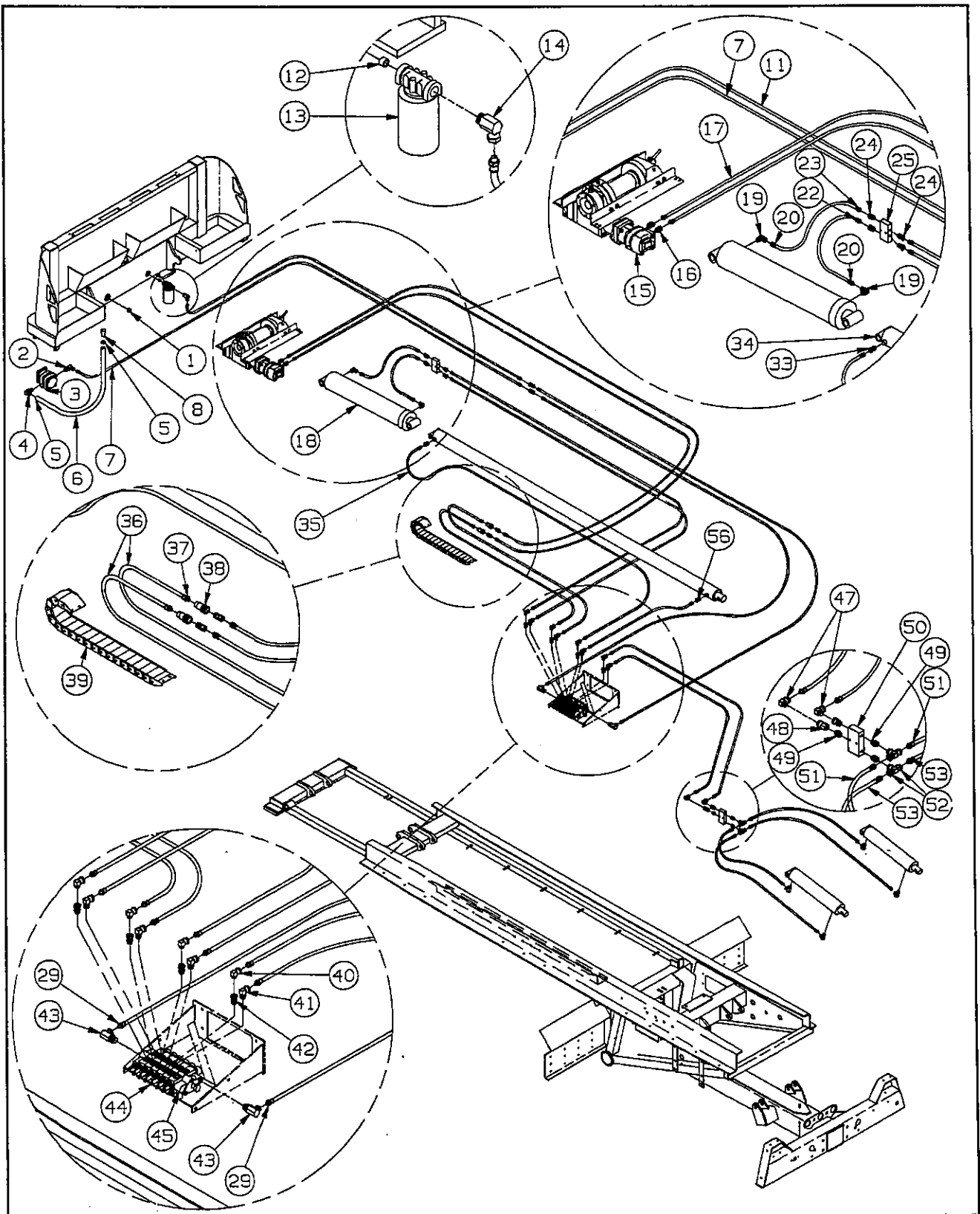


Figure 9-13 Hydraulics

## HYDRAULICS

ITEM	PART NO.	DESCRIPTION	QTY
1	1-1/4 PIPE PLUG	BLACK 1-1/4 SQ HEAD	2
2	1-007-010009	ELBOW 90 1-5/16 O-RING	1
3	3-591-010001	HYDRAULIC GEAR PUMP	2
A	1/2-13X1-1/2CS	SCREW, HEX HEAD CAP	4
B	1/2SLW	WASHER, SPLIT LOCK	4
4	1-007-010006	90 EL 1-5/16 O-RING	1
5	6828	IDEAL HOSE CLAMP 2.25 MAX-1.3 MIN	2
6	3-399-010001060	HOSE 1-1/4 SUCTIONX60	1
7A	3-397-010030	HOSE ASSY 158 (28'BED)	1
B	3-397-010039	HOSE ASSY 132 (26'BED)	1
C	3-397-010232	HOSE ASSY 108 (24'BED)	1
D	3-397-010272	HOSE ASSY 86 (22'BED)	1
8	3-561-010001	HOSE BARB 1-1/4 NPT	1
9	1-1/4ST ELL	PIPE ELBOW BLK 90 ST	2
10	3/4 PLUG	PLUG PIPE BLACK	2
11A	3-397-010157	HOSE ASSY 99 (28'BED)	1
B	6-397-010005	HOSE ASSY 74 (26'BED)	1
C	3-397-010222	HOSE ASSY 45 (45'BED)	1
D	3-397-010093	HOSE ASSY 28 (22'BED)	1
12	3/4 NIPPLE	NIPPLE, ALL THREAD	4
13	1-295-010001	FILTER, RETURN LINE	4
14	1-007-010013	ELBOW 1/2FPT 3/4MPT 90 SWIVEL	4
15A	104-1003	WINCH MOTOR (12000# WINCH)	REF.
B	3-481-010010	MOTOR 110 SERIES (8000# WINCH)	REF.
C	3-481-010007	WINCH MOTOR (20000# WINCH)	REF.
16	2066-8-10S	O-RING ADAPT TO PT	2
17A	3-397-010041	HOSE ASSEMBLY 1/2X204 (28'BED)	2
B	3-397-010040	HOSE ASSY 1/2X180 (26'BED)	2
C	3-397-010014	HOSE ASSY 1/2X164 (24'BED)	2
D	3-397-010021	HOSE ASSY 1/2X148 (22'BED)	2
18	3-242-010183	CYL HYD 6X30 WLDMT	1
19	3/4X1/2 BUSH	BUSHING BLACK PIPE	2
20	3-007-010048	HYDR ELBOW W/3/16 REST	2
21	3-846-010131	VALVE CHECK ASSY TILT CYLINDER (INCLUDES 22-25)	1
22	3-397-010255	HOSE ASSY 3/8 44"	1
23	3-397-010250	HOSE ASSY 3/8 18"	1
24	2045-6-6S	ADAPTER 3/8 PIPE TO 3/8 PIPE SWVL	4
25	3-846-010042	VALVE CHK PILOT OPERATED DBLA	1
A	1/4-20HFN	NUT ZP GR2	6
B	1/4FW	WASHER FLAT ZP	6
C	1/4SLW	SPLIT LOCK WASHER ZP	6
26	1-397-010312194	HOSE ASSY 3/8X194 3/8MPT ENDS	1
27	1-397-010312191	HOSE ASSY 3/8X191 3/8MPT ENDS	1
28	2046-8-8S	CONNECTOR HYDR 1/2 NPTX1/2 NPT	2
29	3-397-010041	HOSE ASSEMBLY 1/2X204	2
30	2-181-010001	HOSE CLAMP	15
A	3/8-16HFLN	NUT HEX LOCK GRB CAD W/WAX	48
31	3-181-010006	HOSE CLAMP	2
32	3-397-010212	HOSE ASSY 3/8X50	3
33	2066-6-8S	ADAPT 3/4-16 O-RING 3/8NPT	1
34	3-242-010185	CYLINDER 4X126 WELDMNT	1
35	1-397-010312158	HOSE ASSY 3/8X158 3/8MPT ENDS	1



## HYDRAULICS CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
36	1-397-010315148	HOSE ASSY 3/8X148 3/8X1/2NPT	2
37	8010-4	COUPLER MALE 1/2	2
38	4050-4	COUPLER BODY HALF FEMALE	2
39	3-755-010122	SUPPORT TRAY HOSES	1
A	1/4-20HFN	NUT ZP GR2	6
B	1/4FW	WASHER FLAT ZP	6
C	1/4SLW	SPLIT LOCK WASHER ZP	6
D	1/4-20X3/4HHCS	SCREW ZP GR5	4
40	2047-6-6S	INT P SWIVAL 3/8NPT	6
41	2068-6-6S	ADAPTER, 90° ELBOW 3/8 PIPE 9/16-18 SAE	2
42	2066-6-6S	ADAPTER, 9/16-18 SAE-3/8 FEMALE PIPE SWIVEL	6
43	2068-8-10S	ADAPTER, 7.8-14 SAE-1/2 FEMALE PIPE SWIVEL	2
44A	3-846-010032	VALVE HYD 5 SPOOL 2500 PSI	REF.
B	SVW2BA2	VALVE HYD WORK SECTION (to convert 5 spool to 6 spool)	REF.
45	900598-6S	PLUG O-RING 9/16-18 AEROQUIP	2
46	3-846-010132	VALVE CHECK ASSY DK LVL	1
47	2047-6-6S	ADAPTER, 90° 3/8 MALE PIPE-3/8 FEMALE PIPE SWIVEL	6
48	2046-6-6S	CONNECTOR HYDR 3/8 TO 3/8NPTF	1
49	3-007-010032	ADAPTER HYD NIPPLE 3/8-18NPSM	3
50	3-846-010042	VALVE CHK PILOT OPERATED DBLA	1
A	3/8-16HFLN	NUT HEX LOCK GRB CAD W/WAX	48
B	3/8-16X2CS GR2	HHCS ZP GR2	4
C	3/8FW	WASHER FLAT ZP	48
51	3-397-010129	HOSE ASSY 3/8X19	2
52	2255-6-6S	3/8 TEE INTERNAL PIPE SWIVEL	2
53	3-397-010128	HOSE ASSY 3/8X28	2
54	1-007-010003	SWIVEL ELBOW W/RESTRICTER	4
55	3-242-010182	CYLINDER HYD 4X16 WELDED	2
56	2068-6-8S	ELBOW 90° #8 SAE X #6 PIPE SWIVEL	1

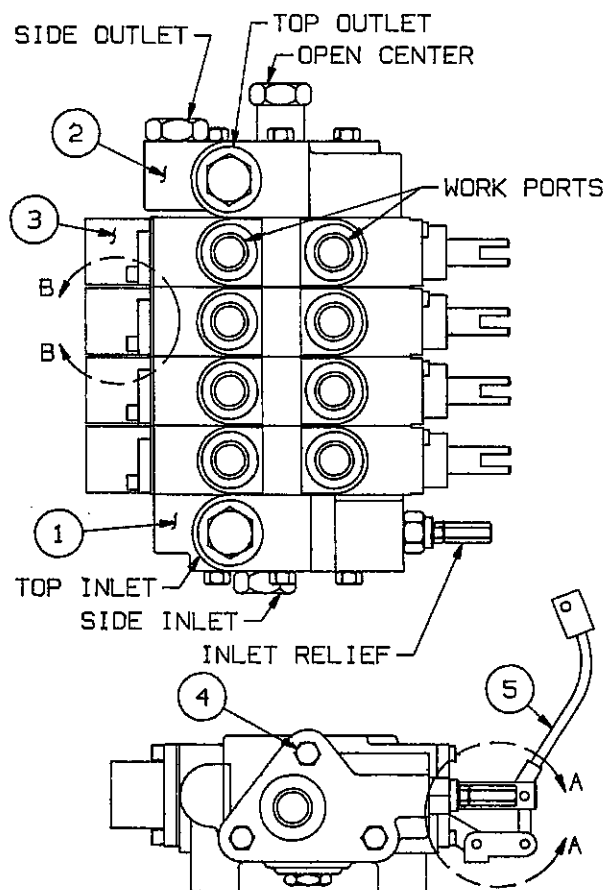
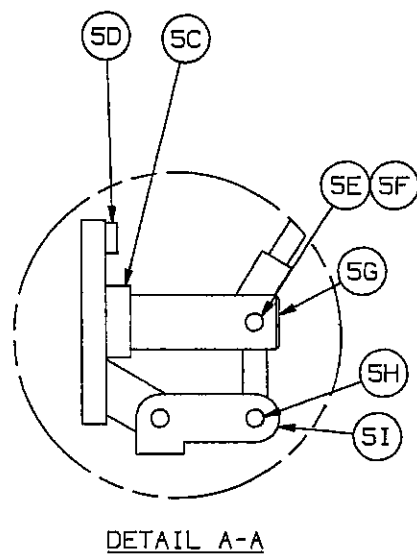
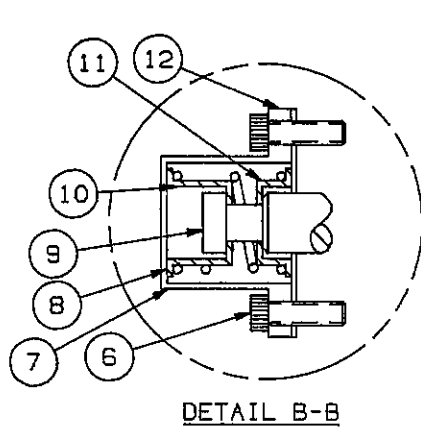


Figure 9-14 Spool Valve

## VALVE, FOUR, FIVE AND SIX SPOOL

ITEM	PART NO.	DESCRIPTION	QTY
	3-846-010045	VALVE, FOUR SPOOL (WITH REMOTE TILT)	1
	3-846-010032	VALVE, FIVE SPOOL (WITHOUT REMOTE TILT) SVAB71	1
1	SV125	SECTION, INLET (2000 PSI FOR FOUR SPOOL VALVE)	1
	SV125	SECTION, INLET (2500 PSI FOR FIVE SPOOL VALVE)	1
2	SVE21	SECTION, OUTLET (OPEN CENTER)	1
3	SVW2BA2	SECTION, WORK	4,5,6*
4	660401004	TIE ROD KIT (FOUR SPOOL VALVE)	1
	660401005	TIE ROD KIT (FIVE SPOOL VALVE)	1
	660401006	TIE ROD KIT (SIX SPOOL VALVE)	1
5	--	SEE VALVE LINKAGE PARTS LIST	4,5,6*
C	671400040	BASE HANDLE	4,5,6*
D	671900013	CAP SCREW, HEX SLOT	8,10,12*
E	220001512	PIN, COTTER	12,15,18*
F	671700014	PIN, CLEVIS	8,10,12*
G	671900011	SPOOL END ADAPTER	4,5,6*
H	671700012	PIN, SWIVEL CLEVIS	4,5,6*
I	670500047	LINKAGE, CLEVIS SWIVEL	4,5,6*
6	170003008	CAP SCREW, HEX SLOT	8,10,12*
7	671400033	COVER, SPOOL END	4,5,6*
8	671400036	SEAL, SPOOL OUTER	4,5,6*
9	671900010	SPOOL	4,5,6*
10	670300030	SPRING	4,5,6*
11	671400037	SEAL, SPOOL INNER	4,5,6*
12	670500044	GASKET, SPOOL END COVER	4,5,6*
	660580004	SEAL KIT, INTER-SECTIONAL BETWEEN MATING SECTIONS	5,6,7*
	660580002	SEAL KIT, INLET INSIDE	1
	660580003	SEAL KIT, OUTLET INSIDE	1
	660580001	SEAL KIT, WORK SECTION INSIDE	4,5,6*

\*WHERE THREE QUANTITIES ARE LISTED WITH A COMMA BETWEEN THEM, THE FIRST QUANTITY IS FOR A FOUR SPOOL VALVE AND THE SECOND QUANTITY IS FOR A FIVE SPOOL VALVE, AND THE THIRD QUANTITY IS FOR A SIX SPOOL VALVE.

## CYLINDER, DOCK LEVEL TILT

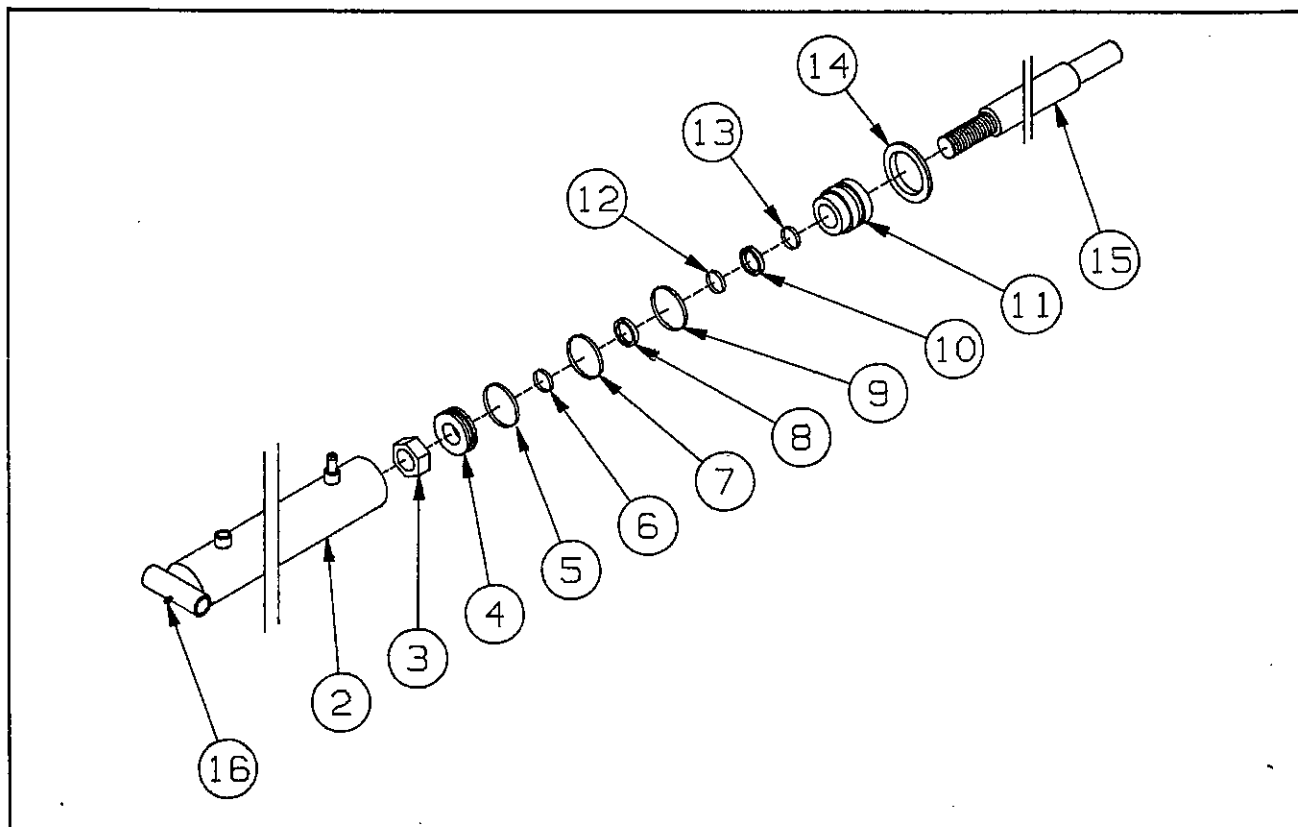


Figure 9-15 Dock Level Tilt Cylinder

ITEM	PART NO.	DESCRIPTION	QTY
	3-242-010182	COMPLETE, CYLINDER PRINCE PMC-5616 (4" BORE X 16" STROKE) DOCK LEVEL CYLINDER	1
1	200018003	ALLEN, PIPE PLUG	1
2	061900036	BUTT AND TUBE ASSEMBLY	1
3	220000212	LOCKNUT	1
4	071900019	PISTON	1
5	240004008	PISTON RING	1
6	240000026	O-RING	1
7	240034342	BU-WASHER	2
8	240000342	O-RING	2
9	240010329	QUAD RING	1
10	250001329	WIPER	1
11	081900019	GLAND	1
12	240005329	BU-WASHER	1
13	240061342	BU-WASHER	1
14	230001400	SNAP RING	1
15	011100072	PISTON ROD	1
16	270010002	GREASE ZERK	1
	PMCK-5600	PACKING KIT	1

## CYLINDER, BED SLIDE

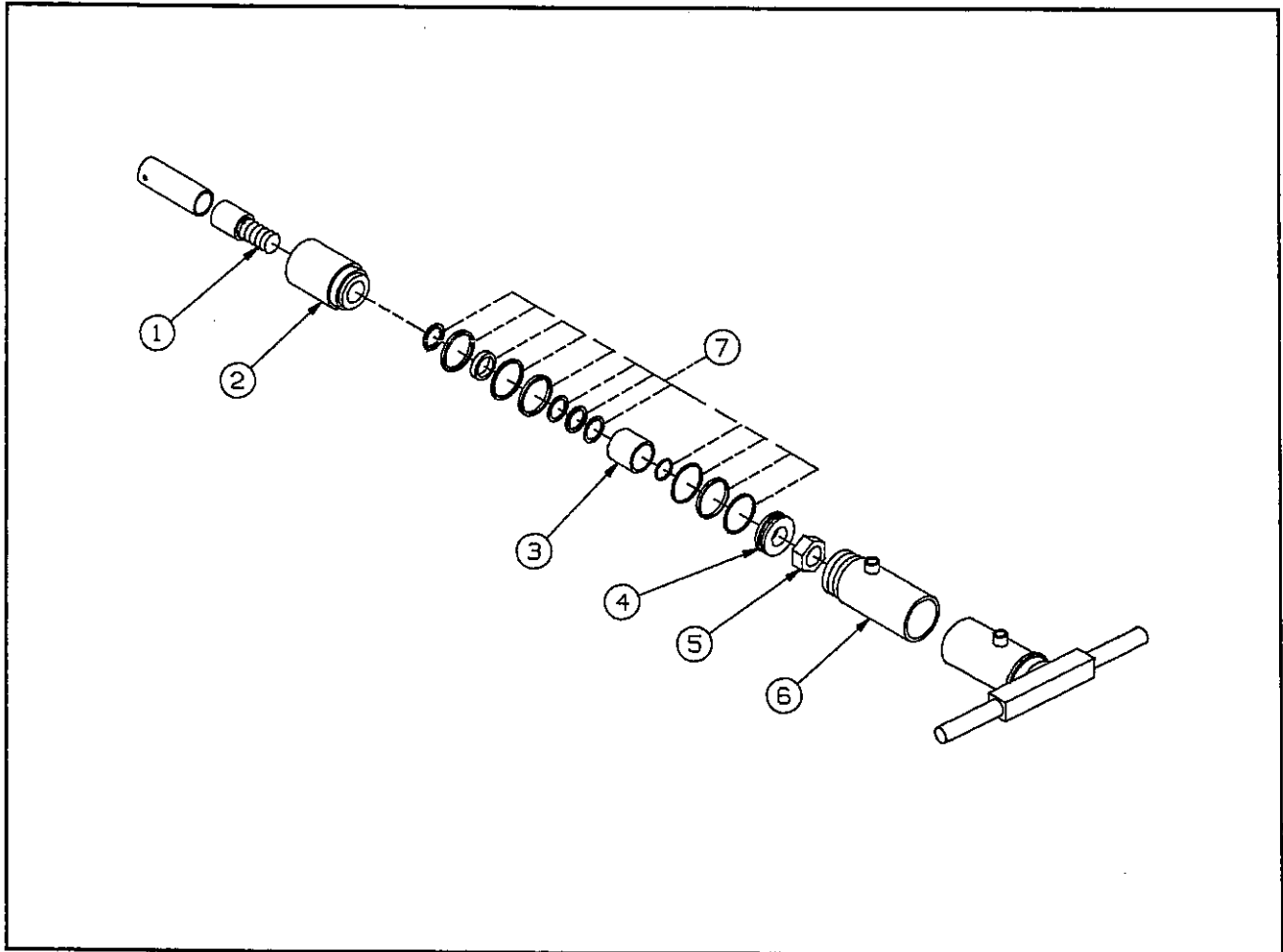


Figure 9-16 Bed Slide Cylinder

ITEM	PART NO.	DESCRIPTION	QTY
	3-242-010185	ASSEMBLY, BED SLIDE CYLINDER (4"X126")	1
1	011300179	PISTON ROD	1
2	081900277	GLAND	1
	230007400	RING, SQUARE RETAINING	1
3	211300024	SPACER	1
4	079100195	PISTON	1
5	220000212	NUT, LOCKING	1
6	*	TUBE ASSEMBLY, BUTT AND	1
7	PMCK-AD-461	PACKING KIT (CONTAINS ALL NECESSARY SEALS AND O-RINGS)	A/R

\*PART NOT SOLD SEPARATELY. REQUIRES PURCHASE OF ENTIRE ASSEMBLY.

## CYLINDER, BED TILT

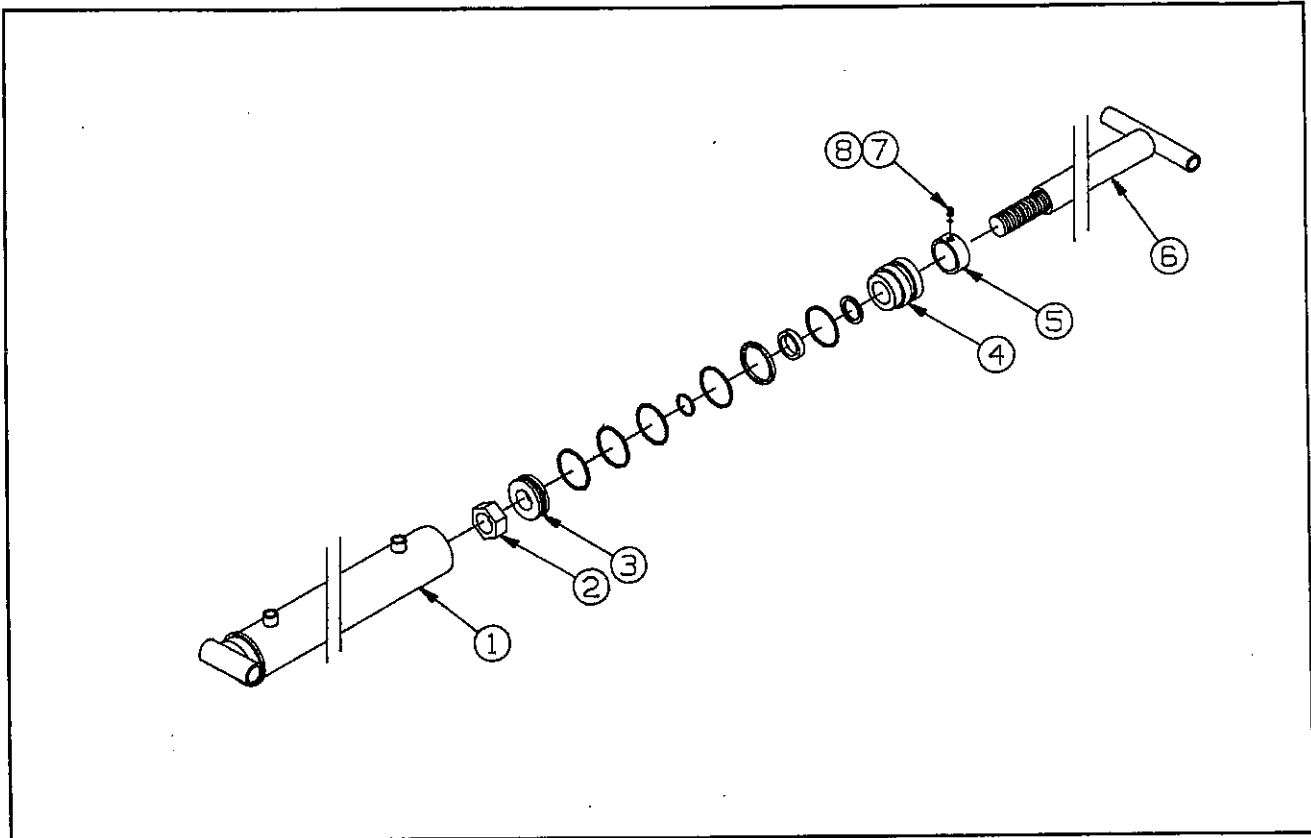


Figure 9-17 Bed Tilt Cylinder

ITEM	PART NO.	DESCRIPTION	QTY
	3-242-010183	COMPLETE, CYLINDER 6" X 30"	1
1	062300440	BUTT AND TUBE ASSEMBLY	1
	3-831-010093	CROSSTUBE BUTT (WELDED TO ITEM 1)	1
2	220000218	LOCKNUT	1
3	072300150	PISTON	1
4	082300208	GLAND	1
5	262300011	GLAND CAP	1
6	011500220	PISTON ROD	1
	3-831-010092	CROSSTUBE PISTON (WELDED TO ITEM 6)	1
7	220000701	SET SCREW	1
8	220000853	NYLON LOCK	1
*	250014300	WIPER	1
*	240011084	BEARING RING	1
*	240060433	CROWN SEAL	1
*	240000033	O-RING	1
*	240000433	O-RING	1
*	240061433	BU-WASHER	1
*	240020017	U-CUP	1
*	250001337	WIPER	1
	PMCK-24000	PACKING KIT	1

\*ITEMS CONTAINED IN PACKING KIT.

# CYLINDER, WHEEL LIFT AND TOWBAR IN/OUT

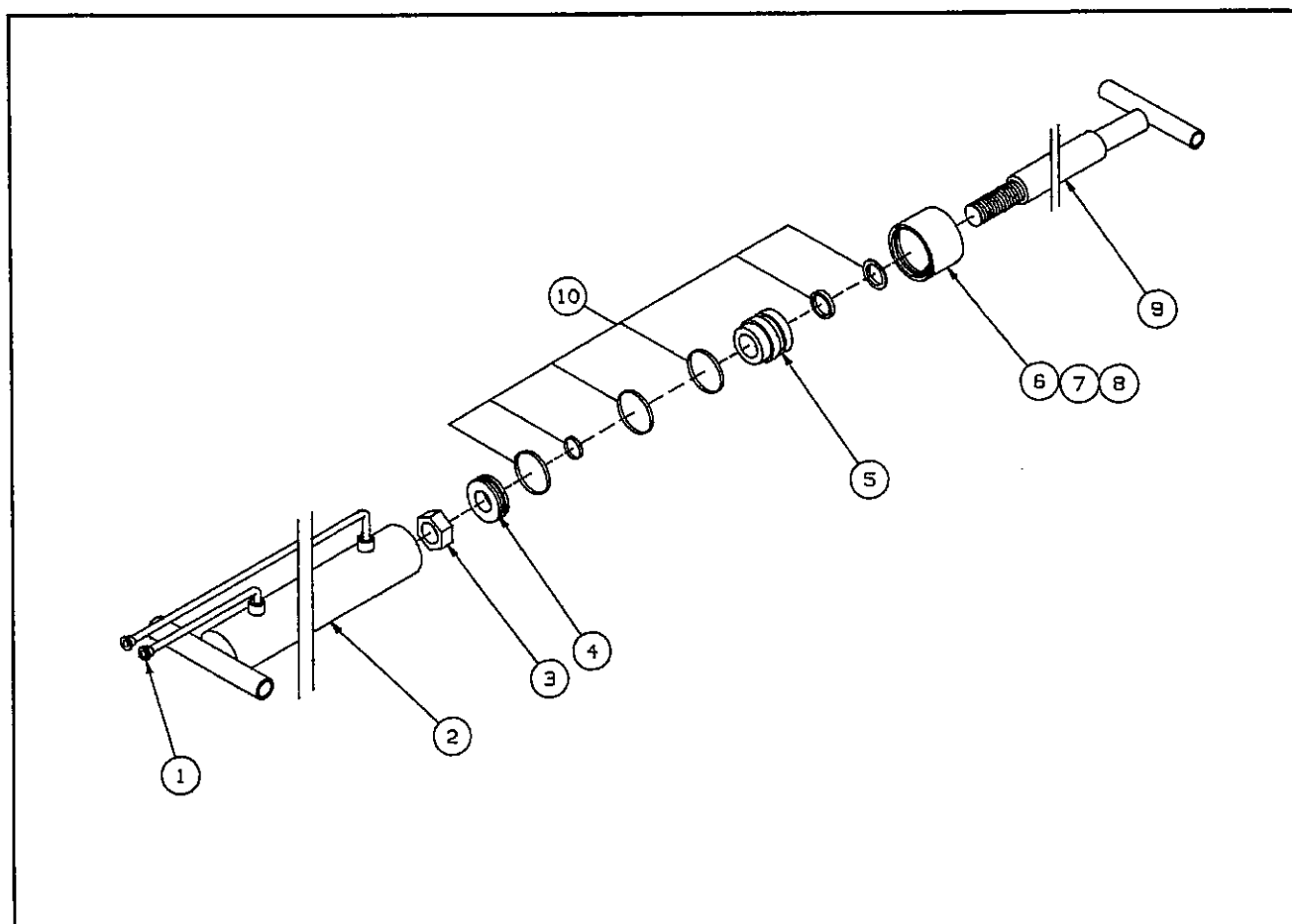


Figure 9-18 Wheel Lift and Towbar Cylinder

ITEM	PART NO.	DESCRIPTION	QTY
1	3-242-010111	COMPLETE ASSEMBLY, WHEEL LIFT CYLINDER 2-1/2 X 63	2
2	200018002	PLUG, PIPE	1
3	161300430	BUTT ASSEMBLY, TUBE AND	1
4	270010016	ZERK, GREASE	1
5	220000208	NUT, LOCK	1
6	071300110	PISTON	1
7	081300202	GLAND	1
8	261400009	CAP, GLAND	1
9	220000853	LOCK, NYLON	1
10	220000706	SCREW, SET	1
	020700110	ROD ASSEMBLY, PISTON	1
	270010016	ZERK, GREASE	1
	PMCK AG-597	PACKING KIT CONTAINS NECESSARY O-RINGS AND SEALS	A/R

# MOTOR, 8,000# WINCH HYDRAULIC

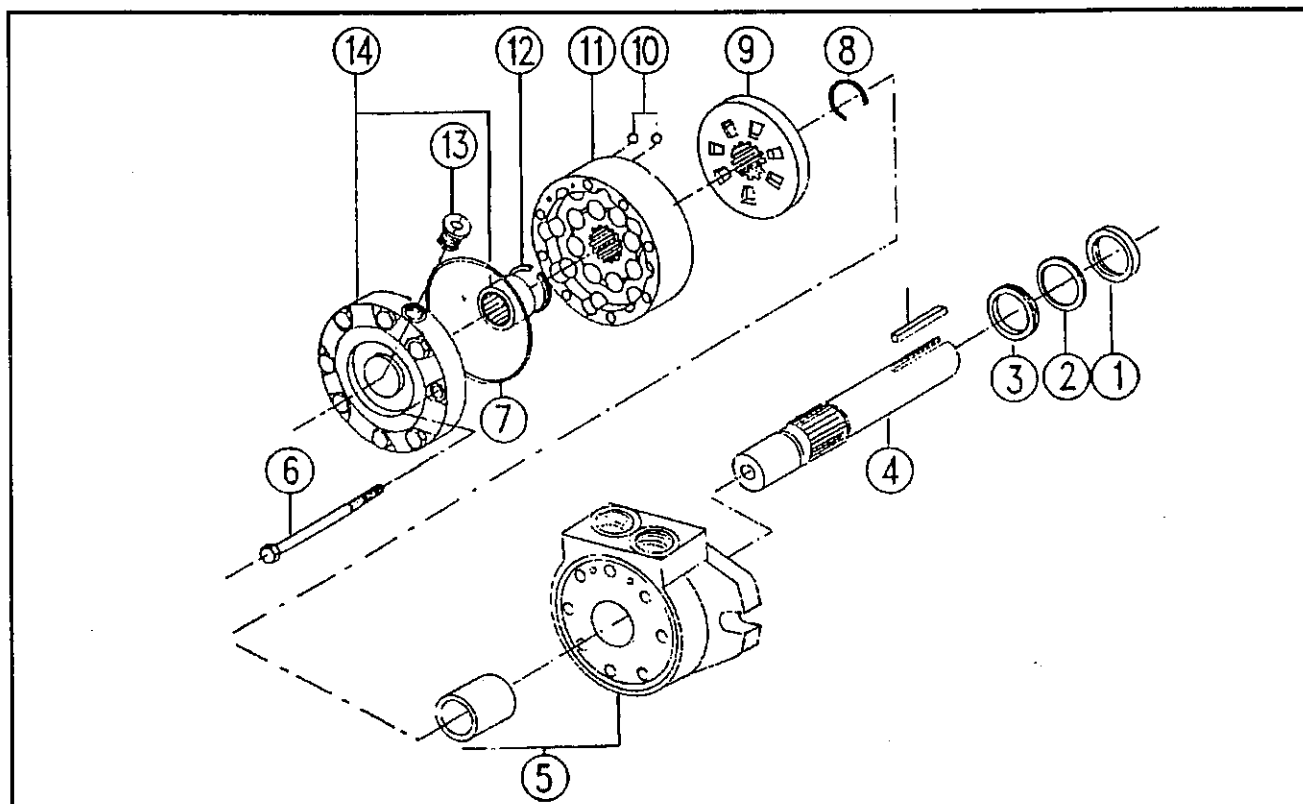


Figure 9-19 8,000# Winch Motor

ITEM	PART NO.	DESCRIPTION	QTY
1	3-481-010005	COMPLETE ASSEMBLY, WINCH HYDRAULIC MOTOR	1
2	1061	SEAL, DUST	1
3	1142-14	RING, BACKUP	1
4	1062-15	SEAL, RING	1
5	1110-X	SHAFT, KEY STRAIGHT	1
6	1020-1	KEY, STRAIGHT	1
7	* 1685	SHAFT, KEY WOODRUFF	1
8	* 1655	KEY, WOODRUFF	1
9	M110B-1	BODY ASSEMBLY, BEARING AND	1
10	1114-X	BOLTS, HEX	8
11	1046	SEAL, SQUARE RING	2
12	1157	RING, SNAP	1
13	1007	VALVE, ROTARY	1
14	1021	BALL, CHECK VALVE	2
15	1004-1	IGR ASSEMBLY	1
16	1135	RING, SNAP	1
17	1019-4	PLUG, VENT	1
18	M110C-1	BEARING ASSEMBLY, COVER AND	1
19	1158	SEAL KIT	1

\*MOTORS WITH DATE CODE L8 AND LATER MAY HAVE WOODRUFF KEY AND SHAFT.



# MOTOR 12,000# WINCH HYDRAULIC STD.

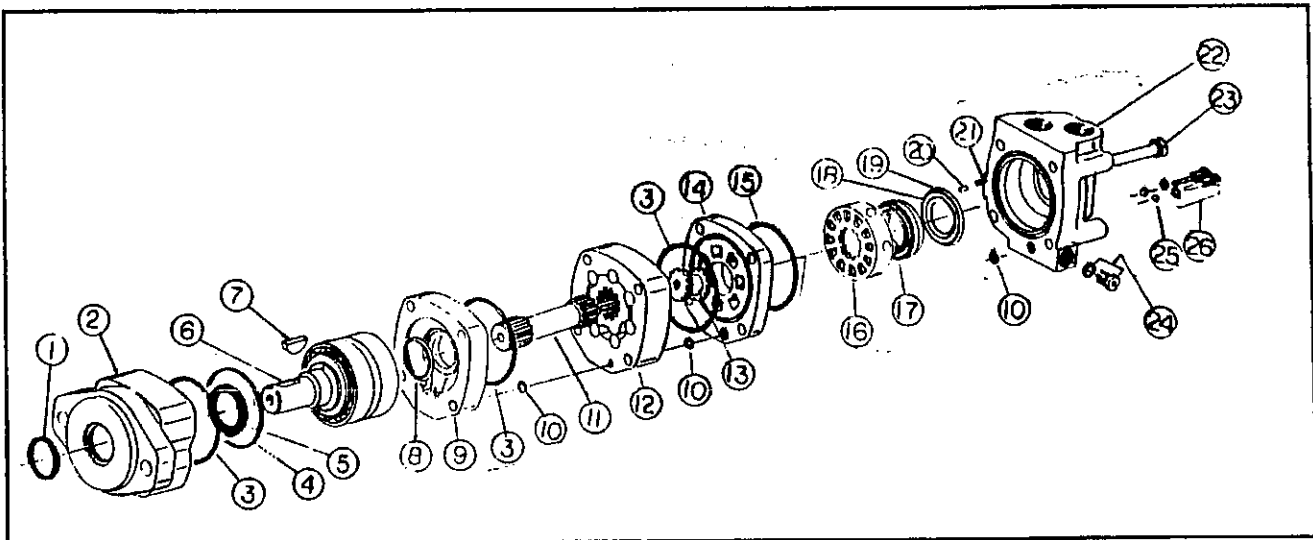


Figure 9-20 12,000# Winch Motor

ITEM	PART NO.		DESCRIPTION	QTY
1	9044-1	O	SEAL DUST	1
2	7385	*	HOUSING, BEARING	1
3	9022-6		SEAL, O-RING	3
4	61023	XO	SPACER BEARING KIT	1
5	9075-1	O	SEAL SHAFT	1
6	61204		SHAFT & BEARING KIT	1
7	14193		KEY	1
8	9050	O	SEAL, SHAFT FACE	1
9	7390	*	PLATE, WEAR	1
10	9022-12	X	SEAL, O-RING	3
11	8434-3		DRIVE	1
12	7403-3		GEROLER	1
13	8433		DRIVE, VALVE	1
14	8432		PLATE, VALVE	1
15	9022-2	X	SEAL	1
16	8435		VALVE	1
17	7379		BALANCE PLATE	1
18	9049-1	X	SEAL, FACE, INNER	1
19	9048-1	X	SEAL, FACE, OUTER	1
20	14351		PIN	2
21	7383		SPRING	2
22	8356-1		HOUSING, VALVE	1
23	14300		BOLT	4
24	9072-3		PLUG ASSEMBLY	1
	9071-3		PLUG	1
	250003-904	X	O-RING	1
25	18026		BALL, STEEL	2
26	8350		CHECK PLUG ASSEMBLY	2
	8349		PLUG	2
	250003-903		O-RING	2

X 61200 SEAL KIT, MOTOR REAR CONTAINS PARTS INDICATED BY X

O 61201 SEAL KIT, SHAFT, CONTAINS PARTS INDICATED BY O

\* ORDER 61203 BEARING SPACER KIT WHENEVER YOU REPLACE THE BEARING HOUSING, SHAFT AND BEARING KIT OR WEAR PLATE.

# MOTOR 20,000# WINCH HYDRAULIC STD.

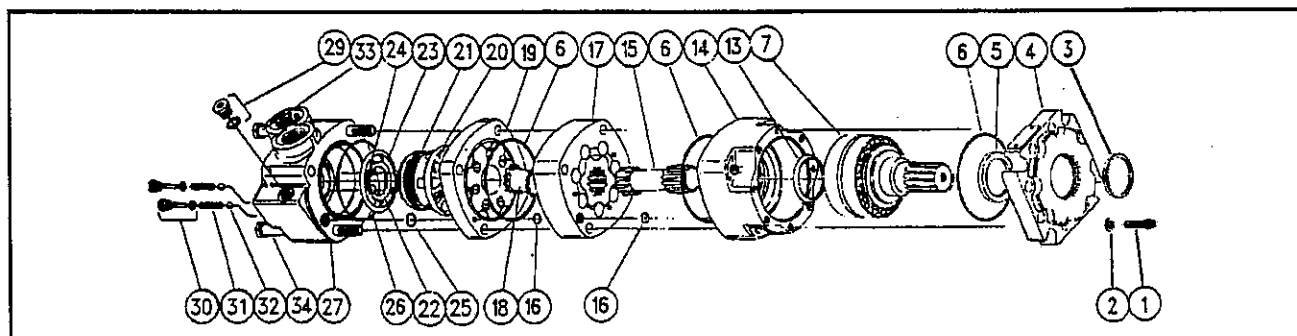


Figure 9-21 20,000# Winch Motor

ITEM	PART NO.	DESCRIPTION	QTY
1	5389-27	SCREW, CAP	8
2	6049 +	WASHER	8
3	9031-1 +	SEAL, DUST	1
4	8559	RETAINER, FRONT	1
5	9068-2 +	SEAL, SHAFT	1
6	9022-8 X+	SEAL, 3-1/2"ID	3
7	8709-1	SHAFT (Straight) & BEARING KIT	1
8	8709-2	SHAFT (Tapered) & BEARING KIT	1
9	8709-3	SHAFT (Splined) & BEARING KIT	1
		(above shaft & bearing kit includes the following parts)	
	NSS	SHAFT	1
	NSS	CONE, BEARING	2
	NSS	CUP, BEARING	2
	NSS	SPACER, BEARING	1
	NSS	RETAINER, RING	1
10	14392-11	KEY, (for straight shaft)	1
11	14230	NUT, HEX	1
12	14232	KEY, (for tapered shaft)	1
13	9070-1 +	SEAL, SHAFT FACE	1
14	8487	HOUSING, BEARING	1
15	6947	DRIVE	1
16	9022-3 X	SEAL, 1/4"ID	2
17	7960-2	GEROLER 7/8 WIDTH	1
18	8510	DRIVE, VALVE	1
19	8504	PLATE, VALVE	1
20	8500	VALVE	1
21	6942	PLATE, BALANCE ASSEMBLY	1
22	6961 X	SEAL, FACE, INNER	1
23	6962 X	SEAL, FACE, OUTER	1
24	6203	SPRING	2
25	15006 X	SEAL, 5/16"ID	1
26	9022-7 X	SEAL, 3-1/4"ID	1
27	8501-3	HOUSING, VALVE, 1-1/16"STR.THID-O-RING PORTS	1
29	9072-3	PLUG ASSEMBLY	1
	NSS	PLUG	1
	250003-904 X	O-RING	1
30	8350	CHECK PLUG ASSEMBLY	2
	NSS	PLUG	2
	250003-903 X	O-RING	2
31	6464	SPRING	2
32	18026	BALL, STEEL	2
33	14247	BOLT 5-1/4"	
34	14243	BOLT 4-1/4"	2
	61234 X	SEAL KIT, MOTOR, REAR CONTAINS PARTS IND. BY X	
	61236 +	SEAL KIT, SHAFT, CONTAINS PARTS INDICATED BY +	
NSS - NOT SOLD SEPERATELY			

# HYDRAULIC SYSTEM, TOWBAR AND WHEELIFT

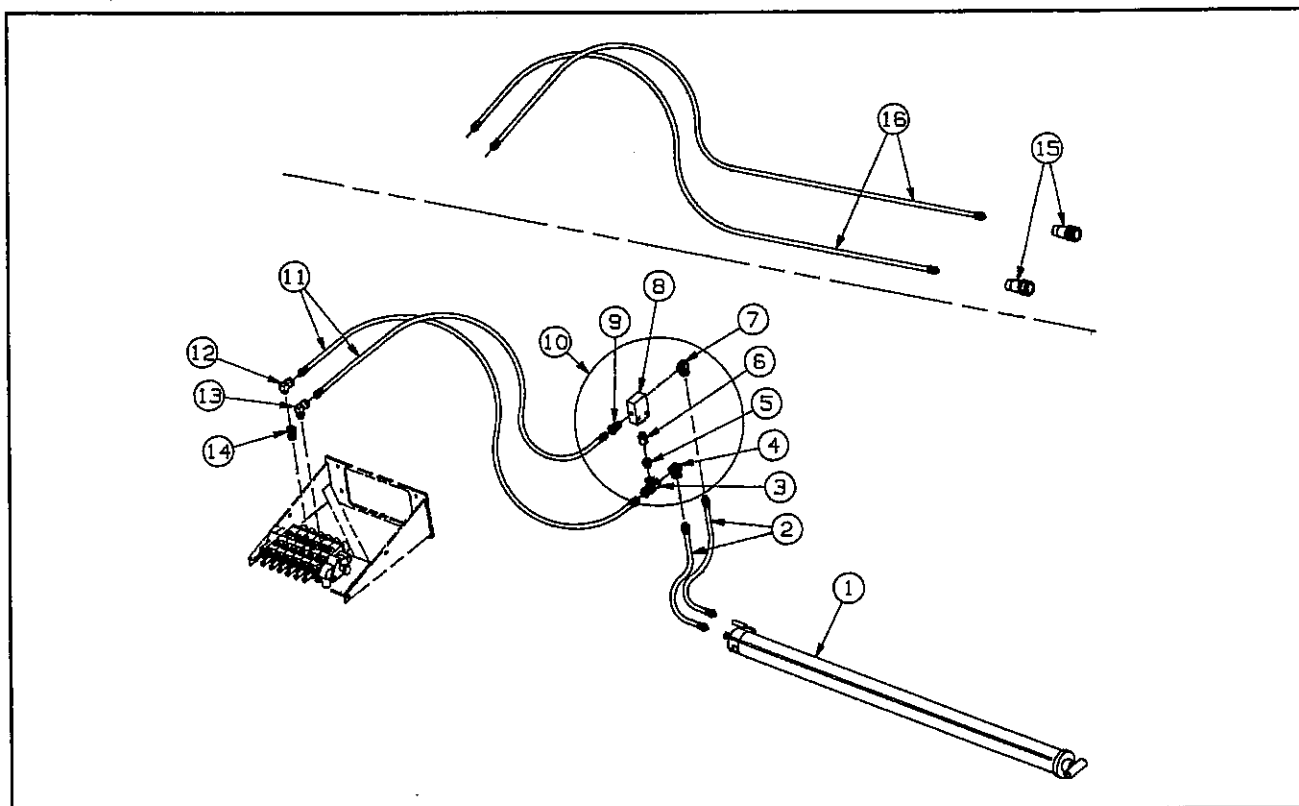


Figure 9-22 Hydraulic System, Towbar and Wheelift

ITEM	PART NO.	DESCRIPTION	QTY
1	3-242-010111	CYLINDER 2-1/2 X 63"	1
2	3-397-010206	HOSE ASSY 3/8X44 (3/8ENDS)	2
3	2255-6-6S	3/8 TEE INTERNAL PIPE SWIVEL	1
4	2047-6-6S	INT P SWIVEL 3/8NPT	1
5	3-007-010032	ADAPTER HYD NIPPLES 3/8-18NPSM	1
6	2040-4-6S	REDUCER 1/4-18 TO 3/8-18	1
7	2047-6-8S	ADAPT 3/8F 1/2M 90 SWIVEL	1
8	3-846-010026	VALVE PILOT OPERATED CHECK SGL	1
A	1/4-20HFN	NUT ZP GR2	2
B	1/4SLW	SPLIT LOCK WASHER	2
C	1/4FW	WASHER FLAT ZP	2
9	2045-6-8S	3/8-1/2 PIPE SWIVEL REDUCER	1
10	3-846-010134	VALVE CHECK SGL CA ASSY(includes items 3 thru 9)	1
11	3-397-010312056	HOSE ASSY 3/8X56 (3/8 ENDS)	2
12	2047-6-6S	INT P SWIVEL 3/8NPT	1
13	2068-6-6S	O-RING 90 ELBOW 3/8 PIPE-9/16	1
14	2066-6-6S	3/8-18 PIPE TO 9/16-18 O-RING	1
15	4050	COUPLER BODY HALF FEMALE	2
16	3-397-010275	HOSE ASSY 3/8X121 (1/2-3/BENDS)	2

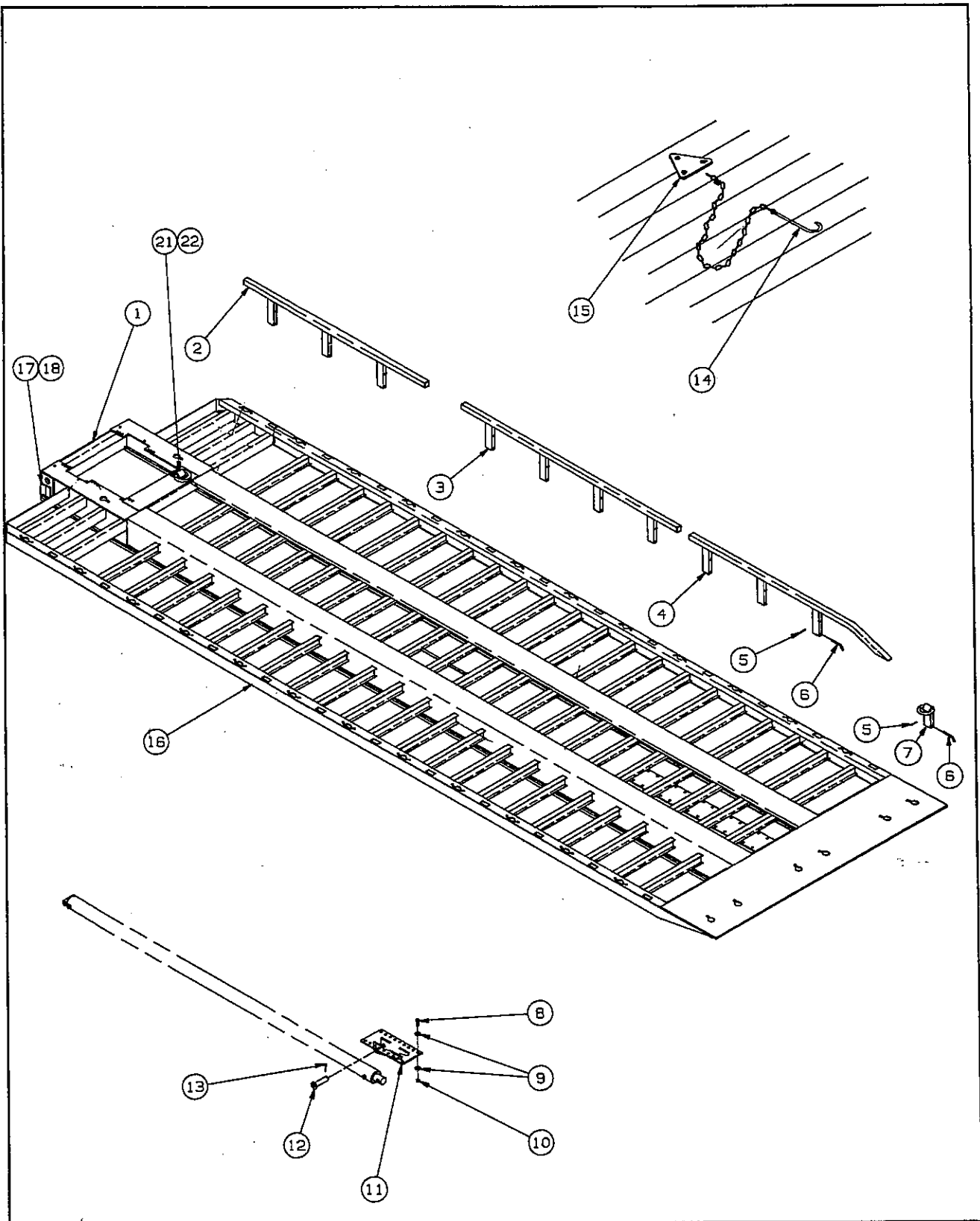


Figure 9-23 Bed Assembly

## BED ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY
1	3-080-010372	BED 28FT X 102 X 12 X-M, WLDMT	1
	3-080-010383	BED 22FT X 96 X 12 X-M, WLDMT	1
	3-080-010384	BED 24FT X 96 X 6 X-M, WLDMT	1
	3-080-010385	BED 24FT X 102 X 6 X-M, WLDMT	1
	3-080-010386	BED 26FT X 102 X 12 X-M, WLDMT	1
	3-080-010387	BED 24FT X 102 X 12 X-M, WLDMT	1
	3-080-010388	BED 22FT X 102 X 12 X-M, WLDMT	1
	3-080-010389	BED 28FT X 96 X 12 X-M, WLDMT	1
	3-080-010390	BED 26FT X 96 X 12 X-M, WLDMT	1
	3-080-010391	BED 24FT X 96 X 12 X-M, WLDMT	1
	3-080-010393	BED 28FT X 102 X 6 X-M, WLDMT	1
	3-080-010394	BED 26FT X 102 X 6 X-M, WLDMT	1
	3-080-010395	BED 22FT X 102 X 6 X-M, WLDMT	1
	3-080-010396	BED 28FT X 96 X 6 X-M, WLDMT	1
	3-080-010397	BED 26FT X 96 X 6 X-M, WLDMT	1
	3-080-010398	BED 22FT X 96 X 6 X-M, WLDMT	1
2	3-665-010052	SIDE RAIL FRONT WLDMT	2
3	3-665-010053	SIDE RAIL MID WLDMT	2
4	3-665-010051	SIDE RAIL REAR WLDMT	2
5	5/32X1-1/4	PIN, COTTER	12
6	3-557-010458	PIN, RETAINING SIDERAIL	12
7	3-793-010045	O-RING WLDMT CA	1
8	5/8-11X2CS-5	CAP SCREW, HEX HEAD GR5	6
9	5/8FW	WASHER, FLAT ZP	32
10	5/8-11HFLN	NUT, HEX LOCK GRB CAD W/WAX	26
11	3-014-010121	ANCHOR, CYL WLDMT BOLT-ON	1
12	3-557-010494	PIN CYL ROD END	1
13	1/4X2	PIN, COTTER ZP	1
14A	3-174-010044	CHAIN ASSEMBLY, 10FT	1
B	3-174-010007	CHAIN ASSEMBLY, HOLD DOWN, 6FT	1
15	3-375-010264	CONNECTOR, ADJUSTABLE CHAIN	1
16	3-573-010350	DECAL MAX PULL	2
17	3-352-010032	GUIDE, BED FRT	1
18	3-380-010016	HOLD-DOWN BED	1
19	RWD39000	APITONG 1-3/8X7.08 WOOD DECK (NOT SHOWN)	AR
20	3-654-010013	SCREW SCT. 14X2-3/4 (NOT SHOWN)	AR
21	3-793-010002	CAST D-RING	1
22	3-311-010182	ANCHOR TIEDOWN LOOP	1

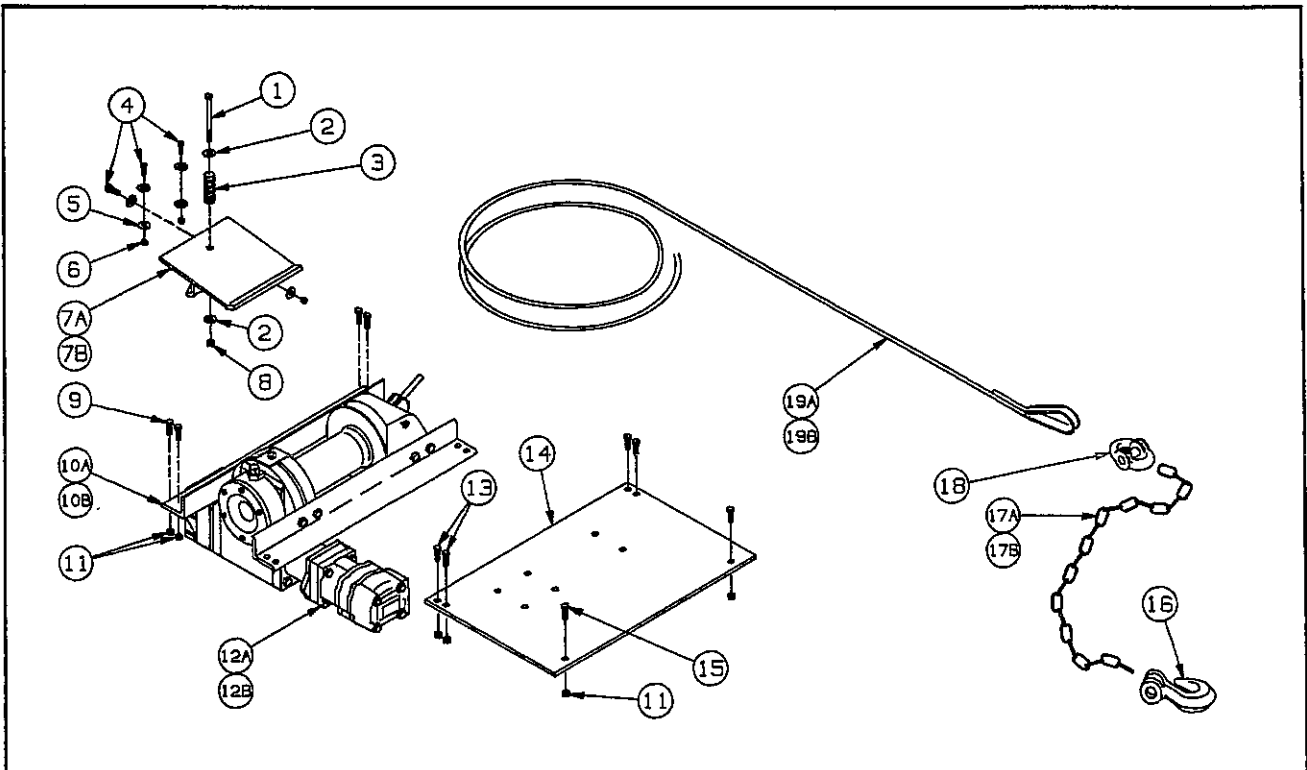


Figure 9-24 Winch Assembly 12,000 and 20,000 Lb.

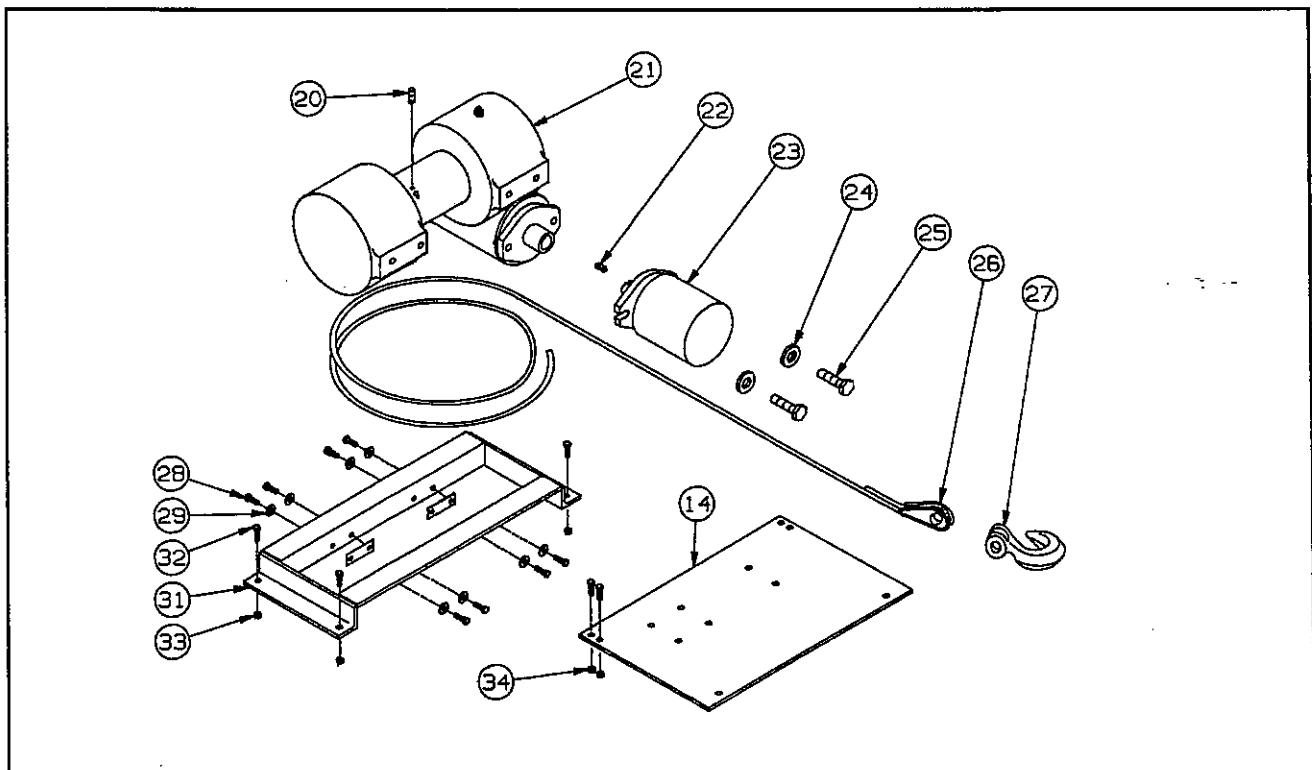


Figure 9-25 Winch Assembly 8,000 Lb.

## 12,000#, 20,000# AND 8,000# WINCH, WORM GEAR

ITEM	PART NO.	DESCRIPTION	QTY
1	1-654-010055-17	SCREW, HEX CAP, 1/2-13UNCX6 GR5B	1
2	1-861-010032-15	WASHER, FLAT 1/2 W ZP/CD	2
3	3-720-010010	SPRING COMP LEVEL WIND	1
4	1-654-010051-06	SCREW, HEX CAP 3/8-16UNCX1-1/4B	3
5	1-861-010032-10	WASHER, FLAT 3/8" N ZP/CD	6
6	1-512-010005-05	NUT, HEX, SLFLKG GRB 3/8-16	3
7A	3-873-010124	WINCH TENSIONER WLDMT 12K	1
B	3-873-010125	WINCH TENSIONER WLDMT 20K	1
8	1-512-010005-09	NUT, HEX, SLFLKG, 1/2-13 GRB	1
9	1/2-13X1-3/4CS5	SCREW, HEX HEAD CAP GR5	4
10A	3-873-010122	WINCH, WORM GEAR 12,000#	1
B	3-873-010123	WINCH, WORM GEAR, 20,000#	1
11	1/2-13HFLN	NUT HEX LOCK GRB CAD W/WAX	10
12A	104-1003	WINCH MOTOR (12,000#)	1
	1-654-010055-04	SCREW, HEX CAP, 1/2-13UNCX1/75	2
	1-861-010034-13	WASHER, LKG HLCL SPR, 1/2	2
12B	3-481-010007	HYD MOTOR 12.9CU IN/REV. PARKER(20,000#)	1
	109-1117	HYD MOTOR 12.5CU IN 1-1/4 SHAFT (20,000#) (OPTION)	1
	1-654-010055-04	SCREW, HEX CAP, 1/2-13UNCX1.75	4
	1-861-010034-13	WASHER, LKG HLCL SPR, 1/2	4
13	1/2-13X2HHCS	SCREW HEX CAP GR5	4
14	3-222-010131	COVER, WINCH OPENING	1
15	1/2-13X1-1/2CS	SCREW HEX HEAD CAP ZP GR5	2
16	7HCGHT500	1/2 CLEVIS GRAB HOOK	1
17A	3-174-010022036	CHAIN 1/2 HI TEST ZINC 36"	1
B	3-174-010039036	CHAIN (20,000# WINCH)	1
18	3-174-010038	CHAIN LINK CONNECTING 1/2	1
19A	3-155-010017-1	CABLE 1/2 W/LOOP 60FT	1
B	3-155-010018-1	CABLE W/LOOP 5/8X60' (20,000# WINCH)	1
20	3/8X1/2 SET SCREW	SET SCREW, ALLEN SOCKET (SUPPLIED WITH WINCH)	1
21	3-873-010073	WINCH 8000# WORM GEAR	1
22	RSR8999X1	KEY, SQUARE (SUPPLIED WITH WINCH)	1
23	3-481-010005	MOTOR 110 SERIES FOR WINCH (BEFORE NOV. '92)	1
	3-481-010010	MOTOR 110 SERIES FOR WINCH (AFTER NOV. '92)	1
24	1/2 SLW	WASHER, LOCK	2
25	1/2-13X3/4HHCS	CAP SCREW, HEX HEAD (SUPPLIED WITH WINCH)	2
26	3-155-010011	CABLE 3/8 W/THIMBLE	1
27	3-382-010005	HOOK FOR 3/8 CABLE	1
28	3/8-16X1HHCS	SCREW, HEX HEAD CAP GR5	8
29	3/8SLW	WASHER, LOCK	8
30	3-684-010031	SHIM, WINCH 8M	2
31	3-120-010407	BRACKET WLDMT WINCH 8K	1
32	1/2-13X1-3/4CS5	SCREW, HEX HEAD CAP GR5	8
33	1/2-13HFLN	NUT, HEX LOCK GRB CAD W/WAX	8
34	3-014-010138	ANCHOR	2

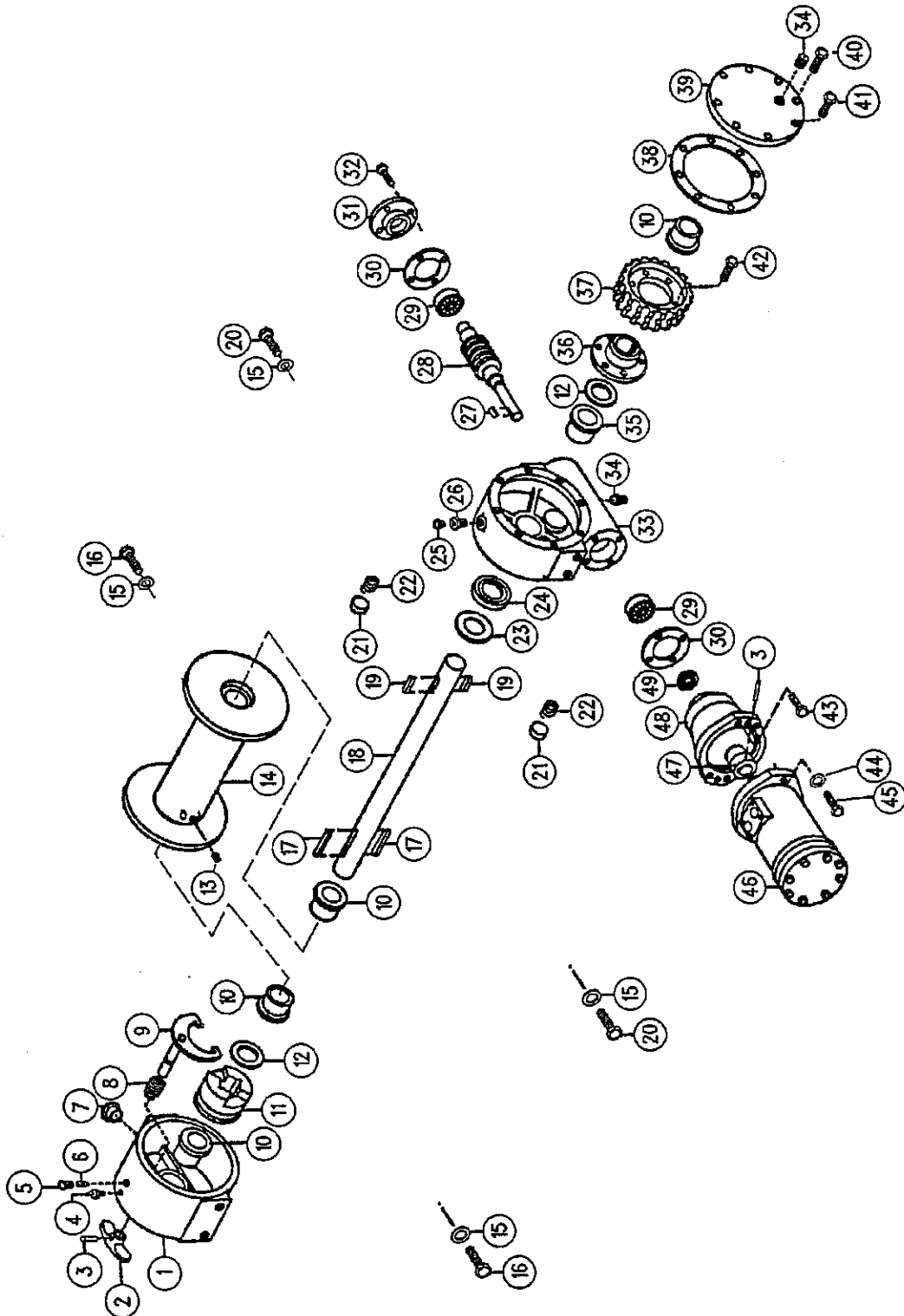


Figure 9-26 8000 Lb. Winch Worm Gear



## 8000 LB. WINCH, WORM GEAR

ITEM	PART NO.	DESCRIPTION	QTY
	3-873-010073	COMPLETE ASSEMBLY, WORM GEAR WINCH	1
1	338208	HOUSING, CLUTCH	1
2	336010	HANDLE	1
3	470033	PIN, SPIRAL	2
4	456001	FITTING, LUBE	1
5	472012	PLUG, RUBBER	1
6	416030	SETSCREW, SOCKET HEADLESS	1
7	472013	PLUG, PLASTIC	1
8	494053	SPRING, SHIFTER	1
9	276028	SHIFTER ASSEMBLY	1
10	410002	BUSHING	4
11	324137	JAW, CLUTCH	1
12	518015	WASHER, THRUST	2
13	416057	SETSCREW, SOCKET HEADLESS	1
14	332007	DRUM, "Y"	1
15	3/8SLW	LOCKWASHER	4
16	3/8-16X1-3/4CS	CAPSCREW	2
17	450006	KEY-BARTH	2
18	357443	SHAFT, DRUM - Y	1
19	342075	KEY	2
20	3/8-16X1-3/4CS	CAPSCREW	2
21	438014	DISC-BRAKE	2
22	494002	SPRING, DISC BRAKE	2
23	518014	WASHER, THRUST	1
24	486017	OIL SEAL, DRUM SHAFT	1
25	456008	FITTING, RELIEF	1
26	468002	REDUCER	1
27	342029	KEY	1
28	368017	WORM, R.H.	1
29	402002	BEARING, BALL	2
30	442002	GASKET, GEAR HOUSING	2
31	316083	BEARING, CAP	1
32	414045	CAPSCREW, HEX HEAD	4
33	338237	HOUSING, GEAR	1
34	468011	PLUG, PIPE	2
35	412045	BUSHING	1
36	340001	HUB, GEAR	1
37	334005	GEAR, R.H	1
38	442001	GASKET, COVER	1
39	328105	COVER	1
40	414020	CAPSCREW	1
41	1/4-20UNCX3/4	CAPSCREW	8
42	414889	CAPSCREW, HEX HEAD	6
43	414842	CAPSCREW, SOCKET HEAD	4
44	1/2SLW	LOCKWASHER	2
45	1/2-13X1HHCS	CAPSCREW	2
46	3-481-010005	MOTOR, WINCH (AFTER MARCH 1987)(SEE PAGE 9-19)	1
47	431007	COUPLING	1
48	300039	ADAPTER	1
49	486009	OIL SEAL, WORM SHAFT	1

## 12,000# WINCH ITEMS

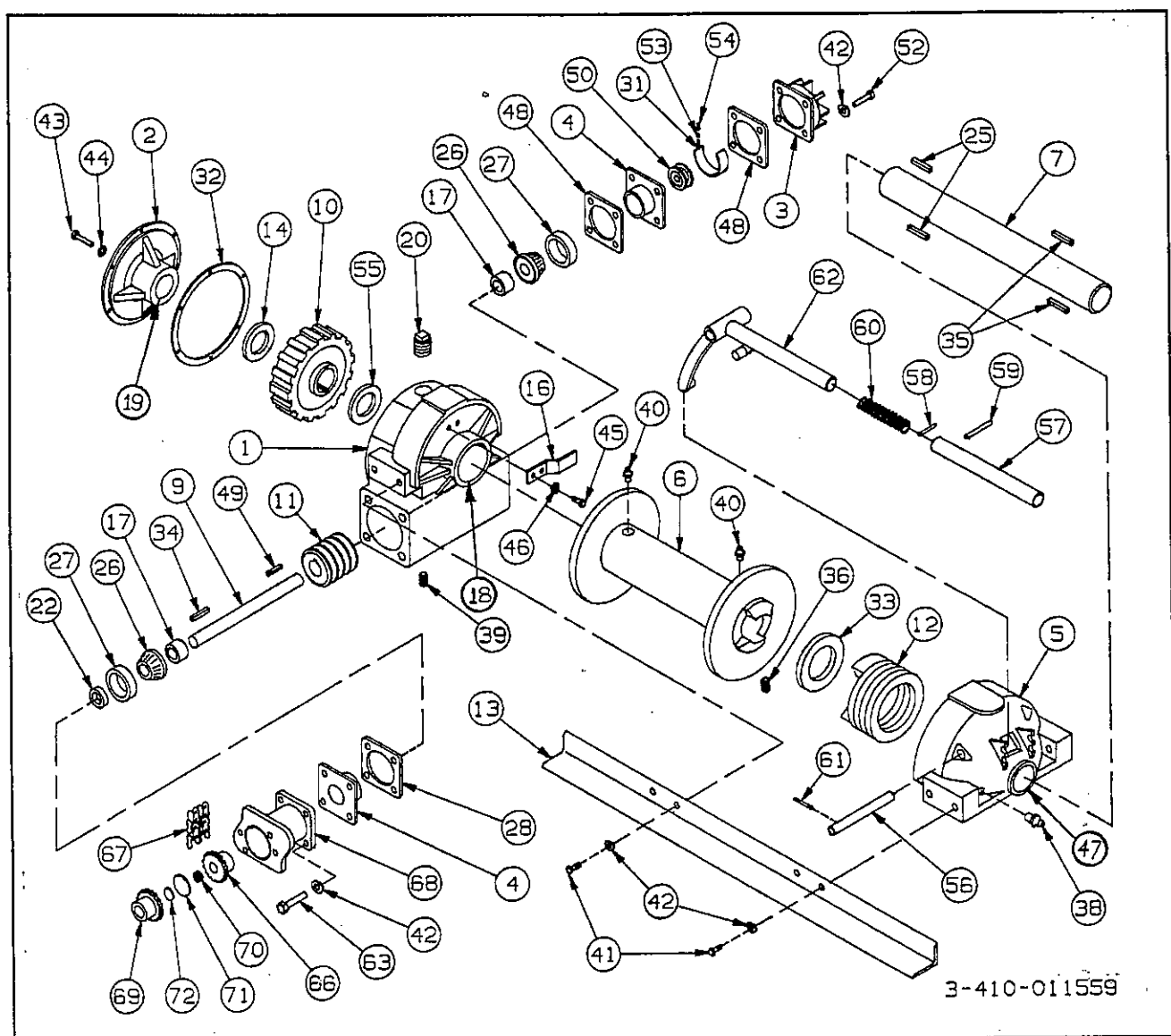


Fig. 9-27 12,000# Winch Items

ITEM	PART NO.	DESCRIPTION	QTY.
1	3-873-010122 81006	WINCH ASSEMBLY, 12,000# HOUSING ASSEMBLY, WORM (INCLUDES ITEM 18)	1
2	81009	HOUSING COVER, WORM (INCLUDES ITEM 19)	1
3	18032	HOUSING, SAFETY BRAKE	1
4	23303	CONTAINER, BEARING	2
5	81530	LEG ASSEMBLY, BEARING (INDLUDES ITEM 47)	1
6	11128	DRUM, CABLE	1
7	11129	DRUM SHAFT, CABLE	1
9	23470	SHAFT, WORM	1
10	11144	GEAR, WORM, LEFT HAND	1
11	11142	WORM, LEFT HAND	1
12	18039	SLIDING CLUTCH	1
13	22752	ANGLE, BASE	2

## 12,000# WINCH ITEMS

ITEM	PART NO.	DESCRIPTION	QTY.
14	13680	THRUST RING	1
16	81025	BRAKE, DRAG	1
17	11308	SPACER, WORM	2
18	18078	BUSHING	1
19	11368	BUSHING	1
20	22775	PLUG, PIPE	1
21	18009	PLUG, PIPE	1
22	18026	SEAL, GREASE	2
25	11117	KEY, WORM GEAR	2
26	18015	CONE, BEARING	2
27	18016	CUP, BEARING	2
28	18027	GASKET	3
31	21925	BAND, BRAKE	1
32	11133	WORM HOUSING COVER GASKET	3
33	18019	RETAINER RING	1
34	18030	KEY, WORM	1
35	18020	KEY, CLUTCH	2
36	24032	SETSCREW	1
38	18047	FITTING, GREASE	1
39	19045	PLUG, PIPE	1
40	11799	FITTING, GREASE	2
41	21961	CAPSCREW	12
42	18003	WASHER, LOCK	16
43	11767	CAPSCREW	6
44	11011	WASHER, LOCK	6
45	13005	CAPSCREW	2
46	12780	WASHER, LOCK	2
47	18078	BUSHING	1
48	18024	BEARING CONTAINER GASKET	3
49	10078	KEY	1
50	18028	DRUM, BRAKE	1
51	12075	SCREW, SET	1
52	22703	CAPSCREW	4
53	13468	JAM NUT	4
54	18029	BRAKE BAND SPRING	1
55	11240	RETAINER RING	1
56	11130	SHIFTER SHAFT	1
57	12817	SHIFTER HANDLE	1
58	18056	ROLLPIN	1
59	13028	ROLLPIN	1
60	18002	SPRING	1
61	11837	ROLLPIN	2
62	13839	SHIFTER FORK	1
63	22704	CAPSCREW	4
65	18044	KEY	1
66	23081	COUPLING HALF (WORM SHAFT)	1
67	13424	ROLLER CHAIN	1
68	23079	MOTOR ADAPTER	1
69	23083	COUPLING HALF (MOTOR SHAFT)	1
70	23353	SPRING	1
71	23078	SPACER	1
72	23085	SPACER	1

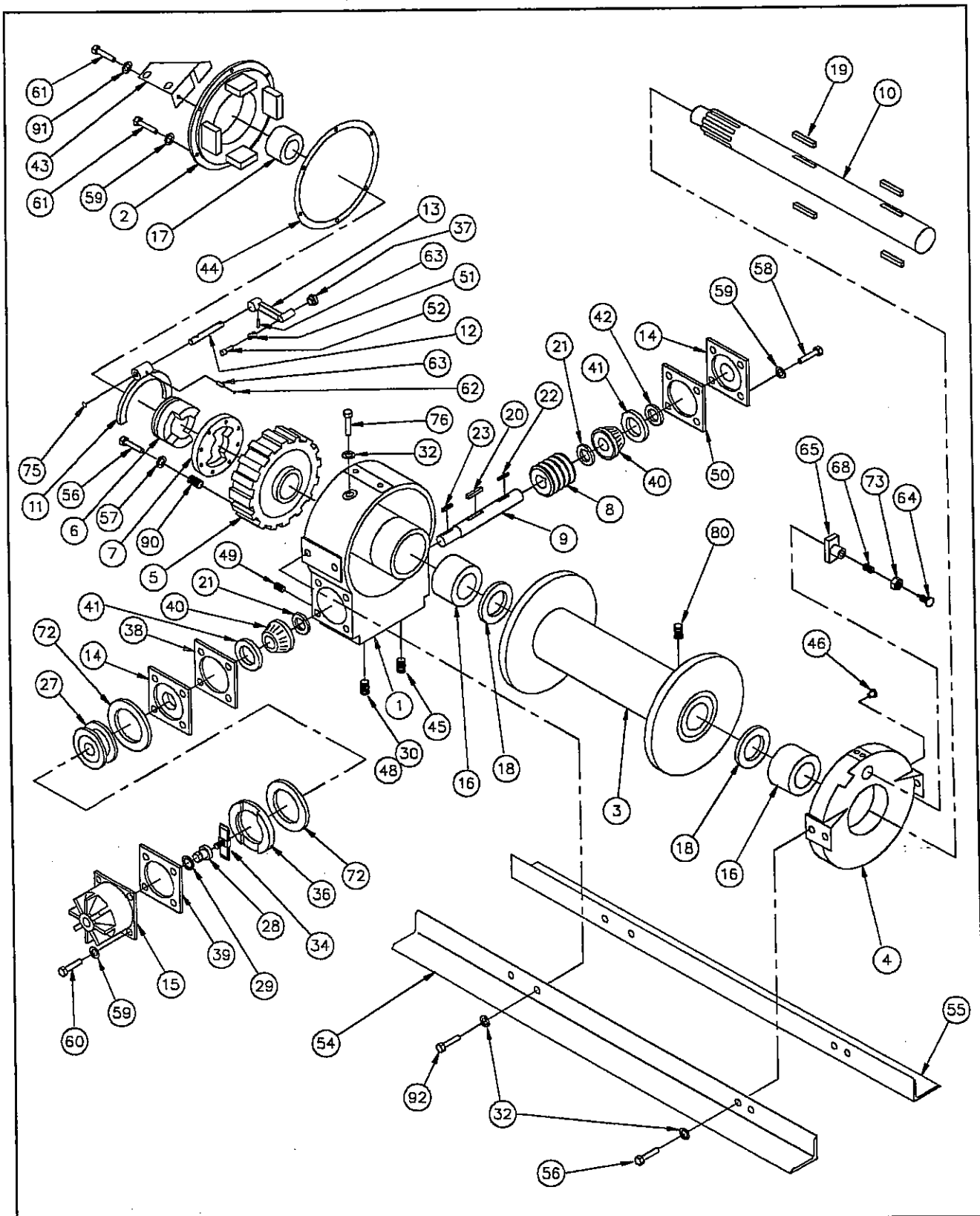


Figure 9-28 20000 Lb. Winch Worm Gear

## 20,000# WINCH ITEMS

ITEM	PART NO.	DESCRIPTION	QTY
	3-873-010123	WINCH, 20,000# W/BOLT-ON ANGLES	1
1	81078	WORM HOUSING ASSEMBLY	1
2	81082	COVER ASSEMBLY, WORM HOUSING	1
3	11449	DRUM, CABLE	1
4	81077	LEG ASSEMBLY, BEARING	1
5	11434	WORM GEAR, RIGHT	1
6	11421	CLUTCH, SLIDING	1
7	11419	DRIVE, CLUTCH	1
8	11404	WORM, RIGHT	1
9	11405	SHAFT, WORM	1
10	11414	SHAFT, CABLE DRUM	1
11	11440	FORK, SHIFTER	1
12	11441	SHAFT, SHIFTER	1
13	11442	HANDLE, SHIFTER	1
14	11427	CONTAINER, BEARING	2
15	11445	COVER, WORM BRAKE	1
16	18035	BUSHING	2
17	11425	BUSHING	1
18	11420	RING, RETAINING	2
19	22055	DRUM KEY, CABLE	4
20	11402	KEY, WORM	1
21	11407	SPACER, WORM	2
22	23367	KEY, SPROCKET	1
23	10078	KEY, ROTOR	1
27	81080	ROTOR ASSEMBLY, BRAKE	1
28	11599	ADJUSTING NUT, WORM BRAKE	1
29	12465	O-RING	1
30	19014	PLUG, FILLER	1
32	11026	WASHER, LOCK	10
34	81081	SPRING ASSEMBLY, SAFETY BRAKE	1
36	11431	PLATE, PRESSURE	1
37	18022	KNOB, SHIFTER	1
38	11429	GASKET	4
39	11446	GASKET	2
40	18033	BEARING CONE	2
41	18034	BEARING CUP	2
42	12073	SEAL, GREASE	1
43	12783	BRACKET, SHIFTER	1
44	11411	COVER GASKET, HOUSING	1
45	19045	PLUG, DRAIN	1
46	18047	FITTING, GREASE	1
48	22775	PLUG, VENT	1
49	18009	PLUG, LEVEL	1
50	11430	GASKET	4
51	11310	SPRING, SHIFTER KNOB	1
52	11309	STEM, SHIFTER KNOB	1
54	28942	ANGLE, FRONT BASE	1
55	28943	ANGLE, REAR BASE	1
56	13938	CAPSCREW	16
57	12781	WASHER, LOCK	8
59	11025	WASHER, LOCK	3
60	22695	CAPSCREW	4
61	21964	CAPSCREW	6
62	12146	PLUG, EXPANSION	A/R

## 20,000# WINCH ITEMS

ITEM	PART NO.	DESCRIPTION	QTY
63	13028	ROLLPIN	A/R
64	11398	SCREW, ADJUSTING	1
65	88005	SHOE ASSEMBLY, DRAG BRAKE	1
68	18002	SHOE ASSEMBLY, DRAG BRAKE	1
72	11426	DISC, FRICTION	2
73	11791	NUT, JAM	1
75	12767	PLUG, EXPANSION	A/R
76	22729	CAPSCREW	2
77	23245	SAE PLATE - AMU7-16F	1
78*	23310	PLATE, WARNING	1
79*	11842	SCREW, DRIVE	4
80	12228	SCREW, SET	1
90	11435	INSERT, THREAD	8
91	11014	LOCKWASHER (7/8" EXTERNAL TOOTH)	1
92	22697	CAPSCREW (1/2-13NC X 1 G5)	5

**PARTS NOT SHOWN (SEE FIGURE 8-32):**

3-155-010018-1	CABLE W/LOOP (5/8"X60')	1
3-155-010018-4	CABLE W/LOOP (5/8"X85')	1
3-873-010129-2	20,000# WINCH ASSY (SEE MISCELLANEOUS OPTIONS)	1
3-352-010017-2	ROLLER GUIDE ASSY, 20,000# (SEE MISCELLANEOUS OPTIONS)	1
3-352-010026	ROLLER SLOPE (SEE MISCELLANEOUS OPTIONS)	1
3-793-010041	D-RING MOUNTED AT WINCH (OPTION)	1

**NOTE:** ITEMS 1 AND 4 INCLUDE BUSHING (ITEM 16); ITEM 2 INCLUDES BUSHING (ITEM 17).

## WINCH CABLE ROLLER GUIDE

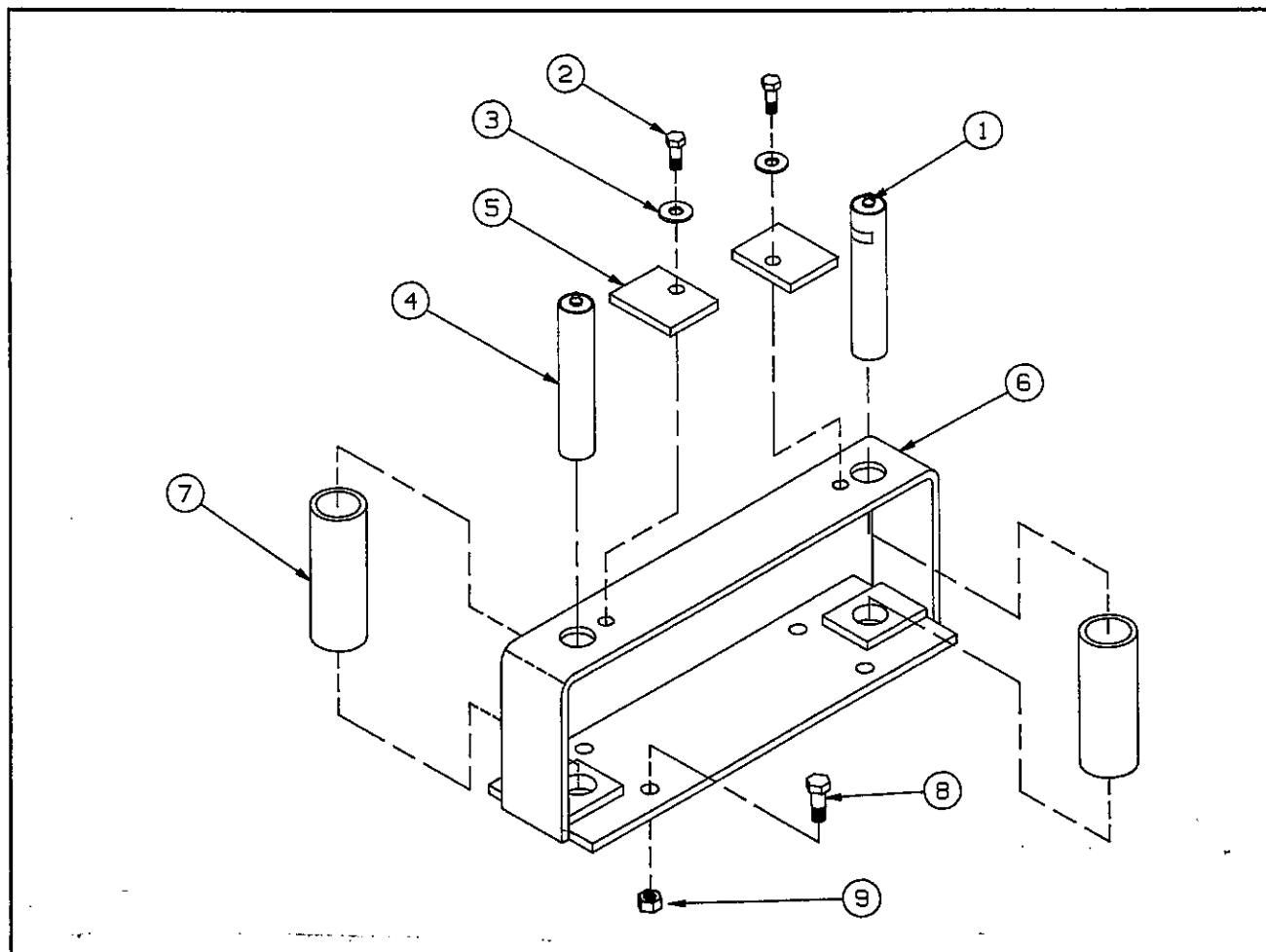


Figure 9-29 Winch Cable Roller Guide

ITEM	PART NO.	DESCRIPTION	QTY
	3-352-010017-1	GUIDE INSTL, WINCH CABLE, 20K	
	3-352-010017-2	GUIDE INSTL, WINCH CABLE, 12K	
1	1-298-010001-1	FITTING GRS 1/4-28 STR SHORT	2
2	1-654-010051-03	SCREW, HEX CAP, 3/8-16UNCX3/4 G5B	2
3	1-861-010034-11	WASHER, LKG HLCL SPR, 3/8	2
4	3-557-010383	PIN, CABLE GUIDE ROLLER	2
5	3-565-010770	PLATE, CABLE GUIDE LOCK	2
6A	3-120-010295	BRACKET WLDMT, 12K ROLLER GDEC	1
B	3-120-010294	BRACKET WLDMT, 20K ROLLER GDE	1
7	3-645-010049	ROLLER, WINCH CABLE GUIDE	2
8	1-654-010055-05	SCREW, HEX CAP, 1/2-13UNCX2 GR5B	4
9	1-512-010005-09	NUT, HEX, SLFLKG, 1/2-13 GRB	4
10	3-352-010015-1	GUIDE ASSY, WINCH CABLE, 12K (includes items 1-5, 6A, 7)	1
11	3-352-010015-2	GUIDE ASSY, WINCH CABLE, 20K (includes items 1-5, 6B, 7)	1

## OPTIONAL WINCH MOTOR ITEMS

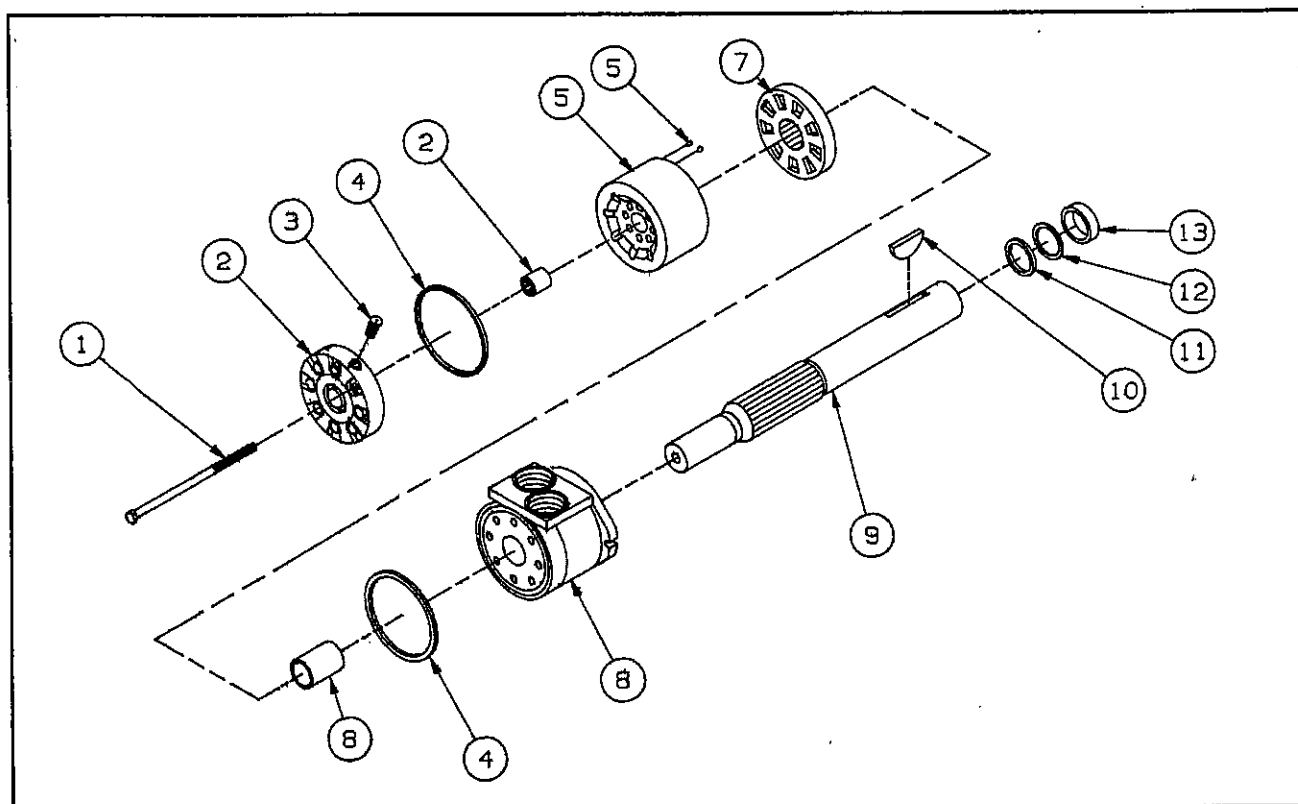


Figure 9-30 Optional Motor for 12,000# & 20,000# Winch

ITEM	PART NO.	DESCRIPTION	QTY
1	1014-4	BOLT, HEX (12000#)	8
	1014-2	BOLT, HEX (20000#)	8
2	M110C-1	COVER/BEARING ASSY	1
3	1019-4	PLUG, VENT W/O-RING	1
4	1046	SQUARE RING SEAL	2
5	1004-6	IGR ASSY (20000#)	1
6	1004-3	IGR ASSY (12000#)	1
	1021	CHECK VALVE BALL	2
7	1644	VALVE PLATE	1
8	M110B-7	BODY, BEARING ASSY (20000#)	1
9	M110B-1	BODY, BEARING ASSY (12000#)	1
	1366-X	SHAFT, 1.25" KEYED, STR (20000#)	1
10	1682-X	SHAFT, 1" KEYED, STY (12000#)	1
	1020-3	KEY, STRAIGHT	1
11	1655	KEY, WOODRUFF	1
	1062-15	SEALED, QUAD RING	1
12	1142-14	BACK-UP RING	1
13	1061	SEAL, DUST	1
14	3-481-010006	MOTOR HYD 7.1 CU IN/REV. PARKER FOR 12,000# WINCH	
15	3-481-010007	MOTOR HYD 12.9 CU IN/REV. PARKER FOR 20,000# WINCH	



## ELECTRICAL SYSTEM, CHASSIS

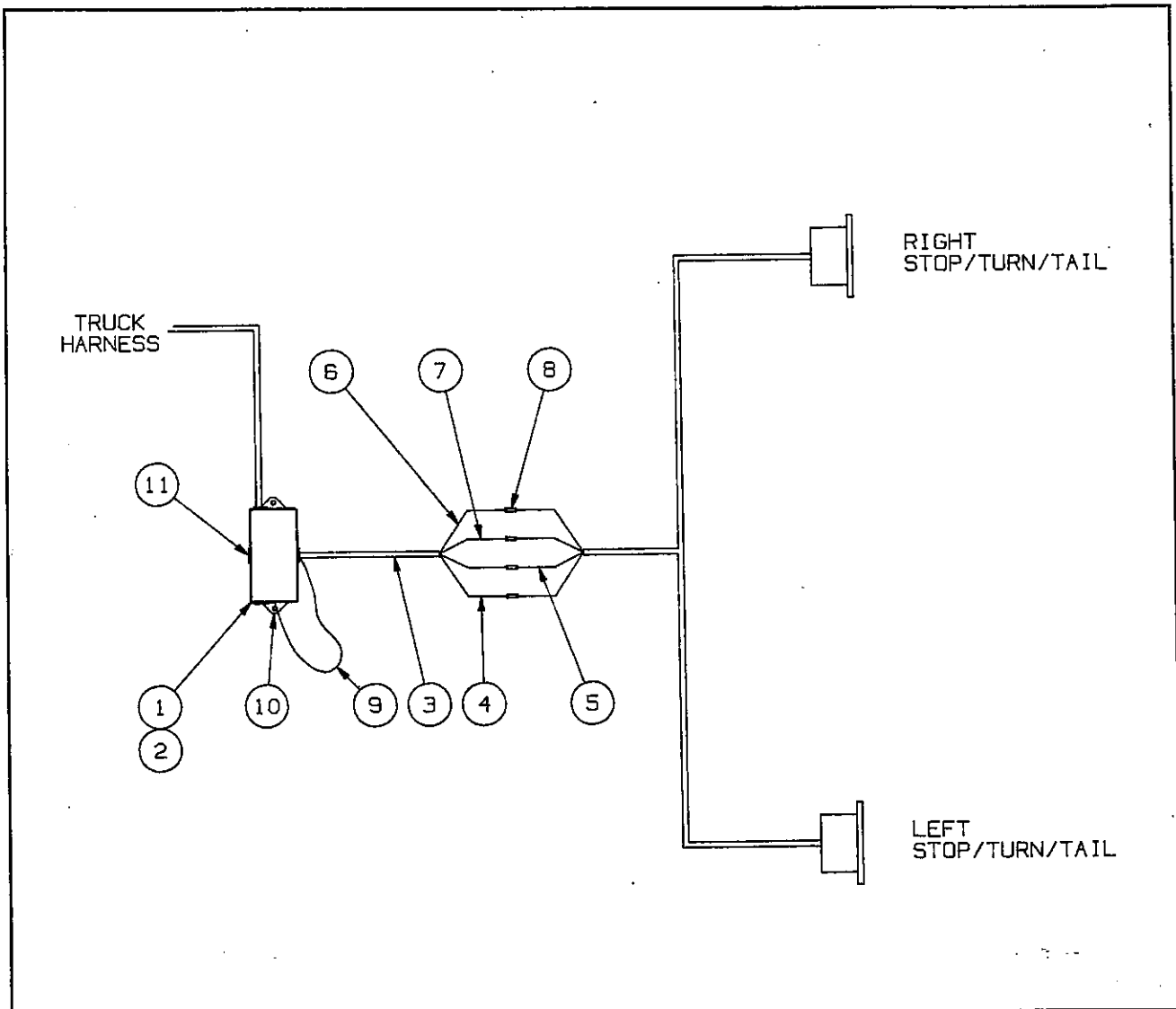


Figure 9-31 Electrical System, Chassis

ITEM	PART NO.	DESCRIPTION	QTY
1	750-029	JUNCTION BOX 7 STUD	1
2	D01-407	RING TERMINAL	1
3	3-201-010001120	CONDUIT PLACTIC FLEX 5/16X10FT	1
4	1-879-010007120	WIRE 14AWG YELLOW 10FT	1
5	1-879-010008120	WIRE 14AWG BLUE 10FT	1
6	1-879-010006120	WIRE 14AWG GREEN 10FT	1
7	1-879-010005120	WIRE 14AWG BROWN 10FT	1
8	3-272-010021	ELECT BUTT SPLICE 16-14 W/SEAA	4
9	1-879-010009006	WIRE 10AWG WHITE X 6	1
10	32002	TERMINAL 12-10GA W/#10RING WAY	1
11	3-203-010001	RING TERMINAL 3/16 DIA 16-14EX	10

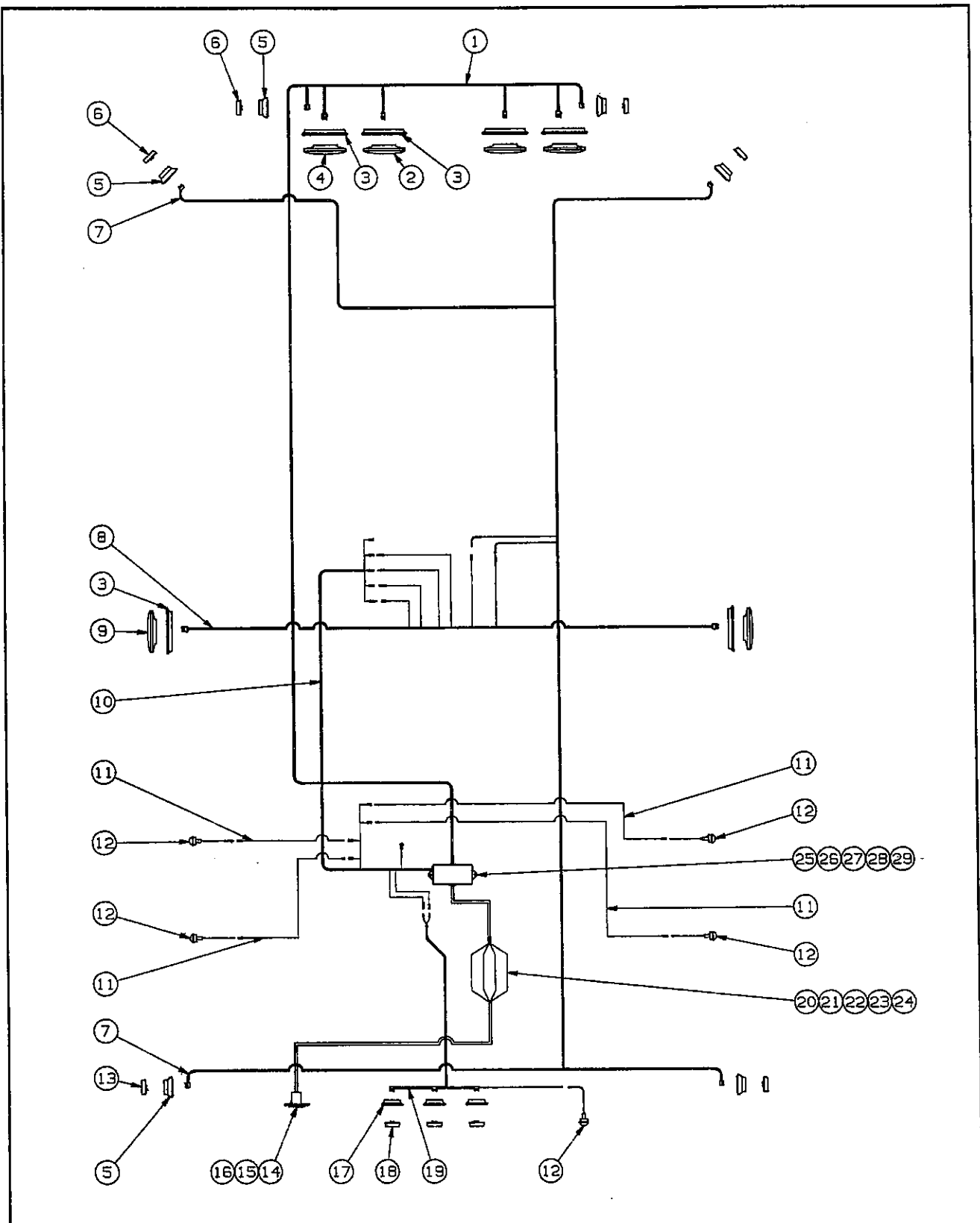


Figure 9-32 Electrical System Bed

## ELECTRICAL SYSTEM, BED

ITEM	PART NO.	DESCRIPTION	QTY
1	3-368-010168	HARNESS BULKHEAD	1
2	60004	LAMP BACK-UP W/GROMMET	2
3	60700	GROMMET TRUCK LITE LIGHT	2
4	60202R	LAMP TURN-TAIL 3X7 RED	2
5	10704	GROMMET FOR 1-1/2 LAMP	4
6	10205Y	REFLECTOR LAMP YELLOW	2
7	3-368-010167	HARNESS BED CLEARANCE	1
8	3-368-010152	HARNESS TURN SIGNAL BED	1
9	60202Y	LAMP TURN-TAIL 3X7 YELLOW	2
10	3-368-010151	HARNESS JCT BOX	1
11	3-368-010149	HARNESS COURTESY LIGHT	1
12	26331	LIGHT COURTESY TRUCKLITE	2
13	10205R	REFLECTOR LAMP RED	2
14	3-272-010003	CONNECTOR ELECT 4 POLE FM	1
	59S-7	RECEPTACLE, 7 PIN (WITH PINTLE HITCH)	1
	59W-2-3	RUBBER BOOT	1
15	1/4-20X1HHCS	CAP SCREW ZP	2
16	1/4-20HFLN	NUT HEX LOCK GRB CAD W/WAX	4
17	30700	GROMMET FOR 2 INCH LAMP	3
18	30200R	2 IN SEALED CLEARANCE RED	3
19	3-368-010150	HARNESS D.O.T. LIGHTS	1
20	3-201-010002120	CONDUIT PLASTIC FLEX 3/8X10FT	1
21	1-879-010005120	WIRE 14AWG BROWN 10FT	1
	31003	TERMINAL 16-14GA W/#10 RING WAY	1
22	1-879-010006120	WIRE 14AWG GREEN 10FT	1
	31003	TERMINAL 16-14GA W/#10 RING WAY	1
23	1-879-010007120	WIRE 14AWG YELLOW 10FT	1
	31003	TERMINAL 16-14GA W/#10 RING WAY	1
24	1-879-010009006	WIRE 10GA WHITE	1
	32003	TERMINAL 12-10GA W/1/4 RING WAY	1
25A	750-029	JUNCTION BOX 7 STUD	1
B	3-272-010094	PROTECTOR FOREIGN ELECTRICAL	1
26	1/4-20X3/4HHCS	ZP GR5	2
27	1/4FW	WASHER FLAT ZP	2
28	1/4SLW	SPLIT LOCK WASHER ZP	2
29	1/4-20HFN	NUT, HEX	2

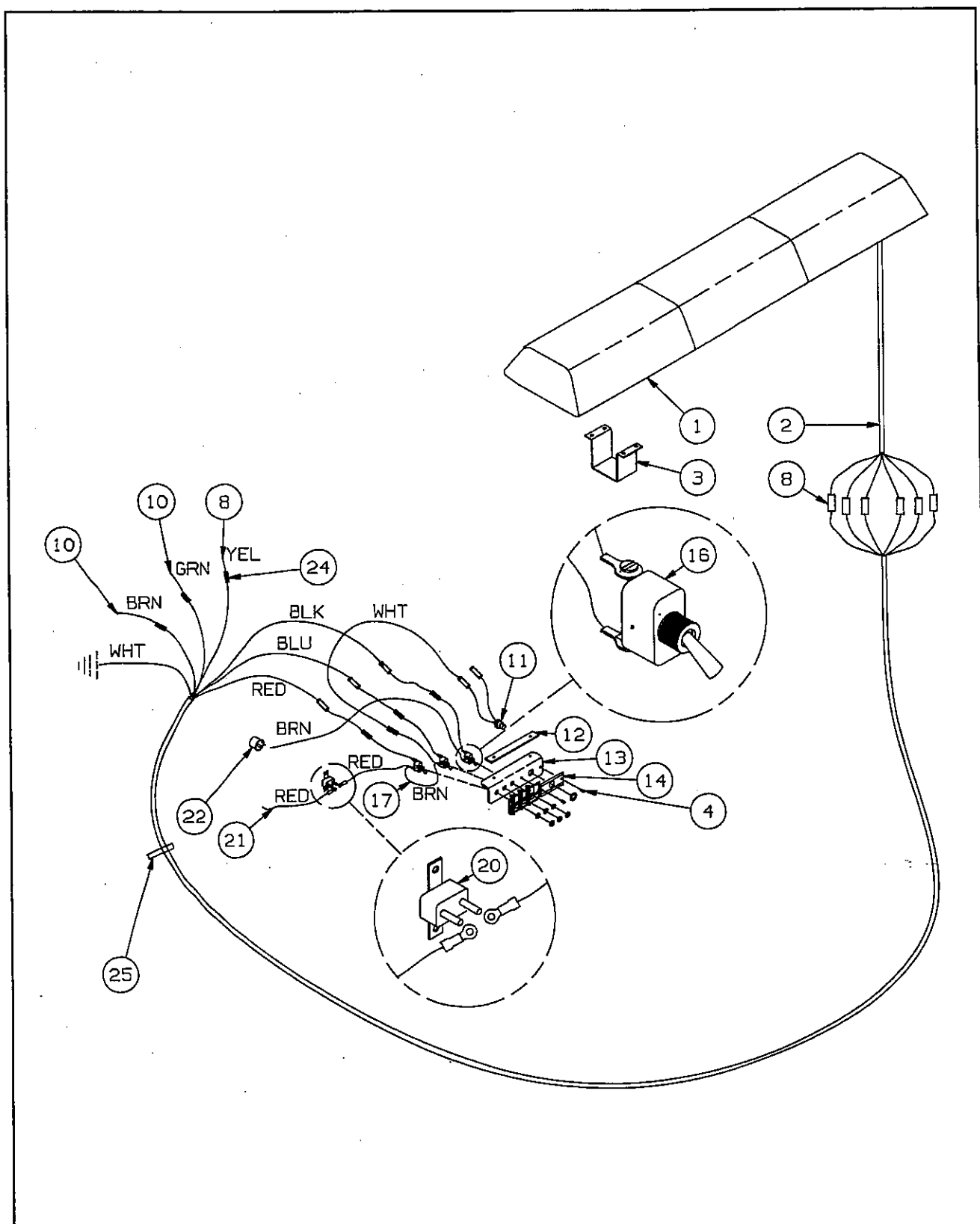


Figure 9-33 Light bar

## LIGHTBAR ITEMS

ITEM	PART NO.	DESCRIPTION	QTY
1	3-446-010028	LIGHTBAR HALOGEN	1
2	3-368-010171	HARNESS LIGHTBAR CA	1
3	3-120-010408	BRACKET LIGHTBAR CA	2
4	3/16X3/4RHD STV	BOLT, STOVE ROUND HEAD	7
5	3-181-010034-1	CLAMP CONDUIT STEEL 1/2	3
6	3/16FW	WASHER FLAT ZP	5
7	3/16-24HFN	NUT ZP GR2	7
8	3-272-010022	ELECT BUTT SPLICE 12-10 W/SEAL	7
9	3-203-010001	RING TERMINAL 3/16 DIA 16-14EX	1
10	3-272-010021	ELECT BUTT SPLICE 16-14 W/SEAA	2
11	NO NUMBER	WARNING LIGHT, PTO (supplied with pto mounting kit)	1
12	3-755-010004	SUPPORT LIGHT BAR SWITCHES	1
13	3-272-010005	SWITCH PLATE CAB	1
14	NO NUMBER	PLACARD, PTO WARNING (supplied with pto mounting kit)	1
15	3-573-010116	DECAL LIGHTBAR OPERATION	1
16	3-272-010004	SWITCH	3
17	3-368-010046	HARNESS LIGHT BAR SWITCHES	1
18	3/16-32HFN	NUT ZP GR2	2
19	3/16X3/4CS SELF	HHCS SELF DRILL	2
20	3-318-010006	CIRCUIT BREAKER 12V-30AMP	1
21	3-368-010048	HARNESS CIRCUIT BREAKER	1
22	3-272-010041	FLASHER SIGNAL HD 12V SHORT	1
23	32002	TERMINAL 12-10GA W/#10RING WAY	1
24	560	CONNECTOR	4
25	3-343-010008	GROMMET, 5.8 ID, PLASTIC	1

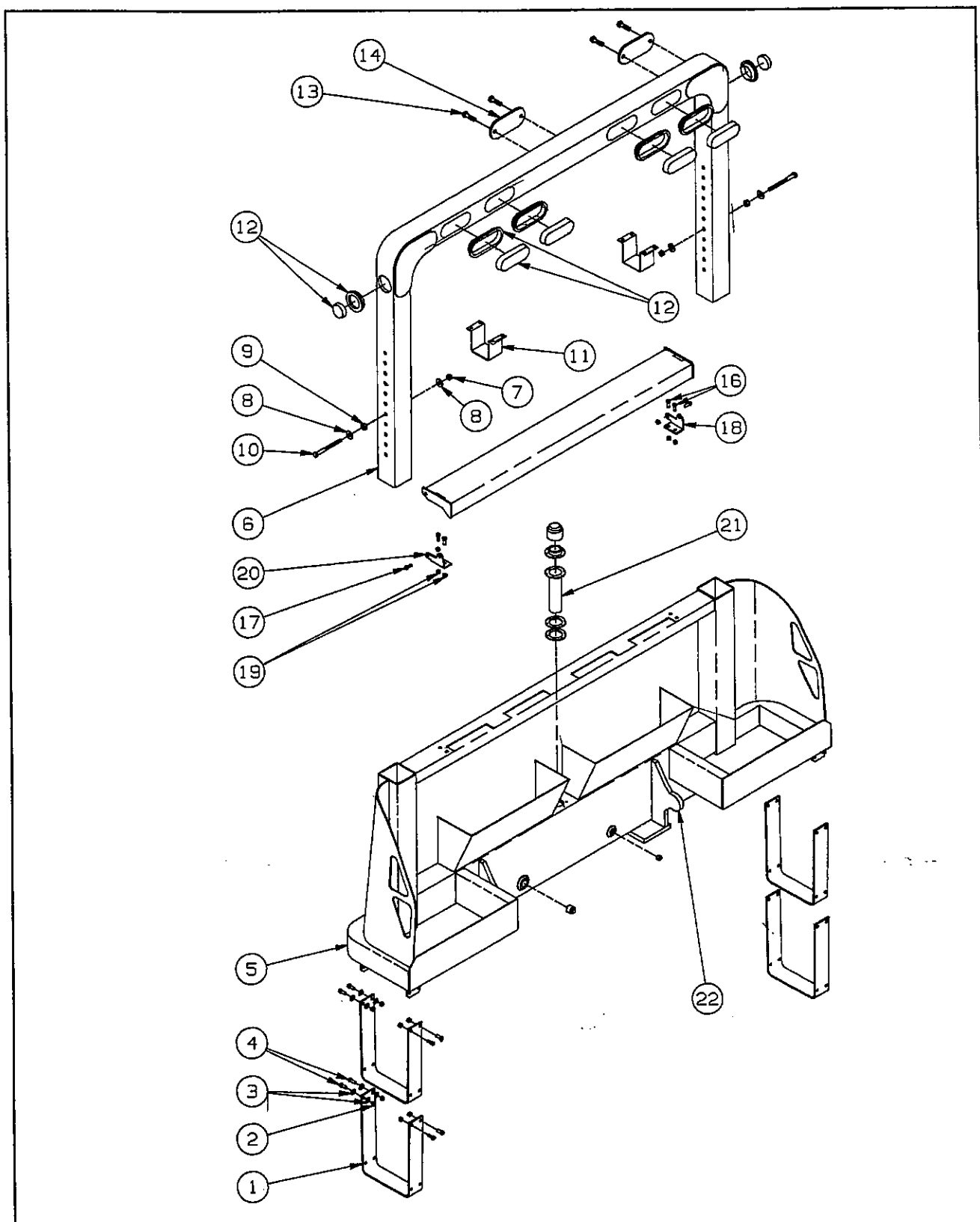


Figure 9-34 Bulkhead Details

## BULKHEAD DETAILS

ITEM	PART NO.	DESCRIPTION	QTY
1	3-440-010014	LADDER STEP	2
2	3/8-16HFLN	NUT HEX LOCK GRB CAD W/WAX	8
3	3/8FW	WASHER FLAT ZP	22
4	3/8-16X1-1/4CS	HHCS ZP GR5	8
5	3-141-010132	BULKHEAD WLDMT	1
6	3-141-010130	BULKHEAD ADJUST	1
7	1/2-13HFLN	NUT HEX LOCK GRB CAD W/WAX	2
8	1/2FW	WASHER FLAT ZP	4
9	RRT128X.4375	TUBE RD 1X9/16X7/16 CDBW	2
10	1/2-13X5-1/2HCS	SCREW CAP GR5	2
11	3-120-010408	BRACKET LIGHTBAR CA	REF.
12	REF.	SEE ELECTRICAL	
13	3/16X3/4CS SELF	HHCS SELF DRILL	4
14	3-222-010135	COVER LIGHT SLOT	2
15	3-141-010140	BULKHEAD CHAIN LOCK WLDMT	1
16	3/8-16X1HHCS	SCREW HEX CAP GR5	4
17	3/8-16X1-1/4CS	HHCS ZP GR5	2
18	3-014-010158	ANCHOR CHAIN LOCK RT	1
19	3/8-16HFLN	NUT HEX LOCK GRB CAD W/WAX	6
20	3-014-010159	ANCHOR CHAIN LOCK LT	1
21	3-162-010001	FILLER BREATHER STRAINER ASSY	1
22	3-380-010017	HOLD-DOWN, BED FRT (WELD ON)	1

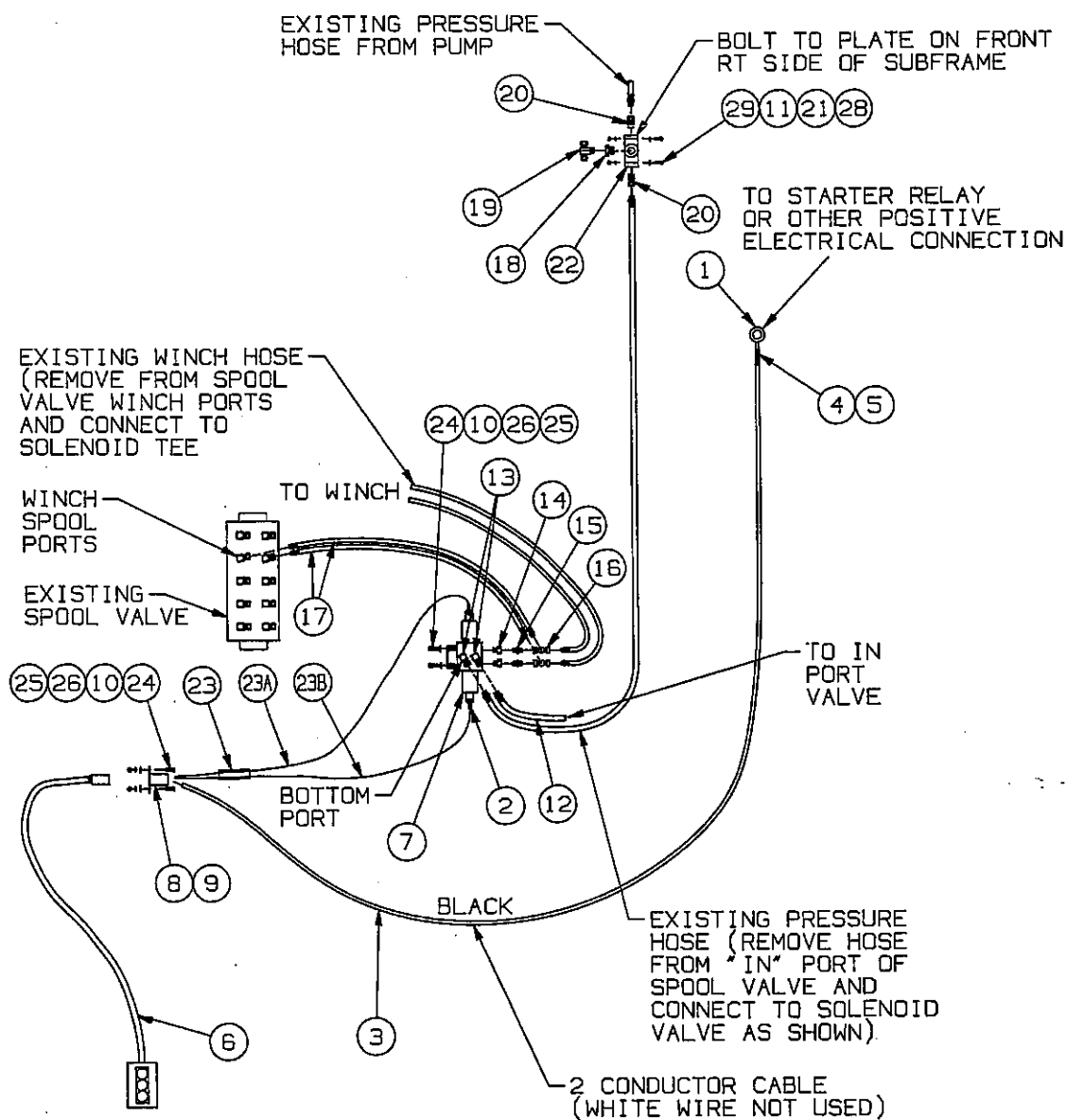


Figure 9-35 Hydraulic Remote Control, Winch



## HYDRAULIC REMOTE CONTROL

ITEM	PART NO.	DESCRIPTION	QTY
1	C01-412	TERMINAL, RING	1
2	C29-1104X	CONNECTOR, ELECTRICAL	2
3	3-156-010008420	CABLE, TOW CONDUCTOR	1
4	3-318-010001	FUSE, 12 VOLT 15 AMP AGL-15	1
5	3-318-010002	HOLDER, FUSE	1
6	3-765-010002	CONTROL, REMOTE	1
7	3-846-010009	VALVE, SOLENOID	1
8	59S-7	SOCKET, TRAILER ELECTRICAL 7 POLE	1
9	59W-2-3	BOOT, RUBBER	1
10	5/16FW	WASHER, FLAT	6
11	1/4FW	WASHER, FLAT	2
12	3-397-010117	HOSE ASSEMBLY 1/2" HOSE X 32 (1/2 ENDS)	1
13	1-007-010007	ELBOW, 90° O-RING	2
14	2216-6-8S	ADAPTER, O-RING	2
15	3-007-010032	NIPPLE 3/8 M TO 3/8 M	2
16	2255-6-6S	TEE, FEMALE	2
17	3-397-010148	HOSE ASSEMBLY 3/8" HOSE X 33 (3/8 ENDS)	2
18	3/4X1/2BUSH	BUSHING	1
19	2254-8-8S	TEE	1
20	2045-8-12S	SWIVEL, STRAIGHT PIPE	2
21	1/4SLW	WASHER, SPLIT LOCK	2
22	12530	VALVE, RELIEF	1
23	3-201-010001048	CONDUIT, FLEX	1
A	1-879-010007048	WIRE, YELLOW	1
B	1-879-010006048	WIRE, GREEN	1
24	5/16-18X1	CAP SCREW, HEX HEAD	6
25	5/16-18HFN	NUT, HEX	6
26	5/16SLW	WASHER, SPLIT LOCK	6
27	T120R	STRAP, TYTON	8
28	1/4-20HFN	NUT, HEX	2
29	1/4-20x2HHCS	SCREW	2

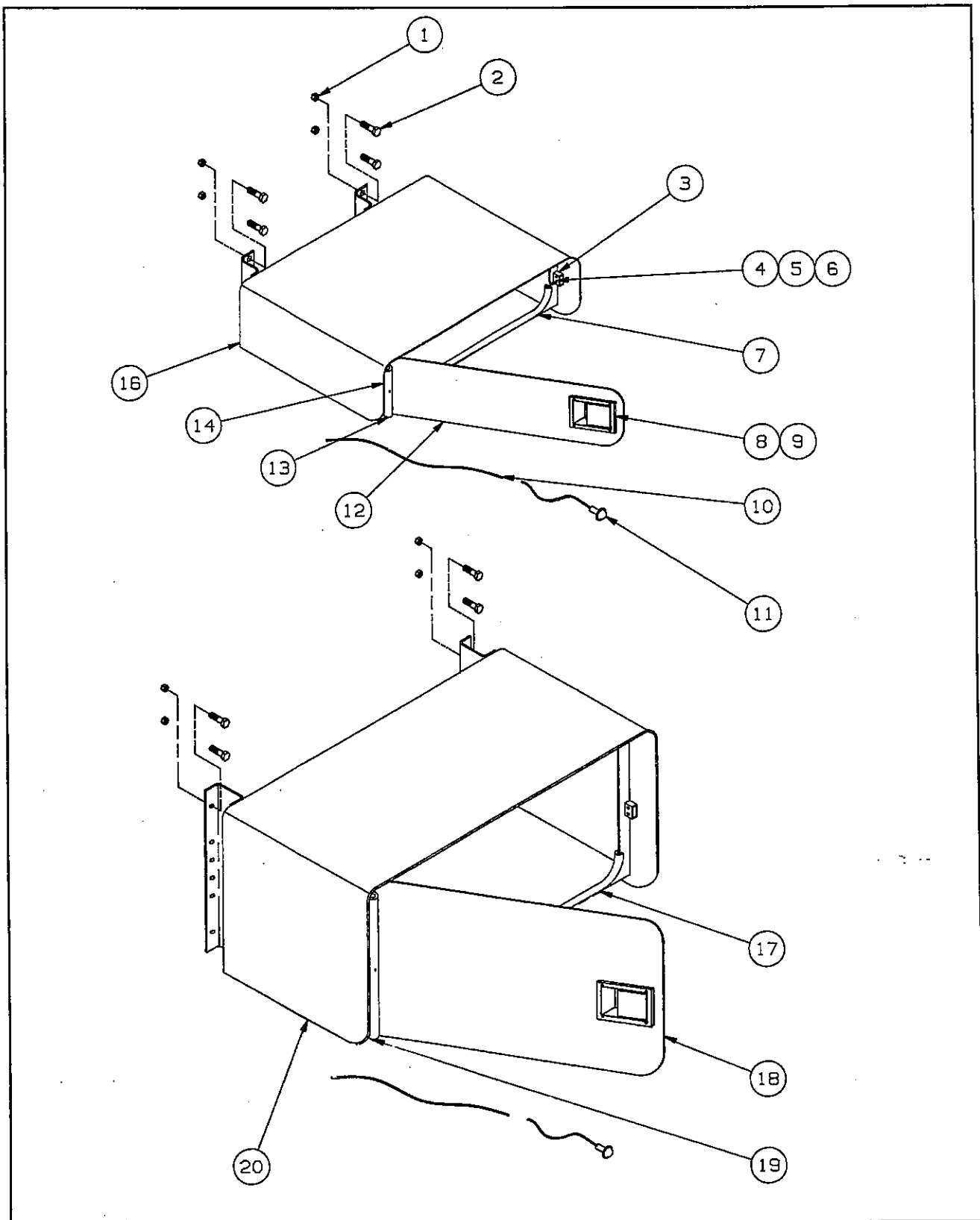


Figure 9-36 Toolbox (LH) Street Side

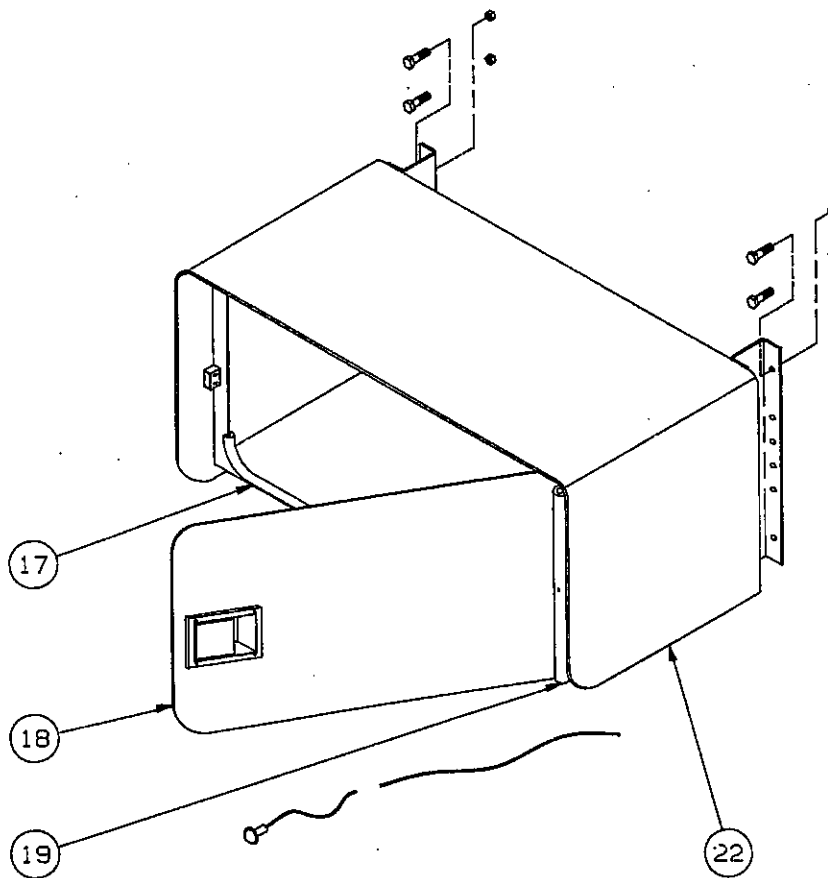
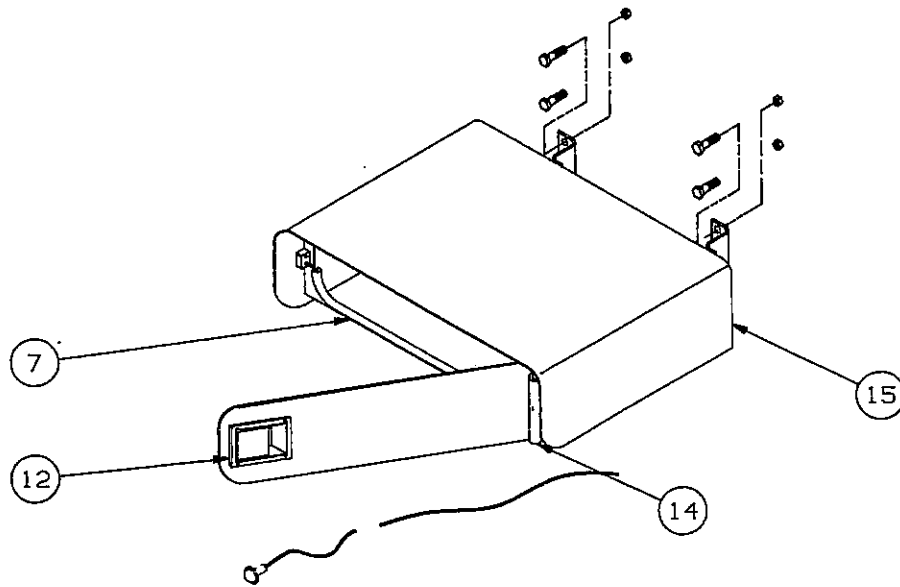


Figure 9-37 Toolbox (RH) Curb Side

## TOOL BOX

ITEM	PART NO.	DESCRIPTION	QTY
1	1/2-13HFLN	NUT HEX LOCK GRB CAD W/WAX	4
2	1/2-13X1-1/2CS	SCREW HEX HEAD CAP ZP GR5	4
3	3-659-010013-1	SEAL NEOPRENE SPONGE	1
4	7-458-010009	PLATE STRIKER	1
5	110-0253	WASHER, FLAT 3/16 STD	2
6	118-7962	SCREW #10-24X1/2PAN HD MACHSLT	2
7	514-1000-056	QUICKEDGE MINITRIM	2
8	3-443-010010	LATCH SS PADDLE LOCKABLE	1
9	BSL-6-4	RIVET 3/16ALX1/4 GRIP LG FLANGE	4
10	3-368-010149	HARNESS COURTESY LIGHT	2
11	26331	LIGHT COURTESY TRUCKLITE	1
12	3-115-010096	WLDMT TOOLBOX DOOR	1
13	#6X3/8	SCREW SELF TAP SLT RD HD	1
14	RPRB59004X11	NYLATRON RD 3/4X11	1
15	3-115-010097	TOOL BOX WLDMT 23X23X15RT	1
16	3-115-010099	TOOL BOX WLDMT 23X23X15 LT	1
17	514-1000-075	QUICKEDGE MINITRIM	2
18	3-115-010156	TOOL BOX DOOR WLDMT	1
19	RPRB59004X14	ROD NYLATRON 3/4X14	1
20	3-115-010157	TOOL BOX WLDMT 36X18X18 LT	1
21	3-115-010158	TOOL BOX WLDMT 36X18X18 RT	1





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