

COMBINE WELL OPERATION

To use combine wells on LHA4 and gooseneck trailers loosen clamp on underside of combine well, then lift and pull out combine well to desired width. Ensure that support chains are adjusted to equal lengths. With combine wells in extended position proceed to above procedure for tilting trailer.

To use combine wells on Model LHA5 trailers, remove safety pin and pull out and up until combine well rests on the short storage leg. Slide support tube in and place support chain loops on chain support bar. Remove overwidth support tubes at the front of the combine wells and replace with the overwidth support tubes from the front of the main deck. Brackets on support tube should point forward. Lower trailer to loading position and then pull combine well out until storage leg is clear. (Fig. 1) Back combine on until back tires are past combine well. Then raise trailer until front end of combine well drops past its support. Lower trailer to ground again. (Fig. 2)

Back combine to where the drive wheels are centered on the larger section of the combine well. (Fig. 3 & 4)

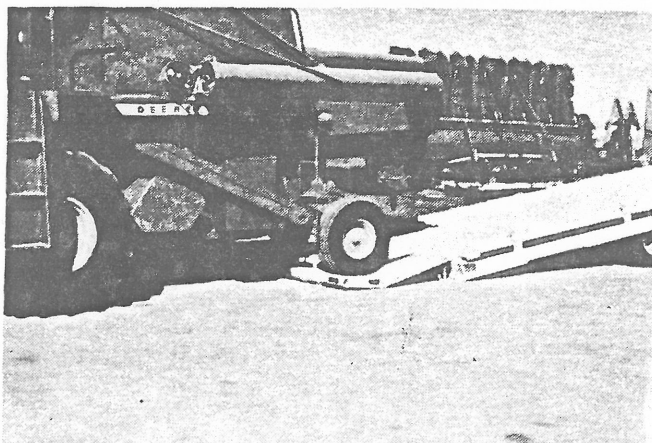


Fig. 1

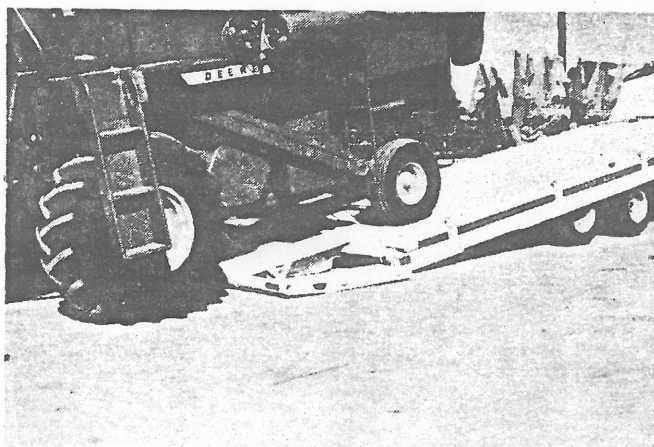


Fig. 2

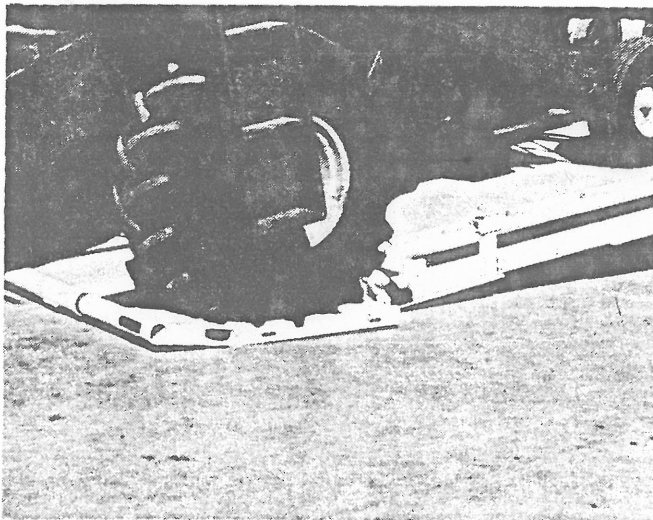


Fig. 3

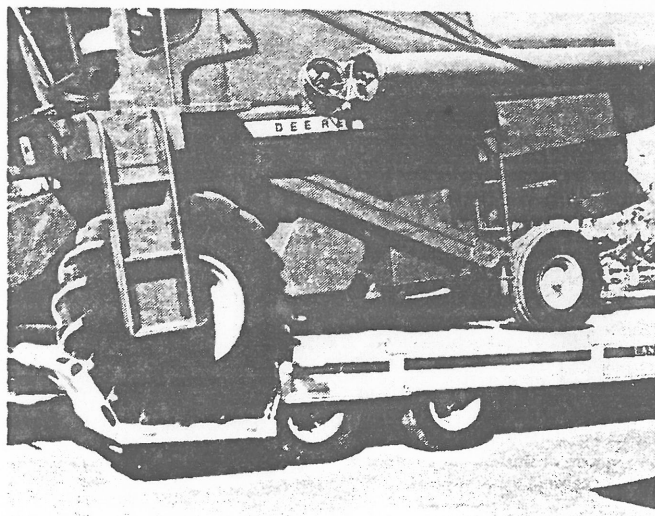


Fig. 4

Model 300

TRAILER OPERATION

To load or unload the Landoll Hauloll, first park the tractor and trailer in a straight line on relatively level ground. Set the tractor brakes while releasing the trailer brakes. This is necessary for the trailer axles to be able to move freely. Make sure hydraulic lines are connected and engage PTO.

Before pulling the axles forward, raise the trailer to the approximate loading angle. Then pull the axles to the full forward position. Adjust trailer angle if necessary until the rear of the trailer rests on the ground. You are now ready to drive or winch on the load.

The preceding paragraph is standard procedure, however the operator must use his own judgment. If the load is unbalanced with more weight on the king pin than on the trailer axles, pull the axles a few feet forward to balance out the load before tilting the trailer.

To return the trailer to level position, reverse the steps used to tilt the trailer.

WINCH OPERATION

Warning!

Goods are not designed for use in the lifting or moving of persons! The winches described herein are neither designed nor intended for use or application to equipment used in the lifting or moving of persons. The cable clamps alone on winches are not designed to hold rated loads. Therefore, a minimum of 5 wraps of cable must be left on drum barrel to achieve rated load. Any damage resulting when less than 5 wraps are used will void the warranty.

SAFETY SUGGESTIONS



This safety alert symbol indicates important safety messages in this manual when you see this symbol. Carefully read the message that follows and be alert to the possibility of personal injury or death.

For your safety, and those working with you, follow these safety rules:

WARNING: denotes a hazard to personal safety.

CAUTION: denotes a general reminder of good safety practices or directs attention to unsafe practice.

WARNING

The winch is not designed for use in the lifting or moving of persons! The winches described herein are neither designed nor intended for use or application to equipment used in the lifting or moving of persons.

WARNING

The cable clamp alone on winches is not designed to hold rated loads. Therefore, a minimum of 5 wraps of cable must be left on drum barrel to achieve rated load. Any damage resulting when less than 5 wraps are used will void the warranty.

WARNING

Rim and tire servicing can be dangerous. To protect life and limbs, be sure you understand and follow all mounting and demounting procedures and safety practices.

CAUTION

Do Not exceed the gross axle weight ratings for any axle on your vehicle.

CAUTION

The combined weight of the tractor, trailer and cargo must not exceed the gross vehicle weight rating (GVWR) of the tractor.

CAUTION

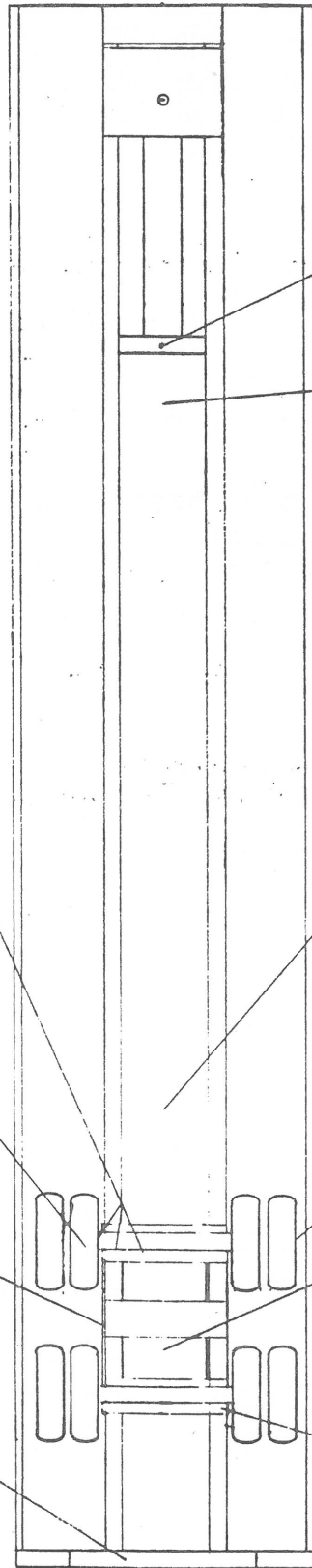
All valve, pump, motor, and cylinder castings are not covered under warranty when using teflon tape sealant.

Tire Load Chart

9.50 x 16.5 Tires on 16.5 x 6.75 wheels, rated at
2500 lbs.

Tire	Ply Rating	Max. Pressure	Max. Load
Bias Ply	6	45PSI	2070#
	8	60PSI	2445#
	10	75PSI	2790#
Radial	6	50PSI	2070#
	8	65PSI	2445#
	10	80PSI	2790#

Maintenance Schedule



5,000 mi. or 60 days.

Check the following:

- ① Hydraulic oil tank (3/4 full.)
- ② Winch oil level.
- ⑤ Reservoir, brake master cylinder.
- ④ 5,000 mi. or 60 days. One fitting on bushing for gooseneck swivel hitch mounted in truck bed.

④ 1 fitting - 5,000 mi. or 60 days. Hinge, 5th wheel gooseneck, LHA4 and LHA5 only.

④ 5,000 mi. or 60 days. Fittings on cable drum and bearing leg of winch.

5,000 mi. or 60 days.

- ③ Slack adjuster.
- Cam bracket bushing
- Brake spider bushing
- LHA4 and LHA5.

④ 5,000 mi. or 60 days. Track for cylinder support slide. LHA5 only. Clean track and coat with grease.

30,000 mi.

- ④ Cam rollers.
- Retainer springs.
- Anchor pins.
- LHA4 and LHA5.

③ Check 5,000 mi. or 60 days. Wheel bearings all models. Change 30,000 mi.

5,000 mi. or 60 days

- ④ Equalizer mounting bolt, LHAG only.

④ Weekly. Cylinder rod bushing. 1 fitting, LHA5 only. Clean support pin and coat with grease.

5,000 mi. or 60 days

- ④ Combine well slides. 4 fittings.

④ 5,000 mi. or 60 days. Carriage rollers. 16 fittings on LHAG and LHA4. 4 fittings on LHA5.

Circled number indicates recommended lubricant listed on following page.

Recommended Lubricants

1. Hydraulic System:
"AMOCO All Weather Hyd. Oil" or equivalent.

2. Winch:

The following oils are approved by Braden for use in Braden Winches.

Brand	Description	Grade SAE-140 (Summer)	Grade SAE-90 (Winter)
Humble	Pen-O-Led EP	#5	#3
Phillips	Phillips Worm Gear Oil	#93301	#93321
Sinclair	Pennant EP	#6	#3
Standard	Stanogear	#5	#3
Texaco	Maropa	#5	#3

3. Wheel Bearings:
Use same oils as recommended for the winch.
4. Chassis lub:
Quaker State "Golden Chassis grease" or equivalent.
5. Hydraulic Brake Fluid.
Delco Supreme #1 or equivalent.
Conforming to or exceeding SAE Spec. J1702 or J1703.

SYMPTOMS OF MALFUNCTIONING
TRAILER BRAKE CONTROL SYSTEM

1. TRAILER BRAKES DO NOT APPLY
2. COMBO VALVE WILL NOT DECREASE VACUUM IN CONTROL LINE WHEN TRUCK BRAKES APPLIED.
3. TRAILER BRAKE APPLICATION LAGS BEHIND TOWING VEHICLE APPLICATION.
4. TRAILER BRAKES DRAG AFTER RELEASE.
5. TRAILER BRAKES DRAG ON ACCELERATION.
6. TRAILER BRAKES WILL NOT LOCK UP.
7. TRAILER BRAKES LOCK UP AND WILL NOT RELEASE.
8. COMBO VALVE CHATTERS AND/OR BRAKE PEDAL SURGES UPON TRUCK FOOT BRAKE APPLICATION
9. TRAILER BRAKES AT FULL APPLICATION, TRUCK BRAKES PARTIALLY APPLIED OR TRUCK BRAKES AT FULL APPLICATION; TRAILER BRAKES PARTIALLY APPLIED.
10. ENGINE WILL NOT REACH NORMAL VACUUM OR ENGINE RUNS ROUGH AFTER COMBO VALVE INSTALLATION.
11. COMBO APPLIES BRAKES W/HAND CONTROL, NOT FOOT PEDAL.
12. COMBO APPLIES BRAKES W/FOOT PEDAL, NOT HAND CONTROL.
13. TRUCK SYSTEM WILL NOT HOLD VACUUM AFTER ENGINE SHUT DOWN.
14. MASTER CYLINDER ON TOWING VEHICLE LOSES HYDRAULIC FLUID.
15. ENGINE VACUUM NORMAL; TRAILER VACUUM LOW.
16. BRAKE PEDAL ON TOWING VEHICLE HITS BOTTOM OF STROKE.
17. TRAILER RELAY VALVE CHATTERS UPON BRAKE APPLICATION.
18. FLUID LEAKING OUT OF FILTER OF COMBO.
19. TRAILER HYDRAULIC RESERVOIR LOSES FLUID.
20. TRAILER BRAKES WILL NOT LOCK WHEN BOTH SUPPLY AND CONTROL LINES DISCONNECTED SIMULTANEOUSLY.

1. TRAILER BRAKES DO NOT APPLY

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|--|
| A. Slave Booster on Trailer out of Hydraulic Fluid. | A. Refill reservoir |
| B. Excessive air in Trailer Hydraulic System. | B. Rebleed Trailer Hydraulic System. |
| C. Vacuum supply line not connected or or crossed; or Vacuum Control & Supply lines crossed. | C. Reconnect correctly. |
| D. Slave Booster works, But puts out no pressure. | D. Hydraulic Piston pulled off Push Rod in Booster, repair or replace Booster. |
| E. Brake Pads worn out. | E. Replace Brake Pads. |
| F. Combo or Relay Valve Filter clogged with dirt. | F. Clean or install new Filter Element. |
| G. Slave Booster not functioning | G. Replace Booster. |
| H. Combo Valve not operating properly | H. Remove and replace |
| I. Combo Valve tied into low pressure side of frame mounted Booster. | I. Connect to line from output end of Truck Booster(Line to Truck Brakes) |

2. COMBO VALVE WILL NOT DECREASE VACUUM IN CONTROL LINE WHEN TRUCK BRAKES APPLIED

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|-------------------------------|
| A. Supply and Control reversed | A. Reverse Vacuum Line Hookup |
| B. Combo diaphragm leaking | B. Remove and replace Valve |
| C. Restricted or plugged Hydraulic Line to Combo | C. Replace Line |
| D. Master Cylinder out of Hydraulic Fluid | D. Refill |

3. TRAILER BRAKE APPLICATION LAGS BEHIND APPLICATION OF BRAKES ON TOWING VEHICLE

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|--|
| A. Booster stroking too far, due to air in Trailer Hydraulic System | A. Rebleed Trailer Hydraulic System |
| B. Control Line restricted | B. Remove restriction |
| C. Booster mounted too far from Relay Valve and/or Relay Valve mounted too far from Vac Tank | C. Relocate Valve to within 3 feet of Booster. Relay Valve should be mounted on Vacuum Tank or within 2 feet of Tank |
| D. Truck Combo Valve or Trailer Relay Valve filters could be clogged with dirt. | D. Clean or renew Filter elements |

4. TRAILER BRAKES DRAG AFTER RELEASE

MALFUNCTION

- A. Breakaway Check Valve malfunctioning.
- B. Hand Control partially applied
- C. Control Vacuum Line restricted
- D. Caliper or Wheel Cylinder frozen
- E. Dash or Engine Check Valve missing or not holding Vacuum
- F. Mashed or crimped Hydraulic Lines on Trailer

CORRECTIVE ACTION

- A. Replace Spring and clean Break Away Valve
- B. Release Hand Control or adjust.
- C. Remove restriction or replace Line
- D. Repair or replace
- E. Clean and check Valve or replace with new.
- F. Replace mashed or crimped section

5. TRAILER BRAKES DRAG ON ACCELERATION

MALFUNCTION

- A. No closed Check Valve on Truck or Valve leaking, causing Break-Away Check Valve to go shut before Trailer Booster completely releases
- B. Spring too weak in Trailer Break-Away Check Valve

CORRECTIVE ACTION

- A. Replace Engine Check Valve or clean
- B. Remove Check Valve, Clean, replace Spring or open Check Valve Assembly

TRAILER BRAKES WILL NOT LOCK UP

MALFUNCTION

- A. Trailer overloaded
- B. Incorrect size Combo Valve
- C. Air in Trailer Hydraulic System
- D. Booster at maximum stroke
- E. Vacuum low
- F. Slave Booster out of Hydraulic Fluid
- G. Combo Valve connected into low pressure side of frame mounted Booster

CORRECTIVE ACTION

- A. Reduce load carried
- B. Install proper size Valve
- C. Rebleed Hydraulic System
- D. Rebleed Hydraulic System or replace Booster
- E. Stop Vacuum leak or repair Truck Engine
- F. Refill reservoir and check for leaks
- G. Connect into high pressure side of Booster

7. TRAILER BRAKES LOCK UP AND WILL NOT RELEASE

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|--|
| A. No closed Check Valve on Truck or Valve not holding, causing Trailer Break-Away Check to lock closed | A. Clean or replace Truck closed Check Valve. |
| B. Caliper or Wheel Cylinder frozen | B. Repair or replace |
| C. Trailer Hydraulic lines mashed or crimped. | C. Repair or replace mashed or crimped section. |
| D. Hand Control on Combo Valve applied | D. Release Hand Control |
| E. Combo Valve stuck in the applied position | E. Remove and replace |
| F. Vacuum Control line broken or disconnected | F. Remove restriction or replace restricted section of Line |
| G. Trailer Break-Away Valve Spring too weak, causing Valve to close as Booster tries to release or Valve installed backwards | G. Replace Spring and install open Check with seat toward Booster. |

8. COMBO VALVE CHATTERS AND/OR BRAKE PEDAL SURGES WHEN TRUCK BRAKES APPLIED

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|--|
| A. Air not completely eliminated from Truck Hydraulic System | A. Rebleed System |
| B. Combo Valve mounted in such a position that it will not allow bleeding. | B. Remount with Hydraulic Port up. |
| C. Dirt under Poppet Seat of Combo Valve. | C. Remove and replace Valve |
| D. Truck Booster or Hydra-Boost Unit faulty | D. Replace or repair Vacuum Booster or Hydra-Boost Unit. |

9. TRAILER BRAKES AT FULL APPLICATION & TRUCK BRAKES PARTIALLY APPLIED OR TRUCK BRAKES AT FULL APPLICATION & TRAILER BRAKES PARTIALLY APPLIED

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|-------------------------------------|
| A. Incorrect size Combo Valve installed on Truck | A. Remove and replace |
| B. Excessive Air in Trailer Brake System would result in partial Trailer Brake application | B. Rebleed Trailer Hydraulic System |

10. ENGINE WILL NOT REACH NORMAL VACUUM, OR IT RUNS ROUGH AFTER COMBO VALVE INSTALLATION

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|---------------------------------|
| A. Vacuum leak in Truck or Trailer Vacuum System | A. Stop leak |
| B. Engine out of tune or burned Valves | B. Tune engine and grind Valves |
| C. Dust Plugs not installed in Quick | C. Install Plugs |

11. TRAILER BRAKES CAN BE APPLIED WITH HAND CONTROL BUT NOT FOOT CONTROL

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|---|
| A. Incorrect size Combo Valve | A. Replace with proper Valve |
| B. Combo Valve not connected to Truck Master Cylinder | B. Connect Hydraulic Line from Combo to Truck Master Cylinder |
| C. Combo Valve not tied into high pressure side of frame mounted Booster | C. Connect into high pressure side of Booster |
| D. Master Cylinder out of Hydraulic Fluid | D. Refill Master Cylinder |

12. TRAILER BRAKES CAN BE APPLIED WITH FOOT CONTROL BUT NOT WITH HAND CONTROL

MALFUNCTION

CORRECTIVE ACTION

- | | |
|---|--|
| A. Hand Control not traveling full stroke | A. Eliminate restriction. Lever should travel 1-7/8" at Pull Cable Eye |
| B. Cable has pulled out of lever on Valve | B. Reconnect Cable |
| C. Cable kinked | C. Replace Cable |

13. TRUCK SYSTEM WILL NOT HOLD VACUUM, AFTER ENGINE STOPPED

MALFUNCTION

CORRECTIVE ACTION

- | | |
|---|-------------------------|
| A. Dash Check Valve leaking | A. Replace Check Valves |
| B. Leak in existing Truck Vacuum System | B. Stop leaks |
| C. Leak in Truck Trailer Vacuum System | C. Stop leak |
| D. Hand Control in applied position | D. Release Hand Control |
| E. Quick Couplers leaking | E. Replace Plugs |

14. MASTER CYLINDER ON TOWING VEHICLE LOSES FLUID

MALFUNCTION

CORRECTIVE ACTION

- | | |
|---|-------------------------|
| A. Hydraulic Fittings or Lines leaking | A. Tighten and re-bleed |
| B. Leaking Master Cylinder on Truck | B. Remove and replace |
| C. Caliper or Wheel Cylinder leaking on Truck | C. Repair or replace |
| D. Seal failure in the Combo Valve | D. Remove and replace |

15. ENGINE VACUUM NORMAL: TRAILER VACUUM LOW

MALFUNCTION

CORRECTIVE ACTION

- | | |
|---|---|
| A. Truck closed Check installed backwards | A. Inspect Valve and re-install with Spring toward Truck Manifold |
| B. Leak in Control Line | B. Stop leak |
| C. Leak in Supply Line | C. Stop leak |
| D. Combo Valve Poppet leaking | D. Remove and replace |
| E. Relay Valve Poppet leaking | E. Remove and replace |

16. BRAKE PEDAL ON TOWING VEHICLE HITS BOTTOM OF STROKE

MALFUNCTION

CORRECTIVE ACTION

- | | |
|---|--|
| A. Master Cylinder out of fluid | A. Refill and rebleed system |
| B. Master Cylinder leaking internally | B. Remove and replace |
| C. Leaking Hydraulic Fittings, Hose or Line | C. Tighten Fittings or replace Hose or Lines |
| D. Air trapped in Truck Hydraulic System | D. Rebleed System |
| E. Caliper or Wheel Cylinder leaking | E. Repair or replace |

17. TRAILER RELAY VALVE CHATTERS UPON BRAKE APPLICATION

MALFUNCTION

CORRECTIVE ACTION

- | | |
|---|-----------------------|
| A. Dirt under Poppet Seat | A. Remove and replace |
| B. Control Port from Valve to Booster plugged | B. Remove restriction |

18. FLUID LEAKING OUT OF FILTER OF COMBO VALVE

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|---------------------------------------|
| A. External Hydraulic Fittings leaking | A. Tighten Fittings and rebleed Valve |
| B. Seal leaking internally in Combo | B. Remove and replace |

19. TRAILER BOOSTER HYDRAULIC RESERVOIR LOSES FLUID

MALFUNCTION

CORRECTIVE ACTION

- | | |
|--|---------------------------------------|
| A. Leak in the Trailer Hydraulic System | A. Tighten Fittings and rebleed |
| B. Booster seals worn and leaking internally | B. Repair or replace |
| C. Caliper or Wheel Cylinder leaking | C. Replace Booster |
| D. Reservoir lower Gasket or Fitting leaking | D. Replace Gasket and tighten Fitting |

20. TRAILER BRAKES WILL NOT LOCK WHEN BOTH SUPPLY AND CONTROL LINES DISCONNECTED SIMULTANEOUSLY

MALFUNCTION

CORRECTIVE ACTION

A. Break-Away Check Valve malfunctioning

A. Remove and replace

B. Vacuum leak in Trailer Supply Line. NOTE: Manifold Line must be disconnected quickly (like Break-Away) in order to activate Break-Away Valve

B. Stop leak

TROUBLE SHOOTING GUIDE HYDRAULIC SYSTEMS

FINDING AND SOLVING PROBLEMS:

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.

1. SYSTEM INOPERATIVE

- **No oil in system, insufficient oil in system.** Fill system. Check for leaks.
- **Wrong oil in system.** Refer to specifications. Change oil.
- **Filter dirty or clogged.** Drain oil and replace filter or filter element.
- **Oil line restriction.** Oil lines dirty or collapsed. Clean or replace.
- **Air leaks in pump suction line.** Repair or replace as necessary.
- **Worn or dirty pump.** Clean, repair or replace. Check alignment. Check for contaminated oil. Drain and flush system.
- **Badly worn components (valves, cylinders, etc.)** Examine and test for internal or external leakage. Replace faulty components. Check for cause of wear.
- **Leakage.** Check all components, particularly the relief valve for proper settings. Refer to technical manuals.
- **Excessive load.** Check unit specifications for load limits.
- **Slipping or broken pump drive.** Repair or replace belts, couplings, etc. Check for proper alignment or tension.

2. SYSTEM OPERATES ERRATICALLY

- **Air in system.** Check suction side of system for leaks. Repair.
- **Cold oil.** Allow ample warm-up period.
- **Dirty or damaged components.** Clean or repair as necessary.
- **Restriction in filters or lines.** Clean and/or replace elements or lines.

3. SYSTEM OPERATES SLOWLY

- **Oil viscosity too high, cold oil.** Allow oil to warm up before operating machine.
- **Low pump drive speed.** Increase engine speed (check manual for recommendations).
- **Low oil level.** Check reservoir and add oil as necessary.
- **Air in system.** Check suction side for leaks. Repair.
- **Badly worn pump, valves, cylinders, etc.** Repair or replace as needed.
- **Restriction in filters or lines.** Clean and/or replace elements or lines.
- **Improper adjustments.** Check orifices, relief valves, etc. Adjust per manual.
- **Oil leaks.** Tighten fittings. Replace seals or damaged lines.

4. SYSTEM OPERATES TOO FAST

- **Wrong size or incorrectly adjusted restrictor.** Replace or adjust as necessary.
- **Engine running too fast.** Reduce engine speed.

5. OVERHEATING OF OIL IN SYSTEM

- **Oil passing thru relief valve for excessive time.** Return control valve to neutral when not in use.
- **Incorrect oil, low oil, dirty oil.** Use recommended oil, fill reservoir, clean oil, replace filter element.
- **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 elements or lines.
- **Malfunctioning oil cooler.** Clean or repair.
- **Insufficient heat radiation.** Clean dirt and mud from reservoir and components.
- **Malfunctioning component.** Repair or replace.

6. 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.

7. NOISY PUMP

- **Low oil level, incorrect oil, foamy oil.** Replace, clean or add oil as needed.
- **Suction line plugged, inlet screen plugged.** Clean or replace.
- **Worn or damaged pump.** Repair or replace.

8. LEAKY PUMP OR MOTOR

- **Damaged or worn shaft seal.** Replace. Check for misalignment.
- **Loose or broken parts.** Tighten or replace.

9. LOAD DROPS WITH CONTROL VALVE IN NEUTRAL

- **Leaking cylinder seals or fittings.** Replace worn parts.
- **Control valve centering when released.** Check linkage. Check for spool binding. Repair.

10. CONTROL VALVE STICKY (Binding).

- **Valve linkage misaligned.** Repair.
- **Tie-bolts too tight (stack valves).** Loosen as necessary.
- **Valve damaged.** Repair or replace.

11. CONTROL VALVE LEAKS

- **Tie-bolts too loose (stack valves).** Tighten as necessary.
- **Seals damaged or worn.** Replace.

12. CYLINDER LEAKS

- **Seals worn or damaged.** Replace.
- **Rod damaged.** Replace.

13. CYLINDER LOWERS WITH VALVE IN "METER UP" POSITION

- **Damaged or leaky lift check.** Replace check.
- **Leaking cylinder seal.** Replace seal.

DISASSEMBLY AND REASSEMBLY INSTRUCTIONS
SPIN-IN RING RETAINER

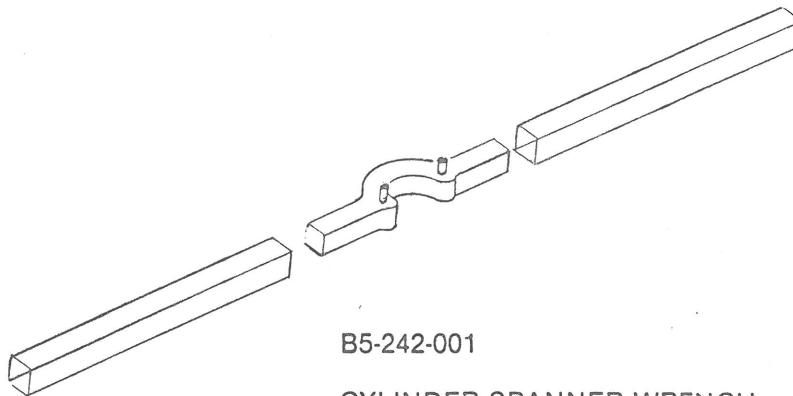
With the cylinder removed from the machine, retracted, and drained of oil, proceed as follows:

1. Secure the cylinder in a vise or other method to prevent rotation. Rotate cylinder so the slot in barrel is positioned for easy access.
2. With a 90° pin type spanner wrench rotate gland counter clockwise. The tail end of the wire will appear in slot of barrel. If tail of wire catches, it may be necessary to lift wire slightly with narrow screwdriver. Continue rotating gland to feed wire completely out.
3. Pull on piston rod to remove gland and piston from tube. Note: If seals catch in retaining ring groove, it may be necessary to cut seal through slot in tube and pull out with needle-nose pliers.

Before reassembly check that new seals have been installed and all internal parts are free of visible contamination. Smear a heavy grease on piston and gland O.D. seals for easier assembly.

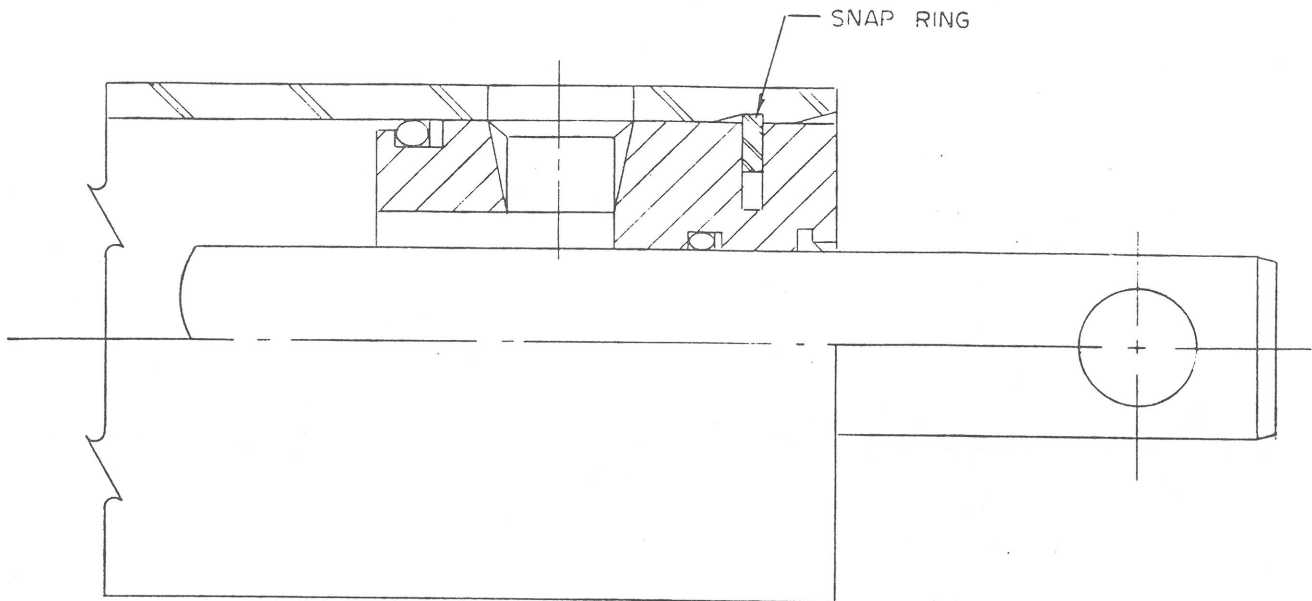
1. Insert piston, gland and rod assembly into tube. Line up hole in gland retaining groove with slot in cylinder barrel.
2. Using new retaining wire rotate gland clockwise until wire is completely in tube.

The cylinder is now ready for reassembly in machine.



B5-242-001

CYLINDER SPANNER WRENCH



DISASSEMBLY & REASSEMBLY SNAP RING RETAINER

With the cylinder removed from machine, cleaned, retracted, and drained of oil, proceed as follows:

DISASSEMBLY

1. Secure cylinder in a vise or other method to prevent rotation. Insure immediate area is clean so parts can be layed out.
2. Using snap ring pliers remove snap ring from gland of cylinder.
 - A. Unretained snap ring just compress and remove.
 - B. Retained (can only see pin holes in window area) snap ring, pull rod within 3-6 inches of full extension, compress ring and at the same time with a quick pull of rod drive gland out of cylinder.
3. After rod assembly has been removed from cylinder, remove gland.
 - A. If rod clevis is welded on, remove piston to get gland off. If not, just remove clevis and slip gland off.
 - B. If no clevis, slip gland over end of rod. Take care not to damage rod finish.
4. Remove all seals from piston and gland.
5. Inspect parts for damage (nicks, scratches, cracks, etc.)

Before assembly install new seals on piston and gland. Insure all parts are free of contamination (dirt, etc.). Install snap ring on gland.

ASSEMBLY

1. Coat ID of gland with light grease and replace on rod. Replace piston if removed and secure.
2. Coat OD of piston and seal area on gland with light grease. Apply light coat of hydraulic oil to ID of tube. Insert rod assembly into tube taking care not to damage threads, rod or seals.
3. Rotate gland to locate port with hole in tube, compress snap ring and lightly tap gland into place, relax snap ring. **Insure that snap ring is in groove.**
4. Replace clevis if removed.
5. Test cylinder-cylinder is now ready for reassembly in machine.

COMMON REPLACEMENT ITEMS

Item	Part No.	Description	Quantity
1	1/2-6x25	Wire rope 1/2"	Spec. lgth. req.
2	1426-562-02	3/8" High test chain	3 ft.
3	6470-431-00	3/8 Clevis grab hook	1
4	1/2 W R clamp	Wire rope clamp	2
5	3-793-010001	Tie down loop	1
6	2-557-010009	Lynch pin	1
7	1-DSL Latch	Tool box latch	1
8	BSL-6-4	Rivet	4

DECALS

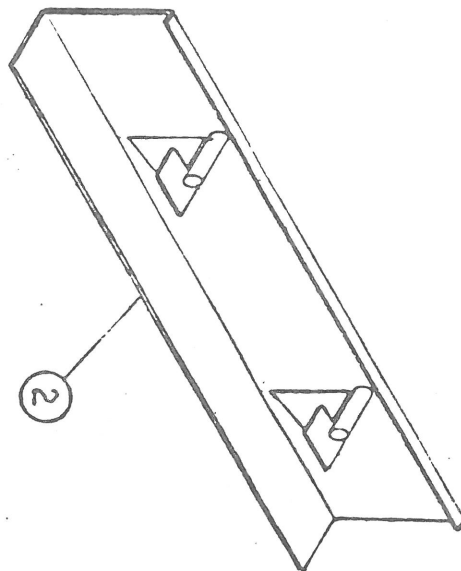
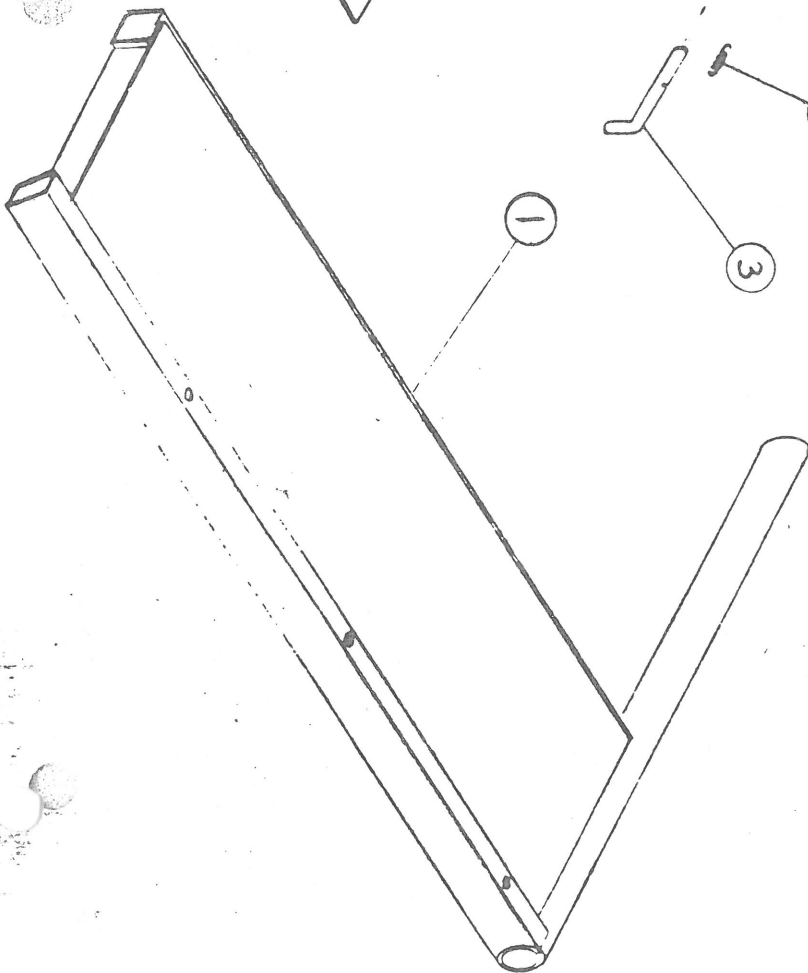
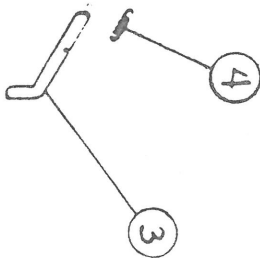
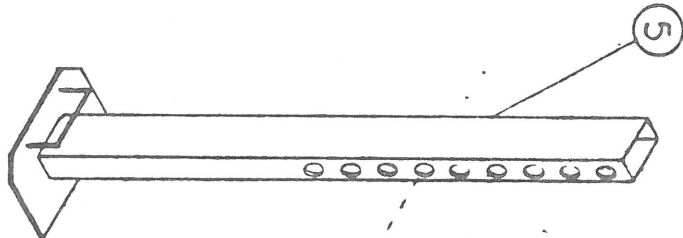
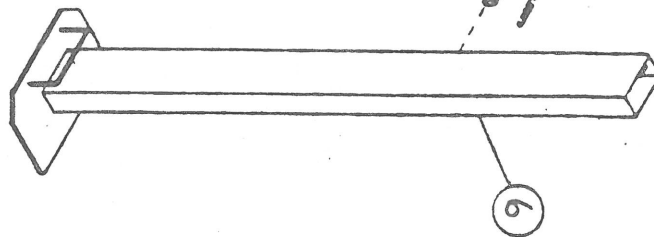
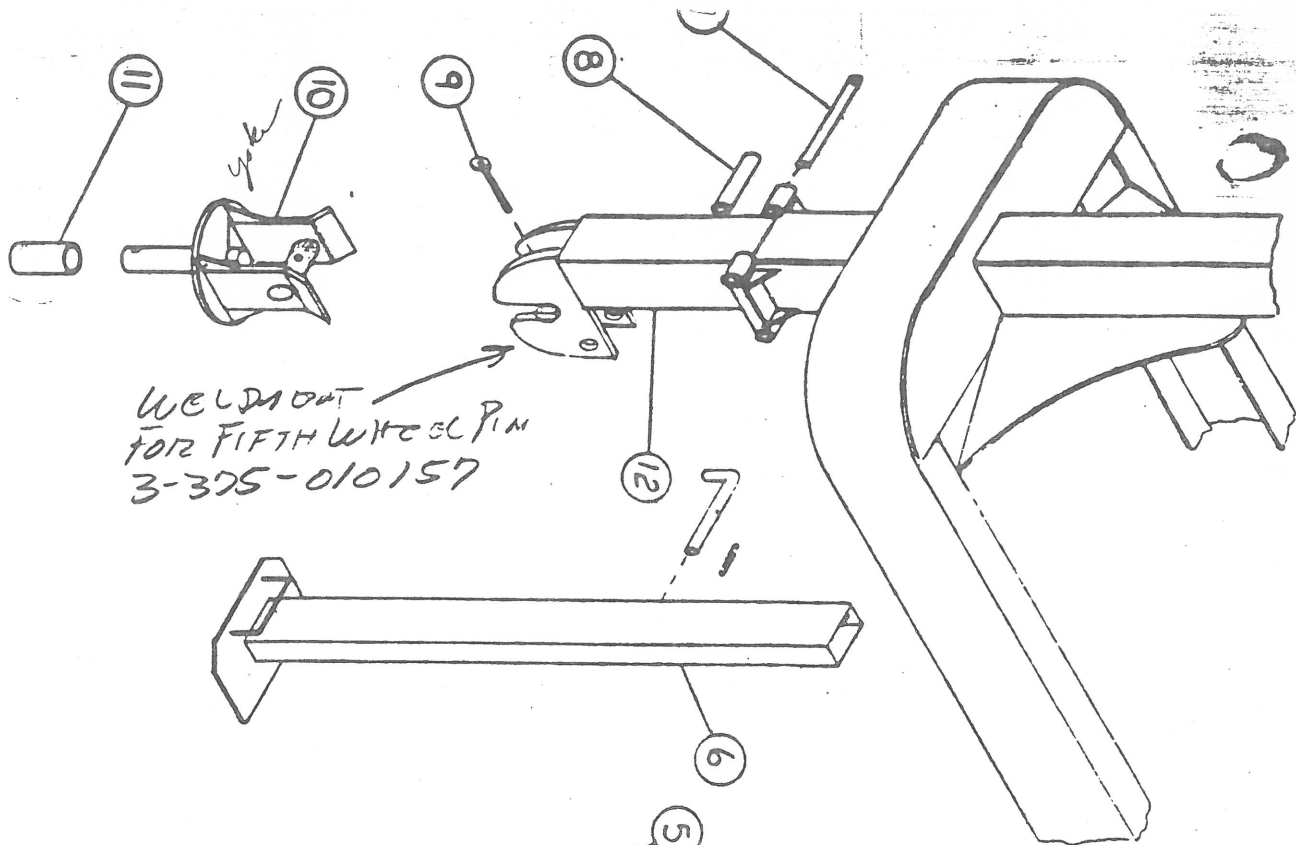
9	1-573-010001	Decal, Landoll black (6½ x 11¼)
10	1-573-010002	Decal, L black
11	1-573-010003	Decal, Landoll black
12	1-573-010004	Decal, Hauloll black
13	3-573-010009	Instruction Decal, hyd. controls
14	1-573-010013	Decal, Landoll white (6½ x 11¼)
15	1-573-010014	Decal, L white
16	1-573-010015	Decal, Landoll white
17	1-573-010016	Decal, Hauloll white
18	3-573-010025	Decal, Winch warning
19	3-573-010031	Decal, Bumper
20	3-573-010034	Decal, Concentrated load (317 only)
21	3-573-010036	Patent decal
22	3-573-010038	Decal, Caution, axle position
23	3-573-010039	Decal, Trailer operation

ITEM

PART NUMBER

DESCRIPTION

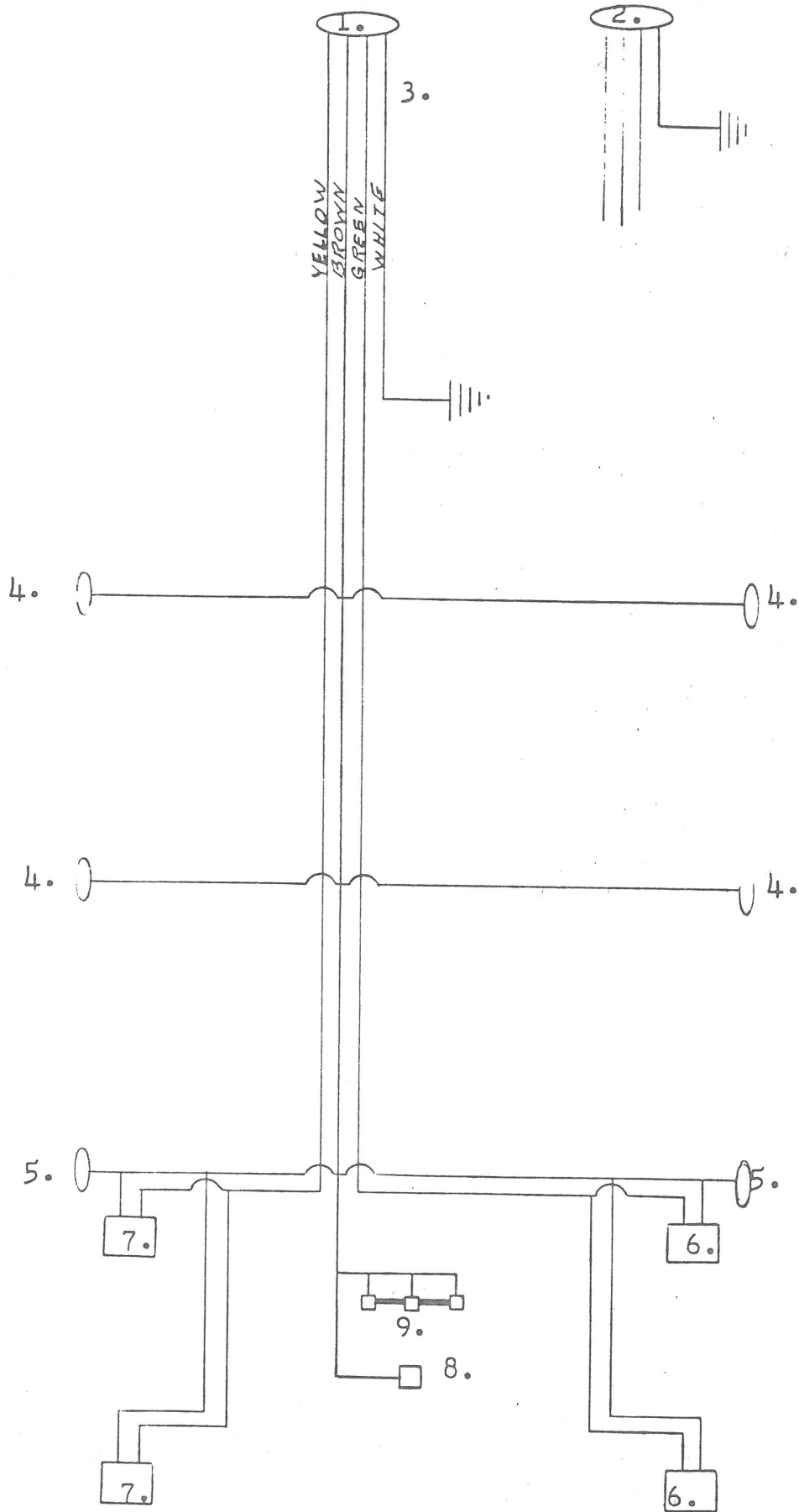
1	3-869-010001	Left combine well
	3-869-010003	Right combine well
2	3-276-010022	Overwidth extension
3	3-367-010007	Handle
4	0650-063-1750	Spring
5	3-311-010147	Parking stand, left
6	3-311-010185	Parking stand, right
7	3-557-010044	Pin, gooseneck hitch roller
8	3-311-010262	Gooseneck hitch roller
9	3-557-010034	Hitch pin
10	3-375-010021	Hitch, swivel
11	AA2203-10	Brass bushing
12	3-311-010143	Hitch assembly



GOOSENECK
ELECTRICAL SYSTEM

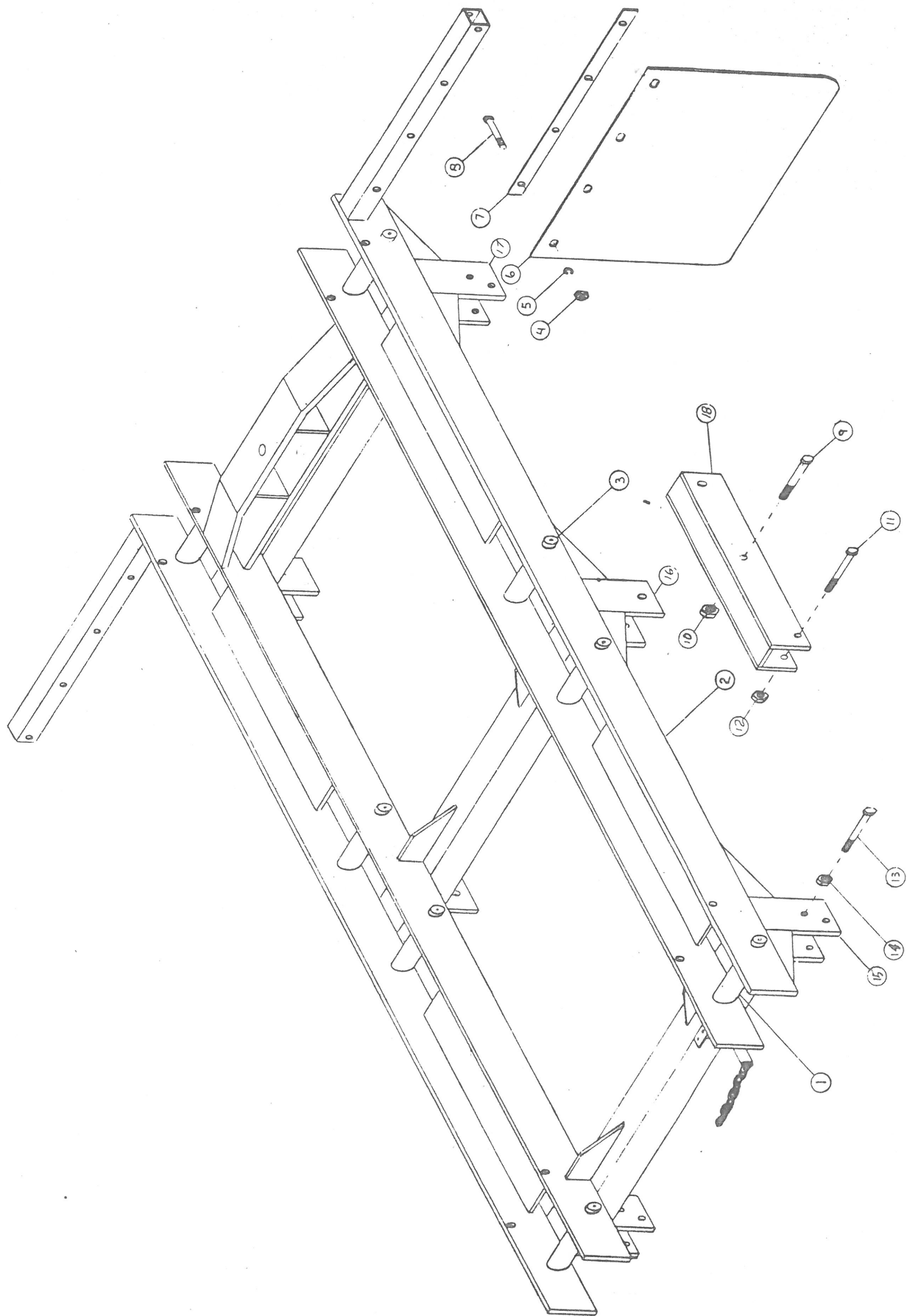
1. 59P-7 trailer electrical plug, 7 pole
2. 59S-7 trailer electrical socket, 7 pole
3. 3-368-010002 wiring harness
4. PM131A clearance light, amber
130-25-A lens, amber
194 bulb
5. PM131R clearance light, red
130-25-R lens, red
194 bulb
6. 5237-23 tail light, right
9090-23 lens, long
9091-23 lens, short
1157 bulb
1895 bulb
7. 5236-23 tail light, left
9090-23 lens, long
9091-23 lens, short
1157 bulb
1895 bulb
8. M436-12 license light
436-01 hood
436-15 lens
194 bulb
9. M107-3-12 identification light
107-15 lens, red
1895 bulb

GOOSENECK
ELECTRICAL SYSTEM



GOOSENECK UNDERCARRIAGE

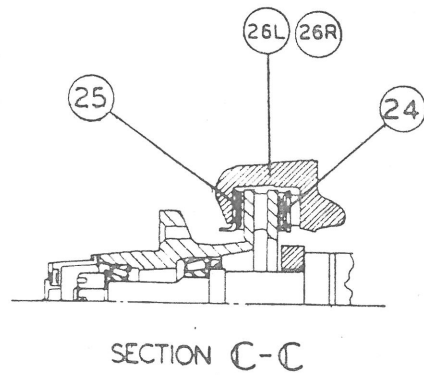
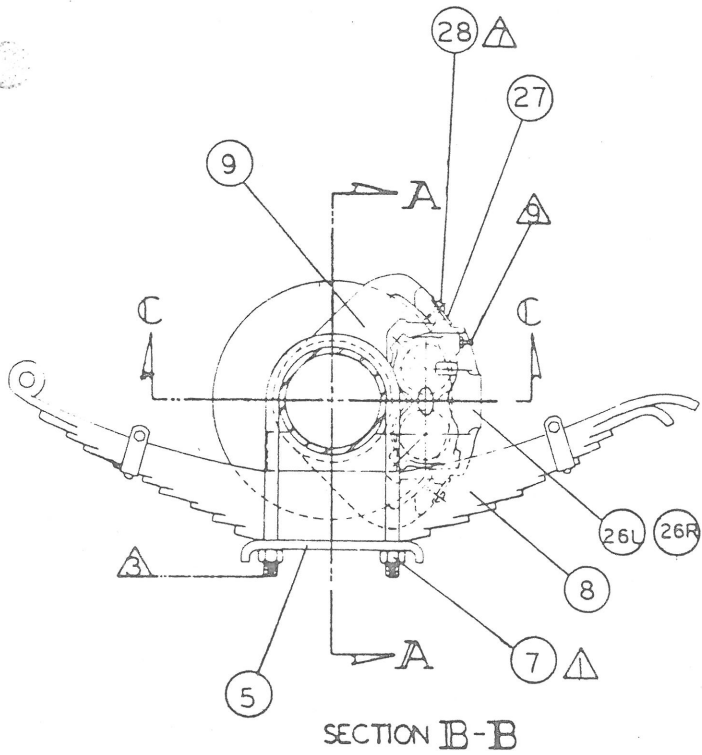
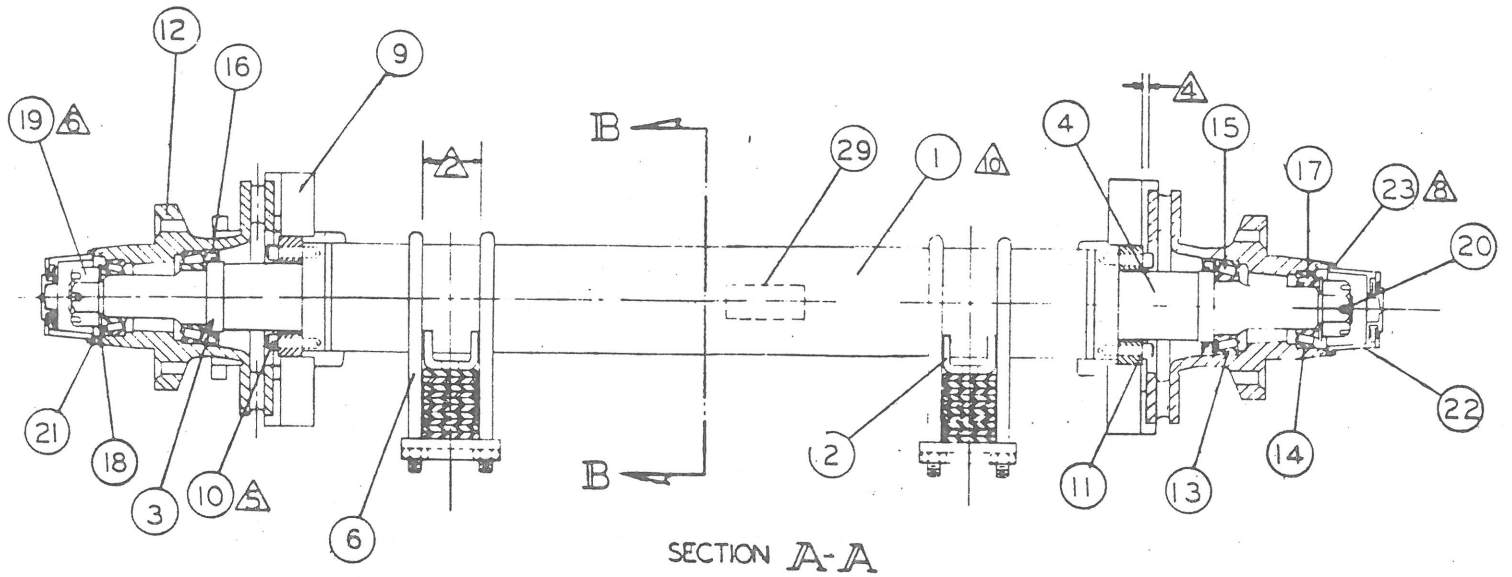
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	RRT114-5.750	Roller	8
2	3-762-010003	Undercarriage	1
3	3-762-010012	Roller pin	8
4	3/8-16 NC	Hex nut	8
5	3/8	Lock washer	8
6	3-485-010001	Mud flap	2
7	3-762-010017	Clamp, mud flap	2
8	3/8-16 NC x 3	Hex head bolt	8
9	90712	Equalizer bolt	2
10	90620	Equalizer nut	2
11	90713	Keeper bolt	4
12	90621	Keeper nut	4
13	90711	Eye bolt	4
14	90619	Eye nut	4
15	92811	Front hanger	2
16	92911	Center hanger	2
17	93011	Rear hanger	2
18	91312	Equalizer long	2



<u>ITEM</u>	<u>DESCRIPTION</u>	<u>SUB ASSY. P/N</u>	<u>PART NUMBER</u>	<u>REQUIRED PER AXLE</u>
1	Tube	01505750		
2	Spring Pad	90308	60150302	1
3	Seal Ring	91009REF		
4	Spindle	90251		
5	Tie Plate		091216	2
6	U-Bolt		091126	4
7	U-Bolt Nut		090622	8
8	Spring (5 Leaf)		093161	2
9	Torque Plate		090434	2
10	Torque Plate Block		090721	12
11	Split Cone Lock Washer		090528	12
12	Hub & Rotor	090814		2
13	Inner Bearing Cup	09716REF		2
14	Outer Bearing Cup	093714REF		2
15	Inner Bearing Cone	093717		2
			(National)	
16	Oil Seal	091023	B-370014BG	2
17	Outer Bearing Cone		093715	2
18	Spindle Washer		090525	2
19	Spindle Nut		090623	2
20	Cotter Pin		091903	2
21	--	--	--	--
22	Hub Cap (Screw on) Assy.	092124		2
22A	Hub Cap		092125	2
22B	Hub Cap Vent Plug		092126	2
22C	Hub Cap "O" Ring		092127	2
23	--	--	--	--
24	Inner Shoe & Lining		093608	2
25	Outer Shoe & Lining		093613	2
26L	Caliper Assy. LH		091201-01	1
26R	Caliper Assy. RH		091200-00	1
27	Retainer Plate		087837	4
28	Bolt & Washer		087805	4
29	Name Plate		093602	1
30	Budd Wheel		091708	4
31	Lug Nut		090633	8
32	Caliper Repair Kit		080862	2

NOTES:

1. Torque U-Bolt nut at 125-150 ft.-lbs.
2. U-Bolt spread 2.595 max., 2.495 min.
3. All 4 legs must be equal within .25.
4. Rotor to torque plate clearance .100 max.
5. Torque, torque plate bolt at 125-130 ft.-lbs.
6. Tighten spindle nut, then back off 1/12 turn.
7. Torque caliper retainer bolt at 17-22 ft.-lbs.
8. Torque cap screw at 60-70 in.-lbs.
9. Bleed screw located on top on both right and left calipers.
10. All surfaces except rotor faces & cap must be painted per K.A. paint Spec. No. 11.



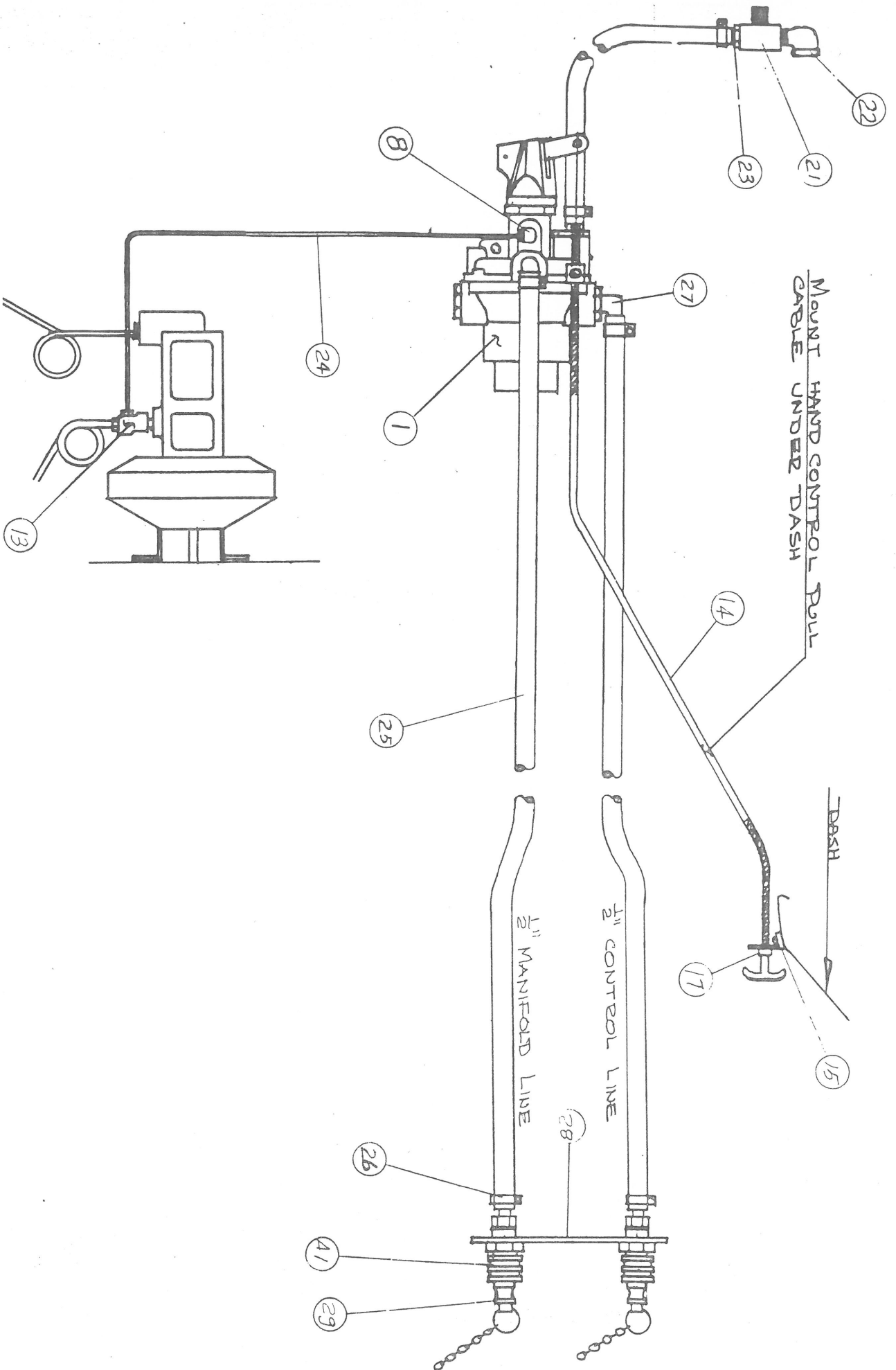
VACUUM TRUCK KIT (PASCO)

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	*CV-7	CV-7 Valve w/lever	1
2	**V-57-CVB	Mounting Bracket	1
3	**V-62-P	Check Valve Closed	1
4	** $\frac{1}{2}$ x $\frac{1}{2}$ x 3/8	Tee Plastic	1
5	** $\frac{1}{2}$ x $\frac{1}{2}$	Elbow Plastic	1
6	**V-172-VH	$\frac{1}{2}$ " Vac Hose 11" long	11"
7	**V-237-HC	$\frac{1}{2}$ " Hose Clamp	2
8	H-3/16 x 1/8ME	Male Elbow	1
9	5/16 x 3/4NC	Bolts	3
10	5/16 x NC	Nuts	3
11	5/16L	Washer Lock	3
12	5/16F	Washer Flat	1
13	H-7903ST or H-7904ST	Master Cyl. Tee (one only)	1
14	V-737-5	5' Pull Cable	1
15	V-733	Pull Cable Bracket	1
16	#125M	Sheet Metal Screws	2
17	V-731	Cable End Nuts	2
18	5/16 x 3/4NC	Bolts	3
19	5/16NC	Nuts	3
20	5/16L	Washer Lock	3
21	P3/8-MBT	Tee	1
22	P3/8PSE	Street Elbow	1
23	V- $\frac{1}{2}$ x 3/8HN	Hose Nipple	1
24	S-330-TA	3/16 x 30" Tube Assy.	1
25	V-172-VH	$\frac{1}{2}$ " Vac Hose	35'
26	V-237-HC	$\frac{1}{2}$ " Hose Clamp	6
27	V- $\frac{1}{2}$ x $\frac{1}{2}$ HE	Hose Elbow	2
28	SPB-3H	Stake Pocket Bracket (alum)	1
29	V-43PCP	Dust Plugs	2
30		Chain	20"
31		Hog Rings	2
32	5/16 x 3/4NC	Bolts	2
33	5/16NC	Nuts	2
34	5/16L	Washers Lock	2
35	V-308-MC	Clips	6
36	#10MS	Sheet Metal Screws	6
37	#10MS	Sheet Metal Screws	1
38	V-304C	Clip	1
39	V-42-PMC	3/4" Hose Adapter	1
40	V-41-PMC	$\frac{1}{2}$ " Hose Adapter	1
41	V-40-PFC	Female Connector Brass	2

* CV-7 valve used on $\frac{1}{2}$, 3/4 and 1 ton truck. Kit No. VK-COM-7UKH.

CV-11 valve used on $1\frac{1}{2}$, 2 ton and above trucks. Kit No. VK-COM-11UKH.

** Used with CV-7 valve only.



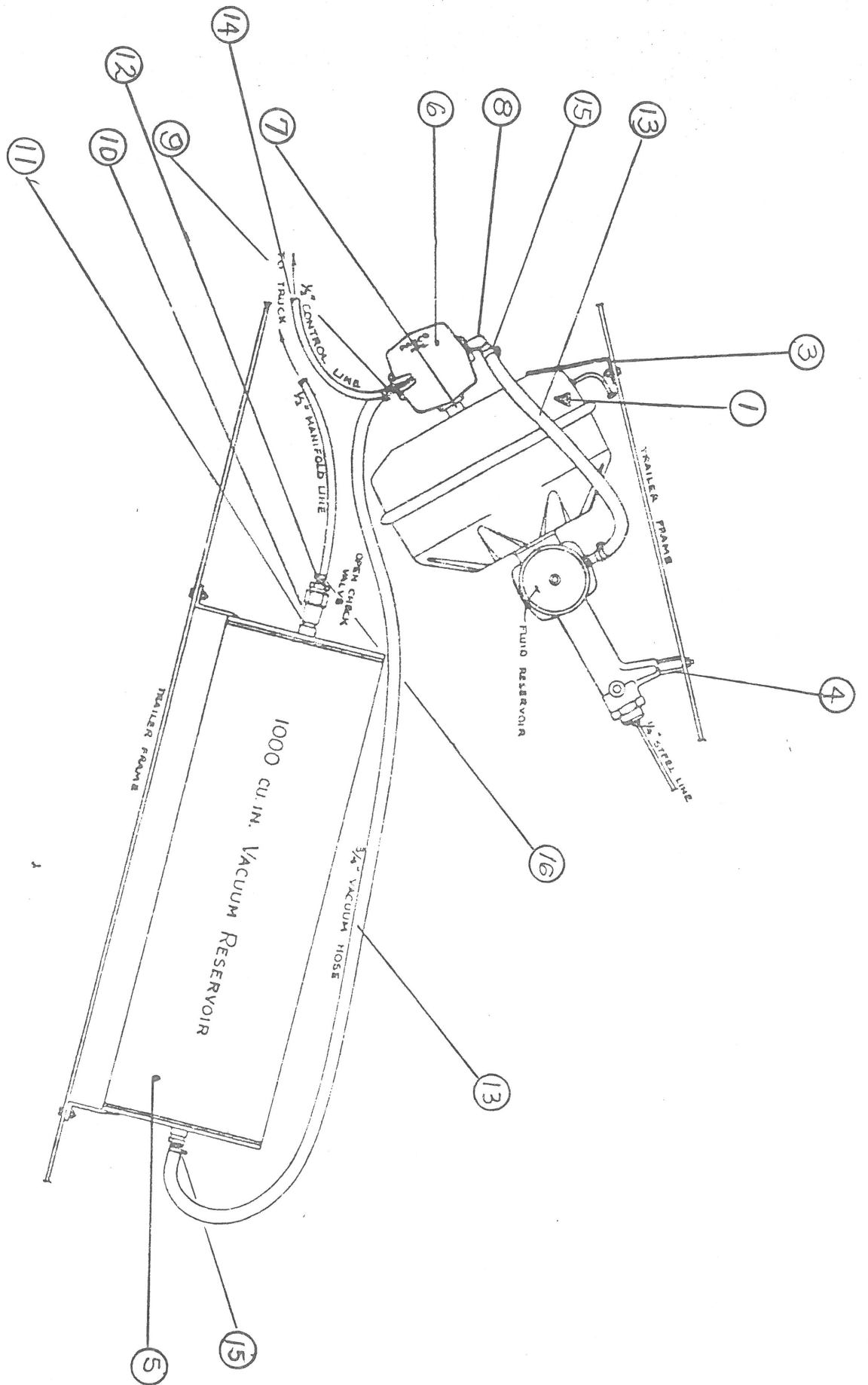
KIT NO. VK-S17-TV-G2A

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	V10015SB	Booster	1
2	3/4 x 1/2HNS	Hose Nipple Steel	4
3	VK604BKT	Bracket	1
4	V12244BKT	Bracket	1
5	V106VT	1000 Cu. In. Vac Reservoir Tank w/brackets fitted with the following:	1
6	VK102TRV	Relay Valve	1
7	1/2 x 2PNB	Pipe Nipple Brass	1
8	V3/4 x 1/2HEP	Hose Nipple Brass	4
9	V1/2 x 1/2HNP	Hose Nipple Plastic	1
10	V-63-CVO	Check Valve Open	1
11	1/2 x 2PNB	Pipe Nipple Brass	1
12	V1/2 x 1/2HNB	Hose Nipple Brass	1
13	V174VH	3/4" Vacuum Hose	8 Ft.
14	V172VH	1/2" Vacuum Hose	14 Ft.
15	V237SC	Hose Clamp	2
16	V239SC	Hose Clamp	8
* 17	H7898ST	Service Tee	3
* 18	H101BKT	Hose Bracket	4
* 19	H102CL	Hose Clip	4
* 20	H4498HA	Hose Assy.	4
21	V-41-MC	Male Coupler	2
* 22	#10-MS	Metal Screw	10
* 23	V304TC	Tube Clip	10
* 24	S451-TA	Tube Assy.	2
* 25	7/16 x 1NF	Bolt & Lockwasher	2
* 26	3/8 x 1NF	Bolt, Nut & Lockwasher	4

* NOT SHOWN

Items below not included in kit:

27	3-392-010001	Hose Assy.	1
28	300C	Coupling	2
29	B412	1/4" Metal Hyd. Brake Line (12")	3
30	B430	1/4" Metal Hyd. Brake Line (30")	1
31	B451	1/4" Metal Hyd. Brake Line (51")	2
32	B460	1/4" Metal Hyd. Brake Line (60")	1

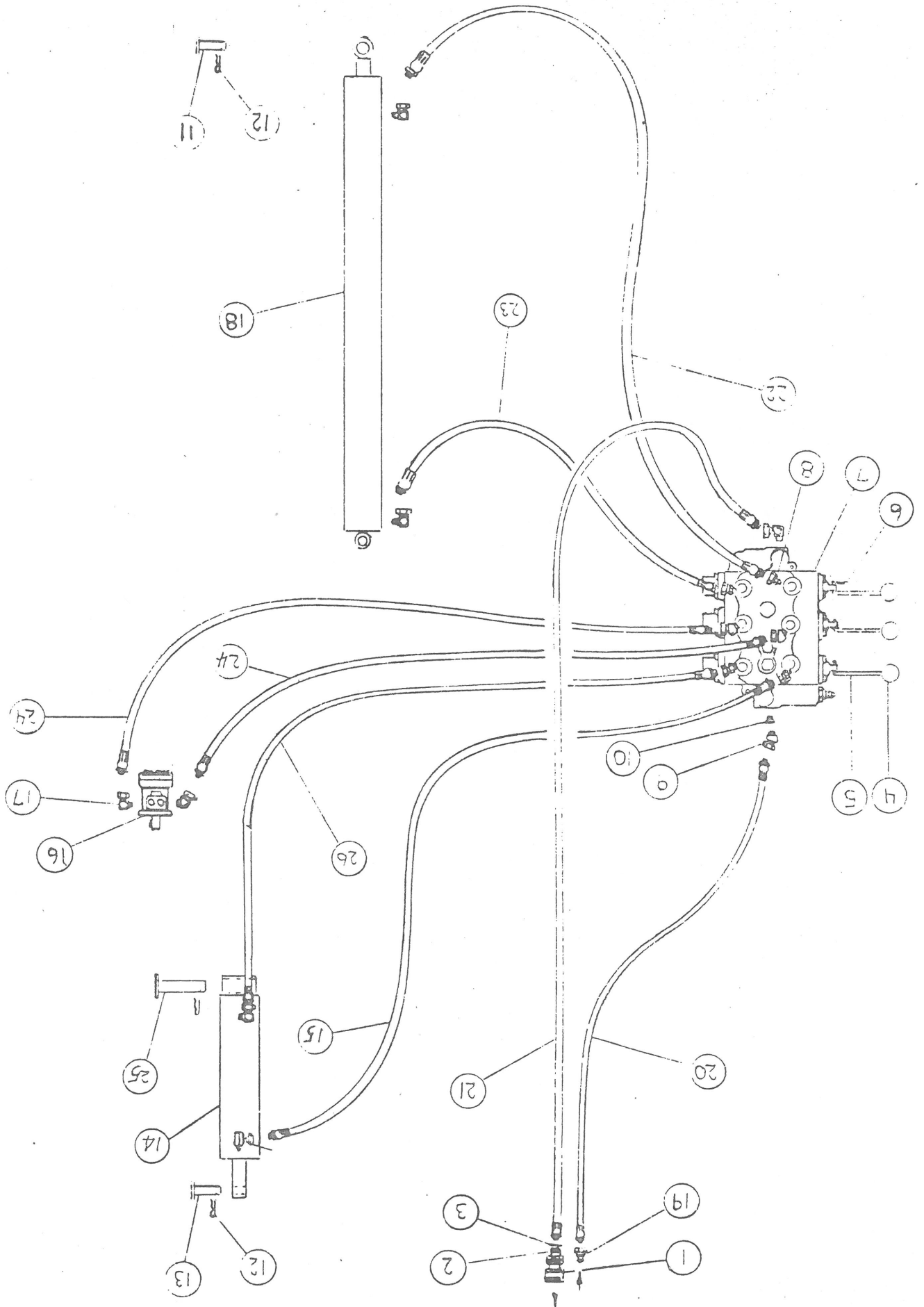


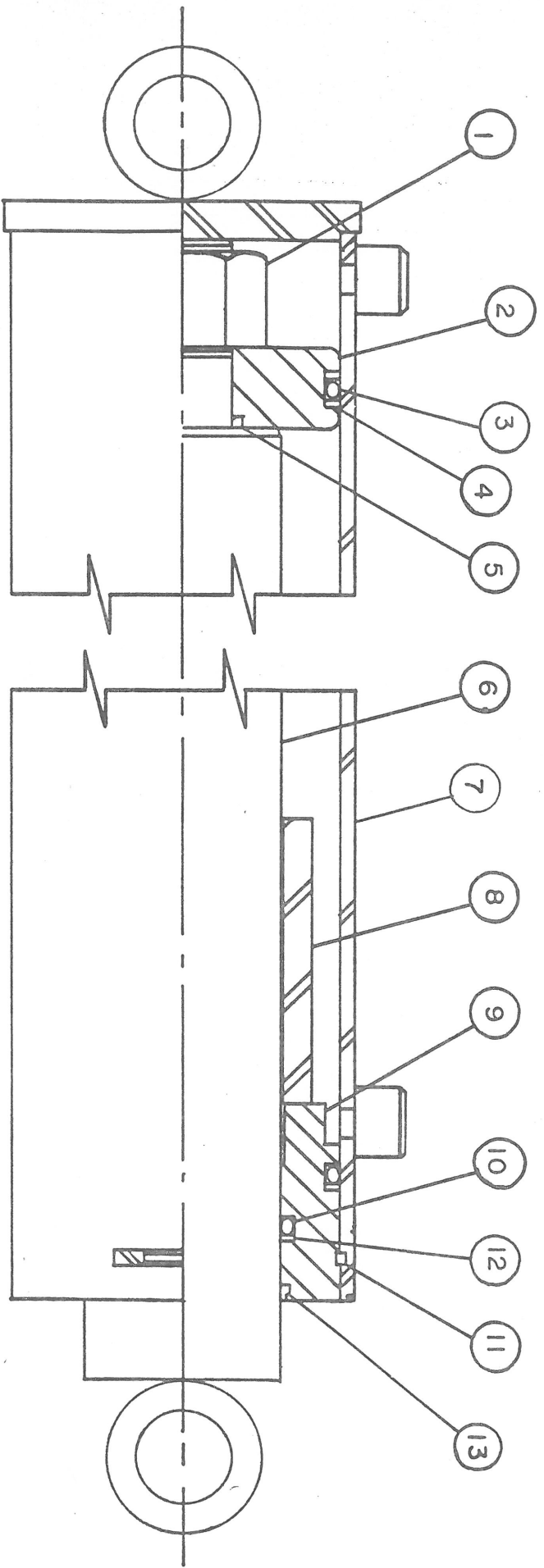
GOOSENECK

HYDRAULIC SYSTEM

ITEM	PART NO.	DESCRIPTION	QTY.
1	4050-4	Coupler body half	1
2	7/8"	Machine bushing	4
3	1/2"	Garden hose washer	2
4	95	Knob, ball	3
5	3-360-010006	Control arm, Hyd. valve	3
6	1/8 x 1	Cotter pin	3
7	BA3-111-AAA-GOOAO	3 spool valve	1
	3/8-16 NC x 2	Hex head bolt	3
	3/8-16 NC	Hex nut	3
	3/8	Lockwasher	3
8	2045-8-8S	Swivel adapter	4
9	2049-8-8S	45° swivel adapter	4
10	3/4 x 1/2	Reducer bushing	2
11	3-557-010031	Pin, undercarriage	1
12	3/16-2 1/4	Cotter pin	4
13	3-557-010032	Pin, cyl. rod end	1
14	R-964	4" x 42" hyd. cylinder	1
15	Note 1	Hose assy.	1
16	103-1027-007	Hyd. motor	1
17	2047-8-8S	90° swivel adapter	8
18	K-797	126" hyd. cylinder	1
19	5010-4	Male tip	1
20	Note 1	Hose assy.	1
21	Note 1	Hose assy.	1
22	Note 1	Hose Assy.	1
23	Note 1	Hose Assy.	1
24	Note 1	Hose Assy.	2
25	3-557-010033	Pin, cyl. butt end	2
26	Note 1	Hose assy.	1

Note 1 When ordering hydraulic hose assy., specify length required.





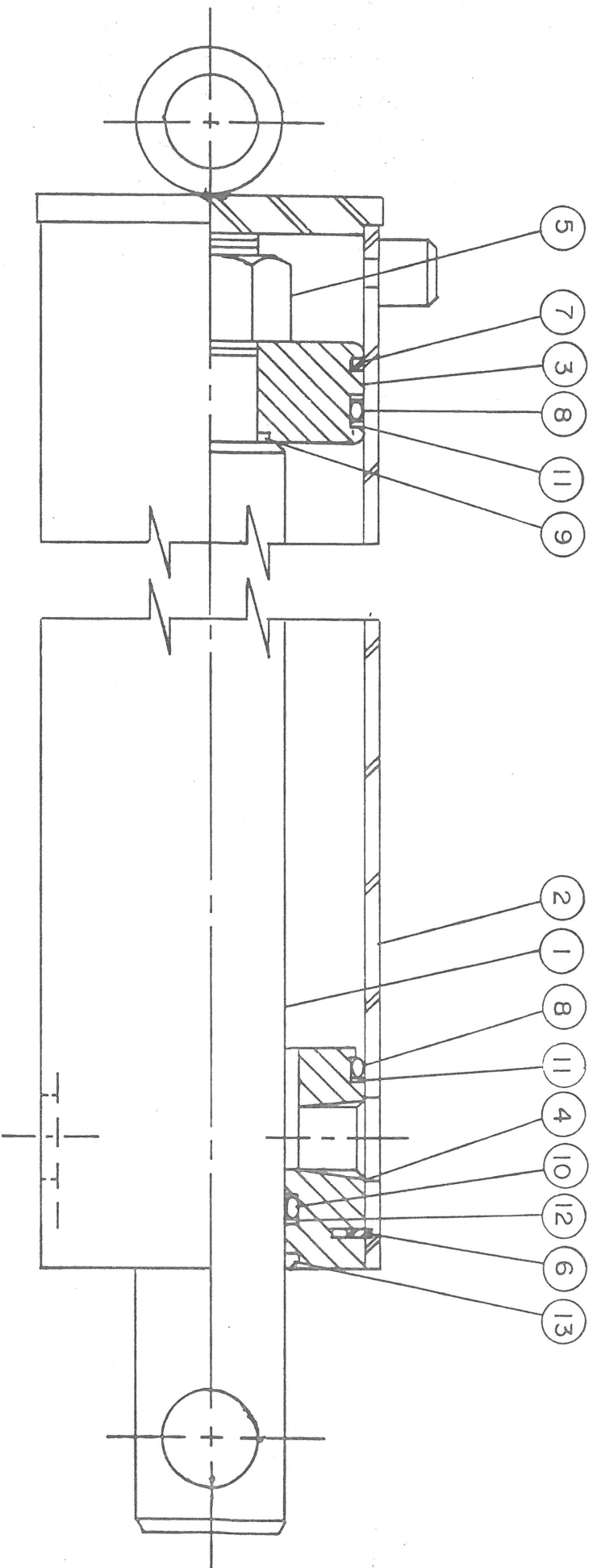
K-797 HYD. CYLINDER 4 X 126

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	220000212	LOCK NUT (1 1/4 - 12)
2	1	071900003	PISTON
3	2	* 240000342	O-RING
4	3	* 2400005342	BU-WASHER
5	1	* 240000026	O-RING
6	1	**021300035	PISTON ROD ASSY.
7	1	061900138	BUTT & TUBE ASSY.
8	1	211300024	SPACER
9	1	081900042	GLAND
10	1	* 240000333	O-RING
11	1	* 230007400	SQ. RETAINING RING
12	1	* 240005333	BU-WASHER
13	1	* 250001333	WIPER

* PMCK-K-797

PARTS KIT

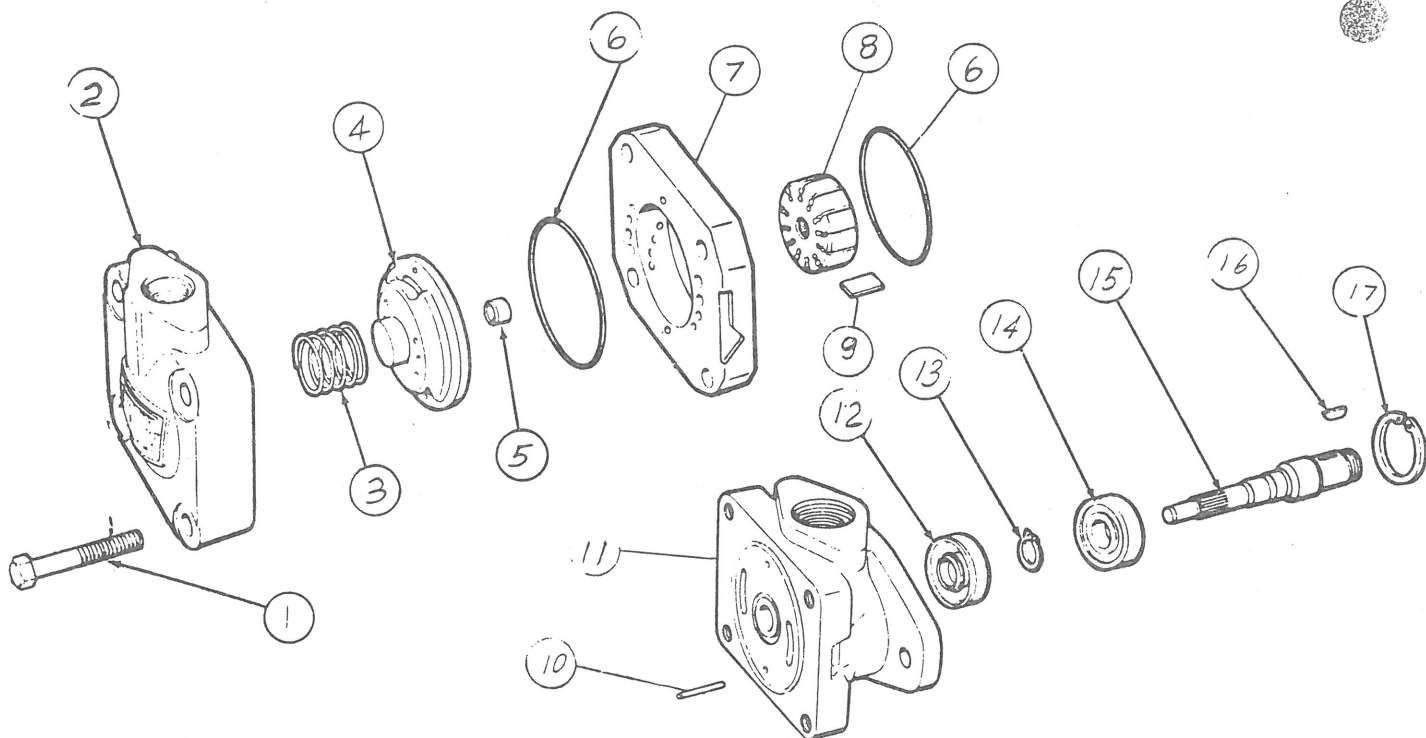
** Use 011300179 piston rod on models after June 1977. This rod does not have bushing on end.



R - 964 HYD. CYLINDER 4 X 42

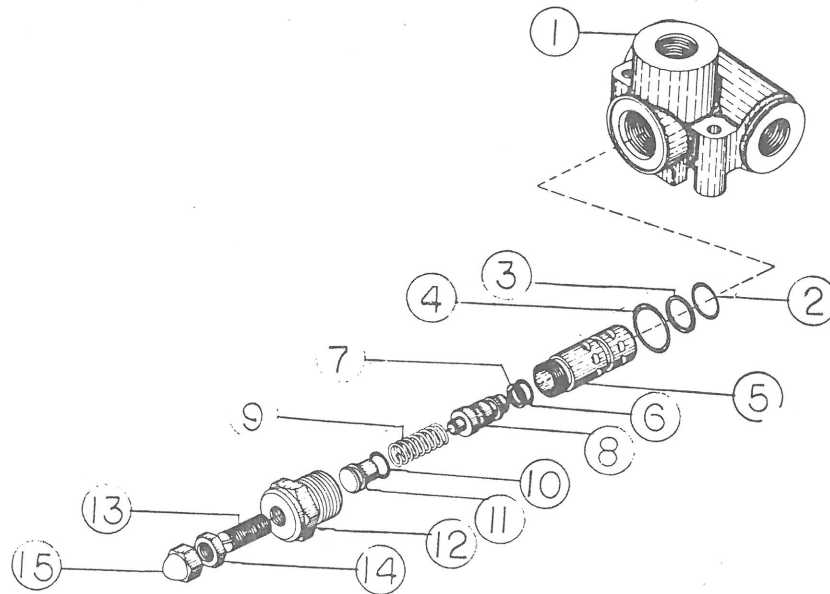
ITEM	QTY.	PART NO.	DESCRIPTION
1	1	011100080	PISTON ROD
2	1	061900250	BUTT TUBE ASSY.
3	1	071900019	PISTON
4	1	081900019	GLAND
5	1	2200000212	LOCK NUT
6	1	2300001400	SNAP RING
7	1	2400004008	PISTON RING
8	2	2400000342	O - RING
9	1	2400000026	O - RING
10	1	2400000329	O - RING
11	3	2400005342	BU - WASHER
12	1	2400005329	BU - WASHER
13	1	2500001329	WIPER
		* PMCK - R - 964	PACKING KIT

V20-1P13P-1C-11



<u>Item</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty.</u>
1	1319	Screw	4
2	313657	Cover	1
3	275672	Spring	1
4	359287	Pressure plate includes 280267 bushing	1
5	280267	Bushing	1
6	154090	"O" ring	2
7	331807	Ring	1
8	358334	Rotor	1
9	923479	Vane kit (12 vanes)	1
10	9603	Pin	2
11	280689	Body	1
12	229235	Seal	1
13	98653	Snap ring	1
14	98574	Bearing	1
15	280372	Shaft	1
16	5881	Key	1
17	109975	Snap ring	1
	922733	Seal kit	
		includes items 6 and 12.	
	923487	Cartridge kit	
		includes items 6, 7, 8 and 9.	

125130
PRESSURE RELIEF VALVE

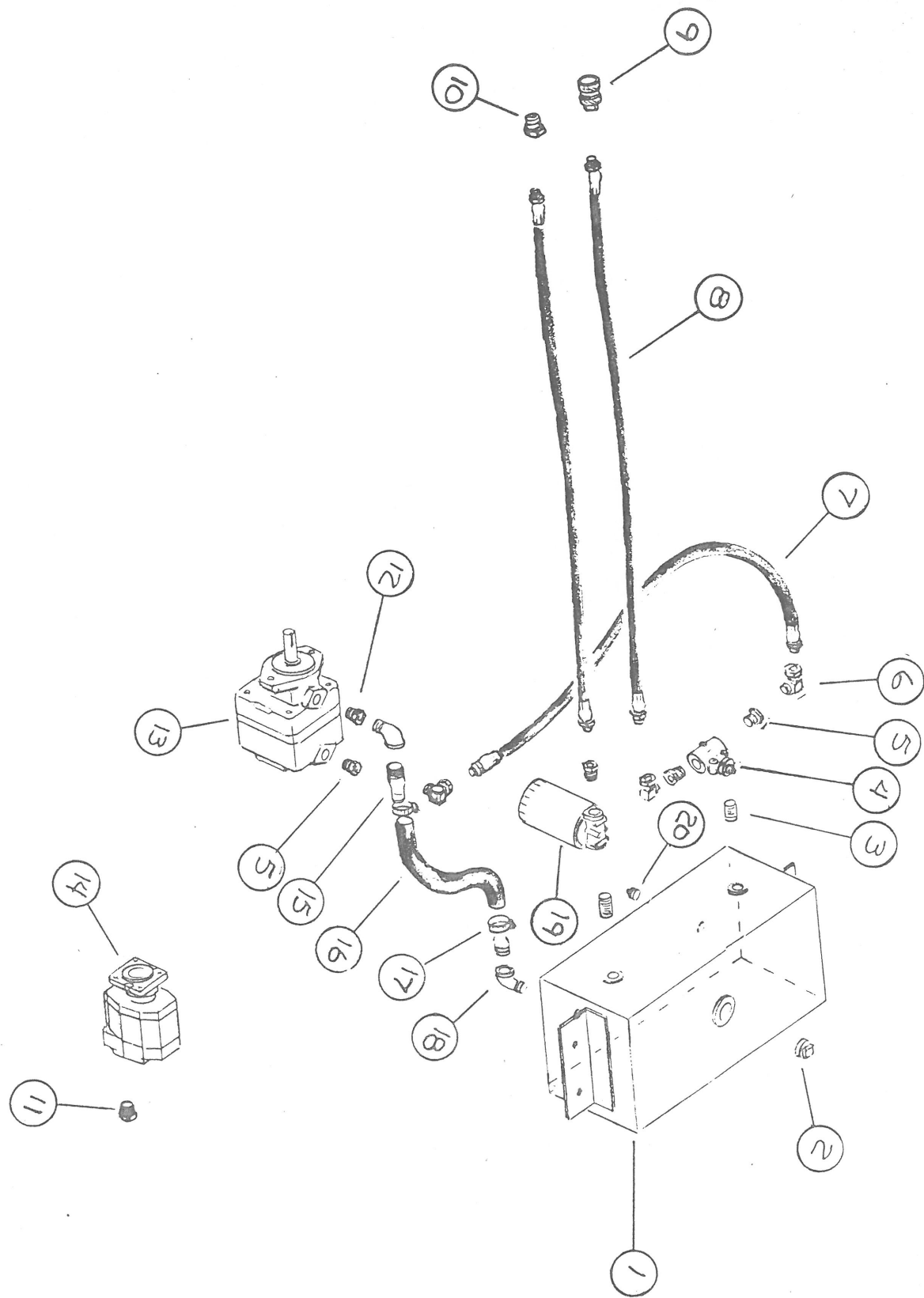


Item	Part No.	Des.	Qty.
1	1R0024	Housing	1
2	2A0283-7015	O-Ring, Lower Body	1
3	2A0010-015	Back Up Seal, Lower Body	1
4	2A0283-9910	O-Ring, Plug	1
5	1R0019	Relief Lower Body	1
6	2A0283-7011	O-Ring, Poppet	1
7	2A0007-011	Back Up Seal, Poppet	1
8	1R0020	Relief Poppet	1
9	2A9048-7	Spring (1500-300 PSI)	1
10	1A0171	Piston O-Ring	1
11	1R0013	Relief Piston	1
12	1R0018	Relief Upper Body	1
13	1R0015	Adjustment Screw	1
14	1A0569	Lock Nut	1
15	1A0570	Acorn Nut	1

TRUCK WET KIT

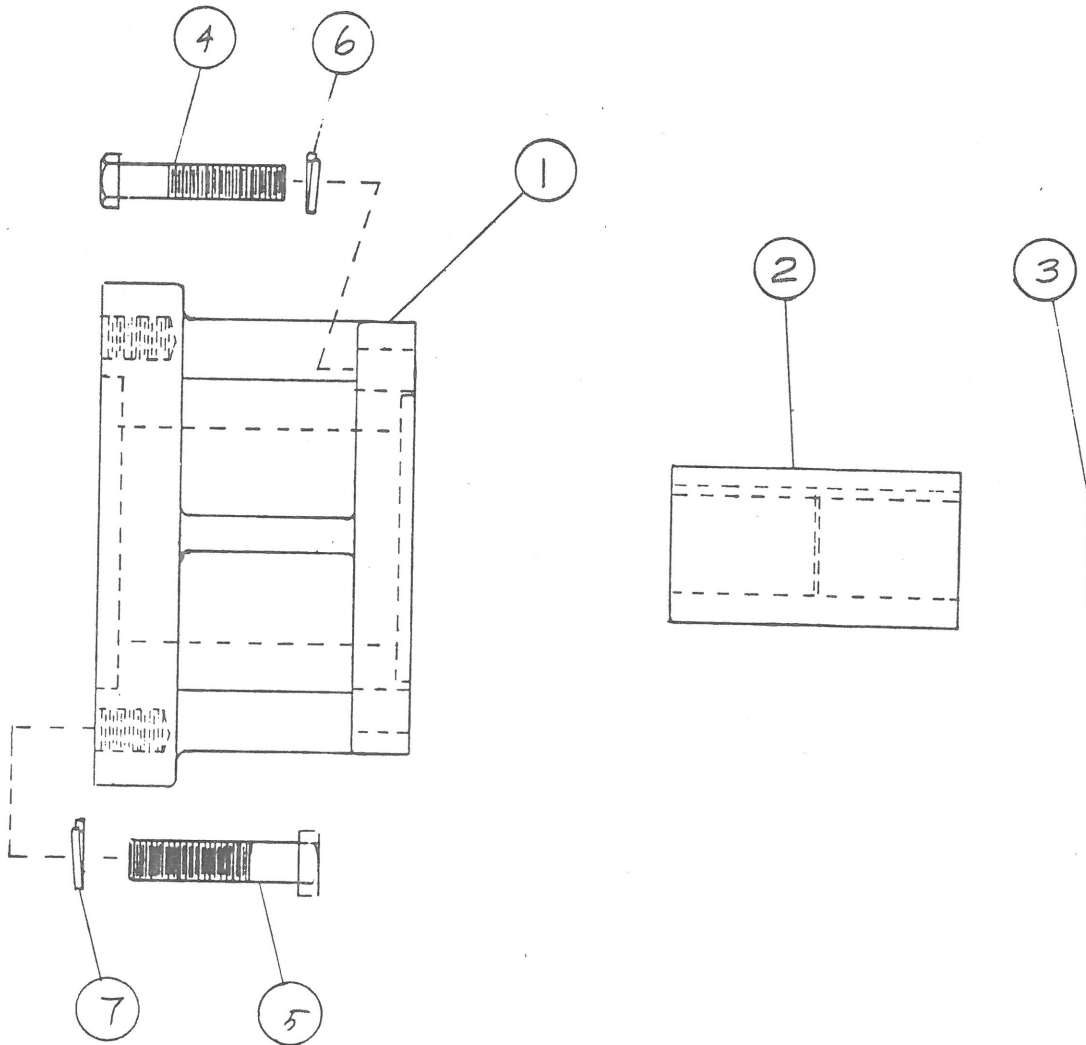
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	3-786-010001	Hyd. Tank	1
2	2 Pipe Plug	2" Pipe Plug	1
3	3/4 x 2 Nipple	3/4" Close Nipple	2
4	125130	Pressure Relief Valve	1
5	3/4 x 1/2 Bush	Reducer Bushing	4
6	2047-8-8S	90° Swivel Elbow	4
7	6-397-010005	Hose Assy. 6'	1
8	3-397-010011	Hose Assy. 12'6"	2
9	4050-4	Coupler Body Half	1
10	8010-4	Male Tip	1
11	1 x 1/2 Bush	Reducer Bushing	1
12	1 1/2 x 1 Bush	Reducer Bushing	1
13	V-201P13P1C11	Vane pump, Vickers	1
14	*1438-0015-E3RPX	Gear pump, Chelsea	1
15	3-561-010001	1" Pipe Coupling	2
16	19B	1 1/4 Hose	4 Ft.
17	4-1203	Hose Clamp	2
18	1 ST El1	1" 90° ST Elbow	2
19	CFRS 3012 x 10	Filter	1
20	1 1/4 Pipe Plug RSE3010	1 1/4 Pipe Plug Filter Element	1

*Used when gear pump is mounted directly to P.T.O.
 1431-0015-E1RPX gear pump will be used in remote mounted
 installation.

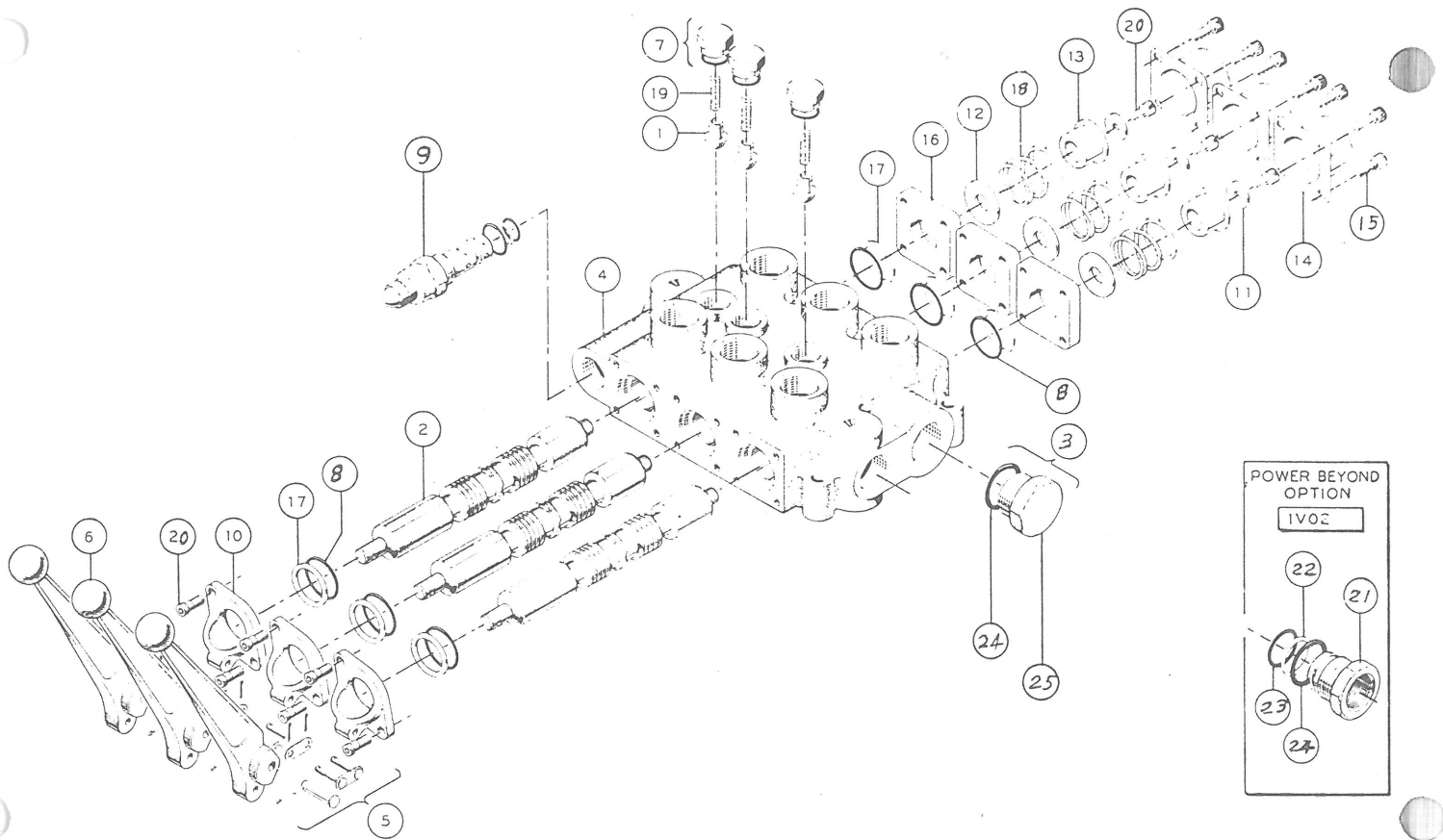


MOTOR ADAPTER FOR ALU2-10F-1L WINCH

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>5 DIGIT NO.</u>	<u>PART NO.</u>	<u>QTY.</u>
1	Adapter-motor	22928	ALU2-102D	1
2	Coupling	11453	MU7-402F	1
3	Snap Ring	11454	MU7-402R	1
4	Capscrew 3/8 x 1 3/4 gr. 5			4
5	Capscrew 1/2 x 1 1/2 gr. 5			2
6	Lockwasher 3/8"			4
7	Lockwasher 1/2"			2



MODEL BA—three spool

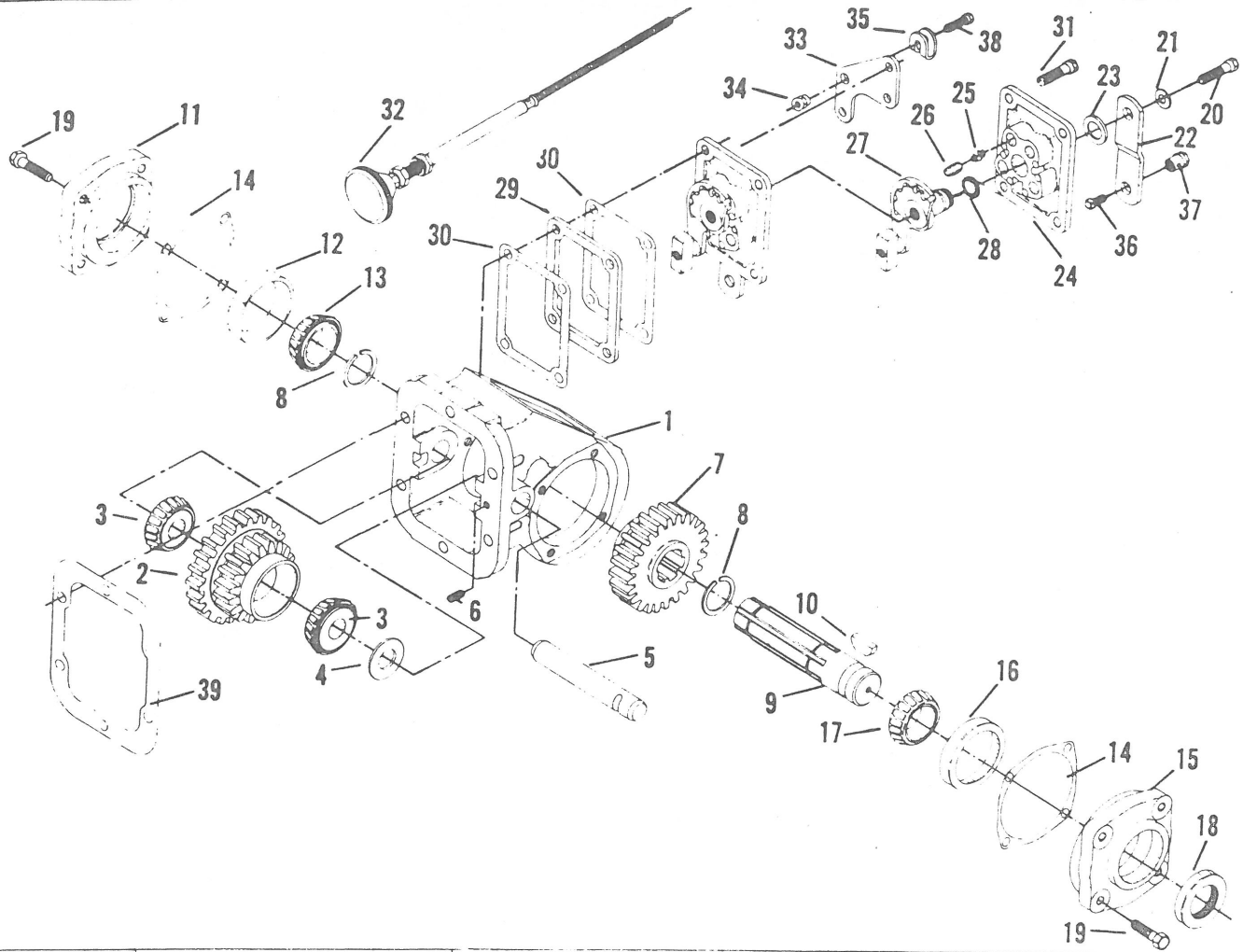


THREE SPOOL VALVE

Item	Part No.	Des.	Qty.
1	1V0081	Load Check Poppet	3
2*	1V0090	4-Way Spool	3
3	2A0354-121	Conversion Plug Assembly	1
4*	1V0351	Valve Housing	1
5	1V1701	Pin Kit	3
6	3-360-010008	Handle	3
7	1V1725	Load Check Plug	3
8	2A0283-7214	Spool Seal	6
9	1R0017	Relief Assy. (1500-3000)	1
10	4Z4306	Handle Bracket	3
11	1A0290	Centering Spring Washer	3
12	1A0291	Stop Washer	3
13	1A0292	Stop Collar	3
14	1A0294	End Cap	3
15	2A0079-406	Cap Screw	12
16	1A0709	End Spacer	3
17	1A0711	O-Ring Spool Washer	6
18	1A0744	Centering Spring (std.)	3
19	1A0757	Load Check Spring	3
20	2A0079	Cap Screw	9
21	1V0075	Power Beyond Sleeve	1
22	2A0007-022	O-Ring Back Up	1
23	2A0283-9022	O-Ring	1
24	2A0283-9916	Plug O-Ring	1
25	2A0354-21	Conversion Plug	1
	2V0010	Seal Kit	1

*Spools and valve body are matched at factory and may not be ordered as separate items.

NOTES



Item	Part Number	Description	Quantity
1	1-P-195	CASE, p.t.o.—Standard Mount	1
	1-P-196	CASE, p.t.o.—Deep Mount	1
2	See Chart Pg. 4	GEAR, input cluster	1
3	550439	CONE, input gear bearing	2
4	328017X	KIT, input gear spacer—Consists of one 14-1 thru 14-P-15-5.	1
	14-P-15-1	SPACER, input gear—.055" Thick	1
	14-P-15-2	SPACER, input gear—.060" Thick	
	14-P-15-3	SPACER, input gear—.065" Thick	
	14-P-15-4	SPACER, input gear—.070" Thick	
	14-P-15-5	SPACER, input gear—.075" Thick	
5	9-P-60	SHAFT, idler	1
	3 7 8 4 5 2 - 7	SET SCREW—For Standard Mount— $\frac{1}{4}$ "-20x $\frac{1}{2}$ "	
	378452-3	SET SCREW—For Deep Mount— $\frac{1}{4}$ "-20x $\frac{1}{4}$ "	1
7	2-P-291	GEAR, output sliding—24 Teeth	1
8	378391	RING, output shaft snap	2
9	3-P-352	SHAFT, std. p.t.o. output 1- $\frac{1}{4}$ " Round— $\frac{5}{16}$ " Keyway	1
10	500007-29	KEY, woodruff—Shipped Loose— $\frac{5}{16}$ "	1
11	328278X	BEARING CUP ASSEMBLY—Closed End—(Includes Cup 550221)	1
12	550221	CUP, bearing—For Closed End	1
13	550532	CONE, bearing—For Closed End	1

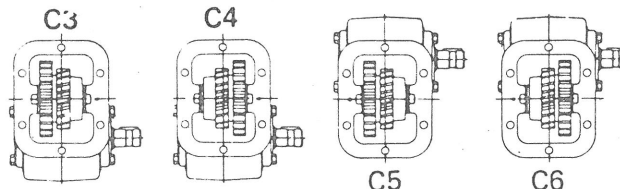
(148) - From SPACER KIT, select SPACER of proper thickness to provide end play of gear.

**42 SERIES
PARTS LIST & SPECIFICATIONS**

Chelsea®

Item	Part Number	Description	Quantity
14	22-P-24-1	GASKET, bearing cup—.014" Thick	AR
	22-P-24-2	GASKET, bearing cap—.020" Thick	AR
15	328277X	BEARING CAP ASSEMBLY—Output End— (Includes Cup 550221)	1
16	550221	CUP, bearing—For Output End	1
17	550397	CONE, bearing—For Output End	1
18	28-P-2	SEAL, output shaft oil	1
19	378430	CAPSCREW, hex. head eslock—5/16"-18x1"	8
	328290-1X	SHIFTER ASSEMBLY—For Wire Control (Use with Assemblies C3 & C6)	1
	328290-2X	SHIFTER ASSEMBLY—For Wire Control (Use with Assemblies C4 & C5)	1
20	500409-6	CAPSCREW, hex. head—5/16"-24x5/8"	1
21	378003	LOCKWASHER, eslock capscrew—5/16"	1
22	51-P-22	LEVER, shifter	1
23	378004	WASHER, shifter lever—1" O.D.	1
24	34-P-17	COVER, shifter	1
25	37-P-20	SPRING, shifter ball	1
26	63-P-6	PIN, poppet	1
27	328289-1X	PLATE SUB-ASSEMBLY—For C3 & C6	1
	328289-2X	PLATE SUB-ASSEMBLY—For C4 & C5	1
28	28-P-49	"O" RING, shifter post—3/4" O.D.	1
29	5A-062	SPACER, shifter cover fiber	1
30	35-P-8	GASKET, shifter cover	AR
31	378430-9	CAPSCREW, hex. head eslock—5/16"-18 x 1"	4
PARTS SHIPPED LOOSE			
32	328346-10X	WIRE CONTROL ASSEMBLY—Wire & Knob	1
	328380X	WIRE CONTROL MOUNTING PARTS KIT	1
33	50-P-17	WIRE CONTROL MOUNTING PARTS KIT BRACKET, wire control	1
34	378326	NUT, hex	1
35	50-P-19	BRACKET, swivel	1
36	500568-4	SETSCREW—1/4"-10x1/2"	1
37	378019	PIN, pivot	1
38	500396-8	CAPSCREW, hex. head—1/4"-20 x 3/4"	1
39	35-P-9-1	GASKET, p.t.o. mounting—.010" Thick	AR
	35-P-9-2	GASKET, p.t.o. mounting—.020" Thick	AR
P.T.O. MOUNTING STUD KIT			
	328170-76X	STUD KIT—For Standard Mount	1
	328170-77X	STUD KIT—For Deep Mount	1
GASKET & SEAL KIT			
	328356-13X	GASKET & SEAL KIT—Must Be Ordered (Contains 4 each of Item 14, 18, & 28; 2 pieces Item 30; 1 piece each Item 8 & 39)	1

ASSEMBLY ARRANGEMENT

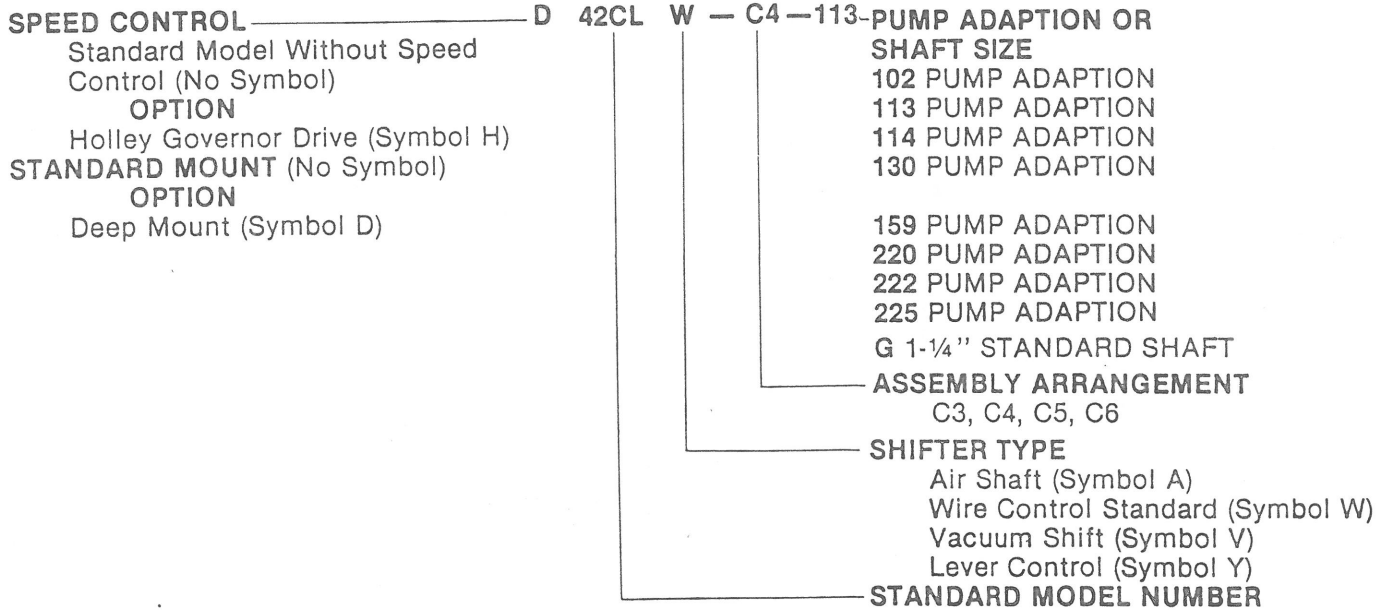


42 SERIES PITCH MODELS & GEAR DATA

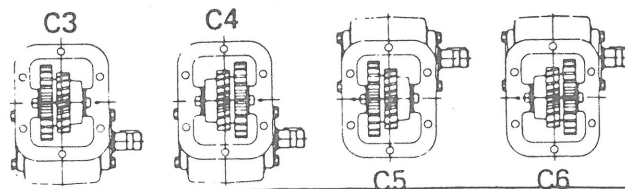
P.T.O. Model	Input Gear Item No. 2	Teeth	Transmission Application	Pitch & Pressure Angle
42ARL	5-P-432	25-19	New Process 4 Speed 435L Series & Others	8.1160NP-20° L.H.
42CFL	5-P-426	26-19	Warner T98-A (Left Hand Helix)	8.0829NP-20° L.H.
42CL	5-P-428	19-19	General—All 5 or 5/7	5 or 5/7-20°
42D17L	5-P-427	22-19	Spicer 5650, 5750 & 5850 Series	6/7-17 1/2°
42F6	5-P-535	22-19	Fuller T-1056-A	6.2418-19° 17'
42F8	5-P-537	33-19	Fuller TS1312A & TS1308-A	8.35-20°
42GDL	5-P-466	25-19	New Process 4 Speed 435-D Series	8-2559NP-20° L.H.
42HCL	5-P-348	25-19	Chevrolet 4 Speed & Spicer 3150, 3550 & 3850 Series	7NP-20° L.H.
42HEL	5-P-425	21-19	Spicer 5831 Auxiliary & Watson Auxiliary	6 or 6/8NP-17 1/2° L.H.
42L	5-P-326	22-19	General—All 6 or 6/8	6 or 6/8-20°
42LDH	5-P-411	26-19	Clark 5 Speed	7.6168NP-18° 29'22" L.H.
42LKH	5-P-466	22-19	New Process NP-205 T.C. (Left Side)	7NP-20° R.H.
42LMH	5-P-358	25-19	Chevrolet CH-465 4 Speed & GMC	7.3449NP-20° L.H.
42LNB6	5-P-526	18-19	Clark 397V	6.100-25° L.H.
42LNE7	5-P-495	23-29	New Process Model 203 Transfer Case	7-20° L.H.
42LNO5	5-P-499	17-19	Spicer R-8031 & R-8341	5-17 1/2° L.H.
42LRH	5-P-386	26-19	New Process 4 Speed Synchro-Shift (420)	7.6168NP-18° 29'22" R.H.
42LUH	5-P-420	23-19	Spicer 5000 Series (Right Side 8 Hole)	7NP-17 1/2° L.H.
42L7R	5-P-433	27-19	Spicer 1350 Series (Right Side 8 Hole)	8.0829NP-20° L.H.
42N10	5-P-542	33-19	Spicer 480010-20° R.H.	
D42HPL	5-P-434	21-19	Spicer 6350, 6450 & 6850 Series	6NP-17 1/2° L.H.

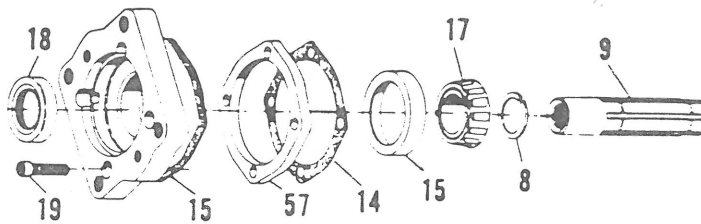
CHELSEA MODEL NUMBER CONSTRUCTION

42 SERIES EXTRA HEAVY DUTY LOW SPEED P.T.O.



ASSEMBLY ARRANGEMENT





Pump Mounting Suffix	NEW Flange Item No. 15	Output Shaft Item No.	Capscrew & Dimensions Quantity Required—Four Item No. 19	Conversion Kit▶
102	328580X	3-P-385	378447-9 (5/16"-18x1.750")	328593-5X
113	328333X	3-P-351	378447-9 (5/16"-18x1.750")	328593-9X
114	328580X	3-P-452	378447-9 (5/16"-18x1.750")	328593-11X
130	328583X	3-P-385	378447-8 (5/16"-18x1.500")	328593-13X
159	328584X	3-P-351	378447-9 (5/16"-18x1.750")	328593-14X
220	328328X	3-P-351	378447-8 (5/16"-18x1.500")	328593-15X
222†	328589X	3-P-351	378447-9 (5/16"-18x1.750")	328593-10X
225	328710X	3-P-452	378922 Studs, 378919 Washer and 500963-1 Hex (Locknut (4 each)	328593-16X

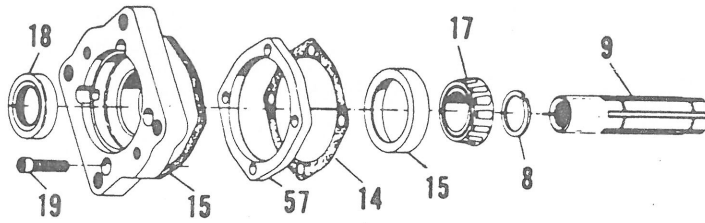
▶ Conversion Kits consist of all Items listed plus Oil SEal 28-P-52 Item 18, Lockring 378391 (Qt. 2) Item 8, Gaskets 22-P-24-1 and 22-P-24-2 Item 14, and Spacer 378336 Item 57.

† Flange Assembly 328589X interferes with Base on Deep Mount Housing Assembly C-3 only.

All Flange Assemblies consist of Pump Flange and Bearing Cup 550221.

LGU2-10F WINCH

Item	Part No.	Des.	Qty.
1	81006	LU2-1340-0 Worm Housing Assy.	1
2	81009	LU2-144-0 Worm Housing Cover	1
3	18032	MU-248 Safety Brake Housing	1
4	23303	Bearing Container	2
5	81530	Bearing Leg Assy.	1
6	11128	LU2-135 Cable Drum	1
7	11129	LU2-136 Cable Drum Shaft	1
8	13468	BO25J Jam Nut	4
9	23470	Worm Shaft	1
10	11144	LU2-201L Worm Gear	1
11	11142	LU2-200L Worm	1
12	18039	M2-141 Clutch	1
13	22752	ALU-2-146 Base Angle	2
16	81025	LU4-131-0 Drag Brake	1
17	11308	MU-1025 Worm Spacer	2
18	13839	LU2-143 Shifter Fork	1
19	18002	A-143S Spring	1
20	22775	E100TD Pipe Plug	1
21	18009	E012T Pipe Plug	1
22	18026	MU-149A Grease Seal	2
23	13028	R25-175 Roll Pin	1
24	18056	R25-075 Roll Pin	1
25	11117	LUI2-101A Worm Gear Key	2
26	18015	MU-103A Bearing Cone	2
27	18016	MU-103B Bearing Cup	2
28	18027	MU-149G Gasket	3
29	11837	R12-062 Roll Pin	2
30	12817	LU2-143-3 Shifter Handle	1
31	21925	MU-152-0 Brake Band	1
32	11133	LU2-144G Gasket	3
33	18019	MU-139 Retainer Pin	1
34	18030	MU-200A Worm Key	1
35	18020	MU-141A Clutch Key	2
36	11130	LU2-143A Shifter Fork	1
37	11240	MS3-139 Thrust Ring	1
38	18047	Z525 Grease Fitting	1
39	19045	E05OW Pipe Plug	1
40	11799	Z1652 Grease Fitting	2
41	21961	S037-10PH5 Capscrew	8
42	18003	A037 Lock Washer	16
43	11767	S031-10PH5 Capscrew	6
44	11011	AK031 Lock Washer	6
45	13005	S025-06PH5 Capscrew	2
46	12780	AK025 Lock Washer	2
47	18029	MU-156 Spring	1
48	18024	MU-148G Gasket	3
49	18044	M5-151A Key	2
50	18028	MU-151 Brake Drum	1
51	12075	S025-03STK Set Screw	1
52	22694	S037-15PH5 Capscrew	4
53	24032	S050-055AK Set Screw	1
54	23079	Motor Adapter	1
55	23081	Coupler Half-Winch	1
56	23078	Spacer-Constant	1
57	23083	Coupling Half-Motor	1
58	13424	701180 Chain	1
59	13413	S050-15PH5 Capscrew	2



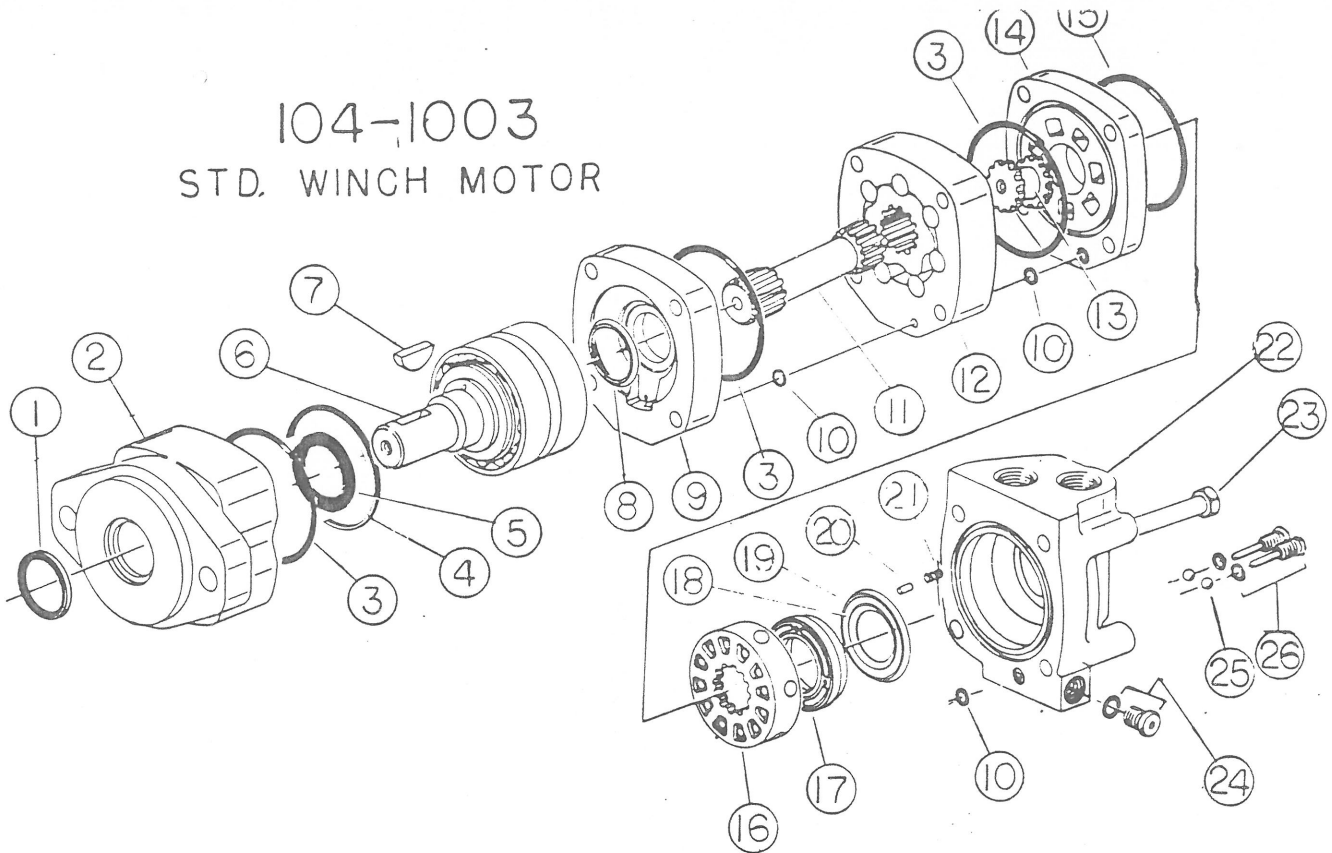
Pump Mounting Suffix	NEW Flange Item No. 15	Output Shaft Item No.	Capscrew & Dimensions Quantity Required—Four Item No. 19	Conversion Kit▶
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159	328584X	3-P-351	378447-9 (5/16"-18x1.750")	328593-14X
220	328328X	3-P-351	378447-8 (5/16"-18x1.500")	328593-15X
222†	328589X	3-P-351	378447-9 (5/16"-18x1.750")	328593-10X
225	328710X	3-P-452	378922 Studs, 378919 Washer and 500963-1 Hex (Locknut (4 each))	328593-16X

▶ Conversion Kits consist of all Items listed plus Oil SEal 28-P-52 Item 18, Lockring 378391 (Qt. 2) Item 8, Gaskets 22-P-24-1 and 22-P-24-2 Item 14, and Spacer 378336 Item 57.

† Flange Assembly 328589X interferes with Base on Deep Mount Housing Assembly C-3 only.

All Flange Assemblies consist of Pump Flange and Bearing Cup 550221.

104-1003 STD. WINCH MOTOR



104-1003 WINCH MOTOR

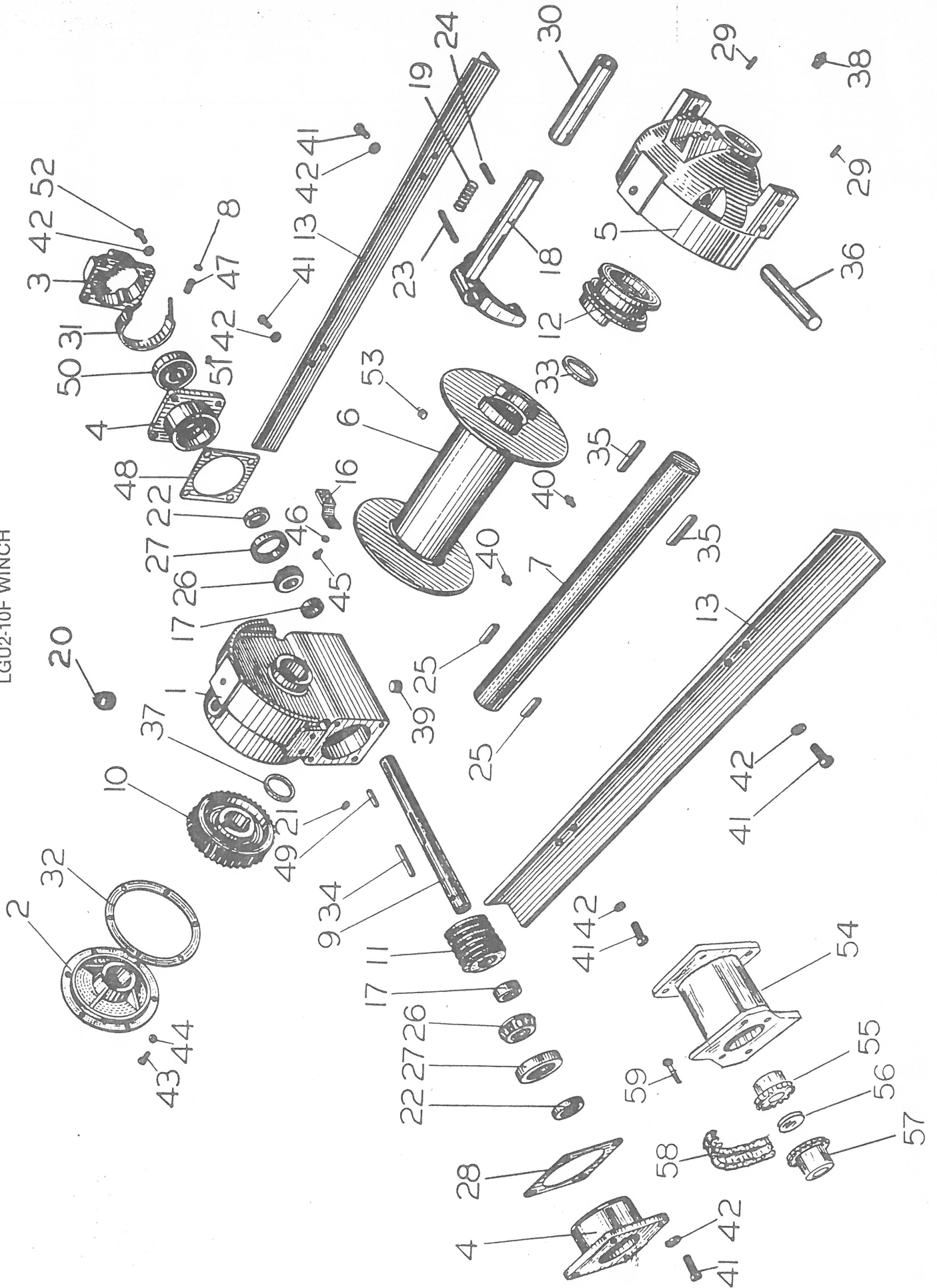
Item	Part No.	Des.	Qty.
1	9044-1	O Seal, Dust	1
2	7385	* Housing, Bearing	1
3	9022-6	Seal, O-Ring	3
4	61023	XO Spacer Bearing Kit	1
5	9075-1	O Seal Shaft	1
6	61204	Shaft & Bearing Kit	1
7	14193	Key	1
8	9050	O Seal, Shaft Face	1
9	7390	* Plate, Wear	1
10	9022-12	X Seal, O-Ring	3
11	8434-3	Drive	1
12	7403-3	Geroler	1
13	8433	Drive, Valve	1
14	8 4 3 2	Plate, Valve	1
15	9022-2	X Seal	1
16	8435	Vaive	1
17	7379	Balance Plate	1
18	9049-1	X Seal, Face, Inner	1
19	9048-1	X Seal, Face, Outer	1
20	1435-1	Pin	2
21	7383	Spring	2
22	8356-1	Housing, Vaive	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.

LGU2-10F WINCH



LIMITED WARRANTY

ALL LANDOLL PRODUCTS ARE WARRANTED FOR ONE YEAR AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP AND TO PERFORM ACCORDING TO SPECIFICATIONS FURNISHED, WHEN SUCH PRODUCTS ARE PROPERLY ASSEMBLED, INSTALLED, USED AND MAINTAINED.

Should any part prove defective within one year from date of purchase, the part will be replaced f.o.b. our factory without charge, provided the part is returned to us, transportation charges prepaid. No allowance will be made for labor, transportation or other charges incurred in the replacement of the defective part. Landoll will not be responsible for labor charges, loss or damage caused by a defective part. Component parts, equipment, accessories and items not manufactured by Landoll are warranted only to the extent of the original manufacturer's warranty. Consequential damages, if any, are specifically excluded from this warranty.



**Our company
proudly displays the
FEMA Seal of Quality
on this equipment.**

**We were awarded this
registered trademark because:**

- We provide complete operating instructions.
- We provide complete repair parts lists.
- We provide written warranty protection.
- We agree to provide ten year parts availability.

**Look for the Seal of Quality
when purchasing your next shortline equipment.**

Landoll Corporation, whose policy is one of continuous improvement, reserves the right to make changes without obligation to modify previously produced equipment.