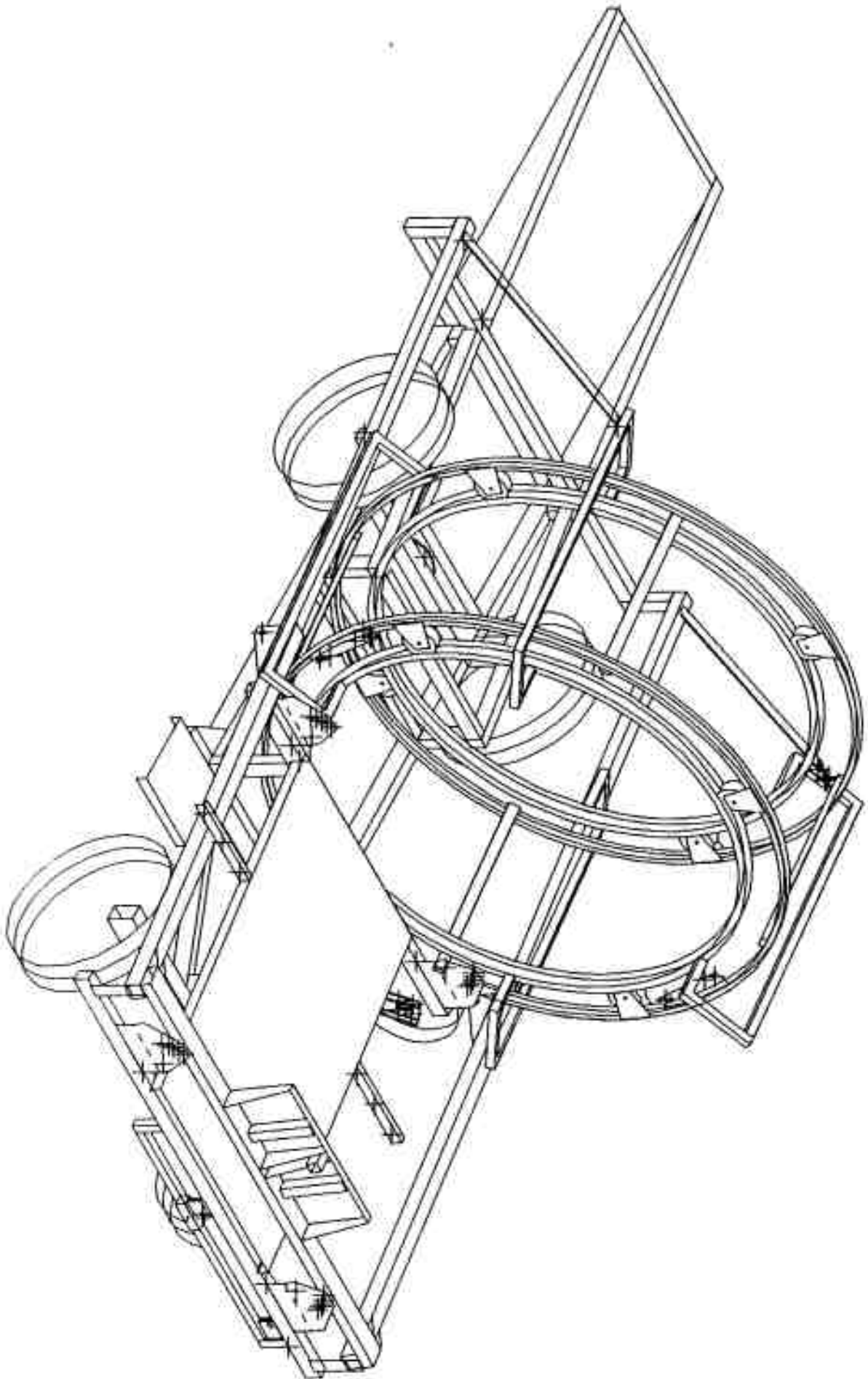
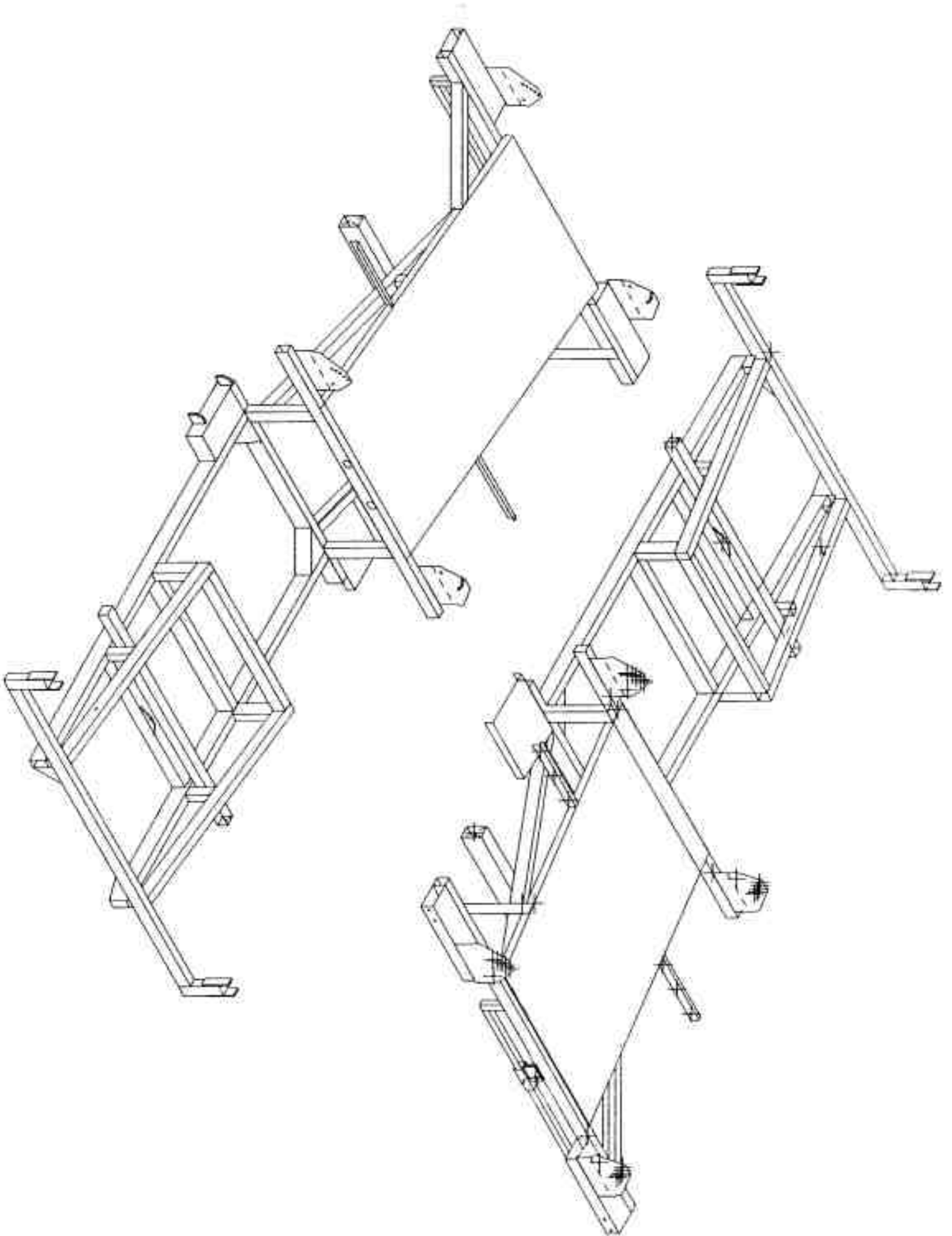


1997  
**Tube-Line 500**

**Parts and Service  
Manual and Automatic**



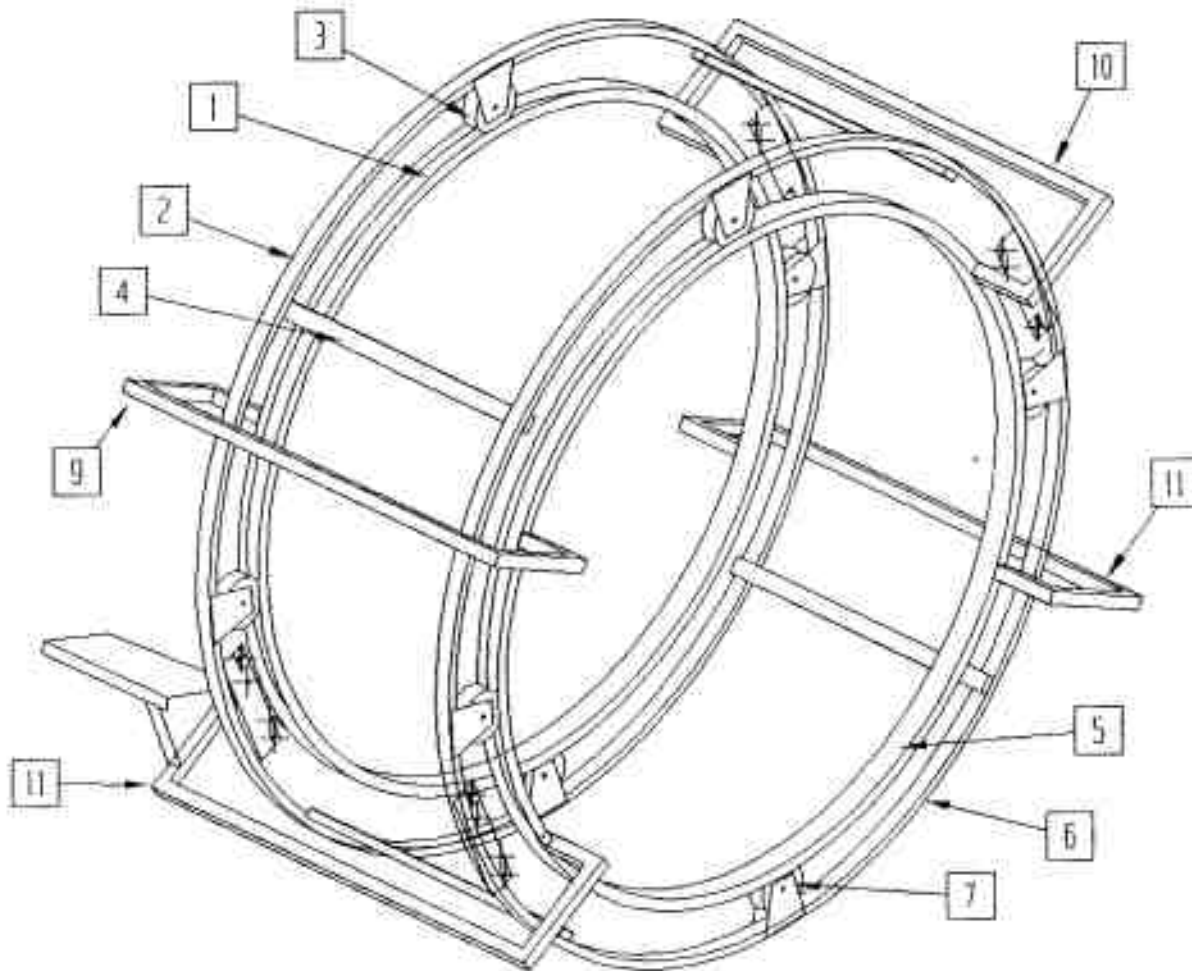


Tube-Line 500  
Parts Manual  
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# Tube-Line 500

Wrap Chamber

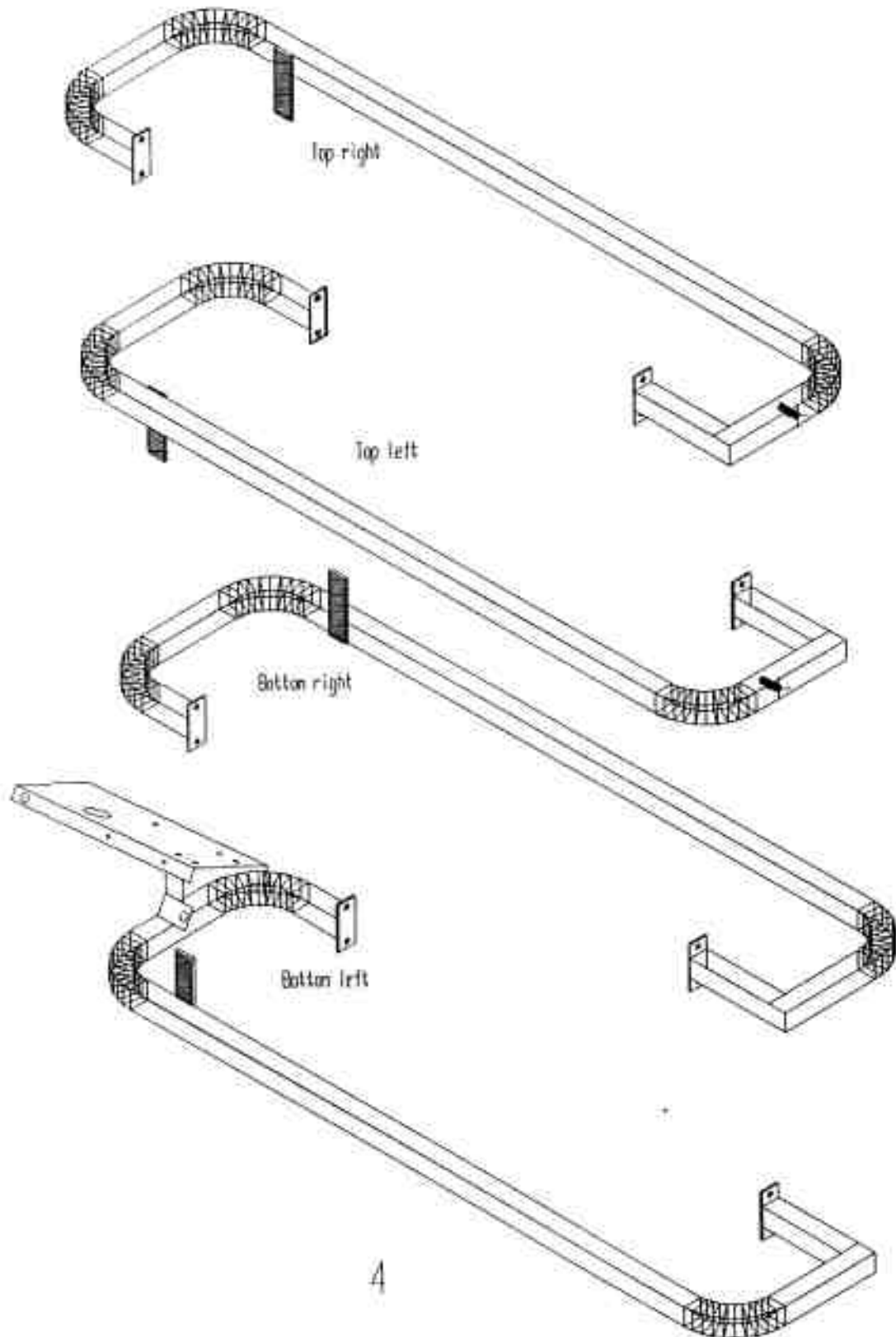


- 1 Front channel ring
- 2 Front Tube ring
- 3 Front Wheel 6 in
- 4 Ring Tie
- 5 Rear Channel ring
- 6 Rear Tube ring

- 7 Rear Wheel 4 in
- 8 Mounting Bolt 1/2 X 2 / nut / lockwasher
- 9 Top Left Hoop tie
- 10 Top Right Hoop tie
- 11 Botton Right Hoop tie
- 12 Botton Left Hoop tie

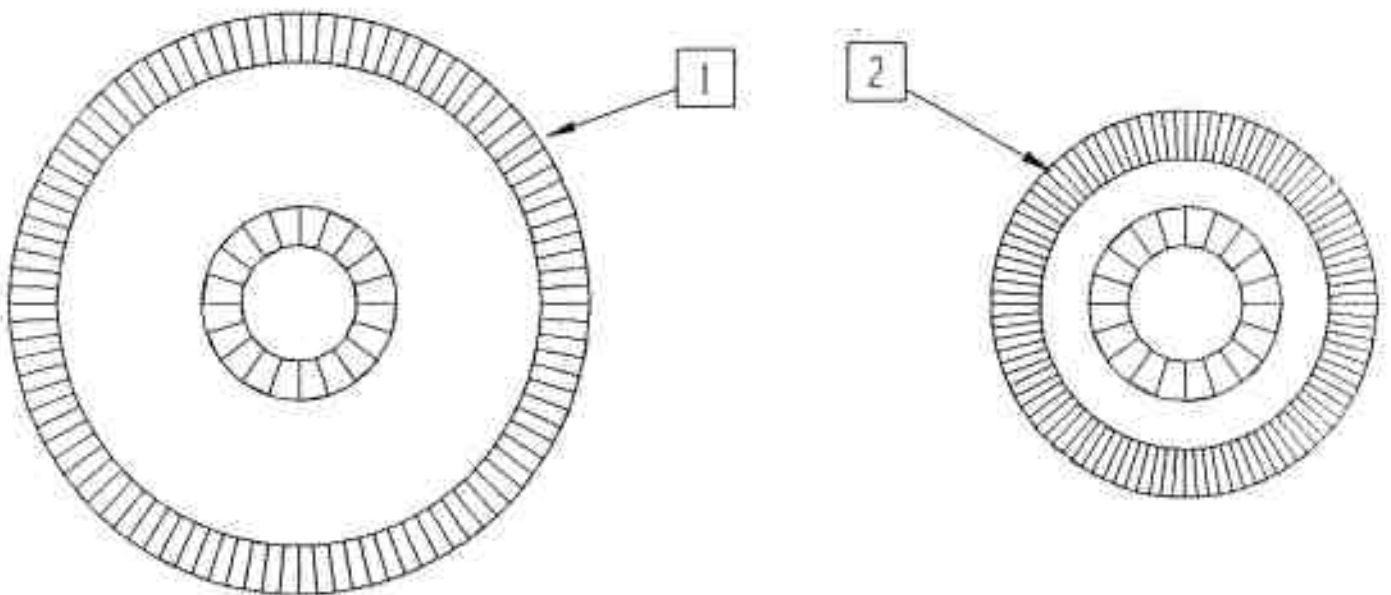
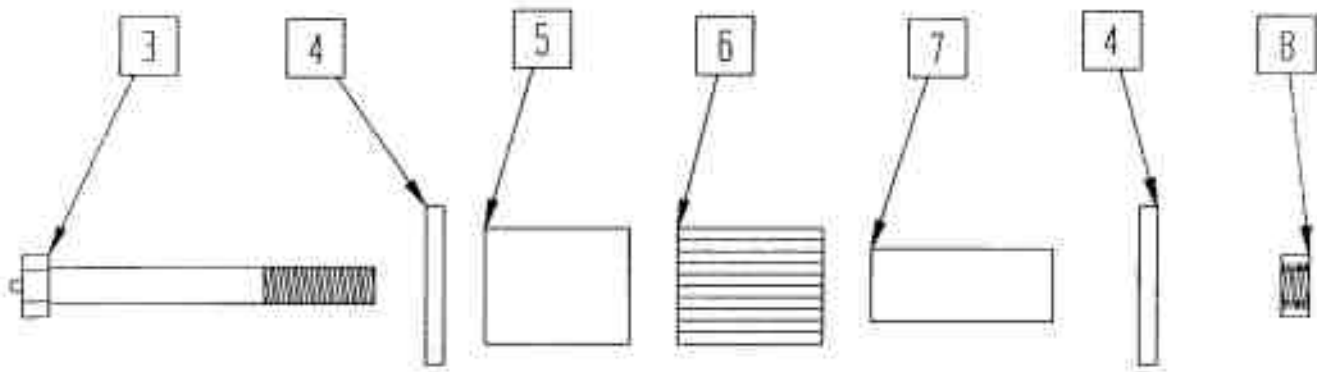
# Tube-Line 500

Hoop tie



# Tube-Line 500

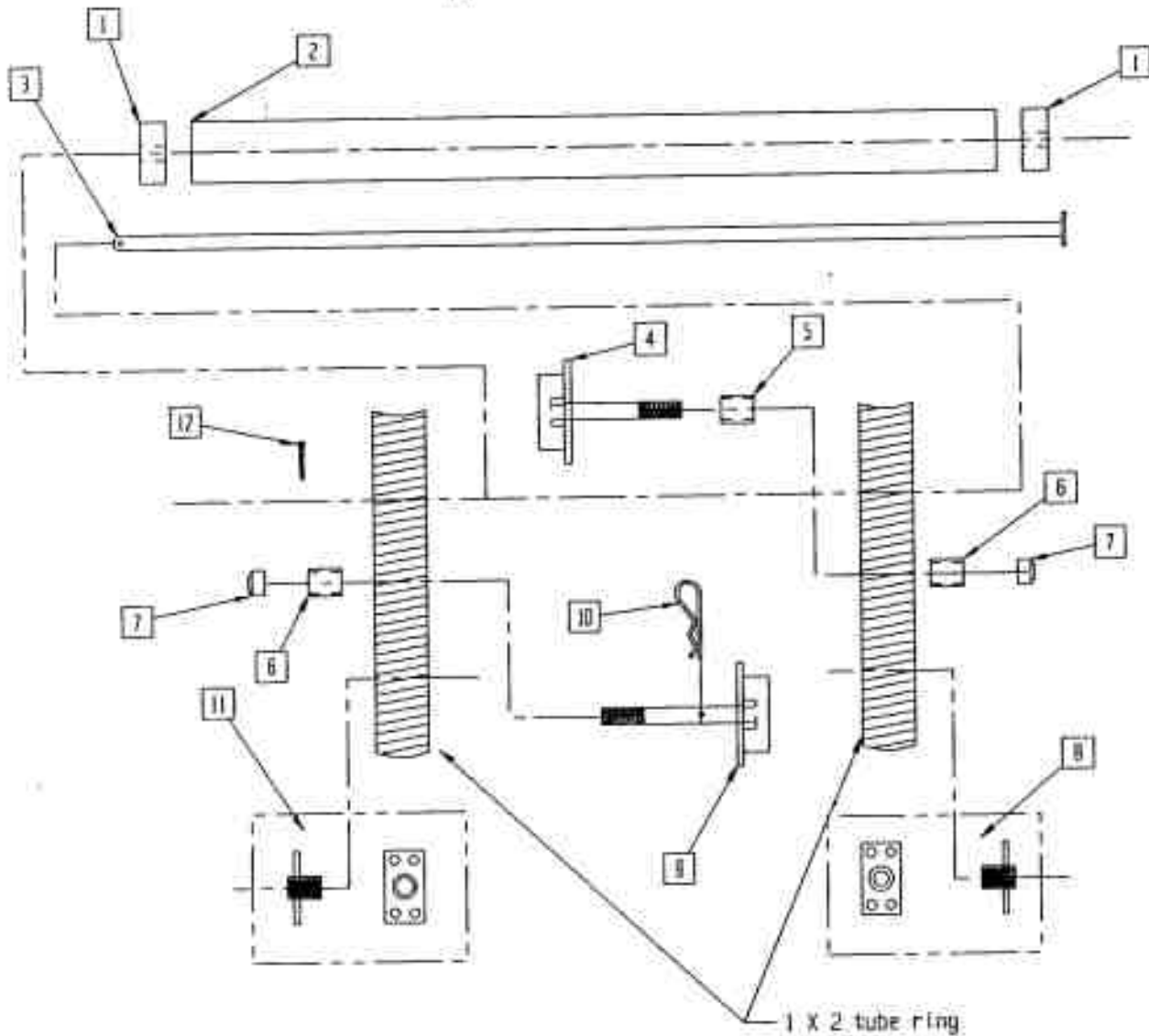
Hoop wheels



1	6 in wheel
2	4 in wheel
3	axle bolt
4	bearing seal
5	outer race
6	roller bearing
7	inner race
8	locknut

# Tube-Line 500

wrapper hardware



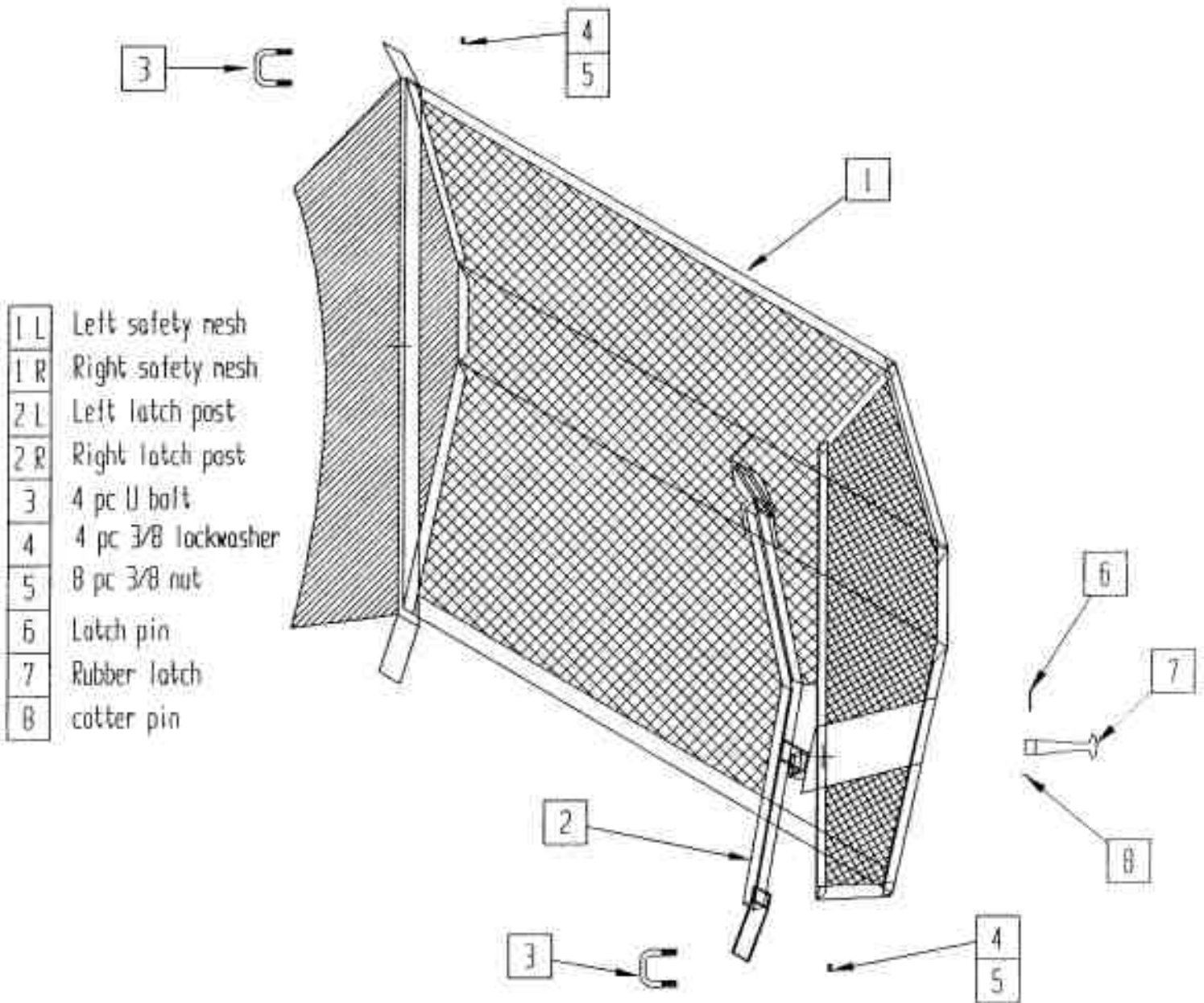
- |    |                               |
|----|-------------------------------|
| 1  | 2 in od X 9/16 id X 1 HMWPE   |
| 2  | 2 in ABS pipe                 |
| 3  | plastic roller pin            |
| 4  | plastic wrap spool            |
| 5  | spacer                        |
| 6  | Dilite bearing                |
| 7  | Nylon locknut                 |
| 8  | stretch wrap holder small end |
| 9  | plastic wrap spool            |
| 10 | hair pin                      |
| 11 | stretch wrap holder large end |
| 12 | cotter pin                    |

Use 5/8 & 1/2 flat washers as required



# Tube-Line 500

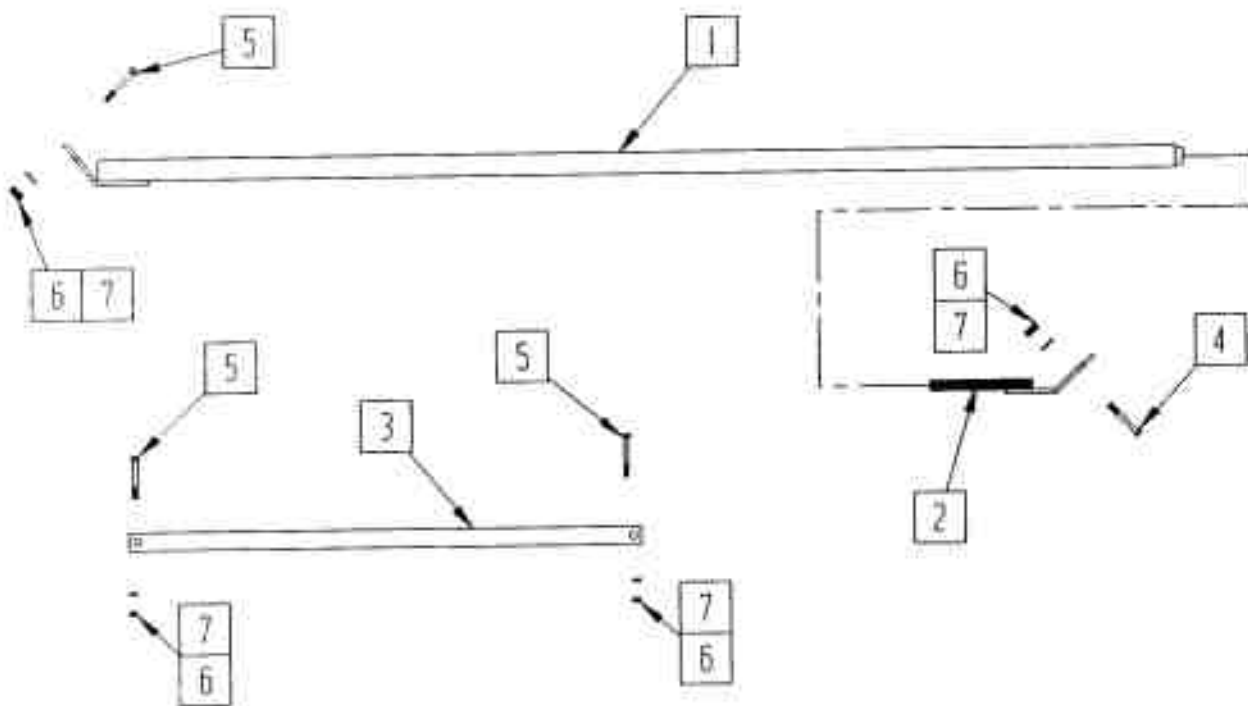
Safety mesh



- |     |                     |
|-----|---------------------|
| 1 L | Left safety mesh    |
| 1 R | Right safety mesh   |
| 2 L | Left latch post     |
| 2 R | Right latch post    |
| 3   | 4 pc U bolt         |
| 4   | 4 pc 3/8 lockwasher |
| 5   | 8 pc 3/8 nut        |
| 6   | Latch pin           |
| 7   | Rubber latch        |
| 8   | cotter pin          |

# Tube-Line 500

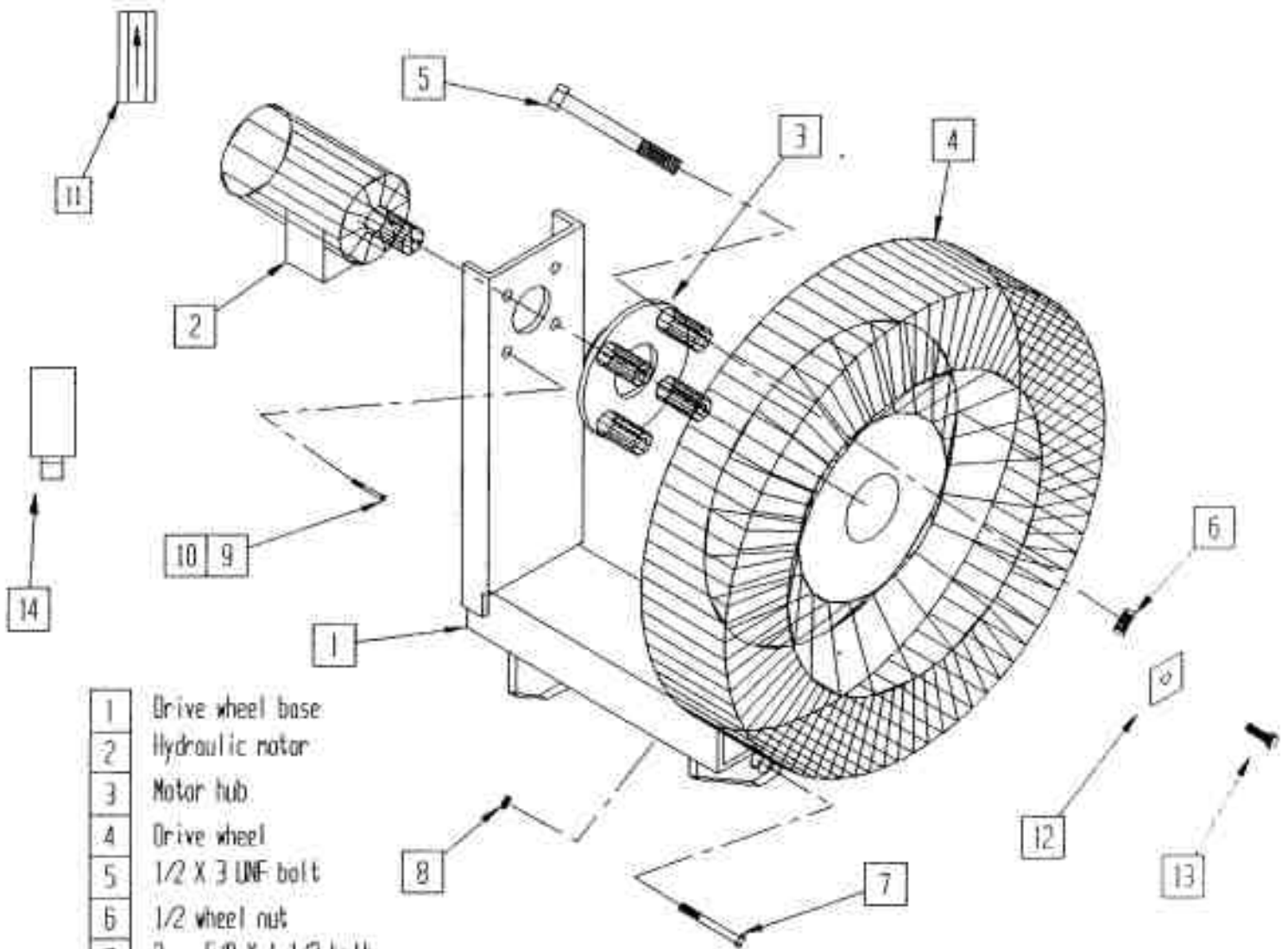
Wrop brace & valve brace



1	Bottom brace part
2	Top brace part
3	Valve brace
4	3/8 X 2 bolt
5	3/8 X 1 bolt
6	3/8 nut
7	3/8 lockwasher

# Tube-Line 500

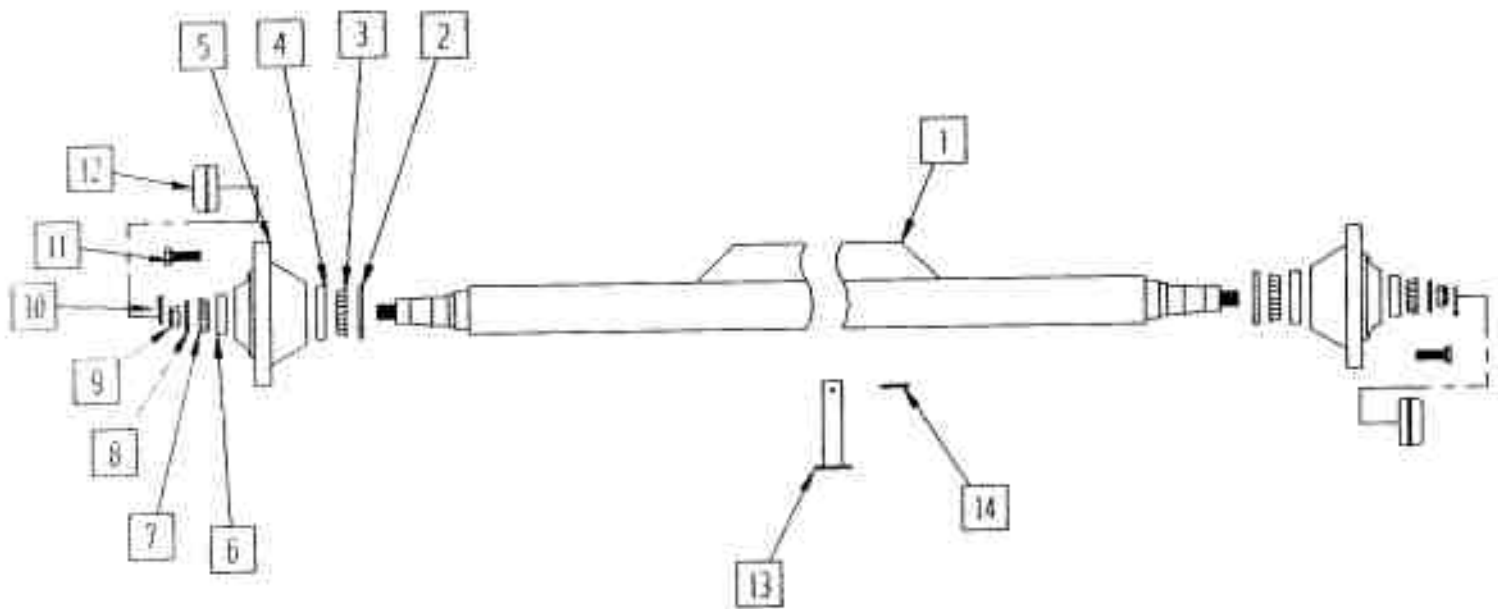
Drive wheel



- |    |                                  |
|----|----------------------------------|
| 1  | Drive wheel base                 |
| 2  | Hydraulic motor                  |
| 3  | Motor hub                        |
| 4  | Drive wheel                      |
| 5  | 1/2 X 3 UNF bolt                 |
| 6  | 1/2 wheel nut                    |
| 7  | 2 pc 5/8 X 1 1/2 bolt            |
| 8  | 2 pc 5/8 locknut                 |
| 9  | 4 pc 3/8 X 3/4 bolt              |
| 10 | 4 pc 3/8 lockwasher              |
| 11 | Check Valve (Manual model only)  |
| 12 | Washer                           |
| 13 | 1/4 X 1 bolt/lockwasher          |
| 14 | Relief Valve (Manual model only) |

# Tube-Line 500

Axle/spindle/hub

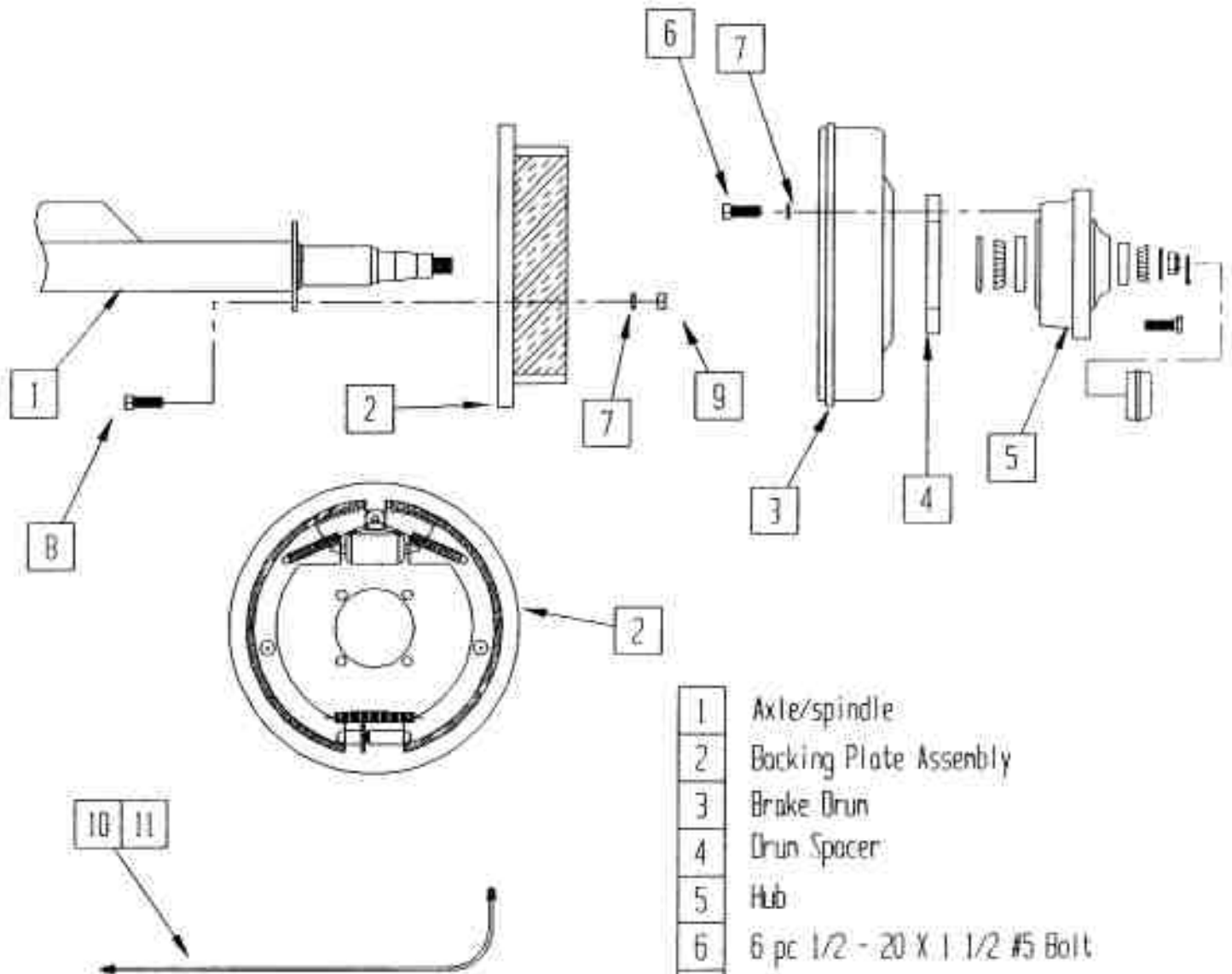


1	Axle
2	seal
3	inner bearing
4	inner bearing race
5	hub
6	outer bearing race
7	outer bearing
8	flat washer
9	wheel nut
10	cotter pin

11	wheel stud
12	dust cap
13	axle pin
14	cotter pin

# Tube-Line 500

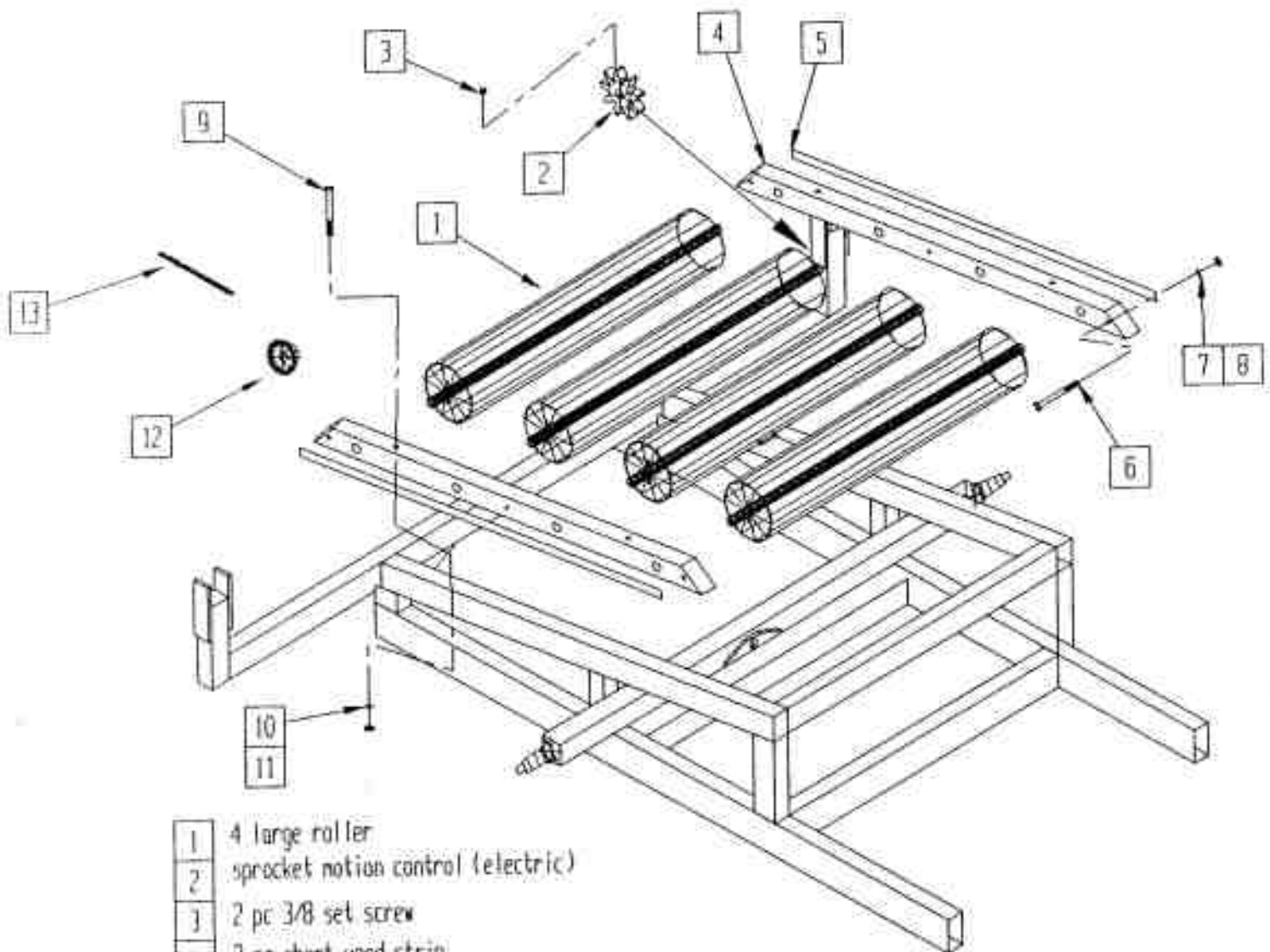
Axle/spindle/brake



- |    |                               |
|----|-------------------------------|
| 1  | Axle/spindle                  |
| 2  | Backing Plate Assenbly        |
| 3  | Brake Drum                    |
| 4  | Drum Spacer                   |
| 5  | Hub                           |
| 6  | 6 pc 1/2 - 20 X 1 1/2 #5 Bolt |
| 7  | 10 pc 1/2 Lockwasher          |
| 8  | 4 pc 1/2 - 20 X 1 1/4 #5 Bolt |
| 9  | 4 pc 1/2 - 20 Nut             |
| 10 | 3/16 Brake Line Right Side    |
| 11 | 3/16 Brake Line Left Side     |

# Tube-Line 500

rear roller

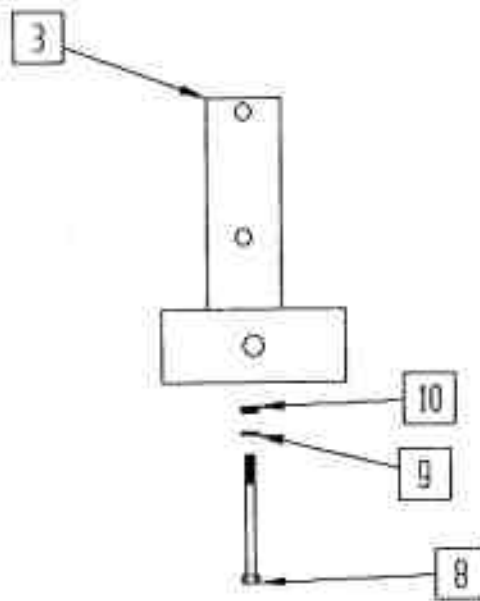
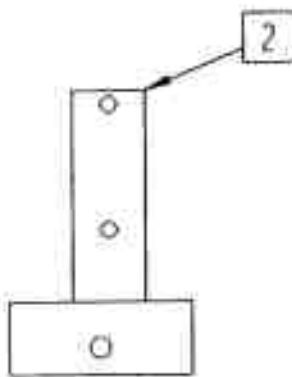
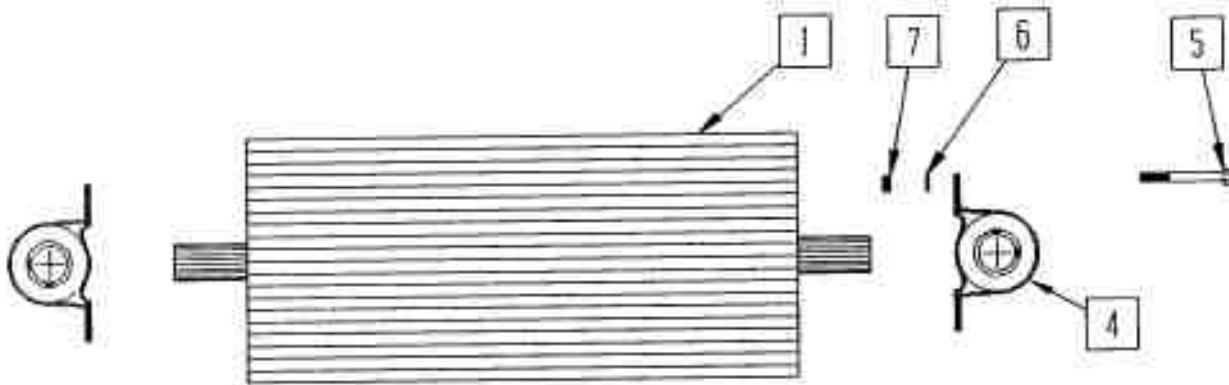


- |    |   |
|----|---|
| 1  | 4 large roller                          |
| 2  | sprocket motion control (electric)      |
| 3  | 2 pc 3/8 set screw                      |
| 4  | 2 pc short wood strip                   |
| 5  | 1/4 X 1 retainer strip                  |
| 6  | 6 pc 5/16 X 3 carriage bolt             |
| 7  | 6 pc 5/16 Lockwasher                    |
| 8  | 6 pc 5/16 nut                           |
| 9  | 4 pc 1/2 X 6 carriage bolt              |
| 10 | 4 pc 1/2 lockwasher                     |
| 11 | 4 pc 1/2 nut                            |
| 12 | 2 pc 40B20 sprocket (Automatic only)    |
| 13 | 1 pc # 40 roller chain (Automatic only) |



# Tube-Line 500

Short roller & bearing

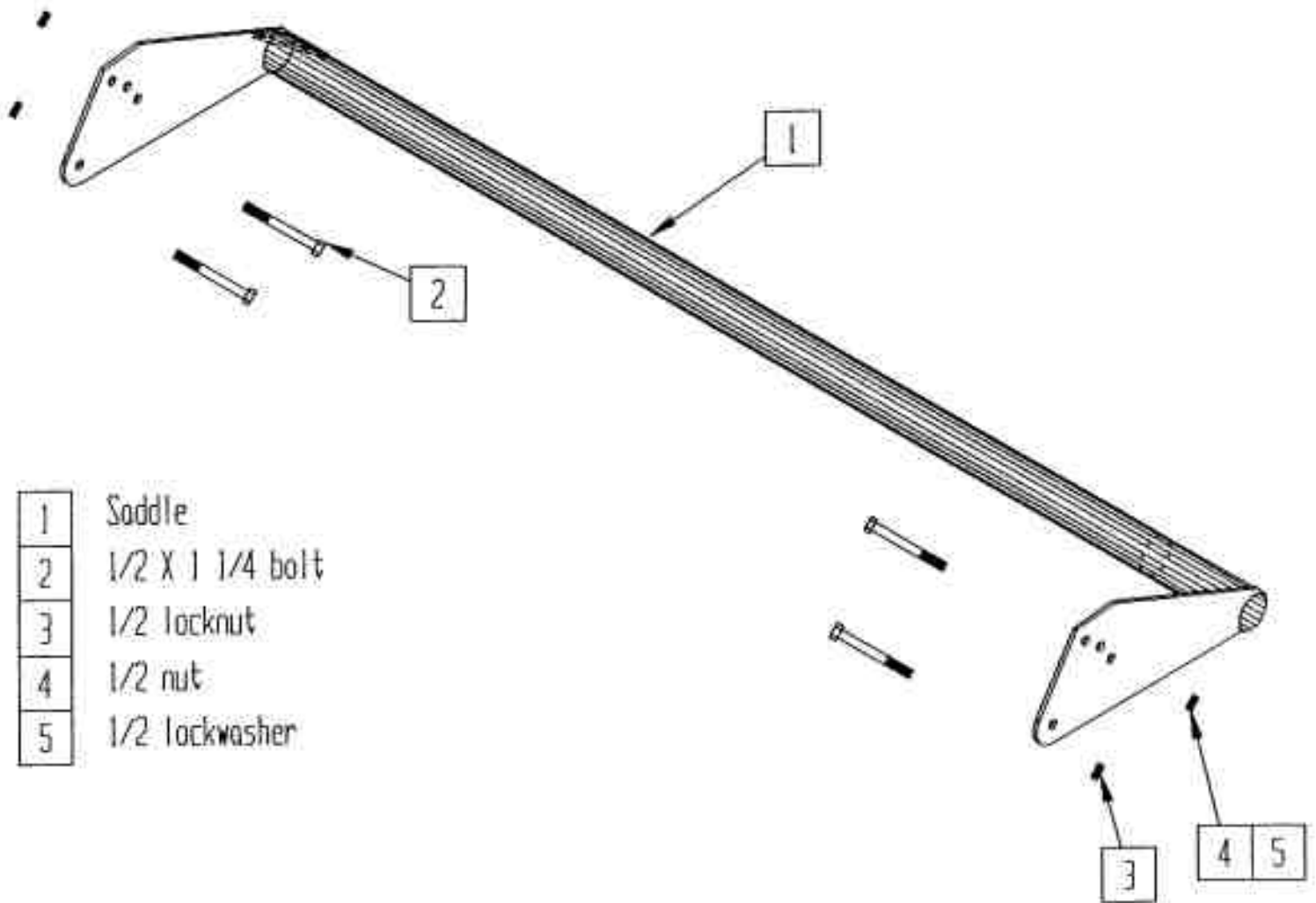


1	Short roller
2	Left bearing bracket
3	Right bearing bracket
4	Bearing
5	3/8 X 1 1/4 bolt
6	3/8 lockwasher
7	3/8 nut
8	1/2 X 4 bolt
9	1/2 lockwasher
10	1/2 nut



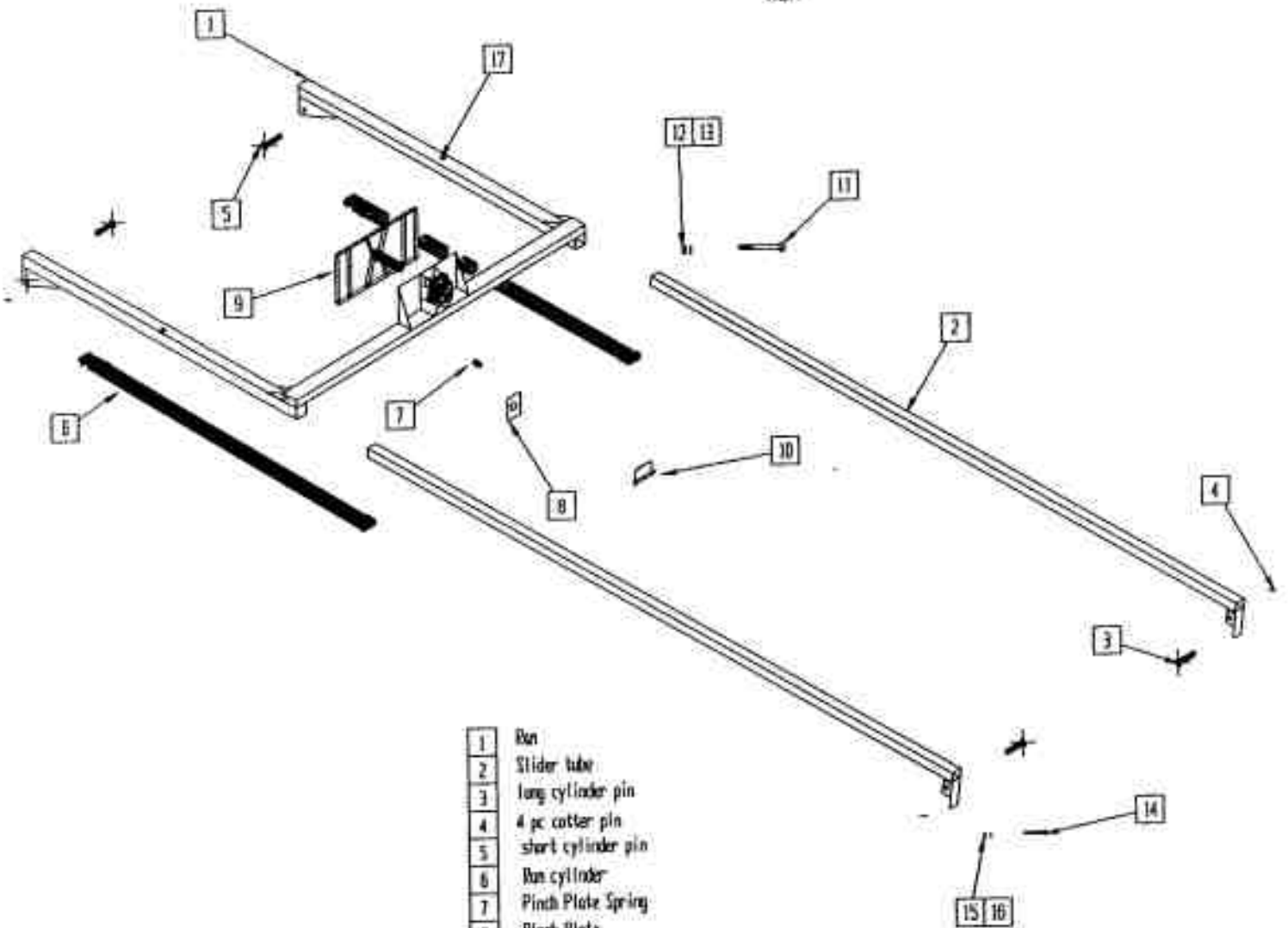
# TubeLine 500

Bale saddle



# Tube-Line 500

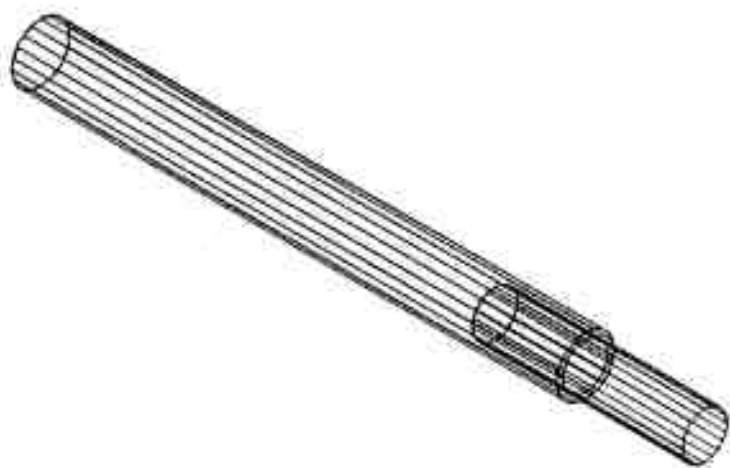
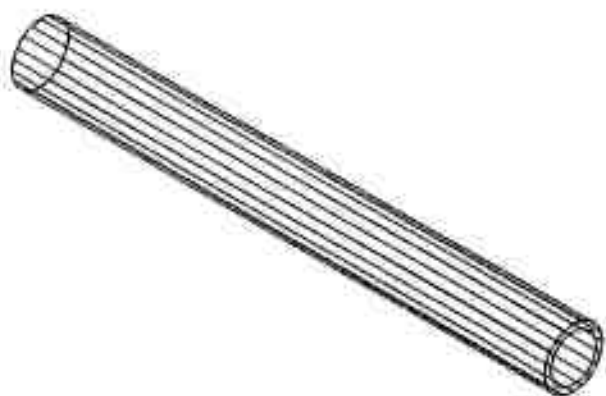
Ran



1	Ran
2	Slider tube
3	long cylinder pin
4	4 pc cotter pin
5	short cylinder pin
6	Ran cylinder
7	Pinch Plate Spring
8	Pinch Plate
9	Push Plate
10	Plate Lock Pin
11	2 pc 1/2 X 4 bolt
12	2 pc 1/2 nut
13	2 pc 1/2 lockwasher
14	4 pc 1/2 X 1 1/2 bolt
15	4 pc 1/2 nut
16	4 pc 1/2 lockwasher
17	2 pc 1/4 - 36 grease fitting

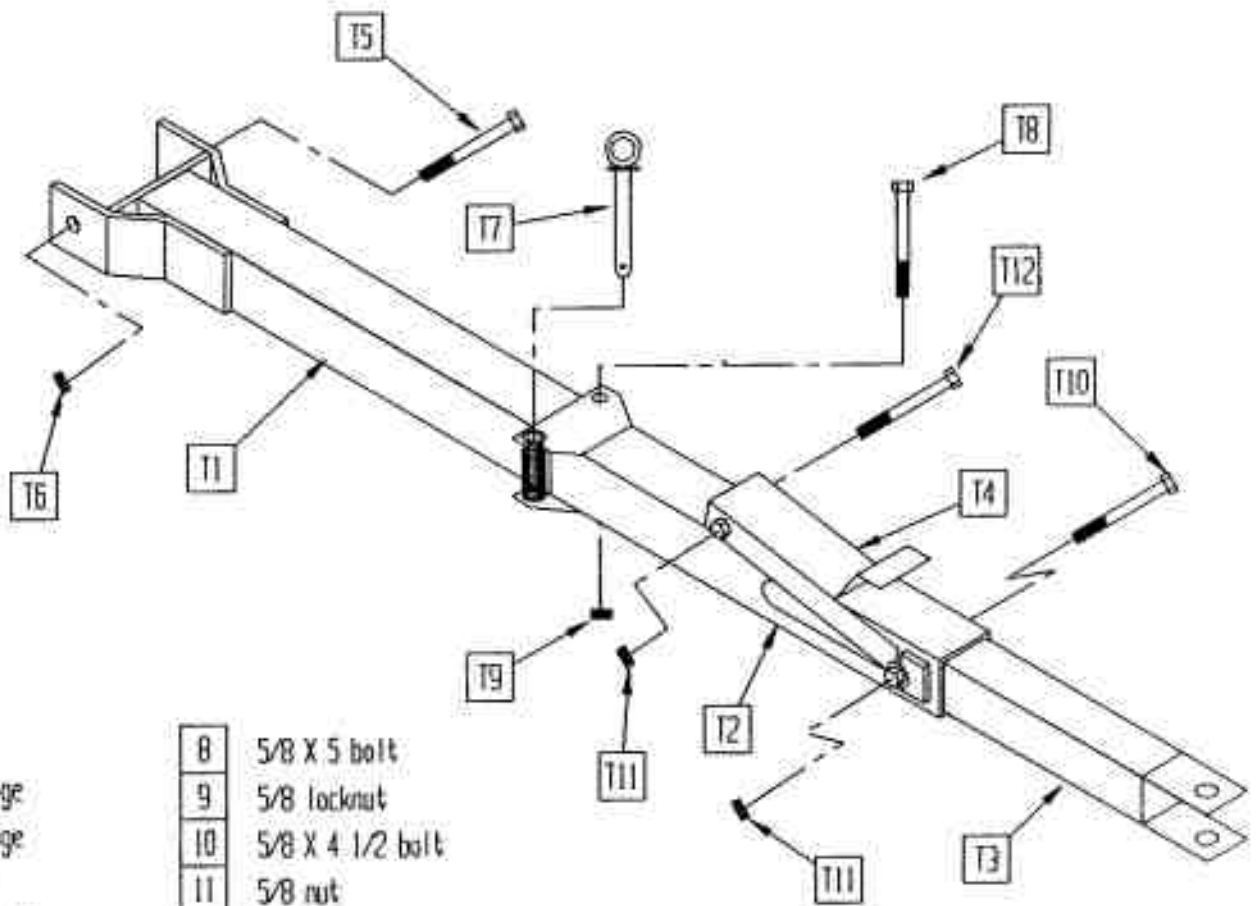
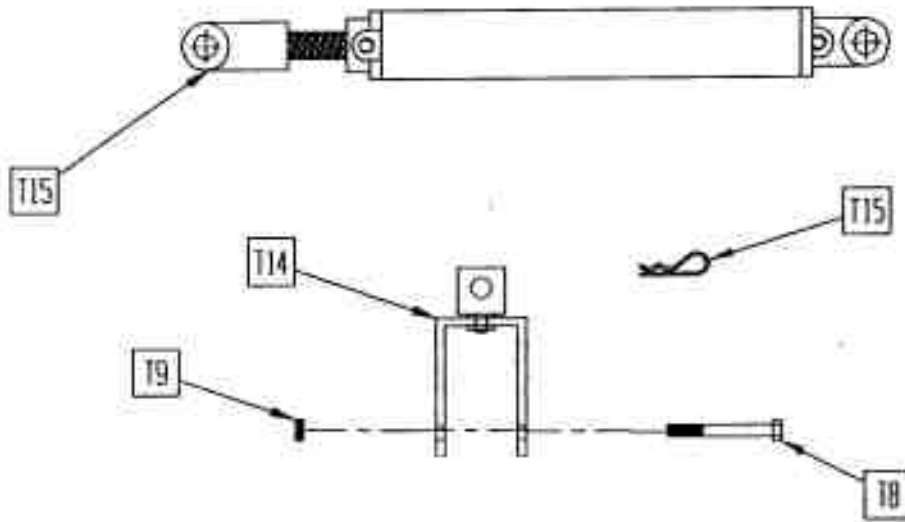
# Tube-Line 500

Push tube



# Tube-Line 500

Tounge

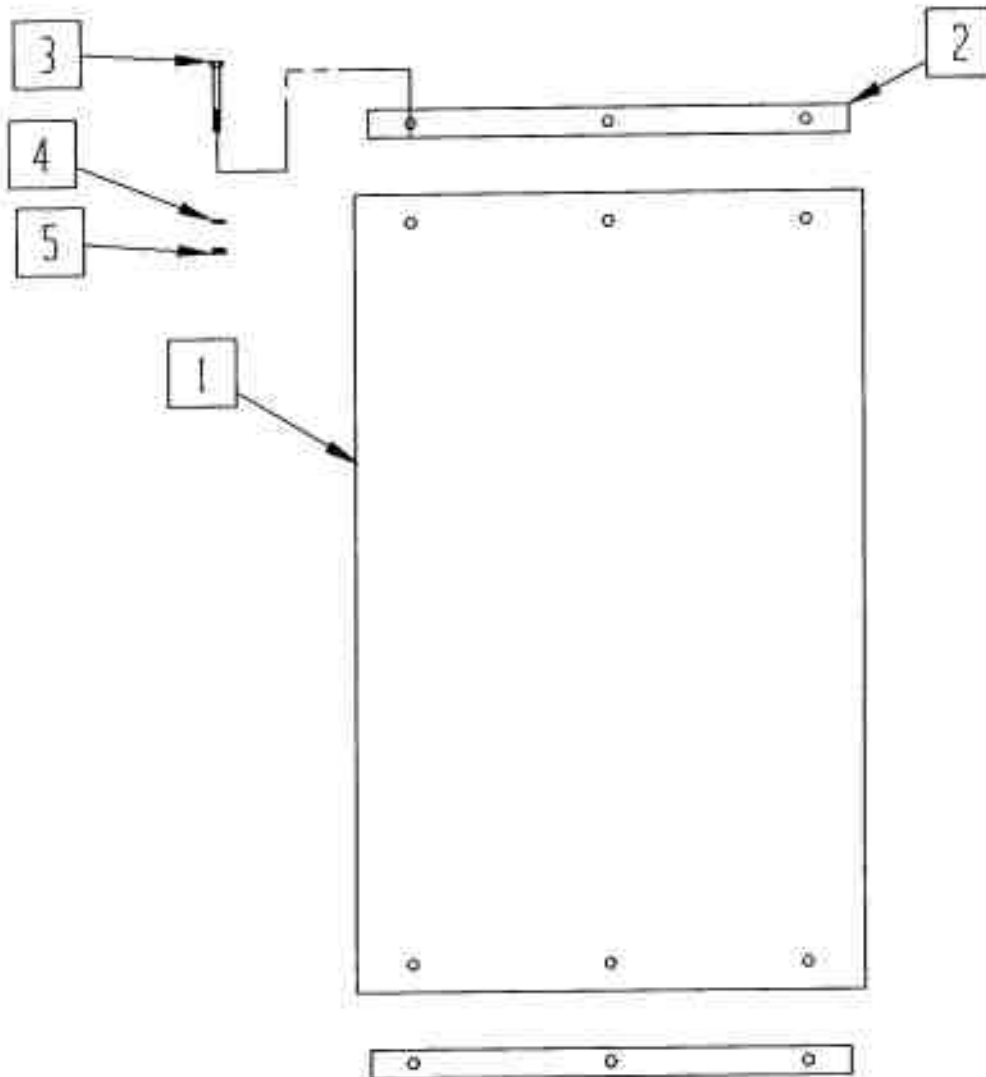


- |   |                  |
|---|------------------|
| 1 | Main tounge      |
| 2 | Swinging tounge  |
| 3 | Sliding tounge   |
| 4 | Tounge latch     |
| 5 | 3/4 X 8 1/2 bolt |
| 6 | 3/4 locknut      |
| 7 | Tounge pin       |

- |    |                               |
|----|-------------------------------|
| 8  | 5/8 X 5 bolt                  |
| 9  | 5/8 locknut                   |
| 10 | 5/8 X 4 1/2 bolt              |
| 11 | 5/8 nut                       |
| 12 | 5/8 X 4 1/2 bolt              |
| 13 | Tounge Holder                 |
| 14 | Hair pin                      |
| 15 | 2 1/2 X 16 Hydraulic Cylinder |

# Tube-Line 500

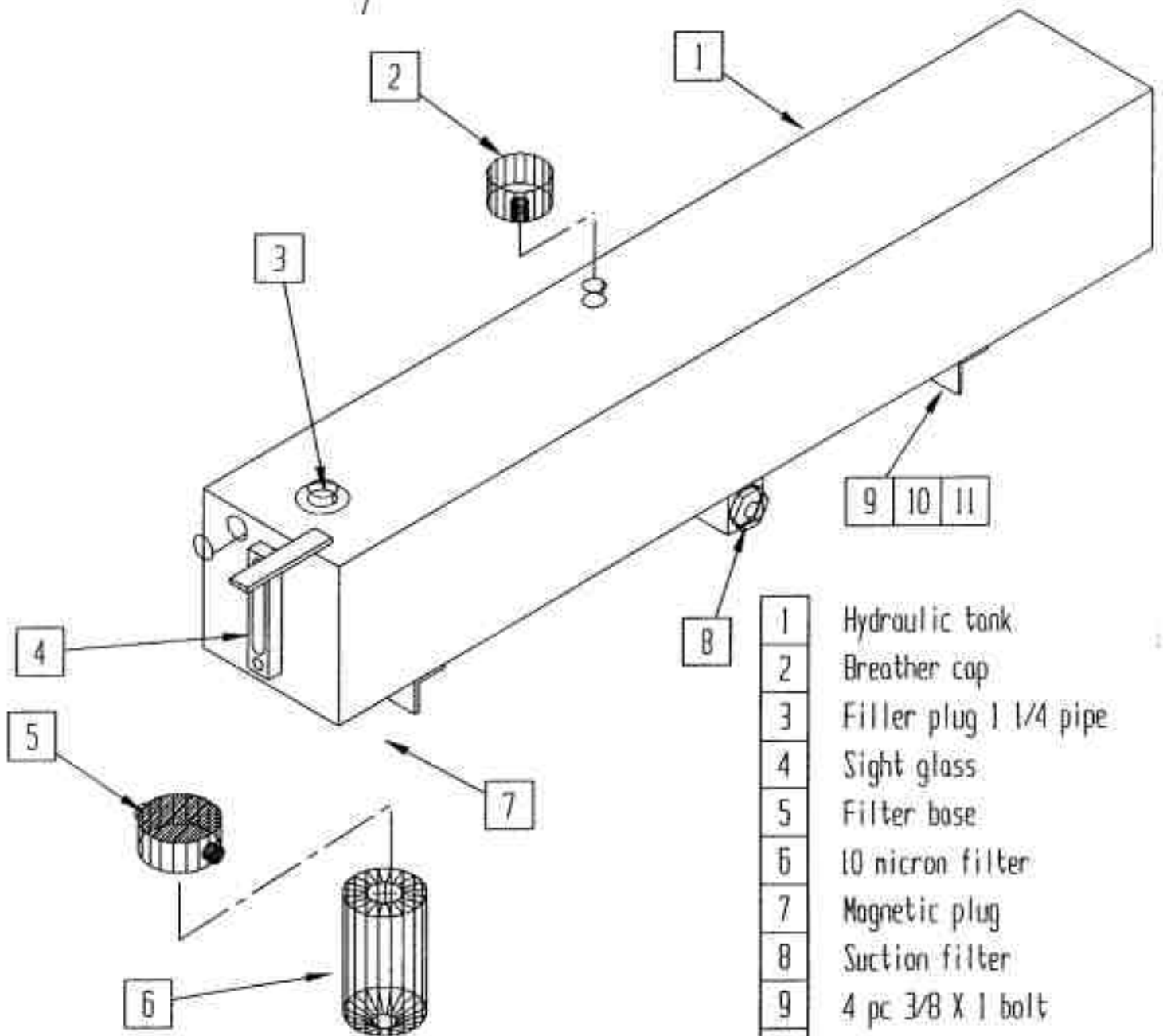
Mud Flap



- |   |             |
|---|-------------|
| 1 | mud flap    |
| 2 | metal strip |
| 3 | bolt        |
| 4 | lockwasher  |
| 5 | nut         |

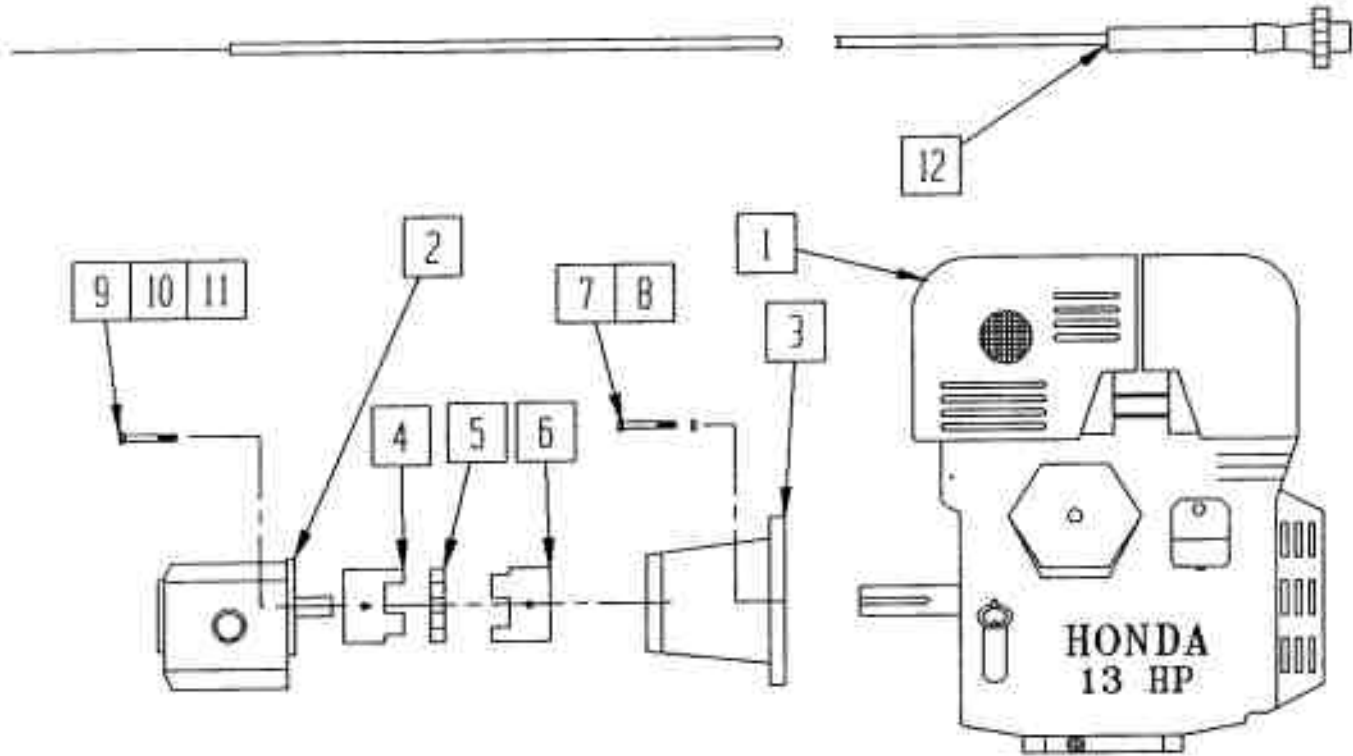
# Tube-Line 500

Hydraulic tank



- |    |                        |
|----|------------------------|
| 1  | Hydraulic tank         |
| 2  | Breather cap           |
| 3  | Filler plug 1 1/4 pipe |
| 4  | Sight glass            |
| 5  | Filter base            |
| 6  | 10 micron filter       |
| 7  | Magnetic plug          |
| 8  | Suction filter         |
| 9  | 4 pc 3/8 X 1 bolt      |
| 10 | 4 pc 3/8 lockwasher    |
| 11 | 4 pc 3/8 nut           |

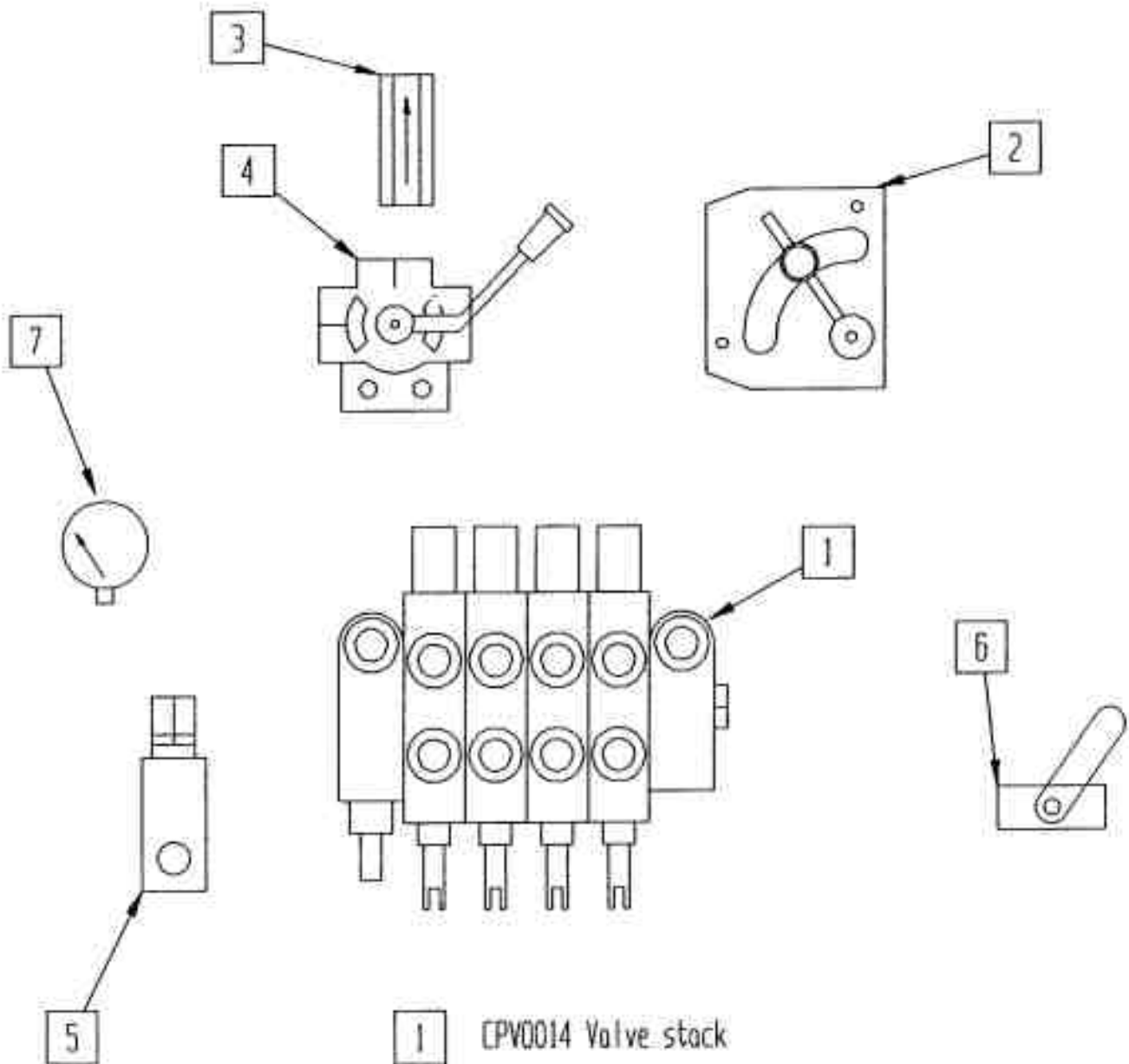
# Tube-Line 500



1	13 Hp HONDA Engine
2	Hydraulic Pump
3	Engine to pump adaptor
4	Love Joy Coupling
5	Coupling spacer
6	Love Joy Coupling engine

7	4 pc 3/8 X 1 bolt
8	4 pc 3/8 lockwasher
9	2 pc 3/8 1 1/4 bolt
10	2 pc 3/8 lockwasher
11	2 pc 3/8 flatwasher
12	Throttle Cable (manual)

Tube-Line 500  
Manual valve bank

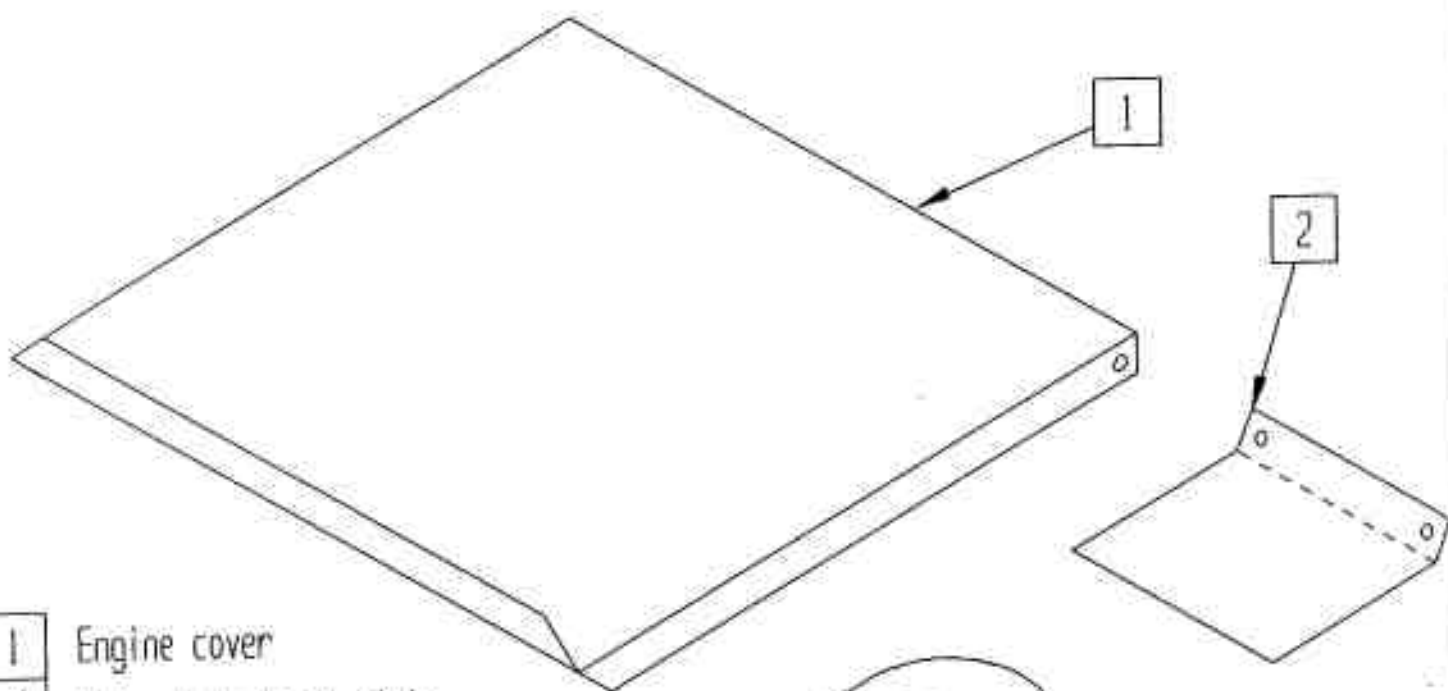


- |   |                            |
|---|----------------------------|
| 1 | CPV0014 Valve stack        |
| 2 | RD - 150 - 08 Flow control |
| 3 | 1/2 Check valve            |
| 4 | Selector Valve             |
| 5 | Relief Valve               |
| 6 | Ball Valve                 |
| 7 | Pressure Gauge             |



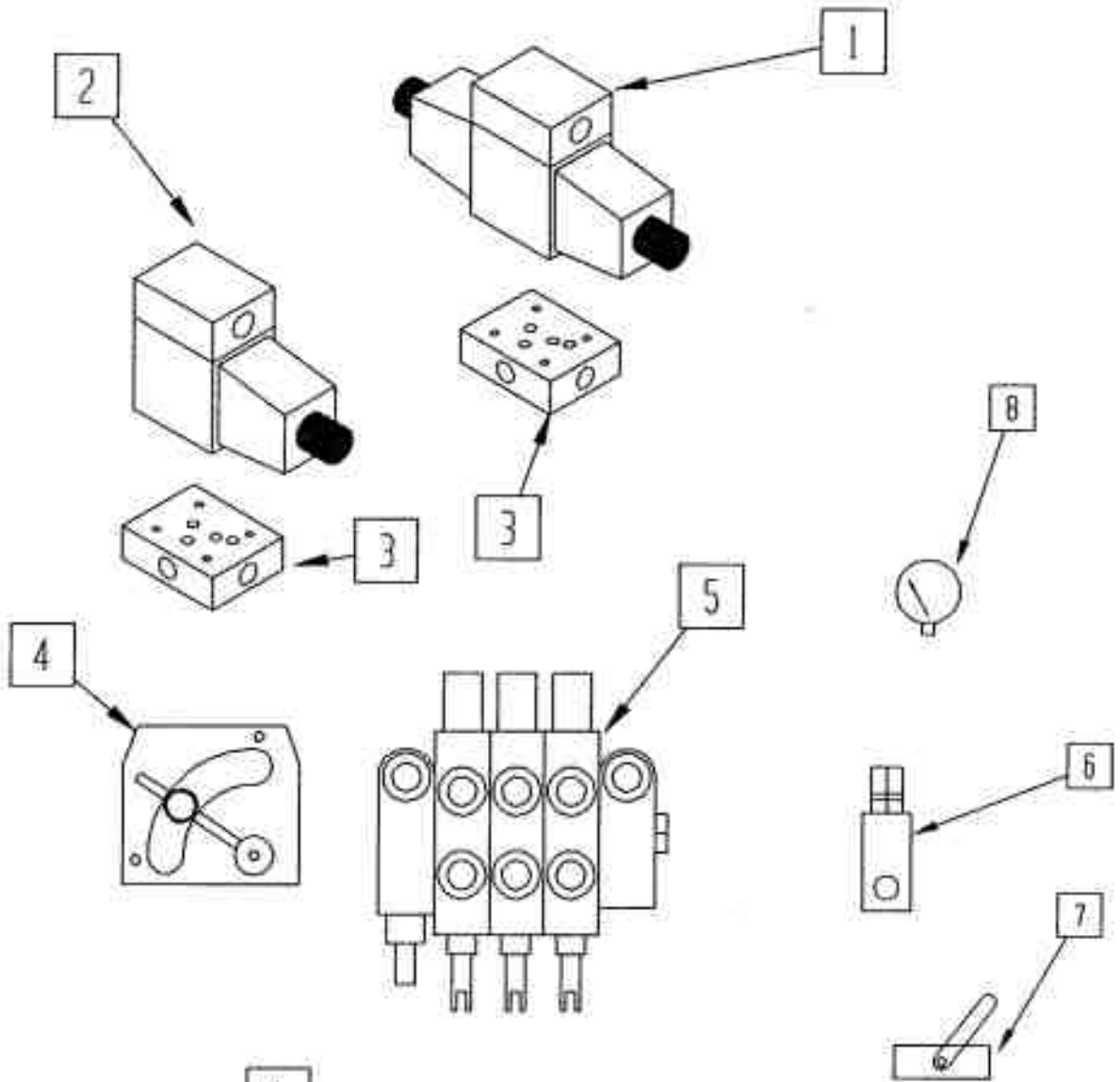
# Tube-Line 500

Engine cover & decal plate



- |   |                                    |
|---|------------------------------------|
| 1 | Engine cover                       |
| 2 | Valve bank decal plate             |
| 3 | Selector valve decal plate         |
| 4 | Selector valve decal plate bracket |

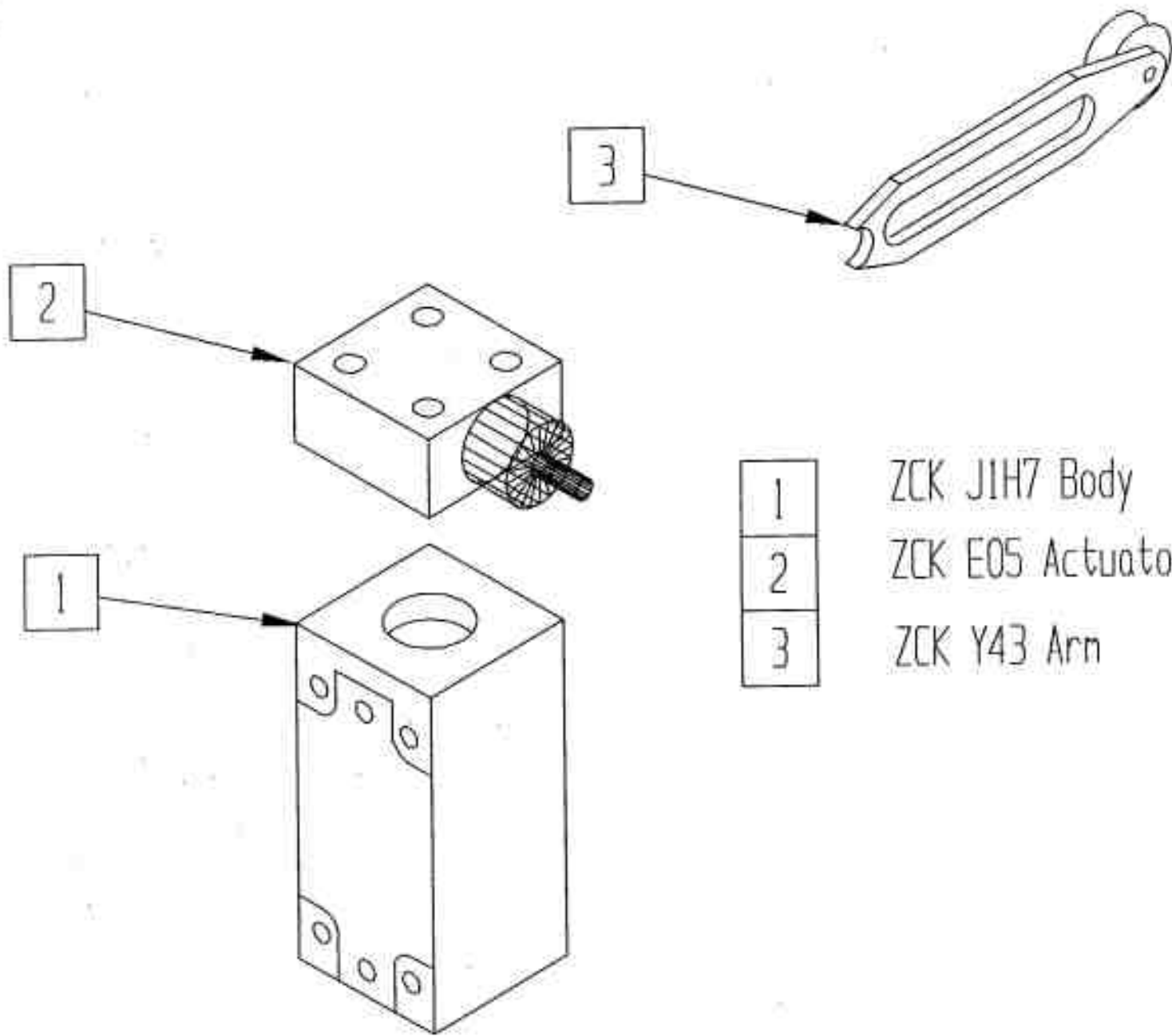
# Tube-Line 500 Electric Solenoid Valve



- |   |                                   |
|---|-----------------------------------|
| 1 | YS12M3LGB75L tandem center 12 vdc |
| 2 | YS12M1AGB75L single sol 12 vdc    |
| 3 | AD053P5285 subplate SAE ported    |
| 4 | RD - 150 - 08 Flow control        |
| 5 | CPY0013 Valve stack               |
| 6 | Relief Valve                      |
| 7 | Ball Valve                        |
| 8 | Pressure Gauge                    |

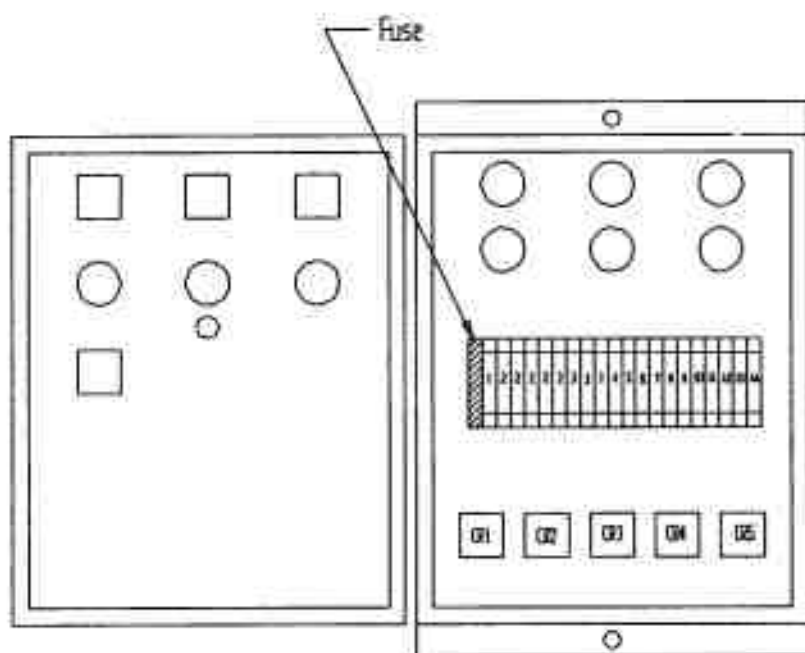
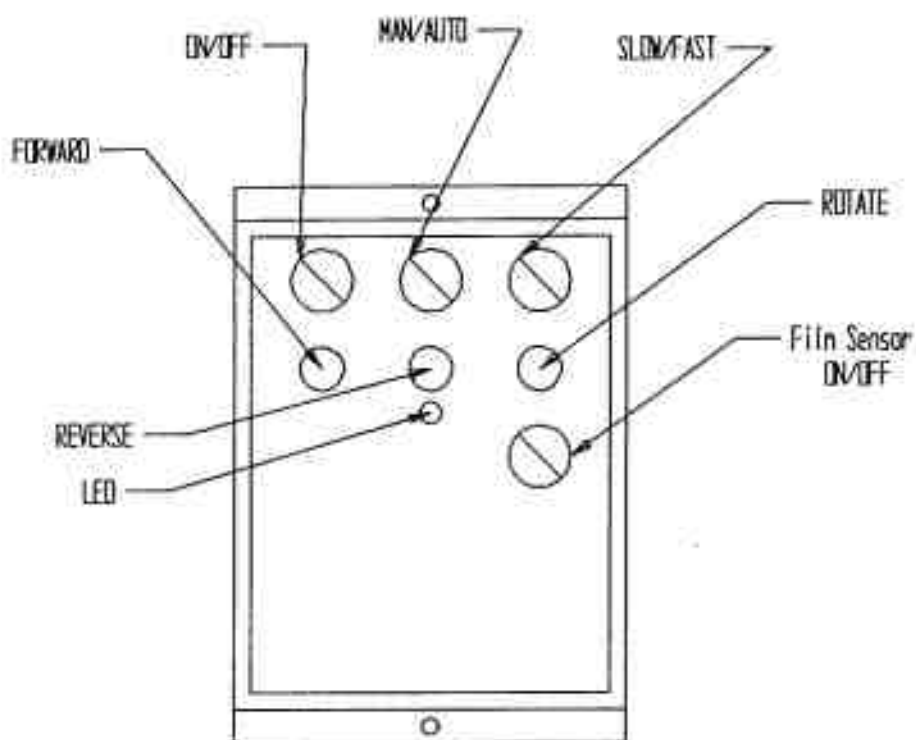
# Tube-Line 500

Telemecanique Limit Switch



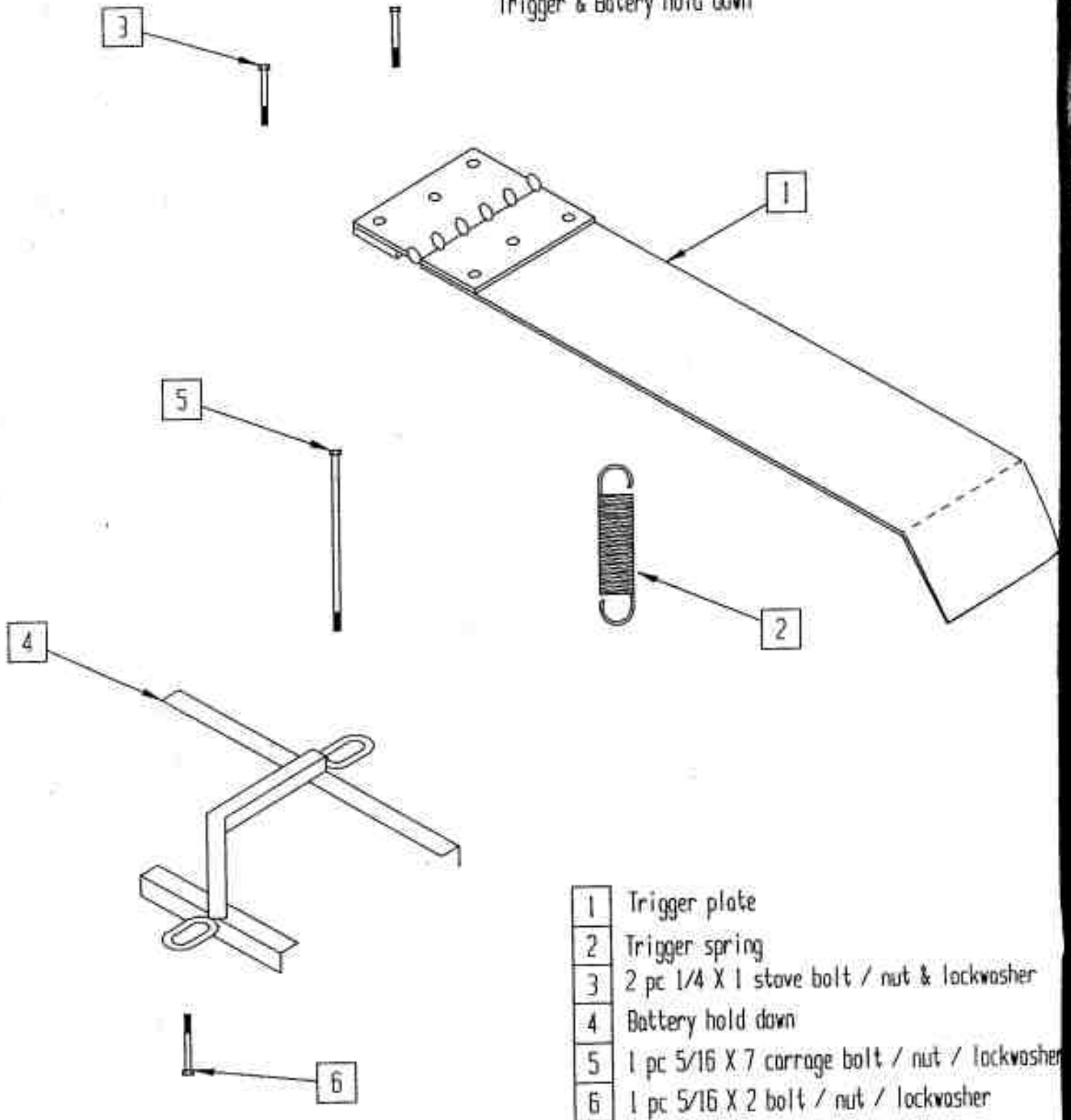
- |   |                  |
|---|------------------|
| 1 | ZCK J1H7 Body    |
| 2 | ZCK E05 Actuator |
| 3 | ZCK Y43 Arm      |

# Tube-Line 500 Control Panel



# Tube-Line 500

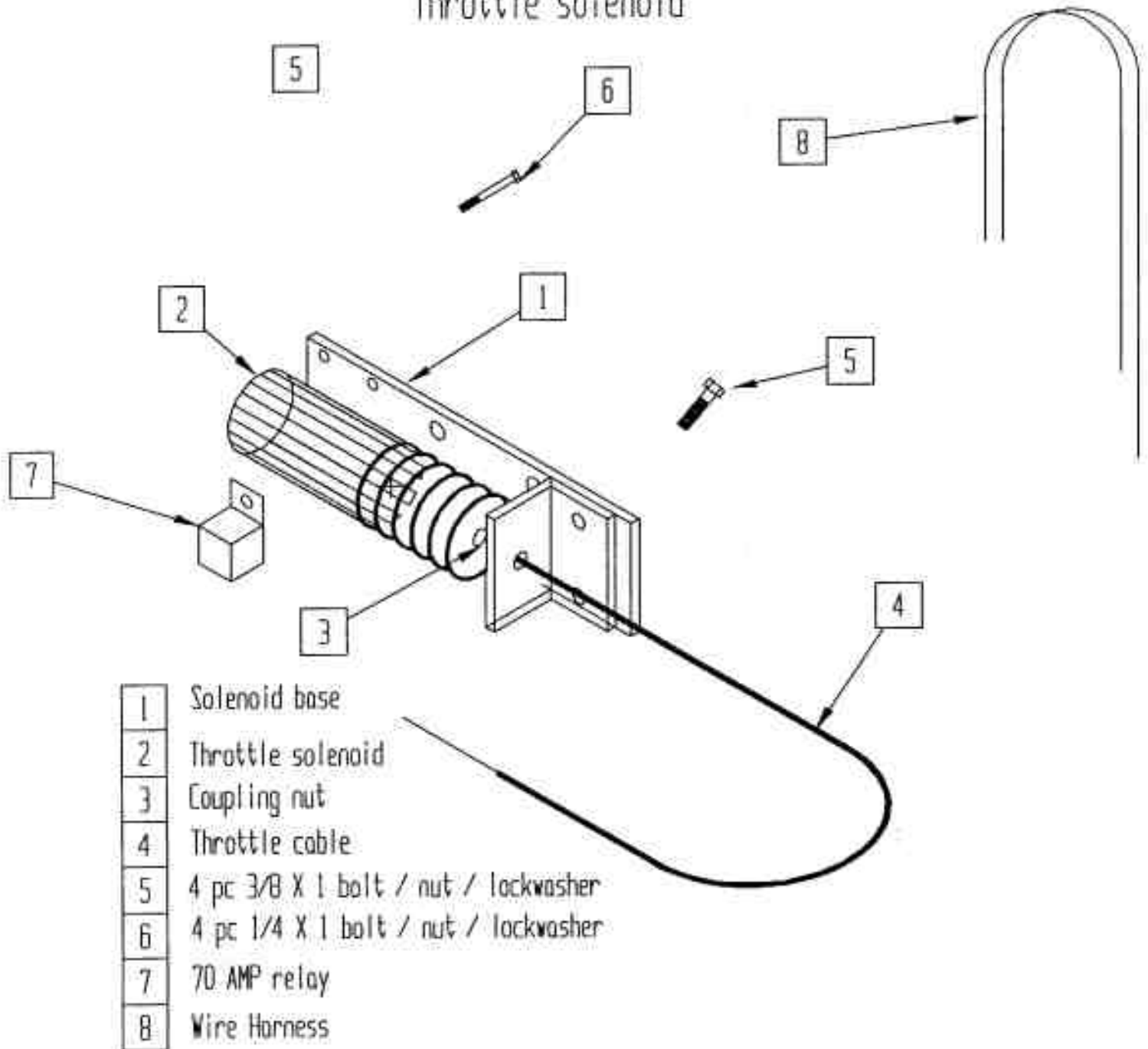
Trigger & Botery hold down



- |   |  |
|---|--|
| 1 | Trigger plate                                  |
| 2 | Trigger spring                                 |
| 3 | 2 pc 1/4 X 1 stove bolt / nut & lockwasher     |
| 4 | Battery hold down                              |
| 5 | 1 pc 5/16 X 7 carriage bolt / nut / lockwasher |
| 6 | 1 pc 5/16 X 2 bolt / nut / lockwasher          |

# Tube-Line 500

Throttle solenoid



- |   |                                      |
|---|--------------------------------------|
| 1 | Solenoid base                        |
| 2 | Throttle solenoid                    |
| 3 | Coupling nut                         |
| 4 | Throttle cable                       |
| 5 | 4 pc 3/8 X 1 bolt / nut / lockwasher |
| 6 | 4 pc 1/4 X 1 bolt / nut / lockwasher |
| 7 | 70 AMP relay                         |
| 8 | Wire Harness                         |

## Tube-Line500

### Manual Hydraulic Sequence of operation

- 1 With valves in neutral position engine running hydraulic fluid is pumped through valve stack and returned to reservoir.
- 2 Brakes, tail, steering are standard hydraulic cylinder operation.
- 3 Wrap cycle - push wrap valve in, detent will hold valve in position, fluid flows from valve through flow control and is split into 2 circuits, one circuit will go to ram cylinders and the other circuit will go to the hydraulic motor. These circuits are proportioned with the lever on flow control valve. With the selector valve handle in " Both " position flow will go to cylinder and motor. By changing flow control handle, cylinders will speed up or slow down accordingly. At the same time motor will change speed inversely to cylinder ie. when cylinder slows down motor will speed up.
- 4 Selector valve is used to bleed either cylinder or motor flow back to tank or block both circuits causing both cylinder and motor to operate. ie. With handle in wrap only position the fluid that would normally go to the cylinder will flow to tank. With handle in ram only position motor fluid will go to the tank.
- 5 Wrap cycle - pull wrap valve out, detent will hold valve in position, fluid will flow from valve port to cylinder causing cylinder to retract. Fluid from the other end of cylinder will return through the check- valve, at flow control back through valve stack and to tank.
- 6 Check valve at motor lets motor freewheel in one direction without cavitating. Relief valve at motor return acts as restrictor valve to keep motor from turning when ram cylinder is retracting

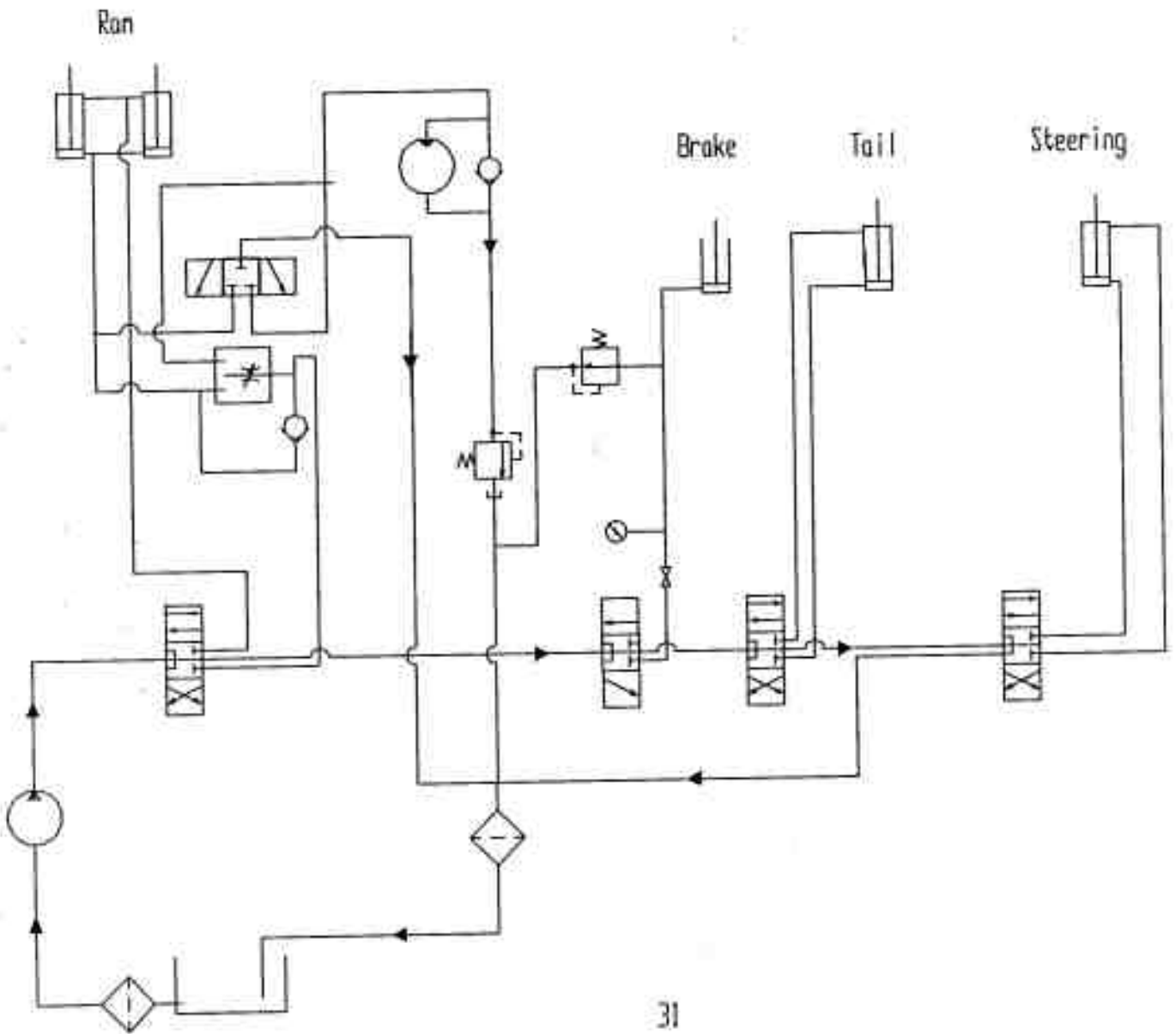
**Tube-Line 500**  
Electric Hydraulic  
Sequence of operation

- 1 With valves in neutral position , control panel on/off switch in off position, engine running fluid is pumped through valve stack and returned to reservoir.
- 2 Brakes,tail,steering, are standard hydraulic cylinder operation.
- 3 Wrap cycle fluid flows from power beyond port on valve stack to flow control,and is split into 2 circuits one circuit goes to double solenoid valve for ram cylinder, the other circuit goes to single solenoid valve for hydraulic motor. By moving flow control handle more or less fluid will flow to cylinder or motor ie. as more fluid flows to cylinder less fluid will flow to motor and vise-versa.
- 4 Electric control panel - With "Fast-Slow" switch turned to Slow with "Man-Auto" switch turned to Man turn "On-Off" switch to On, then red LED will light up indicating 12V power is at control circuits, with engine running turn "Fast-Slow switch to Fast and the engine will speed up to max. RPM approx 3500-RPM. Push Forward button in to energize solenoid A on double solenoid valve . Ram cylinder will extend. Push Reverse button to energize solenoid B on same valve. Ram cylinder will retract. Push Rotate button in and hydraulic motor will turn. Push-buttons have to be held in to operate, by releasing them action will stop.
- 5 When "Man-Auto" switch is turned to Auto, engine throttle "Fast-Slow" switch now no longer functions, including push-buttons switches. Depress trigger switch located on bale table, and the engine thottle and hydraulic valve are energised. The engine will speed up and the ram cylinder will extend until the bale on the table starts to move the bale in wrap chamber. This will cause the roller with sprocket to turn, tripping the limit switch thereby energizing the single solenoid valve and turning the wrap motor. When ram is extended to limit switch at end of stroke, single solenoid valve and double solenoid valve A will turn off. Solenoid B will energize causing ram cylinder to retract until it trips limit switch at the front end of bale table, solenoid B and throttle solenoid will turn off, the ram cylinder will stop and engine will idle down.



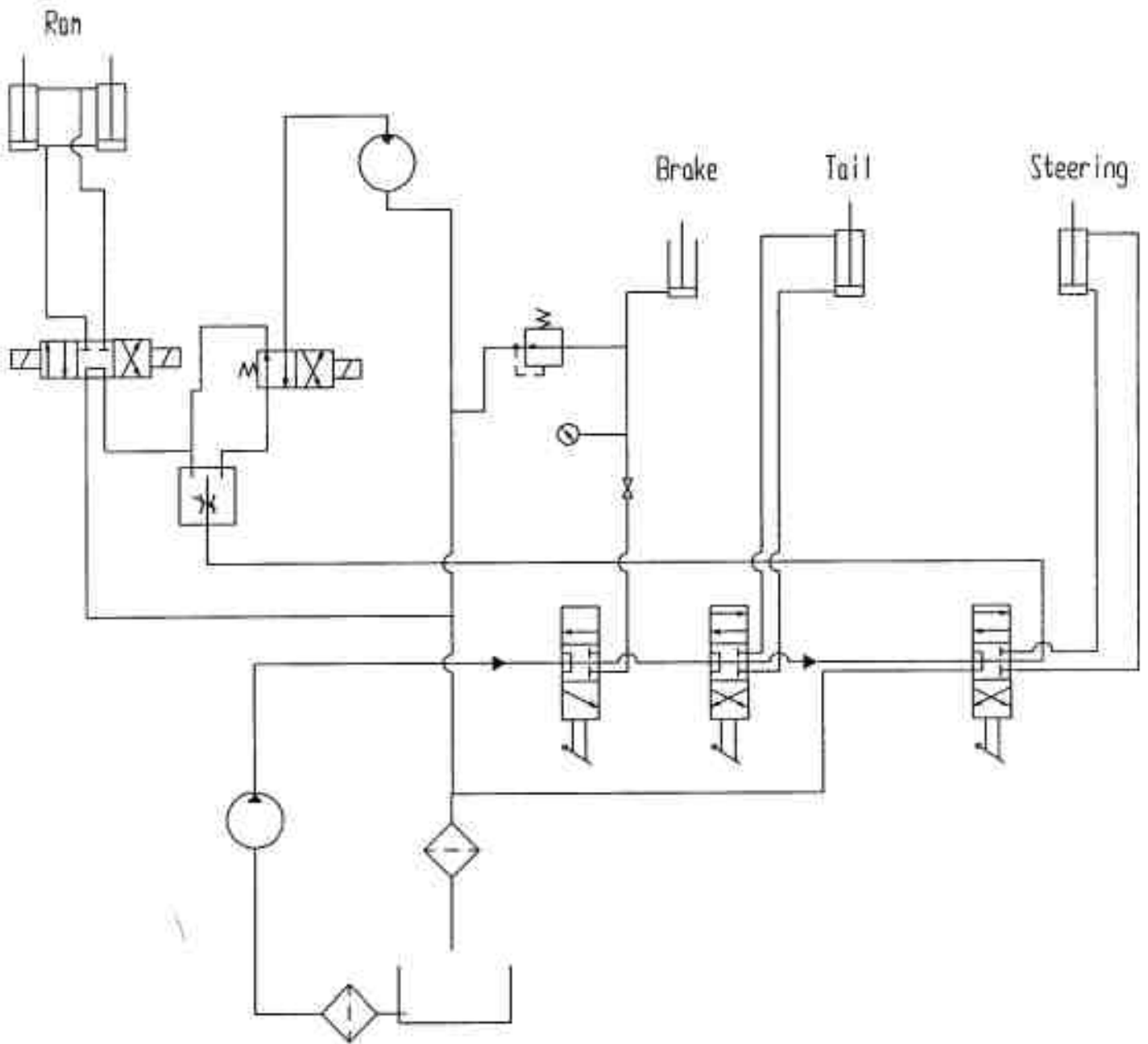
# Tube-Line 500

Manual Hydraulic Schematic



# Tube-Line 500

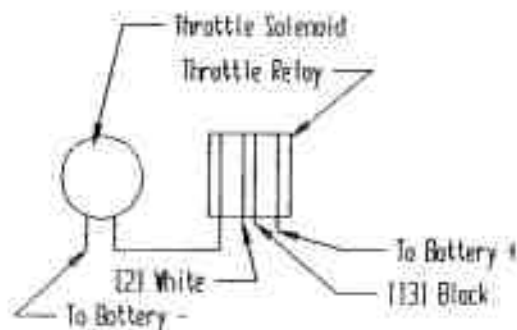
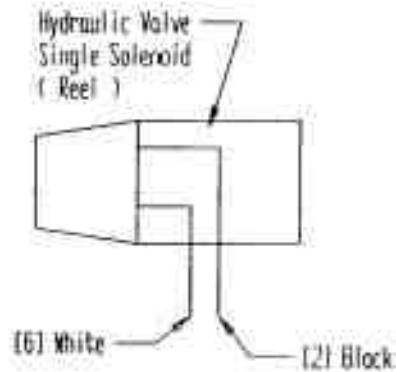
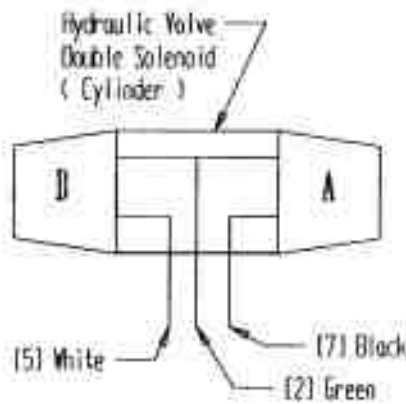
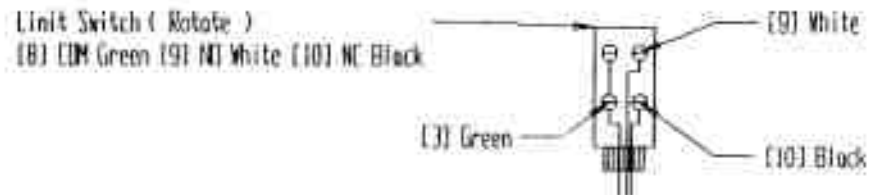
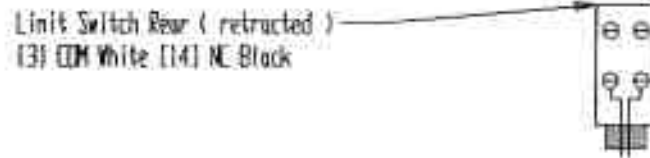
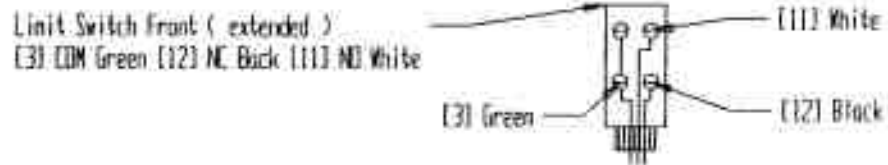
Electric Hydraulic Schematic





# Battery 12 Volt ( + 1 Black ) ( - 2 White )

Number in [ ] match terminal strip numbers





## Tube-Line 500 Part Numbers

<u>Page #</u>	<u>Ref #</u>	<u>Part #</u>	<u>Qty</u>	<u>Description</u>
3	1	500-100-001	1	Front Channel Ring
3	2	500-100-002	1	Front Tube Ring
3	3	500-100-003	4	Front Wheel 6 inch
3	4	500-100-004	4	Ring Tie
3	5	500-100-005	1	Rear Channel Ring
3	6	500-100-006	1	Rear Tube Ring
3	7	500-100-007	4	Rear Wheel 4 inch
3	8	500-100-008	4	Mounting Bolt 1/2 X 2 /lockwasher / nut
3	9	500-100-009	1	Top Left Hoop Tie
3	10	500-100-010	1	Top Right Hoop Tie
3	11	500-100-011	1	Bottom Right Hoop Tie
3	12	500-100-012	1	Bottom Left Hoop Tie
5	1	500-100-013	4	6 inch Wheel
5	2	500-100-014	4	4 inch Wheel
5	3	500-100-015	8	Axle Bolt
5	4	500-100-016	16	Bearing Seal
5	5	500-100-017	8	Outer Race
5	6	500-100-018	8	Roller Bearing
5	7	500-100-019	8	Inner Race
5	8	500-100-020	8	Locknut
6	1	500-100-021	4	Plastic Bearing
6	2	500-100-022	2	Plastic Pipe
6	3	500-100-023	2	Plastic Roller Shaft
6	4	500-100-024	2	Plastic Wrap Spool (no hair pin hole)
6	5	500-100-025	2	Spacer
6	6	500-100-026	4	Oilite Bearing
6	7	500-100-027	4	Nylon Locknut
6	8	500-100-028	2	Stretch Wrap Holder (small end)
6	9	500-100-029	2	Plastic Wrap Spool (with hair pin hole)
6	10	500-100-030	2	Hair Pin
6	11	500-100-031	2	Stretch Wrap Holder (large end)
6	12	500-100-032	2	Cotter Pin
7	1 L	500-100-033	1	Left Side Safety Shield
7	1 R	500-100-034	1	Right Side Safety Shield
7	2 L	500-100-035	1	Left Latch Post
7	2 R	500-100-036	1	Right Latch Post
7	3	500-100-037	8	U Bolt
7	4	500-100-038	16	3/8 lockwasher
7	5	500-100-039	16	3/8 Nut
7	6	500-100-040	2	Rubber Latch Pin
7	7	500-100-041	2	Rubber Latch
7	8	500-100-042	2	Cotter Pin

page #	Ref #	Part #	Qty	Description
8	1	500-100-043	2	Bottom Brace Part
8	2	500-100-044	2	Top Brace Part
8	3	500-100-045	1	Valve Brace
8	4	500-100-047	6	3/8 X 2 Bolt
8	5	500-100-046	2	3/8 X 1 Bolt
8	6	500-100-039	8	3/8 Nut
8	7	500-100-038	6	3/8 Lockwasher
9	1	500-100-049	1	Drive Wheel Base
9	2	500-100-050	1	Hydraulic Motor EATON Char-Lynn 101-1004
9	3	500-100-051	1	Motor Hub
9	4	500-100-052	1	Drive Wheel
9	5	500-100-053	4	1/2 X 3 UNF Bolt
9	6	500-100-054	4	1/2 Wheel Nut
9	7	500-100-055	2	5/8 X 1 1/2 Bolt
9	8	500-100-056	2	5/8 Locknut
9	9	500-100-057	4	3/8 X 3/4 Bolt
9	10	500-100-038	4	3/8 Lockwasher
9	11	500-100-059	1	Hydraulic Check Valve (manual model only)
9	12	500-100-060	1	Washer
9	13	500-100-061	1	1/4 X 1 Bolt / Lockwasher
9	14	500-101-222	1	Relief Valve (manual model only)
10	1	500-100-062	1	Axle
10	2	500-100-063	2	Inner Seal
10	3	500-100-064	2	Inner Bearing
10	4	500-100-065	2	Inner Bearing Race
10	5	500-101-066	2	Hub
10	6	500-100-067	2	Outer Bearing Race
10	7	500-100-068	2	Outer Bearing
10	8	500-100-069	2	Flat Washer
10	9	500-100-070	2	Castellated Nut
10	10	500-100-071	2	Cotter Pin
10	11	500-100-072	10	Wheel Stud
10	12	500-100-073	2	Dust Cap
10	13	500-100-078	1	Axle Pin
10	14	500-100-079	1	Cotter Pin
11	1	500-101-062	1	Axle / Spindle
11	2	500-101-080	2	Backing Plate Assy
11	3	500-101-081	2	Brake Drum
11	4	500-101-082	2	Drum Spacer
11	5	500-101-066	2	Hub
11	6	500-101-083	12	1/2-20 X 1 1/2 #5 Bolt
11	7	500-100-075	20	1/2 Lockwasher
11	8	500-101-084	8	1/2-20 X 1 1/4 #5 Bolt
11	9	500-101-085	8	1/2-20 Nut
11	10	500-100-229	1	3/16 Brake line RH
11	11	500-100-230	1	3/16 Brake line LH

page #	Ref #	Part #	Qty	Description
12	1	500-100-086	4	Large Roller
12	2	500-100-087	1	Sprocket Motion Sensor (electric)
12	3	500-100-088	2	3/8 Set Screw
12	4	500-100-089	2	Short Wood Strip
12	5	500-100-090	2	Retainer Bar
12	6	500-100-091	6	5/16 X 3 Carriage Bolt
12	7	500-100-092	6	5/16 Lockwasher
12	8	500-100-093	6	5/16 Nut
12	9	500-100-094	4	1/2 X 6 Carriage Bolt
12	10	500-100-075	4	1/2 Lockwasher
12	11	500-100-076	4	1/2 Nut
12	12	500-100-222	2	40B20 sprockl
12	13	500-100-223	1	# 40 roller chain
13	1	500-100-097	1	Tail Base
13	2	500-100-086	4	Large Roller
13	3	500-100-099	1	4 in Roller
13	4	500-100-100	1	2 in Roller
13	5	500-100-101	2	Retainer Bar
13	6	500-100-102	2	Long Wood Strip
13	7	500-100-103	1	2 1/2 X 16 Hydraulic Cylinder
13	8	500-100-091	8	5/6 X 3 Carriage Bolt
13	9	500-100-104	6	1/2 X 3 1/2 Carriage Bolt
13	10	500-100-075	6	1/2 Lockwasher
13	11	500-100-076	6	1/2 Nut
13	12	500-100-092	8	5/16 Lockwasher
13	13	500-100-093	8	5/16 Nut
13	14	500-100-109	1	Hinge Pin
13	15	500-100-110	1	Cotter Pin
13	16	500-100-111	1	Tail Tie Bar
13	17	500-100-112	1	Hair Pin
13	18	500-101-113	1	3/4 X 5 Bolt
13	19	500-101-114	1	3/4 Locknut
13	20	500-101-223	1	Rear Roller Extension
13	21	500-100-046	4	3/8 X 1 Bolt
13	22	500-100-190	4	3/8 Flatwasher
13	23	500-101-224	4	3/8 Locknut
14	1	500-100-115	1	Short Roller
14	2	500-100-116	1	Left Bearing Bracket
14	3	500-100-117	1	Right Bearing Bracket
14	4	500-100-118	2	Bearing
14	5	500-100-119	4	3/8 X 1 1/4 Bolt
14	6	500-100-038	4	3/8 Lockwasher
14	7	500-100-039	4	3/8 Nut
14	8	500-100-122	2	1/2 X 4 Bolt
14	9	500-100-076	2	1/2 Nut
15	1	500-100-124	2	Bale Saddle
15	2	500-100-125	4	1/2 X 1 1/4 Bolt
15	3	500-100-114	2	1/2 Locknut
15	4	500-100-076	2	1/2 Nut
15	5	500-100-075	2	1/2 Lockwasher

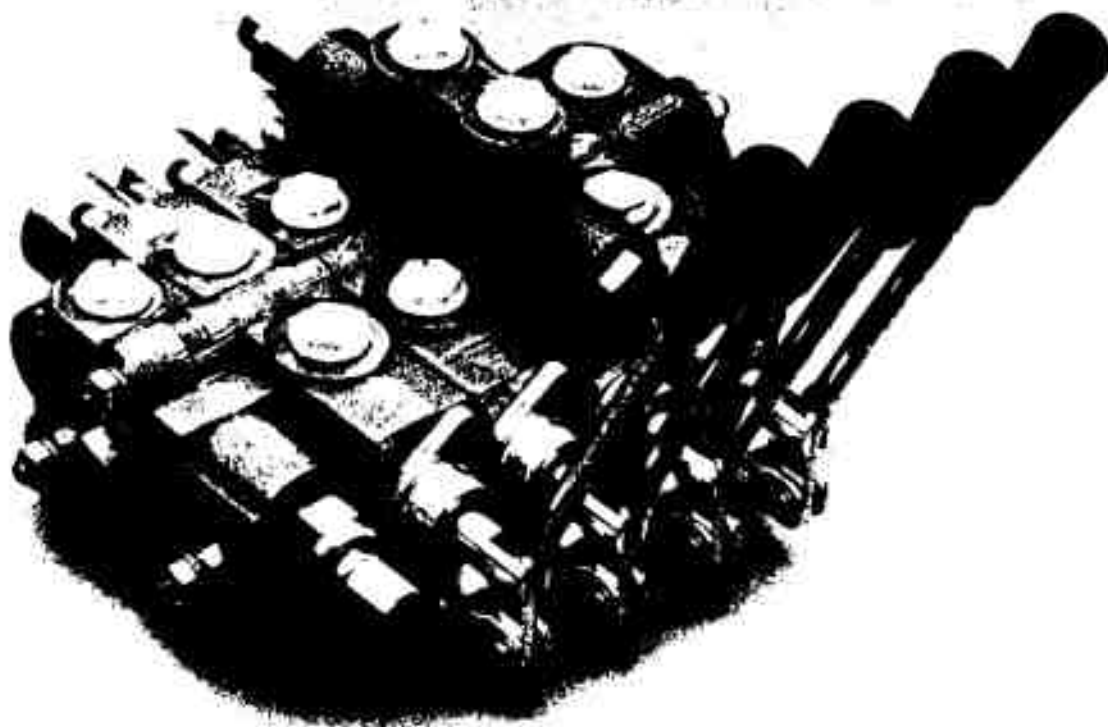


page #	Ref #	Part #	Qty	Description
16	1	500-100-129	1	Ram
16	2	500-100-130	2	Slider Tube
16	3	500-100-131	2	Long Cylinder Pin
16	4	500-100-132	2	Short Cylinder Pin
16	6	500-100-134	2	Ram Hydraulic Cylinder
16	7	500-101-135	1	Pinch Plate Spring
16	8	500-101-136	4	Pinch Plate
16	9	500-101-137	1	Push Plate
16	10	500-101-114	1	Push Plate Lock Pin
16	11	500-100-139	2	1/2 X 4 Bolt
16	12	500-100-076	2	1/2 Nut
16	13	500-100-075	2	1/2 Lockwasher
16	14	500-100-142	4	1/2 X 1 1/2 Bolt
16	15	500-100-076	4	1/2 Nut
16	16	500-100-075	4	1/2 Lockwasher
16	17	500-100-145	2	Grease Fitting
17	1	500-101-146	3	Push Tube
18	1	500-100-148	1	Main Tongue
18	2	500-100-149	1	Swinging Tongue
18	3	500-100-150	1	Slideing Tongue
18	4	500-100-151	1	Tongue Latch
18	5	500-100-152	1	3/4 X 8 1/2 Bolt
18	6	500-100-153	1	3/4 Locknut
18	7	500-100-154	1	Tongue Pin
18	8	500-100-155	2	5/8 X 5 Bolt
18	9	500-100-058	2	5/8 Locknut
18	10	500-100-157	1	5/8 X 4 1/2 Bolt
18	11	500-100-056	1	5/8 Locknut
18	12	500-100-157	1	5/8 X 4 1/2 Bolt
18	13	500-100-160	1	Tongue Holder
18	14	500-100-161	1	Hair Pin
18	15	500-100-103	1	2 1/2 X 16 Hydraulic Cylinder
19	1	500-100-163	2	Mud Flap
19	2	500-100-164	4	Metal Strip
19	3	500-100-165	12	5/16 X 1 Bolt
19	4	500-100-092	12	5/16 Lockwasher
19	5	500-100-093	12	5/16 Nut
20	1	500-100-168	1	Hydraulic Tank
20	2	500-100-169	1	Breather Cap
20	3	500-100-170	1	Filler Plug 1 1/4 Pipe
20	4	500-100-171	1	Sight Guage
20	5	500-100-172	1	Filter Base
20	6	500-100-173	1	10 Micron Filter
20	7	500-100-174	1	Magnetic Plug
20	8	500-100-175	1	Suction Filter
20	9	500-100-176	4	3/8 X 1 Bolt
20	10	500-100-038	4	3/8 Lockwasher
20	11	500-100-039	4	3/8 Nut

page #	Ref #	Part #	Qty	Description
21	1	500-100-179	1	13 HP Honda Engine (rope start QA)
		500-100-180	1	" " (electric start QNE)
21	2	500-100-181	1	Hydraulic Pump Prince # SP20A11A9HR
21	3	500-100-182	1	Engine to Pump Adaptor
21	4	500-100-183	1	Love Joy Coupling pump side
21	5	500-100-184	1	Coupling Spacer
21	6	500-100-185	1	Love Joy Coupling engine side
21	7	500-100-186	4	3/8 X 1 Bolt
21	8	500-100-038	4	3/8 Lockwasher
21	9	500-100-188	2	3/8 X 1 1/4 Bolt
21	10	500-100-038	2	3/8 Lockwasher
21	11	500-100-190	2	3/8 Flatwasher
21	12	500-100-191	2	Throttle Cable (manual)
22	1	500-100-192	1	Prince #CPV0014 Valve stack
22	2	500-100-193	1	Flow Control RD-150-08
22	3	500-100-194	1	1/2 Check Valve
22	4	500-100-195	1	Selector Valve
22	5	500-101-226	1	Relief Valve Prince RD18375
22	6	500-101-227	1	Ball Valve
22	7	500-101-228	1	Pressure Gauge
23	1	500-100-196	1	Engine Cover
23	2	500-100-197	1	Valve Stack Decal Plate
23	3	500-100-198	1	Selector Valve Decal Plate
23	4	500-100-199	1	Selector Valve Decal Plate Bracket
24	1	500-100-200	1	Continental Tandem Center 12 Volt VS12MBLGB75L
24	2	500-100-201	1	Continental Single Center 12 volt VS12M1AGB75L
24	3	500-100-202	2	Subplate SAE port ADO5SPS8S
24	4	500-100-203	1	Flow Control RD-150-08
24	5	500-100-209	1	Valve Stack CPV0013
24	6	500-101-226	1	Relief Valve Prince RD18375
24	7	500-101-227	1	Ball Valve
24	8	500-101-228	1	Pressure gauge
25	1	500-100-204	4	Body ZCK J1H7 Telemecanique
25	2	500-100-205	4	Actuator ZCK E05 "
25	3	500-100-206	4	Arm ZCK Y43 "
26	1	500-100-207	1	Control Panel
27	1	500-100-208	1	Trigger Plate
27	2	500-100-135	1	Trigger Spring
27	3	500-100-210	2	1/4 X 1 Stove Bolt c/w nut & lockwasher
27	4	500-100-211	1	Battery Holddown
27	5	500-100-212	1	5/16 X 7 Carriage Bolt c/w nut&lockwasher
27	6	500-100-213	1	5/16 X 2 Bolt c/w nut & lockwasher

page #	Ref #	Part #	Qty	Description
28	1	500-101-214	1	Solenoid Base
28	2	500-100-215	1	Throttle Solenoid
28	3	500-100-216	1	Coupling Nut
28	4	500-100-217	1	Throttle Cable
28	5	500-100-046	2	3/8 X 1 Bolt c/w nut & lockwasher
28	6	500-100-219	2	1/4 X 3/4 Bolt c/w nut & lockwasher
28	7	500-100-220	1	70 Amp Relay
28	8	500-101-225	1	Solenoid Wire Harness

# Directional Control Valves



## STANDARD FEATURES

1-8 Sections Per Valve Bank  
Load Checks On Each Section  
Hard Chrome Plated Spools  
Compact Construction  
Enhanced Metering Section Available in both  
the High and Low Sections (Consult Factory)

Differential Poppet Style Relief, Adjustable  
from 500 to 3000 psi (Also Available in Low Pres-  
sure Version Adjustable from 500 to 1500 psi)

Power Beyond Capability

Reversible Handle

*Model SV*

## SPECIFICATIONS

Parallel Circuit Construction

Pressure Rating

Maximum Operating Pressure ..... 3000 PSI

Maximum Tank Port Pressure ..... 500 PSI

Nominal Flow Rating ..... 12 GPM

Refer to Pressure Drop Curves

Foot Mounting

Maximum Operating Temp ..... 180° F

Weight Per Section

Inlet Section ..... Approx. 3.75 lbs.

Outlet Section ..... Approx. 3.75 lbs.

Work Section (Standard) ..... Approx. 5.50 lbs.

## VALVE ASSEMBLIES

The SV Series sectional body directional control valve can be ordered as separate sections as outlined or as a complete factory tested assembly. This will need to be specified with each order. An assembly model number will be assigned at the time of the order. This assembly number can then be used for future orders.

**ASSEMBLY MODEL NUMBER**    S - V - A - X - X - X

Sequence of Numbers. This number will be assigned to final valve to be assembled and tested at the factory. Each new order or quote will be assigned a new assembly model number.

### FIELD CONVERSION AND REPAIR KITS

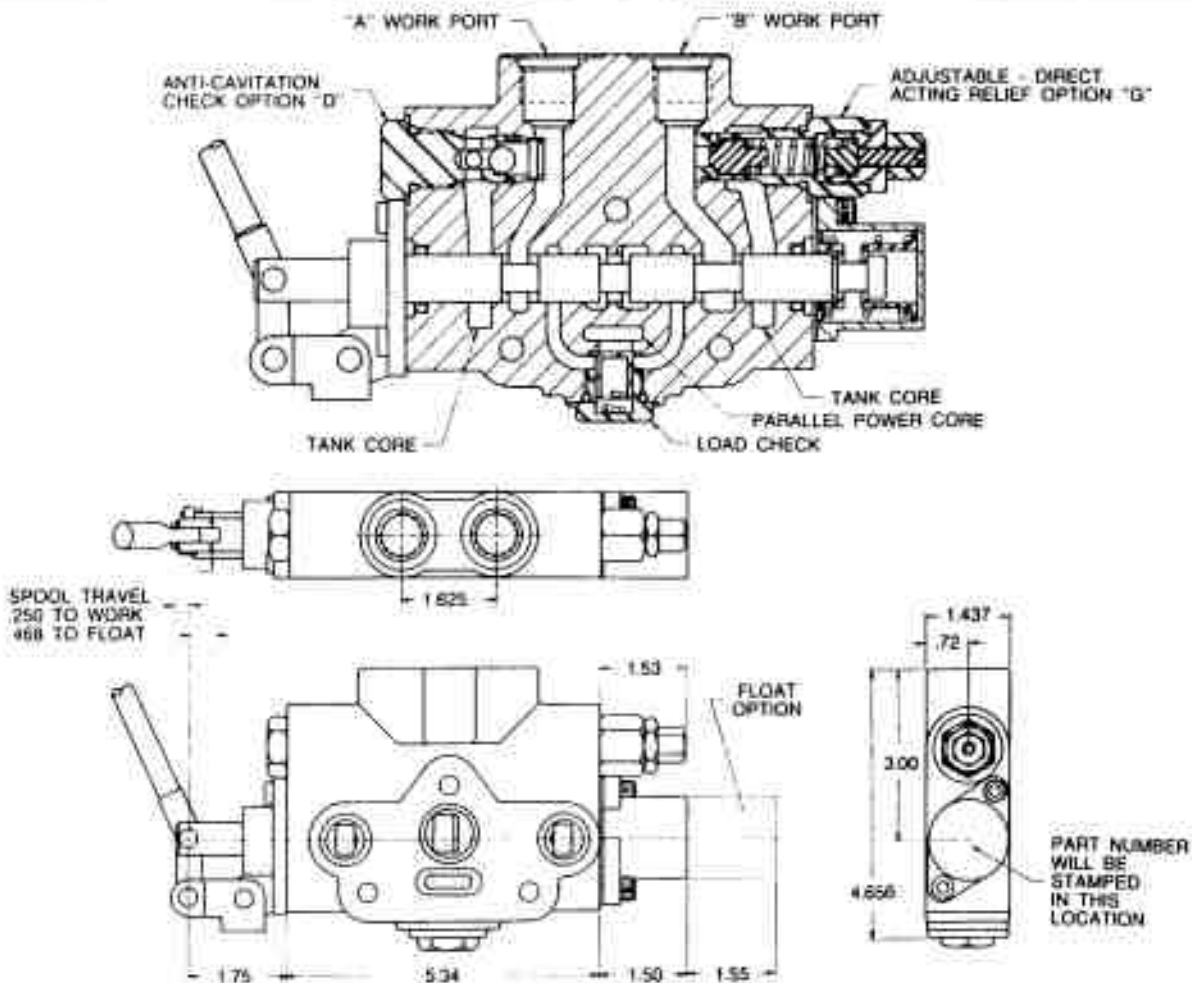
660180001	SPRING CENTER KIT
660180002	3 POSITION DETENT KIT
660180003	FRICTION DETENT KIT
660250003	LOW PRESSURE RELIEF CART.
660250002	HIGH PRESSURE RELIEF CART.
660580001	SEAL KIT SVW SECTION
660580002	SEAL KIT SVI SECTION
660580003	SEAL KIT SVE SECTION
660280002	CLOSED CENTER PLUG
660280001	POWER BEYOND PLUG #8 SAE
660180004	STD. HANDLE, PINS & LINK KIT
660180005	COMPLETE STD HANDLE
660180006	ADJ HANDLE, PINS & LINK KIT
660180007	COMPLETE ADJ HANDLE
660180008	3/4 IN. MOUNTING BOLT KIT
660180009	1 IN. MOUNTING BOLT KIT
660180010	#10 SAE PLUG W. GAUGE PORT
660580004	SEAL KIT--O-RINGS BETWEEN SECTIONS ONLY

### PORT RELIEF CARTRIDGES

660280004	NO RELIEF PLUG
660280005	ANTI-CAVITATION CHECK
*660280012	ADJUSTABLE PORT RELIEF/ ANTI-CAVITATION CHECK
*660280006	ADJUSTABLE PORT RELIEF 1500-3000 PSI
*660280011	ADJUSTABLE PORT RELIEF 500-1500 PSI
660280003	SHIM ADJUSTING PORT RELIEF 1500-3000 PSI
660280010	SHIM ADJUSTING PORT RELIEF 500-1500 PSI
672000101	.015 SHIM
672000102	.033 SHIM
672000103	.060 SHIM

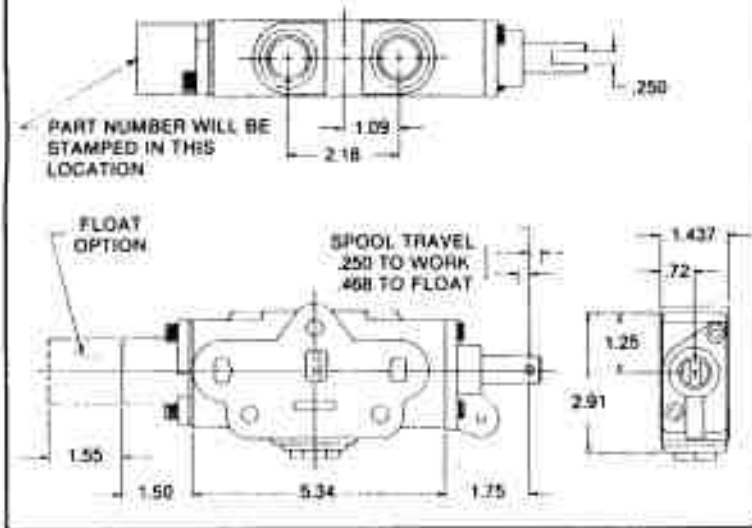
\*Cannot be used on the 'A' Port of work sections with Float Spool Option 'D'

### PORT RELIEF WORK SECTION DIMENSIONAL DATA



# DIMENSIONAL DATA

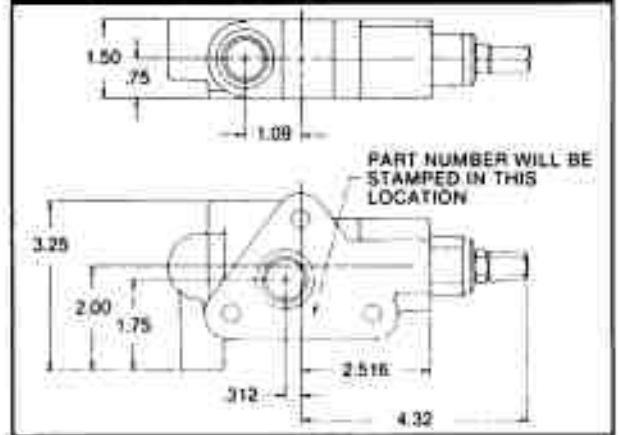
## WORK SECTION



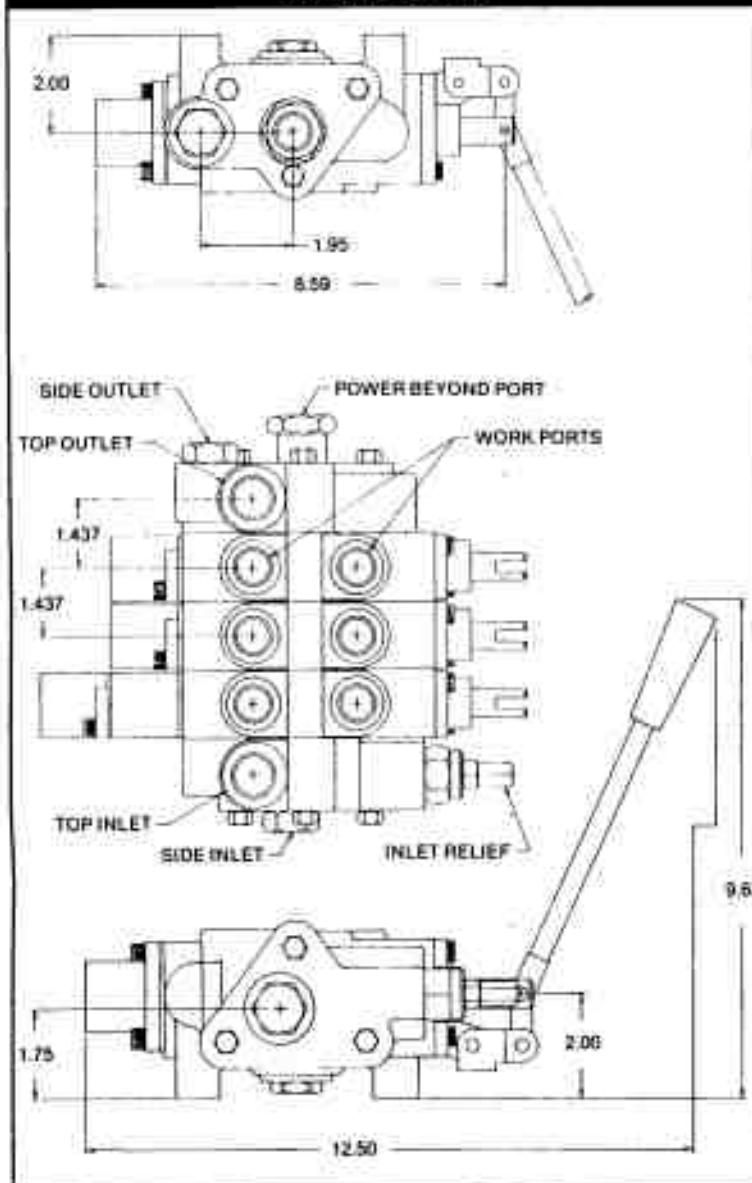
## OUTLET COVER



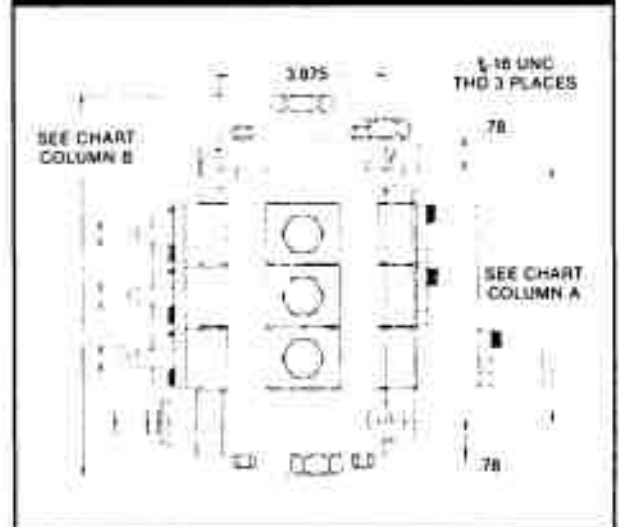
## INLET COVER



## TYPICAL STACK



## BOTTOM VIEW OF MOUNTING DIMENSIONS



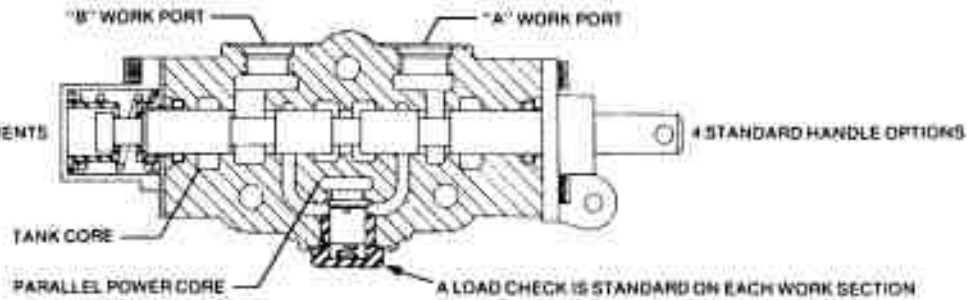
### NUMBER OF WORK SECTIONS

	"A"	"B"
1	2.875	5.875
2	4.312	7.312
3	5.750	8.750
4	7.187	10.187
5	8.625	11.625
6	10.062	13.062
7	11.500	14.500
8	12.937	15.937

## WORK SECTIONS

Standard and optional feature descriptions

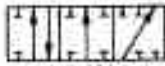
4 STANDARD SPOOL ATTACHMENTS



## SPPOOL TYPE

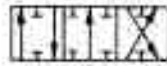
ALL SPOOLS ARE OPEN CENTER, P + T IN NEUTRAL, WHEN CLOSED CENTER IS REQUIRED USE OUTLET OPTION 3.

**OPTION A**  
SINGLE ACTING  
WORK PORT BLOCKED  
IN NEUTRAL



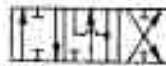
3 WAY, 3 POSITION

**OPTION B**  
DOUBLE ACTING  
WORK PORTS BLOCKED  
IN NEUTRAL



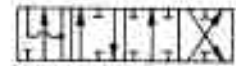
4 WAY, 3 POSITION

**OPTION C**  
DOUBLE ACTING  
WORK PORTS OPEN IN  
NEUTRAL



4 WAY, 3 POSITION MOTOR

**OPTION D**  
DOUBLE ACTING WITH  
4th POSITION FLOAT

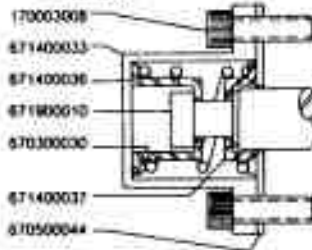


4 WAY, 4 POSITION FLOAT

## SPPOOL ACTION

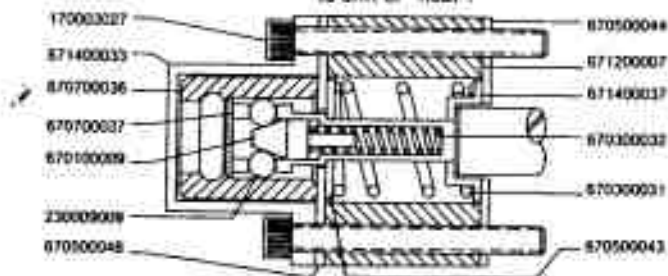
3 POSITION SPRING CENTER  
TO NEUTRAL

OPTION A



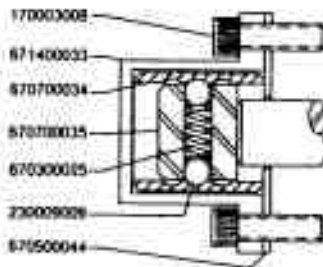
4 POSITION SPRING CENTER TO  
NEUTRAL DETENT SPOOL 'IN' FOR  
FLOAT POSITION.

OPTION D



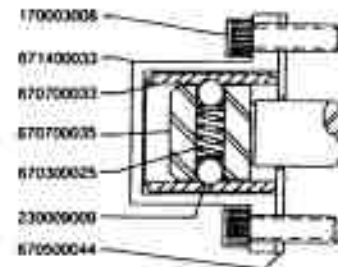
This option provides for spring center to neutral from either work position. It also provides a 4th position, float detent. The float detent is reached by pushing the spool in as far as it will go. In the float position both work ports are open to return. This allows a cylinder to drift or "float".

3 POSITION DETENT  
OPTION B



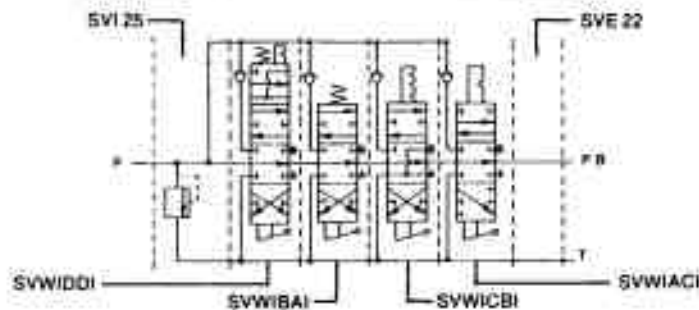
FRICITION DETENT  
OPTION C

This option provides for a detent in the neutral position only. As the spool is manually moved away from the neutral position it will be held in place by the friction of the detent balls on the detent sleeve. Note: Because the spool is held in place by friction only, excessive vibration may cause spool to move when not in the neutral detented position.

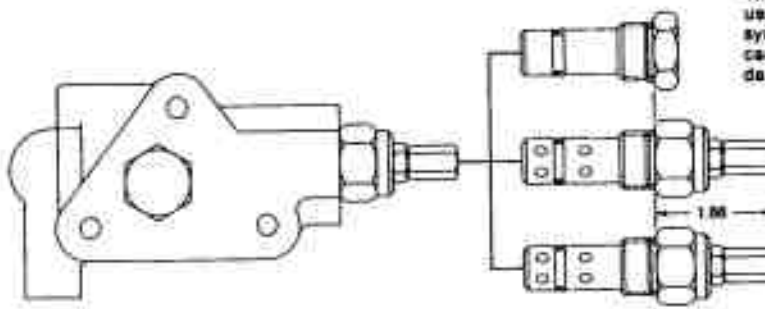


## ANSI SYMBOL

EXAMPLE FOUR  
SECTION STACK



## INLET RELIEF OPTIONS



### OPTION 1 NO RELIEF

This option provides for no built in relief. This is used when a relief is provided elsewhere in the system or in a closed center application. This plug can be replaced with a relief cartridge at a later date.

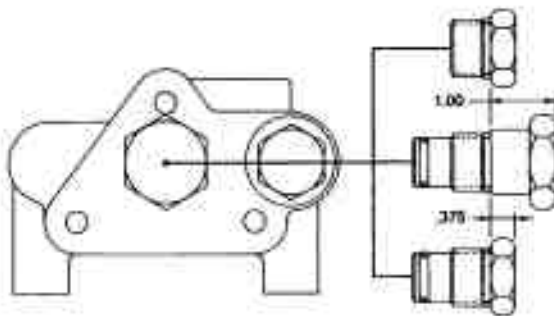
### OPTION 4 LOW PRESSURE ADJUSTABLE RELIEF

This option provides for a differential poppet relief adjustable from 500-1500 PSI. The standard setting is 1000 PSI @ 10 GPM.

### OPTION 5 HIGH PRESSURE ADJUSTABLE RELIEF

This option provides for a differential poppet relief adjustable from 1500-3000 PSI. The standard setting is 2000 PSI @ 10 GPM. The differential poppet relief provides smooth quiet operation with high cracking pressure.

## OUTLET COVER OPTIONS



### OPTION 1 STANDARD OPEN CENTER OUTLET WITH CONVERSION PLUG

This is the standard outlet option. This option allows for conversion in the field for power beyond or closed center applications. When the spools are in neutral the inlet is unloaded to tank.

### OPTION 2 POWER BEYOND OUTLET WITH #8 SAE BEYOND PORT

This option provides for a high pressure power beyond port. This would be used if a valve is to be added downstream. The outlet must be connected to tank. When the spools are in neutral the inlet is connected to power beyond port.

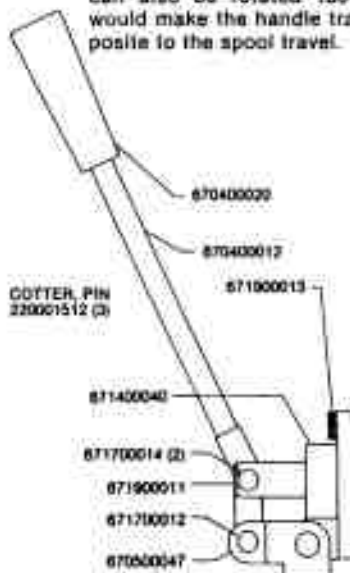
### OPTION 3 CLOSED CENTER OUTLET

This option provides for closed center operation. This is typically used with a variable displacement pressure compensated pump or in a system with an unloading valve. When the spools are in neutral the inlet port is blocked.

## HANDLE OPTIONS

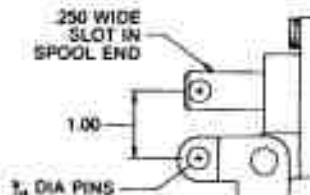
### OPTION 1 STANDARD LEVER HANDLE

The handle is shipped unattached. The handle can be installed as shown or it can be rotated 180° for applications where valve is mounted with the work ports down. The clevis assembly can also be rotated 180°. This would make the handle travel opposite to the spool travel.



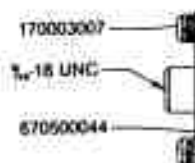
### OPTION 2 LESS HANDLE ONLY

This option provides the clevis assembly, clevis pins, and cotters. This option would be used if a special handle or linkage is installed by the customer. The parts are the same as option 1.



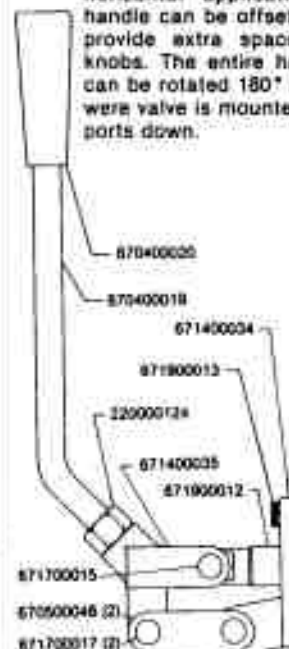
### OPTION 3 LESS COMPLETE HANDLE

This option provides no handle or clevis. A retainer plate is installed to hold the seals.



### OPTION 4 ADJUSTABLE HANDLE

This option provides a heavy duty adjustable handle for vertical or horizontal applications. Also the handle can be offset left or right to provide extra space between the knobs. The entire handle assembly can be rotated 180° for applications where valve is mounted with the work ports down.





## PRESSURE COMPENSATED ADJUSTABLE FLOW CONTROL VALVES

### MODEL RD-100 TOP PORT FLOW CONTROL



### MODEL RD-1900 SIDE PORT FLOW CONTROL



The PRINCE valve models RD-100 and RD-1900 are pressure compensated adjustable flow control valves. By rotating the handle the flow out the "CF" or controlled flow port can be varied within the range given in the chart below. Any remaining flow is bypassed to the "EF" or excess flow port. This flow can be used to power another circuit or can be returned to tank. Once the controlled flow is set it will remain nearly constant with variations in pressure on either the controlled or excess flow ports. Please note, if during operation the controlled flow port is blocked the valve will compensate in such a way as to shut off flow to the excess port.

These valves can also be used as a restrictive flow control by plugging the excess flow port.

The PRINCE valve models RDRS-100 and RDRS-1900 have a built in adjustable pressure relief. For these models the excess flow port **must** be connected to tank.

It should be noted that whenever these or any valve is used to bypass or restrict flow heat will be generated. Steps maybe required to keep oil temperature from becoming too high.

#### VALVE SPECIFICATIONS:

Capacity: 30 gpm max inlet flow

Pressure: 3000 psi max

Weight: RD-100 8 lbs.

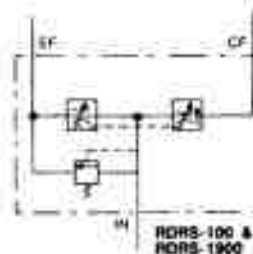
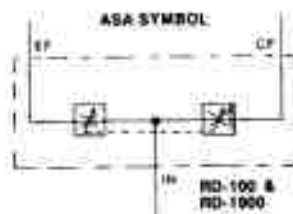
RD-1900 9 lbs.

#### STANDARD MODELS AVAILABLE

MODEL NUMBER		PORT SIZES	CONTROLLED FLOW RANGE	
RD-137-8	RD-1937-8	3/8 NPTF	0-8 GPM	<b>FIELD REPAIR KITS:</b> Handle hardware kit 660301002 Seal Kit 660501001
RD-150-8	RD-1950-8	1/2 NPTF	0-8 GPM	
RD-150-16	RD-1950-16	1/2 NPTF	0-16 GPM	
RD-175-16	RD-1975-16	3/4 NPTF	0-16 GPM	
RD-175-30	RD-1975-30	3/4 NPTF	0-30 GPM	
RD-108-8	RD-1908-8	#8 SAE	0-8 GPM	
RD-112-30	RD-1912-30	#12 SAE	0-30 GPM	
RDRS-150-16	RDRS-1950-16	1/2 NPTF	0-16 GPM	
RDRS-175-30	RDRS-1975-30	3/4 NPTF	0-30 GPM	

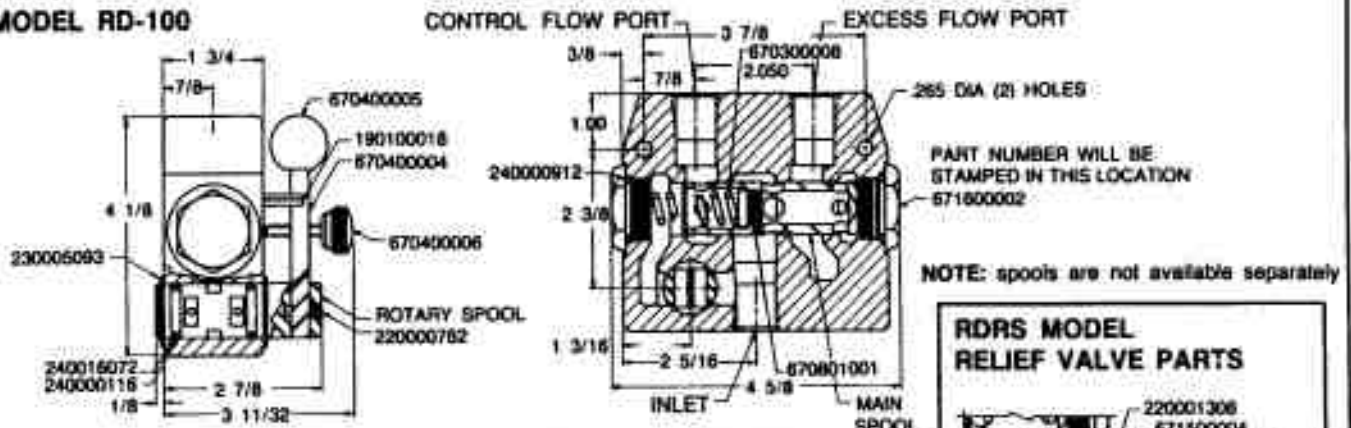
Special combinations of port size and controlled flow range are available in OEM quantities. Please consult your sales representative.

#### SYMBOL

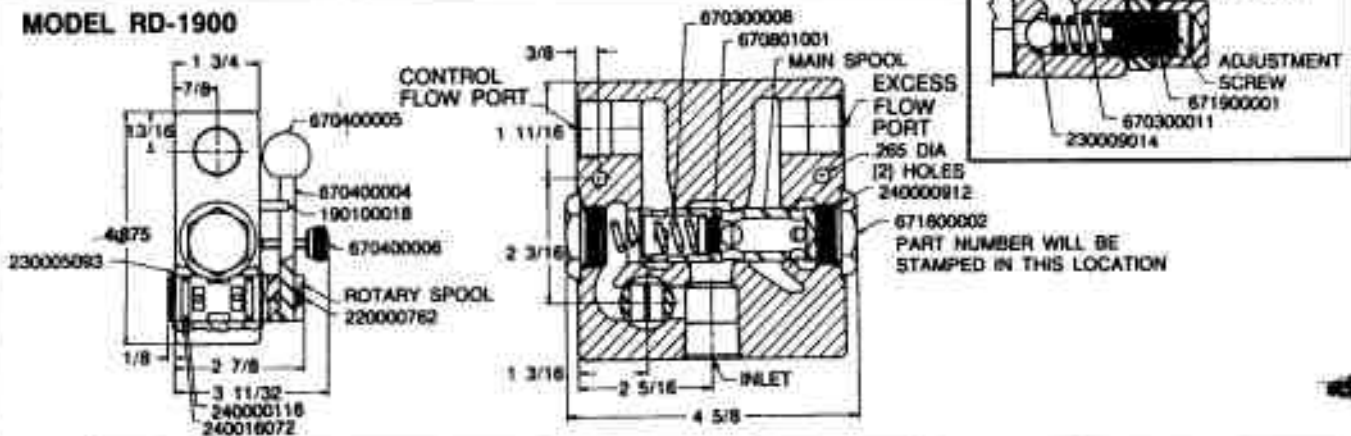


## MODEL RD-100 AND RD-1900 PARTS BREAKDOWN AND DIMENSIONS

### MODEL RD-100



### MODEL RD-1900

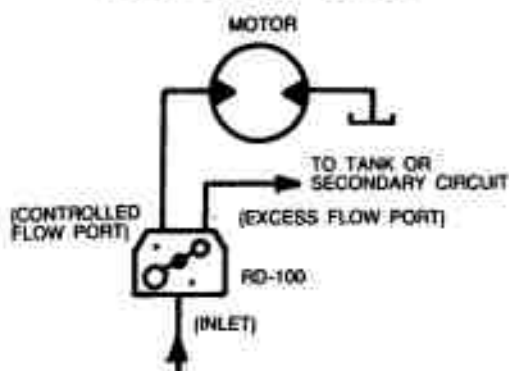


### APPLICATIONS:

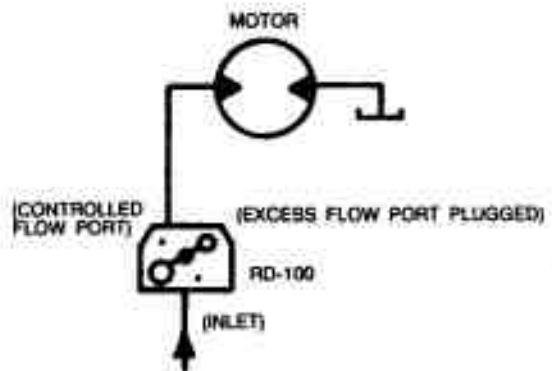
As illustrated in the circuit below the RD-100/RD-1900 adjustable flow control valves can be used to control the speed of a hydraulic motor. In this circuit oil from a source is directed into the inlet of the valve. By moving the handle the flow can be varied from zero when handle is vertical to maximum when the handle is horizontal. Oil not going to the controlled flow port is bypassed to the excess flow port where it can be used to supply another circuit or returned

to tank. Instead of the control flow directly supplying a motor it can be used as an adjustable priority divider and provide adjustable priority flow to a directional control valve bank. Also as illustrated the RD-100/RD-1900 can be used as a restrictive type flow control. In this circuit the excess flow port is blocked. This would normally be used with a pressure compensated pump or in a closed center system.

#### BYPASS FLOW CIRCUIT



#### RESTRICTIVE FLOW CIRCUIT



## Notes

Electric Solenoid valves can be manually operated by pushing a small punch into end of spool and holding it in .

**CAUTION STAY AWAY FROM WRAP HOOP WHEN ENGINE IS RUNNING.**

Inside Control Panel, control relays are numbered CR1 to CR5 from left to right relay CR1 is wired to table trigger . CR1 will activate solenoid valve to extend ram cylinder and CR5 . CR5 controls throttle solenoid. CR2 and CR3 are wired to motion sensor switch at rear roller, when switch arm is between teeth on sprocket, CR3 is energized, as roller turns switch arm it will be pushed to top of tooth on sprocket energizing CR2 and vice-versa . After both relays CR2 and CR3 are activated, wrap solenoid is energized causing wrap motor to turn . When ram cylinder is extended to the limit switch at the engine CR1,CR2 and CR3 will turn off and CR4 turns on. Wrap motor will stop and ram cylinder will retract until ram cylinder trips limit switch at front end of table . All control relays will turn off .

Testing can be done by pushing trigger plate then going to the back and turning roller with sprocket, then waiting until machine goes through the cycle . Or, you can push the small square button on end of control relay 1, then push button on control relay 2 or 3, whichever is not activated. Then waiting until machine goes through the cycle .

When running machine through the cycle and wrapper motor or the cylinders do not work, check flow control valve to see if flow is going to both motor and cylinder

Engine is stopped by grounding ignition, in case of ignition failure make sure that stop switch wire is not shorting to frame and engine switch is not in closed position.

Engine Throttle Solenoid must be able to fully retract to engage the holding coil.

Failure to retract fully will cause solenoid coil to burn out . Check to make sure throttle cable moves freely and does not bind. To test solenoid use a jumper wire across large terminals on 70 amp relay. Solenoid will Draw 55 amps until it is seated, then it will draw 1 amp on the holding coil.