

**OPERATOR'S / PARTS  
MANUAL**



***Dump Trailer***  
**Model**

**PUMA-7610**

**PUMA-10610**

VISIT OUR WEBSITE



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# INTRODUCTION

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## CONGRATULATIONS!

Thank you for choosing PRONOVOST. We are confident this equipment will meet your requirements in terms of quality, performance and reliability.

This manual was prepared to assist you in the safe operation of your new Dump Trailer. It contains important information which will help you achieve excellent returns with your PRONOVOST Dump Trailer for years to come.

Please read this manual before operating your Trailer and keep it for future reference.

Before using this equipment, you or any other person who will be using it must familiarize yourself with the safety recommendations, the operating and safety instructions. Please read carefully and be sure to understand and follow all recommendations and procedures.

In this manual, the right and left sides are identified while standing at the rear end of the equipment and facing it.

If you require additional information on your Dump Trailer, please contact your PRONOVOST Dealer.

**NOW** take a moment to enter the model, serial number and the date of purchase of your Trailer in the space provided below.

When ordering parts from your Dealer, please refer to these numbers for a fast and efficient service. Use PRONOVOST parts for replacement.

The model and serial numbers are on the name plate shown on Fig. 1.



Figure 1

MODEL: \_\_\_\_\_ ✍

SERIAL NO: \_\_\_\_\_ ✍

DATE OF PURCHASE: \_\_\_\_\_ ✍

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# ***SAFETY***

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## ***GENERAL SAFETY***

**2**

### **WHEN YOU SEE THIS SYMBOL**



**ATTENTION!**

**BE ALERT  
YOUR SAFETY IS INVOLVED**

This symbol "**SAFETY ALERT**" is used in this manual and on the safety decals on the Trailer. It warns you of the possibility of danger. Carefully read, understand and follow all safety recommendations before operating the equipment.

- 1) Careful operation is the best assurance against accidents. Carefully read this manual and follow all recommendations before operating this equipment. It is the owner's responsibility to make sure that anyone who will operate the Trailer will read this manual before operating the equipment.
- 2) Do not modify the equipment. Any non authorized modification may affect the efficiency and/or safety of the equipment.
- 3) Never operate the equipment with defective parts or if damaged in any way. Have it repaired before using it.
- 4) Make sure all fasteners are in place and properly secured or tightened. Refer to torque chart on page 24.
- 5) Hydraulic fluids under pressure can damage your skin. Do not use your hands to locate a leak.
- 6) Battery (with 12V hydraulic system) contains

sulfuric acid. Avoid contact with skin, eyes or clothing.

## ***SAFETY IN OPERATION***

- 1) **WARNING!** Do not overload your trailer, do not exceed the load capacity indicated in the specifications on page 13.
- 2) Be sure there are no obstructions around the equipment and that no one stands near the equipment when in use.
- 3) Do not operate an engine in a confined or non ventilated area.
- 4) Do not perform any adjustments, cleaning, maintenance or repairs with the engine running on the towing vehicle. Preferably remove the key from the ignition.
- 5) Be careful when backing-up, make sure you have good visibility.
- 6) Check if coupler is well attached to the towing ball. Make sure they are the same size.
- 7) Check if the safety chains are crossed under the pole and are attached to the vehicle.
- 8) Make sure the suspension, brakes and lights are all functioning properly.
- 9) Do not forget to unlock the proper panel lock before dumping.
- 10) Always travel at a safe operating speed following regulations and common sense.
- 11) Check battery charge regularly to insure proper functioning of emergency brakes. Ideal charge: 12.66 volts.

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## ***SAFETY (cont'd)***

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### ***SAFETY WITH MAINTENANCE***

- 1) Perform maintenance according to recommendations contained in this manual.
- 2) **Before performing any work under the raised platform, always install the safety prop provided.**

- 3) If the trailer is hooked up to the vehicle while performing maintenance work, make sure the engine is not running and preferably remove the ignition key.

### ***SAFETY IN TRANSPORT***

- 1) Be alert while driving on the road. Never carry passengers in the trailer.

**2**

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# DECALS

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## SAFETY DECALS

The safety decals are affixed wherever special safety precautions are indicated. Locate them on the equipment and read them carefully. If a decal is damaged, lost or illegible, install a new one. The following photos indicate where each one must be installed.

**3**

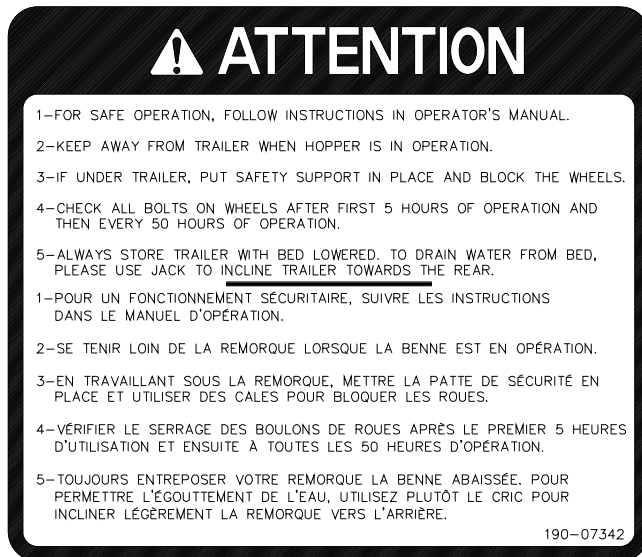


Figure 2  
Decal A

Part no.: 190-07342

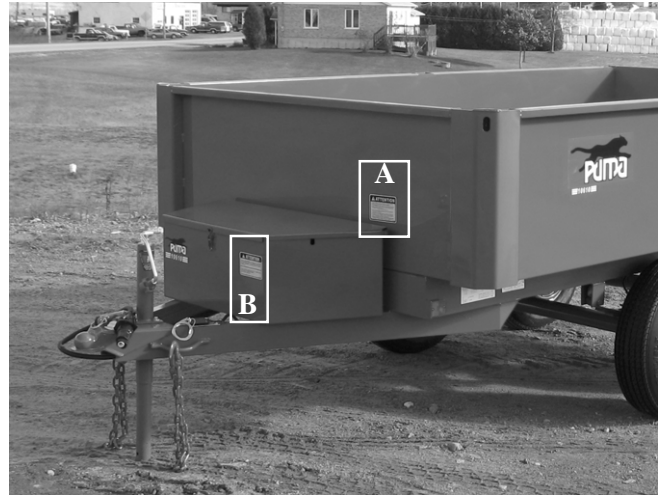


Figure 4



Figure 3  
Decal B

Part no.: 190-04731



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# DECALS

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## MAINTENANCE DECALS

The maintenance decals indicate the points requiring lubrication. Refer to maintenance section for more details.



Figure 5

Part no.: A 105



Figure 6

Part no.: A 106

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# ***START-UP***

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## ***BASIC START-UP PROCEDURES***

- 1) Lubricate all grease fittings with a good quality multi-purpose grease.
- 2) Lubricate panel release mechanism with good quality oil.
- 3) Adjust tire pressure to manufacturer's specifications.
- 4) Install wheels on hubs.
- 5) Verify for adequate tightness of all fastening devices. Refer to torque chart on page 24.
- 6) Install panels.
- 7) Check oil level in hydraulic reservoir. Use DEXTRON III or equivalent.
- 8) Check battery charge regularly to insure proper functioning of emergency brakes. Ideal charge: 12.66 volts.
- 9) Do not forget to unlock the proper panel lock before dumping.

**4**

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## ***MAINTENANCE***

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**Before performing any work under the raised platform, always install the safety prop provided.**

- 1) Wipe off all grease fittings with a clean cloth before adding grease in order to avoid injecting dirt or sand.
- 2) Repair or replace damaged grease fittings.
- 3) Lubricate all grease fittings every 20 hours of operation.
- 4) Check if the hub caps are always in place.
- 5) Check all bolts on wheels after first 5 hours of operation and then every 50 hours of operation.
- 6) Lubricate panel release mechanism every 20 hours of operation.
- 7) Check tire pressure every 50 hours of operation, adjust according to recommendation indicated on the tires.
- 8) Check brakes once a year and adjust or repair if necessary.
- 9) Open, clean and lubricate wheel bearings once a year.
- 10) Check all nuts and bolts once a year. If necessary use torque chart on page 24.
- 11) Check oil level in hydraulic reservoir. Use DEXTRON III or equivalent.
- 12) Check battery charge regularly to insure proper functioning of emergency brakes. Ideal charge: 12.66 volts.

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## *STORAGE*

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- 1) Store in a cool, dry place.
- 2) Install wooden blocks under the axles to keep the tires off the ground and cover them if left exposed to the sun.
- 3) Keep all piston rods in the retracted position. This will assure better protection against the elements.
- 4) Clean your trailer.
- 5) Thoroughly inspect all parts of the trailer. Replace or repair worn or defective parts.
- 6) Touch-up or repaint if necessary.
- 7) Lubricate all points before storage.

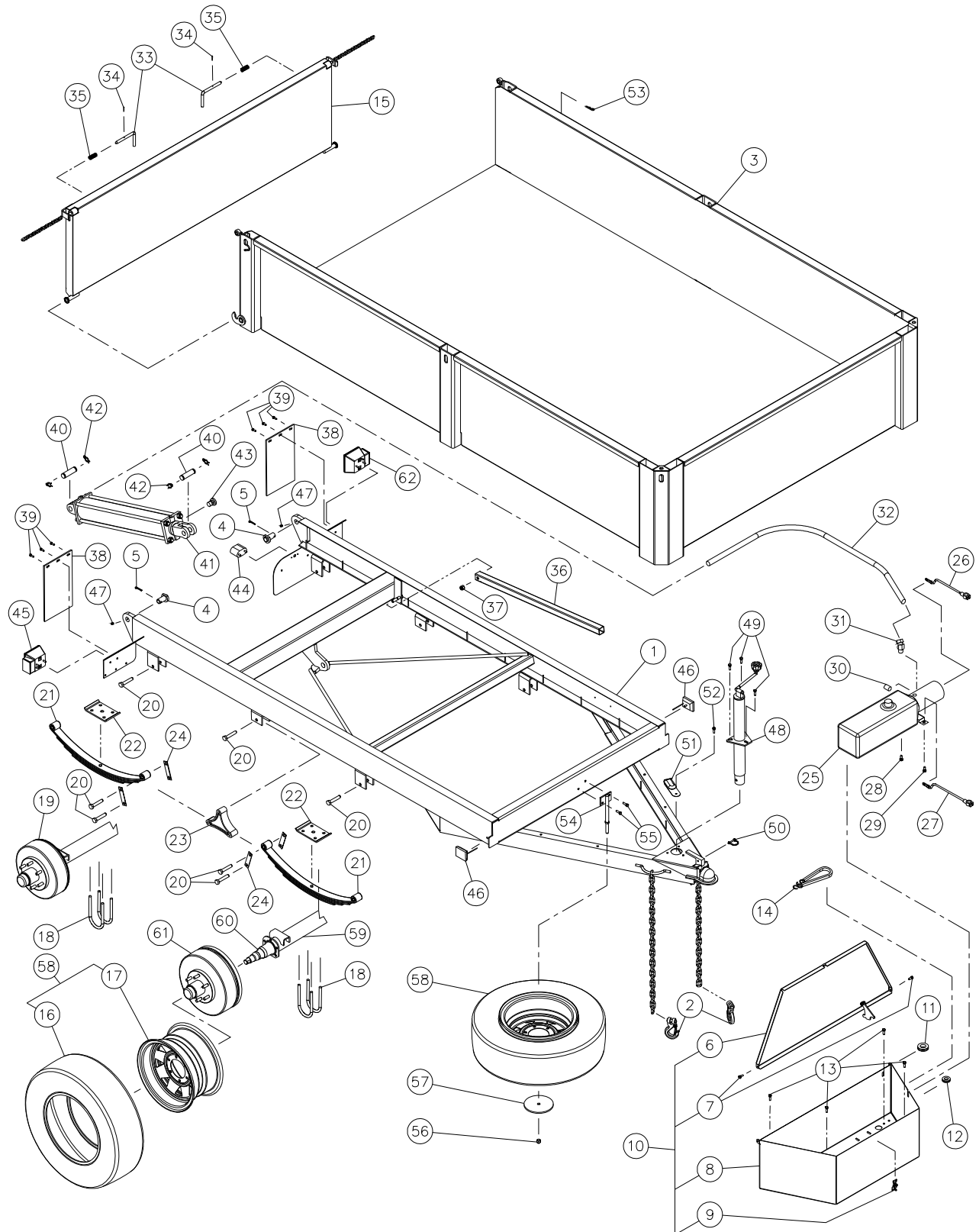
# SPECIFICATIONS

MODEL	PUMA-7610	PUMA-10610
Gross vehicle weight rating	7 000 lbs	10 000 lbs
Box (interior dimensions)	72" x 120"	
Side and front panel	20" x 14G (welded)	
Back panel (removable)	20" x 14G	
opening from top or bottom	Yes	
Free height (maximum lift)	18"	19"
Platform height	32"	33"
Overall length	161"	
Overall width	78"	
Overall height (box down)	std. panel 52½"	std. panel 53½"
Overall height at max. lift	124"	125"
Thread width c/c	62"	61"
Dumping angle	47 degrees	
Suspension	Leaf springs	
Wheels	4	
Wheel dimensions	14" x 6" (5 bolts)	15" x 6" (6 bolts)
Tires (standard)	ST205/75D14	ST225/75D15
Hitch	"A" frame hitch - Ball 2 <sup>5</sup> / <sub>16</sub> "	
Jack	5 000 lbs	
Electric brakes	Standard	
Brake away kit	Standard	
Light system (12V)	Standard	
Oil volume required	1.3 gal US / 5 l	2 gal US / 7.5 l
Cylinder	1 x sing. act. ⇨ 3" ø x 24" stroke	1 x sing. act. ⇨ 3½" ø x 24" stroke
Battery 12 volts	Not provided	
Standard hydraulic pump	Electric 12V in tool box with hand held switch + 20' lead	
Optional hydraulic pump	-	
Spare wheel	Option	
Stake pockets	6 x (2" x 4")	
Retractable tarp	Option	
Safety chains	Standard	
Total weight approximate	1 540 lbs	1 740 lbs

Design and specifications subject to change without notice.

# TRAILER PUMA-7610 & PUMA-10610

170-03711



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# TRAILER PUMA-7610 & PUMA-10610 (cont'd)

REF.	PART #	DESCRIPTION	QTY	
			7610	10610
1	120-05141	Frame Puma-10610 .....	-	1
1	120-05411	Frame Puma-7610 .....	1	-
2	54070	Safety hook .....	2	2
3	120-05151	Platform .....	1	1
4	110-16551	Clevis pin 1" dia x 2 7/16" lg .....	2	2
5	Std.	Cotter pin 5/32" x 2" .....	2	2
6	110-26922	Box cover .....	1	1
7	300-34220	Bolt 5/16" NC x 3/4" lg + nylon locknut .....	2	2
8	110-26923	Box .....	1	1
9	8376	Clamp fastener (welded) .....	1	1
10	110-26921	Box assembly (including #6-7-8-9) .....	1	1
11	54140	Grommet 1" .....	1	1
12	54141	Grommet 1/2" .....	1	1
13	300-34250	Bolt 5/16" NC x 1" lg + flat washer + nylon locknut .....	4	4
14	Std.	Rubber band 15" .....	1	1
15	110-27051	Rear panel .....	1	1
16	PN-22575D15	Road tire ST225/75D15 .....	-	4
16	PN-20575D14	Road tire ST205/75D14 .....	4	-
17	RM-1666	Rim 15" x 6" -6 bolts .....	-	4
17	RM-1465	Rim 14" x 6" -5 bolts .....	4	-
18	54142	«U» bolt 1/2" NF x 3" x 6 1/2" + 2 nylon locknut .....	8	8
19	110-30942	Axle assembly with electric brake hubs for Puma-10610 .....	-	2
19	110-30872	Axle assembly with electric brake hubs for Puma-7610 .....	2	-
20	302-42400	Bolt 9/16" NF x 3" lg + nylon locknut .....	14	14
21	51600	Springs Puma-10610 .....	-	4
21	54010	Springs Puma-7610 .....	4	-
22	51599	Back plate 2 1/2" .....	4	-
22	54085	Back plate 3" .....	-	4
23	54086	Pivot de lame .....	2	2
24	51601	Plaque du pivot .....	8	8
25	54088	Electric hydraulic pump (ajusted at 2 500 PSI) .....	1	1
26	51607	Battery cable 10" .....	1	1
27	51631	Battery cable 15" .....	1	1
28	300-36250	Bolt 3/8" NC x 1" lg + 1 flat washer + nylon locknut .....	1	1
29	300-36280	Bolt 3/8" NC x 1 1/4" lg + flat washer + tooth lockwasher + nylon locknut .....	1	1
30	C3159-4	Plug 1/4" NPT .....	1	1
31	9355 6x6	Elbow 45 degree (3/8" male - 3/8" female swivel) .....	1	1
32	190-08141	Hose 3/8" x 91" lg + 1 fitting 6U106 + 1 fitting 6U108 .....	1	1
33	150-06861	Rear panel lock .....	2	2
34	Std.	Roll pin 1/8" x 1" lg .....	2	2
35	54143	Compression spring 7/8" dia x 2" lg .....	2	2
36	160-15331	Safety support .....	1	1
37	346-40000	Nylon locknut 1/2" .....	1	1
38	51612	Mud guard 4" x 8" .....	2	2
39	300-32220	Bolt 1/4" NC x 3/4" lg + flat washer + nylon locknut .....	6	6
40	150-01841	Clevis 1" dia x 3 1/8" lg .....	2	2
41	35TR24	Cylinder 3 1/2" dia x 24" stroke .....	-	1
41	30TR24	Cylinder 3" dia x 24" stroke .....	1	-

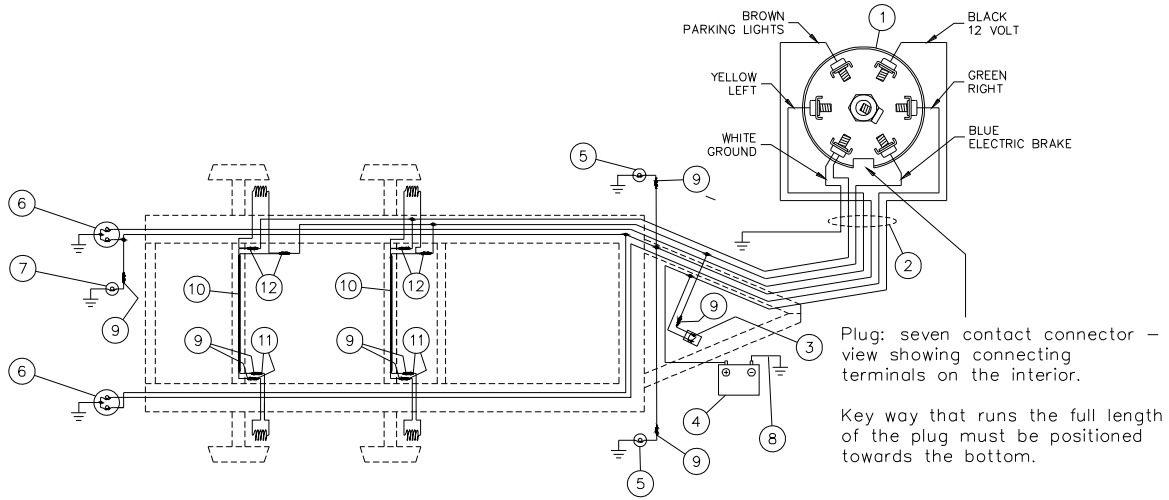
## TRAILER PUMA-7610 & PUMA-10610 (cont'd)

REF.	PAR #	DESCRIPTION	QTY	
			7610	10610
42	Std.	Hitch pin clip 3/16" .....	4	4
43	54004	Vent plug 1/2" NPT .....	1	1
44	52070	License plate light .....	1	1
45	54101	Brake, signal and parking lights .....	2	2
46	52077	Yellow parking light .....	2	2
47	Std.	Grease fitting 1/4"-28 straight .....	2	2
48	54078	Jack 5000 lbs .....	1	1
49	300-36250	Bolt 3/8" NC x 1" lg + flat washer + nylon locknut .....	3	3
50	Std.	Lock pin 1/4" .....	1	1
51	52069	Emergency brake switch .....	1	1
52	300-32250	Bolt 1/4" NC x 1" lg + flat washer + nylon locknut .....	1	1
53	Std.	Hitch pin clip 1/8" .....	1	1
54	110-30821	Support for spare tire .....	opt	opt
55	300-34250	Bolt 5/16" NC x 1" lg + nylon locknut (2) .....	opt	opt
56	362-40000	Nut 1/2" -20 NF .....	opt	opt
57	130-51651	Plate for spare tire .....	opt	opt
58	PNA-22575D15	Road tire assembly ST225/75D15 (spare tire optional) .....	4	-
58	PNA-20575D14	Road tire assembly ST205/75D14 (spare tire optional) .....	-	4
59	110-30851	Axle assembly 3500 lbs for PUMA-7610 .....	2	-
59	110-30931	Axle assembly 5000 lbs for PUMA-10610 .....	-	2
60	110-30771	Spindle 3500 lbs (welded) .....	4	-
60	110-30781	Spindle 5000 lbs (welded) .....	-	4
61	54148	Hub and drum assembly with brakes 3500 lbs .....	4	-
61	54149	Hub and drum assembly with brakes 5000 lbs .....	-	4



# ELECTRIC CIRCUIT PUMA-7610 PUMA-10610

170-04081

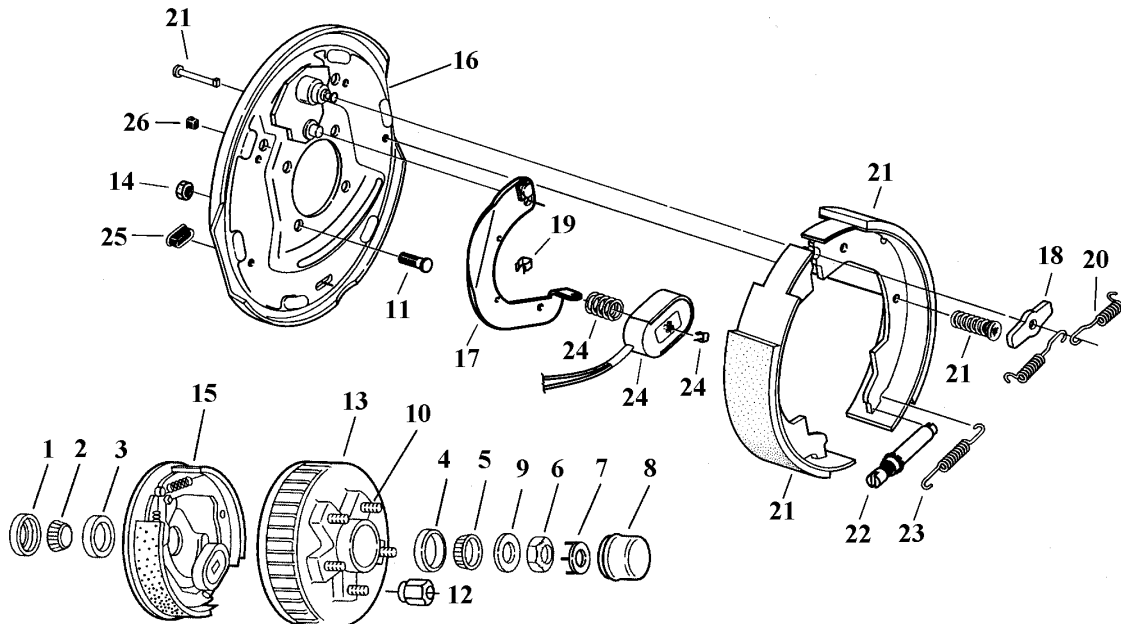


REF.	PART #	DESCRIPTION	QTY	
			7610	10610
1	52065	Connector 7 poles .....	1	1
2	54103	PUMA conductor cable kit (including #1 and 8 x #11) .....	1	1
3	52069	Emergency brake switch .....	1	1
4	—	Battery 12 volt 850 Amp required .....	-	-
5	52077	Yellow parking light .....	2	2
6	54101	Red parking and signal light .....	2	2
7	52070	License plate light .....	1	1
8	51631	Battery cable 4 GA. x 15" lg .....	1	1
9	54144	Male connector (16-14GA) .....	8	8
10	190-08281	Cable 14GA 2-conductors x 67" lg .....	2	-
10	190-08311	Cable 14GA 2-conductors x 63" lg .....	-	2
11	54145	Female connector (16-14GA) .....	4	4
12	54146	Male connector (10-12GA) .....	4	4



# HUB AND DRUM 545, ELECTRIC BRAKES 10x2 1/4"

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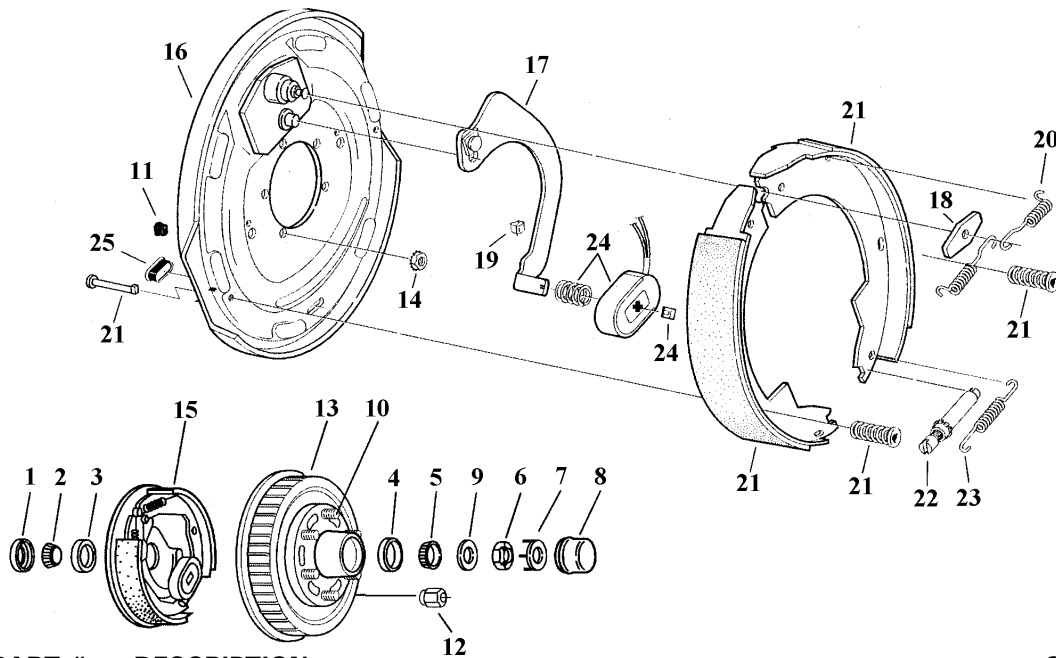


REF.	PART #	DESCRIPTION	QTY/ASS'Y PUMA-7610
1	51535	Grease seal CR17415 .....	1
2	L68149	Roller bearing (cone) .....	1
3	L68111	Roller bearing (cup) .....	1
4	L44610	Roller bearing (cup) .....	1
5	L44649	Roller bearing (cone) .....	1
6	54139	Lock nut 1" NF .....	1
7	54138	Spindle nut retainer .....	1
8	54105	Grease cap .....	1
9	54106	Spindle washer .....	1
10	54111	1/2"-20 pressed wheel stud .....	5
11	54124	Brake mounting bolt Press-in 7/16-14 .....	4
12	362-40000	1/2-20 60 deg cone nut .....	5
13	54107	Hub and drum 1750 lbs .....	1
14	338-38000	Nut 7/16" NF + lock washer .....	4
15	54108	Electric brake 10 x 2 1/4 (left) .....	1
15	54109	Electric brake 10 x 2 1/4 (right) .....	1
16	54112	Backing plate Assembly .....	2
17	54113	LH Actuating lever arm .....	1
17	54114	RH Actuating lever arm .....	1
18	54115	Washer .....	1
19	54116	Wire clip .....	3
20	54117	Retractor spring .....	2
21	54118	Shoe and lining kit .....	1
22	54119	Adjuster assembly .....	1
23	54120	Adjusting screw spring .....	1
24	54121	Magnet kit containing .....	1
25	54122	Adjuster slot plug .....	1
26	54123	Wire grommet .....	1

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# HUB AND DRUM 655, ELECTRIC BRAKES 12x2"

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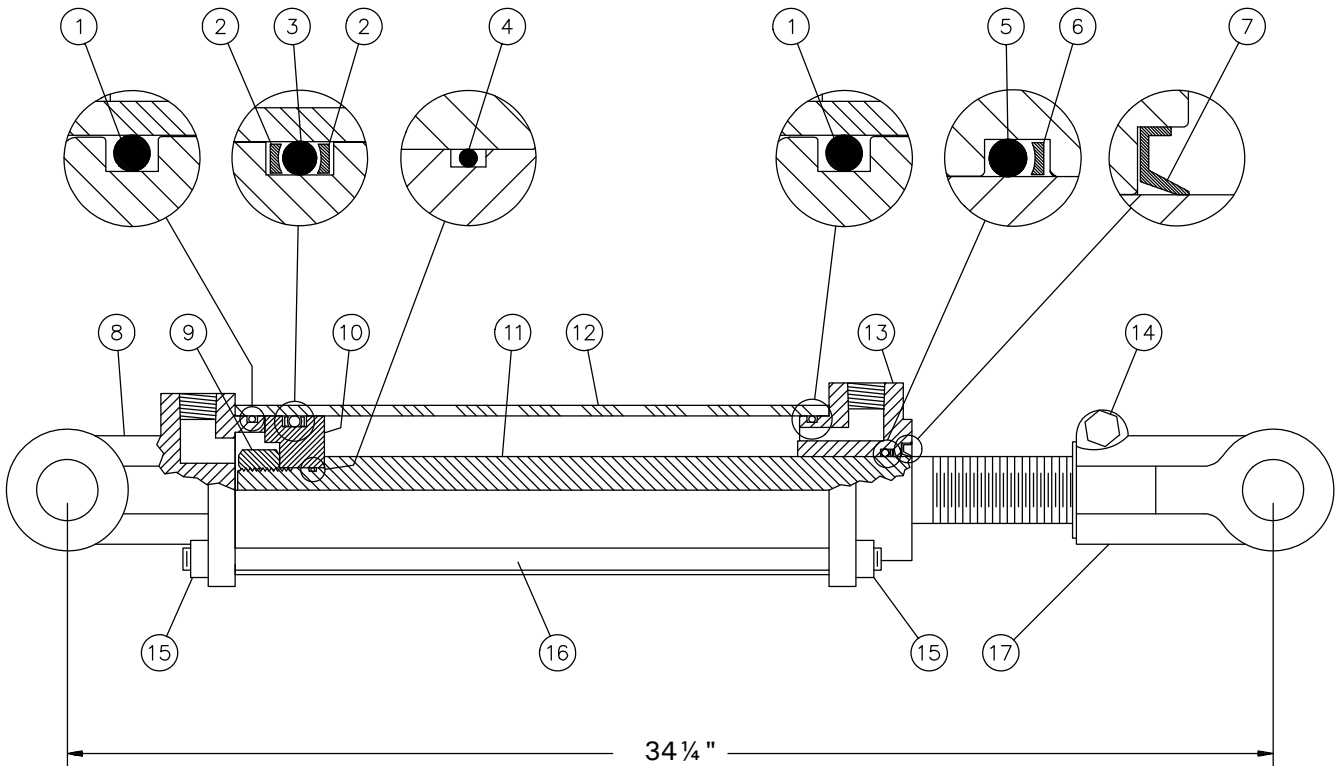


REF.	PART #	DESCRIPTION	QTY/ASS'Y
			PUMA-10610
1	54125	Grease seal CR22333 (2 1/4" d.i. x 3 3/8" d.e.)	1
2	25580	Roller bearing (cone)	1
3	25520	Roller bearing (cup)	1
4	15245	Roller bearing (cup)	1
5	15123	Roller bearing (cone)	1
6	54139	Lock nut 1" NF	1
7	54138	Spindle nut retainer	1
8	54126	Grease cap	1
9	54106	Spindle washer	1
10	54127	1/2"-20 pressed wheel stud x 2 1/2" lg	6
11	54123	Wire grommet	1
12	362-40000	1/2-20 60 deg cone nut	6
13	54128	Hub and drum 3000 lbs	1
14	54136	Nut washer assembly 1/2-20	5
15	54129	Electric brake 12 x 2 (left)	1
15	54130	Electric brake 12 x 2 (right)	1
16	54131	Backing plate Assembly	1
17	54132	LH Actuating lever arm	1
17	54133	RH Actuating lever arm	1
18	54115	Washer	1
19	54116	Wire clip	2
20	54117	Retractor spring	2
21	54134	Shoe and lining kit	1
22	54119	Adjuster assembly	1
23	54120	Adjusting screw spring	1
24	54135	Magnet kit containing	1
25	54122	Adjuster slot plug	1

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# CYLINDER 30TR24

15050



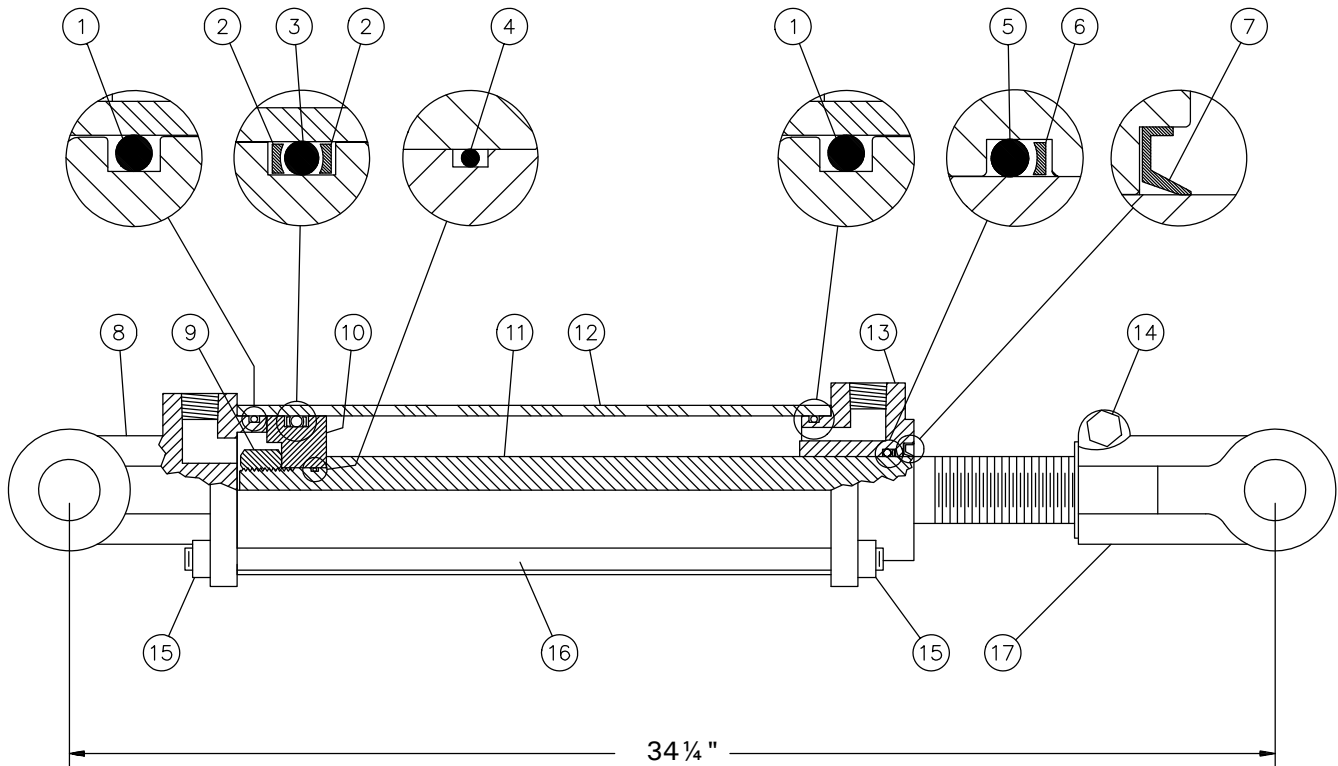
REF.	PART #	DESCRIPTION	QTY
1	See RK30TR	O-ring.....	2
2	See RK30TR	Back-up .....	2
3	See RK30TR	O-ring.....	1
4	See RK30TR	O-ring.....	1
5	See RK30TR	O-ring.....	1
6	See RK30TR	Back-up .....	1
7	See RK30TR	Wiper .....	1
8	---	Yoke for 3" tube.....	1
9	338-46000	Nut 3/4" NF .....	1
10	---	Piston 3" ø .....	1
11	---	Piston rod 1 1/4" x 24" .....	1
12	---	Tube 3" ø x 24" .....	1
13	---	Head (for 3" tube) .....	1
14	300-36355	Bolt 3/8" NC x 2 1/4" + nut.....	1
15	336-36000	Nut 3/8" NC .....	8
16	Std.	Threaded rod 3/8" NC x 24" .....	4
17	---	Yoke (for 1 1/4" rod).....	1
NI*	8183	Pin 1" ø + cotter pin .....	2
NI*	RK30TR	Repair kit for cylinder 3" (includes # 1, 2, 3, 4, 5, 6, & 7) .....	1

\*NI = NOT ILLUSTRATED

8

# CYLINDER 35TR24

15050

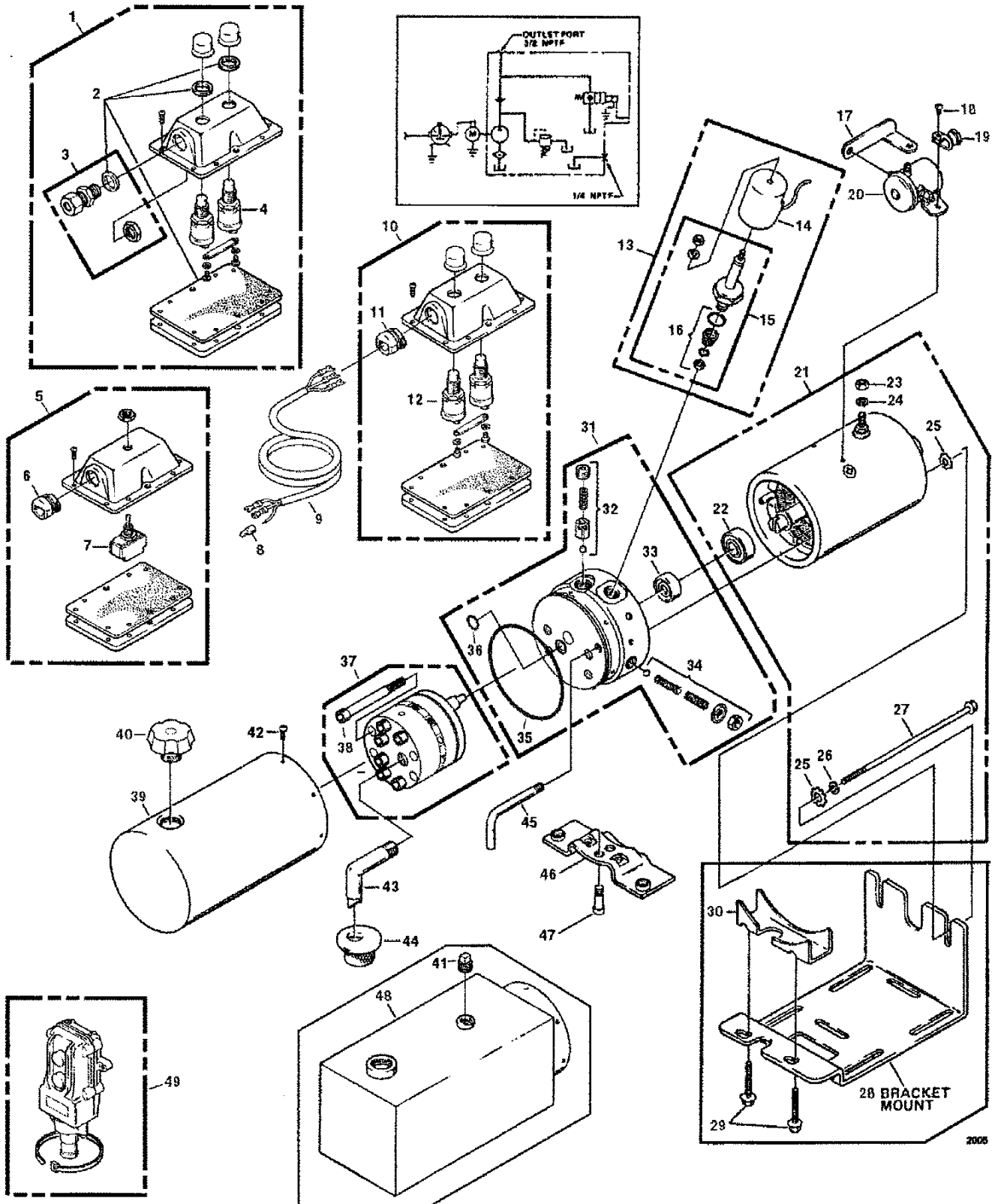


REF.	PART #	DESCRIPTION	QTY
1	See RK35TR	O-ring.....	2
2	See RK35TR	Back-up .....	2
3	See RK35TR	O-ring.....	1
4	See RK35TR	O-ring.....	1
5	See RK35TR	O-ring.....	1
6	See RK35TR	Back-up .....	1
7	See RK35TR	Wiper .....	1
8	---	Yoke for 3 1/2" tube.....	1
9	338-46000	Nut 3/4" NF.....	1
10	---	Piston 3 1/2" ø .....	1
11	---	Piston rod 1 1/2" x 24" .....	1
12	---	Tube 3 1/2" ø x 24" .....	1
13	---	Head (for 3 1/2" tube).....	1
14	300-36355	Bolt 3/8" NC x 2 1/4" + nut.....	1
15	336-36000	Nut 3/8" NC .....	8
16	Std.	Threaded rod 3/8" NC x 24" .....	4
17	---	Yoke (for 1 1/2" rod).....	1
NI*	8183	Pin 1" ø + cotter pin .....	2
NI*	RK35TR	Repair kit for cylinder 3 1/2" (includes # 1, 2, 3, 4, 5, 6, & 7) .....	1

\*NI = NOT ILLUSTRATED

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# ELECTRIC HYDRAULIC PUMP # 54088 (M-319-016-06M\*\*E)



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# ELECTRIC HYDRAULIC PUMP # 54088 (M-319-016-06M\*\*E)

**M-319** As provided by MONARCH HYDRAULICS, INC.






Ref. No.	Part No.	Description	No. Req.	Ref. No.	Part No.	Description	No. Req.
1	03406	BOX ASSEMBLY, Push Button (weather proof)	1	22	02318	• BEARING, Base, motor	1
2	03690	• PARTS KIT, Gasket's (weather proof)	1	23	07625	• NUT, Hex 5/16-24	1
3	03691	• PARTS KIT, Strain Relief (weather proof)	1	24	07781	• WASHER, Lock 5/16"	1
4	03368	• SWITCH, Push Button, 2-terminal (weather proof)	2	25	07737	• WASHER, Star 1/4"	4
5	03409	BOX ASSEMBLY, Toggle Switch	1	26	07795	• WASHER, Lock 1/4"	2
6	01418	• STRAIN RELIEF (Plastic)	1	27	07738	• SCREW, Hex Head Cap 1/4-20 x 6-1/2"	2
7	03393	• SWITCH, Toggle	1			FOR FURTHER BREAKDOWN OF MOTOR, SEE MOTOR SECTION	
8	01339	TERMINAL, Closed End, connector	1	28	02238	BRACKET, Mounting	1
9	03726	CORD, Harness, 72" 16-3, valve grounded (push button)	1	29	07717	SCREW, Hex Head, thread forming 1/4-20 x 1-3/8"	2
	03908	CORD, Harness, 72" 16-3, switches grounded (push button)	1	30	01329	ADAPTER, Pump Mounting Bracket	1
	03730	CORD, Harness, 72" 16-3, valve grounded (toggle & rocker)	1	31	12459	PUMP ASSEMBLY, Modular	1
	03909	CORD, harness, 72" 16-3, switch grounded (toggle & rocker)	1	32	07526	• PARTS KIT, Valve Assembly, poppet/ball check	1
10	03317	BOX ASSEMBLY, Push Button	1	33	02159	• SEAL	1
11	01418	• STRAIN RELIEF (Plastic)	1	34	03766	• PARTS KIT, Relief Valve	1
12	03313	• SWITCH, Push Button, 2-terminal	2	35	02352	• O-RING, Industrial (3-5/8" x 3-7/8" x 1/8")	1
13	00707	VALVE, 2 Way - 2 Position, 12 VDC, grounded	1	36	00120	• O-RING, Industrial (1/2" x 5/8" x 1/16")	1
	07236	VALVE, 2 Way - 2 Position, 12 VDC, 2 leads	1	37	K12171-150	PUMP ASSEMBLY, Modular	1
	07158	VALVE, 2 Way - 2 Position, 24 VDC, grounded	1		K12171-200	PUMP ASSEMBLY, Modular	1
	07285	VALVE, 2 Way - 2 Position, 24 VDC, 2 leads	1		K12171-250	PUMP ASSEMBLY, Modular	1
14	00678	• COIL, 12 VDC, 2 Way - 2 Position, grounded	1		K12171-270	PUMP ASSEMBLY, Modular	1
	07303	• COIL, 12 VDC, 2 Way - 2 Position, 2 leads	1		K12171-330	PUMP ASSEMBLY, Modular	1
	07301	• COIL, 24 VDC, 2 Way - 2 Position, grounded	1		K12171-380	PUMP ASSEMBLY, Modular	1
	00670	• COIL, 24 VDC, 2 Way - 2 Position, 2 leads	1		K12171-510	PUMP ASSEMBLY, Modular	1
15	07193	• CARTRIDGE, 2 Way - 2 Position, 12 VDC & 24 VDC	1	38	07819	• SCREW, 1/4-20 x 2 3/4 Socket Head Cap (For Pump Assembly -150 & -200)	4
16	04745	• PARTS KIT, 2 Way - 2 Position, cartridge	1		07818	• SCREW, 1/4-20 x 3 Socket Head Cap (For Pump Assembly -250, -270, -330, -380)	4
17	01349	STRAP, Motor-Solenoid Connecting	1		07837	• SCREW, 1/4-20 x 3 1/4 Socket Head Cap (For Pump Assembly -510)	4
18	17071	SCREW, Round Head Machine 10-32 x 5/16"	2	39	14076	RESERVOIR, 4-1/2" Dia. x 8", 76 in <sup>3</sup> usable	1
19	01076	CLAMP, Cable	1		14070	RESERVOIR, 4-1/2" Dia. x 10", 102 in <sup>3</sup> usable	1
20	03427	SWITCH, Solenoid, 12 VDC, 3-post grounded to can	1		14071	RESERVOIR, 4-1/2" Dia. x 12", 127 in <sup>3</sup> usable	1
	03481	SWITCH, Solenoid, 12 VDC, 3-post (coated) grounded to can	1	40	01143	PLUG, Vent (plastic)	1
	03336	SWITCH, Solenoid, 12 VDC 3-post insulated ground	1	41	01108	PLUG, Square Head, 1/4 NPT	1
	03340	SWITCH, Solenoid, 12 VDC 3-post (coated) insulated ground	1	42	07703	SCREW, Thread Forming 10-24 x 3/8"	1
	03335	SWITCH, Solenoid, 12 VDC 4-post isolated ground	1	43	01209	TUBE, Filter Suction 3/8 NPT 90 Deg.	1
	03342	SWITCH, Solenoid, 12 VDC 4-post (coated) isolated ground	1	44	01134	SCREEN, Filter (suction)	1
	03467	SWITCH, Solenoid, 24 VDC, 3 post, grounded to can	1	45	13059	TUBE, Return (1/8")	1
	03652	SWITCH, Solenoid, 24 VDC, 3 post, (coated) grounded to can	1	46	04559	BRACKET, Plate Mount 5.00" C to C	1
	03343	SWITCH, Solenoid, 24 VDC 3-post insulated ground	1		04560	BRACKET, Plate Mount 3.25" C to C	1
	03344	SWITCH, Solenoid, 24 VDC 3-post (coated) insulated ground	1	47	07592	SCREW, Socket Head Cap, 3/8-16 x 1	2
21	08111	MOTOR, Electric, 12 VDC	1	48	06678	RESERVOIR, 5" x 5" x 10", 211 in <sup>3</sup> usable	1
	08112	MOTOR, Electric, 12 VDC	1		06685	RESERVOIR, 5" x 5" x 12", 249 in <sup>3</sup> usable	1
	08120	MOTOR, Electric, 24 VDC	1		06686	RESERVOIR, 5" x 5" x 15", 306 in <sup>3</sup> usable	1
				49	03240	BOX ASSEMBLY, Push Button (weather proof)	1

# TORQUE CHART

## TORQUE SPECIFICATION TABLE

Thread UNC and UNF		Grade 2 				Grade 5   				Grade 8*   			
Bolt size		Torque				Torque				Torque			
Inches	mm	Pound feet min.	max.	Newton meters min.	max.	Pound feet min.	max.	Newton meters min.	max.	Pound feet min.	max.	Newton meters min.	max.
1/4	6.35	5	6	6.8	8.13	9	11	12.2	14.9	12	15	16.3	30.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42	47.5	57.0	45	54	61.0	73.2
7/16	11.11	30	35	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8	22.23	160	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5
1 1/8	25.58	-	-	-	-	800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1 1/4	31.75	-	-	-	-	1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1 3/8	34.93	-	-	-	-	1460	1680	1979.8	2278.1	2380	2720	3227.3	3688.3
1 1/2	38.10	-	-	-	-	1940	2200	2630.6	2983.2	3160	3560	4285.0	4827.4

\* Thick nuts must be used with grade 8 bolts.

Size of screw	Thread	Pitch (mm)	Grade 4T  				Grade 7T 				Grade 8T  			
			Torque				Torque				Torque			
			Pound feet min.	max.	Newton meters min.	max.	Pound feet min.	max.	Newton meters min.	max.	Pound feet min.	max.	Newton meters min.	max.
M6	UNC	1.00	3.6	5.8	4.9	7.9	5.8	9.4	7.9	12.7	7.2	10	9.8	13.6
M8	UNC	1.25	7.2	14	9.8	19	17	22	23	29.8	20	26	27.1	35.2
M10	UNC	1.5	20	25	27.1	33.9	34	40	46.1	54.2	38	46	51.5	62.3
M12	UNC	1.75	28	34	37.9	46.1	51	59	69.1	79.9	57	66	77.2	89.4
M14	UNC	2.0	49	56	66.4	75.9	81	93	109.8	126	96	109	130.1	147.7
M16	UNC	2.0	67	77	90.8	104.3	116	130	157.2	176.2	129	145	174.8	196.5
M18	UNC	2.0	88	100	119.2	136	150	168	203.3	227.6	175	194	237.1	262.9
M20	UNC	2.5	108	130	146.3	176.2	186	205	252	277.8	213	249	288.6	337.4
M8	UNF	1.0	12	17	16.3	23	19	27	25.7	36.6	22	31	29.8	42
M10	UNF	1.25	20	29	27.1	39.3	35	47	47.4	63.7	40	52	54.2	70.5
M12	UNF	1.25	31	41	42	55.6	56	68	75.9	92.1	62	75	84	101.6
M14	UNF	1.5	52	64	70.5	86.7	90	106	122	143.6	107	124	145	168
M16	UNF	1.5	69	83	93.5	112.5	120	138	162.6	187	140	158	189.7	214.1
M18	UNF	1.5	100	117	136	158.5	177	199	239.8	269.6	202	231	273.7	313
M20	UNF	1.5	132	150	178.9	203.3	206	242	279.1	327.9	246	289	333.3	391.6

Use the above torques when special torque is not given.

NOTE: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if extreme pressure lubricants are used.



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# WARRANTY

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PRONOVOST warrants this product to the initial purchaser for the period of one year from the date of purchase against defects in materials and workmanship.

We will replace or repair defective parts free of charge if they are returned to our plant in St-Tite, Quebec, Canada.

Transportation charges are the responsibility of the customer. This warranty is not transferable.

Hydraulic cylinders are covered by the manufacturer of these items.

All PRONOVOST spare parts purchased are covered by a three (3) month warranty.

This warranty becomes void and nul if the equipment is modified, breaks down as the result of an accident, is not operated according to manufacturer's recommendations, damaged by negligence or if maintenance has not been carried out as specified.

Our obligation is limited to the replacement or repair of the defective part. PRONOVOST accepts no responsibility for direct or indirect consequential damages of any kind.





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Veuillez téléphoner.



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