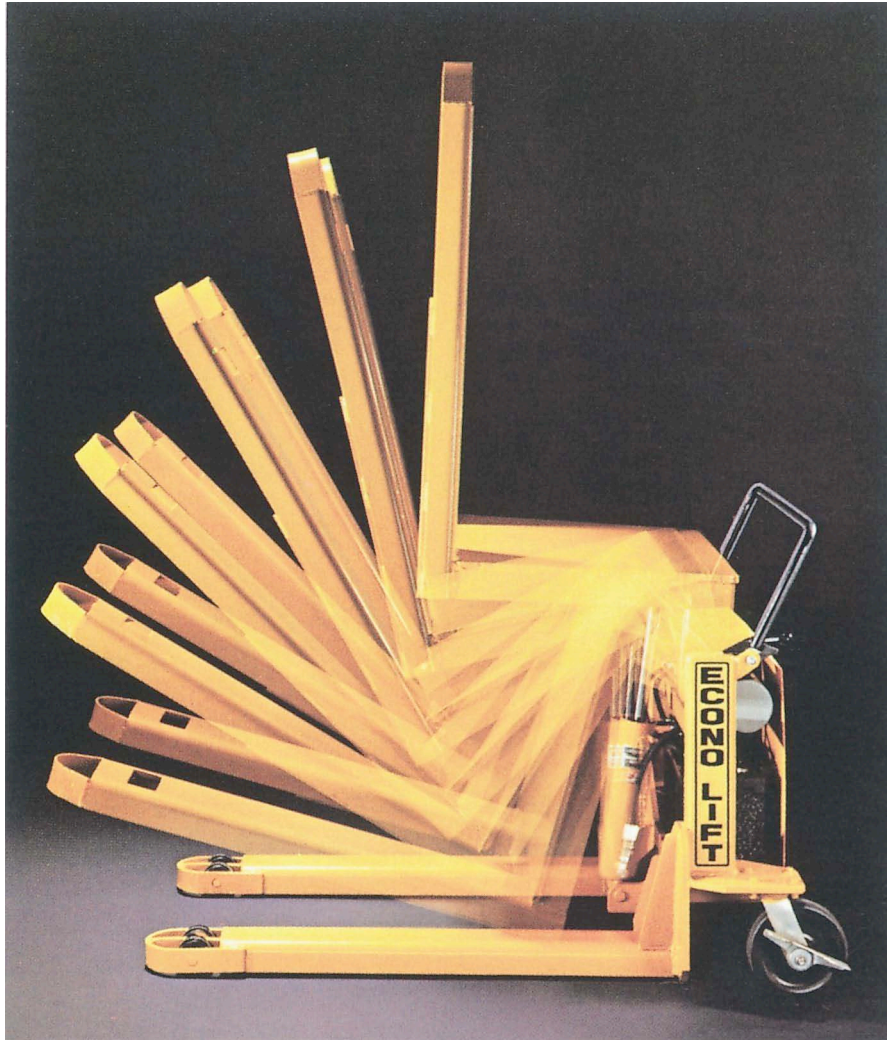


**ECONO LIFT**

**ERGONOMIC PRODUCTS**

## **OPERATION AND SERVICE MANUAL FOR ECONO LIFT TILTERS**



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## INTRODUCTION

This manual attempts to provide all of the information necessary for safe and proper installation, operation and maintenance of **ECONO LIFT** TILTERS.

The TILTER has a name plate, which provides the load capacity, serial number and date of manufacturing. Please refer to these numbers when ordering parts or requesting information.

## SAFETY

**ECONO LIFT** TILTERS are very powerful lifts capable of doing large amounts of work. Do not install or operate this TILTER without carefully reading this manual.



- All personnel must stand clear of the machine when the Fork Assembly is in motion.
- *Do not* work under Forks without securing the lift.
- *Do not* put hands or feet under Forks.
- *Do not* stand, sit or climb on the TILTER.
- *Do not* use on soft, uneven or unstable surfaces.
- *Do not* exceed load capacity.

Your TILTER is equipped with a Velocity Fuse, which will lock up once the flow exceeds 7GPM. This will prevent the load from crashing down in case of a hose or fittings failure.

## INSTALLATION

### ***A. Inspection***

Upon receipt of the TILTER inspect the equipment completely to determine if there is any shipment damage and the TILTER is complete. *Do not use* the TILTER if there appears to be any damage.

With the TILTER in down position check the following:

- (1) Signs of damage, especially to the battery or power

- pack.
- (2) Check all fasteners for tightness
  - (3) Check for oil leaks

## ***B. Installing***

- a) On DC - joystick operated TILTERS; the joystick is removed for shipping and taped to the black push handle.
- b) Remove the joystick (Metal shaft with black ball) from the Handle and insert it into the lower tapped hole through the slot in the battery cover.

## ***C. Testing the lift with no load***

- (1) Before testing the TILTER, clear the area of any loose material. Be sure the TILTER has no obstructions. Using the joystick, pushing it to "up" briefly operate the TILTER (5-10 Sec).  
If the TILTER begins to raise with a humming sound and functions properly, continue to the full tilting position.



**If the TILTER Forks do not raise, or there is any operational problem, stop it immediately. Before continuing, refer to the troubleshooting section and correct the problem.**

- (2) After raising the TILTER completely, lower the TILTER FORKS. It should move slowly and smoothly. If the TILTER operates properly, raise and lower the TILTER FORKS and stop at different levels to get a good perspective on the TILTERS operations and movements

# OPERATION

## **A. Method of operation**

ECONO LIFT standard DC TILTERS have joystick controls (Remote push button control is optional). Pushing it to the **"UP"** position starts the motor, which in turn drives the hydraulic gear pump. Hydraulic fluid is pumped from the oil reservoir into the hydraulic cylinder. The cylinder begins to extend and the Forks start to raise. The Forks will raise as long as the joystick is pushed.

On releasing the control, the motor will stop, the Forks will cease to raise, and remain at that particular elevation.

On depressing the joystick to the **"down"** position, the down valve is opened and the weight of the Fork Assembly will retract the cylinder and oil will return to the reservoir.



**Do not maintain the joystick in the "up" position if the TILTER does not move, or has reached its up limit. This may cause damage to the hydraulic system.**

## **B. Operating Procedures**

In order to operate the TILTER follow these operating procedures:

- 1) Read and understand all the instructions before operating.
- 2) Load the TILTER correctly. Refer to attached name plate for load capacity information.
  - a) Do not exceed the maximum rated load.
  - b) Place load in the centre of the forks and against the back plate. Make sure, it is balanced.
  - c) If the load is unstable or may become unstable, reposition it.
- 3) Operate the lift.
  - a) To raise the lift, activate the joystick to the "up" position. Hold the control until the TILTER reaches its desired extension. The joystick is spring loaded and will return to centre (closed) when the lever is released.

- b) To lower the lift, activate the joystick to the down position. Hold the control until the TILTER descends to the desired height, or the Forks reach its fully lowered position.
- 4) Stand clear of the TILTER when operating it, in order to avoid injury.



**Do not stand, sit or climb onto the TILTER.**  
**If the TILTER fails to move or exhibits strange movement or sound, stop immediately.**  
**Do not operate the TILTER until it has been checked and repaired.**

## **MAINTENANCE**

Generally the **ECONO LIFT** TILTER will require little maintenance. However routine maintenance and inspection will minimise costly repairs and hazardous conditions.

### ***A. Routine Inspection And Maintenance***

Routine inspection should be performed on a weekly basis.

- 1) With the TILTER unloaded and in its fully raised position, check the hydraulic system for leaks. Check all fittings, lines and components for tightness, If a leak exists, repair immediately.
- 2) Check hydraulic cylinder for leaks. Red ATF fluid will be visible in the clear anti leak line connecting the top port of the cylinder to the pump reservoir if the cylinders main seal leaks.
- 3) Check front rollers and casters for signs of wear. Replace, if damaged or worn.
- 5) Tighten all visible nuts and bolts.
- 4) Make sure, pivot pins and cylinder pins are secure. Great damage and injury can occur if they come loose.

- 5) Bearings on all lifts are permanently lubricated and do not require servicing.

## **B. Yearly Maintenance**

Oil in reservoir should be changed at least once a year, or sooner if the oil becomes dark or gritty.

Use "DEXRON III" Automatic Transmission Fluid, or equivalent

## **C. Troubleshooting Maintenance**

### TILTER moving slowly or not at all

- 1) Check for obstructions.
- 2) Check if battery is properly charged.
- 3) Check cylinder for leaks.
- 4) Is lift overloaded? Check capacity.
- 5) Check joystick for sticking or jamming.
- 6) Check canister switch repair or replace.

### Forks are stuck in up position.

Velocity fuse might be locked up.

Close flow control valve almost completely. Press joystick to the "UP" position momentarily and then gently press joystick "DOWN", the velocity fuse should release with an audible click, letting the forks go down.

If this fails, unscrew the velocity fuse from the cylinder.

"CAUTION" Forks must be blocked mechanically from coming down.

### Forks raise then lower slowly

- 1) Check valve may be stuck open. If so, remove and clean.
- 2) Check for leaking hoses, fittings or cylinder.
- 3) Down valve may be stuck open due to dirt. Remove it, and clean.

### Forks do not raise to full extension.

Check oil level in the reservoir. Hydraulic oil should be topped up when the forks are in the down position. Oil is added through the breather filler cap.

Check cylinder stroke, it might be restricted.

### TILTER Forks lower too slow, or too fast.

Adjust flow control (if equipped) which is located where the hydraulic hose is connected to the power pack. Clockwise for making it go down slower, counter clockwise for speeding it up.

## **D. Charging**

Your TILTER is equipped with a deep cycle battery, which has to be charged properly, and with great caution.

If you purchased your charger with the TILTER you are using a fully automatic 10 Amp model.

Your charger comes with three LED lights, which continuously monitor the state of charge in the battery.

As the battery reaches full charge, the yellow and green lights will flash alternately, keeping the battery at its peak capacity.

**Red Light:** Indicates that charger is properly connected to 120 V power supply.

### **Yellow Light:**

Indicates correct polarity and combined with red light indicates charger is charging.

### **Green Light:**

Indicates a full charge. Green and yellow will flash alternately when battery has reached full charge.

### **Caution:**

Do not overcharge battery. Your TILTER is equipped with a deep cycle battery, which should be about 75% discharged before recharging.

When charging battery, locate in dry, well ventilated area.

An extension cord should not be used unless absolutely necessary.

**Never** smoke or allow spark or flame in the vicinity of battery. Do not operate TILTER while charger is plugged in.

When the battery reaches full charge (maximum 15 hours) the green light will go on and the charger's output will be shut off.

Automatic chargers will not turn on unless:

- a) The charger is plugged in
- b) The charger is attached to a battery.



- c) The polarity is correct
- d) Battery has between 3 & 4 volts output. A voltage reading less than this normally indicates a defective battery and attempting to charge it, can be dangerous.

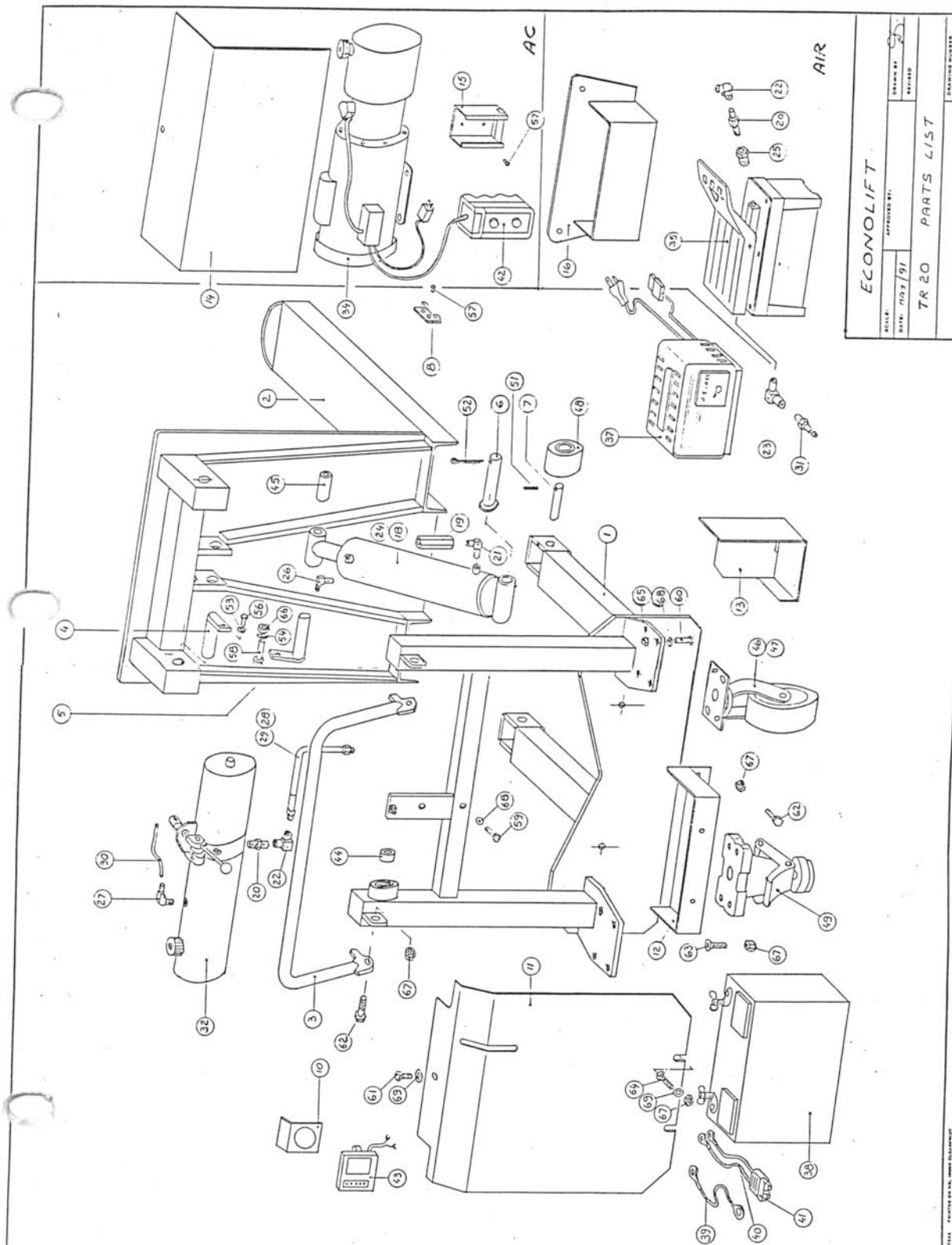
## Parts List for TR20 - Tote Box Tilter

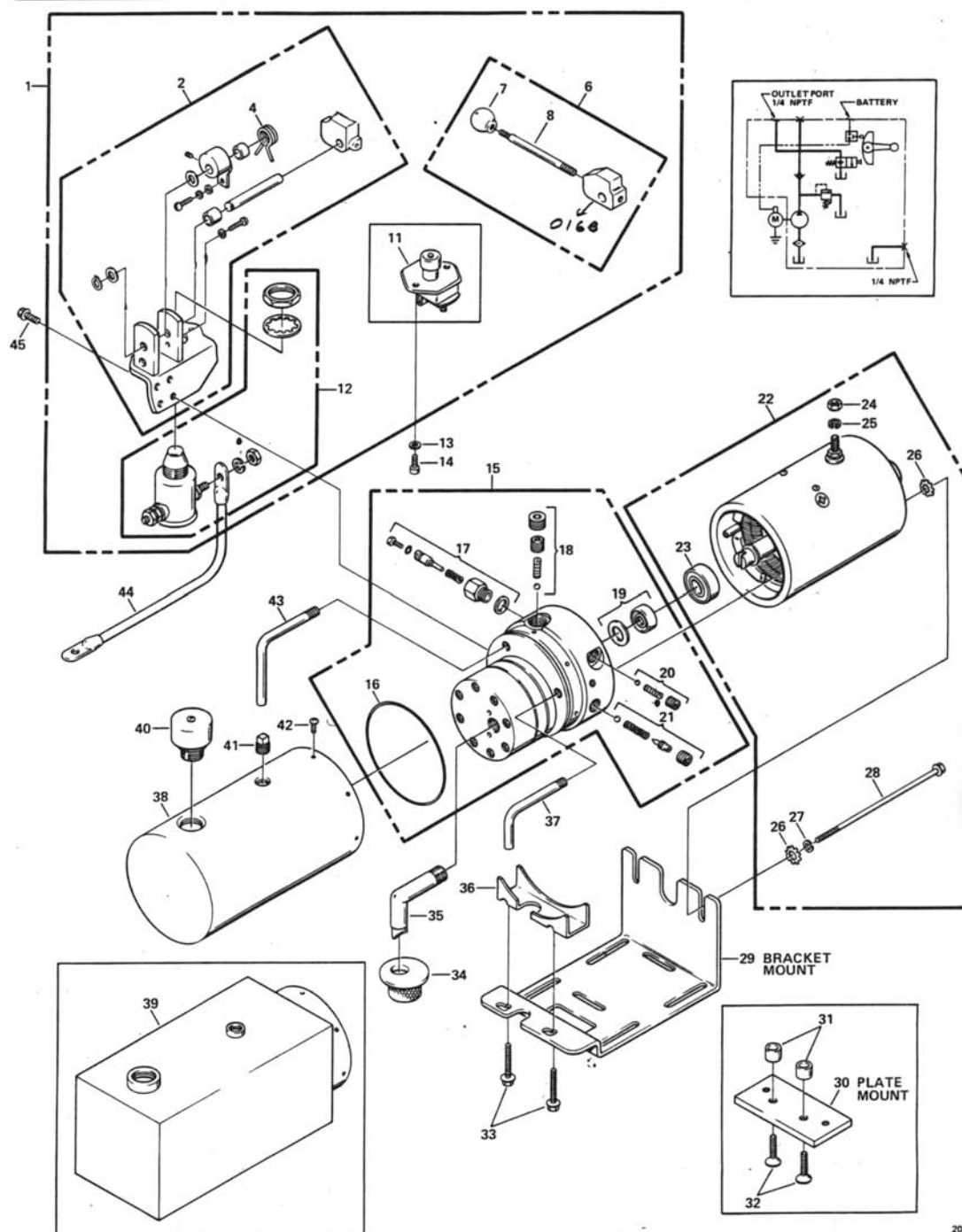
Power	Item	Quantity	Part#	Description
	1	1	2101	BODY ASS'Y TR20
	2	1	2102	FORK ASS'Y TR20
	3	1	2103	HINGED HANDLE TR20
	4	2	0104	PIVOT PIN 1"
	5	1	0150	CYLINDER PIN TOP
	6	1	0106	CYLINDER PIN BOTTOM
	7	2	2107	AXLE FOR FRONT ROLLER
D/C PB	8	1	0108	PB HOLDER M303 PUMP
	9			
	10	1	0207	BRACKET FOR DISCHARGE INDICATOR
	11	1	2201	COVER FOR TR20
	12	1	2202	BATTERY TRAY FOR TR20
	13	1	0203	CHARGER TRAY(OPTIONAL)
A/C	14	1	0204	COVER FOR A/C PUMP
A/C	15	1	0205	HOLDER FOR PB(A/C PUMP)
AIR	16	1	0206	AIR PUMP TRAY
	17			
	18	1	2301	TR20 CYLINDER SK 198
	19	1	0305	VELOCITY FUSE 5 GPM
	20	1	0306	1/4 HEX NIPPLE C/W RESTRICTOR
	21	1	0307	1/4ELBOW MM 90
	22	1	0308	1/4ELBOW FF 90
AIR	23	1	0309	1/4STREET ELBOW
	24	1	0310	CYL SEAL KIT PROVIDE SERIAL #
AIR	25	1	0317	REDUCING BUSHING
	26	1	0312	ELBOW ANTI LEAK LINE
	27	1	0313	ELBOW ANTI (LEAK PUMP SIDE)
AIR	28	1	0315	HOSE ASS'Y (AIR) 14"
	29	1	0319	HOSE ASS'Y 18"
	30	1	0321	POLYETHYLENE TUBING ANTI LEAK
AIR	31	1	0316	COUPLER FOR AIR
	32	1	0401	M-301 PUMP D/C
D/C PB	33	1	0403	M-303 PUMP D/C PB NOT SHOWN
A/C	34	1	2419	M419 A/C 1 HP
AIR	35	1	0420	AIR PUMP PA50
	36			
	37	1	0510	CHARGER /OPTIONAL

A/C	38	1	2501	BATTERY FOR TR20
	39	2	0504	BATTERY CABLE ASS'Y
	40	2	0505	CHARGER CABLE ASS'Y
	41	1	0507	SB 50 CONNECTOR
	42	1	0512	PB FOR A/C PUMP
	43	1	0514	DISCHARGE INDCATOR (OPTIONAL)
	44	2	0601	SELF LUBE BRASS BUSHING
	46	1	2606	6" PHENOLIC WHEEL
	47	1	2607	6" CASTER C/W BRAKE
	48	2	0610	3" PHENOLIC ROLLER $\frac{3}{4}$ BORE
	49	1	0615	HEAVEY DUTY (TRUCK LOCK)
	50			
	51	2	0701	ROLL PIN 1/8 X 1 $\frac{1}{2}$ "
	52	1	0702	COTTER PIN 1/8" X 2"
	53	2	0705	LOCK WASHER 1/4
	55	2	0706	5/16 LOCK WASHER
	56	2	0710	$\frac{1}{4}$ X $\frac{3}{4}$ HHCS
	57	2	0712	3/16 X $\frac{1}{2}$ FLATHEAD SOCK SCREW
	58	1	0713	5/16 X 1 $\frac{1}{4}$ HHCS
	59	2	0716	3/8 X 1 HHCS
	60	8	0717	3/8 X 1 $\frac{1}{4}$ HHCS
	61	1	0719	$\frac{1}{2}$ X 1 HHCS
	62	4	0720	$\frac{1}{2}$ X 1 $\frac{1}{2}$ HHCS
	63	4	0725	$\frac{1}{2}$ X 1 $\frac{3}{4}$ FHCS
	64	2	0727	$\frac{1}{2}$ X $\frac{3}{4}$ CARRIAGE BOLT
	65	8	0730	3/8 LOCK NUT
	66	1	0731	5/16 NUT
	67	4	0732	$\frac{1}{2}$ LOCKNUT
	68	10	0733	3/8 FLAT WASHER
	69	1	0735	$\frac{1}{2}$ FLAT WASHER
				*PB-PUSH BUTTON









**M-301**

Ref. No.	Part No.	Description	No. Req.	Ref. No.	Part No.	Description	No. Req.
1	03411	BRACKET ASSEMBLY, With 5 & 12	1	22	08080	MOTOR, Electric, 12 VDC	1
	03321	BRACKET ASSEMBLY, With 5 & 11	1		08111	MOTOR, Electric, 12 VDC	1
	03412	BRACKET ASSEMBLY, With 6 & 12	1		08112	MOTOR, Electric, 12 VDC	1
	03413	BRACKET ASSEMBLY, With 6 & 11	1		08086	MOTOR, Electric, 24 VDC	1
2	03440	*BRACKET ASSEMBLY, With 6	1	23	02318	*BEARING, Base, motor	1
4	00018	***SPRING, Torsion	1	24	07625	*NUT, Hex 5/16-24	1
6	00175	*PARTS KIT, Handle Assembly	1	25	07781	*WASHER, Lock 5/16"	1
7	01157	**BALL, Plastic	1	26	07737	*WASHER, Star 1/4"	4
8	01326	**ROD, Handle 4"	1	27	07795	*WASHER, Lock 1/4"	2
				28	07738	*SCREW, Hex Head Cap 1/4-20 x 6-1/2"	2
						FOR FURTHER BREAKDOWN OF MOTOR, SEE MOTOR SECTION	
11	03308	*SWITCH, Start	1	29	02238	BRACKET, Mounting	1
12	03322	*SWITCH, Start, canister type	1	30	04503	BRACKET, Plate Mounting 3/8-16, 3-1/4" centers	1
13	07795	WASHER, Lock 1/4"	2		04515	BRACKET, Plate Mounting 3/8-16, 5" centers	1
14	07756	SCREW, Socket Head Cap 1/4-20 x 1/2"	2	31	01335	BUSHING, Pump Mounted, plate mount	2
		THE FOLLOWING PUMP ASSEMBLIES ARE USED WITH ITEM 29 BRACKET MOUNT		32	07628	SCREW, Socket Flat Head 5/16-18 x 1-1/4"	2
15	02406	PUMP ASSEMBLY, Gear Code 51	1	33	07717	SCREW, Hex Head, thread forming 1/4-20 x 1-3/8"	2
	02477	PUMP ASSEMBLY, Gear Code 43	1	34	01134	SCREEN, Filter (Suction)	1
	02405	PUMP ASSEMBLY, Gear Code 42	1	35	01209	TUBE, Filter Suction 3/8" NPT 90 Deg. (plastic)	1
	02404	PUMP ASSEMBLY, Gear Code 05	1	36	01329	ADAPTER, Pump Mounting Bracket	1
	02478	PUMP ASSEMBLY, Gear Code 03	1	37	01274	TUBE, Return (1/8")	1
		THE FOLLOWING PUMP ASSEMBLIES ARE USED WITH ITEM 30 PLATE MOUNT		38	06661	RESERVOIR, 4-1/2" Dia. x 8", 76 cu. in. usable	1
	02602	PUMP ASSEMBLY, Gear Code 51	1		06663	RESERVOIR, 4-1/2" Dia. x 10", 102 cu. in. usable	1
	02627	PUMP ASSEMBLY, Gear Code 43	1		06665	RESERVOIR, 4-1/2" Dia. x 12", 127 cu. in. usable	1
	02605	PUMP ASSEMBLY, Gear Code 42	1	39	06678	RESERVOIR, 5" x 5" x 10", 211 cu. in. usable	1
	02626	PUMP ASSEMBLY, Gear Code 05	1		06685	RESERVOIR, 5" x 5" x 12", 249 cu. in. usable	1
	02657	PUMP ASSEMBLY, Gear Code 03	1		06686	RESERVOIR, 5" x 5" x 15", 306 cu. in. usable	1
16	02352	*O-RING, Industrial (3-5/8 x 3-7/8 x 1/8)	1	40	01143	PLUG, Vent (Plastic)	1
17	00235	*PARTS KIT, Plunger	1	41	01108	PLUG, Square Head, 1/4" NPT	1
18	00075	*PARTS KIT, Check Valve (main)	1	42	07703	SCREW, Thread Forming 10-24 x 3/8"	6
19	02330	*PARTS KIT, Seal & Gasket	1	43	01203	TUBE, Return (1/8" NPT)	1
20	00078	*PARTS KIT, Check Valve (descending)	1	44	01373	CABLE, Insulated, with lugs 9" 6 ga.	1
21	02222	*PARTS KIT, Relief Valve	1	45	07815	SCREW, Hex Head 1/4-20 x 5/8"	4
		FOR FURTHER BREAKDOWN OF PUMP ASSEMBLY, SEE PUMP SECTION					

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