

# Electric Eel®

## MODEL Z5 Drain Cleaning Machine

### Operator's Manual



**!! DANGER !!**

**FOR YOUR SAFETY**

Before you operate or maintenance this equipment, READ this manual carefully and completely!

Purchase Date: \_\_\_\_\_

Serial Number: \_\_\_\_\_



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*Proudly Made in The USA Since 1939*



# Description, Specifications, and Equipment

## DESCRIPTION

The Electric Eel Model Z5 Drain Cleaning machine is the newest of Electric Eel's complete line of quality sewer and drain cleaning equipment. This drum machine is specifically designed for 1 1/4" to 3" lines through 100 feet.

## STANDARD FEATURES

1. Power cord is wrapped around conveniently-placed brackets for safe, problem-free transport.
2. Additional rear bar shields motor and allows for more flexible two position operation.
3. Easy-to-use operated foot switch allows the use of both hands when working with cable.
4. Ground Fault Circuit Interrupter (GFI) safety features comes standard with 20 foot power cord.
5. Heavy duty, durable tubular frame provides stability and balance while in operation.
6. Cast aluminum bracket with bearing supported guide tube.
7. Cable available in 1/2" certified music wire with genuine galvanized aircraft wire inner core for longer life.
8. Unique inner drum design helps to prevent cable buckling.
9. Build-in drum-shaft slip clutch minimizes cable and tool breakage and provides overload protection.
10. Impact-resistant plastic belt-guard for additional operator safety.
11. Rugged 1/3 H.P. reversible motor delivers plenty of speed cleaning power.
  - Wheel brake to stabilize unit while in operation
  - 10" wheels for better maneuverability
  - Handle folds down for easy transport and storage

## SPECIFICATIONS

Cage Capacity: ..... Up to 100 ft. of 1/2" certified music wire with genuine galvanized aircraft wire inner core cable.

Line Capacity: ..... 1 1/4" to 3" lines up to 75

Weight: ..... (machine only) 61 lbs.

Frame: ..... 1" open space framework

Clutch: ..... Dual disc drum shaft slip clutch.

Motor: ..... 1/3 H.P. reversible

## STANDARD EQUIPMENT

Electric Eel Model Z5 comes complete with: 75 ft. of 1/2" certified music wire with genuine galvanized aircraft wire inner core cable.

5 Cleaning tools. One pair of leather gloves.

Cleaning tools included:

- DN-10 general purpose tool
- DN-11 drill for hard stoppages
- DN-12 finishing tool
- DN-14 drill for 2"-3" lines
- DN-16 clean up tool for 3" lines

## Safety Instructions

The following safety rules for operating Electric Eel Sewer and Drain Cleaning equipment **MUST** be read carefully before operating this machine.

 <b>DANGER</b> 		
		
<p>To prevent serious injuries including:</p> <ul style="list-style-type: none"><li>• Shock, electrocution or burns due to improper grounding.</li><li>• Serious injuries to body, limbs or hands and feet due to cables that twist, kink and break.</li><li>• Eye injuries caused by loose cable, thrown debris or splashed water.</li></ul>		
<b>READ SAFETY INFORMATION THOROUGHLY!</b>		



**DANGER**

## TO PREVENT SERIOUS BODILY INJURY

### General Safety

1. **ALWAYS** wear reinforced leather gloves and safety glasses when operating equipment.
2. Place machine within 3 feet of inlet and keep both hands on rotating cable during operation.
3. Do not wear loose clothing or jewelry while operating this machine.
4. Use foot switch to operate machine while keeping good footing and balance at all times. **DO NOT OVERREACH!**
5. Keep belt guard in place during operation.
6. The Model "Z5" Drain Cleaning Machine should be operated by one person only. Additional personnel in the work area should observe all safety instructions.
7. Wear rubber-soled non-slip shoes.
8. **ALWAYS** avoid direct contact of skin, facial area and especially the eyes with drain water. Chemical compounds used in drains can result in serious burns and other injuries.
9. Replace fittings, cables and any rotating parts as soon as they become visibly worn. Replace any cables which become fractured, bent, kinked, or any other damage occurs.
10. **NEVER** attempt to service equipment beyond the recommendations of the operating instructions. All other servicing should be referred to qualified service personnel.
11. To maintain safe operation, use only identical replacement parts and cables from Electric Eel.
12. **ALWAYS** keep clear of rotating drums, cages, shafts, pulleys, belts, or other rotating parts.

**DANGER**

## TO AVOID SERIOUS BODILY INJURY AND TO AVOID DANGER FROM ELECTRICAL SHOCK:

1. **ALWAYS** use a ground fault interrupted circuit with a properly grounded outlet for all electrical cords, connections, and parts as installed by factory and **DO NOT** make any alterations.
2. **NEVER** use machine in damp or wet conditions.
3. **NEVER** expose machine to rain.
4. **THE USER SHOULD NEVER ATTEMPT TO SERVICE THE ELECTRICAL COMPONENTS.** For safety reasons all electrical replacement components should be installed by a qualified electrician.
5. Before making adjustments or changes to power units, disconnect from electrical source.
6. If an extension cord is used, the power source must be equipped with a ground fault interrupter circuit and properly grounded.
7. Only use 14/3 or larger three-wire extension cords with three-prong grounding plugs and three-pole receptacles.
8. When using extension cord outdoors, only use those intended for outdoor use. (Indicated on cord by suffix "W-A" after the cord type.)

### THE GROUND FAULT CIRCUIT INTERRUPTER

This machine is equipped with a Ground Fault Circuit Interrupter which is designed to prevent a serious electrical shock. This device should be tested on the job site before putting the machine into operation, as follows:

1. To ensure protection against electric shock, test the device before each use. When test button is pushed in, the indicator light should go off. Reactivate the device by pushing the reset button in. If the indicator light goes on, the device is ready for use. Do not use the device, if the indicator light does not go on when reset or if the indicator light remains on, when the test button is pushed in.
2. This device does not guard against electric shock resulting from defects or faults in any wiring supplying power to this device, or from contact with both circuit conductors.





**DANGER**



## **TO PREVENT SERIOUS BODILY INJURY AND AVOID DANGER FROM ROTATING CABLES AND EQUIPMENT:**

1. **DO NOT** operate machine in reverse except to free cleaning tool from an obstruction.
2. **DO NOT** continue to operate machine when cleaning tool becomes stuck in obstruction. **EXCESS TORQUE ON A CABLE COULD CAUSE IT TO FRACTURE.** (Refer to operating instructions, to free cleaning tool.)
3. **NEVER** handle any cable under tension.\*
4. **NEVER** force a tool and cable into a pipeline blockage. This may overload the cable or tool and cause it to fracture.
5. **ALWAYS** wear reinforced leather gloves and safety glasses when operating machine.
6. Keep both hands on rotating cable when machine is running.
7. Use correct tool for the job or application. Check the tool listing for the correct tool and line size.
8. To maintain safe and efficient operation clean thoroughly all cables with water after use. Acids in the drain and sewer lines can attack and deteriorate the metal of the cables and tools. Deterioration will cause weakness in cable and tools and result in fracture or breakage.
9. Replace all cables and tools that become deteriorated, worn, kinked, bent, or any other damage that occurs.

**\*Relieve all tension build up before attempting to handle cable.**

## **Machine Set-up**



**DANGER**



## **TO PREVENT SERIOUS BODILY INJURY**

**THIS MACHINE IS EQUIPPED WITH A DRUM/DISC CLUTCH. THE MAXIMUM TORQUE OF THE CLUTCH SETTING MUST NEVER EXCEED 35 inch/lbs.**

**NEVER USE ANY CABLE IN THIS MACHINE OTHER THAN ELECTRIC EEL GALVANIZED AIRCRAFT WIRE REINFORCED MUSIC WIRE CABLE IN 1/2" DIAMETER.**

The machine comes completely assembled except for cable.

## **CAGE REMOVAL**

- Disconnect power cord before any set up or maintenance is attempted.
- Remove pulley guard by flexing bottom edges outward and pulling upward.
- Push down on motor to compress spring. This will allow the belt to be removed.
- Pull spring loaded pin on rear of cage axle.
- Slide cage unit with clutch assembly forward.
- Use reverse procedure for reinstalling cage assembly.
- Reinstall pulley guard.

## **CABLE INSTALLATION**

- Loosen cable anchor from rear of cage.
- Completely uncoil cable to be installed. This will help avoid unnecessary kinking.
- Attach cable anchor to end of cable.
- Insert approximately 12" of cable through the guide tube into the cage. The cable should coil in the cage in the same direction as the decal indicates on the rear of cage.
- Grasp cable inside the cage near the end and position cable anchor on end so that the 1/4-20 screw can be inserted through the hole in the rear of the cage into the cable anchor.
- Insert remaining cable into the cage.

## **MAINTENANCE**

- Maintenance on the Model "Z5" machine should be minimal for the life expectancy of the machine.
- The drum/clutch should be exercised daily.

Exercise as follows:

- Plug in machine
- Grasp cage with two gloved hands firmly
- Depress foot pedal switch
- The machine will run but the clutch will slip as you hold the drum firmly. A few revolutions of slippage is all that is necessary



## CLUTCH ADJUSTMENT

- The clutch setting of 35 inches/lbs. must **never** be exceeded
- The clutch setting in most cases will not need to be adjusted for the life of the machine
- If the clutch needs to be reset, the following procedure should be used:
  1. Obtain an inch/lbs. torque wrench and E-20 adapter from Electric Eel.
  2. Fit the adapter to the nose cone of the Model "Z5" machine as per included instructions with the adapter.
  3. Check the setting of the clutch with the torque wrench. If adjustment is needed, proceed as follows:
    - Remove 4 cage bolts from aluminum backing plate. This will allow cage removal and expose clutch mechanism.
    - Move clutch adjustment bolt  $\frac{1}{8}$  of a turn tighter or looser as needed and recheck setting after reassembly of drum. Repeat the procedure as needed to obtain 35 inch/lbs. maximum.
    - Reassemble and check all 4 bolts for tightness.

## Operating Instructions



**OPERATOR MUST BE THOROUGHLY FAMILIAR WITH ALL SAFETY INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT**

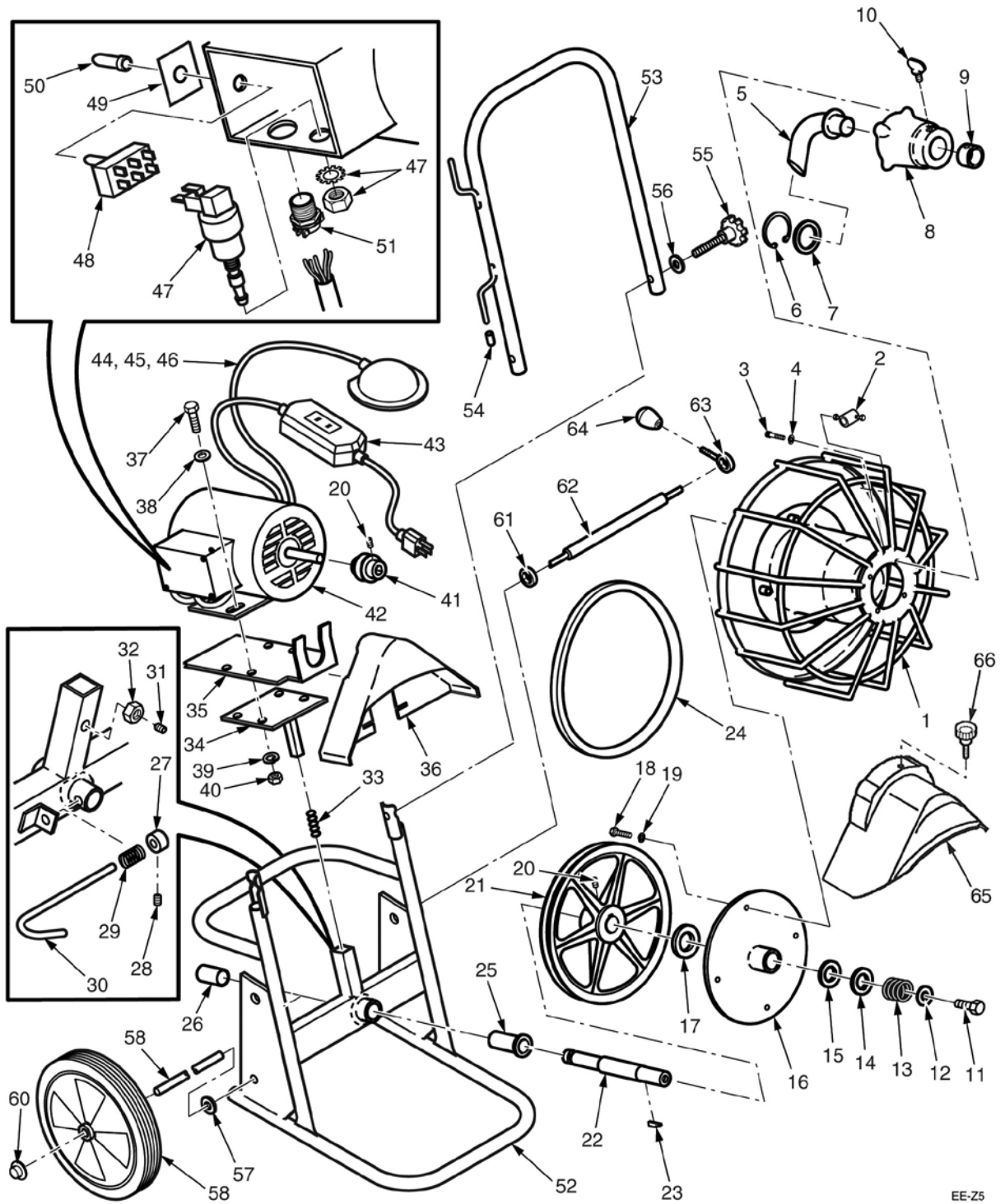
### FOR MANUAL FEED:

1. Place the machine within 3 feet of the sewer clean out.
2. Attach a small spear-type cleaning tool to the end of the cable. This tool will enable you to bore a starter hole in the obstruction, allowing backed-up water to drain.
3. Position foot actuator for easy operator accessibility.

4. Make sure **FOR/REV** switch is in the Forward position. Run machine in forward at all times during cleaning operation, use reverse only to dislodge tool lodged in pipe line.
5. Hand feed the cleaning tool and approximately one (1) foot of cable into sewer clean out.
6. With gloved hands on cable, begin depressing the foot actuator to start the machine. **ALWAYS** keep two hands on the cable in order to guide and control rotating cable.
7. Apply downward pressure with gloved hands on cable; rotating cable will slowly work its way into the line.
8. Repeat steps 6 and 7 until the obstruction is met. This will become apparent as operator can no longer feed additional cable into the line and/or cable slows or fails to rotate. **WARNING: DO NOT** allow machine to run when cleaning tool becomes hung up in obstruction and cable fails to rotate. This will cause cable to kink and/or break due to excess torque build-up. The clutch will also slip at this point further indicating the above condition. Switch the motor from forward to reverse and slowly back tool from obstruction.
9. To work tool through obstruction, place toggle switch in Forward direction and begin running cable into line. When the cable hits an obstruction and starts to load, the operator should pull on cable in order to back tool away from obstruction. This procedure should continue until tool has fully worked its way through the obstruction. **NOTE:** For larger lines, it will be necessary to repeat steps 5 through 9 with a larger tool or blade after obstruction has been penetrated.
10. To retrieve cable from sewer line, manually pull cable from sewer and hand feed back into the machine, while continuing to run machine in forward rotation. **NOTE:** It is recommended to use a continuous flush of water to clean tool, cable, and sewer line as cable is retrieved.
11. When tool is close to clean out opening release foot actuator and allow machine to come to complete stop.
12. Pull remaining cable and tool from sewer line and hand-feed cable back into machine.



# MODEL Z5 DRAIN CLEANING MACHINE



EE-Z5



## MODEL Z5 DRAIN CLEANING MACHINE

ITEM NUMBER	PART NUMBER	DESCRIPTION	AMT
1	Z-6*	Welded Drum/Cage Assembly . . . . .	1
2	DN-6	Cable Anchor . . . . .	1
3	MS102412HH	10-24 x 1/2 Hex Head Machine Screw . . . . .	4
4	LW10	Lockwasher . . . . .	4
	ED-4A**	Guide Tube and Bracket Assembly. . . . .	1
5	ED-4	Guide Tube). . . . .	1
6	RR175	Retaining Ring . . . . .	1
7	N-5-4	Retaining Washer . . . . .	1
8	ED-5	Bracket . . . . .	1
9	ED-6	Collar. . . . .	1
10	WS516	5/16-18 Wing Screw . . . . .	1
	EE-1A***	Drive Assembly w/Clutch 1 . . . . .	1
11	CSHH12201	1 1/2-20 x 1 Hex Head Capscrew . . . . .	1
12	WA716P	Flatwasher . . . . .	1
13	N-14	Spring . . . . .	1
14	EE-3	Drive Disc . . . . .	1
15	EE-4	Front Friction Disc . . . . .	1
16	EE-2	Drum Mounting Plate . . . . .	1
17	EE-5	Rear Friction Disc . . . . .	1
18	CSHH142034	1/4-20 x 3/4 Hex Head Capscrew . . . . .	4
19	LW14	Lockwasher . . . . .	4
20	SS51618516	5/16-18 x 5/16 Set Screw . . . . .	2
21	EE-6	10" Pulley). . . . .	1
22	EE-1	Drive Shaft . . . . .	1
23	N-15	Clutch Key. . . . .	1
24	4L390	V-Belt). . . . .	1
25	0BSF243216	Front Bronze Bushing . . . . .	1
26	0BSS243220	Rear Bronze Bushing . . . . .	1
27	EE-8	Retainer Pin Collar . . . . .	1
28	SS103218	10-32 x 1/8 Set Screw . . . . .	1
29	EE-15	Retainer Pin Spring . . . . .	1
30	EE-7	Retainer Pin. . . . .	1
31	SS5162458DP	5/16-24 Set Screw Dog Point . . . . .	1
32	NU51624FHP	5/16-24 Hex Nut . . . . .	1
33	EE-9	Motor Tension Spring . . . . .	1
34	R-23	Motor Mount. . . . .	1
35	R-22	Adapter Plate. . . . .	1
36	EE-12	Belt Guard . . . . .	1
37	CSHH516181	Motor Mount Capscrews. . . . .	4
38	WA516S	Motor Mount Flatwashers. . . . .	4
39	LW516	Motor Mount Lockwasher. . . . .	4
40	NU51618FHP	Motor Mount Nuts. . . . .	4
41	N-8	Motor Pulley . . . . .	1

Continued on next page >



## MODEL Z5 DRAIN CLEANING MACHINE

ITEM NUMBER	PART NUMBER	DESCRIPTION	AMT
42	EM-1/3	1/3 H.P. Motor w/Fwd-Rev Switch . . . . .	1
43	GFCI	Ground Fault Circuit Interrupter w/Cord . . .	1
44	FP-1A****	Air Foot Pedal Transmitter w/Air Hose . . . .	1
45	FP-1	Foot Pedal Only. . . . .	1
46	FP-2	Air Hose Only . . . . .	1
47	TBS3218	Air Activated On/Off Switch. . . . .	1
48	SW-FR	Forward/Reverse Switch . . . . .	1
49	SW-FRP	Forward/Reverse Switch Plate . . . . .	1
50	SW-BOOT	Toggle Switch Boot. . . . .	1
51	TSC12	Two-Screw Connector. . . . .	1
	Z-1A*****	Frame Assembly . . . . .	1
52	Z-1	Frame Base . . . . .	1
53	Z-2A	Frame Handle . . . . .	1
54	DL6CAP	Cord Hook Cap . . . . .	2
55	DE-7	Tension Handle . . . . .	2
56	WA38S	Flatwasher . . . . .	2
57	WA12S	Flatwasher . . . . .	8
58	Z-5	Axle . . . . .	1
59	C-W10	10" Diameter x 5/8 Wheel. . . . .	2
60	PN12	Pushnuts . . . . .	2
61	DF-8	Brake Rod Collar. . . . .	1
62	Z-4	Brake Rod . . . . .	1
63	Z-3	Brake Lever. . . . .	1
64	DE-14	Brake Lever Knob . . . . .	1
65	EE-16	Belt Guard . . . . .	1
66	TS14	Thumb Screw. . . . .	1

\* Includes Item 2

\*\* Includes Items 5-10

\*\*\* Includes Items 11-23

\*\*\*\* Includes Items 45 and 46

\*\*\*\*\* Includes Items 25-32 and 52-59

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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