

# LIONEL SERVICE MANUAL

## NO. 445 SWITCH TOWER

No. 445 Switch Tower, first catalogued in 1952, but not built until the early part of 1953, is quite similar in its operating principle to the No. 145 Gateman and No. 151 Semaphore. A solenoid-and-plunger mechanism is linked to a forked lever arm so that the motion of the plunger causes one miniature figure to emerge from the tower onto the tower balcony while another figure which is connected to the lever end by means of a nylon string is caused to slide down the tower stairs.

The solenoid circuit is usually closed by the weight of a train passing over a track contactor, although other means, such as an insulated track rail, can be used for this purpose. The return movement of the mechanism is accomplished by means of a coil spring attached to the lever arm.

The tower is illuminated by means of a steadily burning 14-volt bayonet base lamp mounted in a removable lamp socket.

Both the lamp and the solenoid are grounded through the metal base of the coil to the mounting post which serves as a pivot for the movement of the lever arm and which ends with terminal No. 1. The high side of the lamp is connected to mounting post ending with terminal No. 3, while the high side of the solenoid is connected to mounting post ending with terminal No. 2.

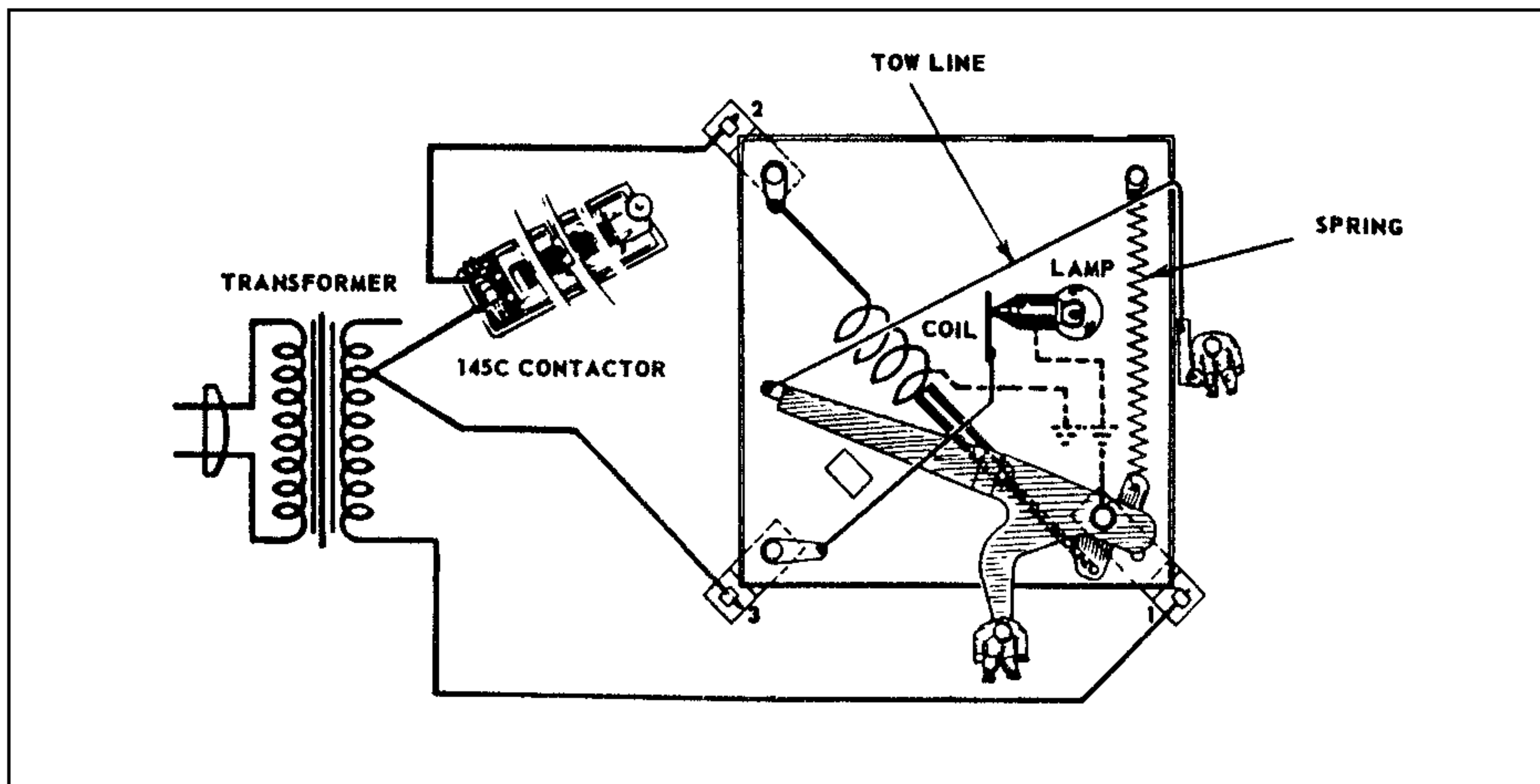
### SERVICE NOTES

If the 445 Switch Tower has been returned for service because of sluggish action check the hole in the wall where the nylon tow line passes from the lever assembly to the figure bracket. If the nylon line has cut a groove in the wall, insert a 259E-18 Eyelet to act as a bushing.

The simplest procedure for replacing a broken tow line is this: To remove the old line spread out the eyelet holding it to the lever with a pick or similar sharp implement. Tie the nylon line to the figure bracket and thread it through the wall and the eyelet in the lever arm. With the lever in normal non-operating position pull the cord through until the bracket is at the top of the stairs. Then pinch the eyelet to hold the line tight.

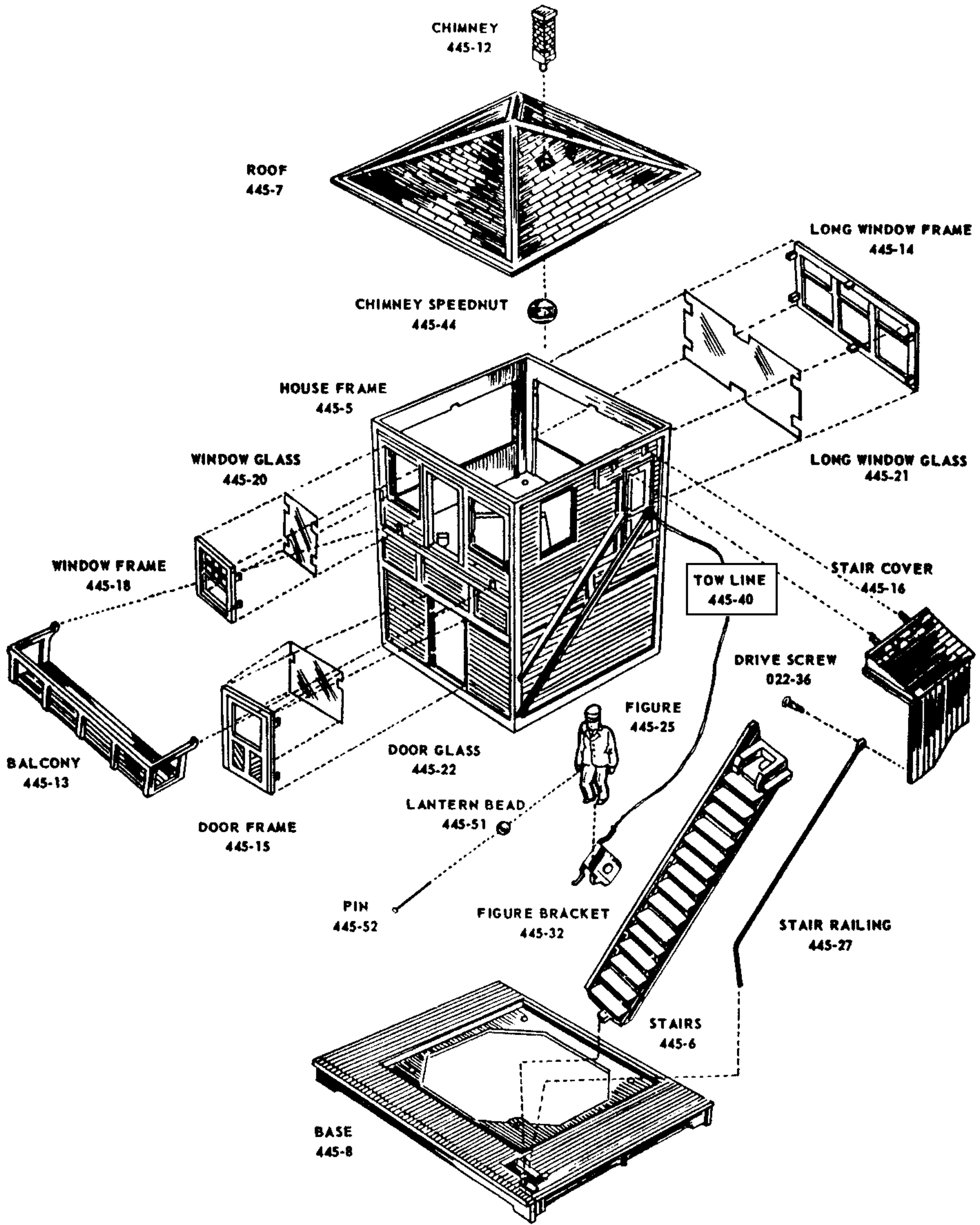
The early production run of the 445 Switch Tower included a number of towers made with somewhat undersized plunger links which did not permit the plunger to enter far enough into the coil and thus caused the coil to overheat when used continuously for long periods of time. To prevent possible trouble the undersized link should be replaced whenever found. The old link measures approximately 13/16" and was generally nickel plated. The correct link is about 3/32" longer and is brass-colored.

Schematic Diagram of No. 445 Switch Tower

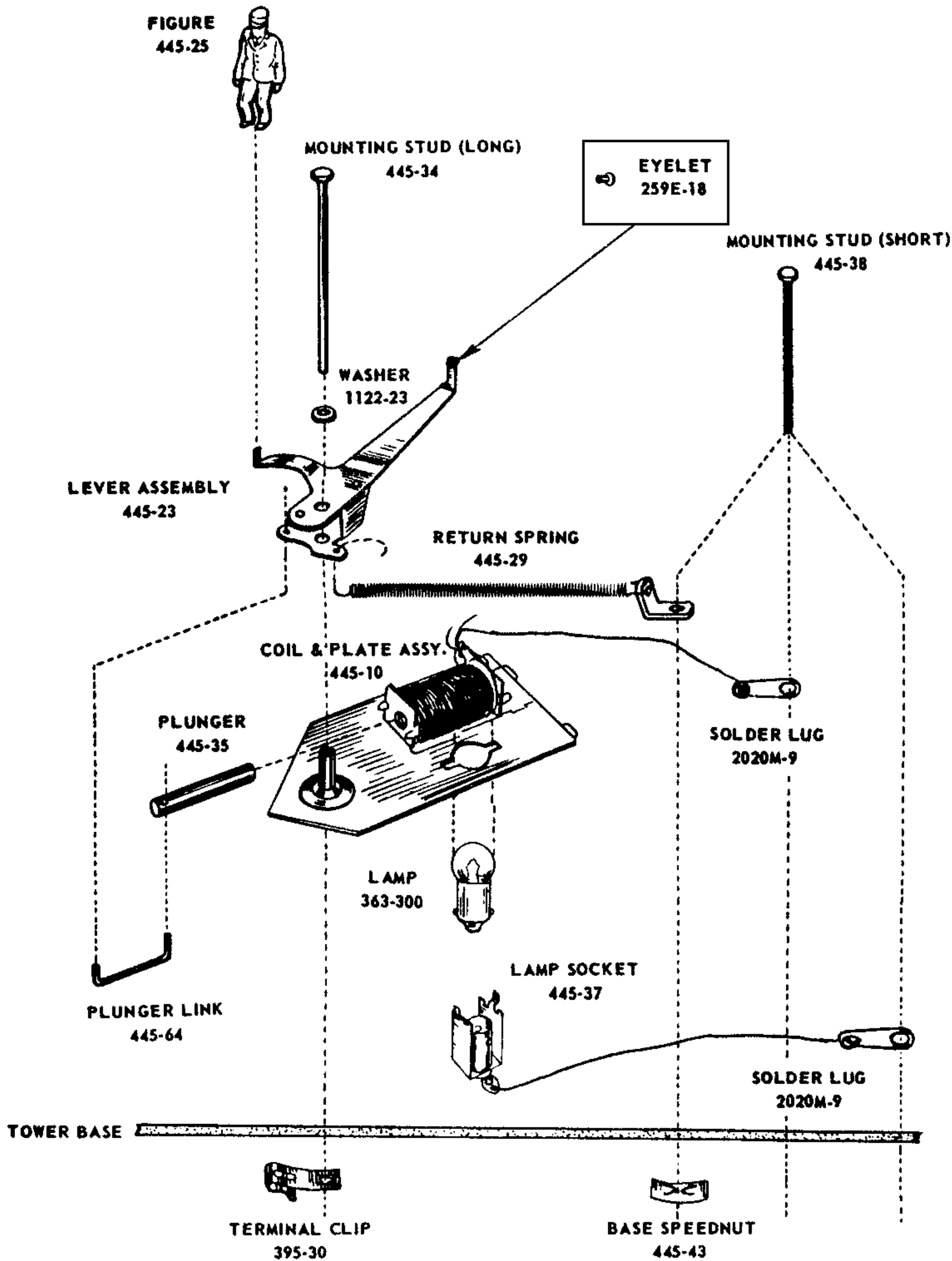


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## REPLACEMENT PARTS FOR NO. 445 SWITCH TOWER

Part No.	Part Name	List Price
022-36	Drive Screw	.05
259E-18	Eyelet	.02
363-300	Lamp	.20
395-30	Terminal Clip	.10
445-5	House Frame	1.50
445-6	Stairs	.50
445-7	Roof	1.00
445-8	Base	1.00
445-10	Coil & Plate Assy.	.75
445-12	Chimney	.25
445-13	Balcony	.40
445-14	Long Window Frame	.25
445-15	Door Frame	.25
445-16	Stair Cover	.50
445-18	Window Frame	.25
445-20	Window Glass	.05
445-21	Long Window Glass	.05
445-22	Door Glass	.05
445-23	Lever Assembly	.40
445-25	Figure	.25
445-27	Stair Railing	.10
445-29	Return Spring	.10
445-32	Figure Bracket	.15
445-34	Mounting Stud (Long)	.10
445-35	Plunger	.10
445-37	Lamp Socket	.30
445-38	Mounting Stud (Short)	.10
445-40	Tow Line	.05
445-43	Base Speednut	.05
445-44	Chimney Speednut	.05
445-51	Lantern Bead	.02
445-52	Lantern Pin	.02
445-64	Plunger Link	.10
1122-23	Washer	.02
2020M-9	Solder Lug	.02



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<u>PART NUMBER</u>	<u>LOCATION</u>	<u>UNIT PRICE</u>	<u>MIN. QUAN.</u>	<u>DESCRIPTION</u>
022-30	B-71	.05	12	Drive Screw (Railing)
145-18	K-72	.05	12	Small Window Glass
259E-18	Sub. 445-81			Eyelet (Lever)
363-300	LC	.30	10	Lamp
395-30	J-67	.10	6	Terminal Clip
445-5	C-46	1.50		House Frame
445-6	A-64	.50		Stairs
445-7	C-24	1.00		Roof
445-8	A-64	1.00		Base
445-10	I-91	.75		Coil & Plate Assem.
445-12	R-64	.25		Chimney
445-13	Q-37	.40		Balcony
445-14	Q-37	.25		Long Window Frame
445-15	Q-37	.25		Door Frame
445-16	R-64	.50		Stair Cover
445-18	R-64	.25		Small Window Frame
445-20	Sub. 145-13			Small Window Glass
445-21	I-81	.05	12	Door Glass
445-22	I-81	.05	12	Lever Assem.
445-23	I-81	.40		
445-25	I-81	.25		Figure
445-27	I-81	.10	6	Stair Railing
445-29	I-81	.10	6	Return Spring
445-32	I-71	.15	4	Figure Bracket
445-34	I-71	.10	6	Lever Mtg. Stud (Long)
445-35	I-71	.10	6	Plunger
445-37	I-81	.30		Lamp Socket
445-38	I-81	.10	6	Return Spring Mtg. Stud (Short)
445-40	LD	.05	12	Tow Line
445-43	I-71	.05	12	Base Speednut
445-44	I-71	.05	12	Chimney Speednut
445-51	I-81	.02	25	Lantern
445-52	I-81	.02	25	Lantern Pin
445-61	I-81	.02	25	Eyelet (Lever)
445-64	I-81	.10	6	Plunger Link
1122-23	I-54	.02	25	Washer (Lever)
2020M-9	E-84	.02	25	Solder Lug