

Western-Cullen-Hayes, Inc.

Electro/Hydraulic Switch Machine

Model WCHT-72



WESTERN-CULLEN-HAYES, INC.

2700 W. 36TH PLACE
(773) 254-9600

CHICAGO, IL. 60632
FAX (773) 254-1110

Model WCHT-72

Description

The Western-Cullen-Hayes Switch Machine is a simplified, compact, electro-hydraulic machine utilizing a quad-coil spring package to ensure switch point pressure.

It is a trailable switch machine designed to operate effectively in most switching areas, such as: car classification yards, receiving and departure yards, rail transit system yards, industrial facilities, and flat switching and rail storage yards.

Fast operation; approximately 1 - 1.5 second duty cycle depending on the stroke. The machine was designed to accommodate practically any yard switch configurations, and the operating stroke can be easily adjusted from 4-1/2 to 6 inches.

Dual control operation - either electric power or manual pump. Electrically the machine can be operated locally or remotely. Manually, via a hydraulic hand pump. The pump handle can be padlocked directly to the machine case and is used for machine lockout.

The switch machine is completely trailable. It has adequate power for throwing switches of all rail sections and is reliable under all weather conditions.

An internal programmable controller performs all control logic such as auto restoration after trail through and auto reverse due to obstructed switch points.

All electrical controls are mounted in an enclosure located inside the switch machine.

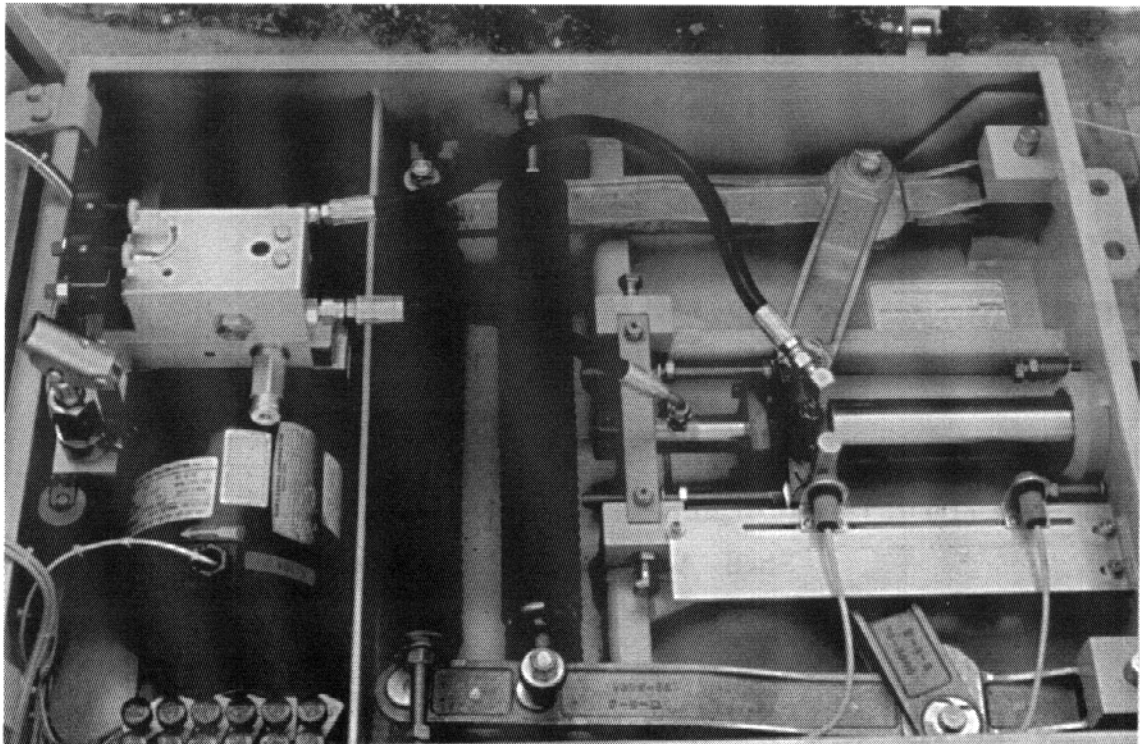
The hydraulic cylinder is used as the operating ram and the switch points are held in position by a quad-coil spring package. The spring and lever kinetics provide the energy to hold the switch point against the stock rail.

The hydraulic system consists of the driving motor, the hydraulic pump and reservoir, two electro-mechanical spool valves, pressure relief and check valves, the hydraulic cylinder, and a hand pump for manual operation.

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- No mechanical gears - clutches or chains
- Completely trailable at any speed
- Automatic restore after trailed when track circuit present
- Fast duty cycle - approximately 1.2 seconds at 4-1/2 inch stroke
- Easily adjustable stroke, 4-1/2 to 6 inches
- Programmable controller logic operated
- Local or remote power operation
- Dual control - power or manual pump
- Unique quad-coil spring package ensures switch point pressure
- Automatic reverse
- Machine easily maintained from the top
- Sheet steel case
- Hydraulic hand pump lever can be padlocked to machine case and is used for machine lockout



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Electrical Specifications

Required service:	120 VAC, 20 amp
Control voltage:	120 VAC, 12 VDC, 24 VDC
Motor:	1 HP, 14 FLA
Motor protection:	Auto resetting, ambient compensated thermal overload
Control:	From any momentary or maintained contact closure
Readback:	Isolated contact for normal and reverse position
Power disconnect recommendations:	Customer supplied 2 pole safety switch disconnect within sight of the machine. Non-fused, fused or circuit breaker per customer requirements
Interlock:	<ol style="list-style-type: none"> 1. Fouling circuit interlock terminals provided 2. Control power is disconnected if pump handle is removed from holder or placed in lockout position

Technical Specifications

Overall case dimensions:	27" x 42" x 17"
Height with indicators:	23 inches
Height with indicators and local switch:	26 inches
Weight:	434 pounds
Duty cycle:	Approximately 1.2 seconds at 4-1/2 inch stroke
Cylinder stroke:	4-1/2 to 6 inches
Holding force:	Factory set at 1000 pounds
Pump pressure:	900 - 1100 PSI operating 1400 PSI by-pass
Pump capacity:	.33 GPM
Hydraulic oil reservoir:	5.75 pints
Oil type:	Shell - Aero 4 or Mobil - Aero HFA
Temperature range:	-40 degrees C to 80 degrees C

WCHT-72 Switch Machine

Ordering Reference

Model	Control Relay Voltage	Control Option
WCHT-72-1011	120 VAC	Without Local Control
WCHT-72-1021	12 VDC	
WCHT-72-1031	24 VDC	
WCHT-72-1211	120 VAC	With Local Selector Switch
WCHT-72-1221	12VDC	
WCHT-72-1231	24 VDC	

Note: The above model numbers are for machines with indicator lights. To specify without indicator lights, drop the first "1" in the four digit reference number and add a "0".

Example: WCHT-72-1011 - with lights
WCHT-72-0011 - without lights

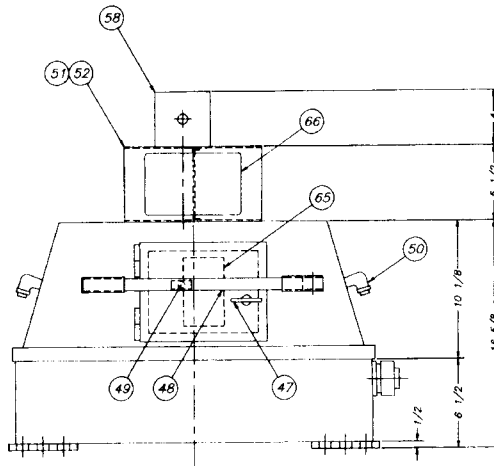
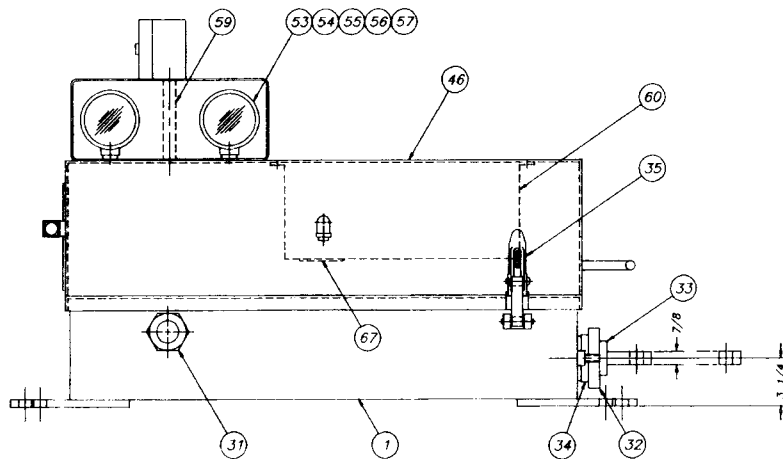
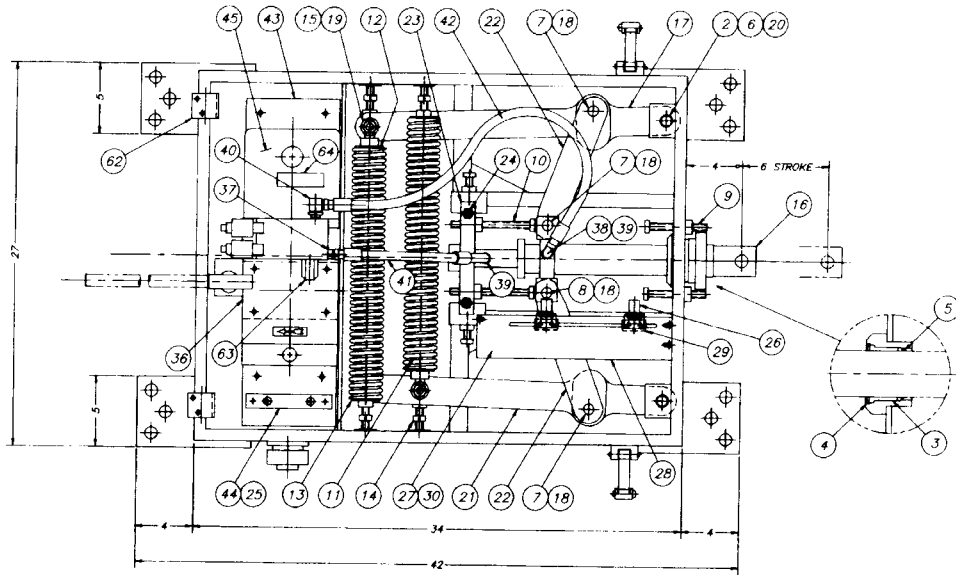
Optional: Development software and interface cable kit to connect computer to programmable controller.
Part Number 70-0159

Contact Western-Cullen-Hayes for additional options.

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Model WCHT-72 Parts List

ITEM	PART NO.	DESCRIPTION
1	70-0400	Machine Case
2	70-0428	Front Pivot Bushing
3	70-0407	Ram Bushing
4	70-0409	Snap Ring
5	70-0410	Wiping Seal
6	70-0411	Front Arm Pivot Pin
7	70-0412	Pivot Pin
8	70-0413	Pivot Pin
9	70-0423	Front Travel Stop Bolt
10	70-0424	Rear Travel Stop Bolt
11	70-0417	Spring
12	70-0418	Eye Bolt Spring Holder
13	70-0419	Adj Bolt Spring Holder
14	70-0421-1	Spring Adj Screw Assy
15	70-0426	Eye Bolt
16	70-0431	Hydraulic Cylinder
17	70-0432-2L	Left Lever Arm
18	70-0435	Lever Arm Swivel Bearing
19	70-0414	Shoulder Bolt
20	70-0434	Half Dog Set Screw
21	70-0432-2R	Right Lever Arm
22	70-0433-2	Short Lever Arm
23	70-0404	Cylinder Mtg Block
24	70-0422	Set Screw
25		Wire Harness Consult WCH
26	70-0305	Travel Limit Switch (Not Shown)
26	70-0305-P	Travel Proximity Switch
27	70-0307	Limit Switch Plate Heater (Not Shown)
28	70-0430	Limit Switch Mtg . Plate (Not Shown)
28	70-0430-P	Proximity Switch Mtg. Plate
29	70-0306	Limit Switch Nut Plate (Not Shown)
29	70-0306-P	Proximity Switch Nut Plate
30	70-0308	Heater Clamp (Not Shown)
31	ST-150	Straight Connector
32	70-0441	Ram Boot

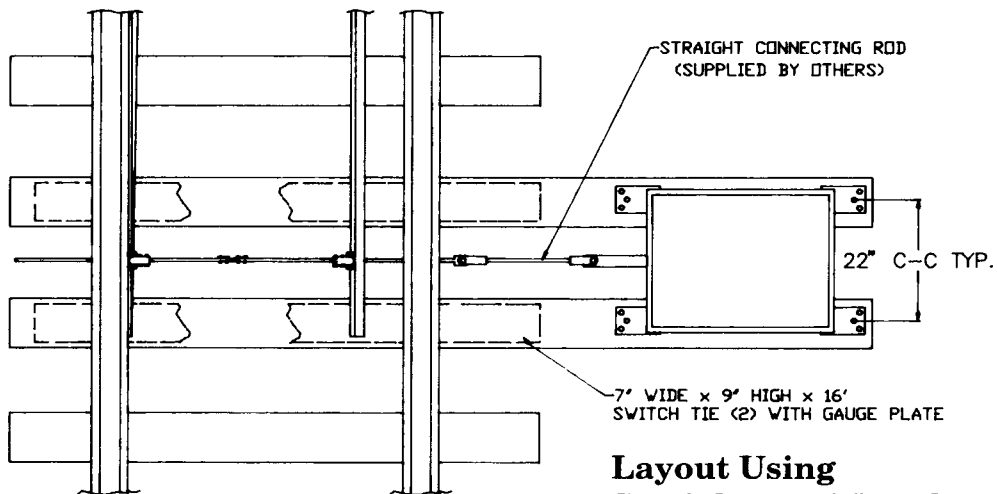
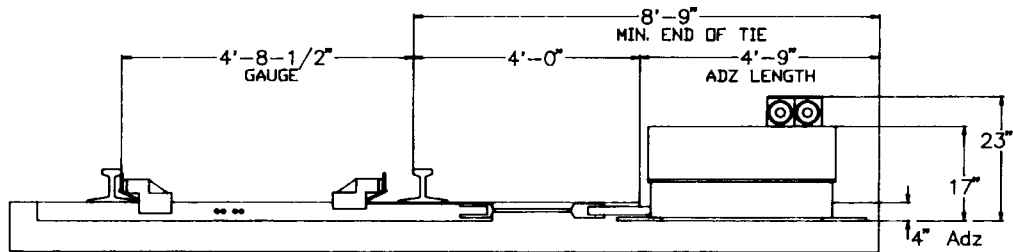
ITEM	PART NO.	DESCRIPTION
33	400-03-00	Boot Clamp
34	400-03-01	Boot Clamp
35	1265-40	Hasp
36	70-0650	Hydraulic Power Pack
37	70-0600	Straight Adapter
38	70-0613	90 Deg Swivel Adapter
39	70-0617	Straight Adapter
40	70-0601	90 Deg Adapter
41	70-0444	Short Hose Assy
42	70-0445	Long Hose Assy
43	70-0429	Motor Mtg Plate
44	70-0161	Terminal Stand
45	70-0651	Hyd. Fluid (Not Shown)
46	70-0121	Machine Cover
47	70-1020	Door Latch
48	70-0440	Limit Switch Pump Handle
48	70-0440-M	Reed Switch Pump Handle
49	50-3058-1	Limit Switch
49	50-3059	Reed Switch
50	1143-16-A	Ventilator Assy
51	70-0181	Shade W/Local Switch
52	70-0182	Shade W/O Local Switch
53	70-0170	Amber Light Assy
54	70-0171	Green Light Assy
55	70-0172	Red Light Assy
56	70-0173	Blue Light Assy
57	70-0174	Rubber Washer
58	70-0183-1	Local Switch Enclosure
59	70-0180-1	Pipe Riser
60		Control Enclosure Consult WCH
61	60-3072	Centering Tool (Not Shown)
62	70-0437	Hinge Bracket
63	70-0650-HB	Relief Valve & Block (As Equipped)
64	70-0650-N1	Fluid Label
65	70-0650-N2	Pump Label
66	70-0650-N3	Pump Label
67	70-0650-N4	Lube Label

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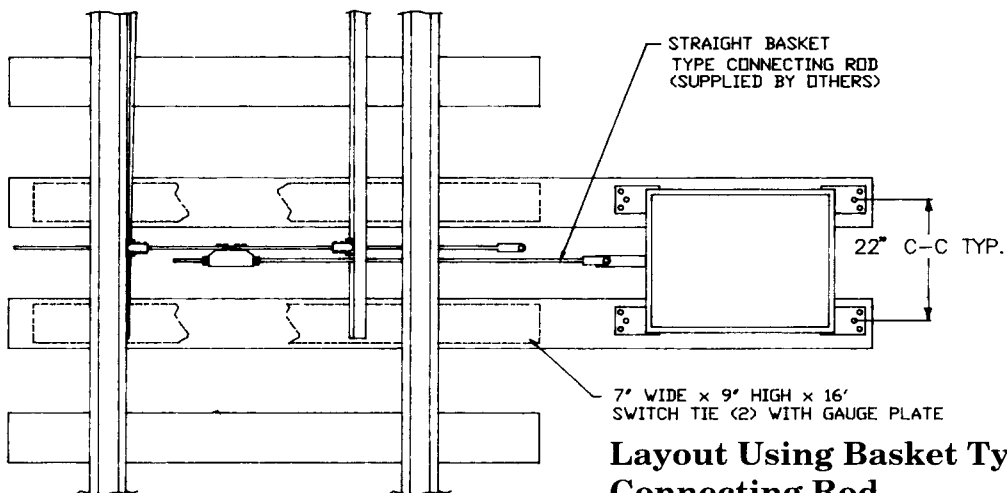
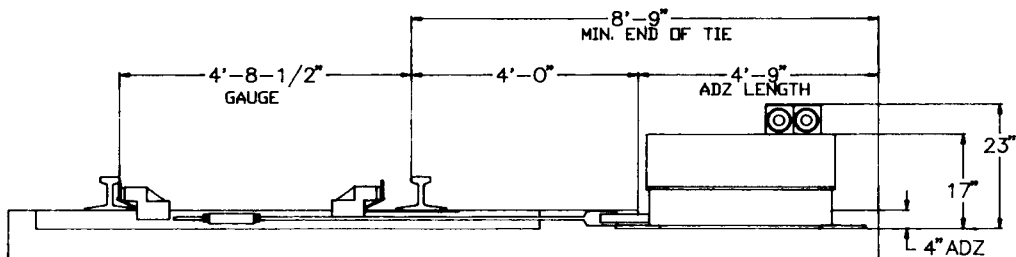
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WCHT-72 Switch Machine Typical Layout



**Layout Using
Straight 37-1/2" Rod**



**Layout Using Basket Type
Connecting Rod**

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Connecting Rods

WCHT-72 to HB Sliding Derail.

70" rod with 4" offset for far rail application.
PN: 70-1050

70" rod without offset for far rail application.
PN: 70-1051

55" rod with 4" offset for near rail application.
PN: 70-1052

55" rod without offset for near rail application.
PN: 70-1053

WCHT-72, Basket Type, to switch point.

Forged rod with clevis pin and 2 basket nuts only. Rods are 1-3/8" diameter with 30" of 1-1/4" thread.

84" straight rod.
PN: 70-2100

84" insulated straight rod.
PN: 70-2100-I

84" rod with 4" offset.
PN: 70-2101

84" insulated rod with 4" offset
PN: 70-2101-I