

Operating Instructions

HI-LOW DETECTORS

Models: 47-3700 (CT-610)
47-3705 (CT-612)
47-3710 (CT-616)

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HI-LOW DETECTORS

MODELS 47-3700 (CT-610), 47-3705 (CT-612), 47-3710 (CT-616)

I. GENERAL INFORMATION

The **Hi-Low Detector** is a machine for detecting and marking points on the surface of a roadway or a roadway form which deviate from the desired level of grade. It is a precision-made straight-edge, for checking both concrete and black top slabs. Basically, the machine consists of an I-beam body 10 to 16 feet long with riding wheels at the ends and a detector wheel at the middle, so that the machine can be steered on the surface. The detector wheel, located at the middle of the machine, detects any vertical deviation of the surface from a straight line between the supporting wheels at the ends of the machine.

The vertical deviations are shown by a movable pointer over a visible scale. Markings can be made on the surface using a special dye kept in a reservoir and a release valve control mechanism. The timing and location of the marking can be controlled through a cable at the operator's handle.

The **Hi-Low Detector** is shipped completely assembled except for attaching the operator's handle, rear steering rod, and dye release cable.

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II. ASSEMBLY

- A. Attach the handle as shown in the assembly photographs.
- B. Run the loose end of the dye marker cable through the guide bracket so that 7/16" (11 mm) of cable wire extends beyond the bracket.
- C. After tightening the bracket, adjust the push collar on the end of the cable wire so that it clears the control valve lever by 1/32" (0.8 mm).
- D. With this setting, the Push Collar should fully open the Control Valve when the Dye Release Lever on the handle is actuated (See Figure 2).
- E. Connect the rear steering rod as shown in the second photograph, which allows the front wheel to turn about 20° to the right or left.

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III. COMPONENTS

- A. **Front Wheel Lock:** The Front Wheel can be locked in a straight forward position by turning the spring actuated locking rod (See Figure 1 and 2) off the holding peg. With this rod in the down or locked position, the front wheel is nonsteerable, as required when the **Hi-Low Detector** is used for aligning forms.

- B. **Tire Scrapers:** An adjustable tire scraper is mounted in front of each wheel and preset to clear the wheel by approximately 1/32" (0.8 mm). These scrapers prevent mud and dirt from accumulating on the rubber tired wheel which would result in inaccurate readings. After long periods of use, it may be necessary to reset these tire scrapers to 1/32" (0.8 mm) clearance on each wheel.

- C. **Aerosol-Spray Dye Marking System:** Irregular surfaces are marked by aerosol-spray dye (Figures 1 and 2). Upon receiving the visual indicator signals, the operator depresses a button on the steering handle that controls the marking-dye discharge valve. Bright orange dye sprays onto the irregular surface from a replaceable aerosol can mounted directly beside the indicator wheel. A series of long, parallel dye streaks laid down by repeated passes over the uneven area vividly marks high and low spots for correction. Use of the non-clogging aerosol can for dye discharge eliminates mixing, permits precision marking, and prevents waste.

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IV. ADJUSTING AND CHECKING ACCURACY

- A. Quickly check for accuracy by hooking the spring loaded line underneath the wheels as shown in Figure 3.
- B. To set the indicator wheel exactly on the line, loosen the wing lock nut at A and turn screw A upward until the wheel is right on the line. With the wheel in this position, the indicator needle should read zero. If it does not, release lock nut B and turn rod at C up or down until a zero reading is obtained. Then tighten nut B and back off or lower screw A until the arm resets on lower stop D.
- C. The **Hi-Low Detector** can be quickly checked for accuracy without using the storage and transport frame by lowering the front and rear wheel guides. This raises the wheels off of the ground so that the spring loaded line can be stretched underneath them.

V. MAINTENANCE

With normal use and handling, this machine will perform accurately over long periods of time and needs only occasional rechecking for accuracy.

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VI. SPECIFICATIONS

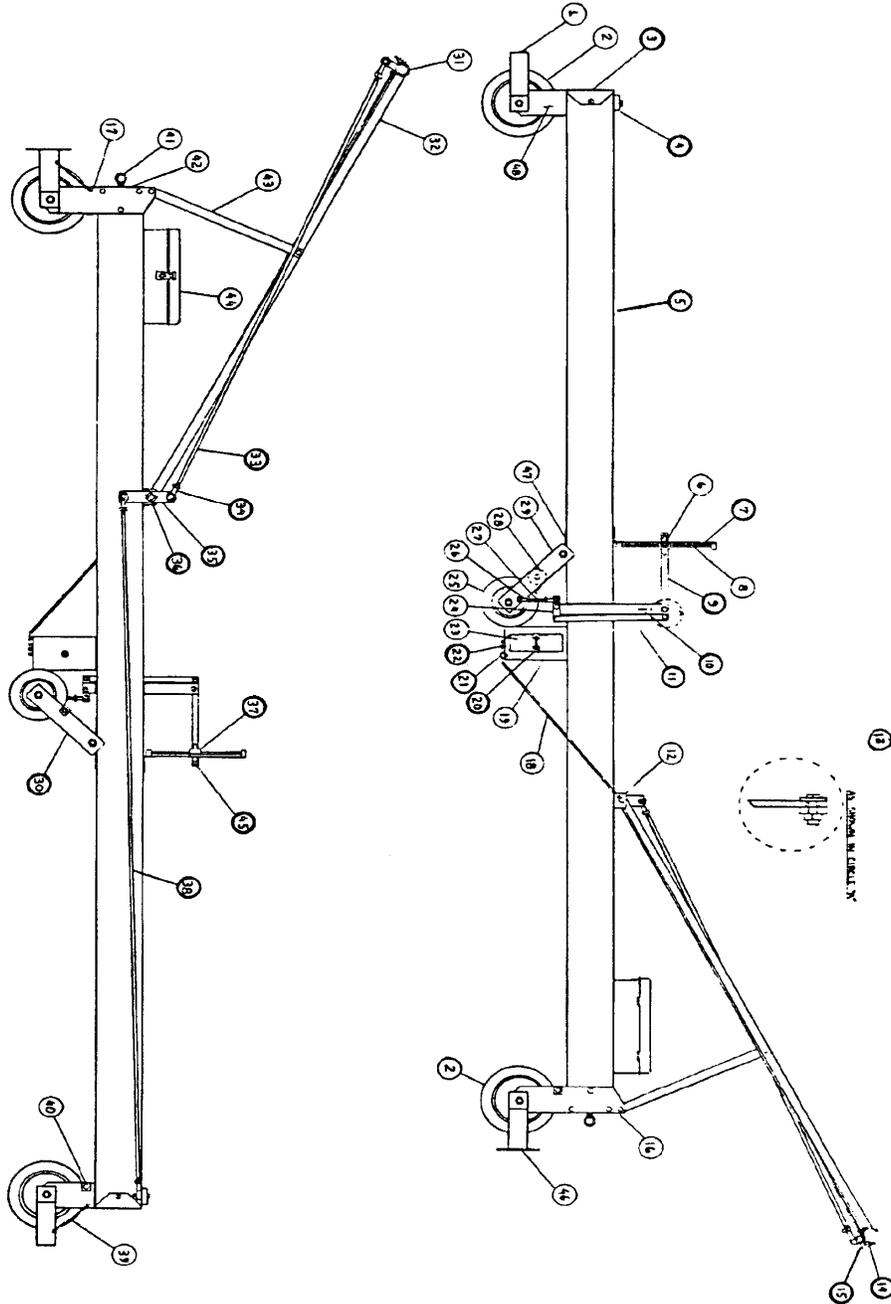
Frame	Rectangular aluminum stock
Stands	Front and rear; for storage, transport, and testing
Wheels	Ground concentric with inside diameter of their ball bearings; neoprene tires and adjustable scraper blades for accuracy; one front, one rear and one center indicator wheel
Dye	Bright orange; 12 oz. (340 g) aerosol can; mounts beside indicator wheel; contains no fluorocarbons; non-clogging
Handle	For steering; with button for discharging dye
Scale	Vertical; large pointer; mounted above indicator wheel; magnifies variations 16x
Graduations	1/8" or 1 mm
Readings	Magnified; range from 0 to 1/4" (6.4 mm), high or low
Weights	47-3700 (CT-610): Net 70 lbs. (32 kg); Shpg 140 lbs. (64 kg) 47-3705 (CT-612): Net 80 lbs. (36 kg); Shpg 160 lbs. (73 kg) 47-3710 (CT-616): Net 102 lbs. (46 kg); Shpg. 200 lbs. (91 kg)

VII. MODELS, ACCESSORIES & REPLACEMENT PARTS

47-3700 (CT-610)	10 Ft. (3 m) span
47-3705 (CT-612)	12 Ft. (3.7 m) span
47-3710 (CT-616)	16 Ft. (4.9 m) span. With reinforcing aluminum plate riveted to either side of frame
47-3715 (CT-621)	Bell-Buzzer Indicator System, powered by a 6-volt battery
47-3700/10 (CT-622)	Orange Dye, 12 12oz. (340 g) aerosol spray cans (contains no fluorocarbons)

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Figure 1



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Auxiliary Parts for 47-3705 (CT-612) and 47-3710 (CT-616)A

Det.	Part Name	Part No.	Req.
	CT-612A		
5	Main Beam	MA-1285	1
38	Steering Rod-Front	MA-1286	1
-	Steering Rod Guide	FA-504	1
	CT-616A		
5	Main Beam	MA-1288	1
38	Sttering Rod -Front	MA-1290	1
38	Steering Rod-Center	MA-1231	1
38	Turn Buckle	MA-1232	1
-	Steering Rod Guide-Front	FA-505	1
-	Steering Rod Guide-Rear	FA-506	1

Parts Not Shown

Part Name	Part No.	Req.
Pivot Brushing-Pivot Bar Weld'mt	MA-1249	1
Spacer-Handle Mtg. Bracket	MA-1263	2
Collar-Steering Sleeve Weld'mt	MA-1275	2
Bronze Brushing-Wheel Yoke Weld'mt	MA-1278	2
Oilite Brushing-Swing Arm Mtg. Br'kt	AA-607-2	2
Axle-Front, Rear, Indicator Wheel	MA-1280	3

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Parts List

Det.	Part Name	Part No.	Req.
1	Kick Stand Weldment Front	WA-317	1
2	Front & Rear Wheel	MA-1284	2
3	End Cap-Front	FA-500	1
4	Turning Lever	MA-1269	1
5	Main Beam *	MA-1262	1
6	Roller and Spacer	PA-033	1
7	Indicator Plate Weldment	WA-313	1
8	Slide Bar	MA-1268	1
9	Upper Pivot Bar	MA-1265	1
10	Unrage Weldment Mtg. Bracket	WA-312	1
11	Upper Linkage Bar	MA-1267	1
12	Handle Mtg. Bracket	FA-495	1
13	Linkage Bearing	MA-1277	4
14	Push Pull Knob	DK-48	1
15	Spring	HA-075	1
16	Rear Wheel Mtg. Bracket Left	FA-497	1
17	Rear Wheel Mtg. Bracket Right	FA-496	1
18	Spray Control Cable	MA-1281	1
19	Spray Can Holder	FA-498	1
20	Clamp-Spray Can	5	1
21	Cable Clamp Spray Control	FA-499	1
22	Push Collar	MA-1282	1
23	Aerosol Spray Can (Orange)	MPH01	1
24	Lower Pivot Bar	MA-1264	1
25	Indicator Wheel	MA-1283	1
26	Rod End Bearing	HF-4C	2
27	Lower Linkage Rod	MA-1266	1
28	Weight	MA-1276	1
29	Swing Arm Left	MA-1271	1
30	Swing Arm Right	MA-1272	1
31	Steering Sleeve Weldment	WA-316	1
32	Handle Weldment	WA-315	1
33	Steering Rod Rear	MA-1274	1
34	Rod End Bearing	HF-6C	4
35	Pivot Bar Weldment	WA-310	1
36	Bracket Pin	MA-1270	1
37	Pointer Block Weldment	WA-311 1	
38	Steering Rod Front X	MA-1273	1
39	Pattern Chain	#4	2
40	Wheel Scraper	FA-503	2
41	Eye Bolt	1/4 - 20	1
42	End Cap-Rear	FA-501	1
43	Handle Weldment Support	FA-502	2
44	Tool Box	MA-1279	1
45	Shoulder Bolt	1/2 Dia. x 1.4"	1

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Parts List

Det.	Part Name	Part No.	Req.
46	Kick Stand Weldment Rear	WA-318	1
47	Swing Arm Mtg. Bracket Weldment	WA-314	1
48	Wheel Yoke Weldment	WA-309	1

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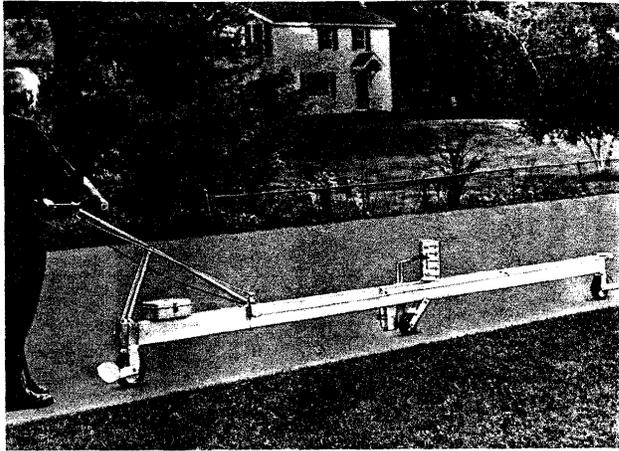


Figure 2a

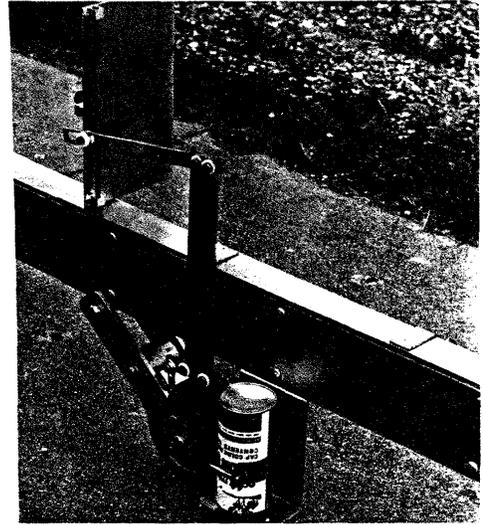


Figure 2b

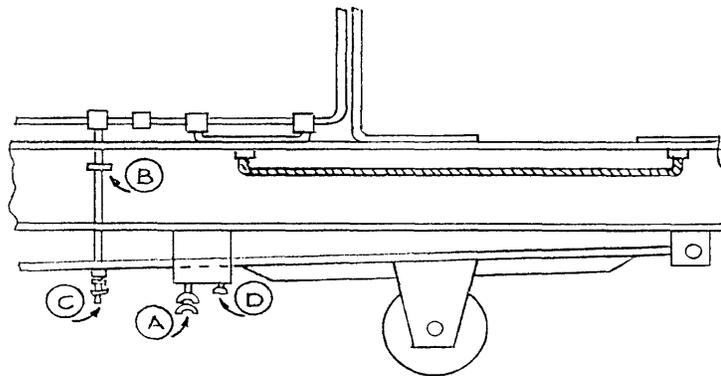


Figure 3

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