

4-7-26  
4-16-29. 12-6-26

# APPROXIMATE UNIT ESTIMATES.

OFFICE OF SIGNAL ENGINEER.

I. C. R. R.

CHICAGO, ILL.

## DETAILS OF CHARGES SHOWN IN COLUMN A

CHARGES	TO INSTALL	TO MOVE
Storehouse	4% of Material	4% of Material
Transportation, Freight & Rental	8% " "	8% " "
Engineering & Contingencies	10% " "	10% " "
Labor	45% " "	183% " "
<b>TOTAL</b>	<b>67% " "</b>	<b>205% " "</b>

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### UNIT COST OF INTERLOCKING.

Each working lever - Mechanical including Tower and Supply House . . . . .	1050.00
Each working lever - Electrical including Tower and Supply House . . . . .	2000.00
Tower . . . . .	4000.00 and up.
Supply House . . . . .	500.00

NOTE: Add following to cover all special  
apparatus and conditions.

### GENERAL

One power distant signal . . . . .	1435.00
Each additional power distant signal . . . . .	1240.00
Annunciator - single track . . . . .	700.00
Annunciator - double track . . . . .	650.00
Each switch between home and distant signals . . . . .	125.00

### ROUTE LOCKING

Per track, 1 direction, less track circuits . . . . .	265.00
Per track, 1 direction, including track circuits . . . . .	490.00

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UNIT COST OF AUTOMATIC BLOCK  
SIGNALS AND AUTOMATIC TRAIN STOP.

SEMAPHORE-SINGLE TRACK

T.D. System per Signal - primary battery	1400.00
T.D. System per mile of road - primary battery	2800.00
T.D. System per Signal - trickle charge	1600.00
T.D. System per mile of road - trickle charge	3200.00

SEMAPHORE-DOUBLE TRACK

Per Signal - Signals spaced 1 mile	1450.00
Per mile of road	3000.00

COLOR LIGHT-SINGLE TRACK

T.D. System per Signal	1500.00
T.D. System per mile of road	3000.00

COLOR LIGHT-DOUBLE TRACK

Per Signal - Signals spaced 1 mile	1450.00
Per mile of road	3000.00

AUTO. TRAIN STOP-SINGLE TRACK T.D. SYS.

Wayside equipment per mile of road	3200.00
Engine equipment per engine	2450.00

AUTOMATIC TRAIN STOP-DOUBLE TRACK

Wayside equipment per mile of road	3230.00
Engine equipment per engine	2450.00

NOTE: Add following to cover all special apparatus and conditions.

GENERAL

Each trailing switch	185.00
Each facing switch	250.00
Each siding end of Main to Siding Crossover	100.00
Each Main to Main facing crossover	520.00
Each Main to Main trailing crossover	390.00

ANNUAL MAINTENANCE & OPERATION EXPENSE.

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MAINTENANCE

OPERATION

Mechanical Interlocking

Mechanical Interlocking

1 Lever ..... 62.00

1 Lever ..... 23.00

3 Levermen 165.00 per Mo. 5940.00

Electrical Interlocking

Electrical Interlocking

1 Lever ..... 84.00

1 Lever ..... 34.00

3 Levermen 165.00 per Mo. 5940.00

Crossing Gates

Crossing Gates

Per Post ..... 50.00

1 Man ..... 780.00

HIGHWAY CROSSING SIGNALS IN NON SIGNALLED TERRITORY.

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SINGLE TRACK	MATERIAL	A	TOTAL
Model 15A Bell with 2500' starts and primary battery	480.00	320.00	800.00
Model 15A Bell with 2500' starts and trickle charge	565.00	375.00	940.00
1 Wig Wag with Model 15A Bell, 2500' starts, and primary battery	655.00	440.00	1095.00
For additional Wig Wag at same crossing add			275.00
1 Wig Wag with Model 15A Bell, 2500' starts and trickle charge	700.00	470.00	1170.00
For additional Wig Wag at same crossing add			275.00
2 Flasher Signals with Model 15A Bell, 2500' starts, and primary battery	905.00	605.00	1510.00
2 Flasher Signals with Model 15A Bell, 2500' starts, and trickle charge	920.00	615.00	1535.00
For 2 Wig Wags or 2 Flashers in center of street add			100.00

## HIGHWAY CROSSING SIGNALS IN NON SIGNALLED TERRITORY.

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DOUBLE TRACK	MATERIAL	A	TOTAL
Model 15A Bell with 2500' starts and primary battery	495.00	330.00	825.00
Model 15A Bell with 2500' starts and trickle charge	625.00	420.00	1045.00
1 Wig Wag with Model 15A Bell, 2500' starts, and primary battery	725.00	485.00	1210.00
For additional Wig Wag at same crossing add			275.00
1 Wig Wag with Model 15A Bell, 2500' starts, and trickle charge	750.00	505.00	1255.00
For additional Wig Wag at same crossing add			275.00
2 Flasher Signals with Model 15A Bell, 2500' starts, and primary battery	945.00	635.00	1580.00
2 Flasher Signals with Model 15A Bell, 2500' starts, and trickle charge	950.00	635.00	1585.00
For 2 Wig Wags or 2 Flashers in center of street add			100.00

CROSSING GATES.

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PNEUMATIC	MATERIAL	A	TOTAL
1-2 Post 6" Cylinder Buda *19 1/2	1160.00	775.00	1935.00
2-2 Post 6" Cylinder Buda *19 1/2	1685.00	1130.00	2815.00
1-2 Post 8" Cylinder Buda *21 1/2	1210.00	810.00	2020.00
2-2 Post 8" Cylinder Buda *21 1/2	1790.00	1200.00	2990.00
1-4 Post 8" Cylinder Buda *20 1/2	1550.00	1040.00	2590.00
2-4 Post 8" Cylinder Buda *20 1/2	2460.00	1650.00	4110.00
1-4 Post 8" Cylinder Buda *22 1/2	1600.00	1070.00	2670.00
2-4 Post 8" Cylinder Buda *22 1/2	2560.00	1715.00	4275.00
If paved Street is Crossed add			90.00

On Chicago Terminal add 450.00 for new type terminal tower.

CROSSING GATES.

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ELECTRIC 110V.	MATERIAL	A	TOTAL
1-4 Post Buda #18	1940.00	1300.00	3240.00
2-4 Post Buda #18	3835.00	2570.00	6405.00
If paved street is crossed add			90.00
1-2 Post Buda #17	1110.00	745.00	1855.00
2-2 Post Buda #17	2130.00	1425.00	3555.00
If paved street is crossed add			90.00
<p>For each additional foot of gate arm add 2.50</p> <p>Street arms as furnished - 25 ft. long.</p> <p>Sidewalk arms as furnished - 15 ft. long.</p> <p>On Chicago Terminal add \$450 for new Type Terminal Tower.</p>			



### SEMAPHORE SIGNALS.

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SINGLE TRACK		MATERIAL	A	TOTAL
Head Block Location	To Install	1305.00	875.00	2180.00
	To Move	145.00	285.00	430.00
Single Approach Line Side	To Install	790.00	530.00	1320.00
	To Move	100.00	205.00	305.00
Single Approach Opposite Line	To Install	880.00	590.00	1470.00
	To Move	145.00	285.00	430.00
Double Approach	To Install	1330.00	890.00	2220.00
	To Move	140.00	285.00	425.00
Single Intermediate Line Side	To Install	810.00	545.00	1355.00
	To Move	100.00	205.00	305.00
Single Intermediate Opposite Line	To Install	925.00	620.00	1545.00
	To Move	140.00	285.00	425.00
Double Intermediate	To Install	1375.00	920.00	2295.00
	To Move	145.00	285.00	430.00
Outlying Location Line Side	To Install	685.00	460.00	1145.00
	To Move	65.00	135.00	200.00
Outlying Location Opposite Line	To Install	770.00	515.00	1285.00
	To Move	95.00	195.00	290.00

### SEMAPHORE SIGNALS.

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DOUBLE TRACK		MATERIAL	A	TOTAL
Single Signal Line Side	To Install	695.00	465.00	1160.00
	To Move	85.00	175.00	260.00
Single Signal Opposite Line	To Install	775.00	520.00	1295.00
	To Move	110.00	225.00	335.00
Single Signal Line Side with cut opposite	To Install	770.00	515.00	1285.00
	To Move	110.00	225.00	335.00
Single Signal Opposite Line with cut opposite	To Install	855.00	575.00	1430.00
	To Move	140.00	285.00	425.00
Double Location	To Install	1270.00	850.00	2120.00
	To Move	155.00	320.00	475.00

COLOR LIGHT SIGNALS - PRIMARY BATT. APPROACH LIGHTED

4-16-29

SINGLE TRACK		MATERIAL	A	TOTAL
Head Block Location.	To Install	995.00	665.00	1660.00
	To Move	140.00	285.00	425.00
Single Approach Line Side.	To Install	700.00	470.00	1170.00
	To Move	100.00	205.00	305.00
Single Approach Opp. Line Side.	To Install	795.00	535.00	1330.00
	To Move	140.00	285.00	425.00
Double Approach.	To Install	1020.00	685.00	1705.00
	To Move	140.00	285.00	425.00
Single Intermediate Line Side.	To Install	715.00	480.00	1195.00
	To Move	100.00	205.00	305.00
Single Intermediate Opp. Line Side.	To Install	810.00	545.00	1355.00
	To Move	140.00	285.00	425.00
Double Intermediate.	To Install	1090.00	730.00	1820.00
	To Move	140.00	285.00	425.00
Outlying Location Line Side.	To Install	610.00	410.00	1020.00
	To Move	80.00	165.00	245.00
Outlying Location Opp. Line Side.	To Install	695.00	465.00	1160.00
	To Move	110.00	225.00	335.00

COLOR LIGHT SIGNALS A.C. PRIMARY BATT. APPROACH LIGHTED.

4-16-29

SINGLE TRACK		MATERIAL	A	TOTAL
Head Block Location.	To Install	1095.00	735.00	1830.00
	To Move	150.00	310.00	460.00
Single Approach Line Side.	To Install	765.00	515.00	1280.00
	To Move	110.00	225.00	335.00
Single Approach Opp. Line Side.	To Install	855.00	575.00	1430.00
	To Move	150.00	310.00	460.00
Double Approach	To Install	1050.00	705.00	1755.00
	To Move	150.00	310.00	460.00
Single Intermediate Line Side	To Install	795.00	535.00	1330.00
	To Move	110.00	225.00	335.00
Single Intermediate Opp. Line Side.	To Install	880.00	590.00	1470.00
	To Move	150.00	310.00	460.00
Double Intermediate	To Install	1170.00	785.00	1955.00
	To Move	155.00	320.00	475.00
Outlying Location Line Side.	To Install	680.00	455.00	1135.00
	To Move	85.00	175.00	260.00
Outlying Location Opp. Line Side.	To Install	765.00	515.00	1280.00
	To Move	115.00	235.00	350.00

COLOR LIGHT SIGNALS - AC STORAGE BATT-APPROACH LIGHTED

4-16-29

SINGLE TRACK		MATERIAL	A	TOTAL
Head Block Location.	To Install	1160.00	775.00	1935.00
	To Move	150.00	310.00	460.00
Single Approach Line Side.	To Install	815.00	545.00	1360.00
	To Move	110.00	225.00	335.00
Single Approach Opp. Line Side.	To Install	910.00	610.00	1520.00
	To Move	145.00	295.00	440.00
Double Approach.	To Install	1165.00	780.00	1945.00
	To Move	145.00	295.00	440.00
Single Intermediate Line Side.	To Install	875.00	585.00	1460.00
	To Move	105.00	215.00	320.00
Single Intermediate Opp. Line Side.	To Install	955.00	640.00	1595.00
	To Move	145.00	295.00	440.00
Double Intermediate.	To Install	1285.00	860.00	2145.00
	To Move	150.00	310.00	460.00
Outlying Location Line Side.	To Install	710.00	475.00	1185.00
	To Move	70.00	145.00	215.00
Outlying Location Opp. Line Side.	To Install	790.00	530.00	1320.00
	To Move	100.00	205.00	305.00

*COLOR LIGHT SIGNALS - PRIMARY BATT. APPROACH LIGHTED*

*4-16-29.*

<i>DOUBLE TRACK</i>		<i>MATERIAL</i>	<i>A.</i>	<i>TOTAL</i>
<i>Single Signal Line Side.</i>	<i>To Install</i>	<i>605.00</i>	<i>405.00</i>	<i>1010.00</i>
	<i>To Move</i>	<i>85.00</i>	<i>175.00</i>	<i>260.00</i>
<i>Single Signal Opp. Line Side.</i>	<i>To Install</i>	<i>690.00</i>	<i>460.00</i>	<i>1150.00</i>
	<i>To Move</i>	<i>115.00</i>	<i>235.00</i>	<i>350.00</i>
<i>Single Signal Line side With Cut Opposite.</i>	<i>To Install</i>	<i>680.00</i>	<i>455.00</i>	<i>1135.00</i>
	<i>To Move</i>	<i>110.00</i>	<i>225.00</i>	<i>335.00</i>
<i>Single signal Opp. Line Side With Cut Opposite.</i>	<i>To Install</i>	<i>750.00</i>	<i>505.00</i>	<i>1255.00</i>
	<i>To Move</i>	<i>140.00</i>	<i>285.00</i>	<i>425.00</i>
<i>Double Location.</i>	<i>To Install</i>	<i>1060.00</i>	<i>710.00</i>	<i>1770.00</i>
	<i>To Move</i>	<i>160.00</i>	<i>330.00</i>	<i>490.00</i>

COLOR LIGHT SIGNALS - A.C. PRIMARY BATT. APPROACH LIGHTED

A-16-29

DOUBLE TRACK		MATERIAL	A	TOTAL
Single Signal Line Side.	To Install	675.00	450.00	1125.00
	To Move	90.00	185.00	275.00
Single Signal - Opp. Line Side.	To Install	760.00	510.00	1270.00
	To Move	115.00	235.00	350.00
Single Signal Line Side With Cut Opposite.	To Install	750.00	505.00	1255.00
	To Move	115.00	235.00	350.00
Single Signal - Opp. Line Side With Cut Opposite.	To Install	835.00	560.00	1395.00
	To Move	140.00	285.00	425.00
Double Location.	To Install	1175.00	785.00	1960.00
	To Move	160.00	330.00	490.00

COLOR LIGHT SIGNALS - A.C. STORAGE BATT. APPROACH LIGHTED

4-16-29	DOUBLE TRACK		MATERIAL	A	TOTAL
	Single Signal Line Side.	To Install	725.00	485.00	1210.00
To Move		90.00	185.00	275.00	
Single Signal Opp. Line Side.	To Install	750.00	505.00	1255.00	
	To Move	115.00	235.00	350.00	
Single Signal Line Side With Cut Opposite.	To Install	835.00	560.00	1395.00	
	To Move	115.00	235.00	350.00	
Single Signal Opp. Line Side With Cut Opposite.	To Install	920.00	615.00	1535.00	
	To Move	140.00	285.00	425.00	
Double Location.	To Install	1250.00	840.00	2090.00	
	To Move	165.00	340.00	505.00	



## CUT SECTIONS - PRIMARY BATTERY.

A-16-29.

SINGLE TRACK		MATERIAL	A	TOTAL
Single Relayed Cut.	To Install	155.00	105.00	260.00
	To Move	40.00	80.00	120.00
Single Batt. Batt. Cut.	To Install	70.00	45.00	115.00
	To Move	20.00	40.00	60.00
Single Batt. Feed 1-Way.	To Install	70.00	45.00	115.00
	To Move	15.00	40.00	55.00

CUT SECTIONS - A.C. STORAGE BATTERY.

4-16-29

SINGLE TRACK		MATERIAL	A	TOTAL
Single Relayed Cut.	To Install	265.00	180.00	445.00
	To Move	65.00	135.00	200.00
Single Batt. Batt. Cut.	To Install	250.00	170.00	420.00
	To Move	50.00	105.00	155.00
Single Batt. Feed 1-Way.	To Install	220.00	145.00	365.00
	To Move	50.00	105.00	155.00

CUT SECTIONS - PRIMARY BATTERY.

A-16-29.

DOUBLE TRACK		MATERIAL	A	TOTAL
Double Relayed Cut.	To Install	235.00	155.00	390.00
	To Move	65.00	135.00	200.00
Double Batt. Batt. Cut.	To Install	135.00	90.00	225.00
	To Move	40.00	80.00	120.00
Double Batt. Feed 1-Way.	To Install	110.00	75.00	185.00
	To Move	30.00	60.00	90.00

## CUT SECTIONS - A.C. STORAGE BATTERY.

A-16-29	DOUBLE TRACK		MATERIAL	A	TOTAL
	Double Relayed Cut.	To Install	375.00	250.00	625.00
	To Move	95.00	195.00	290.00	
Double Batt. Batt. Cut.	To Install	390.00	260.00	650.00	
	To Move	95.00	195.00	290.00	
Double Batt. Feed 1-Way.	To Install	300.00	200.00	500.00	
	To Move	65.00	135.00	200.00	

# SWITCHES, ETC.

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		MATERIAL	A	TOTAL
<i>Facing Switch ins.</i>	<i>To Install</i>	150.00	100.00	250.00
	<i>To Move</i>	25.00	50.00	75.00
<i>Trailing Switch ins.</i>	<i>To Install</i>	110.00	75.00	185.00
	<i>To Move</i>	25.00	50.00	75.00
<i>Siding end Main to Siding Xover</i>	<i>To Install</i>	60.00	40.00	100.00
	<i>To Move</i>	25.00	50.00	75.00
<i>Facing Xover Main to Siding</i>	<i>To Install</i>	230.00	155.00	385.00
	<i>To Move</i>	50.00	100.00	150.00
<i>Trailing Xover Main to Siding</i>	<i>To Install</i>	190.00	125.00	315.00
	<i>To Move</i>	50.00	100.00	150.00
<i>Facing Xover Main to Main</i>	<i>To Install</i>	310.00	210.00	520.00
	<i>To Move</i>	80.00	165.00	245.00
<i>Trailing Xover Main to Main</i>	<i>To Install</i>	235.00	155.00	390.00
	<i>To Move</i>	80.00	165.00	245.00
<i>Switch in Bell Territory.</i>	<i>To Install</i>	40.00	25.00	65.00
	<i>To Move</i>			5.00
<i>Hayes Derail Outside of Fouling</i>	<i>To Install</i>	65.00	45.00	110.00
	<i>To Move</i>	25.00	50.00	75.00

## BONDING - POLELINE PER MILE

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	MATERIAL	LABOR FREIGHT, ETC.	TOTAL
<i>Bonding</i>	70.00	45.00	115.00
<i>Install Crossarms on existing line</i>	85.00	175.00	260.00
<i>Install Brackets on existing line</i>	10.00	20.00	30.00
<i>Install Wire on existing crossarms</i>	45.00	30.00	75.00
<i>Install Wire on existing brackets</i>	40.00	25.00	65.00

**AUTOMATIC TRAIN STOP**  
**SINGLE TRACK** **NO EXISTING SIGNALS.**

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A-16-29. (2-6-27)

		MATERIAL	A	TOTAL
Headblock-Color Light-Opp. Line Side.	To Install	905.00	605.00	1510.00
	To Move	185.00	380.00	565.00
Headblock-Color Light-Line Side.	To Install	845.00	565.00	1410.00
	To Move	135.00	275.00	410.00
Phantom - Cut Com.	To Install	675.00	450.00	1125.00
	To Move	135.00	275.00	410.00
Phantom	To Install	635.00	425.00	1060.00
	To Move	135.00	275.00	410.00
Center Feed- 2 Relays	To Install	325.00	220.00	545.00
	To Move	70.00	145.00	215.00
Cut-in with Relay.	To Install	380.00	255.00	635.00
	To Move	60.00	125.00	185.00
End Feed. (Double)	To Install	510.00	340.00	850.00
	To Move	70.00	145.00	215.00

Substations- Single 1310.00  
Double 2100.00

**AUTOMATIC TRAIN STOP**

**SINGLE TRACK. EXISTING SIGNALS STORAGE BATT. TER.**

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<b>TO INSTALL ADDITIONAL -</b>	<b>MATERIAL</b>	<b>A</b>	<b>TOTAL</b>
<i>Headblock - Battery-Relay.</i>	155.00	105.00	260.00
<i>Headblock - Relay-Relay.</i>	140.00	95.00	235.00
<i>Phantom - Relay-Relay</i>	140.00	95.00	235.00
<i>Center Feed - Less line drop</i>	150.00	100.00	250.00
<i>End Feed-Double-At old B-B feed.</i>	340.00	230.00	570.00

**SINGLE TRACK EXISTING SIGNALS PRIMARY BATT. TER.**

<i>Headblock - Battery-Relay</i>	210.00	140.00	350.00
<i>Headblock - Relay-Relay</i>	150.00	100.00	250.00
<i>Phantom - Relay-Relay</i>	150.00	100.00	250.00
<i>End Feed-Double-At old B-B feed.</i>	90.00	60.00	150.00

<i>Line drop - Center Feed 1 Relay</i>	40.00	25.00	65.00
<i>Line drop - Center Feed 2 Relays</i>	45.00	30.00	75.00
<i>Line drop - Phantom</i>	55.00	35.00	90.00