# Fewer Signal Failures ...

## ... I.C.C. Bureau of Safety Reports



Interstate Commerce Commission, has issued a report for the fiscal year ended June 30, 1954. This report, abstracted herewith, includes several tables and explanations pertinent to the results of inspections of railroad safety appliances; investigation of railroad accidents; signal, interlocking, automatic train stop, train control and cab signal installations; train communication systems; highway grade crossing accidents; and During the year, 376 applications other Bureau of Safety activities. for approval of modification of block The entire report is available from signal systems and interlockings

THE BUREAU OF SAFETY of the the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. There were 27,865 false restrictive

failures, compared with 29,509 during the fiscal year ended June 30, 1953, according to one of the tables. A total of 69 false proceed failures occurred, compared with 109 the year previous, and there were 9 potential false proceed conditions, as compared with 15 in 1953.

During the year, 376 applications for approval of modification of block

## Tabulation of False-Restrictive Failu res for Year Ending June 30, 1954

Name of railcoad    Biock by Bank barnes    Inter log barnes    Autor by barnes    Total barnes    Name of railcoad    Biock Biock barnes    Inter log barnes    Nume of railcoad      Abbarne Ornel Southern And Abor And Abor		False restrictive failures						False restrictive failures				
Aldmann Gress Bouthern    66    27    23    110    Fontassi & Indians Turf and Turind    14    14    14      Ann Afor    3    9    11    12    12    11    12    14	Name of railroad	Block sys- tems	Inter- lock- ing	Auto- matic train-stop, train- control, and cab signals	Other sys- tems	Total	Name of railroad	Block sys- tems	Inter- lock- ing	Auto- matic train-stop, train- control, and cab signals	Other sys- tems	Total
Alton & Southern.  7	Alabama Great Southern	66	21	23		110	Kentucky & Indiana Terminal		14			14
Ann Arbor  3  9  11  12  Leigh & Mudeon Flyer  13  13  14    Arbinon, Topeka & Santa Fe  531  555  685  1, 574  Liche & Mudeon Flyer  14  15    Arbinon, Topeka & Santa Fe  531  555  685  1, 574  Liche & Mudeon Flyer  16  5  57    Atlanta & Wester  332  68  1, 774  Liche & Mudeon Flyer  16  5  52    Ballmore & Colle  332  263  72  726  Manphe Central.  46  5  52    Ballmore & Colle  33  230  68  72  40  Manphe Central.  12  12  120  150    Ballmore & Colle  33  10  23  13  140  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  141  150  150  150  15	Alton & Southern		7			7	Lake Superior Terminal & Transfer	2				2
Alt Personal & Alloway pricipal & g	Ann Arbor	3	9			12	Lehigh & Hudson River	11	*******			11
Achiman, Tyopka & Santa Fe,    531    555    488    1, 72    Life/field & Mailann.    74    75    75      Atlanta & Werk    Sont    556    488     1, 72    Life/field & Mailann.    64    559    607    1    253      Atlanta & Werk    Sont    552    253    75    26    75    26    75    26    75    26    75    26    75    26    75    26    75    26    75    26    75    26    75    26    75    26    75    26    74    75    36    30    75    36    30    75    36    30    75    36    30    75    36    30    75    36    30    75    36    36    30    75    36    30    75    36    30    75    36    30    75    36    30    75    36    30    75    36    30    75    30 <t< td=""><td>Arkansas &amp; Memphis Railway Bridge &amp;</td><td></td><td></td><td></td><td></td><td>0</td><td>Lehigh &amp; New England</td><td>76</td><td> 20</td><td> B</td><td></td><td>111</td></t<>	Arkansas & Memphis Railway Bridge &					0	Lehigh & New England	76	20	B		111
Atlanta & West Point.  60	Atchison Topeka & Santa Fa	531	555	488		1 574	Litchfield & Madison	4	20			4
Atlanta Lorentinal.  327  327  326  49  3  327  327  328  327  327  328  327  327  327  327  327  328  327  327  327  327  328  327  327  328  327  327  328  327  327  327  328  327  328  327  328  327  329  328  328  327  329  328  328  329  328  326  328  329  328  329  329  328  329 <td>Atlanta &amp; West Point</td> <td>49</td> <td>000</td> <td>100</td> <td></td> <td>49</td> <td>Long Island</td> <td>51</td> <td>59</td> <td>607</td> <td>1</td> <td>718</td>	Atlanta & West Point	49	000	100		49	Long Island	51	59	607	1	718
Atlantic Ocest Line  357  352  268  79  2  787  Maine Certral.  49  3	Atlanta Terminal		12			12	Louisville & Nashville	556	71	229	1	857
Ballinore & Oblo.  235  223  79  2  62  Memphs Union Station  13  13    Ballinger & Arcostork.  12  1  0  31  10  11  10  20	Atlantic Coast Line	387	352	48		787	Maine Central	49	3		*******	54
Ballorger    Status    Stat	Baltimore & Ohio	325	223	79	2	629	Memphis Union Station		5			142
Beilt Kallevay of Chicago  1  10  0  11  Missouri Facilio  33  107  14  192    Boston & A Maina  133  126  25  284  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  36  36  107  26  22  26	Bangor & Aroostook	12	1		37	50	Minneapolis, St. Paul & Sault Ste. Marie	122	21		*******	259
Bessener & Lake Erfer  3  3  Missouri Franinal.  303  107  503  303    Boston & Mune.  135  125  25  280  Monorgabela.  303  30  -  303    Boston & Mune.  13  125  25  280  Monorgabela.  303  -  233    Canadian National.  13  1  -  21  -  233    Canadian National.  13  1  -  233  -  233    Canadian National.  16  1  -  233  -  233    Canadian Pactice.  21  -  -  233  -  233    Canadian Pactice.  16  10  -  -  233  -  233  -  233  -  233  -  233  -  233  -  233  -  233  -  -  233  -  233  -  233  -  -  233  -  233  -  -  233  -  -  233  -  -  233 <td< td=""><td>Belt Railway of Chicago</td><td>1</td><td>10</td><td></td><td></td><td>11</td><td>Missouri-Kansas-Texas of Texas</td><td>178</td><td>14</td><td></td><td></td><td>192</td></td<>	Belt Railway of Chicago	1	10			11	Missouri-Kansas-Texas of Texas	178	14			192
Boston & Maine    135    126    25    286    Monorgabela    30    30    30    30      Boston Terminal    13    -    13    -    13    -    30    30    -    30    30    -    30    30    -    30    30    -    30    -    30    -    30    -    30    30    -    30    30    -    30    30    -    30    -    30    -    30    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    -    30    30    -    30    30    -    30    30    -    30    30    -    30    30    10    30    10    30    10    30    10    10    10    10    10 <td< td=""><td>Bessemer &amp; Lake Erie</td><td>3</td><td></td><td></td><td></td><td>3</td><td>Missouri Pacific</td><td>393</td><td>107</td><td></td><td></td><td>500</td></td<>	Bessemer & Lake Erie	3				3	Missouri Pacific	393	107			500
Botton    Performal    P	Boston & Maine	135	126	25		286	Monongahela	30				30
Datase family prime all sense.    As    T <t< td=""><td>Boston Terminal</td><td>12</td><td>86</td><td></td><td></td><td>86</td><td>Monongahela Connecting</td><td>30</td><td></td><td></td><td></td><td>242</td></t<>	Boston Terminal	12	86			86	Monongahela Connecting	30				242
Canadian Pacific  21  New Orleans & Northesstern  29  74  45    Central of Georgia  74  8  -  260  New Orleans & Northesstern  12  8  .  200    Central of Georgia  80  103  10  200  New York Central  12  8  .  200    Chespaske & Ohio  100  12  30  10  200  New York Central  193  233  11  .  45    Chespaske & Ohio  100  10  10  10  10  10  10  45    Chespaske & Ohio  100  10  10  10  10  10  45    Chespaske & Ohio  100  10  16  45  New York, New Haven & Hatford  183  233  11  .  45    Chespaske & Ohio  100  10	Canadian National	10	1			10	Nashville, Chattanooga & St. Louis	400	23			23
Central of Georgia.  74  8	Canadian Pacific	21				21	New Orleans & Northeastern	29		16		45
Central Railroad of New Jersey.    97    144    9    260    New York Central.    1.344    752    206    228      Chesspasie & Oho    50    103    10    121    213    223    135    223    135    235	Central of Georgia	74	8			82	New Orleans Public Belt	12	8			20
Despecte & Onio	Central Railroad of New Jersey	97	144	9		250	New York Central	1,244	752	206		2,202
Chickago & Illinois Mulland.    107    249    142    167    167    167    169    167    169    167    169    167    169    167    169    167    169    167    169    167    169    167    168	Chicago & Factorn Illinois	165	103	19		202	New York, Chicago, & St. Louis	231	322	30		428
	Chicago & Elisterii Ininois	100	219	12		17	New York, New Haven & Hartlord	47	200	10		47
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Chicago & North Western	191	79	261	16	547	New York, Susquehanna & Western	6				6
Chicago, Burlington & Quincy	Chicago & Western Indiana	10	48			58	Norfolk & Western	217	225	70	*******	512
Chicago Great Western  130  10  130  10  130  10  130  10  130  10  130  10  130  10  130  10  130  10  130  10  130  10  130  10  130  100  130  130  10  130  100  130  100  130  100  130  100  130  100  130  100	Chicago, Burlington & Quincy	476	22	12	8	518	Northern Pacific	642	54			690
Chinago, Mulwankos, St. Paul & Pacific.    480    77    700    605    1,322    14    2,333      Chinago, St. Paul, Minneapolis & Omaha.    31    21    48    77    Pennsy & Pekin Ullon.    15    21    30    5    28    86      Chinago, St. Paul, Minneapolis & Omaha.    31    12    2    77    Pennsy & Pekin Ullon.    62    11    5    306    5    28    86      Chicago, South Shore & South Bend.    131    7    2    7    97    Pennsy & Pekin Ullon.    62    116    5	Chicago Ureat Western	130	10			140	Northwestern Pacific	46	56			102
Chicago, Rock Island & Pacific.  511  218  48  77  Pennsylvania-Reading Seashore Lines.  15  21  30  58    Chicago, Suth Shore & South Bend.  131  12  2  144  77  Pennsylvania-Reading Seashore Lines.  15  21  30  58  28    Cheago, South Shore & South Bend.  131  12  2  144  Pere Marquette.  185  116  5  30  62    Cheinant Union Station  7  7  Pittsburgh & West Virginis.  62  7  96  62    Clinchfield.  51  121  121  121  121  146  7  97  97  97  97  164  64  7  164  64  7  164  16  164  16  164	Chicago, Milwaukee, St. Paul & Pacific	480	77	99		656	Pennsylvania	307	695	1,322	14	2, 338
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Chicago, Rock Island & Pacific	511	218	48		777	Pennsylvania- Reading Seashore Lines	15	21	30		66
Chicago, South Shore & South Bend	Chicago, St. Paul, Minneapolis & Omaha	37	2			39	Peoria & Pekin Union	6	17		5	28
Concession Control Statistics  12  12  12  12  12  12  14  146  16	Chicago, South Shore & South Bend	131	12		2	145	Pere Marquette	185	116	5		62
Cincinnati, New Orleans & Texas Facilie	Cincinnati Union Terminal		121			121	Pittsburgh & west virginia	2	7			9
City of Sf. Louis Municipal Bridge  47  Reading  81  70  161    Clinehfield  51  12  13  13  13  13  13  13  13  13  14  14  15  15  16  16  16  16  16  16  16  16  16  16  16  16  16  16  16  16  16  16  17  16  16  16  16  16  16  16  16  16  16  16  16 <td>Cincinnati, New Orleans &amp; Texas Pacific</td> <td>56</td> <td>6</td> <td>3</td> <td></td> <td>65</td> <td>Portland Traction</td> <td>146</td> <td></td> <td></td> <td></td> <td>146</td>	Cincinnati, New Orleans & Texas Pacific	56	6	3		65	Portland Traction	146				146
Clinetheld  51  51  51  62  68  68  68  1  18    Dayton Union  203  73  7  285  Rutland  1<	City of St. Louis Municipal Bridge	47				47	Reading	81	70			151
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Clinchfield	51				51	Richmond, Fredericksburg & Potomac	62	68	58	1	189
Delaware & Hudson  203  73  70  77  225  Rutund  18  8  426    Denver & Rio Grande Western  371  30  7  401  St. Louis-San Francisco  388  30  426    Denver & Rio Grande Western  371  30  7   401  St. Louis-San Francisco  388  30  426    Denver Viola South Terminal   28  St. Louis-San Francisco & Texas  411  1111  1111  111  111	Dayton Union		12			12	River Terminal		81			1
Denver & Rio Grande Western    371    36    401    St. Louis-San Francisco    388    30    401    41      Denver Union Terminal    28    29    28    28    31    401    St. Louis-San Francisco    388    30    4    11    51      Dertoit & Toledo Shore Line    16    3    3    28    4    11    11      Detroit & Toledo Shore Line    16    3    3    28    33    92    610      Duluth, Missabe & Iron Range    17    33    3    47    4    159    Southern    111    702    70      Duluth, Missabe & Iron Range    17    33    47    4    159    Southern    111    702    70    610      Erie    75    33    47    4    159    Southern Association of St. Louis    76    104    70    70    106    70    104    70    104    180    70    104    180    70    104    180    70	Delaware Lackawanna & Western	203	70	7		285	Sacramento Northern	18	8			26
Denver Union Terminal  28  28  St. Louis-San Francisco & Texas  111  1  1  1  5    Detroit, Toledo Shore Line  16  3  61  St. Louis-San Francisco & Texas  111  702  702  702  701  702  701  702  701  702  701  702  701  702  701  702  701  702  701	Denver & Rio Grande Western	371	30			401	St. Louis-San Francisco	388	30			424
Detroit & Toledo Shore Line    16    St. Louis Southwestern    111 <td>Denver Union Terminal</td> <td></td> <td>28</td> <td></td> <td></td> <td>28</td> <td>St. Louis-San Francisco &amp; Texas</td> <td></td> <td>4</td> <td></td> <td>1</td> <td>5</td>	Denver Union Terminal		28			28	St. Louis-San Francisco & Texas		4		1	5
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Detroit & Toledo Shore Line	16				16	St. Louis Southwestern	702				702
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Detroit, Toledo & Ironton	17	3			3	Seaboard Air Line	485	33	92		610
Erie  75  33  47  4  156  Southern Pacific  391  116  64  571    Fori Dodge, Des Moines & Southern  1  10  290  Southern Pacific  70  70  70    Georgia.  88  10  71  4  290  Southern Pacific  70  70  70    Georgia.  88  10  71  Terninal Railroad Association of St. Louis  76  104  18  187    Georgia.  88  13  39  213  Teras & New Orleans.  159  18  18  177    Grand Trunk Western  148  26  39  213  Toledo, Peoria & Western  529  82  28  110  74    Guif, Mobile & Ohio  134  20  6  160  Utah  10  11  10  11  10  14  10  14  10 <td>Elgin Joliat &amp; Eastern</td> <td>8</td> <td>40</td> <td></td> <td></td> <td>48</td> <td>Southern Illinois &amp; Missouri Bridge</td> <td>7</td> <td></td> <td></td> <td></td> <td>7</td>	Elgin Joliat & Eastern	8	40			48	Southern Illinois & Missouri Bridge	7				7
Florida East Coast.  290   290  Spokane, Portland & Seattle.  70  70    Fort Dodge, Des Moines & Southern.  1  10  11  Terminal Railroad Association of St. Louis.  76  104  180    Georgia, Southern & Florida  18  13  31  Texas & New Orleans.  169  18  172    Georgia, Southern & Florida  18  13  31  Texas & New Orleans.  228  4  223    Great Northern.  340  33  33  313  Union Pacific.  229  82  28  16  4  23    Guil, Mobile & Ohio.  134  20  6  160  Utah.  10  10  11  10  11  10  10  10  11  10  11  10  11  10  11  10  128  16  4  23  28  4  29  16  14  23  28  16  14  23  29  82  28  10  74  74  74  74  74  74  74  74  74  74 <td>Erie</td> <td>75</td> <td>33</td> <td>47</td> <td>4</td> <td>159</td> <td>Southern Pacific</td> <td>391</td> <td>116</td> <td>64</td> <td></td> <td>571</td>	Erie	75	33	47	4	159	Southern Pacific	391	116	64		571
Fort Dodge, Des Moines & Southern.  1  10  11  Terminal Railroad Association of St. Jouis.  70  104  128    Georgia, Southern & Florida.  18  13  31  Texas & New Orleans.  109  18  177    Georgia, Southern & Florida.  18  13  31  Texas & Pacific.  228  4  228  4  228  16  42  228  107  44  228  107  428  228  10  74  208  100  100  100  100  100  100  228  10  44  208  100 <td>Florida East Coast</td> <td>290</td> <td></td> <td></td> <td></td> <td>290</td> <td>Spokane, Portland &amp; Seattle</td> <td>70</td> <td></td> <td></td> <td></td> <td>100</td>	Florida East Coast	290				290	Spokane, Portland & Seattle	70				100
Georgia    88    Texas & New Orleans    105	Fort Dodge, Des Moines & Southern	1	10			11	Terminal Railroad Association of St. Louis	150	104			177
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Georgia	88	*******			88	Texas & New Orleans	228	4			232
Great Northern  340  33    373  Union Pacific  529  82  28  110  74    Guif, Mobile & Ohio  134  20  6  160  Utah  10  1	Grand Trunk Western	148	26	13	30	213	Toledo, Peoria & Western		16		4	20
Gulf, Mobile & Ohio	Great Northern	340	33			373	Union Pacific	529	82	28	110	749
Houston Beit & Terminal    7    7    7    Virginian    50    51    6    10      Hudson & Manhattan    30    52    10    92    Washington Terminal    188    39	Gulf, Mobile & Ohio	134	20	6		160	Utah	10				10
Hudson & Mannattan	Houston Belt & Terminal		7			7	Virginian	148	30		0	18
Millious Contraina    400    119    200    128    Millious Terminal    111    17    128    1      Illilious Terminal    194    44    228    Western Maryland    111    17    128    1    148    148    149    149    149    149    149    149    148    149 <td>Hudson &amp; Manhattan</td> <td>30</td> <td>52</td> <td>10</td> <td></td> <td>800</td> <td>Washington Terminal</td> <td>014</td> <td>68</td> <td></td> <td></td> <td>- 65</td>	Hudson & Manhattan	30	52	10		800	Washington Terminal	014	68			- 65
Indianapolis    20    20    Western Pacific    128    1    121      International-Great Northern    90    4    94    Western Railway of Alabama    49    49    49    40	Illinois Terminal	194	44	230		238	Western Maryland	. 111	17			125
International-Great Northern.    90    4    94    Western Railway of Alabama.    49      Jacksonville Terminal    3    131    134    Youngstown & Northern.    4      Kansas City Southern    106    41    147    Total.    7, 225    4, 222    251    27, 860	Indianapolis Union.		20			20	Western Pacific	128	1			- 12
Jacksonville Terminal 3 131 134 Youngstown & Northern 4 16, 167 7, 225 4, 222 261 27, 860	International-Great Northern	90	4			94	Western Railway of Alabama.	49				- 45
Kansas City Southern 106 41 173 173 Total 16, 167 7, 225 4, 222 251 27, 860	Jacksonville Terminal	3	131			134	Youngstown & Northern					
	Kansas City Southern	106	173	********		173	Total	16, 167	7, 225	4, 222	251	27, 86

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## MARCH, 1955

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were filed by the carriers, and at the through commercial telephone combeginning of the year action was pending on 44 applications pre-viously filed; of these 402 applications were acted upon, and action was pending on 18 applications at the close of the year.

During the year, inspections were made as follows: block signal systems, 898; interlockings, 2,282; auto-matic train control and cab signal devices, 562; traffic control systems, 531; other similar appliances, methods, or systems, 38; total, 4,311.

According to reports submitted by carriers, there were 295 train communication systems in service for operation over a total of 61,743 miles of road on 65 different railroads on January 1, 1954. In addition to radio and inductive installations, these systems included endto-end communication installations employing physical wire connections through the train, and installations providing radio-telephone service there were 3,675 accidents at high-

pany radio facilities, operating over 5,981 miles of road. Considering only radio and inductive systems used in connection with railroad operation, 285 installations were in service on 55,762 miles of road on 63 railroads. This compares with 96 such installations on 41,846 miles of road on 51 railroads as of January 1, 1953. There were 295 installations in service in yards and terminals on 75 railroads; 264 of these installations provide communication between fixed stations and switching engines, and 31 provide communication between portable pack radios; between fixed stations and portable pack radios; and between fixed stations and mobile units other than engines used in several different yard operations. This compares with 220 installations in service on 70 railroads as of January 1, 1953.

During the calendar year 1953,

way grade crossings, which resulted in the death of 1,494 persons and injury to 3,815 persons. Automobiles were involved in 3,383 of these accidents, in which 1,319 persons were killed and 3,688 injured. There were 65 derailments of trains at highway crossings involving automobiles, which caused the death of 34 persons and injury to 98 persons. Of the total casualties resulting from derailments and other train accidents at highway grade crossings, 10 persons were killed and 120 were injured.

#### Improved Performance Each Year False False Restrictive Proceed Failures Failures 1947 39,990 227

1948	42,282	223
1949	35,860	156
1950	32,918	143
1951	33,758	140
1952	32,885	119
1953	29,509	109
1954	27,865	69

## Causes of False-Proceed Failures for Year Ending June 30, 1954

Name of railroad	Sand, rust, or other deposit on rails	Failure of relays and similar devices	Circuits open, crossed or grounded, foreign current, et cetera	A pparatus broken, defective, or out of adjustment	Failure of apparatus due to sleet, ice, snow, wet track, weather, or lightning	Failure of apparatus due to obstruc- tion	Errors in making connec- tions or adjust- ments	Undeter- mined	Tota
Alabama Great Southern		2	1				2		
Baltimore & Ohio. Boston & Maine.	1	2		1	1		1		
Central Railroad of New Jersey Chesepeake & Ohio	2						1		1
Chicago & Western Indiana.			1		1		2		1
Chicago Great Western Chicago, Indianapolis & Louisville Chicago South Shore & South Bend				1	1				1
Houston Belt & Terminal	1			1				1	
Illinois Central Illinois Terminal Louisville & Nachville					2				1
Maine Central Missouri-Kansas-Texas of Texas		1	î						1
Missouri Pacific. New York Central. New York New Haven & Hartford	1 8		1	1	1	1	1	3	1
Pennsylvania Richmond, Fredericksburg & Potomac			1		1		3	3	8
Seaboard Air Line. Terminal Railroad Association of St. Louis. Teras and New Orleans	1			1		1	1		1
Union Pacific. Western Railway of Alabama.			1	1					1
Total	15	5	13	7	7	4	11	7	69

## Causes of Potential False-Proceed Conditions for Year Ending June 30, 1954

Name of railroad	Sand, rust, or other deposit on rails	Failure of relays and similar devices	Circuits open, crossed or grounded, foreign current, et cetera	Apparatus broken, defective or out of adjust- ment	Failure of apparatus due to sleet, ice, snow, wet track, weather, or lightning	Failure of apparatus due to obstruc- tion	Errors in making connec- tions or adjust- ments	Undeter- mined	Total
Chicago & North Western Cincinnati Union Terminal		1	1						2
Delaware & Hudson Illinois Central				1			1		1
Louisville & Nashville. Newburgh & South Shore. New York Central. Pennsylvania.	1		1 1					1	1 1 1 1 1
Total	1	1	4	1			1	1	9

MARCH, 1955

### RAILWAY SIGNALING and COMMUNICATIONS

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