

**MAGNETIC  
SIGNAL  
CO.**

# MAGNETIC SIGNAL CO.

## MANUFACTURERS

### Railroad Highway Grade Crossing Signals

**"Magnetic Wigwag Flagman"** Wigwag Type Crossing Signals, Alternate Flashing Light Type Crossing Signals; "Railroad Crossing" Signs and Crossing Signal Accessories.

### Highway Reflector Signs

Reflector Button Signs for Highway Traffic, Railroad Highway Crossings, Railroad Construction and Marine purposes.

### Traffic Control Devices

Illuminated Flashing Signals for Traffic Signs, Traffic Island Beacons, Curbing Beacons, Warning Beacons, Flasher Relays.

### "Niterday" Reflectors

Traffic Sign Reflector Buttons, Highway Reflectors, Reflector Signal Posts, Bridge Head Reflectors, Foundation Reflectors, Automobile Reflectors, Bicycle and License Plate Reflectors.

### Miscellaneous

**"Sands"** Rail Inspectors; **"Hercules"** Rail Joint Expanders; **"Fry"** Track Instruments; **"Portafount"** Portable Drinking Fountains.

# MAGNETIC SIGNAL CO.

## GENERAL OFFICES AND WORKS

3355 EAST SLAUSON AVENUE . . . . . LOS ANGELES, CALIFORNIA, U. S. A.

Cable Address . . . "MAGSIG," Los Angeles

## SALES OFFICES

New York . . . . .	230 Park Ave.	Salt Lake City . . . . .	722 South State St.
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# MAGNETIC SIGNAL CO.

SUBSIDIARY OF

THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY

LOS ANGELES, CALIFORNIA, U. S. A.

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## THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY

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American Forge . . . . .	Chicago, Ill.
American Manganese Steel . . . . .	Chicago Heights, Ill., Denver, Colo., Los Angeles, Calif., New Castle, Del., Oakland, Calif., St. Louis, Mo.
Brake Shoe and Castings Division . . . . .	Baltimore, Md., Buffalo, N. Y., Chattanooga, Tenn., Chicago, Ill., Denver, Colo., Houston, Tex., Kansas City, Mo., Mahwah, N. J., Melrose Park, Ill., Minneapolis, Minn., Norwood, Mass., Pittsburgh, Pa. (2), Portsmouth, Va., Toledo, Ohio, St. Thomas, Ontario, Canada.
Kellogg Division . . . . .	Rochester, N. Y., Los Angeles, Calif.
Pacific Coast Division . . . . .	Los Angeles, Calif., San Francisco, Calif., Portland, Oregon.
Ramapo Ajax Division . . . . .	Chicago, Ill., E. St. Louis, Ill., Hillburn, N. Y., Los Angeles, Calif., Niagara Falls, N. Y., Pueblo, Colo., Seattle, Wash., Superior, Wis., Niagara Falls, Ontario, Canada.
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Radiographic Research Laboratory . . . . .	Chicago Heights, Ill.
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Magnetic Signal Co. . . . .	Los Angeles, California
National Bearing Metals Corporation . . . . .	Clearing, Ill., Jersey City, N. J., Meadville, Pa., Pittsburgh, Pa. (2), Portsmouth, Va., St. Louis, Mo., St. Paul, Minn.
Canadian Ramapo Iron Works, Limited . . . . .	Niagara Falls, Ontario, Canada
Dominion Brake Shoe Company, Limited . . . . .	Montreal, Quebec, Canada

# SECTION A

## "MAGNETIC WIGWAG FLAGMAN" Railroad Highway Grade Crossing Signals

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Manufactured by

## MAGNETIC SIGNAL CO.

Los Angeles, Calif., U.S.A.



## MAGNETIC WIGWAG FLAGMAN

### RAILROAD HIGHWAY GRADE CROSSING PROTECTION

The Magnetic Wigwag Flagman is a standard wigwag type railroad highway crossing signal used to automatically indicate and warn highway traffic of the approach of a railroad train. A visual warning is presented in both directions by a horizontally swinging red light and disc, and an audible warning by the sound of gong at each stroke of wigwag banner.

The effective danger warning given by a swinging red light is universally understood and recognized as meaning STOP. The use of the wigwag signal with its swinging red light in wigwag banner disc for the one and only purpose of protecting highway crossings, provides an unmistakable warning that a railroad train is approaching.

Various regulatory bodies have developed uniform practices for the protection of railroad highway grade crossings resulting in the general adoption of the following Association of American Railroads Signal Section Requisite for Highway Grade Crossing Signals:

*"An electrically or mechanically-operated signal used for the protection of highway traffic at railroad highway grade crossings shall present toward the highway, when indicating the approach of a train, the appearance of a horizontally swinging red light or swinging disc."*

The Magnetic Signal Co. and its predecessors are the pioneers in the successful development of the magnetic type wigwag in which the

horizontal swinging movement of the wigwag banner is produced by alternate attraction of oppositely arranged electro-magnets to oscillate the armature of wigwag mechanism to which wigwag banner is attached. Improvement and perfection of the magnetic wigwag operation has resulted in its general adoption and the specification of the "Magnetic Type" as required standard for wigwag requirements.

Approximately 7,000 Magnetic Wigwag Flagmen have been installed on over 130 railroads giving many years of effective and reliable service in the protection of the busiest and most hazardous railroad highway grade crossings. The Magnetic Wigwag Flagman is the preferred standard of many large railroads and in various states because the animated movement of its swinging disc, its swinging and flashing red light, and the audible warning of the bell have proven the most capable of adequately and effectively arresting the attention of highway traffic to the danger of approaching trains.

The protection provided by the "Magnetic Wigwag Flagman" reduces accidents and deaths at crossings to a minimum. Savings to the railroads in avoidance of accident claims, prevention of damage to railroad equipment and in permitting increased speeds of trains over grade crossings, are appreciably more with this type of protection. These savings are available with use of the Magnetic Wigwag Flagman at a comparable first cost, economy of installation and low operating cost.

## GENERAL INFORMATION

The low current consumption of the Magnetic Wigwag Flagman and its reliable operation with even an extreme drop in voltage, greatly favors the use of this signal for battery method of operation which is generally recommended and used as protection against electric power line failures. Adequate effectiveness of warning display is obtained under all conditions because of the added animation provided by the swinging movement and flashing operation of wigwag banner lights, and the attention commanding warning of the swinging wigwag banner disc. Further economies of operation are obtained by the utilization of the audible warning provided by the mechanically operated wigwag bell which is effected without current consumption (See Plate J-140).

In addition to the standard low voltage direct current operation with either storage or primary type battery, the Magnetic Wigwag Flagman is furnished for operation on any Standard Direct Current voltage or to operate on any commercial Alternating Current power line of various voltages and frequency.

"Magnetic Wigwag Flagman" Wigwag Mechanisms are available in either the "Two Position" or "Three Position" types. In the inoperative position (1), the two-position wigwag banner remains stationary in the center of its operative swing. In the operative position (2) the banner of the two-position wigwag swings horizontally back and forth within a total arc of approximately 60 degrees and banner lamp units display either a continuous or flashing swinging red light.

The Three-Position type wigwag is sometimes referred to as the "Hold Clear" or "Disappearing Banner" type. In the inoperative position (1), the three-position wigwag banner is held in suspended position at one

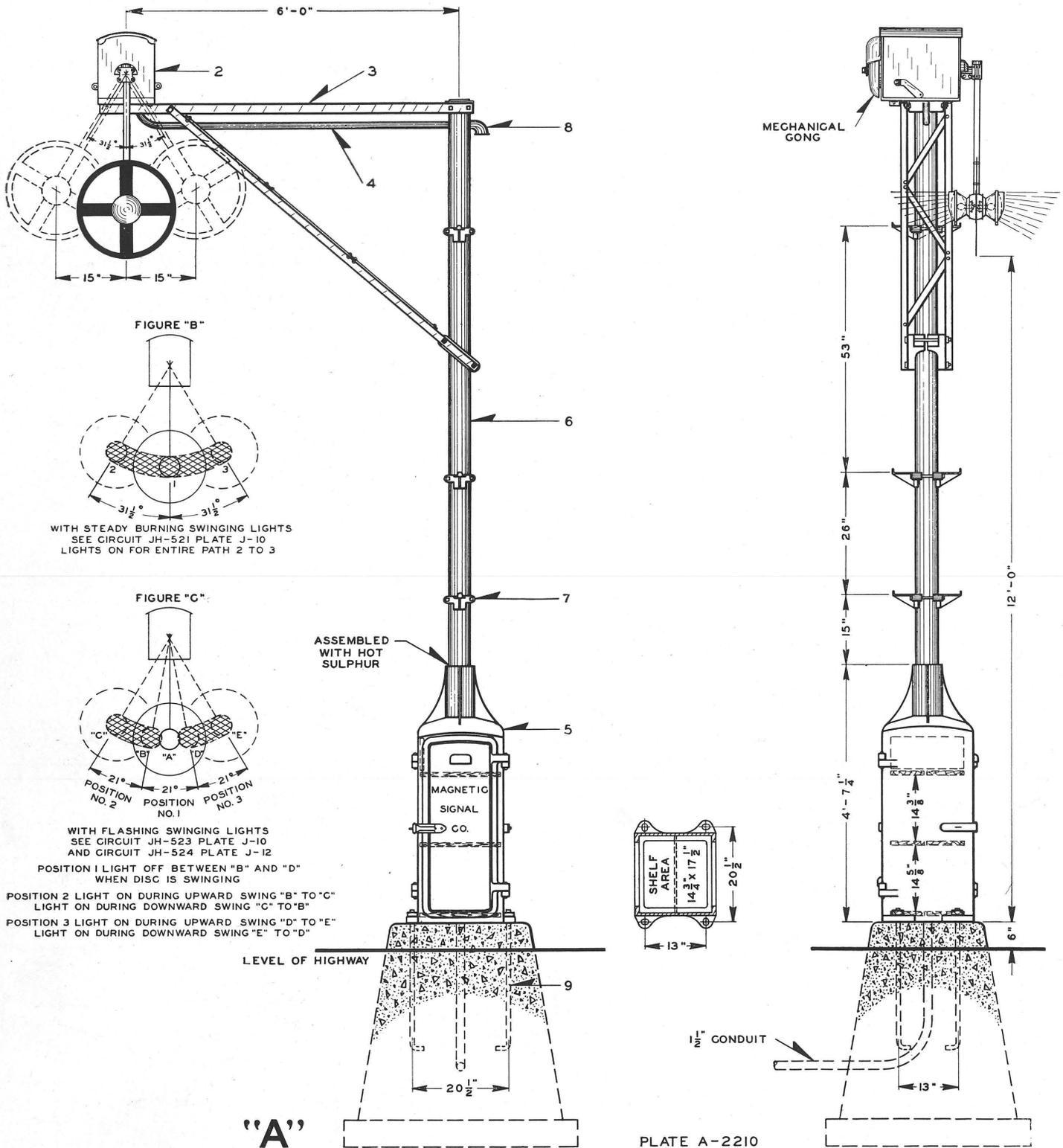
end of its arc of operating movement and is hidden from view behind shields usually bearing the insignia "LOOK-LISTEN." In the operative position (2), the banner of the three-position wigwag swings horizontally back and forth within the total arc of movement and banner lamp units display a continuous swinging red light. In the failure indicating position (3), the three-position wigwag banner upon electrical failure (A) drops and remains in center of operating swing, or upon mechanical failure (B), the banner continues to swing as in normal operative position.

The following plates illustrate standard Two-Position Wigwag Type Highway Crossing Signal Assemblies generally used. Standard Three-Position Wigwag Assemblies can be furnished similar to arrangement of Two-Position Models 3, 10, 11, and 11-A and detail plates and information covering will be furnished upon request.

Standard Side of Highway Assemblies as illustrated are recommended for best standard practice. Center of Highway location of highway crossing signals is not recommended for standard general practice because of usual obstruction to highway traffic. Where location or special conditions at grade crossings make center of highway installation compulsory, the merits of Models 10, 11, 11A, 12 and 13 signal assemblies can be utilized with special center of street foundation arrangement available. Special foundation floodlight and foundation reflector warning devices should be used with center of street installations to provide necessary constant warning to highway traffic of the center of road obstruction. Complete information covering center of highway installations will be furnished upon request.

# PLATE A-2210 "MAGNETIC WIGWAG FLAGMAN"

Model 3 Wigwag Type Highway Crossing Signal Assembly  
For Location at Side of Highway  
Cantilever Bracket Type



Standard location at near right hand side of highway as viewed by approaching highway traffic with one signal located on each side of railroad tracks.

Approved Standard No. 3 of the Railroad Commission of the State of California General Order No. 75-B.

**PLATE A-2210 "MAGNETIC WIGWAG FLAGMAN"**

**Model 3—Wigwag Type Highway Crossing Signal Assemblies  
Two-Position Type Wigwags**

The Model 3 Assembly displays the wigwag warning with favorable advantage because the wigwag banner swings over the highway in a conspicuous line of vision of approaching highway traffic. The motorist's view of wigwag banner display is unobstructed by telephone poles, street lighting standards, or other side of highway obstructions. The signal supporting mast however, is located off the traveled roadway and affords no obstruction to highway traffic. The use of improved wigwag banner with downward lens spread and downward adjustment of lamp units as illustrated on Plate J-9600 is recommended for use with the Model 3 wigwag assembly. The improved banner arrangement recommended enables the signal beam of back lamp units of wigwag banners to be adjusted downward to provide improved short range indication of far-side signal for benefit of stopped highway traffic waiting for trains to clear crossing.

Arrangement shown provides 12' 6" wigwag banner disc clearance above surface of highway. Use of improved banner recommended will also provide effective results with 14' 6" wigwag banner clearance to allow for increased height of vehicles or vehicle loads on highway and to provide improved far-side signal visibility when train is crossing the highway.

Wigwag Mechanism Bell (Plate J-140) furnished as standard, unless otherwise specified, provides effective audible warning sounding with each stroke of wigwag banner.

Standard "Railroad Crossing," Track Number, and "Stop When Swinging" signs as shown on Plate A-2301 can be furnished when specified for use with Model 3 Assembly.

See Plates J-10 and J-12 covering Wigwag Mechanisms used with Model 3 Signal Assembly.

**Order by Piece Number and Description Shown in Heavy Face Type Only**

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	2210-1	<b>Side of Highway Wigwag Assemblies Complete with Improved Adjustable Beam Banners Ref. "A" Plate J-9600</b> <b>Model 3 Magnetic Wigwag Flagman Assembly</b> For 8 to 10 volt direct current operation Including Type KCR-8-601 Wigwag Mechanism Ref. 2, Cantilever Offset Bracket, Conduit, Battery and Instrument Case Assembled with Pipe Mast, Pole Steps, Cable Entrance and Anchor Bolts. With Flashing Swinging Lights Fig. "C"	Al	2210-11	<b>Side of Highway Wigwag Assemblies Complete with Banners Ref. "A" Plate J-9106 (Without Adjustable Beam)</b> <b>Model 3 Magnetic Wigwag Flagman Assembly</b> For 8 to 10 volt direct current operation Including Type KCC-8-161 Wigwag Mechanism Ref. 2b, Cantilever Offset Bracket, Conduit, Battery and Instrument Case Assembled with Pipe Mast, Pole Steps, Cable Entrance and Anchor Bolts. With Steady Burning Swinging Lights Figure "B"
Aa	2210-2	<b>Model 3 Magnetic Wigwag Flagman Assembly</b> For 8 to 10 volt direct current operation Including Type KCC-8-601 Wigwag Mechanism Ref. 2a, Cantilever Offset Bracket, Conduit, Battery and Instrument Case Assembled with Pipe Mast, Pole Steps, Cable Entrance and Anchor Bolts. With Steady Burning Swinging Lights Fig. "B" <i>Specify Wigwag Mechanism desired when other than listed above. See Plate J-12</i>	Am	2210-12	<b>Model 3 Magnetic Wigwag Flagman Assembly</b> For 600 volt direct current operation Including Type KCC-600 Wigwag Mechanism Ref. 2c with Banner No. J-91018 Ref. "Ar" Plate J-9106, Cantilever Offset Bracket, Conduit, Instrument Case Assembled with Pipe Mast, Pole Steps, Cable Entrance and Anchor Bolts. With Steady Burning Swinging Lights Fig. "B" <i>Specify Wigwag Mechanism desired when other than listed above. See Plate J-10</i>

**PLATE A-2210 DETAIL PARTS**

**Order by Piece Number and Description Shown in Heavy Face Type Only**

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	KCR-8-601	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation Plate J-12 with Bell, Brake, Contact Condensers, Flasher Cut-In Relay, and No. J-96001 Lower Quadrant Banner Ref. "A" Plate J-9600. With Flashing Swinging Lights Fig. "C"	5a	30211	<b>Instrument Case Assembled with Mast 14' 8"</b> Including Instrument Case Ref. 5 with Pipe Mast Ref. 6 furnished assembled with Hot Sulphur. Length overall 14' 8" (To provide 12 foot wigwag banner disc clearance above top of foundation)
2a	KCC-8-601	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation With Bell, Brake, Contact Condensers, Plate J-10 except with No. J-96001 Lower Quadrant Banner Ref. "A" Plate J-9600. With Steady Burning Swinging Lights Fig. "B"	5b	30213	<b>Instrument Case Assembled with Mast 16' 8"</b> Including Instrument Case Ref. 5 with Pipe Mast Ref. 6a furnished assembled with Hot Sulphur. Length overall 16' 8" (To provide 14 foot wigwag banner disc clearance above top of foundation)
2b	KCC-8-161	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation Plate J-10 with Bell, Brake, Contact Condensers and No. J-91061 Lower Quadrant Banner Ref. "A" Plate J-9106 With Steady Burning Swinging Lights Fig. "B"	6	144-11	<b>Pipe Mast Only 11' 0" Long</b> 4" Standard Steel Pipe 4 1/2" O.D. Tapped for 3/4" conduit Ref. 4 and 1" Cable Entrance Ref. 8
2c	KCC-600	<b>Magnetic Wigwag Flagman Mechanism</b> For 600 volt direct current operation Plate J-10 with Bell, Brake, Contact Condensers and No. J-91018 Lower Quadrant Banner Ref. "Ar" Plate J-9106 With Steady Burning Swinging Lights Fig. "B"	6a	144-13	<b>Pipe Mast Only 13' 0" Long</b> 4" Standard Steel Pipe 4 1/2" O.D. Tapped for 3/4" Conduit Ref. 4 and 1" Cable Entrance Ref. 8 (Special length for use with instrument Case Ref. 5 to provide 14 foot wigwag banner disc clearance above top of foundation)
3	1770-4	<b>Cantilever Offset Bracket</b> For mounting on top of 4" Pipe Mast 4 1/2" O.D. Complete with Pole Cap and Lower Pole Clamps	7	180-4	<b>Cast Iron Pole Step—Double Pattern</b> Consisting of Two Step Castings and bolts for fastening to 4" Standard Pipe 4 1/2" O.D.
4	1570	<b>Formed Iron Conduit Size 3/4"</b> Complete with Bushing and Lock Nuts	8	150	<b>Special Cable Entrance</b> To fit hole in Pipe Mast Tapped for 1" pipe
5	104-4	<b>Cast Iron Battery and Instrument Case</b> Two Door Type—With Socket Base for 4" Pipe 4 1/2" O.D.	9	152-30	<b>Galvanized Anchor Bolt 1"x30"</b> Complete with Hex. Nut and Washer—4 pieces required for each signal assembly

Plate A-2301 "Magnetic Wigwag Flagman"  
 Model 10 Wigwag Type Highway Crossing Signal Assembly  
 For Location at Side of Highway

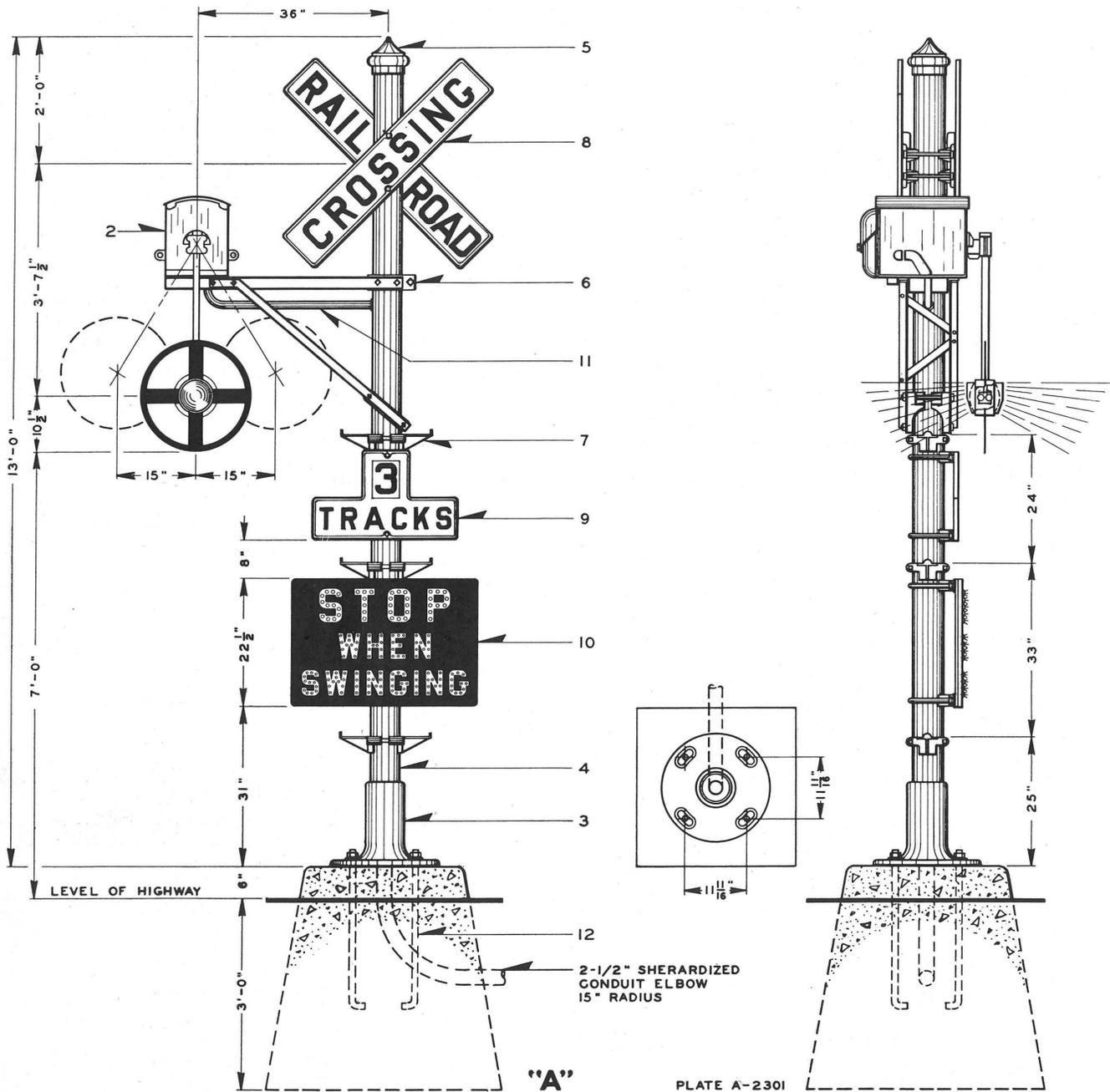


PLATE A-2301

Above arrangement in accordance with standard of Association of American Railroads—Signal Section Drawing 1651B.

Provides effective visual warning display including swinging movement of Wigwag Banner Disc and swinging display of Red Light indicating towards approaching highway traffic in both directions.

Wigwag Mechanism Bell (Plate J-140) furnished as standard, unless otherwise specified, provides effective audible warning sounding with each stroke of wigwag banner.

Standard location at near right hand side of highway as viewed by approaching highway traffic with one signal located on each side of railroad tracks.

Reflector "STOP WHEN SWINGING" Sign and Non-Reflector Track Number Signs meeting standard requirements indicate in one direction only. Non-Reflector Cast Iron "RAILROAD CROSSING" Sign for two-way indication.

See Plates J-10 and J-12 covering Wigwag Mechanisms used with above Signal Assembly.

**Plate A-2301 "Magnetic Wigwag Flagman"**  
**Model 10—Wigwag Type Highway Crossing Signal Assemblies**  
**With Non-Reflector Type "Railroad Crossing" Signs**  
**Two Position Type Wigwags**

Order by Piece Number and Description Given in Heavy Face Type Only

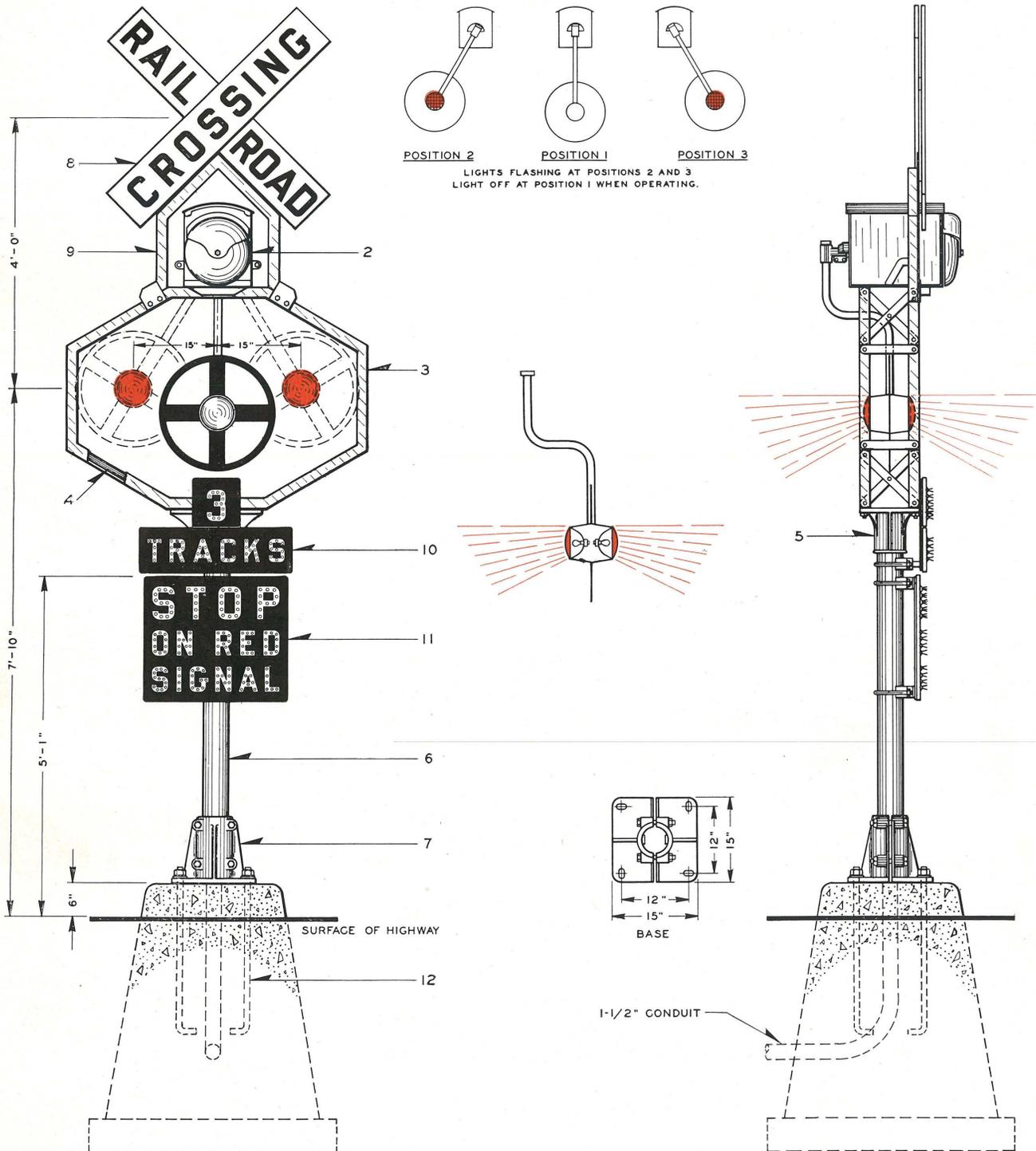
Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	2301-3	Side of Highway Wigwag Signal Assemblies Complete With Banners Ref. "A" Plate J-9106  Model 10 Magnetic Wigwag Flagman Assembly Complete With Cast Iron "3 TRACKS" Sign Including Type KCC-8-177 Wigwag Mechanism with bell, Pole Base and Pipe Mast Assembly, Pinnacle, Offset Bracket, Pole Steps, Cast Iron "RAILROAD CROSSING" and "3 TRACKS" Signs, Reflector "STOP WHEN SWINGING" Sign, Conduit, and Anchor Bolts items Ref. 2 to 12 inclusive	Al	2302-3	Side of Highway Wigwag Signal Assemblies Complete With Improved Banners Ref. "A" Plate J-9600  Model 10 Magnetic Wigwag Flagman Assembly Complete With Cast Iron "3 TRACKS" Sign Including Type KCR-8-601 Wigwag Mechanism with Bell, Pole Base and Pipe Mast Assembly, Pinnacle, Offset Bracket, Pole Steps, Cast Iron "RAILROAD CROSSING" and "3 TRACKS" Signs, Reflector "STOP WHEN SWINGING" Sign, Conduit, and Anchor Bolts items Ref. 2 to 12 inclusive
Aa	2301-2	Model 10 Magnetic Wigwag Flagman Assembly Complete With Cast Iron "2 TRACKS" Sign	Am	2302-2	Model 10 Magnetic Wigwag Flagman Assembly Complete With Cast Iron "2 TRACKS" Sign
Ab	2301-4	Model 10 Magnetic Wigwag Flagman Assembly Complete With Cast Iron "4 TRACKS" Sign  <i>Orders should specify numeral desired on Track Signs when other than listed above</i>	An	2302-4	Model 10 Magnetic Wigwag Flagman Assembly Complete With Cast Iron "4 TRACKS" Sign  <i>Orders should specify numeral desired on Track Signs when other than as listed above</i>
Aj	2301-C	Model 10 Magnetic Wigwag Flagman Assembly Less Track Number Sign	As	2302-C	Model 10 Magnetic Wigwag Flagman Assembly Less Track Number Sign
Ak	2301-D	Model 10 Magnetic Wigwag Flagman Assembly Less Track Number and "STOP WHEN SWINGING" Signs	At	2302-D	Model 10 Magnetic Wigwag Flagman Assembly Less Track Number and "STOP WHEN SWINGING" Signs

**Plate A-2301 Detail Parts**

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	KCC-8-177	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation Plate J-10 with Bell, Brake, Contact Condensers and No. J-91077 Lower Quadrant Banner Ref. "A" Plate J-9106	7	180-5	<b>Cast Iron Pole Steps—Double Pattern</b> To fit 5" Pipe 5 <sup>3</sup> / <sub>8</sub> " O.D.
2a	KCR-8-601	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation Plate J-12 with Bell, Brake, Contact Condensers, Flasher Lamp Cut-In Relay, and No. J-96001 Lower Quadrant Banner Ref. "A" Plate J-9600  <i>Orders should specify piece number of banner desired when other than as listed above</i>	8	3804-5	<b>Two Piece 90° "RAILROAD CROSSING" Sign</b> Cast Iron for Two-Way Indication, Complete with clamps for 5" Pipe 5 <sup>3</sup> / <sub>8</sub> " O.D. A.A.R. Sig. Sec. No. 16403 (Drawing 1640B)
3	112-5	<b>Cast Iron Socket Base</b> For 5" Standard Pipe 5 <sup>3</sup> / <sub>8</sub> " O.D. A.A.R. Sig. Sec. No. 12501 (Drawing 1250A)	9	3853-5	<b>Cast Iron "3 TRACKS" Sign Complete</b> For One-Way Indication, Complete with Clamp for 5" Pipe 5 <sup>3</sup> / <sub>8</sub> " O.D. A.A.R. Sig. Sec. No. 16443 (Drawing 1644B)
3a	1112-5	<b>Wigwag Supporting Mast Assembly</b> Including Base 5" Pipe Mast and Pinnacle—Items 3, 4 and 5. Base and Pipe Mast furnished assembled with Hot Sulphur. Pipe tapped for 3/4" conduit Ref. 11	9a	3852-5	<b>Cast Iron "2 TRACKS" Sign Complete</b>
3b	112-78	<b>Pipe Mast with Socket Base</b> Items 3 and 4 assembled with Hot Sulphur	9b	3854-5	<b>Cast Iron "4 TRACKS" Sign Complete</b>  <i>Orders should specify numeral desired on Track Signs when other than listed above</i>
4	145-12-6	<b>Pipe Mast only 12' 6" Long</b> 5" Pipe 5 <sup>3</sup> / <sub>8</sub> " O.D. Tapped for 3/4" conduit Ref. 11	10	3705-5	<b>Reflector "STOP WHEN SWINGING" Sign</b> For One-Way Indication—Vitreous Porcelain Enamel Finish—Complete with Clamps for 5" Pipe 5 <sup>3</sup> / <sub>8</sub> " O.D. A.A.R. Sig. Sec. No. 16486 (Drawing 1684B)
5	1531-5	<b>Pinnacle for 5" Pipe</b> A.A.R. Sig. Sec. No. 12451 (Drawing 1245A)	11	15636	<b>Formed Iron Conduit Size 3/4"</b> Complete with Bushing and Lock Nuts
6	1731-5	<b>Iron Offset Bracket</b> To fit 5" Pipe—Midsection Mounting	11a	15736	<b>Former Iron Conduit Size 1"</b> Complete with Bushing and Lock Nuts
			12	152-36	<b>Galvanized Anchor Bolts 1"x36"</b> Complete With Hex. Nut and Washer A.A.R. Sig. Sec. No. 11079 (Drawing 1107B) 4 Pieces required for each signal assembly

Plate A-2355 "Magnetic Wigwag Flagman"  
 Model 11—Wigwag Type Highway Crossing Signal Assembly  
 For Location at Side of Highway



Approved by the United States Bureau of Public Roads  
 For Installation With Public Works Highway Funds

Provides effective visual warning display including swinging movement of Wigwag Banner Disc and swinging display of Flashing Red Light indicating towards approaching highway traffic in both directions. Wigwag Mechanism Bell (Plate J-140) furnished as standard unless otherwise specified provides effective audible warning sounding with each stroke of wigwag banner. Standard location at near right hand side of highway as viewed by ap-

proaching highway traffic, with one signal located at each side of railroad tracks. Reflector "STOP ON RED SIGNAL" and Reflector Track Number Signs meeting standard requirements indicate in one direction only. Non-Reflector "RAILROAD CROSSING" Sign illustrated, is vitreous porcelain enameled and lettered on both sides for two-way indication. For assembly with Reflector Type "RAILROAD CROSSING" Sign See Plate A-2360.

**Plate A-2355 "Magnetic Wigwag Flagman"**  
**Model 11—Wigwag Type Highway Crossing Signal Assemblies**  
**With Non-Reflector Type "Railroad Crossing" Signs**  
**Two Position Type Wigwags**

Order by Piece Number and Description Given in Heavy Face Type Only

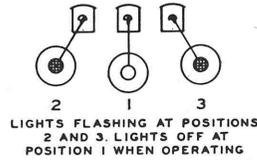
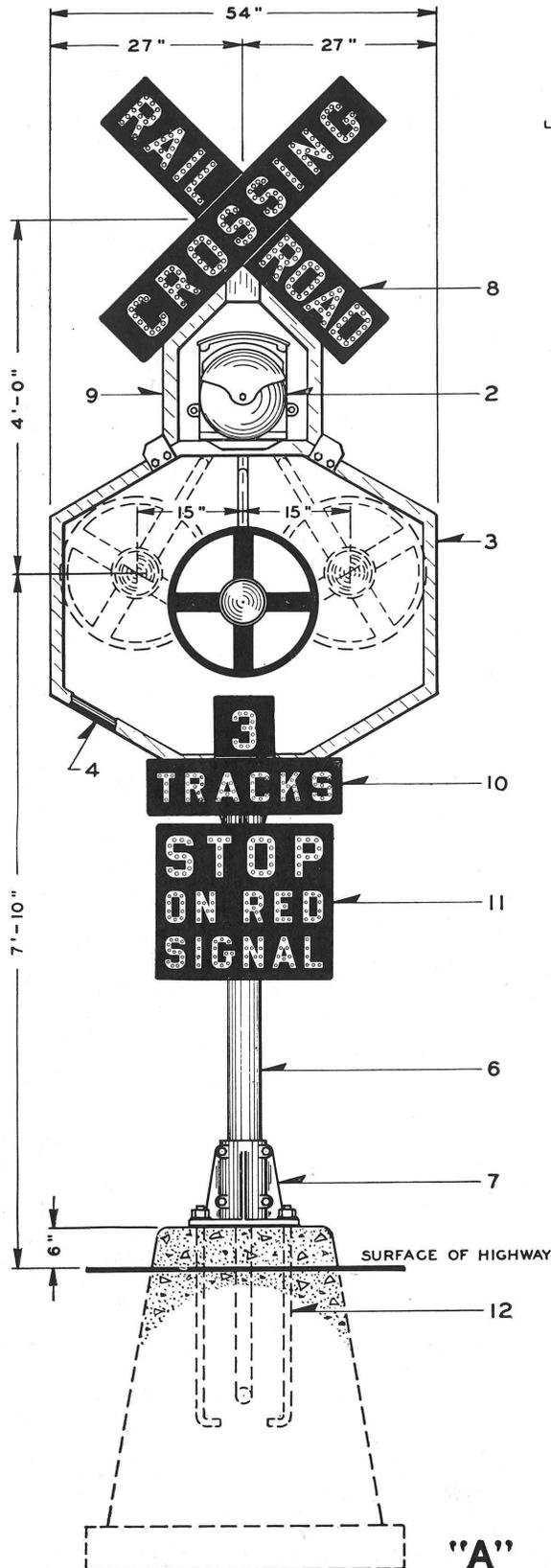
Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	2355-3	Side of Highway Wigwag Signal Assemblies Complete With Banners Ref. "B" Plate J-9300  Model 11 Magnetic Wigwag Flagman Assembly Complete With Reflector "3 TRACKS" Sign Including Type KCC-8-541 Wigwag Mechanism with Bell, Octagon Frame Support, Conduit, Support Casting, 4" Pipe Mast, Pole Base, "RAILROAD CROSSING" Sign, Reflector "3 TRACKS" Sign, Reflector "STOP ON RED SIGNAL" Sign and Galvanized Anchor Bolts Items Ref. 2 to 12 inclusive.	Al	2356-3	Side of Highway Wigwag Signal Assemblies Complete With Improved Banners Ref. "B" Plate J-9600  Model 11 Magnetic Wigwag Flagman Assembly Complete With Reflector "3 TRACKS" Sign Including Type KCR-8-611 Wigwag Mechanism with Bell, Octagon Frame Support, Conduit, Support Casting, 4" Pipe Mast, Pole Base, "RAILROAD CROSSING" Sign, Reflector "3 TRACKS" Sign, Reflector "STOP ON RED SIGNAL" Sign and Galvanized Anchor Bolts Items Ref. 2a to 12 inclusive.
Aa	2355-2	Model 11 Magnetic Wigwag Flagman Assembly Complete With Reflector "2 TRACKS" Sign	Am	2356-2	Model 11 Magnetic Wigwag Flagman Assembly Complete With Reflector "2 TRACKS" Sign
Ab	2355-4	Model 11 Magnetic Wigwag Flagman Assembly Complete With Reflector "4 TRACKS" Sign <i>Orders should specify numeral desired on Track Signs when other than listed above</i>	An	2356-4	Model 11 Magnetic Wigwag Flagman Assembly Complete With Reflector "4 TRACKS" Sign <i>Orders should specify numeral desired on Track Signs when other than listed above</i>
Aj	2355-C	Model 11 Magnetic Wigwag Flagman Assembly Less Reflector Track Number Sign	As	2356-C	Model 11 Magnetic Wigwag Flagman Assembly Less Reflector Track Number Sign
Ak	2355-D	Model 11 Magnetic Wigwag Flagman Assembly Less Reflector Track Number and "STOP ON RED SIGNAL" Signs	At	2356-D	Model 11 Magnetic Wigwag Flagman Assembly Less Reflector Track Number and "STOP ON RED SIGNAL" Signs

**Plate A-2355 Detail Parts**

Order by Piece Number and Description Given in Heavy Face Type Only

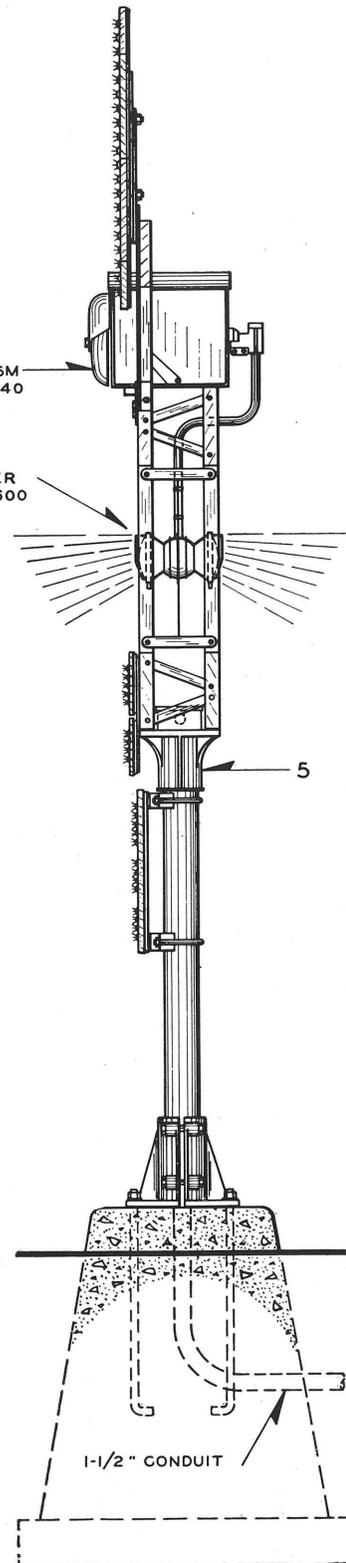
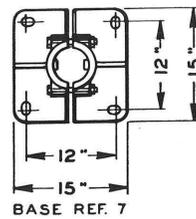
Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	KCC-8-541	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation with bell, brake, contact condensers and No. J-95041 Lower Quadrant Banner Ref. B Plate J-9300. (Recommend available improved wigwag as per reference 2a)	5b	12240-60	<b>Support Casting and Pipe Mast Assembly</b> Including Support Ref. 5 and 4" Pipe Mast 60" long Ref. 6a assembled with hot sulphur—Special length for assemblies with Vertical Illuminated "STOP" Sign.
2a	KCR-8-611	<b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with bell, brake, contact condensers, lamp cut-in relay and No. J-96011 Lower Quadrant Banner Ref. B Plate J-9600.	6	140-57	<b>Pipe Mast 57" Long</b> 4" Standard Steel Pipe 4 1/2" O.D.
3	12111	<b>Octagon Frame Support Only</b>	6a	140-60	<b>Pipe Mast 60" Long</b> 4" Standard Steel Pipe 4 1/2" O.D. Special length for assemblies with Vertical Illuminated "STOP" Sign
3a	12101	<b>Octagon Frame Support Assembly</b> Including Octagon Frame, Conduit, Support Casting and 4" Pipe Mast—Assembled complete—Items Ref. 3 to 7 inclusive—Pipe Mast assembled to Support Casting Ref. 5 with Hot Sulphur.	7	109-4	<b>Clamp Type Pole Base</b> for 4" Pipe 4 1/2" O.D.
4	12150	<b>Formed Iron Conduit Assembly Size 1"</b> Including Street Ell, Bushings and Locknuts (For bringing wires from support casting terminal box along side of octagon frame to wigwag mechanism)	8	3833	<b>"RAILROAD CROSSING" Sign</b> Vitreous Porcelain Enamel Finish—Two Blade Sheet Metal Type for Two-Way Indication. <i>For Reflector Type "RAILROAD CROSSING" Sign See Plate A-2360</i>
5	12240	<b>Support Casting and Terminal Box</b> Complete with Gasketed Cover and Three No. 10565 A.A.R. Terminal Blocks—For mounting on top of 4" Pipe Mast 4 1/2" O.D.	9	1272	<b>Crossing Sign Support</b>
5a	12240-57	<b>Support Casting and Pipe Mast Assembly</b> Including Support Ref. 5 and 4" Pipe Mast 57" long Ref. 6, assembled with hot sulphur. Standard length for assemblies with "STOP ON RED SIGNAL" Signs.	10	3873	<b>Reflector "3 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish—For mounting on Octagon Frame Support—A.A.R. Sig. Sec. Part No. 16458 Drawing 1645-B
			10a	3872	<b>Reflector "2 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish
			10b	3874	<b>Reflector "4 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish
			11	3710-4	<b>Reflector "STOP ON RED SIGNAL" Sign</b> Vitreous Porcelain Enamel Finish—Complete with clamp fittings for mounting on 4" Pipe Mast 4 1/2" O.D. A.A.R. Sig. Sec. Part No. 16464 Drawing 1646-B
			12	152-30	<b>Galvanized Anchor Bolt 1"x30"</b> Complete with Galvanized Hex. Nut and Washer. 4 Pieces required for each signal assembly.

Plate A-2360 "Magnetic Wigwag Flagman"  
 Model 11-A—Wigwag Type Highway Crossing Signal Assembly  
 With Reflector Type "RAILROAD CROSSING" Sign  
 For Location at Side of Highway



BELL MECHANISM  
 SEE PLATE J-140

WIGWAG BANNER  
 SEE PLATE J-9600



"A"

PLATE A-2360

Approved by the United States Bureau of Public Roads  
 For Installation With Public Works Highway Funds

**Plate A-2360 "Magnetic Wigwag Flagman"**  
**Model 11-A—Wigwag Type Highway Crossing Signal Assemblies**  
**With Reflector Type "Railroad Crossing" Signs**  
**Two Position Type Wigwags**

Provides effective visual warning display including swinging movement of Wigwag Banner Disc and swinging display of Flashing Red Light indicating towards approaching highway traffic in both directions. Wigwag Banner furnished with Individually Adjustable Beam Lamp Units, See details Plate J-9600.

Wigwag Mechanism Bell (Plate J-140) furnished as standard unless otherwise specified provides effective audible warning sounding with each stroke of wigwag banner.

Standard location at near right hand side of highway as viewed by approaching highway traffic with one signal located at each side of railroad tracks.

Reflector "RAILROAD CROSSING," "STOP ON RED SIGNAL" and Reflector Track Number Signs meeting standard requirements indicate in one direction only. All reflector signs furnished with Vitreous Porcelain Enamel Finish.

**Order by Piece Number and Description Given in Heavy Face Type Only**

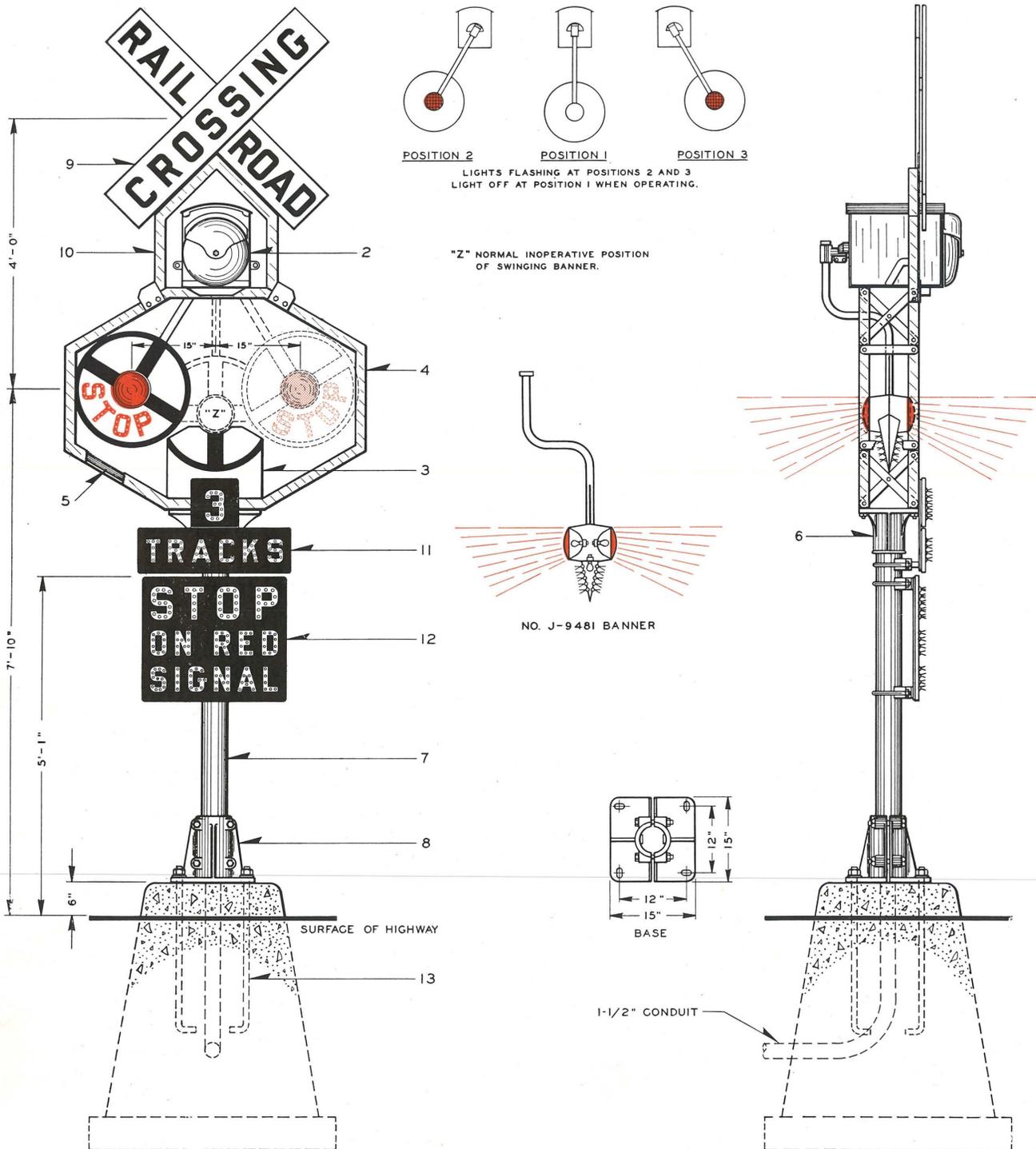
Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	2360-3	<b>Side of Highway Wigwag Signal Assemblies Complete With Banners Ref. "B" Plate J-9600</b>	Aa	2360-2	<b>Model 11-A Magnetic Wigwag Flagman Assembly With Reflector "2 TRACKS" Sign</b>
		<b>Model 11-A Magnetic Wigwag Flagman Assembly With Reflector "3 TRACKS" Sign</b> Including Type KCR-8-611 Wigwag Mechanism with Bell, Octagon Frame Support, Conduit, Support Casting, 4" Pipe Mast, Pole Base, Reflector "RAILROAD CROSSING" Sign, Reflector "3 TRACKS" Sign, Reflector "STOP ON RED SIGNAL" Sign and Galvanized Anchor Bolts Items Ref. 2 to 12 inclusive.	Ab	2360-4	<b>Model 11-A Magnetic Wigwag Flagman Assembly With Reflector "4 TRACKS" Sign</b> <i>Orders should specify numeral desired on Track Number Signs when other than listed above</i>
			Aj	2360-C	<b>Model 11-A Magnetic Wigwag Flagman Assembly Less Reflector Track Number Sign</b>
			Ak	2360-D	<b>Model 11-A Magnetic Wigwag Flagman Assembly Less Reflector Track Number and "STOP ON RED SIGNAL" Signs</b>

**Plate A-2360 Detail Parts**

**Order by Piece Number and Description Given in Heavy Face Type Only**

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	KCR-8-611	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation Plate J-12 with bell, brake, contact condensers, flasher cut-in relay and No. J-96011 Lower Quadrant Banner Ref. B Plate J-9600 <i>Orders should specify piece number of banner desired when other than as listed above</i>	5b	12240-60	<b>Support Casting and Pipe Mast Assembly</b> Including Support Ref. 5 and 4" Pipe Mast 60" long Ref. 6a assembled with hot sulphur. Special length for assemblies with Vertical Illuminated "STOP" Sign
3	12111	<b>Octagon Frame Support Only</b>	6	140-57	<b>Pipe Mast 57" Long</b> 4" Standard Steel Pipe 4½" O.D.
3a	12101	<b>Octagon Frame Support Assembly</b> Including Octagon Frame, Conduit, Support Casting and 4" Pipe Mast—Assembled complete—Items Ref. 3 to 7 inclusive—Pipe Mast assembled to Support Casting Ref. 5 with Hot Sulphur.	6a	140-60	<b>Pipe Mast 60" Long</b> 4" Standard Steel Pipe 4½" O.D. Special length for assemblies with Vertical Illuminated "STOP" Sign
4	12150	<b>Formed Iron Conduit Assembly Size 1"</b> Including Street Ell, Bushings and Locknuts (For bringing wires from support casting terminal box along side of Octagon Frame to wigwag mechanism)	7	109-4	<b>Clamp Type Pole Base</b> For 4" Pipe 4½" O.D.
5	12240	<b>Support Casting and Terminal Box</b> Complete with Cover and Three No. 10565 A.A.R. Terminal Blocks—For mounting on top of 4" Pipe Mast 4½" O.D.	8	3820	<b>Reflector "RAILROAD CROSSING" Sign 90°</b> Vitreous Porcelain Enamel Finish—For One-Way Indication—A.A.R. Sig. Sec. Part No. 16424 Drawing 1642-B
5a	12240-57	<b>Support Casting and Pipe Mast Assembly</b> Including Support Ref. 5 and 4" Pipe Mast 57" long Ref. 6, assembled with hot sulphur, Standard length for assemblies with "STOP ON RED SIGNAL" Signs.	9	1272	<b>Crossing Sign Support</b>
			10	3873	<b>Reflector "3 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish—For mounting on Octagon Frame Support—A.A.R. Sig. Sec. Part No. 16458 Drawing 1645-B
			10a	3872	<b>Reflector "2 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish
			10b	3874	<b>Reflector "4 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish
			11	3710-4	<b>Reflector "STOP ON RED SIGNAL" Sign</b> Vitreous Porcelain Enamel Finish—Complete with clamp fittings for mounting on 4" Pipe Mast 4½" O.D. A.A.R. Sig. Sec. Part No. 16464 Drawing 1646-B
			12	152-30	<b>Galvanized Anchor Bolt 1"x30"</b> Complete with Galvanized Hex. Nut and Washer—4 Pieces required for each signal assembly

Plate A-2465 "Magnetic Wigwag Flagman"  
 Model 12—Wigwag Type Highway Crossing Signal Assembly  
 With Illuminated Stop Banner  
 For Location at Side of Highway



Approved by the United States Bureau of Public Roads  
 For Installation With Public Works Highway Funds

Provides effective visual warning display including swinging movement of Wigwag Banner Disc and swinging display of Flashing Red Light Signal in center of banner indicating towards approaching highway traffic in both directions.

Model 12 Wigwag as illustrated provides addition of Illuminated "STOP" indication in lower portion of swinging wigwag banner. Stationary Masks ref. 3 hide display of word "STOP" in inoperative position and enable flashing display of swinging "STOP" light with movement of wigwag banner upon approach of train.

Standard location at near right hand side of highway as viewed by

approaching highway traffic with one signal located at each side of railroad tracks.

Reflector "STOP ON RED SIGNAL" and Reflector Track Number Signs meeting standard requirements indicate in one direction only. Non-Reflector "RAILROAD CROSSING" Sign illustrated, is vitreous porcelain enameled and lettered on both sides for two-way indication.

Wigwag Mechanism Bell (Plate J-140) furnished as standard unless otherwise specified provides effective audible warning sounding with each stroke of wigwag banner.

**Plate A-2465 "Magnetic Wigwag Flagman"  
Model 12—Wigwag Type Highway Crossing Signal Assemblies  
With Non-Reflector Type "Railroad Crossing" Signs  
Two Position Type Wigwags**

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	2465-3	Side of Highway Wigwag Signal Assemblies Complete	Aa	2465-2	Model 12 Magnetic Wigwag Flagman Assembly Complete With Reflector "2 TRACKS" Sign
		Model 12 Magnetic Wigwag Flagman Assembly Complete With Reflector "3 TRACKS" Sign Including Type KCR-8-481 Wigwag Mechanism with Bell, Illuminated "STOP" Banner and Stop Masks, Octagon Frame Support, Conduit, Support Casting, 4" Pipe Mast, Pole Base, "RAILROAD CROSSING" Sign, Reflector "3 TRACKS" Sign, Reflector "STOP ON RED SIGNAL" Sign and Galvanized Anchor Bolts Items Ref. 2 to 13 inclusive.	Ab	2465-4	Model 12 Magnetic Wigwag Flagman Assembly Complete With Reflector "4 TRACKS" Sign <i>Orders should specify numeral desired on Track Number Signs when other than listed above</i>
			Aj	2465-C	Model 12 Magnetic Wigwag Flagman Assembly Less Reflector Track Number Sign
			Ak	2465-D	Model 12 Magnetic Wigwag Flagman Assembly Less Reflector Track Number and "STOP ON RED SIGNAL" Signs

**Plate A-2465 Detail Parts**

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	KCR-8-481	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation with bell, brake, contact condensers, flasher cut-in relay and No. J-94801 Lower Quadrant Banner with Illuminated "STOP" Sign <i>Orders should specify piece number of banner desired when other than as listed above</i>	7	140-57	<b>Pipe Mast 57" Long</b> 4" Standard Steel Pipe 4 1/2" O.D.
3	12181	<b>Stop Mask Assembly Complete</b> Consisting of two masks and supporting bolts for attaching to Octagon Frame Support	7a	140-60	<b>Pipe Mast 60" Long</b> 4" Standard Steel Pipe 4 1/2" O.D. Special length for assemblies with Vertical Illuminated "STOP" Sign in place of "STOP ON RED SIGNAL" Sign.
4	12112	<b>Octagon Frame Support Only</b>	8	109-4	<b>Clamp Type Pole Base</b> For 4" Pipe 4 1/2" O.D.
4a	12102	<b>Octagon Frame Support Assembly</b> Including Octagon Frame, Conduit, Support Casting and 4" Pipe Mast—Assembled complete—items Ref. 3 to 7 inclusive—Pipe Mast assembled to Support Casting Ref. 6 with Hot Sulphur.	9	3833	<b>"RAILROAD CROSSING" Sign 90°</b> Vitreous Porcelain Enamel Finish—Two Blade Sheet Metal Type for Two-Way Indication.
5	12150	<b>Formed Iron Conduit Assembly Size 1"</b> Including Street Ell, Bushings and Locknuts (For bringing wires from support casting terminal box along side of Octagon Frame to wigwag mechanism)	10	1272	<b>Crossing Sign Support</b>
6	12240	<b>Support Casting and Terminal Box</b> Complete with Cover and Three No. 10565 A.A.R. Terminal Blocks—for mounting on top of 4" Pipe Mast 4 1/2" O.D.	11	3873	<b>Reflector "3 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish—For mounting on Octagon Frame Support—A.A.R. Sig. Sec. Part No. 16458 Drawing 1645-B
6a	12240-57	<b>Support Casting and Pipe Mast Assembly</b> Including Support Ref. 6 and 4" Pipe Mast 57" long Ref. 7, assembled with hot sulphur. Standard length for assemblies with "STOP ON RED SIGNAL" Sign	11a	3872	<b>Reflector "2 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish
6b	12240-60	<b>Support Casting and Pipe Mast Assembly</b> Including Support Ref. 6 and 4" Pipe Mast 60" long Ref. 7a assembled with hot sulphur. Special length for assemblies with Vertical Illuminated "STOP" Sign in place of "STOP ON RED SIGNAL" Sign	11b	3874	<b>Reflector "4 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish
			12	3710-4	<b>Reflector "STOP ON RED SIGNAL" Sign</b> Vitreous Porcelain Enamel Finish—Complete with clamp fittings for mounting on 4" Pipe Mast 4 1/2" O.D. A.A.R. Signal Section Part No. 16464 Drawing 1646-B
			13	152-30	<b>Galvanized Anchor Bolt 1"x30"</b> Complete with Galvanized Hex. Nut and Washer. 4 pieces required for each signal assembly

Plate A-2503 "Magnetic Wigwag Flagman"  
 Model 13 Highway Crossing Signal Assembly  
 —Combination Wigwag and Flashing Light Type—  
 For Location at Side of Highway

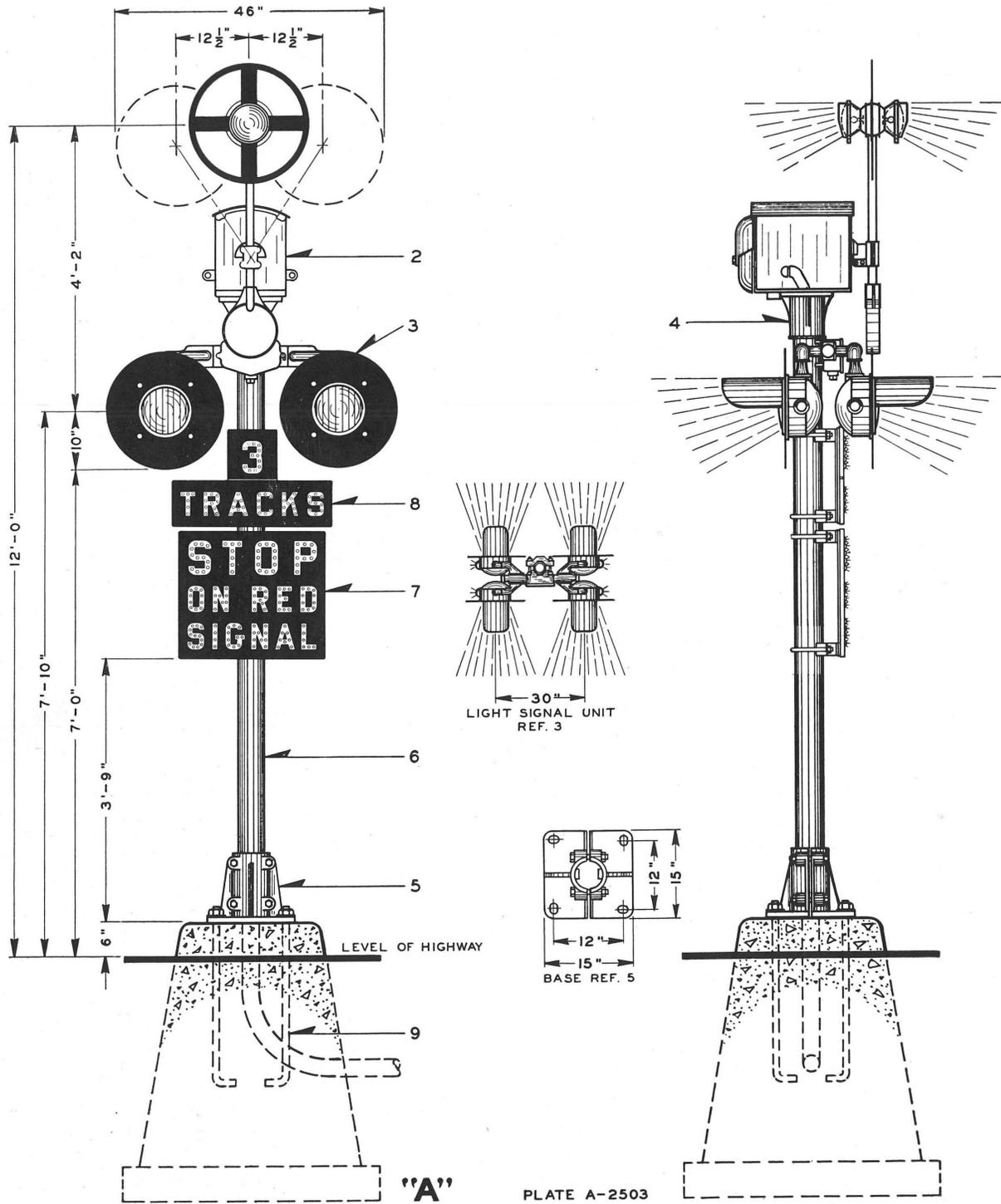


PLATE A-2503

Combines advantages of Wigwag and Flashing Light Type Signals to provide added animation and attention arresting qualities with increased reliability.

Standard location at near right hand side of highway as viewed by approaching highway traffic with one signal assembly located on each side of railroad tracks.

## Plate A-2503 "Magnetic Wigwag Flagman" Model 13 Highway Crossing Signal Assemblies With Upper Quadrant Two-Position Wigwag

The Model 13 Highway Crossing Signal Assembly displays the combined attention arresting warning features and has the individual merits of both the standard wigwag and the standard alternate flashing light type signals. Location of wigwag banner at increased height over the alternate flashing light signal units provides animated warning protection which can be seen when the lower flashing light units may be hidden from view of approaching motorists behind large trucks or heavy highway traffic.

The animated swinging movement of wigwag banner protects against possibilities of poor indication under bright sunlight and other adverse conditions which decrease the daytime effectiveness of flashing lights. Use of the two separate signal indications provides increased protection against operating failures in either signal aspect. Possible burnout of any of the light units of this arrangement does not destroy the meaning or effectiveness of the warning display.

To provide independent operation, standard flasher relay is recommended for operation of the Lower Alternate Flashing Light Signal Units. Wigwag Banner Lamps are independently flashed by wigwag mechanism lamp contacts. The track circuit or other control system required is identical to normal crossing signal installation. No further duplication of control or operating equipment is necessary.

The improved results obtained in displaying a more arrestive and more reliable warning to approaching motorists warrant the use of the Model 13 Highway Crossing Signal for required further reduction of accidents, especially at the most hazardous crossings. This protection is available at only a proportionate small increase over the complete cost of usual railroad crossing signal installations and at only a minor small increase in operating and maintenance expense.

### Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	2503-3	<b>Side of Highway Wigwag Signal Assemblies For 8 to 10 volt Direct Current Operation</b> <b>Model 13 Magnetic Wigwag Flagman Assembly Complete with Reflector "3 TRACKS" Sign</b> Including Type UKCR-8-602 Upper Quadrant Wigwag Mechanism with Bell, Four Unit Flashing Light Signal, Wigwag Support Casting, Pole Base, 4" Pipe Mast, Reflector "STOP ON RED SIGNAL" Sign, Reflector "3 TRACKS" Sign and Anchor Bolts items ref. 2 to 9 inclusive  <i>Orders Should Specify Piece Number of Wigwag Mechanism desired when other than listed above. See Plates J-40 and J-42</i>	Aa	2503-2	<b>Model 13 Magnetic Wigwag Flagman Assembly Complete With Reflector "2 TRACKS" Sign</b> Includes items ref. 2 to 9 inclusive except with Reflector "2 TRACKS" Sign  <i>Orders should specify numeral desired on Track Signs when other than listed above</i>
			Aj	2503-C	<b>Model 13 Magnetic Wigwag Flagman Assembly Less Track Number Sign</b> Includes Items ref. 2, 3, 4, 5, 6, 7 and 9
			Ak	2503-D	<b>Model 13 Magnetic Wigwag Flagman Assembly Less Track Number and "STOP ON RED SIGNAL" Signs</b> Includes items ref. 2, 3, 4, 5, 6 and 9

## Plate A-2503—Detail Parts

### Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	UKCR-8-602	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation Plate J-42 with Bell, Brake, Contact Condensers, Flasher Cut-In Relay, and No. JU-96002 Upper Quadrant Adjustable Beam Banner	3b	81010	<b>Single Lamp Unit Complete</b> With 8 $\frac{3}{8}$ " Diameter Red 30° Spredlite Roundel, Lens Hood and 20" Dia. Background and side lights (Without Lamp Bulb)
2a	UKCC-8-602	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation with Bell, Brake, Contact Condensers and No. JU-96002 Upper Quadrant Adjustable Beam Banner, with steady burning wigwag banner lamps. Identical to type UKCR-8-602 Wigwag Plate J-42 except without Flasher Cut-In Relay Wiring Diagram JH-521 Plate J-40  <i>Orders should specify Piece Number of Wigwag Mechanisms desired when other than listed above. See Plates J-40 and J-42</i>	4	114-4	<b>Wigwag Mechanism Support Casting</b> For mounting on top of 4" pipe Mast 4 $\frac{1}{2}$ " O.D.
3	5214-4	<b>Four Lamp Unit Signal with Junction Box Cross-arm Support for 4" Pipe Mast</b> Includes Four Individual Lamp Units with 8 $\frac{3}{8}$ " diameter Red 30 degree Spredlite Roundels, Lens Hoods and Backgrounds complete with Junction Box Cross-Arm for attaching Lamp Units Back to Back A.A.R. Signal Section No. 16561 Drawing 1656B	5	109-4	<b>Clamp Type Pole Base</b> For 4" Pipe Mast 4 $\frac{1}{2}$ " O.D.
			6	140-81	<b>Pipe Mast Only 8' 9" Long</b> 4" Standard Wrought Steel Pipe 4 $\frac{1}{2}$ " O.D. with Oval Wire Entrance Hole for Junction Box Cross-Arm mounting of Lamp Units 7' 4" above base to center of Lamp Units
3a	5212-4	<b>Two Lamp Unit Signal with Junction Box Cross-arm Support for 4" Pipe Mast</b> Includes Two Individual Lamp Units with 8 $\frac{3}{8}$ " Diameter Red 30 degree Spredlite Roundels, Lens Hoods and Backgrounds Complete with Junction Box Cross-Arm for attaching Lamp Units A.A.R. Signal Section No. 16563 Drawing 1656B (Similar to Piece Number 5214-4 except without back lamp units—for one way indication only)  <i>Four Lamp and Two Lamp Units Items 3 and 3a will be furnished with 11 volt 11 watt single contact bayonet base lamps unless otherwise specified</i>	7	3710-4	<b>Reflector "STOP ON RED SIGNAL" Sign</b> Vitreous Porcelain Enamel Finish—Complete with clamp fittings for mounting on 4" Pipe Mast 4 $\frac{1}{2}$ " O.D. A.A.R. Signal Section Part No. 16464 Drawing 1646B
			8	3883-4	<b>Reflector "3 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish—Complete with clamp fittings for mounting on 4" Pipe Mast 4 $\frac{1}{2}$ " O.D. A.A.R. Signal Section Part 16459 Drawing 1645B
			8a	3882-4	<b>Reflector "2 TRACKS" Sign</b> Vitreous Porcelain Enamel Finish—Complete with clamp fittings for mounting on 4" Pipe mast 4 $\frac{1}{2}$ " O.D. A.A.R. Signal Section Part 16459 Drawing 1645B  <i>Orders should specify numeral desired on Track Signs when other than listed above</i>
			9	152-30	<b>Galvanized Anchor Bolt 1"x30"</b> Complete with Galvanized Hex. Nut and Washer. Four pieces required for each signal assembly



# SECTION J

## "MAGNETIC WIGWAG FLAGMAN" Wigwag Type—Railroad Highway Crossing Signal WIGWAG MECHANISMS AND PARTS

### CONTENTS

	Plate Number
Types JHC and KCC Wigwag Mechanisms—Lower Quadrant . . . . .	J-10
Types JHR and KCR Wigwag Mechanisms—Lower Quadrant . . . . .	J-12
Types UJHC and UKCC Wigwag Mechanisms—Upper Quadrant . . . . .	J-40
Types UJHR and UKCR Wigwag Mechanisms—Upper Quadrant . . . . .	J-42
Wigwag Mechanism—Two Position Type—Detail Parts . . . . .	J-112
Wigwag Mechanism—Bell Mechanism Parts . . . . .	J-140
Wigwag Mechanism—Type KC Brake Mechanism . . . . .	J-204
Lower Quadrant Wigwag Banner—Non-Reflector Type . . . . .	J-9106
Upper Quadrant Wigwag Banner—Non-Reflector Type . . . . .	J-9116
Wigwag Banner Single Lamp Unit . . . . .	J-9126
Wigwag Banner Twin Lamp Unit . . . . .	J-9127
Lower Quadrant Wigwag Banner—Reflector Type . . . . .	J-9300
Lower Quadrant Wigwag Banner—Improved Adjustable Beam . . . . .	J-9600
Upper Quadrant Wigwag Banner—Improved Adjustable Beam . . . . .	J-9610

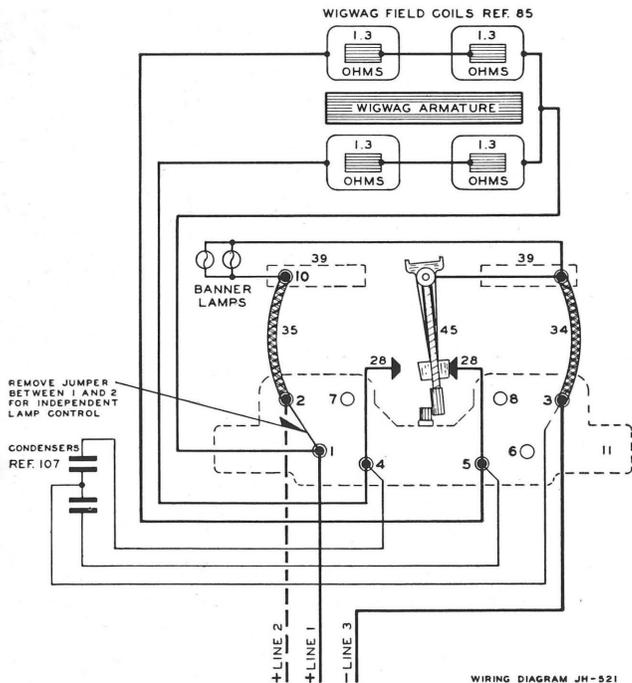
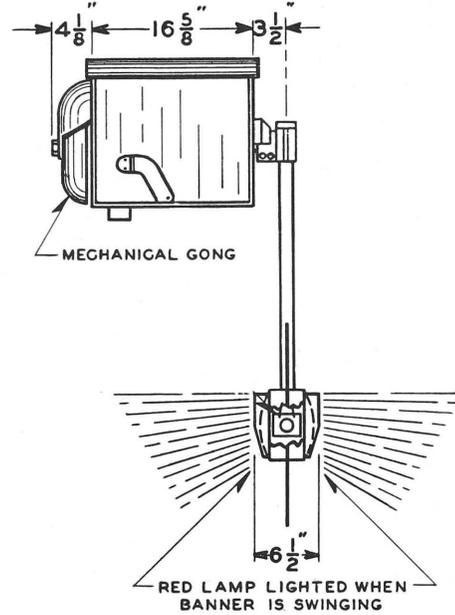
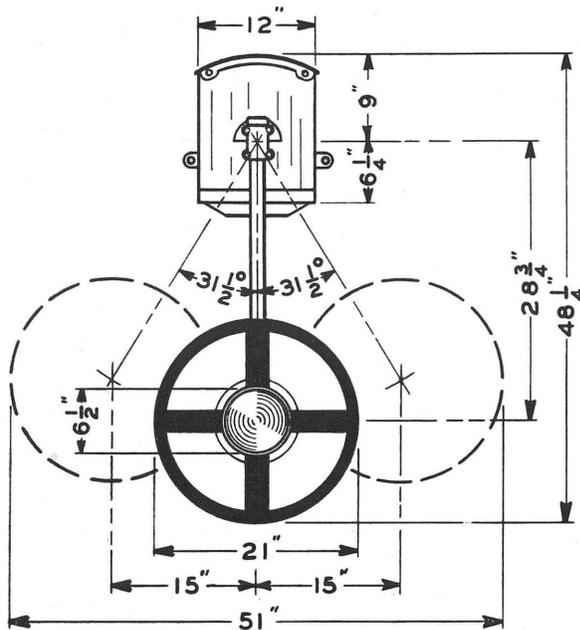
*Manufactured by*

**MAGNETIC SIGNAL CO.**

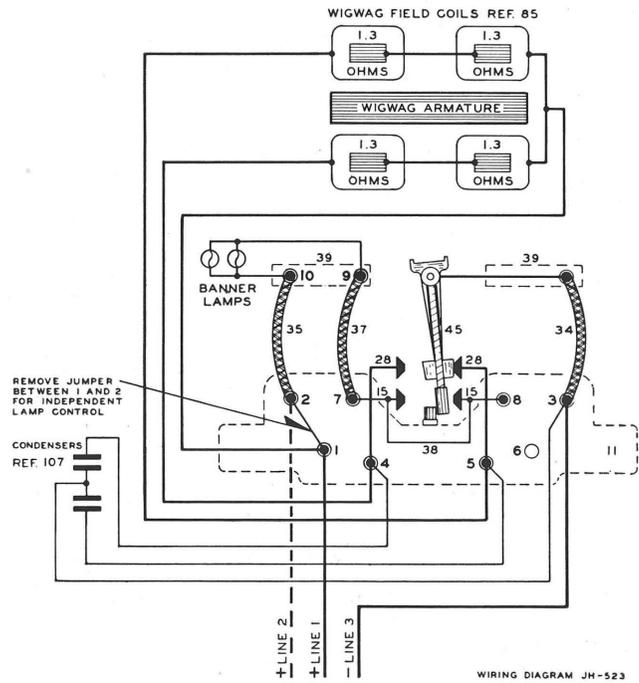
LOS ANGELES, CALIF. U.S.A.

## Types JHC and KCC "Magnetic Wigwag Flagman"

Two Position Wigwag Mechanism—With Bell  
and Lower Quadrant Banner



WIRING DIAGRAM JH-521



WIRING DIAGRAM JH-523

Types KCC and JHC Wigwag Mechanisms for 8-volt direct current operation will be wired as per diagram JH-521 shown above to provide continuous burning banner lamp operation unless otherwise designated.

Normal speed of "Magnetic Wigwag Flagman" banner at rated voltage of 8-volts direct current is approximately 45 cycles (or 90 strokes) per minute. A.A.R. Signal Section requisites specify: "Movement from one extreme to the other and back constitutes a cycle. The number of cycles per minute shall be 30 minimum, 45 maximum."

Types KCC and JHC Wigwag Mechanisms for 8-volt direct current operation can be furnished when specified, wired as per diagram JH-523 shown above to provide flashing of banner lamps at each end of wigwag banner swing. See Plate J-12 for improved Wigwag Flashing Banner Lamp Operation.

Wigwag Mechanisms are furnished with mechanical gong unless otherwise specified. Provides effective audible warning sounding with each stroke of wigwag banner. See details Plate J-140.

See Typical Complete Assembly Plate A-2301.

## PLATE J-10 MAGNETIC WIGWAG FLAGMAN TYPES "KCC" AND "JHC" TWO POSITION WIGWAG MECHANISMS

With Bell and Lower Quadrant Banner  
For Direct Current Operation

"Magnetic Wigwag Flagman" mechanisms for standard battery operation are rated as "8 volt" for low voltage direct current operation. The "8 volt" direct current Magnetic Wigwag Flagman will operate satisfactorily from 5½ volts to 12 volts assuring reliable operation of wigwag even with excess drop in battery voltage.

Unless otherwise specified on orders, Wigwag Mechanisms will be furnished with Banner Disc enameled on both sides in accordance with

A.A.R. Signal Section Standard (Drawing 1553) with White Field, 1" Black Border and 2½" Black Cross.

Wigwag Mechanisms unless otherwise specified, are furnished with wigwag contact condensers recommended to reduce arcing across wigwag mechanism contacts and for radio interference elimination. See condenser assembly illustrated Ref. 107 Plate J-112.

### Type "KCC" Magnetic Wigwag Flagman Mechanisms With Brake Mechanism—See Details Plate J-204 Swinging of Wigwag Signal Banner Stops Promptly Upon Train Leaving Track Circuit or Operating Control Section

Details of Types KC and KCC Wigwag Mechanisms are in accordance with following plates:

Wigwag Mechanism	Plate J-112
Bell Mechanism	Plate J-140
Brake Mechanism	Plate J-204
Wigwag Banner	Plate J-9106

Type Reference "KCC" designated in piece number indicates that wigwag mechanism is equipped with standard brake and contact condensers. Prior reference "KC" covers Wigwag Mechanism identical to type "KCC" except furnished without contact condensers.

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
KCC-8-161	Type "KCC" Wigwag Mechanisms with Bell, Brake, Contact Condensers and Lower Quadrant Banners as per Plate J-9106	KCC-8-177	<b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. J-91077 Banner with Twin Lamp Unit and 13.5 volt .25 ampere lamps Plate J-9106 Ref. "A"
	<b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. J-91061 Banner with Single Lamp Unit and 8 volt 13 and 3.5 watt Double Filament Lamp Plate J-9106 Ref. "A"	KCC-110	<b>Magnetic Wigwag Flagman Mechanism</b> For 110 volt direct current operation with banner as per Plate J-9106 except with single 120 volt 50 watt medium screw base lamp
	<b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. J-91072 Banner with Twin Lamp Unit and 10 volt 5 watt Lamps Plate J-9106 Ref. "Ah"	KCC-600	<b>Magnetic Wigwag Flagman Mechanism</b> For 600 volt direct current operation with banner as per Plate J-9106 except with single 120 volt 50 watt medium screw base lamp —(Requires 1200 ohm external resistance for lamp operation on 600 volt D.C. Line)

### Type "JHC" Magnetic Wigwag Flagman Mechanisms Without Brake Mechanism

Details of Types JH and JHC Wigwag Mechanisms are in accordance with following plates:

Wigwag Mechanism	Plate J-112
Bell Mechanism	Plate J-140
Wigwag Banner	Plate J-9106

Type Reference "JHC" designated in piece number indicates that wigwag mechanism is equipped with standard contact condensers, but without brake mechanism. Prior reference "JH" covers Wigwag Mechanism identical to type "JHC" except furnished without contact condensers.

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
JHC-8-161	Type "JHC" Wigwag Mechanisms With Bell, Contact Condensers and Lower Quadrant Banners as per Plate J-9106	JHC-110	<b>Magnetic Wigwag Flagman Mechanism</b> For 110 volt direct current operation with banner as per Plate J-9106 except with single 120 volt 50 watt medium screw base lamp
	<b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. J-91061 Banner with Single Lamp unit and 8 volt 13 and 3.5 watt double filament lamp Plate J-9106 Ref. "A"	JHC-600	<b>Magnetic Wigwag Flagman Mechanism</b> For 600 volt direct current operation with Banner as per Plate J-9106 except with single 120 volt 50 watt medium screw base lamp —(Requires 1200 ohm external resistance for lamp operation on 600 volt D.C. Line)
JHC-8-172	<b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. J-91072 Banner with Twin Lamp Unit and 10-volt 5 watt Lamps Plate J-9106 Reference "Ah"		<i>Specify Piece Number of Banner desired when other than listed above</i>

### Types KCR and JHR Magnetic Wigwag Flagmen Two Position Wigwag Mechanism With Bell, Lower Quadrant Banner With Adjustable Beam Lamp Units

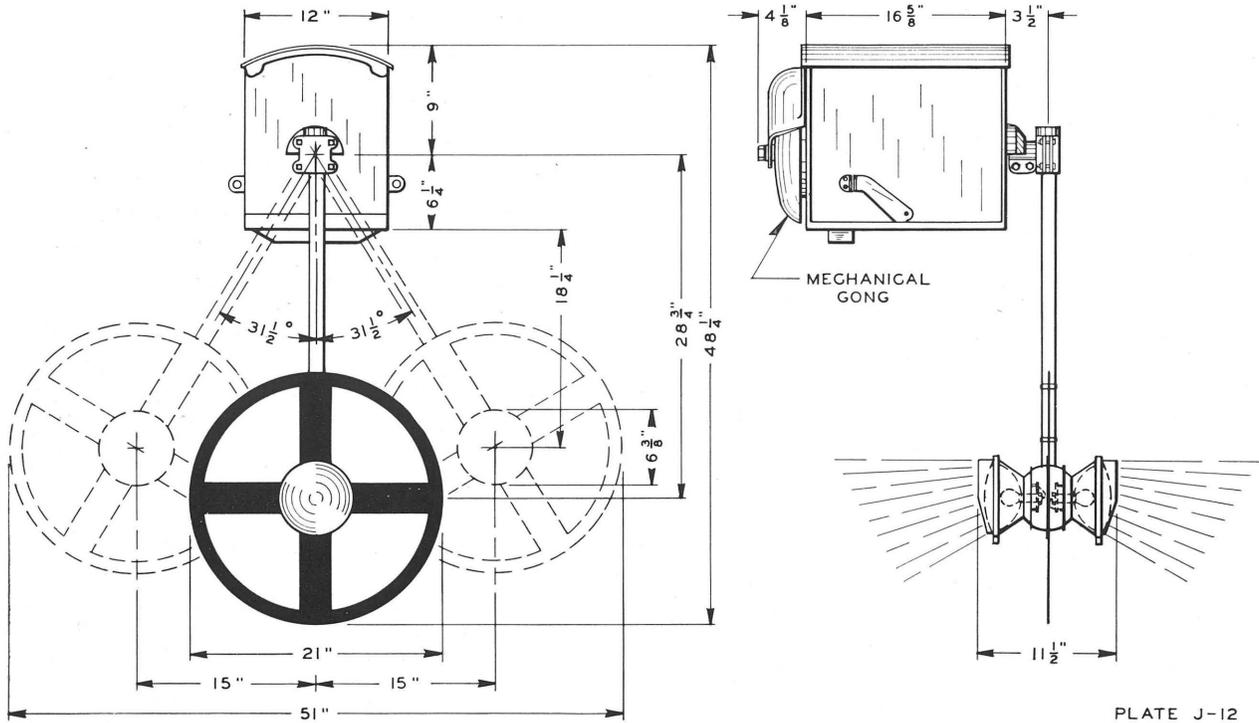
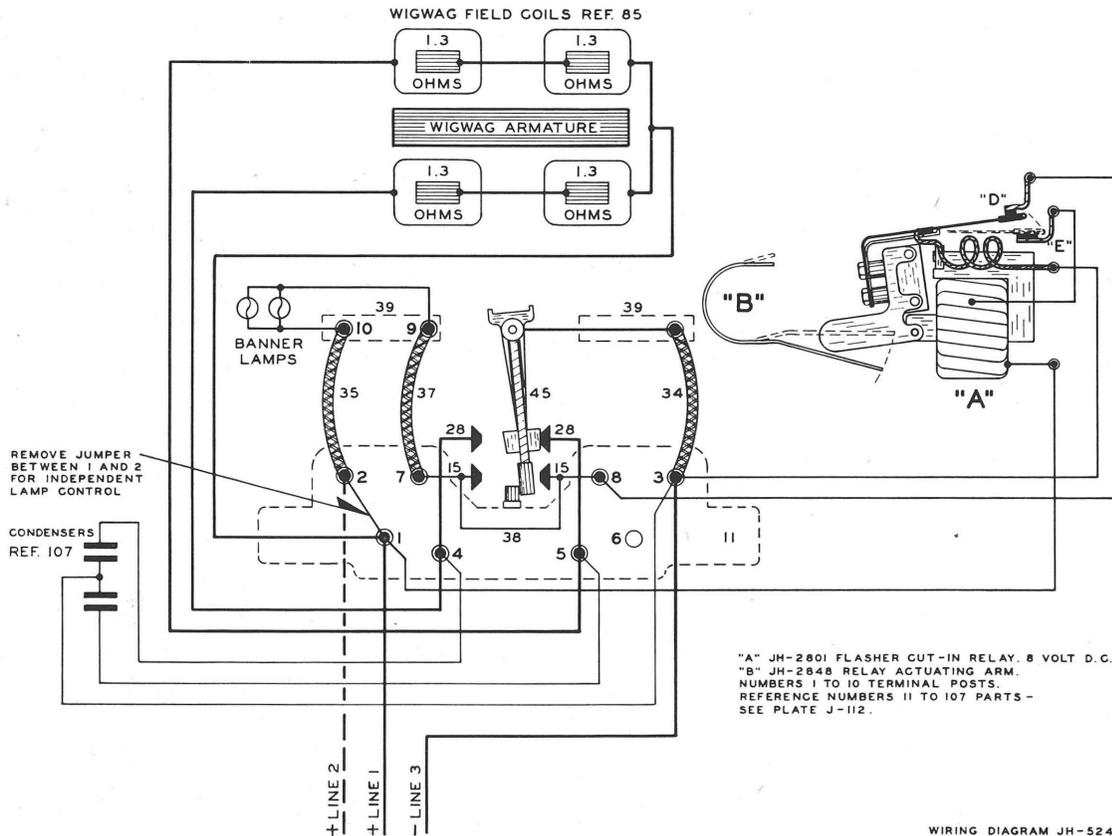


PLATE J-12



"A" JH-2801 FLASHER CUT-IN RELAY. 8 VOLT D.C.  
"B" JH-2848 RELAY ACTUATING ARM.  
NUMBERS 1 TO 10 TERMINAL POSTS.  
REFERENCE NUMBERS 11 TO 107 PARTS -  
SEE PLATE J-112.

WIRING DIAGRAM JH-524

Types KCR and JHR Wigwag Mechanisms for 8-volt Direct current operation, unless otherwise specified, are furnished wired as per diagram JH-524, shown above. Provides flashing of banner lamps at each end of wigwag banner swing, with steady burning lamp protection at start of wigwag operation.

As soon as wigwag banner has reached its full swing, the stick circuit of flashing cut-in relay "A" is closed mechanically by arm "B" attached to wigwag armature. Initial steady burning lamp circuit is disconnected through relay contact "D" which opens with closing of relay. Banner lamps will then flash through wiping contact of Movable Finger 45 against Flasher Lamp Contacts 15.

## TYPES KCR AND JHR MAGNETIC WIGWAG FLAGMAN TWO POSITION WIGWAG MECHANISMS FOR DIRECT CURRENT OPERATION

**With Bell and Lower Quadrant Banner with Adjustable Beam Lamp Units**

*(Improved Standard March, 1940)*

Adjustable mounting of banner lamp units allows independent projection of signal light beams to greatest effectiveness towards approaching highway traffic—See banner details Plate J-9600. Banner enameled black and white in accordance with A.A.R. Signal Section Standard (Drawing 1553).

The 8 volt Wigwag Mechanism will operate reliably from 5½ volts to 12 volts direct current.

Wigwag Mechanisms furnished with Contact Condensers Ref. 107 Plate J-112.

Normal Banner Speed at 8 volts is approximately 45 cycles (or 90 strokes) per minute.

See Typical Complete Assembly Plate A-2210.

Details of Types KCR and JHR Wigwag Mechanisms are in accordance with following plates:

- Wigwag Mechanism            Plate J-112
- Bell Mechanism              Plate J-140
- Wigwag Banner              Plate J-9600
- Wiring Diagram JH-524    Plate J-12
- Brake Mechanism  
(Types KCR only)          Plate J-204
- No brake furnished with types JHR

### Type KCR Magnetic Wigwag Flagman Mechanisms With Brake Mechanism—See Details Plate J-204 Swinging of Wigwag Signal Banner Stops Promptly Upon Train Leaving Track Circuit or Operating Control Section

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
KCR-8-601	<b>Type KCR Wigwag Mechanisms With Bell, Brake, Contact Condensers, Flasher Cut-In Relay and Lower Quadrant Banners with Straight Pipe Shaft Figure "A" Plate J-9600—For Models 3 and 10 Wigwag Assemblies</b> <b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96001 and 10 volt 8 and 9 watt Screened Double Filament Lamps	KCR-8-611	<b>Type KCR Wigwag Mechanisms with Bell, Brake, Contact Condensers, Flasher Cut-In Relay and Lower Quadrant Banners with Offset Pipe Shaft Figure "B" Plate J-9600—For use with Models 11 and 11-A Wigwag Assemblies</b> <b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96011 and 10 volt 8 and 9 watt Screened Double Filament Lamps
KCR-8-602	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96002 and 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision Lamps	KCR-8-612	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96012 and 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision Lamps
KCR-8-609	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96009 complete except without lamp bulbs <i>Specify voltage and wattage of lamp bulbs desired when other than listed above</i>	KCR-8-619	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96019 complete except Without Lamp Bulbs <i>Specify voltage and wattage of lamp bulbs desired when other than listed above</i>

### Type JHR Magnetic Wigwag Flagman Mechanisms (Identical to Type KCR Except Without Brake Mechanism)

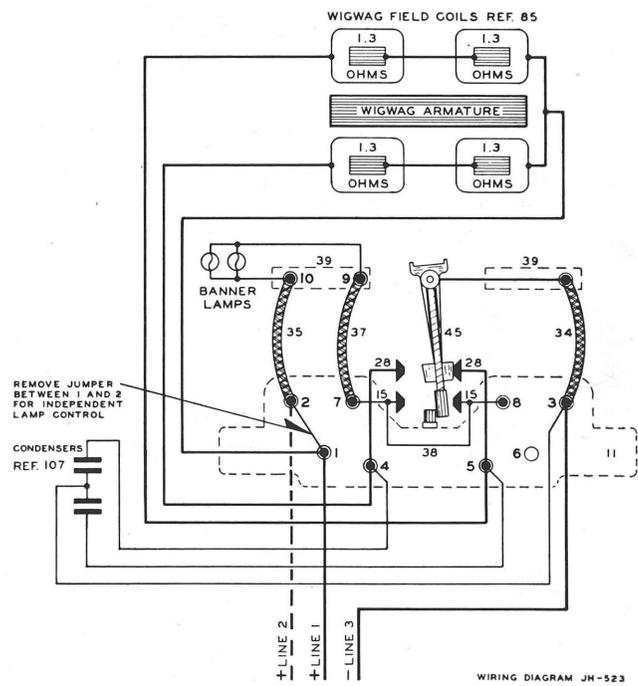
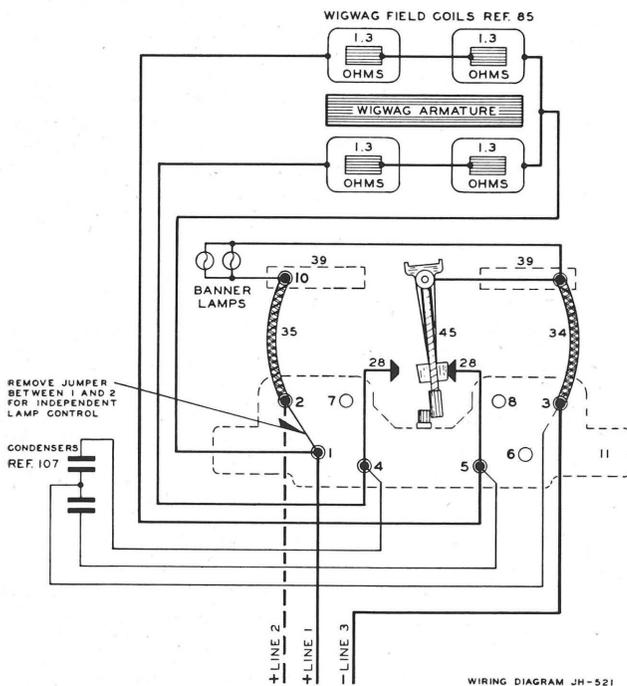
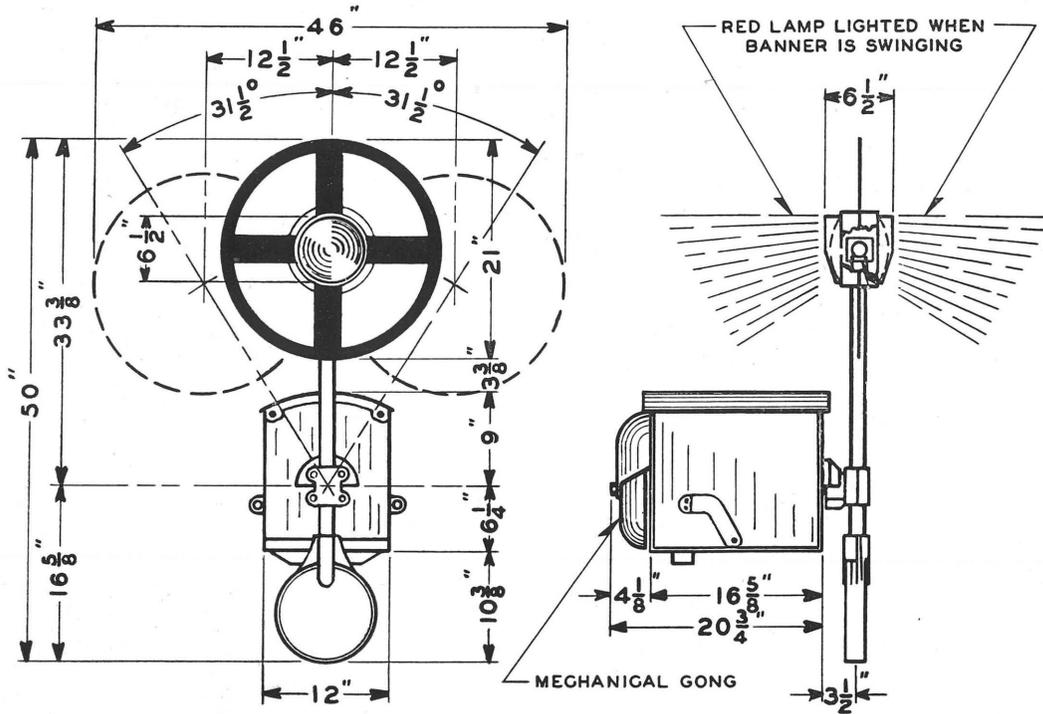
Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
JHR-8-601	<b>Type JHR Wigwag Mechanisms with Bell, Contact Condensers, Flasher Cut-In Relay and Lower Quadrant Banners with Straight Pipe Shaft Figure "A" Plate J-9600—For Models 3 and 10 Wigwag Assemblies</b> <b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96001 and 10 volt 8 and 9 watt Screened Double Filament Lamps	JHR-8-611	<b>Type JHR Wigwag Mechanisms with Bell, Contact Condensers, Flasher Cut-In Relay and Lower Quadrant Banners with Offset Pipe Shaft Figure "B" Plate J-9600—For use with Models 11 and 11-A Wigwag Assemblies</b> <b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96011 and 10 volt 8 and 9 watt Screened Double Filament Lamps
JHR-8-602	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96002 and 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision Lamps	JHR-8-612	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96012 and 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision Lamps
JHR-8-609	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96009 complete except without lamp bulbs <i>Specify voltage and wattage of lamp bulbs desired when other than listed above</i>	JHR-8-619	<b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. J-96019 complete except Without Lamp Bulbs <i>Specify voltage and wattage of lamp bulbs desired when other than listed above</i>

## Types UKCC and UJHC "Magnetic Wigwag Flagman"

Two Position Wigwag Mechanism—With Bell

and Upper Quadrant Banner



Types UKCC and UJHC Wigwag Mechanisms for 8-volt direct current operation will be wired as per diagram JH-521 shown above to provide continuous burning banner lamp operation unless otherwise designated.

Normal speed of "Magnetic Wigwag Flagman" banner at rated voltage of 8-volts direct current is approximately 45 cycles (or 90 strokes) per minute. A.A.R. Signal Section requisites specify: "Movement from one extreme to the other and back constitutes a cycle." The number of cycles per minute shall be 30 minimum, 45 maximum."

Types UKCC and UJHC Wigwag Mechanisms for 8-volt direct current operation can be furnished when specified, wired as per diagram JH-523 shown above to provide flashing of banner lamps at each end of wigwag banner swing. See Plate J-42 for improved Wigwag Flashing Banner Lamp Operation.

Wigwag Mechanisms are furnished with mechanical gong unless otherwise specified. Provides effective audible warning sounding with each stroke of wigwag banner. See details Plate J-140.

## PLATE J-40 MAGNETIC WIGWAG FLAGMAN TYPES UKCC AND UJHC TWO POSITION WIGWAG MECHANISMS

With Bell and Upper Quadrant Banner  
For Direct Current Operation

### Type UKCC Magnetic Wigwag Flagman Mechanisms

With Brake Mechanism—See Details Plate J-204

Swinging of Wigwag Signal Banner Stops Promptly Upon Train Leaving Track  
Circuit or Operating Control Section

Details of Types UKC and UKCC Wigwag Mechanisms are in accordance with the following plates:

Wigwag Mechanism	Plate J-112
Bell Mechanism	Plate J-140
Brake Mechanism	Plate J-204
Wigwag Banner	Plate J-9116

Type Reference "UKCC" designated in piece number indicates that wigwag mechanism is equipped with standard brake and contact condensers Ref. 107 Plate J-112. Prior reference "UKC" covers wigwag mechanism identical to type "UKCC" except furnished without contact condensers.

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
UKCC-8-161	<p><b>Type UKCC Wigwag Mechanisms with Bell, Brake, Contact Condensers and Upper Quadrant Banners as per Plate J-9116</b></p> <p><b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. JU-91061 Banner with single lamp unit and 8 volt 13 and 3.5 watt double filament lamp—Plate J-9116 Ref. "A"</p>	UKCC-8-177	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt direct current operation with No. J11-91077 Banner with twin lamp unit and 13.5 volt .25 ampere lamps Plate J-9116 Ref. "Ai"</p>
UKCC-8-172	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. JU-91072 Banner with twin lamp unit and 10 volt 5 watt lamps Plate J-9116 reference "Ah"</p>	UKCC-110	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 110 volt direct current operation with Banner as per Plate J-9116 except with single 120 volt 50 watt screw base lamp</p>
		UKCC-600	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 600 volt direct current operation with Banner as per Plate J-9116 except with single 120 volt 50 watt screw base lamp—(Requires 1200 ohm external resistance for lamp operation on 600 volt D.C. Line)</p>

### Type UJHC Magnetic Wigwag Flagman Mechanisms

—Without Brake Mechanism—

Details of Type UJH and UJHC Wigwag Mechanisms are in accordance with the following plates:

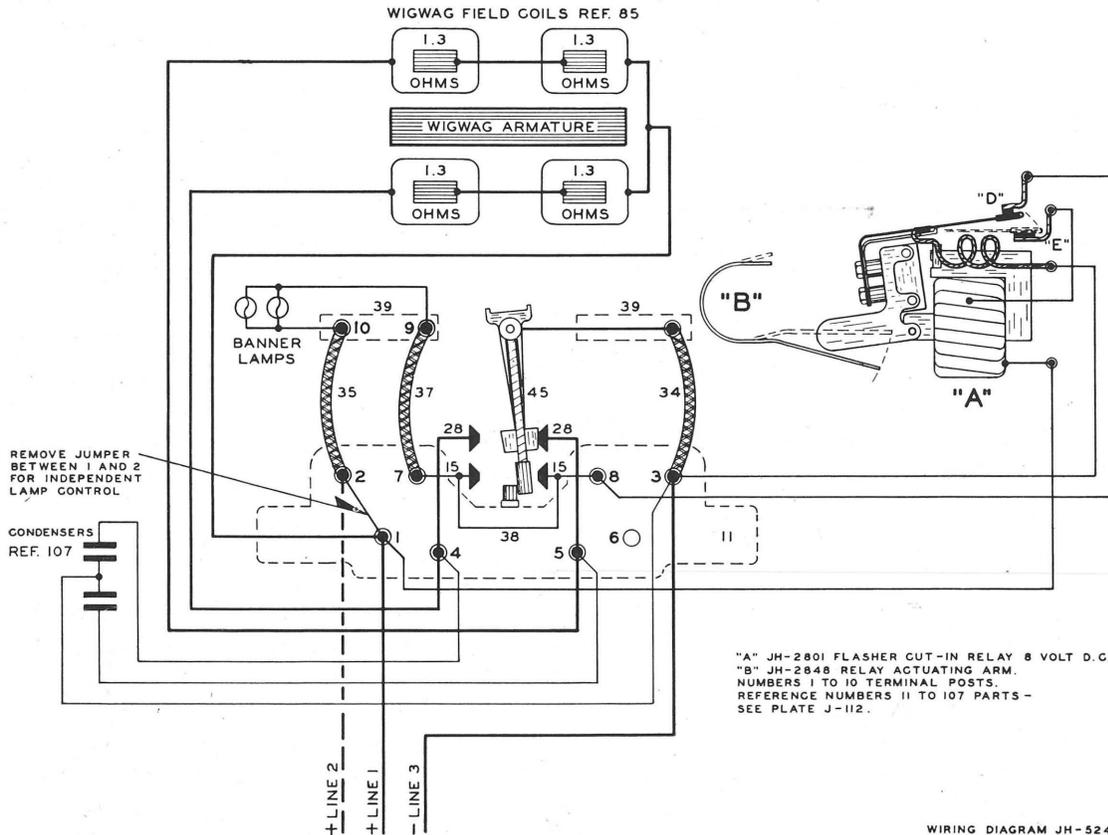
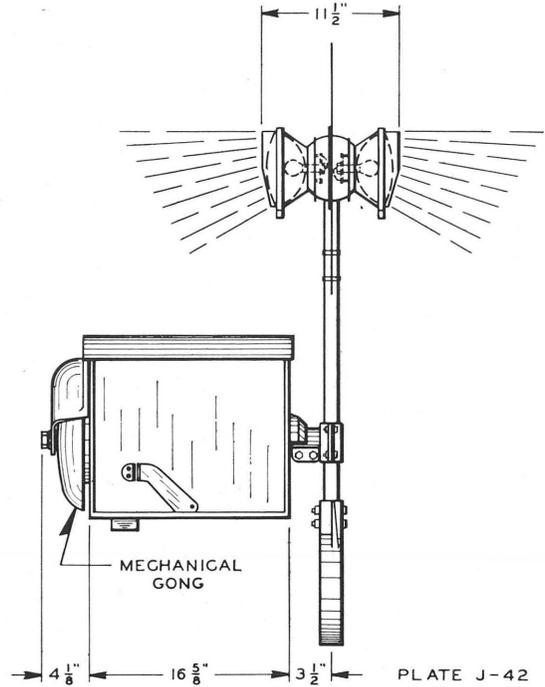
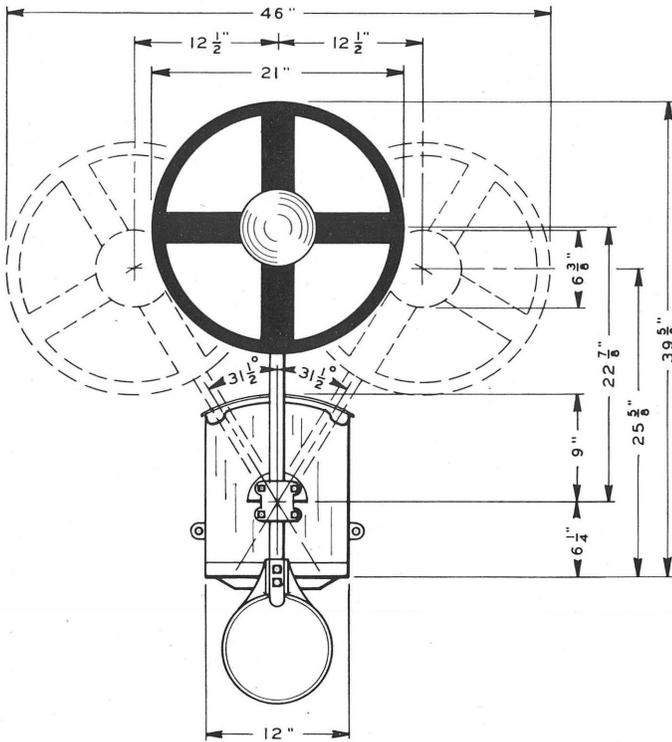
Wigwag Mechanism	Plate J-112
Bell Mechanism	Plate J-140
Wigwag Banner	Plate J-9116

Type Reference "UJHC" designated in piece number indicates that wigwag mechanism is equipped with standard contact condensers Ref. 107 Plate J-112, but without brake mechanism. Prior reference "UJH" covers Wigwag Mechanism identical to type "UJHC" except furnished without contact condensers.

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
UJHC-8-161	<p><b>Type UJHC Wigwag Mechanisms With Bell, Contact Condensers and Upper Quadrant Banners as per Plate J-9116</b></p> <p><b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. JU-91061 Banner with single lamp unit and 8 volt 13 and 3.5 watt double filament lamp—Plate J-9116 Ref. "A"</p>	UJHC-110	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 110 volt direct current operation with Banner as per Plate J-9116 except with single 120 volt 50 watt screw base lamp</p>
UJHC-8-172	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8-volt direct current operation with No. JU-91072 Banner with twin lamp unit and 10 volt 5 watt lamps Plate J-9116 reference "Ah"</p>	UJHC-600	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 600 volt direct current operation with Banner as per Plate J-9116 except with single 120 volt 50 watt screw base lamp (Requires 1200 ohm external resistance for lamp operation on 600 volt D.C. Line)</p> <p><i>Specify Piece Number of Banner desired when other than listed above</i></p>

**Types UKCR and UJHR Magnetic Wigwag Flagman**  
**Two Position Wigwag Mechanisms With Bell, Upper Quadrant**  
**Banner With Adjustable Beam Lamp Units**



Types UJHR and UKCR Wigwag Mechanisms for 8-volt direct current operation, unless otherwise specified, are furnished wired as per diagram JH-524, shown above. Provides flashing of banner lamps at each end of wigwag banner swing, with steady burning lamp protection at start of wigwag operation.

As soon as wigwag banner has reached its full swing the stick circuit of Flasher Cut-In Relay "A" is closed mechanically by arm "B" attached to wigwag armature. Initial steady burning lamp circuit is disconnected through relay contact "D" which opens with closing of relay. Banner lamps will then flash through wiping contact of Movable Finger 45 against flasher lamp contacts 15.

## TYPES UKCR AND UJHR MAGNETIC WIGWAG FLAGMAN TWO POSITION WIGWAG MECHANISMS FOR DIRECT CURRENT OPERATION

**With Bell and Upper Quadrant Banner with Adjustable Beam Lamp Units**

*(Improved Standard March, 1940)*

Adjustable mounting of banner lamp units allows independent projection of signal light beams to greatest effectiveness toward approaching highway traffic—See banner details Plate J-9610. Banner enameled black and white in accordance with A.A.R. Signal Section Standard (Drawing 1553).

The 8 volt Wigwag Mechanism will operate reliably from 5½ volts to 12 volts direct current.

Wigwag Mechanisms furnished with Contact Condensers Ref. 107 Plate J-112.

See typical complete assembly Plate A-2503.

Details of Types UKCR and UJHR Wigwag Mechanisms are in accordance with the following Plates:

Wigwag Mechanism      Plate J-112

Bell Mechanism        Plate J-140

Wigwag Banner        Plate J-9610

Wiring Diagram JH-524 Plate J-42

Brake Mechanism

(Type UKCR only)    Plate J-204

No brake furnished with type UJHR

### Type UKCR Magnetic Wigwag Flagman Mechanisms

With Brake Mechanism—See Details Plate J-204

**Swinging of Wigwag Signal Banner Stops Promptly Upon Train Leaving  
Track Circuit or Operating Control Section**

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description
UKCR-8-601	<p><b>Type UKCR Wigwag Mechanisms With Bell, Brake, Contact Condensers, Flasher Cut-in Relay and Upper Quadrant Banners—Plate J-9610—For Model 13 Wigwag Assemblies</b></p> <p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. JU-96001 and 10 volt 8 and 9 watt Screened Double Filament Lamps</p>
UKCR-8-602	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. JU-96002 and 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision Lamps</p>
UKCR-8-609	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. JU-96009 Complete except without lamp bulbs</p> <p><i>Specify voltage and wattage of lamp bulbs desired when other than listed above</i></p>

### Type UJHR Magnetic Wigwag Flagman Mechanisms

Identical to Type UKCR Except Without Brake Mechanism

Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description
UJHR-8-601	<p><b>Type UJHR Wigwag Mechanisms with Bell, Contact Condensers, Flasher Cut-In Relay and Upper Quadrant Banners—Plate J-9610—For Model 13 Wigwag Assemblies</b></p> <p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. JU-96001 and 10 volt 8 and 9 watt Screened Double Filament Lamps</p>
UJHR-8-602	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. JU-96002 and 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision Lamps</p>
UJHR-8-609	<p><b>Magnetic Wigwag Flagman Mechanism</b> For 8 volt Direct Current Operation with Banner No. JU-96009 complete except without lamp bulbs</p> <p><i>Specify voltage and wattage of lamp bulbs desired when other than listed above</i></p>

# Plate J-112 Magnetic Wigwag Flagman Mechanism

Direct Current Wigwag—Two Positions

Wigwag Mechanism Parts Are Identical for Use with Either Lower Quadrant or Upper Quadrant Banners

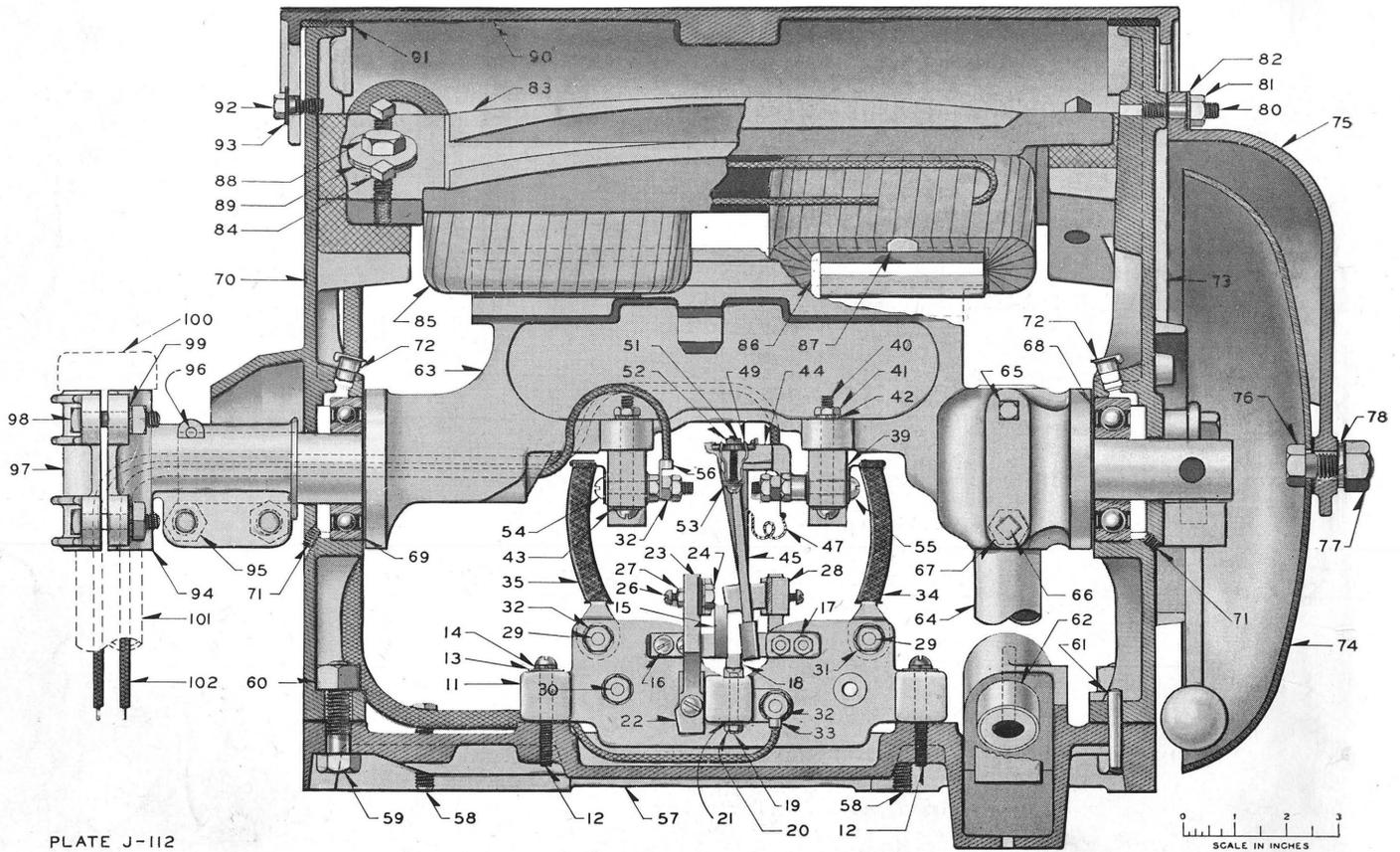


PLATE J-112

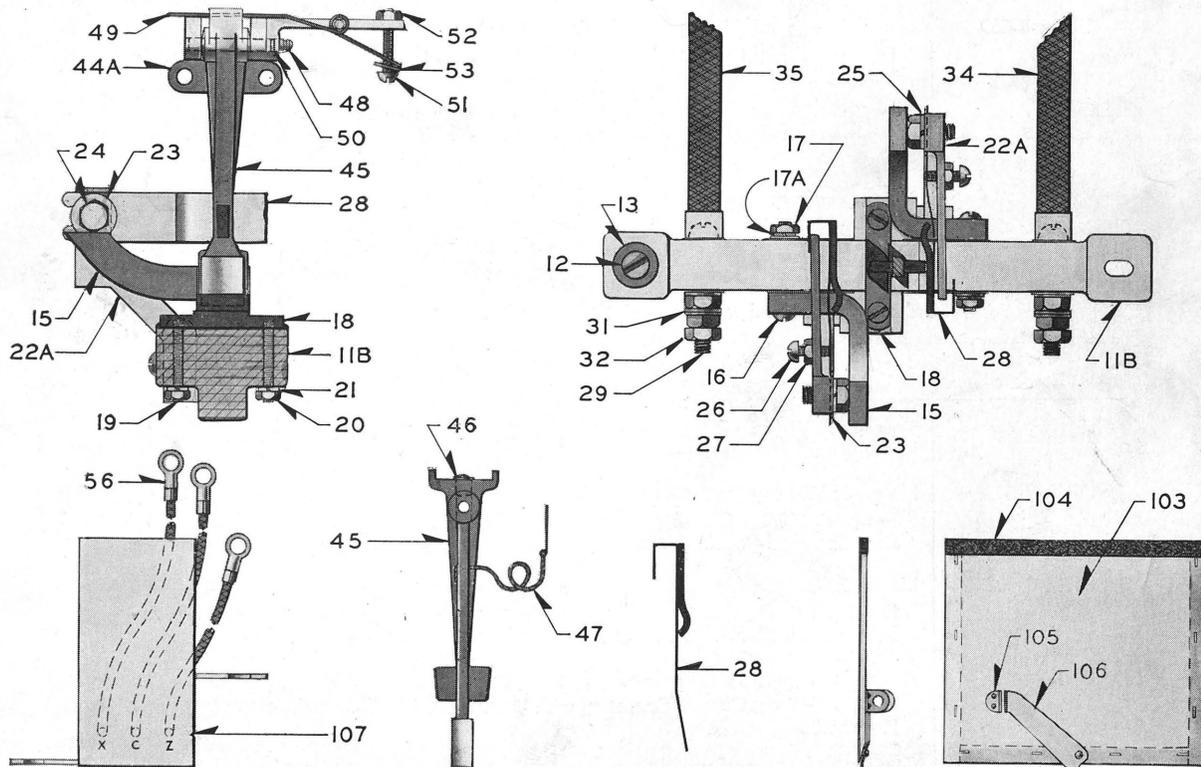


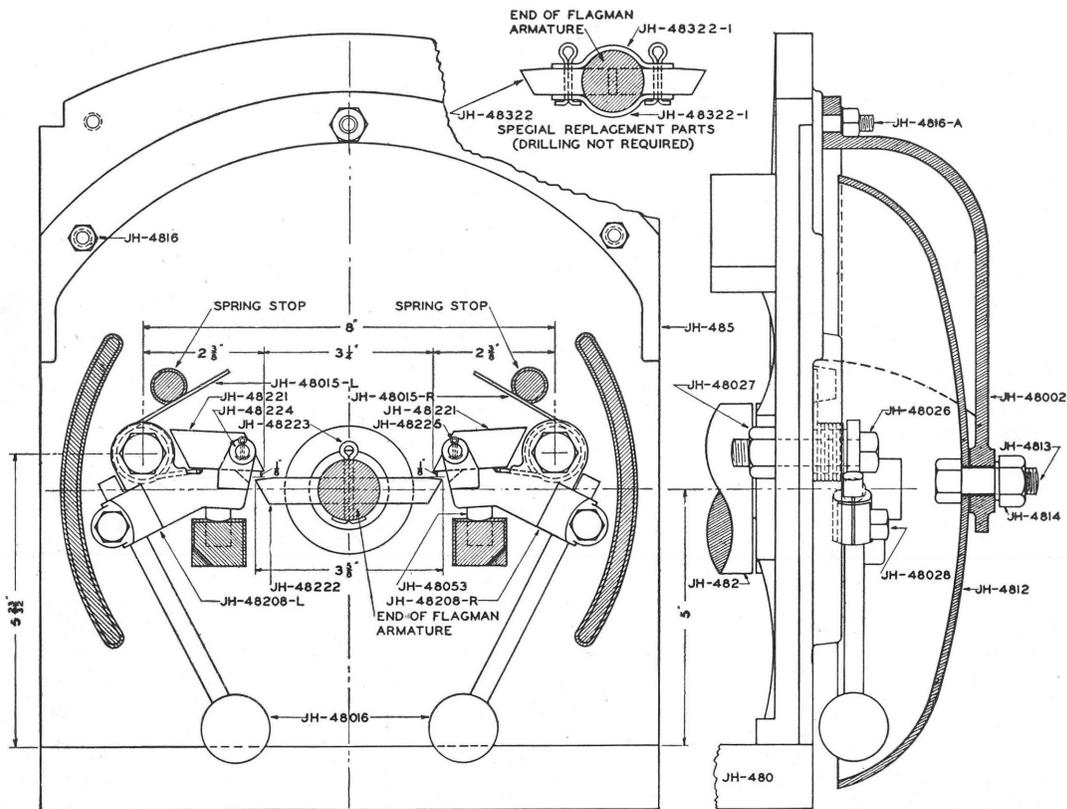
Plate J-112 Magnetic Wigwag Flagman Mechanism — Detail Parts

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Number Piece	Description	Ref.	Piece Number	Description
11	JH-2011	<b>Terminal Board Assembly</b> —With Long Diamond for 8-volt D.C. Wigwags includes Items Ref. 11b to 32 Incl.	*62a	JH-48011	<b>Buffer Rubber Only</b>
*11a	MB-2012	<b>Terminal Board Assembly</b> —With Short Diamond for A.C. and 600-volt D.C. Wigwags	*62b	JH-48011-1	<b>Anchor Pin</b>
11b	JH-48001	<b>Bakelite Terminal Board Only</b>	*62c	JH-48011-2	<b>Special Iron Washer 9/32" I. D. 1" O. D.</b>
12	JH-48067	<b>Machine Screw 1/4" x 2" Round Head</b>	*62d	JH-48011-3	<b>Cotter Pin 1/8" x 3/4"</b>
13	JH-48067-B	<b>Brass Washer No. 14 Large Pattern</b>	*62e	JH-48011-4	<b>Special Iron Washer 5/16" I. D. 1 1/8" O. D.</b>
14	JH-48058	<b>Lock Washer 1/4"</b>	63	JH-482	<b>Wigwag Armature Casting</b>
15	JH-48207	<b>Movable Finger Stop</b>	64	JH-48029	<b>Buffer Pipe with Flat Head</b>
16	JH-48078	<b>Brass Machine Screw 10-32 x 1 1/4" Round Head</b>	65	JH-48031	<b>Machine Bolt with Square Nut 1/4" x 2 1/2"</b>
17	JH-48080	<b>Hex. Brass Nut 10-32</b>	66	JH-2120	<b>Set Screw 3/8" x 1 1/4"</b>
17a	JH-48079	<b>Lock Washer 3/8". For Screw Ref. 16</b>	67	JH-2121	<b>Hex. Iron Nut 3/8"-16 Th.</b>
18	JH-48062	<b>Contact Guide—Long.</b> For all 8-volt Wigwags	68	JH-4871	<b>Ball Bearing No. 306.</b> For Bell End Ref. 73
*18a	MB-48062	<b>Contact Guide—Short</b> For A.C. and 600-volt D.C. Wigwags	69	JH-4872	<b>Ball Bearing No. 207.</b> For Hood End Ref. 70
19	JH-48083	<b>Machine Screw 8-32 x 1 1/4" Flat Head</b>	70	JH-485	<b>Wigwag Hood End Casting</b>
20	JH-48085	<b>Hex. Nut 8-32</b>	71	JH-2127	<b>Oil Drain Plug Screw 1/4" x 3/8"</b>
21	JH-48079	<b>Lock Washer 3/8"</b>	72	JH-2128	<b>Ball Bearing Oil Cup</b>
22	JH-2030	<b>Stationary Contact Bracket Assembly</b> Includes Items Ref. 22a to 28 Incl.	73	JH-485	<b>Wigwag Bell End Casting</b>
22a	JH-48063	<b>Stationary Contact Bracket Casting Only</b>	74	JH-4812	<b>Gong Shell</b> <i>For Bell Mechanism Details See Plate J-140</i>
23	JH-2032	<b>Brass Washer No. 14 Large Pattern</b>	75	JH-48002	<b>Wigwag Bell Cover Casting</b>
24	JH-2033	<b>Cap Screw 1/4" x 1/2"</b>	76	JH-4813	<b>Cap Screw 1/2" x 1 1/4"</b>
25	JH-2034	<b>Lock Washer 1/4"</b>	77	JH-4814	<b>Hex. Iron Nut 1/2"-13 Th.</b>
26	JH-2035	<b>Machine Screw 8-32 x 1/2" Round Head</b>	78	JH-4815	<b>Lock Washer 1/2"</b>
27	JH-2036	<b>Hex. Nut 8-32</b>	*79	JH-4816	<b>Cap Screw 5/16" x 3/4"</b> For Attaching Casting Ref. 75 to Bell End Ref. 73
28	JH-48065	<b>Stationary Contact</b>	80	JH-4816-A	<b>Stud Bolt 5/16" x 1 1/2"</b>
28a	JH-2038	<b>Contact Tension Leaf</b>	81	JH-4816-B	<b>Hex. Iron Nut 5/16"-18 Th.</b>
29	JH-48076	<b>Brass Machine Screw 14-24 x 1 3/4" Round Head</b>	82	JH-4816-C	<b>Iron Washer 1/4"</b>
30	JH-48086	<b>Brass Machine Screw 14-24 x 2" Round Head</b>	83	JH-2151	<b>Magnet and Field Coil Assembly, 8-volts</b> For 8-volt D.C. Wigwag. Includes Items 83c to 87 Incl.
31	JH-48069	<b>Brass Washer No. 14 Small Pattern</b>	*83a	JH-2154	<b>Magnet and Field Coil Assembly, 110-volts</b> For 110-volt D.C. Wigwag
32	JH-48072	<b>Special Hex. Brass Nut 14-24</b>	*83b	JH-2157	<b>Magnet and Field Coil Assembly, 600-volts</b> For 600-volt D.C. Wigwag
33	JH-2042	<b>Bee Wire Terminal 1/4"</b> For Field Coil Lead Wires	83c	JH-488	<b>Wigwag Magnet Casting</b>
34	JH-48010-R	<b>Flexible Ribbon Connection—Right</b>	84	JH-4881	<b>Set Screw 3/8" x 1 1/2"</b>
35	JH-48010-L	<b>Flexible Ribbon Connection—Left</b>	85	JH-48054-8	<b>Field Coil, 8-volts.</b> For 8-volt D.C. Wigwag
*36	JH-48010-X	<b>Flexible Ribbon Connection—Special</b> Extra for Two Lamp Banners Having Three Wires for Series Multiple Connection	*85a	JH-48054-110	<b>Field Coil, 110-volts.</b> For 110-volt D.C. Wigwag
*37	JHF-10	<b>Flexible Ribbon Flasher Connection</b> Extra for Use with Flashing Light Banners Only	*85b	JH-48054-600	<b>Field Coil, 600-volts.</b> For 600-volt D.C. Wigwag
*38	JHF-12	<b>Adapter Wire with Terminals</b> For Use with Flashing Light Banners Only	86	JH-2170	<b>Maple Wedge</b>
39	JH-2051	<b>Bakelite Bracket Support</b>	87	JH-2171	<b>Coil Support</b>
40	JH-2053	<b>Machine Screw 1/4" x 2 1/4" Round Head</b>	88	JH-4882	<b>Cap Screw 1/2" x 2"</b>
41	JH-2054	<b>Hex. Nut 1/4"-20 Th.</b>	89	JH-4883	<b>Iron Washer 1/2"</b>
42	JH-2055	<b>Lock Washer 1/4"</b>	90	JH-483	<b>Wigwag Top Cover Casting</b>
43	JH-2056	<b>Brass Washer No. 14 Small Pattern</b>	91	JH-483-2	<b>Top Cover Felt Piece</b>
*43a	JH-2059	<b>Round Packing Washer</b>	92	JH-4831	<b>Cap Screw 1/8" x 3/4"</b>
44	JH-2060	<b>Movable Finger and Bracket Assembly</b> Includes Items Ref. 44a to 53 Incl.	93	JH-4832	<b>Iron Washer 1/4"</b>
44a	JH-48013-A	<b>Movable Finger Bracket Only</b>	94	JH-4821	<b>Flag Holder Casting</b>
45	JH-48014-B-3	<b>Movable Finger Contact</b> Includes Items Ref. 46 and 47	95	JH-4827	<b>Cap Screw 1/2" x 1 3/4"</b>
46	JH-48014-8	<b>Movable Finger Oil Cup</b>	96	JH-4823	<b>Taper Pin No. 5 x 2"</b>
47	JH-48014-56	<b>Flexible Connection with Terminal</b> For Soldering to Movable Finger Contact	97	JH-4822	<b>Flag Holder Clamp Casting</b>
48	JH-48012-A	<b>Pivot Pin for Movable Finger Contact</b>	98	JH-4824	<b>Machine Bolt and Nut 5/16" x 1 1/2"</b>
49	JH-48012-B	<b>Hair Pin Spring for Movable Finger Contact</b>	98a	JH-4825	<b>Square Nut Only 5/16"-18 Th.</b>
50	JH-48012-C	<b>Cotter Pin 3/32" x 3/4". For Pivot Pin Ref. 48</b>	99	JH-4826	<b>Lock Washer 5/16"</b>
51	JH-48013-B	<b>Machine Screw 8-32 x 7/8" Round Head</b>	100	J-91133	<b>Banner Pipe Plug</b>
52	JH-48013-C	<b>Hex. Nut 8-32</b>	101	J-91131	<b>Banner Pipe (See Ref. 2 Plate J-9106)</b> <i>For Wigwag Banner Details See Plates J-9106 to J-9610</i>
53	JH-48013-D	<b>Brass Washer No. 8</b>	102	J-91158	<b>Banner Light Wire</b> For Banner as per Plate J-9106 Only
54	JH-2081	<b>Brass Machine Screw 14-24 x 1 3/4" Round Head</b>	103	JH-48033	<b>Door Complete with Felt</b>
55	JH-2082	<b>Brass Machine Screw 14-24 x 2" Round Head</b>	103a	JH-2190	<b>Door Complete with Rubber Gasket</b> Improved Type
56	J-91159	<b>Wire Terminal Only 1/4". For Banner Light Wires</b>	104	JH-48034	<b>Complete Set Felt Gaskets and Split Rivets</b> For Wigwag Mechanism Doors Ref. 103
57	JH-480	<b>Wigwag Base Casting</b>	104a	JH-2194	<b>Rubber Gasket for Wigwag Mechanism Doors</b> Ref. 103a
57a	JH-2106	<b>Two-Way Level For Base Casting</b>	105	JH-48035	<b>Door Catch Stamping</b>
58	JH-2102	<b>Set Screw 3/8" x 1 1/2" Cup Point</b>	106	JH-48036	<b>Door Latch Stamping</b>
59	JH-2103	<b>Cap Screw 1/2" x 1 3/4"</b>	107	JH-48096	<b>Wigwag Contact Condenser Assembly</b> Complete with Two 1 MF Condensers for 8-volt D.C. Wigwag
60	JH-2104	<b>Hex. Iron Nut 1/2"-13 Th.</b>	107a	JH-2281	<b>Wigwag Contact Capacitor Assembly</b> Complete with two .1 MF Capacitors, for 600-volt D.C. Wigwag
61	JH-2105	<b>Taper Pin No. 5 x 1 1/2"</b>			
62	JH-48011-A	<b>Rubber Buffer Complete</b> Includes Items Ref. 62a to 62e Incl.			

\* These Reference Numbers Are Not Shown on Plate J-112.

**Type JB Bell Mechanism for Magnetic Wigwag Flagman — Detail Parts**



Order by Piece Number and Description Given in Heavy Face Type Only

Piece Number	Description	Piece Number	Description
JH-208	<b>Bell Ringer Parts</b> —Consisting of the following: 1 JH-482080-R Striker Hub Assembly—Right Without Hammer 1 JH-482080-L Striker Hub Assembly—Left Without Hammer 1 JH-48322 Stationary Bell Tripper with Cotter Pins and Clamps for Attachment to Old Type Undrilled Wigwag Armature Shafts	JH-48016	<b>Bell Striker</b>
JH-485	<b>Bell End Casting</b>	JH-48026	<b>Cap Screw</b> — $\frac{1}{2}$ " x $2\frac{1}{2}$ " Hex. Hd. (Cadmium Plated)
JH-4812	<b>Gong</b> —12" Dia.	JH-48027	<b>Hex. Nut</b> — $\frac{1}{2}$ " x 13 Th. (Cadmium Plated)
JH-4813	<b>Cap Screw</b> — $\frac{1}{2}$ " x $1\frac{1}{4}$ " Hex. Hd. (Cadmium Plated) for Fastening Gong to Cover	JH-48028	<b>Cap Screw</b> — $\frac{3}{8}$ " x $\frac{3}{4}$ " Hex. Hd. (Cadmium Plated)
JH-4814	<b>Hex. Nut</b> — $\frac{1}{2}$ " x 13 Th. (Cadmium Plated)	JH-48053	<b>Rubber Buffer</b> — $\frac{1}{2}$ " Round
JH-4816	<b>Cap Screw</b> — $\frac{5}{16}$ " x $\frac{3}{4}$ " Hex. Hd. (Cadmium Plated) for Fastening Bell Cover to End Casting	JH-48208-R	<b>Striker Hub Only, Right</b>
JH-4816-A	<b>Stud Bolt</b> — $\frac{5}{16}$ " x $1\frac{1}{2}$ " (Cadmium Plated) for Holding Bell Cover to End Casting	JH-482080-R	<b>Striker Hub Assembly, R.H.</b> Including Striker Hub, Pawl, Pivot Pin and Cotters—Without Bell Hammer
JH-4816-B	<b>Hex. Nut</b> — $\frac{5}{16}$ " x 18 Th. (Cadmium Plated)	JH-48208-L	<b>Striker Hub Only, Left</b>
JH-48002	<b>Bell Cover Casting</b>	JH-482080-L	<b>Striker Hub Assembly, L.H.</b> Including Striker Hub, Pawl, Pivot Pin and Cotters—Without Bell Hammer
JH-48015-R	<b>Bell Ringer Spring</b> —Right	JH-48221	<b>Striker Hub Pawl</b>
JH-48015-L	<b>Bell Ringer Spring</b> —Left	JH-48222	<b>Stationary Bell Tripper</b>
		JH-48223	<b>Cotter</b> — $\frac{5}{32}$ " x $1\frac{3}{4}$ "
		JH-48224	<b>Pivot Pin</b> —For Striker Hub Pawl
		JH-48225	<b>Cotter</b> — $\frac{1}{16}$ " x $\frac{1}{2}$ "
		JH-48322	<b>Stationary Bell Tripper</b> —With Cotter Pins and Clamps for Use on Old Type Wigwag Armature Shafts
		JH-48322-1	<b>Bell Tripper Clamp</b>

## Type "JB" Bell Mechanism for Magnetic Wigwag Flagman

The bell mechanism of the Magnetic Wigwag Flagman is mechanically operated by action of wigwag armature. Gong sounds at each stroke of wigwag banner.

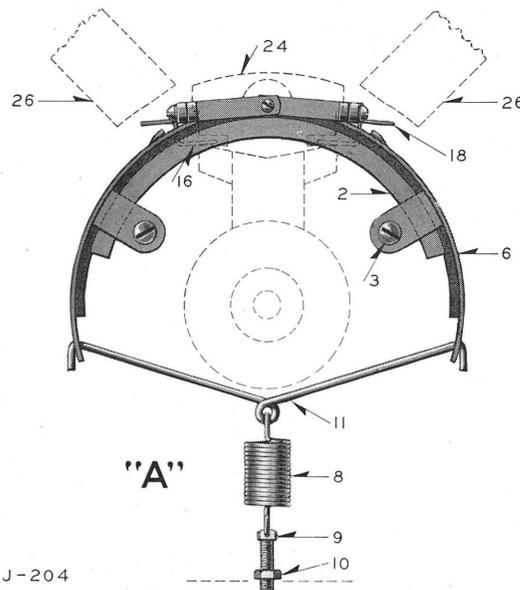
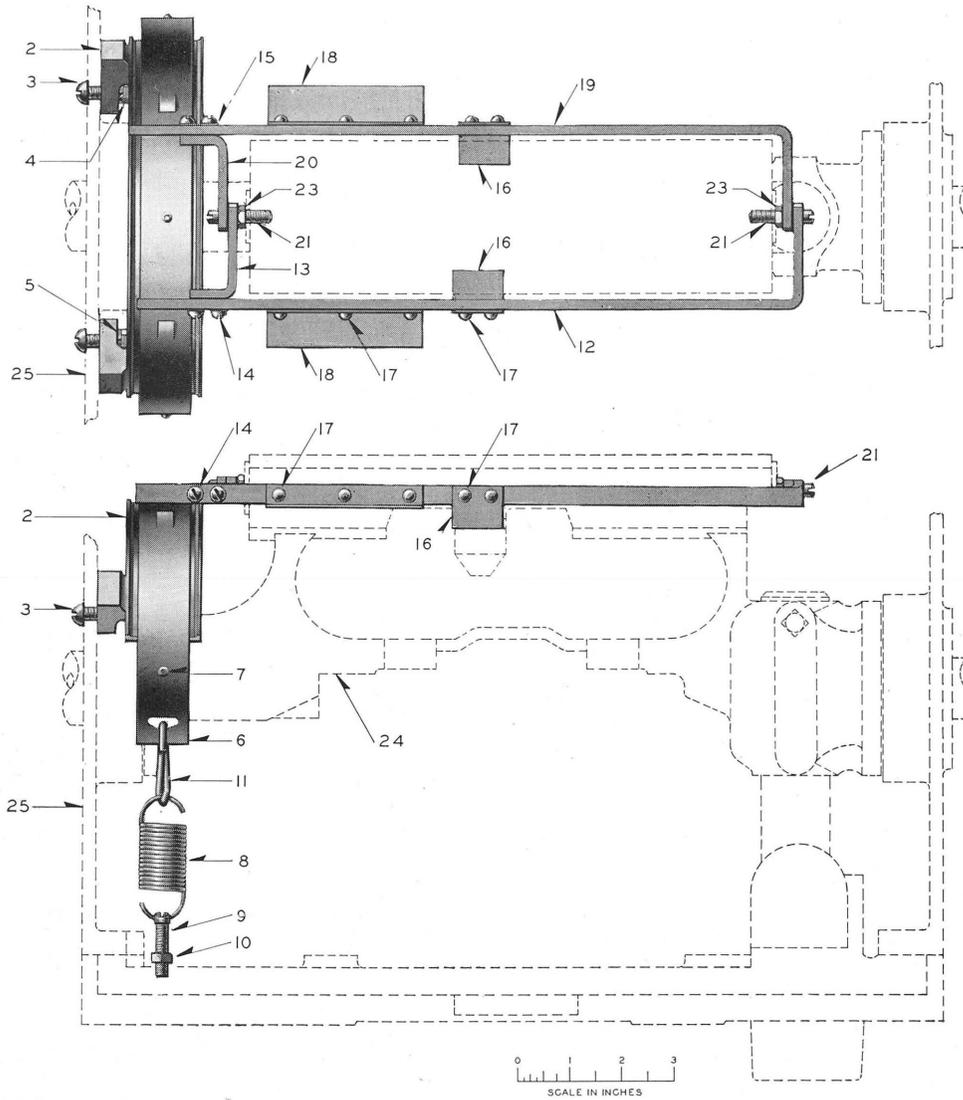
The bell tripper of wigwag bell mechanism is rigidly attached to end of wigwag armature shaft, and moves up and down with swinging of wigwag banner. Striker hub pawls are individually engaged by tripper on respective up-swing of wigwag banner, raising and releasing bell hammer before bell tripper completes its upward movement. Torsional compression of bell ringer spring, caused by lifting of striker hub assembly by tripper, allows bell hammer upon its release to strike a positive hammer blow against a 12" diameter gong shell. The bell hammer action is cushioned by means of rubber buffers resting underneath striker hubs to obtain a sharp tone of bell. The striker hub pawls pivot to allow free return of bell tripper on downward movement of armature shaft.

Operating impulse contacts to wigwag field coils are broken before bell tripper engages striker hub pawls on free upward movement of wigwag banner. As bell mechanism action takes place entirely when wigwag operating coils are out of contact, no additional current is required or used by the wigwag for operation of its bell mechanism. The bell mechanism likewise provides no friction against the free starting action of wigwag operating mechanism. The bell mechanism favorably augments the high reliability and effectiveness of the visual warning indication of the wigwag in adding the helpful audible warning.

Bell mechanism is durably constructed throughout and allows ready access for inspection and adjustment while wigwag is in service. The only parts of the bell mechanism to receive any wearing action are the bell tripper and striker hub pawls, which are hardened to provide long life. The wigwag bell mechanism, because of its simple mechanical operation, requires only a minimum amount of maintenance to assure effective and reliable results.

The intensity of sound produced by the standard wigwag bell mechanism has proved satisfactory for general requirements, being loud enough to command attention of pedestrians and motorists, without undue annoyance to nearby residents or train passengers. Volume of sound of wigwag bell can be easily reduced as desired by slight adjustment of bell hammers in striker hubs, or increased by use of stronger bell ringer springs. While wigwag mechanism can be furnished without bell mechanism when specified, it is the usual practice to use standard wigwag, disconnecting bell only when necessary by removal of bell tripper from end of wigwag armature shaft, thereby allowing desirable interchangeability of wigwag mechanisms.

### Plate J-204 Type "KC" Wigwag Brake Mechanism



### Plate J-204 Type "KC" Brake Mechanism—For Direct Current Operated Wigwags

Brake Mechanism stops excess swinging of Wigwag Signal Banner promptly upon train leaving operating track circuit or control section. While Wigwag Signal is in operation, Brake Arms Ref. 12 and 19 are lifted over the stops on Brake Band Ref. 6 by attraction of Wigwag Operating Magnets Ref. 26. As soon as Wigwag is de-energized, the Brake Arms engage stops on brake bands, exerting friction of brake lining on Brake Drum. Balanced swing of Wigwag Armature Ref. 24 allows Brake Arms to restore Brake Band to normal central position.

Type "KC" Brake Mechanism is used on Types "KC", "KCC", "UKC" and "UKCC" Wigwags of all Direct Current Voltages. Parts other than listed below for wigwag mechanisms using type "KC" Brake Attachment are identical to type "JH" and "UJH" as covered by Plates J-112, J-140, etc.

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
"A"	KC-200	<b>D. C. Brake Assembly Complete</b> Includes Items Ref. 2 to Ref. 23	14	KC-230-2	Machine Screw 10-32 x 3/8" Round Head
2	KC-210	<b>Brake Drum</b>	15	KC-230-3	Lock Washer 3/8" Special
3	KC-245	Machine Screw 1" x 1/4"-20 Thread Round Head	16	KC-230-4	<b>Brake Arm Support</b>
4	KC-246	Hexagon Nut 1/4"-20 Thread	17	KC-230-5	Iron Rivet 1/8" x 1 5/8" Round Head
5	KC-247	Lock Washer 1/4"	18	KC-230-8	<b>Brake Arm Angle Piece</b>
6	KC-211	<b>Brake Band with Lining</b> Includes Items Ref. 6a to Ref. 7	19	KC-231	<b>Brake Arm—Right—Complete</b>
6a	KC-211-1	<b>Brake Band Only</b>	20	KC-231-1	<b>Brake Arm Bracket—Right</b>
6b	KC-211-2	<b>Brake Lining Only</b>	21	KC-232	Armature Pins 1/4"-20 Thread (Standard)
7	KC-213	<b>Brake Band Rivets</b>	21a	KC-232-A	Armature Pins 14-24 Thread (Obsolete)
8	KC-220	<b>Brake Spring</b>	22	KC-240	<b>Brass Spacer Washer—No. 14</b> Small pattern. (Not shown on Plate J-204. Used instead of present machined boss on end of armatures, Ref. 24, on old wigwags.)
9	KC-221	<b>Brake Spring Screw 1" x 1/4"-20 Th. Fillister Hd.</b>	23	KC-241	Hexagon Nut 1/4"-20 Thread (Standard)
10	KC-222	Hexagon Nut 1/4"-20 Thread	23a	KC-241-A	Hexagon Nut 14-24 Thread (Obsolete)
11	KC-223	<b>Brake Spring Bar</b>	24	KC-482	<b>Wigwag Armature Casting</b>
12	KC-230	<b>Brake Arm—Left—Complete</b> Includes Items Ref. 13 to Ref. 18	25	KC-486	<b>Wigwag Hood End—Drilled for Brake Drum</b>
13	KC-230-1	<b>Brake Arm Bracket—Left</b>	26	JH-488	<b>Wigwag Magnet Casting</b>

### Parts For Type "PA" Brake Mechanism—For Alternating Current Operated Wigwags

Type "PA" Brake Mechanism is Used on Types "PA" and "UPA" Wigwags of All Alternating Current Voltages

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
"A"	PA-200	<b>A. C. Brake Assembly Complete</b> Includes Items Ref. 2 to Ref. 23	13	PA-230-1	<b>Brake Arm Bracket—Left</b>
2*	KC-210	<b>Brake Drum</b>	14*	KC-230-2	Machine Screw 10-32 x 3/8" Round Head
3*	KC-245	Machine Screw 1" x 1/4"-20 Thread Round Head	15*	KC-230-3	Lock Washer 3/8" Special
4*	KC-246	Hexagon Nut 1/4"-20 Thread	16*	KC-230-4	<b>Brake Arm Support</b>
5*	KC-247	Lock Washer 1/4"	17*	KC-230-5	Iron Rivet 1/8" x 1 5/8" Round Head
6	PA-211	<b>Brake Band with Lining</b> Includes Items Ref. 6a to Ref. 7	18	.....	Angle Piece Ref. 18, Plate J-204, not used on A. C. Brake Arms
6a	PA-211-1	<b>Brake Band Only</b>	19	PA-231	<b>Brake Arm—Right—Complete</b>
6b*	KC-211-2	<b>Brake Lining Only</b>	20	PA-231-1	<b>Brake Arm Bracket—Right</b>
7*	KC-213	<b>Brake Band Rivets</b>	21*	KC-232	Armature Pins 1/4"-20 Thread
8*	KC-220	<b>Brake Spring</b>	22*	KC-240	<b>Brass Spacer Washer—No. 14—Small pattern</b>
9*	KC-221	<b>Brake Spring Screw 1" x 1/4"-20 Th. Fillister Hd.</b>	23*	KC-241	Hexagon Nut 1/4"-20 Thread
10*	KC-222	Hexagon Nut 1/4"-20 Thread	24	PA-482	<b>Wigwag A. C. Laminated Armature</b>
11*	KC-223	<b>Brake Spring Bar</b>	25*	KC-486	<b>Wigwag Hood End—Drilled for Brake Drum</b>
12	PA-230	<b>Brake Arm—Left—Complete</b> Includes Items Ref. 13 to Ref. 17	26	MB-488	<b>Wigwag A. C. Laminated Magnet</b>

\*Identical with Type "KC" Brake Parts as per Plate J-204.  
Rev. 3-40

**Plate J-9106 Wigwag Banner—Lower Quadrant  
For Two Position Type Wigwags Shown on Plate J-10**

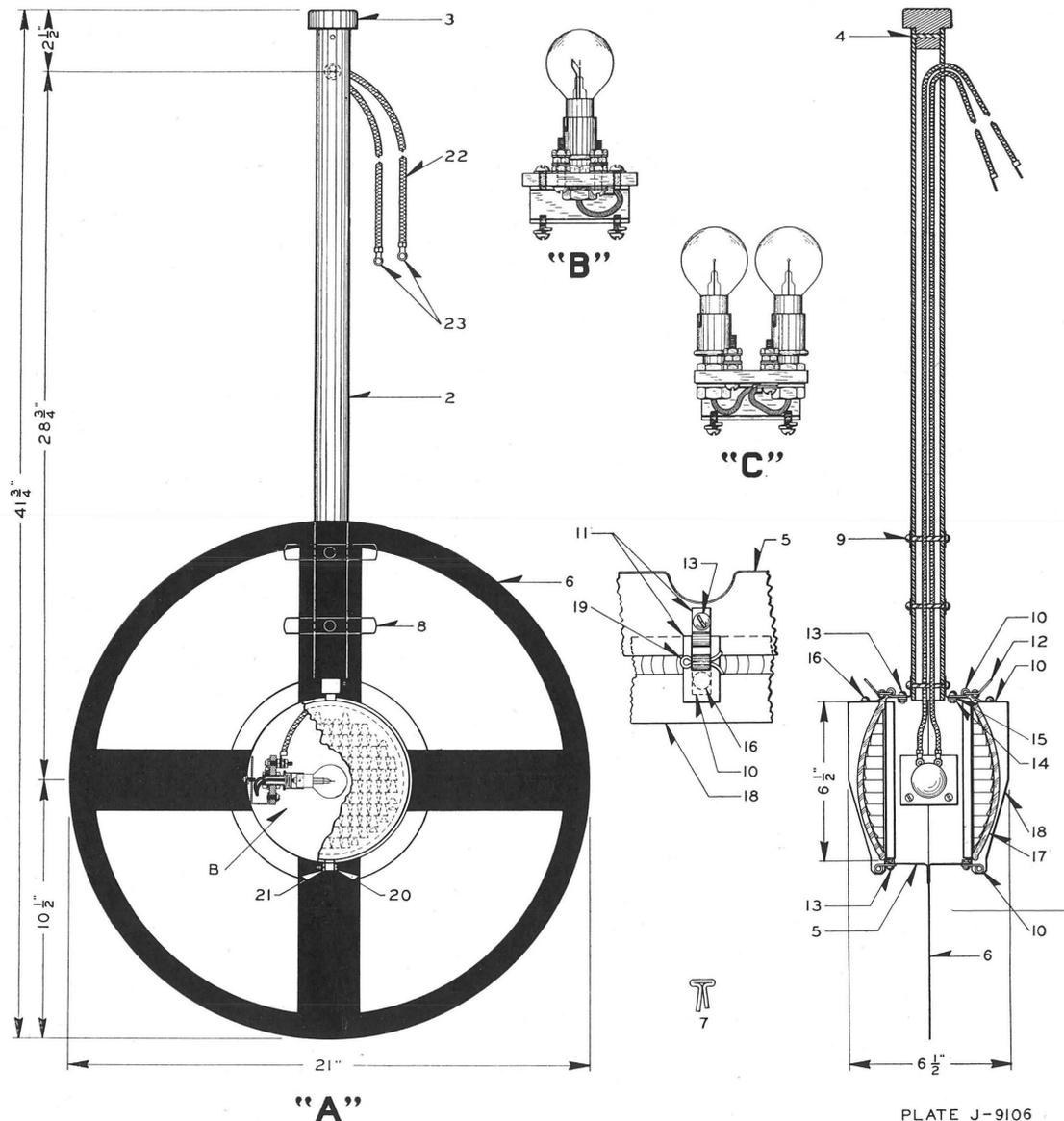


PLATE J-9106

**Type J-9106 Wigwag Banner—Lower Quadrant—Two Way Indication  
With 6 1/2" Diameter Red "Traffic" Type Roundels**

*(For Improved Banner With Adjustable Beam Lamp Units See Plate J-9600)*

The black and white enameling design of wigwag banner disc illustrated above as well as of subsequent banners with improved lamp units, is in accordance with adopted standard of the Association of American Railroads Signal Section Drawing 1553 with White Field, 1" Black Border and 2 1/2" Black Cross. This is the uniform standard design adopted generally by various state regulatory commissions and others and its use is recommended because of the attention arresting qualities of the black and white design against varied and adverse background conditions. All Wigwag Banners will be furnished accordingly unless specifically designated otherwise by customer.

Type J-9106 Banners for low voltage lamp operation used with types "JH" and "KC" Wigwag Mechanisms are furnished equipped with either Single Lamp Unit Ref. B or Twin Lamp Unit Ref. C as designated by various banner piece numbers shown on following page.

Type J-9106 Banners for high voltage (110 volts to 220 volts) lamp operation are identical to above except that either single screw base or twin screw base lamp units are furnished instead of the bayonet base lamp units.

**Plate J-9106 Wigwag Banner  
Lower Quadrant Wigwag Banners Complete**

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	J-91061	<b>Lower Quadrant Wigwag Banner Complete</b> With Ref. "B" Single Lamp Unit and 8 volt 13 and 3.5 Watt Double Filament Lamp	Ai	J-91077	<b>Lower Quadrant Wigwag Banner Complete</b> With Ref. "Cf" Twin Lamp Unit and 13.5 volt .25 Ampere Lamps
Aa	J-91069	<b>Lower Quadrant Wigwag Banner Complete</b> With Ref. "Ba" Single Lamp Unit and 11.3 volt 14.4 and 3.5 Watt Double Filament Lamp	Am	J-91070	<b>Lower Quadrant Wigwag Banner</b> With Ref. "Cx" Twin Lamp Unit Less Lamps
Af	J-91060	<b>Lower Quadrant Wigwag Banner</b> With Ref. "Bx" Single Lamp Unit Less Lamp	Ar	J-91018	<b>Lower Quadrant Wigwag Banner Complete</b> With one 50 Watt 120 Volt Medium Screw Base Mazda Type P-19 Bulb Vibration Service Clear Lamp
Ag	J-91071	<b>Lower Quadrant Wigwag Banner Complete</b> With Ref. "C" Twin Lamp Unit and 10 volt .25 Ampere Lamps	As	J-91010	<b>Lower Quadrant Wigwag Banner Complete</b> With Single Medium Screw Base Lamp Unit—Less Lamp
Ah	J-91072	<b>Lower Quadrant Wigwag Banner Complete</b> With Ref. "Ca" Twin Lamp Unit and 10 volt 5 watt Lamps	Ax	J-91062	<b>Wigwag Banner Frame Only</b> Including Shaft, Disc, and Cup Assembly only—Enameled—Items Ref. 2, 5 and 6

**Banner Replacement Parts**

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
B	JH-36203	<b>Single Lamp Unit Complete</b> With 8 volt 13 and 3.5 Watt Double Filament Bayonet Base Lamp <i>For Single Lamp Unit Details see Plate J-9126</i>	7	J-91138	<b>Banner Repair Split Rivet</b>
Ba	JH-36209	<b>Single Lamp Unit Complete</b> With 11.3 volt 14.4 and 3.5 Watt Double Filament Bayonet Base Lamp	8	J-91139	<b>Banner Pipe Strap</b>
Bx	JH-36210	<b>Single Lamp Unit—Less Lamps</b> For Bayonet Base Lamp	9	J-91140	<b>Iron Rivet</b> $\frac{3}{8}$ "x $1\frac{1}{2}$ " Round Head
C	JH-35701	<b>Twin Lamp Unit Complete</b> With 10 volt 25 amp. Bayonet Base Lamps <i>For Twin Lamp Unit Details—See Plate J-9127</i>	10	J-91141	<b>Hinge Only</b>
Ca	JH-35702	<b>Twin Lamp Unit Complete</b> With 10 volt 5 Watt Bayonet Base Lamps	11	J-91142	<b>Hinge and Hasp Assembly</b> Items Ref. 10 and 12
Cf	JH-35707	<b>Twin Lamp Unit Complete</b> With 13.5 volt .25 Ampere Bayonet Base Lamps	12	J-91143	<b>Hasp Only</b>
Cx	JH-35710	<b>Twin Lamp Unit—Less Lamps</b> For Bayonet Base Lamps	13	J-91144	<b>Brass Machine Screw</b> 10-32x $\frac{3}{8}$ " Round Head
2	J-91131	<b>Banner Pipe Shaft Complete</b> With Pipe Plug Ref. 3	14	J-91145	<b>Hex. Brass Nut</b> 10-32
2a	J-91132	<b>Banner Pipe Shaft Only</b>	15	J-91146	<b>Lock Washer</b> $\frac{3}{8}$ "
3	J-91133	<b>Banner Pipe Plug</b>	16	J-91147	<b>Iron Rivet</b> $\frac{3}{8}$ "x $\frac{1}{4}$ " Round Head
4	J-91134	<b>Pipe Plug Rivet</b> $\frac{3}{8}$ "x $1\frac{3}{8}$ "	17	JH-288	<b>Red Traffic Roundel</b> 6 $\frac{1}{2}$ " Dia.
5	J-91135	<b>Banner Cup Stamping</b> With Hinge Ref. 10 and Hasp Assembly Ref. 11—Not Enameled	18	J-91151	<b>Lens Hood for 6<math>\frac{1}{2}</math>" Dia. Lens</b> Standard Enameled White
6	J-91136	<b>Wigwag Banner Disc Only</b> Not Enameled	18a	J-91152	<b>Lens Hood—Red for 6<math>\frac{1}{2}</math>" Dia. Lens</b> Enameled Red—For Use with Special Red Banners
6a	J-91137	<b>Banner Disc and Cup Assembly</b> With Banner Cups Ref. 5—Not Enameled Unless Specified	18b	J-91154	<b>Lens Hood With Stoneguard</b> For 6 $\frac{1}{2}$ " Dia. Lens—Enameled White
			19	J-91155	<b>Cotter Pin</b> $\frac{1}{8}$ "x $\frac{3}{4}$ "
			20	J-91156	<b>Brass Machine Screw</b> 8-32x1" Round Head
			21	J-91157	<b>Hex. Brass Nut</b> 8-32
			22	J-91158	<b>Banner Light Wire</b> With Terminals Ref. 23
			23	J-91159	<b>Wire Terminal Only</b> —For $\frac{1}{4}$ " Screw

**Plate J-9116 Wigwag Banner—Upper Quadrant**  
**For Two Position Type Wigwags Shown on Plate J-40**

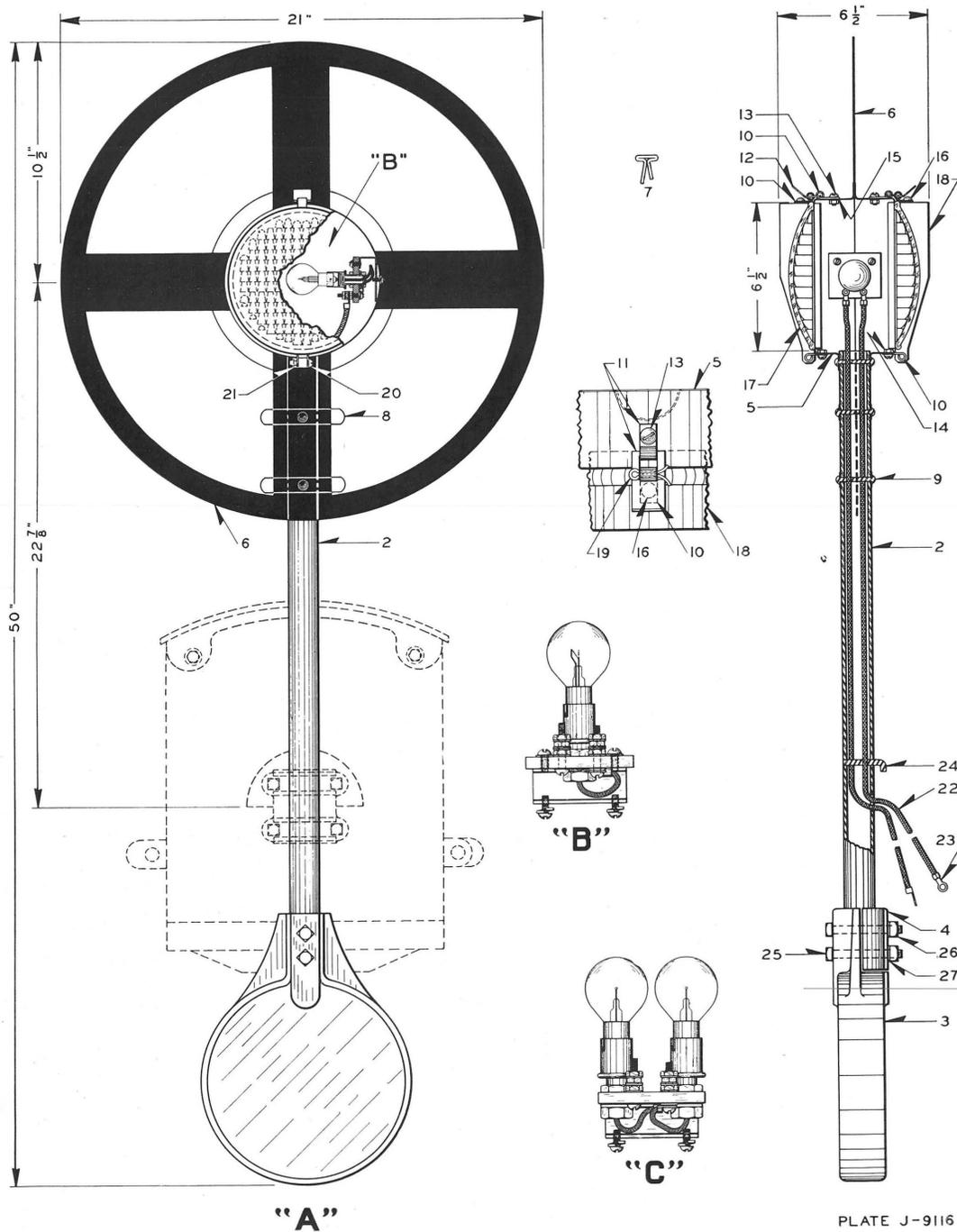


PLATE J-9116

**Type J-9116 Wigwag Banner—Upper Quadrant—Two Way Indication**  
**With 6 1/2" Diameter Red "Traffic" Type Roundels**

*(For Improved Upper Quadrant Banner with Adjustable Beam Lamp Units See Plate J-9610)*

Type J-9116 Wigwag Banners will be furnished as standard with 21" diameter disc enameled on both sides in accordance with Association of American Railroads Signal Section Drawing 1553 with White Field, 1" Black Border and 2 1/2" Black Cross. Orders should specify color, design or special lettering desired when other than above standard. Type J-9116 Banners for low voltage lamp operation used with types "UJHC" and "UKCC" Wigwag Mechanisms as shown on Plate J-40

are furnished equipped with either Single Lamp Unit Ref. "B" or Twin Lamp Unit Ref. "C" as designated by various banner piece numbers shown on following page.

Type J-9116 Banners for high voltage (110 volts to 220 volts) lamp operation are identical to above except that either single screw base or twin screw base lamp units are furnished instead of the bayonet base lamp units.

## Plate J-9116 Wigwag Banner Upper Quadrant Wigwag Banners Complete

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
		<b>Wigwag Banners shown below do not include counterweight and counterweight clamp item ref. 3. When required, orders should specify "Banner Complete With Counterweight"</b>	Ah	JU-91072	<b>Upper Quadrant Wigwag Banner Complete</b> With Ref. "Ca" Twin Lamp Unit and 10 volt 5 watt Lamps
A	JU-91061	<b>Upper Quadrant Wigwag Banner Complete</b> With Ref. "B" Single Lamp Unit and 8 volt 13 and 3.5 Watt Double Filament Lamp	Ai	JU-91077	<b>Upper Quadrant Wigwag Banner Complete</b> With Ref. "Cf" Twin Lamp Unit and 13.5 volt .25 Ampere Lamps
Aa	JU-91069	<b>Upper Quadrant Wigwag Banner Complete</b> With Ref. "Ba" Single Lamp Unit and 11.3 volt 14.4 and 3.5 Watt Double Filament Lamp	Am	JU-91070	<b>Upper Quadrant Wigwag Banner</b> With Ref. "Cx" Twin Lamp Unit Less Lamps
Af	JU-91060	<b>Upper Quadrant Wigwag Banner</b> With Ref. "Bx" Single Lamp Unit Less Lamp	Ar	JU-91018	<b>Upper Quadrant Wigwag Banner Complete</b> With one 50 watt 120 volt medium Screw Base Mazda Type P-19 Bulb Vibration Service Clear Lamp
Ag	JU-91071	<b>Upper Quadrant Wigwag Banner Complete</b> With Ref. "C" Twin Lamp Unit and 10 volt .25 Ampere Lamps	As	JU-91010	<b>Upper Quadrant Wigwag Banner</b> With single Medium Screw Base Lamp Unit—Less Lamp
			Ax	JU-91062	<b>Upper Quadrant Wigwag Banner Frame Only</b> Including Shaft, Disc, and Cup Assembly only—Enameled—Items Ref. 2, 5 and 6

## Banner Replacement Parts

Order by Piece Number and Description Given in Heavy Face Type Only

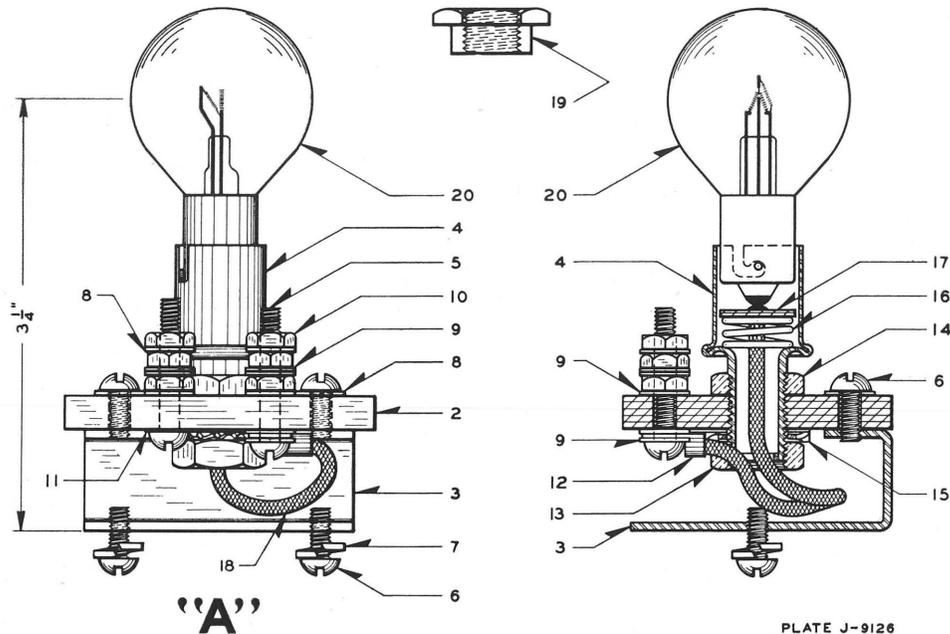
Ref.	Piece Number	Description	Ref.	Piece Number	Description
B	JH-36203	<b>Single Lamp Unit Complete</b> With 8 volt 13 and 3.5 Watt Double Filament Bayonet Base Lamp <i>For Single Lamp Unit Details See Plate J-9126</i>	7	J-91138	<b>Banner Repair Split Rivet</b>
Ba	JH-36209	<b>Single Lamp Unit Complete</b> With 11.3 volt 14.4 and 3.5 Watt Double Filament Bayonet Base Lamp	8	J-91139	<b>Banner Pipe Strap</b>
Bx	JH-36210	<b>Single Lamp Unit—Less Lamps</b> For Bayonet Base Lamp	9	J-91140	<b>Iron Rivet</b> $\frac{1}{8}$ "x $\frac{1}{2}$ " Round Head
C	JH-35701	<b>Twin Lamp Unit Complete</b> With 10 volt .25 amp. Bayonet Base Lamps <i>For Twin Lamp Unit Details—See Plate J-9127</i>	10	J-91141	<b>Hinge Only</b>
Ca	JH-35702	<b>Twin Lamp Unit Complete</b> With 10 volt 5 Watt Bayonet Base Lamps	11	J-91142	<b>Hinge and Hasp Assembly</b> Items Ref. 10 and 12
Cf	JH-35707	<b>Twin Lamp Unit Complete</b> With 13.5 volt .25 Ampere Bayonet Base Lamps	12	J-91143	<b>Hasp Only</b>
Cx	JH-35710	<b>Twin Lamp Unit—Less Lamps</b> For Bayonet Base Lamps	13	J-91144	<b>Brass Machine Screw</b> 10-32x $\frac{3}{8}$ " Round Head
2	JU-91131	<b>Banner Pipe Shaft</b>	14	J-91145	<b>Hex. Brass Nut</b> 10-32
3	JU-91132	<b>Counterweight and Clamp</b> Items Ref. 3a, 4, 25 & 27	15	J-91146	<b>Lock Washer</b> $\frac{1}{8}$ "
3a	JU-91133	<b>Counterweight Only</b> Pattern No. U-159	16	J-91147	<b>Iron Rivet</b> $\frac{1}{8}$ "x $\frac{1}{4}$ " Round Head
4	JU-91134	<b>Counterweight Clamp</b> Pattern No. U-160	17	JH-288	<b>Red Traffic Roundel</b> $\frac{6}{16}$ " Dia.
5	JU-91135	<b>Banner Cup Stamping</b> With Hinge Ref. 10 and Hasp Assembly Ref. 11—Not Enameled	18	J-91151	<b>Lens Hood for <math>\frac{6}{16}</math>" Dia. Lens</b> Standard Enameled White
6	J-91136	<b>Wigwag Banner Disc Only</b> Not Enameled	18a	J-91152	<b>Lens Hood—Red for <math>\frac{6}{16}</math>" Dia. Lens</b> Enameled Red—For Use with Special Red Banners
6a	JU-91137	<b>Banner Disc and Cup Assembly</b> With Banner Cups Ref. 5—Not Enameled Unless Specified	18b	J-91154	<b>Lens Hood With Stoneguard</b> For $\frac{6}{16}$ " Dia. Lens—Enameled White
			19	J-91155	<b>Cotter Pin</b> $\frac{1}{8}$ "x $\frac{3}{4}$ "
			20	J-91156	<b>Brass Machine Screw</b> 8-32x1" Round Head
			21	J-91157	<b>Hex. Brass Nut</b> 8-32
			22	JU-91158	<b>Banner Light Wire</b> With Terminals Ref. 23
			23	J-91159	<b>Wire Terminal Only—For <math>\frac{1}{4}</math>" Screw</b>
			24	JU-91161	<b>Banner Shaft Hook</b>
			25	JU-91162	<b>Machine Bolt and Nut</b> $\frac{3}{8}$ "x3"
			26	JU-91163	<b>Square Nut only</b> $\frac{3}{8}$ "
			27	JU-91164	<b>Lock Washer</b> $\frac{3}{8}$ "

### Plate J-9126 Single Lamp Unit

For Two Way Indication Wigwag Banners as Illustrated Plate J-9106

Identical for Lower or Upper Quadrant Wigwag Banners

Supersedes Plate JH-3600 Page 7 Bulletin 51



Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	JH-36203	<b>Single Lamp Unit Complete</b> With One 8-volt 13 and 3.5 Watt Bayonet Base Signal Precision Lamp Ref. 20	6	JH-35617	<b>Brass Machine Screw</b> 8-32x <sup>3</sup> / <sub>8</sub> " Round Head
Aa	JH-36209	<b>Single Lamp Unit Complete</b> With One 11.3 Volt 14.4 and 3.5 Watt Bayonet Base Signal Precision Lamp Ref. 20a	7	JH-35618	<b>Lock Washer</b> <sup>3</sup> / <sub>16</sub> "
Ax	JH-36210	<b>Single Lamp Unit—Less Lamp</b>	8	JH-35619	<b>Special Lock Washer</b> No. 8
2	JH-36211	<b>Bakelite Base</b>	9	JH-35620	<b>Brass Washer</b> No. 8
3	JH-35612	<b>Base Support</b>	10	JH-35621	<b>Hex. Brass Nut</b> 8-32
4	JH-35713	<b>Lamp Socket Complete</b> With Lead Wire Ref. 18, Spring Ref. 16 and Wire Terminal Ref. 12, for Single Contact Bayonet Base Lamp	11	JH-36222	<b>Terminal Connecting Link</b>
4a	JH-35714	<b>Lamp Socket Stamping Only</b> With Threaded Shank Nickel Plated Brass	12	JH-35723	<b>Copper Terminal</b> for No. 8 Screw
4b	JH-36215	<b>Special Lamp Socket Complete</b> With Socket, Connecting Link, Nuts, Lock Washer and Adaptor Bushing, Items 4, 11, 13, 14, 15 and 19. For use in replacing Obsolete JH-36003 Lamp Sockets in Single Lamp Unit Plate JH-3600	13	JH-35724	<b>Hex. Brass Nut</b> <sup>7</sup> / <sub>16</sub> "-20
5	JH-35616	<b>Brass Machine Screw</b> 8-32x1" Round Head	14	JH-35725	<b>Hex. Brass Nut</b> <sup>7</sup> / <sub>16</sub> "-20
			15	JH-35726	<b>Special Lock Washer</b> <sup>7</sup> / <sub>16</sub> "
			16	JH-35727	<b>Brass Coil Spring</b>
			17	JH-35728	<b>Bakelite Washer</b>
			18	JH-35730	<b>Lead Wire and Bakelite Washer</b>
			19	JH-36245	<b>Adaptor Bushing</b> <sup>7</sup> / <sub>16</sub> "—20 Th. For use only with new Socket Ref. 4 in old lamp units Plate JH-3600
			20	JH-35643	<b>Bayonet Base Lamp—8 Volt</b> 13 and 3.5 Watt Double Filament Signal Precision Type S-11 Bulb Single Contact
			20a	JH-35649	<b>Bayonet Base Lamp—11.3 Volt</b> 14.4 and 3.5 Watt Double Filament Signal Precision Type S-11 Bulb—Single Contact

**Plate J-9127 Twin Lamp Unit**  
**For Two-Way Indication Wigwag Banners as illustrated Plate J-9106**  
**For Parallel Lamp Operation**  
**Identical for Lower or Upper Quadrant Wigwag Banners**  
*Supersedes Old Twin Lamp Unit Drawing JH-3560*

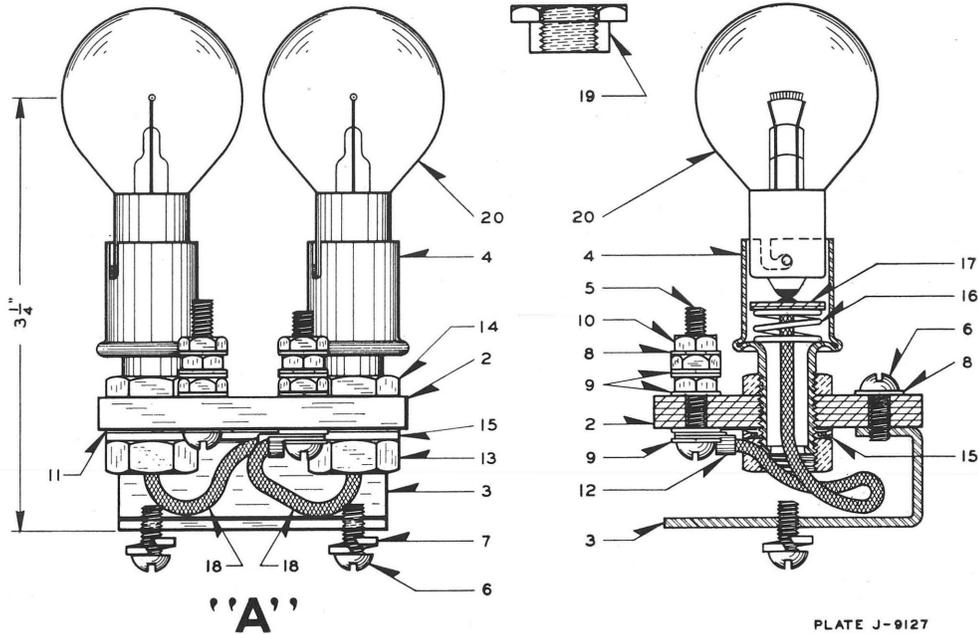


PLATE J-9127

**Order by Piece Number and Description Given in Heavy Face Type Only**

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	JH-35701	<b>Twin Lamp Unit Complete</b> With Two 10 volt .25 Amp. Bayonet Base Lamps	6	JH-35617	<b>Brass Machine Screw</b> 8-32x3/8" Round Head
Aa	JH-35702	<b>Twin Lamp Unit Complete</b> With Two 10 volt 5-Watt Bayonet Base Lamps	7	JH-35618	<b>Lock Washer</b> 1/8"
Ab	JH-35703	<b>Twin Lamp Unit Complete</b> With Two 8-volt 13 and 3.5 Watt Bayonet Base Signal Precision Lamps S-11 Bulb	8	JH-35619	<b>Special Lock Washer</b> No. 8
Ac	JH-35704	<b>Twin Lamp Unit Complete</b> With Two 6-8 volt 21 C.P. Bayonet Base Lamps	9	JH-35620	<b>Brass Washer</b> No. 8
Ad	JH-35705	<b>Twin Lamp Unit Complete</b> With Two 6-8 Volt 32 C.P. Bayonet Base Lamps	10	JH-35621	<b>Hex. Brass Nut</b> No. 8-32
Ae	JH-35706	<b>Twin Lamp Unit Complete</b> With Two 115 Volt 15 Watt Bayonet Base Lamps	11	JH-35722	<b>Terminal Connecting Link</b>
Af	JH-35707	<b>Twin Lamp Unit Complete</b> With Two 13.5 Volt .25 Amp. Bayonet Base Lamps	12	JH-35723	<b>Copper Terminal</b> for No. 8 Screw
Ax	JH-35710	<b>Twin Lamp Unit—Less Lamps</b>	13	JH-35724	<b>Hex. Brass Nut</b> 1/8"-20
2	JH-35711	<b>Bakelite Base</b>	14	JH-35725	<b>Hex. Brass Nut</b> 7/8"-20
3	JH-35612	<b>Base Support</b>	15	JH-35726	<b>Special Lock Washer</b> 7/8"
4	JH-35713	<b>Lamp Socket Complete</b> With Lead Wire Ref. 18, Spring Ref. 16 and Wire Terminal Ref. 12, for Single Contact Bayonet Base Lamp	16	JH-35727	<b>Brass Coil Spring</b>
4a	JH-35714	<b>Lamp Socket Stamping Only</b> With Threaded Shank—Nickel Plated Brass	17	JH-35728	<b>Bakelite Washer</b>
4b	JH-35715	<b>Lamp Socket Assembly</b> With Socket, Nuts and Lockwasher—Items Ref. 4, 13, 14 and 15	18	JH-35730	<b>Lead Wire and Bakelite Washer</b>
5	JH-35616	<b>Brass Machine Screw</b> 8-32x1" Round Head	19	JH-36245	<b>Adapter Bushing</b> 1/8"-20 Th. For use only with new socket Ref. 4 in old Lamp Units Drawing JH-3560
			20	JH-35641	<b>Bayonet Base Lamp—10 Volt .25 Ampere</b> Single Contact Type C-2 Filament S-11 Bulb
			20a	JH-35642	<b>Bayonet Base Lamp—10 Volt 5 watt</b> Single Contact C-2 Filament S-11 Bulb
			20b	JH-35643	<b>Bayonet Base Lamp—8 Volt</b> 13 and 3.5 Watt Double Filament Signal Precision Type S-11 Bulb—Single Contact
			20c	JH-35644	<b>Bayonet Base Lamp 6-8 Volt 21 C.P.</b> Single Contact S-11 Bulb
			20d	JH-35645	<b>Bayonet Base Lamp 6-8 Volt 32 C.P.</b> Single Contact S-11 Bulb
			20e	JH-35646	<b>Bayonet Base Lamp 115 Volt 15 Watt</b> Single Contact S-11 Bulb
			20f	JH-35647	<b>Bayonet Base Lamp 13.5 Volt .25 Ampere</b> Single Contact S-11 Bulb

### Plate J-9300 Wigwag Banner

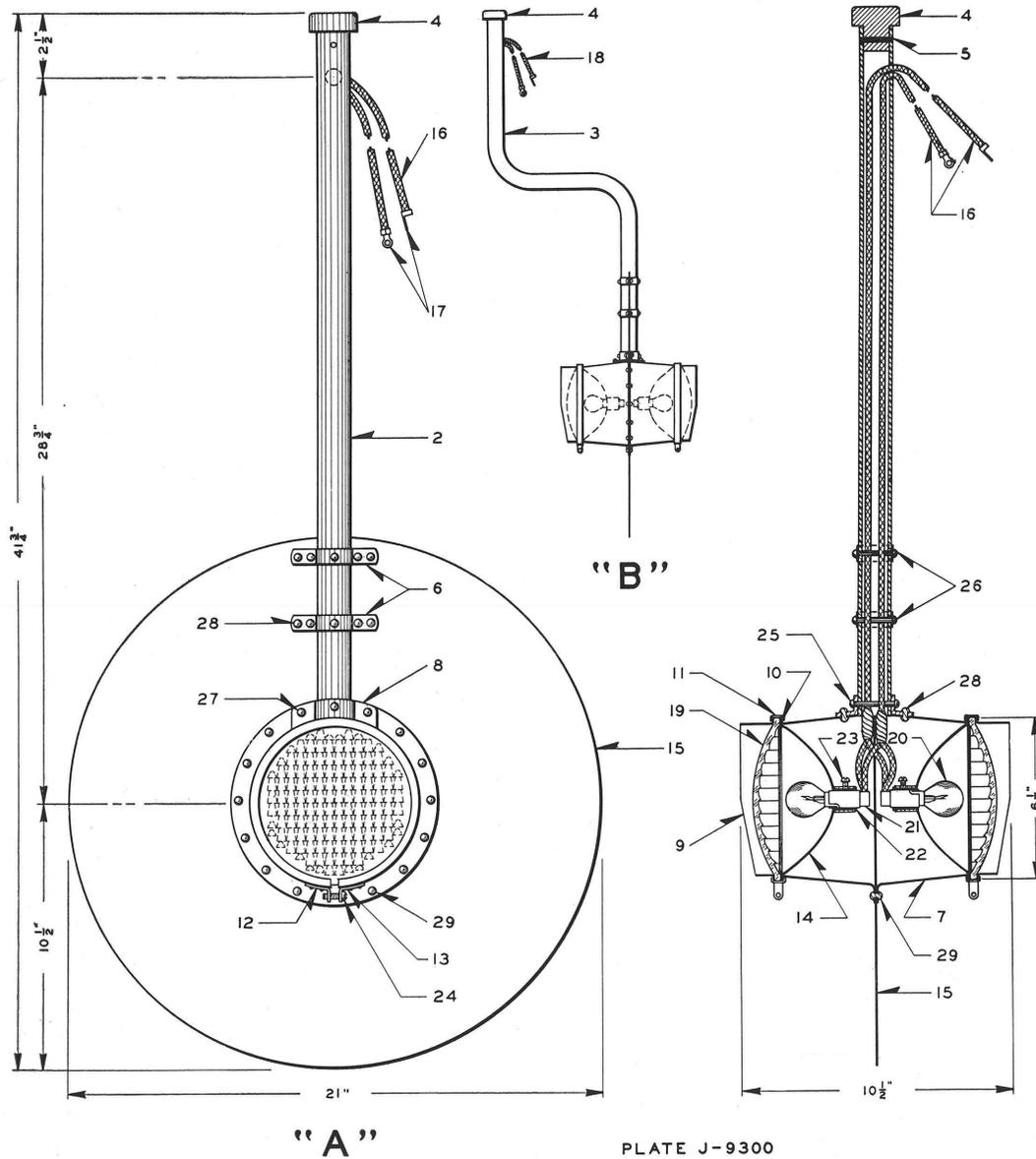


PLATE J-9300

### Style J-9300 Wigwag Banner—Lower Quadrant

With 6 1/2" Diameter Red "Traffic" Roundels and Chromium

Plated Metal Reflectors. For two-way indication.

(For Improved Banner With Adjustable Beam Lamp Units See Plate J-9600)

**APPLICATION:**

For Low Voltage Bayonet Base Lamp Operation:  
 Ref. "A" Lower Quadrant Banners are for use with standard Two-Position Types "JH" and "KC" wigwag mechanisms for cantilever offset bracket type signal assemblies.  
 Ref. "B" Lower Quadrant Banners with offset pipe shaft are for use with octagon frame type support signal assemblies.

**LAMP UNITS:**

Chromium Plated Metal Reflectors furnished in lamp units provide uniform high efficiency over a long period of years. Will not tarnish and are easily polished.  
 Plate J-9300 illustrates use of 6 1/2" diameter Red "Traffic" Type Roundels Ref. 19. Improved Red Spredlite Roundels 6 3/8" diameter with 30 degree horizontal spread and 15 degree downward spread as illustrated Ref. 42 Plate J-9600 are recommended for replacement purposes.

**FLASHING LAMP OPERATION:**

Flashing effect of swinging wigwag banner lamps is obtained by utilization of Wigwag Mechanism "Movable Finger Stops" Ref. 15 and "Movable Finger Contact" Ref. 45 Plate J-112 to break contact to lamps when Wigwag Banner is in center position of its swinging movement. See Wigwag Internal Wiring Diagrams No. JH-523 and JH-524. Separate Flasher Relays are not required.

**ALTERNATING CURRENT OPERATION:**

Type J-9300 Wigwag Banners with Low Voltage Bayonet Base Lamps can be used on types "MB" and "PA" Wigwag Mechanisms for 110 to 220 volt Alternating Current Operation by use of lighting transformer mounted in Wigwag Mechanism Housing when specified.

**Plate J-9300 Wigwag Banner**

WIGWAG BANNERS COMPLETE—FIGURES "A" AND "B"

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
		<b>Figure "A" Lower Quadrant Wigwag Banners with Straight Pipe Shaft Enameled on both sides in accordance with A. A. R. Signal Section Drawing 1553 with White Field, 1" Black Border and 2½" Black Cross; unless otherwise specified below:</b>	Af	J-93341	<b>Wigwag Banner Complete</b> With Double Filament Lamp Bulbs Ref. 20, and enameled Red with Word "STOP" located below lamp units on each side of disc as per drawing J-9334
A	J-93004	<b>Wigwag Banner Complete</b> With Double Filament Lamp Bulbs Ref. 20	Ag	J-93342	<b>Wigwag Banner Complete</b> With Screened Double Filament Lamp Bulbs Ref. 20a, and enameled Red with word "STOP" located below lamp units on each side of disc—as per drawing J-9334.
Aa	J-93005	<b>Wigwag Banner Complete</b> With Screened Double Filament Lamp Bulbs Ref. 20a	Ah	J-93343	<b>Wigwag Banner Frame Only</b> —Without Fixtures With straight pipe shaft Ref. 2, Disc and Cup Assemblies Ref. 15 and Pipe Straps Ref. 6 only—Enameled for Banners Ref. Af and Ag.
Ab	J-93006	<b>Wigwag Banner Frame Only</b> —Without Fixtures With Straight Pipe Shaft Ref. 2, Disc and Cup Assemblies Ref. 15 and Pipe Straps Ref. 6 only—Enameled for Banners Ref. A and Aa.			<b>Figure "B" Lower Quadrant Wigwag Banners—With Offset Pipe Shaft for use with Octagon Frame Supports furnished with Model 11 Wigwag Assemblies—See Plate A-2355. Enameled on both sides in accordance with A.A.R. Signal Section Drawing 1553 with White Field, 1" Black Border and 2½" Black Cross.</b>
Ac	J-93008	<b>Wigwag Banner Complete</b> With Double Filament Lamp Bulbs Ref. 20 and with Black Letters "RR" in Upper Quadrants of Disc on both sides—See Drawing J-9308.	B	J-95041	<b>Wigwag Banner Complete</b> With Double Filament Lamp Bulbs Ref. 20
Ad	J-93009	<b>Wigwag Banner Complete</b> Same as Ref. Ac Except with Screened Double Filament Lamp Bulbs Ref. 20a.	Ba	J-95042	<b>Wigwag Banner Complete</b> With Screened Double Filament Lamp Bulbs Ref. 20a
Ae	J-93010	<b>Wigwag Banner Frame Only</b> —Without Fixtures With Straight Pipe Shaft Ref. 2, Disc and Cup Assemblies Ref. 15 and Pipe Straps Ref. 6 only—Enameled for Banners Ref. Ac and Ad.	Bx	J-95111	<b>Wigwag Banner Frame Only</b> —Without Fixtures With Offset Pipe Shaft Ref. 3, Disc and Cup Assembly Ref. 15 and Pipe Straps Ref. 6 only—for Banners Ref. B and Ba.

**Banner Replacement Parts**

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	J-95141	<b>Straight Banner Pipe Shaft</b> Complete with Pipe Plug Ref. 4	18	J-95187	<b>Banner Light Wire Complete</b> With Double Lead and Terminals for Offset Banners Ref. B
2a	J-95142	<b>Straight Banner Pipe Shaft Only</b> Without Pipe Plug Ref. 4	19	JH-288	<b>Red Traffic Roundel 6½" Dia.</b>
3	J-95151	<b>Offset Banner Pipe Shaft</b> Complete with Pipe Plug Ref. 4	19a	J-96088	<b>Red Spredlite Roundel 6¾" Dia.</b> 30 degree Horizontal Spread and 15 degree Downward Spread
3a	J-95152	<b>Offset Banner Pipe Shaft Only</b> Without Pipe Plug Ref. 4	20	JH-35643	<b>Single Contact Bayonet Base Lamp</b> 8 volt 13 and 3.5 watt Double Filament Signal Precision S-11 Clear Bulb
4	J-96041	<b>Banner Pipe Plug</b>	20a	J-96080	<b>Single Contact Bayonet Base Lamp</b> 10 volt 8 and 9 watt Special Screened Double Filament S-11 Clear Bulb With Screened Filament Arrangement, when either filament burns out, approximately half of the lens will be darkened and the other half bright, thus giving a clear cut indication of the failure of a filament.
5	J-96042	<b>Pipe Plug Rivet ⅜" x 1⅜"</b>	20b	J-96081	<b>Single Contact Bayonet Base Lamp</b> 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision S-11 Clear Bulb
6	J-95154	<b>Banner Pipe Strap</b>	21	JH-36003	<b>Bayonet Base Lamp Socket</b> —With Composition Core Obsolete, use new Ref. 21a for replacements
7	J-95156	<b>Banner Cup Complete</b> —With Pipe Clamp Ref. 8	21a	J-96063	<b>Bayonet Base Lamp Socket Complete</b> With Threaded Shank and Binding Posts Mounted on Bakelite Terminal Board <i>See Detail Plate J-9600</i>
8	J-95157	<b>Banner Cup Pipe Clamp Only</b>	22	J-96062	<b>Lamp Socket Insulating Bushing</b>
9	J-95161	<b>Lens Hood—Aluminum</b> —For 6½" Dia. Lens Standard - Sheet Aluminum with Aluminite Plated Finish	23	J-95191	<b>Machine Screw 8-32 x ⅜"</b> Round Head
9a	J-95162	<b>Lens Hood—Enameled White</b> —For 6½" Dia. Lens	24	J-95192	<b>Machine Screw 10-32 x ¾"</b> Round Head
9b	J-95163	<b>Lens Hood—Enameled Red</b> —For 6½" Dia. Lens	25	J-95193	<b>Iron Rivet ⅜" x 1¾"</b> Round Head
10	J-95165	<b>Cork Gasket 6½" O.D.</b>	26	J-95194	<b>Iron Rivet ⅜" x 1½"</b> Round Head
11	J-95171	<b>Lens Retainer Ring Complete</b> White Nickel Plated Finish—With Clamps Ref. 12 and 13	27	J-95195	<b>Iron Rivet ⅜" x 5/8"</b> Round Head
12	J-95176	<b>Lens Retainer Ring Clamp</b> —With Tapped Hole	28	J-95196	<b>Brass Rivet ⅜" x 1½"</b> Round Head
13	J-95177	<b>Lens Retainer Ring Clamp</b> —With Drilled Hole	29	J-95197	<b>Aluminum Rivet 5/16" x 1/8"</b> Round Head
14	J-95178	<b>Chromium Plated Metal Reflector</b>			
15	J-95181	<b>Banner Disc and Cup Assembly</b> With Banner Cups Ref. 7—Not Enameled unless specified			
15a	J-95184	<b>Banner Disc Only</b> —Not Enameled			
16	J-95186	<b>Banner Light Wire Complete</b> With Double Lead and Terminals for Banners Ref. A			
17	J-96087	<b>Wire Terminal Only ¼"</b>			

### Plate J-9600 Wigwag Banner

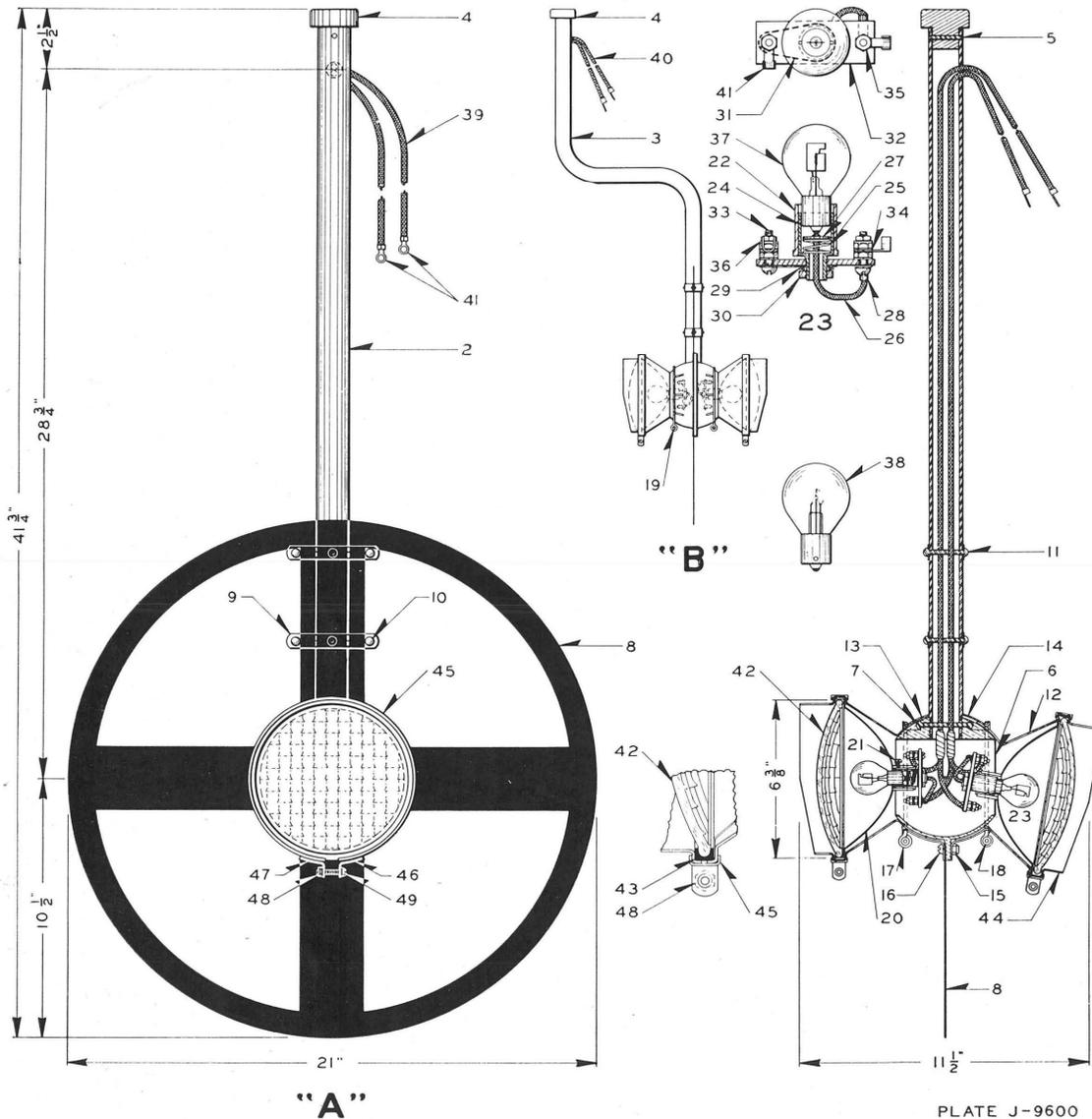


PLATE J-9600

#### Type J-9600 Wigwag Banner—With Adjustable Beam Lamps Lower Quadrant—Two Way Indication

**APPLICATION:**

For Low Voltage Bayonet Base Lamp Operation:  
Ref. "A" Lower Quadrant Banners are for use with standard Two-Position Types "JH" and "KC" wigwag mechanisms for cantilever offset bracket type signal assemblies.  
Ref. "B" Lower Quadrant Banners with offset pipe shaft are for use with octagon frame type support signal assemblies.

**ADJUSTABLE BEAM LAMP UNITS:**

Ball Socket mounting of lamp housings allows independent adjustment of each lamp unit for projection of signal light beams to greatest effectiveness toward approaching traffic in both directions on highway. In addition to adjustment of lamp units, the 6 3/8" diameter Red Ribbed Spredlite Roundels furnished provide 30 degree horizontal spread and 15 degree downward spread. Chromium Plated Metal Reflectors furnished in lamp units provide uniform high efficiency over a long period of years. Will not tarnish and are easily polished. "Neoprene" Lens Gaskets (synthetic rubber) provide weatherproof protection.

**FLASHING LAMP OPERATION:**

Flashing effect of swinging wigwag banner lamps is obtained by utilization of Wigwag Mechanism "Movable Finger Stops" Ref. 15 and "Movable Finger Contact" Ref. 45 Plate J-112 to break contact to lamps when Wigwag Banner is in center position of its swinging movement. See Wigwag Internal Wiring Diagrams No. JH-523 and JH-524. Separate Flasher Relays are not required.

**ALTERNATING CURRENT WIGWAG OPERATION:**

Type J-9600 Wigwag Banners with Low Voltage Bayonet Base Lamps can be used on types "MB" and "PA" Wigwag Mechanisms for 110 to 220 volt Alternating Current Operation by use of lighting transformer mounted in Wigwag Mechanism Housing when specified.

## Plate J-9600 Wigwag Banner

## WIGWAG BANNERS COMPLETE—FIGURE "A" AND "B"

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
		<b>Figure "A" Lower Quadrant Wigwag Banners with Straight Pipe Shaft Enameled on both sides in accordance with A. A. R. Signal Section Drawing 1553 with White Field, 1" Black Border and 2½" Black Cross; unless otherwise specified:</b>			<b>Figure "B" Lower Quadrant Wigwag Banners With Offset Pipe Shaft for use with Octagon Frame Supports Furnished with Model 11 Wigwag Assemblies. Enameled on both sides in accordance with A. A. R. Signal Section Drawing 1553 with White Field, 1" Black Border and 2½" Black Cross.</b>
A	J-96001	<b>Wigwag Banner Complete</b> With Screened Double Filament Lamp Bulbs Ref. 37	B	J-96011	<b>Wigwag Banner Complete</b> With Offset Shaft and Screened Double Filament Lamp Bulbs Ref. 37
Aa	J-96002	<b>Wigwag Banner Complete</b> With Double Filament Lamp Bulbs Ref. 38	Ba	J-96012	<b>Wigwag Banner Complete</b> With Offset Shaft and Double Filament Lamp Bulbs Ref. 38
Ax	J-96009	<b>Wigwag Banner Complete</b> Except Without Lamp Bulbs	Bx	J-96019	<b>Wigwag Banner Complete</b> With Offset Shaft, but Without Lamp Bulbs

## Banner Replacement Parts

Order by Piece Number and Description Given in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
2	J-96031	<b>Straight Banner Pipe Shaft Complete</b> With Pipe Plug Ref. 4	24a	J-96065	<b>Lamp Socket Stamping Only</b>
2a	J-96032	<b>Straight Banner Pipe Shaft Only</b> Without Pipe Plug	25	J-96066	<b>Brass Coil Spring</b>
2b	J-96033	<b>Wigwag Banner Frame</b> Consisting of Shaft Ref. 2, Support Ball Casting Ref. 6 and Enameled Disc. Ref. 8	26	J-96067	<b>Lead Wire With Washer</b>
3	J-96036	<b>Offset Banner Pipe Shaft Complete</b> With Pipe Plug Ref. 4	27	J-96068	<b>Bakelite Washer With Eyelet</b>
3a	J-96037	<b>Offset Banner Pipe Shaft Only</b> Without Pipe Plug	28	J-96069	<b>Wire Terminal Only</b> For No. 8 Screw
3b	J-96038	<b>Offset Wigwag Banner Frame</b> Consisting of Offset Shaft Ref. 3, Support Ball Casting Ref. 6 and Enameled Disc Ref. 8	29	J-96070	<b>Special Lock Washer ⅞"</b>
4	J-96041	<b>Banner Pipe Plug</b>	30	J-96071	<b>Hex. Brass Nut ⅞"—20 Th.</b>
5	J-96042	<b>Pipe Plug Rivet ⅜" x 1⅜"</b>	31	J-96072	<b>Terminal Connecting Link</b>
6	J-96043	<b>Ball Support Casting</b> Threaded for 1" Pipe	32	J-96073	<b>Bakelite Terminal Board Only</b>
7	J-96044	<b>Round Head Iron Rivet ⅜" x 2"</b>	33	J-96074	<b>Binding Post Complete</b> With Machine Screw, Plain Washers, Lock Washer and Hex. Nuts
8	J-96045	<b>Wigwag Banner Disc Only</b> Enameled Black and White—Standard A.A.R. Sig. Sec. Design	33a	J-96075	<b>Brass Machine Screw</b> No. 8-32 x ¾" Round Head
9	J-96046	<b>Banner Pipe Strap</b>	34	J-96076	<b>Brass Washer No. 8</b>
10	J-96047	<b>Brass Rivet ⅜" x ⅜" Round Head</b>	35	J-96077	<b>Hex. Brass Nut 8-32</b>
11	J-96049	<b>Iron Rivet ⅜" x 1½" Round Head</b>	36	J-96078	<b>Lock Washer No. 8</b>
12	J-96051	<b>Reflector Housing</b> Sheet Aluminum—Alumilite Plated	37	J-96080	<b>Single Contact Bayonet Base Lamp</b> 10 volt 8 and 9 watt Special Screened Double Filament S-11 Clear Bulb. With Screened Filament Arrangement, when either filament burns out, approximately half of the lens will be darkened and the other half bright, thus giving a clear cut indication of the failure of a filament.
13	J-96052	<b>Reflector Housing Front Clamp</b> Sheet Aluminum—Alumilite Plated	38	J-96081	<b>Single Contact Bayonet Base Lamp</b> 11.3 volt 14.4 and 3.5 watt Double Filament Signal Precision S-11 Clear Bulb.
14	J-96053	<b>Reflector Housing Back Clamp</b> Complete with Clinch Mounted Lock Nuts—Sheet Aluminum—Alumilite Plated	39	J-96085	<b>Banner Light Wire Complete</b> With Double Lead and Terminals for Straight Shaft Banners Ref. "A"
15	J-96054	<b>Clinch Shank Lock Nut 10-32 Thread</b>	40	J-96086	<b>Banner Light Wire Complete</b> With Double Lead and Terminals for Offset Shaft Banners Ref. "B"
16	J-96055	<b>Brass Machine Screw 10-32 x ⅝" Round Head</b>	41	J-96087	<b>Wire Terminal Only—For ¼" Screw</b>
17	J-96056	<b>Wire Clamp Ring Complete</b> With Clinch Mounted Lock Nut Ref. 18 and Screw Ref. 19	42	J-96088	<b>Red Spredlite Roundel 6⅜" Diameter</b> 30 degree Horizontal Spread and 15 degree Downward Spread
18	J-96057	<b>Clinch Shank Lock Nut 10-32 Thread</b>	43	J-96089	<b>Neoprene Gasket For 6⅜" Lens</b>
19	J-96058	<b>Brass Machine Screw 10-32 x 1¼" Round Head</b>	44	J-96090	<b>Lens Hood For 6⅜" Dia. Lens</b> Sheet Aluminum—Alumilite Plated
20	J-96060	<b>Chromium Plated Metal Reflector</b>	45	J-96091	<b>Lens Retainer Ring Complete</b> With Clamps Ref. 46 and 47
21	J-96061	<b>Brass Machine Screw</b> 8-32 x ⅜" Round Head	46	J-96092	<b>Lens Retainer Ring Clamp—Plain</b>
22	J-96062	<b>Lamp Socket Insulating Bushing</b>	47	J-96093	<b>Lens Retainer Ring Clamp—Complete</b> With Clinch Mounted Lock Nut
23	J-96063	<b>Bayonet Base Lamp Socket Complete</b> With Threaded Shank and Binding Posts Mounted on Bakelite Terminal Board	48	J-96094	<b>Clinch Shank Lock Nut—10-32 Thread</b>
24	J-96064	<b>Bayonet Base Lamp Socket Only</b> For Single Contact Lamp, With Spring Ref. 25, Lead Wire Ref. 26 and Wire Terminal Ref. 28	49	J-96095	<b>Brass Machine Screw 10-32 x 1" Round Head</b>



# SECTION J

— Continued —

## "MAGNETIC WIGWAG FLAGMAN" Wigwag Type—Railroad Highway Crossing Signal

### CONTENTS

	Plate Number
Upper Quadrant Wigwag Banner—Reflector Type . . . . .	J-9644
Obsolete—With Non-Adjustable Lamp Bodies	
Upper Quadrant Wigwag Banner—Reflector Type . . . . .	J-9654
With Adjustable Lamp Body	

*Manufactured by*

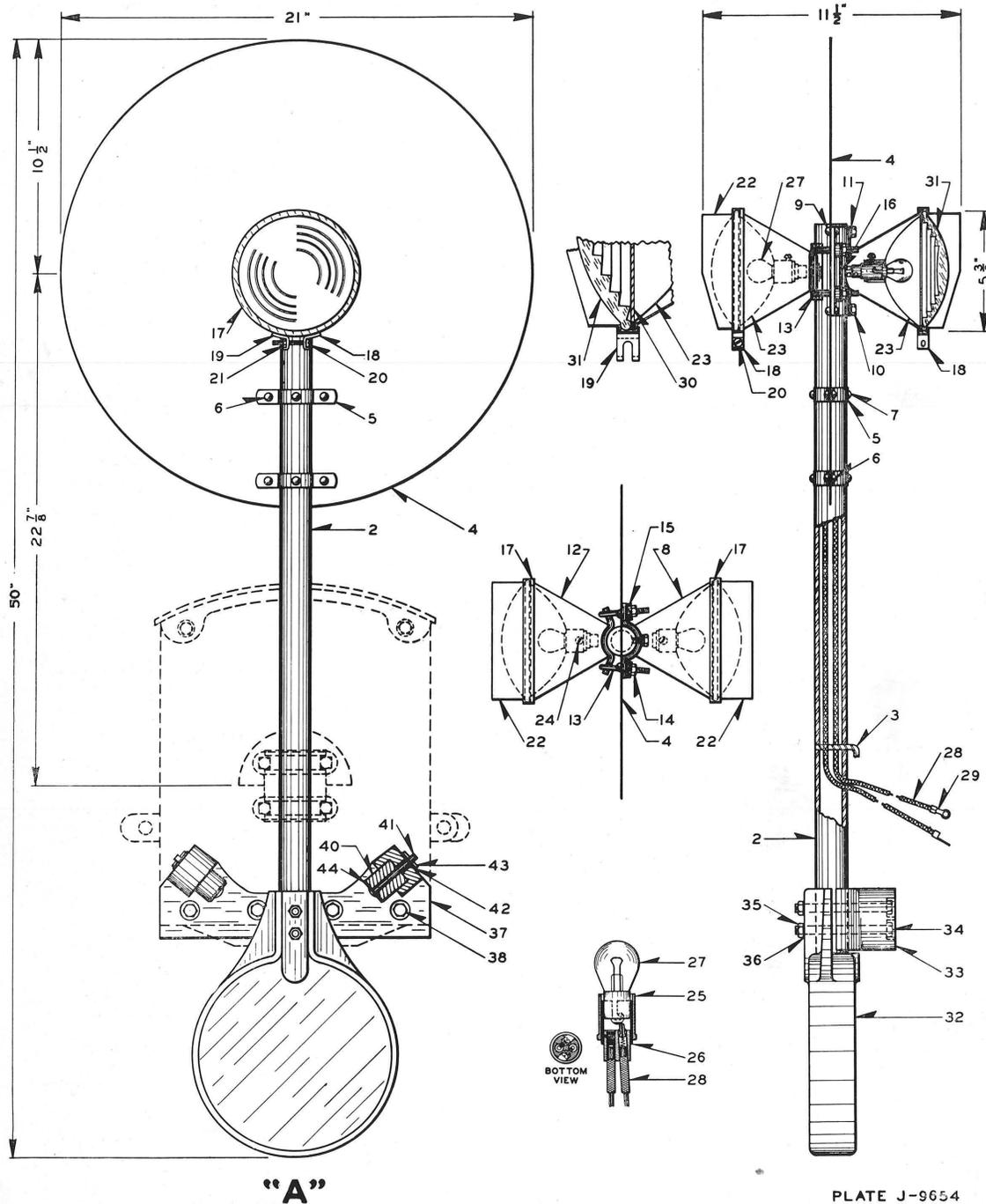
**MAGNETIC SIGNAL CO.**

LOS ANGELES, CALIF., U.S.A.

### Plate J-9654 Wigwag Banner—Upper Quadrant

For Two-Way Lamp Indication with  $5\frac{3}{8}$ " Diameter Lenses  
 For Two-Position Type UKL-8 Magnetic Wigwag Flagman Mechanisms

Construction in Conformance with Norfolk and Western Railway Co. Drawing E-580 dated May 22, 1935  
 Covering Banner details and drawing E-557 Revised 11-3-1936 covering Outside Buffer Arrangement.



#### ADJUSTABLE LAMP ARRANGEMENT

Banner Front Lamp Body is furnished with adjustable bracket to provide horizontal adjustment of signal beam.  
 Banner Rear Lamp Body is stationary and requires movement of wigwag mechanism for adjustment.

#### APPLICATION

For low voltage banner lamp operation as furnished with type UKL-8 Wigwag Mechanisms for 10 volt direct current operation. Banner as per plate J-9654 also used on Wigwag Mechanisms for 110 volt alternating current operation in conjunction with Wigwag Lighting Transformer mounted in Wigwag Mechanism Housing.

## Plate J-9654 Wigwag Banner—Upper Quadrant Banners and Replacement Parts

Order by Piece Number and Description Shown in Heavy Face Type Only

Ref.	Piece Number	Description	Ref.	Piece Number	Description
A	JU-96501	<b>Upper Quadrant Banner with Counterweight</b> Enameled Red. With 12-16 volt 21 C.P. Bayonet Base Lamps	19	J-96545	<b>Lens Holder Clamp—Slotted</b>
Aa	JU-96506	<b>Upper Quadrant Wigwag Banner</b> Enameled Red. With 12-16 volt 21 C.P. Bayonet Base Lamps (Less Counterweight and Buffer Block Ref. 32)	20	J-96546	<b>Brass Machine Screw</b> 10-32 x 1¼" Round Head
Ax	JU-96510	<b>Wigwag Banner Frame</b> Consisting of Stem Ref. 2, Disc Ref. 4 and Reflector Housing Parts Ref. 8, 12 and 13 only	21	J-96547	<b>Hex. Brass Nut</b> 10-32
2	JU-96515	<b>Banner Pipe Stem</b> With Hook Pin Ref. 3	22	J-96435	<b>Lens Hood for 5⅜" Dia. Lens</b> Enameled Red
3	JU-91161	<b>Banner Stem Hook Pin</b>	23	J-96443	<b>Chromium Plated Metal Reflector</b>
4	J-96516	<b>Wigwag Banner Disc Only</b> Enameled Red	24	J-96061	<b>Brass Machine Screw</b> 8-32 x ⅜" Round Head
5	J-96046	<b>Banner Stem Strap</b>	25	J-96062	<b>Lamp Socket Insulating Bushing</b>
6	J-96047	<b>Brass Rivet</b> ⅝" x ⅜" Round Head	26	J-96446	<b>Lamp Socket</b> For Single Contact Bayonet Base Lamp
7	J-96049	<b>Iron Rivet</b> ⅜" x 1½" Round Head	27	J-96445	<b>Bayonet Base Lamp 12-16 volt</b> 21 Candle Power Single Contact
8	J-96523	<b>Stationary Lamp Body Complete</b> Enameled Red with Stationary Lamp Bracket	28	JU-96565	<b>Banner Light Wire Complete</b> With Double Lead and Terminals
8a	J-96525	<b>Lamp Body Only</b> Without Lamp Bracket—Not Enameled	29	J-96087	<b>Wire Terminal Only—For ¼" Screw</b>
8b	J-96526	<b>Stationary Lamp Bracket Only</b>	30	J-96438	<b>Lens Gasket for 5⅜" Dia. Lens.</b>
9	J-96527	<b>Iron Rivet</b> ⅜" x ⅜" Round Head	31	J-96436	<b>Red Optical Signal Lens 5⅜" Dia.</b>
10	J-96528	<b>Cap Screw</b> ¼" x ½" Hex. Head	31a	J-96437	<b>Red Optical Spredlite Lens 5⅜" Dia.</b>
11	J-96529	<b>Lock Washer</b> ¼"	32	JU-91231	<b>Counterweight with Buffer Block</b> Enameled Red—Items Ref. 32a to 36 inclusive
12	J-96531	<b>Adjustable Lamp Body Complete</b> Enameled Red with Adjustable Lamp Bracket	32a	JU-91233	<b>Counterweight Only—Enameled Red</b> Pattern Number U-159
12a	J-96525	<b>Lamp Body Only</b> Without Lamp Bracket—Not Enameled	33	J-96577	<b>Buffer Block</b>
12b	J-96534	<b>Adjustable Lamp Bracket Only</b>	34	J-96579	<b>Cap Screw</b> ⅜" x 4" S.A.E. Hex Head
13	J-96535	<b>Lamp Bracket "U" Bolt Complete</b> With Two Nuts Ref. 14, Ball Washers Ref. 15 and Nut Locking Strip Ref. 16	35	J-96580	<b>Hex. Iron Nut</b> ⅜"-24 Th. S.A.E.
13a	J-96536	<b>Lamp Bracket "U" Bolt Only</b> ¼"-28 Th. S.A.E. Without Nuts, washers and Locking Strip	36	J-96581	<b>Lock Washer</b> ⅜"
14	J-96537	<b>Hex. Iron Nut</b> ¼"-28 Th. S.A.E.	37	JH-2910	<b>Outside Buffer Complete</b> With Rubber Buffers and Mounting Screws Items Ref. 37a to 44 inclusive
15	J-96538	<b>Ball Washer</b>	37a	JH-2911	<b>Outside Buffer Casting Only</b>
16	J-96539	<b>Nut Locking Strip</b>	38	JH-2912	<b>Cap Screw</b> ⅜" x ¾" Hex. Head
17	J-96541	<b>Lens Holder Ring Complete</b> With Clamps, Clamp Screw and Nut	*39	J-96581	<b>Lock Washer</b> ⅜"—For Screw Ref. 38
18	J-96544	<b>Lens Holder Clamp—Plain</b>	40	JH-48011-A	<b>Rubber Buffer Complete</b> Items Ref. 40a to 44 inclusive
			40a	JH-48011	<b>Rubber Buffer Only</b>
			41	JH-48011-1	<b>Anchor Pin</b>
			42	JH-48011-2	<b>Special Iron Washer</b> ⅜" I.D. 1" O.D.
			43	JH-48011-3	<b>Cotter Pin</b> ⅛" x ¾"
			44	JH-48011-4	<b>Special Iron Washer</b> ⅝" I.D. 1⅛" O.D.

\*Reference Numbers not Shown on Plate

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