

Special Specification 6097

Overheight Vehicle Detection System



1. DESCRIPTION

Furnish and install Overheight Vehicle Detection Systems.

2. MATERIALS

Furnish and install Overheight Vehicle Detection Systems in accordance with the details shown on the plans and the pertinent requirements of Item 620 "Electrical Conductors." Furnish Overheight Detection Systems that meet the following requirements.

2.1. FUNCTIONAL REQUIREMENTS

2.1.1. **Overheight Detection.** Provide overheight detection systems capable of detecting overheight vehicles traveling toward the structure, and ignoring vehicles traveling away from the structure. Provide overheight detection systems consisting of infra-red and/or red sources and spectrally matching detectors mounted on poles positioned on opposite sides of the approach at locations shown on the plans. Provide overheight detection systems that eliminate the effect of ambient light and an internal environmental control that reduces operational failure from fog condensation and insects.

2.1.2. **Overheight Detector Unit.** Furnish units that are solid state with printed circuit boards and regulated power. Furnish units with an effective range of 10 ft. to 200 ft. with a reaction speed range of 1 to 75 mph for a 2.5 in. diameter object one in. above the detection height. Furnish units that do not exceed a maximum overall size of 18 in. x 19 in. x 10 in.

2.1.3. **Housing.** Provide housing that is cast Almag of not less than 1/8 in. thickness and weather sealed.

2.1.4. **Boresight.** Furnish overheight detection systems that have two 1/8 in. boresight holes located at Top-Middle of each housing, and front rear screws installed in these holes for a weather tight enclosure.

2.1.5. **Access.** Provide transmitter/remote and receiver/master units with a barrier to protect the operating equipment. The enclosure will maintain its structural integrity for the operational life of the equipment, and allow access for control adjustment and electrical interconnection without the use of any tools except a Phillips head screwdriver.

2.1.6. **Mounting Provision.** Furnish units that will rigidly attach the unit to a vertical or cylindrical pole without requiring any machining operation. The attachment will not stress or deform the unit and prevent the movement of the unit in any direction by the force of developed wind. Furnish unit that will have the capability of adjusting the angular orientation of the optical axis in both the horizontal and vertical plane over an angular range of ± 5 degrees.

2.2. ENVIRONMENTAL REQUIREMENTS

2.2.1. **Metrological Conditions.** Provide equipment that operates and meets all of the requirements of this specification under the following atmospheric conditions.

Temperature	-40°F to 135°F (-40°C to 57°C)
Relative Humidity	0 TO 100%
Rain	2 inches per hour rate

Snow	5 inches per hour rate
Fog	200 foot visibility
Wind Velocity	0 TO 90 MPH

- 2.2.2. **Metrological Conditions.** Furnish equipment that operates properly when the sun is outside 10 degrees axis of the receiver/master unit in its installed configuration. If the above requirements cannot be met, the equipment will be deemed satisfactory if explicit installation information is given such that the rays of the sun cannot interfere with the proper operation of the equipment. This provision includes reflections from vehicles.
- 2.2.3. **Clouds.** Furnish equipment that insures that light intensity caused by the shadow of passing clouds will not interfere with the proper operation of the equipment.

3. CONSTRUCTION

- 3.1. **Alignment.** Allow for directional adjustment and aiming after initial installation. Remove front and rear screws located at Top-Middle of each housing prior to alignment of units. Look through the boresight hole from the rear of the unit so as to see through the boresight hole in the front of the unit to provide a basic means of aiming the unit in the proper direction. Focusing the unit on opposite sides of the road in the center of the front boresight while looking through the rear boresight hole ensures general alignment is accomplished. Perform this step on both the transmitter/remote and receiver/master unit locations. Perform fine tuning of alignment electronically.
- 3.2. **Mounting Height.** Mount the transmitter/remote and receiver/master unit to detect the presence of vehicles that exceed the specified vertical height.
- 3.3. **Installation.** Install overheight detection systems with a neat and finished appearance when completed. Proper operation of the equipment will commence within 15 seconds after restoration of power.

4. MEASUREMENT

This Item will be measured by each complete unit furnished, installed, made fully operational and tested in accordance with this specification and as directed.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Single Direction Single-Eye System", "Dual Direction Double Eye System" and "Dual Direction Double-Eye Z-Pattern System". This price will be full compensation for furnishing, installing, internal electrical conductors, connectors and mounting hardware; and for all labor, tools, equipment, testing, documentation and incidentals necessary to complete the work.