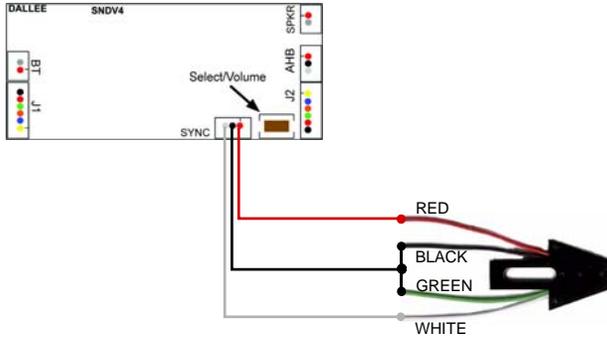


HiLine™ Optical Sync

HiLine™ Steam Sound Unit optical synchronization with wire harness.

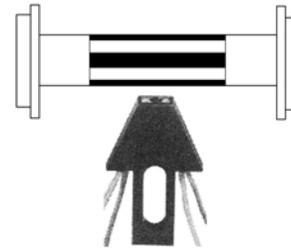
Item #1583



Plug 3 pin red/black/white connector into the "SYNC" input connector. Connect optical sync wires as shown.

All other connections need to be done as per the instructions for your installation except for the motor wires (J1 Blue and Yellow). They do not get connected since they are not used when operating with a synchronized chuff.

Reflective stripe patterns can be mounted on an axle or make your own. Anything that reflects, comes into focus, and then goes out of focus works as well.



AXLE READ:

Mount optics inside chassis and read driver axle. This is the ultimate location, when the drivers slip on the rails the sound follows! Common axle diameters shown below. Select appropriate one (or make your own) and cut out, the long black strip shows total circumference of the axle leaving 4 white stripes. The chuff starts on the black stripe and ends at the end of the white stripe. For correct synchronization, place the center of the black stripe facing the optics when a piston (main rod) is at the center of it's travel.

If you prefer to paint the stripes, be sure that the black paint is a flat finish. A gloss or semi-gloss will reflect as white / bare metal. You may want to test the paint before using it on the axle.

You can also read the high lobes of an existing cam or create your own hi-low type of unit from plastic tubing. As the high portion comes in focus the optics will read that as a white reflection and the "low", further away, as the black which is no reflection. Since it would be too far away, no reflection would occur.

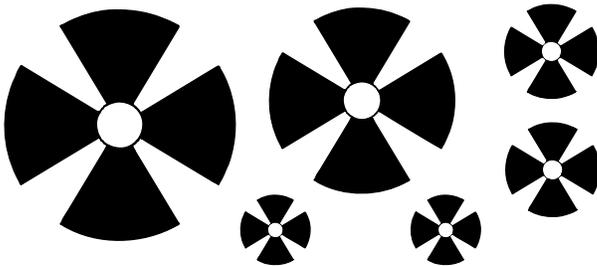


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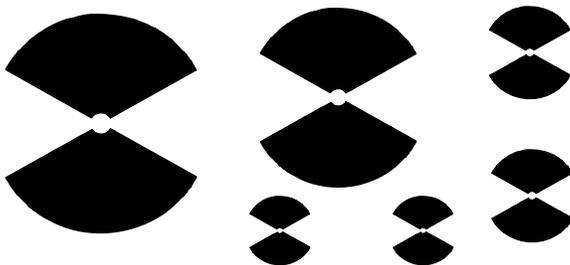
Synchronized Chuff Patterns:

RIM READING: 4 chuffs per revolution.

Cut pattern that suits wheel diameter and cut large enough to cover inside flange. Mount pattern on inside flange (clearing center axle from pattern). Trim excess beyond flange. Align optics to read pattern. Any external light shining on the optical sense end will cause improper readings.

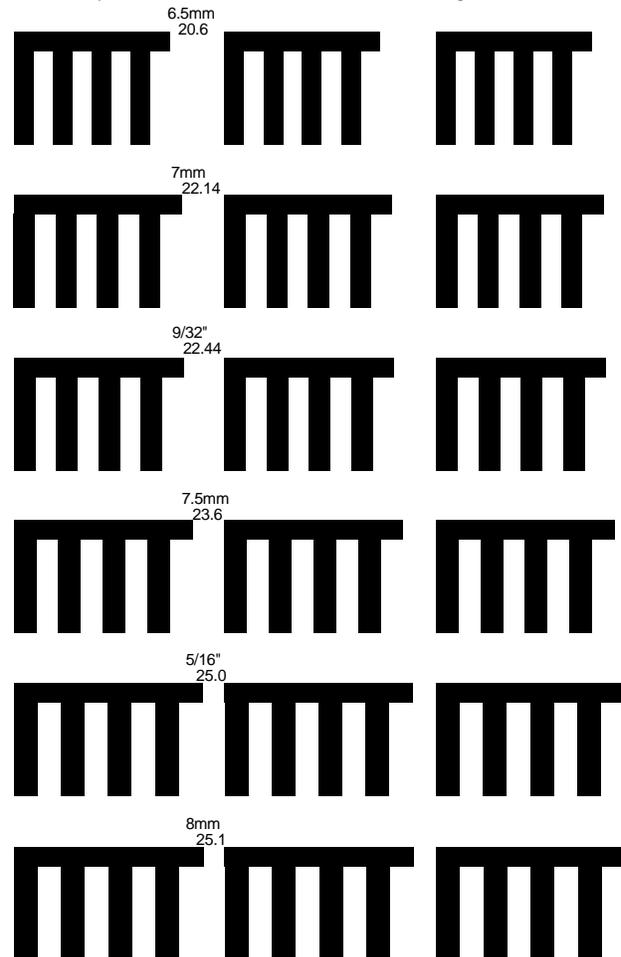


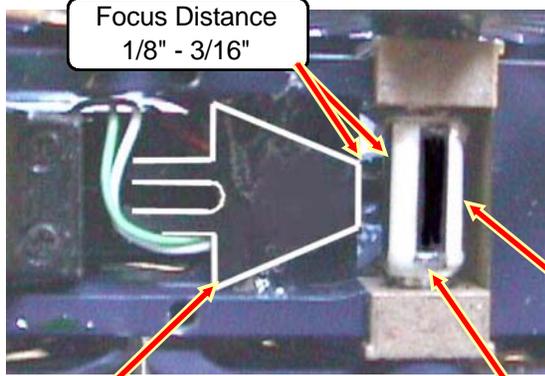
RIM READING: 2 chuffs per revolution



RIM READ
- shown mounted
inside truck.

Synchronized Chuff Patterns for Reading an Axle





It is not necessary to use the black/white stripe pattern, anything that will come in and out of focus to the optical coupler will work! Engines with cams installed or a piece of rectangular tubing cut and mounted to the axle may also work with proper alignment. Remember, some paints and other type markers will still reflect the infra-red light. Just because it's black doesn't guarantee that it will work.

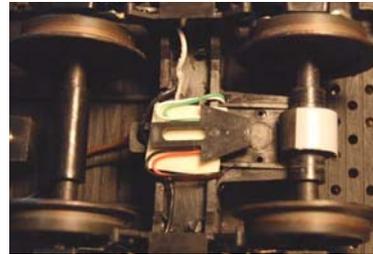
Optical pattern mounted on drive axle

Optical Coupler, item#1583 (hi-lighted for ease of viewing), mounted to frame 3/16" from optical end to pattern. In this installation, the end mounting ears had to be trimmed to obtain clearance to the drive gear box. When doing so care must be used to not damage the optics.

apply a thin layer of glue on each side to prevent oil from contaminating the optical pattern.



It's also possible to read a moving truck with a stationary optical coupler as shown on this HO box car underside.



In larger equipment, you can mount the optics inside a truck (as pictured) or a drive axle.