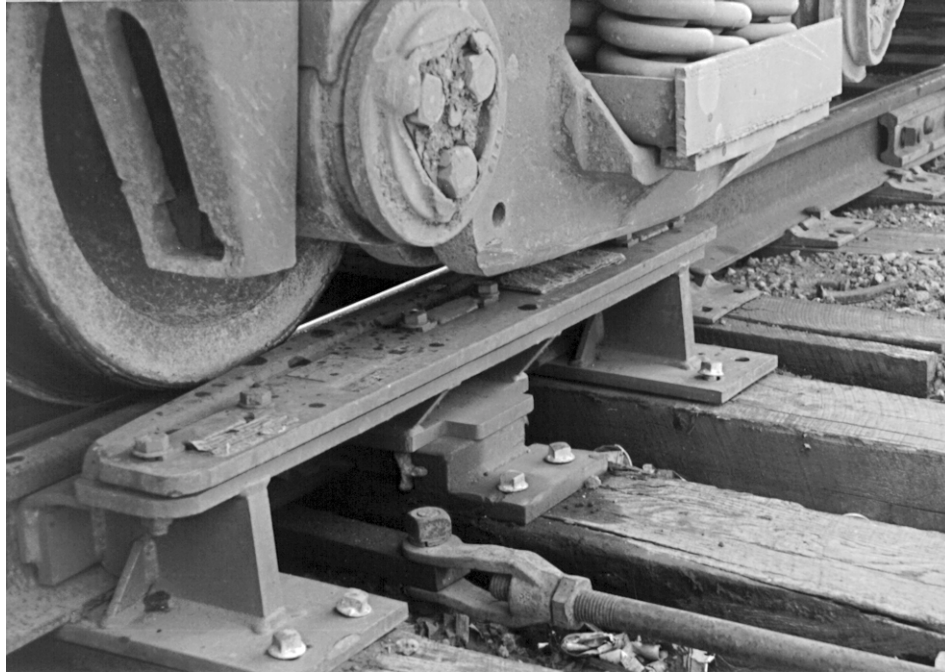


# Switch Point Guard Model FM

U.S. Patent No. 4,386,751

Canadian Patent No. 396,864



- **Innovative Design**
- **More Service Life**
- **Easier to Maintain**
- **Available for All Rail Sections,  
and Most Gauge Plates**
- **Adjustable**
- **Less Costly to Use**

## General Information

Properly installed, well maintained, switch point guards are valuable maintenance aids and safety accessories. They extend the service life of costly switch points by deflecting the train wheels away from the vulnerable switch point tip. This same deflecting action enhances safety by helping to prevent a worn wheel flange from “picking the point” and causing a derailment. The reinforcement of the track structure that is achieved with the use of a switch point guard both lengthens the service life of the switch components and reduces the possibility of track spreading, or roll-over of the rail. Our Model FM Switch Point Guard provides all of these basics, plus an array of unique features that gives it longer service life, enhanced maintainability and an installation that is stronger and more reliable in-track.

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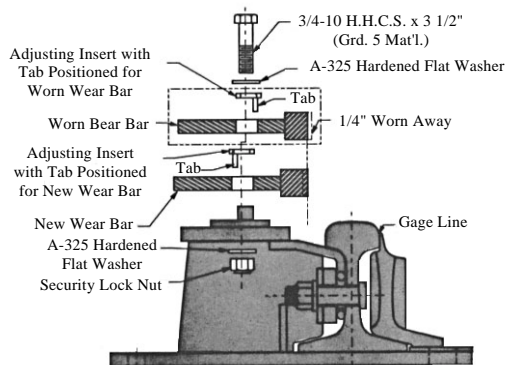
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## 40% More Service Life



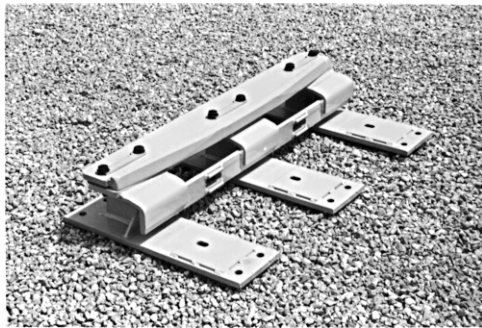
**Fig. 2**

**Unique, reversible adjusting insert moves wear bar toward stock rail for 40% additional service life.**

Manganese steel is well established as the best material to be used in applications where wear from abrasion is a principle factor. The wear surface on our replaceable Wear Bar (FIG. 3) is 11-14% manganese steel, providing the maximum possible service life.

When the Wear Bar is worn to the point where wheels are again abrading the switch point tip, our unique adjusting insert feature (FIG. 2) permits the Wear Bar to be moved toward the rail far enough to allow service life to be increased by an additional 40 percent. This feature is not available on any other switch point guard.

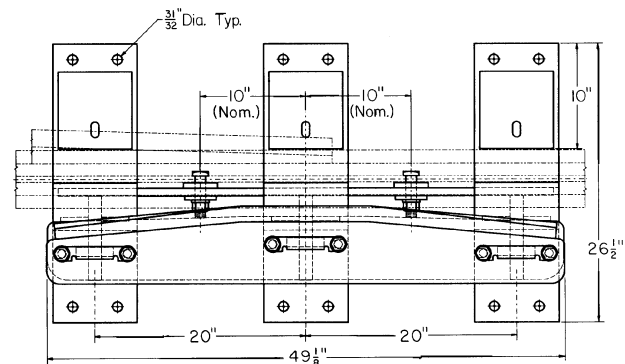
## Stronger, More Reliable In - Track



**Fig. 4**

**Basic Model FM offers rugged integral construction.**

The basic Model FM Switch Point Guard superstructure is a single unit (FIG. 4), complete with slide plates. This design allows the stock rail to be clamped by the Model FM, helping to

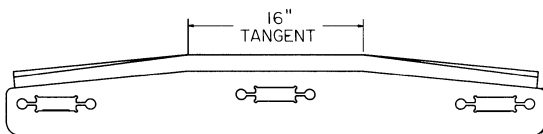


**Fig. 5**

**Top view of basic Model FM with key dimensions shown.**

prevent the switch point guard from being forced away from its protective position by wheel action (see FIG. 10). Wear Bar and stock rail work as one.

## Easier To Maintain



**Fig. 3**

**Replaceable Wear Bar is adjustable and universal.**

The wear bar is universal and accommodates all base units regardless of rail section to which they were built. Inventory and parts co-ordination is minimal.

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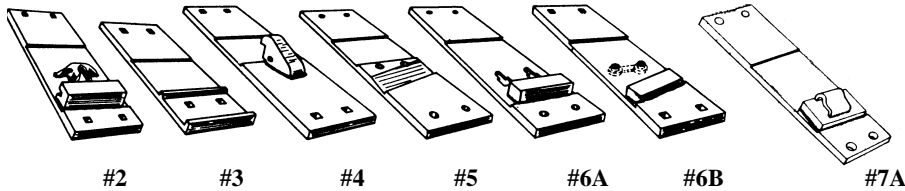
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## Will Match Your Track Conditions

A Model FM Switch Point Guard is available for every rail section. The basic design is complete with three slide plates, and will work on either right-hand or left-hand turnouts.

Model FM Switch Point Guards are available to mount on customer-furnished gage plate, as shown below. (See "How To Order")



In addition to building units for the existing center plate (No. 1G Plate) at the switch to be accommodated, we can also build units to fit all three locations (Plate O, 1G & 1A) but no other combination (see Fig. 6). This eliminates having right or left hand ordering and inventory problems.

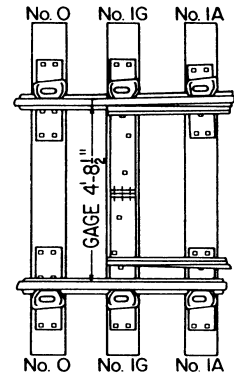


Fig. 6

## How To Order Model FM Switch Point Guards

Superstructure	SPECIFY Tie Spacing (In Inches)	SPECIFY Rail Section
1- Basic Unit (3 fixed slide plates)	19 or 20 or 21 (20 Standard)	Specify.
<b>See Plates Above</b>		
Note: #2- #7 Available in center position or all 3 position (-3P)		
#2 - Middle support to match Pettibone-adj. rail brace.		preferred format:
#3 - Middle support to match AREA-fixed rail brace		(weight and designator)
#4 - Bethlehem type adjustable gage/slide Plate		Example: 90RA or 9020
#5 - Middle support to match AREA-adj. rail brace		
#6A - ABEX/RACOR adj. rail brace	Example:	Ordering Reference for a Model FM Switch Point Guard with middle support to match a Pettibone adjustable rail brace on ties with 21 inch centers, for 136 RE rail would be as follows: Model FM-2-21-136 RE for all 3 position FM2-21-136RE-3P Shipping Weight: Approximately 450 pounds
#6B - ABEX/RACOR (slanted block) adj. rail brace		
#7 - Middle support to match Pandrol clip gage/plate		

Note: #7 is a generic term for Pandral

## Replacement Wear Bar

Specify: "Wear Bar for Model FM Switch Point Guard" (shipped with six new mounting bolts, Security locknuts, 12 ea., A325 washers and 3 ea. adjusting inserts). Refer to Fig. 2 for installation. Shipping Weight: 90 pounds.

## Installation Instructions

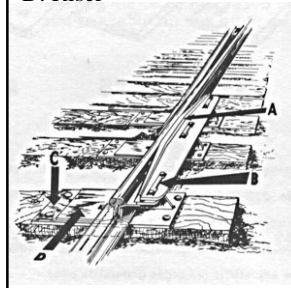
### General

Track accessories are dependent on the track structure to which they are secured. Worn, small or weak ties flex under traffic. Untamped ties can cause excessive vertical torquing. Any switch point guard attached to an inadequate track structure will give poor service and may be subject to premature failure. Be sure the track is in sound condition before installing the Model FM, or any, switch point guard.

#### Installation Without Bolting To Rail - Basic Units Only

1. Be certain section of stock rail corresponds to that identified on the manufacturer's plate attached to the Model FM. Each unit is made to accommodate one rail section only.
2. Check to see that track gage is not tight.
3. Be certain stock rail has full head width at the point. Excessive railhead side wear can cause derailments.
4. At switch, jack the rail sufficiently to remove existing slide plates.
5. With rail elevated, position Model FM in appropriate location.
6. Adjust ties for proper spacing and insure that ties are at right angles to stock rail.
7. Lower the rail, insuring that stock rail base rests ("beds") in seats on Model FM Slide Plates. No portion of stock rail base should be on top of Model FM Riser (See Fig. 10).
8. Tighten all Wear Bar retaining bolts.
9. Spike Model FM securely.

- A. Wear Bar  
B. Adjusting Insert  
C. Slide Plate  
D. Riser



**Fig. 7**  
Key Components

#### Installation With Bolting To The Rail

1. Perform Steps 1, 2 and 3, listed above.
2. Referencing guidelines provided by Fig. 8 and Fig. 9, locate and mark on the stock rail, the horizontal center lines of the optional mounting bolt holes.
3. Locate and mark the vertical hole centers using the scribe furnished with the unit. Drill two 1-1/8" diameter holes (Oversize holes can result in bolt head failure).
4. Perform Steps 4, 5, 6 and 7, listed above.
5. With the Wear Bar removed, install the two 1" dia. thin-head track bolts – head toward gage (Refer to Fig. 10) and tighten.
6. Replace the Wear Bar (See Fig. 2 for proper assembly). Tighten all Wear Bar retaining bolts.
7. Spike securely.

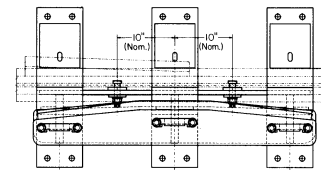
#### Grinding —

Manganese steel is a work-hardening material. In its original condition it tests about 230-250 bhn. After "wearing in", it will achieve a surface hardness of up to 550 bhn. During this process, the material will have a tendency to flow. Depending upon service, sometimes a ridge or groove will develop. The Wear Bar should be ground carefully to remove only the flowed material, but not the already hardened portion. More than one grinding may be required before the material is set and hardened to capacity. Lighter initial service lessens the need for grinding. Heavy impact from long cars on tight curves will result in a requirement for more frequent grinding.

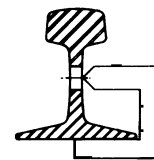
#### Maintenance

##### Inspection/Adjustment

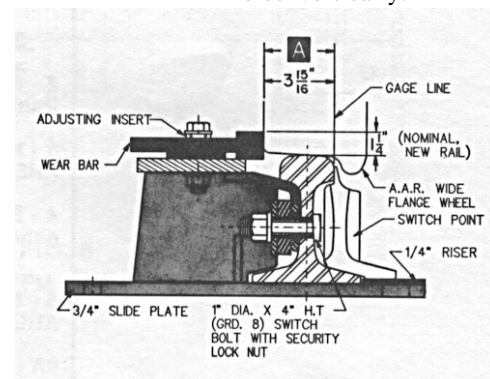
Occasional inspection for wear and bolt tightness are the only regular maintenance requirements. When Dimension "A" shown in Fig. 10 measures 4-3/16" to 4-5/16", the Adjusting Inserts should be unbolted and turned (see Fig. 2). Doing so will provide an additional 1/4" wear capacity. Do not turn Adjusting inserts until Dimension "A" measures at least 4-3/16", or the Wear Bar may cause train wheels to bind against the opposite rail from point.



**Fig. 8**  
Model FM showing positioning of track bolts.



**Fig. 9**  
Scribe in use, for locating bolt holes vertically.



**Fig. 10**  
Slide view of installed Model FM Switch Point Guard, showing critical dimensions.