

# 7000 Series Festoon System Service Manual

AERO-MOTIVE COMPANY



A Woodhead Industries, Inc. Subsidiary

## Safety

Please read this manual carefully and follow its instructions, CAUTIONS and WARNINGS carry special messages and should be reviewed carefully.



**WARNING**

Warnings are used when potentially hazardous situations exist which could result in serious injury, death or property damage if not avoided.



**CAUTION:**

Cautions are used as an indicator of potentially hazardous situations which may result in minor or moderate injury or property damage if not avoided.

## Installation



**WARNING**

Failure to disconnect and lockout power before installing or servicing this equipment could result in property damage, personal injury or death. Installation and maintenance must be performed by qualified personnel only. When installing, maintaining, or servicing this equipment, block carriers to protect personal from injury from accidental movement.

Note: Provides helpful information and operation of Festoon System

### A. I-Beam Track Mounting:

The carriers operate on customer installed I-beams. To ensure smooth operation of cable carriers, I-beams must meet the following specifications:

a. **Size:** The carriers can operate on one of three I-beam sizes: S6 X 12.5 lb; S8 X 18.4 lb or S10 X 25.4 lb.

b. **Configuration:** The beam must be straight; curved or angled beams are not acceptable. If possible, the beam should be single, continuous section free of joints or welded portions.

c. **Joints:** If two or more beams must be joined, the joints should be butt welded at 45 degrees to the centerline of the beam flanges and carefully aligned in both horizontal and vertical planes. The weld should be ground smooth. Also remove any bumps or irregularities on the top, bottom, or edges of the lower flange of the beam. Bolted joints or splice plates cannot be used.

d. **Beam Support and Clearance:** The beam should be supported at intervals as required for the specific load conditions. The means of support must allow 3.75 inches minimum wheel clearance for the carrier wheels. The side clearance should be equal to or greater than half the carrier width (dimension A & B in Figure 1). When the system is mounted on moving equipment such as a bridge crane, allow additional side clearance for swinging of cable loops during operation.

### B. Track Clamp:

The track clamp serves as the fixed end point of the assembly. The minimum distance from the end of the beam to the centerline of the track clamp shall be half the overall length of the intermediate carrier. Install the track clamp to the underside of the bottom flange of the I-beam using 1/2 inch bolts, nuts, lock washers and beveled washers. Figure 1 shows the track clamp bolting patterns for different I-beam size.

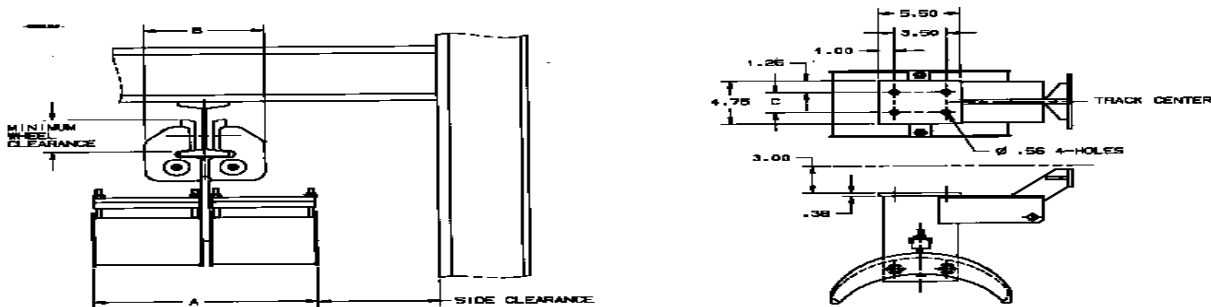
### C. Intermediate Carrier:

The width of the intermediate carrier is factory set to operate on the specified size I-beam with sufficient clearance to compensate for the Standard Mill Rolling Tolerance of the flange width.

### D. Lead Clamp and Tow Arm:

The lead clamp connects to a customer furnished tow arm. The tow arm must be designed to withstand the imposed horizontal and vertical forces with particular attention paid to the forces developed during acceleration and deceleration of the entire train of intermediate carriers. Also, allow appropriate operating clearance between the top of the tow arm and the bottom I-beam. Install the lead clamp as follows:

- a. The mounting plate of the lead clamp must be three inches below the bottom of the I-beam.
- b. The centerline of the lead clamp must be in-line with the centerline of the intermediate carriers.
- c. Use the bolting pattern as shown in Figure 2.
- d. Assemble using 1/2 inch bolts, nuts and lock washers.



Beam Size	A	B	C
S6 X 12.5		8.10	2.00
S8 X 18.4		8.77	2.25
S10 X 25.4		9.45	2.75
Model No.			
S7XXX	7.27		
D7 X 1,4 or 7	11.54		
D7 X 2,5 or 9	15.04		
D7 X 3,6 or 9	22.04		

Figure 1

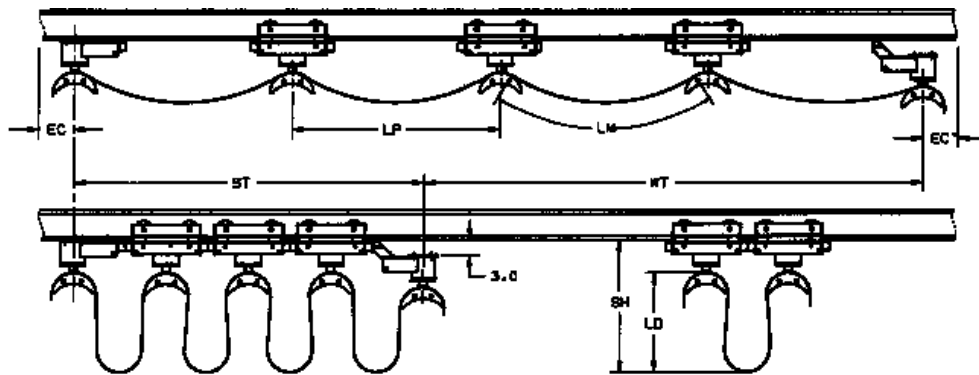
### E. Important Dimensions:

Table 3 shows the relationship between five essential dimensions:

- a. Loop depth (LD): the distance from the top of the saddle to the bottom of the hanging cable in the storage position.
- b. Loop mark (LM): the length of the cable required between the center lines of two carriers.
- c. Loop pitch (LP): the distance between the center lines of the two carriers in the extended position.
- d. System height (SH): the distance between the bottom of the I-beam and the bottom of the hanging cable in the storage position.
- e. Tow cable (TC): the length of cable required between two intermediate carriers. See following section for tow cable requirements.

LD	LP	LM	SH		TC		
			Single Saddle	Double Saddle	21.00" Carrier	17.25" Carrier	13.25" Carrier
36	78.75	86.5	45	43.25	63	67	73
42	89.50	98.5	51	49.25	74	78	83
48	100.50	110.5	57	55.25	85	89	94
54	111.50	122.5	63	61.25	96	100	105
60	122.25	134.5	69	67.25	107	111	116
66	133.25	146.5	75	73.25	118	122	127
72	144.25	158.5	81	79.25	129	133	138
78	155.00	170.5	87	85.25	139	143	149
84	165.00	182.5	93	91.25	149	153	159
90	177.00	194.5	99	97.25	161	165	171
96	187.75	206.5	105	103.25	172	176	182

All dimensions are inches



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**Table 3**

### F. Tow Cable Assembly:

Tow cables are recommended for systems with a working travel of 100 feet or more or when the velocity

of the carriers exceeds 160 feet per minute.

Tow cables are supplied with fixed loop ends and the length of each section (TC) is shown in table 3. To install the tow cable:

1. Remove the clevis pins at each end of the carriers, track clamp or lead clamp.
2. Insert the tow cable loop and reassemble the clevis pins with the cotter pins.
3. On the 13.25 inch long carriers, use the two shackles to connect the tow cable to each end of the carrier keel (center) plate. While installing the tow cables, be careful not to twist or kink cables.

## G. Cable Installation:

The carriers incorporate a thick compliant clamp pad to accommodate cable size differences up to .25 inches. Install cable as follows:

1. Position the cables as close to the centerline of the carriers as possible.
2. Balance cable weight on each side of the carrier centerline.
3. Install flat cables either side-by-side or as a built up stack. The ratio of width to thickness of the package should be no less than 2:1.

*Note: For built-up stacks, place the thinnest cable on the bottom and the thicker cables on top.*

4. Install and tighten the clamp pad.
5. Verify that the clamp pads prevent any shifting or movement of the cables. Tighten the clamp pad fasteners as necessary.

## H. Loop Organizers:

On round cable/hose festoon system, the cable/hose packages have a natural tendency to twist. This twisting can be minimized by clamping the package together with loop organizers. Each loop between carriers requires two loop organizers, each assembled to the cable/hose package at a third of the loop length from each carrier.

## Maintenance:



### WARNING

Failure to disconnect and lock out power before performing maintenance of service to this equipment could result in property damage, personal injury or death.



### CAUTION:

Service must be performed by qualified personnel only. When performing maintenance or service of this equipment, keep your hands away from track.

Perform the following maintenance procedures on a monthly basis:

1. Inspect main wheel assemblies on each carrier for wear, free rotations and worn bearings. These wheel assemblies are factory packed with sufficient grease for the life of the bearing. For these carriers that have been purchased with zerk fittings, add a small amount of additional grease every six months.
2. Replace wheel assemblies if there is excessive wheel wear, play in the bearing or if the wheel does not rotate freely. To replace the wheel assembly, remove the bolt securing the wheel assembly, remove the wheel assembly from inside the carrier and replace it with a new unit and secure it with the bolt. The wheel assembly part numbers are H44110012 for a 2.5 diameter wheel or H44110013 for a 3.5 diameter wheel.
3. Inspect the guide and kickup wheels for wear, free rotation or worn oil impregnated bronze bushings. Apply a few drops of SAE 30 oil between the bushings and the clevis pins. In case

of excessive wear, replace these wheel assemblies by removing the clevis pin and the faulty wheel assembly. Install a new wheel assembly (part number H44110014), reinsert the clevis pin and secure it with the cotter pin.

4. Inspect all fasteners. Retighten where necessary.
5. Inspect clamping of cables and hoses to support saddles. Retighten where necessary.
6. Inspect cable insulation. Replace cable if insulation is worn or cracked.
7. Inspect carrier bumpers. If worn or cracked replace with a new bumper kit, part number H35460017.

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**Aero-Motive Company**

**W** A Woodhead Industries Inc. Subsidiary  
5688 ML Avenue East  
PO Box 2678  
Kalamazoo, MI 49003-2678  
616/337-7700  
1-800-999-8559  
FAX: 616/381-1081

**Aero-Motive (UK) Limited**

**W** A Woodhead Industries Inc. Subsidiary  
9 Rassau Industrial Estate  
EBBW Vale Gwent NP3 5SD  
United Kingdom  
(0495) 350436  
FAX: (0495) 350877

**Woodhead Asia PTE LTD**

**W** A Woodhead Industries Inc. Subsidiary  
8 Chia Ping Road #05-09/10  
JTC Flatted Factory  
Singapore 619973  
65/261-5633  
FAX: (65) 261-3588

**Woodhead Canada LTD.**

**W** A Woodhead Industries Inc. Subsidiary  
1090 Brevik Place  
Mississauga Ontario  
L4W 3Y5 Canada  
(905) 624-6518  
FAX: (905) 624-9151

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