

Instructions - Parts List



Road Lazer™ Line Striper Guidance System

309008F

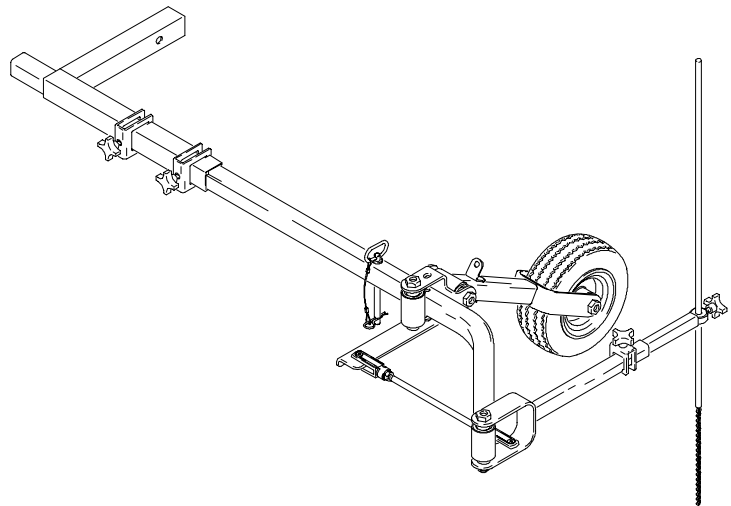
EN

Dynamic Front Mechanical Pointer System

Model 241880, Series A

With floating pointer for accurate guidance on straight or curved lines

U.S. PATENT NO. 6,811,351

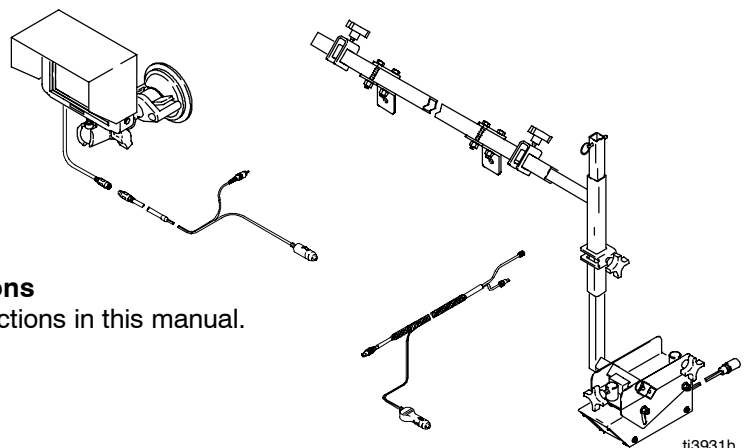


9171A

Video Guidance System (a RoadLazer System Option)

Model 238683, Series B

With color CCTV camera, LCD color monitor, cables, and mounting hardware



Important Safety Instructions

Read all warnings and instructions in this manual.
Save these instructions.

ti3931b

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Symbols

Warning Symbol





This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

 WARNING	
 INSTRUCTIONS	<p>EQUIPMENT MISUSE HAZARD</p> <p>Equipment misuse can cause malfunction and result in serious injury.</p> <ul style="list-style-type: none"> ● This equipment is for professional use only. ● Read all instruction manuals, tags, and labels before you operate the equipment. ● Use the equipment only for its intended purpose. If you are not sure, call your distributor. ● Do not use video monitor as a TV while driving. ● Do not alter or modify this equipment. Use only genuine Graco parts and accessories. ● Check equipment daily. Repair or replace worn or damaged parts immediately. ● Comply with all applicable local, state, and national fire, electrical, and safety regulations.

Installation — Video Guidance System

NOTES

- This manual makes references to other components in the RoadLazer System. See RoadLazer System manual 308611 for details about those components.
- This manual covers two systems for guiding the RoadLazer striper. Each system can be operated by itself to guide the vehicle; however, to maximize productivity and accuracy in a one-person operation, you should use the Video Guidance System and the Front Mechanical Pointer System together, as referenced in this manual.

Reference numbers in parentheses in the text refer to numbers in **Parts** section of this manual.

Install Video Camera Support Hardware

1. Install suitable support rack (A, not provided) on top front of truck bed sidewalls. Center support rack on truck as shown in Fig. 1.
2. Install horizontal support bracket (51) on support rack. Make sure support bracket is level, as shown in Fig. 1.

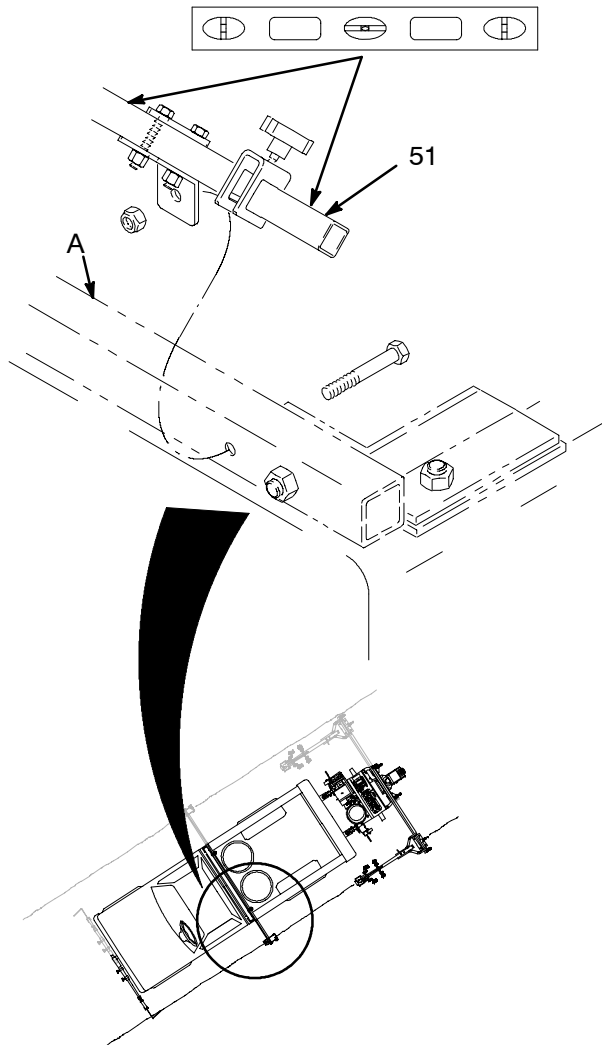


Fig. 1

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3. Install adjustable-height camera extension arm (58) with vertical support bracket (63) and support arm (62), **OR** install straight camera extension arm (64). See Fig. 2.

NOTE: Straight camera extension arm (64) can be used if camera angle is adequate from height of horizontal support bracket (51). See Fig. 9 on page 8 for correct camera/pointer alignment.

4. Install camera assembly on arm (62 or 64).

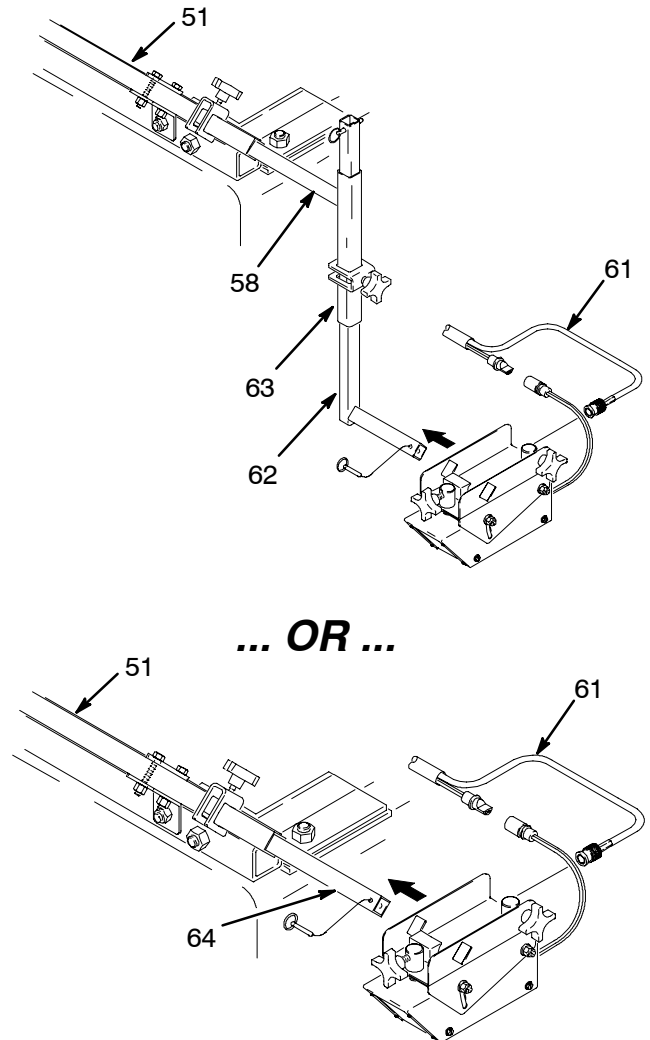


Fig. 2

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Installation — Video Guidance System

Install Video Monitor

CAUTION

Observe the following to prevent damage to the video monitor:

- Do not expose video monitor to extreme temperatures or direct sunlight.
- Avoid dust and moisture.
- Avoid dropping and strong impact.
- Turn power off and unplug the adaptor when not in use or during thunderstorms.
- Do not attempt to perform maintenance.

1. Mount video monitor (111) in truck cab in a position that is easy to view. Mount it level with dashboard but not obstructing forward vision. Monitor has mounting bracket or use supplied mounting bracket (116). Fig. 3.
2. Connect plugs (A) of camera power cable (61) to camera (see also Fig. 2). Connect RCA jack (B) to video plug (C) of monitor video cable (111a). Connect power plug or a dual accessory adaptor (D) (not supplied) to truck receptacle.
3. Connect monitor cable plug (E) to monitor power/video cable (111a).
4. Connect end of monitor power/video cable to truck receptacle or dual accessory adaptor (not supplied). If used, connect adaptor to truck receptacle.

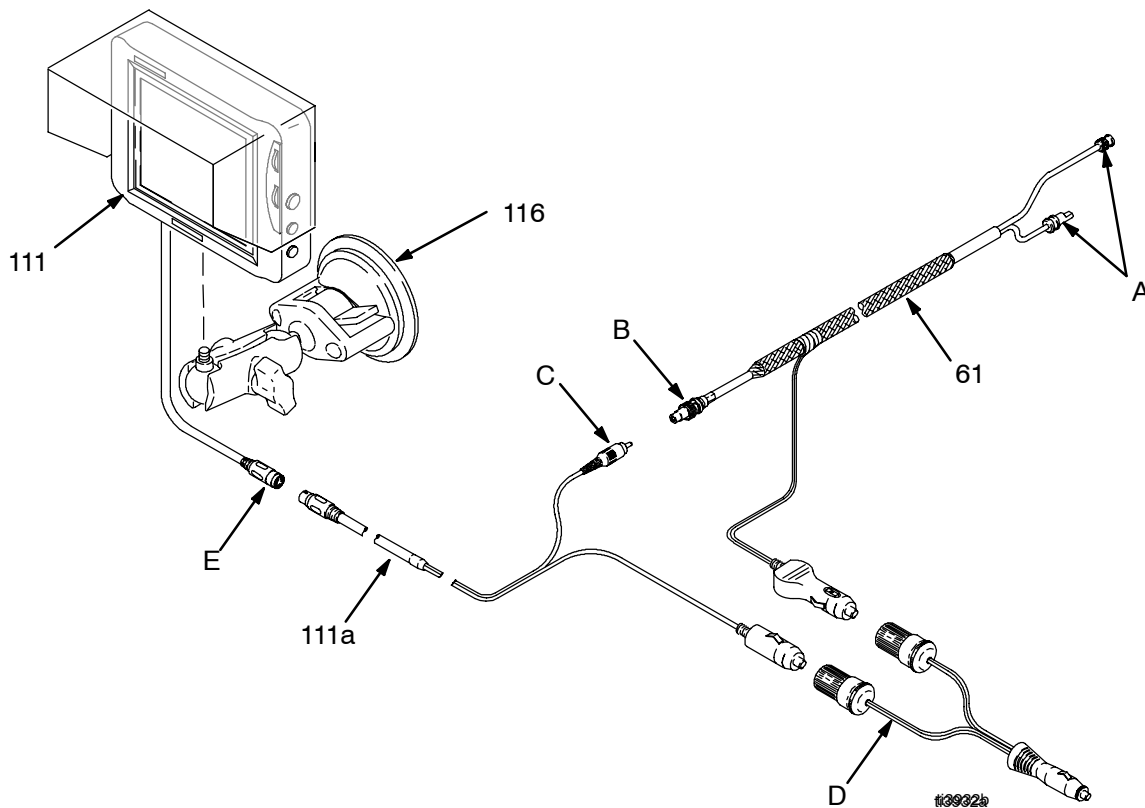


Fig. 3

Installation — Front Mechanical Pointer System

Reference numbers in parentheses in the text refer to numbers in **Parts** section of this manual.

Install Bumper Hitch Receiver

(not supplied by Graco)

⚠ WARNING

INJURY OR EQUIPMENT DAMAGE HAZARD

- Front receiver mount (not supplied by Graco) must have minimum rated capacity of 200 lb (91 kg) tongue weight.
- Read all of this instruction manual before you use this equipment.

See Fig. 4. Install a single 2 in. x 2 in. hitch receiver on front of truck. Recommended height for hitch receiver is 12 to 15 in. (305 to 380 mm) above ground.

NOTES

- Mounting bracket (1) should fit snugly into hitch receiver. If fit is loose, weight of system could cause bracket to sag during use, which could result in poor performance. Select a hitch receiver that fits, or modify for a good fit. See Fig. 5.
- Before final installation of hitch receiver, check for adequate clearance in front of truck for mechanical pointer wheel in stowed position. If stowed wheel interferes with front of truck, move hitch receiver forward to increase clearance. See Fig. 6 on page 7.

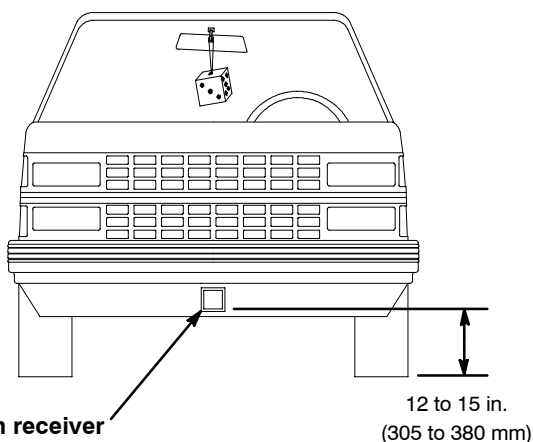


Fig. 4 9178A

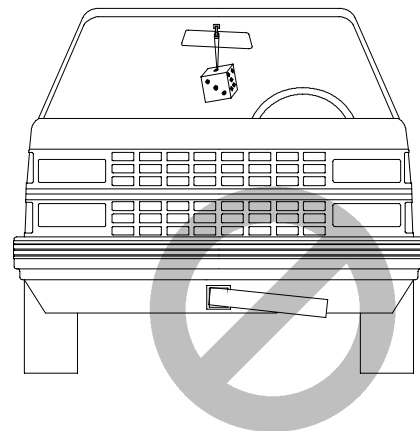
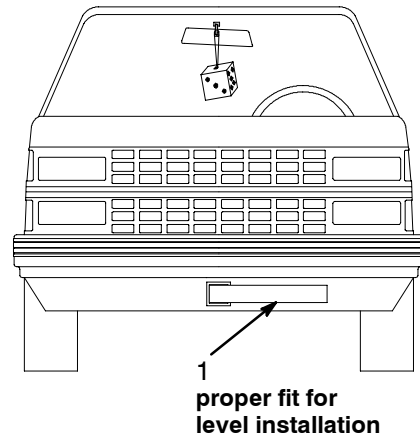


Fig. 5 9238A

Install Front Mechanical Pointer System

Fig. 6 on page 7

Front mechanical pointer system can be connected with pointer on either side of truck, as shown in Fig. 6.

1. Hitch mounting bracket (1) to hitch receiver with pointer (23) on same side of truck as RoadLazer striping gun boom arm (A). Remove pin (19) holding wheel arm in upright stowed position, and stow pin in hole of crossbar frame (2) with safety clip in place.
2. Loosen crossbar frame thumbscrews (20), and slide crossbar frame (2) out far enough to swing wheel (18) down to ground.

System Setup

Adjust Pointer

Fig. 6

1. Adjust length of crossbar frame (2) so pointer is approximately in line with RoadLazer striping gun when wheel arm and pointer arm are parallel to each other. Tighten crossbar frame thumbscrews (20).
2. Adjust pointer height so two or three links of pointer chain drag on ground.
3. Use the following table to determine proper pointer arm length (d in Fig. 6). Use the *Mounting Distance* value from the table that is nearest your truck dimension.

NOTE: If d ends up being less than 26 in. (660 mm), remove pointer extension arm (6), and cut off 1 to 6 in. (25 to 150 mm) with hack saw so you can slide it farther into pointer arm (5). Pointer arm and extension arm are shown clearly in Fig. 10 on page 9.

Mounting Distance (D in Fig. 3)	Adjustable Pointer Arm Length (d in Fig. 6)	Minimum Turn Radius for Front-Mounted Pointer (See Note below)
121 in. (3070 mm)	20 in. (510 mm)	45 ft (13.7 m)
127 in. (3225 mm)	21 in. (535 mm)	47 ft (14.3 m)
133 in. (3380 mm)	22 in. (560 mm)	50 ft (15.3 m)
139 in. (3530 mm)	23 in. (585 mm)	55 ft (16.8 m)
145 in. (3685 mm)	24 in. (610 mm)	57 ft (17.4 m)
152 in. (3860 mm)	25 in. (635 mm)	60 ft (18.3 m)
158 in. (4015 mm)	26 in. (660 mm)	63 ft (19.2 m)
164 in. (4165 mm)	27 in. (685 mm)	65 ft (19.8 m)
170 in. (4320 mm)	28 in. (710 mm)	67 ft (20.4 m)
176 in. (4470 mm)	29 in. (735 mm)	70 ft (21.4 m)
182 in. (4625 mm)	30 in. (760 mm)	73 ft (22.3 m)
188 in. (4775 mm)	31 in. (790 mm)	75 ft (22.9 m)
194 in. (4930 mm)	32 in. (810 mm)	77 ft (23.5 m)
200 in. (5080 mm)	33 in. (840 mm)	80 ft (24.4 m)
206 in. (5230 mm)	34 in. (865 mm)	83 ft (25.3 m)
212 in. (5385 mm)	35 in. (890 mm)	85 ft (25.9 m)
218 in. (5540 mm)	36 in. (915 mm)	87 ft (26.5 m)

NOTE: Minimum turn radius is a function of distance between pointer and striping gun. If you use the video system, you can accurately use the pointer on a smaller radius by mounting the extension arm to the undercarriage of the truck; thus, getting the pointer closer to the striping gun. You will also have to move the camera back.

System Setup

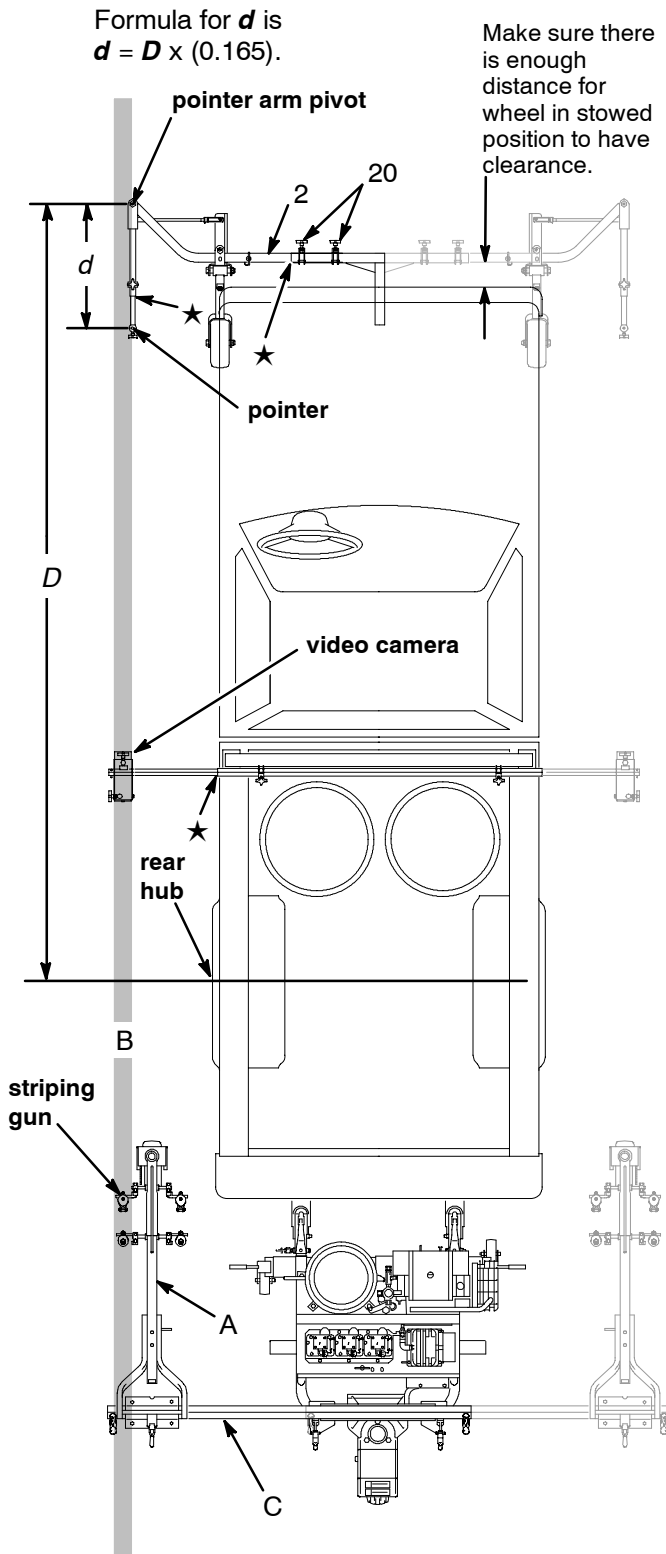


Fig. 6

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Align Pointer (First-Time Installation)

1. Make sure RoadLazer striping gun boom arm (A) is fully extended to end of main beam (C), and front pointer system crossbar frame (2) is extended, as shown in Fig 6.
2. Drive truck forward along an existing straight line (B), and get pointer and striping gun visually lined up along the line, as shown in Fig 6.

Focus Camera

1. Loosen two set screws (A) that are on both sides of lens. See Fig. 7.
2. Place an object that is easy to focus approximately 25 ft (7.6 m) in front of camera.
3. Turn focusing ring (B) to focus camera so that object from step 2 is in clear focus on video monitor screen.

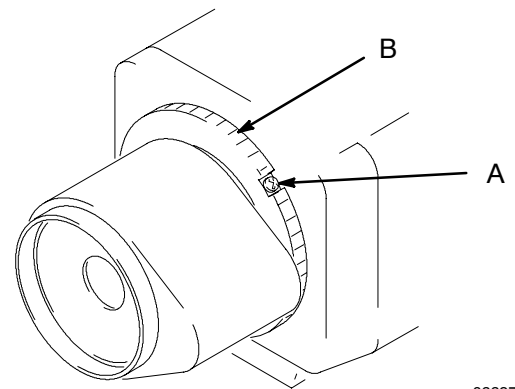


Fig. 7

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System Setup

Reference numbers in parentheses in the text refer to numbers in **Parts** section of this manual.

Align Camera

1. See Fig. 9. Loosen clamps (56) securing video camera bracket, and slide camera extension arm out until camera is centered directly over reference line. Tighten clamps.
2. See Fig. 8. Loosen nut (214) and clamp (B), and set camera height and tilt-angle to include pointer chain (24) and natural horizon in video monitor screen. Tighten nut and clamp.

Check Pointer Alignment

1. Check video monitor screen for proper pointer alignment. When pointer and camera are properly aligned, pointer is vertical and visually splits head of pointer arm pivot bolt (13), as shown in **Correct Pointer Alignment** photo in Fig. 9.

NOTE: If pointer is off line, see Fig. 10: Remove clevis pin (9) from one end of threaded rod (7), and loosen nut (8) at end from which you removed clevis pin. If pointer was toward truck, turn clevis fastener (10) in to shorten rod. If pointer was away from truck, turn clevis fastener out to lengthen rod. Each turn of clevis fastener adjusts pointer approximately 1/4 in. (6 mm).

2. When the pointer is properly aligned, mark all extension points with a permanent marker for future reference. Extension points are marked with a star (★) in Fig. 6 and Fig. 8.

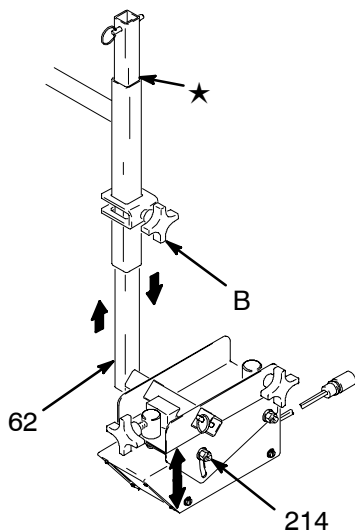


Fig. 8

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Correct Pointer Alignment

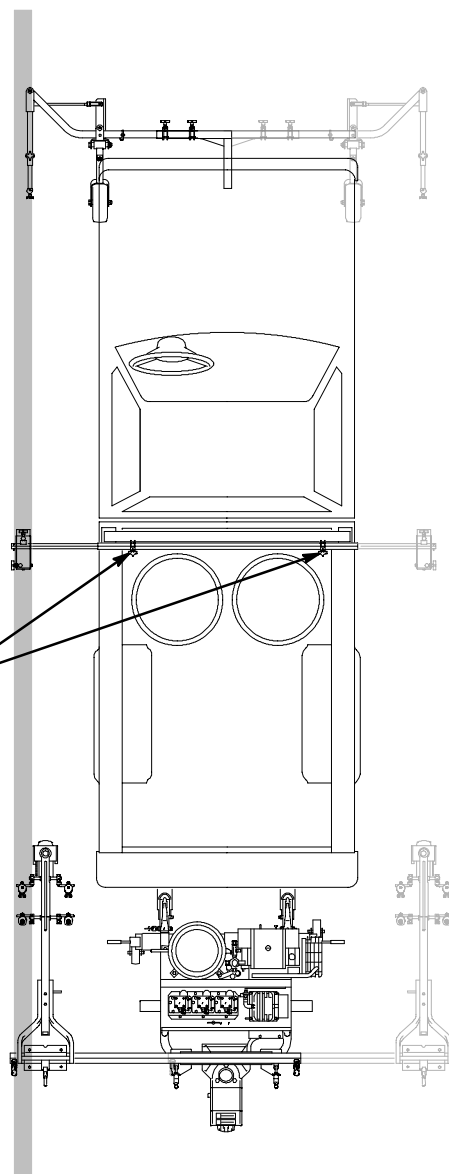


Fig. 9

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System Setup

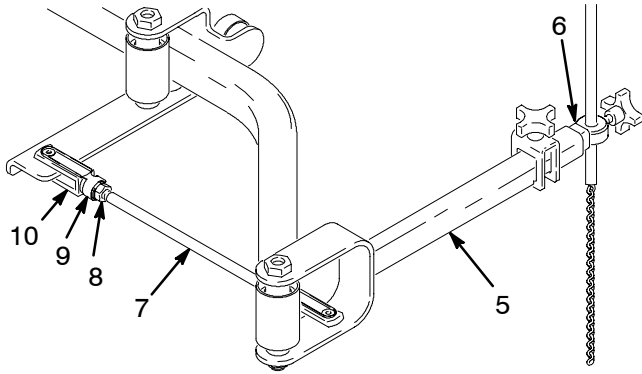


Fig. 10 9236A

Fine-Tune Video Angle

Make sure you have performed the steps in **Focus Camera** and **Align Camera** before you make these final video angle adjustments.

1. Turning adjustment knob (C) counterclockwise to move video image right on monitor screen or clockwise to move image left (see Fig. 11), center pointer on monitor screen.

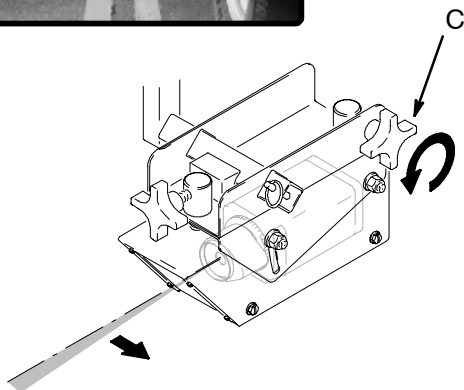
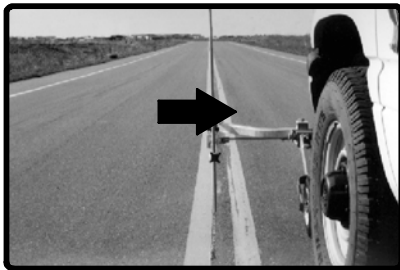


Fig. 11 9208A

2. If adjustment knob (C) runs out of adjustment, see Fig. 12: Loosen camera bolts (218), shift camera in direction needed to obtain adjustment, and tighten bolts.

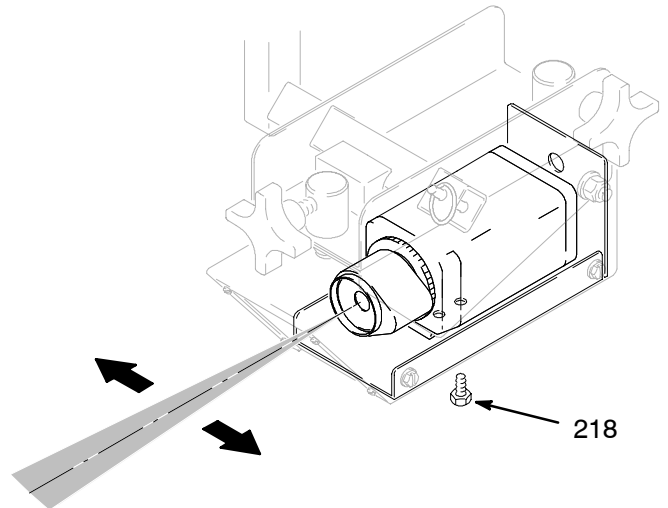


Fig. 12 9210A

3. Drive truck forward to verify that pointer is vertical and centered on video monitor screen.

Additional Video System Component Identification and Function

For additional video camera and monitor information, see the appropriate manual provided for color CCTV camera, LCD color monitor, and automatic iris lens.

Operation

For RoadLazer operating instructions, see RoadLazer System manual 308611.

Painting

Using Front Mechanical Pointer System without Video Guidance System requires that you drive with your head out of driver's-side window to align pointer. Using the two systems together improves ease of painting and accuracy of lines. Follow these guidelines when you use Front Mechanical Pointer System and Video Guidance System together:

- Whether painting straight or curved lines, keep pointer image on video monitor screen **on the line**, and the striping guns will follow. As shown in Fig. 13, pointer floats left or right when truck turns.
- For accurate straight lines, line up pointer image on more distant reference points, which are closer to top of pointer (and top of video monitor screen). See **Straight-Line View** below.

Straight-Line View



- For accurate curved lines and transitions, such as when around town, line up pointer image on closer reference points, which are closer to bottom of pointer (and bottom of video monitor screen). See **Curved-Line View** below.

Curved-Line View

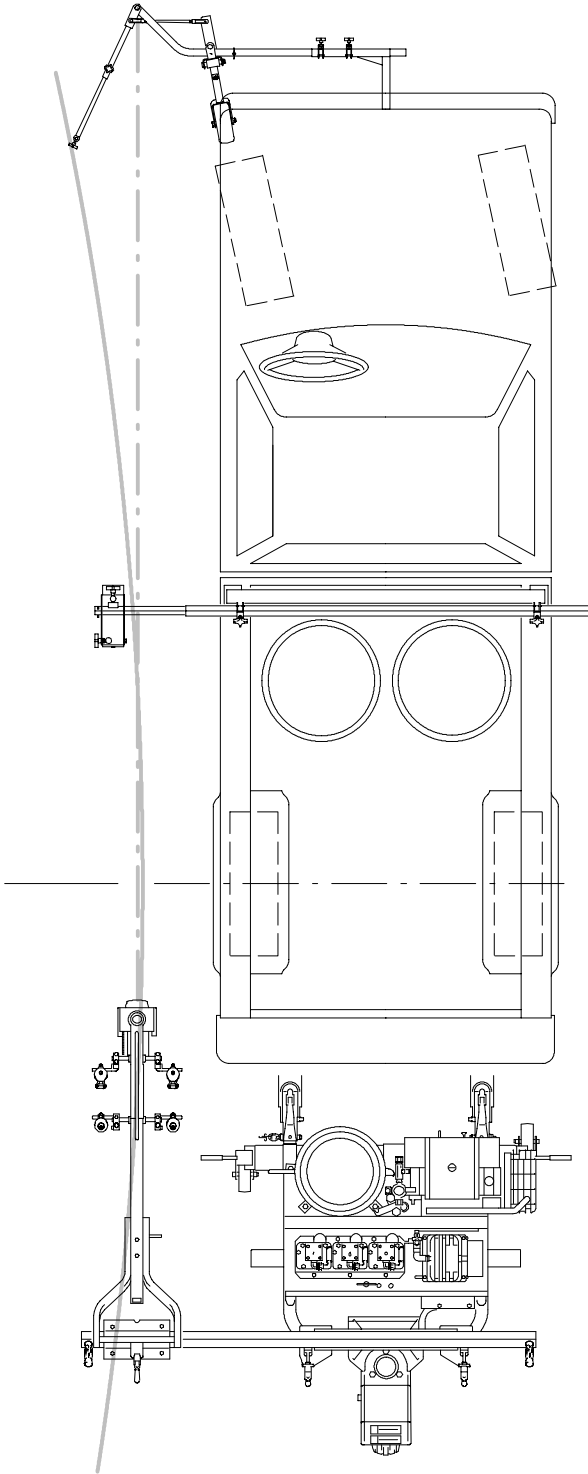


Fig. 13

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Operation

Painting with Delay Feature

See *Programmable Skipline Controller instruction manual 3A1215*.

1. Align truck and camera with known straight line.
2. Lower gun carriage to ground, and align striping guns with line.
3. Drive down straight line, and stop when pointer chain reaches start of line.
4. Get out of truck, and precisely measure distance from start of line to striping gun.
5. Enter figure into system delay menu.
System is ready to start striping.
6. Fine tune delay figure if system is continually off the mark.

Stowing the System for Transport

For details about stowing the RoadLazer for highway travel, see *Prepare the RoadLazer for Transport in the RoadLazer System manual 308611*.

Video Camera

Slide video camera all the way to side of truck for highway travel. You may also unplug camera and remove support arm (62) and camera. See Fig. 14.

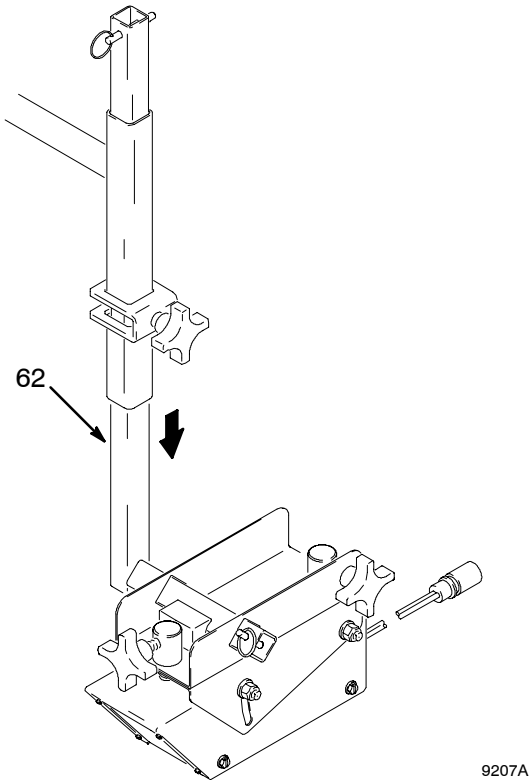


Fig. 14

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Front Mechanical Pointer System

! WARNING

INJURY OR EQUIPMENT DAMAGE HAZARD

See Fig. 15. For highway travel, the front mechanical pointer system must be stowed within the total width of the truck. Stow wheel using hitch pin (19) and safety clip. Make sure all fastening clamps (20, 21, 22) are tight.

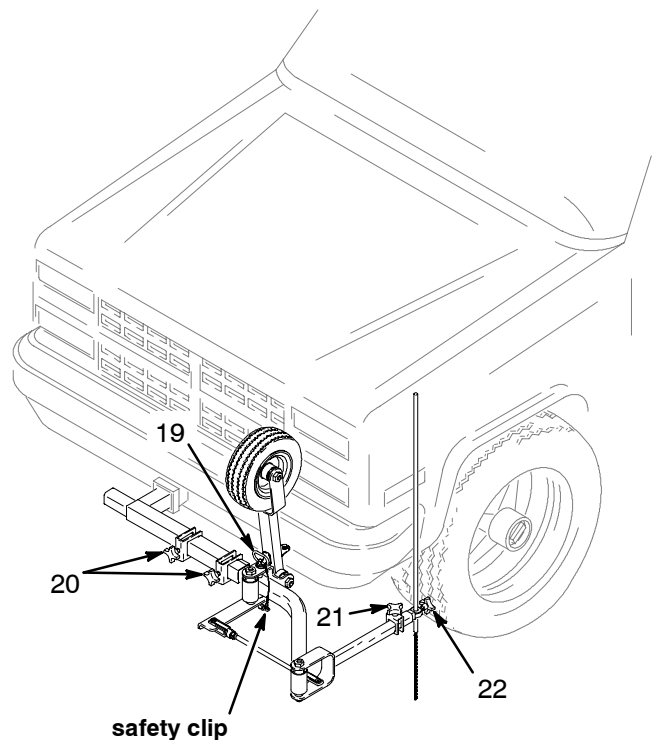


Fig. 15

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Maintenance

Front Mechanical Pointer System Maintenance

Fig. 16

NOTE: Wheel and pivot points use same nuts, washers, spacers, seals, bearings, and bolts. **For wheel only**, bearings and seals are assembled internally and not called out as separate parts on page 18.

Lubricate Wheel Axle

Grease axle bolt (13) monthly. Do not over-grease or inject grease too rapidly, because seals might get pushed out. Axle bolt may require more frequent greasing during periods of heavy use.

Lubricate Pivot Points

Grease pivot bolts (13) yearly. Do not over-grease or inject grease too rapidly, because seals (29) might get pushed out. Bolt may require more frequent greasing during periods of heavy use.

Torque Axle Nut and Pivot Point Nuts

Retorque nuts (17) yearly. For proper torque, tighten nut up to the point where washer (16) begins to compress, then tighten an additional 1/4 turn.

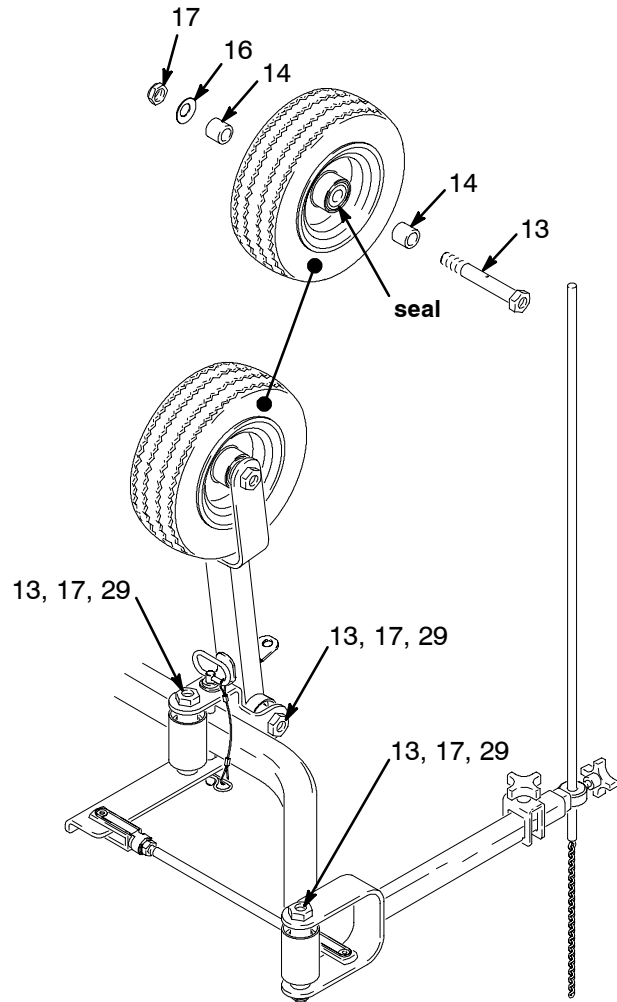


Fig. 16

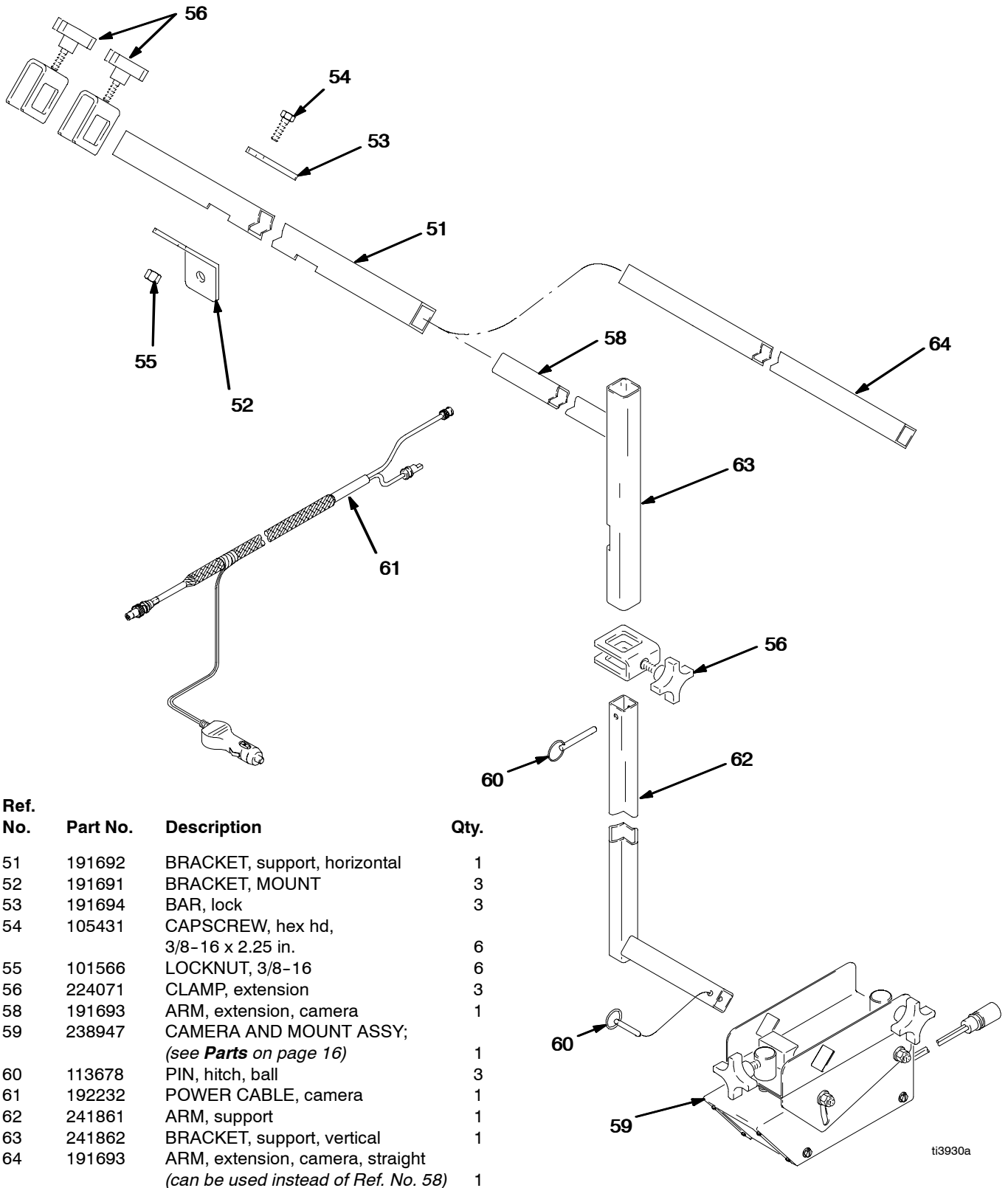
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Troubleshooting

PROBLEM	CAUSE	SOLUTION
No picture on video monitor screen	No power to camera or monitor No video signal	Check connections of power cords. Check fuse in lighter plug of camera power cable. Check truck fuse. Check video connections. Repair or replace cable. Check cable connection between monitor video cable (122) and camera power cable (61).
Faint or hard-to-see image on video monitor screen	Glare on video monitor screen	Tip monitor slightly back. Rotate monitor slightly left or right. Wear dark clothing. Tint truck windows.
Washed out colors on video monitor screen	Contrast or color settings out of adjustment	Adjust with controls on monitor.
Difficulty painting straight lines	Skewed image on video monitor screen	See Align Camera and Check Pointer Alignment on page 8.
Cannot get camera aligned	Proper camera alignment beyond range of fine adjustment knob (C)	See step 2 in Fine-Tune Video Angle on page 9.
Pointer arm not lining up properly	Pointer arm out of adjustment	See step 1 of Check Pointer Alignment on page 8.

Parts — Video Camera and Bracket Assembly

Video Camera and Bracket Assembly, Model 238683

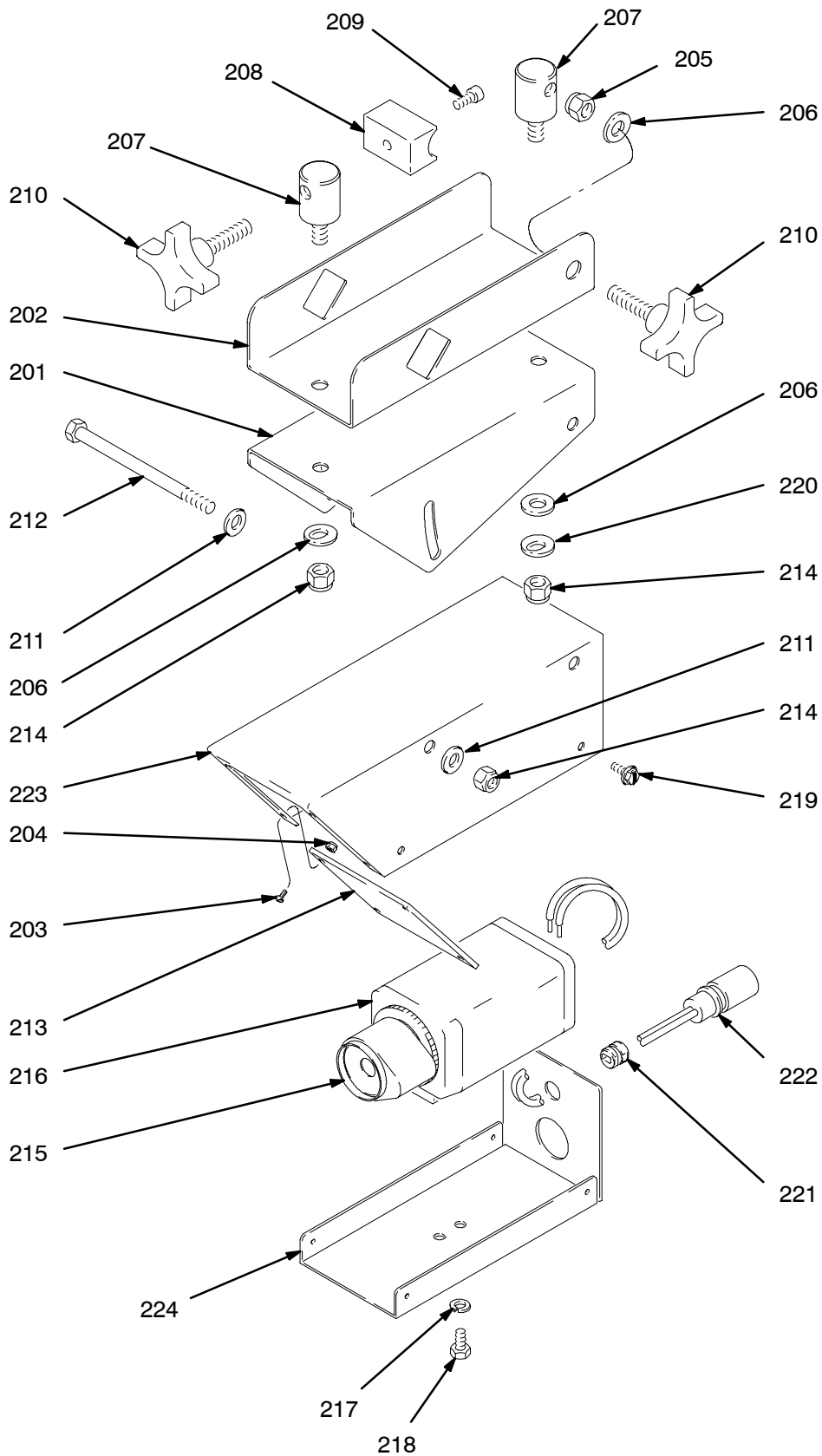


Ref. No.	Part No.	Description	Qty.
51	191692	BRACKET, support, horizontal	1
52	191691	BRACKET, MOUNT	3
53	191694	BAR, lock	3
54	105431	CAPSCREW, hex hd, 3/8-16 x 2.25 in.	6
55	101566	LOCKNUT, 3/8-16	6
56	224071	CLAMP, extension	3
58	191693	ARM, extension, camera	1
59	238947	CAMERA AND MOUNT ASSY; (see Parts on page 16)	1
60	113678	PIN, hitch, ball	3
61	192232	POWER CABLE, camera	1
62	241861	ARM, support	1
63	241862	BRACKET, support, vertical	1
64	191693	ARM, extension, camera, straight (can be used instead of Ref. No. 58)	1

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Parts — Video Camera and Mounting Assembly

Video Camera and Mounting Assembly, Model 238947



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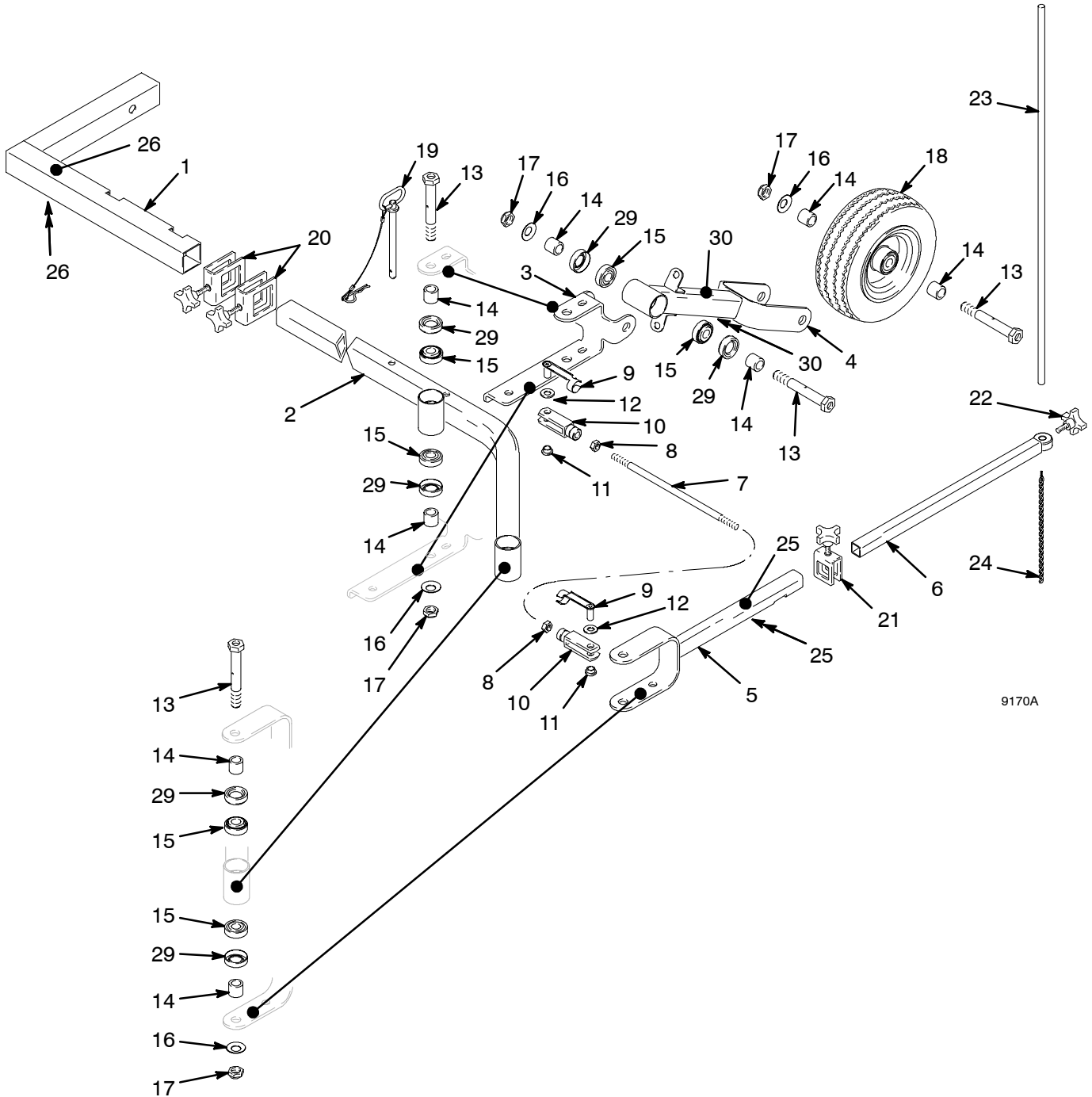
Parts — Video Camera and Mounting Assembly

Video Camera and Mounting Assembly, Model 238947

Ref. No.	Part No.	Description	Qty.
201	191862	BRACKET, pivot, camera	1
202	191861	BRACKET, slide, camera	1
203	112380	SCREW, mach, 1/2 in.	4
204	109466	LOCKNUT	4
205	101566	LOCKNUT, 3/8-16	3
206	100731	WASHER	3
207	191668	SHAFT, camera pivot	2
208	181795	JAW, clamp	1
209	108483	SCREW, shoulder, 10-24 unc3a	1
210	181818	KNOB, pronged	2
211	104034	WASHER, plain	4
212	110384	CAPSCREW, hex hd, 5/16-18 x 4.5 in.	2
213	191729	SHIELD, cover, camera	1
214	111040	NUT, lock, nylock 5/16-18	2
215	113596	LENS, 12 mm	1
216	113595	CAMERA, color	1
217	100016	WASHER, lock	2
218	100333	CAPSCREW, hex hd, unc2a 1/4-20 x 0.5 in.	2
219	113400	SCREW, thread forming	4
220	113680	WASHER, wave	1
221	113694	BUSHING, relief, strain	1
222	191699	CABLE, power, camera	1
223	238945	COVER, camera	1
224	238946	MOUNT, camera	1

Parts — Front Mechanical Pointer System

RoadLazer Front Mechanical Pointer System, Model 241333



Parts — Front Mechanical Pointer System

RoadLazer Front Mechanical Pointer System, Model 241333

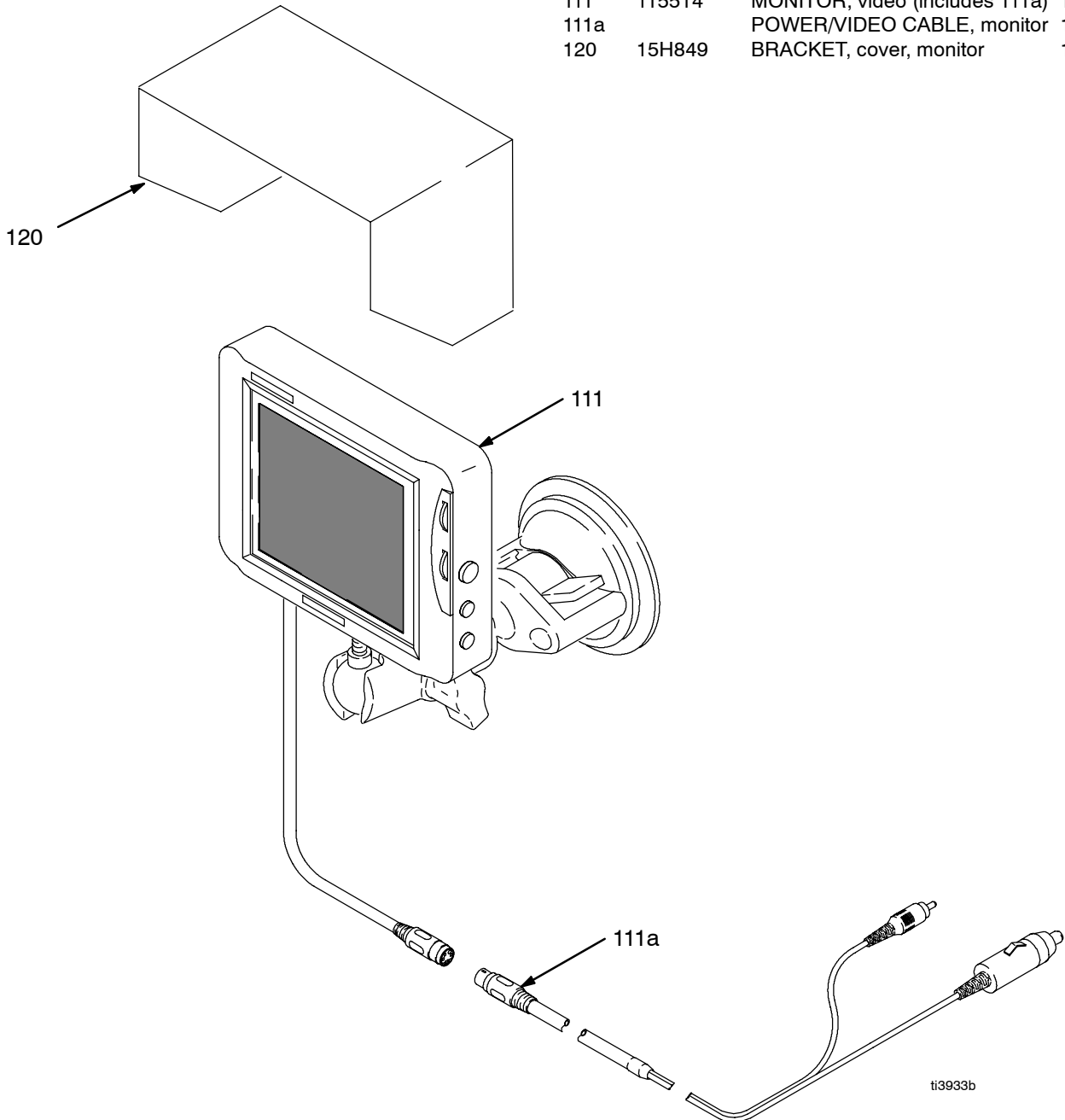
Ref. No.	Part No.	Description	Qty.
1	238815	BRACKET, mounting	1
2	241533	FRAME, crossbar	1
3	195196	YOKE, wheel arm	1
4	241850	ARM, wheel	1
5	241849	ARM, pointer	1
6	241851	ARM, pointer extension	1
7	195197	ROD, threaded	1
8	100111	NUT	2
9	115472	PIN, clevis	2
10	115471	FASTENER, clevis	2
11	115470	BEARING, bronze	2
12	109570	WASHER, plain	2
13	113471	SCREW, cap, hex head	4
14	193658	SPACER	8
15	113485	BEARING, cup/cone	6
16	112825	WASHER	4
17	112405	NUT, lock, 3/4-16	4
18	113479	WHEEL, pneumatic	1
19	115473	PIN, wheel arm	1
20	238813	CLAMP, extension arm	2
21	224071	CLAMP, pointer arm	1
22	111145	KNOB, pointer height	1
23	195202	POINTER	1
24	115479	CHAIN, pointer	1
25	195365	LABEL, setup instruction	2
26▲	195364	LABEL, warning	2
29	115503	SEAL, grease	6
30	195418	LABEL, identification	2

▲ *Extra warning labels are available for free.*

Parts — Video Monitor Assembly

Video Monitor Assembly, Model 238683

Ref. No.	Part No.	Description	Qty.
111	115514	MONITOR, video (includes 111a)	1
111a		POWER/VIDEO CABLE, monitor	1
120	15H849	BRACKET, cover, monitor	1



Technical Data

Video Guidance System

Electrical requirements

Sender input	6 to 12 V D.C.
Ground	negative
Gun output switching to ground	2A max
Reverse polarity and noise spikes	protected

Operating speed range up to 20 mph (450 pulses/sec)

Operating temperature 32° to 130° F (0° to 54 ° C)

Weight (approximate)

Camera and bracket	15 lb (6.8 kg)
Monitor	3 lb (1.4 kg)

Dimensions (approximate)

Camera and bracket	11 in. L x 77 in. W x 8 in. H (280 mm L x 1960 mm W x 205 mm H)
Monitor	8 in. L x 9 in. W x 9 in. H (205 mm L x 230 mm W x 230 mm H)

Front Mechanical Pointer System

Operating speed range up to 12 mph (19 km/hour)

Weight (approximate) 50 lb (23 kg)

Dimensions (approximate, with
wheel arm parallel to ground) 69 in. L x 32 in. W x 12 in. H
(1750 mm L x 810 mm W x 305 mm H)

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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Graco Information

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