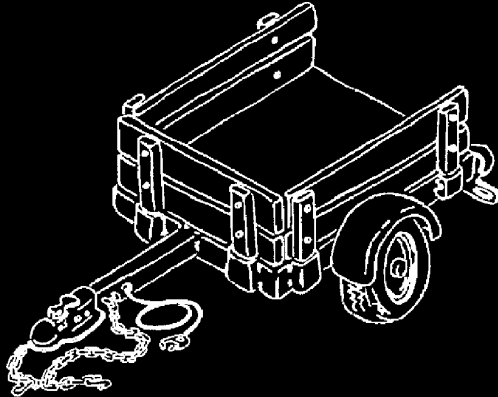


Coyote Steel & Co.



No. 1
Handbook of
**TRAILER
RUNNING GEAR**
For Industry

2030 Cross Street
Eugene, Oregon 97402-7610
USA

Phone: 541-461-2060

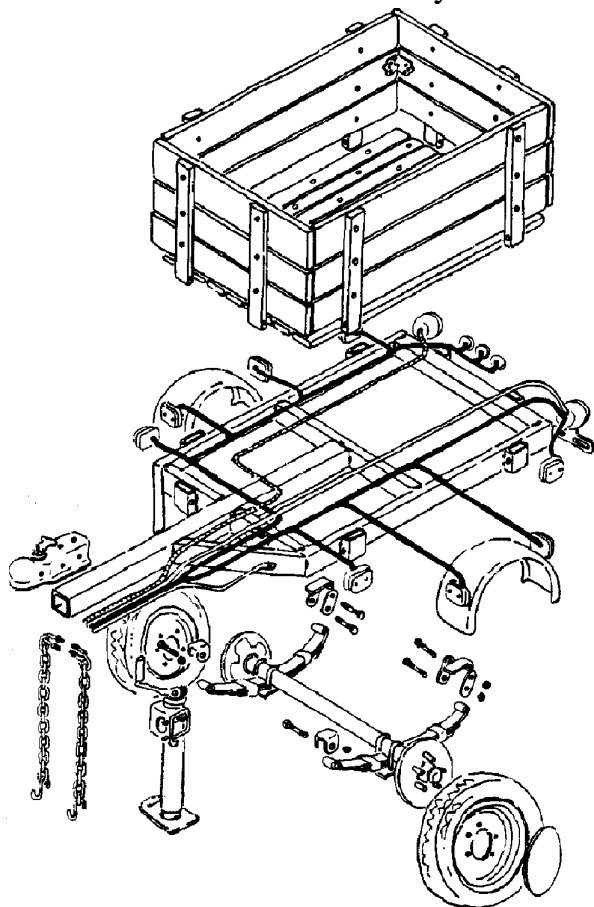
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— PUBLISHER'S WARNING —

Every effort has been made to make this handbook as accurate as possible. However, there may be mistakes. This publication is designed to provide basic information for general reference. For more specific information see manufacturer specification sheets. If advice or assistance is required, the services of an expert in this field should be sought. The publisher, writer, or any and all distributors of this book make no express or implied warranties and take no responsibility for errors or omissions of the matter contained herein.

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ABOUT THIS BOOK

So you're planning to **build your own trailer** or modify one. Well, this book will be helpful; **it's a components and parts guide**. The simple illustrations and text will take you from towing systems, safety check, maintenance and towing hints onto components, running gear, suspension, fenders, lights and wire, hardware and more. After reviewing the book **start your design process**. First contact your state's motor vehicles department and obtain a copy of your state's trailer rules and regulations. Then **evaluate your towing vehicle's capability** and any improvements which may be necessary. Next, decide on a hitch system capable of your towing objectives and gross load. When designing your trailer, remember that your trailer's **capacity and performance** depends on your **careful considerations, proper engineering and design concepts** coupled with **quality goods and craftsmanship**. **Yes, used is used, so don't cut corners** as you may find it's just not cheaper! Don't underbuild; your trailer's capacity, safety and performance hinges on the weakest link in your trailer design chain- towing vehicle, towing system and your trailer.
Good luck!

The COYOTE Steel People



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TOWING SYSTEM DEFINITIONS

A towing system includes the towing vehicle, everything in between it and the trailer:

- A** Towing vehicle
- B** Trailer hitch
- C** Trailer hitch ball
- D** Coupler
- E** Safety chains
- F** Sway control
- G** Wiring harness

A Towing Vehicle:

A towing vehicle's capability to handle gross trailer and tongue weight is a must. Refer to your owners manual and review the towing vehicle's max load ratings. Most towing equipment is rated by its capacity to handle gross trailer weight, trailer tongue weight, or both. Gross trailer weight is the weight of the trailer plus all cargo in it. Tongue weight is the downward force exerted on the hitch ball by the trailer coupler with no weight distributing device.. Tongue weight should be about 10% max. of gross trailer weight for proper towing. Your tow vehicle may require additional equipment such as, air shocks or overload springs, transmission air cooler, engine air cooler or both. Don't forget proper mirrors.

B Trailer Hitches:

There are two basic types of trailer hitches for conventional trailers: #1 weight carrying type or #2 weight distributing or "equalizing" type.

#1 Weight Carrying Hitches:

These hitches support trailer tongue weight totally & are the most popular for towing small to medium size trailers. They include: step bumper hitches, bumper hitches, class I & II draw bar bolt-on hitches, step bumper* box end hitches, class I & III bolt-on* box end receiver tube type, and custom installation tow bar receiver* box end type. All factory hitches are rated by gross load & tongue weight capacity and, of course, may be limited by your tow vehicle's capacity (see page 8).

*Box end receiver tube type designed with 2" square I.D. Tube receiver designed to accept utility ball mount inserts for weight carrying applications (see pages 9-10).

TOWING SYSTEM DEFINITIONS

#2 Weight distributing or "Equalizing" Type Hitch Systems Class IV:

This system utilizes a special hitch head with spring bars attached which provide leverage between tow vehicle & trailer thus distributing tongue weight & the "in vehicle" loaded weight to all towing vehicle & trailer wheels. This transfer causes the vehicle & trailer to achieve a level towing condition allowing greater tongue weight & gross load to be carried, while the tow vehicle & trailer tend to remain level. Additionally, by levelling tow vehicle & trailer, headlights return to the legal position, not raised above normal angle due to excess weight on rear of towing vehicle. Also, braking is positive due to equal weight on all braking wheels & steering ability is improved because the required load is returned to steering wheels & avoids steering float. Weight distributing hitches are commonly used to tow medium to large travel trailers or for towing smaller trailers with downsized cars & trucks (see pages 10-11).

Equalizing hitches consist of 4 major components:

1. Draw bar box end receiver tube-sleeve- 2" square I.D.: A B & C custom "3 point" installation, D bolt-on factory receiver/draw bar kit
2. Head/ball mount & shank (sound steel hitch bar): E F & G weld-on type items, H I & J bolt-on type items
3. Spring bars & chain K
4. Quick hook-up clips L

C Trailer Hitch Ball:

Hitch balls are selected by gross trailer weight & must match the socket size of the trailer coupler. The ball shank or bolt must be compatible with hole size & thickness of the mounting area on the hitch or ball mount. A lock washer must be used-- never weld. Balls are available in a variety of types & sizes including extra lift balls to fit a wide variety of applications. Balls should be lubricated with heavy grease (see pages 12-13).

D Trailer Couplers:

The coupler is part of the trailer & an important component of the towing system. The coupler is the part of the trailer that attaches to the hitch ball. Coupler are available in 3 basic channel sizes for straight (pole) tongue trailers or "A" frame type or "v" shape with 50° angle. Couplers are available for 3 basic trailer ball sizes, 1 7/8", 2" or 2 5/16" and must be properly selected to match trailer tongue

TOWING SYSTEM DEFINITIONS

weight & gross load. The coupler's socket must match trailer ball size & should be smooth & clean. The coupler latch mechanism should be lubricated with light oil & socket with heavy grease (see pages 15-16).

E Safety Chains

Safety chains are part of the trailer. The braking strength of each chain and its attachment must equal or exceed the gross weight of the trailer. Safety chains are available in a variety of capacities, lengths, etc. Safety chains must be properly affixed to the trailer (do not weld) & correctly attached to the tow vehicle (see page 7).

F Sway Control Device (optional):

Sway control devices attach to the hitch at the forward end & to the trailer frame at rear end. sway controls can help minimize effects of sudden maneuvers, wind gusts & buffeting caused by other vehicles, especially large tractor/trailer types. Sway controls create a resistance as the towing vehicle & trailer turn with respect to each other. Select a sway control that allows resistance to be adjusted for varying conditions. These devices are highly recommended for trailers with large surface areas such as travel trailers. They are also an aid in towing trailers with a low percentage of tongue weight to gross load (see page 11).

G Tow Vehicle Wiring Harness:

Provides positive & quick connection for all required trailer lights & electric trailer brakes if applicable (see pages 52-54).

Note: This book contains info on hydraulic surge actuators for trailers with hydraulic braking systems, gooseneck couplers, 5th wheel towing systems & pintle hooks/rings.

SAFETY CHECK, MAINTENANCE & TOWING HINTS

A. Trailer Hitch: Check for loose nuts & bolts.

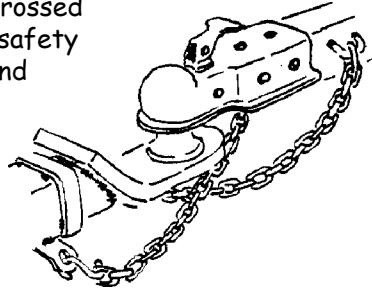
Inspect for damage.

B. Trailer Ball: Check for damage. Make sure ball is tight. Use heavy grease on ball to lubricate & prevent abnormal wear.

C. Coupler: Check for tightness of coupler & ball.

Inspect for damage. Keep latch mechanism lubricated with light oil & socket with heavy grease.

D. Safety Chains: Attach to trailer (do not weld) & hook to tow vehicle. Should be rated to match capacity of trailer. Chains should be crossed under tongue (as illustrated) to form safety cradle to hold trailer tongue off ground in the event of a failure. Crossing chains in this manner will require very little slack for turning. Safety chains should be secure, not drag on the ground & provide just enough slack to allow for turning.



E. Electrical: Inspect for dangling, loose, frayed, corroded or pinched wires. Check all lightbulbs & connections.

F. Wheels & Tires: Check air pressure, lug nuts, tire wear & sidewall cracking.

G. Hubs: Check for proper lubrications. Important: inspect for worn or scarred bearings & races.

H. Suspension: Inspect for worn or damaged bushings, loose nuts & bolts, and damaged hangers or springs. Rear shackle bolts must be kept well lubricated.

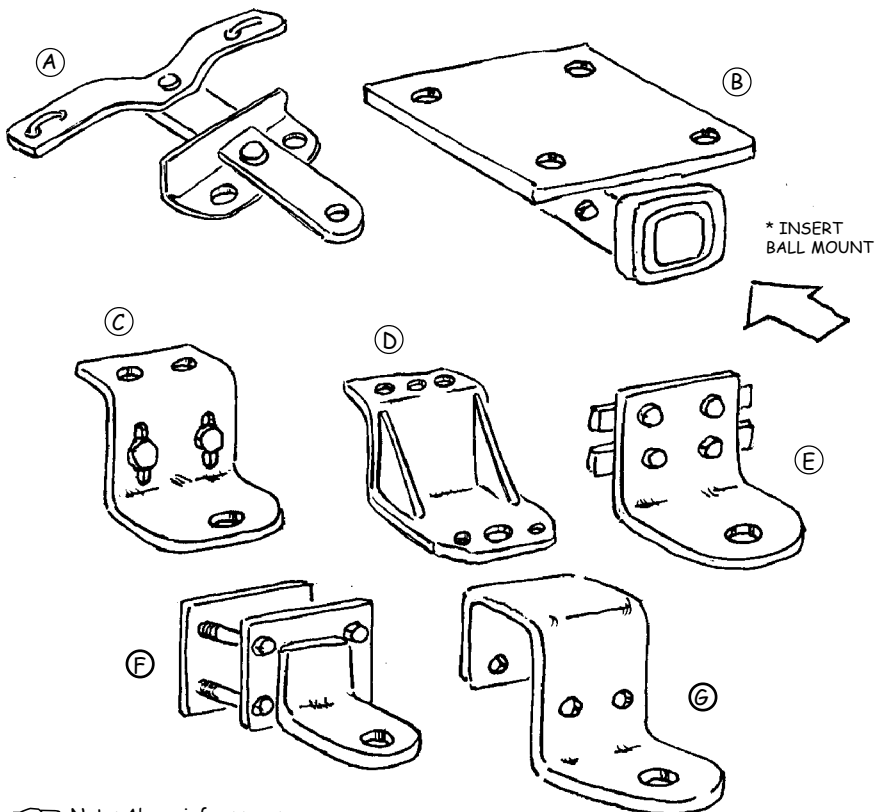
I. Trailer Sway: Too little or too much tongue weight. Inadequate suspension. Too short tongue. Too short tow vehicle wheel base. Too much rear trailer weight. Watch your speed!


J. Carry spare parts & tools: spare tire & wheel, hub & bearings, grease, lug wrench, screwdriver, hammer, pliers, jack, light bulbs, wire, electrical tape, flares. Prepare for the worst!

K. Tow Vehicle: Is it adequate & safe?

WEIGHT CARRYING HITCH SYSTEMS

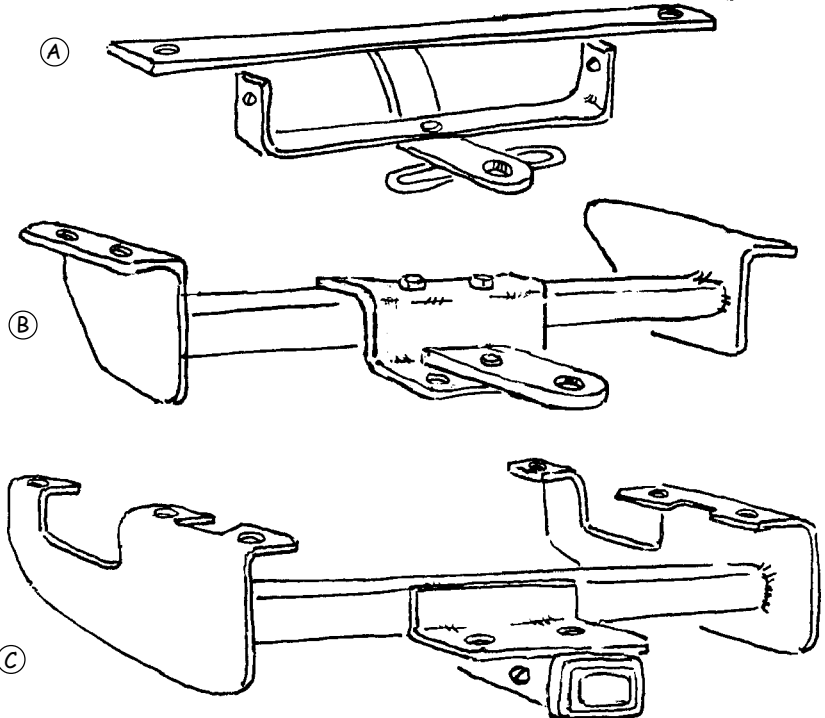
Type/Description	Tongue Wt. Approx.	Gross Load Max.
(A) Class I Custom Bolt-on Hitch	200#	2000#
(B) Step Bumper* Box End	500#	5000#
(C) Pick-up Step Bumper	350#	3500#
(D) " " "	"	"
(E) Jeep/Motor Home Flat Face	300#	3500#
(F) Motor Home Hose Bumper	200#	2000#
(G) " " " "	"	"




 Note: Above info approx.
 only & intended for
 general reference only

CLASS II WEIGHT CARRYING HITCHES DRAW BAR & *BOX END TYPE

- (A) Heavy Duty Bolt-on Draw Bar Hitch
Tongue load to 300# & gross loads from 3500#–4000#
Attaches to bumper & frame
- (B) Frame Only
Bolt-on draw bar hitch tongue loads to 350# & gross loads to 3500#
- (C) *Box End Type Frame Bolt-on Receiver Tube Hitch
Tongue loads to 1200# & gross loads 5,000#–10,000#



- (A) must attach frame & bumper
- (B) & (C) attach frame only

* INSERT
BALL MOUNT

Bolt-on Receiver Kit/Drawbar Kit

Ⓓ *Box End Type Frame Bolt-on Receiver Tube Hitch
Tongue loads to 1200# & gross loads 5,000#—10,000#

Weld-on Ball Mount/Head		Max. Vertical	Max. Gross Wt.
Ⓔ 400# Tongue Weight	U N I V E R S A L	4000#	10,000#
Ⓔ 550# " "		5500#	10,000#
Ⓔ 750# " "		7500#	10,000#
Ⓔ 1000# " "		10,000#	10,000#
Ⓔ 1200# " "		10,000#	10,000#

Weld-on Shank / Solid Steel Hitch Bar

Ⓕ Straight shank

Ⓖ High—Low—Allows 12 1/4" height adjustment

Bolt-on Ball Mount/Head

Ⓗ Same capacity as weld-on (see above)

Bolt-on Shank / Solid Steel Hitch Bar

Ⓙ Extra deep drop— allows additional 3 1/4" drop

Ⓝ High—Low—7 1/2" drop / 5 1/2" lift

Spring Bars & Chain

Ⓚ 400# Tongue Weight Rating

Ⓚ 550# " "

Ⓚ 750# " "

Ⓚ 1000# " "

Ⓚ 1200# " "

Ⓛ **Quick Hook-up Clips**

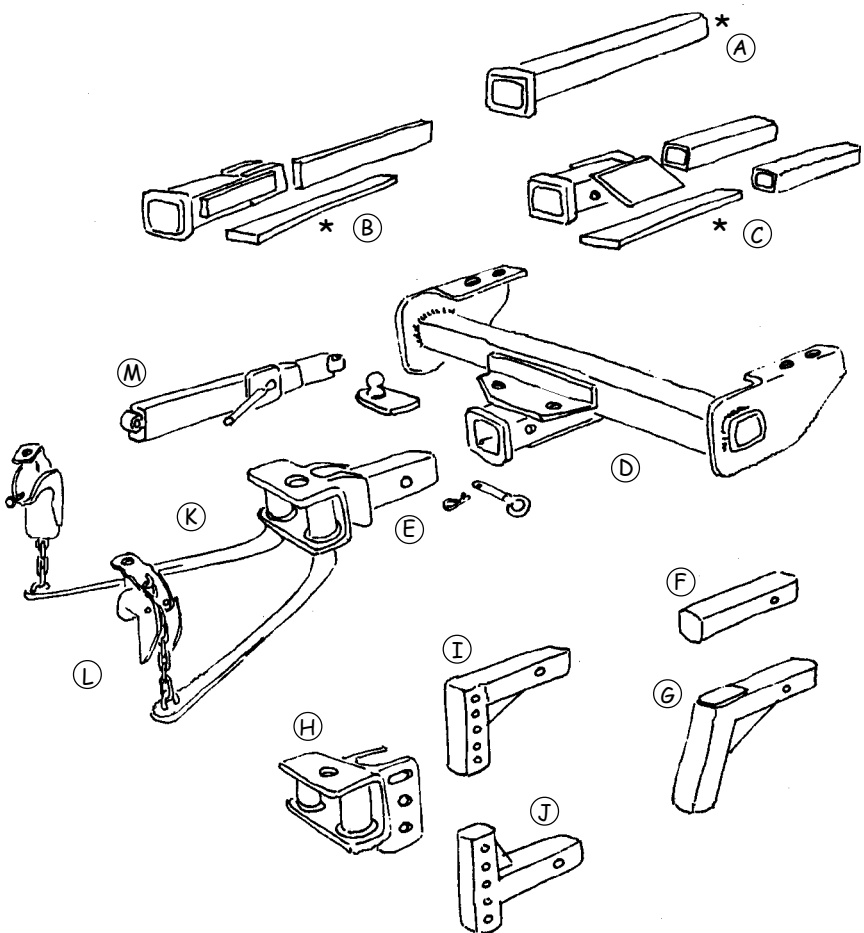
Ⓜ **Sway Control Device**

*IMPORTANT: Items Ⓐ Ⓑ & Ⓒ require additional reinforcing materials (steel) to achieve the required "3-point" installation

WEIGHT DISTRIBUTING OR LOAD EQUALIZING SYSTEM TONGUE LOADS TO 1200# & 10,000# GTW

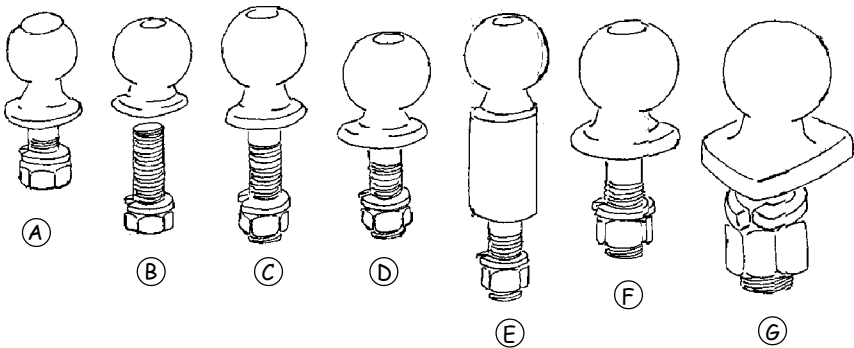
Custom Installation Vehicle Parts

- (A) Combo Draw Bar (Sleeve) Receiver Tube
- (B) Bar Draw Bar (Sleeve) Receiver Tube
- (C) Tubing Draw Bar (Sleeve) Receiver Tube



TRAILER BALL SPECIFICATIONS

#	Ball Size & Dimensions	Gross Load
(A)	"Two Piece" Ball	
	1 7/8" Dia. x 5/8 Bolt	2000#
	2" Dia. x 3/4"	3500#
(B)	Internal Thread (Bolt) Ball	
	1 7/8" Dia. x 3/4" Bolt x 2"	2000#
	2" Dia. x 3/4" Bolt x 2"	3500#
	2" Dia. x 3/4" Bolt x 2"	4000#



TRAILER BALL SPECIFICATIONS

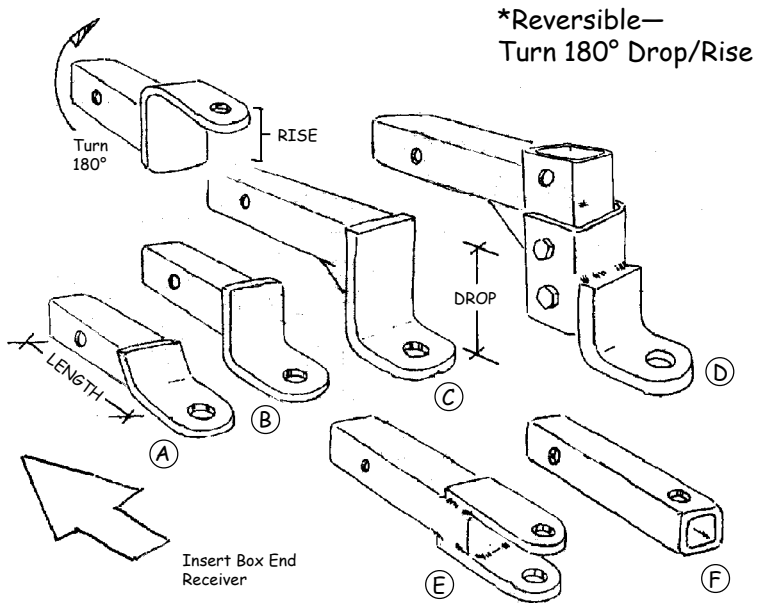
#		Ball Dia.	Shank Dia.	Shank Length	Gross Load		
(C)	Long Shank - Required for some step bumpers						
	"	"	"	1 7/8"	3/4"	3"	2000#
	"	"	"	2"	3/4"	3"	3500#
	"	"	"	2"	3/4"	3"	3500#
	"	"	"	2"	1"	3"	5000#
	"	"	"	2 5/16"	1 1/4"	3 1/4"	10,000#
	"	"	"	2 5/16"	1 1/2"	2 1/2"	10,000#

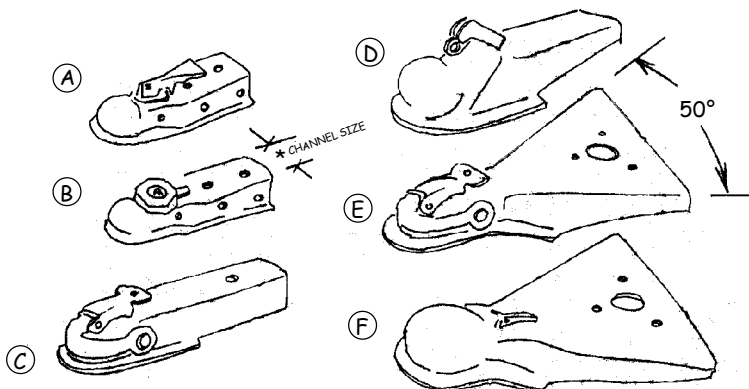
TRAILER BALL SPECIFICATIONS cont.

#	Description	Ball Dia.	Shank Dia.	Shank Length	Gross Load
Ⓓ	Std. Shank— Solid Steel				
	" " "	1 7/8"	3/4"	2 1/8"	2000#
	" " "	1 7/8"	1"	2 1/4"	2000#
	" " "	2"	3/4"	2 1/8"	3500#
	" " "	2"	1"	2 1/4"	5000#
	" " "	2"	1 1/4"	2 1/4"	7500#
	" " "	2 5/16"	1"	2 1/4"	6000#
	" " "	2 5/16"	1 1/4"	2 1/2"	10,000#
	" " "	2 5/16"	1 3/8"	2 1/4"	10,000#
	" " "	2 5/16"	1 1/4"	2 1/4"	30,000#
	" " "	2 5/16"	1 3/8" w/1" rise	2 3/4"	30,000#
	" " "	2 5/16"	1 3/8" w/2" rise	2 3/4"	30,000#
	" " "	3"	2"	3 1/4"	30,000#
Ⓔ	High Lift Shank				
	" " "	2"	1"	1"	5000#
	" " "	2"	1"	2"	3500#
	" " "	2"	1 1/4"	1"	6000#
	" " "	2 5/16"	1 1/4"	1"	7000#
	" " "	2 5/16"	1 1/4"	2"	5000#
	" " "	2 5/16"	1 3/8"	1"	8000#
Ⓕ	"Heavy Duty" Shank— Solid Steel				
	" " "	2"	3/4"	2 1/8"	3000#
	" " "	2"	1"	2 1/8"	5000#
	" " "	2"	1"	2 1/8"	7000#
	" " "	2 5/16"	1 1/4"	2 3/4"	12,500#
Ⓖ	*Industrial "Extra Heavy Duty" Shank— Forged				
	" " "	2 5/16"	1 3/8"	2 1/2"	13,000#
	" " "	2 5/16"	1 3/8"	2 1/2"	40,000#
	*Torque to 460/600 Ft. Lbs. WARNING: Lock washers must be used. Wrench flats should be oriented parallel to towing direction. Do not weld ball. Maintenance: Bolt or nut should be checked & tightened to correct torque. Check for ball wear & lubricate with bearing grease.				

BALL MOUNTS FOR BOX END HITCHES * REVERSIBLE (RISE OR DROP)

#	5000# Gross Load 500# Tongue Load	Length	Drop	Rise
(A)	" " "	8"	2"	3/4"
"	" " "	10 1/2"	2"	3/4"
(B)	" " "	6 1/2"	3 1/4"	2"
"	" " "	10 1/2"	3 1/4"	2"
(C)	" " "	9"	5 1/2"	4"
"	" " "	10 1/2"	5 1/4"	4"
"	" " "	10"	8"	6 3/4"
"	" " "	10 1/2"	10"	8 3/4"
(D)	Adjustable Type	10"	7 1/2" max.	6 1/8" max.
(E)	Ring & Pintle	15"	None	None
(F)	3500# Gross Load 350# Tongue Load	10" to 13"	None	None

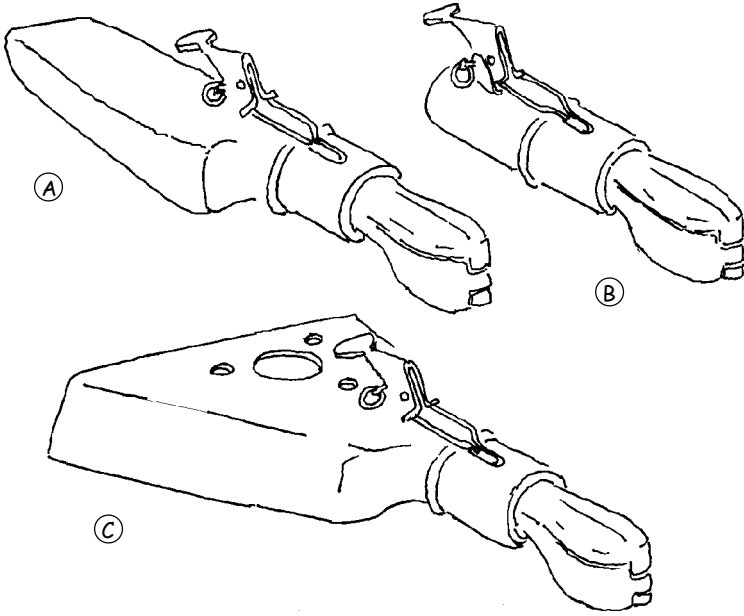




TRAILER COUPLER SPECIFICATIONS

Type	* Channel Size	Ball Size	Tongue Load	Gross Load	SAE Class
(A) Lock Type Coupler for gross loads 2000# or 3500#	2"	1 7/8"	200#	2000#	I
	2 1/2"	"	"	"	"
	3"	"	"	"	"
	2"	2"	300#	3500#	II
	2 1/2"	"	"	"	"
	3"	"	"	"	"
5000# Capacity	3"	"	"	5000#	III
(B) Screw Handle Type Coupler fits 1 7/8" or 2" Ball Note: 1 7/8" ball= 2000# 2" ball= 3500#	2"	1 7/8"	200#	2000#	I
		2"	300#	3500#	II
	2 1/2"	1 7/8"	200#	2000#	I
		2"	300#	3500#	II
	3"	1 7/8"	200#	2000#	I
		2"	300#	3500#	II
(C) Straight Tongue	2"	2"	750#	5000#	III
(D)	3"	2 5/16"	1275#	8500#	IV
(E) "A" Frame	—	2"	750#	5000#	III
(F)	—	2 5/16"	1500#	10,000#	—

Note: Gross Load Limitations/Maximum



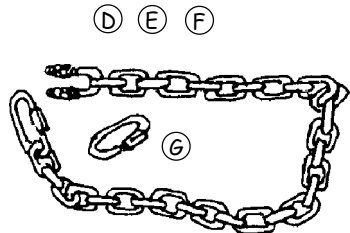
FORGED STEEL COUPLERS

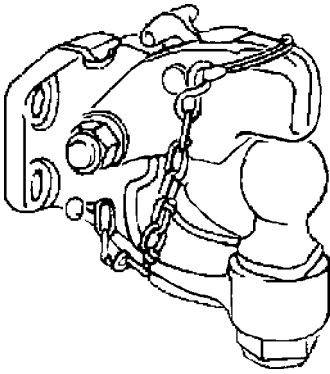
Type	Fitting Size	Ball Size	* Gross Load
A Straight Square Tongue	3" channel size I.D.	2"	5000#
		2 5/16"	12,500#
B Round Straight Tongue	Tube Shank 2 1/4" O.D.	3"	5000#
		2 5/16"	12,500#
C "A" Frame "Y" Type Tongue	50° Angle "A" Frame	2"	5,000#
		2 5/16"	12,500#

*Note: Indicates gross vehicle weight rating

SAFETY CHAINS

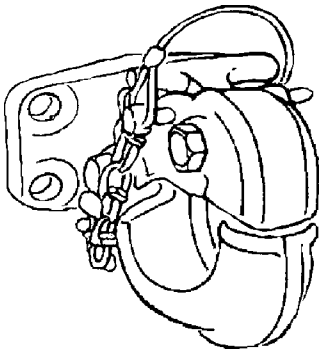
Type	Class	Load
D x 32"	I	2000#
E "	II	3500#
F "	III	5000#
G Chain Clip		





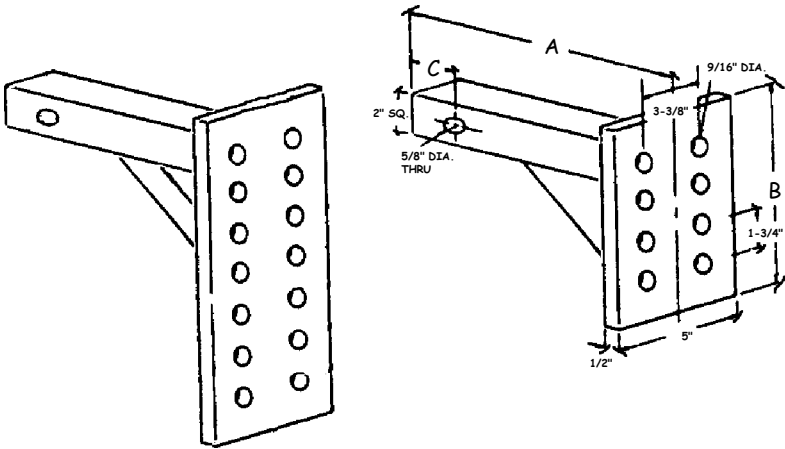
COMBINATION HITCHES

Description	Ball Size	Pintle Capacity		Ball Hitch Capacity
		# Vertical	Max Trailer Wt.	
Hitch w/Ball	1 7/8"	3000	16,000#	2000#
Hitch w/Ball	2"	3000	16,000#	7000#
Hitch w/Ball	2 5/16"	3000	16,000#	12,000#



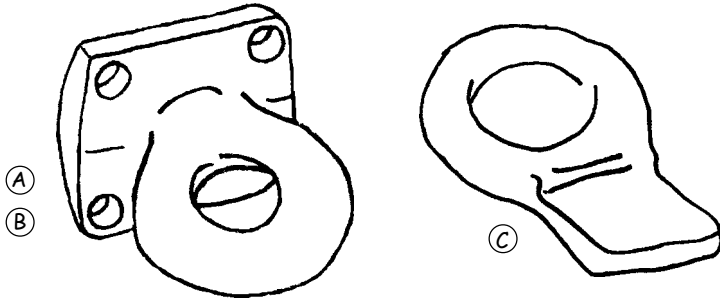
FORGED HEAVY-DUTY PINTLE HOOK

Description	Vertical Load (lbs.)	Max. Trailer Weight (lbs.)
#5	2000	10,000
#15	6000	30,000
#20	6000	40,000
#35	18,000	70,000



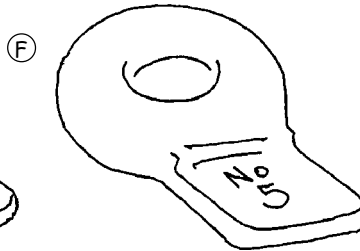
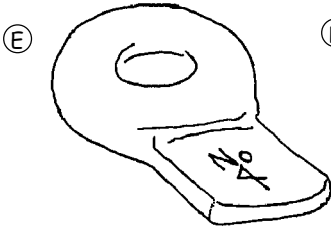
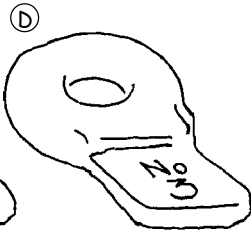
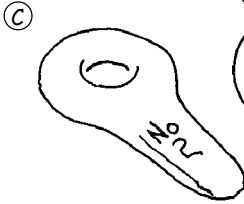
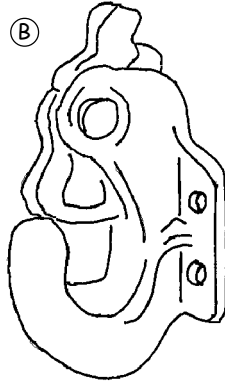
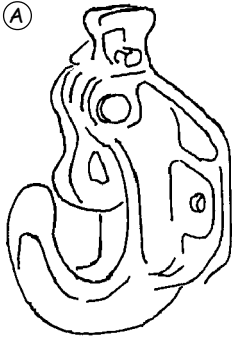
PINTLE HOOK MOUNTS

Description	A (in.)	B (in.)	C (in.)	Pairs of Holes
Short	8.5	7.25	3	4
Long	12.5	13	2.5	7
Long	14.5	13	2.5	7



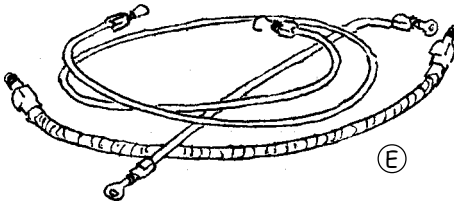
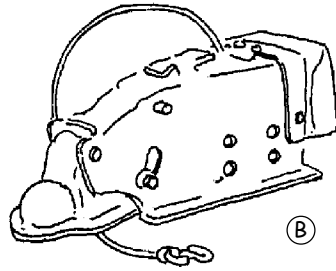
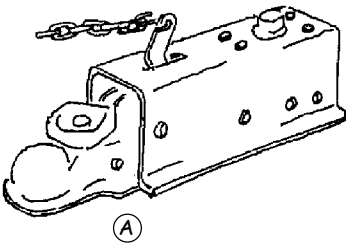
DRAWBARS

#	Description	I. D.	Vertical Load	Max. Trailer Weight
(A)	w/4 1/2" Sq. Mounting Pattern	2 1/2"	7,000#	35,000#
(B)	w/4 1/2" Sq. Mounting Pattern	3"	15,000#	60,000#
(C)	7" overall w/4 1/2" O.D.	2 1/2"	1000#	10,000#



PINTLE HOOKS & REACH EYES

#	Description	Tensile	I. D.
(A)	Pintle Hook	15,000#	—
(B)	Pintle Hook	30,000#	—
(C)	#2 Reach Eye	12,000#	2"
(D)	#3 Reach Eye	70,000#	2 1/6"
(E)	#4 Reach Eye	90,000#	2 3/8"
(F)	#5 Reach Eye	90,000#	2 5/8"

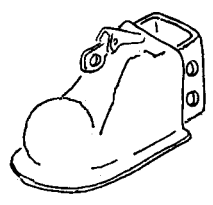


HYDRAULIC SURGE BRAKE ACTUATORS

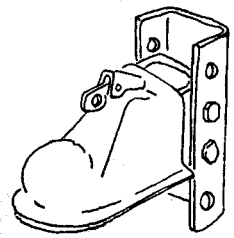
Type		Tongue Load	Gross Weight
(A) Medium Duty 2" Ball x 3" Channel Size		—	6000#
(B) Medium Duty 2" Ball x 3" Channel Size		—	6000#
(C) Heavy Duty Less Coupler	#1	2 5/16" Ball Coupler	800# 10,000#
	#2	Adjustable Coupler	" "
	#3	Drop Coupler	" "
	#4	3" Lunette Eye	" "
	#5	Adjustable Lunette Eye	" "
	#6	Adjustable Clevis Hitch	" "
(D) Extra Heavy Duty Less Coupler	#1	2 5/16" Ball Coupler	2000# 20,000#
	#2	Adjustable Coupler	" 12,000#
	#3	Drop Coupler	2000# 20,000#
	#4	3" Lunette Eye	— 12,000#
	#5	Adjustable Lunette Eye	— 12,000#
	#6	Adjustable Clevis Hitch	2,000# 20,000#
(E) Hydraulic Line Kits— Piping Instructions			

Inquire for application/installation information.

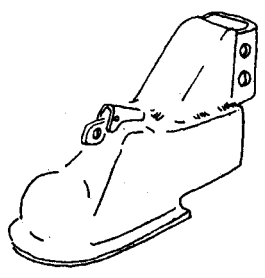
#1



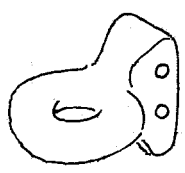
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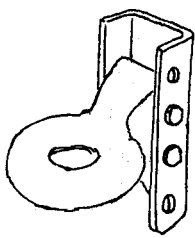
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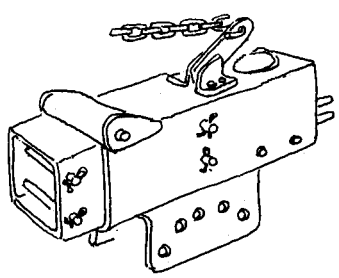
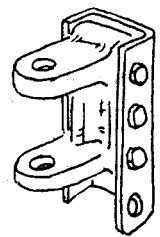
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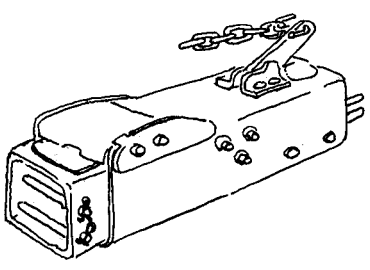
#5



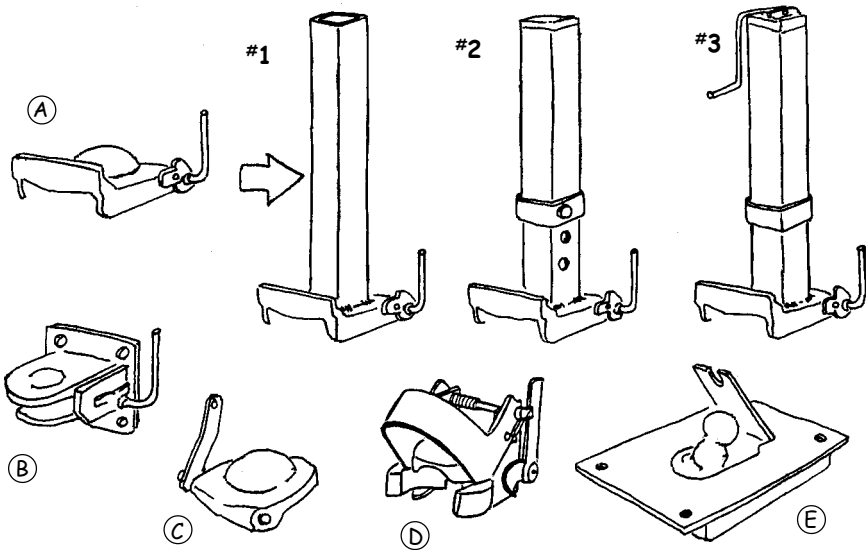
#6



C



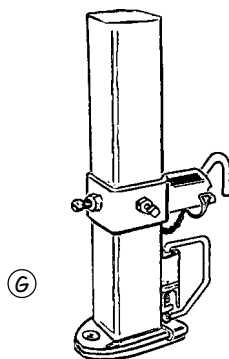
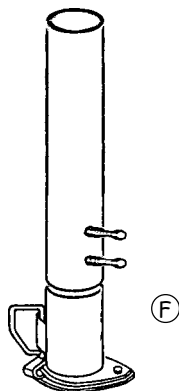
D



GOOSENECK COUPLERS

Description

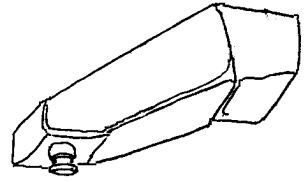
- | | |
|-----|---|
| (A) | 25,000# Gooseneck Coupler
Wide Angle Self Centering w/
#1 Fixed Stem
#2 Drop Tube Stem
#3 Adjustable Stem |
| (B) | Ball Coupler *Pull Type
Bolt On 25,000# G.V.W. |
| (C) | 24,000# Rated Gooseneck Coupler—
Welds to 3" - 4" Pipe |
| (D) | Automatic Locking 2 5/16"
Gooseneck Coupler, 20,000# G.V.W. |
| (E) | Retractable 2 5/16" Ball
Mount Assembly 25,000# G.V.W. |
| (F) | Adjustable Round Tube 2 5/16"
Gooseneck Coupler, 20,000# G.V.W. |
| (G) | Adjustable Square Tube 2 5/16"
Gooseneck Coupler, 20,000# G.V.W. |



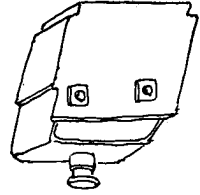
5TH WHEEL HITCHES & KING PINS

Description

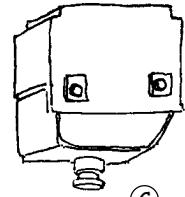
- (A) 45° King Pin Box
- (B) 72° Adjustable King Pin Box
- (C) 90° Adjustable King Pin Box



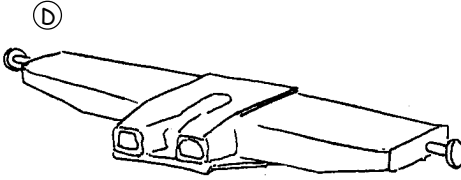
(A)



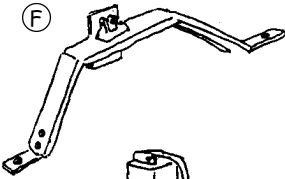
(B)



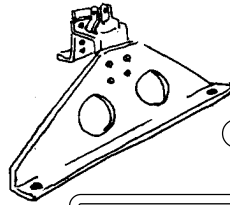
(C)



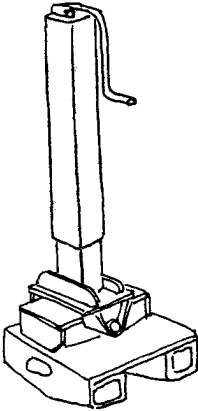
(D)



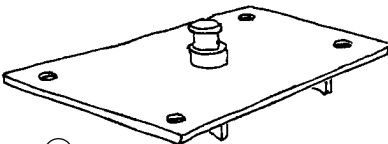
(F)



(E)



(G)



(H)

5TH WHEEL HITCHES & KING PINS cont.

Description

- (D) 5th Wheel Hitches for R.V.s
 1. 36" x 10,000# G.V.W.
 2. 48" x 12,000# G.V.W.
 3. 54" x 12,000# G.V.W.

(E) Mini & Standard Pick-up 48" Rail

(F) Over Fender 54" Side Rail

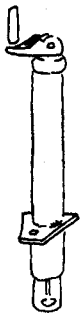
(G) Mini 5th Wheel w/Adjustable Stem, 30,000# G.V.W.

(H) Retractable King Pin & Plate 30,000# G.V.W.

TRAILER JACKS & FITTING



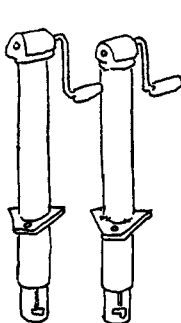
*1000#



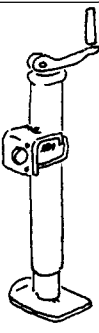
(A)
*2000#



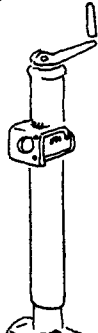
*5000#



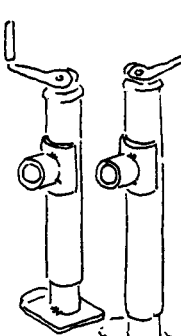
(B)
*1000# *2000#



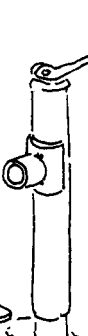
*1000# (SHORT) (C)



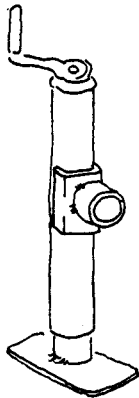
*1000# (LONG)



*2000# (SHORT) (D)



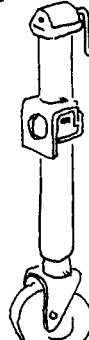
*2000# (LONG)



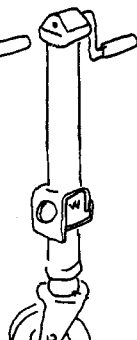
(E)
*5000#



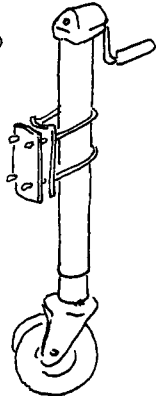
(F)
*500#



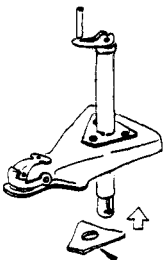
(G)
500#



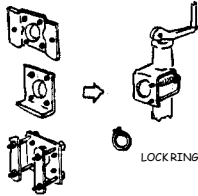
(H)
*750#



(I)
*500#



SUPPORT PLATE



LOCKRING

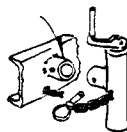
USE w/ (C) (E) & (F)



USE w/ (A) & (B)



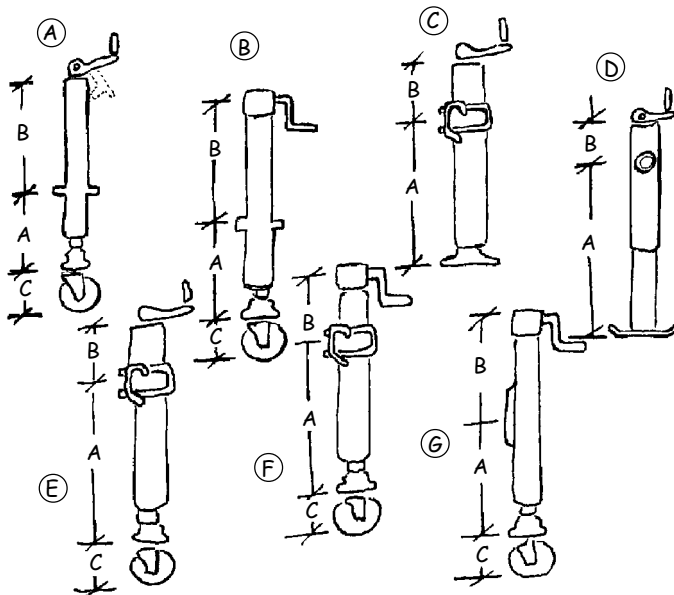
*1000# (A) & (B) CASTER ONLY



USE w/ (D)



USE w/ (G)

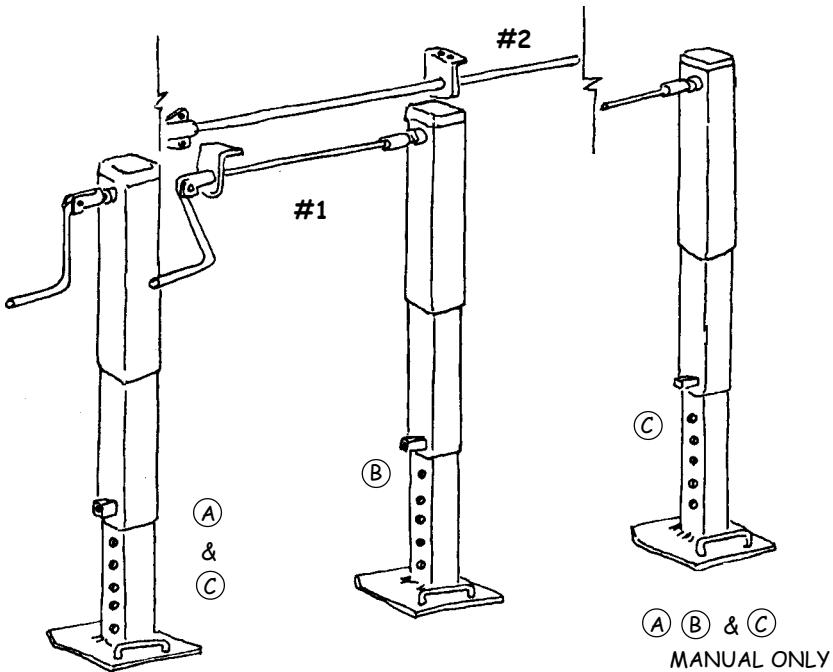


JACKS— "A" FRAME, SWIVEL & STRAIGHT TONGUE

Description	Cap. #	Ext. Travel	*A	*A	B	C	Bracket	
			Ret.	Ext.			WELD ON	BOLT ON
Ⓐ A Frame Top Wind	1000#	15	7 1/2	22 1/2	13 1/2	6 7/8	—	—
	2000#	15	8 1/2	23 1/2	14 1/4	6 7/8	—	—
	5000#	14	11 1/2	25 1/2	10	6 7/8	—	—
Ⓑ A Frame Side Wind	1000#	15 1/2	7 3/8	22 7/8	14 7/8	6 7/8	—	—
	2000#	13 3/4	8 1/2	22 1/4	14 1/8	6 7/8	—	—
Ⓒ Lock Pin Swivel Top Wind	1000#	10	11 5/8	21 5/8	3 3/8	—	X	X
	1000#	15	15	30	6	—	X	X
Ⓓ Tube Mount Swivel Top Wind	2000#	10	11 5/8	21 5/8	3 3/8	—	X	—
	2000#	15	11	26	14 1/4	—	X	—
	5000#	15	11	26	14 1/4	—	X	—
Ⓔ Lock Pin Swivel Top Wind	500#	8	6 1/4	14 3/4	6	6 7/8	X	X
Ⓕ Lock Pin Swivel Side Wind	500#	10 1/4	12 3/4	23	9 1/2	6 7/8	X	X
	1000#	13 3/4	11 1/4	25 1/4	16 1/2	6 7/8	X	X
Ⓖ Straight Tongue Side Wind Bolt-on Bracket	500#	13 3/4	27 1/2	41	18 1/2	6 7/8	—	X

JACKS— 5th WHEEL & STABILIZING TYPE

#	Description	Lift Travel	Load
(A)	Side Mount Avail: Drop Leg w/ Std. Disc Foot Drop Leg w/ Levelling Foot Fixed Leg w/Std. Disc Foot Fixed Leg w/ Levelling Foot	Travel 12 1/2" + drop leg allows additional 13 1/2" adjustment	10,000#
(B)	Center Mount #1 Center Mount Crank	"	10,000#
(C)	Tandem Mount #2 Tandem Mount Crank	"	20,000#
(D)	Stabilizing Jack (stores out-of-way) *Not Pictured	11 1/2" fully retracted 17 3/4" fully extended	650# lift 1000# static cap.

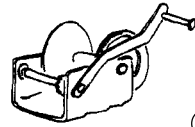


HAND WINCH SPECIFICATIONS— STD. RATCHET TYPE

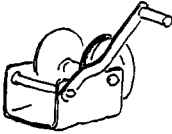
	*Load/ Capacity	Gear Ratio	Cable Size & Reel Capacity
Standard Duty			
(A)	400	1:1	5/32" x 61'
(B)	600	3:2:1	3/16" x 73'
(C)	900	3:2:1	3/16" x 45'
(D)	1100	3:9:1	3/16" x 83'
(E)	1300	4:5:1	7/32" x 58'
Medium Duty (2-way ratchet)			
(F)	1300	4:5:1	7/32" x 58'
(G)	1400	4:5:1	1/4" x 42'
(H)	1600	5:5:1	1/4" x 61'
(I)	1600	5:5:1/1:1	1/4" x 61'
(J)	1800	5:5:1	9/32" x 58'
Heavy Duty (2-way & 2-speed operation)			
(K)	1800*	10:5:1 5.5:1	9/32" x 58'
(L)	2000*	12:5:1 5:5:1	9/32" x 58'
(M)	2500*	17:1 5:5:1	5/16" x 49'
(N)	3000	17:1 5:5:1	3/8" x 33'
(O)	3500 w/brake	12:1 6:1	3/8" x 37'
Winch Accessories			
(P)	Winch Strap & Hook		
(Q)	Winch Cable & Hook		
(R)	Cable Clamp		

* Available with hand brake

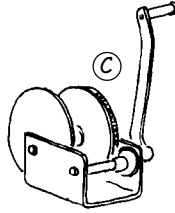
HAND WINCHES



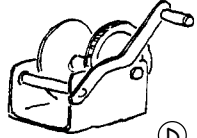
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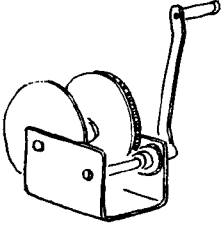
B



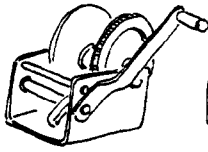
C



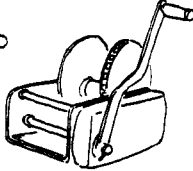
D



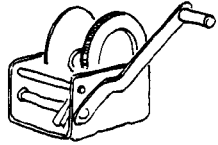
E



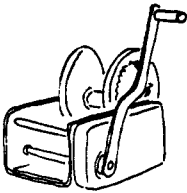
F



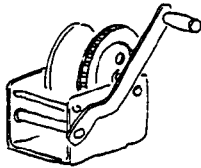
G



H



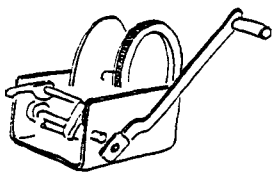
I



J

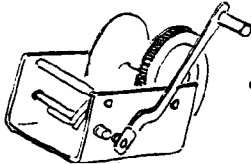


K

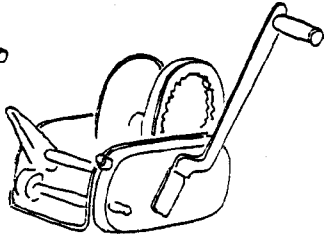


L

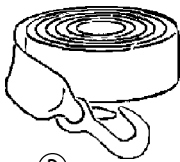
M



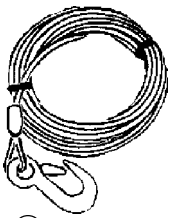
N



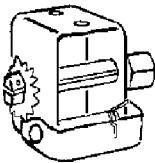
O



P

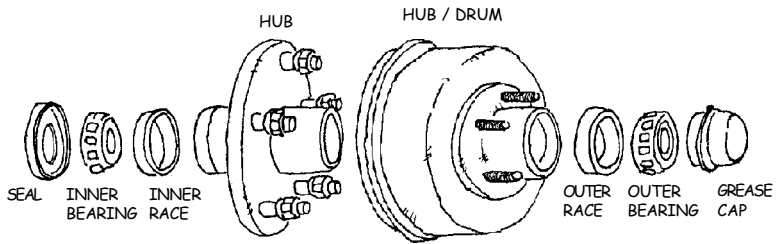


Q



R

HIGH SPEED TRAILER HUBS



BT SPINDLE - 2000# AXLES

Desc.	Bolt Circle	Grease Cap	Inner Bearing	Inner Race	Outer Bearing	Outer Race	Seal
HUB	4 on 4	46749	L44643	L44610	L44643	L44610	46750
"	"	"	L44649	"	L44649	"	"
"	5 on 4.5	"	L44643	"	L44643	"	"
"	"	"	L44649	"	L44649	"	"

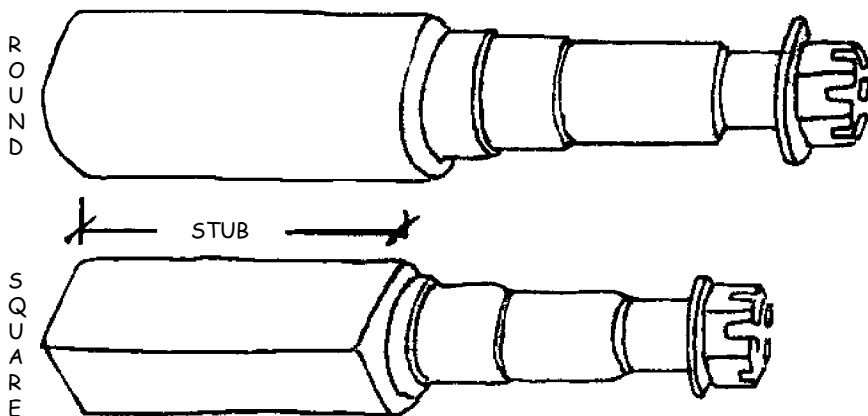
#84 SPINDLE - 3500# AXLES

HUB	5 on 4.5	46749	LM68149	L68111	L44649	L44610	58846
H/D	"	"	"	"	"	"	"
HUB	5 on 4.75	"	"	"	"	"	"
H/D	"	"	"	"	"	"	"
HUB	5 on 5	"	"	"	"	"	"
H/D	"	"	"	"	"	"	"
HUB	5 on 5.5	"	"	"	"	"	"
H/D	"	"	"	"	"	"	"
HUB	6 on 5.5	"	"	"	"	"	"
H/D	"	"	"	"	"	"	"
H/D	4 on 9.4	"	"	"	"	"	"

#42 SPINDLE - 5200, 6000, 7000# AXLES

HUB	6 on 5.5	45896	25580	25520	LM67048	LM67010	42385
H/D	"	"	"	"	"	"	"
H/D	4 on 9.4	"	"	"	"	"	"
HUB	8 on 6.5	WE1605	"	"	14125A	14276	"
H/D	"	"	"	"	"	"	"
H/D	5 lug, D.	45896	"	"	15123	15245	"

SPINDLES



ROUND STOCK

Spindle Type	Capacity Per Pair	Dia. Stock	Stub Length	Total Length
BT	1000#	1 1/4"	4"	8 1/2"
BT	1500#	1 1/4"	4"	8 1/2"
84	3500#	1 3/4"	4"	9"
84	3500#	1 3/4"	3"	7"
42	6000#	2 1/4"	5 1/4"	9 1/2"

SQUARE STOCK

BT	1000#	1 1/2"	4"	8 1/2"
BT	2000#	1 1/2"	4"	8 1/2"
84	2000#	1 1/2"	4"	8 1/2"
84	3500#	1 3/4"	6"	10 1/2"
42	5000#	2"	6"	11"

BEARING PROTECTOR SELECTION

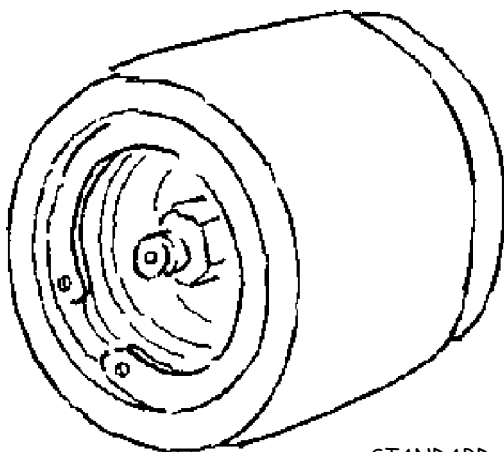
Hub Bore Size (Dec.)	Outer Bearing (Cone)	Outer Bearing Cup (Race) #
*1.781	LM11949	LM11910
1.810	LM12749	LM12711
1.938	09067	09194, 95, 96
1.968	M12649	M12610
	07100	07196
*1.980	L44643, L44649	L44610
1.980	All Internal Threaded Hubs	
2.047	Various	07204
2.080	900 Series	900 Series
2.240	1700 Series	1729
*2.321	LM67048 (Hub not counterbored)	LM67010
2.441	LM67048 (Hub counterbored 15123 & others)	LM67010 15245
2.562	LM48548	LM48510

*Most popular sizes:

1.781 for 1 3/4" hub

1.980 for 2" hub

2.441 for 2 5/16" hub



STANDARD
BEARING
PROTECTOR

AXLE MEASUREMENT CHARTS


Track	Hub Face	Spring Center Straight Axle	Spring Center Drop Axle	Overall Length	Outside Flanges
-------	----------	-----------------------------	-------------------------	----------------	-----------------

2000# AXLE

52	53	37.75 to 41.25	35 to 38.25	58	46
54	55	39.75 to 43.25	37 to 40.25	60	48
56	57	41.75 to 45.25	39 to 42.25	62	50
58	59	43.75 to 47.25	41 to 44.25	64	52
60	61	45.75 to 49.25	43 to 46.25	66	54
62	63	47.75 to 51.25	45 to 48.25	68	56
64	65	49.75 to 53.25	47 to 50.25	70	58
66	67	51.75 to 55.25	49 to 52.25	72	60
68	69	53.75 to 57.25	51 to 54.25	74	62
70	71	55.75 to 59.25	53 to 56.25	76	64
72	73	57.75 to 61.25	55 to 58.25	78	66
74	75	59.75 to 63.25	57 to 60.25	80	68
76	77	61.75 to 65.25	59 to 62.25	82	70
78	79	63.75 to 67.25	61 to 64.25	84	72
80	81	65.75 to 69.25	63 to 66.25	86	74
82	83	67.75 to 71.25	65 to 68.25	88	76
84	85	69.75 to 73.25	67 to 70.25	90	78
86	87	71.75 to 75.25	69 to 72.25	92	80
88	89	73.75 to 77.25	71 to 74.25	94	82
90	91	75.75 to 79.25	73 to 76.25	96	84
92	93	77.75 to 81.25	75 to 78.25	98	86
94	95	79.75 to 83.25	77 to 80.25	100	88

3500# AXLE

60	61	43 to 46	43 to 46	65.75	54.75
62	63	45 to 48	45 to 48	67.75	56.75
64	65	47 to 50	47 to 50	69.75	58.75
66	67	49 to 52	49 to 52	71.75	60.75
68	69	51 to 54	51 to 54	73.75	62.75
70	71	53 to 56	53 to 56	75.75	64.75
72	73	55 to 58	55 to 58	77.75	66.75
74	75	57 to 60	57 to 60	79.75	68.75

 Continued NEXT PAGE

AXLE MEASUREMENT CHARTS

Track	Hub Face	Spring Center Straight Axle	Spring Center Drop Axle	Overall Length	Outside Flanges
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3500# AXLE cont.

76	77	59 to 62	59 to 62	81.75	70.75
78	79	61 to 64	61 to 64	83.75	72.75
80	81	63 to 66	63 to 66	85.75	74.75
82	83	65 to 68	65 to 68	87.75	76.75
84	85	67 to 70	67 to 70	89.75	78.75
86	87	69 to 72	69 to 72	91.75	80.75
88	89	71 to 74	71 to 74	93.75	82.75
90	91	73 to 76	73 to 76	95.75	84.75
92	93	75 to 78	75 to 78	97.75	86.75
94	95	77 to 80	77 to 80	99.75	86.75
94	95	77 to 80	77 to 80	99.75	88.75

5200# AXLE

60	60	41 to 45	41 to 42.5	65.75	51.25
62	62	43 to 47	43 to 44.5	67.75	53.25
64	64	45 to 49	45 to 46.5	69.75	55.25
66	66	47 to 51	47 to 48.5	71.75	57.25
68	68	49 to 53	49 to 50.5	73.75	59.25
70	70	51 to 55	51 to 52.5	75.75	61.25
72	72	53 to 57	53 to 54.5	77.75	63.25
74	74	55 to 59	55 to 56.5	79.75	65.25
76	76	57 to 61	57 to 58.5	81.75	67.25
78	78	59 to 63	59 to 60.5	83.75	69.25
80	80	61 to 65	61 to 62.5	85.75	71.25
82	82	63 to 67	63 to 64.5	87.75	73.25
84	84	65 to 69	65 to 66.5	89.75	75.25
86	86	67 to 71	67 to 68.5	91.75	77.25
88	88	69 to 73	69 to 70.5	93.75	79.25
90	90	71 to 75	71 to 72.5	95.75	81.25
92	92	73 to 77	73 to 74.5	97.75	83.25
94	94	75 to 79	75 to 76.5	99.75	85.25

AXLE MEASUREMENT CHARTS

Track	Hub Face	Spring Center Straight Axle	Spring Center Drop Axle	Overall Length	Outside Flanges
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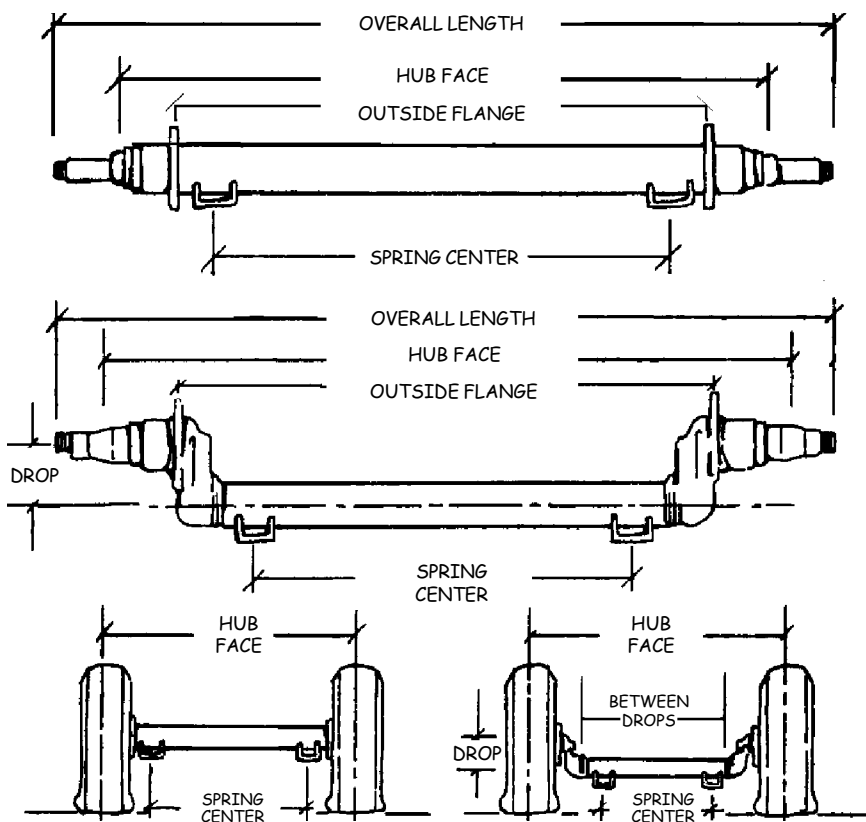
6000# AXLE

60	61	41 to 46	41 to 43.25	67	52.25
62	63	43 to 48	43 to 45.25	69	54.25
64	65	45 to 50	45 to 47.25	71	56.25
66	67	47 to 52	47 to 49.25	73	58.25
68	69	49 to 54	45 to 51.25	75	60.25
70	71	51 to 56	51 to 53.25	77	62.25
72	73	53 to 58	53 to 55.25	79	64.25
74	75	55 to 60	55 to 57.25	81	66.25
76	77	57 to 62	57 to 59.25	83	68.25
78	79	59 to 64	59 to 61.25	85	70.25
80	81	61 to 66	61 to 63.25	87	72.25
82	83	63 to 68	63 to 62.25	89	74.25
84	85	65 to 70	65 to 67.25	91	76.25
86	87	67 to 72	67 to 69.25	93	78.25
88	89	69 to 74	69 to 71.25	95	80.25
90	91	71 to 76	71 to 73.25	97	82.25
92	93	73 to 78	73 to 75.25	99	84.25
94	95	75 to 80	75 to 77.25	101	86.25

Notes:

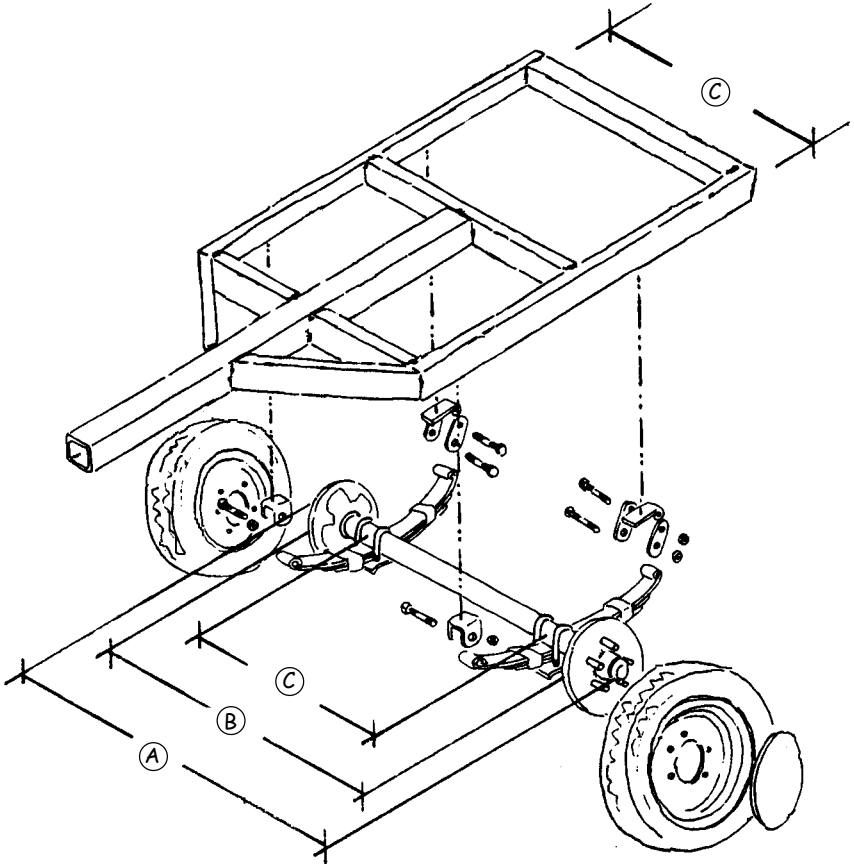
AXLES "NEW FACTORY"— STRAIGHT & DROP

Capacity Per Axle	Hub Bolt Pattern	Wheel Sizes	Tube O.D.	Wall
2000#	5 on 4 1/2	8", 12", 13", & 14"	1.75"	.180"
3500#	5 on 4 1/2	13", 14", & 15"	2.375"	.180"
5200#	6 on 5 1/2	15" & 16.5"	3.00"	.180"
6000#	8 on 6 1/2	16" & 16.5"	3.00"	.250"
7000#	"	"	"	"
8000#	"	"	3.50"	"
9000#	"	"	4.50"	"
10,000#	"	"	5.00"	"
12,000#	"	"	5.00"	.440"



**TRACK & SPRING CENTERS—
AXLE SELECTION DIMENSIONS**

- Ⓐ Axle Overall Length— Don't forget to consider tire bulge & fenders.
- Ⓑ Hub Face— Center to center of tires as shown.
- Ⓒ Spring Centers— Attachment point of suspension.



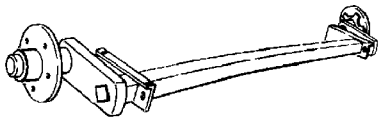
RUBBER CUSHIONED AXLES

Features

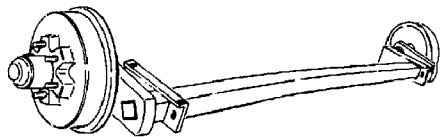
- Totally rubber cushioned for smooth, quiet, independent ride
- Easy installation w/less maintenance
- Less transfer of road shock, insulates cargo from road shocks & vibration
- Rubber cords compounded for maximum dependability & durability
- Load carrying cross member
- Self-damping action
- Independent wheel suspension system
- 5-year limited warranty on suspension system
- Low profile for maximum road clearance
- Various starting angles to control trailer height
- High & low profile brackets w/optional mounting brackets available
- Shock absorption provided by the natural hysteresis of rubber
- Single or tandem axle assemblies (triple assemblies not recommended)

Options

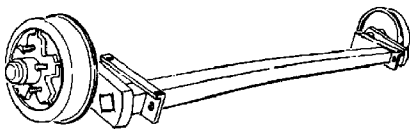
- 1000# through 10,000# capacities
- Available with no brakes, electric brakes or hydraulic brakes
- Industry standard hubs and hub-drums
- Custom built to your specifications



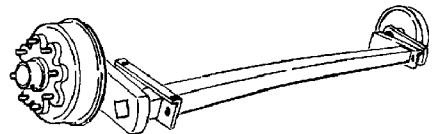
Capacity 1000# - 2200#



Capacity 4000# - 5,200#



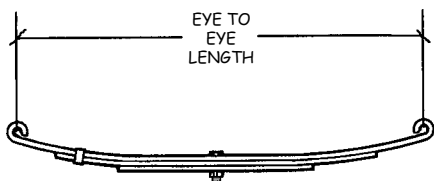
Capacity 2300# - 3500#



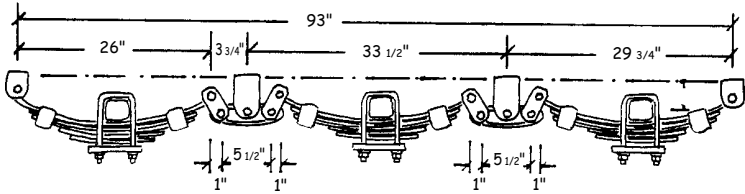
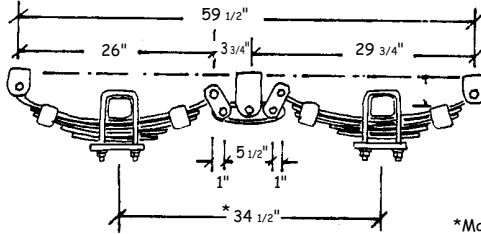
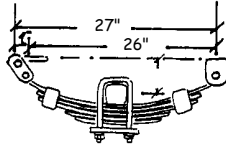
Capacity 5500# - 7000#

TRAILER SPRINGS— DOUBLE EYE "CONVENTIONAL"

Part #	Capacity per pair (lbs.)	Number of Leafs	Leaf Thickness (in.)	Width (in.)	Eye to Eye Length (in.)
AS2	900	2	.25	1 3/4	26
AS3	1350	3	.25	1 3/4	26
AS4	1800	4	.25	1 3/4	26
AWS2	1700	2	.38	1 3/4	26
AWS3	2600	3	.38	1 3/4	26
AWS4	3500	4	.38	1 3/4	26
AWS5	4400	5	.38	1 3/4	26
AWS6	5300	6	.38	1 3/4	26
AWS7	6200	7	.38	1 3/4	26
AWS8	7100	8	.38	1 3/4	26
MR3	5100	3	.50	1 3/4	26
MR4	6900	4	.50	1 3/4	26
72-6	2500	3	.34	1 3/4	23 1/4
72-9	3500	3	.38	1 3/4	23 1/4
72-16	1400	3	.25	1 3/4	20 1/4
72-17	2000	3	.25	1 3/4	20 1/4
72-20	5000	4	.36	1 3/4	23 1/4
72-24	4000	3	.41	1 3/4	25 1/4
72-25	5000	4	.41	1 3/4	25 1/4
72-26	6000	4	.41	1 3/4	25 1/4
72-27	7000	6	.38	1 3/4	25 1/4
72-73	6000	5	.38	1 3/4	25 1/4



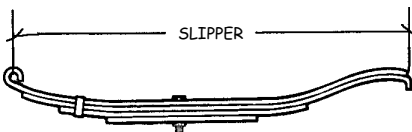
SUSPENSION
HANGER
SPECS:



Note: Above dimensions unloaded

SLIPPER SPRINGS

Part #	Capacity per pair (lbs.)	Number of Leafs	Leaf Thickness (in.)	Width (in.)	Slipper Length (in.)
BT25-9	900	3	.26	1 3/4	25
BT25-30	3000	4	.36	1 3/4	25
72-7	10000	5	.38	3	29
72-10-2	9000	6	.40	2	30
72-21	10000	5	.44	2 1/2	30
72-30	4000	4	.34	2	25
72-31	5000	4	.38	2	25
72-32	7000	5	.34	2	25
72-43-1	10000	5	.38	3	29
72-44-1	12000	6	.35	3	30
72-51-1	8000	7	.38	2	25



SPRING & AXLE ATTACHMENT PARTS— SUSPENSION COMPONENTS

Square Axles (K) & (L)

Round Axles (H) (I) & (J)

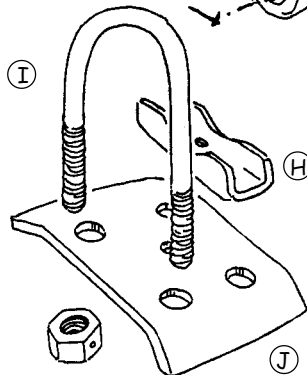
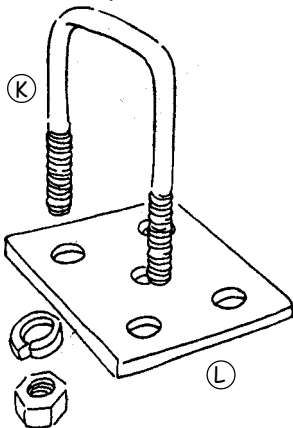
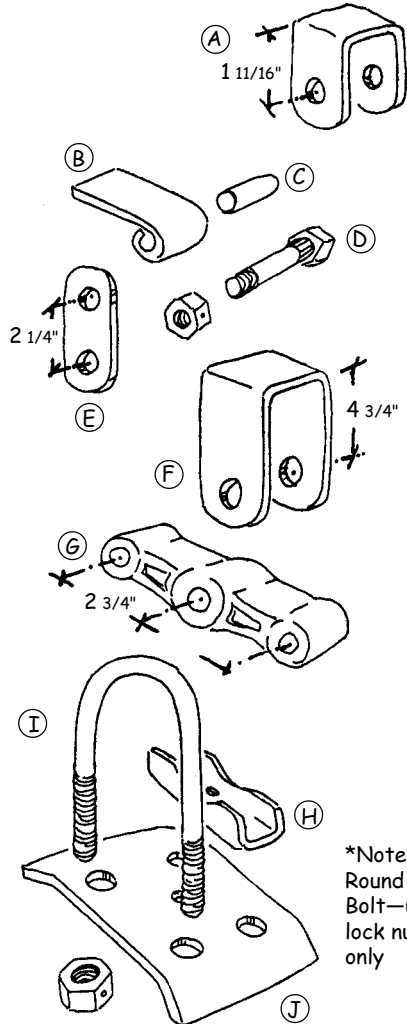
Tandem (F) & (G)

ATTACHING PARTS KITS

Square Axle	Round Axle
1 1/2"	1 3/4"
1 3/4"	2 3/8"
2"	3"

COMPONENTS FOR ATTACHING PARTS

- (A) End Hanger
- (B) Rear Hanger (Single)
- (C) 9/16" Nylon Bushing
- (D) 9/16" Shackle Bolt & Lock Nut
- (E) Shackle Link
- (F) Rocker Arm Hanger (Tandem)
- (G) Rocker Arm
- (H) Spring Saddle (for Round Axles)
- (I) *Round U-Bolt & Lock Nut
- (J) Axle Plate (for Round Axles)
- (K) Square U-Bolt w/Lock Washer & Nut
- (L) Axle Plate (for Square Axles)



*Note:
Round U-Bolt—use
lock nut
only

ELECTRIC BRAKE SERVICE PARTS

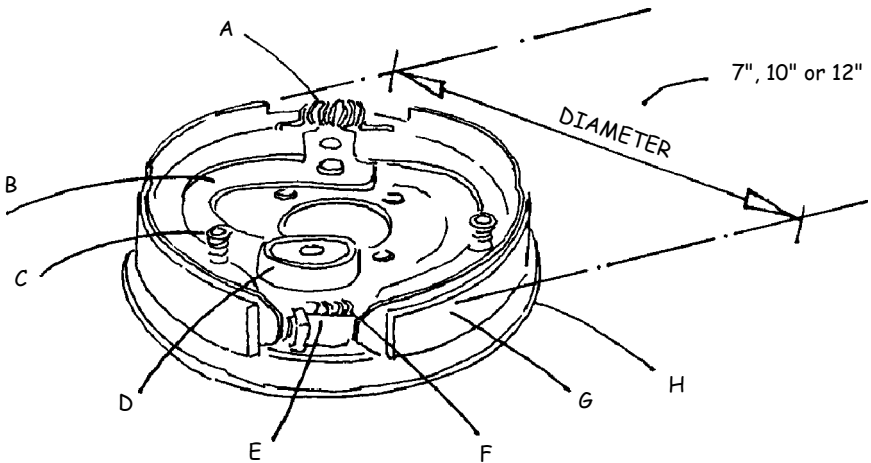
How to Select

Step #1— Determine diameter. 7", 10" or 12"

Step #2— Determine manufacturer of your brake by looking for key points:

- A. Check backing plate for name
- B. Identify magnet shape
- C. Hold down spring— coil or leaf?
- D. Shoe return spring— one or two?

Step #3— Select the part you need by referring to your supplier's brake parts manual - "photo selection guide" - major manufacturers.



A. Shoe Return Spring
B. Lever Arm
C. Hold Down Spring
D. Magnet

E. Adjuster
F. Adjuster Spring
G. Shoe & Lining
H. Backing Plate

TROUBLESHOOTING— ELECTRICAL BRAKE SYSTEM

SYMPTOM	CAUSES	REMEDIES
No Brakes	Open Circuits	Find & Correct
	Severe Underadjustment	Adjust Brakes
	Faulty Controller	Test & Correct
	Short Circuits	Find & Correct
Weak Brakes	Grease or Oil on Magnets or Linings	Clean or Replace
	Corroded Connections	Clean & Correct Cause of Corrosion
	Worn Linings or Magnets	Replace
	Scored or Grooved Brake Drums	Machine or Replace
	Improper Synchronization	Correct
	Underadjustment	Adjust Brakes
	Glazed Linings	Reburnish or Replace
	Overloaded Trailer	Correct
Locking Brakes	Underadjustment	Adjust
	Improper Synchronization	Correct
	Faulty Controller	Test & Correct
	Loose, Bent or Broken Brake Components	Replace Components
	Out-of-Round Brake Drums	Machine or Replace
	Insufficient Wheel Load	Adjust System Resistor & Synchronize
Intermittent Brakes	Faulty Controller	Test & Correct
	Broken Wires	Repair or Replace
	Loose Connections	Find & Repair
	Faulty Ground	Find & Repair

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TROUBLESHOOTING— ELECTRICAL BRAKE SYSTEM cont.

SYMPTOM	CAUSES	REMEDIES
Brakes Pull to One Side	Wrong Magnet Lead Wire Color	Correct
	Incorrect Adjustment	Adjust
	Grease or Oil on Magnets or Linings	Clean or Replace
	Broken Wires or Bad Connections	Find & Repair
Harsh Brakes	Underadjustment	Adjust
	Improper Synchronization	Correct
	Improper Controller	Change
	Faulty Controller	Test & Correct
Noisy Brakes	Underadjustment	Adjust
	Lack of Lubrication	Lubricate
	Broken Brake Components	Replace Component
	Incorrect Brake Components	Correct
Surging Brakes	Grease or Oil on Linings or Magnet	Clean or Replace
	Out-of-Round or Cracked Brake Drums	Machine or Replace
	Faulty Controller	Test & Correct
Dragging Brakes	Overadjustment	Readjust
	Out-of-Round Brake Drums	Machine or Replace
	Incorrect Brake Components	Replace
	Loose, Bent or Broken Brake Components	Replace
	Faulty Breakway Switch	Repair or Replace
	Loose Wheel Bearing Adjustment	Adjust
	Bent Spindle	Replace Axle

HYDRAULIC BRAKE SERVICE PARTS

How to Select

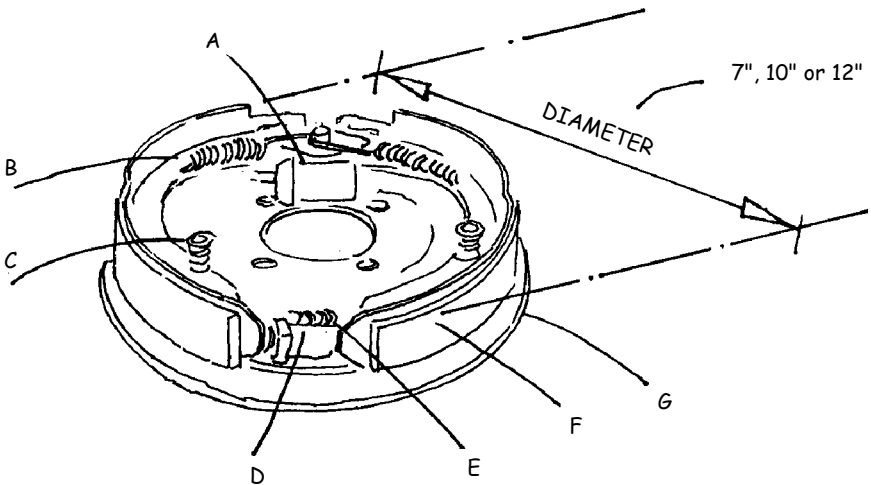
Step #1— Determine diameter. 7", 10" or 12"

Step #2— Determine manufacturer of your brake by looking for key points:

A. Check backing plate for name

B. Identify general shape

Step #3— Select the part you need by referring to your supplier's brake parts manual - "photo selection guide" - major manufacturers. All kits left or right side brakes unless otherwise specified.



A. Hydraulic Cylinder
B. Shoe Return Spring
C. Hold Down Spring
D. Adjuster

E. Adjuster Spring
F. Shoe & Lining
G. Backing Plate

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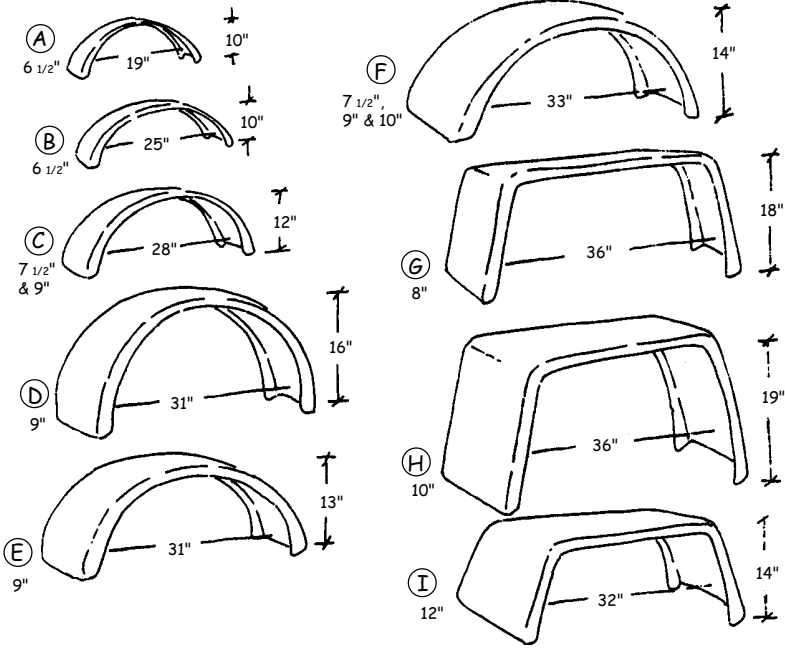
TROUBLESHOOTING— HYDRAULIC BRAKE SYSTEM

SYMPTOM	CAUSES	REMEDIES
Noisy Brakes	Underadjustment	Adjust
	Lack of Lubrication	Lubricate
	Broken Brake Components	Replace Components
	Incorrect Brake Components	Correct
Locking Brakes	Loose, Bent or Broken Brake Components	Replace Components
	Underadjustment	Adjust
	Out-of-Round Drums	Machine or Replace
	Incorrect Tire Pressure	Inflate Evenly on Both Sides to Req. Pressure
Pulls to One Side	Unmatched Tires on Same Axle	Match Tires on Axle
	Restricted Brake Lines or Hoses	Repair or Replace
	Malfunctioning Cylinder Assembly	Check for Stuck or Sluggish Pistons
	Defective or Damaged Shoe and Lining	Install New Shoe & Lining - Complete Axle
	One Side Out-of-Adjustment	Adjust
Dragging	Improper Fluid	Replace Rubber Parts Fill With DOT4 Fluid
	Blocked Master Cylinder	Open With Compressed Air or Replace Cylinder
	Parking Brake Cable Frozen	Free Cable & Lubricate
	Improper Lining Thickness or Location	Install New Shoes and Linings

TROUBLESHOOTING— HYDRAULIC BRAKE SYSTEM cont.

SYMPTOM	CAUSES	REMEDIES
No Brakes	Broken or Kinked Brake Line	Repair or Replace
	Severe Underadjustment	Adjust Brakes
	Malfunctioning Actuation System	Troubleshoot System
Weak Brakes	Brake Adjustment Not Correct	Manual- Adjust Brakes Automatic- Make Several Reverse Stops
	Excessively Worn Brake Linings	Replace Shoe and Lining
	Incorrect Lining	Install Correct Shoe & Lining
	Grease or Fluid Soaked Lining	Repair Grease Seal or Wheel Cylinder. Install New Shoe & Lining
	Frozen Master Cylinder or Wheel Cylinder Pistons	Recondition or Replace All Cylinders, Brake Fluid
	Glazed Lining	Refurbish or Replace
	Excessive Drum Wear	Replace
	Trapped Air in Lines	Bleed System
	Overloaded Trailer	Correct
	Malfunctioning Actuating System	Troubleshoot System
Harsh Brakes	Brake Adjustment Not Correct	Manual- Adjust Brakes Automatic- Make Several Reverse Stops
	Grease or Fluid on Linings	Replace Shoes and Linings
Surging Brakes	Grease or Oil on Linings	Clean or Replace
	Out-of-Round Drums or Cracked Drums	Machine or Replace

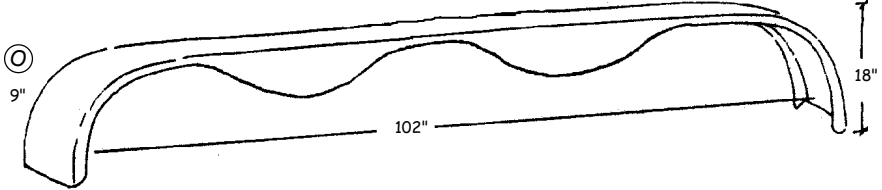
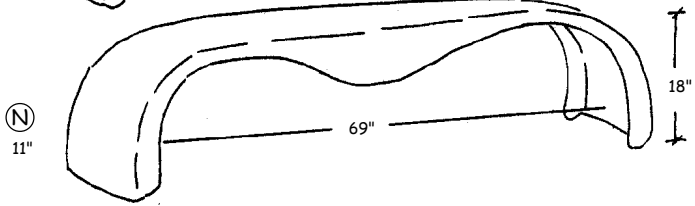
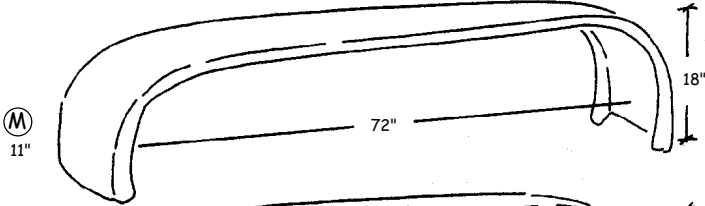
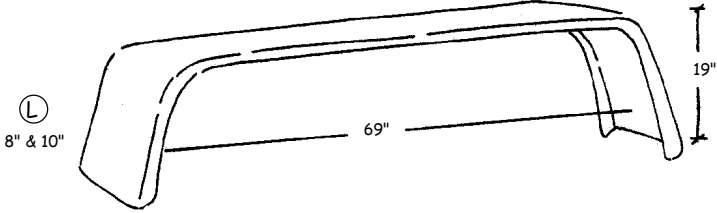
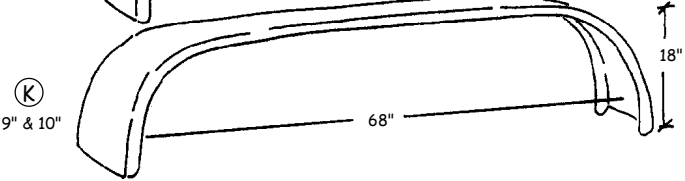
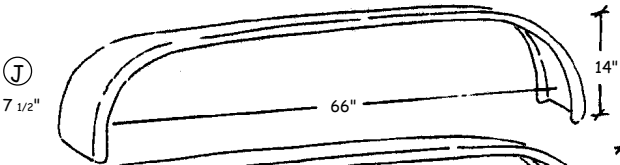
TRAILER FENDERS— SINGLE, ROUND & "JEEP" TYPE



SPECIFICATIONS & DIMENSIONS

Style #	Wheel Size	Dimensions			Style #	Wheel Size	Dimensions		
		Width	Length	Height			Width	Length	Height
(A)	8"	6 1/2"	19"	10"	(H)	15"	10"	36"	19"
(B)	12"	"	25"	10"	(I)	14"	12"	32"	14"
(C)	13"	7 1/2"	28"	12"	(J)	15"	7 1/2"	66"	16"
		9"	"	"	(K)	"	9"	68"	18"
(D)	14"	9"	31"	16"	(L)	"	10"	"	"
(E)	"	9"	31"	13"		"	8"	69"	19"
		10"	"	"	"	10"	"	"	
(F)	15"	7 1/2"	33"	14"	(M)	16"	11"	72"	18"
	"	9"	"	"	(N)	15"	11"	69"	18"
	"	10"	"	"	(O)	"	9"	102"	18"
(G)	"	8"	36"	18"					

**TRAILER FENDERS — TANDEM & TRIPLE —
ROUND & "JEEP" TYPE**



UNDER 80" LIGHTING REQUIREMENTS

#	Qty.	Description	Location
Ⓐ	2	Class A Stop Signal	On rear each side of center at same level, as far apart as practical but no closer than 24" O/C.
	2	Turn Signal	
	2	Trail Lamps	
	2	Reflex Reflectors	
	1	License Plate Lamp	
Ⓑ	2	Red Class A Reflectors	One each side, as far rear as practical
	2	Red Side Markers	
Ⓒ	2	Amber Class A Reflectors	One each side, as far front as practical
	2	Amber Side Marker	

*OVER 80" LIGHTING REQUIREMENTS

#	Qty.	Description	Location
Ⓓ	*2	Red Clearance Lights	Amber front/Red rear, each side extreme width
Ⓔ	*2	Amber Clearance Lights	
Ⓕ	3	Identification Lamps or Light Bar	One center light w/one each (R) & (L) centers 6" min.- 12" max.

Note: Where practical, combination fixture may incorporate 2 or more of these functions together, ie. combination fixture 7 functions stop, tail, turn, license, side marker, side & rear reflector lamp. Exception: clearance lamps may not be combined w/tail or I.D. lamps.

*Clearance & marker light option/combination— turn Ⓒ & Ⓑ at 45° angle & eliminate Ⓓ & Ⓔ

COLOR CODE FOR WIRE

White	Ground
Brown	Tail, License, Side Marker, Clearance & Identification Lamps
Yellow	Left Turn & Stop
Green	Right Turn & Stop

4-WAY CONNECTORS
FLAT TYPE
16 GAUGE WIRE

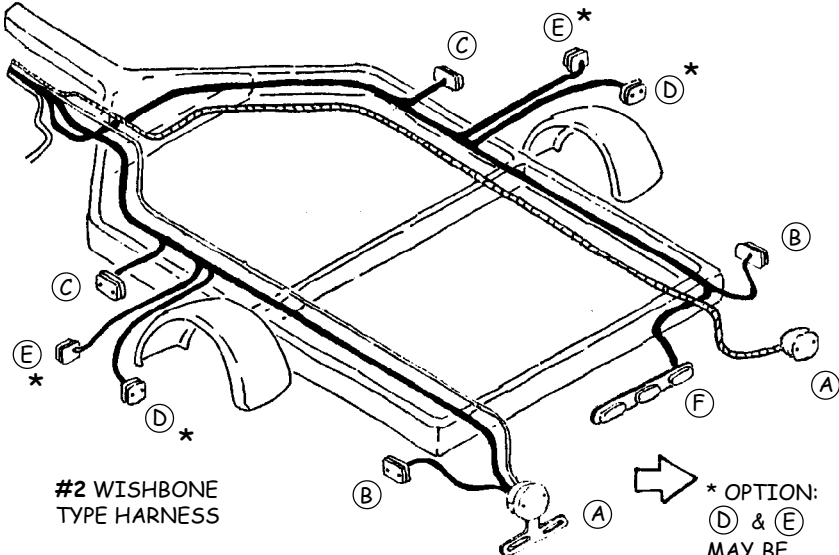
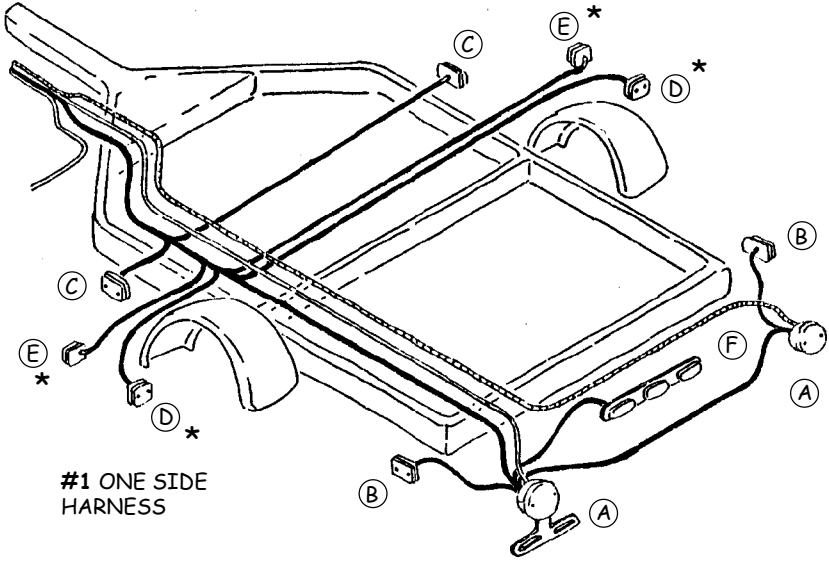


CAR END



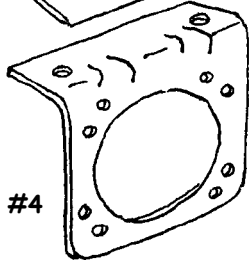
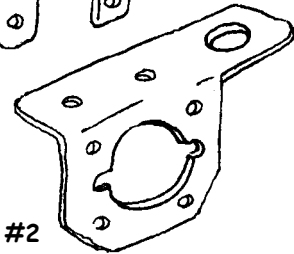
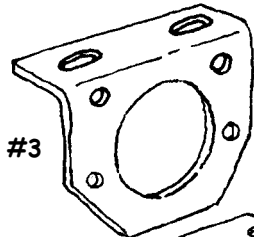
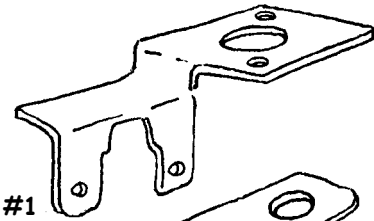
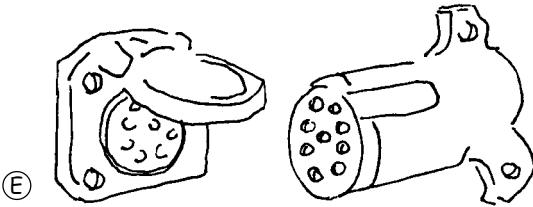
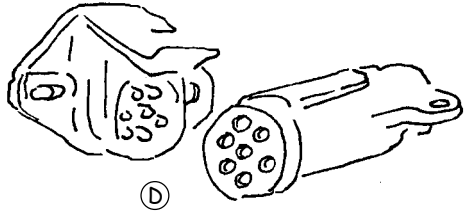
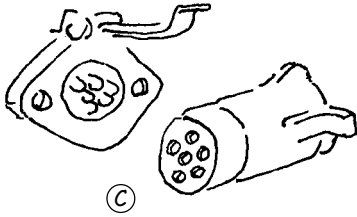
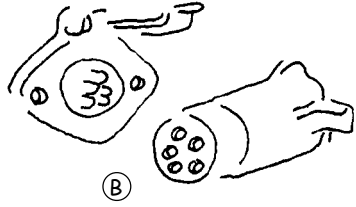
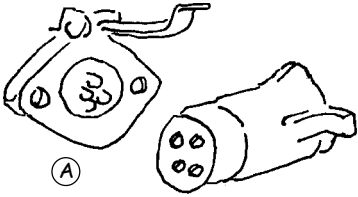
TRAILER END

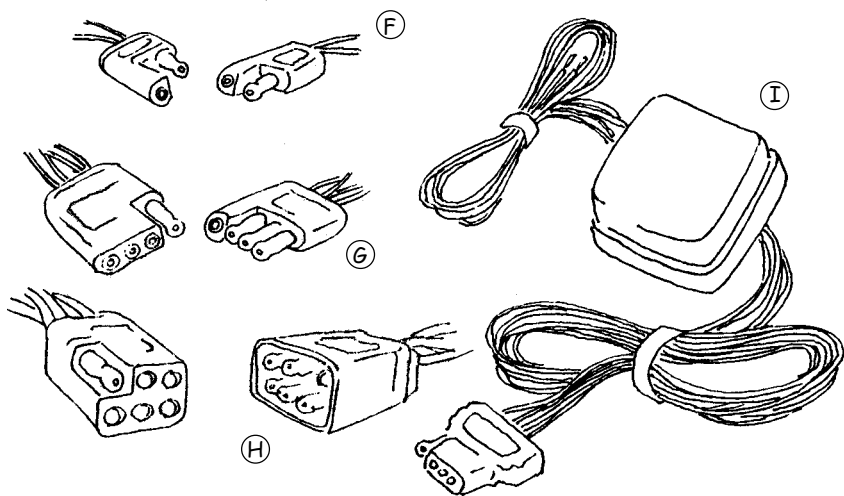
TRAILER LIGHTING DIAGRAM



➔ * OPTION:
 (D) & (E)
 MAY BE
 COMBINED
 W/ (C) & (B)

TRAILER WIRE CONNECTORS





TRAILER WIRE CONNECTORS

Heavy Duty Connectors

- (A) 4-Way— for Trailers w/o Brakes
- (B) 5-Way— When Extra Circuit Required
- (C) 6-Way— for Trailers w/Electric Brakes
- (D) 7-Way— Used on Semi, R.V. & Utility Trailers
- (E) 9-Way— Used on Trucks

Connector Brackets

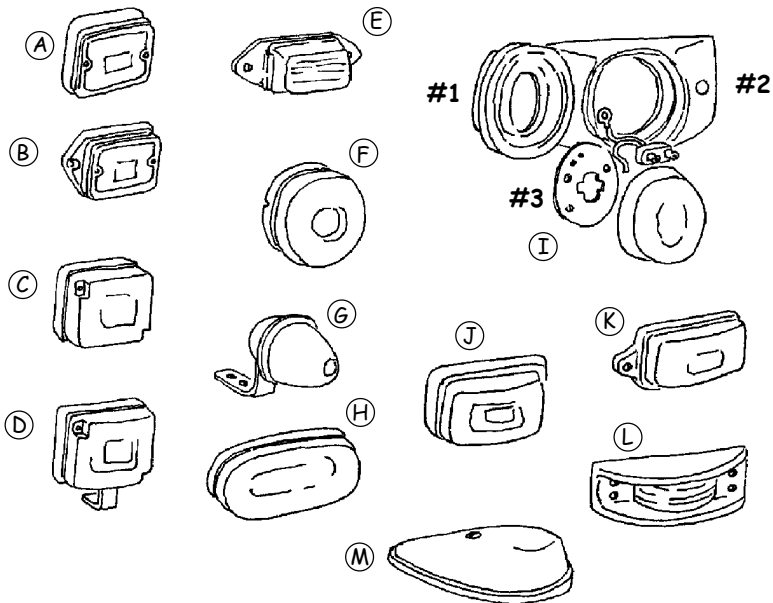
- #1 Use w/4- & 5-Way (A) & (B)
- #2 Use w/6- & 5-Way (C)
- #3 Use w/7- & 5-Way (D)
- #4 Use w/9- & 5-Way (E)

Molded Connectors/Converters

- (F) 2 Pole— for C.B.S.
- (G) 4 Pole— Used on Most Boat Trailers
- (H) 6 Pole— 6-Way
- (I) Tail Lamp Converter - from 3 Wire to 2

TRAILER WIRE COLOR CODE

Color	Circuits	Recommended Wire Gauge
Universal 4 Pole Connectors		
White	Ground Return	16 Ga
Green	Right Turn & Brake Lights	16 Ga
Yellow/Red	Left Turn & Brake Lights	16 Ga
Brown	Tail Lights	16 Ga
Universal 6 Pole Connectors		
White	Ground Return	12 Ga
Brown	Tail Lights	16 Ga
Yellow	Left Turn	16 Ga
Red	Stop	16 Ga
Green	Right Turn	16 Ga
Blue	Auxiliary Circuit, Brakes	12 Ga
Recreation Vehicle 7 Pole Connectors		
White	Ground Return	10 Ga
Blue	Electric Brake	12 Ga
Green	Tail, License, & Running Lights	14 Ga
Black	Battery Charge	10 Ga
Red	Stop & Left Turn Signal	14 Ga
Brown	Stop & Right Turn Signal	14 Ga
Yellow	Auxiliary Circuit	14 Ga
White	Ground Return	10 Ga
Heavy Duty 7 Pole Connectors		
Black	Clearance, Side Marker, & ID Lamps	12 Ga
Yellow	Left Turn & Hazard Signal	12 Ga
Red	Stop Lamps & Anti-Lock Devices	12 Ga
Green	Right Turn & Hazard Signal	12 Ga
Brown	Tail, Rear Clearance Marker, & License Plate Lamps	12 Ga
Blue	Auxiliary Circuit	12 Ga



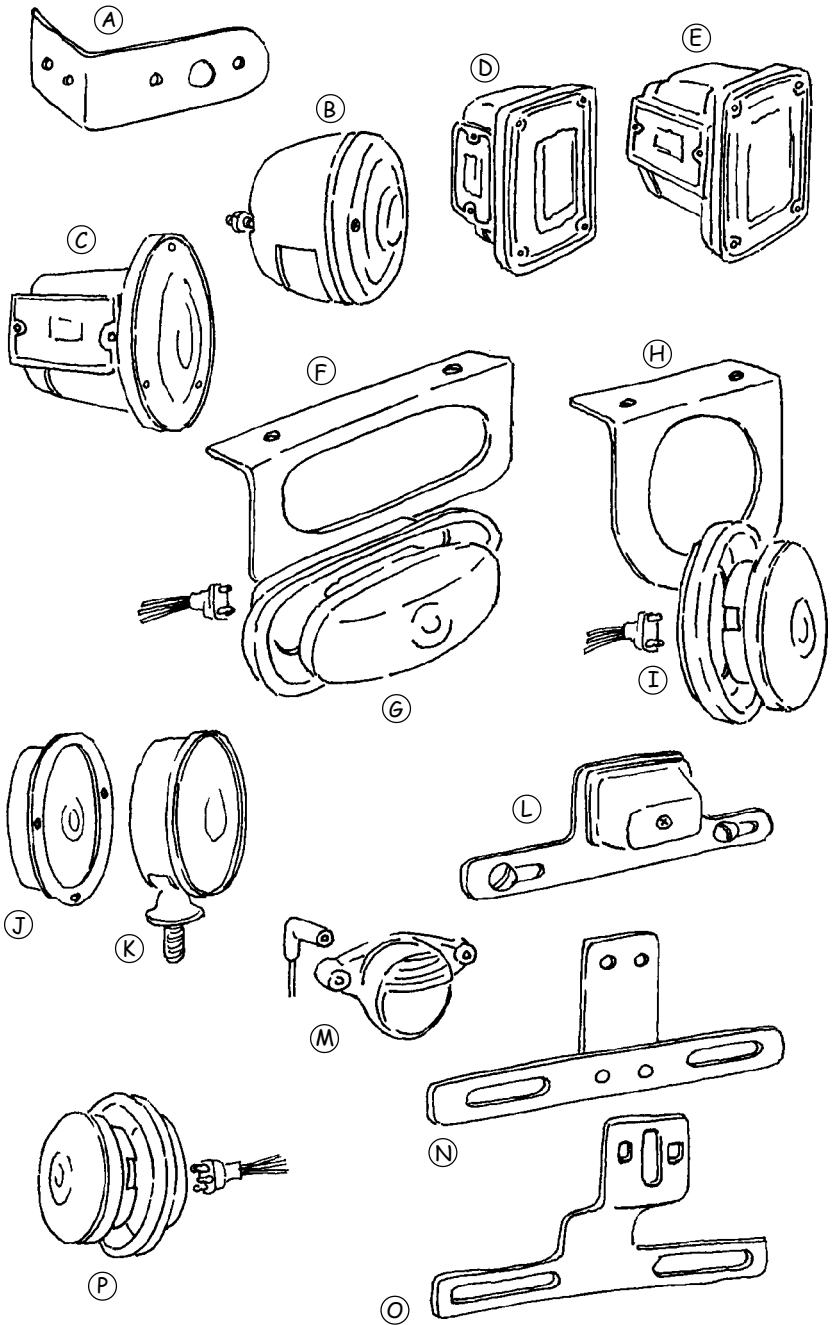
MARKER, CLEARANCE & CAB LIGHTS

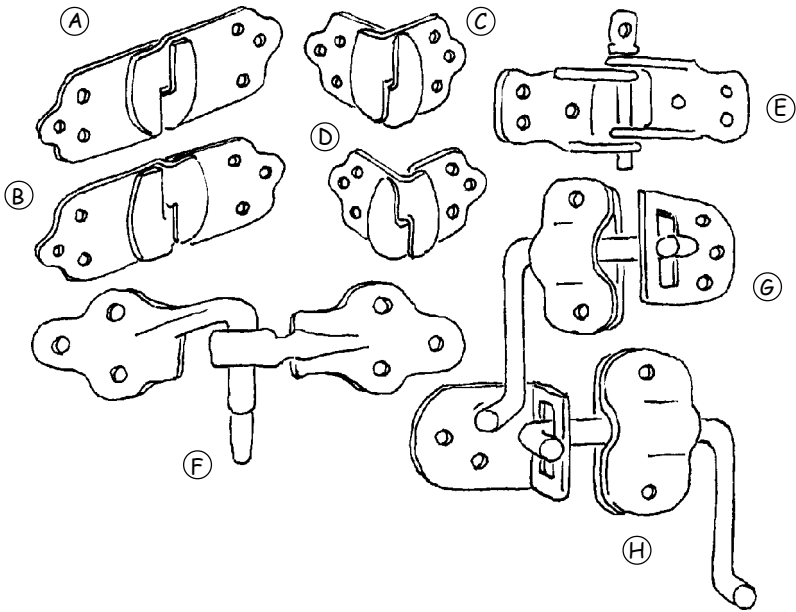
- | | |
|-----|---------------------------------------|
| (A) | Stud Mount Marker Light, Red & Amber |
| (B) | Ear Mount Marker Light, Red & Amber |
| (C) | Stud Mount Clearance/Marker Light |
| (D) | Ear Mount Clearance/Marker Light |
| (E) | "Mini" Clearance/Marker |
| (F) | Surface Mount Marker/Clearance |
| (G) | Beehive Type Clearance |
| (H) | Oval Clearance, One or Two Light |
| (I) | Factory Sealed Round Clearance/Marker |
| | #1. Rubber Grommet Mount |
| | #2. Surface Mount Branch Deflector |
| | #3 Surface Mount Cam Lock |
| (J) | Stud Mount Submersible Clearance |
| (K) | Ear Mount Submersible Clearance |
| (L) | Armored Marker |
| (M) | Cab Marker Lamp |

LIGHTS/BRACKETS— REAR

Description

- (A) Stud Mount Light Bracket, Left & Right
 - (B) Class "A" Conventional Round Combination Stop, Tail & Turn w or w/o License Window
 - 1. 2 Stud Mount, Plastic, 2 Screw Lens
 - 2. " " Snap On Lens
 - 3. Universal Mount, Plastic, 2 Screw Lens
 - 4. 2 Stud Mount, Steel, 3 Screw Lens
 - (C)* Class "A" Round, 7-Way Combination Stop, Tail, Turn, License Window & Side Marker
 - (D)* Class "A" Square "Submersible" 7-Way
 - (E)* " " " Conventional 7-Way
 - (F) Oval Light Steel Mounting Bracket
 - (G) Oval Factory Sealed Beam (Disposable) Stop, Tail & Turn w/Rubber Grommet
 - (H) Round Light Steel Mounting Bracket
 - (I) Round Factory Sealed Beam (Disposable) Stop, Tail & Turn w/Rubber Grommet
 - (J) Recessed Mount - Stop, Turn & Tail. Available: Steel, Stainless Steel, Rubber, Plastic
 - (K) Pedestal Mount - Stop, Turn & Tail. Available: Single & Double Face
 - (L) License Light w/License Bracket
 - (M) License Light
 - (N) Conventional License Bracket
 - (O) Universal Mount License Bracket
 - (P) Round, Back-up (Clear) Factory Sealed Beam (Disposable)
- *Available: Kit Form— Includes 1 Each: 7-Way, 6-Way, License Plate Bracket, Amber Front Side Marker Lights, Trailer Harness, Trunk Connector, Metal Clips, Wire taps & Wire Nuts.





STAKE RACK CONNECTIONS

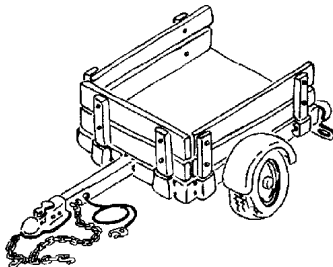
- (A) Left Hand Pair, Stake Rack Connectors, Straight Side Type
 $3/16" \times 2 1/2" - 7" \text{ O.A.L.}$ (A) & (B) illustrates one set of 4 plus 1 left hand pair and one right hand pair
- (B) Right Hand Pair (see above)
- (C) Left Hand Pair Corner Gate Connections $3 5/8" \text{ O.A.L.}$ to inside of angle $3/16" \times 2 1/2"$ (C) & (D) illustrates one set of 4 plus 1 left hand pair and one right hand pair
- (D) Right Hand Pair (see above)
- (E) Stake Rack Hinges— formed $3/16"$ x inside width, $1 9/16"$ pin to outside holes $2 3/4" \text{ w/ } 3/8" \text{ diameter pin}$
- (F) Heavy Duty Stake Rack Connections, Cast Hook & Eye
 $2 1/2" \text{ width} \times 10 3/4" \text{ O.A.L. w/ } 9/16" \text{ dia. hook} \times 3"$
 Available: Eye Plate & Hook, Left Handed or Right Handed
- (G) Security Stake Rack Connection, "No Lefts & No Rights"
 $1/4" \times 2 1/2" \text{ w/ } 1/2" \text{ dia. pin} - 2 \text{ units make a set}$
- (H) Similar to Above

***WHEELS & TIRES— LIGHT TO MEDIUM DUTY FOR TRAILER USE, UTILITY, BOAT & TRAVEL TRAILER**

Wheel Size	Bolt Pattern	Tire Size	Ply Rating Load Range	Wheel Rim Width	Wt. Cap. Per Wheel	Tire Max. Dia.	Tire Width Inches	Tire Maximum Load Capacity 65 M.P.H.	
								Press P.S.I.	Load Lbs.
8 x 3 3/4	4 on 4	4.80/4.00-8	4 (B)	3 3/4	590	16.3	4.9	60	590
8 x 3 3/4	5 on 4 1/2	4.80/4.00-8	4 (B)	3 3/4	590	16.3	4.9	60	590
8 x 3 3/4	5 on 4 1/2	5.70/5.00-8	4 (B)	3 3/4	590	18.4	5.7	50	715
12 x 4	5 on 4 1/2	4.80/4.00-12	4 (B)	4	780	20.5	4.8	60	780
12 x 4	5 on 4 1/2	5.30/4.50-12	4 (B)	4	1125	21.2	5.5	55	840
13 x 4 1/2	5 on 4 1/2	6.00/13 ST	4 (B)	4 1/2	1060	25.2	6.7	32	1050
13 x 4 1/2	5 on 4 1/2	6.50/13 ST	6 (C)	4 1/2	1060	25.2	6.7	60	1340
13 x 4 1/2	5 on 4 1/2	6.00/13 ST	4 (B)	5 1/2	1060	25.2	6.7	32	1050
14 x 5	5 on 4 1/2	7.35/14 ST	4 (B)	5	1250	26.3	7.0	32	1240
14 x 5	5 on 4 1/2	7.75/14 ST(B)	4 (B)	5	1250	27.3	8.0	32	1360
14 x 5 1/2	5 on 4 1/2	7.75/14 ST	6 (C)	5 1/2	1560	26.3	7.0	55	1630
15 x 5	5 on 4 1/2	7.35/15 ST	4 (B)	5	1350	27.3	7.4	32	1260
15 x 5	5 on 4 1/2	7.75/14 ST(B)	4 (B)	5	1350	28.4	7.6	32	1350
15 x 5 1/2	6 on 5 1/2	7.75/14 ST(C)	6 (C)	5 1/2	1530	28.4	7.6	55	1635
15 x 5 1/2	6 on 5 1/2	7.75/14 ST(C)	6 (C)	6	1530	28.4	7.6	55	1635
15 x 5 1/2	5 on 4 1/2	7.75/14 ST(C)	6 (C)	5 1/2	1750	28.4	7.6	55	1635

*For general reference only. Consult manufacturer's specifications.

Estimate load to be carried by tire & speed. Radial ply tires should not be mixed with bias tires on same vehicle.



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