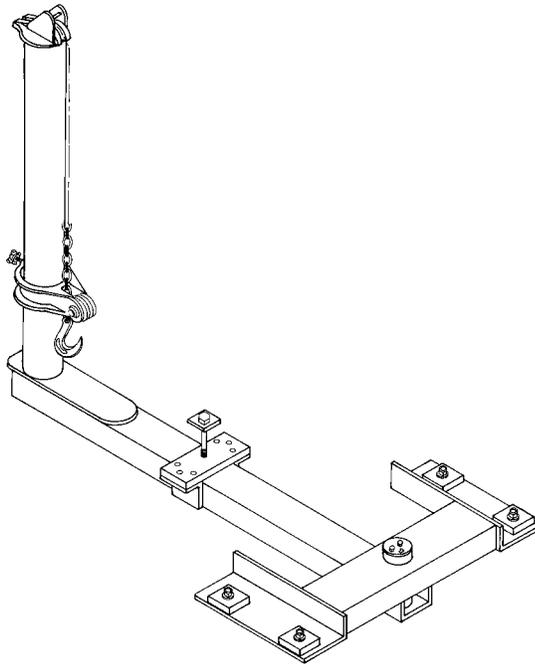


S21M Auxiliary Tower System



USERS MANUAL

CHIEFTM
AUTOMOTIVE SYSTEMS

I. INTRODUCTION

The S21M auxiliary tower system consists of either one or two auxiliary towers that mount to a specially designed pedestal. The assembly attaches to the main-frame of the Chief S21M.

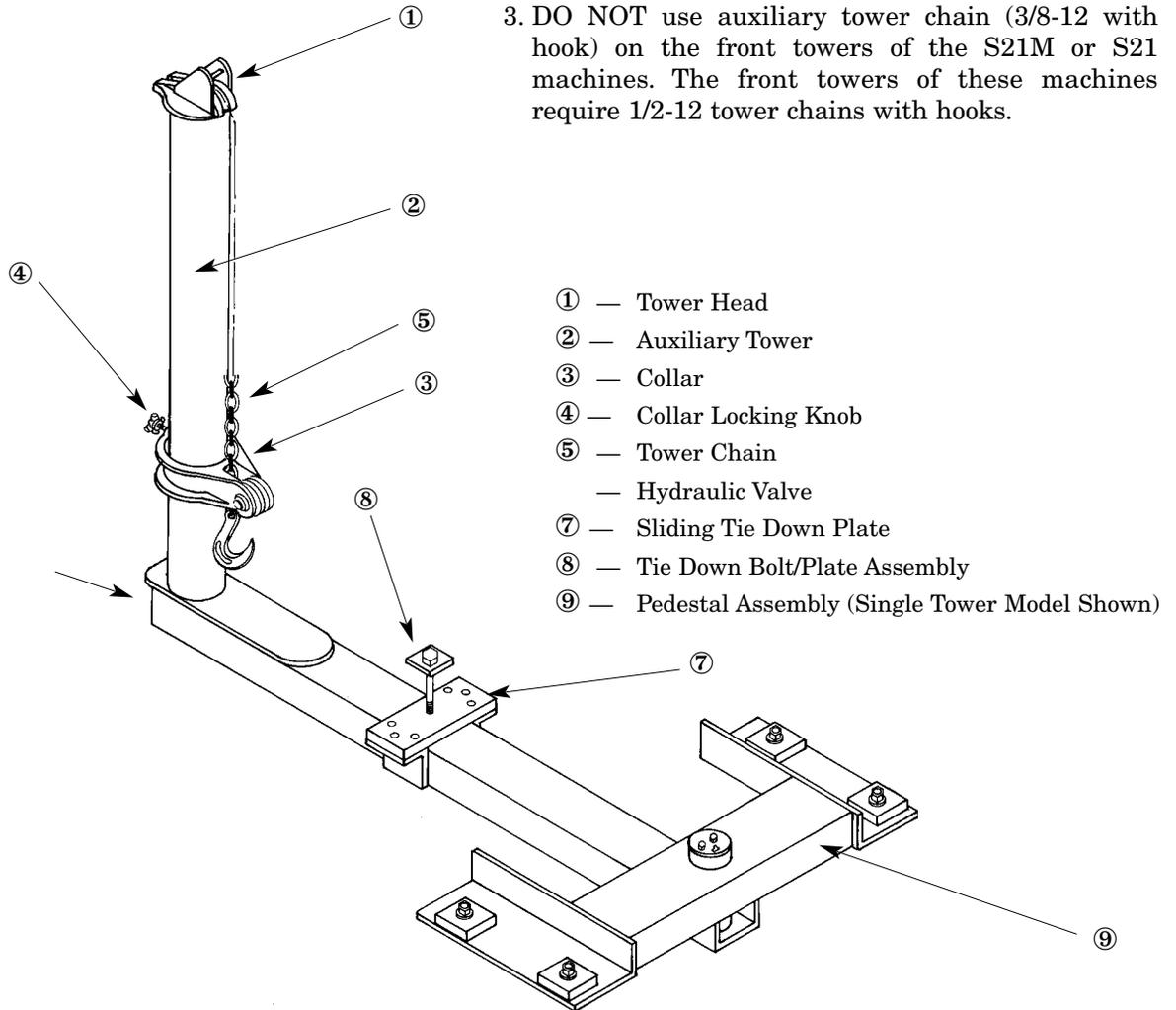
The auxiliary tower(s) operate from the S21M control switch, simultaneously with existing towers and portable rams. The assembly provides technicians with the convenience of one or two towers in the rear section of the S21M allowing them to make tower pulls almost 360 degrees around the vehicle.

The information in this manual details the usage and safety information that's pertinent to the auxiliary tower system.

IMPORTANT: Auxiliary towers for the **S21M** are equipped with low pressure hydraulic components that only are compatible with the low pressure hydraulic components of the S21M machine.

! CAUTION:

1. Installation of auxiliary towers must be done by a qualified Chief Automotive Systems, Inc. service representative.
2. Refer to S21M users manual in regard to general tower usage, hydraulic system operation, pressure gauge monitoring and working range of tower chain.
3. DO NOT use auxiliary tower chain (3/8-12 with hook) on the front towers of the S21M or S21 machines. The front towers of these machines require 1/2-12 tower chains with hooks.



CHIEF'S LIMITED ONE-YEAR WARRANTY & LIABILITY

Chief Automotive Systems, Inc. warrants for one year from date of installation and/or purchase any of its products which do not perform satisfactorily due to defect caused by faulty material or workmanship. Chief's obligation under this warranty is limited to the repair or replacement of products which are defective and which have not been misused, carelessly handled, or defaced by repair or repairs made or attempted by others.

CHIEF AUTOMOTIVE SYSTEMS, INC. DOES NOT ASSUME RESPONSIBILITY FOR ANY DEATH, INJURY OR PROPERTY DAMAGE RESULTING FROM THE OPERATOR'S NEGLIGENCE OR MISUSE OF THIS PRODUCT OR ITS ATTACHMENTS. CHIEF MAKES NO WRITTEN, EXPRESS OR IMPLIED WARRANTY WHATSOEVER OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE REGARDING THE EQUIPMENT OR ANY PART OF THE PRODUCT OTHER THAN THE LIMITED ONE-YEAR WARRANTY STATED ABOVE.

Returned merchandise requires a "RETURNED GOODS AUTHORIZATION NUMBER" on the package. Authorization numbers can be obtained by calling or writing the Customer Service Department, Chief Automotive Systems, Inc. No returned merchandise will be accepted without an authorization number. All returned merchandise must be shipped freight prepaid (and may be subject to a handling and restocking charge) to:

Chief Automotive Systems, Inc.

Attn: Returned Goods Dept.

1924 E. Fourth St. or

P.O. Box 1368

Grand Island, Ne. 68802

308-384-9747

Your Authorized

Chief Automotive Systems, Inc.

Representative

II. USAGE

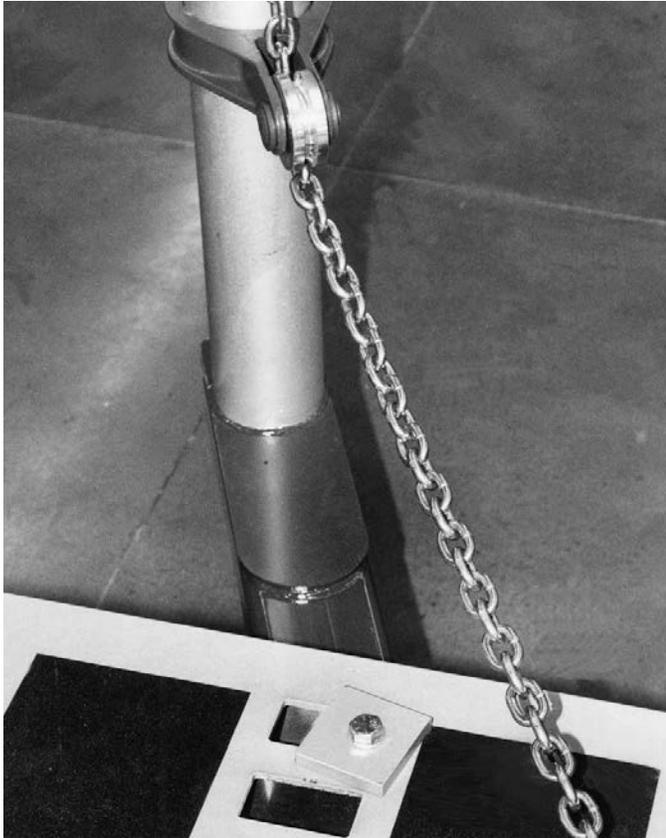


Figure 1

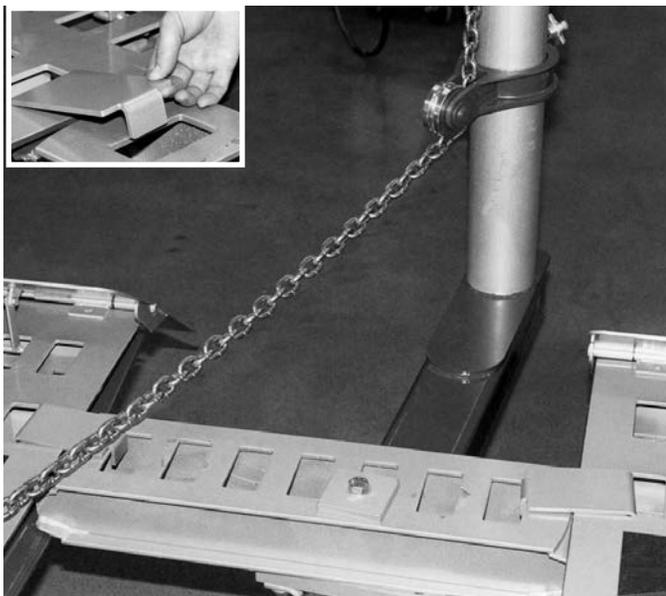


Figure 2

Usage procedures and safety precautions for S21M front towers also apply to auxiliary towers — see Towers . . . S21M Users Manual. In addition, there are usage procedures and safety precautions that apply specifically to auxiliary towers. These are included in this manual.

NOTE: The pulling capacity of S21M auxiliary towers is less than the machine's front towers. Auxiliary towers house a 5 ton hydraulic cylinder (8 inch stroke) and front towers house a 10 ton hydraulic cylinder (10 inch stroke).

CAUTION:



1. DO NOT use auxiliary tower chain (3/8-12 with hook) on machine's front towers. The front towers require 1/2-12 tower chain with hook.
2. The normal working range of 3/8 inch (10mm) tower chain is .4 to 2.4 tons (1.8 to 10.8 kN) on S21M pressure gauge with applied force to the chain of 7,400 lbs. (33kN). Proof test on this tie down chain is 20,000 lbs. (90kN).

1. Auxiliary towers must be pinned or bolted to S21M at all times except when repositioning. Use outer tie down holes when pinning or bolting auxiliary tower to mainframe (see Figure 1) and use tie down holes in crossmember when pinning or bolting auxiliary tower at rear of machine (between loading ramps). (See Figure 2.)

IMPORTANT: Crossmember must be positioned as shown and crossmember locks (supplied with auxiliary tower) must be engaged. (See Figure 2 Inset.) After engaging crossmember locks, slide crossmember forward as far as crossmember locks will permit to prevent its movement during the pull. (See Figure 3.)



Figure 3

To pin an auxiliary tower, use the specially designed tower pin. (See Figure 4.) Insert the pin downward through tie down hole and seat it in one of the four pinning holes on the tower's sliding tie down plate. (See Figure 5.) The upper portion of the pin fits within the tie down hole (below top surface of mainframe) and does not impede vehicle loading and unloading.



Figure 4

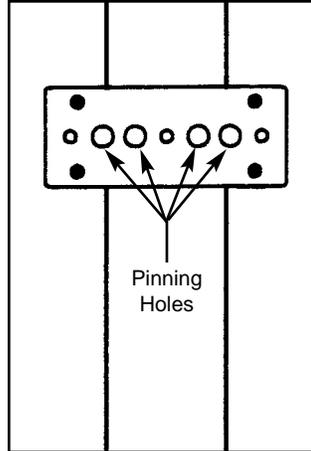


Figure 5

2. During routine raising and lowering of S21M, correctly secure tower(s) to side(s) of machine.

- Secure tower to outer tie down hole in sixth row from rear of machine....just behind machine's stiff leg. (See Figure 8.) If machine has two auxiliary towers, secure them on opposite sides of the machine. (See Figure 9.)

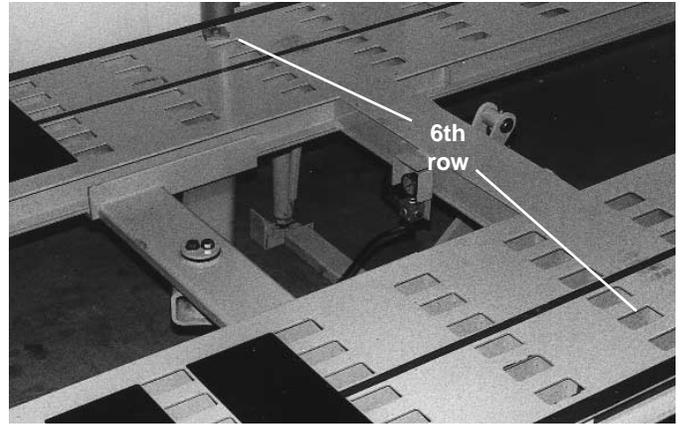


Figure 8

To bolt an auxiliary tower, insert tie down bolt through tie down hole (see Figure 6) and thread it into one of the three threaded holes in the tower's sliding tie down plate. (See Figure 7.)

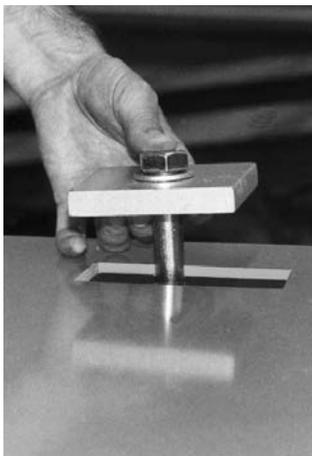


Figure 6

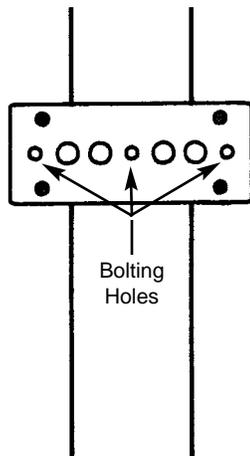


Figure 7

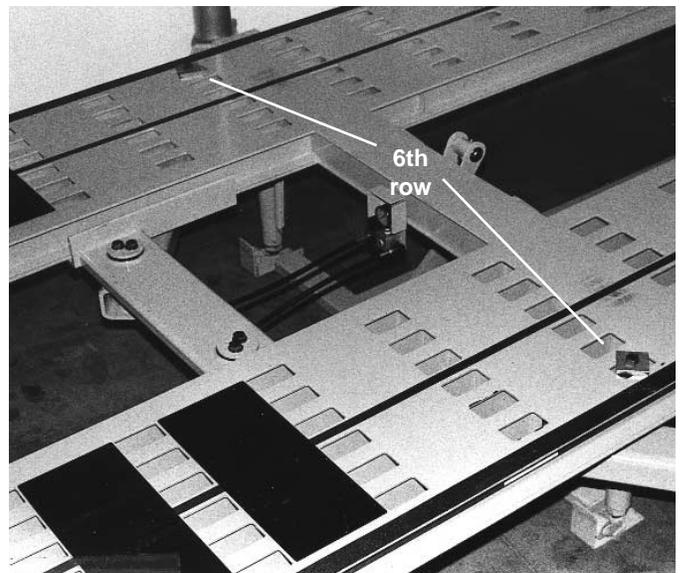


Figure 9

3. When setting up pulls, observe the following:

CAUTION: DO NOT use auxiliary towers to make pulls until vehicle is secured to S21M mainframe using appropriate anchoring equipment. DO NOT use auxiliary towers to anchor vehicle to mainframe.

a. DO NOT make pulls beyond eighth row of tie down holes from rear of machine. (See Figures 10 and 11.) Figure 11 shows top view of machine with a single auxiliary tower installed. Range of tower movement (approximate) is indicated.

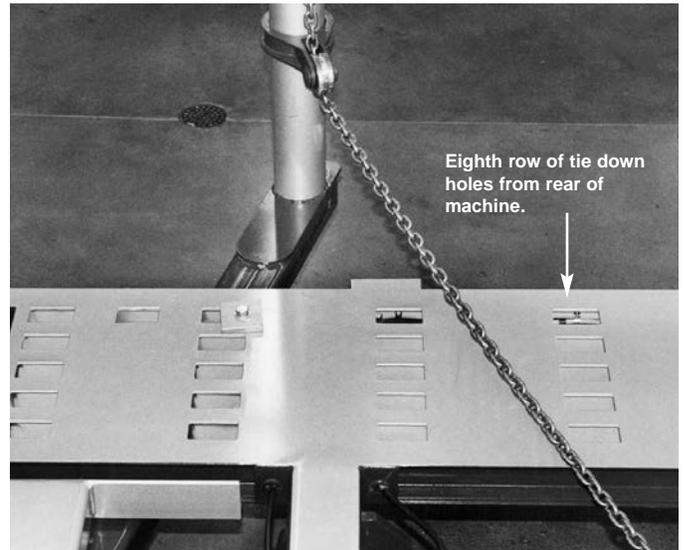


Figure 10

TOP VIEW

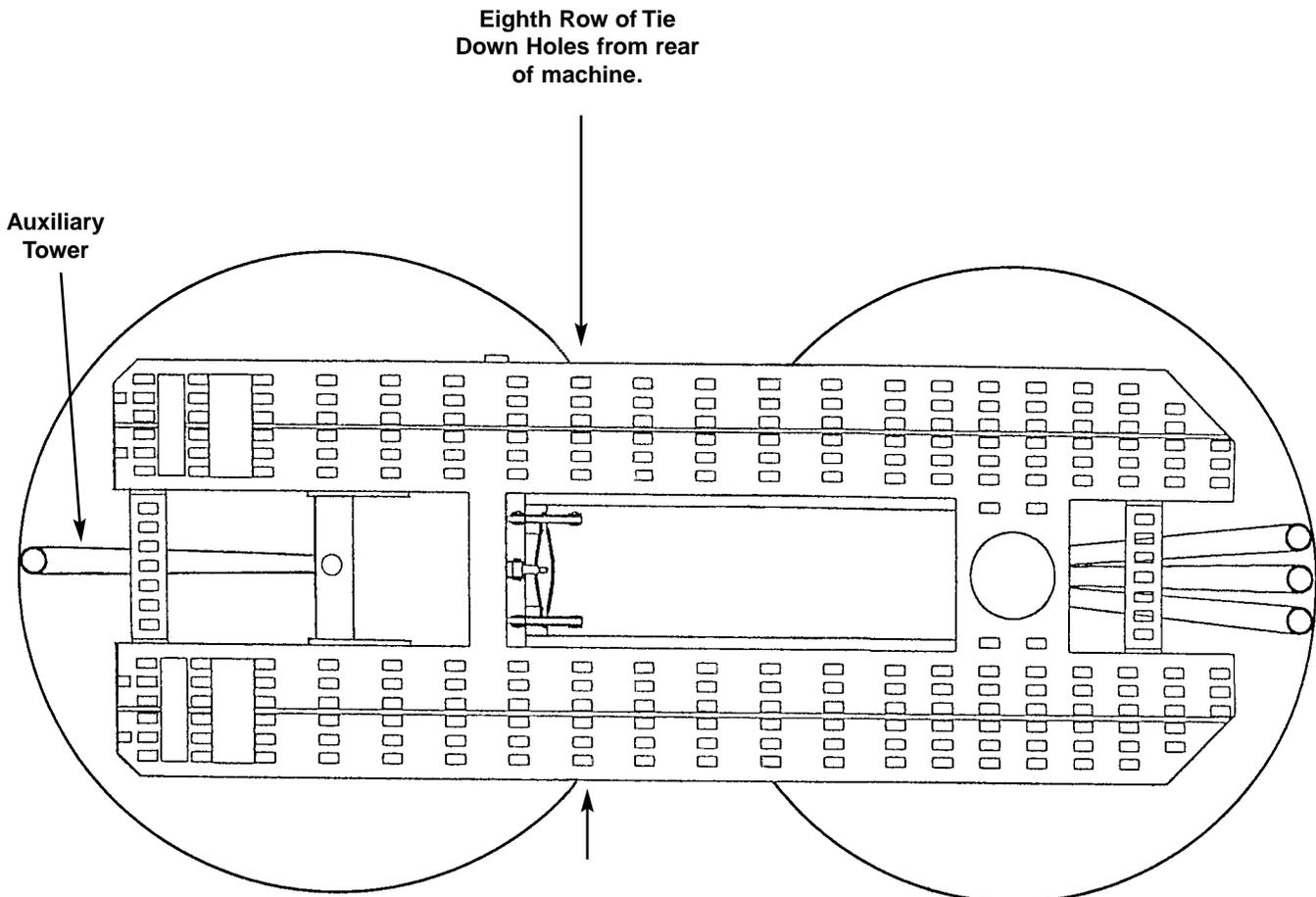


Figure 11

- b. Remove loading ramp (see Figure 12) when moving auxiliary tower past end of treadway and when pull requires tower to be positioned where ramp is mounted.

IMPORTANT: Reinstall ramp when tower is moved to another location.

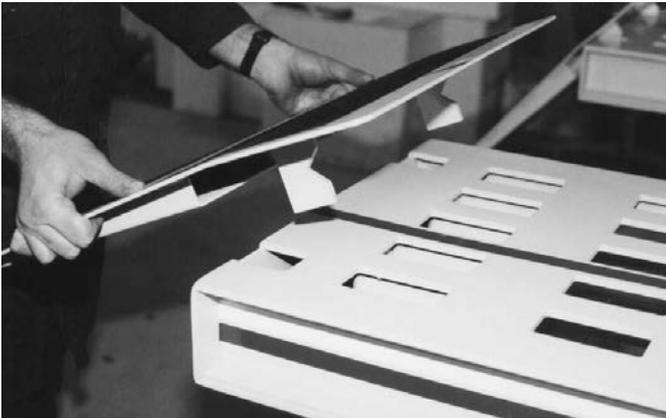


Figure 12

- c. Position tower pin or tie down bolt to side of tie down hole that is nearest the pull. (See Figures 13 and 14.) This prevents tower movement when hydraulic force is applied.



Figure 13



Figure 14

- d. When making pulls along side of machine, tower's sliding tie down plate must not contact S21M support leg. Applying force against the support leg will damage the support leg assembly. (See Figures 15 and 16.)



Figure 15

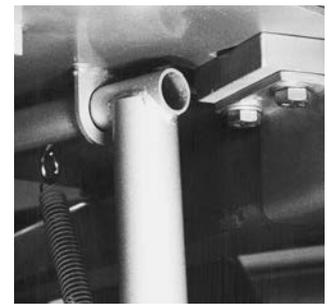


Figure 16

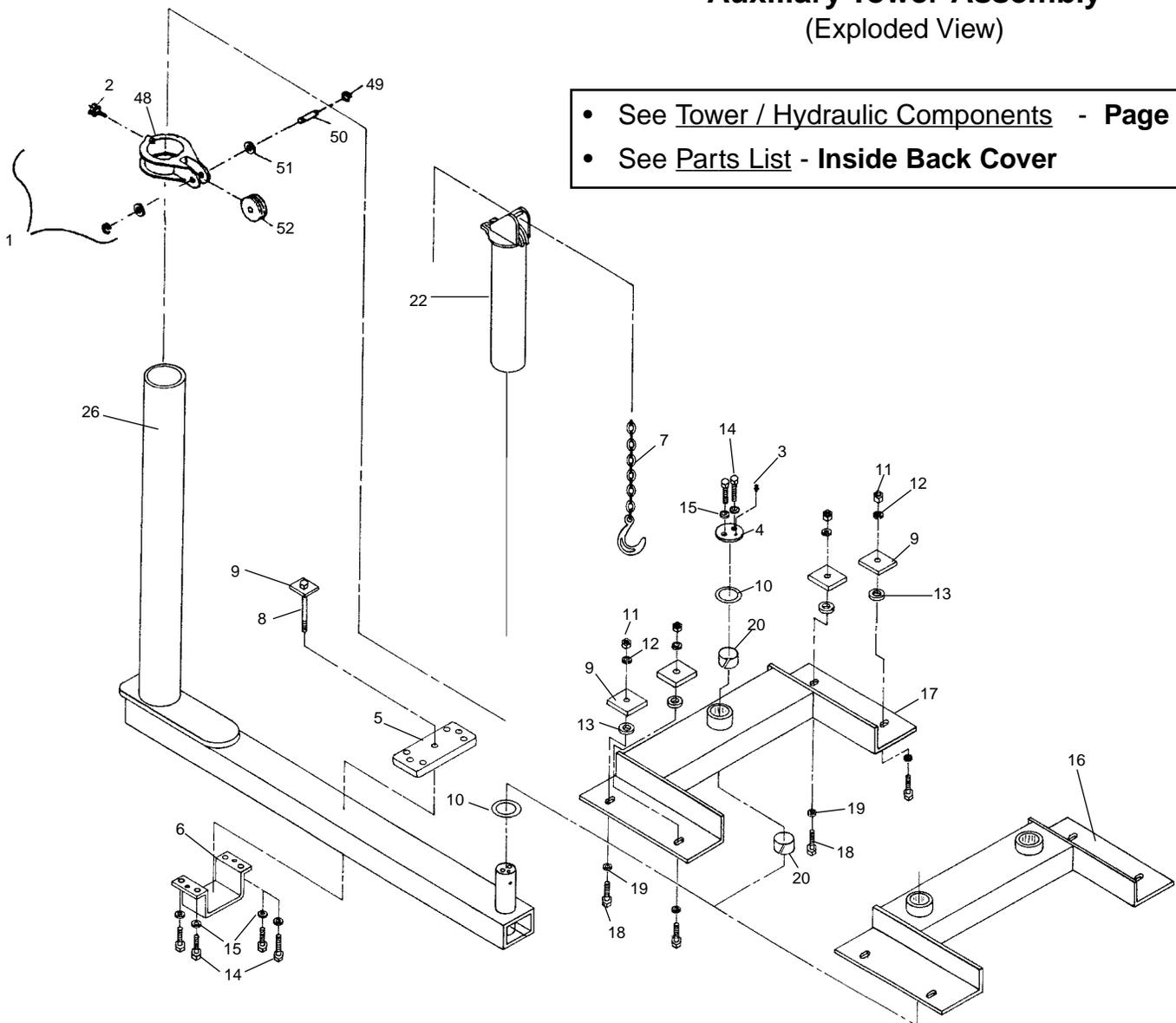
III. PARTS INFORMATION

To order replacement parts for the S21M Auxiliary Tower System, contact Chief Automotive Systems, Inc. 308-384-9747 (or toll-free 800-445-9262 - USA only).

When contacting Chief Automotive by telephone or mail, provide the following information: name, name of business, business telephone number, and business address. Additional information needed when ordering includes: description of part(s), part number(s). Also indicate the Chief Model for which the part is intended.

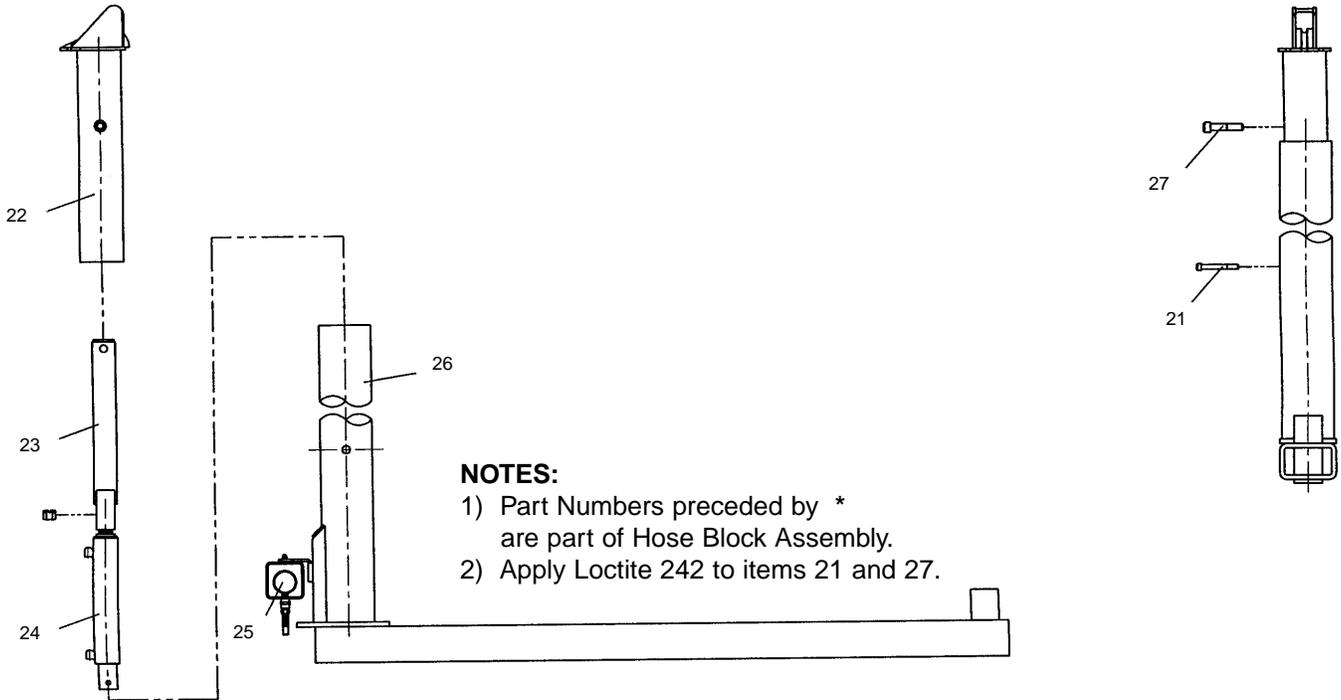
CAUTION: Always use Chief Automotive Systems, Inc. authorized replacement parts with the Auxiliary Tower System. When replacing any part make certain the part meets the original equipment requirements.

Auxiliary Tower Assembly (Exploded View)



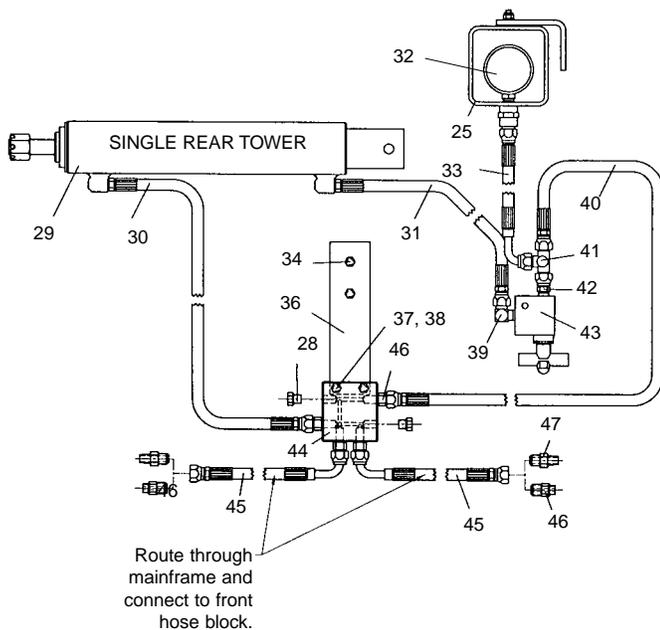
Auxiliary Tower Assembly

See Parts List -
Inside Back Cover



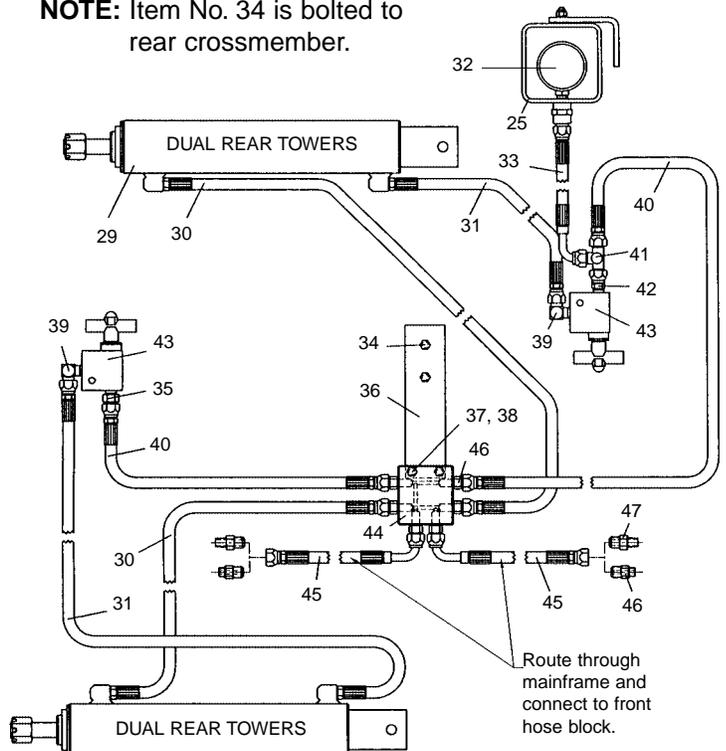
Rear Hose Block Assembly - Single

NOTE: Item No. 34 is bolted to rear crossmember.



Rear Hose Block Assembly - Double

NOTE: Item No. 34 is bolted to rear crossmember.



S21M AUXILIARY TOWER PARTS LIST (See Illustrations — Pages 7 & 8)

| REF. | PART NO. | DESCRIPTION |
|------|----------|--|
| 1 | 610386 | Collar Assembly, complete |
| 2 | 602829 | Locking Knob, Collar |
| 3 | 603928 | Zerk Fitting, 1/4" |
| 4 | 682523 | Cap, Bearing Housing |
| 5 | 682603 | Bolting Plate, Tie Down |
| 6 | 682540 | Saddle, Bolting Plate |
| 7 | 685206 | Chain, Tower, w/Hook, 3/8" x 12' |
| 8 | 693871 | Bolt, HHCS, 3/4-10 x 6 1/2", S21 |
| 9 | 682953 | Plate, Tie Down |
| 10 | 682718 | Washer, Nylatron, 4 OD x 3 ID. |
| 11 | 601720 | Nut, 3/4-10, Hex, GR. 8 PL. |
| 12 | 707444 | Washer, 3/4 Lock |
| 13 | 692289 | Washer, 2 OD x 1 1/16 x 1/4 |
| 14 | 692810 | Bolt, 3/4-10 x 1 3/4 LG. |
| 15 | 601738 | Washer, 3/4 x 1 1/2, Flat PL. |
| 16 | 689630 | Pedestal Ass'y., Double, S21 |
| 17 | 689611 | Pedestal Ass'y., Single, S21 |
| 18 | 629773 | Bolt, 3/4-10 NC x 2 3/4" LG. |
| 19 | 715102 | Washer, 3/4 x 2 x .148 |
| 20 | 682671 | Bearing, Aux. Tower (3") |
| 21 | 601068 | Screw, 1/2-13 x 4 |
| 22 | 601171 | Tower Head, Rear, S21M |
| 23 | 601162 | Clevis Assembly, S21M |
| 24 | *601192 | Ram, Tower, 2 1/4 bore, 10 1/8" stroke |
| 25 | *601132 | Portable Gauge Assembly, Rear, S21M |
| 26 | 601181 | Rear Tower Assembly, S21M |
| 27 | 601070 | Screw, 3/4-10 x 3 1/2 SHCS |
| 28 | 601013 | 4MB Plug 6408-4 |
| 29 | 601192 | Ram, Tower, 2 1/4" Bore, 10 1/8" |

| REF. | PART NO. | DESCRIPTION |
|------|----------|---|
| 30 | 601060 | Hose, 140" 4MB-6FJX |
| 31 | 601061 | Hose, 30" 4MB-6FJX |
| 32 | 601032 | Gauge, 2.5", 5 Ton |
| 33 | 601065 | Hose, 13" 4MB-6FJX 90M |
| 34 | 706409 | Bolt, 1/4-20NC x 3/4 |
| 35 | 601044 | Straight Adapter, 2404-6-6 |
| 36 | 682937 | Bar, Rear Hose Block, S21M |
| 37 | 630660 | Bolt, 1/4-20NC x 2 1/2 Gr. 2 Pl. |
| 38 | 629423 | Nut, 1/4-20NC |
| 39 | 601047 | Elbow Adapter, 2501-6-6 |
| 40 | 601062 | Hose, 106" 6FJX-6FJX |
| 41 | 601042 | Tee Adapter, 2603-6-6-6 |
| 42 | 601049 | Swivel Nut-Male Pipe Adapter 6505 - 6-6 |
| 43 | 602810 | Valve, Tower, 3/8" 90 Degree Elbow |
| 44 | 601188 | Rear Hose Block S21M |
| 45 | 601063 | Hose, 230" 6FJX90M-6FJX |
| 46 | 601048 | Straight Adapter 6400-6-4 |
| 47 | 601027 | Adapter, 2404-6-4 |
| 48 | 607161 | Collar, Drilled & Tapped |
| 49 | 693468 | Retaining Ring, Heavy Duty Extended |
| 50 | 680747 | Pin, Grooved |
| 51 | 707487 | Flat Washer, 1-1 1/4 |
| 52 | 601201 | Roller |
| | 689645 | CAUTION Label |
| | 693337 | WARNING Label |
| | 683630 | Chief EZ Liner Legend |
| * | 658861 | Lock Pins, Aux. Tower |

* Not shown in illustration



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**Chief reserves the right to alter product specifications
and/or package components without notice.**