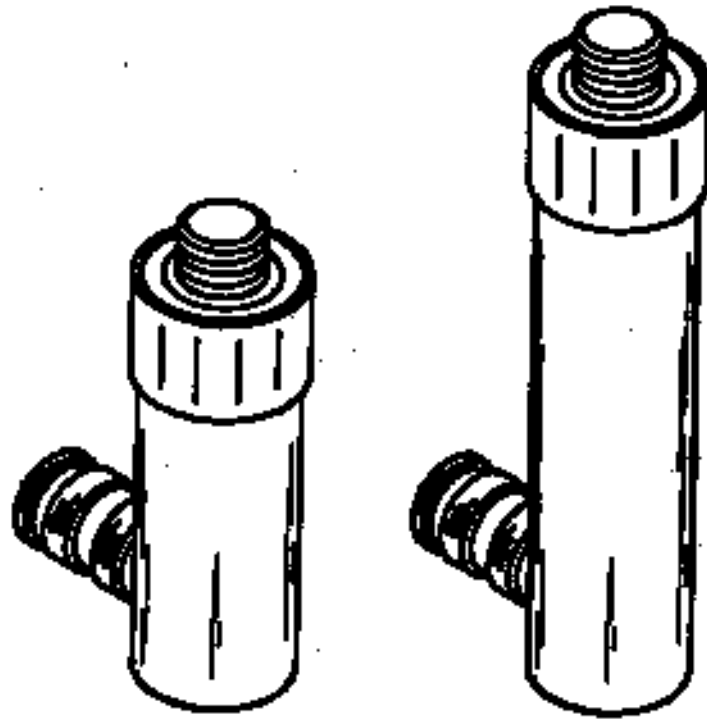


Auxiliary Rams



USERS MANUAL





CHIEF'S LIMITED ONE-YEAR WARRANTY & LIABILITY

Chief Automotive Technologies, 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 TECHNOLOGIES, 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.

This owners manual is designed to assist operators with the safe and efficient use of 4" (100mm) and 6" (150mm) auxiliary rams. When used with Chief repair systems, auxiliary rams provide operators the capability of broadening their repair setups.

IMPORTANT: This manual identifies only basic usage procedures for lifting, pulling and pushing with auxiliary rams. For more detailed information, contact Chief Automotive Technologies, Inc. Training Department.

The 4 inch (100 mm) auxiliary ram is used to lift a vehicle when installing anchoring equipment and lift or support a vehicle's structural components during the repair. The 6 inch (150 mm) auxiliary ram is used for lateral pulls on any Chief repair system 360 degrees around the machine. It can also be used to make down pulls on EZ Liner systems.

IMPORTANT: In regard to lateral pulls on G Series machines, 6" (150mm) auxiliary ram usage is limited to direct side pulls only.

BASIC OPERATING PROCEDURES

In addition to the following basic procedures, read specific 'steps' and/or 'precautions' that pertain to lifts, down pulls, lateral pulls and lateral pushes. (See text and illustrations following these procedures.)

CAUTION: Normal working range of 3/8" (10mm) tie down chain is 500 to 3,650 psi (35 to 250 bar) on pressure gauge with applied force to the chain of 7,400 psi (33kN). Proof test on this chain is 20,000 psi (90 kN).

1. Prior to usage, close auxiliary line valve and make sure male and female quick couplers are free of dirt and other contamination.
2. Attach quick couplers to ram making sure they are threaded tight. (Attach other components, i.e. v- base, flat cap, etc. as required.)

IMPORTANT: Quick couplers must be fully tightened to allow flow of hydraulic oil to auxiliary ram. (See Figures 2 and 3.)

3. Place auxiliary ram at desired location.

CAUTION: When putting auxiliary ram in position DO NOT place hand between base of ram (or ram base) and machine. Also, DO NOT place hand between ram and vehicle or ram and chain.

4. Open auxiliary line valve and close all other hydraulic valves that are not intended for use.



Figure 1

Male and female couplers are not fully seated. DO NOT thread them together!

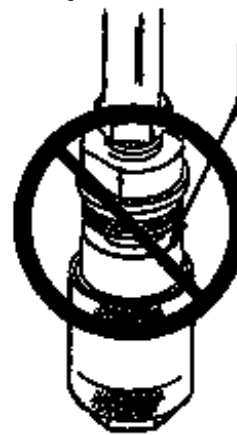


Figure 2

Male and female couplers are fully seated and can be threaded together!



Figure 3

5. Apply just a small amount of pressure and check if auxiliary ram assembly is correctly positioned. If it isn't, release pressure and reposition.

CAUTION: Before attempting to lift, pull or push with an auxiliary ram, read and follow procedures that are applicable to each usage.

6. Continue to apply pressure until desired amount of movement is achieved. Then close auxiliary line valve.

WARNING: DO NOT position yourself close to, or in line with chains, clamps, or other accessories while pressure is applied to this system. Failure to observe this warning could result in operator injury due to the possibility of a chain or accessory disengaging or failing while pressure is applied to this system.

SPECIFIC OPERATING PROCEDURES

LIFTS: (EZ Liner, G Series Machines) (See Figures 4 and 5)

1. Block vehicles wheels before making lift.
2. Position base of auxiliary ram on top of mainframe making sure that base is flush with surface of mainframe. This perpendicular positioning provides greater vehicle stability during the lift and prevents breakage of quick coupler at base of ram.

CAUTION: When putting auxiliary ram in position DO NOT place hand between base of ram (or ram base) and machine. Also, DO NOT place hand between auxiliary ram and vehicle.

NOTE:

1. Whenever possible, use ram base accessory for additional stability.
2. When lifting in pump lid area of EZ Liner, position 2 x 4 x 16 (50 x 100 x 400 mm) hardwood across pump lid and position base of auxiliary ram (or ram base) on top of hardwood.

DOWN PULLS: (EZ Liner Systems Only) (See Figures 6 and 7)

NOTE: Auxiliary rams can be used to make down pulls through EZ Liner mainframes but not through G Series mainframes.

1. Attach male coupling and v-base to piston end of auxiliary ram.
2. Position base of auxiliary ram on bottom of mainframe between tie down holes. Make sure that it is flush against bottom surface of mainframe. This perpendicular positioning prevents auxiliary ram from kicking out during the pull and it prevents breakage of quick coupler at base of auxiliary ram.

NOTE: Whenever possible, use ram base accessory for additional stability.

3. Attach chain to vehicle and place ends of chain through tie down holes on each side of auxiliary ram (or ram base). Position chain around v-base attachment and secure the assembly as shown.

CAUTION:

1. Base of auxiliary ram must sit square (perpendicular) with bottom surface of mainframe for vehicle to remain stable during the down pull.
2. DO NOT position hand between ram and bottom surface of mainframe or between ram and chain.

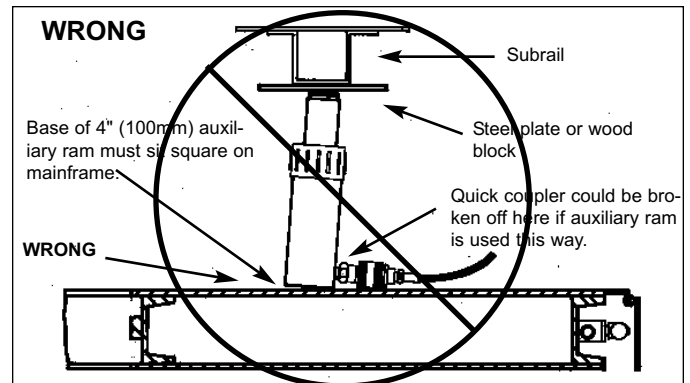


Figure 4

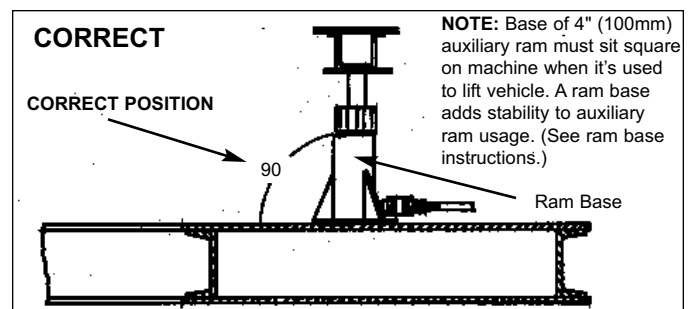


Figure 5

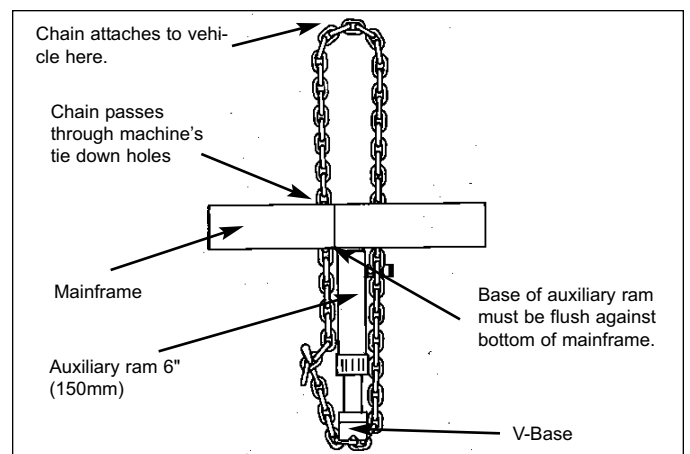


Figure 6

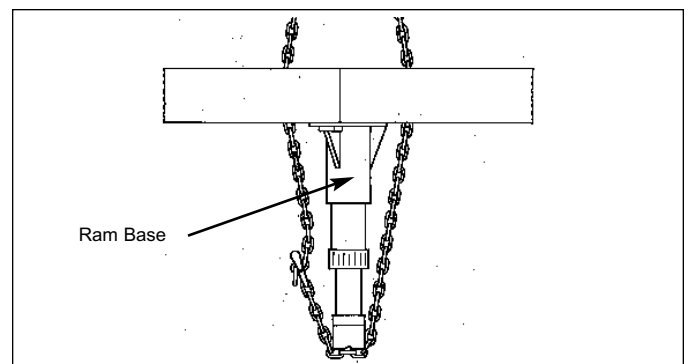


Figure 7

LATERAL PULLS: (EZ Liner, G Series Machines)

Auxiliary rams can be used to make lateral pulls (side or angular) on EZ Liner systems, and direct side pulls on G Series machines. Setups for the pulls vary dependent upon type of pull and repair system used.

Read the following basic setup procedures and review the specific recommendations for EZ Liner, and G Series pulling systems.

Basic Setup

CAUTION:

1. DO NOT use pulling system's crossmembers when making lateral pulls with auxiliary rams.
2. DO NOT position yourself close to, or in line with chains, clamps, or other accessories while pressure is applied to this system. Failure to observe this warning could result in operator injury due to the possibility of a chain or accessory disengaging or failing while pressure is applied to this system.

IMPORTANT: All chain used in auxiliary ram setups must be NACM Grade 80, 3/8 (10mm) x 8 (2.4m).

1. Attach pulling chain to vehicle.
2. Secure v-base attachment, male coupling and auxiliary pulling head to 6 inch (150 mm) auxiliary ram. (See Figure 8.)
3. Mount auxiliary ram assembly on top surface of mainframe. (See following recommendations for EZ Liner and G Series pulling systems.)
4. Determine correct angle and height for the pull. Then position pulling chain on auxiliary pulling head and secure it with pin.

NOTE: If more height is needed, add extension coupling and extension tube to assembly.

5. Secure tail of chain to mainframe. (See specific recommendations for EZ Liner and G Series machines.)

IMPORTANT:

1. To avoid damage to auxiliary ram from side loading, assemble components as shown in Figure 8. Auxiliary pulling head must be positioned inward from outer edge of mainframe.
2. If using auxiliary ram as shown in Figure 9, use low pressure and watch closely so it does not bow due to side load. As more extension tubing is added, side load becomes more severe.

CAUTION: Always attach V-base to piston end of ram. (See Figures 8 and 9.) DO NOT add extension tubing to piston end of ram.

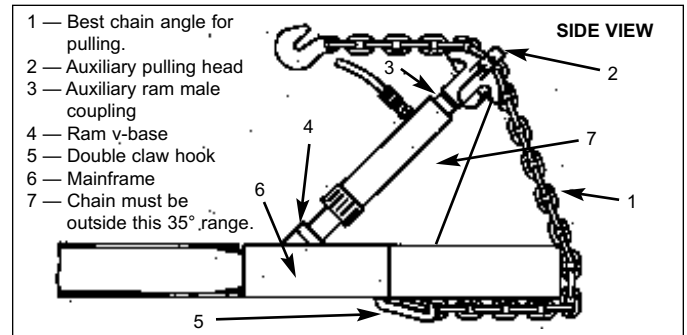


Figure 8

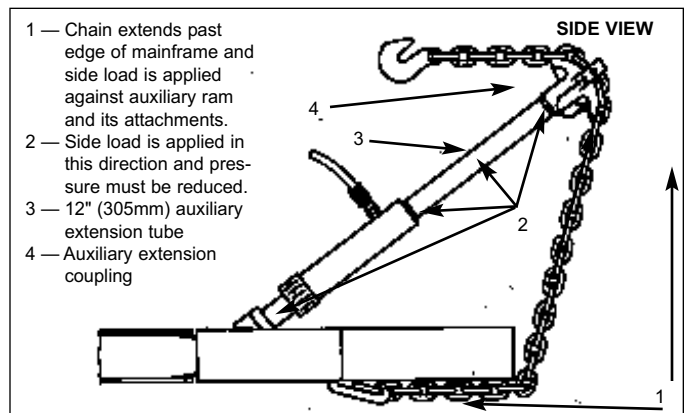


Figure 9

EZLiner System

Side Pulls

1. Position v-base of auxiliary ram assembly against tie down hole (see Figure 10A) or brace it against bumper puller chain that links adjacent rows of tie down holes (see Figure 10B). Bumper puller must be positioned on top of mainframe with its claw hooks engaging two tie down holes.
2. Wrap tail end of pulling chain around outside edge and bottom of mainframe and secure it to lower inside edge of mainframe using handy hook or double claw hook.

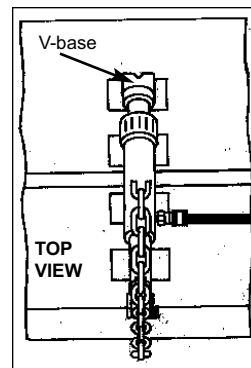


Figure 10A

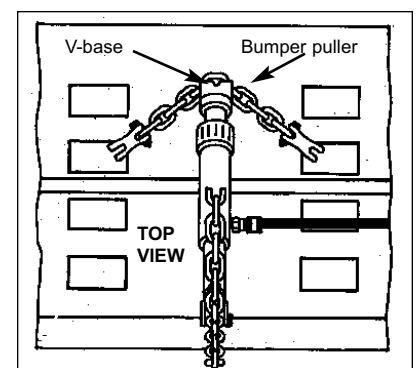


Figure 10B

Angular Pulls

1. Position auxiliary ram assembly at desired angle securing v-base attachment in corner of tie down hole. (See Figure 11.)
 2. Wrap tail end of pulling chain around outer edge of machine and secure it to tie down hole on underside of mainframe using handy hook or double claw hook.
- IMPORTANT:** Tail end of chain must be secured at opposite angle to auxiliary ram. (See also Figure 11.)

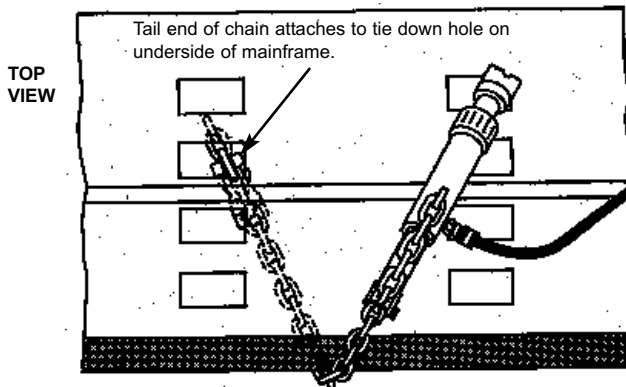


Figure 11

G Series Machines

When using a G Series machine, auxiliary rams can only be used for direct side pulls. All angular pulls must be made by the system's pulling towers.

- CAUTION:** DO NOT exceed 6,000psi (420 bar) of hydraulic pressure when using auxiliary ram to make a direct side pull from the G Series machines.

Side Pulls

1. Position auxiliary ram assembly at desired location and brace v-base against corner of inner treadway slot. (See Figure 12.)

- CAUTION:** Wedged portion of v-base must be squarely against corner of treadway slot. (See Figure 13.) If it is not, it will kick out when hydraulic pressure is applied.

2. Wrap tail end of pulling chain around outer edge of machine, insert it upward through outer treadway slot and secure it with slotted chain anchor. (See Figure 14.)

IMPORTANT: Tail end of pulling chain and its point of attachment to mainframe must be in line with auxiliary ram assembly.

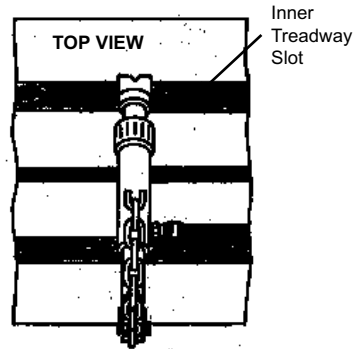


Figure 12



Figure 13



Figure 14

LATERAL PUSHES: (EZ Liner Systems Only)

Lateral pushes are only allowed on EZ Liner repair systems provided they are done according to prescribed procedures.

▲ CAUTION: DO NOT attempt any type of lateral push when using G Series repair systems.

1. Move EZ Liner tower into position and bolt it to outer tie down hole on mainframe. (See Figure 15.)
2. Lower collar to approximately 3" (75mm) above tower gusset.
3. Position tower chain hook in tie down hole approximately 18" (460 mm) in from outside edge of mainframe. Then lower collar to remove slack chain. (See also Figure 15.)
4. Apply 3,000 psi (210 bar) on tower chain and then close tower valve.
5. Secure v-base to piston end of 6" (150mm) auxiliary ram and attach extension couplings and appropriate length extension tube to opposite end of auxiliary ram. Then attach serrated saddle (or v-base) to end of extension tube to protect it when pushing against vehicle. (See Figure 16.)
6. Position v-base (at piston end of ram) against tower chain and extension tube assembly against vehicle. (See Figure 17.)
7. Apply pressure.

▲ CAUTION: DO NOT position yourself close to, or in line with chains, clamps, or other accessories while pressure is applied to this system. Failure to observe this warning could result in operator injury due to the possibility of a chain or accessory disengaging or failing while pressure is applied to this system.

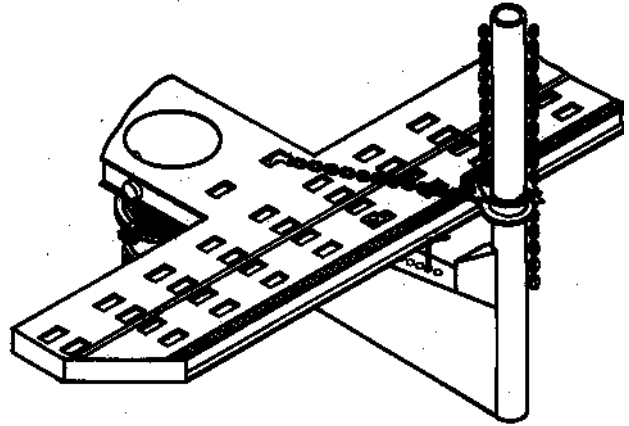


Figure 15

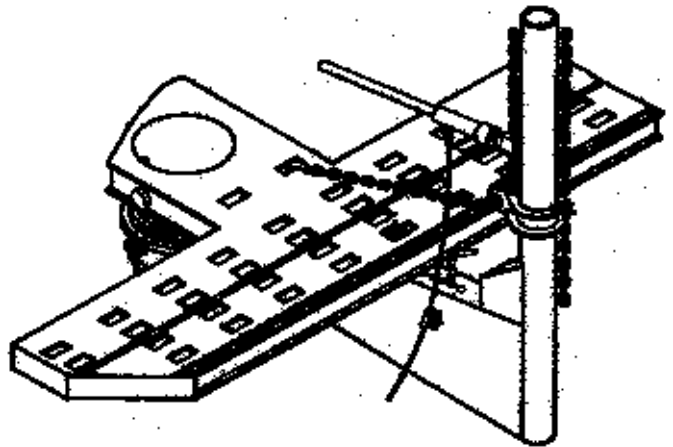


Figure 16



Figure 17

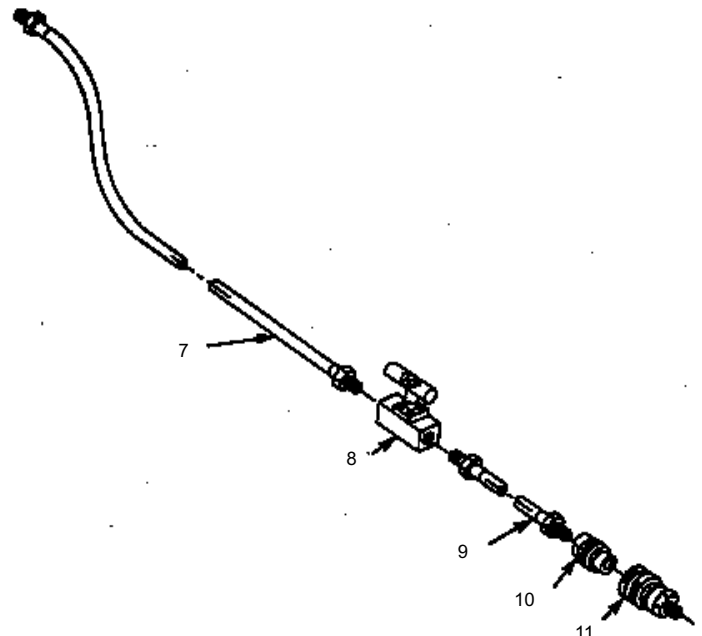
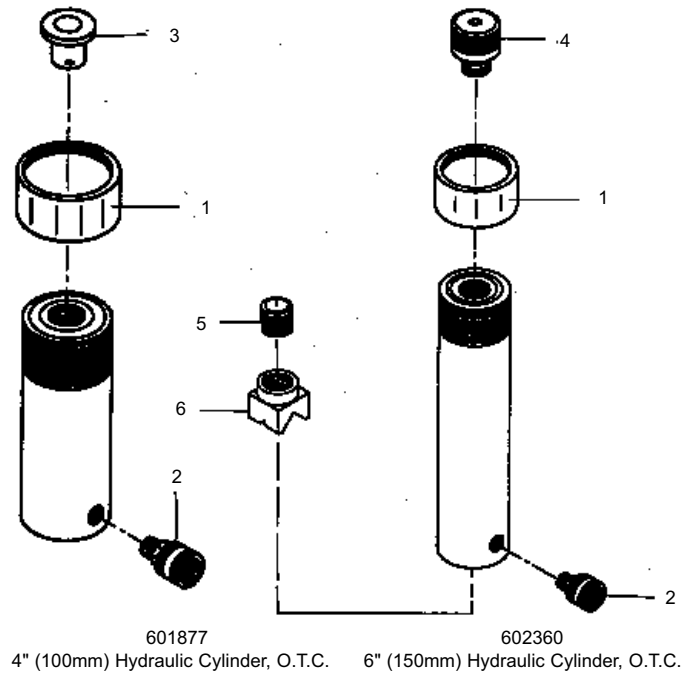
PARTS INFORMATION

To order replacement parts for Chief Auxiliary Rams, contact Chief Automotive Technologies, Inc., 800-445-9262. (If outside the United States, contact your nearest Chief Automotive Technologies, Inc. representative.)

When contacting Chief Automotive Technologies, Inc. by telephone or mail, provide the following information: name, name of shop, shop telephone number, and shop address. Additional information needed when ordering: description of part(s) and part number(s).

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

Ref.	Part No.	Description
	601877	Hydraulic Cylinder, O.T.C., 4" (100mm)
	602360	Hydraulic Cylinder, O.T.C., 6" (150mm)
1	605181	Protection Collar, Threaded, O.T.C.
2	604939	Quick Coupler, Female End, Y-25
3	620840	Ram Flat Cap, T.T.C. — 201362
4	602618	Threaded Adapter, YS107, O.T.C. 20471
5	602319	Threaded Male Connector
6	602335	Ram V-Base
	604664	Cylinder Repair Kit (does not include Part Nos. 602319 and 602335)
Other auxiliary line components frequently ordered.		
7	602474	Auxiliary Ram Hose, 164" (4.16cm)
8	602802	Auxiliary Ram Line Valve
9	602511	Auxiliary Ram Hose, 45" (1,100mm), S21
9	616122	Auxiliary Ram Hose, 27" (660mm), EZII, Classic, EZ25
10	602407	Quick Coupler, Male
11	604939	Quick Coupler, Female
Other Accessories Frequently Ordered		
	611303	Ram Base
	619057	Slotted Chain Hook
	605288	Chain Shortener
	606547	Slotted Chain Anchor
	610829	Auxiliary Pulling Head
	601834	Auxiliary Ram Extension
	607849	Auxiliary Ram Male Coupling
	601826	Auxiliary Ram Female Coupling
	601842	6 Inch Auxiliary Extension Tube
	601850	12 Inch Auxiliary Extension Tube
	601869	20 Inch Auxiliary Extension Tube
	601922	31 Inch Auxiliary Extension Tube
	605640	Serrated Saddle
	602853	4 Foot Tie Down Chain
	602861	8 Foot Tie Down Chain





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