RATCLIFF CHAIN HOIST

DESCRIPTION AND USE

1. GENERAL

1.01 This section covers the description and operation of the Ratcliff Chain Hoist.

1.02 It is reissued to:

- Update page headings
- Eliminate the requirement for mandatory two-year interval repair.
- Include the appropriate legend on Page 1 in accordance with AT&Ts "Guideline and Procedure for Safeguarding Information" and Pacific Company's System Instruction (SI) 178.

Note: Marginal arrows used to denote changes are omitted.

1.03 The Ratcliff Chain Hoist is used primarily for:

- Lifting, transferring, or lowering cable (vertical position)
- Pulling guy wires taut (diagonal position)
- Tensioning suspension strand (horizontal position)
- Installing and removing house cable.

1.04 The Ratcliff Chain Hoist is a ratchet and pawl type hoist and is available in eight different models as listed in Table A. The choice of hoist to be used depends upon the anticipated load of the particular job at hand.

2. DESCRIPTION

2.01 The eight models of Ratcliff Chain Hoists are shown in Fig. 3. Each chain hoist consists of the following principal parts and features:

(a) *Alloy steel housing* containing an operating mechanism for lifting, holding, and lowering the load, and a load sheave around which the chain travels.

(b) *A swivel hook* attached to the housing.

(c) *A welded-type flexible steel chain or rollerless type chain* (sprocket) to which a safety swivel hook is attached.

(d) *A ratchet handle* that is 14 inches long and works in any one of 12 different positions.

(e) *A single* CONTROL is used to effect raise, lower, or free-chain.

(f) The housing lies flush with working surface on 1-1/4 and 2-1/2 ton models. (See Fig. 1.)

(g) On all models, the lift side of the chain is adjacent to the working surface. (See Fig. 1.)

(h) *Free-chaining* is independent of handle position, but can never occur under load.

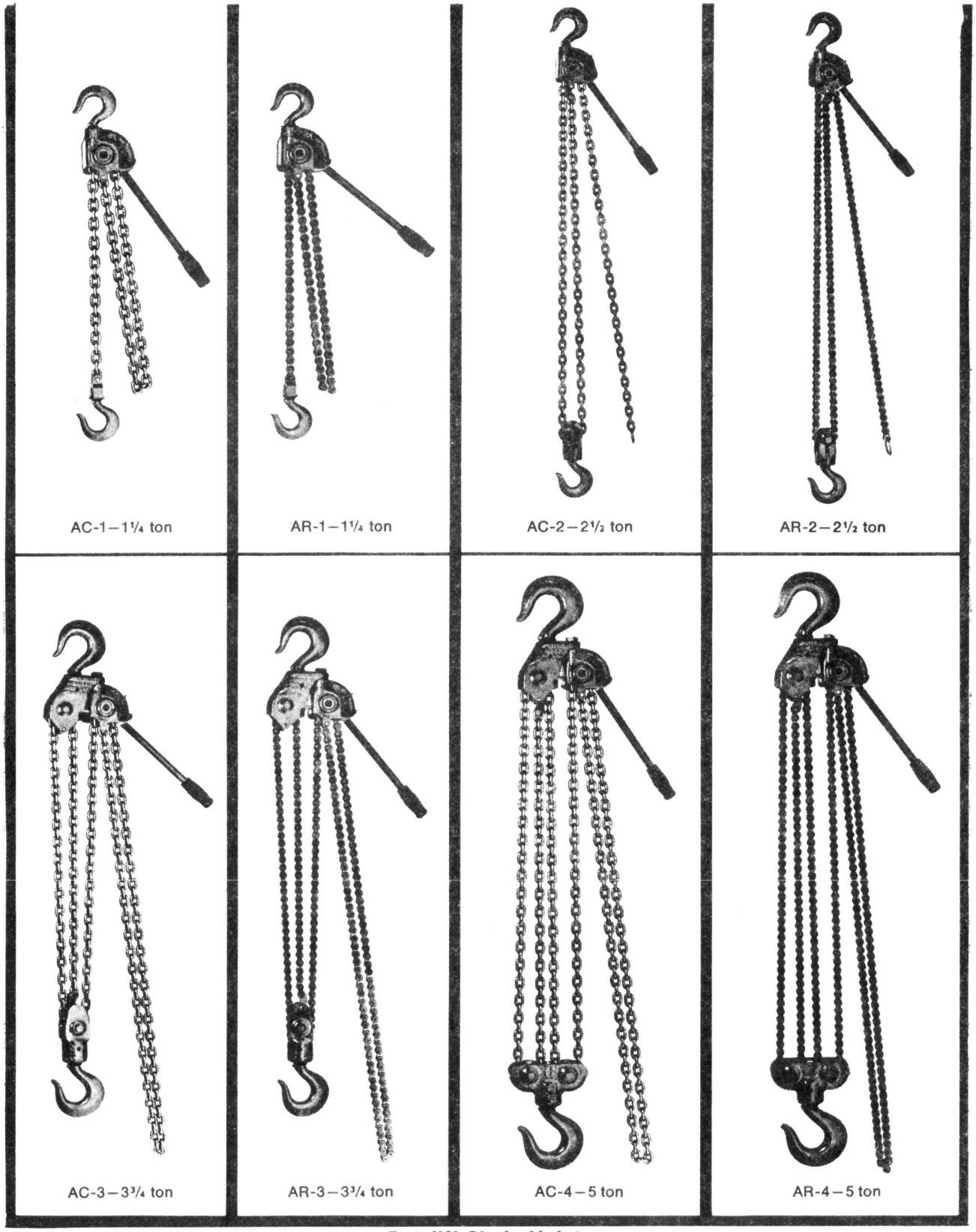
(i) *Special Lug Hook* converts chain hoist to next smaller capacity to permit longer lift and faster operation. Unhook lug hook at end of chain; lug hook acts as stop and will not feed through chain blocks. (See Fig. 2.)

2.02 Table A provides descriptive data for Ratcliff Chain Hoists. The capacity of each hoist is clearly marked on the housing. Extended lift refers to maximum chain travel with the special lug hook disengaged.

TABLE A

RATCLIFF CHAIN HOIST DATA

FEATURE	CAPACITY							
	AC-1	AR-1	AC-2	AR-2	AC-3	AR-3	AC-4	AR-4
SAFE LOAD LIMIT (TONS)	1-1/4	1-1/4	2-1/2	2-1/2	3-3/4	3-3/4	5	5
PULL ON HANDLE FOR CAPACITY LOAD (LB)	63	57	66	60	69	63	72	66
MINIMUM DISTANCE BETWEEN HOOKS (IN.)	10-3/8	10-3/8	15-1/2	15	18	18	18-1/2	18-1/2
STANDARD LIFT (IN.)	55-1/2	55-1/2	54	54	53-1/2	53-1/2	53-1/2	53-1/2
EXTENDED LIFT (IN.)			108 1-1/4 TON	108 1-1/4 TON	80-1/2 2-1/2 TON	80-1/2 2-1/2 TON	71-1/4 3-3/4 TON	71-1/4 3-3/4 TON
MINIMUM INCREMENT OF LIFTING OR LOWERING (IN.)	.312	.281	.156	.141	.104	.094	.078	.070
HANDLE LENGTH (IN.)	14	14	14	14	14	14	14	14
HOOK THROAT CLEARANCE (IN.)	1-1/8	1-1/8	1-1/4	1-1/4	1-1/2	1-1/2	1-3/4	1-3/4
TYPE OF CHAINS	COIL	ROLLERLESS	COIL	ROLLERLESS	COIL	ROLLERLESS	COIL	ROLLERLESS
NUMBER OF CHAINS	1	1	2	2	3	3	4	4
STANDARD LINEAL LENGTH OF CHAIN (FT)	5	5	10	10	15	15	20	20
DISTANCE FROM TOP HOOK CENTER TO FACE OF HOIST (IN.)	7/8	7/8	7/8	7/8	2-5/8	2-5/8	2-5/8	2-5/8
NET WEIGHT (LB)	14	14	21	21	34	34	42-1/2	42-1/2

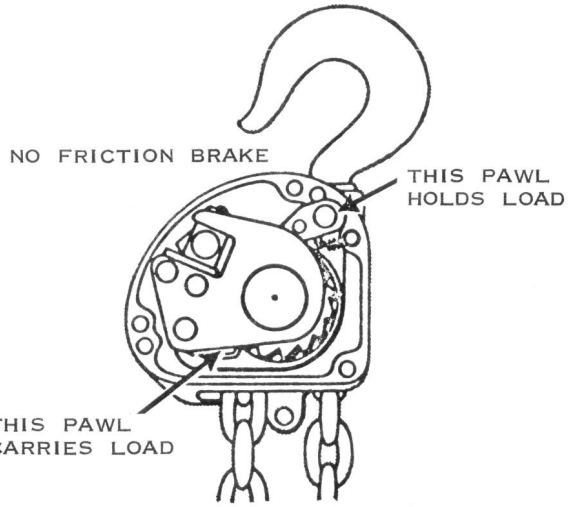


Ratcliff Chain Hoists
Fig. 3

Fig. 1

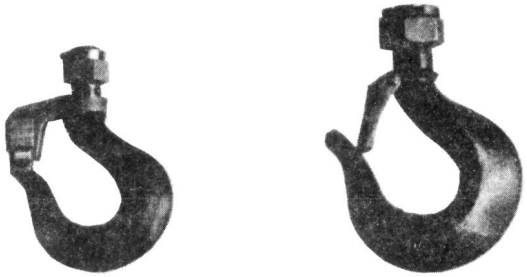
Fig. 2

2.03 The load is held and carried by alloy steel pawls. (See Fig. 4.)



Patented Cam Arrangement
Fig. 4

2.04 Ratcliff *Positive-Locking Safety Hooks* are available only on the AC-1, AC-2, AR-1, and AR-2 models. The lock opens either right or left to full throat opening. When used, the hook throat is closed by the gate and can be opened only by manual release. (See Fig. 5A.) *Latch Type Safety Hooks* are available on the AC-3, AC-4, AR-3, and AR-4 models. (See Fig. 5B.)



A B

Ratcliff Safety Hooks
Fig. 5

3. PRECAUTIONS

3.01 Even though Ratcliff Chain Hoists have been designed with a suitable margin of safety, *the hoist shall not be used where the working load will exceed the rated load limit.* Use a hoist that has adequate capacity for the job to be performed. Each hoist has the rated safe load limit clearly marked on the housing.

Note: If the special lug hook is disengaged (2.01 (i), Fig. 2), the safe load rating is the same as the next lower capacity hoist as shown in Table A.

3.02 Periodically inspect the hoist for the conditions listed in 5.04. The throat openings for each hook shall not exceed the dimension given in Table A. If a hook exceeds the dimension given, or if any part of the hoist is deformed in any way, the hoist shall be removed from service and returned for repairs as stated in Part 5.

3.03 Be sure that the CONTROL lever operates freely before operating the hoist. If the CONTROL lever does not operate freely, return for repairs as stated in Part 5.

3.04 Hoists will not FREE CHAIN under load, even if the CONTROL lever is moved accidentally; nor will the hoist free an interrupted load.

3.05 *Never use an extension on the handle or reinforce it in any way to increase the normal leverage of the handle. To do so may overload the hoist to the point of failure.*

3.06 *Do not* exert the pull of two people on the handle, since one person pulling about 70 pounds can develop the rated capacity of the hoist.

3.07 *Do not* leave the hoist loaded for prolonged periods of time, such as from one day to the next.

3.08 *Do not disassemble the hoist.* If the hoist does not operate properly, return it for repair as stated in Part 5.

3.09 *Avoid any pull that is not in a straight line between the hooks. Never* use a chain hoist as a load binder.

3.10 *Do not jerk the handle to release a load.* Jerking the handle may cause some slipping of the load and should not be necessary if the rated load limit of the hoist has not been exceeded.

Note: The operating handle will bend before the chain breaks or hook opens.

3.11 *Do not tip-load either hook.* Tip-loading will exert undue strain on the hook and may distort it.

3.12 *Remove turns or kinks of the chain before use.* To remove kinks, rotate the block and load hook through the loop of the chain in a direction that will straighten the links. (See Fig. 6.)

Removing Kinks From Hoist Chain
Fig. 6

4. OPERATION

Free Chain

4.01 To obtain free chain (with no load applied), position the CONTROL lever on "F" and raise handle slightly. The chain may now be moved freely in either direction. (See Fig. 7.)

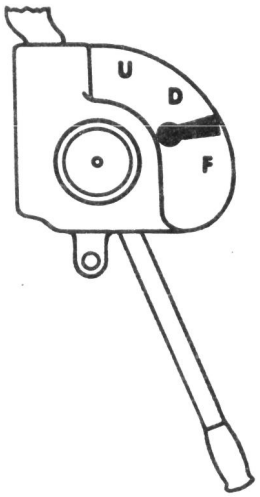


Fig. 7

4.02 If the chain binds or sticks with the control positioned for free chaining, the hoist should be returned for repairs as stated in Part 5.

4.03 Before operating the hoist, move CONTROL lever from "F" to "U" (up) or "D" (down) position as required. (See Fig. 7.)

Lifting Load

4.04 To lift a load (or apply tension) be sure that the CONTROL lever is on "U" and then operate handle. Remove slack in chain between hoist and load by pulling free end of chain. Be sure that the load is applied in a straight line and that there are no kinks in the chain. (See Fig. 7.)

Lowering Load

4.05 To lower the load (or release tension), be sure that the CONTROL lever is positioned on "D" and operate the handle. (See Fig. 7.)

5. MAINTENANCE

5.01 Exercise care in using hoists to avoid carrying mud or dirt into the housing. Remove accumulations of mud and dirt on the chain with a clean rag or wire brush.

5.02 Occasionally, apply a light coat of Lockease Graphited Oil to the chain. ***Avoid excessive lubrication. No lubricant shall be applied to any other part of the hoist.***

5.03 No field maintenance or adjustments are required other than as specified in 5.01 and 5.02. If the hoist does not operate properly or, if by visual inspection, the hoist appears to be damaged, return for repairs in accordance with local instructions.

5.04 Following is a partial list of reasons that necessitate return for repair:

- Bent handle
- Bent, cracked, or otherwise deformed hook(s)
- Cracked or distorted casting
- Worn or deformed links in the chain
- Binding or sticking of chain
- CONTROL lever does not operate freely to positions "U", "D", and "F"
- Hoist binds or fails to operate properly in any operation.