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OWNERS MANUAL

3203 P/PR/PRX

REVISION 5/97

PART NO. 999947

SERIAL NO. _____

AUTO CRANE COMPANY

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WARNINGS

READ THIS PAGE!

- **WARNING! Federal law (49 cfr part 571) requires that the Final Stage Manufacturer of a vehicle certify that the vehicle complies with all applicable federal regulations. Any modifications performed on the vehicle prior to the final stage are also considered intermediate stage manufacturing and must be certified as to compliance. The installer of this crane and body is considered one of the manufacturers of the vehicle. As such a manufacturer, the installer is responsible for compliance with all applicable federal and state regulations, and is required to certify that the vehicle is in compliance.**

- **WARNING! It is the further responsibility of the installer to comply with the OSHA Truck Crane Stability Requirements as specified by 29 CFR part 1910.180 (C) (1).**

- **WARNING! NEVER OPERATE THE CRANE NEAR ELECTRICAL POWER LINES!** Death or serious injury will result from boom, line, or load contacting electric lines. Do not use crane within 10 feet of electrical lines carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less. SEE DANGER DECAL (P/N 040529) in this Owner's Manual.

- **WARNING! NEVER .....**
  - **EXCEED** load chart capacities (centerline of rotation to hoist hook).
  - un-reel last 5 wraps of cable from drum!
  - wrap cable around load!
  - attempt to lift or drag a load from the side! The boom can fail far below its' rated capacity.
  - weld, modify, or use unauthorized components on any Auto Crane unit! This will void any warranty or liability. Also failure of the crane may result.
  - place a chain link on the tip of the hook and try to lift a load!
  - use a sling bar or anything larger than the hook throat that could prevent the hook latch from closing, thus negating the safety feature!
  - hold on any pendant Select Switch that will cause unsafe operating conditions!

- **WARNING!** In using a hook with latch, **ALWAYS** make sure that the hook throat is closed before lifting a load! Proper attention and common sense applied to the use of the hoist hook and various slings will prevent possible damage to material being hoisted and may prevent injury to personnel.

- **WARNING!** Failure to correctly plumb and wire crane can cause inadvertent operation and damage to crane and/or personnel!

- **WARNING!** Auto Crane Company remote controlled, stiff boom cranes are not designed or intended to be used for any applications involving the lifting or moving of personnel.

- **WARNING! ALWAYS** operate the crane in compliance with the load capacity chart. **Do not use** the overload shutdown device to determine maximum rated loads, if your crane is equipped with this type of device.

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INTRODUCTION
3203 SERIES

Auto Crane products are designed to provide many years of safe, trouble-free, dependable service when properly used and maintained.

To assist you in obtaining the best service from your crane and to avoid untimely crane and/or vehicle failure, this manual provides the following operating and service instructions. It is **specifically recommended** that all operating and service personnel consider this manual as mandatory material for reading and study before operating or servicing Auto crane products. It is **highly recommended** that crane owners, equipment managers and supervisors also read this manual.

Auto Crane has incorporated several safety features in the 3203 series cranes for your protection. The choice of materials and the design of the electrical system minimizes weight and lengthens durability. The hydraulic components meet or exceed a **3.5:1 safety factor**. Holding valves prevent the load from dropping if a hose should fail. The reservoir has a **40*u* air filter** in the filler cap. The pump has a **100 mesh strainer** in the suction line.

For your convenience the overall dimensions of the 3203 series crane are on the General Dimension Drawing. Maximum turning radius is shown at the outside edge of the guard (PR/PRX models) and the outside point of the hoist actuator (P model).

Remember, the crane adds weight to the vehicle. Adding weight may change the driving and riding characteristics of the vehicle unless the appropriate overload spring(s) are installed on the truck. The payload of the vehicle is reduced by the weight of the crane. The operator should exercise care when loading the vehicle. Distributing the payload on the vehicle evenly will greatly improve the driving and riding characteristics of the vehicle. **A minimum G.V.W. of 8,000 lbs. with two rear jacklegs (or outriggers) is recommended for mounting the 3203 series cranes.**

The 3203 series cranes are attached directly to your 12 volt truck electrical system. The power cable and retaining clips are included with the crane. A typical power cable mounting and hookup is shown on page 2-1.0.0. The performance of your new crane depends on the truck electrical system. The use of the low maintenance battery is not recommended for use on any Auto Crane product. The recommended alternator and battery that will give the longest life with the most useful duty cycle is a 60 amp. alternator with a 120 minute reserve capacity, deep cycle battery. These specifications should be considered minimum.

Auto Crane Company issues a limited warranty certificate with each unit sold. See last page for warranty policy.

It has always been Auto Crane Company policy to handle all warranty claims we receive as promptly as possible. If a warranty claim involves discrepant material or workmanship, Auto Crane will take immediate corrective action. It is understandable that Auto Crane company cannot assume responsibility of liability when it is obvious that our products have been abused, mis-used, overloaded or otherwise damaged by inexperienced persons trying to operate the equipment without reading the manual.

Auto Crane will not assume responsibility or liability for any modifications or changes made to unit, or installation of component parts done without authorization.

Auto Crane maintains a strong distributor network and a knowledgeable Customer Service Department. In most cases, an equipment problem is solved via phone conversation with our customer service department. The customer service department also has the ability to bring a local distributor, a regional sales manager, or a factory serviceman into the solution of an equipment problem. If, through no fault of Auto crane company, it is necessary to send an experienced factory serviceman on a field service call, the rates stated in the Auto Crane Distributor's Flat Rate Manual will apply.

Auto Crane Company's extensive Research and Development Program allow our customers to use the best equipment on the market. Our Engineering Staff and our knowledgeable sales people, are always available to our customers in solving crane and winch-type application problems. When in doubt, call the Auto Crane factory.

DISTRIBUTOR ASSISTANCE:

Should you require any assistance not given in this manual, we recommend that you consult your nearest Auto Crane Distributor. Our distributors sell authorized parts and have service departments that can solve almost any needed repair.

NOTE:* *THIS MANUAL SHOULD REMAIN WITH THE CRANE AT ALL TIMES.

This manual does not cover all maintenance, operating, or repair instructions pertinent to all possible situations. If you require additional information, please contact the **Auto Crane Company** at the following telephone number: **(918) 438-2760.** The information contained in the manual is in effect at the time of this printing. Auto Crane Company reserves the right to update this material without notice or obligation.

GENERAL SPECIFICATIONS
3203 SERIES

Dimensions

Width: [PR/PRX] 24 in (.61 m)
[P] 23.25 (.59 m)

Height: [P/PR] 27.25 in (.69 m)
[PRX] 31.13 in (.79 m)

Length: 8 ft 6 in (2.59 m)
[boom(s) stored]

Weight:

P 7-11	470 lbs (213 kg)
P 7-11-15	530 lbs (240 kg)
PR 7-11	520 lbs (236 kg)
PR 7-11-15	550 lbs (250 kg)
PRX 7-11	630 lbs (286 kg)
PRX 7-11-15	630 lbs (286 kg)

[Add 5 lbs (2.25 kg) for cable length of 75 feet (23 m)]

Capacity

10,000 ft lbs (1.4 ton/m)
[ft lbs = horizontal distance from centerline of rotation to free hanging weight (feet) x amount of weight (pounds)]

LIFTING CAPACITIES			
ft	lbs	ft	lbs
3	3,200	10	1,000
4	2,500	11	900
5	2,000	12	830
6	1,670	13	770
7	1,500	14	710
8	1,250	15	660
9	1,100		

Reach

Second boom will reach from 7 ft to 11 ft
Third boom will reach from 11 ft to 15 ft

Cable

62 ft (18.9 m) of 7/32" diameter aircraft quality cable is standard (75 ft optional). This cable has a single line breaking strength of 5,600 lbs (2,540 kg).

Chassis Requirements

8,800 lbs (3,992 kg) GVWR minimum

Hydraulic System

Pressure: 2100 psi (1,448 kPa) relief setting
Flow: 0.7 to 2.4 gpm
(2.65 to 9.1 lpm)
[output depends on psi]
Filtration:
Suction line strainer 100 mesh
Reservoir filler cap air filter 40*u*
Reservoir Capacity: 6 quarts (5.7 l)
Oil type: 10w Hydraulic Oil
[Mobile DTE 13, Sun 2015, Dextron II]

Electrical System

Hoist Motor: 12 volt DC series wound
Pump Motor: 12 volt DC closed-coupled

Electrical System Requirements

Alternator: 60 amp (minimum)
Battery: 100 minute reserve capacity (minimum)
Maintenance type

--- IMPORTANT ---
OPERATING PRACTICES & WARNINGS

1. Make certain the vehicle meets minimum chassis requirements. (These requirements do not guarantee unit stability)
2. Make certain the crane is installed per factory specifications. Contact your local Distributor or the Auto Crane factory if any questions arise.
3. Keep the vehicle in as level a position as possible while loading or unloading.
4. **ALWAYS** set the vehicle emergency brake before beginning crane operations.
5. **ALWAYS** use outriggers from vehicle to the ground during crane operation. Make sure they are firmly positioned on solid footings.
6. All load ratings are based on crane capacity, **NOT** truck/crane stability.
7. Keep objects and personnel clear of crane path during operation.
8. Keep hoist cable pulled tight at all times.
9. **REMEMBER**, in lifting a heavy load, the weight can create enough tipping moment to overturn the vehicle.
10. **ALWAYS** keep load as close to ground as possible.
11. Oil gears as required.
12. Periodic adjustment of hoist worm brake may be required (see automatic safety brake drawing in this manual).
13. Hydraulic hoses need to be inspected frequently for signs of deterioration, and be replaced as required.
14. The hoist hook is an important item that an operator should consider and use properly. It should be checked on a daily basis for distortion or cracks.
15. **ALWAYS** store outriggers before road travel.
16. **WARNING! NEVER OPERATE THE CRANE NEAR ELECTRICAL POWER LINES!** Auto Crane Company recommends that a crane never be moved closer than 10 feet (3.05m) from power lines at any point.
17. **WARNING! NEVER** un-reel last 5 wraps of cable from drum!
18. **WARNING! NEVER** wrap cable around load!
19. **WARNING! NEVER** attempt to lift or drag a load from the side! The boom can fail far below its' rated capacity.
20. **WARNING! NEVER** weld, modify, or use unauthorized components on any Auto Crane unit! This will void any warranty or liability. Also failure of the crane may result.
21. **WARNING! NEVER** place a chain link on the tip of the hook and try to lift a load!
22. **WARNING! NEVER** use a sling bar or anything larger than the hook throat that could prevent the hook latch from closing, thus negating the safety feature!
23. **WARNING!** In using a hook with latch, **ALWAYS** insure that the hook throat is closed before lifting a load! Proper attention and common sense applied to the use of the hoist hook and various slings will prevent possible damage to material being hoisted and may prevent injury to personnel.
24. **WARNING! NEVER** hold any pendant Select Switch on that will cause unsafe operating conditions!
25. **WARNING! NEVER EXCEED** load chart capacities (centerline of rotation to hoist hook).

WARNING!

Auto Crane Company remote controlled, stiff boom cranes are not designed or intended to be used for any applications involving the lifting or moving of personnel.

--- IMPORTANT ---
OPERATION OF UNIT

1. Make sure this manual has been thoroughly read by all crane operating personnel and supervisors.
2. A routine inspection of the crane should be mandatory before each operating day. Any defects should be corrected immediately.
3. At a job site the vehicle should be positioned so that the crane can adequately reach the load within the rated capacity (centerline of rotation to hoist hook).
4. Keep the vehicle as level as possible during operation.
5. For electric cranes, **engage emergency brake** and leave ignition on with transmission in neutral (or in park for automatic transmissions). Activate any crane power switches. For Auto Crane units requiring battery and hydraulic operation, **engage emergency brake,** place gear selector in neutral, press clutch, activate PTO, release clutch and after hydraulic fluid is warm, set throttle control to proper engine speed.
6. Always use outriggers from the truck to the ground. Be sure these are firm and adequately positioned. When rotating, **keep load as low to the ground as possible.**
7. Remove pendant control from cab or storage area. On smaller units, plug pendant into receptacle on crane. On larger units, remove pendant control from guard and unwrap cable from boom. Do not operate crane until cable is unwound completely. On all cranes, detach hook from dead man. Crane is now ready for operation.
8. Always boom up before rotating so the boom will clear the required boom support.
9. When extending the boom, always maintain clearance between the boom crown and the traveling block or hoist hook.
10. Always observe safe and practical operation to avoid possible accidents. Refer to Safety Tips and Precautions.
11. After completing lifting operations, return the boom to stowed position on the boom support. Avoid unneeded pressure on the boom support.
12. Store pendant control on proper location (in cab or on crane).
13. Return outriggers to stowed position. Make sure they are pinned in place or jacklegs are returned to compartment.
14. Check work area for any tools or equipment not stored.
15. Release throttle control, depress clutch and disengage PTO. Deactivate any crane power switches
16. Report any unusual occurrence during crane operation that may indicate required maintenance or repair.
17. NEVER use two cranes to support a load too large for either crane.
18. Spray all electrical equipment with special corrosion resistant coating. This eliminates rust or corrosion due to melting and freezing action of condensation.

OPERATION OF OUTRIGGERS

Prior to operating outriggers, detach crane hook from dead man.

For hydraulic outriggers:

1. Shift crane/outrigger selector valve to "outrigger" position.
2. While operating the outrigger control valves (located on the outrigger cylinders), simultaneously operate the boom-up control switch. This will allow the hydraulic system to build pressure.
3. After outriggers are positioned, return crane/outrigger selector valve to "crane" position.
4. Crane is now ready to operate.

For manual outriggers:

1. Pull lock pins to release jack leg or drop down outrigger and move to outermost lock position.
2. Make sure lock pins are reinstalled properly.
3. Lower outrigger pad to firm ground and adjust foot to take out slack.
4. Crane is now ready to operate.

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QUALIFICATIONS FOR AND CONDUCT OF OPERATORS AND OPERATING PRACTICES

OPERATORS

1 Crane operation shall be limited to personnel with the following minimum qualifications:

A. designated persons

B. trainees under the direct supervision of a designated person

C. maintenance and test personnel (when it is necessary in the performance of their duties)

D. inspectors (crane).

2 No one other than the personnel specified above shall enter the operating area of a crane with the exception of persons such as oilers, supervisors, and those specified persons authorized by supervisors whose duties require them to do so and then only in the performance of their duties and with the knowledge of the operator or other persons.

QUALIFICATIONS FOR OPERATORS

3 Operators shall be required by the employer to pass a practical operating examination. Qualifications shall be limited to the specific type of equipment for which examined.

4 Operators and operator trainees shall meet the following physical qualifications:

A. Vision of at least 20/30 snellen in one eye and 20/50 in the other, with or without corrective lenses.

B. Ability to distinguish colors, regardless of position, if colors differentiation is required for operation.

C. Adequate hearing with or without hearing aid for the specific operation.

5 Evidence of physical defects or emotional instability which render a hazard to operator or others, which in the opinion of the examiner could interfere with the operator's performance may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgment and tests may be required.

6 Evidence that the operator is subject to seizures or loss of physical control shall be sufficient reason for disqualification. Specialized medical tests may be required to determine these conditions.

7 Operators and operator trainees should have normal depth perception, coordination, and no tendencies to dizziness or similar undesirable characteristics.

8 In addition to the above listed requirements, the operator shall:

A. Demonstrate the ability to comprehend and interpret all labels, operator's manuals, safety codes and other information pertinent to correct crane operations.

B. Possess knowledge of emergency procedures and implementation of same.

C. Demonstrate to the employer the ability to operate the specific type of equipment.

D. Be familiar with the applicable safety regulations.

E. Understand responsibility for maintenance requirements of crane.

F. Be thoroughly familiar with the crane and its control functions.

G. Understand the operating procedures as outlined by the manufacturer.

CONDUCT OF OPERATORS

9 The operator shall not engage in any practice which will divert his attention while actually operating the crane.

10 Each operator shall be responsible for those operations under the operator's direct control. Whenever there is any doubt as to safety, the operator shall consult with the supervisor before handling the loads.

11 The operator should not leave a suspended load unattended unless specific precautions have been instituted and are in place.

12 If there is a warning sign on the switch or engine starting controls, the operator shall not close the switch or start the engine until the warning sign has been removed by the appointed person.

13 Before closing the switch or starting the engine, the operator shall see that all controls are in the "OFF" or neutral position and all personnel are in the clear.

14 If power fails during operation, the operator shall:

A. move power controls to the "OFF" or neutral position.

B. land the suspended load and boom, if practical.

QUALIFICATIONS FOR AND CONDUCT OF OPERATORS AND OPERATING PRACTICES

15 The operator shall be familiar with the equipment and its proper care. If adjustments or repairs are necessary, the operator shall report the same promptly to the appointed person, and shall also notify the next operator.

16 All controls shall be tested by the operator at the start of each shift. If any controls do not operate properly, they shall be adjusted or repaired before operations are begun.

17 Stabilizers shall be visible to the operator while extending or setting unless operator is assisted by a signal person.

OPERATING PRACTICES

HANDLING THE LOAD

18 Size of load

A. No crane shall be loaded beyond the rated load except for test purposes.

B. The load to be lifted is to be within the rated load of the crane and its existing configuration.

C. When loads which are not accurately known are to be lifted, the person responsible for the job shall ascertain that the weight of the load does not exceed the crane rated load at the radius at which the load is to be lifted.

19 Attaching the load

A. The load shall be attached to the hook by means of slings or other devices of sufficient capacity.

B. Hoist rope shall not be wrapped around the load.

20 Moving the load

A. The operator shall determine that:

B. The crane is level and, where necessary, the vehicle/carrier is blocked properly.

C. The load is well secured and balanced in the sling or lifting device before it is lifted more than a few inches.

D. Means are provided to hold the vehicle stationary while operating the crane.

E. Before starting to lift, the hook shall brought over the load in such a manner as to minimize swinging.

F. During lifting care shall be taken that:

1. there is no sudden acceleration or deceleration of the moving load.
2. load, boom or other parts of the crane do not contact any obstruction.

G. Cranes shall not be used for dragging loads sideways.

H. This standard recognizes that articulating boom cranes are designed and intended for handling materials. They do not meet personnel lift or elevator requirements. Therefore, no lifting, lowering, swinging or traveling shall be done while a person is on the hook or load. Hook attached suspended work platforms (baskets) shall not be used with cranes covered by this standard. Work platforms attached to the boom must be approved by crane manufacturer.

I. The operator should avoid carrying loads over people.

J. When the crane is so equipped, the stabilizers shall be fully extended and set. Blocking under stabilizers shall meet the requirements as follows:

1. strong enough to prevent crushing.
2. of such thickness, width and length as to completely support the stabilizer pad.

K. Firm footing under all tires, or individual stabilizer pads should be level. Where such a footing is not otherwise supplied, it should be provided by timbers, cribbing, or other structural members to distribute the load so as to not exceed allowable bearing capacity or the underlying material.

L. In transit, the boom shall be carried in stowed position.

M. When rotating the crane, sudden starts and stops shall be avoided. rotational speed shall be such that the load does not swing out beyond the radius at which it can be controlled.

N. The crane shall not be transported with a load on the hook unless recommended by the manufacturer.

O. No person should be permitted to stand or pass under a suspended load.

21 Stowing procedure. Follow the manufacturer's procedure and sequence when stowing and un-stowing the crane.

QUALIFICATIONS FOR AND CONDUCT OF OPERATORS AND OPERATING PRACTICES

MISCELLANEOUS

OPERATING NEAR ELECTRICAL POWER LINES

22 Cranes shall be operated so that no part of the crane

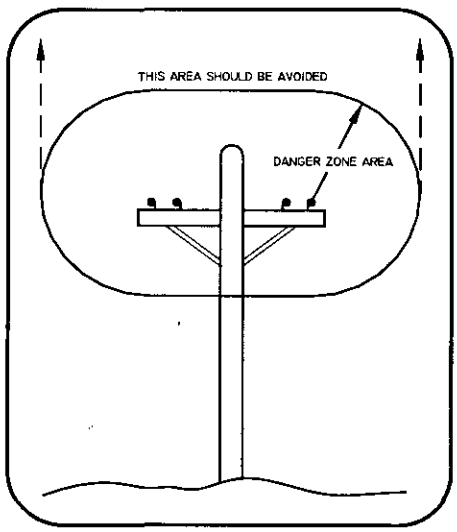


FIG. 1

or load enters into the danger zone shown in figure 1.

EXCEPTIONS

A. The danger zone may be entered after confirmation by an appointed person that the electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work; or

B. The danger zone may be entered if insulating barriers (not a part of nor an attachment to the crane) have been erected to prevent physical contact with the lines.

23 For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load (including handling appendages) shall be 10 ft. (3 m). For higher voltages, see Table 1.

24 Caution shall be exercised when working near overhead lines, because they can move horizontally or vertically due to wind, moving the danger zone to new positions.

25 In transit with no load and boom lowered the clearance shall be specified in table 1.

26 A qualified signalperson shall be assigned to observe the clearance and give warning before approaching the above limits.

A. Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities verify that it is not and energized line.

B. Exceptions to this procedure, if approved by the owner of the electrical lines, may be granted by the administrative authority if alternate procedure provides equivalent protection and is set forth in writing.

C. Durable signs shall be installed at the operator's station and of the outside of the crane, warning that electrocution or serious bodily injury may occur unless a minimum clearance of 10 ft. (3 m) is maintained between the crane or the load being handled and energized power lines. Greater clearances are required because of higher voltage as stated in above. These signs shall be revised but not removed when local jurisdiction requires greater clearances.

TABLE 1

normal voltage, kV (phase to phase)	minimum required clearance ft	(m)
when operating near high voltage power lines		
over to 50	10	(3.05)
over 50 to 200	15	(4.6)
over 200 to 350	20	(6.1)
over 350 to 500	25	(7.62)
over 500 to 750	35	(10.67)
over 750 to 1000	45	(13.72)
while in transit with no load and boom lowered		
over to 0.75	4	(1.22)
over 0.75 to 50	6	(1.83)
over 50 to 345	10	(3.83)
over 345 to 750	16	(4.87)
over 750 to 1000	20	(6.1)

INSPECTION, TESTING AND MAINTENANCE

GENERAL

INSPECTION CLASSIFICATION

1 Initial inspection. Prior to initial use, all new, altered, modified or extensively repaired cranes shall be inspected by a designated person to insure compliance with provisions of this standard.

2 Regular inspection. Inspection procedure for cranes in regular service is divided into two general classifications based upon the intervals at which inspection should be performed. The intervals in turn are dependent upon the nature of the components of the crane and the degree of their exposure to wear, deterioration, or malfunction. The two general classifications are herein designated as "frequent" and "periodic" with respective intervals between inspections as defined below.

A. frequent inspection - daily to monthly intervals.

B. periodic inspection - one to twelve intervals, or as specifically recommended by the manufacturer.

FREQUENT INSPECTION

3 Inspection shall be performed by designated personnel.

A. control mechanisms for maladjustment interfering with proper operation - daily, when used;

B. control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter;

C. safety devices for malfunction;

D. all hydraulic hoses, particularly those which flex in normal operation of crane functions, should be visually inspected once every working day, when used;

E. hooks and latches for deformation, chemical amage, cracks, and wear. Refer to ANSI/ASME B30.10;

F. rope reeving for compliance with crane manufacturer's specifications, if optional winch is used;

G. electrical apparatus for malfunctioning, signs of excessive deterioration, dirt and moisture accumulation;

H. hydraulic system for proper oil level and leaks daily;

I. tires for recommended inflation pressure, cuts and loose wheel nuts;

J. connecting pins and locking device for wear and damage;

PERIODIC INSPECTION

4 Deformed, cracked or corroded members in the crane structure and carrier;

5 Loose bolts, particularly mounting bolts;

6 Cracked or worn sheaves and drums;

7 Worn, cracked, or distorted parts such as pins, bearings, shafts, gears, rollers and devices;

8 Excessive wear on brake and clutch system parts and lining;

9 Crane hooks inspected for cracks;

10 Travel steering, braking, and locking devices, for malfunction;

11 Excessively worn or damaged tires;

12 Hydraulic and pneumatic hose, fittings, and tubing inspection;

A. evidence of leakage at the surface of the flexible hose or its junction with metal and coupling;

B. blistering, or abnormal deformation to the outer covering of the hydraulic or pneumatic hose;

C. leakage at threaded or clamped joints that cannot be eliminated by normal tightening or recommended procedures;

D. evidence or excessive abrasion or scrubbing on the outer surface of a hose, rigid tube, or fitting. Means shall be taken to eliminate the interference of elements in contact or otherwise protect the components.

13 Hydraulic and pneumatic pumps and motors inspection

A. loose bolts or fasteners;

B. leaks at joints between sections;

C. shaft seal leaks;

D. unusual noises or vibrations;

E. loss of operating speed;

F. excessive heating of the fluid;

G. loss of pressure.

14 Hydraulic and pneumatic valves inspection

A. cracks in valve housing;

B. improper return of spool to neutral position;

C. leaks at spools or joints;

D. sticking spools;

E. failure of relief valves to attain or maintain correct pressure setting;

F. relief valve pressure shall be checked as specified by the manufacturers.

15 Hydraulic and pneumatic cylinders inspection

A. drifting caused by fluid leaking across piston;

B. rod seals leaking

C. leaks at welding joints

D. scored, nicked, or dented cylinder rods;

E. damaged case (barrel);

F. loose or deformed rod eyes or connecting joints.

16 Hydraulic filters. Evidence of rubber particles on the filter elements may indicate hose, "O" ring, or other rubber component deterioration. Metal chips or pieces on the filter may denote failure in pumps, motors, or cylinders. Further checking will be necessary to determine origin of the problem before corrective action can be taken.

17 Labels are to be in place and legible.

CRANES NOT IN REGULAR USE

18 A crane which has been idle for a period of over one month or more, but not less than six months, shall be given an inspection conforming with the initial-regular- frequent inspections.

19 A crane which has been idle for a period of over six months shall be given a complete inspection conforming with the initial-regular-frequent inspection requirements.

INSPECTION RECORDS

20 Dated records for periodic inspection should be made on critical items such as brakes, crane hooks, rope, hydraulic and pneumatic cylinders, and hydraulic and pneumatic relief pressure valves. Records should be kept available to an appointed person.

OPERATIONAL TESTS

21 Prior to initial use, all new, altered, modified, or extensively repaired cranes shall be tested for compliance with the operational requirements of this section, including functions such as the following:

A. load lifting and lowering mechanisms;

B. boom lifting and lowering mechanisms;

C. boom extension and retraction mechanisms;

D. swing mechanisms;

E. safety devices;

F. operating controls comply with appropriate function labels.

Operational crane test results shall be made available to an appointed person.

MAINTENANCE

PREVENTIVE MAINTENANCE

22 Before adjustment and repairs are started on a crane, the following precautions shall be taken as applicable:

A. crane placed where it will cause the least interference with other equipment or operations;

B. all controls at the "off" position;

C. starting means rendered inoperative;

D. boom lowered to the ground if possible or otherwise secured against dropping;

E. relieve hydraulic oil pressure from all hydraulic circuits before loosening or removing hydraulic components.

23 Warning or "OUT OF ORDER" signs shall be placed on the crane controls.

24 After adjustments and repairs have been made, the crane shall not be returned to service until all guards have been reinstalled, trapped air removed from hydraulic system (if required), safety devices reactivated, and maintenance equipment removed.

ADJUSTMENTS AND REPAIRS

25 Any hazardous conditions disclosed by the inspection requirements shall be corrected before operation of crane is resumed, Adjustments and repairs shall be done only by designated personnel.

26 Adjustments shall be maintained to assure correct functioning of components, The following are examples:

A. functional operating mechanism;

B. safety devices;

C. control systems;

27 Repairs or replacements shall be provided as needed for operation.

The following are examples:

A. critical parts of functional operating mechanisms which are cracked, broken, corroded, bent, or excessively worn;

B. critical parts of the crane structure which are cracked, bent, broken, or excessively corroded;

C. crane hooks showing cracks, damage, or corrosion shall be taken out of service. Repairs by welding are not recommended.

28 Instructions shall be provided by the manufacturer for the removal of air from hydraulic circuits.

LUBRICATION

All moving parts of the crane, for which lubrication is specified, should be regularly lubricated per the manufacturer's recommendations and procedures.

ROPE INSPECTION

29 Frequent Inspection

A. All running ropes in service should be visually inspected once each working day. A visual inspection shall consist of observation of all rope which can be in use during the days operations. These visual observations should be considered with discovering gross damage such as listed below, which may be an immediate hazard;

1. distortion of the rope such as kinking, crushing, un-stranding, birdcaging, main strand displacement, or core protrusion. Loss of rope diameter in a short length or unevenness of outer strands should be replaced;
2. general corrosion;
3. broken or cut strands;
4. number, distribution and type of visible broken wires. When such damage is discovered, the rope shall either be removed from service or given as inspection.

B. Care shall be taken when inspecting sections of rapid deterioration such as flange points,

crossover points, and repetitive pickup points on drums.

30 Periodic inspection

A. the inspection frequency shall be determined by a qualified person and shall be based on such factors as:

1. expected rope life as determined by experience on the particular installation or similar installations;
2. severity of environment;
3. percentage of capacity lifts;
4. frequency rates of operation;
5. exposure to shock loads;

Inspection need not be at equal calendar intervals and should be more frequent as the rope approaches the end of it's service life. This inspection shall be made at least annually.

B. Periodic inspection shall be performed by a designated person. This inspection shall cover the entire length of the rope. Only the surface wires need be inspected. No attempt should be made to open the rope. Any deterioration results in appreciable loss of original strength, such as described below, shall be noted and determination made as to whether use of the rope would constitute a hazard: points listed above reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires; severely corroded, cracked, bent, worn or improperly applied connections;

C. Care shall be taken when inspecting sections subject to rapid deterioration such as the following:

1. sections in contact with saddles, equalizer sheaves, or other sheaves where rope travel is limited;
2. sections of the rope at or near terminal ends where corroded or broken wires may protrude.

ROPE REPLACEMENT

31 No precise rules can be given for determination of the exact time for replacement of rope, since many variable factors are involved.

Continued use in this respect depends upon good judgement by a designated person in evaluating remaining strength in a used rope after allowance for deterioration disclosed by inspection. Continued rope operation depends upon this remaining strength.

32 Conditions such as the following shall be reason for questioning continued use of the rope or increasing the frequency of inspection:

A. in running ropes, six randomly distributed broken wires in one lay or three broken wires in one strand in one lay:

B. one outer wire broken at the contact point with the core of the rope structure and protrudes or loops out of the rope structure. Additional inspection of this section is required.

C. wear of one third of the original diameter of the outside individual wire.

D. kinking, crushing, birdcaging, or any other damage resulting in distortion of the rope structure.

E. evidence of any heat damage from any cause.

F. reduction from nominal diameter of more than 1/64 in. (0.4mm) for diameters up to and including 5/16 in. (8 mm), 1/32 in. (0.8 mm) for diameter 3/8 in. (9.5 mm) to and including 1/2 in. (13 mm), 3/64 in. (1.2 mm) for diameter 9/16 in. (14.5 mm) to and including 3/4 in. (19 mm). 1/16 in. (1.6 mm) for diameter 7/8 in. (22 mm) to and including 11/8 in. (29 mm), 3/32 in. (2.4 mm) for diameters 11/4 in. (32 mm) to and including 11/2 in. (38 mm).

G. In standing ropes, more than two broken wires in one lay in sections beyond end connections or more than one broken wire at an end connection.

H. Replacement rope shall have a strength rating at least as great as the original rope furnished or recommended by the crane manufacturer. Any deviation from the original size, grade, or construction shall be specified by a rope manufacturer, or a qualified person.

33 Rope not in regular use: all rope which has been idle for a period of a month or more due to shutdown or storage of a crane on which it is

installed, shall be given and inspection in accordance with above information before it is placed in service. This inspection shall be for all types of deterioration and shall be performed by a qualified person.

34 Inspection records

A. frequent inspection- no records required

B. periodic inspections- in order to establish data as a basis for judging the proper time for replacement, a dated report condition at each periodic inspection should be kept on file. This report shall cover points of deterioration listed above.

ROPE MAINTENANCE

35 Rope should be stored to prevent damage or deterioration.

36 Unreeling or uncoiling of rope shall be done as recommended by the rope manufacturer and with care to avoid kinking or inducing twist.

37 Before cutting a rope, seizing shall be placed on each side of the place where the rope is to be cut to prevent unlaying of the strands. On preformed rope, one seizing on each side of the cut is required. On non-preformed ropes of 7/8 in. (22 mm) diameter or smaller, two seizings on each side of the cut are required, and for non-preformed rope 1 in. (25 mm) diameter or larger, three seizings on each side of the cut are required.

38 During installation care should be exercised to avoid dragging of the rope in the dirt or around objects which will scrape, nick crush or induce sharp bends in it.

39 When an operating rope shows greater wear or well defined localized areas than on the remainder of the rope, rope life can be extended in cases where a section at the worn end, and thus shifting the wear to different areas of the rope.

LIFE OF WIRELINE

So many variable factors can cause the deterioration of wire line cable that it is not possible to determine a definite life expectancy. Some of these factors are:

1. Load being handled

2. Corrosive conditions

3. Maintenance of the unit

   A. Keep the sheaves turning freely

   B. Maintain tension on cable to insure proper spooling

   C. Avoid kinks in cable

   D. Avoid abrasive action and contact with sharp corners

4. Frequency of use

Auto Crane units, 2700 pound rating to 3200 pound rating use 7/32 inch diameter galvanized pre-formed 7 x 19 aircraft cable. This cable has a working strength, when new, of 5600 pounds. It is recommended when 1600 pound loads are exceeded to use a two part line with a traveling block. This will ensure a 3.5 to 1 safety factor when the cable is new.

Keeping the above factor of safety in mind and knowing the kind of loads that will be handled, the user can determine by inspection of the cable as to when it should be replaced.

Items to look for while inspecting the cables are:

1. Broken strands

2. Kinks and flattened sections

3. Corrosion and abrasion

MAINTENANCE OF BATTERIES

Maintenance of Auto Crane unit batteries differs very little from the generally prescribed maintenance of any lead acid battery. All batteries must be kept *properly charged, properly filled with water* and *relatively clean.*

Keep Properly Charged

Many things affect the proper charge to a battery, such as:

1 Regulator settings

2 Proper tightness of belts on the alternator or generator

3 Good, clean connections of all cables and wires at the following places:

A.Battery

B.Regulator

C.Starting motor

D.Alternator or generator

E.Ground connections (most important)

It is of extreme importance to keep the battery as fully charged as possible without overcharging, especially when vehicles are left outside for extended periods in extremely cold climates. A battery *can* freeze. Freezing points for various specific gravities of acid are as follows:

Specific Gravity (Corrected to 80°F)	Freezing Temp. Degrees F.
1.280	-90°F
1.250	-62°F
1.200	-16°F
1.15	5°F
1.100	19°F

As shown, a half-charged battery (about 1.200 specific gravity) cannot stand for any length of time at 20°F or it will freeze.

The *main reason* for keeping the battery as fully charged as possible without overcharging is to ensure that power is available even though the vehicle has been standing for some time.

Keep Properly Filled with Water

The battery should *always* be properly filled with water. If the electrolyte level is allowed to fall below the top of the plates, the results become threefold:

1 The exposed portion of the plate will become sulfated.

2 The portion of the plate exposed is not usable.

3 That portion of the acid remaining becomes more concentrated and may cause more rapid deterioration of the remaining parts of the battery.

Keep A Relatively Clean Battery

The battery should be kept clean. Batteries filled with acid and which are not in use self-discharge to a limited degree because of the nature of the materials within the battery. If dirt is allowed to collect on the top of the battery (and this dirt absorbs moisture) an electrical path can be set up between the various terminals of the battery and the ground. Once such a path has been established, the self-discharge of the battery is accelerated. This also accelerates corrosion of the battery cables at the terminals.

MAINTENANCE OF BATTERIES

Periodic Maintenance is Needed.

A definite program of periodic maintenance of all batteries should be conducted on a regular basis. Periodic maintenance includes:

1 Checking belts for tightness on the charging equipment

2 Checking battery electrolyte levels

3 Checking cables for good connections

4 Cleaning where corrosion is apparent

When corrosion is cleaned off, the cable terminals and battery terminals should be coated with a light coating of petroleum jelly before they are replaced. When terminals are cleaned the top of the battery should be cleaned with a mild solution of soda water.

Low Maintenance Batteries (Maintenance Free)

Low maintenance batteries should not be used on Auto Cranes or trucks equipped with Auto Cranes. The batteries are not designed for "deep" discharge.

Testing Your Battery

If the condition of the battery is in question, it should be removed from the vehicle, taken to the shop, and allowed to reach room temperature. It should then be recharged until specific gravity readings are unchanged over three readings taken at one-half hour intervals. If the specific gravity readings are fairly uniform, the battery should be checked with a high rate tester. Use the tester in accordance with the manufacturer's instructions. The high rate tester is the best method to test a questionable battery.

If, after charging, it is noted that the specific gravity reading of one cell is 30 points less than any of the other cells, it may be assumed that the cell is bad and that the battery should be replaced. If all cells are uniform but not up to full charge, a low rate of charge should be attempted for an extended time. This usually will recover a badly sulfated battery.

Replacing a Battery

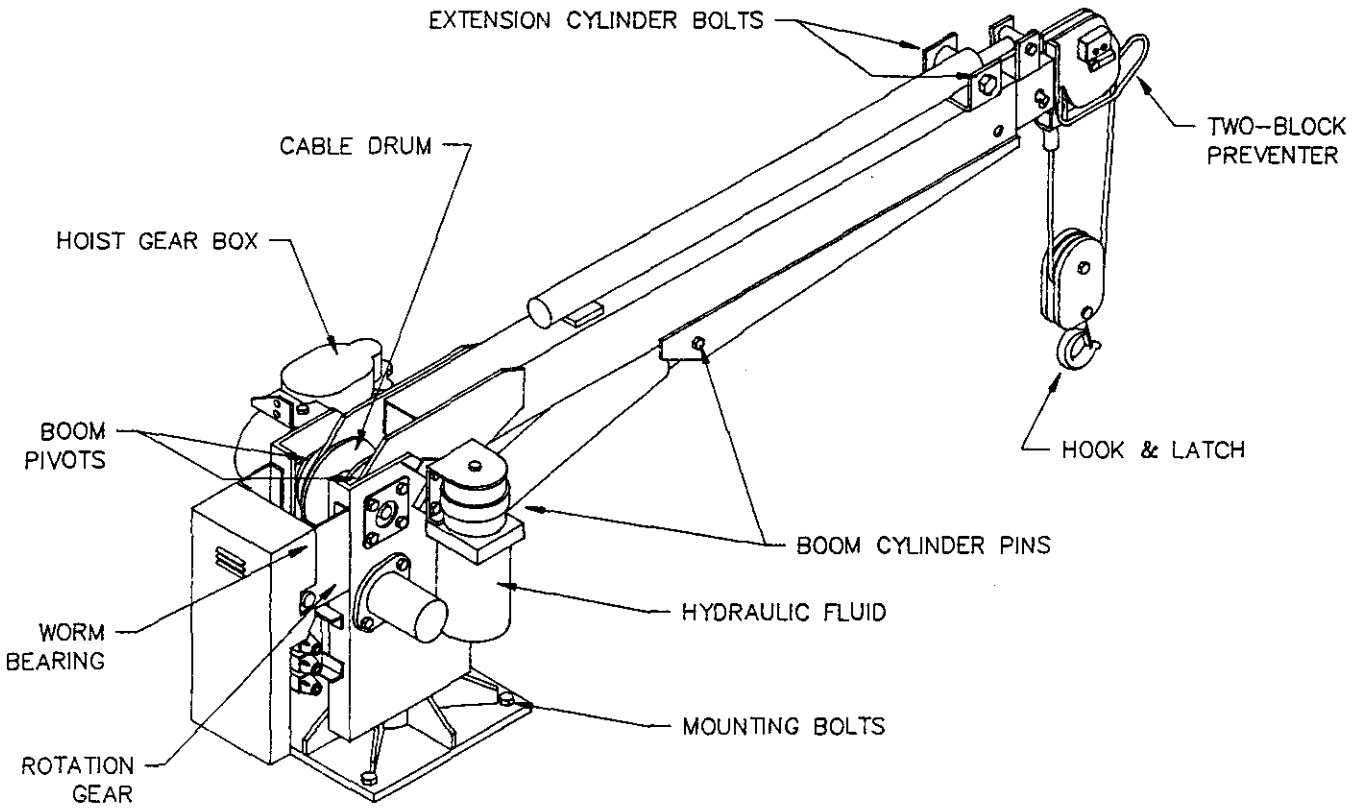
If it is necessary to replace a battery, and a dry charge battery is used, the following procedure applies:

1 Fill the battery with electrolyte of the proper specific gravity.

2 Place the battery on charge according to the manufacturer's instructions.

It is essential that the second step above be followed to ensure that the battery going on the vehicle is fully charged.

It is also very important that the battery hold-downs be checked periodically to ensure that the batteries are properly positioned to avoid vibration problems, breakage of cables or terminals. Care must be taken to avoid cracking or breaking containers or covers by tightening hold-down fixtures excessively. They also must not be so loose that breakage results from a hold-down that is too loose .



SERVICE PERFORMED	DAILY	WEEKLY	MONTHLY	6 MONTHS	YEARLY	NOTES
LOAD HOOK	X	–	–	–	–	INSPECT HOOK & LATCH FOR DEFORMATION, CRACKS, AND CORROSION
CABLE DRUM	X	–	–	–	–	MAKE SURE CABLE IS WOUND EVENLY ON DRUM
HOIST CABLE	X	–	–	–	–	CHECK FOR FLATTENING, KINKS, BROKEN STRANDS
MOUNTING BOLTS	X	–	–	–	–	CHECK; TORQUE TO 85 FT–LBS AS REQ'D
HYDRAULIC HOSES	X	–	–	–	–	VISUAL INSPECTION
TWO–BLOCK PREVENTER	X	–	–	–	–	RAISE BAIL AND CHECK THAT EXTEND IS DISABLED
MOTOR CONNECTIONS	–	X	–	–	–	CHECK TERMINALS FOR TIGHT CONNECTIONS
SHEAVE BEARINGS	–	X	–	–	–	SEALED BEARING, REPLACE IF ROUGH OR LOOSE
ALL OTHER BOLTS	–	X	–	–	–	TIGHTEN AS REQUIRED
BATTERY CONNECTIONS	–	X	–	–	–	CHECK FOR CORROSION & TIGHT CONNECTIONS, CLEAN & COAT AS REQUIRED
BOOM CYLINDER	–	X	–	–	–	CHECK AROUND CYLINDER ROD FOR EXCESS FLUID LEAKAGE
BOOM CYLINDER PINS	–	X	–	–	–	GREASE WITH MOBILPLEX EP–2 OR EQUIV. @ ZERKS
BOOM PIVOT	–	X	–	–	–	GREASE WITH MOBILPLEX EP–2 OR EQUIV. @ ZERKS
EXTENSION CYLINDER	–	X	–	–	–	CHECK AROUND CYLINDER ROD FOR EXCESS FLUID LEAKAGE
EXT. CYL. BOLTS	–	X	–	–	–	CHECK TIGHTNESS
ROTATION GEAR	–	–	X	–	–	WATER PROOF BEARING GREASE, OR DRY MOLYLUBE IF DUSTY
POWER CABLE	–	–	X	–	–	CHECK INSULATION FOR DAMAGE OR DETERIORATION
EXT. CYL. BOLTS	–	–	–	X	–	GREASE WITH MOBILPLEX EP–2 OR EQUIV.
ROTATION WORM BRGS.	–	–	–	X	–	GREASE WITH MOBILPLEX EP–2 OR EQUIV. @ ZERKS
HOIST GEARBOX	–	–	–	X	–	WORM GEAR–EP GEAR LUBE SAE 80–90; SPUR GEARS–SAE 30 OIL
HYDRAULIC FLUID	–	–	–	–	X	DRAIN, FLUSH & REFILL WITH MOBIL DTE 13
ROTATION BEARING	–	–	–	–	–	SEALED BEARING, NO MAINTENANCE REQ'D
BOOM SLIDE PADS	–	–	–	–	–	PADS GREASED WHEN REPLACED

AW–219
LUBRICATION & MAINTENANCE SCHEDULE, 3203 PRX

FIXTURE NO.	SH NO.

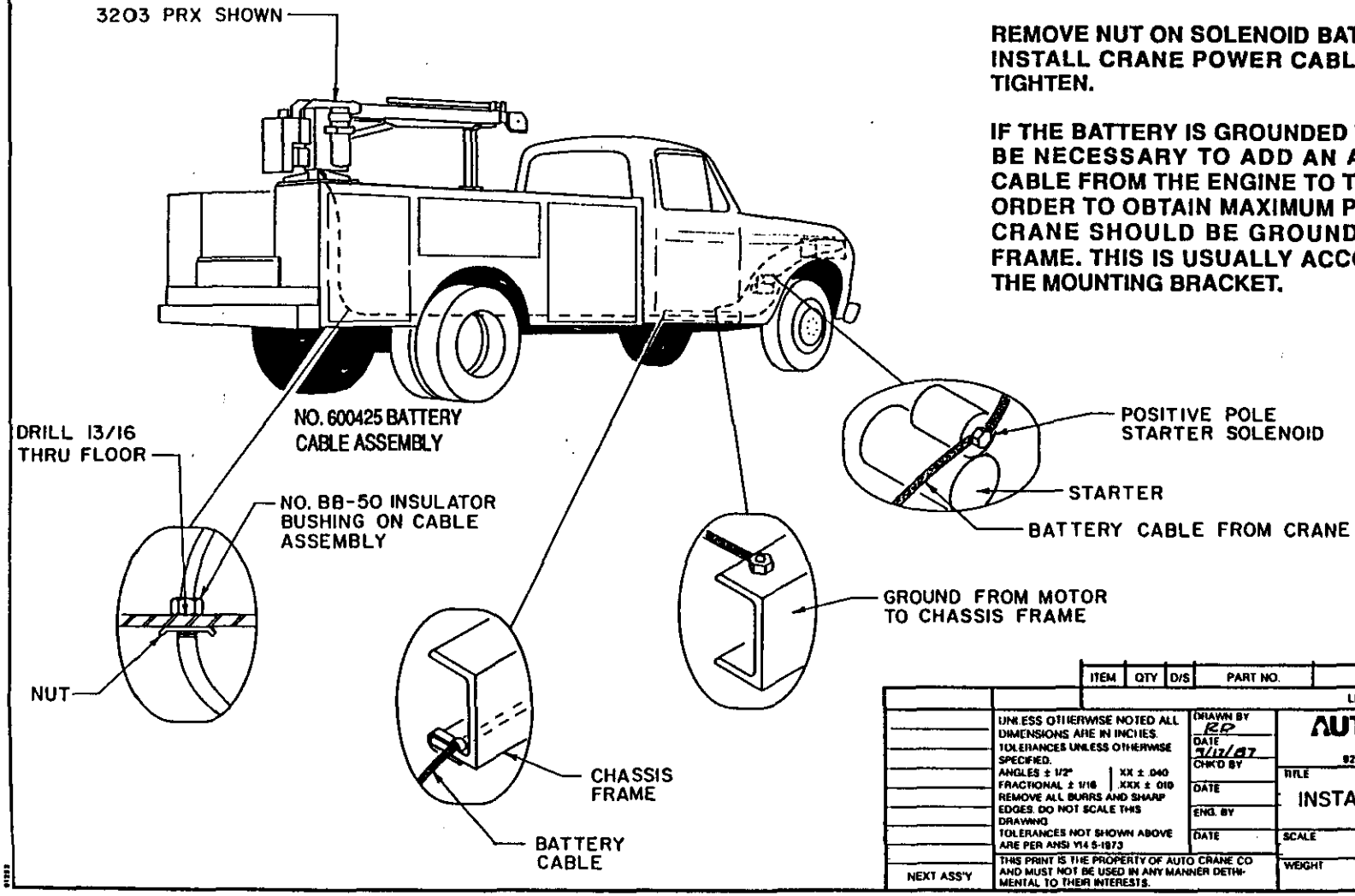
CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D

DRILL 13/16 DIAMETER HOLE IN FLOOR. INSTALL CABLE, AND BUSHING WHICH IS FURNISHED ON CABLE, AS SHOWN. WRAP ELECTRICAL TAPE AROUND CABLE SO IT WILL FIT BUSHING SNUG.

RUN CABLE INSIDE CHASSIS FRAME TO STARTER SOLENOID BATTERY CONNECTION. LOCATE CABLE SO THAT IT WILL BE PROTECTED, AVOID SHARP EDGES. INSTALL THE NO. 838 FRAME CLIPS TO HOLD CABLE SECURELY IN PLACE. IF SURPLUS CABLE EXISTS THE CABLE CAN BE CUT OFF, AND EXTRA TERMINAL FURNISHED WITH CABLE INSTALLED.

REMOVE NUT ON SOLENOID BATTERY TERMINAL POST, INSTALL CRANE POWER CABLE, REPLACE NUT AND TIGHTEN.

IF THE BATTERY IS GROUNDED TO THE ENGINE IT MAY BE NECESSARY TO ADD AN ADDITIONAL GROUND CABLE FROM THE ENGINE TO THE CHASSIS FRAME IN ORDER TO OBTAIN MAXIMUM POWER AT CRANE. THE CRANE SHOULD BE GROUNDED TO THE CHASSIS FRAME. THIS IS USUALLY ACCOMPLISHED THROUGH THE MOUNTING BRACKET.



2-1.0.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | XX ± .040
FRACTIONAL ± 1/16 | XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

NEXT ASS'Y

DRAWN BY RD
DATE 7/12/87
CHK'D BY
DATE
ENG. BY
DATE

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
8280 BROKEN ARROW EXPRESSWAY • 918-627-9475

TITLE: INSTALLATION BATTERY CABLE

SCALE	SIZE	DRAWING NO.	REVISION
	C	AW-049	

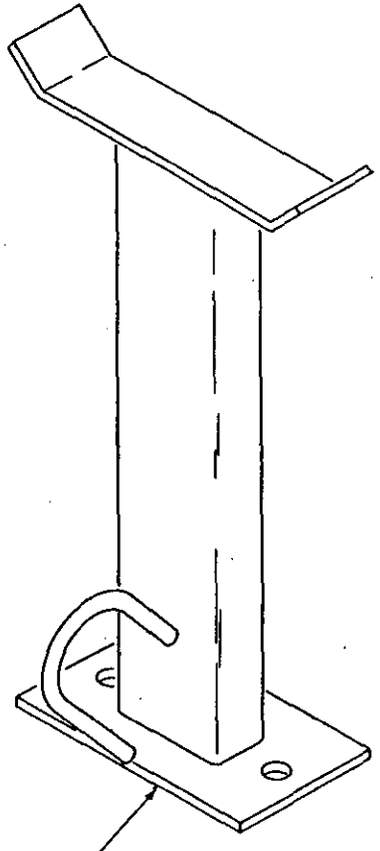
WEIGHT

SHEET 1 OF 1

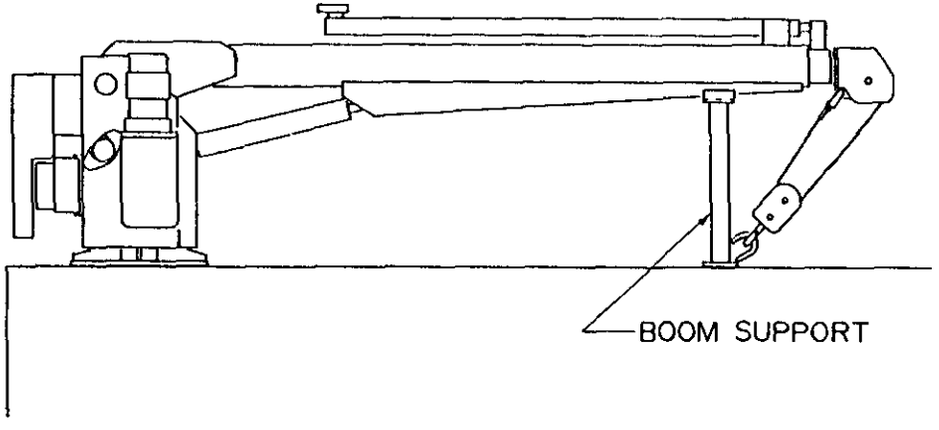
FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D

2-2.0.0



SUGGESTED BOOM SUPPORT,
AUTO CRANE PART NUMBER 725045



BOOM SUPPORT

WARNING :

AS WITH ALL AUTO CRANE POWER ROTATION UNITS, THE 3203 DOES REQUIRE A BOOM SUPPORT.

ITEM	QTY	D/S	PART NO	DESCRIPTION
			LIST OF MATERIAL	

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED
ANGLES ± 1/2° | XX ± .040
FRACTIONAL ± 1/16 | XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES DO NOT SCALE THIS DRAWING
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

DRAWN BY RD
DATE 9/22/87
CHK'D BY
DATE
ENG BY
DATE

NEXT ASS'Y

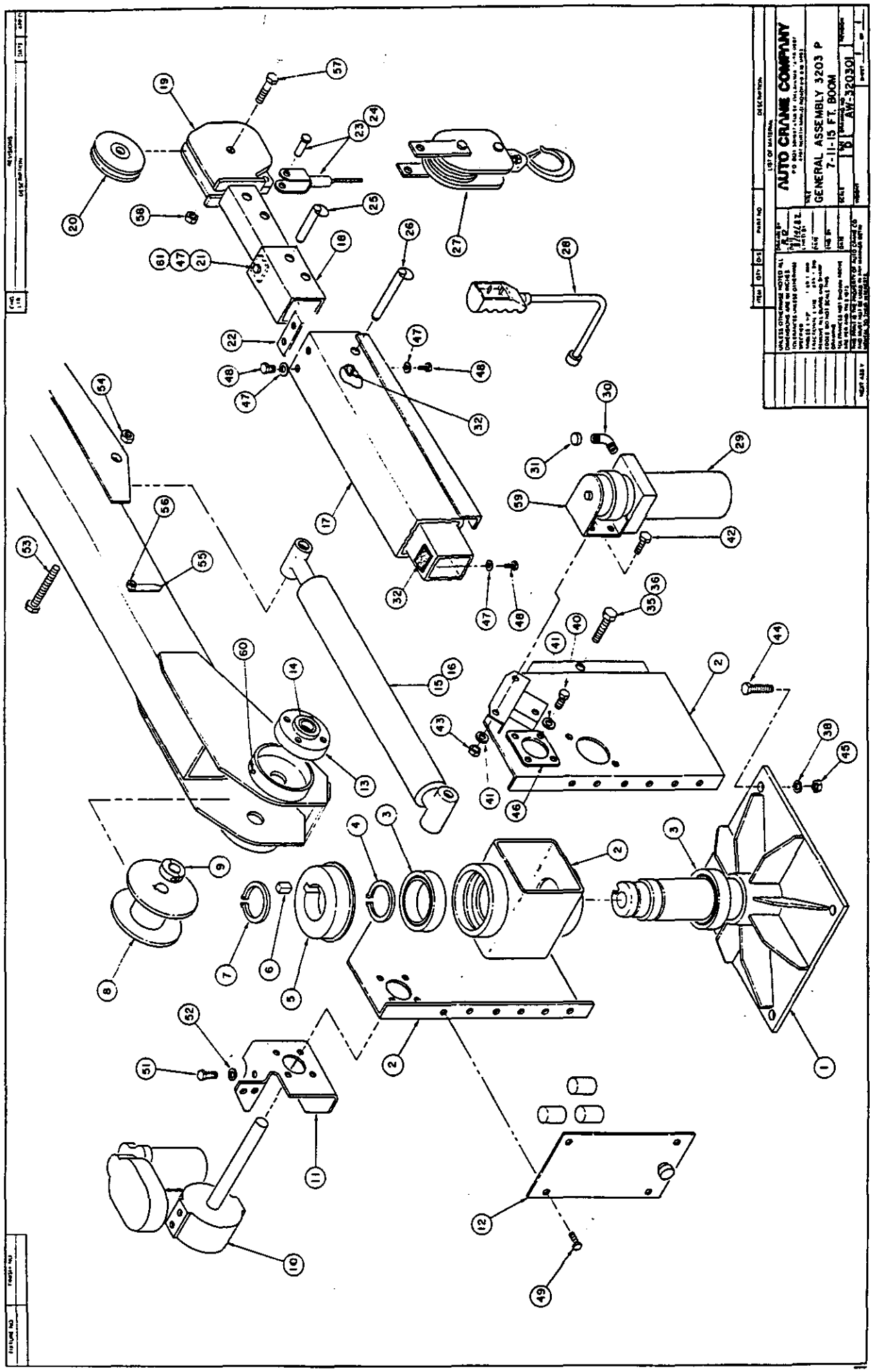
AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9475

TITLE
BOOM SUPPORT

SCALE	SIZE	DRAWING NO	REVISION
	C	AW-050	

WEIGHT

... | ... OF ... | ...


AUTO CRANE COMPANY
GENERAL ASSEMBLY 3203 P
7-11-15 FT. BOOM
AW-320301

AW-320301
GENERAL ASSEMBLY, 3203 P, 7-11-15 BOOM

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	330383	QUILL/BASE (PEDESTAL ASSEMBLY)
2	1	320428	SIDE PLATE
3	2	320330	BEARING, BALL, SEALED
4	1	320332	RING, RETAINING, BEARING
5	1	REF.	BRAKE DRUM
6	1	REF.	KEY, 3/4 SQ.
7	1	REF.	SNAP RING
8	1	320379	DRUM
9	2	330468	COLLAR, SPLIT LOCK
10	1	320324	ACTUATOR ASSEMBLY
11	1	320464	ACTUATOR BRACKET
12	1	320454	RELAY PANEL ASSEMBLY
13	2	320411	BOOM PIVOT
14	2	400500	BEARING, BOOM PIVOT
15	1	320320	BOOM CYLINDER
16	1	320319	SEAL KIT
17	1	320432	BOOM, LOWER WELDMENT
18	1	320449	BOOM, MID. MANUAL
19	1	320423	BOOM, MANUAL
20	1	227401	SHEAVE ASSEMBLY (REF. BEARING ONLY - 200100)
21	1	320415	BOOM RETAINER, MANUAL
22	1	320391	BOOM RETAINER, MID
23	1	320338	CABLE, ASSEMBLY (62' STD.)
24	1	320339	CABLE, ASSEMBLY (75' OPTIONAL)
25	1	320327	POSITION PIN
26	1	320328	POSITION PIN
27	1	320433	TRAVELING BLOCK
28	1	320500	PENDANT
29	1	320335	HYDRAULIC PUMP & RESERVOIR
30	1	REF.	ELL 90° ST. -6 NPT
31	1	REF.	BREATHER CAP
32	2	480036	PAD NYLATRON
33	-	-	-
34	-	-	-
35	1	014304	SCREW, HEX HD 3/4-16NF x 6" LG. GR.5
36	1	018600	NUT, HEX HALF-LOCK 3/4-16NF
37	4	REF.	SCREW, HEX HD 1/2-13NC x 1 1/4 LG.
38	8	021500	WASHER, SP LK 1/2
39	4	REF.	NUT, HEX 1/2-13NC
40	8	330394	SCREW, HEX HD 3/8-16NC x 1 1/2 LG.
41	11	021100	WASHER, SP LK 3/8
42	3	008400	SCREW, HEX HD 3/8-16NC x 3/4 LG.
43	3	330372	NUT, HEX 3/8-16NC
44	4	011200	SCREW, HEX HD 1/2-20NF x 2 1/2 LG. GR.5
45	4	017704	NUT, HEX 1/2-20NF HEAVY
46	1	320368	BEARING, RETAINER
47	7	020200	WASHER, SP LK 1/4
48	6	005406	SCREW, HEX HD 1/4-28NF x 1/2 LG.

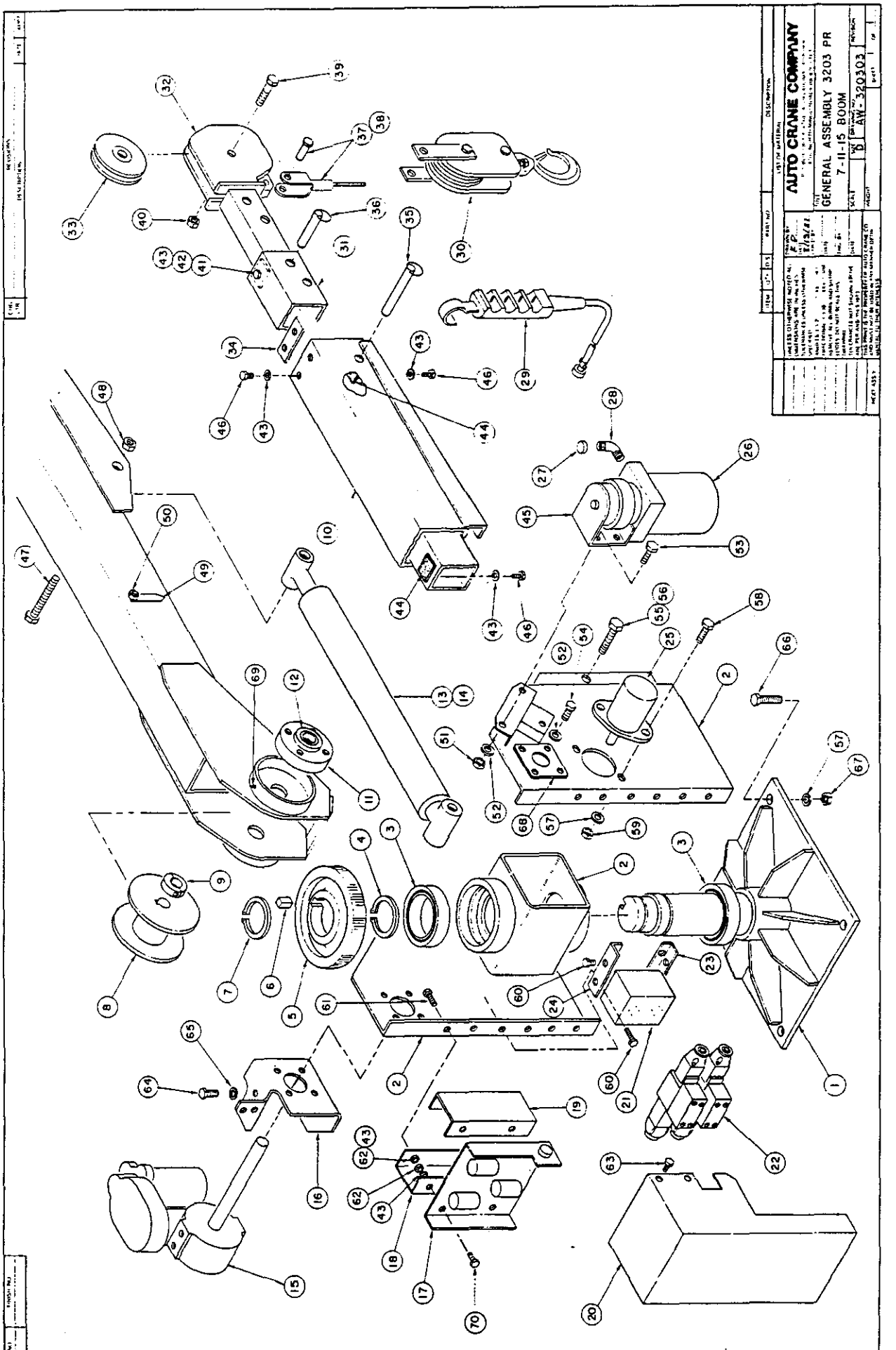
AW-320301
GENERAL ASSEMBLY, 3203 P, 7-11-15 BOOM

ITEM	QTY.	PART NO.	DESCRIPTION
49	4	002614	SCREW, HEX HD 5/16-18NC x 5/8 LG. SELF-TAP
50	–	–	–
51	4	007807	SCREW, HEX HD 5/16-18NC x 3/4 LG.
52	4	020600	WASHER, SP LK 5/16
53	1	330185	SCREW, HEX HD 1-12NF x 5 1/2 LG. GR.5
54	1	019106	NUT, HEX HALF-LOCK 1-12NF
55	1	320453	ANGLE INDICATOR
56	1	016300	NUT, HEX LOCK 1/4-20NC
57	1	012200	SCREW, HEX HD 5/8-18NF x 1 3/4 LG. GR.5
58	1	019100	NUT, HEX HALF-LOCK 5/8-18NF
59	1	320354	BRACKET, HYDRAULIC PUMP
60	2	239000	ZERK, GREASE
61	1	005501	SCREW, HEX HD 1/4-28NF x 3/4 LG.

NOTE:

ITEMS 27, 28, 38, 44 & 45 ARE IN SHIP KIT 320487

NOTES


AUTO CRANE COMPANY
GENERAL ASSEMBLY 3203 PR
7-11-15 BOOM
AW-320303

AW-320303
GENERAL ASSEMBLY, 3203 PR, 7-11-15 BOOM

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	330383	QUILL/BASE (PEDESTAL ASSEMBLY)
2	1	320428	SIDE PLATES/HOUSING
3	2	320330	BEARING, BALL, SEALED
4	1	320332	RING, RETAINING, BEARING
5	1	320334	GEAR, WORM
6	1	800472-001	KEY, 3/4 SQ.
7	1	320333	SNAP RING
8	1	320379	DRUM
9	2	330468	COLLAR, SPLIT LOCK
10	1	320432	BOOM, LOWER WELDMENT
11	2	320411	BOOM PIVOT
12	2	400500	BEARING, BOOM PIVOT
13	1	320325	CYLINDER, BOOM
14	1	320319	SEAL KIT, BOOM CYLINDER
15	1	320324	ACTUATOR ASSEMBLY
16	1	320464	BRACKET, ACTUATOR
17	1	320447	RELAY PANEL ASSEMBLY
18	1	320395	RELAY PANEL BRACKET (LEFT)
19	1	320396	RELAY PANEL BRACKET (RIGHT)
20	1	320431	COVER
21	1	330306	MANIFOLD
22	1	300204	DIRECTIONAL VALVE ASSEMBLY
23	1	320393	BRACKET, MANIFOLD (BOTTOM)
24	1	320392	BRACKET, MANIFOLD (TOP)
25	1	480027	HYDRAULIC ROTATION MOTOR
26	1	320336	HYDRAULIC PUMP & RESERVOIR
27	1	REF.	BREATHER CAP
28	1	REF.	ELL 90° ST. -6 NPT
29	1	320451	PENDANT
30	1	320433	TRAVELING BLOCK
31	1	320449	BOOM, MID. WELDMENT
32	1	320423	BOOM WELDMENT, MANUAL
33	1	227401	SHEAVE ASSEMBLY (REF. BEARING ONLY 200100)
34	1	320391	BOOM RETAINER
35	1	320328	POSITION PIN
36	1	320327	POSITION PIN
37	1	320338	CABLE ASSEMBLY (62' STANDARD)
38	1	320339	CABLE ASSEMBLY (75' OPTIONAL)
39	1	012200	SCREW, HEX HD 5/8-18NF x 1 3/4 LG. GR.5
40	1	018100	NUT, HEX 5/8-18NF HALF-LOCK
41	1	005501	SCREW, HEX HD 1/4-28NF x 3/4 LG.
42	1	320415	RETAINER, BOOM MANUAL
43	13	020200	WASHER, SP LK 1/4
44	2	480036	PAD, NYLATRON
45	1	REF.	BRACKET, HYDRAULIC PUMP
46	6	005406	SCREW, HEX HD 1/4-28NF x 1/2 LG.
47	1	330185	SCREW, HEX HD 1-8NC x 5 1/2 LG. GR.5
48	1	019106	NUT, HEX 1-8NC HALF-LOCK

AW-320303
GENERAL ASSEMBLY, 3203 PR, 7-11-15 BOOM

ITEM	QTY.	PART NO.	DESCRIPTION
49	1	320453	ANGLE INDICATOR
50	1	016300	NUT, HEX LOCK 1/4-20NC
51	3	008400	SCREW, HEX HD 3/8-16NC x 3/4 LG.
52	11	021100	WASHER, SP LK 3/8
53	3	330372	NUT, HEX 3/8-16NC
54	8	330394	SCREW, HEX 3/8-16NC x 1 1/2 LG.
55	1	014304	SCREW, HEX HD 3/4-16NF x 6" LG. GR.5
56	1	018600	NUT, HEX 3/4-16NF HALF-LOCK
57	6	021500	WASHER, SP LK 1/2
58	4	REF.	SCREW, HEX HD 1/2-13NC x 1 3/4 LG.
59	4	REF.	NUT, HEX 1/2-13NC
60	8	002614	SCREW, HEX HD 5/16-18NC x 5/8 LG. SELF-TAP
61	4	005601	SCREW, HEX HD 1/4-20NC x 1" LG.
62	6	015900	NUT, HEX 1/4-20NC
63	4	002605	SCREW, #12 x 1/2 LG. SELF-TAP
64	4	007807	SCREW, HEX HD 5/16-18NC x 3/4 LG.
65	4	020600	WASHER, SP LK 5/16
66	4	011200	SCREW, HEX HD 1/2-20NF x 2 1/2 LG. GR.5
67	4	017704	NUT, HEX 1/2-20NF
68	1	320368	BEARING RETAINER
69	2	239000	ZERK, GREASE
70	2	005500	SCREW, HEX HD 1/4-20NC x 3/4 LG.

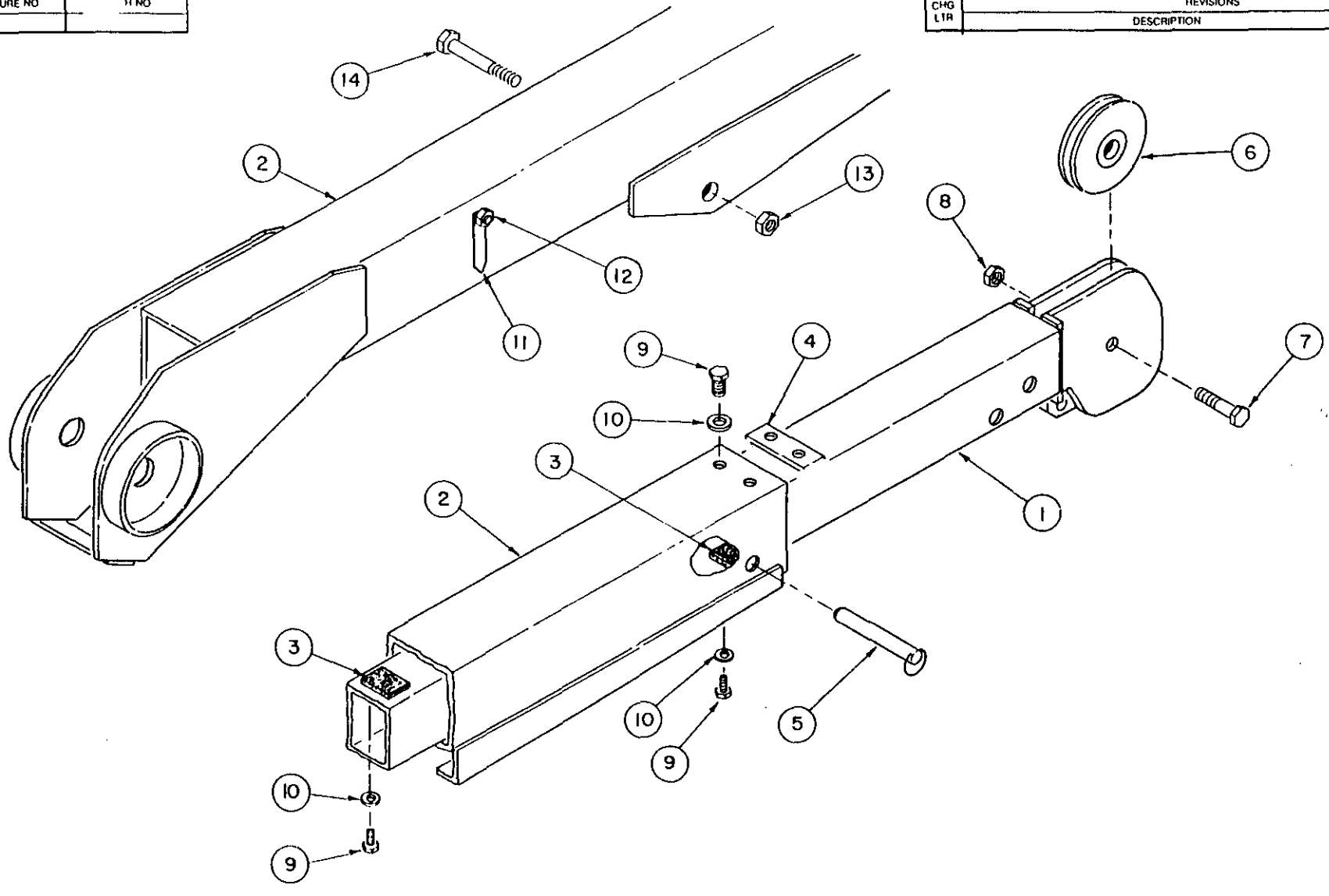
NOTE:

ITEMS 29, 30, 57, 66 & 67 (QTY 4) ARE IN SHIP KIT 320486

NOTES

FIXTURE NO	H NO

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



3-3.0.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION
				LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED
ANGLES ± 1/2° | XX ± 040
FRACTIONAL ± 1/16 | XXX ± 010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

THIS PRINT IS THE PROPERTY OF AUTO CRANE CO AND MUST NOT BE USED IN ANY MANNER DETRIMENTAL TO THEIR INTERESTS.

NEXT ASS'Y

DRAWN BY R.D.
DATE 8/19/87
CHK'D BY
DATE
ENG. BY
DATE

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9475

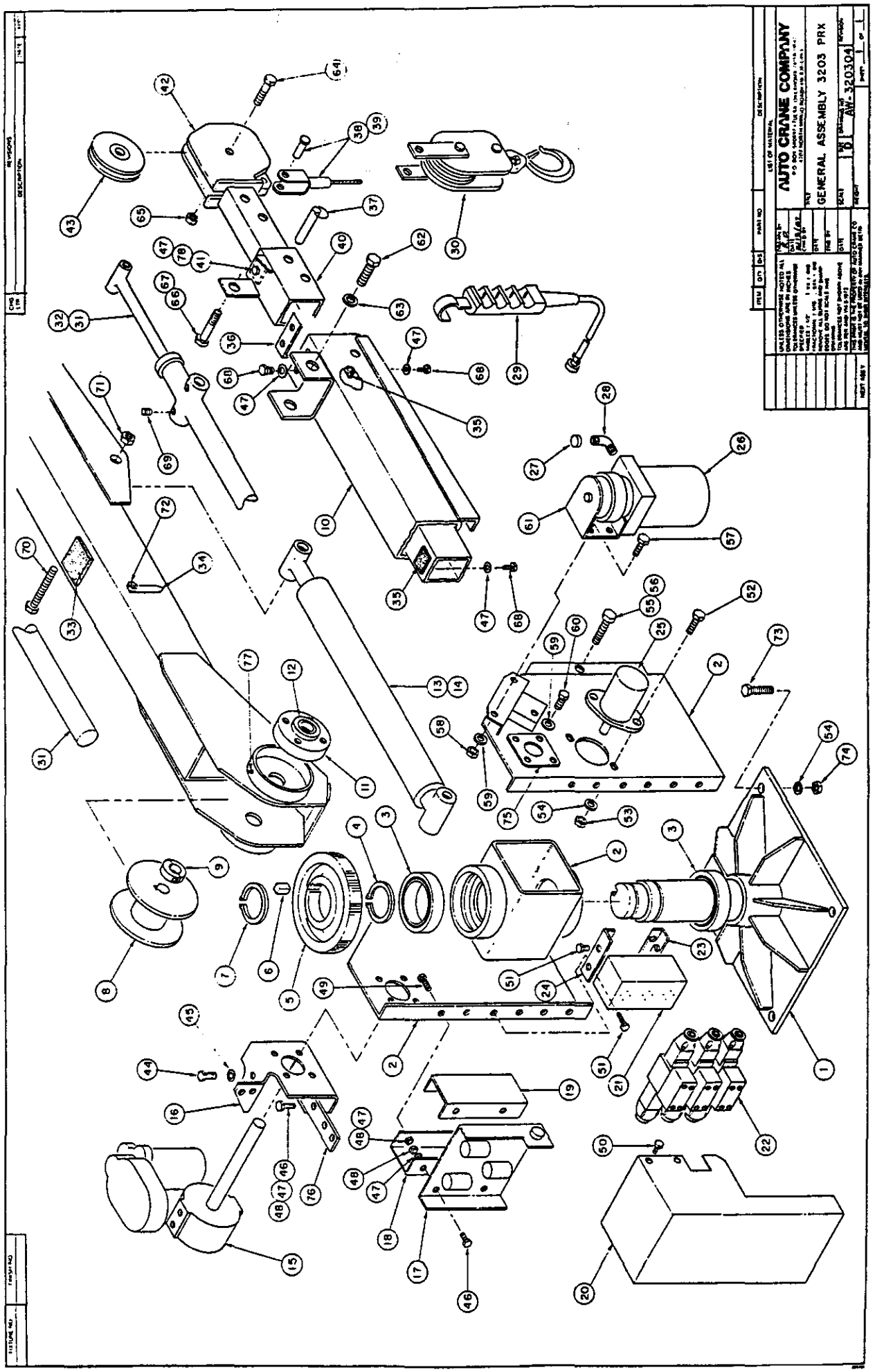
TITLE
GENERAL ASSEMBLY 3203 P, PR
OPTIONAL 7-11 FT. MANUAL BOOM

SCALE | SIZE C | DRAWING NO. AW-320300/302 | REVISION

WEIGHT | SHEET 1 OF 1

GENERAL ASSEMBLY 3203 PR, P AW 320300/302
OPTIONAL 7-11 FT. MANUAL BOOM

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	320422	BOOM, MANUAL WITH CROWN
2	1	320432	BOOM, LOWER WELDMENT
3	2	480036	PAD, NYLATRON
4	1	320391	BOOM RETAINER
5	1	320328	POSITION PIN
6	1	227401	SHEAVE ASS'Y (REF. BEARING ONLY 200100)
7	1	012200	SCREW HX. HD. 5/8X1 3/4 N.F.
8	1	018100	NUT HX. 5/8 N.F.
9	6	005406	SCREW HX. HD. 1/4X1/2 N.F.
10	6	020200	WASHER 1/4 SP. LK.
11	1	320453	ANGLE INDICATOR
12	1	016300	NUT, HX. 1/4 LK. N.C.
13	1	019106	NUT 1" HLF. LK.
14	1	330185	SCREW HX. HD. 1X5 1/2 NC GR.5


AUTO CRANE COMPANY
GENERAL ASSEMBLY 3203 PRX
AW-320304

GENERAL ASSEMBLY -3203- PRX AW-320304
7-11-15 BOOM

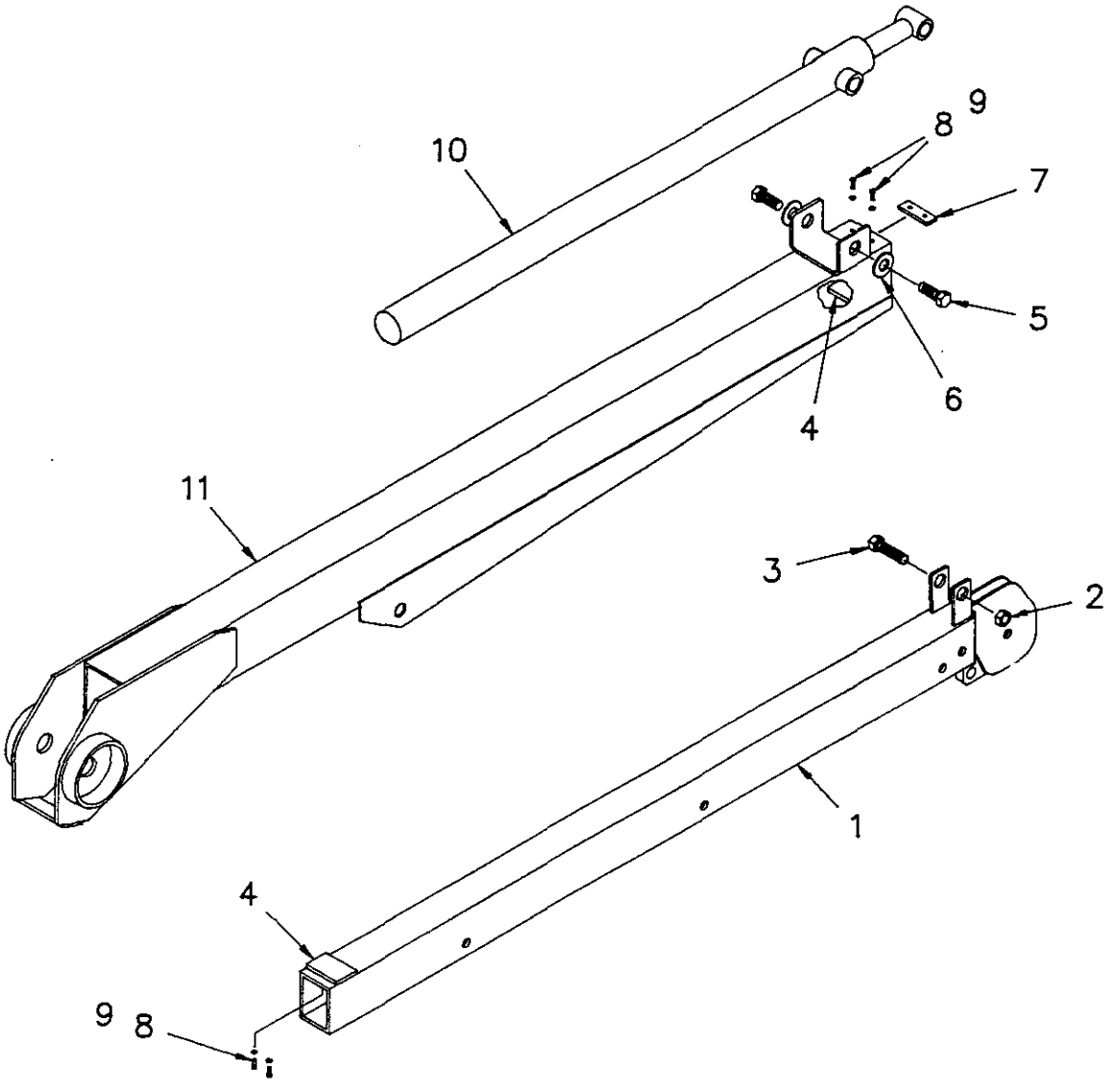
ITEM	QTY.	PART NO.	DESCRIPTION
1	1	320383	QUILL/BASE (PEDESTAL ASS'Y)
2	1	320428	SIDE PLATES/HOUSING
3	2	320330	BEARING, BALL SEALED
4	1	320332	RING, RETAINING BEARING
5	1	320334	GEAR, WORM
6	1	800472-001	KEY 3/4 SQ.
7	1	320333	SNAP RING
8	1	320379	DRUM
9	2	330468	COLLAR, SPLIT LOCK
10	1	320420	BOOM, LOWER, WELDMENT
11	2	320411	BOOM, PIVOT
12	2	400500	BEARING, BOOM PIVOT
13	1	320325	CYLINDER, BOOM
14	1	320319	SEAL KIT BOOM CYL.
15	1	320324	ACTUATOR ASS'Y
16	1	320464	BRACKET, ACTUATOR
17	1	320457	RELAY PANEL ASS'Y
18	1	320395	RELAY PANEL BRACKET (LEFT)
19	1	320396	RELAY PANEL BRACKET (RIGHT)
20	1	320431	COVER
21	1	202710	MANIFOLD
22	1	300204	DIRECTIONAL VALVE ASS'Y
23	1	320393	BRACKET, MANIFOLD (BOTTOM)
24	1	320392	BRACKET, VALVE BANK (TOP)
25	1	480027	HYD. ROTATION MOTOR
26	1	320336	HYD. PUMP & RESERVOIR
27	1	REF.	BREATHER CAP
28	1	REF.	ELL, 90° ST. 3/8 NPT
29	1	320452	PENDANT
30	1	320433	TRAVELING BLOCK
31	1	202711	CYLINDER, EXTENSION
32	1	330602	SEAL KIT (EXT. CYL.)
33	1	801102	PAD (REF.)
34	1	320453	ANGLE INDICATOR
35	2	480036	PAD, BOOM (NYLATRON)
36	1	320391	RETAINER, MID BOOM
37	1	320327	POSITION PIN
38	1	320338	CABLE ASS'Y (62') STD.
39	1	320339	CABLE ASS'Y (75') OPTIONAL
40	1	320421	BOOM, MID
41	1	320415	RETAINER, BOOM MANUAL
42	1	320423	BOOM MANUAL WITH CROWN
43	1	227401	SHEAVE ASS'Y (REF. BEARING ONLY # 200100)
44	4	007807	SCREW. HX. HD. 5/16 -18 NCX3/4 LG.
45	4	020600	WASHER, SP. LK 5/16
46	4	005500	SCREW HX. HD. 1/4X3/4 N.C.
47	15	020200	WASHER, SP. LK. 1/4
48	8	015900	NUT HX. 1/4 N.C.

GENERAL ASSEMBLY -3203- PRX AW-320304
7-11-15 BOOM

ITEM	QTY.	PART NO.	DESCRIPTION
49	4	005604	SCREW HX. HD. 1/4X1" LG. N.C.
50	4	002605	SCREW. MACHINE HX. HD. #12X1/2 S.T.
51	8	002614	SCREW. HX. HD. 5/16X5/8 NC S.T.
52	4	REF.	SCREW. HX. HD. 1/2–13X 1 3/4 LG. NC
53	4	REF.	NUT HX. HD. 1/2-13 NC
54	6	021500	WASHER, SP. LK. 1/2 (2 USED FOR TURNER ASS'Y)
55	1	014304	SCREW, HX. HD. 3/4X6 NF GR.5
56	1	018600	NUT, HLF. LK. 3/4 NF.
57	3	008400	SCREW HX. HD. 3/8-16X3/4 NC GR.8
58	3	330372	NUT, HX. 3/8 NC
59	11	021100	WASHER, SP. LK. 3/8
60	8	330394	SCREW, HX. HD. 3/8-16X 1 1/2 NC
61	1	REF.	BRACKET HYD. PUMP
62	2	015017	SCREW, HX. HD. 1X 1 1/8 NC GR.5
63	2	022502	WASHER FLAT 1"
64	1	012200	SCREW. HX. HD. 5/8X 1 3/4 NF GR.5
65	1	018100	NUT, HLF. LK. 5/8 NF
66	1	330057	SCREW, HX. HD. 1" X 4 NC GR.5
67	1	019105	NUT NX. 1" NC
68	6	005406	SCREW, HX. HD. 1/4X1/2 NF
69	2	002905	SET SCREW
70	1	006800	SCREW HX. HD. 1"X6 NF GR.5
71	1	019106	NUT, HLF-LK. 1" NF
72	1	016300	NUT, HX. LK. 1/4 NC
73	4	011200	SCREW, HX. HD. 1/2X 2 1/2 NF GR.5
74	4	017704	NUT HX. 1/2 NF HEAVY
75	1	320368	BEARING RETAINER
76	1	320483	BRACKET, HYD. TUBING
77	2	239000	ZERK, GREASE
78	1	005501	SCREW HX. HD. 1/4 - 28 N.F. X 3/4 LG.

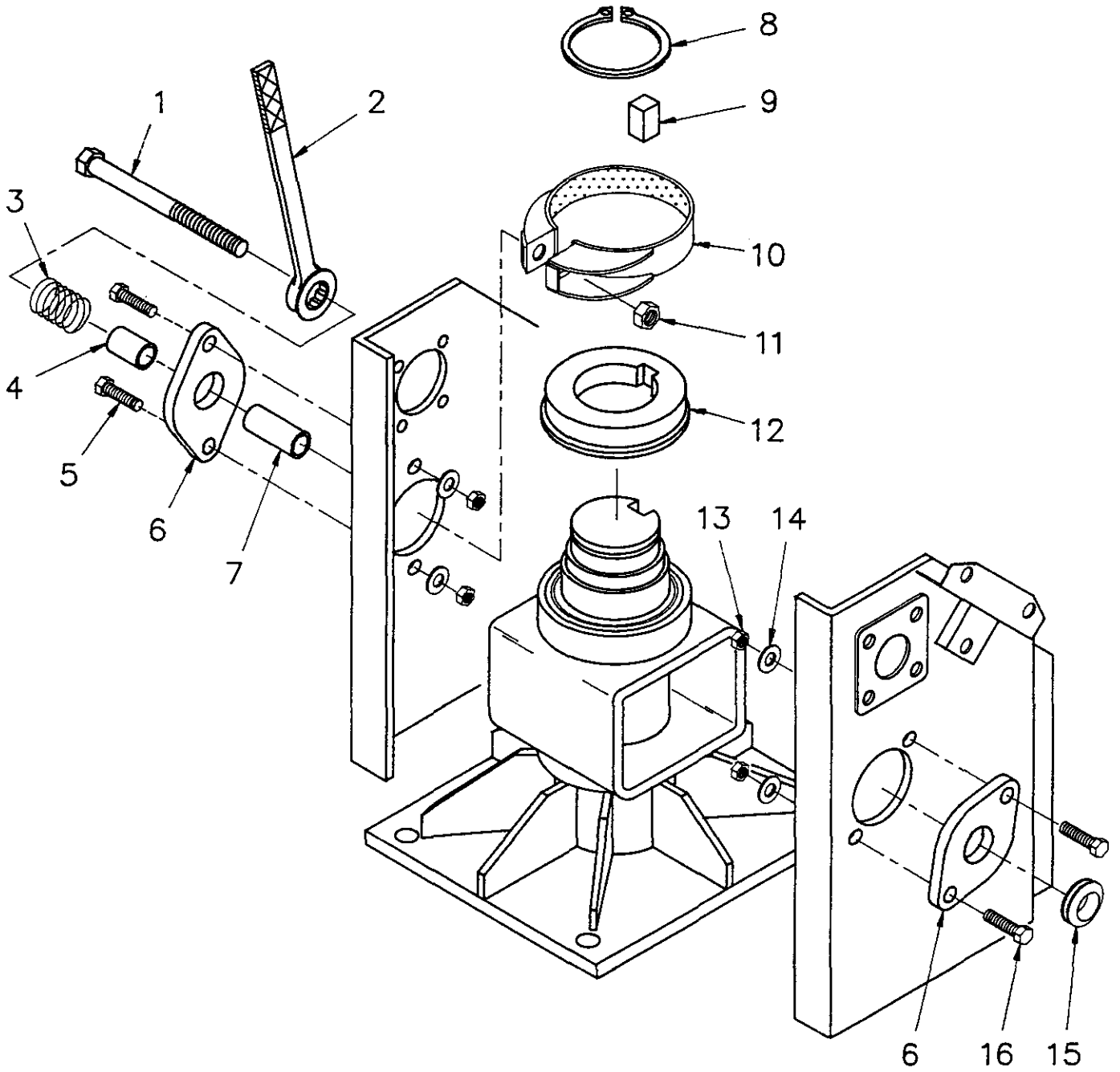
NOTE:

ITEMS 29, 30, 54 (QTY. 4), 73 AND 74
ARE IN SHIP KIT 320485



ITEM	QTY	P/N	DESCRIPTION
1	1	320517	BOOM, WELDMENT
2	1	019105	NUT, HEX HD 1–8NC
3	1	330057	SCW, HX HD 1"NC x 4
4	2	480036	PAD. BOOM (NYLATRON)
5	2	015017	SCW, HX HD 1"NC x 1 1/8
6	2	022502	WASHER, FLAT 1"
7	1	320391	RETAINER, BOOM
8	4	020200	WASHER, SP LK 1/4
9	4	005406	SCW, HX HD 1/4NF x 1/2
10	1	202711	CYLINDER, EXTENSION
11	1	320420	BOOM, LOWER

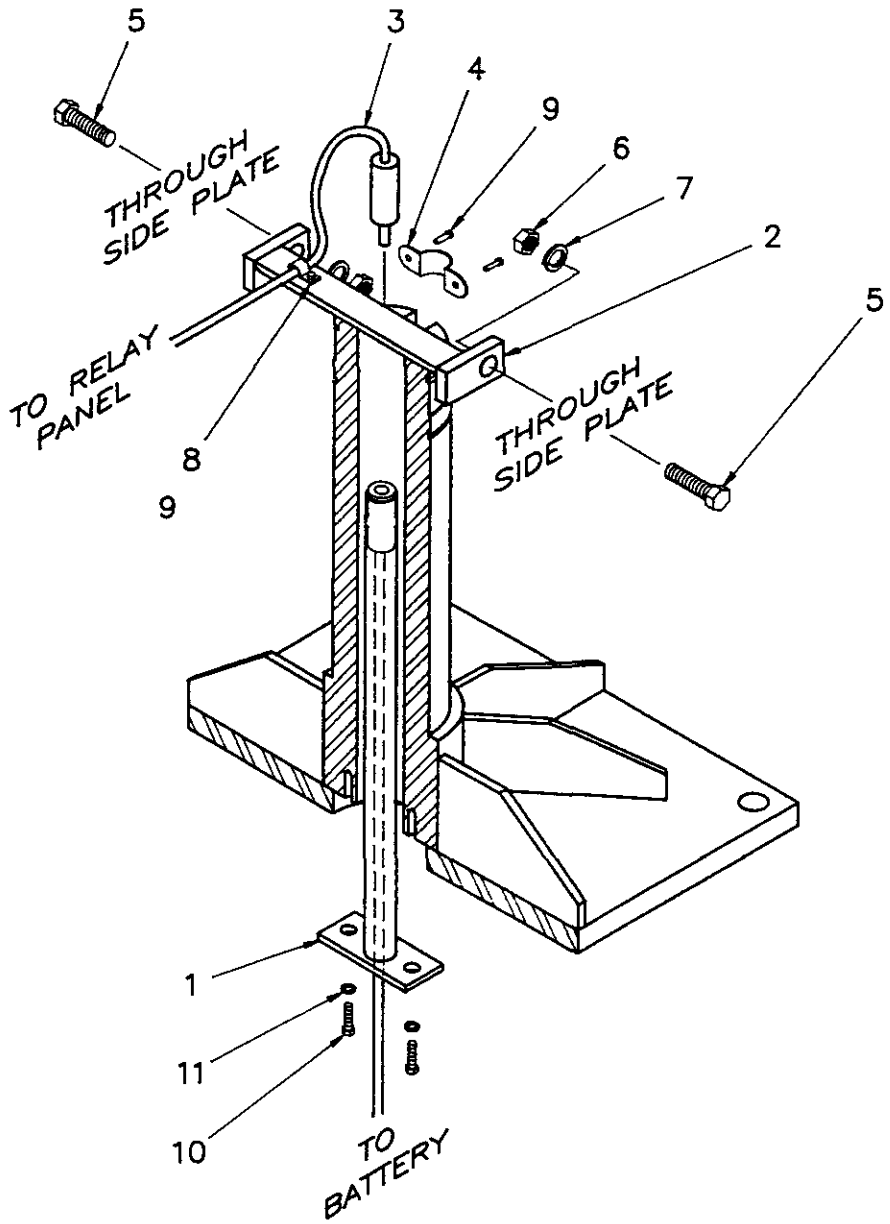
AW–320308
GENERAL ASSEMBLY, PRX 7–11 BOOM



AW–042
BRAKE ASSEMBLY
3203 P

AW-042
BRAKE ASSEMBLY, 3203 P

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	013502	SCREW, HEX HD 5/8-18NF x 8" LG. GR.5
2	1	320507	BRAKE, WRENCH
3	1	320509	SPRING, COMPRESSOR
4	1	320506	SPACER
5	2	012197	SCREW, HEX HD 1/2-13NC x 1 1/2 LG. GR.5
6	2	320495	PLATE, BRAKE GUIDE
7	1	320508	SPACER
8	1	320333	SNAP RING
9	1	800472-001	KEY, 3/4 SQ.
10	1	320502	BRAKE BAND ASSEMBLY
11	1	018302	NUT, HEX 5/8-18NF
12	1	320459	BRAKE DRUM
13	4	017701	NUT, HEX 1/2-13NC
14	4	021500	WASHER, SP LK 1/2
15	1	750282	GROMMET
16	2	011510	SCREW, HEX HD 1/2-13NC x 1 1/4 LG. GR.5



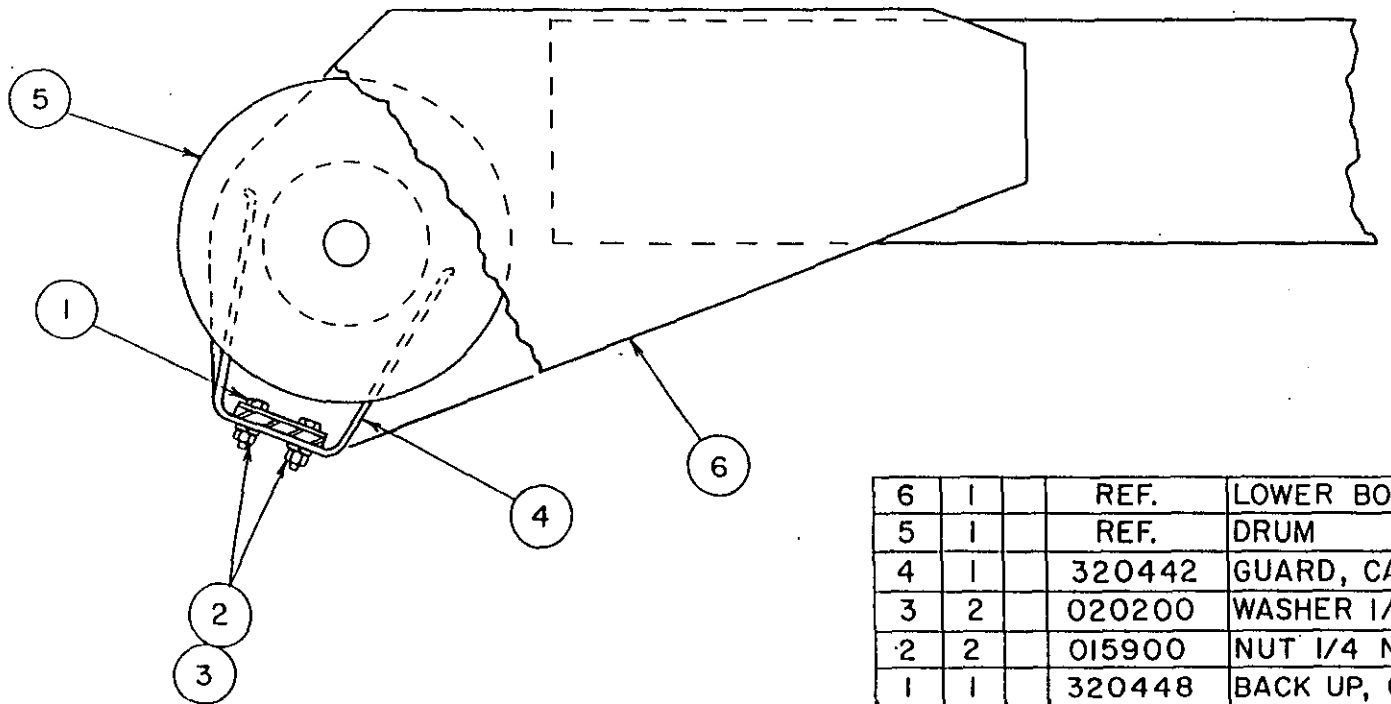
ITEM	QTY	P/N	DESCRIPTION
1	1	320488	POWER CABLE ASSY
2	1	320515	BRACKET, UPPER TWECO
3	1	330258	TWECO POWER CONNECTOR
4	1	320372	CLAMP, UPPER TWECO
5	2	011510	SCW, HX HD 1/2NC x 1 1/4

ITEM	QTY	P/N	DESCRIPTION
6	2	017701	NUT, HEX 1/2NC
7	2	021500	WASHER, SP LK 1/2
8	1	000115	CLIP
9	3	320371	SCW, #10 x 3/4 SELF-TAP
10	2	005401	SCW, HX HD 1/4NC x 5/8
11	2	020200	WASHER, SP LK 1/4

AW-040
TWECO ASSEMBLY

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS		
	DESCRIPTION	DATE	APP'D



ITEM	QTY	D/S	PART NO.	DESCRIPTION
6	1		REF.	LOWER BOOM
5	1		REF.	DRUM
4	1		320442	GUARD, CABLE RETAINER
3	2		020200	WASHER 1/4 SP. LK.
2	2		015900	NUT 1/4 NC
1	1		320448	BACK UP, CABLE RETAINER

LIST OF MATERIAL

NEXT ASS'Y

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | .XX ± .040
FRACTIONAL ± 1/16 | .XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

DRAWN BY BD
DATE 12-18-87
CHK'D BY
DATE
ENG. BY
DATE

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9475

TITLE
CABLE RETAINER, ASSEMBLY

SCALE	SIZE	DRAWING NO.	REVISION
~	B	AW-041	~

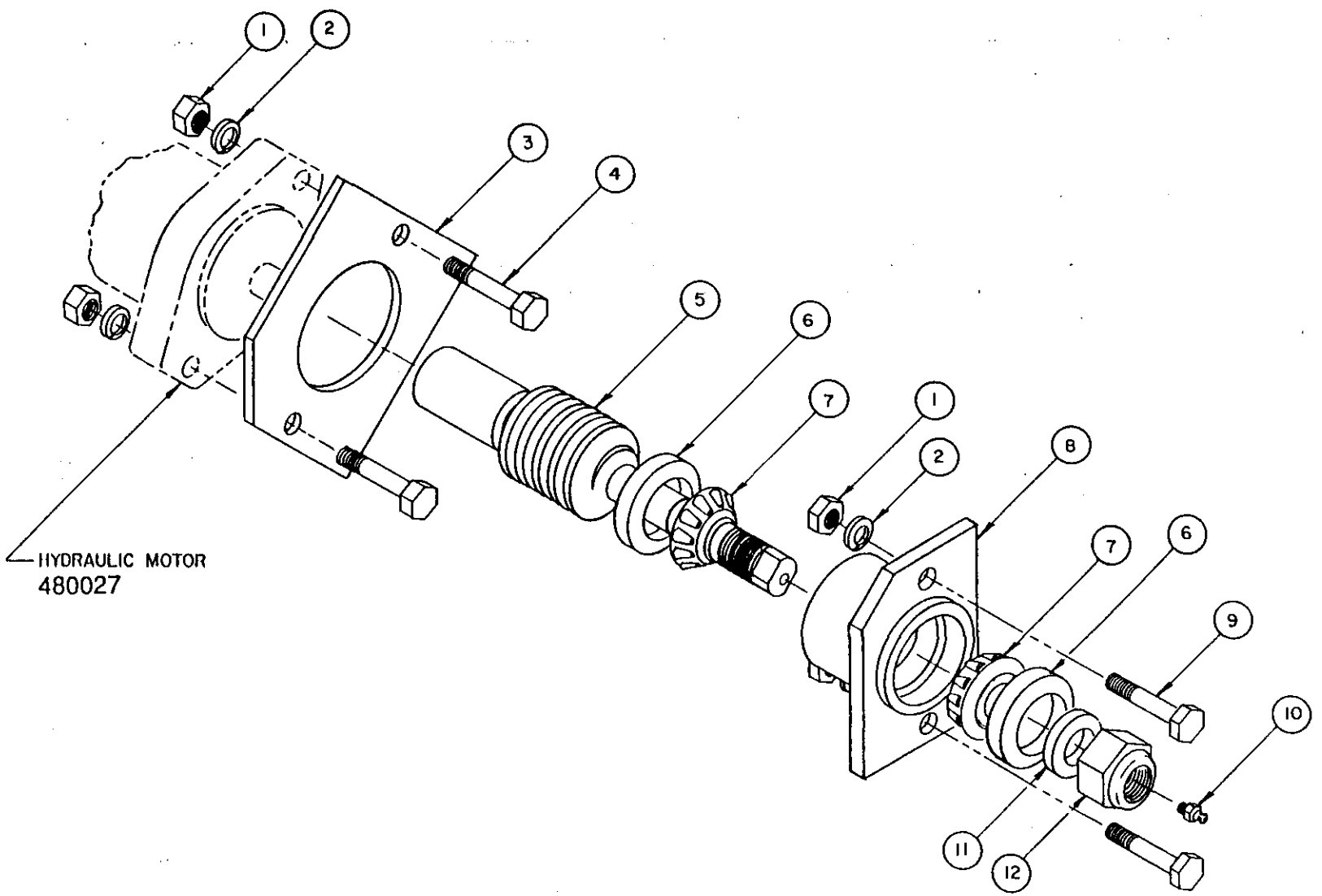
WEIGHT

SHEET 1 OF 1

3-8.0.0

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



ITEM	D/S	PART NO.	DESCRIPTION	QUANTITY
			LIST OF MATERIAL	

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES. TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | XX ± .40
FRACTIONAL ± 1/16 | XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

DRAWN BY: Johnstone
DATE: 3-9-82
CHK'D BY
DATE
ENG. BY
DATE

NEXT ASS'Y

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918 627 9475

TITLE: TURNER ASSEMBLY (HYD.)

SCALE	SIZE	DRAWING NO.	REVISION
~	C	AW-005	

WEIGHT

SHEET 1 OF 1

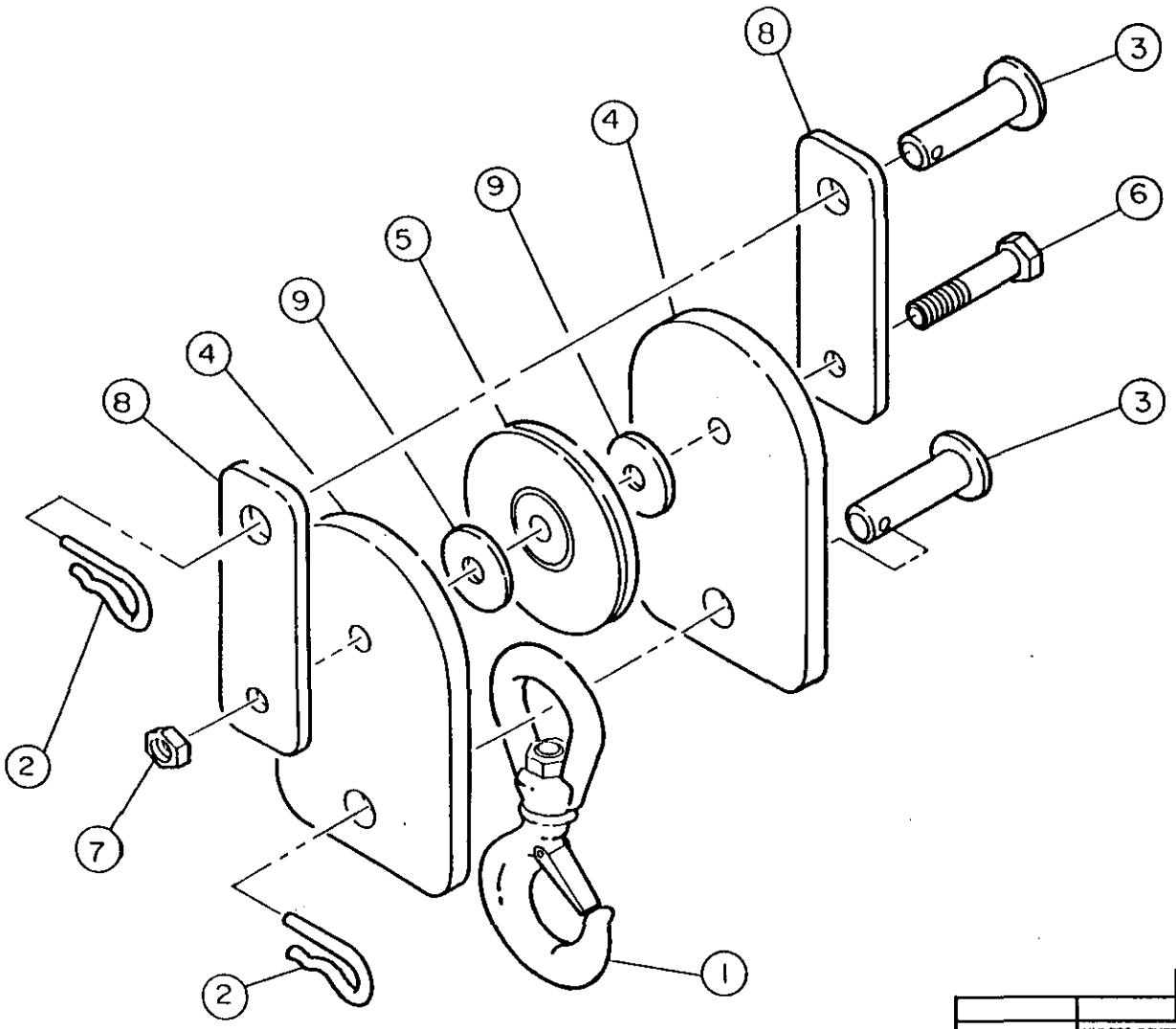
3-9.0.0

TURNER ASSEMBLY (HYD.) AW-005

ITEM	QTY.	PART NO.	DESCRIPTION
1	4	017701	NUT, HX. 1/2 NC
2	4	021500	WASHER, SP. LK. 1/2
3	1	330484	SPACER
4	2	011603	SCREW, 1/2 NCX1 3/4 GR.5
5	1	330420	SHAFT ASSEMBLY
6	2	330486	SEAL, OIL
7	2	330485	BEARING
8	1	330472	HOUSING
9	2	010201	SCREW 1/2 NCX1 1/2 GR.5
10	1	239300	ZERK, GREASE
11	1	330483	SPACER
12	1	019000	NUT, HX. 7/8-14 NF CP G5

FIXTURE NO.	H NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



3-10.0.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION
				LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | .XX ± .040
FRACTIONAL ± 1/16 | .XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

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NEXT ASS'Y

DRAWN BY KENSMAN
DATE 7-23-87
CHK'D BY
DATE
ENG. BY
DATE

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9200 BROKEN ARROW EXPRESSWAY • 918 627-9475

TITLE
TRAVELING BLOCK ASSEMBLY

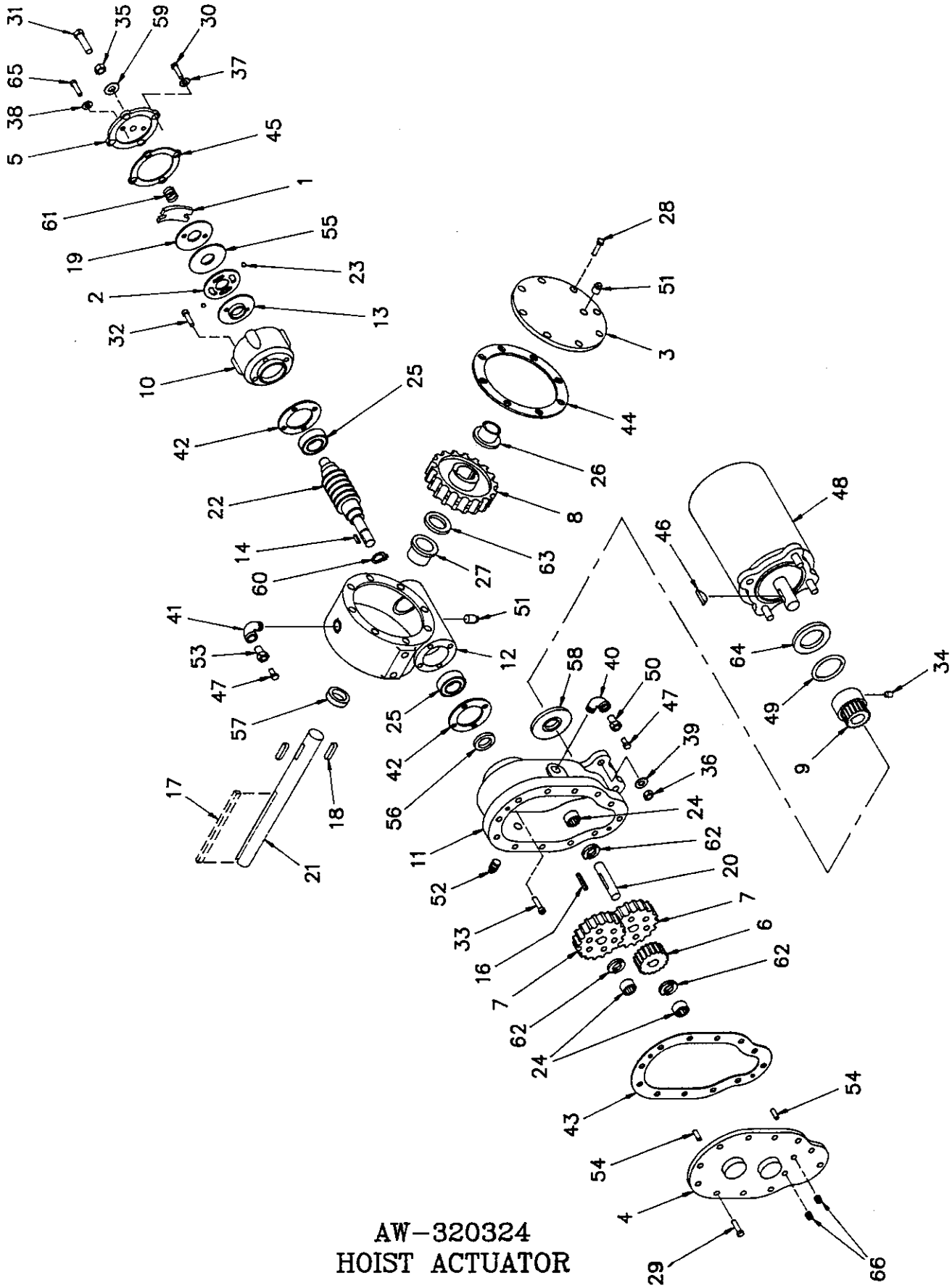
SCALE	SIZE	DRAWING NO.	REVISION
1/2	C	AW-320433	—

WEIGHT

SHEET 1 OF 1

TRAVELING BLOCK ASSEMBLY AW-320433

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	100309	SWIVEL HOOK
2	2	360124	HITCH PIN
3	2	320434	PIN, BLOCK
4	2	320403	BLOCK, TRAVELING
5	1	200909	SHEAVE ASS'Y WITH BEARING
6	1	013512	SCW. HX. HD. 5/8 X 3 1/2 N.C.
7	1	018200	NUT HX. HL. - LK. 5/8 N.C.
8	2	320404	BLOCK
9	2	330100	WASHER FLAT



AW–320324
HOIST ACTUATOR

AW–320324
HOIST ACTUATOR

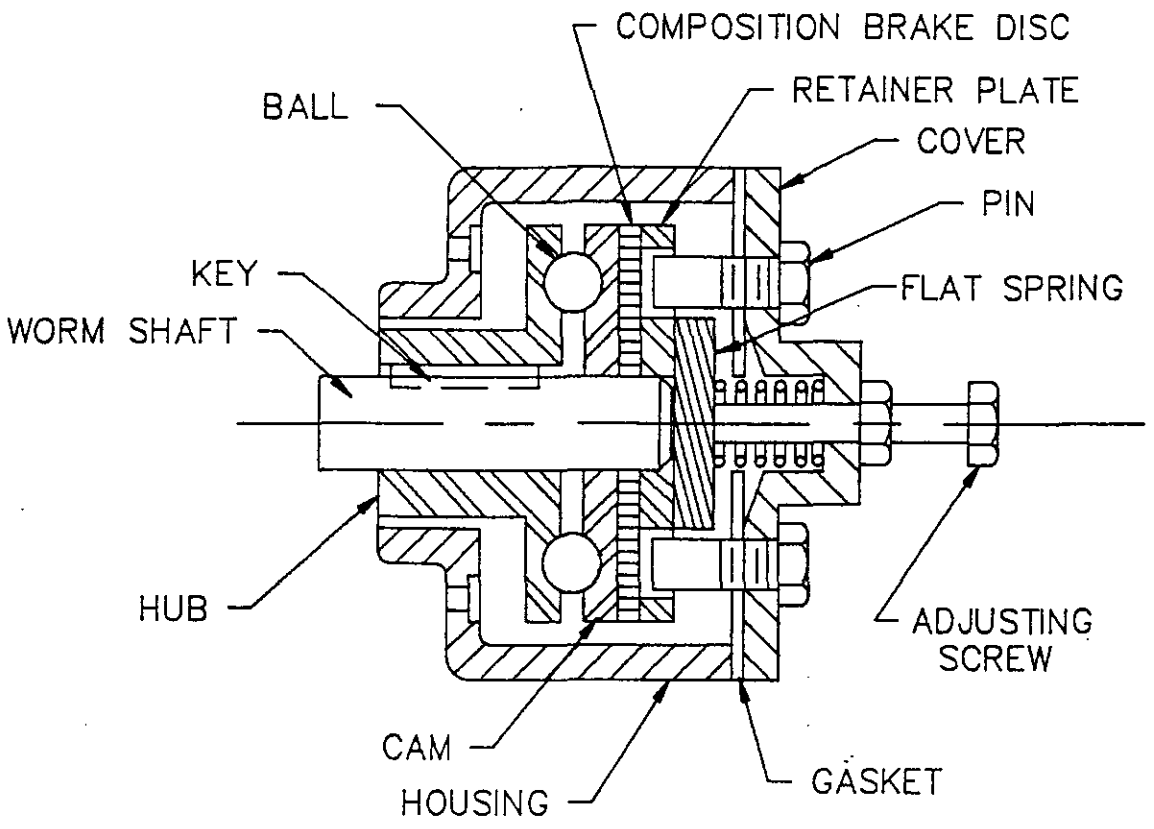
ITEM	QTY.	PART NO.	DESCRIPTION
1	1	360637	SPRING, FLAT
2	1	360331	PLATE, CAM
3	1	300041	COVER, GEAR HOUSING
4	1	300042	COVER, SPUR GEAR HOUSING
5	1	360450	COVER, BRAKE
6	1	300043	GEAR, IDLER
7	2	300044	GEAR, SPUR
8	1	300045	GEAR, WORM R.H.
9	1	300046	GEAR, PINION
10	1	360336	HOUSING, BRAKE
11	1	300047	HOUSING, SPUR GEAR
12	1	300048	HOUSING, GEAR
13	1	360339	HUB, BRAKE
14	1	300049	KEY, 3/16 SQ. x 1/2 LG.
15	1	–	–
16	1	300050	KEY, 3/16 SQ. x 1 9/16 LG.
17	1	800479–001	KEY, 1/4 SQ. x 2 3/4 LG.
18	2	300052	KEY, RD. 5/16 x 5/16 x 15/16 LG.
19	1	360342	PLATE, RETAINER
20	1	300053	SHAFT, SPUR GEAR
21	1	320323	SHAFT, OUTPUT
22	1	320312	WORM, R.H.
23	2	360345	BALL
24	3	300056	BEARING, NEEDLE
25	2	300057	BEARING, BALL
26	1	300058	BUSHING
27	1	300059	BUSHING
28	10	320313	SCREW, HEX HD 1/4–20NC x 3/4 LG. NYLOCK HVY PATCH
29	12	005500	SCREW, HEX HD 1/4–20NC x 3/4 LG.
30	4	005604	SCREW, HEX HD 1/4–20NC x 1" LG.
31	1	320311	SCREW, HEX HD 3/8–16NC x 1 1/2 LG. ALL THREAD
32	4	320310	SCREW, BUTTON HD 1/4–20NC x 1" LG.
33	4	300060	SCREW, SOC HD 1/4–20NC x 1 3/4 LG. LOC.–WEL.
34	1	300061	SETSCREW, 1/4–20NC x 5/16 LG. LOC.–WEL.
35	1	360353	NUT, HEX JAM 3/8–16NC
36	3	071012	NUT, HEX 3/8–24NF
37	4	360354	WASHER, SP LK 1/4 MED. SECT.
38	2	360455	WASHER, FLAT 1/4 ALUM.
39	3	021100	WASHER, SP LK 3/8
40	1	320314	ELBOW, 90° 3/8–18 NPT BOTH ENDS
41	1	320315	ELBOW, 90° 1/4–18 NPT BOTH ENDS
42	2	300062	GASKET BEARING
43	1	300063	GASKET, SPUR GEAR HOUSING
44	1	300064	GASKET, GEAR HOUSING COVER
45	1	360359	GASKET, BRAKE COVER
46	1	300065	KEY, WOODRUFF
47	2	300066	FITTING, RELIEF
48	1	300067	MOTOR, 12V

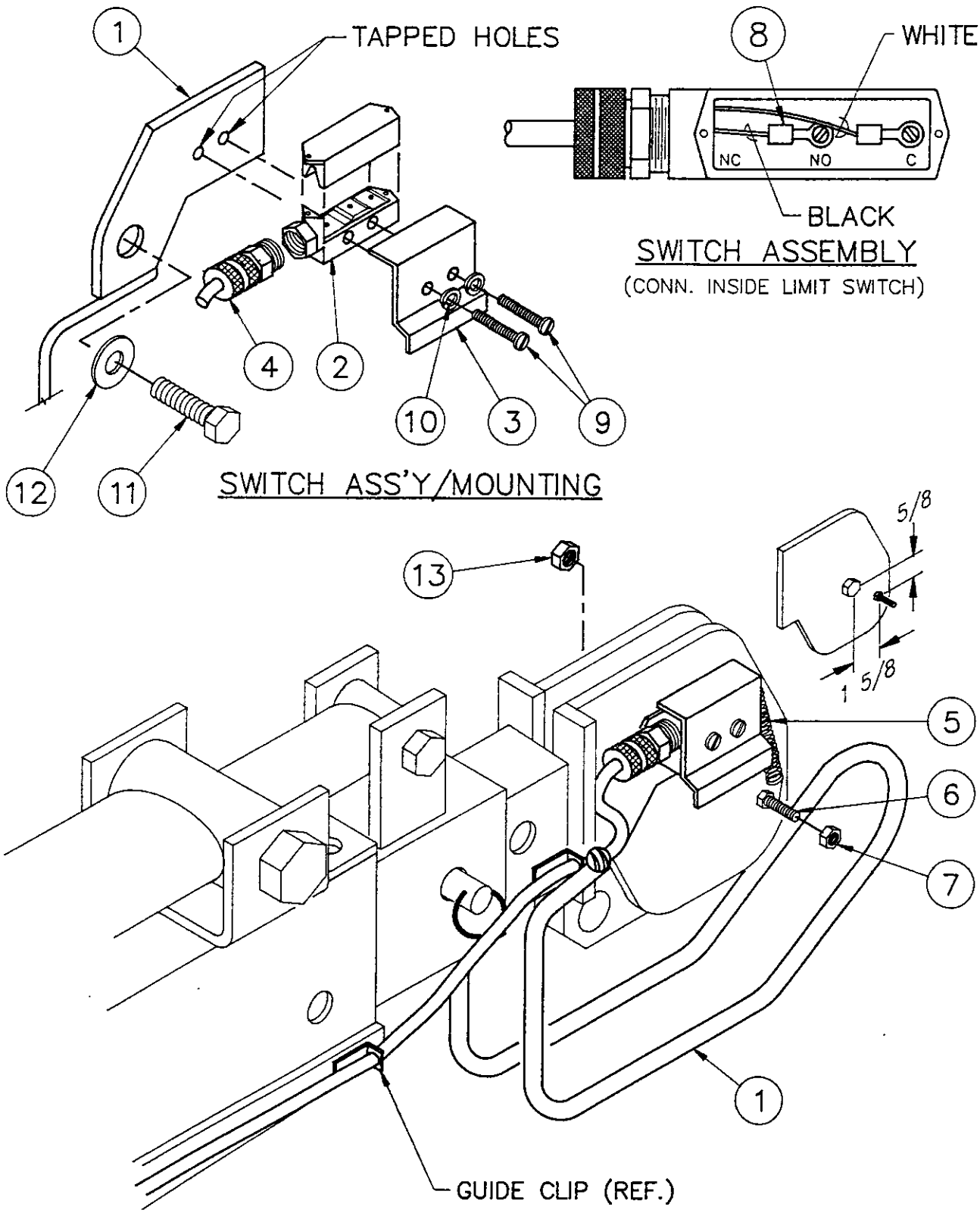
AW–320324
HOIST ACTUATOR

ITEM	QTY.	PART NO.	DESCRIPTION
49	1	300068	O–RING 1" O.D. x 1/8 THICK
50	1	300069	REDUCER, –6 NPT / –2 NPT
51	2	300070	PLUG, PIPE –4 NPT SQ HD
52	1	300073	PLUG, PIPE –6 NPT HEX SOC HEADLESS
53	1	300074	REDUCER, –4 NPT / –2 NPT
54	2	300075	PIN, DOWEL
55	1	360364	PLATE, THRUST
56	1	300076	SEAL, OIL 3/4 I.D. x 1 1/4 O.D. x 1/4 THICK
57	1	300077	SEAL, OIL 1 1/4 I.D. x 1 3/4 O.D. x 1/4 THICK
58	1	300078	SEAL, OIL 1 1/2 I.D. x 2 1/4 O.D. x 5/16 THICK
59	1	360371	SEAL, THREAD
60	1	300079	RING, SNAP
61	1	360368	SPRING
62	3	300080	WASHER, THRUST
63	1	300081	WASHER, THRUST
64	1	300082	WASHER, FIBER
65	2	360453	SCREW, 1/4–20NC x 1" LG. ALL THREAD
66	2	320382	PIPE PLUG

AUTOMATIC SAFETY BRAKE ASSEMBLY (OIL COOLED)
HOIST

1. Winch has right hand worm and gear and spools over drum; use number one slots for brake balls.
2. Install brake hub on winch worm with key.
3. Assemble balls in cam using hard grease to hold balls in place.
4. Install cam and balls, fitting balls in slots on hub.
5. Install brake disc.
6. Install retainer.
7. Install flat spring in brake housing cover (arch down).
8. Install brake housing cover, fitting pins in slots on spring and holes in retainer.
9. Test brake by shifting winch to UP then DOWN to see if brake is working in proper rotation. If not, remove brake and locate brake balls in opposite set of slots.
10. Adjust to suit by tightening or loosening screw on outside of cover. When proper adjustment is obtained, secure screw with jam nut.

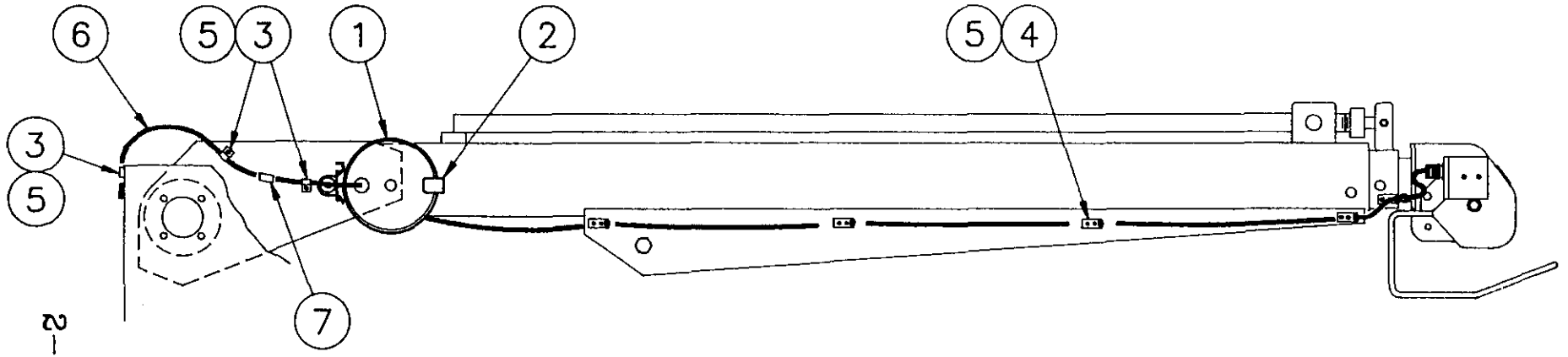


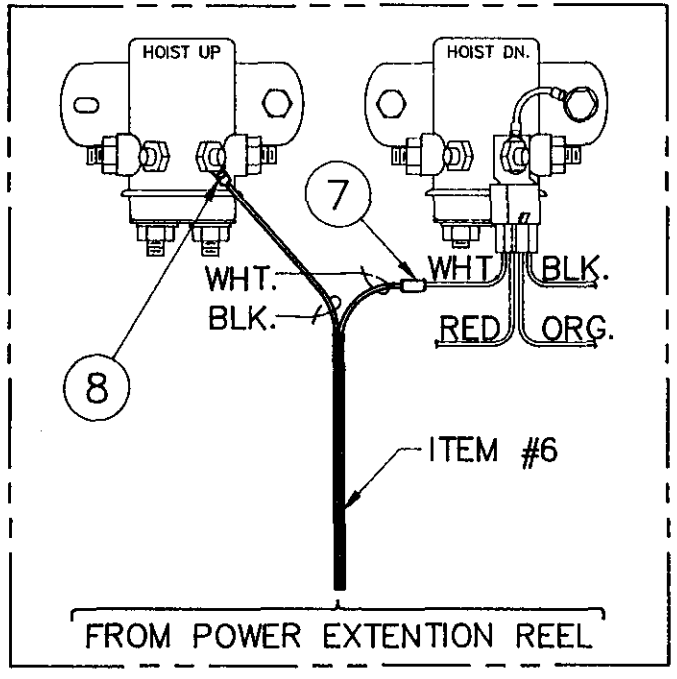


AW–220
2–BLOCK ASSEMBLY
3203 PRX

AW–220
2–BLOCK ASSEMBLY, 3203 PRX

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	320546	WELDMENT, BAIL
2	1	646900	SWITCH, LOAD SENSOR
3	1	320550	COVER, SWITCH
4	1	642908	CONNECTOR, CORD (STRAIGHT)
5	1	320554	SPRING, RETURN
6	1	005604	SCREW, HEX HD 1/4–20NC x 1" LG.
7	1	016300	NUT, HEX–LOCK 1/4–20NC
8	2	000101	TERMINAL, WR–14–16
9	2	002602	SCREW, RD HD #6–32NC x 1 1/4 LG.
10	2	019600	WASHER, SP LK #6
11	1	009104	SCREW, HEX HD 3/8–24NF x 2 1/2 LG.
12	1	021200	WASHER, FL SAE 3/8
13	1	017400	NUT, HEX–LOCK 3/8–24NF





ELECTRICAL HOOK/UP TO RELAYS FOR 2-BLOCK

AW-221
2-BLOCK REEL INSTALLATION
3203 PRX

AW-221
2-BLOCK REEL INSTALLATION
3203 PRX

AW–221
2–BLOCK REEL INSTALLATION, 3203 PRX

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	320521	REEL, CABLE
2	1	320551	BRACKET, REEL MOUNT
3	3	000115	CLIP, #115 (JIFFY CLIP)
4	5	750998	GUIDE, ROD
5	13	330038	SCREW, #10 SELF DRILLING & LOCKING x 3/4 LG.
6	3 FT	800626	CABLE, 16 GA, 2 COND, 300V TYPE SJO, BLACK
7	2	000302	TERMINAL, WIRE (BUTT SPLICE)
8	1	000300	TERMINAL, WIRE

Auto Crane Company
Tulsa, Oklahoma

Safety Decal Section
3203

Revision 12/94

ITEM	DESCRIPTION	QTY	FIG
1	CAUTION, WORK RULES	1	S-1
2	DANGER, OPERATOR TRAINING	1	S-2
3	DANGER, SCISSORS POINT	2	S-3
4	DANGER, ELECTROCUTION HAZARD	2	S-4
5	DANGER, STAY CLEAR OF BOOM	2	S-5
6	DANGER, STAY CLEAR OF LOAD	2	S-6
7	WARNING, LOAD SENSOR TAMPERING	1	S-7

AUTO CRANE COMPANY
PO BOX S80697, Tulsa, OK 741S8-0697
4707 N. MINGO ROAD, Tulsa, OK 74117
Phone (918) 836-0463, Telex 1S8108 Ramsey Tul
Sales Fax (918) 438-6688 Service Fax (918) 834-S979

SAFETY DECAL SECTION
3203 SERIES

Revision 12/94

PART NO.: 040579

DECAL: OPERATION INSTRUCTIONS

FUNCTION: To inform the operator of the proper procedure to follow for safe operation of the crane.

USED ON: All Cranes

QUANTITY: 1

PLACEMENT: Right sideplate

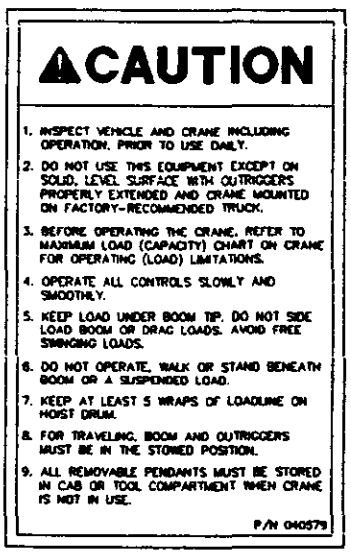


FIG. S-1.

PART NO.: 040580

DECAL: OPERATOR TRAINING

FUNCTION: To inform the operator of the need to receive proper training before using the crane.

USED ON: All Cranes

QUANTITY: 1

PLACEMENT: Right sideplate (5005H)

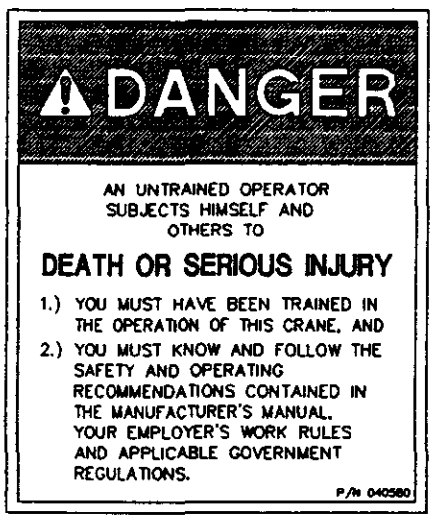


FIG. S-2.

PART NO.: 040519

DECAL: SCISSORS POINT

FUNCTION: To inform the operator of possible danger at scissors point on crane.

USED ON: All cranes

QUANTITY: 2

PLACEMENT: Both sides of the lift cylinder

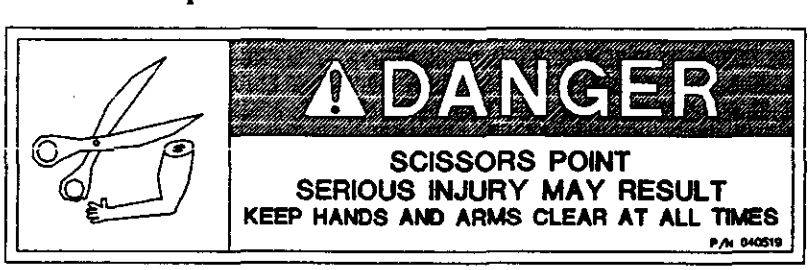


FIG. S-3.

SAFETY DECAL SECTION
3203 SERIES

Revision 12/94

PART NO.: 040529

DECAL: ELECTROCUTION HAZARD

FUNCTION: To inform the operator of the hazard involved with contacting electrical power lines with crane boom.

USED ON: Articulated & Stiff Boom Cranes

QUANTITY: 2

PLACEMENT: Both sides of end of lower boom

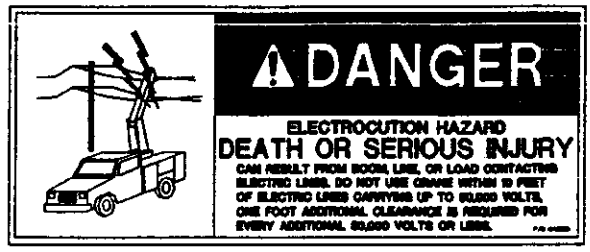


FIG. S-4.

PART NO.: 040517

DECAL: STAY CLEAR OF BOOM

FUNCTION: To inform the operator of the hazard of proximity or contact with the crane boom during operation.

USED ON: All cranes

QUANTITY: 2

PLACEMENT: Both sides of crown

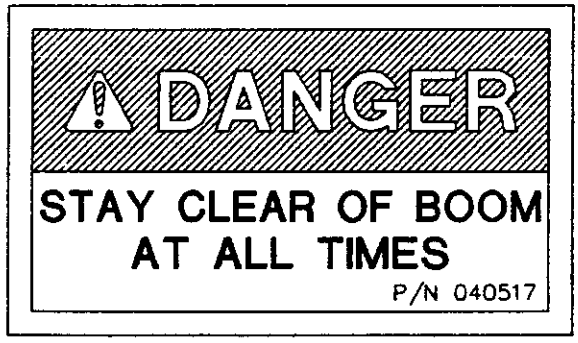


FIG. S-5.

PART NO.: 040518

DECAL: STAY CLEAR OF LOAD

FUNCTION: To inform the operator of the hazard of proximity or contact with the crane load during operation.

USED ON: All cranes

QUANTITY: 2

PLACEMENT: Both sides of crown plate

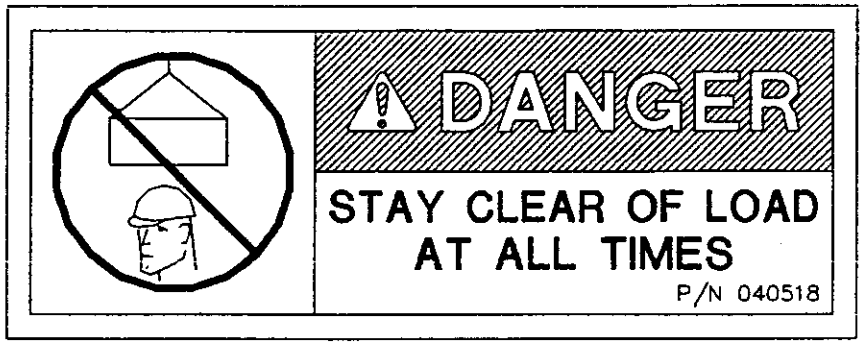


FIG. S-6.

SAFETY DECAL SECTION
3203 SERIES

Revision 12/94

PART NO.: 040587

DECAL: LOAD SENSOR, DON'T TAMPER

FUNCTION: To inform the operator that the load sensor is pre-set and that tampering with the sensor may cause potentially hazardous situation.

USED ON: All cranes equipped with a load sensor.

QUANTITY: 1

PLACEMENT: On the lift cylinder near the load sensor

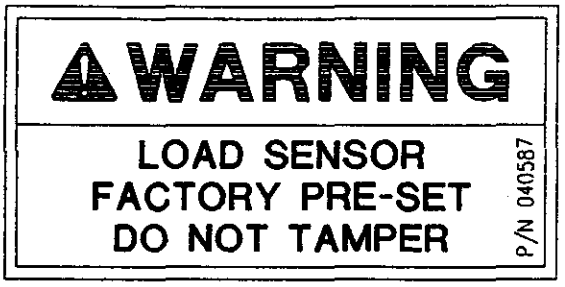
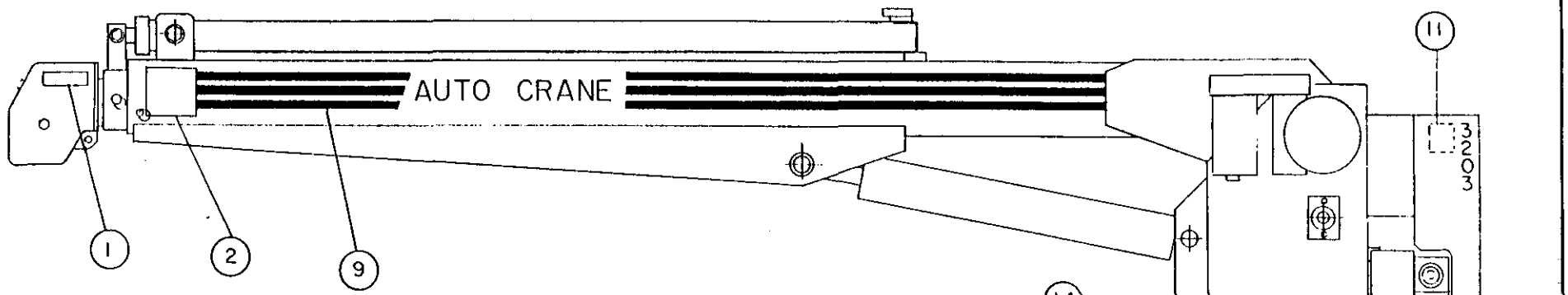


FIG. S-7.

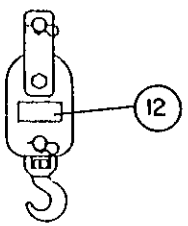
FIXTURE NO.	SH NO.

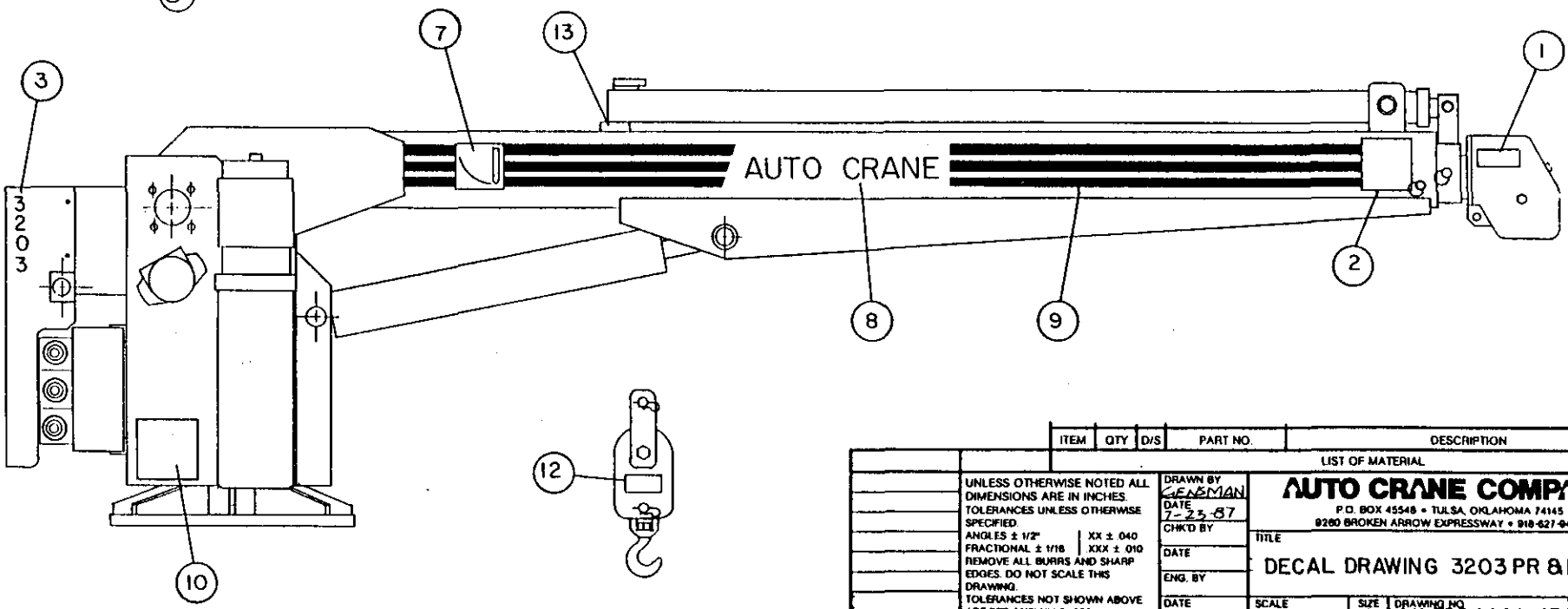
CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



NOTE:

1. 320444 EQUALS PR UNIT LESS ITEM 13 IN B.O.M.
2. 320445 EQUALS PRX UNIT B.O.M. AS SHOWN.





ITEM	QTY	D/S	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | XX ± .040
FRACTIONAL ± 1/16 | .XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

NEXT ASS'Y

DRAWN BY GLASSMAN
DATE 7-23-87
CHK'D BY
DATE
ENG. BY
DATE

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9475

TITLE
DECAL DRAWING 3203 PR & PRX

SCALE	SIZE	DRAWING NO.	REVISION
—	C	AW-320444/445	—

WEIGHT

SHEET 1 OF 1

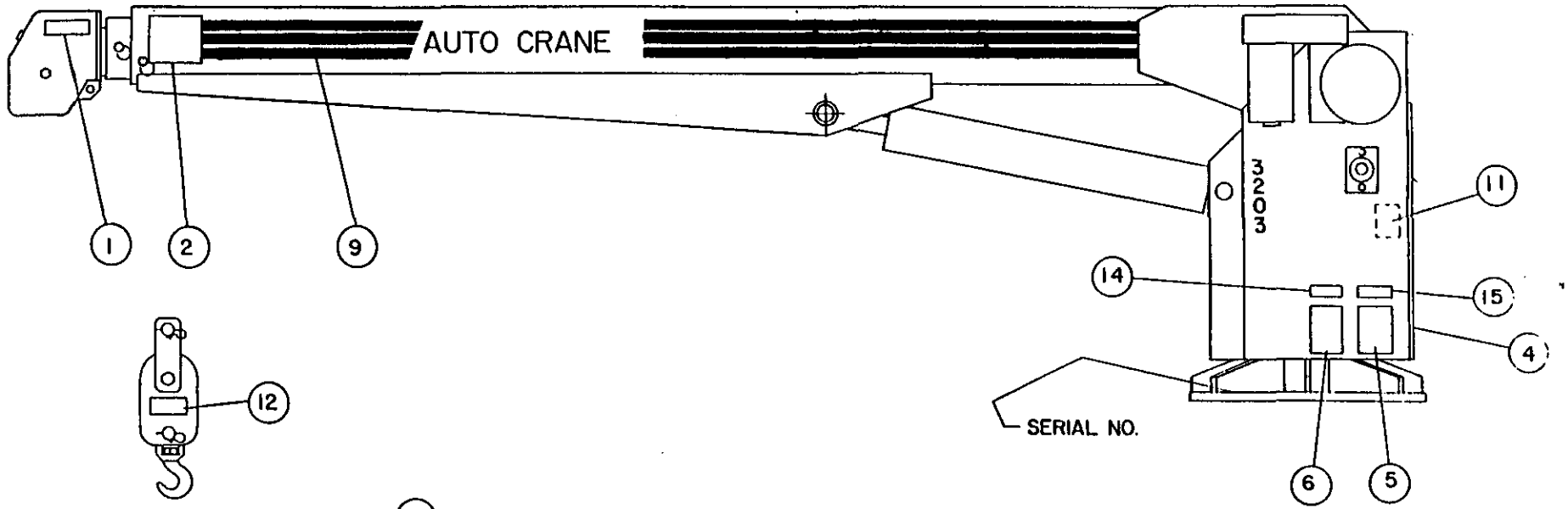
4-2.0.0

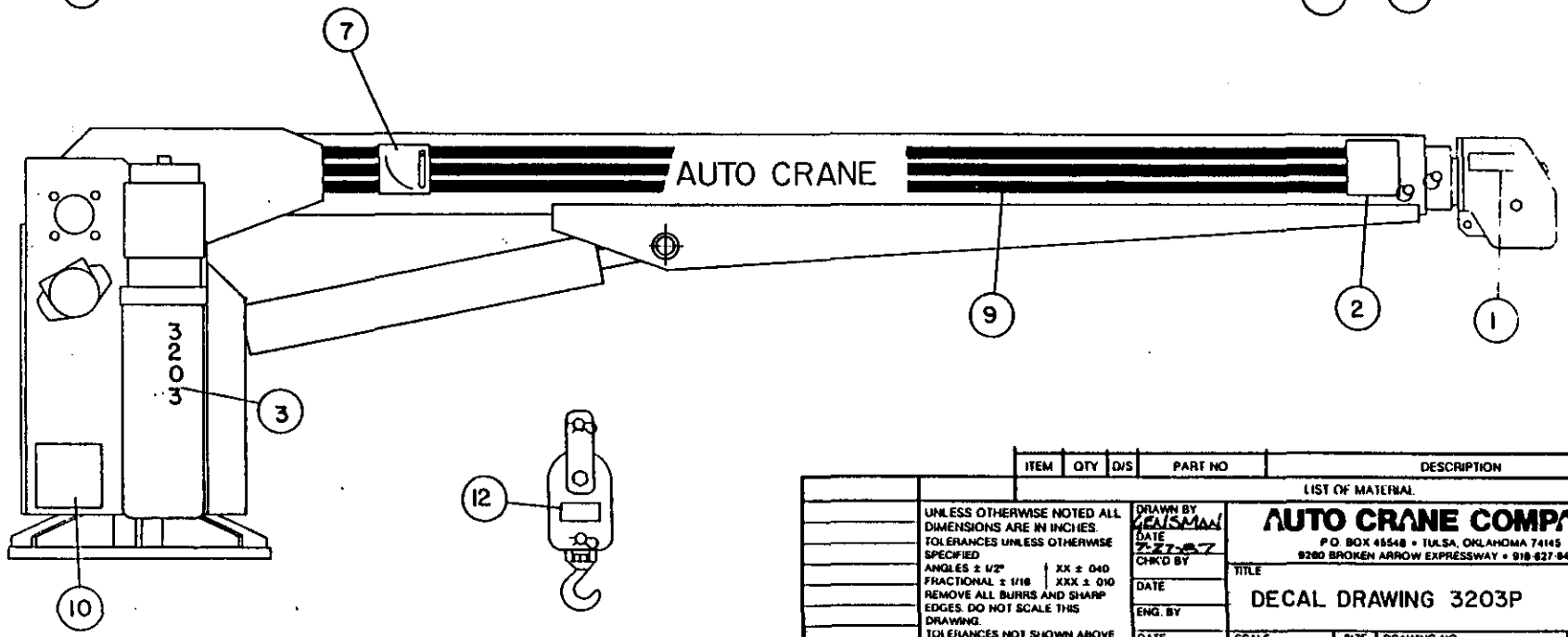
AW-320444/445
DECAL DRAWING, 3203 PR & PRX

ITEM	QTY.	PART NO.	DESCRIPTION
1	2	040517	DECAL, DANGER - STAY CLEAR OF BOOM
2	2	040529	DECAL, DANGER - ELECTROCUTION
3	2	320317	DECAL, 3203
4	1	360034	DECAL, AUTO CRANE LOGO
5	1	040579	DECAL, WORK RULES
6	1	040580	DECAL, DANGER - UNTRAINED OPERATOR
7	1	320318	DECAL, ANGLE INDICATOR
8	2	040624	DECAL, AUTO CRANE
9	7'	040620	DECAL, STRIPING
10	1	320321	DECAL, LOAD CHART
11	1	040552	DECAL, RELAY
12	2	040518	DECAL, DANGER - STAY CLEAR OF LOAD
13	1	801102	RUBBER PAD, ADHESIVE
14	1	330622	DECAL, SERIAL NUMBER
15	1	040587	DECAL, WIRING LOAD SENSOR
16	2	040519	DECAL, DANGER - SCISSORS POINT

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D





4-3.0.0

ITEM	QTY	D/S	PART NO	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED
ANGLES ± 1/2° | XX ± .040
FRACTIONAL ± 1/16 | XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

DRAWN BY GRAISMAN
DATE 7-27-87
CHK'D BY
DATE
ENG. BY
DATE

NEXT ASS'Y

THIS PRINT IS THE PROPERTY OF AUTO CRANE CO AND MUST NOT BE USED IN ANY MANNER DETRIMENTAL TO THEIR INTERESTS.

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9280 BROKEN ARROW EXPRESSWAY • 918-627-8475

TITLE
DECAL DRAWING 3203P

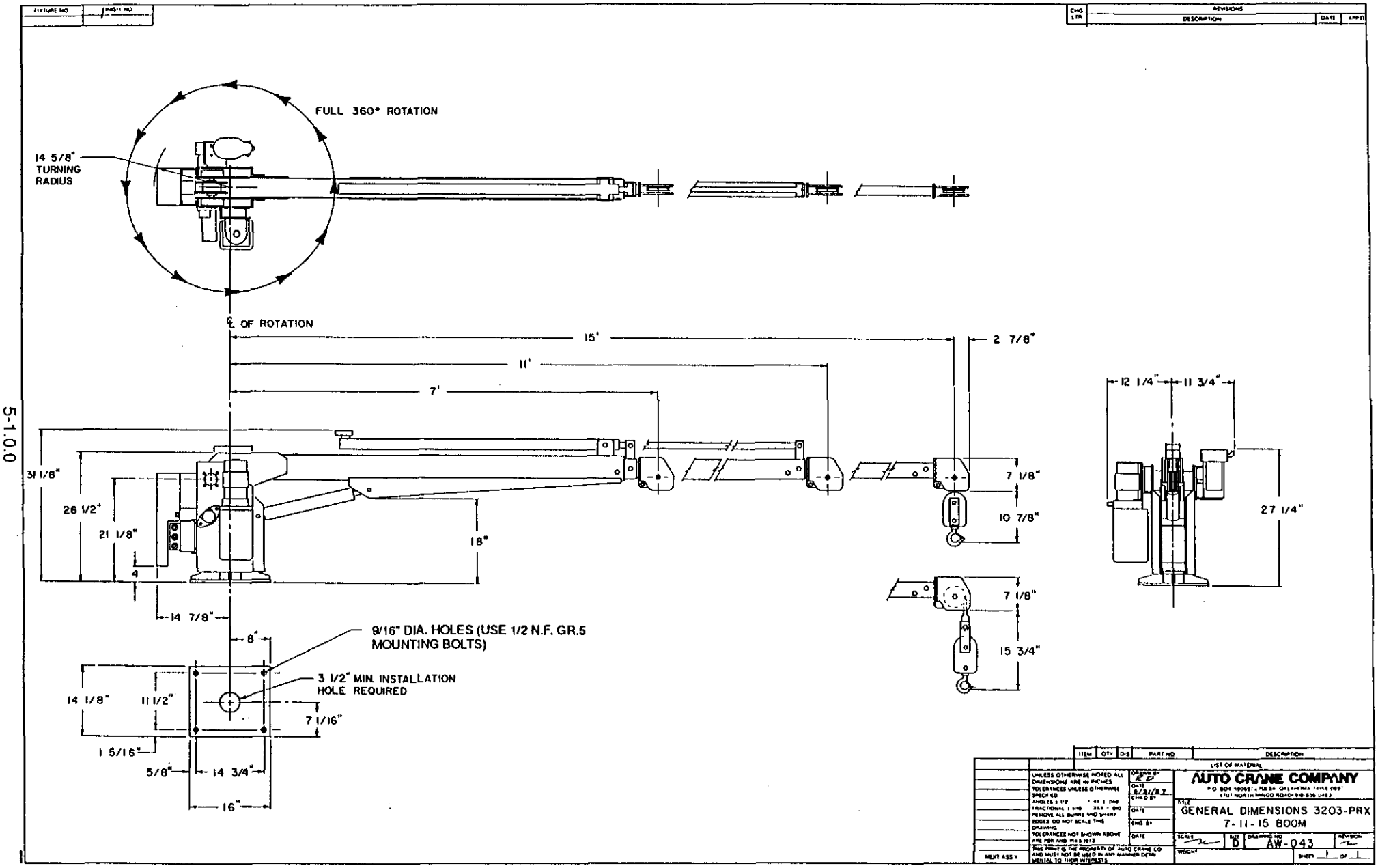
SCALE	SIZE	DRAWING NO	REVISION
—	C	AW 320446	—

WEIGHT

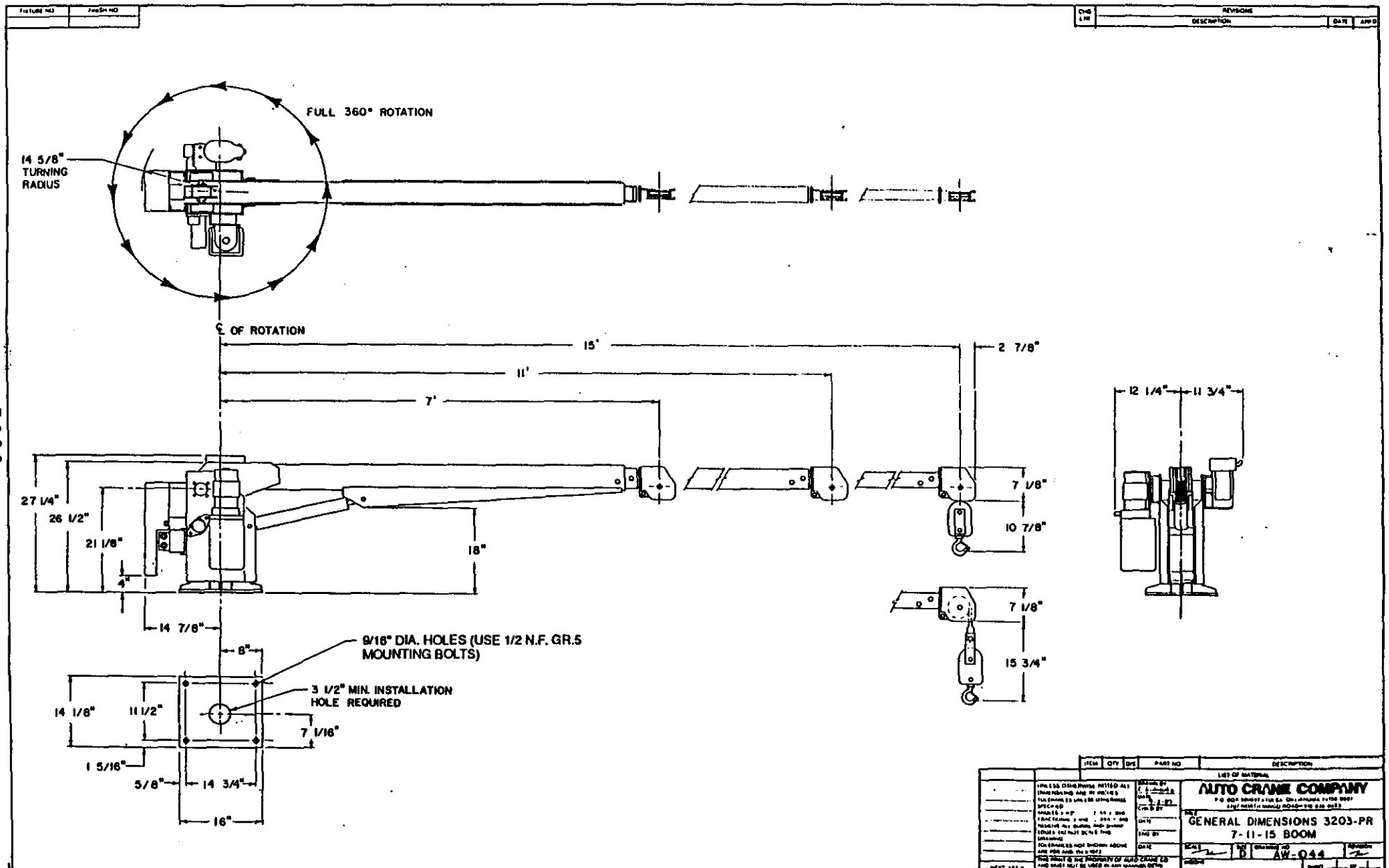
SHEET 1 OF 1

AW-320446
DECAL DRAWING, 3203 P

ITEM	QTY.	PART NO.	DESCRIPTION
1	2	040517	DECAL, DANGER - STAY CLEAR OF BOOM
2	2	040529	DECAL, DANGER - ELECTROCUTION HAZARD
3	2	320317	DECAL, 3203
4	1	360034	DECAL, AUTO CRANE LOGO
5	1	040579	DECAL, WORK RULES
6	1	040580	DECAL, DANGER - UNTRAINED OPERATOR
7	1	320318	DECAL, ANGLE INDICATOR
8	2	040624	DECAL, AUTO CRANE
9	7'	040620	DECAL, STRIPING
10	1	320321	DECAL, LOAD CHART
11	1	040552	DECAL, RELAY
12	2	040518	DECAL, DANGER - STAY CLEAR OF LOAD
13	-	-	-
14	1	330622	DECAL, SERIAL NUMBER
15	1	040587	DECAL, WIRING LOAD SENSOR
16	2	040519	DECAL, DANGER - SCISSORS POINT


FULL 360° ROTATION
14 5/8" TURNING RADIUS
℄ OF ROTATION
15'
11'
7'
2 7/8"
12 1/4"
11 3/4"
31 1/8"
26 1/2"
21 1/8"
18"
4
7 1/8"
10 7/8"
27 1/4"
14 7/8"
8"
9/16" DIA. HOLES (USE 1/2 N.F. GR.5 MOUNTING BOLTS)
3 1/2" MIN. INSTALLATION HOLE REQUIRED
14 1/8"
11 1/2"
7 1/16"
1 5/16"
5/8"
14 3/4"
16"
7 1/8"
15 3/4"
ITEM
QTY
PART NO
DESCRIPTION
LIST OF MATERIAL
AUTO CRANE COMPANY
GENERAL DIMENSIONS 3203-PRX
7-11-15 BOOM
AW-043

5-1.0.0

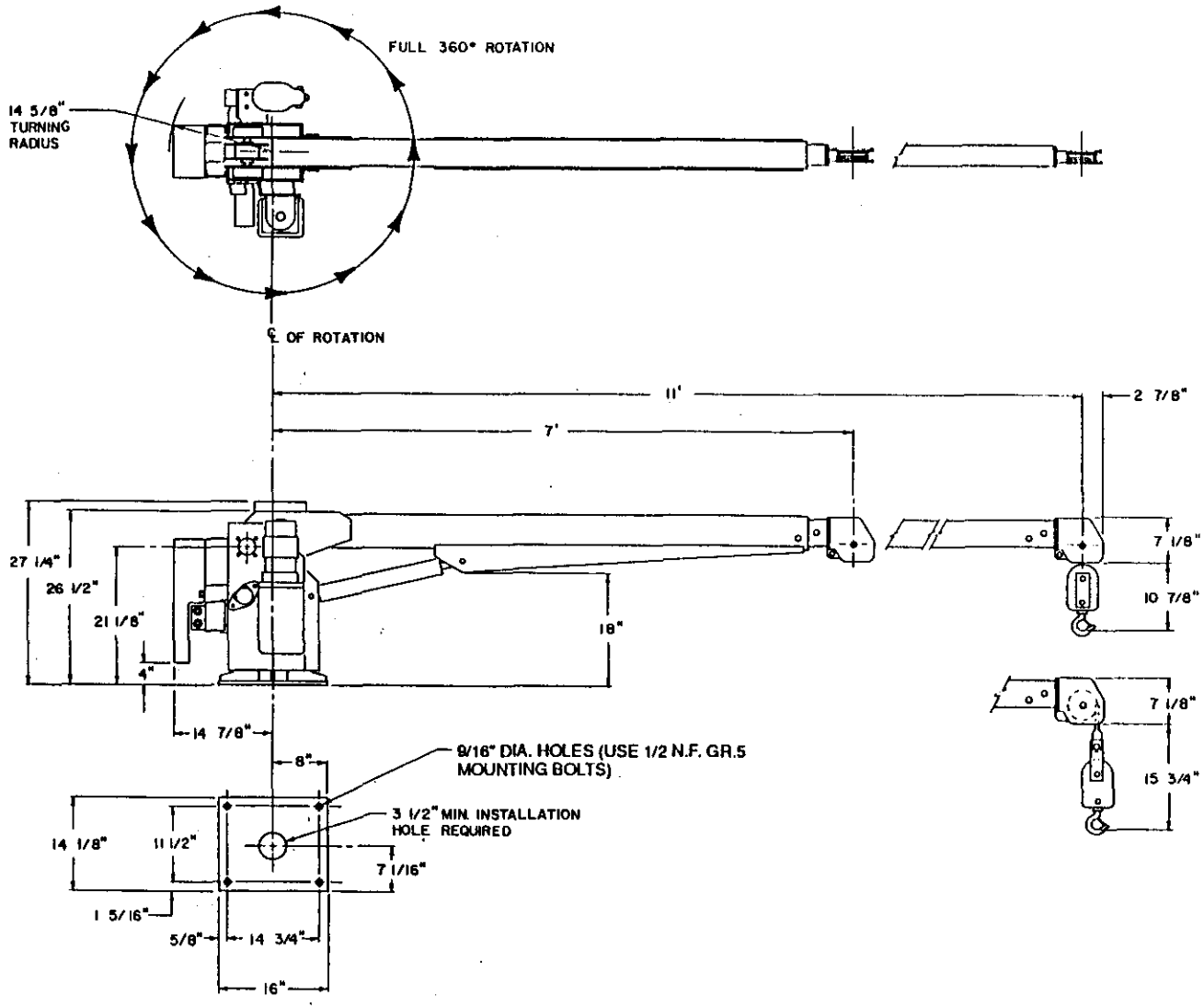


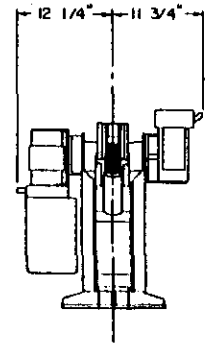
5-2.0.0

AUTO CRANE COMPANY

GENERAL DIMENSIONS 3203-PR
7-11-15 BOOM

AW-044

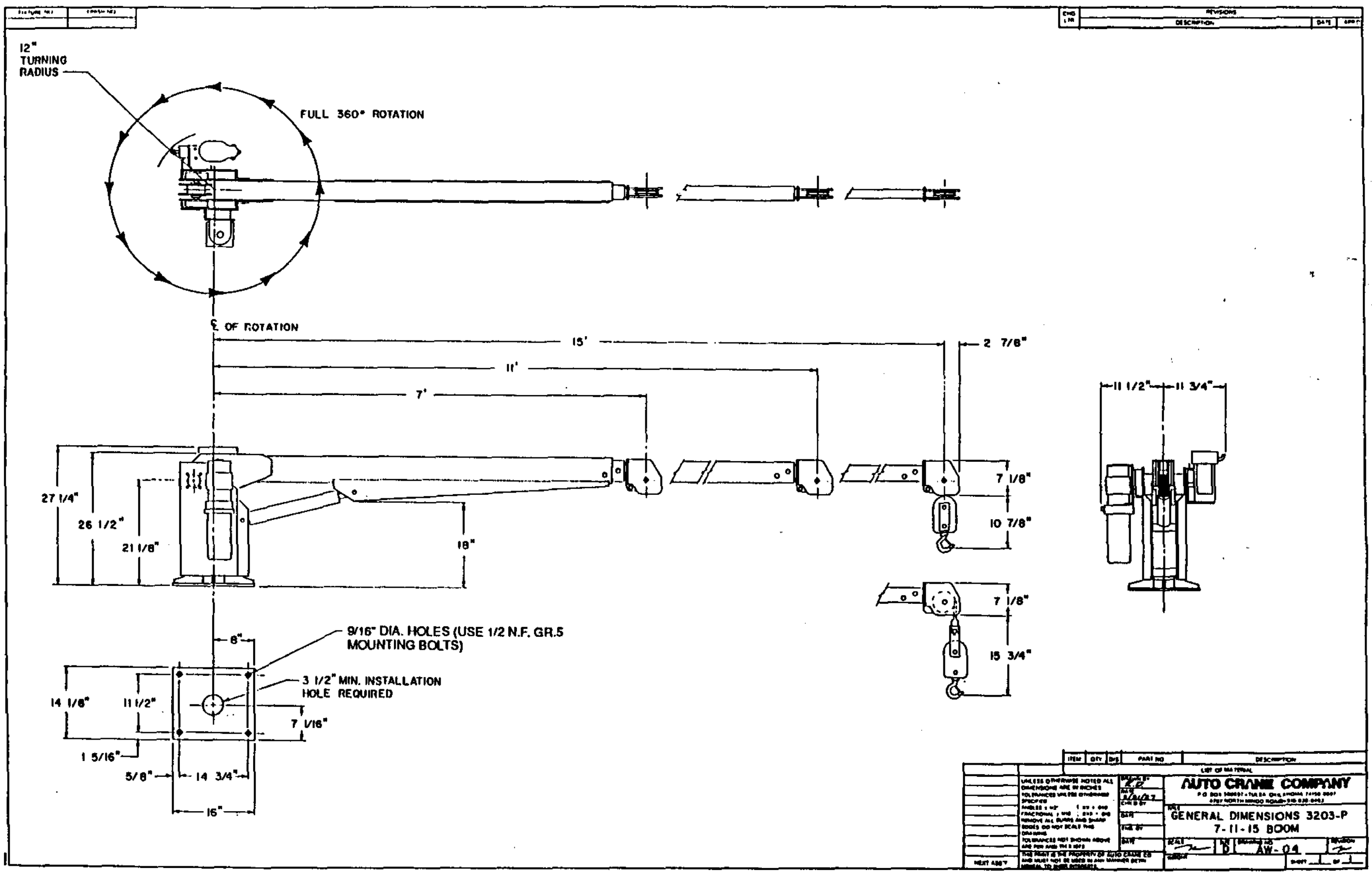


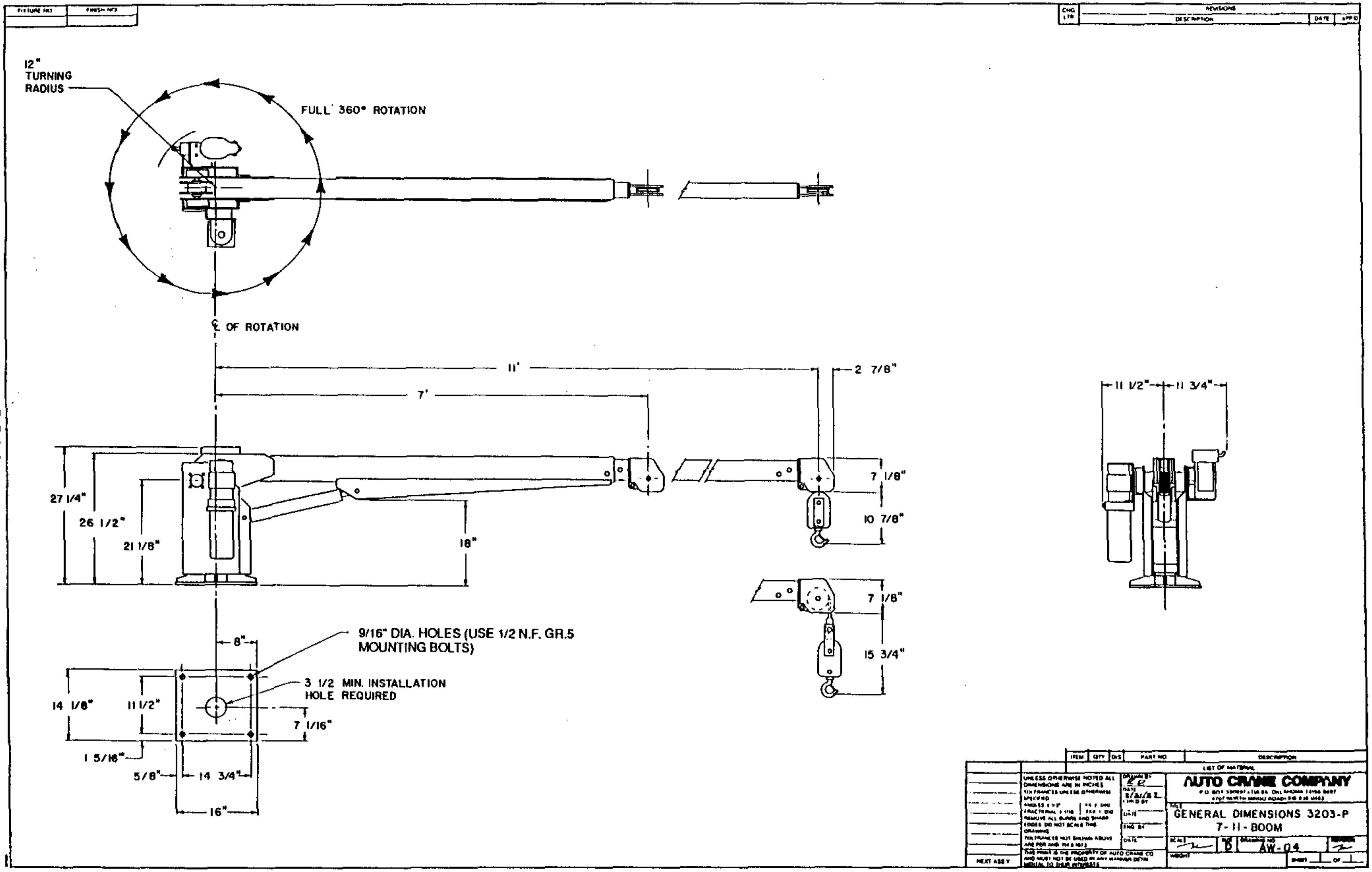


AUTO CRANE COMPANY

GENERAL DIMENSIONS 3203-PR
7-11-BOOM

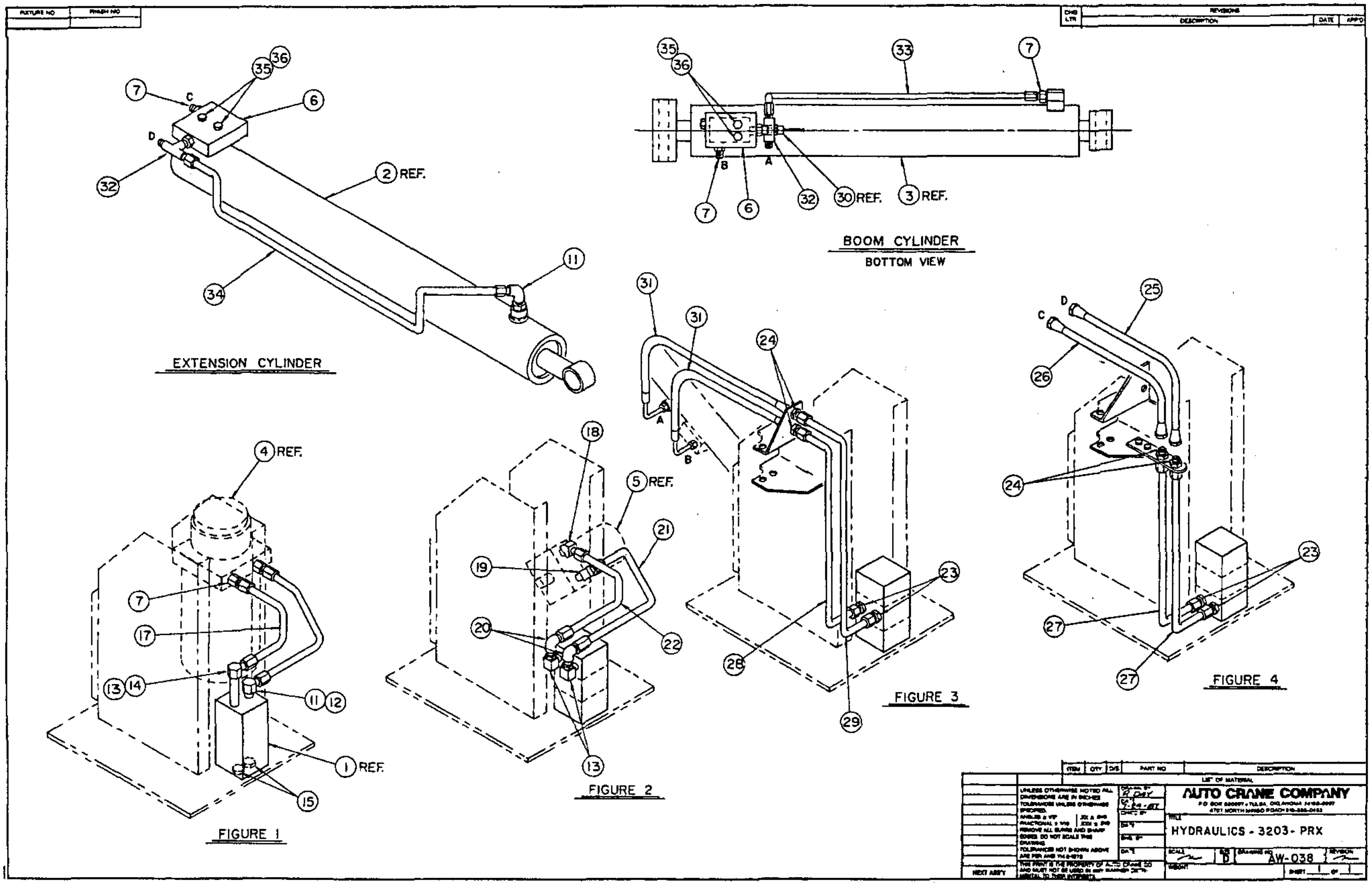
SIZE D | DRAWING NO AW-045


12" TURNING RADIUS
FULL 360° ROTATION
℄ OF ROTATION
15'
11'
7'
2 7/8"
7 1/8"
10 7/8"
7 1/8"
15 3/4"
11 1/2"
11 3/4"
27 1/4"
26 1/2"
21 1/8"
18"
8"
9/16" DIA. HOLES (USE 1/2 N.F. GR.5 MOUNTING BOLTS)
3 1/2" MIN. INSTALLATION HOLE REQUIRED
14 1/8"
11 1/2"
7 1/16"
1 5/16"
5/8"
14 3/4"
16"
AUTO CRANE COMPANY
GENERAL DIMENSIONS 3203-P
7-11-15 BOOM
AW-04



12" TURNING RADIUS
FULL 360° ROTATION
℄ OF ROTATION
11'
7'
2 7/8"
27 1/4"
26 1/2"
21 1/8"
18"
7 1/8"
10 7/8"
7 1/8"
15 3/4"
11 1/2"
11 3/4"
9/16" DIA. HOLES (USE 1/2 N.F. GR.5 MOUNTING BOLTS)
3 1/2 MIN. INSTALLATION HOLE REQUIRED
8"
14 1/8"
11 1/2"
7 1/16"
1 5/16"
5/8"
14 3/4"
16"
ITEM
QTY
PART NO
DESCRIPTION
LIST OF MATERIAL
UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES
NEXT ASS'Y
AUTO CRANE COMPANY
GENERAL DIMENSIONS 3203-P
7-11-BOOM
AW-04

NOTES

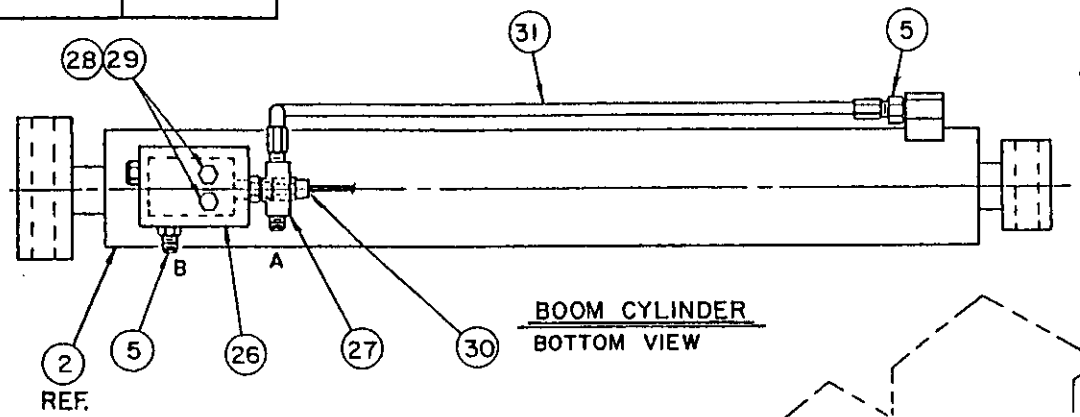

EXTENSION CYLINDER
2 REF.
6
7
11
32
34
35
36
C
D
BOOM CYLINDER
BOTTOM VIEW
3 REF.
30 REF.
33
A
B
FIGURE 1
1 REF.
4 REF.
12
13
14
15
17
FIGURE 2
5 REF.
18
19
20
21
22
FIGURE 3
23
24
28
29
31
FIGURE 4
25
26
27
AUTO CRANE COMPANY
HYDRAULICS - 3203 - PRX
AW-038
D
NEXT ASS'Y

AW-038
HYDRAULIC ASSEMBLY, 3203 PRX

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	202710	MANIFOLD (REF.)
2	1	202711	CYLINDER, EXTENSION (REF.)
3	1	320325	CYLINDER, BOOM (REF.)
4	1	320336	HYDRAULIC PUMP & RESERVOIR (REF.)
5	1	480027	HYDRAULIC MOTOR (ROTATION) REF.
6	2	330412	COUNTERBALANCE VALVE
7	4	200876	ADAPTER -6 ORB/-6 JIC
8	–	–	–
9	–	–	–
10	–	–	–
11	2	241175	ELL, 90° -6 ORB/-6 JIC
12	1	330058	REDUCER -10 ORB/-6 ORP
13	3	330272	ELL, 90° -8 ORB/-6 JIC
14	1	330274	REDUCER -10 ORB/-8 ORP
15	2	330072	PLUG, HEX HD -10 ORB
16	1	320408-001	HYDRAULIC TUBE ASSEMBLY
17	1	320409	HYDRAULIC TUBE ASSEMBLY
18	1	320350	ELL, 45° -8 NPTM/-6 JIC
19	1	202759	ELL, 90° -8 NPTM/-6 JIC
20	2	480194	ELL, 90° -6 SWIVEL/-6 JIC
21	1	320407	HYDRAULIC TUBE ASSEMBLY
22	1	320410	HYDRAULIC TUBE ASSEMBLY
23	4	202756	ADAPTER -8 ORB/-6 JIC
24	4	241170	BULKHEAD UNION
25	1	320473	HYDRAULIC HOSE ASSEMBLY
26	1	320466	HYDRAULIC HOSE ASSEMBLY
27	1	320489	HYDRAULIC TUBE ASSEMBLY
28	1	320490	HYDRAULIC TUBE ASSEMBLY
29	1	320491	HYDRAULIC TUBE ASSEMBLY
30	1	320472	LOAD SENSOR ASSY
31	2	320467	HYDRAULIC HOSE ASSEMBLY
32	2	241168	TEE -6 ORB/-6 JIC RUN
33	1	320469	HYDRAULIC TUBE ASSEMBLY
34	1	330275	HYDRAULIC TUBE ASSEMBLY
35	4	020200	WASHER, SP LK 1/4
36	4	005810	SCREW, HEX HD 1/4-20NC x 1 3/4 LG.

FIXTURE NO.	SH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



BOOM CYLINDER
BOTTOM VIEW

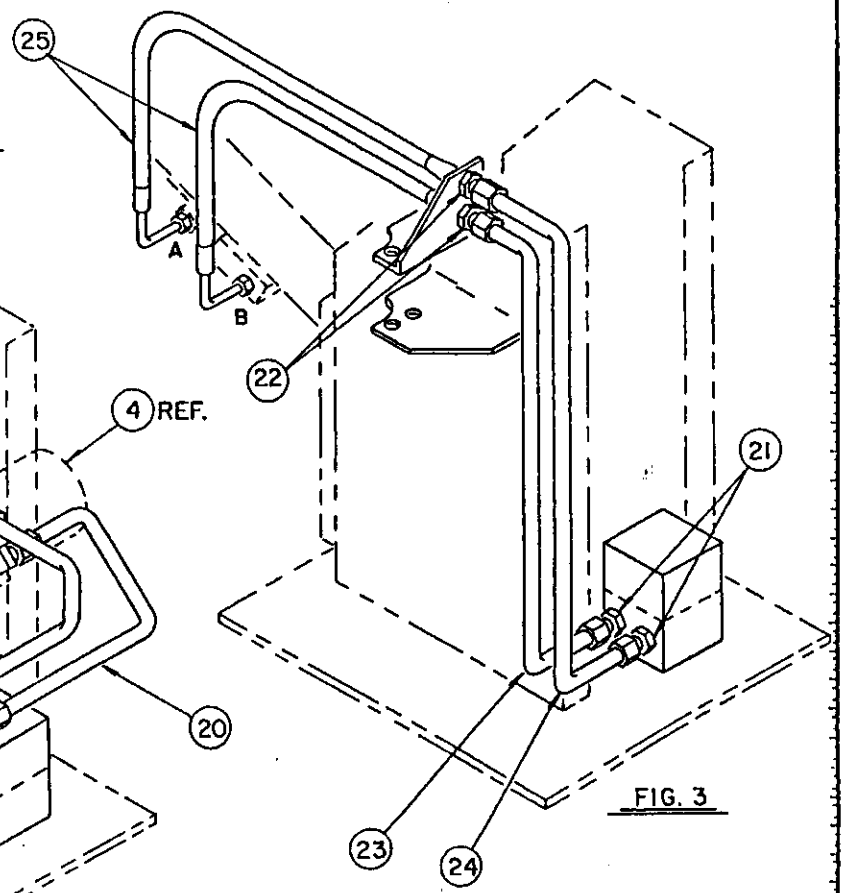


FIG. 3

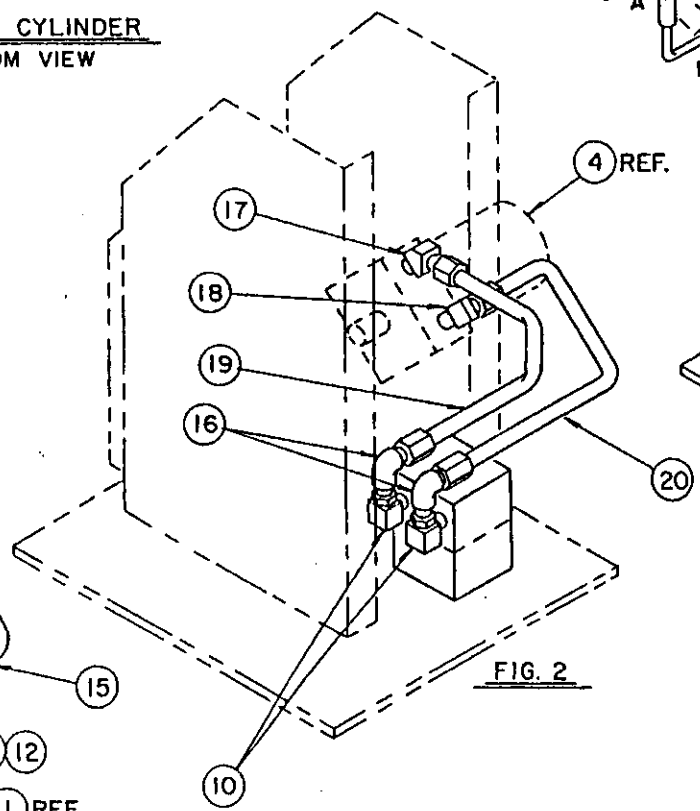


FIG. 2

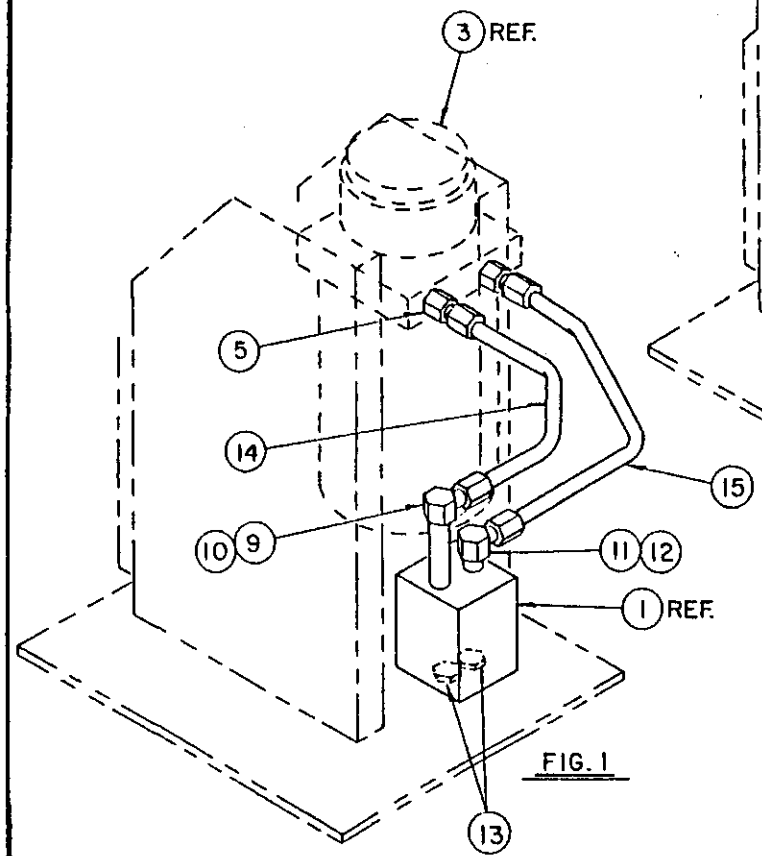


FIG. 1

6-20.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | .XX ± .040
FRACTIONAL ± 1/16 | .XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

DRAWN BY R. GAY
DATE 7-27-87
CHK'D BY
DATE
ENG. BY
DATE

NEXT ASS'Y

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9478

TITLE
HYDRAULICS - 3203 - PR

SCALE | SIZE C | DRAWING NO. AW-039 | REVISION

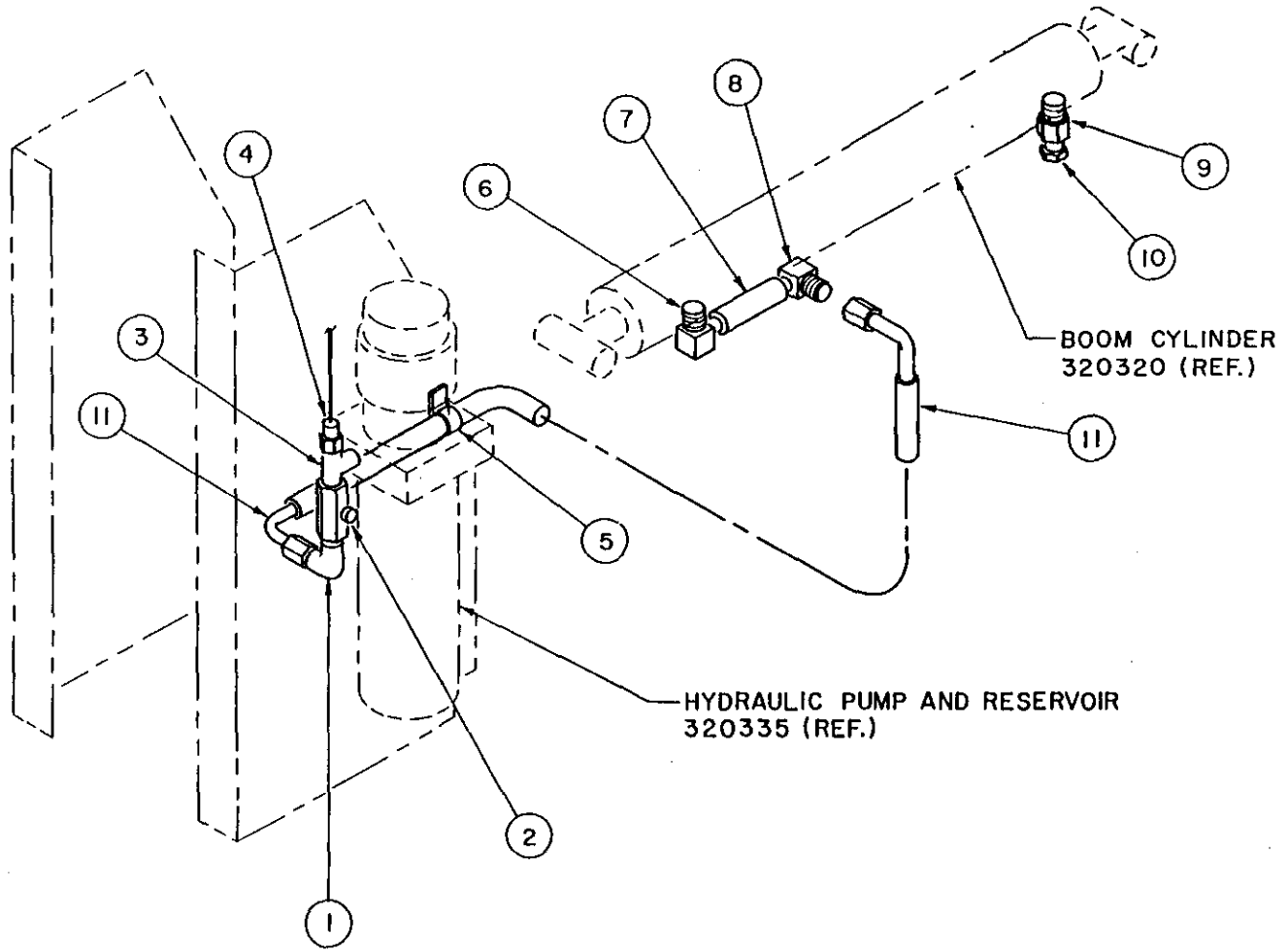
WEIGHT | SHEET ____ OF ____

AW–039
HYDRAULIC ASSEMBLY, 3203 PR

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	202710	MANIFOLD (REF.)
2	1	320325	CYLINDER, BOOM (REF.)
3	1	320336	HYDRAULIC PUMP & RESERVOIR (REF.)
4	1	480027	HYDRAULIC MOTOR (ROTATION) REF.
5	3	200876	ADAPTER –6 ORB/–6 JIC
6	–	–	–
7	–	–	–
8	–	–	–
9	1	330274	REDUCER –10 ORB/–8 ORP
10	3	330272	ELL, 90° –8 ORB/–6 JIC
11	1	330058	REDUCER –10 ORB/–6 ORP
12	1	241175	ELL, 90° –6 ORB/–6 JIC
13	2	330072	PLUG, HEX HD –10 ORB
14	1	320409	HYDRAULIC TUBE ASSEMBLY
15	1	320408–001	HYDRAULIC TUBE ASSEMBLY
16	2	480194	ELL, 90° –6 SWIVEL/–6 JIC
17	1	320350	ELL, 45° –8 NPTM/–6 JIC
18	1	202759	ELL, 90° –8 NPTM/–6 JIC
19	1	320410	HYDRAULIC TUBE ASSEMBLY
20	1	320407	HYDRAULIC TUBE ASSEMBLY
21	2	202756	ADAPTER –8 ORB/–6 JIC
22	2	241170	BULKHEAD UNION
23	1	320490	HYDRAULIC TUBE ASSEMBLY
24	1	320491	HYDRAULIC TUBE ASSEMBLY
25	2	320467	HYDRAULIC HOSE ASSEMBLY
26	1	330412	COUNTERBALANCE VALVE
27	1	241168	TEE –6 ORB/–6 JIC RUN
28	2	005810	SCREW, HEX HD 1/4–20NC x 1 3/4 LG
29	2	020200	WASHER, SP LK 1/4
30	1	320472	LOAD SENSOR ASSY
31	1	320469	HYDRAULIC TUBE ASSEMBLY

FIXTURE NO.	SH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



6-3.0.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION
				LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | XX ± .040
FRACTIONAL ± 1/16 | XXX ± .010
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NEXT ASS'Y

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DATE
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DATE

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9280 BROKEN ARROW EXPRESSWAY • 918-627-9475

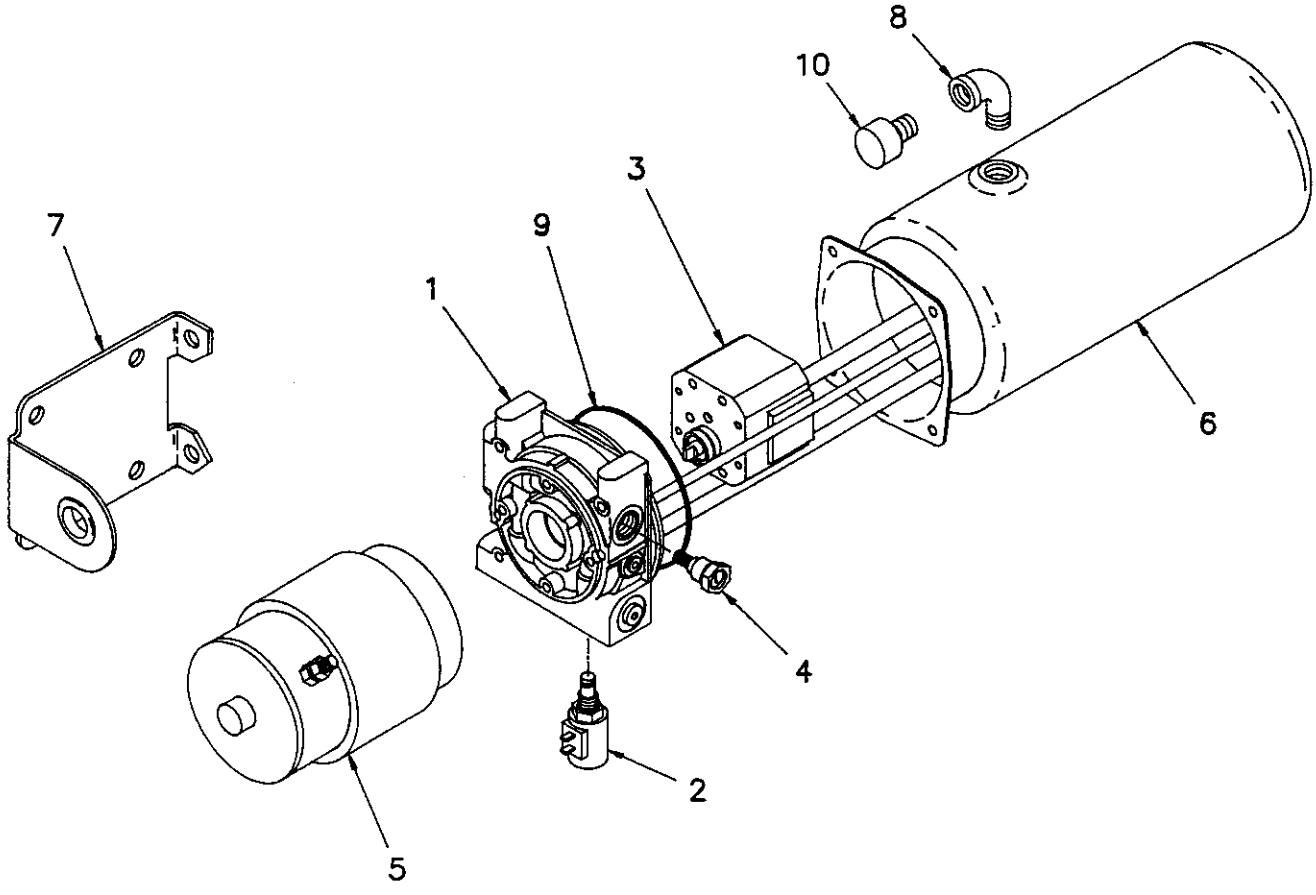
TITLE
HYDRAULICS 3203 - P

SCALE | SIZE C | DRAWING NO. AW-048 | REVISION

WEIGHT | SHEET 1 OF 1

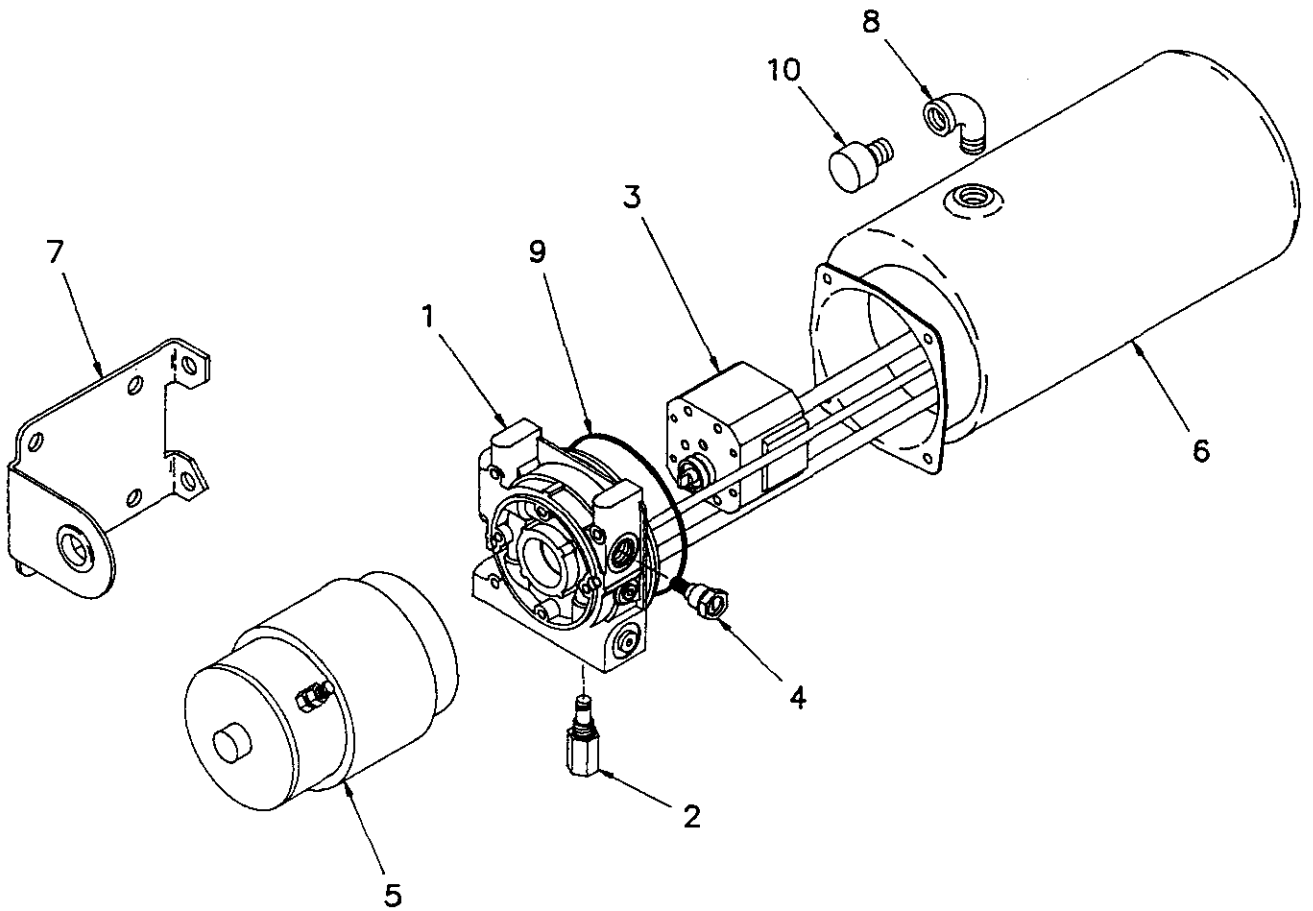
AW-048
HYDRAULIC ASSEMBLY, 3203 P

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	241175	ELL, 90° -6 ORB/-6 JIC
2	1	320343	FLOW REGULATOR
3	1	320344	TEE
4	1	320560	LOAD SENSOR
5	1	083803	CLAMP, HOSE -6
6	1	320370	ELL, 90° -6 ORB/-6 NPTM
7	1	301103	VELOCITY FUSE
8	1	330596	ELL, 90° -6 NPTF/-6 JIC
9	1	320340	ADAPTER -6 ORB
10	1	330584	BREATHER FILTER
11	1	320465	HOSE ASSEMBLY



ITEM	QTY	P/N	DESCRIPTION	ITEM	QTY	P/N	DESCRIPTION
1	1	320335–001	ADAPTER KIT	6	1	320335–006	RESERVOIR KIT
2	1	320335–002	RELEASE VALVE KIT	7	1	320335–007	MTG. BRACKET KIT
3	1	320335–003	PUMP KIT	8	1	320335–008	ELBOW FITTING
4	1	320335–004	RELIEF VALVE KIT	9	1	320335–010	O–RING
5	1	320335–005	MOTOR	10	1	200545	BREATHER CAP

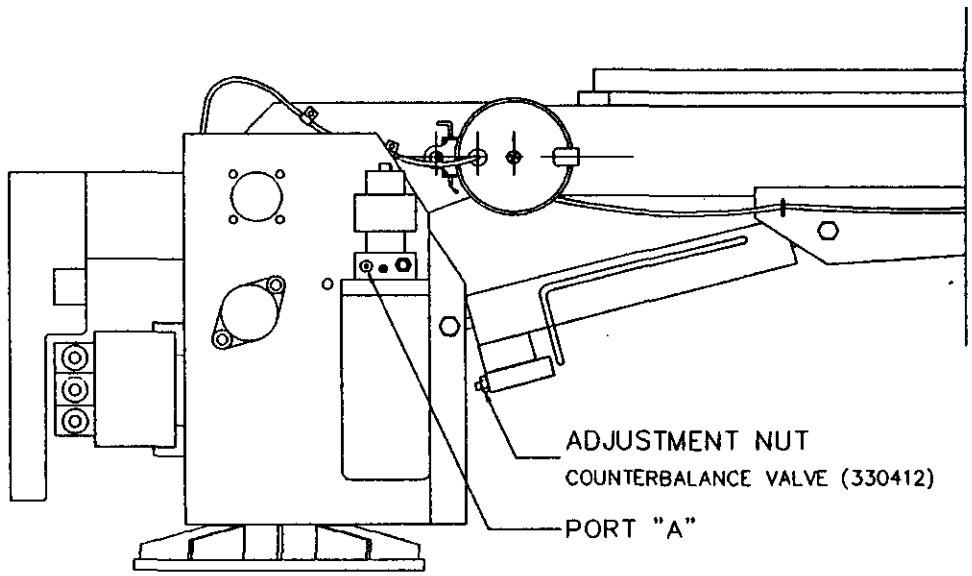
AW–320335
HYDRAULIC PUMP & RESERVOIR



ITEM	QTY	P/N	DESCRIPTION	ITEM	QTY	P/N	DESCRIPTION
1	1	320336-005	ADAPTER KIT	6	1	320336-004	RESERVOIR KIT
2	1	320336-002	RETURN PORT PLUG KIT	7	1	320335-007	MTG. BRACKET KIT
3	1	320335-003	PUMP KIT	8	1	320335-008	ELBOW FITTING
4	1	320336-003	RELIEF VALVE KIT	9	1	320335-010	O-RING
5	1	320335-005	MOTOR	10	1	200545	BREATHER CAP

AW-320336
HYDRAULIC PUMP & RESERVOIR

COUNTERBALANCE VALVE SETTING
3203 SERIES



CAUTION:

IF COUNTERBALANCE VALVE IS REPLACED, IT MUST HAVE CORRECT PRESSURE SETTING BEFORE CRANE IS IN SAFE WORKING CONDITION.

IMPORTANT

No load must be on crane boom and booms must not be extended during gauge installation and removal procedure.

Valve Setting

To set counterbalance valve (330412), remove plug (5/16" Allen wrench) from port "A" of hydraulic pump. Install a pressure gauge of 2500 psi capacity minimum into the port (-6 O-ring port).

After installed, boom up until boom cylinder is fully extended. Next, boom down at approximately 2 second intervals while reading pressure gauge. Loosen nut at rear of valve and adjust 3/16" Allen screw and tighten nut. Proceed again until pressure reading is a constant 1000 psi. If valve is not set and boom is down, boom up and try again.
Remove gauge and replace plug when adjustment is complete.

Note: **3203 PRX extendible boom cylinder (202711) requires no adjustment to counterbalance valve if replaced.**

3203 PRX TROUBLESHOOTING GUIDE

1 CRANE FAILS TO OPERATE (ALL FUNCTIONS)

A.CHECK POWER TO CRANE - 12V TO GROUND AT UPPER LEFT POWER TERMINAL OF PUMP RELAY

1. IF OK GO TO B.
2. IF NOT CHECK CONTINUITY BACK TO BATTERY AT TWECO AND BATTERY CONNECTIONS.

B.IF THERE IS POWER AT PUMP RELAY (LEFT SIDE) AND NO FUNCTIONS ARE OPERABLE THE MOST LIKELY CAUSE IS IN THE CONTROL CIRCUITS (PENDANT OR RECEPTACLE).

1. VERIFY BY TOUCHING JUMPER FROM HOT SIDE OF PUMP RELAY TO LEFT SIDE CONTROL TERMINAL(SMALL) ON PUMP RELAY. PUMP SHOULD RUN BUT CRANE SHOULD NOT MOVE UNLESS A VALVE IS STUCK OPEN. ALSO TEST BY JUMPING FROM HOT SIDE OF PUMP RELAY TO LEFT SIDE CONTROL TERMINAL OF HOIST DOWN RELAY. HOIST SHOULD OPERATE DOWN.

C.IF PREVIOUS TESTS ARE OK, THEN REMOVE PENDANT AND CHECK AT RECEPTACLE ON CRANE WITH JUMPER AND TEST LIGHT.

1. CHECK FOR VOLTAGE FROM PIN "D" OF SOCKET TO GROUND.
   i. IF NOT SUCCESSFUL, THEN RECEPTACLE ASSEMBLY IS BAD.
   ii. IF OK, JUMPER FROM "D" TO "F" (HOIST DOWN), OR "D" TO "J" (PUMP). OTHER FUNCTIONS CAN BE CHECKED ALSO BY PROBING RECEPTACLE WITH JUMPER. SEE AW-320452 PG 7-6.0.0. HYDRAULIC FUNCTIONS REQUIRE THAT PUMP AND VALVE ARE BOTH ACTIVATED.

D.IF RECEPTACLE TESTS ARE OK, THEN FAULT IS IN PENDANT HOT WIRE EITHER A BREAK IN THE WIRE OR IT IS NOT ATTACHED INSIDE OF THE PENDANT (GOES TO CENTER TERMINAL OF ROTATION SWITCH FROM PIN "D").

2 HOIST UP, BOOM DOWN, & EXTEND (OUT) DON'T OPERATE BUT ALL OTHER FUNCTIONS OPERATE. PUMP RUNS WHEN BOOM DOWN AND EXTEND FUNCTIONS ARE TRIED. THESE FUNCTIONS ARE TIED INTO THE ANTI-TWO BLOCK AND CRANE OVERLOAD SENSOR SYSTEMS. THE CRANE IS SHUT DOWN WHEN THE SENSORS OPEN THE GROUND CIRCUIT FROM THE FUNCTIONS.

A.CHECK TWO-BLOCK BAIL AND SWITCH AT END OF BOOM TO VERIFY THEY MOVE FREELY. SWITCH SHOULD MAKE AUDIBLE CLICK WHEN OPERATED. TRY OPERATING CRANE WHILE PULLING CORD OUT OF CORD REEL TO CHECK FOR POSSIBLE BAD SPOTS IN CORD REEL SLIP RINGS.

B.CHECK LOAD SENSOR PRESSURE SWITCH - LOCATE TIMING RELAY ON LOWER RIGHT HAND CORNER OF RELAY PANEL. DISCONNECT WIRE COMING FROM PRESSURE SWITCH AT TERMINAL #6 OF TIMING RELAY. IF CRANE OPERATES REPLACE PRESSURE SWITCH.

3203 PRX TROUBLESHOOTING GUIDE

WARNING: BE SURE BOOM IS SUPPORTED BEFORE REMOVING SWITCH OR BOOM WILL FALL.

C. IF PREVIOUS TEST FAILS, THEN TEST TIMING RELAY BY REMOVING WIRE FROM TERMINAL #1 OF TIMING RELAY. IF SUCCESSFUL, CLEAN THE AREA AROUND TERMINALS 6 AND 7 AND RECHECK. IF TEST STILL FAILS, REPLACE TIMING RELAY.

D. TEST DROP OUT RELAY - PULL ORANGE WIRE FROM TERMINAL #1 ON THE TIMING RELAY. IF CRANE OPERATES, GROUND ORANGE WIRE TO VERIFY DROP OUT RELAY IS WORKING, THEN REATTACH TO TERMINAL #1. IF CRANE STILL DOES NOT OPERATE, PULL SOCKET OFF RELAY. FIND WHERE WIRE FROM CORD REEL FEEDS INTO RELAY SOCKET. JUMPER FROM THIS TERMINAL OF SOCKET TO GROUND. IF CRANE OPERATES, REPLACE RELAY. IF CRANE STILL DOES NOT OPERATE, THEN CHECK CONTINUITY THROUGH CORD REEL AND TWO-BLOCK SWITCH.

3 HOIST FAILS TO OPERATE IN EITHER DIRECTION BUT ALL HYDRAULIC FUNCTIONS OPERATE.

A. LISTEN FOR RELAY CLICK FOR HOIST UP AND HOIST DOWN - IF RELAY DOESN'T CLICK CHECK FOR VOLTAGE AT LEFT SIDE CONTROL TERMINAL(SMALL) WHEN FUNCTION IS SELECTED, IF NO VOLTAGE THEN USE PROCEDURE FOR CHECKING RECEPTACLE AND PENDANT GIVEN IN 1.C.

B. CHECK TERMINAL A2 OF HOIST MOTOR FOR POWER WHEN OPERATING EITHER HOIST UP OR HOIST DOWN. IF THERE IS VOLTAGE BUT MOTOR DOES NOT TRY TO RUN OR GET HOT THEN MOTOR IS BAD. IF MOTOR TRIES TO RUN OR GETS HOT THEN VOLTAGE READING AT A2 WILL BE LESS THAN 12 VOLTS AND MOTOR MAY BE DIRTY OR HAVE OIL IN IT FROM FAILED OIL SEAL.

C. IF THERE IS NO POWER AT A2 ONLY ON HOIST UP THEN PUT TEST LIGHT ACROSS BOTTOM POWER TERMINALS OF HOIST DOWN RELAY. IF LIGHT COMES ON WHEN HOIST UP IS PICKED, THEN HOIST DOWN RELAY IS BAD. IF TEST LIGHT DOESN'T LIGHT, PUT LIGHT ACROSS UPPER POWER TERMINALS OF HOIST UP RELAY AND PICK HOIST UP. IF LIGHT COMES ON, REPLACE HOIST UP RELAY.

D. IF THERE IS NO POWER AT A2 ONLY ON HOIST DOWN THEN PUT TEST LIGHT ACROSS BOTTOM POWER TERMINALS OF HOIST UP RELAY. IF LIGHT COMES ON WHEN HOIST DOWN IS PICKED, THEN HOIST UP RELAY IS BAD. IF TEST LIGHT DOESN'T LIGHT, PUT LIGHT ACROSS UPPER POWER TERMINALS OF HOIST DOWN RELAY AND PICK HOIST DOWN. IF LIGHT COMES ON, REPLACE HOIST DOWN RELAY.

NOTE: THERE ARE OTHER WAYS TO TEST FOR CIRCUIT CONTINUITY SUCH AS USING VOLT METER OR TEST LIGHT AND FOLLOWING CIRCUIT THROUGH BY TESTING AT EACH POINT FOR VOLTAGE TO GROUND.

3203 PRX TROUBLESHOOTING GUIDE

4 ALL HYDRAULIC FUNCTIONS INOPERABLE.

A.PUMP DOES NOT RUN, PUMP RELAY DOES NOT CLICK. JUMPER FROM UPPER LEFT POWER TERMINAL OF PUMP RELAY TO LEFT SIDE RELAY CONTROL TERMINAL. IF RELAY DOESN'T CLICK, REPLACE RELAY. IF RELAY CLICKS AND PUMP RUNS, CHECK RECEPTACLE AND PENDANT. (SEE 1.C.)

B.IF RELAY CLICKS BUT PUMP DOESN'T RUN, CHECK FOR VOLTAGE AT PUMP MOTOR TERMINAL. IF NO VOLTAGE REPLACE PUMP RELAY. IF VOLTAGE IS PRESENT, PUMP MOTOR IS BAD OR PUMP IS LOCKED. IF PUMP IS LOCKED MOTOR WILL GET HOT AND VOLTAGE AT MOTOR TERMINAL WILL MUCH LOWER THAN 12 VOLTS.

5 PUMP RUNS BUT SINGLE HYDRAULIC FUNCTION DOESN'T WORK.

A.SELECT INOPERABLE FUNCTION WITH PENDANT SWITCH AND PUSH MANUAL OVERRIDE OF VALVE IN QUESTION-IF FUNCTION WORKS USE PROCEDURE 1.C. TO CHECK RECEPTACLE AND PENDANT. IF RECEPTACLE CHECKS OUT AND FUNCTION CAN NOT BE RUN BY USING JUMPER AT RECEPTACLE, THEN VALVE OR HARNESS MAY BE BAD. CHECK FOR 12 VOLT AT VALVE JUNCTION BOX. IF NO VOLTAGE PRESENT-CHECK FOR LOOSE WIRE AT BACK OF RECEPTACLE OR TERMINAL STRIP.

B.IF VOLTAGE IS PRESENT AT VALVE, THEN VALVE MAY BE BAD. THIS CAN BE CHECKED BY SWAPPING VALVE POSITIONS ON MANIFOLD BUT LEAVING WIRING ATTACHED. IF TROUBLE MOVES WITH VALVE, THEN VALVE IS BAD.

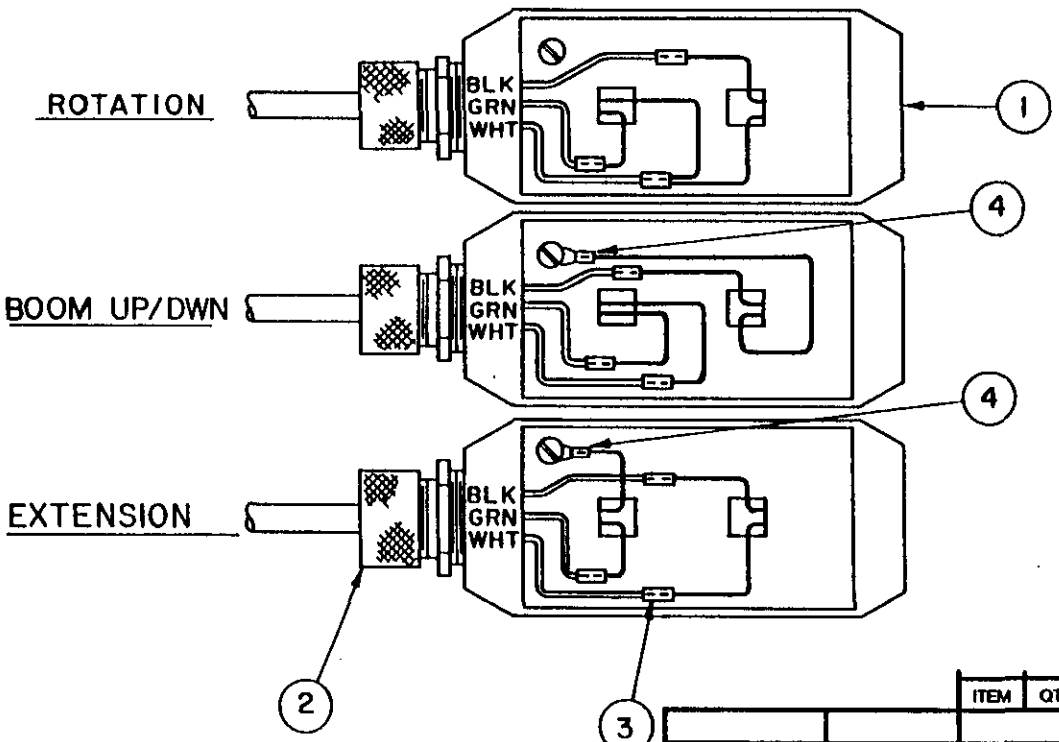
C.IF BOOM RETRACT OR BOOM DOWN FUNCTIONS DON'T WORK, THEN CHECK FOR LOW HYDRAULIC PRESSURE AT PUMP. THESE TWO FUNCTIONS HAVE THE HIGHEST PRESSURE REQUIREMENTS FOR AN UNLOADED CRANE BECAUSE THEY MUST OVERCOME THE SET PRESSURES OF THE COUNTER BALANCE VALVES.

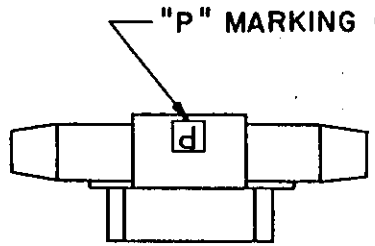
D.IF HYDRAULIC FUNCTIONS ARE MORE INTERMITTENT WHEN CYLINDERS ARE EXTENDED, THEN CHECK HYDRAULIC FLUID LEVEL.

E.BOOM LOCKS UP AND WON'T COME DOWN WHEN FULLY RAISED - THIS IS CAUSED BY TOO HIGH PUMP PRESSURE WHICH CAUSES OVERLOAD SYSTEM TO ACTIVATE-SET RELIEF PRESSURE AT 2100 PSI. UNLOCK BOOM BY DISCONNECTING WIRE FROM TERMINAL #6 OF TIMING RELAY. RECONNECT WIRE AFTER BOOM IS MOVED. IF PRESSURE IS CORRECT AND PROBLEM CONTINUES, THEN REPLACE OVERLOAD PRESSURE SWITCH.

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D





TOP VIEW

7-1.0.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | .XX ± .040
FRACTIONAL ± 1/16 | .XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING.
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NEXT ASS'Y

DRAWN BY R.D
DATE 9/10/87
CHK'D BY
DATE
ENG. BY
DATE

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9475

TITLE
WIRING DIAGRAM, SOLENOID VALVES
3203-PRX

SCALE	SIZE	DRAWING NO.	REVISION
	B	AW-320480	

WEIGHT

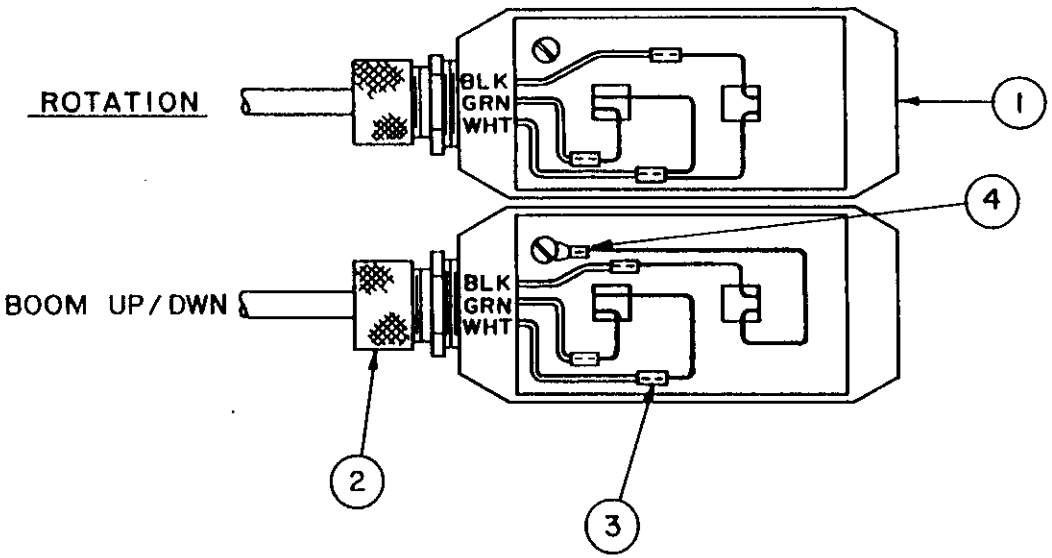
SHEET 1 OF 1

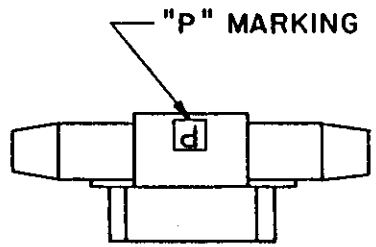
WIRING DIAGRAM-SOLENOID VALVES 3203-PRX
AW-320480

ITEM	QTY.	PART NO.	DESCRIPTION
1	3	300204	SOLENOID VALVE (REF.)
2	3	642908	CORD CONNECTOR
3	9	001102	TERMINAL, WIRE
4	2	000300	TERMINAL WIRE

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS		
	DESCRIPTION	DATE	APP'D





TOP VIEW

7-3.1.0

ITEM	QTY	D/S	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED.
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FRACTIONAL ± 1/16 | .XXX ± .010
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NEXT ASS'Y

DRAWN BY R.O.
DATE 9/10/87
CHK'D BY
DATE
ENG. BY
DATE

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TITLE
WIRING DIAGRAM, SOLENOID VALVES
3203-PR

SCALE	SIZE	DRAWING NO.	REVISION
	B	AW-32048	

WEIGHT

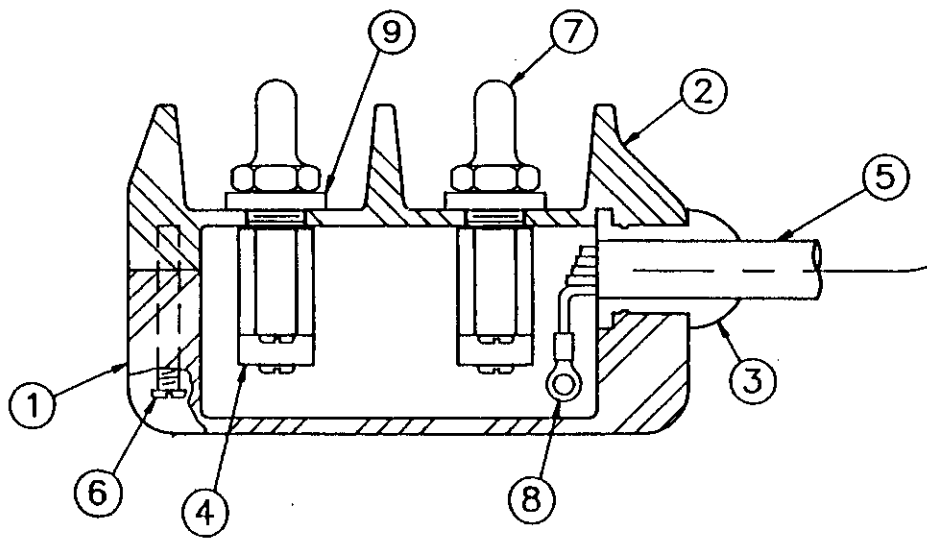
SHEET 1 OF 1

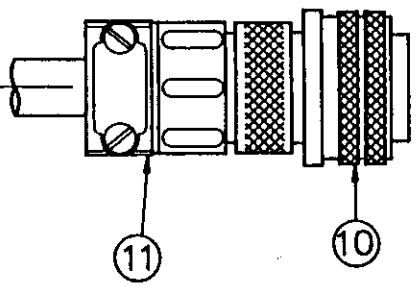
WIRING DIAGRAM, SOLENOID VALVES 3202-PR
AW-320481

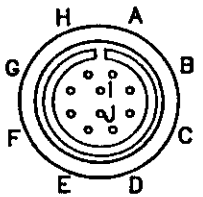
ITEM	QTY.	PART NO.	DESCRIPTION
1	2	300204	SOLENOID VALE (REF.)
2	2	642908	CORD CONNECTOR
3	6	001102	TERMINAL WIRE, SPLICE
4	1	000300	TERMINAL, WIRE

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS		
	DESCRIPTION	DATE	APP'D

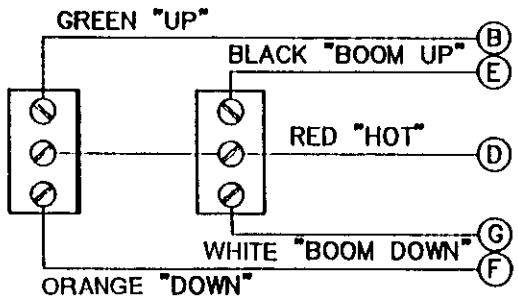






ITEM	QTY	D/S	PART NO.	DESCRIPTION
11	1	·	300412	CLAMP, CABLE
10	1	·	300411	PLUG, CONNECTOR
9	2	·	370135	SEAL, WASHER
8	7	·	000101	TERMINAL, RING
7	2	·	640302	BOOT
6	4	·	001205	SCREW SLOTTED PAN HD #8 x 7/8"
5	1	·	370133	CABLE, CONDUCTOR (17')
4	2	·	622000	SWITCH, TOGGLE
3	1	·	370132	GASKET, PENDANT HOUSING
2	1	·	370131	COVER, PENDANT
1	1	·	370130	BOX, PENDANT

LIST OF MATERIAL



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DRAWN BY L.Eubanks
DATE 12-18-87
CHK'D BY
DATE
ENG. BY
DATE

NEXT ASS'Y

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9260 BROKEN ARROW EXPRESSWAY • 918-627-9475

TITLE
PENDANT ASS'Y 3203 P

SCALE	SIZE	DRAWING NO.	REVISION
·	B	AW320500	·

WEIGHT

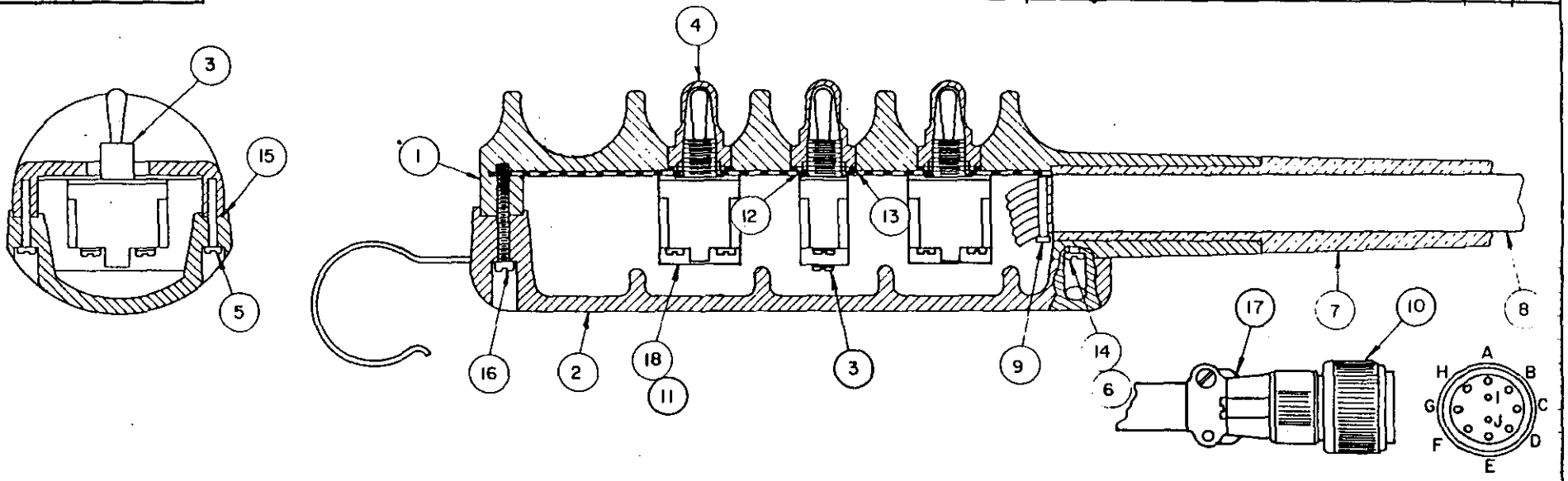
SHEET 1 OF 1

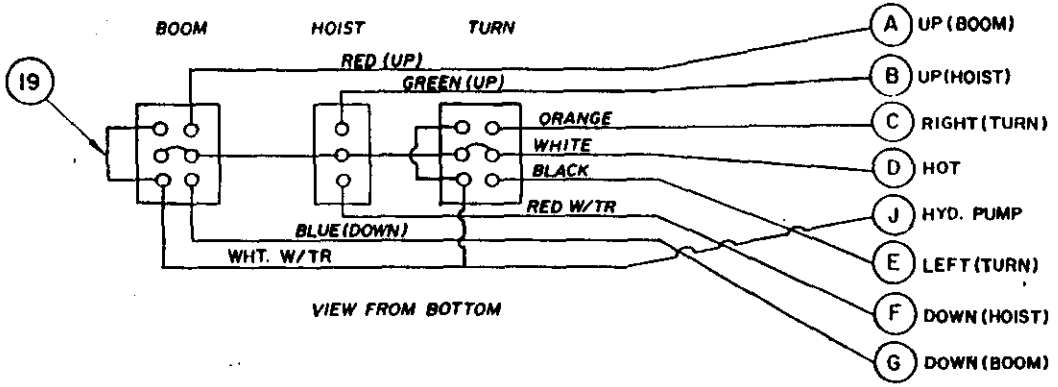
7-4.0.0

61253

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D





ITEM	QTY	PART NO	DESCRIPTION
19	2	636600	BAR, JUMPER
18	2	634200	TOGGLE SWITCH
17	1	300412	CLAMP, CABLE
16	1	004700	SCREW, SLT. PAN HD. S.T. 8 X 1 1/2
15	21"	800580	3/4" WIDTH OKONITE RUBBER TAPE
14	4	019700	WASHER, SPLIT LOCK 8 PLATED
13	3	642100	O-RING
12	3	675271	NUT
11	15	000101	TERMINALS T&B
10	1	300411	PLUG, ELECTRICAL
9	2	634401	TY-RAP CABLE TIE
8	1	800630-001	CONDUCTOR CABLE (17')
7	1	633801	CABLE ADAPTER
6	2	005101	SCREW, S.T.-SLT. PAN HD 8 X 1 1/4
5	10	005001	SCREW, S.T.-SLT. PAN HD. 8 X 3/4
4	3	640302	BOOT-TOGGLE SWITCH
3	1	622000	TOGGLE SWITCH
2	1	631700	BOTTOM COVER
1	1	631602	PENDANT HOUSING

QUANTITY — LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES.
TOLERANCES UNLESS OTHERWISE SPECIFIED
ANGLES ± 1°
FRACTIONAL ± 1-16 | XX ± .40 | XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5 1973

DRAWN BY RLS
DATE 10-7-87
CHK'D BY
DATE
ENG. BY
DATE

NEXT ASS'Y

AUTO CRANE COMPANY
P.O. BOX 45548 • TULSA, OKLAHOMA 74145
9280 BROKEN ARROW EXPRESSWAY • 918 627-9475

TITLE
PENDANT ASSEMBLY PR

SCALE	SIZE	DRAWING NO	REVISION
~	C	AW-320451	

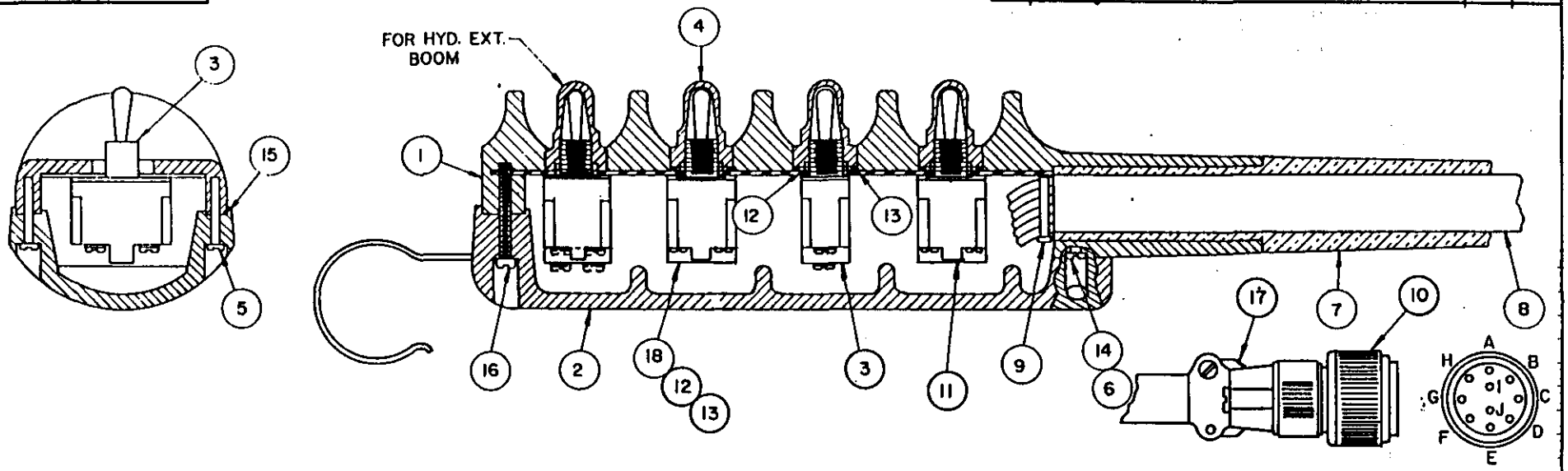
WEIGHT

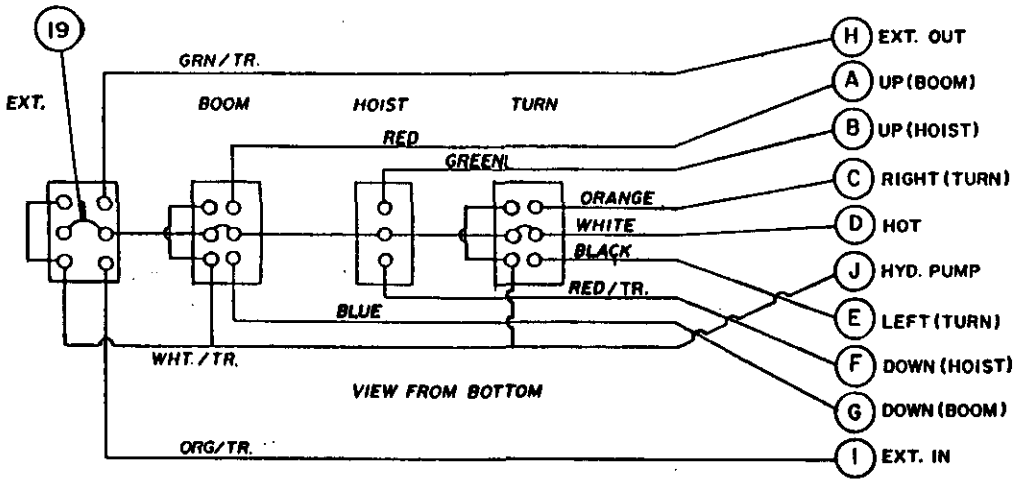
1 OF 1

7-5.0.0

FIXTURE NO	FINISH NO

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D





ITEM	QTY	PART NO.	DESCRIPTION
19	3	636600	BAR, JUMPER
18	3	634200	TOGGLE SWITCH
17	1	300412	CLAMP, CABLE
16	1	004700	SCREW, SLT. PAN HD. S.T. 8 X 1 1/2
15	21"	800580	3/4" WIDTH OKONITE RUBBER TAPE
14	4	019700	WASHER, SPLIT LOCK 8 PLATED
13	4	642100	O-RING
12	4	675271	NUT
11	24	000101	TERMINALS T&B
10	1	300411	PLUG, ELECTRICAL
9	2	634401	TY-RAP CABLE TIE
8	1	800632-007	CONDUCTOR CABLE (17')
7	1	633801	CABLE ADAPTER
6	2	005101	SCREW, S.T.-SLT. PAN HD 8 X 1 1/4
5	10	005001	SCREW, S.T.-SLT. PAN HD. 8 X 3/4
4	4	640302	BOOT-TOGGLE SWITCH
3	1	622000	TOGGLE SWITCH
2	1	631700	BOTTOM COVER
1	1	631601	PENDANT HOUSING

LIST OF MATERIAL

QUANTITY

NEXT ASS'Y

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES. TOLERANCES UNLESS OTHERWISE SPECIFIED. ANGLES ± 1/2° | FRACTIONAL ± 1/16 | .XX ± .02 | .XXX ± .010 REMOVE ALL BURRS AND SHARP EDGES. DO NOT SCALE THIS DRAWING. TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

DRAWN BY DATE 10/7/87 CHK'D BY DATE ENG. BY DATE

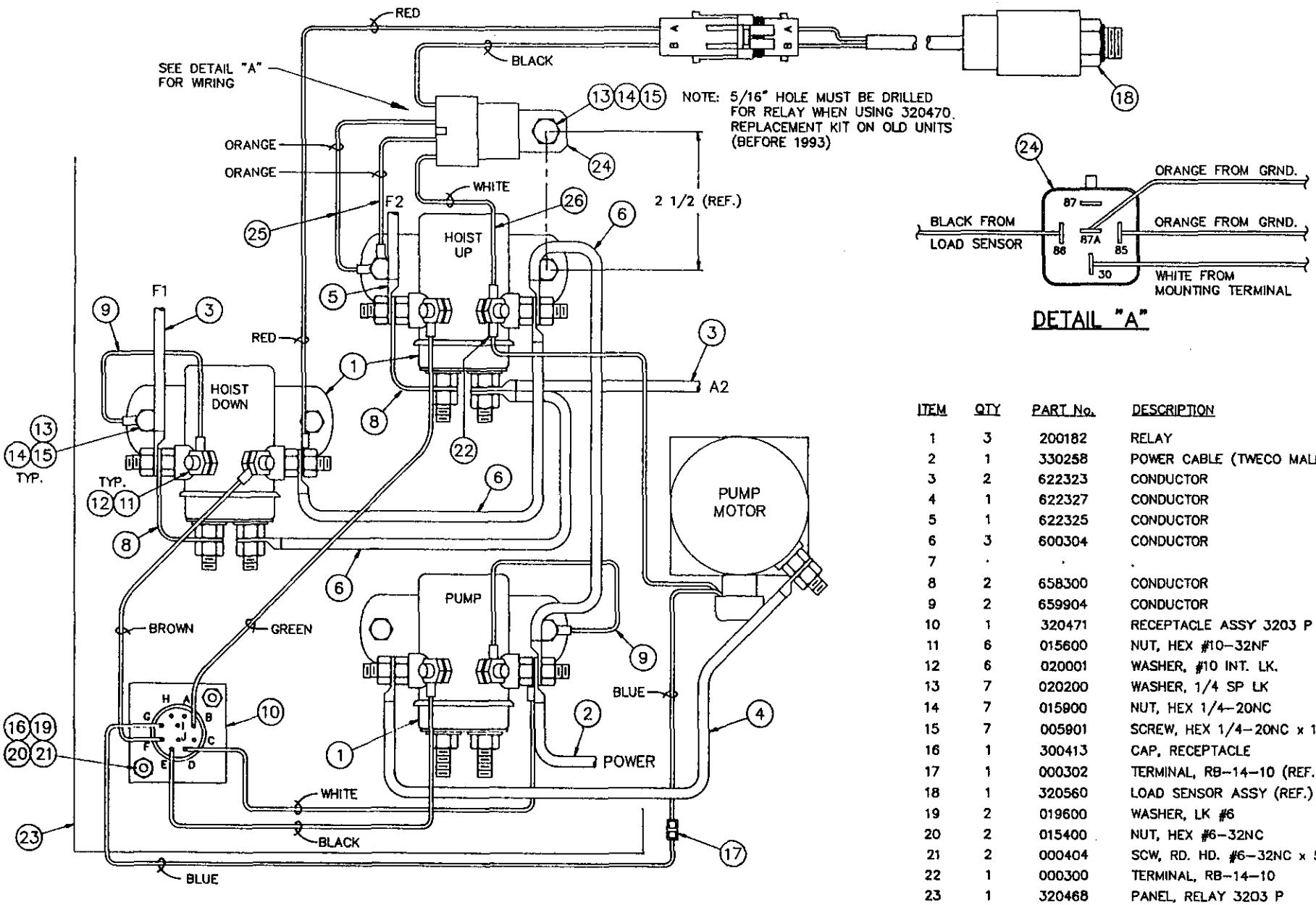
AUTO CRANE COMPANY
P.O. BOX 45640 • TULSA, OKLAHOMA 74145
8200 BROKEN ARROW EXPRESSWAY • 918-627-0475

TITLE: PENDANT ASSEMBLY PRX

SCALE	SIZE	DRAWING NO.	REVISION
~	C	AW-320452	

WEIGHT | SHEET 1 OF 1

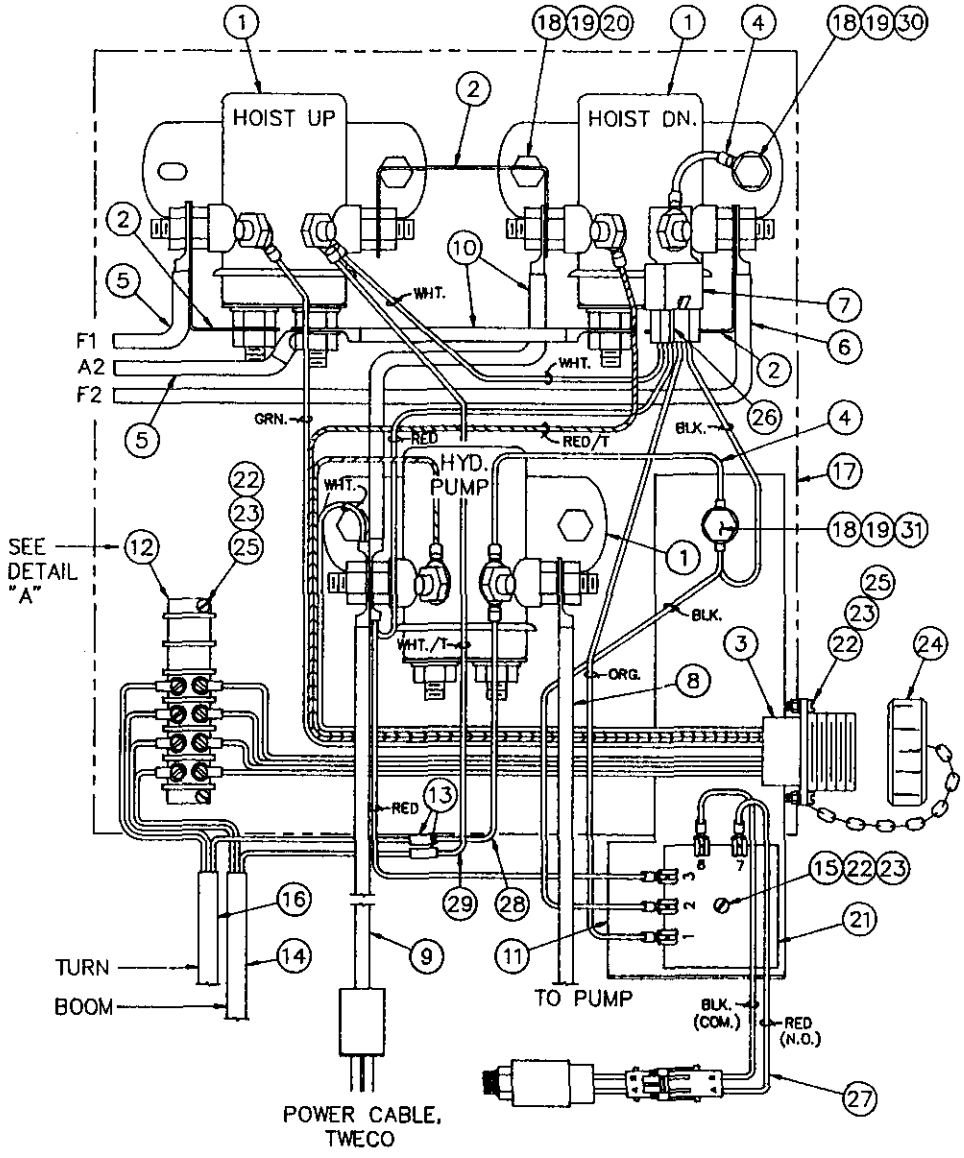
7-6.0.0

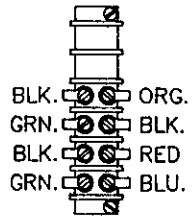


DETAIL "A"

ITEM	QTY	PART No.	DESCRIPTION
1	3	200182	RELAY
2	1	330258	POWER CABLE (TWECO MALE)
3	2	622323	CONDUCTOR
4	1	622327	CONDUCTOR
5	1	622325	CONDUCTOR
6	3	600304	CONDUCTOR
7	.	.	.
8	2	658300	CONDUCTOR
9	2	659904	CONDUCTOR
10	1	320471	RECEPTACLE ASSY 3203 P
11	6	015600	NUT, HEX #10-32NF
12	6	020001	WASHER, #10 INT. LK.
13	7	020200	WASHER, 1/4 SP LK
14	7	015900	NUT, HEX 1/4-20NC
15	7	005901	SCREW, HEX 1/4-20NC x 1/2
16	1	300413	CAP, RECEPTACLE
17	1	000302	TERMINAL, RB-14-10 (REF.)
18	1	320560	LOAD SENSOR ASSY (REF.)
19	2	019600	WASHER, LK #6
20	2	015400	NUT, HEX #6-32NC
21	2	000404	SCW, RD. HD. #6-32NC x 5/8
22	1	000300	TERMINAL, RB-14-10
23	1	320468	PANEL, RELAY 3203 P
24	1	320355	RELAY, DROP OUT (BOSCH)
25	1	320558	CONDUCTOR
26	1	320559	CONDUCTOR

AW-320454
RELAY ASSEMBLY 3203 P



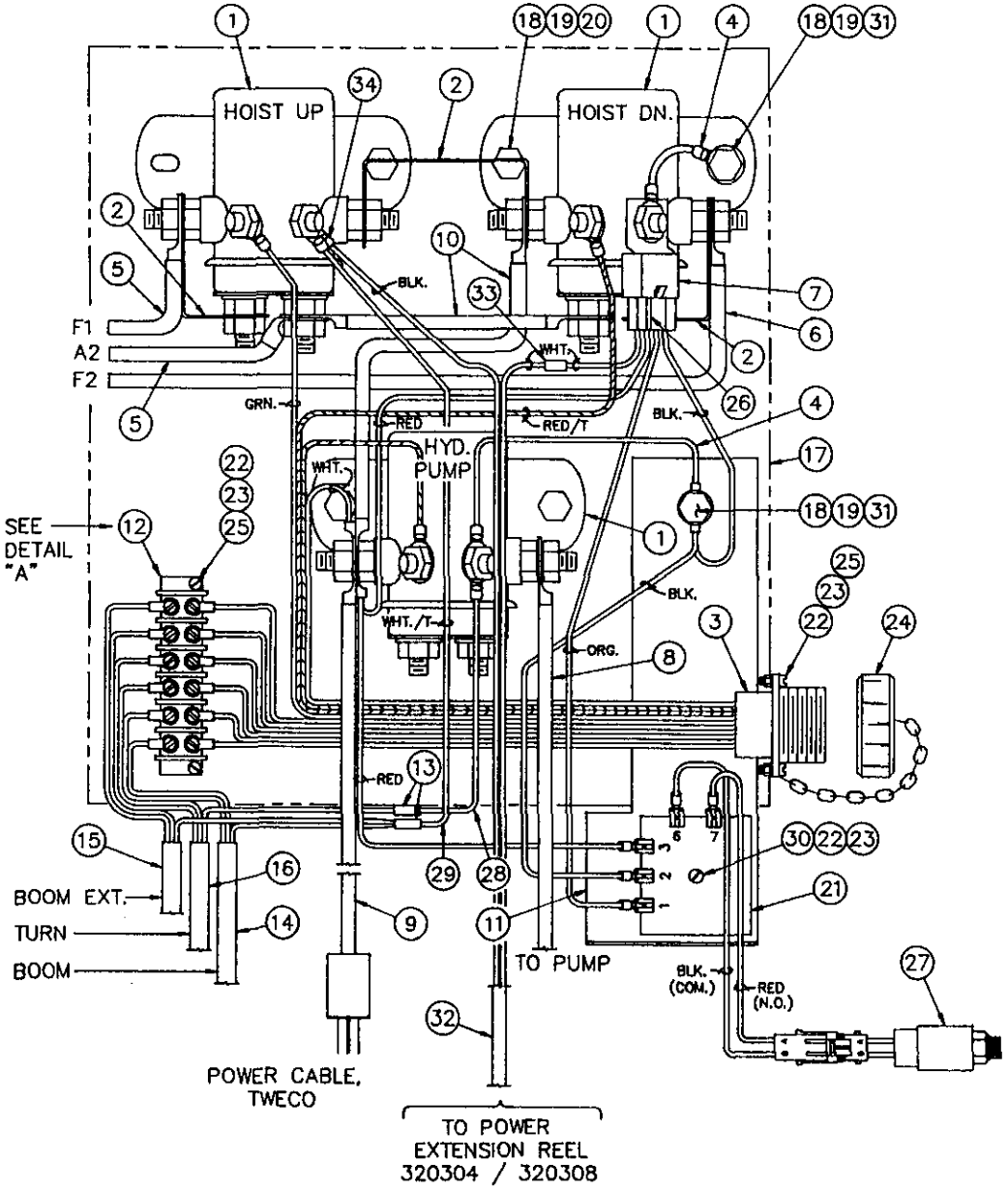


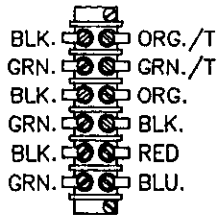
REF. HOOK UP FOR ITEM 12

DETAIL "A"

ITEM	QTY	PART No.	DESCRIPTION
1	3	200182	RELAY
2	3	658300	CONDUCTOR
3	1	330285	RECEPTACLE ASS'Y
4	2	659904	CONDUCTOR
5	2	622323	CONDUCTOR
6	1	622324	CONDUCTOR
7	1	320355	RELAY, DROP OUT
8	1	330257	CONDUCTOR
9	1	330258	TWECO, CONNECTOR ASS'Y (REF)
10	2	600304	CONDUCTOR
11	1	320479	PLATE, RELAY PANEL
12	1	635203	BOARD, TERMINAL
13	2	001102	SPLICE, TERMINAL WIRE
14	1	330261	CONDUCTOR ASS'Y-BOOM(16")
15	1	002602	SCREW, #6-32 x 1 1/2
16	1	330259	CONDUCTOR ASS'Y-TURN(14")
17	1	330249	BRACKET, RELAY PANEL
18	6	015900	NUT, 1/4-20
19	6	020200	WASHER, SPLK 1/4
20	4	005901	SCREW, 1/4-20 x 1/2 G5
21	1	320351	RELAY, SOLID STATE TIMING
22	5	015400	NUT, HEX. #6-32
23	5	019600	WASHER, SPLK. #6
24	1	300413	CAP, RECEPTACLE
25	4	000404	SCREW, #6-32 x 5/8
26	1	320358	PLUG, DROP OUT RELAY
27	1	320472	LOAD SENSOR ASS'Y (REF.)
28	1	320365	CONDUCTOR
29	1	320366	CONDUCTOR
30	2	005500	SCREW, 1/4-20 x 3/4 G5

AW-320447
RELAY ASSEMBLY 3203 PR





REF. HOOK UP FOR ITEM 12

DETAIL "A"

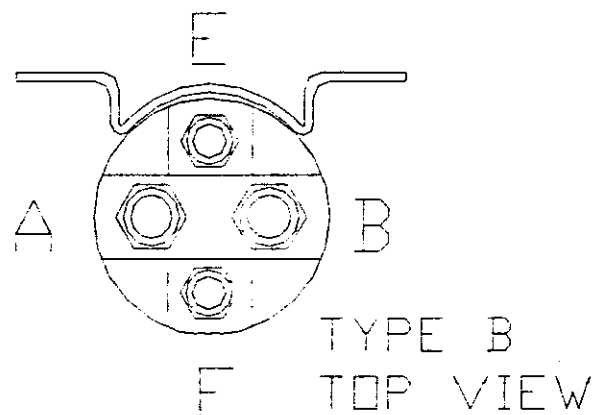
ITEM	QTY	PART No.	DESCRIPTION
1	3	200182	RELAY
2	3	658300	CONDUCTOR
3	1	330256	RECEPTACLE ASS'Y
4	2	659904	CONDUCTOR
5	2	622323	CONDUCTOR
6	1	622324	CONDUCTOR
7	1	320355	RELAY, DROP OUT
8	1	330257	CONDUCTOR
9	1	330258	TWECO, CONNECTOR ASS'Y (REF)
10	2	600304	CONDUCTOR
11	1	320479	PLATE, RELAY PANEL
12	1	635203	BOARD, TERMINAL
13	2	001102	SPLICE, TERMINAL WIRE
14	1	330261	CONDUCTOR ASS'Y-BOOM(16")
15	1	330260	CONDUCTOR ASS'Y-BOOM EXT.(18")
16	1	330259	CONDUCTOR ASS'Y-TURN(14")
17	1	330249	BRACKET, RELAY PANEL
18	6	015900	NUT, 1/4-20
19	6	020200	WASHER, SPLK 1/4
20	4	005901	SCREW, 1/4-20 x 1/2 G5
21	1	320351	RELAY, SOLID STATE TIMING
22	5	015400	NUT, HEX. #6-32
23	5	019600	WASHER, SPLK. #6
24	1	300413	CAP, RECEPTACLE
25	4	000404	SCREW, #6-32 x 5/8
26	1	320358	PLUG, DROP OUT RELAY
27	1	320472	LOAD SENSOR ASS'Y (REF.)
28	1	320365	CONDUCTOR
29	1	320366	CONDUCTOR
30	1	002602	SCREW, #6-32 x 1 1/2
31	2	005500	SCREW, 1/4-20 x 3/4 G5
32	3 FT	800626	#16 AWG 2/C, 300V TYPE SJO 90°C
33	1	000302	TERMINAL, WIRE (BUTT SPLICE) 2RB14
34	1	000300	TERMINAL, WIRE RB14-10

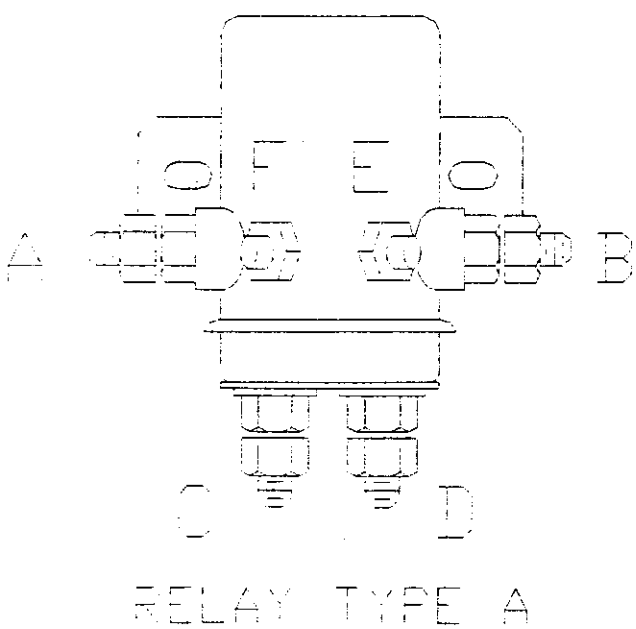
AW-320457
RELAY ASSEMBLY 3203 PRX

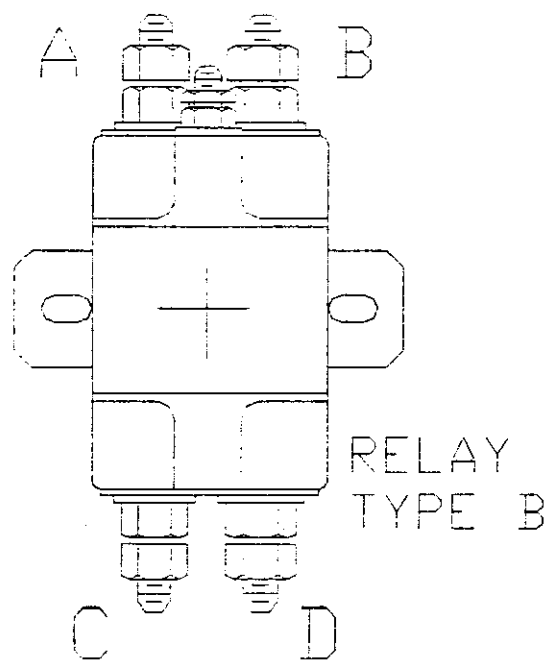
RELAY CHECKING PROCEDURE

NOTE: *The following procedure is performed with relays completely disconnected from all wires on motor circuits and ground wires. These circuits can give you false readings sometimes.*

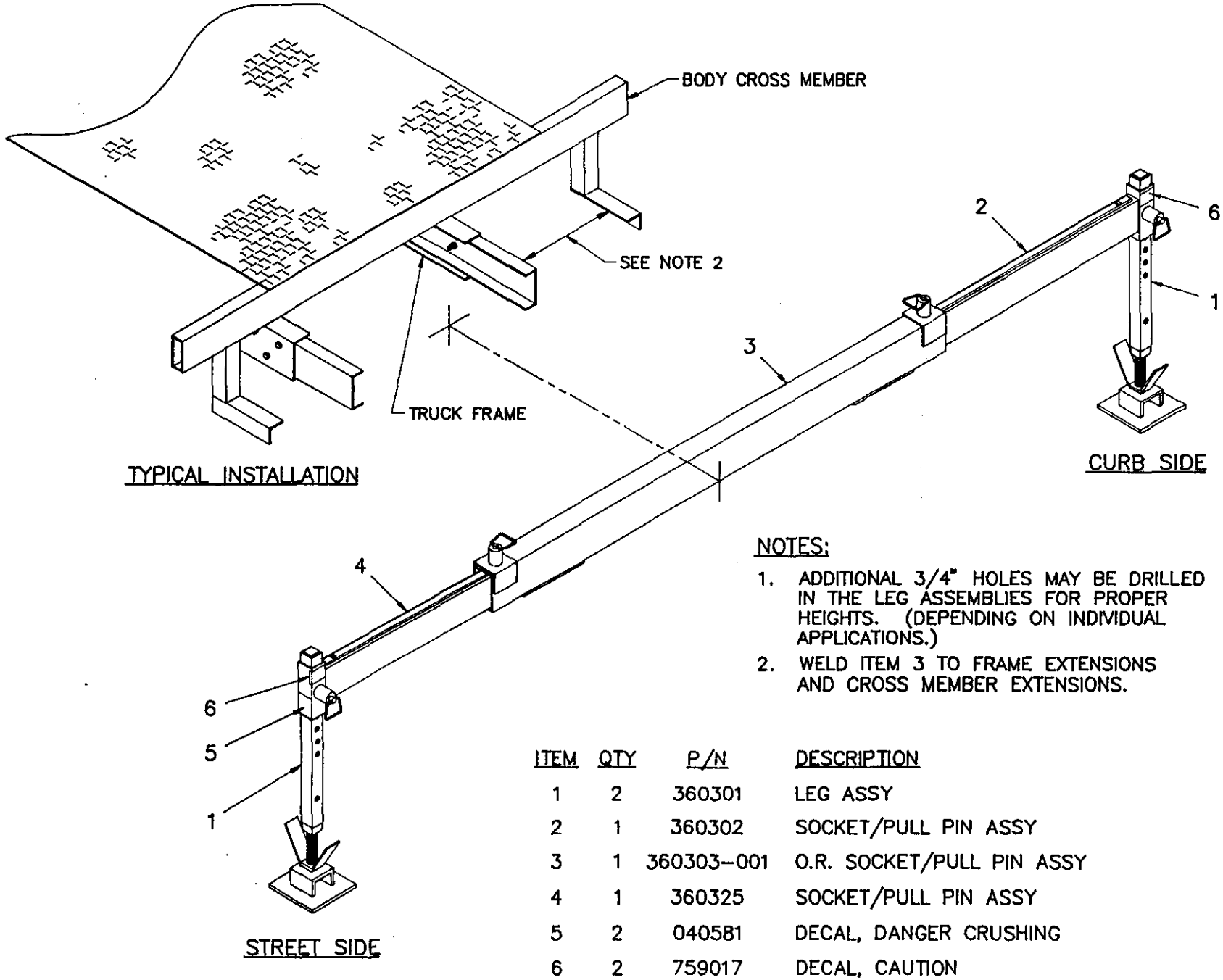
Checking a relay on this or any Auto Crane product is done in the same way, but there may be a difference in physical appearance of the relay. Shown below are two types of relays used by Auto Crane. Our relays are normally closed across the bottom posts C & D and normally open across the A & B posts. When activated, they will open across C & D and close across A & B. To activate these relays, use 12V positive and 12V negative wires and place them on posts F & E. You may place 12V+ on post F or E as long as you place 12V- on the remaining post F & E. Using an ohm meter or test light, check across posts A & B. You should get an ohm reading or your test light should be on when you have the relay activated. With the relay still activated, check across posts C & D. You should have no ohm reading or test light at this point with relay activated. (At this point, disconnect 12V+ and 12V- from posts F & E. This should let relay return to its normal position. Using your ohm meter or test light again, check the relay across posts A & B. If relay is working correctly, you should have no reading at all. Then check across posts C & D. You should have an ohm reading or test light should be on. If you get the above results, relay is okay. If you get any variation in the above explanation on the relay you are checking, check the relay again. If it still shows a difference, the relay is bad and should be replaced. .







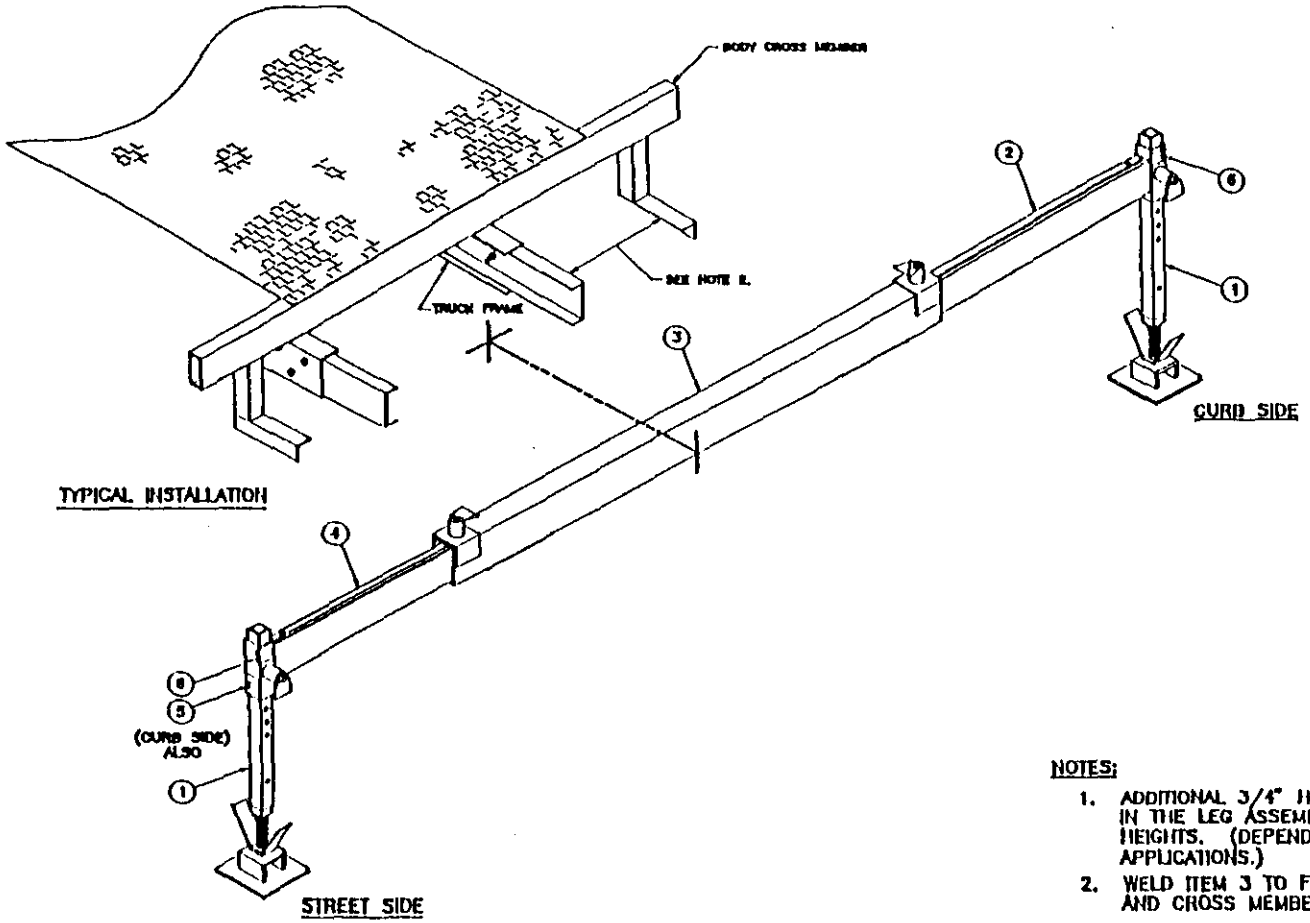
AW-360300-001
STABILIZER ASSEMBLY



NOTES:

1. ADDITIONAL 3/4" HOLES MAY BE DRILLED IN THE LEG ASSEMBLIES FOR PROPER HEIGHTS. (DEPENDING ON INDIVIDUAL APPLICATIONS.)
2. WELD ITEM 3 TO FRAME EXTENSIONS AND CROSS MEMBER EXTENSIONS.

ITEM	QTY	P/N	DESCRIPTION
1	2	360301	LEG ASSY
2	1	360302	SOCKET/PULL PIN ASSY
3	1	360303-001	O.R. SOCKET/PULL PIN ASSY
4	1	360325	SOCKET/PULL PIN ASSY
5	2	040581	DECAL, DANGER CRUSHING
6	2	759017	DECAL, CAUTION



8-2.0.0

NOTES:

1. ADDITIONAL 3/4" HOLES MAY BE DRILLED IN THE LEG ASSEMBLIES FOR PROPER HEIGHTS. (DEPENDING ON INDIVIDUAL APPLICATIONS.)
2. WELD ITEM 3 TO FRAME EXTENSIONS AND CROSS MEMBER EXTENSIONS.

ITEM	QTY	PART No.	DESCRIPTION
6	2	759017	DECAL, CAUTION
5	2	040581	DECAL, DANGER CRUSHING
4	1	725589	SOCKET/ PULL PIN ASSEMBLY (STREET SIDE)
3	1	360303-001	O.R. SOCKET/ PULL PIN ASSEMBLY
2	1	725588	SOCKET/ PULL PIN ASSEMBLY (CURB SIDE)
1	2	360301	LEG ASSEMBLY

AUTO CRANE COMPANY
P.O. BOX 500697 TULSA, OKLAHOMA 74150-0697
4707 NORTH HINGO ROAD 918-836-0463

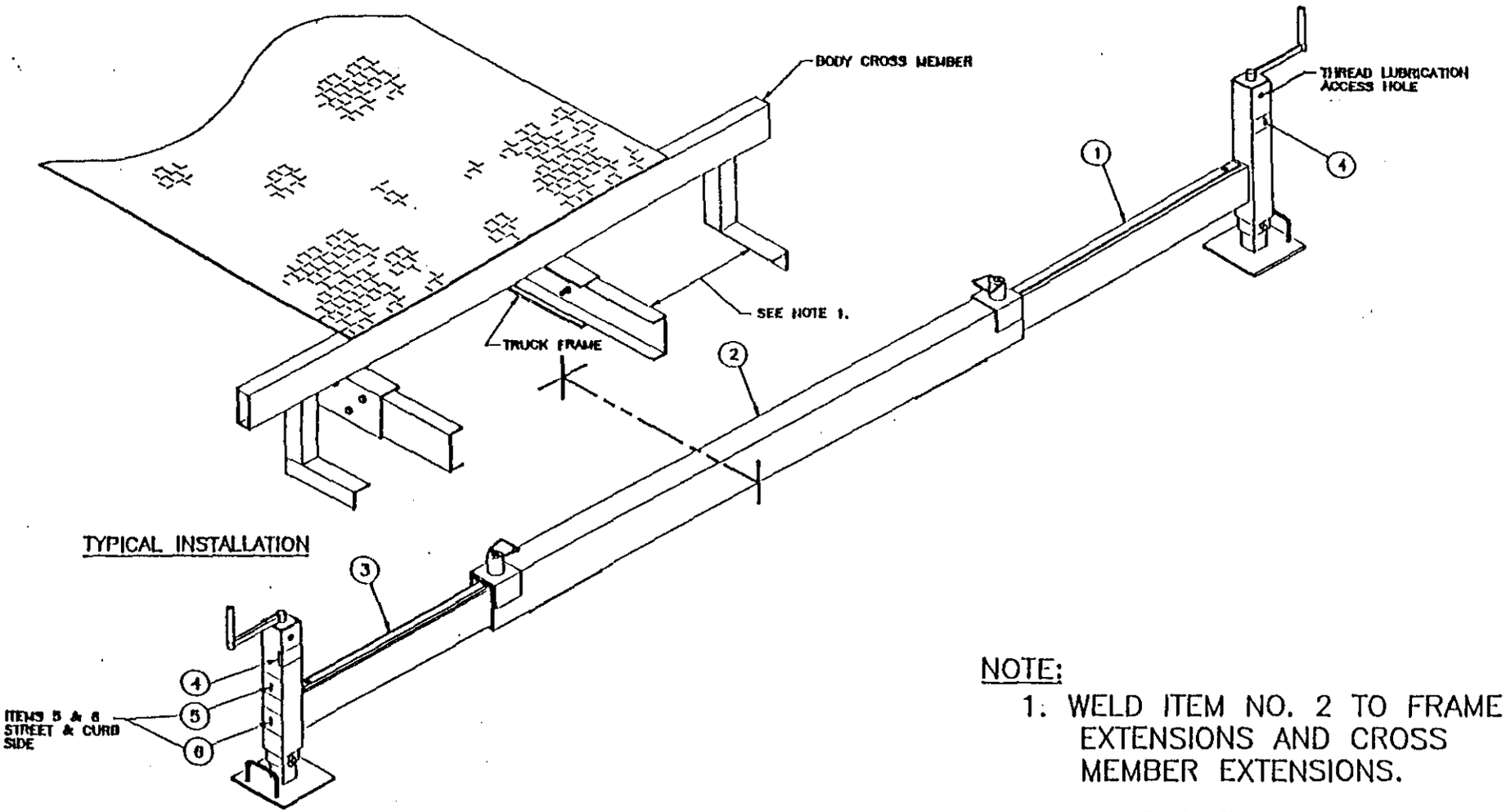
TITLE: STABILIZER ASSEMBLY

SCALE	SIZE	DRAWING NO.	REVISION
1/8	A	AW-725570	•

WEIGHT

SHEET 1 OF 1

8-3.0.0



TYPICAL INSTALLATION

NOTE:

1. WELD ITEM NO. 2 TO FRAME EXTENSIONS AND CROSS MEMBER EXTENSIONS.

ITEM	QTY	PART No.	DESCRIPTION
6	2	040581	DECAL, DANGER CRUSHING
5	2	725962	DECAL, DANGER
4	2	759017	DECAL, CAUTION
3	1	725593	LEG ASSEMBLY (STREET SIDE)
2	1	360303-001	O.R. SOCKET/ PULL PIN ASSEMBLY
1	1	725592	LEG ASSEMBLY (CURB SIDE)

AUTO CRANE COMPANY
P.O. BOX 580697 TULSA, OKLAHOMA 74158-0697
4707 NORTH HINGO ROAD 918-836-0463

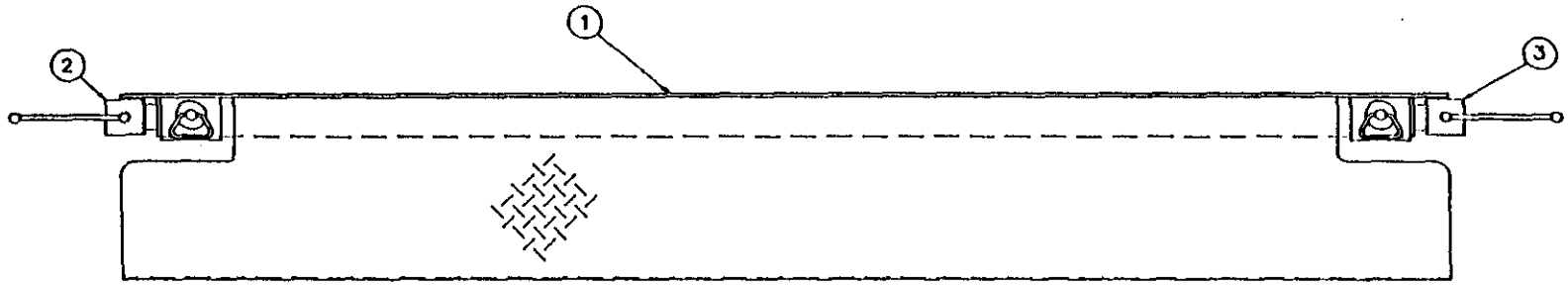
TITLE

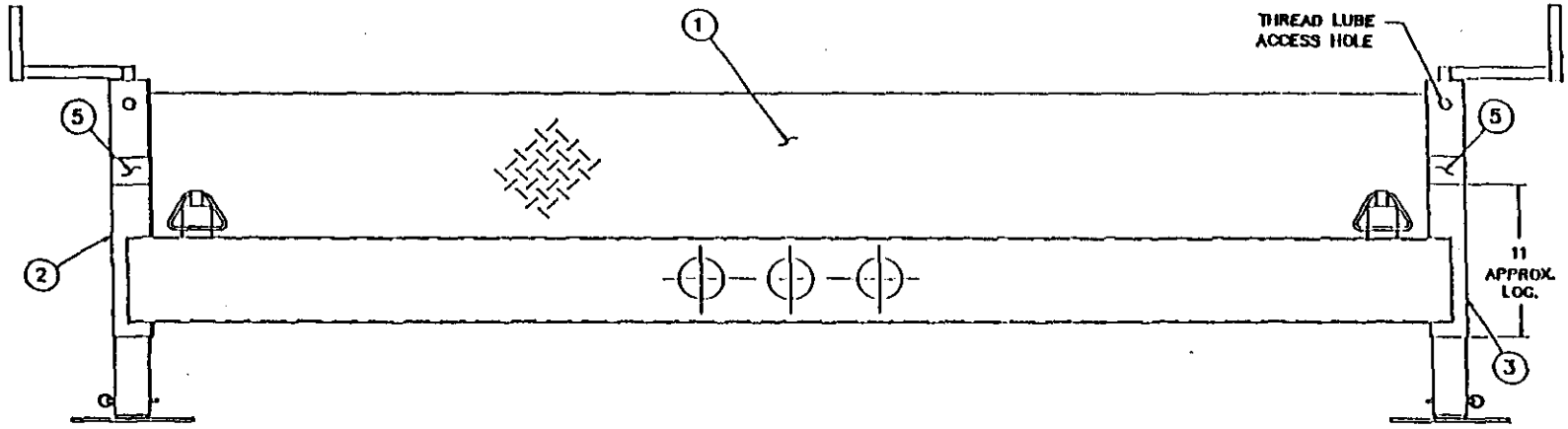
STABILIZER ASSEMBLY WITH CRANKDOWN LEGS

SCALE	SIZE	DRAWING NO.	REVISION
1/8	A	AW-725572	

WEIGHT

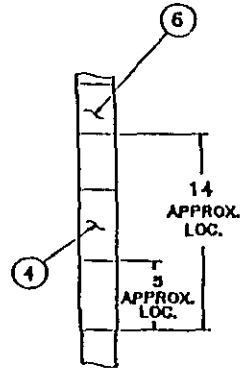
SHEET 1 OF 1





STREET SIDE

CURB SIDE



(TYP. STREET & CURB SIDE)

84.0.0

ITEM	QTY	PART No.	DESCRIPTION
6	2	725962	DECAL, DANGER
5	2	759017	DECAL, CAUTION
4	2	040581	DECAL, DANGER CRUSHING
3	1	725592	SLIDE, WITH CRANKDOWN LEG (CURB SIDE)
2	1	725593	SLIDE, WITH CRANKDOWN LEG (STREET SIDE)
1	1	725200	BUMPER, WELDMENT

AUTO CRANE COMPANY
P.O. BOX 500697 TULSA, OKLAHOMA 74150-0697
4707 NORTH HINGO ROAD 918-836-0463

TITLE
MANUAL OUTRIGGER WITH CRANKDOWN LEG ASSEMBLY (36K BODY)

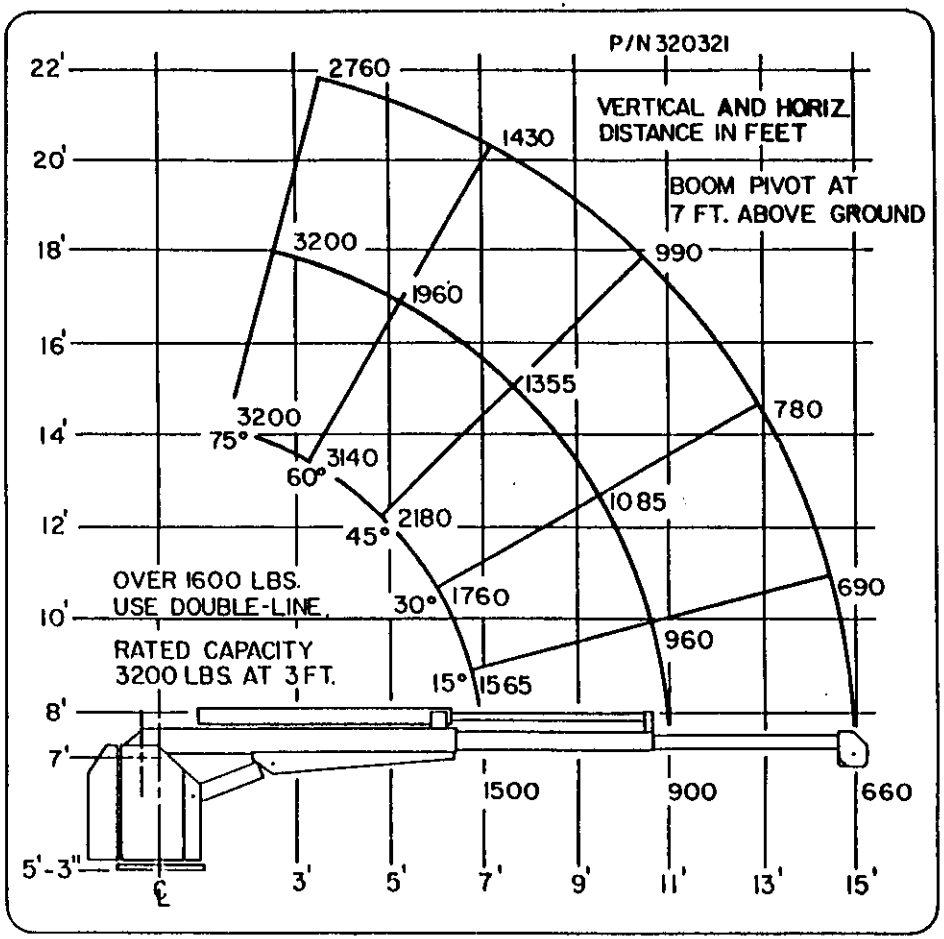
SCALE	SIZE	DRAWING NO.	REVISION
1/8	A	AW-725562	.

WEIGHT

SHEET 1 OF 1

FIXTURE NO.	FINISH NO.

CHG LTR	REVISIONS DESCRIPTION	DATE	APP'D



9-9-9

ITEM	D/S	PART NO.	DESCRIPTION
QUANTITY			LIST OF MATERIAL

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES. TOLERANCES UNLESS OTHERWISE SPECIFIED.
ANGLES ± 1/2° | XX ± .040
FRACTIONAL ± 1/16 | XXX ± .010
REMOVE ALL BURRS AND SHARP EDGES DO NOT SCALE THIS DRAWING.
TOLERANCES NOT SHOWN ABOVE ARE PER ANSI Y14.5-1973

THIS PRINT IS THE PROPERTY OF AUTO CRANE CO. AND MUST NOT BE USED IN ANY MANNER DETRIMENTAL TO THEIR INTERESTS.

NEXT ASS'Y

DRAWN BY	GENSMAN
DATE	5-28-87
CHK'D BY	EP
DATE	5/28/87
ENG. BY	
DATE	

AUTO CRANE COMPANY
P.O. BOX 45568 • TULSA, OKLAHOMA 74145
9280 BROKEN ARROW EXPRESSWAY • 918 627 9475

TITLE: 3203 LOAD CHART

SCALE	SIZE	DRAWING NO.	REVISION
	C	AW-320321	

WEIGHT

SHEET 1 OF 1

AUTO CRANE COMPANY
P. O. BOX 581510 • TULSA, OKLAHOMA 74158

Limited Warranty

Auto Crane will warranty to consumer for a period of twelve months from date of purchase that each new Auto Crane product it sells will be free under normal use and service, from defects in material and workmanship. Date of purchase will be honored as either date of purchase by distributor or his date of sale of the product as substantiated by Distributor Delivery Report.

Obligation of Auto Crane under this warranty is limited to replacement or repair of parts that appear to manufacturer after review and/ or inspection to be defective. This warranty does does not obligate Auto Crane to bear the cost of labor or transportation charges in connection with the replacement or repair of defective parts. Responsibility for customer's claims arising from misapplication, abuse, misuse or alteration of equipment or parts lies with the distributor or user and no warranty obligation is assumed in the circumstances by Auto Crane.

Auto Crane will in no event be liable for any consequential damages or contingent liabilities arising out of the failure of any Auto Crane product or parts to operate properly.

Auto Crane makes no warranty in respect to component accessories, same being subject to the warranties of their respective manufacturers.

If field service, at the request of buyer, is rendered and fault is found not to be with Auto Crane's product, the buyer shall pay the time and expense of the field representative. Claims for service labor or other expenses that have been incurred by the buyer without approval or authorization of Auto Crane will not be accepted.

AUTO CRANE COMPANY IS UNDER NO OBLIGATION TO EXTEND THIS WARRANTY TO ANY CUSTOMER FOR WHICH AN AUTO CRANE WARRANTY REGISTRATION CARD HAS NOT BEEN COMPLETED AND MAILED TO AUTO CRANE COMPANY WITHIN FIFTEEN (15) DAYS AFTER DATE OF PURCHASE.