

HC—48/48A Series — Master Keysheet
(3H, 3HA or 12H Prefix On Crane Serial Number)**AREA 00 GENERAL INFORMATION**

00-000-000.00 Service Manual General Usage & Instructions

AREA 01 RUBBER TIRE LOWER

01-001-001.00 Carrier Structural
01-002-001.00 Front Axle (6 X 4)
01-002-002.00 Front Axle (6 X 6)
01-003-001.00 Front Brake Actuator
01-003-002.00 Front Brakes (6 X 4)
01-003-003.00 Front Brakes (6 X 6)
01-005-001.00 Steering Gear
01-006-001.00 Steer Troubleshooting
01-007-001.00 Power Steer Cylinder
01-010-001.00 Power Steer Pump
01-017-001.00 Carrier Clutch
01-018-001.00 Main Transmission
01-025-001.00 Rear Axles & Brakes
01-025-002.00 Maxibrake Actuator
01-026-005.00 Hydrovac Brakes
01-026-006.00 Hyrdovac Brakes Troubleshooting
01-027-001.00 Air Brakes Troubleshooting
01-027-026.00 Caging Dual Air Brake Chambers
01-039-003.00 Hydraulic System Cleaning Procedure
01-043-001.00 Solenoid Valves, General Recondition
01-044-002.00 Outrigger Lock Valve
01-045-001.00 Outrigger Beam Cylinder
01-045-002.00 Telescoping Tube Assembly
01-046-001.00 Outrigger Jack
01-046-002.00 Outrigger Jack
01-047-001.00 Outrigger Control Valve
01-048-003.00 Rotating Joint
01-063-001.00 Air Cleaner
01-066-001.00 Engine Wiring (Chrysler)
01-066-002.00 Engine Wiring (GM)
01-067-001.00 Junction Block To Light Wiring
01-068-001.00 Cab To Junction Block Wiring

AREA 03 UPPER REVOLVING FRAME

03-001-001.00 Undecking Machine
03-001-008.00 Turntable Bearing
03-003-001.00 Counterweight Assembly
03-004-003.00 Conical Roller (Bushed)
03-004-004.00 Conical Roller (Bearings)
03-006-003.00 Swing Lock
03-007-001.00 Mast Assembly

AREA 04 VERTICAL SHAFTS

04-003-005.00 Swing Shaft
04-005-003.00 Swing Brake

AREA 05 HORIZONTAL SHAFTS

05-000-004.00	Shafts – General
05-001-009.00	Reverse Shaft
05-002-001.00	Reduction Shaft
05-003-001.00	Front Drum Shaft
05-003-002.00	Rear Drum Shaft
05-003-010.00	Front Drum & Rear Drum Brakes
05-008-008.00	Boom Hoist Shaft
05-008-009.00	Boom Hoist Brake
05-008-010.00	Boom Hoist Pawl
05-009-002.00	Clutches – General
05-009-008.00	Clutch Assembly
05-009-009.00	Clutch Rotating Joint

AREA 06 UPPER ENGINE

06-016-003.00	Twin Disc Clutch
06-018-001.00	Chain Case Pump
06-021-001.00	Wiring (Continental)
06-023-003.00	Engine Wiring (GM)
06-029-001.00	Storage Battery
06-039-002.00	Chain Case Assembly

AREA 07 HYDRAULIC POWER SUPPLY

07-000-005.00	S-o-M General
07-000-006.00	S-o-M Troubleshooting
07-001-001.00	Unloading Valve
07-001-002.00	Accumulator
07-001-004.00	External Check
07-001-005.00	Relief Valve
07-001-008.00	Filter
07-001-011.00	Relief Valve (w/Hydraulic Outriggers)
07-003-001.00	Selector Valve
07-003-006.00	Solenoid Valves, General Recondition
07-005-006.00	Pump (Vane)
07-005-009.00	Pump (Gear)
07-012-001.00	Control Stand – General
07-018-001.00	Hydraulic System Tube Fittings

AREA 08 ANGLE BOOM

08-001-001.00	Angle Boom Repair
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AREA 11 FAIRLEADER

11-001-001.00	Fairleader
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AREA 18 SPECIAL ATTACHMENTS

18-000-001.00	Capscrew Torques
18-000-002.00	Bearing, Gear, Shaft, & Housing Inspection

HC—48/48A Series — Master Keysheet (3H, 3HA or 12 Prefix On Crane Serial Number)

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SM00—000—000.00 Service Manual General Usage & Instructions

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 SM07-001-004.00 External Check
 SM07-001-005.00 Relief Valve
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 SM07-003-001.00 Selector Valve
 SM07-003-006.00 Solenoid Valves, General Recondition
 SM07-005-006.00 Pump (Vane)
 SM07-005-009.00 Pump (Gear)
 SM07-012-001.00 Control Stand — General
 SM07-018-001.00 Hydraulic System Tube Fittings

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SM08-001-001.00 Angle Boom Repair

AREA 11 FAIRLEADER

SM11-001-001.00 Fairleader

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SM18-000-001.00 Capscrew Torques
 SM18-000-002.00 Bearing, Gear, Shaft, & Housing Inspection

How To Use This Manual, General Service Instructions, And Safety Procedures

The following information is provided to help guide the user of this manual. An explanation of how this manual is organized, as well as general information and safety considerations which should be understood when performing any service or maintenance procedure, is given. This information is general in nature and should supplement any of the specific procedures in this manual along with a constant awareness of safety and common sense.

How To Use This Manual

This Service Manual is a collection of written procedures which are used to service and maintain a specific crane model. The index, which is called a "Keysheet", is used to organize the procedures within this manual and serve as a Table Of Contents as well. Each procedure, in this manual, is written so that it can stand alone and typically covers only one procedure. Procedures are given a numerical designation, or "SM Code" Number, (Example: SM01—005—034.00) which is unique to that procedure and that procedure only. The following is a listing of the general area definitions which are designated by the first digits in the SM Code Number sequence:

General Area Descriptions

- SM01 — Rubber Tire Lower
- SM02 — Crawler Lower
- SM03 — Upper Revolving Frame & Machinery
- SM04 — Vertical Shafts
- SM05 — Horizontal Shafts
- SM06 — Upper Engine
- SM07 — Hydraulic Power Supply
- SM08 — Angle Boom
- SM09 — Tubular Boom
- SM10 — Tagline Winder
- SM11 — Fairleader
- SM12 — Shovel Attachment
- SM13 — Trench Hoe, Logger & Scraper Attachment & Prop Handler
- SM14 — Cab & House Assembly
- SM15 — Rotascope Attachment (Discontinued)
- SM16 — Wire Rope Requirements
- SM17 — Hydraulic Boom And Attachments
- SM18 — Special Attachments
- SM19 — Diesel Pile Hammer (Discontinued)
- SM20 — Tower, Climbing Assembly, Traveling Base & Gantry (Discontinued)
- SM21 — Log Skidder (Discontinued)
- SM22 — Hydraulic Hammer (Discontinued)

The procedures in this manual are collated by SM Code Number sequence. Use the Keysheet in the front of this manual, the general area descriptions shown previously, and the SM Code title shown on the

Keysheet to find the specific procedure required to service the crane.

Throughout this manual, reference is made to the left, right, front, and rear, pertaining to directions and locations. These reference directions are relative to the operator, sitting in the operator's seat, with the upper directly over the front of the carrier, unless otherwise stated. (Crawler mounted cranes: upper over the front of the crane with travel motors to the rear.)

Danger, warning, and caution captions as well as special notes are used throughout this manual and on the crane to emphasize important and critical instructions. **If any instruction, caution, warning, or danger labels, decals, or plates become lost, damaged, or unreadable, they must be replaced.** Information contained on such labels, decals, and plates is important and failure to follow the information they contain could result in an accident. Replacement labels, decals, and plates can be ordered through a Link-Belt Distributor. For the purpose of this manual, danger, warning, and caution captions and notes are defined as follows:



DANGER

An operating procedure, practice, etc. which, if not correctly followed, may result in severe personal injury, dismemberment, or loss of life.



WARNING

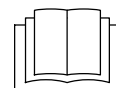
An operating procedure, practice, etc. which, if not correctly followed, may result in personal injury.

CAUTION

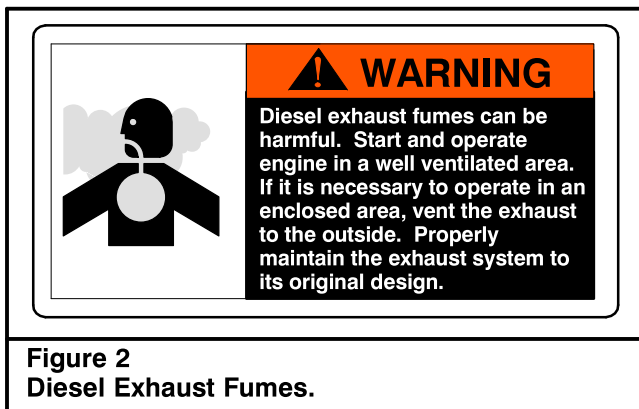
An operating procedure, practice, etc. which, if not correctly followed, may result in damage to, or destruction of, equipment or property.

NOTES

Note: An operating procedure step, condition, etc. which is essential in order for the process to be completed properly.

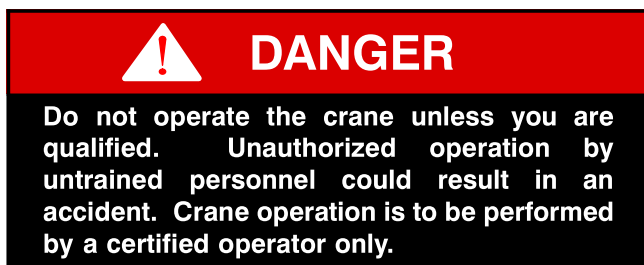


This symbol may appear in manuals or on a label on the crane to alert personnel that additional instructions are included in the crane Operator's Manual.



Service Safety And Set Up Guidelines

The following is a list of safety and set up considerations which may apply to any service or maintenance procedure. Review the entire list and understand the type of things you must consider to perform a safe service procedure and then apply these guidelines to each specific service or maintenance procedure.



Service Safety

1. Read and understand the service or maintenance procedure to be performed before beginning work. By reading the procedure ahead of time, you can be sure to have the replacement parts and tools on hand that are required to complete the job.
2. Wear protective gear to prevent injury; hard hat, safety glasses, gloves, steel toed shoes, etc.



3. First aid supplies and a fire extinguisher should be on the job site to assist in an unexpected situation. The location of these items should be known to all as well as access to a telephone for emergencies.
4. Work in a clean, dry, firm, level area whenever possible. Choosing the correct work site can make a big difference on how well the job goes.
5. Use caution around flammable materials. Be aware of all the materials in the work area which are a threat. Also make others aware of volatile materials; post signs if necessary.
6. Release all trapped pressure in air and hydraulic circuits before disconnecting any line or component. Shutdown the crane, exhaust all pressure from the crane's air reservoir(s) and work the hydraulic control levers back and forth before servicing the crane.
7. Do not disconnect any hydraulic line from a crane which has its attachment in the air. Trapped pressure may be all that is suspending it. Disconnecting a line could release the trapped pressure, causing the attachment to fall. Lower the attachment to the ground or on to its rest before servicing the crane.
8. Do not work on a crane which is in motion. Fans, belts, gear trains, etc. can catch an unexpected person and quickly dismember them.
9. Do not climb on the attachment or other hard to reach areas. If the steps and/or ladders which are installed on the crane do not provide adequate access to the area of the crane which needs servicing, use a step ladder or other approved device.
10. Pinch points exist between the upper and lower frames. Death or dismemberment may result from personnel caught in these points. Learn where these pinch points are and stay clear of the rotating upper frame.

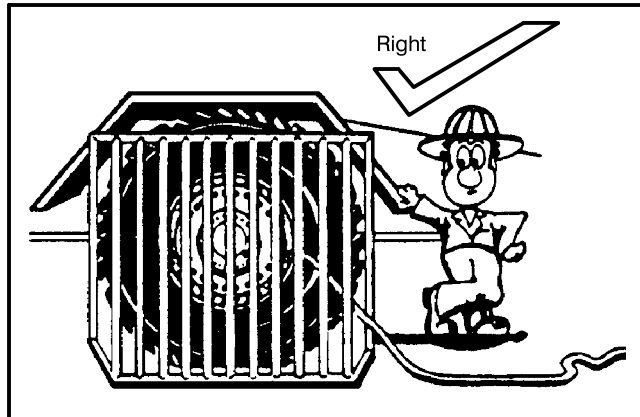


Figure 4
Use a guard when inflating tires.

11. If working in a confined area, be sure to provide adequate ventilation when running the engine(s), using toxic solvents, welding, or any other operation which contaminates the fresh air supply.
12. Post a sign in the operator's cab to alert others that the crane is under service. Starting the crane while it is being serviced could severely injure someone. Crane damage could also occur if systems are operated prematurely. Imagine starting the engine(s) before the oil is replaced.
13. Secure access panels, doors, and machinery hoods when in the open position to ensure they do not fall or slam shut due to wind or accidental disruption.
14. Crane parts may be heavy. Always use an appropriate lifting device to support work. Do not attempt to lift an object without knowing its weight. Get help if necessary.
15. Always use a safety rim cage when inflating or deflating tires. Worn or misassembled parts can "explode" from the assembly causing serious injury. Use a safety rim cage, clip on air chuck, and stand aside when inflating or deflating tires.

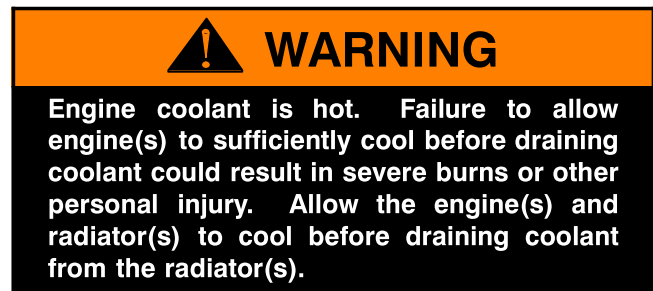
Crane Set Up And Disassembly

1. Properly park the crane as described in the Operator's Manual. Park the crane in an area which provides the most comfortable working conditions. However, do not park the crane where it will be an obstruction or an intrusion to traffic, coworkers, or to the public. Keep in mind that a major service procedure, or a repair part which requires a long lead time, could have the crane disabled for an extended period of time.
2. Keep in mind the mess which is sometimes caused by a crane under repair. Oil or other fluid leaks should be contained or prevented. Consider your responsibility of maintaining a safe clean work area and a healthy environment for all.



Figure 5
Allow engine to cool before removing the radiator cap.

3. If the crane is equipped with outriggers, it may be safer as well as an advantage to raise and level the crane on outriggers to provide easier access to areas underneath. Do not work under a crane that is improperly supported.
4. Shutdown the engine(s) per the instructions given in the Operator's Manual.
5. Post a sign in the operator's cab to alert others that the crane is being serviced.
6. Engines, transmissions, hydraulic systems, etc. generate extreme heat during operation. Temperatures can reach levels which may cause serious burns. Allow the crane to cool before attempting to service it.



7. Pressure is generated inside the engine's cooling system due to the heat transfer process from the engine(s) to the radiator(s). Do not attempt to open or drain the radiator(s) until it/they has/have had sufficient time to cool. Disconnecting hoses before the engine(s) and radiator(s) has/have cooled is even more dangerous. Wait until the engine(s) and radiator(s) have cooled and then drain the radiator(s) before disconnecting any hoses. Properly store or dispose of used coolant.

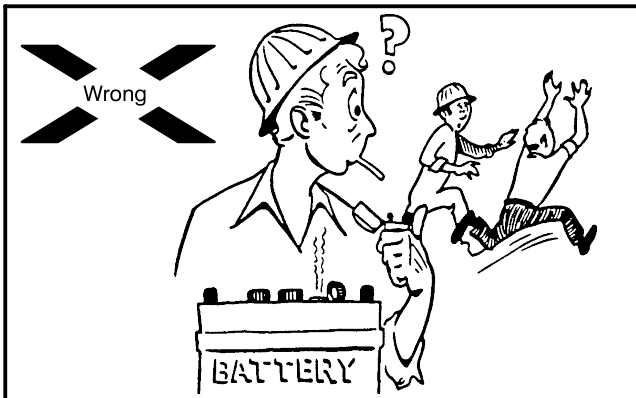


Figure 6
Do not use an open flame near the battery.

WARNING

Solvents and cleaning solutions can be hazardous. Serious personal injury may result from misuse of these products. Read and follow all the manufacturer's recommendations concerning solvents and cleaning solutions.

8. Thoroughly clean the area of the crane which is to be serviced. Dirt or other contamination could enter the hydraulic, air, lubricating system, etc. and cause immediate and/or long term problems. Cleaning the service area not only prevents contamination problems but it also makes working on the crane easier and sometimes problems are more recognizable.
9. Before beginning any removal or disassembly procedure, take a moment to observe critical features of the assembly which may greatly simplify the installation or assembly process. Label electrical, hydraulic, air, or other connections. Index mark pump, motor, and valve sections. Lightly spray paint or count the threads of adjustment screws. Simple steps such as these can minimize the effort needed to put the crane back in service.

WARNING

Hydraulic oil is under pressure and may be hot. A sudden release of hot oil could cause severe burns and/or other serious injury. Shutdown the engine(s) and exhaust all trapped hydraulic pressure from the system before removing any line or component.

10. Hydraulic systems, while operating, are under high pressure. Even after the crane is shutdown these pressures can remain trapped in the hydraulic lines and system components. Some hydraulic systems utilize an air pressurized reservoir which maintains pressure on the system after the crane is shutdown. It is critical that all residual pressure, which is trapped in the system, be neutralized before disconnecting any line or hydraulic component. Use the following techniques to exhaust trapped hydraulic pressure from the system:

- a. Lower the attachment to the boom rest, onto blocking, or onto the ground and shutdown the engine(s).
- b. Open the drain valves on the air system reservoir(s), if equipped, to bleed the air system pressure.
- c. Relieve any residual or precharge pressure by pushing the button on the pressure relief valve, on the hydraulic reservoir, if equipped. Otherwise, loosen the filler cap 1/4 turn.
- d. Turn the ignition switch to the **ON POSITION**, but **DO NOT START THE ENGINE**.
- e. Operate the steering control(s) back and forth repeatedly until steering becomes hard. (On cranes equipped with emergency steering system, it will take several rotations of steering wheel before steering becomes hard.)
- f. Work the crane control levers and outrigger switches, if equipped, back and forth several times.
- g. Turn ignition switch to the **OFF POSITION**.
- h. When pressure is fully relieved, close the drain valves on the air system reservoir(s), if equipped.

WARNING

Air lines may contain high pressure. Opening lines and fittings before relieving air pressure may result in serious injury. Shutdown the engine(s) and drain the air system reservoir(s) before opening any line or fitting.

11. Air system circuits, like hydraulic circuits, contain high pressures also. Although the threat of a hot working fluid does not exist, highly pressurized lines and components can possibly "fly off" if lines are disconnected before the system pressure is relieved. Open the drain valve on the air system reservoir(s) to exhaust system pressure before working on the crane.



WARNING

Use care not to cause sparks at the battery terminals while disconnecting or connecting the battery. Battery gasses are volatile and could be ignited by a spark or flame causing the battery to explode. Keep the area around the battery well ventilated and disconnect the negative side of the battery first, with the ignition switch “OFF”, to minimize hazard.

Battery posts, terminals, and related accessories contain lead and lead compounds. Eating or smoking with lead residue on hands may cause lead poisoning. Wash hands after handling lead products.

12. When working on electrical circuits, disconnect the battery to minimize shock, burn, spark, or other hazard. When disconnecting the battery, confirm that the ignition switch is in the “OFF” position. Disconnect the negative side of the battery first to minimize the potential for sparks at the battery. Battery gases which are exposed to such sparks, could cause an explosion. Likewise when connecting the battery, confirm that the ignition switch is in the “OFF” position and install the positive cable(s), first and the negative connection(s) last.
13. It is a good practice when disassembling hydraulic components to lay the parts out in the order that they were disassembled. Keeping the parts in this order during disassembly, cleaning, and inspection will aid in the assembly process.

Welding

1. When making repairs which require welding, disconnect any electronic equipment (such as rated capacity limiters and engine computers) to prevent damage to them. Use the battery disconnect switch(es), if equipped.
2. Be aware of systems adjacent to areas being welded. Residual heat from the welding process could cause damage to other components. Heat may also vaporize materials which may become toxic or volatile.
3. Remove paint from areas to be welded to prevent toxic fumes.
4. The grounding connection should be within 3 feet (1 m) of the welded parts.
5. Connect the ground to the lower, if welding on the lower, or to the upper if welding on the upper. Electrical current through the turntable bearing could cause an arc which could damage it.

6. Do not position the ground connection where seals or bearing, as in transmissions or valves, will be between it and the welded parts.
7. Remove any flammable materials from the area.
8. Use the appropriate setting on the welder for the size of the welding operation. Do not use more than 200 Volts continuously.

Cleaning And Inspection



WARNING

Solvents and cleaning solutions can be hazardous. Serious personal injury may result from misuse of these products. Read and follow all the manufacturer's recommendations concerning solvents and cleaning solutions.

1. All components should be thoroughly cleaned with an approved cleaning solvent, air dried and carefully inspected for damage, wear and corrosion.
2. All Loctite[®] or other sealant residue should be removed from threads of hardware and parts that are going to be reused.
3. All “soft parts”, such as seals, gaskets, back up rings, and o-rings, should be replaced.
4. Replacement of bearings and bushings is generally a good preventive maintenance measure. Even though a bearing or bushing seems to be intact and is functioning properly, its life span is limited. Replacing a simple bearing or bushing while the opportunity is at hand could save a complete component failure later.
5. In the event of severe defects, contact factory personnel for directions whether to repair or replace any major component.

Crane Assembly

1. Loosely assemble parts to ensure all parts are in place and fasteners started before beginning torquing procedure. Always use a cross torquing sequence to ensure even and uniform installation.



WARNING

Lubricants, sealants, joint and thread locking compounds, etc. can be hazardous. Serious personal injury may result from misuse of these products. Read and follow all manufacturer's recommendations concerning these products.

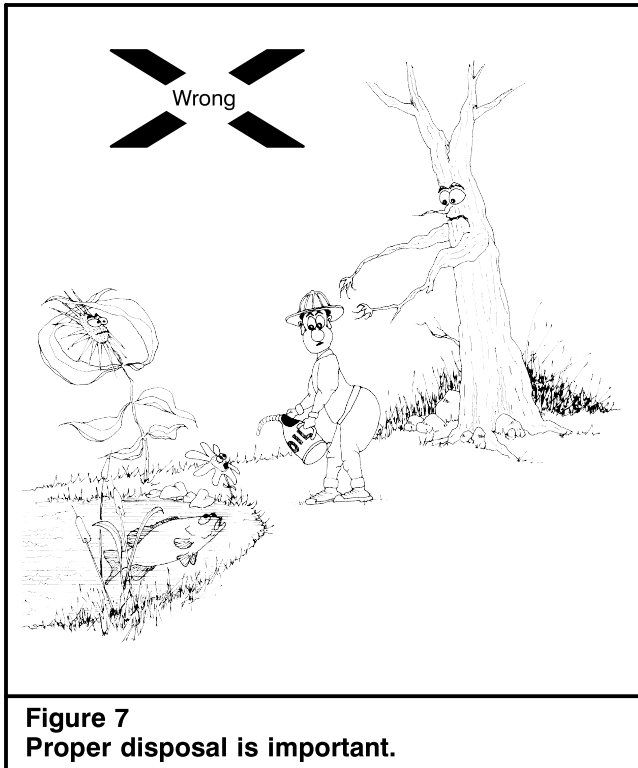


Figure 7
Proper disposal is important.

2. Unless otherwise stated, torque all fasteners per the instructions given in SM Code Area 18—000.
3. When installing hydraulic hoses, lines, and fittings, use two wrenches to ensure the hoses and lines are not twisted. One wrench must be on the male fitting, the other wrench on the female fitting.
4. Unless otherwise stated, torque all hydraulic fittings per the instructions given in SM Code Area 07—018.
5. Check all fluid levels before returning the crane to service; hydraulic reservoir oil level, transmission fluid level, engine(s) oil level, etc. Add oil as required. See Operator's Manual and/or engine(s) manufacturer's manual(s) for correct type of fluids and procedures.
6. Always replace guards, grilles, and other types of protective shields. Also, be sure that any systems which were disconnected such as load indicating systems, anti-two block devices, control cables, etc. are functioning properly before returning the crane to service.
7. Start the appropriate engine and let it idle for five minutes. Inspect the connections on the hydraulic, air, transmission, etc. lines for leaks. Repair if needed.
8. Check that all hydraulic, air, and electrical functions are operating normally before returning the crane to service.
9. After crane is assembled, refer to the Operator's Manual for any periodic type of adjustments which may have been affected by the service procedure.
10. Properly dispose of any used oils, solvents, cleaners, etc.

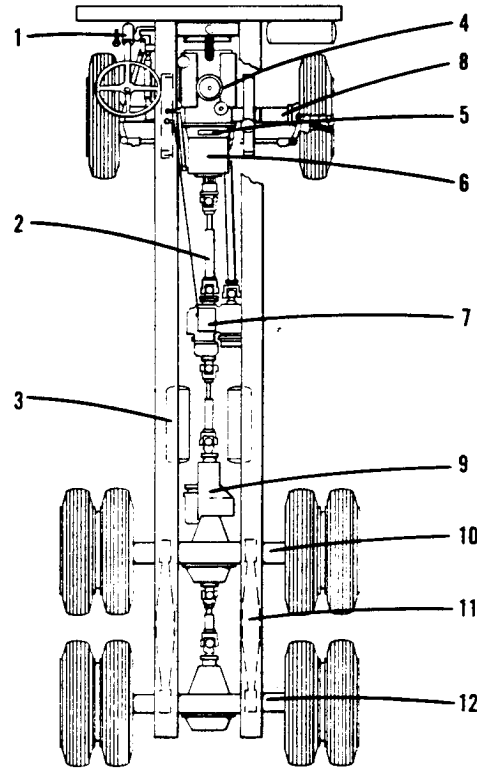


Fig. 1

Truck Carrier

- (1) Steering Gear
- (2) Drive Line
- (3) Air Reservoir
- (4) Engine

- (5) Clutch
- (6) Transmission
- (7) Transfer Case
- (8) Front Axle

- (9) Inter Axle Differential
- (10) Forward Rear Axle
- (11) Bogie Beams
- (12) Rear Rear Axle

HC48,48A Truck Carrier

The truck carrier was designed and is built by FMC Corporation. It is available with either 6 X 4 or 6 X 6 drive. Although the carrier uses a number of components not manufactured by the Company, these "vendors" items have been specified and approved by our engineering department. Lubrication and maintenance instructions for vendor's items are published through cooperation with the vendor manufacturer, and our engineering department.

Fig. 1 shows an HC48A carrier. The HC48 carrier was virtually the same. The main difference is, the 48A has air brakes, while the HC48 has hydrovac brakes.

Engine: We do not attempt to print lubrication and maintenance instructions on the various engines used in our equipment. Any information required on this subject may be obtained from the manufacturers manuals supplied with each machine. If additional information is needed contact the engine manufacturer or his nearest

distributor. Service on the engine should be directed to the engine distributor in your area.

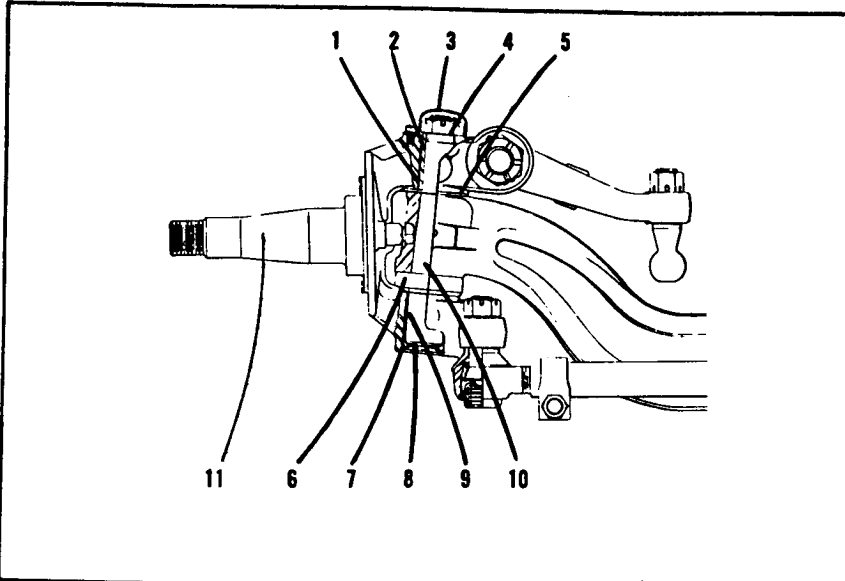


Fig. 1
Front Axle Assembly

- | | |
|--------------------|--------------------|
| (1) Bushing | (7) Lock Ring |
| (2) Sleeve | (8) Expansion Plug |
| (3) Dust Cap | (9) Bushing |
| (4) Nut | (10) Pin |
| (5) Spacer & Shim | (11) Wheel Spindle |
| (6) Thrust Bearing | |

6 X 4 Front Axle

The 6 X 4 carrier non-driving axle mounts to a pair of springs, which are attached to the underneath of the carrier frame. The axle is connected to the springs by eight bolts, which must be maintained at a torque of 165-175 ft.-lbs. On a standard machine, no front brakes are used, but front brakes are available as an option.

Wheel Alignment: The front wheels must be kept in alignment to assure ease of steering and maximum tire life. The following procedure outlines the steps necessary for checking out front wheel alignment: (See Fig. 2)

- Jack up the carrier so the front wheels clear the ground.
- Remove the pitman arm. Center the steering gear. Extend the power steering cylinder shaft 3". Reinstall the pitman arm. Adjust the drag link until the wheels are straight ahead.
- The "toe in", which is the setting of the front wheels so they are closer together at the front than at the rear is adjusted by shortening or lengthening the tie rod. The "toe in" must be set at $1/8" + 1/32"$, measured at the inside of the wheel rims.

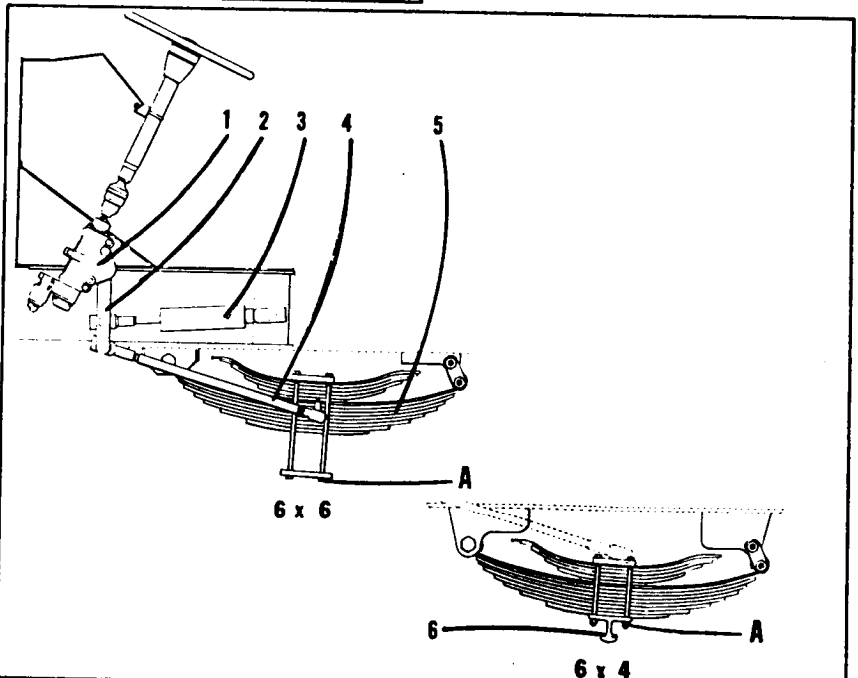


Fig. 2
Front Suspension & Steering

- | | |
|--------------------------------|---------------|
| (A) Torque To 165-175 Ft.-lbs. | (4) Drag Link |
| (1) Steering Box | (5) Spring |
| (2) Pitman Arm | (6) Axle |
| (3) Steer Cylinder | |

Service Manual Area 1 - Truck Carrier - Continued

- (d) Tighten the adjusting nut to a torque of 50 ft.-lbs., while rotating the wheel in both directions.
- (e) Back off the adjusting nut 1/4 to 1/3 turn. Install the lockwasher, and jam nut. Torque the locknut to 250-400 ft.-lbs.
- (f) Replace the hub cap. Pack the hub cap with enough grease to prevent moisture condensation.

Wheel Bearing Repacking: At the interval specified in section 2 of the operators manual the wheel bearings must be removed, cleaned with kerosene, diesel fuel or some similar approved solvent, repacked with new grease, and adjusted as explained under "Wheel Bearing Adjustment." Use only wheel bearing grease that meets or exceeds the specifications listed in Section 2 of the Operators manual. Pack the hub cap, and the hub between the two bearing cups with grease to the level of the cups smallest diameter. The seal which retains grease in the inner bearing should be examined, and replaced if worn or damaged.

The tapered roller wheel bearings, whenever removed from the axle, should be handled with great care and kept free of dirt or water. When reassembling caution should be used to prevent any foreign material from allowing metal to metal contact between the roller bearing cones and cups, the spindle on which they ride, and the shoulders against which they are intended to fit.

Wheel Torque Procedure: Incorrectly torqued wheels, when mounted on cast spoked rims, may wobble up to 3/4" from incorrect tightening. Correct tightening of the rims is by triangulation, as follows:

- (a) Turn the nut #1 until snug.
- (b) Rotate the wheel-rim assembly until nut #2 is in the top position and turn the nut until snug.
- (c) Rotate the wheel-rim assembly until nut #3 is in the top position and turn the nut until snug.

Since the entire weight of the tire-rim assembly is on the

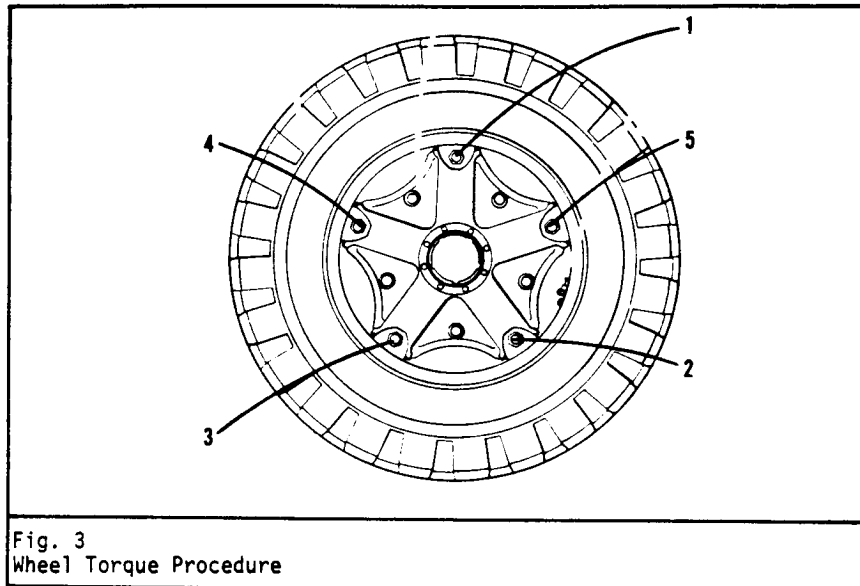


Fig. 3
Wheel Torque Procedure

top spoke position, this procedure allows even application of force against three points of the rim for alignment.

- (d) Repeat the triangle procedure this time bringing each nut to the recommended torque. (See the torque chart in Section 13 of Operators Manual).
- (e) Bring the remaining nuts up to proper torque.

Note: After 50 to 100 miles of operation, the nuts should again be brought up to recommended torque. The wheel-rim assembly will then remain tight barring accident such as stud breakage or clamp failure.

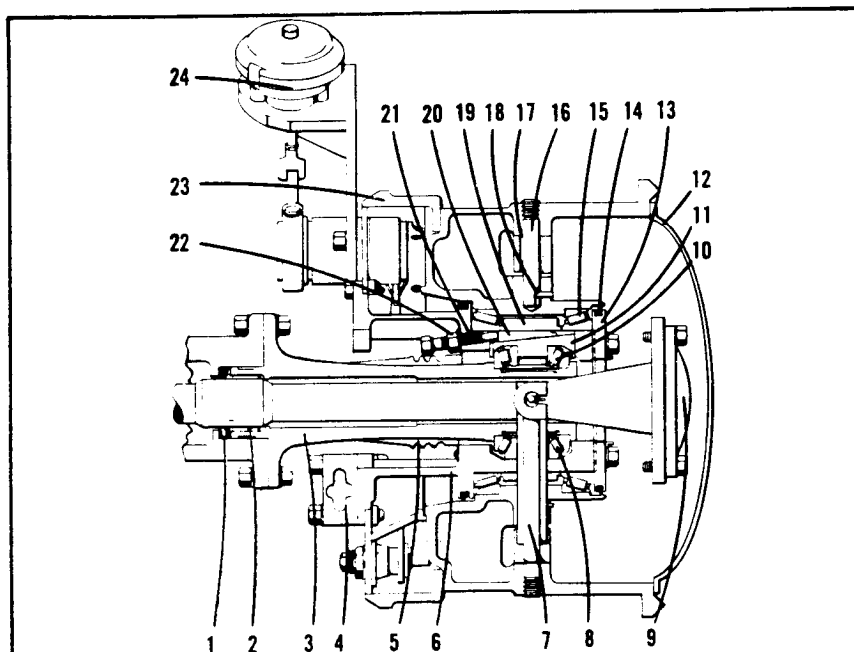


Fig. 1

6 X 6 Front Axle

- (1) Oil Seal
- (2) Bearing
- (3) Housing Stub
- (4) Steer Arm
- (5) Boot
- (6) Spindle
- (7) Comp. Ring
- (8) Pivot Brg.
- (9) Axle Shaft
- (10) Pivot Brg.
- (11) Cap
- (12) Wheel Cover

- (13) Clamp Plate
- (14) Wheel Seal
- (15) Radial Bearing
- (16) Pin
- (17) Bushing
- (18) Rollpin
- (19) Clamp Ring
- (20) Adj. Wedge
- (21) Adj. Screw
- (22) Locknut
- (23) Brake Drum
- (24) Air Chamber

6 X 6 Front Axle

The optional 6 X 6 front drive axle is of the full floating design in which the load is carried by the wheel bearings mounted on the pivotal spindles, and not on the axle shafts. Power is transferred to the front drive axle from the transfer case by a drive-shaft-slip joint arrangement. The front drive axle is shifted in and out of engagement by a control lever in the truck cab.

Wheel Alignment: See "Wheel Alignment", on SM1-2-1.0 under "6 X 4 Front Axle".

Pivot Bearing Adjustments: After the first 50 miles of operation, and again after the first 500 miles of operation, and every 5,000 miles thereafter, the pivot

bearings must be adjusted. Each time the wheel is greased, check for loose pivot bearings. To make this check, jack up the wheel slightly, grasp the tire at the top and bottom and alternately push and pull firmly. Any play whatever indicates the pivot bearings should be adjusted. To adjust pivot bearings, proceed as follows:

- (a) Remove the wheel cover.
- (b) Remove the axle shaft as explained previously in this section.
- (c) Disconnect the tie rod end from the steering arm.
- (d) Loosen the wedge adjusting screw locknut. (See Fig. 1).
- (e) Tighten the wedge adjusting screw until the bearings have a slight preload. Attach a spring scale to the eye in the end of the steering arm. The

preload should not exceed 12 pounds steady reading when the scale is pulled parallel with the axle. Be careful not to jack the wheel up far enough to cause unbalance of the wheel during the scale reading.

- (f) Tighten the wedge adjusting screw locknut, and reassemble the wheel.

Radial Wheel Bearing Adjustments:

The radial wheel bearings must be adjusted each time the bearings are repacked. However, the bearings should be checked for looseness each time the pivot bearings are checked, and adjusted if necessary. The radial wheel bearings are shim adjusted as follows:

- (a) Jack up the axle far enough to remove the wheel.
- (b) Remove the wheel.
- (c) Remove the wheel cover.
- (d) Remove the axle shaft as explained previously in this section.
- (e) Unbolt and remove the bearing pressure plate assembly.
- (f) Remove shims from behind the pressure plate until a slight drag on the bearings may be felt when the pressure plate is bolted in place. The shims are in .002", .010", and .050" thicknesses to facilitate the adjustments. The bearing adjustment is correct when no play can be felt.
- (g) Tighten the bearing retainer plate, and reassemble the wheel.

Pivot Bearing Repacking: Every 10,000 miles, the pivot bearings must be removed, cleaned and repacked, then adjusted as explained in this SM. Use only lubricant specified in Section 2 of Operators Manual for repacking.

Wheel Bearing Repacking: At the interval specified in Section 2 of Operators Manual the wheel bearings should be removed, cleaned with a suitable solvent, repacked with new grease and adjusted as instructed under "Wheel Bearing Adjustment". Use only wheel bearing grease whose specifications meet or exceed those outlined in Section 2 of Operators Manual. The bearing retainer plate gaskets should be examined, and replaced if worn or damaged.