



Model 5/35

Instruction Manual



NOTE

Read and understand this manual, the
IMT Operators Crane Safety Manual
and Safety Manual Supplement
before operating or maintaining your crane.

IOWA MOLD TOOLING CO., INC.

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Iowa Mold Tooling Co., Inc. is an Oshkosh Corporation company.

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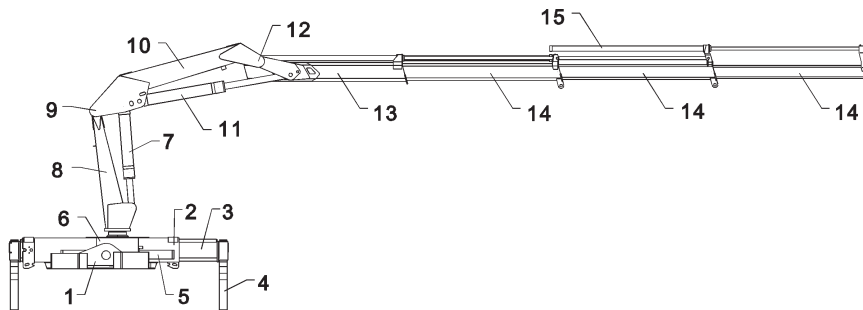
REVISIONS LIST

| DATE | LOCATION | DESCRIPTION OF CHANGE |
|----------|--------------------|--|
| 20001130 | PG 5-8 PG 19-20 | UPDATED CAPACITY CHARTS 5/35K1-4 (MODEL CHG ONLY VS. 1H-4H) UPDATED SPECS/TECH DATA (DOMESTIC & METRIC) |
| 20070228 | COVER | UPDATED OWNERSHIP STATEMENT |
| 20070510 | PG 5-8 | ECN 9000- UPDATED CAPACITY CHARTS FOR CONSISTENCY ACROSS MODELS |
| 20071112 | PG. 5-8, 18-20 | ECN 9000- ADDITIONAL CAPACITY CHART UPDATES; CONSISTENCY ON DRAWING, TECH DATA |
| 20111201 | | ECN 11628 - UPDATE STABILIZER WORDING, ELECTROCUTION DISTANCES |

1.0 Loader Terminology

The loader is designed as a truck mounted loader and therefore stationary mounting of the loader, mounting on agricultural tractors, special purpose vehicles and the like may only be performed according to specific agreement with IMT.

1. Suspension traverse
2. Control valve block
3. Stabilizer beam
4. Stabilizer leg
5. Rotation/Slewing cylinder
6. Base
7. Inner/Boom cylinder
8. Mast/Column
9. Hinge pin
10. Inner/Main boom
11. Outer/Jib cylinder
12. Outer/Jib pin
13. Outer boom/Jib
14. Extension boom
15. Extension cylinder



2.0 Operating Instructions


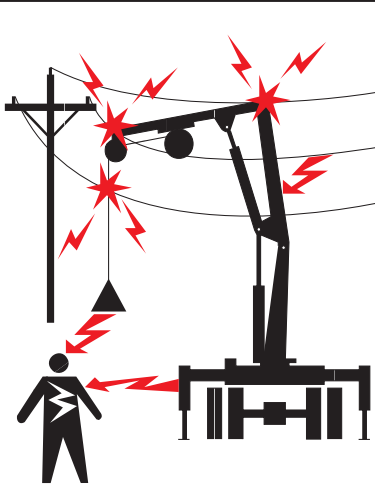
2.1 Starting Up

Before operating the loader:

- Set the vehicle's parking brake.
- Check the oil level in the tank.
- Ensure that the hydraulic hoses are not damaged, twisted, or jammed.
- Check all hooks, slings, safety latches and chains.
- The manual extensions must be correctly fastened with the lock bolts and split pins.

If the hydraulic system works with tipping body or other hydraulic equipment, check that the change-over (selector) valve is switched to the "loader" position. This valve must not be operated while the pump is functioning. Then start the engine, disengage the clutch and engage the power take-off by pulling the handle in the driver's cab.

Safe Distance to Electric Wires

| | |
|--|---|
|  <h1 style="margin: 0;">DANGER</h1> |  |
| <h3>Electrocution Hazard</h3> <p>Crane is not insulated</p> <p>NEVER approach or contact power lines with any part of this equipment or load.</p> <p>Keep 50 feet away from any power line if voltage is not known.</p> <p>Keep 20 feet away from any power line 350 kilovolts or less.</p> <p>Account for swaying motion of power line, equipment, and load line.</p> <p>Follow OSHA 29CFR 1926.1400.</p> <p>Death or serious injury will result from approaching or contacting a power line.</p> | |
| <small>70392813</small> | |

2.2 Operating the Stabilizer Legs

The stabilizer beams must be fully extended. The stabilizer legs are lowered just enough to raise the truck chassis a little in its suspension. The truck and loader should be placed on as even surface as possible to ensure a perfect rotation movement of the loader.

If the truck is parked on uneven ground, it can be levelled by means of the stabilizer legs, which may be operated individually.

If the loader is to work on soft ground it may be necessary to place blocks or steel plates under the stabilizer legs to ensure sufficient stability.

When the work has been completed, raise the stabilizer legs and push the beams back into place. Check that the swivel lock is engaged.

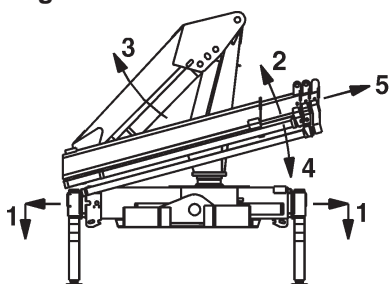
2.3 Folding / Unfolding the Loader

WARNING

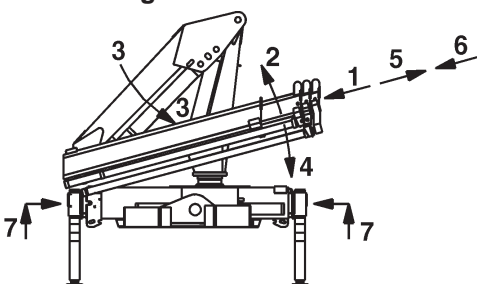
Fully deploy the stabilizers before operating the loader. Failure to do so can result in equipment damage, personal injury or death.

When the stabilizer legs have been lowered, the boom is unfolded as shown below:

Unfolding



Folding



Never begin the unfolding process by activating the rotation system.

2.4 Attaching the Load

The load and auxiliary equipment must be attached securely and carefully to the hook either directly or by means of straps or chains.

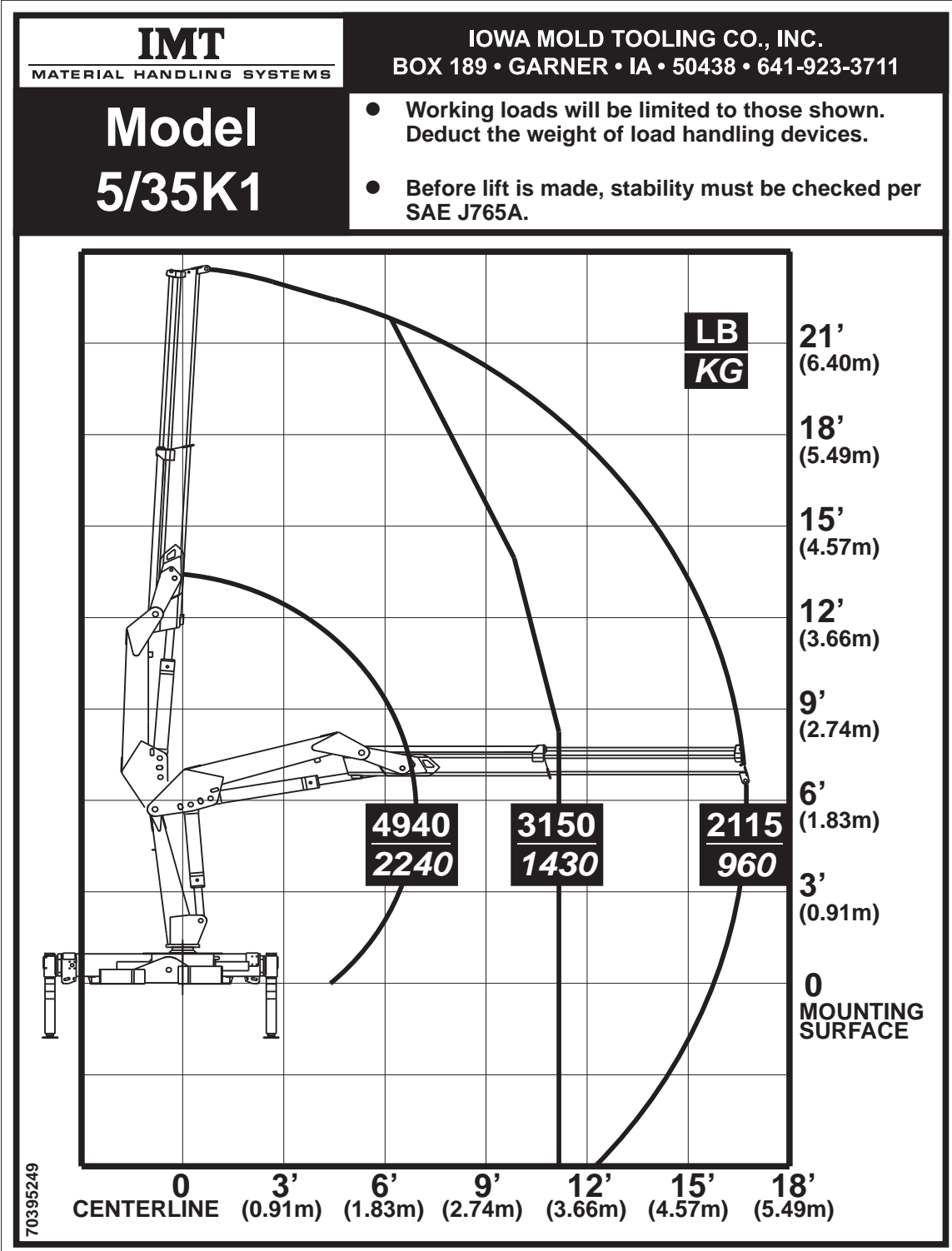
2.5 Loader Reach

Figures for reach and lifting capacity are shown in the following diagrams.

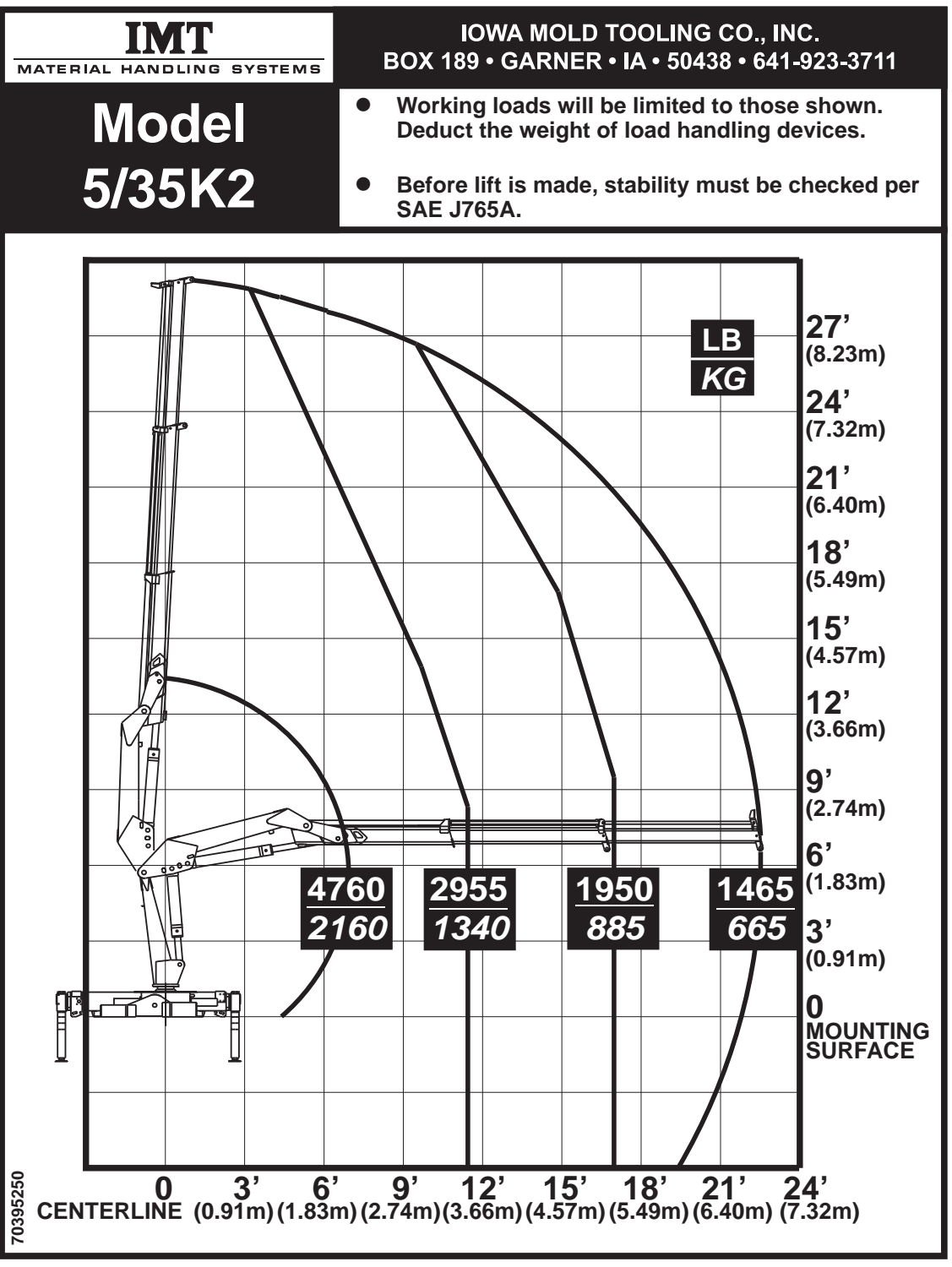
Please note that the lifting capacities stated are valid when the main boom is approx. 15° above horizontal.

2.6 Capacity Charts

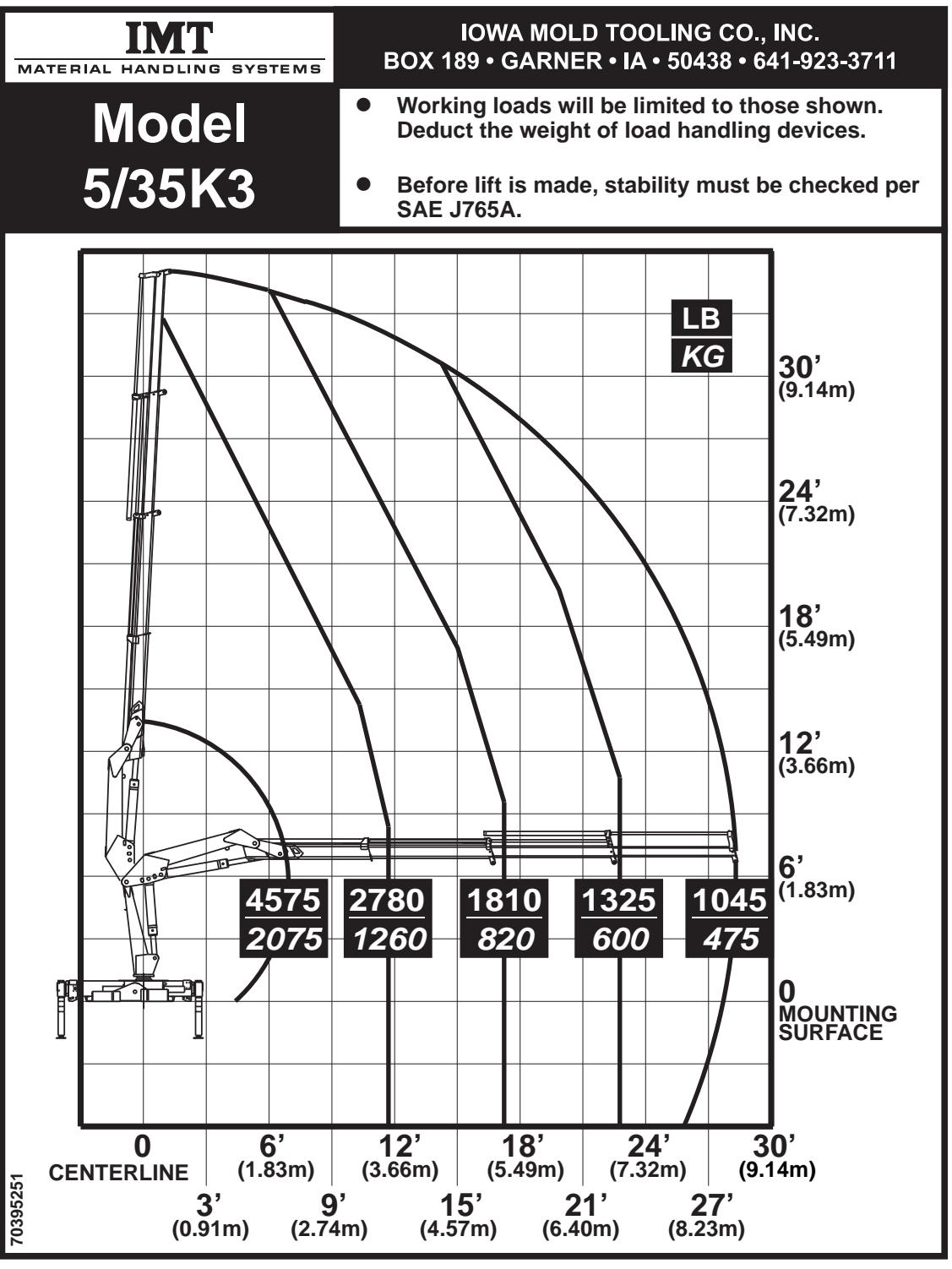
5/35K1



5/35K2



5/35K3



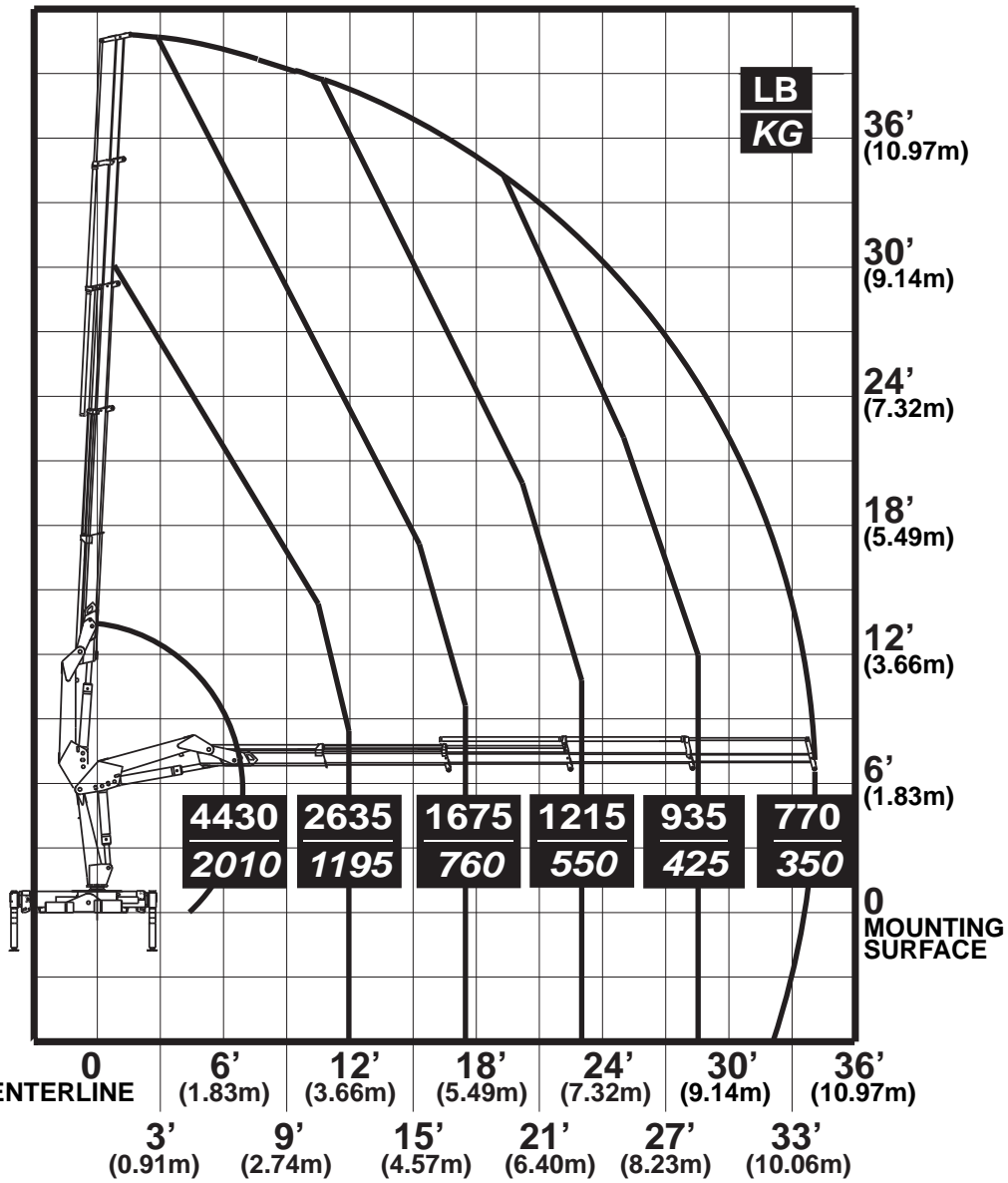
5/35K4

IMT
MATERIAL HANDLING SYSTEMS

IOWA MOLD TOOLING CO., INC.
BOX 189 • GARNER • IA • 50438 • 641-923-3711

**Model
5/35K4**

- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Before lift is made, stability must be checked per SAE J765A.



70395252

2.7 Operating the Loader

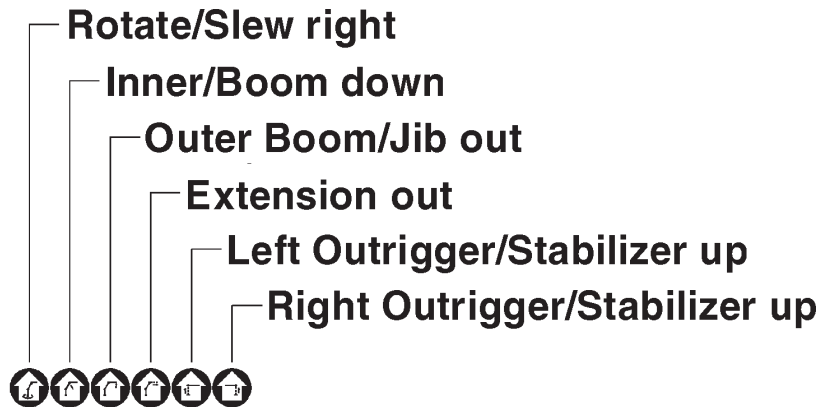
The control valves should be operated gently - especially when handling heavy loads. The working speed of the loader can be regulated by careful operation of the control valves. Jerky operation of the control levers causes the load to swing and move uncontrollably and will put unnecessary strain on the loader.

Whenever possible, the loader should be operated (by means of dual control) from the opposite side from where the load is suspended, in order to avoid personal injuries in case of accident.

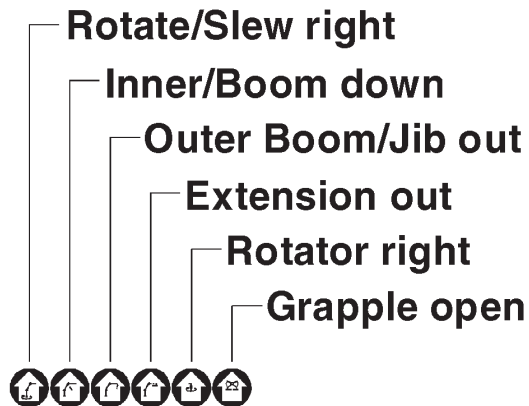
NOTE:

Maximum lifting capacity is attained by raising the main boom 10-15° above horizontal .

CONTROL PANEL Standard Loader



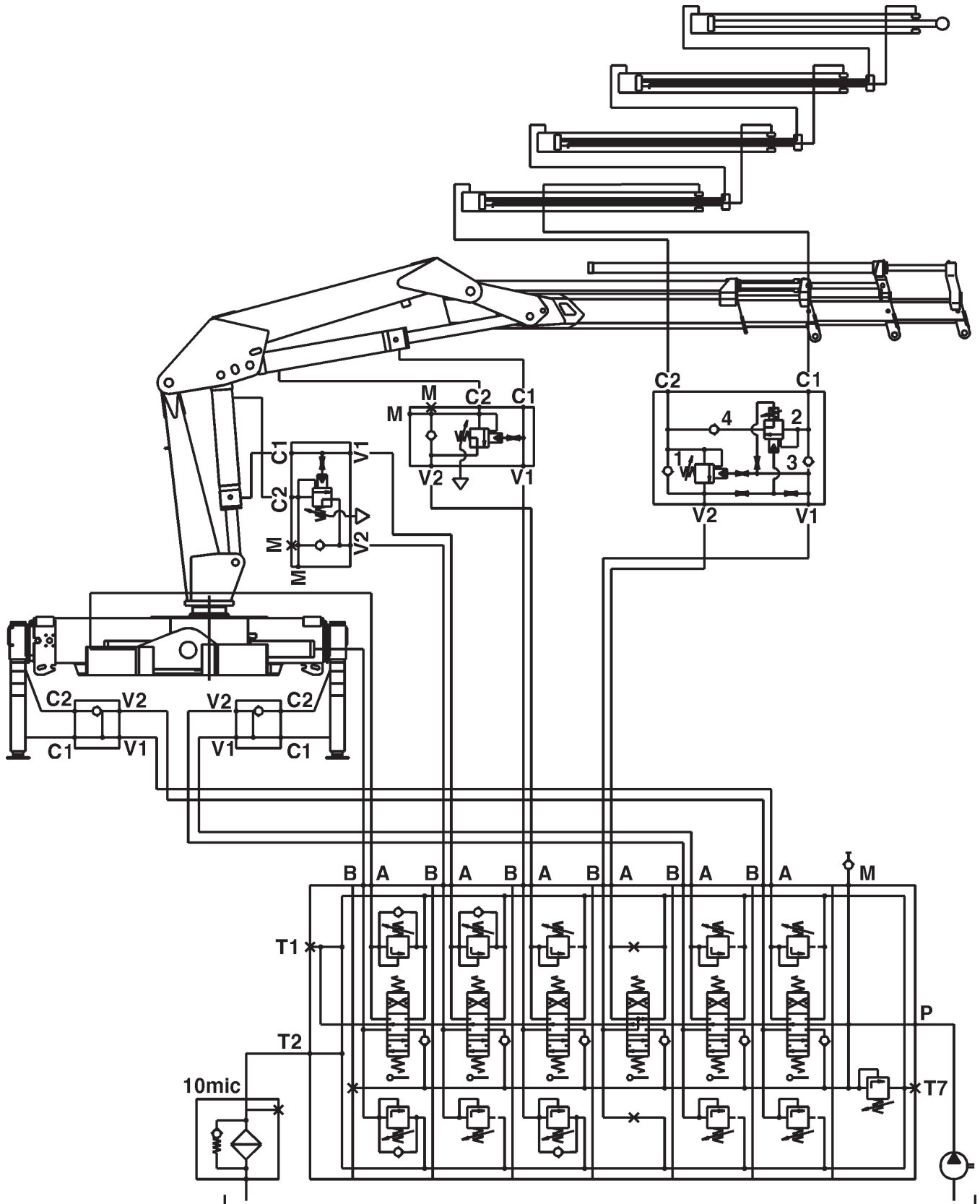
CONTROL PANEL Loader with Extra Valves



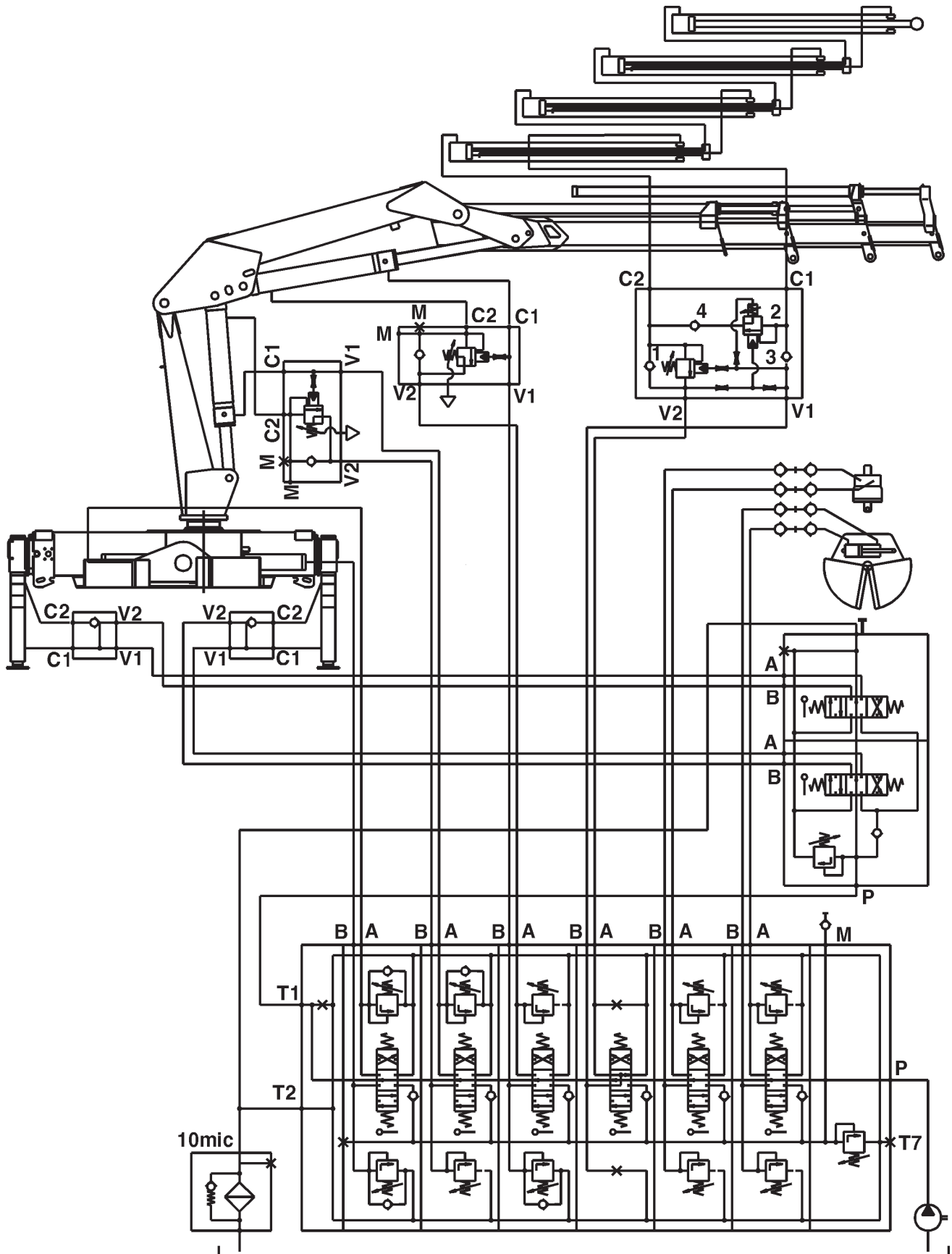
-  – Right Outrigger/Stabilizer up
-  – Left Outrigger/Stabilizer up

3.0 The Hydraulic System

3.1 Hydraulic Diagram, Standard



3.2 Hydraulic Diagram, with Extra Valves



3.3 Description of the Hydraulic System

The valve block of the loader is of the stack type which is made up of a number of separate control valves. This ensures great flexibility and low maintenance costs.

A main relief valve is fitted in the inlet section of the valve block to ensure that the oil pressure in the pump line does not exceed the permissible limit. This valve is adjustable and must always remain sealed.

Port relief valves are mounted at the ports of the individual control valves to limit the pressure in the individual circuits. Normally the port relief valves will be preset and not adjustable.

The inner, outer and extension cylinders are mounted with load holding valves with the following functions:

1. Protection of cylinders against excessive pressure.
2. Checking of the lowering speed of the boom.
3. Maintain the boom in position during operations where a fixed boom position is required.
4. To lock the boom and maintain the load in position in case of hose or pipe rupture.

The stabilizer legs are equipped with a piloted check valve that locks the cylinder in case of damage to the hydraulic system.

Important:

The main relief valve and the load holding valve on the boom cylinder are sealed. If these seals are broken or removed, the warranty will automatically be invalidated. Therefore, it is in your own interest to have the lead seals checked periodically, and to ensure that they are replaced by an authorized IMT service center should they be damaged.

Any modification or alteration to the hydraulic system must be in accordance to specific agreement with IMT and such alterations should always take place at an IMT service center.

4.0 Maintenance

4.1 Maintenance of the Loader

Careful maintenance of the loader is the best way to ensure reliable loader operation.

At regular intervals, every day or every week, depending on frequency of loader application, the following should be checked:

1. The oil level in tank/rotation system. Oil must be visible between maximum and minimum indication on the oil level glass.
2. Any defects, damage or leaks should be repaired at an authorized IMT service center as soon as they are discovered.
3. That mounting of loader to truck is safe.
4. Slide blocks and bushings reduce friction and therefore are subject to wear. Slide blocks should be replaced if excessive free play is found in the boom system. Bushings should be replaced before the metal components physically touch each other.
5. All hoses for defects.
6. That hooks, straps, latches, etc. are in good working order.
7. All lock pins and bolts for wear and tear.

In case of any warranty claims, great importance will be attached to observance of the annual service overhauls.

4.2 Lubrication intervals

| | |
|--|--|
| Base bearings | after 20 hours of operation / 1 week (whatever occurs first) |
| Extension system/ Slide blocks | after 50 hours of operation / 1 month (whatever occurs first) |
| Pin connections/ bolts | after 50 hours of operation / 1 month (whatever occurs first) |
| Stabilizer beams | as required |
| Control valves and rod connections (oil spray) | as required |

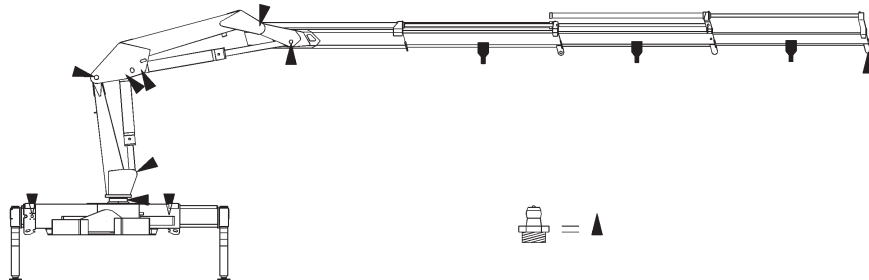
The loader should be lubricated according to the lubrication chart below.

4.3 Lubrication Chart

The rotation system should be activated, then rotate the loader from stop to stop several times within the entire rotation area while lubricating bearings in the base.

Hydraulic oil and lubrication grease are chosen according to the table in section 4.4: "Recommended Hydraulic Oil Types" and section 4.5: "Recommended Lubrication Grease".

The telescopic extensions are lubricated with a special grease, ESSO ESL 454 or LE Pyroshield 5182.



4.4 Recommended Hydraulic Oil Types

The hydraulic oil should be chosen according to the table below. If the loader is to work at temperatures below 32°F (0°C) for an extended period of time, an oil type suited to exceptionally low temperatures should be used, since it has a higher viscosity index.

Other oil types may be used provided their quality and specifications correspond to those shown.

| Oil Brand | Oil Type | Low Temp Oil Type |
|---------------------|-----------------|-------------------|
| BP | Bartran HV 32 | Bartran HV 22 |
| Castrol | Hyspin AWS 32 | Hyspin AWH 32 |
| ESSO | Nuto H 32 | Univis N 22 |
| Kuwait petroleum Q8 | Harmony 32 AW | Hydraulic L 32 |
| Mobil | DTE 13 | DTE 11 |
| Shell | Tellus S 32 | Tellus T 32 |
| Statoil | Hydra Way HM 32 | Hydra Way HV 32 |
| Texaco | Rando HD 32 | Rando HDZ 32 |

The order is alphabetical and implies no indication of quality.

In winter, 1% isopropyl alcohol may be added to the oil to avoid problems with condensation.

When operating during extreme temperatures (-40°F to +170°F / -40°C to +75°C) we recommend a hydraulic oil such as Esso Univis J26 or other brand of corresponding characteristics.

4.5 Recommended Lubrication Grease

| Grease Brand | Grease for Bearings |
|--------------|--------------------------------|
| BP | Energrease L52 |
| Castrol | LM Grease |
| ESSO | MP Grease / Beacon EP 2 |
| Mobil | Mobilux EP 2 or Mobilgrease HP |
| Shell | Retinox MS |
| Statoil | UniWay EP 2 |
| Texaco | Multifak All Purpose EP 2 |

The order is alphabetical and implies no indication of quality.

Telescopic booms should be greased with special grease Esso ESL 454, to be applied where the telescopic booms contact the slide blocks.

4.6 Filter

The return filter must be replaced after 20 hours. Then replace the filter when performing an oil change - at least once a year.

CAUTION

Absolute cleanliness is essential when filling up the oil tank, changing oil, cleaning filters, and in all other work involving the hydraulic system.

4.7 Cold Weather Start-up

When you start up your loader in cold weather, the hydraulic system, especially the pump, is exposed to more wear than at normal temperatures. In order to minimize the wear, you should follow the two general rules set out below:

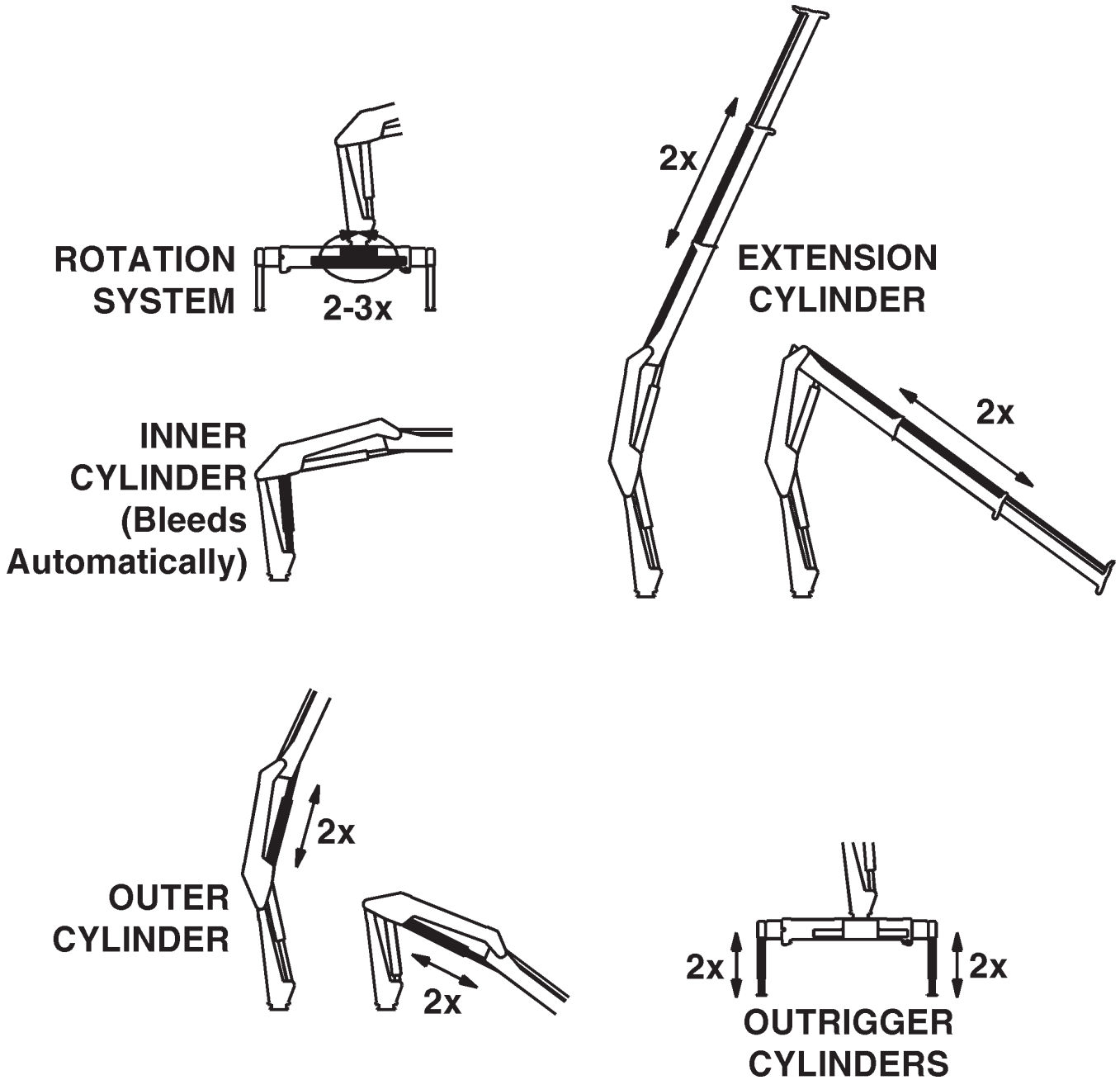
1. Engage the power take-off at low engine revolutions.
2. Let the pump circulate the oil for a few minutes before operating the loader.

4.8 Bleeding of Cylinders

If, for some reason, air has entered into the hydraulic system, the loader is bled as follows:

1. Fold the loader completely and fill the oil tank - it contains approx. 7.5 gallons (28.5 litres).
2. Bleeding procedure:

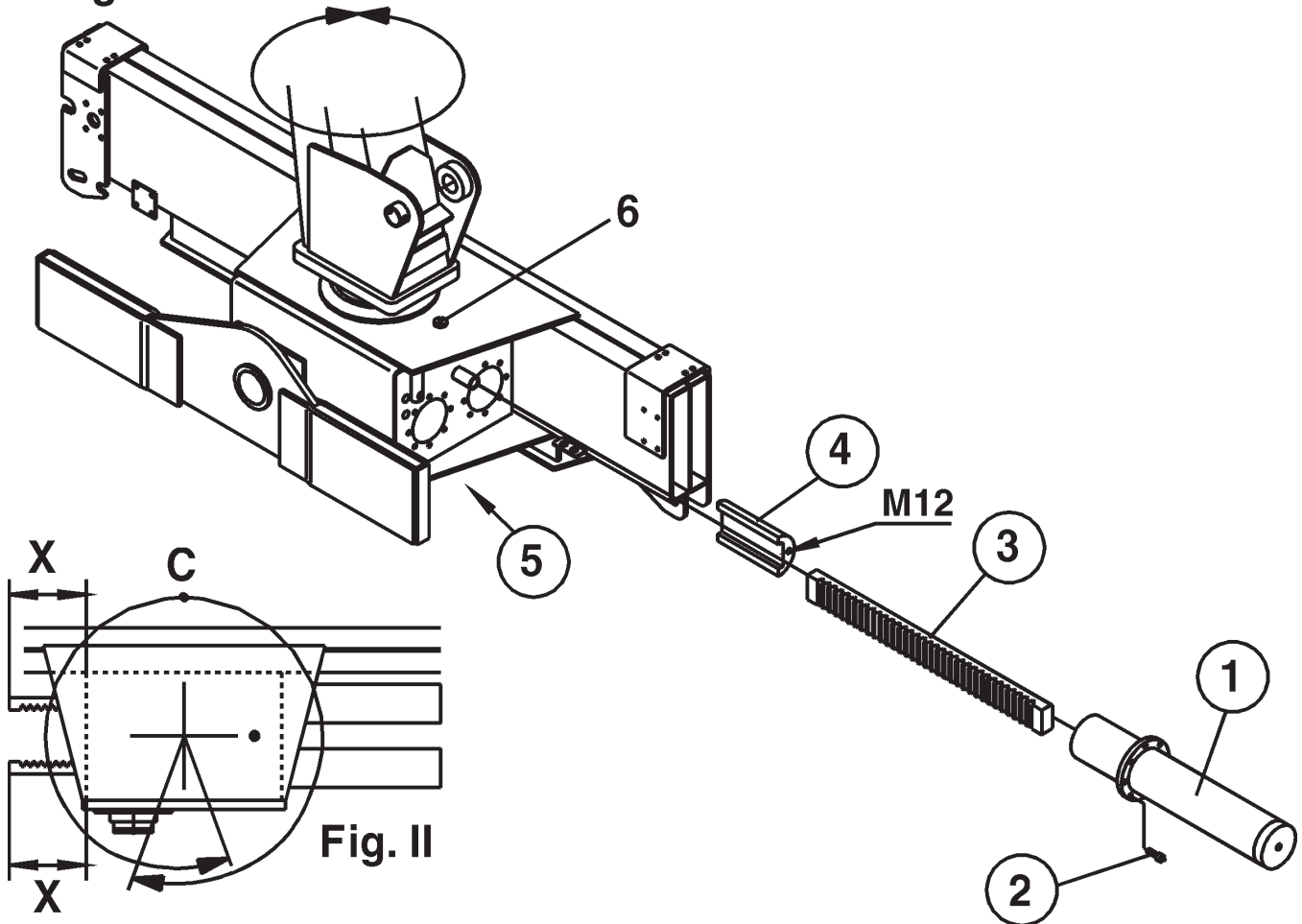
Remember to refill the oil tank after bleeding.



4.9 Change of Rotation Area

- a. Position the loader so that the rotation movement to both sides is exactly the same (neutral position).
- b. Empty the base of oil through the drain plug (5).
- c. Remove two rotation cylinders (1) on the same side.
- d. Note the distance "X". It must be the same for both racks (3). If this is not the case, the loader is not in neutral position. Check this distance again.
- e. Pull out the slide blocks (4) using the threaded hole (M12).
- f. Pull out the racks completely (3).
- g. Turn the loader mast manually to the required "C" position (Fig. II).
- h. Position the racks (3) according to item d. If the king pin and the racks do not mesh, the king pin/mast should be turned until the mesh.
- i. Place the slide blocks (4) behind the racks (3) and remount the rotation cylinders (1).
- j. Lubricate the bolts (2) with Locktite Normal or Locktite No. 242 and then remount them.
- k. Remount the drain plug (5), then add oil at the filler plug (6).

Fig. I



5.0 Loader Designation

Different loader applications apply different types of stress to the loader structure, and consequently the loaders are divided into loading groups according to application.

As standard the 5/35 (3H) loader designation describes a loader with a 5 ton-meter/35000 foot-pound load moment and utilizing 3 hydraulic extensions.

If the loader is stationary, the load moment of the loader is reduced.

6.0 Accessories

6.1 Manual Extensions

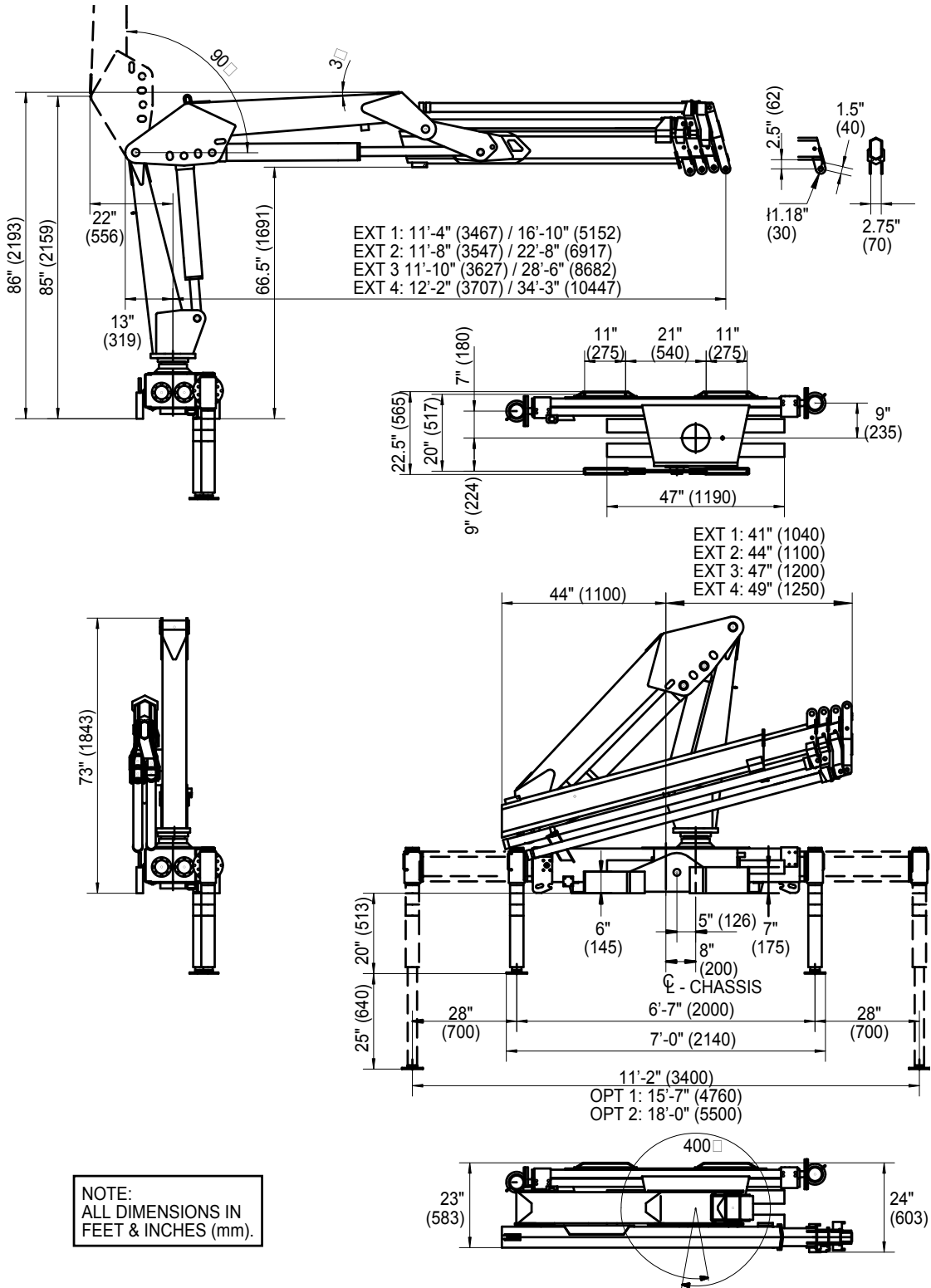
Information not available at time of printing.

NOTE

The load capacity limits indicated above for the hydraulic extensions will be reduced if the loader is mounted with manual extensions. This reduction in loader lifting capacity will correspond to the weight of the manual extensions mounted.

7.0 Technical Data

7.1 Dimensional Drawing



7.2a Technical Data (Domestic)

| Performance | Unit | 1 hyd ext | 2 hyd ext | 3 hyd ext | 4 hyd ext |
|----------------------------|----------|-----------|-----------|-----------|-----------|
| Crane Rating* | ft-lb | 35,440 | 33,270 | 31,825 | 31,100 |
| Max Horiz Reach | ft & in | 16'-9" | 22'-6" | 28'-3" | 34'-1" |
| Max Vert Reach | ft & in | 23'-4" | 29'-2" | 35'-2" | 41'-0" |
| Max. Capacity | lb | 4940 | 4760 | 4575 | 4430 |
| Max Cap@Max Reach | lb | 2115 | 1465 | 1045 | 770 |
| Crane Weight** | lb | 1630 | 1800 | 1940 | 2070 |
| Hook Approach | | | | | |
| Vertical | ft & in | 8'-0" | 7'-6" | 7'-4" | 7'-0" |
| Horizontal | ft & in | 2'-3" | 2'-7" | 2'-11" | 3'-3" |
| Center of Gravity (Stored) | | | | | |
| Vertical | inches | 22.1" | 22.3" | 22.4" | 22.6" |
| Horiz (C/L Rot-Bridge) | inches | 2.2" | 2.6" | 3.0" | 3.2" |
| Stabilizer Pad Diameter | inches | 5.5" | 5.5" | 5.5" | 5.5" |
| Crane Storage Height | ft & in | 6'-0" | 6'-0" | 6'-0" | 6'-0" |
| Mounting Space*** | inches | 23" | 23" | 23" | 23" |
| Rotation Torque | ft-lb | 7088 | 7088 | 7088 | 7088 |
| Rotation Angle | degrees | 400 | 400 | 400 | 400 |
| Optimum Pump Capacity | gpm (US) | 7 | 7 | 7 | 7 |
| System Pressure | psi | 3840 | 3840 | 3840 | 3840 |
| Oil Reservoir Capacity | gal | 9 | 9 | 9 | 9 |
| Stabilizer Extension Span | | | | | |
| Std-mnl out/hyd dn | ft & in | 11'-2" | 11'-2" | 11'-2" | 11'-2" |
| Weight | lb | 265 | 265 | 265 | 265 |
| Opt-mnl out/hyd dn | ft & in | 15'-9" | 15'-9" | 15'-9" | 15'-9" |
| Weight | lb | 340 | 340 | 340 | 340 |
| Opt-mnl out/hyd dn | ft & in | 18'-0" | 18'-0" | 18'-0" | 18'-0" |
| Weight | lb | 400 | 400 | 400 | 400 |

Minimum Chassis Specifications

| | | | | | |
|--------------------------|-------|---------|---------|---------|---------|
| Front Axle Rating (GAWR) | lb | 6000 | 6000 | 6000 | 6000 |
| Rear Axle Rating (GAWR) | lb | 12460 | 12460 | 12460 | 12460 |
| RBM | in-lb | 540,000 | 540,000 | 540,000 | 540,000 |

* Maximum Crane Rating (ft-lbs) is defined as that rated load (lbs) which when multiplied by its respective distance (ft) from centerline of rotation gives the greatest ft-lb value.

** Crane weight excluding stabilizers.

*** Additional mounting space of 11" will be required to provide crane rotational clearance.

7.2b Technical Data (Metric)

| Performance | Unit | 1 hyd ext | 2 hyd ext | 3 hyd ext | 4 hyd ext |
|----------------------------|------------|-----------|-----------|-----------|-----------|
| Crane Rating* | ton-m | 4.9 | 4.6 | 4.4 | 4.3 |
| Max Horiz Reach | m | 5.1 | 6.9 | 8.6 | 10.4 |
| Max Vert Reach | m | 7.1 | 8.9 | 10.7 | 12.5 |
| Max. Capacity | kg | 2240 | 2160 | 2075 | 2010 |
| Max Cap@Max Reach | kg | 960 | 665 | 475 | 350 |
| Crane Weight | kg | 740 | 815 | 880 | 940 |
| Hook Approach | | | | | |
| Vertical | m | 2.4 | 2.3 | 2.2 | 2.1 |
| Horizontal | m | 0.7 | 0.8 | 0.9 | 1.0 |
| Center of Gravity (Stored) | | | | | |
| Vertical | mm | 561 | 566 | 570 | 573 |
| Horiz (C/L Rot-Bridge) | mm | 57 | 67 | 75 | 81 |
| Stabilizer Pad Diameter | mm | 140 | 140 | 140 | 140 |
| Crane Storage Height | m | 1.8 | 1.8 | 1.8 | 1.8 |
| Mounting Space | mm | 584 | 584 | 584 | 584 |
| Rotation Torque | ton-m | 1 | 1 | 1 | 1 |
| Rotation Angle | degrees | 400 | 400 | 400 | 400 |
| Optimum Pump Capacity | liters/min | 26 | 26 | 26 | 26 |
| System Pressure | bar | 265 | 265 | 265 | 265 |
| Oil Reservoir Capacity | liters | 34 | 34 | 34 | 34 |
| Stabilizer Extension Span | | | | | |
| Std-mnl out/hyd dn | m | 3.4 | 3.4 | 3.4 | 3.4 |
| Weight | kg | 120 | 120 | 120 | 120 |
| Opt-mnl out/hyd dn | m | 4.8 | 4.8 | 4.8 | 4.8 |
| Weight | kg | 154 | 154 | 154 | 154 |
| Opt-mnl out/hyd dn | m | 5.5 | 5.5 | 5.5 | 5.5 |
| Weight | kg | 181 | 181 | 181 | 181 |

Minimum Chassis Specifications

| | | | | | |
|--------------------------|-------|------------|------------|------------|------------|
| Front Axle Rating (GAWR) | lb/kg | 6000/2720 | 6000/2720 | 6000/2720 | 6000/2720 |
| Rear Axle Rating (GAWR) | lb/kg | 12460/5650 | 12460/5650 | 12460/5650 | 12460/5650 |
| RBM | in-lb | 540,000 | 540,000 | 540,000 | 540,000 |

* Maximum Crane Rating (ton-m) is defined as that rated load (ton) which when multiplied by its respective distance (m) from centerline of rotation gives the greatest ton-m value.

** Crane weight excluding stabilizers.

*** Additional mounting space of 280mm will be required to provide crane rotational clearance.

7.3a Working pressure-5/35 (domestic)

Working pressure on main-relief valve & port-relief valves

| Function | | Unit | |
|---------------------|------|------|------|
| Main-relief valve | | PSI | 3842 |
| Stabilizer legs | up | PSI | 2537 |
| | down | PSI | 2537 |
| Rotation cylinder | | PSI | 2175 |
| Inner boom cylinder | up | PSI | 3842 |
| | down | PSI | 1450 |
| Outer boom cylinder | up | PSI | 3842 |
| | down | PSI | 2175 |
| Extension cylinder | out | PSI | 3842 |
| | in | PSI | 3842 |

Opening pressure on load holding valves

| | | | |
|---------------------|---------|-----|------|
| Inner boom cylinder | | PSI | 4277 |
| Outer boom cylinder | | PSI | 4350 |
| Extension cylinder | retract | PSI | 6235 |
| | extend | PSI | 3045 |

Pressure setting for load moment limitation

| | | | |
|-----|--|-----|------|
| LMB | | PSI | 3697 |
|-----|--|-----|------|

7.3b Working pressure-5/35 (metric)

Working pressure on main-relief valve & port-relief valves

| Function | | Unit | |
|---------------------|------|------|------|
| Main-relief valve | | MPa | 26.5 |
| Stabilizer legs | up | MPa | 17.5 |
| | down | MPa | 17.5 |
| Rotationcylinder | | MPa | 15.0 |
| Inner boom cylinder | up | MPa | 26.5 |
| | down | MPa | 10.0 |
| Outer boom cylinder | up | MPa | 26.5 |
| | down | MPa | 15.0 |
| Extension cylinder | out | MPa | 26.5 |
| | in | MPa | 26.5 |

Opening pressure on load holding valves

| | | | |
|---------------------|---------|-----|------|
| Inner boom cylinder | | MPa | 29.5 |
| Outer boom cylinder | | MPa | 30.0 |
| Extension cylinder | retract | MPa | 43.0 |
| | extend | MPa | 21.0 |

Pressure setting for load moment limitation

| | | | |
|-----|--|-----|------|
| LMB | | MPa | 25.5 |
|-----|--|-----|------|

1 MPa = 10 bar

8.0 Repair

If your loader needs repair, always use an authorized IMT service center. When ordering spare parts, please state:

- Loader type (5/35)
- Serial number
- The part number of the spare part required.

If you do not have a spare parts catalogue, you may place your order with your nearest IMT dealer.

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